SYNTHESIS OF PRECAST COLUMN DESIGNS FOR TEXAS BRIDGES

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There is an increasing interest in prefabrication of bridge elements to accelerate bridge construction.

To date, prefabrication of bridge columns has been very limited as compared to bridge superstructures and bent caps.

RESEARCH OBJECTIVES

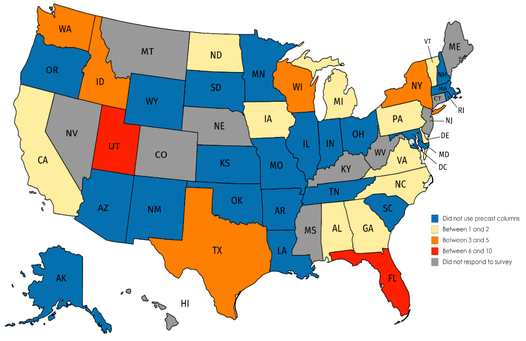
- Review and synthesize published literature and current DOT practice on precast columns
- Compile lessons learned from previous projects and studies
- Evaluate the suitability of existing precast column solutions for Texas bridges
- Determine criteria for the selection of precast columns over conventional cast-in-place solutions for Texas bridges

PRECAST COLUMN SYSTEMS

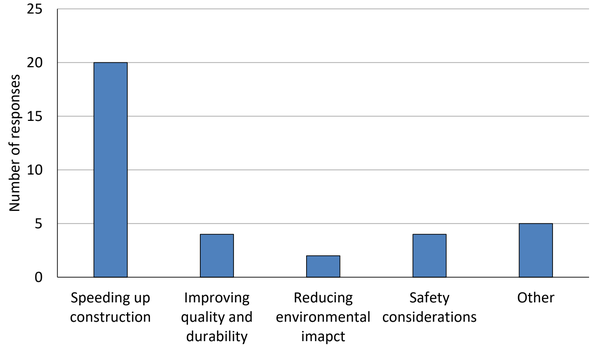
(a) full-height precast column *(b) precast segmental column* *(c) precast column shell*

SURVEY OF CURRENT DOT PRACTICE

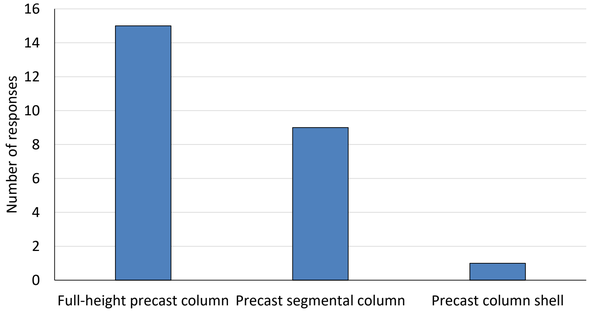
Number of bridge projects that involved precast columns



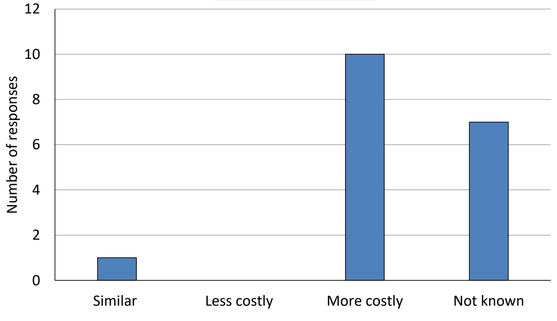
Reason of selecting precast columns over conventional columns



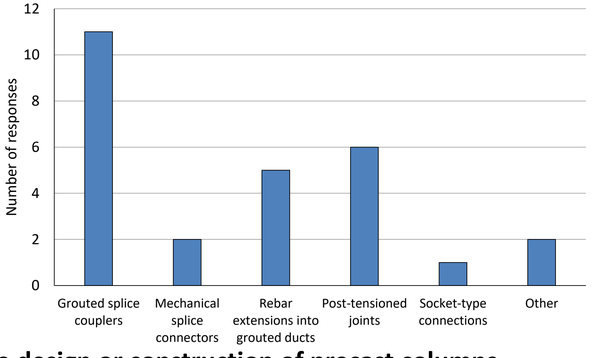
Types of precast columns used



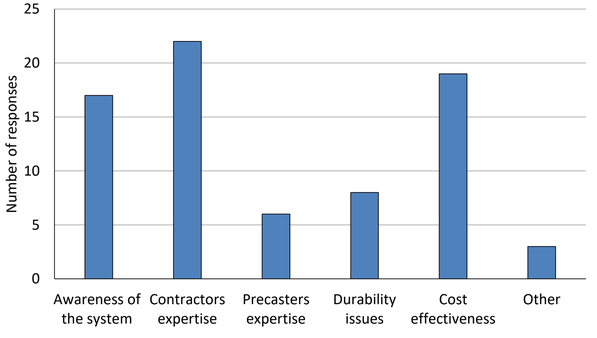
Construction costs of precast columns as compared to conventional columns



Types of connections used



Challenges for implementing precast columns



Other DOT practices investigated

- DOTs specific standards for the design or construction of precast columns
- DOTs specific guidelines for selecting precast columns over conventional columns
- Serviceability/Durability issues for projects that involved precast columns

Ongoing Work

Evaluation of existing precast columns and recommendations for future implementation in Texas