

# WILLIS CREEK

## CONTINUING AUTHORITIES PROGRAM SECTION 205 – FLOOD DAMAGE REDUCTION

May 24, 2016

**Jon Loxley**

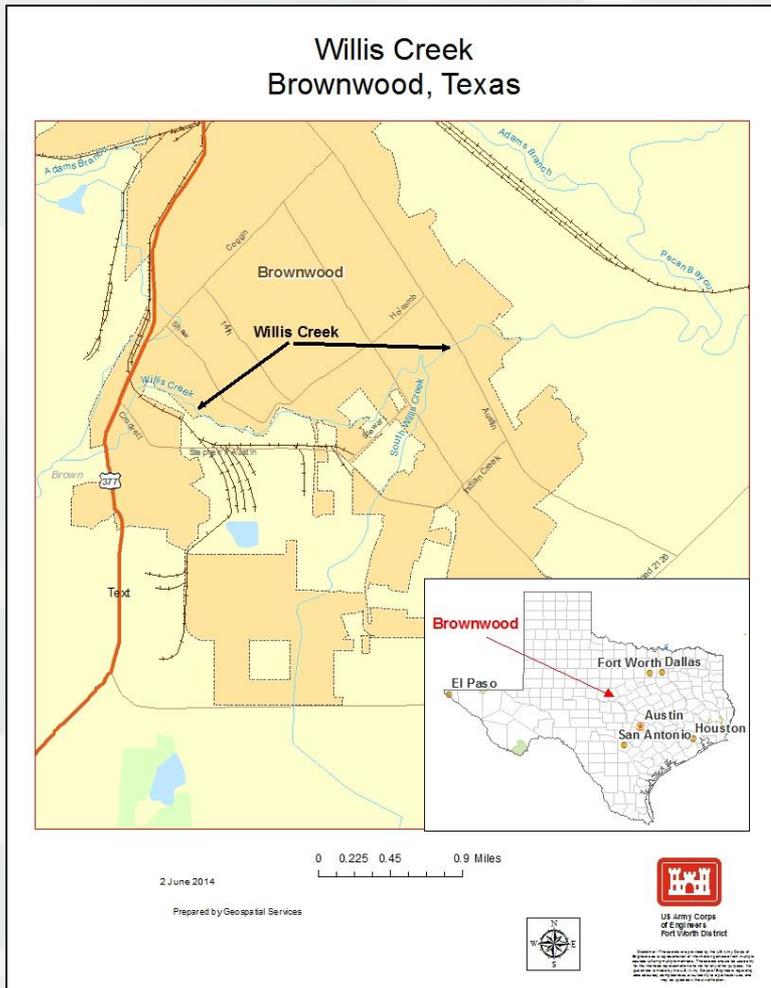
Program Manager  
Continuing Authorities Program  
Fort Worth District  
U.S. Army Corps of Engineers



US Army Corps of Engineers  
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# Willis Creek Presentation Outline



- Willis Creek Flooding
- Project Timeline
- Previous Recommendation
- Current Approach
- Next Steps
- Remaining Timeline



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# Willis Creek Flooding Problem



- City of Brownwood has experienced damages and loss of life from Willis Creek flooding
  - 1990, 1991, 2000, and 2015
- Economic damages >\$10 Million



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# Willis Creek Flooding Problem

Willis Creek, Brownwood, Texas Damagable Structures



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# Willis Creek Project Timeline

- USACE completed a study of Willis Creek in 2003
  - City Council decided against moving forward with 2003 Recommended Alternative
- Late 2014 City of Brownwood entered into an agreement with USACE to re-examine feasibility of 2003 Recommended Alternative
  - Ensure the cost-to-benefit ratio was justifiable
  - Update floodplain to current conditions
  - Design channel to carry 1% chance flood event (100-yr)
  - Incorporate environmental mitigation features



# Willis Creek – 2003 Recommended Plan

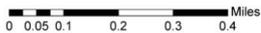


- Approx. 3 miles of Willis Creek
- Contained 100 year flows
- One-side constructed channel
- Central reach bypass



US Army Corps of Engineers  
Fort Worth District  
Geospatial Services

1 inch = 0.07 miles



Willis Creek Channel Improvement  
Brownwood, Texas  
Colorado Basin  
Pecan Bayou Watershed

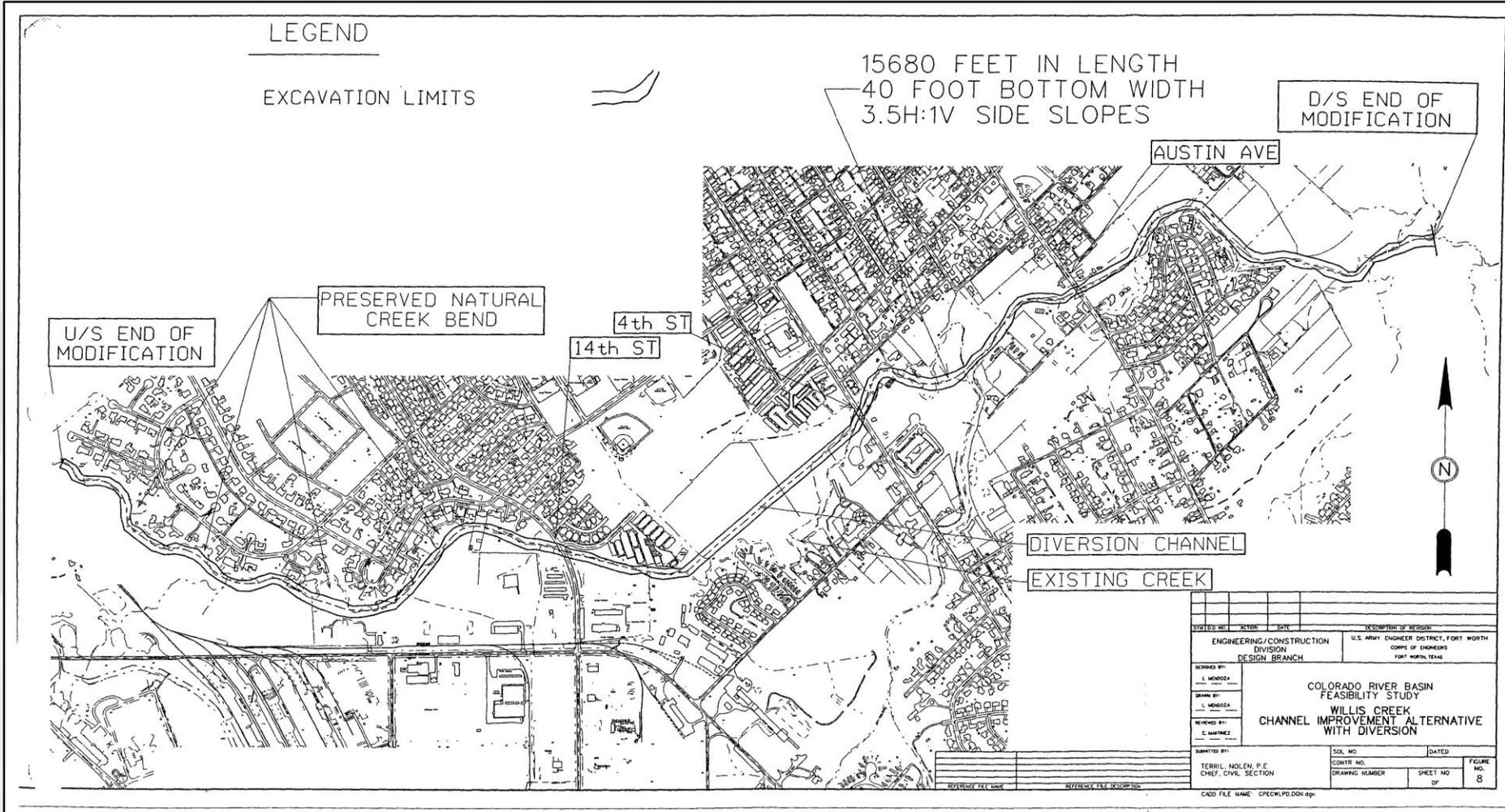


Document Name: Willis\_Cr\_Broad  
Author: Jeff Evans, GIS Analyst  
ES: Kanganis, Section Chief  
Coordinate System: NAD 1983 TexasPlane Texas Central FIPS 4203 Feet  
Projection: Lambert Conformal Conic  
Datum: North American 1983  
False Easting: 2,296,593.3333  
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Central Meridian: -100.3333  
Standard Parallel 1: 30.1167  
Standard Parallel 2: 31.8833  
Latitude Of Origin: 29.6667  
Units: Foot US  
Source: Esri/DeLorme, DigitalGlobe, ESRI



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# Willis Creek – 2003 Recommended Plan



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# Willis Creek – 2015 Alternative Channel

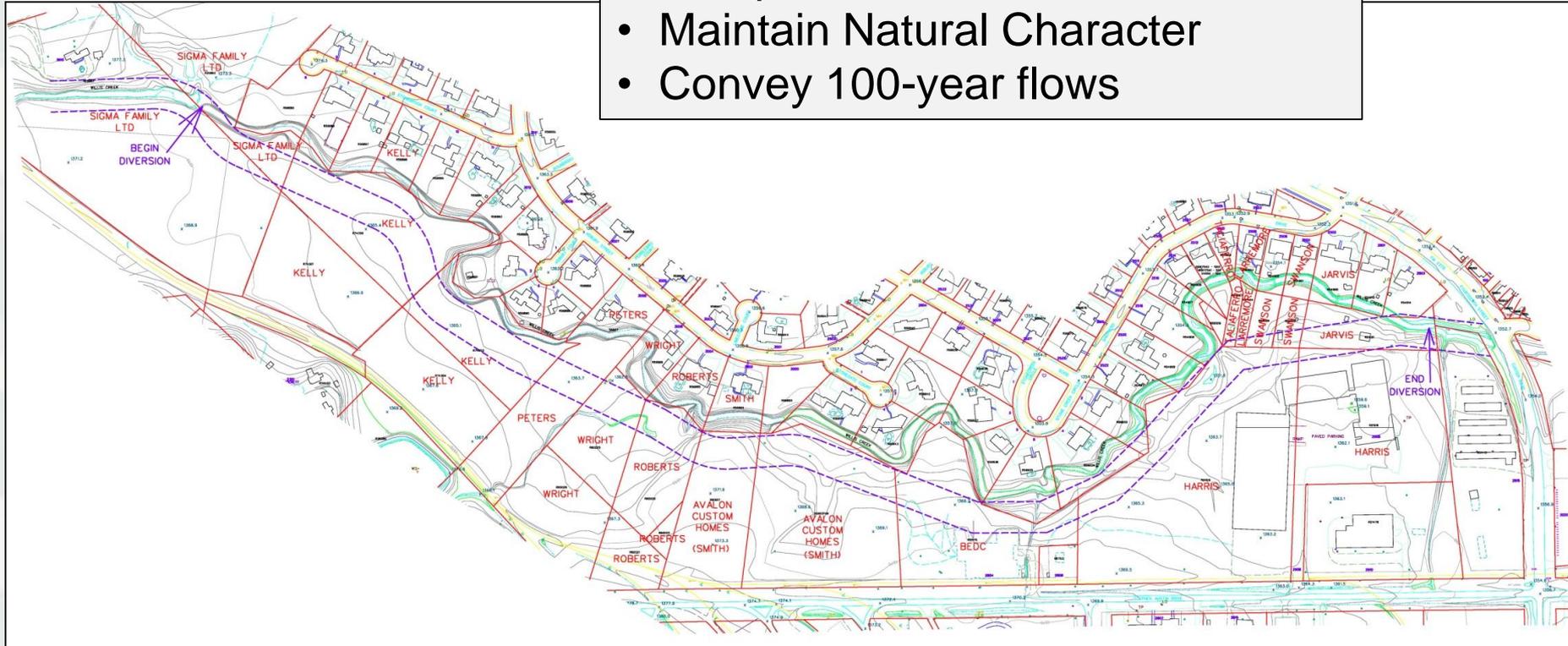
- 2015 public response indicated public concern for 2003 Alternative -
  - Loss of residential property
  - Impact to natural Willis Creek
  - Loss of screening from adjacent land uses
- City of Brownwood proposed secondary channel
  - Excavated along south side of existing Willis Creek
  - Allow for maintaining natural Willis Creek
  - Less disruption to residential properties
  - Same level of flood protection
  - Less environmental impacts



# Alternative Channel – Downstream to 14<sup>th</sup> St

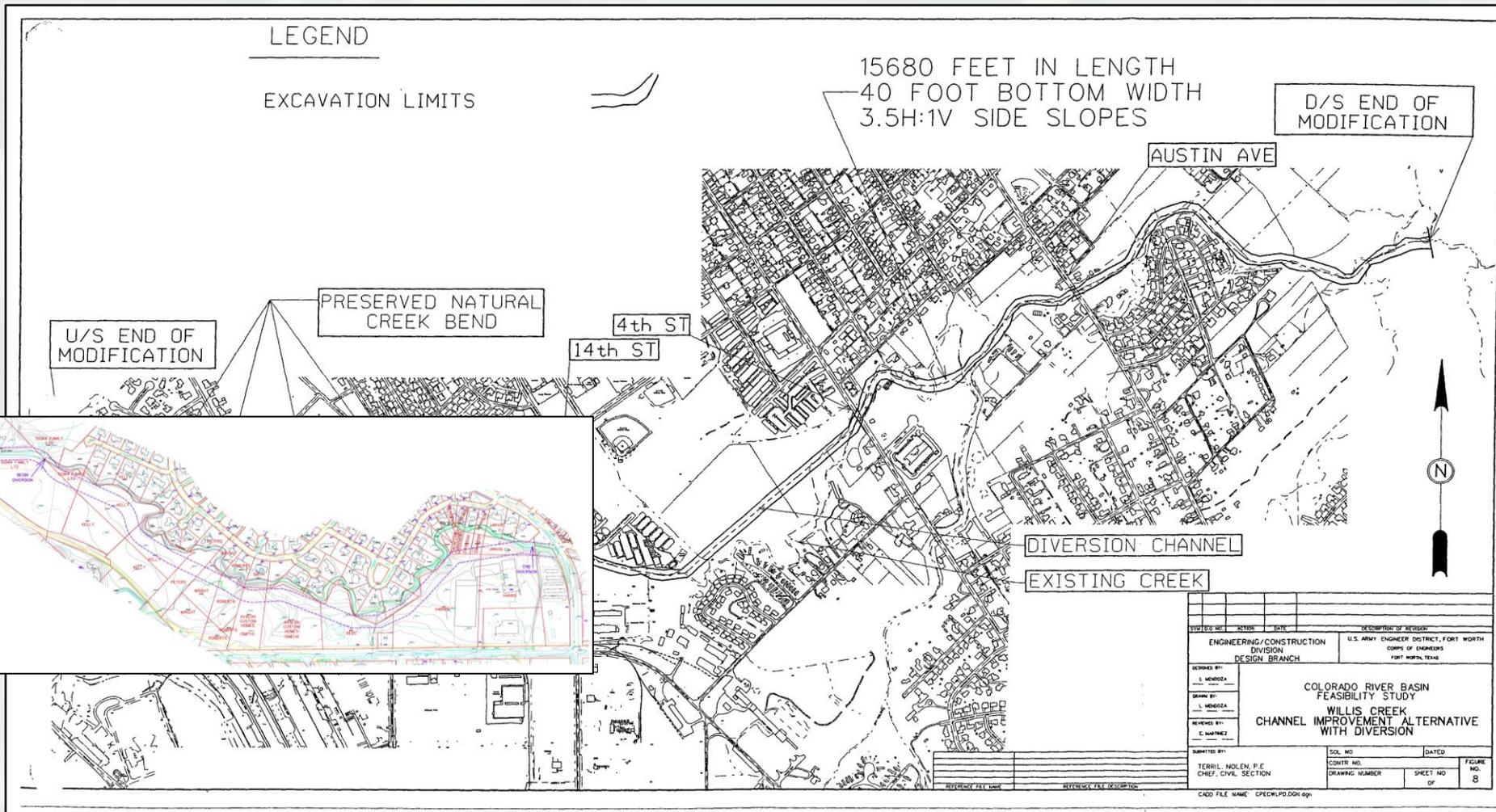
## Planning Considerations -

- Companion Channel
- Maintain Natural Character
- Convey 100-year flows



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# Willis Creek – 2015 / 2003 Combo Plan



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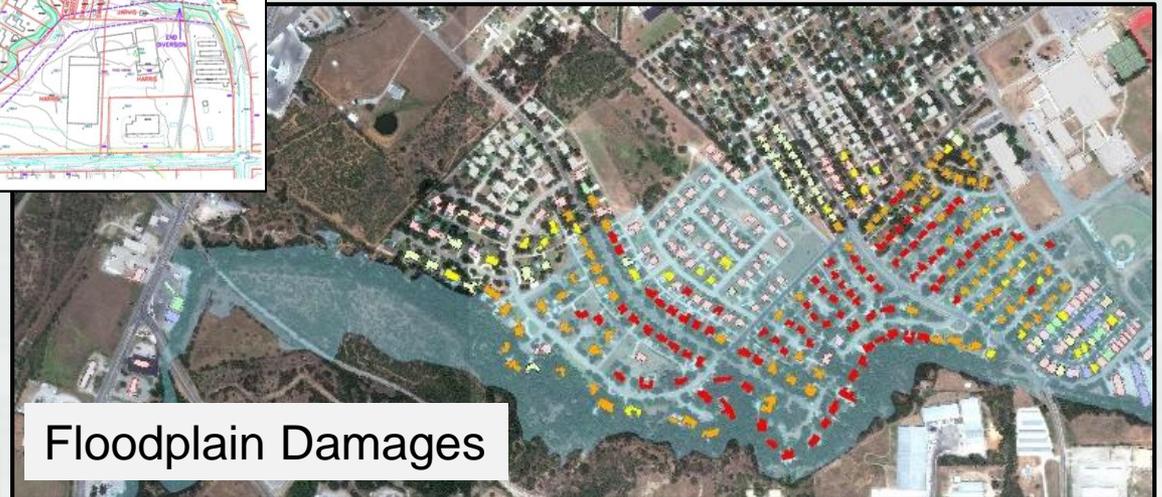
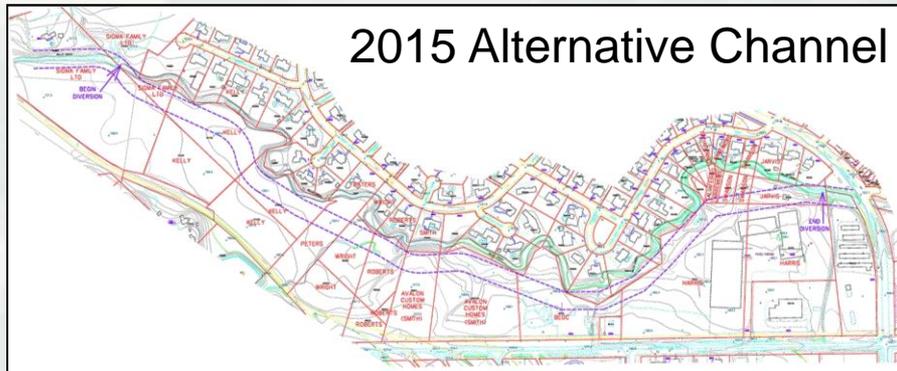
# Willis Creek – Combo Plan Analysis

- Initial H&H modeling was design to accommodate 100 year flows
  - Channel design will need refinement to properly balance conveyance
- Real estate acquisitions in both residential and commercial areas
  - Additional real estate needed for environmental mitigation and screening plantings
- Initial costs indicated a project beyond federal program spending limits
  - Team considered lessening level of protection
  - Team settled on reducing extent of project
    - Focus on reach with greatest damages
    - Minimize impacts to existing Willis Creek
    - Less real estate and environmental mitigation



# Willis Creek – 2016 Current Approach

- Develop companion channel for upstream reach
- Accommodate on-site environmental mitigation
- Incorporate screening plantings along southern edge
- Convey 100-year flows



# Willis Creek – Current Timeline

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Federal Interest Determination	01 JUL 2014
Feasibility Cost Sharing Agreement Signed	12 DEC 2014
Feasibility Scoping Meeting	8 FEB 2016
Alternatives Formulation Briefing/MSC Decision Milestone	28 APR 2017
Public Comment Period Start	19 MAY 2017
Final Report Approval & Sign FONSI	14 AUG 2017

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