

# SIO Concept of Operations (CONOPS) Overview

**Commercial CONOPS:** Multi-phase infrastructure survey plus public safety support

**Operation Setting:** Arizona and Southern California

- Flight in Class A, E, and D airspace
- Routing avoids Class B airspace

**Time:** Long endurance, day into night mission

**Sensors:** Physical sensors + virtual Sensors

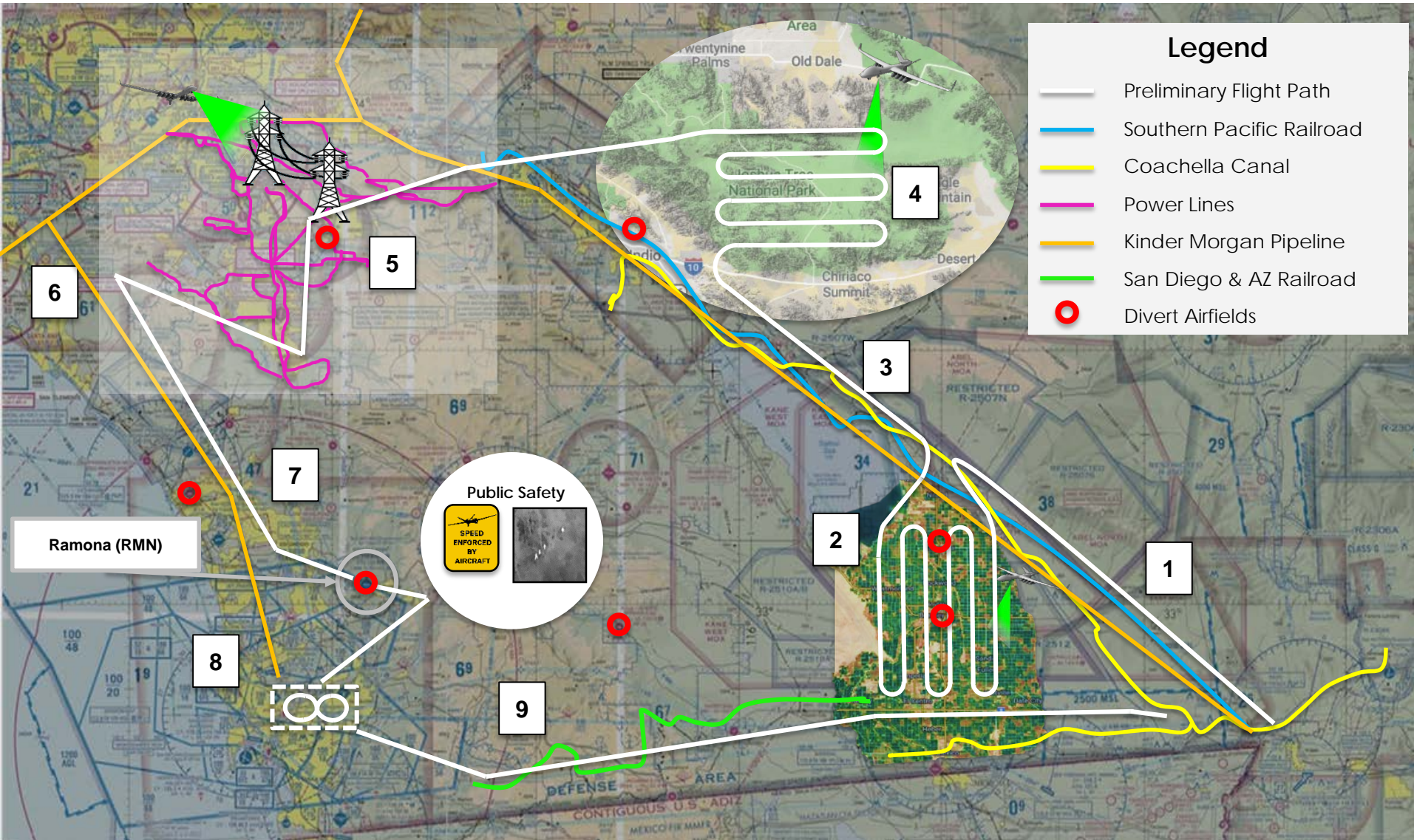
- Physical: EO/IR turret and Lynx® multi-mode radar
- Virtual: Hyperspectral, Short wave IR, etc.

**CONOPS Output:** Survey data for customer dissemination

	Surveying Mission	Commercial Capability
1	Railroad Inspection	Track Alignment, Rail Tie Inspection
2	Agricultural Survey	Crop Health Monitoring and Assessment
3	Aqueduct/Canal Inspection	Damage Survey, Leak detection
4	Land Survey	Topographical Mapping, Photogrammetry
5	Power Line Inspection	Damage Survey, Line Sag Analysis
6	Oil/Natural Gas Pipeline Inspection	Leak Detection, Change Detection
7	Airfield Operations	Civil Airport Arrival, Landing, and Departure Procedures
8a	City of San Diego Street Light Survey	Map Functioning/Non-Functioning Lights
8b	Public Safety Support	Vehicle Speed Enforcement, On-call Incident Support
9	Additional Railroad Inspection	Track Alignment, Rail Tie Inspection



# Preliminary Demonstration Flight Plan



# Command and Control CONOPS

Operational Phase	Airspace Class	Location	Control Type	Data Terminal Location
Takeoff/Landing	Restricted Airspace	Yuma, Arizona	Legacy C-band LOS	LGF, Yuma, AZ
Enroute/Operations	Class A, Class E	Transit	BRLOS SATCOM	LGF, Yuma, AZ
C2 Handoff	Class E (10K + ft.)	North San Diego County	CNPC LOS	e.g. Mt Woodson, CA
Airport Integration	Class D	e.g. Ramona Airport (RNM)	CNPC LOS	e.g. Mt Woodson, CA
Urban Area Operations	Class E (12K + ft.) Above Class B	City of San Diego	CNPC LOS + BRLOS SATCOM	e.g. Mt Woodson, CA + LGF, Yuma, Arizona
Entoute/Operations	Class A, Class E	Transit	BRLOS SATCOM	LGF, Yuma, Arizona

- Legacy C-band Line-of-Sight (LOS) Ground Data Terminal (GDT) at Laguna Army Airfield (LGF) for manually-flown takeoff & landing
- CNPC LOS GDT in San Diego area, connected to CGS in Yuma through a terrestrial network connection
- Beyond Radio Line-of-Sight (BRLOS) SATCOM provides the link for payload controls and imagery data and when CNPC link is active, and for all C2 when the primary link

