MTI Report 01-18

The California General Plan Process and Sustainable Transportation Planning

MAY 2002

Richard W. Lee
Paul Wack
Judy Deertrack
Scott Duiven
Lisa Wise

a publication of the
Mineta Transportation Institute
College of Business
San José State University
San Jose, CA 95192-0219
Created by Congress in 1991

Technical Report Documentation Page

1. Report No. FHWA/CA/OR-2001-30	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle The California General Plan Process and Sustainable Transportation Planning		5. Report Date May 2002 6. Performing Organization Code
7. Authors Richard W. Lee, Paul Wack, Judy Deertrack, Scott Duiven, & Lisa Wise		8. Performing Organization Report No. 01-18
9. Performing Organization Name and Address Norman Y. Mineta International Institute for Surface Transportation Policy Studies College of Business, San José State University San Jose, CA 95192-0219		10. Work Unit No. 11. Contract or Grant No. 65W136
12. Sponsoring Agency Name and Address California Department of Transportation Sacramento, CA 95819	U.S. Department of Transportation Research and Special Programs Administration 400 7th Street, SW Washington, DC 20590-0001	13. Type of Report and Period Covered Final Report 14. Sponsoring Agency Code

15. Supplementary Notes

This research project was financially sponsored by the U.S Department of Transportation's Research and Special Programs Administration and by the California Department of Transportation (Caltrans).

16. Abstract

This study reviewed the current and potential utility of California's General Plan process as a tool for promoting more sustainable local transportation systems

The study used multiple methods to investigate this issue, including:

- An extensive literature review on California's General Plan process, the nature of sustainability and sustainable transportation, and criteria and evaluation methods for plans.
- Detailed analysis and scoring of policies from 26 exemplary General Plans against criteria designed to measure both transport sustainability and plan quality.
- In-depth case studies of the General Plan process in seven diverse California communities.
- Key informant interviews.

The results of these several lines of analysis and inquiry were synthesized into a series of observations, conclusions and recommendations. Chief among these are the desirability of encouraging more frequent General Plan updates, the need for greater emphasis on implementation of plan policies, and the need for and utility of educational and outreach efforts aimed at enhancing the proliferation of General Plan policies that promote more sustainable transportation systems at the local level.

17. Key Words land use planning, planning methods, public administration, public policy sustainable development	18. Distribution Statement No restrictions. This document is available to the public through the National Technical Information Service, Springfield, VA 22161		
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 277	22. Price $15.00

Form DOT F 1700.7 (8-72)

Library of Congress Catalog Card Number: 2001095734

To order this publication, please contact the following:

The Mineta Transportation Institute
College of Business—BT550
San José State University
San Jose, CA 95192-0219
Tel (408) 924-7560
Fax (408) 924-7565
E-mail:mti@mti.sjsu.edu
http://transweb.sjsu.edu

ACKNOWLEDGMENTS

We would like to thank the many persons and organizations that greatly assisted in the preparation of this report. The MTI Project Team consisted of Dr. Richard W. Lee, Principal Investigator, and Paul Wack, Research Associate. Another Mineta Research Associate, Steve Colman provided the first level peer-review. Three highly capable student assistants Scott Duiven, Susan Law, and Lisa Wise were also essential members of the team, taking the lead and otherwise playing key roles on survey administration and analysis, compilation of the plan scoring, and development of survey and scoring as well of the project library and workspace. Judy Deertrack contributed her legal knowledge and skills to the review of the literature.

Many other students contributed to the project: Kris Szlawkowski provided assistance in development of computer databases. The graduate students in Cal Poly's Quantitative Planning Methods course (Winter 2001) assisted with the plan scoring. Chandra Slaven performed the GIS analysis of the Central Valley General Plans' residential densities. Gemma Justimbaste Iturribe contributed to the literature review on the origins of sustainable development. Suzanne Drolet contributed the San Diego case study, and together with Shandell Healy, helped pull the pieces of the report together.

Special appreciation is also due:

- The many interviewees as well as the more than 120 planning directors and deputies who completed a web-based survey;
- The staff of the Office of Planning and Research, for basis of the survey mailing list;
- The Government Documents Department of the Robert E. Kennedy Library at Cal Poly, particularly Melissa Mertogul, for plan collection and other help;
- All of our faculty colleagues at Cal Poly for their ideas and inspiration;
- Professor Phil Berke, University of North Carolina, Chapel Hill, and Professor Maria Manta Conroy, Ohio State University, for valuable ideas and guidance; and
- All who agreed to be interviewed, provided documents, or assisted the case studies in other ways.

And last, but not least, we would like to thank MTI Researh Director Trixie Johnson, Research and Publications Assistant Sonya Cardenas, Graphic Designer Shun Nelson, and Editorial Associates Catherine Frazier, Robyn Whitlock, and Jimmie Young for editing and publishing assistance.

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1
OVERVIEW 1
SUMMARY OF KEY TASKS AND FINDINGS 1
CONCLUSION OF THE SUMMARY 5

OVERVIEW: GENERAL PLANS AND SUSTAINABLE TRANSPORTATION 7
INTRODUCTION: DESCRIPTION OF THE PROJECT 7
CALIFORNIA'S GENERAL PLAN PROCESS 11
SUSTAINABILITY AND THE OPR GUIDELINES 13
APA POLICY GUIDE ON PLANNING FOR SUSTAINABILITY 14
WORKING DEFINITIONS OF SUSTAINABLE TRANSPORTATION PLANNING 18

SCORING GENERAL PLAN ELEMENTS 35
PLAN COLLECTION AND SELECTION 35
METHODOLOGY AND AIMS OF THE PLAN SCORING 37

SURVEY OF PLANNING DIRECTORS 45
SURVEY RATIONALE AND METHOD 45
SURVEY RESULTS 47
PLANNING DIRECTORS' COMMENTS ON THE GENERAL PLAN, SUSTAINABILITY, AND SUSTAINABLE TRANSPORTATION 69

CASE STUDIES 77
CASE STUDY OVERVIEW 77
THE CASE STUDIES 80
THE ARCATA CASE STUDY 81
THE CITY OF DAVIS CASE STUDY 84
THE PETALUMA CASE STUDY 94
THE SAN FRANCISCO CASE STUDY 106
THE CITY OF SAN LUIS OBISPO CASE STUDY. 124
THE CITY OF SANTA MONICA: A BRIEF CASE STUDY 132
SAN DIEGO CASE STUDY: CITY, COUNTY AND REGION . . 140
IN THE BEGINNING 141

THE LEGACY 141
THE REGIONAL CONTEXT 146

OBSERVATIONS AND RECOMMENDATIONS 155
INTRODUCTION 155
OBSERVATIONS 161
RECOMMENDATIONS 163
CONCLUSION 165

LITERATURE REVIEW 167
INTRODUCTION 167
SECTION I: A REVIEW OF SUPREME COURT AND APPELLATE COURT CASES ON THE NATURE OF THE GENERAL PLAN 181

APPENDIX A 197

APPENDIX B 199

APPENDIX C 233
ELECTRONIC MAIL SURVEY INVITATION, SENT TO PLANNING DIRECTORS (JANUARY 2001) 233
PLANNING DIRECTOR SURVEY 234

APPENDIX D: ANALYSIS OF GENERAL PLAN DENSITIES, 23 CENTRAL VALLEY CITIES AND COUNTIES 241

BIBLIOGRAPHY 247

GENERAL PLAN SAMPLES 259

ABBREVIATIONS AND ACRONYMS 267

ABOUT THE AUTHORS 269

EXECUTIVE SUMMARY

OVERVIEW

This research project assesses California's General Plan process as a tool for implementing sustainable development, with particular emphasis on transportation systems at the local level, including the relationship of local transportation systems to regional and statewide systems. The emphasis on local transportation follows from the fact that California law requires General Plans, master plans of anticipated future physical development, only for local governments, i.e. California's 58 counties and nearly 500 cities.

The General Plan process is well established in California, and transportation plans (termed circulation elements) have been an essential part of General Plans from the early 20th century, and a legally mandated element since 1955 (OPR, 1998, 9). Sustainable development is a concept that is now 30 years old; it may be summed up in the phrase *providing for present needs without compromising the ability of future generations to provide for theirs.* As a major consumer of non-renewable resources, and a major contributor to air, water, and noise pollution, transportation clearly poses challenges to sustainability.

Despite the long established history of the General Plan, transportation planning and the sustainability concept, and despite the high level of interrelatedness among these concepts, very few efforts have been made to look at this interrelatedness. In this respect, this is a pioneering work with few precedents to build upon.

SUMMARY OF KEY TASKS AND FINDINGS

The work program was divided into several major tasks. The following sections summarize of these tasks and resulting key findings.

Task 1: Literature Review

Relevant literature was reviewed aimed at reaching an operational definition of "Sustainability," and "Sustainable Transportation." The literature review also documented the nature of the California process, including recent legal developments. The definition provided a foundation for evaluating key General Plan elements, particularly circulation, land use, and housing. The operational definition of sustainable transportation and key principles and criteria for effective General Plan policy are reproduced as Tables ES-1 and ES-2.

Table ES-1. Transportation Sustainability Principles

Principle A: *Efficiently* and *equally* serve (be subordinate to) the community's comprehensive economic, environmental and equity goals. ***Example: All transportation projects shall be designed and implemented to facilitate and assist the County's Growth Management programs.***

Principle B: Promote self-sustaining (financing) systems wherein users (benefactors) pay the full costs of system construction, operation and expansion. ***Example: Downtown parking expansion should be funded by parking charges.***

Principle C: Promote and enhance more environmentally-friendly transportation modes (essentially any modes other than single-occupant autos). ***Example: The city will require comprehensive pedestrian and bicycle networks in all new neighborhoods.***

Principle D: Reduce use of and dependence on conventional automobiles***. Example: Automobile traffic within the City's historic commercial districts shall be discouraged.***

Principle E: Reduce the need for travel in general. ***Example: To lower travel demand, new housing should incorporate infrastructure and provisions to facilitate telecommuting and other home-based work.***

Principle F: Make all transportation modes more environmentally sound, without attempting to change the market share of different modes. ***Example: Newly-purchased buses and other city vehicles should have lower emissions than the vehicles that they replace.***

Table ES-2. Characteristics of Effective General Plan Policies

1. Effective policy should be explicit and directive; if not mandatory.
2. Effective policy should entail incentives that make it likely to be implemented.
3. Effective policy should be clearly expressed, understandable and accessible to those who must implement it or are affected by it.
4. Effective policy should be based on *and* make explicit reference to a substantial factual basis (e.g. a technical study, data base or model.
5. Effective policy should be explicitly linked to performance standards or indicators enabling the policy's results to be monitored.

Task 2: Plan Collection and Scoring

The team, with the assistance of the staff of the California Polytechnic State University (Cal Poly) Robert E. Kennedy Library, collected over 400 California General Plans and assessed key elements of 26 General Plans. Exemplary plans were sought that have actively incorporated sustainability principles. The focus was upon General Plan policies. The selected plans were assessed using a scoring protocol (a step-wise, rule-based qualitative and quantitative ranking procedure) of polices contained in the circulation, land use, and housing elements.

It was found that most policies focus on promotion of alternative modes. Most policies are articulated only in the circulation or transportation element of the General Plan. The land use elements contain far fewer policies supporting sustainable transportation, and housing elements examined contained almost no such policies. Moreover, most plan policies depend on voluntary rather than mandatory or incentive-based implementation measures.

Task 3: Planning Directors' Survey

The team conducted a survey of local planning directors to determine attitudes toward sustainability and sustainable transportation, and to discover issues, strategies, and policies not yet incorporated into the General Plan documents. This recognizes that California has many jurisdictions still "in process" regarding development of their General Plan.

The survey found that California's planning directors feel that planning for sustainability is very important and that the General Plan and its key elements are potentially important tools for both sustainability and sustainable transportation. Only a small minority believe their current General Plan reflects sustainability principles to a major extent, and only a slightly larger minority believes that their next update will reflect sustainability principles. Planning directors are most supportive of definitions of transportation sustainability that focus on shifts from single-occupant autos to other modes. Conceptualizations of sustainable transport that focus on full-cost pricing of transportation, reducing travel demand, and reducing environmental impacts of all transportation via technology drew significantly less support.

Planners typically feel that their own staffs are major forces for sustainable planning and sustainable transportation. Public education and shifts in public values—together with more research into sustainable transportation—are viewed as necessary prerequisites to full implementation of sustainable transportation systems in California.

Task 4: Case Studies

Seven case studies were conducted on selected jurisdictions with exemplary or instructive plans and planning processes. These case studies were supplemented by key informant interviews with others familiar with General Plans and transportation. This allowed a greater in-depth review of General Plan effectiveness, and its relationship to sustainability. The case studies indicate a wide variety of experiences with and uses of the General Plan, with the following standing out as consensus lessons:

- General Plans take a long time to prepare and take even longer to implement, and thus require a sustained community commitment to achieve success.
- Sustainable programs and practices can occur without benefit of a new General Plan with explicit policies and implementation measures.
- Sustainable transportation requires a holistic, multi-modal approach to community mobility, including pedestrian, bicycle, transit, and automobile use. In general, reduction in the use of the automobile is necessary.
- Sustainable transportation also entails simultaneous inter-related planning for resource conservation, air quality, land use, housing, design, and other community conditions related to mobility.

- Sustainable transportation requires a regional approach and cooperation among neighboring communities.
- Sustainability in general requires community consensus and inclusion, together with a public education process to build a long
- term constituency.

The case studies also indicate that some communities use sustainable principles as a method to control urban growth (getting bigger) over positive development (getting better). There seems no inherent reason why the same policies and practices can't be applied to more development oriented local governments ("smart growth").

CONCLUSION OF THE SUMMARY

The results of these several lines of analysis and inquiry were synthesized into a series of observations, conclusions, and recommendations. Chief among these are: the desirability of encouraging more frequent General Plan updates; the need for greater emphasis on implementation of plan policies; and the need for, and utility of, educational and outreach efforts aimed at enhancing the proliferation of General Plan policies that promote more sustainable transportation systems at the local level.

OVERVIEW: GENERAL PLANS AND SUSTAINABLE TRANSPORTATION

INTRODUCTION: DESCRIPTION OF THE PROJECT

This research project assesses California's General Plan process as a tool for implementing sustainable development, with particular emphasis on transportation systems at the local level, including the relationship of local transportation systems to regional and statewide systems. The emphasis on local transportation follows from the fact that California law requires General Plans—master plans of anticipated future physical development—only for local governments, i.e. California's 58 counties and nearly 500 cities.

The General Plan process is well established in California, and transportation plans (termed circulation elements) have been an essential part of General Plans from the early 20th century, and a legally mandated element since 1955 (OPR, 1998, p. 9). Sustainable development is a concept that is now 30 years old; it may be summed in the phrase *providing for present needs without compromising the ability of future generations to provide for theirs.* As a major consumer of non-renewable resources, and a major contributor to air, water, and noise pollution, transportation clearly poses challenges to sustainability.

Despite the long established history of the General Plan, transportation planning and the sustainability concept, and despite the high level of interrelatedness among these concepts, very few efforts have been made to look at this interrelatedness. In this respect, this is a pioneering work with few precedents to build upon.

The work program was divided into several major tasks:

Task 1: Relevant literature was reviewed aimed at reaching an operational definition of "sustainability," and "sustainable transportation." The literature review also documented the nature of the California process, including recent legal developments. The definition provided a foundation for evaluating key General Plan elements, particularly circulation, land use, and housing.

Task 2: The team, with the assistance of Cal Poly's Robert E. Kennedy Library, collected over 400 California General Plans and assessed key elements of 26 General Plans. Exemplary plans were sought, including those that have actively incorporated sustainability principles. The study team also searched

for model elements and language. The focus was upon General Plan policies. The selected plans were assessed using a scoring protocol (a step-wise, rule-based qualitative and quantitative ranking procedure) of polices contained in the circulation, land use, and housing elements.

Task 3: The team conducted a survey of local planning directors to determine attitudes toward sustainability and sustainable transportation, and to discover issues, strategies, and policies not yet incorporated into the General Plan documents. This recognizes that California has many jurisdictions still "in process" regarding development of their General Plan.

Task 4: Five major and several minor case studies and key informant interviews were conducted on selected jurisdictions with exemplary or instructive plans and planning processes. This allowed a greater in-depth review of General Plan effectiveness and its relationship to sustainability.

Owing to a short timeline of only seven months, these tasks were not strictly sequential, though the tasks were begun in the order listed. The remainder of the project entailed devising model guidelines and recommendations for practices that can enhance the General Plan process as a vehicle for transportation sustainability.

Purpose of This Chapter

This chapter summarizes key documents and findings from the literature review on four related areas: sustainability; General Plans; plan quality and effectiveness; and sustainability and transportation. The overall goal was to operationally define sustainability and sustainable transportation.

This introductory chapter is not the full literature review, which is contained in Chapter Six. Instead, this chapter concentrates on the definition of sustainability in terms of General Plan policy approach focusing on sources that are landmarks in the planning field. These key sources are listed in Table 1-1 below by subtopic.

Table 1-1 Key Literature by Topic

The General Plan and Sustainability:
General Plan Guidelines for California, Governor's Office of Planning and Research (OPR). 1998.
APA Policy Guide on Planning for Sustainability, 2000.
Plan Quality and Effectiveness
Baer, William. "General Plan Evaluation Criteria" 1997.
Mazmanian, D. A., & Sabatier, P. A. *Implementation and Public Policy*, 1983.
Sustainability and Planning:
Berke and Manta Conroy, "Are We Planning for Sustainable Development?"
Campbell, Scott. *Green Cities, Growing Cities, Just Cities*. 1996.
Transportation Sustainability:
Newman, Peter, and Jeffrey Kenworthy. *Sustainability and Cities: Overcoming Automobile Dependence*
Litman, Todd. "Reinventing Transportation," Victoria Transport Policy Institute, 2000.
California Air Resources Board (ARB) Research Report, *Transportation-Related Land Use Strategies to Minimize Motor Vehicle Emissions*, 1995.

These primary sources form the basis for our examination of sustainability and for the criteria used in the General Plan review and scoring. It also provides a theoretical underpinning for survey and case study components of the research.

The aim was not to simply duplicate existing sustainability criteria already published, since these for the most part were not developed with the specifics

of the California General Plan process nor transportation planning in mind. Our goal was instead to conduct a critical examination of sustainability definitions and criteria currently extant in the light of the legislatively established California General Plan process; the literature on plan quality and plan implementation; and the literature on sustainability and sustainable transportation.

Sustainability terminology now appears to be inextricably interwoven into mainstream planning, along with newer related (and arguably, subordinate) concepts, such as “smart growth,” “New Urbanism,” traffic calming, and other planning phenomenon. The planning field has assumed that such design concepts, which typically entail mixed land use, compact growth, and alternative transportation provision, will make significant inroads on alleviating adverse environmental and cultural conditions. Though there is insufficient documentation regarding actual results to convince all observers, there is good reason to assume these assumptions are valid and will be effective over time.

But it is less valid and more dangerous to assume that by placing the “magic words” like “sustainability” in the General Plans of cities and counties, our jurisdictions can reconcile the serious conflicts that now exist between growth and the environment.

The overall study is a close look at the General Plan and its effectiveness as the policy backbone for more sustainable transportation, land use, and planning decisions. But there are larger questions that this study must begin (if only begin) to address: If the General Plan is a visionary statement, will the vision hold against the pressures of unforeseen change? As a policy document, can General Plan policy be written to effectively guide implementation? Can the General Plan cope with transportation needs as they occur at the differing levels of neighborhood, local jurisdiction, region, and state?

This chapter will highlight key literature and authors. It will address how the planning profession looks at sustainability as a concept, both generally and in the transportation field. It will inspect suggested criteria and relate them to policy development. It is the first step toward answering the larger question of how California might adapt the General Plan process to better promote transportation systems that help establish livable and accessible communities in the truly long term.

CALIFORNIA'S GENERAL PLAN PROCESS

By statute, California's General Plan functions as the "constitution for all future development" (52 Cal 3d 531, 553, 1990). California law requires each planning jurisdiction to adopt a General Plan "for the physical development of the county or city, and any land outside its boundaries which…bears relation to its planning" (GC Section 65300). In addressing physical development, the jurisdiction must consider locations, appropriate mixtures, timing, and extent of land uses and supporting infrastructure (Office of Planning and Research (OPR) *Guidelines*, 1998, p.12).

To assist local governments in meeting the responsibility, Government Code 65040.2 directs the Governor's Office of Planning and Research (OPR) to adopt *discretionary* guidelines. These were last comprehensively updated in 1998. Though they are termed guidelines, the OPR recommendations frequently incorporate provisions of California statutory and case law that are mandatory and strictly construed. The recommendations also incorporate "commonly accepted principles of contemporary planning practice."

There are seven required elements of the General Plan. They are land use, circulation, housing, conservation, open-space, noise, and safety. A jurisdiction can add optional elements. Once adopted, these optional elements have equal legal status to the remainder. This study focuses on the first three, which are described by OPR (1998, p.18) as follows:

- **The land use element** designates the type, intensity, and general distribution of uses of the land for housing, business, industry, open-space, education, public buildings and grounds, waste disposal facilities, and other categories of public and private uses.
- **The circulation element** is correlated with the land use element and identifies the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities.
- **The housing element** is a comprehensive assessment of current and projected housing needs for all segments of the jurisdiction and all economic groups. In addition, it embodies policies for providing adequate housing and includes action programs for that purpose. By statute, the housing element must be updated every five years.

The statutes and OPR Guidelines make much of the need for *consistency* in the creation of a General Plan. The General Plan and its elements must comprise an *integrated, internally consistent, and compatible statement of policies* for the adopting agency (GC 65300.5). The elements have equal legal status between them. Consistency is measured *between* elements and *within* elements. Both text and diagrams must be consistent.

Constituent Parts: Each element of the General Plan consists of constituent parts that are defined by code. Development policy is addressed in the plan, and is worked out through the transition between objectives, policies, standards, and implementation measures.

Objectives: The highest abstractions are defined by OPR as objectives, which serve as "future goals for the general welfare." Typically objectives are end-state conditions that are at once desirable and measurable: Some commentators (e.g., Kaiser et al, 1995) distinguish intangible *goals* from more tangible and measurable objectives. "Quiet residential streets" would be a goal under this distinction, whereas specifying a maximum acceptable decibel level for residential areas would be an objective.

Policy: Policy is more specific than an objective. A policy is a commitment toward a particular course of action. It must be clear and unambiguous, leading to specific standards and strategic implementation. "Solid policy is based on solid information. The *analysis of data collected during the planning process* provides local officials with a knowledge of trends, existing conditions and projections they need to formulate policy" (OPR, 1998, p. 16).

"The City shall not approve plans for downtown parking until an independently conducted market study establishes feasibility."

Standards: Standards set measures that *quantify, qualify, and/or rank* the abstract terms of objectives and policies. Example: A minimally acceptable peak hour level of service for an arterial street is level of service C.

Implementation Measure: An implementation measure is an action, procedure, program or technique that carries out General Plan policy. In California, each policy must have at least one corresponding implementation measure. Example: The city shall use tax increment financing to pay the costs of replacing old sidewalks (OPR Guidelines, p.16).

In conclusion, the OPR Guidelines and California statutory and case law set out the framework for planning under the General Plan. Regulatory requirements are the bare minimum of what planners must consider when using the General Plan to create communities. State law gives a great deal of responsibility—and allows many options—to localities regarding how they choose to address the complex needs of communities, their transportation infrastructure demands, and natural resource issues.

SUSTAINABILITY AND THE OPR GUIDELINES

The OPR Guidelines have been written to guide cities and counties when they prepare the comprehensive, long-term General Plan for the development of their communities. Though the *Guidelines* are advisory, the document "is the state's only official document interpreting and explaining California's legal requirements for General Plans" (OPR *Guidelines*, 1998, p. 8).

"Sustainability," when it is incorporated into a plan, functions as a *principle*, or the *"assumption, fundamental rule or doctrine guiding General Plan policies, proposals, standards and implementation measures"* (OPR, 1998, p.15). As such, sustainability is a choice, or series of policy choices, that penetrates the plan orientation. The State of California and OPR do not mandate or suggest any distinct orientation to sustainability.

The OPR Guidelines define sustainable development as follows:

> Sustainable development is an *integrated, systems approach to development***,** which attempts to maximize the efficient and effective long-range management of land, community, and resources. Sustainable development principles may be applied to the overall development, specific policies and programs, and/or the implementation of the General Plan.
>
> …its basic principle is to provide for today's needs while ensuring that future generations have the resources available to meet their own needs. To achieve this, sustainable development must *balance* economic prosperity, social equity, and environmental integrity (OPR, 1996, p.178).

The OPR Guidelines consider the General Plan an excellent vehicle for implementing local sustainable development goals. It suggests that this can be done piecemeal throughout the plan, or through development of overall guidelines in the introduction of the plan. It sets no requirements or recommendations.

In the sustainability discussion, the guidelines define the "New Urbanism," as encompassing principles that emphasize:

> …compact development at urban densities; clustered, mixed-use commercial districts; distinct, cohesive neighborhoods with a mixture of residential densities and other compatible land uses; pedestrian scale (including narrow roadways and pedestrian access); urban open-spaces, parks, and civic buildings as community foci; and transit connections (OPR,180).

The OPR discussion of these principles are mentioned because these principles have come to dominate the theoretical orientation of the planning profession regarding sustainability, particularly in the area of transportation.

APA POLICY GUIDE ON PLANNING FOR SUSTAINABILITY

This is a landmark document, adopted in April 2000 by the American Planning Association (APA), the primary professional organization for city and regional planners in the United States. It is becoming a standard reference for planners, and contains one of the most comprehensive policy approaches to be found in the planning literature. It is an excellent example of what OPR (1998, p. 15) terms a "generally accepted planning doctrine" in the field. The document focuses upon a global orientation to planning, seeing local decisions within a larger "range of indicators" addressing large-scale degradation of the natural environment. It speaks to the growing gap "…between human consumption and the Earth's capacity to supply those resources and reabsorb resulting wastes."

The *APA Policy Guide* takes universal problems, links these problems to local decisions, and notes potentially catastrophic effects if current practice remains unchanged. It is a call for fundamental change. Yet the document is effective because its changes do not require a dramatic break from established planning concepts, nor are they outside the jurisdiction of planners.

The report discusses four overall aims of sustainability:

1. We want to sustain communities as good places to live.
2. We want to sustain the values of our society—things like individual liberty and democracy.
3. We want to sustain the biodiversity of the natural environment.

- We want to sustain the ability of natural systems to provide the life-supporting "services" that are rarely counted by economists.

The *APA Policy Guide* plainly identifies the root cause of disruption and resource depletion as "the failure to recognize fundamental limits to the Earth's ability to withstand alterations to its natural systems." Most Americans consume wastefully, and communities use limited resources inefficiently and inequitably. This conclusion is the underpinning to the APA orientation to sustainability. It is a position squarely on the side of environmental systems conservation.

The APA definition of sustainability is standard:

> The capability to equitably meet the vital human needs of the present without compromising the ability of future generations to meet their own needs by preserving and protecting the area's ecosystems and natural resources.
>
> The concept of sustainability describes a condition in which human use of natural resources, required for the continuation of life, is in balance with Nature's ability to replenish them.

Key "Global Indicators" of unsustainable practices are listed: global warming; soil degradation; deforestation; species extinction; declining fisheries; and economic inequity.

These indicators, when monitored at all, are normally monitored on national and international levels. Because of their global scope, it is likely that local planners minimize their importance. Too often, the planning profession focuses upon the processing of near-term development, neglecting more sophisticated growth management techniques that underlie responsible management of the natural resource base and regulation of the economies dependent upon those resources. Local indicators of unsustainable planning practices are targeted as including:

- Suburban sprawl;
- Segregation/unequal opportunity;
- Loss of agricultural land and open space;
- Depletion and degradation of water resources;

- Loss of wetlands;
- Traffic congestion and air pollution; and
- Disproportionate exposure to environmental hazards.

Transportation is on the list, but not at the forefront. The APA then identifies four basic objectives that can be used as a sustainability framework for policy development:

1. Reduce dependence upon fossil fuels;
2. Reduce dependence on chemicals;
3. Reduce dependence on activities that harm life-sustaining ecosystems; and
4. Meet the hierarchy of present and future human needs fairly and efficiently.

The action recommendations (implementation policies) are built off of this framework, and every policy relates back to one of these four criteria. The report emphasizes two main features of land use practices that have created haphazard and indefensible urban sprawl and unsustainable practices—zoning regulations that separate housing, jobs, and shopping, and low-density development that requires the use of the car. The policy statement is particularly adamant in these areas.

Specific policy recommendations emphasize alternatives to auto use; alternative energy sources; reduced use of chemicals in building materials; water conservation; restoration of brownfields; compact growth; conscious restoration of ecosystems; re-use of by-products and waste. It also incorporates most of the principles we now recognize as “smart growth” or “New Urbanism.”

The APA’s recommended transportation policy emphasizes:

- Reduced dependence upon fossil fuels by reduction in vehicle trips;
- Mixed-use developments in compact form;
- Enhancement of transportation alternatives to the automobile;
- Renewable fuel sources;
- Changes in local street design for pedestrian usage; and,
- Street design that emphasizes access between neighborhoods.

The APA also calls for transportation that is affordable for all, and housing that is near employment. All of these policy recommendations correlate well with the principles of the New Urbanism and associated development standards.

In conclusion, the APA Policy is striking for its breadth, and for its uncompromising stand against environmental degradation. Anyone familiar with local planning environments should know the resistance and discomfort these discussions foster when applied to local development issues. APA has the status of a backbone organization, and its publications are a standard source for planning guidelines. It will doubtless help "mainstream" sustainability, particularly environmental sustainability concepts, into the public debate within the planning field. Planners should be less uncomfortable with directly incorporating standards that are purely environmental—something that can currently be controversial because of old, unresolved conflicts between development and environmental advocates.

The APA Policy cannot be said to be complete nor completely new. Despite the grounding in four basic environmental objectives, it might be argued that many of these policies might be found in vision statements of General Plans a generation ago. (See, for example, the discussion of the 1975 Arcata General Plan in Chapter Four.) Policy deals with high-level abstractions; easy to talk about, difficult to implement. Is sustainable transportation planning lacking because we do not have the concept right, or has implementation been the problem? Have we failed to grasp how implementation feeds back into policy and strengthens it? It is possible that a gap between the high and low "ends" of planning is the crux of the issue.

The New Urbanist and anti-sprawl orientation has developed a great following, and not just among design professionals. But while the New Urbanists design objectives are quite distinct from traditional unplanned urban sprawl, implementation is another matter, particularly if legislators and citizens who do not believe in or understand the concepts are the ones who must carry out policy. Vigorous implementation measures are necessary, and educational efforts may be necessary before implementation can occur. Ultimately, it is results that will count, not the sparkle of a well-written policy plan.

The biggest challenge to sustainable transportation planning is that it aims to correct a transportation and land use pattern that took at least century to develop, one with deep historical foundations. We are not starting from scratch. Regardless of how destructive our current system looks, it is there for a reason. It is rooted in attitudes, institutions, laws, customs, and practices that

will be hard to correct, despite the best of our intentions. To have widespread impact sustainable transportation planning principles and policies will have to be solid, simple, and compelling. And it will take time. We cannot expect over 500 jurisdictions within California to change overnight. Policy language can have a great impact, but it is only a beginning to a great task.

WORKING DEFINITIONS OF SUSTAINABLE TRANSPORTATION PLANNING

William Baer on General Plan Evaluation Criteria

William Baer published an article in 1997 in the *APA Journal* that has already become a classic reference on General Plan evaluation.

The article is divided into several sections. The first section is a literature review of the numerous authors who have proposed plan evaluation criteria. The foundation of the General Plan's purpose is challenged. Is it the policy outcome we focus upon in assigning value to plans, or is the plan incidental to the process? This becomes critical in measuring plan outcomes. Is a plan like a blueprint, and if so, must the city look like the blueprint to be considered successful? Is it necessary to establish a correlation between the plan's vision and policies and the actual planning decisions of a community? Does value result from a high correlation? If we plan something, and it happens, does this ensure quality of life? Does it ensure that we initially made the right decision? Or should plans contain a self-corrective mechanism that happens between policy and implementation, particularly considering that community development is a long-range process with many, many interim changes.

Baer mentions that postmodernist social critics often classify plans as symbols rather than planning instruments; rhetoric rather than substance; and that the "public interest" cannot be reconciled or represented through General Plan policy. Is this also true with sustainability, which is another high-order abstraction, with policy conclusions about what makes my life fulfilling as one person within a planning jurisdiction? How do we rate success? How do we judge a good plan? The literature review was partially a process of identifying award-winning plans. Is plan quality a result of a well-funded planning department with writing skills and data to produce excellent documents? Does this ensure that the implementation will create communities of scale, beauty, and sensitivity to its inhabitants and to nature? How do we establish the correlation?

Baer states that a vision plan implies different criteria than a blueprint plan. Perhaps the goal of a blueprint is mapping capability. What land use decisions are made may matter less than the fact that the map is comprehensive and accurate, and that the land use and other geographic classifications are consistent with General Plan policy.

Baer's fundamental question about plans is: are we concerned with process or substance? Should evaluators look for integrity and comprehensiveness in the document, or be less concerned with its structure, and more concerned with its substance regardless of how imperfectly it is set forth? Evaluators often use checklists. This helps quantify the evaluation. The more sustainability tools in the plan the better the score. This is problematic without knowledge of implementation or a planning context that ensures tools are used appropriately and wisely.

Baer quotes Altshuler (1965): *"Planning is more important than any plan."* Excellence in producing a General Plan on sustainability may be far less important than whether it accurately reflects the needs of a community or whether it accurately assesses the natural social and economic resource constraints and carrying capacity of the jurisdiction. Plans can be evaluated for their internal symmetry and consistency. It does not ensure the facts are correct. OPR states that policy should be an outcome of good data collection. Does a review of the General Plan tell us anything about the reliability of that data collection? In fact, California's overwhelming emphasis on consistency, accuracy, and relevance are understated assumptions that good data makes good policy.

Baer sets out general criteria for plan assessment. The titles (below) are followed by lists of criteria that implement their intent:

1. Adequacy of context – plans are not self-evident; explain the context to the public.
2. Rational model considerations – show the underlying theory and its criteria in the plan.
3. Procedural validity – what went on in making the plan; who was involved?
4. Adequacy of scope – the plan orientation to other jurisdictions and the world.
5. Guidance for implementation – most plans do something. What implementation tools?

6. Approach, data, and methodology – where did the data come from; how was it used?

Baer's criteria was adapted and simplified to form the structural approach to sustainability and appropriate evaluation criteria. The substantive policies for sustainability in APA and other planning sources were also considered in fashioning an innovative approach at looking at the General Plan. Baer is a good reminder not to be too sacrosanct with General Plan language and structure. Plan quality is an elusive concept. It may be language based, or the evaluation criteria may come from unanticipated realms. His article encourages a creative approach to General Plans.

Mazmanian and Sabatier, *Implementation and Public Policy, 1983*

This work takes a comprehensive approach to policy formation and effective implementation. The purpose of the book was to identify the primary factors contributing to successful public policy implementation. Mazmanian and Sabatier boiled their analysis down to a "checklist" to aid in creating effective policy (pp. 41–42). The checklist recommends the following conditions:

- Policies that are clear and consistent.
- Policies that are based in theory and identify the key variables used in policy development. Agencies should be given the authority to achieve the prescribed goals.
- Implementation efforts are assigned to a regulating agency that has the capacity to carry out the mandate—including financial resources and adequate staff support.
- Implementation efforts are assigned to a regulating agency that has adequate managerial skills.
- The program enjoys political support throughout the implementation process and is not subject to legal challenge.
- The program remains a priority for the agency, politicians, and the public and is not compromised due to a change in priorities.

These guidelines provide an excellent reference source for the plan evaluation task. Beyond this, they offer direction for strengthening planning policy development, preparing a quality General Plan, and increasing the likelihood of effective implementation.

Berke and Manta Conroy, "Are We Planning for Sustainable Development?"

Berke and Manta Conroy's article sets forth a set of six principles that define and operationalize the concept of sustainable development. Using these six principles, a sample of 30 comprehensive plans were evaluated to determine how well their policies support sustainable development.

They started with the definition of sustainability from the United Nations World Commission on Environment and Development (1987): "Sustainable development is development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs."

The authors viewed this definition as fairly abstract, and went further to operationalize the definition. They reviewed the writings of various authors, such as Campbell; Beatley and Manning; Kaiser; Mega; Neuman and others, many of which may be found in the Chapter Six literature review. Incorporating principles from these authors, Berke and Manta Conroy developed a "working definition" that at first glance appears over-vast.

However, at the point they develop criteria, the definition seems to hold firm: "Sustainable development is a dynamic process in which communities anticipate and accommodate the needs of current and future generations in ways that reproduce and balance local social, economic, and ecological systems, and link local actions to global concerns."

Their six principles used in evaluating the General Plans for sustainability criteria were developed from this definition. Like the *APA Guidelines*, it can be complimented for its breadth, and the authors' courage in advocating directly for an end to environmental degradation. It is a constraint-based approach, which is welcome within a field where setting identifiable constraints to development in intangible areas can be difficult:

1. Harmony with nature – mimic ecosystem processes.
2. Livable built environments – physical spaces adapted to the desired activities of inhabitants.
3. Place-based economy – operating within natural system limits without deterioration (this refers to both economic and natural systems).
4. Equity – equitable access to social and economic resources.

5. Polluters pay.
6. Responsible regionalism – taking responsibility for how we impact other communities.

Importantly, Berke and Manta Conroy aim to establish a principled orientation to the planning process. The OPR *Guidelines* state that principles "underlie the process of developing the plan but seldom need to be explicitly stated in the plan itself. They can act as a powerful impetus to policy formation." The OPR *Guidelines* remark upon how such planning principles may be introduced as a "statement of intent" or a series of underlying planning criteria (such as Berke and Manta Conroy's six principles, above), or they can operate as an unspoken and unseen influence. The developers of the plan may operate from principles without calling them by name. Language and planning orientations can be so charged with stereotyped meaning that "naming" the objective is actually avoided.

Berke and Manta Conroy's study grouped plans according to how the principles were introduced into the General Plan. There were two groups of plans in their study: those that explicitly used sustainable development as an organizing concept for plan preparation; and those that did not, but were selected because they were award-winning, high-quality plans.

The study found no statistically significant difference in their quality rankings when they scored the plans, which means actually "naming" sustainability and its underlying principles may not be as important as ensuring the principles are worked out through policy. The conclusion? "Use of the 'sustainable development concept' as an organizing framework appears to have no effect on how well sustainability principles are integrated in the policies of plans."

Berke and Manta Conroy also asked "do plans provide balanced support of sustainable development?" Here balance is defined as addressing all six of their principle criteria. The degree of balance was itself an important criterion in their judgment of overall plan quality.

The sampled plans were found to most strongly advance the livable built environment principle, and those aspects that encourage strong economic growth. The plans contained integrated strategies for livable communities, but neglected the harder issues of ecological integrity, polluters' pay, and responsible regionalism.

These findings are significant. They establish that even sustainability plans may fit the "old shoe" of comprehensive General Planning as outlined as early as 1964 by Kent, and more recently by Kaiser et al (1995). Berke and Manta Conroy also conclude that plan policies still overwhelmingly rely on a conventional land use and humanistic focus. Establishing better balance between the principles, rather than over reliance on those that fit human "amenity needs" is still a problem.

Other Attempts to Define Sustainable Planning Principles

Duiven (2001) examines sustainable planning principles from Berke and Manta Conroy as well as several other studies and planning efforts, and then develops his own (Table 1.2). For Duiven, the process of sustainable planning must employ multiple techniques, disciplines, and outlooks:

> A successful approach will require both substantive strategies that promote sustainability through creative technical, architectural, and institutional solutions and procedural strategies that promote involvement while managing and resolving conflict. Progress will require an integrated approach in which lasting solutions are the result of the application of several resolution strategies applied to any given problem. Planners must be truly interdisciplinary in their approach to finding solutions. It is essential to view each strategic area within the context of the goals of environment, economy, and equity (Duiven, p. 19).

Table 1-2 Comparison of Principles of Sustainability.

Duiven (2001)	***Berke and Conroy (2000)***	***Bay Area Alliance for Sustainable Development (2000)***
Protecting the environment	Harmony with nature	Enable a diversified, sustainable and competitive economy
Managing growth	Livable built environments	Accommodate sufficient affordable housing
Building a restorative economy	Place-based economy	A balanced multi-modal transportation system

Apply green design & technology	Equity	Preserve and restore the region's natural assets
Achieving social equity	Polluters pay	Use resources efficiently, eliminate pollution, reduce wastes
Involving the community	Responsible regionalism	Focus investment to preserve and revitalize neighborhoods
Leading by example		Opportunity for quality education and lifelong learning
		Promote healthy and safe communities
		Implement local government fiscal reforms and revenue sharing
		Stimulate civic engagement
Minnesota Planning (2000)	***Urban Ecology (1996)***	***Wheeler (1998)***
Citizen participation	Choice	Compact, efficient land use
Cooperation	Accessibility	Less automobile use, better access
Economic development	Nature	Efficient resource use, less pollution & waste
Conservation	Justice	Restoration of natural systems
Livable community design	Conservation	Good housing & living environments
Housing	Context	A healthy social ecology
Transportation	Community	Sustainable economics
Land-use planning		Community participation and involvement
Public investments		Preservation of local culture & wisdom

Public education		

Source: Duiven, 19 (Table 2-1)

From the standpoint of this study, what is notable about all of these statements of sustainable planning principles is the small, and sometimes invisible role assigned to transportation and transportation planning. Very few authors have focused on transportation planning. We now turn to these authors before developing our own set of sustainable transportation planning criteria.

Newman and Kenworthy

Longtime critics of automobile-oriented cities and automobile-oriented transportation planning, Newman and Kenworthy are best known for their global analysis of how major metropolitan areas of the world vary based on their urban form characteristics and consequent automobile use (Newman and Kenworthy, 1989). While much of this thorough empirical research was well documented and well received, the two Australians were criticized for their implicit assumptions that urban form and transportation choices were subject to planning controls (Gordon and Richardson, 1989). In short, their global analysis was lacking in local prescription.

In *Sustainability and Cities: Overcoming Automobile Dependence* (1999) Newman and Kenworthy attempt to set out specific local plan goals and polices for attaining simultaneously the two goals of the book's title (which the authors argue are very closely linked). Local transportation goals are defined as *indicators*, which permit measurement of relative success (p. 19):

- Reduce car use per capita;
- Increase transit, walk/bike and carpooling and decrease sole car use;
- Reduce average commute to and from work;
- Increase average speed of transit relative to cars;
- Increase service kilometers/miles of transit relative to road provision;
- Increase cost recovery on transit from fares;
- Decrease parking spaces per 1,000 workers in central business district; and
- Increase kilometers/miles of separated cycleways.

The authors note: "[t]he problem with indicators…is that they are not always linked to a process that can lead to an improvement in the indicator…They need to be tied into *policies and programs*" (p. 18).

Newman and Kenworthy devote most of their book to elaborating such policies and programs, but they distill their findings and arguments into five fundamental policies:

1. Traffic calming – to slow auto traffic and create more urban humane environments better suited to other transportation modes;
2. Quality transit, bicycling, and walking – to provide genuine options to the car;
3. Urban villages – to create multinodal centers with mixed, dense land use that reduce the need to travel and that are linked to good transit;
4. Growth management – to prevent urban sprawl and redirect development into urban villages; and
5. Taxing transportation better – to cover external costs and to use the revenues to help build a sustainable city based on the previous policies (p. 144).

Though broad, the scope of these policies is well within the ambit of California's General Plan process.

Todd Litman's "Reinventing Transportation"

Litman begins this 1999 article with two telling statements: "A sustainable economy is sensitive to economic, social and environmental constraints," and "Sustainable transportation planning begins with a community's strategic plan, which individual transportation decisions *must support*. It requires policies that *reward* individuals, agencies and communities" [Emphasis added].

For Litman, transportation is a scarce and costly service to provide, and transportation policy must be built upon "constraints." This is largely antithetical to the conventional method of building capacity to meet demand, and then providing facilities to users for free or with substantial subsidy. Litman also boldly states a truism found in every textbook on transportation, namely that most transportation is an intermediate means to an end, and not a good in itself. Litman forcefully asserts that transportation must be at the service of other elements of a community's plan, which he identifies as land

use, housing, noise, and conservation (air pollution). It is, in a word, subservient.

Litman is reacting to the fact that community transportation is too often conceptualized as the “infrastructure grid” that goes in first to support development later. It is often designed in isolation from other element policies. The field of transportation planning has been criticized for its technicality and isolation; in particular, from the land use and housing plan elements, whose policies are highly interactive with transportation.

Litman sharply distinguishes conventional transportation from sustainable transportation (Table 1-3). For Litman, conventional planning defines and measures transportation primarily in terms of vehicle travel. It maximizes road and parking capacity to meet predicted traffic demand.

Sustainable transportation planning, by contrast, defines and measures transportation in terms of access; the ability of citizens in a community to access needs and wants. It uses economic analysis to determine optimal policies and investments based upon true market analysis, considering all externalities—including frequently overlooked environmental and social needs—in the cost/benefit assessment of transportation projects.

Table 1-3 Conventional vs. Sustainable Transportation Planning

	Conventional Planning	***Sustainable Planning***
Transportation	Defines and measures transportation primarily in terms of vehicle travel.	Defines and measures transportation in terms of access.
Objectives	Maximize road and parking capacity to meet predicted traffic demand.	Uses economic analysis to determine optimal policies and investments.
Public Involvement	Modest to moderate public involvement. Public is invited to comment at specific points in the planning process.	Moderate to high public involvement. Public is involved at many points in the planning process.
Facility Costs	Considers costs to a specific agency or level of government.	Considers all facility costs, including costs to other levels of government and costs to businesses (such as parking).
User Costs	Considers user time, vehicle operating costs, and fares or tolls.	Considers user time, vehicle operating and ownership costs, fares and tolls.
External Costs	May consider local air pollution costs.	Considers local and global air pollution, down-stream congestion, uncompensated accident damages, impacts on other road users, and other identified impacts.
Equity	Considers a limited range of equity issues. Addresses equity primarily by subsidizing transit.	Considers a wide range of equity issues. Favors transportation policies that improve access for non-drivers and disadvantaged populations.
Travel Demand	Defines travel demand based on existing user costs.	Defines travel demand as a function, based on various levels of user costs.
Generated Traffic/ Induced Travel	Ignores altogether, or may incorporate limited feedback into modeling.	Takes generated traffic into account in modeling and economic evaluation of alternative policies and investments.

Integration With Strategic Planning	Considers community land use plans as an input to transportation modeling.	Individual transportation decisions are selected to support community's strategic vision. Transportation decisions are recognized as having land use impacts.
Investment Policy	Based on existing funding mechanisms that target money by mode.	Least-cost planning allows resources to be used for the most cost-effective solution.
Pricing	Road and parking facilities are free, or priced for cost recovery.	Road and parking facilities are priced for cost recovery and based on marginal costs to encourage economic efficiency.
Transportation Demand Management	Uses TDM only where increasing roadway or parking capacity is considered infeasible (i.e., large cities and central business districts).	Implements TDM wherever possible. Capacity expansion only occurs where TDM is not cost effective. Considers a wide range of TDM strategies.

Source: Litman, 1999, p.11 (Table 1)

Litman emphasizes principles of transportation planning that are also set forth in APA Sustainability Policy, and many also echo principles of the New Urbanism. In that regard, they are not new. Current theory suggests that the proper planning context for transportation is compact growth, mixed-use development, higher densities around transportation nodes and corridors, and streets/thoroughfares that do not isolate residential areas from services and employment. Reducing speed and vehicle use in neighborhoods is a goal. Developing alternative transit is a goal. Cutting down vehicle usage is a major priority, and balancing the system with alternative transportation is the goal. The method is to re-work planning priorities so that non-vehicular transit modes can fairly become competitive for transportation funds.

Litman addresses "market distortion" and "bias" as fundamental distortions in the planning field. He gives a list of "biased transportation terms," and works to neutralize the language so that transportation policy is not unintentionally biased toward motor vehicle usage. Via such market distortion, he argues convincingly that we are overbuilding our transportation routes because our pricing for road and access is biased downward. Conventional transportation planning also assumes that all vehicle transportation time is equally valuable, when in fact, the value of travel time is known to vary with the traveler and the purpose of the trip.

Litman also recognizes transportation policy decisions as having land use impacts that often far outweigh their direct transportation effects.

Litman's vision of sustainable transportation planning ranks as the best articulated and most operational. Litman's principles provide firm theoretical footings for the transportation criteria for plan evaluation. Perhaps the most relevant principle contained in this and other essays by Litman is his principle that individual transportation decisions, and the policies that guide decisions, should be subordinate to a community's strategic vision of the type of community it wants to become.

The California Air Resources Board, *Transportation-Related Land Use Strategies to Minimize Motor Vehicle Emissions*

The California Air Resources Board's 1995 report *Transportation-Related Land Use Strategies to Minimize Motor Vehicle Emissions* does not define sustainability. It was, however explicitly researched and written to assist "…a city or county that wants to begin moving in the direction of providing multiple transportation options" (ARB, 1995, 7-2), a direction that equates to important aspects of transportation sustainability. The unstated assumption is that sustainbility begins with moving beyond auto dominated planning, and creating a policy framework which supports alternative transportation.

Chapter 7 of the ARB document discusses implementation approaches to the General Plan. This chapter contains a matrix that cross-correlates implementation tools with "priority policies" that promote lower dependence on cars, an important aspect of sustainability.

Its checklist of implementation tools is familiar and reiterates New Urbanism standards: provide pedestrian facilities, increase density near transportation corridors, encourage mixed use, encourage infill and densification, develop concentrated activity centers, develop interconnected roadways, and provide strategic parking facilities. The matrix is quite comprehensive, and a helpful tool for linking policy and implementation. Relevant portions of this matrix are reproduced in Appendix A as Table A-1.

Caveats and Conclusions:

Sustainability is now relatively well, if simply, defined in the planning field. This simplicity often borders on vagueness, particularly regarding transportation; however, there is no great controversy over basic definitions.

There is some concern that we have become complacent in using new terms, which simply re-label old processes without making the all-important step to implementation.

The other concern is the reliance on the New Urbanism as the foundation for sustainability. These concepts appear constructive, but not much implemented. There is a shortage of monitoring and data on whether the assumptions of higher density, compact growth, and the resultant trade-offs are workable in practice.

The literature review might be expanded, given more time. One question to pursue is whether planning has the technical capability to pursue the subtle interrelationships between planning phenomena. We are pursuing a delicate balance between elements of our society that have been in sharp conflict, particularly regarding appropriate use of natural resources in a growth-oriented economy. Individual and organizational behavior has consistently resisted principles of equity and conservation.

The literature of General Plans, sustainability, and sustainable transport are streams of varying breadth and depth that have only recently begun to intermingle. The challenge for the research was to develop General Plan criteria that will resolve conflict rather than augment it, while lending tangibility to sustainable transportation.

The consensus as to the major aspects of sustainable transportation gleaned from the team's review of the literature and extensive dialogue and debate regarding these issues is presented in Table 1-4. As can be seen, our definitions are explicitly focused on transportation and local planning, as is evidenced by the illustrative hypothetical plan policies that accompany each principle. In a similar manner Table 1-5 presents the team consensus view of what constitutes an effective plan policy.

Table 1-4 Transportation Sustainability Principles

Principle A: *Efficiently* and *equally* serve (be subordinate to) the community's comprehensive economic, environmental and equity goals. ***Example: All transportation projects shall be designed and implemented to facilitate and assist the County's Growth Management programs.***

Principle B: Promote self-sustaining (financing) systems wherein users (benefactors) pay the full costs of system construction, operation and expansion. ***Example: Downtown parking expansion should be funded by parking charges.***

Principle C: Promote and enhance more environmentally-friendly transportation modes (essentially any modes other than single-occupant autos). ***Example: The city will require comprehensive pedestrian and bicycle networks in all new neighborhoods.***

Principle D: Reduce use of and dependence on conventional automobiles**.** ***Example: Automobile traffic within the City's historic commercial districts shall be discouraged.***

Principle E: Reduce the need for travel in general. ***Example: To lower travel demand, new housing should incorporate infrastructure and provisions to facilitate telecommuting and other home-based work.***

Principle F: Make all transportation modes more environmentally sound, without attempting to change the market share of different modes. ***Example: Newly-purchased buses and other city vehicles should have lower emissions than the vehicles that they replace.***

Table 1-5 Characteristics of Effective General Plan Policies

1. Effective policy should be explicit and directive; if not mandatory.
2. Effective policy should entail incentives that make it likely to be implemented.
3. Effective policy should be clearly expressed, understandable and accessible to those who must implement it or are affected by it.
4. Effective policy should be based on *and* make explicit reference to a substantial factual basis (e.g. a technical study, data base or model.
5. Effective policy should be explicitly linked to performance standards or indicators enabling the policy's results to be monitored.

SCORING GENERAL PLAN ELEMENTS

PLAN COLLECTION AND SELECTION

Plan Collection and Sampling

In an effort to link sustainability theory with planning practice, approximately 400 California General Plans were collected for review and analysis. From this, a sample of 26 was selected for detailed evaluation. The sample selection was not random, but deliberate, focusing on communities that have in some way been recognized for promoting principles of sustainability in literature, have received American Planning Association Awards, or have been noted in the *California Planners' Book of Lists* (OPR, 1999) as having adopted principles of sustainable development.

For example, both San Jose and Davis were rated highly (in the top 10) in Berke and Manta Conroy's study (2000) for promoting sustainable development principles. Merced received the APA's "Comprehensive Planning Award for a Small Jurisdiction" in 1997, while Arcata received a similar honor from APA's Northern California Chapter in 2001. Petaluma is well known for both its past General Plans as well as for an ongoing four-year, multimillion dollar General Plan update process built around the concept of sustainability. Chico, Davis, Merced, Oakland, San Diego County, San Jose, San Luis Obispo and Santa Monica were noted as jurisdictions having adopted sustainable development policies by 1998 (OPR, 1999, p. 50).

Considerations of *geographic diversity* and *currency* also influenced the selection of the plans. The sample provides a diverse spectrum of California communities with current plans. Diversity is reflected in population size, geographic locale, and growth rates. Current plans were defined as no greater than 10 years old, recognizing that the concept of sustainability has only become prevalent in the mainstream of the planning field in recent years. Table 2-1 illustrates some of the general characteristics of the plan documents sampled.

While a serious and strenuous attempt was made to select plans that reflect a broad range of California communities, no sample of 26 can be fully representative of all California communities, though given the nature and goals of this research this does not necessarily preclude limited generalizing of findings. The sample size was limited by the amount of time required to conduct the evaluation protocol outlined below. The scoring via the adopted protocol required approximately eight to twelve hours per plan (i.e., to score the three elements evaluated). The scoring time

does not include time spent collecting and initially evaluating the plan documents.

Table 2-1 Plan Sample Breakdown By Geographic Region, Population, And Growth Rates From 1990 To 2000

	NORTHERN	***SOUTHERN***	***CENTRAL***
100,000 FAST GROWING	Hayward	San Diego County	Fresno County
	San Jose		Sacramento County
	Santa Clara County		
100,000 SLOW GROWING	Oakland	Pasadena	San Luis Obispo County
	San Francisco	San Diego City	
	Santa Cruz County	Ventura County	
100,000 FAST GROWING	Napa City	Calabasas	Chico
	Petaluma	Camarillo	Clovis
			Davis
100,000 SLOW GROWING	Arcata	Imperial Beach	Merced City
	Mountain View	Santa Monica	San Luis Obispo City

Notes to Table 4-1:

1. Northern California includes the San Francisco Bay region and the Sacramento region.
2. Southern California includes the Los Angeles and San Diego regions.
3. Inland/Central includes the Sierra Nevada, the Central Valley and the Central Coast.
4. Population of 100,000 is the break point between large and small jurisdictions used by the California Chapter of the American Planning Association.
5. Growth rates are calculated from population statistics available on the California Department of Finance Website in January, 2001 using the following formula:
6. (Jan 2000 population/Jan 1990 population) ^ 0.1
7. Fast growing is defined as growth that is faster than the statewide rate from 1990 to 2000; slow growing is defined as growth that is slower than the statewide rate from 1990 to 2000.
8. Growth rates for the counties include incorporated and unincorporated areas.

In sum, the sample represents some of the latest and most highly regarded General Plans from throughout the state. Given what we now know about transportation planning sustainability, to what extent and in what ways is the concept being integrated into California General Plans?

METHODOLOGY AND AIMS OF THE PLAN SCORING

The plan scoring focused on General Plan policies. Policies are fairly specific and action-oriented in comparison to goals and objective, but are less site and project-specific than General Plan programs component, enhancing their transferability to other communities.

The General Plan elements selected for detailed examination were the circulation, land use, and housing elements. All of these are mandatory elements. These elements typically make up the bulk of the General Plan, and the focus of these three elements is on transportation or the built environment that directly creates and affects travel demand. By contrast the other required elements (open space, conservation, noise and safety) deal with transportation more indirectly, though of course transportation is the most prominent source of noise impacts in a community.

Plan Evaluation Protocol

A method for evaluating the extent to which plan policies promote sustainable development principles was devised. The plan evaluation protocol that was developed entailed a three-step analysis of each transportation-related policy statement.

Step 1. Each policy was classified based on the sustainable transportation principles promoted by the policy (see Table 1-3 above). The principle was identified primarily based on language of the policy itself, plus any directly referenced supporting text elsewhere in the plan.

More than one principle was coded only if the policy equally supports more than one principle. If a policy did not promote any principle it was coded “None Applicable” and no further analysis was made.

Step 2. The type of implementation technique stipulated by each policy was identified. Three categories of implementation technique were recognized:

1. Voluntary, suggested or discretionary implementation – Policies containing keywords such as "encourage," "consider," "intend" or "should."
2. Voluntary implementation, but with incentives, e.g. financial incentives, density bonuses, and similar measures.
3. Mandatory implementation, e.g., via regulation – Policies containing key words such as "shall," "will," "require" or "must."

Steps 3, 4, 5, 6. Each policy was then evaluated (scored) as Yes or No against each of the four criteria shown in Table 2-2.

Table 2-2 Yes/No Evaluation Criteria for Transportation related General Plan Policies (Evaluation Protocol Steps 3 – 6)

3. The policy clearly stated?
4. Does the policy appear to be based on *and* make explicit reference to a substantial factual basis (e.g. a technical study, data base or model)?
5. Does the policy (or explicitly linked subordinate programs) make reference to appropriate performance standards enabling the policy to be monitored?
6. Does the policy (or explicitly linked subordinate programs) make reference to a monitoring program for the policy (and subordinate programs)?

Examples of how the evaluation method is applied to hypothetical transportation related plan polices are shown in Table 1-3 above. It should be reiterated that only explicitly transportation related policies were scored in each element.

To increase scoring consistency and inter-scorer reliability in the plan evaluation, the protocol was pre-tested. Two members of the research team (comprised of three graduate students and the project director) independently applied the protocol to the same plan and compared results. The team evaluated several trial plans, each time comparing results, resolving differences in interpretations, and refining the protocol. This process was

continued until the team was satisfied that interpretations of principles and evaluation criteria policies were standardized, and plans could be evaluated consistently.

The four coders working independently of each other then evaluated relevant policies from five plans. An inter-coder reliability score was computed, which equaled the number of coder agreements for plan policies, divided by the total number of polices. A score in the range of 80 percent or above is generally considered acceptable in plan-scoring exercises (Burke and Manta Conroy 2000; Miles and Huberman 1994), and this is the criterion used in this study. The 80 percent figure was always obtained, although there was typically a need for consultation to reach this level of consensus.

The core research team scored a total of 14 plans. Once questions regarding the scoring protocol were resolved, 14 additional graduate planning students at Cal Poly were instructed in the use of the scoring protocol. Working singly and in teams of two, this group scored a total of 12 plans. The principal scorer, i.e., the research assistant with the greatest familiarity with the scoring protocol, closely reviewed the scoring of each of these plans. In all about two-thirds of the 26 plans were scored or closely reviewed by two scorers. Thus, while there is a significant and inherently subjective component to plan policy scoring, the method used assured a high level of internal consistency.

Plan scoring results

The results indicate that there is a fair level of sustainable transportation policy in California's current set of General Plans. Most of these policies are contained in the circulation or transportation elements of the plans. To a lesser extent, the land use element contains policies that promote sustainable transportation principles. It appears that housing elements are the least likely element to contain sustainable transportation policy, though it is more difficult to characterize the housing elements because these were significantly more difficult to obtain.

All 26 circulation and land use elements were obtained and scored. However, two of the circulation elements and five of the land use elements had no policies supporting sustainable transportation.

The overall results of the scoring of the 26 circulation elements is shown in Figure 2-1. Similar information is shown for the land use and housing elements in Figures 2-2 and 2-3. It is immediately evident (and not altogether surprising)

that a majority of the policies addressing transportation sustainability are found in the circulation element. However, since it is land use that generates travel demand, and housing is the single largest urban land use, and the ultimate generator of most trips, this suggests that the elements may be *too* specialized. If, for example, a housing policy encourages implementation of housing in conjunction with mixed-use projects to reduce the number and length of trips, this policy should find expression in all relevant elements of the General Plan. The study team found few such inter-topical references, not even relatively simple cross-referencing (e.g., "see Circulation Policy C-1" at the end of a land use or housing policy).

It is encouraging to note that more than six in 10 circulation element policies examined promote sustainable transport as defined in this study. It is also encouraging to note that almost all of these had an identifiable type of implementation measure, and almost all were clearly expressed. Less encouraging is the lack of reference to factual bases, performance standards or monitoring programs for these policies. About a fifth of the sustainable transportation policies contained or referred to a performance standard that would permit the efficacy of the policy to be monitored, and fewer than one in 10 contained an actual reference to a monitoring program.

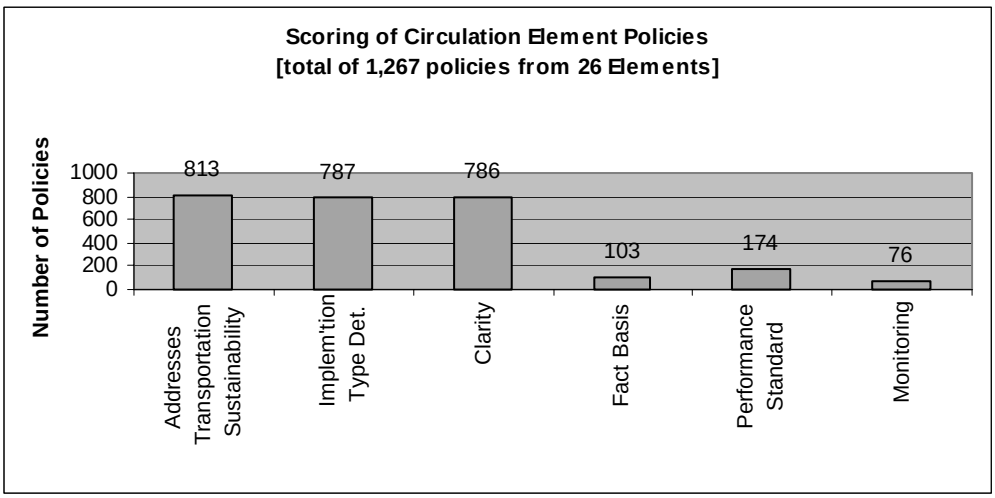


Figure 2-1: Scoring of Transport Policies

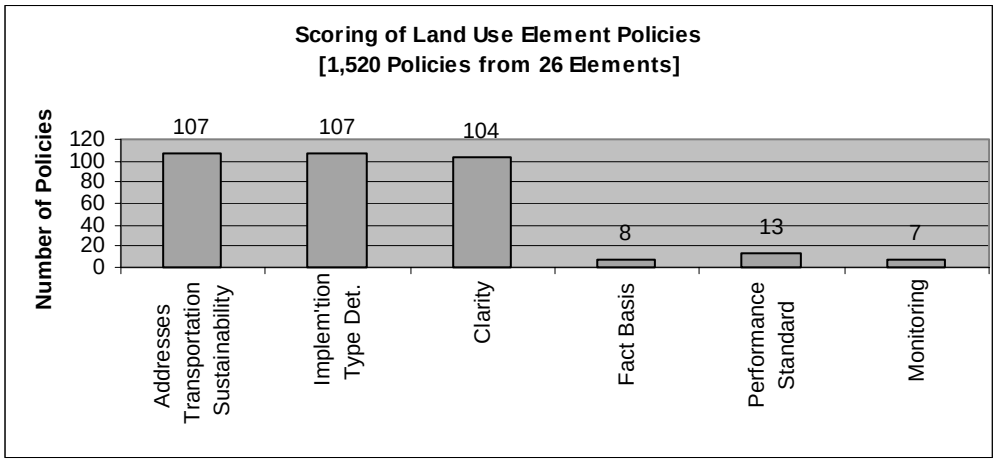


Figure 2-2: Scoring of Relevant Land Use Policies

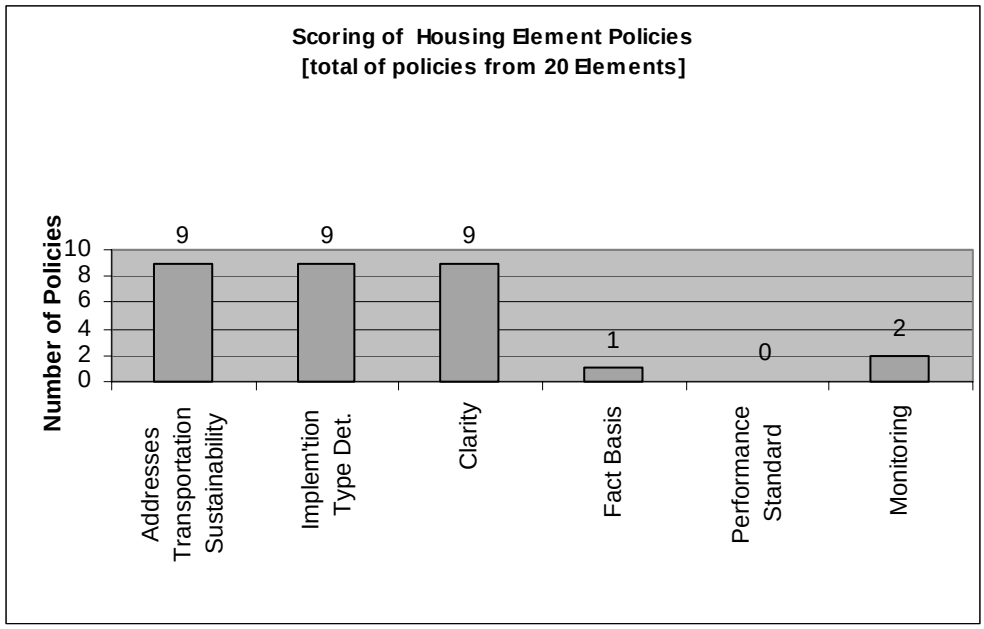


Figure 2-3: Scoring of Relevant Housing Policies

Four features were soon apparent regarding housing elements. They were as follows:

- Often the longest elements of the General Plan;
- Typically nearly 10 years old and/or difficult to obtain; and
- When obtained, rarely had many transportation-related policies to score.

The housing element is the only element that is actually reviewed for consistency by a state agency (housing and community development) and the only element of the General Plan with a legislated timeline for updates (theoretically every five years) and the only element with dedicated state funding for its implementation. Despite this, only six of the 20 housing elements ultimately obtained contained any sustainable transportation policies, and the grand total of relevant policies was nine; thus there is typically fewer than one sustainable transportation policy per housing element examined.

The distribution of policies by the six types of transportation sustainability principle plans is indicated in Figure 2-4. Examining this it is fairly obvious that most (almost two-thirds) of the policies are directed at promoting alternatives to the automobile. The second most common sustainable transportation principle supported is having transportation serve larger community goals. Very few policies (five percent or fewer) focus on getting transport users to bear their full costs, reducing the overall need to travel, or on reducing environmental impact of transport through technology or other means.

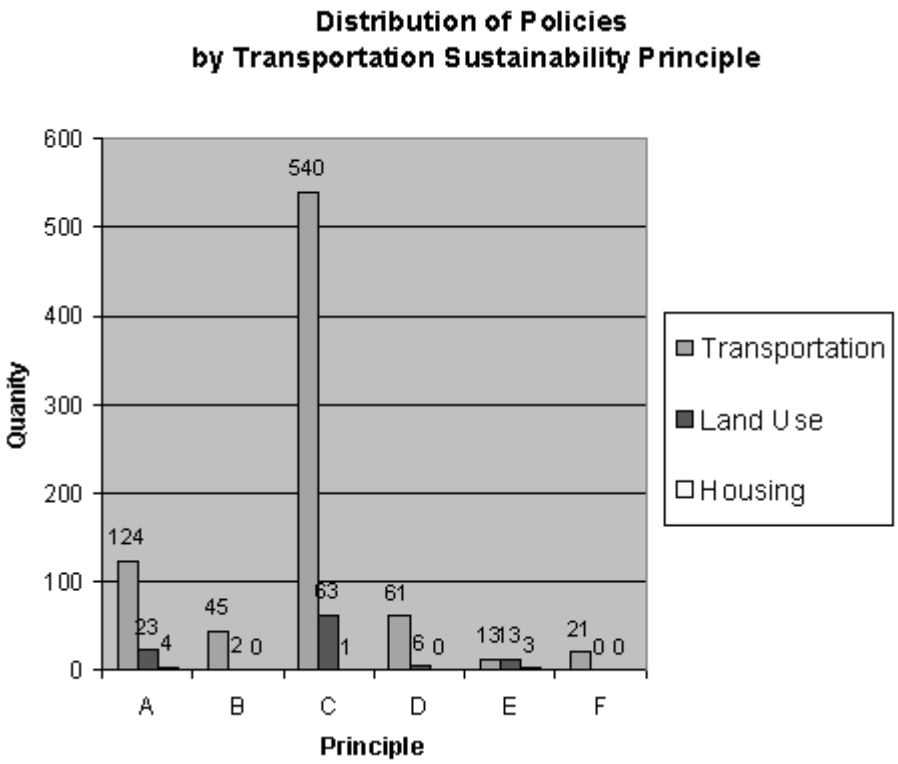


Figure 2.4: Distribution by Transportation Sustainability Principle

KEY TO FIGURE 2-4:

Principle A: *Efficiently* and *equally* serve (be subordinate to) the community's comprehensive economic, environmental and equity goals.

Principle B: Promote self-sustaining (financing) systems wherein users (benefactors) pay the full costs of system construction, operation and expansion.

Principle C: Promote and enhance more environmentally friendly transportation modes (modes other than single-occupant autos).

Principle D: Reduce use of and dependence on conventional automobiles.

Principle E: Reduce the need for travel in general.

Principle F: Make all transportation modes more environmentally sound, without attempting to change the market share of different modes.

Perhaps the most striking outcome of the plan scoring exercise was the tabulation of sustainable transportation policies by implementation type. Despite the admonition of the OPR Guidelines that cities and counties use mandatory rather than discretionary language, nearly two out of three sustainable transportation policies are voluntary not mandatory. Even more striking is the almost total lack of incentive-based policies—a mere one percent of policies offer incentives for their implementation.

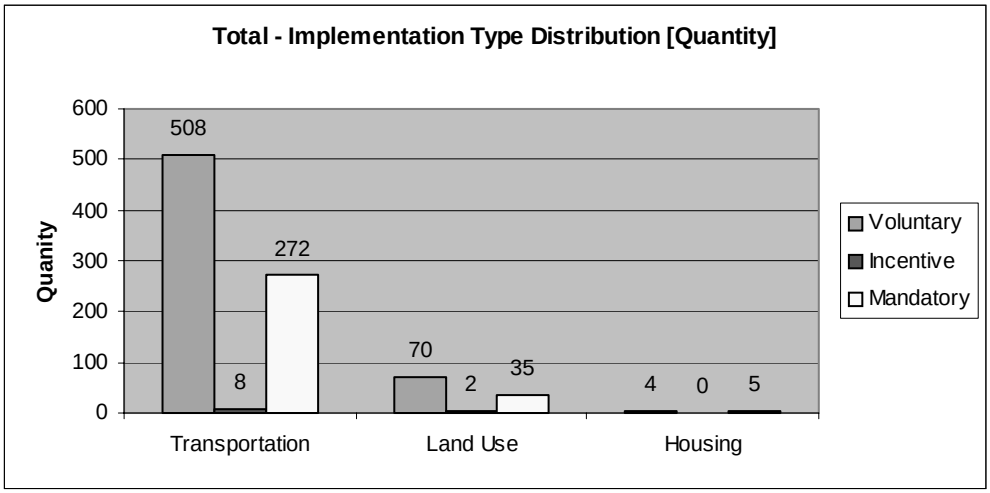


Figure 2-5: Sustainable Transportation Policy Implementation

The plan scoring was meant to get an overall sense of the status of transportation sustainability in the current generation of California General Plans. The sample was small, so results should be extrapolated with caution. (Though, for the record, the sample was large enough to cause severe eyestrain among the coders.) It should be reiterated that the plans selected for scoring

were considered more likely to exhibit sustainable transportation planning characteristics than average, for reasons given at the outset of this chapter.

Individual General Plan element scores have been placed in Appendix B. The plan scoring was not intended to rank plans, or to identify a best plan. It may be noted in passing that the plan element with the greatest number of sustainable transportation planning policies was the San Francisco Transportation Element with 185 sustainable transportation planning policies (out of 200 total).

With the exception of the very newest plans (e.g. Davis and Arcata), most of the plans examined were not built around a concept of sustainability. To get a broader gauge of what California's planners perceive as the issues affecting using the General Plan as a tool for sustainable transport, another research tool was needed. A statewide survey was chosen as this tool. The survey's target population was those responsible for writing, maintaining, implementing and updating California's General Plans, namely the state's more than 500 city and county planning directors.

SURVEY OF PLANNING DIRECTORS

SURVEY RATIONALE AND METHOD

A survey was chosen as the best method for better understanding what planners themselves perceive as the relationship between General Plans and transportation sustainability. The plan scoring provides a useful profile, but such information is partial, since concepts as new—and as elusive—as sustainability and sustainable transportation are not yet likely to find full expression in planning documents. Planning directors, as custodians of General Plans, are arguably the best-equipped group for clarifying the issues that surround use of the General Plan as a tool for effecting more sustainable transportation.

The survey, administered from late January to March 2001, sought insights into how California's planning directors define sustainability, sustainable transportation, and the importance of these concepts to community planning, and the driving forces and barriers to planning sustainable communities. While the overall focus of the survey was geared toward transportation, several of the questions dealt with sustainability and California's General Plan on a broader level.

The survey was administered via the World Wide Web with invitations to participate sent to planning directors by e-mail. Starting with an initial e-mail list from the Governor's Office of Planning and Research and subsequent efforts (through phone and Internet inquiries) to include missing e-mail addresses, the survey was sent to 426 jurisdictions, addressed to planning directors or their designee. A total of 138 e-mails were returned due to invalid addresses, an indication, perhaps, of the impermanence of electronic addresses. Further investigations corrected some, but not all, of these invalid addresses. In the end, 359 e-mails were successfully sent and survey responses received from 121 jurisdictions. This represents 23 percent of the total statewide population of planning directors, and just over one-third of those for whom a valid e-mail address could be determined.

Table 3-1 lists the jurisdictions of the planners responding to the survey by the end of March. A detailed profile of respondents' jurisdictions and General Plans has been placed in Appendix C. In general, the respondents' jurisdictions seem to be representative of the diversity of California's local jurisdictions. A printout of the web-based survey instrument is also contained in this Appendix.

Table 3-1. Jurisdictions Responding to the Planning Directors' Survey

Alameda	Gridley	Nevada County	Santa Ana
Angels Camp	Hayward	Newark	Santa Barbara
Arcadia	Hesperia	Norco	Santa Clara
Arcata	Imperial County	Oakland	Santa Clarita
Auburn	Inyo County	Orinda	Santa Cruz
Bakersfield	Ione	Pacifica	Santa Cruz County
Baldwin Park	Kings County	Palm Desert	Santa Maria
Barstow	La Canada-Flintridge	Paradise	Santa Rosa
Bellflower	La Palma	Paso Robles	Saratoga
Benicia	Laguna Hills	Petaluma	Scotts Valley
Blue Lake	Lakewood	Pittsburg	Shafter
Brawley	Lemon Grove	Placentia	Simi Valley
Brentwood	Lemoore	Porterville	Solvang
Burbank	Lindsay	Poway	South Lake Tahoe
Butte County	Lodi	Rancho Cucamonga	South Pasadena
Carmel-by-the-Sea	Lompoc	Rancho Mirage	St. Helena
Ceres	Los Alamitos	Rancho Santa Margarita	Stanislaus County
Chula Vista	Los Altos	Redding	Susanville
Clovis	Los Banos	Redwood City	Temecula

Colma	Malibu	Rialto	Temple City
Contra Costa County	Manhattan Beach	Riverbank	Thousand Oaks
Corning	Manteca	Ross	Trinidad
Covina	Maywood	Sacramento County	Turlock
Daly City	Merced	San Carlos	Ukiah
Danville	Merced County	San Francisco	Vallejo
El Dorado County	Modesto	San Jose	Ventura County
Encinitas	Moorpark	San Juan Bautista	West Sacramento
Exeter	Moraga	San Marino	
Fairfield	Moreno Valley	San Mateo County	
Glendora	Morgan Hill	San Rafael	
Grand Terrace	Mt. Shasta	Sand City	

SURVEY RESULTS

The survey results underscore the importance and potential of California's General Plan as a tool for planning sustainable communities. Of the 121 respondents, 85 percent agreed or strongly agreed with the statement: "Sustainability is balancing economic, environmental, and equity considerations" (question 1). The same percentage feels that it is important that California cities and counties actively plan for sustainability (question 9). Four out of five respondents believe that the General Plan is an important tool for realizing sustainability (question 10).

The planners' collective opinion varied on the importance of the three mandatory General Plan elements as tools for realizing sustainability. Eighty-five percent view the land use element as an "important" or "very important" tool. Only slightly fewer (78 percent) view the circulation element as an

important tool for realizing sustainability, while substantially fewer (64 percent) regard the housing element as an important tool (questions 11-13).

A major finding from the survey is that, despite the strong support for sustainability, and despite a collective admission on the part of the planning directors that the current generation of plans do not reflect sustainability principles, 77 percent of California planning directors do not think a separate sustainability element should be required in California's General Plans (question 14). This probably reflects an aversion to more state-mandated elements and the resulting challenge of achieving consistency among elements. In their open-ended comments, several respondents noted that, although they see no need for an additional element, they do believe strongly that sustainability principles should be incorporated throughout the plan.

Only 21.5 percent of respondents felt that their jurisdiction's General Plan reflected principles of sustainability (question 15). This is not surprising given that so many jurisdictions' plans were written prior to 1990 and the emergence of sustainability into the mainstream of planning thought. What is more difficult to understand, given that 85 percent of respondents believe that California communities must actively plan for sustainability, only 28 percent or respondents anticipate that future General Plan updates will significantly reflect principles of sustainability (question 16). A review of some of the comments placed at the end of this chapter helps explain this response—many planning directors note a lack of consensus as to how to define sustainability, and others point to the difficulty in selling the concept to development interests and citizens. Some planning directors believe that the slow, high profile and contentious nature of preparing General Plans hurts their ability to serve as agents of fundamental change.

Planning directors felt that staff represented the strongest force for sustainability in their communities, followed by citizens (question 17). Survey respondents included several other interests pushing for sustainability including nonprofit groups (particularly housing and environmental), developers, planning commissions, and outside agencies such as regional transportation agencies and state agencies. Many responded that there is a balance of interests pushing for sustainability while others felt that there was no clear force for sustainability within their community. State and federal government funding policies were cited by three-fifths of respondents as a formidable barrier to sustainability. Attitudes of both "citizens/voters" and "developer/landowners" were cited as formidable barriers by three in 10.

Responses Regarding Sustainable Transportation

Three-quarters of the planning directors responding agreed with the first definition of sustainability developed in Chapter 1, i.e. that a sustainable transport system should efficiently and equally serve economic, environmental and equity goals (question 4). There was equally strong support for the idea that sustainable transportation means promoting more environmentally friendly modes (question 5), and even slightly stronger support for the idea that the concept means reducing automobile use and dependence (question 6).

Fewer than three in ten respondents agreed that sustainable transportation entails the concept of transportation users paying the full costs associated with transportation. Nearly half of the planning directors disagreed or disagreed strongly with this definition, and about a quarter were neutral. Some explained their opposition or neutrality toward this definition as conditional: e.g. if all cost were included, and all subsidies to all modes eliminated, this would define sustainable transportation, but we are far removed from such an ideal.

Only slightly more than one-third of respondents agreed that a sustainable transportation entails less overall travel (question 7) and three in 10 disagreed or disagreed strongly with this definition. Finally, there was less support (three in 10) than opposition (four in 10) to defining sustainable transportation as making all modes "greener" without attempting to change mode use patterns (with three in ten indicating neutral or mixed feelings).

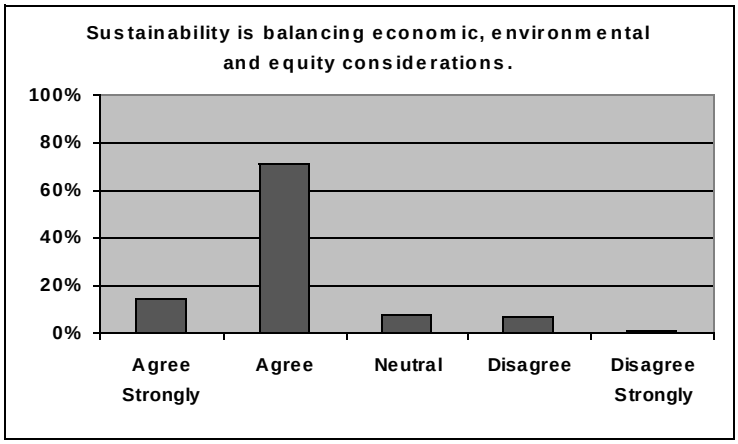
Nearly 90 percent believe that more research is needed to better understand the relationship between sustainability and local transportation planning (question 19).

Detailed Summary of Responses

Below is a detailed summary of the planning directors' responses question by question. The results have been summarized in both tabular and bar chart formats. This is followed by analysis of responses to an open-ended request for comments on sustainability, transportation, and the roles of the General Plan in promoting these concepts.

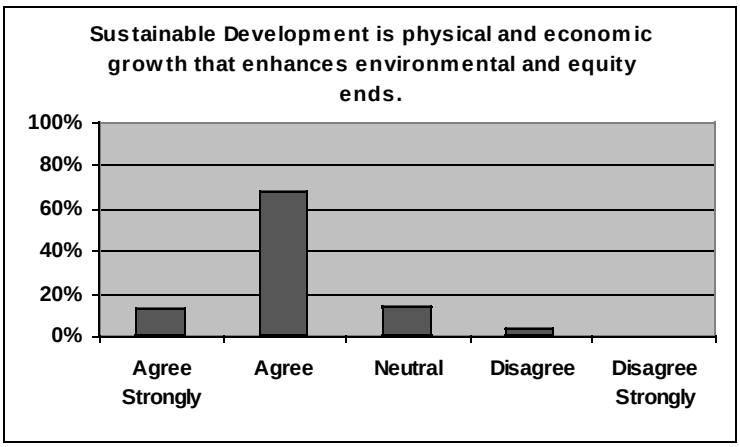
Question 1 asked: Do you agree that sustainability is balancing economic, environmental and equity considerations?

Choice	***Count***	***Percent***
Agree Strongly	17	14.00%
Agree	86	71.10%
Neutral	9	7.40%
Disagree	8	6.60%
Disagree Strongly	1	0.80%



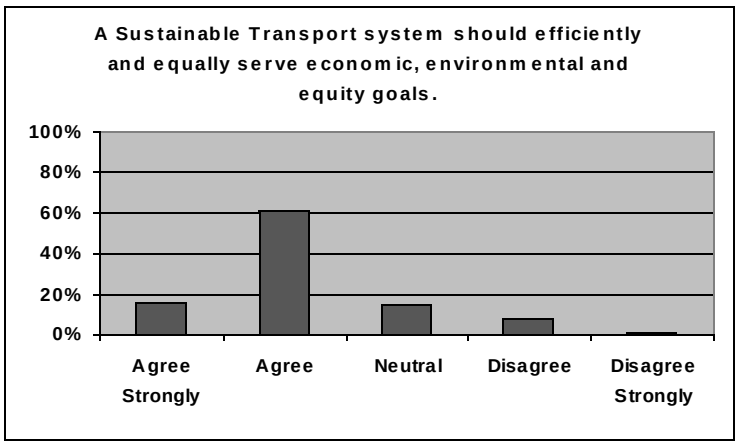
Question 2: Do you agree that sustainable development is physical and economic growth that enhances environmental and equity ends?

Choice	***Count***	***Percent***
Agree Strongly	16	13.20%
Agree	83	68.60%
Neutral	17	14.00%
Disagree	5	4.10%
Disagree Strongly	0	0.00%



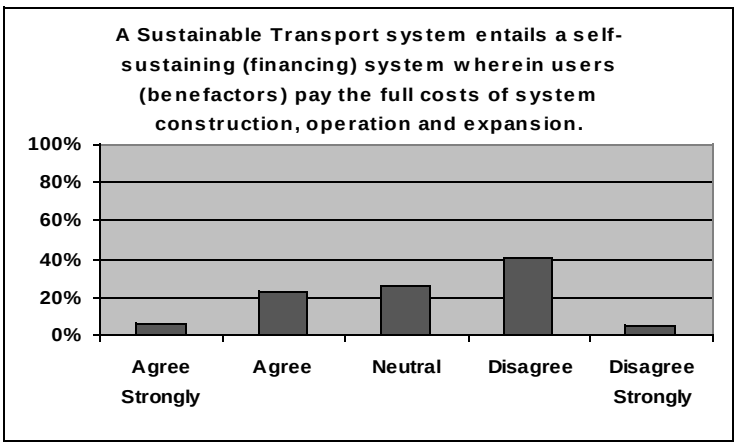
Question 3: Do you agree that a sustainable transport system should efficiently and equally serve economic, environmental and equity goals?

Choice	*Count*	*Percent*
Agree Strongly	19	15.70%
Agree	73	60.30%
Neutral	18	14.90%
Disagree	10	8.30%
Disagree Strongly	1	0.80%



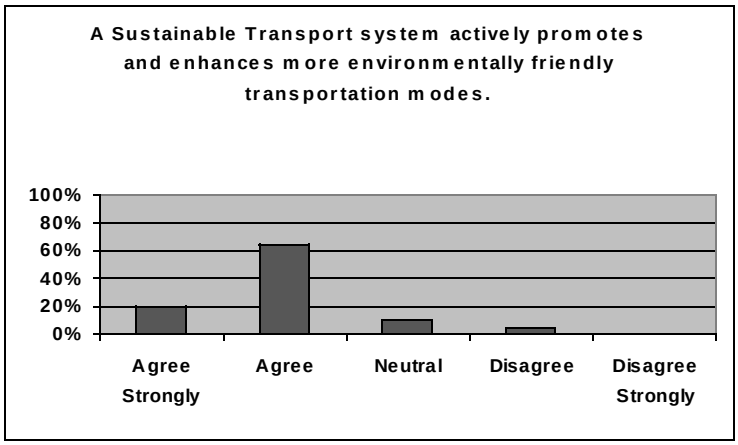
Question 4: Do you agree that a sustainable transport system entails a self-sustaining (financing) system wherein users (benefactors) pay the full costs of system construction, operation and expansion?

Choice	***Count***	***Percent***
Agree Strongly	7	5.80%
Agree	28	23.10%
Neutral	31	25.60%
Disagree	49	40.50%
Disagree Strongly	6	5.00%



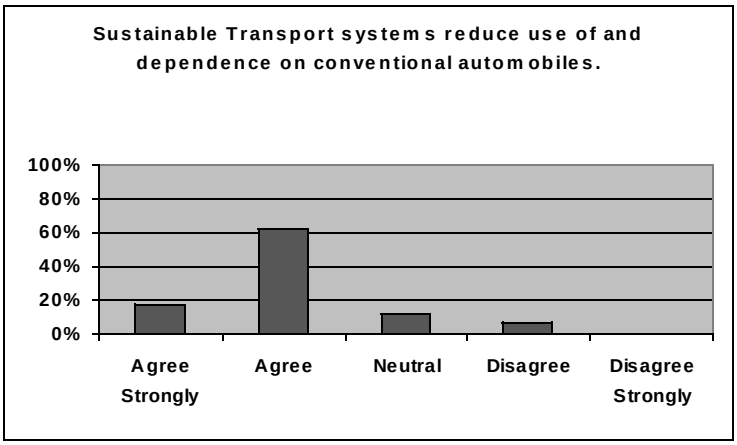
Question 5: Do you agree that a sustainable transport system actively promotes and enhances more environmentally friendly transportation modes?

Choice	*Count*	*Percent*
Agree Strongly	25	20.70%
Agree	78	64.50%
Neutral	13	10.70%
Disagree	5	4.10%
Disagree Strongly	0	0.00%



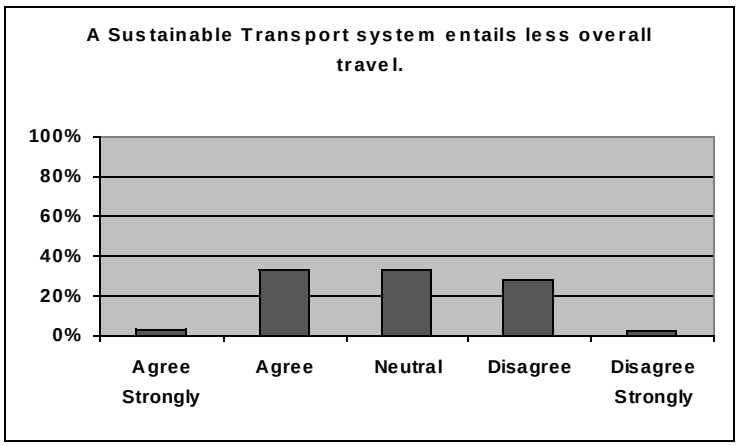
Question 6: Do you agree that sustainable transport systems reduce use of and dependence on conventional automobiles?

Choice	***Count***	***Percent***
Agree Strongly	22	18.20%
Agree	76	62.80%
Neutral	14	11.60%
Disagree	9	7.40%
Disagree Strongly	0	0.00%



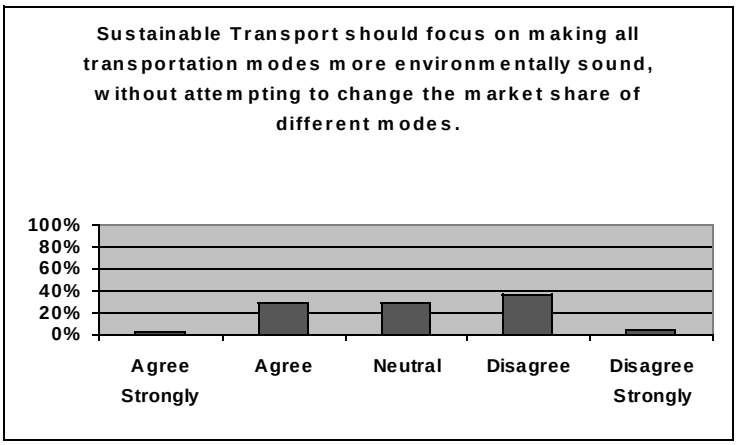
Question 7: Do you agree that a sustainable transport system entails less overall travel?

Choice	*Count*	*Percent*
Agree Strongly	4	3.30%
Agree	40	33.10%
Neutral	40	33.10%
Disagree	34	28.10%
Disagree Strongly	3	2.50%



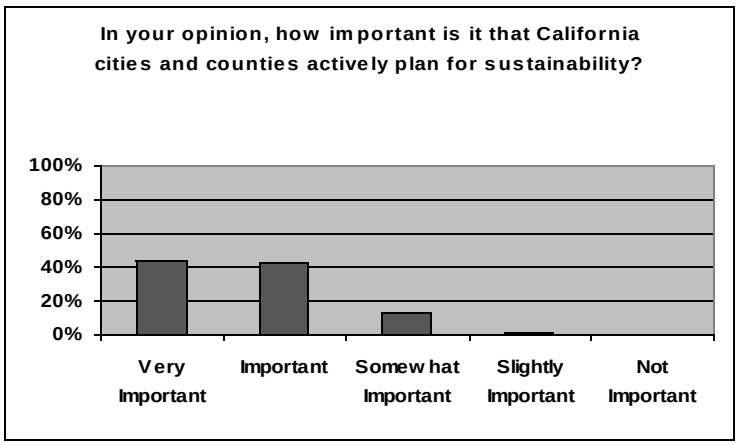
Question 8: Do you agree that sustainable transport should focus on making all transportation modes more environmentally sound, without attempting to change the market share of different modes?

Choice	***Count***	***Percent***
Agree Strongly	3	2.50%
Agree	35	28.90%
Neutral	36	29.80%
Disagree	43	35.50%
Disagree Strongly	4	3.30%



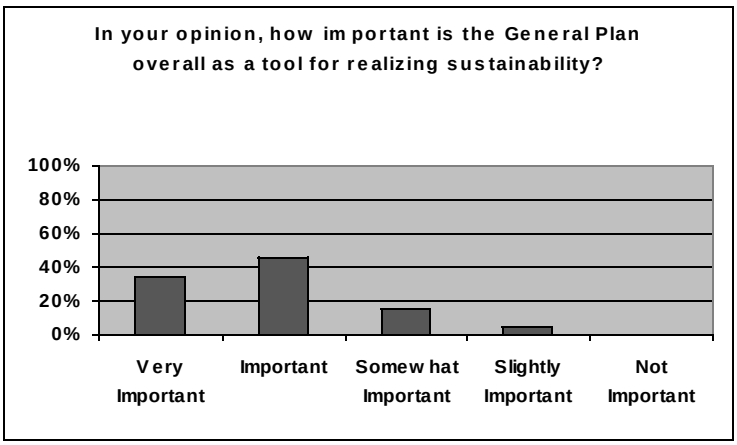
Question 9: In your opinion, how important is it that California cities and counties actively plan for sustainability?

Choice	***Count***	***Percent***
Very Important	52	43.00%
Important	51	42.10%
Somewhat Important	16	13.20%
Slightly Important	2	1.70%
Not Important	0	0.00%



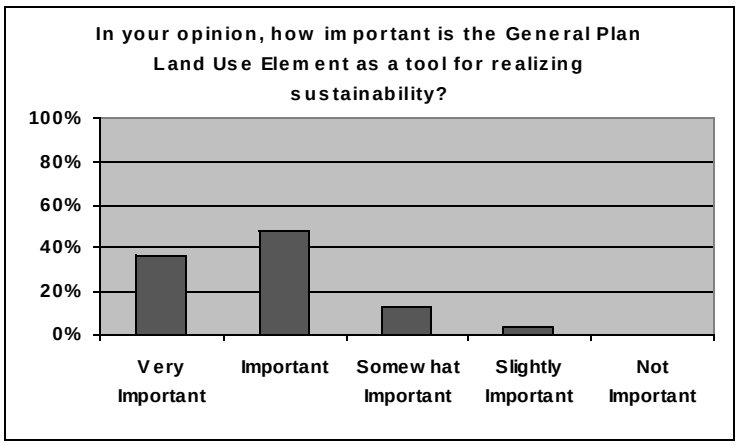
Question 10: In your opinion, how important is the General Plan overall as a tool for realizing sustainability?

Choice	***Count***	***Percent***
Very Important	42	34.70%
Important	55	45.50%
Somewhat Important	18	14.90%
Slightly Important	6	5.00%
Not Important	0	0.00%



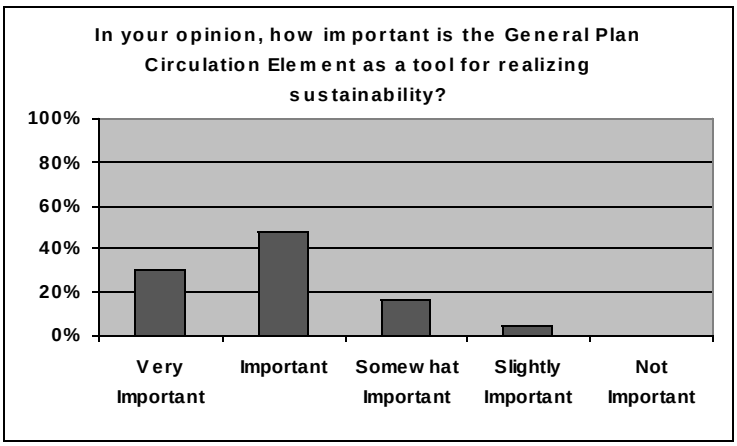
Question 11: In your opinion, how important is the General Plan land use element as a tool for realizing sustainability?

Choice	***Count***	***Percent***
Very Important	44	36.40%
Important	58	47.90%
Somewhat Important	15	12.40%
Slightly Important	4	3.30%
Not Important	0	0.00%



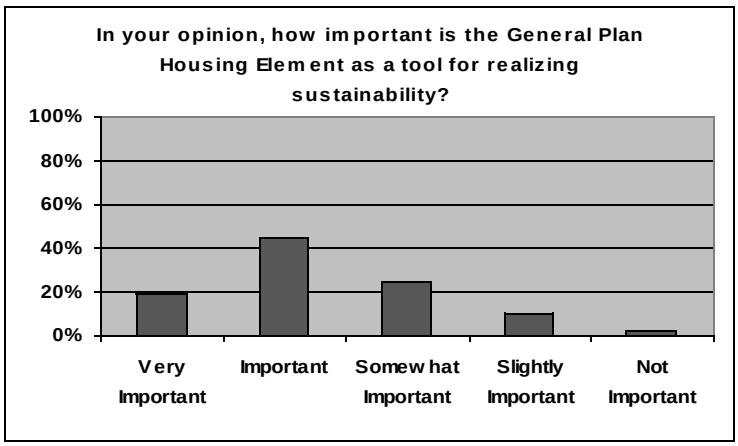
Question 12: In your opinion, how important is the General Plan circulation element as a tool for realizing sustainability?

Choice	***Count***	***Percent***
Very Important	37	30.60%
Important	58	47.90%
Somewhat Important	20	16.50%
Slightly Important	6	5.00%
Not Important	0	0.00%



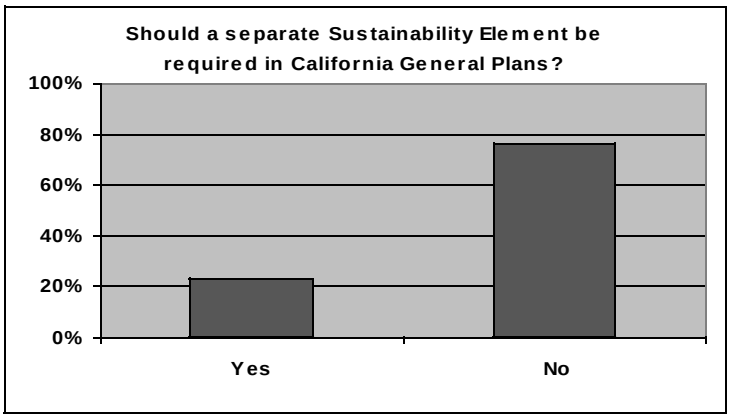
Question 13: In your opinion, how important is the General Plan housing element as a tool for realizing sustainability?

Choice	*Count*	*Percent*
Very Important	23	19.00%
Important	54	44.60%
Somewhat Important	30	24.80%
Slightly Important	12	9.90%
Not Important	2	1.70%



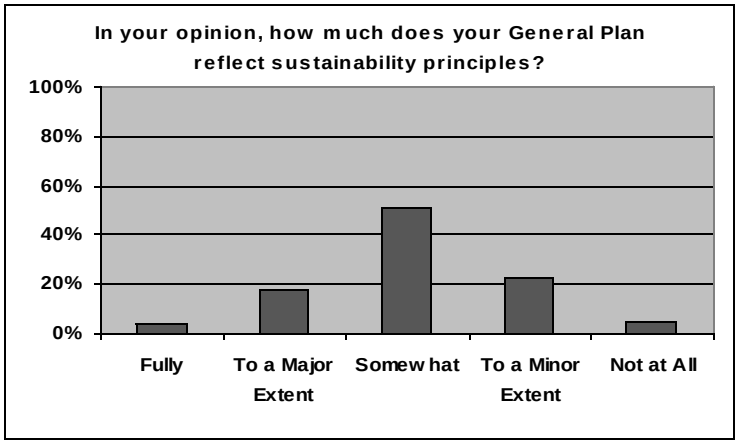
Question 14: Should a separate sustainability element be required in California General Plans?

Choice	*Count*	*Percent*
Yes	28	23.10%
No	93	76.90%



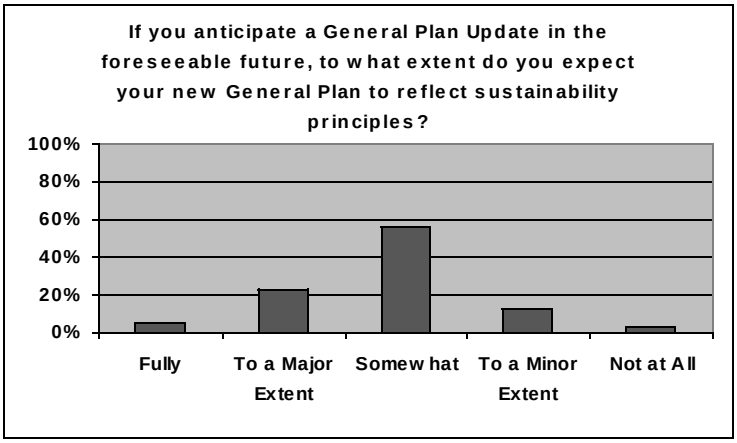
Question 15: In your opinion, how much does your General Plan reflect sustainability principles?

Choice	*Count*	*Percent*
Fully	5	4.10%
To a Major Extent	21	17.40%
Somewhat	62	51.20%
To a Minor Extent	27	22.30%
Not at All	6	5.00%



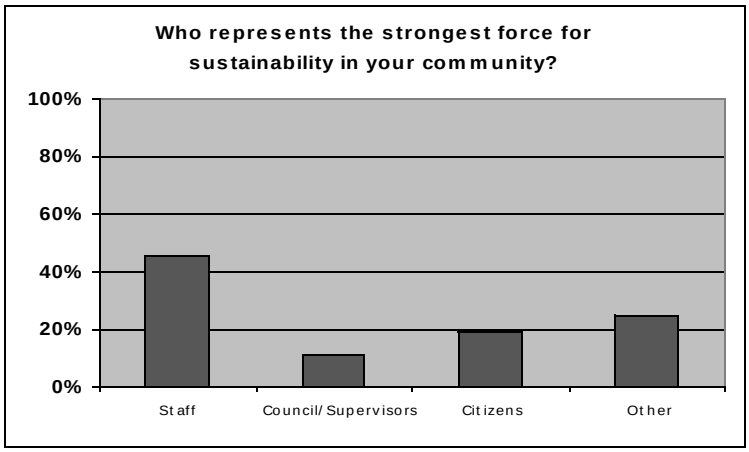
Question 16: If you anticipate a General Plan update in the foreseeable future, to what extent do you expect your new General Plan to reflect sustainability principles?

Choice	***Count***	***Percent***
Fully	6	5.00%
To a Major Extent	28	23.10%
Somewhat	68	56.20%
To a Minor Extent	15	12.40%
Not at All	4	3.30%



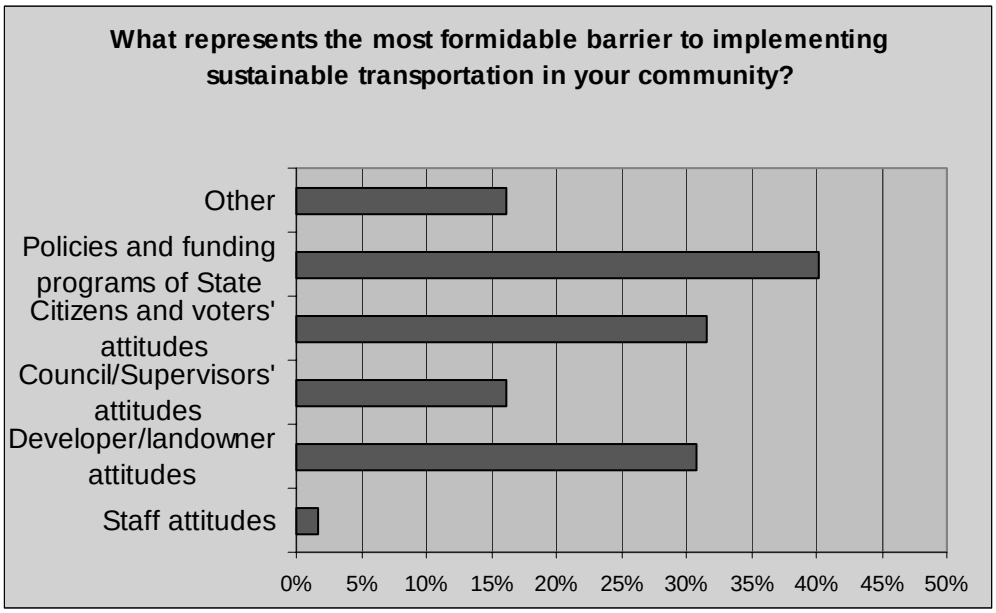
Question 17: Who represents the strongest force for sustainability in your community?

Choice	*Count*	*Percent*
Staff	55	45.50%
Council/Supervisors	13	10.70%
Citizens	23	19.00%
Other	30	24.80%



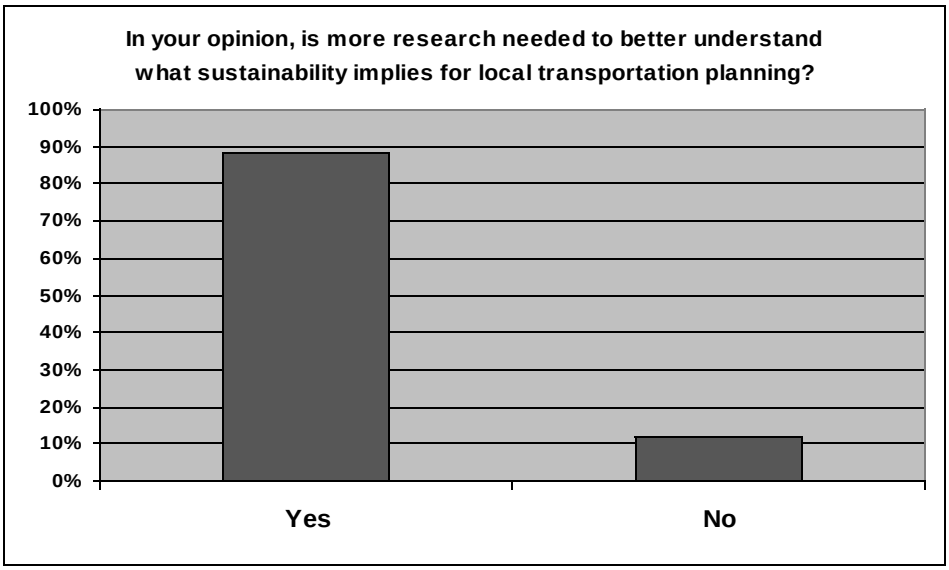
Question 18: What represents the most formidable barrier to implementing sustainable transportation in your community?

Choice	*Count*	*Percent*
Staff attitudes	2	1.70%
Developer/landowner attitudes	36	30.80%
Council/Supervisors' attitudes	19	16.20%
Citizens and voters' attitudes	37	31.60%
Policies and funding programs of State and Federal governments	47	40.20%
Other	19	16.20%



Question 19: In your opinion, is more research needed to better understand what sustainability implies for local transportation planning?

Choice	*Count*	*Percent*
Yes	107	88.40%
No	14	11.60%



Question 20 asked if the respondent to nominate General Plans that could be considered a model of sustainability planning. Only seven plans were suggested, six in California (the seventh being Seattle). Four of the six California plans—Davis, San Jose, Pasadena, and Sacramento—were included in the plan scoring exercise described in the preceding chapter. The responses nominating the other two cities (Danville and Santa Maria) were received and tabulated too late for their inclusion in the plan-scoring task.

Question 22 requested identification for control purposes (respondents were granted confidentiality), while question 23 asked if the respondents would be interested in participating in follow-up research related to sustainability (About two-thirds said that they would).

The final question (#23) invited the planning directors to make other comments regarding sustainability and the General Plan process. A total of 46 open-ended responses were made. These are presented verbatim in the next section.

PLANNING DIRECTORS' COMMENTS ON THE GENERAL PLAN, SUSTAINABILITY, AND SUSTAINABLE TRANSPORTATION

- Human sustainability involves the integration of economic physical and social systems in ways that promote balance and harmony. The General Plan can become both an educational and visionary tool to promote our necessary transition into a more sustainable living pattern.
- I agree that a sustainable transport system entails a self-sustaining (financing) system wherein users (benefactors) pay the full costs of system construction, operation and expansion, provided that the costs include all direct and external costs, such as environmental degradation, and the productivity losses resulting from transportation congestion.
- Difficult to promote sustainable transportation in Orange County—pervasive NIMBY attitude and large amount of sprawl. Also public transit will never become sustainable until costs of public roads are passed onto the users of private automobiles.
- [regarding question] 07. A sustainable transport system entails less overall travel. I think sustainable land use planning is the means to reduce VMT. The transportation system merely reacts to the realities of how our communities are designed. 12. In your opinion, how important is the General Plan circulation element as a tool for realizing sustainability? I think that transportation is only one element of a larger sustainability equation. The land use element should establish the framework for sustainability.
- Before "sustainability" becomes more of a confused fad than it already is there should be some serious and intelligent effort to define and scope it.
- Before the idea of "sustainability" can be incorporated into General Plans in a meaningful way, an adequate definition of just what "sustainability" means must be arrived at, one which can gain widespread acceptance. Today depending on the interests of the parties involved, sustainability can mean totally different things. Sustainable growth could be sustaining environmental systems or sustaining economic growth to support increasing populations, etc.

- I am not sure I agree with how you define sustainability. I don't think that the three characteristics mentioned are all that is required. I also believe there is likely to be a continuing need to subsidize some social goals such as transit until the habits of most of us are reformed and our life circumstances are conducive to use of such transportation alternatives.
- I don't believe it is productive to set a requirement that sustainability be included as a separate element. However, I do believe that sustainability principles should be a significant component of General Plans—perhaps included in many elements.
- I just got back from the Smart Growth conference in San Diego and I'm in the process of updating our General Plan. I intend to utilize as many principles as can be applicable, but I'm using the reason to help retain our small town community, which is the number one reason our citizens love the community.
- I like the theory that sustainability means balancing equity environment and economics, but the reality is far different. Economics seem to matter very little or are poorly understood when the costs for "equity" and "environment" issues are not clear. Clear cost/benefit ratios would be helpful in making progressive choices for the future of a city or region.
- I question whether or not "sustainability" involves "balancing" or "equally" considering environmental and economic concerns. It may be that in order to ensure that the environment will continue to provide the support we want there will have to be greater consideration of the environment over economic growth in many of our decisions. I'm not saying that I know this to be true but I suspect that sustainability may involve economic tradeoffs that are unpopular, especially to landowners who wish to develop their property. Also I'd be happy to discuss the reasoning behind any of my answers above should you need further clarification. Most of my "neutral" responses do not mean I don't have an opinion. I believe that will be a number of alternatives to conventional practices that could be considered "sustainable" and my answer to the questions you pose above will differ depending on the chosen alternative.
- I regard "sustainability" as growing within the ability of a city to provide the required resources i.e. water sewerage treatment landfill open space... The first series of questions placed economics and equity at the same level as sustainability. It is obvious that economics are part of the equation but if you're leading to a requirement that cities have a sustainability element of the GP then it should be based on resource availability. If you call the new element a "land use transportation and resource sustainability element"

then I would answer the questions in the first part of this questionnaire differently.

- I think sustainable development should be a framework for all decision making, not only for government but for the private sector as well. OPR should include it in their new General Plan guidelines. Elementary schools should include it in their curriculum too. It is a good time for an education program right now. I commend your efforts. Thank you for the opportunity.
- I think we need to focus less on the latest buzz word for good planning principles and focus more on selling the ideas. We don't need any more jargon. I think the term "sustainability" creates as much resistance as it does garner support. If the ideas don't ring true by themselves then they are not worth pursuing. Why cloud the issue with a new (well not so new anymore) term? We also need to ask ourselves the question as to whether the public wants it. Name 10 principles of sustainability and ask yourself if the place you live in or the way you live your life is consistent. If it isn't then how do you expect to promote them with any success?
- I would like to know to what extent cities and counties have linked implementation to the General Plan policies. What methods have been successful what methods have not.
- In my opinion, the General Plan only represents a potential future tool. We have MAJOR obstacles to overcome first, in our expectations and attitudes, within the U.S. I believe that, unfortunately, substantial progress will be made in implementing a sustainable future only when Americans are faced with substantially fewer resources. Until then, I believe that sustainability will only be implemented in very limited ways.
- In my view sustainability should be first an environmental objective and secondly an equity and economic concern.
- Individual cities cannot reach the goal of sustainability. It requires outside influences from other jurisdictions, including cities, counties, state and federal. I am not an advocate of regionalism (we have our fill of it already with SCAG (the MPO) and SANBAG (our county transportation commission), but "sustainable communities" (if there is such a creature) cannot accomplish it without including exterior influences.
- It is most important that the public and local decision makers be educated about the benefits of sustainability and comprehensive rational planning and the costs of sprawl and lack of planning. The challenge is to successfully accomplish that!

- It is my view that sustainability in the end of itself as part of a General Plan process is not what is important. What is important is the community's attitude towards their community. If the community wants a General Plan that takes into account principles of sustainability then it will happen. But simply to write these principles into a General Plan does not necessary guarantee that it will happen. The problem with the General Plan process currently is how contentious it can be to get one approved. Ask any planning director who's looking for a job, the first question to ask is, "what is the status of your General Plan?" If the General Plan is old and out of date and needs a comprehensive revision, then move on and find another location with a General Plan more up-to-date. Comprehensive General Plan updates are taking over five years to accomplish. They cost huge amounts of money to process and they create substantial community upheaval. And then when passed, they are subject to community challenge via lawsuits. Because of the subjective nature of CEQA, there is no guarantee of any legal outcome. The problem is, we are so busy trying to create a legal defense of [a] General Plan that sometimes we lose sight of the forced for the trees, what is the real purpose of this General Plan.
- Many of the questions seemed rather simplistic. Many of the questions had compound components and resulted in answers that may be "agree" for one component and "disagree" for another. There was no opportunity to elaborate on the answers. Question #3: The word "equitably" should be used instead of "equally." Question #4: Having all benefactors fully pay for transport system based on use compounds social inequities for lower-income persons/families.
- My difficulty with your questionnaire is your vague definition of sustainability. I doubt if I can more clearly define it but now when I hear someone use the word I realize that they are using a meaningless phrase (impressing me with blown smoke). I thought that sustainability meant the state of "community" in which the economy the quality of life and the consumption of natural resources were in balance...which of course is NOT the case for any California community! We do not directly use the term Sustainability since no one in the community would understand what it meant but the concept of balance is important to any General Plan.
- Need to better define land use and transportation sustainability.
- Question #16 should have a not applicable selection if a city does not plan a major update of its General Plan in the near future.
- Question 1 clarification: Sustainability is all based on economics, and how much environmental and social cost can be absorbed. Investments will not

be made if the costs not associated to a return on the investment are too great. Economies of scale play an important role here as well. In rural areas people must be more self-reliant because the community is too small to subsidize large socially supported systems. 2. But again if the environmental and equity cost are to great investment will not occur. 3. The economic side pays the entire cost. Environmental and "equity" (I read re-distribution of wealth) benefit from the extra cost placed on the investment in the form of subsidies for environmental and access benefits. 5. If the users do not find the system convenient to their needs they won't use it, and the cost of the conventional transportation modes (personal vehicles) will compete for the scarce resources. 6. Only if it is convenient to the needs of the users. See responses to #5 and #7. People will curtail their travel when it costs too much or is too much of a hassle. All people do not have a "love affair" with their car, they like the personal freedom it provides. 12. The Regional Transportation Plan needs to play a bigger role in the circulation element. 13. However, competing interests in life-styles plays a large role. Many people want a large backyard for their children and pets. Others do not want the hassle of yard maintenance. Regional economics also has a role. Where land is cheap development is horizontal, where it is expensive it goes vertical. 15. We are more concerned about a sustainable agricultural economy. Hungry people are not productive and will not sustain either the economy, the environment, or "equity."

- San Rafael is in the process of preparing a new General Plan. Thus far we've seen more interest in incorporating smart growth and livability concepts in the plan than in using sustainability concepts. Although smart growth and sustainability are very similar in approach the terms of smart growth resound more with our constituents perhaps because San Rafael is built out and a commercial center for the County. Marin County is currently drafting a sustainability element and we are following their work closely to see what could be included in San Rafael's plan.
- Small cities in Northern California will have a much greater problem in transportation planning and in finding funding to help pay its cost. The automobile is our primary transportation system, the bus system does cover many parts of the city and county but it cannot take the place of the automobile, riders are not concentrated to make it cost effective.
- Sustainability to me equates more with building a community that stands the test of time it doesn't "go out of style” it isn't bypassed it can reinvent itself with changing conditions. It is about physical form economic vitality and healthy social structure. It is a three-leg stool that doesn't work if all are not present. Please use this in considering the above answers.

- Sustainability cannot be applied uniformly throughout the state. It is more attainable in an urban area where greater choices and funding can be made available. Sustainability in rural areas must be defined differently due to fewer resources a lack of economic diversity and attitudes.
- Sustainability is a buzzword like smart growth, which I view as having a very broad definition that is reflected in my responses to questions 1 & 2. It is my opinion that General Plan elements could be used more fully to realize sustainability concepts. Question 14 is a little general (sounds good but it would depend on specifics). With regard to question 16, I don't anticipate the city initiating any major General Plan updates that would reflect sustainability principles.
- Sustainability is basically about integration. While the General Plan is an extremely important tool for local planners, perhaps it is time to reconsider the current practice of "elements" as they are presently constituted. State law gives a lot of latitude on how to structure a General Plan (except housing elements), but in that latitude perhaps the sustainability issue gets lost. As long as the existing state-local government financial system gives incentives to focalization of land uses, there won't be a lot of progress on sustainability issues.
- Sustainability is unlikely in a small town surrounded by larger communities. The market interaction is too complex. Goals and efforts are worthwhile but cost and limitations on movement of people limit its applicability.
- Sustainability should be considered as a major factor in developing General Plans. However it needs to be on a statewide basis. It isn't fair (for example) if the Central Valley cities worry about sustainability if the Counties don't or if Bay Area cities/counties don't. As a Central Valley city we are severely impacted by Bay Area cities/counties not doing their fair share to provide affordable housing for their own population. They keep adding jobs but not many people can afford to live close to those jobs. Consequently more and more people buy houses in the Valley (driving up our housing prices and pushing out longtime residents and low income families) and commute (leading to severe traffic congestion and severe air quality impacts).
- Sustainability, or lack thereof, within development appears most influenced by private sector and homeowner perceptions (i.e., a single family home on a big lot). General Plans can't force a developer to build a well-designed, high-density project. I think planners and the educational community should actively promote alternative development forms. If a new market

perception can be developed, then we will see denser projects that conserve resources and promote alternative transportation.

- Sustainable community and sustainable transportation do not have consistent definitions and are not well known concepts so they are not promoted beyond a small environmental contingent in this area.
- The concept of "sustainability" needs better definition and a broader base of public understanding. Until the term is more clearly understood, it will probably be difficult to pursue.
- The housing element process, as currently conducted under state regulations, does not integrate with other sustainability objectives such as transportation efficiency or environmental quality. It is based on the assumption that the state must, and can, continue to grow, without any constraints to that growth factored into the designated growth.
- The most powerful tool is education of the locals as to what sustainability is and the benefits it offers. The Local Government Commission is trying to do this.
- The scope of work for our new General Plan carries a great deal of effort toward sustainability. Community outreach and visioning will begin soon; the success of sustainability will be seen in the final adopted policies and implementation programs.
- The survey instrument is too narrowly drawn to yield very meaningful results; it appears to attempt to support a predetermined position.
- This is a poorly worded survey leading to particular responses. This survey is not objective, nor does it allow responses to reflect the various shades of gray that is part of all-important issues.
- We are very interested in receiving up-to-date information concerning techniques for achieving sustainability in rural cities. We will be revising our General Plan housing element soon and will be injecting a sustainability theme that will lead to revisions of other General Plan elements. Please keep us informed of your progress and we would appreciate copies of survey results recommendations etc. Thanks.
- Where I marked "neutral" on certain definitions above, it is because I'm not sure I agree with your precise definitions, and not because I'd don't agree conceptually with your definitions. Also, when you refer to "equity" as one of the balancing considerations in sustainability, I think that "social equity" is a clearer term for what I think you are trying to convey.

- You need to define "equity" and how that definition fits in a political and economic system where there are winners and unfortunately losers.

CASE STUDIES

CASE STUDY OVERVIEW

The survey of planning directors (Chapter 3) revealed that planners endorse most aspects of sustainable development and sustainable transportation wholeheartedly. Moreover, they view General Plans as crucial to implementation of sustainable development and sustainable transportation, but see significant barriers to General Plans realizing this potential.

The plan scoring and analysis (Chapter 2) revealed that most land use and housing elements lack transportation related language and linkage to transportation policies. There is also a relatively low frequency of strong ("shall") policies and a paucity of directly tied implementation measures. Perhaps most significantly, while almost all individual plan policies were given high marks for clarity, plan documents as a whole proved hard to locate, read and understand. Not unexpectedly, the policies that support sustainable transportation emphasize land development and capital facilities, rather than changing pricing, transport technology, or human behavior.

Long and complex as it may be, the General Plan document is not the whole of the General Plan process. Case studies were therefore conducted to look at a number of issues that could not be gleaned from mere examination of General Plan texts, specifically:

- The General Plan development and update process;
- How the General Plan relates to sustainable transportation;
- How the General Plan relates to other transportation and land use planning processes such as specific plans, and regional and county transportation plans; and
- How the General Plan is understood by planners, others in local government and citizens.

Regarding this last point, interviews were conducted to establish multiple "views" of the General Plan and the processes that create, update, and implement it:

- The view from the planning department;

- The view from elsewhere in the local government (elected officials, operational city departments, e.g. the city manager or the public works director, etc.); and
- The view from the private sector, ideally including both the business and environmental communities.

The Case for Case Studies of Sustainable Transportation Planning

"Outsiders," even other planners, often view urban transportation planning as a redoubt of technical-rational or rational-comprehensive planning. And transportation planning, by virtue of its engineering roots, has more technical tools and quantitative models than most planning sub-fields. Since the 1950s, urban transport planners have centered their work on computerized four-step travel demand models of urban travel in congested central city areas. Through the 1960s the focus of modeling was work journeys to central business districts (Meyer et al, 1965). Solutions typically tested with such models were large-scale mainline surface transport facilities such as urban motorways and high-capacity radial rail public transport.

Travel-demand modeling is alive and well, but travel demand has changed since the 1960s. Although transit use has increased in many cities, travel trends in California (and throughout most of the more developed world) can be characterized as more and longer trips made increasingly by automobile drivers. With the proliferation of automobile use came proliferation of automobile impacts to both the human and natural environment. As noted in the literature review, parallel concerns about human and natural environments coalesced in the 1980s under the rubric of sustainability. In the 1990s the concept of sustainability began to be applied to urban land use land transportation planning (United Nations, 1992; Litman 1999).

Over the past decade, notions of sustainable local land use and transportation have developed. While sustainable transportation planning is not a mainstream concept (indeed as noted in the literature review there is still not a full-fledged notion of "sustainable transportation planning") there is widespread and growing interest in the concept.

With the reauthorization of the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) in the form of the Transportation Equity Act for the 21st Century (TEA-21) in 1998, it is, perhaps, no longer premature nor an exaggeration to speak of "a broader context" for federal transportation planning programs (Dittmar, 1995). This broader context looks at the ends

which transportation serves rather than the facilities providing the service. In this new view the social and environmental externalities are increasingly central to transportation planning, and consequently moves to explicitly cost them and count them are on the increase (Toleman, McDermott, and Lee 1997; Litman, 1997).

Yet while nations from the U.S. to New Zealand attempt in different ways to better integrate transport systems within the environments they are embedded in and serve, no truly comprehensive model of sustainable transportation planning has yet emerged. Hence, there is a need for exploratory research, and for use of methods appropriate to such research. Case studies may be viewed as a "comprehensive" exploratory research technique. For Robert Yin (1994, p. 13) "a case study is an empirical inquiry that "investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon here, (the General Plans) and the context (cities and counties) are not clear…"

The case study inquiry:

- Copes with the technically distinctive situation in which there will be many more variables of interest (e.g. plan policies and how they are established and implemented) than data points (e.g., local jurisdictions that have established and implemented them);
- Relies on multiple sources of evidence, with data needing to converge in a triangulating fashion; and
- Benefits from the prior development of theoretical propositions to guide data collection and analysis.

In this sense, the case study is "…a comprehensive research strategy" (Yin; 1994, pp. 13).

Sustainability and sustainable transportation in particular are complex and emerging phenomenon. As such they are highly suited to the case study approach. The case study approach permitted integration of research methods and of information from a variety sources: a literature review of international and local transportation and land use planning literature, statistical data, the survey of planning directors, interviews, site-visits, and participant-observation, to name the principle methods employed.

There is an even more fundamental reason for doing case studies. As Robert Stake (1995, p. xi.) notes "We study a case when it itself is of particular

interest. We look for the detail of interaction with its contexts. Case study is the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances."

THE CASE STUDIES

- **Arcata**
- **Davis**
- **Petaluma**
- **San Francisco**
- **San Luis Obispo city**
- **Santa Monica**
- **San Diego**

Each of the case studies has unique characteristics; in each case, their uniqueness is one reason why the jurisdiction was selected. For example, San Francisco is the epitome of larger, older cities with the full range of transportation options. San Diego is a newer large city that has successfully implemented a light rail system over the past two decades. Santa Monica is a smaller, bounded city, which has recently been exemplary in sustainable urban "operational" programs that were developed independently of the General Plan process. Petaluma represents an unbounded (i.e., has room to grow) mid-size city with a long history of planning innovation, where an ambitious effort to implement a General Plan built around sustainability has been interrupted. Davis represents another physically unbounded mid-size city with a long history of planning innovation, but in a Central Valley context, which is the projected locus of much of California's growth. San Luis Obispo offers a full range of growth and planning issues. Arcata is a small city with relatively slow growth, but with a new General Plan deliberately designed along principles of sustainability.

While each of the cities studied in detail has unique characteristics of interest, and the case studies were chosen in part because they were exceptional and exemplary, the focus in the case study write-ups as presented below is on concepts and lessons with real potential for successful application to other California cities and counties.

In this chapter, we will take the reader on a tour of California, its General Plans, and their relation to sustainable transportation planning. Our tour will proceed from north to south, from Arcata, our smallest case study (but with one of the state's newest General Plans), to San Diego, the state's second largest city (and with one of its oldest General Plans).

THE ARCATA CASE STUDY

Introduction and Overview

Arcata is located in the coastal heartland of the "Redwood Empire," six miles north of Eureka, Humboldt County's center of government and largest city, and 275 miles northwest of San Francisco. To the north of Arcata is Crescent City in Del Norte County, and the coast of Oregon. Approximately 150 miles to the east is Redding and the Upper Sacramento Valley, connected to Arcata by Highway 299. Arcata, situated at the north end of Humboldt Bay on a coastal terrace, is relatively rural and isolated from the expanding urban areas of California. The city has experienced only modest population growth during the past 10 years, totaling 16,651 according to the latest U.S. Census (2000). The recently adopted *Arcata General Plan and Local Coastal Plan* assumes a population of about 20,000 by the year 2020. The region is experiencing a significant transition from a large-scale timber industry dominance to a more diverse economy. For Arcata, Humboldt State University represents a major influence on the community with slightly more than 7,500 students attending the campus to the east of the downtown area, across Highway 101.

Arcata takes great pride in its small town scale and sense of community. The city contains a number of distinct neighborhoods varying from its Downtown Plaza Area to hillside and coastal plain residential areas. Arcata has developed an integrated circulation system with the goal of connecting its diverse parts with alternative transportation options. During its 140 years of settlement, Arcata has evolved into a diverse community in terms of land uses and architecture. The city is the home of the well known Arcata Marsh and Wildlife Sanctuary, which hosts visitors from all over the globe to study the environmentally sensitive wastewater treatment facility. Arcata even has its own community forest, and an adopted community policy opposing nuclear power.

Although Arcata has an image of being a city "stuck in the Sixties," its interest in community planning has made it one of the most progressive cities in California with a commitment to sustainable living. This commitment is

reflected by the Community Vision Statement in their newly adopted General Plan, which clearly states, “Sustainability is a way of life,” and the intent is to conserve “resources so they may be enjoyed by the seventh generation (1-1).” In fact, the glossary of the General Plan contains a definition of sustainability: "Community use of natural resources in a way that does not jeopardize the ability of future generations to live and prosper (G-22).” However, this interest in sustainable living among the community leadership and citizens precedes the current popularity of the concept. It appears the 1974 election that heralded the shift of the city council to a more progressive agenda germinated the roots of the sustainability movement now strongly reflected in Arcata’s new General Plan. It started with the new majority on the city council determining in 1974 that the old General Plan from the 1960’s needed “fixing” and proceeded to do it.

Table 4-1 Population Change (1990-2000)

	1990	***2000***	***Increase (%)***
Arcata	15,197	16,651	(9.6%)

Source: U.S. Census

The General Plan and The Seeds of Sustainability: The 1975 Plan

The modern era of planning in Arcata began with the preparation and adoption of the 1975 General Plan (Resolution No 756-14, December 17, 1975), and amended in 1980 as a five-year update (Resolution 801-26, November 5, 1980). The plan contained a range of policies and implementation measures that limited new development based upon environmental resource and hazard constraints, to be located adjacent to existing urban areas and services, and reflecting community preferences for design and appearance, especially related to historic structures and neighborhoods. They city was to be defined by greenbelts containing agricultural, forest, and coastal resources protected with the support of the county.

The plan contained 148 policies and 75 recommended implementation measures, plus subsets, organized into seven chapters that represented the nine state-mandated elements and the California Coastal Act of 1976. The chapters included Urban Development and Community Design, Natural Environment, Economic Environment, Residential Environment, Public Facilities, Park and Recreation Facilities, and Coastal Environment. In addition, each chapter contained a section discussing how the policies and implementation measures related to the General Plan Map.

A number of policies and implementation measures specific to transportation were contained in various chapters of the plan, but a majority was contained in the Public Facilities Chapter. For example, in the Community Design and Appearance Section of the Urban Development and Community Design Chapter, policy 13 suggested, "The City's major roadways should be organized to improve linkages with key destinations while at the same time, protecting residential neighborhoods from unrelated traffic." As a related implementation measure (G), the plan recommended that "When designing new streets or reconstructing old streets in residential areas, the city shall consider…design modifications to discourage unrelated traffic," including, "'necking' or narrowing the entrance to a street by extending the curbs to slow traffic," and "narrowing the street width to provide a psychological impediment to the driver in a hurry," for example.

The Public Facilities Chapter represented a comprehensive approach to public service and facility provision, providing a context for future transportation improvements. Specific transportation related policies included:

- The city should support a balanced transportation system which increasingly emphasizes alternative transportation modes and de-emphasizes reliance on the private automobile (Policy 2).
- The city should encourage the continued development and expansion of local and regional public transit systems that are responsive to the changing needs of planning area residents (Policy 3).
- The city should ensure that Arcata's existing and proposed street alignment and highway network serve the functions they are intended to serve while protecting the character of Arcata's residential neighborhoods (Policy 4).
- The city should support bicycling and walking as significant transportation modes that promote personal health and recreational enjoyment while minimizing energy consumption and environmental degradation. The city should correct deficiencies in and expand the existing facilities, and should provide the design of safe, convenient and attractive bicycle and pedestrian facilities in new public and private development whenever possible (Policy 5).

The related implementation measures were to be connected to the city's Capital Improvement Program. Funds allocated for transportation were to emphasize an increased commitment to public transit, bicycle facilities, and pedestrian facilities (V-4). Also, traffic volumes on local streets were to be monitored, especially in the central Arcata/south-of-campus areas to determine if traffic control measures were needed. Additional measures recommended coordinating improvements with the Arcata and Mad River Transit System

(A&MRTS), including support facilities (rain shelters, wheelchair lifts, etc) and expanded service. Significant attention was given to evaluating and expanding the existing bicycle route plan, including the construction of Class I Bicycle facilities in the rights-of-way of new arterial and collector streets and amending the zoning ordinance to require bicycle support facilities.

THE CITY OF DAVIS CASE STUDY

Introduction and Overview

Davis is a Yolo County city located in the Central Valley, 15 miles west of Sacramento and 50 miles northeast of the San Francisco Bay region, along the Interstate 80 corridor connecting the two major urban areas. Nearby cities include Woodland to the north, Winters to the west, and Dixon to the southwest, and West Sacramento to the east. Davis is surrounded by flat, prime agricultural land with the two mile wide Yolo Bypass flood protection area about three miles to the east. The city has experienced significant population growth, especially since 1950 when the population was less than 5,000 to its current total of 60,308, paralleling the significant expansion of the University of California Davis campus. Between 1990 and 2000, the population of Davis increased 30.5 percent, representing one of the largest increases in the Central Valley, a region experiencing significant growth pressure. The newly adopted Davis General Plan Update projects a population of 61,955 by the year 2010, representing an attempt to slow down and reflecting a voter advisory measure from the 1980s “to grow as slow as legally possible.”

Table 4-2 Population Change (1990-2000)

	1990	***2000***	***Increase (%)***
Davis	46,209	60,308	14,099(30.5)

Source: U.S. Census

Davis can be characterized as a small-scale, unbounded, university community within an agricultural setting. According to the Plan Update, the City can be divided into three distinct components:

- The Downtown with a compact, grid street pattern, serving as a major center of commercial and community activity.

- Cohesive residential neighborhoods bounded by tree-lined streets surrounding the downtown, with additional neighborhoods reflecting the era they were developed as the city expanded.
- The UC Davis campus, as a dominant physical, economic, and social force in the community, with a current student population of 25,848.

The interrelationship of the three components may serve as one major indicator of whether Davis can achieve success in the long run as a sustainable community. All three contribute to the high level of citizen interest in the city's planning policy. It has been observed that "the City's peak hour traffic hour is not 5-6 p.m. like most communities, but rather 7 p.m. when citizens are dashing from their dinners to attend a myriad of meetings." The evolution of the newly adopted General Plan update is the latest symbol of an intense community based planning process subject to occasional political mood swings by the voters.

The 1987 General Plan and 2001 Update: Sharing the 2010 Time Horizon

On May 23, 2001, the City Council adopted the "The City of Davis General Plan Update" (Resolution 01-72), bringing the 1987 General Plan into the 21st Century with continuation of a 2010 time horizon. The plan update consumed eight years of public process to ultimately represent a 10-year vision. Numerous workshops, informal "kitchen" conferences, massive solicited citizen input through local schools, newspapers, and the internet symbolized the public arena in which the plan evolved. No less than 14 General Plan committees appointed by the City Council drafted visions, goals, policies, and actions. The Planning Commission and City Council held numerous public hearings over a two-year period to review the draft plan. Preparation of the plan update and the process cost $1 million. A year and a half after the final draft document was completed, the City Council voted 4-0 to adopt the plan update, with the mayor observing, "In the General Plan we are adopting, Davis will be a small city."

Since the plan update is an extension of the 1987 Plan, a review of the policies and implementation measures of the previous plan document would be fruitless. However, some brief comparison of similarities and differences, as outlined by the city, between the two plan documents is appropriate. Similarities include a planning horizon of 2010, a projected population maximum below 64,000 for the city, vision of a small compact, university town surrounded by farmland and habitat, slow managed growth, a downtown

core as retail/cultural/office center with pedestrian scale, and self-contained neighborhoods served by retail, school, parks, greenbelts and bikeways. Other similarities include a mix of housing types, a balanced transportation system, prohibition of six lane roads, encouragement of trip reduction programs along with transit alternatives, significant commitment and investment in bikeways, and corridor plans to mitigate road impacts. Major differences between the two plans include the plan update calling for moderate increases in densities in residential categories, increases in commercial floor area ratios, establishment of an urban limit line, encouragement of transit-oriented and infill development, reduced level of service standards for roads, promotion of human scale design conducive to pedestrian use, and neighborhood based improvement programs, among others.

The plan update includes the seven state-mandated elements, as well as seven optional elements: economic development, urban design, neighborhood preservation, parks and recreation, youth and education, art and culture, and human services. The 14 elements are divided into four Sections: Community Form, Community Facilities and Services, Community Resource Conservation, and Community Safety. The traditional Circulation Element is represented by the "Mobility" Chapter (2) in Section IV, Community Form (p. 87).

The balance of the plan update (final draft) document includes sections providing an introduction, planning context, visions, plan implementation, glossary and definitions, and appendices. Jeff Loux, former community development director, maintains that the 1987 Plan promoted sustainable concepts, although the term was not prominent in the text. However, as a continuation of the 1987 Plan, the plan update does include the term in the vision discussion under Quality of Life (p. 39) and Natural Resource Protection and Restoration (p. 40). Also, "sustainable" is defined in the glossary as "used, designed or conducted in a manner that does not impede the ability of future generations to live or use resources." (p. 346) Also, "mobility" is defined as "the movement of goods and provision of access to activities and community services that is reasonably available to all people, including those who do not drive automobiles due to age, income, illness, disability, or choice" (p. 344).

Mobility: Transportation and Circulation

Two things often stand out to a visitor in Davis: trees and bicycles, especially in the Downtown area and adjacent neighborhoods. They complement each other. The trees provide shade from the summer heat and the bicycles symbolize a major form of movement around the city, especially when the

University is factored in. The trees make bicycle riding and walking enjoyable, and contribute to the reduction of automobile traffic. This setting helps support the diversity of movement afforded by the four subsystems of the city's transportation and circulation system: streets, bikeways, transit, and pedestrian ways.

A key intent of the plan update is the reduction in standards to allow Level of Service (LOS) "E" for automobiles using arterials and collectors during peak hours (intersection and segment operations) and LOS "D" during non-peak hours. Also, neighborhood or corridor plans may allow for LOS "F" during peak hours, if approved by the City Council, while LOS "F" is deemed acceptable during peak hours in the Downtown core area (p. 99). The reduction of standards is considered consistent with the intent to avoid road widening that conflicts with community character, strengthen support of infill development, and encourage alternative modes of transportation. Moreover, the city is "to give strong consideration to the factors of existing trees and bicycle and pedestrian access prior to street widenings" (Table 8, Footnote 2, p. 107; Modifications to Plan Update, p. 37). In a related action, the plan update calls for the establishment of a LOS standard for pedestrians and bicycling, which is to be incorporated into the plan when established (p. 122, Modifications to Plan Update, p. 39).

The plan update seeks to also reduce automobile use through encouraging transit use and improving transit service through not only traditional measures, but also by expanding, improving, and actively promoting the multi-modal transportation center in the Downtown core area. Related measures include establishing neighborhood transit stops, and ensuring the existing railroad right-of-way between Davis and Sacramento "is maintained for existing and future rail service of all types" (p. 124). Also, given the large volume of student use of city streets, the plan update calls for cooperation with UC Davis "to ensure that the City and University Transportation Systems Management (TSM) programs are implemented to minimize traffic demand on city streets." The plan update also seeks cooperation with the Davis Joint Unified School District to create a student trip reduction plan, as part of the overall effort to "achieve a 10-percent reduction by 2010 in motor vehicle trips per capita relative to 1987 levels" (p. 133).

Related Plan Update Policies: Urban Design and Neighborhood Preservation

Connecting the streets with the physical form of Davis is a system of "Greenstreets," which includes most of the existing and planned major arterial, minor arterial and collector streets. The Greenstreets system "is intended to provide convenient and attractive circulation routes for bicyclists and pedestrians, as well as cars" (p. 140). The plan update includes a number of goals, policies, standards, and actions that attempt to establish an integrated community by encouraging human interaction and increased non-automobile transportation. Two examples include neighborhood design and traffic calming.

As noted above, the city is divided into 18 neighborhoods connected by its street system. The plan update places a high priority on neighborhoods as the appropriate level to serve community needs. For example, one standard, as a means to promote human safety, directs that "parks, shopping centers, schools and other institutional uses should be located on prominent, central sites where they 'belong' to the neighborhood they serve" (p. 149). The design of buildings around the Downtown core and the "neighborhood activity nodes" are encouraged to be urban in character, with structures extending to side and front property lines and include outdoor cafes and plazas (p. 142). Another standard offers "new neighborhoods shall be designed so that daily shopping errands and trips to community facilities can generally be completed within easy walking and biking distances" (p. 140). Expanding this framework, the plan update directs that new development "shall incorporate a balanced circulation network that provides multi-route access for vehicles, bicycles and pedestrians to neighborhood centers, greenbelts, other parts of the neighborhood and adjacent districts and circulation routes" (p. 140).

According to the plan update, the neighborhood concept is to be strengthened through a "community partnership" from which residents can address "neighborhood planning and problem solving" to improve livability (p. 151). However, neighborhoods are not intended to exist in isolation from the balance of the city. As another example of a desired balanced city transportation system, a major policy of the plan update directs that a "network of street and bicycle facilities that provides for multiple routes between various origins and destinations" be established (p. 108). Grid street patterns are encouraged within new developments for traffic dispersal, and cul-de-sacs are acceptable if they connect bicycle and pedestrian corridors (p. 108; Figure 19, p. 111). Two

examples of major residential developments incorporating this type of cul-de-sac concept include Village Homes and the Aspen subdivision in west Davis.

If Davis is to successfully create a connected street pattern with multiple route options for bicycle and pedestrian travel, traffic calming appears to be an important ingredient. The plan update does provide a prominent role for traffic calming, as represented by a set of conceptual diagrams contained in the document (Figure 20, p. 112). The potential for roundabouts is also acknowledged.

The plan update considers traffic calming as potentially feasible for collector and minor arterial streets to slow speeds, when appropriate. Actions include the development of traffic calming guidelines and implementation measures, especially for neighborhoods requesting them. Also, there is a policy directing the construction of new intersections and redesign of existing intersections to maximize convenience and safety for pedestrians and bicycles. The intersection of 3rd and C streets, across from Central Park is one of several examples.

Energy and Transportation

Within the context of sustainability, the plan update promotes energy (Chapter 17) as an important feature of conserving community resources (Section VI), with the goal to "reduce per capita energy consumption in Davis" (p. 288). One feature of the policy encouraging the development of energy-efficient subdivisions and buildings is to provide incentives for innovative developments, which contain "specific, implementable and sustainable measures for reduced dependence on automobile parking demand" (Modifications, p. 67). This standard is part of an action to develop an ordinance containing requirements and incentives for innovative "green" or "sustainable" development and building projects. The plan update suggests that "possible development incentives...could include density bonuses, setback variations, modified street standards, reduced parking standards, or similar modifications to standard requirements" (Modifications, p. 67). Of course, the plan update includes other energy related provisions, including natural gas buses and city purchase of fuel-efficient and alternative-fuel vehicles (p. 289).

Beyond Neighborhoods and the Downtown Core

In addition to the Downtown core and neighborhoods, the UC Davis campus and the agricultural/resource lands surrounding the city's Urban Limit Line need to be factored into the sustainable transportation discussion of this study.

UC Davis has been in influence on the city for more than a century, especially in the 1950s when significant expansion of the campus began. From a 778 acre "University Farm," the main campus now occupies 3,600 acres adjacent to the city, plus the 1,600 acre Russell Ranch property a little over two miles to the west of Davis. By 1996, UC Davis enrolled about 22,300 students, in addition to almost 10,000 personnel (faculty, staff, etc.). The University has a current policy to house about 25 percent of all students, including 90 percent of the incoming freshman class. According to the plan update about two-thirds of the UC Davis students live in Davis, occupying about one-third of all available housing units in the city, with an average household size of 2.6 (p. 30). About half of the UC Davis employees live in Davis, although this number is declining.

As with all UC system campuses, Davis maintains a Long Range Development Plan (LRDP). The current LRDP was adopted in 1994 with a time horizon of 2005 when the campus plans to accommodate a tad more than 26,000 students. Current student enrollment is 25,848, an increase of 1,023 over the previous year. The entire higher educational system of the state is gearing up for "Title Wave II," the next anticipated surge in student enrollment, which is expected to peak some time after the year 2007. UC Davis will continue to be a major influence on the ability of the city to achieve a sustainable transportation system. According to city staff, UC Davis is currently updating their LRDP. Under growth management goals, policies, and actions, the plan update urges "the University to adopt an ultimate UC Davis size consistent with the City's desire to maintain itself as a small city" (p. 78). UC Davis is projected to expand from 26,000 to 31,000 to accommodate the previously noted statewide projections, according to city sources. Agriculture is an important part of the UC Davis education and research agenda and uses its agricultural land base accordingly. The issue of future student (and staff) expansion will require the university and the city to work closely together, not only to address their mutual interests in housing and transportation issues, but also to reach an understanding about the protection of important agricultural and land resources both on the campus and outside the city's Urban Limit Line.

For the city, the Urban Limit Line is an important component of the goal to remain "a small, University-oriented city surrounded by and containing farmland, greenbelt, and natural habitats and reserves," at least until 2010 (p. 77). Previous discussion about the intended transportation network within the City's urban area assumes the Urban Limit Line will stand, unless modified through the Measure J process. (Note: Measure J is known as the "Citizens' Right to Vote on Future Use of Open Space and Agricultural Lands

Ordinance," and was approved by voters on March 7, 2000. As reflected in the title, any "development on lands that have not been planned for urban use in either the current General Plan or the proposed update through 2010" generally requires voter approval. [Modifications, p. 80])

In short, establishment of the Urban Limit Line is to coincide with the city boundary adopted as part of the plan update (Modifications to Plan Update, p. 28). The plan update seeks to prevent urban sprawl around the edges of Davis through a series of measures, including agreements with nearby cities, the County, UC Davis, and landowners to secure lands within the Urban Agricultural Transition Area (aka the Davis Greenbelt) through the Farmland Preservation Ordinance and other standards. The plan update increases the farmland preservation Ordinance ratio from 1:1 to 2:1 to mitigate loss of agricultural land to urban development. Also, development immediately inside the Urban Limit Line will be designed to be compatible with the Greenbelt and provide a buffer of a specified width. The plan update encourages design flexibility for greenbelt/park/open space links not only within a development, but includes the previously discussed provision that new development incorporate a balanced circulation network of multi-access (bicycles, pedestrians, transit, etc.), linking greenbelts to neighborhood centers, including the Downtown Core and the UC Davis campus.

Observations From Interviews

Whether the vision of Davis, as expressed through the plan update, is directly linked to sustainable principles is unclear. The mayor defines sustainability as the ability to keep Davis a small, slow growth city. In response to the question if Davis is moving toward sustainability, the mayor responded with an example of citizen based planning through Measure J, which is controlling growth via the ballot box. Mayor Ken Wagstaff considers this a move toward sustainability, as he does Measure O which mandates an annual $24.00 per parcel open space tax for purchase of development rights and direct purchase of lands especially related to riparian corridors. Wagstaff is concerned about overall quality of life, including the necessity to provide sustained revenue sources for needed services, and considers growth patterns oriented toward the automobile as moving away from sustainability. He sees these measures and the thrust of the plan update as promoting a compact urban form with amenities, which equals sustainability, or a move toward it. Wagstaff is concerned with social issues, including the provision of affordable housing for non-student residents and the difficulty of promoting retail neighborhood nodes when people generally prefer one stop shopping. This is a problem when

attempting to do social planning and maintain a balance in a community experiencing modern social/family stresses in an increasingly auto-driven consumer society.

One citizen observer is concerned about the political volatility of Davis. The political pendulum swings generated from city council elections have been counterproductive over the years. In one political era a creative Village Homes is developed, followed by a traditional large scale, residential development like Mace Ranch during another, which is then followed by an innovative Aggie Village development, near Downtown and the UC campus. The pattern has been for one city council to severely constrain development followed by the build up of growth pressures and a new council willing to release the pressure with development that provides rapid quantity to meet immediate demand, at the cost of long-term quality. Pendulum politics and the discordant development patterns it generates do not create sustainable communities, in the mind of this citizen and others.

As previously noted, Jeff Loux, the former planning director believes that the 1987 General Plan contained features of sustainability. He believes that Davis is moving toward sustainability in comparison to other communities, although overall resource use is not in balance. He further believes that Davis is beginning to get a better density and mixture of uses, and provides the best example of a municipal bicycle and pedestrian system. He suggests that it is the small things "that happen below the radar screen" of the General Plan that make important contributions toward sustainability. The Infill Study and the conservation ordinance are only two examples. Overall, he has hope for the plan update and believes that Davis is moving toward sustainable transportation, especially with the University.

Bob Wolcott, Senior Planner and staff planner for the plan update is very knowledgeable about sustainable principles. Although the City Council appears not to be focused on sustainability, the Plan Update contains a number of sustainability based goals, policies, and actions without using the term. Several examples have already been discussed, with transportation efforts perhaps representing the best example of sustainability in that the goal is not to serve the automobile. He defines sustainability as addressing environmental, economic, and social concerns of the community, while he is not sure that the plan update contains the balance represented by the three-legged stool of sustainability.

Lessons Learned

Although the current plan update is more focused on keeping Davis small by reducing growth, it contains a number of goals, policies, standards, and actions that offer examples of sustainable principles, especially in terms of transportation. One apparent shortcoming of the plan update is the focus on the community with limited regional consideration beyond the Greenbelt, other than the concern over the potential impact of urban sprawl from other sources. Another shortcoming is the 2010 time horizon, in which a 10-year vision is not conducive to thinking about a long-term sustainable future. This lack of vision is also reflected in the plan implementation section of the plan update, which seems to focus on immediate community needs through on-going evaluation and change, community participation, financing, permit streamlining, and coordination of existing services for broader community access (p. 329). One interesting implementing policy encourages "mediation as an alternative to violence or antagonism," with an action to continue offering community mediation services.

The plan update contains many examples of goals, policies, standards, and actions that could serve as models for creating sustainable community plans. Most were presented earlier in this case study, especially with respect to alternative transportation modes. The interrelationship of the Downtown core, neighborhoods, UC Davis, and greenbelts through a community bicycle and pedestrian integrated network is noteworthy. The attempt to establish neighborhood commercial nodes as a way of reducing automobile use, and build a human scale community, is another creative concept worth consideration.

In short, Davis is a community rich in experience with innovative planning, beginning with bicycles and Village Homes and continuing with Aggie Village and the tools being applied to create a community greenbelt with long term integrity. It may also serve as an example of how citizen empowerment can be carried a tad too far in terms of trying to be overly inclusive as represented by the eight-year process associated with the plan update. In sum, Davis will continue as a leader in community planning and be part of any short list for those seeking ideas in developing sustainable planning principles.

THE PETALUMA CASE STUDY

Introduction and Overview

Petaluma is located approximately 40 miles north of San Francisco. The city has a land area of approximately 13 square miles, a population of 54,548, and an average density of about 4,000 people per square mile. Petaluma is well known within the planning field for its pioneering efforts in growth management. In 1969, Highway 101 was upgraded, creating a freeway connection between San Francisco and Petaluma, with the effect of opening the gates to enormous development pressure and a flood of new housing. Petaluma responded by instating the first growth management plan in California history. In a legal battle reaching the United States Ninth Court of Appeals, the growth restrictions were upheld as being within the police power of local communities, paving the way for many other California communities to develop growth management plans of their own. In 1987, Petaluma received an American Planning Association award for its 1987–2005 General Plan. In what it hopes will be another pioneering effort, Petaluma has begun an ambitious General Plan Update with sustainability as a guiding framework.

Table 4-3 Population change (1990-2000)

	1990	2000	Increase (%)
Petaluma	43,184	54,548	11,364 (26.3)

Source: U.S. Census

Petaluma is a city divided in two—the historic west side of town and the newer east side—by a river, a highway, and a railroad, all running north to south through the middle of town. While these three transportation corridors represent significant barriers to cross-town travel, they also represent significant opportunities for a range of transportation solutions. Highway 101 connects Petaluma to the surrounding region. The Petaluma River, navigable to downtown Petaluma, provides a natural element connecting Petaluma to the greater Bay Area. The Petaluma River has long served as the center of economic activity within the community as the shipping point for agricultural products, gravel, and timber from Sonoma and Mendocino Counties. The Northwest Pacific Railroad provides freight service and represents an opportunity for passenger rail as well as right-of-way for bicycle/pedestrian facilities connecting Petaluma with Sonoma and Marin cities.

A voter-approved 20-year urban growth boundary was adopted in 1998. With few large parcels available for development, Petaluma is beginning to look inward toward higher density projects, redevelopment of underutilized parcels, and smaller, more intensified, infill projects—a trend which, if capitalized upon, may lend itself to a land use pattern more supportive of a broad range of transportation alternatives and more representative of a sustainable transportation system. A recently adopted, comprehensive bicycle plan is already making that mode more efficient and safe and hence more viable.

In the discussion below, we describe the range of debate surrounding transportation in Petaluma, provide an overview of Petaluma's General Plan Update and the process so far, discuss some of Petaluma's successes and opportunities for a more sustainable transportation system, provide some insight into how city staff and elected officials view sustainability, and some of the lessons to be learned from Petaluma's experience.

The Transportation Debate in Petaluma

There are essentially three major areas of debate in Petaluma regarding transportation: the condition of the roads, connectivity within the community, and freeway congestion.

Potholes and Financing

Declared recently by the Metropolitan Transportation Commission as having the worst streets in the Bay Area, debate over the condition of Petaluma's streets has come to the fore. Petaluma's arterial and collector streets were rated 40 on a scale of 100, the industry minimum standard being 70. Rick Skladzien, Petaluma's Director of Public Facilities estimates the cost of repairing Petaluma's roads would be $164 million.

In an effort to assess the situation, Petaluma's City Manager, Fred Stouder, took a sample of Petaluma's budgets from 1950 to the present and found an interesting trend. While Petaluma's population has increased 530 percent, from 10,135 to 54,548 and its size 581 percent, per capita gas tax revenues have decreased by 50 percent, accounting for inflation. The size of Petaluma's street crew has grown by only one person during that time, from four to five, in what used to be a two-square mile city in 1950 to a city with 150 miles of roads today (Eileen Morris, "Petaluma's Streets are the Worst," *Petaluma Argus Courier*, 20 May 2001, p. 4). Petaluma's woes are part of a Bay Area and statewide trend in which local government coffers are too strapped to deal with

the ongoing expense of maintaining existing infrastructure in the face of limited tax revenues. The city is currently in the process of looking into proposing a bond measure for financing local road maintenance.

Cross-town Connector

As mentioned above, the highway, railroad, and river have limited the connectivity between eastern and western Petaluma and focused traffic onto the few existing cross-town connectors. Consequently, central to many transportation debates in Petaluma is the need for an additional cross-town connector. A cross-town connector has been at the center of the last few election years. The 1987 General Plan proposed a connector and interchange that would cross the highway, river, and railroad. But it would also cross prime riparian and oak woodland habitat as well as open new land to development. The previous council eliminated the proposed Rainier cross-town connector from the General Plan and capital improvements program by declaring the EIR invalid. Two new members of the City Council were elected with the Rainier connector as part of their campaign platform. While one council member would like a resolution reinstating the project as a priority, a majority favors waiting until completion of the Transportation and Circulation Element of the new General Plan is completed prior to any decision regarding a new cross-town connector, whether it is located at Rainier Avenue or elsewhere.

Highway 101 and the NWPRR

Highway 101 through Petaluma, like other freeways throughout the Bay Area, comes to a complete stand still during commute hours as workers make their way to and from work in Marin County and San Francisco. Highway 101 north of Novato and throughout Sonoma County remains at four lanes since it was built, while Sonoma County's population has soared, with the highest percentage increase in the Bay Area between the last two Censuses. Widening Highway 101 has been a topic of discussion for years. While a majority favors widening the highway, there is no clear agreement on how to pay for it. Over the past 10 years, voters have rejected three attempts to create sales tax measures aimed at expanding Highway 101 to six lanes.

A vocal minority, which is rapidly growing, insists that even if Highway 101 is expanded, the demand is already there to ensure continued congestion. They insist that the only true solution is developing passenger rail along the NWPRR corridor, which closely parallels the highway through Sonoma and Marin Counties. In 1997 a consulting team led by Calthorpe Associates produced the

Sonoma/Marin Multi-Modal Transportation & Land Use Study, providing a comprehensive transportation plan linking transportation and land use patterns. The plan called for a balanced approach to transportation that took advantage of improvements to Highway 101 and the NWPRR to address regional traffic flow while at the same time investing in transportation improvements within local jurisdictions to reconfigure freeway interchanges and to improve local roads, transit facilities, and bicycle and pedestrian facilities.

The Sonoma/Marin Multi-Modal Transportation & Land Use Study was brought before the voters as a package of transportation improvements. In an effort to bypass the two-thirds majority required for creating single-purpose taxes, the list of improvements were separated from an additional measure requesting a sales tax increase for general purposes, with the unwritten agreement being that those revenues would be used for the transportation improvements contained within the accompanying measure. While the improvements passed with a majority of support, the funding measure failed. Sonoma County is now looking at state-backed bonds (Garvee bonds) as a means of circumventing the two-thirds voter majority required to pass a sales tax measure. The debate of highway expansion versus rail, or a combination of the two, continues.

Petaluma General Plan Update 2000 to 2020: Process and Politics

Overview

Petaluma was chosen as a case study because it represents a community attempting to develop a comprehensive General Plan update with sustainability as its guiding framework. A process, which as discussed below, is currently suspended. While the outcome remains uncertain there are several aspects of Petaluma's General Plan Update that remain instructive. The guiding philosophy behind the preparation of the scope of work is as follows:

- To incorporate a community vision effort, to reach the highest number of community members possible, that provides an educational and open outreach process.
- To celebrate the accomplishments of past plans and set well defined, quantified goals to achieve the community's desired quality of life and physical environment.

- To develop defined programs that will lead to an innovative yet balanced plan with implementation thresholds based on fiscal reality and specific completion timelines.
- To incorporate the concept (perspectives and options) of sustainability into all substantive problem solving, decision assessment and program development processes.

Table 4-4 below outlines the primary components of the General Plan Update. For the purposes of this case study, only the Traffic and Circulation Element will be discussed in detail.

Table 4-4 Components of Petaluma's General Plan Update

Housing Element	Water Resources Element
Recreation Music, and Parks Element	Community and Public Facilities Element
Public Safety Element	Traffic and Circulation Element
Family and Children Element	Natural Environment and Land Use Element
Sustainability Element	Implementation Strategies and Monitoring
Economic Health, Redevelopment, and Fiscal Sustainability Element	Environmental Impact Report

Management

One unique aspect of Petaluma's General Plan update is in its management. Management of the update has been placed within the City Manager's Office under the direction of a newly created position entitled Director of General Plan Administration. The rationale being that placing the General Plan update at the highest level of city administration would create more attention and widespread involvement from all departments. An executive team representing all department heads meets on a regular basis to discuss the strategy and progress.

Process and Politics

The initial request for proposals for Petaluma's General Plan Update was distributed in early 2000 with the selection of a consulting firm in April 2000. One major component of the General Plan update is a water resources element, a comprehensive effort to address Petaluma's chronic water problems ranging

from flooding to supply. The water resources element would consist of a water resources plan, water master plan, water recycling feasibility study, and storm water master plan. It is important to mention this aspect of the plan because at the time the consultant was selected for the General Plan update, the City Council was unhappy with the contract firms identified for the water resources element and asked that a separate request for proposals be distributed for that particular element. At that point work on the General Plan was slowed to a prolonged effort at further defining and refining the scope of work for the update so that selection of consultants for the water resources element could catch up, recognizing that development of the water resources element of the General Plan update should coincide with the overall effort. In December 2000 the council authorized staff to execute the final contract for the General Plan update at $1.6 million dollars, not including the water resources element.

In the preceding month's election, a pro-development majority replaced the council's environmental majority. The authorization of the general plan contract was one of the former council's final acts. In March 2001, the new Petaluma City Council voted (4-3) to suspend work on the city's General Plan, except for the transportation and circulation element, which continues in the form of traffic counts but with no public participation or visioning discussions.

The Council cited concerns about the cost of the update and required staff time, but offered no direction in how they wanted their concerns reconciled. Some even cited financial concerns such as the need for road repairs as an example of how the General Plan would cut into current unmet needs. As noted in the survey response, the strongest force for incorporating sustainability into Petaluma's General Plan Update comes from its citizens. Twenty-three citizens spoke during public comment expressing their interest in seeing the Update move forward, of those 23, 19 strongly urged the council to embrace sustainability concepts and community visioning as part of the General Plan suggesting that not doing so reflected a lack of concern for the long-term health of the community. At the time the General Plan was suspended, over 500 citizens had requested to be placed on the mailing list to receive notification of progress on the update, even before any formal outreach had begun.

The Water Resources Element contract has since been awarded and that $1.6 million dollar effort is now underway with a full-scale attempt to define existing conditions and begin collecting relevant data. As part of the city's upcoming budget discussions, the council will consider a revised scope of work and budget, and a determination made for all or some of the General Plan update to resume.

In what had been an effort to slow down the process so that all components of the General Plan could move forward together, has resulted in only two General Plan elements being underway as of June 2001, the rest fallen victim to politics, at least temporarily—despite the fact that hundreds of citizens were involved in the process of selecting the consultant and commenting on the scope of work. Finally, on June 18, 2001, the City Council voted to move forward with the General Plan Update, with close to the original scope of work. One major revision is the elimination of a separate sustainability element. But sustainability has not been abandoned; instead there is support for weaving sustainability throughout all elements of the plan. This is consistent with the Planning Director Survey results indicating a lack of support for separate sustainability elements.

Transportation and Circulation Element

The budget for the Transportation and Circulation Element is approximately $350,000. The scope of work calls for a multi-modal approach to addressing transportation issues. Beyond the traditional issues of developing a traffic model, assessing parking supply, and evaluating streets infrastructure, the scope of work broadens the element to look at issues of walkability and bicycle planning. The work program includes a review of transit options such as bus, rail, and the potential for an electric trolley. The emphasis is on system performance and neighborhood connectivity.

The Transportation Element also looks toward the Petaluma River for water transportation. An office development downstream currently offers its employees an electric launch service during lunch hour to shuttle employees to and from downtown Petaluma. There is potential for more water taxis as more development projects emerge adjacent to the river.

The details of how sustainable transportation principles will be incorporated into the General Plan Update will not be apparent until the process unfolds.

Other Plans and Projects Relating to Sustainable Transportation Planning

Petaluma Bike Plan

Written by a citizen advisory committee and adopted as an amendment to the General Plan, Petaluma's bike plan probably represents the largest step toward sustainable transportation planning in Petaluma. The bicycle plan proposes a comprehensive bicycle network that efficiently and safely connects all major

activity centers throughout the community. The goal is to reduce auto dependency by increasing the bicycle's potential as a viable transportation alternative. The bicycle plan goes beyond bikeways to require the installation of bicycle racks, lockers, and showers in new developments. The plan also incorporates bicycle planning into the development review process. All projects are now routed through the Bicycle Advisory Committee for review.

Central Petaluma Specific Plan

The Central Petaluma Specific Plan, yet to be adopted, presents a vision of a pedestrian and transit-oriented downtown Petaluma. Representing close to 400 acres within the heart of Petaluma and including lands on both sides of the Petaluma River, the purpose of the plan is to redirect growth into Central Petaluma in the form of a diverse mixture of uses including employment, housing, shopping, entertainment, lodging, and two transit centers oriented around the NWPRR and the prospect of future passenger rail service.

Mixed Use Projects

There are currently at least three large-scale projects seeking to integrate office, retail, and housing. The project furthest along in the process received unanimous approval from the Site Plan and Architectural Review Commission, Planning Commission, and City Council. Park Central, as the project is named, is located on a 20-acre site and will include 240 apartments/townhomes, 235,000 square feet of office space, and 20,000 square feet of retail shopping. This project represents the first mixed-use development of its kind in Petaluma and city officials hope that it will set a precedent for future development projects.

Interviews and Insider Views of General Plan and Transportation Sustainability

The City Manager's Office

Petaluma's response to the Planning Director's Survey shows clear support for the concept of sustainable transportation. The City of Petaluma, as represented by the Director of General Plan Administration, agreed with the two definitions of sustainability and the definitions of sustainable transportation, with the exception of the notion that a sustainable transportation system entails less overall travel. There is a high level of support for the General Plan and its potential as a tool for planning sustainable communities. But, like the majority

of California's Planning Directors, the Petaluma Director of General Plan Administration notes that a separate sustainability element is not a good idea, but rather sustainability should be woven as a framework throughout each of the plan's elements.

Though the original proposal and scope of work for Petaluma's General Plan Update includes an optional Sustainability Element, the revised scope of work eliminates this option. There are several reasons for this. Foremost is the politically charged nature of the concept—sustainability can be comprehensively addressed without ever using the term "sustainability" and hence reduce the risk of alienating interests uncomfortable with the concept. Second, there is recognition of the difficulties associated with adding optional elements while meeting legal requirements for consistency. And, third, sustainability provides a framework that should guide the creation of each element.

Petaluma's staff feels that its current General Plan does not address sustainability at all. This statement is borne out in our evaluation of that plan as well. The General Plan update will address sustainability to a major extent. The Director of General Plan Administration notes: "The scope of work for our new General Plan carries a great deal of effort toward sustainability. Community outreach and visioning will begin soon, the success of sustainability will be seen in the final adopted polices and implementation programs." Just how Petaluma will address sustainability in its General Plan update remains to be seen, it is too early in the process to tell.

The Director of General Plan Administration, Pamela Tuft, defines sustainability as the protection of the environment to allow the use of natural resources at a rate that would allow future generations to inherit the same or better use of their environment. She noted that Petaluma is beginning to make small steps toward sustainability through education and example by local government. In particular she emphasized the transportation and water resources elements of the General Plan update. The transportation element and its accompanying analysis take a much more holistic approach to transportation that seeks to make improvements to pedestrian, bicycle, and transit facilities in an effort to reduce the environmental and quality of life impacts associated with automobile use. The goal is to provide an economical alternative to single occupancy vehicle use that offers convenience and timing as a viable alternative. The water resources element will rely upon a strong scientific base in order that staff may apply sustainability principles to the planning of water resources, in particular the design and development of the new wastewater treatment plant, flood plain management, and addressing

storm water and surface water flows in a city that experiences chronic flooding and damage.

In discussing the General Plan process and its prospects for promoting sustainable development and sustainable transportation, the Director of General Plan Administration emphasized education. The process offers the opportunity to educate the public about the concept of sustainability; after all, success will depend upon the public's support and buy-in to the idea and subsequent changes in individual behavior. With regard to sustainable transportation the General Plan can take a multi-modal approach in identifying opportunities for new facilities that accommodate a range of transportation modes. While Petaluma has a strong jobs/housing balance, that does not imply that those who live in Petaluma, work in Petaluma, or vice versa. Any effort toward creating a sustainable transportation system will require coordination and development of regional links.

With regard to incentives for implementing principles of sustainability the Director of General Plan Administration had a few ideas. Development fee reductions or an expedited review process for projects that incorporate principles of sustainability could encourage such projects. Zoning ordinance regulations that require sustainable construction methods could be tied to General Plan policies. And the city could identify and define land uses that encourage the protection of natural resources. A large focus of the General Plan update will be on the development of implementation programs geared toward translating the plan's policies into reality.

As for plans or projects that exemplify sustainable transportation in Petaluma the potential contained within the Central Petaluma Specific Plan (CPSP) stands out the most. In its proposal for a dense mix of uses, including residential at a minimum of 25 dwelling units per acre, the CPSP creates a walkable environment in which residents can walk to work, shopping, and entertainment while creating a density and level of activity that can support transit.

The Director of General Plan Administration strongly believes in the role and need for education. She emphasized that we need to teach sustainability in the schools at the elementary level to begin to instill a new ethic in future generations. Sustainability projects in science and government courses could be taught just as Adopt-a-Watershed and tree planting programs have. The development of sustainability monitoring projects can provide students with an understanding of the rate of resource use and its implications for the future. In short there needs to be a curriculum that addresses sustainability within urban,

suburban, and rural environments along with developing an understanding of local government and how citizens can become involved and effect change.

Another Transportation Planning Divide

As is becoming the case in many communities, due to a lack of qualified transportation professionals, Petaluma does not have an in-house transportation planner or transportation engineer. The former transportation engineer left as part of an organization restructuring and the position has not been filled. At this point the city is not planning on filling the position, and instead relies on consultants to review development proposals for transportation issues. In cash-strapped cities like Petaluma, this allows the cost to be passed on to developers.

Petaluma's City Council

During a 45 minute visioning session in August 2000, the City Council articulated their vision of Petaluma in the year 2020. Below are several of the comments made during that session relating to sustainability and/or transportation:

- Compact city within the urban growth boundary.
- Economic and ecological prosperity.
- A cohesive network of bike trails.
- Rapid transit, both north to south and east to west.
- Reduction in automobile orientation/dominance.
- A world-class example of sustainability and economic development.
- Bicycles as a viable mode of transportation.
- Efficient use of resources.
- Home occupations and telecommuting.
- Economically sustainable.
- A community in which people bike and walk.
- Alternatives to the automobile.
- A leader in sustainability.
- Well-financed and maintained public facilities and infrastructure.

In these statements we see the beginnings of a broader dialog toward sustainability. And despite the political acrimony in Petaluma the city remains on course to begin

to address the challenges of planning for a sustainable future. In a recent editorial, Petaluma's Mayor, in response to suspending the General Plan Update noted:

> …I do not believe that the current majority is opposed to sustainability but, rather, recognizes sustainability as an overarching principle to all planning…Do we believe in a new General Plan? Absolutely. Do we believe that sustainability should be a vital part of that plan? Absolutely. Do we disagree with the current minority, by believing that there are not only other ways to get from point A to point B, but also better ways? Absolutely… (Clark Thompson, "Room for Compromise in Petaluma" *Press Democrat*, 3/27/01, p. B5)

In the recent budget meetings and council discussions there was little concern about sustainability as a concept, but rather the costs associated with a comprehensive General Plan update, in this case $3 million dollars.

Key Lessons from the Petaluma Case Study

Too often the transportation debate revolves around singular issues—streets and potholes, a specific interchange, or highway widening. The challenge in planning for a sustainable transportation system is in broadening the debate to a holistic level that looks at a range of solutions to deteriorating infrastructure, traffic congestion, and overall mobility. While Petaluma remains a city with many opportunities for a broad range of transportation alternatives, the debate has yet to move to this level.

Ambitious plans need public support and institutional buy-in from the beginning in order to overcome shifts in politics. Like Davis' most recent nine-year General Plan update, Petaluma's update already a year behind schedule may prove to be a lengthy process. As was the case in Davis, ensuring widespread involvement from citizens will be one of the keys to eventual success.

Petaluma's General Plan Update could very well be a pioneering effort. From the outset, its goal is to incorporate sustainability as a guiding framework throughout the plan. While addressing the seven mandated elements, Petaluma's update goes beyond to address the leading issues before it, including water resources and fiscal health. Sustainability has become part of the dialog in this community and its translation into the General Plan and into practice still remains to be seen. At a minimum, it will be a process worth observing.

THE SAN FRANCISCO CASE STUDY

Introduction and Overview

With a land area of 47.4 square miles and a population of at least 777,000 (ABAG and the State Department of Finance have estimated the population as in the vicinity of 800,000), San Francisco is California at its most urban. Whatever the precise figure it represents a significant rise from the 724,000 found by the Census in 1990. San Francisco is California's most densely populated city and county (over 16,000 per square mile). A city built around walking and transit, the city's early development and density have made it California's leading city for alternative mode use (See Tables 4-5 and 4-6).

Table 4-5 Population change (1990-2000)

	1990	**2000**	**Increase (%)**
San Francisco	723,959	776,959	52,774 (7.3)

Source: U.S. Census

Table 4-6 Means Of Transportation To Work (1990, San Francisco Residents)

Mode	
Drive Alone	38.5%
Carpool	11.5%
Public Transportation	33.5%
Motorcycle	1.2%
Bicycle	1.0%
Walk	9.8%
Other	0.7%
Worked at Home	3.8%
TOTAL	100%

Source: 1990 Census

Table 4-7 Downtown San Francisco Transportation to Work (1993):

Transit	61%
Drive Alone	19%
Rideshare	14%
Other	6%
TOTAL	100%

Source: Dept. of City Planning, Citywide Travel Behavior Survey, May 1993.

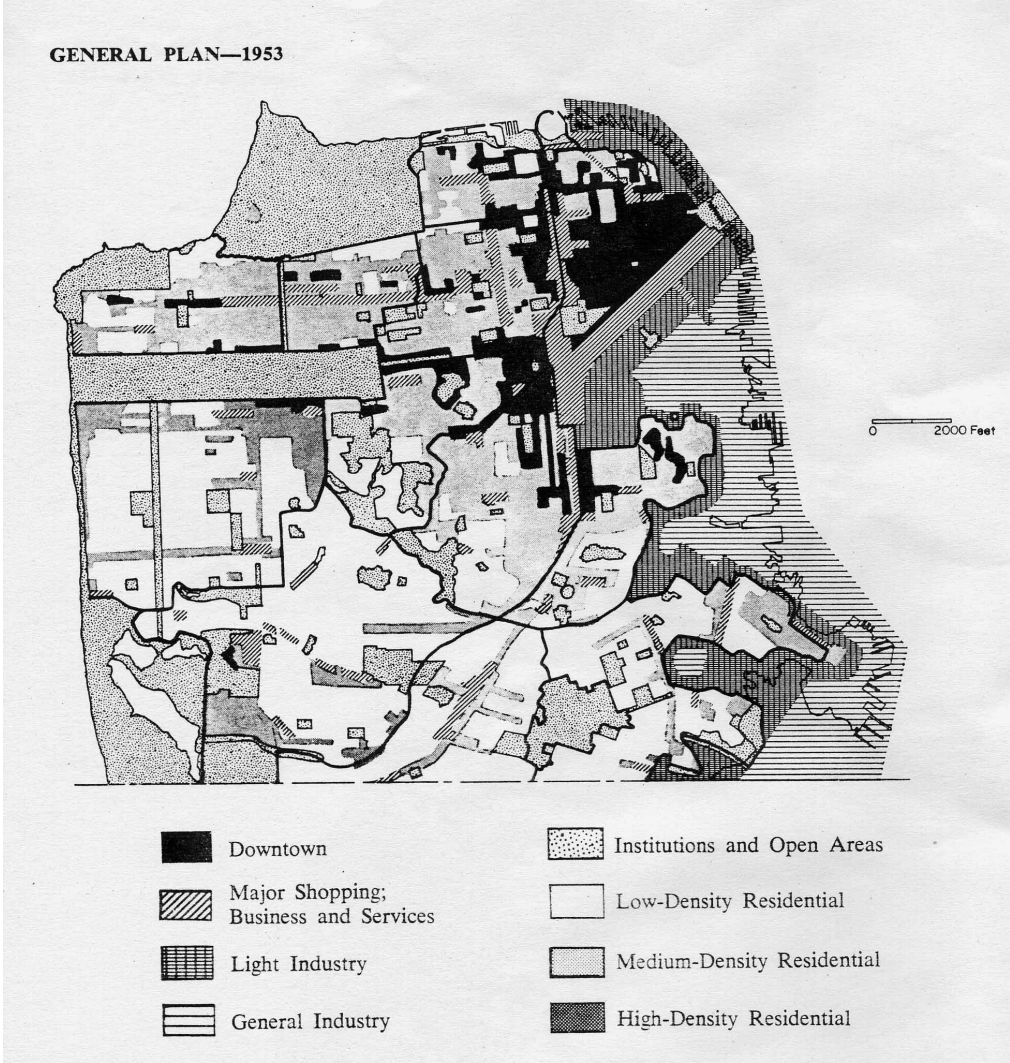
The General Plan and Transportation Sustainability

While the physical, economic and demographic character of San Francisco makes it distinctive to an extreme, nonetheless it is a good case study in several respects. It has a long and well-articulated history of planning. While not directly representative of most other California communities, its well-articulated alternative transportation systems give it options that other cities do not have. San Francisco was chosen in part because of its high-scoring transportation element.

As a Charter City, and more significantly as California's first large city and its only city and county, San Francisco has historically done things in its own way, and this tradition has extended to its General Plan. For example, only in very recent years has the city begun calling its master plan a General Plan. Perhaps the most unique aspect of the city's General Plan is the lack of a land use element—generally conceived of as the heart of the General Plan. Rather than the more typical designation of urban uses on rural and open space uses, the San Francisco plan contains Elements with more specific land uses, i.e., residential, commerce and industry, and recreation and open space. This more focused approach to land use is understandable; since the city was built out prior to the statewide mandate for General Plans in 1937, land use questions are relatively specific and particular.

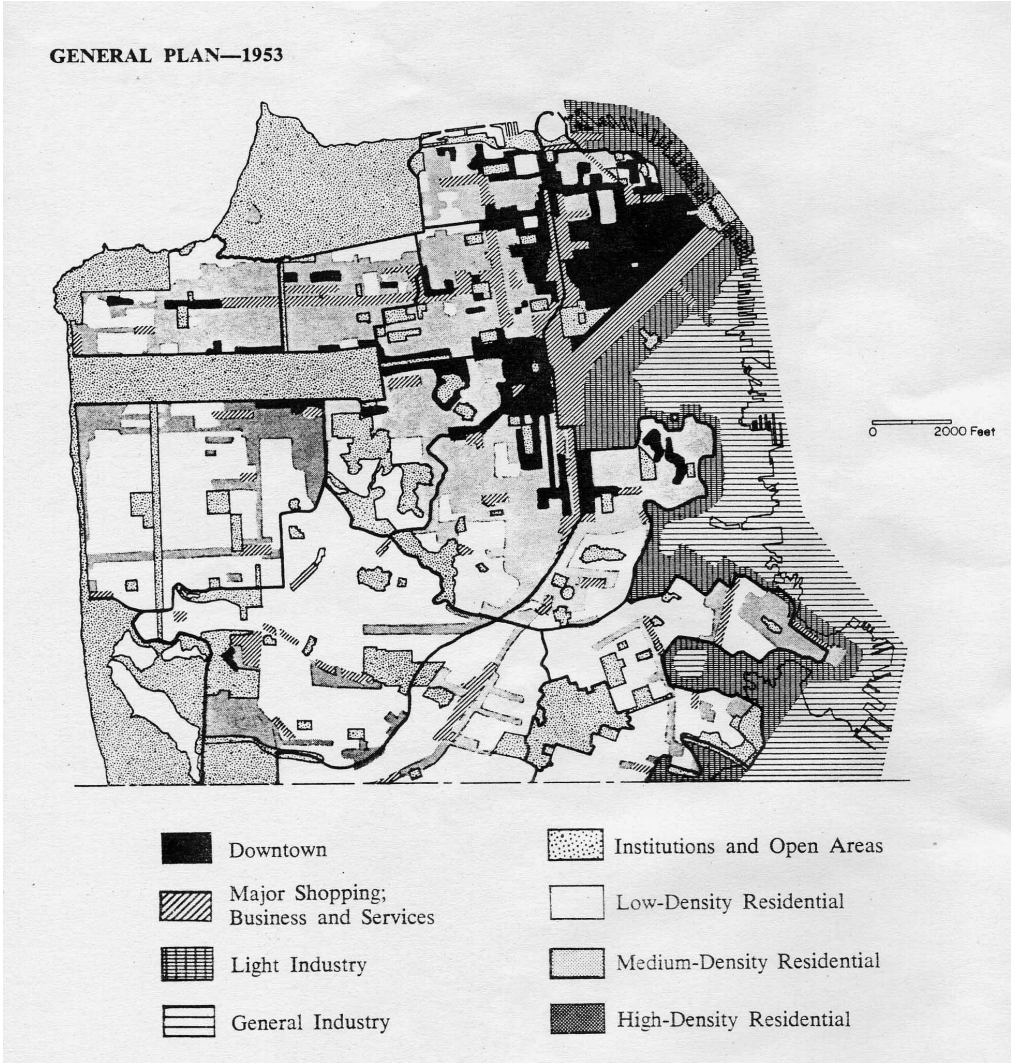
San Francisco did not comply with the statewide planning mandate until 1945. In fact, it did not have a Planning Department (only a zoning department) prior to 1942, thus making it one of the last American cities without a professional planning staff (SPUR, 1999, 2). Despite its late start, San Francisco Planning had a fast start under the direction of T.J. Kent, author of the classic text, the *Urban General Plan*. A revised Master Plan (1953) was used to revise a quite disparate zoning ordinance into full compliance with the Plan in 1960, as shown in Figure 4-1.

Figure 4-1: Zoning before and after the 1953 Master Plan



Source (including caption): Kent, 1964, 36-37.
The major land-use section of San Francisco's long-range physical-development plan was adopted by the City Planning Commission in 1953. As shown above, the 1953 General Plan proposals called for drastic changes in the existing zoning map. A new zoning map and new regulations were adopted in 1960. Although many important general-plan proposals were effectuated by the new zoning ordinance, the long-range and general nature of some of the most important plan proposals means there will always be distinct differences between the General Plan and the zoning ordinance.

Figure 4-1: Zoning before and after the 1953 Master Plan



One noteworthy feature of San Francisco's General Plan and planning process is that the plan is adopted, interpreted, and implemented by a strong Planning Commission. The 80-person Department of City Planning serves as staff to the Commission. The Planning Commission is fairly independent of the Board of Supervisors, and the Board's ability to review and revoke Planning Commission decisions is strictly limited by the City Charter.

Like its General Plan, the structure of planning in San Francisco is unique in several ways. There is only one city, which is identical geographically and politically with the county. Unlike most California jurisdictions where the legislative body appoints the planning commission, all San Francisco Planning

Commissioners are appointed by the Mayor and serve at his pleasure. According to veteran San Francisco journalist Gerald Adams (2001), San Francisco mayors have used this power with increasing bluntness over the past 20 years, often firing their own appointees for votes that do not favor political allies, even if the vote is based on the General Plan or other sound planning principles.

Before turning to the General Plan itself, it should be noted that San Francisco transportation planning is centered on a "Transit First Policy," which is incorporated not only into the "land use" constitution of the General Plans, but is also part of the city's legal constitution, i.e., the City Charter. The Charter articulates the Transit First Policy as follows:

1. To ensure quality of life and economic health in San Francisco, the primary objective of the transportation system must be the safe and efficient movement of people and goods.
2. Public transit, including taxis and vanpools, is an economically and environmentally sound alternative to transportation by individual automobiles. Within San Francisco, travel by public transit, by bicycle, and on foot must be an attractive alternative to travel by private automobile.
3. Decisions regarding the use of limited public street and sidewalk space shall encourage the use of public rights of way by pedestrians, bicyclists, and public transit, and shall strive to reduce traffic and improve public health and safety.
4. Transit priority improvements, such as designated transit lanes and streets and improved signalization, shall be made to expedite the movement of public transit vehicles (including taxis and vanpools) and to improve pedestrian safety.
5. Pedestrian areas shall be enhanced wherever possible to improve the safety and comfort of pedestrians and to encourage travel by foot.
6. Bicycling shall be promoted by encouraging safe streets for riding, convenient access to transit, bicycle lanes, and secure bicycle parking.
7. Parking policies for areas well served by public transit shall be designed to encourage travel by public transit and alternative transportation.
8. New transportation investment should be allocated to meet the demand for public transit generated by new public and private commercial and residential developments.
9. The ability of the City and County to reduce traffic congestion depends on the adequacy of regional public transportation. The City and County shall promote the use of regional mass transit and the continued development of an integrated, reliable regional public transportation system.

10. The City and County shall encourage innovative solutions to meet public transportation needs wherever possible and where the provision of such service will not adversely affect the service provided by the Municipal Railway (added November 1999).

(*Source:* San Francisco County Transportation Authority website (accessed 5/7/01): http://www.ci.sf.ca.us/sfta/index.htm).

The San Francisco General Plan Today

The current San Francisco General Plan (SFGP) fills two binders and contains eight major elements. It also entails nine area plans, which elaborate General Plan policies, but are not implementation-oriented Specific Plans. The current major components are shown in Table 4-8. The text of many elements and area plans range date from as early as the 1970s, but according to the Office of Planning and Research (2000, 36), all elements have been readopted in the 1990s.

Table 4-8 The San Francisco General (Master) Plan

Major Sections	
INTRODUCTION	
ELEMENTS	AREA PLANS
Residence	Downtown
Commerce & Industry	Chinatown
Recreation and Open Space	Rincon Hill
Transportation (1995)	Civic Center
Urban Design	Van Ness Avenue
Environmental Protection	Western Shoreline
Community Facilities	Northeastern Waterfront
Community Safety	Central Waterfront
	South Bayshore
LAND USE INDEX	

Seven Priority Policies are included in a preamble to the Master Plan and are set forth as the basis for resolving inconsistencies in the Master Plan. The fourth Priority Policy concerns transportation: "That commuter traffic not impede Muni transit services or overburden our streets or residential neighborhood parking" (San Francisco Master Plan Preamble, 4).

The Draft Land Use Element: Sustainability to the Fore

A land use element is currently under construction, being assembled as compendium of all relevant objectives and policies from the preexisting General Plan elements. The land use element is organized along two underlying principles: sustainability and equity (SF Draft LU Element, 11/9/99, 1). It would thus be fair to say that sustainability is *the* organizing principle of the new land use element, since social equity is one of the three E's mentioned in the Bruntland definition of sustainability. The draft land use element goes further, and defines four essential attributes that make for sustainable urban life in San Francisco:

1. Density, which among other qualities, improves links between parts of the city and helps support transit. Dense cities are walkable cities wherein shops, services, entertainment, and open space are often near at hand, and where the need to travel is minimized. Ideally, one's place of work is near at hand as well.
2. Diversity, reflected both in residential neighborhoods with unique character, but also in a broad range of places to work, shop and recreate.
3. Accessibility, the attribute most associated with transportation is defined as more than "a functioning, balanced multi-modal transportation system, but also a pattern and intensity of uses that facilitate moving about" (ibid. p.3). Providing access to the full range of residents needs makes accessibility closely akin to equity.
4. Scale. San Francisco's "three-dimensional" urban form, created by both topography and intense development, is also an essential element of its character. It keeps streets and other public spaces vital and lively, and orients residents to the larger city and the surroundings.

San Francisco's planners cited these organizing principles as their definition of the sustainable city. They correlate well with the principles of sustainable transportation. They apply to much more than transportation, but they serve to illustrate and explain the relationship between sustainable transportation and sustainable livable urban environments in general.

Residence (Housing) and Other General Plan Elements

The city's "Residence Element" (Housing Element) is older (most of the text dates to 1990 and earlier), and is in the process of being updated. The element does not contain any policies that explicitly address transportation, though there are several references in the supporting text indicating the desirability of locating housing in transit corridors.

The city's recreation and open space element contains numerous calls for making parks and other open space accessible via transit, bicycling and walking—the City and County of San Francisco owns over 60,000 acres of open space lands in San Francisco and four other Bay Area counties. Policy 3

of the Recreation and Open Space element calls for increasing the accessibility of regional parks to non-auto users.

Improved public transit is key to increasing the accessibility of regional parks while reducing the impact of the automobile on the natural landscape. Transit is also viewed as a means to shift demand from crowded to less-used parks.

The Transportation (Circulation) Element: Content, Character and Key Issues

San Francisco has retained the term transportation element rather than a circulation element. With 40 transportation objectives and 201 transportation element policies, San Francisco has the state's most elaborate plan in quantitative terms. Moreover, the transportation element is fairly new, having been updated comprehensively in the early 1990s and re-adopted by the Planning Commission in July 1995.

The 40 transportation objectives and 199 policies are organized under the rubric of nine headings:

- General;
- Regional (an unusual area of concentration);
- Congestion management (a noteworthy section on performance measures, Transit First, TDM, TSM and Parking Management);
- Vehicle circulation;
- Mass transit;
- Pedestrian;
- Bicycles;
- Citywide parking; and
- Urban Goods Movement.

As noted above, one of the most distinctive characteristics of the San Francisco Transportation Element (aside from its bulk) is its emphasis on transit. The city has had a "Transit First" policy since 1973. The Transit First policy is embodied most in the Objectives 11 and 20 of the Transportation Element and their subordinate policies.

Ob*jective 11: Transit First. Maintain Public Transit as the primary mode of transportation in San Francisco and as a means through which to guide future development and improve regional mobility and air quality.*

Objective 20: Give first priority to improving transit service throughout the city, providing a convenient and efficient system as a preferable alternative to automobile use.

Noteworthy under Objective 20 is Policy 29.10: Keep fares low enough to obtain consistently high patronage and encourage more off-peak use. It is noted in the discussion under this policy that: "It is no more reasonable to expect transit to 'pay its way' with the farebox than it is to expect streets to pay their way. Overly expensive transit fares, in comparison with the indirect taxes imposed on automobile use, discourage transit use."

This is well reasoned, and perhaps emblematic of the majority of planning directors' thoughts throughout California. But it points to a problem—if plans encourage transit use, but do not emphasize securing funding sources, the transit service they mandate may not be fiscally sustainable. It is unrealistic to simply assume availability of subsidies.

Comprehensiveness versus Comprehensibility

The presence of 200 policies, some closely related in intent, can be viewed as reiterative and comprehensive, but also makes for a long and somewhat repetitious document. The length and format of the transportation element can be explained by the evolutionary nature of General Plans. Once a policy has been proposed, debated and refined by staff, members of the public, and adopted by the Planning Commission and Board of Supervisors, it has "constituents" who will resist its elimination or even its being subsumed under a newer policy.

For example: Policy 20.4: "Develop Transit Centers according to established guidelines" (SFGP TE, I.4.44). This is similar to Policy 21.7 "Make convenient transfers between transit lines, systems and modes possible by establishing common or closely located terminals for local and regional transit systems and by coordinating fares and schedules" (SFTE I.4.48). The second policy quoted adds regional consideration and a fare coordination policy impetus. Each of these could have been covered in the guidelines mentioned in the first policy. The guidelines are referred to only conceptually; there is no indication whether or not they exist, nor who is responsible for their preparation.

Interviews and Insider Views of the General Plan and Transportation Sustainability

The San Francisco Planning Department

The response to the Planning Directors Survey clearly indicates that San Francisco believes in sustainable transportation and in the General Plan as a tool for its implementation. The Planning Department (represented by the Chief of Citywide Planning Mark Leno) agreed strongly with both definitions of sustainable development, and with the first definition of sustainable transportation. Like a majority of California's planning directors, he disagreed that transportation should be self-sustaining in a financial sense, but they were one of only a handful agencies to disagree *strongly* with this notion. The official rationale is explained in the discussion of Policy 20.4 above.

San Francisco's planning staff believes its General Plan and subordinate plans are good and promote sustainable transportation comprehensively. "Comprehensibility is another matter," quipped Leno (a reference to the nearly 200 policies of the Transportation Element). Staff is currently working on a General Plan summary that is less cumbersome than the current two-volume compendium. All planning staff interviewed were intrigued by and interested in the concept of an on-line digest (similar to that used in San Luis Obispo City; see case study below).

What San Francisco's planning staff believes is most needed to implement the General Plan and subordinate plans are *targeted infrastructure subsidies* from federal state and regional agencies. They hope to work through the San Francisco Transportation Authority (TA) with regional agencies to obtain such funding in both the short and long term. In separate interviews, both MTC and ABAG staff stated that their agencies were already in full support of such targeted support.

Down to Specifics

Before General Plan policy can be implemented, more detailed land use and infrastructure plans must be specified. David Alumbaugh, Senior Planner, was interviewed in this regard. He is Plan Manager for three specific plan efforts, collectively known as "Better Neighborhoods 2002," the date representing the desired date for completion. These will be San Francisco's first-ever specific plans. The plans are still conceptual, and staff is presently focused on public outreach to identify specific plans (See Table 4-9).

Table 4-9 San Francisco's Better Neighborhoods 2002

Current Specific Plan Projects

Market and Octavia Neighborhood Plan (which centers on a boulevard-type replacement for the now-razed Central Freeway that formerly dominated the neighborhood
Central Waterfront Neighborhood Plan information focused on the "southof Market" waterfront area
Balboa Park Station Area (an infill transit station area plan)

Source: <http://www.sfgov.org/planning/neighborhoodplans/elements.htm>

The process has identified eight characteristics of a "great" neighborhood:

1. Special character;
2. Part of the whole;
3. Get around easily;
4. Walk to the shops;
5. Safe streets;
6. Gathering places;
7. Housing choices and;
8. City services.

These are clearly compatible with the definition of sustainable transportation. Planning coordinators report that the public workshops, web-based outreach, and the specific plan process in general is proving popular with residents, the long timeframe not withstanding.

A Transportation Planning Divide

One questionable move made by the City during the 1990s, a move viewed with some regret by several persons interviewed, was the dissolution of a separate transportation-planning group within the City Planning Department (which had a staff of eight in the early 1990s). Now City Planning no longer officially participates in capital planning for transportation, that function being reserved by the San Francisco Transportation Authority (TA), which budgets

monies from state and federal sources as well as the County's 1/2-cent sales transportation tax. The TA prepares a long range County Transportation Plan, as well as the shorter term Congestion Management Program (CMP). The TA executive director is responsible to the Board of Supervisors, not the Mayor.

This divide was temporarily bridged during the late 1990s. One of the principle authors of the current Transportation Element was "loaned" to the TA after the General Transportation Element was completed. As a result of this collaborative approach, there is a fairly close relationship between the General Plan and the TA's major Countywide Congestion Plan (CMP). This is reflected at the outset the San Francisco Draft Countywide Transportation Plan:

> The City's General Plan is the most important planning document for San Francisco. The General Plan's Transportation Element provides transportation goals, policies and objectives that are used by the Planning Department to analyze and make development decisions. For the purposes of coordinating the General Plan's policies and the CTP, the Planning Department and the Authority developed a memorandum of agreement (MOA) outlining the roles of the respective agencies in preparing and implementing the CTP. The Planning Department will lead land use planning efforts and decision-making and the Authority will lead long-range transportation planning and project programming (Chapter 1).

By moving key staff from the City Planning Department to the Transportation Authority, consistency between the General Plan and the capital improvements-oriented County Plan was ensured—at least for a while.

The same planner was departmental liaison in the citizen-led (and more long-term) Sustainable San Francisco Plan, an indicator-based plan promulgated by the City's Department of the Environment in 1997. Though the Sustainable City Plan is long, detailed, and much lauded (the U.S. Department of Energy posts it on its website, www.sustainable.doe.gov); nonetheless, the transportation indicators devised are most remarkable for their simplicity, as there are only four indicators:

- Number of vehicle registrations in the city (desired direction: downward);
- Number of parking spaces (desired direction: downward);
- Number of public transportation (Muni) riders (desired direction: upward); and
- Muni routes running time on key routes (desired direction: downward).

Source: www.sustainable-city.org/Plan/Transit/indicato.htm (accessed 6/30/01).

In 1999 the staff member "on loan" moved to another agency; the "bridging" position has not been filled nor even made permanent. The Transportation Authority, as a funding agency mainly concerned with budgeting transportation capital project planning, appears to be uncertain of its level of commitment to comprehensive land use and transportation planning. Thus, this innovative and apparently successful bridge in the planning divide may not be continued, although it has not been ruled out. The new San Francisco Transportation Authority Executive Director (who was reappointed in April, having previously held the position through most of the 1990s) will make this key decision.

Successes

On a more optimistic note, one key transportation planner with the city for much of the 1980s and 1990s feels the city is moving toward transportation sustainability. Despite an apparent rise in political influence over key planning decisions, this planner believes that General Plan policies fairly well permeate policy-making, even though they are not much discussed except at the outset of a project.

More than one observer cited two of the city's area plans, the Northeast Waterfront Plan and the Downtown Plan as successful moves toward sustainable transportation planning. The former was originally adopted in the 1970s and the latter was adopted in the early 1980s. Two decades later, these plans are coming to fruition, with new transit lines and pedestrian promenades in the case of the Northeast Waterfront Plan. Downtown has seen continued transit enhancements and a virtual parking ban in the Downtown. The Downtown plan's much lauded use of "linkage" fees is a major force in this evolution.

One lesson is that a long-range plan takes a long time to unfold and prove its worth. A former San Francisco planner, now a consultant, notes there is interest in multimodal approaches to mobility in suburban areas, and

speculates that many Bay Area inner suburbs will seek to promote transit and other modes, if not "first," at least coequally with the auto.

An Insider-Outsider's Perspective

Andy Nash has been San Francisco TA Executive Director, and is currently a private consultant, President of the Greenbelt Alliance, and a board member at SPUR. By training he is a transportation engineer, and he is particularly concerned with implementation. Major sustainability policy lessons that Mr. Nash sees in recent San Francisco experience may be briefly summed as follows:

- Planners and policymakers must get *beyond* planning and to *infrastructure provision* in a timely manner (in this regard he echoes current planning staff in San Francisco).
- Plans and planners are slow moving; South of Market entrepreneurs are happy to cooperate, but move at a pace measured in days. Plans for the south of market that take years to develop may see wholesale changes in the neighborhood's population and economy before being completed.
- Monitoring is important—and not done enough.

As evidence of this last point, he cites the universal surprise in early 2000 that the Downtown was running out of office space, which is limited by the Downtown Plan. Office rents spiked to twice those of Manhattan in late 2000. Two competing and hastily conceived ballot initiatives were launched and a great deal of rhetoric and money was spent for and against each (neither of which passed) were placed. In sum, a great deal of capital, political and otherwise, was ineffectively spent on a planning crisis, which was a crisis simply because no one was monitoring the supply of office space.

A Consultant's View of Sustainable Transportation in San Francisco

A transportation consultant who played a key role in a number of recent transportation studies for the city, including its first bicycle plan, offered the following reflection on sustainable transportation:

> A sustainable urban transportation system enables residents to travel about with the minimum expenditure of energy resources. A sustainable transportation system leaves little residual impact on society measured in a variety of ways: environmental impacts, consumption of fossil fuels, social

> impacts, and other side effects. Modes that move the most number of people using the fewest nonrenewable resources are developed to their maximum potential. This includes modes that use human power, i.e. bicycling and walking, as well as mass public transit.

This consultant then goes on to distinguish an important recent trend in transportation policy in San Francisco:

> *San Francisco has always emphasized [public transit], but only in recent years has the potential of [bicycling and walking] been fully acknowledged both in policy and in actual projects. The decades long trend toward accommodating motorized transport to the neglect of more cost-effective, less capital-intensive, all in all more sustainable transportation alternatives has been halted.*

In 1996, bicycling was officially addressed with the adoption of the bicycle plan. This plan outlined a multi-pronged strategy for increasing bicycle transportation that included expanding the bicycle lane network, creating bicycle priority streets, increasing bicycle parking supply, improving motorists' knowledge of bicyclists' rights, and various bicycle safety projects.

While pedestrian facilities have always been provided since the founding of the city, and the 1995 Transportation Element identified pedestrian priority corridors, little attention had been paid to improving pedestrian safety, despite the fact that 20 percent of traffic fatalities in San Francisco are pedestrians. Today's transportation priorities in the city are different. The reorganization of the Department of Parking and Traffic (DPT) in 1999 to have a Livable Communities Division is the greatest manifestation of the new emphasis on sustainable transportation modes. There are now designated staff persons in DPT for the bicycle unit, pedestrian unit, safety education programs and traffic calming projects.

A Supervisor's Perspective

Transportation has a prominent place on Mark Leno's agenda as a member of the Board of Supervisors, a position he has held since1998. There is a framed quote from George Orwell in his front office: "If liberty means anything at all, it means the right to tell people what they do not want to hear." Supervisor Leno is politely trying to tell San Franciscans that they must provide more housing and less parking. Supervisor Leno's knowledge of the General Plan is general—he knows that it reflects the "Transit First" policy and that all laws

must pass a consistency check with the General Plan, but he is content to leave most details to staff.

He is quick to define sustainability: “A concept and plan for managing major elements of modern life, including housing commerce, transportation and the environment that will promote an ongoing quality of life.” Sustainable transportation he defines more simply: anything that promotes travel via any means but a Single Occupant Vehicle.

He is pursuing several sustainable transportation programs.

- Championing parking-free housing in transit corridors;
- An innovative city sponsored car-sharing program; and
- Creative parking solutions (including use of school property for night-time parking).

None of the Supervisor’s initiatives had their origin with the General Plan, but the plan and Planning Department are supportive, particularly of the first two projects.

Key Lessons From the San Francisco Case Study

The positive conclusion to be drawn from the San Francisco case study is that sustainable transportation and livability and can coexist with livability and population density—even with the significant population increases seen in the 1990s. While traffic congestion is as virulent as ever, the attraction of the city remains strong, so much so that housing affordability is eclipsing transportation issues in most citizens minds.

Due to accidents of history, geography and politics, San Francisco is free of city-county rivalry. There is interagency rivalry. The presence of an MOU and the practice of shared staff facilitated coordination between the TA and the Planning Department in the early 1990s, but this productive exercise in coordination has not been codified. There is still less than optimal integration of the Municipal Railway (the near-monopoly transit provider) into the General Planning process, which is ironic, since “Muni” has been municipally owned for nearly a century.

To conclude, San Francisco offers substantial proof that plans matter, but even the best plans take time to implement. Moreover, with time good plans often

grow longer and harder to use. Hypertext plans could create linkages between now disparate elements and area plans. They could also make for useful linkages to the technical studies and public outreach efforts that the plans are based on, and to the implementation documents that planners, other city departments, and private citizens use to make plans reality.

THE CITY OF SAN LUIS OBISPO CASE STUDY

Introduction and Overview

The City of San Luis Obispo (SLO) lays 10 miles inland from the coast of California in San Luis Obispo County, approximately 200 miles north of Los Angeles and 200 miles south of the San Francisco Bay Area. It has a population of 44,174 and, since 1990, grew 5.3 percent (See Table 4-10). The city is the largest in the county and is the seat county government and the center of regional commerce. Although the city has created numerous jobs in recent decades, housing construction has not kept pace, and the job to housing ratio is severely out of balance. According to the San Luis Obispo Chamber of Commerce, the daytime population in San Luis Obispo swells to 60 or 70 thousand. SLO is also home to California Polytechnic University (Cal Poly). The annual influx of students dramatically impacts jobs, housing and transportation.

Table 4-10 Population Change (1990-2000)

	1990	2000	Increase (%)
San Luis Obispo	41,958	44,174	(5.3%)

Source: U.S. Census

The city is arranged in a colonial grid pattern with small blocks and a central business district. This historical land-use pattern has given SLO a compact urban form. In addition, the city has also established a green belt and in most places maintains a hard urban edge.

For a city of its size, San Luis Obispo has a very good local transit system with six routes that run once or twice an hour from about 6:30 a.m. to after 10 p.m. Through a pre-payment arrangement between Cal Poly and the city, Cal Poly students and staff ride the city's transit system free. The city is also serviced by a county transit system that operates six routes. Recently, the City Council

established various test programs to promote alternative transportation methods with city parking funds, which heretofore had only been used for building parking garages. Further, in an effort to discourage the use of the automobile, the City Council reduced the free time available in parking garages by 30 percent, raised the maximum daily fee in garages by over 60 percent, raised the charge for expired meters by 20 percent, increased the monthly garage rate by 25 percent, and provided a 25 percent discount on bus passes to downtown employees (*San Luis Obispo Tribune*, May 2, 2001).

The General Plan and Transportation

The General Plan in the city of San Luis Obispo is primarily a policy document and identifies broad programs. The General Plan relies on ancillary plans like the bike plan and the mass transit plan for specific direction. The City of San Luis Obispo takes their General Plan very seriously. The Planning Department prepared a comprehensive review of the status of the General Plan for the fiscal year 2000, which was approved by the City Council on March 6, 2001. Although state law mandates this report, very few jurisdictions have historically complied with the mandate. In addition, SLO posts the "General Plan Digest," a condensed version of the General Plan, on the Internet. The community has emphasized the importance of sustainability in the vision statement of the General Plan, which states:

> Our vision is of a sustainable community, within a diverse natural and agrarian setting, which is part of a larger ecosystem upon which its existence depends. San Luis Obispo will maintain its healthy and attractive natural environment valued by residents, its prosperity, and its sense of safety and community within a compact urban form…The City should live within its resources, preserve the relatively high levels of service, environmental quality and clean air valued by its residents, and strive to provide additional resources as needed.

The Circulation Element contains 75 policies that cover four broad areas: (1) Traffic Reduction, (2) Traffic Management, (3) Other Transportation Programs, and (4) Implementation, Program Funding, and Management. However a transportation perspective is not found within the other General Plan elements, the land use element contained only three policies with any reference to transportation and the housing element contained none.

The circulation element outlines eight broad goals that guide the objectives and policies:

1. Maintain accessibility and protect the environment throughout San Luis Obispo while reducing dependence on single-occupant use of motor vehicles, with the goal of achieving state and federal health standards for air quality.
2. Reduce peoples' use of their cars by supporting and promoting alternatives such as walking, riding buses and bicycles, and using car pools.
3. Provide a system of streets that are well maintained and safe for all forms of transportation.
4. Widen and extend streets only when there is a demonstrated need and when the projects will cause no significant, long-term environmental problems.
5. Make downtown more functional and enjoyable for pedestrians.
6. Promote the safe operation of all modes of transportation.
7. Coordinate the planning of transportation with other affected agencies such as San Luis Obispo County, Cal Trans, and Cal Poly.
8. Reduce the need for travel by private vehicles through land use strategies, telecommuting, and compact workweeks.

These goals promote many of the sustainability principles identified in this research. There is a heavy emphasis on reducing the use of the automobile and some emphasis on the environment, but there is no direct recognition of the equity or economic issues in transportation decisions. Not considering these components greatly reduces the scope and comprehensiveness of the element's intent from a sustainability standpoint. In addition, although land-use strategies are mentioned in Goal 8, a strong connection between transportation and land use patterns is not established. Further, as mentioned above, this connection is not made in the land use element as the land use element has only three policies referencing transportation.

Of the 75 policies in the circulation element, 15 were not germane to this study and were not analyzed. These policies dealt with issues that are not directly related to promoting sustainability principles, like street network changes, airport programs, and commercial transport and deliveries. Of the remaining 60 policies, 16 are mandatory, and the remaining are discretionary.

As mentioned above, the circulation element emphasizes alternatives to the automobile. Twenty-five policies address traffic reduction. These policies focus on community trip reduction, transit service, bicycle transportation, and walking. In addition, over half of the policies in the circulation element were classified as intending to "promote and enhance more environmentally friendly transportation modes." Although, as previously discussed, most of the policies are discretionary, not mandatory.

The city is committed to providing safe pedestrian and bicycle access. Two important polices in the transportation element are:

> Policy 3.3: The City shall complete a continuous network of safe and convenient bikeways that connect neighborhoods with major activity centers and with county bike routes as specified by the *Bicycle Transportation Plan.*
>
> Policy 4.3: New development shall provide sidewalks and pedestrian paths consistent with City policies, plans, programs, and standards.

The circulation element also devoted 15 polices to budgeting and implementation. One of the most comprehensive policies in that section was:

> Policy 15.11:The City shall evaluate development proposals to determine their effect on the entire community.

Interview Results

To complete this case study five people in San Luis Obispo were interviewed: John Mandeville, Planning Director, the Principal Transportation Planner, the Mayor, the President of the Chamber of Commerce, and the Director of a local environmental group. The following synopses summarize the results of these interviews.

Mandeville was very positive about the planning process in San Luis Obispo and the impact of the General Plan. He believes that the San Luis Obispo plan is generally conservative with growth control as a primary focus. He also believes that the community is working toward sustainability principles, which he described as ensuring that future generations have the same opportunities as the current generation. According to Mandeville, their General Plan is evidence of sustainability practices and many of the goals of the plan support sustainability principles.

When the discussion turned to sustainable transportation, Mandeville had a very broad interpretation of it. He described sustainable transportation as the ability to travel freely. In addition, this ability would not diminish over time. Mandeville also believed that sustainable transportation should be convenient and oriented toward alleviating congestion.

Mandeville described three local projects as examples of sustainable transportation. One of the projects is a proposed regional transit facility. The project is currently under preliminary discussion by the city. The facility would be conveniently located adjacent to the central business district. This location provides access to most of the jobs, shopping, and entertainment in the city; however, additional connections would have to be provided to the airport area and Cal Poly.

Another project Mandeville cited as an example of sustainable transportation was the Airport Area Specific Plan (not yet adopted). The airport area of San Luis Obispo is currently sprawled out with single-use facilities (e.g. office complexes and grocery store plazas). One of the key features of the Airport Area Specific Plan encourages service-oriented businesses mixed in with office and light industry uses. These types of services can cut down on both car trips and miles traveled.

According to Mandeville, the Margarita Area Specific Plan also contains examples of good sustainable transportation polices. The plan not only calls for much needed housing in the area, but also calls for transit-oriented development and mixed-use nodes.

One of the biggest issues in the city and the county of San Luis Obispo is the lack of a jobs/housing balance. Mandeville believes that this issue is very difficult to address at the local level. He suggested that regional and statewide planning could aid in correcting this problem. Mandeville also proposed the idea of developing a "new town." [1] In the sparsely populated County of San Luis Obispo, this could be one solution to addressing the housing problems, but as far as transportation is concerned the affects of a new town would need to be studied.

The Principal Transportation Planner was also interviewed for this case study. The discussion with the Planner tended to focus on transportation trends,

[1] New towns were also part of a list of housing proposals developed by the San Luis Obispo County Economic Advisory Committee for consideration by the County Board of Supervisors.

market forces, and cultural influences. The Planner is not highly optimistic on the future of transportation planning primarily because of the lack of interest on the part of the public in sustainable transportation methods and policies.

According to the Transportation Planner, non-motorized transportation has been ignored in Southern California because of cheap fuel, affordable cars, and ample disposable income. This trend has worked against sustainable transportation planning. In addition, people think that private vehicles provide flexibility and freedom, but this is often only a perception.

According to the Transportation Planner, decision-makers have a dilemma when they need to make a choice between serving the demands of the constituents and making comprehensive long-range decisions because the business of transportation is to service the interests of our culture. He believes that a good General Plan can direct physical change but not behavioral change. However, building infrastructure is easier than changing behavior, but it only forms the base of transportation planning, and infrastructure alone is not sufficient. For example, you can create a bike lane but it might not be used.

Because of SLO's compactness and young population, it has great potential for sustainable transportation planning. The city is trying to diversify transportation methods and promote alternatives as a way of reducing dependence on vehicles. The Transportation Planner believes that sustainable transportation needs planning, patience, and association. The planner claims that if people physically understand and enjoy their environment, then they rank biking and walking highly. In addition, he believes that to create change it needs to occur at the household and school levels. The planner suggested that incoming college freshman be required to take a sustainable living course because his experience is that college students are increasingly auto-oriented and make many car trips per day.

The Planner believes that solving many of the transportation problems requires regional and state cooperation. For example, he suggested the possibility of a tax sharing arrangement with the neighboring communities to alleviate some of the inequities of the jobs/housing balance. Another suggestion from the Planner involved changing the distribution of sales tax revenue from site of sales to population.

The research team also met with the Mayor. Overall, the Mayor believes that local jurisdictions are slowly losing the battle on transportation issues. The Mayor claims that state mandates and market forces are some of the biggest

obstacles. He noted that the proposed SB 910, which will control land use at the local level by imposing fines for noncompliance with state housing element law, would reduce flexibility at the local level. In addition, according to the Mayor, the state-mandate that requires local jurisdictions to meet unmet transit needs is bad policy both environmentally and financially, because it tends to run buses empty, especially in the evenings when students and women do not take the bus, and it encourages sprawl by providing transit service to distant locations. The Mayor also believes that government is in a difficult position to create change because of the complex market forces working against local decisions. For example, the Mayor claims that the natural gas bus systems are largely unsuccessful because the gas is damaging to the engines. He suggests that buses should be hybrid vehicles but also noted that the auto industry doesn't provide a hybrid bus.

The Mayor also believes that many of the city's transportation problems stem from behavioral and cultural patterns. The Mayor asserts that owning and running an automobile is relatively cheap for most individuals and that this makes it difficult to convince people to get out of their cars. The Mayor also stated that the public perceives the automobile as safer and more flexible than transit, when, in fact, as the Mayor pointed out, sport utility vehicles have a record of being less safe than other modes of transportation.

The Mayor recognizes that employment and residence patterns should work in favor of transit and alternative transportation modes, but he doesn't believe that this generally happens in San Luis Obispo or elsewhere. According to the Mayor, this is difficult to achieve because lenders still do not support this type of development. He believes that issues like this need to be resolved on a national level. Nonetheless, the Mayor is a proponent of the regional transit center, which will help mitigate some of the poor land use patterns and encourage greater use of transit.

The President of the San Luis Obispo Chamber of Commerce echoed many of the same concerns and ideas of the previous interviewees. The Chamber of Commerce promotes a compact, dense, and mixed-use urban form with a totally protected greenbelt that is large enough to discourage leapfrog development. They believe that sprawl is the enemy and that the community needs to work together to fight the effects of sprawl. In San Luis Obispo, the Chamber believes that environmentalists and Nimbys (Not-in-my-backyard) often work against good planning. They feel that the self-centered approach of the Nimbys leads to piecemeal development, and that the environmentalists fight every project without compromise failing to recognize the complicated

issues of market forces and population growth. The Chamber does not hold the developers at fault. They claim that developers will build good, compact development if the community will let them. In addition, from an economic standpoint the Chamber believes that cities are paying a high price to mitigate the impacts of growth and sprawl because unchecked, rapid growth creates the need to extend costly and unplanned services.

The Chamber of Commerce believes that good transportation is reflective of good land use policies and that the City is not doing well on this. In fact, they attribute much of the success of San Luis Obispo to luck. The Chamber does not generally hold General Plans in high regard, but they believe that the planning *process* is very valuable. The Chamber believes that the key for SLO to survive as a unique community is to encourage alternative transportation systems and compact subdivision. However, similar to other opinions in the City, they do not think that changing behavioral patterns is easy; rather, mass transit has to be made attractive to the public. Some of the solutions proposed by the Chamber include the regional transit center previously discussed and a light rail system to neighboring cities.

The Executive Director of the Environmental Center of San Luis Obispo County (ECOSLO) was also interviewed. ECOSLO is a nonprofit, advocacy organization that focuses on local and regional environmental and growth issues. Consistent with the other interviewees, the ECOSLO Director believes that both the public and decision-makers need to get out of the car mentality. She asserts that downtown San Luis Obispo is not bicycle friendly and is somewhat dangerous for cyclists. She suggested that the main street, Higher, be converted to a pedestrian plaza to reduce congestion. Although she did acknowledge that the city unsuccessfully attempted to moderate traffic and increase pedestrian access via traffic islands in the lower Higher Street area, opposition from local businesses ended the effort because they claimed that most of their business was from autos not pedestrians, and were not willing to compromise auto access.

From a transit standpoint, the ECOSLO Director thinks that the city does a good job for its size and resources. However, she believes that the infrequency and convoluted routes of the County system make it unattractive to many riders. The ECOSLO Director also criticized Cal Poly for not moving toward sustainability and for not setting an example for the community from either a transportation or land use perspective. One of the suggestions proposed by the ECOSLO Director was bus or shuttle service from the city to the local beaches to eliminate heavy weekend traffic.

All of the individuals interviewed recognize the complexity and difficulty associated with moving closer to sustainable transportation. In addition, they recognize that the public prefers the automobile as their primary means of transportation and changing this preference requires major shifts in consumption and personal behavior. Further, while they believe that local government has a responsibility to address these problems, they also believe that policy and direction needs to come from the state and national levels.

Key Lessons

San Luis Obispo recognizes the need and importance of reducing the dependence on the automobile, although, like many communities they are unsure of the best methods to achieve that goal. The city appears concerned about transportation from a quality of life perspective and to some degree from an environmental perspective, but the economic or equity components of sustainability were not directly addressed. The reasons for this are unclear. Congestion, transit services, and roadway patterns can clearly affect economic development and social welfare. In order to effect change, community leaders need to take a comprehensive approach to sustainable transportation. Not only do the perceptions of the public have to change, but also the perceptions of the community leaders.

CITY OF SANTA MONICA: A BRIEF CASE STUDY

Introduction and Overview

Santa Monica was selected as a mini case study because of the city's commitment to sustainable principles without a direct connection to General Plan policy implementation. Santa Monica's effort toward sustainability began from inside their government structure, initially focusing on environmental programs and operational procedures that the city could implement. The end result could be the evolution of a General Plan update, element by element over time.

Santa Monica has been an important "beach community" in the Los Angeles basin since it was founded in 1875 (incorporated in 1886). It was largely built out by the 1950s. The city has actually lost population since 1980, with the last ten years registering a decrease of 3.2 percent for a total of 84,084 (see Table 4-11). However, Santa Monica has been experiencing significant in fill and redevelopment in several commercial and industrial areas of the city while remaining a major residential suburb of the larger metropolitan region.

Table 4-11 Population Change (1990-2000)

	1990	2000	Increase (%)
Santa Monica	86,905	84.084	-2,821(3.2)

Source: U.S. Census

Programming Sustainability Without Explicit General Plan Policy

In 1992, the city established the Task Force on the Environment in response to Agenda 21—the blueprint for creating sustainable communities, born out of the United Nations sponsored Rio Summit held the same year. The result of the work by the task force, city staff, and others was adoption of the Santa Monica Sustainable City Program (SCP) by the City Council in 1994. The SCP was envisioned "as a way to create the basis for a more sustainable way of life both locally and globally through the safeguarding and enhancing of our resources and by preventing harm to the natural environment and human health . . . that our impact on the natural environment must not jeopardize the prospects of future generations" (p. 1).

The SCP is based upon four main policy areas, including Resource Conservation, Transportation, Pollution Prevention and Public Health Protection, and Community and Economic Development. Each contains a set of policy goals and targets. For example, transportation includes the following policy goals:

- Maximize the use of alternative forms of transportation including walking, bicycling, public transit, and carpools/ridesharing.
- Develop innovative traffic policies that reduce negative impacts from vehicles.
- Limit pavement area to the minimum necessary.
- Implement work schedules that reduce the number of employee commute days.
- Advocate for the regional development of public transportation systems.

Initial targets include increased ridership on the local bus system, and improved average vehicle rider ship for all employers with more than 50 employees.

Implementation of the SCP requires assessment on how the city is doing on achieving the targets through the publication of periodic progress reports, which also contain sustainable indicators. Progress reports were issued in 1996 and 1999, with the latest publication presenting a number of findings for the first cumulative five years of the program, including:

- Annual rider ship on Santa Monica's Big Blue Bus increased by 9.5 percent between 1990 and 1998.
- Average vehicle ridership for employees of companies in Santa Monica with more than 50 employees increased from 1.13 persons per vehicle in 1993 to 1.37 in 1997.
- The percentage of city fleet vehicles operating on reduced emission fuels (natural gas and electricity) has increased from 10 percent in 1993 to 34 percent in 1999 (p. 3).

Other illustrative findings of interest include:

- The total percentage of solid waste diverted from the landfill has increased from 13.8 percent in 1990 to 35.7 percent in 1998.
- Citywide water usage was reduced by 13.3 percent between 1990 and 1998.
- Citywide greenhouse gas emissions were reduced by 5.2 percent between 1990 and 1997.
- Santa Monica has developed one of the most successful and comprehensive environmentally preferable purchasing programs in the United States.
- The number of publicly assisted affordable housing units in the city increased by 47 percent between 1990 and 1998.
- Streetscape renovations to improve pedestrian safety and neighborhood quality are underway along Pico Boulevard (p. 3-4).

Sustainable indicators play an important role in the program. Each of the 18 indicators presented in the progress report begins with a 1990 baseline and a target for the year 2000. In short, the success of Santa Monica's march toward sustainability has been mixed, but encouraging.

The 1996 progress report identified two obstacles related to successful program implementation, which were subsequently addressed by the 1999

report. First, the 1996 report found that although progress was being made according to several indicators, "sustainable policies and programs are still being undertaken on a 'piecemeal' basis within the City." Second, as of 1996 it was found that "little or no effort has been made to involve the Business Community, School District, Santa Monica College, Local Non-Profit Groups and residents in the program." In response, the 1999 report found significant progress related to these two obstacles. First, city staff awareness of the SCP improved, for example, through the city's personnel performance evaluation process, not as a punitive measure, but as an educational tool. Also, the Green Purchasing Group, made up of Environmental Programs Division staff, worked with city departments to build awareness of the benefits and availability of "green" office products. Second, in terms of outreach, the 1999 report acknowledged that city staff was working with the Santa Monica Chamber of Commerce to establish a Sustainable Business Workshop series, an outgrowth of the Chamber's annual Sustainable Quality Awards program. Award winners for 2001 include The Real Earth Environmental Company for "Excellence in Stewardship of the Natural and Built Environment," and Trader Joe's for "Excellence in Sustainable Economic Development and Social Responsibility."

The SCP has also lead to the initiation of updates to the city's General Plan. The current General Plan was last comprehensively reviewed and adopted in 1984, with minor amendments since that time. With the heavy permit caseload and intense planning agenda confronting the Community Development Department staff, the General Plan has not been able to keep pace with the evolving sustainable trends in the City. However, the SCP is providing the opportunity to begin updating the General Plan, albeit incrementally.

This is not to say that the existing General Plan lacks content conducive to sustainable principles. For example, according to the 1996 Progress Report (p. 57), the 1987 Circulation Element contains a number of goals, policies, and programs related to sustainability, including the following:

Objectives

- Provide a balanced circulation program, which serves future land use needs consistent with minimizing and mitigating negative environmental effects.
- Encourage an improved public transit system capable of accommodating ten percent more of all trips generated by the city by the year 2000.

- Protect and encourage non-motorized transportation especially bicycle routes and pedestrian trails, consistent with the goals of the land use element.
- All new development should accommodate project-generated parking consistent with encouraging alternative transportation systems management programs.

Policies

- The city shall encourage overall land use patterns which reduce vehicle miles traveled and number of trips.
- The city shall support the implementation of short- and long-range transportation measures for reducing air pollution from transportation sources.
- The city shall encourage transportation alternatives to reduce the use of fossil fuels.
- The city shall support transportation alternatives, which reduce the use of land for parking.

Sustainability and General Plan Updates

The relationship between the SCP and the city's General Plan is illustrated by the pending draft conservation element (May 17, 1999), which is intended to "provide a policy foundation in the General Plan for the *Sustainable City Program"* (p.1). The state-mandated conservation element reflects the opportunity to "embrace" the spirit of the SCP as a "holistic approach to environmental protection." The element contains a series of objectives, policies, and implementation measures designed to forward a sustainability agenda in the city, including such transportation related issues as energy resources, water, and air.

The draft document also contains references to other planning documents influential to attaining sustainable goals, including the circulation element, in which "conservation issues relate directly to circulation policies and practices because decisions individuals make about transportation choices affect fuel consumption and associated air pollution emissions." Moreover, the document argues that the circulation element focuses on a balanced multi-modal approach to the movement of people and goods that includes walking, bicycling, transit, and land use patterns that permit direct access" (p. 10).

In terms of a regional perspective, the draft conservation element references the Southern California Association of Government's *Regional Comprehensive Plan and Guide* and notes that it includes the Regional Mobility Plan, among others, implying the relationship of Santa Monica to the urban regional setting.

An important component of the draft conservation element is the issue of air quality, as represented by Policy 2.5, which seeks to reduce air pollution emissions from vehicles consuming fossil fuel by:

- Developing a system of linked pedestrian travelways, with safe pedestrian crossings, throughout the city.
- Maximizing use of public transportation which utilizes clean fuels.
- Creating a system of bikeways and bicycle facilities (e.g. secure bike lockers) that makes bicycle travel in Santa Monica easy and safe.
- Maximizing ridesharing and carpooling.
- Increasing the availability and use of low and zero emission vehicles and associated refueling infrastructure.
- Promulgating land use policies that provide housing and service opportunities for all income groups in close proximity to places of employment and services.
- Maximizing the availability and ease of use of other forms of alternative transportation.

The above list of policy components demonstrates that Santa Monica appreciates the importance of integrating air quality sustainability to other parts of the General Plan. The draft document also exhibits an overall sensitivity to the General Plan consistency doctrine, with Policy 4.4: "Pursue land use practices that create a balanced mix of housing, employment, and shopping opportunities in and around Santa Monica, consistent with the land use element" (p.23).

The draft conservation element also contains an implementation program which "takes the next step by identifying and defining programs to be considered by the City Council and enacted through various city departments, as directed by the Council" (p. 1). The draft document presents 89 implementation programs and actions within a matrix that also includes a reference to policy numbers and indication whether each measure is a new or

existing program to be expanded. Examples of the 15 implementation programs under the transportation category include:

- Maintain funding for public transportation;
- Provide flexibility in the regulations for home-based businesses to permit businesses, which can reduce vehicle trips, but balance this goal against the need to preserve the character of residential neighborhoods;
- Investigate whether parking space requirements for new commercial and housing developments in specific areas of the city can be reduced due to availability of transit or other factors that reduce automobile travel;
- For city employees who use alternative modes of transportation to arrive at work, make available fleet vehicles for city business during the day;
- Continue to follow reduced-emission fuel policies for city vehicle purchases;
- Continue to promulgate use of alternative fuels through programs such as photovoltaic electric vehicle charging stations, CNBG fueling stations at city yards and transportation facility, electric TIDE shuttles, and purchase of alternative fuel buses; and
- Continue to implement the Big Blue Bus Service Improvement Program, including the downtown transit mall, which is currently under construction at The Third Street Promenade.

Unfortunately, the matrix does not include a column that identifies either the lead department or a time line for implementation (budget or calendar year). At present, the draft conservation element is being reviewed by the Community Development staff and will begin public hearings in Fall 2001, at the same time that the draft circulation element is scheduled for public review.

Lessons Learned

This brief overview of Santa Monica's efforts barely touches the surface of their achievements and commitment to create a sustainable community. Under the guidance of the Task Force on the Environment, the Sustainable City Program Coordinator Dean Kubani has represented Santa Monica with enthusiasm and talent in promoting the city's sustainable efforts to the rest of the world. In fact, planners, governmental officials, citizens, and others from all over the globe are visiting Santa Monica to learn about their existing and pending accomplishments.

In terms of General Plan policy, Santa Monica is demonstrating that the creation and application of sustainable principles can occur without the direction of a formal planning program. However, as illustrated by the draft conservation element and other pending state-mandated element updates, the city recognizes the importance of incorporating their programs and actions into an updated General Plan. The City Council is currently considering increasing the budget of the Community Development Department to provide for six new staff positions. One of the major tasks will be to update the General Plan to incorporate all of the existing and pending programs, and provide a forum for the community to actively participate in advancing a sustainable life style for future generations of Santa Monicans. This mini case study serves to acknowledge the efforts of the city to date, and recommend that Santa Monica be monitored for future consideration as a source for evolving plan policy and implementation committed to the creation of sustainable communities, especially related to transportation and sustainable indicators.

SAN DIEGO CASE STUDY: CITY, COUNTY AND REGION

Introduction and Overview

The San Diego region is often looked upon admiringly for the way it has managed to integrate growth management, land use, and transportation planning. A physically large jurisdiction, the county covers 4,200 square miles, encompasses 18 cities, and is home to 2.8 million people (see Table 4-12). Transit-based land use has played a significant role over the last three decades as local jurisdictions and the regional planning agency have struggled to lay the foundation for how land is allocated among uses and how people move through the region. Every decision they make is of great consequence because the region, already almost doubled in developed area as well as population in the last two decades, is forecast to add an additional million people by the year 2020 (SANDAG, 1999). The future well being of the region—economically, socially, and environmentally—hinges on making essential linkages between land uses and transportation systems in planning decisions today. In recent years the role of the General Plan has been subdued.

Table 4-12 Population Change (1990-2000)

	1990	***2000***	***Increase (%)***
San Diego: City	1,110,549	1,223,400	10.2%
County	2,181,833	2,498,016	12.6%

Source: U.S. Census

This case study explores how San Diego is doing with integrating transportation and land use. Specific attention is paid to the city of San Diego because it is a significant part of the metropolitan area economically, historically, in population, and physical size. Furthermore, it has dedicated substantial planning effort and financial support of integrated transit based development. Due to the regional implications of this city's influence, this case study describes and evaluates the efforts that have taken place in the city to implement transit based land use and then reflects on the direction of its General Plan update within the context of the regional attempt to coordinate inter-jurisdictional land use decision making and the county's General Plan update activity. In conclusion, the current effort to restructure regional

governance for improved transportation planning is briefly discussed as a platform for further study.

IN THE BEGINNING

Historically, the City of San Diego has been the principal municipality of San Diego County. As such, the city has tended to set the course for the region in terms of policy planning, implementation, and approaches to growth management that has transcended jurisdictional boundaries and mindsets. Two events dovetailed in the mid to late 1970s that impelled the region toward new directions. First, in 1975 the city was the fortunate recipient of funding to reestablish its rail transit when a bill sponsored by California State Senator James Mills called for certain transportation funds to split between highways and light rail. Originally proposed for division with Los Angeles and Orange Counties, the other two regions opted out of the arrangement when they objected to certain of the bill's conditions, leaving San Diego the sole recipient of coveted transportation dollars (Boarnet and Compin, 1995). The city welcomed the opportunity to shift planning directions and was readily able to acquire the existing rights of way of an established rail freight route for its new light rail trolley. The second key turning point occurred in 1979 when the city invoked a "tiered" growth management ordinance to phase new development based upon the availability of new infrastructure. This tiered growth management plan, which had various policies and implementation tools for different parts of the city, had profound implications for later development and movement through the city and region (Calavita and Jensen, 1997).

THE LEGACY

These policy choices, as well as ones that build upon their legacy, dramatically shaped the political and physical horizon of the region, and continue to do so today. Indeed, reconciling the two paths appears to have been problematic during the last 25 years because the city often vacillated between competing objectives concerning transit and development policies.

Four years after the city was endowed by Mills' legislation and coinciding with commencement of the first line of trolley service in 1979, the city passed upon its first opportunity to integrate land use and transportation when it updated its General Plan (City of San Diego, 1992a). The city, when deciding among four potential framework schemes, chose to incorporate the 1975 growth management ordinance by advocating "nodal" phased development patterns that called for more "balanced and self-sufficient communities than… existing

trends" (City of San Diego, 1992a). Although this choice advocated such things like locating employment centers near suburban residential communities and discouraging leapfrog development, it precluded another alternative under consideration, drafted to orient land use "to ensure higher intensities of development near the public transportation corridors and stations." This rejected alternative was the choice most clearly associated with a commitment by the city to transit-based development patterns. Even though the preferred alternative denoted an improvement over existing development trends, as the city's first opportunity to legislate development supporting fixed rail transit it failed to capitalize the initial impetus to integrate rail as a broad-based city policy (City of San Diego, 1992a).

The early 1980s was a period of rapid growth for the city of San Diego and, in line with its approach to tiered-growth, development was directed to existing urban and urbanizing areas. According to Calavita and Jensen (1997), San Diego's growth management planning initially worked well—too well, in fact, with unintended results:

> One after another, single family neighborhoods were invaded by multi-family buildings, many of them insensitively designed, and community facilities were overwhelmed by the onslaught of newcomers . . . In the planned urbanizing tier . . . fees were not keeping up with infrastructure needs and canyons and wetlands were being filled in by new development.

Compounding these consequences in the mid-80s, the City Council began approving low-density development in urban reserve areas resulting in clashes over land use that fractured the community into pro-growth and slow-growth factions. Multiple initiatives were proposed to limit growth in the region, but none mustered enough voter approval for enactment (Calavita and Jensen, 1997).

In the midst of citizen upheavals, the city responded by revising its growth management ordinance fee structure and putting a cap on residential building permits (Fulton, 1999). Following those actions in 1990, the city passed a Single Family Protection Ordinance that essentially prevented attempts to intensify zoning in existing neighborhoods (City of San Diego, 1990). Meanwhile, redevelopment of the city center was rapidly taking shape because of work by the city's redevelopment arm, the Center City Development Corporation, which was launched in the year 1975. Coinciding with downtown redevelopment, the city adopted a resolution supporting the principle of transit-based development, ostensibly signifying its intent to facilitate accessibility

through the city on public transit (City of San Diego, 1986). The measure spelled out the city's intent "to pursue implementation measures for planning, right of way protection and acquisition, and funding of guideway and facility construction, operation and maintenance" (City of San Diego, 1986) and indicated that the General Plan would be updated to incorporate these measures for maximum effectiveness. At this time, only two segments of light rail were in operation; however, most of the trolley stations were in the city proper. Additional lines for the city through high travel corridors were programmed for completion, which would presumably also benefit from this policy decision.

New Directions?

In 1990, the Strategic Framework of the 1979 General Plan was reaffirmed as the guideline for future growth (City of San Diego, 1992). Since General Plans were considered to have 20-year time horizons, the city was simply affirming that the decision made 10 years prior was still being adhered to, even though it implied further postponement of many of the policy statements made about facilitating transit based development. On the other hand, the city did adopt additional related resolutions, this time advocating improvements to pedestrian corridors in center city and near transit stations. Two years later, the city also adopted Peter Calthorpe's celebrated guidelines for transit station area development (City of San Diego, 1992). His guidelines incorporated higher densities and multi-use developments including housing, civic services, and residential-serving retail so that walking, bicycling, and public transit could become more widely used modes of travel in the city.[2] In 1994, yet another policy advocating development of projects with transit accessibility was adopted, this time with a stated purpose to discourage commutes downtown via the automobile (City of San Diego, 1994).

Additional transit service continued to be laid in place: five new trolley line segments were added in the city and a commuter rail service from north county to downtown San Diego began in 1995. Meanwhile, in 1993 a master-planned TOD project designed by Calthorpe adjacent to a programmed Mission Valley trolley station, commenced construction. Rio Vista West was a bold and progressive leap for the city carrying out the "Calthorpian" vision of new infill development. Since the site was on vacant land (previously a sand mining operation) the city was able to implement TOD zoning from scratch in the

[2] The City's Guidelines called for 10% mixed use, 20% residential, 10% public space, plus density bonuses, reduced parking requirements, streetscape and pedestrian provisions.

Mission Valley District Plan. This was the first example of a specifically tailored development oriented around a transit station in the city of San Diego (Calthorpe, 1993).

Rio Vista was not fully realized in its original design after a downturn in the market prompted the developer to place less emphasis on smaller, residential-serving "village-type" retail stores by changing the mix and size of commercial space in the development (Bernick and Cervero, 1997). Apparently, this project was phased to build out the commercial aspect of the site before the residential portion, which, when the economy took a dive, made the developer uneasy about the viability of smaller-scale commercial retailers' survival without a nearby core of residential neighborhoods. It is difficult to lay blame for the alterations in this development upon the city because it substantially conformed to the original design and uses of the site: station area development patterns reflect hierarchical zoning with increased residential and commercial density close to transit stations, less densification further out from them, and enhanced mobility for pedestrians, although it is definitely more automobile-oriented than conceived.

Until the Mission Valley East segment goes online (expected in 2004), the Mission Valley west segment is also the only trolley line and station to be built without existing rail right-of-way. A 1995 study of San Diego's experience with TOD by Boarnet and Compin concluded that one of the problems with implementing TOD is the existing land-uses along purchased rights-of-way. They found that densities along trolley lines were not consistent with the recommendations set forth in the TOD Guidelines prepared by Calthorpe (Boarnet and Compin, 1997). Progress has been made to improve this discrepancy, however. The year Rio Vista was completed, 1997, the city's entire zoning code was updated in preparation for a revised General Plan. Notable among zoning improvements are the Transit Station and Urban Village Overlays that set out specific requirements for station area developments to be used in conjunction with the city's Transit Oriented Development Guidelines (City of San Diego d). Policy decisions the city had resolved to support were finally being broadly implemented through zoning changes and overlay zones. Several station areas in the city presumably now have overlay zoning that conforms to the principles of the TOD Guidelines.

The enactment of the revised zoning ordinance was delayed until January 1, 2000, perhaps in anticipation of implementation of the revised Strategic Framework, which continues as of this writing, but it could also perhaps be because of major restructuring in the city's planning department. Restructuring

took place over the entire decade. The early years of the 1990s were a recessionary period of slow growth and, according to the city, “the recession nearly brought development to a standstill” (City of San Diego c). The newly elected mayor who took office in 1992 promised to bring “business friendly” policies to City Hall (Arimes and Knack, 1997). Believing planning regulations too numerous and restrictive, her administration streamlined permit processing and slashed many programs and policies deemed to inhibit economic growth; the streamlining included the reduction of development impact fees (Calavita and Jensen, 1997).

In 1996, the economy rebounded and, as the city grew along with it, a renewed demand for housing ensued. At the time, City Hall was experiencing another wave of restructuring during which the City Planning Director resigned, numerous positions were cut, and planning functions were split into two departments (Calavita and Jensen, 1997). The department went without a director for two years until 1998, when the current Planning Director stepped into the post. Since then the city has been aggressively pursuing additional development projects including the redevelopment of downtown’s East Village, adjacent to the newly expanded Convention Center and future home of the new Padre’s ballpark stadium.

While the city invests in these redevelopment areas, parts of the city that suffered due to failed city policies in the eighties, especially the Mid-City area, still await reinvestment to bring infrastructure and services up to city standards. Bob Forsythe, a local planner who assists Mid-City on the side, states that the deficit amounts to $300 million—$200 million for parks, $30 million for libraries, and $80 million for roads (e-mail communication, May 3, 2001). Public transportation in this area is markedly deficient. Even with one of the highest densities in the city, residents there do not have convenient transit service to major employment centers (Forsythe, 2001). Interestingly, Calthorpe had earlier identified Mid-City as a good location for TOD in the Guidelines he prepared for the city, but as already described, the city’s attention has been primarily focused elsewhere

The city has been engaged with reframing its Strategic Framework since last year. After numerous lengthy community meetings throughout the city, the council has decided to embark upon planning for a “City of Villages” (City of San Diego, 2000b). On the surface, it appears to reflect the city’s movement toward transit-based development, with densified nodal centers on transit lines and the same type of hierarchical land use patterns advocated by Calthorpe nine years ago when the city first adopted his guidelines. However, several

issues remain problematic for true implementation of the village concept, notably the Single Family Protection Ordinance (SFPO). According to Betsy McCullough (Flynn, e-mail communication, 2001), the ordinance is no longer in effect; nevertheless, during the period in which it was in effect, many single-family neighborhoods were down-zoned under its umbrella. In fact, the ordinance allowed neighborhoods to keep multi-family units out and established a precedent for maintaining the exclusivity of single-family areas. Of the older urban areas that absorbed the bulk of new growth in the eighties, most of these have never recovered from the inundation and still await infrastructure that meets city standards.[3] Urban reserve areas, however, received ample new schools, roads, and city services (Calavita and Jensen, 1997).

Although congestion pervades all major corridors during peak times, most traffic impacts result from movement to and from the low-density outlying areas and employment centers. Considering the history of the SFPO, it will be difficult to convince some areas that they should accept increased density in order to improve transportation efficiency through the region. It is likely that the city's efforts will probably be directed to already densified areas like Mid-City and along existing transit corridors because single family neighborhoods are notoriously protective of perceived threats to their property values, even though TOD has been shown to have positive effects on real estate value (Bernick and Cervero, 1997).

Bernick and Cervero (1997) assert that the city of San Diego has energetically pursued transit-oriented developments since the late 1980s. To an extent, this seems to be true, given the numerous policies and resolutions the city has made through the years. Time is the ultimate test, however, and the city is just now in the first stages of updating its General Plan, so it remains to be seen whether the city is seriously committed to transit-orientation as an over-arching land-use policy and whether it can overcome NIMBY ("Not In My Back Yard") pressure to implement TOD throughout the city.

THE REGIONAL CONTEXT

It is interesting to think about the historical incompatibility of the city's policies as it both extended outward to its edges and pulled inward toward center city. Consequences of the city's scattered framework not only resulted in

[3] Recent estimates of the costs to bring the necessary facilities and services in these areas up to city standards are in the several hundred millions of dollars (Hicks 2001).

deteriorating infrastructure in parts of the city itself, but also resulted in regional, and even inter-regional impacts on traffic congestion and loss of open space. In 1988, county voters directed the San Diego Association of Governments, the regional planning body for the area, to begin administering growth management planning for the region, in part as a response to spillover effects from the city's growth management decisions. SANDAG designed the Regional Growth Management Strategy (RGMS) to integrate transportation, land use, economic, and demographic studies and planning to help local governments prepare for projected growth. Originally adopted in 1993 and now known as Region 2020, the strategy is facilitated by the participation of all the Planning Directors in the region for maximum cooperation and consensus planning on what actions may feasibly be implemented by each jurisdiction in the region.

Technically, the state and federal governments recognize SANDAG as the regional transportation planning agency (SANDAG, 2000a, p. 17). In that role, it is responsible for not only preparing the long-term Regional Transportation Plan (RTP) and shorter term Regional Transportation Improvement Program (RTIP), but SANDAG also allocates transportation funding, and administers the Congestion Management Program (CMP), a state-mandated plan to coordinate local governments' land use and transportation planning in order to improve regional air quality (SANDAG, 2000a, p. 17).

RGMS and CMP rely upon self-certification of local jurisdictions' land use plans' consistency with policies embodied in the RGMS's land use distribution element (LUDE). Achievement of the goals in LUDE is contingent on adoption by member jurisdictions. Implementation of the plan by all jurisdictions is projected by SANDAG to have these benefits:

- Reduced automobile travel, saving drivers more than $450 million per year;
- Shorter travel times, saving an average automobile commuter 40 hours per year;
- Additional transit riders per day, increasing by approximately 15 percent;
- Energy savings of $200 million by the year 2010; and
- Conservation of vacant land for open space uses (SANDAG, 2000b).

Although SANDAG is largely an advisory agency, it retains a good reputation for its efforts to coordinate transportation and land use planning for the region.

Since it launched its growth management plan it has consistently received high accolades by those observing regional governance.[4] The RGMS (SANDAG, 2000a, 19) utilizes measurable standards and objectives in 13 categories to monitor conformance and achievement of its goals:

- Air quality,
- Transportation system and demand management,
- Sewage treatment,
- Sensitive lands and open space preservation and protection,
- Solid waste management,
- Hazardous waste management,
- Housing,
- Economic prosperity,
- Shoreline Preservation Strategy (added July 1993),
- Regional Economic Prosperity Strategy (added June 1994),
- Regional Energy Plan (added December 1994),
- Land Use Distribution Element (added February 1995), and
- Series 8 Interim Regional Growth Forecast (added May 1995).

Many of these goals are consistent with transit-oriented development, i.e., higher density in areas with best transit access, pedestrianization as a mode of travel, mixed-use development in rail and bus transit access areas, and coordination of bicycle and transit routes, among other things (SANDAG, 2000b). SANDAG also promotes transit-based development by allocating funds on a competitive basis to jurisdictions interested in developing projects compatible with LUDE along existing or planned transit corridors (SANDAG, undated).

SANDAG's transit-based planning is considered a viable method of growth management for the region because it attempts to integrate planning in a way that provides a constructive framework for local jurisdictions to plan within. In other words, it provides for a regional planning perspective in a way that

[4] Numerous professional and academic books and journal articles refer to SANDAG's efforts, including Douglas Porter's *Managing Growth in America's Communities* (1995 Island Press), William Fulton's *Guide to California Planning* (1999 Solano Press), and others.

respects the autonomy of local governments to determine how to implement the policies (Melnick, 1997). However, given the fact that SANDAG has no authority to implement the LUDE or to enforce local jurisdictions' compliance with its adopted policies, many of its planning objectives remain inert. In the end, overarching regional issues do not generally take precedence over local ones, which confound the type of integrated planning that is the theme of this paper. This has been the experience of SANDAG with the RGMS and it remains a constant challenge to those trying to plan for the region's welfare.

In the eight years since the RGMS was adopted, the region has grown rapidly, and, as alluded to earlier, growth is projected to continue apace in the next 20 years with an additional one million new residents in the county, a 44 percent population increase over the region. SANDAG's studies (2020 City/County Forecast: Alternatives Evaluation, 1998) show that there is tremendous potential to improve land use efficiency in the county. Seventy percent of the region's homes are within one-quarter mile of a transit stop and more that 85 percent are within a half-mile. In addition, studies show that current density of residential land in the cities is 7.7 dwelling units an acre (due/ac) while existing land use policies for the average planned density on vacant land is 3.7 du/ac, less than half the density currently on the ground. There is a tremendous opportunity to dovetail higher density land use with transit station area development and improve transportation choices. SANDAG's LUDE proposes to increase planned density percentages to 4.3-4.9 du/ac by concentrating development within urban centers around transit stations in multiple-family neighborhoods. If all the jurisdictions implemented LUDE, 400,000 acres, nearly the size of two cities of San Diego, would remain in open space for other uses (SANDAG, 2000d).

The future quality of life in the region is, of course, dependent upon jurisdictions making policy choices that consider the collective ramifications. It can be argued that this responsibility is especially obligatory upon the two largest jurisdictions, the City and County of San Diego, because of the enormous potential of their decisions to affect long-term regional health. It is essential that all agencies make a genuinely good effort to adhere to the policies agreed upon by the SANDAG Board. The board is composed of delegates from each of the eighteen cities and the County of San Diego, as well as representatives from California Department of Transportation (Caltrans), the Department of Defense (due to the military presence in the region), the two regional transit agencies MTDB and North County Transit District (NCTD), the County Water Authority, and the Port of San Diego. The cities and County

are the only voting members, and as a group they make regional decisions backed by the explicit delegated authority of their municipalities. All voting cities, as participating members of this regional government, are bound in principle as members of the governing body to act in good faith upon the agreed upon decisions made in that arena. However, if the most powerful jurisdictions do not set responsible precedence for acting in the collective interest of the region then smaller, less influential but rapidly growing jurisdictions may have no recourse but to follow the lead of the larger jurisdictions.

The county of San Diego, like the city, is also in the midst of updating its General Plan and preparing to determine how best to accommodate its share of growth in the next 20 years. The County Planning Department is commencing its second attempt to draft land use alternatives that plan for distribution of nearly 240,000 more people projected to settle in the unincorporated area during the planning horizon; this would be a 55 percent increase in population (SANDAG, 1998). Duncan McFetridge (telephone interview, May 21, 2001), chairman of a local citizen "watchdog" activist group, contends that since the last General Plan revision, the county has repeatedly used its discretionary land use authority to permit low-density residential and "big-box" commercial development in unincorporated areas—places not in proximity to existing cities that could annex them and also predominantly accessible by the auto. McFetridge argues that the county continues to accommodate projects that undermine SANDAG's growth strategy plans, even though the County's Planning Director was directly involved with its preparation and the board stipulated to SANDAG's 2020 Forecast.[5] In response to County actions like these, grassroots groups in the County have repeatedly initiated legislative and judicial action to prevent inappropriate "rural sprawl" in the unincorporated areas.

The subject is highly contentious for the region because as long as the county competes for development with the municipalities, the region does not have a consensual direction of growth and development. Moreover, if the county proceeds to accommodate development far from urban centers, regardless of what the cities do to minimize their individual impacts, transportation corridors will continue to experience needlessly increasing congestion because of the county's actions.

[5] As mentioned above when describing the collaborative efforts to construct the RGMS.

For a region with such a positive reputation for growth management and transportation planning, the county's circulation element, updated in 1994, is woefully inadequate, consisting of a mere nine pages of text, only one of which concerns its road network[6] (County of San Diego, 1994). Transportation analyses are non-existent, and there is no reference to the county's land use element, planned-development areas, regional land use plans, or neighboring jurisdictions, all of which would presumably be of interest to a jurisdiction of this size if it were concerned with its contribution to regional welfare. Accordingly, all factions, including developers, environmentalists, citizen watchdog groups, municipalities, and private property rights activists are scrutinizing the county's General Plan update process while the county negotiates "appropriate zoning" for the next 20 years.

Next Steps

While SANDAG continues to encourage the adoption of its growth strategy, there are San Diegans who believe that the region needs stronger regional governance to facilitate better transportation planning in the county. This year an effort was begun to study the potential restructuring of multi-level governance by merging five agencies with wide-ranging regional authority in the County: SANDAG, Port Of San Diego, MTDB, NCTD, and the Border Infrastructure Financing District. In conjunction with discussions of the new agency is talk of new, albeit limited, discretionary land-use powers to implement transportation projects and curtail land use decisions that would negatively affect movement through the region.

Obviously, talk of this kind has stirred spirited debate and speculation in the county. According to the manager of Region 2020 Carolina Gregor, (e-mail communication, May 25, 2001) there are many elected officials who believe a new agency is not necessary because they believe the strategy is progressing just fine. However, surveys of county residents do not demonstrate public agreement with that assessment. A Public Policy Institute poll last summer shows that the majority of county voters believe that traffic congestion and growth are serious problems (Baldassare, 2000).[7] SANDAG's own surveys

[6] Actually, one and a half pages are about roads, and another one and a half are on definitions. The rest is devoted to bicycle planning.

[7] On congestion problems the survey found 78% in general of County voters view congestion as serious; individual breakdowns in the county were Central City 79%, North County 85%, South Bay 78%, and East County 69%. Growth breakdown as follows: 47% in general, with Central City 44%, North County 56%, South Bay 44%, and East County 45%.

show similar results (SANDAG, 2000e). Furthermore, voters think ineffective regional planning (56 percent), ineffective government (61 percent), and greed and corruption in government (56 percent) contribute to the problems experienced in the region (Baldassare, 2000). Thus, it may be appropriate to reflect on the governmental process over the last years that have stymied successful collaborative implementation on regional issues such as transportation and land use.

SANDAG's limited powers may also be improved upon. Options available to but never implemented by the agency are also under consideration. For instance, since SANDAG has transportation funding authority it could use financial incentives to reward jurisdictions that implement LUDE-based planning. According to Gregor, this is something being seriously considered by the agency to achieve better integrated planning; however, this could not help resolve all the region's transportation issues because there are other looming transportation problems not easily remedied by this "quick fix," such as the problem relocating the international airport. The current airport facility is projected to have a limited useful duration, which the region has struggled to reconcile for over 20 years (SANDAG, 2000a, 166). Over 15 airport and economic studies show that the region's economic growth is contingent upon relocating the airport, but thus far no consensus on its ultimate location has been reached, largely due to inter-jurisdictional land use conflicts over noise and operation of the airfield.

One last but very troubling issue concerns transit planning for the next twenty years. The most recent Regional Transportation Plan (2000) does not adequately provide for an expansion of transit and it relies upon $12 billion of unfunded transportation projects and TOD nodes throughout the region (SDCTC, 2000). However, roads and highways are still given priority funding in the RTP (SDCTC, 2000). It is unclear why SANDAG chose to give transit such a limited role in the future when they base their strategic plans, forecasts, and efforts upon the assumption that local governments implement RGMS land use policies. Eighty-five percent of voters support building a superior public transit system as a way to deal with increasing transportation issues (Baldassare, 2000). It appears that even SANDAG isn't convinced that the region will pull out of its dependence on the auto, but if they're not prepared to back up their assumptions with expanded options, then who should be?

San Diego and SANDAG need to wrestle with the overarching issues of governance and a regional vision in pragmatic ways so that the area can move forward and grow intelligently. The problem of integrated planning for the city,

as well as the region, has never been one characterized by a lack of information, but one of leadership and implementation. Leadership—within both local governments and regional institutions—to make bold decisions for the welfare of the region, is required for the good of all citizens in the region. It is incumbent upon local governments to make tough policy choices, like those the County and City of San Diego are faced with now. Setting precedent for change and laying a foundation for the next generation's livelihood and welfare requires real commitment to participation, adherence to regional goals, and commitment to implementing integrated land use and transportation measures throughout the cities—sustainable transportation planning in its fullest sense.

Concluding Remarks on the Case Study

The case studies provide a range of experiences and examples, which can be used by cities and counties in California interested in sustainability, especially transportation. Some case studies have focused more on specific text examples of General Plan policies and implementation measures while others have expanded discussion of interviews among individuals with knowledge and insight about sustainable principles. Collectively, the case studies demonstrate that a city or county committed to creating a sustainable life style can develop a process, which can lead to policies and practices that respond to a community defined vision.

Key lessons vary among the case studies, depending on the physical size and population of the city, awareness/involvement of the community in local planning issues, commitment of local officials and staff, age of the General Plan, or whether the General Plan is even a factor in the sustainability effort (San Diego, Santa Monica), among other considerations. Although a number of lessons will be included in Chapter 5, the following serves as a brief summary:

- General Plans take a long time to prepare and take even longer to implement, requiring a sustained community commitment to achieve success.
- Sustainable programs and practices can occur without benefit of a new General Plan with explicit policies and implementation measures.
- Sustainable transportation requires a holistic, multi-modal approach to community mobility, including pedestrian, bicycle, transit, and automobile use. In general, reduction in the use of the automobile is necessary.

- Sustainable transportation is also holistic with connections to resources, air quality, land use, housing, design, and other community conditions related to mobility.

Sustainable transportation requires a regional approach and cooperation among neighboring communities.

- Sustainability in general requires community consensus and inclusion, together with a public education process to build a long-term constituency.

It is also apparent from the case studies that in some communities sustainability principles are being adopted and supported primarily as a method to control urban growth (i.e., to grow more slowly). There does not appear to be any inherent reason why the same policies and practices cannot be applied in more growth-oriented local jurisdictions.

OBSERVATIONS AND RECOMMENDATIONS

INTRODUCTION

This research project has assessed California's General Plan process as a tool for implementing sustainable development, with particular emphasis on how General Plans can foster transportation systems at the local level. Because the General Plan process is well established and legally mandated in California, and because it takes a long-term view of development, it is the ideal place to begin planning for sustainability. As traced in the literature review (Chapters One and Six), the concepts of sustainability and sustainable development have been evolving for decades.

The idea of sustainability can be viewed within the context of space and time. Spatially, the debate about sustainability occurs at all levels, from global trends to individual actions. As Richard Forman (1995, p. 435) argues in his book, *Land Mosaics*, the popular phrase "to think globally and act locally" is too simplistic. Few people possess a global perspective, and no one can live globally. Ultimately local considerations determine the daily actions of individuals, and groups of individuals, including groups acting as decision-makers for their community. Forman concludes that humans and the environment we share would be better off if we "think globally, plan regionally, and then act locally."

In terms of time, sustainability is, at its heart, long-term and intergenerational. Envisioning the cumulative impact of incremental decisions, and thinking seven generations into the future is the major challenge of sustainability, a challenge that seems particularly great in an era of significant social, economic and technological change. The Dutch, in implementing their National Environmental Policy Plan, have chosen 25 years, or one generation, as the time line to achieve their environmental recovery, and this is considered remarkably long-term by current standards.

And so it is for an implementation-oriented plan. But the California General Plan also has a future horizon of 20–25 years, which makes a good planning instrument for implementing sustainability, even if it stops six generations short of the ideal. Regional Transportation Plans also have a 20-25 year time horizon, so there is at least a chance for synchronization as well as sustainability.

Adding to the challenges of augmenting planning's spatial and temporal scope is the need for looking at sustainability multi-dimensionally, i.e., as a three-legged stool. Economic, environmental, and social factors represent the three legs, which are bound together by the band of sustainability, which all together support the platform of community from local to global. This is the stage in which sustainable transportation policy and practice must not only perform, but help build. The challenge of integrating divergent points of view will not be easy, but fortunately planners, including transportation planners, do routinely work in all three realms.

The concept of sustainable transportation, like its parent concept of sustainability, is vast and complex. We have argued that it is nonetheless a coherent concept, one which implies a commitment to transportation plans, policies and technologies that reduce transportation's role as a major consumer of non-renewable resources, and a major contributor to air, water, and noise pollution.

Issues and (Preliminary) Answers

Unfortunately, at the level of state government, California does not currently appear to be prepared to address the economic, environmental, and social forces currently tending toward an unsustainable future. Examples include not only transportation, but also energy and water, to mention only two other major issues that could benefit from a sustainability perspective.

The question is where to begin with respect to recommendations for California's General Plan process and transportation planning. Different modes of transportation operate at various levels of space and influence choices and expectations of mobility over time. It is fitting for General Plans, concerned as they are with local communities, to focus on more local forms of transportation.

A recent article in the *Institute of Transportation Engineers (ITE) Journal* notes how and why local transportation is changing. In describing the depth and significance of the change, it reaches an eloquence not always associated with traffic engineering:

> We are at the dawn of a new day. Conditions have changed in recent years. Our resources—land and money most obvious among them—are in shrinking supply. New technology abounds and is helping to reshape transportation among other aspects of urban life. There is greater concern about the quality of life, and a consensus that we need to cooperatively make strides to improve it. This is the impetus behind the smart/

> sustainable…growth movement and why *ITE* should be and is paying attention to it (*ITE*, 2000, p. 29).

The article goes on to outline possible transportation characteristics of "responsible growth" (*ITE*'s preferred term for smart/sustainable growth) with an extensive list that includes "a balanced system of transportation modes, in *priority order"* [ibid, p. 28, emphasis added]:

- Walk.
- Bike.
- Transit.
- Goods and service movement vehicles.
- Multi-occupant vehicles.
- Single-occupant vehicles.

We concur with this prioritization. General Plans have much to say about using street design to protect residential streets from the ill effects of motorized traffic. Quiet streets are in one very real sense livable streets. But residential neighborhood protection is not enough; it is not enough to armor neighborhoods against through traffic. There must be positive encouragement for shifting people to more environmentally friendly modes, and not merely shifting motor traffic. Positive promotion of alternative modes and creation of humane arterials (boulevards) so that major traffic streets are not barriers, but positive attractions for pedestrian, bikes and similar modes.

In order for a community to achieve a sustainable quality of life, the role of the automobile must be significantly reduced. This does not mean eliminated, but planners should strive to minimize urban development (whether at the site, neighborhood, community, or regional scale) that requires automobile access. To be sure, many low density areas will remain heavily automobile dependent for the immediate future, but even here, attention can be paid to pedestrian amenity, and to designing for potential reuse (and potential intensification of use) to accommodate more sustainable modes (including new forms of automobility).

Transportation and the General Plan are clearly central to the debate about a sustainable future in California. With most land use decisions made at the local level, and at best within the context of a 20-25 year planning horizon, there is a need to find appropriate local examples of sustainability policy and practice in California. This study, through review of many General Plans, surveys of

planning departments, interviews of local governmental officials and staff, and field visits to case study jurisdictions, has discovered some hopeful examples, evolving islands of effort to move toward sustainability, especially in seeking alternative modes of transportation to the automobile.

Islands of progress are fine, but what of the rest of California, what of Los Angeles? Though a full case study of Los Angeles was not conducted, a former Los Angeles planning director (who has also been director or held key positions in San Bernardino County, Los Angeles County, and Cambria) was interviewed for the study. In the interview and in recent publications, Ken Topping reveals himself to be an articulate, yet pragmatic advocate of sustainability. Topping emphasizes several characteristics of sustainability, but like many other authors notes that it is easier to define by what it is not, easier to illustrate with counter-examples than with examples:

> One of the greatest difficulties in applying sustainability as a concept to any aspect of development or the environment is its widely varying meanings. In the popular literature sustainability has been characterized as "not borrowing against the future." Thus *sustainable development* might be characterized as that which by design, development, financing, and long-term management *avoids irreversible effects* such as 1) accelerated or total *depletion of a natural resource*, 2) *elimination of options* for future development or conservation, 3) *escalation of costs to prohibitive levels*, and 4) significantly *increasing the probability of a catastrophic disaster*, either natural or technological.
>
> However, in seeking models of sustainable development it is easier to identify infrastructure related decisions which have raised sustainability challenges either because of incomplete knowledge of possible outcomes at the time they were made or because of unforeseeable changes in circumstance (Topping, 1997, 1-2).

Topping (1997, pp. 2-3) cites the abandonment of Los Angeles Red Car System as a prime example of a major "sustainability challenged" decision:

> In the decade following World War II, public and private decisions were made to abandon the extensive rights-of-way for the Red Cars, a basic regional trolley network founded by entrepreneur Henry Huntington in the early part of the 20th Century prior to the proliferation of automobiles…The Red Car lines spread over a vast area, connecting hundreds of Southern California neighborhoods and communities. One

> major reason for the system's abandonment was the conflict between trolleys and the growing number of automobiles at street crossings (ibid).

Topping notes that Los Angeles would now like to reverse the removal of the Red Cars, but reversibility is elusive and expensive. Although the "MetroRail mass transit system…is under construction along many of the same corridors—in some instances using the same rights-of-way"—the costs (now estimated in the hundreds of billions of dollars) "is probably much greater than costs required to grade-separate former street crossings had the Red Car system been retained." And the world has changed in the interim, making the reversal even more costly and problematic:

> The huge budgets for this mega-project are controversial now because of competition with financing needed to run the bus system on surface streets. At this point, there is a question whether the value gained from rebuilding a regional rail system can approach the value lost when the original system was abandoned. During the intervening half-century, Southern California grew in a more diffused pattern than might have emerged had the Red Car rights-of-way been kept (ibid, p.3).

It is most important for today's planners to at least think of sustainability in terms of avoidance of such irreversible situations. Investments that keep options open must be sought and are to be much preferred to those which foreclose them.

Is the System Really Almost All Right, and Just in Need of a Push?

Robert Ohlshansky (1996) concluded the last major study of the California General Plan process (which looked at the interplay between the General Plan and CEQA) with the observation that "California is frustratingly close to having an effective planning system" (p.325). General Plans, Specific Plans, and Environmental Impact Reports can, and are legally designed to, all work together to create an effective, relatively efficient and democratic development process. But Ohlshansky identifies the Achilles' heel of the California planning process:

> …because such a system is voluntary, only a few jurisdictions have developed one. Because the state provides so little technical support, only larger jurisdictions can afford to have their staff spend time inventing such systems. And even the best planning systems in California stop at the city limits or county line (ibid).

A small amount of funding aimed at encouraging General Plan updates (at least every five to 10 years) plus technical support and information sharing so that good examples can be easily promulgated, could have tremendous yields in California.

The Question of Density

One major question, outside the current research design, yet very relevant to a discussion of sustainable transportation systems, is that of density, particularly residential density. Research (much of which is summarized in a research report for the Air Resources Board by JHK & Associates, 1995) suggests that public transit is most sustainable (fiscally) at densities of 10 dwelling units (du) per acre and above, with a minimum threshold of 6 or 7 du/acre. More destinations are easily accessed by walking as densities increase.

General Plan land use elements must by law contain policies regarding the density of both structures and population (OPR, 1998, pp.38-39). Unfortunately, it is not easy to amass and study this legally mandated information. This project was able to build upon prior work done by Professor Michael Schmandt for the Great Valley Center to compile General Plan residential densities for 23 Central Valley jurisdictions. This represents about one-third of the jurisdictions in the fast growing valley, which is projected to accommodate as much as half of California's growth in the coming decades. The data is summarized in Table 5-1, and detailed information has been placed in Appendix D.

A glance at Table 5-1 shows the preponderance of low density, and comparatively little high density. But the situation is more hopeful than at first glance. The key question pivots on the medium density category. If medium-density housing is developed at the mid-range value of 11 du/acre (and the other density categories also occur at their mid-range value), seven in ten new residential units in this sample will occur at transit supportive densities. With proper pedestrian and transit-oriented design, densities of 10-12 units pre acre, can see significantly reduced traffic (25 percent reduction or greater) compared to low-density development in the 4-7 du/acre range (JHK, 1995, Hotzclaw, 1994).

Table 5-1 General Plan Residential Densities (23 Central Valley Jurisdictions)

Density Category	Typical Value	Total	Percent
Low Density	<7 du/acre	17,948	56.5
Med Density	8-15 du/acre	11,186 acres	35.2
High Density	15-20 du/acre	2,625 acres	8.3
All Densities		31,760 acres	100%

Source: California State University Stanislaus, On-line General Plan Land Use Data for the Central Valley, Professor Michael Schmandt, Project Manager. Funding provided by The Public Policy Institute of California and the Great Valley Center, Modesto.

Data tabulated by Chandra Slaven, Shandell Healy, Cal Poly State University

The following two sections contain a series of observations and recommendations, the major findings of this research. The observations and recommendations offer both challenges and opportunities for communities seeking a more sustainable path. In presenting these we focus on the community scale of action. In the long run, a more regional approach to land use and transportation issues, seasoned with a long-term vision for sustainable communities, is probably ideal. However, the reality is that the road to sustainability in California will require, as a first step, a focus on the local General Plan and its implementation (as well as monitoring). In the short run, a major interim goal could be the building of a vast collection of "best practices" to nurture the political will required for achieving a sustainable future in California.

OBSERVATIONS

One striking finding of this research was the low ratio of "shalls" to "shoulds" in California's General Plans. The plan scoring reported in Chapter Two suggests that only one in three policies is mandatory. The OPR guidelines are quite explicit when they state that if a policy is not mandatory, a jurisdiction should think twice about its inclusion in the plan:

> Use of the word "should" to give the impression of more commitment than is actually intended is common, but unacceptable practice. It is better to adopt no policy than to adopt a policy with no backbone (OPR, 1998, 16).

Comments made in the course of the survey and during interviews provided ample reasons for the prevalence of "should" policies. Often the only way a policy can find political support is via such watering down. But the experience of reading dozens of plans causes us to come down firmly on the side of OPR on this question. If California's General Plans contained only strong ("shall") policies, they would be shorter, less ambiguous, and as a consequence, easier to read and use.

We found sustainable transportation policies in many General Plans, regardless of whether or not "sustainability" was prominent as an explicit goal for the overall plan (and relatively few plans at present feature sustainability as an organizing principle). These findings confirm earlier findings that sustainable transportation does simply or necessarily follow from explicit policy statements of sustainability (Berke and Manta, 2000).

There are model policies and implementation measures in existing General Plans related to land use and transportation that are clearly transferable to other jurisdictions. An attempt was made to compile policies into a searchable database for this project with partial success. The success was limited by a number of factors, mainly technical shortcoming of on-line plans.

Originally it was hoped that a majority of plans could be collected, read and scored online or at least via electronic media. But it was found that online plans maintained by third parties were difficult to use, with the text processing software often inoperative, and the text itself containing errors due to faults in the optical character recognition software. We did succeed in compiling key elements from 24 plans online. Compilation of a larger database would be a useful resource for jurisdictions updating their plans.

More and more General Plans are being produced and published in an electronic format, and this is a positive trend. The searchable nature of electronic documents can go a long way toward resolving the dilemma of comprehensiveness vs. comprehensibility that faces authors of General Plans.

The case studies confirm that a local government does not have to prepare a General Plan to implement sustainable development and transportation principles. In fact, local governments can prepare and implement sustainable

programs, which can serve as a basis for General Plan updates or amendments (as appears to be occurring in Santa Monica and San Diego).

For sustainability to become a part of the California General Plan process, and particularly transportation planning, changes need to be made. We are of the opinion that this is best accomplished through existing institutional frameworks. These include first and foremost the state planning and zoning statutes and the General Plan Guidelines, but also the State Subdivision Map Act, the California Environmental Quality Act, the California Coastal Act, other planning and transportation-related legislation, and related administrative procedures.

Change will take time and require political will at all levels of government. Local Agency Formation Commission (LAFCO) reform now under way (under Assembly Bill (AB) 2838, signed into law in September 2000) offers a framework for enhancing the General Plan process in the near-term. For example, AB 2838 requires review of local jurisdictions' service area boundaries every five years. A coterminous five-year review and update process could be required for General Plans, which are the legal and planning basis for local service areas). Five-year reviews are already recommended by OPR.

Mandatory five-year reviews and updates of General Plans would result in more plans being more up-to-date. And both our findings and those of other researchers (Alterman and Hill, 1978; Ohlshansky, 1996; Wise, 2001) confirm that newer plans, other things equal, are more useful and referred to more often.

Sustainability will only be achieved in California with support of the public and the voters. This will require significant education and awareness programs beyond the planning arena—a theme that was repeated often by survey respondents and other planners interviewed for this project.

RECOMMENDATIONS

1. The State of California needs to set an example for local governments by developing sustainable principles involving state-level activities, including provision of incentives for state-local collaborative efforts (in the manner of the California Coastal Act). But it is clear that such collaborations cannot take the form of unfunded mandatory responsibilities if they are to be truly effective.

2. State law governing the preparation and review of housing elements should explicitly require that the consistency of housing element with circulation element policies (as well as with regional and state transportation policies) be addressed.
3. Requiring a "Sustainability Element" is not recommended. Sustainability will need to be integrated throughout the General Plan document through interlocking goals, policies, implementation programs, and clearly defined actions.
4. General Plan elements should each include an implementation program matrix identifying each policy and related implementation measures and actions, the responsible agency and department, funding source, and time line. A monitoring program should be part of this implementation matrix.
5. Each local General Plan should demonstrate how its sustainability provisions relate to the surrounding communities and region to demonstrate that non-sustainable impacts (especially traffic generation) are not merely being transferred to other jurisdictions.
6. The ideal General Plan of the near future will be readily available online as a hypertext document, fully searchable, and with links between related policies across the plan's elements. The electronic General Plan should also feature "backward links" to supporting documents (technical studies, data bases) and forward links to implementation documents (such as specific plans and zoning ordinances). The state should provide funding to promote electronic formatting and publishing of General Plans.
7. OPR should revise the General Plan Guidelines to include more opportunities for including sustainable policies and implementation measures in local planning. OPR should investigate other broad-based approaches to creating sustainable General Plans such as "The Ten Steps to Sustainability," available at the U.S. Department of Energy web site (www.sustainable.doe.gov).
8. OPR should encourage the use of sustainable indicators as an important monitoring tool for implementing the General Plan and connect the set of indicators to the information generated from the mitigation and reporting requirements of project review.
9. OPR, or other state agency, should work with professional organizations such as the American Planning Association (APA, California Chapter), Association of Environmental Professionals (AEP) and others to sponsor a series of ongoing workshops, seminars, and conferences to encourage local

officials and staff to exchange ideas and experiences with sustainable transportation and related land use planning activities.

10. One example to build upon is the Regional Agencies Smart Growth Strategy, a joint effort of the five major regional agencies in the San Francisco Bay Area. This ongoing project is documenting examples of smart development success stories in each Bay Area county, with the ultimate intent of offering financial incentives (e.g., infrastructure grants) to encourage similar projects (for more information, see: www.abag.ca.gov/planning/smartgrowth).
11. The Local Government Commission's successful advancement of the Ahwahnee Principles and New Urbanism can also serve as a model for an outreach and educational effort for promoting sustainable transportation via the General Plan. Examples may be found at the Local Government Commission website (www.lgc.org).

CONCLUSION

The pursuit of sustainable transportation and land use practices does not stop with publication of this report. Rather this report serves as a beginning point, an initial establishment of sustainable transportation as an important and viable component of the General Plan process. It will be important to build on the growing number of successful experiences in California. Transportation and land use represent a logical basis for creating a desire for, an understanding of, and incentives to create sustainable communities. The opportunities for expansion of the role of the General Plan, as indicated by the draft conservation element in Santa Monica, are encouraging. There remains a clear need for better linking of local General Plans to sustainable transportation policy and practice at the regional level.

LITERATURE REVIEW

INTRODUCTION

The key literature used in development of operational definitions of sustainable transportation is discussed in Chapter One. This chapter provides a more in-depth review of the origins of the concept of Sustainable Development (Part I), Plan Quality and Evaluation (Part II), and the General Plan, the Courts and Modern Growth Management (Part III).

Many other works were also consulted; the most important of these are listed in the Bibliography. Appended separately to the Bibliography is a table listing the 26 General Plans selected for the detailed scoring described in Chapter Two.

Part I: Origins of Sustainable Development: Implications for an Operational Definition of Sustainable Transportation Planning

"... leave the world better than you found it, take no more than you need, try not to harm life or the environment, and make amends if you do" (Hawken, 1993:139).

Defining the Concept of Sustainable Development

"Sustainable development" began as a theme in the debate over the nature of development in the third world. Sustainability attempts to resolve apparent contradictions between economic development—clearly needed in much of the world—and the preservation of important natural and cultural resources.

On the most basic level, the verb sustain is defined as "to give support to, nourish, maintain, prolong." Development, as traditionally defined in economic terms, means the improvement of human welfare and the quality of life (Todaro, 1989, p. 86). In a very narrow sense, sustainable development would indicate an increasing or constant level of well-being, e.g. per capita income over time. A fixed and comprehensive definition of sustainability has been elusive. Indeed, over the past two decades the concept has steadfastly remained imprecise (World Bank, 1995, p. 19). It has many shades of meaning and "a sometimes confusing gamut of definitions, goals, conditions and criteria" (Pelt, 1993).

The first formulation of sustainable development, in the *World Conservation Strategy* (IUCN, 1980) focused heavily on the natural environment. This document espoused three priority objectives:

1. The maintenance of ecological processes;
2. The sustainable use of resources; and
3. The maintenance of genetic diversity.

This conceptualization was criticized as lacking with regard to the second half of the term, i.e., development. Economy-environment relationships were viewed as static, with all impacts of economic activity negative. The report tended to attack symptoms of environmental degradation, rather than causes. Poverty and the actions of the poor were implicated as the main causes of unsustainable development, rather than the consequences of existing development patterns. In short, it was criticized as anti-developmental and "anti-poor."

Such criticism led to the reformulation of the concept of development. In 1984, the World Commission on Environment and Development—better known as the Brundtland Commission[1]—was created. Three years later in 1987, the Brundtland Commission issued its report *Our Common Future,* which contains far and away the most widely known and debated definition of sustainable development:

> Humanity has the ability to make development sustainable—to ensure that it *meets the needs of the present without compromising the ability of future generations to meet their own needs*...Thus sustainable development can only be pursued if population size and growth are in harmony with the changing productive potential of the ecosystem. Yet in the end, sustainable development is not a fixed state of harmony, but rather *a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs* (WCED, 1987, p. 8).

The report outlined seven objectives of sustainable development:

1. *Reviving growth*. The issue of poverty is a key concern in the discussion of sustainable development. Its effects are pervasive; poverty reduces the capacity of many people and communities to use resources in a sustainable

[1]after its chair, Gro Brundtland of Norway.

manner. As a way of addressing this issue, the Commission has suggested a minimum per capita national income growth rate of 3 percent and the formulation of vigorous redistribution policies by the beginning of this century. The quality of growth must, however, be environmentally sustainable and within the productive capacity of local ecosystems (p. 51).

2. *Changing the quality of growth*. The quality of growth must be less material and energy intensive, produce an impact that is more equitable (p. 57) and founded on the realities of the ecological capital stock that supports it (p. 52). Achieving this objective demands a change in approach to development—one that takes account of all effects (.e.g. the impacts of development on the environment and on the local community).

3. *Meeting essential human needs*. Sustainability requires the satisfaction of the basic needs of an increasing human population for water, food, housing, energy, health care, and employment. At the same time, it must allow for "non economic variables such as education and health enjoyed for their own sake, clean air and water, and the protection of natural beauty" (p.53).

4. *Ensuring a sustainable level of population*. Attainment of sustainable development will be much easier if population is stabilized at a level consistent with the productive capacity of the ecosystem. The challenge then is to quickly decrease population growth rates where these are increasing— i.e. in the developing world—to more closely align with the ecosystem's production capacity (p. 56).

5. *Conserving and enhancing the resource base*. The Earth's natural resources must be conserved and enhanced if human needs are to be satisfied on a sustainable basis (p. 57). This resource base is being subjected to increasing pressures, mainly over-exploitation resulting from a lack of suitable means for managing resources. Suggested conservation and enhancement measures are numerous, e.g., ecologically benign farming practices such as the use of organic manures and non-chemical pest control (p. 58) and the sustained yield management of renewable resources.

6. *Re-orienting technology and managing risk*. Technology is considered as the "key link between humans and nature" (p. 60). Activities such as the development of alternative technologies, the upgrading of traditional ones, the selection of imported technologies, and the formulation of public policies, should take account of environment. (Note: references to appropriate technology are as close to transportation as the WCED gets).

7. *Merging environment and economics in decision-making*. The achievement of sustainable development requires that environmental and economic considerations be integrated in the decision making process. This

integration becomes instrumental in surmounting institutional rigidity and sectoral fragmentation of responsibility that have caused many environmental and economic problems. The Commission states:

"The compatibility of environmental and economic objectives is often lost in the pursuit of individual or group gains, with little regard for the impact on others, with a blind faith in science's ability to find solutions, and an ignorance of the consequences of today's decisions" (p. 62).

The Brundtland Commission's definition of sustainable development reveals an anthropocentric orientation and is based on the concept of intergenerational equity (World Bank, 1995, p. 23). It espouses the idea that unlimited growth is neither feasible nor desirable, that the goal of development is meeting the basic needs of all people, and that only a protected and carefully nurtured environment can sustain human aspirations (Jalal, 1993).

Thus, sustainable development encompasses all activities that reconcile economic growth and environmental protection (World Bank 1995, p. 19). To Pelt (1993), it represents the challenge of maintaining the long-term ecological resource base in the face of short-term economic development.

From an economist's point of view, sustainable development is "the maximization of net benefits of economic development, subject to maintaining the services from and quality of natural resources over time." This definition implies that utilization of renewable resources—especially scarce resources—should be at rates less than or equal to the natural rate of regeneration; that utilization of non-renewable resources should be at the level of optimum efficiency, depending on how effectively technological progress can substitute for resources as they become scarce (Pearce and Turner, 1990 as cited in World Bank, 1995, p. 23). A corollary adds that waste generation should be at rates less than or equal to the assimilative capacity of the environment.

The World Bank's current definition of sustainable development typifies the economist's point of view. In its *World Development Report 1992*, sustainable development has been defined as a condition whereby developmental and environmental policies are founded on a careful economic analysis—e.g. comparison of costs and benefits—that will strengthen environmental protection and result to increasing and sustainable levels of welfare (World Bank, 1995, p. 19).

Costanza, Daly, & Bartholomew (1991, cited in World Bank, 1995, p. 24) define sustainability as "a relationship between dynamic human economic systems and larger dynamic, but normally slower-changing ecological systems, in which (a) human life can continue indefinitely, (b) human individuals can flourish, [and] (c) human cultures can develop, but in which (d) effects of human activities remain within bounds, so as not to destroy the diversity, complexity, and function of ecological life support system."

The World Bank (1995, p. 24) argues that given a finite amount of resources, economic growth cannot be sustainable indefinitely if it is based on an increase in quantity. Economic development, however, does not necessarily imply a quantitative increase in resources consumed but is an improvement in the quality of life. Qualitative rather than quantitative development may be sustainable and could possibly be the desirable long-range goal of humanity.

The WCED (1987) argues that sustainable development requires consistency with social values and institutions, the encouragement of grassroots participation, and other forms of local democracy. Many subsequent theorists also view sustainability as a participatory process that creates and pursues a vision of community. Sustainability values and takes account of the judicious use of community resources: natural, human, human-created, social, cultural, scientific, etc. To the degree possible, sustainability ensures that present generations achieve a high degree of economic security; that they realize democracy and popular participation; that they are in control of their communities, while maintaining the integrity of the ecological systems upon which all life and all production depends.

According to Brink (1991), sustainable development is a political rather than a scientific concept. It requires a balance between the environment and human uses, a balance between the ecological and economic system. Bringing this abstract concept into practice necessitates the exercise of political choice on the following areas:

- What is meant by needs of the present and needs of future generations?
- Needs to what extent?
- Are these needs the same for the first, second and third world?
- For how many generations?

Such political choice must be continuously evolving as a result of new knowledge, changing social requirements or unforeseen developments in the

economic and ecological system; and for it to be rational, policy-makers must satisfy some requirements: a definition of the concept, a statement of verifiable ecological objectives, and adequate economic and ecological information. Information is deemed adequate when it provides clear indications on whether the objectives will be met, when it is information on the system as a whole, when it is of quantitative character, when it is understandable for non-scientists, and when it contains parameters that can be used for 10-20 year periods (ibid). The concept's limitation may be found in the area of practical decision-making: it does not satisfactorily answer the questions of how to define sustainability in practice, and how to treat trade-offs with other objectives (Pelt, 1993).

Approaches

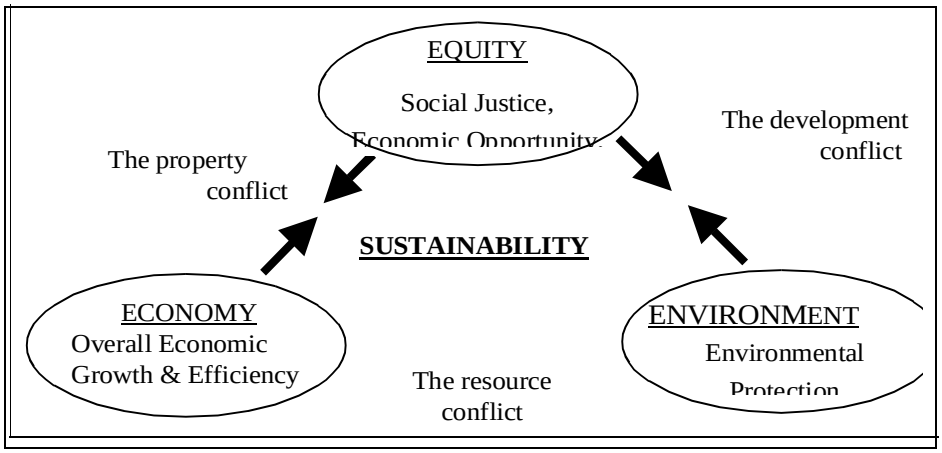
Campbell (1996) conceives sustainable development as a triangle (Figure 6-1.):

Economic Angle. This approach relates sustainability to the preservation of the productive capital stock and deals with the concepts of efficiency, growth, and stability.

Environmental Angle. This approach relates sustainability to the resilience or integrity of biological and physical systems.

Social Angle. This approach relates sustainability to the adaptability and preservation of diverse social and cultural systems (World Bank, 1995:24-33).

FIGURE 6-1: The Planner's Sustainability Triangle.



Source: Campbell, 1996, p.296

Summary and Directions

Definitions of sustainable development are varied and encompassing. Its many interpretations cover various disciplines from economic, environmental or biophysical, to social, cultural, and political. Yet, the concept is not unambiguous. Two dominant interpretations come to the fore, notably, the socioeconomic and the environmental:

- The concept of "sustained economic growth." Emphasis is on economic growth within some side conditions that are related to environmental quality and resource utilization. This interpretation implies positive growth rates of consumption per capita (Toman, 1992 as cited in World Bank, 1995, p. 19).
- The concept of "environmental sustainability" or "viability." Emphasis is on the preservation of environmental capital—prudently and more stringently defined as natural resource base plus environmental quality—and its transfer in intact condition to future generations (Opschoor and Reijnders, 1991, p. 12). To ecologists and scientists, it means preserving the adaptability and functioning of the entire ecological and biophysical systems (Toman, 1992 as cited in World Bank, 1995, p. 19).

Despite the varied interpretations, there appears to be a consensus on the concept's emphases: a) a long-term perspective, particularly a concern for future generations, b) two-way interrelationships between socio-economic and environmental variables, which leads to c) the view that limits should be

imposed on the use of natural resources in production and consumption processes (Pelt, 1993).

The practice of sustainable development involves making choices between alternatives. This precondition will inevitably advance some interests while prejudicing others. For informed choices to be made, all factors: economic, ecological, political, social, and cultural, should be considered and presented to decision-makers (World Bank, 1995, p. 19).

The Brundtland Commission asserts that no single blueprint of sustainability will be found, as economic and social systems and ecological conditions differ widely among nations. The definition of sustainability or sustainable development depends on the given context that continually varies in space and over time (Pelt, 1993). Furthermore, defining sustainable levels of resource use is a normative affair (Opschoor and Reijnders, 1991). Each nation will therefore have to work out its own concrete policy implications (Starke, 1990). And neither Bruntland nor any of the other "genesis documents" of sustainability makes more than passing mention of transportation, and none venture to specifically define sustainable transportation.

Part II: General Plan Quality and Implementation

This section evaluates and interprets existing publications from the planning and public policy fields that are most relevant to General Plan quality and implementation. To facilitate this analysis, the literature is classified into two categories: theoretical and empirical. Theoretical literature reveals prevailing trends and synthesizes the academic perspective. Empirical literature demonstrates how plan implementation has been researched and analyzed.

Theoretical Literature: Prevailing Trends

Considering the large amount of money and resources dedicated to plan making in the United States (and around the world), the literature on General Plan implementation is surprisingly limited. While cities and counties increasingly rely on the General Plan, the planning profession has devoted little attention to understanding the implementation process or the effectiveness of General Plans. Academics and practitioners alike believe that additional analysis of the effectiveness of General Plans is needed (Alterman, 1978; Berke & French, 1994; Berke & Conroy, 2000; Burby & May et al, 1997; Dalton 1989; Neuman 1998; Talen, 1996).

Emily Talen (1996) calls for a systematic evaluation of General Plans. She identifies the need to establish a consistent evaluation process to determine the success of plan implementation that is separate and distinct from public policy research. To date, planners have relied heavily on the public policy literature. However, the methods used to evaluate and interpret public policy do not always apply to the realm of physical and spatial analysis. Although there is a base of public policy research that is useful to planners, it tends to focus more on policy formulation and policy evaluation rather than effective implementation or the implementation outcome (Patton & Sawicki, 1993, p. 307). This lack of focus on the latter stages of implementation by public policy literature may be due to the unique nature of individual social programs.

The difficulties of a comprehensive evaluation of General Plan effectuation are significant. The complexity and interconnected nature of urban problems and the criticisms of the General Plan as a static document frustrate the evaluation process (Talen, 1996). Harper (1993) describes the challenge of analyzing and creating change, "The problem, of course, is that understanding how and why change takes place is complicated enough, but trying to tell someone how to go about creating change is doubly difficult." (p. 211).

Kaiser, Godschalk, and Chapin (1995) are exemplary of the planning literature on plan documentation and plan implementation. They provide a broad, textbook approach to developing quality planning documents and tools for implementation, but they dedicate only two pages to plan monitoring and post-adoption evaluation (pp. 437–438). They also comment on the failure of practitioners to track plan implementation (p. 437). Planners have continually neglected to link plans with outcomes.

Kaiser, Godschalk, and Chapin (1995) propose a two-step approach to monitoring implementation (pp. 437-438). The first step is to decide on the objectives to be monitored based on factors such as the local importance of the goal, confidence in the implementing strategies, and the monetary value of using the data collected for non-plan uses (e.g. land inventory). The second step is to select data sources for obtaining the tracking information. Data sources could include the number of permits processed, plan amendments denied or approved, etc. Although helpful and useful recommendations, they seem brief and narrow for such a large task and fall short of determining effective implementation. In fact, some early public policy implementation studies came up with the wrong conclusions because of narrow perspectives of implementation (Patton & Sawicki, 1993, p. 307). The unsuccessful attempt at creating model new communities on federally owned land in metropolitan

areas by the Lyndon Johnson Administration in the 1960's is an example of this type of error in which the policy makers drastically underestimated the complexities of implementation (Derthick, 1972).

General Plan quality is commonly recognized as an integral part of effective plan implementation (Baer, 1997; Burby & May et al., 1997). Evaluations of plan quality range from identifying characteristics of a high quality plan (Baer, 1997; Kent 1964) to case studies that evaluate plan policies as they relate to supporting sustainability (Berke & Conroy, 2000). Baer (pp. 338-339) outlines the following critical components to consider when preparing a General Plan; employment of these components enhances the quality of the plan and can ease implementation.

- Adequacy of context: Explain the context and purpose of the plan.
- "Rational Model" considerations: Show basic planning considerations based on underlying theory and measurable criteria.
- Procedural validity: Explain the process for creating the plan.
- Adequacy of scope: Demonstrate that the plan is comprehensive in nature and connected to issues and concerns outside of planning—for example, education.
- Guidance for implementation: Document implementation tools and procedures.
- Approach, data, and methodology: Document data sources and identify relevance to policies.
- Quality of communication: Ensure document is well prepared and ideas clearly presented.
- Plan format: Ensure the document is correctly formatted, well organized, and easy to use.

Much of the existing theoretical literature has focused on the implementation process rather than the plan or program outcome (Innes, 1995; Patton & Sawicki, 1993). Neuman (1998) points out that in the early 1960s the planning profession moved away from the comprehensive land-use plan and focused more on the planning process. This shift in planning stemmed from criticism by the social sciences and the post-modernism movement of rational thinking and led to various alternatives in planning approaches, such as communicative action (Innes, 1995).

The attention to process over outcome creates difficulties when defining implementation and evaluating plan success, because a process orientation is nebulous in nature and can have a wide variation in results. With this in mind, Baer (1997, pp. 332-333) summarizes the following approaches to *post hoc* plan evaluation:

- Measure the difference between the plan intent and outcomes;
- Measure the difference between the plan intent and outcomes, but instead of focusing on the departures look at unplanned or unintended consequences of the plan;
- Consider the complexity of the planning task and assume the plan will not be closely followed and departures are evident; and
- Conclude that plan evaluation cannot be done because making the plan was not the purpose of the planning exercise, rather the process and the community dialogue were the goals of the planners.

According to Baer, the approach used to evaluate a plan depends on the type of plan a jurisdiction employs. For example, a vision or policy plan would be evaluated using criteria established under the second or third method above, while a plan that is a land-use guide would be evaluated using criteria established under the first or second method.

In *Implementation and Public Policy,* Mazmanian and Sabatier (1983) prepared a comprehensive approach to policy formation and effective implementation. The purpose of the book was to identify the primary factors contributing to successful public policy implementation. Mazmanian and Sabatier boiled their analysis down to a "checklist" to aid in creating effective policy (pp. 41–42). The checklist recommends the following conditions:

- Policies that are clear and consistent.
- Policies that are based in theory and identify the key variables used in policy development. Agencies should be given the authority to achieve the prescribed goals.
- Implementation efforts are assigned to a regulating agency that has the capacity to carry out the mandate including financial resources and adequate staff support.
- Implementation efforts are assigned to a regulating agency that has adequate managerial skills.

- The program enjoys political support throughout the implementation process and is not subject to legal challenge.
- The program remains a priority for the agency, politicians, and the public and is not compromised due to a change in priorities.

These guidelines provide an excellent reference source for planners. They can strengthen planning policy development, help in preparing a quality General Plan, and increase the likelihood of effective implementation.

Empirical Literature: Case Studies

The results of three case studies stand out in the literature and offer relevant data and analysis for use by this research effort. Two of the case studies looked at effective implementation, and one case study developed an approach to analyzing methods of implementation.

A team of academics recently completed an extensive, systematic analysis of implementation in planning (Burby & May et al., 1997; see also Dalton & Burby, 1994, and Berke & French, 1994). The five-state study evaluated the effects of state hazard mitigation mandates on local planning agencies. The in-depth research looked at the relationship between state mandates and plan quality, local agency commitment, and development management tools. The results of the investigation clearly indicate that state mandates enhance plan quality and that high-quality plans and local commitment tend to build strong development management programs. However, a direct link between comprehensive mandates, such as the planning mandate in California, and local agency commitment could not be established.

In that study, implementation at the local level for hazard mitigation goals was evaluated by measuring the number of state goals or regulations that were incorporated into local plans. Overall, sixty percent of such goals were implemented. High implementation rates were attributable to states with strong consistency requirements or states with fewer recommendations that were easier to implement without political ramifications.

In 1978, Alterman and Hill measured the degree to which a plan in Israel had been implemented by comparing land use plans with building permits. Although, most practitioners and academics today agree that the General Plan does not need to be a blueprint, the research still stands out as an attempt to evaluate the success of a plan. The study found three factors that contribute to

the degree of implementation: political-institutional factors, plan attributes, and external urban system factors, such as population growth or economic conditions (pp. 277-278). The political-institutional factors measured the influence of developers on development application approvals and are not germane to this study. However, two plan attributes were found to affect plan implementation. Newer plans are more likely to be adhered to than older plans, probably because of stale information and obsolete policies in the older plans. Also, the more flexible the plan is the greater likelihood that it is followed. Plans that are more specific can require unpopular or controversial actions and are more likely to be avoided by various stakeholders. On the other hand, plans with specific goals may be more effective planning tools for directing development in line with community objectives. Alterman and Hill also found that market pressures and growth can increase the likelihood of deviation from the plan.

Linda Dalton (1989) analyzed plan implementation in California and the methods utilized by local agencies to implement their plans. Following Lowi (1964), Dalton grouped policies into three basic types: distributive, redistributive, and regulatory. Distributive polices and programs, such as capital improvement projects, benefit the entire community. Redistributive policies are equity oriented and target specific sectors of the population. Regulatory policies focus on land use controls—primarily zoning and subdivision controls. Dalton's research demonstrates the regulatory nature of plan implementation and establishes the problems with limiting implementation to a regulatory approach. Dalton points out that while the regulatory approach is quite common, it may not be the most effective means of implementation, and, in fact, could undermine the goals of the plan, especially if coupled with distributive or redistributive strategies. The problems with regulatory tools in planning have been echoed and analyzed by other researchers. Eric Kelly (1999) concurs that regulation, specifically zoning, has failed to serve the needs of our urban cores and urban fringes.

Defining Implementation

Opinions vary on the meaning of implementation. Some academics and practitioners believe that a plan is implemented if it is simply used as a reference document (Alexander & Faludi, 1989), while others believe that a plan should be faithfully adhered to (Kaiser, Godschalk, & Chapin, 1995; Pressman & Wildavsky, 1973). In their prominent book, *Implementation*, Pressman and Wildavsky (1973) borrowed from *Webster's Dictionary* to define implementation.

> Im•ple•ment al: to carry out ACCOMPLISH, FULFILL (wondering how he might best~his purpose) (continued to clamor for action to~the promise—*N.Y. Times*) (a committee to ~ the plans so well formulated); *esp*: to give practical effect to and ensure of actual fulfillment by concrete measures (failure to carry out and~the will of the majority—Clement Attlee (an agency created to~the recommendation of the committee) (programs to~our foreign policy)

In California, the state legislative mandates and *General Plan Guidelines* (California Governor's Office of Planning and Research, 1998) direct plan making and implementation. These guidelines require a comprehensive General Plan with seven mandatory elements and are heavily oriented to physical development centering on a land use element that, in practice, directs the remaining elements. Although implementation is not mandated by the state, the guidelines state, "A good plan goes to waste if it isn't implemented" (p. 112), which suggests a fairly rigid interpretation of plan implementation. The California *General Plan Guidelines* also assert that a plan primarily relies on regulations, such as specific plans and zoning and subdivision ordinances as the primary tools of implementing the General Plan (p. 112). Which, as Dalton (1989) points out, is by no means the only tool and may not be the most effective.

Applying Baer's (1997) methods of *post hoc* plan evaluation (outlined in Chapter One above), the comprehensive General Plan in California, because it is a land use guide, should be evaluated by measuring the consistency between plan intent against subsequent reality. Implementation does not have to be strictly linear as suggested by Pressman and Wildavsky (1973) but should focus on goal attainment and achievements of the plan.

Part III: The General Plan, the Courts and Modern Growth Management

The following material is divided into two sections. Section I concentrates upon the legal and administrative changes to the General Plan that have provided a substantial and generous legal framework for sustainable planning. Section II chronicles the change to modern-day growth management; primarily through the constitutionally sanction approach of *Golden v. Planning Board of Town of Ramapo* (1972).

SECTION I: A REVIEW OF SUPREME COURT AND APPELLATE COURT CASES ON THE NATURE OF THE GENERAL PLAN

Sustainability*:*

"Sustainability" as a planning concept and planning goal is elusive. The California Office of Planning and Research (OPR) Guidelines on the General Plan define sustainable development as **"an integrated, systems approach to development,** which attempts to maximize the efficient and effective long-range management of land, community and resources." "…its basic principle is to provide for today's needs while ensuring that future generations have the resources available to meet their own needs" (OPR Guidelines, p 178). [emphasis added]

The American Planning Association (APA) definition develops the concept further: "The concept of sustainability describes a condition in which human use of natural resources, required for the continuation of life, **is in balance with Nature's ability to replenish them."** [emphasis added]

The Supreme Court and appellate court land use decisions do not refer to sustainability. This is understandable because sustainability is still somewhat "jargon" in planning literature, rather than a concept that has been operationalized in the practice of land use. Sustainability seems to reach slightly beyond "Smart Growth," and "New Urbanism" toward a global perspective at times (APA Policy Guide), a future orientation (OPR Guidelines), and a larger concern with natural resource conservation.

The courts do, however, concern themselves deeply with the need for localities to demonstrate that they have planned for "the general welfare." The courts speak cogently to the effects of haphazard growth, and criticize piece-meal planning when it occurs in response to permit-driven systems. In the last forty years, the courts have slowly strengthened the legislative status and scope of the General Plan to act as an "organizing mechanism" and "constitutional framework" for long-range community-based planning efforts.

The California *Lesher* decision in 1990 emphasized the break from zoning: ***"The tail does not wag the dog.*** *The General Plan is the charter to which the ordinance must conform"* (Lesher Communications, Inc. v. city of Walnut Creek, 1990) [emphasis added]

The court decisions document a transition from planning out of the zoning ordinance to "front-end" comprehensive planning. This creates a greater capacity to meet the social, environmental, and long-range goals implied in sustainability.

Long-range planning decisions that ask for short-term community sacrifice depend greatly upon the proper exercise of the land use "police powers" of localities. The courts and legislatures have provided for the exercise of jurisdiction within the situs of the General Plan.

Modern Planning:

When planning operates outside of the milieu of its underlying legal/ administrative framework, it breaks down—and it has done so many times. The high court decisions are unique in their ability to articulate the proper planning context—surprisingly, much more so than planning literature. This may be so because the high courts are the ultimate authority for land use decisions. This country has given the judiciary the responsibility to interpret and apply constitutional principles when conflicts arise.

In order to remain within a constitutional framework, planners must understand the function of the high courts as interpreters of their "power to act" in the public interest. Planners profit from *listening to the language of planning* as articulated by the high courts. It is a brilliant dialogue, and indispensable in the planner's education because it sensitizes localities to the legal scope of their powers.

This section focuses on modern definitions of planning and zoning as they arise in court decisions. The inquiry has been whether the change from advisory to constitutional status in the majority of jurisdictions since the late 1960s has reinforced the General Plan's capability to support sustainable growth concepts.

The cases highlighted in this section were chosen because they are landmarks in the transition from the early emphasis on the zoning ordinance as the situs of planning to the sophisticated General Plan requirements of the 21st century. The *Livermore* case illustrates the court's requirement that localities address their regional "fair share" of affordable housing in growth management efforts.

***Euclid v. Ambler Realty Company* (1926):**

Euclid v. Ambler Realty Company tested the constitutionality of a zoning ordinance that directed industrial development away from the village of Euclid in order to maintain its rural character. The village was a suburb to the bustling city of Cleveland—one of the great industrial centers of the United States. The court acknowledged the effect of regulation was "to divert industry to other *less suited sites,* with a consequent rise in value thereof…" (Euclid v. Ambler Realty Co., 1926).

Ambler Realty challenged its constitutionality under the premise that local government cannot intervene to redirect natural growth patterns, particularly where it has a significant effect upon expectations of commercial gain.

The court disagreed, setting the stage for *Euclidean zoning*, which segregates and classifies land areas according to inherent incompatibilities in use. *Euclid* was a landmark because it defined the zoning approach that took effect for most of the 20th century. The case was also the first strong judicial test of *directed growth* (although the court never used the term) because the ordinance downzoned large land areas, disrupting the economic value of the affected parcels.

The court upheld the diversion of growth to a new, more appropriate setting, as long as the authorities "find their justification in some aspect of the police power, asserted for the public welfare."

The decision upheld rural and aesthetic community values against the economic "presence" of the growing industrial base around Chicago.

Golden v. Planning Board of Town of Ramapo (1972):

Golden v. Ramapo is an extension of *Euclid*, but is distinguished from it because it adds the third and fourth dimensions of planning—timed and sequenced growth. The town of Ramapo developed a four-volume Master Plan in response to explosive population growth.

The town board adopted a capital improvement program that provided for growth over an 18-year period. Development was sequenced through a priority "point" system that was keyed to the quality and extent of existing infrastructure at the permit stage. The timing could accelerate if the developer was willing to advance the full cost of infrastructure. Otherwise, developers

waited until the jurisdiction caught up with the historical infrastructure deficits that had occurred during rapid expansion. The regulations were imposed to eliminate premature subdivision and urban sprawl—problems receiving serious attention by 1966.

The ordinance was attacked as an unconstitutional "taking" of private property because it delayed construction in some areas for periods up to 18 years—an entire generation of development. It was further challenged as being outside of the legitimate zoning powers granted by the Zoning Enabling Act.

The court identified the proper ends of land use authority: "The 'legitimate zoning purposes' [under the State Zoning Enabling Act]…are designed to secure safety from various calamities, to avoid undue concentration of population, and *to facilitate adequate provision of transportation, water, sewerage, schools, parks, and other public requirements."* [emphasis added]

"Even though phased and timed growth management is not explicit in the Enabling Act, "The power to restrict and regulate conferred under section 261 [Enabling Act] includes within its grant, by way of necessary implication, *the authority to direct the growth of population for the purposes indicated…"* [emphasis added].

This was a "necessary concomitant to the municipalities" recognized authority to determine the lines along which local development shall proceed, though it may divert it from its natural course (Euclid v. Ambler). Through this language, the court took the next step to modern planning.

Commentary on Ramapo:

Ramapo was ranked the most significant land use regulation case in America, other than *Euclid*, by Dozier & Hagman in *4 Environmental Comment 4* (1978) after a survey of over 100 academics and leading land use practitioners.

> The Ramapo decision shifted the balance of power from the developer to public land use agencies. The developer no longer has an absolute right to proceed with development, irrespective of whether public facilities can reasonably accommodate the development. Instead, the developer can be made to wait a reasonable period to allow public facilities to catch up or be forced to expend funds to ripen the land for development… (Rohan, 1 Zoning and Land Use Controls section 4.05 (Matthew Bender & Co. 1984, 1998).

O'Loane v. O'Rourke (1965):

Appellants argued in O'Loane v. O'Rourke that the General Plan was not subject to referendum because it had no legislative effect.[2] The court disagreed. The O'Loane decision focused the court on the legislative function of the General Plan, and its ability to implement the general welfare purposes underlying the police power:

> . . . While *municipal planning embraces zoning*, the converse does not hold true. They are not convertible terms. Zoning is not devoid of planning, but it does not include the whole of planning. Zoning is a separation of the municipality into districts, and the regulation of buildings and structures, according to their construction, and the nature and extent of their use, and the nature and extent of the uses of land. This is the constitutional sense of the term. . . .
>
> *Planning* has a much broader connotation. *It has in view, as we have seen, the physical development of the community and its environs in relation to its social and economic well-being for the fulfillment of the rightful common destiny, according to a 'master plan' based on 'careful and comprehensive surveys and studies of present conditions and the prospects of future growth of the municipality,' and embodying scientific teaching and creative experience. In a word, this is an exercise of the State's inherent authority, antedating the Constitution* itself, to have recourse to such measures as may serve the basic common moral and material needs. Planning to this end is as old as government itself—of the very essence of an ordered and civilized society [emphasis added].

Professor Haar in the article above cited (68 Harv. L. Rev. 1175) further states that if the master plan is to have ". . . a directly controlling influence on zoning regulation, it would appear necessary to have it *legislatively adopted*, rather than merely stated by the planning authorities and functioning as an interesting study without much direct relevance to day-to-day activity.

> *The master plan symbolizes a change in the organization of the land market*. Its primary justification is an assumption that the interdependence

[2] The California Constitution defines the referendum as "the power of the electors to approve or reject statutes or part of statutes…." Cal. Const. Art. II, 9(a). The referendum only applies to *newly enacted legislation.*

> of land uses in an industrialized society makes necessary *municipal controls over private property.*
>
> This is the challenge—to create an institutional arrangement which can give meaning to planning ideas by delimiting them for effective use in the enactment of regulatory ordinances, *and which can supply the courts with a sensible and reasonably precise basis for evaluation and review* [emphasis added].
>
> It is apparent that the plan is, in short, a constitution for all future developments within the city.

O'Loane signaled a shift in California to the General Plan as the *legislative situs of planning.* This allowed the transition from permit-driven zoning that is centered on the regulatory function of the zoning ordinance (physical controls over building and lot development) to a broader orientation based upon the general welfare of a community. This has allowed planning to respond to the deleterious side effects of growth—congestion, air pollution, housing costs, overpopulation, depletion of natural resources, inefficiency, and the increased need for directed growth.

O'Loane explicitly discusses the connection between the "ends of planning" (its implementation), and the necessity of regulations relating back to the public purposes and general welfare *as expressed in the General Plan.* Robert Freilich, author of the growth management ordinance tested in *Golden v. Planning Board of the Town of Ramapo* (30 NY2d 359; 285 NE2d 291 (1972)), expounds upon the point in his new book, *From Sprawl to Smart Growth*:

> *The most viable defense against a claim of arbitrariness is conformity to a comprehensive plan.* The requirement is met if it can be demonstrated that there exists a systematic rational land use scheme, and zoning laws enacted by the town that conform to that scheme. *An important factor to consider is whether there is some evidence of a planning process at work* [emphasis added].
>
> Thus, the court concluded [in *Ramapo*] that **phased zoning is not an arbitrary device because it is rationally related to difficult planning problems.** If the phased zoning ordinance is adopted in the context of overall planning, the evidence is much stronger that the local government's efforts are reasonable, and that they are rationally related to their conceived purposes [emphasis added].

DeVita v. County of Napa (1995):

DeVita v. County of Napa involved a directed growth control initiative that established long-term voter control over the conversion of agricultural land in Napa County. DeVita was the California court's first consideration of whether a General Plan could be amended by initiative. To do so, the General Plan must be legislative.

The case is an extension of O'Loane because it addresses the legislative function of the General Plan. It is distinguished from O'Loane by its interpretation of the consistency requirement imposed in 1972 and the limitation upon amendments imposed in 1984 by the California legislature:

> Although California law has prescribed that cities and counties adopt general or master plans since 1927, the General Plan prior to 1972 has been characterized as merely an "interesting study," and no law required local land use decisions to follow the General Plan's dictates (*City of Santa Ana v. City of Garden Grove* (1979) 100 Cal.App.3d 521, 532).
>
> In 1971 several legislative changes were made to significantly alter the status of the General Plan. For the first time, proposed subdivisions and their improvements were required to be consistent with the General Plan (Gov. Code, § 66473.5), as were zoning ordinances (Gov. Code, § 65860).
>
> Thus after 1971 the General Plan truly became, and today remains, a "'constitution' for future development" (*Lesher Communications, Inc. v. City of Walnut Creek* (1990) 52 Cal.3d 531, 540) located at the top of "the hierarchy of local government law regulating land use."

The court then began a discussion of the state's purpose in reinforcing the function of the General Plan:

> As we stated in *Selby Realty Co. v. City of San Buenaventura* (1973) 10 Cal.3d 110, 120, in explaining the rationale behind general and specific plans: "The deleterious consequences of haphazard community growth in this state and the need to prevent further random development are evident to even the most casual observer. The Legislature has attempted to alleviate the problem by authorizing the adoption of long-range plans for orderly progress."

> Commentators have noted the tension between the ideal of the General Plan as a long-range vision of local land use, and the reality that General Plans are often amended in a fragmentary fashion to accommodate new development. One survey of California city and county planning departments shows that approximately 75 percent of proposed planning and zoning amendments are privately initiated in conjunction with development applications, and that approximately 66 to 75 percent of these amendments are ultimately approved (Dalton, *Limits of Regulation: Evidence from Local Plan Implementation in California* (1989) 55 J. Am. Planning Assn., 151, 156, 159).

As the author of that survey has concluded, the planning and zoning amendment process has become in many communities one of "piecemeal adjustment" by local planners and local legislators in response to development pressures. (*Limits of Regulation*, *supra*, 55 J. Am. Planning Assn. at pp. 151, 159.) This conclusion comports with the well-known phenomenon commonly referred to as the "fiscalization of land use," whereby planning decisions are frequently driven by the desire of local governments to approve development that will compensate for their diminished tax base in the post-Proposition 13 era. (See Fulton, Guide to California Planning, *supra*, at pp. 15-17, 208-213.)

It was presumably to curb an excessively ad hoc planning process that the Legislature limited in 1984 the number of amendments to any mandatory element of the General Plan to four per year (Gov. Code, § 65358, subd.(b).). General Plans that change too frequently to make room for new development will obviously not be effective in curbing "haphazard community growth" *Selby Realty Co. v. City of San Buenaventura*, supra).

Associated Home Builders, etc., Inc. v. City of Livermore, (1976):

Associated Home Builders v. Livermore upheld the use of exclusionary zoning through capital facilities requirements (an extension of *Ramapo*). The case addressed "the validity of an initiative ordinance enacted by the voters of Livermore which prohibits issuance of residential building permits until local educational, sewage disposal, and water supply facilities comply with specified standards."

> Plaintiff's contention symbolizes the growing conflict between the efforts of suburban communities to check disorderly development, with its concomitant problems of air and water pollution and inadequate public facilities, and the increasing public need for adequate housing

> opportunities. We take this opportunity, therefore, to reaffirm and clarify the principles which govern *validity of land use ordinances which substantially limit immigration in a community;* we hold that such ordinances need not be sustained by a compelling state interest, but are constitutional if they are reasonably related to the welfare of the region affected by the ordinance [emphasis added].

The court developed a three-tier test for regional interest in affordable housing. Basically, the local jurisdiction must demonstrate that it intends to resolve the infrastructure problem in the long-range, and that it is not using the deficiency and capital improvement requirements as a "no-growth" technique.

The *Ramapo* plan handled this inherent conflict by generous provision for affordable housing through innovative funding mechanisms and mixed-use density provisions in the urban core—a demonstration that the ultimate aim was accommodation of its fair share of regional growth.

Section II: Zoning and the General Plan: A Look at Ramapo-style Growth Management

Introduction

From *Mansfield & Swett v. Town of West Orange,* (Sup. Ct. N.J.) 198 A. 225, 1938:

> The state possesses the inherent authority—it antedates the Constitution—to resort, in the building and expansion of its community life, to such measures as may be necessary to secure the essential common material and moral needs.
>
> The public welfare is of prime importance; and the correlative restrictions upon individual rights—either of person or of property—are incidents of the social order, considered a negligible loss compared with the resultant advantages to the community as a whole.
>
> Planning confined to the common need is inherent in the authority to create the municipality itself. It is as old as government itself; it is the very essence of civilized society. A comprehensive scheme of physical development is requisite to community efficiency and progress.

The New Jersey court's elaborate description of public responsibility in 1938 has remained the cornerstone of government regulation of land use. The modern orientation to professional planning is a transition that has largely occurred since 1916 at the inception of the Standard Zoning Enabling Act and Standard Planning Act.

At this date, a majority of states now require the adoption of a General Plan, and provide for all other planning documents and implementing actions (including zoning) to be in conformance with that plan. This transition has had barely three decades to take root in the United States. The availability of the General Plan as a "legislative directive" for community planning should significantly help combat the serious problems that accompany rapid urban development.

The symptoms of uncontrolled growth are well documented in Robert Freilich's book, *From Sprawl to Smart Growth.* Localities have had a difficult time addressing the long-range effects of urban development—cumulatively described by its multiple effects as urban sprawl. The following definition of sprawl is instructive:

> A term of art employed to describe the uncontrolled development of land situated on the outskirts of America's major cities. It refers to an unfettered form of urban expansion which is characterized by the initial non-uniform improvement of isolated and scattered parcels of land located on the fringes of suburbia, followed by the gradual urbanization of the intervening undeveloped areas.
>
> …this pattern of random development often results in the waste of valuable land resources, as the intermediate areas are not efficiently utilized. Moreover, there are high monetary costs accompanying urban sprawl since the price of providing municipal facilities and services such as sewers, waterlines, roads and public transportation is substantially increased when the population is scattered throughout a region.

Urban sprawl has been the bane of the 20th Century. Its origins are traced to Euclidean Zoning and social choices made in response to urban blight, including the choice to flee urban municipalities and live on the quieter, protected fringes. The question planners now face is whether the tools and structure of planning will allow communities to guide and direct growth over the long term without serious detriment to quality of life.

> Efficiency in regional land utilization did not receive the attention it required, allowing transportation and housing to break from its support environment of public infrastructure,[3] which drew suburban land development away from community control. In response to this crisis, the courts and legislatures have reinforced the General Plan as a legislative instrument to better accommodate the general welfare against the pressures of sprawl and private development.

This section is a discussion of modern growth management, and the style of planning that evolved from *Golden v. Planning Board of the Town of Ramapo,* a 1972 decision credited as second only to *Euclid v. Ambler* in its implications for planning.[4] It begins with a short statement from Daniel Mandelker on the relationship between zoning and the General Plan.

The Zoning Hypothesis of Daniel Mandelker:

In 1971, Daniel Mandelker was a Professor of Law in land use planning at Washington University. His writings on the historical function of the zoning ordinance are classics in the field. In the early seventies, he wrote a book entitled, *The Zoning Dilemma, A Legal Strategy for Urban Change*. His works concentrate upon the character of zoning, and how its legislative limits (State Enabling Zoning Act) left it ill-suited to address the larger, time-bound nature of regional planning.

Mandelker concentrated upon *timing* as a central component of planning that has been neglected. He stresses the need to conceptualize zoning as a *sequencing mechanism* to move communities forward to the ultimate long-range goals of the General Plan:

> The problem is not helped…by the tendency of comprehensive plans to project a fixed "end state" as much as twenty to thirty years forward in time, with no attempt to indicate what zoning steps should be taken intermediate to the achievement of the goals ultimately projected.

[3] Water, sewers, drainage, utilities, schools, parks, and general public facilities which provide urban context to the development of communities.

[4] "*Ramapo* was ranked the most significant land use regulation case in America, other than *Euclid*, by Dozier & Hagman in 4 *Environmental Comment* 4 (1978) after a survey of over 100 academics and leading land use practitioners." Freilich, Ibid, at 63.

> It is from this perspective that some critics have called for a more incremental and less far-ranging strategy for the planning process, with the planning function responding gradually over time to environmental problems as they arise. Adoption of this kind of planning strategy would have important consequences for a planning technique which has emphasized static land use proposals, with little concentration on the problem of *how to get from here to there* [emphasis added].
>
> Unfortunately, the policy of *watchful waiting* which has especially been pursued in undeveloped and urbanizing areas has seriously qualified the use of advanced zoning techniques, and has put the emphasis on zoning change in response to private development proposals as the dominant zoning mode [emphasis added].

The problems that Mandelker captured so eloquently in his treatise on the zoning dilemma were pursued by Robert Freilich in the early 1960's. Freilich's growth management is relatively invasive by previous standards, but a necessary response to the natural resource dilemma of this era.

Ramapo-Styled Growth Management:

> …the planning board is charged with the duty of adopting "a master plan for the physical development of the municipality including any areas outside of its boundaries which, in the board's judgment, *bears essential relation* to the planning of such municipality," *particularly in respect to the "general location, character and extent of streets, subways, bridges, waterways, water fronts, parkways, playgrounds, squares, parks, aviation fields,"* and so forth [emphasis added].

Although this recitation from a 1936 court decision directs itself to regional obligations outside of municipal boundaries, it reflects a planning orientation where the nexus to planning is established through its relation to capital infrastructure. The connection of planning to infrastructure is the essential and primary contribution of Robert Freilich, author of the modern growth management technique known as *Ramapo* planning.[5] Ramapo draws planning into the third and fourth dimension of zoning through the addition of "timed and sequenced zoning." The need for timing to be inserted as an element was established by the prestigious Douglas Commission Report in 1968:

[5] The name is coined from the famous New York Appellate court decision which validated the constitutionality of "timed and sequenced growth management." See: Golden v. Planning Board of Town of Ramapo, 30 NY2d 359, 285 N. E. 2d 291 (l972)

> At the metropolitan scale, the present techniques of development guidance have not effectively controlled the timing and location of development. Under traditional zoning, jurisdictions are theoretically called upon to determine in advance the sites needed for various types of development.
>
> In doing so, however, they have continued to rely on techniques which were never designed as timing devices and which do not function well in controlling timing. The attempt to use large-lot zoning, for example, to control timing has all too often resulted in scattered development on large lots, prematurely establishing the character of much later development—the very effect sought to be avoided. New types of controls are needed if the basic metropolitan scale problems are to be solved (*National Commission on Urban Problems;* 1968).

Ramapo was a response. What is *Ramapo*-style planning? It may look familiar today because it is used in many jurisdictions across the United States. In 1972, it was revolutionary. Under the *Ramapo* ordinance, residential development was treated as a *separate use* requiring a special permit by the town board. Standards for granting the permit were based upon the availability of five key public services, and a complicated point system was established to evaluate the *availability of services.*

Although the *Ramapo* plan was deemed "elaborate and innovative," one of its major features involved utility extension control, which has continued to be one of the most effective techniques for controlling urban sprawl. It also broke the traditional pattern of land use classification.

> Zoning ordinances prior to *Ramapo* did not deal with urban sprawl problems. On the contrary, they protected owners and occupiers of land from the effects of discordant land uses by segregating different types of uses in separate zones or districts. The ideal, planned community was viewed as "a great patchwork of contrasting zones rigidly segregating incompatible land uses, each zone being furnished with appropriate density, light and air, and open-space regulations, all in accordance with a comprehensive plan" (Cunningham, 1965).

As a result, planning became a negative mechanism—the object was to separate out different uses—rather than an affirmative vehicle for managing growth and dealing with the problems of the locality and the region (Freilich; 1999).

The Physical Characteristics of Tiered and Phased Growth:

The Ramapo Plan treats land use classification in an altered manner from Euclidean zoning. The key to Ramapo's system, according to Freilich, lies in utilizing two major concepts:

1. Controlling patterns of development into transportation corridors, centers, contiguous development, and neotraditional mixed-use developments through the use of "an urbanizing tier" within a tier system based on the Ramapo system of requiring adequate public facilities to be available at the time of growth.
2. Requiring that new development pay for its one-time fair share of new capital costs, to incentivize growth in existing built-up areas and encouraging joint public/private investment to stimulate economic development.

Under Euclidean zoning, large areas are classified and reserved for development. The manner and pacing of development, however, is directed by private market forces rather than growth management strategy. Under *Ramapo,* planning jurisdictions take aggressive control of each tier of development, concentrating on centralized municipal areas to leave agriculture, open space, and natural preserves comparatively untouched by urban sprawl.

The factor regulating the timing mechanism is the integration with capital facilities planning. Each tier receives priority according to a set of land use characteristics:

1. The degree of pre-existing built infrastructure and capital facilities in the area.
2. The timing of remaining infrastructure availability.[6]
3. The degree of expected density and use.
4. The planning area's distance from the primary city (or county) population core. According to Freilich, "Tier I will be existing downtowns, Tier II existing residential areas, Tier III will be the 'urbanizing' tier, and Tier IV the nonurban rural, agricultural, and environmental tier."

[6] The characteristics receiving highest priority for "development readiness."

Transportation Management:

Freilich has a strong orientation to mass transit and walkable communities. He organizes his centers around transportation nodes and transportation corridors. His recent publication, *From Sprawl to Smart Growth* chronicles a series of case studies that demonstrate his approach in varying areas.

Several combined elements distinguish Freilich from other approaches. Firstly, transportation is correctly classified as a capital improvement—and it is kept spatially bound with the other elements of municipal growth—sewer, water, drainage, schools, parks, public buildings, etc.

Secondly, transportation is intimately connected with "companion elements" of the General Plan, and particularly with land use. Each land use tier has a distinct classification scheme. Transportation is handled differently within each tier and each region, and implements the land use scheme.

Thirdly, transportation has a strong federal and regional component because Freilich's management style addresses inter-agency cooperation and funding to a much larger extent than most jurisdictions.

Fourthly, the *ends* of transportation are handled differently. Although Freilich uses transportation demand management (TDM) and other quantitative management standards, transportation serves the community aesthetic. This in itself becomes the objective of transportation policy.

Conclusion:

Phased growth implies a new management system that supports development permits, but focuses primarily upon the long-range task of providing municipal services, anticipating environmental and natural resource issues, and providing for the accommodation of expected population growth.

One can see from the diverse range of skills involved, planning cannot occur from the zoning ordinance, from a weak General Plan, or from an ineffective management structure. Not only will the courts now look to the General Plan as the situs of planning standards for judicial review—but it may expect to see the *transitional elements* Mandelker addressed—"how to get from here to there."

APPENDIX A:

Chapter One-Implementation Tools for Sustainable Transportation

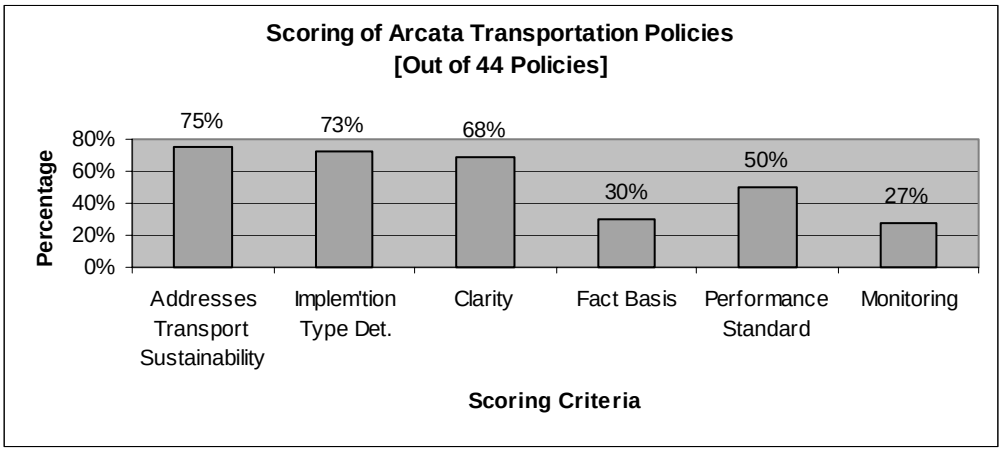
Table A-1..	Provide	Increase	Increase	Encourage	Encourage	Develop	Strengthen	Develop	Provide
Implementation Tools	Pedestrian	Density Near	Density Near	Mixed-	Infill	Concentrated	Downtowns	Inter-	Strategic
for Sustainable	for Sustainable	Transit	Transit	Use	And	Activity		Connected	Parking
Transportation	Transportation	Corridors	Stations	Development	Densification	Centers		Street	Facilities
								Network	
Policies That Can Be									
Created or Changed									
Top Priority Policies									
1. Set Densities x			x			x	x		
2. Create mixed-use zones				x		x	x		
3. Award density bonuses		x	x	x		x	x		
4. Focus growth within		x	x		x	x	x		
urban areas									
5. Revise street standards	x	x				x		x	
Other Policies									
6. Allow transfer of		x	x		x	x	x		
development rights									
7. Reduce requirements		x	x		x	x			
for setbacks and lots									
8. Require pedestrian and	x					x			
transit access in site plans									
9. Require signs to	x					x	x		
be at pedestrian scale									
10. Revise parking standards	x	x	x	x		x		x	
Policy Documents in Which									
to Create or Change Policies									
Top Priority Documents									
1. General Plan	x	x	x	x	x	x	x	x	x
2. Zoning Ordinance	x	x	x	x		x	x		x
3. Subdivision Regulations	x					x		x	
4. Design Guidelines	x	x	x			x	x		
5. Master EIRs	x	x	x	x		x	x	x	x
Other Documents									
6. Specific Plans	x	x	x	x		x	x	x	x
7. Redevelopment Plans	x	x	x	x	x	x			
8. Trip Reduction Ordinance	x								x
9. Capital Improvement	x	x	x	x	x	x	x	x	x
Program									

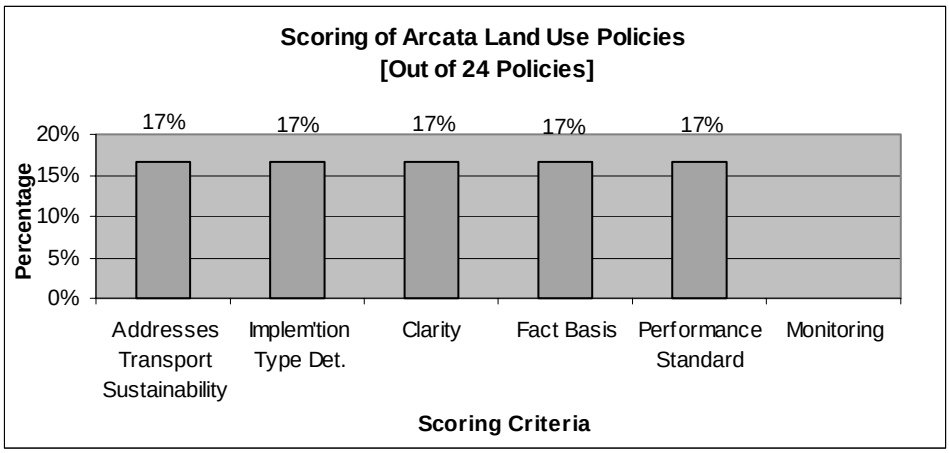
Table A-1 (continued)	Provide	Increase	Increase	Encourage	Encourage	Develop	Strengthen	Develop	Provide
Implementation Tools	Pedestrian	Density Near	Density Near	Mixed-	Infill	Concentrated	Downtowns	Inter-	Strategic
for Sustainable	for Sustainable	Transit	Transit	Use	And	Activity		Connected	Parking
Transportation	Transportation	Corridors	Stations	Development	Densification	Centers		Street	Facilities
								Network	
Resource Tools									
1. Public/private partnerships			x	x			x		
2.Public and tax delinquent land		x		x	x		x		
3. Assessment Districts x							x		
4. Mello-Roos districts x						x	x		
5. General Fund	x	x	x	x	x	x	x	x	
6. Bonds	x	x			x		x		
Problems and Solutions									
1. Public Opposition;	x	x	x	x	x	x		x	x
Education and improvements									
2. Capital reluctance;	x	x		x			x	x	x
Education, guarantees,									
local funding									
3. Uncertain Market;	x	x	x	x	x		x	x	x
Market studies and marketing									
4. Developers building elsewhere;	x								
Multi-jurisdictional cooperation									
Monitoring Methods									
1. Track new development	x	x	x	x	x	x	x	x	x
projects in jurisdiction									
2. Track new development	x								
projects outside jurisdiction									
3. Evaluate the capital	x	x	x			x	x	x	
improvements program									
4. Conduct ridership	x	x	x	x		x	x		
and path use surveys									

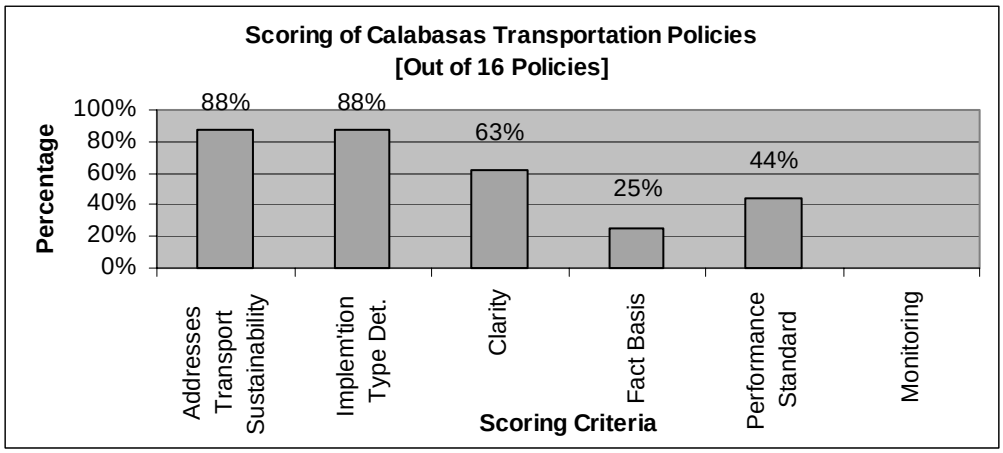
Table adapted from: JHK & Associates
Transportation-Related Land Use Strategies to
Minimize Motor Vehicle Emissions
for the California Air Resources Board, 1995. (Table 7-1)

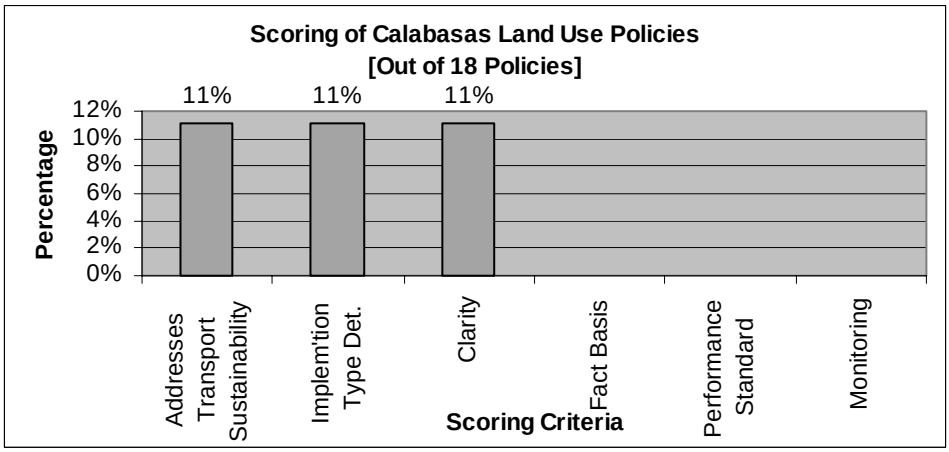
APPENDIX B

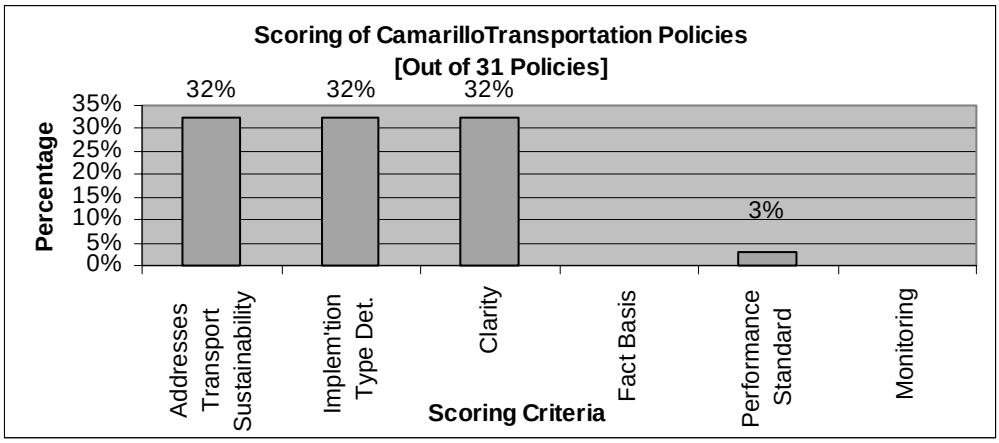
Plan Scoring Result

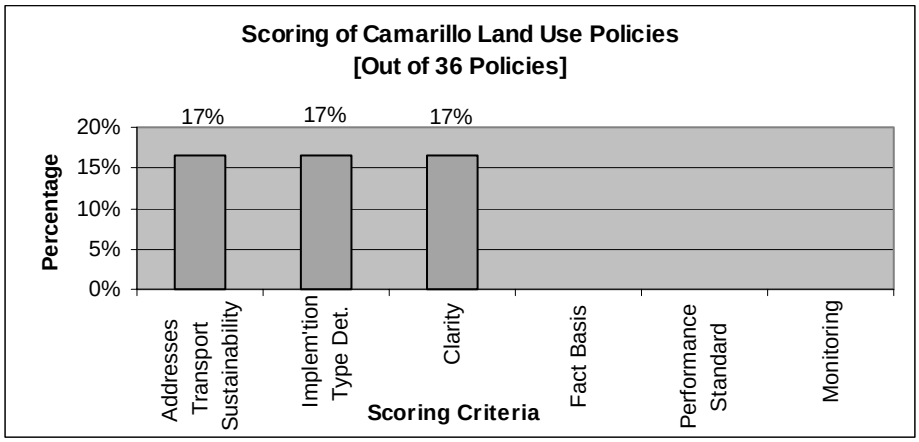


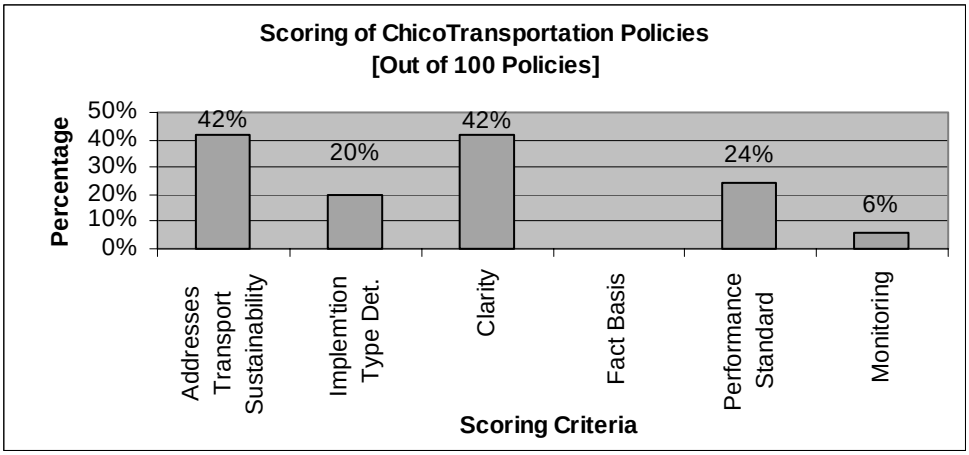


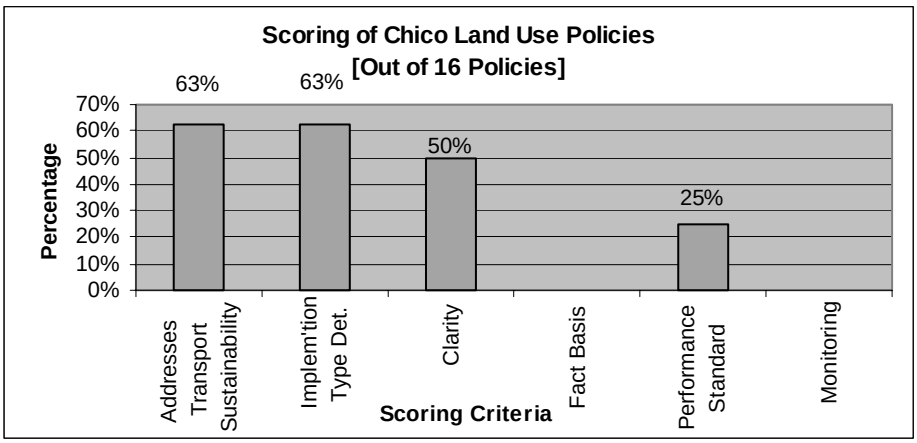

Scoring of Calabasas Transportation Policies
[Out of 16 Policies]
Percentage
100%
80%
60%
40%
20%
0%
88%
88%
63%
25%
44%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

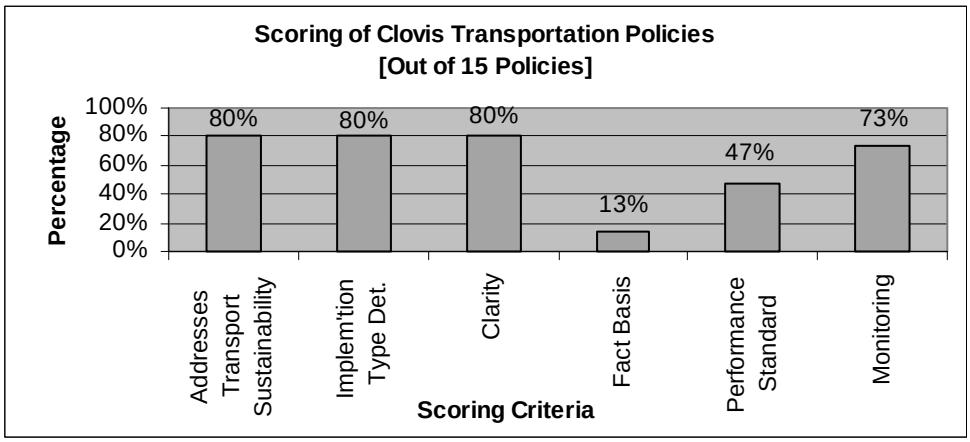

Scoring of Calabasas Land Use Policies
[Out of 18 Policies]
Percentage
12%
10%
8%
6%
4%
2%
0%
11%
11%
11%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

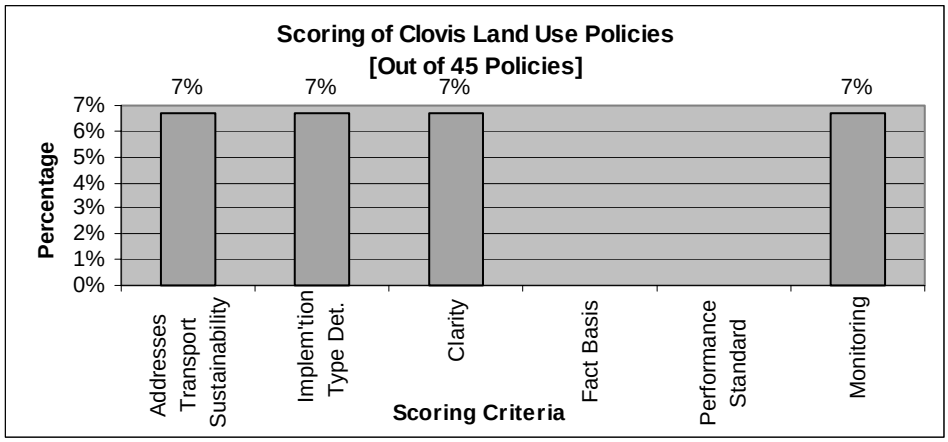

Scoring of CamarilloTransportation Policies
[Out of 31 Policies]
Percentage
35%
30%
25%
20%
15%
10%
5%
0%
32%
32%
32%
3%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

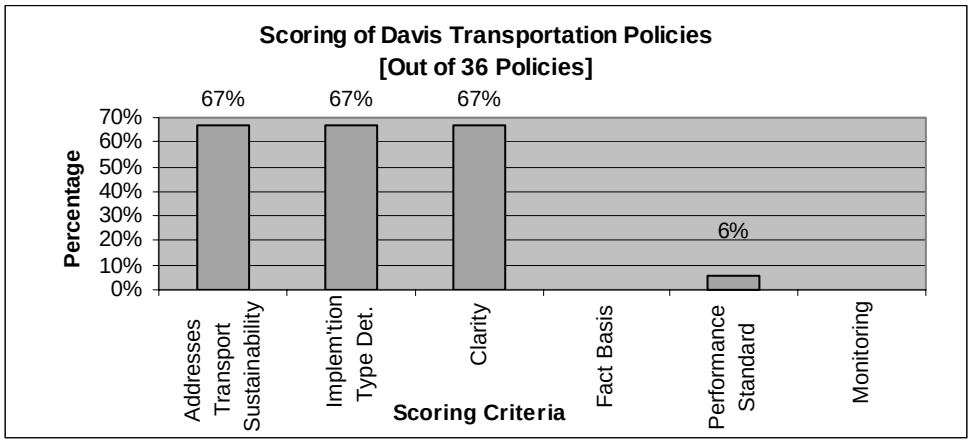

Scoring of Camarillo Land Use Policies
[Out of 36 Policies]
Percentage
20%
15%
10%
5%
0%
17%
17%
17%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

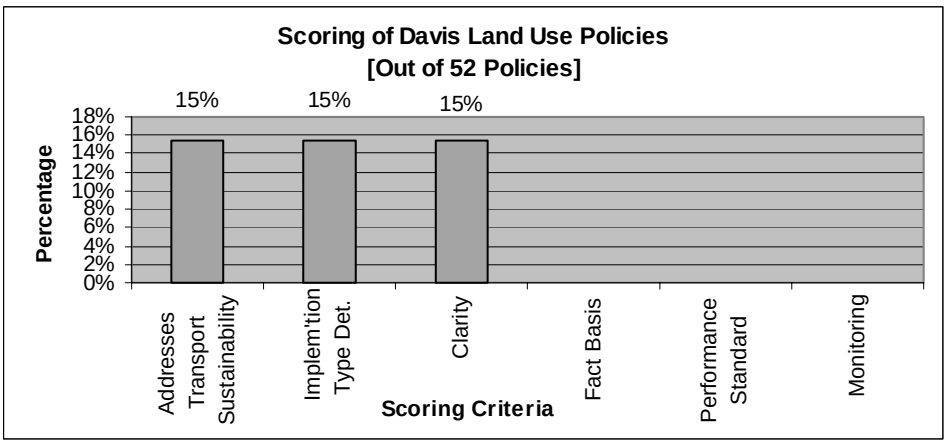

Scoring of ChicoTransportation Policies
[Out of 100 Policies]
Percentage
50%
40%
30%
20%
10%
0%
42%
20%
42%
24%
6%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

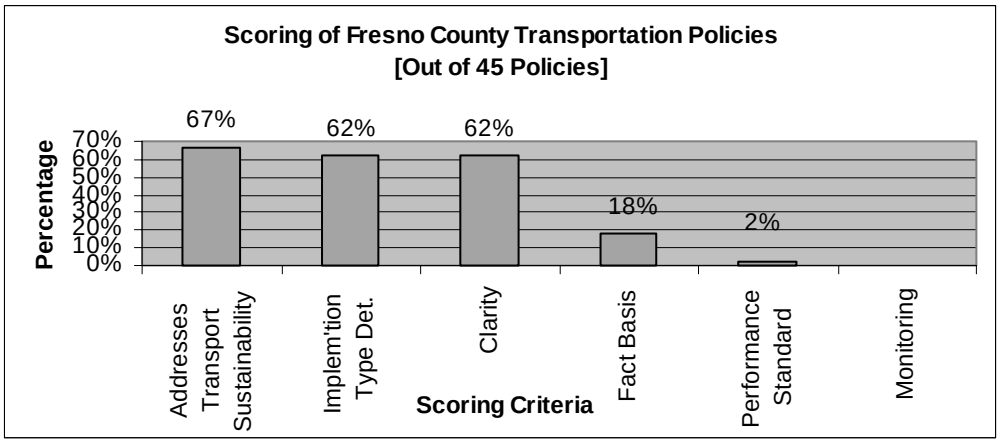

Scoring of Chico Land Use Policies
[Out of 16 Policies]
Percentage
70%
60%
50%
40%
30%
20%
10%
0%
63%
63%
50%
25%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

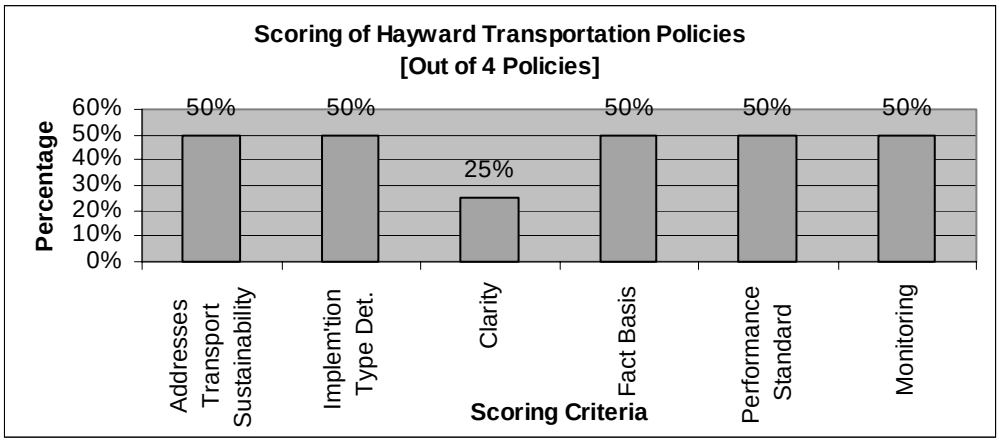

Scoring of Clovis Transportation Policies
[Out of 15 Policies]
Percentage
100%
80%
60%
40%
20%
0%
80%
80%
80%
13%
47%
73%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

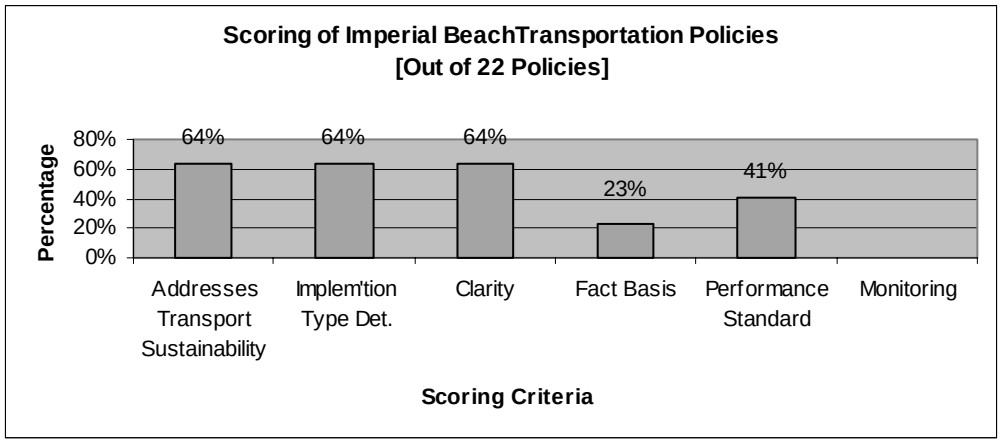

Scoring of Clovis Land Use Policies
[Out of 45 Policies]
Percentage
7%
6%
5%
4%
3%
2%
1%
0%
7%
7%
7%
7%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

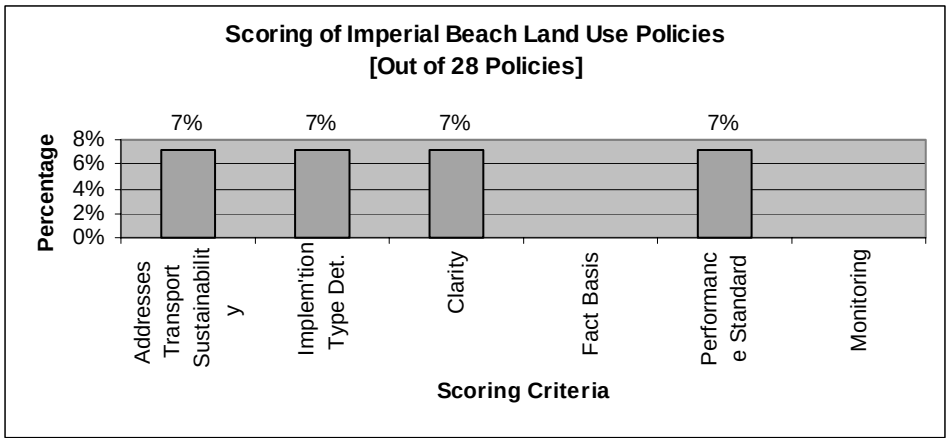

Scoring of Davis Transportation Policies
[Out of 36 Policies]
67%
67%
67%
6%
70%
60%
50%
40%
30%
20%
10%
0%
Percentage
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

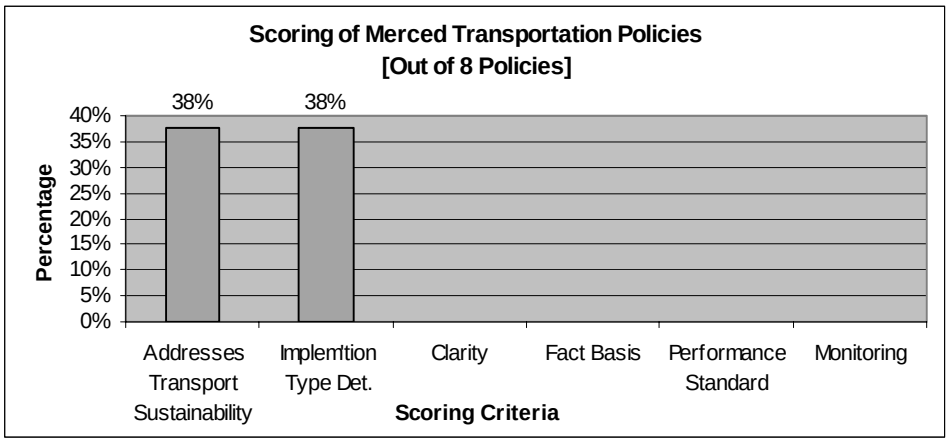

Scoring of Davis Land Use Policies
[Out of 52 Policies]
15%
15%
15%
18%
16%
14%
12%
10%
8%
6%
4%
2%
0%
Percentage
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

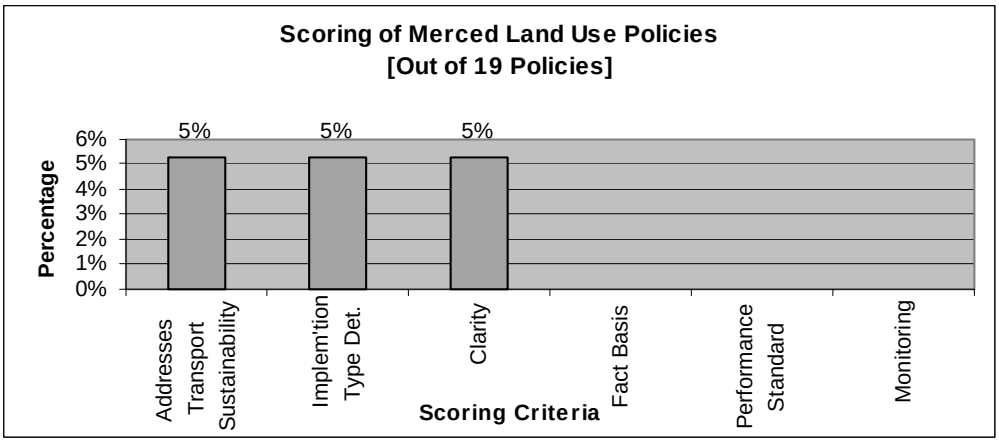

Scoring of Fresno County Transportation Policies
[Out of 45 Policies]
Percentage
70%
60%
50%
40%
30%
20%
10%
0%
67%
62%
62%
18%
2%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

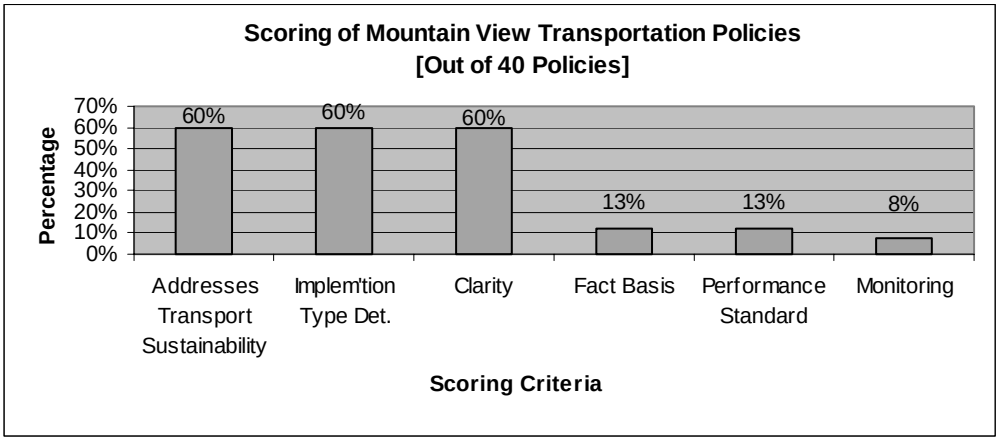

Scoring of Hayward Transportation Policies
[Out of 4 Policies]
Percentage
60%
50%
40%
30%
20%
10%
0%
50%
50%
25%
50%
50%
50%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

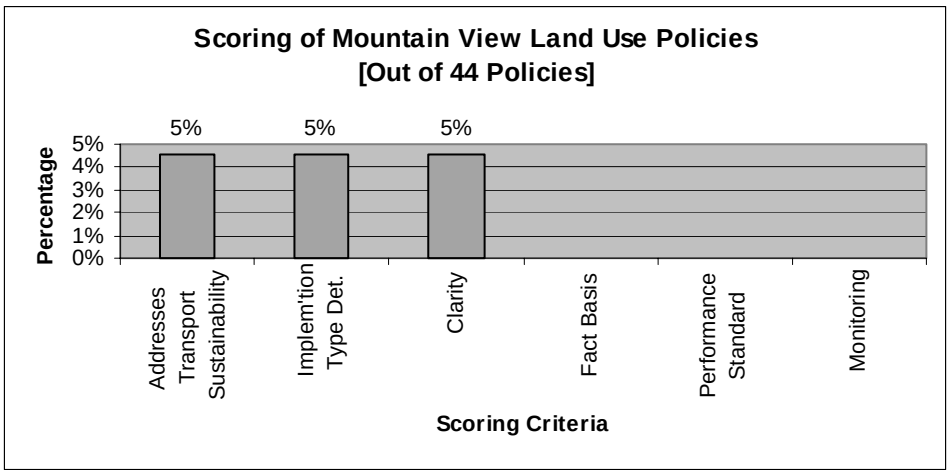

Scoring of Imperial BeachTransportation Policies
[Out of 22 Policies]
Percentage
80%
60%
40%
20%
0%
64%
64%
64%
23%
41%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

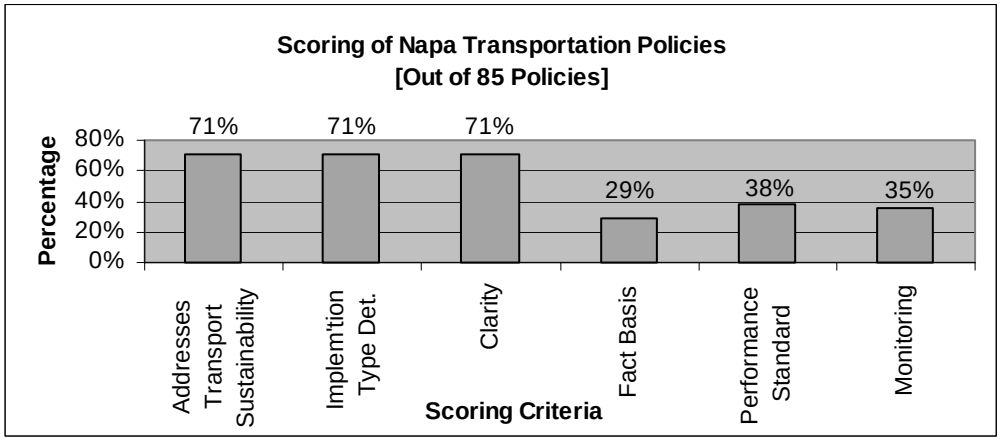

Scoring of Imperial Beach Land Use Policies
[Out of 28 Policies]
Percentage
8%
6%
4%
2%
0%
7%
7%
7%
7%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

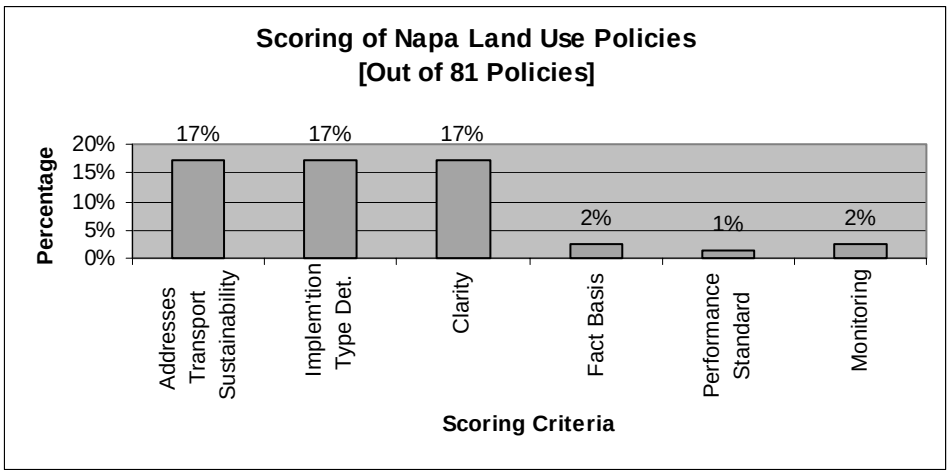

Scoring of Merced Transportation Policies
[Out of 8 Policies]
38%
38%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Percentage
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

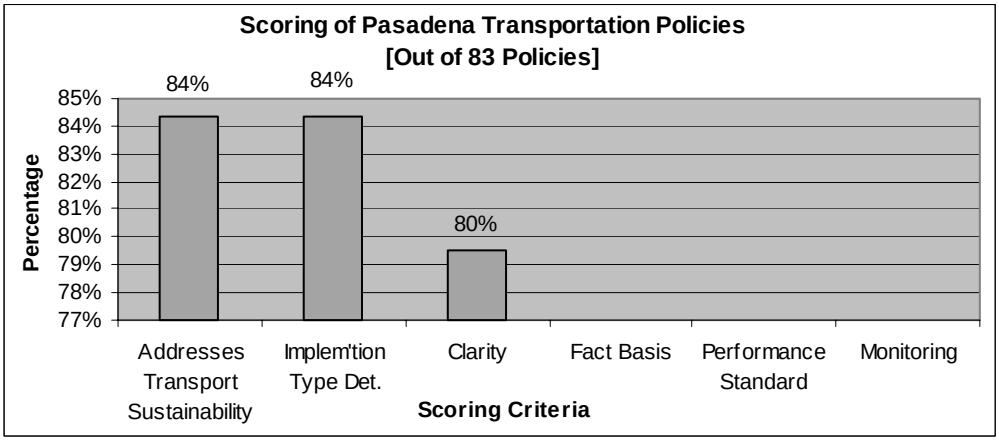

Scoring of Merced Land Use Policies
[Out of 19 Policies]
5%
5%
5%
6%
5%
4%
3%
2%
1%
0%
Percentage
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

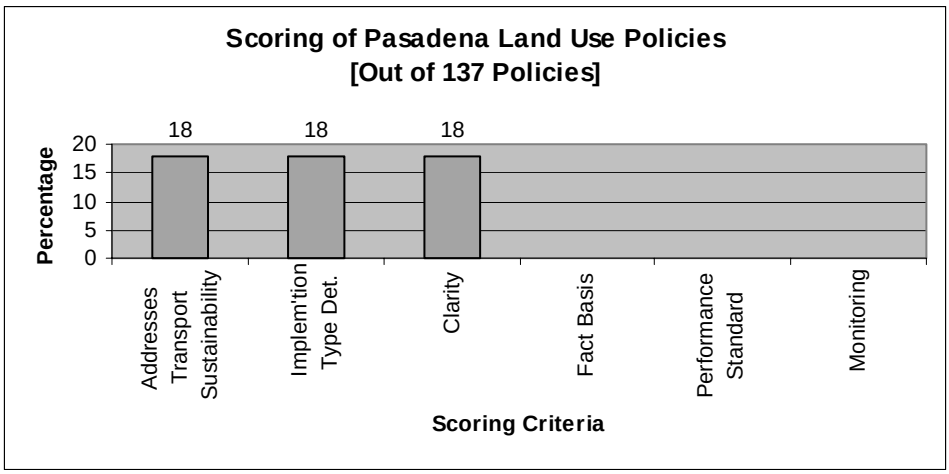

Scoring of Mountain View Transportation Policies
[Out of 40 Policies]
Percentage
70%
60%
50%
40%
30%
20%
10%
0%
60%
60%
60%
13%
13%
8%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

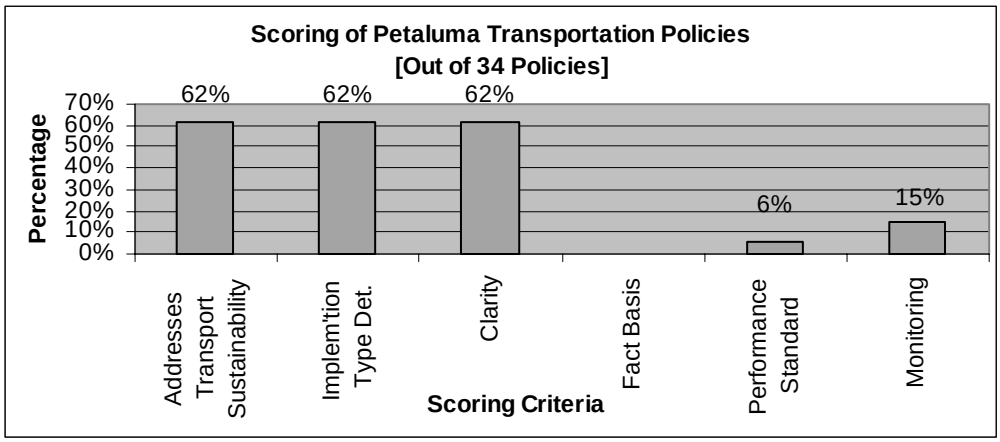

Scoring of Mountain View Land Use Policies
[Out of 44 Policies]
Percentage
5%
4%
3%
2%
1%
0%
5%
5%
5%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

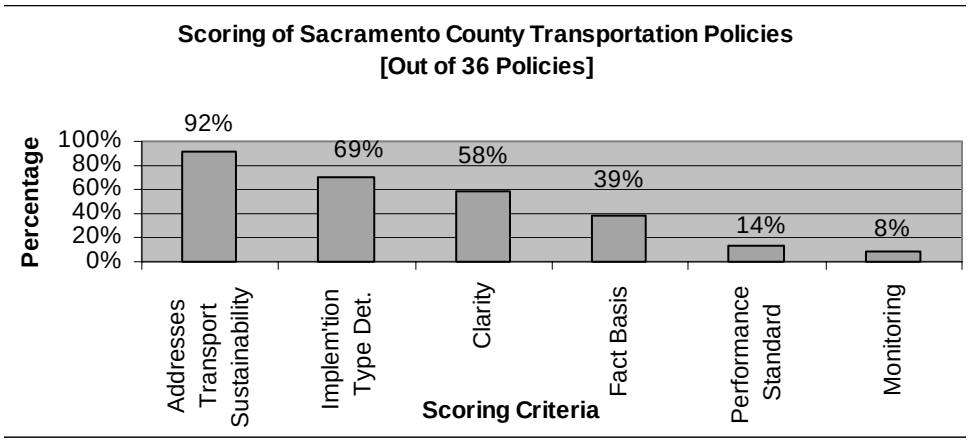

Scoring of Napa Transportation Policies
[Out of 85 Policies]
Percentage
80%
60%
40%
20%
0%
71%
71%
71%
29%
38%
35%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

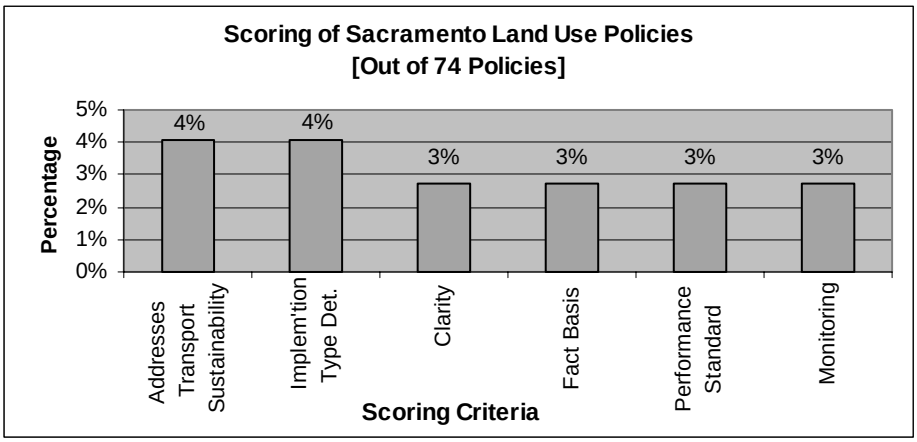

Scoring of Napa Land Use Policies
[Out of 81 Policies]
Percentage
20%
15%
10%
5%
0%
17%
17%
17%
2%
1%
2%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

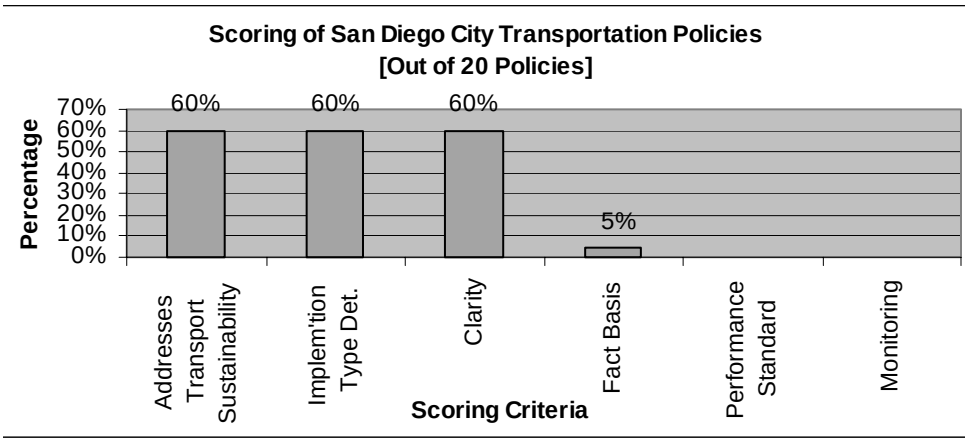

Scoring of Pasadena Transportation Policies
[Out of 83 Policies]
Percentage
85%
84%
83%
82%
81%
80%
79%
78%
77%
84%
84%
80%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

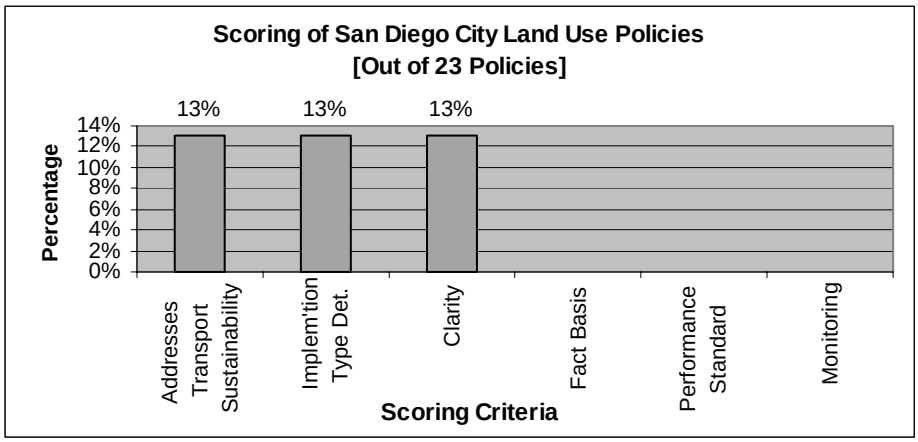

Scoring of Pasadena Land Use Policies
[Out of 137 Policies]
Percentage
20
15
10
5
0
18
18
18
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

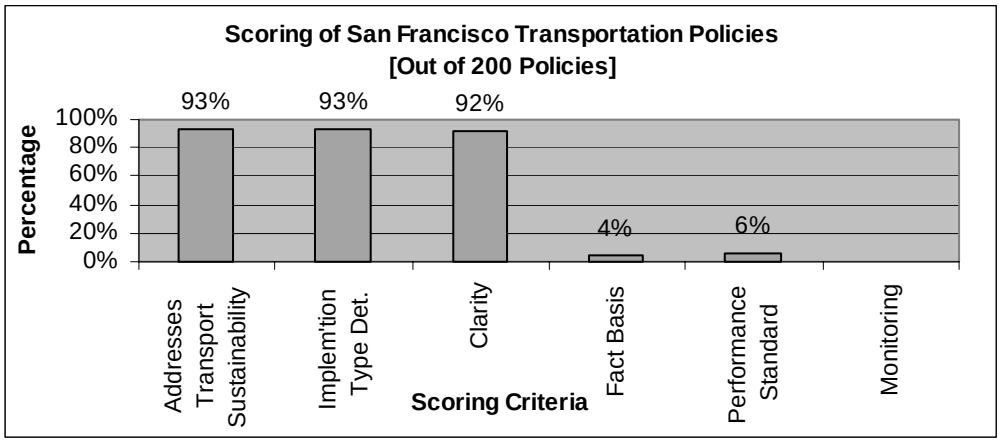

Scoring of Petaluma Transportation Policies
[Out of 34 Policies]
Percentage
70%
60%
50%
40%
30%
20%
10%
0%
62%
62%
62%
6%
15%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

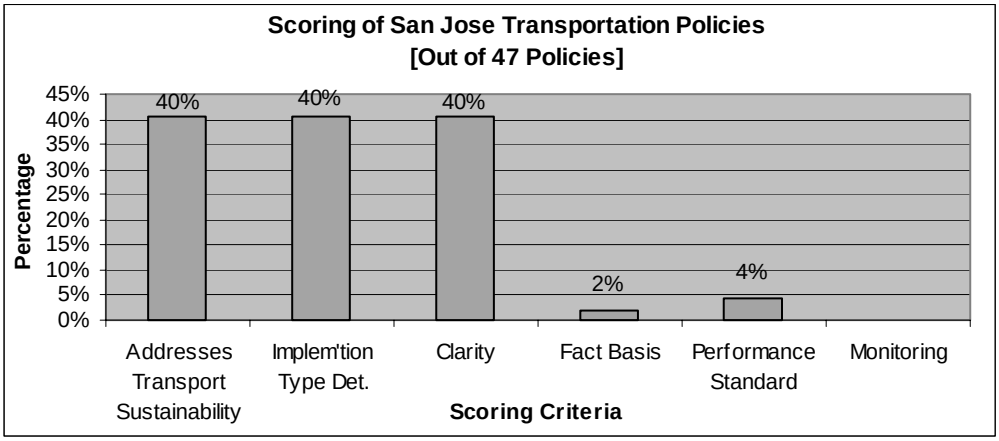

Scoring of Sacramento County Transportation Policies
[Out of 36 Policies]
Percentage
100%
80%
60%
40%
20%
0%
92%
69%
58%
39%
14%
8%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

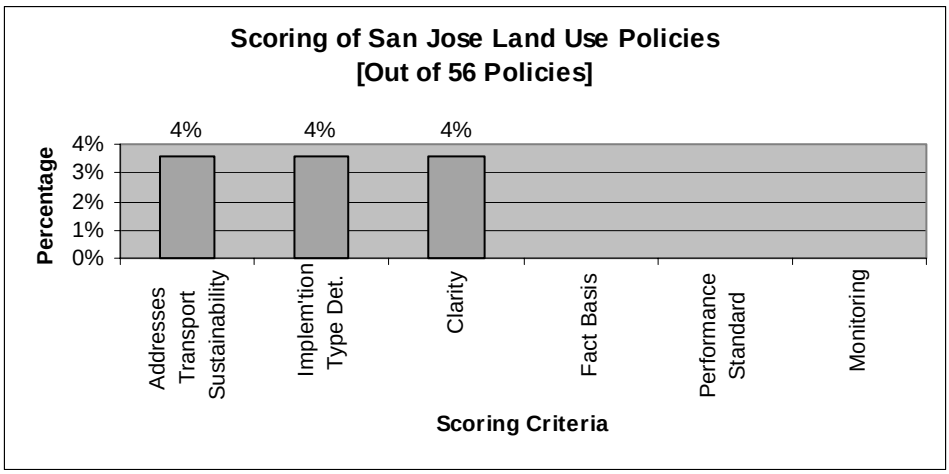

Scoring of Sacramento Land Use Policies
[Out of 74 Policies]
Percentage
5%
4%
3%
2%
1%
0%
4%
4%
3%
3%
3%
3%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

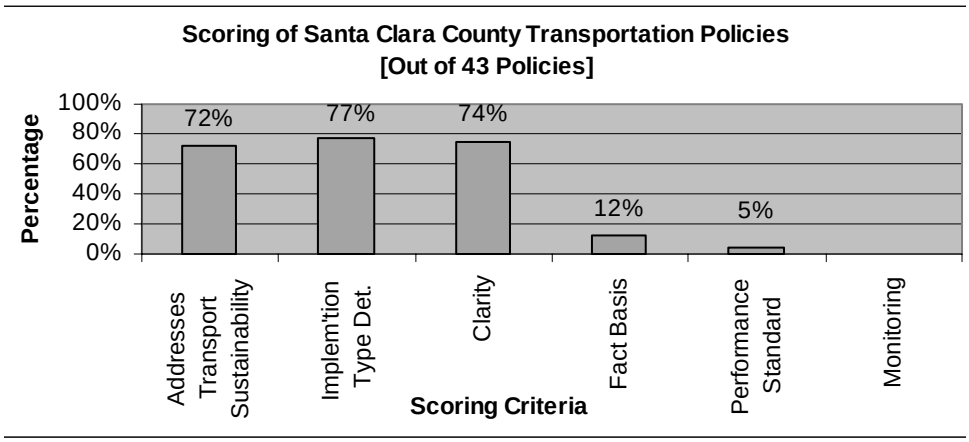

Scoring of San Diego City Transportation Policies
[Out of 20 Policies]
Percentage
70%
60%
50%
40%
30%
20%
10%
0%
60%
60%
60%
5%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

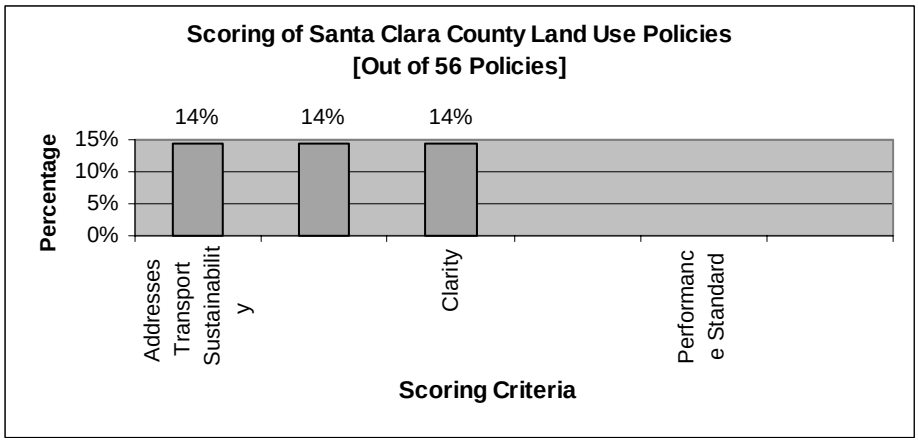

Scoring of San Diego City Land Use Policies
[Out of 23 Policies]
Percentage
14%
12%
10%
8%
6%
4%
2%
0%
13%
13%
13%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

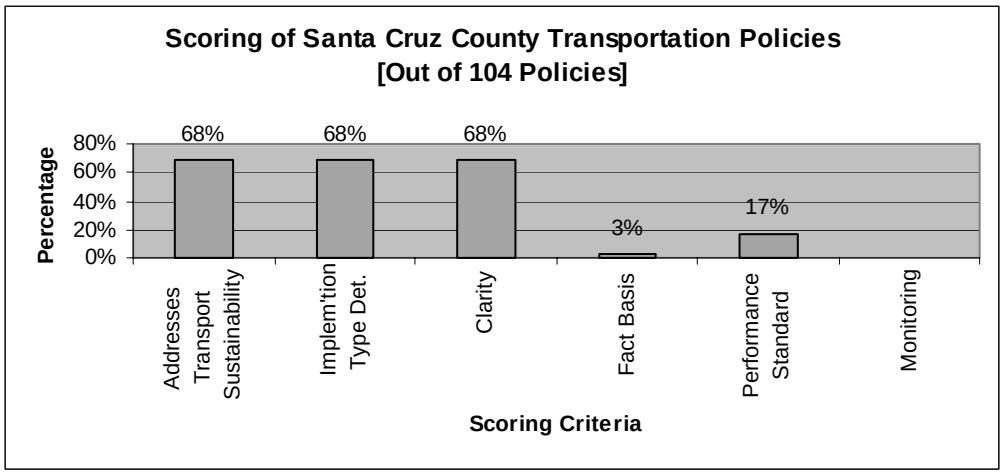

Scoring of San Francisco Transportation Policies
[Out of 200 Policies]
Percentage
100%
80%
60%
40%
20%
0%
93%
93%
92%
4%
6%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

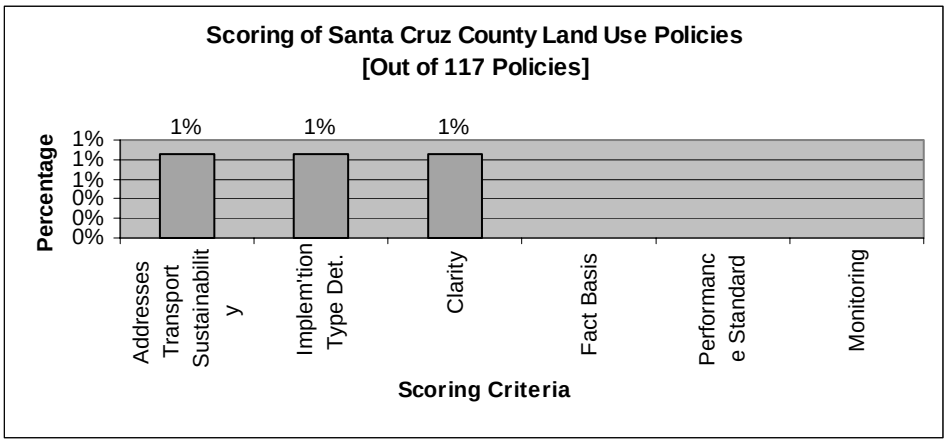

Scoring of San Jose Transportation Policies
[Out of 47 Policies]
Percentage
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
40%
40%
40%
2%
4%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

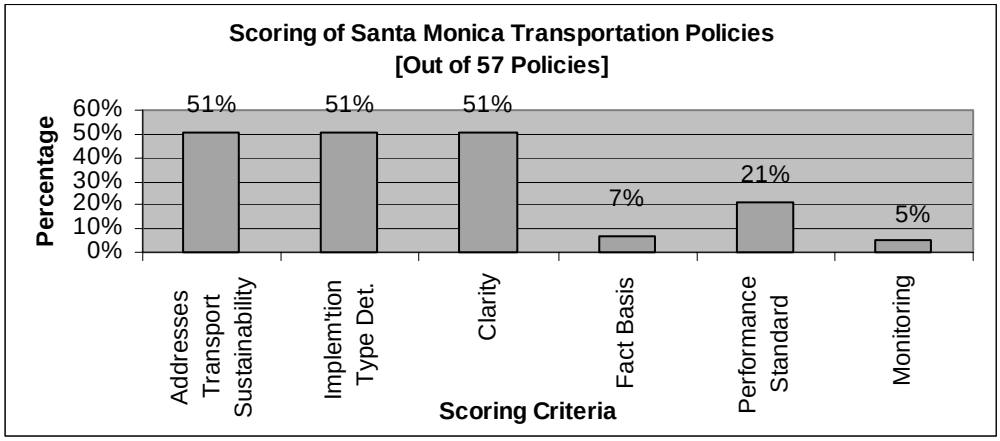

Scoring of San Jose Land Use Policies
[Out of 56 Policies]
Percentage
4%
3%
2%
1%
0%
4%
4%
4%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

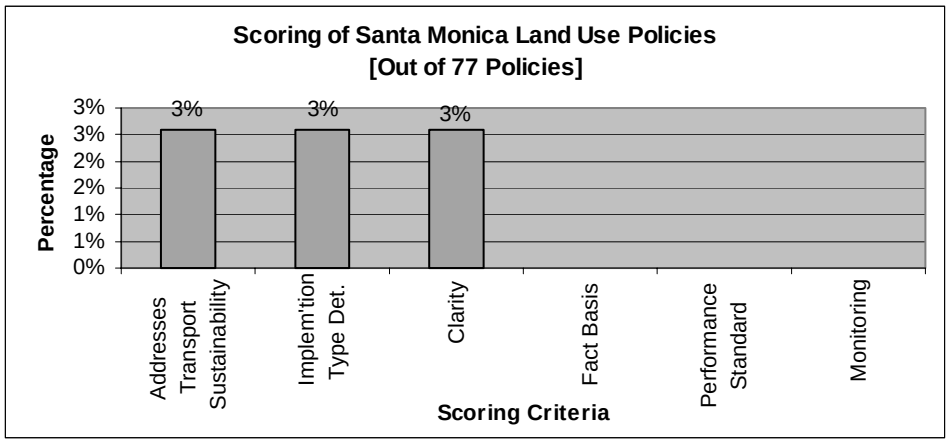

Scoring of Santa Clara County Transportation Policies
[Out of 43 Policies]
Percentage
100%
80%
60%
40%
20%
0%
72%
77%
74%
12%
5%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

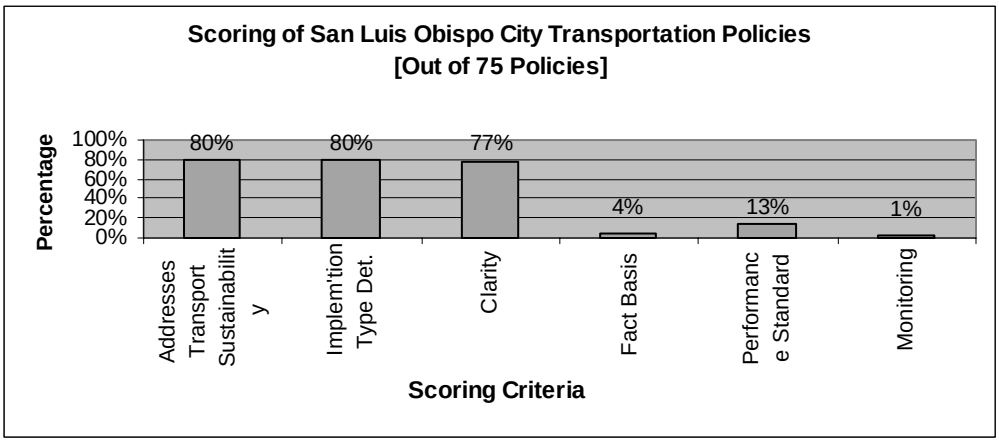

Scoring of Santa Clara County Land Use Policies
[Out of 56 Policies]
Percentage
15%
10%
5%
0%
14%
14%
14%
Addresses Transport Sustainability
Clarity
Performance Standard
Scoring Criteria

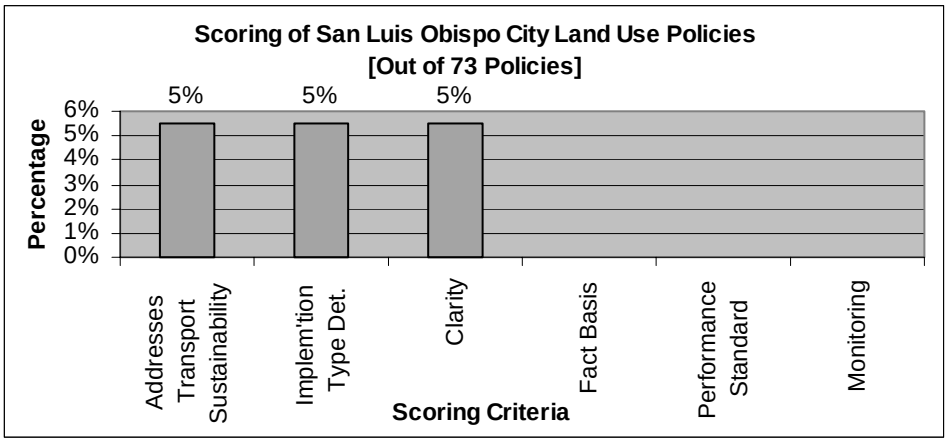

Scoring of Santa Cruz County Transportation Policies
[Out of 104 Policies]
Percentage
80%
60%
40%
20%
0%
68%
68%
68%
3%
17%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

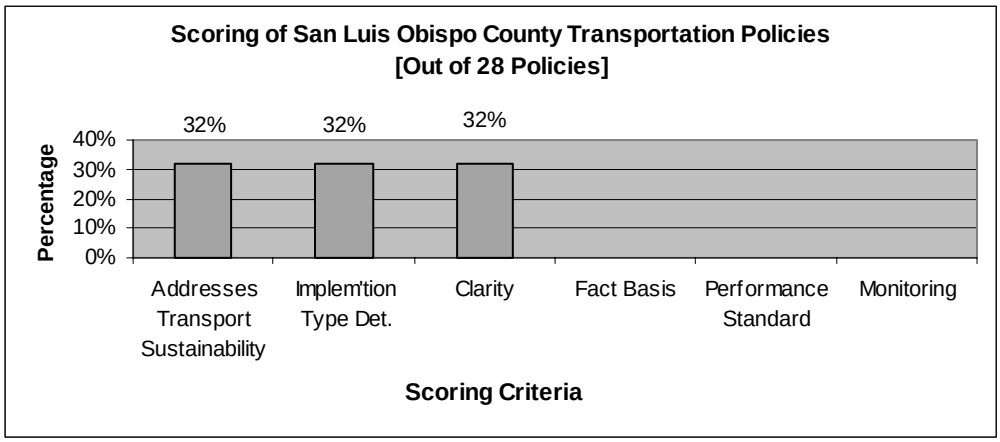

Scoring of Santa Cruz County Land Use Policies
[Out of 117 Policies]
Percentage
1%
1%
1%
0%
0%
0%
1%
1%
1%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

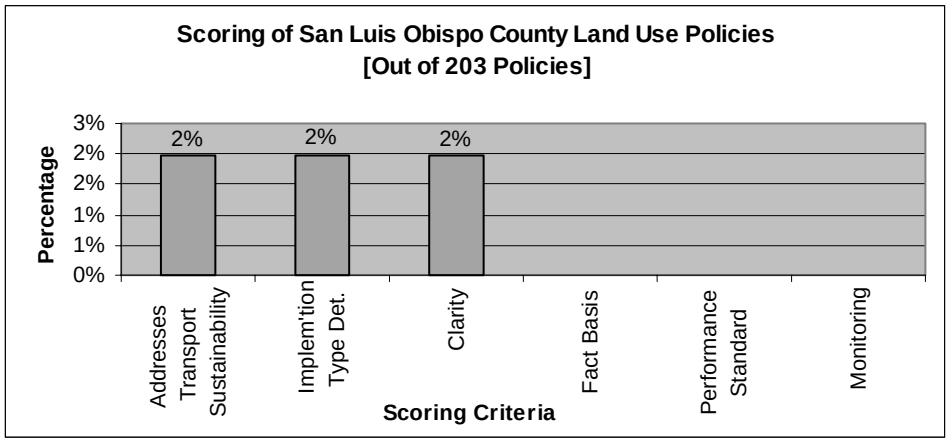

Scoring of Santa Monica Transportation Policies
[Out of 57 Policies]
Percentage
60%
50%
40%
30%
20%
10%
0%
51%
51%
51%
7%
21%
5%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

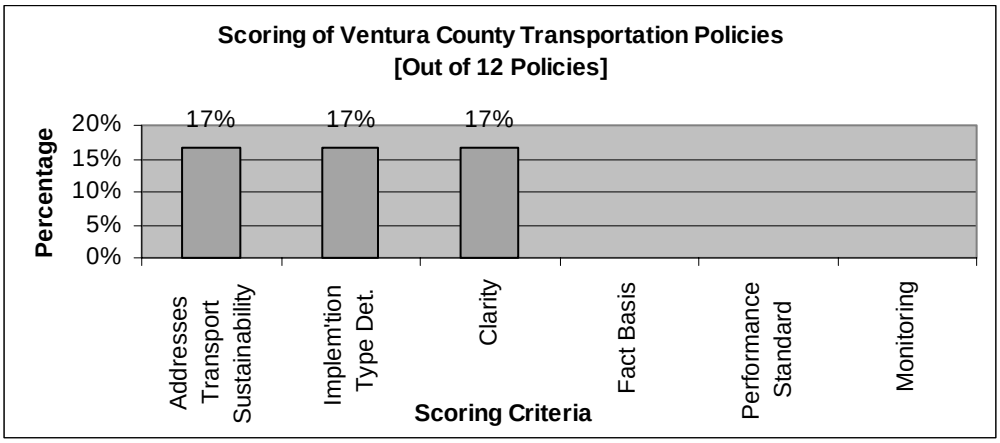

Scoring of Santa Monica Land Use Policies
[Out of 77 Policies]
Percentage
3%
3%
2%
2%
1%
1%
0%
3%
3%
3%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria


Scoring of San Luis Obispo City Transportation Policies
[Out of 75 Policies]
Percentage
100%
80%
60%
40%
20%
0%
80%
80%
77%
4%
13%
1%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

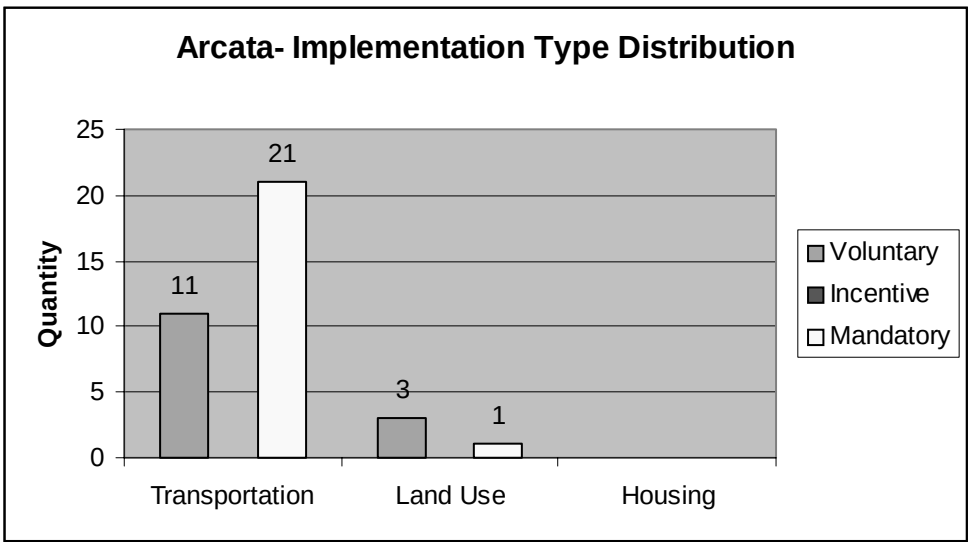

Scoring of San Luis Obispo City Land Use Policies
[Out of 73 Policies]
Percentage
6%
5%
4%
3%
2%
1%
0%
5%
5%
5%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

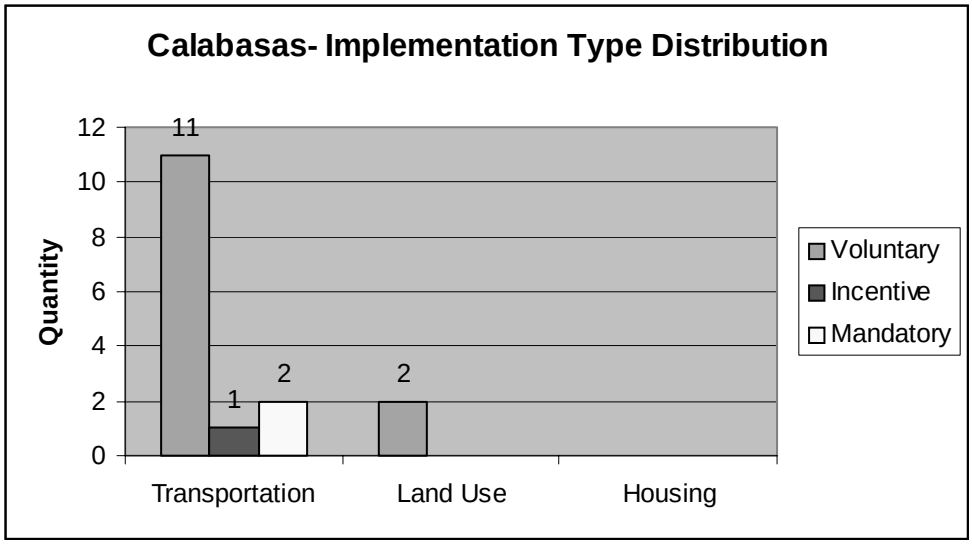

Scoring of San Luis Obispo County Transportation Policies
[Out of 28 Policies]
Percentage
40%
30%
20%
10%
0%
32%
32%
32%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

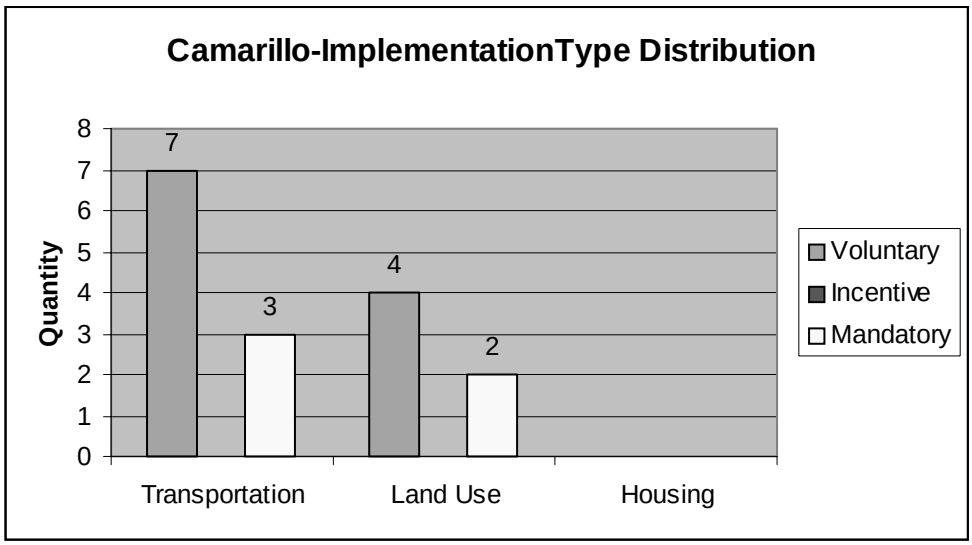

Scoring of San Luis Obispo County Land Use Policies
[Out of 203 Policies]
Percentage
3%
2%
2%
1%
1%
0%
2%
2%
2%
Addresses Transport Sustainability
Implem'tion Type Det.
Clarity
Fact Basis
Performance Standard
Monitoring
Scoring Criteria

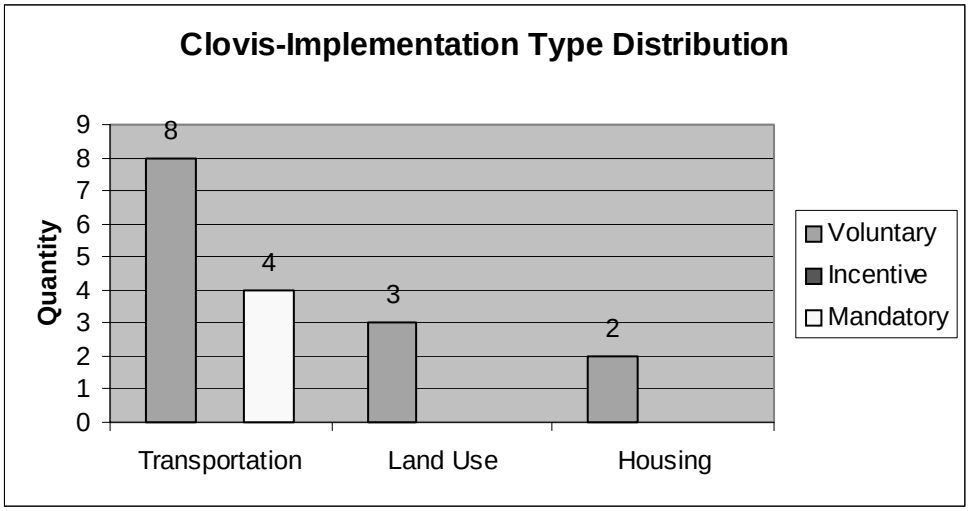


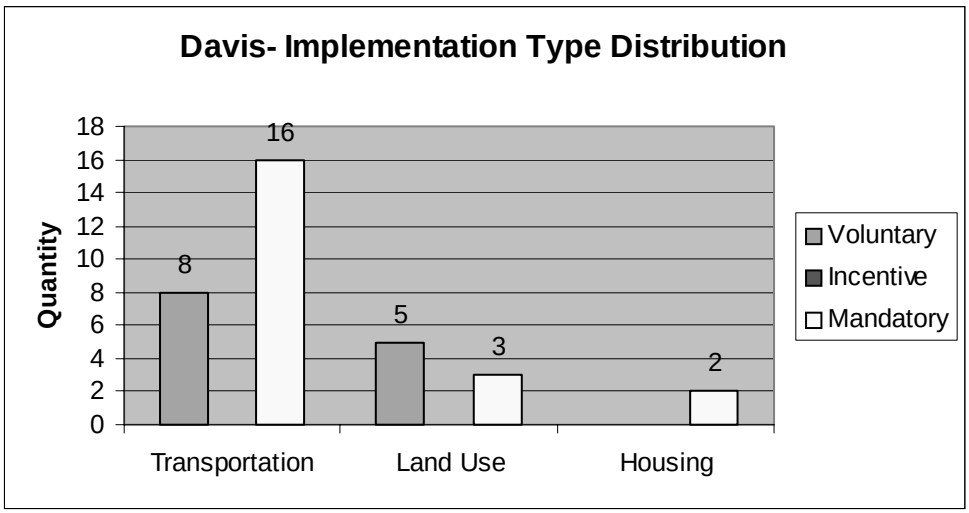
IMPLEMENTATION SCORE GRAPHS

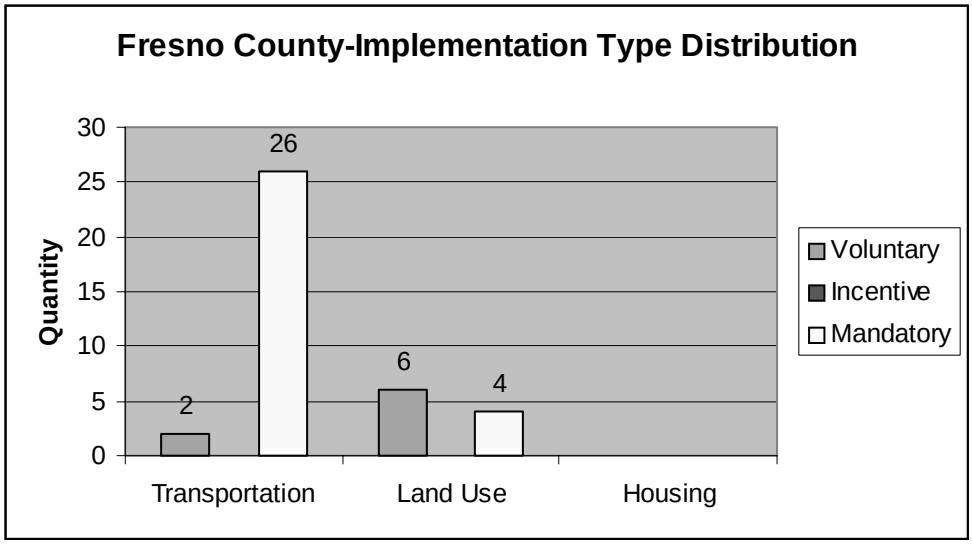


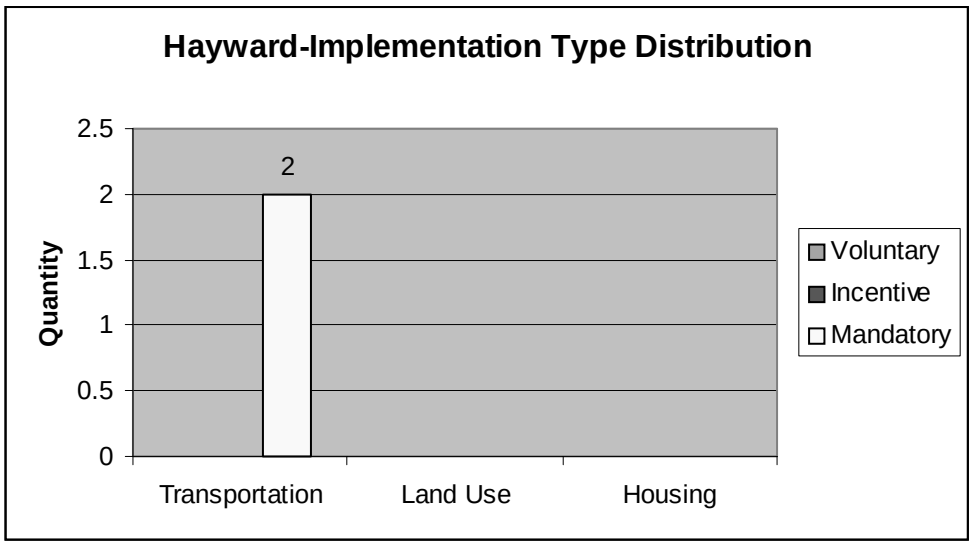

Calabasas- Implementation Type Distribution
Quantity
12
10
8
6
4
2
0
11
1
2
2
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

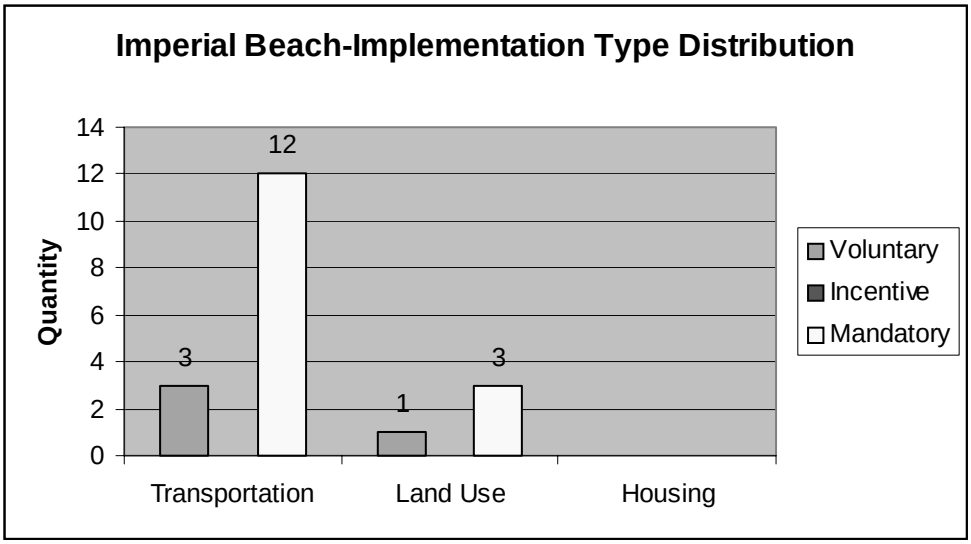

Camarillo-ImplementationType Distribution
Quantity
8
7
6
5
4
3
2
1
0
7
3
4
2
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

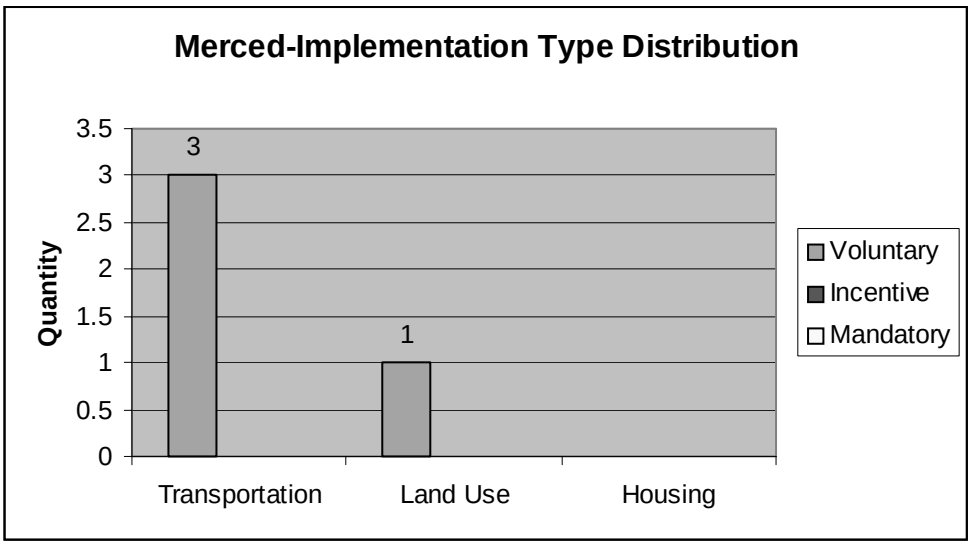

Clovis-Implementation Type Distribution
Quantity
9
8
7
6
5
4
3
2
1
0
8
4
3
2
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

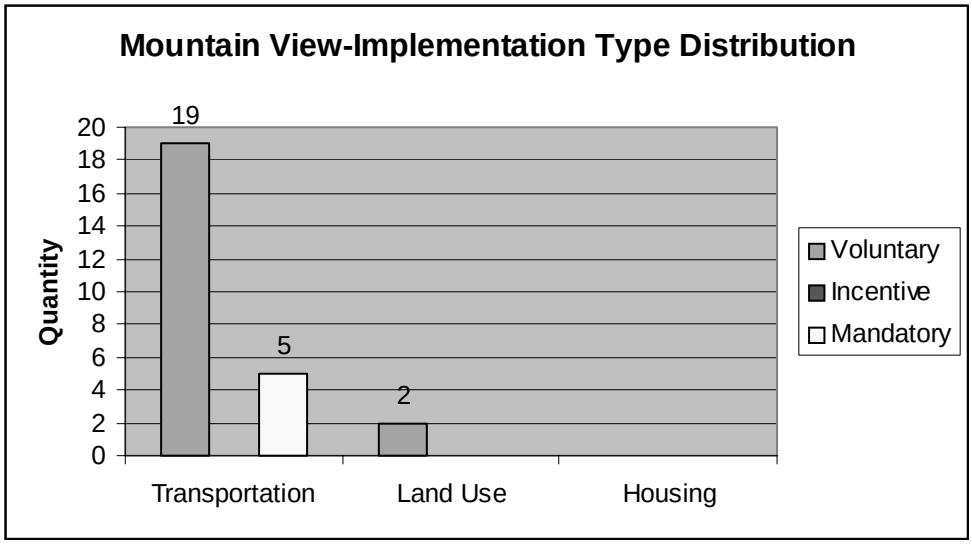

Davis- Implementation Type Distribution
Quantity
18
16
14
12
10
8
6
4
2
0
8
16
5
3
2
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

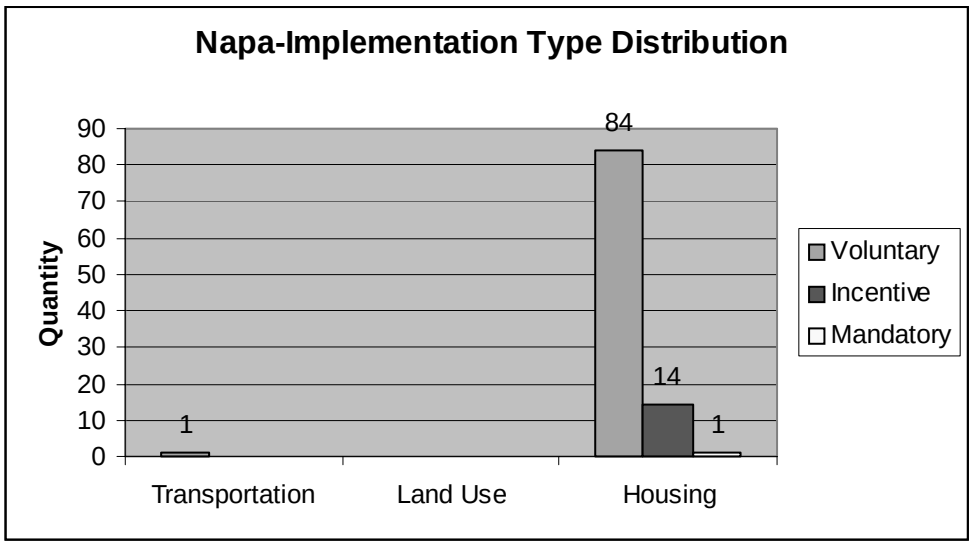

Fresno County-Implementation Type Distribution
Quantity
30
25
20
15
10
5
0
26
2
6
4
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

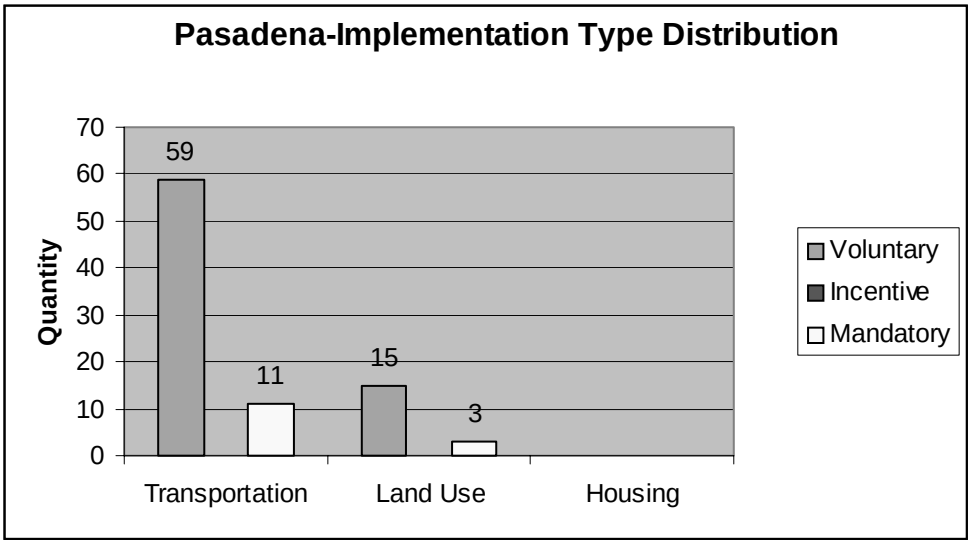

Hayward-Implementation Type Distribution
Quantity
2.5
2
1.5
1
0.5
0
2
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

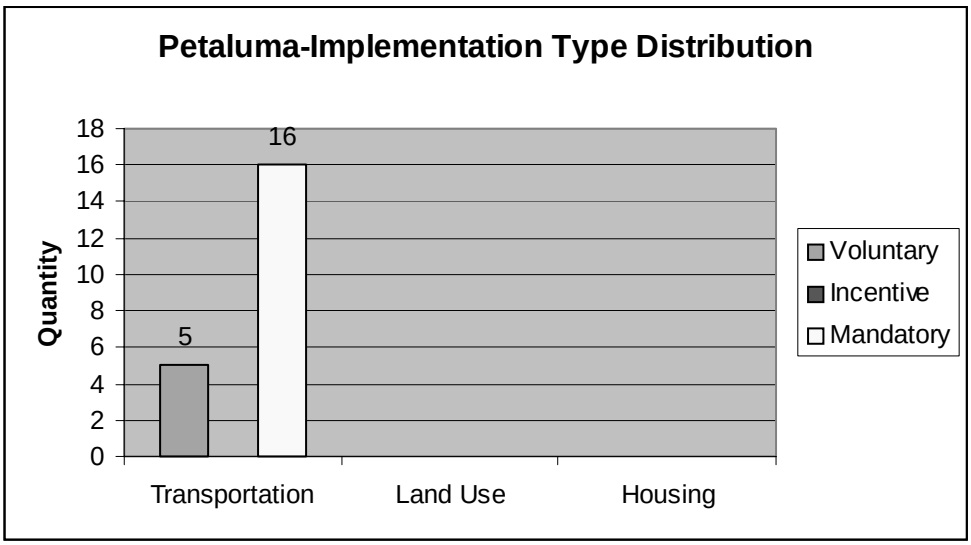

Imperial Beach-Implementation Type Distribution
Quantity
14
12
10
8
6
4
2
0
3
12
1
3
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

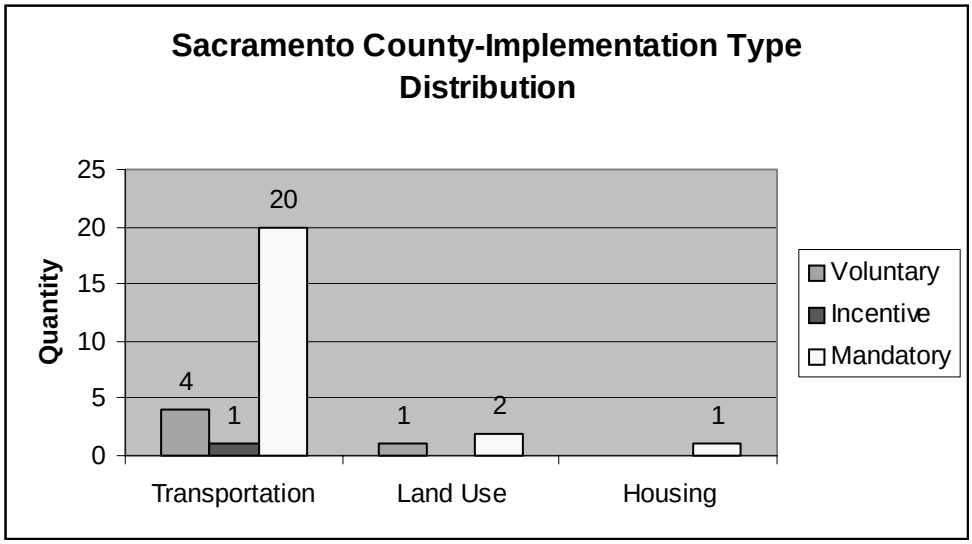

Merced-Implementation Type Distribution
Quantity
3.5
3
2.5
2
1.5
1
0.5
0
3
1
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

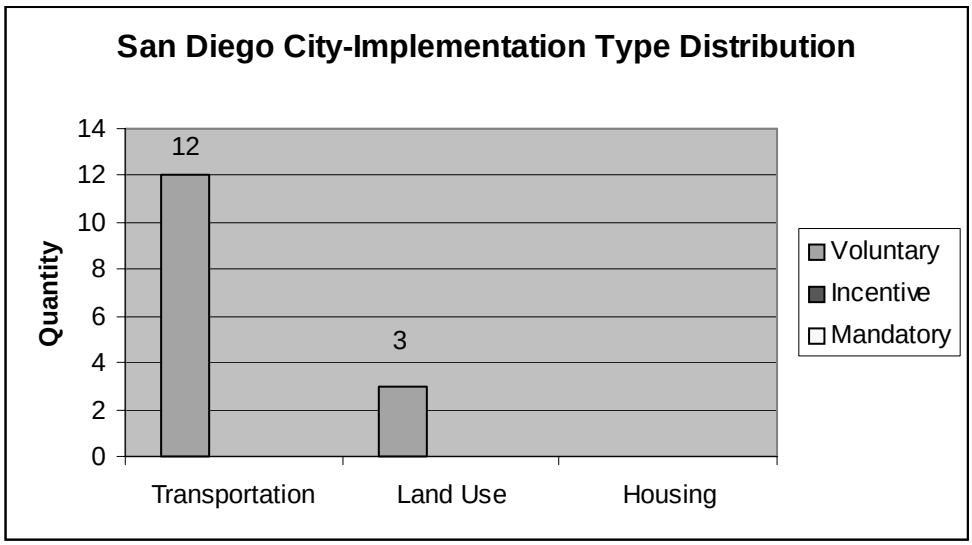

Mountain View-Implementation Type Distribution
Quantity
20
18
16
14
12
10
8
6
4
2
0
19
5
2
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

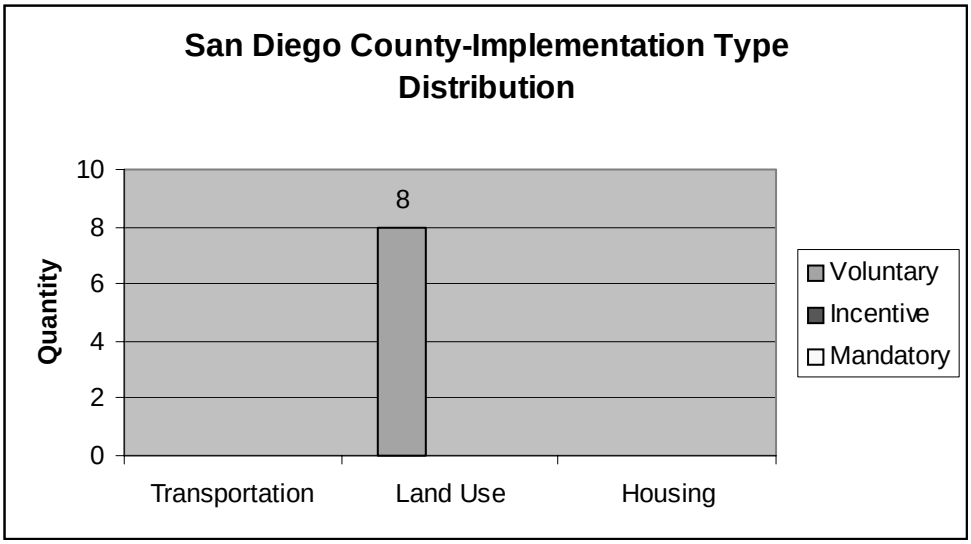

Napa-Implementation Type Distribution
Quantity
90
80
70
60
50
40
30
20
10
0
1
84
14
1
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

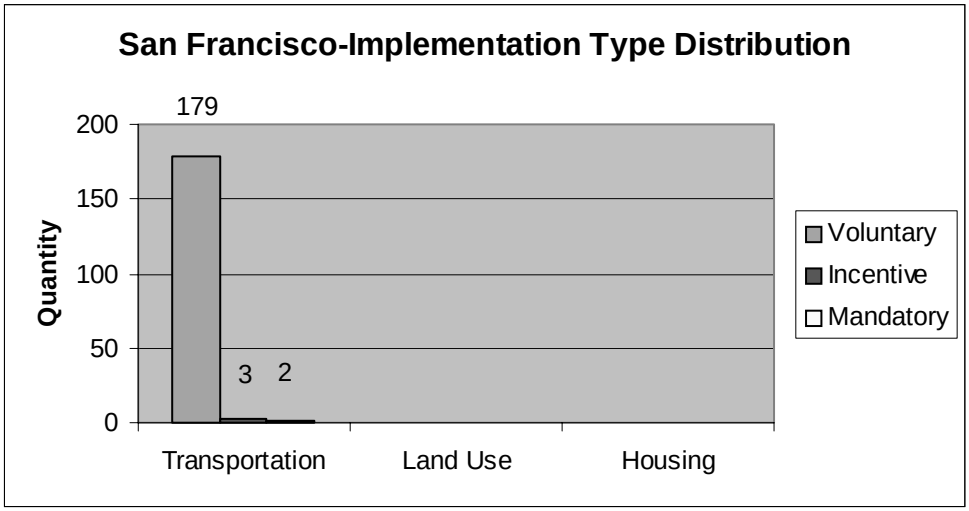

Pasadena-Implementation Type Distribution
Quantity
70
60
50
40
30
20
10
0
59
11
15
3
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

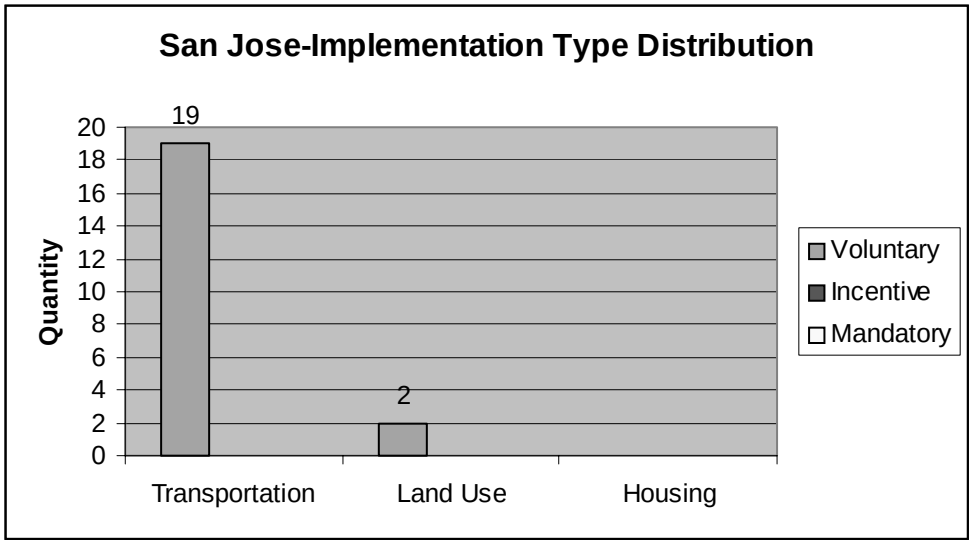

Petaluma-Implementation Type Distribution
Quantity
18
16
14
12
10
8
6
4
2
0
5
16
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

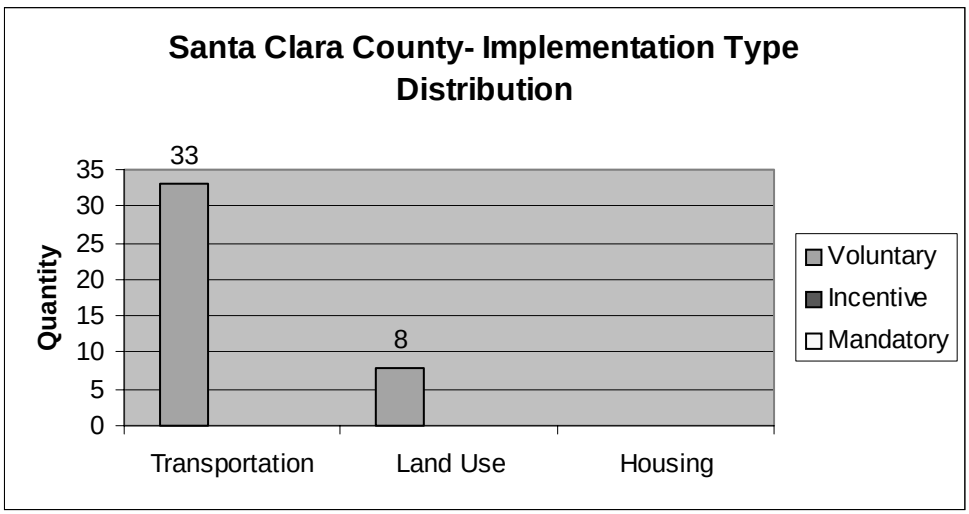

Sacramento County-Implementation Type Distribution
Quantity
25
20
15
10
5
0
4
1
20
1
2
1
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

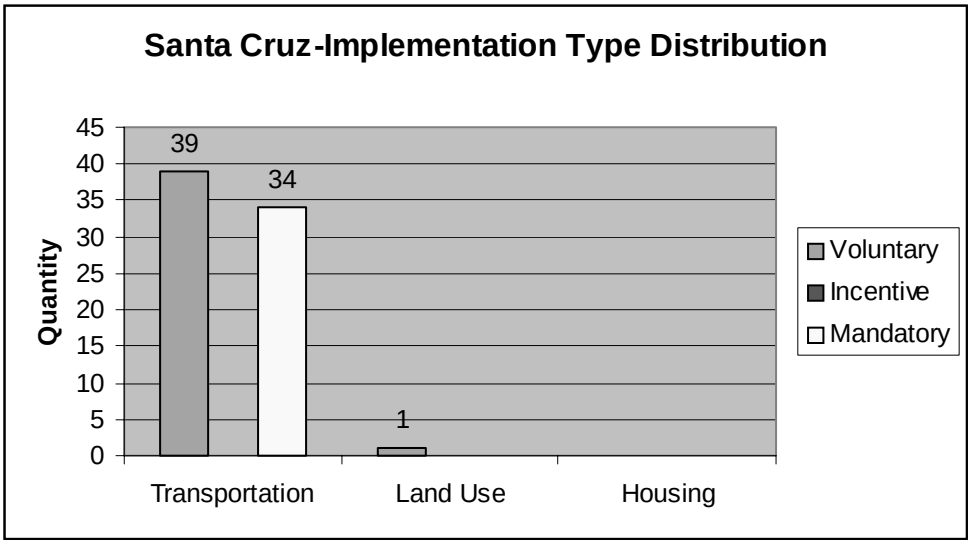

San Diego City-Implementation Type Distribution
Quantity
14
12
10
8
6
4
2
0
12
3
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

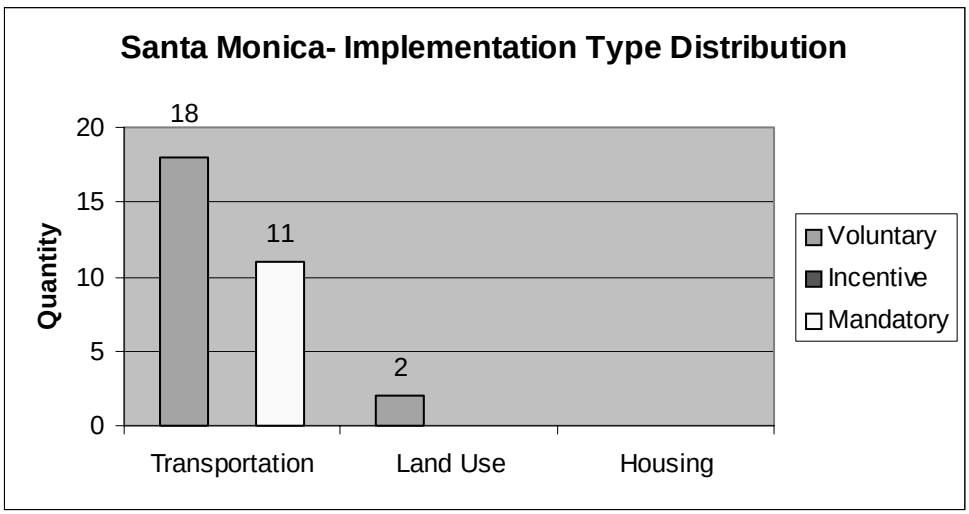

San Diego County-Implementation Type Distribution
Quantity
10
8
6
4
2
0
8
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

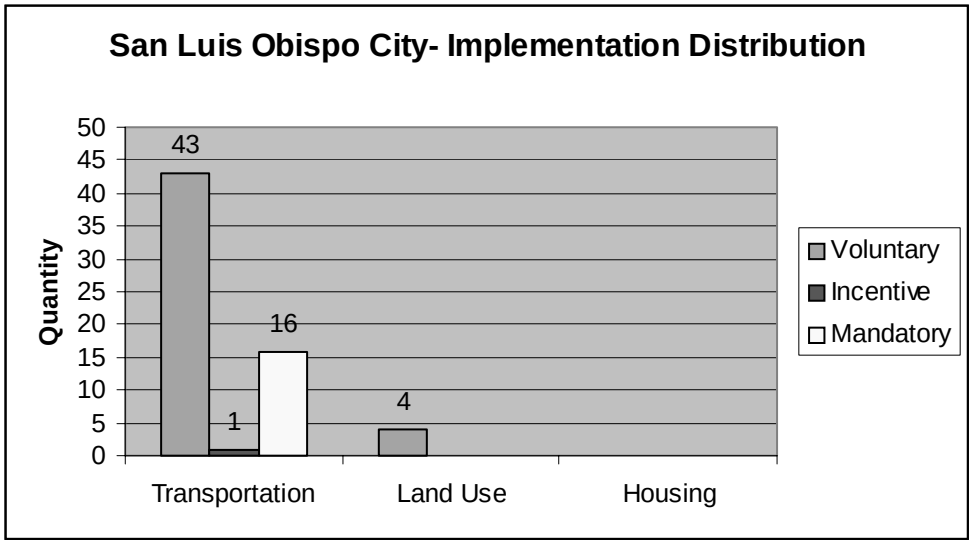

San Francisco-Implementation Type Distribution
Quantity
200
150
100
50
0
179
3
2
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

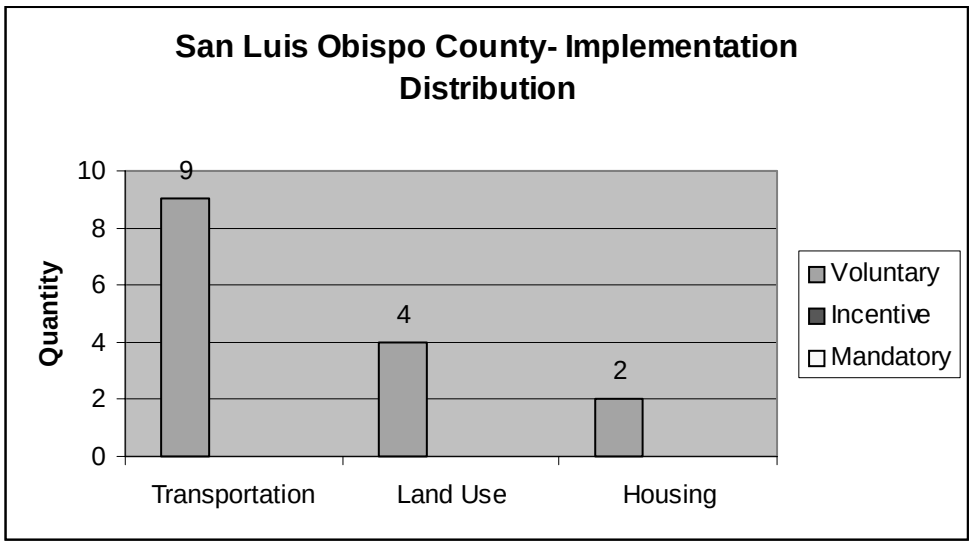

San Jose-Implementation Type Distribution
Quantity
20
18
16
14
12
10
8
6
4
2
0
19
2
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

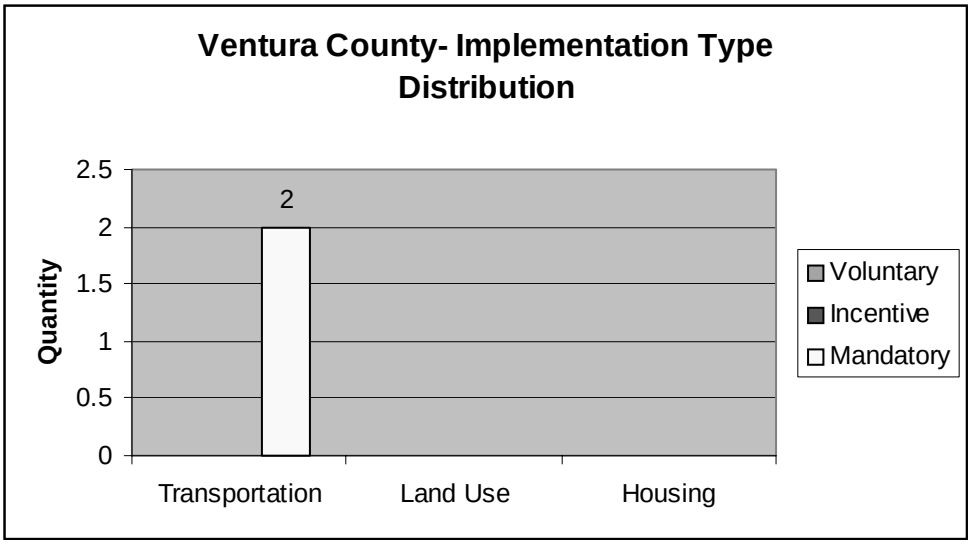

Santa Clara County- Implementation Type Distribution
Quantity
35
30
25
20
15
10
5
0
33
8
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory


Santa Cruz-Implementation Type Distribution
Quantity
45
40
35
30
25
20
15
10
5
0
39
34
1
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory


Santa Monica- Implementation Type Distribution
Quantity
20
15
10
5
0
18
11
2
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory


San Luis Obispo City- Implementation Distribution
Quantity
50
45
40
35
30
25
20
15
10
5
0
43
1
16
4
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory


San Luis Obispo County- Implementation Distribution
Quantity
10
8
6
4
2
0
9
4
2
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory


Ventura County- Implementation Type Distribution
Quantity
2.5
2
1.5
1
0.5
0
2
Transportation
Land Use
Housing
Voluntary
Incentive
Mandatory

APPENDIX C

ELECTRONIC MAIL SURVEY INVITATION, SENT TO PLANNING DIRECTORS (JANUARY 2001)

Dear Planning Director (or designate):

Over the next three months, faculty and staff from Cal Poly San Luis Obispo and San Jose State, with funding from the Mineta Transportation Institute, will be completing an in-depth research effort to assess California's General Plan process as a tool for implementing sustainable development, with a particular focus on sustainable local, regional, and statewide transportation systems.

Prior research indicates that General Plans have great legal potential as tools for effecting development that meets a community's economic, social, and environmental needs while safeguarding resources for future generations—the essence of sustainable development.

YOU CAN HELP! The research team is conducting a survey of local planning directors to discern their opinions and to discover local strategies and policies for sustainability. This web-based survey should take only a few minutes of your time. All responses will be held as strictly confidential. Please respond only once. To access the survey, simply click on the following website address (or copy and paste the address in your web browser):

www.calpoly.edu/~sduiven/sustainability/survey.htm

Please respond to the survey within two weeks of receipt of this e-mail. Your cooperation is greatly appreciated and will enhance the overall results of the research.

The Cal Poly team thanks you in advance for sharing your knowledge. If you have any questions regarding the survey or the overall study, please contact

Dr. Richard Lee, AICP

CITY AND REGIONAL PLANNING DEPARTMENT

California Polytechnic State University
San Luis Obispo, CA 93407
(805) 756-2573

rwlee@calpoly.edu

or

Scott Duiven, Research Associate
City and Regional Planning Department
California Polytechnic State University
San Luis Obispo, CA 93407
(805) 756-2573

sduiven@calpoly.edu

PLANNING DIRECTOR SURVEY

Q.00 Your jurisdiction. (NOTE: all survey responses will be kept confidential.)

City or County Name_____

Section Definitions - Please indicate the degree to which you agree with the following:

Q.01 *Sustainability* is balancing economic, environmental and equity considerations.

- ☐ Agree Strongly
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Disagree Strongly

Q.02 *Sustainable Development* is physical and economic growth that enhances environmental and equity ends.

- ☐ Agree Strongly
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Disagree Strongly

Q.03 A *Sustainable Transport* system should *efficiently* and *equally* serve economic, environmental and equity goals.

- ☐ Agree Strongly
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Disagree Strongly

Q.04 A *Sustainable Transport* system entails a self-sustaining (financing) system wherein users (benefactors) pay the full costs of system construction, operation and expansion.

- ☐ Agree Strongly
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Disagree Strongly

Q.05 A *Sustainable Transport* system actively promotes and enhances more environmentally friendly transportation modes.

- ☐ Agree Strongly
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Disagree Strongly

Q.06 *Sustainable Transport* systems reduce use of and dependence on conventional automobiles.

- ☐ Agree Strongly
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Disagree Strongly

Q.07 A *Sustainable Transport* system entails less overall travel.

- ☐ Agree Strongly
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Disagree Strongly

Q.08 *Sustainable Transport* should focus on making all transportation modes more environmentally sound, without attempting to change the market share of different modes.

- ☐ Agree Strongly
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Disagree Strongly

Section Opinions on Sustainability and General Plan Elements

Q.09 In your opinion, how important is it that California cities and counties actively plan for sustainability?

- ☐ Very Important
- ☐ Important
- ☐ Somewhat Important
- ☐ Slightly Important
- ☐ Not Important

Q.10 In your opinion, how important is the General Plan *overall* as a tool for realizing sustainability?

- ☐ Very Important
- ☐ Important
- ☐ Somewhat Important
- ☐ Slightly Important
- ☐ Not Important

Q.11 In your opinion, how important is the General Plan *Land Use Element* as a tool for realizing sustainability?

- ☐ Very Important
- ☐ Important
- ☐ Somewhat Important
- ☐ Slightly Important
- ☐ Not Important

Q.12 In your opinion, how important is the General Plan *Circulation Element* as a tool for realizing sustainability?

- ☐ Very Important
- ☐ Important
- ☐ Somewhat Important
- ☐ Slightly Important
- ☐ Not Important

Q.13 In your opinion, how important is the General Plan *Housing Element* as a tool for realizing sustainability?

- ☐ Very Important
- ☐ Important
- ☐ Somewhat Important
- ☐ Slightly Important
- ☐ Not Important

Q.14 Should a separate Sustainability Element be required in California General Plans?

- ☐ Yes
- ☐ No

Q.15 In your opinion, how much does your General Plan reflect sustainability principles?

- ☐ Fully
- ☐ To a Major Extent
- ☐ Somewhat
- ☐ To a Minor Extent
- ☐ Not at All

Q.16 If you anticipate a General Plan Update in the foreseeable future, to what extent do you expect your new General Plan to reflect sustainability principles?

- ☐ Fully
- ☐ To a Major Extent
- ☐ Somewhat
- ☐ To a Minor Extent
- ☐ Not at All

Q.17 Who represents the strongest force for sustainability in your community?

- ☐ Staff
- ☐ Council/Supervisors
- ☐ Citizens
- ☐ Other

Q.17a If other..._____

Q.18 What represents the most formidable ***barrier*** to implementing sustainable transportation in your community?

- ☐ Staff attitudes
- ☐ Developer/landowner attitudes
- ☐ Council/Supervisors' attitudes
- ☐ Citizens and voters' attitudes
- ☐ Policies and funding programs of State and Federal governments
- ☐ Other

Q.18a If other..._____

Q.19 In your opinion, is more research needed to better understand what sustainability implies for local transportation planning?

- ☐ Yes
- ☐ No

Q.20 Are there any General Plans (including your own community's Plan) that you would nominate as a model of sustainability planning?

Whose?_____

Q.21 To ensure only one appropriate response from each jurisdiction, please provide us with your NAME, TITLE, and PHONE or E-MAIL ADDRESS. (NOTE: contact/jurisdiction information will not appear in the reporting of results.)

Contact Info:_____

Q.22 Cal Poly is engaged in other research regarding the General Plan process and implementation of Sustainability. Would you be interested in participating in these studies, e.g. via further surveys or interviews?

☐ Yes
☐ No

Q.23 Feel free to make other comments regarding Sustainability and the General Plan Process:

_____
_____
_____

APPENDIX D: ANALYSIS OF GENERAL PLAN DENSITIES, 23 CENTRAL VALLEY CITIES AND COUNTIES

TABLE A-5

Residential Land Use Summary Based on Density Selected Central Valley Jurisdictions

JURISDICTION	RANGE	AREA DESIGNATED
Clovis		
Low Density	(0 - 4.1 DU)	2,932.3 acres
Med Density	(4.2 - 7.1 DU)	81.6 acres
High Density	(7.2 - 15.1 DU)	40.2 acres
Fresno City		
Low Density	(0 – 5 DU)	3,737.8 acres
Med Density	(6 -10 DU)	536.1 acres
High Density	(11 - 18 DU)	27.6 acres
Merced City		
Low Density	(0 – 6 DU)	803.4 acres
Med Density	(6.1 – 7 DU)	233.8 acres
High Density	(8 – 24.1 DU)	132.3 acres
Merced County		
Low Density	(0 – 3.6 DU)	180.2 acres
Med Density	(3.7 - 8 DU)	170.1 acres
High Density	(9 -36 DU)	99.2 acres
Modesto		
Low Density	(5.2 - 7.5 DU)	1,293.5 acres

San Joaquin County

Low Density	(0 – 5 DU)	600.7 acres
Med Density	(6 - 13 DU)	269.4 acres
High Density	(14 – 20 DU)	22.1 acres

San Joaquin City

Low Density	(0 – 7 DU)	65.6 acres
Med Density	(8 - 15 DU)	2.5 acres
High Density	(16 - 25 DU)	11.0 acres

Stanislaus County

Low Density	(0 – 7 DU)	645.4 acres
Med Density	(8 - 14 DU)	12.7 acres
High Density	(15 - 25 DU)	49.2 acres

Stockton

Low Density	(0 – 17.3 DU)	121.2 acres
Med Density	(17.4 DU)	2,991.7 acres
High Density	(29 DU)	12.8 acres

Arvin

Low Density	(0 – 5 DU)	162 acres
Med Density	(6- 15 DU)	131 acres
High Density	(16 DU)	12 acres

Bakersfield

Low Density	(0 – 4 DU)	2,424 acres
Med Density	(7.26 – 10 DU)	3, 527 acres
High Density	(11 – 72.60 DU)	714 acres

Coalinga

Low Density	(2 – 6 DU)	266 acres
Med Density	(7 – 15 DU)	0 acres (invalid info)
High Density	(16-25 DU)	0 acres (invalid info)

Corcoran

Low Density	(0 – 9 DU)	144 acres
Med Density	(10 – 15 DU)	23 acres
High Density	(16 – 22 DU)	4 acres

Dinuba

Low Density	(0- 4.5 DU)	162 acres
Med Density	(4.6 – 15 DU)	127 acres
High Density	(16 – 24 DU)	6 acres

Hanford

Low Density	(0 – 8 DU)	122 acres
Med Density	(9 – 15 DU)	638 acres
High Density	(16 – 22 DU)	112 acres

Kerman

Low Density	(0 – 9 DU)	15 acres
Med Density	(10 – 12 DU)	76 acres
High Density	(13 – 20 DU)	13 acres

Kern County

Low Density	(0 – 4 DU)	1,494 acres
Med Density	(5 – 16 DU)	422 acres
High Density	(17 – 29 DU)	7 acres

Kingsburg

Low Density	(0 – 6 DU)	94 acres
Med Density	(7 – 15 DU)	23 acres

High Density	(16 – 22 DU)	2 acres

Madera

Low Density	(0 – 7 DU)	194 acres
Med Density	(8 – 15 DU)	228 acres
High Density	(16 – 33 DU)	1 acre

Patterson

Low Density	(0 – 5 DU)	250 acres
Med Density	(6 – 12 DU)	21 acres
High Density	(13 – 20 DU)	3 acres

Sanger

Low Density	(0 – 7.26 DU)	231 acres
Med Density	(7.27 – 17.42 DU)	25 acres
High Density	(17.43 – 43.56 DU)	2 acres

Tracy

Low Density	(0 – 5.8 DU)	1,060 acres
Med Density	(5.9 – 12 DU)	268 acres
High Density	(13 – 25 DU)	23 acres

Visalia

Low Density	(0 – 10 DU)	1,407 acres
Med Density	(11 – 15 DU)	86 acres
High Density	(16 – 29 DU)	38 acres

Total, 23 Jurisdictions	Area	Percent
Low Density	17,948 acres	56.5
Med Density	11,186 acres	35.2
High Density	2,625 acres	8.3
All Densities	31,760 acres	100%

Source: California State University Stanislaus, Online General Plan Land Use Data for the Central Valley, Professor Michael Schmandt, Project Manager. Funding provided by The Public Policy Institute of California and the Great Valley Center, Modesto.

Data tabulated by Chandra Slaven, Shandell Healy, Cal Poly State University.

BIBLIOGRAPHY

Adams, G., R. "The Education of Gerald Adams." *San Francisco Planning and Urban Research (SPUR) Association Newsletter*, March, 2001.

Arimes, G. and Knack, R. "Doing The Job In Double Time: How San Diego Made Its 'Customers' Happy By Speeding Up Its Permit Process." *Planning*, 63(3) 22-25, 1997.

Alexander, E. R. "What is plan implementation and how is it taught?" *Journal of Planning Education and Research 5*(2), 107-18, 1986.

Alexander, E. R., & Faludi, A. "Planning and plan implementation: Notes on evaluation criteria." *Environment and Planning B: Planning and Design 16*(2), 127-40, 1989.

Alterman, R., & Hill, M. "Implementation of urban land use plans." *Journal of the American Institute of Planners 33*(3), 274-85, 1978.

American Planning Association. *APA Policy Guide on Planning for Sustainability.* Chicago, IL: American Planning Association, 2000.

Baer, W. C. "General Plan evaluation criteria: An approach to making better plans." *Journal of the American Planning Association 63*(3), 329-44, 1997.

Bay Area Alliance for Sustainable Development. *Draft Compact for a Sustainable Bay Area.* Oakland, CA: Bay Area Alliance for Sustainable Development, 2000.

Balch, G. I. "The stick, the carrot, and other strategies: A theoretical analysis of government intervention." In J. Brigham & D.W. Brown (Eds.), *Policy Implementation: Penalties or Incentives?* (pp. 45-64). Beverly Hills: Sage, 1980.

Baldassare, M., Hassol, J., Hoffman, W., & Kanauk, A. "Possible planning roles for regional government: A survey of city planning directors in California." *Journal of the American Planning Association 62*(1), 17-29, 1996.

Beatley, T. *Green Urbanism: Learning from European Cities*. Covelo, CA: Island Press, 2000.

Beatley, T. & Brower, D. J. "Sustainability Comes to Mainstreet." *Planning*, 16-19, May 1993.

Beatley, T. & Manning, K. *The Ecology of Place: Planning for Environment, Economy, and Community.* Covelo, CA: Island Press, 1997.

Berke, P. R., & French, S. P. "The influence of state planning mandates on local plan quality." *Journal of Planning Education and Research* 13(4), 237-250, 1994.

Berke, P. R., & Conroy, M. M. "Are we planning for sustainable development? An evaluation of 30 comprehensive plans." *Journal of the American Planning Association 66*(1), 21-33, 2000.

Bernick, M. & Cervero, R. *Transit Villages in the 21st Century.* McGraw Hill: San Francisco. Chapter 9, 1997.

Bhatia, R., & Dyett, M. "Should we get rid of General Plans and Zoning?" *California Planner January/February,* 8-9, 1997.

Boarnet, M. G. & Compin, N.S. "Transit-Oriented Development in San Diego County: the Incremental Implementation of a Planning Idea." *Journal of American Planning Association* v65, 80- 92, 1999.

Bolan, R. S. "The practitioner as theorist: The phenomenology of the professional episode." *Journal of the American Planning Association 46*(3) 261-74, 1980.

Boswell, M., & Stiftel, B. *Assumptions and alternatives testing in Florida comprehensive plans: Do we plan for the future or project the present?* Paper presented at the ACSP-AESOP Joint International Congress, Toronto, Canada, July 1996.

Burby, R. J., & May, P. J., et al. *Making Governments Plan: State Experiments in Managing Land Use*. Baltimore, MD: The Johns Hopkins University Press, 1997.

Calavita, N. & Jensen, P. Vale of Tiers. *Planning,* Vol. 3, 18-22, 1997.

Campbell, S. "Green Cities, Growing Cities, Just Cities?: Urban Planning and the Contradictions of Sustainable Development." *Journal of the American Planning Association, 62*, 296-312, 1996.

California's Governor's Office of Planning and Research. *The California Planners' Book of Lists 2000.* Sacramento, 2000.

California's Governor's Office of Planning and Research. *General Plan Guidelines*. Sacramento, 1998.

Calthorpe, P. *Next American Metropolis*. New York: Princeton Architectural Press, 1993.

City of San Diego. *City of San Diego Construction and Development Newsletter*, 2000.

City of San Diego (1992a). *Guidelines for Future Development.* http://www.ci.sandiego.ca.us.generalplan.html, May 21, 2001.

City of San Diego. *Looking to the Future*. http://www.sannet.gov/general-plan/planning-history.shtml, May 21, 2001.

City of San Diego. Municipal Code, Chapter 13: Zones; Article 2, Divisions 10 and 11.

City of San Diego. *Transit Oriented Development Guidelines*, Prepared by Calthorpe Associates. San Diego, CA, 1992.

City of Santa Monica Task Force on the Environment. *Sustainable City Progress Report* Update, 1999.

City of Santa Monica. *Green Building Design and Construction Guidelines*. 1999.

City of Santa Monica. "Conservation Element. 1999."

Corbett, J. & Corbett, M. *Designing Sustainable Communities.* Covelo, CA: Island Press, 2000.

Cunningham, Roger A. *Land-Use Control—the State and Local Programs*. Iowa Law Review, (50) 367-382, 1965.

Curtin, D. J. *Curtin's California Land Use and Planning Law* (20th ed.). Point Arena, CA: Solano Press, 2000.

Dalton, L. C. "The limits of regulation: Evidence from local plan implementation in California." *Journal of the American Planning Association* 55(2), 151-168, 1989.

Dalton, L. C., & Burby, R. J. "Mandates, plans, and planners: Building local commitment to development management." *Journal of the American Planning* Association 60(4), 444-461, 1994.

Daly, H. E. & Cobb, J. B. Jr. *For the Common Good: Redirecting the Economy Toward Community, the Environment, and a Sustainable Future*. Boston, MA: Beacon Press, 1994.

Davidoff, P. "Advocacy and pluralism in planning." *Journal of the American Institute of Planners, 31*, 331-338, 1965.

Davis General Plan Update. *Infill Potential Study.* City of Davis Planning and Building Department, 1996.

DeLeon, P. "The missing link revisited: Contemporary implementation research." *Policy Studies Review 16*(3-4), 311-338, 1999.

Derthick, M. *New Towns In-Town: Why a Federal Program Failed*. Washington, D.C.: The Urban Institute, 1972.

Dittmar, A. "Broader Context for Transportation Planning: Not Just an End in Itself." *Journal of the American Planning Association* 61, 7-13,1995.

Fishman, R.P. Ed. "Appendix 5-1: State of the art in local planning." In *Housing for all under law: New directions in housing, land use, and planning law (A report to the American Bar Association Advisory Committee on housing and urban growth).* Cambridge, MA: Ballinger, 1978.

Forman, Richard T.T. *Land Mosaics: The Ecology of Landscapes and Regions,* (435-437). New York: Cambridge University Press, 1995.

Freilich, Robert H. *From Sprawl to Smart Growth*, American Bar Association, 1999

Fulton, W. *Guide to California Planning*, (2nd ed.). Point Arena, CA: Solano Press, 1999.

Gordon, Peter, and Harry W. Richardson. "Gasoline Consumption and Cities: A Reply." *Journal of the American Planning Association*: 55 (3): 342-46. 1989.

Harper, C.L. "Creating change." In *Exploring Social Change*, (2nd ed.) (pp. 211-236). Englewood Cliffs, N.J.: Prentice Hall, 1993.

Hawken, Paul. *The Ecology of Commerce: A Declaration of Sustainability* New York, NY: Harper Business, 1993.

Hicks, D. "Regional Transportation, Land Use Options Presented." *San Diego Daily Transcript*, 2001.

Holtzclaw, J. "Using residential patterns and transit to reduce auto dependence and costs," National Resource Council, 1994.

Innes, J. E. "Planning theory's emerging paradigm: Communicative action and interactive practice." *Journal of Planning Education and Research* 14(3), 183-189, 1995.

ITE Smart Growth Task Force. "Smart Growth? Sensible Growth? Sustainable Growth? Balanced Growth?…Responsible Growth—What Are the Transportation Needs to Achieve This Growth? *ITE Journal* 70 (4) 28-31, 2000.

International Union for Conservation of Nature and Natural Resources (IUCN) *World conservation strategy: living resource conservation for*

sustainable development. Gland, Switzerland: the International Union for Conservation of Nature and Natural Resources (IUCN) United Nations Environment Programme (UNEP) and the World Wildlife Fund (WWF), in collaboration with the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Educational, Scientific, and Cultural Organization (Unesco). 1980.

Jensen, P. "San Diego's Vision Quest." *Planning*, 63 , 5-12, 1997.

JHK & Associates. 1995. *Land Use Strategies for Reducing Indirect Source Emissions: A Research Report,* for the California Air Resources Board, Sacramento, CA, May.

Johnson, H. D. *Green Plans: Greenprint for Sustainability.* Lincoln, NB: University of Nebraska Press, 1995.

Johnson, H.D. *Green Plans: The Netherlands Lead the Way.* Earth Island Journal, 1995.

Kaiser, E., Godschalk, D., & Chapin, Jr., F. "Twentieth century land use planning: A stalwart family tree." *Journal of the American Planning Association 61*(3), 365-385, 1995.

Kaiser, E., Godschalk, D. R., & Chapin, Jr., F. *Urban land use planning*. Urbana, IL: University of Illinois Press, 1995.

Kelly, E. D. "Beyond regulation: Implementing comprehensive plans in the new millennium." *Land Use Law and Zoning Digest, May,* 6-11, 1999.

Kent, Jr., T.J. *The Urban General Plan.* San Francisco, CA: Chandler Publishing Company, 1964.

Krizek, K., & Power, J. "A planner's guide to sustainable development (Planning Advisory Service Report No. 467)." Chicago, IL: American Planning Association, 1996.

Litman, Todd. "Reinventing Transportation." Victoria Transportation Policy Institute, 2000.

Litman, Todd. "The Costs of Automobile Dependency." Victoria Transportation Policy Institute, 1999.

Litman, Todd, "Issues In Sustainable Transportation." Victoria Transportation Policy Institute, 1999.

Leitmann, J. *Sustaining Cities*. New York, NY: McGraw-Hill, 1999.

Lerner, S. *Eco Pioneers: Practical Visionaries Solving Today's Environmental Problems.* Cambridge, MA: The MIT Press, 1997.

Lowi, T.J. “American business, public policy, case studies, and political theory.” *World Politics* 16(4), 677-715, 1964.

Maclaren, V. “Urban sustainability reporting.” *Journal of the American Planning Association*, 62, 184-202, 1996.

Mandelker, Daniel R., *The Zoning Dilemma*, Bobbs-Merrill, 1971.

Mazmanian, D. A., & Sabatier, P. A. *Implementation and Public Policy.* Glenview, IL: Scott, Foresman, 1983.

McDermott, Philip, Richard W. Lee, and Roger Toleman. “Recent and Future Transportation Policy Planning in New Zealand.” *Transportation Research Record*, 1606, 9-16, 1997.

McKenzie-Mohr, D. & Smith, W. *Fostering Sustainable Behavior.* Gabriola Island, BC, Canada: New Society Publishers, 1999.

Melnick, R. “Viewpoint: San Diego’s Planning Successes.” *Planning*, 63 (50), 1997.

Meyer, J.R., Kain and Wohl. *The Urban Transportation Problem*. Cambridge: Harvard University Press, 1965.

Minnesota Planning. *From Policy to Reality: Model Ordinances for Sustainable Development.* St. Paul, MN: Minnesota Planning, 2000.

Morris, Eileen. “Petaluma’s Streets are the Worst.” *Petaluma Argus*-Courier, 20 May 2001, p.4.

Morris, Eileen. “Scaled-back General Plan OK'd.” *Petaluma Argus-Courier* 6/ 20 2001.

Multari, M. “Rethinking the General Plan.” *California Planner* November/ December, 6-7, 1996.

The National Commission on Urban Problems (Douglas Commission), *Building The American City*, New York: Praeger, 1969.

Neuman, M. “Does planning need the plan?” *Journal of the American Planning Association* 64(2), 208-220, 1998.

Newman, Peter, and Jeffrey Kenworthy. *Sustainability and Cities: Overcoming Automobile Dependence.* Island Press: Washington D.C. and Covelo, CA, 1999.

Newman, Peter W.G. and Jeffrey R. Kenworthy. “Is There a Role for Physical Planners?” *Journal of the American Planning Association* 58 (3), 353-362. 1992.

Newman, Peter W.G. and Jeffrey R. Kenworthy. 1990. “Letter to the Editor.” *Journal of the American Planning Association*: 56(1) 91-93. 1990.

Newman, Peter W.G. and Jeffrey R. Kenworthy. "Gasoline Consumption and Cities." *Journal of the American Planning Association*: 55 (1) 24-37. 1989.

Office of Planning and Research, *OPR Plan Guidelines*. (n.p.,n.d.).

Ohlshansky, Robert B. "The California Environmental Quality Act and local planning." *Journal of the American Planning Association* 62 (3), 313-30, 1996.

Opschoor, Johannes B. *Environment, Economy, And Sustainable Development.* Wolters-Noordhoff, Publishers Groningen, the Netherlands, 1992.

Patton, C. V., & Sawicki, D. S. *Basic Methods of Policy Analysis and Planning,* (2nd ed.). Englewood Cliffs, NJ: Prentice Hall, 1993.

Pelt, Michiel J. F. van. *Ecological Sustainability And Project Appraisal: Case Studies In Developing Countries***.** Avebury, UK: Aldershot, 1993.

Porter, D. *Managing Growth in America's Communities*. Covelo, CA: Island Press, 1997.

Pressman, J., & Wildavsky, A. *Implementation: How Great Expectations in Washington are Dashed in Oakland.* Berkeley: University of California Press, 1973.

Reps, J. *The Making of Urban America: A History of City Planning in the United States*. Princeton, NJ: Princeton University Press, 1965.

Resolution of the City of Davis No. 01-72. *Approving the General Plan Update.* 2001.

Resource Renewal Institute (RRI). *Green Plan Primer.* San Francisco, CA: Resource Renewal Institute, 2000.

Rose-Smith, R. "New research on sustainable development: implications for urban sprawl." *Northern News, California Chapter of the American Planning Association,* 1-4, February 2000.

Roseland, M. *Toward Sustainable Communities*. Gabriola Island, BC, Canada: New Society Publishers, 1998.

San Diego Association of Governments. *Regional Growth Management Strategy*, 1995.

San Diego Association of Governments. *Region 2020 City/County Forecast: Alternatives Evaluation*, 1998.

San Diego Association of Governments. *Opening the Road to Opportunity*, 1999.

San Diego Association of Governments. *Regional Transportation Plan*, 2000. San Diego Association of Governments. *Land Use Distribution Element*. http://www.sandag.cog.ca.us/projects/regional_planning/growth_management.html, 2001.

San Diego Association of Governments. *Region2020: Smart Growth Definitions, Principles, and Designations*.http://www.sandag.org/regiona2020/definitions.pdf, 2001.

San Diego Association of Governments. *Region 2020 Scorecard*. http://www.sandag.cog.ca.us/whats_new/publications/forecast_growth/livability_report_card.pdf, 2001.

San Diego Association of Governments. *Attitudes About Transit and Ridesharing*, 2001.

San Diego Association of Governments. *Region 2020 Fact Sheet*. http://www.sandag.cog.ca.us/region2020/factsheet.pdf, 2001.

San Diego Association of Governments Work Program No. 105.14. http://www.sandag.cog.ca.us/projects.html, 2001.

San Diego Concerned Citizens for Transportation Choices Website. http://www.sdctc.org, 2001.

San Francisco Planning and Urban Research (SPUR) Association. Forty Years of Citizen Planning for San Francisco. SPUR Newsletter, 1999.

Schiffman, I. *Alternative Techniques for Managing Growth*. Berkeley, California: Institute of Governmental Studies Press, 1999.

Schön, D. *The Reflective Practitioner*. New York: Basic Books, 1983.

Sedway, P. H. "The Multari view: Provocative, useful, abdication of planner's role." *California Planner January/February*, 9, 1997.

Stake, R. E. *The Art of Case Study Research*. Thousand Oaks, CA: Sage, 1995.

Talen, E. "Do plans get implemented? A review of evaluation in planning." *Journal of Planning Literature* 10(3), 248-259, 1996.

Taylor, Brian D. "Public Perception, Fiscal Realities and Freeway Planning: the California Case." *Journal of the American Planning Association* 61, 1: 43-56.

Thompson, Clark. "Room for Compromise in Petaluma." *Press Democrat*, 3/27/01, p. B5.

Todaro, Michael P. *Economic Development in The Third World*. New York: Longman,1989.

Topping, Kenneth C. *Infrastructure and Sustainability: Building Sustainable Cities and Regions*, paper presented to the U.S.-Japan Joint Seminar on Civil Infrastructure Systems Research, Honolulu, August 27-31, 1997.

United Nations. "Agenda 21: the United Nations programme of action from Rio." New York: United Nations, 1992.

Urban Ecology, Inc. *Blueprint for a Sustainable Bay Area*. Oakland, CA: Urban Ecology, Inc., 1996.

Wackernagel, M., and Rees, W. *Our Ecological Footprint: Reducing Human Impact on the Earth.* Gabriola Island, BC, Canada: New Society Publishers, 1996.

Websters' Third New International Dictionary of the English Language, unabridged. Philip B. Grove, ed.-in-chief. Springfield, MA: G & C Merrian Co., 1969.

Wheeler, S. "Planning sustainable and livable cities." In *The City Reade,r* eds. LeGates, Richard T. and Frederic Stout (pp. 434-445). New York, NY: Routledge, 1998.

Wolman, H. L., Ford, C. C., and Hill, E. "Evaluating the success of urban success stories." Urban Studies 31(6), 835-850, 1994.

World Commission on Environment and Development (WCED). *Our common future***.** New York: Oxford Universtiy Press, 1987

World Bank**.** *Defining and Measuring Sustainability: the Biogeophysical Foundations***.** Mohan Munasinghe and Walter Shearer, ed. World Bank Washington, D.C.: Published for the United Nations University by the World Bank, 1995.

PERSONAL COMMUNICATIONS AND INTERVIEWS

Albert, Peter. Bay Area Rapid Transit, San Francisco, CA. Personal interview by Richard W. Lee, March 30, 2001.

Alumbaugh, David. Senior Planner, Plan Manager, Better Neighborhoods, San Francisco, CA. Personal interview by Richard W. Lee, April 6, 2001.

Conlon, Tom. Planning Director, City of Arcata. Personal interview by Paul Wack, March 29, 2001.

DeRobertis, Michelle. Transportation Consultant, San Francisco, CA. Personal interview by Richard W. Lee, April 27, 2001.

Forsythe, Bob. Planner II, Associate Planner, County of San Diego, e-mail communication with Suzanne M. Drolet, May 3, 2001.

David Garth, President/CEO, San Luis Obispo Chamber of Commerce. Personal interview by Lisa Wise, April 17, 2001

Ghosh, Amit. Chief, Citywide Planning, San Francisco, CA. Personal interview by Richard W. Lee, April 6, 2001.

Hauser, Dan. City Manager of Arcata, CA. Personal interview by Paul Wack, March 29, 2001.

Hodges, Hilary. City Planner, City of Arcata, CA. Personal interview by Paul Wack, March 29, 2001.

Homer, Denise. Interpretive Naturalist, Arcata Marsh Interpretive Center, Arcata, CA. Personal interview by Paul Wack, March 30, 2001.

Gregor, Carolina. Manager, Region 2020, e-mail communication with Suzanne M. Drolet, May 25, 2001.

Kohlstrand, Rebecca. Consultant and former head of Transportation Planning Section, San Francisco Planning Department. Personal interview by Richard W. Lee, March 28, 2001.

Kubani, Dean. Sustainable City Program Coordinator, Environmental Programs Division, City of Santa Monica, CA. Personal interview by Paul Wack, May 1, 2001.

Leno, Mark. Supervisor, County of San Francisco. Personal interview by Richard W. Lee, March 22, 2001.

Mandeville, John. Planning Director, San Luis Obispo (city). Personal interview by Richard W.Lee and Lisa Wise, May 29, 2001.

Pam Marshall-Heatherington, Director, ECOSLO. Personal interview by Lisa Wise, April 19, 2001

McCullough, Betsey, Planner, City of San Diego. e-mail communication to Suzanne M. Drolet, May 22, 2001.

McFetridge, Duncan. Chair, Save our Forests and Ranchlands (SOFAR). Telephone interview by Suzanne M. Drolet, May 21, 2001.

Meyer, John M. Assistant Professor, Department of Government and Politics, Humboltd State University, Arcata, CA. Personal interview by Paul Wack, March 30, 2001.

Nash, Andy. Former Executive Director, San Francisco Transportation Authority, President of the Greenbelt Alliance, San Francisco, CA. Personal interview by Richard W. Lee, March 28, 2001.

Ornelas, Bob. City Council Member of Arcata, CA. Personal interview by Paul Wack, March 30, 2001.

Ornales, Susan. Research Engineer, Schatz Energy Research Center, Humboldt State University, Arcata, CA. Personal interview by Paul Wack, March 30, 2001.

Rivasplata, Charles. Planner, San Francisco City Planning Department. Personal interview by Richard W. Lee, April 6, 2001.

Terry Sanville, Principal Transportation Planner, Public Works Department, City of San Luis Obispo. Personal interview by Lisa Wise, April 4, 2001.

Allen Settle, Mayor, City of San Luis Obispo. Personal interview by Lisa Wise, April 12, 2001

Skladizen, Rick. Director of Public Facilities, Petaluma, CA. Personal interview by Scott Duiven, April 6, 2001.

Stewart, Connie. Mayor of Arcata, CA. Personal interview by Paul Wack, March 30, 2001.

Stouder, Fred. City Manager, Petaluma, CA. Personal interview by Scott Duiven, April 6, 2001.

Topping, Ken. Former Planning Director of Los Angeles (city). Personal interview by Richard W. Lee, May 25, 2001.

Tuft, Pamela. Director of General Plan Administration, Petaluma, CA. Personal interview by Scott Duiven, April 6, 2001.

Williamson, George. Principal Planner, Planwest, Arcata, CA. Personal interview by Paul Wack, March 29, 2001.

COURT DECISIONS CITED

Associated Home Builders, etc., Inc., v City of Livermore 18 Cal 3d 582, Cal. Sup. Ct. (19766).

De Vita v. County of Napa 9 Cal 4th 763; 889 p2d 1019, Cal. Sup. Ct. (1995).

Euclid v. Ambler Realty Company 272 US 365, NY Ct. App. (1926).

Golden v Planning Board of Town of Ramapo. 30NY2D 359; 285 NE2d 291 (1972).

Lesher Communications, Inc. v. City of Walnut Creek, 52 Cal. 3d 531 at 541, Cal. Sup. Ct. (1990).

Mansfield & Sweet v Town of West Orange, Sup. Ct. N.J. 198 A 225 (1938).

O'Loane v. O'Rourke 231, Cal. App. 2d 774; 42 Cal Rptr. 283 (1965).

GENERAL PLAN SAMPLE

JURISDICTION	DATE[i]	LOCATION(S) OF PLAN	GEOGRAPHIC LOCATION	COUNTY[ii]	GROWTH RATE[iii]	POP. [iv]
Arcata		http://www.arcatacityhall.org/2020/main2020.html	Northern	Humboldt	Slow	16,500
Land Use	2000	Mineta Project Library				
Circulation	2000					
Housing	2000					
Calabasas		Cal Poly Planning Resource Center	Southern	Los Angeles	Fast	20,098
Land Use	1995					
Circulation	1995					
Housing	1995					
Camarillo		Mineta Project Library	Southern	Ventura	Fast	62,457
Land Use	1993					
Circulation	1995					
Housing	1992					
Chico		http://www.chico.ca.us/cdd/genplan/toc.html Mineta Project Library	Central	Butte	Fast	54,093
Land Use	1994					
Circulation	1994					
Housing	1992					
Clovis		Mineta Project Library	Central	Fresno	Fast	66,477
Land Use	1993					
Circulation	1993					
Housing	1993					
Davis		http://www.city.davis.ca.us/city/genplan/ Mineta Project Library	Central	Yolo	Fast	54,000
Land Use	1987					
Circulation	1993					
Housing	1993					
Fresno County			Central	Fresno	Fast	850,000
Land Use	1998	http://elib.cs.berkeley.edu/cgi-bin/display_page?page=2&elib_id=800&format=gif				

JURISDICTION	DATE[i]	LOCATION(S) OF PLAN	GEOGRAPHIC LOCATION	COUNTY[ii]	GROWTH RATE[iii]	POP. [iv]
Circulation	1993	http://elib.cs.berkeley.edu/cgi-bin/display_page?page=2&elib_id=800&format=gif				
Housing	1991	http://elib.cs.berkeley.edu/cgi-bin/display_page?page=1&format=gif&elib_id=804				
Hayward		Cal Poly Kennedy Library	Northern	Alameda	Fast	127,713
Land Use	1986					
Circulation	1998					
Housing	1991					
Imperial Beach		Cal Poly Planning Resource Center	Southern	San Diego	Slow	28,500
Land Use	1994					
Circulation	1994					
Housing	1994					
Merced City		http://elib.cs.berkeley.edu/cgi-bin/display_page?page=1&elib_id=2432&format=gif Cal Poly Kennedy Library	Central	Merced	Slow	62,799
Land Use	1997					
Circulation	1997					
Housing	1992					
Mountain View		Cal Poly Kennedy Library	Northern	Santa Clara	Slow	73,000
Land Use	1992					
Circulation	1992					
Housing	1992					
Napa City		Cal Poly Kennedy Library	Northern	Napa	Fast	68,000
Land Use	1998					
Circulation	1998					
Housing	1992					
Oakland						
Land Use	1998	Cal Poly Kennedy Library				
Circulation	1998	Cal Poly Kennedy Library				
Housing	1993	Not found				

JURISDICTION	DATE[i]	LOCATION(S) OF PLAN	GEOGRAPHIC LOCATION	COUNTY[ii]	GROWTH RATE[iii]	POP.[iv]
Pasedena			Southern	Los Angeles	Slow	137,136
Land Use	1992	http://www.ci.pasadena.ca.us/planning/deptorg/commpln g/GenPlan/gpelements.asp				
Circulation	1992	http://www.ci.pasadena.ca.us/planning/deptorg/commpln g/GenPlan/gpelements.asp				
Housing	1989	Not available on-line				
Petaluma		Mineta Project Library	Northern	Sonoma	Fast	51,688
Land Use	1987					
Circulation	1987					
Housing	1991					
Sacramento County		http://elib.cs.berkeley.edu/cgi-bin/doc_query?where-author=Sacramento&rel-author=like&where-doc_type=generalplan&rel-doc_type=equals&special=ceres&max=15	Central	Sacramento	Fast	1,160,000
Land Use	1993					
Circulation	1993					
Housing	1994					
San Diego City		http://www.ci.san-diego.ca.us/general-plan/ Updating the general plan	Southern	San Diego	Slow	1,245,281
Land Use	1992	Cal Poly Planning Resource Center				
Circulation	1985	Cal Poly Planning Resource Center				
Housing	1996	Cal Poly Planning Resource Center				
San Diego County		http://elib.cs.berkeley.edu/cgi-bin/doc_query?where-author=San_Diego&rel-author=like&where-doc_type=generalplan&rel-doc_type=equals&special=ceres&max=15	Southern	San Diego	Fast	2,800,000
Land Use	1995					

JURISDICTION	DATE[i]	LOCATION(S) OF PLAN	GEOGRAPHIC LOCATION	COUNTY[ii]	GROWTH RATE[iii]	POP. [iv]
Circulation	1994					
Housing	1999					
San Francisco		http://elib.cs.berkeley.edu/cgi-bin/doc_query?where-author=San_Francisco&rel-author=like&where-doc_type=generalplan&rel-doc_type=equals&special=ceres&max=15 Mineta Project Library	Northern	San Francisco	Slow	723,959
Land Use	none					
Circulation	1995					
Residence	1996					
Land Use	1996					
Circulation	1996					
Housing	1996					
San Jose		Mineta Project Library	Northern	Santa Clara	Fast	909,062
Land Use	1998					
Circulation	1998					
Housing	1994	Cal Poly Planning Resource Center				
San Luis Obispo City			Central	San Luis Obispo	Slow	42,863
Land Use	1994	Cal Poly Planning Resource Center				
Circulation	1994	Cal Poly Planning Resource Center				
Housing	1994	Cal Poly Planning Resource Center				
San Luis Obispo County		http://elib.cs.berkeley.edu/cgi-bin/doc_query?where-author=San_Luis_Obispo&rel-author=like&where-doc_type=generalplan&rel-doc_type=equals&special=ceres&max=15	Central	San Luis Obispo	Slow	241,598
Land Use	1980					
Circulation	1979					
Housing	1993					
Santa Clara County		Mineta Project Library	Northern	Santa Clara	Fast	1,750,000

JURISDICTION	DATE[i]	LOCATION(S) OF PLAN	GEOGRAPHIC LOCATION	COUNTY[ii]	GROWTH RATE[iii]	POP.[iv]
Land Use	1994	http://elib.cs.berkeley.edu/cgi-bin/doc_query?where-author=Santa_Clara&rel-author=like&where-doc_type=generalplan&rel-doc_type=equals&special=ceres&max=15				
Circulation	1994	http://elib.cs.berkeley.edu/cgi-bin/display_page?page=1&format=gif&elib_id=2488				
Housing	1994	http://elib.cs.berkeley.edu/cgi-bin/display_page?page=1&format=gif&elib_id=2338				
Santa Monica			Southern	Los Angeles	Slow	92,578
Land Use	1987	Cal Poly Planning Resource Center				
Circulation	1987	Cal Poly Planning Resource Center				
Housing	1998	UNABLE TO FIND ON-LINE OR IN THE RESOURCE CENTER				
Santa Cruz County		http://elib.cs.berkeley.edu/cgi-bin/display_page?page=1&elib_id=1314&format=gif	Northern	Santa Cruz	Slow	230,000
Land Use	1994	Cal Poly Kennedy Library				
Circulation	1994	Cal Poly Kennedy Library				
Housing	1994	Cal Poly Kennedy Library				
Ventura County		http://elib.cs.berkeley.edu/cgi-bin/doc_home?elib_id=872	Southern	Ventura	Slow	742,008
Land Use	1998	Cal Poly Kennedy Library				
Circulation	1994	Cal Poly Kennedy Library				
Housing	1992	Cal Poly Kennedy Library				

[i] California Governor's Office of Planning and Research. (2000). *The California Planners' Book of Lists 2000.*

[ii] Where date was not evident from Plan Document, date taken from California Governor's Office of Planning and Research. (2000). *The California Planners' Book of Lists 2000.*

[iii] Calculated from population statistics available on the California Department of Finance Website (Jan. 2001) using the following formula:

(Jan 2000 population/Jan 1990 population) ^ 0.1

Fast growing jurisdictions have an annual growth rate higher than the overall state growth rate. Slow growing jurisdictions have an annual growth rate lower than the overall state growth rate.

[iv] California Governor's Office of Planning and Research. (2000). *The California Planners' Book of Lists 2000.*

Location of Survey Respondents by Region

Region	Count	%
Bay Area/Sacramento	33	27%
Central Valley	2 4	20%
North Coast	4	3%
Central Coast	12	10%
South Coast	40	33%
Sierra	8	7%
Total	**121**	**100%**

Respondents from Cities vs. Counties

City or County	Count	%
City	108	89%
County	13	11%
Total	121	100%

Responding Jurisdictions with Sustainability Policies

Sustainability Policy	Count	%
Yes	14	12%
No	107	88%
Total	121	100%

Responding Jurisdictions that are Charter Cities

Charter City	Count	%
Yes	26	21%
No	95	79%
Total	121	100%

Sample Jurisdictions with Growth Rates
Higher or Lower than CA average

Growth Rate	Count	%
Fast Growing	51	43%
Slow Growing	67	57%
Total	118	100%

Population Size of Responding Jurisdictions

Population Size	Count	%
< 100,000	28	23%
> 100,000	92	77%
Total	120	100%

Date of Adoption of General Plan Elements in
Jurisdicitions Responding to Survey

	Land Use	%	Circulation	%	Housing	%	Open Space	%	Conservation	%	Safety	%	Noise	%
1970's	4	3%	4	3%	0	0%	6	5%	6	5%	9	8%	8	7%
1980's	28	23%	25	21%	10	8%	38	32%	39	33%	38	32%	38	32%
1990's	85	71%	90	75%	110	92%	75	63%	74	62%	72	60%	72	61%
2000's	3	3%	1	1%	0	0%	1	1%	1	1%	1	1%	1	1%
Total	120	100%	120	100%	120	100%	120	100%	120	100%	120	100%	119	100%

ABBREVIATIONS AND ACRONYMS

ABAG	Association of Bay Area Governments
AEP	Associations of Environmental Professionals
APA	American Planning Association
A & MRTA	Arcata and Mad River Transit System
ARB	Air Resources Board
CCP	Countywide Congestion Plan
CMP	Congestion Management Program
CNBG	
CPSP	Central Petaluma Specific Plan
DPT	Department of Parking and Traffic
ECOSLO	Environmental Center of San Luis Obispo County
EIR	Environmental Impact Report
FOA	Food and Agriculture Organization (of the United Nations)
GIS	Geographic Information Systems
ITE	Institute of Transportation Engineers
IUCN	International Union for Conservation of Nature and Natural Resources
LAFCO	Local Agency Formation Commission
LOS	Level of Service
LRDP	Long-Range Development Plan
LUDE	Land Use Distribution Element
MTC	Metropolitan Transportation Commission

NCTD	North County Transit District
NIMBY	Not In My Backyard
NTMP	Neighborhood Traffic Management Program
MWPRR	Northwest Pacific Railroad
OPR	Office of Planning and Research
RGMS	Regional Growth Management Strategy
SANDAG	San Diego Association of Governments
SCP	Sustainable City Program
SFGP	San Francisco General Plan
SLO	San Luis Obispo
TA	Transit Authority
TDM	Transportation Demand Management
TIDE	
TOD	Transit-Oriented Development
TSM	Transportation Systems Management
UNEP	United Nations Environment Programme
Unesco Organization	United Nations Educational, Scientific and Cultural
WCED	World Commission on Environment and Development
WWF	World Wildlife Fund

ABOUT THE AUTHORS

Principal Investigator and author Dr. Richard W. Lee, AICP, is an Assistant Professor of City and Regional Planning at California Polytechnic University at San Luis Obispo (Cal Poly). He holds a BA in History from Carleton College, a MS in Transportation Engineering from the University of California at Berkeley, and a Master of City Planning as well as a Ph.D. in City and Regional Planning, both of which were earned at UC Berkeley. He is a member of the American Institute of Certified Planners, American Planning Association, and the Chartered Institute of Transport. He formerly served on the editorial board for the Berkeley Planning Journal. Dr. Lee has also acted as a Senior Lecturer and Manager for the Graduate Diploma in Transport Planning Program, School of Resource and Environmental Planning, Massey University, New Zealand.

Research Associate Paul Wack, AICP, is an Assistant Professor of City and Regional Planning at Cal Poly. He holds a BA degree in geography from San Fernando Valley State College, a MA in Urban Geography/Urban Studies from California State University, Northridge, and a Master of Public Administration (with planning management emphasis) from the University of Southern California. He is a member of the American Institute of Certified Planners, and has served on the Santa Barbara County Planning Commission.