

Every Day Counts

Case Study Number and Description: CS #2 – Major Intracoastal Waterway Crossing Bridge Replacement

	In this section, indicate whether prefabricated bridge components should be considered during the BDR evaluation	Conventional Alternate (yes/no/na)	Prefab. Alternate (yes/no/na)	Comments
1.	Prefabricated Beam	Yes	Yes	Given the span lengths, the BDR should consider FIB's for the approach spans for both the conventional and prefabricated alternates. The BDR should consider a three span continuous channel unit with post-tensioned FIB's as well as continuous steel plate girders for both the conventional and prefabricated alternates.
2.	Prefabricated Piles	Yes	Yes	The BDR should consider both drilled shafts and prestressed piling for both the conventional and prefabricated alternates.
3.	Precast Footing	No	Yes	BDR should consider both a precast footing and C.I.P footing for the prefabricated alternate.
4.	Prefabricated Bent Cap	No	No	Not deemed to be beneficial because end bent construction is typically easy to construct in-situ and the number of components is small to justify precast set-up and construction learning curve.
5.	Prefabricated Pier Column	No	Yes	For the prefabricated alternate, the BDR should consider a precast pier column that utilizes flowable concrete mixes with embedded polystyrene blocks designed to be connected to precast cap and footing components using grouted rebar couplers.
6.	Prefabricated Pier Cap	No	Yes	For the prefabricated alternate, the BDR should consider a precast pier cap that utilizes flowable concrete mixes with embedded polystyrene blocks designed to be connected to precast column components using grouted rebar couplers.
7.	Prefabricated Prestressed Deck Units (w/o beams)	NA	NA	Does not apply.

8.	Prefabricated Full-Depth Deck Panels (w/ beams)	No	No	Due to untested details and construction practices in Florida, not deemed beneficial for such a large project given the risk. Long prestressed FIB's make detailing for fit-up difficult due to differential camber. Both the conventional and prefabricated alternates should consider only C.I.P. decks with coated S.I.P. forms.
9.	Prefabricated Complete Superstructure	No	No	Not deemed to be practical option given vertical profile of proposed high level structure.

In this section, include project constraints and user impact considerations:

Water Access: It is assumed that the water depths at the site would allow full barge access from shoreline to shoreline.

Ship Impact: It is assumed that the ship impact load for the channel piers would exceed 1,500 kips requiring a continuous channel unit per SDG 2.11.7.B.

Labor and Insurance Costs: Savings associated with labor rates and insurance costs for reduced time working from a barge on a large water project should be considered in the direct costs associated with the prefabricated alternate.

Wetland and Seagrass Impacts: Assume that any wetland or seagrass impacts would be similar for both the conventional and prefabricated alternates.