2009
Domestic Scan of
Accelerated
Construction Practices

AASHTO
THE VOICE OF TRANSPORTATION

U.S. Department of Transportation
Federal Highway Administration

Objective

Agencies are seeking ways to accelerate project delivery.

You hear about:

"Get in, Get out, and Stay Out."

The scan focus was on how to accomplish that dictum rapidly.

Objective

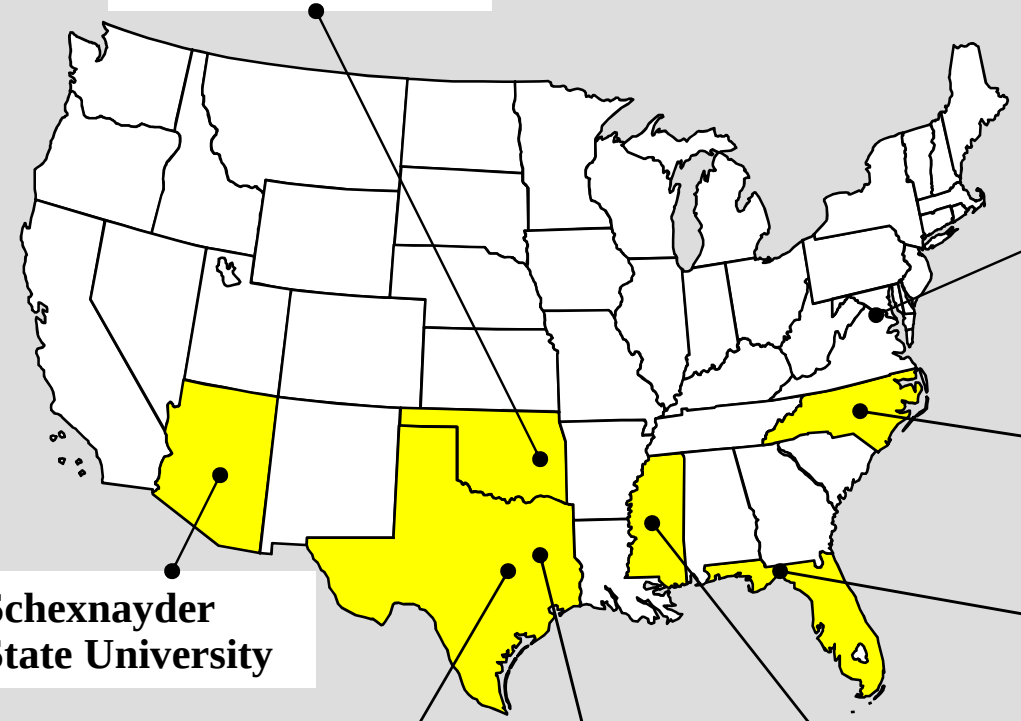
From actual construction experiences identify:

- **Construction practices that speed project delivery.**
- **Management practices that minimize the duration of work zone occupation.**

Overview

- The Scan Approach
- Successful Projects & Keys to Success
- The Fundamentals
- Conclusions

SCAN TEAM



George Raymond
Oklahoma DOT

Chris Schneider
FHWA, HQ

Steven DeWitt
NC Turnpike Authority

Clifford Schexnayder
Arizona State University

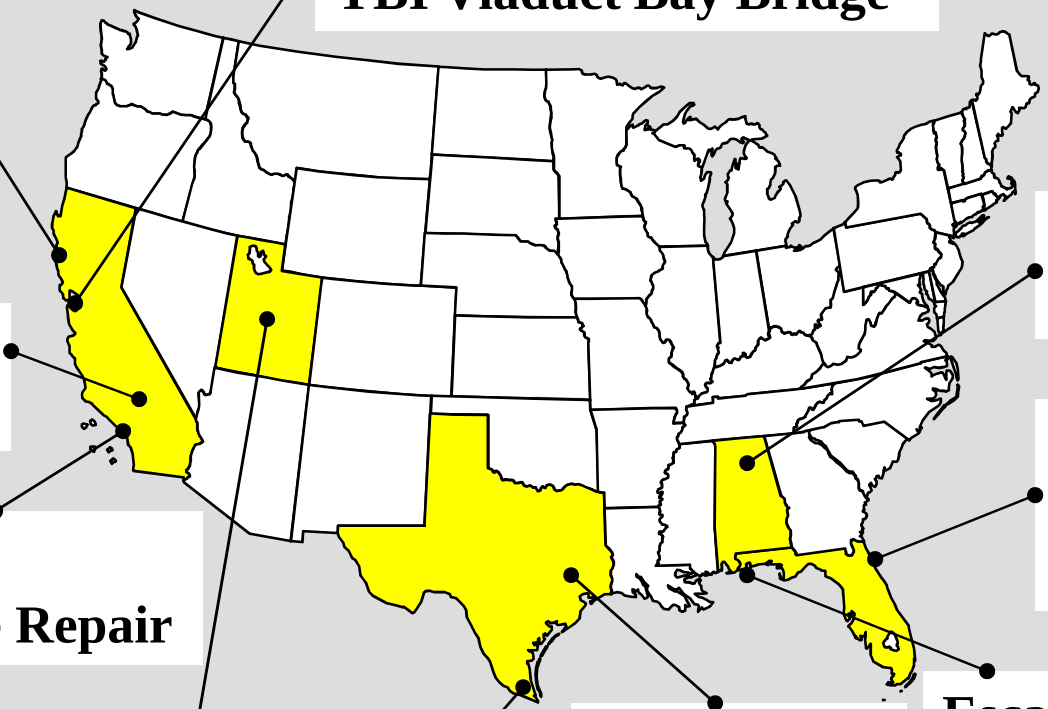
Brian Blanchard
Florida DOT

Thomas Bohuslav
Texas DOT

Stuart Anderson
Texas A&M

Richard Sheffield
Mississippi DOT

Projects Visited



Russian River Bridge

I-880 MacArthur Bridge
YBI Viaduct Bay Bridge

I-65/59 Bridges, Birmingham

I-40 Mojave Desert

Duval St. Bridge & SR9A/I-295, Jacksonville

I-15 Repave
I -5 Tunnel Fire Repair

Escambia Bay Bridge, I-10 (Emergency & Rebuild), Pensacola

I-10 Houston

Accelerated Bridge Construction, Utah

Queen Isabella Causeway

Acceleration Focus Areas

- Acceleration related to emergency projects
  - emergency situation response
- Project/Program construction acceleration
  - a planned approach

Acceleration Focus Question Areas

1. General Program Level Issues
2. Contracting Strategies/Contract Administration
3. Planning and Scheduling
4. Construction Practices – Cost, Time, Quality
5. Traffic Control and Management
6. Post-Construction
   – WHAT DID HAPPEN.

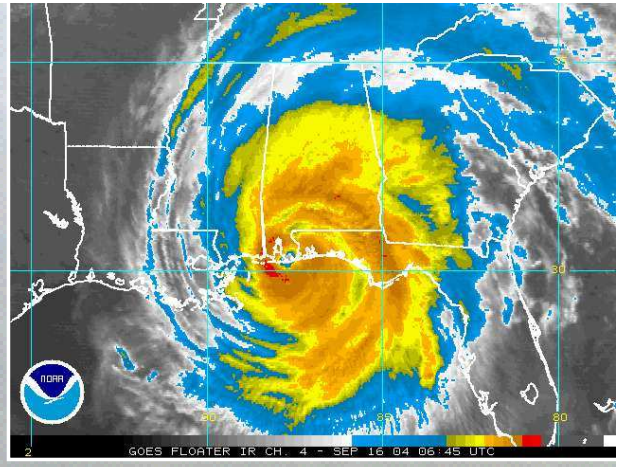
Emergency Acceleration

Acceleration is often in response to an accident or unexpected event. Projects accelerated under emergency situations have very compressed schedules yet they still have to be delivered following sound design, construction, and management processes.

This is the challenge!

Hurricane Ivan, Pensacola, Florida

Night of Sept. 15/16, 2004



I-10 Bridge Escambia Bay

Hurricane Ivan, Night of Sept. 15/16

Date 2004	Event
17 Sept.	9:00 a.m. Pre-proposal meeting, Chipley, FL
17 Sept.	1:00 p.m. Questions and Answer meeting
17 Sept.	4:00 p.m. Price Proposals
17 Sept.	4:00 p.m. Public Price Proposal open
17 Sept.	5:00 p.m. Anticipated Execution Date
17 Sept.	5:00 p.m. Notice to Proceed
11 Nov.	Phase 1 complete, Westbound Bridge
16 Dec.	Contract Completion

Escambia Bay Bridge

All designs had to conform to the available materials.

Keys to Success

- ***Delegated Contract Award and Execution to Local FDOT Office*** **– This fast tracked the signing of a contract.**

Escambia Bay Bridge, contract

6/7

deterioration of shoreline or roadway is not our responsibility. No extraneous erosion control measures have been included.

(12) We understand that Phase I is to be completed (as in "open the bridge to traffic") in 24 days; liquidated damages of $250,000/day will apply after that. Incentive bonus for opening the bridge to traffic also equals $250,000/day up to a max. of 14 days

(5) We understand that the 24 day schedule is developed by the ~~owner~~ on the basis of his quantities

Keys to Success

- ***Basic Scope Only*** **– Contractors need latitude about means and methods on these types of projects.**
- ***Work Concurrent with Design*** **– The design has to utilize available materials.**

Keys to Success

- ***Availability of Materials***
  – Hard to find materials during the early phase of the work.

Birmingham, Alabama
Saturday morning
January 5, 2002

I-65/I-59 Bridge after the fire

I-65/I-59 Bridge		Day
5 Jan.	Saturday morning accident	1
6 Jan.	Decision a new bridge and select five contractors.	2
7 Jan.	Monday Start design	3
8 Jan.	Tuesday, Prelim. Plans to Contractors	4
14 Jan.	Monday 1:00 p.m., Pre-Bid	10
16 Jan.	Wednesday 10:00 a.m., bids	12
18 Jan.	Friday, Notice to Proceed	14
21 Jan.	Monday 12:01 a.m., Construction begins	17
27 Feb.	Opened to traffic	**54**

27 Feb. 2002
Opened to traffic

Keys to Success

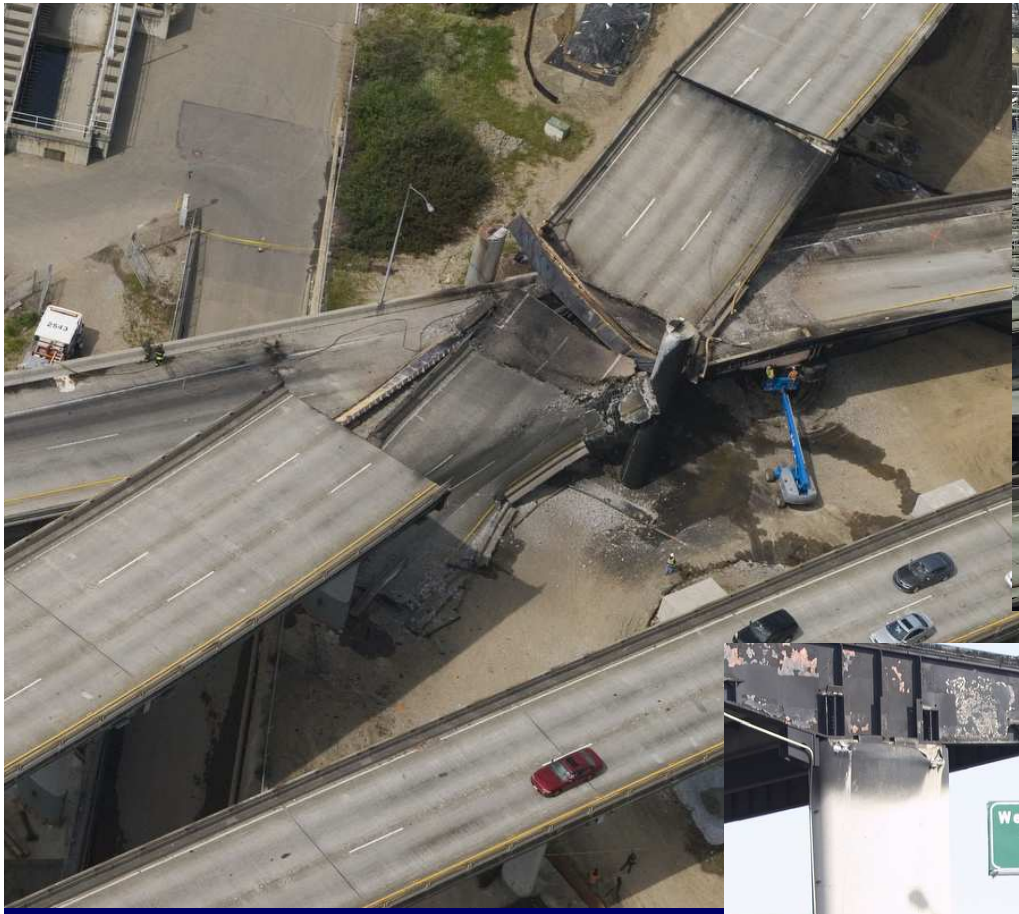
- ***Partnership*** **– Decisions were made at the Project Level: verbal requests and approvals.**
- ***Mutual Trust*** **– Contractor/ALDOT/Girder Fabricator**

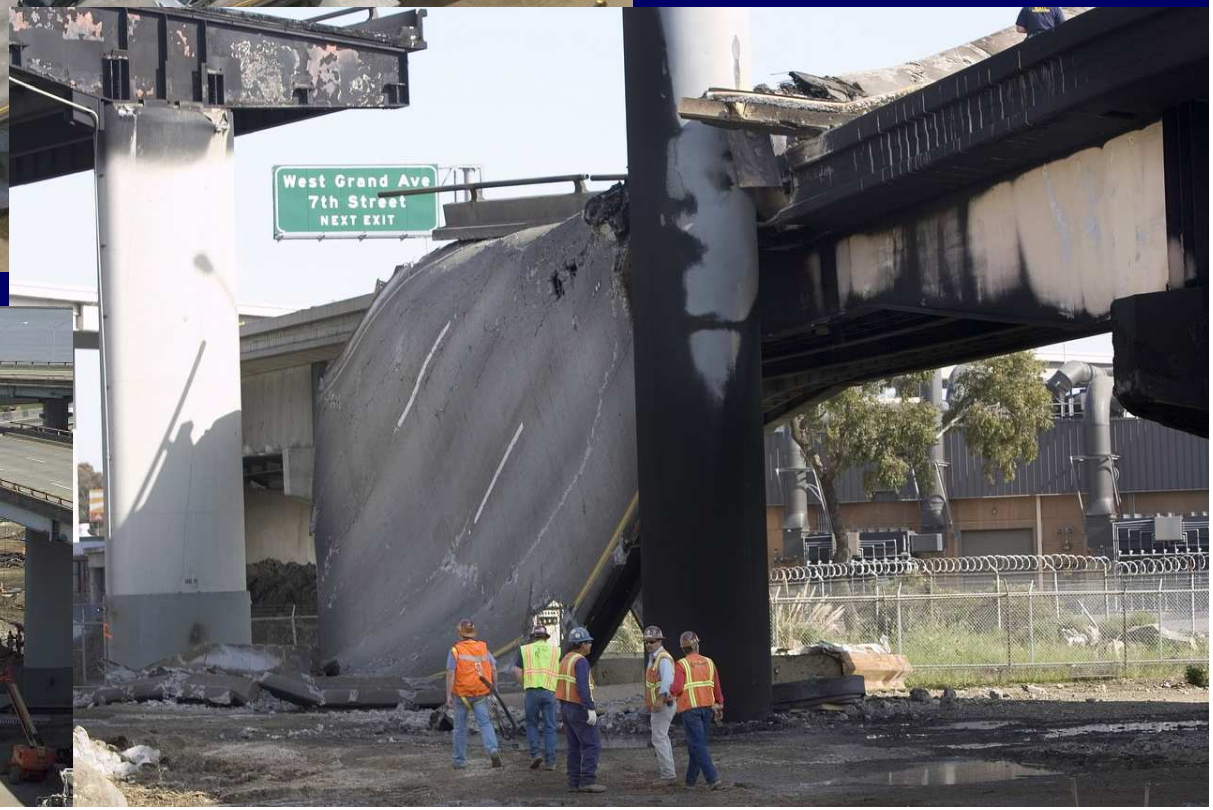
Keys to Success

Cooperation **– Rapid turn around of shop drawings.**

Planning **– Very detailed planning and schedule.**


San Francisco
Sunday
April 29, 2007
I-80 Bay Bridge
I-580/880
MacArthur Maze,
Oakland
I-580 connector
I-880 connector




West Grand Ave
7th Street
NEXT EXIT

MacArthur Maze

		Day
29 Apr.	Sunday, 3:41 a.m. tanker accident.	1
30 Apr.	Caltrans locating steel, begin design.	2
1 May	Clean-up, inspection	3
3 May	I-580 contract advertised.	5
5 May	Mandatory onsite bid conference.	7
7 May	Monday, bid 10a.m., award 3:30 p.m.	9
10 May	Penn. steel arrives fabricator in AZ	12
11 May	Begin girder fabrication	13
15 May	Precast bent cap arrives at night	17
24 May	Thursday, opened at 8:40 p.m.	26

Keys to Success

- ***Availability of Materials*** **–**

  Design to available materials.

- ***Team Effort*** **–**

  Located people where needed.

Keys to Success

- ***Incentive/Disincentive*** **–**

  The project was advertised with a $200,000 per day incentive/disincentive clause capped at $5,000,000.

Planned Acceleration

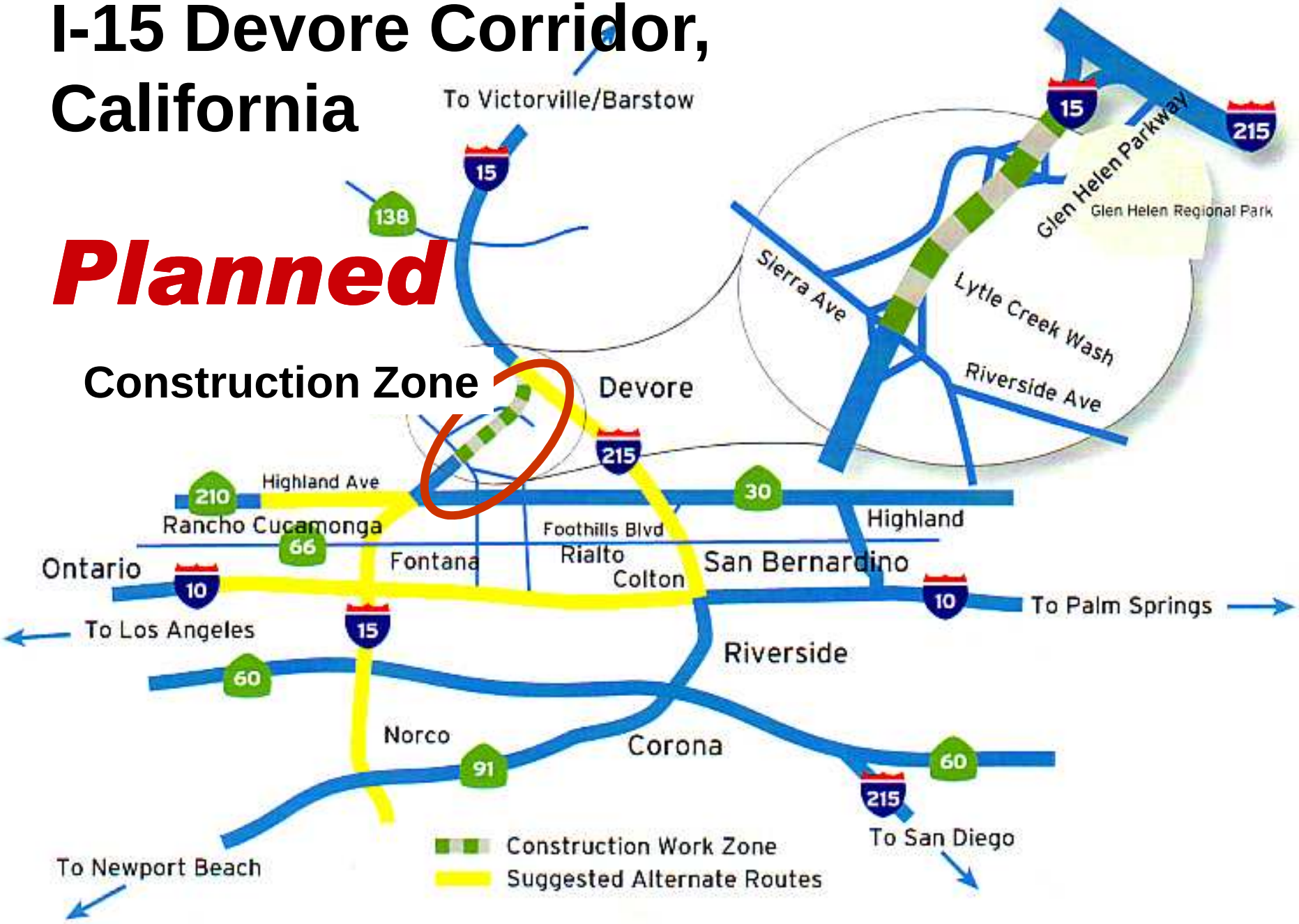
Projects can be accelerated

- **by careful planning of preconstruction activities and**
- **thoughtful staging of field operations**

I-15 Devore Corridor, California

Planned

Construction Zone




SWIFT

Keys to Success

- ***Contract –***
  Incentive/Disincentive provisions
- ***Design –***
  Rapid-strength concrete and substituted AC base

Keys to Success

- ***Public Outreach*** **– Intensive outreach achieved a 20-percent reduction in peak-hour traffic demand**


Duval Street
Bridge,
Jacksonville,
Florida

Keys to Success

- ***Partnering –***
  Decisions and commitments were made and upheld
- ***Demand services remediation contract* –**
  to handle site contamination

Keys to Success

- ***Delayed construction start*** **– A six month "procurement period."**
- ***Up front planning*** **– Level of detail in the contractor's schedule.**

Program Approach to Project Acceleration

Some agencies are beginning to institutionalize project acceleration through a program approach.

A change in agency culture is required as well as a new paradigm

Utah DOT Accelerated Bridge Construction (ABC)

UDOT accelerated its program for the following reasons:

- Reducing turn around times
- Lessening the impact of their projects
- Improving trust
- Response to public desire

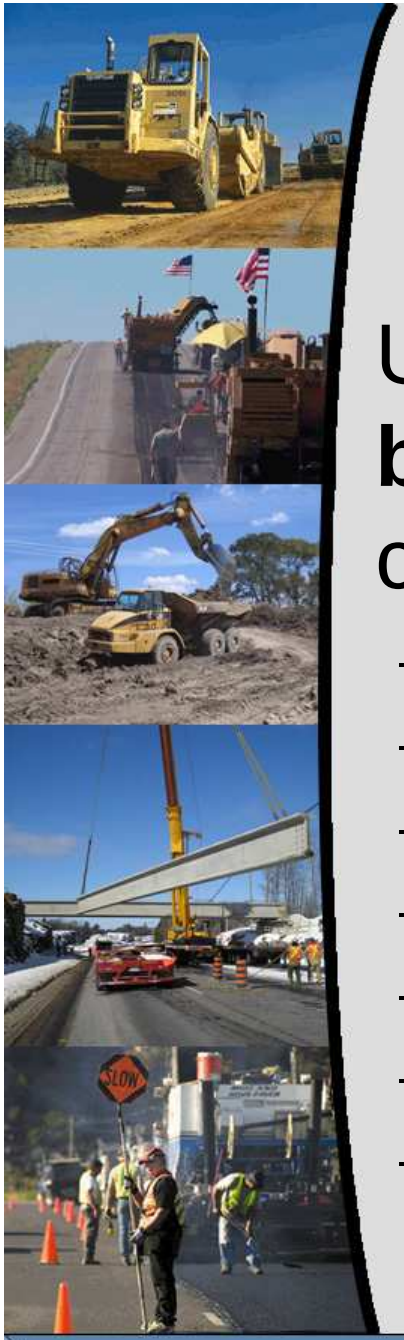
New UDOT Paradigm

From

“Lowest Construction Cost”

to

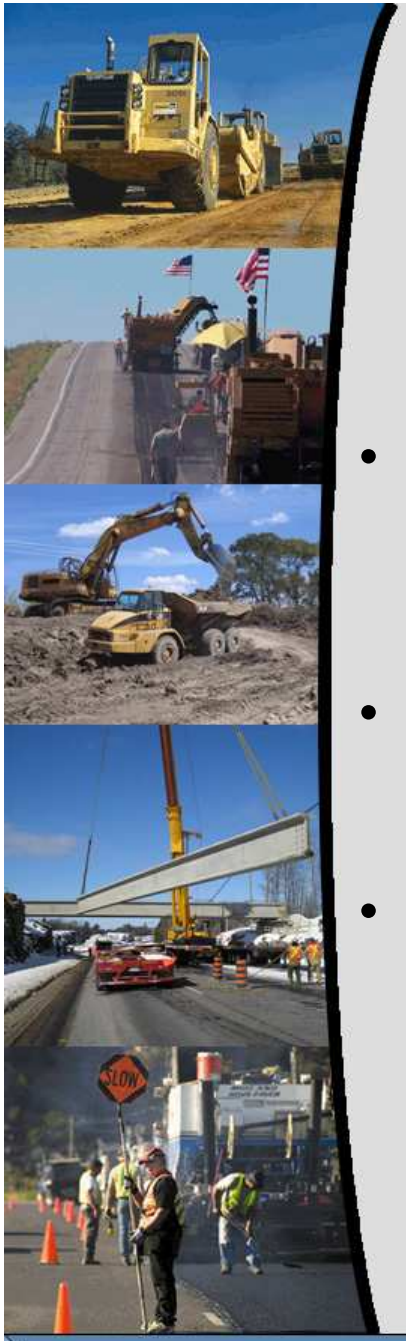
“Lowest Project Cost”



UDOT ABC Stats

UDOT has 17 projects, including **80 bridges total**, completed or under construction that utilized ABC

- **Self Propelled Modular Transports** 4 projects/13 Bridges
- **Half Thickness Precast Deck Panels** 2 Projects/47 Bridges
- **Prefab Bridges – “Lego Bridges”** 2 Projects
- **Full Depth Precast Deck Panels** 8 Projects/11 Bridges
- **Precast voided slabs** 1 Project/2 Bridges
- **Segmental Bridges** 1 Project/1 Bridge
- **Heavy Lift Cranes** 1 Project/1 Bridge

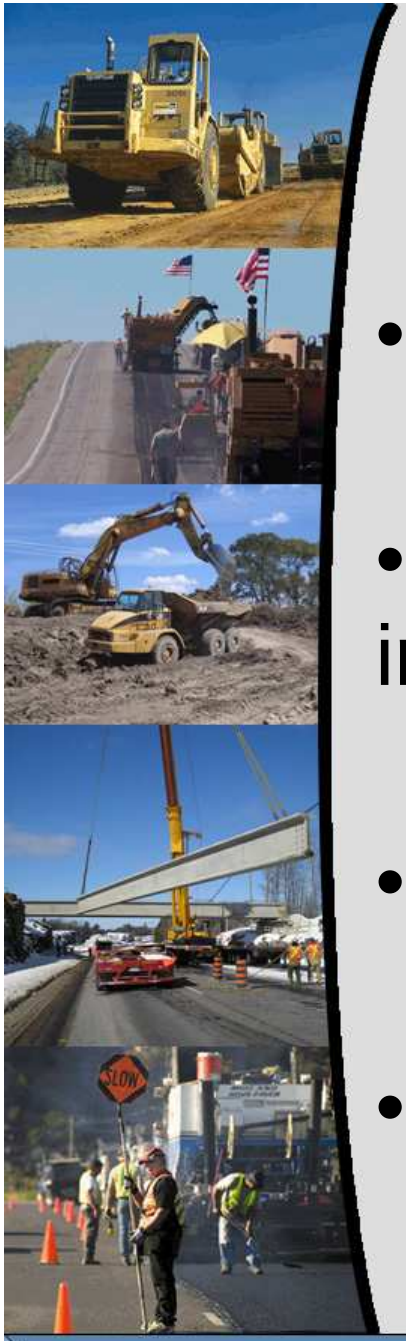


UDOT ABC SPMT

- 1st SPMT Project (I-215 at 45th South) completed in 1 weekend during 2007
- 12 Additional SPMT Projects completed in 2008.
- ABC used as standard practice for future projects.

BENEFITS OF USING ABC

- Reduce **TRAFFIC** impacts
- Improve **SAFETY** to workers and public
- Improve **QUALITY** of constructed product



BENEFITS OF USING ABC

- **COSTS** savings
- Reduced **ECONOMIC** and Business impacts
- Reduced **CONSTRUCTION** SEASON
- Reduced **ENVIRONMENTAL** impacts

Success Fundamentals

- Partnering
- Design
- Planning
- Contracting Strategy

Success Fundamentals

Partnering – People are the critical element in successfully accelerating a project.

Partnering

- ✓ Align goals
- ✓ Delegate
- ✓ Timely decisions

Success Fundamentals

Design –

- ✓*Material Availability*
- ✓*Logistics*

The Fundamentals

Planning –

- ✓ *Detailed*
- ✓ *Backup plans*
- ✓ *Plan multiple fronts*
- ✓ *Look-ahead plans*

The Fundamentals

Contracting Strategy –

- ✓ **Aligned** ***with requirements***
- ✓ **Set an aggressive schedule** ***with proper incentives***

Conclusions Emergency Projects

Contractor –

Find a contractor that has the resources

Experts –

Ensure that experts are on the project

Conclusions Emergency Projects

Agreement –

Get an agreement

Delegate –

To the lowest possible level

Scope –

Expect changes

Conclusions

DOT and contractor goals align when a partnering atmosphere is created and all team members view the accelerated work as an opportunity to demonstrate excellence.


Thank You!!
We can
Build Faster!