## Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Facilitator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00-1:15</td>
<td>Registration/Welcome</td>
<td>Jon Epps – TTI</td>
</tr>
<tr>
<td>1:15-1:25</td>
<td>History of Accelerated Construction</td>
<td>Jon Epps – TTI</td>
</tr>
<tr>
<td>1:25-1:45</td>
<td>TxDOT's Interest</td>
<td>Randy Hopmann – TxDOT, ADM</td>
</tr>
<tr>
<td>1:45-2:00</td>
<td>Accelerated Bridge Construction</td>
<td>Gregg Freeby – TxDOT, BRG</td>
</tr>
<tr>
<td>2:00-2:30</td>
<td>Workshop Example – Pavement Widening on Controlled Access Facility</td>
<td>Gina Gallegos – TxDOT, CST</td>
</tr>
<tr>
<td>2:30-3:00</td>
<td>TxDOT’s View of the Future Summary/Adjourn</td>
<td>Randy Hopmann – TxDOT, ADM</td>
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<td></td>
<td></td>
<td>Jon Epps – TTI</td>
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</table>
District Workshops on Accelerated Construction
Welcome
AC-PP-17-01
Jon Epps

Greer Building – Delegation Room
Austin
December 6, 2017

www.txdot.gov/business/resources/construction/regional-workshops.html
Interest in Accelerated Construction

• Visibility to public
• Safety
• Economics
Accelerated Construction

• Welcome
• Definition
• Overview of day
• Overview of topics
• Overview of goals
• Introductions

Definition of Construction

Greenfield

- Capacity improvement
- Reconstruction
- Rehabilitation
- Major maintenance
- Minor maintenance
# Project Delivery

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</table>

- • Traffic control
- • Review

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<tr>
<td>Letting</td>
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<tr>
<td>Construction</td>
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Acceleration Goals

**Good**

- Construction time
- 20% to 0% reduction in time to complete project

**Better**

- Construction time
- 50% to 20% reduction in time to complete project
Not All Projects Are Suitable for Accelerated Construction
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<td>1:00 – 1:15</td>
<td>Introductions, Introduction to Accelerated Construction</td>
<td>Epps</td>
</tr>
<tr>
<td>1:15 – 1:25</td>
<td>History of Accelerated Construction</td>
<td>Epps</td>
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<td>Freeby</td>
</tr>
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<td>2:00 – 2:30</td>
<td>Workshop Examples</td>
<td>Gallegos</td>
</tr>
<tr>
<td>2:30 – 3:00</td>
<td>TxDOT’s View of the Future</td>
<td>Hopmann</td>
</tr>
</tbody>
</table>
ACCELERATED CONSTRUCTION DOCUMENTS

- Briefs
- Implementation Reports
- Presentations

District Workshops on Accelerated Construction
Welcome AC-PP-17-01
Jon Epps

Abilene
MCM Elegante Suites
November 7, 2017
www.txdot.gov/business/resources/construction/regional-workshops.html

Project Level Economic Screening Tool
AC-IR-17-03
by
Brianne A. Glover, J.D.
David R. Ellis, Ph.D.
Workshop Goals

• Information sharing

• Existing TxDOT “tools”

• Identify needed “tools” & “policies”
Accelerated Construction

TxDOT
Industry
Introductions
District Workshops on Accelerated Construction

www.txdot.gov/business/resources/construction/regional-workshops.html
District Workshops on Accelerated Construction

www.txdot.gov/business/resources/construction/regional-workshops.html
District Workshops on Accelerated Construction
US History
AC-PP-17-02
Jon Epps

Greer Building – Delegation Room
Austin
December 6, 2017
Accelerated Construction

U.S. History
History

• 1988 – GET-IN STAY –IN: GET-OUT STAY-OUT (NV)
• 1998 – GET-IN STAY –IN: STAY-OUT (CA)
• 1999 – TRB Task Force
• 2000 – Workshop to Define State-of-Practice (DC)
• 2002 – Accelerate Construction Technology Transfer (ACTT)
• 2002 – Workshops for Specific Project (IN) (PA)
• 2003 – Project Pegasus (TX) (IH 30 & IH 35E)
1990’s – 2000’s Driving Forces

Increasing Demand (1980-2000)

<p>| | |</p>
<table>
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<tr>
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<tbody>
<tr>
<td>Vehicles Miles</td>
<td>+80%</td>
</tr>
<tr>
<td>Drivers</td>
<td>+31%</td>
</tr>
<tr>
<td>Lane Miles</td>
<td>+3.8%</td>
</tr>
</tbody>
</table>

Aging System

- 40% Bridges +40 Years Old
- Pavements Exceeded Design Life
## Accelerated Construction Skill Sets

<table>
<thead>
<tr>
<th>• Financing</th>
<th>• Utilities</th>
<th>• Long Life Bridges</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Contracting</td>
<td>• ROW</td>
<td>• Long Life Pavements</td>
</tr>
<tr>
<td>• Work Zone</td>
<td>• Railroad</td>
<td>• Quality Control</td>
</tr>
<tr>
<td>• Mobility</td>
<td>• Communication</td>
<td>• Modular/Prefab Construction</td>
</tr>
<tr>
<td>• Corridor Improvement</td>
<td>• Training</td>
<td>• Constructability</td>
</tr>
<tr>
<td></td>
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<td>• Worker Health &amp; Safety</td>
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</tbody>
</table>
Recurring Peak-Period Congestion

- Uncongested
- Congested
- Highly Congested

Peak-Period Congestion on NHS

2011

2040
Project Costs by Type, Related to Duration

COST

ROAD USER COST

CONSTRUCTION COST

CONTRACT ADMINISTRATION COST

TOTAL COST

DAYS
A B C D

E F G H I J K L
AR and LA - Rubblization Projects

• 300 Miles of Interstate Concrete Pavement (Decker and Hansen, 2005)
  - Rehabilitation needed
  - Slowest construction operation – demolition and removal
  - Rubblization kept in-place PCC to serve as high-quality base
  - Rate of production for rubblization = 1 lane-mile/day
    (twice the rate for PCC removal (Mn/DOT, 2005)

• Louisiana (Landers, 2011)
  - Used for I-55 (hurricane evac route)
  - Completed in seven months as opposed to 2-3 years for reconstruction
Wilmington, DE – I-95, 2000 (FHWA, 2003)

• $23.5 million - 2 years
• 24.4 lane-miles, 10 interchanges, bridge repairs, drainage improvements, lighting/safety
• AADT = 100,000 vpd (11% Commercial)
• Full road closure (reroute to I-495)
• Rubblilzation with asphalt overlay
• SB and NB I-95 closed 3 months each
• $25,000/day bonus for early completion, penalty for delay
• 75% reduction in duration (185 days)
• Detour - overall project costs increased
Maine – I-295, 2008 (Lane, 2009)

- 1970’s JRCP in S. Maine had ASR
- Important tourist route
- Remove top 3” JRCP, rubblize rest
- Full road closure, mid June – end of Aug
- Conventional lane closures = 3 construction seasons
- Traffic detoured on local roads – some improvements
- Incentive/disincentive up to $2 million
- Work completed 20 days ahead of schedule
- Contractor used up to 5 paving crews at once on project
California I-15, (Anderson et al., 2005)

- Rebuild I-15
- Used 96-hr closures
- Compressed work from 8.5 months to 6 weeks
- Had contingencies for brush fires, weather, congestion, material shortage, etc.
- Selective use of rapid-curing cement
- Contractor flexibility – key to success
• Complex project involving utilities
• Prequalified bidders
• Req’d 12-hr days, 7 d/wk (14 on/2off)
• 3 milestones with up to $120k bonus for each
• Penalty - $20k/day
• Urban area – intersections on weekend, noise mitigation at night
• PR campaign was successful
Summary

• Accelerated construction not new

• Requires
  ▪ Right application
  ▪ Incentives/disincentives
  ▪ Recognition of and planning for risks
  ▪ Flexibility on part of agency and contractor
  ▪ Innovative thinking
  ▪ Public engagement

• Will become more standard with time
Things Will Not Become Simple!

(a) Year 2011
(b) Year 2040

Recurring Peak-Period Congestion
- Uncongested
- Congested
- Highly Congested
Outline

• Background
• Texas Landscape
• Texas History
• Opportunities
• Workshop Outcomes
# Project Delivery

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- Time

- Letting
- Construction

**Texas A&M Transportation Institute**
## Economic Considerations - Examples

<table>
<thead>
<tr>
<th>Project</th>
<th>Per Month Costs</th>
<th>Project Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widen FM road from 2-lanes to 4-lanes (2.7 miles)</td>
<td>$96,000</td>
<td>$3.5M</td>
</tr>
<tr>
<td>Widen Freeway (2.6 miles)</td>
<td>$297,000</td>
<td>$17.8M</td>
</tr>
<tr>
<td>Interchange in urban area (1.5 miles)</td>
<td>$447,000</td>
<td>$5.1M</td>
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Acceleration Goals

**Good**

Construction time

20% to 0% reduction in time to complete project

**Better**

Construction time

50% to 20% reduction in time to complete project
Economic Considerations - Stakeholders

- **Agency**
  - Extra engineering costs
  - Extra management
  - Price escalation
  - Safety

- **Public**
  - Time
  - Fuel
  - Vehicle Damage
  - Safety

- **Contractor**
  - Unproductive labor/equipment
  - Material inventory
  - Insurance/bonding capacity
  - Safety
Economic Consideration

• Direct project costs
  ▪ Agency
  ▪ Some contractor

• Indirect project costs (user/non-user)
  ▪ User fuel/time
  ▪ Roadside businesses
  ▪ Business efficiency (timely delivery)
  ▪ Some Contractor

All costs eventually borne by the public
Safety & Economics

- Reduce time traffic in work zone
- Traffic not in work zone
- Reduce user delay costs
  - Fuel
  - Time
- Vehicle maintenance
- User cost savings exceed construction costs
Reduce Construction Time

- Contracting methods
  - Design/Bid/Build
  - Cost-Plus Time (A+B)
  - Interim completion dates
  - No-excuses incentives
  - Construction manager at risk
  - Design/Build

- Lane occupancy time
  - Off peak traffic
    - Day
    - Night
  - Long weekend closures
  - Close facility
Reduce Construction Time

- Bridges/Culverts (ABC)
- Pavements
Not for every project
Outline

• Background
• **Texas Landscape**
• Texas History
• Opportunities
• Workshop Outcomes
2017 Unified Transportation Program (UTP)

2017–2026
Transportation Planning & Programming
We Build Texas

Field Guide to
Successful Project Delivery

We build Texas – Safely
We build Texas – Quality
We build Texas – On Time
We build Texas – Together

Working together to successfully deliver projects.

Texas Department of Transportation

American General Contractors of Texas
Workforce
Outline

• Background
• Texas Landscape
• **Texas History**
• Opportunities
• Workshop Outcomes
• 1998 – Heald
  - Legislators – TxDOT & User Costs for Liquidated Damage
  - Commission – Reduce Construction Time
  - Incentives/disincentives

• 2001 – Johnson’s “Transportation Working Group”
  - Reduce project delivery time by 15% by 2006
  - Address cost of disruption of traffic

• 2002 – Saenz
  - Accelerated construction – Businesses & traffic flow impacted
  - Calendar day definition of working day
  - Milestones for incentives/disincentives
  - Lane rental
  - A+B
• 2003 – “Accelerated Construction Strategies Guidelines”

• 2004 – Saenz
  ▪ Use accelerated construction on
    • High traffic locations
    • Significant impact on safety or businesses
    • Other project specific reasons

• 2009 – Bohuslav – AASHTO Scan Tour
Katy Freeway (IH-10)

- Traditional construction – 12 years
- Accelerated construction – 6 years
Katy Freeway (IH-10)

- 23 miles
- 280,000 VPD
- $2.6 billion (2/3 construction)
- 6 years vs 12 years
Katy Freeway Economics

- $150 - $200 million/year
- Accelerated construction benefit - $2.8 billion
- Cost of accelerated construction - $309 million
- B/C ratio – 9.0
Outline

• Background
• Texas Landscape
• Texas History
• **Opportunities**
• Workshop Outcomes
Materials

- Strength gain (time, temp)
- Removal
- Production
- Transportation
- Placement
Equipment

• Materials handling
• Demand for equipment
• Prototype/production unit/redesign
• Cost
Process Control/Quality Control

- High production/placement rates
- Rapid tests
- Quick feedback to produce quality
- Management to insure quality
Traffic Control

• Place/remove quickly
• Moving construction zone
• Protect driver/contractor workforce
Workforce

• Skill set
  ▪ New equipment
  ▪ New materials
  ▪ QC/QA

• Congested work zone

• Shift length

• Housing/facilities
• Personal life
• Management team
• Financial
Economic Incentives - Contractor

- One job/occasional job
- Return on investment (equipment)
- Bonding capacity
- Backlog of work
- Risk
Key Items

• Project selection & planning
• Contracting methods
• Design - Simpler design = faster construction
• Contractor selection
• Construction considerations
Planned Accelerated Construction

• TxDOT champion
• TxDOT/FHWA support team available
• Vision – goals & objectives
• Policies & procedures
• Partnering
• Alternative contracting methods
• Cultural change

Texas Department of Transportation

Texas A&M Transportation Institute
Planned Accelerated Construction (Cont’d)

• New technologies
• Total costs – Agency, construction, user, non-user, safety environmental
• Engage construction & materials industries
• Performance measures
• Learn from past & improve
Keys to Accelerated Construction

• Consider accelerated construction in planning stage
• Isolate construction work from traffic
• Reuse existing materials on site
• Maintain lane closure as long as possible
• Innovative approaches to traffic handling
Outline

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• Workshop Outcomes
Workshop Goals

- Information sharing
- Existing TxDOT “tools”
- Identify needed “tools” & “policies”
Not All Projects Are Suitable for Accelerated Construction
District Workshops on Accelerated Construction

Greer Building – Delegation Room
Austin
December 6, 2017
ACCELERATED BRIDGE CONSTRUCTION IN TEXAS (AND BEYOND)

Gregg Freeby – Bridge Division
Accelerated Bridge Construction (ABC) Techniques

1. Prefabricated Elements
2. Self Propelled Modular Transporters (SPMTS)
3. Modular Units
4. Lateral Slide-in Bridge Construction

Photo Courtesy of FHWA
Prefabricated Elements

- TxDOT’s primary technique for accelerated bridge construction.
- In addition to increased speed, also typically comes with increased quality.
- Can encompass practically every element from the ground up.
Precast Bent Caps
Precast Bent Caps – Long Water Crossings
Precast Abutments
Precast Columns
TxDOT’s Bread & Butter: Girders and Deck Panels
Prefabricated elements are largely what make TxDOT bridges the least expensive and most durable in the country. Keep it up!

Prefabricated elements typically speed up construction considerably, but typically do not really constitute “Accelerated Bridge Construction.”

Now let's talk fast!
Decked Slab Beams
Decked Slab Beams: 6 – 10 Day Construction Projects

- Precast Abutment
- Decked Slab Beams
- Precast Bent Cap
- Steel Piling
Full Width, Full Depth Panels
Full Width, Full Depth Panels – Upcoming Waco Project

SECTION B-B

<table>
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<th>SIZE</th>
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Concrete Curb with Anchor Bolt Precast with Deck, (Typ). See TIW for Info Not Shown.

Drip Head 3/4" Chamfer Continuous 4" from Face (Typ). See Drip Groove Detail on "Full-Depth Precast Concrete Deck Panel Details" Sheet 2.
Self Propelled Modular Transporters (SPMT)

Photos Courtesy of Heavy Equipment Guide
SPMT – Fort Worth West 7th Street Arches
Modular Units
Modular Units – I-93 Fast 14 in Boston
Modular Units – I-93 Fast 14 in Boston

New Bearing Seat

Existing Cap
Modular Units (No Deck) – West Dallas St. in Houston
Modular Units – West Dallas St. in Houston
Modular Units – West Dallas St. in Houston
Lateral Slide-in – LP 345 (San Antonio)
Lateral Slide-in – LP 345 (San Antonio)
Lateral Slide-in – LP 345 (San Antonio)
QUESTIONS?

Gregg Freeby – Bridge Division
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District Workshops on Accelerated Construction
Regional Workshop Exercises
AC-PP-17-11
Gina Gallegos

Greer Building – Delegation Room
Austin
December 6, 2017
# Typical Projects

A. Pavement Strengthening  
B. Pavement Widening  
C. Rural Intersection Reconstruction  
D. Bridge Widening  
E. Small Town Main Street Widening  
F. Suburban/Rural Road Widening
Exercise A: Pavement Strengthening

Project Details:

Work
- Project length: 6 mi.
- Existing: 11” asphalt, over 8” flexible base
- Mill & remove 3” & replace with 4” AC or 6” PCC
- Shoulders to match
- Soil: Expansive clay

Traffic:
- AADT = 60,000
- Peak: M-F
  - 6:30 am to 9:00 am
  - 4:00 pm to 6:30 pm

Possible Detours:
- Frontage road, busy downtown on wkends, ramps @ 1 mi. interval

Geometric Design: High speed freeway design

Drainage: Drainage structures: adequate

Utilities: Not an issue on project

Economics: Approx. $5 M in user & non-user costs savings possible with aggressive accelerated construction schedule
**Exercise B: Pavement Widening**

| 10’ shldr | 12’ lane | 12’ lane | 4’ shldr | 40’ Median |
| 4’ shldr | 12’ lane | 12’ lane | 10’ shldr |

**Project Details:**

**Work**
- Project length: 6 mi.
- Existing: 11” concrete over 4” base
- Add 12’ lane + 4’ shldr to inside
- Alt: 8” AC/6” flex base or 8” JPCP/4” Type B
- New concrete median between directions
- Trucks not allowed on inside lane
- Soil - Expansive clay

**Traffic**
- AADT = 75,000
- Peak: M-F 6:00 am to 9:30 am 4:00 pm to 7:00 pm
- Weekend heavy not congested

**Possible Detours:**
- Frontage road requires strengthening, ramps @ 1.5 mi. interval

**Geometric Design:** High speed freeway design

**Drainage:** Drainage structures adequate. Must be relocated from median area

**Utilities:** Electrical for highway lighting

**Economics:** Approx. $40 M in user & non-user costs savings possible with aggressive accelerated construction schedule
Exercise C: Rural Intersection Reconstruction

Shaded Area for Reconstruction

Project Details:

Work
- Project: Shaded Area
- Existing: 4” AC/6” flex base
- Fix: 8” AC or PCC/remaining material
- Soil: Silty sand

Traffic
- AADT = 12,000 for 4-lane;
- 3,000 for 2-lane
- Peak: M-F 6:30 am to 9:00 am & 4:00 pm to 7:00 pm,
- Weekend heavy traffic to recreational lake on 2-lane roadway

Possible Detours: Result in additional 15 miles

Geometric Design: No sight distance problem

Drainage: Drainage away from intersection with drop inlets

Utilities: Limited electrical, cable removed & relocated

Economics: Approx. $300 K in user & non-user costs savings possible with aggressive accelerated construction schedule
Exercise D: Standard Bridge Overpasses – Widening Medium Span Bridges and Solutions for Replacing Short- and Medium-Span Bridges

Project Details

First part of exercise focuses on widening existing bridge to add more lanes for increased capacity

- **Setting** - Suburban area
- **Existing bridge**
  - Medium-span lengths (80-120 ft)
  - Simply supported prestressed concrete I-girder construction
    See figure for typical transverse section (girder type can vary)
  - Deck: reinforced concrete with precast concrete stay-in-place forms and an asphalt overlay.

- **Traffic** - AADT = 15,000
  - Peak M-F
    - 6:30 am – 9:00 am
    - 4:00 am - 7:00 pm

- **Economics**: Approx. $5 M in user & non-user costs savings possible with aggressive construction schedule

Discussion will be expanded to discuss alternatives and challenges for full replacement of short- and medium-span bridges
**Project Details:**

**Work**
- Project length: 2 mile
- Existing: 4” AC/6” flex base, No curb/gutter
- Replace 4’ sidewalk with curb/gutter

**Traffic**
- AADT = 3,000 for main road, 500 for crossroads
- Peak: M-F 7:00 am to 9:00 am & 4:30 pm to 6:30 pm
- Possible Detours: side streets. Businesses on Main Street affected (20,000 sq. ft.)

**Geometric Design:** Tangent section, 10 crossroads
**Drainage:** Install storm drains
**Utilities:** Relocate cable, install electrical for lighting
**Economics:** Approx. $500 K in user & non-user costs savings possible with aggressive accelerated construction schedule
Exercise F: Suburban/Rural Road Widening

Project Details:

Work
- Project length: 6 mi.
- Existing: 2” AC/8” Flex Base,
- FDR entire existing 24’ width
- Add 6’ Shldr. Widening
- Place 4” HMA surface
- Soil: Expansive clay

Traffic
AADT = 3,000 for main road with 20 driveways
Peak: M-F
  6:30 am to 9:00 am &
  4:30 pm to 6:30 pm

Possible Detours: Result in additional 5 mi.
Geometric Design: Adequate design, no major changes in horizontal & vertical alignment
Drainage: 1 box culvert & 5 pipe culverts need widening
Economics: Approx. $1M in user cost savings possible with aggressive accelerated construction schedule
Utilities: Not an issue
Items to Consider

- Key economic analysis factors
- ROW, utilities, environmental, historic preservation, archeology
- Public information
- Contracting methods
- Design
- Contractor selection
- Involvement of contractor
- Construction considerations
- Other
Suggested Time Utilization

- General project discussion – 15 min
- Items to consider – 15 min
- Top five challenges – 45 min
- Information needs – 15 min
Facilitator Report

• Briefly describe project

• Top 5 challenges

• Information needs
District Workshops on Accelerated Construction

Greer Building – Delegation Room
Austin
December 6, 2017
District Workshops on Accelerated Construction

Workshop Summary

AC-PP-17-14

Jon Epps

Greer Building – Delegation Room
Austin
December 6, 2017

www.txdot.gov/business/resources/construction/regional-workshops.html
Population 2050

- 1 - 50,000
- 50,000 – 250,000
- 250,000 – 1,000,000
- 1,000,000 – 1,500,000
- Over 1,500,000
Unified Transportation Plan

2017 Unified Transportation Program (UTP)

2017–2026
Transportation Planning & Programming
We Build Texas

Field Guide to
Successful Project Delivery

We build Texas – Safely
We build Texas – Quality
We build Texas – On Time
We build Texas – Together

Working together to successfully deliver projects.
Interest in Accelerated Construction

• Visibility to public
• Safety
• Economics
Acceleration Goals

**Good**

- **20 to 0 %**
- Reduction in time to complete the project

**Better**

- **50 to 20 %**
- Construction time
Economic Consideration

• Direct project costs
  ▪ Agency
  ▪ Some contractor

• Indirect project costs (user/non-user)
  ▪ User fuel/time
  ▪ Roadside businesses
  ▪ Business efficiency (timely delivery)
  ▪ Some Contractor

All costs eventually borne by the public
## Project Delivery

<table>
<thead>
<tr>
<th>Planning &amp; Programming</th>
<th>Preliminary Design</th>
<th>Environmental</th>
<th>ROW Utilities</th>
<th>PS&amp;E</th>
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<tbody>
<tr>
<td>• Need</td>
<td>• Design Concept</td>
<td>• Preliminary</td>
<td>• Data Collection</td>
<td>• Design details</td>
</tr>
<tr>
<td>• Scope</td>
<td>• Data Collection</td>
<td>• Interagency</td>
<td>• ROW map</td>
<td>• Final alignment &amp; profiles</td>
</tr>
<tr>
<td>• Cost estimate</td>
<td>• Public meetings</td>
<td>• Documentation</td>
<td>• Appraisals</td>
<td>• Roadway</td>
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<tr>
<td>• Authorization</td>
<td>• Schematics</td>
<td>• Public hearing</td>
<td>• Acquisition</td>
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<tr>
<td>• Planning</td>
<td>• Preliminary</td>
<td>• Clearances</td>
<td>• Utility adjustment</td>
<td>• Bridge</td>
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<tr>
<td>• Funding</td>
<td>• Geometric</td>
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<td>• Drainage</td>
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<td></td>
<td>• Value Engineering</td>
<td></td>
<td></td>
<td>• Misc structures</td>
</tr>
</tbody>
</table>

Time

Letting

Construction

Texas A&M Transportation Institute
Katy Freeway (IH-10)

- 23 miles
- 280,000 VPD
- $2.6 billion (2/3 construction)
- 6 years vs 12 years
Economic Incentives - Contractor

- One job/occasional job
- Return on investment (equipment)
- Bonding capacity
- Backlog of work
- Risk
Policies and Procedures

- Develop guidelines
- District support team
  - Bridges
  - Pavements
  - Construction planning
  - Drainage
  - Traffic
  - Production rates
Involvement of Contractor

• Planning and design review
• Partnering
• Communication
• Workforce
Development Needs

- Project selection
- Contracting methods
- Design guides
- Contractor selection
- Involvement of contractor
- Construction considerations
Development Needs

• Evaluation tools to allow use of existing materials
  ▪ Condition of existing material
  ▪ Recycling
• Traffic modeling
• Economic analysis
• Rapid QC/QA
• Removal & replacement of materials
• Equipment development
• Materials development
Not All Projects Are Suitable for Accelerated Construction
District Workshops on Accelerated Construction

www.txdot.gov/business/resources/construction/regional-workshops.html
District Workshops on Accelerated Construction