



SYMPOSIUM PROCEEDINGS

SPONSORED BY ARIZONA DEPARTMENT OF TRANSPORTATION

PREFACE

The Arizona Futures Symposium, which was held in Phoenix on October 27-28, 1987, represented a major departure for the Arizona Department of Transportation (ADOT) in the area of 50-year futures. Traditional long-term transportation planning has involved a 20-year time horizon to coincide with the design life of many transportation facilities. These transportation plans have generally relied on forecasts that assume a linear continuation of current trends.

This traditional approach, although necessary, has important limitations. Because we live in an age of rapid and often unexpected change and technological advancement, more sophisticated forecasting processes are needed, incorporating multiple scenarios to address the inherent uncertainty surrounding the future. Thus, effective long-term planning requires a context that is both longer (in terms of time) and broader (in terms of technology) than any that ADOT has developed in the past. This is especially important, because changes in transportation needs and systems are closely linked with social, economic, demographic and technological factors.

The Arizona Futures Symposium was designed to develop a useful demographic, socioeconomic and technological context for effective 25-year transportation planning. What we have learned from the Symposium will help ADOT as well as other planning entities to work backward from possible 50-year futures as well as forward from current trends and indicators. The Symposium represents the first step in an ongoing futures effort that will aid ADOT in its long-range planning.

ADOT views the 50-year futures project as part of a comprehensive process that includes not only the 25-year multimodal transportation plan, but also shorter-range planning and programming of specific transportation projects. These planning efforts encompass a continuum that ranges from visions of Arizona in the year 2037 to the designation of next year's projects for improving transportation facilities.

It goes without saying that any attempt to look 50 years into the future is an enterprise fraught with difficulty and uncertainty. Therefore, in organizing the Symposium, ADOT selected keynote speakers and panelists who represent a full gamut of backgrounds, areas of expertise and points of view. ADOT also strove to achieve a balance between broad visions of the future on the one hand and Arizona perspectives on the other. Our goal was to arrive at the widest possible range of future alternatives and scenarios through vigorous discussions of these diverse and often conflicting views of the future.

The Symposium was devoted to sketching some broad alternative futures and was intended to be useful and informative to planners not only in transportation, but also in other fields such as environmental planning, water resources, energy and economics. The Symposium attracted a diverse audience, including people from many different types of businesses, government agencies, and institutions. We expect that these proceedings will likewise prove to be stimulating and thought-provoking to a variety of people who share an interest in the future of Arizona and our nation.

These proceedings include the papers submitted by the four keynote futurists as well as written responses from those panelists who wished to have their remarks published in this document. These papers and responses formed the basis of the presentations delivered at the Symposium. A number of the futurists and panelists chose to further edit their written submissions prior to the publication of these proceedings.

We at ADOT hope that this document proves to be as enriching and instructive for its readers as we believe the Symposium was for those who attended.

TABLE OF CONTENTS

	Page
PREFACE	i
IMPORTANT ASPECTS OF THE NEXT 50 YEARS Anthony Downs	1
RESPONSES TO "IMPORTANT ASPECTS OF THE NEXT 50 YEARS"	5
Alberta Charney, Economist Division of Economic and Business Research, University of Arizona	5
Eben Fetters, Vice President of Planning and Research St. Joseph's Hospital and Medical Center	7
Arnold Schwalb, Director of Corporate Planning Salt River Project	9
David J. Yniguez, Executive Vice President Chicanos Por La Causa	12
TECHNOLOGY AND THE ECONOMY AFTER FIFTY YEARS Sam Cole	14
RESPONSES TO "TECHNOLOGY AND THE ECONOMY AFTER FIFTY YEARS"	41
Donald Karner, Vice President for Engineering Arizona Public Service	41
Reed D. Riner, Associate Professor Department of Anthropology, Northern Arizona University	45
A FRAMEWORK FOR THINKING ABOUT TRANSPORTATION ISSUES Robert Theobald	51
RESPONSES TO "A FRAMEWORK FOR THINKING ABOUT TRANSPORTATION ISSUES"	64
Helmut J. Frank, Editor The Energy Journal	64
Sharon B. Megdal, President MegEcon Consulting Group	66
ARIZONA: A FIFTY-YEAR FUTURE Paul Bracken	68
RESPONSES TO "ARIZONA: A FIFTY-YEAR FUTURE"	82
Elizabeth K. Burns, Professor Department of Geography, Arizona State University	82
W. Donald McTaggart, Professor Department of Geography, Arizona State University	84
Larry K. Stephenson, President-Elect Arizona Planning Association	86
Gary Woodard, Policy Analyst Division of Economic and Business Research, University of Arizona	89
ARIZONA FUTURES AS APPLIED TO TRANSPORTATION Mathew Betz, Director, Center for Advanced Research in Transportation, Arizona State University	92

ogy, I have little quarrel with his conclusions. The future is harder than ever to predict, but it also largely within our power to shape. I don't feel that, for energy at least, resource exhaustion will put constraints on our freedom of action before technology can enlarge our range of choices. This does not mean that we should continue to grow along

a "business as usual" path. The amount of environmental damage which the car with its present power plant and fuel inflicts on our cities is alone reason enough to push for major changes. All I suggest is that we not limit our options by putting unwarranted restrictions on our thinking.

**Sharon B. Megdal, President
MegEcon Consulting Group**

My assigned task was to focus on economic issues and the future carrying capacity of the State. What does carrying capacity mean? According to the Second Edition of *Webster's New World Dictionary*: Definition 1 of capacity is "the ability to contain, absorb, or receive and hold," and Definition 2 of carry is "to take from one place to another; transport, as in a vehicle." Carrying capacity, therefore, must mean the ability to transport that which needs to be taken from one place to another. Mr. Theobald really provides a framework for discussion of much more than just transportation, and most of my comments will do likewise. I will comment on some of the key issues raised by Mr. Theobald and discuss some of the difficulties in moving from abstract discussion to actual actions.

ses that one plans for the long run but always operates in the short run. A long run equilibrium is never reached because things are always changing. So, leaders will also have to be concerned with specific programs. Someone has to be. The job of leadership is becoming more difficult.

I recently heard a presentation by someone studying how the development of computer technology, which is part of the communications infrastructure, will change the structure of the corporation and lessen the need for middle management. More of the information will be readily accessible to those who are in the position(s) to make decisions. I expect that to happen to some extent in the public sector as well.

We are in the transition from the industrial era to the communications era. Leadership structures must be reconsidered. There is a need to seek new models and directions. According to Mr. Theobald, we need to move away from a "power" system, where rule is from top to bottom, to an "effective" system functioning on network lines, which is run on "sapient" (learned) authority, or competence and knowledge. The author states that there has been "...even less shift in this direction by governmental bureaucratic agencies than by corporations. One of the difficulties is that governmental career staff see the shifting winds at the top of their system as temporary and believe that they will outlast any new styles which are introduced. In fact, the inevitability of continued new politically based challenges often causes bureaucrats to gather as much power as they can so that they can maintain their personal influence systems despite the comings and goings of political appointees." I question whether there has been much change in corporate ways of doing things. Furthermore, I do not believe all bureaucrats are after power. Many bureaucrats work hard to develop modes of operation which enable them to remain effective in carrying out their duties in spite of political winds and turnover. Shifting winds are not seen as temporary - they are part and parcel of the public sector.

Communications and transportation are substitutes. Teleconferencing and facsimile transmission are just two examples of how the communications network may be used instead of the transportation network. The author notes that transportation decisions have typically been made by the public sector, while the decisions of private corporations and regulatory bodies have determined communications policy. Until almost four years ago, most of the telecommunications infrastructure was determined by one company - AT&T. Now we have an entirely different institutional structure determining the future of the network that is to provide the alternative to physical transportation of people and products. The structure is quite volatile. One judge in Washington, Judge Harold Greene, perhaps is disproportionately determinative of the development of the telecommunications network. The big question is: Can we rely on the Judge, the state and federal regulatory bodies, the companies involved, and the market to coordinate so that the communications network develops in an appropriate fashion? There are some who are quite pessimistic about the answer to this question. The infrastructure we will have in place to handle our transportation and communications needs will depend on many parties and many actions, and is not likely to be "optimal."

Mr. Theobald states that the new system will depend on leaders who are primarily concerned with encouraging others to be creative and imaginative rather than with the introduction of specific programs. I agree with that. But the decisions as to what is to be done must be made by those put in the position to do so, whether by appointment or election. Somewhere, at some point in time, programs have to be put in place. Economists teach in microeconomics cour-

To drive this last point home, I would like to quote a passage from a book entitled, *The Deal of the Century*, by Steve Coll:

Precious little in [the] history [of the Bell System breakup] ... was the product of a single coherent philosophy, or a genuine, reasoned consensus, or a farsighted public policy strategy. Rather, the

crucial decisions made in the telecommunications industry during the 1970s and early 1980s were driven by opportunism, short-term politics, ego, desperation, miscalculation, happenstance, greed, conflicting theologies and personalities, and finally, ... a perceived necessity. The point is, if anyone had emerged triumphant from that embarrassing history in how not to make public policy, it would have been a phenomenal accident. And no one did.

What will make things change so that a farsighted public policy replaces the crisis management spirit that pervades so much of government's - and the private sector's - operations? We are talking about things that require a long lead time. Shorter run problems require more immediate attention and resources. How can a community that cannot determine its carrying capacity in the short run (or does so only by default) ever find the resources to devote to longer term problem solving?

Perhaps the most important thing that can come out of a conference like this is that, in order to be successful in the longer run, we need to focus on the issues now. We should formulate the questions now and educate the public - including decision makers - on the questions and also on the future implications of current decisions. Too often we search for answers when the questions have not even been properly articulated.

A question that Mr. Theobald does not specifically address but must be addressed is the question, What level of government should have the responsibility of dealing with these issues? We live in a federal system of states, counties, cities, school districts, improvement districts, etc. Arizona is made up of many different regions, each with its own character and problems and, therefore, solutions. Most observers of demographic and economic trends point to the disappearance of the bell-shaped income distribution. Instead we will see a bimodal distribution - lots of poor and lots of well-to-do, with little in between. Will that prediction be realized? How will such an income distribution affect social and physical infrastructure requirements?

Economic conditions vary not only within counties, but also between counties. There is already a feeling within the state of the "haves" and the "have nots." Fiscal constraints are going to be no less important than they are today. In fact, they may become more severe. Many people want to experience the benefits but not incur the costs of government actions.

The author generalizes too much on the basis of Phoenix. Mr. Theobald refers to "the Valley," obviously meaning Phoenix. Well, there is more than one populated valley in Arizona; Arizona is more than the Phoenix valley. It is important that this fact be given more than lip service. I've lived in Tucson for almost nine years. I worked full-time and lived part-time in Phoenix for over one year. And I now work part-time in Flagstaff. While a member of the

Arizona Corporation Commission and a candidate for statewide office, I had the opportunity to visit many parts of the state. The lack of communication and information flow among the regions in the State is astounding. On the Navajo reservation, for example, (and I've picked probably the most extreme) there is no readily available source of up-to-date daily news from within the State. Their television is from New Mexico and the Phoenix papers do not get delivered there on a daily basis. But the issue is the same: we do not appreciate each other's problems.

It's not clear that growth should not be encouraged, as suggested in the paper. Again, we must look at the differing circumstances across the state. The rural parts of the state face problems much different from those of Phoenix and Tucson. Mr. Theobald seems to imply in discussing the State's need for farming activity that the State should be self-sufficient. I do not think that policy should develop on the presumption that Arizona will have to provide its own food products. The continuation of farming should depend on the economics of farming relative to other activities.

Some parts of the State - notably Tucson and Flagstaff - have not particularly welcomed growth. And not everybody lies about the heat in the summer to encourage growth! It's much too simplistic even to place blame on that. Many give others an accurate perception of the summer in the desert. The fact is that it is easier for many to handle the heat of the summer than the cold of the winter.

As noted above with regard to telecommunications, the challenges of developing appropriate policy for the future will necessitate cooperation among many levels of government and between the private and public sectors. I think this is a reality that must be recognized.

What can be done so that we have a chance of choosing a policy vector that leads us to a desirable future? We must recognize that we are borrowing from future generations so that we may have today. We are borrowing for things we should not be and not borrowing for things (such as building of infrastructure) that we should be. There are no easy solutions. We have difficulty solving today's problems. Management is rewarded on quarterly profits. Elected public officials are judged on what they did while in office, not on the basis of what they might have done for the very long run.

I am convinced that more resources have to go into public education on issues related to our future. There needs to be a continual effort to formulate questions and discuss issues and potential solutions. I heard Dave Taylor, Director of Planning for Tucson, cite the statistic that one-third of Tucson residents have lived there for less than five years. We are a state with much history, but few of us know it. There is lack of permanence on the part of many Arizonans. The government must look after the interests of the citizens. The commitment of resources will have to come from the government and the private sector, as both have a stake in our future.