Palmer ENGINEERING

September 5, 2017

Eric Pelfrey, P.E.
Director
Division of Professional Services
KY Transportation Cabinet
200 Mero Street
Frankfort, KY 40622

RE: Wilson Downing Sidewalks
Fayette County
Agreement No. 2016-02-2, Letter Agreement No. 5
Fee Proposal

Dear Mr. Pelfrey:

Attached is our negotiated fee for preparing plans for the West Loudon Improvements in Fayette County. This fee proposal under the Statewide LPA contract includes:

- Palmer Engineering Fee Proposal
- Proposed Man-Hour Worksheet
- Description of Project Units
- Negotiation Minutes

Our proposed schedule and milestone dates for this modification include:

Preliminary Plan Review	December 1, 2017	60 percent
Final Plan Review	April 15, 2018	90 percent
Proposal Plans for Letting	May 15, 2018	100 percent

Please contact us at your earliest convenience if you have questions or need additional information.

Sincerely,

Stephen Sewell, PE, PTOE
Project Manager

Attachments

Minutes of Negotiations Meeting
September 5, 2017

Fayette County
Wilson Downing Sidewalks
Item No. 7-3203.00

Participants:

1. Mark Feibes – LFUCG
2. Brad Frazier – KYTC Central
3. Shane Tucker – KYTC D-7
4. Stephen Sewell - Palmer Engineering Company

Palmer Engineering submitted man-hours for the development of Wilson Downing Sidewalks Improvements in Fayette County on August 18, 2017.

The consultant originally proposed the following man-hours on August 18, 2017:

Survey	127 hours
Line and Grade	115 hours
Utility Coordination	4 hours
Right of Way Plans	39 hours
Final Plans	341 hours
Meetings	29 hours
Public Involvement	8 hours
Total Proposed	663 hours

On September 1, 2017, the hours were accepted by KYTC. The following man-hours were accepted by Palmer Engineering:

Survey	127 hours
Line and Grade	115 hours
Utility Coordination	4 hours
Right of Way Plans	39 hours
Final Plans	341 hours
Meetings	29 hours
Public Involvement	8 hours
Total Proposed	663 hours

1. Proposed Fee: $ 99,953.00

2. TIME OF COMPLETION

Preliminary Plan Review	December 1, 2017
Final Plan Review	April 15, 2018
Proposal Plans for Letting	May 15, 2018

3. PERCENTAGE OF PAYMENT

Preliminary Plan Review	60 Percent
Final Plan Review	90 Percent
Proposal Plans for Letting	100 Percent

DEPARTMENT OF HIGHWAYS	PALMER ENGINEERING COMPANY
DATE	September 5, 2017 DATE

KENTUCKY TRANSPORTATION CABINET
Department of Highways
DIVISION OF PROFESSIONAL SERVICES

TC 40-2
Rev. 03/2017
Page 1 of 1

ENGINEERING AND RELATED SERVICES FEE PROPOSAL

SECTION 1: PROJECT INFORMATION

DATE:	September 5, 2017	**COUNTY:**	Fayette	**ITEM #:**	N/A
PROJECT:	Wilson Downing Sidewalk				

SECTION 2: BUDGET INFORMATION

FEE CONSIDERATIONS	PROPOSED MAN HOURS	NEGOTIATED MAN HOURS	AVERAGE RATE	ESTIMATED COST
A. SURVEY	127	127	$44.36	$ 5,634
B. PRELIMINARY LINE AND GRADE	115	115	$43.64	$ 5,019
C. UTILITY RELOCATION COORDINATION	4	4	$43.64	$ 175
D. RIGHT OF WAY PLANS	39	39	$43.64	$ 1,702
E. FINAL PLANS	341	341	$43.64	$ 14,881
F. MEETINGS	29	29	$55.16	$ 1,600
G. PUBLIC INVOLVEMENT	8	8	$55.16	$ 441
				$ -
				$ -
				$ -
TOTAL PRODUCTION HOURS	663	663	$ 44.42	
			TOTAL DIRECT PAYROLL	$ 29,452
			OVERHEAD (175.76% **)**	$ 51,765
			PROFIT (15.00% **)**	$ 12,183
			COST OF MONEY (0.52% **)**	$ 153

DIRECT COSTS	AMOUNT
See Attached	$6,400
TOTAL DIRECT COSTS	$ 6,400

SUBCONSULTANTS	AMOUNT
TOTAL SUBCONSULTANTS	$ -
TOTAL PROPOSED FEE	$ 99,953

SECTION 3: SIGNATURE

FIRM NAME: Palmer Engineering **SIGNED BY:** Stephen Sewell

CONSULTANT SIGNATURE	TITLE	DATE
	Vice President	9-5-2017
PROFESSIONAL SERVICES SIGNATURE	**TITLE**	**DATE**

PRODUCTION-HOUR WORKSHEET (revised 7/14)

COUNTY	Fayette	PROJECT TYPE		
ROUTE	Wilson Downing	CONSULTANT		PALMER
DESC	Wilson Downing Sidewalk	REVIEWED BY		
		PREPARED BY		SDS
ITEM NO.		DATE		

SURVEY

No.	ITEM	CREW	UNIT		HRS/UNIT	
	RECONNAISSANCE					
1	Control - (existing)	1	Mile	1.1	4	4
2	Utilities - (data gathering, identification & contact)	1	No.	6	1	6
3	Drainage - (sink holes, streams, pipes, etc.)	1	Mile	1.1	4	4
	CONTROL					
4	Horizontal	2	Mile	1.1	8	18
5	Vertical	2	Mile	1.1	8	18
6	Process data	1	Mile	1.1	8	9
	PLANIMETRIC SURVEY					
7	Planimetric location *(complete)*	2	Mile	1.1	8	18
8	Subsurface Utility Engineering, Quality Levels C & D	1	Mile	1.1	8	9
9	Subsurface Utility Engineering, Quality Level B	1	LS			0
10	Subsurface Utility Engineering, Quality Level A	1	LS			0
11	Process data	1	Mile			0
	TERRAIN SURVEY					
12	DTM data collection *(Items 11-18 not required if used)*	2	Acre	4	4	32
13	Verify terrain model accuracy	2	Mile			0
14	Tie-ins	2	No.			0
15	Drainage situations survey (Bridge)	2	No.			0
16	Drainage situations survey (Culvert)	2	No.			0
17	Drainage pipe section (non-situation size)	2	No.			0
18	Flood plain data	2	No.			0
19	Railroad Surveys	2	No.			0
20	Additional necessary DTM data *(specify pickup or update)*	2	Acre			0
21	Process data	1	Mile	1.1	4	4
	ESTABLISH PROPERTY LINES & OWNERSHIP					
22	Contact & Interview Property Owners	1	Parcel			0
23	Field tie property lines/corners	1	Parcel	10	0.5	5
	STAKING					
24	Stake centerlines, approaches, detours	2	Mile			0
25	Stake core holes - structures *(unit is per structure)*	2	No.			0
26	Stake core holes - roadway *(unit is per core hole)*	2	No.			0
	SURVEY MISCELLANEOUS					
27	Determine roadway elevations (Crown and EP)	2	Mile			0
28	Environmental areas	2	No.			0
29						0
	SURVEY TOTAL					**127**

PRODUCTION-HOUR WORKSHEET (revised 7/14)

COUNTY	Fayette	PROJECT TYPE		
ROUTE	Wilson Downing	CONSULTANT		PALMER
DESC	Wilson Downing Sidewalk	REVIEWED BY		
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ITEM NO.		DATE		

PRELIMINARY LINE AND GRADE

No.	ITEM	UNIT		HRS/UNIT	
30	Computer setup	LS	1	2	2
31	Prepare existing manuscripts	Mile			0
32	Establish approximate property lines and ownership	Parcel		0.5	0
33	Study and develop typical sections	No.	1	2	2
34	Study and develop horizontal alignments	Mile	1.1	20	22
35	Study and develop vertical alignments	Mile	1.1	20	22
36	Create and evaluate proposed roadway models	Mile	1.1	40	44
37	Design entrances/Tie-ins	No.	12	0.5	6
38	Pre-size pipes (all alternates)	No.	10	0.5	5
39	Pre-size culverts (all alternates)	No.			0
40	Pre-size bridges (all alternates)	No.			0
41a	Conduct Traffic Engineering Analysis (Basic; HCM Procedures)	Int			0
41b	Conduct Traffic Engineering Analysis (Advanced; Micro-simulation)	Int			0
42	Study and development of interchange	No.			0
43	Study and development of intersection	No.			0
44	Study and develop maintenance of traffic plan	LS			0
45	Plot/print copies of plans for team meeting and inspections	LS	1	4	4
46	Calculate preliminary quantities and develop cost estimates	Alt.	1	8	8
47	Revise plans and estimates	LS			0
48	Preliminary Right of Way with taking areas	Parcel			0
49	Prepare Design Executive Summary	LS			0
50	Develop/document "Avoidance Alternatives to Water Related Impacts	LS			0
	PRELIMINARY LINE & GRADE MISCELLANEOUS				
51					0
52					0
53					0
54					0
55					0
	PRELIMINARY LINE AND GRADE TOTAL				**115**

PRODUCTION-HOUR WORKSHEET (revised 7/14)

COUNTY	Fayette	PROJECT TYPE		
ROUTE	Wilson Downing	CONSULTANT		PALMER
DESC	Wilson Downing Sidewalk	REVIEWED BY		
		PREPARED BY		SDS
ITEM NO.		DATE		

UTILITY COORDINATION

No.	ITEM	PERSONS	UNIT		HRS/UNIT	
56	Utility Coordination Meeting	1	No.	2	2	4
57	Develop Utility Relocation Layout Sheets (1"=200')		Mile			0
58	Develop Utility Relocation Plans (1"=50')		Mile			0
	UTILITY COORDINATION MISCELLANEOUS					
59						
	UTILITY COORDINATION TOTAL					**4**

RIGHT OF WAY PLANS

No.	ITEM		UNIT		HRS/UNIT	
60	Deed research		Parcel		0.5	0
61	Establish property and ownership		Parcel		0.5	0
62	Calculate Right of Way		Parcel	5	1	5
63	Prepare legal descriptions		Parcel	5	1	5
64	Complete Right of Way summary sheet		Parcel	5	1	5
65	Generate Right of Way strip map *(scale 1" = 200')*		Sheet	2	4	8
66	Prepare Right of Way Plans Submittal		LS	1	4	4
67	Right of Way revisions after Right of Way submittal		LS			0
68	Deed Research for Existing Alignments		LS			0
69	Deed Research for Existing Parcels		Parcel			0
70	Prepare Legal Descriptions for Right of Way transfer		Parcel			0
	R/W PLANS MISCELLANEOUS					
71	Plat Development			3	4	12
72						0
	RIGHT OF WAY PLANS TOTAL					**39**

PRODUCTION-HOUR WORKSHEET (revised 7/14)

COUNTY	Fayette		PROJECT TYPE		
ROUTE	Wilson Downing		CONSULTANT		PALMER
DESC	Wilson Downing Sidewalk		REVIEWED BY		
			PREPARED BY		SDS
ITEM NO.			DATE		

FINAL PLAN PREPARATION

No.	ITEM		UNIT		HRS/UNIT	
80	Computer setup		LS	1	2	2
81	Update existing topography and terrain model		Mile			0
82	Refine alignments (horizontal & vertical)		Mile	1.1	8	9
83	Develop pavement design		No.			0
84	Finalize templates & transitions		No.			0
85	Develop final roadway model		Mile	1.1	40	44
86	Develop proposed design		Mile	1.1	40	44
87	Generate plan sheets *(scale 1" = 20')*		Sheet	7	4	28
88	Generate profile sheets *(scale 1" = 20')*		Sheet	7	4	28
89	Detail cross sections *(scale 1" = 5')*		No.	120	0.5	60
90	Design entrances		No.	12	1	12
91	Revise roadway plans from soils report		Mile			0
	DRAINAGE					
92	Develop pipe sections (< 54")		No.	5	2	10
93	Develop drainage system map		Mile	1.1	8	9
94	Develop drainage situation (bridge)		No.			0
95	Develop drainage situation (culvert)		No.			0
96	Develop blue line stream channel change (=> 200')		No.			0
97	Drainage analysis (entrance pipes)		No.			0
98	Drainage analysis (A < = 200 acres)		No.	5	2	10
99	Drainage analysis (200 acres < A < 1.0 sq. mile)		No.			0
100	Drainage analysis (A = > 1.0 sq. mile) level 1 analysis		No.			0
101	Drainage analysis (A = > 1.0 sq. mile) level 2 analysis		No.			0
102	Drainage analysis (A = > 1.0 sq. mile) level 3 analysis		No.			0
103	Special drainage studies		No.			0
104	Roadway ditches and channels		Mile			0
105	Develop Erosion Control Plan		Mile	1.1	8	9
106	Inlet spacing calculations		No.		1	0
107	Storm sewers calculations		No.		1	0
108	Perform scour analysis		No.			0
109	Assemble preliminary and final drainage folders		LS			0
110	Prepare advanced situation folder - bridge		No.			0
111	Prepare advanced situation folder - culvert		No.			0
	DRAINAGE MISCELLANEOUS					
112						0
113						0
114						0
115						0

PRODUCTION-HOUR WORKSHEET (revised 7/14)

COUNTY	Fayette	PROJECT TYPE		
ROUTE	Wilson Downing	CONSULTANT		PALMER
DESC	Wilson Downing Sidewalk	REVIEWED BY		
		PREPARED BY		SDS
ITEM NO.		DATE		

FINAL PLAN PREPARATION (Continued)

No.	ITEM		UNIT		HRS/UNIT	
116	Prepare layout sheet		LS	1	2	2
117	Prepare typical sections		No.	1	2	2
118	Prepare Interchange geometric approval		No.			0
119	Prepare intersection geometric approval		No.			0
120	Prepare coordinate control sheet		Mile	1.1	4	4
121	Prepare elevation developments		No.			0
122	Prepare striping plan		Sheet			0
123	Calculate final quantities		Mile	1.1	12	13
124	Complete general summary		LS	1	4	4
125	Complete paving summary		LS			0
126	Complete drainage summary		LS	1	4	4
127	Complete pavement under-drain summary		LS			0
128	Prepare cost estimate		LS	1	4	4
129	Plot/print copies of plans		LS	1	4	4
130	Plan revisions		Mile	1.1	12	13
131	Prepare final construction plans submittal		LS	1	4	4
	MAINTENANCE OF TRAFFIC					
132	Write maintenance of traffic notes (TCP)		LS	1	6	6
133	Prepare construction phasing plans *(traffic control detail sheets)*		Sheet			0
134	Develop diversion plan sheets		Sheet			0
135	Develop diversion profile sheets		Sheet			0
136	Develop diversion cross sections		No.			0
137	Develop temporary drainage		No.			0
	FINAL PLANS MISCELLANEOUS					
138	Prepare bid submittal documents (LDRC, PDC, Specs)		LS	1	16	16
139						0
140						0
141						0
142						0
143						0
	FINAL PLANS TOTAL					**341**

PRODUCTION-HOUR WORKSHEET (revised 7/14)

COUNTY	Fayette		PROJECT TYPE		
ROUTE	Wilson Downing		CONSULTANT		PALMER
DESC	Wilson Downing Sidewalk		REVIEWED BY		
			PREPARED BY		SDS
ITEM NO.			DATE		

MEETINGS

No.	ITEM	PERSONS	UNIT		HRS/UNIT	
150	Prelim. line and grade inspection	2	No.	1	4	8
151	Drainage inspection	2	No.			0
152	Final inspection	2	No.	2	4	16
153	Misc. project coordination meetings	1	No.	5	1	5
154	Project team meetings	2	No.			0
	MEETINGS MISCELLANEOUS					
155	Value Engineering Study		LS			0
156	Constructability Review		LS			0
	MEETINGS TOTAL					**29**

PUBLIC INVOLVEMENT

No.	ITEM	PERSONS	UNIT		HRS/UNIT	
160	Develop and Maintain Mailing List		LS			0
161	Prepare for Advisory Committee/Officials Meeting	1	No.			0
162	Attend Advisory Committee/Officials Meeting	3	No.			0
163	Prepare for Public Meetings/Hearings		No.			0
164	Attend Public Meetings/Hearings	4	No.			0
165	Prepare and Distribute Newsletter		No.			0
166	Property owner coordination		No.			0
	PUBLIC INVOLVEMENT MISCELLANEOUS					
167	Individual meetings with stakeholders (schools, businesses, etc.)			5	1.5	8
168						0
169						0
	PUBLIC INVOLVEMENT TOTAL					**8**

QA/QC

No.	ITEM		UNIT		HRS/UNIT	
180	Plan review		sheet			0
181	Structure review		sheet			0
	QA/QC TOTAL					**0**

PRODUCTION-HOUR WORKSHEET (revised 7/14)

COUNTY	Fayette		PROJECT TYPE		
ROUTE	Wilson Downing		CONSULTANT		PALMER
DESC	Wilson Downing Sidewalk		REVIEWED BY		
			PREPARED BY		SDS
ITEM NO.			DATE		

PRODUCTION-HOUR SUMMARY

SURVEY TOTAL					**127**
LINE AND GRADE TOTAL					**115**
UTILITY COORDINATION TOTAL					**4**
RIGHT OF WAY PLANS TOTAL					**39**
FINAL PLANS TOTAL					**341**
MEETINGS TOTAL					**29**
PUBLIC INVOLVEMENT TOTAL					**8**
QA/QC TOTAL					**0**
GRAND TOTAL					**663**

CLASSIFICATIONS AND PERCENTAGES FOR DESIGN
PALMER ENGINEERING COMPANY

COUNTY Fayette
PROJECT Wilson Downing
UPN
FED. NO.
ITEM NO.

Escalation: Begin 6/27/2017
End 4/15/2018
rate = 0.82% midpoint: 11/20/2017
period = 0.4
factor = 0.0033 calculated by (1.05^0.8-1)

* effective 7/5/2017

POSITION	Avg. Rate	Escalated Rate	Survey Item 1A	Preliminary Line and Grade Item 1B	Utility Relocation Coordination Item 1C	Right of Way Plans Item 1D	Final Plans Item 1E	Meetings Item 1F	Public Involvement Item 1G
Principal	$104.45	$104.79	5%	5%	5%	5%	5%	10%	10%
Project Manager	$63.81	$64.02	0%	20%	20%	20%	20%	20%	20%
Professional Sr Engineer	$56.73	$56.92	0%	10%	10%	10%	10%	30%	30%
Professional Engineer	$36.88	$37.00	0%	30%	30%	30%	30%	40%	40%
EIT	$28.75	$28.84	0%	15%	15%	15%	15%	0%	0%
Engineer Tech II	$44.64	$44.79	10%	10%	10%	10%	10%	0%	0%
Survey Crew: (2-man)	$40.63	$40.76	85%	0%	0%	0%	0%	0%	0%
Party Chief $45.75									
Instrumentman $35.50									
TOTAL			**$44.36**	**$43.64**	**$43.64**	**$43.64**	**$43.64**	**$55.16**	**$55.16**

Direct Cost Summary
Palmer Engineering Company

Item	Amount	Unit	Unit Cost	Cost	Totals
SURVEY					$640
Mileage - 4 wheel drive					
6 round trips @ 40 miles	240	mi	$0.53	$127	
meals		days	$30.00	$0	
lodging		nights	$85.00	$0	
computer time @ 10%	13	hours	$15.00	$195	
travel time (6 trips @ x1 hours each)	6	hours	$52.99	$318	
(Ave. Rate $40.76 x 1.3 = $52.99 / hour)					
PRELIMINARY LINE AND GRADE					$1,315
Mileage 0 round trips @ 20 miles		mi	$0.47	$0	
Printing / Copies					
printing	25	prints	$1.00	$25	
computer time @ 75%	86	hours	$15.00	$1,290	
UTILITY COORDINATION					$45
Mileage 0 round trips @ 20 miles		mi	$0.47	$0	
Printing / Copies					
printing		prints	$1.00	$0	
computer time @ 75%	3	hours	$15.00	$45	
RIGHT OF WAY PLANS					$460
Mileage 0 round trips @ 20 miles		mi	$0.47	$0	
Copies / Printing					
printing	25	prints	$1.00	$25	
computer time @ 75%	29	hours	$15.00	$435	
FINAL PLANS					$3,865
Mileage 0 round trips @ 60 miles		mi	$0.47	$0	
Printing / Copies					
printing	25	prints	$1.00	$25	
computer time @ 75%	256	hours	$15.00	$3,840	
MEETINGS					$45
Mileage 0 round trips @ 10 miles		mi	$0.47	$0	
computer time @ 10%	3	hours	$15.00	$45	
PUBLIC INVOLVEMENT					$30
Mileage 0 round trips @ 10 miles		mi	$0.47	$0	
computer time @ 25%	2	hours	$15.00	$30	
					$6,400

DESCRIPTION OF ITEMS
PRODUCTION-HOUR WORKSHEET

(revised December 11, 2012)

SURVEY

Total Length **5550 LF = 1.1 miles**

RECONNAISSANCE

1 **Control (existing)**

A field and record search for any existing control that may be utilized, including controls established for aerial photogrammetry. Sources of any existing control need to be identified.

1.1 Miles

2 **Utilities (data gathering, identification & contact)**

Identify all utility companies within the project corridor and maintain a valid contact list of those utility companies and their representatives. Contact utility companies, Kentucky 811, KYTC District Utilities Staff and any other sources for utility facility mapping or other information concerning the location of any utilities. Check with local governments for GIS databases and for other sources of information.

6 Utilities

3 **Drainage - (sink holes, streams, pipes, etc.)**

Identify drainage features that may require consideration in design and that are necessary to be documented on the plans.

1.1 Miles

CONTROL

4 **Horizontal**

Establish any new or additional horizontal coordinate control including the monumentation. All control information, including pre-established, shall be documented in a survey report and submitted to the KYTC Project Manager. All horizontal control obtained from Global Positions Systems (GPS) shall comply with the **Geometric Geodetic Accuracy Standards and Specifications for using GPS Relative Positioning Techniques** published by the Federal Geodetic Control Subcommittee dated August 1, 1989. Additional control points set shall be a minimum of 24-inch rebar (#4 or larger) with a plastic or aluminum cap.

1.1 Miles

5 **Vertical**

Establish any new or additional vertical control, including benchmarks, and including the monumentation. All control information, including pre-established, shall be documented in a survey report and submitted to the KYTC Project Manager. All vertical control obtained from Global Positions Systems (GPS) shall comply with the **Geometric Geodetic Accuracy Standards and Specifications for using GPS Relative Positioning Techniques** published by the Federal Geodetic Control Subcommittee dated August 1, 1989.

1.1 Miles

Note: The Department, through its photogrammetry consultant, will provide horizontal and vertical controls to NGS (National Geodetic Survey) bench marks. Intermediate controls set by the Consultant shall be

tied to the controls provided by the Department. This work is only necessary if the project was not flown or if insufficient controls were established with the aerial photogrammetry. It is expected that with this item of work, any existing controls would be checked for accuracy.

6 Process data

Process data obtained from field survey and check for accuracy and closure. Preparation of survey report of coordinate controls and bench marks.

Note: A complete coordinate control report including existing and new control point information, with traverse information confirming coordinate control accuracy and a bench level report shall be prepared and submitted to the KYTC Project Manager.

1.1 Miles

PLANIMETRIC SURVEY

7 Planimetric location

Locate and/or identify all necessary planimetric features. On projects with aerial photogrammetry available this would require only identification of planimetric features and pick-up of areas not covered by the available photogrammetry, if required. For Phase 2 design this would be for the update of the topography due to new or changed planimetric features since the original survey or aerial photogrammetry was obtained. It should be noted on the production-hour form the extent of work required, for example, complete, pick-up or update.

1.1 Miles

8 Subsurface Utility Engineering, Quality Level C & D

Apply reconnaissance utility data gathered to locate utility facilities on plans. Gather a survey of all visible utility facility features (i.e. poles, valves, manholes, markers, etc.) and provide them on the plans. Utilize both the reconnaissance data and field generated data to assess the approximate location of the utility facilities within the project corridor. This data shall be used to identify potential conflicts between the project and the existing facilities.

1.1 Miles

9 Subsurface Utility Engineering, Quality Level B

Identify specific locations where the road project potentially may conflict with the existing utility facilities and a more precise location of the utility is needed. Quality Level B location is valid if precision is needed to validate the conflict, confirm the facility may remain in situ, or design to avoidance. The Quality Level B location shall be a non-excavation field procedure using surface locating technologies and shall provide a more precise location of the facility without providing elevations. The consultant shall denote the Quality Level B location on the plans and use this information to avoid the facility or establish a plan for relocation as appropriate.

10 Subsurface Utility Engineering, Quality Level A

Identify specific locations where the exact location of the utility is needed. A Quality Level A location is valid if a precise elevation is needed to validate the conflict, confirm the facility may remain in situ, or design to avoidance. For those locations, validate the Quality Level B location, confirm facility type, size, and provide elevations via vacuum excavation or other valid means. The consultant shall communicate with the utility company, providing the utility to be present during the facility location when necessary. The consultant shall denote the Quality Level A location on the plans and use this information to avoid the facility or establish a plan for relocation as appropriate.

11 Process data
Process all necessary data to produce a planimetric map and submit electronic files to the designer.

TERRAIN SURVEY

12 DTM data collection
Collect general terrain data for project (when general terrain data is not already available).
Note: Items 11-18 should not be required if general terrain data is to be collected.
4 acres (LIDAR DATA TO SUPPLEMENT)

13 Verify terrain model accuracy
Check for accuracy of breaklines, random points, contours, etc., including terrain model obtained from aerial photogrammetry.
Note: The density of points taken in the field to check the DTM will be determined at the Predesign Conference.

14 Tie-ins
Field verification of all field data necessary for tying of project to existing features pavements etc. Include all road approaches. Entrances are not generally required and will only be performed if specifically directed by the KYTC Project Manager.

15 Drainage situation survey (Bridge)
Obtain all necessary field data to represent situation survey for bridges, including stream profile and necessary terrain data to merge into the existing terrain model.

16 Drainage situation survey (Culvert)
Obtain all necessary field data to represent situation survey for culverts.

17 Drainage pipe section (non-situation size)
Obtain all necessary field data to define the accuracy of the existing flowlines and inlet and outlet location and elevations of cross drains.
*Note: Does **not** include entrance pipes.*

18 Flood plain data
Collect field data necessary for flood plain analysis.

19 Railroad Surveys
Obtain all necessary terrain data to represent railroad survey (top of rail, ballast, ditches, fills, cuts, RR milepost, etc.).

20 Additional necessary DTM data
Collect other necessary data to produce an accurate digital terrain model (obscured areas, field checked areas, areas needing greater accuracy, etc.).

21 Process data
Process all pertinent data necessary to generate digital terrain models and submit electronic files to the designer.
1.1 Miles

ESTABLISH PROPERTY LINES & OWNERSHIP

22 Contact & Interview Property Owners
Contact property owners requesting permission for access and discuss general scope of project, locations of property lines, septic system, drainage and any other pertinent information. A report

is to be generated with a copy of the contact letter and all completed contact information forms from property owners, upon request.

Note: The contact letter and information form is to be reviewed and approved by the KYTC Project Manager prior to contacting the property owners. The contact letter shall include the name of a person from the consultant that may be contacted in case of problems and the KYTC Project Manager.

23 Field tie property lines/corners

Locate all monuments (rebars, pins, etc.) and other evidence of property lines (fences, tree lines, drains, etc.).

10 Parcels

STAKING

24 Stake centerlines, approaches, detours

Accurately stake centerline at intervals determined at the Predesign Conference and process data.

25 Stake core holes - structures

Stake or locate all geotechnical borings required for structural design and process data.

NOTE: The unit is per individual structure, NOT per hole.

26 Stake core holes - roadway

Stake or locate all geotechnical borings required for geotechnical soil/rock analysis and process data.

NOTE: The unit is per individual core hole.

SURVEY MISCELLANEOUS

27 Determine Roadway Elevations (Crown and EP)

This would be necessary on widening and overlay projects where the terrain model is developed from aerial photogrammetry and accurate pavement elevations are required and includes processing data.

NOTE: Unit is per mile of individual roadway sections.

28 Environmental areas

Locate and identify areas and feature that may be considered environmental issues and includes processing data.

29 Reserved for additional miscellaneous survey items required

PRELIMINARY LINE AND GRADE

30 Computer setup

Load and organize project data (manuscripts, mapping, ortho-rectified photographs, etc.) into computer system, the establishment and maintenance of a file management system for project data, including the storage and manipulation of all project files required for plan development.

1 LS

31 Prepare existing manuscripts

Reviewing existing manuscript, if provided from aerial photogrammetry, and modifying any items that need to be corrected in order to conform to current KYTC CADD standards. Incorporate any additional topography picked up by field survey. Depict locations of all existing utility facilities. Manipulation/addition of text and notes identifying topography, planimetrics, drainage structures and utilities. Addresses shall be shown for all parcels, if requested.

32 Establish approximate property lines and ownership

Using field evidence and research documentation, such as plats and PVA records, establish approximate existing right of way and property lines and denote the property ownership, parcel numbers and lines on the plans

33 Study and develop typical sections

Study, develop, and document all necessary typical sections (including alternatives) for the mainline and all other roadways, including creating the Inroads roadway templates for each roadway.

1

34 Study and develop horizontal alignments

Study, develop and document the alternate horizontal alignments including approaches. Generate the necessary graphics depicting the proposed alternative, including disturbed limits, drainage structures, etc.

1.1 Miles

35 Study and develop vertical alignments

Study, develop and document the vertical alignments for each horizontal alignment including approaches and entrances.

1.1 Miles

36 Create and evaluate proposed roadway models

Create, review, modify and finalize the proposed roadway model for each roadway and alternative, including creating the required cut/fill to create the roadway model. Includes depiction of critical cross sections, as discussed in the Predesign Conference.

Note: This would include the various iterations and adjustments required to complete an alternative due to earthwork balancing, intersection sight distance and alignment refinement.

1.1 Miles

37 Design entrances

Determine approximate location, grade, width and type of entrance and depict on the plans of the preliminary alternatives.

12

38 Pre-size pipes

Determine preliminary diameter, length, and end treatment for each drainage pipe.

10

39 Pre-size culverts

Determine preliminary size, length, and end treatment for each culvert.

40 Pre-size bridges

Determine preliminary size (deck width, span arrangement, hydraulic openings, and/or clearances) for each bridge.

41a Conduct Traffic Engineering Analysis (Basic; Highway Capacity Manual Procedures)

Conduct and document traffic engineering analysis for each roadway section and each major intersection, using the appropriate Highway Capacity Manual/Highway Capacity (HCM/HCS) procedures. This analysis will determine the appropriate lane configuration to meet the desired performance of the roadway. Production hours will be based on the number of intersections for the project. Roadway lengths between intersections will be considered incidental to the overall analysis.

Note: Number of major intersections to be analyzed, along with appropriate analysis scenarios and roadway sections will be determined and documented at the Predesign Conference.

41b Conduct Traffic Engineering Analysis (Advanced; Micro-simulation)

Conduct and document traffic engineering analysis for each roadway section and each major intersection, using micro-simulation. This analysis will evaluate the ability of the project to operate as a comprehensive system. Production hours will be based on the number of major intersections on the project. Analysis should account for roadway lengths and minor intersections along the approaches to the major intersections.

Note: Major intersections to be analyzed, along with appropriate analysis scenarios and roadway sections will be determined and documented at the Predesign Conference.

42 Study and development of interchange

Study, develop and document preliminary interchange layouts including capacity analysis for weaving areas and merge/diverge.

Note: The specific scope of work and methodology of analysis will be determined at the Predesign Conference.

43 Study and development of intersection

Study, develop and document preliminary intersection layouts including appropriate capacity analysis, if required, for each intersection. Intersections to be studied will be identified in the Predesign Conference.

Note: The specific scope of work and methodology of analysis will be determined at the Predesign Conference.

44 Study and develop maintenance of traffic plan

Study, develop and document alternative traffic control plans including construction phasing and/or detour routes.

45 Plot/print plans for meetings and inspections

Plot and/or print plans, profiles, drawing, cross sections, schematics, etc. for meetings, inspections or upon request.

Note: The number of sets of prints for meetings and inspections shall be determined at the Predesign Conference.

1 LS

46 Calculate preliminary quantities and develop cost estimates

Develop and document cost estimates for each alternate, including calculating preliminary quantities for each alternative. Includes development of a preliminary pavement design, to be reviewed by the KYTC Project Manager, to use in calculating preliminary pavement quantities. This should include estimating utility relocations costs as a result of the highway project and examination of those costs relative to the road construction costs.

1 ALT

47 Revise plans and estimates

Revise plans and estimates as directed from reviews and inspections. Upon completion of the Preliminary Line and Grade Inspection, the Consultant shall incorporate all significant comments into the preliminary plans and submit the revised plans and electronic files to the KYTC Project Manager.

48 Preliminary Right of Way with taking areas

Layout preliminary Right of Way and calculate approximate Right of Way taking areas from each parcel, for each alternate. Document the areas of taking for each alternate and depict the preliminary Right of Way and easements on the plans.

49 Prepare Design Executive Summary

Prepare and submit Design Executive Summary, including all necessary documentation, location map, typicals, etc.

50 Develop/document "Avoidance Alternatives to Water Related Impacts"

Prepare documentation concerning all blue line streams as denoted on topographic quad maps.

51-55 Reserved for additional miscellaneous PL&G items required

UTILITY COORDINATION

56 Utility Coordination Meeting

Hold a Utility Coordination Meeting for all utility companies identified within the project corridor, KYTC utility and design staff. The intent of this type of meeting is to identify critical conflicts and easement needs, discuss avoidance possibilities, consider relocation placements and costs, phasing and schedule, and identify Quality Level A or Quality Level B location needs. This meeting shall take place prior to the joint inspection but for complex projects and projects with a prevalence of utilities, it is recommended to hold at least two meetings.

2 Meeting

57 Develop Utility Relocation Layout Sheets (1"=200')

Develop preliminary relocation layout sheets that show all existing utility facilities, locations of Quality Level A and Quality Level B subsurface utility engineering information, identified conflicts with the project, and proposed relocation alignments.

58 Develop Utility Relocation Plans (1"=50')

Develop utility relocation plans for utilities that have agreed to have KYTC's consultant perform relocation design services. These plans shall provide a detailed horizontal and vertical alignment of the facilities to be relocated. Plan sheets, profile sheets, and cross sections shall be required. Plans shall adhere to the utility company's standards and specifications.

59 Reserved for additional miscellaneous Utility Coordination items required.

RIGHT OF WAY

60 Deed research

Research of all documents necessary to determine property lines, existing easements, encumbrances and ownership including a copy of the deed with deed book and page number and available plats.

LFUCG TO PREFORM

61 Establish property and ownership

Using field evidence and research documentation to accurately establish property lines, existing Right of Way, existing easements, owner names, lessee names, and parcel numbers. Document on plans.

LFUCG TO PREFORM

62 Calculate Right of Way

Calculate lines and areas of all proposed right of way and easement takings for each parcel.

Depict all right of way and easements, including metes and bounds, on plans.
5 Parcels

63 Prepare legal descriptions
Prepare and check legal descriptions for each area of taking.
5 Parcels

64 Prepare Right of Way summary sheet
Complete Right of Way summary sheet including all affected parcels.
5 Parcels

65 Generate Right of Way strip map
Prepare Right of Way strip map covering all affected parcels. Generate individual strip map sheets.
2 Sheet

66 Prepare Right of Way Plans Submittal
Generate the computer files of the Right of Way plans, plot the original mylars, prepare electronic submittal of plans and deeds and submit plans, computer files, source deeds and proposed deed descriptions to the District Office. Detour runarounds or other maintenance of traffic plans that have impacts to the right of way or utilities shall be included in the Right of Way plans. A set of prints of drainage and cross sections may also be required to be included in the submittal.
Note: A set of prints is to be submitted to the KYTC Project Manager for review prior to submittal of Right of Way plans, if requested.
1 Lump Sum

67 Right of Way revisions after Right of Way submittal
Prepare Right of Way plan revisions as necessary. Post Right of Way Plan submittal and prior to the final construction plan submittal. Includes re-submittal of revised plans (mylars), 1 set of prints with changes marked in red, plats, deed descriptions and electronic files.

68 Deed Research for Existing Alignments
Research to see if any back source deeds exist on existing alignments which will not be reconstructed and are not included in Line 60.

69 Deed Research for Existing Parcels
Investigate old recorded deeds that exist and perform actual research for each parcel necessary to determine property lines, existing easements, encumbrances and ownership including a copy of the deed with deed book and page number and available plats, if any.

70 Prepare Legal Descriptions for Right of Way Transfer
Prepare legal deed descriptions for each parcel to be transferred to local government responsibility.

71-74 Reserved for additional miscellaneous Right of Way items required

71 Prepare Plats for LFUCG Permanent Right of Way
Prepare Plats for ROW acquisition
3 Parcels

FINAL PLAN PREPARATION

80 Computer setup

Load and organize electronic data files (manuscripts, centerline data, coordinates data, terrain models etc.).

Note: In most cases much of this work was completed in Phase 1.

1 Lump Sum

81 Update existing topography and terrain model

Using updated field data, modify and update the existing topography and terrain model.

82 Refine alignments (horizontal & vertical)

Refine, adjust, and document the preferred horizontal and vertical alignments accommodating greater detail in tie-down points, approaches, detours, etc.

1.1 Miles

83 Develop pavement design

Analyze, document and submit for review and approval the proposed pavement design folder for each roadway, including pavement calculations, life cycle costs, typical sections and pavement details.

84 Finalize templates & transitions

Finalize necessary templates and template transitions for all roadways. This includes each instance of a horizontal change in roadway edge of pavement with respect to the centerline.

85 Develop final roadway model

Modify the preliminary roadway model or generate a new roadway model incorporating the proposed design into the initial roadway model, including cut/fill slopes, roadside ditches, etc. as necessary to define ditches and disturbed limits and enable the generation of cross-sections for all roadways.

Note: The extent and degree of accuracy of the "final" roadway model is to correspond with the required guidelines of electronic deliverables. This effort of work is to be discussed at the Predesign Conference.

1.1 Miles

86 Develop proposed design

Design and depict on the plans (manuscript) all proposed construction details and graphics, including pavement, drainage, construction notes, etc.

1.1 Miles

87 Generate plan sheets

Perform necessary work to create individual plan sheets, including dropping of sheet cells, masking, manipulation of text and notes, etc.

7 Sheets

88 Generate profile sheets

Perform necessary work to create individual profile sheets, including dropping profile, annotation of profile, drainage, ditches, notes, etc.

Note: Though depiction of longitudinal storm sewers is generally performed on the profile sheets, they will be paid for as individual pipe sections under Item 92.

7 Sheets

89 Detail cross sections

Drop cross sections onto sheet cells; add yardage quantities, details, notes, etc.

Note: The majority of work required for the development of cross sections is under Item 85.

120 Sections

90 Design entrances

Determine location, grade, type of entrance, width and quantities and depict on the plans.

12 Entrance

91 Revise roadway plans from soils report

Modify the roadway model incorporating geotechnical report recommendations.

Note: Length is based on expected area requiring changes due to geotechnical report, not entire project length.

DRAINAGE

92 Develop pipe sections (< 54")

Create and design pipe sections including quantities, notes and depicting them in the plans.

Note: Includes cross drains, storm sewer, etc.

5 Pipes

93 Develop drainage system map

Create map describing the proposed drainage system and delineates drainage areas. Includes generating the individual sheets.

1.1 Miles

94 Develop drainage situation (bridge)

Develop and prepare drawing of alignment, profiles, sections, and plan to represent bridge situation survey.

95 Develop drainage situation (culvert)

Develop and prepare drawing of alignment, profiles, sections, and plan to represent culvert situation survey.

96 Develop blue line stream channel changes (=> 200')

Develop and prepare drawing of alignment, profiles, sections, and plan to represent channel change, including stream mitigation requirements.

97 Drainage analysis (Entrance pipes)

Conduct and document drainage analysis to determine frequency flows and required structure size of entrance pipes. Includes completion of forms.

98 Drainage analysis (A <= 200 acres)

Conduct and document drainage analysis to determine frequency flows and required structure size. Includes completion of forms.

5 Pipes

99 Drainage analysis (200 acres < A < 1.0 sq. mile)

Conduct and document drainage analysis to determine frequency flows and required structure size. Includes completion of forms.

100-102 Drainage analysis (A => 1.0 sq. mile) -- Levels 1, 2, & 3 Analysis

Conduct and document drainage analysis to determine frequency flows, required structure size,

location, and risk assessment. Includes completion of forms.

103 Special drainage studies
Conduct special drainage studies, which may include HEC-1, TR-20, TR-55, Unsteady Flow Models, FESWMS-2DH, Detention Basin Design, Energy Dissipater Design, Dynamic Culvert Design or other Hydrologic/Hydraulic design as deemed appropriate.

104 Roadway ditches and channels
Determine hydraulic capacity (ditch size) and necessary channel lining of all ditches and channels. Includes documentation of design calculations and completion of forms.
Note: Left and right sides are independent to each other and should be added for a combined total.

105 Develop erosion control plan
Determination of required erosion control items and depiction in the plans, including required calculations and generating the individual sheets. Includes documentation of design calculations and completion of forms.
Note: Specific scope of work and level of effort is to be discussed at the Predesign Conference
1.1 Miles

106 Inlet spacing calculations
Conduct necessary calculations to determine structure types, and inlet spacing for the layout and design of storm sewer systems. Includes documentation of design calculations and completion of forms.

107 Storm sewer calculations
Conduct necessary calculations to determine pipe size, storage volumes, etc. for the layout and design of storm sewer systems. Includes documentation of design calculations and completion of forms.

108 Perform scour analysis
Perform scour analysis as referenced in the FHWA HEC-18 and HEC-20 and the current Drainage Manual. Includes documentation of design calculations and completion of forms.

109 Assemble preliminary and final drainage folders
Copy, fold, bind, and assemble drainage folders.

110 Prepare advanced situation folder - bridge
Prepare required documentation, copy, fold, bind, and assemble the folder.
Note: Folder contents are to conform to requirements outlined in the Drainage and Bridge Manuals.

111 Prepare advanced situation folder - culvert
Prepare required documentation, copy, fold, bind, and assemble the folder.
Note: Folder contents are to conform to requirements outlined in the Drainage and Bridge Manuals.

112-115 Reserved for additional miscellaneous Drainage items required

FINAL PLAN CONTINUATION

116 Prepare layout sheet
Prepare layout sheet for the Construction Plans.
1 Lump Sum

117 Prepare typical sections
Prepare all typical sections including the proposed pavement design and other necessary details for each roadway, detour, and entrance.
1 Typical Section

118 Prepare interchange geometric approval sheet
Prepare geometric approval sheet, including all required alignments, curve data, coordinates, etc. for requesting approval of the interchange geometrics.

119 Prepare intersection geometric approval sheet
Prepare geometric approval sheet, including all required alignments, curve data, coordinates, etc., for requesting approval of the intersection geometrics.

120 Prepare coordinate control sheet
Develop all coordinate control information, including proposed centerlines, event points, control points, and benchmarks with appropriate descriptions, and place into the plans in tabular form and generate individual sheets.
1.1 Miles

121 Prepare elevation developments sheet
Prepare elevation development sheets including all geometric data and elevation data necessary.

122 Prepare striping plan
Prepare details for striping plans as outlined in the Predesign Conference.

123 Calculate final quantities
Calculate and document all quantities required for the construction of the final roadway and maintenance of traffic during construction, including permanent and temporary items.
1.1 Miles

124 Complete general summary
1 Lump Sum

125 Complete paving summary

126 Complete drainage summary
1 Lump Sum

127 Complete pavement under-drain summary

128 Prepare cost estimate
Prepare and document cost estimates including bid prices for each item, using best engineering judgement, for inspections, meetings and final plan submittal.
1 Lump Sum

129 Plot/Print copies of plans

Plot/print copies of plans including the necessary copies of plans for distribution at project milestones (inspections, meetings, etc.).

Note: The number of sets of prints for meetings and inspections shall be determined at the Predesign Conference

1 Lump Sum

130 Plan revisions

Complete any necessary and unexpected plan revisions that arise during the project that are beyond the control of the consultant, including revisions to plans required due to Right of Way Revisions that are not directly shown on the Right of Way Plans.

1.1 Miles

131 Prepare final construction plans submittal

Generate the computer files of the final plans, plot the original mylars, prepare electronic submittal of plans and required files and submit plans, computer files and a list of General Notes to the District Office. Also includes submittal of a set of Review Plans and making any necessary changes identified by the roadway plan review.

1 Lump Sum

MAINTAINENCE OF TRAFFIC

132 Write maintenance of traffic notes (TCP)

Write and submit the required Traffic Control Plan, including the construction phasing for the project.

1 Lump Sum

133 Prepare construction phasing plans

Prepare plans for maintenance of traffic, construction phasing and/or detours necessary for the construction of the project, including all phasing, special notes, signs, temporary pavement markings and quantities. When maintenance of traffic details have been completed, a Traffic Control Plan shall be prepared and submitted to the KYTC Project Manager to obtain the necessary approval signatures. Once approved, the notes and phasing details will be incorporated into the final construction plans.

134 Develop diversion plan sheets

135 Develop diversion profile sheets

136 Develop diversion cross sections

137 Develop temporary drainage

FINAL PLANS MISCELLANEOUS

138 Pre Bid submittal documents (LDRC, PDC, Specs)

1 Lump Sum

140-149 Reserved for additional miscellaneous Final Plans items required

MEETINGS

150 Preliminary line and grade inspection

Preparation and attendance by the project engineer and others, if necessary, to the preliminary line and grade inspection and preparation of the inspection report.

1 Meeting

151 Drainage inspection

Preparation and attendance by the project engineer and drainage engineer to the drainage inspection and preparation of the inspection report.

152 Final inspection

Preparation and attendance by the project engineer and others, if necessary, to the final inspection and preparation of the inspection report.

2 Meeting (Punch List & Final Closeout)

153 Misc. project coordination meetings

Attendance by the project engineer and others, if necessary, to any project coordination meetings scheduled by the Project Manager and preparation of the meeting minutes.

5 Meeting

154 Project team meetings

Attendance by the project engineer and others if necessary, to any project team meetings scheduled by the Project Manager and preparation of the meeting minutes.

155 Value Engineering Study

This item is applicable only for a project requiring a VE study or project where the KYTC project manager specifies that a VE study will be done.

Attendance by the project engineer at the project briefing (normally 2 hours). Attendance by the project engineer at the VE recommendations briefing (normally 2 hours). Preparation of presentation for the project briefing. Preparation and compilation of project plans and documents for the VE team. Meeting attendance by the project engineer with KYTC project manager to review VE recommendations for further implementation.

156 Constructability Review

This item is applicable to any project for which the KYTC project manager determines a standalone constructability meeting is warranted. The constructability review meeting is scheduled so as to facilitate the design decision making process and the development of final plans. Typical projects are those for which the project engineer anticipates a complicated maintenance of traffic plan or unusual construction work restrictions. Attendees should include the project engineer and others as necessary.

Prepare meeting materials, including any constructability related details (draft phasing, maintenance of traffic, seasonal restrictions, as well as standard plan information) prior to the meeting. Write and distribute minutes after the meeting.

157-159 Reserved for additional miscellaneous Meeting items required

PUBLIC INVOLVEMENT

Note: The level of Public Involvement shall be discussed in the Predesign Conference and documented in the minutes.

167 Individual Meetings with Stakeholders (schools, businesses, etc)

Prepare and maintain an up-to-date mailing list consisting of all potential property owners, local officials and other interested individuals.

5 Meetings

167-169 Reserved for additional miscellaneous Public Involvement items required

COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Matthew G. Bevin
Governor

Greg Thomas
Secretary

MEMORANDUM

TO: Eric Pelfrey, Director
Division of Professional Services

FROM: Michael Coffey, Audit Manager
External Audit Branch

DATE: August 11, 2017

SUBJECT: Palmer Engineering Company
Fiscal Year Ended January 1, 2017 Indirect Cost Rate

The Kentucky Transportation Cabinet has approved the following rates for Palmer Engineering Company (the Company) for the fiscal year ended January 1, 2017:

Indirect Cost:	175.76%
Facilities Capital Cost of Money (FCCM):	0.52%
CADD Rate	$ 17.18*

*Rate is limited to $15 per 600 KAR 6:070 Section 2 (6) (e)

We also recommend acceptance of the pay rates in the Attachment.

This approval does not constitute "establishment of a rate by a cognizant agency" for the purposes of applying the rules published in Title 23 CFR 172.7. The Kentucky Transportation Cabinet retains the right to audit the above rates or adjust them should a cognizant approval occur after this date.

This memorandum is intended solely for the use and information of the Company and the Kentucky Transportation Cabinet related to contracts employing the cost principles of the Federal Acquisition Regulations and should not be used for any other purpose. This restriction is not intended to limit the distribution of this memorandum, which is a matter of public record.

MC/slb
Attachment

Palmer Engineering Company
Attachment

Average Pay Rates

We have verified Palmer Engineering Company's rates per classification as of July 5, 2017:

Classification	Hourly Rate	Classification	Hourly Rate
Admin. Assistant	$30.67	Party Chief	$45.75
Consulting Engineer	$16.01	Principal	$104.45
Engineer in Training	$28.75	Professional Engineer	$36.88
Engineer Technician I	$30.17	Professional Sr. Engineer	$56.73
Engineer Technician II	$44.64	Project Landscape Architect	$33.00
Environmental Technician I	$34.50	Project Manager	$63.81
Environmental Technician II	$41.28	ROW Specialist	$39.00
Instrument Man	$35.50	Support Staff	$30.00
Maintenance	$18.00		

The average pay rates per classification have increased an average of 0.82% over the last two years.