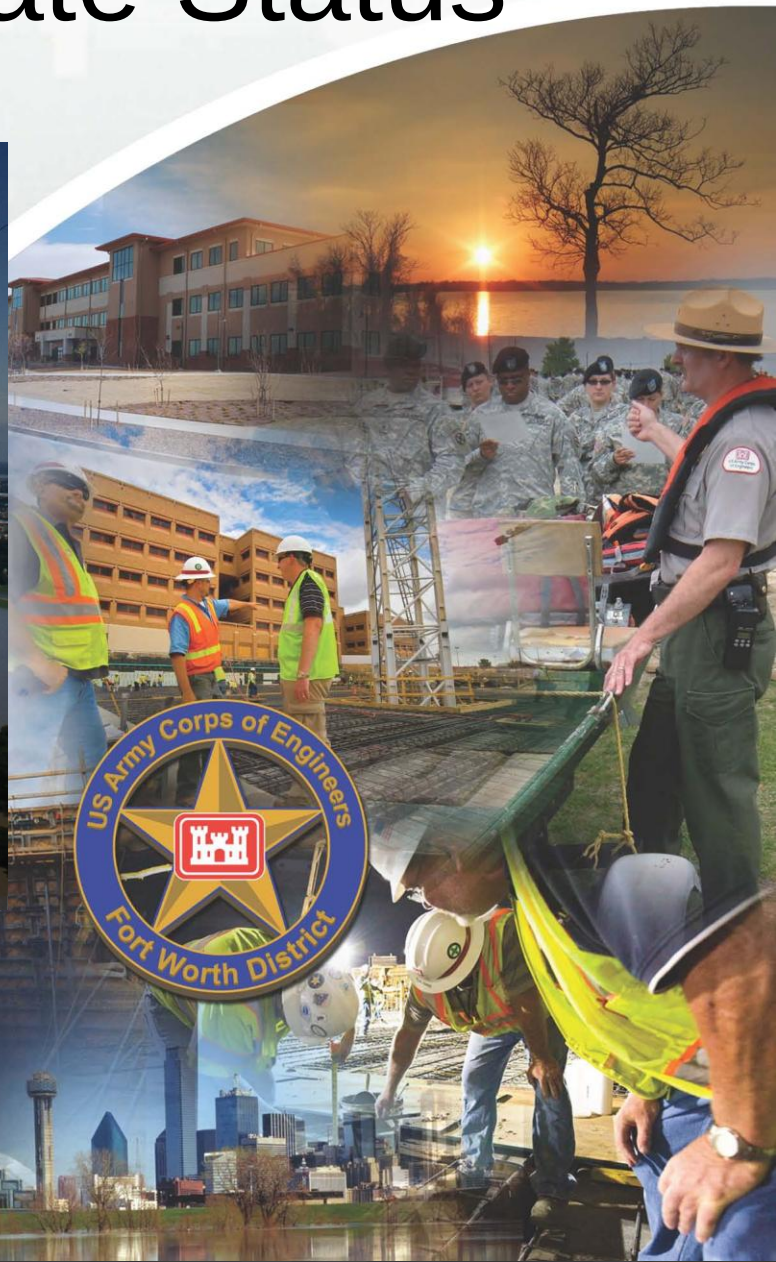
CDC Model Update Status



26 APRIL 2013

Internal Reviews

- Hydrology
  - Land use coverage, calculations, and resultant t_p
  - Routing, hydrograph timing
  - Rainfall – design storm and uniform
  - Runoff – TS Hermine calibration
- Hydraulics
  - Permitted and constructed projects
  - Split flow optimization
  - Junction methodology
  - Ineffective flow
  - Calculated water surface elevations

External Vertical Team Reviews

- Reviews performed by USACE subject matter experts (SME's)
  - Hydrology – Dr. David Williams, Ph.D., P.E.
  - Hydraulics – Michael Gee, Ph.D., PE
    Hydrologic Engineering Center (HEC)
- Focused on:
  - critical issues
  - methodology

Hydrologic Review

- Status:
  - Comments received
  - Responses provided
  - Awaiting concurrence on responses
- Primary focus:
  - Design storm methodology (established with the vertical team during the Dallas Floodway Feasibility Study)
  - Land use calculation methodology and resultant t_p values
- Model approved as submitted

Hydraulics Review

- Status:
  - Comments received
  - Responses provided
  - Reviewer concurrence expected May 10
- Primary critical focus:
  - Bridge modeling approach
  - Split flow / junction modeling
  - Schematics
- Required minor model revisions and updates to the report

Grand Prairie / Irving Split Flow (Belt Line Rd)

- Nearby projects incorporated into the CDC model include:
  - Belt Line reclamation
  - Hunter-Ferrell Road
  - Palace Parkway
  - 28 Acre tract
  - SH 161
  - Belt Line Road extension
- Split flow consists of the West Fork main channel (wf2) and the Bear Creek split flow area (wfs)
- Split flow balances the energy gradient (EG) at the upstream end of both reaches
- The junction was moved upstream changing the flow distribution
- Resulted in approx. 1.8’ wse decrease from “Draft” report.

Fort Worth Levee Impacts

- Documentation of Fort Worth levees submitted 13 MAR 2013
- Number of levees overtopped by the SPF event increases from 5 to 8
- SPF level of protection is not a levee requirement
- 100 –yr protection is still provided by all federal levees

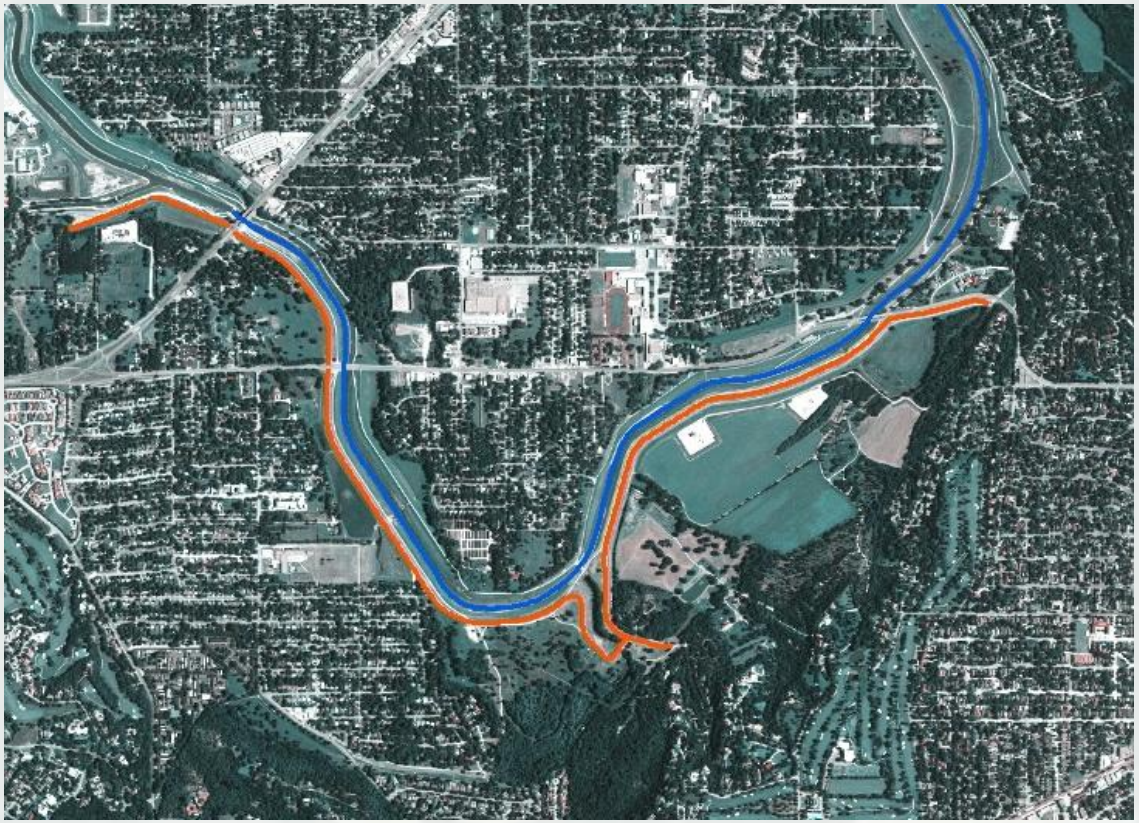
Levee System	CDC Manual 4th Edition 2040 Discharges		2012/2013 CDC Model Update 2055 Discharges		Critical Levee Elevation (feet)	CDC Manual 4th Edition 2040 Discharges Freeboard (feet)	2012/2013 CDC Model Update 2055 Discharges Freeboard (feet)
	SPF Flow (cfs)	SPF WSEL (feet)	SPF Flow (cfs)	SPF WSEL (feet)			
Carswell Levee	52,200	566.1	56,500	567.9	568.64	2.54	0.7
White Settlement Levee	57,700	556.2	63,500	558.3	557.97	1.77	-0.3
Sump 6W Levee	57,700	559.5	63,500	561.5	562.60	3.10	1.1
Brookside Levee	57,700	554.0	63,500	556.0	552.29	-1.71	-3.7
Crestwood Levee	57,700	555.1	63,500	557.0	552.77	-2.33	-4.2
Clear Fork Levee Loop							
West Fork	57,700	552.0	63,500	554.1	549.90	-2.10	-4.2
Clear Fork	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Overton Levee	85,400	576.9	94,500	579.5	578.55	1.65	-1.0
Watermelon Levee	85,400	569.0	94,500	570.1	570.01	1.01	-0.1
North Main Levee	124,100	539.9	136,000	541.5	538.09	-1.81	-3.4
West Fork Levee Loop	130,600	537.8	140,000	539.5	536.43	-1.37	-3.1

Overton Levee

2040 - 1.65’; 2055 - -1.0’

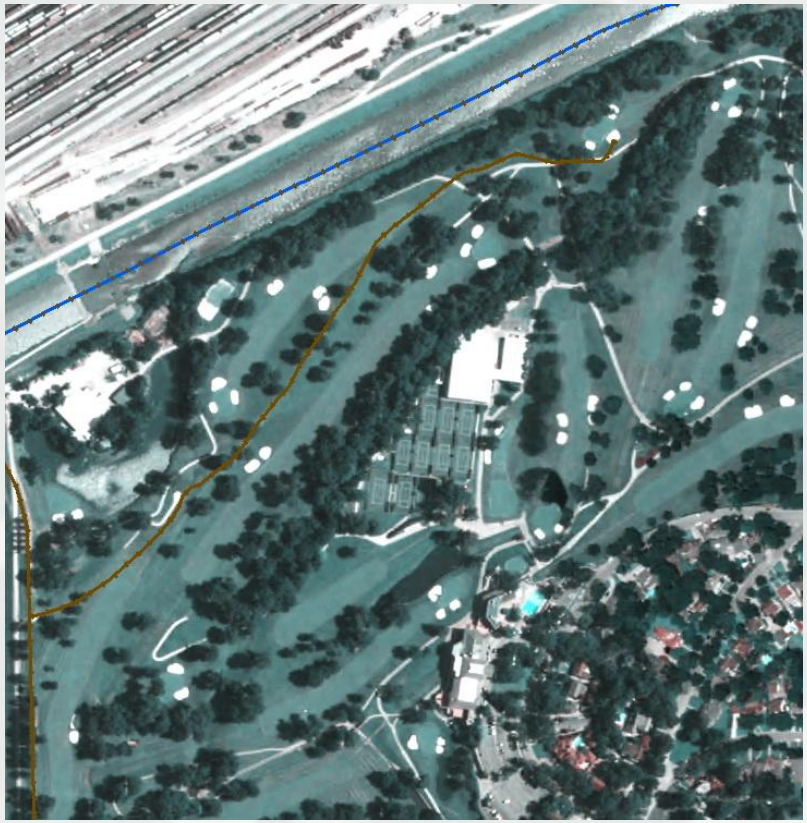
White Settlement Levee

2040 – 1.77’; 2055 - -0.3’



Watermelon Levee

2040 – 1.01’; 2055 - -0.1’



Discharge Increase Summarization

- Documentation submitted 13 MAR 2013
- Urbanization driven:
  - Mary's Creek
  - Village Creek
  - Bear Creek (also due to timing)
- Minor increases due to redistribution of storage:
  - FM 157 to SH 360
  - Johnson Creek to Grand Prairie Gage
  - Grand Prairie Gage to Bear Creek

CDC Update Fact Sheet

- ROD – 1988
- CDC Program established 1991
- 4th Edition being revised
- Effective at limiting loss of valley storage
- Q's and WSE's increased due to U/S development
- Need for regional stormwater management
- Need to restudy urban curve methodology
  - Requires additional stream gages