Something Old
Something New:
Spread Box Beam Bridges on Ohio State Routes

Thomas Lefchik, ODOT District 9
Lateral distribution of static loads in a prestressed concrete box-beam bridge - drehersville bridge, August 1966

W.J. Douglas
D.A. Van-Ien

Follow this and additional works at: http://preserve.lehigh.edu/engr-civil-environmental-fritz-laboratory-reports

Recommended Citation
http://preserve.lehigh.edu/engr-civil-environmental-fritz-laboratory-reports/226
EASY COME

Special waterproofing shall be applied prior to 404 placement.

2 layers - 1 1/4" 404, taper bottom course to 0° edge.

21'-0" roadway

7 lines - 36" wide prestressed beams

GWF float 5'-7" long

-2 1/8 @ E, 1 1/4 @ edge
Easy Go
Prestressed Concrete Beam Bridges
Are Spread Box Beam Bridges a Viable Option?

- Performance?
- Cost?
FRA-315-1.14

- VECP
- CJ Mahan
- ADT 82,970
- Built 2001
- Length 397’
- 4 spans – 87.5’, 2 @ 108’, 87.5’
- Deck Condition 8
Something New

- Two District 9 Bridges
- Details
  - Semi-integral Abutment
  - Integral Abutment
  - Pier Diaphragm
  - Self-consolidating Concrete
ADA-73-6.34

- Spans 71’ 0”, 71’ 0”
- 36’ face to face of rail
- Skew 20 degrees LF
- Deck 8.5”
- Semi-integral
- CB33-48 beams
- 5’ 4” between beams
- Mid-span intermediate concrete diaphragms
Bearings
Beams

• CB33-48
• No dowel holes
• S401 bars from PSID-1-13
Abutment
Diaphragm

Used details from PSID-1-13
Abutment
Diaphragm
Pier Diaphragm

Used details from PSID-1-13

Placed bearing under pedestal
Mid-span Diaphragm
Deck
Self-consolidating Concrete

https://youtu.be/-s0YhiK1YCI
Where are the bug holes?
LAW-141-16.18

- Existing adjacent box beams
- 48’ span
- 32’ wide
- Integral
- No skew
- CB21-48 beams
- 4’ 8” between beams
- Mid-span intermediate concrete diaphragms
Integral Abutment

- Based on Slab Bridge detail CPA-1-08 and Prestressed Concrete I-Beam Bridge Details PSID-1-13
- Eliminated the PSB dowel hole
- Beam sits on a pedestal
Advantages of Spread Concrete Box Beams

• Shallow profile for low clearance
• Eliminates joint cracking associated with adjacent box beams
• More flexible width adjustments for phase construction versus adjacent box beams
• Clean lines
Why not spread box beams?
Questions?