The latter half of the Cold War witnessed the further expansion of CAP roles and capabilities. In 1979, CAP began flying Military Training Route surveys for the Strategic Air Command and the Tactical Air Command. A 1985 agreement with the U.S. Customs Service saw CAP conducting counterdrug reconnaissance missions for law enforcement. CAP again delivered parts for the USAF and flew human tissue and organ transplant missions for the American Red Cross.

The Federal Emergency Management Agency tasked CAP in a slew of disasters: the Exxon Valdez oil spill, Hurricanes Hugo, Andrew, and Floyd, and the Oklahoma City Bombing. Modernized equipment, including global positioning system (GPS) navigation, internet-based communications, and handheld two-way radios, improved coordination with federal authorities and SAR performance. The final decades of the twentieth century brought key changes, including a corporate-owned fleet of aircraft and vehicles.