



PS&E Scope Template

2023 PEPS Conference

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HELP #EndTheStreakTX

End the streak of daily deaths on Texas roadways.

[TxDOT.gov](https://www.txdot.gov) (Keyword: #EndTheStreakTX)



#EndTheStreakTX Toolkit



Background



- Lengthy work authorization scopes that were lacking workflow organization and difficult to follow
- General requirements mixed in with “billable” tasks
- Deliverables not consistent or not shown at all



TxDOT/ACEC Workgroup



TxDOT Team Members

Districts

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ROW Division

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What is the solution?

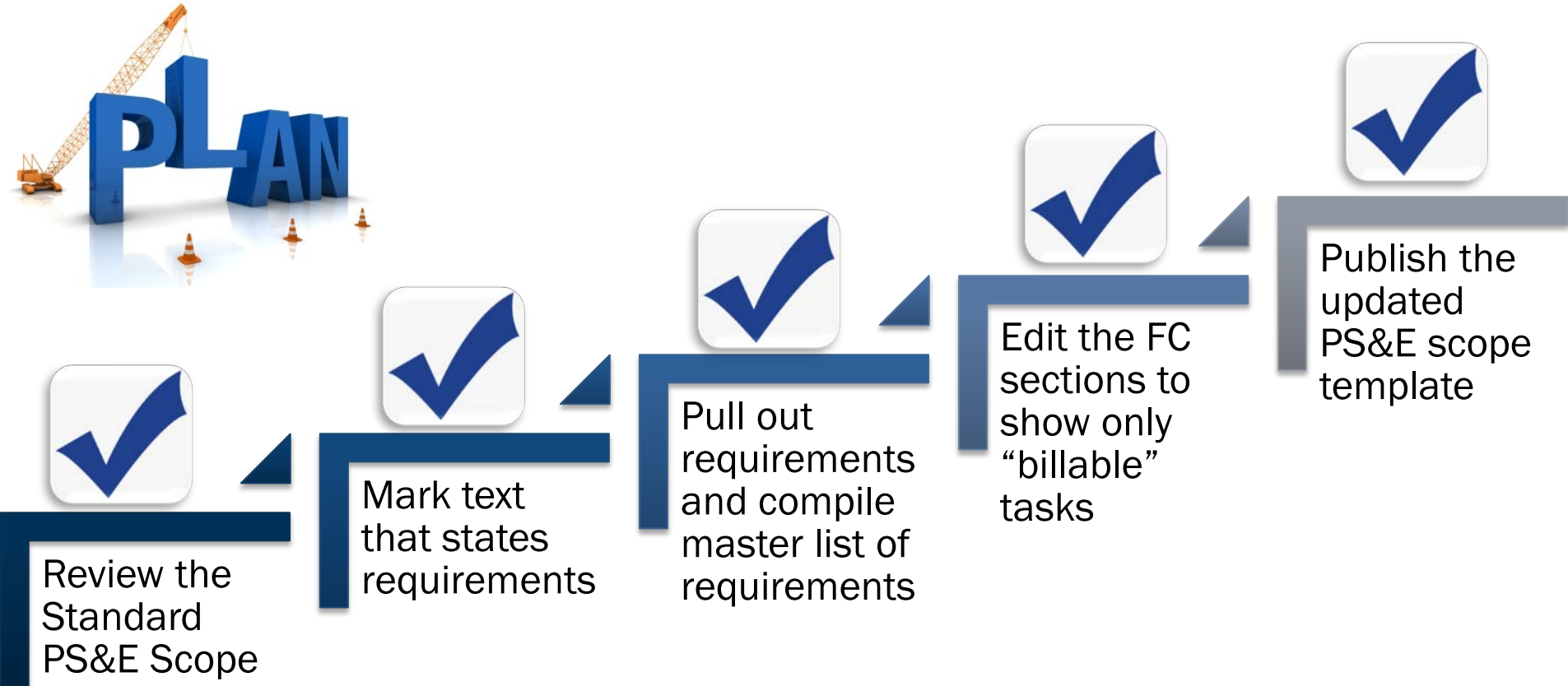


Develop a new contract scope template that separates general requirements from “billable” tasks

- Section 1: General Requirements
- Section 2: “Billable” Task Requirements

Consistent Deliverables listed within each Function Code (FC)

WA will reference requirements, but only contain the “billable” tasks within the FC sections



New PS&E Scope Template and Organization



Contract Scope

General Requirements

Task Descriptions and Function Codes

Sections related to each FC

Numbered as X.X

How tasks must be done

Organized by FC

Numbered as XXX.X

What tasks must be done

New PS&E Contract Scope Template Organization



General Requirements

Task Requirements

Contract No. XX-XXDPXXXX
PS Contract No. XXXX

ATTACHMENT C

SERVICES TO BE PROVIDED BY THE ENGINEER

NOTE: Information for tables to be provided in work authorization.
The Engineer shall provide engineering services required for the preparation of plans, specifications, and estimates (PS&E) and related documents, for various projects in both rural and urban settings. These services might include preparing roadway design, bridge design, hydrologic and hydraulic design, traffic signal design, utility adjustment coordination, subsurface utility engineering, utility engineering, survey, geotechnical data collection, environmental documentation, and if requested, provide design support, testify at right of way hearings, and construction phase services necessary to support the design process.

1. GENERAL REQUIREMENTS.

1.1. Design Criteria.
The Engineer shall prepare all work in accordance with the latest version (at time of work authorization execution) of applicable TxDOT procedures, specifications, manuals, guidelines, standard drawings, and standard specifications or previously approved special provisions and special specifications, which include:

- A. *PS&E Preparation Manual*, published by TxDOT;
- B. *Roadway Design Manual*, published by TxDOT;
- C. *Hydraulic Design Manual*, published by TxDOT;
- D. *Bridge Design Manual-LRFD*, published by TxDOT;
- E. *Bridge Project Development Manual*, published by TxDOT;
- F. *Geotechnical Manual*, published by TxDOT;
- G. *Texas Manual on Uniform Traffic Control Devices (TMUTCD)*, published by TxDOT;
- H. *Highway Illumination Manual*, published by TxDOT;
- I. *Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges* (latest Edition), published by TxDOT;
- J. *Traffic and Safety Analysis Procedural Manual (TASAP)*, published by TxDOT;
- K. *TxDOT Survey Manual*, published by TxDOT;
- L. other TxDOT-approved manuals and guides.

When design criteria are not identified in TxDOT manuals, the Engineer shall notify the State and refer to the American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets*, (latest Edition).

The Engineer shall follow the TxDOT district guidelines in preparing the plans, specifications, and estimates (PS&E) package and prepare each PS&E package in a form suitable for letting through TxDOT's construction contract bidding and awarding process.

The Engineer shall design the project according to the latest TxDOT's design criteria. The Engineer shall supply project-specific design criteria (e.g., typical sections, estimate, design exceptions) to be inserted into the design elements form for discussion at the design concept conference (DCC).

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Contract No. XX-XXDPXXXX
PS Contract No. XXXX

TASK DESCRIPTIONS AND FUNCTION CODES

The Engineer shall categorize each task performed to correspond with the Function Codes (FC) and Task Descriptions.

FUNCTION CODE 102 (110) – FEASIBILITY STUDIES

ROUTE AND DESIGN STUDIES

110.1. Data Collection and Field Reconnaissance.
The Engineer shall collect, review, and evaluate data described below. The Engineer shall notify the State in writing whenever the Engineer finds disagreement with the information or documents.

- A. Data, if available from the State, including as-built plans, existing schematics, right of way maps, utility engineering investigation mapping, existing cross sections, existing planimetric mapping, environmental documents, existing channel and drainage easement data, existing traffic counts, accident data, bridge inspection records, project management information system (PMIS) data, identified endangered species, identified hazardous material sites, current unit bid price information, current special provisions, special specifications, and standard drawings.
- B. Documents for existing and proposed development along proposed route from local municipalities and local ordinances related to project development
- C. Utility plans and documents from appropriate municipalities and agencies
- D. Flood plain information and studies from the Federal Emergency Management Agency (FEMA), the United States Army Corps of Engineers (USACE), local municipalities, and other governmental agencies
- E. Conduct field reconnaissance and collect data including a photographic record of notable existing features.

110.2. Design Criteria.
The Engineer shall develop the roadway design criteria based on the controlling factors specified by the State. In addition, the Engineer shall prepare the Design Summary Report (DSR) and submit it electronically.

110.3. Preliminary Cost Estimates.
The Engineer shall develop a preliminary cost estimate using the average low bid unit price. The Engineer shall estimate the total project cost including preliminary engineering, final engineering, right of way (ROW) acquisition, environmental compliance and mitigation, construction, utility relocation, and construction engineering inspection (CEI).

110.4. Design Concept Conference.
The Engineer shall plan, attend, and document the Design Concept Conference (DCC) to be held prior to the 30 percent milestone submittal. In preparation for the DCC, the Engineer shall complete a TxDOT Design Summary Report (DSR) to serve as a checklist for the minimum required design considerations.

110.5. Value Engineering Study
The Engineer shall attend and participate in a Value Engineering Study.

DEL.110. Deliverables for FC 110.

- A. Catalog of documents collected
- B. Documents collected

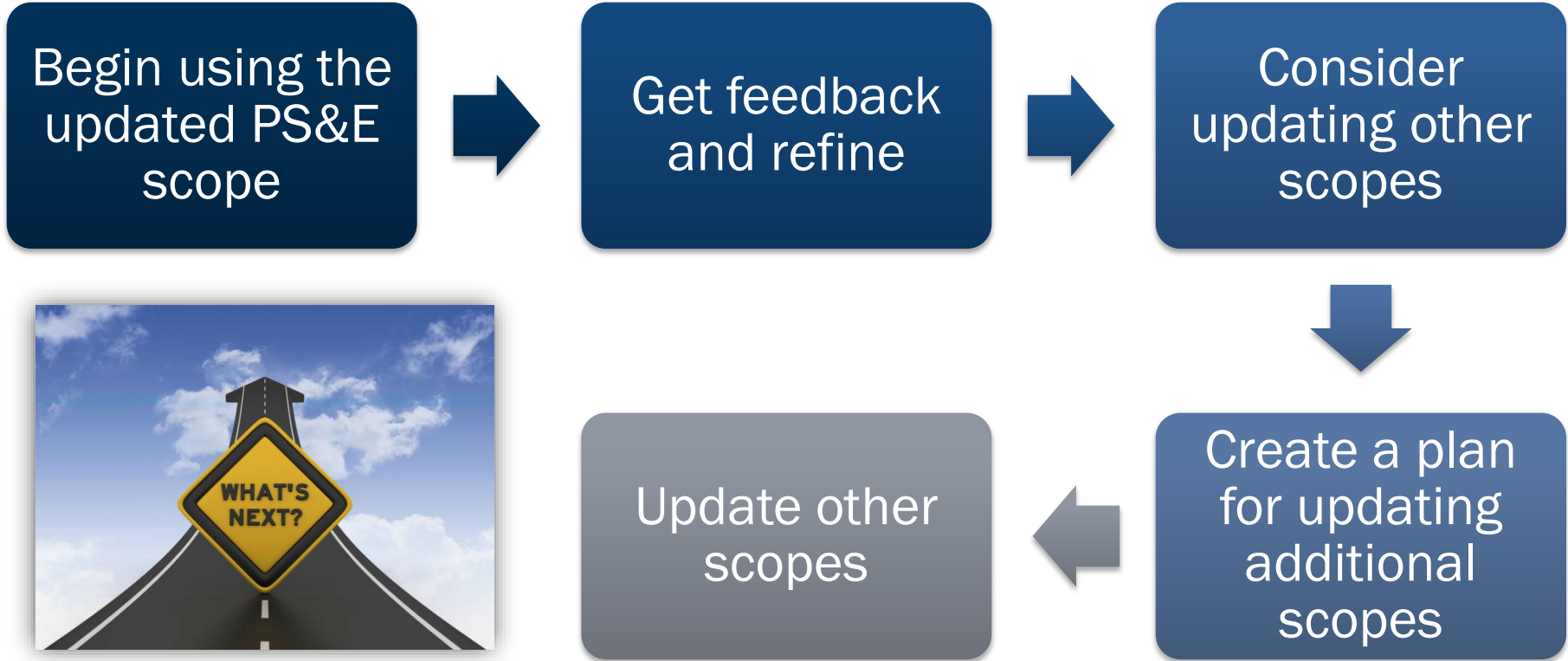
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Next Steps



The updated PS&E scope was posted internally and became available for use in Fiscal Year 2024, Wave 1, September 2023.





**Lump Sum Payment Table of
Deliverables and Proposed
Improvements**

What was the issue?



Lengthy Table of Deliverables containing numerous deliverables and interim deliverables to be identified that are difficult to follow

Required lots of thought and effort by both the TxDOT and Consultant PMs to ensure reasonable billing times

Requirement of Deliverables to be submitted for payment



Engineer agrees to perform services for a specific project for a fixed price (lump sum)

Contract is suitable if scope and schedule are sufficiently defined to allow the consulting engineer to estimate the project cost

Engineer not required to provide detailed breakdown of costs, but the total cost of the contract is linked to completing all of the work specified in the contract.

The lump sum is paid at completion of all specified work on the project.

What is Lump Sum Payment Type with Milestone Payments?

- ❑ The Engineer agrees to perform the services for a specific project for a fixed price (lump sum).
- ❑ Payments are based on agreed upon events or deliverables. The setup of the milestones requires work between both parties to specify the payment for the event or milestone e.g., how much and for what specific deliverable.
- ❑ A benefit it spaces out payment on larger projects to maintain a steady cashflow and to meet set specific goals for measuring progress.
- ❑ A drawback can include the defining of specific deliverables and payment amounts, as well as ensuring there are enough deliverables to maintain a reasonable cashflow.

TOD - Milestone Based

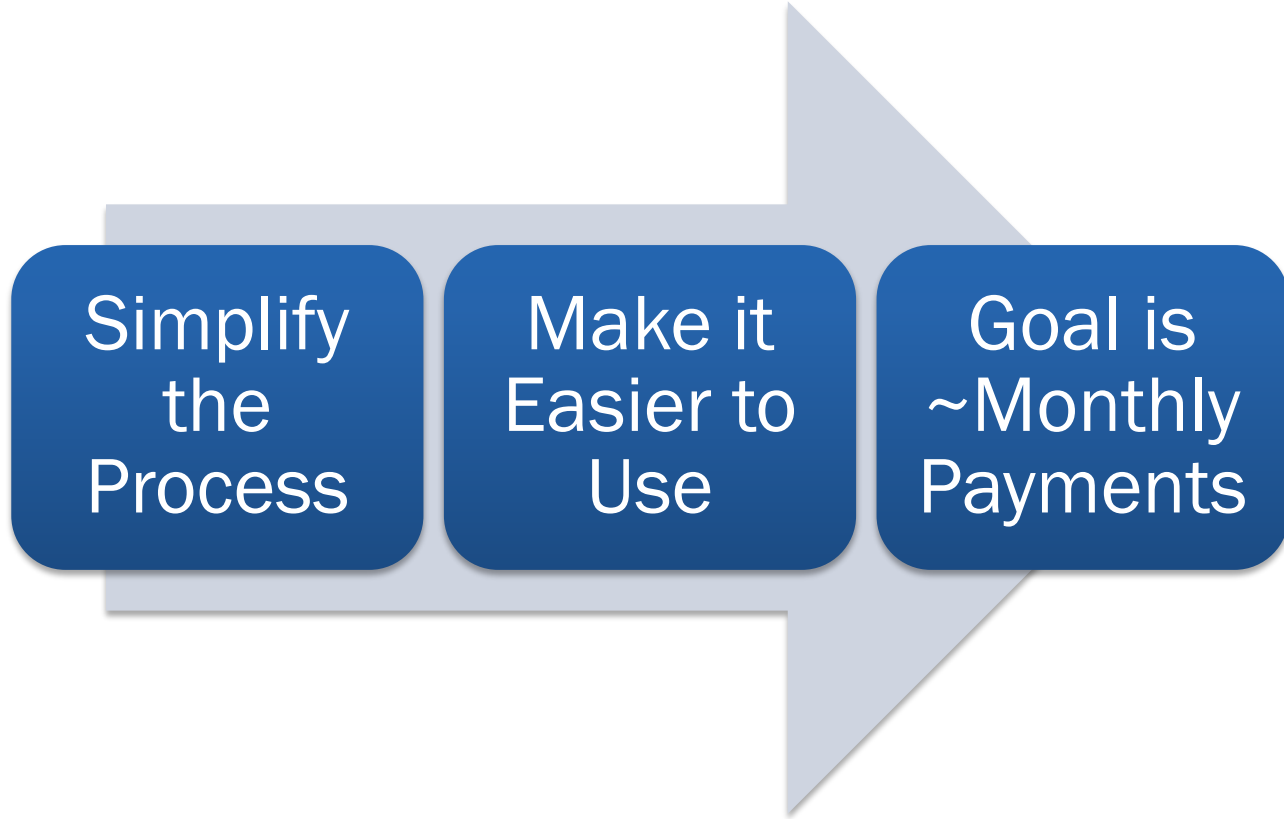
Prime Provider:
Project:
CIS:

EXHIBIT D - FEE SCHEDULE
METHOD OF PAYMENT: LUMP SUM

Legacy Contract No.
Fee/Profit Contract No.
WA/WK / PO ID 80000



EXAMPLE TABLE OF DELIVERABLES for Plan, Specifications and Estimates (PS&E) Lump Sum Payment Method													
This is an example TOD. Use the TOD Template worksheet that is included with this workbook for your specific project and create the instructions and this example.		Summary of Activities and Deliverable Items			Summary of Lump Sum Payments		TOD Instructions			Provider Instructions			
FC 100(110)						\$14,626.16							
FC 100(120)						\$1,988.98							
FC 100(130)						\$3,949.66							
FC 160(150)						\$193,879.34							
FC 160(160)						\$70,886.46							
FC 160(161)						\$93,353.60							
FC 160(162)						\$67,961.24							
FC 160(163)						\$78,330.00							
FC 145(145.164)						\$15,000.00							
FC 160(170)						\$66,000.00							
						\$64,786.88							
Payments will be made according to the following Table of Deliverables. Partial payments on Lump Sum are not allowed (i.e. partial payment on each line item is not allowed). Provider must complete the entire deliverable associated with the line item. (The percentage of work is only an indicator of the progress of work associated with the deliverable.) Column H-K of this spreadsheet should not be shown in the executed contract/WA. Instead, these columns should be shown after execution as the invoices are submitted by the provider.										Lump Sum payments are paid based upon receipt of the deliverables as indicated in this document. The entire deliverable for each line item shown must be completed before the lump sum amount can be paid. (For example, Reference line item #18. The provider cannot bill for that line item until the entire deliverable on that line item is completed as indicated.) This method will require tracking of paid line items based upon the TOD shown.		The provider shall include this document as an attachment to each Invoice Package. Invoice Detail for Lump Sum Payments Complete the applicable detail information shown below. All deliverables completed and billed (by line item), according to the TOD should be shown. Partial payment on a line item is not allowed. Highlight the current payable line items that correspond to the invoice package submitted.	
Function Codes	Deliverable Submittal	Summary of Activities and Deliverable Items			Estimated Percentage of Work by Function Code	Lump Sum Amount Payable for Billed Deliverables	Cumulative Total By Function Code	Cumulative Percentage of Work by Function	Date Deliverables Submitted to the TxDOT PM (Deliverable subject to acceptance according to the terms of the contract.)	Provider Invoice Number	Provider Invoice Date (date submitted for payment)	Total Amount Billed (per line item)	
FC 100(110)	Preliminary Engineering	Data Collection, Design Criteria, Preliminary Cost Estimate, DCC, Geotech Borings			75.00%	\$10,968.87	\$10,968.87	75.00%				\$0.00	
FC 100(120)		Informal meetings, EP/C/S, ENV, Study Review, ENV, Exhibits, Cut & Fill Exhibits			0.00%	\$0.00	\$0.00	0.00%				\$0.00	
FC 100(130)		ROW Map Review and Evaluation, Utility Locations & layouts, Utility Coordination Meetings, Access Management			0.00%	\$0.00	\$0.00	0.00%				\$0.00	
FC 160(150)		Design Surveys, Horizontal & Vertical Control Sheets, Construction Surveys, DTM, Survey Notes & Sketches, Survey Data (AS/CII) Files, Utility Data & GPK Files			75.00%	\$77,909.88	\$77,909.88	75.00%				\$0.00	
FC 160(160)		Geometric Design, Roadway Design, Typical Sections, Interchange, Cross Street, Cut and Fill Quantities, Plan Preparation, Wetlands Information, Pedestrian and Bicycle Facilities			5.00%	\$3,541.82	\$3,541.82	5.00%				\$0.00	
FC 160(161)		Data Collection, Hydrologic Studies, Complex Hydraulic Design, Storm Drains, Cross-Drainage Structures, Temporary Drainage, Scour Analysis			20.00%	\$16,656.70	\$16,656.70	20.00%				\$0.00	
FC 160(162)		Signing, Pavement Markings, Traffic Warrant Studies, Traffic Signals (Permanent)			5.00%	\$2,898.06	\$2,898.06	5.00%				\$0.00	
FC 160(163)		Retaining Walls, Misc. Structures, Traffic Control Plans, Outbars, Sequence of Construction, Temp. Traffic Signals & Illumination, Illumination, SW/P, Quantities, Special Utility Details, Agreements, Contract Time Determination			5.00%	\$6,261.50	\$6,261.50	5.00%				\$0.00	
FC 145(145.164)		Monthly Progress Reports, Project Tracking, Coordinate Work with team members			5.00%	\$750.00	\$750.00	5.00%				\$0.00	
FC 160(170)		Bridge Layout, Bridge Detail Summary & Structural Details			5.00%	\$3,300.00	\$3,300.00	5.00%				\$0.00	
					Sub-Total	\$122,286.84	\$122,286.84	22.87%				\$0.00	
Function Codes		Deliverable Submittal	Summary of Activities and Deliverable Items			Percentage of Work by Function Code	Lump Sum Amount Payable for Billed Deliverables	Cumulative Total By Function Code	Cumulative Percentage of Work by Function	Date Deliverables Submitted to the TxDOT PM	Provider Invoice Number	Provider Invoice Date (date submitted for payment)	Total Amount Billed (per line item)
FC 100(110)		Progress Submittal	Data Collection, Design Criteria, Preliminary Cost Estimate, DCC, Geotech Borings			25.00%	\$3,652.25	\$14,626.16	100.00%				\$0.00
FC 100(120)			Informal meetings, EP/C/S, ENV, Study Review, ENV, Exhibits, Cut & Fill Exhibits			0.00%	\$0.00	\$0.00	0.00%				\$0.00
FC 100(130)			ROW Map Review and Evaluation, Utility Locations & layouts, Utility Coordination Meetings, Access Management			0.00%	\$0.00	\$0.00	0.00%				\$0.00
FC 160(150)	Design Surveys, Horizontal & Vertical Control Sheets, Construction Surveys, DTM, Survey Notes & Sketches, Survey Data (AS/CII) Files, Utility Data & GPK Files			25.00%	\$25,969.96	\$103,879.84	100.00%				\$0.00		
FC 160(160)	Geometric Design, Roadway Design, Typical Sections, Interchange, Cross Street, Cut and Fill Quantities, Plan Preparation, Wetlands Information, Pedestrian and Bicycle Facilities			5.00%	\$3,541.82	\$7,083.65	10.00%				\$0.00		
FC 160(161)	Data Collection, Hydrologic Studies, Complex Hydraulic Design, Storm Drains, Cross-Drainage Structures, Temporary Drainage, Scour Analysis			20.00%	\$16,656.70	\$33,313.42	40.00%				\$0.00		
FC 160(162)	Signing, Pavement Markings, Traffic Warrant Studies, Traffic Signals (Permanent)			5.00%	\$2,898.06	\$5,786.12	10.00%				\$0.00		
FC 160(163)	Retaining Walls, Misc. Structures, Traffic Control Plans, Outbars, Sequence of Construction, Temp. Traffic Signals & Illumination, Illumination, SW/P, Quantities, Special Utility Details, Agreements, Contract Time Determination			5.00%	\$6,261.50	\$12,423.00	10.00%				\$0.00		
FC 145(145.164)	Monthly Progress Reports, Project Tracking, Coordinate Work with team members			5.00%	\$750.00	\$13,600.00	10.00%				\$0.00		
FC 160(170)	Bridge Layout, Bridge Detail Summary & Structural Details			5.00%	\$3,300.00	\$6,600.00	10.00%				\$0.00		
					Sub-Total	\$65,054.94	\$186,921.17	84.21%				\$0.00	



Lump Sum Payment Schedule with Percentage Payments



The Engineer agrees to perform the services for a specific project for a fixed price (lump sum).



Payments are based on a percentage of the work complete.



A benefit it spaces out payment on larger projects to maintain a steady cashflow.



A drawback is monitoring progress to ensure that payments do not exceed the actual percentage of work complete.



Start Date

Δ Time

30% Plans – milestone date - \$amount

Δ Time

60% Plans – milestone date - \$amount

Δ Time

90% Plans – milestone date - \$amount

Δ Time

100% Plans – milestone date - \$amount

End date

The goal is to pay a percentage of the milestone, such as the 30% Plans, up to the that milestone date. So, if the there are 8 months to the 30% and the estimate for the 30% is \$500,000, then there would be 8 monthly payments of \$62,500. With each invoice there is to be submitted a monthly progress report (Article 4 of the contract)

Pilot Projects

PEPS Division currently piloting a Lump Sum Payment Schedule with the Austin District

Roll out this new Survey Payment schedule in the first quarter of 2025

PEPS Division to pilot a PS&E Lump Sum Payment Schedule with the Austin and Wichita Falls Districts (maybe Lufkin) in 2025

Proposed PS&E Lump Sum Payment Schedule for Pilot



Work Authorization Information			
PeopleSoft (PS)	XXXXX	WA Execution Date	9/23/2011
PS Work	3	WA Expiration Date	9/23/2023
# Months to	3	WA Payment Type(s) for this WA	SF, LS, CFFE, UC
Legacy Contract No.	36-3IDP1234	WA PM TxDOT	John Doe, P.E.
Prime Provider Name	XYZ Engineering		
Project Name	I-10 Pavement Rehabilitation		
Contract Expiration	9/23/2023	Begin Service Date	9/23/2018
Legacy WA No.	1	End Service Date	9/23/2023
WA Authorized Amt	\$2,000,000.00	WA Project Manager (Provider)	Jane Doe, P.E.
DBE/HUB Goal Assign	DBE	DBE/HUB Goal Assignment Contract %	24.10%

Percentage by Function Code - 30% Submittal					
Payments will be made according to the progress made through the month			Monthly payments are paid based on progress made on deliverables as indicated		
Function Codes	Milestone Stage	Summary of Activities, Tasks, and Deliverable Items	Percentage of Work to be Completed by Function Code (FC)	Amount for this Milestone	
FC 102(110)	30%	Data Collection, Design Criteria, Preliminary Cost Estimate, DCC, Geotech Borings	10.0%	\$60,000.00	
FC 120(120)		Informal meetings, EPICS, ENV. Study Review, ENV. Exhibits, Cut & Fill Exhibits	5.0%	\$30,000.00	
FC 130(130)		RDW Map Review and Evaluation, Utility Locations & layouts, Utility Coordination Meetings, Access Management	10.0%	\$60,000.00	
FC 160(150)		Design Surveys, Horizontal & Vertical Control Sheets, Construction Surveys, DTM, Survey Notes & Sketches, Survey Data (ASCII File), Utility Data & GPX Files	20.0%	\$120,000.00	
FC 160(160)		Geometric Design, Roadway Design, Typical Sections, Interchange, Cross Street, Cut and Fill Quantities, Plan Preparation, Wetlands Information, Pedestrian and Bicycle Facilities	20.0%	\$120,000.00	
FC 160(161)		Data Collection, Hydrologic Studies, Complex Hydraulic Design, Storm Drains, Cross-Drainage Structures, Temporary Drainage, Scour Analysis	5.0%	\$30,000.00	
FC 160(162)		Signing, Pavement Markings, Traffic Warrant Studies, Traffic Signals (Permanent)	5.0%	\$30,000.00	
FC 160(163)		Retaining Walls, Misc. Structures, Traffic Control Plans, Detours, Sequence of Construction, Temp. Traffic Signals & Illumination, Illumination, SV3P, Quantities, Special Utility Details, Agreements, Contract Time Determination	10.0%	\$60,000.00	
FC 145(145,164)		Monthly Progress Reports, Project Tracking, Coordinate Work with team members	5.0%	\$30,000.00	
FC 160(170)		Bridge Layout, Bridge Detail Summary & Structural Details	10.0%	\$60,000.00	
			<i>(Add or delete Function Codes applicable to specific project.)</i>		
				100%	\$600,000.00

30% Submittal Progress Invoice Summary							
Invoice No.	Function Code	% Completed this month by function code	% Remaining by function code	% Cumulative of completed work per FC	Amount previously billed	Amount to be invoiced	Amount remaining after invoice
1	FC 102(110)	30.0%	70.0%	30.0%	\$ -	\$ 18,000.00	\$ 42,000.00
	FC 120(120)	12.0%	88.0%	12.0%	\$ -	\$ 3,600.00	\$ 26,400.00
	FC 130(130)	13.0%	87.0%	13.0%	\$ -	\$ 7,800.00	\$ 52,200.00
	FC 160(150)	15.0%	85.0%	15.0%	\$ -	\$ 18,000.00	\$ 102,000.00
	FC 160(160)	36.0%	64.0%	36.0%	\$ -	\$ 43,200.00	\$ 76,800.00
	FC 160(161)	12.0%	88.0%	12.0%	\$ -	\$ 3,600.00	\$ 26,400.00
	FC 160(162)	25.0%	75.0%	25.0%	\$ -	\$ 7,500.00	\$ 22,500.00
	FC 160(163)	36.0%	64.0%	36.0%	\$ -	\$ 21,600.00	\$ 38,400.00
	FC 145(145,164)	15.0%	85.0%	15.0%	\$ -	\$ 4,500.00	\$ 25,500.00
	FC 160(170)	10.0%	90.0%	10.0%	\$ -	\$ 6,000.00	\$ 54,000.00
		Invoice Total	8.0%	92.0%	8.0%	\$ -	\$ 132,600.00

Questions and Discussion



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