



TRANSPORTATION & CAPITAL IMPROVEMENTS (TCI)

**Proposed Chapter 35 Appendix H
Unified Development Code Amendment**

**Implementing Atlas 14 Rainfall
Values as Best Available Data**

City Council A Session Item 13

April 11, 2019

Nefi Garza, P.E., Assistant Director



- Requesting Council Action to Approve UDC Amendment
 - Ch. 35, Appendix H to incorporate *Atlas 14, Volume 11 Rainfall Data*
 - 1.2 - Acronyms and Abbreviations
 - 5.5 - Rainfall Data
 - 5.5.1 - Rainfall Intensity-Duration
 - 5.5.2 - Rainfall Depth-Duration Frequency
 - Table of Contents, Lists of Figures and Tables





- Federal study published September 2018
 - National Oceanic & Atmospheric Administration (NOAA)
- Study of rainfall frequency and intensity
- Data from 3,900 rain gauges throughout Texas
 - Early to mid 1900s through 2017
- UDC requires use of Best Available Data

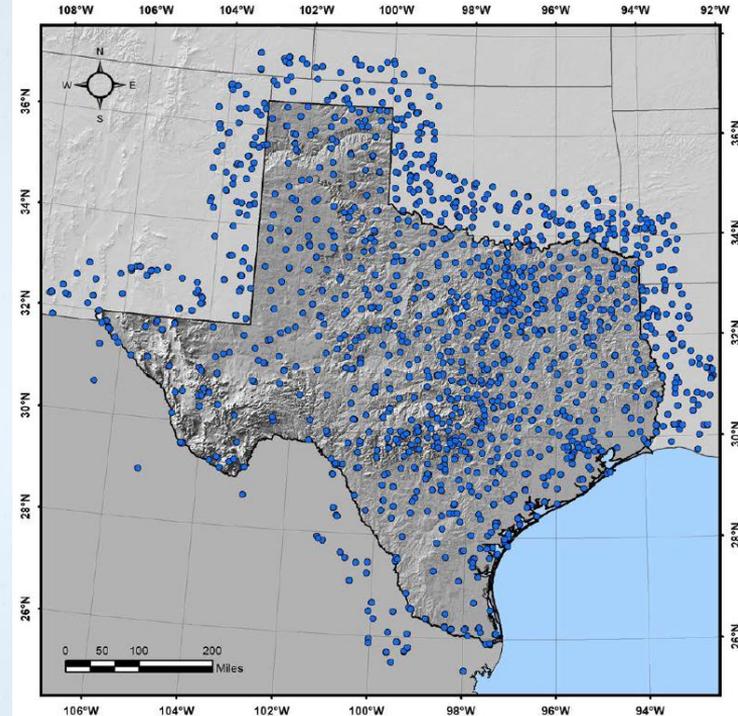
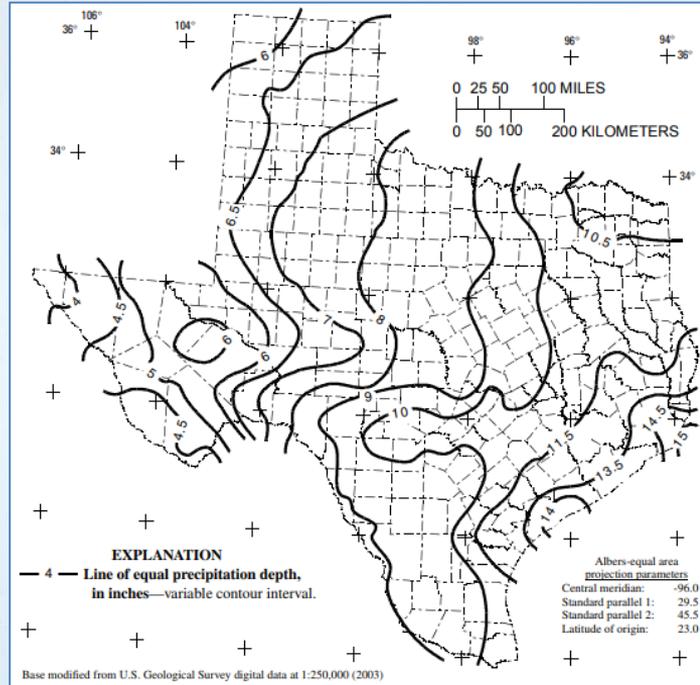


Figure 4.4.2. Map of stations recording at 1-day intervals used in frequency analysis.



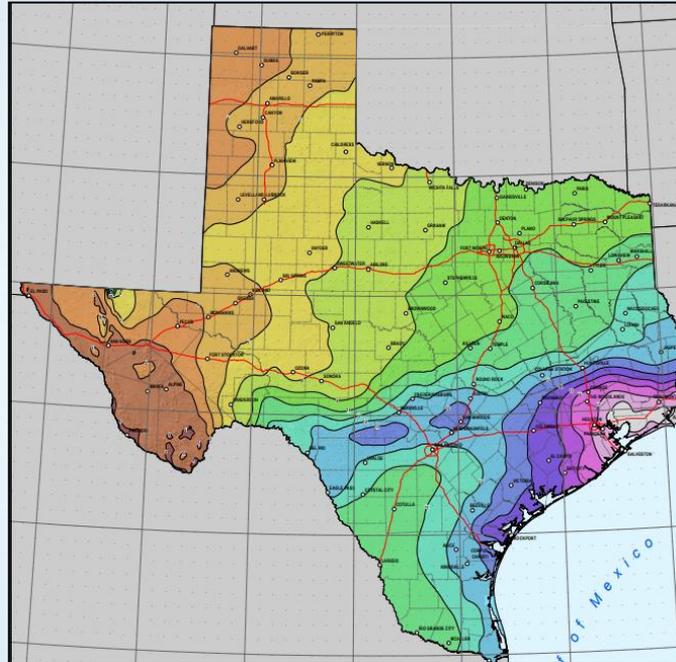
2009 - Today



100-year 24-hour estimates (in inches)



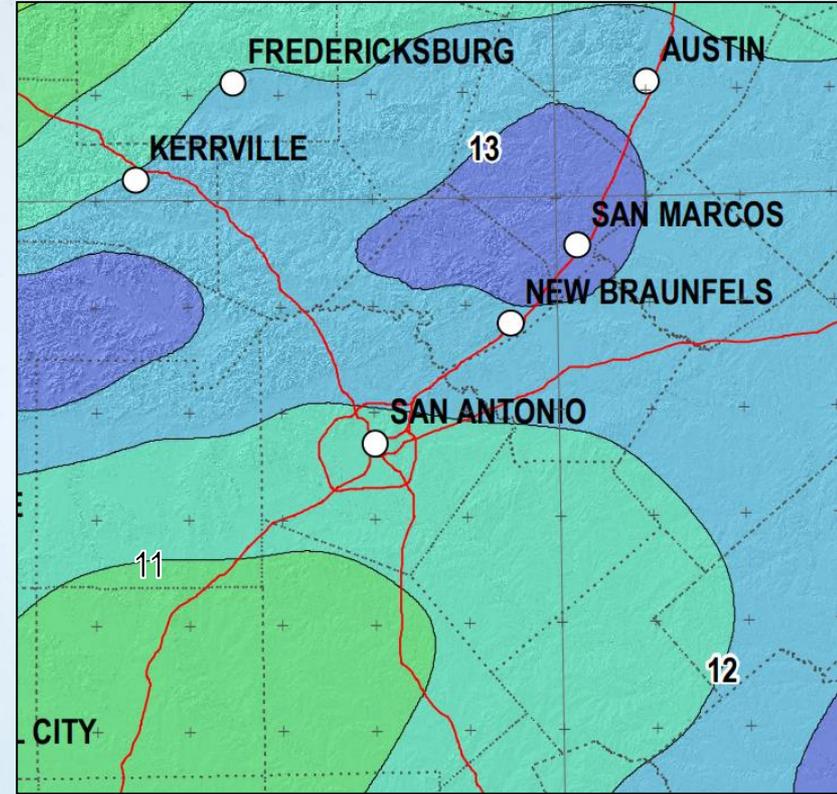
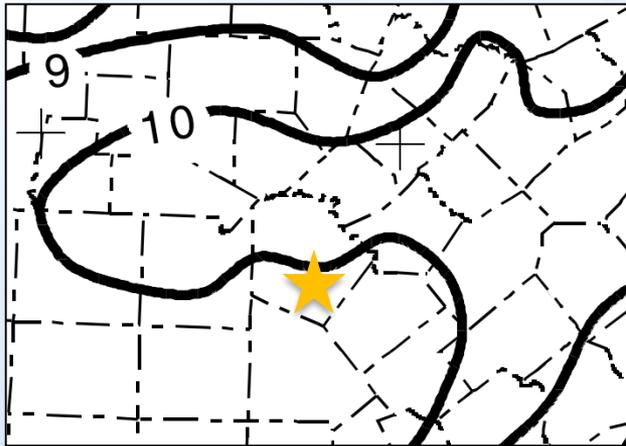
Atlas 14



100-year 24-hour estimates (in inches)



- Design Rainfall Depth (100-year storm)
 - Current $\approx 10''$
 - Atlas 14 $\approx 11''$ - $13''$
 - 1" - 3" increase (10 - 30%)





Group	Potential Impacts
Community	<ul style="list-style-type: none">• Updated floodplain maps• Additional structures in the floodplain• Additional structures requiring flood insurance• Possible increase in flood insurance premiums
City of San Antonio	<ul style="list-style-type: none">• 2017 Bond- Drainage projects to be evaluated on a case-by-case basis for effectiveness with Atlas 14 rainfall values
Development	<ul style="list-style-type: none">• Potential increase in subdivision construction costs (Varies greatly depending on size, complexity, and location of site)• Wider easements• Adjustments to subdivision layout



AGENCIES

- ***Bexar Regional Watershed Management (BRWM)***
 - Bexar County (BC)
 - San Antonio River Authority (SARA)
 - Transportation & Capital Improvements (TCI)
- Texas Department of Transportation (TxDOT)

DEVELOPERS & INDUSTRY GROUPS

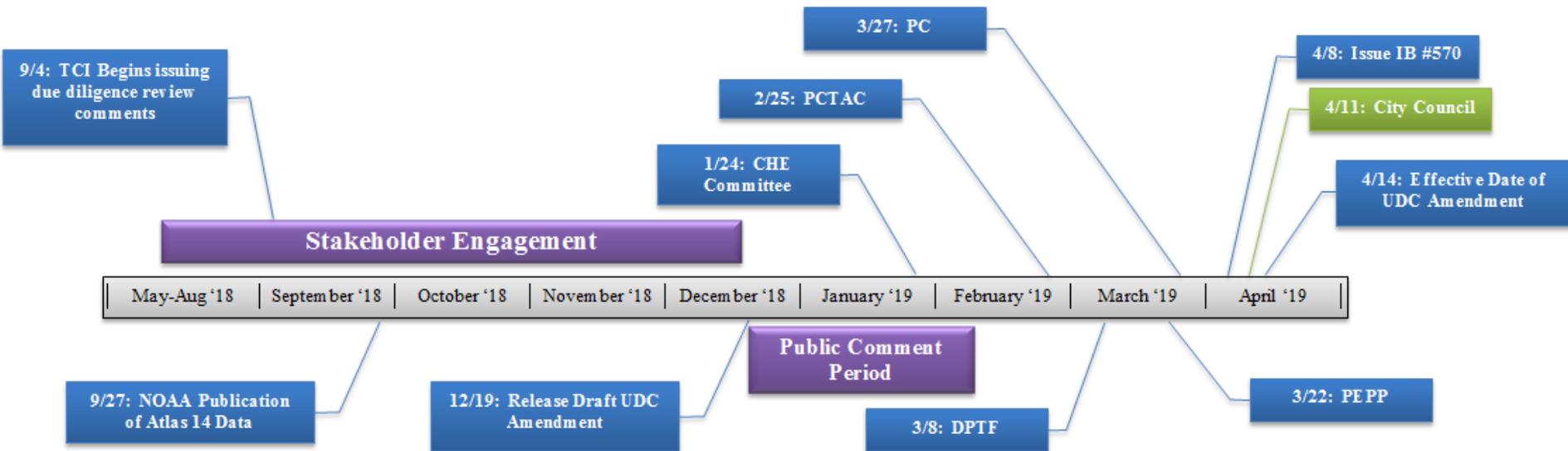
- Professional Engineers in Private Practice (PEPP)
- Real Estate Council (RECSA)

CONSULTANTS

- 12+ Engineering Firms
 - Local
 - Regional/National
 - Varied Size
 - Varied Expertise

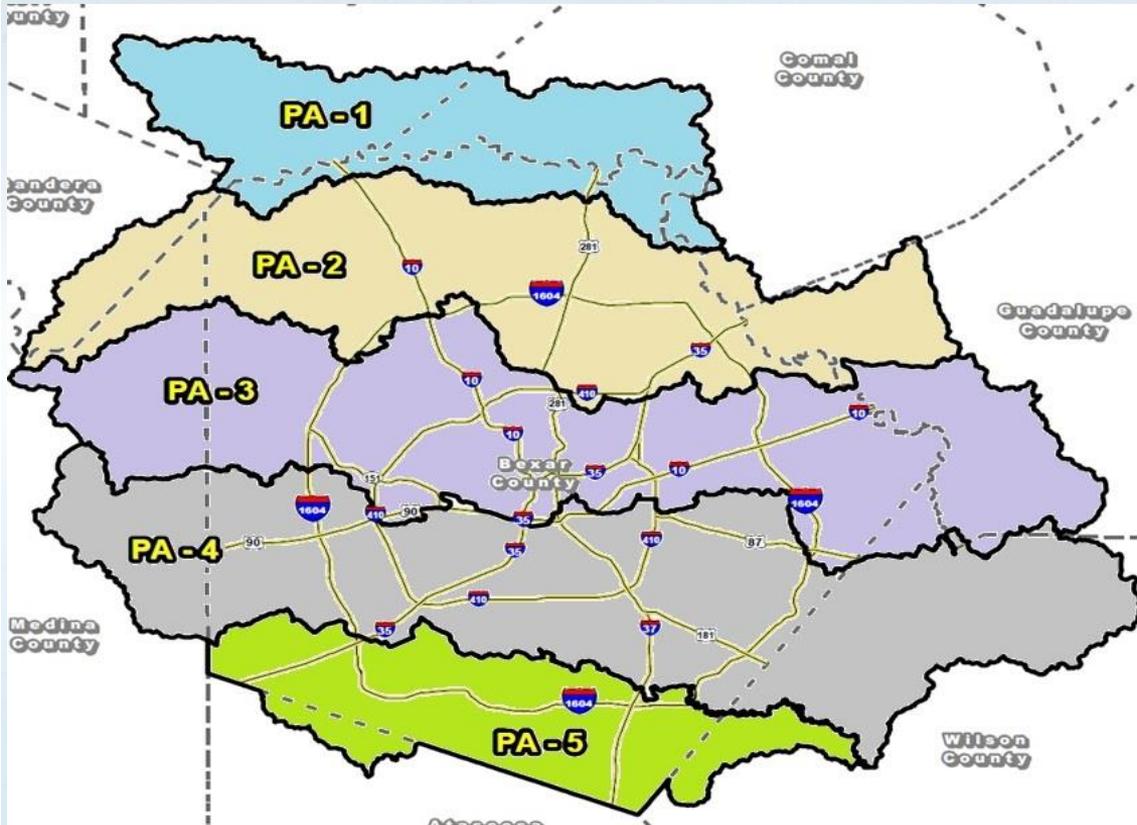
GOAL

- Translating Atlas 14 into usable Best Available Data for San Antonio





RECOMMENDATIONS



- Amend UDC 35, Appendix H
 - Adopt Atlas 14, Volume 11
 - Establish 5 Precipitation Areas
 - Replace rainfall data tables

Precipitation Area	Atlas 14 100-Year Design Depth
PA-1	12.87"
PA-2	12.49"
PA-3	11.97"
PA-4	11.50"
PA-5	11.15"



- Any plat or permit submittal after UDC Amendment shall use Atlas 14 data for storm water and floodplain design and analysis
- Clarifies the following:
 - No Adverse Impact
 - Adverse Impact
 - Out of Compliance
 - Phased Mitigation
- Floodplain Mapping
- Finished Floor Elevations



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CITY OF SAN ANTONIO
TRANSPORTATION & CAPITAL IMPROVEMENTS

THROUGH INNOVATION AND DEDICATION, WE BUILD AND MAINTAIN
SAN ANTONIO'S INFRASTRUCTURE

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