

## **Abstract**

This thesis aims to improve the quality of tools available to the Air National Guard, more specifically the RC-26 mission management system (MMS). The RC-26 is an unconventional aircraft doing an unconventional mission for the military, working directly with law enforcement agencies to provide an airborne video camera for counter-narcotics activities. This aircraft has been doing this mission since the late 1990's and has undergone many hardware and software upgrades since then. However, these upgrades commonly take many years to accomplish, resulting in operators using obsolete systems and outdated information stored on the aircraft's computer systems. In some cases, operators even lack the knowledge of how to utilize the systems or update them to better accomplish the mission. The purpose of this thesis is to help rectify those shortcomings and create a simple and repeatable process for maintaining and updating those systems with the latest, most up-to-date street maps and aerial imagery from all sources available on the internet and thus improving the aircrew's effectiveness. It does so by sourcing compatible street data and imagery from government sources that is compatible with a number of government systems. Additionally, since the fleet of aircraft are spread throughout the country, this work creates an instructional aid so that the process can be fully understood and replicated. Using the sources and procedures developed in this thesis have been applied to real world law enforcement support as well as humanitarian mission in support of Hurricane Relief in Puerto Rico.