Rehabilitation of the Anthony Wayne Suspension Bridge

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The bridge was originally constructed between 1929 and 1931.

Spans the navigable Maumee River.

Bridge rehabilitation projects in 1961 and 1996.

Only remaining suspension bridge in ODOT’s inventory.
Anthony Wayne Bridge Statistics

- Overall bridge length = 3,218 FT
- Tower height = 215 FT
- Bridge Types and Spans:
  - 3 Suspension spans (1 Mainspan, 2 backspans)
    - 1,252 FT in total length
  - 2 Deck Truss Approach Spans
    - Each 203 FT in length
  - 5 Twin Girder Approach Spans
    - Lengths range from 69 FT to 165 FT
  - 9 Multi-Girder Approach Spans
    - Lengths range from 20 FT to 45 FT
Rehabilitation Details

- Complete redeck
- Structural Steel Repairs
  - Suspension Span Superstructure
  - Towers
  - Approach Span Superstructure
- Replacement of Single Span Under Truss Sections with Two Span Plate Girder Superstructure
- Substructure Concrete Patching
Existing Truss Span
Project Details

- Contract awarded to E.S. Wagner Co. for $28,694,796.
- Allowed for a 19 Month complete closure of the bridge
- Could not impede shipping traffic
Suspension Span Rehabilitation

- Work completed symmetrically about the transverse and longitudinal centerline of the suspension span.
Suspension Span Rehabilitation

- No work platforms could extend more than 6” below low steel within shipping channel
- No interference with shipping traffic
Deck Edge

- Main stiffening girder tied to suspension span deck with shear bolts.
  - First known occurrence in the World.
- Cathodic Protection (Galvanic Zinc Anodes) incorporated into deck edge design.
- Galvanized Reinforcing Steel.
Suspension Span Rehabilitation

- Placement of Lightweight Concrete for all components on suspension span.
Suspension Span Rehabilitation

- Replaced existing finger joints at the Towers with modular expansion joints.
Main Cable Hold-Down Retrofit
Main Cable Hold-Down Retrofit
Suspension Span Rehabilitation
Truss Spans

- Remove existing single span truss and replace with two span plate girder superstructure.
  - Avoid main suspension cable during demolition & erection
Tower Structural Steel Repairs
Approach Span Structural Steel Repairs
Approach Span Structural Steel Repairs
Concrete Patching
Handrail and Post Refurbishment
Future Toledo Metropark

- Project incorporated the beginnings of a future 30 acre Toledo Metropark
  - Bioswale lined with Berea Sandstone
  - Trench drains for bridge drainage
Statistics

- Total of 10,750 CY of Concrete
  - 2,560 CY Lightweight Concrete
  - 750 CY of Substructure Concrete Patching
- 1.5 Million pounds of Epoxy Coated Reinforcing Steel
- 205,000 pounds of Galvanized Reinforcing Steel
- 1.1 Million pounds of New Structural Steel
- 48,000 New Structural Steel Bolts
  - 25,000 Rivets Removed
Future Work – Painting & Lighting
Anthony Wayne Bridge

Questions?