

# Stakeholder Meeting 2

## Cumulative Impacts of Development on Flood Risk: Valley Storage

*Presented by: Clair Davis, Engineering Manager  
Ben Thompson, Professional Engineer*

*June 20, 2023*

# Agenda

1. Housekeeping
  - Scheduling next meetings – Tuesdays seem impossible for some
  - Legislative Topics
  - Any other items?
2. Revisit Loss of Valley Storage Options and Questions
  - Loss of Valley Storage – Filling in the Floodplain, Efficient Channels
  - Research: Regional Valley Storage Actions
3. Outcome: Recommendation(s) to Refine for Adoption
4. Next Meeting Schedule & Topics

# Scheduling Next Meetings

- **Doodle Still Having Some Issues**
- **Tuesdays do Not Work for Some – Look at Other Days?**
- **Are Morning Meetings Preferable?**
- **Next likely meeting dates:**
  - July 18<sup>th</sup> or July 21<sup>st</sup>, 1:30-3:30
  - July 25<sup>th</sup> or July 28<sup>th</sup>, 1:30-3:30
  - August 8<sup>th</sup> or August 11<sup>th</sup>, 1:30-3:30
  - August 22<sup>nd</sup> or August 25<sup>th</sup>, 1:30-3:30
  - September 12<sup>th</sup> or September 15<sup>th</sup>, 1:30-3:30
- **Hopefully finished by or before then**
- **Staff Coordination:** Council IR, City Plan Commission, Zoning BoA, and MITC

## Legislative Topics

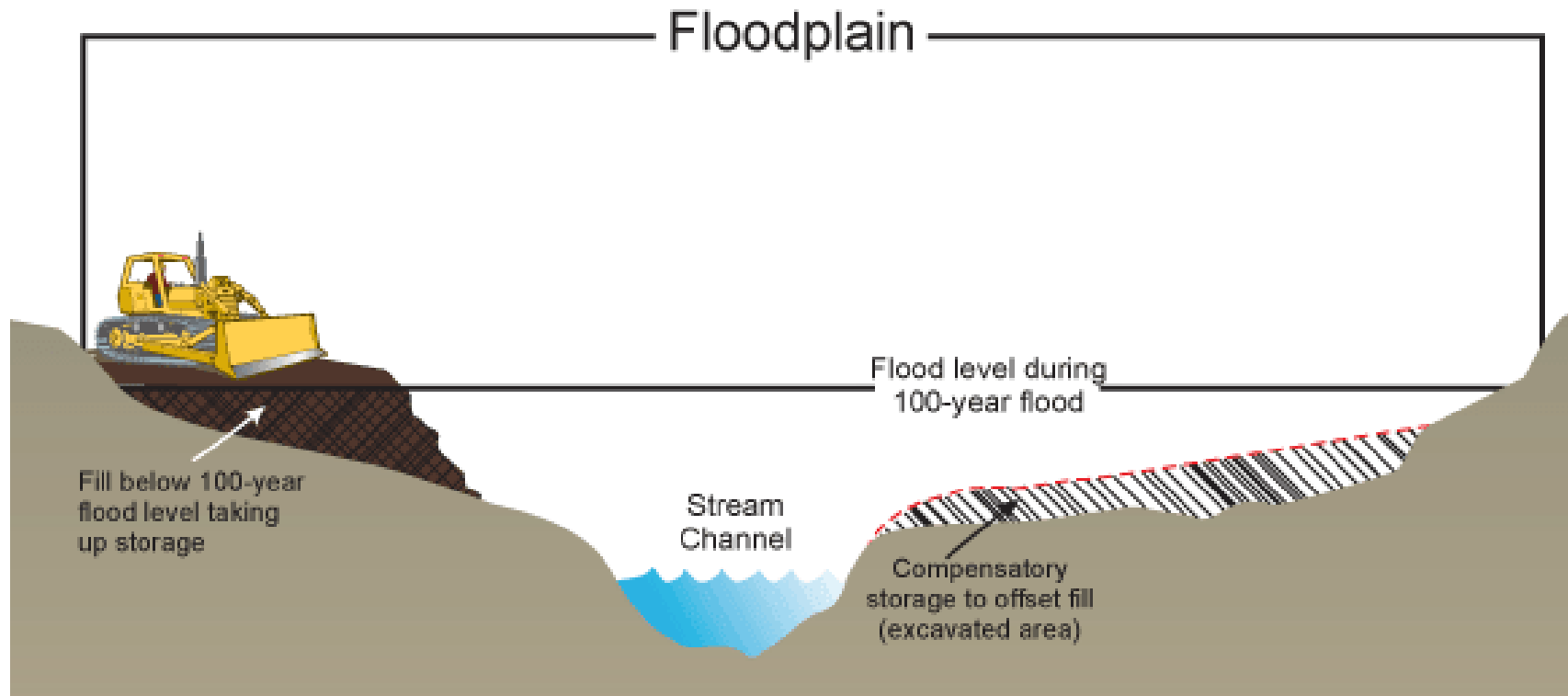
- HB 2127 “Texas Regulatory Consistency Act” - Passed
  - Written to prevent cities or counties from enacting laws that that are inconsistent with State law
  - **Not sure how this law will be applied, effective September 1, 2023**
- HB2789 / SB1412: “Relating to regulation of accessory dwelling units by political subdivisions” – Not Passed
- HB 3369 “Relating to exempting property owned by taxing units from local government land use regulations restricting impervious cover.” – Not Passed
- SB 519 “Relating to the issuance of a permit for a municipal solid waste landfill facility located in a special flood hazard area” – Not Passed

# Valley Storage Discussion

## Questions Received

- Could you briefly explain/define 'valley storage'. What causes loss of valley storage?
- Explain/define 'cut/fill'. Is excavation the same as 'cut'?
- Discuss "how does balancing fill with excavation in the flood plain offset loss of valley storage?"

# Valley Storage Recap



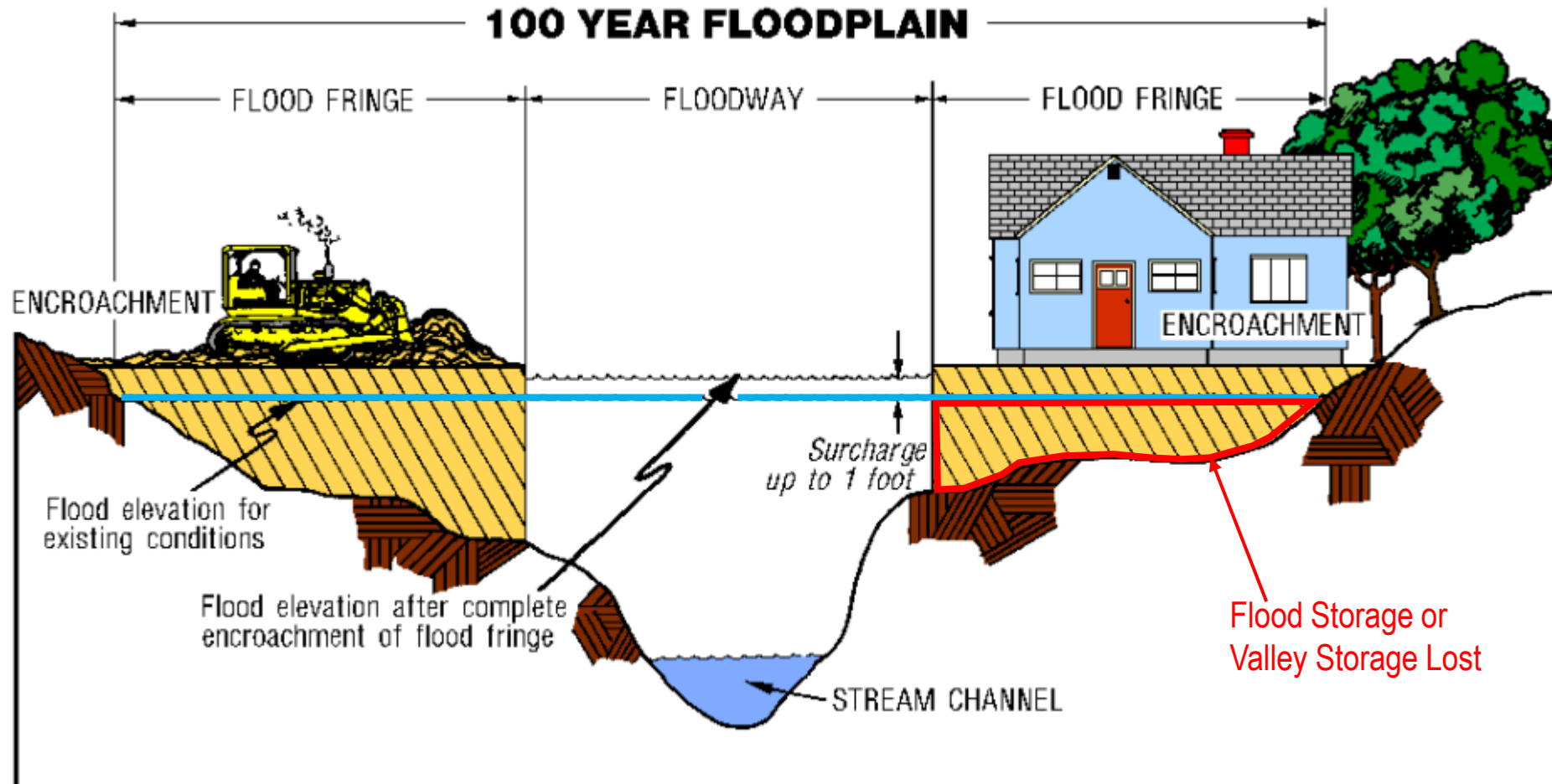
Village of Winnetka, IL, "Floodplain Construction": *"Compensatory storage must equal at least 1.1 times the volume of flood storage lost below the Base Flood Elevation (BFE)."* Cut or excavate existing ground to mitigate fill in the floodplain.

## Questions Received

- Is there any engineering logic to some cities referencing "6 inches, 1 foot, or 2 feet above the 100-year flood plain"? How did they come up with those amounts? How do they know it will help? And is the reference to the 100-year flood plain valid in this context?



# Valley Storage Recap



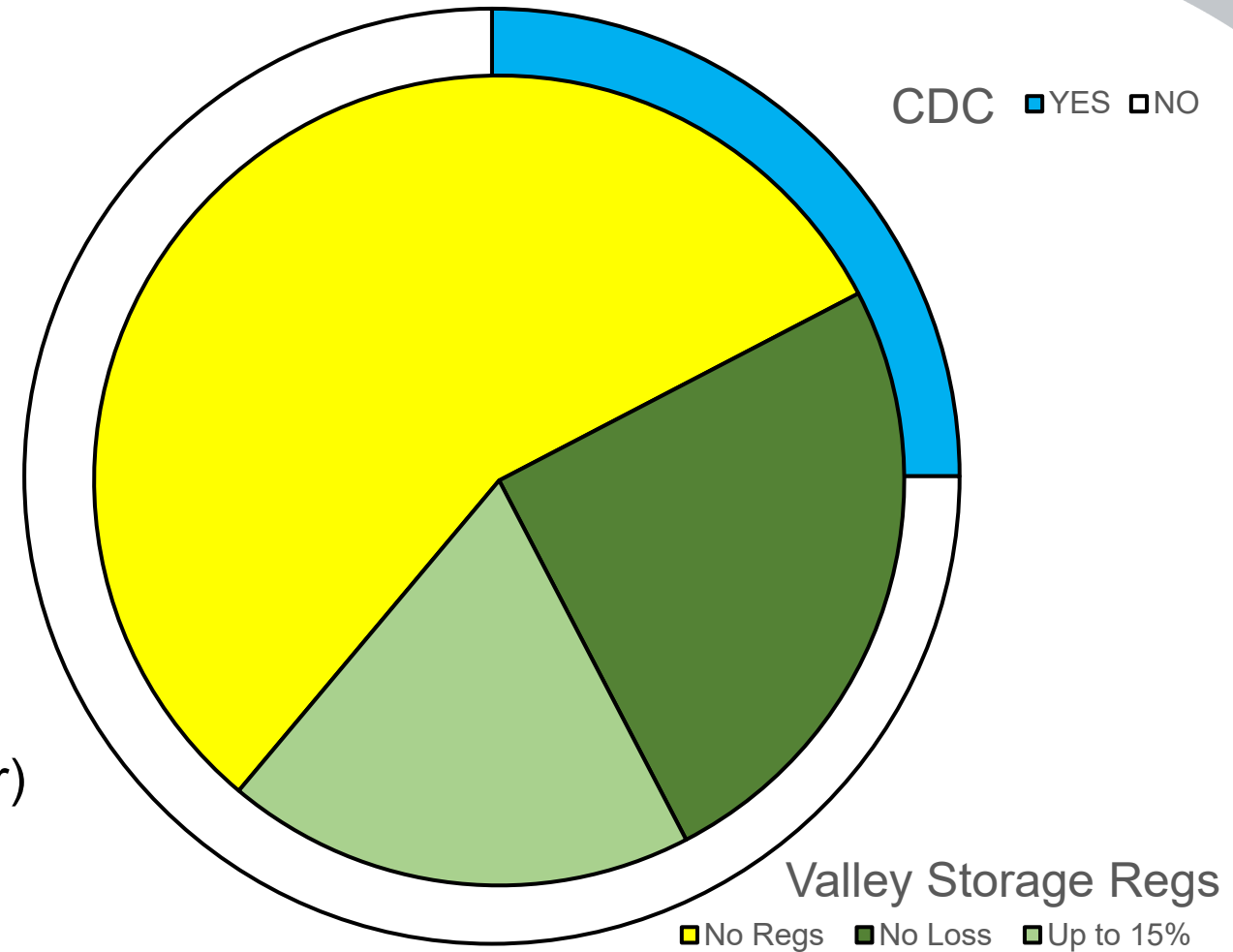
Courtesy: Nevada Division of Water Resources

## Questions Received

- Do we think there is any commonality among the cities with "no requirements", and/or among the cities "with no loss accepted"? Or, does it seem to be arbitrary?

# Regional V.S. Regulations

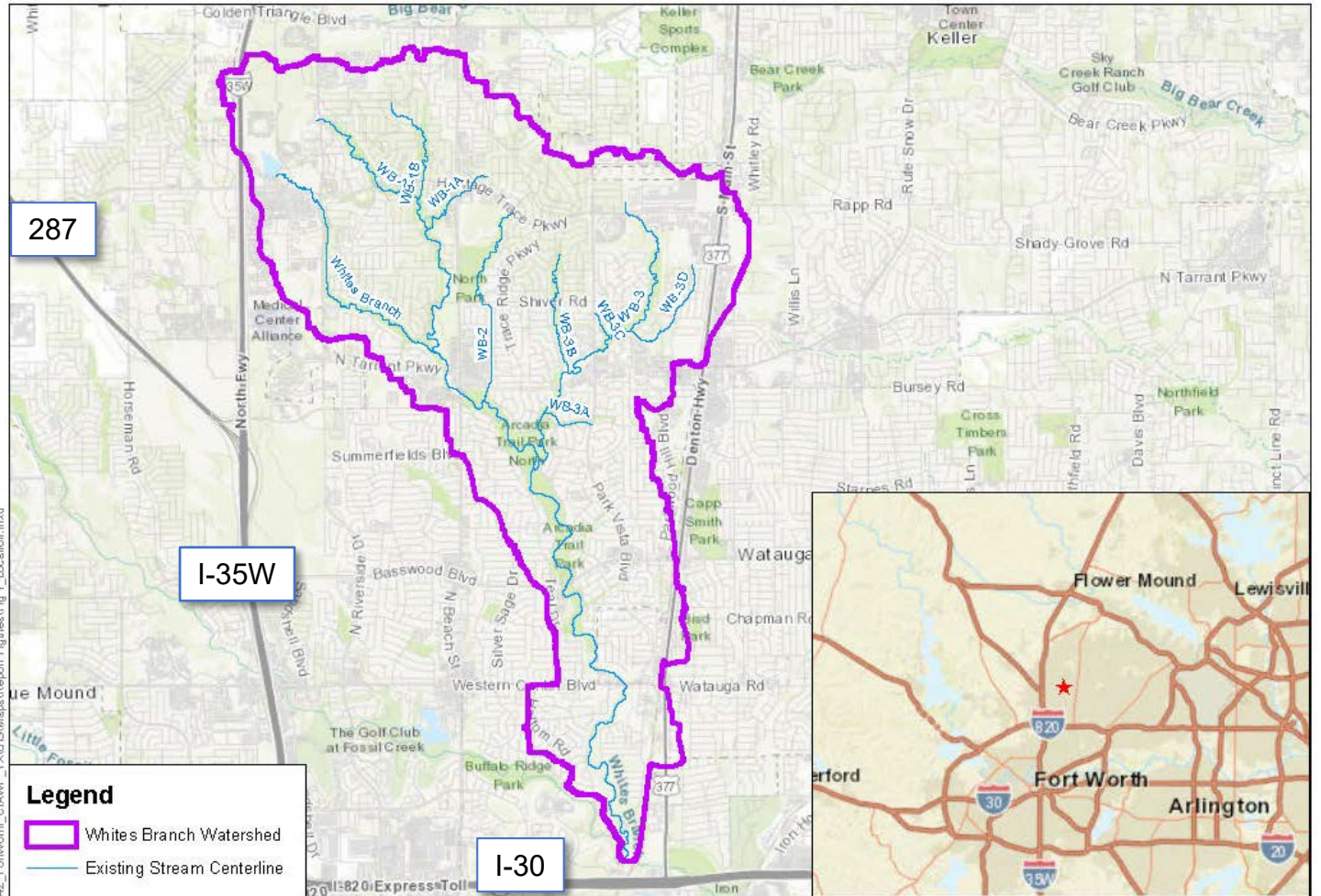
- 16 Communities Surveyed
  - 13 in Metroplex Area
  - 3 Largest TX Cities
- All the Largest Cities Have VS Regulations
- 3 of the 'No Regs' Cities Participate in CDC
- 5 of the 6 Remaining 'No Regs' Cities Are Not Eligible to Participate in CDC (Benbrook Outlier)





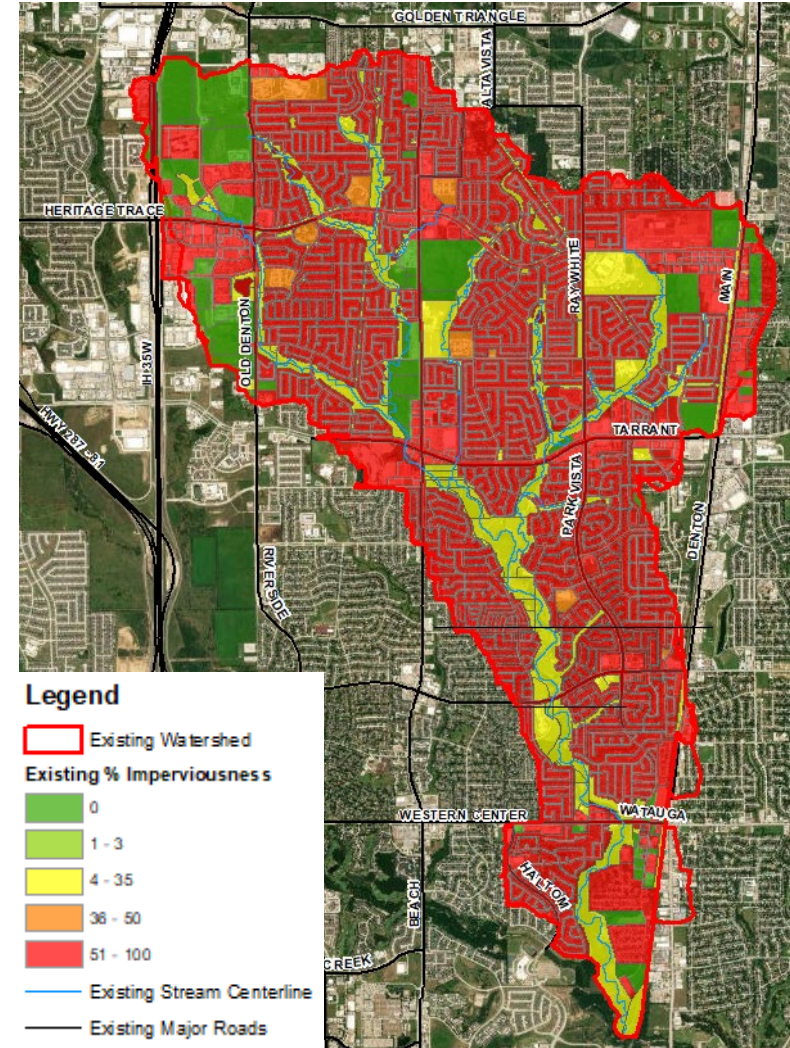
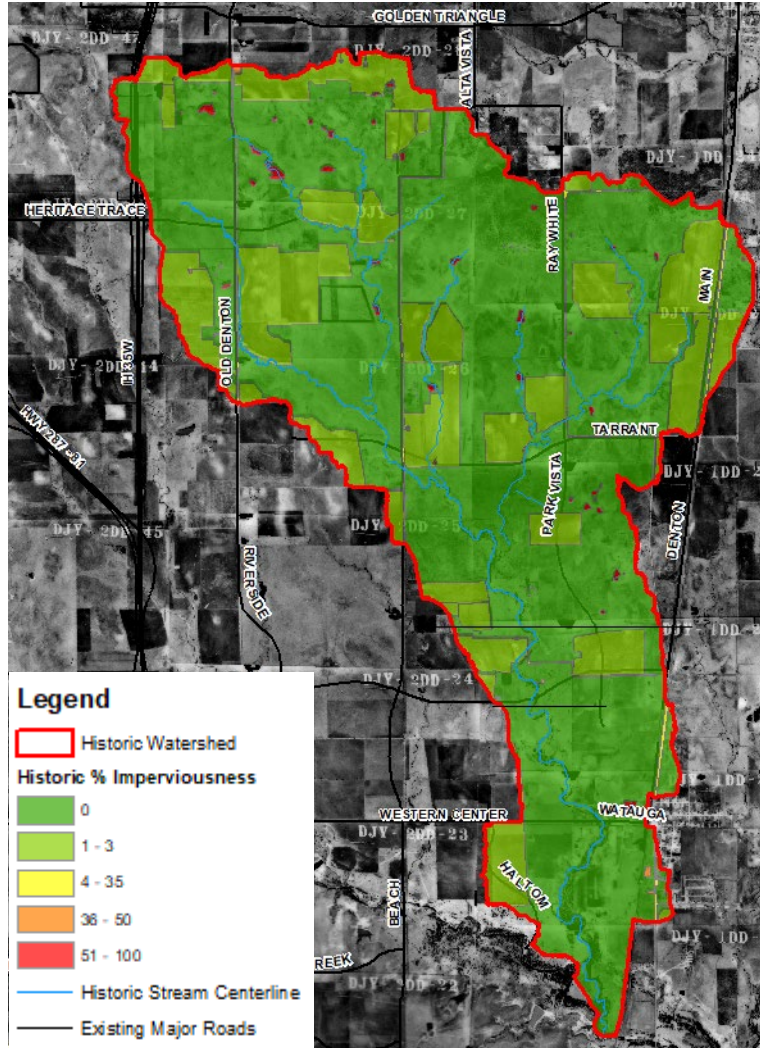
**Evaluate current City of Fort Worth iSWM design criteria effectiveness by:**

- *Analyzing the cumulative impacts to peak flows & runoff volumes*
- *Focus on changes in land use and valley storage*
- *Consider Revisions to iSWM design criteria*





# Land Use in Whites Branch Baseline (1963) vs. Existing



# Findings & Recommendations

## Other City Research & Study Findings

- Decreases in valley storage have resulted in increases in peak flows, particularly with more frequent storms
- Existing detention was shown to mitigate peak flows for large storm events, but was less effective on smaller storms.

## Recommendations

- ~~Do Nothing~~
- Adopt CDC-Style Requirements for All Streams – No loss for design storms
- Allow some loss of Valley Storage (15%?)
- Require greater than 1:1 mitigation to ensure reduced impacts
- Other Options?

## Next Steps

- Finalize Recommendations for Flood Storage Impact Mitigation
- Kick Off Impervious Cover Discussions
- Cumulative Impacts Web Page in Final Testing Now
- ? Other Topics ?

# Introductions

## External Stakeholders

Bernie Malone - VP Monticello NA / CD7  
Stacy Shores – Pres., Linwood NA  
Travis Clegg – DAC Chair  
Tom Davies – Hillwood / CD4  
Mary Kelleher – Handley / CD5  
Dawn Dean – Handley  
Misty Christian – Kimley-Horn and Associates, Inc.  
Anna Carrillo – Carrillo Engineering  
Don Allen – Fort Worth Homebuilders Association  
Larissa Knapp-Scott – LJA Engineering

## Internal Stakeholders

Michael Crenshaw – 360Clarus / CFW Contractor  
Daniel Leal – Development Services  
Stephen Murray – Development Services  
Stuart Campbell – Development Services  
Eric Fladager – Planning & Data Analytics  
Clair Davis – TPW Stormwater Management  
Ben Thompson – TPW Stormwater Management  
Royce Hansen – Legal



# Site Assessments

Storm Event	Baseline Historic Flows (cfs)	Revised Existing Flows (cfs)	%Change
50% / 2-YR	287	467	63%
10% / 10-YR	688	839	22%
4% / 25-YR	934	1089	17%
2% / 50-YR	1142	1290	13%
1% / 100-YR	1367	1515	11%
0.2% / 500-YR	2192	2056	-6%



# Summary of Findings and Draft Recommendations

## Findings

- Increases in impervious cover associated with development resulted in increased runoff volume and peak flows
- Some portions of the study areas have already exceeded design impervious assumptions
- Decreases in valley storage have resulted in increases in peak flows, particularly with more frequent storms
- Existing detention was shown to mitigate peak flows for large storm events, but was less effective on smaller storms.

## Recommendations

- Adjust engineering & land use assumptions to reflect reality
- Prohibit impervious cover above a certain point
- Allow increased impervious cover with mitigation measures
- Determine if there is a reasonable threshold for review

## Potential Concepts to Consider

- Corridor Development Certificate-type goals
- Regional Detention
- Micro / Site Detention
- Establish Ultimate Development FFE Buffer