

# CANEY CREEK — I-69 CHANNELIZATION

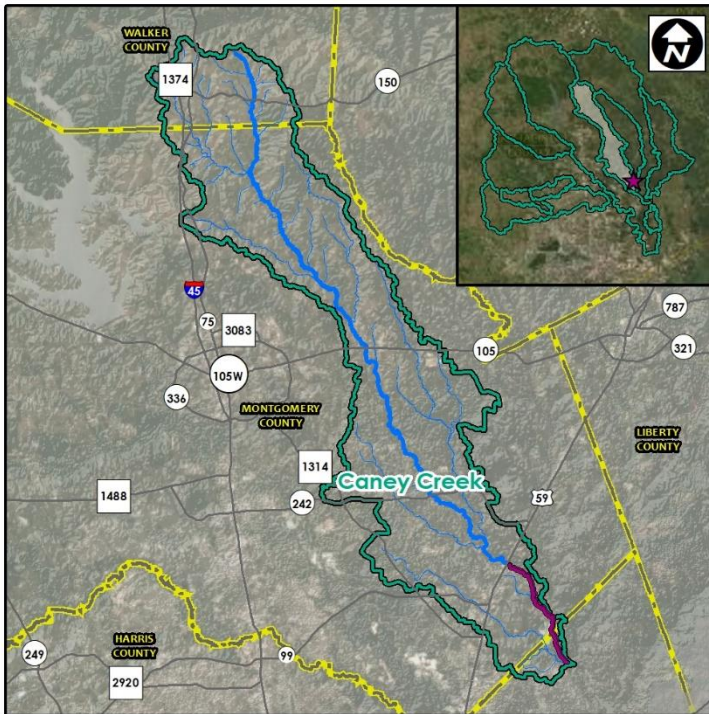
*(Recommend Project in SJMDP)*

**LOCATION:** Approximately 0.5 miles D/S of I-69 to confluence of East Fork of San Jacinto River

**OBJECTIVE:** Reduce flooding along Caney Creek

**HOW IT WORKS:** Channelization increases conveyance capacity; a separate upstream detention project in this watershed must be constructed first to mitigate adverse impact

**IMMEDIATE AREA BENEFIT:** Incremental Atlas 14 WSEL reduction along the channel – 1% ACE to 4% ACE



## IMPROVEMENT SPECIFICATIONS

- 7.8 miles of channelization
- 700-foot wide bench
- 629 acres
- 4.7M cubic yards of excavation
- 530 acre-feet mitigation required

## ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 509
- Reduction in instances of flooding over 50-year period: 1,122
- Benefited areas:
  - Baptist Encampment Road, New Caney
- Reduces 1% ACE WSEL at least 0.5 feet for 9.0 miles along Caney Creek
- Improves ponding depths on 5 road/rail crossings
- Net Present Value Benefit: \$57.4 M

## OPPORTUNITIES AND CHALLENGES

### POTENTIAL PARTNERS

Montgomery County, HCFCF, TxDOT, SJRA, USACE, TWDB, GLO

### REQUIRED REAL ESTATE

- 156 parcels within 1% ACE WSEL

### DESKTOP ENVIRONMENTAL MITIGATION

- 133 acres of potential wetlands
- 0 linear feet of NHD streams

### RELOCATIONS/RECONSTRUCTION\*

- 10 oil & gas pipeline conflicts
- 0.6 miles of roads (1% ACE)

## ESTIMATED COSTS

Design Cost.....	\$18M
Construction Cost.....	\$146M
Environmental Cost.....	\$20M
ROW Cost.....	\$6M
<b>TOTAL COSTS.....</b>	<b>\$189M</b>
20-Year Escalation Cost.....	\$287M

**BENEFIT-COST RATIO: 0.30**

\*Costs for these items are not explicitly included in the project estimate; however, a 30% contingency was added to the project that may cover all or a portion of these relocations. More detailed information should be provided during project development.

# CANEY CREEK — FM 1097 DETENTION

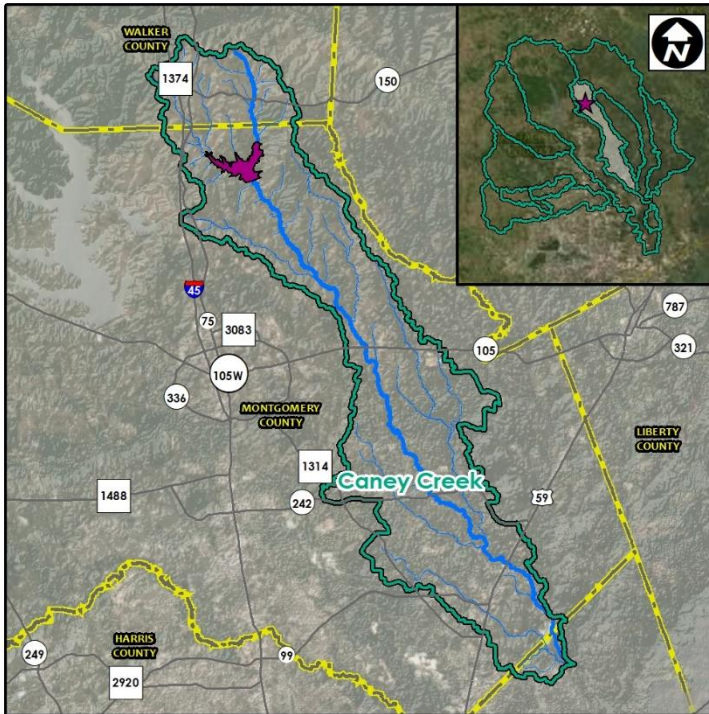
*(Recommend Project in SJMDP)*

**LOCATION:** Approximately 1.0 miles U/S of FM 1097 on Caney Creek

**OBJECTIVE:** Reduce flooding along Caney Creek

**HOW IT WORKS:** Dry dam detention facility impounds stream flow during flood events

**IMMEDIATE DOWNSTREAM BENEFIT:** Incremental Atlas 14 WSEL reduction – 1% ACE to 4% ACE



## IMPROVEMENT SPECIFICATIONS

- Dry dam detention facility
- 1,514 acres (1% ACE)
- 2,435 acres (PMF)
- 13,900 acre-feet (1% ACE)
- Embankment: 1.5M cubic yards
- Max dam height: 53 ft
- Dam length: 1.2 miles

## ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 285
- Reduction in instances of flooding over 50-year period: 783
- Benefited areas:
  - New Caney, The neighborhoods near SH 242 and FM 1484
  - Reduces 1% ACE WSEL at least 0.5 feet for 40.0 miles downstream of detention facility
- Improves ponding depths on 18 road/rail crossings
- Net Present Value Benefit: \$27.7M

## OPPORTUNITIES AND CHALLENGES

### POTENTIAL PARTNERS

Montgomery County, TxDOT, SJRA, HCFCD, USACE, TWDB, GLO

### REQUIRED REAL ESTATE

- 182 parcels within PMF
- 95 parcels within 1% ACE WSEL

### DESKTOP ENVIRONMENTAL MITIGATION

- 1 acre of potential wetlands
- 1,291 linear feet of NHD streams

### RELOCATIONS/RECONSTRUCTION\*

- No known oil & gas pipeline conflicts
- 4.1 miles of roads (PMF)
- 1.3 miles of roads (1% ACE)

## ESTIMATED COSTS

Design Cost.....	\$8M
Construction Cost .....	\$65M
Environmental Cost.....	\$8M
ROW Cost.....	\$24M-\$50M
<b>TOTAL COSTS.....</b>	<b>\$105M-\$131M</b>
20-Year Escalation Cost .....	\$159M-\$199M

**BENEFIT-COST RATIO: 0.21-0.26**

\*Costs for these items are not explicitly included in the project estimate; however, a 30% contingency was added to the project that may cover all or a portion of these relocations. More detailed information should be provided during project development.



## CANEY CREEK — SH 105 DETENTION

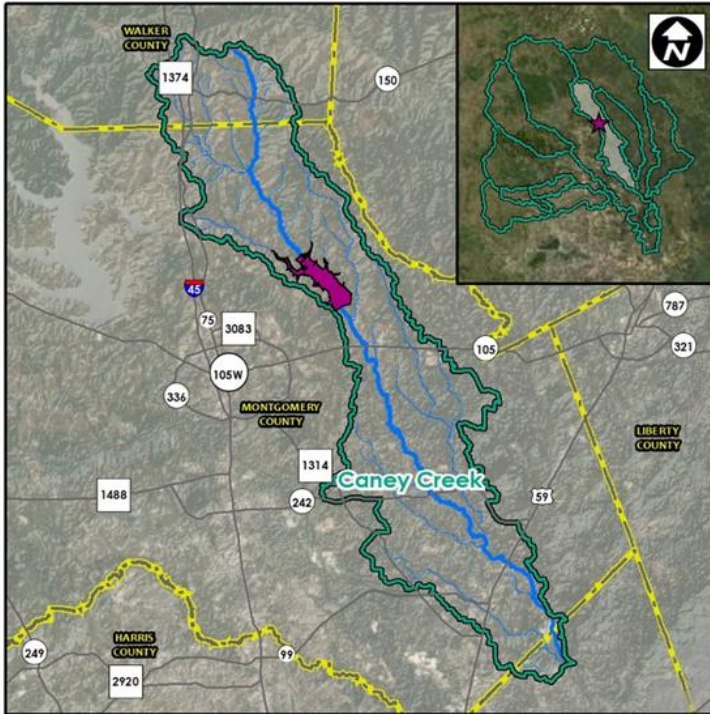
*(Recommend Project in SJMDP)*

**LOCATION:** Approximately 1.9 miles U/S of SH 105 on Caney Creek

**OBJECTIVE:** Reduce flooding along Caney Creek

**HOW IT WORKS:** Dry dam detention facility impounds stream flow during flood events

**IMMEDIATE DOWNSTREAM BENEFIT:** Incremental Atlas 14 WSEL reduction – 1% ACE to 4% ACE



### IMPROVEMENT SPECIFICATIONS

- Dry dam detention facility
- 1,502 acres (1% ACE)
- 2,310 acres (PMF)
- 28,090 acre-feet (1% ACE)
- Embankment: 1.2M cubic yards
- Max dam height: 62 ft
- Dam length: 0.8 miles

### ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 658
- Reduction in instances of flooding over 50-year period: 1,596
- Benefited areas:
  - The neighborhoods near SH 242 and FM 1484
- Reduces 1% ACE WSEL at least 0.5 feet for 31.5 miles downstream of detention facility
- Improves ponding depths on 11 road/rail crossings
- Net Present Value Benefit: \$55.2M

### OPPORTUNITIES AND CHALLENGES

#### POTENTIAL PARTNERS

Montgomery County, TxDOT, HCFCD, SJRA, TWDB, GLO, USACE

#### REQUIRED REAL ESTATE

- 402 parcels within PMF
- 227 parcels within 1% ACE WSEL

#### DESKTOP ENVIRONMENTAL MITIGATION

- 4 acres of potential wetlands
- 1,058 linear feet of NHD streams

#### RELOCATIONS/RECONSTRUCTION\*

- 1 oil & gas pipeline conflict
- 0.9 miles of roads (PMF)
- 0.5 miles of roads (1% ACE)

### ESTIMATED COSTS

Design Cost.....	\$7M
Construction Cost .....	\$61M
Environmental Cost.....	\$8M
ROW Cost.....	\$38M-\$74M
<b>TOTAL COSTS.....</b>	<b>\$114M-\$149M</b>
20-Year Escalation Cost .....	\$173M-\$227M

**BENEFIT-COST RATIO: 0.37-0.48**

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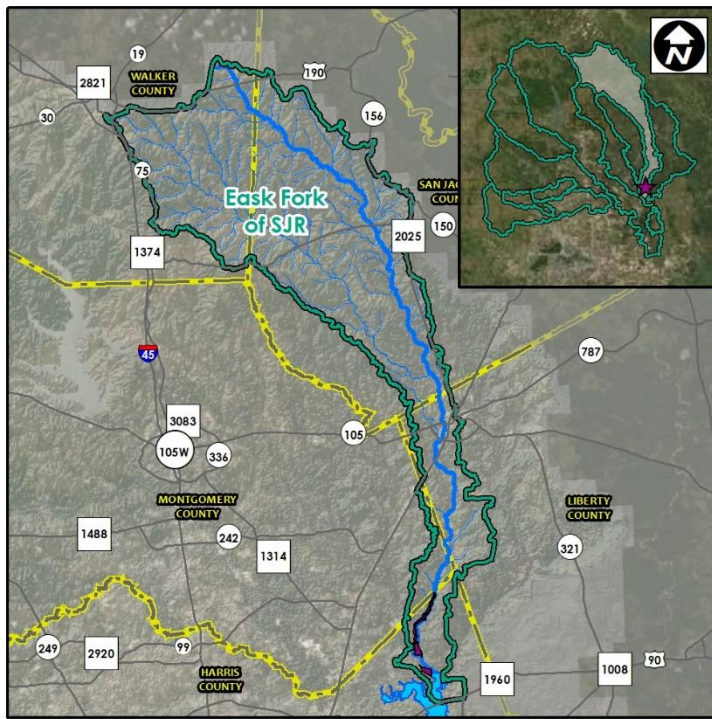
# EAST FORK SAN JACINTO — FM 1485 CHANNELIZATION

LOCATION: FM 1485 to Luce Bayou confluence on East Fork of San Jacinto River

OBJECTIVE: Reduce flooding along East Fork of San Jacinto River

HOW IT WORKS: Channelization increases conveyance capacity; a separate upstream detention project in this watershed must be constructed first to mitigate adverse impact

**IMMEDIATE AREA BENEFIT:** Incremental Atlas 14 WSEL reduction along the channel – 1% ACE to 10% ACE



## OPPORTUNITIES AND CHALLENGES

## POTENTIAL PARTNERS

Harris County, HCFCD, SJRA, TxDOT, City of Houston, USACE, TWDB, GLO

## REQUIRED REAL ESTATE

- 166 parcels within 1% ACE WSEL

## DESKTOP ENVIRONMENTAL MITIGATION

- 286 acres of potential wetlands
- 0 linear feet of NHD streams

## RELOCATIONS/RECONSTRUCTION\*

- 5 oil & gas pipeline conflicts
- 0 miles of roads (1% ACE)

## IMPROVEMENT SPECIFICATIONS

- 4.3 miles of channelization
- 1400-foot wide bench
- 882 acres
- 12.4 cubic yards of excavation
- 15,000 acre-feet mitigation required

## ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 318
- Reduction in instances of flooding over 50-year period: 727
- Benefited areas:
  - Kingwood, River Terrace, Rolling Creek Acres
- Reduces 1% ACE WSEL at least 0.5 feet for 10.4 miles
- Improves ponding depths on 5 road/rail crossings
- Net Present Value Benefit: \$26.4M

## ESTIMATED COSTS

Design Cost.....	\$29M
Construction Cost .....	\$243M
Environmental Cost.....	\$36M
ROW Cost.....	\$32M
<b><u>TOTAL COSTS.....</u></b>	<b><u>\$340M</u></b>
20-Year Escalation Cost .....	\$515M

**BENEFIT-COST RATIO: 0.08**

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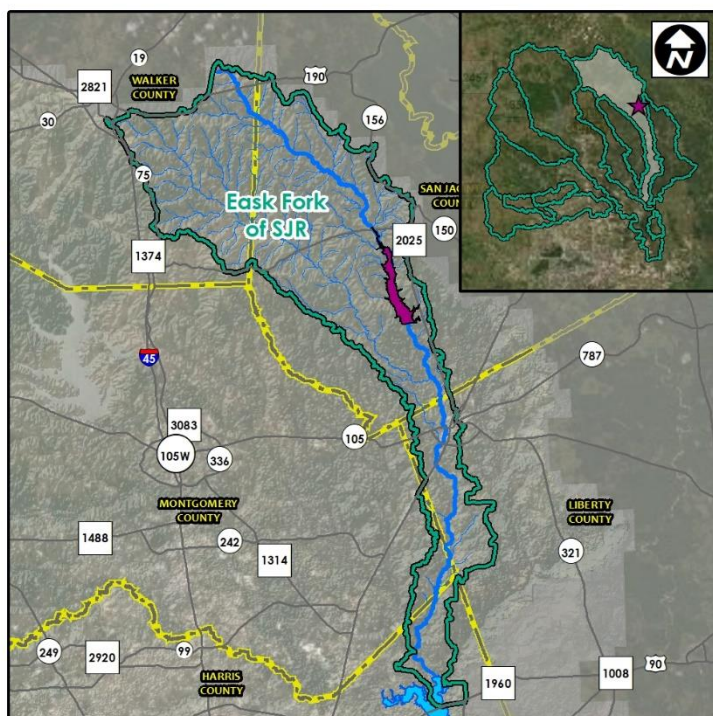
## EAST FORK SAN JACINTO — FM 945 DETENTION

**LOCATION:** Approximately 10 miles U/S of Cleveland on East Fork of San Jacinto River

**OBJECTIVE:** Reduce flooding along East Fork of San Jacinto River

**HOW IT WORKS:** Dry dam detention facility impounds stream flow during flood events

**IMMEDIATE DOWNSTREAM BENEFIT:** Incremental Atlas 14 WSEL reduction – 1% ACE to 2% ACE



### IMPROVEMENT SPECIFICATIONS

- Dry dam detention facility
- 3,030 acres (1% ACE)
- 3,182 acres (PMF)
- 28,248 acre-feet (1% ACE)
- Embankment: 1.3M cubic yards
- Max dam height: 54 ft
- Dam length: 1.4 miles

### ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 570
- Reduction in instances of flooding over 50-year period: 1,109
- Location of benefits:
  - Cleveland, Plum Grove
- Reduces 1% ACE WSEL at least 0.5 feet for 38.7 miles downstream of detention facility
- Improves ponding depths on 6 road/rail crossings
- Net Present Value Benefit: \$51.9M

### OPPORTUNITIES AND CHALLENGES

#### POTENTIAL PARTNERS

San Jacinto County, SJRA, TxDOT, USACE, USDA, BNSF Railroad, UPRR, TWDB, GLO, HCFC

#### REQUIRED REAL ESTATE

- 328 parcels within PMF
- 214 parcels within 1% ACE WSEL

#### DESKTOP ENVIRONMENTAL MITIGATION

- 12 acres of potential wetlands
- 1,617 linear feet of NHD streams

#### RELOCATIONS/RECONSTRUCTION\*

- 4 oil & gas pipeline conflicts
- 0.6 miles of roads (PMF)
- 0.1 miles of roads (1% ACE)

### ESTIMATED COSTS

Design Cost.....	\$9M
Construction Cost .....	\$73M
Environmental Cost.....	\$11M
ROW Cost.....	\$53M-\$73M
<b>TOTAL COSTS.....</b>	<b>\$146M-\$166M</b>
20-Year Escalation Cost .....	\$221M-\$251M

### BENEFIT-COST RATIO: 0.31-0.36

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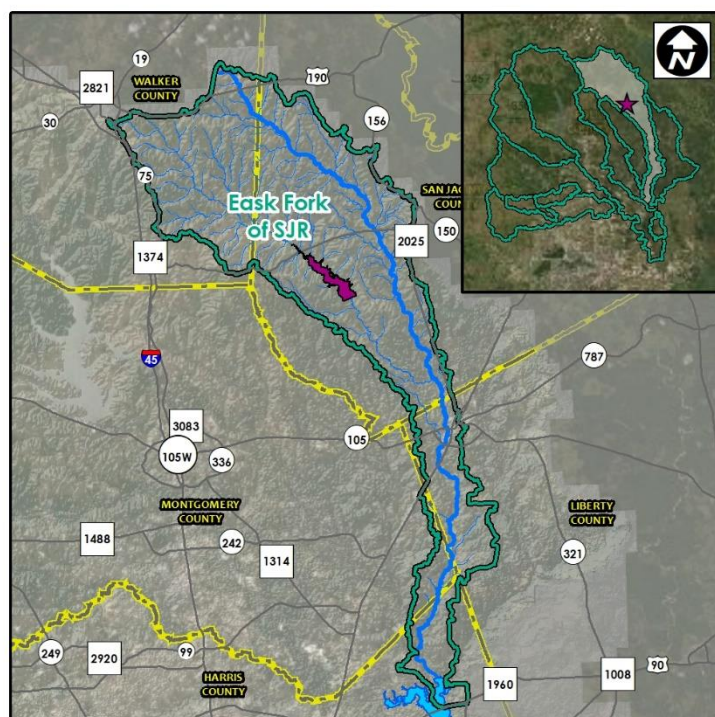
## EAST FORK SAN JACINTO — WINTERS BAYOU NEBLETT'S DETENTION

**LOCATION:** Approximately 11 miles U/S Winters Bayou from East Fork of San Jacinto River

**OBJECTIVE:** Reduce flooding along East Fork of San Jacinto River

**HOW IT WORKS:** Dry dam detention facility impounds stream flow during flood events

**IMMEDIATE DOWNSTREAM BENEFIT:** Incremental Atlas 14 WSEL reduction – 1% ACE to 2% ACE



### OPPORTUNITIES AND CHALLENGES

#### POTENTIAL PARTNERS

San Jacinto County, SJRA, TxDOT, USACE, USDA, BNSF Railroad, UPRR, TWDB, GLO, HCFCD,

#### REQUIRED REAL ESTATE

- 182 parcels within PMF
- 105 parcels within 1% ACE WSEL

#### DESKTOP ENVIRONMENTAL MITIGATION

- 7.5 acres of potential wetlands
- 1,385 linear feet of NHD streams

#### RELOCATIONS/RECONSTRUCTION\*

- No known oil & gas pipeline conflicts
- 0.7 miles of roads (PMF)
- 1.2 miles of roads (1% ACE)

### IMPROVEMENT SPECIFICATIONS

- Dry dam detention facility
- 2,271 acres (1% ACE)
- 2,385 acres (PMF)
- 36,370 acre-feet (1% ACE)
- Embankment: 1.4M cubic yards
- Max dam height: 53 ft
- Dam length: 1.3 miles

### ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 544
- Reduction in instances of flooding over 50-year period: 1,215
- Location of benefits:
  - Cleveland, Plum Grove
- Reduces 1% ACE WSEL at least 0.5 feet for 31.6 miles along East Fork
- Improves ponding depths on 10 road/rail crossings
- Net Present Value Benefit: \$57.3M

### ESTIMATED COSTS

Design Cost.....	\$7M
Construction Cost .....	\$62M
Environmental Cost.....	\$9M
ROW Cost.....	\$52M-\$102M
<b>TOTAL COSTS.....</b>	<b>\$131M-\$181M</b>
20-Year Escalation Cost .....	\$198M-\$274M

### BENEFIT-COST RATIO: 0.32-0.44

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# EAST FORK SAN JACINTO – WINTERS BAYOU DETENTION

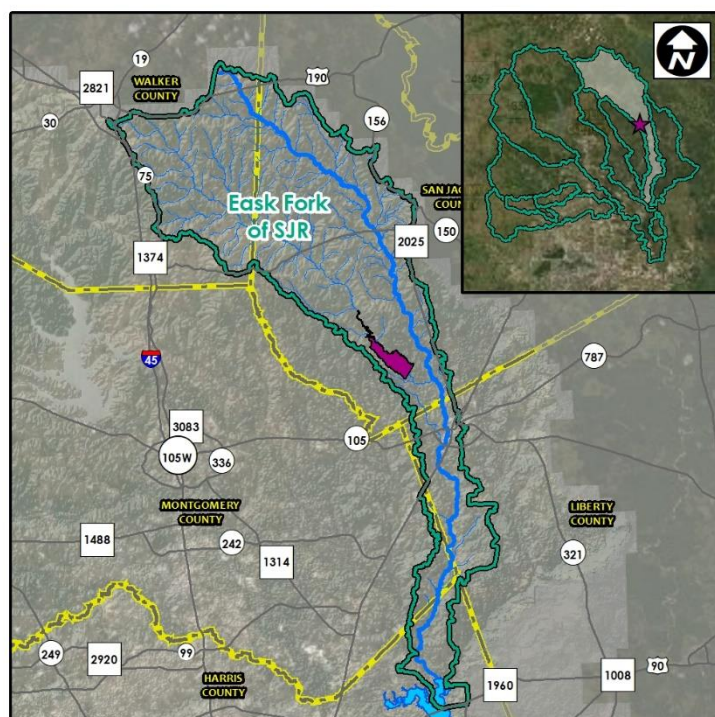
*(Recommend Project in SJMDP)*

**LOCATION:** Approximately 3 miles U/S Winters Bayou from East Fork of San Jacinto River

**OBJECTIVE:** Reduce flooding along East Fork of San Jacinto River

**HOW IT WORKS:** Dry dam detention facility impounds stream flow during flood events

**IMMEDIATE DOWNSTREAM BENEFIT:** Incremental Atlas 14 WSEL reduction – 1% ACE to 2% ACE



## IMPROVEMENT SPECIFICATIONS

- Dry dam detention facility
- 2,480 acres (1% ACE)
- 2,600 acres (PMF)
- 45,055 acre-feet (1% ACE)
- Embankment: 1.3M cubic yards
- Max dam height: 48 ft
- Dam length: 1.6 miles

## ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 615
- Reduction in instances of flooding over 50-year period: 1,334
- Location of benefits:
  - Cleveland, Plum Grove
- Reduces 1% ACE WSEL at least 0.5 feet for 31.6 miles along East Fork
- Improves ponding depths on 10 road/rail crossings
- Net Present Value Benefit: \$63.5M

## OPPORTUNITIES AND CHALLENGES

### POTENTIAL PARTNERS

San Jacinto County, SJRA, TxDOT, USACE, USDA, BNSF Railroad, UPRR, TWDB, GLO, HCFC

### REQUIRED REAL ESTATE

- 181 parcels within PMF
- 88 parcels within 1% ACE

### DESKTOP ENVIRONMENTAL MITIGATION

- 18 acres of potential wetlands
- 442 linear feet of NHD streams

### RELOCATIONS/RECONSTRUCTION\*

- 3 oil & gas pipeline conflicts
- 1.5 miles of roads (PMF)
- 1.1 miles of roads (1% ACE)

## ESTIMATED COSTS

Design Cost.....	\$9M
Construction Cost.....	\$74M
Environmental Cost.....	\$7M
ROW Cost.....	\$45M-\$77M
<b>TOTAL COSTS.....</b>	<b>\$134M-\$167M</b>
20-Year Escalation Cost .....	\$204M-\$252M

**BENEFIT-COST RATIO: 0.38-0.47**

\*Costs for these items are not explicitly included in the project estimate; however, a 30% contingency was added to the project that may cover all or a portion of these relocations. More detailed information should be provided during project development.

# LAKE CREEK — CANEY CREEK DETENTION

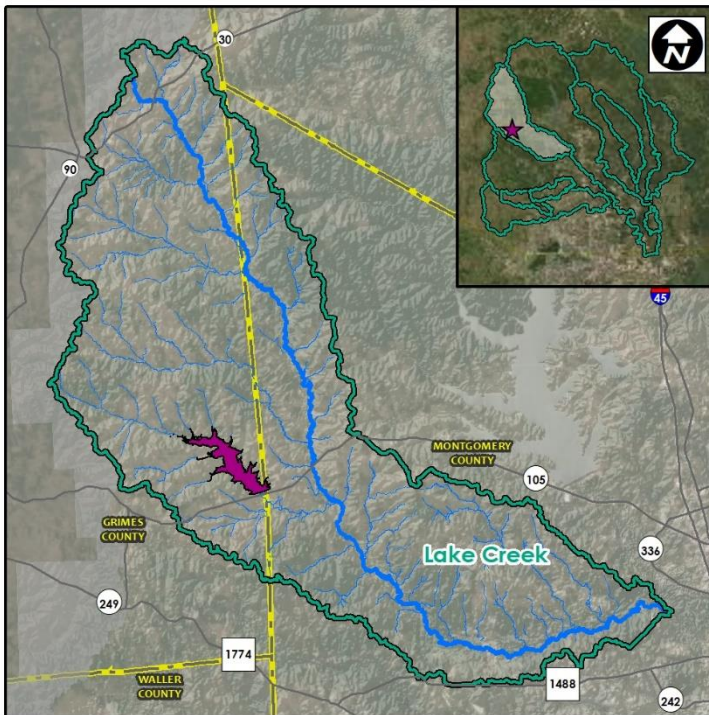
*(Recommend Project in SJMDP)*

**LOCATION:** Approximately 0.3 miles U/S of SH 105 on Caney Creek

**OBJECTIVE:** Reduce flooding along Lake Creek

**HOW IT WORKS:** Dry dam detention facility impounds stream flow during flood events

**IMMEDIATE DOWNSTREAM BENEFIT:** Incremental Atlas 14 WSEL reduction – 1% ACE to 2% ACE



## IMPROVEMENT SPECIFICATIONS

- Dry dam detention facility
- 1,886 acres (1% ACE)
- 3,272 acres (PMF)
- 19,750 acre-feet (1% ACE)
- Embankment: 825k cubic yards
- Max dam height: 52 ft
- Dam length: 0.8 miles

## ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 323
- Reduction in instances of flooding over 50-year period: 686
- Benefited areas:
  - Woodforest, River Plantation, City of Conroe, Woodloch
- Reduces 1% ACE WSEL at least 0.5 feet for 35.1 miles along Lake Creek
- Improves ponding depths on 4 road/rail crossings
- Net Present Value Benefit: \$42.1M

## OPPORTUNITIES AND CHALLENGES

### POTENTIAL PARTNERS

Grimes County, Montgomery County, SJRA, USACE, TWDB, GLO, HCFCD,

### REQUIRED REAL ESTATE

- 220 parcels within PMF
- 123 parcels within 1% ACE WSEL

### DESKTOP ENVIRONMENTAL MITIGATION

- 10 acres of potential wetlands
- 660 linear feet of NHD streams

### RELOCATIONS/RECONSTRUCTION\*

- No known gas pipeline conflicts
- 4.9 miles of roads (PMF)
- 1.1 miles of roads (1% ACE)

## ESTIMATED COSTS

Design Cost.....	\$4M
Construction Cost .....	\$34M
Environmental Cost.....	\$7M
ROW Cost.....	\$54M–\$118M
<b>TOTAL COSTS.....</b>	<b>\$98M–\$163M</b>
20-Year Escalation Cost .....	\$149M–\$247M

**BENEFIT-COST RATIO: 0.26–0.43**

\*Costs for these items are not explicitly included in the project estimate; however, a 30% contingency was added to the project that may cover all or a portion of these relocations. More detailed information should be provided during project development.



# LAKE CREEK — GARRETT'S CREEK DETENTION

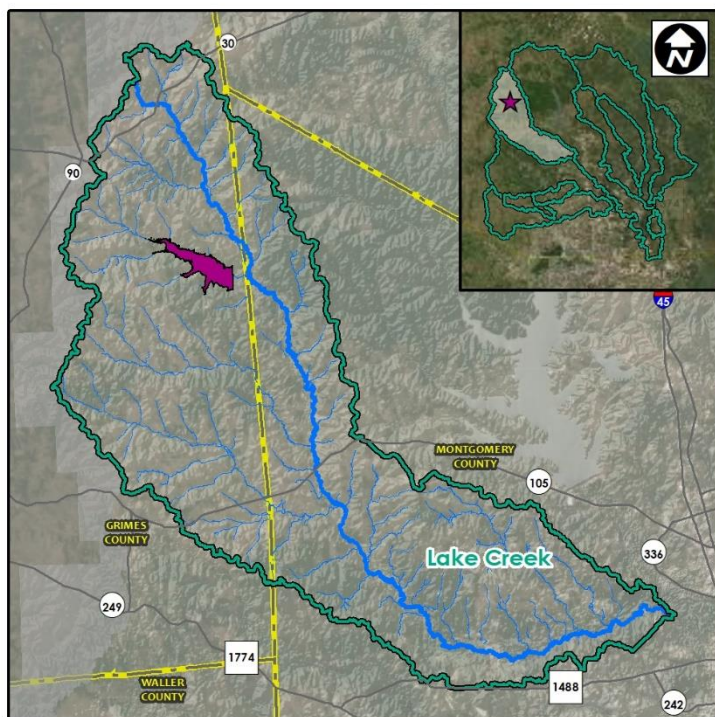
*(Recommend Project in SJMDP)*

**LOCATION:** Approximately 0.7 miles U/S of Lake Creek on Garretts Creek

**OBJECTIVE:** Reduce flooding along Lake Creek

**HOW IT WORKS:** Dry dam detention facility impounds stream flow during flood events

**IMMEDIATE DOWNSTREAM BENEFIT:** Incremental Atlas 14 WSEL reduction – 1% ACE to 2% ACE



## IMPROVEMENT SPECIFICATIONS

- Dry dam detention facility
- 1,739 acres (1% ACE)
- 3,009 acres (PMF)
- 16,850 acre-feet (1% ACE)
- Embankment: 1.0M cubic yards
- Max dam height: 43 ft
- Dam length: 1.2 miles

## ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 295
- Reduction in instances of flooding over 50-year period: 684
- Benefited areas:
  - Dobbin, River Plantation, City of Conroe, Woodloch, Woodforest
- Reduces 1% ACE WSEL at least 0.5 feet for 53.2 miles along Lake Creek
- Improves ponding depths on 7 road/rail crossings
- Net Present Value Benefit: \$39.8M

## OPPORTUNITIES AND CHALLENGES

### POTENTIAL PARTNERS

Grimes County, Montgomery County, TxDOT, SJRA, USACE, TWDB, GLO, HCFCD

### REQUIRED REAL ESTATE

- 74 parcels within PMF
- 36 parcels within 1% ACE WSEL

### DESKTOP ENVIRONMENTAL MITIGATION

- 35 acres of potential wetlands
- 2,590 linear feet of NHD streams

### RELOCATIONS/RECONSTRUCTION\*

- 2 oil & gas pipeline conflicts
- 4.6 miles of roads (PMF)
- 1.5 miles of roads (1% ACE)

## ESTIMATED COSTS

Design Cost.....	\$6M
Construction Cost .....	\$51M
Environmental Cost.....	\$17M
ROW Cost.....	\$32M-\$56M
<b>TOTAL COSTS.....</b>	<b>\$107M-\$131M</b>
20-Year Escalation Cost .....	\$162M-\$198M

**BENEFIT-COST RATIO: 0.31-0.37**

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# LAKE CREEK — LITTLE CANEY CREEK DETENTION

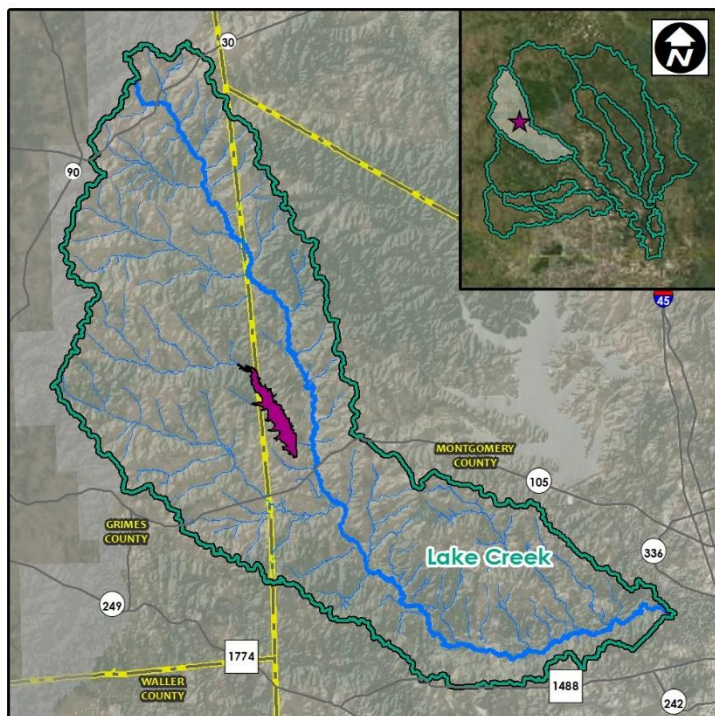
*(Recommend Project in SJMDP)*

**LOCATION:** Approximately 1.1 miles U/S of Lake Creek on Little Caney Creek, West of FM 1486

**OBJECTIVE:** Reduce flooding along Lake Creek

**HOW IT WORKS:** Dry dam detention facility impounds stream flow during flood events

**IMMEDIATE DOWNSTREAM BENEFIT:** Incremental Atlas 14 WSEL reduction – 1% ACE to 2% ACE



## IMPROVEMENT SPECIFICATIONS

- Dry dam detention facility
- 1,612 acres (1% ACE)
- 2,976 acres (PMF)
- 17,500 acre-feet (1% ACE)
- Embankment: 1.2M cubic yards
- Max dam height: 51 ft
- Dam length: 0.8 miles

## ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 248
- Reduction in instances of flooding over 50-year period: 564
- Benefited areas:
  - Woodforest, River Plantation, City of Conroe, Dobbin, Woodloch
- Reduces 1% ACE WSEL at least 0.5 feet for 40.1 miles along Lake Creek
- Improves ponding depths on 6 road/rail crossings
- Net Present Value Benefit: \$35.0M

## OPPORTUNITIES AND CHALLENGES

### POTENTIAL PARTNERS

Montgomery County, Grimes County, SJRA, USACE, TWDB, GLO, HCFCD

### REQUIRED REAL ESTATE

- 215 parcels within PMF
- 111 parcels within 1% ACE WSEL

### DESKTOP ENVIRONMENTAL MITIGATION

- 8.9 acres of potential wetlands
- 1,105 linear feet of NHD streams

### RELOCATIONS/RECONSTRUCTION\*

- 6 oil & gas pipeline conflicts
- 3.5 miles of roads (PMF)
- 1.2 miles of roads (1% ACE)

## ESTIMATED COSTS

Design Cost.....	\$6M
Construction Cost .....	\$49M
Environmental Cost.....	\$10M
ROW Cost.....	\$33M-\$63M
<b>TOTAL COSTS.....</b>	<b>\$98M-\$128M</b>
20-Year Escalation Cost .....	\$149M-\$195M

**BENEFIT-COST RATIO: 0.27-0.36**

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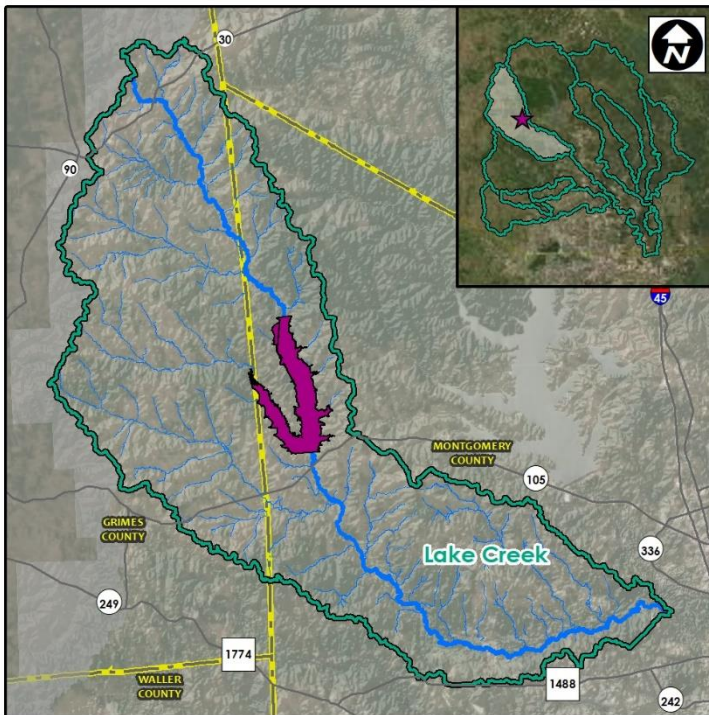
## LAKE CREEK — MAINSTEM DETENTION

**LOCATION:** Approximately 0.8 miles U/S of SH 105 on Lake Creek

**OBJECTIVE:** Reduce flooding along Lake Creek

**HOW IT WORKS:** Dry dam detention facility impounds stream flow during flood events

**IMMEDIATE DOWNSTREAM BENEFIT:** Incremental Atlas 14 WSEL reduction – 1% ACE to 2% ACE



### OPPORTUNITIES AND CHALLENGES

#### POTENTIAL PARTNERS

Montgomery County, TxDOT, SJRA, USACE, GLO, HCFC

#### REQUIRED REAL ESTATE

- 483 parcels within PMF
- 209 parcels within 1% ACE WSEL

#### DESKTOP ENVIRONMENTAL MITIGATION

- 23 acres of potential wetlands
- 810 linear feet of NHD streams

#### RELOCATIONS/RECONSTRUCTION\*

- 5 oil & gas pipeline conflicts
- 10.1 miles of roads (PMF)
- 2.8 miles of roads (1% ACE)

### IMPROVEMENT SPECIFICATIONS

- Dry dam detention facility
- 4,942 acres (1% ACE)
- 8,060 acres (PMF)
- 75,100 acre-feet (1% ACE)
- Embankment: 3.0M cubic yards
- Max dam height: 58 ft
- Dam length: 1.3 miles

### ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 931
- Reduction in instances of flooding over 50-year period: 1,694
- Benefited areas:
  - Woodforest, River Plantation, City of Conroe, Dobbin, Woodloch
- Reduces 1% ACE WSEL at least 0.5 feet for 36.1 miles downstream of detention facility
- Improves ponding depths on 6 road/rail crossings
- Net Present Value Benefit: \$100.4M

### ESTIMATED COSTS

Design Cost.....	\$11M
Construction Cost .....	\$97M
Environmental Cost.....	\$7M
ROW Cost.....	\$74M-\$154M
<b>TOTAL COSTS.....</b>	<b>\$187M-\$267M</b>
20-Year Escalation Cost .....	\$284M-\$405M

**BENEFIT-COST RATIO: 0.38-0.54**

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# PEACH CREEK — I-69 CHANNELIZATION

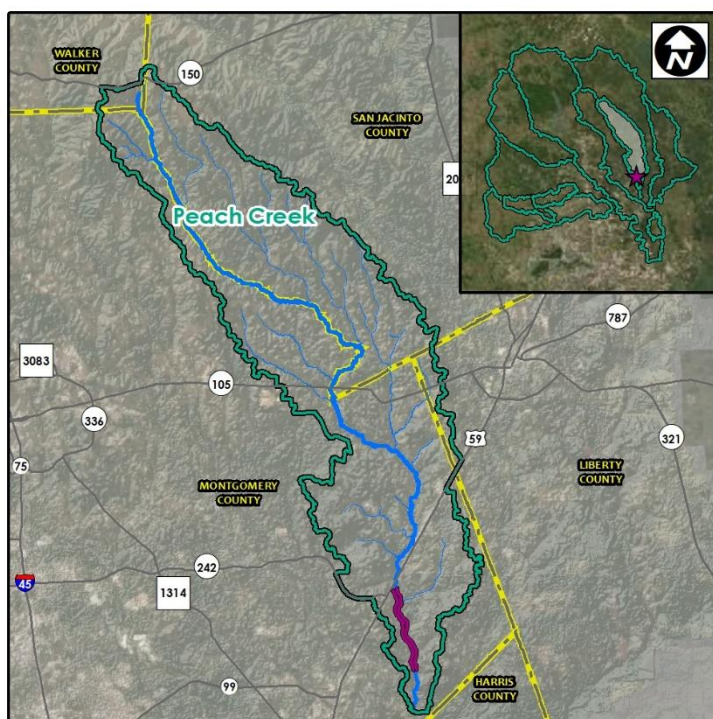
*(Recommend Project in SJMDP)*

**LOCATION:** D/S of I-69 to FM 1485 on Peach Creek

**OBJECTIVE:** Reduce flooding along Peach Creek

**HOW IT WORKS:** Channelization increases conveyance capacity; a separate upstream detention project in this watershed must be constructed first to mitigate adverse impact

**IMMEDIATE AREA BENEFIT:** Incremental Atlas 14 WSEL reduction along the channel – 1% ACE to 4% ACE



## IMPROVEMENT SPECIFICATIONS

- 4.3 miles of channelization
- 800-foot wide bench
- 417 acres
- 7M cubic yards of excavation
- 800 acre-feet mitigation required

## ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 383
- Reduction in instances of flooding over 50-year period: 1,880
- Benefited areas:
  - Woodbranch, Patton Village, Roman Forest
- Reduces 1% ACE WSEL at least 0.5 feet for 6.2 miles along Peach Creek
- Improves ponding depths on 4 road/rail crossings
- Net Present Value Benefit: \$73.6M

## OPPORTUNITIES AND CHALLENGES

### POTENTIAL PARTNERS

Montgomery County, SJRA, USACE, TWDB, GLO

### REQUIRED REAL ESTATE

- 286 parcels within 1% ACE WSEL

### DESKTOP ENVIRONMENTAL MITIGATION

- 28 acres of potential wetlands
- 0 linear feet of NHD streams

### RELOCATIONS/RECONSTRUCTION\*

- 3 oil & gas pipeline conflicts
- 1.9 miles of roads

## ESTIMATED COSTS

Design Cost.....	\$15M
Construction Cost.....	\$129M
Environmental Cost.....	\$7M
ROW Cost .....	\$8M
<b>TOTAL COSTS .....</b>	<b>\$159M</b>
20-Year Escalation Cost .....	\$241M

**BENEFIT-COST RATIO: 0.46**

\*Costs for these items are not explicitly included in the project estimate; however, a 30% contingency was added to the project that may cover all or a portion of these relocations. More detailed information should be provided during project development.



## PEACH CREEK — SH 105 DETENTION

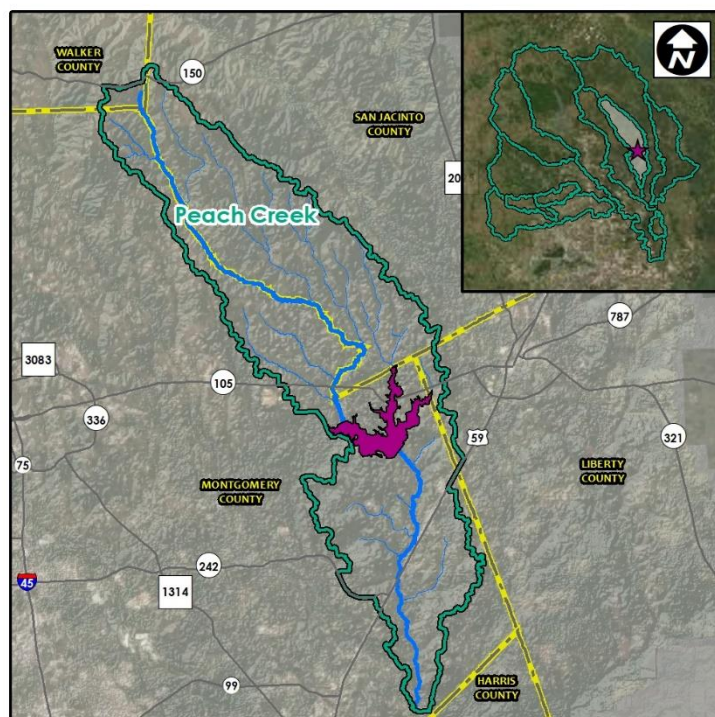
*(Recommend Project in SJMDP)*

**LOCATION:** Approximately 12 miles U/S of New Caney on Peach Creek

**OBJECTIVE:** Reduce flooding along Peach Creek

**HOW IT WORKS:** Dry dam detention facility impounds stream flow during flood events

**IMMEDIATE DOWNSTREAM BENEFIT:** Incremental Atlas 14 WSEL reduction – 1% ACE to 4% ACE



### IMPROVEMENT SPECIFICATIONS

- Dry dam detention facility
- 3,025 acres (1% ACE)
- 5,195 acres (PMF)
- 36,197 acre-feet (1% ACE)
- Embankment: 6.4M cubic yards
- Max dam height: 46 ft
- Dam length: 4.7 miles

### ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 400
- Reduction in instances of flooding over 50-year period: 1,768
- Benefited areas:
  - Woodbranch and Splendora
- Reduces 1% ACE WSEL at least 0.5 feet for 15.4 miles downstream of detention facility
- Improves ponding depths on 6 road/rail crossings
- Net Present Value Benefit: \$81.5M

### OPPORTUNITIES AND CHALLENGES

#### POTENTIAL PARTNERS

Montgomery County, SJRA, USACE, TWDB, GLO

#### REQUIRED REAL ESTATE

- 505 parcels within PMF
- 273 parcels within 1% ACE WSEL

#### DESKTOP ENVIRONMENTAL MITIGATION

- 7 acres of potential wetlands
- 900 linear feet of NHD streams

#### RELOCATIONS/RECONSTRUCTION\*

- 1 oil & gas pipeline conflict
- 10.7 miles of roads (PMF)
- 4.7 miles of roads (1% ACE)

### ESTIMATED COSTS

Design Cost.....	\$26M
Construction Cost .....	\$214M
Environmental Cost.....	\$7M
ROW Cost.....	\$110M–\$187M
<b>TOTAL COSTS.....</b>	<b>\$356M–\$433M</b>
20-Year Escalation Cost .....	\$540M–\$657M

**BENEFIT-COST RATIO: 0.19–0.23**

\*Costs for these items are not explicitly included in the project estimate; however, a 30% contingency was added to the project that may cover all or a portion of these relocations. More detailed information should be provided during project development.

## PEACH CREEK — WALKER DETENTION

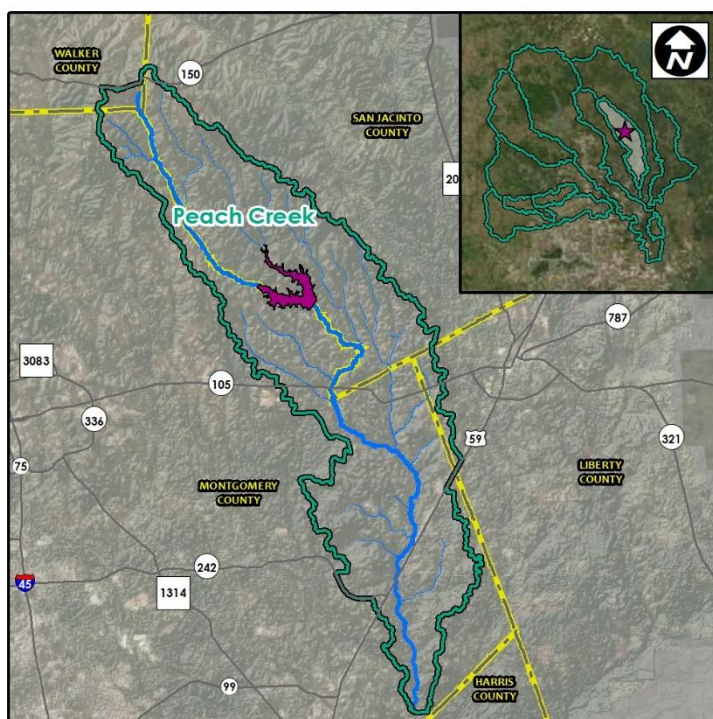
*(Recommend Project in SJMDP)*

**LOCATION:** Approximately 19 miles U/S of New Caney on Peach Creek

**OBJECTIVE:** Reduce flooding along Peach Creek

**HOW IT WORKS:** Dry dam detention facility impounds stream flow during flood events

**IMMEDIATE DOWNSTREAM BENEFIT:** Incremental Atlas 14 WSEL reduction – 1% ACE to 10% ACE



### IMPROVEMENT SPECIFICATIONS

- Dry dam detention facility
- 1,235 acres (1% ACE)
- 2,191 acres (PMF)
- 36,000 acre-feet (1% ACE)
- Embankment: 4.7M cubic yards
- Max dam height: 51 ft
- Dam length: 3.2 miles

### ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 261
- Reduction in instances of flooding over 50-year period: 1,073
- Benefited areas:
  - Woodbranch, Patton Village, Splendora
- Reduces 1% ACE WSEL at least 0.5 feet for 30.5 miles downstream of detention facility
- Improves ponding depths on 9 road/rail crossings
- Net Present Value Benefit: \$56.3M

### OPPORTUNITIES AND CHALLENGES

#### POTENTIAL PARTNERS

Montgomery County, San Jacinto County, TxDOT, SJRA, USACE, TWDB, GLO

#### REQUIRED REAL ESTATE

- 60 parcels within PMF
- 42 parcels within 1% ACE WSEL

#### DESKTOP ENVIRONMENTAL MITIGATION

- 9 acres of potential wetlands
- 1,365 linear feet of NHD streams

#### RELOCATIONS/RECONSTRUCTION\*

- 1 oil & gas pipeline conflict
- 1.1 miles of roads (PMF)
- 0.4 miles of roads (1% ACE)

### ESTIMATED COSTS

Design Cost.....	\$19M
Construction Cost .....	\$160M
Environmental Cost.....	\$9M
ROW Cost.....	\$13M-\$30M
<b>TOTAL COSTS.....</b>	<b>\$201M-\$218M</b>
20-Year Escalation Cost .....	\$305M-\$331M

**BENEFIT-COST RATIO: 0.26-0.28**

\*Costs for these items are not explicitly included in the project estimate; however, a 30% contingency was added to the project that may cover all or a portion of these relocations. More detailed information should be provided during project development.



## SPRING CREEK — WOODLANDS CHANNELIZATION (200-ft)

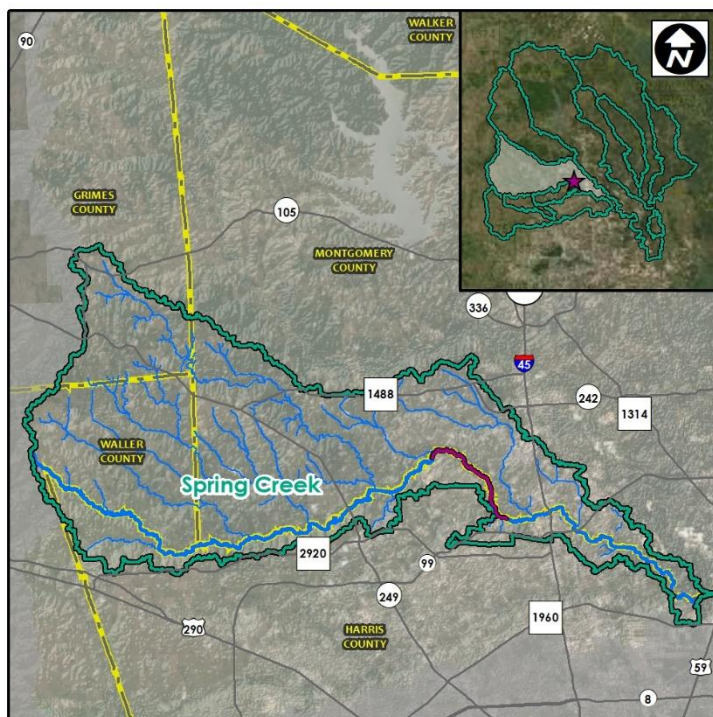
*(Recommend Project in SJMDP)*

**LOCATION:** U/S of Kuykendahl Road to D/S of Willow Creek confluence on Spring Creek

**OBJECTIVE:** Reduce flooding along Spring Creek

**HOW IT WORKS:** Channelization increases conveyance capacity; a separate upstream detention project in this watershed must be constructed first to mitigate adverse impact

**IMMEDIATE AREA BENEFIT:** Incremental Atlas 14 WSEL reduction along the channel – 1% ACE to 2% ACE



### IMPROVEMENT SPECIFICATIONS

- 8.8 miles of channelization
- 200-foot wide bench
- 155 acres
- 1.9M cubic yards of excavation
- 7,200 acre-feet mitigation required

### ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 221
- Reduction in instances of flooding over 50-year period: 477
- Benefited areas:
  - The Woodlands, Timber Lakes
- Reduces 1% ACE WSEL at least 0.5 feet for 11.8 miles along Spring Creek
- Improves ponding depths on 2 road/rail crossings
- Net Present Value Benefit: \$34.7M

### OPPORTUNITIES AND CHALLENGES

#### POTENTIAL PARTNERS

Montgomery County, SJRA, USACE, MUD 386, The Woodlands Township, Woodlands Water Agency, TWDB, GLO, HCFCD

#### REQUIRED REAL ESTATE

- 113 parcels within 1% ACE WSEL

#### DESKTOP ENVIRONMENTAL MITIGATION

- 11 acres of potential wetlands
- 0 linear feet of NHD streams

#### RELOCATIONS/RECONSTRUCTION\*

- 2 oil & gas pipeline conflicts
- 0.10 miles of roads (1% ACE)

### ESTIMATED COSTS

Design Cost.....	\$6M
Construction Cost.....	\$47M
Environmental Cost.....	\$1M
ROW Cost.....	\$2M
<b>TOTAL COSTS.....</b>	<b>\$56M</b>
20-Year Escalation Cost .....	\$85M

**BENEFIT-COST RATIO: 0.62**

\*Costs for these items are not explicitly included in the project estimate; however, a 30% contingency was added to the project that may cover all or a portion of these relocations. More detailed information should be provided during project development.

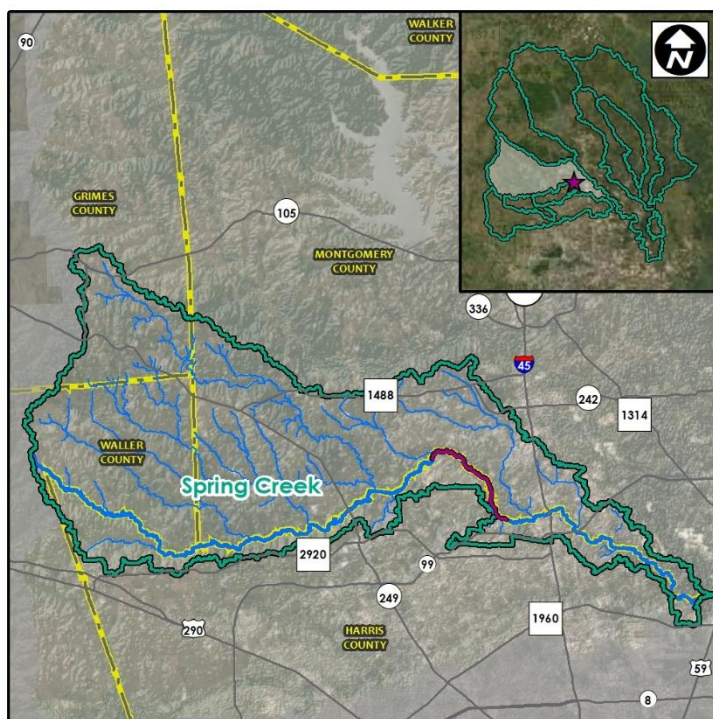
## SPRING CREEK — WOODLANDS CHANNELIZATION (500-ft)

**LOCATION:** U/S of Kuykendahl Road to D/S of Willow Creek confluence on Spring Creek

**OBJECTIVE:** Reduce flooding along Spring Creek

**HOW IT WORKS:** Channelization increases conveyance capacity; a separate upstream detention project in this watershed must be constructed first to mitigate adverse impact

**IMMEDIATE AREA BENEFIT:** Incremental Atlas 14 WSEL reduction along the channel – 1% ACE to 10% ACE



### IMPROVEMENT SPECIFICATIONS

- 9.7 miles of channelization
- 500-foot wide bench
- 577 acres
- 6.0M cubic yards of excavation
- 12,500 acre-feet mitigation required

### ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 357
- Reduction in instances of flooding over 50-year period: 776
- Benefited areas:
  - The Woodlands, Timber Lakes
- Reduces 1% ACE WSEL at least 0.5 feet for 12.7 miles along Spring Creek
- Improves ponding depths on 4 road/rail crossings
- Net Present Value Benefit: \$48.1M

### OPPORTUNITIES AND CHALLENGES

#### POTENTIAL PARTNERS

Montgomery County, Harris County, SJRA, USACE, The Woodlands Township, Woodlands Water Agency, TWDB, GLO, HCFCD

#### REQUIRED REAL ESTATE

- 119 parcels within 1% ACE WSEL

#### DESKTOP ENVIRONMENTAL MITIGATION

- 53 acres of potential wetlands
- 0 linear feet of NHD streams

#### RELOCATIONS/RECONSTRUCTION\*

- 2 oil & gas pipeline conflicts
- 0.20 miles of roads (1% ACE)

### ESTIMATED COSTS

Design Cost.....	\$15M
Construction Cost.....	\$124M
Environmental Cost.....	\$7M
ROW Cost .....	\$4M
<b><u>TOTAL COSTS .....</u></b>	<b><u>\$149M</u></b>
20-Year Escalation Cost .....	\$226M

**BENEFIT-COST RATIO: 0.32**

\*Costs for these items are not explicitly included in the project estimate; however, a 30% contingency was added to the project that may cover all or a portion of these relocations. More detailed information should be provided during project development.



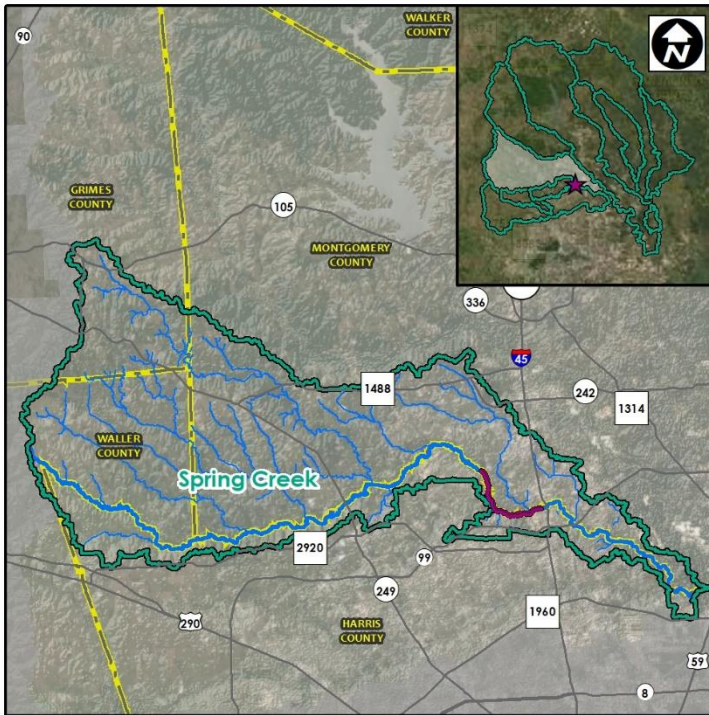
# SPRING CREEK – GOSLING CHANNELIZATION

**LOCATION:** Between Gosling Road and I-45

**OBJECTIVE:** Reduce flooding along Spring Creek

**HOW IT WORKS:** Channelization increases conveyance capacity; a separate upstream detention project in this watershed must be constructed first to mitigate adverse impact

**IMMEDIATE AREA BENEFIT:** Incremental Atlas 14 WSEL reduction along the channel – 1% ACE to 4% ACE



## IMPROVEMENT SPECIFICATIONS

- 5.2 miles of channelization
- 500-foot wide bench
- 311 acres
- 5.4M cubic yards of excavation
- 9,000 acre-feet mitigation required

## ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 676
- Reduction in instances of flooding over 50-year period: 991
- Benefited areas:
  - The Woodlands, Timber Lake, Timber Ridge, Grogan's Point
- Reduces 1% ACE WSEL at least 0.5 feet for 10.0 miles along Spring Creek
- Improves ponding depths on 2 road/rail crossings
- Net Present Value Benefit: \$63.2M

## OPPORTUNITIES AND CHALLENGES

### POTENTIAL PARTNERS

Montgomery County, Harris County, SJRA, USACE, TWDB, GLO, HCFCD. The Woodlands Township, Woodlands Water Agency,

### REQUIRED REAL ESTATE

- 160 parcels within 1% ACE WSEL

### DESKTOP ENVIRONMENTAL MITIGATION

- 43 acres of potential wetlands
- 0 linear feet of NHD streams

### RELOCATIONS/RECONSTRUCTION\*

- 8 oil & gas pipeline conflicts

## ESTIMATED COSTS

Design Cost .....	\$12M
Construction Cost .....	\$103M
Environmental Cost .....	\$5M
ROW Cost .....	\$12M
<b>TOTAL COSTS .....</b>	<b>\$132M</b>
20-Year Escalation Cost .....	\$200M

**BENEFIT-COST RATIO: 0.48**

\*Costs for these items are not explicitly included in the project estimate; however, a 30% contingency was added to the project that may cover all or a portion of these relocations. More detailed information should be provided during project development.

# SPRING CREEK — I-45 CHANNELIZATION

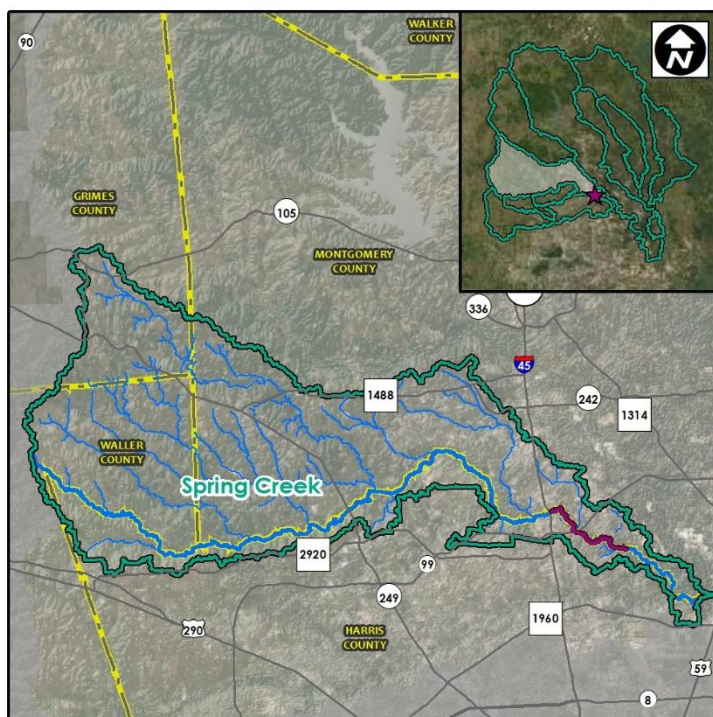
*(Recommend Project in SJMDP)*

**LOCATION:** From I-45 to approximately 4 miles D/S of Riley Fuzzel Road on Spring Creek

**OBJECTIVE:** Reduce flooding along Spring Creek

**HOW IT WORKS:** Channelization increases conveyance capacity; a separate upstream detention project in this watershed must be constructed first to mitigate adverse impact

**IMMEDIATE AREA BENEFIT:** Incremental Atlas 14 WSEL reduction along the channel – 1% ACE to 4% ACE



## IMPROVEMENT SPECIFICATIONS

- 6.9 miles of channelization
- 300-foot wide bench
- 188 acres
- 3.7M cubic yards of embankment
- 8,000 acre-feet mitigation required

## ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 1,240
- Reduction in instances of flooding over 50-year period: 1,739
- Benefited areas:
  - Northgate Crossing, Lexington Woods, Spring
- Reduces 1% ACE WSEL at least 0.5 feet for 10.7 miles along Spring Creek
- Improves ponding depths on 4 road/rail crossings
- Net Present Value Benefit: \$99.4M

## OPPORTUNITIES AND CHALLENGES

### POTENTIAL PARTNERS

Montgomery County, TxDOT, SJRA, USACE, TWDB, GLO, FEMA, HCFC

### REQUIRED REAL ESTATE

- 137 parcels within 1% ACE WSEL

### DESKTOP ENVIRONMENTAL MITIGATION

- 35 acres of potential wetlands
- 0 linear feet of NHD streams

### RELOCATIONS/RECONSTRUCTION\*

- 5 oil & gas pipeline conflicts
- 0.05 miles of roads (1% ACE)

## ESTIMATED COSTS

Design Cost .....	\$8M
Construction Cost .....	\$69M
Environmental Cost.....	\$4M
ROW Cost.....	\$4M
<b>TOTAL COSTS.....</b>	<b>\$85M</b>
20-Year Escalation Cost .....	\$129M

**BENEFIT-COST RATIO: 1.17**

\*Costs for these items are not explicitly included in the project estimate; however, a 30% contingency was added to the project that may cover all or a portion of these relocations. More detailed information should be provided during project development.



# SPRING CREEK — BIRCH CREEK DETENTION

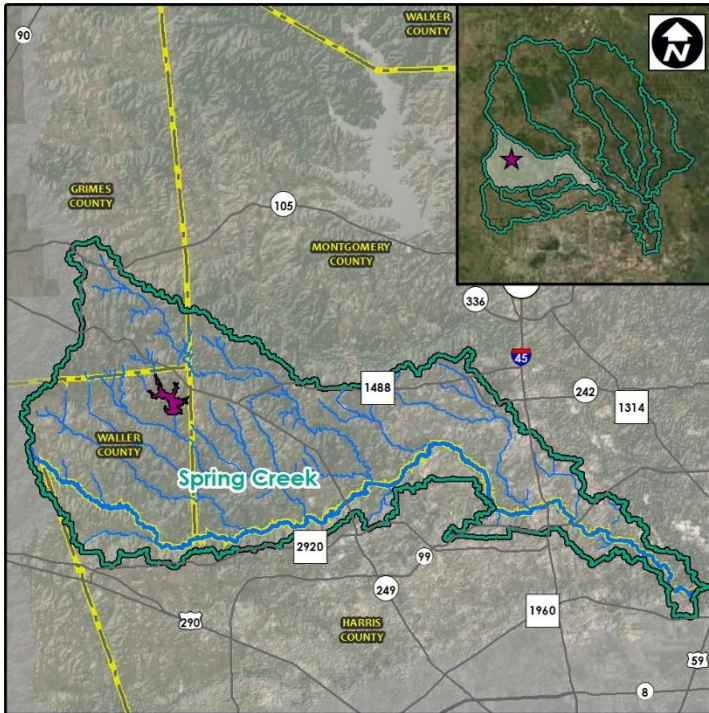
*(Recommend Project in SJMDP)*

**LOCATION:** Approximately 12 miles U/S of Spring Creek on Birch Creek

**OBJECTIVE:** Reduce flooding along Spring Creek

**HOW IT WORKS:** Dry dam detention facility impounds stream flow during flood events

**IMMEDIATE DOWNSTREAM BENEFIT:** Incremental Atlas 14 WSEL reduction – 1% ACE to 2% ACE



## IMPROVEMENT SPECIFICATIONS

- Dry dam detention facility
- 873 acres (1% ACE)
- 917 acres (PMF)
- 7,731 acre-feet (1% ACE)
- Embankment: 460k cubic yards
- Max dam height: 41 ft
- Dam length: 0.7 miles

## ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 815
- Reduction in instances of flooding over 50-year period: 1,084
- Benefited areas:
  - The Woodlands, Tomball, Stagecoach
- Reduces 1% ACE WSEL at least 0.5 feet for 25.9 miles along Spring Creek
- Improves ponding depths on 13 road/rail crossings
- Net Present Value Benefit: \$66.0M

## OPPORTUNITIES AND CHALLENGES

### POTENTIAL PARTNERS

Waller County, Montgomery County, SJRA, USACE, MUD 386, The Woodlands Township, Woodlands Water Agency, City of Tomball, TWDB, GLO, FEMA, HCFCD

### REQUIRED REAL ESTATE

- 71 parcels within PMF
- 15 parcels within 1% ACE WSEL

### DESKTOP ENVIRONMENTAL MITIGATION

- 2.1 acres of potential wetlands
- 1,370 linear feet of NHD streams

### RELOCATIONS/RECONSTRUCTION\*

- 1 oil & gas pipeline conflicts
- 0.6 miles of roads (PMF)
- 0.3 miles of roads (1% ACE)

## ESTIMATED COSTS

Design Cost.....	\$3M
Construction Cost.....	\$23M
Environmental Cost.....	\$6M
ROW Cost.....	\$48M-\$88M
<b>TOTAL COSTS.....</b>	<b>\$80M-\$120M</b>
20-Year Escalation Cost .....	\$121M-\$181M

**BENEFIT-COST RATIO: 0.55-0.83**

\*Costs for these items are not explicitly included in the project estimate; however, a 30% contingency was added to the project that may cover all or a portion of these relocations. More detailed information should be provided during project development.

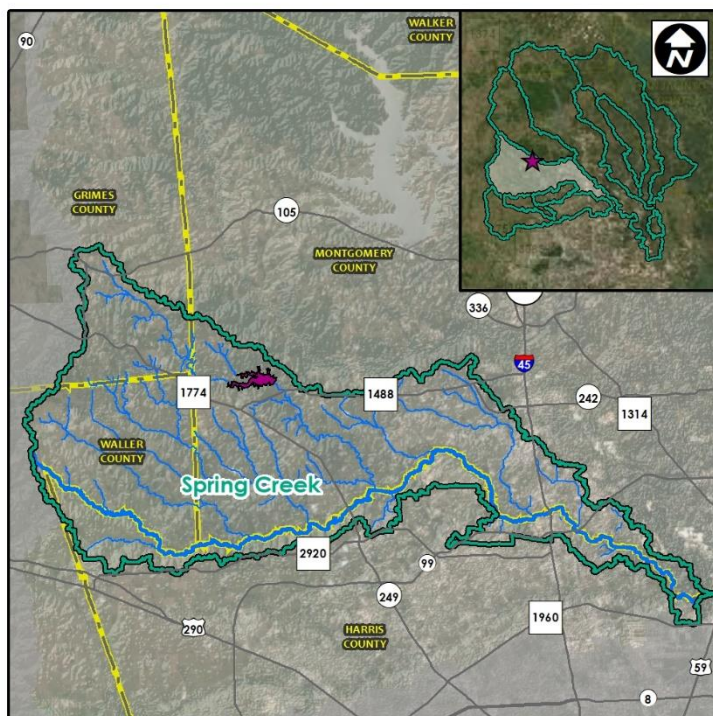
## SPRING CREEK — MILL CREEK DETENTION

**LOCATION:** Approximately 10 miles U/S of Spring Creek on Mill Creek

**OBJECTIVE:** Reduce flooding along Spring Creek

**HOW IT WORKS:** Dry dam detention facility impounds stream flow during flood events

**IMMEDIATE DOWNSTREAM BENEFIT:** Incremental Atlas 14 WSEL reduction – 1% ACE to 4-10% ACE



### IMPROVEMENT SPECIFICATIONS

- Dry dam detention facility
- 989 acres (1% ACE)
- 1,039 acres (PMF)
- 11,159 acre-feet (1% ACE)
- Embankment: 500k cubic yards
- Max dam height: 44 ft
- 0.9 miles in length

### ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 885
- Reduction in instances of flooding over 50-year period: 1,015
- Benefited areas:
  - Tomball, The Woodlands
- Reduces 1% ACE WSEL at least 0.5 feet for 23.8 miles along Spring Creek
- Improves ponding depths on 9 road/rail crossings
- Net Present Value Benefit: \$65.1M

### OPPORTUNITIES AND CHALLENGES

#### POTENTIAL PARTNERS

Montgomery County, SJRA, USACE, MUD 386, The Woodlands Township, Woodlands Water Agency, TWDB, GLO, HCFCD

#### REQUIRED REAL ESTATE

- 234 parcels within PMF
- 129 parcels within 1% ACE WSL

#### DESKTOP ENVIRONMENTAL MITIGATION

- <0.1 acres of potential wetlands
- 1,250 linear feet of NHD streams

#### RELOCATIONS/RECONSTRUCTION\*

- 4 oil & gas pipeline conflicts
- 0 miles of roads (PMF)
- 0 miles of roads (1% ACE)

### ESTIMATED COSTS

Design Cost.....	\$4M
Construction Cost.....	\$30M
Environmental Cost.....	\$8M
ROW Cost.....	\$58M-\$89M
<b>TOTAL COSTS.....</b>	<b>\$99M-\$131M</b>
20-Year Escalation Cost .....	\$150M-\$198M

**BENEFIT-COST RATIO: 0.50-0.67**

\*Costs for these items are not explicitly included in the project estimate; however, a 30% contingency was added to the project that may cover all or a portion of these relocations. More detailed information should be provided during project development.



# SPRING CREEK — WALNUT CREEK DETENTION

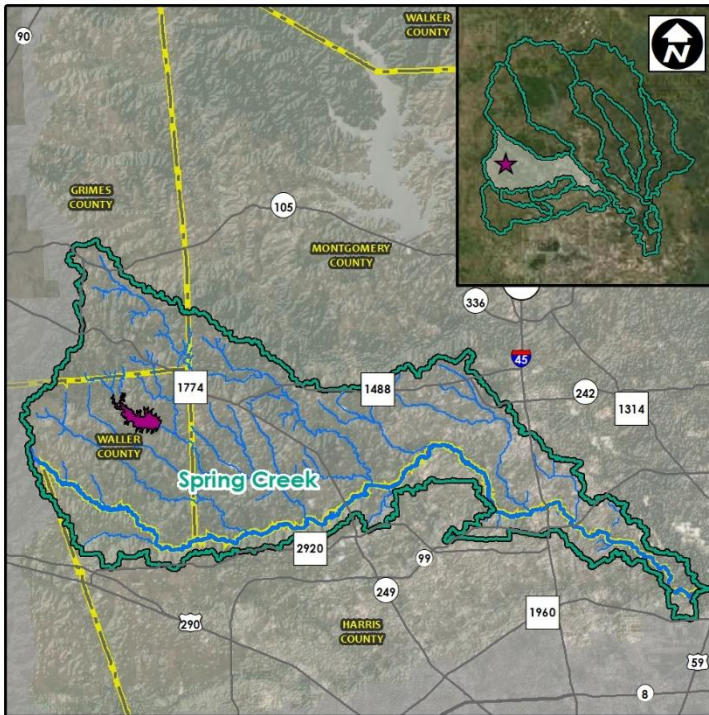
*(Recommend Project in SJMDP)*

**LOCATION:** Approximately 12 miles U/S of Spring Creek on Walnut Creek

**OBJECTIVE:** Reduce flooding along Spring Creek

**HOW IT WORKS:** Dry dam detention facility impounds stream flow during flood events

**IMMEDIATE DOWNSTREAM BENEFIT:** Incremental Atlas 14 WSEL reduction – 1% ACE to 2% ACE



## IMPROVEMENT SPECIFICATIONS

- Dry dam detention facility
- 1,218 acres (1% ACE)
- 1,279 acres (PMF)
- 12,159 acre-feet (1% ACE)
- Embankment: 670k cubic yards
- Max dam height: 46 ft
- 1.2 miles in length

## ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 1,205
- Reduction in instances of flooding over 50-year period: 1,653
- Benefited areas:
  - Tomball, The Woodlands
- Reduces 1% ACE WSEL at least 0.5 feet for 41.2 miles along Spring Creek
- Improves ponding depths on 13 road/rail crossings
- Net Present Value Benefit: \$101.2M

## OPPORTUNITIES AND CHALLENGES

### POTENTIAL PARTNERS

Waller County, Montgomery County, SJRA, USACE, MUD 386, City of Tomball, The Woodlands Township, Woodlands Water Agency, TWDB, GLO, FEMA, HCFC, Harris County

### REQUIRED REAL ESTATE

- 37 parcels within PMF
- 30 parcels within 1% ACE WSEL

### DESKTOP ENVIRONMENTAL MITIGATION

- 6 acres of potential wetlands
- 840 linear feet of NHD streams

### RELOCATIONS/RECONSTRUCTION

- 1 oil & gas pipeline conflicts
- 1.3 miles of roads (PMF)
- 1.3 miles of roads (1% ACE)

## ESTIMATED COSTS

Design Cost.....	\$4M
Construction Cost.....	\$37M
Environmental Cost.....	\$8M
ROW Cost.....	\$49M-\$84M
<b>TOTAL COSTS.....</b>	<b>\$97M-\$132M</b>
20-Year Escalation Cost .....	\$147M-\$200M

**BENEFIT-COST RATIO: 0.77-1.04**

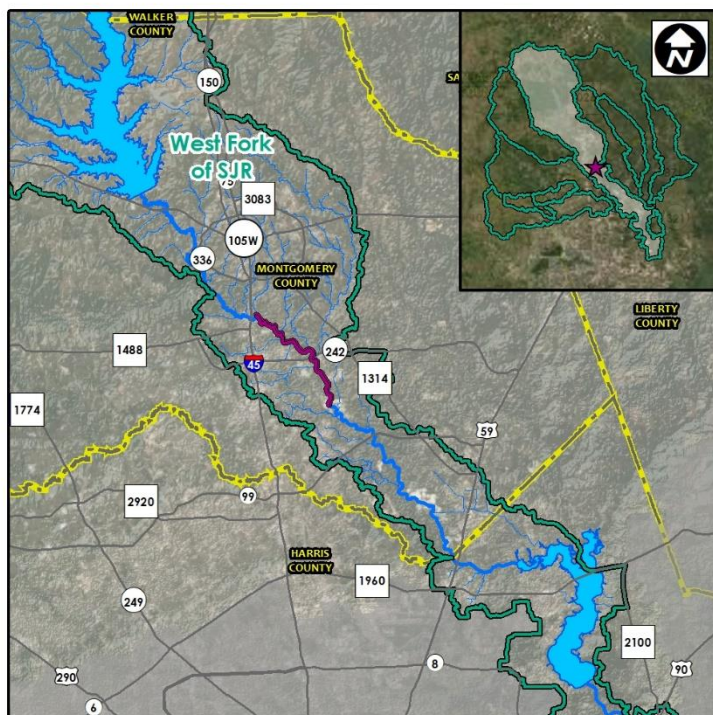
## WEST FORK SAN JACINTO RIVER — RIVER PLANTATION CHANNELIZATION

**LOCATION:** I-45 to between SH 242 and SH 99 on West Fork of San Jacinto River

**OBJECTIVE:** Reduce flooding along West Fork of San Jacinto River

**HOW IT WORKS:** Channelization increases conveyance capacity; a separate upstream detention project in the Lake Creek watershed must be constructed first to mitigate adverse impact

**IMMEDIATE AREA BENEFIT:** Incremental Atlas 14 WSEL reduction along the channel – 1% ACE to 2% ACE



### IMPROVEMENT SPECIFICATIONS

- 9.3 miles of channelization
- 500-foot wide bench
- 560 acres
- 6.17M cubic yards of excavation
- 13,200 acre-feet mitigation required

### ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 383
- Reduction in instances of flooding over 50-year period: 1,016
- Benefited areas:
  - River Plantation, Montgomery Creek Ranch, The Woodlands, Sleepy Hollow
- Reduces 1% ACE WSEL at least 0.5 feet for 12.6 miles along West Fork
- Improves ponding depths on 3 road/rail crossings
- Net Present Value Benefit: \$44.4M

### OPPORTUNITIES AND CHALLENGES

#### POTENTIAL PARTNERS

Montgomery County, SJRA, TWDB, GLO

#### REQUIRED REAL ESTATE

- 212 parcels within 1% ACE WSEL

#### DESKTOP ENVIRONMENTAL MITIGATION

- 228 acres of potential wetlands
- 0 linear feet of NHD streams

#### RELOCATIONS/RECONSTRUCTION

- 6 oil & gas pipeline conflicts
- 0.1 miles of roads

### ESTIMATED COSTS

Design Cost.....	\$15M
Construction Cost .....	\$126M
Environmental Cost.....	\$32M
ROW Cost.....	\$14M
<b>TOTAL COSTS.....</b>	<b>\$187M</b>
20-Year Escalation Cost .....	\$283M

**BENEFIT-COST RATIO: 0.24**



## WEST FORK SAN JACINTO RIVER — HIGHWAY 242 CHANNELIZATION

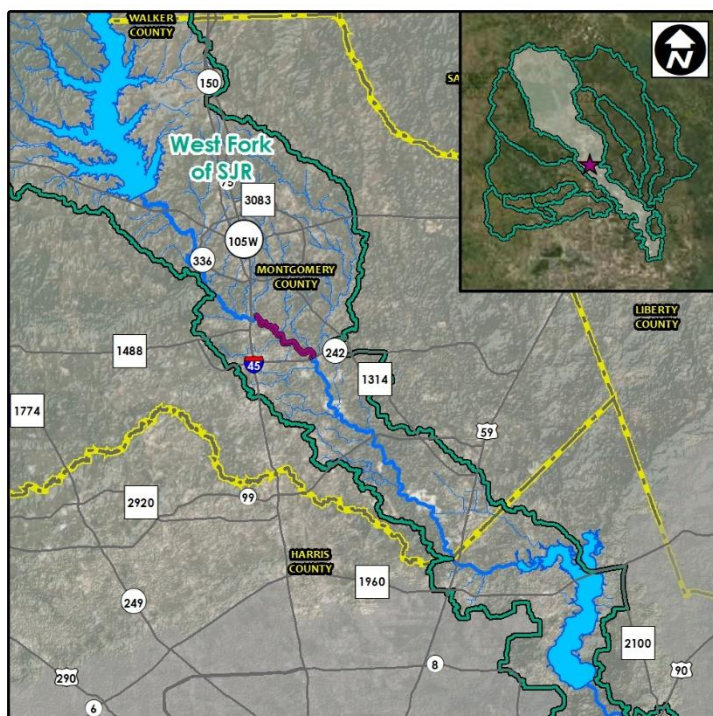
*(Recommend Project in SJMDP)*

**LOCATION:** I-45 to SH 242 on West Fork of San Jacinto River

**OBJECTIVE:** Reduce flooding along West Fork of San Jacinto River

**HOW IT WORKS:** Channelization increases conveyance capacity; a separate upstream detention project in the Lake Creek watershed must be constructed first to mitigate adverse impact

**IMMEDIATE AREA BENEFIT:** Incremental Atlas 14 WSEL reduction along the channel – 1% ACE to 2% ACE



### IMPROVEMENT SPECIFICATIONS

- 5.7 miles of channelization
- 750-foot wide bench
- 520 acres
- 5.7M cubic yards of excavation
- 12,400 acre-feet mitigation required

### ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 383
- Reduction in instances of flooding over 50-year period: 1,004
- Benefited areas:
  - River Plantation, Montgomery Creek Ranch
- Reduces 1% ACE WSEL at least 0.5 feet for 9.1 miles along West Fork
- Improves ponding depths on 2 road/rail crossings
- Net Present Value Benefit: \$45.5M

### OPPORTUNITIES AND CHALLENGES

#### POTENTIAL PARTNERS

Montgomery County, SJRA, TWDB, GLO

#### REQUIRED REAL ESTATE

- 225 parcels within 1% ACE WSEL

#### DESKTOP ENVIRONMENTAL MITIGATION

- 152 acres of potential wetlands
- 0 linear feet of NHD streams

#### RELOCATIONS/RECONSTRUCTION

- 6 oil & gas pipeline conflicts
- 0.1 miles of roads

### ESTIMATED COSTS

Design Cost.....	\$13M
Construction Cost .....	\$110M
Environmental Cost.....	\$22M
ROW Cost.....	\$11M
<b>TOTAL COSTS.....</b>	<b>\$157M</b>
20-Year Escalation Cost .....	\$238M

**BENEFIT-COST RATIO: 0.29**

## WEST FORK SAN JACINTO RIVER — KINGWOOD BENCHING

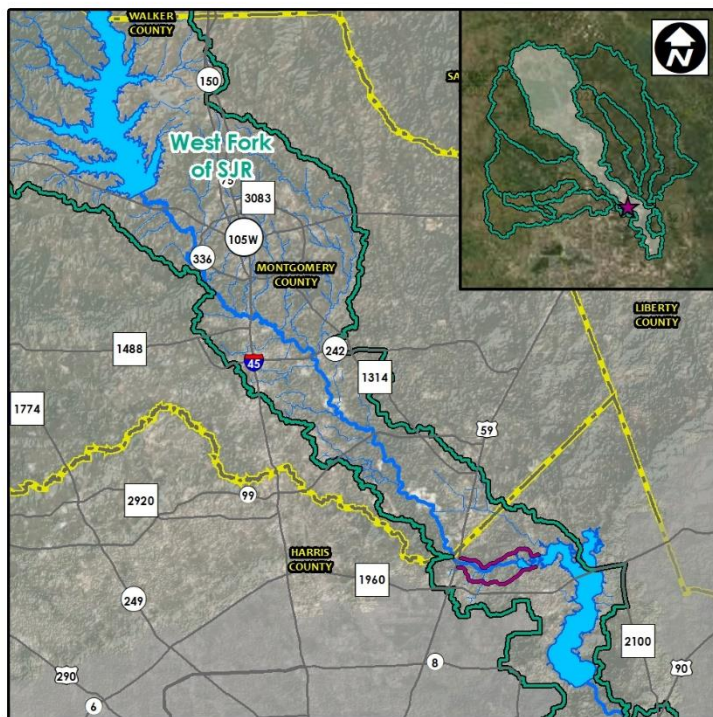
*(Recommend Project in SJMDP)*

**LOCATION:** I-69 to West Lake Houston Parkway on West Fork of San Jacinto River

**OBJECTIVE:** Reduce flooding along West Fork of San Jacinto River

**HOW IT WORKS:** Channelization increases conveyance capacity; a separate upstream detention project in the Lake Creek or Spring Creek watersheds must be constructed first to mitigate adverse impact

**IMMEDIATE AREA BENEFIT:** Incremental Atlas 14 WSEL reduction along the channel – 1% ACE to 2% ACE



### IMPROVEMENT SPECIFICATIONS

- 5 miles of channel benching
- 3,500-foot wide bench
- 3,527 acres
- 30.5 M cubic yards of excavation
- 923 acre-feet mitigation required

### ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 743
- Reduction in instances of flooding over 50-year period: 963
- Benefited areas:
  - Kingwood, Atascocita, Humble
- Reduces 1% ACE WSEL at least 0.5 feet for 9.2 miles along West Fork
- Improves ponding depths on 2 road/rail crossings
- Net Present Value Benefit: \$60.5M

## OPPORTUNITIES AND CHALLENGES

### POTENTIAL PARTNERS

Harris County, HCFCD, Montgomery County, SJRA, USACE, GLO, City of Houston

### REQUIRED REAL ESTATE

- 1,301 parcels within 1% ACE WSEL

### DESKTOP ENVIRONMENTAL MITIGATION

- 1,416 acres of potential wetlands
- 0 linear feet of NHD streams

### RELOCATIONS/RECONSTRUCTION

- 4 oil & gas pipeline conflicts
- 9.9 miles of roads

### ESTIMATED COSTS

Design Cost.....	\$64M
Construction Cost .....	\$537M
Environmental Cost.....	\$180M
ROW Cost.....	\$56M
<b>TOTAL COSTS.....</b>	<b>\$837M</b>
20-Year Escalation Cost .....	\$1.3B

**BENEFIT-COST RATIO: 0.07**



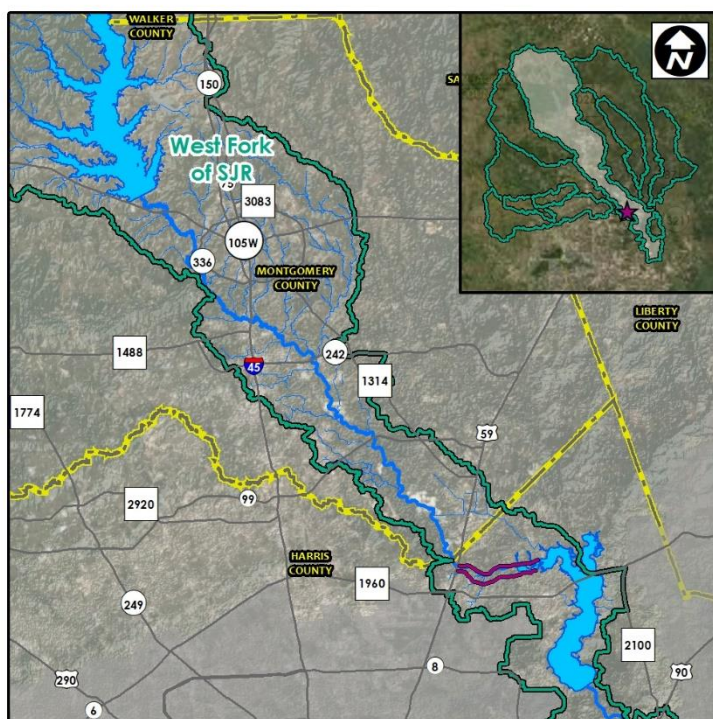
## WEST FORK SAN JACINTO RIVER — KINGWOOD CHANNELIZATION

**LOCATION:** I-69 to West Lake Houston Parkway on West Fork of San Jacinto River

**OBJECTIVE:** Reduce flooding along West Fork of San Jacinto River

**HOW IT WORKS:** Channelization increases conveyance capacity; a separate upstream detention project in the Lake Creek or Spring Creek watersheds must be constructed first to mitigate adverse impact

**IMMEDIATE AREA BENEFIT:** Incremental Atlas 14 WSEL reduction – 1% ACE to 2% ACE



### IMPROVEMENT SPECIFICATIONS

- 5 miles of channelization
- 3,000-foot wide channel
- 1,700 acres
- 31M cubic yards of excavation
- 1,365 acre-feet mitigation required

### ESTIMATED BENEFITS

- Structures removed from 1% ACE floodplain: 895
- Reduction in instances of flooding over 50-year period: 1,140
- Benefited areas:
  - Kingwood, Atascocita, Humble
- Reduces 1% ACE WSEL at least 0.5 feet for 9.9 miles along West Fork
- Improves ponding depths on 2 road/rail crossings
- Net Present Value Benefit: \$72.2M

## OPPORTUNITIES AND CHALLENGES

### POTENTIAL PARTNERS

Harris County, HCFC, Montgomery County, SJRA, USACE, GLO, City of Houston

### REQUIRED REAL ESTATE

- 737 parcels

### DESKTOP ENVIRONMENTAL MITIGATION

- 948 acres of potential wetlands
- 61,950 linear feet of NHD streams

### RELOCATIONS/RECONSTRUCTION

- 3 oil & gas pipeline conflicts
- 5.1 miles of roads

### ESTIMATED COSTS

Design Cost.....	\$64M
Construction Cost .....	\$534M
Environmental Cost.....	\$354M
ROW Cost.....	\$23M
<b>TOTAL COSTS.....</b>	<b>\$976M</b>
20-Year Escalation Cost .....	\$1.5B

**BENEFIT-COST RATIO: 0.07**