



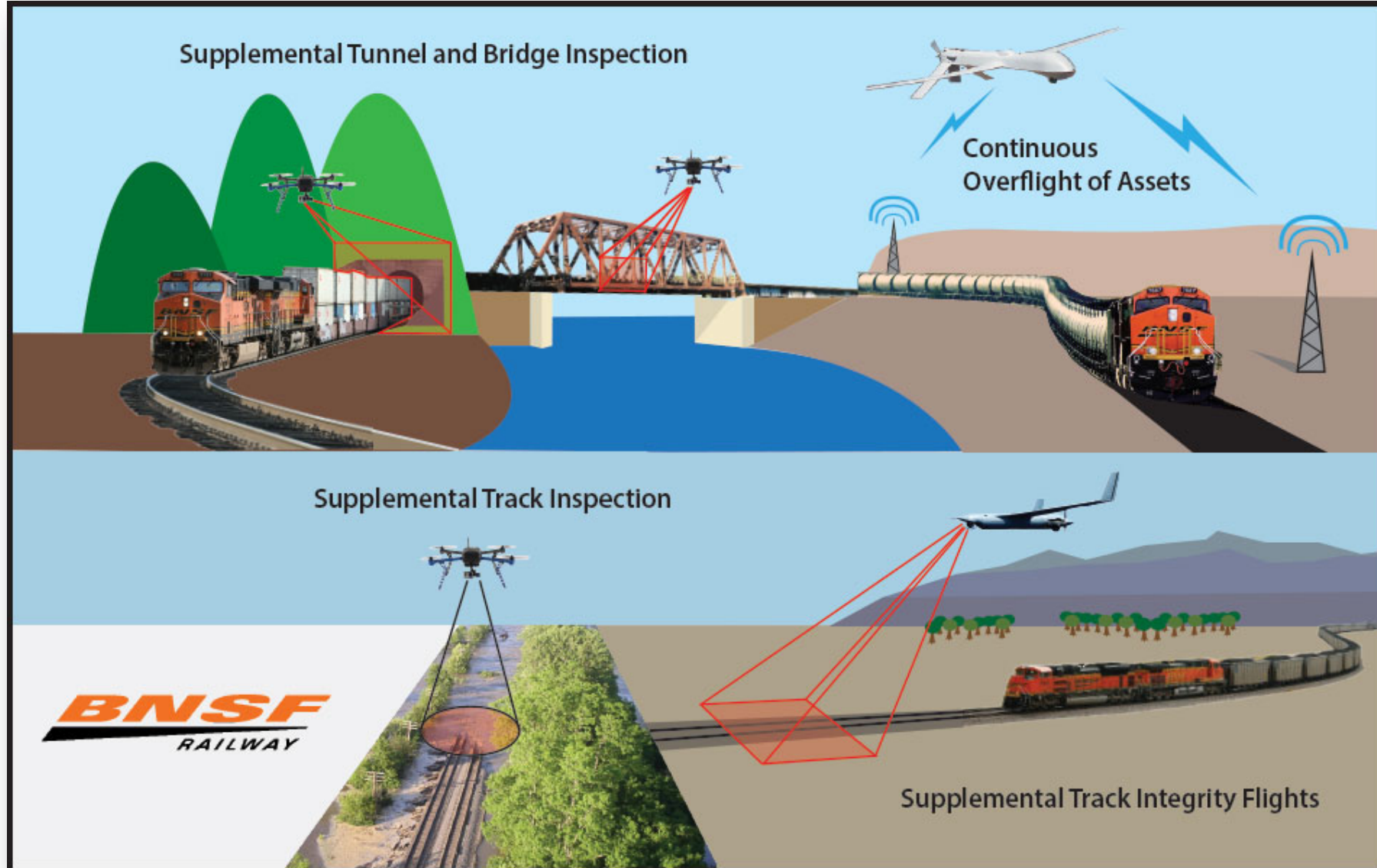
UAS Program



The Challenges of the Elements

- VLOS
 - Extreme weather challenges
 - Cold weather
 - Hot weather
 - Other inclement weather challenges
 - Rain
 - Wind
- BVLOS
 - Extreme weather challenges
 - Cold weather
 - Hot weather
 - Other inclement weather challenges
 - Icing
 - Wind
- Weather sources

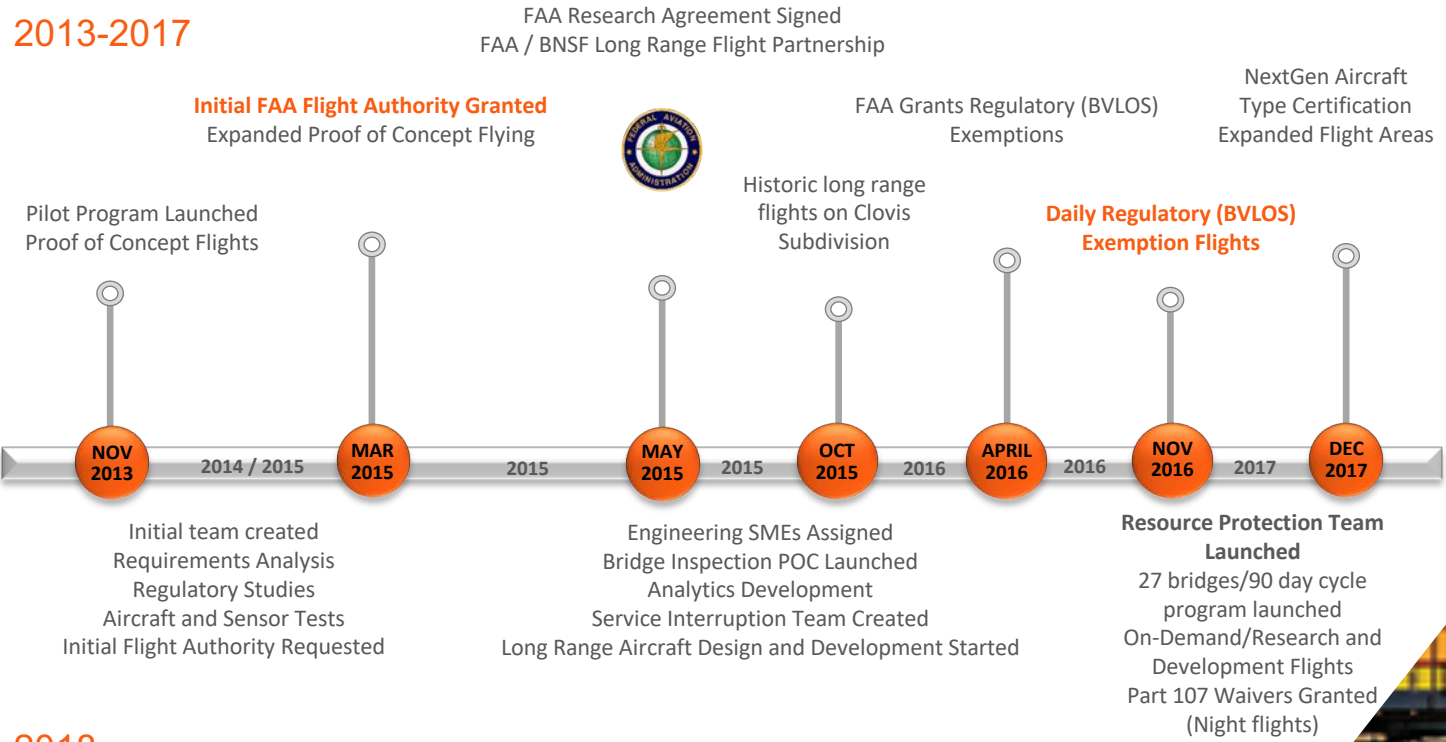
Concept of Operations



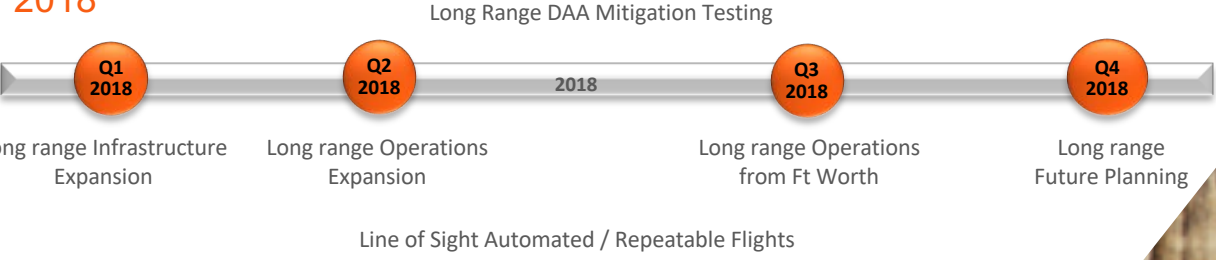
BNSF UAS Program Timeline



2013-2017



2018



VLOS Extreme Weather Challenges

- **Cold Weather**

- Temperatures above 17°F
- Reduction in battery performance (approx. reduced to 50%)
- Adhere to manufacturers recommendations



- **Hot Weather**

- Temperature below 120°F
- Reduction in performance of Ground Control Equipment
- Adhere to manufacturers recommendations



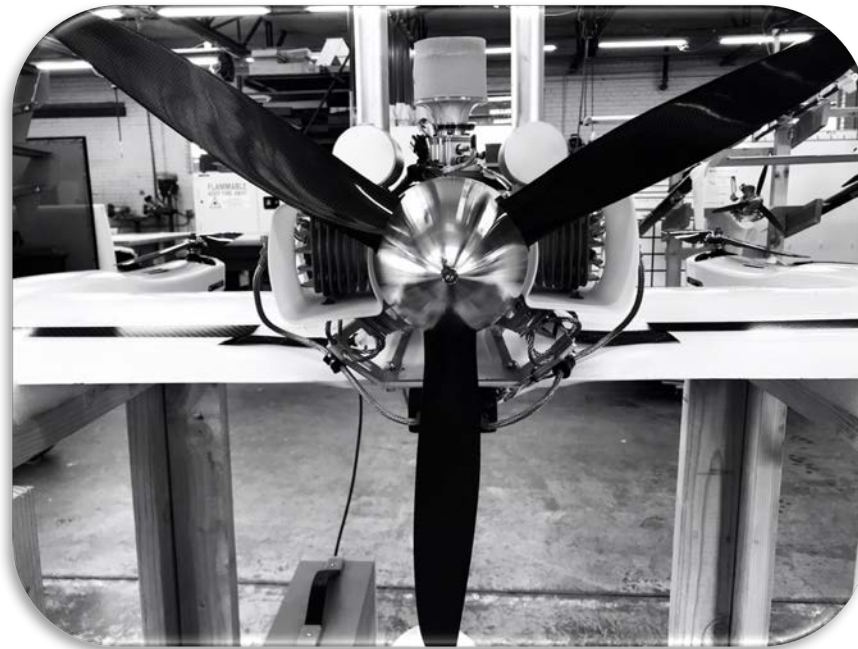
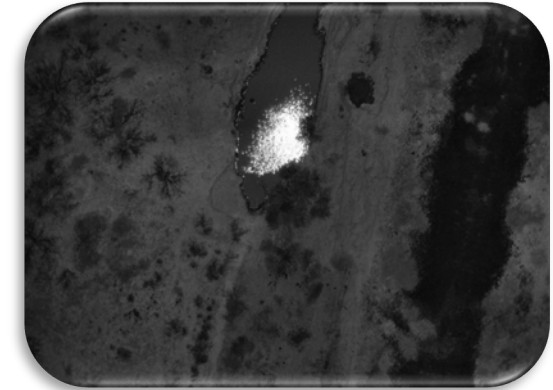
VLOS Incremental Weather Challenges



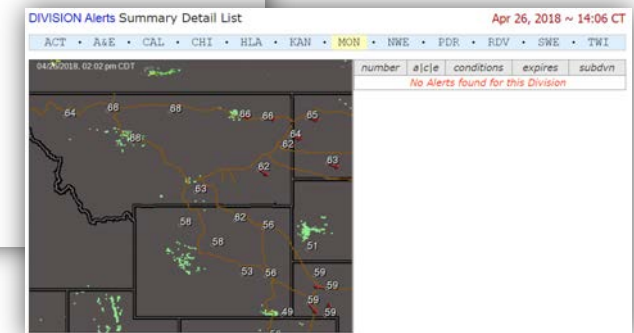
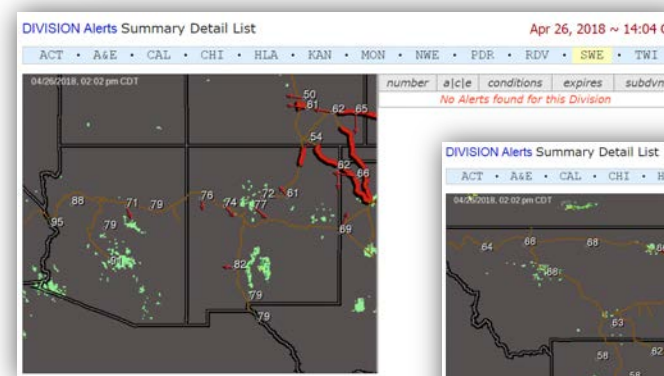
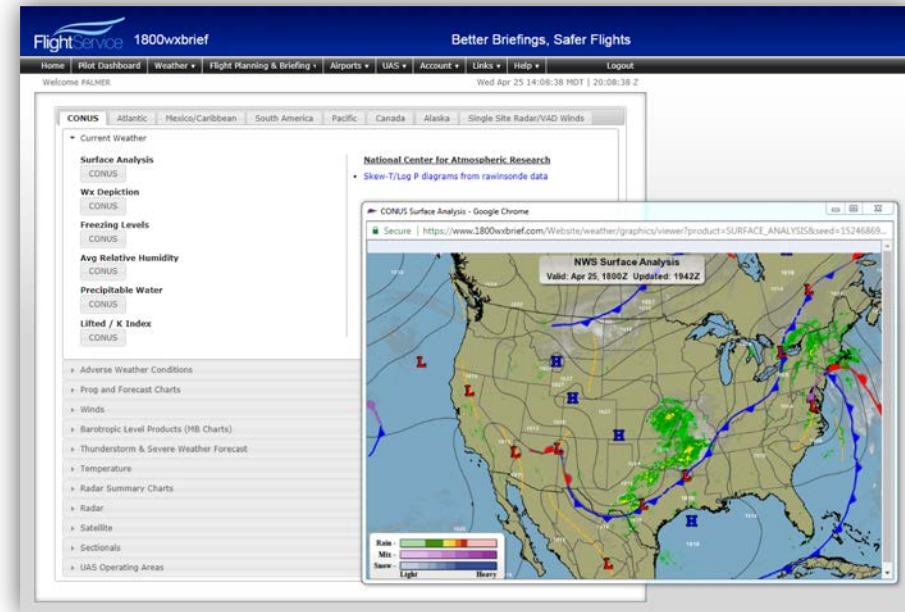
14 CFR §§ 107.51(c) and (d), Operating limitations for small unmanned aircraft, are waived to allow small Unmanned Aircraft operations in reduced visibility and with reduced distance from clouds.

BVLOS Extreme Weather Challenges

- Cold weather – 0°F
- Hot weather – no published limit as of yet
- Icing / High winds



Weather Sources





EXPERIMENTAL

N610BN