

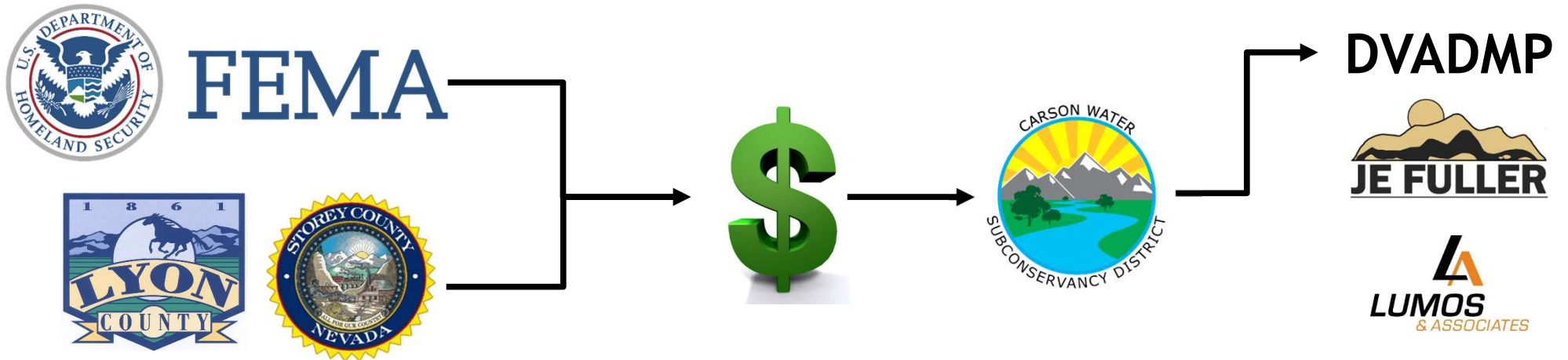
Dayton Valley Area Drainage Master Plan



Carson Water Subconservancy District
Board Meeting
August 21, 2019 | 6:30pm

Project Funding

- FEMA Cooperative Technical Partner (CTP) grant
- Lyon County | Storey County



Data Collection

- Resident Flood Experience
 - ADMP Open House (May 8, 2018)
 - Flooding experience locations
 - Photographs/Videos
 - ADMP Flood Experience Website

Used to help calibrate and verify modeling



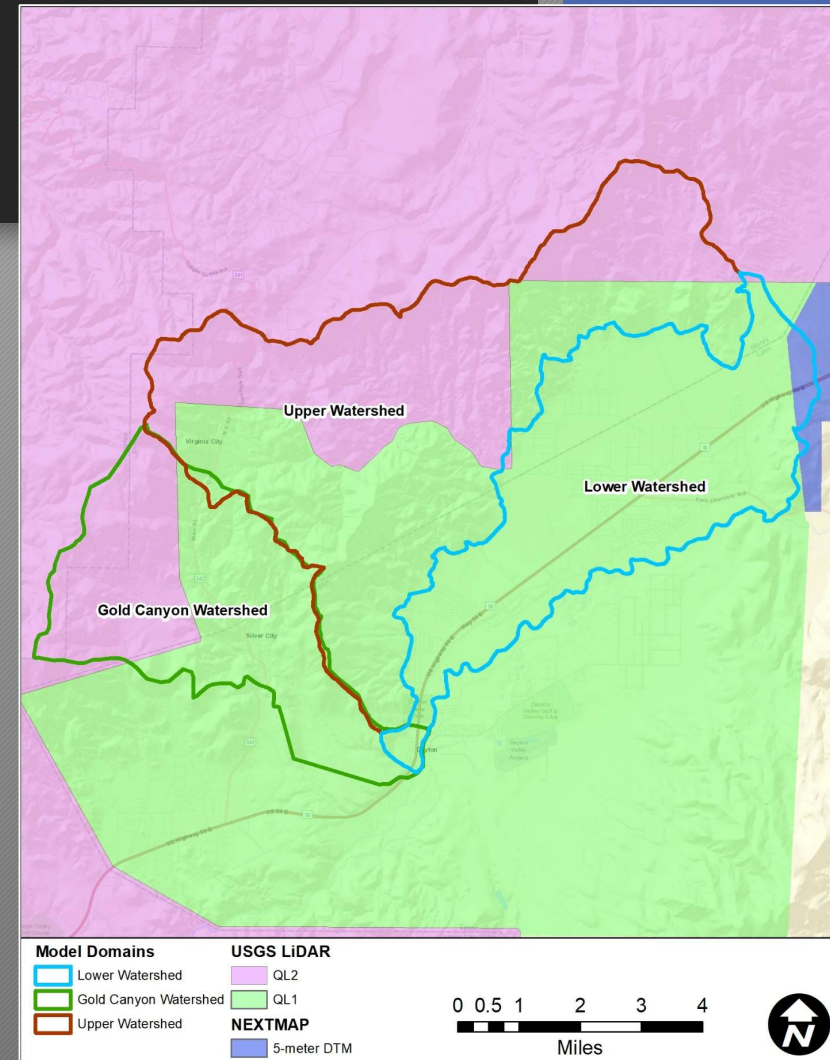
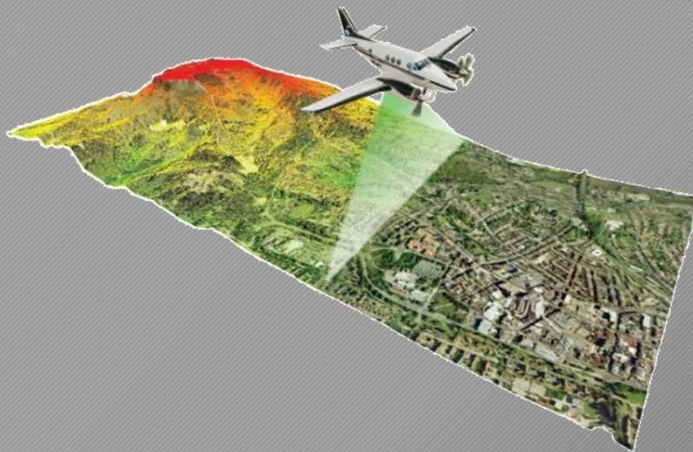
Watershed Assessment

- Historical Flow Path Assessment



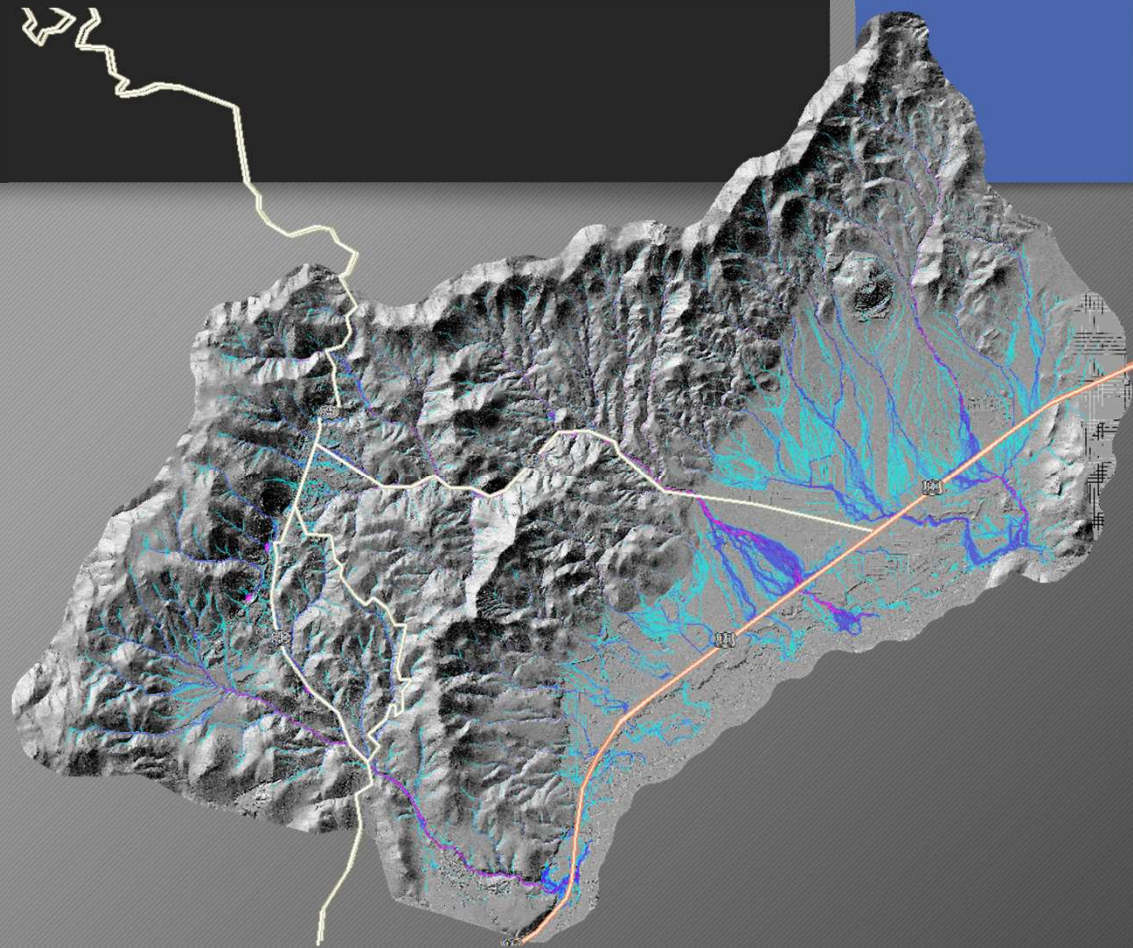
Topographic Mapping

- High-resolution USGS LiDAR mapping
 - October 27, 2017



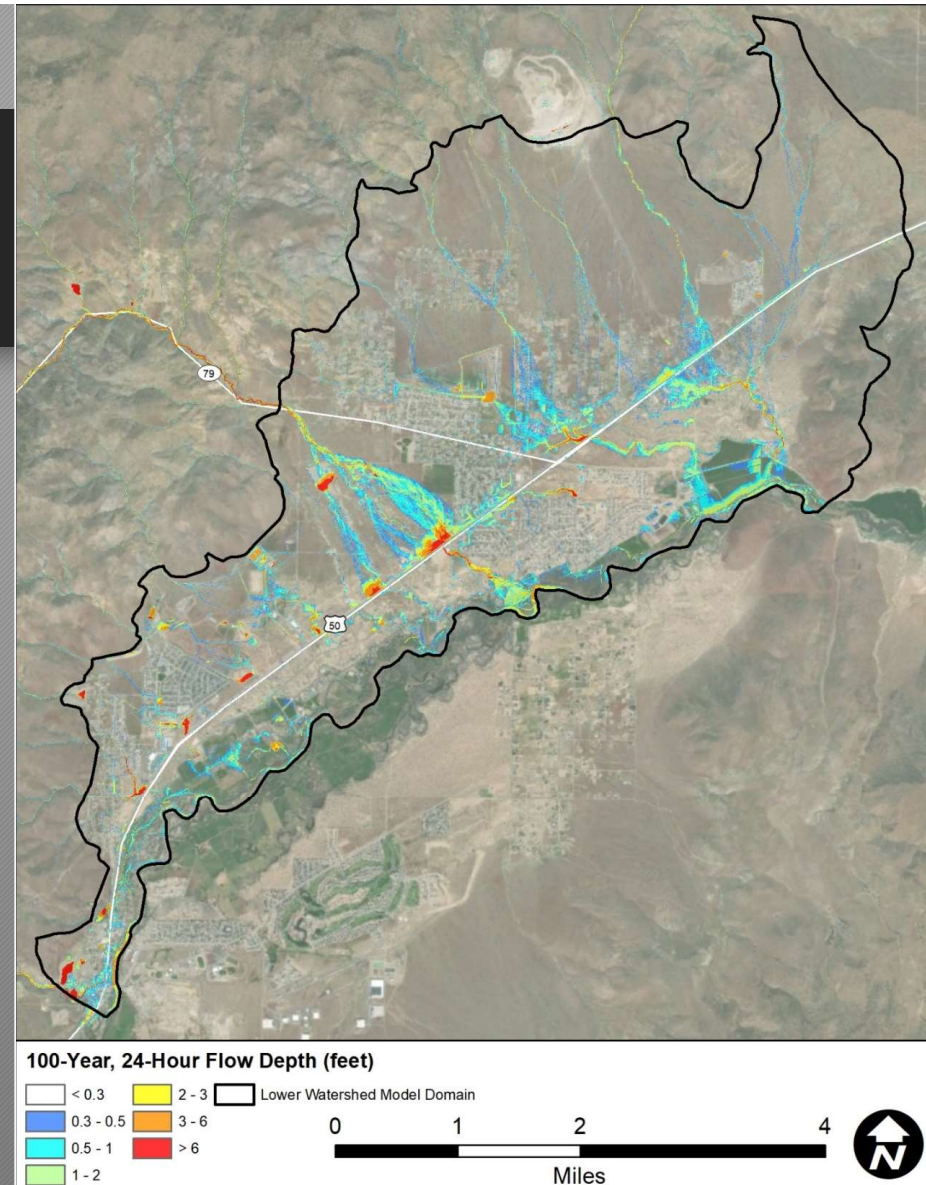
Watershed Assessment

- Many watercourses impacting study area
- Upper Watershed Geologic Setting
 - Tributary flow patterns (mountain streams)
- Lower Watershed Geologic Setting
 - Sloping piedmont surface (alluvial fan)
 - High sediment transport
 - Flow is distributary, shallow



Flood Hazard Assessment

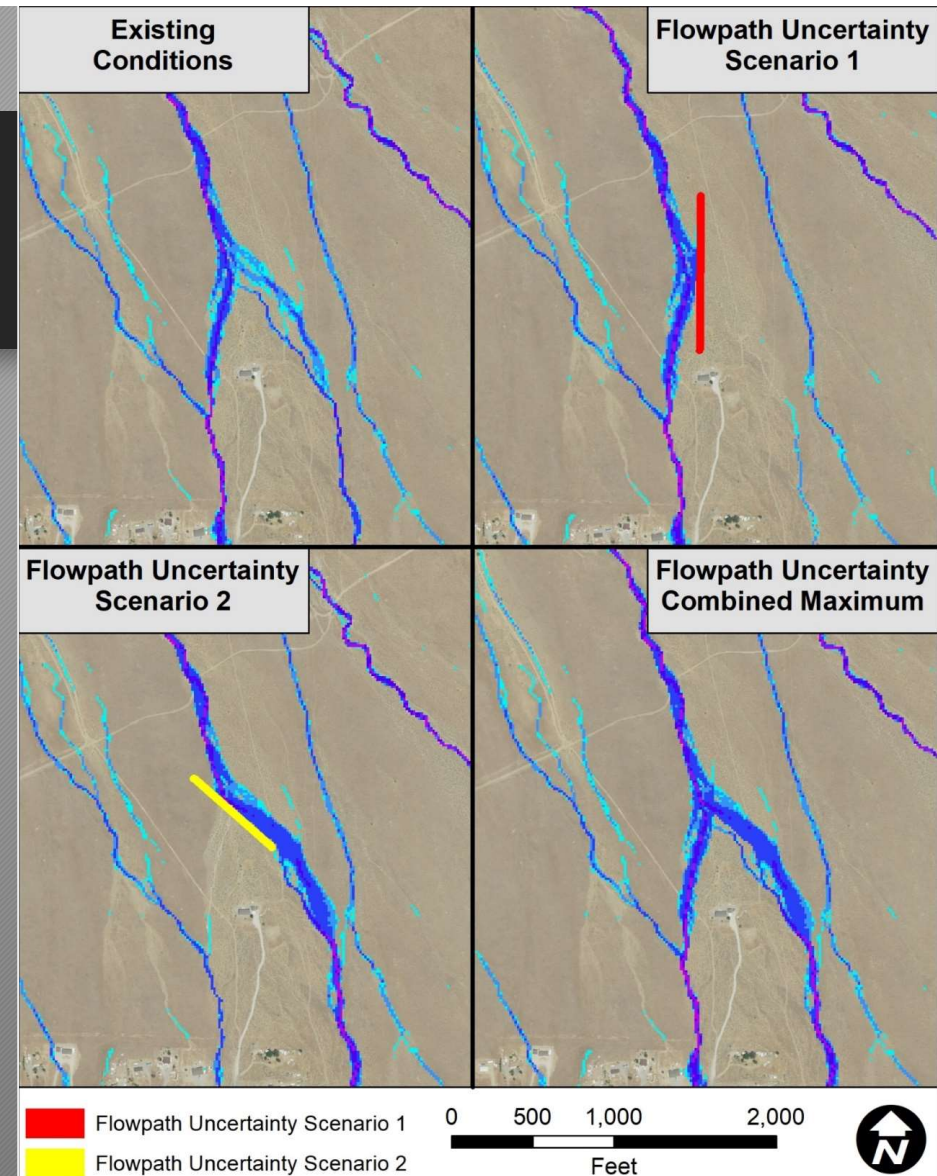
- Hydrology
 - New NDOT rainfall
- Hydraulic Modeling (FLO-2D)
 - Three Separate Models (15ft Grid Size)
 - Upper Watershed (4.1M Grid Cells)
 - Lower Watershed (2.6M Grid Cells)
 - Gold Canyon (2M Grid Cells)





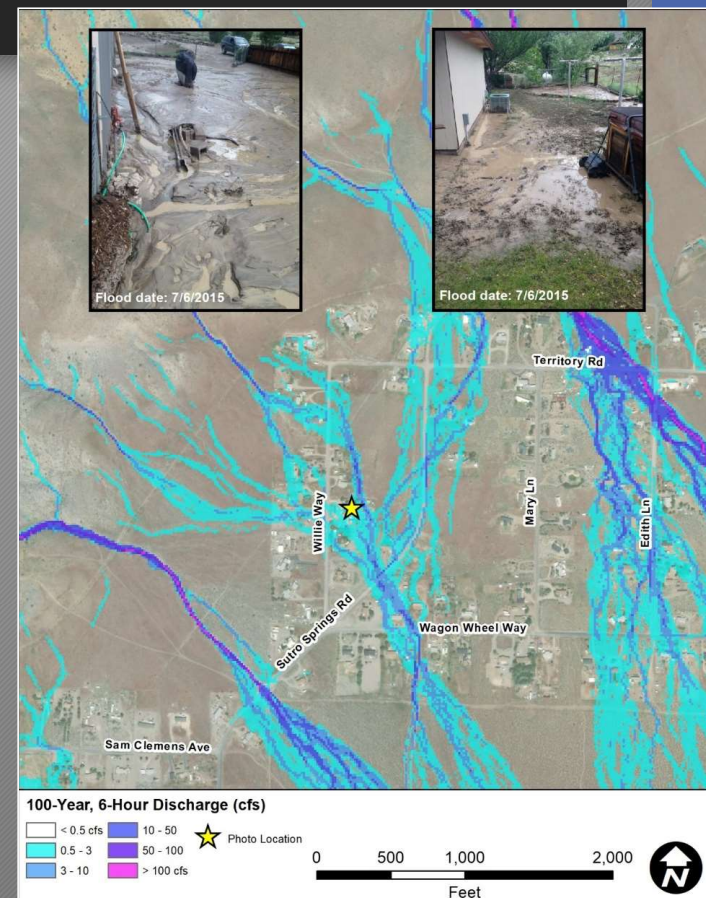
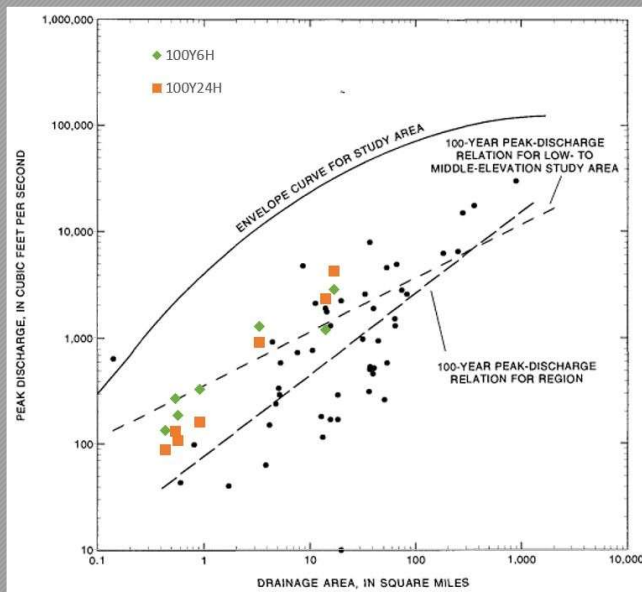
Flowpath Uncertainty Analysis

- Active Alluvial Fan Flooding
 - Flow direction/magnitude can change
 - Over time
 - Single flood event
 - Simulate changing flowpaths
 - “Virtual Levees”



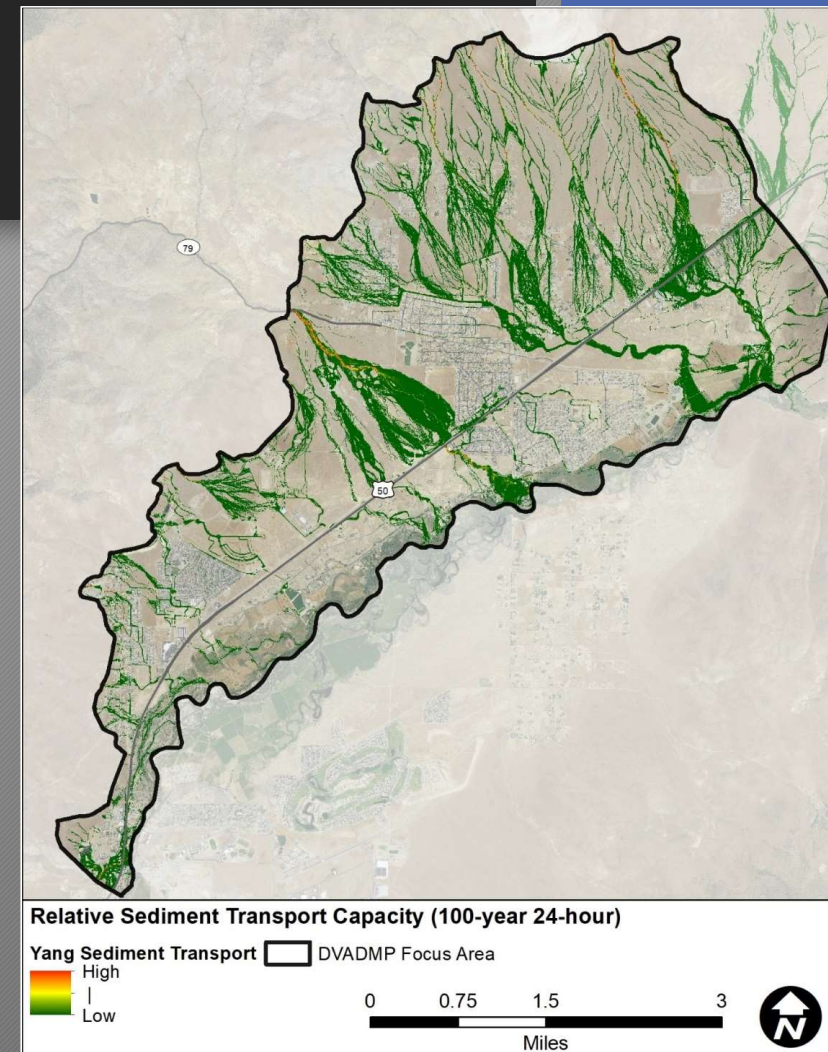
Verification of Existing Condition Results

- Models should be verified if possible
 - USGS Regression
 - Resident flooding experience



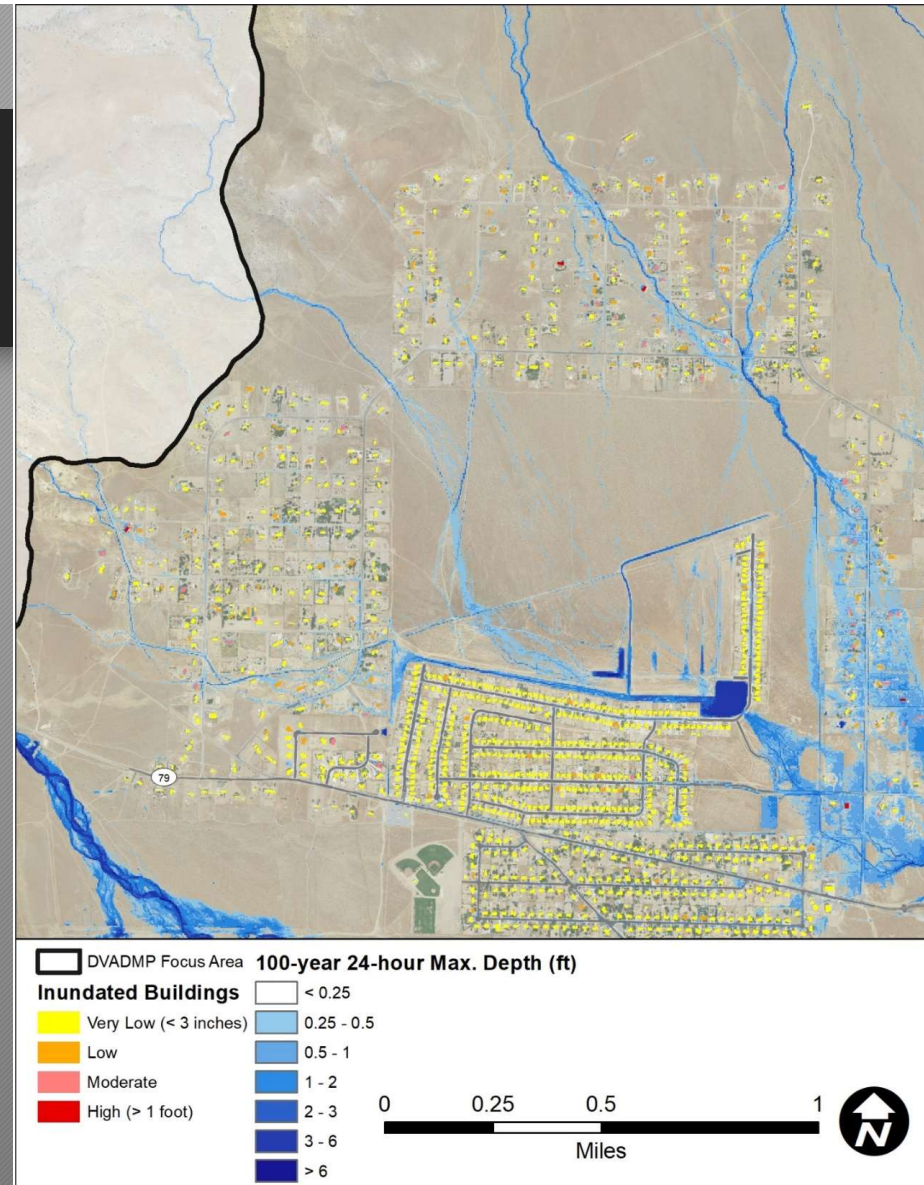
Flood Hazard Assessment

- Sediment Engineering
 - Collected 24 samples
 - Washes with high sediment transport capacity
 - Identify watercourses with high sediment transport
 - Quantify sediment yield



Flood Hazard Classification

- Identify specific hazard areas for:
 - Vehicles
 - Pedestrians
 - Buildings

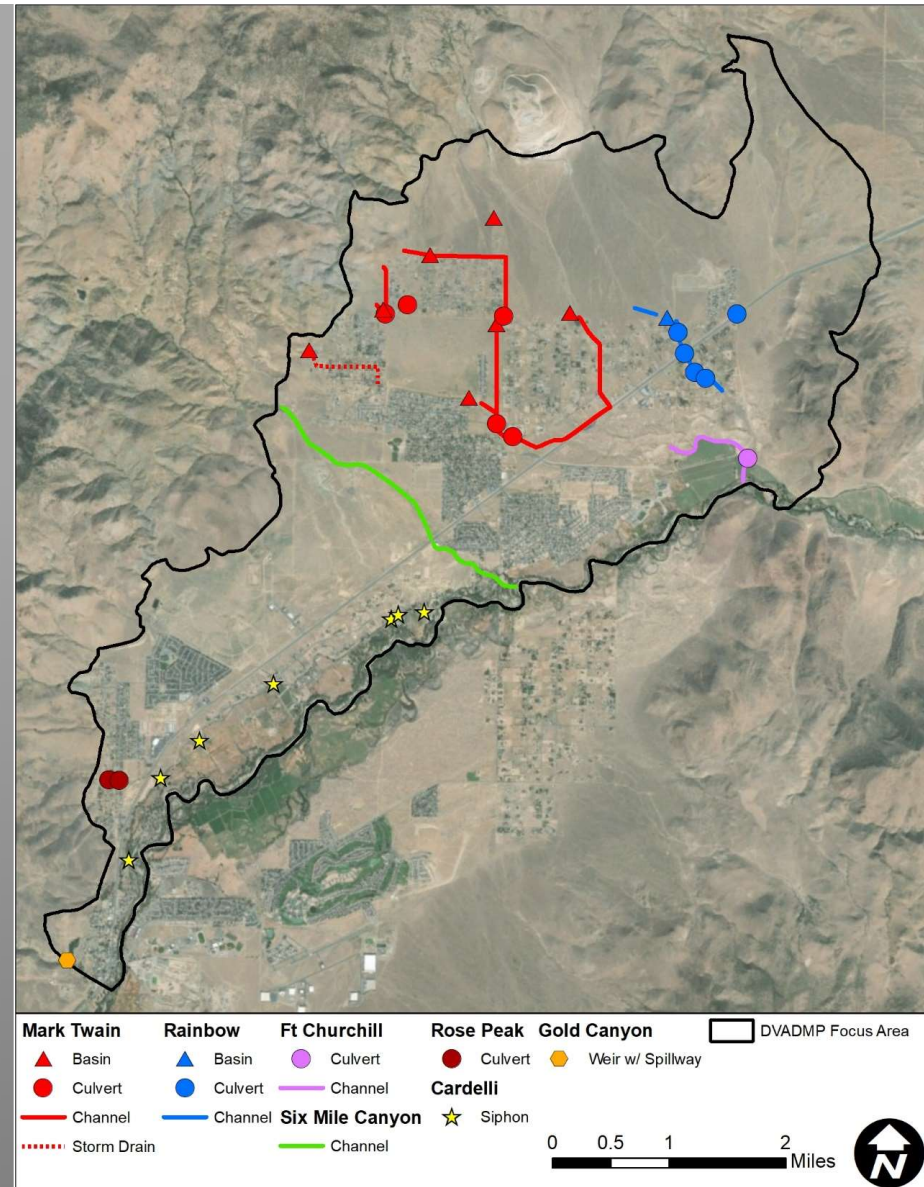


7 “Systems”

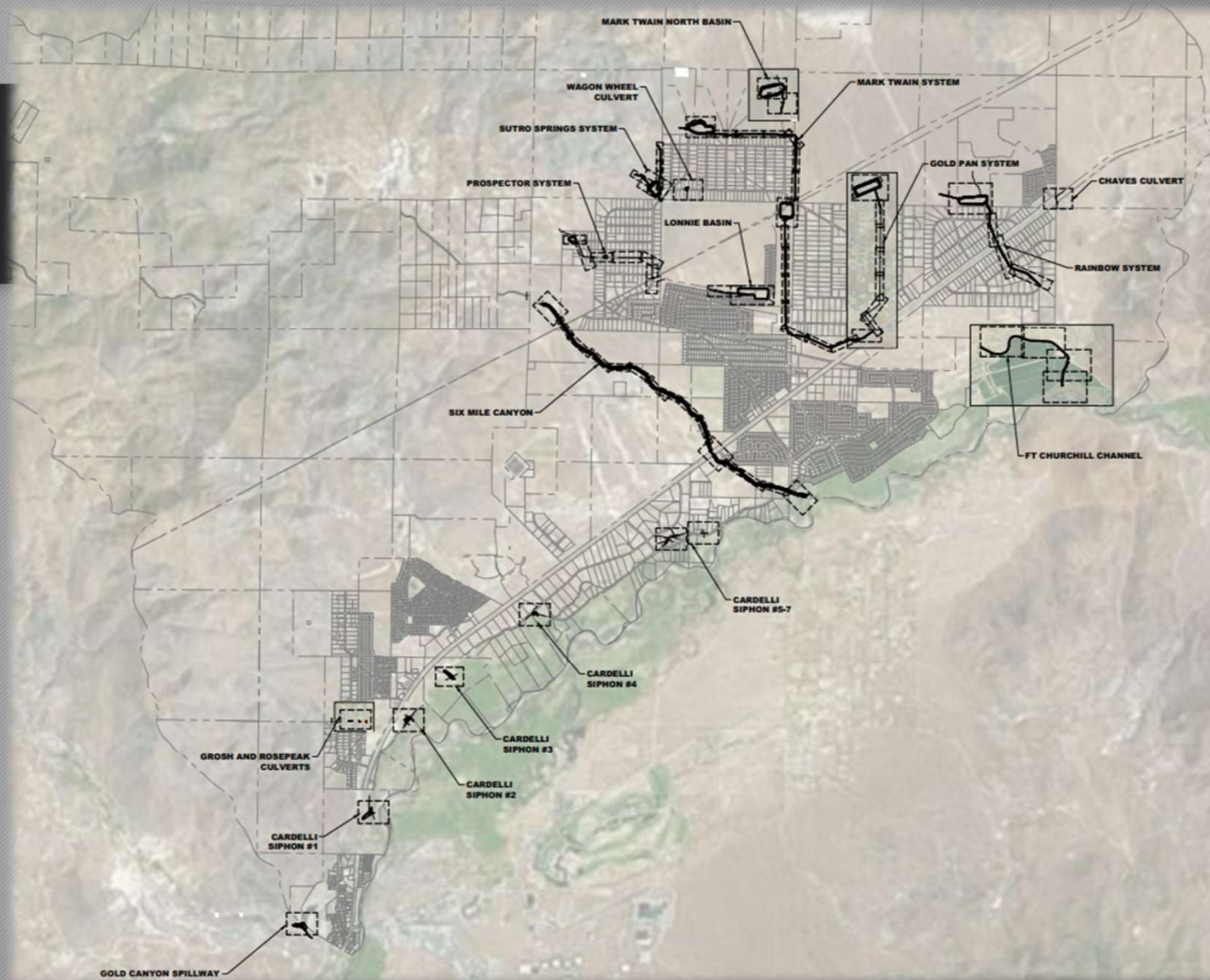
- Detention Basins
- Collector Channels
- Conveyance Channels
- Upsized Culverts
- New Culverts
- Storm Drain
- Lateral Weir (Gold Canyon)

Cardelli Ditch

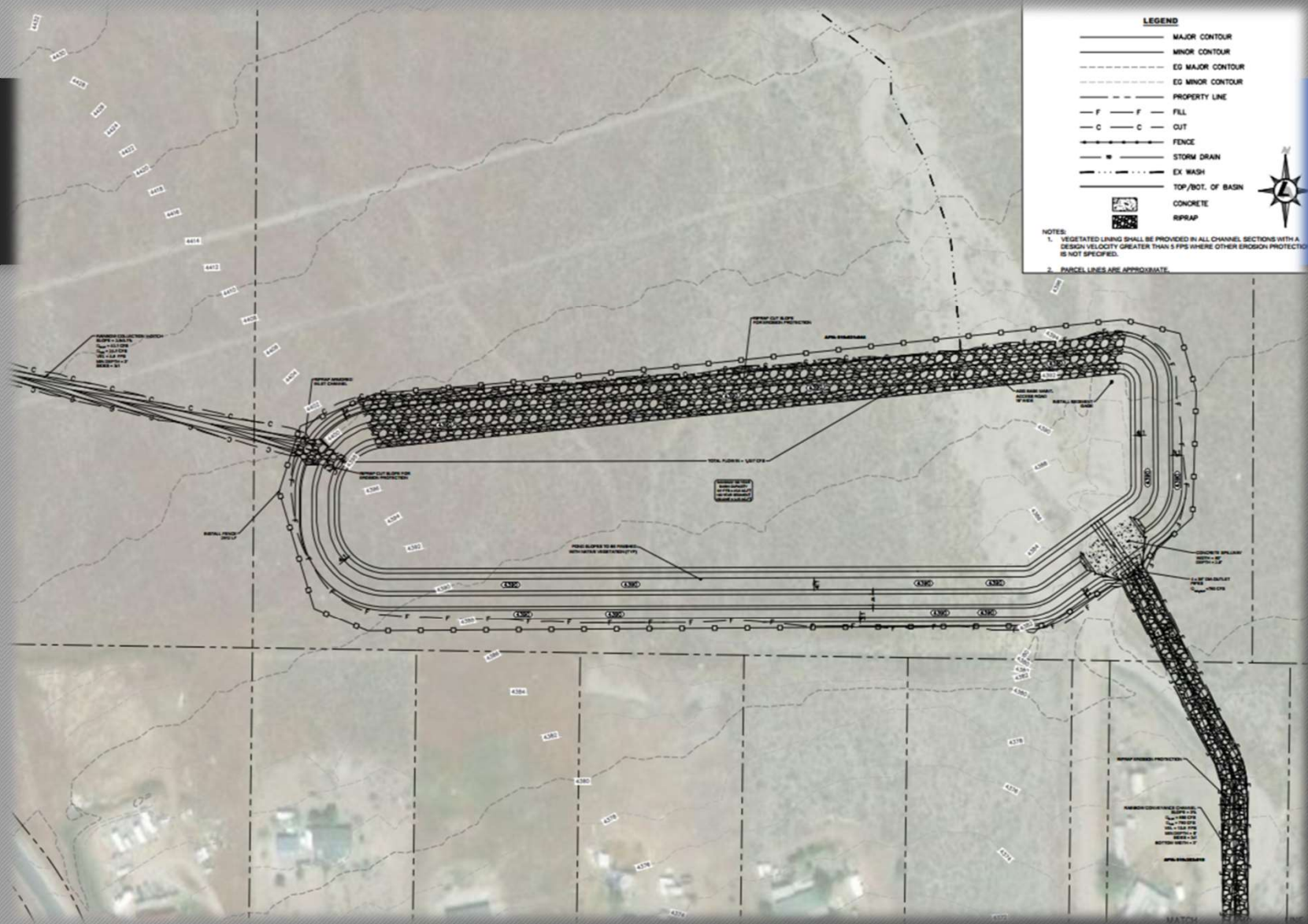
- Siphons
- Pipes



100-Year 15% Design Overview



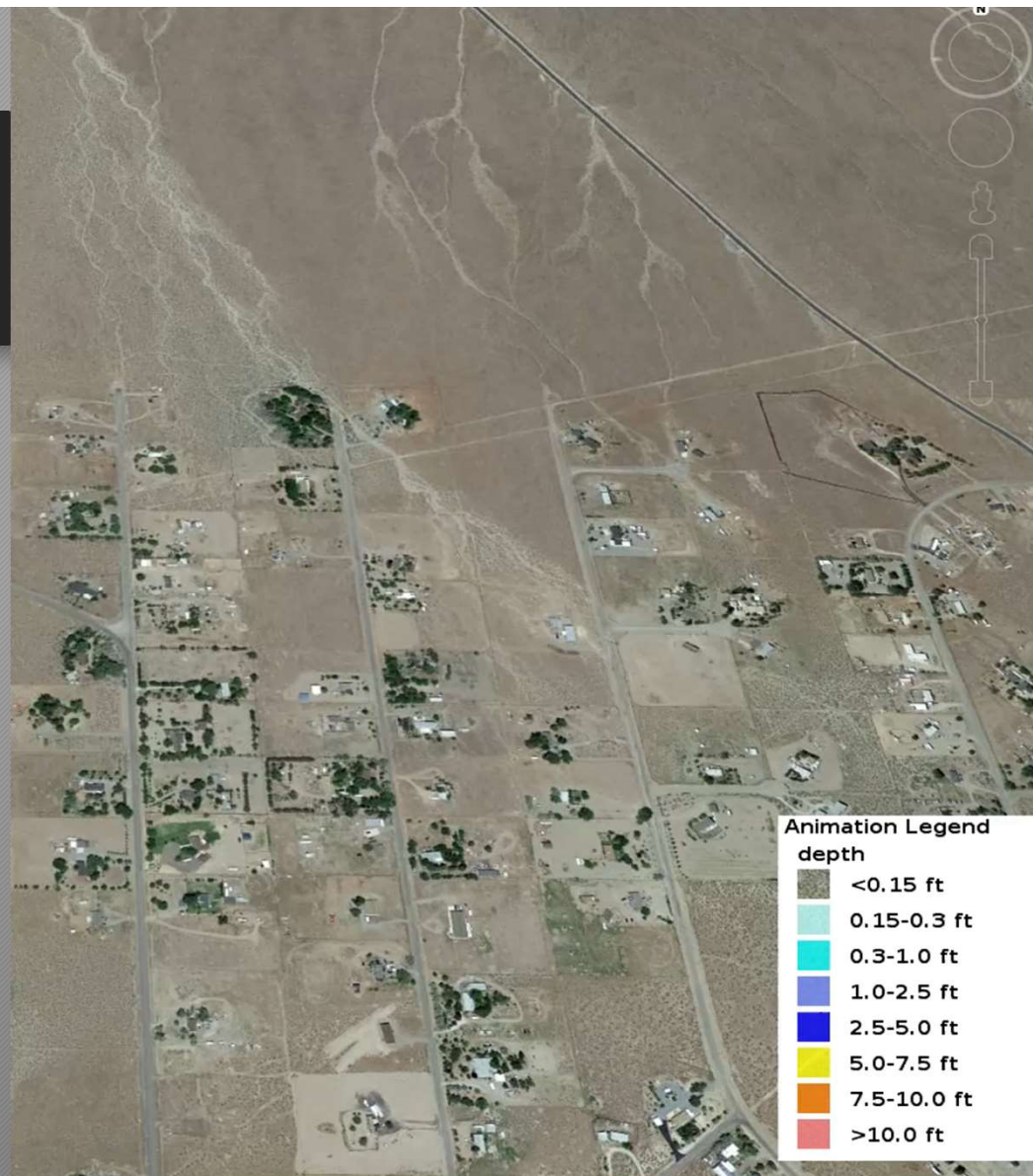
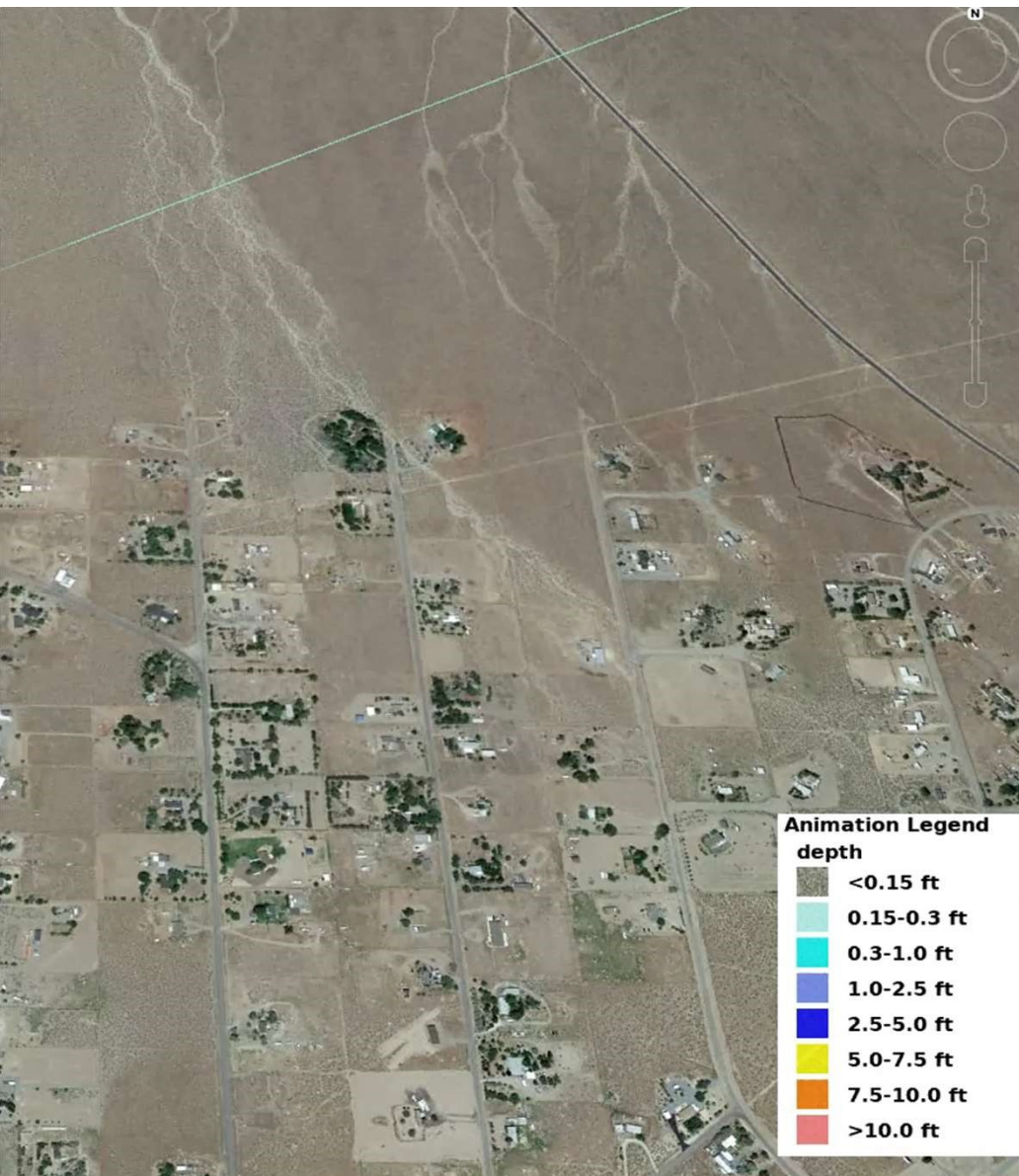
Rainbow 100-Year Basin and Channels





Animation Legend
depth

- <0.15 ft
- 0.15-0.3 ft
- 0.3-1.0 ft
- 1.0-2.5 ft
- 2.5-5.0 ft
- 5.0-7.5 ft
- 7.5-10.0 ft
- >10.0 ft



Alternative Priority Recommendation

ADMP Study Area		
Priority	System	Design Level
1	Rainbow	100-Year
2	Mark Twain	100-Year
3	Gold Canyon	100-Year
4	Ft Churchill	100-Year
5	Six Mile	100-Year

Mark Twain Alternatives Priority Recommendation

Mark Twain System		
Priority	Structure	Design Level
1	Gold Pan Basin and Storm Drain	100-Year
2	Prospector Basin and Storm Drain	100-Year
3	Sutro Springs Basin and Channels	100-Year
4	North Basin, West Basin, South Basin, and Channels	100-Year
5	Lonnie Basin	100-Year

Questions?



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