Sustainability and Resiliency

Climate Change, Drought and Floods

OFMA
September 20, 2017
“To meet the needs of the present without compromising the ability of future generations to meet their own needs.”

– World Commission on Environment and Development, 1987
SUSTAINABILITY
RESILIENCY
RESILIENT COMMUNITY

Why is Planning Important?

idea → plan → action
COMPREHENSIVE PLANNING

Standard Elements:
- Community Demographics
- Future Land Use
- Transportation
- Infrastructure
- Parks and Open Space
- Public Facilities
- Neighborhood Livability
- Special Areas
- Economic Development
COMPREHENSIVE PLANNING

Additional Elements:
- Energy
- Health
- Disaster Planning
- Sustainability
Oklahoma Annual Precipitation History – Oklahoma Climatological Survey

Annual Precipitation History with 5-year Tendencies
Oklahoma Statewide: 1895-2015

- Wetter periods
- Drier periods
- Annual precipitation value
U.S. Drought Monitor – Oklahoma 2010

April 6, 2010
(Released Thursday, Apr. 8, 2010)
Valid 7 a.m. EST

<table>
<thead>
<tr>
<th>Drought Conditions (Percent Area)</th>
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<tr>
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<td>Last Week</td>
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<tr>
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<tr>
<td>Start of Calendar Year</td>
</tr>
<tr>
<td>Start of Water Year</td>
</tr>
<tr>
<td>One Year Ago</td>
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**Intensity**
- **D0 Abnormally Dry**
- **D1 Moderate Drought**
- **D2 Severe Drought**
- **D3 Extreme Drought**
- **D4 Exceptional Drought**

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

**Author:**
Anthony Artusa  
NOAA/NWS/NCEP/CPC

http://droughtmonitor.unl.edu/
U.S. Drought Monitor – Oklahoma 2011

October 4, 2011
(Released Thursday, Oct. 6, 2011)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

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<td>Water Year</td>
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Author:
Richard Tinker
CPC/NOAA/NWS/NCEP

http://droughtmonitor.unl.edu/
U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period

Valid for August 17 - November 30, 2017
Released August 17, 2017

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short-lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:
Adam Allgood
NOAA/NWS/NCEP/Climate Prediction Center

http://go.usa.gov/3eZ73
“Hydro-Illogical” Cycles

Drought

Flood
Plan A
Plan B
5-Day 10,000 Square Mile Rainfall

- Texas - 1899
- Louisiana - 1940
- Beulah - 1967
- Texas - 1994
- Harvey - 2017
Hurricane Harvey

Estimated Percent of 24hr PMP

Based on HMR-51 for 200 sq mi Storm Area
Prevent, Inform, Maintain, Reduce, Flood Risk
Prevent
Inform
Maintain
Reduce

Flood Risk
Prevent
Inform
Maintain
Reduce

Flood Risk
Prevent | Inform
---|---
Maintain | Reduce

Flood Risk
Establish Criteria

Determine Weighting Factors

Establish Scoring Process

Project Priority Rankings
**Description:**
Channel improvements from Village Creek Drive to the existing channel drop near Candace/Burger. The alternative also includes culvert improvements at Dillard Street and Stalcup Road. Increased conveyance would need to be mitigated with additional culvert capacity at IH-820 or improvements to the frac pond. A Corps permit and mitigation would be required.

**ROAD HAZARD**
- Count of hazardous crossings/sumps pre-project: 6
- Count of improved crossings/sumps post-project: 2
- Pre-project level of service: 2
- Post-project level of service: 25
- Road classification: Neighborhood/Local
- Benefit (from report): $549,600
- Cost (from report): $5,822,000
- Cost (Updated OPC): $5,851,795
- Updated OPC Date: 5/1/2017
- SW Share: 100%
- Potential Funding Partners:
  - add project
  - update rankings
## Description
Channel improvements from Village Creek Drive to the existing channel drop near Candace/Burger. The alternative includes culvert improvements at Dillard Street and Stalcup Road. Increased conveyance would need to be provided to handle additional culvert capacity at IH-820 or improvements to the farm pond. A Corps permit and mitigation would need to be obtained.

### Photo 1
- **Link:** Pictures\Photos\224.jpg
- **Description:** Downstream face of Dillard Street culverts

### Photo 2
- **Link:** Pictures\Photos\224_2.jpg
- **Description:** Upstream face of Dillard Street culverts

### Structure Flooding
- **Count of flood prone structures pre-project:** 126
- **Count of structures with reductions in structural flooding:** 86
- ** Lowest return event at which structural flooding begins pre-project:** Greater than 100-yr
- ** Lowest return event at which structural flooding begins post-project:** Greater than 100-yr
- **Count of affected repetitive loss structures:** 0
- **Count of affected critical facilities:** 0

### Community Response
- **Unknown**

### Count of reported drainage issues:
- **4**

### Potential Funding Partners:
- **%:** 100%
One Page Report
SWS-617 Wildcat Branch
Alternative 2B - Linear Channel Improvements and Culvert Replacements

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<th>Database ID:</th>
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| Score: | 47.17 |
| Source: |  |

Scoring Breakdown:
- S1 - Road Hazard: 26%
- D1 - Structure Flooding: 18%
- O1 - Ownership: 8%
- D2 - Cost: 14%
- D3 - Score Cost: 14%
- T1 - Citizen Satisfaction: 13%
- Y1 - Unrelated Variable: 0%

Data Mining Complete: Yes
Data Class: 3
Road Hazard: Pre-project level of service: 2
Structure Flooding: Pre-project cost of flooding: $66
Pre-project cost of flooding: $25

Description:
Channel improvements from Village Creek Drive to the existing channel drop near Cardace Burger. The alternative also includes culvert improvements at Dillard Street and Shackleford Road. Increased conveyance would need to be mitigated with additional culvert capacity at $200 or improvements to the creek pond. A Cops permit and mitigation would be required.

Comments:
Downstream face of Dillard Street culverts
Description:
Channel improvements from Village Creek Drive to the existing channel drop near Candace/Burger. The alternative also includes culvert improvements at Dillard Street and Stalcup Road. Increased conveyances would need to be mitigated with additional culvert capacity at IH-820 or improvements to the frac pond. A Corps permit and mitigation would be required.
Report Name: SWS-056 Near Southside

- Rank: 22.00
- Score: 38.42
- Stormwater Cost: $3,327,700.00
- Alternative Name: 2. Fairmount - Magnolia
- Planning Stage: Strategic
- Database ID: 354
- Attachments: 354.pdf

Edited by rct_FNI on 7/5/17 at 10:26 AM
Questions?

Sustainability and Resiliency
Climate Change, Drought and Floods
September 20, 2017

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