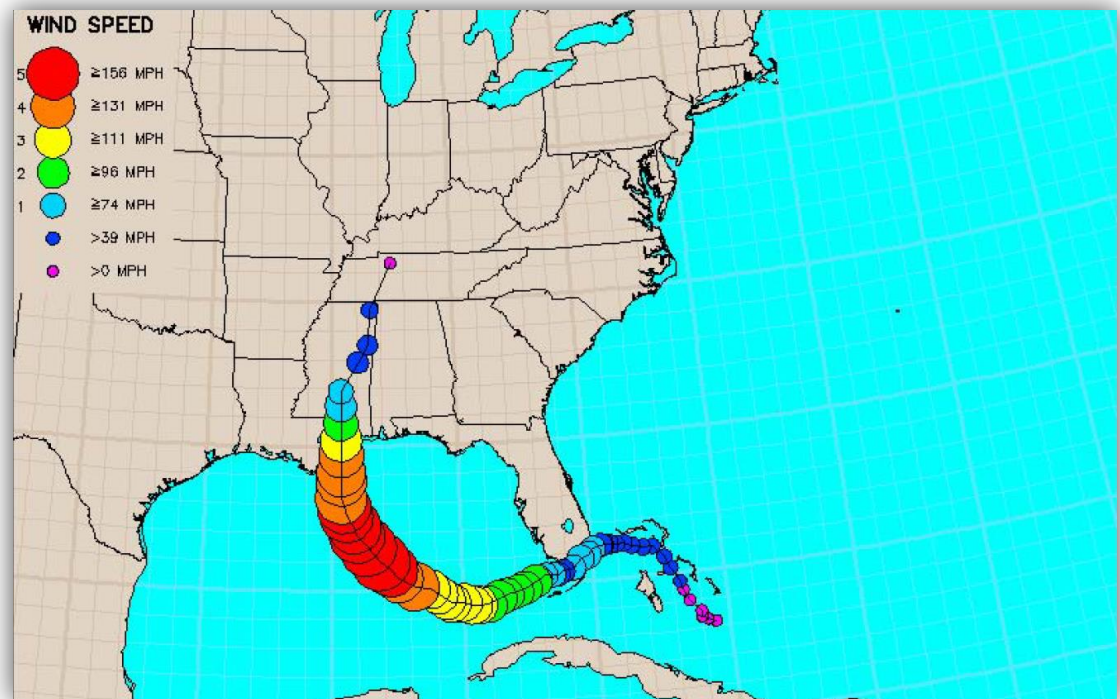


# Resiliency in the Rail Network: Norfolk Southern Responds to Katrina

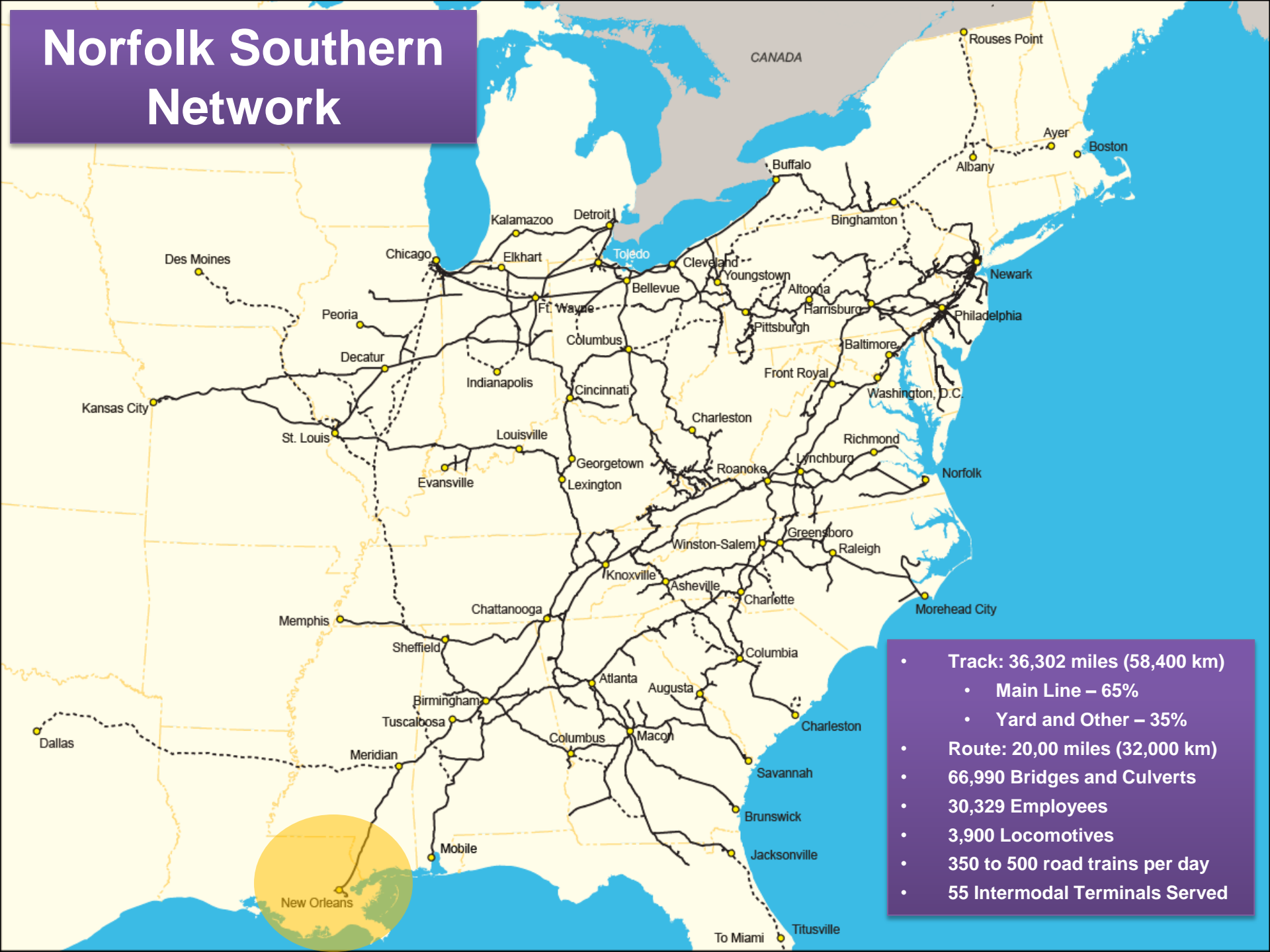
Chris Luebbers  
December 10, 2014



# Disasters – Common and Otherwise

- Derailments (day to day occurrences)
- Landslides / Washouts (localized flooding)
- Prolonged Unique Events (Katrina, Sandy)
- Prolonged Winter Weather (2013 – 14)

# Norfolk Southern Network



- Track: 36,302 miles (58,400 km)
  - Main Line – 65%
  - Yard and Other – 35%
- Route: 20,00 miles (32,000 km)
- 66,990 Bridges and Culverts
- 30,329 Employees
- 3,900 Locomotives
- 350 to 500 road trains per day
- 55 Intermodal Terminals Served



# Preparation

- Friday 8/26 – All rail equipment evacuated, and employees are encouraged to do the same, en route traffic is redirected to other gateways or held on line of road
- Saturday 8/27 – Command Center established in Atlanta
- Monday 8/29 – Katrina makes landfall



# Hurricane Katrina: Damage Assessment

- Track
  - 14.8 miles of damaged track
  - 3.4 miles of roadbed washed out/destroyed
  - 6.3 miles of track under water
  - 2 switching yards under water
  - Intermodal and auto terminals under water
  - 3 drawbridges not operational
- Communications and Signals
  - 14 grade crossing warning devices
  - 2 hotbox detection systems
  - 5 AEI systems
  - 3 Microwave communication sites
  - 6 control points
  - 18 intermediate signals destroyed



# Hurricane Katrina: Track Restoration Efforts

- Emergency track inspection of 1,400 miles of track
- Removal of 5,500 trees
- Installation of 11,000 railroad ties
- Replenished 65,000 tons of ballast
- Replenishment of 2,400 tons of “Rip Rap”
- Laying 27 track panels
  
- Lake Pontchartrain Bridge Reconstruction

# Lake Pontchartrain Bridge



**Lake Pontchartrain Bridge**  
4.7 Miles Track Missing  
MP 173.8 - 178



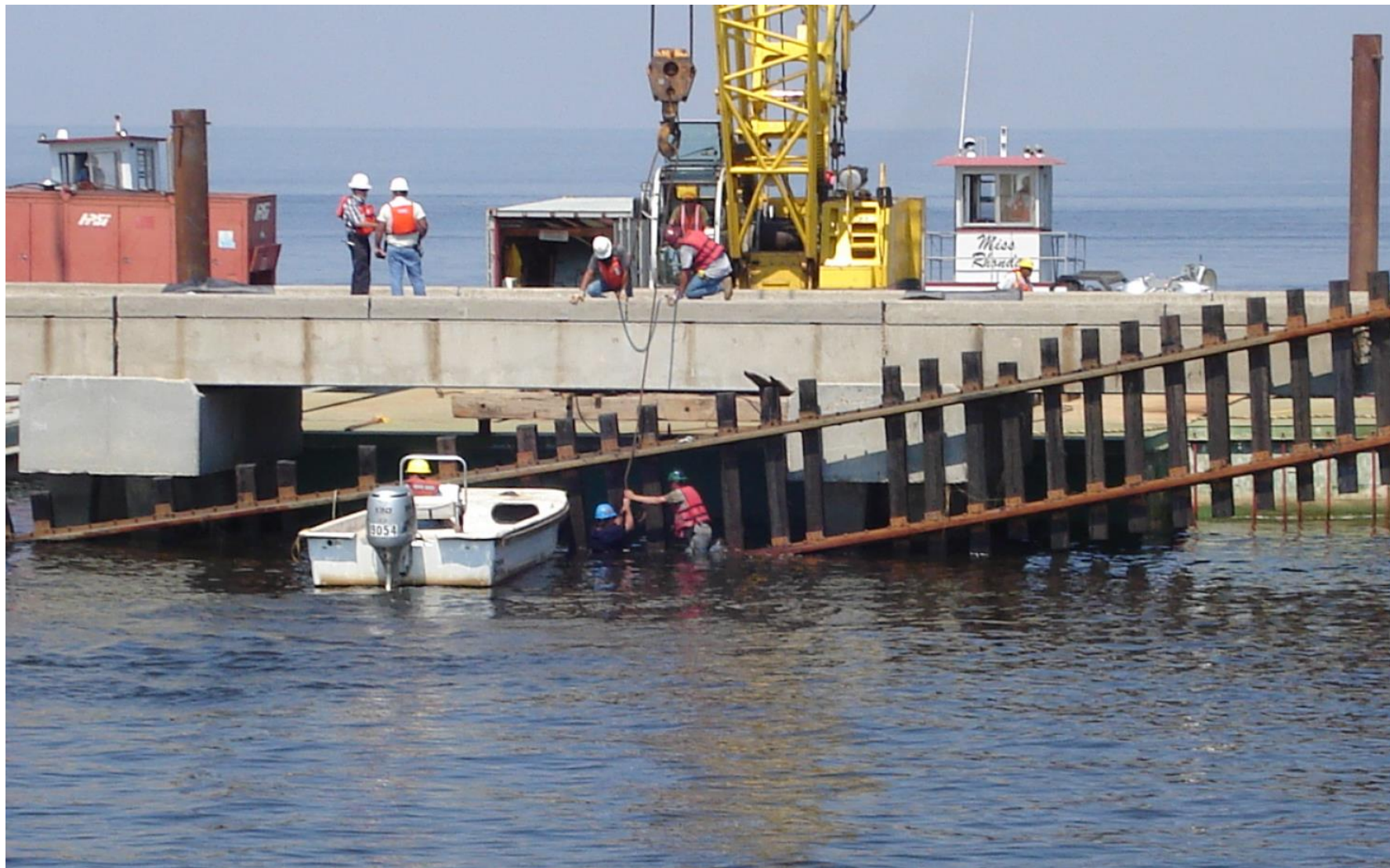
# Lake Pontchartrain Bridge



# Lake Pontchartrain Bridge



# Lake Pontchartrain Bridge



# Helping People

- Safety is our top priority
- NS provided \$4,000 grants and \$15,000 interest-free loans to employees affected by Katrina
- NS donated \$500,000 to communities impacted by Katrina and matched employee donations up to an additional \$500,000

# Challenges

- Bring your Own...
  - Electric power
  - Diesel fuel
  - Food
  - Water
  - Shelters
  - Rail replacement equipment
  - Tire replacement team / mechanics
  - Etc., etc., etc. If you need it, bring it!
  
- Beware of snakes, wild dogs, and people!
  - Norfolk Southern Police



# Positives

- Service to New Orleans restored September 13
- Pre-planning
- Innovative thinking and dedicated people (400+)
- Strong business and government partnerships
- Access to immediate funding, resources, materials and experience
- No accidents / injuries / deaths

# Thank You

