

# Alamo Wash Alternative Presentation

Stakeholder Meeting # 2

March 1, 2019



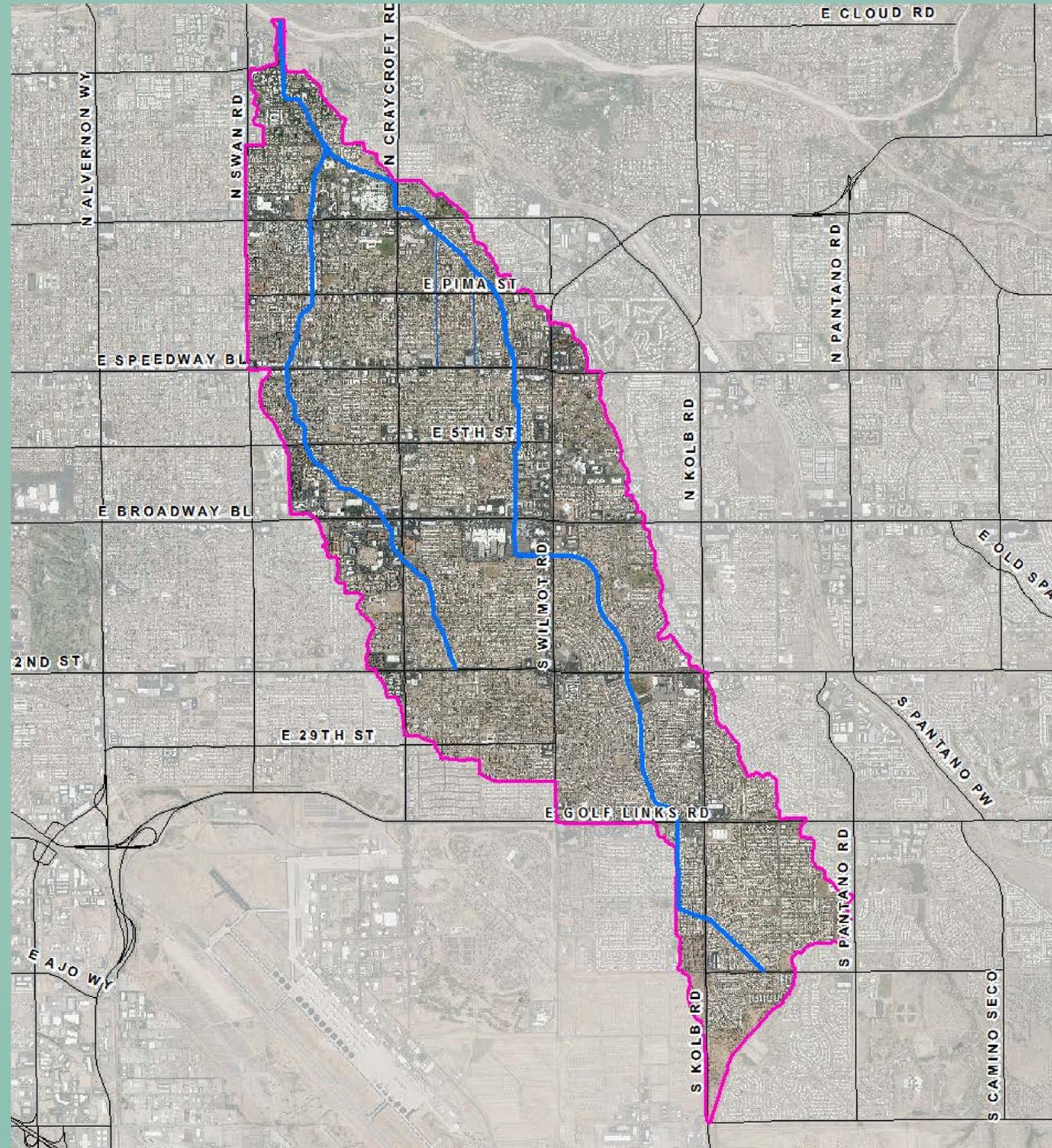
# Welcome

- Agenda
  - ❖ Introductions
  - ❖ Project Overview
  - ❖ Workshop Format
  - ❖ Alternatives Scoring
  - ❖ Break
  - ❖ Alternatives Scoring
  - ❖ Lunch
  - ❖ Alternatives Scoring
  - ❖ Adjourn



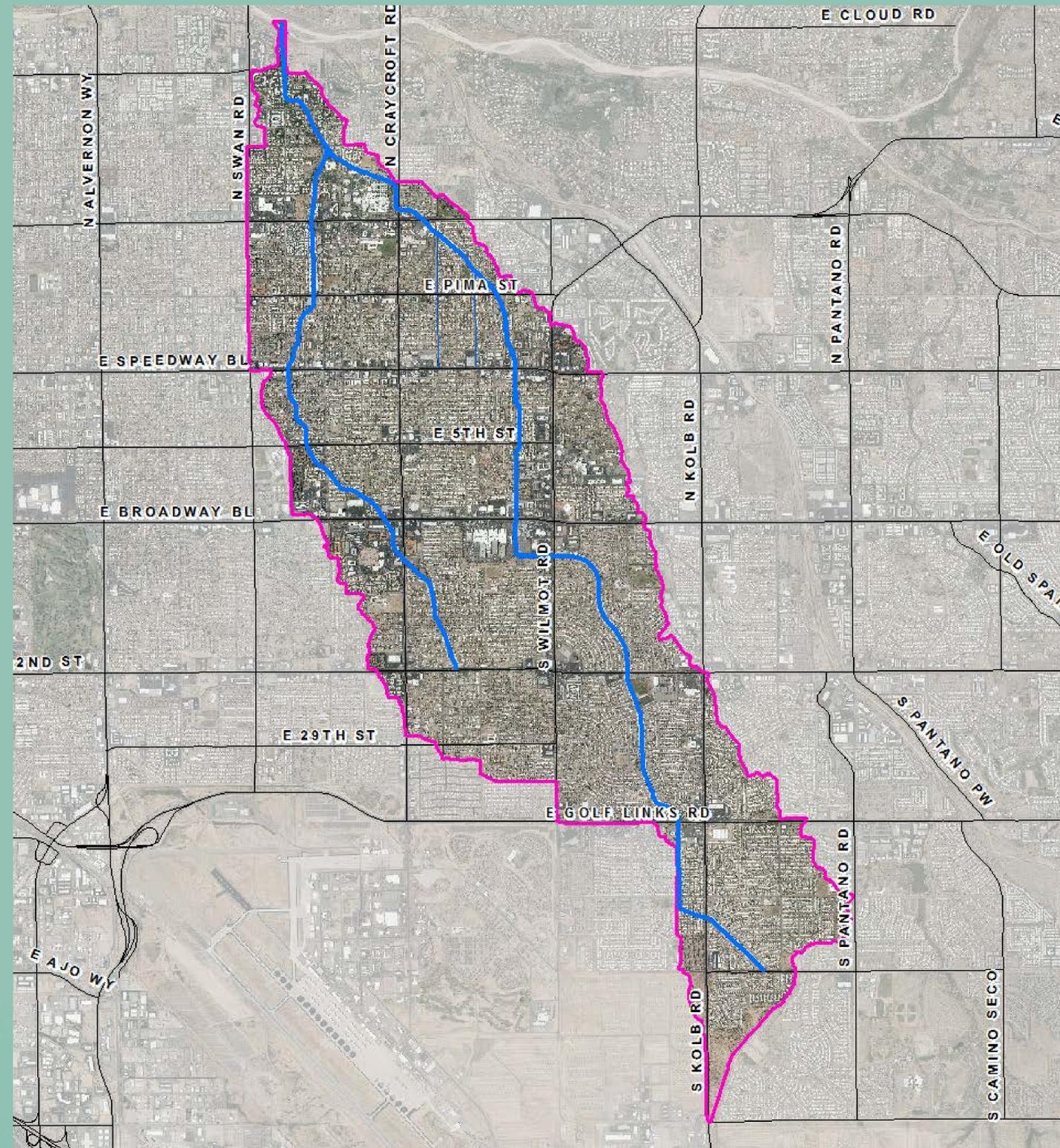
# Study Area

- 9.6 Square Miles
- Alamo Wash
- Arcadia Wash
- Sahuara Wash
- Van Buren Wash



# Project Purpose

- Identify Flood Hazard Areas
- Identify Flood Hazard Problems
- Identify Cost Effective Solutions
- Improve Public Safety
- Create Development Guidance
- Provide a Balanced Approach to Manage the Watershed

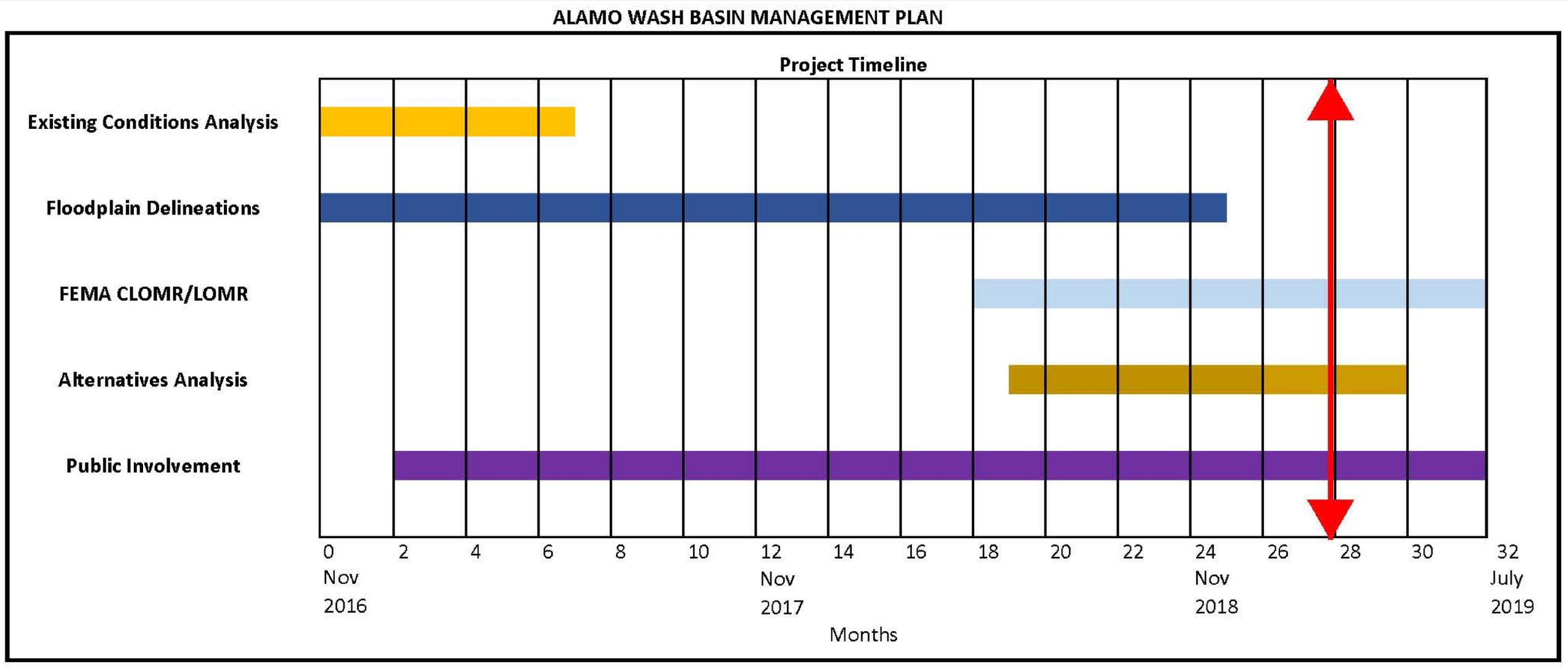


# •Project Team

- ❖ Pima County Regional Flood Control District
- ❖ City of Tucson
- ❖ CMG Drainage Engineering Inc.
- ❖ JE Fuller Hydrology & Geomorphology Inc.
- ❖ Ashby Surveying
- ❖ Wheat Design Group
- ❖ Kaneen Communications



# Alamo Wash Basin Management Study



# Analysis Overview

- 1,285,258 - 15' x 15' grids elements- (10.4 mi<sup>2</sup>)
- 46 bridges & culverts
- 26 miles of storm drain
- ~1,000 storm drain inlets, manholes and junctions
- 14 miles of 1-D channel modeling
- Approximately 1,700 man hours of modeling
- 111 Open House comments
- 154 drainage complaints



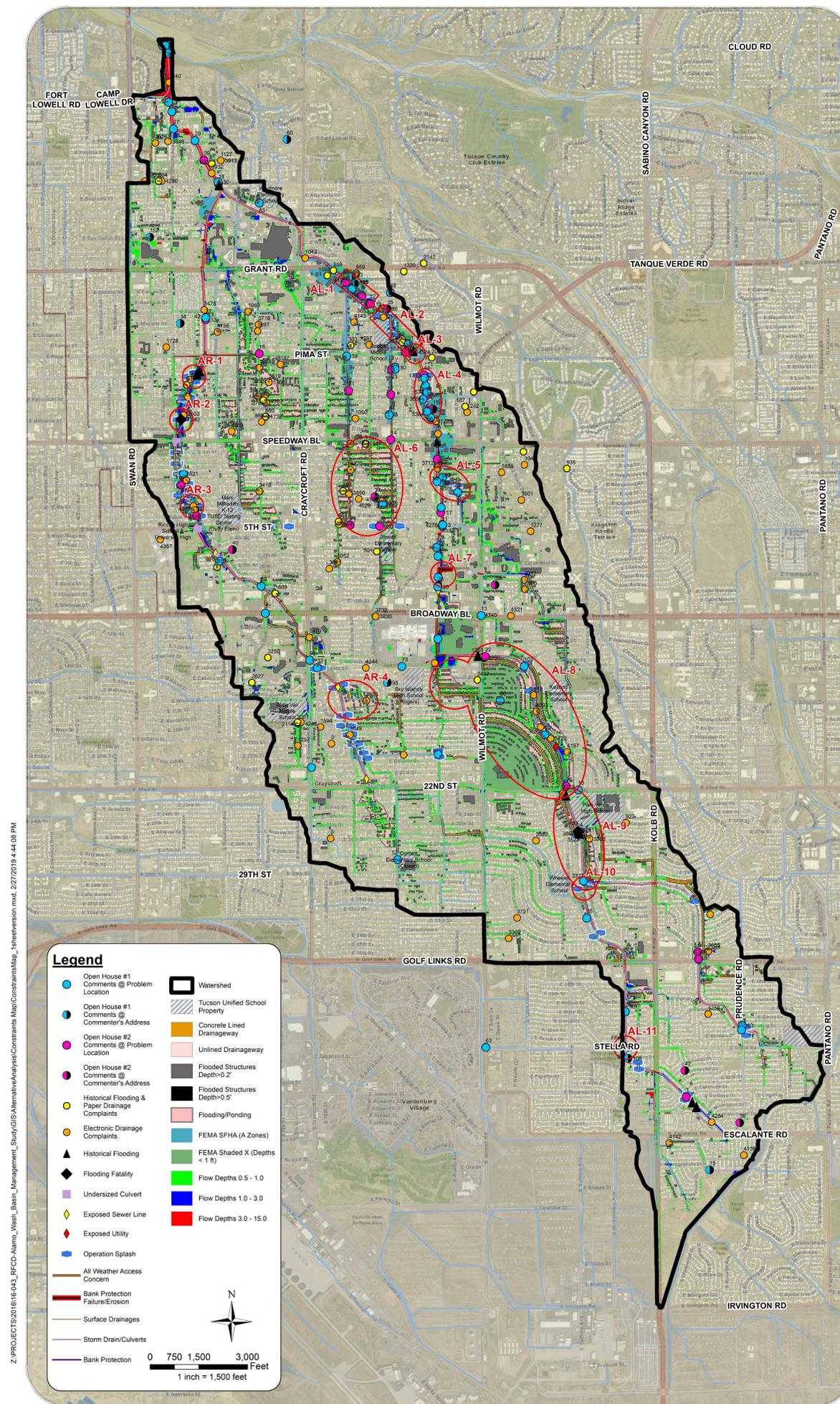
# Flood Hazards

- All weather access concerns 116 streets
- 38 Dip sections (17 Alamo Wash, 21 Arcadia Wash)
- 9 Documented swift water rescues (5 Alamo Wash, 4 Arcadia Wash)
- 3 Fatalities (2 Alamo Wash, 1 Arcadia Wash)
- 10 Bank erosion areas (9 Alamo Wash, 1 Arcadia Wash)
- 11 Exposed utilities ( 5 Alamo Wash, 6 Arcadia Wash)
- Up to 2,123 structures could be impacted by floods



# Constraints Map

- Shows all constraints encountered during the study
- Examples of constraints
  - Public comments
  - Flooding hazards
  - Swift water rescues
  - Fatalities
  - Erosion
  - Affected structures
  - All weather access
- Used to help identify the top 15 problem areas



**ALAMO WASH EXISTING CONSTRAINTS MAP**  
ALAMO WASH - BASIN MANAGEMENT PLAN

PROJECT NO.  
16-043  
DRAWING NAME  
ConstraintsMap\_15thRevision.mxd



# Why are you here?

- Help us rank the alternatives based on the evaluation criteria
- This group provides a wide range of interests and expertise
- To provide your objective opinion



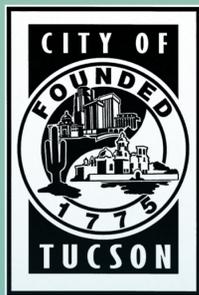
# Next Steps

- Evaluate scoring of drainage improvement alternatives
- Provide further assessment on selected alternatives
- Develop Drainage Basin Management Plan
- Open House #3 – Spring 2019



# Basin Management Plan will have Basin-Wide recommendations not covered in the Alternatives Analysis

- Law enforcement
  - Homeless Camps
  - Drug Use
  - Dumping
  - Vandalism
- Maintenance Practices
  - Routine Maintenance
  - Vegetation Control
  - Fire Hazard Maintenance
- City Policies
  - Development Standards
  - Wash Ordinance
  - Green Infrastructure Planning



# Workshop Format & Scoring Process

- 15 Problem Area Packets
  - Locator Map
  - Evaluation Sheet to Score Each Alternative
  - Comment Page
  - Background Information
  - Descriptions of One to Four Alternative Mitigation Measures
- Will Work Through Each Problem Area Packet Together as a Group



# Alternative Scoring

- Scoring: 5 = BEST  
1 = WORST
- Each Alternative Will Be Scored for Each Category
- Record a ONE Number Score (1-5) in Each Box
- Alternatives are to be Scored WITHOUT REGARD to COST



Alamo Wash BMP Individual Problem Area Evaluation Table				
Problem Area : #	(Existing problem statement)			
Alternative Evaluation Categories	Alternative No. 1	Alternative No. 2	Alternative No. 3	Alternative No. 4
Evaluation Rating: 5=Exceptional, 4=Very Good, 3=Satisfactory, 2=Marginal, 1=Unsatisfactory				
<b>PUBLIC SAFETY - Ranking Weight (24%)</b>				
<u>Evaluation Criteria Examples:</u> • Mitigates Life-threatening Flood Hazards • Promotes Public Awareness of Flooding Hazard • Restricts Vehicular & Pedestrian Access to Potentially Hazardous Infrastructure • Mitigates Hazards of Exposed Utilities	Evaluation Rating (1-5)	Evaluation Rating (1-5)	Evaluation Rating (1-5)	Evaluation Rating (1-5)
<b>INFRASTRUCTURE &amp; MAINTENANCE - Ranking Weight (18%)</b>				
<u>Evaluation Criteria Examples:</u> • Repairs Serious Public Infrastructure Deficiencies • Improves Channel Conveyance/Stability/Erosion Protection • Reduces Downstream Peak Discharges and/or Runoff Volumes • Improves Maintenance Feasibility • Minimizes Maintenance Needs and Intensive Maintenance Practices • Uses Existing Right-of-Way or Other Public Lands • Project Identified/Designed in Other Study • Minimizes Major Utility Conflicts	Evaluation Rating (1-5)	Evaluation Rating (1-5)	Evaluation Rating (1-5)	Evaluation Rating (1-5)
<b>HABITABLE STRUCTURE FLOODING - Ranking Weight (23%)</b>				
<u>Evaluation Criteria Examples:</u> • Reduces Flood Risk to Buildings - Prevents less than 3 Buildings from Flooding (lowest score) - Prevents between 3 - 5 Buildings from Flooding (higher score) - Prevents more than 5 Buildings from Flooding (highest score) • Reduces Flood Risk to Buildings in FEMA Floodplain (higher score)	Evaluation Rating (1-5)	Evaluation Rating (1-5)	Evaluation Rating (1-5)	Evaluation Rating (1-5)
<b>ROADWAY ACCESS DURING FLOOD EVENTS - Ranking Weight (19%)</b>				
<u>Evaluation Criteria Examples:</u> • Provides All-weather Access • Improves Emergency Response • Reduces Disruptions to Normal Traffic, Public Transit & School Bus Operations	Evaluation Rating (1-5)	Evaluation Rating (1-5)	Evaluation Rating (1-5)	Evaluation Rating (1-5)
<b>ENVIRONMENT-RECREATION-COMMUNITY - Ranking Weight (16%)</b>				
<u>Evaluation Criteria Examples:</u> • Preserves Natural Areas • Provides Environmental Enhancement or Recreational Opportunities • Promotes Beneficial Use of Stormwater for Wildlife & Human Habitat • Maximizes Community Connectivity, Access and Use of Multi-modal Transportation • Minimizes Disruptions to Operations/Commerce During Construction • Addresses Previous Drainage Complaints/Public Comments • Is Compatible with a Known Public Improvement Program or Neighborhood Initiative	Evaluation Rating (1-5)	Evaluation Rating (1-5)	Evaluation Rating (1-5)	Evaluation Rating (1-5)

March 1, 2019



# Alamo Wash Alternative Categories & Weighting per OH #2 Feedback Forms –

The second Alamo Wash BMP Public Open House was held on October 23, 2017. Below are the weighted results of the community feedback from the Open House ranking the public concerns.

## Alamo Wash Basin Management Study



**Open House #2**  
Dodge Middle School, 5831 E. Pima Street  
Monday, October 23, 2017



FEEDBACK FORM

The next step will be to develop a plan for cost-effective solutions to reduce or manage flooding in the project area. In addition to the technical evaluation, we would like your input on rating criteria. See below.

Rank the following criteria as 1-6, with **1 being the most important consideration** and 6 being the least important consideration. No duplication of numbers, please.

<input type="checkbox"/>	<input type="checkbox"/>				
SAFETY	MAINTENANCE	REDUCED FLOODING	COST-EFFECTIVE	ROADWAY ACCESS DURING FLOOD EVENTS	ENVIRONMENTAL PRESERVATION/RESTORATION

If you have comments or questions, please share them below and return this form to the sign-in or comment tables before leaving. You may also return it by email or mail. Thank you!

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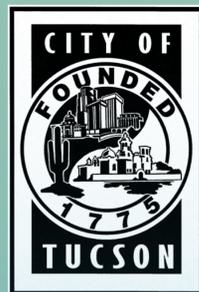
Optional:

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

PHONE \_\_\_\_\_ EMAIL \_\_\_\_\_

Return to: Nanette Pageau, 100 N. Stone Avenue, #450, Tucson, AZ 85701, or Nanette@kaneenpr.com



2/27/2019

### Alamo Open House #2 Public Feedback Results

RANKING*	1	2	3	4	5	Total No. of Responses
Public Safety	13	13	12	9	2	49
Maintenance	7	8	11	11	12	49
Reduced Flooding	16	10	8	10	5	49
Roadway Access	6	11	9	13	10	49
Enviro Pres.	7	7	9	6	20	49
<b>Totals</b>	49	49	49	49	49	

\* Ranking: 1 is most important, 5 is least important

### Alamo Wash BMP - Alternative Category Weighting Based on Open House #2 Public Feedback Forms

RANKING (Updated Category Names)	1 (5pts ea.)	2 (4pts ea.)	3 (3pts ea.)	4 (2pts ea.)	5 (1pt ea.)	Category Score Totals	Fraction of Max Score of 245	Category Ranking Weight
Public Safety	65	52	36	18	2	173	0.71	24%
Infrastructure & Maintenance	35	32	33	22	12	134	0.55	18%
Habitable Structure Flooding	80	40	24	20	5	169	0.69	23%
Roadway Access During Flood Events	30	44	27	26	10	137	0.56	19%
Environment-Recreation-Community	35	28	27	12	20	122	0.50	16%
<b>Totals</b>	245	196	147	98	49		3	100%



# Public Safety Evaluation Criteria

## **PUBLIC SAFETY - Ranking Weight (24%)**

### Evaluation Criteria Examples:

- Mitigates Life-threatening Flood Hazards
- Promotes Public Awareness of Flooding Hazard
- Restricts Vehicular & Pedestrian Access to Potentially Hazardous Infrastructure
- Mitigates Hazards of Exposed Utilities



# Infrastructure and Maintenance Evaluation Criteria

## **INFRASTRUCTURE & MAINTENANCE - Ranking Weight (18%)**

### Evaluation Criteria Examples:

- Repairs Serious Public Infrastructure Deficiencies
- Improves Channel Conveyance/Stability/Erosion Protection
- Reduces Downstream Peak Discharges and/or Runoff Volumes
- Improves Maintenance Feasibility
- Minimizes Maintenance Needs and Intensive Maintenance Practices
- Uses Existing Right-of-Way or Other Public Lands
- Project Identified/Designed in Other Study
- Minimizes Major Utility Conflicts



# Habitable Structure Flooding Evaluation Criteria

## **HABITABLE STRUCTURE FLOODING - Ranking Weight (23%)**

### Evaluation Criteria Examples:

- Reduces Flood Risk to Buildings
  - Prevents less than 3 Buildings from Flooding (lowest score)
  - Prevents between 3 - 5 Buildings from Flooding (higher score)
  - Prevents more than 5 Buildings from Flooding (highest score)
- Reduces Flood Risk to Buildings in FEMA Floodplain (higher score)



# Roadway Access During Flooding Evaluation Criteria

## **ROADWAY ACCESS DURING FLOOD EVENTS - Ranking Weight (19%)**

### Evaluation Criteria Examples:

- Provides All-weather Access
- Improves Emergency Response
- Reduces Disruptions to Normal Traffic, Public Transit & School Bus Operations



# Environmental-Recreational-Community Evaluation Criteria

## **ENVIRONMENT-RECREATION-COMMUNITY - Ranking Weight (16%)**

### Evaluation Criteria Examples:

- Preserves Natural Areas
- Provides Environmental Enhancement or Recreational Opportunities
- Promotes Beneficial Use of Stormwater for Wildlife & Human Habitat
- Maximizes Community Connectivity, Access and Use of Multi-modal Transportation
- Minimizes Disruptions to Operations/Commerce During Construction
- Addresses Previous Drainage Complaints/Public Comments
- Is Compatible with a Known Public Improvement Program or Neighborhood Initiative



# Alternatives



# Alamo Wash Basin Management Study

Terry Hendricks, Project Manager  
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Tucson, Arizona 85701-1207  
(520) 724-4600  
Email: [Terry.Hendricks@Pima.gov](mailto:Terry.Hendricks@Pima.gov)



# Thank You!

