

# St. Johns Bayou and New Madrid Floodway

USACE  
August 2013



US Army Corps of Engineers  
BUILDING STRONG®

# Why are We Here?

- The *Draft* EIS has *Tentatively* selected a plan
- Public input is critical in making a *Final* decision.



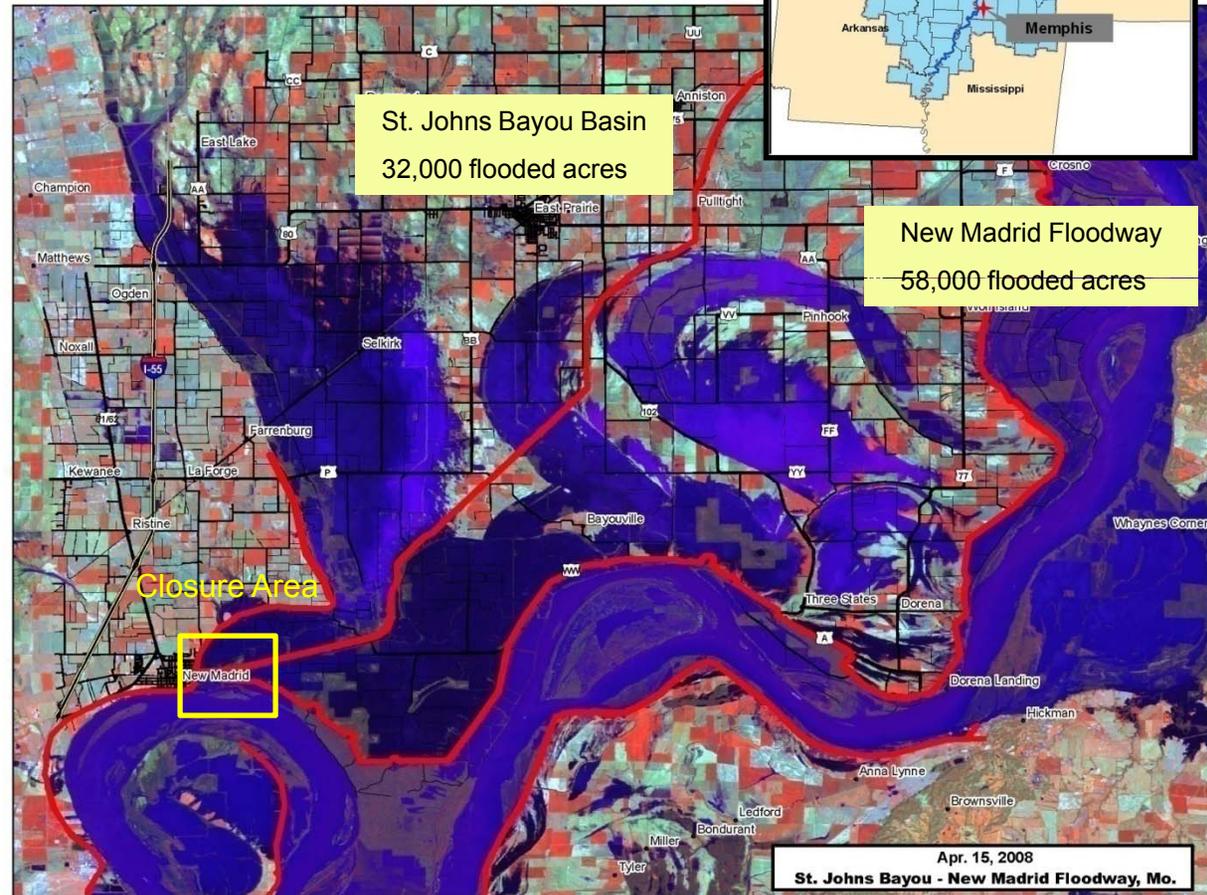
# Project Area

## St. Johns Bayou

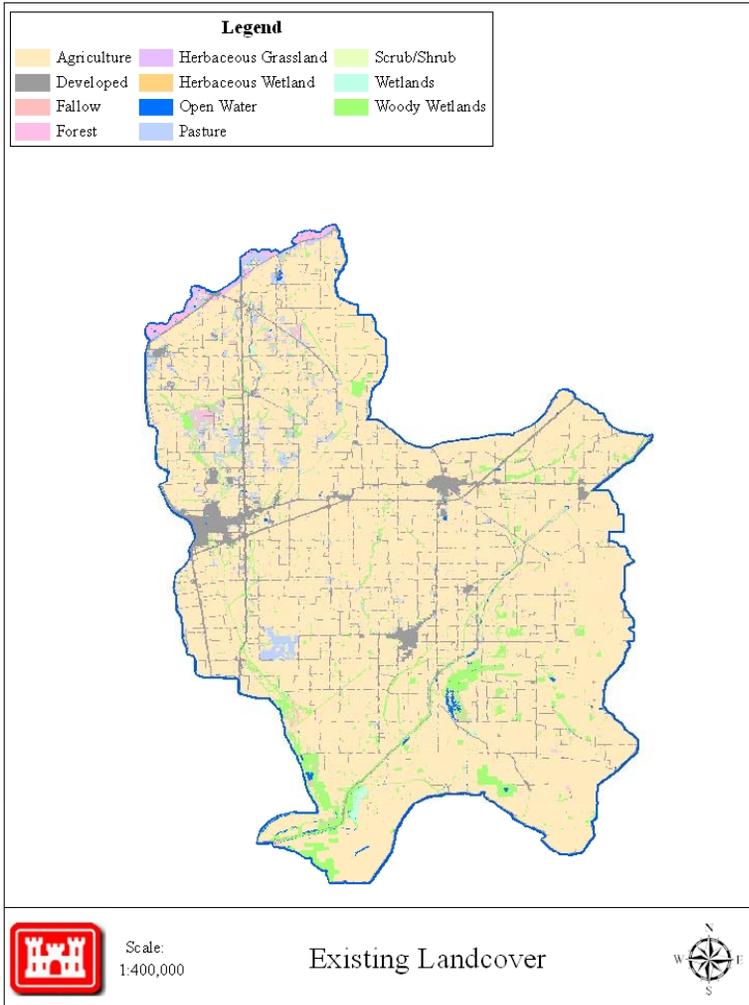
Closure of the existing flood control structure at the lower end of the basin impounds interior runoff.

## New Madrid Floodway

Mississippi River backwater flooding through the existing 1,500-foot gap in the levee system.



# Existing Land Use



Land Use	St. Johns Bayou Basin Below 300 feet NAVD		New Madrid Floodway Below 300 feet NGVD	
	Total	Percent	Total	Percent
Agriculture	37,010	78%	68,127	84%
Developed	1,852	4%	2,640	3%
Fallow	333	1%	213	<1%
Forest	6,441	13%	9,027	11%
Herbaceous	265	<1%	773	1%
Open Water	313	1%	713	1%
Pasture	1,274	3%	128	<1%
Scrub/Shrub	1	<1%	9	<1%
<b>TOTAL</b>	<b>47,489</b>	<b>100</b>	<b>81,629</b>	<b>100</b>



# Floods - Competing Interests



## Impacts from Floods

- People
- Communities
- Infrastructure
- Agriculture
  - Direct Impacts
  - Delays Planting

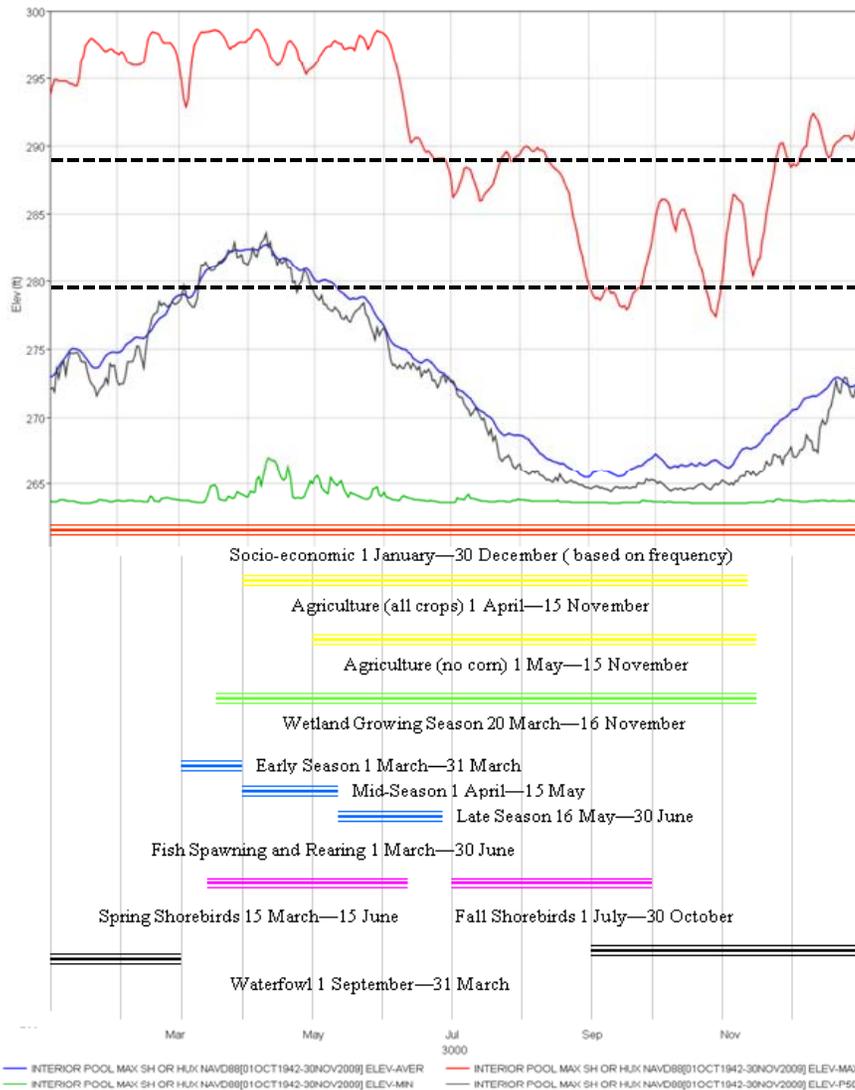
## Benefits from Flood Pulse

- Fish
- Waterfowl
- Shorebirds
- Wetlands



# Flooding – Competing Interests

34 (flood stage) ———



- 78,000 acres (65,600 agriculture)
- 55,600 acres (40,600 agriculture)
- 22,000 acres (15,300 agriculture)
- 3,300 acres (1,632 agriculture)
- Out of bank flooding



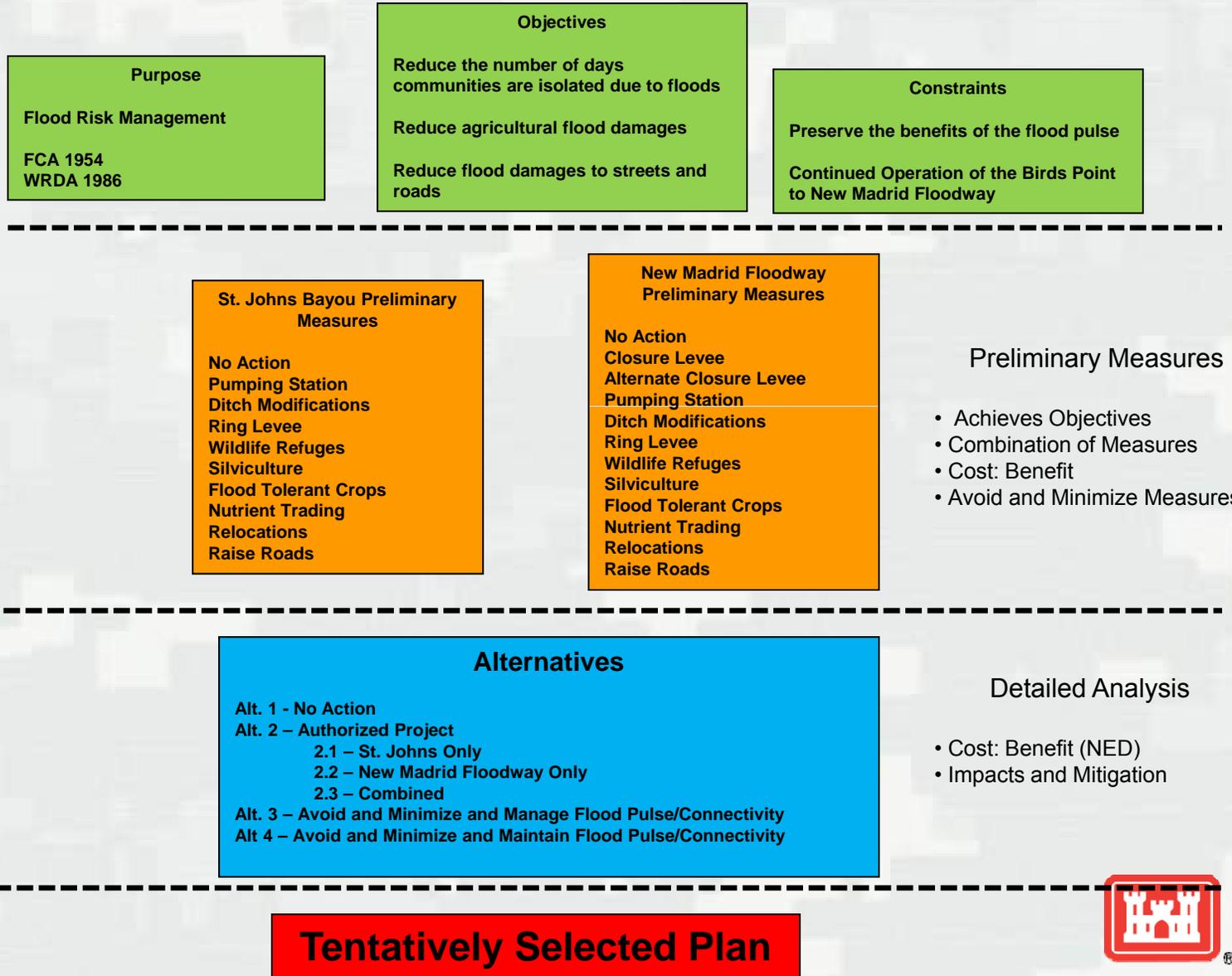
# Balance Between Competing Interests

- Reduce the number of days that communities are isolated
  - ▶ Manage floods based on the elevation of roads
    - Elevation of 290 feet
  
- Reduce agriculture flood damages
  - ▶ Manage floods based on optimal planting dates
    - 15 April corn
    - 1 May remaining crops
  
- Preserve the ecological benefits of the flood pulse
  - ▶ Manage floods that maintain connectivity between the Mississippi River and the New Madrid Floodway during periods that do not result in socio-economic impacts.

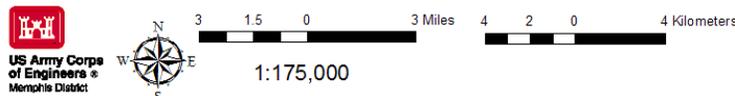
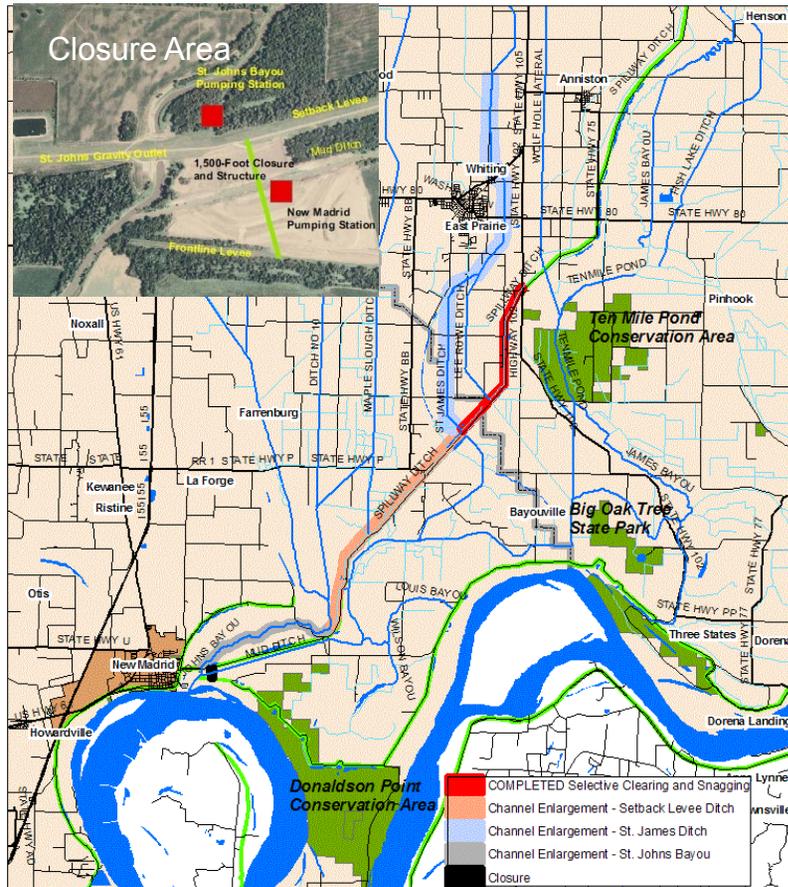


# Alternatives Analyzed

Iterative Screening Process



# Tentatively Selected Plan – Alt. 3.1



## St. Johns Bayou Basin

### Flood Risk Management Measures

- Channel Modifications
- 1,000 cfs Pumping Station

### Waterfowl Management Measures

- Inundate 2,900 acres during waterfowl season

## New Madrid Floodway

### Flood Risk Management Measures

- Closure Levee and Gated Structure
- 1,500 cfs Pumping Station
- Setback Levee Grade Raise
- Portions of Frontline Levee Grade Raise
- Manage Connectivity based on season

### Waterfowl Management Measures

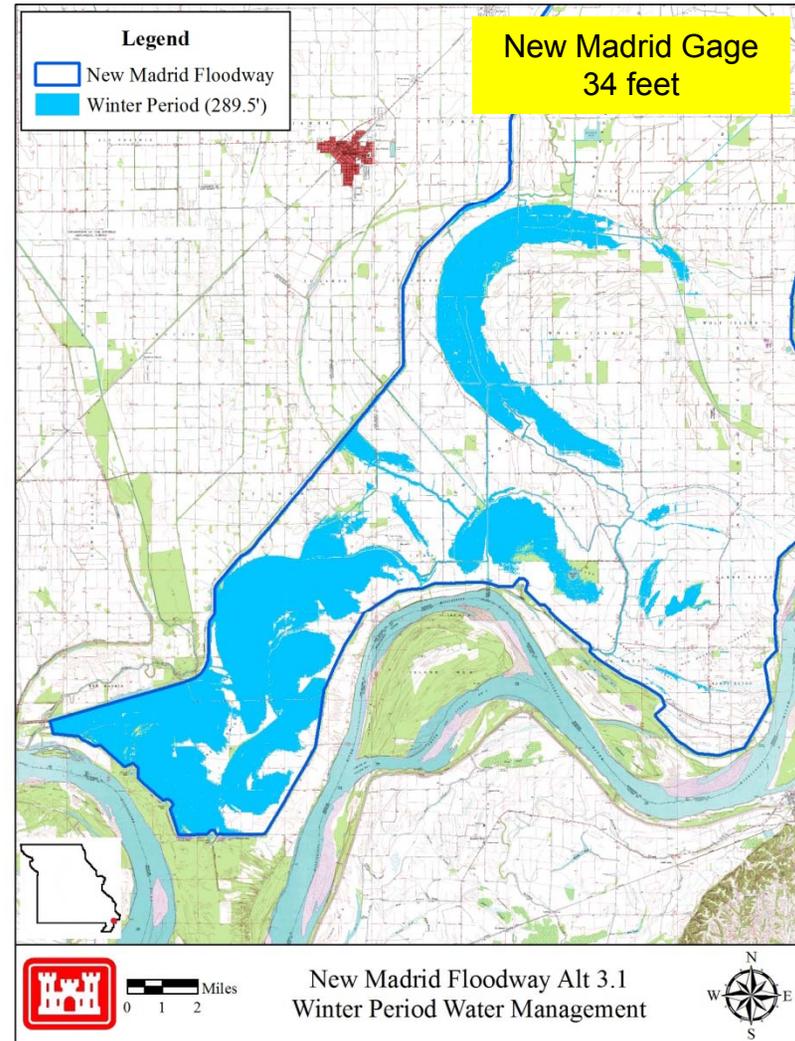
- Inundate 2,500 acres during waterfowl season



# TSP River Connectivity - Winter

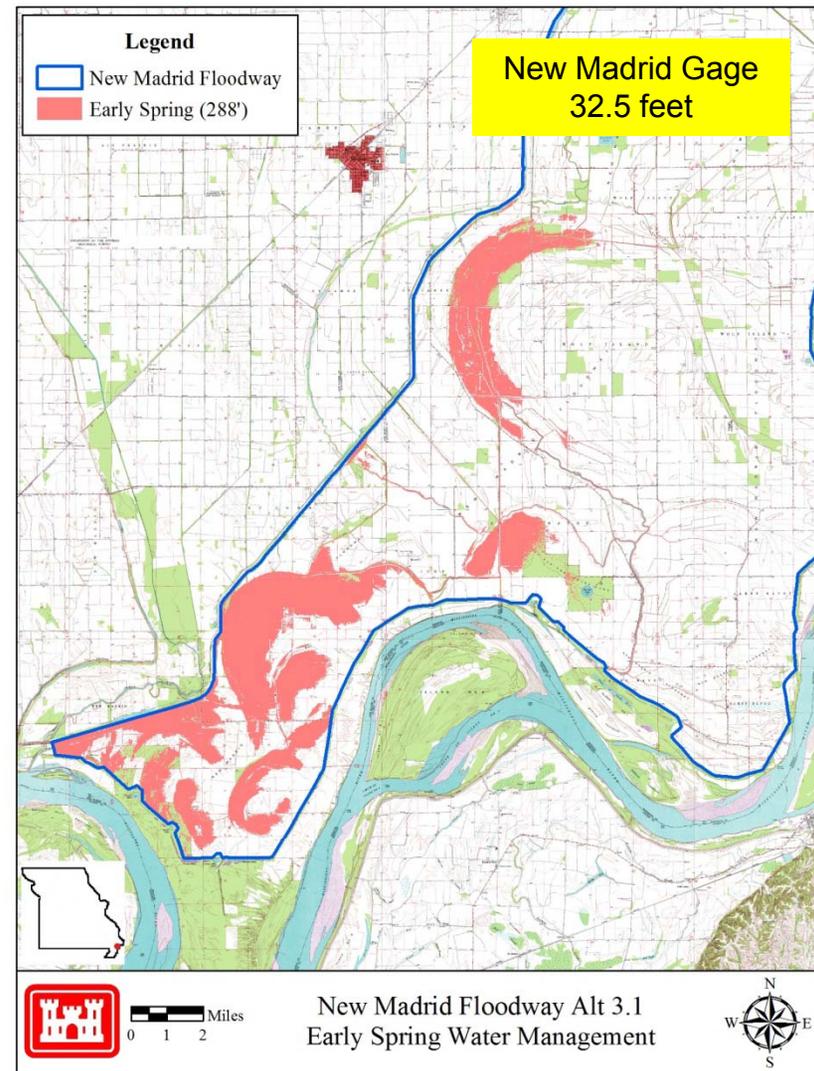
- Alternative 3.1 (TSP) ensures connectivity between the Mississippi River and the New Madrid Floodway during non-agricultural periods and still provides social benefits (roads remain open).
  - 15 November to 28/29 February, in the event of floods, flooding would be managed in the New Madrid Floodway up to 289.5 feet

- Gates are re-opened when the Mississippi River is below these elevations



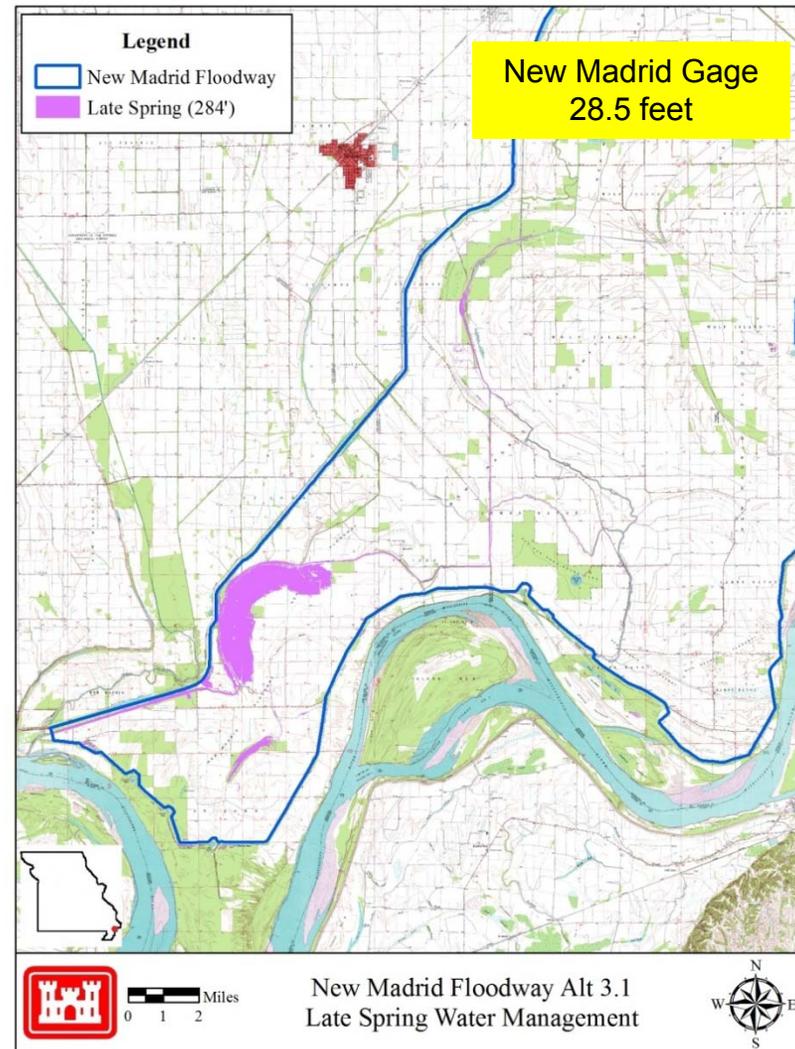
# TSP River Connectivity – Early Spring

- Alternative 3.1 (TSP) ensures connectivity between the Mississippi River and the New Madrid Floodway during non-agricultural periods and still provides social benefits (roads remain open).
  - 15 November to 28/29 February, in the event of floods, flooding would be managed in the New Madrid Floodway up to 289.5 feet
  - 1 March – 15 April, in the event of floods, flooding would be managed in the New Madrid Floodway up to 288 feet
  
- Gates are re-opened when the Mississippi River is below these elevations



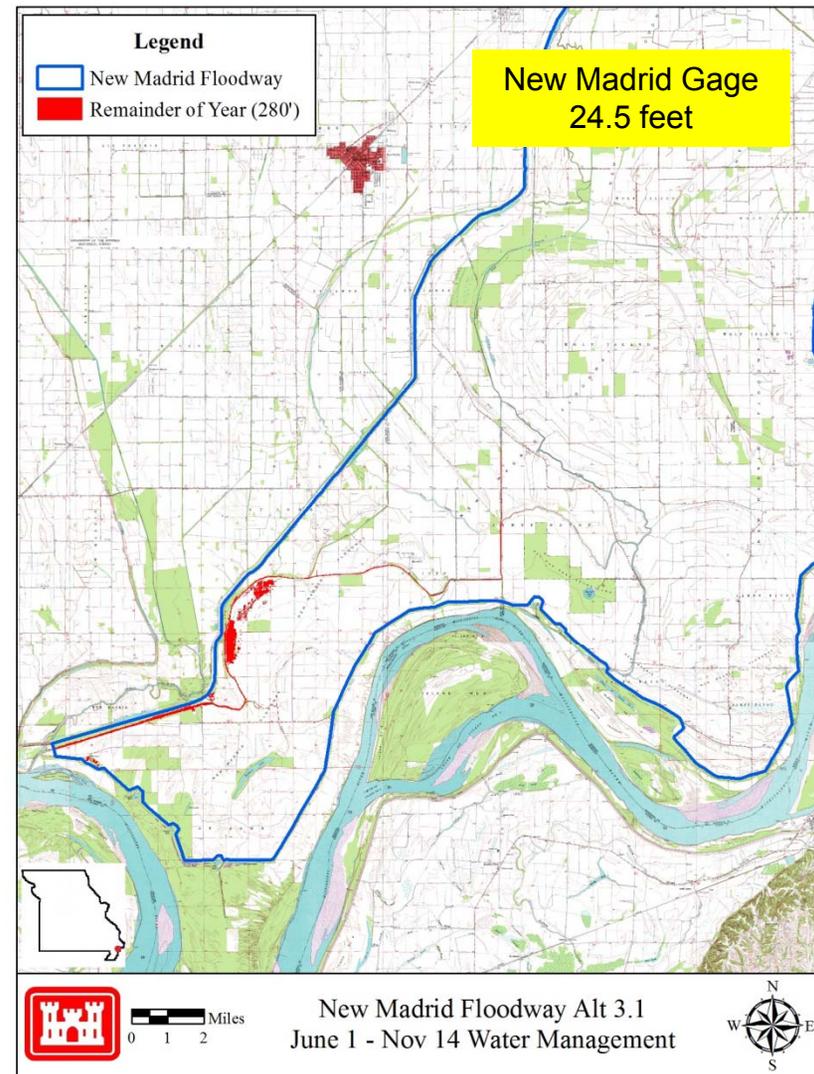
# TSP River Connectivity – Late Spring

- Alternative 3.1 (TSP) ensures connectivity between the Mississippi River and the New Madrid Floodway during non-agricultural periods and still provides social benefits (roads remain open).
  - 15 November to 28/29 February, in the event of floods, flooding would be managed in the New Madrid Floodway up to 289.5 feet
  - 1 March – 15 April, in the event of floods, flooding would be managed in the New Madrid Floodway up to 288 feet
  - 16 April – 31 May, in the event of floods, flooding would be managed in the New Madrid Floodway up to 284 feet
- Gates are re-opened when the Mississippi River is below these elevations

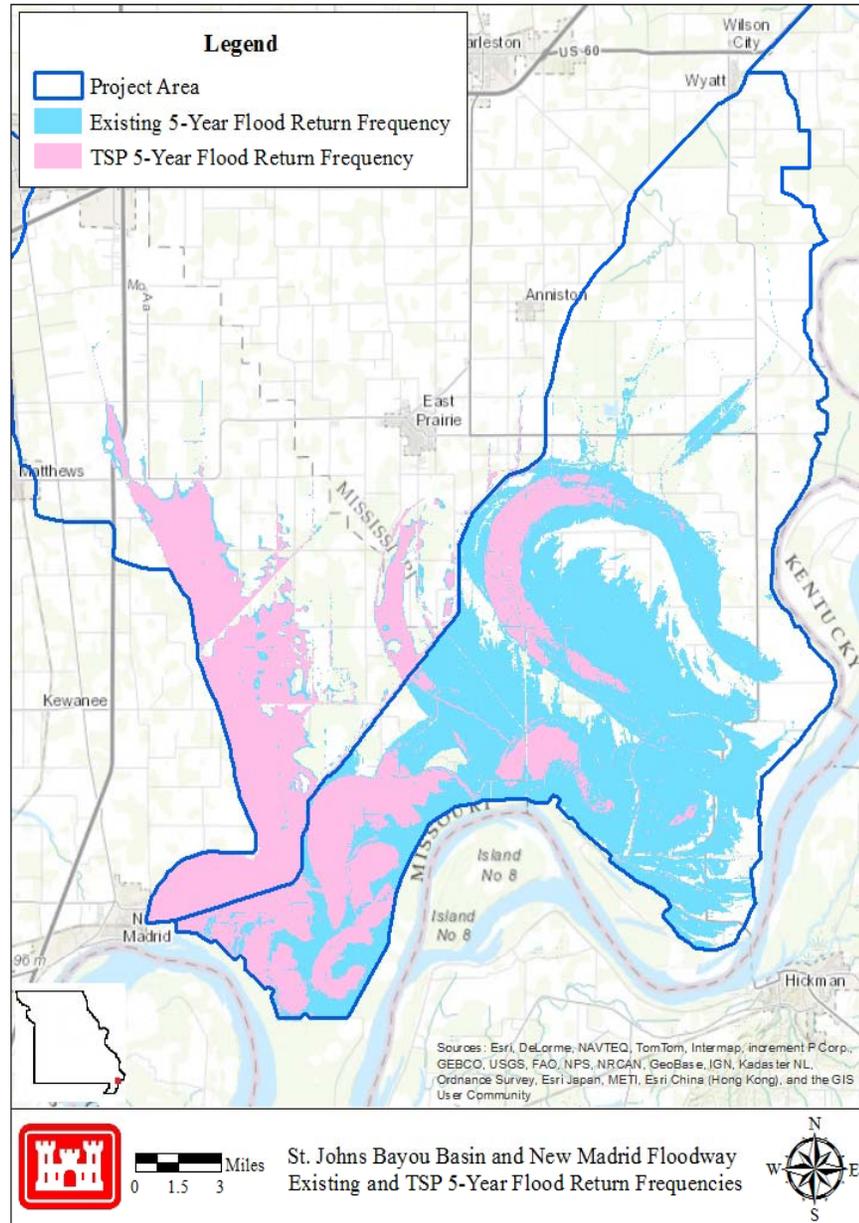


# TSP River Connectivity – Remainder of Year

- Alternative 3.1 (TSP) ensures connectivity between the Mississippi River and the New Madrid Floodway during non-agricultural periods and still provides social benefits (roads remain open).
  - 15 November to 28/29 February, in the event of floods, flooding would be managed in the New Madrid Floodway up to 289.5 feet
  - 1 March – 15 April, in the event of floods, flooding would be managed in the New Madrid Floodway up to 288 feet
  - 16 April – 31 May, in the event of floods, flooding would be managed in the New Madrid Floodway up to 284 feet
  - 1 June to 14 November, in the event of floods, flood elevations would be limited in the New Madrid Floodway to 280 feet
- Gates are re-opened when the Mississippi River is below these elevations



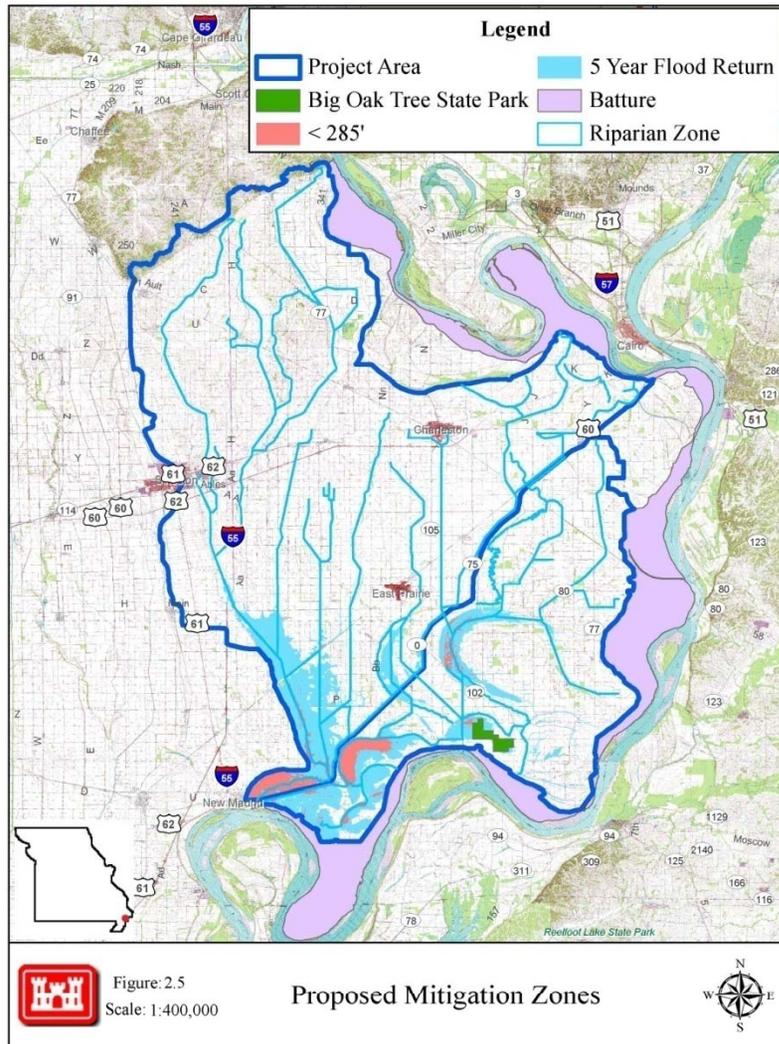
# TSP Benefits and Impacts



- Reduced community isolation
- Economic damages reduced to infrastructure
- Economic damages reduced to agriculture.
  - ▶ Net Annual Benefits = \$15,688,000
  - ▶ Net Annual Costs = \$7,249,000
  - ▶ Net Excess Benefits = \$8,252,000
  - ▶ Benefit to Cost = 2.1
- Direct Impacts
  - ▶ Channel Modification Reaches
  - ▶ Levee Footprint
- Indirect Impacts
  - ▶ Reduced flood frequency
  - ▶ Reduced flood duration
  - ▶ Wetland Sub-Class Shift



# TSP Mitigation



## St. Johns Bayou Basin

- 400 acres of wetland below 285'
- 1,816 acres below 5-year return interval
- 387 acres of ecologically designed borrow pits below 5-year return interval
- 244 acres of shorebird areas
- 42 miles buffers
  - 23.1 miles construction reaches
  - 18.8 miles additional ditches

## New Madrid Floodway

- Restore hydrology to Big Oak Tree SP
- 1,800 acres of wetlands surrounding Big Oak Tree SP
- 387 acres of wetlands below 285'
- 1,970 acres of wetlands below 5-year return interval
- 3,050 acres of wetlands in batture
- 60 acres of ecologically designed borrow pits below 5-year return interval
- 1,286 acres of shorebird areas (Ten Mile Pond CA)
- 432 acres of floodplain lakes in batture
- 1.1 miles of buffer



# Existing vs Post TSP Land Use

Land Use	St. Johns Bayou Basin Below 300 feet NAVD		New Madrid Floodway Below 300 feet NGVD*		Batture†	
	Existing (acres)	≈ Post TSP (acres)	Existing (acres)	≈ Post TSP (acres)	Existing (acres)	≈ Post TSP (acres)
<b>Agriculture</b>	37,010	34,272 (-7.4%)	65,637	61,417 (-6.4%)	44,450	41,400 (-6.9%)
Developed/Other	1,852	1,852	2,410	2,410	3,810	3,810
Fallow	333	333	211	211	N/A	N/A
<b>Vegetated Wetlands</b>	6,706	9,057 (+35.1%)	9,631	13,791 (+43.2%)	78,740	81,790 (+3.9%)
Open Water	313	700	709	769	N/A	N/A
Pasture	1,274	1,274	104	104	N/A	N/A
Scrub/Shrub	1	1	9	9	N/A	N/A
<b>TOTAL</b>	<b>47,489</b>	<b>47,489</b>	<b>78,711</b>	<b>78,711</b>	<b>127,000</b>	<b>127,000</b>

†Between Cape Girardeau and the Arkansas state line (<http://mdc.mo.gov/conmag/2005/09/batture-lands>)



# Operation of Birds Point to New Madrid Floodway



Continued Operation  
as  
Authorized



# Next Steps

- Public Provides Comments on Draft EIS
- Corps Addresses Comments on Draft EIS
  - ▶ Applicable Revisions to the EIS
  - ▶ Comment/Response Section
- Once finalized, the Final EIS will undergo additional public review.
- If applicable, Record of Decision

