Innovative Bridge Designs for Rapid Renewal
SHRP2, Lessons Learned

Finn Hubbard, Fish & Associates Inc.
SHRP2 ABC/PBES
Technical Lead
AASHTO Subcommittee on Construction
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Goals for ABC

• Enhanced Mobility
• Safety
• Reduced Costs***

***Who’s costs?
Innovative Bridge Designs for Rapid Renewal

ABC Toolkit
Next Generation Innovative Bridge Design Projects

• Eight projects scattered around the country
  – Gila River Indian Reservation (Arizona)
  – California
  – Kentucky
  – Maine
  – Missouri
  – Rhode Island
  – Wisconsin
  – Michigan
Held 3 Showcases
Three Peer to Peer Exchanges

• Many lessons learned from implementation projects, showcases and peer to peer exchanges
  – ABC comes in many forms
  – Differing reasons to consider ABC
  – Contracting methods can very depending on need and ABC driver
Lessons Learned So Far

• ABC comes in many forms
  – Multiple pieces assembled on site
  – Slide in Bridge Construction (SIBC)
  – Self Propelled Modular Transporters (SPMT’s)
Lessons Learned So Far

• Differing reasons to consider ABC
  – Time savings
  – Safety
  – Quality
  – Reduced environmental impacts
  – Materials (Precast, Galvanized, Carbon fiber)
Lessons Learned So Far

• Contracting methods can very depending on needs
  • Design, bid, build (Traditional)
  • Design, build (Less control)
  • Construction Manager/General Contractor (CMGC)
  • A + B, Cost plus time
Lessons Learned So Far

• Identify the main goal of the project
  – Least disruption of traffic?
  – Least cost?
  – Environmental protection?
  – Length of construction season?
  – Length of detour?
Michigan
Lessons Learned So Far

• Speed of ABC
  – How fast is really needed (Closure time)
  – SPMT’s are very fast, but pricey
  – SIBC is a nice combination of speed and cost
  – If 14 to 21 days will work, assembling pre built pieces is cost effective
  – There is a cost for speed
    • Choose the time line carefully!
Lessons Learned So Far

• Cost of ABC
  – Generally cost more
  – ABC is showing up on design/build projects
    • What does this mean?
  – Look at big picture
    • Cost of traffic control
    • Cost of construction inspection staff
  – Simple details equal lower costs
  – Align proposed ABC method with local expertise
Lessons Learned So Far

• Technical Issues
  – Foundations selection is a big deal
    • Spread footing are fast
  – Post tensioning works, but takes time
  – Simple detail lead to successful projects
  – UHPC is a good tool, but expensive
  – Watch the weight of precast elements
  – Pay attention during shop reviews
    • Best to have issues on paper
Lessons Learned So Far

• Contractor Related
  – Like to retain as much work as possible
  – Contractors bid labor, material and **risk**
  – Like CM/GC contracts
    • Geared to their means and methods
  – Work with them, they have good suggestions
Conclusions

• Be open minded
• Do not be afraid to experiment with the method and materials
• Seek designer and contractor input before AND after every job for improvements
• DOTs get great publicity from ABC projects
  – Let the public know what your doing and why it is special!
Access to the toolkit and other resources including implementation assistance can be found here:

- FWHA’s GOSHMRP2 web site or specifically:

- AASHTO’s SHRP2 web site or specifically:
  [http://shrp2.transportation.org/Pages/Bridge-Designs-for-Rapid-Renewal.aspx](http://shrp2.transportation.org/Pages/Bridge-Designs-for-Rapid-Renewal.aspx)

- TRB publications site:
  [http://www.trb.org/Main/Blurbs/168046.aspx](http://www.trb.org/Main/Blurbs/168046.aspx)
Questions?