STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
1005 State Office Building, Portland, Oregon 97201

OPEN-FILE REPORT O-84-6

OREGON

SURVEY OF DIGITAL REQUIREMENTS

OF

STATE AGENCIES AND SELECT ORGANIZATIONS

Prepared for

State Mapping Advisory Committee
John D. Beaulieu, Chairman

By

Glenn W. Ireland
State Resident Cartographer

December 1984

TABLE OF CONTENTS

TABLES

NOTICE

The Oregon Department of Geology and Mineral Industries is publishing this paper because the subject matter is consistent with the mission of the Department. To facilitate timely distribution of information, this paper has not been edited to our usual standards.

INTRODUCTION

This survey of Oregon's digital requirements has been prepared at the request of the Chairman of the State Mapping Advisory Committee. Executive Order No. EO-83-15 directs the SMAC "to define and coordinate basic policies, guidelines, standards and resources of state agencies .... with regard to the generation of traditional and digital map products."

Digital map products provide the basis for computerized solution of geographically oriented management problems. As such, they are key ingredients in the development and evolution of Geographic Information System capabilities. At the same time, digital map data are distinct from geographic information systems, which, by contrast, manipulate and handle the map data to provide answers.

This survey details the priorities of each agency in terms of data type, scale, projection, and resolution. Requirements for U.S. Geological Survey digital data bases are included. Each agency and organization specified needs in content and area of coverage.

This survey will be of use in facilitating cooperation among agencies in the generation and digitizing of new map data. It can be used as a source of information for general use or for the formulation of specific cooperative agreements. It is a basic reference for broad use in understanding agency digital mapping activities.

This survey was made possible because of the openness and cooperation shown by the agency representatives contacted during this survey.

EXECUTIVE SUMMARY

The key question in this survey was "Does your agency need a Geographic Information System?" Each agency answered with a definite "YES." They said that their operations could be managed more efficiently with a digital based geographic information system.

The survey brought out a strong requirement for land use information. This land use information was primarily in the form of land ownership, industrial and residential data layers. These layers were supported by a strong requirement for metropolitan and population centers areas of coverage.

Transportation was a data layer needed by most of the agencies surveyed. This transportation information was needed for various reasons: hazardous material transport, accident identification, and roadway maintenance. Agencies priority areas were along the Interstate 5 and 84 corridors and other transportation routes.

Water data in the form of surface water and flood information is critically needed by most of the agencies. Several agencies are assisting Oregon Department of Water Resources with the formation of a pilot GIS for the John Day River Basin.

Several of the agencies requested information along the coastal areas and waterways. These areas included the estuaries and tidal lands which are being impacted by development.

The most prominent scales requested were the 1:100,000 scale (1"=1.6 mi.), 1:24,000 scale (1"=2,000 ft.) and 1:500,000 scale (1"=16 mi.). The 1:100,000 scale level of detail was requested primarily for statewide coverage. This is the level of detail needed for overall planning of natural resource and land use development. The 1:24,000 scale is needed in the metropolitan and high impact areas to show more detail. The 1:500.000 scale is preferred for statewide coverage when less detail is needed.

The U.S. Geological Survey digital line graphs (DLGs) which show planimetric detail in the categories of transportation, hydrography, public land survey and boundaries were requested by most of the agencies. These data bases were requested because of their standardized format and because they are part of a growing national digiital data base. The USGS land use/land cover maps were requested in a digital format. The most popular layers in that series were the land use/land cover, political units, and state and federal ownership.

The overwhelming request which the agencies had was for the compatibility of data. The agencies saw a need to adopt standards for digital data collection which would facilitate the exchange of data between agencies. We hope this survey will encourage the cooperation between agencies.

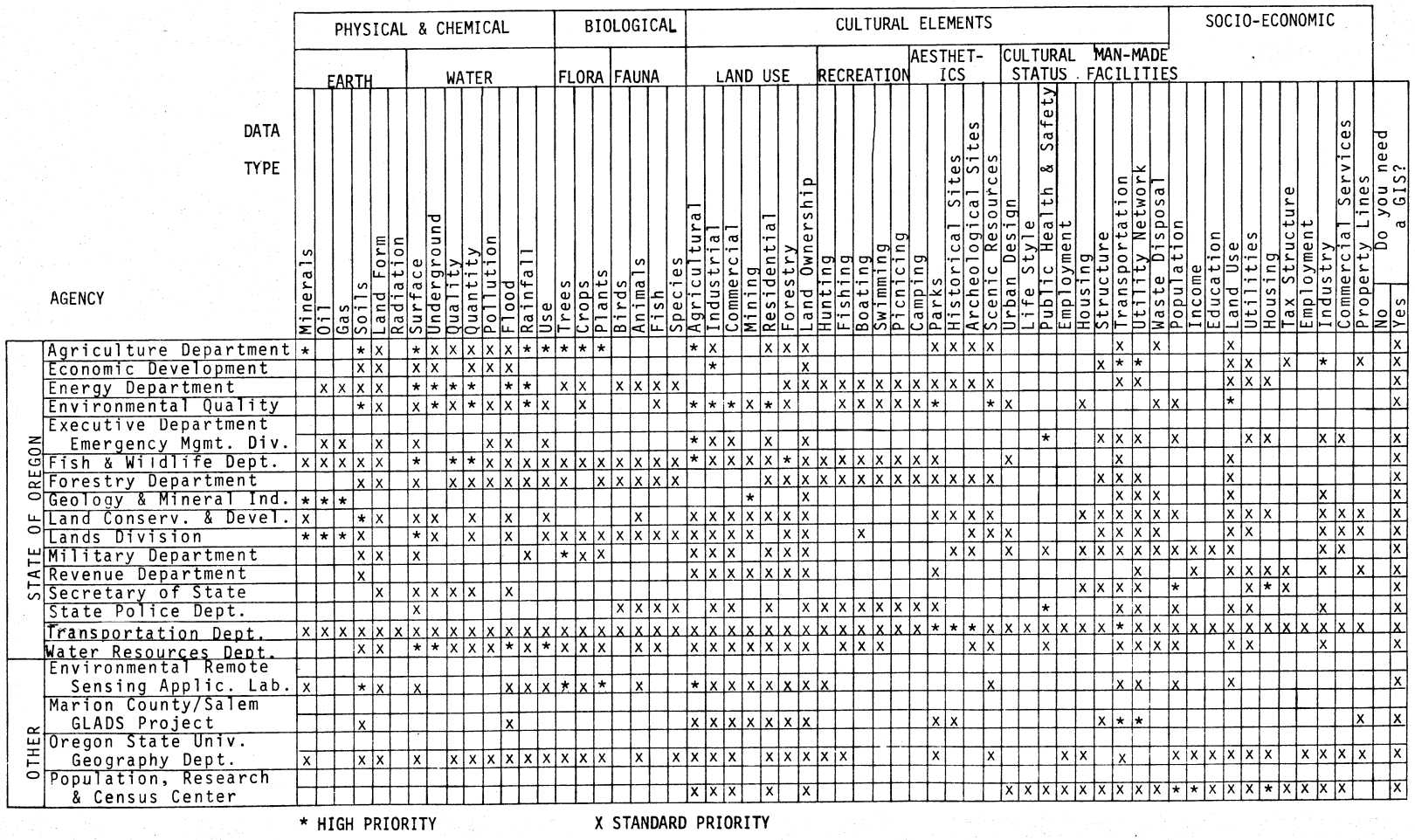


Table I. Data Type Requirements

OTHER STATE OF OREGON

DATA COLLECTION

AGENCY	USGS DATA BASES: DLG: Landlines	DLG: Boundaries	DLG: Transportation	DLG: Hydrography	DEM: 0 - 7 Meter	DEM: 7 - 15 Meter	LAND USE LAND COVER: Land Use Land Cover	LAND USE LAND COVER: Political Units	LAND USE LAND COVER: Hydrologic Units	LAND USE LAND COVER: Census Subdivisions	LAND USE LAND COVER: Federal Ownership	LAND USE LAND COVER: State Ownership	SCALE: 1:2,400 (1"=200')	SCALE: 1:4,800 (1"=400')	SCALE: 1:9,600 (1"=800')	SCALE: 1:24,000 (1"=2,000')	SCALE: 1:62,500 (1"=5,208')	SCALE: 1:63,360 (1"=1 mile)	SCALE: 1:100,000 (1"=1.6 mi)	SCALE: 1:250,000 (1"=3.9 mi)	SCALE: 1:500,000 (1"=7.9 mi)	SCALE: 1:1,000,000 (1"=16 mi)	PROJECTIONS: Lambert Conic	PROJECTIONS: Poly Conic	PROJECTIONS: Transverse Mercator	COORD. SYSTEMS: Township and Range	COORD. SYSTEMS: State Plane Coordinate	COORD. SYSTEMS: Latitude and Longitude	COORD. SYSTEMS: UTM	DATA RESOLUTION: Point Locations	DATA RESOLUTION: Area Locations	DATA RESOLUTION: Acre	DATA RESOLUTION: Section	DATA RESOLUTION: Township	DATA RESOLUTION: Census Division	DATA RESOLUTION: City	DATA RESOLUTION: County	DATA RESOLUTION: State	DATA RESOLUTION: Point Source
Agriculture Department	x	x	x	x			x	x	x		x	x				x	x		x		x					x	x	x		x	x				x		
Economic Development	x	x	*	*	x		*	x						x													x	x		x		x						
Energy Department	*	*	*	*	x		*		*		*	*		x		x	x		x		x		x			x		x	x	x	x	x	x	x	x	x	x
Environmental Quality			*	*	x		*		x							x			x							x		x	x	x	x		x	x			x
Executive Department Emergency Mgmt. Div.	x	x	*	x		x	*	x	x	x	x	x				x	x		x		x		x			x		x		x	x						
Fish & Wildlife Dept.	x	x	x	x	x	x	*	x	x	x	x	x				*		x	*	*	x	x	x			x		x	x		x	x	x				
Forestry Department	*	*	*	*	x		*				x	x						x	x				x			x	x			x	x	x	x		x	x	
Geology & Mineral Ind.	x	x	x	x	x		x	x			x	x				*			*	x			x			x		x	x	x	x						
Land Conserv. & Devel.	x	x	x	x	x		x	*	x	x	*	*	x						*		x					x		x	x	x	x						
Lands Division	x	x	x	x			x	x	x		x	*			x				x		x		x			x	x	x			x		x				
Military Department	x	x	*	*	*		x	x			x	x				x			x		x			x	x			x	x	x	x		x	x	x		
Revenue Department	*		x	x			x				*	*				x			x		x	x	x			x	x			x	x	x	x	x			
Secretary of State	x	x	x	x		x		x	x	*						x			x		x					x	x	x		x	x	x	x	x	x	x	
State Police Dept.	x	x	*	x		x	x	x	x	*	*	*	x	x		x			x		x		x			x	x	x		x	x	x	x	x		*	
Transportation Dept.	*	*	*	*	x		x	*	x	x	x	x	x	x		x			x		x		x			x	x	x		x	x	x	x		x	x	x
Water Resources Dept.	x	x		*	x		x	x	*	x	x	x				x							x			x	x		x	x	x						
Environmental Remote Sensing Applic.Lab.	x	x	x	x	*		x	x	x		*	*				*			x							x			x	x	x						x
Marion County/Salem GLADS Project	*	x	*	x			x	x		x	x	x	x	x									x			x	x	x		x							
Oregon State Univ. Geography Dept.	x	x	x	x	x	x	x	x	x	x	x	x				x	x		x	x	x	x	x			x	x	x	x	x	x	x	x	x	x	
Population, Research & Census Center, PSU		x	x				x	x	x	*	x	x				x			x		x						x			x	x		x	x	x	

* HIGH PRIORITY X STANDARD PRIORITY

Table II. Data Collection Requirements

OREGON

DEPARTMENT OF AGRICULTURE

The State Department of Agriculture provides service, leadership and regulatory functions for an industry composed of producers, processors, handlers and consumers. It works toward long-range development of Oregon's agricultural resources.

Within the Department the Soil and Water Conservation Division has shown an interest in GIS's. The Division is currently entering data into the John Day Basin Strategic Water Plan Information System. Data layers contributed by the Department are the U.S. Soil and Conservation Service soils map and classification data with locations for about 200 reservoir sites in the John Day Basin.

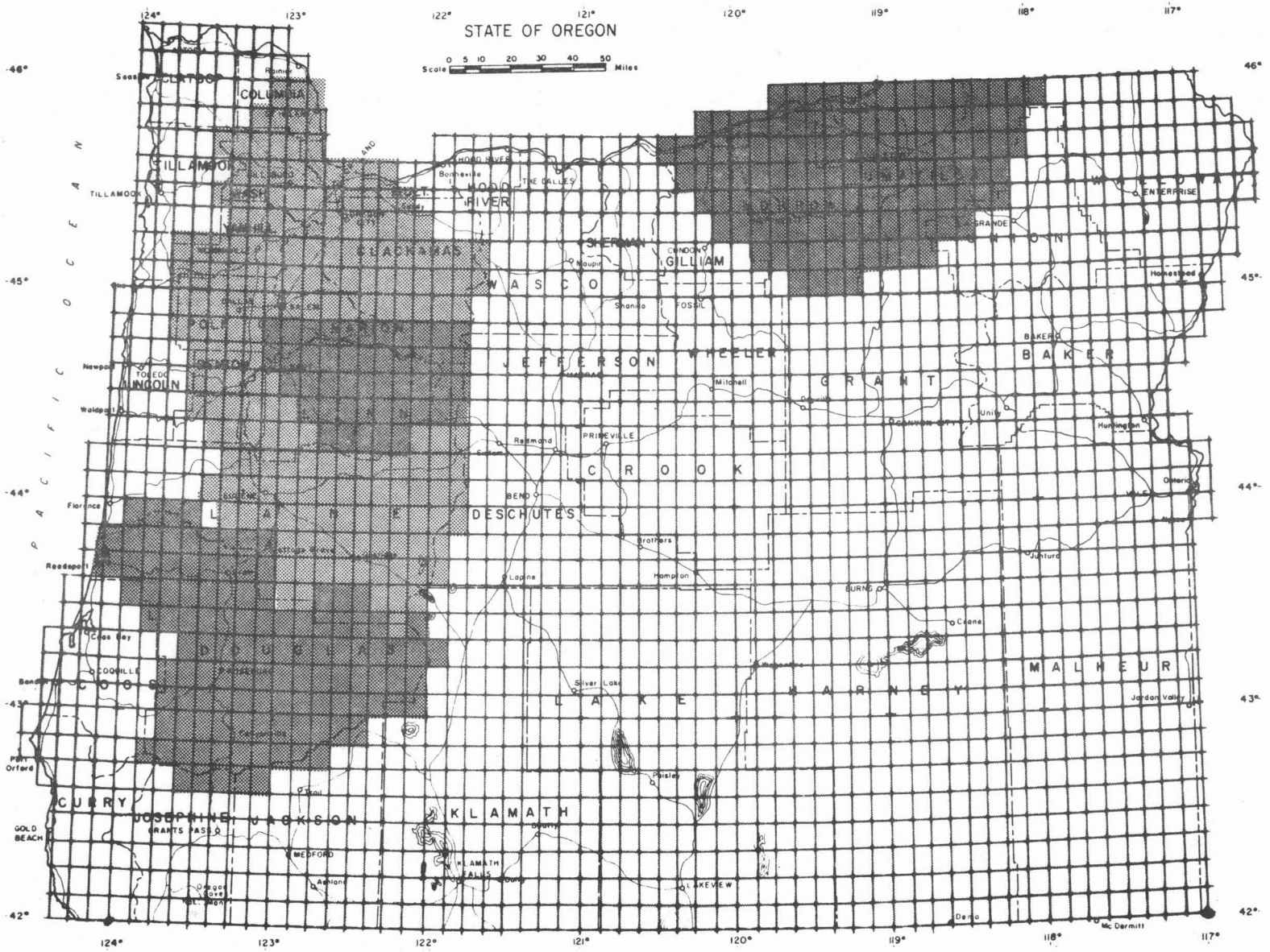
Currently the Department accesses the Soil Conservation Service's Snow Survey Data Base and the USDA Soils Data Base. The Snow Survey Data Base predicts water availability and flood hazards. The Soils Data Base is updated quarterly concerning changing soil uses, conditions and projections.

The Department has chosen the data layers necessary for their operation as illustrated in Tables I and II. The areas in which the Department needs this information are in the following priority areas. The first priority for data collection is the Santiam Sub Basin and the Umatilla and the Umpqua Basins. Data is needed in this area because these areas may be investigated next as part of a strategic water plan. Number two priority area is the Willamette Basin. This area is a sensitive area because of the conflict of agriculture and rapid urban growth. Third priority area is statewide at a 1:100,000 scale. Data will be needed eventually to formulate an overall State agricultural plan.

For future digital data needs, the Department would like to tie into systems to share data. They would like data to be compatible with most systems . Current computer capability is limited to office machines and word processing systems.

Contact person:

Herbert E. Carnahan
Hydrologist, Soil and Water Conservation Division
State Department of Agriculture
635 Capitol Street NE
Salem, OR 97310-0110
Phone 378-3810



OREGON DEPARTMENT OF AGRICULTURE - AREAS OF DIGITAL NEEDS

1st Priority
Umpqua, Umatilla and Santiam Basins

2nd Priority
Willamette Basin

3rd Priority
Statewide

Grid size = USGS 7½ min. quadrangle

OREGON

ECONOMIC DEVELOPMENT DEPARTMENT

The basic objectives of the Department are to maintain, improve and diversify the economic base of the State. The Department has four divisions, each with its own set of programs. The Business Information Division, which responded to this survey, provides decision-making data to prospective investors, especially regarding available lands.

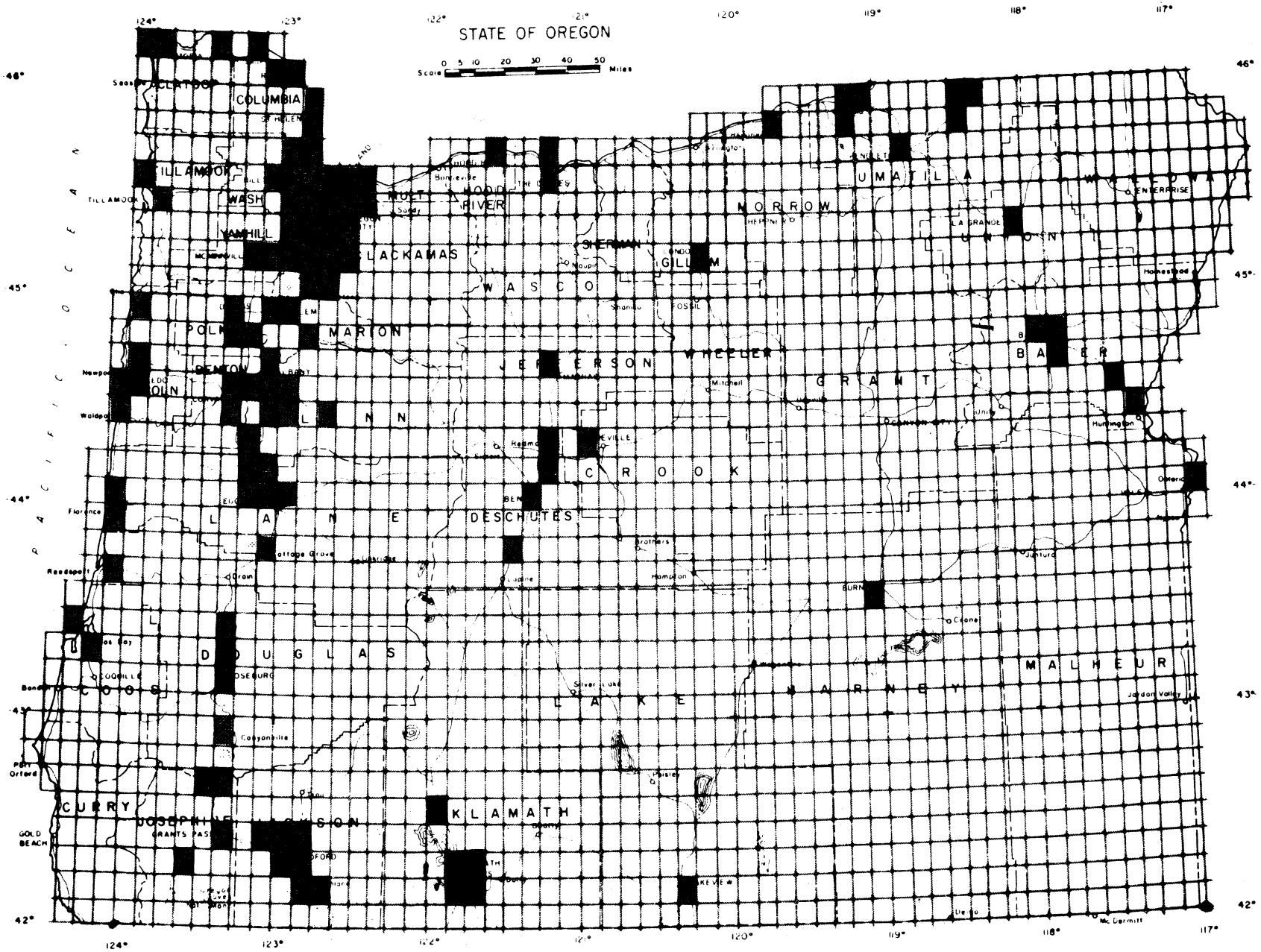
The Department's primary need is to develop or share a system that would provide prospective industrial developers with a map showing available industrial locations within the State. In addition, another map is needed of each location showing the elements necessary for the utilization of the industrial site, e.g. property lines, highway and rail access, utility services. The proposed system would use data bases with geographic information from other agencies and match these bases with data collected within the Oregon Business Information System (ORBIS) program. This system would allow developers looking for new sites to review available areas and their advantages with a minimum of effort.

The Department's need for data is primarily adjacent to the metropolitan areas of the State. These areas will be the first to be developed consistent with the State's land use planning guidelines. Also important to the Department are the I-5 and I-84 interstate corridors. These areas are projected to have excellent growth.

ORBIS is the Department's principal computer information system. ORBIS consists of three programs: Industrial Property Inventory (IPI), Business and Econmic Statistical Summary (BASS) and Technical Report (TR). The Industrial Property Inventory program can analyze data by assigning distances from the industrial site to various key elements, e.g. cities, schools, airports. The BASS and TR programs are used to generate tabular information and reports. The IPI and BASS programs are on a time-share system with the Executive Department's IBM mainframe computer.

Contact person:

Norm Solomon
Industrial Property Specialist
Economic Development Department
595 Cottage Street NE
Salem, OR 97310
Phone 373-1560



OREGON DEPARTMENT OF ECONOMIC DEVELOPMENT - AREAS OF DIGITAL NEEDS

1st Priority
■ Metropolitan Areas

Grid size = USGS 7½ min. quadrangles

OREGON

DEPARTMENT OF ENERGY

The Department of Energy was established to provide leadership on energy planning and forecasting, to support research on alternate sources of energy, to be a central repository for energy data and to educate the public about energy problems and conservation. The Department oversees four major programs: Energy Conservation, Renewable Resources Development, Planning and Siting and Regulation.

A joint project being conducted by the Oregon Department of Land Conservation and Development and the Oregon Department of Energy involves the development of a computerized Resource Inventory Management System (RIMS). Part of the development of this system involves demonstrating its capabilities in a real-life situation. Because of the large amount of data that has been compiled for the Columbia River Estuary and because of the need for planning in this area, the Columbia River Estuary has been chosen for the location of the demonstration project.

The Map Overlay and Statistical System (MOSS) has been chosen as the software package to manipulate the data layers. The Department has determined the MOSS software is preferable, at this time, because it is in the public domain (it is free). Because several Federal agencies are using MOSS, compatability will be easier. Data bases are currently being entered into the RIMS project. The data bases include USGS Digital Elevation Models, planimetric detail, U.S. Fish and Wildlife Wetlands Inventory and the land use designation from DLCD. In all, 15 data layers from 10 different State, Federal and local agencies are planned for the project.

The Department needs for future geographic information systems nearly all the natural resource data elements listed in this survey. The Department watches a wide range of data elements as part of their responsibility.

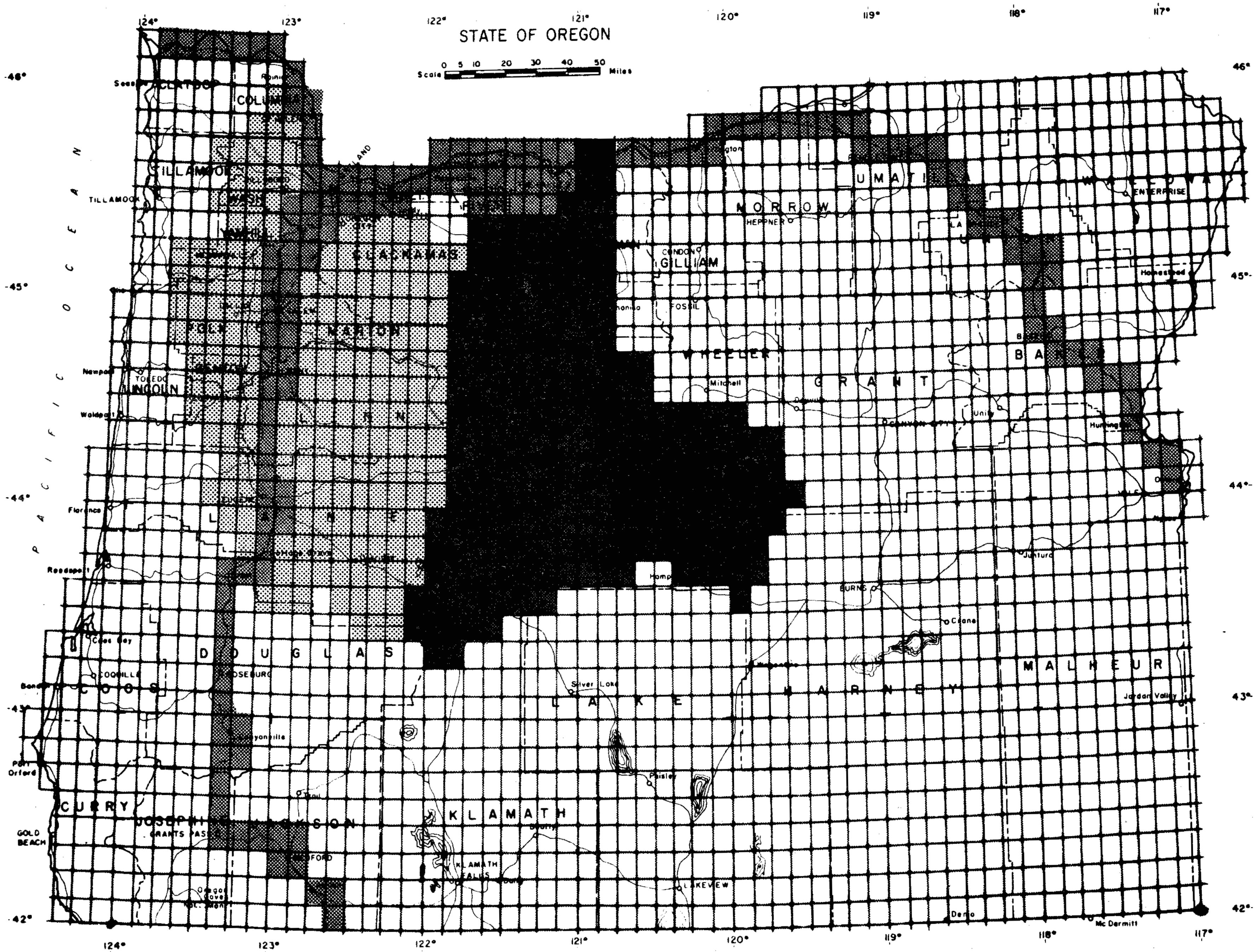
One group of data elements needed by the Department are the wilderness areas, wild and scenic rivers, historic sites and archeological sites. Data involving boundaries and characteristics are needed so these areas might be preserved. The recreation and aesthetics of an area need to be considered in the development of energy.

A strong requirement was made for a statewide map to be digitized for use in overall planning. The USGS 1:500,000 scale State Map was specified as the level of detail necessary for a digital planning base.

The Department emphasizes that digital data must be low cost, easy to use, accessible to all agencies and compatible with existing Federal data bases. Fancy output of data is of secondary importance. Current computer capability consists of MOSS and Data General GIS programs; CYBER data processing; and numerous IBM, Wang, and Apple PC's.

Contact person:

Scott Smith
Resource Information Management Coordinator
State Department of Energy
102 Labor and Industries Building
Salem, OR 97310
Phone 378-4163



OREGON DEPARTMENT OF ENERGY - AREAS OF DIGITAL NEEDS

1st Priority	2nd Priority	3rd Priority
■ Deschutes Basin	■ Hood Basin & Interstate 5 & 84 Corridors	▒ Willamette Basin

Grid size = USGS 7½ min. quadrangles

OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

The Department develops comprehensive plans and programs for air and water pollution control and solid and hazardous waste disposal. The DEQ establishes standards for quality and purity of air and water; maximum noise emissions; minimum treatment and control of wastes, and operation of water disposal facilities for liquid, solid and hazardous wastes. The DEQ examines and approves plans and issues permits for discharge of waste water and air contaminants, solid waste disposal sites, hazardous waste treatment or disposal systems, and subsurface sewage disposal facilities. The agency has the authority to issue fines for violation of pollution laws and standards.

Several ongoing programs within DEQ could benefit from a geographic information system. The air, water and laboratory programs have applications in which a GIS capability is needed.

The air quality program involves field burning, wood stove, wind and weather patterns and the continuous air monitoring (CAM) programs. Each of these programs deals with the impact of a problem on the enivronment. The Department also is responsible for a program of licensing and monitoring companies that disperse substances into the air.

The water quality program tracks surface and groundwater hazards. It is necessary to know the various hazardous wastes generators' locations and their impact on downstream areas.

The DEQ laboratory samples and tracks various air and water pollutants. The sampling of solid and hazardous waste is necessary to identify geographic locations of point source pollution.

A computer program is being developed which will locate hazardous waste generators, petroleum products storage tanks and chemical producers. This information will be integrated with surrounding future land use plans, existing land use, 100-year flood plains, Federal seismic restrictions and other data bases on which pollutants might have an impact.

The DEQ is considering forming an emergency response division which would respond to hazardous spills and detection of contaminants in the environment. Counter measures would be drawn up by this division to meet the environmental hazards.

This division will want to produce maps from a digital file showing all the data layers indicated in Table 1. The speed in which environmental hazards can be assessed is dependent on the availability of information. Computer data files storing information would provide the data base necessary for hazards assessment.

To be prepared for environmental emergencies the Department needs to have a data base available in the areas of heaviest use and most critical impact. First priority areas are the metropolitan and urban sites. Second priority are the areas along the interstate highway system. These areas are critical with the transportation of hazardous materials. Drainage basin information is also a second priority because of the need to know the downstream impact of contaminants. Third priority need is for information on and in the vicinity of the Arlington Waste Disposal site and the Umatilla Army Depot. Also third priority is the coast and the estuaries of the State. Geographic information is needed to determine impact on marine and coastal environment.

The Department is currently engaged in supplying data bases to the John Day pilot GIS program.

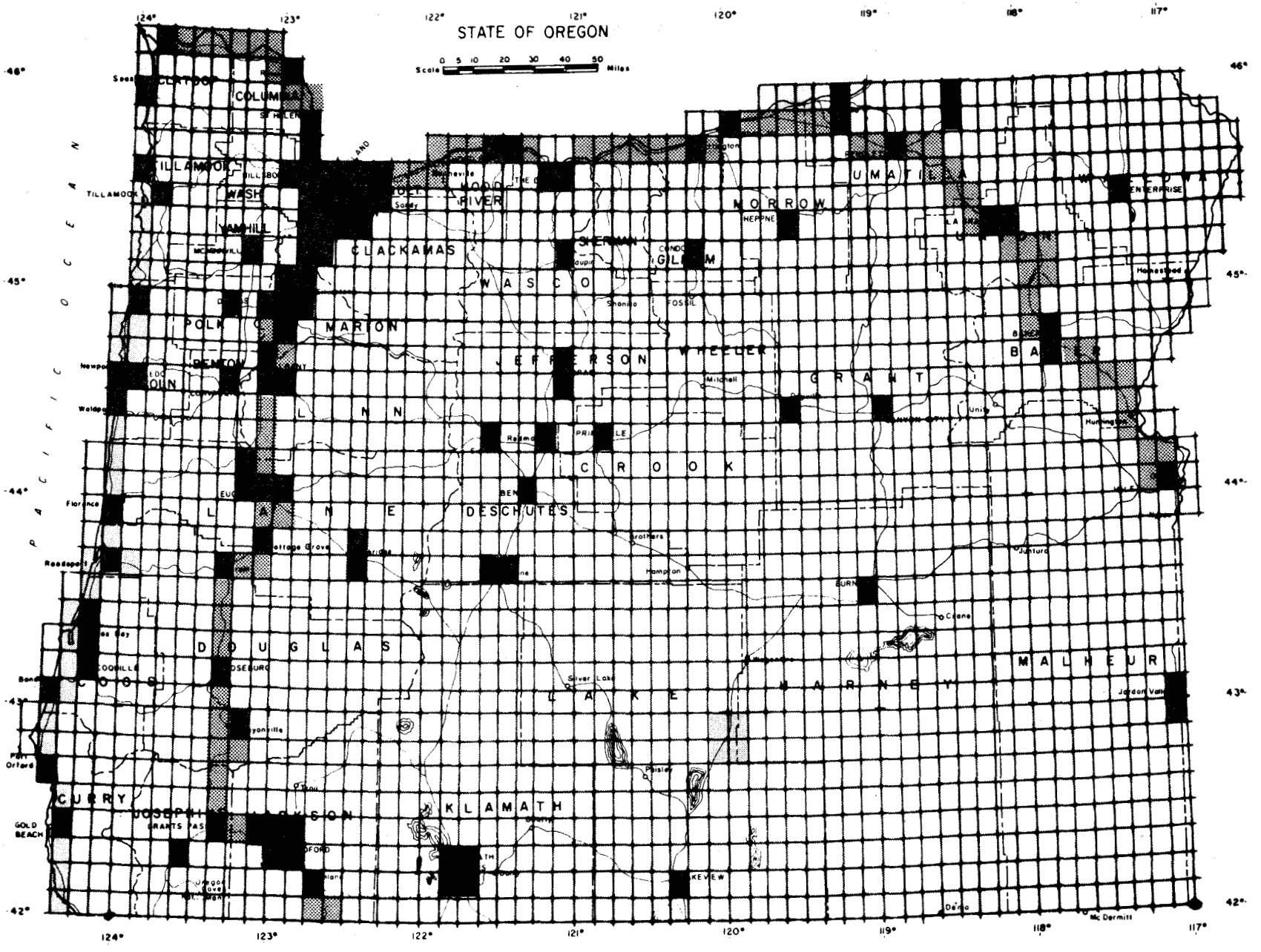
DEQ would support a State system that is compatible with their existing hardware and needs. Most of DEQ's current computer work involves tabular data without the capacity to display geographic information.

Current computer capability consists of a Harris H-500 CPU with three megabytes of memory, three disk drives, two with 300 megabytes and one with 80 megatytes, two tape drives with 800 and 1,600 BPI, a 1-600 LPN printer. Software consists of ORACLE data base management system, acquired in March 1984, and capacity for FORTRAN 77, COBOL and Harris assembly languages.

Contact persons:

John Jackson
Sr. Environment Analyst
Oregon DEQ
P.O. Box 1760
(522 SW 5th Avenue)
Portland, OR 97207
Phone 229-6035

Steven Sander
Sr. Environment Analyst
Oregon DEQ
P.O. Box 1760
(522 SW 5th Avenue)
Portland, OR 97207
Phone 229-6242



OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY - AREAS OF DIGITAL NEEDS

1st Priority
■ Metropolitan Areas

2nd Priority
▩ Interstate 5 & 84 Corridors

3rd Priority
□ Coastal Estuaries & Disposal Sites

Grid size = USGS 7½ min. quadrangles

OREGON

EXECUTIVE DEPARTMENT
DATA SYSTEMS DIVISION

The Data Systems Division of the State Executive Department oversees the development and implementation of State agency computer systems to assure maximum productivity and usefulness. The Division provides computer and staff services to state agencies, including a training and consultation program for state and local government.

The Division sees themselves as a support center to the formation of a geographic information system. They would assist in the acquisition and development of a GIS, but probably would not be a user of the system. The Division has no requirements for geographical data.

In the case of several departments sharing a system, the Division would act as a coordinator to see that all departments' needs were represented.

Current computer capability consists of an IBM 3081, 24 megabyte, mainframe computer and several smaller systems.

Contact person:

Mindy G. Feely
Senior Planning Analyst
Data Systems Division
625 Trade Street SE
Salem, OR 97310
Phone 378-4126

OREGON

EXECUTIVE DEPARTMENT
EMERGENCY MANAGEMENT DIVISION

The Emergency Management Division of the State Executive Department prepares and maintains the Oregon State Emergency Operations Plan. The Division provides coordination in local, State and Federal emergency operations. The Division also administers the State 911 Emergency Telephone system.

The Division needs the metropolitan and surburban areas entered into a digital system. These areas are the highest priority in any emergency service plan.

The transportation network in an urban area is especially important in considering the transport of hazardous material.

County format maps are needed because response plans are drawn up on a county basis. These county maps need the level of detail as is portrayed on 1:100,000 scale (1/2 inch = 1 mile) maps.

A statewide digital data base at the 1:500,000 scale is necessary to consider overall plans. The transportation network at this scale is important in considering the movement of hazardous material and evacuation routes. For efficient evacuation route planning a 1:100,000 scale level of detail is needed for the transportation network. Site specific network problems would have to be solved at the 1:24,000 scale level of detail.

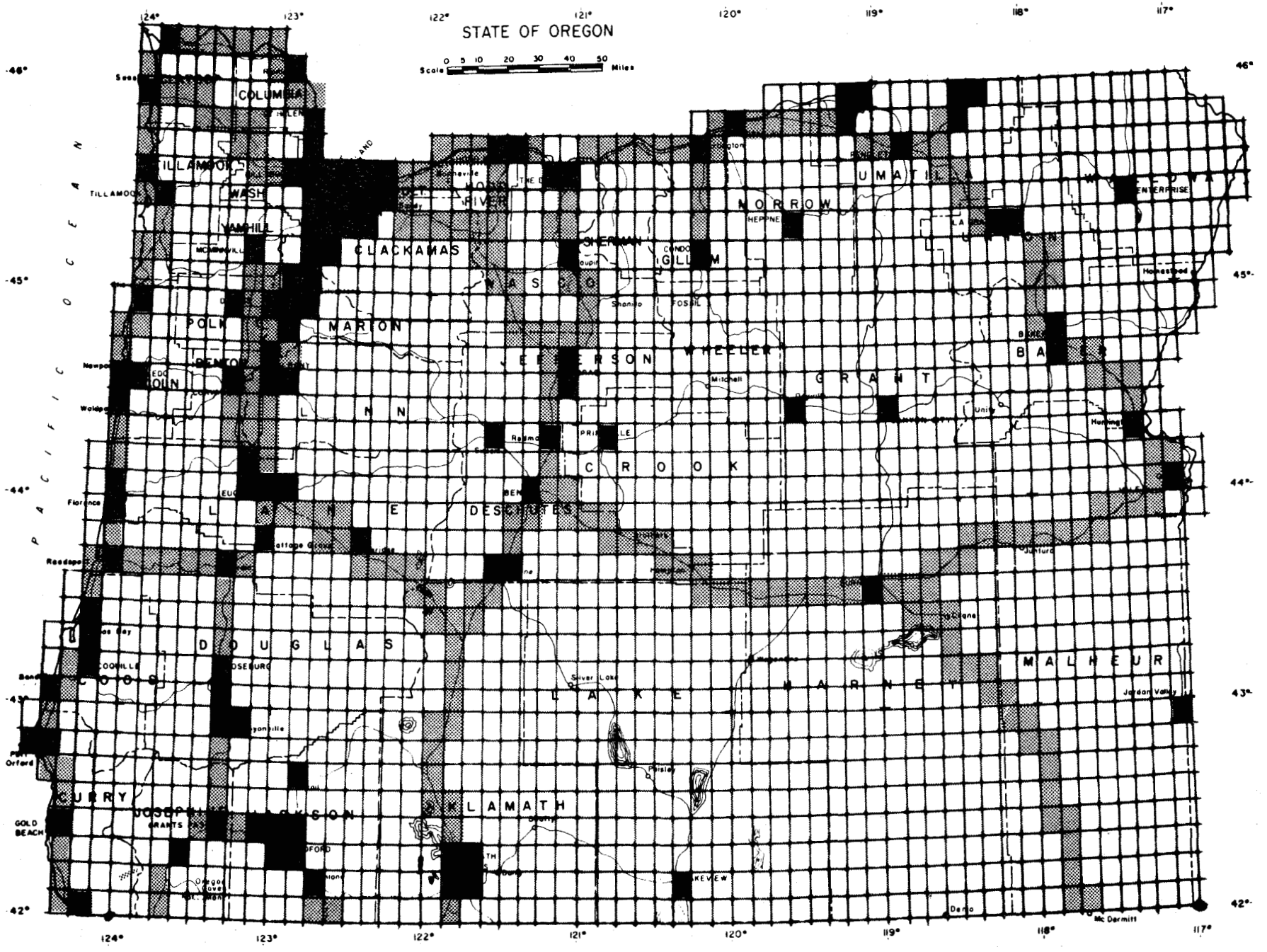
Several data bases were identified as needed that were not on this survey. Fire and ambulance districts are considered a necessity by the Division. These boundaries change frequently, therefore a digital system which produces corrected maps and area statistics in a short time would be an advantage. Telephone exchange boundary locations are necessary to the administration of the 911 Emergency Telephone System. There are five main telephone companies and 31 connecting companies each with a boundary that needs to be coordinated into the 911 system.

Communications systems areas of coverage are needed for maintaining contact between emergency response groups. The amount and area of overlap of individual communications systems determine what is the most efficient way of relaying emergency information. The range of communication systems is a dynamic factor which changes with environmental conditions. The maximum and minimum communication range would be needed as part of the data base.

Current computer capability consists of an IBM PC used for word processing.

Contact person:

Archie M. Mustard
Operations and Plans Officer
Emergency Management Division
43 Capitol Building
Salem, OR 97310
Phone 378-4124



OREGON EMERGENCY MANAGEMENT DIVISION - AREAS OF DIGITAL NEEDS

1st Priority ■ Metropolitan Areas

2nd Priority ▨ Major Highways

3rd Priority □ Statewide

Grid size = USGS 7½ min. quadrangle

OREGON

DEPARTMENT OF FISH AND WILDLIFE

The Department formulates the general programs and policies of the State concerning the management of the fish and wildlife resources and establishes seasons, methods and bag limits for recreational and commercial take of the resource.

The Department is headquartered in Portland with regional offices in Newport, Clackamas, Corvallis, Roseburg, Bend, La Grande and Hines. The Department operates a variety of facilities including 33 fish hatcheries, a game farm, several wildlife areas, public access sites and several research stations.

Several studies within the Department indicate that a geographic information system which can perform wildlife habitat analysis is needed. A study of elk habitat using landsat satellite imagery, land ownership, orthophotos and other data bases brought out a need for a computerized geographic information system. A GIS is needed to show the various relationships between unrelated data.

Some of the data bases that would be needed in a GIS were described in the elk habitat study. Satellite imagery was resolved to a 1:24,000 scale to conform to the U.S.Geological Survey topographic and orthophoto quadrangles. Smaller scale habitat maps of 1:48,000 and 1:96,000 scales were made available for larger study areas. Other data classes included the elk habitat components of thermal cover, hiding cover and forage areas; timber species and stand condition; slope and aspect of the terrain; and location of recent timber clearcuts.

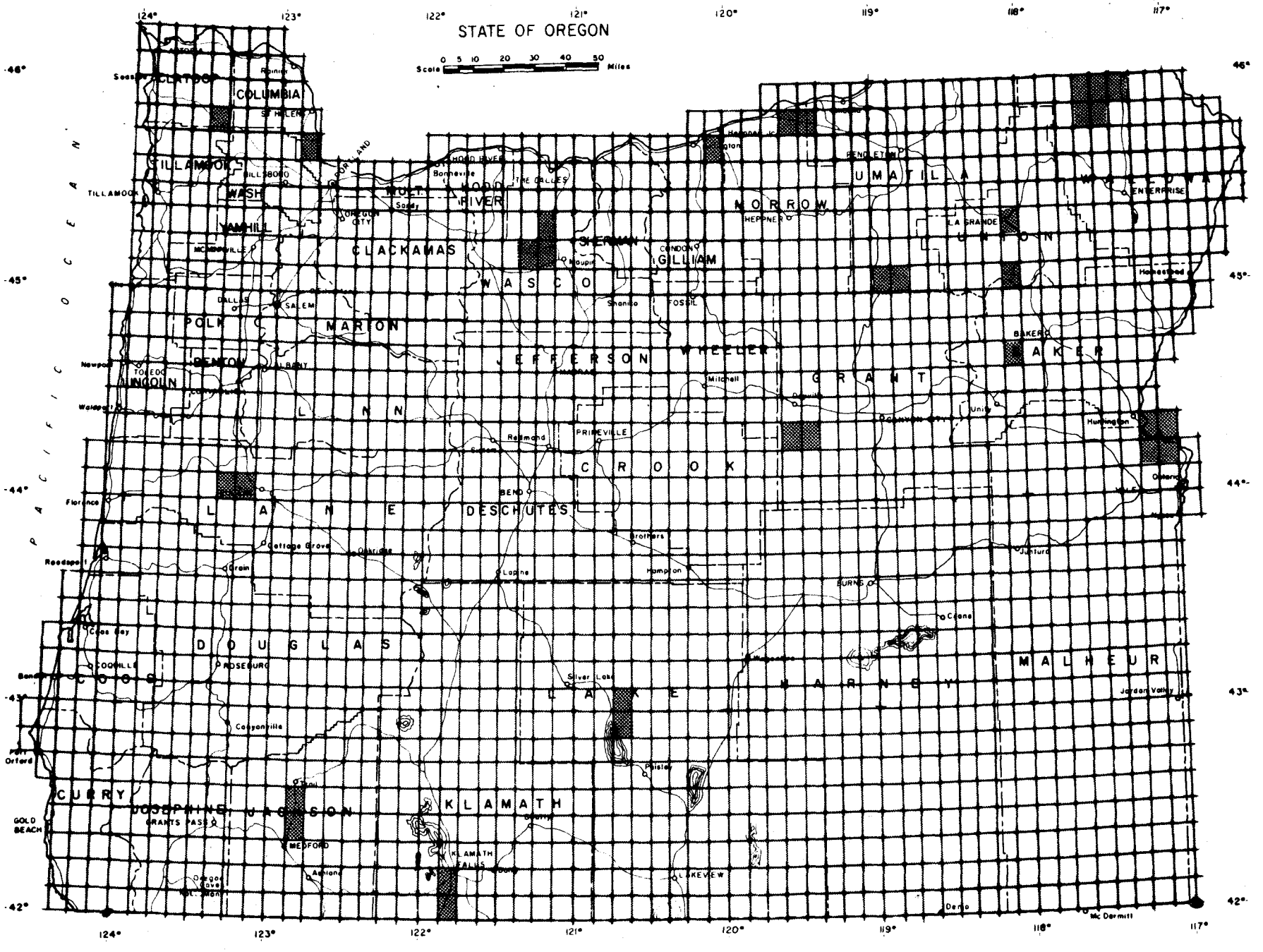
The Department sees a definite need for a GIS capability on a day-to-day basis. They feel that a GIS is a requirement to performing quality work economically. It was emphasized that an effort should be coordinated with Data Systems Division to ensure that newly acquired GIS°s are compatible for a data exchange with other agencies.

A GIS capability is needed as a first priority on the 15 wildlife management areas within the State. As second priority, the entire state coverage is needed at a 1:100,000 scale level of detail. Statewide coverage is needed to administer the recreational and commercial harvest of fish and wildlife.

Current in-house GIS capability is minimal. There is an effort underway to acquire necessary hardware and software to be compatible with, and to interface with, other state agency systems in order to use MOSS and VILAR-IBIS geographic information systems and the software packages of TELEM, POP-II and Distance to Edge Filters. Data packages to be used are USGS digital elevation models, Defense Mapping Agency's digital terrain tapes and LANDSAT digital data.

Contact person:

Larry Bright
Wildlife Research Supervisor
Oregon Department of Fish and Wildlife
P.O. Box 3503
(506 SW Mill Street)
Portland, OR 97208
Phone 229-5453



OREGON DEPARTMENT OF FISH & WILDLIFE - AREAS OF DIGITAL NEEDS

1st Priority
■ Game Management Areas

2nd Priority
□ Statewide at 1:100,000 scale

Grid size = USGS 7½ min. quadrangle

OREGON

DEPARTMENT OF FORESTRY

The activities of the Department involve all phases of Forestry including responsibility for the protection from fire for 16 million acres of private, state and federal forests. The Department is responsible for the detection and control of harmful forest insect pests and forest tree diseases on 11 million acres of state and private lands and the rehabilitation and management of some 785,000 acres of State owned forest lands. The Department administers the Oregon Forest Practices Act and the Forest Land Classification System.

The Department has prepared a list of the data layers used in their land management and forest protection programs. These layers would be integrated into a computer-aided mapping system and geographic information system. The layers marked with an asterisk are of high priority.

I. Land Management - State Forests

A. Map Base - 1:12,000 Ortho or planimetric.
1. Other base as needed

B. Overlays -

*1. Land net - including new surveys
*2. Control net - State Plane Coordinate and Geographic
*3. Geographic names
*4. Transportation system

a. By road class
b. By road name/number
c. Construction plans and profiles

*5. Hydrography

a. Steam classes
b. Uses (water rights, etc.)

*6. Ownership

a. Class (FD, FRA or ?)
b. Acreage
c. Exchange plans

7. Site maps
8. Cover types
9. Uses
10. Ratings

11. Timber sales

a. Contact exhibits
b. Annual sales plans
c. Future sales plans
d. Logging plans

12. Reforestation information
13. Block management plans
14. Geologic features

a. Slide areas
b. Soils
c. Slope/aspect

*15. Environmental Geology maps
*16. Rainfall (Isopluvials) maps
*17. Contour maps
*18. Digital Terrain Models (from 1:24,000)

II. Forest Protection

A. Fire

1. 1:100,000/1:126,000 Scale -

*a. Landnet
*b. Control net - SPC and Geographic
*c. Geographic features
*d. Geographic names
*e. Road systems
1. Classification
*f. Hydrography
1. Pumper fill stations
2. Hover fill stations
*g. Contours
*h. Other culture
i. Fire camp locations
*j. Boundaries
1. City, county
2. Administrative
k. Ownership - public
l. Values at risk
m. Initial attack system maps
*n. Historic and other sites

2. 1:24,000 Ortho and Planimetric

a. Above maps updated from GDS 7 1/2' quads

B. Forest Practices

1. On Fire bases
*a. Environmental Geology maps
b. Stream classes and uses
*c. Rainfall maps

2. Other bases
a. Operations information

3. Smoke management information

C. Insects and Disease

1. Remote sensing information
*2. Survey maps
3. Spray plan maps

III. Other -

*A. Land Use
B. Under Productive Land Studies
C. Timber resource surveys
D. Graphics

IV. Compatibility/needs

A. All maps as apply must be able to be utilized by other agencies.
B. Systems must be compatible with digital information systems of others.

V. Output needs

A. Land management
1. Overlays to bases of quality for photographic reproduction
2. Reasonable resolution and accuracy limits

B. Forest Protection
1. Bases scribed and printed
2. Overlays registered to bases and of quality for photo reproduction
3. Statistical reports
a. Graphics

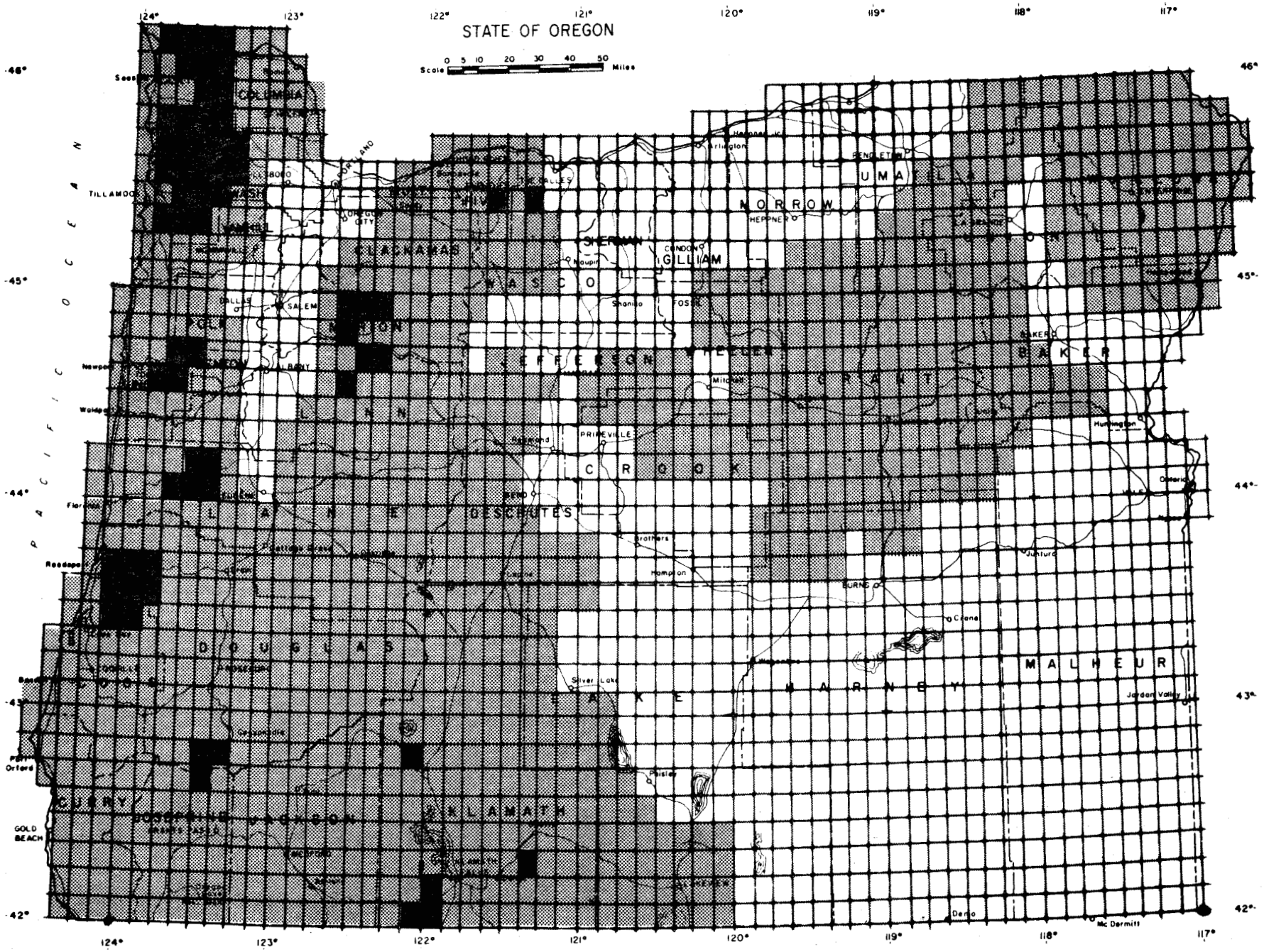
C. Other
  1. Usually general maps on small scale bases (i.e. 1:250,000, 1:500,000)
  2. Statistical reports
    a. Graphics
  3. Quality for printing

Current computer capability consists of the use of the Department of Motor Vehicles IBM 30/33 mainframe computer. This is used in the Timber Management Division to manipulate tabular data. A Northern Telecon system is used for word processing, electronic mail and other office functions in the area and district offices.

Contact persons:

George Shore
Mapping Director
State Dept. of Forestry
2600 State Street
Salem, OR 97310
Phone 378-2504

Ray Miller
Forest Resource Analyst
State Dept. of Forestry
2600 State Street
Salem, OR 97310
Phone 378-2664



OREGON DEPARTMENT OF FORESTRY - AREAS OF DIGITAL NEEDS

1st Priority
State Managed Forest Lands

2nd Priority
Forest Protection Districts at 1:100,000 scale

Grid size = USGS 7½ min. quadrangle

OREGON

DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

The mission of the Department is to develop needed information about the geology of the State and to effectively store and disseminate this information so that it can serve as a basis for correct decision making in resource development and land management. The Department is recognized as the State's center for geological, mining, oil, gas, geothermal information and geological hazard data.

The geologic maps developed by the Department indicate the distribution of rock units within the State. These geologic maps are important tools in planning the use of land and water, in the search for mineral and energy resources, in the evaluation of geologic hazards and in the assessment of environmental impacts.

The Department's main use for digital system would be to store, analyze, compare and retrieve geologic and earth science technical data. Systems are needed which will analyze rock-unit data and derive characteristics such as chemistry and age from the data. There is a need to store and retrieve by different characteristics the oil and gas well data within the State.

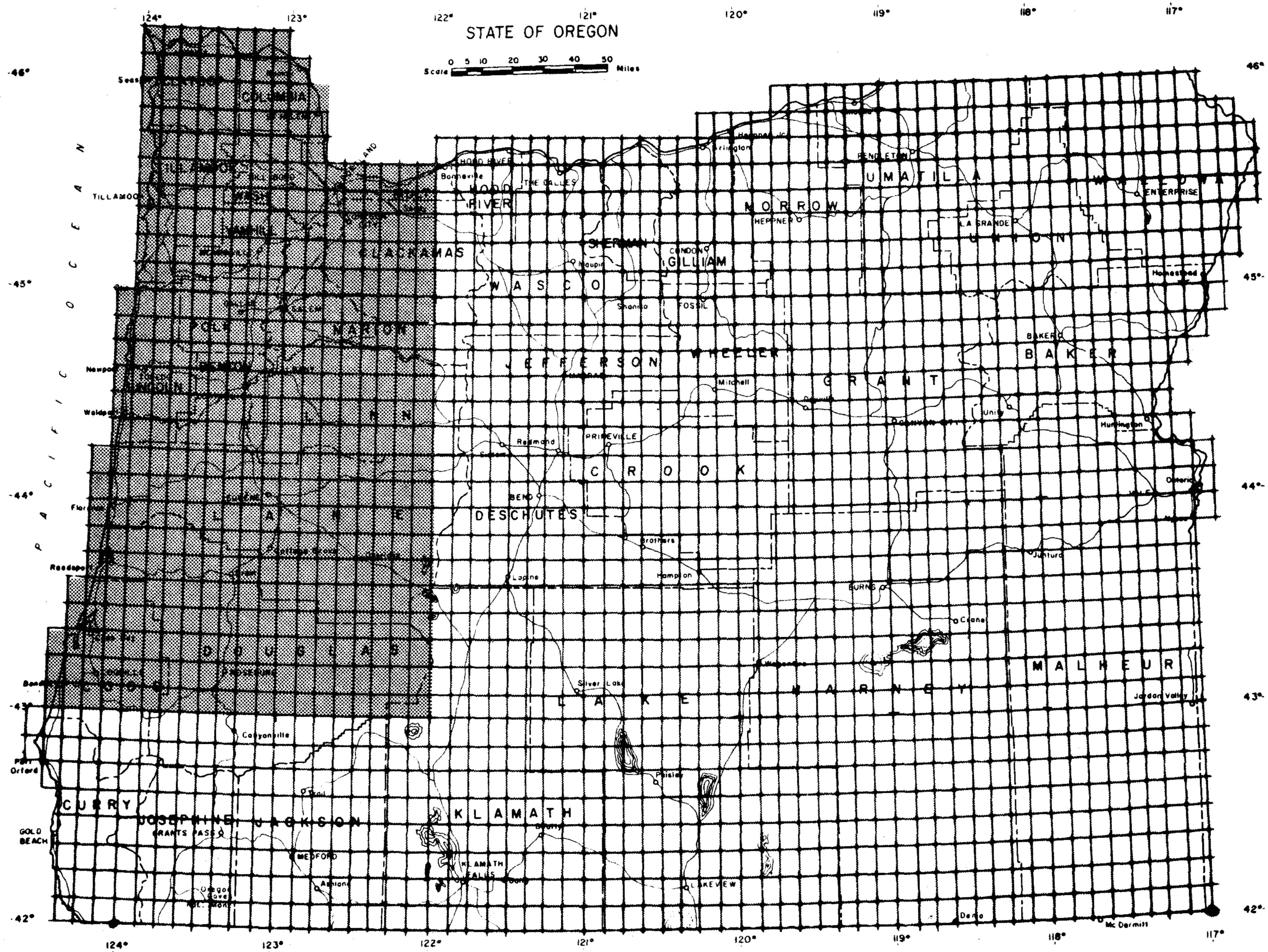
The Department currently uses the U.S. Geological Survey Computerized Resource Information Bank (CRIB) digital file and the geothermal digital file. The Department also uses the U.S. Bureau of Mines digital data files.

Computer programs from other sources are used by the Department. The heat flow modeling program from Southern Methodist University is used occasionally. The Geographic Assay Information File is used from Oregon State University.

The Department has specified several areas of geographic digital data needs. In the northwest and west-central portion of the State, the Department needs the U.S. Geological Survey's digital line graph (DLG) layers of public land survey and boundaries. Statewide, the Department needs mine locations and information which can contribute to the CRIB file. Also needed are the rock chemistry and age dates of the rock units geographically located. Also needed statewide is the geochemical sampling data which would allow geologists and engineers to associate rock units and their chemistry.

Current computer capability consists of an in-house inventory of surface mine sites. For future capabilities, the Department wants to be able to tap into the data bases of other agencies and perform various specialized analysis tasks using these data bases.

Contact person: Dr. John D. Beaulieu
Deputy State Geologist
State Department of Geology and Mineral Industries
1005 State Office Bldg.
Portland, Or 97201
Phone 229-5580



OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES - AREAS OF DIGITAL NEEDS

1st Priority - Statewide
☐ Mine Locations & Rock chemistry

2nd Priority - Northwestern & West Central Oregon
▩ USGS DLG - Public Land Survey & Boundaries

Grid size = USGS 7½ min. quadrangle

OREGON

DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT

The Department is responsible for coordinating comprehensive planning throughout the State which will provide for orderly growth and development while promoting management and use of the State's resources. DLCD is further charged with coordinating State and Federal agencies to ensure that their planning is implemented through city and county comprehensive plans. There are 278 jurisdictions that submit plans to DLCD for approval. These plans must be consistent with the guidelines of the statewide planning goals. The Department serves as a statewide forum for all changes to approved comprehensive plans. It participates in city/county amendment actions when necessary to assure that statewide goals are met. All land use plans are to be reviewed at least every five years to assure that the plans continue to reflect statewide land-use policy.

The department's data needs center around the growth and development areas of the State. Municipal areas within urban growth boundaries are of a primary concern. Comprehensive land-use plans are required for all incorporated areas. The data layers needed by the Department are shown in Table I. These are the elements that contribute to land use plans. Having the land use plan elements in a geographically based digital form would allow plans to be modified to meet changing conditions.

Second priority areas of need are along the coastal estuaries and in the vicinity of the Trojan Nuclear Plant. The coastal areas are especially sensitive to rapid development which might harm resources and ecological systems.

The U.S. Geological Survey DEM and DLG data bases would provide a good base for most of the information. The Geological Survey data would need to be readily available as it is the Department's experience that the Geological Survey cannot produce data within a proper time frame to meet rapidly developing problems.

The Department is currently involved in developing a Resource Information Management System (RIMS). This pilot GIS will provide information concerning the Columbia estuary. This particular GIS project is scheduled to be completed by December 31, 1984. Robert Bailey is the DLCD Coordinator for the project.

The Department needs several different densities of geographic information. For statewide planning the 1:500,000 scale of detail is appropriate. For resource and county planning a 1:100,000 scale density of information is needed. The 1:24,000 scale (1" = 2000') is needed for major cities.

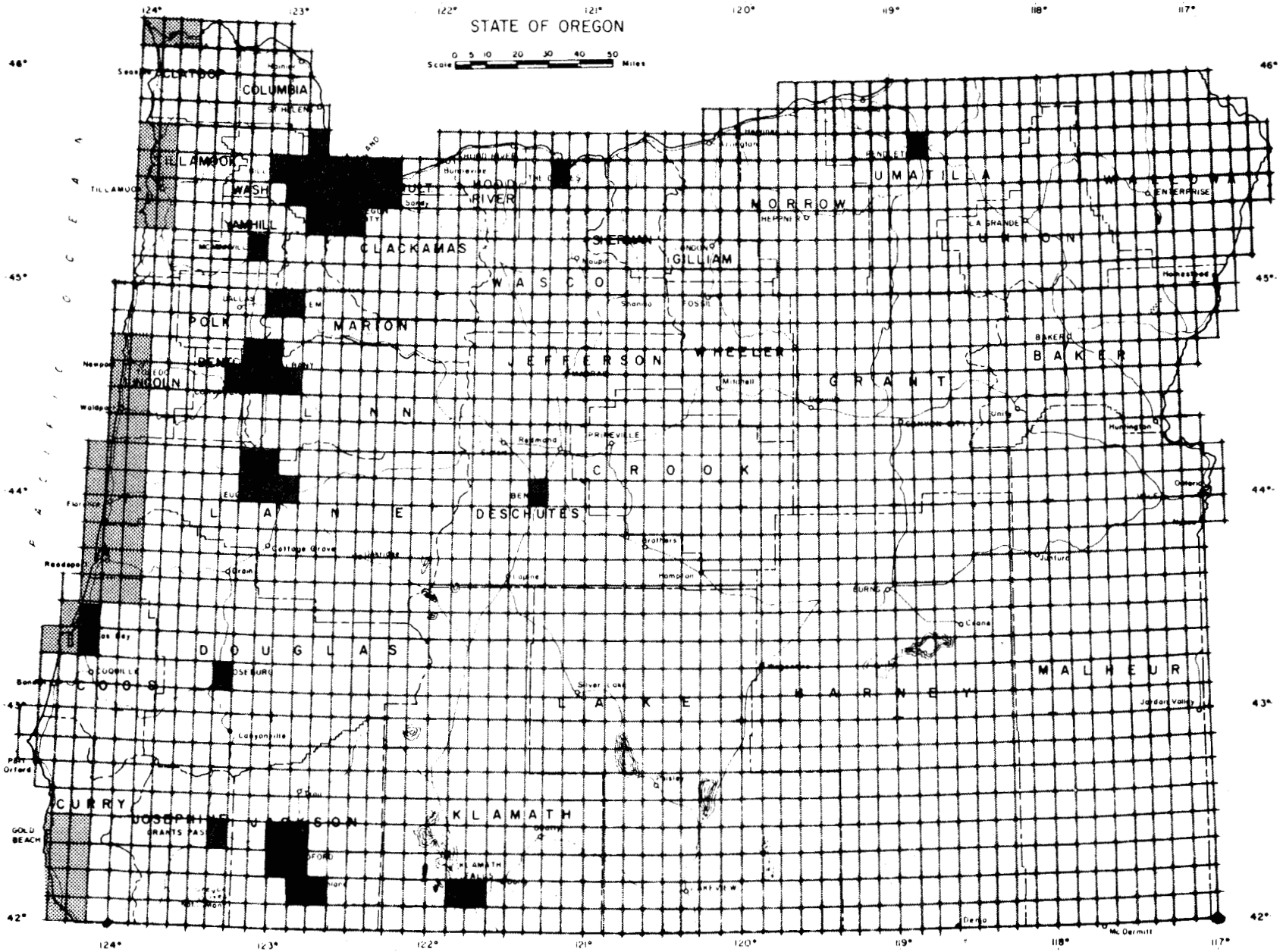
High impact areas of the Oregon Land Use Planning Program need a much larger scale geographic information system. This larger scale system should derive data from the 1:2,400 scale (1"=200') Assessor Maps. DLCD recognizes that other cooperating State agencies will probably be collecting data at 1:24,000 or 1:100,000 scales. Compatability in state agencies digital files is seen as a necessity to the Department.

The Department's current computer capability consists of word processing equipment plus equipment used for the RIMS project used jointly with the Department of Energy. The RIMS project equipment consists of a Data General Model 20 Microcomputer with a 15 MB cartridge tape drive and two 15 MB Winchester drives. Peripheral devices consist of a Tektronix 4054 Graphics Storage CRT, Numonics 2300 36 x 48" digitizing table, Tektronix Intelligent Plotter and a Texas Instruments OMNI 855 Dot Matrix Printer.

Contact persons:

Robert Bailey
OCS Coordinator
State Dept. Land Conserv. and Development
320 SW Stark
Portland, OR 97204
Phone 229-6068

Lloyd Chapman
Water Resources Coordinator
State Dept. Land Conserv. and Development
1175 Court Street NE
Salem, OR 97310
Phone 373-7399



OREGON DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT - AREAS OF DIGITAL NEEDS

1st Priority
■ Major Cities

2nd Priority
▨ Coastal Estuaries

3rd Priority
□ Statewide at 1:100,000 scale

Grid size = USGS 7½ min. quadrangles

OREGON

DIVISION OF STATE LANDS

The Division manages the lands which were given to the State by the Federal Government when statehood was achieved. These include offshore lands, grazing lands, forest lands, coastal estuarine tidelands and submerged and submersible lands associated with navigable waterways. The Division is also responsible for state owned lands which are leased for the exploration and production of oil, gas, minerals and geothermal resources. The Division issues archeological exploration and treasure trove permits for State Lands.

The Division is interested in the digitized boundaries and areas of State and Federal ownership. They are currently engaged in a land exchange program with the Bureau of Land Management. This exchange will consolidate isolated parcels into a more compact, manageable unit. A geographic system which would aid in the inventory and management of the State lands would be an asset.

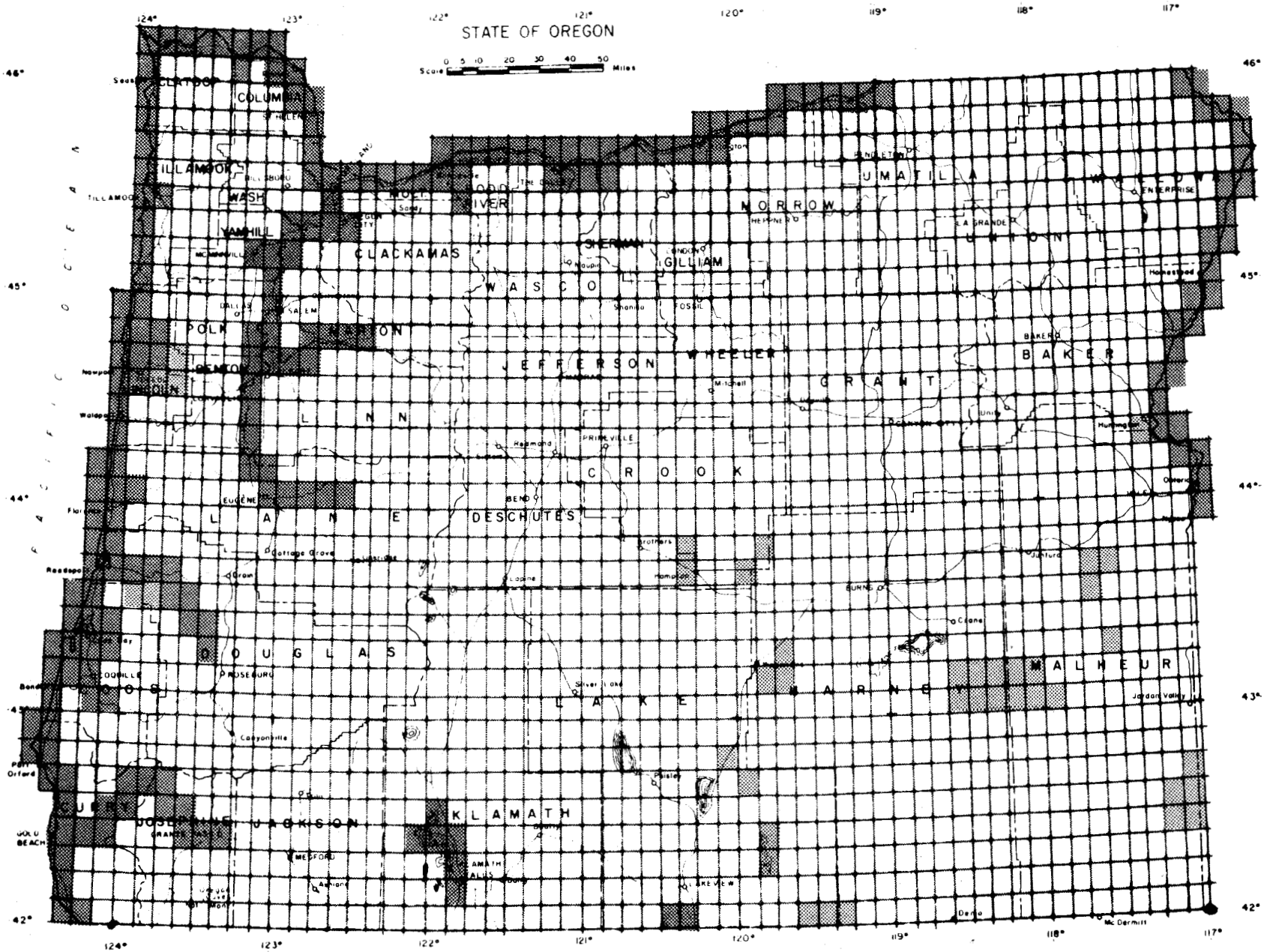
The Division is also interested in the water boundaries of the State. A system is needed that will assist in the management and leasing of the estuarine tidelands and the submerged and submersible lands.

For area coverage, the Division as a first priority needs geographic information along the coastal areas, estuaries and the navigable rivers and lakes. For second priority, information is needed covering the State managed lands.

Current computer capability consists of a Wang Word Processor.

Contact person:

Ed Christie
Deputy Director
Division of State Lands
1445 State Street
Salem, OR 97310
Phone 378-3805



OREGON DIVISION OF STATE LANDS - AREAS OF DIGITAL NEEDS

1st Priority
Coastal Areas, Estuaries, Navigable Rivers & Lakes

2nd Priority
State Managed Lands

Grid size = USGS 7½ min. quadrangles

OREGON

MILITARY DEPARTMENT

The Oregon Military Department has general supervision of all matters pertaining to personnel, administration, supply and logistical support of the Oregon National Guard. The Department also supervises the Oregon National Guard Reserve and all state owned or leased armories, posts, camps, military reservations and rifle ranges. The Department is organized, trained and equipped to aid in State emergencies upon order of the Governor.

The Department needs transportation, hydrography and terrain in a digital format to determine the access and mobility within an area. The horizontal and vertical control network information is needed to provide specific locations as a reference for military operations.

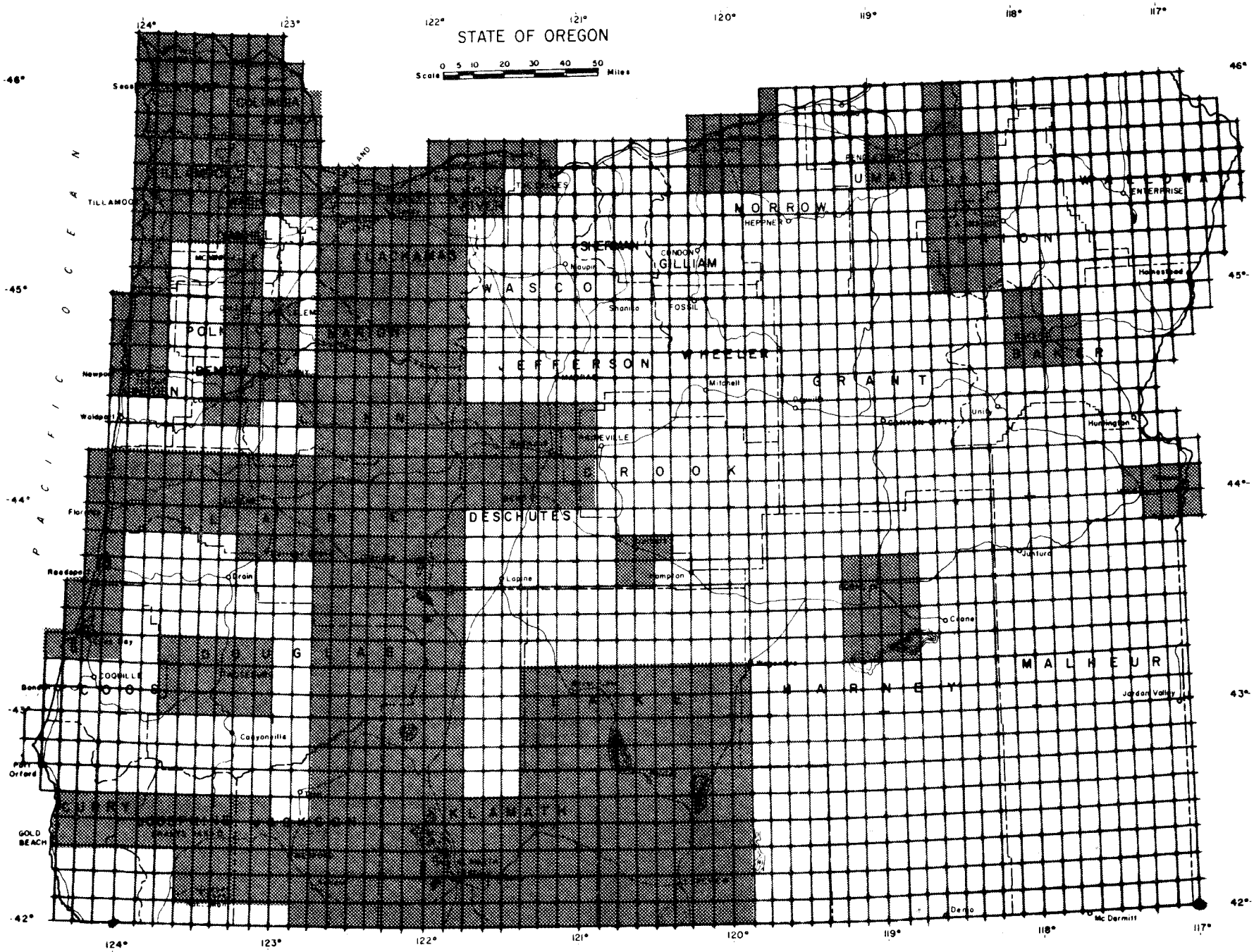
The areas of primary need are centered around the military armory and training areas within the State. Information is needed in a one-day travel time around the armories because that is generally where the military training is conducted. In Northwest Oregon, armories are close enough to each other that a continuous coverage of data is needed. Metropolitan areas are needed because of the possibility of emergency or civil disturbance. The Cascade Range is needed because mountain training is a requirement of the Department.

A digital system is needed to change scale, to update and to add military information to maps. The Department's mapping scale is primarily a 1:50,000 (1"=4,167') scale with one kilometer UTM grid marked on the map. Secondary usage is of the USTS 1:24,000 scale (1"=2,000') series maps. A primary use of a digital geographic system would be to produce training exercise maps.

The Department's current computer capability consists of a Burroughs 1900 and a Burroughs 25 System. A Wang computer system is used as a connection to the National Guard, CAMIS System. This is used primarily for word processing and analysis of tabular data.

Contact person:

SFC David R. Haugh
Oregon Military Department AROPT-T
2150 Fairgrounds Road NE
Salem, OR 97303
Phone 378-3903



OREGON MILITARY DEPARTMENT - AREAS OF DIGITAL NEEDS

1st Priority
■ Vicinity of Training Facilities

2nd Priority
□ Statewide - Transportation

Grid size = USGS 7½ min. quadrangle

OREGON

DEPARTMENT OF REVENUE

The function of the Department of Revenue is the supervision of various tax programs. In addition to personal income tax, the Department administers 27 other tax and nontax programs.

The Department produces or maintains over 50,000 maps designed to meet State statutory requirements and satisfy the programs of the Department. The Department has produced all but two of the State's counties and maintains an update program for 14 of the countries. Cadastral maps are being digitized as they are produced. Of the 50,000 maps produced by the Department, about 6,000 have been digitized. The 6,000 digitized maps cover portions of Coos and Douglas Counties and all of Harney and Klamath Counties.

The Department sees their cadastral maps as an integral unit of a GIS. The various map series have a multi-purpose use which could be integrated into part of a GIS. The Public Land Survey network is one of the most sought after digital layers by the state agencies. With software modifications the Department of Revenue's data files could be made compatible with other systems.

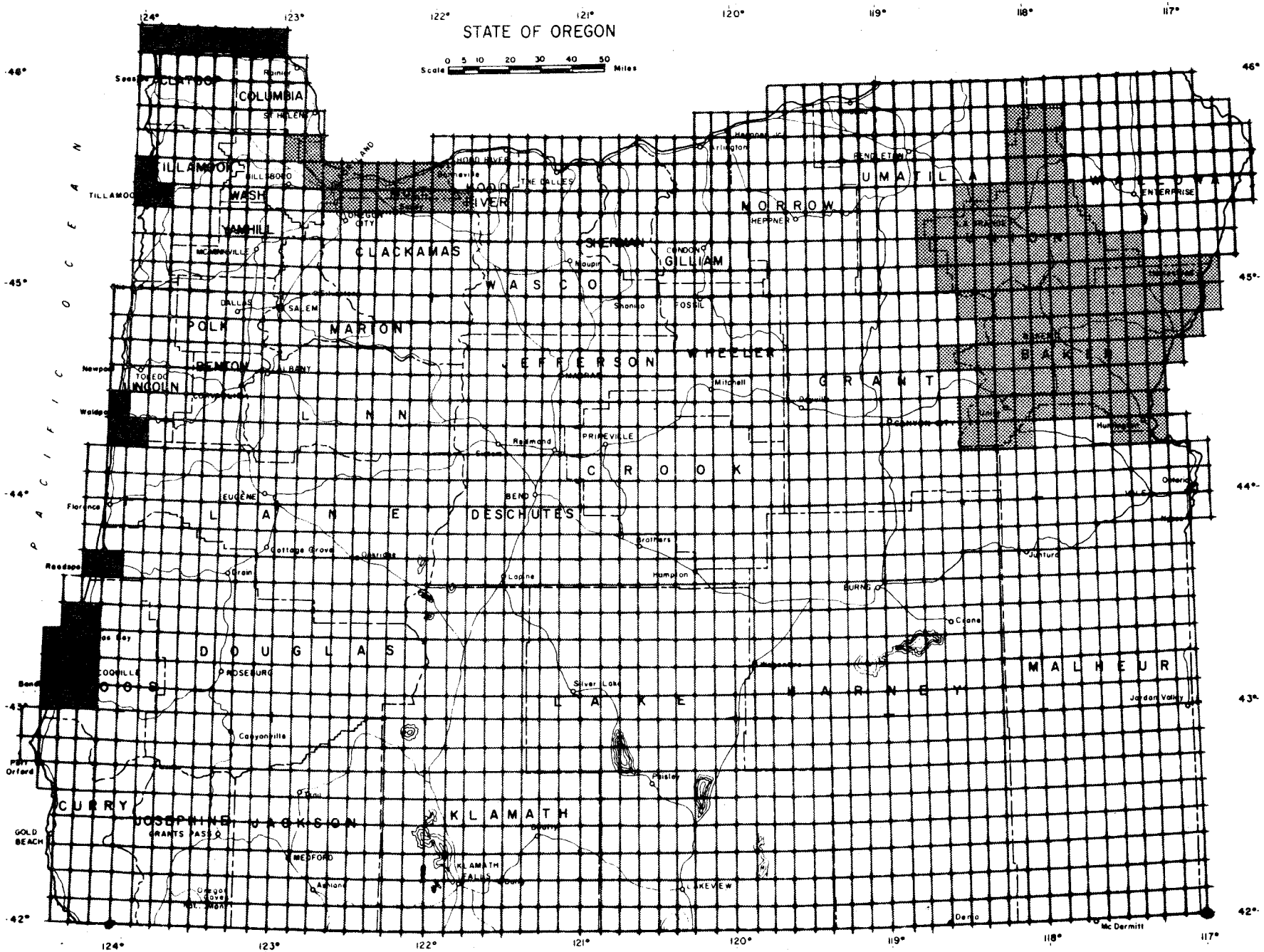
Of particular interest to the Department are the tideland boundaries between mean high water and mean low water. The importance of this data layer is to determine the area of the private taxable tidelands. The taxable tideland ownership is frequently different from the upland ownership.

Public Land Survey line location and Federal ownership boundaries are two other priority data layers needed by the Department. Public Land Survey data is needed primarily in Baker, Multnomah and Union Counties. Those counties have not yet been digitized by the Department.

Current computer capability consists of a Calma Interactive Graphics System, a CALCOM 748 Flatbed Plotter, Wang CPU, 925 Controller, Tektronix CRT, Talos digitizing system, and Decwriter.

Contact person:

Robert A. Mead
Chief, Cartographic Division
State Department of Revenue
955 Center Street NE
Salem, OR 97310
Phone 378-3381



OREGON DEPARTMENT OF REVENUE - AREAS OF DIGITAL NEEDS

1st Priority
■ Tidelands

2nd Priority - Public Land Survey
▨ Baker, Multnomah & Union Counties

Grid size = USGS 7½ min. quadrangle

OREGON

SECRETARY OF STATE'S OFFICE

The Office of Secretary of State is divided into separate divisions to fulfill the Secretary's duties as Chief of Elections and Public Records Officer, Auditor of Public Accounts and Supervisor of the State Archives Division.

The Elections and Public Records Division has a need for a geographic based data system. This Division oversees the elections of over 1,750 different districts. There is a need to know the location of these district boundaries in relation to the residences of the members of the districts. Many of the district boundaries follow natural or man-made linear features. Hydrographic and transportation features are particular favorites with the boundary makers.

House location is of specific interest to the Division. To determine district residency the physical location of the house is needed, not the mailbox location or where the address number falls as it is prorated between intersections.

A geographic based system used by the Division would need to address boundary changes efficiently. Various boundaries are subject to change for various reasons. U.S. and State legislative district boundaries change by reapportionment based on population. Other boundaries change as conditions change within the districts.

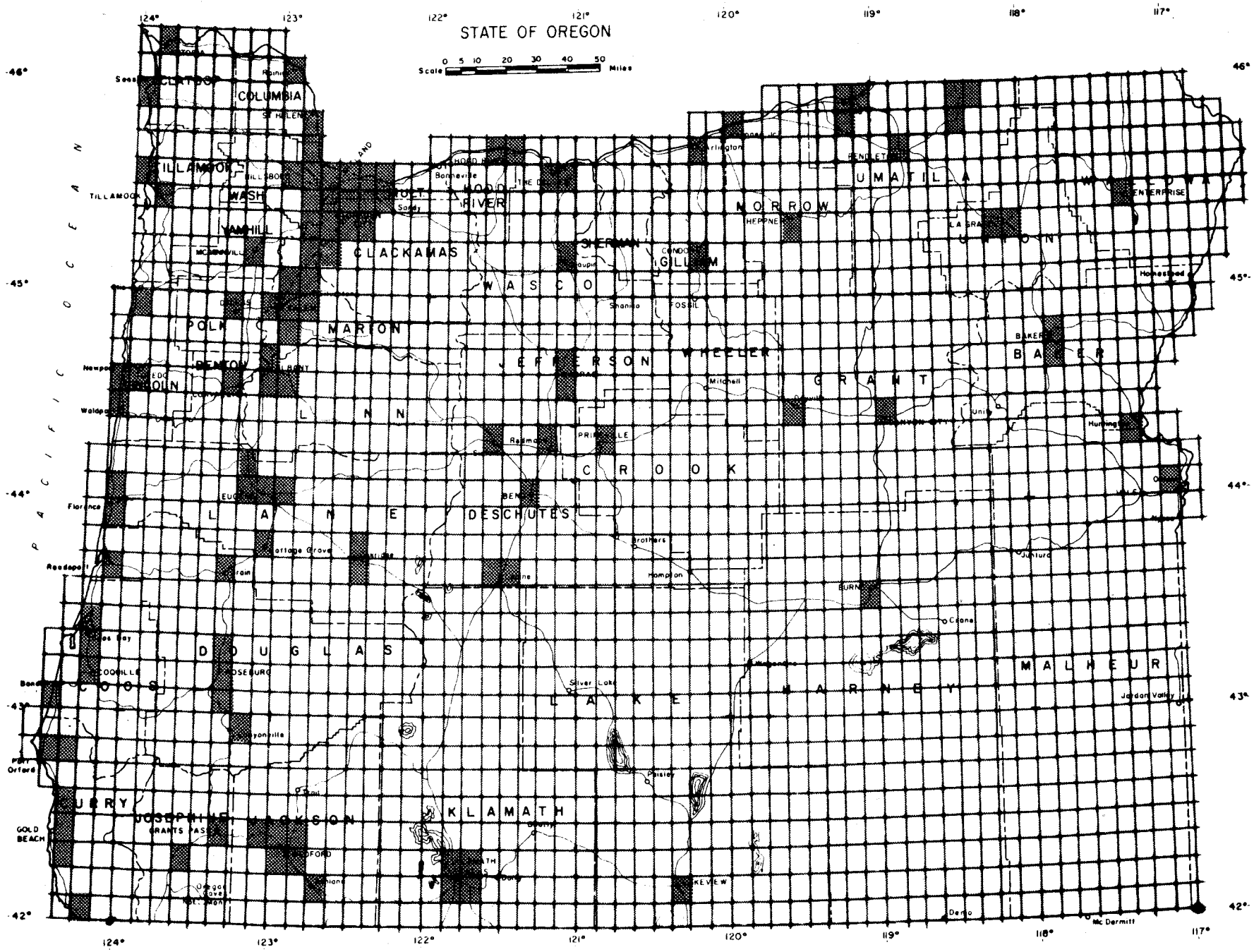
The Division would need to ask the GIS in what districts each of the voters resides. This information would be supplied from the geographic location of the district's boundaries and the voter's residence.

The system should be able to supply a series of maps to serve the election process. Detailed precinct maps at 1:24,000 scale are needed to orient the voter to the neighborhood and the polling places. Smaller scale maps at 1:100,000 scale are needed by the district and the county for the administration of the elections. Statewide reapportionment would use 1:500,000 scale maps.

Current computer capability consists of using the Executive Department's Data Center equipment. Most of this use involves tabular or written information.

Contact person:

Larry Bevens
Manager, Elections Division
Secretary of State's Office
141 State Capitol
Salem, OR 97310
Phone 378-4144



OREGON OFFICE OF THE SECRETARY OF STATE - AREAS OF DIGITAL NEEDS

1st Priority
■ Population Centers

2nd Priority - Statewide
□ Boundaries, Transportation, Hydrography, Public Land Surveys

Grid size = USGS 7½ min. quadrangle

OREGON

DEPARTMENT OF STATE POLICE

The Department was created to serve as a State law enforcement body and to assist local law enforcement agencies. This agency is empowered to enforce Oregon statutes without limitation by county or other political subdivision.

Of the eight divisions within the Department, five divisions (Game, Traffic, Criminal, Patrol and Investigations) have use for a computer system with geographic base capabilities. These divisions are each different in their functions and the way they record information. Each division uses a different type of geographic locator. The Department's computer based geographic information system will need to accept the various locators and translate them into the other division's formats for correlation and analysis.

The Game Division collects violation location by game unit, species and time of year. To plot the game violations, the Division needs to store data by township, range and section.

The Traffic Division records accidents by location, drunk driver citations by location and traffic violations by highway mile posts. If mile posts are not available, distances are recorded from the nearest intersection. Highway and road names and numbers are important to the Division's records.

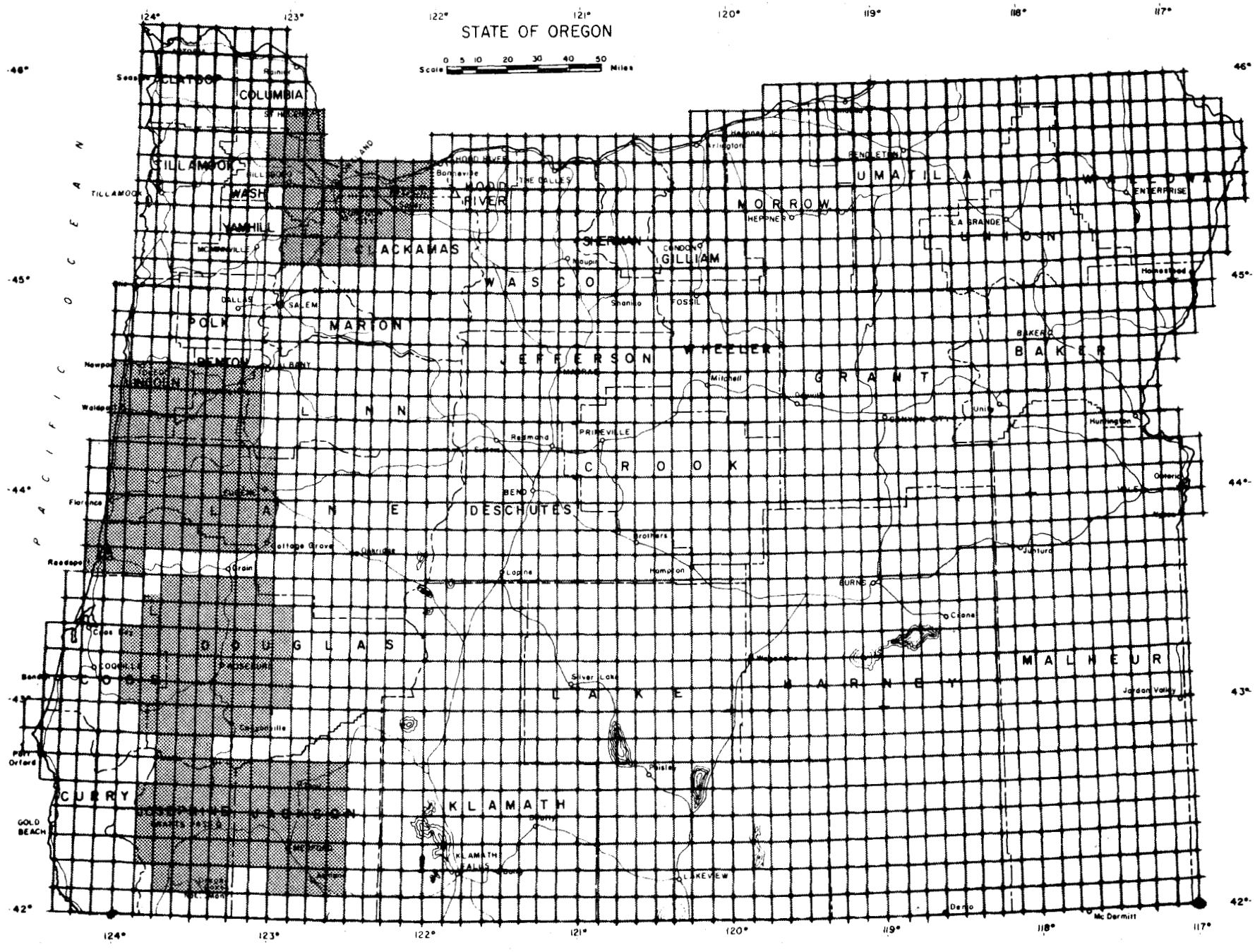
The Criminal Division is interested in recording and retrieving information by street address, crime classification and time of day.

The Department has three areas of needs for digital data bases. Information needs to be correlated regarding the marijuana-growing areas in the State. Digital elevation models are needed in the growing areas to determine accessibility and location. State and Federal ownership is needed at a 1:100,000 scale to determine jurisdiction. Third category of data is the transportation network of the State. This needs to be collected at the 1:100,000 scale level of detail for reporting the activities of the various divisions.

The Department's current computer capability consists of using the Executive Department's IBM 37-3081. This is used for statistical records and enforcement activities. Three IBM XP's are used for word processing and data base systems.

Contact person:

Captain Lee R. Hyder
Game Division
Department of State Police
107 Public Service Building
Salem, OR 97310
Phone 378-3062



OREGON DEPARTMENT OF STATE POLICE - AREAS OF DIGITAL NEEDS

1st Priority
☐ Statewide - Transportation

2nd Priority
▒ Marijuana Growing Areas

Grid size = USGS 7½ min. quadrangle

OREGON

DEPARTMENT OF TRANSPORTATION

The Department of Transportation consists of the Director and all personnel employed in Central Services and the following administrative divisions: Aeronautics, Highway, Motor Vehicles, Parks and Recreation and Public Transit. This survey addressed the needs of the Highway Division, but there are indications that the other divisions would have use of a geographic-based information system.

The Highway Division has recently acquired a computer aided drafting and mapping system to relieve many of the manual chores. This system was installed by July 1984. This system has the capability of producing and using geographic based information. Maps of various types are being produced from separate layers of information digitized at an earlier date. The system, with the appropriate software, could use data generated by other agencies. Data exchange with the U.S. Geological Survey is being explored.

The Department of Transportation, the Department of Energy and the Department of Land Conservation and Development have signed a Memorandum of Understanding to work together on a future geographic information system project.

Much of the Highway Division's information is based on mileage along the state roadways. The Division currently locates road features by their road mileage. Software development is partially aimed at digitizing roads and deriving mileage locations from the data base. Other agencies interviewed in this survey would be able to use this highway mileage data base. The Department of State Police has shown a particular interest in this road mileage location system. Accidents and violations are located by their road mileage.

The areas of primary concern which need digitizing are the urban areas. Within these urban areas the transportation network is of the highest importance. The hydrography, public land survey and boundaries are needed to a lesser extent.

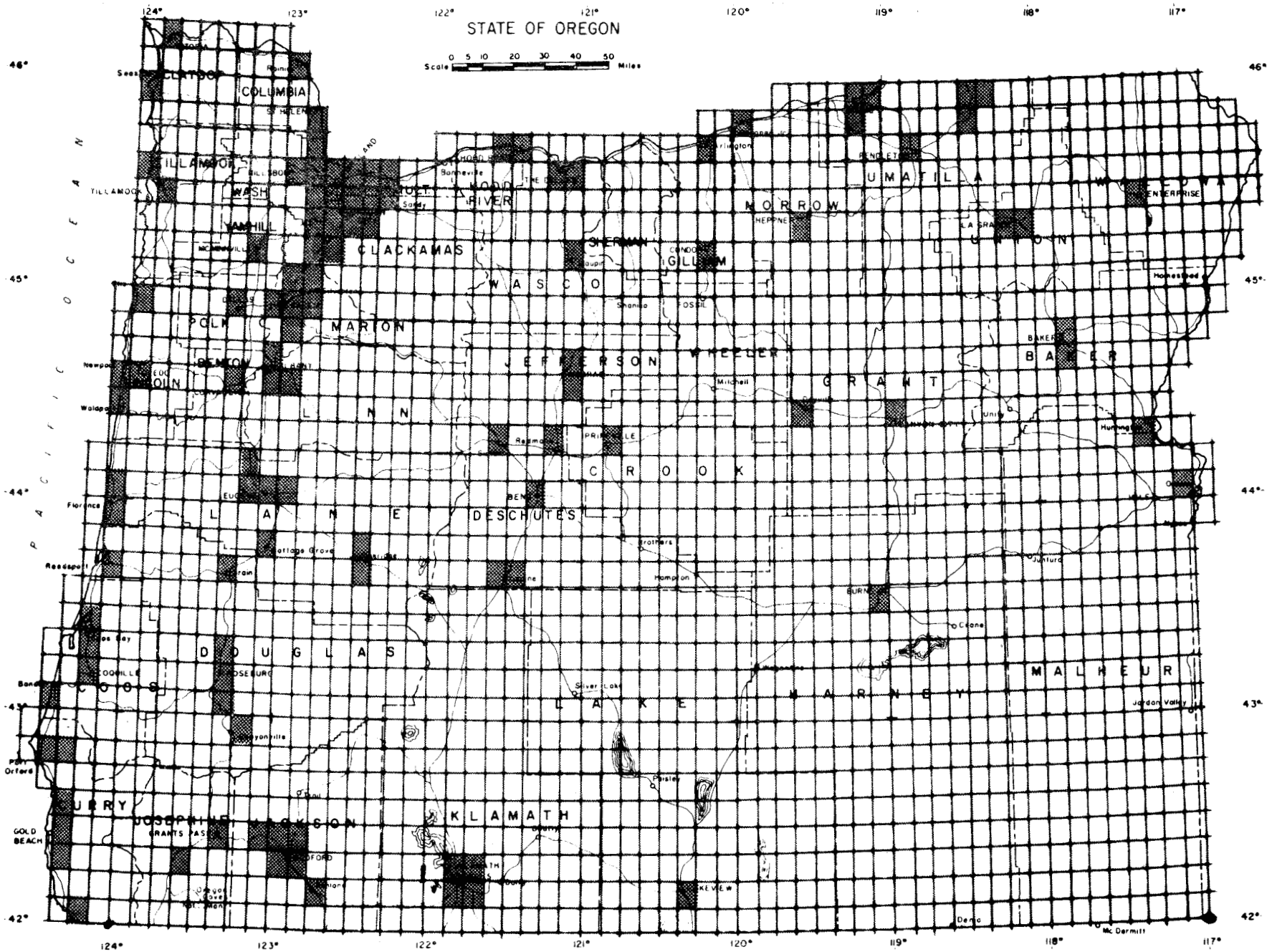
The areas along the interstate corridors are needed for a data base. This is where the expansion and development will be taking place. The I-5 corridor is the most important, with information needed along the I-84 corridor as a close second.

A statewide digitized map needs to be produced. Data layers over this statewide area could be interchanged to produce various planning maps. Roadway conditions could be a data layer which could tabulate the number of road miles for each condition within a county or highway district.

Current computer capability consists of an Intergraph VAX 11/780, two 300 MB disc drives, six interactive dual monitor work stations, and a Xynetics plotter. The system is capable of inputting digitized or bulk coordinate data.

Contact person:

Rudy Wellbrock
Mapping Supervisor
Highway Division
Room 22 - Transportation Building
Salem, OR 97310
Phone 378-6256



OREGON DEPARTMENT OF TRANSPORTATION - AREAS OF DIGITAL NEEDS

1st Priority
■ Urban Areas

2nd Priority
□ Statewide - Transportation

Grid size = USGS 7½ min. quadrangle

OREGON

DEPARTMENT OF WATER RESOURCES

The Department is responsible for managing Oregon's water resources and for planning and recommending policy for water resource management. It administers State laws and policies related to the diversion and appropriation of surface and ground water. It issues and records permits, licenses, and certificates authorizing the use of public waters, including the generation of hydroelectric power. It adjudicates rights to use water and appoints and supervises District Watermasters for regulation and distribution of water. The Department determines critical ground water areas. It seeks to prevent pollution or impairment of the quality of ground waters.

As a part of its basin water planning activities, the Department has completed a statewide land use inventory utilizing Landsat satellite imagery. A new map series showing land use by major river basins has been developed by the Department for public distribution. The Department also produces basin maps which delineate the State's surface water resources.

The Department is the lead agency in Senate Bill 523 which will set up strategic water plans for each of the 18 basins within the State. The water planning for each basin addresses the uses of surface and ground water. A part of the strategic water plan is the responsibility to set up a pilot system which will illustrate a few of the possible uses of a hydro-geographic information system.

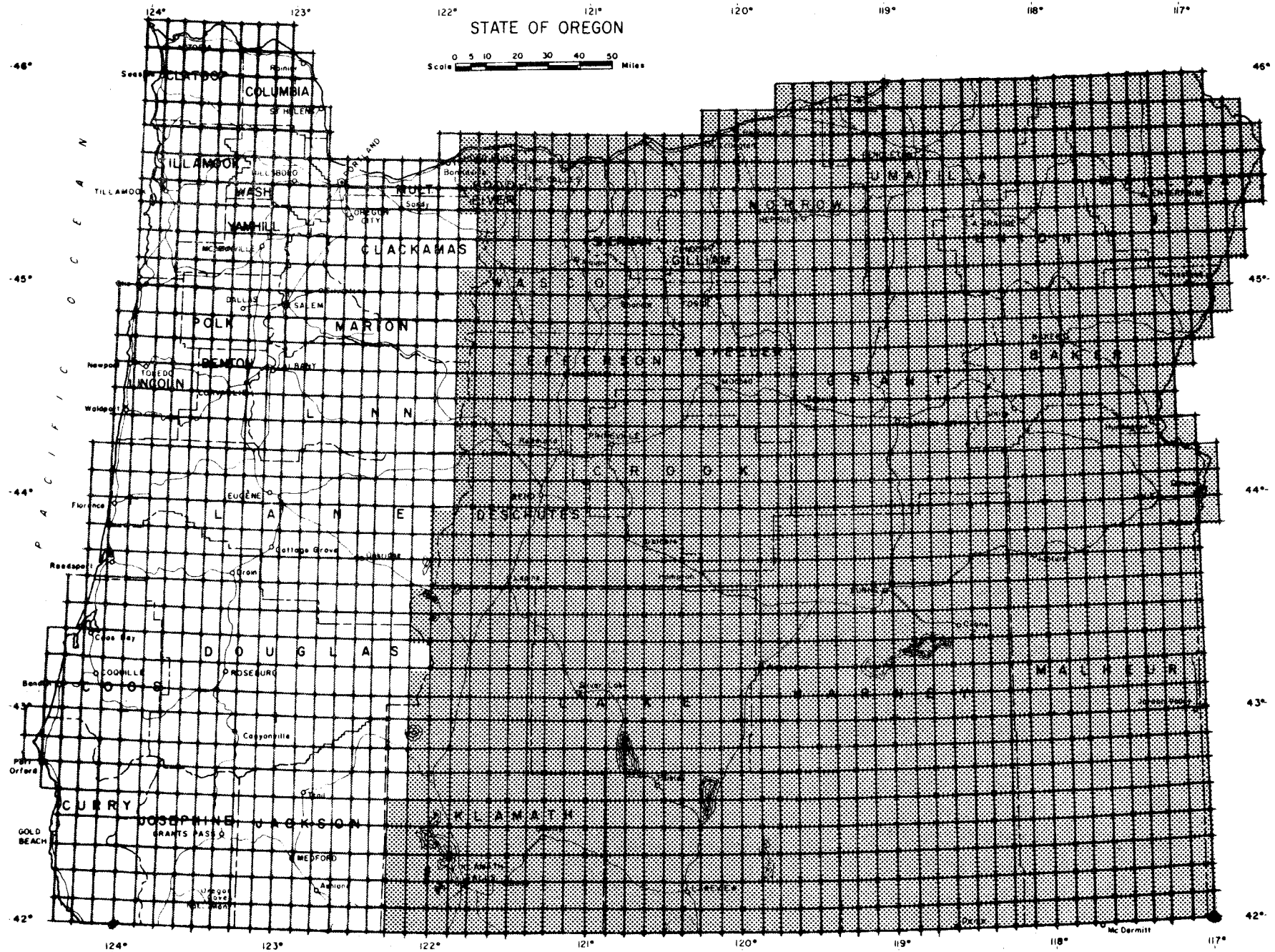
The Department has specified that the digital data layers needed should be in 1:24,000 scale or 1:100,000 scale level of detail. In the 1:24,000 scale, the data layers of the public land survey network, hydrography and digital elevation models are needed. Elevation models are needed that can portray the drainage basin from any point in the basin and obtain mean elevation of that sub basin and the slope and aspect of the sub basin. In the 1:100,000 scale, the data layers of transportation, boundaries and land use and land cover are needed. Snowfall and melting patterns are needed at the 1:100,000 scale in eastern Oregon.

The Department says that a GIS has a tremendous potential for management of State Natural Resources, particularly water. However, for practical application, resolution in elevation and terrain modeling must be to at least 7 1/2 minute quadrangles or better to accurately model small basins.

Current computer capability consists of a 64 K memory, CP/M Micro Computer. This is used to analyze tabular water data.

Contact person:

Bud Bartels
Project Coordinator
Department of Water Resources
555 - 13th Street NE
Salem, OR 97310
Phone 378-8131



OREGON DEPARTMENT OF WATER RESOURCES - AREAS OF DIGITAL NEEDS

1st Priority - Statewide - 1:24,000 scale
Public Land Surveys, Hydrography, Terrain

2nd Priority - Statewide - 1:100,000 scale
Boundaries, Transportation, Land Use & Land Cover

▨ Also Needed - Snowfall & Melting Patterns - Eastern Oregon

Grid size = USGS 7½ min. quadrangle

OREGON

ENVIRONMENTAL REMOTE SENSING APPLICATIONS LABORATORY
Oregon State University

ERSAL's primary function is remote sensing research and applications. Located at Oregon State University, their funding is primarily from grants and contracts with federal and state agencies and private industry. Projects have been completed for most of the state agencies, but primarily with State Department of Fish and Wildlife, Oregon Water Resources Department and Department of Environmental Quality.

ERSAL uses data received from satellite or aerial photography and interprets the data into quantitative and qualitative forms from which decisions may be made. Projects have varied over both wide and limited areas to determine critical factors in the plant, animal and human communities. Current projects could be expanded if the proper digital data were available.

ERSAL has proposed the study of plant-water relationships using spectral data from spacecraft, aircraft photography and ground measurements. Information concerning plant and soil types and water movement could show the impact of water on the plant community. Areas of primary concern to study in the State include the northeast portion over the forested areas as well as the Squaw Butte Experiment Station, west of Burns. The Malheur-Harney Lake flooding situation needs to be studied to determine cause and effect and propose solutions. Also needing study are the Oregon estuaries where the fragile transition zones of land and sea are being impacted by society's growth.

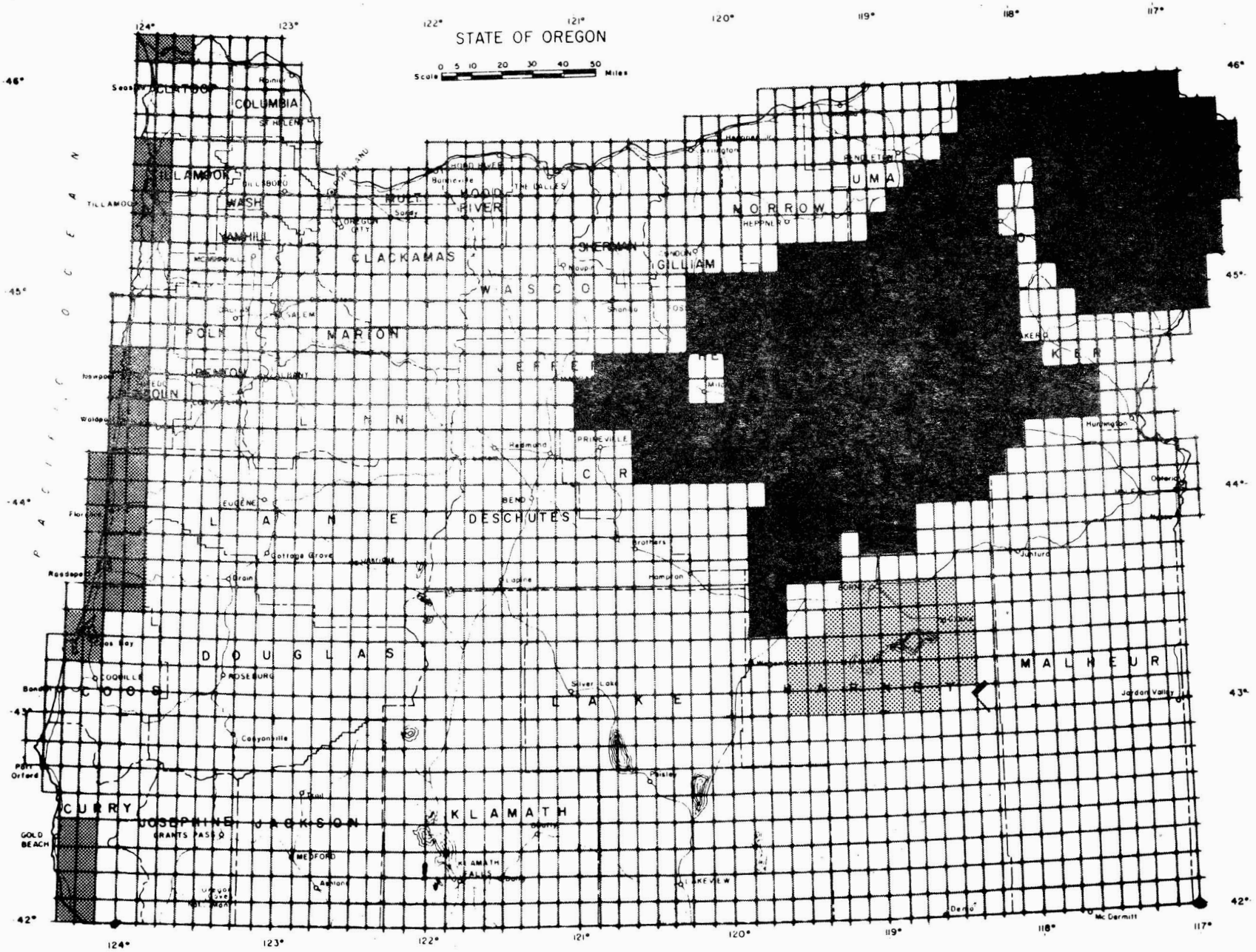
A project is currently active on the Squaw Butte Experiment Station west of Burns. This project studies the above-ground plant-water relationships using spectral data. The spectral data is collected with a radiometer suspended from a track mounted boom.

There is a concern that agencies are proceeding independently when coordination would be beneficial. Agencies are focusing on the short term goals of finishing a project rather than the long term goals of formating information for use by themselves and other agencies. More data can be generated by cooperating agencies exchanging information than any one agency creating the entire data base.

Current computer capability consists of a COE Cyber 170/720 and IBM PC XT. ERSAL has obtained a SAGIS geographic information system. This system will be used on future projects.

Contact person:

Barry Schrumpf
Director
Environmental Remote Sensing Applications Lab.
Oregon State University
Corvallis, OR 97331
Phone 754-3056



ENVIRONMENTAL REMOTE SENSING APPLICATIONS LABORATORY, OSU - AREAS OF DIGITAL NEEDS

1st Priority
■ Northeast Oregon

2nd Priority
▩ Estuaries

3rd Priority
▩ Malheur - Harney Lakes

Grid size = USGS 7½ min. quadrangles

OREGON

CITY OF SALEM, MARION COUNTY

Geographic Land and Data System (GLADS)

The City of Salem and Marion County coordinate to support the GLADS Project. This project was begun in 1978 to provide a detailed geographic data base for use by city planners, utility managers, tax assessors and land-use planners.

The project was begun using a data base of accurately located geodetic monuments within the city and county. Information from property surveys was added and tied to this geodetic data base. Other information, such as sewer, water and power lines, may be added with ties to the data base. The result of these layers being tied to a common base is a map which will reflect actual locations on the ground. These GLADS maps are generally plotted at a 1:1,200 scale (1" = 100').

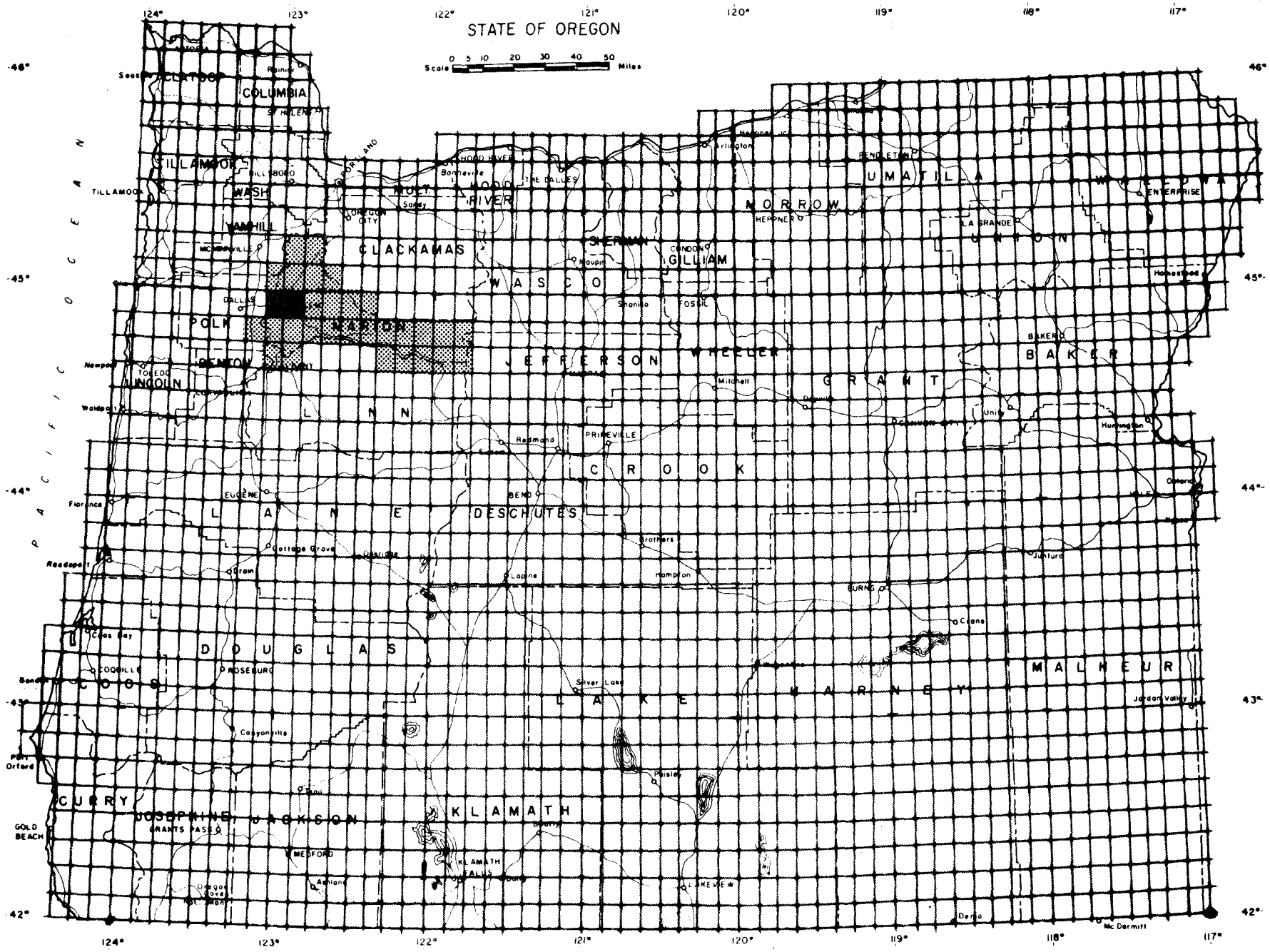
The layers indicated as needed by GLADS in Tables I and II are needed at scales of 1:1,200 (1" = 100'), 1:2,400 (1" = 200') and 1:4,800 (1" = 400'). These large scales are needed to preserve the accuracy within the system.

The highest priority information needed by the Project are parcel boundaries, hydrography and transportation. These data layers are needed at 1:1,200, 1:2,400 and 1:4,800 scales.

Current computer capability consists of DEC PDP 11/70 computer with 1.5 MB core and 600 MB disk storage, 3 graphic work stations, line printer and Calcomp 960 plotter. The GLADS project manager hopes to expand disc capacity this year and phase into new hardware within the next two years.

Contact person:

John C. Herring
Project Coordinator
Geographic Lands and Data System
1580 - 20th Street SE
Salem, OR 97302
Phone 588-6511



CITY OF SALEM, MARION COUNTY, GLADS - AREAS OF DIGITAL NEEDS

1st Priority — City of Salem

2nd Priority — Marion County

Grid size = USGS 7½ min. quadrangle

OREGON

DEPARTMENT OF GEOGRAPHY, OREGON STATE UNIVERSITY

The Department of Geography at Oregon State University has recently improved its facilities in the areas of remote sensing, computer-assisted cartography and geographic information systems. Known as the Image-Based Data Fusion Project, an integrated laboratory with expanded capabilities has been designed to incorporate the latest technology in image digitizing and digital image processing and to merge these remote sensing methods with computer-assisted cartography and geographic information systems.

At the core is a Gould SEL 32/67 mini-computer which serves as host to a group of peripheral devices designed to input, manipulate and output data in image, map or digital form for the creation of geographic data bases which may be used as "overlay type" information systems or may be portrayed as computer-generated images. By incorporating existing Department of Geography LANDSAT imagery, the user has the capability to access an image of any point on the earth's land surface under almost any condition. By digitizing the area of interest in each of the four MSS bands, the user has the capability to employ conventional digital image processing techniques or to store each band, or subsequent enhancement, as an "image plane". Additional information, such as elevation data or land use, may be merged with the imagery as additional data layers. The present system can display such information as a high resolution 3-D image (1024 X 1024 pixels) with up to 6 bit-planes of information or may "zoom-in" to more intensively define a smaller area (512 X 512 pixels) with up to 24 bit planes. Hardcopies of these computer generated composite overlays may be obtained through a digital camera system offering up to 8" X 10" film sizes.

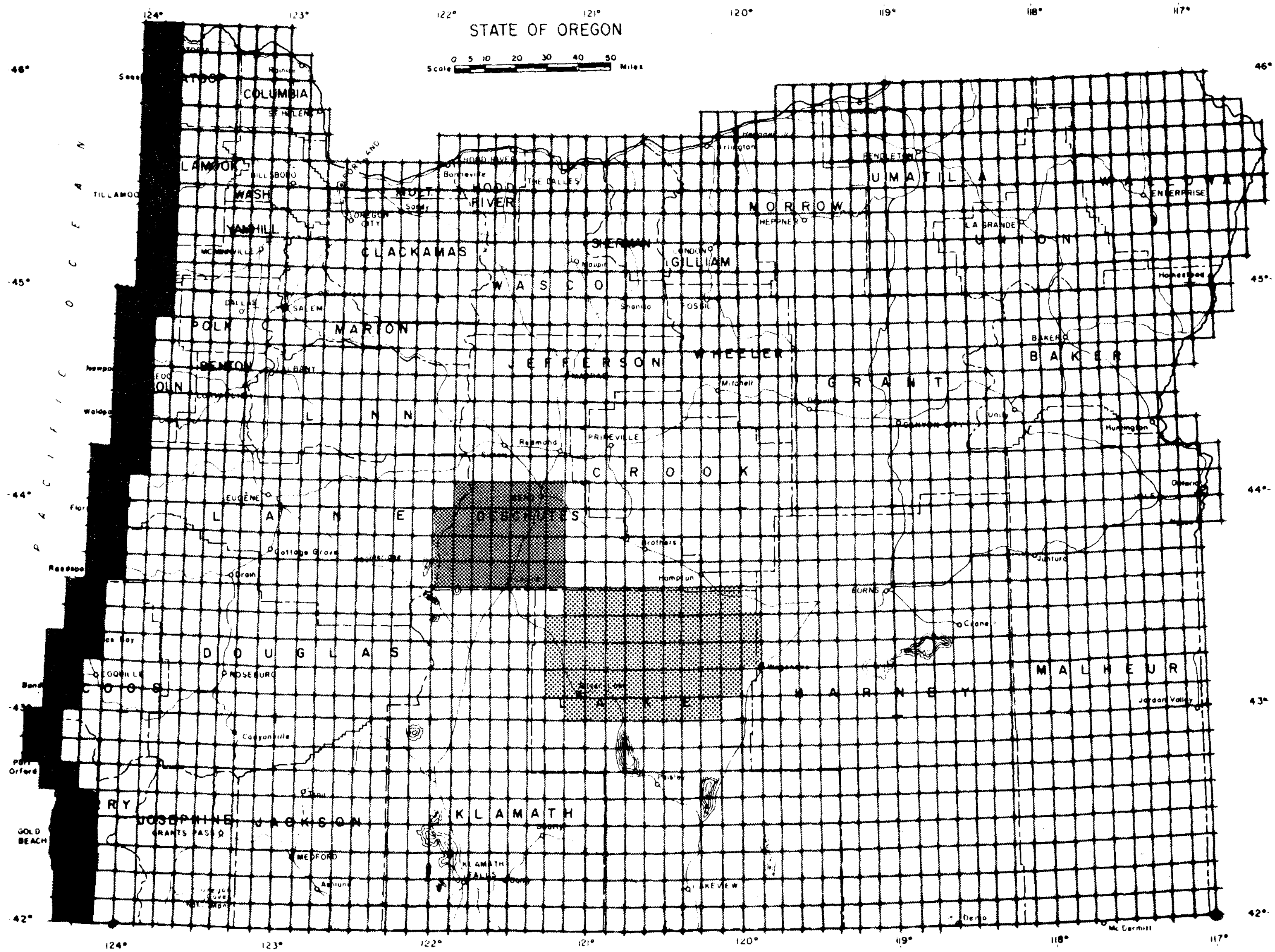
While the focus of this Image-Based Data Fusion Project is research oriented, the instructional objectives of the Geography Program are applied in nature. As such, much of the research focuses on terrain analyses, land use and resource evaluation. Major equipment funding was provided by the Department of Defense University Research Instrumentation Program, the U.S. Department of Agriculture and the OSU Foundation.

The area of greatest concern to the Department is the coastal zone within 6 miles of the coast. This coastal area would include all of the estuaries. The area between the Three Sisters and Newberry Crater is a sensitive area going from near-wilderness classification to rural development. The Department is studying land use change in fast growth counties. The Christmas Valley area is recognized as sensitive with its water, agriculture and rural problems.

Contact persons:

Dr. Jon Kimerling
Department of Geography
Oregon State University
Corvallis, OR 97331
Phone 754-3141

Dr. Charles Rosenfeld
Department of Geography
Oreggon State University
Corvallis, OR 97331
Phone 754-3141



DEPARTMENT OF GEOGRAPHY, OSU - AREAS OF DIGITAL NEEDS

1st Priority — Coastal Zone

2nd Priority — Three Sisters - Newberry Crater Area

3rd Priority — Christmas Valley

Grid size = USGS 7½ min. quadrangles

OREGON

CENTER FOR POPULATION RESEARCH AND CENSUS

PORTLAND STATE UNIVERSITY

The Center, established in 1965, has the specific duty of determining annually, by estimate or actual count, the total population of each county and incorporated city within the State. Also determined is the population between ages four and twenty of each county and the population from zero to seventeen of each county. These figures, when filed with the Secretary of State, become the basis for the distribution of certain highway, liquor and cigarette taxes and the General Fund revenues, as required by law.

The Center provides support to State agencies with demographic information. Demographic information is used to determine school, community college, fire and telephone service district boundaries. These district boundaries need to be included in a geographic based information system for analysis and boundary change.

The U.S. Bureau of Census's Metropolitan Map Series which portrays the smallest unit of the census district boundaries needs to be included into a GIS data base. These maps are at 1:12,000 and 1:24,000 scales.

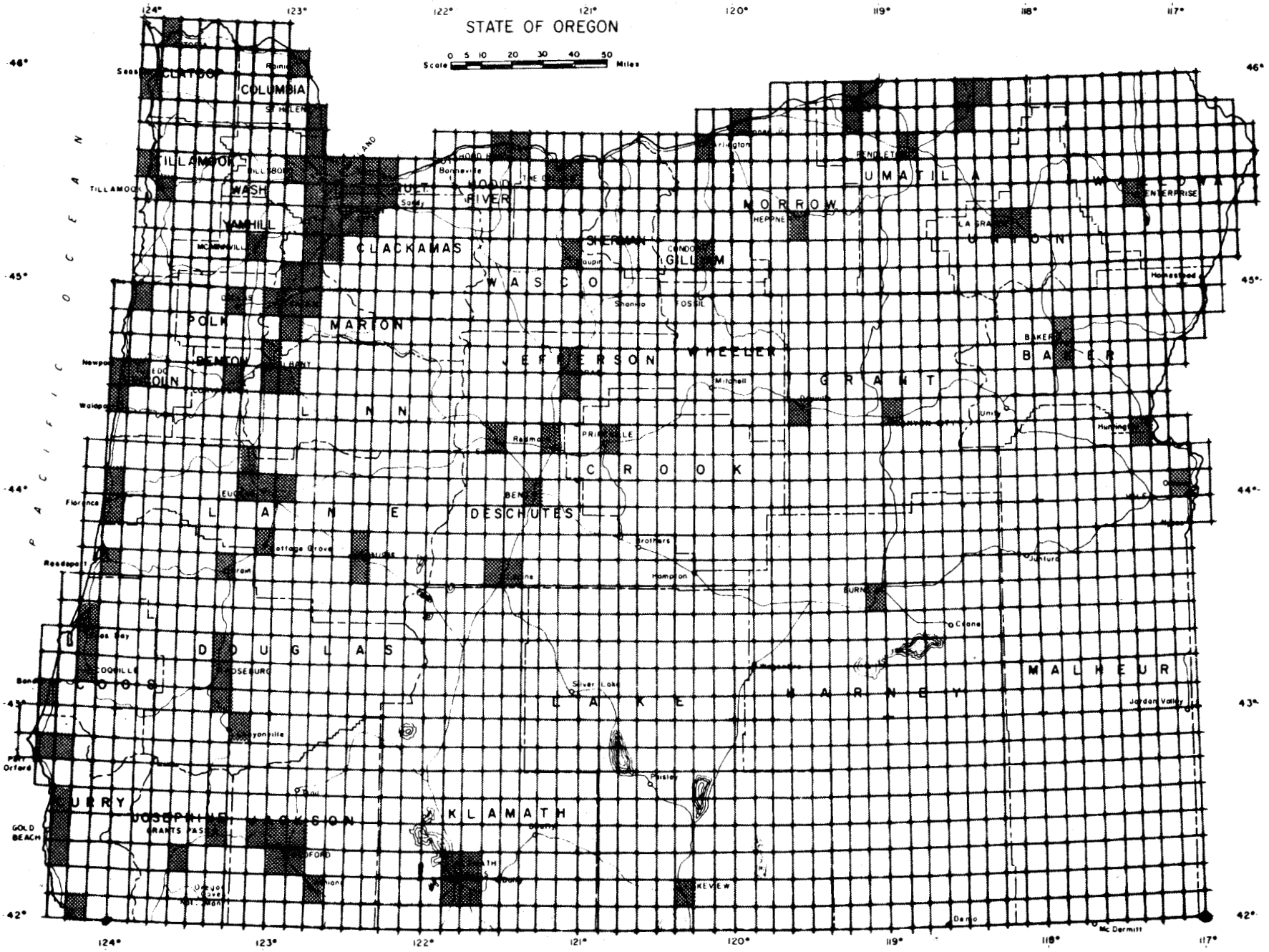
There is a strong need for a zip code boundary data base. This would be needed at a 1:24,000 scale over the urban areas of the State and at 1:100,000 scale over the rural areas. A statewide data base in which the State could be viewed at one time would be needed for overall planning. The statewide data base should be at a 1:500,000 scale level of detail.

The Center needs a digital map output. Currently, only tabular data can be produced.

Current computer capability consists of a Honeywell 66/20, Modem and a part time computer programmer.

Contact person:

Edward Schafer
Director
Center for Population, Research and Census
Portland State University
P.O. Box 751
Portland, OR 97207
Phone 229-3922



CENTER FOR POPULATION RESEARCH AND CENSUS, PSU - AREAS OF DIGITAL NEEDS

1st Priority
■ Population Areas

2nd Priority - Statewide
□ Various District Boundaries

3rd Priority
□ Statewide - 1:100,000 scale

Grid size = USGS 7½ min. quadrangle