



Bolt-On Construction



9/28/26

HELP MAKE TEXAS SAFER FOR EVERYONE

DRIVE *like a* TEXAN™

Kind. Courteous. Safe.



Paceometer showing minutes per 10 miles

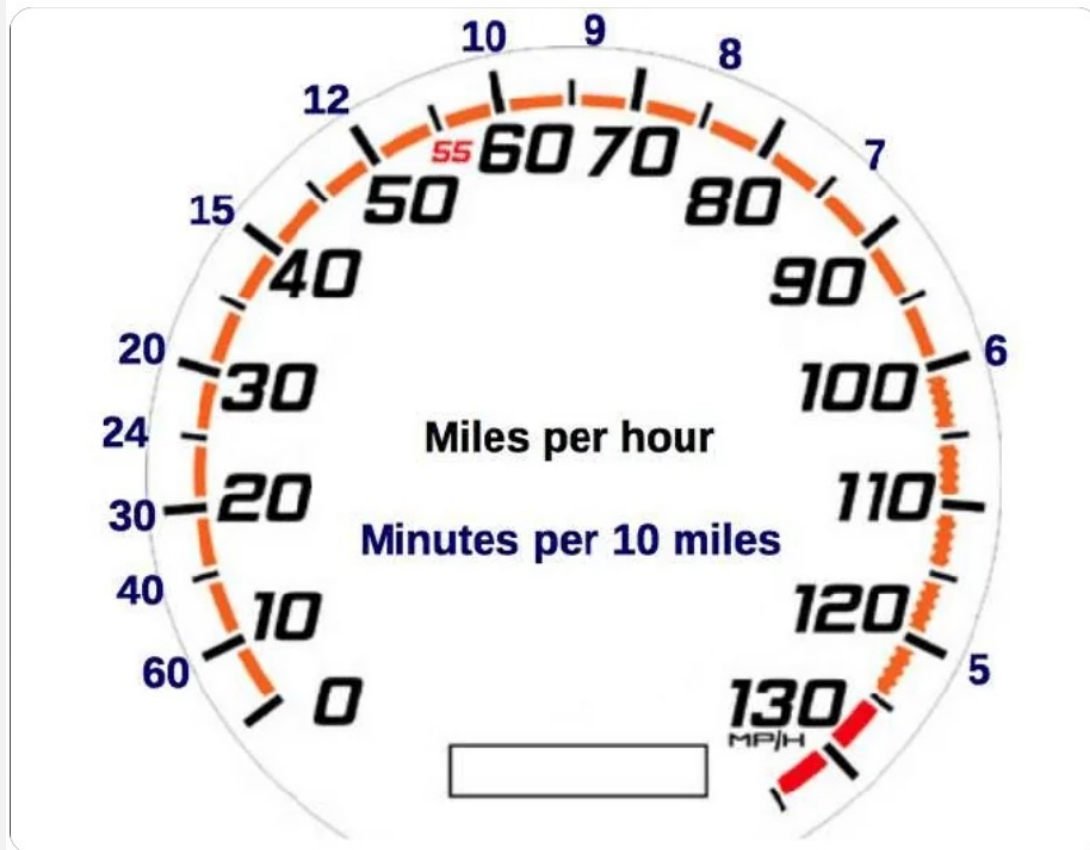


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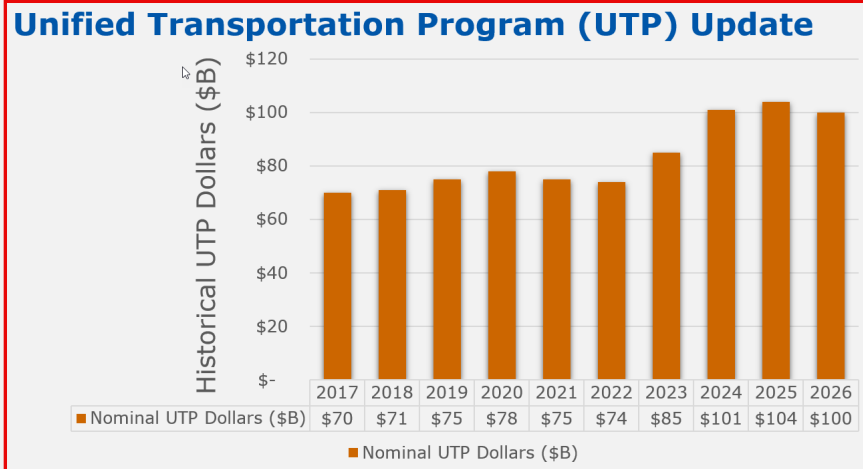
Why Bolt-On?

	Full Reconstruction w/ Concrete	Bolt-On
Time	125 Days	50 Days
Cost	\$23.3M Per Mile	\$11.6M Per Mile

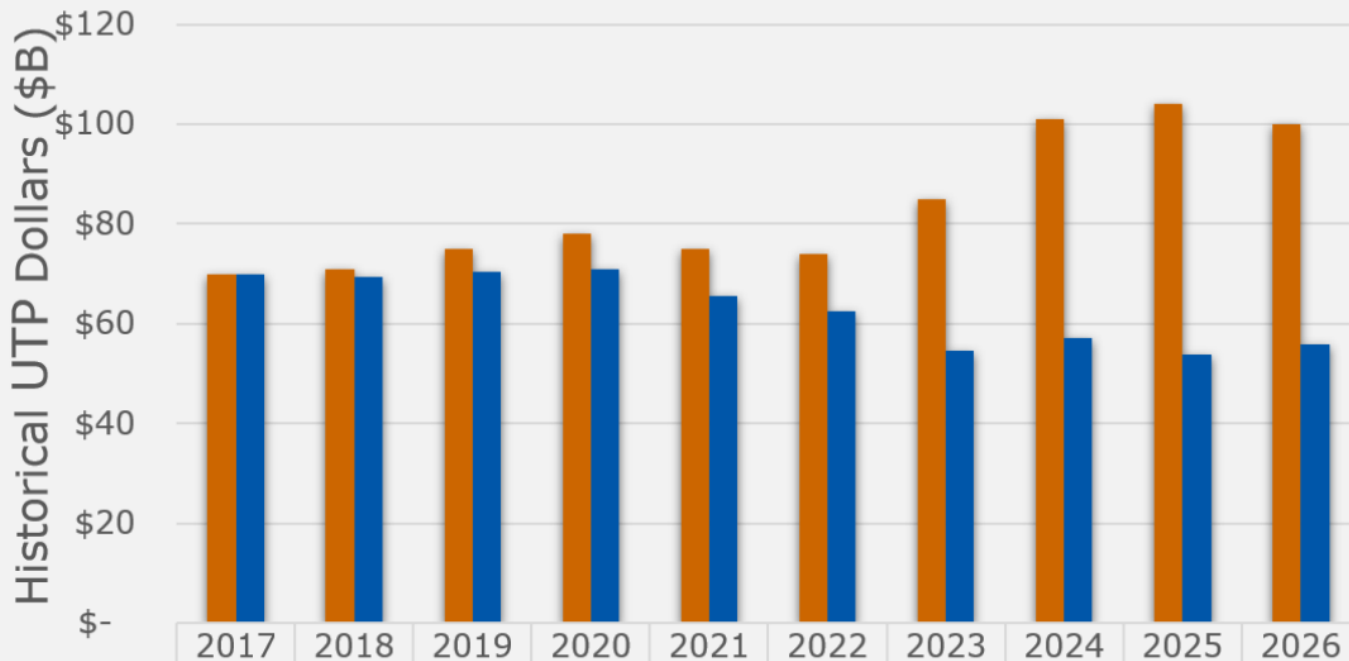
- Expand Capacity
- Reduce Costs
- Reduce Construction Time

Background

- Texas highways face growing congestion
- Increased capacity is needed for TxDOT highways
- Construction dollars must be optimized
- Bolt-On concept developed
- Working group charged by Chief Engineer



Unified Transportation Program (UTP) Update



Nominal UTP Dollars (\$B)	\$70	\$71	\$75	\$78	\$75	\$74	\$85	\$101	\$104	\$100
UTP in 2017 Dollars (\$B)	\$70	\$69	\$70	\$71	\$66	\$63	\$55	\$57	\$54	\$56

■ Nominal UTP Dollars (\$B)
 ■ UTP in 2017 Dollars (\$B)

Working Group Members

Shane Cunningham: Co-Chair
TxDOT – TYL

Jon Epps
TTI/TXAPA

Tommy Bruce
TxDOT – ATL

Korey Coburn
TxDOT – FTW

Nick Wadlington
TxDOT – DAL

Isaac Stilwell
TxDOT – ABL

Glenn Green
NETRMA

Hunter Walton
TxDOT – BRG

David Madden: Co-Chair
Madden Contracting Co.

Jeff Otto
TxDOT – DES

Troy Morrison
Austin Bridge and Road

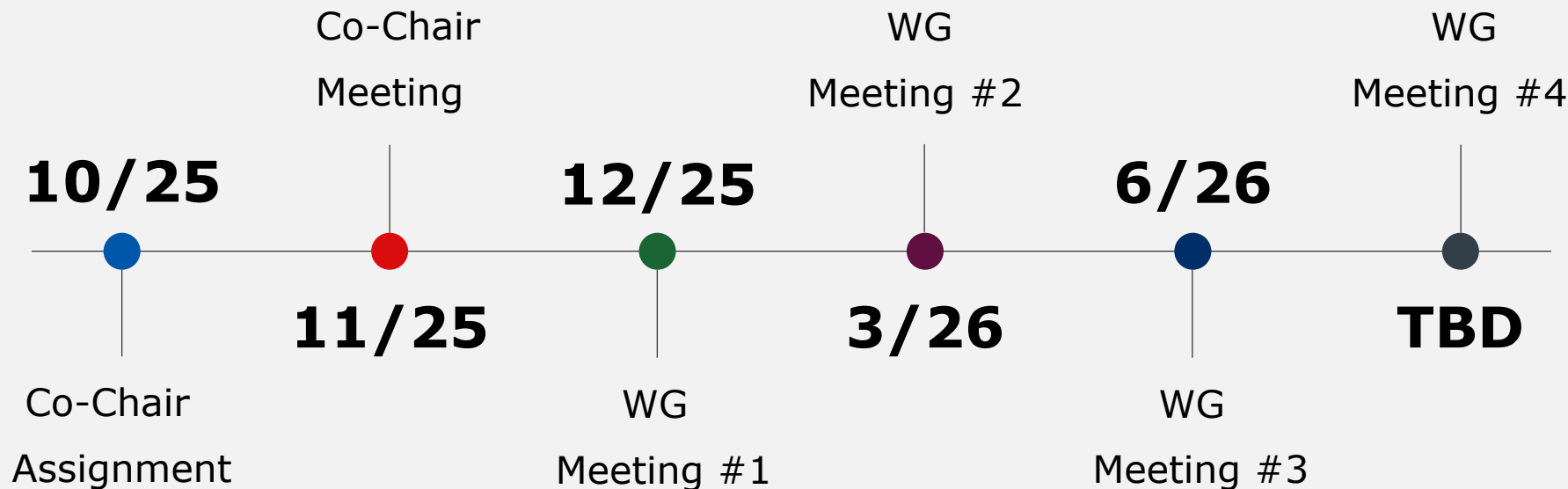
Paul Chevalier
RK Hall

Geno Carrier
Texas Material

Charles Gurganus
TTI

Harold Mullins
TXAPA

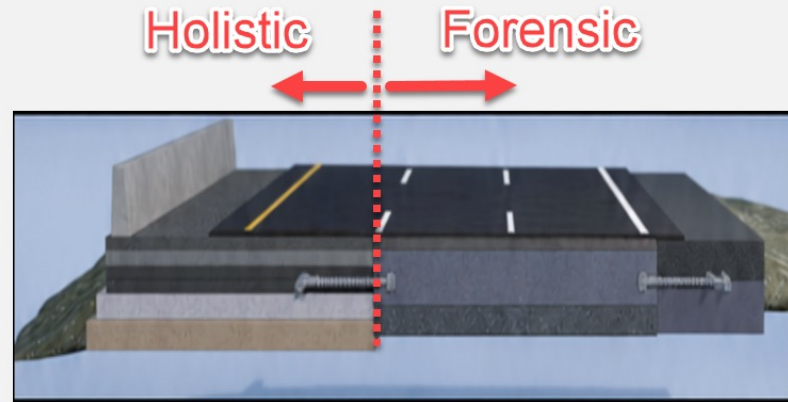
Working Group Timeline



Bolt-On: What is It?

A flexible engineering concept designed to deliver congestion relief quickly and efficiently by building on the strength of what already exists:

- Accelerated construction w/ A+B
- Full depth widening
- Heavy duty pavement/Perpetual pavement
- Utilize existing pavement and incorporate RAP and explore other forms of recycling



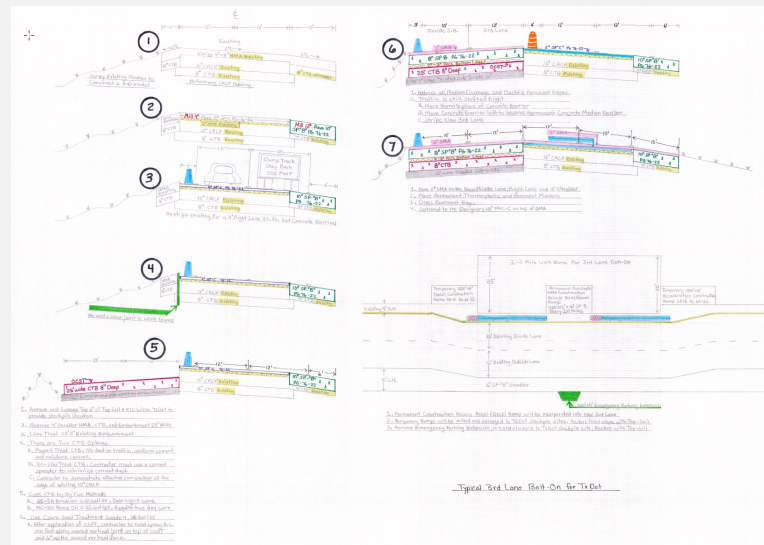
Pavement Design

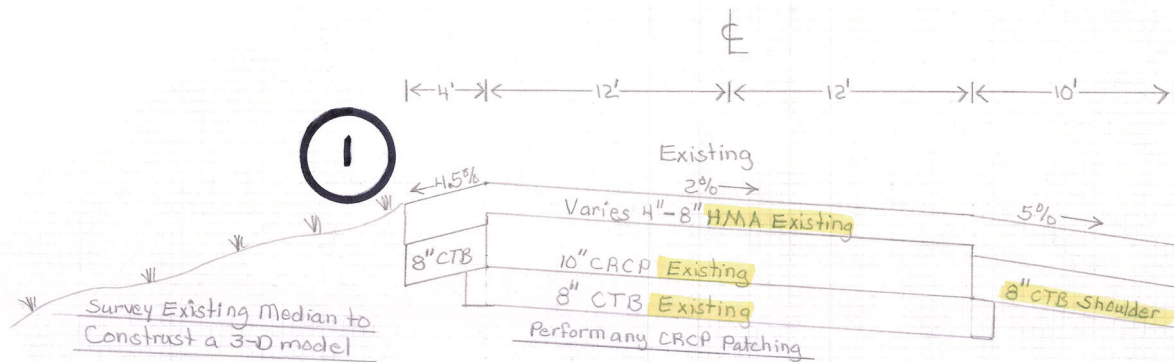
- Treatment of subgrade
- FPS-23
- Perpetual pavement/HD pavement
- Life-cycle analysis
- Warm mix additives
- Final surface selection
- Chemistry

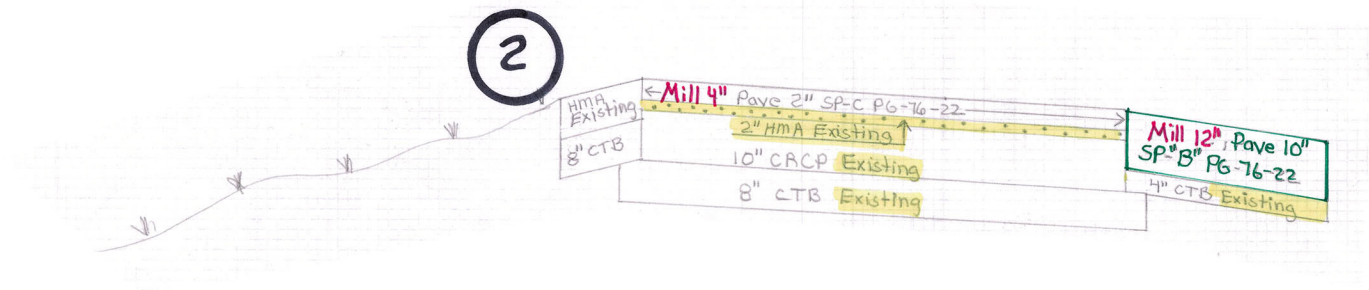


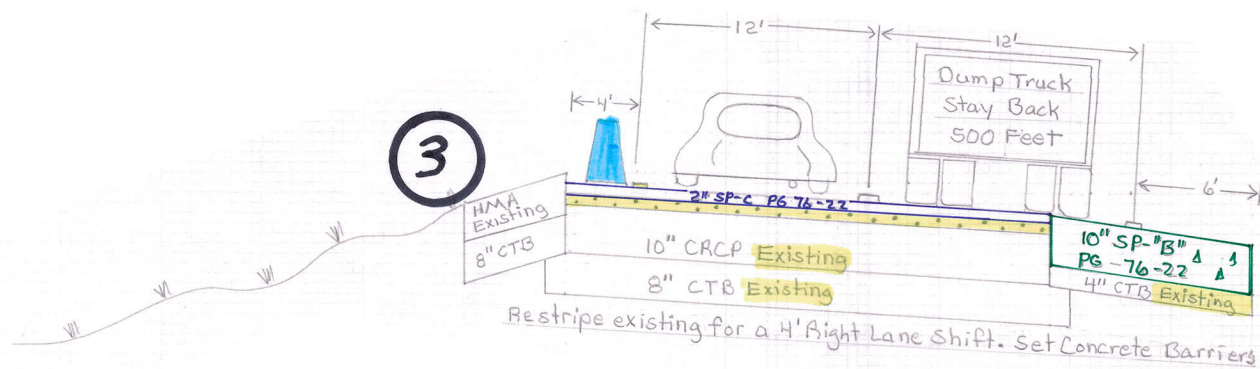
Typical Sections

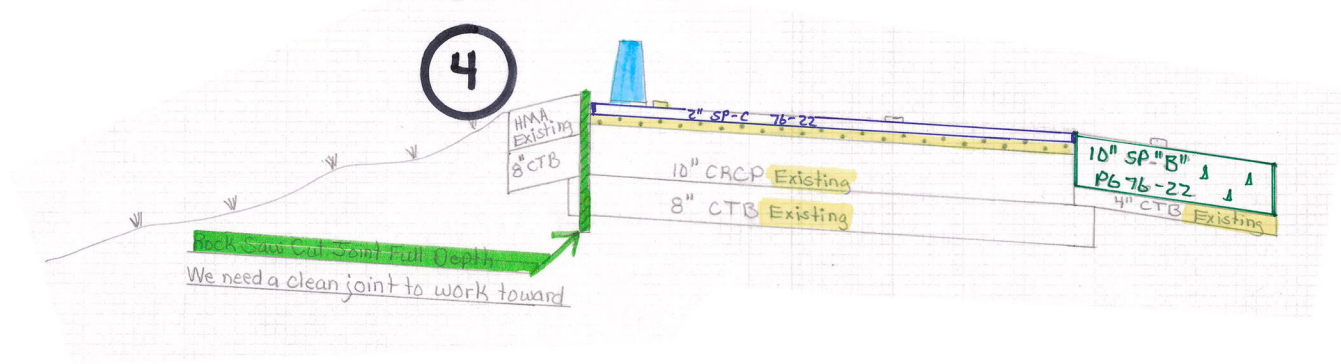
- Option to M&I existing pavement and retain RAP for subsequent paving
- Remove existing outside shoulder, treat subgrade, and place 10" base
- Saw cut smooth vertical joint along inside concrete edge and remove existing pavement
- Treat subgrade, place 2-3" RBL, OCST, place 10" base,
- Place 2" surface, construct CTB, stripe

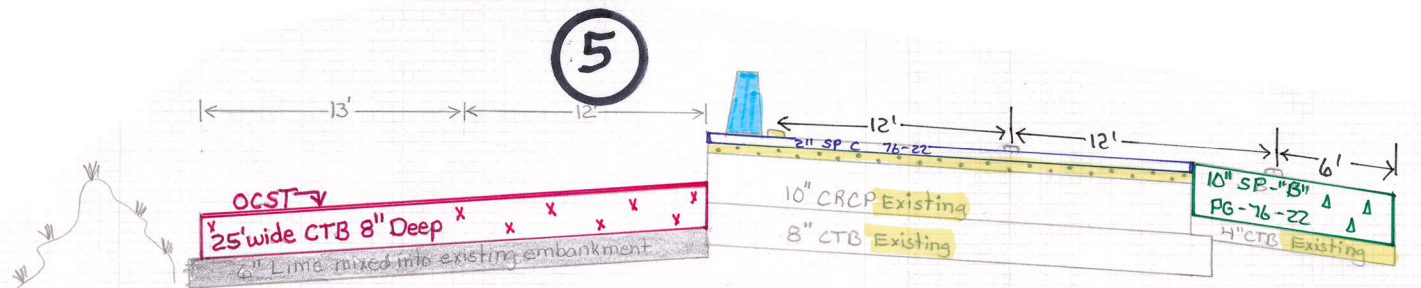




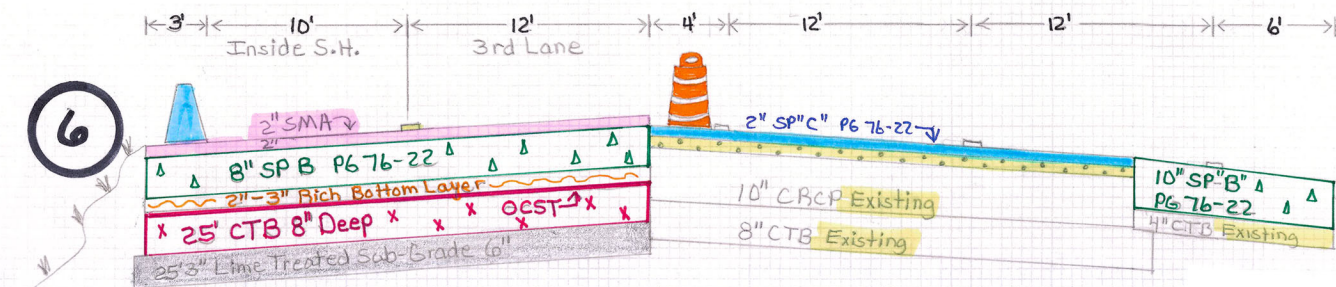




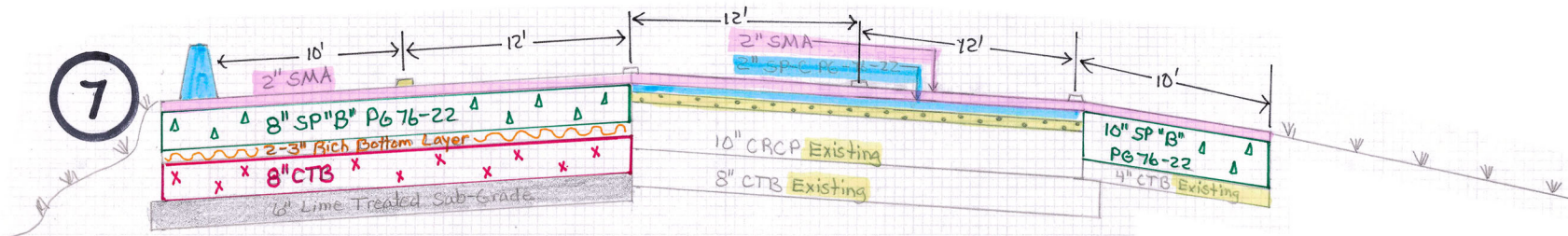




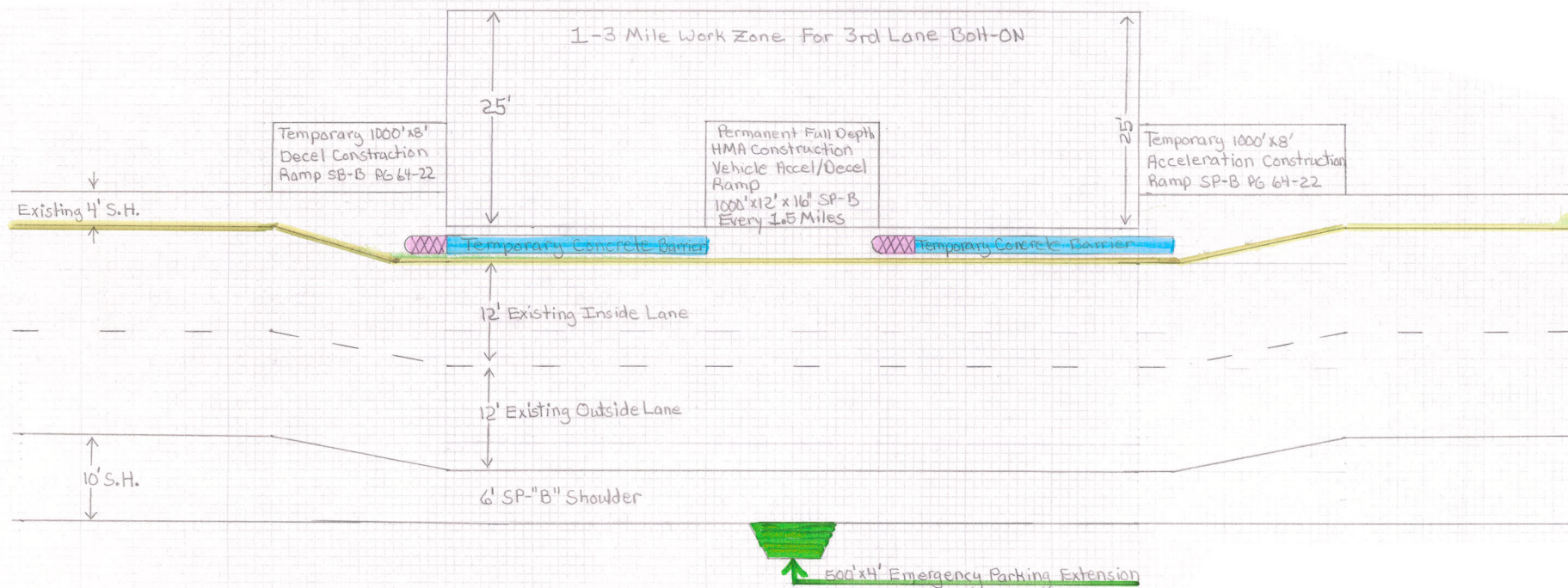
1. Remove and Salvage Top 6" of Top Soil = 47 c.y./sta. TxDot to provide stock pile location
2. Remove 4' Shoulder HMA, CTB, and Embankment 25' Wide
3. Lime Treat 25'3" Existing Embankment
4. There are Two CTB Options.
 - A. Pugmill Treat CTB. No dust on traffic, uniform cement and moisture controll.
 - B. In-situ Treat CTB. Contractor must use a cement spreader to minimize cement dust.
 - C. Contractor to demonstrate effective compaction at the edge of existing 10" CRCP
5. Cure CTB by By Two Methods
 - A. SS-1H Emulsion 0.10 Gal/SY. Overnight cure
 - B. MC-30 Prime Oil 0.25 Gal/SY. Require two day cure
6. One Course Seal Treatment Grade 4, 36 Gal/SY
 - A. After application of OCST, contractor to hand spray A.C. one foot along sawed vertical joint on top of OCST and 6" up the sawed vertical face.



1. Address all Median Drainage and Backfill Pavement Edges
2. Traffic is still Shifted Right
 - A. Place Barrel in place of Concrete Barrier
 - B. Move Concrete Barrier left to become Permanent Concrete Median Barrier
 - C. Stripe New 3rd Lane



1. Pave 2" SMA on the New Middle Lane, Right Lane and 10' Shoulder
2. Place Permanent Thermoplastic and Pavement Markers
3. Dress Pavement Edges
4. Optional to the Designer: 1.5" PFC-C on top of SMA



1. Permanent Construction Access Accel / Decel Ramp will be incorporated into new 3rd Lane
2. Temporary Ramps will be milled and salvaged to TxDot Stockpile sites. Restore front slope with Top-Soil
3. Remove Emergency Parking Extension, mill and stockpile to TxDot stockpile site, Restore with Top-Soil

Challenges

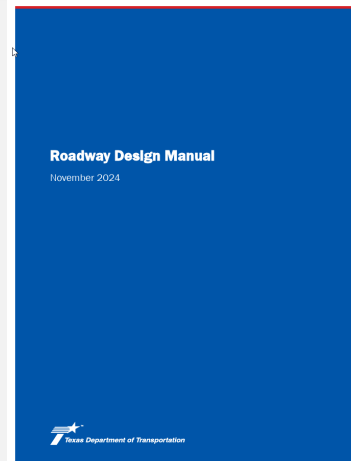
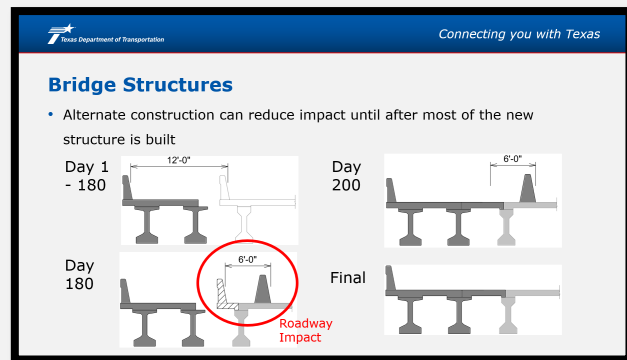
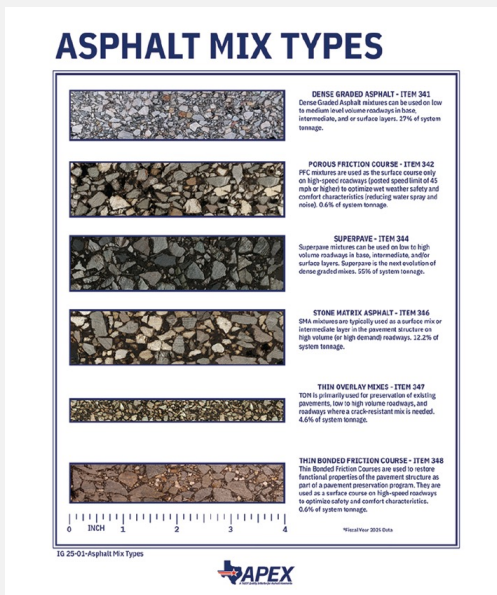
- Profile Grade Line (PGL)
- Cross Slope/Drainage
- Existing Shoulder Condition
- Existing Pavement Condition
- Utilities
- Existing Concrete Condition
- Bridge Considerations
- Median Width/ROW
- Traffic Control
- Safety

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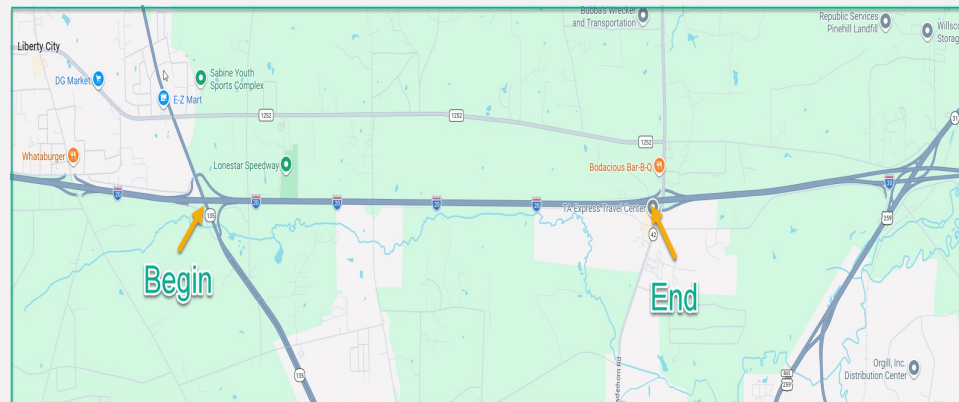
Design Considerations

- Median width
- Surface course
- Bridge structures
- PGL design exception
- Cross slope
- Superelevation
- ROW needs
- Utilities



Project Selection

- **Need**
- **Utilize ongoing development**
- **Funding considerations**
- **Programming considerations**
- **Rural/Urban/Metro**
- **Length**



Summary

- Additional capacity is needed for highways in Texas
- Construction dollars need to be optimized
- Utilize and Bolt-On to existing assets
- Combine tools like accelerated construction, PP, and HDP
- Design and customize for the region and project specific challenges
- Identify and advance Bolt-On projects for implementation



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