

EXECUTIVE SUMMARY

PLANNING REPORT

FOR

**SKYLINE, TERRACITA, SOUTHWEST, CARRIAGE HILLS
AND FUTURE SOUTHWEST RAPID CITY
WATER SERVICE ZONES**

CITY OF RAPID CITY

PROJECT NO. W03-953.M1

The south central and southwest parts of Rapid City have experienced rapid urban growth and expansion of the City's water service area in recent years. Providing adequate water supplies to meet the increased demand is a significant challenge and could be a limiting factor for future development. This planning study evaluates and forecasts anticipated water needs and presents a recommended conceptual plan for water system improvements. The evaluation included supply sources, storage reservoirs and primary distribution piping systems. System needs are presented for a 20-year planning period, as well as for the ultimate potential level of urban development within the overall planning area.

The study area encompasses over 20 square miles of existing and potential water service area. Water service is provided from five separate pressure zones, and a sixth pressure zone will be required in the future. The planning area encompasses the South Highway 16 and Sheridan Lake Road areas and includes existing City lands as well as lands within the City's 3-mile platting jurisdiction. Portions of the planning area are served or will be served by City water. Other parts are served by sanitary district systems or have no public supply. See the attached Figure 1 for the study area.

The Year 2025 and Ultimate Build-out development projections indicate that the existing City water supply and storage facilities will not be able to serve the anticipated growth. The following tables compare existing water delivery and storage capacity with projected Year 2025 and ultimate needs.

Water Supply Capacity in Study Area

<u>Existing Capacity</u>	<u>Year 2025 Need</u>	<u>Ultimate Need</u>
4,800 gallons/minute	9,940 gallons/minute	27,650 gallons/minute

Water Storage Capacity in Study Area

<u>Existing Capacity</u>	<u>Year 2025 Need</u>	<u>Ultimate Need</u>
1.8 million gallons	4.6 million gallons	19.3 million gallons

Significant improvements in supply, storage and piping systems are needed to meet anticipated growth. Needed improvements include new wells, transfer pumping stations, storage reservoirs and transmission and distribution piping systems. In some cases, existing facilities should be replaced, but in most cases, new facilities are needed to augment the existing systems.

The conceptual plan presents specific locations, sizes and budgetary costs of recommended improvements. Sizing is based upon meeting projected peak-day supply demands, providing adequate fire

fighting and emergency storage reserves, and maintaining adequate supply pressures under all service conditions. Hydraulic modeling was performed to determine pipe sizing and evaluate alternative locations for principal supply and storage facilities.

The following tables summarize recommended improvements for Year 2025 and Ultimate Build-Out conditions.

Recommended Improvements for Year 2025

Recommended Facilities	Probable Construction Cost (2005 Dollars)
Transfer Pumping Station (1)	\$ 600,000
Water Supply Wells (3)	\$ 2,125,000
Storage Reservoir (1)	\$ 2,625,000
Pressure Regulating Station (1)	\$ 125,000
Piping Systems (22,090 feet)	\$ 2,615,000
Total for 2025 Improvements	\$ 8,090,000

Recommended Additional Improvements for Ultimate Build-Out

Recommended Facilities	Probable Construction Cost (2005 Dollars)
Transfer Pumping Stations (8)	\$ 4,400,000
Water Supply Wells (9)	\$ 7,325,000
Storage Reservoirs (7)	\$ 21,825,000
Pressure Regulating Stations (2)	\$ 200,000
Transmission and Distribution Piping (178,090 feet)	\$ 21,981,000
Total Additional for Ultimate Improvements	\$ 55,731,000
Total for 2025 and Ultimate Improvements	\$ 63,821,000

A project staging and implementation plan is recommended for Year 2025 improvements. Some improvements are needed now, and others will require construction well before 2025. Systematic implementation of improvements is needed over the 20-year period to assure that water system capabilities can keep pace with anticipated growth.

Budgetary costs in the tables are for construction only, and do not include engineering and land costs. It is anticipated that developer contributions and assessments will fund a significant proportion of the piping systems, but that City capital improvement funding will be required for the well supply, pumping station and storage improvements.

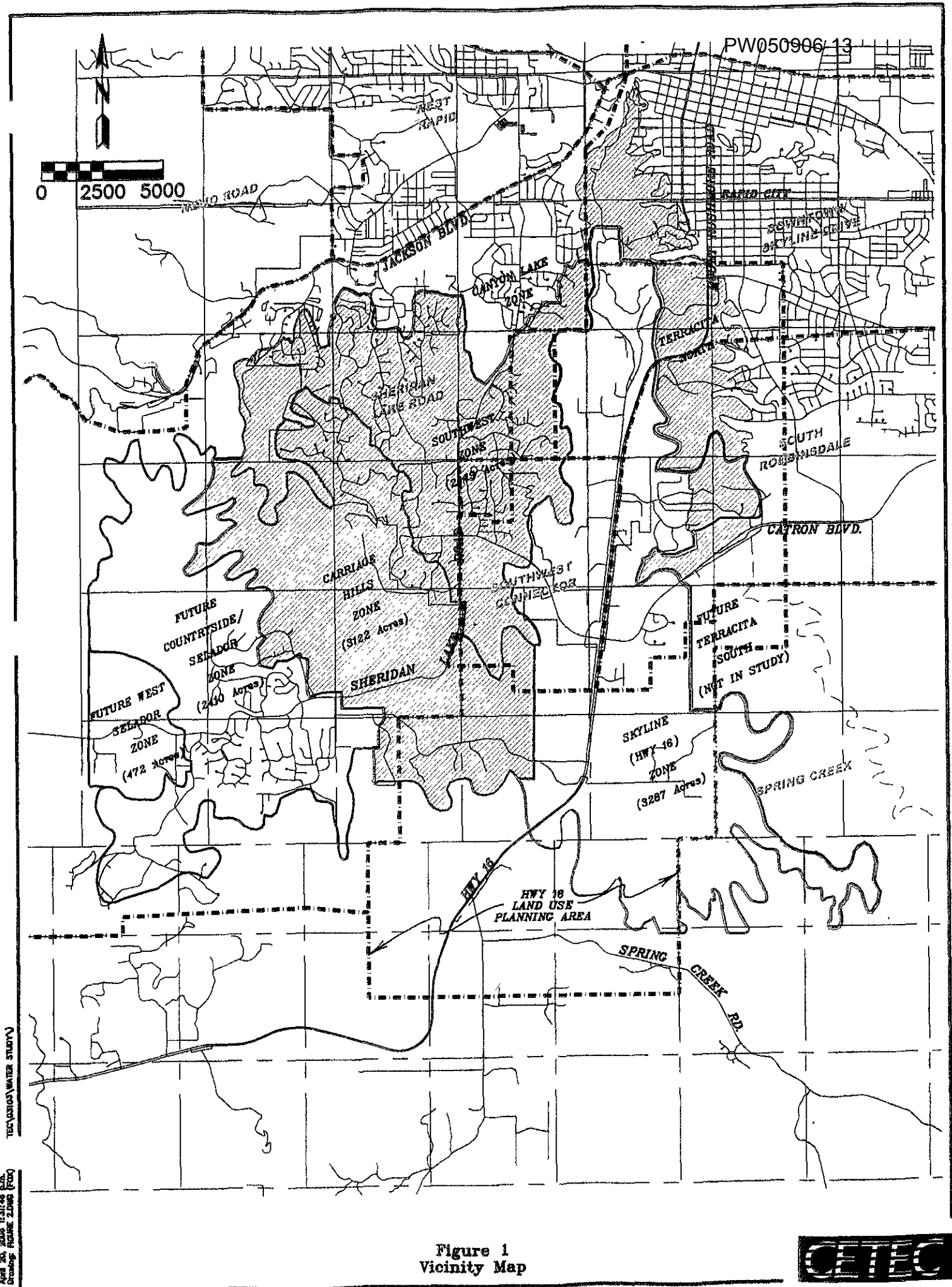


Figure 1
Vicinity Map

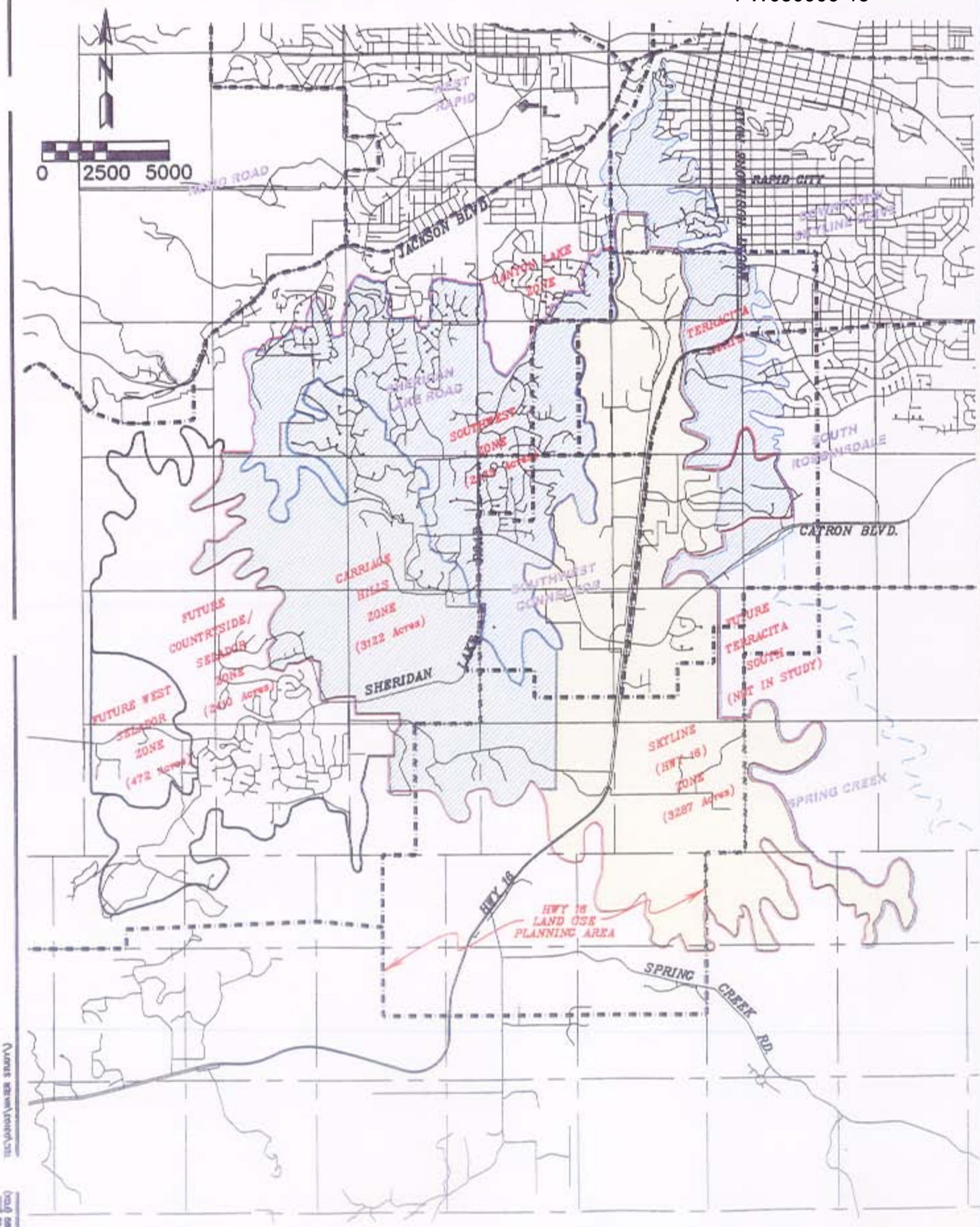


Figure 1
Vicinity Map