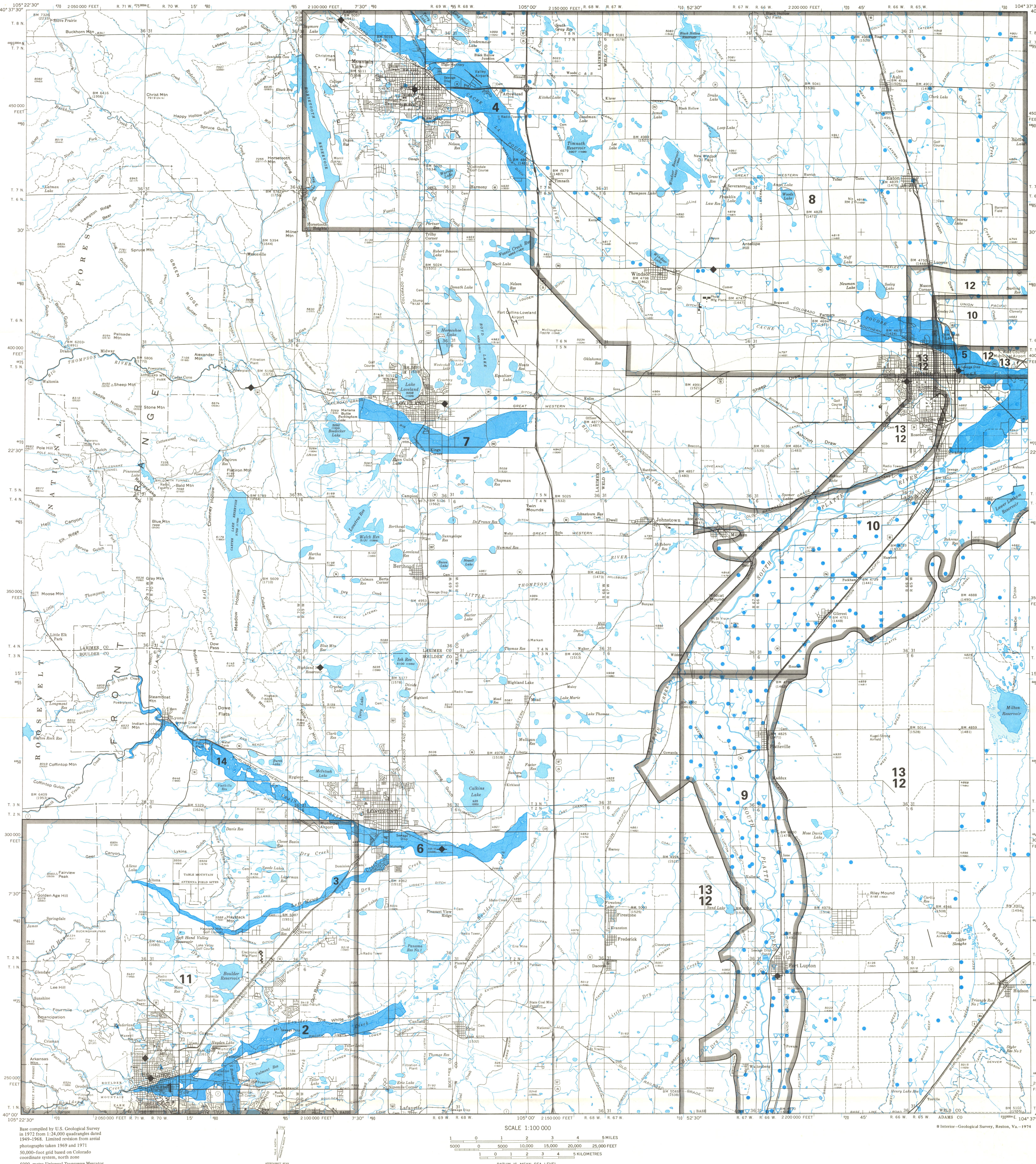
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS INVESTIGATIONS SERIES
BOULDER–FORT COLLINS–GREELEY AREA, COLO.
MAP I–855–C



Base compiled by U.S. Geological Survey in 1972 from 1:24,000 quadrangles dated 1949–1968. Limited revision from areial photographs taken 1969 and 1971
50,000-foot grid based on Colorado coordinate system, north zone
5000-metre Universal Transverse Mercator grid ticks, zone 13, shown in blue
Metric elevations are shown in parentheses

☆ Interior—Geological Survey, Reston, Va.—1974

INTRODUCTION

What is the rainfall of this region? Where are the areas prone to periodic flooding? What is the water supply? What is the chemical quality of the ground water and water in the streams? How deep is the water table? Which streams are gaged, and where are they gaged? These and similar questions are asked many times by land and resource developers, urban planners, industrial consultants, and governmental resource managers. This map was prepared as a first step toward answering these questions. It shows by symbols and colored areas the hydrologic data available in the Boulder-Fort Collins-Greeley area as of January 1973, and the points or areas at which these data have been collected. The sources of the data are listed in both the following discussion and the references.

CLIMATOLOGIC DATA

Climatologic data include records of precipitation, temperature, and evaporation. These data have been collected by the Environmental Data Service (by the U.S. Weather Bureau prior to 1966) and other interested groups, and have been compiled and published by the Environmental Data Service in the reports "Climatological data, Colorado." Of the 12 climatological stations shown on the map, the longest precipitation records are for Fort Collins, beginning in November 1872. Climatological records can be obtained from the Colorado State Climatologist, Colorado State University, Fort Collins, Colo., or from the National Weather Service Forecast Office, 2520 Galena Street, Aurora, Colo. 80010.

SURFACE-WATER DATA

Surface-water data include continuous records of stage and discharge of streams, crest-stage and low-flow discharge of streams, chemical quality of streams, lakes, and reservoirs, sediment load of streams, and elevation and contents of reservoirs. Locations of 30 surface-water data sites are shown on the map; of these, 26 are continuous-record stream stage and discharge stations, two are crest-stage stream gages, and two are reservoir-stage gages. Chemical quality data are available for nine sites (seven stream and two reservoir), and suspended-sediment data for one site. Some of the streamflow records were collected as early as 1887. The surface-water data have been collected primarily by the U.S. Geological Survey in cooperation with other Federal, State, and local agencies, and also by the U.S. Bureau of Reclamation, the Colorado Department of Natural Resources, Office of the State Engineer, and other State and Federal agencies. All of the data have been compiled and published by the U.S. Geological Survey. The U.S. Geological Survey water-supply papers in which the surface-water records through 1970 are published, are in most libraries, or can be consulted in the U.S. Geological Survey libraries, or in Water Resources Division offices in Colorado. Records for 1971 to the present are obtainable from the same sources, and are contained in Water Resources Data for Colorado, Part 1, Surface-Water Records (1971, 1972). Water-quality records are contained in the water-supply papers listed in the references for water years through 1967. Records after 1967 are contained in Water Resources Data for Colorado, Part 2, Water Quality Records (1968, 1969, 1970, 1971).

GROUND-WATER DATA

Ground-water data sites plotted on the map represent 440 wells where water levels have been measured periodically for 4 or more years, or monthly for at least 1 year, and 165 wells from which water samples have been analyzed for dissolved-chemical constituents. Data regarding water levels and chemical quality of ground water have been collected by the U.S. Geological Survey in cooperation with other Federal, State, and local agencies. Considerable water-level data has also been collected by Colorado State University. The water-level and chemical-quality data are published in one of the releases listed in the references, or are in the files of the U.S. Geological Survey, Water Resources Division, Colorado District, Building 25, Denver Federal Center, Lakewood, Colo.

Other kinds of ground-water data, such as records of wells, drillers' logs of wells, geophysical logs of wells, aquifer (pumping) tests, and laboratory analysis of aquifer materials for porosity, permeability, and size and sorting, are also available for many wells in the area. These data are also published in the releases listed in the references, or are in the files of the U.S. Geological Survey.

FLOOD-PRONE AREAS

Approximate boundaries of areas along several streams that are subject to periodic flooding are shown on the map. The areas, shown by the blue tint, are bounded by lines that approximate the extent of inundation by a 100-year flood. Other areas along these and other streams are also prone to periodic flooding. Many of these areas will be delineated by future studies. The numbers in the blue areas correspond to entries in the list of references.

AREAL GROUND-WATER STUDIES

Ground-water studies ranging in scope from reconnaissance to single purpose to detailed quantitative have yielded reports for the six areas shown by the red outline on the map. Reports of reconnaissance studies contain general information on the occurrence and availability of ground water. The single-purpose study (Romero and Hampton, 1972) yielded a map report that shows the depth to the top of an important sandstone aquifer beneath most of the map area. Reports of detailed quantitative studies contain values of aquifer characteristics, estimates of quantities of water in storage, and data on the chemical quality of the water within the aquifer system studied—enough of the necessary data that a model of the aquifer system may be constructed. The numbers in the gray outline areas correspond to entries in the list of references.

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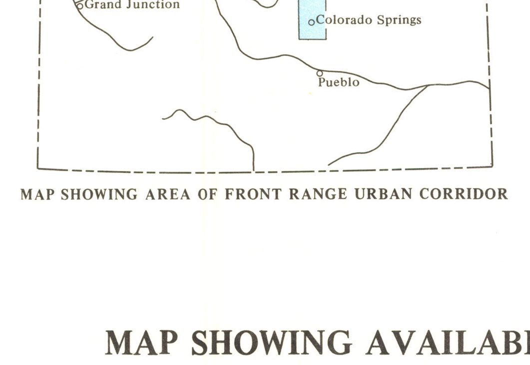

MAP SHOWING AREA OF FRONT RANGE URBAN CORRIDOR

EXPLANATION

CLIMATOLOGIC DATA
- ◆ Precipitation
- Precipitation and temperature
- Precipitation, temperature, and evaporation

SURFACE-WATER DATA
- △ Discharge, continuous record of 1 year or longer
- Crest stage or low flow
- ▽ Chemical quality of water
- Suspended sediment
- Reservoir stage and chemical quality

GROUND-WATER DATA
- ● Water level
- Chemical quality and water level
- ▽ Chemical quality

AREAL STUDIES
- 7 Mapped areas subject to periodic flooding. Numbers keyed to reference list
- 11 Ground-water studies. Numbers keyed to reference list

MAP SHOWING AVAILABILITY OF HYDROLOGIC DATA, BOULDER–FORT COLLINS–GREELEY AREA, FRONT RANGE URBAN CORRIDOR, COLORADO

By

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1974

For sale by U. S. Geological Survey
Denver, Colo. 80225 and Reston, Va. 22092, price $ .75 cents