Grand Canyon National Park Airport

Drainage Master Plan and Water Use Study

Planning Advisory Committee Meeting #2

January 31, 2019

AGENDA

- Introductions
- Project Overview
- Summary of Findings – Draft Data Collection and Existing Conditions Report
- Improvement Alternatives
- Next Steps

INTRODUCTIONS

PROJECT TEAM

- Matthew Smith (ADOT, Airport Manager)
- Lee McCleary (ADOT, Past Airport Manager)
- Bob Haneline (Dibble, Project Manager)
- Charlie McDermott (Dibble, Sr. Airport Planner)
- Nanette Pageau (Kaneen Communications, Public Outreach)

PAC AGENCY MEMBERS

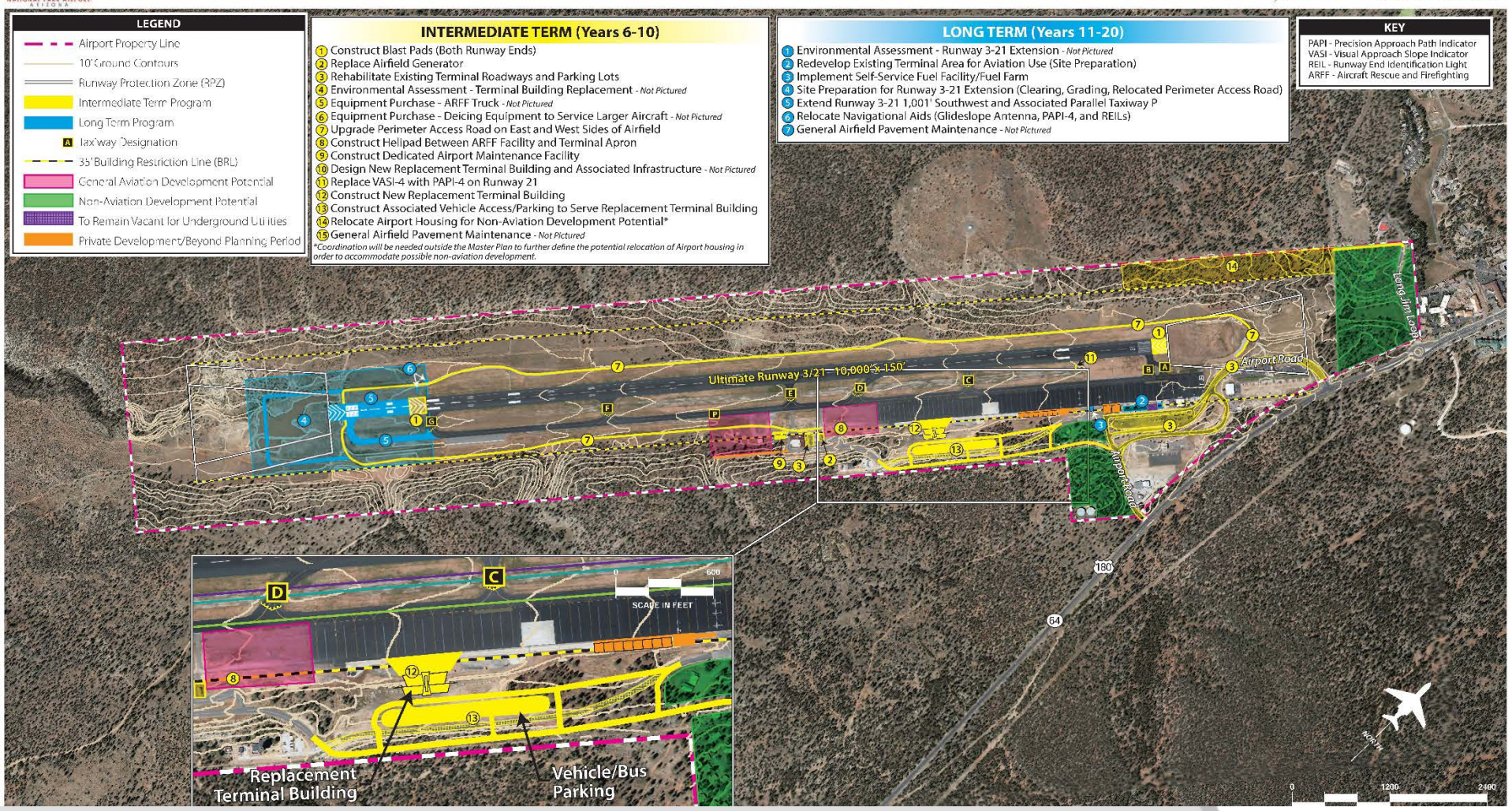
Arizona Department of Transportation
Arizona Game & Fish
Arizona State Land Department
Coconino County
Federal Aviation Administration
Grand Canyon Airlines
Grand Canyon National Park
Grand Canyon National Park Airport
Havasupai Tribe
KT Consulting, LLC
Hydro Resources
Maverick Airlines
National Park Service
Papillon Grand Canyon Helicopters
Sierra Club
Sierra Club, Grand Canyon Chapter
Town of Tusayan
USDA Forest Service – Kaibab National Forest

PROJECT OVERVIEW & GOALS

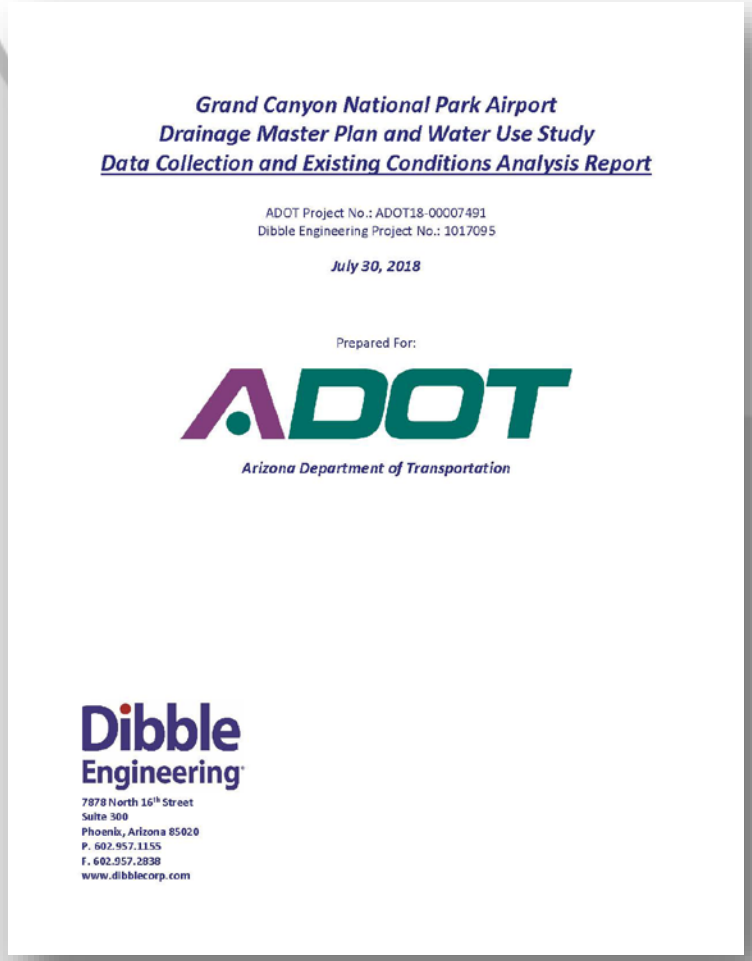
- **Drainage Master Plan**
  - Develop an FAA-compliant Drainage Master Plan
- **Water Use Study**
  - Estimate Future Water Demands (matching 2017 Airport Master Plan)
  - Evaluate Alternatives for Providing Increased Potable Water Source(s)

PROJECT PHASES

- Data Collection and Existing Conditions Analysis
- Alternatives Analysis and Drainage Master Plan, Water Use Recommendations



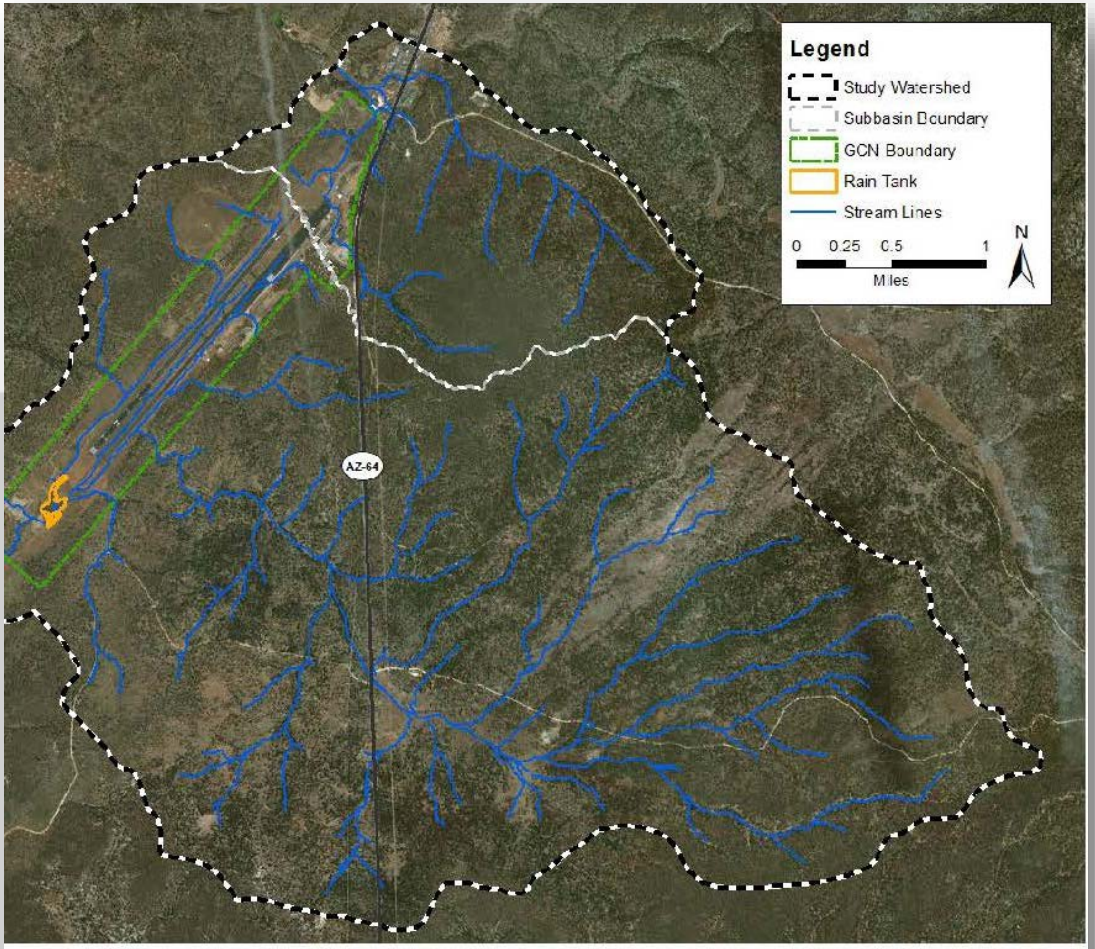
NEW AIRPORT MASTER PLAN



DATA COLLECTION AND EXISTING CONDITIONS ANALYSIS REPORT

WATERSHED

- 16 Square Mile Area
- Mostly Forest Cover
- 2 Subbasins



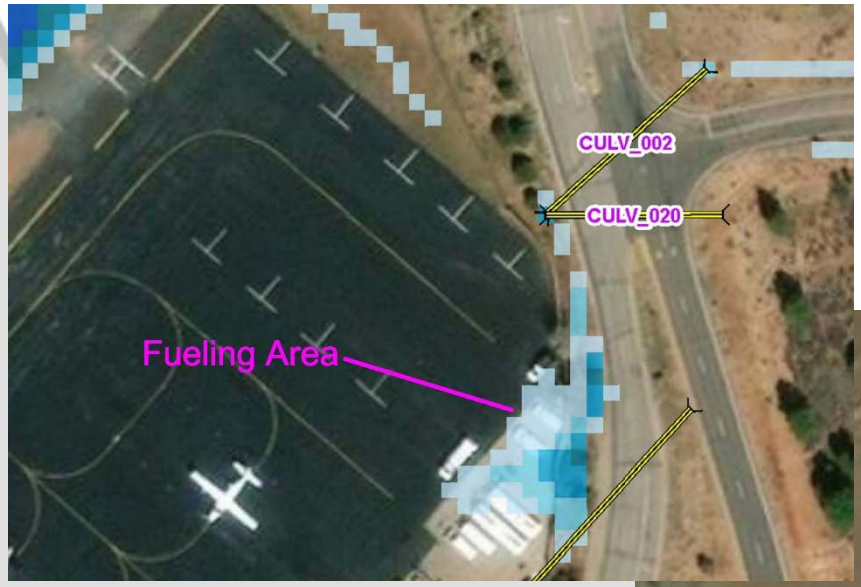
2 - Stream Lines Based on Topography

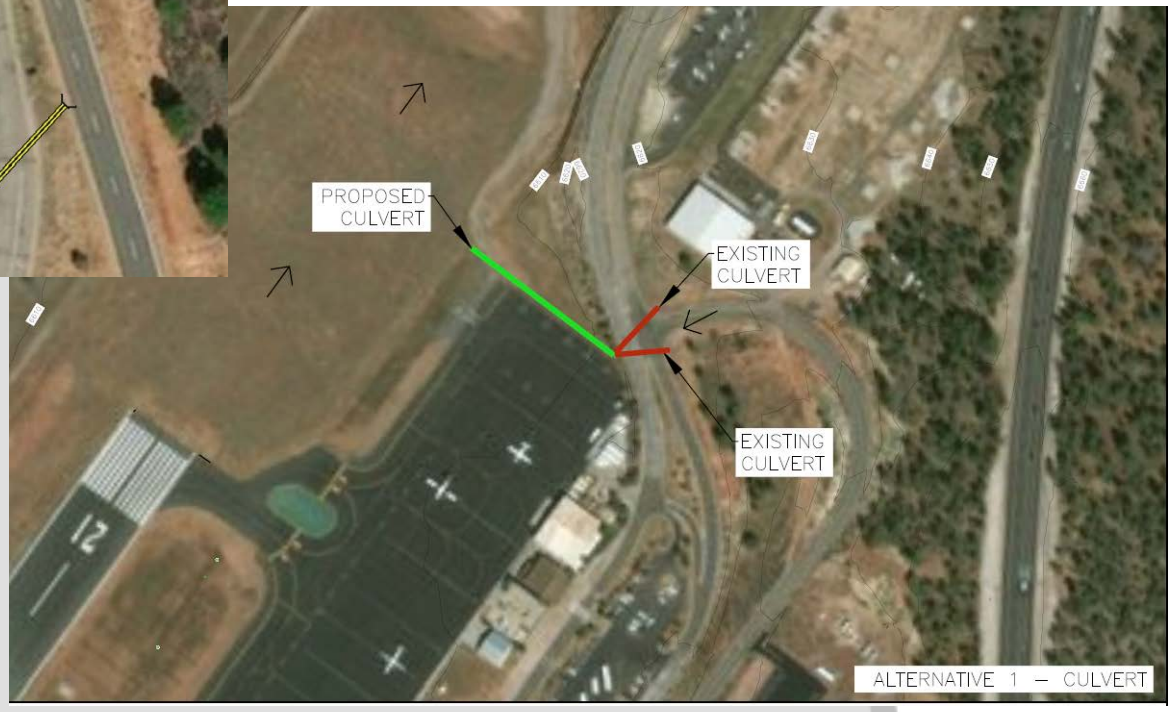
PROJECT ALTERNATIVES

- North Area Drainage (2)
- Infield Culvert Locations (3)
- Taxiway ‘P’ Pavement Weeping (3)
- Rain Tank relocation (2)
- Stormwater Harvesting (3)

NORTH AREA DRAINAGE

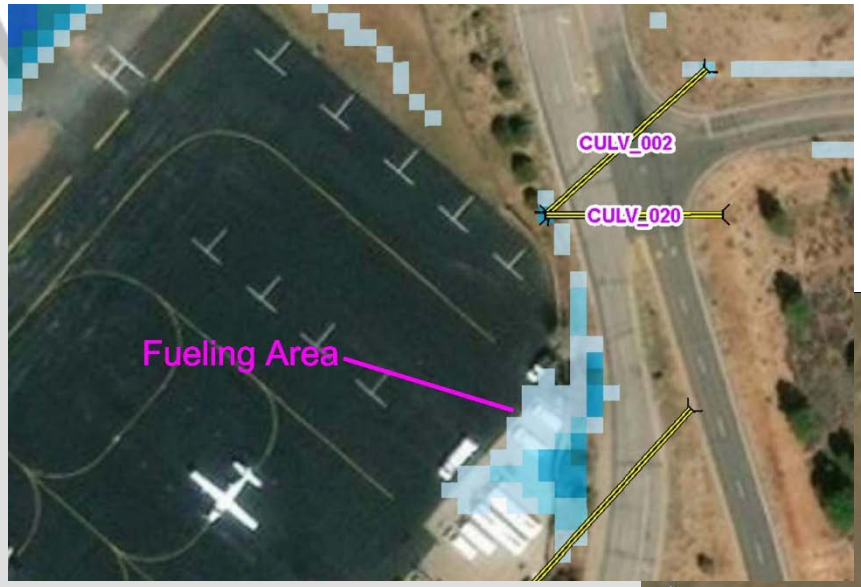
ALT. 1 – INFIELD AREA NEW CULVERT

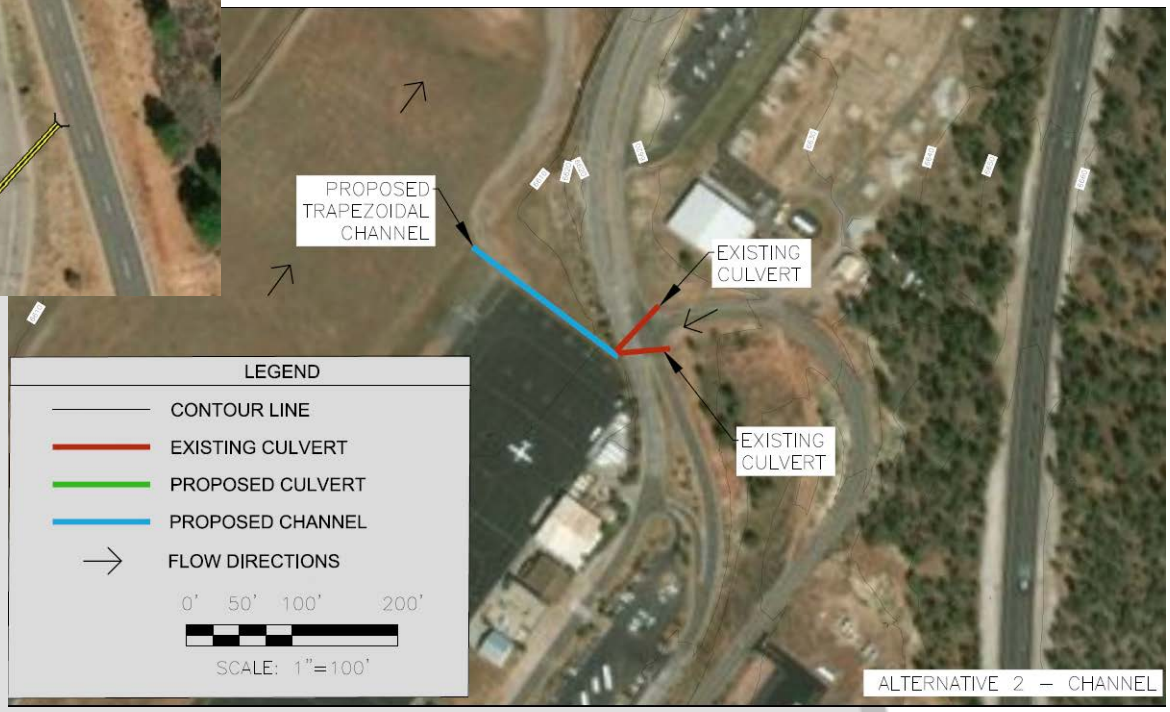




NORTH AREA DRAINAGE

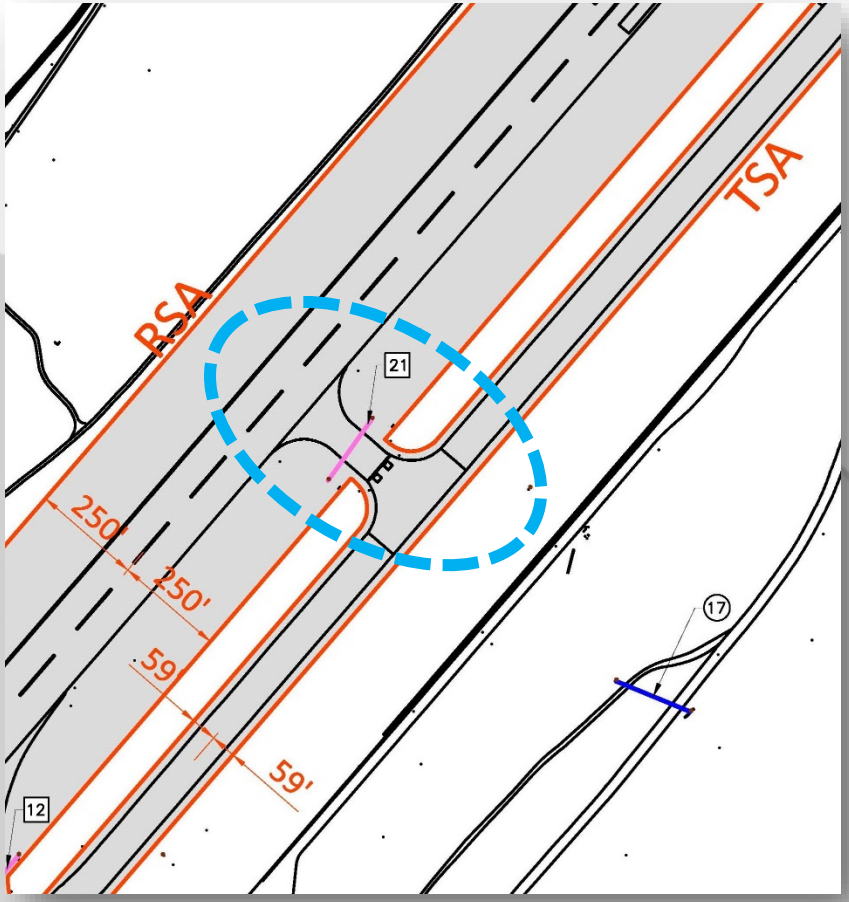
ALT. 2 – INFIELD AREA NEW CHANNEL





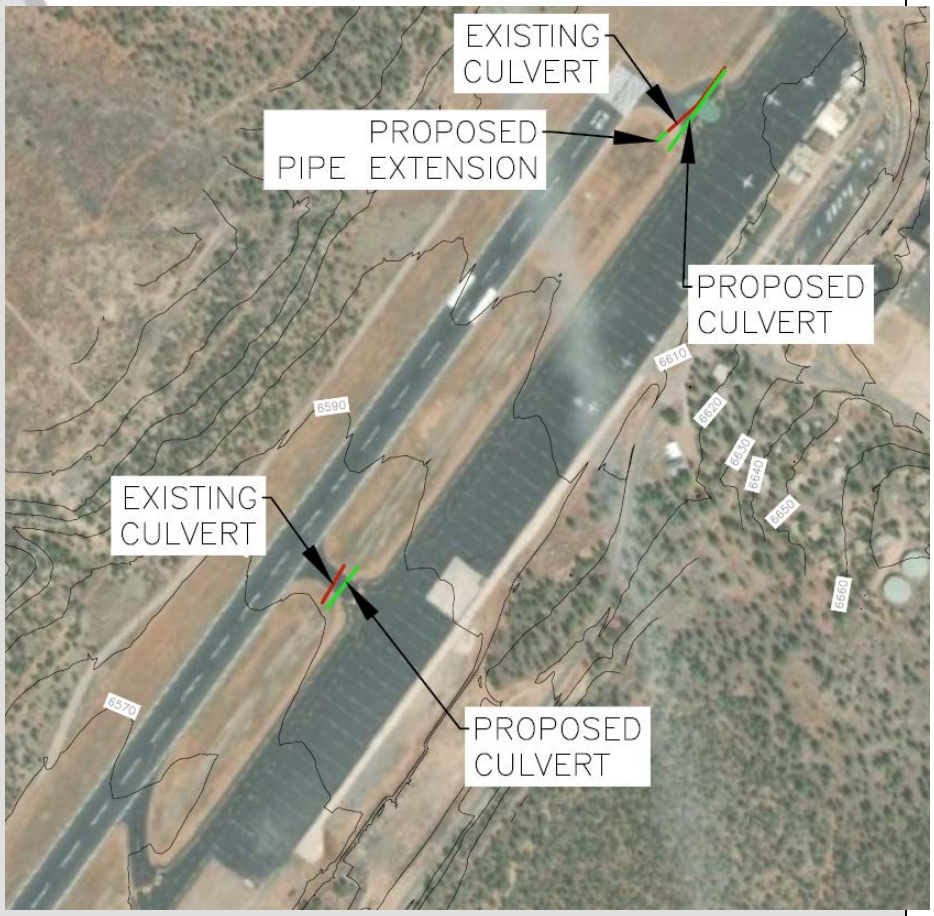
INFIELD CULVERT LOCATIONS

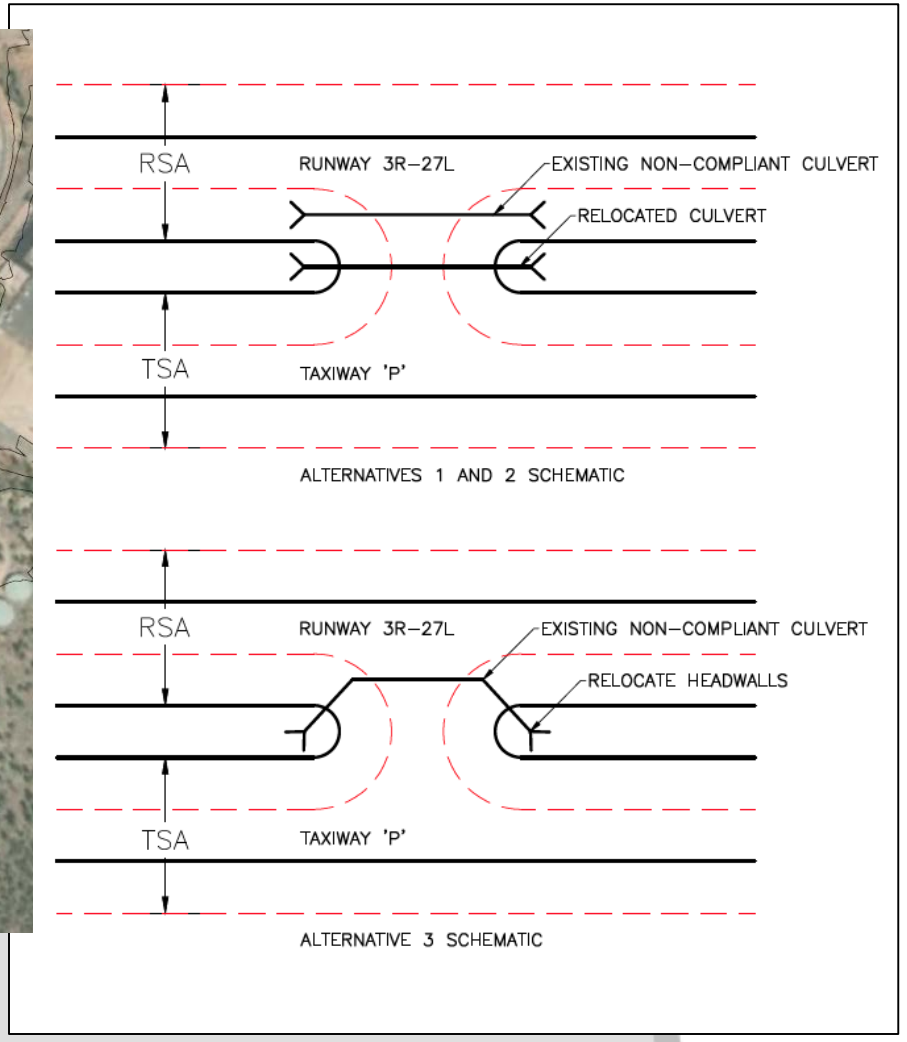
- Six Culverts Located in Runway Safety Area



INFIELD CULVERT LOCATIONS

ALTS 1, 2 AND 3



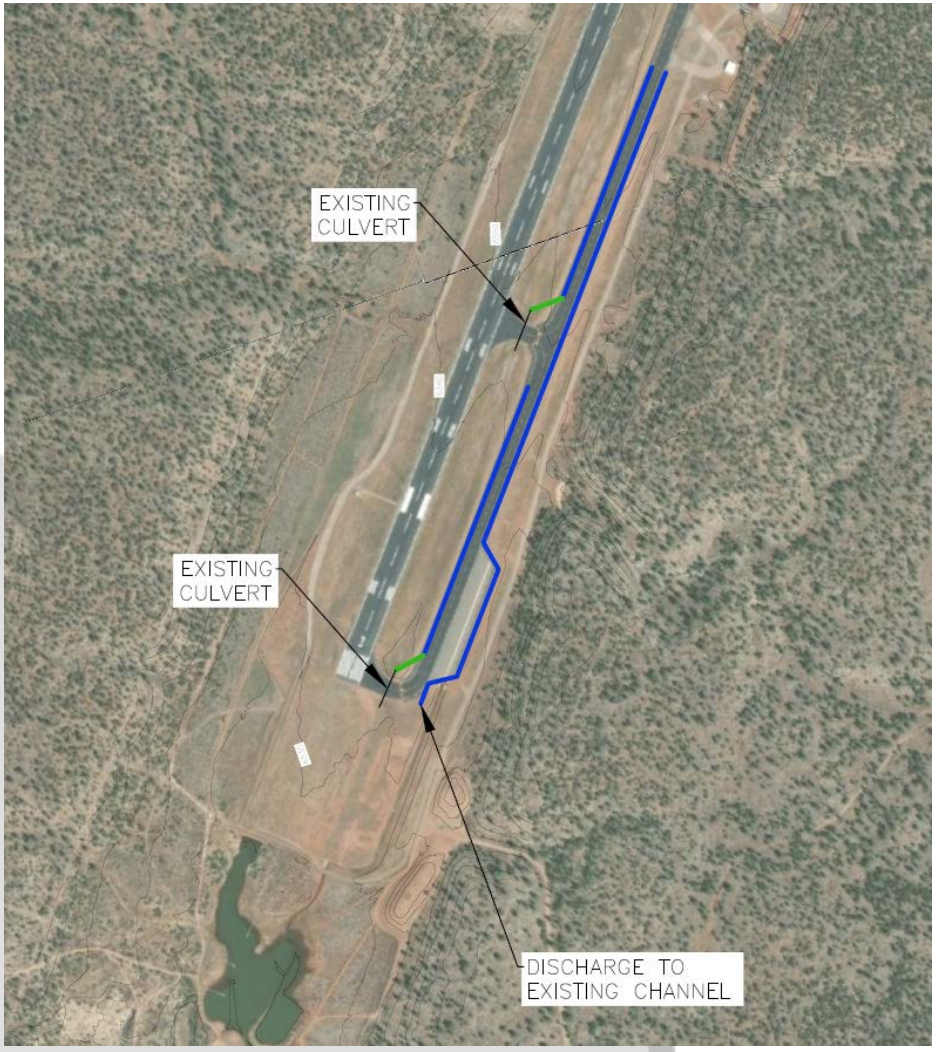


TAXIWAY 'P' PAVEMENT WEEPING

- Likely due to shallow seasonal groundwater

TAXIWAY ‘P’ PAVEMENT WEEPING

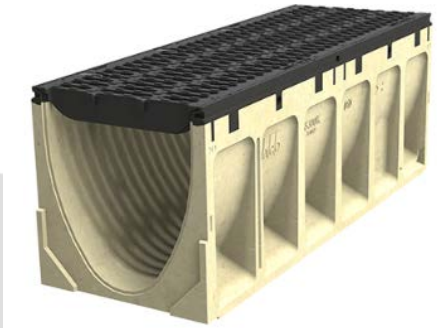
- Install 9,100 feet of Underdrain Systems at Pavement Edge.



TAXIWAY 'P' PAVEMENT WEEPING

ALTERNATIVES 1, 2 AND 3

<u>Alternative 1</u>
Geocomposite
Strip Drains

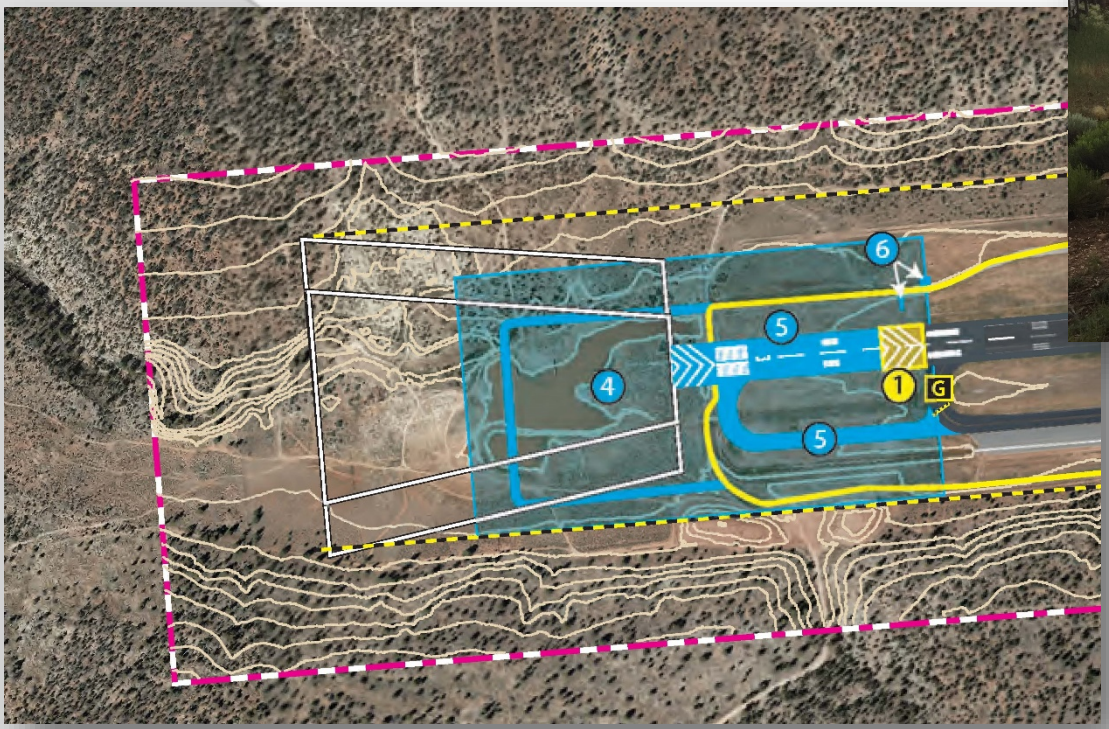


<u>Alternative 2</u>
Trench Drains

<u>Alternative 2</u>
Perforated
Storm Drains

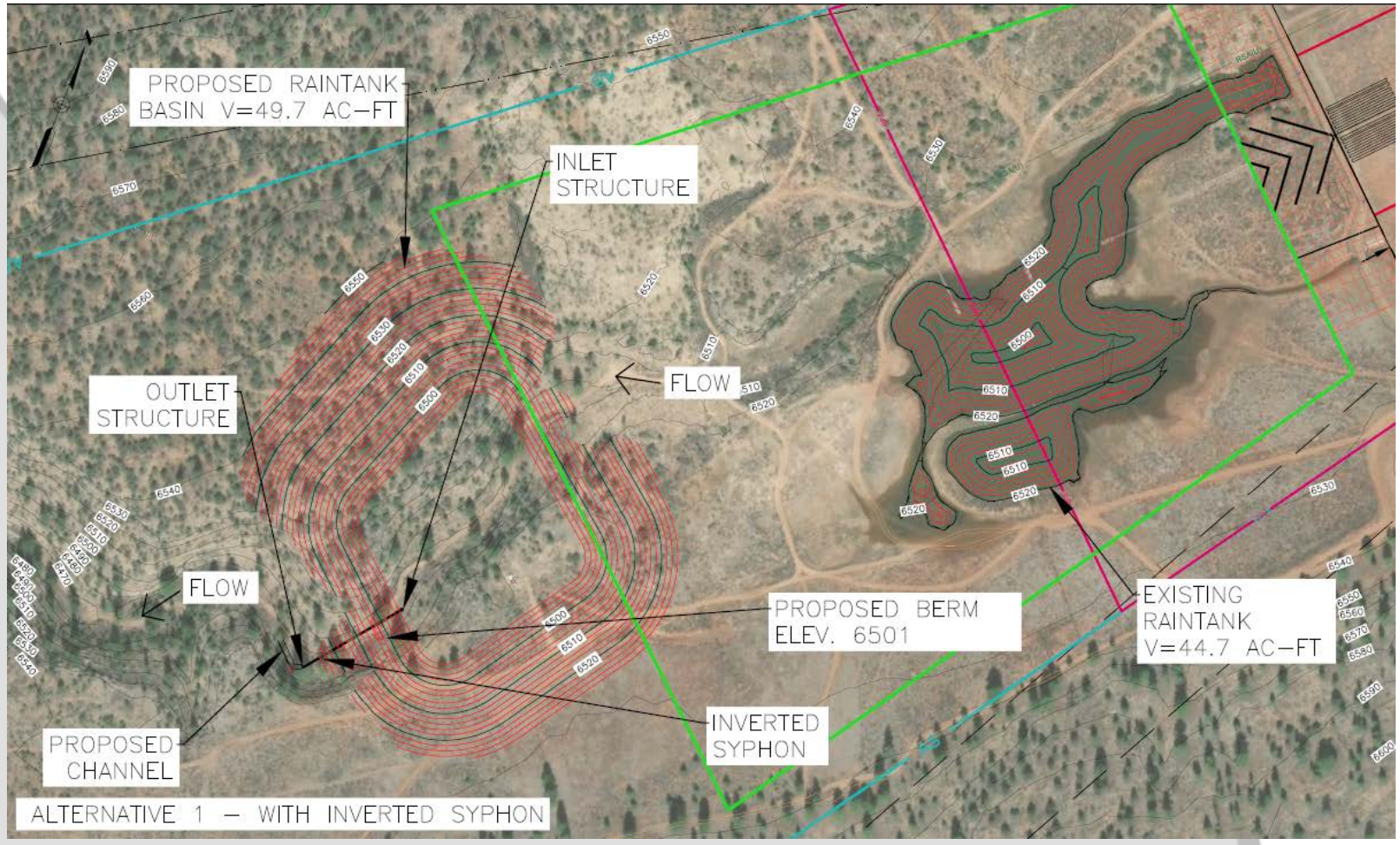
RAIN TANK RELOCATION

- Runway Extension
- Wildlife Attractant
- National Wetland Inventory



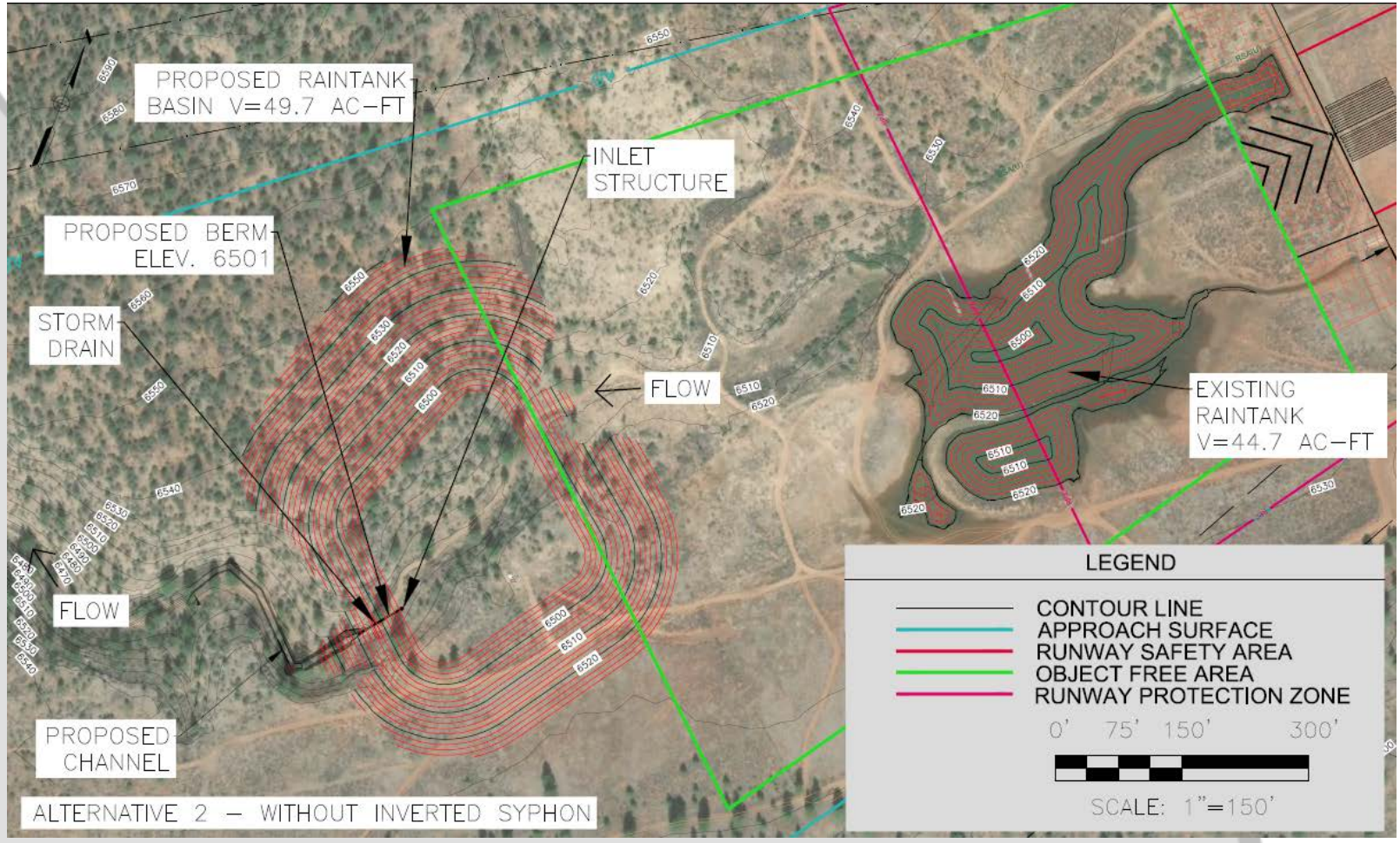
RAIN TANK RELOCATION

ALT. 1 – RELOCATION WITH INVERTED SIPHON



RAIN TANK RELOCATION

ALT. 2 – RELOCATION WITHOUT INVERTED SIPHON



CURRENT WATER USAGE

- Estimated Annual Usage (2008-217) = **1.5 million gallons per year**

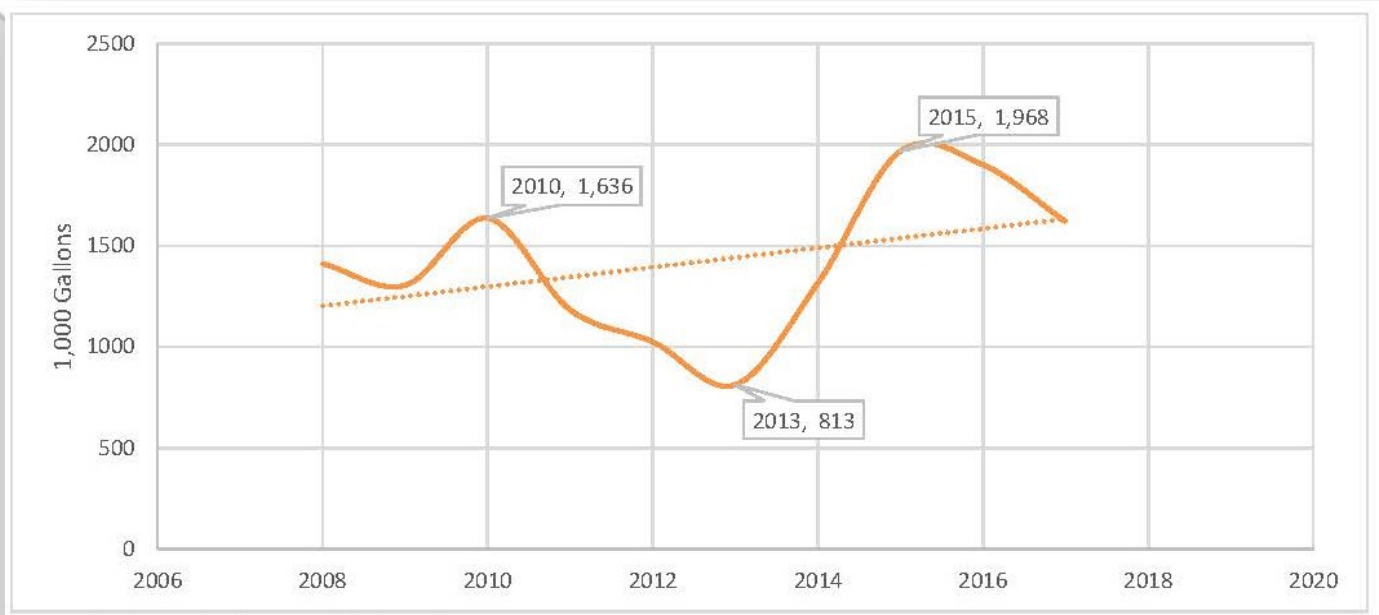
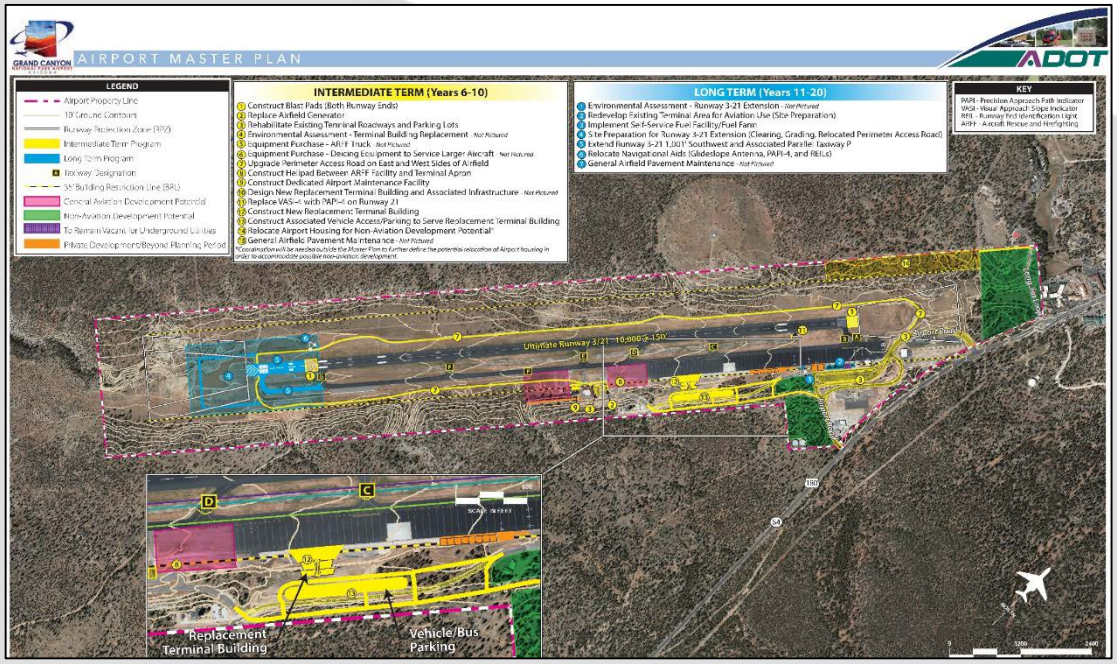


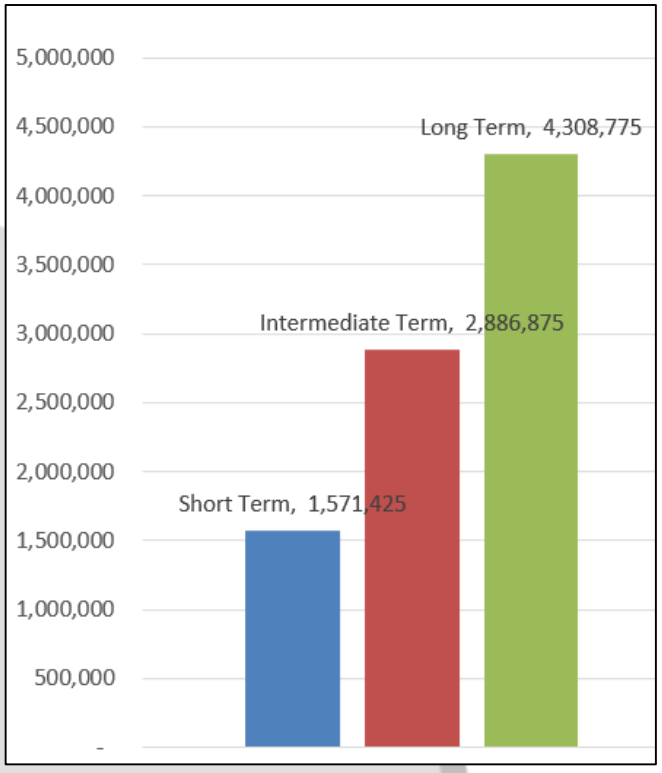
Figure 4.3.5 - Total Annual Water Use

FUTURE WATER USAGE

Based on Airport Master Plan

- Short Term (2018-2022) — 1.57M Gallons per Year
- Intermediate Term (2022-2027) — 2.89M Gallons per Year
- Long Term (2028-2037) — 4.31M Gallons per Year





FORMER & CURRENT WATER SUPPLY

- Formerly Collected from Infield Catchment Area
- **Now from Hydro Resources**
- Reclaimed Water Used by One Tenant

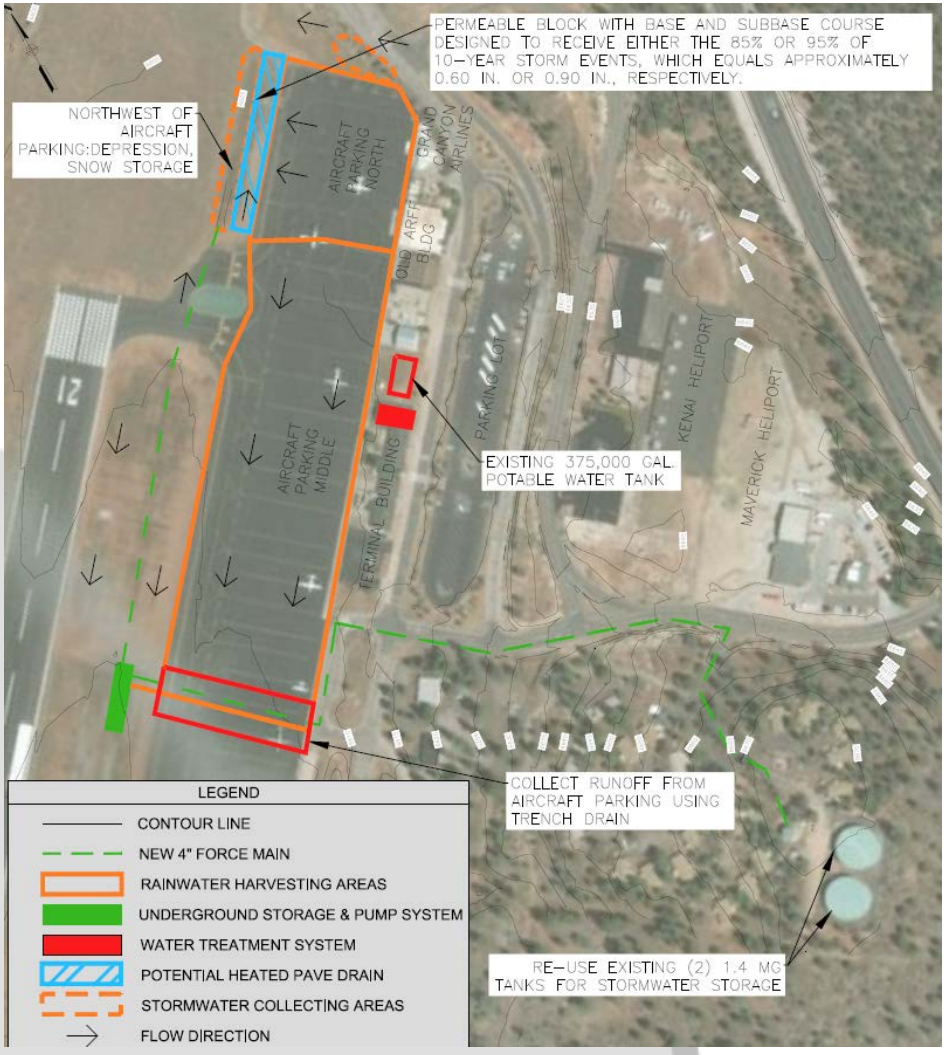
WATER TREATMENT SYSTEM

- Designed to Treat Surface Water
- **Re-Use is Feasible**

STORMWATER HARVESTING

ALT. 1 – INFIELD STORAGE AREA

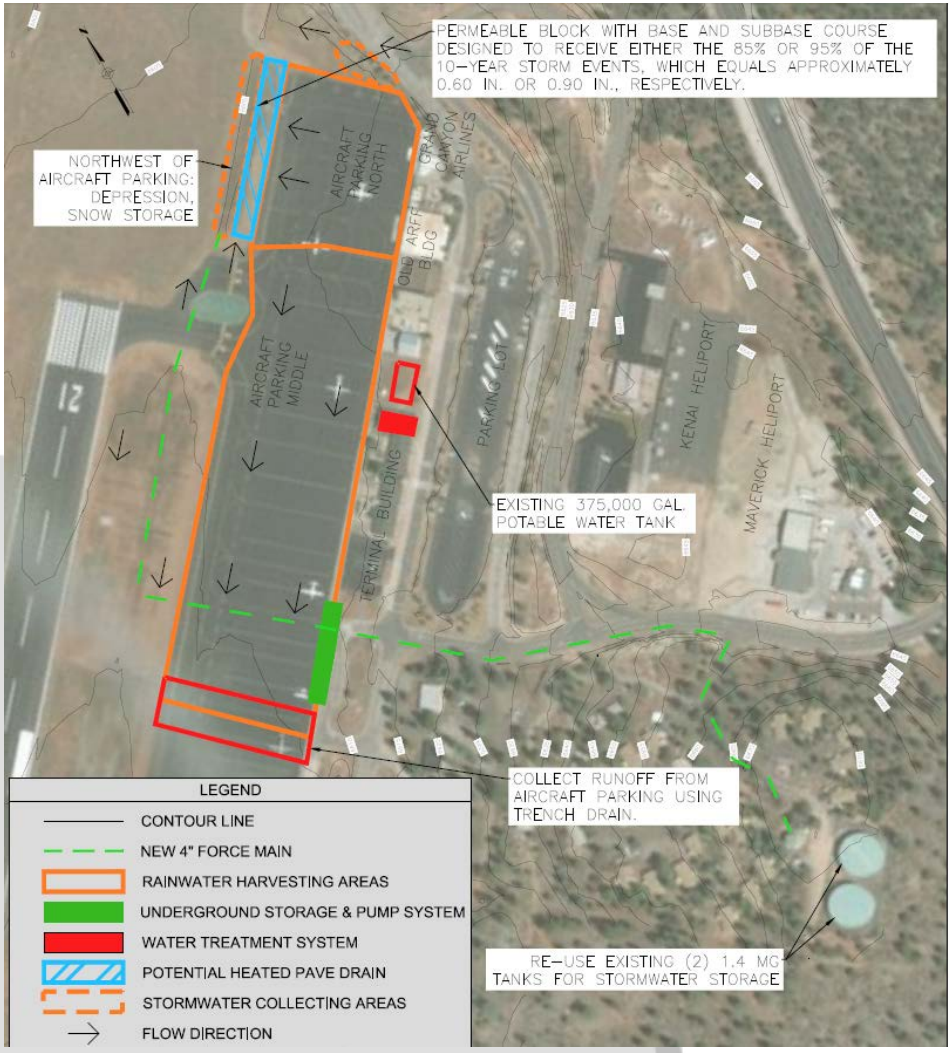
- Collect Stormwater from 25 acres
- Pump from Underground Structure in Infield



STORMWATER HARVESTING

ALT. 2 – APRON STORAGE AREA

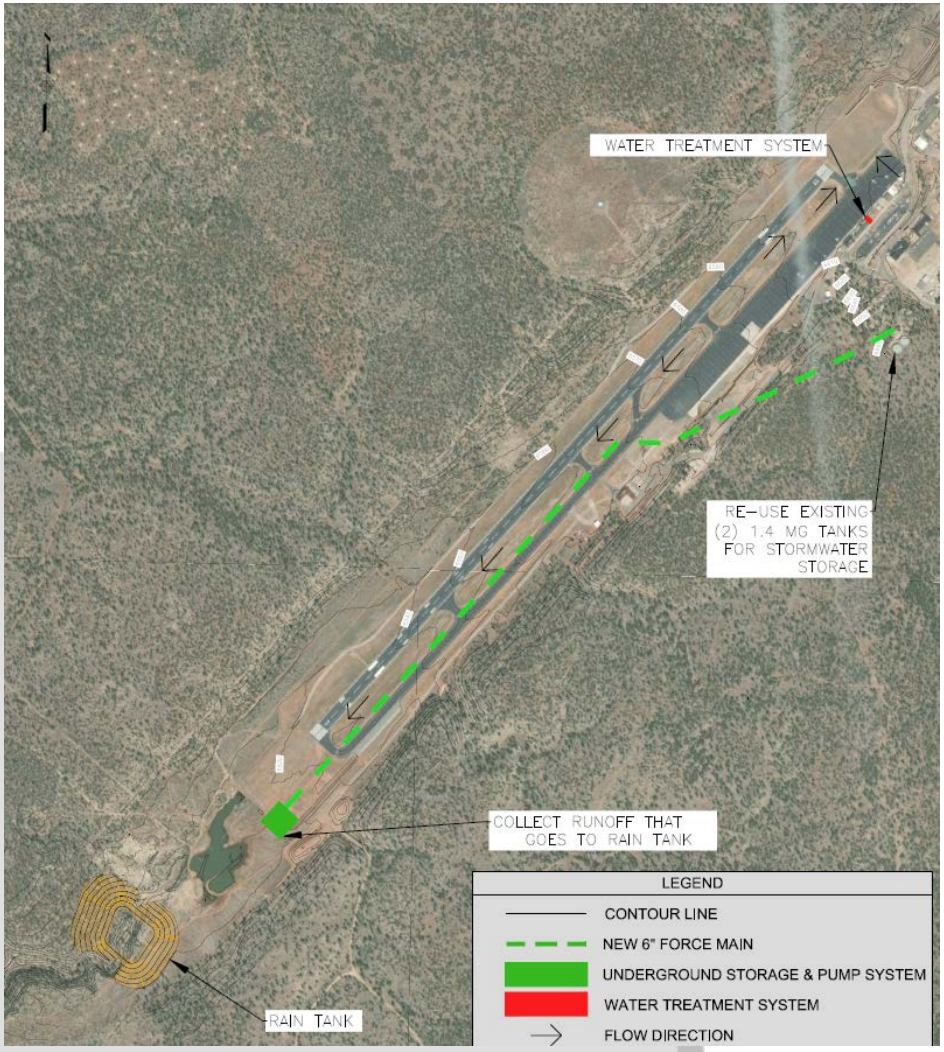
- Collect Stormwater from 25 acres
- Pump from Underground Structure in Apron



STORMWATER HARVESTING

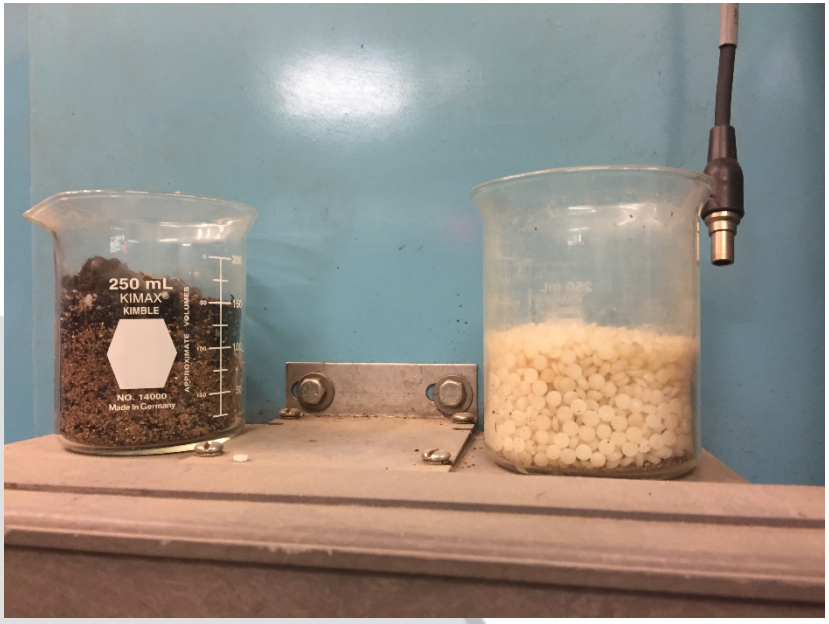
ALT. 3 – COLLECT AT RAIN TANK

- Collect Stormwater at Rain Tank Basin
- Pump 11,000 feet



WATER TREATMENT SYSTEM

- Replacement of Anthracite Filter Media
- Replacement of Sand Filter Media
- Other minor repairs

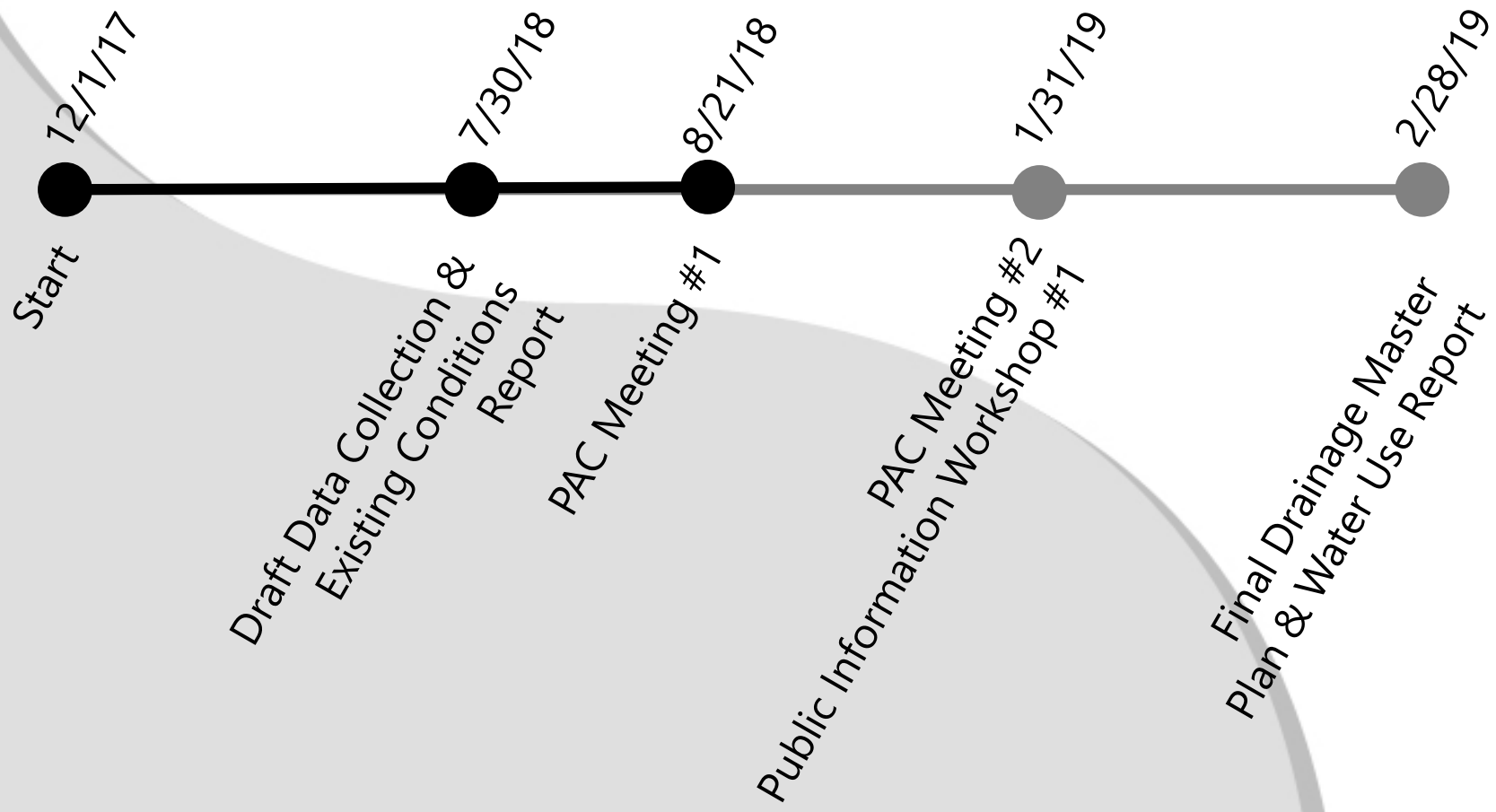


WATER STORAGE

- Re-use of All Tanks
- 1.4 M Gallon Tanks Re-purposed to Stormwater Storage
- Rehabilitation of Pre-Sedimentation Tank

COMMENTS?

NEXT STEPS


12/1/17
Start
7/30/18
Draft Data Collection & Existing Conditions Report
8/21/18
PAC Meeting #1
1/31/19
PAC Meeting #2
Public Information Workshop #1
2/28/19
Final Drainage Master Plan & Water Use Report