



ABC in Nevada

PBES/ABC Practices in Nevada – Past, Present and Future



Nevada Department of Transportation

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Presentation Overview



- Executive Overview
 - Department, Structures Capital Programs, Division Org & Inventory
 - ABC in Nevada
 - Barriers to Implementation
 - Planning and Decision Making
 - ABC Project Specifics
 - Project Details
 - Lessons Learned
 - ABC Activities
 - Education and Research
 - Summary, Future Efforts



Annual Program



- Department Annual Capital Outlay (approx)
 - \$ 1 Billion.
 - \$380 Million – Fed Gas Tax
 - \$420 Million – State Gas Tax
 - \$200 Million – State other (Bonds, etc.)
- HBP Capital Outlay Funds (approx \$10.5 million, 1% of total budget)
 - Bridge replacement
 - Seismic retrofit
 - Scour Countermeasures



Organization & Inventory



- Centralized Design & Inspection
(20 Design, 9 Inventory/Inspection, 3 NDT)
- Designs are typically governed by Seismic Design
- 2014 Data: Approximately 1,900 bridges; 1100 State Owned.
(150 Steel, 600 Concrete, 300 RCB's)
- 34 state & local bridges considered structurally deficient
- Aging Inventory. Approximately 33% of state inventory was constructed in the 1960's as part of Interstate System



PBES/ABC Implementation Barriers



in the country (12.0%) in 2012
ctors, labor force a sensitive
e slide performed by out-of-state

asting facilities in state or AISC

e not been cost competitive due to



PBES/ABC Implementation Barriers:



pection and Contractors
iques. May require additional

Plan Details, Materials,

7 impact GRS-IBS projects

PERFORMANCE

QC processes

formance/durability. Seismic and
performance of new details is



PBES/ABC Implementation Barriers: ABC Planning and Decision Making



mental policy to support implementation of
case by case basis

aking and Economic Modeling Tool”
iversity for the Oregon DOT and FHWA
the Department

formed regarding project costs/benefits



PBES/ABC Projects



HD Summit



10 Mile Summit



Safety Crossings

- Performance Specs
- Temporary Road Closures



ABC Projects



- **Recent Contracts (# of Structures) – Bridge Costs; ABC Elements**
 - Contract #3407 Awarded March 2010. HD Summit Animal Crossing
 - 1 Precast Arch w/Full Ht MSE Wall Panels . DBB w/Perf Spec, Structure cost\$1.5 million
 - Contract #3388 Awarded July 2009. 10 Mile Summit Crossing
 - 1 Precast Arch w/Full Ht MSE Wall Panels. DBB w/Perf Spec, Structure cost \$1.3 million
 - Challenges
 - Design: Developing details and performance spec info
 - Discussion with PBES fabricators during plan development of safety crossings
 - Construction: PBES tolerances, MSE Wall fit-up during backfilling, technical oversight, coordinating field revisions



PBES/ABC Projects



B-1942 Tuscarora



Bridge Replacements

- Performance Specs
- Prefabricated Bridge Rail/Headwalls/Wingwalls
- Structure Placed in 1 Day



ABC Projects



- **Recent Contracts (# of Structures) – Bridge Costs; ABC Elements**
 - Contract #3459 Awarded August 2011. Tuscarora Bridge Replacement .
 - 1 Precast Arch, Headwall/Barrier Rail . DBB w/Perf Spec - \$220 k
 - Challenges:
 - Design of TL-3 barrier rail connection required coordination with manufacturer
 - Hydraulics concern regarding scour required additional concrete floor slab & rip rap



PBES/ABC Projects



Safety Crossings

- Performance Specs
- Crossovers



ABC Projects

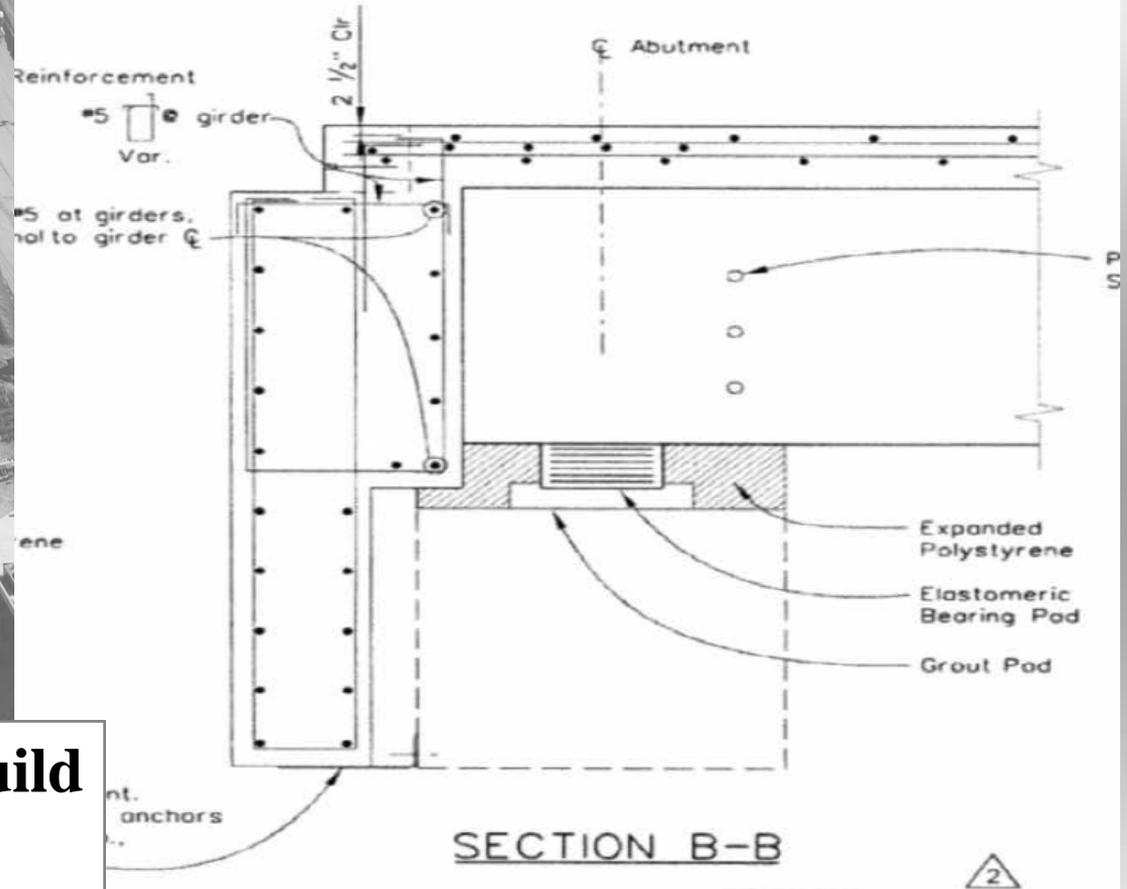


- **Recent Contracts (# of Structures) – Bridge Costs; ABC Elements**

- Contract #3313DB Awarded in June 2006. \$242 Million Project Cost
- I -15 North D/B included 6 structures with Precast AASHTO I Girders
- Estimated value/cost of structures: \$15.3 Million
- Challenges: End diaphragm & pier diaphragm details, girder curing specifications



I-15 DB North End Diaphragm

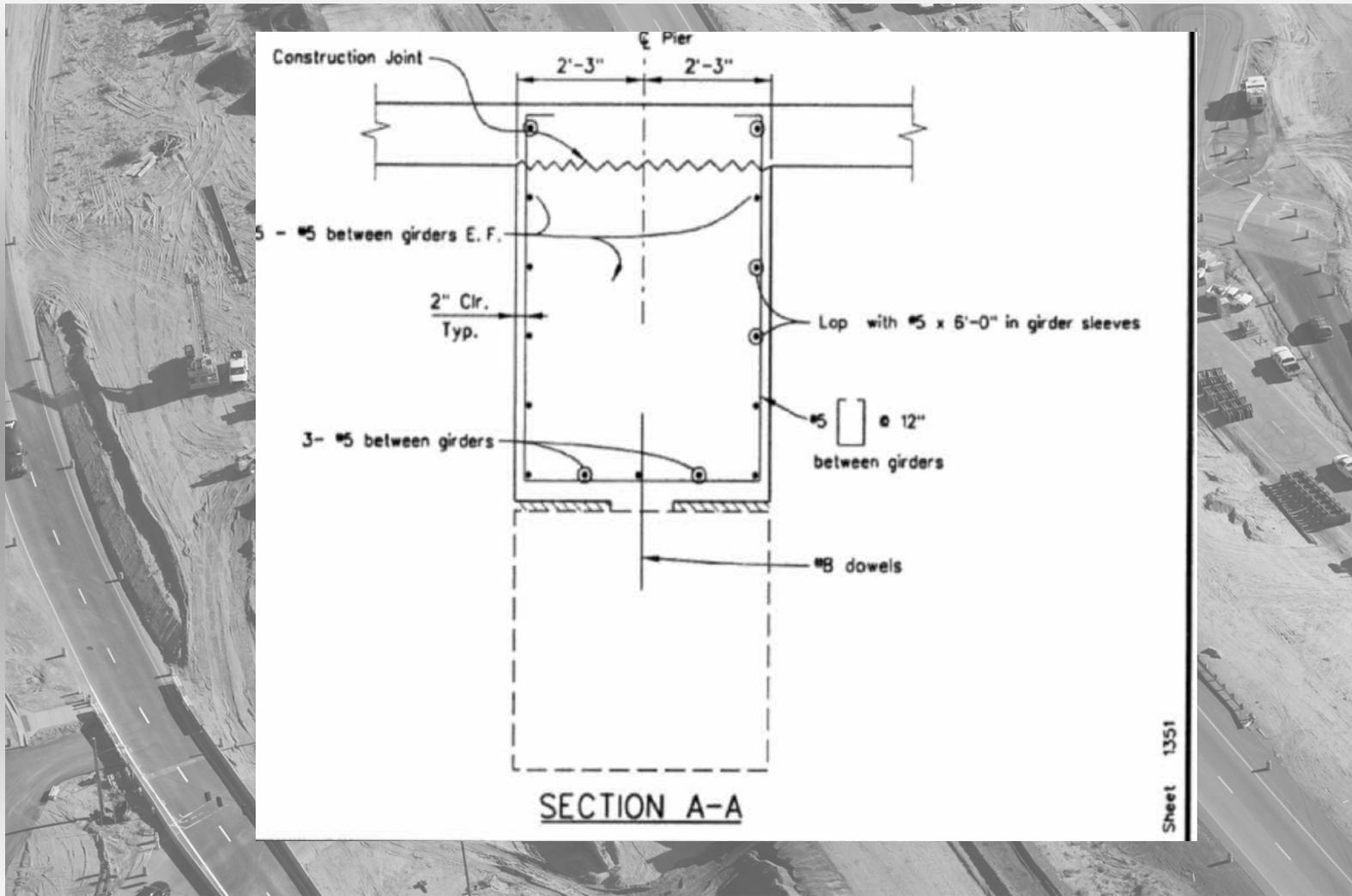


I-15 North Design-Build

- Precast Girders



I-15 DB North Pier Diaphragm





PBES/ABC Projects



Mesquite Design-Build

- Precast Girders
- Partial Depth Precast Deck Panels

I-15 South Design-Build

- SPMT bridge move



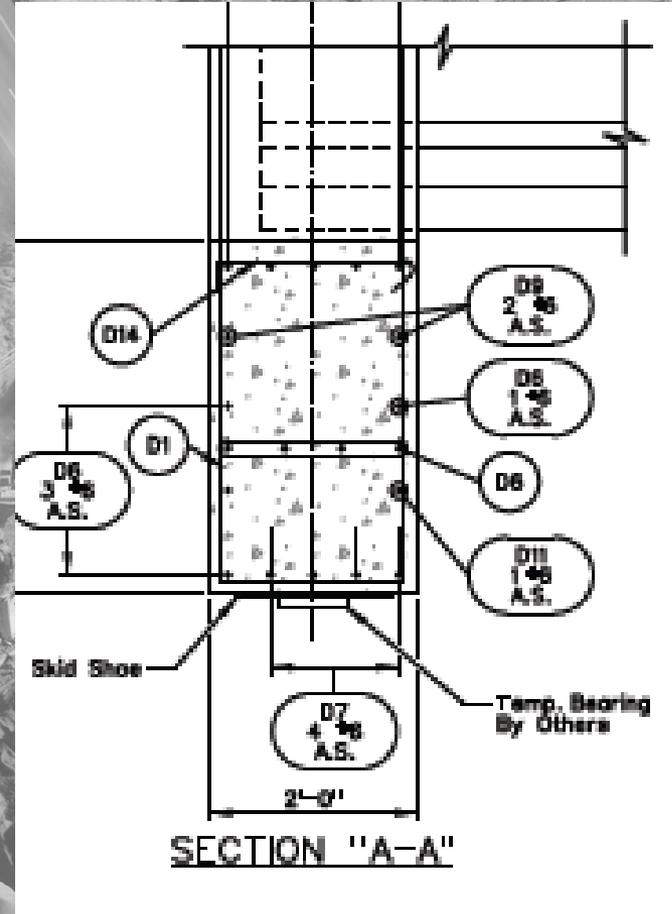
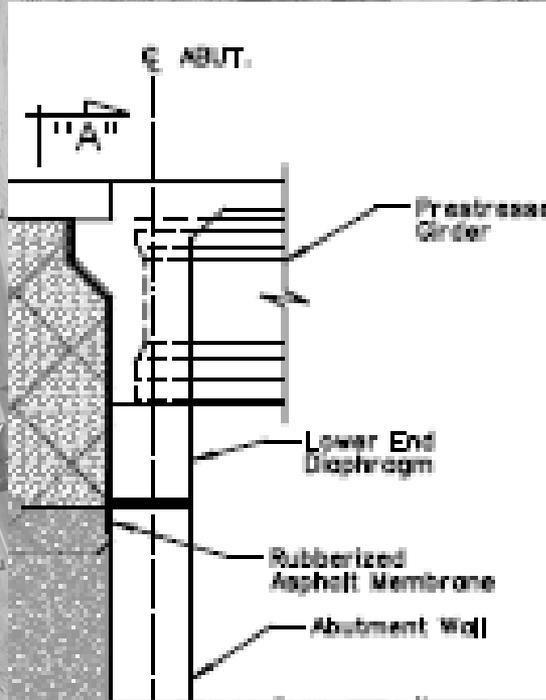
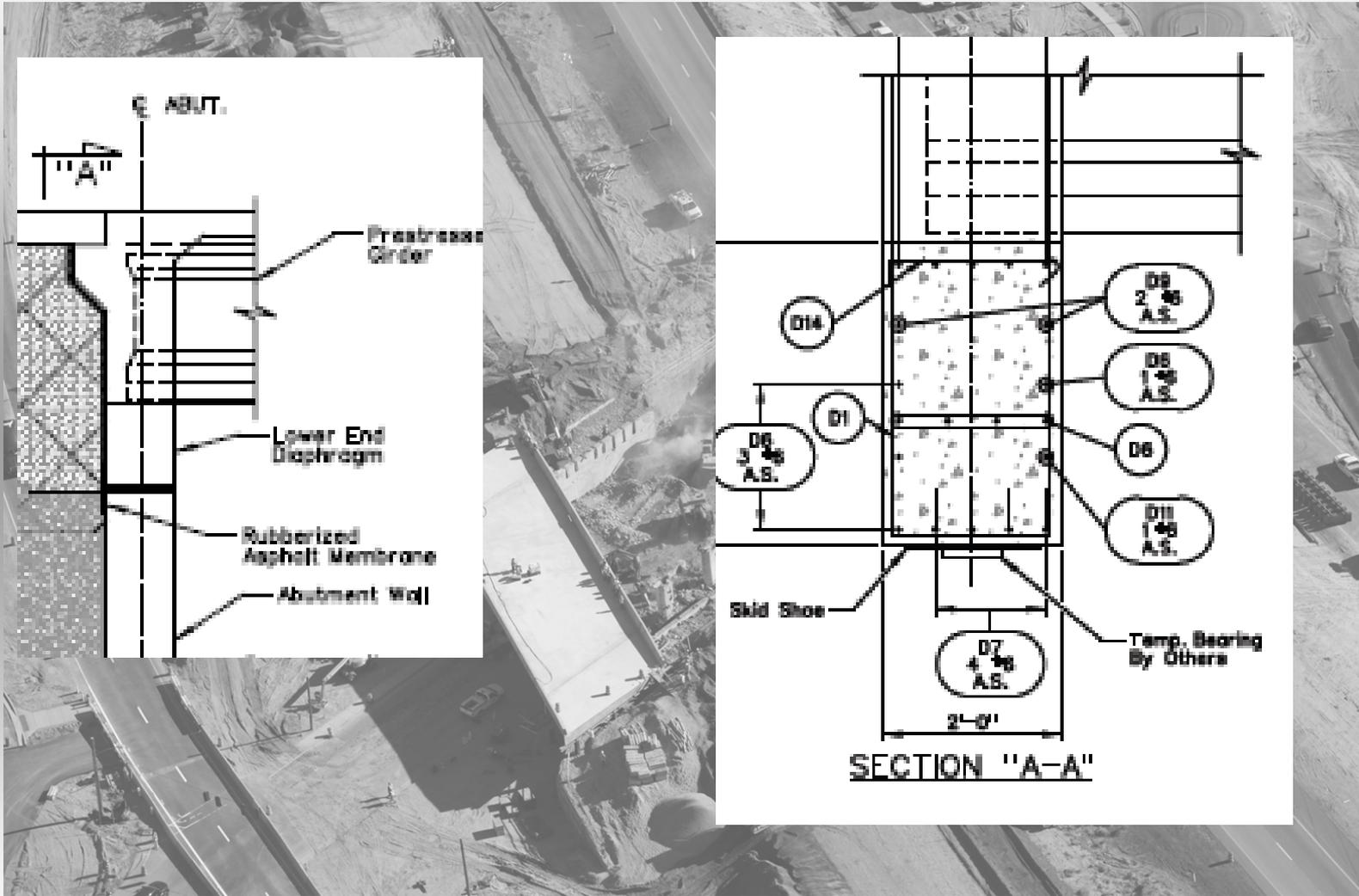


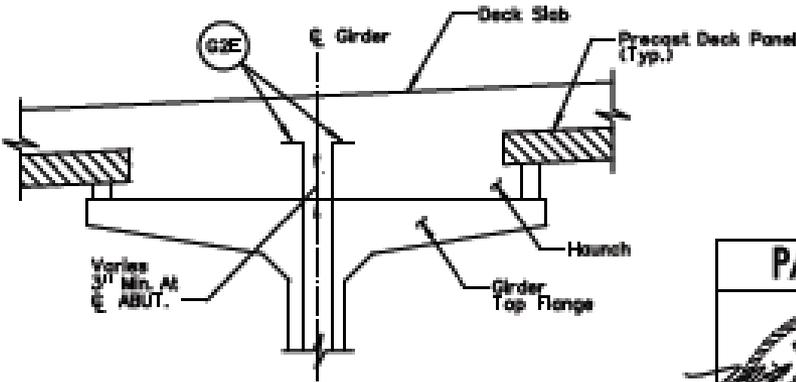
ABC Projects



- **Recent Contracts (# of Structures) – Bridge Costs; ABC Elements**
 - Contract # 3447DB Awarded March 2011. Mesquite Bridge Replacement. 2 Lateral Bridge Slides & use of partial depth deck panels. Estimated structure value \$1.1 million
 - Challenges:
 - Proposal Evaluation, Award
 - Construction:
 - Slide damaged permanent bearings, requiring replacement of 3 bearings
 - Significant coordination/interaction with Design staff required
 - Abutment joints, precast deck panel connections
 - Seismic restraint.
 - Experienced reflective cracking in CIP deck

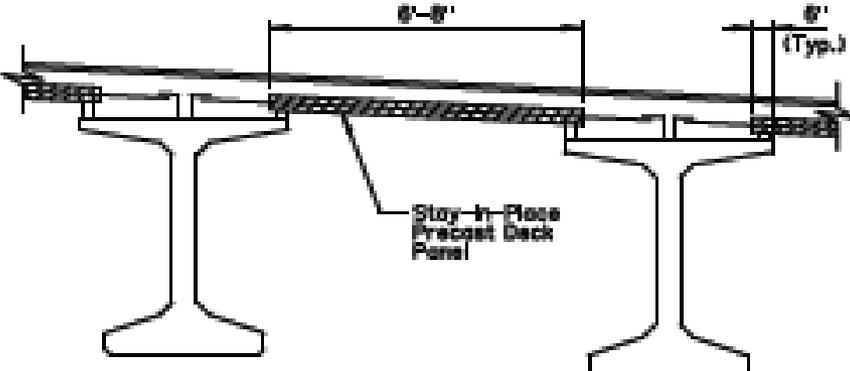
Mesquite Abutment Details



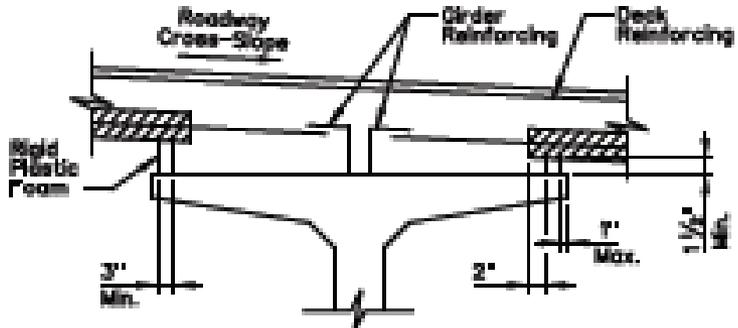


DECK SECTION AT GIRDER TOP FLANGE

TYPICAL PLAN
(PARTIAL PLAN SHOWN)



TYPICAL SECTION



SUPPORT DETAIL



5/8



Additional PBES/ABC Activities Education and Research



ABC showcase events in Utah (3+) and Design Staff.

Peer Exchanges (TX - 2012, AZ Conference (FL-2014)

Seismic Connections - 2012

NDOT - Carson City, 2013

on precast deck panels, precast



Additional PBES/ABC Activities

Summary, Future Efforts



- NDOT experience includes: PBES, Bridge slide, and SPMT (completed May/June 2012 on I-15 D/B South (new end span)).
- Continuing work on GRS-IBS projects. Potential for additional bridge slides.
- Potential for ABC opportunities on major Design – Build projects.
- Evaluation of the “ABC Decision Making and Economic Modeling Tool”
- Research underway for precast deck panels, columns.
- Open to opportunities: Urban areas – MOT, Remote locations, GRS-IBS
 - ABC, PBES consideration must be based on project issues/benefits
 - Avoid misinformation regarding project costs/benefits
 - **“It’s got to be the right application and fit for the project”**



Questions?