MINUTES OF THE ___House___ COMMITTEE ON __Computers,Communications & Technology__

The meeting was called to order by ____George Dean____

                                                    Chairperson

__7:30__ a.m./p.m. on ____March 19____, 19_91_ in room __529-S__ of the Capit

All members were present except:

Rep. Phil Kline

Committee staff present: Norman Furse, Revisor of Statutes
Julian Efird, Research
Mary Valdivia, Committee Secretary

Conferees appearing before the committee:
Joseph Harkins, Chairman GIS Policy Board
Robert Wiseman, Kansas Water Office

Meeting called to order by Chairman George Dean at 7:35 AM.

Introduced were Mr. Joseph Harkins, Chairman of GIS Policy Board and Robert Wiseman, Kansas Water Office.

The following were handed out to the Committee and discussion followed.

State of Kansas Strategic Management Plan for Geographic Information Systems Technology , Kansas GIS Policy Board, September 1990 (Attmt. #1)

GIS Policy Board Members (Attmt. #2)

Geographic Information Systems Budget (Attmt. #3); State of Kansas GIS Technology Management PRogram FY 1992 Annual Implementation plan, January 1991.

Mr. Harkins provided the following information.

GIS is trying to reach agreement to coordinate and integrate this effort. There has never before been a multi agency effort like this. GIS has put together a policy board made up of agency heads and are supported by technical staff from these agencies to work together. We are agreeing on standards for data, guidelines for acquisition of equipment, standards on acquisition of software, investment necessary to put data bases into compatible forms so everyone can use them.

Mr. Harkins stated he was not able to document cost savings to the State as a result of GIS. This project is not going to go bad as it has already gone on line. Does not know how much it is going to save as he has nothing to compare it to.

Wanted to stress the following;

1)   Attempting to manage the introduction of new technology to the state government which is called GIS (Geographic Information Systems). This is basically software that is available in the market place today sold by several companies which allows someone who has a large amount of data to manage it with the computer or electronically in order to convert the data into maps and then have points on maps describe through attribute data in another file. In other words it converts files to electronic files so it is possible for someone who needs these files to easily gain access in an efficient way.

CONTINUATION SHEET

MINUTES OF THE ____House____ COMMITTEE ON Computers, Communications & Technology,

room 529-S, Statehouse, at 7:30 a.m./p.m. on ____March 19____, 19 91.

2) We are not inventing a thing. We are trying to manage the purchase of software in an efficient and organized manner.

3) Managing information on basis of geography is becoming more and more important to the state of Kansas.

Question was raised as to how four different data bases that now exist on all wells could be merged into one without actually keying in information?

Mr. Harkins stated that depending upon the condition these data bases are currently in, it might not be possible without going back and re-coding. There are techniques to make them compatible after set up on different format, but did not have any personal knowledge of these four data bases.

Software is only one of the issues GIS is involved with. It is also interested in development of data bases and in coordinating with all agencies.

This system is going to be designed to coordinate research, public information or management in information management on a natural basin basis. GIS capability is going to be a very important tool and improve the efficiency of natural resources protection in the state of Kansas.

The nine agencies involved in this project are: Kansas Water Office/Water Authority; Kansas Wild Life; Kansas Health and Environment; State Corporation Commission, Conservation Division; State Conservation Commission; State Geological Survey; State Biological Survey; State Water Resources Research Institute; DOT.

Policy board created by act of Governor, Chairman appointed by governor, other members appointed by governor. Job is to reach consensus on the project. One agency cannot make decisions for all agencies - no one is smart enough to do this, therefore, all agencies must work together. If looking for someone to place responsibility if project fails it would be me (Mr. Harkins). Of the $500,000 budgeted last year 25% went to the legislature. No positions have been created for GIS.

At this time Dr. Robert Wiseman, Kansas Water Office Administrator for the Policy Board made slide presentation on Strategic Management Plan (attmt. #3 page 2).

This plan looks across the next five years. Have been working with DISC for software procurement as well as sharing of software.

Chairman Dean asked Mr. Harkins to provide information of GIS's earlier efforts and their past history.

Will data base be like a map to be interpreted or verbal descriptive?

It will be digital in information in computers. Any mapping package will be able to use it. There will be verbal data describing quality of the particular data base.

The topographical map now available comes from the federal government and the scale accuracy is 50 feet. On the map could call up and quickly composite or look up individually the bed rock geology, the soils geology, land use, demographics, hydrography and information from census that eventually comes from redistricting. A block will indicate population for that block. WIll have five different sizes of block; the resolution of the block in urban area a street block and rural area 1 or two miles.

Minutes of March 5, 1991, meeting were approved without exception.

Meeting adjourned at 8:35 AM. Next meeting March 20, 1991, 7:30 AM, Room 529-S.

GUEST LIST

COMMITTEE: __CCT__   DATE: __3-19-91__

NAME (PLEASE PRINT)	ADDRESS	COMPANY/ORGANIZATIO
Wm Boyd Allen	901 S Kanm	B o A
Jim Parker	LSOB, RM 951	DISC
M Trout	Topeka	IBM
Deaune Maddock	Topeka	KCC

STATE OF KANSAS

STRATEGIC MANAGEMENT PLAN FOR
GEOGRAPHIC INFORMATION SYSTEMS TECHNOLOGY

KANSAS GEOGRAPHIC INFORMATION SYSTEMS
POLICY BOARD

September 1990

FOREWORD

This strategic management plan presents a statewide perspective on the management and coordination of geographic information system (GIS) technology in Kansas. Strategic planning, in this context, is meant to indicate a comprehensive view of technology management that will provide focus and direction for the more detailed implementation planning that must occur on a routine basis.

This plan emphasizes the need to coordinate the ongoing development of GIS technology within the various state agencies. Such coordination is necessary to ensure that the state gains the greatest possible value from the use of this technology. The ability to share spatial (geographic) information easily and quickly between agencies is one of the most important benefits to be derived from GIS technology. The greatest possible achievement of that benefit is the intent of this plan.

The plan was produced through the cooperative efforts of the GIS Policy Board and Technical Advisory Committee (TAC), with the assistance of PlanGraphics, Inc., a GIS consulting firm.

1 - 2

TABLE OF CONTENTS

/ - 3

SECTION 1
EXECUTIVE SUMMARY

This document is the state's strategic plan for the management and coordination of geographic information system (GIS) technology. The plan has been developed by the Planning Subcommittees of the GIS Policy Board and the Board's Technical Advisory Committee, and has been adopted by the Board. The fundamental objectives of the Board focus on facilitation and coordination of agency initiatives in GIS technology rather than development of a separate and distinct system of hardware, software, and database.

GIS technology is emerging worldwide as the standard tool set for integrated management of geographic information, both graphic and alphanumeric. Geographic information, often referred to as spatial information, can be defined as any piece of information that can be referenced by a location. For instance, any information that can be referenced by an address is spatial, or geographic, information. GIS technology enables managers and users of geographic information to achieve higher levels of information integration and to perform more complex analyses than are practically feasible in manual environments.

This strategic plan is designed to guide the state in the attainment of the following strategic goals:

- ° Support orderly and appropriate implementation of GIS technology in agencies of state government.

- ° Improve the quality and efficiency of state governmental services and decision-making through wider application of improved geographic information.

- ° Enhance the capability of state government to use geographic data in pursuit of government mandates and objectives.

- ° Establish procedures for long-term GIS technology management.

The Board took the initial steps toward realization of those goals in FY 90 by establishing the GIS Technology Management program. The Board will operate the program in four parallel, but related, tracks: Database, Services, Technology Transfer, and Management; and five annual increments, corresponding to fiscal years 1991 through 1995.

The Database track will develop a core database of geographic information, encourage development of thematic databases built on the core database foundation, and make the core and thematic databases available to the GIS community in Kansas state government.

The Services track will encourage use of GIS technology and geographic data resources in state government by providing practical support in the form of GIS-related services.

The Technology Transfer track will inform user agencies and state government at large about the potential and capabilities of GIS technology in Kansas state government.

The Management track will assure continuity of GIS planning and coordination.

/—4

SECTION 2
ORGANIZATION OF THE PLAN

The plan is organized as follows:

° A brief statement of the strategic planning policy in response to which this plan has been prepared.

° A concise statement of strategic and immediate goals relating to the implementation of cooperative GIS technology management in state agencies.

° An outline of the assumptions which form the background of this plan.

° A brief description of the potential of GIS technology in state government.

° A listing of issues critical to successful management of GIS technology.

° A strategic view of cooperative GIS technology development in state government.

/- 5

SECTION 3
STRATEGIC PLANNING POLICY

The GIS Policy Board was appointed by Governor Mike Hayden in August 1989, and held its first meeting in September of that year. The Board is a coalition of state, federal, and county agencies whose objectives and responsibilities were outlined by Governor Hayden (see Appendix A).

The Board authorized the creation of a Technical Advisory Committee as one of its first acts. The Board receives recommendations from, and directs projects to, the TAC via personnel who chair the TAC and staff the Board. The Board holds regularly scheduled bimonthly meetings with occasional special meetings called by the chairman. The TAC usually meets at least monthly. Figure 3-1 indicates the members of the Board, the TAC, and the various special purpose subcommittees.

The Board has set a policy requiring strategic planning for the management of GIS technology in state government as a continuing process.

The policy commits the Board to establish a strategic plan with a five-year horizon and to extend it, at minimum, each second year.

Consistent with existing policies, this strategic planning process will constitute:

° A dynamic guide for detailed planning of individual elements of the plan.

° The central mechanism for coordinating and integrating elements of GIS development throughout the agencies of state government without loss of planning perspective.

° The major instrument for meeting inevitably changing circumstances without loss of momentum or overall direction.

The Board and TAC will augment this strategic plan with detailed annual implementation plans keyed to state fiscal years.

/— 6

FIGURE 3—1
GIS POLICY BOARD AND TECHNICAL ADVISORY COMMITTEE MEMBERS

GIS POLICY BOARD

Virgil F. Basgall	Dept. of Admin., DISC
Brad Bryant	Sec. of State's Office
James V. Bush	Dept. of Transportation
Mary Galligan	Legislative Research
Lee Gerhard	KS Geological Survey
Stanley Grant	Dept. of Health and Environment
James N. Habiger	U.S. Soil Conservation Service
Joseph Harkins (Chair)	Water Office
Keith R. Henley	Corporation Commission
Mark Hixon	Barton County Appraiser's Office
Gary Hulett	Governor's Office
Tom Huntzinger	U.S. Geological Survey
Kenneth F. Kern	Conservation Commission
Keith Lebbin	Groundwater Mgmt. Dist. Assn.
Edward A. Martinko	KS Biological Survey
Robert L. Meinen	Dept. of Wildlife and Parks
Duane Neilis	KS State Univ., Geography Dept.
David L. Pope	Board of Agri., Div. of Water Resources
Ed Rolfs	Dept. of Revenue
Charles Warren	Kansas, Inc.
Wayne Zimmerman	Dept. of Commerce

GIS TECHNICAL ADVISORY COMMITTEE

Claud Baker	U.S. Geological Survey
Gary Baker	Groundwater Mgmt. Dist. Assn.
Val Carter	Legislative Research
David Collins	KS Geological Survey
Teresa Floerchinger	Dept. of Admin., Div. of Budget
Randall J. Foster	Sec. of State's Office
Tim Hensley	Dept. of Revenue
Jim Kent	Dept. of Commerce
Brian Logan	Dept. of Transportation
Jerry Lonergan	Kansas, Inc.
Mike Morrow	Dept. of Wildlife and Parks
James Parker (Co—Chair)	Dept. of Admin., DISC
Lorne Phillips	Dept. of Health and Environment
John Radenberg	Barton County Appraiser's Office
Tina Rajala	Water Office
John W. Reh	U.S. Soil Conservation Service
H.L. Seyler	KS State Univ., Geography Dept.
Scott Stockwell	Corporation Commission
Tracy Streeter	Conservation Commission
Lloyd Stullken	Board of Agri., Div. of Water Resources
Stephen R. Thompson	KS College of Technology
James A. Tyler	KPL Gas Service
Kerry Wedel (Co—Chair)	Water Office
Jerry Whistler	KS Biological Survey
Robert Wiseman	Univ. of KS, Geography Dept.
John Young	KS Society of Land Surveyors

PLANNING SUBCOMMITTEE

James V. Bush	Dept. of Transportation
Lee Gerhard	KS Geological Survey
Stanley C. Grant	Dept. of Health and Environment
Joseph Harkins (Chair)	Water Office
Gary Hulett	Governor's Office
Tom Huntzinger	U.S. Geological Survey

DATA STANDARDS SUBCOMMITTEE

Claud Baker	U.S. Geological Survey
David Collins (Chair)	KS Geological Survey
Tim Hensley	Dept. of Revenue
Brian Logan	Dept. of Transportation
Jerry Lonergan	Kansas, Inc.
Lorne Phillips	Dept. of Health and Environment
John Radenberg	Barton County Appraiser's Office
John W. Reh	U.S. Soil Conservation Service
H.L. Seyler	KS State Univ., Geography Dept.
Stephen R. Thompson	KS College of Technology
John Young	KS Society of Land Surveyors

DATA INVENTORY/ACQUISITION SUBCOMMITTEE

Gary Baker	Groundwater Mgmt. Dist. Assn.
Val Carter	Legislative Research
Randall J. Foster	Sec. of State's Office
Jim Kent	Dept. of Commerce
Mike Morrow	Dept. of Wildlife and Parks
Tina Rajala	Water Office
Scott Stockwell	Corporation Commission
Tracy Streeter	Conservation Commission
Lloyd Stullken (Chair)	Board of Agri., Div. of Water Res.
Jerry Whistler	KS Biological Survey

PLANNING SUBCOMMITTEE

David Collins	KS Geological Survey
Tim Hensley	Dept. of Revenue
Brian Logan	Dept. of Transportation
James Parker	Dept. of Admin., DISC
Lorne Phillips	Dept. of Health and Environment
Lloyd Stullken	Board of Agri., Div. of Water Res.
Kerry Wedel (Chair)	Water Office

/—7

SECTION 4
GOALS OF THE GIS TECHNOLOGY MANAGEMENT PLAN

4.1 Strategic Goals

Goal 1:   Support orderly and appropriate implementation of GIS technology in agencies of state government.

Goal 2:   Improve the quality and efficiency of state governmental services and decision-making through wider application of improved geographic information.

Goal 3:   Enhance the capability of state government to use geographic data in pursuit of government mandates and objectives.

Goal 4:   Establish procedures for long-term GIS technology management.

4.2 Operational Goals

Goal 1:   Facilitate and extend development of GIS capacity and capability in individual agencies.

Goal 2:   Expand interagency transfer of GIS technology and cooperation in GIS development.

Goal 3:   Establish an annual cycle of detailed implementation planning to support execution of the strategic plan.

Goal 4:   Develop data standards as a primary tool for enabling data transfer.

Goal 5:   Establish prototype GIS database designs.

Goal 6:   Define and specify core data sets to be shared among GIS user agencies.

Goal 7:   Allocate resources made available to the GIS Policy Board to support agency development of broadly applicable, core-oriented databases meeting data standards.

1-8

SECTION 5
BACKGROUND

5.1 Overview of Previous Activities

In September 1988, the Kansas Water Data Committee (KWDC) developed a multi-agency GIS proposal to facilitate implementation of the Kansas Water Plan, as well as other programs of state government. The proposal, entitled Kansas Geographic Information System Initiative, recommended the implementation of a state GIS data network and the establishment of a state GIS policy board to oversee management of the network. The KWDC proposal was not funded, however, the concept of coordinated GIS implementation in state government was adopted by state agency heads and the governor's office.

The GIS Policy Board was organized in August 1989, by Governor Mike Hayden, and is composed of 21 members representing state, federal, and local governments. These agencies represent various categories of users, including natural resources, revenue, transportation, health, local government, academic institutions, and ex-officio members. The chairman and members of the Board are appointed by the Governor. Staff support is currently provided by existing personnel from selected agencies serving on the Board. A planning subcommittee has been established for strategic planning functions.

The Board's early focus was on coordinating GIS database development among state agencies. It also identified the adoption of data exchange standards as a high priority.

At its initial meeting in September 1989, the Board approved the formation of a technical advisory committee to provide input to the board. The Technical Advisory Committee consists of 26 members representing local, state, and federal agencies; professional organizations; and private entities. The TAC is chaired by Board staff. The TAC structure includes three subcommittees: (1) Data Inventory and Acquisition, (2) Data Standards, and (3) Planning, as illustrated in Figure 3-1.
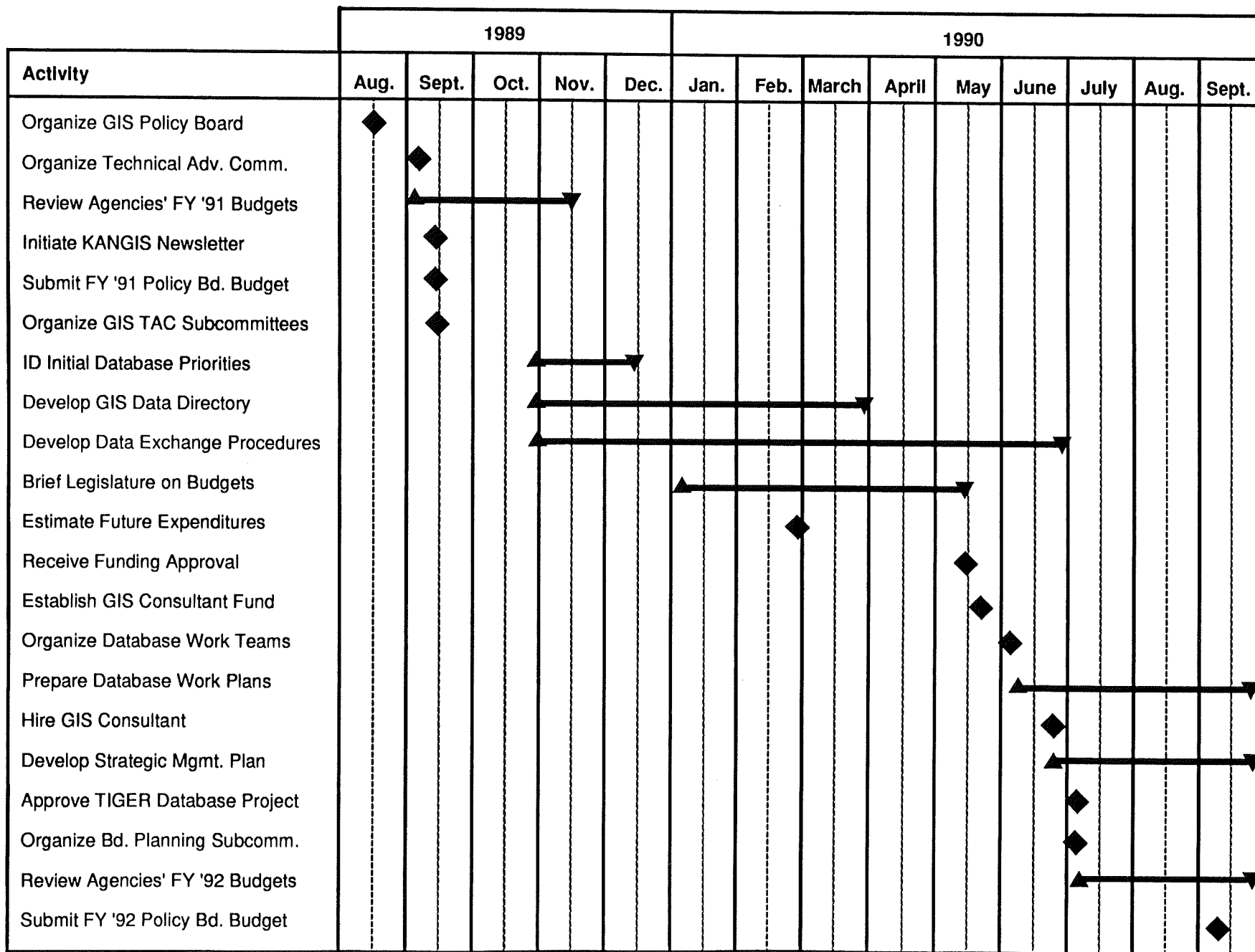
The Board and the TAC have been involved in numerous activities related to coordinated GIS development and implementation since their inception in 1989. Figure 5-1 illustrates several important milestones and work products accomplished during the first year of operation.

5.2 General View of GIS Technology

The members of the Board and TAC base their approach to the tasks of GIS technology and its management within state government on the following general premises:

° GIS technology is emerging worldwide as the standard tool set for integrated management of geographic information, both graphic and alphanumeric.

° The technology enables managers and users of geographic information to achieve higher levels of information integration and to perform more complex analyses than are practically feasible in manual environments.

° GIS technology is effective; further testing of its basic functionality is not required.

/- 9

FIGURE 5-1
GIS POLICY BOARD ACTIVITY IN FY '90

Activity	1989					1990									
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	
Organize GIS Policy Board	◆														
Organize Technical Adv. Comm.		◆													
Review Agencies' FY '91 Budgets		▲—————▼													
Initiate KANGIS Newsletter		◆													
Submit FY '91 Policy Bd. Budget		◆													
Organize GIS TAC Subcommittees		◆													
ID Initial Database Priorities			▲———▼												
Develop GIS Data Directory			▲————————————▼												
Develop Data Exchange Procedures			▲———————————————————————————▼												
Brief Legislature on Budgets							▲————————▼								
Estimate Future Expenditures							◆								
Receive Funding Approval										◆					
Establish GIS Consultant Fund										◆					
Organize Database Work Teams										◆					
Prepare Database Work Plans											▲————————————▼				
Hire GIS Consultant											◆				
Develop Strategic Mgmt. Plan											▲——————————▼				
Approve TIGER Database Project											◆				
Organize Bd. Planning Subcomm.											◆				
Review Agencies' FY '92 Budgets											▲——————————▼				
Submit FY '92 Policy Bd. Budget														◆	

1-10

° GIS technology, through its powers of information integration, has the capacity to change the manner in which operations of government are conducted.

° Introduction of GIS technology to state government requires creative management and willingness to absorb and exploit change to achieve success.

5.3 Assumptions

This plan is based on the following set of assumptions:

° Management throughout state agencies, many of which have undertaken individual GIS projects, also supports agency participation in coordinated development of the technology within state government.

° As evidence of that support, agency management, at the recommendation of the GIS Policy Board, will implement initiatives to enhance cooperative GIS development.

° Such cooperative approaches will support existing GIS projects and encourage further initiatives at the agency level.

° Cooperative GIS development will exploit currently held equipment and software resources to the maximum degree feasible, and will seek to maximize benefits derived from extended applications to GIS technology.

° Preservation and enhancement of data resources is a central value in cooperative GIS development.

° Wherever appropriate, state agencies will make use of local, regional, and federal data sources in constructing their databases.

° Cooperation with organizations outside state government may require submission to their data standards.

° Agencies involved in GIS development will design and develop a core database to be held in common.

° A Data Access and Support Center (DASC) will be developed within an existing state agency to provide archival storage of the core database, and such other agency databases as may be broadly useful.

° Many geographic information sets existing within state government are not now fully distributed or exploited because of the lack of enabling technology and organization.

° No investments in equipment or software by state agencies are so large or pervasive as to constitute a de facto commitment to any particular GIS technical solution.

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analyze and manage spatial data for decision-making purposes. Some of these programs include Non-point Pollution Control, Environmental Coordination, Water Pollution Remediation, and Riparian and Wetland Protection.

A cooperative approach to the management of GIS technology will enable the state to achieve:

° Timely availability of maps and related information to all elements of state government.

° Integration of maps and geographic data with related tabular databases.

° Ready communication and maximum exploitation of geographic information assets throughout state government.

° Maintenance of geographic information in accordance with accepted standards.

° Coherent maintenance and development of GIS capabilities in response to developing technology.

° Capability to perform higher-level analyses of physical and social environments.

As the use of GIS technology and associated geocoded data increases, the need to exchange these data in an efficient and cost-effective manner will become increasingly prudent. This will likely foster the use of electronic data communications networks for exchanging geocoded data.

As part of the strategic planning process, the current pattern of spatial information sharing in state government was examined. The results of that examination are presented in Appendix C. Those results lead to the following conclusions:

° The potential for spatial information sharing between state agencies is largely untapped.

° Current spatial information flow does not adequately accommodate the needs of state agencies.

° Spatial information sharing that does exist is mostly performed on an irregular basis and is rarely part of the normal functioning of state agencies.

Information sharing between state agencies should be institutionalized and performed with appropriate procedures and technology to insure efficient, continuous flow. A cooperative effort to manage GIS technology as it currently exists, and as it emerges in various state agencies, will ensure the attainment of this objective.

1-12

SECTION 6
THE POTENTIAL OF GIS TECHNOLOGY IN STATE GOVERNMENT

The initial thrust of the Kansas GIS initiative is clearly limited, for the most part, to state agencies. The only exceptions are cooperative arrangements, where appropriate, with federal or other entities. The focus upon developing statewide GIS capabilities within and among the various state agencies was reinforced by Governor Hayden's recommendations for limitations upon GIS funding, accepted in principle by the 1990 Legislature, for fiscal years 1991 through 1995.

A broader vision of GIS technology, however, cannot ignore the proliferation of systems that continue to surface at the municipal and county levels of government throughout the state in response to a wide range of GIS needs by these agencies. Although it is likely that most GIS-related data needed at a state agency level are not sufficiently precise for county or municipal use, some clearly would be extremely useful (e.g., soils, roads, and population). Likewise, it is apparent that a significant amount of GIS-related data needed at the county or municipal level would likely be extremely useful, at times, to state agencies. It logically follows, then, that a long-range statewide GIS strategic plan should endeavor to establish compatibility and standards to facilitate such data sharing, when appropriate. This rationale can be extended to potential data sharing with utilities and other private-sector entities.

The long-range GIS vision for Kansas thus indicates that state agency needs should be met with fully documented, carefully considered solutions that attempt to continually address the short and long-term potential and eventual benefits to and from other governmental agencies and/or private sector entities. The scope of a truly statewide, fully-integrated GIS for Kansas and the timetable for completion of such a venture will be determined, to a considerable degree, by legislative and budgetary constraints upon resources, technological changes, and progress of GIS initiatives within county and municipal governments and private industry.

Cooperative management of GIS technology will develop the potential to treat geographic information as a governmental asset in its own right, ready for application to any function which might benefit from its use.

It will also develop the potential to link geographic data to any other spatially organized databases maintained commercially or by other levels of government.

Several current initiatives in state government will benefit from the use of GIS and automated mapping technology. These initiatives include state transportation planning, state water plan implementation, and legislative redistricting. Several agencies have identified numerous applications within their organizations for GIS technology. Appendix B provides a list of numerous present and anticipated future GIS applications and data needs identified by agencies currently involved in the state GIS initiative.

As an example, the Kansas Water Plan addresses the need of several natural resource agencies for GIS technology to effectively plan for and manage the state's water-related natural resources. The Monitoring, Data, Information System Subsection of the plan recommends the development of a river basin-oriented Water Resource Management Information System involving the utilization of GIS technology and associated databases. Several state water plan programs will benefit from the use of GIS technology during implementation to effectively

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SECTION 7
CRITICAL ISSUES

To succeed in cooperative development and management of GIS technology, the GIS Policy Board, and individual agencies involved, must confront and resolve a number of issues, including prominently the following:

° *Orientation of State GIS Efforts*

The current orientation of the Board, as outlined in the Governor's directive (see Appendix A), is to support state government operations. This involves the development of policies and priorities that facilitate coordination and compatibility in agencies' GIS operations. The development and implementation of interagency mechanisms for sharing resources and avoiding duplication of effort are primary objectives. A broad representation of current and potential future GIS users in state government are represented on the Board.

Most of the Board's attention to date has been directed toward water-related initiatives, largely because the initial source of database acquisition and development funding has been the State Water Plan Fund.

It is anticipated that the TAC and Board will be examining GIS endeavors that encompass much more than water-related initiatives as rapidly as funds, and the availability of other resources, will allow.

Furthermore, the Board has been oriented toward the internal agencies and functions of state government as they might involve geographic data. The question of potential state agency initiatives in supporting or interacting with subordinate jurisdictions through GIS technology has yet to be thoroughly addressed. Similarly, further interactions with federal agencies, whether responding to mandates or opportunities, need to be examined.

Interaction with federal and local levels of government, as well as private entities, may occur where an opportunity for data sharing and coordination exists. It is anticipated that this interaction will increase in the future as GIS programs are planned and implemented in the public and private sectors.

° *Core Data Sharing*

Redundant development of GIS cartographic databases and associated geographic information do not now appear to be a major problem among state agencies using geographic information. However, it is also clear that the goal of increased use of GIS technology will be served by data sharing among user agencies wherever and whenever feasible. Sharing will be facilitated if a body of data is compiled which is either required by, or of interest to, most users and can be maintained in the common interest. A common base map file, made up of data that provide a spatial context and physical orientation for other specialized data sets, is a fundamental element of such a shared core database. These locational data may be augmented with additional, overlying data sets of broad user interest, such as utility network schematics or jurisdictional boundaries.

1- 14

The core database will consist of various data sets determined by the Technical Advisory Committee and the GIS Policy Board to be of common interest and utility to multiple agencies represented on the Board. These may include existing data sets as well as new data sets to be developed. Standards for the enhancement, modification, or development of data sets to be included in the core database shall be established by the TAC and approved by the Board. Data sets may be added to the core database on a case-by-case basis. Appendix D provides a list and brief description of initial data sets to be included in the core database.

The issue of core data sharing will include a number of potentially thorny ancillary issues, such as the physical location of the Data Access and Support Center, and the functionality to be developed at that site.

The Board intends to establish the DASC to provide services to the member agencies of the Board with respect to the core database. These services will be provided through a contractual arrangement with the Board. Initial services may include:

- Administrative and technical support services relating to development, storage, distribution, and updating of the core database.

- Development and maintenance of a data directory.

- Limited service bureau capabilities to provide various GIS products (e.g., maps) as requested by Board agencies. It is anticipated that this service bureau component may expand over time to offer a variety of services to a broad range of clientele.

- Other services as determined necessary by the Board.

General policies and procedures for operation of the DASC will be established by the Board.

Data sets, in addition to the core database, may also be made available to Board agencies through the DASC. Acceptance and administration of these data sets would follow guidelines and procedures adopted by the Board.

° *Completion and Maintenance of Data Standards*

The Board, with the assistance of the TAC, has previously developed fundamental standards for exchange of data. These must be extended to encompass standards for acquisition, development, and maintenance of data to assure that elements of various agency data sets are compatible and amenable to common analysis should future applications dictate that they be brought together in an applications data set. Such issues as the following are in question:

- Minimum standards required, that is, what minimum standards for descriptive information must accompany a data set put forward for inclusion in the state database catalog?

1-15

- Credibility documentation, that is, how is the credibility and reliability of existing data sets to be evaluated?

- Rationalization, that is, how are discrepancies between data sets to be judged and resolved?

- Standardization of symbols, including line and pattern coding, as well as point symbols, all of which may represent different entities or conditions in different mapping situations.

- Cartographic precedence, that is, in situations of space competition within a map, what is the order of precedence among data themes?

- Minimum factual standards, that is, what, if any, standards of accuracy, precision, and currency can be set for state GIS data in general?

- Standards maintenance, that is, once set, how are standards to be enforced or changed?

These and similar questions, all regarding how best to protect data integrity and facilitate combined use of disparate data sets, must be addressed.

° *Appropriate Hardware and Software Standards*

The fundamental objectives of the GIS Policy Board focus on facilitation and coordination of agency initiatives in GIS technology rather than development of a separate and distinct system of hardware, software, and database. However, some degree of normalization of agency installation will be beneficial, if not mandatory. The issue will involve balancing competing values of operational efficiency on the one hand, and agency independence and initiative on the other.

The definition of appropriate standards will rest to a large degree on what level of data integration is prescribed. If data exchange by media transfer (tape or disk) is to be the rule, standards need to extend chiefly to a requirement that all systems provide software translation to and from a single exchange format. If, in contrast, systems are to communicate electronically, questions of communications protocols and operating system compatibility must be addressed. In either case, it will be necessary to set minimum memory and storage standards to assure that user systems do not overtax shared file or database servers by lack of local capacity. The higher the level of integration sought, the more restrictive the standards required, perhaps extending to specification of specific operating systems.

° *Priorities for Support of Agency Initiatives*

As GIS technology comes into broader and broader use, the Board will have to make hard choices about where to expend limited resources among competing initiatives. Before that problem becomes a significant reality, criteria for priority-setting must be codified.

/-/ 6

Fundamentally, priorities should be set on the principle of greatest good for greatest number. Where initiatives are competing for limited resources, the principle might be applied by considering the following:

-    Scope of the agency or agencies which will benefit from an initiative (in most cases, development of a given data set or product).

-    Importance of the subject involved (in terms of extent of use, importance to public, risks entailed in not having data available, importance to policy decisions, etc.).

-    Significance of the area of the state covered or to be covered in the case of database-building initiatives.

° *Policies Regarding Access to State GIS Databases*

GIS databases are valuable resources and, when created by government, may be characterized by interested segments of the public as public records, subject to access on demand under open records laws. On the other hand, they may contain data of a proprietary or confidential nature which may also be protected by law. For the general welfare, state government may favor wide dissemination of GIS databases, but dedication of resources to meeting data requests may detract from internal effectiveness. Before such conflicting pressures develop, the GIS Policy Board must develop and publish policies which meet these conflicting demands.

The often confusing and sometimes controversial issues of: (1) whether, by what means, and on what basis to recover costs by charging for GIS services; (2) whether agencies providing the data sets utilized in a repository have automatic access at no cost to other data sets; (3) whether public records encompass information as well as data; and (4) whether, to what extent, and by whom liability is incurred for the results of incorrect decisions made on the basis of incomplete or inaccurate GIS data, are among those that will be considered by the TAC and Board in the months ahead.

° *Funding Policies*

Currently, GIS initiatives are funded primarily from the budgets of individual agencies. Funds under the control of the Board are targeted to support agencies in creating selected data sets. A broad policy will be developed to deal with criteria for distribution of Board funds, determination of the value of in-kind contributions to database efforts, handling of cost recoveries, and similar questions.

Proposed enhancements to individual agency GIS budgets will be reviewed on an annual basis by the Board to determine consistency with the strategic management plan. The Board will submit recommendations to the Governor based on this annual budget review.

1-17

In addition to agency budget reviews, the GIS Policy Board will prepare and submit an annual budget for funds to be controlled by the Board. These funds will be used for various GIS expenditures determined by the Board to be of collective interest and benefit to participating Board member agencies. These may include items such as development and enhancement of the core database, operation of a database repository, and Board staff support.

The annual review of agencies' budgets and development of a Board budget will be components of the annual implementation plan as described in the strategic planning policy.

° *Management Structure and Processes*

The current structure of the Board and TAC has been effective to date, during the early planning stages of GIS technology management. As implementation plans are put in place, and the scope and complexity of GIS technology management efforts expand, the Board will act to assure that management structures remain effective.

Basic components of the management structure are:

- <u>GIS Policy Board</u>. The Board establishes general policies and procedures for GIS development among state agencies and for coordination with federal and local agencies. The Board develops an annual budget addressing interagency GIS needs and administers funds for development and administration of a core database. An ongoing planning process is maintained by the Board to identify and resolve issues related to GIS development and implementation on a regular basis. Board staff supports activities of the Board as well as the Technical Advisory Committee.

- <u>GIS Technical Advisory Committee</u>. The TAC provides advice and guidance to the Board on the technical aspects of GIS development and implementation in state government. This includes development and maintenance of a core database and the establishment of standards and procedures to insure compatibility of data, software, and hardware. An agency directory of data sources and geographic information systems is maintained by the TAC to facilitate interagency coordination and communication among GIS users. A list of current publications developed by the TAC is provided in Appendix E.

- <u>GIS Data Access and Support Center</u>. The proposed DASC would provide administrative and technical support services for the GIS core database. In addition, limited service bureau capabilities would be available to provide various products to member agencies of the Board. An enhanced service bureau function may develop in the future. The DASC would also serve as a point of contact for other entities with interest in accessing the core data. General policies and procedures for access would be established by the Board.

1 − 18

SECTION 8
STRATEGIC MANAGEMENT PLAN

8.1 Planning Concept

The GIS Policy Board will operate the GIS Technology Management program in four parallel, but related, tracks: Database, Services, Technology Transfer, and Management; and five annual increments, corresponding to fiscal years 1991 through 1995.

Tracks are made up of closely related task series which can move forward with some degree of independence from one another, provided that milestones are coordinated between tracks. In contrast, increments are related to achievement of major project goals as set forth in annual implementation plans. Major milestones in state agency employment of GIS technology will be reached in each increment. Each major milestone will connote achievement of a plateau of maturity assuring that the value of investments in technology to that point can be preserved and that state government is ready to undertake more complex and inclusive GIS activities.

The plan outlined is conceptual in nature. The five-year horizon conforms to policy and is indicative of goals only. Their achievement will be highly dependent on funding and interagency cooperation. The principal focus is on identifying task components of a pro-active approach to GIS technology management and the dependencies among them. As such, the plan also presents a program of detailed planning to be executed as the relevant issues are resolved and the approach to be taken in subsequent tasks becomes clear.

Figure 8-1 diagrams the relationships of tracks and milestones to annual planning increments.

8.2 Database Track

The goals of the database track are (1) to establish and make available to the GIS community in state government a core database of geographic information to be held and maintained in common as a continuing asset, and (2) to encourage development, maintenance, and dissemination of thematic databases built on the core database foundation.

To achieve these goals, four task series are projected:

° Define database standards which will guide all members of the GIS community in database building. Standards will address such fundamentals as spatial accuracy and precision, currency and data maintenance, credibility, source documentation, database logic, and attribute coding. An intense initial development is planned for FY 91 to complete and publish initial standards. The effort will continue in subsequent years as needed.

/ - / 9

FIGURE 8-1
STRATEGIC GIS MANAGEMENT PLAN
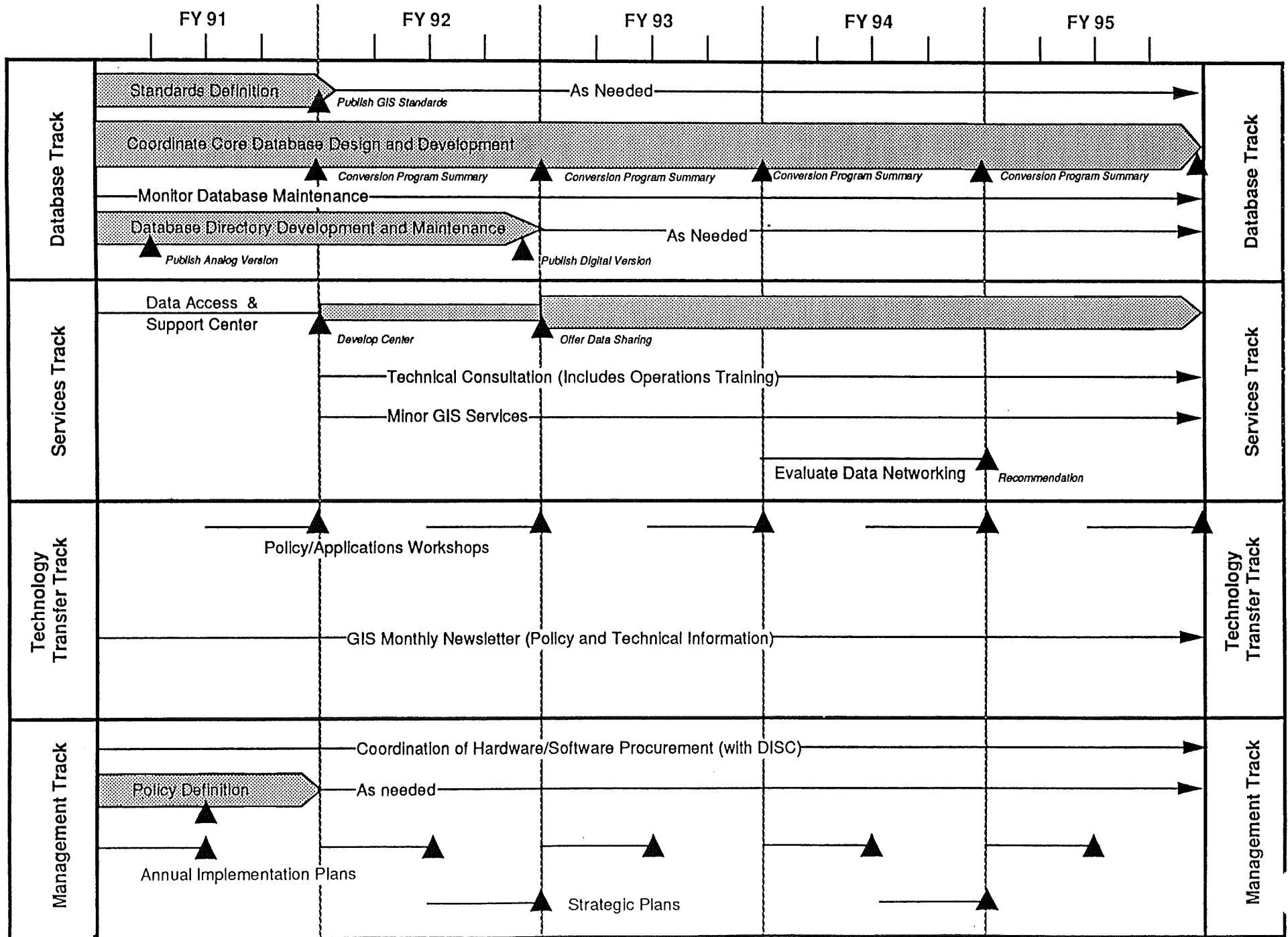
° Coordinate core database design and development by state agencies. Data conversion efforts already under way will extend throughout the five-year horizon of this strategic plan and may continue beyond. Annually, the Technical Advisory Committee will contribute Board funding to database-building initiatives proposed by user agencies which contribute to the core database and which meet GIS standards. The TAC may also solicit conversion of needed information from appropriate agencies. This conversion support program will be documented in annual summaries as indicated in Figure 8-1.

° Monitor database maintenance. The Board, through the TAC, will assure that originating agencies continue to maintain core database elements and thematic data layers for which they have accepted responsibility. This effort, sustained throughout the period covered by this plan, will be essential in protecting the integrity and value of the GIS database in the long term.

° Develop and maintain a GIS database directory as a guide for GIS users throughout state government and beyond to the databases held by state agencies. An intense effort in early FY 91 will produce a first analog edition of the directory, to be followed by a digital edition by the end of FY 92. That edition will be revised and augmented as needed throughout the remainder of the plan period.

8.3 Services Track

The goal of the services track is to encourage use of GIS technology and geographic data resources in state government by providing practical support in the form of GIS-related services to current and potential user agencies.

To achieve this goal, the plan anticipates four task series:

° Implement a Data Access and Support Center. The Board will develop within state government a repository for the GIS core database and selected thematic data files, which will provide an efficient, single point of access to these data for the widest range of users and will actively promote data sharing. During FY 91, the Board will select a sponsor and site for the DASC and execute appropriate contracts for the facilities and services involved. The DASC will open at the end of FY 91 as the first elements of the core database become available. Data sharing services will be developed and introduced by the close of FY 92.

° Provide GIS development consultation and operational training. Beginning in FY 92, the Board will make available, as an ongoing service to interested agencies, technical advice on GIS design, hardware and software selection and procurement, database development, and GIS operation and applications.

° Provide limited GIS services. Beginning in FY 92, the staff and facilities of the DASC will perform limited GIS services (such as custom map plotting or report generation) for users who have limited needs and no other access to the technology. Through such services, the Board will extend familiarity with GIS technology and encourage wider use of state GIS resources.

/-2/

° Evaluate data networking. The data sharing included in this plan will be primarily physical exchange of hard copy graphics or data tapes and disks. As the coordinated use of GIS technology spreads, it may become advisable to introduce electronic information exchange, as well. In FY 94, the Board plans to evaluate that possibility and make a recommendation on establishment of a data network among GIS installations in state government.

8.4 Technology Transfer Track

The goal of this track is to inform supervisors, managers, and other professionals in user agencies and state government at large about GIS technology, and its potential and capabilities in state government.

To accomplish this goal, two programs are planned:

° Conduct annual policy and applications workshops. The Board, with TAC assistance, will stage a workshop or workshops to inform the state government community of current Board policies, and to provide information on and demonstration of GIS applications available within the community.

° Publish a GIS newsletter. The Board will disseminate monthly to state agencies and other parties a newsletter covering both policy and operational subjects of particular interest to the GIS community.

8.5 Management Track

The goal of this track is to assure continuity of GIS planning and coordination. Four task series are projected:

° Define policy. The Board will make a concerted effort in FY 91 to complete a basic statement of GIS technology management policy. Thereafter, it will modify or augment its policies as needed.

° Coordinate hardware and software procurement. The Board, while maintaining standards necessary to assure compatibility in GIS development among user agencies, will cooperate with DISC in guiding hardware and software procurements for GIS installations.

° Develop and publish GIS implementation plans annually. Annually, and in parallel with budget development, the Board will prepare a detailed plan for implementing the following year's increment of this strategic plan.

° Revise and extend GIS strategic management plan biennially. Biennially, the Board will reconsider and extend this plan to a five-year horizon.

1-22

APPENDIX A
GOVERNOR'S DIRECTIVE

1-23

STATE OF KANSAS

TO: Agency Heads

FROM: Governor Mike Hayden

DATE: March 14, 1989

RE: GIS Initiative and Kansas GIS Policy Board

   Attached is a signed statement of intent to establish a
Kansas Geographic Information System Initiative. This is to
inform you that I am appointing Joe Harkins, Director of the
Kansas Water Office to serve as Chairman of the GIS Policy
Board as called for in this statement.

   I am directing the Chairman to take the following actions:

   *   Convene a meeting of interested agency heads and
        present them a list of potential board members.

   *   Utilizing the advice from this meeting, Chairman
        Harkins will then make recommendations to me on board
        membership with the provision that all recommendations
        include representatives of all categories of users
        identified in the statement of intent (natural
        resources, revenue, transportation, health, local
        government, academic institutions).

   I will then appoint the entire GIS Policy Board.

   While I did not include funding for a major GIS Initiative
in my FY 1990 budget recommendations, I want to assure you that
I support the concept embodied in that initiative. It is my
expectation of the GIS Policy Board that it will:

1-24

*   Develop policy guidelines for all state agencies so
     that they plan for compatibility of geographical
     information systems as they make their hardware and
     software purchases for data management during FY 1990.

*   Pursue Agreements of Participation with the full range
     of agencies that would have an interest in a
     coordinated GIS system.

*   Explore the full range of interest and opportunities
     among all state agencies that might have a role in a
     coordinated GIS effort.

*   Develop a policies and priorities that might guide
     agencies and the Governor in considering step by step
     implementation of GIS technology in FY 1991 and beyond
     as resources allow.

KANSAS GEOGRAPHIC INFORMATION SYSTEM INITIATIVE

I. INTENT

The intent of this document is to establish a basis for the coordination, implementation and management of the Kansas GIS Initiative.

II. OBJECTIVES

1. Coordinate the implementation and use of GIS technology by participating agencies.

2. Provide an opportunity for prompt access to GIS technology by all participating agencies and other potential users.

3. Promote compatibility and standards for geographic information.

4. Promote sharing of computerized, geographically referenced data.

5. Reduce the costs that would be involved if each agency developed its own GIS capabilities independently and networking did not take place.

6. Enhance the information analysis and decision making process of participating agencies through the use of GIS technology.

7. Promote the development of a state data directory and statewide digital cartographic standards.

8. Provide coordination by establishing a GIS Policy Board.

III. KANSAS GIS POLICY BOARD
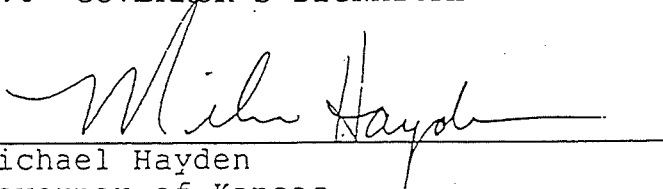
Membership on the Policy Board shall be by appointment of the Governor and may include classes of state agencies such as natural resource, revenue, transportation, health; local government; and academic institutions. The Policy Board shall be authorized to enter into signed agreements, such as outlined in Exhibit A, with participating state, local and federal agencies. Agencies signing such an agreement will thereby be committed to fulfilling the objectives of this document.

The Policy Board shall be responsible for establishing operating policies necessary to accomplish the objectives enumerated in Section II of this document. Specific attention shall be directed toward:

1. Establishing policies relating to the management and development of geographic data standards, access authorization and sale, if any, of products of the system.

2. Establishing priorities for statewide database acquisition.

3. Establishing priorities for statewide database development.

2

1-27

4. Coordinating system support activities of the statewide GIS.

5. Reviewing recommendations/concerns submitted by the Kansas Water Data Committee and recommending appropriate action.

6. Meeting on a semi-annual basis or upon request of the board chairperson.

IV. GOVERNOR'S SIGNATURE

Michael Hayden
Michael Hayden
Governor of Kansas

<u>March 14, 1989</u>
Date

1-28

APPENDIX B
AGENCY APPLICATIONS AND
DATA SET NEEDS

1-29

AGENCY APPLICATIONS AND DATASET NEEDS

KEY
■ = Current Need
○ = Future Need

APPLICATIONS	Landbase	Hydrology	Land Use/Cover	Soils	Geology	Population	Contaminated Sites	Public Water Supplies	Transportation/Utilities	Water Rights	Surface Elevation	Underground Injection Wells	Wastewater Discharge	Administrative Boundaries	U.S. Geodata
State Board of Agriculture															
Water Rights Mapping	■	■	■	■	■		■	■	■	■		■	■	■	■
Water Structures Management	○	○	○	○	○	○	○	○	○	○			○	○	○
Water Availability Studies	○	○	○	○	○	○	○	○	○	○		○	○	○	○
Water Allocation Management	○	○	○	○	○	○	○	○	○	○		○	○	○	○
Pest/Pesticide Analysis	○	○	○	○	○	○	○	○	○	○			○	○	○
Water Table Mapping	○	○						○	○	○		○	○	○	○
Water Availability Impact Monitoring	○								○						○
Dept. of Health and Environment															
Potentiometric Mapping of Water Table	■	■		■	■		■	■	■		■	■	■		■
Bedrock Surface Maps/Geologic Formations	■	■	■	■	■		■	■	■		■	■	■	■	■
Movement of Contamination Plumes	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Pollution Contamination Contouring	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Groundwater Network—Water Quality Plotting	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Site ID Tagging Project	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Nonpoint Source Pollution Modeling	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Kansas Water Office															
Rural Water District Mapping	■	■						■	■					■	
Water Rights Mapping	■	■							■					■	
Hydrologic Unit Boundary Mapping	■	■							■					■	
Basin Base Mapping	■	■							■					■	
Special Purpose Maps – State Water Plan	○	○							■					○	
River Basin Planning/Analysis	○	○	○	○		○	○	○	○	○	○			○	○
Dept. of Wildlife and Parks															
Facilities Mapping	○	○	○	○			○	○	○	○	○	○	○	○	○
Critical Habitat Mapping	○	○	○	○			○		○	○	○		○	○	○
Habitat Identification	○	○	○	○		○			○	○	○		○	○	○
Monitoring Land Use Changes	○	○	○	○		○	○		○	○	○		○	○	○
Land Information Management	○	○	○	○		○	○		○	○	○		○	○	○
Wildlife Information Management	○	○	○	○		○	○		○	○	○		○	○	○
Monitor Water Availability Impacts	○	○	○	○		○	○	○	○	○	○	○	○	○	○
Kansas Geological Survey															
Computer Aided Mapping	■	■	○	■	■	○			■	■	■			■	■
Surface Contouring											■				■
Spatial Analysis	■	■	○	○	■	○	○	■	■	■	■	■	■	■	■
GIS Research Applications	■	■	○	○	■	○	■	■	○	■	■	■	■	■	■
Resource Appraisal	■	■		■	■										■
Geologic Hazards	■	■		■		■	■	■	■		■	■	■		■
Geologic Aspects – Environmental Issues	■	■	■	■		■	■	■	■		■	■	■		■
Dept. of Transportation															
Transportation Planning/Engineering Studies	■	■	■	■	■	■	■	■	■	■		■	■	■	■
Publication Graphics	■								■						
Map Series Development	■	■							■					■	
Special Purpose Mapping	■	■							■					■	

AGENCY APPLICATIONS AND DATASET NEEDS

KEY
■ = Current Need
O = Future Need

APPLICATIONS	Landbase	Hydrology	Land Use/Cover	Soils	Geology	Population	Contaminated Sites	Public Water Supplies	Transportation/Utilities	Water Rights	Surface Elevation	Underground Injection Wells	Wastewater Discharge	Administrative Boundaries	U.S. Geodata
Kansas Biological Survey – KARS															
ID/Tracking – Kansas Natural Heritage	■	■	■	■	■									■	■
Spatial Analysis of Land Use Data	■	■	■	■	■	■			■					■	■
Relational Info. – Kansas Flora and Fauna	■	■	■	■	■		■							■	■
Habitat Modeling	■	■	■	■										■	■
Water Resources	■	■	■	■	■			■						■	■
Non–Point Source Pollution Modeling	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Integrated Mapping	O	O	O			O			O					O	O
Spatial Analysis–Geographic and Biologic Data	O	O	O	O		O			O					O	O
Dept. of Revenue															
Tax Unit Map Development	O			O										O	O
Analysis of Revenue Trends	O			O										O	O
Kansas Corporation Commission															
Mapping Utility Territories	■	O	O	O	O	■	O	O	■	O	O	O	O	O	O
State Conservation Commission															
Non–Point Source – Water Quality Planning		O	O	O		O		O							
Multipurpose Small Lakes Program		O													
Water Resources Cost Share Program		O													
Riparian/Wetlands Protection Program		O													
Water Rights – Aquifer Restoration											O				
Legislative Research Dept.															
Legislative Redistricting						■									
Data Analysis – Census Geography						O									
U.S. Geological Survey															
Water Quality Studies–Presentation Graphics	■	■		■	■		■	■	■					■	
Water Resources on Indian Lands			O	O			O	O							
USDA Soil Conservation Service															
Watershed/Hydrologic Unit Analysis	■	■	■	■	■		■	■	■	■	■	■	■	■	■
GIS–Field Office Evaluation	■	■	■	■	■		■	■	■		■	■		■	■
Soils Digitizing				■											
Water Quality Impairment–Grain Storage															
Kansas College of Technology															
Campus Facilities Management															
Training of GIS Technicians	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
KSU–Geography Department															
Education/Student Projects															
GIS Research Projects:															
Tall Grass Prairie Management															
Wildlife Habitat															
Resource Management			O	O											

1-31

AGENCY APPLICATIONS AND DATASET NEEDS

KEY
■ = Current Need
O = Future Need

APPLICATIONS	Landbase	Hydrology	Land Use/Cover	Soils	Geology	Population	Contaminated Sites	Public Water Supplies	Transportation	Utilities	Water Rights	Surface Elevation	Underground Injection Wells	Wastewater Discharge	Administrative Boundaries	U.S. Geodata
KU—Geography Department																
Environmental Modeling	■	■	■	■	■	O	■	■	O		■	O	■	O		■
Urban Modeling	■	■	■	■	■	■	■	■	■		■		■	■		
Classification of Artic Ice																
Analysis of Spectral Response Patterns of																
Prairie Vegetation Types	■	■	■	■	■	O										
Modeling Landform Development — Kansas	■	■			■											■

1-32

APPENDIX C
INFORMATION SHARING

1-3 3

LIMITED NATURE OF ROUTINE INFORMATION FLOW AMONG AGENCIES

NOTE: This diagram shows some of the major information flows and characteristics of flows among agencies. Most of the flows depicted are of a sporadic or infrequent nature as opposed to routine exchange of information.

KEY

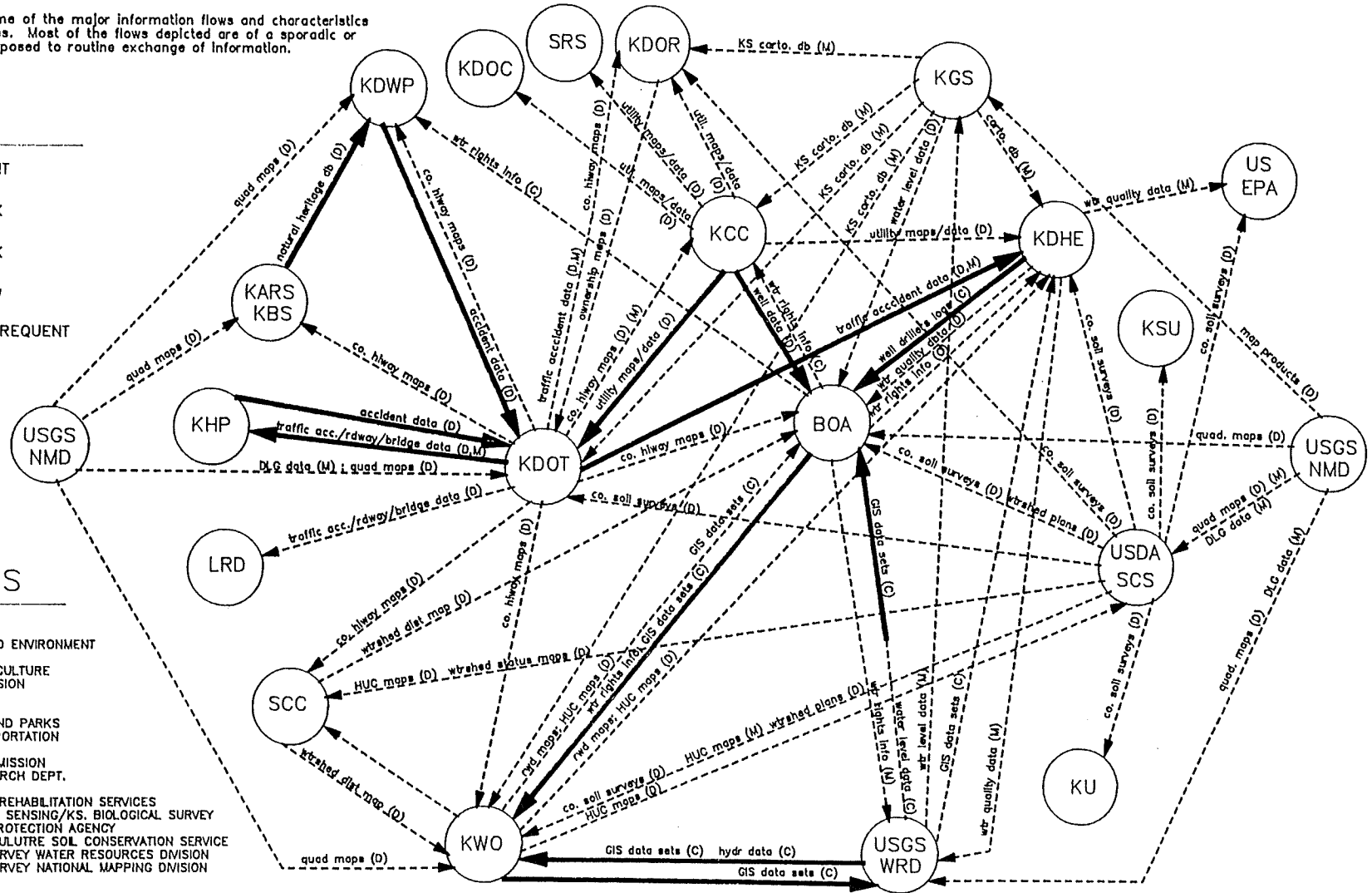(D) = HARDCOPY DOCUMENT

(M) = MAGNETIC TAPE/DISK

(C) = COMMUNICATION LINK

⬤━━━━ ROUTINE FLOW

◀----- SPORADIC/INFREQUENT

AGENCY CODES

KU = UNIVERSITY OF KANSAS
KSU = KS. STATE UNIVERSITY
KDHE = KS. DEPT. OF HEALTH AND ENVIRONMENT
KGS = KS. GEOLOGICAL SURVEY
BOA = KS. STATE BOARD OF AGRICULTURE
KCC = KS. CORPORATION COMMISSION
KDOR = KS. DEPT. OF REVENUE
KDOC = KS. DEPT. OF COMMERCE
KDWP = KS. DEPT. OF WILDLIFE AND PARKS
KDOT = KANSAS DEPT. OF TRANSPORTATION
KWO = KANSAS WATER OFFICE
SCC = STATE CONSERVATION COMMISSION
LRD = KANSAS LEGISLATIVE RESEARCH DEPT.
KHP = KANSAS HIGHWAY PATROL
SRS = KS. DEPT. OF SOCIAL AND REHABILITATION SERVICES
KARS KBS = KS. APPLIED REMOTE SENSING/KS. BIOLOGICAL SURVEY
US EPA = U.S. ENVIRONMENTAL PROTECTION AGENCY
USDA SCS = U.S. DEPT. OF AGRICULUTRE SOIL CONSERVATION SERVICE
USGS WRD = U.S. GEOLOGICAL SURVEY WATER RESOURCES DIVISION
USGS NMD = U.S. GEOLOGICAL SURVEY NATIONAL MAPPING DIVISION

1-34

DIGITAL DATASETS MAINTAINED BY AGENCIES

KEY
■ = Maintained by Agency
● = Current Access/Use
○ = Future Interest

AGENCY	Water Rights Information	Env. Coord. System Tracking	Act Notice	Water Structures Inventory	Chemigation Database	Intensive Grndwtr Use Control Area Boundaries	Groundwater Mgmt. District Boundaries	Chemical Monitoring Sites	Water Quality Control Information System	Facility Index System	Hazardous Waste Data Management System	Identified Site Contamination	Permit Compliance System	Water Well Logs	Spills	Federal Reporting Data System	Kansas Stream Survey	Creel Survey	Aquatic Data Analysis System	Licensed Angler Survey	Small Game Hunter Survey	Rural Mail Carrier Survey	Random Brood Count Survey	Landowner Deer Survey	Waterfowl Survey	Antelope Population Data	Big Game Harvest Survey	Furbearer Harvest	LEOBASE	Bedrock Depth
State Board of Agriculture	■	■	■	■	■	■	○	○	○		○		●			○													●	●
Dept. of Health & Environment	●	○	○	○	○	○		■	■	■	■	■	■	■	■	○		○												○
Kansas Water Office	●	○	○		●	●	○				●					○													○	
Ks. Dept. of Wildlife and Parks	●																■	■	■	■	■	■	■	■	■	■	■	■		
Kansas Geological Survey		○	○		●	●		○		○	○			●															■	■
KS. Dept. of Transportation										○			●		●															●
Kansas Biological Survey/KARS		○	○	○		○				○	○	○		○		○		○						○	○					○
Kansas Dept. of Revenue																														
Kansas Corporation Commission				●		●		○	○	○	○		●	●	●	○													○	●
Kansas Dept. of Commerce																														
Kansas, Inc.																														
State Conservation Commission		○	○																											
KS Legislative Research Dept.	○	○	○	○	○	○		○	○	○	○			○		○		○												
Kansas College of Technology																														
USDA, Soil Conservation Service					○																								○	○
U.S. Geological Survey	●						●																							
University of Kansas																														
Kansas State University						○																								
Other Federal Agencies								●	●	●			●			●														
Counties/Municipalities	●		●																											

KEY
■ = Maintained by Agency
● = Current Access/Use
○ = Future Interest

AGENCY	Water Level Information	Brine Water Chemistry	CANSYS	NONSYS	Highway-Grade Crossing Inventory	Traffic Accident Data	Biota Database	Kansas Natural Heritage Database	Vertebrate Database / Characterization Abstracts	Kansas Plant Database	NE Kansas NPS Database	Rural Water District Boundaries	11-Digit Hydrologic Unit Boundaries	Fish & Wildlife Information System	Beaver Harvest	Kansas Cartographic Database	KWATCHEM	GRIDS	Biological Water Quality Database	Oil/Gas Plugging Records	Available Bldgs. & Sites	Kansas Directory of Manufacturers	Kansas Minority Business Directory	Mailing Lists	Enterprise Zones	City/County Population	Political Judicial Districts
State Board of Agriculture	●										○	●	●	○		●	○				○					○	
Dept. of Health & Environment	○	○					○	○			○	○	○	○		●	○	○								○	○
Kansas Water Office			○				○				○	■	●	○		●											○
Ks. Dept. of Wildlife and Parks														■	■												
Kansas Geological Survey	■	■	○	○							○	●				■	■				●		●				
KS. Dept. of Transportation			■	■	■	■										●		■							●	●	●
Kansas Biological Survey/KARS							■	■	■	■	■	○	○			●				■							
Kansas Dept. of Revenue																●											
Kansas Corporation Commission	●	●		●	●						●					●				■						○	
Kansas Dept. of Commerce																					■	■	■	■	■	■	■
Kansas, Inc.																											
State Conservation Commission											○	●							○								
KS Legislative Research Dept.		○			○	○	○			○	○	○	○	○			○	○		○		○	○		○	○	○
Kansas College of Technology																											
USDA, Soil Conservation Service	○	○											■														
U.S. Geological Survey																											
University of Kansas																											
Kansas State University											○			○								●				●	
Other Federal Agencies																						●				●	
Counties/Municipalities																●				●	●	●	●	●	●	●	●

1-36

KEY
- ■ = Maintained by Agency
- ● = Current Access/Use
- ○ = Future Interest

AGENCY	BEA DATA	Kansas Strategic Planning	Reapportionment	County Soil Surveys	State Soil Survey	Cities	Counties	Digital Elevation Models	DLG Hydrography	DLG Roads	DLG Utilities	Ecoregion	EPA River-Reach	Groundwater Mngmnt. Districts	Named Features	River Basins	Populated Places	Land Use/Cover Classifications	Average Annual Precip. Contours	QUADS	Roads	Runoff	Sections	Stations	Streams	Township-Range Lines	Wells
State Board of Agriculture				○	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Dept. of Health & Environment	○		○			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Kansas Water Office			○	○	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ks. Dept. of Wildlife and Parks																											
Kansas Geological Survey	●		○	●	●	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	■		●	■	●
KS. Dept. of Transportation			○	●	●	●	●	●	●	●	●				●						●				●	●	
Kansas Biological Survey/KARS				●	○		○	●	○	○		○	○	○	○	○	●	○		●	●	○	●	○	●	●	○
Kansas Dept. of Revenue																											
Kansas Corporation Commission			○	●	○	○	○	○	○	○	○			○									○	○			
Kansas Dept. of Commerce	■																										
Kansas, Inc.		■																									
State Conservation Commission				●	●											○		○	○				○				
KS Legislative Research Dept.	○	○	■	○	○	○	○					○	○	○		○		○	○	○	○				○	○	○
Kansas College of Technology																											
USDA, Soil Conservation Service				■	■	○	○	○	●	●	○	○	○	○			○							○	○	○	○
U.S. Geological Survey						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
University of Kansas																											
Kansas State University	●			●	●	○	○		○				○				○	○	○	○							
Other Federal Agencies																											
Counties/Municipalities				●		○			○		○		○		○			○		○			○		○		○

APPENDIX D
CORE DATA SETS AND DESCRIPTIONS

1-3 8

APPENDIX D

DESCRIPTIONS OF DATA SETS TO BE INCLUDED IN CORE GIS DATABASE

Land Grid Base

The data set consists of section corners, township lines and range lines derived from 1:24,000 scale USGS quadrangle maps. This is an existing digital data set and part of the Kansas Geological Survey's Kansas Cartographic Database. Initial enhancement to the land grid will include the incorporation of additional quarter section locations or lot subdivisions in irregular sections. Long-term enhancement may include improving the overall accuracy of the land grid base through the use of global positioning systems (GPS) technology, cooperative projects with other entities or other appropriate means.

Hydrology

This consists of various data sets containing digital hydrography at scales of 1:2,000,000, 1:250,000 and 1:100,000. These data sets are currently existing in digital form. Enhancements will include additional attributing for all data sets and additional panelling for the 1:100,000 files. Various GIS coverages will be generated.

Land Use/Cover

This will involve development of a new data set based on land cover type at 1:100,000 scale for the state. Landsat Thematic Mapper Data would be acquired for development of the data set. The proposed level of classification would delineate general land cover types and should be suitable for planning and analysis applications on a large watershed or county-level basis. More detailed data will be needed for site specific applications. Resolution would be 30 x 30 meters (0.22 acres). Recommended update interval would be at least every ten years.

Soils

This data set involves digitizing soil polygons from 1:24,000 scale soil maps. An extensive existing database of soil characteristics and interpretative data maintained by the USDA Soil Conservation Service can be linked to the digitized soil maps for numerous land resource planning and management applications. Nine counties in Kansas have already been digitized by the USDA Soil Conservation Service in cooperation with other entities. Three other counties are currently in the process of negotiating contracts for soils digitizing.

Geology

This data set involves general geologic features at 1:500,000 scale and includes development of GIS coverages from a statewide digital database of surface geology. The data set will consist of various line and polygon features with associated attribute files indicating the geologic units represented. Subsequent efforts may include data set development at 1:100,000 scale.

Population

This data set involves a cleaned-up version of the U.S. Census Bureau TIGER Line Files (1:100,000 scale base map file) and merging of the census population data. This work is being performed as part of the legislative redistricting effort and will be made available to the GIS Policy Board for inclusion in the core database upon completion.

Water Files

This represents a group of existing digital data sets consisting of point locations and associated attribute data which can be used for various GIS applications. The data sets included are:

(1) Contaminated Sites
(2) Underground Injection Wells
(3) Public Water Supplies
(4) Wastewater Discharge Sites
(5) Water Appropriation Rights

The contaminated sites data set would be the focus of initial efforts to improve the accuracy of the point locations in the data sets.

Transportation/Utilities

This data set will include various transportation and utility features and associated attribute data including state and federal highways and interstate routes, local roads, various cultural elements, and utility facilities such as transmission lines and pipelines. The anticipated scale is 1:100,000.

Surface Elevation

These data sets will include a variety of digital elevation data at various resolutions. Sources of the data will include existing digital elevation models and hypsography digital line graphs available from the U.S. Geological Survey National Mapping Division.

Administrative Boundaries

This involves the development of several data sets relating to various administrative boundaries of state agencies and subdivisions of state government. Boundary data sets currently identified include:

(1)   State Agency Administrative Boundaries
(2)   Resource Conservation and Development Districts
(3)   Irrigation Districts
(4)   Watershed Districts
(5)   State and County Boundaries
(6)   Groundwater Management Districts
(7)   Intensive Groundwater Use Control Areas
(8)   Sub-watersheds (11-digit hydrologic units)
(9)   Rural Water Districts
(10)   Multi-state Hydrologic Units
(11)   Municipalities

1-40

Some of these data sets already exist in digital format. Additional data sets may be added as determined by future need and available funding.

U.S. GeoData

This includes numerous digital files currently available for purchase from the U.S. Geological Survey, National Mapping Division. The files include 1:24,000 scale digital line graphs (DLGs) and digital elevation models (DEMs); 1:100,000 scale DLGs; 1:250,000 scale DEMs and Land Use/Land Cover files and associated digital map files; 1:2,000,000 scale DLGs; and an automated Geographic Names Information System. Coverage of the state varies for each category of files from complete coverage to very limited coverage. The purpose for acquiring the data is to provide agencies access to a wide variety of digital data for GIS applications at relatively low cost. This will help determine future state digital map product priorities for the U.S. Geological Survey National Mapping Program and possible future cooperative funding projects through the GIS Policy Board.

APPENDIX E
CURRENT PUBLICATIONS OF THE TAC

1-42

CURRENT PUBLICATIONS DEVELOPED BY THE TECHNICAL ADVISORY COMMITTEE

(1) <u>Kansas Directory of Geographic Information Systems and Data Sources</u>

This directory was distributed in April, 1990 to provide information pertaining to GIS capabilities and geographic databases of agencies represented on the GIS Policy Board and Technical Advisory Committee. It includes information about digital geographic data available in fourteen state and two federal agencies. The approximately 83 databases or data sets are cross-referenced by 19 subject matter categories and show data characteristics, the availability and status of the data, and contact information. The TAC will distribute updates to the directory as they are identified and documented. Copies of the directory can be obtained from the DISC library (913/296-2514).

(2) <u>Kansas Directory of Geographic Information Systems and Data Sources (Condensed Version)</u>

This is a summarized version of (1) above, providing a one-page synopsis per agency of available digital geographic data. For each agency, contact information, background information about the present system environment, anticipated future development plans, and additional comments are provided, along with a list of the databases or data sets shown in more detail in (1). The TAC will also maintain this directory, and copies can also be obtained from the DISC library.

(3) <u>Kansas Standards, Policies and Procedures for Exchange of Spatial Data</u>

This document was distributed in July, 1990 in response to a directive from the Board. Its objectives are to develop Kansas standards to (a) develop and document procedures for data exchange involving data translation, (b) periodically test and review the accuracy and limitations of data translators provided by systems used or considered for use by participating organizations and agencies, and (c) prepare to implement the Spatial Data Transfer Standard when it is adopted by vendors and/or is a Federal Information Processing Standard (FIPS). It will be maintained by the TAC, and copies can be obtained from Board staff members (913/296-4394 or 913/296-3185).

(4) <u>KANGIS Newsletter</u>

This publication was initiated by Board staff, with assistance from TAC members, in September, 1989. It is intended to be a monthly newsletter that provides "news and notes" about GIS-related activities, primarily within Kansas. The main focus so far has been upon information about meetings of the Board, TAC and other GIS-related organizations, along with information about GIS conferences and a calendar of upcoming GIS events. The newsletter is currently distributed to approximately 140 recipients, with about 40 of those in other states and Canada. Interested persons can be placed on the mailing list by calling one of the Board staff members.

FIGURE 3-1
GIS POLICY BOARD MEMBERS

GIS POLICY BOARD

Mark Beshears	Dept. of Revenue
Brad Bryant	Sec. of State's Office
James V. Bush	Dept. of Transportation
Mary Galligan	Legislative Research
Lee Gerhard	KS Geological Survey
Russell Getter	Dept. of Admin., DISC
Stanley Grant	Dept. of Health and Environment
James N. Habiger	U.S. Soil Conservation Service
Joseph Harkins (Chair)	Water Office
Mark Hixon	Barton County Appraiser's Office
Tom Huntzinger	U.S. Geological Survey
Kenneth F. Kern	Conservation Commission
Jack Lacey	Dept. of Wildlife and Parks
Keith Lebbin	Groundwater Mgmt. Dist. Assn.
Edward A. Martinko	KS Biological Survey
Duane Nellis	KS State Univ., Geography Dept.
Laura Nicholl	Dept. of Commerce
David L. Pope	Board of Agri., Div. of Water Resources
Jim Robinson	Corporation Commission
Charles Warren	Kansas, Inc.

ACCESS ISSUE SUBCOMMITTEE

Lee Gerhard (Chair)	KS Geological Survey
Mark Hixon	Barton County Appraiser's Office
Barry Hokanson	Johnson County Planning Office
Tom Huntzinger	U.S. Geological Survey
James Parker (Staff)	Dept. of Admin., DISC
David Pope	Board of Agri., Div. of Water Resources
Robert Wiseman (Staff)	Kansas Water Office

PLANNING SUBCOMMITTEE

James V. Bush	Dept. of Transportation
Lee Gerhard	KS Geological Survey
Stanley C. Grant	Dept. of Health and Environment
Joseph Harkins (Chair)	Water Office
Tom Huntzinger	U.S. Geological Survey

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FIGURE 3—1
GIS TECHNICAL ADVISORY COMMITTEE MEMBERS

GIS TECHNICAL ADVISORY COMMITTEE

Claud Baker	U.S. Geological Survey
Gary Baker	Groundwater Mgmt. Dist. Assn.
Val Carter	Legislative Research
David Collins	KS Geological Survey
Jeff Conrad	Dept. of Commerce
Teresa Floerchinger	Dept. of Admin., Div. of Budget
Randall J. Foster	Sec. of State's Office
Richard Hager	U.S. Soil Conservation Service
Brian Logan	Dept. of Transportation
Jerry Lonergan	Kansas, Inc.
Deaune Maddock	Corporation Commission
Richard Miller	Dept. of Health and Environment
James Parker (Co—Chair)	Dept. of Admin., DISC
Kevin Price	Univ. of KS, Geography Dept.
John Radenberg	Barton County Appraiser's Office
Tina Rajala	Water Office
H. L. Seyler	Ks State Univ., Geography Dept.
John Spurgeon	KS Dept. of Wildlife and Parks
Tracy Streeter	Conservation Commission
Lloyd Stullken	Board of Agri., Div. of Water Resources
Stephen R. Thompson	KS College of Technology
James A. Tyler	KPL Gas Service
Jerry Whistler	KS Biological Survey
Susan Williams	Dept. of Revenue
Robert Wiseman (C—Chair)	Kansas Water Office
John Young	KS Society of Land Surveyors

STANDARDS/DEVELOPMENT SUBCOMMITTEE

Claud Baker	U.S. Geological Survey
David Collins (Chair)	KS Geological Survey
Richard Hager	Soil Conservation Service
Brian Logan	Dept. of Transportation
Jerry Lonergan	Kansas, Inc.
Kevin Price	KU Dept. of Geography
John Radenberg	Barton County Appraiser's Office
Tina Rajala	Kansas Water Office
H.L. Seyler	KS State Univ., Geography Dept.
Stephen R. Thompson	KS College of Technology
Jim Tyler	KPL Gas Service
Jerry Whistler	Kansas Biological Survey—KARS

INVENTORY/ACQUISITION SUBCOMMITTEE

Gary Baker	Groundwater Mgmt. Dist. Assn.
Val Carter	Legislative Research
Jeff Conrad	Dept. of Commerce
Teresa Floerchinger	Dept. of Admin., Div. of Budget
Randall J. Foster	Sec. of State's Office
Deaune Maddock	Corporation Commission
Rick Miller	Dept. of Health & Environment
John Spurgeon	Dept. of Wildlife and Parks
Tracy Streeter	Conservation Commission
Lloyd Stullken (Chair)	Board of Agri., Div. of Water Res.
Susan Williams	Department of Revenue
John Young	KS Society of Land Surveyors

PLANNING SUBCOMMITTEE

David Collins	KS Geological Survey
Brian Logan	Dept. of Transportation
Rick Miller	Dept. of Health and Environment
James Parker	Dept. of Admin., DISC
Lloyd Stullken	Board of Agri., Div. of Water Res.
Susan Williams	Dept. of Revenue
Robert Wiseman (Chair)	Kansas Water Office

NEWSLETTER SUBCOMMITTEE

Deanne Maddock	Kansas Corporation Commission
James Parker (Chair)	Dept. of Admin., DISC
Kevin Price	KU Dept. of Geography
H.L. Seyler	KSU Dept. of Geography
John Spurgeon	Kansas Dept. of Wildlife & Parks
Steve Thompson	Kansas College of Technology
Robert Wiseman	Kansas Water Office

GEOGRAPHIC INFORMATION SYSTEMS BUDGETS

Agency	FY 91 Projected (2/90)	FY 91 Appropriated (5/90)	FY 92 Projected (2/90)	FY 92 Agency Budget (9/90)	FY 92 Governor's Recommendation (1/91)
Biological Survey			$158,244	$158,244	
Board of Ag., Div. of Water Resources	$188,227	$126,604	194,161	169,370	
Conservation Commission					
Corporation Commission	208,995	168,995	102,000	175,000	175,000
Dept. of Admin., DISC	548,800		551,241		
Health & Environment			142,720	83,722	
Kansas Geological Survey			181,000		
Kansas Legislature				150,096	150,096
Kansas State University			326,373	63,567	
Revenue			57,035		
Transportation	5,000	5,000			
Water Office		500,000	52,470	738,531	620,880
Wildlife and Parks	34,280	34,280	103,960	108,930	108,930
Total	$985,302	$834,879	$1,869,204	$1,647,460	$1,054,906

Based on the FY 1992 Annual Implementation Plan prepared January 1991, total out-year costs are ━ projected as follows:

FY 1993 – $3,003,573

FY 1994 – $1,476,764

FY 1995 – $1,421,182