

# Labor-Hours Modeling: Transparency and Accountability in Contract Negotiations – Part 2

**2023 PEPS Conference** 

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#### **Topics**



Introduction

LOE Tool Benefits

How Negotiations Would Work

How to use LOE Tool

Future of LOE Tool

Questions & Discussions

#### **LOE Tool Benefits**



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#### **Fair and Equitable Negotiations**



Similar projects are used to analyze the data

Labor-Hours can be reviewed by labor classification and function code

Tool only looks at hours and not rates

Additional considerations are taken into account

#### **Tool for New & Senior Project Managers**



Easy to use

Gives a good starting point for negotiations

Comparison between the tool and consultant LOE proposal

Allows Project Manager to perform quick check

Provides estimate baseline for the District

Faster and more transparent negotiations

Consistency in negotiations among PMs, Districts, and Divisions



#### **Budget Predictions**





#### **Labor-Hours Tool**

The tool can predict ranges for consultant contract cost and predict consultant budget for projects in the STIP and UTP

#### How would negotiations work?



#### **Scoping the Project**







#### **Scoping the Project**



**CCSJ**/ CSJ: 012504-033

County: Shackelford Project Description:

Widen and overlay US 283 from Albany to the Throckmorton

County line

Target letting date: 1/2019

**Design: Project Justification Statement:** US 283 is located in the Barnet Energy Sector. This project was selected as a Tier 1 energy sector project and funded with energy sector funds. This section of US 283 is the only section of US 283 in the Abilene District that has not been widened to at least a 40' roadway section.

**Existing conditions:** The existing pavement consist of flexbase, sealcoats and an overlay. The existing roadway has predominantly 12-foot lanes and 4-foot shoulders.

Project Scope: The following personnel meet on this project Michael Haithcock, Dan Richardson, Martin Sotelo and Cliff Hallford. The following was determined to be the scope of this project: widen pavement to 40' with flex base, overlay 2" SP D, culvert widening, safety end treatment, new signs, new metal beam guard fence and milled in rumble strips and stripping. Once the PSE is developed and a more detailed estimate is created the SP D may be increased to 3"

**Projected Traffic:** 

ADT or AADT

24 HR T: 26.7%

Current Year (2014): 550

Future (2034): 817

Functional Classification: 5 Rural major collector

Design Standard: 3R

**Major Structures:** There are 6 bridge class structures on this project.

Bridge reports and locations are attached.

#### **Utility Coordination**

Utility Involvements: Utilities should be located where structures are widened otherwise utilities should not be an issue

#### **Scoping Report Example**



#### RIGHT-OF-WAY

Right-of-Way (ROW): Existing width: typically, 100 ft.

Required Right-of-Way anticipated: ⊠None □Yes □ Undetermined

Easements anticipated: ⊠None □Temporary □Permanent □Utility □Other

#### **ENVIRONMENTAL & PERMITS**

Anticipated Environmental Document: Categorical Exclusion 22

MS4 Permit Compliance – Is the project located in a MS4? No

Environmental Permits/Variances/Commitments/Coordination anticipated: NA

Environmental Comments and Information: CE documentation

#### CONSTRUCTION

Preliminary Construction Schedule: 18 Months

Issues potentially affecting constructability/construction schedule: Unknown at this time

Early Completion Incentives recommended for consideration: None at this time as daytime lane closures are all that should be required.

**Special Provisions:** Unknown at this time. **Construction Inspection:** Abilene Area Office

#### **LIST OF ATTACHMENTS**

- 1. Project Location Map
- 2. Cost Estimates for Construction
- 3. Bridge Reports
- Project Photos

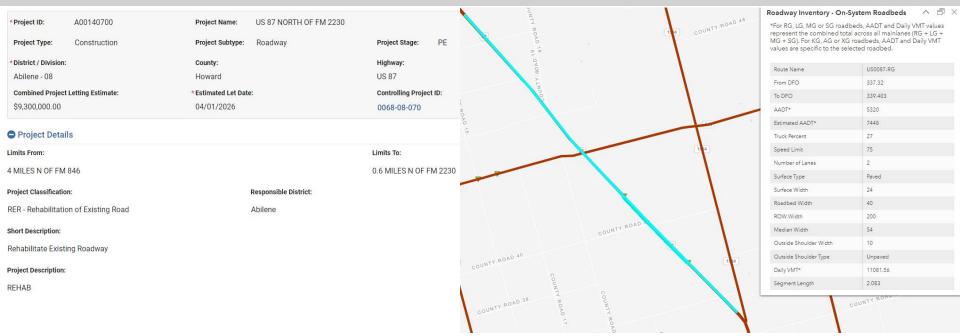
#### How to use LOE Tool



Step 1: Project Info and Scope Step 2: Populate LOE Tool Step 3: Review Total Project Hours

#### **Step 1: Gather Project Information and Scope of Project**





# **TXDOTCONNECT**

# Statewide

#### **Step 1: Gather Project Information and Scope of Project**







# Site Visit & Discussions

CSJ: 0068-08-070

HWY:

US 87 DESIGN CRITERIA: 3R

DESCRIP:

REHAB LETTIN

LETTING EST: \$9,300,000

1

Group	Functional Class	Design Criteria	Miles
5	SH	3R	9.088

2

Group 1: FM/RM - PM / 2R Group 2: US/SH - PM / 2R Group 3: Interstate - PM Group 4: FM/RM - PM / 3R Group 5: US/SH - PM / 3R

3

	AJAR TOTAL PROJECT HOURS PER FN CODE															
FN CODE	FN COD	E 102	FN CO	DE 120	FN COD	E 145	FN CO	DE 160	FN CO	DE 161	FN COL	DE 162	FN CO	DE 163	TOTAL H	ours
AVERAGE	202.1	12	53	.98	346.0	07	177	5.07	448	3.67	400.	.33	974	1.32	4200	F.C.
Std Dev	129.5	59	46	.80	172.	76	909	.25	288	3.45	265.	.73	548	3.01	4200.	.50
DANCE	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
RANGE	72.52	331.71	7.18	100.79	173.31	518.83	865.81	2684.32	160.22	737.13	134.59	666.06	426.32	1522.33	1839.96	6561.17

	FN CODE 102	FN CODE 120	FN CODE 145	FN CODE 160	FN CODE 161	FN CODE 162	FN CODE 163
				2-Way Divided	2 Bridge class cross		
Considerations for				Highway. Full depth	culverts. 10+ non	AE asked to replace	
each FN CODE:				Rehab no widening,	bridge culverts but		Accelerated timeline
				keeping existing	most if not all have	cross over signs	
				nrofile Crossovers	SET/MBGE		

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14

TXDOT TOTAL	FN CODE 102	FN CODE 120	FN CODE 145	FN CODE 160	FN CODE 161	FN CODE 162	FN CODE 163	TOTAL HOURS
HOURS	200.00	50.00	350.00	1200.00	500.00	250.00	1200.00	3750.00



CSJ: 0068-08-070 HWY: US 87 DESIGN CRITERIA: 3R DESCRIP: REHAB LETTING EST: \$9,300,000

Group Functional Design Class Criteria Miles

5 SH 3R 9.088

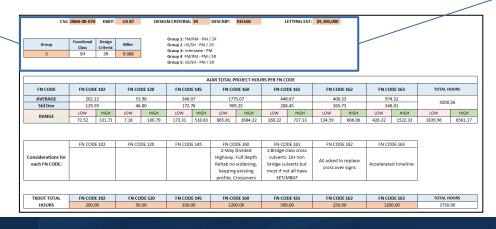
**Group 1:** FM/RM - PM / 2R **Group 2:** US/SH - PM / 2R

Group 3: Interstate - PM Group 4: FM/RM - PM / 3R

Group 5: US/SH - PM / 3R

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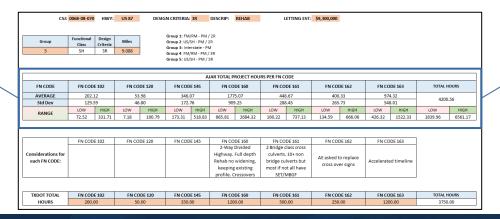
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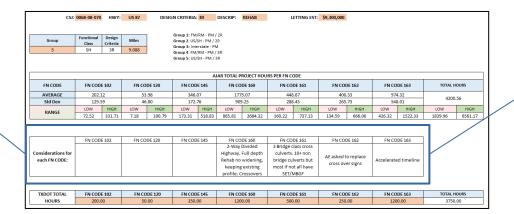
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FN CODE 102 FN CODE 120		FN COD	N CODE 145 FN CODE 160		FN CODE 161 FN CODE		E 162	FN CODE 163		TOTAL H	OURS				
202.	12	53	.98	346.	346.07		5.07	448	3.67	400.	.33	974	1.32	4200	F.C
129.	59	46	.80	172.	76	909	9.25	288	3.45	265.	.73	548	3.01	4200.	.50
LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
72.52	331.71	7.18	100.79	173.31	518.83	865.81	2684.32	160.22	737.13	134.59	666.06	426.32	1522.33	1839.96	6561.17
	202.: 129.! LOW	202.12 129.59 LOW HIGH	202.12 53 129.59 46 LOW HIGH LOW	202.12 53.98 129.59 46.80 LOW HIGH LOW HIGH	202.12 53.98 346. 129.59 46.80 172. LOW HIGH LOW HIGH LOW	FN CODE 102 FN CODE 120 FN CODE 145  202.12 53.98 346.07  129.59 46.80 172.76  LOW HIGH LOW HIGH LOW HIGH	FN CODE 102 FN CODE 120 FN CODE 145 FN CO  202.12 53.98 346.07 177  129.59 46.80 172.76 909  LOW HIGH LOW HIGH LOW HIGH LOW	FN CODE 102 FN CODE 120 FN CODE 145 FN CODE 160  202.12 53.98 346.07 1775.07  129.59 46.80 172.76 909.25  LOW HIGH LOW HIGH LOW HIGH	FN CODE 102         FN CODE 120         FN CODE 145         FN CODE 160         FN CODE 160           202.12         53.98         346.07         1775.07         448           129.59         46.80         172.76         909.25         288           LOW         HIGH         LOW         HIGH         LOW         HIGH         LOW	FN CODE 102         FN CODE 120         FN CODE 145         FN CODE 160         FN CODE 161           202.12         53.98         346.07         1775.07         448.67           129.59         46.80         172.76         909.25         288.45           LOW         HIGH         LOW         HIGH         LOW         HIGH         LOW         HIGH	FN CODE 102         FN CODE 120         FN CODE 145         FN CODE 160         FN CODE 161         FN CODE 161	FN CODE 102         FN CODE 120         FN CODE 145         FN CODE 160         FN CODE 161         FN CODE 162           202.12         53.98         346.07         1775.07         448.67         400.33           129.59         46.80         172.76         909.25         288.45         265.73           LOW         HIGH         LOW         HIGH         LOW         HIGH         LOW         HIGH	FN CODE 102         FN CODE 120         FN CODE 145         FN CODE 160         FN CODE 161         FN CODE 162         FN CODE 162           202.12         53.98         346.07         1775.07         448.67         400.33         974           129.59         46.80         172.76         909.25         288.45         265.73         548           LOW         HIGH         LOW	FN CODE 102         FN CODE 120         FN CODE 145         FN CODE 160         FN CODE 161         FN CODE 162         FN CODE 163           202.12         53.98         346.07         1775.07         448.67         400.33         974.32           129.59         46.80         172.76         909.25         288.45         265.73         548.01           LOW         HIGH         HIGH         LOW         HIGH         HIGH <th>FN CODE 102 FN CODE 120 FN CODE 145 FN CODE 160 FN CODE 161 FN CODE 162 FN CODE 163 TOTAL H  202.12 53.98 346.07 1775.07 448.67 400.33 974.32 129.59 46.80 172.76 909.25 288.45 265.73 548.01  LOW HIGH LOW</th>	FN CODE 102 FN CODE 120 FN CODE 145 FN CODE 160 FN CODE 161 FN CODE 162 FN CODE 163 TOTAL H  202.12 53.98 346.07 1775.07 448.67 400.33 974.32 129.59 46.80 172.76 909.25 288.45 265.73 548.01  LOW HIGH LOW





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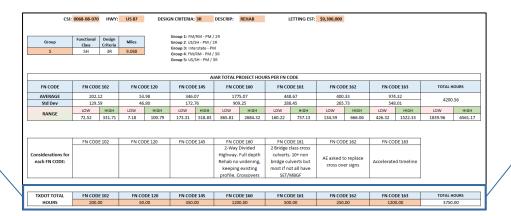
ı		FN CODE 102	FN CODE 120	FN CODE 145	FN CODE 160	FN CODE 161	FN CODE 162	FN CODE 163
					2-Way Divided	2 Bridge class cross		
ı	Considerations for				Highway. Full depth	culverts. 10+ non	AE asked to replace	
ı	each FN CODE:				Rehab no widening,	bridge culverts but		Accelerated timeline
					keeping existing profile.	most if not all have	cross over signs	
					Crossovers	SET/MBGF		





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TXDOT TOTAL	FN CODE 102	FN CODE 120	FN CODE 145	FN CODE 160	FN CODE 161	FN CODE 162	FN CODE 163	TOTAL HOURS
HOURS	200.00	50.00	350.00	1200.00	500.00	250.00	1200.00	3750.00





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CSJ: 0068-08-070

**HWY: US 87** 

**DESIGN CRITERIA: 3R** 

REHAB

LETTING EST: \$9,300,000.00

 FN CODE 160

 Group
 Functional Class
 Design Criteria
 Miles

 5
 SH
 3R
 9.088

FC 160 (160) Roadway Design: Roadway Design Controls

	FC 160 (160) Roadway Design: Roadway Design Controls - AJAR										
JOB TITLE	JOB TITLE PM SE PE EIT ET CADD TOTAL HOUR										
PERCENT	3%	7%	13%	37%	15%	25%					
AVERAGE HOURS / MILE	7.15	14.05	27.22	77.52	30.64	52.49	209.07				
JOB TITLE TOTAL HOURS	64.98	127.69	247.38	704.50	278.46	477.03	1900.03				

Considerations for FN	2-Way Divided Highway. Full depth Rehab no widening, keeping existing profile. Crossovers		
CODE 160:	Divided nighway. Full depth kenab no widening, keeping existing profile. Crossovers		
Additional	EIT will have the most hours for this function code as he will be doing most of the design and sheets.		
Considerations:	the will have the most routs for this function code as he will be doing most of the design and sheets.		

	FC 160 (160) Roadway Design: Roadway Design Controls - TXDOT										
JOB TITLE PROJECT MANAGER SENIOR ENGINEER PROJECT ENGINEER ENGR. IN TRAINING ENGR. TECHNICIAN CADD OPERATOR TXDOT TOTAL HOURS											
PERCENT	3%	7%	12%	40%	13%	25%	1200.00				
TOTAL HOURS	TOTAL HOURS 40.00 80.00 140.00 480.00 160.00 300.00 1200.00										



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CSJ: 0068-08-070 HWY: US 87 DESIGN CRITERIA: 3R REHAB LETTING EST: \$9,300,000.00

FN CODE 160			
Group	Functional Class	Design Criteria	Miles
5	SH	3R	9.088

FC 160 (160) Roadway Design: Roadway Design Controls

CSJ:	0068-08-070	HWY:	US 87 DESIG	SN CRITERIA: 3R	REHAB LETTING	EST: \$9,300,000.00						
FN CODE 145	]											
Group	Functional Class	Design Criteria	Miles	FC 145 (145,	164) Managing Cont	racted/Donated PE:	Project Managemen	t and				
5	SH	3R	9.088		A	dministration						
		FC 145 (14	15, 164) Managing (	ontracted/Donated P	E: Project Management	and Administration - A	JAR					
JOB TITLE	JOB TITLE PM SE PE EIT ET CADD TOTALHOUI											
PERCENT	54%		18%	25%	3%	1%	0%					
AVERAGE HOURS / MILE	23.4	2	7.62	10.76	1.18	0.23	0.18	43.39				
JOB TITLE TOTAL HOURS	212.8	34	69.25	97.79	10.72	2.09	1.64	394.33				
Considerations for FN												
CODE 145:												
Additional	PM will have t	ha most he	sure for this function	code. CADD may not he	ave any hours							
Considerations:		ne most ne	ars for this function	code. Crobb may not m	ave any nours.							
	FC 145 (145, 164) Managing Contracted/Donated PE: Project Management and Administration - TXDOT											
JOB TITLE	PROJECT MA	ANAGER	SENIOR ENGINEER	PROJECT ENGINEER	ENGR. IN TRAINING	ENGR. TECHNICIAN	CADD OPERATOR	TXDOT TOTAL HOURS				
PERCENT	51%	,	16%	26%	7%	0%	0%	350.00				
TOTAL HOURS	180.0	00	56.00	90.00	24.00			350.00				

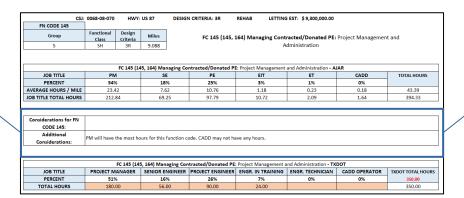


FC 160 (160) Roadway Design: Roadway Design Controls - AJAR									
JOB TITLE PM SE PE EIT ET CADD TOTAL HOUR									
PERCENT	3%	7%	13%	37%	15%	25%			
AVERAGE HOURS / MILE	7.15	14.05	27.22	77.52	30.64	52.49	209.07		
JOB TITLE TOTAL HOURS	64.98	127.69	247.38	704.50	278.46	477.03	1900.03		

	0068-08-070	HWY:	US 87 DESIGI	N CRITERIA: 3R	REHAB LETTING	EST: \$ 9,300,000.00				
FN CODE 145	]									
Group	Functional Class	Design Criteria	Miles	FC 145 (145,	164) Managing Cont	racted/Donated PE:	Project Managemen	t and		
5	SH	3R	9.088	Administration						
		FC 145 (14	15, 164) Managing Co	ntracted/Donated P	E: Project Management	and Administration - A	JAR			
JOB TITLE	PM		SE	PE	EIT	ET	CADD	TOTAL HOURS		
PERCENT	54%	5	18%	25%	3%	1%	0%			
AVERAGE HOURS / MILE	23.4	2	7.62	10.76	1.18	0.23	0.18	43.39		
JOB TITLE TOTAL HOURS	212.	34	69.25	97.79	10.72	2.09	1.64	394.33		
Considerations for FN										
CODE 145:										
CODE 145: Additional	PM will have t	the most ho	ours for this function c	ode. CADD may not h	ave any hours.					
CODE 145:										
CODE 145: Additional					ave any hours. : Project Management a	and Administration - <b>TX</b>	DOT			
CODE 145: Additional		FC 145 (14	5, 164) Managing Cor		: Project Management a	and Administration - TX	DOT CADD OPERATOR	TXDOT TOTAL HOURS		
CODE 145: Additional Considerations:		FC 145 (14 ANAGER	5, 164) Managing Cor	ntracted/Donated PE	: Project Management a			TXDOTTOTAL HOURS 350.00		



Γ	Considerations for FN	2-Way Divided Highway. Full depth Rehab no widening, keeping existing profile. Crossovers
	CODE 160:	2-way Divided Highway. Full depth Kenab no widening, keeping existing profile. Crossovers
	Additional	EIT will have the most hours for this function code as he will be doing most of the design and sheets.
	Considerations:	err will have the most hours for this function code as he will be doing most of the design and sheets.





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FC 160 (160) Roadway Design: Roadway Design Controls - TXDOT								
JOB TITLE	JOB TITLE PROJECT MANAGER SENIOR ENGINEER PROJECT ENGINEER ENGR. IN TRAINING ENGR. TECHNICIAN CADD OPERATOR TXDOT TOTAL HOUR							
PERCENT	3%	7%	12%	40%	13%	25%	1200.00	
TOTAL HOURS	40.00	80.00	140.00	480.00	160.00	300.00	1200.00	

CSJ:	0068-08-070	HWY:	US 87 DESIGN	I CRITERIA: 3R	REHAB LETTING	EST: \$9,300,000.00				
FN CODE 145	]									
Group	Functional Class	Design Criteria	Miles	FC 145 (145,	164) Managing Cont	racted/Donated PE:	Project Managemen	t and		
5	SH	3R	9.088	Administration						
FC 145 (145, 164) Managing Contracted/Donated PE: Project Management and Administration - AJAR										
JOB TITLE	PM		SE	PE	EIT	ET	CADD	TOTAL HOURS		
PERCENT	54%	6	18%	25%	3%	1%	0%			
AVERAGE HOURS / MILE	23.4	2	7.62	10.76	1.18	0.23	0.18	43.39		
JOB TITLE TOTAL HOURS	212.8	34	69.25	97.79	10.72	2.09	1.64	394.33		
Considerations for FN CODE 145:										
Additional Considerations:  PM will have the most hours for this function code. CADD may not have any hours.										
FC 145 (145, 164) Managing Contracted/Donated PE: Project Management and Administration - TXDOT										
				PROJECT ENGINEER	ENGR. IN TRAINING	ENGR. TECHNICIAN	CADD OPERATOR	TXDOT TOTAL HOUR		
JOB TITLE	PROJECT MA	ANAGER	SENIOR ENGINEER	PROJECT ENGINEER	LIVOR. IN TRAINING	LIVOR. ILCHIVICIAIV	CADD OF ENATOR	INDUI TOTAL HOUR		
JOB TITLE PERCENT	PROJECT M		16%	26%	7%	0%	0%	350.00		
		6								

#### **Step 3: Review Total Project Hours**



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CSJ: 0068-08-070 HWY: US 87 DESIGN CRITERIA: 3R DESCRIP: REHAB LETTING EST: \$9,300,000

TOTAL PROJECT HOURS - TXDOT								
JOB TITLE	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	ENGR. IN TRAINING	ENGR. TECHNICIAN	CADD OPERATOR		
PERCENTAGE OF TOTAL HOURS	11.15%	9.07%	17.92%	31.52%	14.19%	16.16%	TOTAL HOURS:	
FUNCTION CODE	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS		
FN 102 (110)	34.00	40.00	54.00	62.00	8.00	2.00	200.00	
FN 120 (120)	12.00	6.00	8.00	16.00	4.00	4.00	50.00	
FN 145 (145, 164)	180.00	56.00	90.00	24.00	0.00	0.00	350.00	
FN 160 (160)	40.00	80.00	140.00	480.00	160.00	300.00	1200.00	
FN 160 (161)	16.00	24.00	120.00	200.00	80.00	60.00	500.00	
FN 160 (162)	16.00	14.00	40.00	80.00	40.00	60.00	250.00	
FN 160 (163)	120.00	120.00	220.00	320.00	240.00	180.00	1200.00	
TOTAL HOURS:	418.00	340.00	672.00	1182.00	532.00	606.00	3,750.00	

#### **Future of Labor Hours Tool**



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Data for all types of projects has been entered

Training on how to use labor hour tool

The tool is used on trial basis

Workshop on success and failures

Tweak labor hour tool based off workshop feedback

Full implementation by PEPS

Everyone is receiving a fair contract ©

# Questions and Discussion



End the streak of daily deaths on Texas roadways.

**TxDOT.gov** (Keyword: #EndTheStreakTX)



2023 PEPS Conference December 5, 2023 27



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