

# Out of the Blue

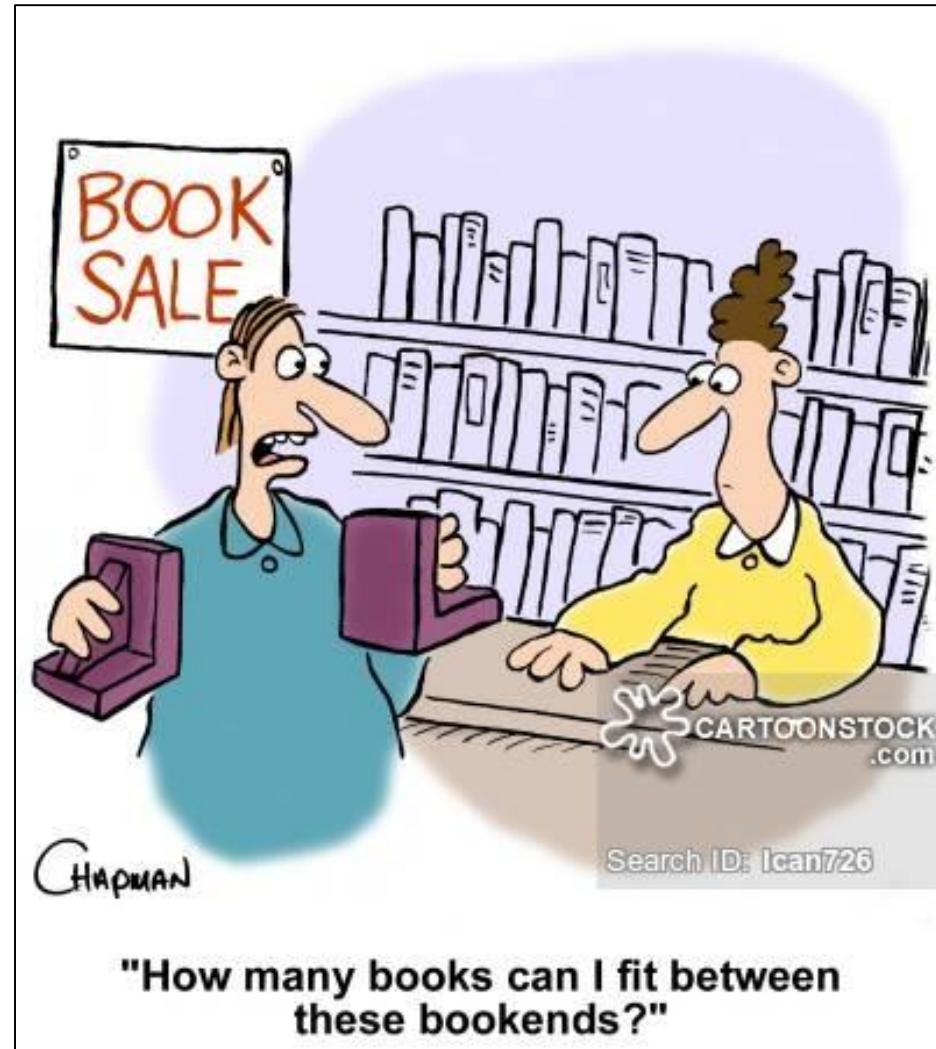
GeoEd 2017

Mike Krimmer, PhD, GISP



# Agenda

- Technology
- People
- Service
- 2017
- Looking Ahead



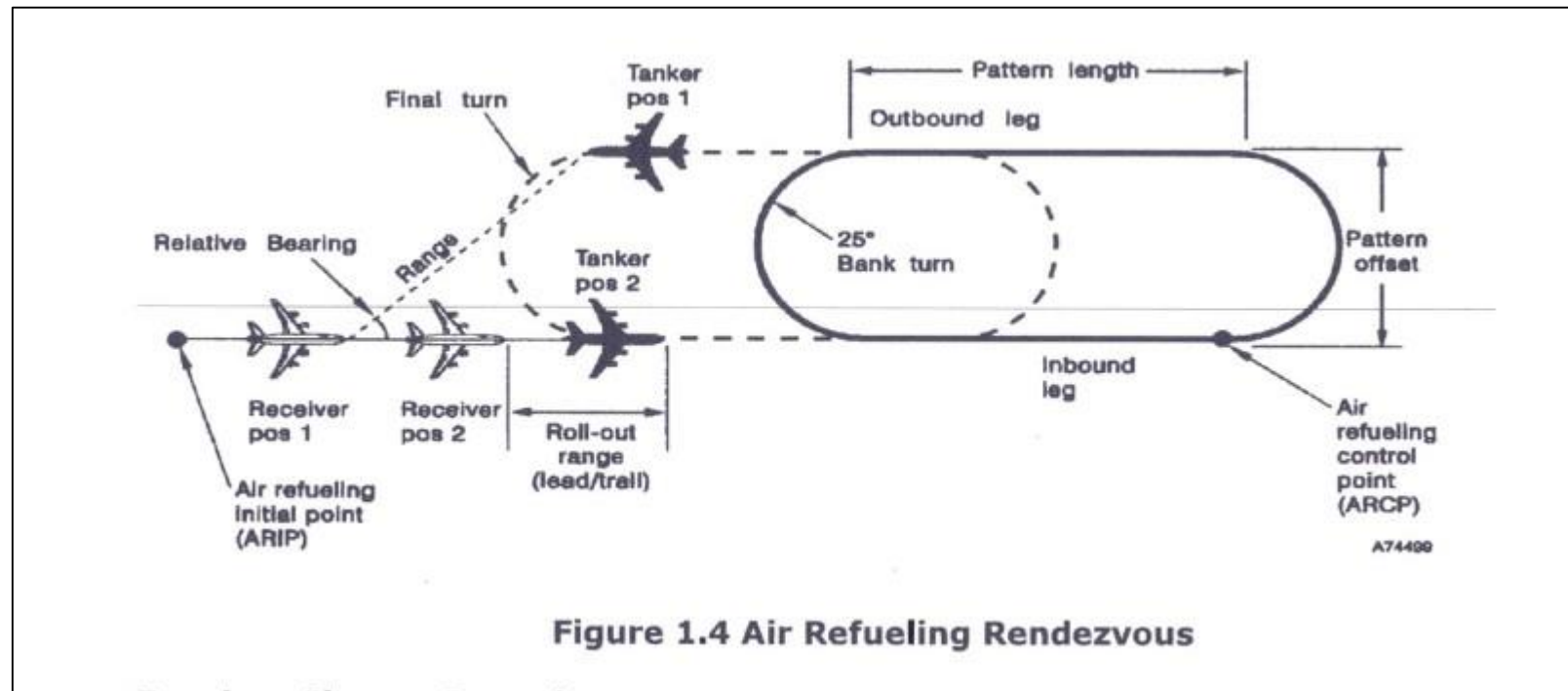


# December 1979



# Aircraft Navigator?

- Air refueling rendezvous
- Overwater position
- Weather avoidance
- Loss of navigation aids





# Office (circa 1955!)

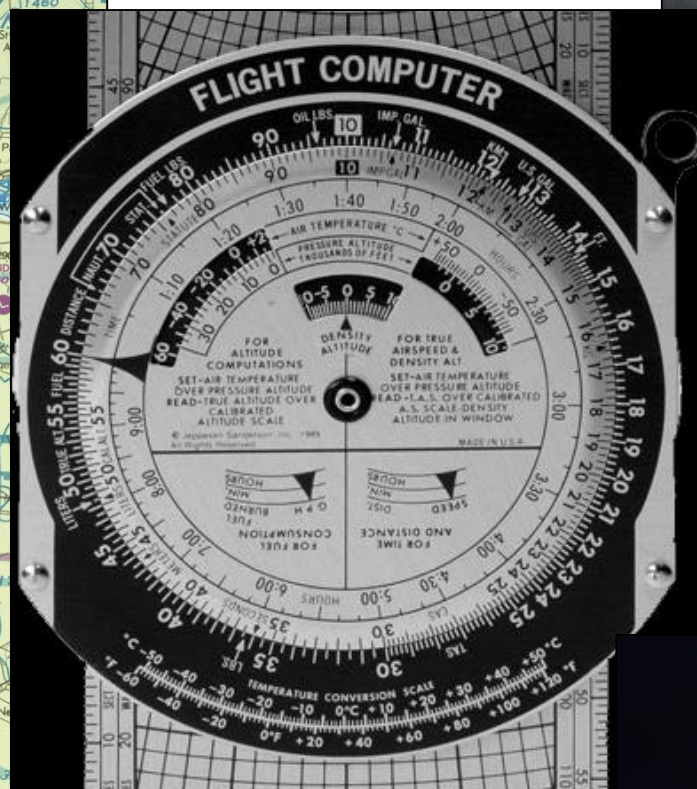
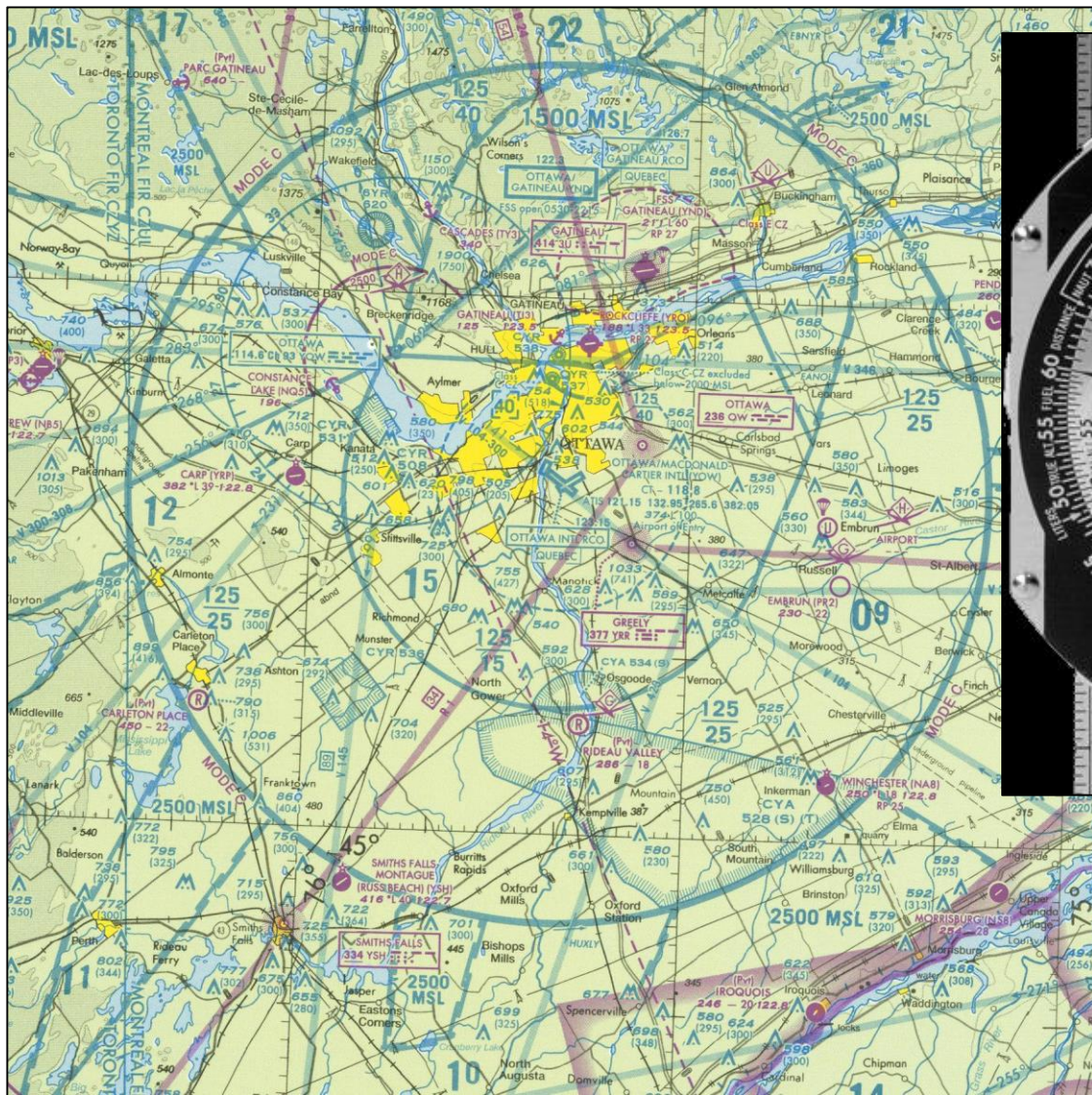
GPS?  
INS?

Magnetic Compass  
Clock  
Radar  
DNS! (1980)  
Outside Air Temperature  
Drift meter





# Tools of the Trade







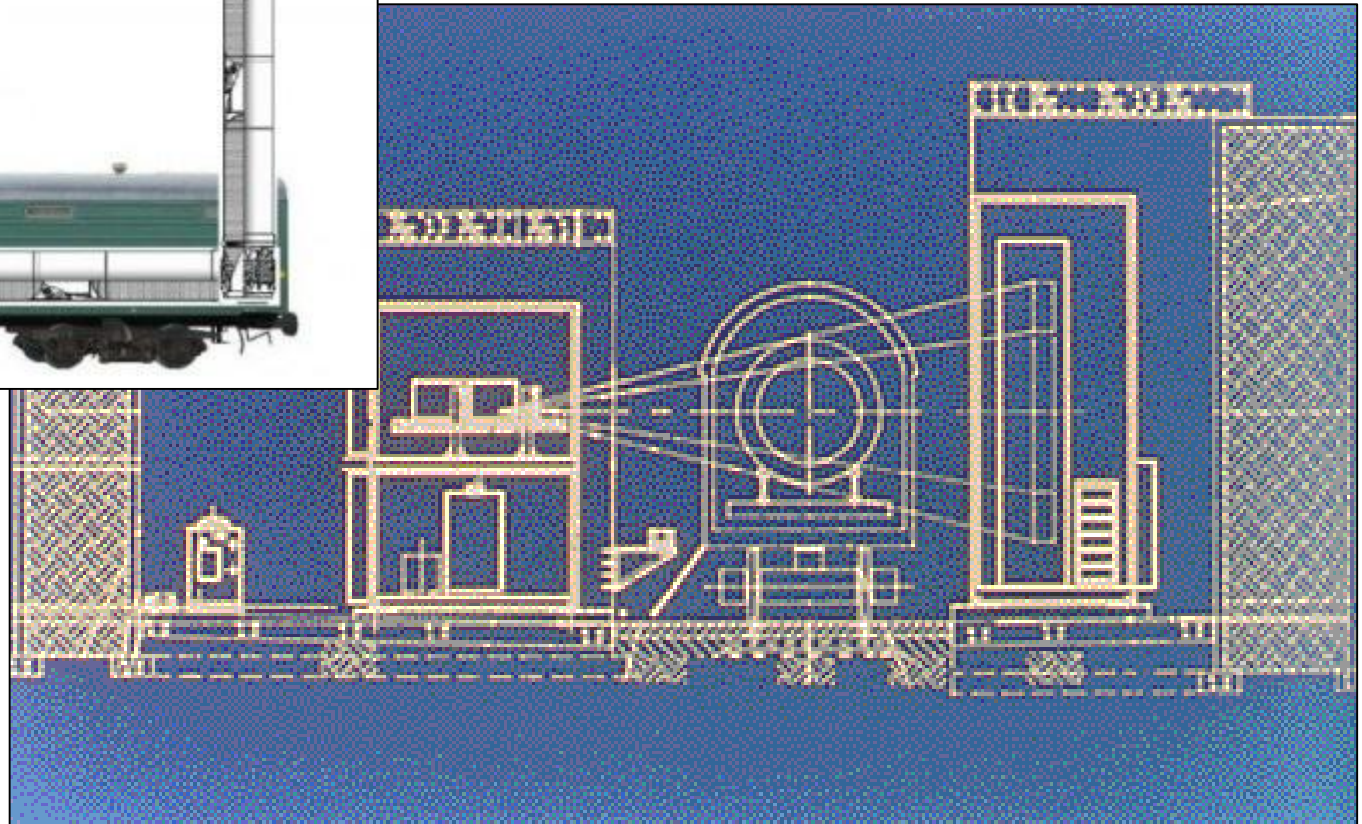
# Aircraft Navigator (1993)

- Replace with “black boxes”
- “Glass cockpit”
  - Redundant INS
  - GPS
- 2009 Navigator rating dropped





# Remote Sensing (INF Treaty)



# 2003



By USAF - [http://www.af.mil/news/airman/0106/satellites\\_gallery05.shtml](http://www.af.mil/news/airman/0106/satellites_gallery05.shtml)[http://www.af.mil/news/airman/0106/00\\_satellites\\_gallery05\\_s\\_xxl.jpg](http://www.af.mil/news/airman/0106/00_satellites_gallery05_s_xxl.jpg), Public Domain, <https://commons.wikimedia.org/w/index.php?curid=978591>



By U.S. Air Force photo/Lt Col Leslie Pratt - <http://www.af.mil/shared/media/photodb/photos/081131-F-7734Q-001.jpg>, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=5518219>



2006



- Geospatial Career Studies Certificate
- AAS Geospatial Studies

# NOVA Geospatial Studies Program Milestones

- **iGETT** (Cohort 2)
- DoL Grant (Geospatial Careers Pipeline Initiative, \$492,000)
- SBA Grant (\$200,000)
- Geospatial Leaders HS Summer Program
- GIS Days and Open Houses
- Host, iGETT Remote Sensing Workshop (2014) (Cohort 3, 4)
- **ASPRS** NOVA Chapter, GeoLeague winner
- Map-a-Thons
- Maker Faires
- Job Fairs
- Balloon remote sensing project, ASPRS
- Provost campus enrollment demographic marketing studies
- Loudoun County Annual GIS Symposium
- ESRI Federal Users Conference
- **US Geospatial Intelligence Foundation Academic Advisory Board**, booths
- HS teacher workshops
- Internships
- **GTCM, DACUM**





GSL2013

GeoSpatial Leaders

# Service



*Empowering Colleges:*  
**EXPANDING THE GEOSPATIAL WORKFORCE**

**National Geospatial Technology  
Center of Excellence**



# Climate Change—Infrastructure Crisis?

- Bridge asset withstood threat.
- Approach roadway failed.
- Network failed at this location.

*How long is this acceptable?*



# Multiple Data Layers and Sources



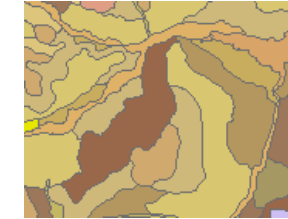
1.0-meter resolution, 4-Band (USDA)



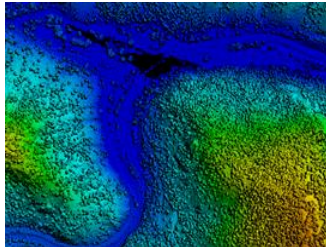
Geology (CO. Geological Survey)



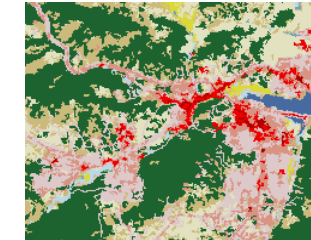
0.1-meter resolution, 3-Band (FEMA)



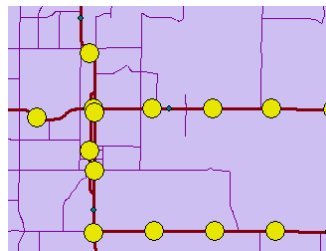
Soil types(USDA/NRCS)



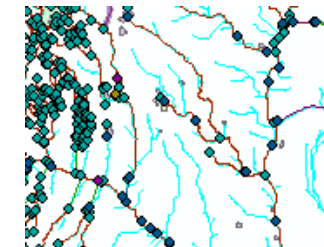
LiDAR  
(Larimer County, CO & FEMA)



National Land Cover Database (MRLC)



Reference Shapefiles (CDOT-OTIS & Local Sources)



National Hydrography Dataset (USGS)



# Modeling Threats: Combine Existing Data & Models

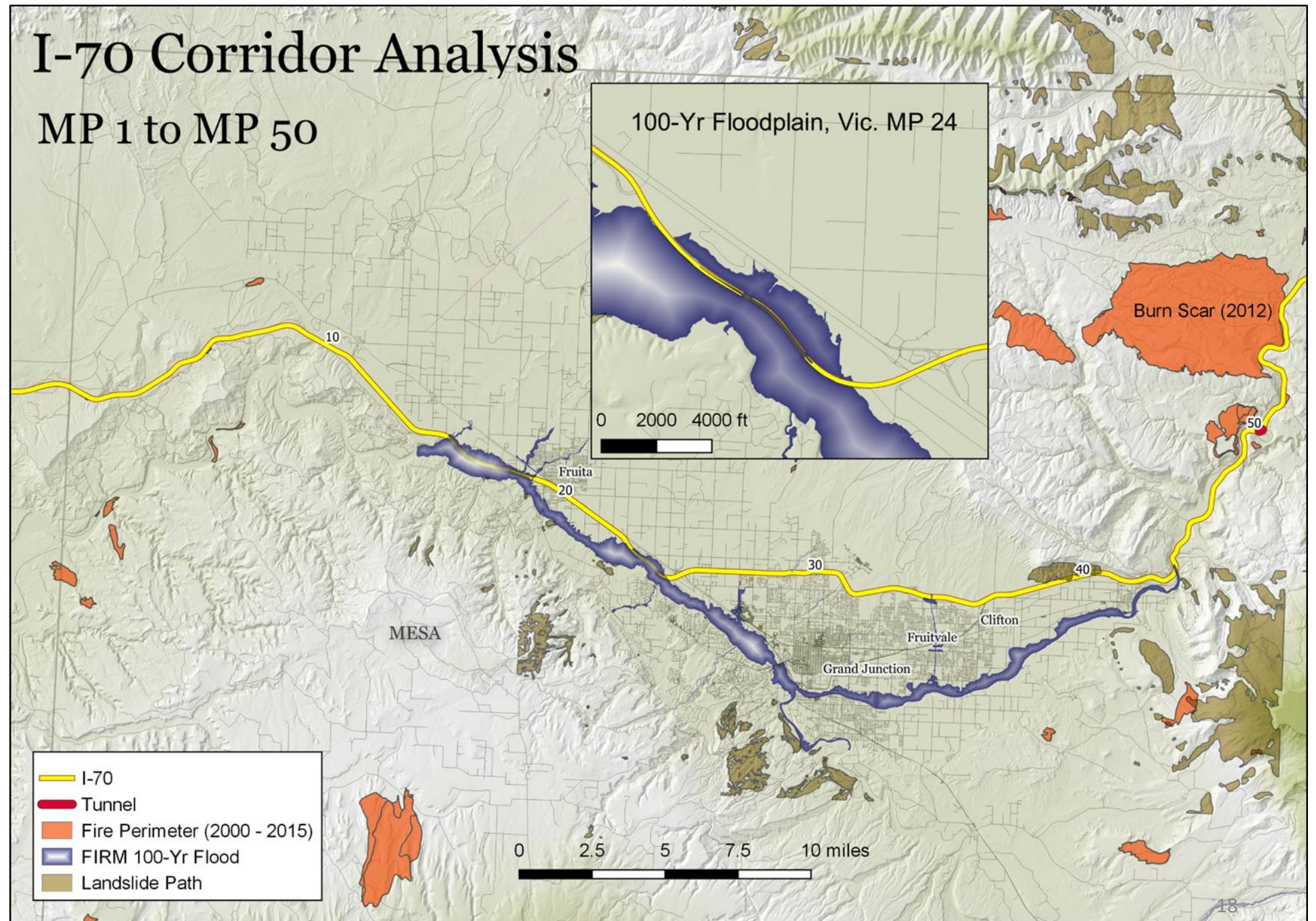




2017

# I-70 Corridor Analysis

MP 1 to MP 50





# Looking Ahead

- Hardware and software: accelerated change continues
- Data: accessible, accurate, voluminous, pervasive, precise
  - LIDAR
  - DATUMs—replacing NAD83 and NAVD88
- Community College Education
  - New: roles and importance
  - Innovation: MOOCs, “virtual” courses
  - Revolution: universal attendance/opportunity?

“Those who can, *do*. Those who care, *teach*.”