Design Standards Ordinance

Corpus Christi Engineering

City Council Presentation

November 19, 2013

Design Standards Ordinance

- All elements based on the approved Master Plans as well as the design standards outlined by the amended Unified Development Code (UDC)
- Storm Water Design
  - Levels of Protection based on Design Event
- ✓ Street Design
  - 30 year life based on American Association of State Highway and Transportation Officials (AASHTO) Guide for Design of Pavement Structures
- Traffic and Signal Design
  - Texas Manual on Uniform Traffic Control Devices (TMUTCD)
  - Intersections shall be designed to meet at a minimum a Level of Service (LOS) "D" as defined by the Highway Capacity Manual (HCM)
- Wastewater Design
  - Texas Administrative Code (TAC) Title 30 Part 1 Chapter 217 Subchapter C Design Criteria for Domestic Wastewater Systems: Conventional Collection Systems
- Water Design
  - TAC Title 30 Part 1 Chapter 290 Subchapter D Public Drinking Water: Rules and Regulations for Public Water Systems

Storm Water Design

Type of Facility	Design Storm Event (Years*)				
	Proposed	Current Practice	1982 MP	1970 MP	1961 MP
Protection of Habitable Structures	100	100			
Residential (Local) Streets	5	Up to 5			
Collector Streets	5	Up to 5			
Arterial Streets	25	Various			
Conveyance Systems (not in streets)					
Open Channels:					
Minor Drainage System	5	Up to 5	5 to 25	5 to 25	5 to 25
Intermediate Drainage System	25	Various	5 to 25	5 to 25	5 to 25
Major Drainage System	25	25	25	25	5 to 25
Underground:					
Minor Drainage System	5	Up to 5	5 to 25	5 to 25	5 to 25
Intermediate Drainage System	25	Various	5 to 25	5 to 25	5 to 25
Major Drainage System	25	25	25	25	5 to 25

*Design Year is reflective of the annual probability of the specific event happening (i.e. 100 year event = 1% chance of happening any given year)

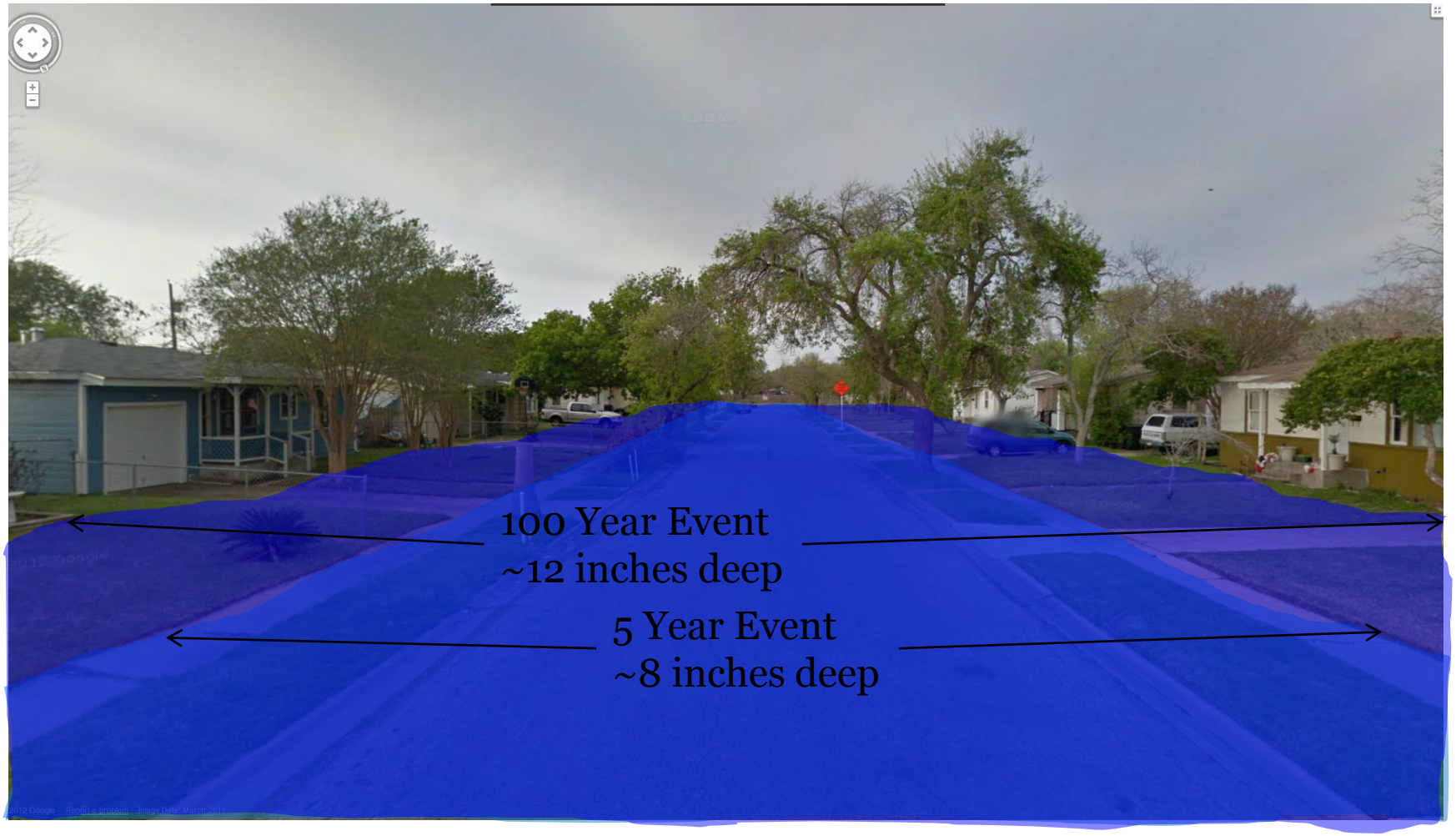
- 1961 Master Plan covered the Southside
- 1970 Master Plan included areas west of Clarkwood (Oso Creek and Nueces River) and Flour Bluff
- 1982 Master Plan included the Five Points Area

Storm Water Design

- Design Events:

Design Event	Rainfall (24 hour duration)
5 Year	5.84 inches
10 Year	7.12 inches
25 Year	8.94 inches
50 Year	10.48 inches
100 Year	12.18 inches

Storm Water Design



Storm Water Design

Traffic and Signal Design

- Highway Capacity Manual (HCM)
  - Afternoon Peak (4-6pm) is typically the design event
  - Urban Streets Capacity is driven by the signalized intersections
    - Saturation Rate is ~ 1,800 vehicles per lane per hour

LOS	Signalized* (seconds/vehicle)	All Way Stop* (seconds/vehicle)	Two Way Stop* (seconds/vehicle)
A	≤10	≤10	≤10
B	>10-20	>10-15	>10-15
C	>20-35	>15-25	>15-25
D	**>35-55**	**>25-35**	**>25-35**
E	>55-80	>35-50	>35-50
F	>80	>50	>50

*HCM Exhibits 16-2, 17-2, and 17-22

Wastewater System Design

- CHAPTER 217 DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEMS
  - Subchapter C - Conventional Collection Systems
    - §217.51 Applicability
    - §217.52 Edwards Aquifer
    - §217.53 Pipe Design
    - §217.54 Criteria for Laying Pipe
    - §217.55 Manholes and Related Structures
    - §217.56 Trenchless Pipe Installation
    - §217.57 Testing Requirements for Installation of Gravity Collection System Pipes
    - §217.58 Testing Requirements for Manholes
    - §217.59 Lift Station Site Requirements
    - §217.60 Lift Station, Wet Well, and Dry Well Designs
    - §217.61 Lift Station Pumps
    - §217.62 Lift Station Pipes
    - §217.63 Emergency Provisions for Lift Stations
    - §217.64 Materials for Force Main Pipes
    - §217.65 Force Main Pipe Joints
    - §217.66 Identification of Force Main Pipes
    - §217.67 Force Main Design
    - §217.68 Force Main Testing
    - §217.69 Reclaimed Water Facilities
    - §217.70 Storage Tanks for Reclaimed Water

Water System Design

- CHAPTER 290 PUBLIC DRINKING WATER
  - SUBCHAPTER D: RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS
    - §290.38. Definitions.
    - §290.39. General Provisions.
    - §290.40. Cessation of Construction and Operations.
    - §290.41. Water Sources.
    - §290.42. Water Treatment.
    - §290.43. Water Storage.
    - §290.44. Water Distribution.
    - §290.45. Minimum Water System Capacity Requirements.
    - §290.46. Minimum Acceptable Operating Practices for Public Drinking Water Systems.
    - §290.47. Appendices.

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