KC LEVEES

Utilizing Collaboration to Minimize Railroad Impacts During Construction

May 2, 2023, 10:30 am

KC LEVEES: Utilizing Collaboration to Minimize Railroad Impacts During Construction

Moderator: Lesley Schwalje, Engineering Group Director, HNTB

Speakers:

- Scott Mensing, Program Manager, USACE
- Tom Poer, Project Director, HNTB
- LTC John Chambers, Deputy District Commander, USACE

HOUSEKEEPING NOTES & TIPS

- ☑ Take Note of Emergency Exits
- ☑ Silence Your Mobile Devices
- ☑ Thank You to Our Sponsors!
- ☑ Questions will be addressed in the allotted time
- ☑ Presentations will be posted in the Attendee Service Center (ASC) post conference

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MAY 2-4 2023

San Antonio, TEXAS

SCOTT MENSING

Facts

Started with USACE in 2009.

- Technical Lead for Military and Civil Works Projects
- Civil Works Project Manager
- Section 408 Program Manager
- Dam Safety Program Manager
- KC Levees Program Manager

BS in Civil Engineering from Iowa State University

Bowyer-in-Training

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TOM POER

Facts

Water resource engineer and PM at HNTB for 30-years.

- BS Civil Engineering / MS Engineering Management at Kansas University.
- Prof. Engineer
  Project Mgmt. Professional,
  Envision Sustainable Prof.,
  SAME Fellow!
- Water experience in levees, pump stations, watersheds, hydraulic modeling, and scour.
- We have 3 awesome adult kids.
- Love snow skiing, camping, travel, beaches & live music.

HNTB

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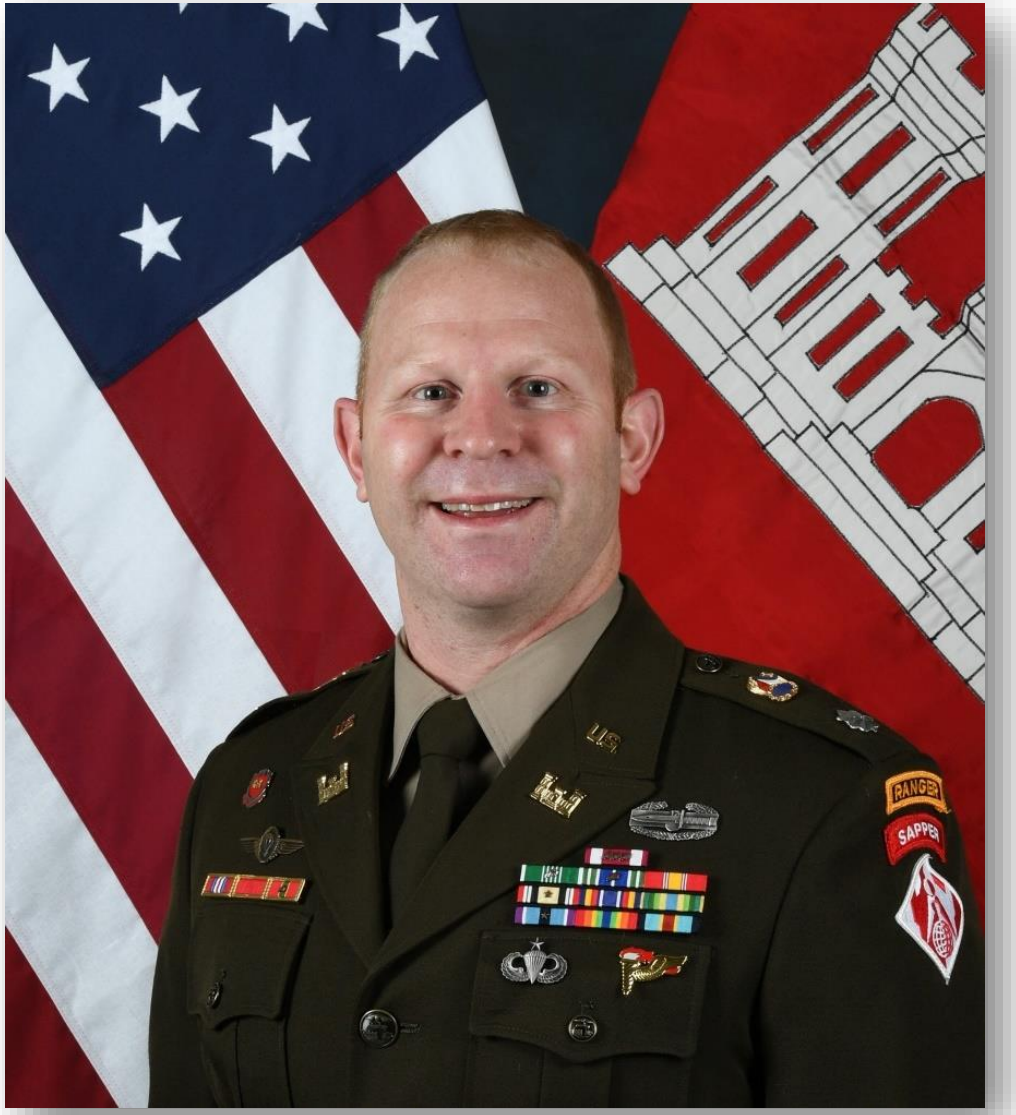
LTC JOHN CHAMBERS



Facts

Deputy District Commander for the Kansas City District since 2021

- University of Michigan fan married to an Ohio State grad
- Waterfowl Hunter

BS in Civil Engineering from USMA

MS from Missouri S&T

MPP from Harvard Kennedy School of Government

Agenda

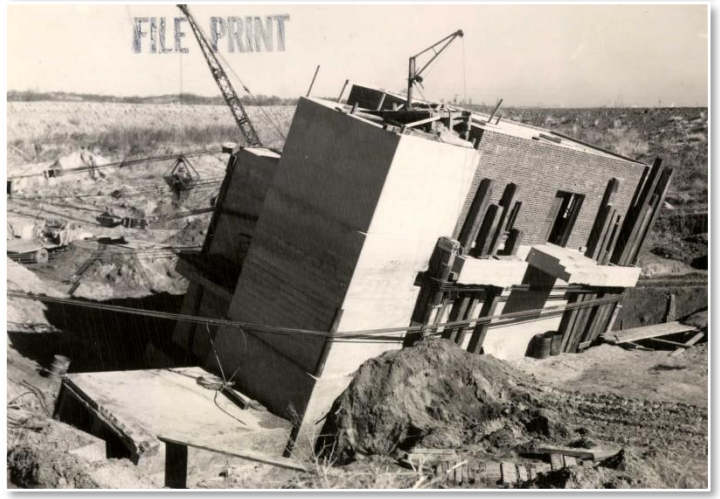
- Program Overview
- Project Communications and Collaboration
- Managing Impacts and Risk
- Discussion

KANSAS CITY TERMINAL
HIGHLINE BRIDGE
(DOUBLE TRACKED, DOUBLED DECKED)

Kansas River Flood History

1903

1951



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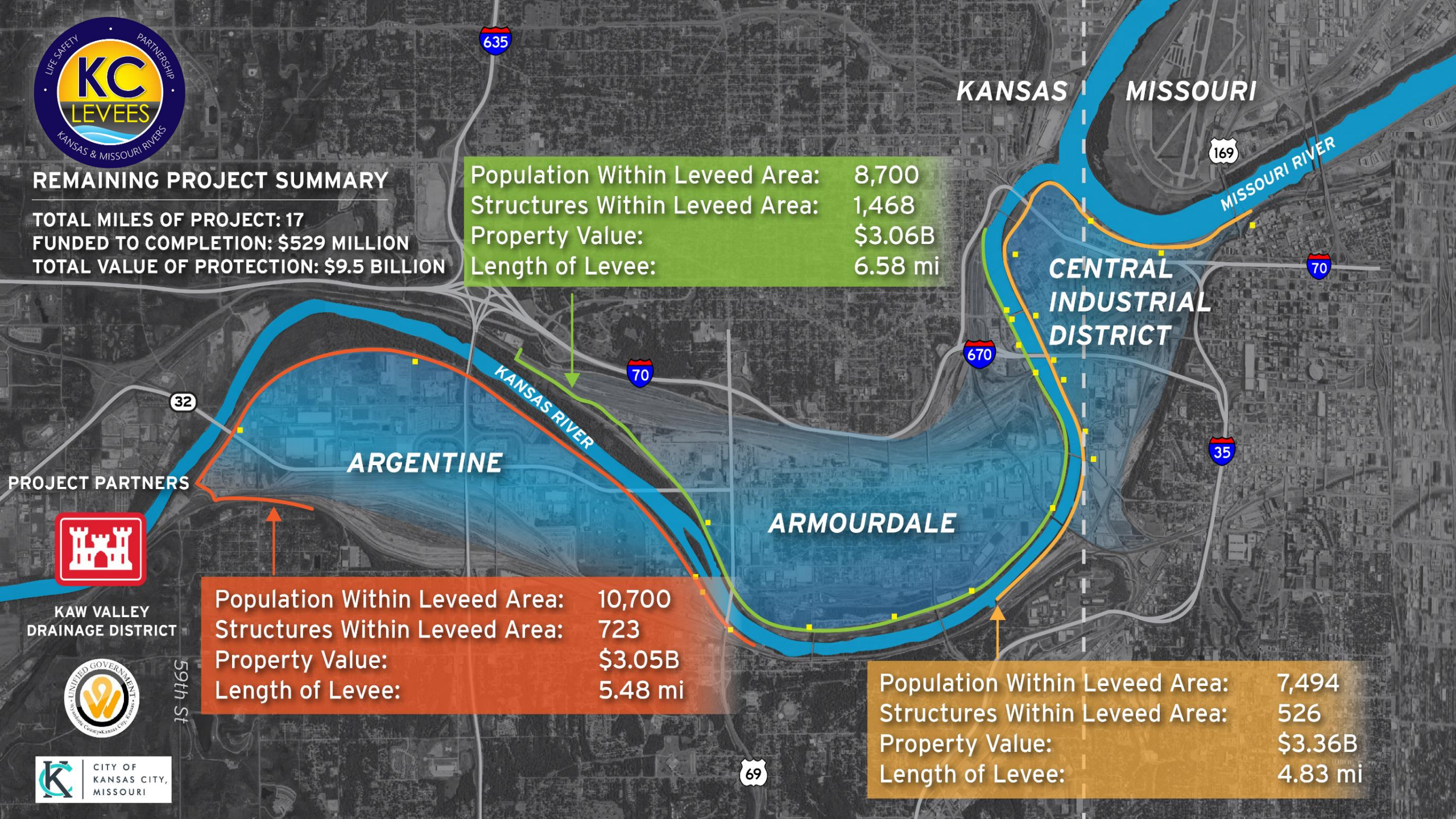

KC LEVEES
LIFE SAFETY
PARTNERSHIP
KANSAS & MISSOURI RIVERS
REMAINING PROJECT SUMMARY
TOTAL MILES OF PROJECT: 17
FUNDED TO COMPLETION: $529 MILLION
TOTAL VALUE OF PROTECTION: $9.5 BILLION
Population Within Leveed Area: 8,700
Structures Within Leveed Area: 1,468
Property Value: $3.06B
Length of Levee: 6.58 mi
KANSAS
MISSOURI
635
169
MISSOURI RIVER
70
CENTRAL INDUSTRIAL DISTRICT
670
KANSAS RIVER
32
ARGENTINE
35
PROJECT PARTNERS
ARMOURDALE
KAW VALLEY DRAINAGE DISTRICT
59th St
69
Population Within Leveed Area: 10,700
Structures Within Leveed Area: 723
Property Value: $3.05B
Length of Levee: 5.48 mi
Population Within Leveed Area: 7,494
Structures Within Leveed Area: 526
Property Value: $3.36B
Length of Levee: 4.83 mi
CITY OF KANSAS CITY, MISSOURI

Our Mission

When complete in 2026, KC Levees will:

- Reduce risk of flooding by 200%;
- Improve the reliability and resiliency of the levee system;
- Improve deteriorating and aging infrastructure;
- Ensure “as-designed” performance during future floods; and
- Enhance levee safety and flood awareness.

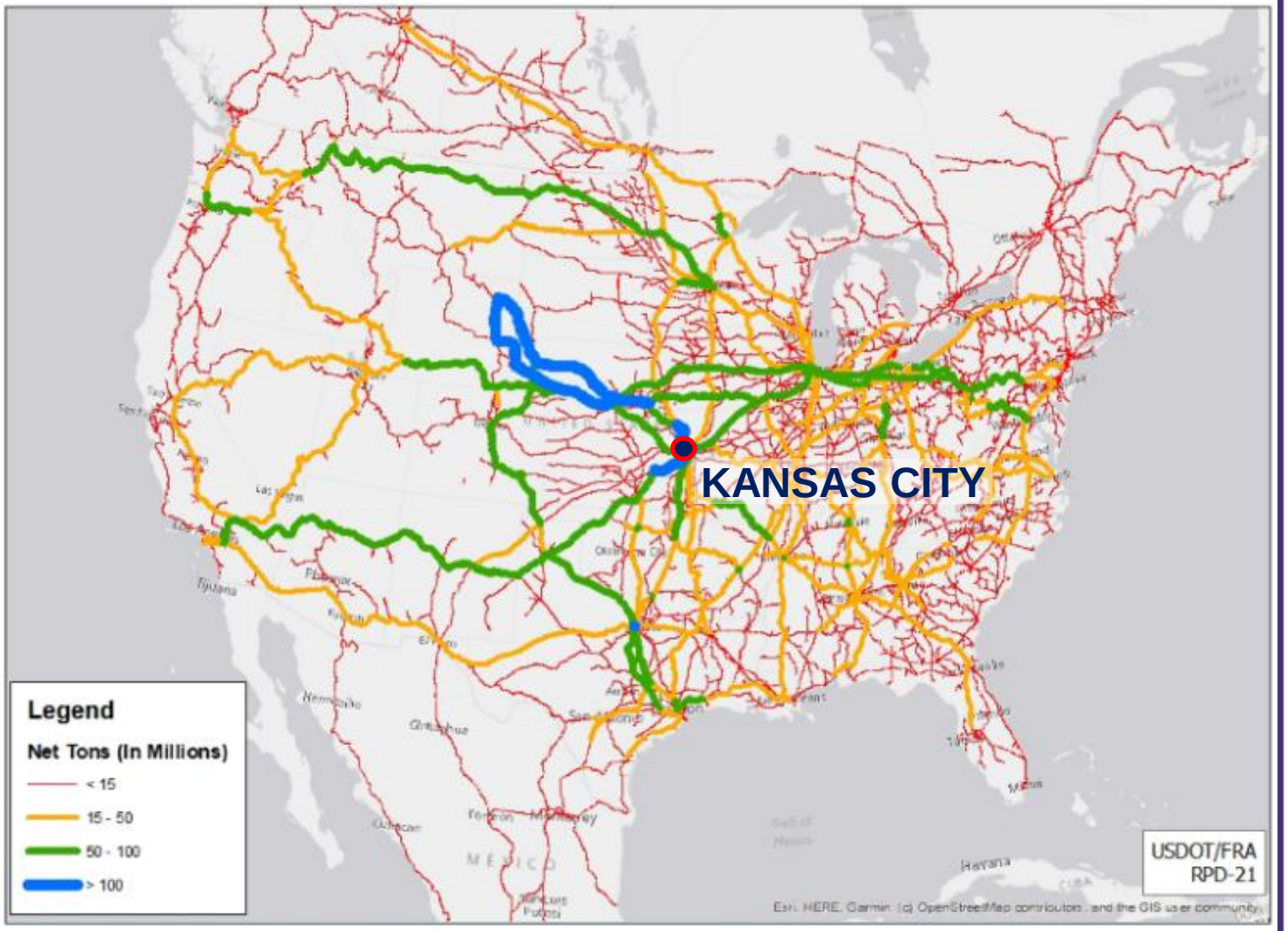
Pump Station Replacements and Repairs

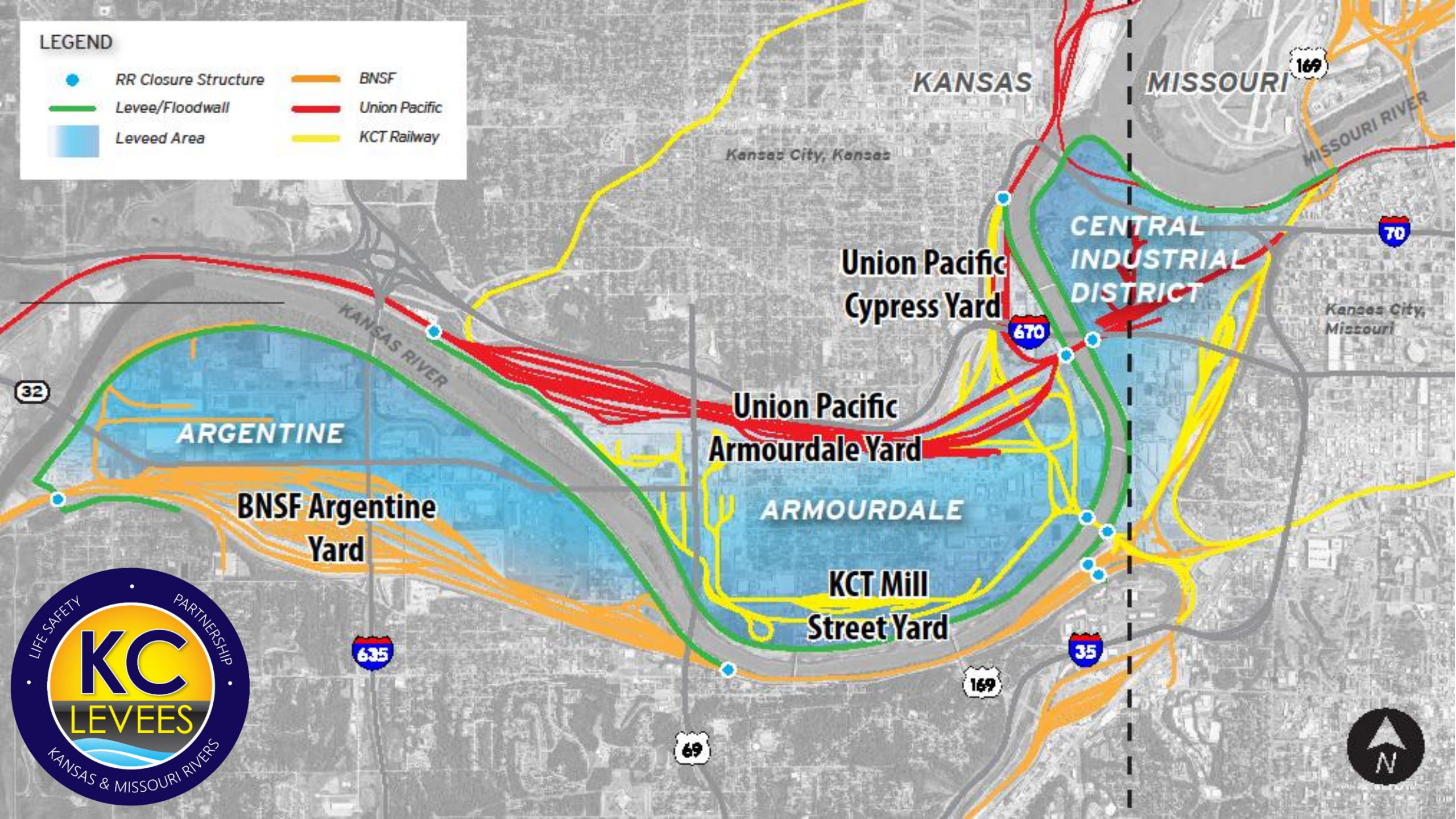
Levee Raises – Earthwork

Levee Raises – Floodwalls

Railroad Engagements

The Kansas City metropolitan area is **one of the largest railroad hubs** in North America and includes the **Nation's second largest classification yard** (BNSF's Argentine yard).




LEGEND
RR Closure Structure
Levee/Floodwall
Leveed Area
BNSF
Union Pacific
KCT Railway
KANSAS
MISSOURI
169
MISSOURI RIVER
Kansas City, Kansas
CENTRAL INDUSTRIAL DISTRICT
70
Union Pacific Cypress Yard
670
Kansas City, Missouri
KANSAS RIVER
32
ARGENTINE
Union Pacific Armourdale Yard
BNSF Argentine Yard
ARMOURDALE
KCT Mill Street Yard
635
35
169
69
N
LIFE SAFETY
PARTNERSHIP
KC LEVEES
KANSAS & MISSOURI RIVERS

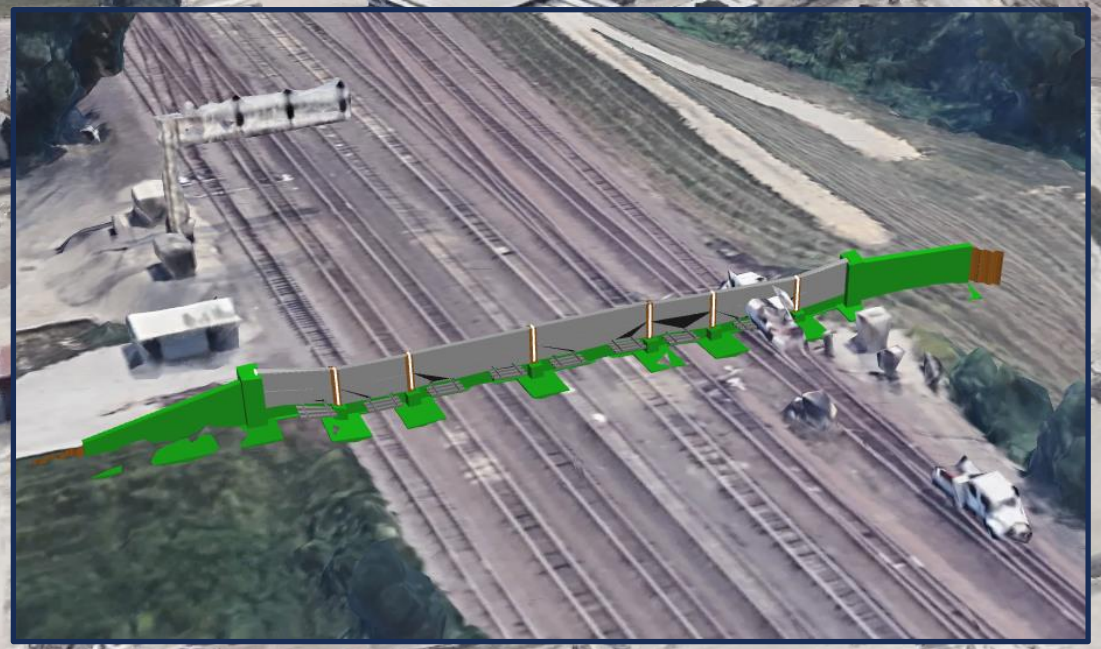
Railroad Engagements

KC Levees will impact **FOUR MAJOR RAILROADS**:

- **BNSF**:
  - 4 closure structures (1 combined with KCT)
- **Union Pacific:**
  - 6 closure structures
  - Modifications to UPRR #3 bridge lifting mechanism
  - Construction of new lifting mechanism on UPRR bridge
- **Kansas City Terminal:**
  - 3 closure structures (1 combined with BNSF)
  - Modifications to KCT Highline Bridge lifting mechanism
- **Kansas City Southern:**
  - Real estate acquisition

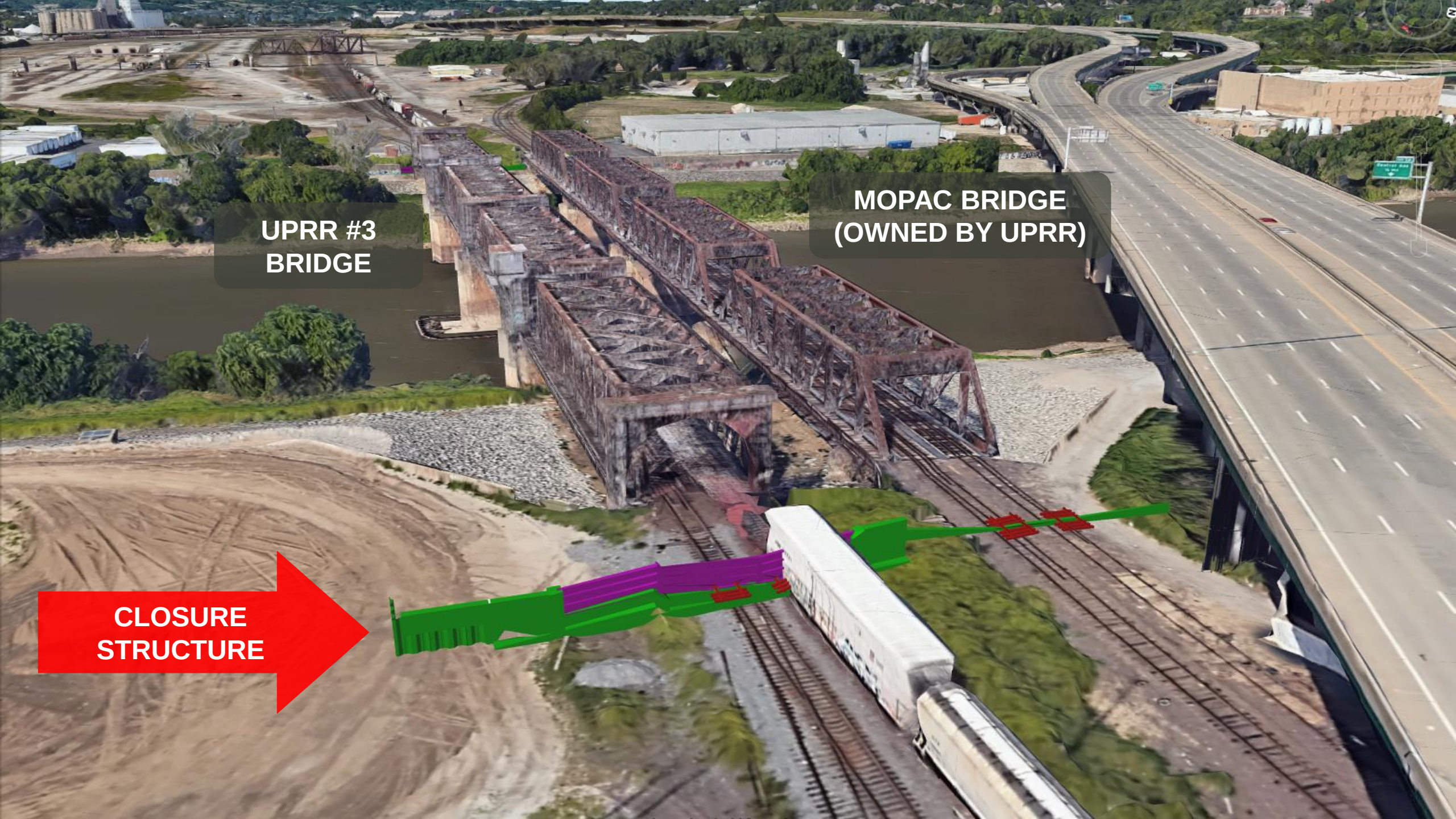
Goal: Minimize railroad impacts during construction and operations.

BNSF
ARGENTINE
YARD



CLOSURE
STRUCTURE


BNSF
ARGENTINE
YARD
BNSF
LOCOMOTIVE
MAINTENANCE
FACILITY
CLOSURE
STRUCTURE


UPRR #3
BRIDGE
MOPAC BRIDGE
(OWNED BY UPRR)
CLOSURE
STRUCTURE

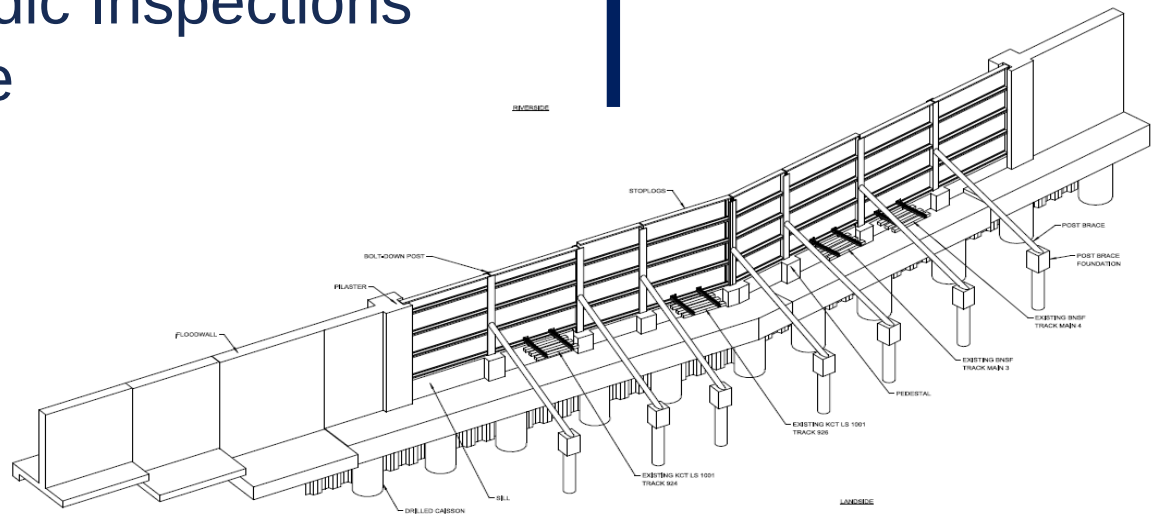
Potential Impacts

USACE

- Cost Increase
- Schedule Delay
- Constructability
- Flood Risk During Construction
- Operations During Flood Event
- Access for Periodic Inspections and Maintenance

RAILROADS

- Reduction in Train Movements
- Track/Utility Relocations
- Efficiency During Construction
- Track Outages During Flood Event
- Reduced Maintenance Abilities



Power of Partnerships

Power of Partnerships

Railroads are a **MAJOR STAKEHOLDER** to the project.

Objectives include:

- Understand constraints;
- Find least impactful solution;
- Standardization;
- Consistency;
- Timely dispute resolution; and
- Communications:
  - Open
  - Transparent
  - Early and Recurring

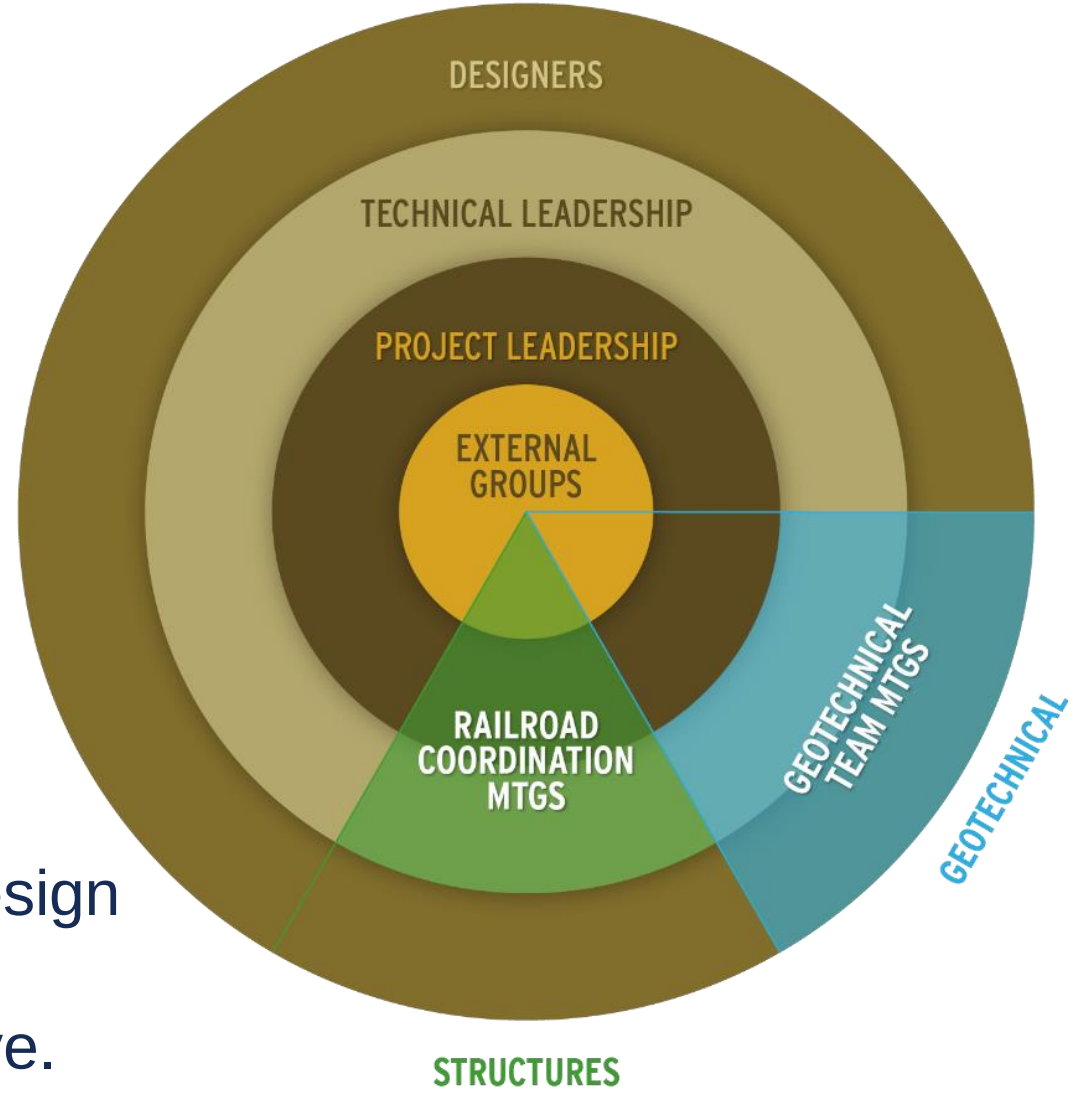
Communication | Collaboration

Communications:

- Leadership engagements
- Federal Railroad Administration
- Early and frequent discussions
- Site visits
- Open and transparent dialogue
- **Build trust!!**

Collaboration:

- Joint management of impacts and risks.
- Collaboration during design reviews.
- Full group looking for the least impactful design alternative.
- Obtain consensus on final design alternative.

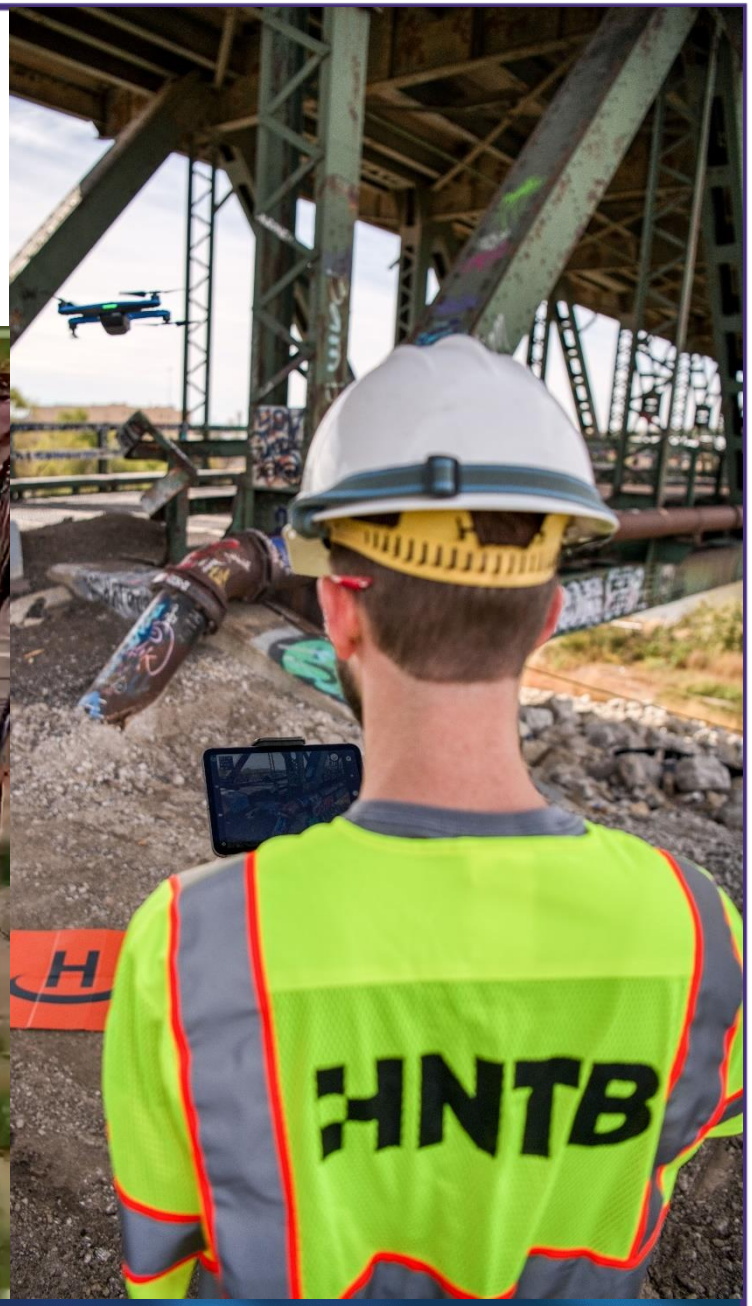


Data Collection in RR ROW

- Remote Inspection via Unmanned Aerial Systems (UAS)
- Ground Survey

Logistics

- Flagging
- On Track Safety



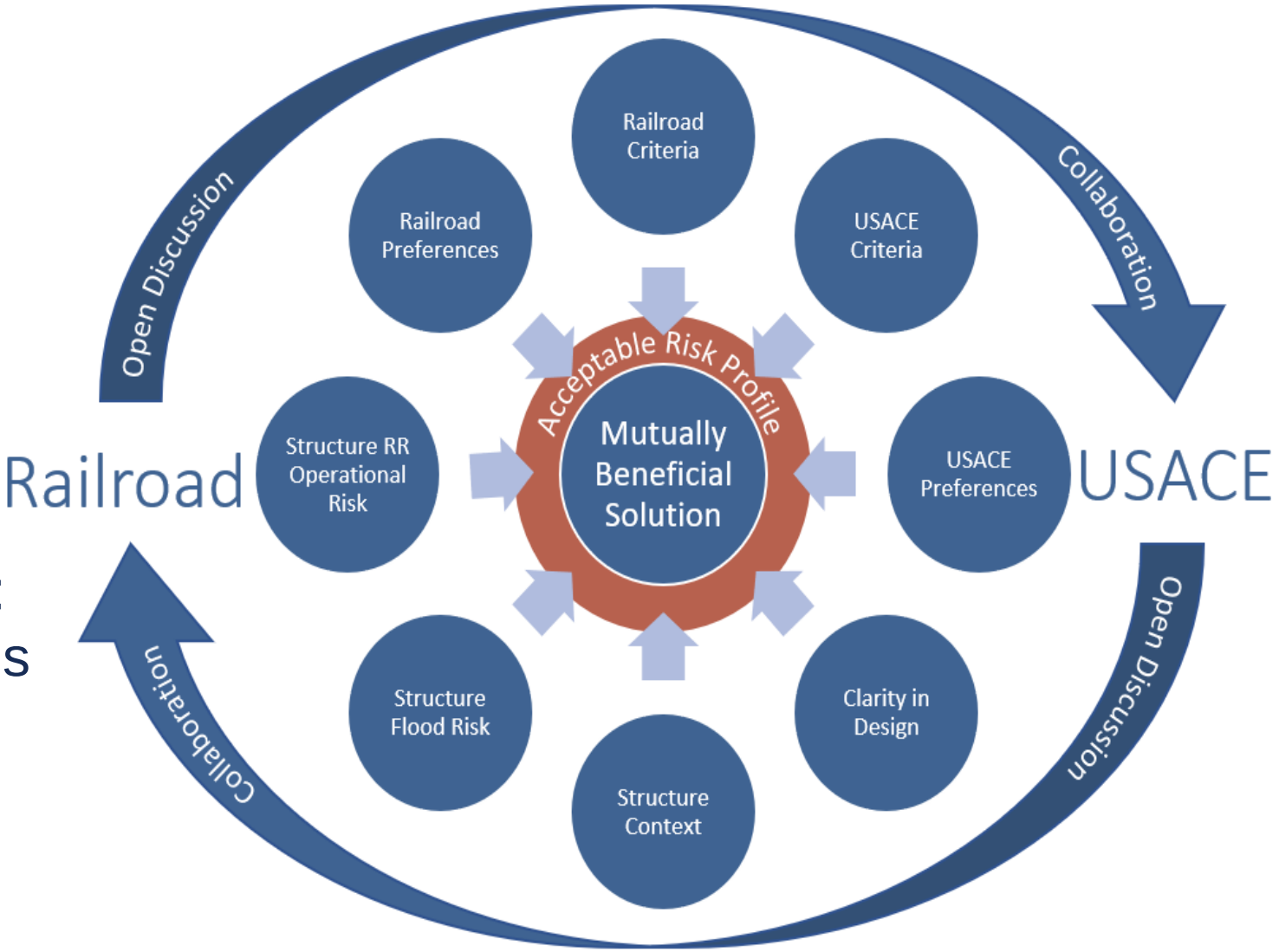
Joint Risk Management

Mutually Beneficial Solution:

- Minimize cost to taxpayer
- Limit railroad operational impacts
- Meeting flood risk needs
- Reduce impacts from future flood fighting operations

USACE & Railroad Partnerships:

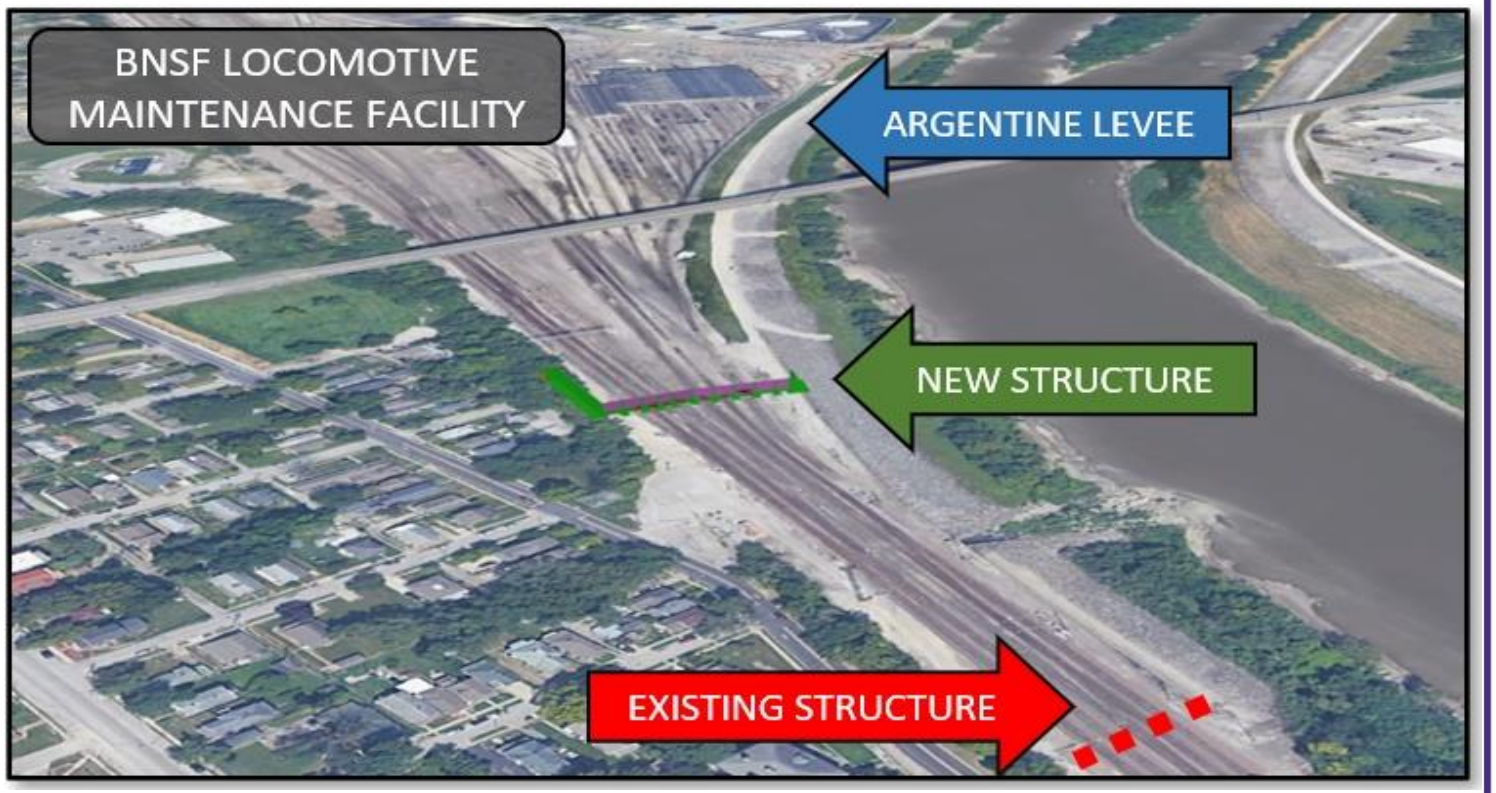
- Early and frequent discussions
- Honesty
- Trust
- Transparent communications



Collaboration – Examples

Alignments:

- Numerous alternatives
- Site-specific analysis
- Locate/Avoid infrastructure
- Understand train movements
- Opportunities to mitigate operational impacts
- Risk-informed design
- Temporary flood protection

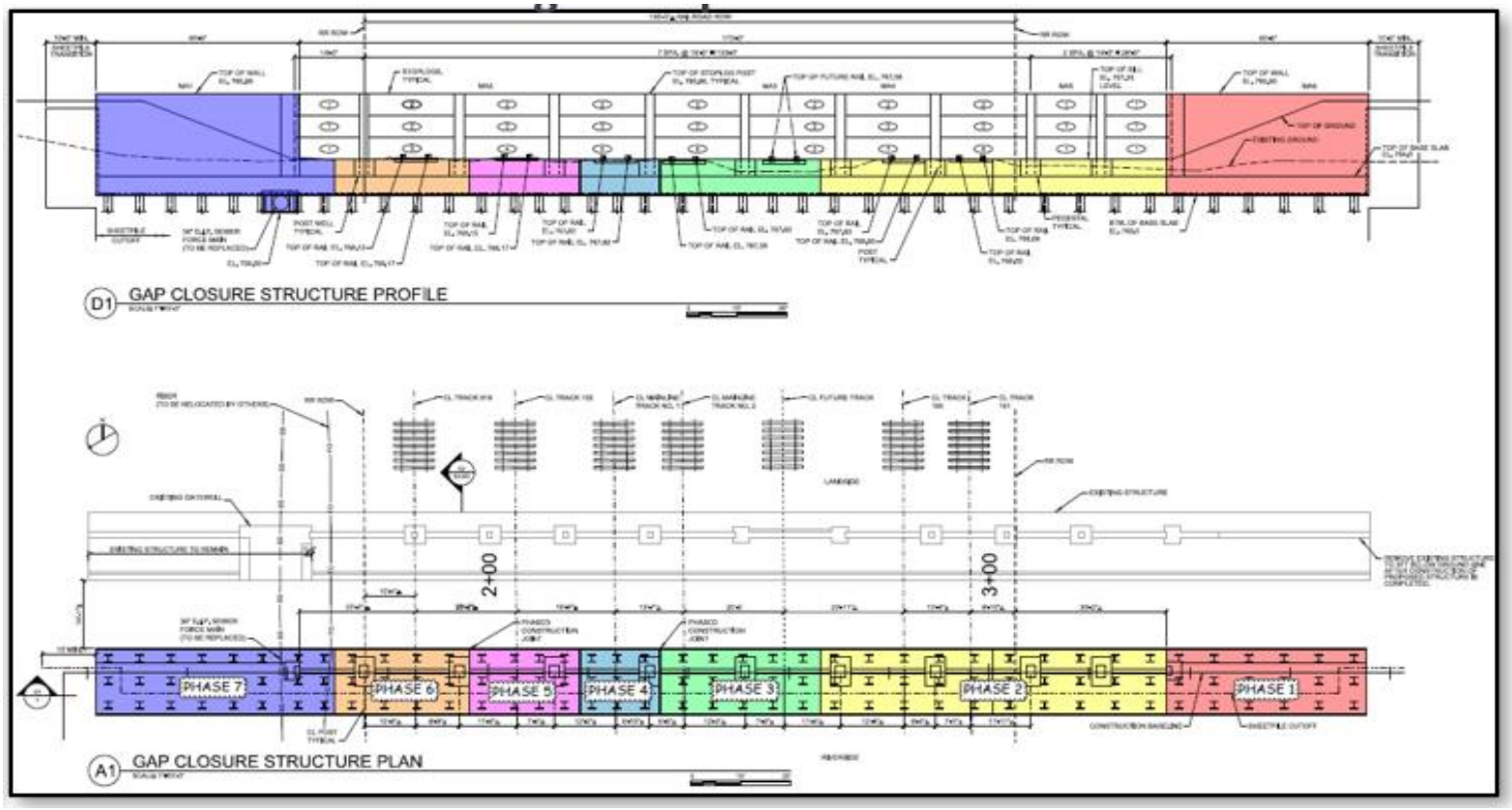


Argentine Levee Unit – Downstream Closure Structure

Collaboration – Examples

Construction Phasing:

- Site-specific construction sequencing
- Detailed Gantt Charts
- Hour-by-hour estimates
- Subject Matter Experts
  - Railroads
  - USACE
  - HNTB
- Revisions (dozens…)
- Over-the-Shoulder Reviews



Armourdale Levee Unit – Upstream Closure Structure

Future of Partnerships

USACE/Railroad Partnerships

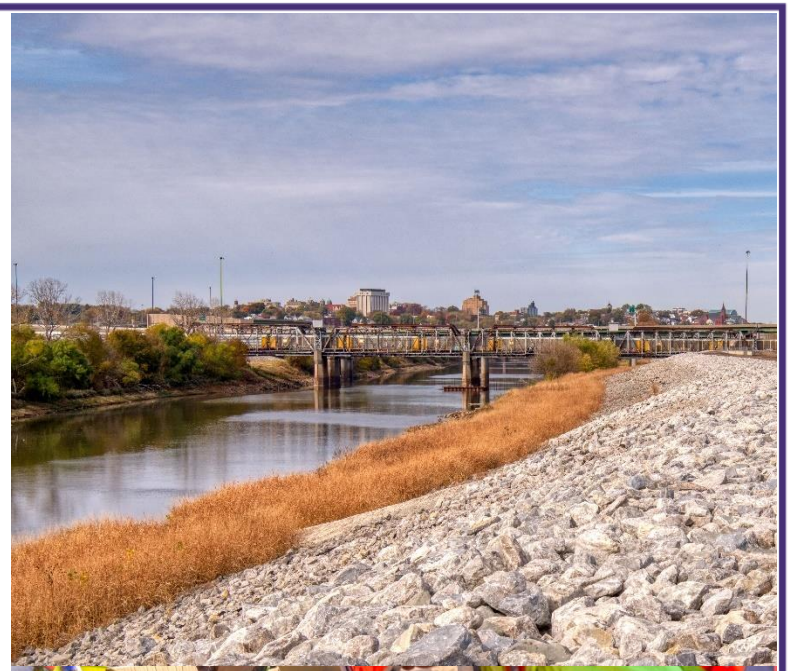
- Relationships and processes established with KC Levees
- Senior Leader Engagements
  - USACE Division Command
  - Railroad VPs/Directors
  - Strategic Engagements
- Working Level Engagements
  - USACE District Command
  - Railroad Managers
  - Lessons Learned
  - Consistency

USACE Railroad Collaboration Team

- Following KC Levees framework
- Transportation Systems Center (Omaha District)
- Goals:
  - Improved and focused partnering
  - Optimize coordination and communications
  - Encourage consistency and uniformity
  - Repository for:
    - Processes
    - Approved designs
    - Lessons learned
  - Reduce cost and schedule risks to USACE

Realized Benefits

- Scope:
  - Improved coordination and reviews
  - Found the least impactful alternative
- Cost:
  - Innovative approaches in closure structure design and temporary flood protection saved project ~$50M.
- Schedule:
  - Historical Review/Approval Timeframe = 5-7 years
  - KC Levees Average = 3 years
- Railroad Operations:
  - Reduced outages during construction
  - Reduced outages during flood event
  - Maximized train operations
- Partnering and Communications:
  - Establishment of USACE-Leading Partnerships



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- LTC John Chambers | john.r.chambers@usace.army.mil

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San Antonio, TEXAS

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