

1993 Project Abstract

FOR THE PERIOD ENDING JUNE 30, 1995

This project was supported by the Environment and Natural Resources Trust Fund.

TITLE: BASE MAPS FOR 1990'S - CONTINUATION
PROGRAM MANAGER: DON YAEGER
ORGANIZATION: LAND MANAGEMENT INFORMATION CENTER,
MINNESOTA PLANNING
LEGAL CITATION: M.L. 93, Ch 172, Sec 14, Subd 8(a)
APPROPRIATION AMOUNT: \$710,000

Statement of Objectives

This project was the third of a four biennial effort to up-date the state's base mapping resources which included 1) a statewide air photo flight, 2) producing a new computer-readable version of these air photo suitable for use as a base map, and 3) producing updated traditional paper maps for the state's major urban areas.

Results

A large number of state, local, and federal agencies perform routine resource inventories and are in various stages of building Geographic Information Systems. Many problems of data incompatibility result from different base maps being used for data collection. In 1990, a proposal was submitted to produce a new set of digital base maps for the entire state and to update traditional paper maps in the states urban and growing rural areas. In the 1992-3 biennium, digital map production was begun in southern and eastern parts of the state. During the 1994-5 biennium, additional digital mapping was begun in northern and north-central Minnesota. Many public agencies are now beginning to use the maps for resource inventory and analysis. Early reports show great satisfaction with the product. Many users are eagerly waiting for their part of the state to be completed. By fall of 1995, digital mapping will be available for well over half of the state. Funds have been allocated to complete the remainder of the state in the 1996-7 biennium. In addition to this digital map program, traditional paper maps have been updated for the urban areas; most have been printed and all will be available to the public by the end of 1995.

Project Results Use and Dissemination

As digital files of these air photo base maps are produced, they are available from LMIC and the US Geological Survey. Traditional paper maps are sold by the USGS and map stores around the state. A major presentation on these new USGS mapping tools is being planned for the State GIS/LIS Conference which will be held September, 27-9, 1995. In addition, status reports of product availability have and will continue to be documented in both LMIC's annual report (GeoDES) and the GIS/LIS NEWS newsletter of the MN GIS/LIS Consortium.

JULY 1, 1995

LCMR FINAL WORKPROGRAM UPDATE REPORT

I. BASE MAPS FOR 1990'S - CONTINUATION

Program Manager: DON YAEGER
Agency Affiliation: LAND MANAGEMENT INFORMATION CENTER
Address: 330 CENTENNIAL BLDG.
ST. PAUL, MN. 55155
Phone: (612) 297-2490

A. M.L. 93, Ch 172, Sec 14, Subd 8(a) Appropriated: \$710,000
Spent to date: \$710,000
Unencumbered Balance: \$ 0

This appropriation is from the trust fund to the commissioner of administration to provide the state share of a 50/50 match program with the United States Geological Survey to continue statewide coverage of orthophoto maps, update mapping for the state major urban areas, and plan for future cooperative mapping and air photos programs.

B. IMIC Compatible Data Language: Compatibility language is not attached to this appropriation, however, any data developed will be totally compatible with IMIC standards.

C. Match Requirements: Match Required \$710,000
Funds Raised to Date The U.S. Geological
Survey has already been contacted so that they can allocate their match funds for the next two years. Conversations to date have raised no problems in funding the federal match, but future federal budgets will have to be watched.

II. Narrative: This proposal will continue state-wide coverage of orthophoto maps, continue update mapping for the state major urban areas, and work on a plan for future cooperative mapping and air photos programs.

III. Objectives

A. Continue Digital Orthophoto Mapping for the State

B. Topographic Map Revision for Urban and Growing Areas

C. Prepare Long-range Plan for Participation in State-Federal Cooperative Programs for Base Mapping and Air Photos

IV. A. Continue Digital Orthophoto Mapping for the State.

A1. Narrative: A large number of state, local, and federal agencies perform routine resource inventories. Many problems of data

incompatibility are the result of many different base maps being used for data collection. For the 1991-2 biennium, is funding a project to start to produce a set of standard digital orthophotoquad maps for the entire state. During the 1990 LCMR budget review process, the initial request was reduced by one-third. Funding was requested for FY93-5 to complete the project. However, the FY93-5 request was also reduced by about 23%. Therefore, we proposed to use \$550,000 of FY93-5 allocation to continue this effort.

A2 Procedures: All of the funds will be transferred to the U.S. Geological Survey. USGS will administer all contract production work to complete this portion of the project.

A3. Budget: The state's share of the 50-50 match program to complete production of digital orthophotoquad is \$550,000. The federal government will contribute an equal amount. All of the state funds have been were billed and paid by June 30, 1995.

A4. Product timeline:

July 93 / Jan 94 / June 94 / Jan 95 / June 30, 1995
Contract *****
Production *****

A5. Status: A workshop on the current national orthophoto policies and programs was call by IMIC on December, 15, 1993. As a result, a contract for continuing the program in Minnesota was formulated. It was decided to prepare an initial contract for \$300,000 of the \$550,000 budget to complete all counties which did not get completed in last biennium's contract. This approach was selected because USGS intends to distribute final digital orthophotos in a county format on CD-ROM computer disks. The faster whole counties get mapped, the faster CD-ROMs get produced. IMIC continued to pursue other possible sources of cooperation, namely USDA, Soil Conservation Service. We held the remaining \$250,000 of this biennium's funding until fall of 1994 for such contingencies. However, for federal fiscal year 1995, the federal agencies decided to pool their funds into a single account. Therefore, the cooperative program would be the same with any federal agency. IMIC decided to continue contracting with USGS for digital ortho production. The northern Minnesota counties of Beltrami, Clearwater, and Lake of the Woods were added to the state program with the remaining \$250,000.

Three major products will be delivered to Minnesota as a result of this objective: (1) digital elevation model (DEM) data; (2) uncompressed digital orthophoto quads (DOQ) on 8mm tape; and (3) compressed DOQs reformatted on to county-based CD-ROMs for more general distribution. As of July 1, 1995,

- All of the DEMs for the two 1993-5 project areas have been completed. They will be delivered to the state by late fall, 1995. Users will be able to obtain the files from USGS or IMIC. (see first status map)

- DOQs for the first contract area (north-central Minnesota) are expected to be delivered to IMIC in early winter, 1995. DOQs for the second contract (northern Minnesota) are expected by late summer, 1996. Data files will be available from USGS or IMIC. (see second status map)

- DOQs on county-based CD-ROMs has been plagued by production problems which now appear to be resolved. In recent months, 7 CD-ROMs have been delivered and many more are in progress. This data format, which will be used by the majority of DOQ users, will be available from USGS for \$32.00 per disk. All medium to small-sized counties will be on a single disk; large northern counties will require multiple disks. All DOQ projects started under this effort will be available on disk during FY96. (see third status map)

6. Benefits: A major cost of building any Geographic Information System (GIS) is collecting and digitizing the data. Having new ortho base maps for government agencies at all levels will greatly enhance data exchange and reduce the need to redraw data on other maps at a later date. Even if data collection programs did not intend to enter data in a GIS, inventories on maps of similar scale and format are still beneficial for data exchange.

IV. B. Topographic Map Revision for Urban and Growing Areas

B1. Narrative: The average topographic map in Minnesota is 19 years old. Some the most obsolete mapping in the state' urban areas. The 1991-2 allocation for map revision will complete about half of these most obsolete maps. This request would be used to complete the remapping of the state's urban areas and probably start mapping of selected rural growing areas, such as the lake regions. Because the FY93-5 request was reduced by about 23%, the effort will not be totally completed.

B2. Procedures: As with Objective A above, all state funds will be transferred to USGS for contracting and production. Priorities for mapping areas have already been established and will be followed.

B3. Budget: One analysis done over a decade ago of funding needs for this mapping, recommended \$500,000 a biennium. By having new 1991 air photos available from the current LCMR program, the cost of revision mapping can be reduced. We propose to use \$160,000 of this allocation for this effort. In the long run, a continual source of funding must be found. Before July 1, 1995, all of the state funds have been paid to USGS.

B4. Product timeline:
July 93 / Jan 94 / July 94 / Jan 94 / June 30, 1995
Map Selection *****
Contract *****
Production *****

B5. Status: Last biennium, the state's major urban areas were remapped. This biennium the most obsolete maps of the state remaining urban areas will be remapped. A contract for production of approximately 45 of the state's most obsolete quads maps was signed in January, 1994. Production takes about 18 months. As of this date, the remapping project is on time and on budget. Virtually all production work was completed by June 30, 1995, and delivery of the final printed maps is nearing completion. This should be completed by December 31, 1995. (see fourth status map)

B6. Benefits: Virtually every resource mapping project done in Minnesota, either uses these maps or is greatly aided by having them available. Besides state agencies, many regional, county and local governments also benefit from these maps. Further, these maps are heavily used by the general public, such as hunters, hikers, fishermen, boat owners, cabin owners, and private land managers.

IV. C. Prepare Long-range Plan for Participation in State-Federal Cooperative Programs for Base Mapping and Air Photos

C1. Narrative: Several federal agencies offer the state the opportunity to participate in joint funding cooperative programs for mapping and air photos. The state needs a long-range plan for deciding which program to be part of and an analysis of the costs. Because of the 23% reduction in this budget request, we suggest that this item be eliminated from this proposal. A greatly scaled-back version of this planning effort will be attempted by IMIC staff.

C2. Procedures:

C3. Budget: 0

C4. Timeline:
July 93 / Jan 94 / July 94 / Jan 94 / June 30, 1995
Form Committee ***
Study Programs *****
Complete Plan *****

C5. Status: A list of people interested in helping study several major federal cooperative mapping efforts has been compiled. Calling this work group was delayed because so many of these people were working on the national GIS/LIS Convention in Minneapolis, the Governor's GI Council and the Minnesota GIS/LIS Consortium activities. A letter of invitation to get the effort started will be sent by IMIC in the first half of 1994.

Because of the rapidly changing traditional and digital mapping capabilities by Minnesota state agencies, IMIC has delayed calling a meeting of this group. It was felt that at least some of the mapping up-date functions can be done by state agencies in a more timely manner than waiting for Minnesota to come up in national priorities. IMIC is formulating a plan to address some of these issues.

At the end of the biennium, IMIC has or will form three thematic work groups to formulate a state response to the these major federal cooperative programs. Reports will be available before the 1996 Legislative session.

C6. Benefits: With the growing area of digital and traditional geographic information, the state will need to continue to respond to federal programs. The state will formulate a state position on major federal programs and estimate the cost of being part of them.

V. Evaluation:

The immediate indication of program success is the production of mapping products for dollars spent. However, a much more significant measure will be the use of these products over the following years. Almost any program in Minnesota which requires a new base map or a source of updated information about natural resources or land modification will benefit from this proposal. As these products become available through the mid-1990's, any of the data collecting activities funded under any of the Commission's strategies will benefit because these mapping resources will be available.

VI. Context

In the age of Geographic Information Systems at all levels of government, it is imperative that the state provide both maps and air photos which will be used for both base maps and sources of new data for updating existing information. The most cost-effective way to do this is to participate in cooperative funding programs. No other funding in Minnesota has been allocated to produce these mapping products.

For nearly two decades, LCMR provided funding for various mapping program. A major effort for the current biennium - Base Maps for the 1990's. is underway. The FY93-5 request hoped to complete that effort. However, with the reduction of funding, the project will not quite be finished. While attempts will be made to find other funding during the biennium, funding to complete the programs will likely be requested for FY95-7.

VII. Qualifications

1. Program Manager:

Don Yaeger
GIS Data Specialist
Land Management Information Center

Degree in Geography, University of Minnesota

Over the past twenty years, he has worked on a great variety of mapping projects. He has served as the Agency's major contact

with the US Geological Survey. He is very familiar with the staff of USGS. He also has maintained contacts with the mapping community in the State.

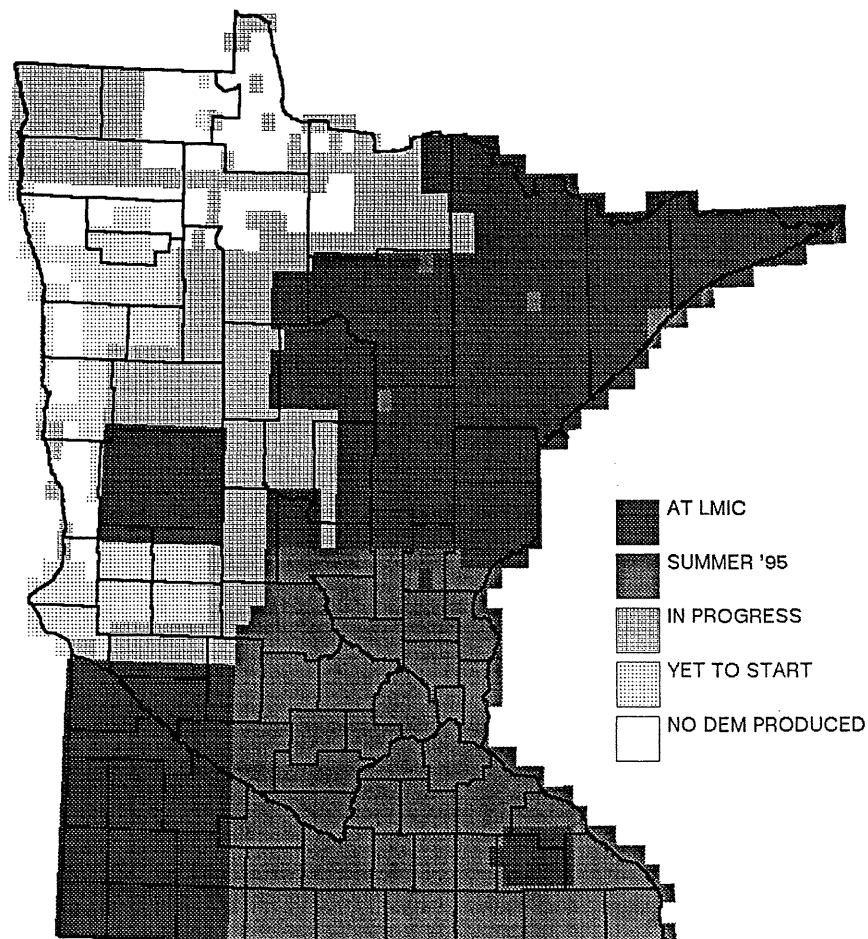
2. Contributors:

In addition to the program manager, a review committees from the mapping and surveying community have been selected to oversee parts of this project. This includes people from MnDOT, DNR, federal, local, and others.

VIII. Reporting Requirements

Semiannual state reports will be submitted not later than January 1, 1994, July 1, 1994, January 1, 1995, and a final status report by June 30, 1995.

1:24,000 DIGITAL ELEVATION MODEL
USGS ESTIMATED AVAILABILITY DATE



DATANET PLUS MAPPING

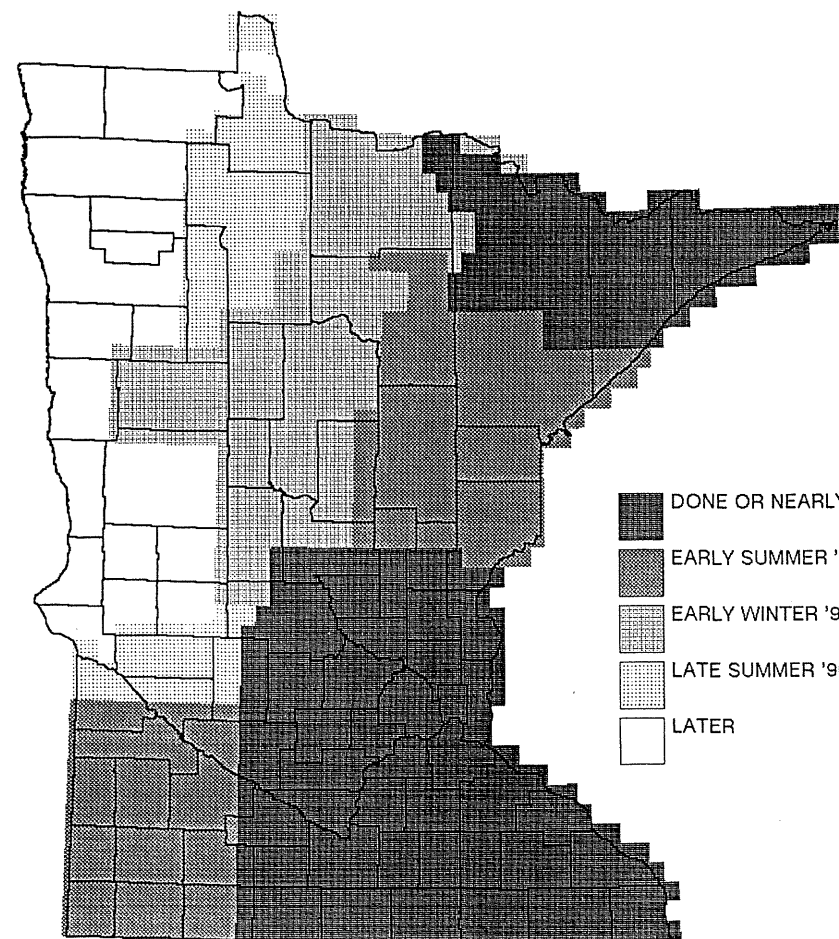
DIGITAL ELEVATION MODELS (DEMs) ARE PRODUCED AS PART OF THE PROCESS TO MAKE DIGITAL ORTHOPHOTO QUADS (DOQs), EXCEPT IN AREAS OF VERY FLAT TERRAIN. IN MINNESOTA, NO DEMs WILL BE REQUIRED FOR 158 QUADS, ALL IN THE NORTHWESTERN PART OF THE STATE. DEMs WILL BE AVAILABLE FROM LMIC.

LMIC #73 AS OF 2/9/95

DATANET
Plus
MAPPING

LAND MANAGEMENT INFORMATION CENTER

1:12,000 DIGITAL ORTHOPHOTO QUAD
USGS ESTIMATED AVAILABILITY DATE



DATANET PLUS MAPPING

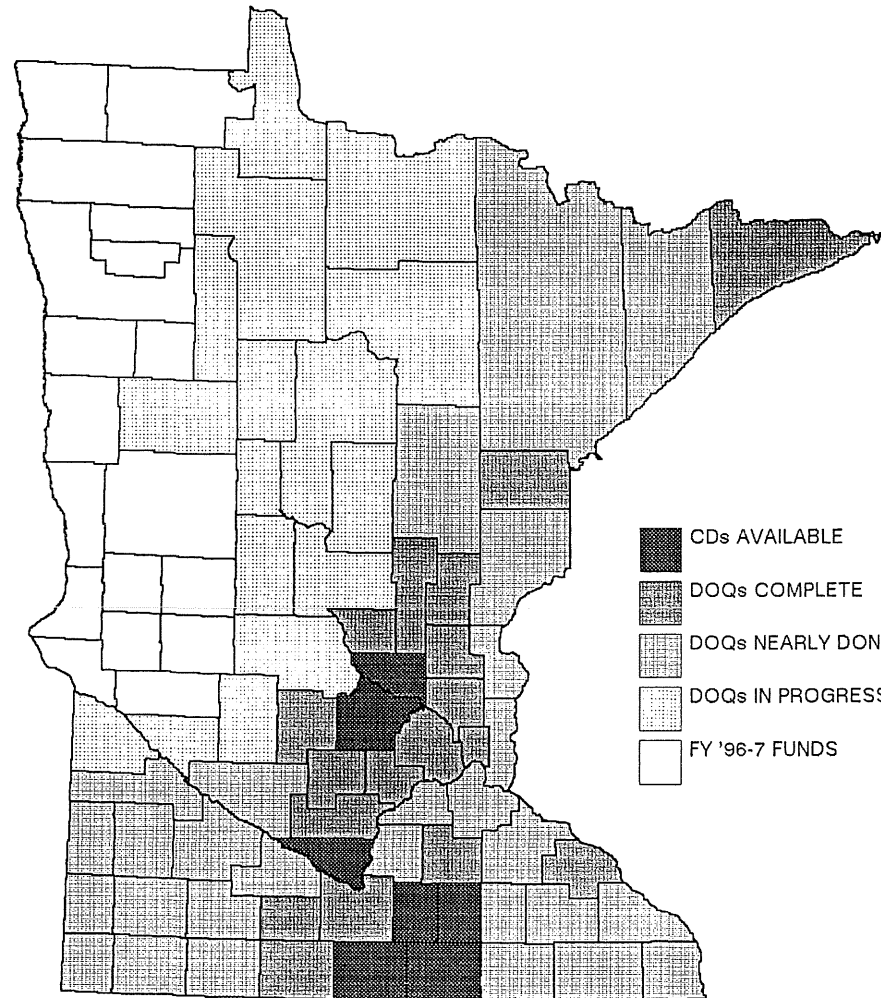
FOR THE 1992-3 BIENNIUM, DIGITAL ORTHOPHOTO PRODUCTION WAS BEGUN IN OVER HALF THE STATE ("COMPLETE OR NEAR COMPLETION") PRODUCTS ARE CURRENTLY BEING DELIVERED. 1994-5 FUNDS HAVE BEEN ALLOCATED TO COMPLETE WHOLE COUNTIES, WHICH WILL SPEED THE PRODUCTION OF COUNTY CD-ROMs FOR PUBLIC DISTRIBUTION.

LMIC #72 AS OF 2/9/95

DATANET
Plus
MAPPING

LAND MANAGEMENT INFORMATION CENTER

STATUS OF COUNTY CR-ROM DIGITAL ORTHOPHOTOGRAPHY, JUNE 26, 1995



- CDs AVAILABLE
- DOQs COMPLETE
- DOQs NEARLY DONE
- DOQs IN PROGRESS
- FY '96-7 FUNDS

DATANET PLUS MAPPING

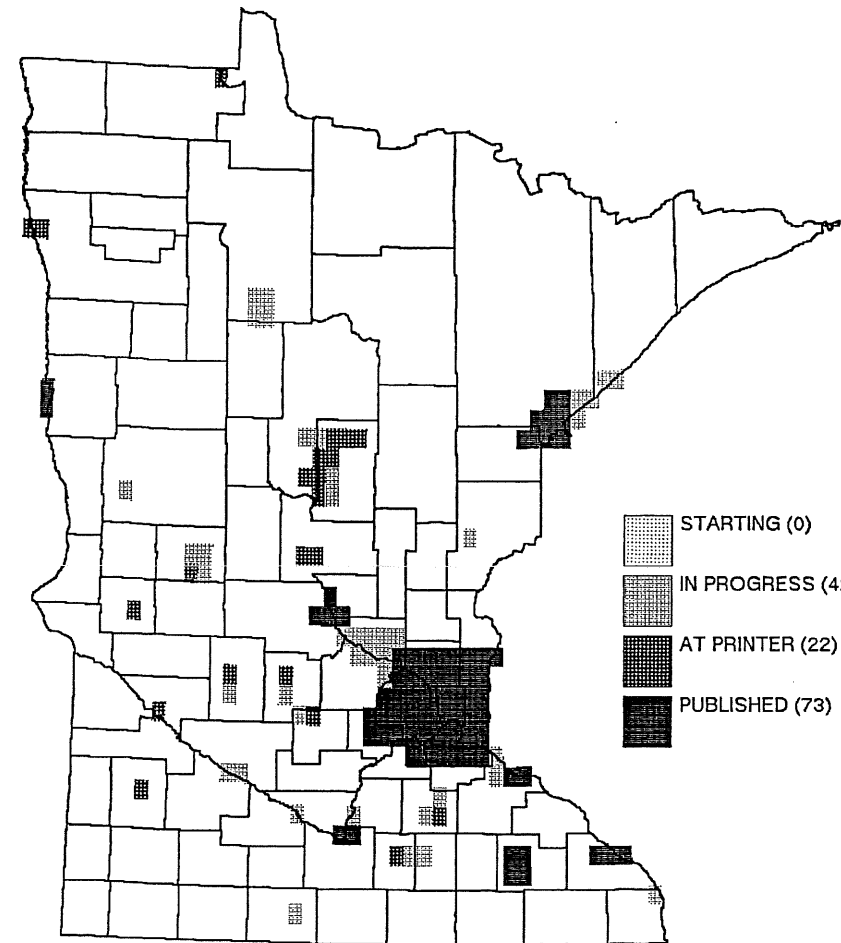
CD-ROM AVAILABLE MEANS A CD-ROM FOR THAT COUNTY CAN BE PURCHASED FOR \$32.00. TO ORDER, CALL (303) 236-7477. DOQ DONE MEANS DIGITAL ORTHO QUAD (DOQ) PRODUCTION IS COMPLETE. CD-ROM PRODUCTION WILL FOLLOW SHORTLY. FOR STATUS, CALL LMIC OR USGS AT 1-800-USA-MAPS.

LMIC #

DATANET
Plus
MAPPING

LAND MANAGEMENT INFORMATION CENTER

STATUS OF 1:24,000 QUAD REVISION MAPPING AS OF JANUARY 31, 1995



- STARTING (0)
- IN PROGRESS (42)
- AT PRINTER (22)
- PUBLISHED (73)

DATANET PLUS MAPPING

THE QUADS SHOWN ON THIS MAP ARE IN THE REVISION PROCESS AS PART OF THE "BASE MAPS IN THE 1990'S" PROJECT. THE MAPS WILL BE "LIMITED REVISIONS" MEANING NEW CULTURAL FEATURES WILL BE PRINTED AS A PURPLE OVERLAY TO THE OLD MAP. PUBLISHED REVISED MAPS STARTED BECOMING AVAILABLE IN LATE 1993. LMIC AND U.S. GEOLOGICAL SURVEY, ROLLA, MISSOURI #53

DATANET
Plus
MAPPING

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