AZTEL 2000

APRIL 1994

STRATEGIC PLAN FOR ARIZONA'S INFORMATION INFRASTRUCTURE

Prepared By:
AZTEL 2000 Task Force

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FIFE SYMINGTON
Governor

J. ELLIOTT HIBBS
Director

ARIZONA DEPARTMENT OF ADMINISTRATION
Information Services Division
1616 West Adams
Phoenix, AZ 85007

APRIL 1994

On behalf of the AZTEL 2000 Task Force and the telecommunications sub-committee, I am pleased to present the *Strategic Plan for Arizona's Information Infrastructure.* This plan was developed through a collaborative effort on the part of State, City of Phoenix, and Maricopa County governments; the Universities; and the private sector. This has been a unique opportunity to partner with information users and providers across various political boundaries. Although there are many separate networks being used, each of the participants have recognized that the concept of a common border-to-border telecommunications network can be the enabler to providing improved methods for accessing government information and services.

Telecommunications networking has become an important issue to many different groups in Arizona. This is demonstrated by the efforts of the Governor's Strategic Partnership for Economic Development (GSPED) group, the Arizona Educational and Informational Telecommunications Cooperative (AEITC), and several other groups seeking ways to improve access to information.

The sharing of ideas in AZTEL 2000 meetings has resulted in a mission, vision, goals, and objectives that illustrate a broad understanding of the information needs of Arizona. The goals and objectives have gone beyond the internally focused technical issues to create a broader perspective of service to the citizens of Arizona in applications such as education, health, and public safety. To achieve a common network, it is mandatory to have a point of focus for government to realize the ultimate benefits of technology in meeting the strategic business challenges of today.

We feel this plan will serve as the catalyst for on-going discussion and a guide for future actions to meet the challenges and opportunities posed to the governments of Arizona by the information age.

I wish to thank everyone that participated in the plan preparation and all those that took the time to complete the telecommunications surveys which provided valuable information in the development of implementation strategies.

Sincerely,

Edward V. Hatler
Chief Information Officer

Acknowledgments

This section contains a list of the individuals whose tireless efforts have resulted in the formulation of the AZTEL 2000 strategy.

J. Elliott Hibbs *Director - Department of Administration (DOA)*

Edward V. Hatler *CIO/Assistant Director DOA - Information Services Division*

Rob Olding *MIS Bureau Administrator - Department of Corrections (DOC)*

Bill Pierce *Assistant Director, Data Administration Division - Department of Economic Security (DES)*

Kathryn Kilroy *Deputy Associate Superintendent - Department of Education (DOE)*

Larry Dannenfeldt *Associate Director, Information Technical Services - Department of Health Services (DHS)*

Steve West *Computer System Manager - Legislative Council*

Gary Peet *Director, MIS - Arizona Supreme Court*

Rudy Serino *Deputy Director - DOA*

Jeff McNany *STARPAS Project Manager - Corporation Commission*

Barbera Bridgewater *Assistant Director, I.S.D. - Arizona Health Cost Care Containment System (AHCCCS)*

Rick Kleinschmidt *MIS Manager - Department of Commerce*

Manny Lerma *Director of Government Relations - US West*

John McDowell *Data Processing Manager - Department of Revenue (DOR)*

Tony Miele *Director - Library Extension Division*

Rupert Loza *Assistant Director, Data Processing - Arizona Lottery*

Jim Goodlett *Information Services Manager - Arizona Department of Transportation (ADOT)*

Janelle O'Dell *Executive Director - Arizona Educational and Informational Telecommunications Cooperative (AEITC)*

Mr. John Badal *AT&T*

Bob Ramming *Acting Assistant Director, Information Systems - Department of Public Safety (DPS)*

Mr. Alan Hald *Microage*

Dr. Larry Rapagnani *Associate Vice President for Computing and Information Technology - University of Arizona*

Mr. Donald Issacson *Ridge & Issacson, P.C.*

Mr. Steve Wheeler *Snell & Wilmer*

Richard Carlson *Assistant Director, Service Bureau - DPS*

Jan Baltzer *Director of Computing & Communications - Maricopa Community Colleges*

Art Ashton *Arizona Board of Regents*

Dr. Bill Lewis *Vice President for Information Technology - Arizona State University*

Dr Ed Groenhout *Assistant Vice President for Educational Systems Development - Northern Arizona University*

Mr. C. A. Howlett *Lewis and Roca*

Mr. Ron Trascente *Vice President - Honeywell Communications Flight Systems*

Curt Knight *Manager Carrier Services Section - DPS*

Linda Cannoli *IRM Manager - Department of Environmental Quality (DEQ)*

Pete Edgar *Data Branch Manager - Department of Game and Fish*

Bob Buse *EDP System Manager, Data Administration Division - DES*

Paul Van Gundy *IRM Manager - Industrial Commission*

Ted Kraver *Interim Information Systems Coordinator - Learning/Research/Enterprise, Inc.*

Dr. Henry Hoyt *Interim Information Systems Coordinator- Maricopa County*

Frank Secondo *Assistant Director, Administration Services - Department of Water Resources (DWR)*

Laurie Dryden *Supervisor of Licensing - Education Real Estate Department*

David McCarroll *Acting Deputy Director - Youth Treatment & Rehabilitation*

J. David Hann *Governor's Automation Oversight Committee*

John Jacobs *Governor's Automation Oversight Committee*

Dennis Kittrell *EDP Manager II - DOE*

The AZTEL 2000 Sub-Committee:

Edward V. Hatler *CIO/Assistant Director DOA - Information Services Division*

Rob Olding *MIS Bureau Administrator - DOC*

Bob Buse *EDP System Manager Administration Division - DES*

Mr. Alex Belous *Program Specialist - DOE*

John Amidon *Technical Support Manager - DOT*

John Evarts *Manager, Network Services - AHCCCS*

Curt Knight *Manager, Carrier Services Section - DPS*

Jeff Mcnany *STARPAS Project Manager - Corporation Commission*

Bruce Hensley *Administration Services Manager - AHCCCS*

Max Brawley *Information Technology Manager - City of Phoenix*

Mr. Bill Phillips *(For Lera Riley) City of Phoenix, Representing the Arizona League of Cities and Towns*

Rick Woods *Technical Support Specialist III - DOR*

Frank Gazda *Programmer Analyst - Department of Game and Fish*

Tom Young *Planning Coordinator I.S.D. - DOA*

Kathryn Kilroy *Deputy Associate Superintendent - DOE*

Barbera Bridgewater *Assistant Director I.S.D. - AHCCCS*

Dr Bill Lewis *Vice Provost for Information Technology - Arizona State University*

Dr. Henry Hoyt *Interim Information Systems Coordinator - Maricopa County*

Guy Wilson *Project Leader - DES*

Larry Beauchat *Communications Manager - DOA*

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I. Executive Summary

In the Spring of 1993, Governor Fife Symington asked the Arizona Department of Administration to "Create a common statewide telecommunications strategy...". A task force consisting of representatives of State, County, and City agencies, elected officials, and business interests was assembled under the name *AZTEL 2000*. The AZTEL 2000 Task Force held meetings, conducted surveys, studied issues, assessed strengths and weaknesses, and developed a report entitled the *Strategic Plan for Arizona's Information Infrastructure*. This report was composed with the participation of thirty-four public and private entities through the provision of recognized telecommunications and systems experts and leaders, and led by the Department of Administration.

Purpose - Scope:

"Create a common statewide telecommunications strategy" which ensures the creation of an environment to support and maintain telecommunications and systems services, including planning, acquisition, installation, maintenance, and related activities, in support of the State, County, City governments and institutions throughout Arizona.

BENEFITS:

- ✔ ***Leverage Skills and Resources***
- ✔ ***Ensure proper investment in technologies***
- ✔ ***Reduces Time to Deliver***
- ✔ ***Allows the Ability to Exploit New Methods, techniques, processes afforded by Emerging Technologies***
- ✔ ***Conservative estimates indicate a net return of about 20% of the annual Telecom Budget***

The report concludes that current and future telecommunications environments are central to the economic, social, and educational growth of the businesses and people of the State, and that the infrastructure needed to support Arizona's emerging future must be flexible, dynamic, and inclusive.

The AZTEL 2000 Task Force cites studies and critical assumptions leading to service improvements and creating an impetus toward restructuring government, developing responsive organizational structures, preparing for informational requisites, and open access.

AZTEL 2000 presents a vision of future communications systems and services, and recommends the creation of an Information Infrastructure Policy Board to coordinate and oversee the development of Arizona's telecommunications infrastructure. The report also contains a four-part series and summary of goals, objectives, and strategies, complemented by an implementation schedule.

Finally, AZTEL 2000 recommends the immediate establishment and endorsement of a project team consisting of designated specialists, many of whom are to be drawn from and supported by members of the AZTEL 2000 Task Force. A smaller group of hand-picked team members has been identified and will serve as the base-unit for an application to the National Telecommunications and Information Administration (NTIA) under the Telecommunications and Information Infrastructure Assistance Program (TIIAP). It is envisioned that the project team will function as staff for continuing AZTEL 2000 activities in planning and development, and as a bridge to a formal structure resulting from the advent of legislation authorizing the Information Infrastructure Policy Board recommended above.

II. Introduction

We live in an ever-changing information age where every decision, opportunity, or plan depends on the availability, timeliness, relevance, and accuracy of information. Currently, Arizona does not have the ability to provide this information electronically in a uniform, real-time environment, inhibiting the State's ability to compete in today's highly competitive society. Our vision for AZTEL 2000 is:

"Through cooperative efforts, Arizona's information infrastructure should provide the highest quality services and accessibility to promote cost effective, efficient, accurate, and timely information exchanges for public sector users, business partners, and citizens"

It was determined in a recent session of the AZTEL 2000 Task Force that the following critical success factors must be achieved if we are to bring the benefits of AZTEL 2000 to the State of Arizona:

- Official recognition of the network project by the Arizona legislature and the Governor.
- The authorization of a full-time AZTEL 2000 project team by the Governor.
- The benefits of AZTEL 2000 are clearly articulated for all participants (both users and providers).
- Total commitment is achieved for the development, implementation, and use of the Arizona information infrastructure.
- All users are involved in the creation, implementation, and management of Arizona's telecommunications infrastructure.
- An effective regulatory environment must be developed to promote the development of a robust information infrastructure environment.
- Technology advances are well managed and implemented.

The Gartner Group reported in the February 1994 Strategic Planning Research Note on Enterprise Network Strategies that:

"Not since AT&T's divestiture in 1984 has there been as much hyperbole and uncertainty in the telecommunications industry as that generated by the events involving Information Superhighways"

Over the past few months, virtually every major information technology, business, and general press outlet has presented their own perspective on the information superhighway.

The State of Arizona is no different. In 1992, Elliott Hibbs, Director of the Department of Administration (DOA), became associated with several different activities, all of which appeared to be addressing the same or similar issues concerning the current and future telecommunications infrastructure of the State of Arizona. These activities included:

- The Governor's State Long-term Improvement in Management (SLIM) program.
- The DOA's study of it's own telecommunications needs.
- The Governor's Science and Technology Council report on drivers for the State's economic growth.
- Governor's Strategic Partnership for Economic Development (GSPED) Activities. Because Arizona's approach to networking and communications has been fragmented in the past, many people have expressed an interest in forming some type of association to organize current efforts and to prepare for future needs and opportunities.
- Arizona Educational and Informational Telecommunications Cooperative (AEITC) Activities. AEITC is dedicated to encouraging and advancing cooperative planning, development, and implementation of educational and informational telecommunications in the State of Arizona.
- Social and economic paradigm shifts.
- Changes in computing and telecommunications technologies.
- The National Agenda, a vision of Change for America, which states that *"the development of a broad band, interactive telecommunications network linking the nation's businesses, schools, libraries, hospitals, governments, and others could pay enormous dividends".*

AZTEL 2000 PARTICIPANTS

- **Private Sector**
  - AT&T
  - U S Sprint
  - MCI
  - MicroAge
  - Honeywell
  - U S West
  - Others as required
- **State Agencies**
  - AHCCCS
  - BOARD OF REGENTS
  - DOA
  - DOC
  - DEQ
  - DES
  - DHS
  - DOE
  - DOT
  - DPS
  - Library & Archives
  - State Lottery
- **Other Agencies and Organizations**
  - League of Cities and Towns
  - City of Phoenix
  - Maricopa Community Colleges
  - AEITC
  - Maricopa County
  - MAG
  - GAOC
  - ACC
  - GSPED
  - State CIO Council
  - Courts
  - Attorney General's Office
  - ASU
  - U of A
  - NAU

Armed with this knowledge, the Department Of Administration drafted an Executive Order for a Government Telecommunications Task Force and delivered it to the Governor's office for consideration.

Arizona's current telecommunications infrastructure consists of redundant systems, data, and information; technical inconsistencies; and limited integrated telecommunications. This results in an inability to maintain or increase our competitive edge in today's highly technical environment. A collection of non-integrated systems without (1) the means for cost effective, centrally managed administration, and (2) the ability to integrate or consolidate costs and resources, cannot be restructured without a tremendous amount of planning, discipline, and teamwork. Even though the problem has implications for a multitude of areas of business and technology, the AZTEL 2000 Task Force was organized and has dedicated itself to the area of improved state-of-the-art telecommunications.

Considerations:

- *Stakeholders*
- *On-going governing and oversight responsibility(ies)*
- *Business requirements and the ability to integrate same*
- *Quantifiable benefits*
- *Connectivity & operational implications of shared services*
- *Strategic and tactical investment strategies*
- *Available resources on current needs assessment(s)*
- *Operation, maintenance, and enhancements during transition*
- *On-going funding for operation, maintenance, and enhancements*
- *Ability to re-invest savings to make this a self-funding effort*
- *Authority for initiation, implementation, operation, and funding*

In this day and age, the information infrastructure is critical to the functioning of a modern society. As in other modern economies, the competitive survival of Arizona's business and work force depends on both the flow of information and the infrastructure that controls that information within the State. Critical services such as government, education, manufacturing, agriculture, financial services, transportation, wholesale and retail commerce, and utilities are all becoming increasingly dependent on telecommunications for cost effective administration.

Social, economic, and technical issues are driving the State of Arizona into a collaborative approach for addressing this new paradigm shift. Arizona entities, both public and private, can accelerate the use of time-saving, productivity-boosting, distance-spanning information technologies for Arizona's people, communities, and the private sector. This can create, maintain, and enhance the economic development of Arizona, as well as adopt a strategic information infrastructure that moves information within and, where appropriate, to and from the State.

As with other states, the drivers promoting the need for this type of activity within Arizona are:

- Enhanced global competitive advantage for our business clusters
- Rapid development of quality jobs
- Environmental, family, and business benefits from telecommuting
- Support of our telecommunications enterprises in the global marketplace
- Readily available government services
- Enhanced access to health care
- Improved public safety and emergency care
- Improved life-long education
- Improved economic well-being
- North American Free Trade Agreement (NAFTA) data link for expanded commerce
- Improved government cost, efficiency, and effectiveness
- A balance between information access and individual privacy
- Timely, efficient, and cost-effective introduction to and use of appropriate emerging technologies
- Affordable telecommunications services
- Increased choices in telecommunications and information services

Key Infrastructure Assumptions

The following list shows the key AZTEL 2000 infrastructure assumptions for Arizona's telecommunications infrastructure:

- It must meet, or be able to evolve to meet, all or the majority of telecommunication requirements of the State, County, and City agencies and institutions. When fully implemented, it must provide appropriate standards to interconnect and provide access to host computers across agencies.
- Implementation should take advantage of existing equipment and networks to minimize costs (for example, the fiber ring on the Capitol Mall known as MAGNET).
- It will be "open" and, whenever feasible, based on recognized industry standards such as ANSI, ISO, and OSF.
- It must be flexible. The network must provide flexibility to expand and/or contract easily and economically to accommodate new applications when required.

- It must employ appropriate measures to protect the confidentiality and integrity of information. Additionally, it must include a disciplined plan for business continuation in the event of a local, regional, or national disaster.
- It should use proven technology and, more importantly, the infrastructure should evolve to encompass emerging technology where appropriate without rendering significant portions of existing environments obsolete.
- Implementation of the infrastructure should be accomplished with strict coordination between the service providers and the end users to minimize the impact of service interruption.
- Policy and infrastructure alone, without adequate applications to make use of the infrastructure, could result in facilities that are unused, inappropriate, or too expensive for Arizona's needs. Coupling a drive for improved infrastructure with concurrent development of key strategic applications can ensure that the desired benefits are achieved. Examples are:
  - Distance learning
  - Health service delivery
  - Public safety
  - State and local government networking
  - Data-link to trade and commerce data bases (intra and inter State/country)
  - Public access to State, County, and City government

To meet the tactical and strategic objectives mandated by the Stakeholders for improving the State's information infrastructure, a Telecommunications Strategy Planning project was formed with a Task Force made up of both public and private participants.

The AZTEL 2000 Task Team, identified in the August 1993 Task Force meeting, provided the direction and advice to participants, and acted as an oversight body for the strategic development and use of Arizona's telecommunications infrastructure. The management and operational style utilized throughout this effort was in a team oriented, quality guided approach based on the principles of Total Quality Management (TQM). The Task Force provided the following:

- The development of a vision, mission, plans, and implementation strategies, which require further development of policies, standards, and designs.
- Encouraged partnerships between State agencies, Cities, Counties, education K-12, universities, community colleges, and the private sector on the development of goals, objectives, and strategies for the effective use of communication technologies.
- The procurement of project support services systems, personnel, and facilities.
- A needs assessment on the existing telecommunication systems and the integration with other state and local government systems, and public-private partnerships.
- The recognition of a "Best of Breed" from other organizations addressing similar activities, and the identification of emerging technologies as they become available.

As with all major activities, there are issues and considerations that must be addressed throughout the life of the project. In the AZTEL 2000 project, we identified several key issues, each with unique subtitles that must be satisfied prior to the completion and final implementation of Arizona's telecommunications infrastructure. This document contains some of the key issues that are currently being considered as part of the implementation of the AZTEL 2000 initiative. Some of these strategies can be implemented immediately, while others may take years. The majority will be somewhere in the middle.

III. Current Environment

This section addresses some of the problems we currently face in Arizona's existing telecommunications environment. This section also contains a summary of the survey conducted by the AZTEL 2000 committee, which was used to produce a snapshot of Arizona's current networking environment so that an accurate analysis of Arizona's future telecommunications requirements could be produced.

Problem Statement

Currently, there are a wide variety of different networking technologies operating within Arizona's public and private sectors, with the majority functioning as independent operators.

PROBLEM STATEMENT:

- ***Redundant systems***
- ***Technical inconsistencies abounding***
- ***Duplicity of data and information***
- ***Limited integrated telecommunications***
- ***Inability to maintain or increase competitive edge***
- ***Business and organizational inconsistencies***

Duplication of costs, networking administration, and resources is common place. The AZTEL 2000 Task Force participants have conservatively estimated that the total annual expenditures for telecommunications by all State and local government agencies will be $100,000,000.00. Assessing the current state of telecommunications in Arizona is a difficult task because there is no existing infrastructure to support a universal base for networking applications, functionality, and understanding.

All of these factors demonstrate Arizona's need for adopting a uniform approach to the application, functionality, administration, and understanding of telecommunications.

Key Issues

Today, there are many issues that exist within State and local government concerning Arizona's current and future telecommunications requirements. The majority of these issues deal with the reasons why Arizona's State, County and City governments have not aggressively embraced telecommunications as a viable alternative for the uniform management of information resources.

The AZTEL 2000 committee has identified the following 10 major issues:

1. *A lack of understanding of the need for a statewide network.*
   - What is it?
   - Who will use it?
   - What will they use it for?
   - How will it benefit my community?
2. *A lack of commitment by government to make a statewide network a reality.*

   Commitment is critical to the success of any level of implementation of the AZTEL 2000 plan. Commitment from the leadership of the State, Counties, and Cities is essential to guarantee the success of this project.
3. *The lack of an effective funding plan for a statewide network.*

   This implies a requirement for a coordinated effort, blending the need for public and private funding.
4. *The lack of a public and private Information Policy Board for the development of a statewide networking policy.*

   This Board should be appointed by the Governor with the consent of the State Legislature. Membership should include public and private users, developers, and providers whose main responsibility will be setting Arizona's telecommunications information infrastructure and security policies.
5. *The lack of a single voice for the development of a statewide network.*

   This should include the public and private sectors and the citizens, should be recognized by all parties statewide, and should have continuous, ongoing funding.
6. *The lack of a single point of responsibility for a statewide network.*

   The appointment of a full-time staff is needed to refine and implement the AZTEL 2000 strategic plan for Arizona's telecommunication infrastructure. Responsibility for this action needs to be established by the Governor so that many of the inter-agency issues can be addressed and resolved by a permanent, established point of responsibility.
7. *The lack of a robust telecommunications infrastructure to support statewide networking.*

   The major telecommunications infrastructure provider is US West. They have publicly declared that they are selling 10 of their central offices because they are too costly to maintain.

They have also declared that they are not investing in Arizona at this time because their annual return on investment is only 3 to 4 %. The Arizona Corporation Commission and US West do not agree on this assessment. Arizona needs to have a robust infrastructure to implement AZTEL 2000, so this impasse needs to be resolved.

8. *The lack of defined needs and applications for private sector participation in a statewide network.*

   What type of services would make the private sector want to participate? There must be some value added to the network provided by the private sector.

9. *The inability to reach all Arizona citizens.*

   The major issue in Washington on the National Information Infrastructure initiative is the ubiquitous access to the information superhighway by all citizens (avoiding the creation of information "haves" and "have nots"). Unless this issue is addressed, roadblocks will appear everywhere as we begin to implement a telecommunications infrastructure. Where will rural citizens access services, from State-provided centers or from their homes?

10. *The lack of a single statewide utility.*

    Few agency or institution leaders understand networking beyond the commonly used buzz words. Leadership must be capable of living beyond the next election. The Regional Bell Operating Company (RBOC) influence is far too strong, creating cited legislation. The State needs a switching center where everyone can meet, including the major telecommunications carriers.

The AZTEL 2000 Information Survey

In an attempt to get a picture of both the current status of networking within the State of Arizona and an idea of Arizona's future telecommunications requirements, the AZTEL 2000 committee conducted a survey of the following public institutions:

- State agencies
- County governments
- City governments
- Libraries
- Universities
- Community colleges
- K-12 schools

Two survey documents were developed. The first survey was designed to capture the current status of networking within the State of Arizona. The results of this survey are summarized in **Table 2, 3, 4, 5,** and **6** in *Appendix: AZTEL 2000 Survey Results.*

The second part of the survey referenced future network activity that was either planned or desired, and the results of this survey are summarized in **Table 1** in section *IV. Future Environment.*

What the Survey Data Shows

- **Table 1** contains the results of the Futures portion of the survey, which gives a good indication of the kind of networking applications the survey respondents would like to purchase in the future. When asked why they have not yet acquired one or more of these applications, the majority of respondents indicated a lack of funding as the major barrier to expanding their current networks. Many of the respondents also expressed a strong desire to connect to the proposed Arizona telecommunications network to reduce costs, gain access to more applications, and consolidate resource management responsibilities.
- **Table 2** summarizes the resource surveys that were distributed. Only 6.6% of the surveys were returned due to a combination of various factors, including the complexity of the survey material, the time involved in researching the survey questions, and the failure to perceive the importance of the survey to the future of Arizona. The lowest response rate came from the K-12 schools because most of these schools have no networking capabilities, which inhibits their ability to exchange information and educational materials with other learning institutions. Currently, the quality and availability of educational technologies is proportionately tied to the tax base for most rural areas. Providing these areas with access to a cost effective, centrally managed telecommunications network would go a long way in eliminating this problem.
- **Table 3** contains a summary of the current networking circuit capacity for the State. This table shows that the vast majority of circuits originate in the metropolitan Phoenix area, while the rest of the State has little or no networking capabilities. The main factors driving this situation are a lack of available funding and access to cost effective, centrally managed telecommunications technology. This is significant, because it illustrates the need for a uniform statewide telecommunications infrastructure that can serve the entire State.

- **Table 4** is a list of the organizations that responded to the surveys and is included in this document to acknowledge their participation in this effort.
- **Table 5** lists the network protocols used by the respondents and the concerns they have regarding their current networks. This table shows that 18 different network protocols are currently being used by the various respondents. The divergence in protocols is a significant illustration of the individual approaches to resolving specific telecommunications requirements. This approach may adequately serve each individual organization, but it also illustrates a redundancy in applications and information resources and cost, and ignores the concept of inter-network compatibility, data exchange, and centralized, cost effective resource management.
- **Table 6** is the heart of the data received in the surveys. It lists the number and capacity of the various circuits reported between locations in the State. It also includes data on the current funding levels that some agencies are devoting to communications circuits. The significance of the data contained in this table lies in the individual monthly line and equipment costs. These statistics show that the metropolitan areas employ most of the technology and absorb most of the administration and application costs, while the rural areas are lagging far behind in every category. The disparity in usage, access, equipment, and costs illustrates Arizona's current non-unified, non-centralized approach to networking.

The Need for a Statewide Network

As we enter the information age and the trend of having to do more with less continues, coupled with the growing need for information, change is inevitable. As NAFTA becomes a reality, we must exploit our technological advantage to maintain our economic competitiveness. The Federal National Information Infrastructure (NII) initiative has heightened the awareness of the citizens of Arizona toward the potential value of access to information in our lives. Avoiding the creation of two classes of citizens, the information "haves" and "have nots", is critical. The disappointing attitude of our primary common carrier's willingness to invest in Arizona is obvious. The need to do more resource sharing among State agencies while avoiding duplication of effort is easy to see.

As State agencies embark for the first time on a common State IRM Plan, the reduction of duplicated services will be possible. As the State takes more steps to reduce environmental pollution in the metropolitan areas, the need for telecommuting and video to reduce travel and improve the quality of life will become more critical.

This section lists many reasons why the State needs to establish a comprehensive program to provide equal access to the information superhighway for the citizens of Arizona. However, this is only a sampling of the reasons to have a statewide telecommunications program.

This network effort will become a reality only if a significant commitment is made by the State, including the Governor, the Legislature, the private industry, and the individual citizen.

IV. Future Environment

This section describes the results of the Futures survey conducted by the AZTEL 2000 Committee on Arizona's future telecommunications requirements. It also addresses some of the ways Arizona can benefit from the implementation of a uniform statewide telecommunications network.

Future Communications Requirements

A review of the data reported in the Futures survey indicates that there is a large demand for information technology services. One of the questions asked was what functionality do you plan to add in the next 12, 24, and 48 months. There were 59 respondents that completed the Futures portion of the survey and their responses are tabulated in **Table 1**.

TABLE 1: FUTURES SURVEY

Application Area	Number Wanting Service
ATM	9
Smart Card	9
Kiosks	13
Point of Sale	14
CATV	15
Mobile Access	21
Video	22
GIS	23
Voice Processing	24
Teleconferencing	30
WAN	38
Imaging	39
LAN	40
E-Mail	52

All of the respondents stated their overall commitment to acquiring some form of telecommunications technology. They expressed a key interest in such applications as E-MAIL, local area networks (LANs), wide area networks (WANs), Imaging, and Teleconferencing. Interoperability, connection to the Internet, and access to data were all stressed as important concepts that were driving their telecommunications futures. The single most important inhibiting factor in determining the deployment of these future services was budget, while the lack of technology was never considered a roadblock to progress.

The functionality areas identified in the Futures survey are very similar to those expressed in the Vision 2004 document prepared by the Arizona Judicial System in June of 1993.

The respondents to our survey referenced the features addressed in this document, such as electronic surveillance monitoring and screening, identification technologies, and artificial intelligence as additions to the list of services they would like to have available in the future.

In the fall of 1993, the State CIO Council prepared a Strategic Plan for Information Resource Management (IRM) 1994-1999. This plan calls for the creation of a statewide information architecture and addressed six goals, of which the second and third goals are:

- Provide universal access to statewide information, limited only by privacy requirements.
- Provide optimum service delivery to the agencies and the public.

The passage of NAFTA is bringing additional demands for information infrastructure resources with the increased complexity of having to cross state boundaries and associated Local Access Transport Area (LATA) restrictions, national boundaries, and a whole new class of political and technical problems. In Arizona, the information superhighway is critical to our plans for NAFTA. Just as the interstate highway system has played a critical role in traditional commerce, the information superhighway will play a major part in electronic commerce.

The State of Arizona must ensure that it is not bypassed by the information superhighway as it is developed. Just as those communities that suffered, and in many instances died, as a result of being bypassed by the Interstate highway system in the past, Arizona also runs the risk of being bypassed if it does not ensure participation in the information superhighway plans for the future.

V. Restructuring Government With New Technology

Understanding the telecommunications plans and directions of the private sector and other governmental entities is essential to enhancing future compatibility with Arizona's strategic telecommunications infrastructure plan. The purpose of this section is to identify the compelling issues of Federal, state, and local governments and their associated strategic directions.

Citizens and business want more service and better results from their government. However, the costs of public programs are more than most citizens are willing to pay. Information technology that delivers better public services, while still covering its own costs, should be considered an investment in the future.

By using technology to re-engineer and improve government processes, the potential for saving time, money, and other resources could be realized by Federal, State (agencies and higher education institutions) and local (counties, cities, schools, and libraries) governments, the private sector, information brokers, and citizens.

The current President's administration has taken a bold step in establishing a National Information Infrastructure (NII) that is designed to change the way the American people communicate and do business. The idea behind the digital superhighway is to link universities, businesses, and private homes. The telecommunications highway will link the nation's burgeoning population of computers.

During the past four decades, the Federal government has amassed a collection of research information in 650 separate laboratories. Now the administration wants to make the information available to small and midsize U.S. businesses in an ongoing exercise in technology transfer to enable smaller companies to compete globally.

State Government Experiences

As a result of Federal policy, it is apparent that state governments are being asked to provide increased services to their citizens without increasing spending. Improving the utilization of state resources (human or technological) is becoming critical in an environment of increased emphasis on fiscal accountability.

The states have turned to Information Resource Management (IRM) and, particularly, investment in information technologies, as both a resource and tool for providing better service. This trend reflects the increasing importance on IRM and, specifically, telecommunications as a strategic tool. States already utilize extensive telecommunications resources in different agencies and applications, ranging from revenue collection and health and human services, to law enforcement and the courts. It is through the use of telecommunications that the states have been able to bring services closer to their citizens.

A practice that has placed an increased burden on telecommunications services is the trend toward distributed processing. This technology has resulted in the placement of functionality at the desktop as opposed to a centralized computer facility. The client/server model approach and use of relational databases have made the desktop workstation requirements increasingly significant with an increased demand for bandwidth.

There has also been an increased emphasis on open systems in both Federal and state government. The idea behind open systems is to ensure interoperability between multiple vendors and heterogeneous environments, which facilitates information exchange and interoperability. This has resulted in a set of specifications for open systems called Government Open Systems Interconnection Profile (GOSIP), which was mandated at the Federal level for acquisition of information resources.

To accommodate the changes in computing, the volume of data traffic is increasing at a rapid rate. It is estimated that data traffic will surpass voice traffic by the year 2000 as a result of new and advanced applications. In a Federal GSA study released in mid-1989, a six-fold increase in the government' s long-term data communications requirements is projected by the year 2000. This study projected agency intercity data traffic rising from 46,000 to 159,000 gigabytes (billions of characters) per month in 1995 for an average annual growth rate of 23 percent.

Regulation Continues To Be An Issue

Regulation of some of the telecommunications services has continued to cause problems for the acquisition of products and services to meet government requirements. In the vendor provided proposals received as a result of the AZTEL 2000 Request for Information, most of the vendors identified regulation as a barrier to future communications networking.

Budget Issues

State governments are spending about $20 billion per year on information resources that are beginning to be viewed as strategic assets. For most of the states responding to a recent National Association of State Information Resource Executives (NASIRE) survey, the IRM budget represented about one to two percent of the total state budget, with only two states exceeding four percent. The average communications expenditure is about 15.2 percent of the IRM budget, with the full spectrum of expenditures ranging from a minimum of 2.6 to 38 percent. All states have taken steps to contain expenditures in different ways. These steps include acquisition and implementation of private networks, purchase of station equipment as opposed to leasing, and centralized planning, procurement, and design.

The consolidation of various administrative functions, while making the functionality available through networking and telecommunications, also appears to be high on the list for cost-control purposes.

Organization Structure

In some states, telecommunications responsibilities have been fragmented among individual organizations. As a result, multiple entities were involved in the decision-making process, thus making overall coordination from a state's perspective extremely difficult.

Changes have been precipitated at the organizational level to better respond to the present environment. A large number of state governments have undergone reorganization during the past three years for reasons of increased efficiency, better policy coordination, and cost containment. Information resource and telecommunications are either part of the same organization, or report to a larger entity to ensure coordination at a policy level. To support this process, a significant number of states have an IRM oversight commission, and approximately three-fourths of the states have a Chief Information Officer (CIO). Of the states responding to the NASIRE survey, most have dedicated organizations providing telecommunications services.

There is a trend toward the integration of voice and data functions within the organizations generally involved with all aspects of the functional areas of support, such as network operations and control, long-range planning, network design, request for proposals and bid preparation, and vendor selection.

Primary Telecommunications Issues

Faced with a slow and anemic economy, the states have limited resources for providing telecommunications services. This, coupled with additional constraints, especially in the areas of funding for training and personnel development, causes the states to look at technologies having the biggest payoff in terms of employee productivity.

One such area is office automation. Communication tools, such as facsimile machines (FAX), electronic mail (E-Mail), voice mail (V-Mail), and audio and video teleconferencing systems have appeared in most aspects of state government planning.

Despite all the issues, most states are looking forward and have become involved in some innovative activities to improve the services they provide. *They are trying to understand the business needs first and then trying to apply technology to meet those requirements.* They also understand that technology alone will not resolve the issues confronting them and, to a great extent, may be the cause of the confusion, fueled by different vendors promoting their own products as cure-alls. States need to take both a coordinated view and a cohesive approach to ensure that the different technologies, policies, and standards fit together in a harmonious manner.

There are a number of telecommunications initiatives being pursued by almost all states, including:

- **Interactive Voice Response** - This technology offers improved service and productivity in a cost effective manner by allowing the citizens access to data using their telephone while providing state agencies with a means of collecting information. The technology is presently being employed in several states for applications such as automated student registration, health and human service information, drivers license and vehicle registration information.
- **Telecommuting** - Projects are being implemented in several states on a pilot basis. Telecommuting is being used extensively in California to improve employee productivity and employee quality of work-life after the recent earthquakes.
- **Kiosks** - As a part of multimedia research and development projects, states are investigating the use of various forms of kiosk services to provide the public access to state agency information.
- **Geographic Information System** - This technology, incorporating both image technology and textual information, offers great potential for the management of the environment, with applications in management of natural resources and transportation. This has tremendous implications in terms of increased transmission bandwidth requirements to the desktop.
- **Video teleconferencing** - This technology holds great promise for applications in several areas within State government. These include a reduction in travel in areas such as court systems and hearings from correctional facilities.
- **Charge back strategies** - States are adopting charge back strategies for services considered above and beyond the basic level of services required by the average citizen. The states are also looking into simple charge back mechanisms to bill for those services and guarantee payment. One such charge back mechanism under consideration is a business partnership with the local telephone operating company through the use of a 900-type service.
- **Open access** - Access to public information held by government entities is a major issue when new technologies are implemented. While there are confidentiality concerns for some data, citizens have a basic right of access to information held by government.

VI. Vision for Arizona's Future Communications Services

This section describes the AZTEL 2000 vision for Arizona's communications services and the benefits to the State of Arizona and its citizens through the implementation of this vision.

The telecommunications environment envisioned through the goals and objectives defined for AZTEL 2000 is represented in the figure on the following page, and as can be seen, is a radical departure from today's situation. The AZTEL 2000 project will foster the use of telecommunications to improve the efficiency of government, education, and medical care, and make these services more available and affordable. The AZTEL 2000 role in the telecommunications future of Arizona as developed by the AZTEL 2000 Task Force is contained in the vision and mission statements.

Vision Statement:

"Through cooperative efforts, Arizona's telecommunications infrastructure provides the highest quality services and accessibility to promote cost effective, efficient, accurate, and timely information exchanges for public sector users, business partners, and citizens."

Mission Statement:

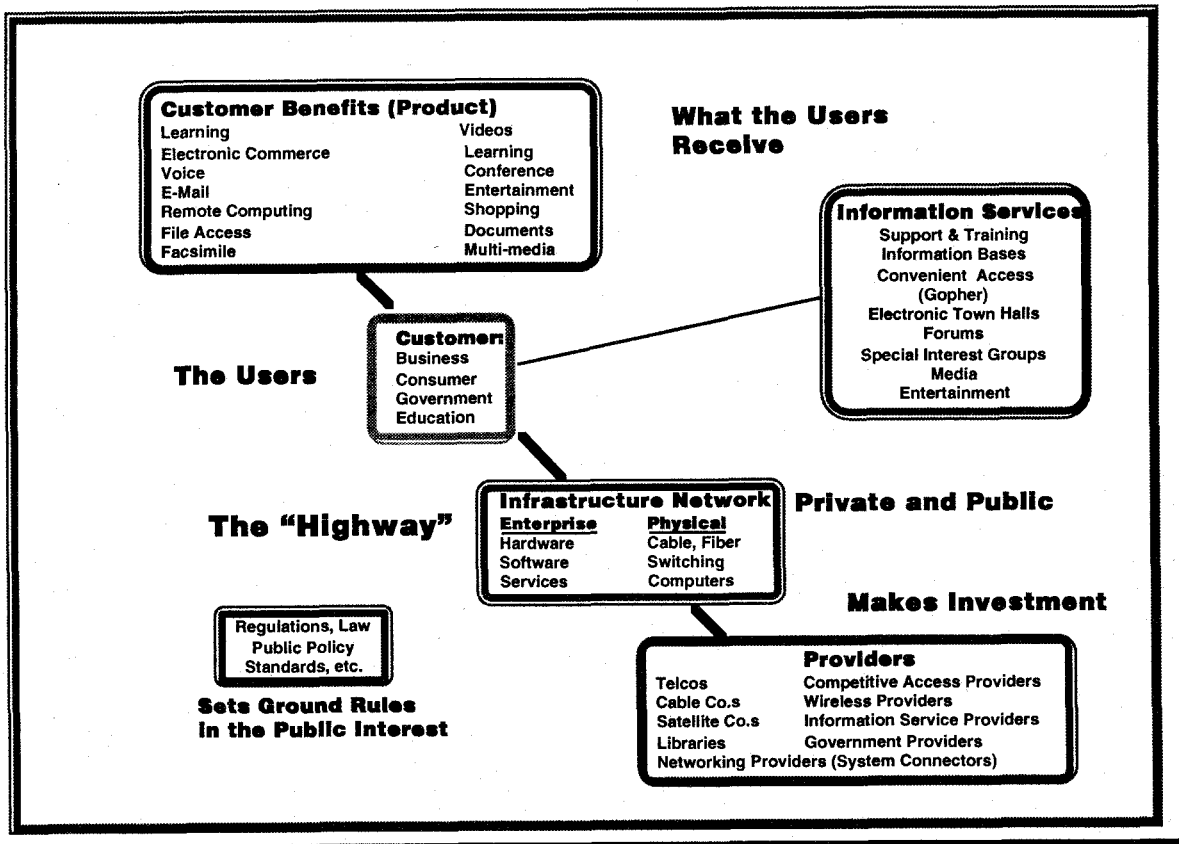
"AZTEL 2000 will implement a statewide telecommunications network with the capability of supporting a wide range of services. The network will be a cooperative partnership among government entities at all levels, private business, and network service providers. It will also have the capabilities of providing an expanding range of services to government, business, and the general public at an affordable cost to the taxpayers of Arizona"

Benefits:

The implementation of AZTEL 2000 would provide the modern technology base necessary for Arizona to participate in the information age and be competitive by the year 2000. Specific benefits would be social as well as economic and tangible as well as intangible. Some of the most important benefits are:

1. Money savings resulting from the consolidation of redundant networks and lower costs for new services based on potential partnerships.
2. Economic development in the State would increase with a modern, extensive, and competitively priced telecommunications infrastructure to attract business and jobs.
3. The efficiency of government would be increased as network connectivity among agencies allowed faster and more accurate work flow processes.
4. Access to government would be improved as the capability for businesses and citizens to obtain information and conduct business over the network would be provided.
5. Educational opportunities would be enhanced as schools and libraries throughout Arizona would be networked together and to other learning centers worldwide.
6. The basis for improved, lower cost medical care would be provided as networked hospitals, doctors, and other primary care providers could do improved diagnoses and more efficient scheduling of patients. Training and public health initiatives would be expanded and supported at lower cost, and billing to insurers could be done faster, more accurately, and with less paper work.
7. The concept of universal access would be enhanced as the network would reach rural areas and provide access for citizens at public facilities.

Arizona Information Infrastructure Framework



VII. Organizational Structure

This section describes the proposal drafted by the AZTEL 2000 Task Force for the organizational structure of Arizona's telecommunications infrastructure. The model for this proposal was based on the analyses performed by other states on the most efficient ways to administer their telecommunications resources.

The initial step in building the organizational structure is to create an Information Infrastructure Policy Board, as discussed below and represented in the organizational chart following this section. The Board would interact with a number of other key user committees to help formulate and direct the development of Arizona's telecommunications infrastructure.

Responsibilities of the Information Infrastructure Policy Board should include, but not be limited to:

1. Developing the Arizona Telecommunications Master Plan through consultation with telecommunications network customers and with advice from the State Chief Information Officer (CIO). The plan should provide for the coordination of many different information technologies to ensure that interoperability is met.
2. Establishing telecommunications policies, guidelines, and standards for management of telecommunications transport services, networks, and facilities.
3. Reviewing, assessing, and ensuring compliance with Federal and State telecommunications regulations governing the needs and functions of network customers for telecommunications transport services.
4. Advising the Governor and the State Legislature on telecommunications matters.
5. Representing the needs and interests of telecommunications customers in the proceedings before the Arizona Corporation Commission, the Federal communications commission, and other governmental regulatory agencies as appropriate.
6. Approving an annual operational budget and fee structure.
7. Developing and submitting an annual report to the Governor, State Legislature, and Director of the Department Of Administration.
8. Establishing and promulgating rules and regulations governing the use and funding of the telecommunications services, equipment, software, and networks associated with Arizona's telecommunications infrastructure.

Responsibilities of the Service Provider User Committee should include, but not be limited to:

1. Administering the approved Arizona Telecommunications Master Plan and coordinating the telecommunications transport service network.
2. Reviewing all existing and future telecommunications planning, networks, systems, and programs to make recommendations to the Information Infrastructure Policy Board.
3. As appropriate, coordinating the acquisition of compatible telecommunications equipment, software, and licenses for telecommunications transport service networks with all customers.
4. Coordinating telecommunications network training.
5. Recommending the telecommunications fee structure and budget to the Board and administer approved budgets.
6. Implementing and monitoring all policies and standards approved by the Board.
7. Functioning as an information clearing house, ensuring that all participants have access to information.

Responsibilities of all other User Committees should include, but not be limited to:

1. Providing annual network requirements to the Service Provider User Committee for planning purposes.
2. Developing applications and programs consistent with policies and standards adopted by the Board.
3. Submitting recommended changes to policies and standards to the Board.

The Information Infrastructure Policy Board should consist of nine members appointed by the Governor with the consent of the State Senate.

The Board members should be appointed to ensure a broad and balanced representation of providers, developers, and consumers of information technology. The following is a suggested list of professional areas from which representatives could be selected. This list may be condensed or modified during the Board selection process.

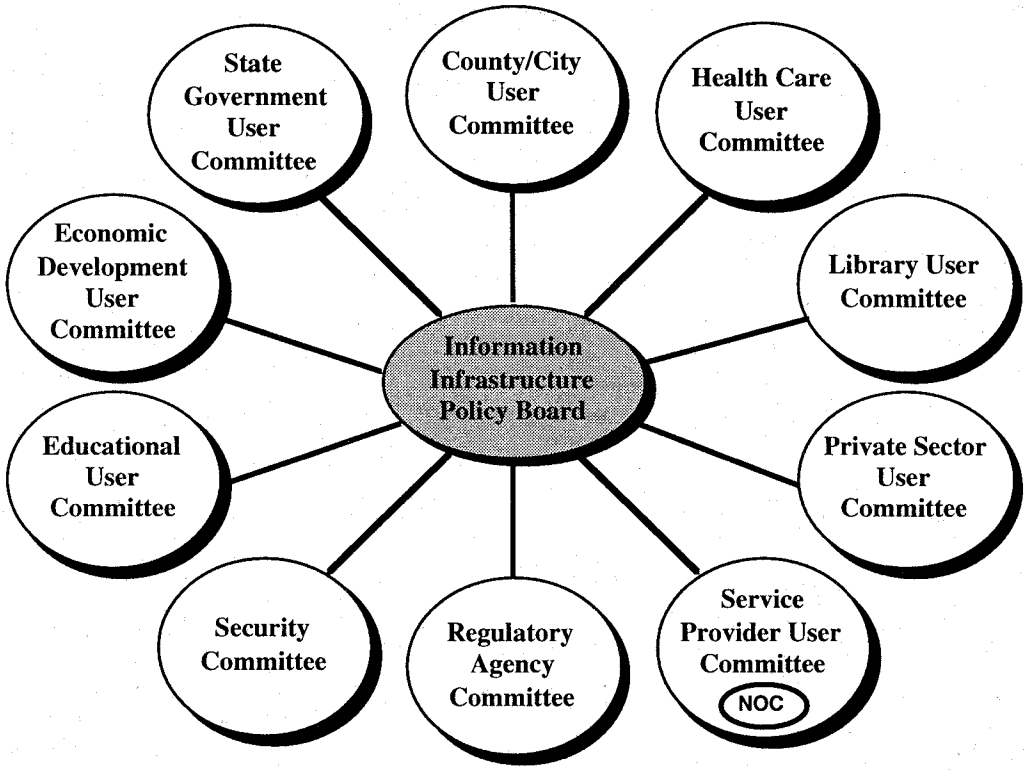
- State, County, and City governments
- Education
- Human services
- Business
- Information processing technology

- Telecommunications
- Finance
- Commerce and trade
- Corporate management
- Library and information sciences
- Marketing

Annual elections should be held among the Board members to fill the positions of Chairman and Vice-chairman. The Board should also have a paid Executive Director and an Administrative Assistant.

The Board will appoint subcommittees or establish working relationships with existing groups to ensure that members of the information community have a forum to express their views. These committees should include at least one member of the Board to monitor the proceedings and provide relevant information back to the Board for decision making analysis.

Organizational Chart: Arizona Information Infrastructure Policy Board



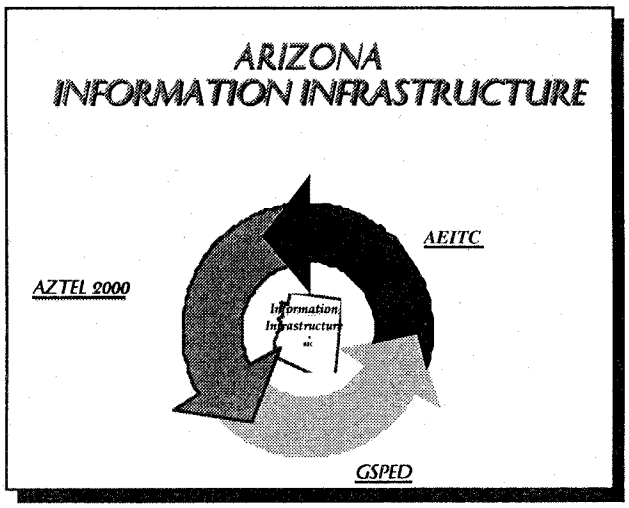
VIII. The AZTEL 2000 Direction: Goals, Objectives, & Strategies

This section describes the goals, objectives, and strategies that make up the vision for AZTEL 2000.

Part A. Development of Goals, Objectives, and Strategies

1. Literature Review

In order to develop a comprehensive set of goals, objectives, and strategies for the Arizona project, the AZTEL 2000 Task Force reviewed and analyzed a number of statewide plans, studies, and reports from organizations engaged in similar activities (a) within other states, and (b) at the national level. Task force members discussed the content of such plans with representatives from these states to clarify information and identify issues. This information included, but was not limited to, materials received from the states of Idaho, Texas, Georgia, California, Kansas, New Mexico, Oregon, and Washington.



Information distributed at the national level, such as publications, meeting notes, plan evaluations, and newspaper articles, were also reviewed and analyzed for relevant content. These materials were obtained from sources such as the National Telecommunications Information Administration (NTIA), National Science Foundation (NSF), U.S. Department of Commerce, National Governor's Association (NGA), National Association of State Telecommunications Directors (NASTD), and the Gartner Group, as well as from newspapers from across the country. In addition, relevant materials produced within Arizona at various levels of government (i.e., State, County, City) and by telecommunications organizations (for example, AEITC, telecommunications carriers and service providers) were reviewed and analyzed prior to finalizing goals, objectives, and strategies for Arizona's statewide effort. The Task Force met with representatives from AEITC and GSPED to discuss strategic goals and objectives to better meet the needs of the constituents represented by these organizations.

The AZTEL 2000 Task Force members felt that the statewide plan received from the state of Idaho *(Telecomm '92: Connecting Idaho to the Future)* was the most succinct and useful in developing the Arizona plan and wish to thank the Idaho staff for their contributions to our efforts.

2. Vendor Responses to RFI

The AZTEL 2000 Task force also prepared and issued a Request for Information (RFI) to the vendor community to identify strategies and obtain input for the goals and objectives developed by the committee. Each response was summarized by task force members and used to refine the strategies developed by the committee. The AZTEL 2000 Task Force wishes to thank the responding vendors for their creative input to this process.

3. AZTEL 2000 Task Force Meetings

In order to develop the goals, objectives, and strategies, the task force members met on a weekly basis from August, 1993 through April, 1994 to volunteer for and complete task assignments, discuss and resolve issues, compare and coordinate strategic initiatives and associated time frames, and gain consensus on the materials presented in this strategic plan. In addition, the task force prepared an issue paper regarding legal, funding, and legislative issues with regard to the goals and objectives and forwarded the paper to the Arizona state Attorney General's Office and the Arizona Corporation Commission for review and opinion.

4. Responsibilities for Strategies

The AZTEL 2000 Task Force has yet to identify the organizations that will be responsible for implementing the strategies identified in this document. In some cases, existing organizations such as State and local government agencies and educational entities will be assigned such responsibilities. In other cases, new organizations such as the Information Infrastructure Policy Board will need to be established. This will require state legislation, following discussions with public and private sector leaders on the organizational structure proposed in this document.

Once this task has been completed, each strategy will be updated to include the entity or entities responsible for carrying out the strategy.

5. **Refinement of Goals, Objectives, Strategies, and Action Steps**

   The goals identified below have been prioritized by the AZTEL 2000 Task Force and are listed in prioritized order. However, since the task force is primarily composed of technical data processing staff from various levels of Arizona government, the members believe that the identified goals, objectives, and strategies should be re-prioritized. The task force recommends that this activity be undertaken by the Information Infrastructure Policy Board, following the establishment of such a group, representing the diversity of telecommunications interests across the State.

   The strategies presented in this document represent the combined efforts of the AZTEL 2000 Task Force members in identifying the overall actions necessary to achieve the objectives which they support. The task force understands that additional strategies will be developed, on an ongoing basis, to ensure a comprehensive plan for project implementation. This plan should be shared with various organizations (for example, legislators, government leaders, private industry, telecommunications organizations, advocacy groups, and citizens) to obtain input for additional strategies and support for the plan, prior to work plan development.

   Following the adoption of this strategic plan, action steps for each strategy will be developed which delineate the detailed year by year tasks and sub tasks necessary to complete each strategy. This will form the basis for a detailed project work plan which can be periodically tracked to ensure that implementation tasks are being completed on a timely basis. This tracking process will also identify roadblocks, as they occur, which can be resolved during the actual implementation of the plan.

Part B. Integration of Goals, Objectives, and Strategies

This section has been organized to present the overall goals, followed by the objectives and strategies necessary for their achievement.

Each of these objectives and strategies is linked to one or more of the AZTEL 2000 goals. In this context, the objectives and strategies can be thought of as major steps in attaining these goals. They can also be thought of as critical success factors required to accomplish the goals and vision. The majority of the dates attached to the strategies for each goal represent the proposed target completion dates. All time periods are represented in calendar years.

GOAL # 1

Use telecommunications to make government services and information readily available.

Objective A:

Provide affordable telecommunications access to government services.

Strategies:

1. 1997: Reduce the current cost of government telecommunications through the provision of centrally accessible network services.
2. 1997: Increase direct public access to government services through the implementation of various telecommunications technologies.
3. 1999: Require governmental agencies to provide access to on-line transactions that identify services provided, requirements for services, and service locations, based on the geographical location of the individual, through the use of commonly available technologies.

Objective B:

Provide citizen access to government through the application of innovative telecommunications technologies.

Strategies:

1. 1996: Enable citizens to electronically access directories of State and local government office locations and services through interactive telephone and Kiosk technologies.
2. 1996: Distribute public information through local television and radio broadcasting companies.
3. 1996: Enable the public to electronically access and retrieve public information from government through FAX and electronic mail (E-Mail) technologies.
4. 1999: Require government agencies to implement automated systems that enable the public to directly apply for services through the use of commonly used automation technologies. Every effort must be made to minimize the need for the individual to travel to a service location.

Objective C:

Provide computerized and interactive voice access to public information and services.

Strategies:

1. 1996: Enable the public to access all State agencies using a common toll free (800) telephone number.

2. 1996: Enable the public to electronically access government services through voice mail and interactive voice response technology to eliminate paper and expedite service delivery.
3. 2000: On an ongoing basis, implement provisions for emerging technologies (for example, video teleconferencing) to facilitate greater citizen communications with government agencies.

NOTE: See Goal # 5 for provisions of emergency services.

GOAL # 2

Use telecommunications to improve the efficiency and effectiveness of government services.

Objective A:

Minimize public costs by aggregating telecommunications services.

Strategies:

1. 1998: Reduce the cost of government services through the consolidation of public telecommunications networks and provisions for on-line information clearinghouses.
2. 1999: Coordinate telecommunications network activities among Arizona government agencies with other states and the Federal government using the Federal information superhighway to reduce overall costs and expand access to national and international information.

Objective B:

Establish a coordinating body to facilitate effective utilization of the government system of telecommunications.

Strategies:

1. 1995: Establish an Information Infrastructure Policy Board to oversee network development, implementation, and maintenance activities, including access, utilization, fee setting, and data linkages.
2. 1998: Implement service delivery effectiveness improvements in the coverage, quality, timeliness, and reliability of government telecommunications networks through capacity analysis and comparisons of network activities and costs with the operations of other states.

Objective C:

Coordinate public investment in telecommunications.

Strategies:

1. 1995: Coordinate government telecommunications initiatives with State economic development activities across public organizations (for example, GSPED and AEITC).
2. 1996: Coordinate public investment in telecommunications networks and applications to ensure a robust statewide communications environment at the lowest possible cost.

Key Activities:

- ✔ *Evaluate current and planned telecommunication facilities*
- ✔ *Establish a strategic plan for a statewide telecommunication infrastructure which will include policies and procedures for implementation.*
- ✔ *Design a statewide telecommunication infrastructure which includes the transmission of voice, data, and video.*
- ✔ *Develop a cost/benefit analysis.*
- ✔ *Review and recommend funding alternatives.*
- ✔ *Create an implementation plan.*
- ✔ *Develop and present report to the Governor.*
- ✔ *Develop and implement JIT training programs.*

GOAL # 3

Provide an information environment consistent with the public trust.

Objective A:

Develop policy governing the privacy and sharing of information, and ensure that this policy is continually modified to cover new technologies and applications.

Strategies:

1. 1995: Establish a Security Committee to oversee the statewide network with regard to vulnerability identification, safeguard protection and implementation, compliance determinations, and enforcement standards. This policy will be designed to facilitate electronic access to public information through appropriate security access levels.
2. 1995: Develop and implement policies and related procedures governing the access and use of information transmitted through Arizona's telecommunications network.
3. 1996-2000: On an ongoing yearly basis, accomplish periodic security reviews and risk analyses, implementing appropriate corrective actions when necessary.

Objective B:

Ensure information used throughout this telecommunications environment has adequate safeguards against unauthorized access.

Strategies:

1. 1996: Review all proposals for access to the statewide telecommunications network, as well as those to provide services on the network, to ensure compliance with applicable standards, laws, and policies.
2. 1997: Ensure that all agencies providing information services on the statewide telecommunications network comply with the established policies and procedures governing access, use, and protection of information through periodic security reviews and risk analyses. In addition, document security abuses and implement corrective actions as necessary.

GOAL # 4

Use telecommunications to improve the quality, availability, and efficiency of Arizona education for children and adults.

Objective A:

Provide lifelong learning opportunities to the citizenry of Arizona through multiple access methods utilizing a developed telecommunications infrastructure.

Strategies:

1. 1995: On an ongoing basis, develop and promote educational opportunities which are designed to introduce and instruct citizens on the usage of telecommunications technology through the universities, community colleges, public libraries and government agencies. These classes will range from elementary to professional levels, and be geared to various populations (elementary children to elderly adults).
2. 1996: Implement demonstration projects for lifelong learning programs through multiple telecommunications technologies from public broadcasting to on-line interactive educational courses, such as video training.

Objective B:

Integrate telecommunications technology into the preparation of Arizona's work force at elementary, secondary, post-secondary, and continuing education levels across the public and private sectors.

Strategies:

1. 1996: Publish materials on telecommunications objectives and issues for use in developing curriculums by educational institutions from primary through post secondary levels. These materials should be approved and distributed by an appropriate State appointed commission and maintained within a State information clearinghouse.
2. 1998: Provide educational governing boards at the local through State levels, published information for the development of technologies for Arizona and the relationship of those materials to education and the preparation of a work force.
3. 1998: Implement programs for work force preparation and worker retraining through public and private partnerships utilizing telecommunications technologies.

Objective C:

Provide telecommunications access to every educational institution.

Strategies:

1. 1997: Implement programs for distance learning activities which facilitate on-line access to facilities such as instructional TV, video conferences, and libraries through universal Network Information Center (NIC) service provisions.
2. 1998: Provide educational institutions access to available public and private sector information databases using the statewide telecommunications network, on a fee for usage basis. This will occur through strategic partnerships between educational institutions, government, and private industry who collaborate in the construction of new aspects of the statewide telecommunications system.
3. 1999: Provide telecommunications access to all classrooms and ensure interfaces to national and international networks in order to create the global schoolhouse.

GOAL # 5

Provide improved public safety and emergency care services through modern telecommunications technologies.

Objective A:

Provide enhanced statewide 911 service.

Strategy:

- 1996: Provide enhanced statewide 911 service through appropriate local switching systems with centralized dispatching and call routing capabilities and associated voice response technologies.

Objective B:

Provide a coordinated public safety radio network with statewide coverage.

Strategies:

1. 1997: Develop and implement a land mobile public safety radio system to provide coverage for areas of Arizona which are not addressed by existing services.
2. 1998: Develop and implement a control network that enables all public safety land mobile radio systems in Arizona to interoperate.
3. 1999: Provide a comprehensive statewide public safety radio network with mobile telecommunications capabilities (for example, cellular telephone and remote fingerprinting) that facilitates seamless access by authorized personnel.

Objective C:

Facilitate the use of electronic confinement.

Strategy:

- 1998: Continue to develop and implement an electronic confinement system that incorporates new and emerging electronic communications methods.

GOAL # 6

Provide opportunities for improved economic well-being for both rural and urban citizens.

Objective A:

Provide a wide and growing variety of information-based services and transactions to all Arizonans using multiple technologies.

Strategies:

1. 1996: Adopt policies that will stimulate increased competition among telecommunications carriers and service providers to ensure a comprehensive statewide telecommunications network to support State economic development initiatives.
2. 1997: Implement a comprehensive program of electronic commerce, including provisions for telecomputing and other innovative projects, through public and private partnerships and cooperative strategies.
3. 1997: Implement special provisions for network access and usage by persons with disabilities (for example, special devices for persons with hearing impairments).
4. 1997: Provide an incentive awards program for innovative telecommunications projects which expand network access for traditionally hard to serve populations within the State, such as Native American communities.

Objective B:

Provide a variety of quality telecommunications services suitable to market Arizona as an attractive location for business relocation and expansion.

Strategies:

1. 1997: Implement and expand demonstration projects which foster concurrent business and work force expansion.
2. 1997: Develop a catalog of telecommunications services that are available from the State telecommunications network that are supportive of the business community.
3. 1998: Contract for a wide variety of affordable telecommunications services based upon economic development initiatives coordinated by the Governors Strategic Partnership for Economic Development (GSPED) that are attractive to and supportive of the Arizona business community

NOTE: See Goals #1 and #2 for provisions to expand telecommunications access to government.

GOAL # 7

Use telecommunications to support an integrated health care system.

Objective A:

Use telecommunications to reduce health care costs and enhance access to health care.

Strategies:

1. 1999: Require health care providers and agencies to exchange medical records electronically through a standardized data exchange protocol on the statewide telecommunications network.
2. 2000: Develop and implement the necessary automated systems and network capabilities to provide for the electronic exchange of health care information for all users (for example, public agencies, providers, other payers, and citizens of Arizona), and to provide incentives for eliminating paper based information exchange methods.

Objective B:

Provide primary health care providers with telecommunications access to a hierarchy of specialized medical advice.

Strategies:

1. 1997: Develop and implement the necessary automated systems and network capabilities through the statewide telecommunications network to provide electronic access (on a fee for access basis) to information contained within medical libraries to all primary health care providers and other interested parties.
2. 1997: Develop and implement a Rural Health Care Assistance Program, in coordination with State medical associations, which facilitates access to urban medical specialists for consultation through electronic information exchange methods (for example, teleconferencing) on the statewide telecommunications network.
3. 1999: Develop and implement Distance Learning certification programs for medical paraprofessionals through the statewide telecommunications network, which enable participants to obtain the necessary credentials to secure employment or maintain certification. This program will include a tuition reimbursement component which provides for loan reductions in exchange for health care service in rural areas.

Objective C:

Provide health care professionals with telecommunications access to medical records.

Strategies:

1. 1998: Develop and implement the necessary hardware and software applications and network provisions, such as on-line patient records and smart card technologies, to enable health care professionals to diagnose and monitor the health conditions of patients in home based settings from office locations.
2. 1998: Establish broadband telecommunications links between medical facilities throughout Arizona to implement the electronic transmission of medical images (for example, X-Ray, CAT, MRI, Ultrasound, and PET) or diagnostic test data to facilitate remote medical consultation.

GOAL # 8

Increase the technological awareness of Arizonans on how to use telecommunications to match their needs.

Objective A:

Provide regional workshops and demonstration projects to increase information technology awareness and skills.

Strategies:

1. 1995: Develop and implement a statewide telecommunications Public Relations and Marketing (Communications) Plan.
2. 1996: Notify citizens of the availability of telecommunications information and literature through public radio and television broadcasting entities, the local media, and educational institutions.
3. 1997: Administer Technology Awareness and Skills workshops in all Arizona counties and rural cities (where feasible). Incorporate ongoing workshops into statewide technology training curriculum and schedules, based upon demand.

Objective B:

Provide information to small business and assist them in using telecommunications to increase their competitiveness.

Strategies:

1. 1996: Provide small businesses opportunities to observe and learn the different uses of available technology through seminars and exhibits with related telecommunications literature and guides. State and local government agencies will assist local community organizations to accomplish these activities.
2. 1997: Coordinate with the Small Business Administration and other public and private groups to share information and implement programs on the use of new and emerging telecommunications technologies for the Arizona small business community.

GOAL # 9

Maintain and improve affordable universal access to basic telecommunications services.

Objective A:

Manage the costs of telecommunications and telecomputing between all government agencies and the public to do the following:

- Control cost growth consistent with value.
- Establish an interagency, single point-of-interface.
- Establish a uniform cost of access within each community of interest. This would include cost effective management of networking between the State, County, Cities, universities, schools, business, and the public.
- Establish a cost and a capacity forecasting environment that the public and government agencies can review and understand.

Strategies:

1. 1995: Prepare and adopt a network business plan, including provisions for collecting revenues, allocating expenses, and ensuring equitable access by all Arizona citizens (parity policy).
2. 1999: Enable the state's general population to access government services through a Government Point-of-Presence (GPOP) technology configuration using a single data server or a collection of data servers.
3. 1999: Route all interagency automation services through GPOP and connectivity corridors.

Objective B:

Establish a market for electronic access to Government and Government data services that the private sector can (1) identify, and (2) compete for private sector provisioning.

Strategies:

1. 1996: Implement the network business plan to allocate the revenues and expenses for usage fees, usage reimbursements, and subscription charges for government services.
2. 1996: Establish one (1) government service and industry cluster as a pilot for partnering, utilizing economic development initiatives and funding. This will include a data base of telephone and/or terminal address numbers.

Objective C:

Establish a unified information infrastructure throughout the State in graduated phases between the following entities:

- The State and County seats.
- The County seats and the municipal corporations.
- The County seats and the special districts.
- The schools.
- The libraries.
- The public.
- Commercial resellers.

Strategy:

- 1996: Grade the connectivity corridors, GPOPs, and government application servers. In addition, grade and classify the classes and types of terminals.

Objective D:

Establish an information infrastructure that maintains an open and competitive equipment and services procurement environment.

Strategy:

- 1995: Implement a directorate of competitive advocacy, including rules governing vendor participation and public domain products.

Objective E:

Establish an information infrastructure attractive to the technologically advanced businesses and industries which reside in Arizona or who would consider relocation to Arizona because of access to such a facility.

Strategy:

- 1998: Implement virtual resource pools for grants, language services, financial transactions services, etc., based on existing Arizona business profiles and future business relocation profiles.

Objective F:

Establish an information infrastructure which would advance our state educational and private sector research facilities work, visibility, and stature in high technology areas.

Strategy:

- 1999: Implement mechanisms that leverage low-duty cycle asset investments and reuse synergistics for activities which would not otherwise be cost justifiable.

GOAL # 10

Provide a telecommunications infrastructure which integrates technologies and networks to maximize the user's choice of information exchange.

Objective A:

Design a telecommunications highway for the connectivity of Arizona citizens to information based systems and networks.

Strategies:

1. 1996: Develop and implement telephonic and computer based access methods (for example, Internet, FAX, and Voice Response Units) to all levels of government information, including public education, based on the results of customer needs assessments.
2. 1996: Complete the design of a statewide network.
3. 1999: Complete a statewide telecommunications network utilizing multiple technologies and access methods that interface with national and international networks through network hubs.

Objective B:

Provide a network that is dynamic, upgradable, and easy to use and access.

Strategies:

1. 1995: Establish an ongoing standards committee or commission to review and publish open standards (with provisions for maximum connectivity) for the development of computer telecommunications networks serving the public sector.
2. 1997: Provide incentives to private carrier organizations for upgrading networks which serve hard to reach populations (for example, Native American communities). This will include provisions for upgrading systems to intelligent networks.

Objective C:

Incorporate existing and emerging telecommunications standards.

Strategies:

1. 1996: Ensure that the established standards committee or commission adopts rules to incorporate existing and emerging telecommunications standards while maintaining open system provisions for national and international communications.
2. 1997: Adopt state IRM strategic network plans and standards that are consistent with national and international standards and that promote an open systems environment.

Objective D:

Encourage research, development, and innovation in telecommunications.

Strategy:

- 1995: On an ongoing basis, promote collaborative efforts between educational, government, and private entities to provide incentives or rewards for research, development, and innovation in telecommunications. This will include the utilization of local, State, and Federal grants to support research, demonstration projects, and technology transfers from other states.

NOTE: See Goal #2 for provisions to integrate public networks to avoid unnecessary duplication.

GOAL # 11

Provide an economic environment allowing common carrier telecommunication infrastructures to serve government needs.

Objective A:

Encourage systematic private investment in common carrier infrastructures to meet Arizona's dynamic needs.

Strategies:

1. 1994: Identify regulatory and legislative roadblocks limiting the common carrier's ability to build infrastructures capable of supporting Arizona's telecommunications networks.
2. 1995: Draft legislative or regulatory changes to create an economic environment encouraging common carrier construction of infrastructure to support Arizona's networks.
3. 1995: Establish provisions for private investments in common carrier telecommunications infrastructures which serve government needs. This will include an analysis of outsourcing and privatization of government networks, as well as a statewide owned government network.

Objective B:

Encourage partnerships between government information users and information suppliers to take full advantage of the capabilities and resources of both.

Strategies:

1. 1994: Identify regulatory and legislative roadblocks that limit private and public partnerships from developing a telecommunications network to take advantage of a common carrier's infrastructure.
2. 1995: Draft legislative and regulatory changes to create an economic environment encouraging private and public partnerships to develop networks.
3. 1998: Adopt provisions for partnerships between public and private organizations on projects designed to demonstrate innovative approaches to implementing robust open systems and internal data telecommunications networks.

Objective C:

Avoid unnecessary redundancies in telecommunications infrastructures.

Strategies:

1. 1994: Survey and identify those networks and services that could be combined without compromising security or stability of services and networks.
2. 1996: Provide a pilot incentive program for network integration projects that eliminate unnecessary network redundancies and maximize a return on investment for users.

Part C. Progress Measurements and Feedback Mechanisms

The next key step in the development and implementation of an integrated AZTEL 2000 work plan will be the development of measurable benchmarks to track the completion of the strategies for achieving the objectives and goals. The following are examples of the quantifiable benchmarks that could be established.

GOAL # 1

- The cost of government telecommunications networks operating throughout the State and the degree of centralized accessibility to such networks.
- The cost of electronic access to government services for citizens and the availability of access points throughout the State.
- The degree of electronic access to government services, and the extent of existing telecommunications technologies being utilized (for example, kiosks, voice response units, audio text, and FAX). In addition, the degree to which citizens can apply for and receive government services without physically traveling to office locations.
- The existence and degree of distribution of government directories of locations and electronically provided services. The degree of utilization of existing automation technologies available for access.
- The level of citizen (customer) satisfaction with electronic access to government services.
- The usage level of toll free (800) access to State agencies.

GOAL # 2

- The status of the Information Infrastructure Policy Board, telecommunications governance statutes and regulations, and the interrelationship of the State IRM organization. In addition, the level of coordination in facilitating telecommunications initiatives with economic development activities throughout the State.
- The degree of unnecessary redundancy in government telecommunications networks and the extent of on-line information clearinghouses. In addition, the extent of coverage, quality, timeliness, and reliability of government networks.
- The extent of access to national and international information networks through the State telecommunications infrastructure.
- The level of public investment in networks and applications to develop a robust statewide environment.

GOAL # 3

- The status of the Security Committee and the existence and usage of security policies and procedures, and the level of the Board's facilitation of public access to non confidential data.
- The existence and operation of periodic security reviews and risk analyses for determining compliance levels for privacy and access to information. In addition, the status of corrective actions to implement safeguards for identified vulnerabilities.

GOAL # 4

- The existence and utilization of statewide educational programs on the use of telecommunications technologies for citizens.
- The content and usage of educational databases for lifelong learning programs. In addition, the extent of electronic access to public sector information.
- The degree of integration of telecommunications materials and programs within educational curriculums throughout the State, and for the telecommunications infrastructure work force initiatives and the availability of information clearinghouses.
- The existence and utilization of worker retraining programs utilizing telecommunications technologies.
- The existence and utilization of distance learning programs through on-line access to instructional applications such as TV, video conferences, and libraries.
- The percentage of classrooms connected to the two-way telecommunications network and the degree of interface with national and international networks.

GOAL # 5

- The extent of geographic coverage of enhanced emergency (911) service and the diversity of technologies utilized.
- The extent of geographic coverage of wireless and mobile communications within areas not addressed by existing services.
- The degree to which control networks enable mobile radio systems, across public safety organizations, to interoperate with seamless access provisions and the extent of their utilization.
- The existence and usage of electronic confinement systems and the level of existing technology utilized.

GOAL # 6

- The existence and utilization of a comprehensive statewide telecommunications network and the number and quality of information services provided throughout the network.
- The existence and utilization of electronic commerce programs, including the extent of telecommuting programs.
- The extent to which network access and usage provisions address the needs of special population groups (for example, disabled, hearing impaired, and Native American communities).
- The extent to which telecommunications services support the Arizona business community and work force expansion, as well as the relocation of new businesses to Arizona.

GOAL # 7

- The extent to which health care providers and agencies electronically exchange medical records and the cost of related telecommunications.
- The extent to which health care professionals utilize telecommunications to access information contained within medical libraries.
- The existence and usage of distance learning certification programs for medical professionals and the number of program graduates by professional specialization category.
- The existence and usage of Rural Health Care Assistance programs that facilitate remote medical consultation, and the degree of access and coverage of network services.
- The existence, coverage, and usage of home based patient monitoring and medical images transmission technologies (for example, X-RAY, CAT, MRI, Ultrasound, and PET) by the medical community.

GOAL # 8

- The existence and effectiveness of a statewide telecommunications Public Relations and Marketing (Communications) Plan and the extent to which public and local broadcasts inform the public of telecommunications information.
- The number and quality of Technology Awareness and Skills workshops by geographical area, and the degree of integration of these workshops with telecommunications technology training curriculums (where appropriate).
- The number and quality of telecommunications technology seminars and exhibits provided for small businesses by local communities. In addition, the level of coordination with the Small Business Administration and other relevant groups in sharing new and emerging telecommunications technology information with, and providing monitoring programs for, small businesses.

GOAL # 9

- Status of a network business plan for collecting revenues, allocating expenses, and ensuring equitable access to telecommunications services.
- A measurement of the cost of basic telecommunications in Arizona as compared to national averages. In addition, the percentage of citizens with access to basic telecommunications services within their local communities.
- The level of access provided to government services through a Government Point-of-Presence (GPOP) technology configuration and connectivity corridors.
- The availability and utilization of virtual resource pools for grants, language services, and financial transaction services for Arizona businesses.

GOAL # 10

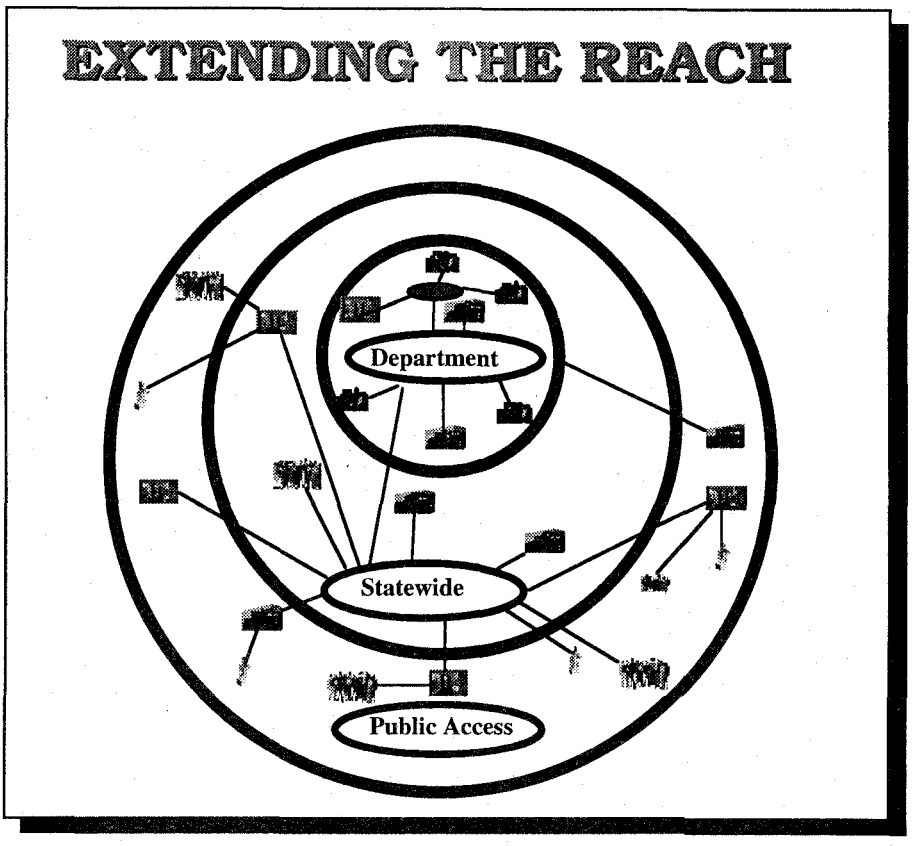
- A measurement of level of connectivity by Arizona citizens, including traditionally hard to reach populations (for example, Native American communities and geographically remote communities) to the State's information infrastructure, including national and international telecommunications networks.
- The extent of telephonic and computer based access methods for accessing government information within agencies, as compared to customer survey needs assessments.
- The status of policy for open systems standards and related IRM strategic network plans, with provisions for maximum connectivity, for State telecommunications networks.
- The extent of partnering efforts between government, education, and the private sector in providing incentives for research and innovative development projects in telecommunications.

GOAL # 11

- The status of legislation and regulatory policy which encourages public and private partnerships for common carrier construction of a network infrastructure that supports identified needs.
- The extent of private investment in the telecommunications network architecture that serves government needs.
- The existence and extent of public and private partnerships for projects that demonstrate innovative approaches to implementing robust open systems and inter-LATA networks.
- The extent of unnecessary redundant telecommunications networks throughout the state.

As previously mentioned, these benchmarks are only examples. The process of selecting benchmarks is not a trivial one. A process that leads to a consensus among key individuals and organizations concerning such quantifiable measures should be developed and implemented to establish agreed upon measurement techniques and gauge progress toward the achievement of each strategy and objective adopted.

Once such benchmarks have been adopted, current baseline data for each of the proposed measurements should be determined, because we need to know where we are now in order to gauge the level of progress we are making during any specified time period. Once baseline data is obtained for each adopted benchmark measurement, the proposed strategies and related action steps can be updated with more realistic dates for achievement.



Part D. Summary

The AZTEL 2000 Task Force has spent considerable time performing a literature review of existing and planned telecommunications initiatives, state plans, and projects being undertaken throughout the nation.

In addition, the task force has developed a comprehensive set of goals, objectives, and related strategies for incorporation into this report through weekly meetings, drawing upon expertise from multiple levels of government, and through information provided by the vendor community using the request for information (RFI) process. The task force has also proposed a number of examples that could be used for bench marking progress toward the fulfillment of the proposed objectives through measurable strategies.

Meeting the benchmarks that are eventually adopted will definitely be a challenge for the State.

The ongoing monitoring process should include the periodic measurement of performance against the benchmarks and a readjustment of the implementation strategies proposed within this document. In some cases, the measurement process will suggest that the initial target benchmarks adopted were unrealistic or inappropriate. When this occurs, the benchmarks themselves should be adjusted.

IX. AZTEL 2000 Implementation Plan

This section contains an overview of a five year implementation plan of the major activities required to design and implement the statewide telecommunications network envisioned by the AZTEL 2000 Task Force committee.

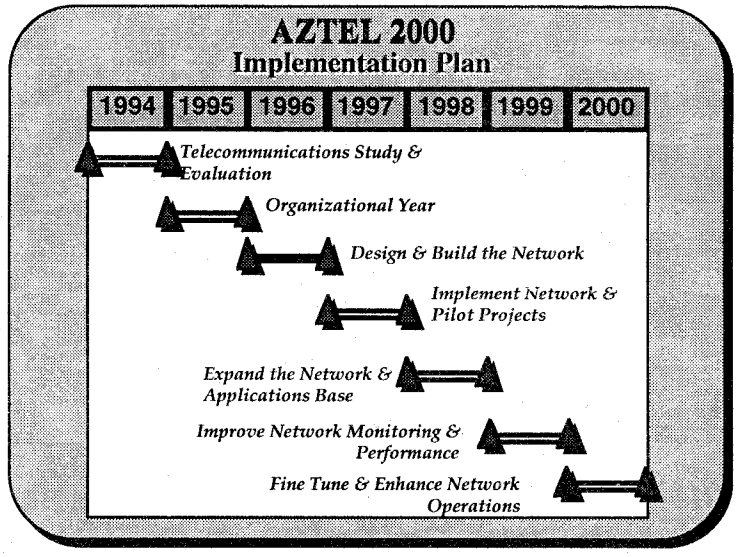
The list of activities following each year contains the major strategies to be accomplished. All time periods are represented in calendar years. The network design and installation will be an evolving process, so not all customers will have service at the same time, and not all applications will be available at the same time. See section *VIII. The AZTEL 2000 Direction: Goals, Objectives, & Strategies* for a detailed description of the strategies contained in this section.

1994 - Telecommunications Study and Evaluation

Activities for 1994 will focus on developing key strategies and year-by-year action steps during the initial study period.

Major Activities for 1994:

- Publish the Telecommunications Strategic Plan.
- Submit a grant request to the National Telecommunications Information Administration (NTIA).
- Prepare enabling legislation for the AZTEL 2000 Task Force and governing board for the 1995 State Legislature session.
- Survey and identity required customer network services, and identity those that can be combined. Complete a survey and compile data on applications and services that will be available on the network.
- Identify and submit recommended communications regulatory rule changes.



1995 - Organizational Year

Activities for 1995 will focus on the naming of organizational entities responsible for implementing the strategies and establishing the policies and authorization needed to design the network.

Major Activities for 1995:

- Develop and implement a statewide telecommunications public relations and marketing plan.
- Establish a Information Infrastructure Policy Board to oversee network development, implementation, and maintenance activities.
- Establish a Security Committee and establish a network security policy.
- Develop policies for governing the access and use of information transmitted through the network.
- Coordinate government telecommunications initiatives with State economic development activities.
- Submit the required legislation to the 1995 State Legislature session.
- Complete the NAFTA study identified in Arizona State Legislature House Bill 2190.
- Develop a network business plan that includes provisions for collecting revenues, allocating expenses, and ensuring equitable access.
- Adopt network standards that are consistent with national and international standards.
- Develop a five year funding plan and submit a budget request to the Office of Strategic Planning and Budget (OSPB) for the 1995/1996 State Legislature session.
- Adopt policies that will stimulate increased competition between telecommunications carriers and service providers.

1996 - Design and Build the Network

Activities for 1996 will focus on using the information complied during studies accomplished in 1994 and 1995 to provide the necessary foundation for designing and building the network

Major Activities for 1996:

- Design the network based on customer requirements that have been gathered.
- Implement a network business plan to allocate the revenues and expenses.

- Enable the public to electronically access and retrieve public information from government through FAX and electronic mail (E-Mail) technologies.
- Develop and implement an 800 number system, voice mail (V-MAIL), and a directory of government services for public access.
- Coordinate public investment in telecommunications networks and applications.
- Draft and submit the legislative and regulatory changes necessary to implement the designed network.
- Develop and promote education and training in the use of telecommunications technology for small business and citizens using various media.

1997 - Implement Network and Pilot Projects

Activities for 1997 will focus on the implementation of the network through the installation of fully operational applications and pilot projects.

Major Activities for 1997:

- Provide access methods to all levels of government information and public education based on the results from customer needs assessments.
- Develop and implement a land mobile public safety radio system to provide coverage for areas of Arizona that are not addressed by existing services.
- Implement a comprehensive program for electronic commerce, including provisions for telecommuting and other innovative projects.
- Provide access to medical libraries and medical specialists through electronic information exchange methods.
- Implement special provisions for network access and usage by disabled individuals.
- Provide training and assistance to small business and rural citizens in the use of technology for accessing information on the network.
- Provide a pilot incentive program for networking integration projects that eliminate network redundancies.

1998 - Expand the Network and Application Base

Activities for 1998 will focus on network expansion and installation of new applications.

Major Activities for 1998:

- Continue to monitor and reduce network unit costs.
- Develop and implement a control network that enables all public safety land mobile radio systems in Arizona to interoperate.
- Develop and implement an electronic confinement system that incorporates new and emerging electronic communications methods.
- Contract for a wide variety of affordable telecommunications services that are attractive to the Arizona business community.
- Add additional resources to enable health care professionals to diagnose and monitor health conditions of patients in the home or office.

1999 - Improve Network Monitoring and Performance

Activities for 1999 will focus on a process of continued network monitoring and the implementation of applications and methods for improving network performance.

Major Activities for 1999:

- Require governmental agencies to provide access to on-line transactions that identify services provided.
- Require government agencies to implement automated systems that enable the public to directly apply for services through the use of common technologies.
- Expand access to national and international information for network customers.
- Provide telecommunications services to all classrooms. These services should include access to international networks to create the global school.
- Improve the statewide public safety radio network with mobile telecommunications capabilities.
- Require health care providers and government agencies to exchange medical records electronically.
- Develop and implement distance learning certification programs from medical paraprofessionals through the statewide telecommunications network.

2000 - Fine-tune and Enhance Network Operations

Activities for the year 2000 will focus on adding new technologies to the network as they become available.

Major Activities for 2000:

- On a continual basis, implement provisions for emerging technologies to enhance citizen communication capabilities with government agencies
- Perform periodic security reviews and risk analyses and implement appropriate corrective actions.

Appendix: AZTEL 2000 Survey Results

TABLE 2: RESOURCE SURVEY			
PUBLIC INSTITUTIONS SURVEYED	**NUMBER OF SURVEYS DISTRIBUTED**	**NUMBER OF RESPONSES WITH NO NETWORKS**	**NUMBER OF RESPONSES WITH NETWORKS**
State Agencies	104	9	35
County Governments	16	2	1
City Governments	26	0	6
Libraries	100	3	6
Universities	4	0	4
Community Colleges	20	0	0
K-12 Schools	1300	8	29
TOTALS	**1570**	**22**	**81**

TABLE 3: PUBLIC INSTITUTION CIRCUIT SUMMARY						
To	**From Flagstaff**	**From Metro Phoenix**	**From Rural Arizona**	**From Tucson**	**From Yuma**	**Total**
Flagstaff	4	23	0	0	0	**27**
Metro Phx.	4	660	11	4	1	**680**
Outside Ariz.	0	5	0	3	0	**8**
Rural Arizona	10	306	17	16	1	**350**
Tucson	0	96	0	9	0	**105**
Yuma	2	30	0	0	3	**35**
Total	**20**	**1120**	**28**	**32**	**5**	**1205**

TABLE 4:
RESPONDING PUBLIC ORGANIZATIONS

Organization Type	Name of Organization	Organization Type	Name of Organization
CITY	City of Glendale	STATE	ADOT
CITY	City of Mesa, Arizona	STATE	AHCCCS
CITY	City of Phoenix	STATE	Arizona Board of Medical Examiners
CITY	Red Rock	STATE	Arizona Corporation Commission - Corporations Division
CITY	Sharlot Hall Museum/Prescott Historical Soc.	STATE	Arizona Department of Racing
CITY	Town of Paradise Valley	STATE	Arizona Department of Revenue
COUNTY	Yavapai County - MIS	STATE	Arizona Dept. of Economic Security
K-12	Amphitheater School District #10	STATE	Arizona Dept. of Commerce
K-12	Bagdad Unified School District #20	STATE	Arizona Game & Fish Department
K-12	Bonita School District #16	STATE	Arizona Geological Survey
K-12	Bouse Elementary School District #26	STATE	Arizona State Board of Dental Examiners
K-12	Canon School District #50	STATE	Arizona State Board of Pharmacy
K-12	Cedar Unified School District #25	STATE	Az. State Dept. of Library, Archives&Pub Rec.
K-12	Colorado River Union HS Dist #2	STATE	Arizona State Parks Board
K-12	Crane Elementary School District #13	STATE	Auditor General
K-12	Creighton School Dist. #14	STATE	Az Bd of Occupational Examiners
K-12	Fort Huachuca Accommodation Schools	STATE	Az Dept. of Water Resources
K-12	Fort Thomas Unified School District #7	STATE	Az Dept. of Youth Treatment & Rehabilitation
K-12	Fountain Hills School District	STATE	Az State Board of Optometry
K-12	Gila Bend Unified School District	STATE	Az State Board of Physical Therapy Examiners
K-12	Gilbert Unified School District #41	STATE	Az State Board of Podiatry Examiners
K-12	Higley E. S. D.	STATE	Az. State Veterinary Medical Examining Bd.
K-12	Indian Oasis School District #40	STATE	Board of Osteopathic Examiners
K-12	Kyrene Elementary Dist #28	STATE	DOA Telecommunications
K-12	Murphy Elementary School Dist #21	STATE	Department of Building and Fire Safety
K-12	Osborn Elementary School District	STATE	Department of Liquor Licenses & Control
K-12	Phoenix Union H.S. District No 210	STATE	Department Of Transportation
K-12	Sahuarita Unified School Dist.	STATE	Dept. Mines & Mineral Resources
K-12	Show Low Unified School Dist. #10	STATE	DOA ISP
K-12	Somerton School District	STATE	Land Department
K-12	Tanque Verde Unified School District	STATE	Registrar of Contractors
K-12	Tempe Union H S District	STATE	Residential Utility Consumer Office
K-12	Wasington School District No 6	STATE	State Board of Funeral Directors and Embalmers
K-12	Williams Unified School District #2	STATE	State Boards Office
K-12	Wilson Elementary School Dist #7	STATE	Yuma School District
K-12	Yuma Union High School Dist #70	UNIV.	Arizona Board of Regents
LIBRARY	Chino Valley Public Library	UNIV.	Arizona State University
LIBRARY	City of Phoenix - Public Library	UNIV.	NAU Television Services
LIBRARY	Cottonwood Public Library	UNIV.	Northern Arizona University
LIBRARY	Tucson-Pima Library	UNIV.	University of Arizona
LIBRARY	Yarnell Public Library	UNIV.	VideoServices, University of Arizona
LIBRARY	Maricopa Community Center & Library		

TABLE 5: PROTOCOLS & CONCERNS
NETWORK PROTOCOLS USED:
Net BIOS
Asynchronous
IXP
Native AS400
SDLC
ASCII
APPLETALK REMOTE ACCESS
X.25
TCP/IP
VT100 Terminal Emulation
TTY
DECnet
LAT
CPT
IBM FTTERM
Asynchronous SLIP, PPP
Frame Relay
FDDI
CONCERNS:
Funding
Security
Confidentiality
Hardware Support
Software Support
Network Support
Training

TABLE 6:
REPORTED PUBLIC INSTITUTION CIRCUITS AND CAPACITY

				Monthly Costs		Circuit Speed							
FROM	TO	WrkStn	Printers	Line	Equip	2400	4800	9600	14400	19200	56000	T-1	T-3
Bullhead City	Phoenix	0	0	$50	$0	1	0	0	0	0	0	0	0
Chino Valley	Chino Valley	0	0	$300	$0	1	0	0	0	0	0	0	0
Cottonwood	Cottonwood	2	1	$125	$60	0	0	1	0	0	0	0	0
Douglass	Phoenix	0	0	$10	$25	1	0	0	0	0	0	0	0
Duncan	Phoenix	0	0	$10	$25	1	0	0	0	0	0	0	0
Flagstaff	Flagstaff	31	10	$1,248	$0	0	0	0	0	0	4	0	0
Flagstaff	Holbrook	15	3	$760	$0	0	0	0	0	0	2	0	0
Flagstaff	Lake Havasu	2	1	$180	$0	0	0	0	0	0	1	0	0
Flagstaff	Payson	3	1	$364	$0	0	0	0	0	0	1	0	0
Flagstaff	Phoenix	0	0	$2,577	$25	1	0	0	0	0	0	1	0
Flagstaff	Presott	0	0	$1,602	$0	0	0	0	0	0	0	1	0
Flagstaff	Sedona	3	1	$318	$0	0	0	0	0	0	1	0	0
Flagstaff	Showlow	11	3	$757	$0	0	0	0	0	0	2	0	0
Flagstaff	Tempe	100	0	$2,500	$0	0	0	0	0	0	1	1	0
Flagstaff	Williams	1	1	$329	$0	0	0	0	0	0	1	0	0
Flagstaff	Winslow	3	1	$353	$0	0	0	0	0	0	1	0	0
Flagstaff	Yuma	36	6	$500	$0	0	0	1	0	0	0	1	0
Ft. Thomas	Safford	0	0	$0	$0	1	0	0	0	0	0	0	0
Gila Bend	Phoenix	0	0	$0	$0	0	0	0	0	0	1	0	0
Gilbert	Gilbert	69	22	$1,800	$0	0	0	11	0	0	4	15	0
Glendale	Glendale	97	23	$2,026	$0	0	0	15	0	0	0	2	0
Globe	Phoenix	0	0	$10	$25	1	0	0	0	0	0	0	0
Holbrook	Phoenix	0	0	$10	$25	1	0	0	0	0	0	0	0
Kingman	Phoenix	0	0	$10	$25	1	0	0	0	0	0	0	0
Mesa	Mesa	101	40	$0	$0	1	0	16	0	0	1	0	0
Phoenix	Ajo	8	5	$906	$104	0	0	2	0	0	1	0	0
Phoenix	Apache Junction	119	25	$594	$396	0	0	5	0	0	1	0	0
Phoenix	Atlanta, Georgia	1	1	$0	$0	0	0	1	0	0	0	0	0
Phoenix	Avondale	11	4	$76	$218	0	0	4	0	0	0	0	0
Phoenix	Bisbee	176	35	$1,340	$284	0	0	13	0	0	0	0	0
Phoenix	Buckeye	35	8	$499	$233	0	0	2	0	0	1	0	0
Phoenix	Bullhead City	15	9	$0	$339	0	0	3	0	0	0	0	0
Phoenix	Camp Verde	1	1	$177	$72	0	0	1	0	0	0	0	0
Phoenix	Casa Grande	142	34	$1,203	$330	0	2	9	0	0	2	0	0
Phoenix	Chandler	137	25	$399	$700	0	1	6	0	0	0	0	0
Phoenix	Chinle	49	17	$0	$146	0	0	6	0	0	0	0	0
Phoenix	Clarkdale	3	3	$259	$146	0	0	1	0	0	0	0	0
Phoenix	Claypool	2	3	$268	$141	0	0	1	0	0	0	0	0

TABLE 6:
REPORTED PUBLIC INSTITUTION CIRCUITS AND CAPACITY

				Monthly Costs		Circuit Speed							
FROM	TO	WrkStn	Printers	Line	Equip	2400	4800	9600	14400	19200	56000	T-1	T-3
Phoenix	Clifton	15	1	$560	$175	0	0	1	0	0	0	0	0
Phoenix	Clifton	14	4	$0	$0	0	0	1	0	0	0	0	0
Phoenix	Clifton	2	2	$0	$109	0	0	1	0	0	0	0	0
Phoenix	Colorado City	1	1	$0	$72	0	0	1	0	0	0	0	0
Phoenix	Coolidge	101	24	$343	$183	0	0	4	0	0	1	0	0
Phoenix	Cordes Junction	1	1	$0	$72	0	0	1	0	0	0	0	0
Phoenix	Cotton	15	1	$428	$175	0	0	1	0	0	0	0	0
Phoenix	Cottonwood	103	26	$415	$0	0	2	5	0	0	0	0	0
Phoenix	Douglas	145	36	$0	$505	0	0	11	0	0	0	0	0
Phoenix	Duncan	4	0	$364	$90	0	0	2	0	0	0	0	0
Phoenix	Eagar	6	2	$0	$0	0	1	0	0	0	0	0	0
Phoenix	EHRENBERG	7	0	$263	$70	0	0	1	0	0	0	0	0
Phoenix	Eloy	24	3	$0	$0	0	0	1	0	0	0	0	0
Phoenix	Flagstaff	353	68	$1,643	$1,062	0	1	21	0	0	0	0	0
Phoenix	Florence	312	40	$315	$166	0	0	13	0	0	0	0	0
Phoenix	Fredona	6	4	$0	$263	0	0	3	0	0	0	0	0
Phoenix	Ft.Defiance	11	4	$0	$0	0	0	2	0	0	0	0	0
Phoenix	Ft.Grant	61	10	$0	$0	0	0	2	0	0	0	0	0
Phoenix	Ft.Huachuca	4	3	$0	$151	0	0	1	0	0	0	0	0
Phoenix	Gallup N.M.	1	1	$0	$0	0	0	1	0	0	0	0	0
Phoenix	Ganado	1	1	$0	$0	0	0	1	0	0	0	0	0
Phoenix	Glendale	98	21	$195	$206	0	6	4	0	0	0	0	0
Phoenix	Globe	156	22	$0	$334	0	0	11	0	0	0	0	0
Phoenix	Goodyear	56	16	$106	$0	0	0	2	0	0	0	0	0
Phoenix	Greasewood	27	5	$0	$0	0	0	1	0	0	0	0	0
Phoenix	Green Valley	3	3	$0	$146	0	0	1	0	0	0	0	0
Phoenix	Guadalupe	7	1	$0	$0	1	0	0	0	0	0	0	0
Phoenix	Holbrook	65	11	$1,525	$443	0	3	4	0	0	0	0	0
Phoenix	Kayenta	30	8	$0	$0	0	0	1	0	0	0	0	0
Phoenix	Keams Canyon	1	1	$0	$0	0	0	1	0	0	0	0	0
Phoenix	Kearny	16	5	$234	$104	0	0	1	0	0	0	0	0
Phoenix	Kingman	242	36	$1,429	$491	0	0	14	0	0	0	0	0
Phoenix	Kykotsmovi	14	4	$0	$0	0	0	1	0	0	0	0	0
Phoenix	Lake Havasu	82	23	$0	$265	0	0	6	0	0	0	0	0
Phoenix	Mammoth	14	4	$492	$0	0	0	1	0	0	0	0	0
Phoenix	Marana	12	4	$229	$0	0	0	1	0	0	0	0	0
Phoenix	Maryvale	157	15	$373	$0	1	0	3	0	0	0	0	0
Phoenix	Mesa	573	123	$2,399	$1,684	0	6	18	1	0	1	0	0
Phoenix	Montvale	0	0	$0	$0	0	0	1	0	0	0	0	0

TABLE 6:
REPORTED PUBLIC INSTITUTION CIRCUITS AND CAPACITY

				Monthly Costs		Circuit Speed							
FROM	TO	WrkStn	Printers	Line	Equip	2400	4800	9600	14400	19200	56000	T-1	T-3
Phoenix	Moonvalley	8	2	$0	$139	0	0	1	0	0	0	0	0
Phoenix	Nogales	131	28	$345	$404	0	0	10	0	0	0	0	0
Phoenix	Page	35	14	$917	$498	0	0	5	0	0	0	0	0
Phoenix	Parker	92	18	$778	$332	0	0	9	0	0	0	0	0
Phoenix	Payson	54	11	$0	$175	0	0	4	0	0	0	0	0
Phoenix	Peach Sprng	1	1	$0	$0	0	0	1	0	0	0	0	0
Phoenix	Peoria	94	17	$444	$45	0	0	2	0	0	1	0	0
Phoenix	Perryville	24	6	$0	$0	0	0	1	0	0	0	0	0
Phoenix	Phoenix	10401	1220	$22,629	$19,045	9	60	341	3	7	22	65	0
Phoenix	Pinetop	15	5	$325	$0	1	0	1	0	0	0	0	0
Phoenix	Prescott	289	52	$3,518	$1,156	1	3	18	0	0	0	1	0
Phoenix	Randolph	26	6	$0	$0	0	0	1	0	0	0	0	0
Phoenix	Rivera	99	18	$0	$0	0	0	3	0	0	0	0	0
Phoenix	Sacaton	2	1	$0	$0	0	0	1	0	0	0	0	0
Phoenix	Safford	220	46	$275	$628	0	0	12	0	0	0	0	0
Phoenix	San Carlos	22	7	$0	$0	0	0	3	0	0	0	0	0
Phoenix	San Luis	42	4	$0	$55	0	0	2	0	0	0	0	0
Phoenix	San Manuel	3	3	$0	$146	0	0	1	0	0	0	0	0
Phoenix	San Simon	6	0	$335	$65	0	0	1	0	0	0	0	0
Phoenix	Sanders	7	0	$306	$70	0	0	1	0	0	0	0	0
Phoenix	Scottsdale	24	11	$556	$577	0	0	3	0	0	0	0	0
Phoenix	Sedona	3	4	$0	$178	0	0	1	0	0	0	0	0
Phoenix	Sells	27	7	$0	$0	0	0	2	0	0	0	0	0
Phoenix	Shiprock N.M.	1	1	$0	$0	0	0	1	0	0	0	0	0
Phoenix	Showlow	132	27	$196	$220	0	3	6	0	0	0	0	0
Phoenix	Sierra Vista	157	21	$0	$175	0	0	8	0	0	0	0	0
Phoenix	Somerton	65	14	$556	$0	0	3	0	0	0	0	0	0
Phoenix	Springerville	6	1	$0	$127	0	1	2	0	0	0	0	0
Phoenix	St George Utah	7	0	$256	$70	0	0	1	0	0	0	0	0
Phoenix	St.David	1	1	$0	$72	0	0	1	0	0	0	0	0
Phoenix	St.Johns	71	14	$0	$319	0	4	3	0	0	0	0	0
Phoenix	Sunnyslope	94	10	$0	$0	0	0	3	0	0	0	0	0
Phoenix	Superior	2	3	$356	$104	0	0	1	0	0	1	0	0
Phoenix	Surprise	10	6	$326	$277	0	0	1	0	0	0	0	0
Phoenix	Tempe	431	58	$2,210	$1,334	2	0	14	0	0	5	0	0
Phoenix	Topock	6	0	$106	$65	0	0	1	0	0	0	0	0
Phoenix	Tuba City	41	13	$0	$77	0	2	3	0	0	0	0	0
Phoenix	Tucson	2476	351	$9,410	$5,032	0	24	67	0	5	0	0	1
Phoenix	Whipoorwill	14	3	$0	$0	0	0	1	0	0	0	0	0
Phoenix	Whiteriver	6	4	$0	$0	0	1	3	0	0	0	0	0

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				Monthly Costs		Circuit Speed							
FROM	TO	WrkStn	Printers	Line	Equip	2400	4800	9600	14400	19200	56000	T-1	T-3
Phoenix	Wickenburg	1	0	$269	$40	0	0	1	0	0	0	0	0
Phoenix	Willcox	51	14	$474	$316	0	0	4	0	0	0	0	0
Phoenix	Williams	1	2	$0	$104	0	0	1	0	0	0	0	0
Phoenix	Williams AFB	7	2	$113	$0	0	0	2	0	0	0	0	0
Phoenix	Window Rock	47	14	$298	$72	0	0	2	0	0	0	0	0
Phoenix	Winslow	136	25	$0	$151	0	0	8	0	0	0	0	0
Phoenix	Yuma	474	74	$3,067	$573	0	15	12	0	0	3	0	0
Prescott	Bullhead City	8	1	$420	$0	0	0	0	0	0	1	0	0
Prescott	Camp Verde	2	1	$334	$0	0	0	0	0	0	1	0	0
Prescott	Clarkdale	3	1	$327	$0	0	0	0	0	0	1	0	0
Prescott	Cordes JCT.	5	1	$306	$0	0	0	0	0	0	1	0	0
Prescott	Kingman	22	3	$691	$0	0	0	0	0	0	2	0	0
Prescott	Lake Havasu	7	1	$403	$0	0	0	0	0	0	1	0	0
Prescott	Payson	5	1	$376	$0	0	0	0	0	0	1	0	0
Prescott	Phoenix	0	0	$20	$25	1	0	0	0	0	0	0	0
Prescott	Prescott	57	8	$430	$184	0	0	2	0	0	0	0	0
Safford	Phoenix	0	0	$10	$25	1	0	0	0	0	0	0	0
Showlow	Showlow	38	12	$210	$5,611	1	0	1	0	0	0	0	0
Somerton	Somerton	28	20	$0	$0	0	0	0	2	0	0	0	0
Sonita	Phoenix	0	0	$10	$25	1	0	0	0	0	0	0	0
St.Johns	Phoenix	0	0	$10	$25	1	0	0	0	0	0	0	0
Tempe	Denver, CO.	0	0	$220	$0	0	0	0	0	0	1	0	0
Tempe	Flagstaff	0	5	$300	$0	0	0	0	0	0	1	0	0
Tempe	Phoenix	17	7	$283	$0	0	0	2	0	0	1	1	0
Tempe	Tempe	48	24	$200	$0	1	0	4	0	0	0	1	0
Tucson	Benson	8	2	$682	$0	0	0	0	0	0	2	0	0
Tucson	Bisbee	1	1	$380	$0	0	0	0	0	0	1	0	0
Tucson	Boulder	0	0	$0	$0	0	0	0	0	0	0	0	0
Tucson	Clifton	2	1	$480	$0	0	0	0	0	0	1	0	0
Tucson	Douglas	3	1	$398	$0	0	0	0	0	0	1	0	0
Tucson	Ft.Huachuca	3	1	$354	$0	0	0	0	0	0	1	0	0
Tucson	Globe	17	3	$754	$0	0	0	0	0	0	2	0	0
Tucson	Green Valley	3	1	$320	$0	0	0	0	0	0	1	0	0
Tucson	Kearney	2	1	$357	$0	0	0	0	0	0	1	0	0
Tucson	Las Cruces N. M.	0	0	$3,000	$0	0	0	0	0	0	0	1	0
Tucson	Nogales	8	1	$355	$0	0	0	0	0	0	1	0	0
Tucson	Phoenix	0	0	$75	$25	2	0	0	0	0	1	0	1

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				Monthly Costs		Circuit Speed							
FROM	TO	WrkStn	Printers	Line	Equip	2400	4800	9600	14400	19200	56000	T-1	T-3
Tucson	Safford	15	3	$758	$0	0	0	0	0	0	1	0	0
Tucson	Salt Lake City	0	0	$3,600	$0	0	0	0	0	0	0	1	0
Tucson	San Manuel	2	1	$331	$0	0	0	0	0	0	1	0	0
Tucson	Sierra Vista	10	1	$354	$0	0	0	0	0	0	1	0	0
Tucson	Tempe	0	0	$1,500	$0	0	0	0	0	0	0	0	0
Tucson	Tucson	41	7	$2,111	$0	0	0	0	0	0	6	3	0
Tucson	Wilcox	2	1	$363	$0	0	0	0	0	0	1	0	0
Yuma	Kingman	0	0	$0	$0	0	0	0	0	0	0	0	0
Yuma	Phoenix	0	0	$10	$25	1	0	0	0	0	0	0	0
Yuma	Yuma	90	20	$944	$0	0	0	0	0	0	0	3	0

Glossary

AEITC

Arizona Educational and Informational Telecommunications Cooperative

An organization dedicated to encouraging and advancing cooperative planning, development, and implementation of educational and informational telecommunications in the State of Arizona.

AHCCCS

Arizona Health Care Cost Containment System.

ANSI

American National Standards Institute.

AppleTalk Remote Access

An Apple local area network (LAN) protocol. This application supports Apple's proprietary LocalTalk access method as well as Ethernet and Token Ring. This application is built into all Macintosh personal computers and LaserWriters.

Architecture

The logical structure and operating principles of a computer or computer network, including the interrelationships of its hardware and software components. (See also Open Systems Architecture).

Arizona Department of Transportation (ADOT)

The Arizona Department of Transportation has jurisdiction over State highways, other State roads, State airports and all State-owned transportation systems. The department is statutorily organized into six divisions: Motor vehicle, transportation planning, highways, aeronautics, public transit, and administrative services.

Arizona Game and Fish Department

The Arizona Game and Fish Department manages Arizona wildlife populations through the operation of hunting and fishing license programs, enforcement actions for the unlawful taking of game, and wildlife habitat protection and development. The department is also responsible for water craft registration and boater safety programs. A five-member board appointed by the Governor oversees department operations and provides policy direction for the director. Other functions of the department include the operation of fish hatcheries, conducting the annual lottery draw for hunting tags, and implementing the off-highway vehicle program.

Arizona State Lottery Commission

The Arizona State Lottery is currently responsible for the administration of three State-sanctioned games of chance: The Lotto, Fantasy Five, and instant tickets. Lottery sales generate revenues for the Economic Development Commission, the Local Transportation Assistance Fund, the County Assistance Fund, the Heritage Fund, and the General Fund. A portion of the unclaimed prizes support the Court Appointed Special Advance (CASA) program.

ASCII

American National Standard Code for Information Interchange.

The standard, and predominant, seven-bit (eight bits, with parity) character code used for data communications and data processing.

ASPED

Arizona Strategic Partnership for Economic Development

Currently known as GSPED (see GSPED).

Asynchronous

Pertaining to a mode of data communications that provides a variable time interval between characters during transmission.

Asynchronous PPP

Point-to-Point Protocol

Asynchronous SLIP

Serial Line Internet Protocol

Asynchronous Transfer Mode (ATM)

A high-speed network technology for local and wide area networks that handles data and real-time voice and video. When implemented by the telephone companies, ATM provides "bandwidth on demand" by charging customers for the amount of data they send rather than for fixed-cost digital lines that are often underutilized.

AZTEL 2000 Task Force

The Telecommunications Task Force for the year 2000. An organization created in 1993 to address statewide telecommunications issues.

Basic Input Output/System (BIOS)

In some operating systems, the part of the system that customizes it to a specific computer.

Community Antenna Television (CATV)

Also known as cable TV.

Chief Information Officer (CIO)

The top-ranking individual within an enterprise (State, agency, board, commission, etc.) responsible for tactical IRM requirements.

CIO Council

A body of major State agency CIOs chaired by the State CIO. This organization is chartered to "...create a common technology environment needed to support and run the Information Systems of the State of Arizona at the highest quality and in the most cost-effective manner..."

Circuits

Generally referring to a transmission medium connecting two or more electronic devices.

Client/Server

Client/Server processing shares processing between an intelligent user device (client), and a device that multiple devices share (server). The server may be a general-purpose computer, or it may be a specialized device such as a printer, image-storage unit, or a database machine.

Connectivity

The capability of a system or device to be attached to other systems or devices without modifications.

Corporation Commission

The Arizona Corporation Commission was established by Article 15 of the Arizona Constitution and consists of three statewide elected Commissioners, each serving six-year terms. The commission's primary responsibilities include the review and establishment of public utility rates, regulating the sale of securities in Arizona and administering the Arizona Corporation Code. As part of its responsibilities related to corporations, the commission serves as the repository of corporate annual reports and other documents filed by corporations in accordance with State law.

DECnet

Digital Equipment Corporation Network

A communications architecture and series of related hardware and software products from Digital Equipment Corporation. DECnet supports both Ethernet-style LANs and wide area networks (WANs) using broad-based and broadband, private and/or public communications channels.

Decision Support System (DSS)

An information and planning system that provides the ability to interrogate computers on an ad hoc basis, analyze information and predict the impact of decisions before they are made.

Department of Administration (DOA)

The Department of Administration provides general support services to all agencies, including accounting and financial services, personnel, building and grounds maintenance, purchasing, risk management, automated technology planning and operation, and telecommunications.

Department of Corrections (DOC)

The Department of Corrections maintains and administers a statewide system of prisons for the effective custody, control, correction, treatment, and rehabilitation of all adult offenders legally committed to the department. Educational and treatment programs are provided for offenders so they will have opportunities to learn more responsible behaviors and increase their chance of returning to society as law abiding citizens. The department is also responsible for the supervision of offenders on parole or other prison release mechanisms, as specified by law.

Department of Economic Security (DES)

The Department of Economic Security provides an array of services for low income households and others in need. These services are provided through the following divisions: Developmental Disabilities, Benefits and Medical Eligibility, Aging and Community Services, Children and Family Services, Child Support Enforcement, and Employment and Rehabilitative Services.

Department of Education

The Department of Education is headed by the Superintendent of Public Instruction, an elected constitutional officer. The department oversees 227 school districts in their provision of public education from preschool through 12th grade.

Department of Environmental Quality

The Department of Environmental Quality's purpose is to protect human health and the environment by enforcing standards of quality for Arizona's air, water, and land. The department's Office of Air Quality issues permits to regulate industrial air pollution sources, regulates vehicle emissions, monitors and assesses the ambient air, and develops air quality improvement strategies. The Office of Waste Programs implements programs to minimize waste generation, identifies and corrects improper waste management practices, and oversees the clean up (remediation) of hazardous waste sites. The Office of Water Quality regulates drinking water and waste water systems, monitors and assesses waters of the State, and provides hydrologic analysis hazardous site remediation.

Department of Health Services (DHS)

The Department of Health Services is responsible for the provision of most public health programs not administered by AHCCCS, most behavioral health programs, emergency medical services, State laboratory support, vital records maintenance, disease control, and epidemiological monitoring.

Department of Public Safety (DPS)

The Department of Public Safety is responsible for the enforcement of State laws and traffic regulations. In addition to the Highway Patrol, DPS operates and maintains statewide communications systems, State crime laboratories and an automated fingerprint identification network. It also performs aviation missions, special investigations, and other law enforcement activities.

Department of Revenue (DOR)

The Department of Revenue administers and enforces the collection of personal and corporate income, sales, withholding, luxury and estate taxes. The department administers State property tax laws through the 15 county assessors. The department does not collect transportation-related fees or taxes, or the insurance premium tax. The department is organized along functional lines.

Department of Water Resources (DWR)

The Department of Water Resources administers and enforces Arizona's ground water code, administers surface water rights law, and represents Arizona's water rights with the Federal government. These activities are to ensure a long-term dependable water supply in the State.

The department also inspects dams and participates in flood control planning to prevent property damage, personal injury, and loss of life. In support of these activities, it collects and analyzes base data on water levels and on water-quality characteristics.

Department of Youth Treatment and Rehabilitation

The Administration program encompasses the Director's Office, all business functions, data processing, training and all other centralized operations of the department. The Secure Care program includes all costs associated with youth in State-operated facilities with the exception of educational services. The program includes health care, diagnostic, treatment, security, maintenance and other costs. The department currently operates three facilities: Adobe Mountain School, Black Canyon School, and Catalina Mountain School.

Electronic Mail (E-Mail)

A term that usually means electronic text mail. Currently, E-Mail refers to anything from simple messages flowing through a LAN from one workstation to another, to messages being transmitted across the globe. Such messages may be simple text messages or they may be complex messages containing embedded voice messages, spreadsheets, or images.

Executive Information System (EIS)

An information system that consolidates and summarizes ongoing transactions within an organization. It provides management with all the information from internal and external sources, which it requires at all times.

Fiber Distributed Data Interface (FDDI)

This application is an ANSI-standard, high-speed LAN that uses optical fiber cable and transmits at 100 Mbits/sec up to 62 miles.

Frame Relay

A transmission frame consisting of beginning and ending flag characters, an address field, a control field, and an information field.

Geographic Information System (GIS)

A system that displays informational data in a geographic context. This application is used for exploration, demographics, dispatching, and tracking.

GPOP

Government Point of Presence.

GSPED

Governor's Strategic Partnership for Economic Development

Formerly ASPED. A partnership of Arizona's leading economic development organizations: Arizona Economic Council, Greater Phoenix Economic Council, Greater Tucson Economic Council, Enterprise Network, and Arizona Department of Commerce, created to develop strategies to move Arizona toward prosperity in the 1990s.

Imaging

A method of processing, storing, using, and transferring pictorial information by a computer system.

Information Services Division (ISD)

A division of the Department of Administration charged with: (1) the administration of internal DOA automation and telecommunications support, (2) strategic State automation and telecommunications planning and control, (3) functioning as an automation provider for other State agencies, and (4) administration of the State 911 program.

Infrastructure

A substructure or underlying foundation, especially, the basic installations and facilities on which the continuance and growth of an entity, such as a communications or computer system, depend.

Information Resource Management (IRM) Plan

IRM is a "top-down" approach to defining the information needs of an enterprise and examining all the resources required to provide that information. IRM is a strategic resource management function within the organization and the basic management function for providing organizational effectiveness and productivity through information availability.

ISO

International Organization for Standardization.

Kiosks

A small, self standing structure or device that is used to dispense public information.

Local Area Network (LAN)

A communication network used by a single organization over a limited distance which permits users to share information and resources.

Local Area Transport (LAT)

A networking product for mini- and micro-computers developed by Digital Equipment Corporation that can also support non-DEC equipment.

Methodology

A fully developed and documented orderly process to assist in producing compatible components for an information resource architecture such as a database design, application, or communications development.

Millions of Instructions Per Second (MIPS)

A long-standing measurement of relative computer processing power. It is only one of a number of hardware performance measurements and is used only for gross comparisons.

Mission Statement

A statement that describes the nature and concept of the enterprise's purpose. Its principal application is as an internal guide for making all major decisions.

NAFTA

North American Free Trade Agreement

NASIS

National Association of State Information Systems

Currently known as NASIRE.

NASIRE

National Association of State Information Resource Executives

Formerly NASIS. A national organization consisting of the CIOs from the state governments, plus representation from the Canadian provinces.

Native Application System/400 (AS/400)

An IBM mini-computer series introduced in 1988 that supersedes and advances IBM system/36 and system/38 computers.

NII Initiative

National Information Infrastructure

NTIA

National Telecommunications Information Administration

Objectives

Statements of expected or anticipated results or outcomes for the purposes of this planning process.

Office for Excellence in Government (OEG)

The Governor's Office for Excellence in Government is responsible for the administration and coordination of agency-driven quality and productivity enhancement initiatives; administration of the Institute for Excellence in Government, which develops Total Quality Management curriculums, trains agency management and employees in TQM principals and practices and provides career development services; and administration of an annual Governor's Award Program, which recognizes and promotes excellence in government.

On-line

Normally refers to the remote access of mainframe application information by end users through communications lines and terminals.

Open Systems Architecture

A model that represents a network as a hierarchical structure of layers of functions; each layer provides a set of functions that can be accessed and that can be used by the layer above it.

Office of Strategic Planning and Budget (OSPB)

The Governor's staff devoted to State strategic planning and the executive budget development process.

Point-of-Sale

The method of capturing data at the time and place of sale. Point-of-sale systems use personal computers or specialized terminals that are combined with cash registers, optical scanners for reading product tags, and/or magnetic stripe readers for reading credit cards.

RBOC

Regional Bell Operating Company.

Request for Information (RFI)

A formal process decreed in State purchasing statutes to allow State management to request information from vendors for a given set of requirements, without a commitment of contract.

Request for Proposals (RFP)

A formal process decreed in State purchasing statutes for procuring goods and services whose costs exceed a given amount.

Synchronous Data Link Control (SDLC)

The primary data link protocol used in IBM's SNA (system network architecture) communications networks. SDLC is a bit-oriented, synchronous protocol, which is similar to the international HDLC protocol.

SLIM

State Long-Term Improvement In Management

Smart Card

A credit card with a built-in microprocessor and memory that can be used as an identification or financial transaction card.

Stakeholder

One who has a vested interest in the use of automation in Arizona State Government.

State CIO

The DOA Information Services Division Assistant Director. This position is chartered with the responsibilities outlined in A.R.S. §41-712, A.R.S. §41-713, A.R.S. §41-798, and A.R.S §41-802. The State CIO has the responsibility of managing the State IRM program.

Strategic Issues

Questions that identify the critical policy areas in which action is necessary to attain the goals. These are the statements that determine the enterprise's future direction.

Strategic Plans

The mechanism that is a structured form for outlining the process of meeting the goals of the AZTEL 2000 Task Force. Each plan details the steps, accountability, scheduling, resources, success factors, and feedback mechanisms required for achievement.

Strategies

Statements that delineate the methods by which the enterprise addresses its goals and objectives.

Task Team

A team of individuals from various agencies appointed by the CIO Council to investigate interagency issues.

TCP/IP

Transmission Control Protocol/Internet Protocol

A communications protocol developed under contract from the Department of Defense (DOD) to inter-network dissimilar systems.

Telecommuting

Telecommuting refers to the use of computers, telephone lines, and other electronic devices to enable an individual to work at one remote location by electronically sending and receiving data from another remote location.

Telecomputing

Telecomputing refers to the electronic exchange of information between one sender and one or more receivers. Telecomputing encompasses all forms of information, including voice, data, image, and video. Telecomputing includes all services, products, media and procedures used to deliver information.

Teleconferencing

A conference among people remote from one another who are linked by telecommunications devices.

TIIAP

Telecommunications and Information Infrastructure Assistance Program

Total Quality Management (TQM)

An integrated management methodology that aligns the activities of all employees in an organization with the common focus of customer satisfaction through continuous improvement in the quality of all activities, goods, and services.

TTY

A low-speed teleprinter, referred to as a teletypewriter.

Video Teleconferencing

The real-time, and usually two-way, transmission of digitized video images between two or more locations; requires a wideband transmission facility, for which satellite communications have become a popular choice; transmitted images may be freeze-frame (where a television screen is repainted every few seconds) or full motion; bandwidth requirements for two-way video conferencing range from 56 kbit/s (freeze frame) to T1 rates (1.544 Mbit/s).

Vision

A strategic and lofty statement describing the perfect environment toward which the enterprise is evolving.

Voice Mail Processing

A process in which messages are spoken into a telephone and converted into digital form and then stored in the computer's memory until recalled, at which time they are reconverted into voice form.

Voice Processing

Computerized handling of voice, which includes voice storing and forwarding, voice response, voice recognition, and text to speech technologies.

VT100 Terminal Emulation

VT refers to a series of display terminals from Digital Equipment Corporation that are used on its PDP and VAX mini-computers. VT's are asynchronous terminals that are available in text and graphics modules in both monochrome and color.

Wide Area Network (WAN)

A type of networking technology developed to facilitate the electronic exchange of information between large geographic areas.

X.25 Protocol

A standard international communications protocol that is used in packet switching networks.

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