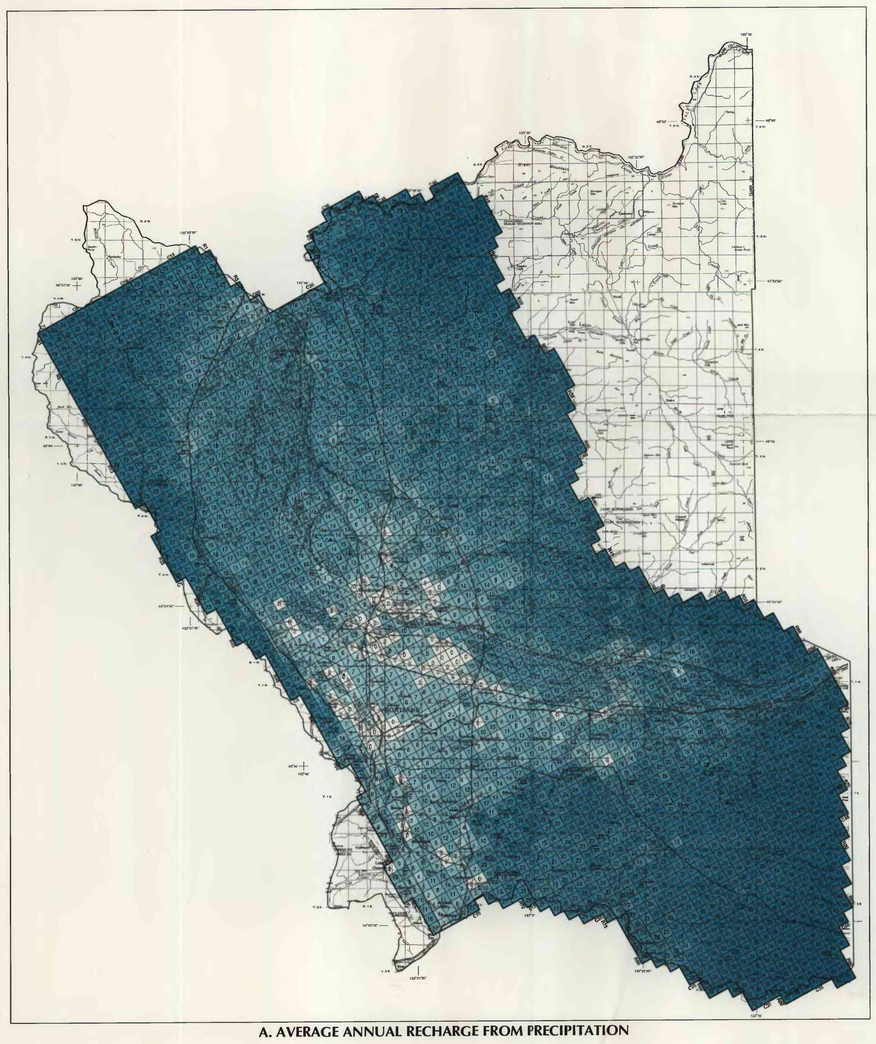
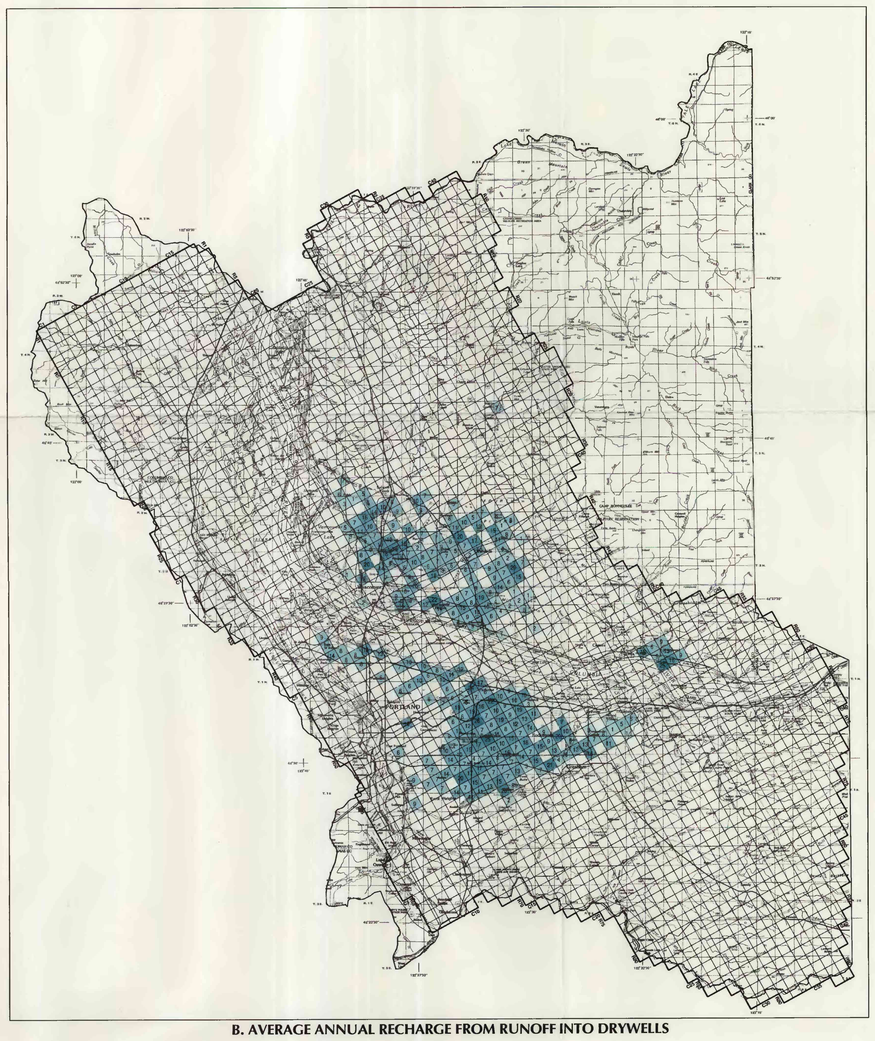
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Prepared in cooperation with the
CITY OF PORTLAND BUREAU OF WATER WORKS,
INTERGOVERNMENTAL RESOURCE CENTER, AND
OREGON WATER RESOURCES DEPARTMENT

WATER RESOURCES INVESTIGATIONS REPORT 92–4010
Estimates of ground–water recharge–PLATE 1
Snyder, D.T., Morgan, D.S., and McGrath, T.S., 1994, Estimation of ground–water recharge from precipitation, runoff into drywells, and on–site waste–disposal systems in the Portland Basin, Oregon and Washington



A. AVERAGE ANNUAL RECHARGE FROM PRECIPITATION



B. AVERAGE ANNUAL RECHARGE FROM RUNOFF INTO DRYWELLS

EXPLANATION

AVERAGE RECHARGE FOR LAND–SURFACE AREAS—In inches per year.

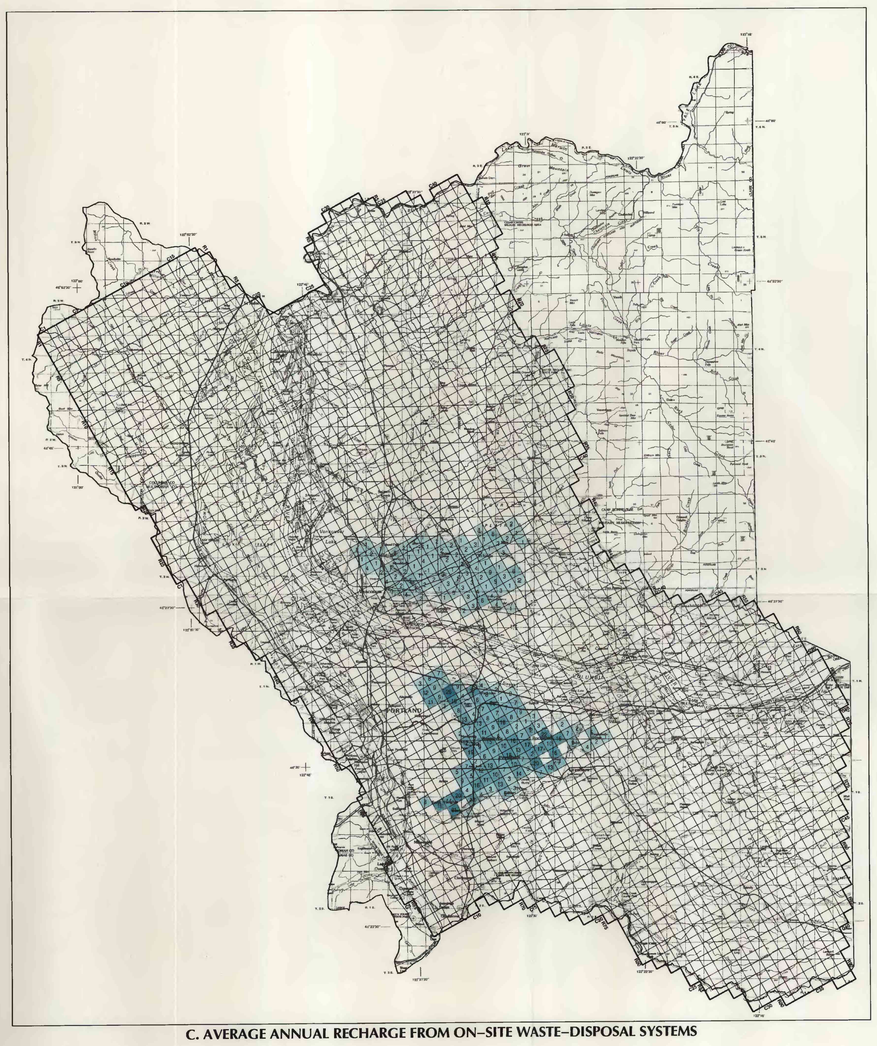
0

50

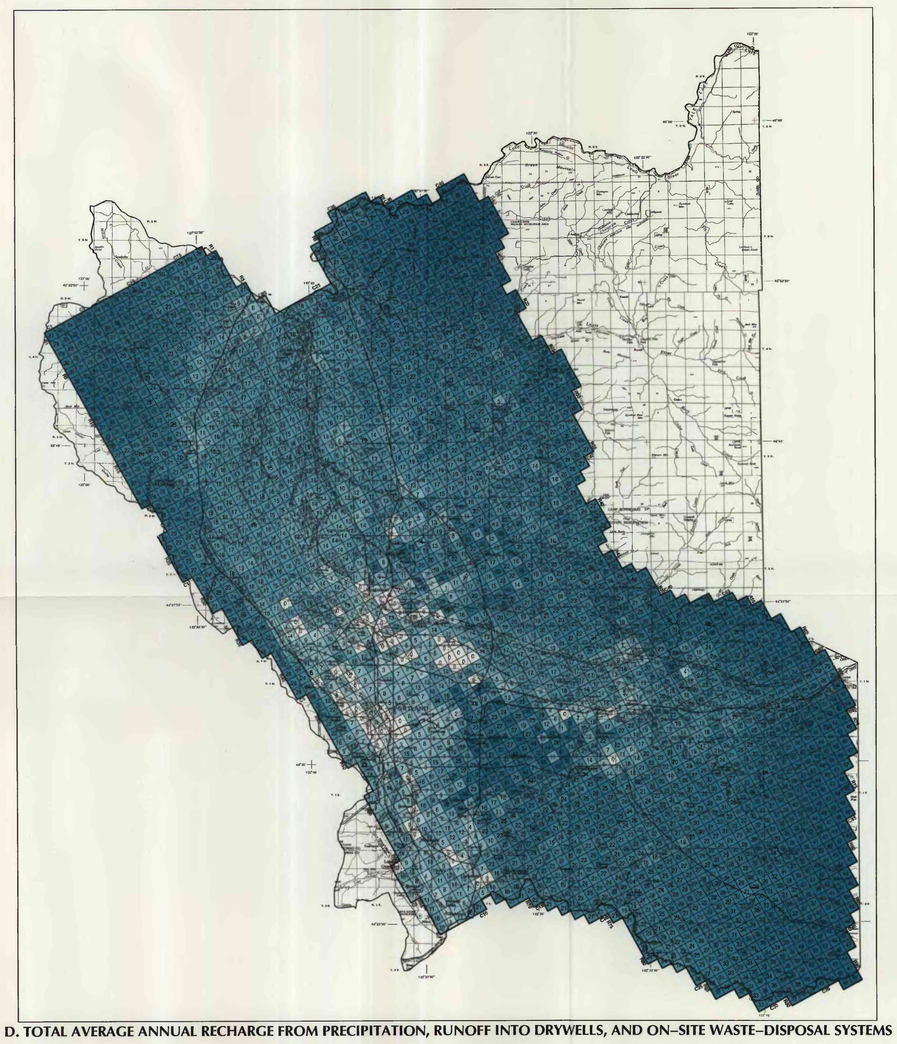
MODEL–GRID BOUNDARY

STUDY AREA BOUNDARY

MODEL–GRID CELL—Rows and columns labelled at 5 cell increments. Number in cell shows average recharge for land–surface areas in inches per year. Values in cells partially covered by surface water apply only to land–surface areas. Blank cells indicate insignificant recharge.



C. AVERAGE ANNUAL RECHARGE FROM ON–SITE WASTE–DISPOSAL SYSTEMS



D. TOTAL AVERAGE ANNUAL RECHARGE FROM PRECIPITATION, RUNOFF INTO DRYWELLS, AND ON–SITE WASTE–DISPOSAL SYSTEMS

1:250,000

0 1 2 3 4 5 6 7 8 9 10 MILES

0 1 2 3 4 5 6 7 8 9 10 KILOMETERS

Base modified from U.S. Geological Survey
1:100,000 topographic quadrangles, 1978–84

MAPS SHOWING ESTIMATES OF GROUND–WATER RECHARGE IN THE PORTLAND BASIN, OREGON AND WASHINGTON

By
Daniel T. Snyder

1994