BOARD OF DIRECTORS
REGULAR MEETING

TROPHY CLUB MUNICIPAL UTILITY DISTRICT NO. 1
100 MUNICIPAL DRIVE
TROPHY CLUB, TEXAS 76262

Monday, October 18, 2021	6:30 P.M.	Svore Municipal Boardroom

REGULAR MEETING AGENDA

VIA VIDEOCONFERENCE

THE PRESIDING OFFICER AND A QUORUM OF THE BOARD OF DIRECTORS WILL BE PHYSICALLY PRESENT AT, AND MEMBERS OF THE PUBLIC MAY ATTEND, THE MEETING AT THE LOCATION SPECIFIED ABOVE.

CALL TO ORDER AND ANNOUNCE A QUORUM

CITIZEN COMMENTS

This is an opportunity for citizens to address the Board on any matter whether or not it is posted on the agenda. The Board is not permitted to take action on or discuss any comments made to the Board at this time concerning an item not listed on the agenda. The Board will hear comments on specific agenda items prior to the Board addressing those items. You may speak up to four (4) minutes or the time limit determined by the President or presiding officer. To speak during this item, you must complete the Speaker's form that includes the topic(s) of your statement. Citizen Comments should be limited to matters over which the Board has authority.

REPORTS & UPDATES

1. Staff Reports
   a. Capital Improvement Projects
   b. Water Operations Report
   c. Wastewater System Reports
   d. Finance Reports

   attachment: Staff Reports

CONSENT AGENDA

All matters listed as Consent Agenda are considered to be routine by the Board of Directors and will be enacted by one motion. There will not be a separate discussion of these items. If discussion is desired, that item will be removed from the consent agenda and will be considered separately.

2. Consider and act to approve the Consent Agenda.
   a. September 2021 Combined Financials
   b. September 20, 2021 Regular Meeting Minutes
   c. Tax Collection Reports - 4th Quarter FY 2021
   d. Investment Report - 4th Quarter FY 2021

attachments: September Financials

September 20, 2021 Meeting Minutes

Tax Collection Reports-4th Quarter FY 2021

Investment Report -4th Quarter FY 2021

REGULAR SESSION

3. Consider and act regarding purchase of one Spartan Pumper truck from Metro Fire Apparatus Specialist, Inc., for a cost of $730,000 and authorize the General Manager to execute the necessary documents.

   attachment: Staff Report

4. Consider and act regarding approval of task order agreement with Halff Associates for professional engineering services for the replacement of the existing 8-inch water lines within Trophy Club Section 8 and Trophy Club Estates Section 5 at a total cost of $68,600 and authorize the General Manager to execute the task order documents.

   attachment: Task Order Agreement

5. Consider and act regarding approval of Contract No. 2021092001 with Tyler Technologies Inc. for Financial, Payroll, and Utility Billing Management Software and authorize the General Manager to execute the contract documents.

   attachment: Tyler Technologies Inc. Contract No. 2021092001

6. Consider and act regarding approval of work order with Garver for professional engineering services related to Wastewater Treatment Plant MBR improvements at a total cost of $66,912 and authorize the General Manager to execute the contract documents.

   attachment: Garver Work Order No. 1

7. Consider and act regarding approval of work order with Garver for professional engineering services related to the rehabilitation of Lift Station #1 at a total cost of $83,188 and authorize the General Manager to execute the contract documents.

   attachment: Garver Work Order No. 2

8. Consider and act regarding approval of Master Services Agreement with Pipeline Analysis LLC to provide professional engineering services and technical support related to the District's wastewater collection system.

   attachment: Master Services Agreement

9. Discussion and possible action regarding remodeling areas in the Annex building for Elections. (Flynn)

10. Discussion and possible action regarding use of solar energy at District facilities. (Rose)

11. Items for future agendas:

12. Set future Meeting dates – November 15th at 6:30 p.m.
December 14th at 6:30 p.m.

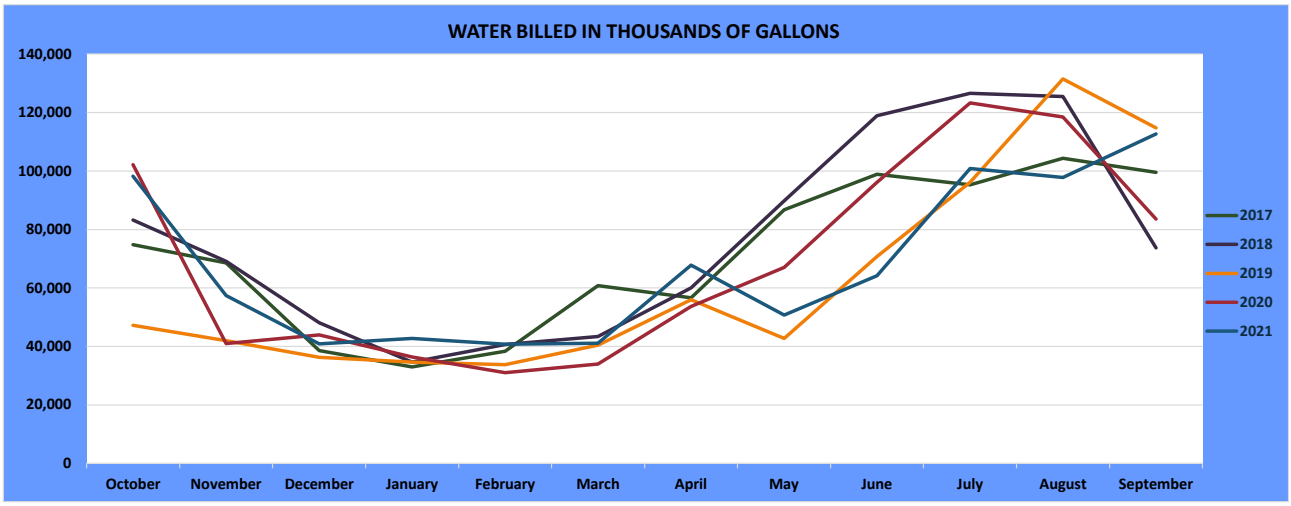
attachments: Fall meeting calendars

***THE BOARD RESERVES THE RIGHT TO ADJOURN INTO EXECUTIVE SESSION AT ANY TIME DURING THE MEETING PURSUANT TO THE APPLICABLE SECTION OF SUBCHAPTER D, CHAPTER 551, TEXAS GOVERNMENT CODE, THE TEXAS OPEN MEETINGS ACT, WITH RESPECT TO ANY ITEM ON THE AGENDA. NO FINAL ACTION, DECISION OR VOTE WILL BE TAKEN ON ANY SUBJECT OR MATTER IN EXECUTIVE SESSION. THIS NOTICE MODIFIES THE DISTRICT'S PRIOR PRACTICE OF SPECIFICALLY IDENTIFYING ALL AGENDA ITEMS TO BE DISCUSSED IN EXECUTIVE SESSION.**

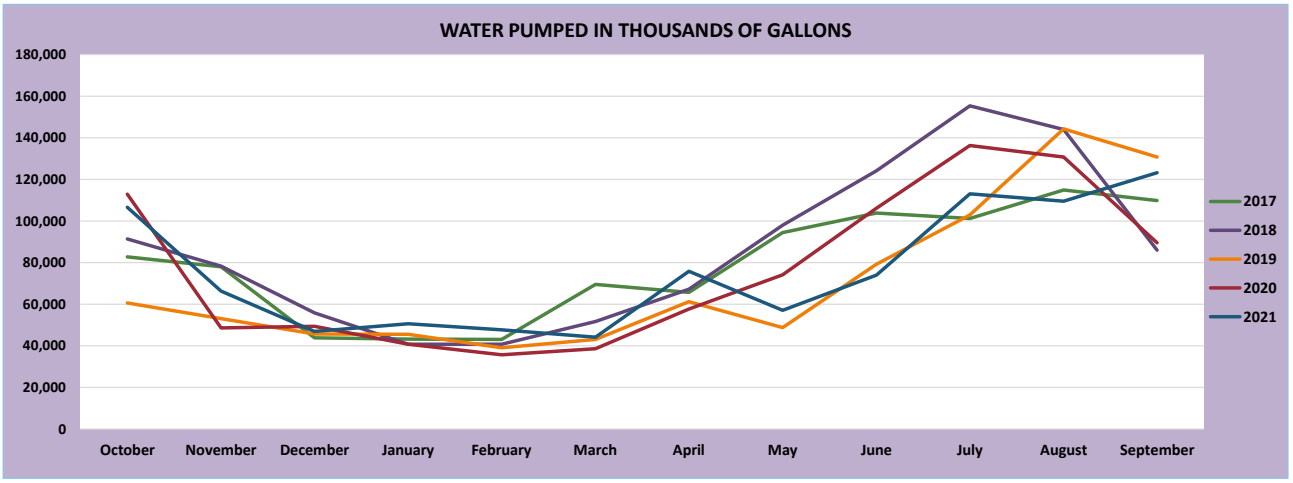
ADJOURN

Monthly Water Operations Report

Water Billed													
FY	October	November	December	January	February	March	April	May	June	July	August	September	Total Year
2011	70,502	50,909	44,365	35,983	27,845	55,972	69,165	61,467	99,326	117,707	170,464	123,692	927,397
2012	85,869	53,571	40,815	30,616	31,665	35,263	47,194	84,905	114,104	137,174	144,573	108,622	914,371
2013	85,488	75,251	48,527	39,601	34,450	43,137	56,947	76,542	85,312	110,072	130,945	114,497	900,769
2014	82,660	48,813	34,482	39,767	37,085	54,794	66,337	84,384	99,240	92,913	113,135	110,873	864,483
2015	90,994	58,986	49,607	36,162	38,776	30,566	46,543	39,576	60,731	100,622	139,441	123,886	815,890
2016	108,951	41,936	39,028	39,622	44,551	49,498	55,181	50,827	65,390	115,687	119,611	98,945	829,227
2017	74,785	68,638	38,580	33,028	38,380	60,841	56,683	86,794	98,864	95,355	104,303	99,541	855,792
2018	83,228	69,099	48,144	34,592	40,658	43,411	60,079	89,802	118,899	126,588	125,531	73,735	913,766
2019	47,193	41,933	36,244	34,604	33,740	40,421	55,970	42,773	70,747	96,174	131,472	114,784	746,055
2020	102,150	40,988	43,946	36,418	31,000	34,047	53,755	67,030	96,195	123,309	118,522	83,570	830,930
2021	98,232	57,380	40,841	42,725	40,786	41,078	67,776	50,736	64,195	100,853	97,864	112,674	815,140



Water Pumped													
FY	October	November	December	January	February	March	April	May	June	July	August	September	Total Year
2011	70,502	50,993	44,220	33,789	36,053	54,775	71,306	63,500	116,350	152,002	169,621	117,190	980,301
2012	83,750	54,245	41,650	34,740	31,581	46,519	62,649	100,402	110,324	153,813	139,005	123,045	981,723
2013	85,966	77,758	55,110	39,283	37,867	56,743	60,969	87,168	96,602	119,414	145,988	120,342	983,210
2014	81,909	51,769	39,769	48,758	42,395	61,100	71,283	96,481	95,206	110,173	123,369	115,607	937,819
2015	106,251	67,825	58,659	45,691	39,675	35,752	56,704	48,637	72,934	117,302	143,413	142,394	935,237
2016	106,731	52,616	43,708	46,945	50,721	55,178	60,434	55,562	68,138	112,533	128,963	104,664	886,193
2017	82,677	77,937	43,792	43,207	43,024	69,549	65,723	94,452	103,867	101,184	114,872	109,769	950,053
2018	91,439	78,282	55,745	40,796	40,750	51,711	67,217	97,980	124,109	155,354	144,015	85,946	1,033,344
2019	60,576	53,119	45,651	45,552	39,014	43,048	61,238	48,787	79,167	102,887	144,299	130,752	854,090
2020	112,971	48,627	49,384	40,726	35,749	38,576	57,714	74,153	106,219	136,306	130,721	89,514	920,660
2021	106,660	66,304	46,962	50,538	47,733	44,191	75,866	56,985	73,907	113,015	109,492	123,206	914,859

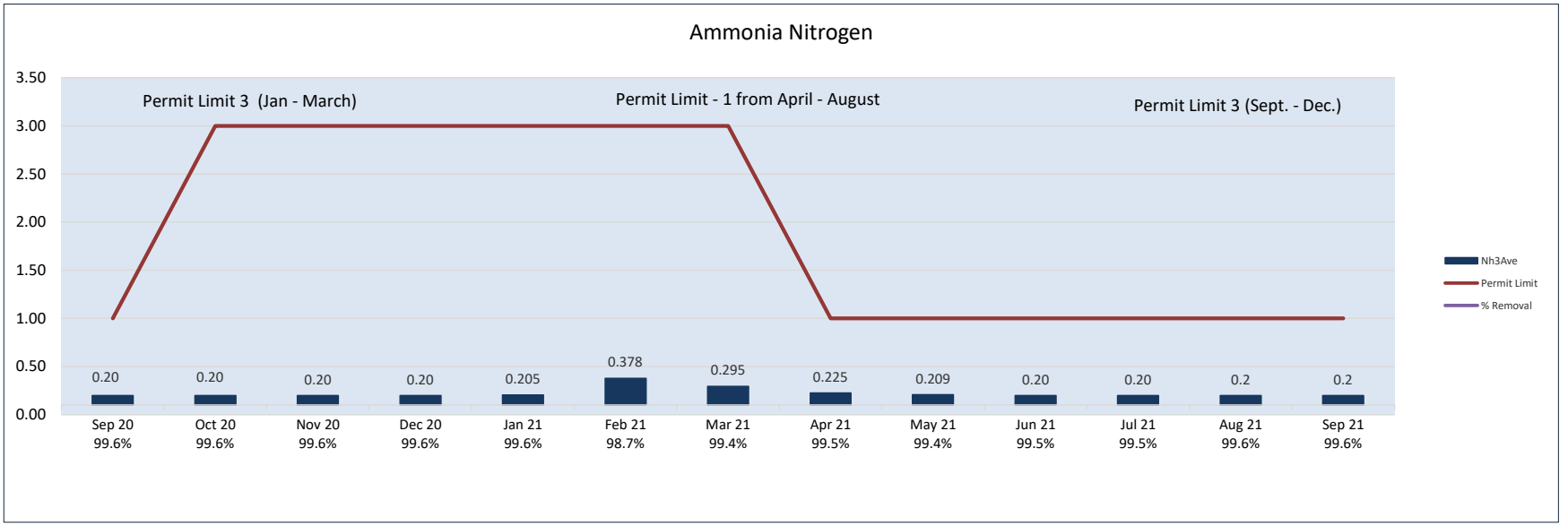


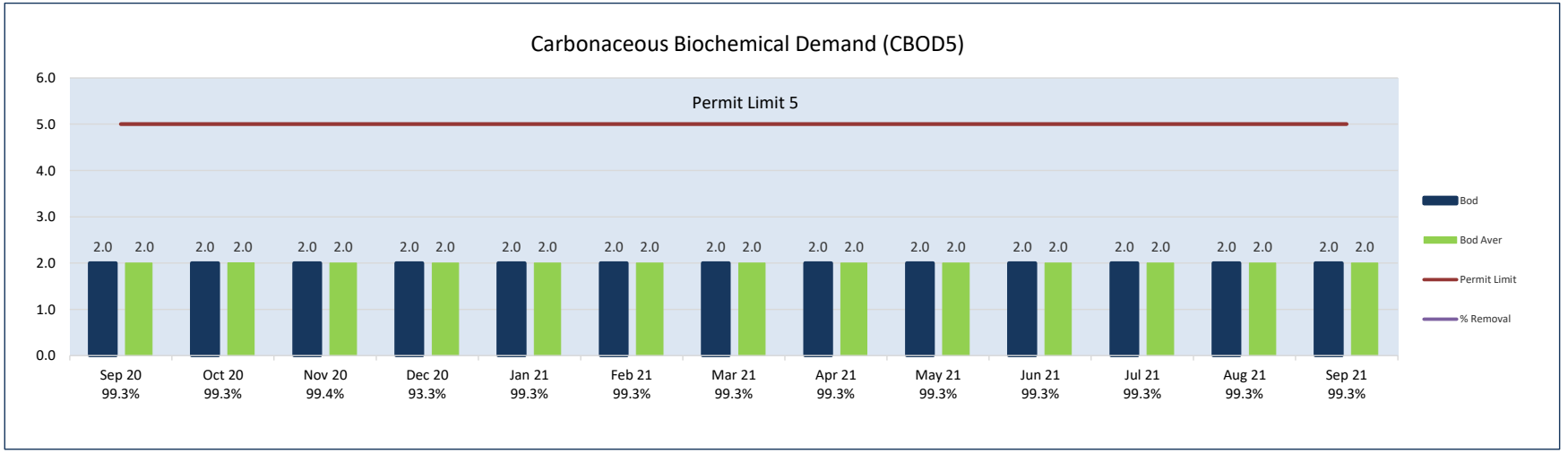
Active Connections													
	FY	October	November	December	January	February	March	April	May	June	July	August	September
	2015 Total	4353	4363	4377	4404	4413	4429	4443	4459	4478	4486	4498	4517
	2016 Total	4531	4538	4556	4568	4593	4604	4607	4616	4622	4627	4632	4636
	2017 Total	4644	4647	4661	4657	4663	4666	4670	4676	4685	4690	4696	4700
	2018 Total	4701	4706	4712	4716	4720	4724	4724	4728	4732	4735	4736	4738
	2019 Total	4741	4743	4745	4753	4753	4758	4761	4762	4768	4770	4773	4782
	2020 Total	4795	4796	4797	4797	4807	4807	4816	4817	4830	4836	4836	4837
	2020 MUD	3351	3352	3353	3353	3363	3363	3372	3373	3386	3392	3392	3393
	2020 PID	1444	1444	1444	1444	1444	1444	1444	1444	1444	1444	1444	1444
	2021 Total	4837	4837	4837	4837	4837	4837	4837	4837	4839	4841	4841	4840
	2021 MUD	3393	3393	3393	3393	3393	3393	3393	3393	3395	3397	3397	3397
	2021 PID	1444	1444	1444	1444	1444	1444	1444	1444	1444	1444	1444	1443

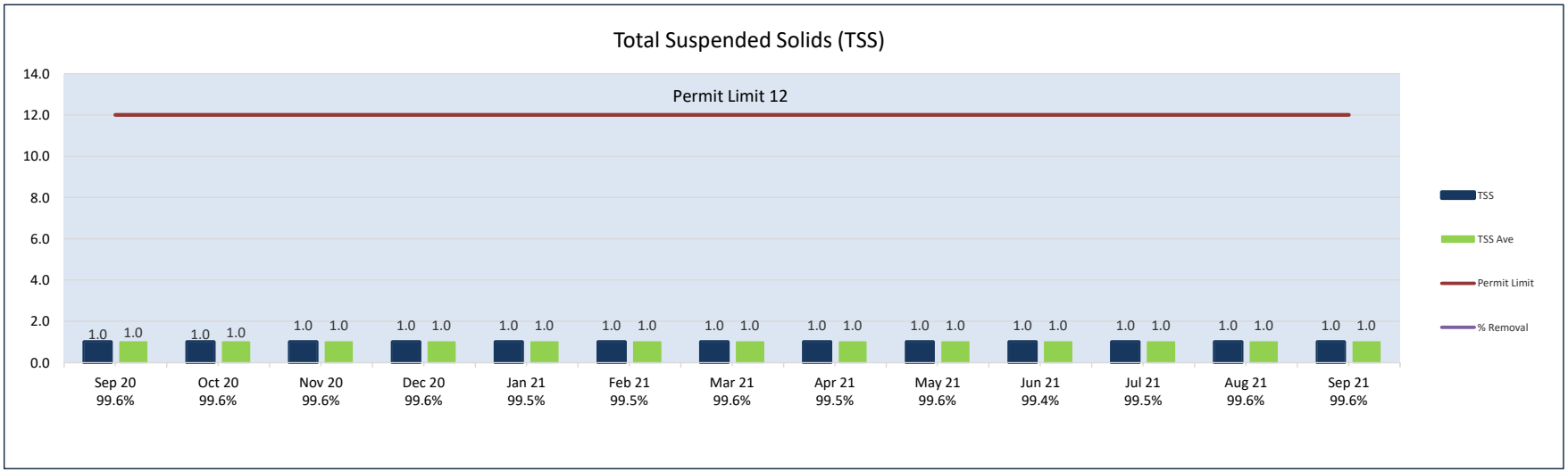
September 2021 Results

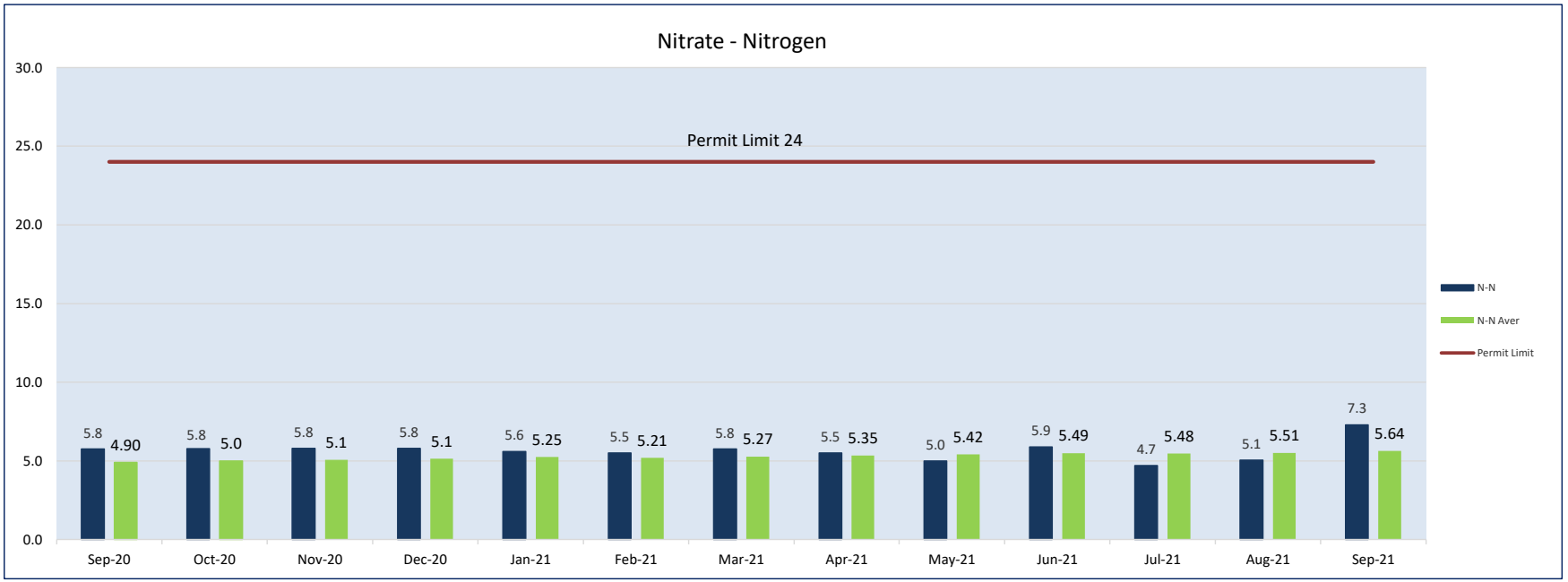
Date	Ammonia-N		% Removal	CBOD5		% Removal	TSS		% Removal
	Influent	Effluent		Influent	Effluent		Influent	Effluent	
1-Sep	55.0	0.20	99.6%	293	2.0	99.3%	242	1.0	99.6%
2-Sep	55.0	0.20	99.6%	280	2.0	99.3%	262	1.0	99.6%
7-Sep	35.0	0.20	99.4%	301	2.0	99.3%	342	1.0	99.7%
9-Sep	50.0	0.20	99.6%	294	2.0	99.3%	276	1.0	99.6%
13-Sep	56.8	0.20	99.6%	294	2.0	99.3%	194	1.0	99.5%
15-Sep	53.5	0.20	99.6%	277	2.0	99.3%	263	1.0	99.6%
20-Sep	52.5	0.20	99.6%	292	2.0	99.3%	268	1.0	99.6%
23-Sep	70.0	0.20	99.7%	286	2.0	99.3%	290	1.0	99.7%
27-Sep	64.0	0.2	99.7%	295	2.0	99.3%	333	1.0	99.7%
29-Sep	67.5	0.2	99.7%	297	2.0	99.3%	233	1.0	99.6%

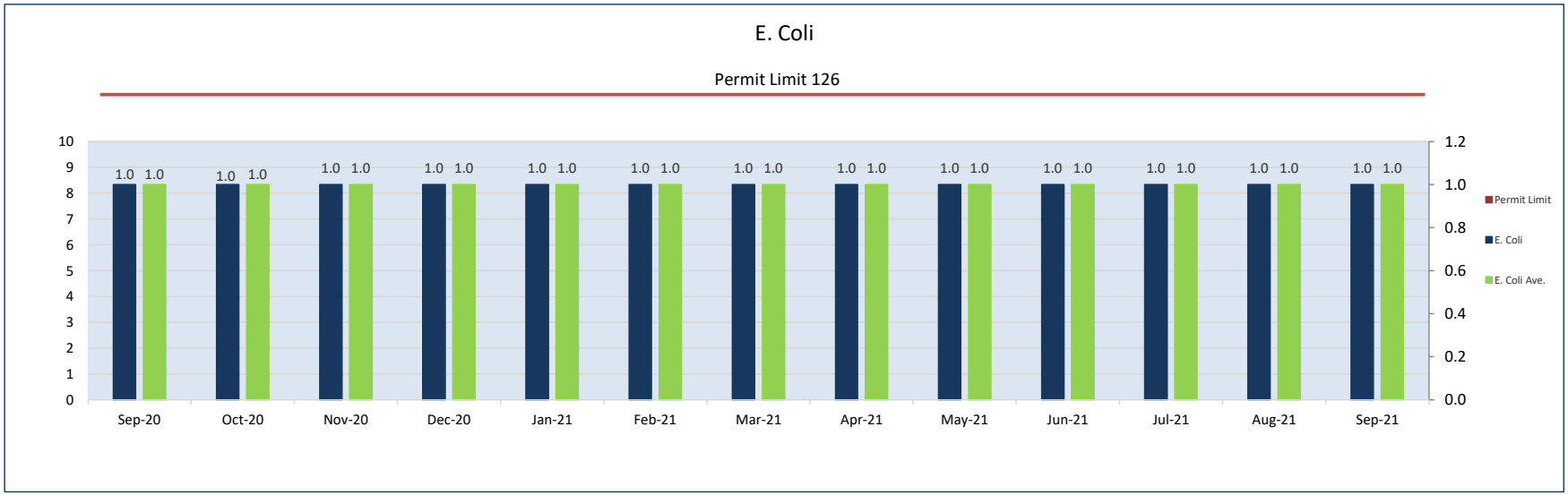
Report	Ammonia-N		CBOD5		TSS	
	0.20	**99.6%**	**2.0**	**99.3%**	**1.0**	**99.6%**

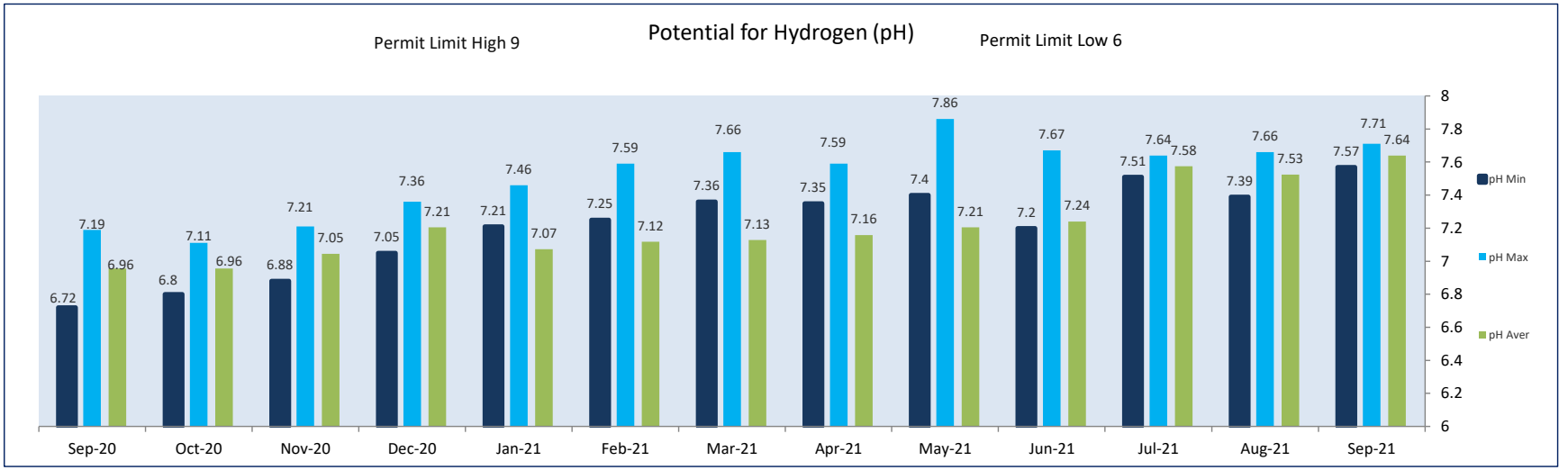

Ammonia Nitrogen
Permit Limit 3 (Jan - March)
Permit Limit - 1 from April - August
Permit Limit 3 (Sept. - Dec.)
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0.20 0.20 0.20 0.20 0.205 0.378 0.295 0.225 0.209 0.20 0.20 0.2 0.2
Sep 20 99.6%
Oct 20 99.6%
Nov 20 99.6%
Dec 20 99.6%
Jan 21 99.6%
Feb 21 98.7%
Mar 21 99.4%
Apr 21 99.5%
May 21 99.4%
Jun 21 99.5%
Jul 21 99.5%
Aug 21 99.6%
Sep 21 99.6%
Nh3Ave
Permit Limit
% Removal

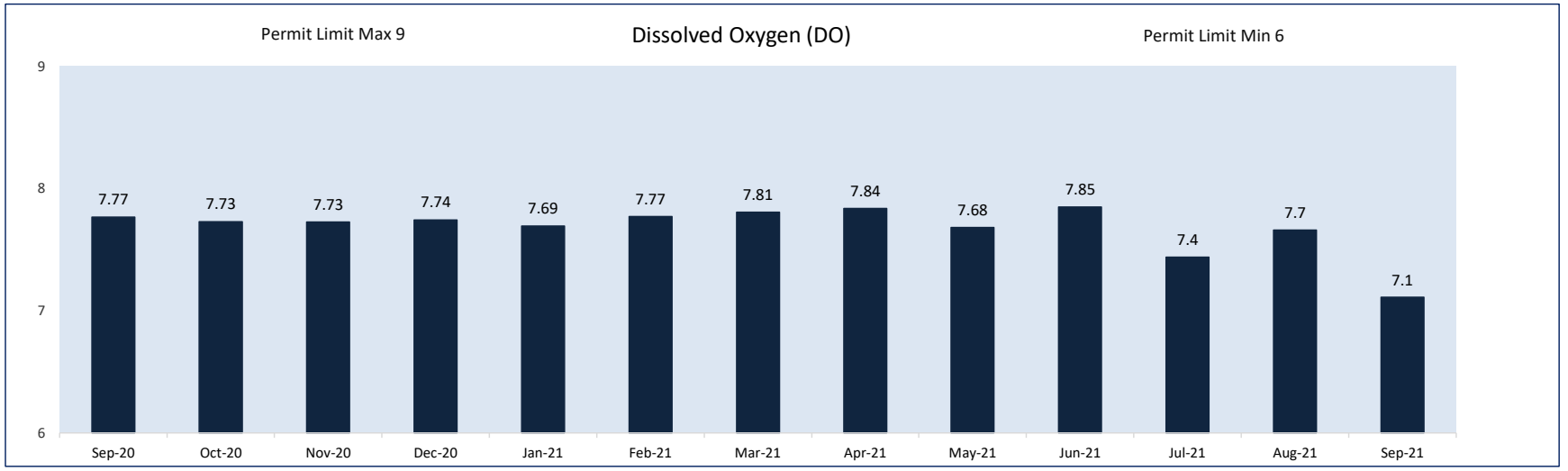

Carbonaceous Biochemical Demand (CBOD5)
Permit Limit 5
6.0
5.0
4.0
3.0
2.0
1.0
0.0
2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0
Sep 20 99.3%
Oct 20 99.3%
Nov 20 99.4%
Dec 20 93.3%
Jan 21 99.3%
Feb 21 99.3%
Mar 21 99.3%
Apr 21 99.3%
May 21 99.3%
Jun 21 99.3%
Jul 21 99.3%
Aug 21 99.3%
Sep 21 99.3%
Bod
Bod Aver
Permit Limit
% Removal


Total Suspended Solids (TSS)
Permit Limit 12
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Sep 20 99.6%
Oct 20 99.6%
Nov 20 99.6%
Dec 20 99.6%
Jan 21 99.5%
Feb 21 99.5%
Mar 21 99.6%
Apr 21 99.5%
May 21 99.6%
Jun 21 99.4%
Jul 21 99.5%
Aug 21 99.6%
Sep 21 99.6%
TSS
TSS Ave
Permit Limit
% Removal


Nitrate - Nitrogen
Permit Limit 24
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Sep-20 5.8 4.90
Oct-20 5.8 5.0
Nov-20 5.8 5.1
Dec-20 5.8 5.1
Jan-21 5.6 5.25
Feb-21 5.5 5.21
Mar-21 5.8 5.27
Apr-21 5.5 5.35
May-21 5.0 5.42
Jun-21 5.9 5.49
Jul-21 4.7 5.48
Aug-21 5.1 5.51
Sep-21 7.3 5.64
N-N
N-N Aver
Permit Limit


E. Coli
Permit Limit 126
10
9
8
7
6
5
4
3
2
1
0
1.2
1.0
0.8
0.6
0.4
0.2
0.0
1.0 1.0
Sep-20
Oct-20
Nov-20
Dec-20
Jan-21
Feb-21
Mar-21
Apr-21
May-21
Jun-21
Jul-21
Aug-21
Sep-21
Permit Limit
E. Coli
E. Coli Ave.


Potential for Hydrogen (pH)
Permit Limit High 9
Permit Limit Low 6
8
7.8
7.6
7.4
7.2
7
6.8
6.6
6.4
6.2
6
Sep-20: 6.72 7.19 6.96
Oct-20: 6.8 7.11 6.96
Nov-20: 6.88 7.21 7.05
Dec-20: 7.05 7.36 7.21
Jan-21: 7.21 7.46 7.07
Feb-21: 7.25 7.59 7.12
Mar-21: 7.36 7.66 7.13
Apr-21: 7.35 7.59 7.16
May-21: 7.4 7.86 7.21
Jun-21: 7.2 7.67 7.24
Jul-21: 7.51 7.64 7.58
Aug-21: 7.39 7.66 7.53
Sep-21: 7.57 7.71 7.64
pH Min
pH Max
pH Aver


Permit Limit Max 9
Dissolved Oxygen (DO)
Permit Limit Min 6
9
8
7
6
7.77
7.73
7.73
7.74
7.69
7.77
7.81
7.84
7.68
7.85
7.4
7.7
7.1
Sep-20
Oct-20
Nov-20
Dec-20
Jan-21
Feb-21
Mar-21
Apr-21
May-21
Jun-21
Jul-21
Aug-21
Sep-21

Vendor Number	Vendor Name	Invoice Number	Invoice Date	Inv Stat	Dept No	Account Number	Description	Line Item Value	Check Number	Check Date
998	GEORGE, JOANNA	U0023240004905A	08/31/21	P		135-20050-000-000	A/P Vendors	80.53	7816	09/01/21
Totals for Check: 7816								80.53		
998	JOHNSON, DEBBA	U0010190015101A	08/31/21	P		135-20050-000-000	A/P Vendors	30.66	7817	09/01/21
Totals for Check: 7817								30.66		
998	LAINE, JOHN	U0010080593102A	08/31/21	P		135-20050-000-000	A/P Vendors	18.58	7818	09/01/21
Totals for Check: 7818								18.58		
998	MARTINEZ, JOE	U9048080023904A	08/31/21	P		135-20050-000-000	A/P Vendors	45.29	7819	09/01/21
Totals for Check: 7819								45.29		
998	MORGAN, ELECIA	U0010080610109A	08/31/21	P		135-20050-000-000	A/P Vendors	08.95	7820	09/01/21
Totals for Check: 7820								08.95		
998	MURTAUGH, HOLLY	U0030400038204A	08/31/21	P		135-20050-000-000	A/P Vendors	20.16	7821	09/01/21
Totals for Check: 7821								20.16		
998	NGUYEN, THIEN	U9012500031901A	08/31/21	P		135-20050-000-000	A/P Vendors	09.83	7822	09/01/21
Totals for Check: 7822								09.83		
998	SPARKS, HOWARD	U9022010034903A	08/31/21	P		135-20050-000-000	A/P Vendors	15.86	7823	09/01/21
Totals for Check: 7823								15.86		
998	STADHOUDERS, MARIA-LOUISE	U0030400002208A	08/31/21	P		135-20050-000-000	A/P Vendors	69.59	7824	09/01/21
Totals for Check: 7824								69.59		
998	TOYOGLU, HUNKAR	U0020470014205A	08/31/21	P		135-20050-000-000	A/P Vendors	20.90	7825	09/01/21
Totals for Check: 7825								20.90		
998	TROPHY CLUB 2800 MEDICAL PROPE	U0111800051103A	08/31/21	P		135-20050-000-000	A/P Vendors	369.31	7826	09/01/21
Totals for Check: 7826								369.31		
998	WALKER, SHELDON CHASE	U0010050419108A	08/31/21	P		135-20050-000-000	A/P Vendors	103.86	7827	09/01/21
Totals for Check: 7827								103.86		
998	WELCH, MICHAEL	U0010080657107A	08/31/21	P		135-20050-000-000	A/P Vendors	57.64	7828	09/01/21
Totals for Check: 7828								57.64		
2772	Allied Waste Industries	0615-001089108	08/31/21	P	20	135-55125-020-000	Dumpster Services	7,048.89	7829	09/14/21
Totals for Check: 7829								7,048.89		
2683	Charter Communications	71672090621	09/06/21	P	30	135-55030-030-000	Software & Support	899.00	7830	09/14/21
Totals for Check: 7830								899.00		
2778	City of Southlake	1638	09/01/21	P		135-49900-000-000	Miscellaneous Income	229.65	7831	09/14/21
Totals for Check: 7831								229.65		

Vendor Number	Vendor Name	Invoice Number	Invoice Date	Inv Stat	Dept No	Account Number	Description	Line Item Value	Check Number	Check Date
2655	Core & Main LP	P449605	08/19/21	P	10	135-55080-010-000	Maintenance & Repairs	75.00	7832	09/14/21
Totals for Check: 7832								75.00		
3184	DATAPROSE LLC	DP2103093	08/31/21	P	30	135-60035-030-000	Postage	1,650.55	7833	09/14/21
3184	DATAPROSE LLC	DP2103093	08/31/21	P	30	135-55205-030-000	Utility Billing Contract	571.95	7833	09/14/21
Totals for Check: 7833								2,222.50		
1018	DENTON CENTRAL APPRAISAL DISTR	9077	09/01/21	P	39	135-55060-039-000	Appraisal	2,147.80	7834	09/14/21
Totals for Check: 7834								2,147.80		
2717	Environmental Improvements Inc	0050584-IN	08/31/21	P	10	135-55080-010-000	Maintenance & Repairs	4,373.00	7835	09/14/21
Totals for Check: 7835								4,373.00		
2606	Fiserv Solutions, LLC	91961219	09/07/21	P	30	135-60040-030-000	Service Charges & Fees	50.00	7836	09/14/21
Totals for Check: 7836								50.00		
1372	HACH COMPANY	12630319	09/07/21	P	10	135-65030-010-000	Chemicals	1,350.10	7837	09/14/21
Totals for Check: 7837								1,350.10		
2641	Huber Technology Inc	CD10021498	07/09/21	P	20	135-55080-020-000	Maintenance & Repairs	708.00	7838	09/14/21
Totals for Check: 7838								708.00		
2767	InSpeyer Human Resource Svc	20210801TCMUD-2	09/14/21	P	30	135-55070-030-000	Independent Labor	1,000.00	7839	09/14/21
Totals for Check: 7839								1,000.00		
3195	LOU'S GLOVES INCORPORATED	042898	09/01/21	P	20	135-55080-020-000	Maintenance & Repairs	196.00	7840	09/14/21
Totals for Check: 7840								196.00		
2754	LOWER COLORADO RIVER AUTHORITY	LAB-0052643	08/31/21	P	10	135-60135-010-000	TCEQ Fees & Permits	213.92	7841	09/14/21
2754	LOWER COLORADO RIVER AUTHORITY	LAB-0053051	08/31/21	P	10	135-55135-010-001	Lab Analysis for PID	213.92	7841	09/14/21
Totals for Check: 7841								427.84		
2643	McLean & Howard, L.L.P.	40420	08/31/21	P	39	135-55045-039-000	Legal	1,050.00	7842	09/14/21
2643	McLean & Howard, L.L.P.	40419	08/31/21	P	39	135-55045-039-000	Legal	1,462.50	7842	09/14/21
Totals for Check: 7842								2,512.50		
3179	NEW GEN STRATEGIES & SOLUTIONS	11785	08/15/21	P	30	135-55160-030-000	Professional Outside Services	6,506.25	7843	09/14/21
Totals for Check: 7843								6,506.25		
1056	OFFICE DEPOT, INC	189456586001	09/02/21	P	30	135-65085-030-000	Office Supplies	164.87	7844	09/14/21
Totals for Check: 7844								164.87		
3156	OXIDOR LABORATORIES LLC	21080516	08/31/21	P	20	135-55135-020-000	Lab Analysis	368.00	7845	09/14/21
3156	OXIDOR LABORATORIES LLC	21090038	09/01/21	P	20	135-55135-020-000	Lab Analysis	259.90	7845	09/14/21
3156	OXIDOR LABORATORIES LLC	21090117	09/09/21	P	20	135-55135-020-000	Lab Analysis	368.00	7845	09/14/21
3156	OXIDOR LABORATORIES LLC	21090416	09/10/21	P	20	135-55135-020-000	Lab Analysis	259.90	7845	09/14/21
Totals for Check: 7845								1,255.80		

Vendor Number	Vendor Name	Invoice Number	Invoice Date	Inv Stat	Dept No	Account Number	Description	Line Item Value	Check Number	Check Date
3176	REY-MAR CONSTRUCTION	TCMUD121PEBBLEB	09/14/21	P	20	135-55081-020-000	Mainten & Repairs Collections	5,750.00	7846	09/14/21
Totals for Check: 7846								5,750.00		
2440	TARRANT CTY PUBLIC HEALTH LAB	35642	08/31/21	P	10	135-55135-010-000	Lab Analysis	200.00	7847	09/14/21
2440	TARRANT CTY PUBLIC HEALTH LAB	35643	08/31/21	P	10	135-55135-010-001	Lab Analysis for PID	80.00	7847	09/14/21
Totals for Check: 7847								280.00		
2696	Texas Excavation Safety System	21-18503	08/31/21	P	30	135-60040-030-000	Service Charges & Fees	180.50	7848	09/14/21
Totals for Check: 7848								180.50		
1001	TOWN OF TROPHY CLUB	AUGUST REFUSE	08/31/21	P		135-25040-000-000	Town-Storm Drainage	39,624.25	7849	09/14/21
1001	TOWN OF TROPHY CLUB	AUGUST REFUSE	08/31/21	P		135-25000-000-000	Refuse	80,528.77	7849	09/14/21
1001	TOWN OF TROPHY CLUB	AUGUST REFUSE	08/31/21	P		135-25010-000-000	Refuse Tax	6,651.90	7849	09/14/21
1001	TOWN OF TROPHY CLUB	090121	09/01/21	P	45	122-60337-045-000	Transfer to Town/Fire Budget	68,335.58	7849	09/14/21
Totals for Check: 7849								195,140.50		
1081	TRI COUNTY ELECTRIC	79020533	08/31/21	P	20	135-60020-020-000	Electricity	503.04	7850	09/14/21
Totals for Check: 7850								503.04		
1000	TROPHY CLUB MUD (WATER BILLS)	8/31/2021	08/31/21	P	30	135-60025-030-000	Water	394.15	7851	09/14/21
Totals for Check: 7851								394.15		
2858	UTILITY SERVICE CO, INC.	541425	08/13/21	P	10	135-69281-010-000	Water Tank Inspection Contract	900.00	7852	09/14/21
Totals for Check: 7852								900.00		
3263	UV DOCTOR LAMPS LLC	14661	08/18/21	P	20	135-55080-020-000	Maintenance & Repairs	580.00	7853	09/14/21
Totals for Check: 7853								580.00		
1058	VERIZON WIRELESS	9885220185	08/01/21	P	10	135-60010-010-000	Communications/Mobiles	376.09	7854	09/14/21
1058	VERIZON WIRELESS	9885220185	08/01/21	P	20	135-60010-020-000	Communications/Mobiles	398.23	7854	09/14/21
1058	VERIZON WIRELESS	9887391895	09/01/21	P	10	135-60010-010-000	Communications/Mobiles	382.98	7854	09/14/21
1058	VERIZON WIRELESS	9887391895	09/01/21	P	20	135-60010-020-000	Communications/Mobiles	398.23	7854	09/14/21
Totals for Check: 7854								1,555.53		
3280	WATTS ELLISON LLC	27392	09/01/21	P	10	135-60285-010-000	Lawn Equipment & Maintenance	600.00	7855	09/14/21
3280	WATTS ELLISON LLC	27392	09/01/21	P	20	135-60285-020-000	Lawn Equipment & Maintenance	770.00	7855	09/14/21
3280	WATTS ELLISON LLC	27392	09/01/21	P	30	135-60285-030-000	Lawn Equipment & Maintenance	469.67	7855	09/14/21
Totals for Check: 7855								1,839.67		
1087	WHITAKER CHALK SWINDLE	267049	08/31/21	P	39	135-55045-039-000	Legal	1,640.26	7856	09/14/21
Totals for Check: 7856								1,640.26		
2222	AFLAC	PR00734 996	09/03/21	P		135-21312-000-000	Aflac	166.60	7857	09/20/21
2222	AFLAC	PR00735 996	09/14/21	P		135-21312-000-000	Aflac	166.60	7857	09/20/21
Totals for Check: 7857								333.20		
3197	BenefitMall	08/06/2021	08/06/21	P	10	135-50029-010-000	Life Insurance & Other	10.00	7858	09/20/21

Vendor Number	Vendor Name	Invoice Number	Invoice Date	Inv Stat	Dept No	Account Number	Description	Line Item Value	Check Number	Check Date
3197	BenefitMall	08/06/2021	08/06/21	P	20	135-50029-020-000	Life Insurance & Other	22.00	7858	09/20/21
3197	BenefitMall	08/06/2021	08/06/21	P	30	135-50029-030-000	Life Insurance & Other	32.00	7858	09/20/21
Totals for Check: 7858								64.00		
3193	COMPUPAY, INC.	PR00734 996	09/03/21	P		135-21313-000-000	Cafe 125-Medical Reimb	490.40	7859	09/20/21
3193	COMPUPAY, INC.	PR00735 996	09/14/21	P		135-21313-000-000	Cafe 125-Medical Reimb	490.40	7859	09/20/21
Totals for Check: 7859								980.80		
3184	DATAPROSE LLC	9334	09/07/21	P		135-11205-000-000	Ppd Postage Deposit-UB Bills	394.00	7860	09/20/21
Totals for Check: 7860								394.00		
3118	Exclusive Pest Control	10490	09/16/21	P	30	135-55080-030-000	Maintenance & Repairs	235.00	7861	09/20/21
Totals for Check: 7861								235.00		
3234	Fortress Resources, LLC	0921316-IN	09/01/21	P	20	135-55081-020-000	Mainten & Repairs Collections	1,761.96	7862	09/20/21
Totals for Check: 7862								1,761.96		
2635	Halff Associates, INC	10058878	09/16/21	P	10	520-69005-010-000	Capital Outlays	5,229.84	7863	09/20/21
2635	Halff Associates, INC	10058882	09/16/21	P	20	135-60135-020-000	TCEQ Fees & Permits	200.00	7863	09/20/21
2635	Halff Associates, INC	10058884	09/16/21	P	20	135-69005-020-000	Capital Outlays	2,000.00	7863	09/20/21
2635	Halff Associates, INC	10058880	09/16/21	P	10	135-69005-010-000	Capital Outlays	345.00	7863	09/20/21
2635	Halff Associates, INC	10058881	09/16/21	P	10	135-69005-010-000	Capital Outlays	9,035.00	7863	09/20/21
2635	Halff Associates, INC	10058881	09/16/21	P	20	135-69005-020-000	Capital Outlays	12,995.00	7863	09/20/21
2635	Halff Associates, INC	10058886	09/16/21	P	20	135-55081-020-000	Mainten & Repairs Collections	37,260.00	7863	09/20/21
Totals for Check: 7863								67,064.84		
2641	Huber Technology Inc	CD10021771	09/09/21	P	20	135-55080-020-000	Maintenance & Repairs	428.16	7864	09/20/21
Totals for Check: 7864								428.16		
2775	HUDSON ENERGY SERVICES, LLC	S2109150001-22	09/15/21	P	30	135-60020-030-000	Electricity/Gas	984.95	7865	09/20/21
2775	HUDSON ENERGY SERVICES, LLC	S2109150001-22	09/15/21	P	10	135-60020-010-000	Electricity	13,115.14	7865	09/20/21
2775	HUDSON ENERGY SERVICES, LLC	S2109150001-22	09/15/21	P	20	135-60020-020-000	Electricity	13,706.30	7865	09/20/21
Totals for Check: 7865								27,806.39		
3124	IRS Tax Payment	PR00734 996	09/03/21	P		135-21302-000-000	FWH Taxes	4,977.09	7866	09/20/21
3124	IRS Tax Payment	PR00734 996	09/03/21	P		135-21303-000-000	Social Security Taxes	6,112.98	7866	09/20/21
3124	IRS Tax Payment	PR00734 996	09/03/21	P		135-21304-000-000	Medicare Taxes	1,429.66	7866	09/20/21
3124	IRS Tax Payment	PR00735 996	09/14/21	P		135-21302-000-000	FWH Taxes	4,976.43	7866	09/20/21
3124	IRS Tax Payment	PR00735 996	09/14/21	P		135-21303-000-000	Social Security Taxes	6,114.66	7866	09/20/21
3124	IRS Tax Payment	PR00735 996	09/14/21	P		135-21304-000-000	Medicare Taxes	1,430.00	7866	09/20/21
Totals for Check: 7866								25,040.82		
3132	Legal Shield	PR00734 996	09/03/21	P		135-21310-000-000	Legal Plan	17.46	7867	09/20/21
3132	Legal Shield	PR00735 996	09/14/21	P		135-21310-000-000	Legal Plan	17.44	7867	09/20/21
Totals for Check: 7867								34.90		
3156	OXIDOR LABORATORIES LLC	21090227	09/15/21	P	20	135-55135-020-000	Lab Analysis	368.00	7868	09/20/21

Vendor Number	Vendor Name	Invoice Number	Invoice Date	Inv Stat	Dept No	Account Number	Description	Line Item Value	Check Number	Check Date
Totals for Check: 7868								368.00		
3113	TCDRS	PR00734 996	09/03/21	P		135-21317-000-000	TCDRS	8,320.85	7869	09/20/21
3113	TCDRS	PR00735 996	09/14/21	P		135-21317-000-000	TCDRS	8,445.61	7869	09/20/21
Totals for Check: 7869								16,766.46		
2634	Valley Solvent Company, INC	76097	09/13/21	P	20	135-65030-020-000	Chemicals	851.25	7870	09/20/21
Totals for Check: 7870								851.25		
3197	BenefitMall	09/07/2021	09/07/21	P	10	135-50029-010-000	Life Insurance & Other	10.00	7871	09/20/21
3197	BenefitMall	09/07/2021	09/07/21	P	20	135-50029-020-000	Life Insurance & Other	22.00	7871	09/20/21
3197	BenefitMall	09/07/2021	09/07/21	P	30	135-50029-030-000	Life Insurance & Other	32.00	7871	09/20/21
Totals for Check: 7871								64.00		
3216	M3 Networks	7338	09/15/21	P	30	135-55030-030-000	Software & Support	522.00	7872	09/20/21
Totals for Check: 7872								522.00		
1030	CITY OF FORT WORTH	09/23/2021	09/23/21	P	10	135-60150-010-000	Wholesale Water	230,151.39	7873	09/30/21
Totals for Check: 7873								230,151.39		
2655	Core & Main LP	P674752	09/28/21	P	20	135-55081-020-000	Mainten & Repairs Collections	2,460.00	7874	09/30/21
Totals for Check: 7874								2,460.00		
2497	DHS AUTOMATION, INC	06-2088	09/24/21	P	20	135-55080-020-000	Maintenance & Repairs	620.00	7875	09/30/21
2497	DHS AUTOMATION, INC	06-2089	09/24/21	P	20	135-55081-020-000	Mainten & Repairs Collections	3,011.06	7875	09/30/21
2497	DHS AUTOMATION, INC	06-2090	09/24/21	P	20	135-69005-020-000	Capital Outlays	13,765.00	7875	09/30/21
Totals for Check: 7875								17,396.06		
1737	DPC INDUSTRIES, INC	767004747-21	09/21/21	P	10	135-65030-010-000	Chemicals	1,028.90	7876	09/30/21
Totals for Check: 7876								1,028.90		
2788	G-Force Parking Lot Striping	2107-0614-0259	09/02/21	P	20	135-55080-020-000	Maintenance & Repairs	2,431.00	7877	09/30/21
Totals for Check: 7877								2,431.00		
1372	HACH COMPANY	12651553	09/22/21	P	10	135-65030-010-000	Chemicals	218.90	7878	09/30/21
Totals for Check: 7878								218.90		
1249	HUTHER AND ASSOCIATES,INC	10187	09/21/21	P	20	135-55135-020-000	Lab Analysis	1,140.00	7879	09/30/21
Totals for Check: 7879								1,140.00		
2783	JJ HVAC LLC	2147	09/20/21	P	30	135-55080-030-000	Maintenance & Repairs	855.00	7880	09/30/21
Totals for Check: 7880								855.00		
2785	Kleen Pipe, Inc	INV-35982	09/20/21	P	20	135-55081-020-000	Mainten & Repairs Collections	4,000.00	7881	09/30/21
Totals for Check: 7881								4,000.00		
3278	KYOCERA DOCUMENT SOLUTIONS	55R1891002	09/21/21	P	30	135-69170-030-000	Copier Lease Installments	90.33	7882	09/30/21

Vendor Number	Vendor Name	Invoice Number	Invoice Date	Inv Stat	Dept No	Account Number	Description	Line Item Value	Check Number	Check Date
Totals for Check: 7882								90.33		
2291	KYOCERA MITA AMERICA, INC.	55R1848559-1	09/01/21	P	30	135-69170-030-000	Copier Lease Installments	90.10	7883	09/30/21
Totals for Check: 7883								90.10		
3216	M3 Networks	7365	09/28/21	P	30	135-55030-030-000	Software & Support	637.50	7884	09/30/21
Totals for Check: 7884								637.50		
3186	MEMBER'S BUILDING MAINTENANCE	TC2107TCMUD	09/01/21	P	10	135-55120-010-000	Cleaning Services	87.50	7885	09/30/21
3186	MEMBER'S BUILDING MAINTENANCE	TC2107TCMUD	09/01/21	P	20	135-55120-020-000	Cleaning Services	87.50	7885	09/30/21
3186	MEMBER'S BUILDING MAINTENANCE	TC2107TCMUD	09/01/21	P	30	135-55120-030-000	Cleaning Services	869.06	7885	09/30/21
3186	MEMBER'S BUILDING MAINTENANCE	TC2108TCMUD	08/31/21	P	10	135-55120-010-000	Cleaning Services	161.23	7885	09/30/21
3186	MEMBER'S BUILDING MAINTENANCE	TC2108TCMUD	08/31/21	P	20	135-55120-020-000	Cleaning Services	161.22	7885	09/30/21
3186	MEMBER'S BUILDING MAINTENANCE	TC2108TCMUD	08/31/21	P	30	135-55120-030-000	Cleaning Services	967.35	7885	09/30/21
Totals for Check: 7885								2,333.86		
2760	NDS Leasing	73893830	09/25/21	P	30	135-69170-030-000	Copier Lease Installments	175.00	7886	09/30/21
Totals for Check: 7886								175.00		
3179	NEW GEN STRATEGIES & SOLUTIONS	11942	09/16/21	P	30	135-55160-030-000	Professional Outside Services	8,688.75	7887	09/30/21
Totals for Check: 7887								8,688.75		
2983	NTTA	09/11/2021	09/11/21	P	30	135-60100-030-000	Travel & per diem	02.93	7888	09/30/21
Totals for Check: 7888								02.93		
1056	OFFICE DEPOT, INC	195773404001	09/16/21	P	30	135-65085-030-000	Office Supplies	79.22	7889	09/30/21
Totals for Check: 7889								79.22		
2713	OpenGov, Inc	INV00005158	09/01/21	P	30	135-55030-030-000	Software & Support	925.00	7890	09/30/21
2713	OpenGov, Inc	INV0004259	09/01/21	P	30	135-55030-030-000	Software & Support	595.00	7890	09/30/21
2713	OpenGov, Inc	INV00003805-1	09/01/21	P	30	135-55030-030-000	Software & Support	138.75	7890	09/30/21
2713	OpenGov, Inc	INV00003979-1	09/30/21	P	30	135-55030-030-000	Software & Support	46.25	7890	09/30/21
Totals for Check: 7890								1,705.00		
3156	OXIDOR LABORATORIES LLC	21090469	09/28/21	P	20	135-55135-020-000	Lab Analysis	368.00	7891	09/30/21
3156	OXIDOR LABORATORIES LLC	21090363	09/22/21	P	20	135-55135-020-000	Lab Analysis	259.90	7891	09/30/21
3156	OXIDOR LABORATORIES LLC	21090340	09/21/21	P	20	135-55135-020-000	Lab Analysis	368.00	7891	09/30/21
3156	OXIDOR LABORATORIES LLC	21090266	09/17/21	P	20	135-55135-020-000	Lab Analysis	259.90	7891	09/30/21
Totals for Check: 7891								1,255.80		
2719	Precision Pump Systems	1007797	09/21/21	P	20	135-55080-020-000	Maintenance & Repairs	330.50	7892	09/30/21
2719	Precision Pump Systems	1007770	09/20/21	P	20	135-55080-020-000	Maintenance & Repairs	860.00	7892	09/30/21
Totals for Check: 7892								1,190.50		
2752	R & D Electric	504630	09/24/21	P	30	135-55080-030-000	Maintenance & Repairs	295.00	7893	09/30/21
Totals for Check: 7893								295.00		

Vendor Number	Vendor Name	Invoice Number	Invoice Date	Inv Stat	Dept No	Account Number	Description	Line Item Value	Check Number	Check Date
3176	REY-MAR CONSTRUCTION	TCMUD109INVERNE	09/29/21	P	20	135-55081-020-000	Mainten & Repairs Collections	4,350.00	7894	09/30/21
Totals for Check: 7894								4,350.00		
2943	JPMORGAN CHASE BANK NA	09272021	09/27/21	P		135-20060-000-000	Procurement Clearing	4,542.56	7895	09/30/21
Totals for Check: 7895								4,542.56		
Grand Totals:								668,615.59		

****** End of Report *********

September Utility Billing Report

Fiscal Year 2020 - 2021

		September 2020	October 2020	November 2020	December 2020	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021
ebills		1015	1031	1055	1065	1084	1085	1095	1129	1141	1155	1184	1264	1267
Bills Mailed		3932	3921	3902	3884	3896	3888	3890	3875	3869	3881	3882	3884	3878
Bank Draft		648	651	649	653	645	653	660	663	667	668	664	658	659
Credit Card Draft		1278	1282	1297	1302	1319	1330	1331	1331	1357	1362	1376	1386	1400
Online Payments		1201	1258	1188	1234	1205	1124	1,211	1,185	1,201	1,206	1,190	1,186	1191
Late Notices		423	442	380	329	369	358^^	309	332	387	345	345	327	336
Disconnects		0*	39	25	20	13	26	0**	17	23	15	25	22	23
Connections	MUD	3393	3393	3393	3393	3393	3393	3393	3393	3393	3397	3397	3397	3397
Connections	PID	1444	1444	1444	1444	1444	1444	1444	1444	1444	1444	1444	1444	1444
Active Residential	MUD	-	-	-	-	3114	3113	3112	3114	3111	3117	3109	3114	3111
Active Commercial	MUD	-	-	-	-	251	253	253	253	253	255	255	254	255
Active Residential	PID	-	-	-	-	1405	1406	1404	1406	1405	1405	1404	1406	1406
Active Commercial	PID	-	-	-	-	37	37	37	37	37	37	37	37	37

^ In response to COVID-19 the District has suspended Late Notices

*** In response to COVID-19 the District has suspended Disconnects**

^^ In response to extreme weather the District has suspended Late Notices

**** In response to extreme weather the District has suspended Disconnects**

September Permits

Fiscal Year 2021

Date of Permit	Permit No.	Customer Deposit	Due to FW Water	Oversize Meter	Plumbing Inspections	Sewer Inspections	Fire Line	Misc. Income	Total
Total		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

CASH STATUS AS OF SEPTEMBER 2021			Restricted - Unable to be spent	Unrestricted-Available for spending	Total in Accounts (Restricted & Unrestricted)
135-10250	TexPool O & M (XXXXX0002)-General Fund Operating ***		$0	$3,132,101	$3,132,101
135-10300	Prosperity Bank (XXX8701) General Fund Operating	*	$312,285	$3,154,714	$3,466,999
135-10305	Prosperity Bank Reserve-Savings Acct (XXXXX7724)		$2,000,890	$0	$2,000,890
135-11100	Petty Cash Administration		$0	$150	$150
135-11150	Petty Cash Utility Billing		$0	$450	$450
137-10250	TexPool O & M (XXXXX0002) GASB Replacement		$3,253,456	$0	$3,253,456
517-10250	TexPool Construction Tax (XXXXX011) WWTP Improvements		$0	$0	$0
517-10300	Prosperity Bank Construction WWTP Improvements		$0	$0	$0
519-10250	Texpool Revenue Bond Construction (XXXXX015) SWIFT		$0	$0	$0
519-11155	Cash-Bond Escrow Bank of Texas (SWIFT)		$785,036	$0	$785,036
520-10250	Texpool Revenue Bond Water & Waste Water Systems 2019 (XXXXX018)		$4,033,089	$0	$4,033,089
520-10300	Prosperity Bank Construction Water & Waste Water Systems 2019		$0	$0	$0
520-11155	Cash-Bond Escrow Bank of Texas (Water & Waste Water Systems)		$0	$0	$0
528-10250	TexPool Revenue Bond Reserve (XXXXX014) WWTP Improvements		$894,311	$0	$894,311
533-10250	TexPool Tax I & S (XXXXX0003)		$32,911	$0	$32,911
533-10300	Prosperity Bank (XXX8701) Tax I&S		$0	$0	$0
534-10250	TexPool Revenue I & S (XXXXX013) WWTP Improvements		$26,061	$0	$26,061
535-10250	Texpool Revenue I & S (XXXXX017) SWIFT		$5,656	$0	$5,656
536-10250	TexPool Revenue I & S (XXXXX020) Water & Waste Water Systems		$565	$0	$565
			$11,344,260	$6,287,415	$17,631,675

Amount available in cash (MUD Accounts)	$6,287,415
Amount available for spending (MUD Accounts)	$6,287,415

*09/30/2021 Customer Water Deposits $312,285

Fire Department Cash

122-10250	TexPool O & M (XXXXX0002)-Fire Operating Cash		$0	$706,548	$706,548
122-10300	Prosperity Bank (XXX8701) Fire Operating		$0	$0	$0
			$0	$706,548	$706,548

Amount available in cash (Fire Department Accounts)	$706,548
Amount available for spending (Fire Department Accounts)	$706,548

		General Fund 135 Available
	$ 3,154,714	Prosperity General Fund
	$ 3,132,101	Texpool General Fund
	$ 600	Petty Cash
Total General Fund 135 Available for Spending	$ 6,287,415	

General Fund 135 Fund Balances

Nonspendable Fund Balance (Prepaids)	$ 3,486
Assigned Fund Balance (FY2020 Capital Projects plus prior year carry forward)	$ 1,518,116
Unassigned Fund Balance	$ 7,651,523
Current Year Revenue/Expenses	$ (86,851)
Total Nonspendable, Assigned & Committed Fund Balances - General Fund 135	$9,086,274

FY 2021 General Fund YTD Budget Variance

Account	Description	FY 2021 Adopted	Amended Budget	September Totals	YTD Total 9/30/2021	YTD % Budget (100% Target)	Remaining Budget
	General Fund Revenues						
135-40000-000-000	Property Taxes	136,531	136,531	275	134,965	98.85%	1,567
135-40002-000-000	Property Taxes/Delinquent	300	547	9	527	96.42%	20
135-40015-000-000	Property Taxes/P & I	300	367	51	581	158.05%	(213)
135-40025-000-000	PID Surcharges	163,725	163,725	-	-	0.00%	163,725
135-47000-000-000	Water	5,932,489	5,639,480	716,304	5,544,412	98.31%	95,068
135-47005-000-000	Sewer	3,677,146	3,560,000	323,774	3,572,334	100.35%	(12,334)
135-47025-000-000	Penalties	112,608	74,000	10,078	86,209	116.50%	(12,209)
135-47030-000-000	Service Charges (Disconnect Fees)	16,550	11,500	1,050	12,100	105.22%	(600)
135-47035-000-000	Plumbing Inspections	750	300	-	300	100.00%	-
135-47045-000-000	Sewer Inspections	2,500	100	-	100	100.00%	-
135-47070-000-000	TCCC Effluent Charges	50,000	42,000	14,246	72,210	171.93%	(30,210)
135-48010-000-000	Utility Fees	-	-	-	-	0.00%	-
135-49000-000-000	Capital Lease- Other Fin Sources	-	-	-	-	0.00%	-
135-49011-000-000	Interest Income	100,000	18,090	1,355	18,386	101.64%	(296)
135-49016-000-000	Cell Tower Revenue	14,146	14,146		14,146	100.00%	-
135-49018-000-000	Building Rent Income	-	-	-	-	0.00%	-
135-49026-000-000	Proceeds from Sale of Assets	5,000	19,575	4,400	23,975	122.48%	(4,400)
135-49035-000-000	Prior Year Reserves	-	-	-	-	0.00%	-
135-49036-000-000	GASB Reserves	-	-	-	-	0.00%	-
135-49005-000-000	Loan Proceeds	-	-	-	-	0.00%	-
135-49075-000-000	Oversize Meter Reimbursement	8,232	4,407	-	4,407	100.00%	-
135-49141-000-000	Interfund Transfer In	-	-	-	-	0.00%	-
135-49145-000-000	Intergov Transfer In	-	-	-	-	0.00%	-
135-49900-000-000	Miscellaneous Income	7,000	18,488	177	19,912	107.71%	(1,425)
135-49901-000-000	Records Management Revenue	-	-	-	-	0.00%	-
135-49903-000-000	Recovery of Prior Year Expense	-	-	-	-	0.00%	-
135-00000-000-000	Reimbursement	-	-	-	-	0.00%	-
	Total	**10,227,277**	**9,703,255**	**1,071,719**	**9,504,563**	**97.95%**	**198,692**

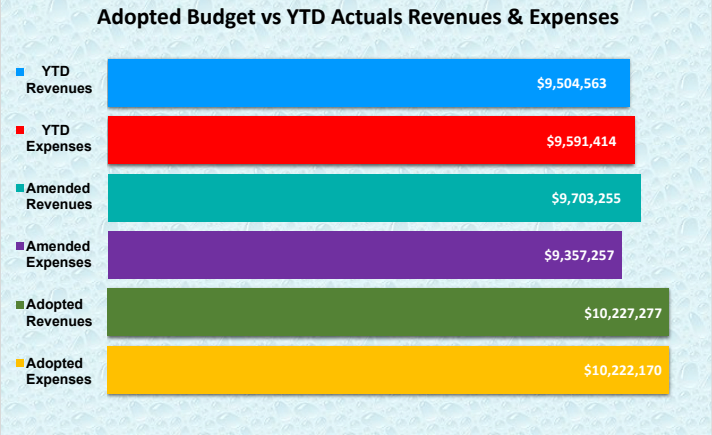
Water	**General Fund Expenses**						
135-50005-010-000	Salaries & Wages	365,309	358,000	25,497	335,989	93.85%	22,011
135-50010-010-000	Overtime	17,000	24,000	1,498	21,845	91.02%	2,155
135-50016-010-000	Longevity	5,435	5,435	-	5,435	100.00%	-
135-50017-010-000	Certification	6,000	3,025	250	3,025	100.00%	-
135-50020-010-000	Retirement	36,520	36,520	2,528	35,652	97.62%	868
135-50026-010-000	Medical Insurance	86,182	65,000	4,625	62,867	96.72%	2,133
135-50027-010-000	Dental Insurance	4,933	4,000	292	3,835	95.88%	165
135-50028-010-000	Vision Insurance	789	580	41	561	96.67%	19
135-50029-010-000	Life Insurance & Other	3,289	3,800	289	3,787	99.66%	13
135-50030-010-000	Social Security Taxes	24,412	24,412	1,658	22,425	91.86%	1,987
135-50035-010-000	Medicare Taxes	5,709	5,709	388	5,245	91.86%	465
135-50040-010-000	Unemployment Taxes	1,080	1,200	-	1,671	139.25%	(471)
135-50045-010-000	Workman's Compensation	10,877	12,500	901	12,500	100.00%	-
135-50060-010-000	Pre-emp Physicals/Testing	400	400	-	-	0.00%	400
135-50070-010-000	Employee Relations	300	300	-	103	34.38%	197
135-55005-010-000	Engineering	20,000	-	-	-	0.00%	-
135-55080-010-000	Maintenance & Repairs	124,000	96,000	3,147	80,718	84.08%	15,282
135-55085-010-000	Generator Maintenance & Repairs	3,000	2,000		889	44.47%	1,111
135-55090-010-000	Vehicle Maintenance	5,000	7,657		7,879	102.90%	(222)
135-55105-010-000	Maintenance-Heavy Equipment	3,500	3,500	-	1,114	31.83%	2,386
135-55120-010-000	Cleaning Services	1,000	1,000	249	1,036	103.62%	(36)
135-55135-010-000	Lab Analysis - MUD	7,500	7,500	200	3,641	48.54%	3,859
135-55135-010-001	Lab Analysis - PID	2,000	2,000	294	2,047	102.36%	(47)
135-60010-010-000	Communications/Mobiles	7,500	7,500	483	4,735	63.13%	2,765
135-60020-010-000	Electricity	123,487	123,487	13,115	123,528	100.03%	(40)
135-60066-010-000	Publications/Books/Subscripts	1,000	1,366	-	1,366	100.00%	-
135-60070-010-000	Dues & Memberships	500	500	-	-	0.00%	500
135-60080-010-000	Schools & Training	7,426	2,500	-	1,986	79.44%	514
135-60090-010-000	Safety Program	400	400	-	105	26.25%	295
135-60100-010-000	Travel & per diem	2,875	500	-	-	0.00%	500
135-60105-010-000	Rent/Lease Equipment	1,500	-	-	-	0.00%	-
135-60135-010-000	TCEQ Fees & Permits - MUD	30,000	30,000		29,117	97.06%	883
135-60135-010-001	TCEQ Fees & Permits - PID	-	-	-	-	0.00%	-
135-60150-010-000	Wholesale Water	2,596,295	2,316,841	230,151	1,808,666	78.07%	508,175
135-60245-010-000	Miscellaneous Expenses	200	-	-	-	0.00%	-
135-60280-010-000	Property Maintenance	3,000	1,000		245	24.50%	755
135-60285-010-000	Lawn Equipment & Maintenance	14,750	10,000		8,100	81.00%	1,900
135-60332-010-000	Interfund Transfer Out- Revenue I&S	565,820	565,820		565,819	100.00%	0
135-60333-010-000	Interfund Transfer Out- Bond Reserve	-	-	-	-	0.00%	-
135-60334-010-000	Interfund Transfer Out-Bank Reserve Account	75,000	75,000	-	-	0.00%	75,000
135-60360-010-000	Furniture/Equipment < $5000	2,500	383	-	383	100.00%	-
135-65005-010-000	Fuel & Lube	15,000	15,000	1,218	14,585	97.24%	415
135-65010-010-000	Uniforms	4,000	3,500	-	2,966	84.75%	534

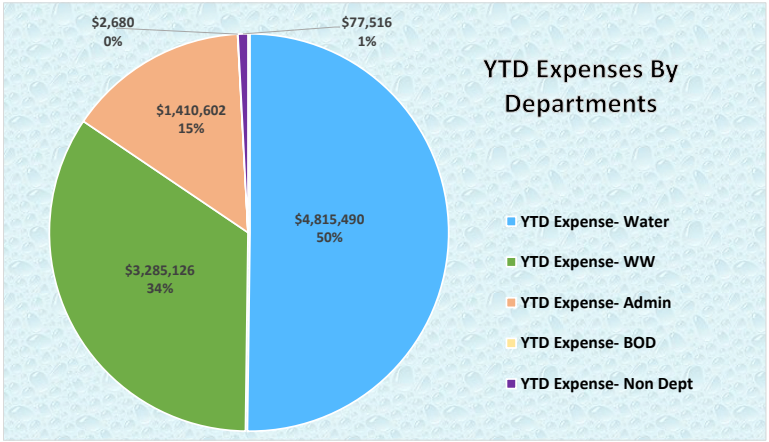
Account	Description	FY 2021 Adopted	Amended Budget	September Totals	YTD Total 9/30/2021	YTD % Budget (100% Target)	Remaining Budget
135-65030-010-000	Chemicals	25,000	25,000	2,598	25,231	100.93%	(231)
135-65035-010-000	Small Tools	1,200	1,200	640	640	53.35%	560
135-65040-010-000	Safety Equipment	1,000	1,000	-	-	0.00%	1,000
135-65050-010-000	Meter Expense	70,000	10,000	-	9,287	92.87%	713
135-65053-010-000	Meter Change Out Program	87,000	87,000	-	86,625	99.57%	375
135-69005-010-000	Capital Outlays	740,000	835,000	9,380	680,973	81.55%	154,027
135-69008-010-000	Short Term Debt-Principal	30,962	30,962	-	30,962	100.00%	(0)
135-69009-010-000	Short Term Debt-Interest	2,324	2,324	-	2,314	99.57%	10
135-69195-010-000	Gasb34/Reserve for Replacement	75,000	75,000	622,986	697,986	930.65%	(622,986)
135-69281-010-000	Water Tank Inspection Contract	108,000	108,000		107,607	99.64%	393
135-70040-010-000	Bond Related Expenses	-	-	-	-	0.00%	-
	Subtotal Water	**5,327,165**	**4,993,820**	**922,427**	**4,815,490**	**96.43%**	**178,330**
Wastewater							
135-50005-020-000	Salaries & Wages	483,633	465,000	33,431	435,298	93.61%	29,702
135-50010-020-000	Overtime	33,000	33,000	2,096	31,119	94.30%	1,881
135-50016-020-000	Longevity	7,420	7,420	-	7,420	100.00%	-
135-50017-020-000	Certification	8,100	8,100	675	7,800	96.30%	300
135-50020-020-000	Retirement	49,358	49,358	3,360	46,910	95.04%	2,449
135-50026-020-000	Medical Insurance	122,035	93,300	7,030	91,201	97.75%	2,099
135-50027-020-000	Dental Insurance	6,443	5,150	392	5,036	97.79%	114
135-50028-020-000	Vision Insurance	1,098	800	59	781	97.68%	19
135-50029-020-000	Life Insurance & Other	4,725	4,725	363	4,810	101.79%	(85)
135-50030-020-000	Social Security Taxes	32,993	30,500	2,148	28,782	94.37%	1,718
135-50035-020-000	Medicare Taxes	7,716	7,200	502	6,731	93.49%	469
135-50040-020-000	Unemployment Taxes	1,440	1,600	-	1,960	122.47%	(360)
135-50045-020-000	Workman's Compensation	14,607	16,302	1,218	16,302	100.00%	0
135-50060-020-000	Pre-emp Physicals/Testing	400	400	-	-	0.00%	400
135-50070-020-000	Employee Relations	300	300	-	135	45.10%	165
135-55005-020-000	Engineering	30,000	-	-	-	0.00%	-
135-55070-020-000	Independent Labor	15,000	-	-	-	0.00%	-
135-55080-020-000	Maintenance & Repairs- WWTP	108,000	85,000	15,548	95,561	112.42%	(10,561)
135-55081-020-000	Maintenance & Repairs- Collections	157,500	157,500	59,377	187,743	119.20%	(30,243)
135-55085-020-000	Generator Maintenance & Repairs	10,000	8,000		4,055	50.69%	3,945
135-55090-020-000	Vehicle Maintenance- WWTP	4,000	4,000	114	2,831	70.78%	1,169
135-55091-020-000	Vehicle Maintenance- Collections	13,000	8,500	367	7,905	93.00%	595
135-55105-020-000	Maintenance-Heavy Equipment	3,000	1,000		1,390	138.98%	(390)
135-55120-020-000	Cleaning Services	1,500	1,000	249	1,036	103.62%	(36)
135-55125-020-000	Dumpster Services	100,000	100,000	8,600	92,408	92.41%	7,592
135-55135-020-000	Lab Analysis	40,000	40,000	4,020	40,430	101.07%	(430)
135-60010-020-000	Communications/Mobiles	7,500	7,500	398	5,589	74.52%	1,911
135-60020-020-000	Electricity	157,735	157,735	14,209	146,198	92.69%	11,537
135-60066-020-000	Publications/Books/Subscripts	200	200	-	-	0.00%	200
135-60070-020-000	Dues & Memberships	300	300	-	-	0.00%	300
135-60080-020-000	Schools & Training	4,991	3,500	122	2,827	80.78%	673
135-60090-020-000	Safety Program	1,000	1,000	-	-	0.00%	1,000
135-60100-020-000	Travel & per diem	1,575	1,575	-	-	0.00%	1,575
135-60105-020-000	Rent/Lease Equipment	5,000	1,200	-	575	47.94%	625
135-60125-020-000	Advertising	2,500	-	-	-	0.00%	-
135-60135-020-000	TCEQ Fees & Permits	45,000	45,000	200	28,791	63.98%	16,209
135-60245-020-000	Miscellaneous Expenses	450	-	-	-	0.00%	-
135-60280-020-000	Property Maintenance	5,000	-	-	-	0.00%	-
135-60285-020-000	Lawn Equipment & Maintenance	14,000	10,000		9,660	96.60%	340
135-60331-020-000	Interfund Transfer Out-Tax I&S	114,681	114,681		114,681	100.00%	0
135-60332-020-000	Interfund Transfer Out- Revenue I&S	688,005	688,005		688,005	100.00%	0
135-60333-020-000	Interfund Transfer Out-Bond Reserve	-	-	-	-	0.00%	-
135-60334-020-000	Interfund Transfer Out-Bank Reserve Account	75,000	75,000	-	38,802	51.74%	36,198
135-60360-020-000	Furniture/Equipment < $5000	2,000	36	-	228	634.65%	(192)
135-65005-020-000	Fuel & Lube	12,500	12,500	625	13,242	105.93%	(742)
135-65010-020-000	Uniforms	6,280	4,500	-	4,168	92.62%	332
135-65030-020-000	Chemicals- WWTP	25,000	25,000	851	23,443	93.77%	1,557
135-65031-020-000	Chemicals- Collections	17,500	6,500	-	4,895	75.31%	1,605
135-65035-020-000	Small Tools	1,200	-		343	0.00%	(343)
135-65040-020-000	Safety Equipment	1,200	600		307	51.18%	293
135-65045-020-000	Lab Supplies	28,000	28,000		28,349	101.25%	(349)
135-69005-020-000	Capital Outlays	335,000	250,500	28,760	214,604	85.67%	35,896
135-69008-020-000	Short Term Debt-Principal	81,273	81,273	-	81,295	100.03%	(22)
135-69009-020-000	Short Term Debt-Interest	8,532	8,532	-	8,496	99.58%	36
135-69195-020-000	Gasb34/Reserve for Replacement	130,000	130,000	622,986	752,986	579.22%	(622,986)
135-70020-020	Capital Lease Issuance Cost	-	-	-	-	0.00%	-
	Subtotal Wastewater	**3,026,690**	**2,781,292**	**807,700**	**3,285,126**	**118.12%**	**(503,834)**
Board of Directors							
135-50005-026-000	Salaries & Wages	-	-	-	-	0.00%	-
135-50030-026-000	Social Security Taxes	-	-	-	-	0.00%	-
135-50035-026-000	Medicare Taxes	-	-	-	-	0.00%	-
135-55040-026-000	Unemployment Taxes	-	-	-	-	0.00%	-

Account	Description	FY 2021 Adopted	Amended Budget	September Totals	YTD Total 9/30/2021	YTD % Budget (100% Target)	Remaining Budget
135-50045-026-000	Workman's Compensation	30	10	1	10	95.30%	0
135-60066-026-000	Publications/Books/Subscripts	150	-	-	-	0.00%	-
135-60070-026-000	Dues & Memberships	750	1,195	-	1,195	100.00%	-
135-60075-026-000	Meetings	1,300	1,300	115	1,418	109.10%	(118)
135-60080-026-000	Schools & Training	4,000	-	-	-	0.00%	-
135-60100-026-000	Travel & per diem	5,000	-	-	-	0.00%	-
135-60245-026-000	Miscellaneous Expenses	2,000	57	-	58	100.88%	(1)
	Subtotal Board of Directors	**13,230**	**2,562**	**116**	**2,680**	**104.62%**	**(118)**
Administration							
135-50005-030-000	Salaries & Wages	626,592	510,100	39,525	488,770	95.82%	21,330
135-50010-030-000	Overtime	2,000	74	17	97	129.91%	(22)
135-50016-030-000	Longevity	2,668	2,668	-	2,668	100.00%	-
135-50020-030-000	Retirement	58,550	50,250	3,669	48,137	95.79%	2,113
135-50026-030-000	Medical Insurance	136,834	75,850	5,843	75,830	99.97%	20
135-50027-030-000	Dental Insurance	7,109	4,250	327	4,204	98.91%	46
135-50028-030-000	Vision Insurance	1,138	625	45	616	98.62%	9
135-50029-030-000	Life Insurance & Other	4,730	4,730	399	4,829	102.09%	(99)
135-50030-030-000	Social Security Taxes	39,138	30,250	2,308	28,818	95.27%	1,432
135-50035-030-000	Medicare Taxes	9,153	7,050	540	6,740	95.60%	310
135-50040-030-000	Unemployment Taxes	1,440	1,440	-	1,512	105.00%	(72)
135-50045-030-000	Workman's Compensation	1,573	1,700	129	1,542	90.71%	158
135-50060-030-000	Pre-emp Physicals/Testing	500	-	-	-	0.00%	-
135-50070-030-000	Employee Relations	8,000	4,000	-	3,422	85.55%	578
135-55005-030-000	Engineering	-	-	-	-	0.00%	-
135-55030-030-000	Software & Support	126,854	96,500	3,384	95,357	98.82%	1,144
135-55070-030-000	Independent Labor	15,000	20,000	1,000	16,573	82.86%	3,427
135-55080-030-000	Maintenance & Repairs	40,000	108,050	22,249	94,832	87.77%	13,218
135-55085-030-000	Generator Maintenance & Repairs	10,000	3,000		670	22.33%	2,330
135-55100-030-000	Building Maintenance & Supplies	-	-	-	-	0.00%	-
135-55120-030-000	Cleaning Services	15,000	15,000	1,836	16,348	108.98%	(1,348)
135-55160-030-000	Professional Outside Services	104,925	104,925	15,195	97,885	93.29%	7,040
135-55205-030-000	Utility Billing Contract	9,000	9,000	584	7,188	79.86%	1,812
135-60005-030-000	Telephone	9,680	8,000	430	7,365	92.06%	635
135-60010-030-000	Communications/Mobiles	3,000	3,000	225	2,700	90.00%	300
135-60020-030-000	Electricity	14,512	14,512	985	13,873	95.60%	638
135-60025-030-000	Water	5,000	3,750	382	3,828	102.09%	(78)
135-60035-030-000	Postage	30,000	30,000	1,793	21,713	72.38%	8,287
135-60040-030-000	Bank Service Charges & Fees	67,000	82,000	15,658	90,222	110.03%	(8,222)
135-60050-030-000	Bad Debt Expense	1,500	1,500	10,998	10,998	733.17%	(9,498)
135-60055-030-000	Insurance	84,000	84,000	6,725	80,698	96.07%	3,302
135-60066-030-000	Publications/Books/Subscripts	1,000	250	-	183	73.36%	67
135-60070-030-000	Dues & Memberships	6,000	6,000	-	6,017	100.28%	(17)
135-60075-030-000	Meetings	400	240	-	289	120.47%	(49)
135-60079-030-000	Public Education	6,000	3,063	-	3,063	100.00%	-
135-60080-030-000	Schools & Training	6,850	4,000		3,639	90.98%	361
135-60100-030-000	Travel & per diem	3,575	600	3	304	50.67%	296
135-60110-030-000	Physicals/Testing	200	-	-	-	0.00%	-
135-60115-030-000	Elections	5,000	9,330	-	9,330	100.00%	-
135-60125-030-000	Advertising	2,500	-	-	-	0.00%	-
135-60235-030-000	Security	1,288	1,288	24	312	24.22%	976
135-60245-030-000	Miscellaneous Expenses	500	500	-	392	78.40%	108
135-60246-030-000	General Manager Contingency	17,000	17,000	-	-	0.00%	17,000
135-60285-030-000	Lawn Equipment & Maintenance	5,000	5,000		3,543	70.85%	1,457
135-60360-030-000	Furniture/Equipment < $5000	2,500	-	-	-	0.00%	-
135-65010-030-000	Uniforms	2,050	1,000	-	-	0.00%	1,000
135-65055-030-000	Hardware IT	20,253	20,339	-	20,339	100.00%	-
135-65085-030-000	Office Supplies	6,000	4,000	759	4,683	117.06%	(683)
135-65090-030-000	Printer Supplies & Maintenance	-	-	-	-	0.00%	-
135-65095-030-000	Maintenance Supplies	4,000	4,000	433	4,553	113.82%	(553)
135-65105-030-000	Printing	2,500	-	-	-	0.00%	-
135-69005-030-000	Capital Outlays	138,000	129,975	(1,000)	123,356	94.91%	6,619
135-69170-030-000	Copier Lease Installments	4,000	4,000	265	3,168	79.19%	832
	Subtotal Administration	**1,669,510**	**1,486,808**	**134,730**	**1,410,602**	**94.87%**	**76,206**
Non Departmental							
135-55045-039-000	Legal	135,000	50,000	9,883	41,573	83.15%	8,427
135-55055-039-000	Auditing	33,800	26,000	-	21,000	80.77%	5,000
135-55060-039-000	Appraisal	11,925	11,925	2,148	11,122	93.27%	803
135-55065-039-000	Tax Admin Fees	4,850	4,850	-	3,821	78.78%	1,029
	Subtotal Non Departmental	**185,575**	**92,775**	**12,031**	**77,516**	**83.55%**	**15,259**
	Total General Fund Revenues	**10,227,277**	**9,703,255**	**1,071,719**	**9,504,563**	**97.95%**	**198,692**
	Total General Fund Expenses	**10,222,170**	**9,357,257**	**1,877,003**	**9,591,414**	**102.50%**	**(234,157)**
	Net Budget Surplus (Deficit)	**5,107**	**345,998**	**(805,285)**	**(86,850)**	**-4.55%**	**(432,849)**

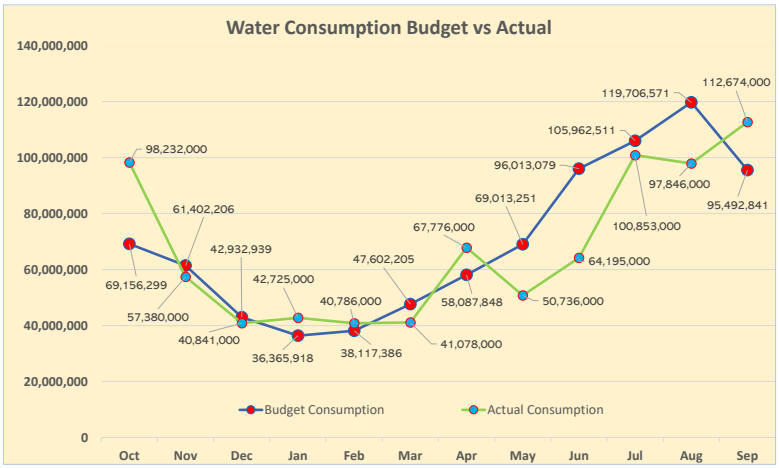
FY 2021 Combined Financials

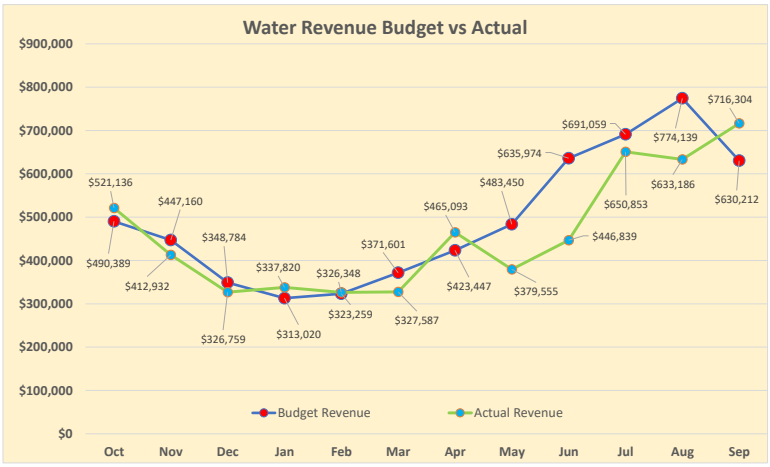
YTD as of 09/30/2021

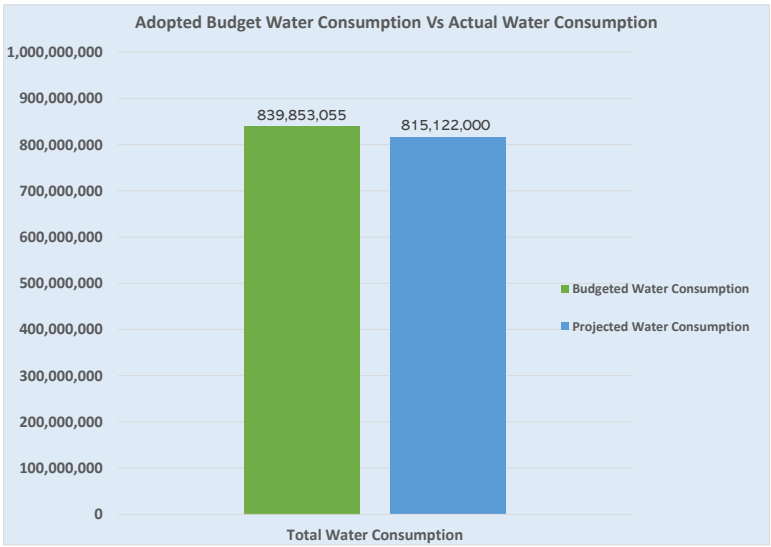


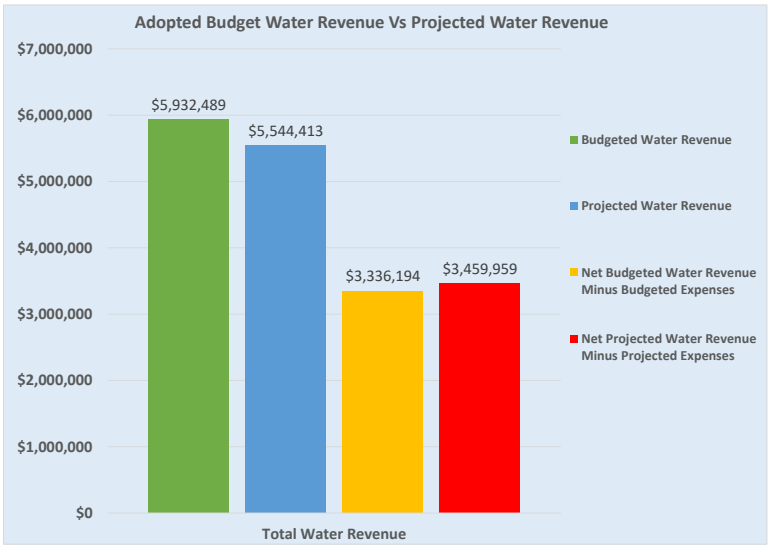


Water Budget vs Actual









Presented by:
Finance Department

TROPHY CLUB MUD NO. 1 - FIRE DEPARTMENT
BALANCE SHEET
SEPTEMBER 2021

122

ASSETS	FIRE DEPT.
CASH IN BANK	-
INVESTMENTS	706,548
PREPAID EXPENSES	-
ADVALOREM PROPERTY TAXES RECEIVABLE	14,359
EMERGENCY SERVICES ASSESSMENTS RECEIVABLE	-
UTILITY AND OTHER ACCOUNTS RECEIVABLE	-
TOTAL ASSETS	**720,907**
LIABILITIES AND FUND BALANCE	
LIABILITIES	
DEFERRED REVENUE - PROPERTY TAXES/ASSESSMENTS	(2,354)
ACCOUNTS AND OTHER PAYABLES	-
TOTAL LIABILITIES	**(2,354)**
FUND BALANCE	
DESIGNATED FOR FUTURE ASSET REPLACEMENT	-
NON-SPENDABLE FUND BALANCE	-
UNASSIGNED FUND BALANCE	668,784
RESERVE FOR ENCUMBRANCES	-
NET REVENUES / EXPENDITURES	54,476
TOTAL FUND BALANCE	**723,260**
TOTAL LIABILITIES AND FUND BALANCE	**720,907**

TROPHY CLUB MUD NO. 1 - O&M (GENERAL FUND)
BALANCE SHEET
SEPTEMBER 2021

	135 GENERAL FUND	137 GASB	TOTAL
ASSETS			
CASH ON HAND	600	-	600
CASH IN BANK-CHECKING	3,466,999	-	3,466,999
CASH IN BANK-SAVINGS-CASH RESERVE	2,000,890	-	2,000,890
INVESTMENTS-TEXPOOL	3,132,101	3,253,456	6,385,557
PREPAID EXPENSES	4,370	-	4,370
ADVALOREM PROPERTY TAXES RECEIVABLE	1,452	-	1,452
UTILITY AND OTHER ACCOUNTS RECEIVABLE	1,304,064	-	1,304,064
TOTAL ASSETS	9,910,476	3,253,456	13,163,932
LIABILITIES AND FUND BALANCE			
LIABILITIES			
DEFERRED REVENUE - AD VALOREM PROPERTY TAXES	(300)	-	(300)
ACCOUNTS AND OTHER PAYABLES	512,217	-	512,217
CUSTOMER DEPOSITS	312,285	-	312,285
			-
TOTAL LIABILITIES	824,202	-	824,202
FUND BALANCE			
NON-SPENDABLE FUND BALANCE	3,486		3,486
ASSIGNED FUND BALANCE	1,518,116		1,518,116
ASSIGNED FUND BALANCE/TOWN ELEVATED STORAGE TANK		315,000	315,000
ASSIGNED FUND BALANCE/WATER REPLACEMENT		1,083,885	1,083,885
ASSIGNED FUND BALANCE/SEWER REPLACEMENT		1,181,690	1,181,690
ASSIGNED FUND BALANCE/FIRE DEPARTMENT		472,881	472,881
ASSIGNED FUND BALANCE/WWTP MBR REPLACEMENT		200,000	200,000
UNASSIGNED FUND BALANCE	7,651,523	-	7,651,523
COMMITTED FUND BALANCE	-	-	-
NET REVENUES / EXPENDITURES	(86,851)	-	(86,851)
			-
TOTAL FUND BALANCE	9,086,274	3,253,456	12,339,730
TOTAL LIABILITIES AND FUND BALANCE	9,910,476	3,253,456	13,163,932

TROPHY CLUB MUD NO. 1 - WWTP TAX BOND CONST
BALANCE SHEET
SEPTEMBER 2021

	517
ASSETS	**TAX BOND CONSTRUCTION**
CASH IN BANK	-
INVESTMENTS	-
ACCOUNTS RECEIVABLE	-
TOTAL ASSETS	**-**
LIABILITIES AND FUND BALANCE	
LIABILITIES	
ACCOUNTS AND OTHER PAYABLES	-
TOTAL LIABILITIES	**-**
FUND BALANCE	
ASSIGNED FUND BALANCE	(199,119)
NET REVENUES / EXPENDITURES	199,119
TOTAL FUND BALANCE	**-**
TOTAL LIABILITIES AND FUND BALANCE	**-**

TROPHY CLUB MUD NO. 1 - REVENUE BOND CONSTRUCTION
NSII FORT WORTH- SWIFT FUNDING
BALANCE SHEET
SEPTEMBER 2021

519

ASSETS	REVENUE BOND CONSTRUCTION
CASH IN BANK	-
CASH IN ESCROW	785,036
INVESTMENTS	-
ACCOUNTS RECEIVABLE	-
TOTAL ASSETS	**785,036**
LIABILITIES AND FUND BALANCE	
LIABILITIES	
ACCOUNTS AND OTHER PAYABLES	81,691
TOTAL LIABILITIES	**81,691**
FUND BALANCE	
ASSIGNED FUND BALANCE	703,276
NET REVENUES / EXPENDITURES	69
TOTAL FUND BALANCE	**703,345**
TOTAL LIABILITIES AND FUND BALANCE	**785,036**

TROPHY CLUB MUD NO. 1 - 16" WATERLINE REV BOND
BALANCE SHEET
SEPTEMBER 2021

FUND 520

ASSETS	16" 2019 REVENUE BOND
CASH IN BANK	4,033,089
INVESTMENTS	-
ACCOUNTS RECEIVABLE	-
TOTAL ASSETS	**4,033,089**
LIABILITIES AND FUND BALANCE	
LIABILITIES	
ACCOUNTS AND OTHER PAYABLES	-
TOTAL LIABILITIES	**-**
FUND BALANCE	
ASSIGNED FUND BALANCE	4,151,383
NET REVENUES / EXPENDITURES	(118,294)
TOTAL FUND BALANCE	**4,033,089**
TOTAL LIABILITIES AND FUND BALANCE	**4,033,089**

TROPHY CLUB MUD NO. 1 - REVENUE BOND RESERVE
BALANCE SHEET
SEPTEMBER 2021

528

ASSETS	REVENUE BOND RESERVE
CASH IN BANK	-
INVESTMENTS	894,311
ACCOUNTS RECEIVABLE	-
TOTAL ASSETS	**894,311**
LIABILITIES AND FUND BALANCE	
LIABILITIES	
ACCOUNTS AND OTHER PAYABLES	-
TOTAL LIABILITIES	**-**
FUND BALANCE	
ASSIGNED FUND BALANCE	893,867
NET REVENUES / EXPENDITURES	444
TOTAL FUND BALANCE	**894,311**
TOTAL LIABILITIES AND FUND BALANCE	**894,311**

TROPHY CLUB MUD NO. 1 - I&S (DEBT SERVICE)
BALANCE SHEET
SEPTEMBER 2021

	533
	INTEREST & SINKING DEBT
ASSETS	
CASH IN BANK	-
INVESTMENTS	32,911
PREPAID EXPENSES	-
ADVALOREM PROPERTY TAXES RECEIVABLE	8,136
ACCOUNTS RECEIVABLE-OTHER	-
TOTAL ASSETS	**41,047**
LIABILITIES AND FUND BALANCE	
LIABILITIES	64,064
DEFERRED REVENUE - AD VALOREM PROPERTY TAXES	(1,467)
ACCOUNTS AND OTHER PAYABLES	-
TOTAL LIABILITIES	**62,597**
FUND BALANCE	
ASSIGNED FUND BALANCE	(19,950)
NET REVENUES / EXPENDITURES	(1,600)
TOTAL FUND BALANCE	**(21,550)**
TOTAL LIABILITIES AND FUND BALANCE	**41,047**

TROPHY CLUB MUD NO. 1 - REVENUE BOND I&S (WWTP)
BALANCE SHEET
SEPTEMBER 2021

534

	REVENUE BOND I&S WWTP
ASSETS	
CASH IN BANK	-
INVESTMENTS	26,061
ACCOUNTS RECEIVABLE	-
TOTAL ASSETS	**26,061**
LIABILITIES AND FUND BALANCE	
LIABILITIES	
ACCOUNTS AND OTHER PAYABLES	-
TOTAL LIABILITIES	**-**
FUND BALANCE	
ASSIGNED FUND BALANCE	25,988
NET REVENUES / EXPENDITURES	72
TOTAL FUND BALANCE	**26,061**
TOTAL LIABILITIES AND FUND BALANCE	**26,061**

TROPHY CLUB MUD NO. 1 - SWIFT REVENUE BOND I&S
BALANCE SHEET
SEPTEMBER 2021

	535 NSII FTW SWIFT REVENUE BOND I&S
ASSETS	
CASH IN BANK	-
INVESTMENTS	5,656
ACCOUNTS RECEIVABLE	-
TOTAL ASSETS	**5,656**
LIABILITIES AND FUND BALANCE	
LIABILITIES	
ACCOUNTS AND OTHER PAYABLES	-
TOTAL LIABILITIES	**-**
FUND BALANCE	
ASSIGNED FUND BALANCE	5,625
NET REVENUES / EXPENDITURES	31
TOTAL FUND BALANCE	**5,656**
TOTAL LIABILITIES AND FUND BALANCE	**5,656**

TROPHY CLUB MUD NO. 1 - REVENUE BOND I&S
WATER & WASTEWATER SYSTEM 2019
BALANCE SHEET
SEPTEMBER 2021

536

ASSETS	REVENUE BOND SERIES 2019 I&S
CASH IN BANK	-
INVESTMENTS	565
ACCOUNTS RECEIVABLE	-
TOTAL ASSETS	**565**
LIABILITIES AND FUND BALANCE	
LIABILITIES	
ACCOUNTS AND OTHER PAYABLES	-
TOTAL LIABILITIES	**-**
FUND BALANCE	
ASSIGNED FUND BALANCE	531
NET REVENUES / EXPENDITURES	34
TOTAL FUND BALANCE	**565**
TOTAL LIABILITIES AND FUND BALANCE	**565**

REGULAR MEETING MINUTES
TROPHY CLUB MUNICIPAL UTILITY DISTRICT NO. 1
BOARD OF DIRECTORS
SEPTEMBER 20, 2021 at 6:30 p.m.

Trophy Club Municipal Utility District No. 1 Board of Directors, of Denton and Tarrant Counties, met in a regular session meeting on September 20, 2021 at 6:32 p.m., in the Boardroom of the Administration Building, 100 Municipal Drive, Trophy Club, Texas 76262. The meeting was held within the boundaries of the District and was open to the public.

STATE OF TEXAS §
COUNTIES OF DENTON AND TARRANT §

BOARD MEMBERS PRESENT:

Steve Flynn	President
Mark Chapman	Vice President
Kelly Castonguay	Secretary/Treasurer
William C. Rose	Director

BOARD MEMBERS ABSENT:

Kevin R. Carr	Director

STAFF PRESENT:

Alan Fourmentin	General Manager
Laurie Slaght	District Secretary
Mike McMahon	Operations Manager
Steven Krolczyk	Finance Manager
Tony Corbett	Legal Counsel

CALL TO ORDER AND ANNOUNCE A QUORUM

President Flynn announced the date of September 20, 2021, called the meeting to order and announced a quorum present at 6:30 p.m.

PUBLIC HEARING

Trophy Club Municipal Utility District No. 1 will conduct a Public Hearing regarding adoption of the final District Tax Rates for Tax Year 2021 which are $0.10588/$100 of assessed valuation which is a decrease of $0.00186 from 2020 Tax Year.

President Flynn opened the Public Hearing at 6:33 p.m.

There were no speakers for the Public Hearing.

President Flynn closed the Public Hearing at 6:33 p.m.

CITIZEN COMMENTS

John Doshier 3 Paint Rock Ct.

REPORTS & UPDATES

1. Staff Reports
   a. Capital Improvement Projects
   b. Water Operations Report
   c. Wastewater System Reports
   d. Finance Reports

   General Manager Alan Fourmentin presented the monthly staff reports and answered questions related thereto. Fourmentin updated the Board with the results of the smoke testing and stated that the testing will work well with the SSOI plan submitted to TCEQ.

CONSENT AGENDA

2. Consider and act to approve the Consent Agenda.
   a. August 2021 Combined Financials
   b. August 16, 2021 Regular Meeting Minutes

Motion made by Director Chapman and seconded by Director Castonguay to approve the Consent Agenda.

Motion carried unanimously

REGULAR SESSION

3. Consider and act regarding adoption of Resolution No. 2021-0920A approving Budget for Fiscal Year 2022.

Motion made by Director Rose and seconded by Director Castonguay to approve Resolution No. 2021-0920A of Trophy Club Municipal Utility District No. 1, of Denton and Tarrant counties, Texas, adopting a budget for the fiscal year beginning October 1, 2021 and ending September 30, 2022.

Motion carried unanimously

4. Consider and take appropriate action to adopt Rate Order No. 2021-0920A amending water and sewer rates and setting an effective date of October 1, 2021.

Motion made by Director Rose and seconded by Director Castonguay to adopt rate order No. 2021-0920A amending water rates and setting an effective date of October 1, 2021.

Motion Carried unanimously

5. Consider and act regarding Order No. 2021-0920B, fixing and levying Trophy Club Municipal Utility District No. 1 Debt Service Tax Rate and Operations and Maintenance Tax Rate for 2021 Tax Year.

Motion made by Director Castonguay and seconded by Director Rose adopt Order No. 2021-0920B levying Trophy Club Municipal Utility District No. 1 Debt Service tax rate at $0.03489 per $100 of taxable value and Maintenance tax rate at $0.07099 per $100 of taxable value for the 2021 tax year; and amend the Order's Section 2 reference to 2022 tax year to state 2021 tax year.

Motion carried unanimously

6. Consider and act to approve of Amendment to District Information Form, including Notice to Purchaser Form.

Motion made by Director Rose and seconded by Director Castonguay to approve the Amendment to District Information Form including Notice to Purchaser Form showing the total Trophy Club Municipal Utility District No. 1 tax levy of $0.10588 per $100 of taxable value and the amendment to the District Boundary description.

Motion carried unanimously

7. Consider and act to adopt Resolution 2021-0920B approving 2021 Tax Roll for Trophy Club Municipal Utility District No. 1.

Motion made by Director Rose and seconded by Director Chapman to approve Resolution 2021-0920B approving the 2021 tax roll for Trophy Club Municipal Utility District No. 1. The Board of Directors approved tax rate of $0.10588/$100 assessed value, being imposed on each property included on the certified appraisal rolls for the District for the 2021 tax year, totals $2,096,089 tax levy. The Board hereby declares that the appraisal rolls with amounts of tax entered shall constitute the District's tax roll for the 2021 tax year.

Motion carried unanimously

8. Consider and act regarding annual review of District Investment Policy and Investment Strategies including:

    a. Adopt Order No. 2021-0920C approving Amended and Restated Investment Policy, including the District’s Investment Strategies and Appointment of Investment Officer(s).

Motion made by Director Rose and seconded by Director Castonguay to adopt Order No. 2021-0920C approving Amended and Restated Investment Policy, including the District's Investment Strategies and appointment of Alan Fourmentin and Steven Krolczyk as Investment Officers.

Motion carried unanimously

9. Consider and act to adopt Resolution No. 2021-0920C Cash Reserve Policy.

Motion made by Director Rose and seconded by Director Castonguay to adopt Resolution No. 2021-0920C Cash Reserve Policy and move the $1,245,972 in Undesignated Reserves to Rehabilitation & Replacement Reserves.

Motion carried unanimously

10. Consider and take appropriate action to approve Master Client Agreement and Statement of Work with M3 Networks for information Technology Services and cyber security for Fiscal Year 2022 and authorize the General Manager to execute the contract.

Motion made by Director Chapman and seconded by Director Rose to approve Master Client Agreement and Statement of Work with M3 Network for Information Technology Services and cyber security for FY 2022 and authorize General Manager to execute the contract.

Motion carried unanimously

THE BOARD CONVENED INTO EXECUTIVE SESSION AT 7:05 P.M.

EXECUTIVE SESSION

11. Pursuant to Section 551.072 of the Texas Open Meetings Act, the Board may deliberate the purchase, exchange, lease, or value of real property if deliberation in an open meeting would have a detrimental effect on the position of the governmental body in negotiations with a third person:

    a. Purchase of Easements or Real Property interests required for access to Wastewater Lift Station No. 1

12. Deliberations pursuant to Section 551.074(a)(1) of the Texas Open Meetings Act regarding appointment, employment, evaluation, reassignment, duties, discipline, or dismissal of a public officer or employee: General Manager annual review.

THE BOARD RECONVENED INTO REGULAR SESSION AT 8:35 P.M.

REGULAR SESSION

13. Consider and take appropriate action regarding approval of Amendment to Employment Agreement between the District and its General Manager.

Motion made by Director Rose and seconded by Director Castonguay to approve an amendment to the General manager's contract as discussed in executive session and authorize the Board President to execute the document after legal counsel review and approval.

Motion carried unanimously

14. Items for future agendas: Director Rose would like to have staff look at Solar options for the District.

15. Set future Meeting dates. October 18, 2021
November 15, 2021
December 14, 2021 Tuesday @6:30

ADJOURN

President Flynn called the meeting adjourned at 8:39 p.m.

_____
Steve Flynn, President

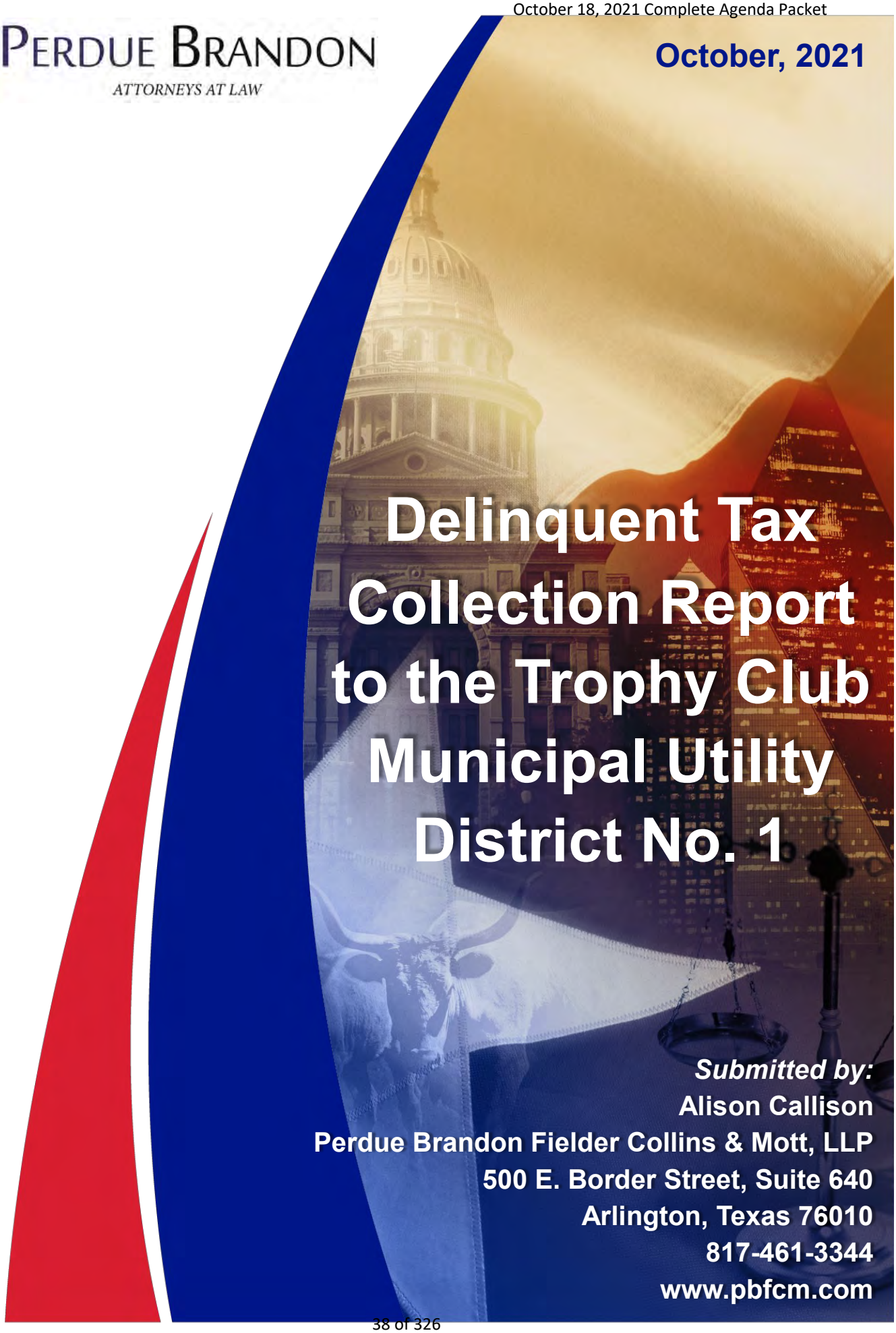
_____
Kelly Castonguay, Secretary/Treasurer

(SEAL)

_____
Laurie Slaght, District Secretary

PERDUE BRANDON
ATTORNEYS AT LAW

October, 2021



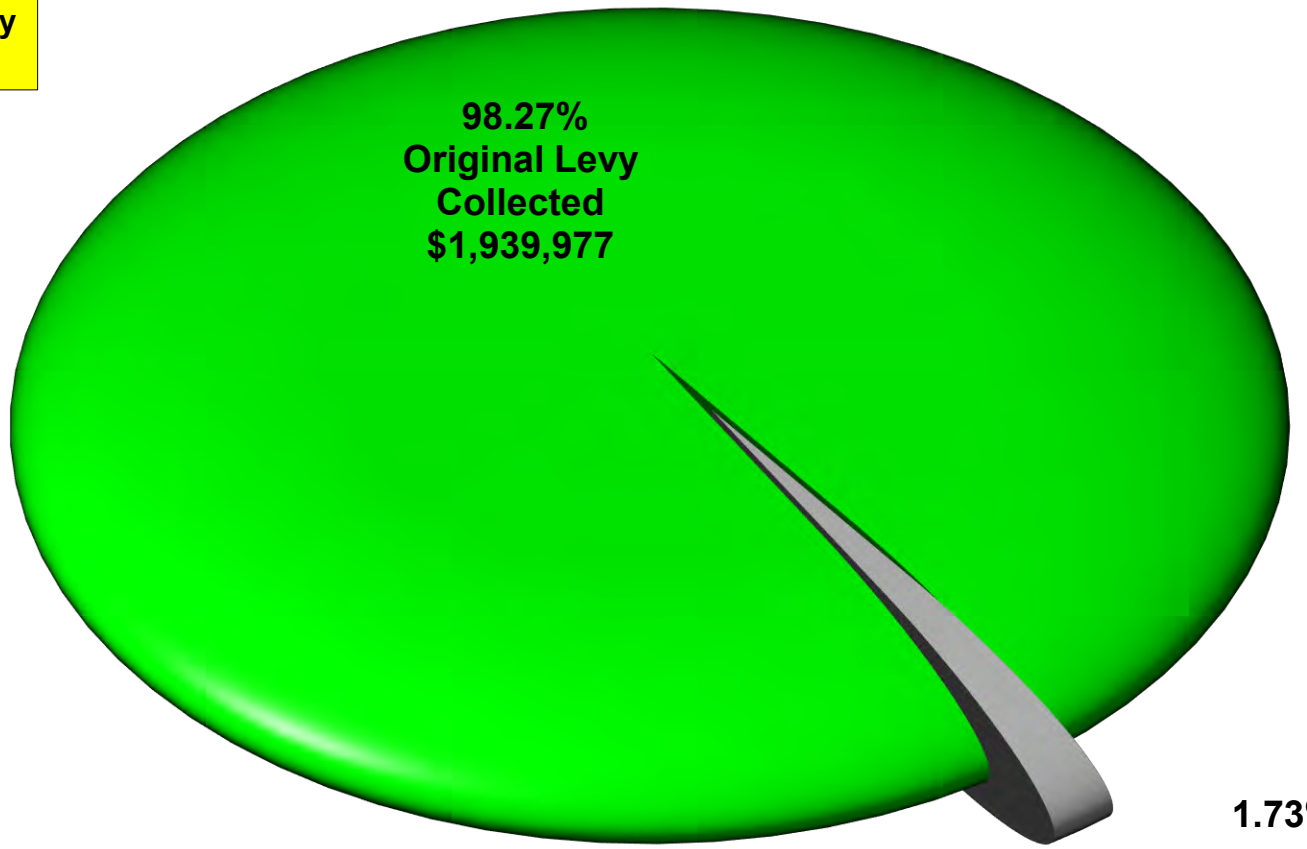
Delinquent Tax Collection Report to the Trophy Club Municipal Utility District No. 1

Submitted by:
Alison Callison
Perdue Brandon Fielder Collins & Mott, LLP
500 E. Border Street, Suite 640
Arlington, Texas 76010
817-461-3344
www.pbfcm.com

TROPHY CLUB MUNICIPAL UTILITY DISTRICT No. 1

2020 Tax Year Analysis

Original 2020 Tax Year Levy $1,974,160

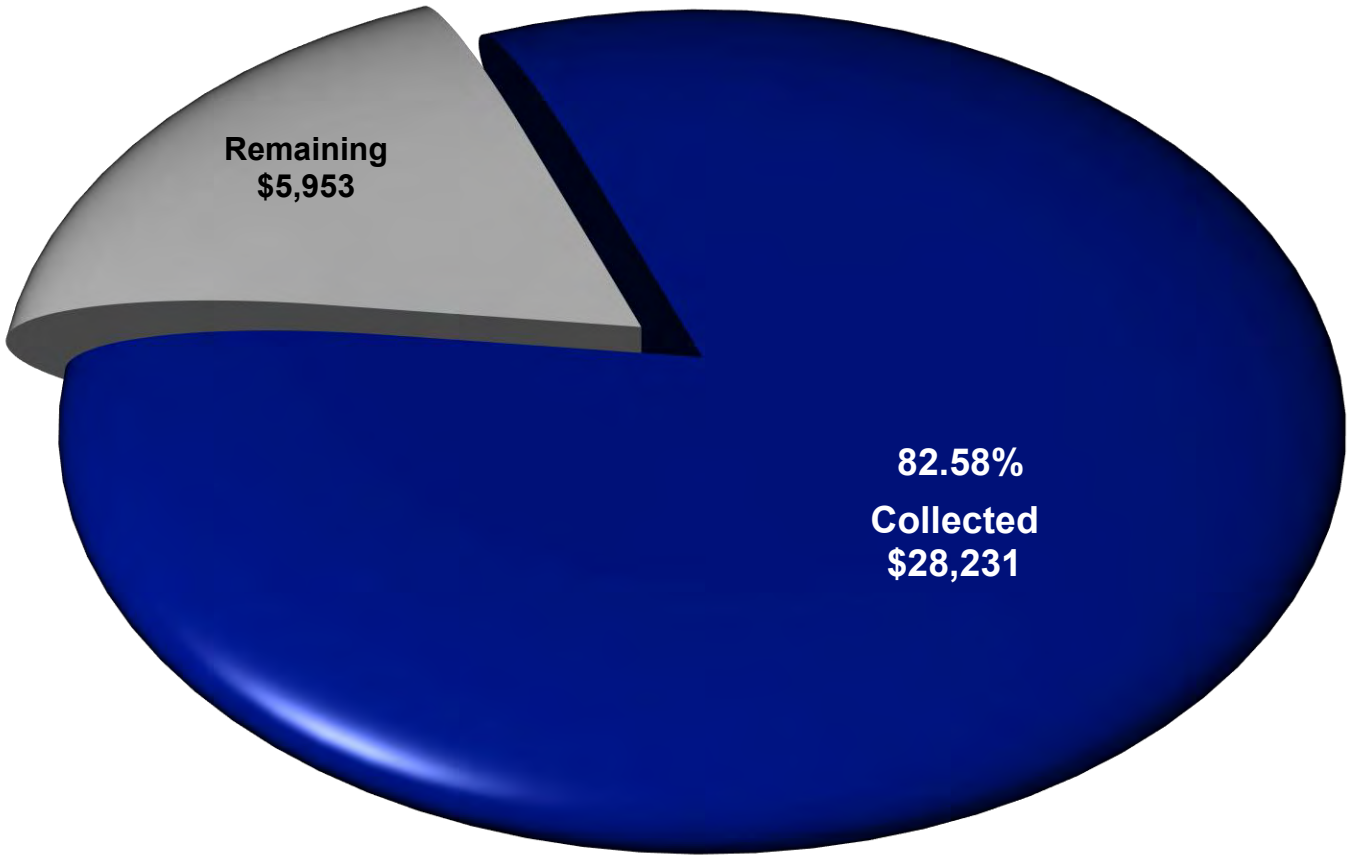


Source: Denton County Tax Office, Year-To-Date Summary Reports. **Perdue, Brandon, Fielder, Collins & Mott, L.L.P.**

TROPHY CLUB MUNICIPAL UTILITY DISTRICT No. 1

Delinquent Tax Collections for the 2020 Tax Year

Collections from 7/1/2021 thru 9/30/2021



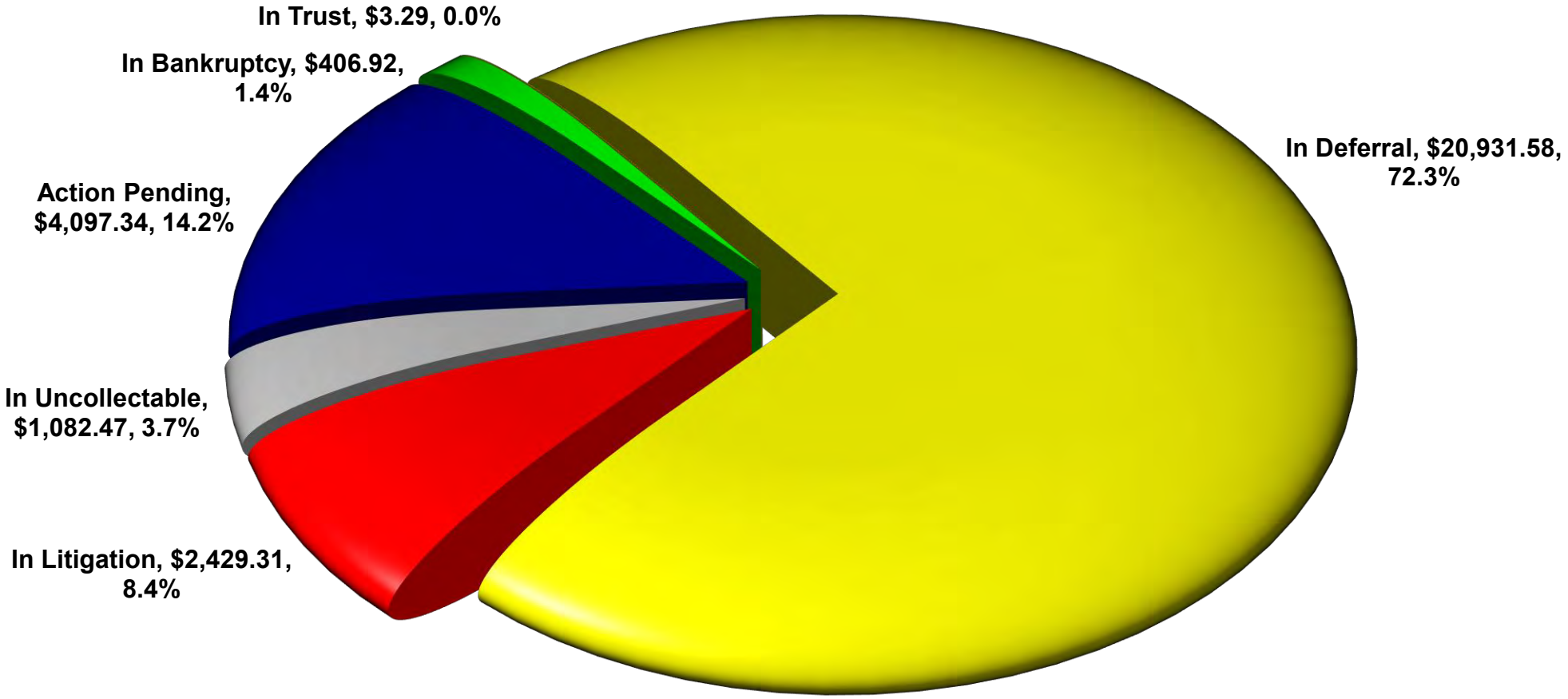
Adjusted Delinquent July 1, 2021 Turnover $34,184

Source: Denton County Tax Office, Year-To-Date Summary Reports. Collections and Turnover Account for Adjustments and Refunds. Base Taxes Only - No Penalties or Interest Added.

Perdue, Brandon, Fielder, Collins & Mott, L.L.P.

Trophy Club Municipal Utility District No. 1

Analysis of Delinquent Tax Roll - Status of Outstanding Accounts



Action Pending Accounts: Payment Agreements, Notification Letters, Telephone Collections, Lienholder Notification, Address Research, Title Research, Property Inspection.

As of October 12, 2021 there was $28,951 in base taxes due on 78 accounts. Source: Denton County Tax Office tape download.

PERDUE BRANDON FIELDER COLLINS & MOTT LLP
ATTORNEYS AT LAW

AUTHORITY ACTIVITY ANALYSIS

TROPHY CLUB MUNICIPAL UTILITY DISTRICT #1 As Of 10/12/2021, Tax Years Between 1997 And 2020

Description	# Properties	Pct Of Total	Base Tax Amount	Pct Of Total
In Bankruptcy	1	1.22%	$406.92	1.41%
In Trust	4	4.88%	$3.29	0.01%
In Deferral	8	9.76%	$20,931.58	72.30%
In Litigation	5	6.10%	$2,429.31	8.39%
In Uncollectable	21	25.61%	$1,082.47	3.74%
Action Pending	43	52.44%	$4,097.34	14.15%
Totals	82	100.00%	$28,950.91	100.00%

Dollar Range	# Properties	Pct Of Total	Base Tax Amount	Pct Of Total
$0.01 - $100.00	57	73.08%	$821.45	2.84%
$100.01 - $250.00	3	3.85%	$551.61	1.91%
$250.01 - $500.00	6	7.69%	$1,912.44	6.61%
$500.01 - $1000.00	4	5.13%	$2,836.23	9.80%
$1000.01 - $2500.00	5	6.41%	$6,323.99	21.84%
$2500.01 - $5000.00	2	2.56%	$8,517.99	29.42%
$5000.01 - $10,000.00	1	1.28%	$7,987.20	27.59%
Totals	78	100.00%	$28,950.91	100.00%

Year	# Transaction	Pct Of Total	Base Tax Amount	Pct Of Total
2006	1	0.61%	$306.84	1.06%
2007	1	0.61%	$517.32	1.79%
2008	1	0.61%	$530.21	1.83%
2009	1	0.61%	$495.08	1.71%
2010	11	6.75%	$2,972.78	10.27%
2011	12	7.36%	$2,377.37	8.21%
2012	8	4.91%	$1,913.91	6.61%
2013	10	6.13%	$2,077.28	7.18%
2014	14	8.59%	$2,266.55	7.83%
2015	14	8.59%	$1,970.99	6.81%
2016	11	6.75%	$1,956.33	6.76%
2017	11	6.75%	$979.93	3.38%
2018	16	9.82%	$2,194.92	7.58%
2019	19	11.66%	$2,761.90	9.54%
2020	33	20.25%	$5,629.50	19.44%
Totals	163	100.00%	$28,950.91	100.00%

***Number of properties may differ in the first two sections because a property may reside in more than one category in the first section.*

Top Tax Due Report

Top 100 Properties - TROPHY CLUB MUNICIPAL UTILITY DISTRICT #1

GEO Code	Legal Description			
209674DEN	THE ESTATES OF HOGANS GLEN PH II BLK 1 LOT 6 ACRES: 0.495700			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
799	BAKER BOB J	2010-2016	$7,987.20	$12,985.82
72060DEN	TROPHY CLUB # 6 LOT 499 ACRES: 0.384000			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
76	MCDONALD JAMES E & HUESTIS LAURA LEA TR	2006-2018	$4,508.02	$7,571.82
71012DEN	TROPHY CLUB #10 LOT 1219 ACRES: 0.235000			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
968	BOREN BENJAMIN C & BEVERLY C	2010-2019	$3,608.13	$4,996.67
11514221TAR	DIEGO'S TEX MEX KITCHEN PERSONAL PROPERTY TANGIBLE COMMERCIAL			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
59	SUMMERS, JAMES M	2010-2014	$1,355.94	$3,576.45
71779DEN	TROPHY CLUB # 2 LOT 77 ACRES: 0.253600			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91176	PARROW JAMES J & ELENA	2017-2019	$1,214.34	$1,374.65
72277DEN	TROPHY CLUB # 3 LOT 174 ACRES: 0.256100			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
914	MORTON DENVER & JANIE	2018-2019	$745.09	$1,111.12
650109DEN	PERSONAL PROPERTY - DENTIST LOCATION: 925 TROPHY CLUB DR TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
90829	MEMBERS ONLY DENTAL PA	2018-2019	$726.47	$1,207.10
70173DEN	TROPHY CLUB OAK HILL LOT 15 ACRES: 0.164400			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91396	RYAN BRUCE E & SHELIA A	2018-2019	$634.36	$703.67
14692614TAR	MAR-COSINA TEX-MEX GOURMET LLC PERSONAL PROPERTY TANGIBLE COMMERCIAL			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
92145	MAR-COSINA TEX-MEX GOURMET LLC	2018-2019	$439.91	$638.75
72370DEN	TROPHY CLUB # 2 LOT 141 ACRES: 0.301400			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1750	LYNCH HELEN M	2018-2019	$324.21	$466.10
620602DEN	PERSONAL PROPERTY - DENTIST OFFICE LOCAITON : 301 TROPHY LAKE DR STE 120, TROPHY			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1560	BURGAR BRANDON	2013-2014	$310.41	$739.23
926478DEN	PERSONAL PROPERTY - CHIROPRACTOR LOCATION : 100 TROPHY CLUB DR. STE 108 TROPHY			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1242	FORD LESLIE	2012-2017	$304.07	$655.23
339971DEN	PERSONAL PROPERTY - AIRCRAFT CESSNA 150L 1972-N5428Q LOCATION : NORTHWEST			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
759	MORRISON AVIATION LLC	2010-2019	$297.43	$675.63
11514205TAR	WEINBERGERS DELICATESSEN PERSONAL PROPERTY TANGIBLE COMMERCIAL			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
58	WEINBERGER DELI TWO LLC	2016-2019	$297.12	$522.76
13741209TAR	OLIVER WYMAN INC PERSONAL PROPERTY TANGIBLE COMMERCIAL			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91516	OLIVER WYMAN INC	2019	$119.13	$190.13
469054DEN	PERSONAL PROPERTY - RETAIL STORE LOCATION: 301 TROPHY LAKE DR STE 124, TROPHY			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1184	VERIZON	2011-2013	$82.41	$214.04

676474DEN	PERSONAL PROPERTY - DRY CLEANERS LOCATION: 2003 SH 114 STE 390 TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
90856	J.A.E.H.K. INC	2018-2019	$69.77	$116.10
336817DEN	PERSONAL PROPERTY - DRY CLEANERS DROP OFF LOCATION : 2003 SH 114 STE 390, TROPHY			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1164	WALJI SHANIF M	2014-2015	$45.93	$102.79
633172DEN	PERSONAL PROPERTY - AUDIOLOGISTS LOCATION: 501 TROPHY LAKE DR, STE 318, TROPHY			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1730	EARCARE HEARING AIDS	2014-2015	$35.18	$78.73
10374248TAR	BUSINESS PERSONAL PROPERTY			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
57	J P TALBOT INSURANCE	2010-2011	$24.07	$67.89
336821DEN	PERSONAL PROPERTY - OFFICE LOCATION : 100 INDIAN CREEK DR STE 120, ROANOKE			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
741	MIJOL REALTY.COM	2010-2011	$20.36	$57.49
563646DEN	PERSONAL PROPERTY - MISC PERSONAL SERVICE LOCATION: 2003 SH 114 STE 340 TROPHY			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1711	STYLES OF INDIA	2015-2016	$20.23	$42.37
499622DEN	PERSONAL PROPERTY - HAIR SALON LOCATION: 2001 W SH 114, STE 150, TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1530	DESIRE SALON & SPA	2013	$16.51	$40.61
682747DEN	PERSONAL PROPERTY - RESTAURANT LOCATION: 301 TROPHY LAKE DR STE 116 TROPHY			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91619	7 MILES TASTE GROUP INC	2019	$14.43	$23.03
953826DEN	PERSONAL PROPERTY - REALTY OFFICE LOCATION: 2001 SH114 # 150 TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
129	REMAX INTEGRITY	2010	$13.95	$40.34
953825DEN	PERSONAL PROPERTY - SALON & SPA LOCATION: 2001 SH114 # 120 TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
887	TONY CAO SALON & SPA	2011	$13.48	$37.04
930792DEN	PERSONAL PROPERTY - TITLE COMPANY LOCATION: 99 TROPHY CLUB DR, TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
103	FIDELITY NATIONAL TITLE	2010	$12.86	$37.19
13442112TAR	HEART TEST LABORATORIES PERSONAL PROPERTY TANGIBLE COMMERCIAL			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91068	HEART TEST LABORATORIES INC	2017-2019	$12.32	$20.58
11457732TAR	BUSINESS PERSONAL PROPERTY THOMAS PART *RVN10/7/08 PRNL OFF. BIZ LOCA 9 PER PH			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
190	WHITTON CONSTRUCTION INC	2011	$11.56	$31.77
336819DEN	PERSONAL PROPERTY - OFFICE LOCATION : 100 INDIAN CREEK DR, TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
740	CJ HOOD CO INC	2010	$10.73	$31.03
336868DEN	PERSONAL PROPERTY - LEASED EQUIPMENT			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
90710	CATALINA MARKETING CORPORATION	2019	$9.08	$14.49
925240DEN	PERSONAL PROPERTY - LEGAL SERVICE LOCATION : 100 INDIAN CREEK, TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
875	CHRISTLIEB LAW OFFICE	2010-2011	$5.37	$15.16
723199DEN	PERSONAL PROPERTY - INSURANCE AGENT LOCATION: 2101 SH 114 STE B TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91433	MILLER CRAIG	2019	$4.99	$7.96
659388DEN	PERSONAL PROPERTY - BUSINESS SERVICES LOCATION: 99 TROPHY CLUB DR TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91141	CHIP MUNDY INC	2017	$4.85	$9.14

566115DEN	PERSONAL PROPERTY - BUSINESS SERVICES LOCATION: 99 TROPHY CLUB DR, TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1555	DONNA & ASSOCIATES	2013	$4.40	$10.82
679913DEN	PERSONAL PROPERTY - OFFICE LOCATION: 99 TROPHY CLUB DR TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91389	SMITH CLINICAL SERVICES PLLC	2019	$4.31	$6.88
659398DEN	PERSONAL PROPERTY - BUSINESS SERVICES LOCATION: 99 TROPHY CLUB DR, TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
90372	RAY DERSTEIN	2015	$3.61	$7.84
13730967TAR	RANDSTAD RANDSTAD US LP PERSONAL PROPERTY TANGIBLE COMMERCIAL			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
90303	RANDSTAD US LP	2014-2015	$2.76	$6.06
116598DEN	TROPHY CLUB #12 LOT 1613 ACRES: 0.312200			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1628	TROPHY CLUB TOWN OF	2014	$1.20	$2.78
116600DEN	TROPHY CLUB #12 LOT 1614 ACRES: 0.243900			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1628	TROPHY CLUB TOWN OF	2014	$1.11	$2.57
335713DEN	PERSONAL PROPERTY - OFFICE LOCATION: 99 TROPHY CLUB DR, TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1329	HELM INSURANCE AGENCY	2012	$0.87	$2.27
14370986TAR	FIRST DATA MERCHANT SVCS VARX COMMERCIAL			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
90293	FIRST DATA MERCHANT SVCS INC	2015-2018	$0.75	$1.37
14461451TAR	DELL MARKETING LP VARX COMMERCIAL			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91207	DELL MARKETING LP	2016	$0.61	$1.14
624324DEN	A0821A J.R. MICHAEL TR 1A(2) .09 ACRES ACRES: 0.090000			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1628	TROPHY CLUB TOWN OF	2014	$0.52	$1.20
624325DEN	A0821A J.R. MICHAEL TR 1A(3) .081 ACRES ACRES: 0.081000			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1628	TROPHY CLUB TOWN OF	2014	$0.46	$1.07
42345560TAR	WESTLAKE ENTRADA BLOCK I LOT 13 REF PLAT D218192054			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91351	JJP TREVI LLC	2018	$0.19	$0.33
14381350TAR	SONIFI SOLUTIONS INC VARX COMMERCIAL			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1290	SONIFI SOLUTIONS INC	2015	$0.15	$0.29
14358803TAR	AMERIGAS PROPANE LP VARX COMMERCIAL			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91045	AMERIGAS PROPANE LP	2015-2016, 2018	$0.14	$0.26
42346434TAR	WESTLAKE ENTRADA - CORTES BLOCK S LOT 2X OPEN SPACE ACRES: 0.028300			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91348	MRW INVESTORS LLC	2019	$0.11	$0.18
14479384TAR	RS WATER HOLDING LLC VARX COMMERCIAL			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
354	RS WATER HOLDING LLC	2016	$0.09	$0.17
335711DEN	PERSONAL PROPERTY - OFFICE LOCATION: 99 TROPHY CLUB DR, TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1163	FULL CIRCLE LOGISTICS	2011	$0.07	$0.19
13661787TAR	NATIONAL DEFAULT TITLE PERSONAL PROPERTY TANGIBLE COMMERCIAL			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1638	NATIONAL DEFAULT TITLE SERVICE	2017	$0.07	$0.13

14448870TAR	NEOPOST USA INC VARX COMMERCIAL			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91049	NEOPOST USA INC	2015	$0.04	$0.08
72300DEN	TROPHY CLUB # 6 LOT 552 ACRES: 0.253600			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
893	BULAND RUDY A	2017, 2019	$0.02	$0.04
198454DEN	LAKES OF TROPHY CLUB PH 1 BLK 5 LOT 11 ACRES: 0.160300			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91092	VILORIA PHILIP A & JOANNE	2019	$0.01	$0.02
203744DEN	LAKES OF TROPHY CLUB PH 3 BLK 1 LOT 6 ACRES: 0.276000			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91298	BRYANT CHRISTY LIVING TRUST	2018	$0.01	$0.02

Total Tax Due $23,321.41

Top Tax Due Report

Top 100 Properties - TROPHY CLUB MUNICIPAL UTILITY DISTRICT #1

GEO Code	Legal Description			
660574DEN	WONDERLAND PLAZA ADDITION BLK A LOT 1 ACRES: 2.280000			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91144	WONDERLAND PLAZA LLC	2020	$1,105.57	$1,552.22
526096DEN	CHURCHILL DOWNS BLK A LOT 1 ACRES: 0.258300			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
895	SEAY MARK SR & TERRI	2020	$537.58	$780.57
72370DEN	TROPHY CLUB # 2 LOT 141 ACRES: 0.301400			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1750	LYNCH HELEN M	2020	$412.63	$426.37
72034DEN	TROPHY CLUB # 4 LOT 333 ACRES: 0.361600			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1219	BINGHAM GENE C	2020	$406.92	$590.85
71779DEN	TROPHY CLUB # 2 LOT 77 ACRES: 0.253600			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91176	PARROW JAMES J & ELENA	2020	$404.55	$418.02
71012DEN	TROPHY CLUB #10 LOT 1219 ACRES: 0.235000			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
968	BOREN BENJAMIN C & BEVERLY C	2020	$401.84	$415.22
72277DEN	TROPHY CLUB # 3 LOT 174 ACRES: 0.256100			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
914	MORTON DENVER & JANIE	2020	$393.99	$407.11
650109DEN	PERSONAL PROPERTY - DENTIST LOCATION: 925 TROPHY CLUB DR TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
90829	MEMBERS ONLY DENTAL PA	2020	$378.04	$548.91
70173DEN	TROPHY CLUB OAK HILL LOT 15 ACRES: 0.164400			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91396	RYAN BRUCE E & SHELIA A	2020	$296.29	$306.16
726658DEN	TROPHY CLUB TOWN CENTER ADDITION BLK A LOT 4 ACRES: 2.297000			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
92862	QUASAR HOTELS LLC	2020	$273.22	$383.60
40758087TAR	TROPHY CLUB # 9 LOT 704 BALANCE IN DENTON CO ACRES: 0.229600			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
92373	RUDD MATTHEW DAVID AND RUDD KAYLENE SIMM	2020	$213.68	$310.26
14692614TAR	MAR-COSINA TEX-MEX GOURMET LLC PERSONAL PROPERTY TANGIBLE COMMERCIAL			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
92145	MAR-COSINA TEX-MEX GOURMET LLC	2020	$191.25	$277.70
13741209TAR	OLIVER WYMAN INC PERSONAL PROPERTY TANGIBLE COMMERCIAL			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91516	OLIVER WYMAN INC	2020	$113.86	$165.32
40758990TAR	TROPHY CLUB # 9 LOT 793 ACRES: 0.311300			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
90726	HAMATI SASAN AND KARAMI PARVIN	2020	$94.81	$137.66
72595DEN	TROPHY CLUB # 3 LOT 222 ACRES: 0.252600			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
1588	BOICE SHON	2020	$90.00	$124.20

776375DEN	PERSONAL PROPERTY - ACCOUNTING AUDITING & BOOKKEEPING LOCATION : 99 TROPHY			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
92697	KENNETH ARMSTRONG	2020	$60.45	$87.77
336365DEN	PERSONAL PROPERTY - LEASED VEHICLES			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
92366	MOTORLEASE CORPORATION	2020	$58.53	$84.99
676471DEN	PERSONAL PROPERTY - DOG TRAINING/RETAIL LOCATION: 2001 SH 114 STE 200 TROPHY			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
90854	HANNICK INC	2020	$49.06	$71.24
676474DEN	PERSONAL PROPERTY - DRY CLEANERS LOCATION: 2003 SH 114 STE 390 TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
90856	J.A.E.H.K. INC	2020	$35.17	$51.07
72303DEN	TROPHY CLUB # 6 LOT 528 ACRES: 0.266100			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91664	TABER JOHN K	2020	$26.94	$37.18
71764DEN	TROPHY CLUB VILLAGE WEST SEC B LOT 1108 ACRES: 0.224400			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
92829	TRAN CUONG & NGOC-LINH	2020	$26.94	$37.50
339971DEN	PERSONAL PROPERTY - AIRCRAFT CESSNA 150L 1972-N5428Q LOCATION : NORTHWEST			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
759	MORRISON AVIATION LLC	2020	$23.27	$33.79
776374DEN	PERSONAL PROPERTY - BUSINESS SERVICES LOCATION : 99 TROPHY CLUB STE DR			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
92696	STEVE SCHERMERHORN	2020	$14.22	$20.65
676479DEN	PERSONAL PROPERTY - DANCE & MUSIC LESSONS LOCATION: 905 TROPHY CLUB DR STE			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
90858	FULLER CHRISTINA	2020	$7.25	$10.53
723199DEN	PERSONAL PROPERTY - INSURANCE AGENT LOCATION: 2101 SH 114 STE B TROPHY CLUB			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91433	MILLER CRAIG	2020	$4.77	$6.93
203878DEN	LAKES OF TROPHY CLUB PH 3 BLK 15 LOT 21 ACRES: 0.236200			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
92850	NITSCHKE FELIX & SILVIA	2020	$2.90	$4.00
566874DEN	PERSONAL PROPERTY - LEASED EQUIPMENT			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
90810	TIAA COMMERCIAL FINANCE	2020	$2.13	$2.91
705191DEN	PERSONAL PROPERTY - LEASED EQUIPMENT			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
90846	NCR CORPORATION	2020	$1.01	$1.47
727270DEN	PERSONAL PROPERTY - INSURANCE OFFICE LOCATION: 100 INDIAN CREEK DR STE 110			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
92609	FOLEY BEVERLY	2020	$1.00	$1.45
70606DEN	LAKE FOREST VILLAGE PH 3 LOT 84 ACRES: 0.280100			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
73	MCCREARY JON & WATTHANAVICHIT DANIEL	2020	$0.93	$0.96
314763DEN	PERSONAL PROPERTY - LEASED EQUIPMENT			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
298	NORTHERN LEASING SYSTEMS INC	2020	$0.68	$0.99
308380DEN	EAGLES RIDGE PH II BLK B LOT 5 ACRES: 0.305700			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
91720	HAFIZ ARIF & FATIMA LIVING TRUST	2020	$0.01	$0.01
42616733TAR	WESTLAKE ENTRADA BLOCK C LOT 1B SCHOOL BOUNDARY SPLIT ACRES: 0.513000			
Taxpayer #	**Taxpayer Name**	**Years**	**Tax Due**	**Total Due**
92381	AMR WESTLAKE STORAGE LLC	2020	$0.01	$0.01

Total Tax Due $5,629.50

Deferral Detail Report

Locator: Denton Tax

Clients: Trophy Club MUD 1

TP #	Taxpayer Name	Base Due

799 BAKER BOB J

GEO Code	Client Name	Tax Year	Status	Tran Type	Start Date	End Date	Condition	Base Tax
209674DEN	Trophy Club MUD 1	2010	DEFE	TAX	07/08/2011	12/01/2099	pre	$1,650.27
209674DEN	Trophy Club MUD 1	2011	DEFE	TAX	07/08/2011	12/01/2099	Defer	$1,172.50
209674DEN	Trophy Club MUD 1	2012	DEFE	TAX	07/08/2011	12/01/2099	Defer	$986.42
209674DEN	Trophy Club MUD 1	2013	DEFE	TAX	07/08/2011	12/01/2099	Defer	$959.74
209674DEN	Trophy Club MUD 1	2014	DEFE	TAX	07/08/2011	12/01/2099	Defer	$1,059.05
209674DEN	Trophy Club MUD 1	2015	DEFE	TAX	07/08/2011	12/01/2099	Defer	$1,089.73
209674DEN	Trophy Club MUD 1	2016	DEFE	TAX	07/08/2011	12/01/2099	Defer	$1,069.49
							Property Base Due	$7,987.20
							Taxpayer Base Due	$7,987.20

91396 RYAN BRUCE E & SHELIA A

GEO Code	Client Name	Tax Year	Status	Tran Type	Start Date	End Date	Condition	Base Tax
70173DEN	Trophy Club MUD 1	2018	DEFE	TAX	10/23/2018	12/01/2099	Defer	$329.43
70173DEN	Trophy Club MUD 1	2019	DEFE	TAX	10/23/2018	12/01/2099	Defer	$304.93
70173DEN	Trophy Club MUD 1	2020	DEFE	TAX	10/23/2018	12/01/2099	Defer	$296.29
							Property Base Due	$930.65
							Taxpayer Base Due	$930.65

73 MCCREARY JON & WATTHANAVICHIT DANIEL

GEO Code	Client Name	Tax Year	Status	Tran Type	Start Date	End Date	Condition	Base Tax
70606DEN	Trophy Club MUD 1	2020	DEFE	TAX	02/03/2020	12/01/2099	Defer	$0.93
							Property Base Due	$0.93
							Taxpayer Base Due	$0.93

968 BOREN BENJAMIN C & BEVERLY C

GEO Code	Client Name	Tax Year	Status	Tran Type	Start Date	End Date	Condition	Base Tax
71012DEN	Trophy Club MUD 1	2010	DEFE	TAX	06/30/2010	12/01/2099	Defer	$414.60
71012DEN	Trophy Club MUD 1	2011	DEFE	TAX	06/30/2010	12/01/2099	Defer	$378.65
71012DEN	Trophy Club MUD 1	2012	DEFE	TAX	06/30/2010	12/01/2099	Defer	$295.79
71012DEN	Trophy Club MUD 1	2013	DEFE	TAX	06/30/2010	12/01/2099	Defer	$300.56
71012DEN	Trophy Club MUD 1	2014	DEFE	TAX	06/30/2010	12/01/2099	Defer	$325.30
71012DEN	Trophy Club MUD 1	2015	DEFE	TAX	06/30/2010	12/01/2099	Defer	$355.07
71012DEN	Trophy Club MUD 1	2016	DEFE	TAX	06/30/2010	12/01/2099	Defer	$367.89
71012DEN	Trophy Club MUD 1	2017	DEFE	TAX	06/30/2010	12/01/2099	Defer	$385.38
71012DEN	Trophy Club MUD 1	2018	DEFE	TAX	06/30/2010	12/01/2099	Defer	$380.30
71012DEN	Trophy Club MUD 1	2019	DEFE	TAX	06/30/2010	12/01/2099	Defer	$404.59
71012DEN	Trophy Club MUD 1	2020	DEFE	TAX	06/30/2010	12/01/2099	Defer	$401.84
							Property Base Due	$4,009.97
							Taxpayer Base Due	$4,009.97

91176 PARROW JAMES J & ELENA

GEO Code	Client Name	Tax Year	Status	Tran Type	Start Date	End Date	Condition	Base Tax
71779DEN	Trophy Club MUD 1	2017	DEFE	TAX	11/03/2017	12/01/2099	Defer	$385.31
71779DEN	Trophy Club MUD 1	2018	DEFE	TAX	11/03/2017	12/01/2099	Defer	$412.53
71779DEN	Trophy Club MUD 1	2019	DEFE	TAX	11/03/2017	12/01/2099	Defer	$416.50
71779DEN	Trophy Club MUD 1	2020	DEFE	TAX	11/03/2017	12/01/2099	Defer	$404.55
							Property Base Due	$1,618.89
							Taxpayer Base Due	$1,618.89

76 MCDONALD JAMES E & HUESTIS LAURA LEA TR

GEO Code	Client Name	Tax Year	Status	Tran Type	Start Date	End Date	Condition	Base Tax
72060DEN	Trophy Club MUD 1	2006	DEFE	TAX	01/25/2007	12/01/2099	pre	$306.84
72060DEN	Trophy Club MUD 1	2007	DEFE	TAX	01/25/2007	12/01/2099	Defer	$517.32
72060DEN	Trophy Club MUD 1	2008	DEFE	TAX	01/25/2007	12/01/2099	Defer	$530.21
72060DEN	Trophy Club MUD 1	2009	DEFE	TAX	01/25/2007	12/01/2099	Defer	$495.08
72060DEN	Trophy Club MUD 1	2010	DEFE	TAX	01/25/2007	12/01/2099	Defer	$460.80
72060DEN	Trophy Club MUD 1	2011	DEFE	TAX	01/25/2007	12/01/2099	Defer	$405.50
72060DEN	Trophy Club MUD 1	2012	DEFE	TAX	01/25/2007	12/01/2099	Defer	$329.59
72060DEN	Trophy Club MUD 1	2013	DEFE	TAX	01/25/2007	12/01/2099	Defer	$331.12
72060DEN	Trophy Club MUD 1	2014	DEFE	TAX	01/25/2007	12/01/2099	Defer	$346.81
72060DEN	Trophy Club MUD 1	2015	DEFE	TAX	01/25/2007	12/01/2099	Defer	$378.34
72060DEN	Trophy Club MUD 1	2016	DEFE	TAX	01/25/2007	12/01/2099	Defer	$400.74
72060DEN	Trophy Club MUD 1	2017	DEFE	TAX	01/25/2007	12/01/2099	Defer	$5.37
72060DEN	Trophy Club MUD 1	2018	DEFE	TAX	01/25/2007	12/01/2099	Defer	$0.30
							Property Base Due	$4,508.02
							Taxpayer Base Due	$4,508.02

914 MORTON DENVER & JANIE

GEO Code	Client Name	Tax Year	Status	Tran Type	Start Date	End Date	Condition	Base Tax
72277DEN	Trophy Club MUD 1	2018	DEFE	TAX	03/24/2020	12/01/2099	pre	$340.65
72277DEN	Trophy Club MUD 1	2019	DEFE	TAX	03/24/2020	12/01/2099	pre	$404.44
72277DEN	Trophy Club MUD 1	2020	DEFE	TAX	03/24/2020	12/01/2099	Defer	$393.99
							Property Base Due	$1,139.08
							Taxpayer Base Due	$1,139.08

1750 LYNCH HELEN M

GEO Code	Client Name	Tax Year	Status	Tran Type	Start Date	End Date	Condition	Base Tax
72370DEN	Trophy Club MUD 1	2018	QPAY	TAX	10/21/2020	12/01/2099	pre	$6.04
72370DEN	Trophy Club MUD 1	2019	QPAY	TAX	10/21/2020	12/01/2099	pre	$318.17
72370DEN	Trophy Club MUD 1	2020	DEFE	TAX	10/21/2020	12/01/2099	Defer	$412.63
							Property Base Due	$736.84
							Taxpayer Base Due	$736.84
							Total Base Due	$20,931.58

TROPHY CLUB MUNICIPAL UTILITY DISTRICT #1	pre	$3,026.41
TROPHY CLUB MUNICIPAL UTILITY DISTRICT #1	Defer	$17,905.17

Trophy Club Municipal Utility District No. 1
Quarterly Investment Report

I certify that this Investment Report complies with requirements of TCMUD's Investment Policy and the Public Funds Act.

Prepared By **Steven Krolczyk** **DATE**

Investment Officer **Alan Fourmentin** **DATE**

For Ending Period 9/30/2021 (July, August, and September)

Restricted/ Unrestricted	Account or CUSIP	Sec Type	Par	Rate / Coupon	Maturity	Call Date	Purchase Price	Yield %	Beginning Book 6/30/2021	Beginning Market 6/30/2021	Ending Book 9/30/2021	Ending Market 9/30/2021	Gain/Loss End MV-End BV
	Checking & Money Market Accounts												
Unrestricted- 135	XXX8701	Prosperity Bank Consolidated Cash-General Fund	$ 3,466,999	0.000%	N/A	N/A	100.000	0.250%	$ 3,696,234	$ 3,696,234	$ 3,466,999	$ 3,466,999	0.00
Unrestricted- 122	XXX8701	Prosperity Bank Consolidated Cash-Fire Dept	$ -	0.000%	N/A	N/A	100.000	0.250%	$ -	$ -	$ -	$ -	0.00
Restricted- 533	XXX8701	Prosperity Bank Consolidated Cash-Tax I&S	$ -	0.000%	N/A	N/A	100.000	0.250%	$ -	$ -	$ -	$ -	0.00
	Pools & Funds												
Unrestricted- 135	XXXXX0002	TexPool Municipal Fund-Operating	$ 3,132,101	0.000%	N/A	N/A	100.000	0.020%	$ 3,624,443	$ 3,624,443	$ 3,132,101	$ 3,132,101	0.00
Restricted- 122		TexPool Municipal Fund-Fire Dept	$ 706,548	0.000%	N/A	N/A	100.000	0.020%	$ 892,894	$ 892,894	$ 706,548	$ 706,548	0.00
Restricted- 137		TexPool Municipal Fund-GASB Replacement	$ 3,253,456	0.000%	N/A	N/A	100.000	0.020%	$ 2,007,484	$ 2,007,484	$ 3,253,456	$ 3,253,456	0.00
Restricted- 533	XXXXX0003	TexPool Tax Debt Service	$ 32,911	0.000%	N/A	N/A	100.000	0.020%	$ 907,582	$ 907,582	$ 32,911	$ 32,911	0.00
Restricted- 517	XXXXX00011	TexPool WW Construction Tax	$ -	0.000%	N/A	N/A	100.000	0.020%	$ -	$ -	$ -	$ -	0.00
Restricted- 534	XXXXX00013	Texpool Revenue Bond I&S	$ 26,061	0.000%	N/A	N/A	100.000	0.020%	$ 417,222	$ 417,222	$ 26,061	$ 26,061	0.00
Restricted- 528	XXXXX00014	Texpool Revenue Bond Reserve	$ 894,311	0.000%	N/A	N/A	100.000	0.020%	$ 894,260	$ 894,260	$ 894,311	$ 894,311	0.00
Restricted- 519	XXXXX00015	Texpool Revenue Bond Construction-SWIFT	$ -	0.000%	N/A	N/A	100.000	0.020%	$ -	$ -	$ -	$ -	0.00
Restricted- 535	XXXXX00017	Texpool Revenue Bond I&S-SWIFT	$ 5,656	0.000%	N/A	N/A	100.000	0.020%	$ 200,331	$ 200,331	$ 5,656	$ 5,656	0.00
Restricted- 520	XXXXX00018	Texpool Revenue Bond Construction Series 2019	$ 4,033,089	0.000%	N/A	N/A	100.000	0.020%	$ 161,919	$ 161,919	$ 4,033,089	$ 4,033,089	0.00
Restricted- 536	XXXXX00020	Texpool Revenue Bond I&S Series 2019	$ 565	0.000%	N/A	N/A	100.000	0.020%	$ 198,645	$ 198,645	$ 565	$ 565	0.00
	Savings Accounts												
Restricted	XXXXX7724	Prosperity Bank Cash Reserve- Money Mkt	$ 2,000,890	0.000%	N/A	N/A	100.000	0.300%	$ 1,999,378	$ 1,999,378	$ 2,000,890	$ 2,000,890	0.00
	Escrow/ Treasuries												
Restricted- 519	82-1747-01-1	Revenue Bond Series 2016 Escrow- BOK	$ 785,036					0.01%	$ 785,025	$ 785,025	$ 785,036	$ 785,036	0.00
Restricted- 520	82-3288-01-4	Revenue Bond Series 2019 Escrow- BOK	$ -					0.01%	$ 3,892,813	$ 3,892,813	$ -	$ -	0.00
	CD'S												
	NONE												
	US Agencies												
	NONE												
			$ 18,337,623						**$ 19,678,229**	**$ 19,678,229**	**$ 18,337,623**	**$ 18,337,623**	**$ -**

EARNINGS SUMMARY

Restricted/ Unrestricted	Settle Date	Sec Type	Account Number	Par	Coupon	Maturity	Qtr. Accrued	Qtr. Amort.	Total Qtr. Earnings
	Checking & Money Market Accounts								
Unrestricted- 135		Prosperity Bank Consolidated Cash-General Fund	XXX8701	$ 3,466,999	N/A	N/A	$ 2,130	N/A	$ 2,130
Unrestricted- 122		Prosperity Bank Consolidated Cash-Fire Dept	XXX8701	$ -	N/A	N/A	$ -	N/A	$ -
Restricted- 533		Prosperity Bank Consolidated Cash-Tax I&S	XXX8701	$ -	N/A	N/A	$ -	N/A	$ -
	Pools & Funds								
Unrestricted		TexPool Municipal Fund	XXXXX0002	$ 7,092,105	N/A	N/A	$ 407	N/A	$ 407
Restricted- 533		TexPool Tax Debt Service	XXXXX0003	$ 32,911	N/A	N/A	$ 29	N/A	$ 29
Restricted- 517		TexPool Construction Tax	XXXXX00011	$ -	N/A	N/A	$ -	N/A	$ -
Restricted- 534		Texpool Revenue Bond I&S	XXXXX00013	$ 26,061	N/A	N/A	$ 14	N/A	$ 14
Restricted- 528		Texpool Revenue Bond Reserve	XXXXX00014	$ 894,311	N/A	N/A	$ 52	N/A	$ 52
Restricted- 519		Texpool Revenue Bond Construction-SWIFT	XXXXX00015	$ -	N/A	N/A	$ -	NA	$ -
Restricted- 535		Texpool Revenue Bond I&S-SWIFT	XXXXX00017	$ 5,656	N/A	N/A	$ 7	NA	$ 7
Restricted- 520		Texpool Revenue Bond Construction Series 2019	XXXXX00018	$ 4,033,089	N/A	N/A	$ 75	NA	$ 75
Restricted- 536		Texpool Revenue Bond I&S Series 2019	XXXXX00020	$ 565	N/A	N/A	$ 7	NA	$ 7
	Savings Accounts								
Restricted		Prosperity Bank Cash Reserve- Money Mkt	XXXXX7724	$ 2,000,890	N/A	N/A	$ 1,512	N/A	$ 1,512
	Escrows/ Treasuries								
Restricted- 519		Revenue Bond Series 2016 Escrow- BOK	82-1747-01-1	$ 785,036	N/A	N/A	$ 11	N/A	$ 11
Restricted- 520		Revenue Bond Series 2019 Escrow- BOK	82-3288-01-4	$ -	N/A	N/A	$ 61	N/A	$ 61
	CD'S								
	NONE								
	US Agencies								
	NONE								
							$ 4,305	N/A	**$ 4,305**

PAR for this report is the statement balance on the last day of the quarter

STAFF REPORT

October 18, 2021

AGENDA ITEM: Consider and act regarding purchase of one Spartan Pumper truck from Metro Fire Apparatus Specialist, Inc., for a cost of $730,000 and authorize the General Manager to execute the necessary documents.

DESCRIPTION: The new Spartan Pumper Fire Truck is being purchased through the Sourcewell Cooperative Purchasing Contract for a total cost of $730,000 which will be paid from Fire GASB reserves in the amount of $554,301.39 and town contributions of $175,698.61. The 2007 Pierce Arrow Fire Engine #E681 is being traded in for $85,000. Expected build time is approximately 300 days.

ATTACHMENTS:
Sourcewell Spartan Pumper Proposal
FY22' Pumper Specifications Rev 1
TCFD Drawing Rev 1

RECOMMENDATION: Staff recommends the Board approve the Spartan Pumper Proposal as presented.

Vendor Contract #022818-SPR

October 7, 2021

Trophy Club Municipal Utility District 1
Member # 190751
100 Municipal Drive
Trophy Club, Texas 76262-5420

We are pleased to offer to you one (1) Pumper, Midship, Star Series, Spartan Metro Star MFD 10" RR, 4-Door Chassis through the Sourcewell contract based on the provided specifications and drawings.

Apparatus Model: SC-06		
Configured Price		$905,694.00
Sourcewell Discount		$70,694.00
Discount Percentage		7.8055%
Total Contract Price	$	835,000.00
Fire Truck Trade-In	$	-85,000.00
Sub-Total After Trade-In	$	750,000.00
Pre-Payment Discount	$	-20,000.00
Final Price	$	730,000.00

Prices above do not include any Federal, State or local taxes.

We look forward to providing your agency with an industry leading apparatus. Our legacy of expertise means your apparatus is built from the ground up on a foundation ready to handle your specific response equipment and route needs. We work with you to strategically configure your truck's specs into a design that represents the best possible mix of safety, speed, agility, ergonomics, and serviceability. And we don't stop once the truck is delivered.

Brian Russell – Apparatus Manager
brussell@mfas.com
832.541.7858

Metro Fire Apparatus Specialists, Inc.
17350 State Highway 249, Suite 250
Houston, Texas 77064

INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to provide a complete apparatus equipped as hereinafter and as specified. With a view to obtaining the best results and the most acceptable apparatus for service in the Department, these specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment and appliances with which the successful bidder shall conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor, who shall be solely responsible for the design and construction for all features. The manufacturer shall provide loose equipment only when specified by the customer. The (NFPA) 1901, Standard for Automotive Fire Apparatus, unless otherwise specified as requested by the customer in these specifications, shall prevail.

The apparatus must meet all NFPA, DOT, ICC, AE, TRA, FMVSS and local state Motor Vehicle Requirements.

It is required that the apparatus be manufactured to current NFPA edition standards, all NFPA equipment (LOOSE EQUIPMENT) not specified in the specifications will not be provided by the contractor.

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction that have been in business and construction for a minimum of twenty-five (25) years.

The bidder of the apparatus herein specified; shall be wholly owned (100%) and managed by a Company, Corporation, and/or Parent Company that is wholly based, and permanently resides in the United States of America.

The Company, Corporation, and/or Parent Company and all assets belonging to such; shall be wholly owned and managed (100%) by the entities specified above.

The bidder shall state the location of the manufacturing facility where the apparatus is to be built and the location of the parent company if a subsidiary of a manufacturer.

The bidder shall provide satisfactory evidence of their ability to construct the apparatus specified in the bidders manufacturing facilities.

The bidder’s representation shall state the length of time representing the manufacturer of specified apparatus.

Due to the severe service requirements the department will impose on the apparatus as specified, each bidder shall provide a list of at least six (6) departments in which similar apparatus utilizing the brand of chassis proposed have been in service for over one year. This list shall include contact names and phone numbers.

The bid shall be accompanied by a set of “Contractor’s Specifications” consisting of a detailed description of the apparatus being furnished under this contract which conform. Computer runoff

sheets are not acceptable as “Contractor’s Specifications”. Item compliance shall be indicated in the “Yes/No” column of each item by all Bidders. Note: Each bidder shall submit their bid in the same sequence as these specifications to allow the department to easily compare.

These specifications shall indicate size, type, model and make of all component parts and equipment.

QUALITY AND WORKMANSHIP

The design of the Apparatus shall embody the latest approved automotive engineering practices.

The workmanship must be of the highest quality in its respective field. Special consideration will be given to the following points: Accessibility of the various units, which require periodic maintenance, ease of operation (including both pumping and driving) and symmetrical proportions.

Construction shall be rugged and ample safety factors shall be provided to carry loads as specified and to meet both on and off road requirements and to speed conditions as set forth under “Performance tests and requirements”.

Welding shall be employed in the assembly of the apparatus in a manner that will not prevent the ready removal of any component part for service or repair, with apparatus bodies of bolt together design not being acceptable.

All steel welding shall follow American Welding Society requirements for AWS D1.1:2012 Structural Welding Code for welding steel structural assemblies. All aluminum welding shall follow American Welding Society requirements for AWS D1.2/D1.2M:2003 Structural Welding Code for any type structure made from aluminum structural alloys. All sheet metal welding shall follow American Welding Society AWS D9.1M/D9.1:2006 Structural Welding code for Arc/Braze requirements of non-structural materials. All pressure pipe welding shall follow American Society of Mechanical Engineers ASME IX/ ASME B31:2010 requirements to the qualification of procedures in welding and brazing, in accordance with the ASME Boiler and Pressure Vessel Code and the ASME B31 Code for Pressure Piping. Flux core arc welding to use alloy rods, type 7000, American Welding Society AWS standards A5.20-E70T1. The manufacturer shall be required to have an American Welding Society certified welding inspector in plant during testing operations within working hours to monitor weld quality.

Employees classified as welders shall be tested and certified to meet American Welding Society and American Society of Mechanical Engineers welding codes.

DELIVERY

The bidder shall provide the number of calendar days from the date the bid is awarded to the delivery of the completed unit.

A qualified delivery engineer representing the contractor shall deliver the apparatus and instruct the Fire Department personnel in the proper operation, care and maintenance of the equipment delivered.

PERFORMANCE TESTS AND REQUIREMENTS

A road test shall be conducted with the apparatus fully loaded to its estimated in-service weight and shall be capable of the following performance while on dry paved roads that are in good condition and for a continuous run of ten (10) miles or more, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. The successful bidder shall furnish a Weight Certificate showing weights on front axle, rear axles and total weight for the completed apparatus at time of delivery.

1. The apparatus shall be capable of accelerating to 35 MPH (55 km/hr) from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed RPM of the engine.

2. The apparatus, fully loaded, shall be capable of obtaining a minimum top speed of 50 MPH (80 km/hr) on a level dry concrete highway with the engine not exceeding its governed RPM (fully loaded).

3. The service brakes shall be capable of stopping a fully loaded vehicle in 35ft (10.7 m) at 20 mph (32.2 km/hr) on a level concrete highway. The air brake system shall conform to Federal Motor Vehicle Safety Standards (FMVSS) 121.

4. The apparatus, when fully loaded, shall have not less than 25 percent or more than 50 percent of the weight on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle.

5. The contractor shall have the Underwriter's Laboratories, LLC conduct the tests of the apparatus as in accordance with standard practices required by the Underwriter Laboratories, LLC (Guide for the Certification of Fire Department Pumper latest edition). A copy of all tests shall accompany the Apparatus. (For apparatus sold within Canadian ULC S515 latest revision shall prevail).

6. The contractor shall furnish copies of the Pump Manufacturer's Certification of hydrostatic test, the Engine Manufacturer current certified brake horsepower curve, and the Manufacturer's record of pumper construction details when delivered.

INFORMATION REQUIRED

The manufacturer shall supply at time of delivery, a complete operation and maintenance manual covering the completed apparatus as delivered.

A Fire Apparatus Safety Guide published by Fire Apparatus Manufacturer's Association shall be provided with the apparatus upon delivery. This manual includes essential safety information for fire fighters, fire chiefs, apparatus mechanics, and fire department safety officers. The guide is applicable to municipal, wildland, and airport firefighting apparatus manufactured on either custom or commercial chassis.

A permanent plate shall be mounted in the driver's compartment to specify the quantity and type of the following fluids used in the vehicle: Engine oil, engine coolant, and chassis transmission fluid, pump transmission lubrication fluid, pump primer fluid (if used) and drive axle lubrication

fluid.

The manufacture shall supply the final certification of GVWR and GAWR on a nameplate affixed to the vehicle.

A permanent plate in the driver's compartment shall be installed, specifying the seating capacity of the enclosed cab.

Signs that state "OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION" shall be provided and will be visible from each seated position. An accident prevention sign shall be located at the rear step area of the apparatus. It shall warn all personnel that standing on the step while apparatus is in motion shall be prohibited.

A nameplate indicating the chassis transmission shift selector position to be used when pumping shall be provided in the driving compartment and located so that it can be easily read from the driver's position.

LIABILITY

The bidder, if their bid is accepted, shall defend any and all suits and assume all liability for the use of any patented device or article forming part of the apparatus or any appliance provided under the contract.

GENERAL CONSTRUCTION

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles, so that all specified equipment, including filled water tank, a full complement of personnel and fire hose will be carried without injury to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of the (NFPA) 1901, Standard for Automotive Fire Apparatus, documentation.

The apparatus shall be designed so that all recommended daily maintenance checks can be performed easily by the operator without the need for hand tools. Apparatus components that interfere with repair or removal of other major components must be attached with fasteners (cap, screws, nuts, etc.) so that the components can be removed and installed with normal hand tools. These components must not be welded or otherwise permanently secured into place.

The GAWR and GVWR of the chassis shall be adequate to carry the fully equipped apparatus including all tanks filled, the specified hose load, unequipped personnel weight, ground ladders and a miscellaneous equipment allowance per NFPA criteria. It shall be the responsibility of the purchaser to provide the contractor with the weight of equipment to be carried if it is in excess of the allowance as set forth by NFPA.

The unequipped personnel weight shall be calculated at 250 lbs. per person times the maximum number of persons to ride on the apparatus.

The height of the fully loaded vehicle's center of gravity shall not exceed the chassis manufacturer's maximum limit.

The front to rear weight distribution of the fully loaded vehicle shall be within the limits set by the

chassis manufacturer. The front axle loads shall not be less than the minimum axle loads specified by the chassis manufacturer, under full loads and all other loading conditions.

The difference in weight on the end of each axle, from side to side, when the vehicle is fully loaded and equipped shall not exceed 7 percent.

The apparatus shall be so designed that the various parts are readily accessible for lubrication, inspection, adjustment and repair.

Where special tools manufactured or designed by the contractor and are required to provide routine service on any component of the apparatus built or supplied by the contractor, such tools shall be provided with the apparatus.

EXCEPTIONS TO SPECIFICATIONS

The following specifications shall be strictly adhered to. Exceptions shall be allowed if they are equal to or superior to that as specified and providing, they are listed and entirely explained on a separate page entitled "Exceptions to Specifications". The exceptions list to refer to specification page number and paragraph.

Proposals taking total exception to specifications or total exception to certain parts of the specifications such as Electrical Systems, Chassis, Body or Pump, will not be accepted.

Prototype units will not be acceptable. Apparatus shall be inspected upon completion for compliance with specifications.

Deviations will not be tolerated and will be cause for rejection of Apparatus unless they were originally listed in bidder’s proposal and accepted in writing by the department.

If the bidder takes an exception, on the exception page, the bidder must state an option price to bring their specifications into full compliance with the Department specifications.

Failure to provide this information shall be cause to reject the proposal as being non-responsive.

Copied or run off sheets of these specifications shall be unacceptable, and the bid will be rejected no exceptions.

PURCHASER'S RIGHTS

The Purchaser reserves the right to accept or reject any or all bids as it deemed in their best interests.

BID/PROPOSAL DRAWINGS

For purposes of evaluation, the bidder shall provide a drawing illustrating, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus and other specified equipment, shall be required to be included with the bidder's proposal package.

The drawings shall be large "D" size (minimum 24.00 inches x 36.00 inches).

Smaller size drawings, "similar to" drawings or general sales drawings, shall not be acceptable.

Failure to provide a bid evaluation drawing in accordance with these specifications shall be cause for rejection of the bid proposal.

PRE-CONSTRUCTION DRAWINGS

After the award of the bid, the contractor shall provide detailed colored engineering drawings including, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus for use during the pre-construction conference.

The drawings shall include, but shall not be limited to the right, left, top, front and rear views of the apparatus**.**

In addition, a detailed engineering drawing of the pump operator's panel shall be provided prior to manufacturing for fire department approval.

SINGLE SOURCE MANUFACTURER

Bids shall only be accepted from a single source apparatus manufacturer.

The definition of single source manufacturer is a company that designs and manufactures their products utilizing an approach that includes complete product integration, including the apparatus chassis, cab, and body modules being constructed, assembled, and tested on company premises only.

Warranties qualified to the chassis and body design construction (excluding vender component warranties such as engine, axles, transmission, and pumps, etc.) will be from a single source manufacturer and not separated between manufacturers (i.e. body and chassis). The bidder shall provide evidence of maintaining compliance to this requirement.

TAG-ON ORDERS-COOPERATIVE PURCHASING

Other fire departments, metropolitan regions, or municipalities may purchase apparatus and equipment from same manufacture similar to the Apparatus and Equipment that is the subject of this Contract held by the same manufacture. The following terms shall apply to any such tag-on orders:

(a) Changes - Tag-on orders utilizing the same specification as the Apparatus and Equipment that is the subject of this Contract in order to provide favorable pricing and lead-times to other buyers due to having such specification fully engineered. Limited changes will be permitted. Such changes will be captured in the pre-construction meeting and the price of any tag-on unit adjusted accordingly.

(b) Term – Tag-on orders may be placed for a term of one year after the Effective Date of this Contract.

(c) Escalation - Manufacture reserves the right to adjust the price of any tag-on order if material costs escalate during the term of this Contract, changes in regulations become effective (for example EPA, NFPA or other), or the tag-on order would cross a model year.

(d) Acceptance – Manufacture holding the contract reserves the right to accept or reject any tag-on orders under this Contract.

FINITE ELEMENT ANALYSIS AND TESTING

Finite Element Analysis (FEA) shall be provided by the manufacturer.

Prototype bodies have been subjected to rigorous testing over varied terrains simulating different environmental conditions.

The purpose of such complex engineering methods of analysis shall be to ensure the longevity of the design by analyzing stress levels throughout the body and incorporating the structural supports wherever necessary.

There shall have been a minimum of three (3) different load cases (per DOT, FHWA, and TTMA recommended practice) applied and analyzed to properly display the different areas and levels of stresses that will be present under the various operating conditions of the apparatus.

In addition to the FEA analysis, the core product design shall be strain gauged instrumental to ensure validation of FEA results and “Real World” drive/apparatus driving conditions.

Analysis shall also have been conducted on the mounting system for the apparatus body and pump house. EXCEPTIONS TO THIS STATEMENT MAY BE CAUSE FOR IMMEDIATE REJECTION AND/OR BE CONSIDERED NON-COMPLIANT.

SUPPLIED INFORMATION & EXTRAS

The apparatus manufacturer shall supply two (2) hard copies of apparatus manuals with all manufactured apparatus.

The manuals shall include, but not be limited to: all component warranties, users' manuals and information for supplied products, apparatus engineering information including drawings and build prints, and whatever other pertinent information the manufacturer can supply to its customer regarding the said apparatus.

Included in the delivery of the unit, the manufacturer shall also include spare hardware and extra fasteners, paint for touch-up, information regarding washing and care procedures, as well as other recommendations for care and maintenance of the general apparatus.

The manufacturer shall also supply a manufacturer's record of apparatus construction details, including the following information:

1. Owner name and address
2. Apparatus manufacturer, model, and serial number
3. Chassis make, model, and serial number
4. GAWR of front and rear axles
5. Front tire size and total rated capacity in kilograms
6. Rear tire size and total rated capacity in kilograms

7. Chassis weight distribution in kilograms with water (if applicable) and manufacturer mounted equipment (front and rear)
8. Engine make, model, serial number, rated horsepower, related speed and no load governed speed
9. Type of fuel and fuel tank capacity
10. Electrical system voltage and alternator output in amps
11. Battery make and model, capacity in CCA
12. Paint numbers
13. Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall vehicle (with the water tank full (if applicable) but without personnel, equipment, and hose)
14. Written load analysis and results of the electrical system performance tests
15. Transmission make, model, and type
16. Pump to drive through the transmission (yes or no)
17. Engine to pump gear ratio and transmission gear ratio used
18. Pump make and model, rated capacity in gallons per minute, serial number, and number of stages
19. Pump manufacturer's certification of suction capability
20. Pump manufacturer's certification of hydrostatic test
21. Pump manufacturer's certification of inspection and test for the fire pump
22. Copy of the apparatus manufacturer's approval for stationary pumping applications
23. Pump transmission make, model and serial number
24. Priming device type
25. Type of pump pressure control system
26. The engine manufacturer's certified brake horsepower curve for the engine furnished, showing the maximum no load governed speed
27. Certification of the water tank capacity

ELECTRICAL SCHEMATICS

The apparatus manufacturer shall supply one (1) set(s) as-built wiring schematics, to include all line voltage schematics with each apparatus.

WARNING AND INFORMATION LABELS

All warning and informational labels (non-vendor specific) shall be provided in compliance with (NFPA) 1901, Standard for Automotive Fire Apparatus, and installed in the appropriate locations to alert the operator of potential hazards and operating instructions.

LIABILITY INSURANCE COVERAGE

In order to protect the department and its personnel, the bidder shall show proof that it has no less than $10 million in liability insurance in force. A certificate of coverage shall be included in the bid package. Failure to carry liability insurance of at least this amount or failure to include proof of coverage shall be cause to reject the bidder's proposal.

GENERAL WARRANTY

The manufacturer shall provide a two (2) year warranty from the date of delivery.

In the case of a commercial chassis being used, the warranty on the chassis, engine, transmission, tires, storage batteries, generators, electrical lamps and other devices subject to deterioration is limited to the warranty of the manufacturer thereof and adjustments for the same are to be made directly with the manufacturer by the customer.

PLUMBING WARRANTY

A Stainless Steel Plumbing/Piping warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years from the date of delivery.

APPARATUS TEST BY UNDERWRITERS LABORATORIES, LLC

The following Apparatus shall comply with all (NFPA) 1901, Standard for Automotive Fire Apparatus, applicable regulations in effect as of the contract signing date. There shall be multiple tests performed by the contractor and Underwriter's Laboratories, LLC when the apparatus has been completed. The manufacturer shall furnish the completed Test Certificate(s) to the purchaser at time of delivery. Since the inspection services of Underwriters Laboratories, LLC are available to all bidders on an equal basis, no other third party testing service shall be acceptable. The tests conducted on the apparatus shall include, but not be limited to:

PUMP & PLUMBING PERFORMANCE TEST

The apparatus pump and plumbing system shall be tested and certified.

12 VOLT ELECTRICAL TEST

The apparatus low voltage electrical system shall be tested and certified.

FACTORY PRE-CONSTRUCTION CONFERENCE

The factory authorized Distributor shall be required, prior to manufacturing, to have a pre-construction conference at the manufacturing facility with a factory representative present and with Four (4) individual(s) from the Trophy Club FIre Department to finalize all construction details.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 200 miles shall be by commercial air travel.

FINAL INSPECTION CONFERENCE

The factory authorized Distributor shall be required, during manufacturing, to have a final completion inspection conference at the site of the manufacturing facility with Four (4) individuals from the Trophy Club FIre Department to inspect the apparatus after construction.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and

meals. Any distance greater than 200 miles shall be by commercial air travel.

PUMP & APPARATUS TRAINING

The successful bidder shall provide a factory-trained technician to instruct the following training:

A minimum four (4) hour structured training course for the fire apparatus mechanics of the department, covering the repair and maintenance of all components of the apparatus called for in the specifications.

The successful bidder shall provide a structured training course to be repeated for each of the three (3) shift(s) of personnel assigned to operate the apparatus, covering nomenclature of components, proper operation of the apparatus, daily operational maintenance checks, and other information necessary for a firefighter/driver/engineer to properly operate and maintain the apparatus.

It is intended that this training is organized in such a manner that both the mechanics and fire personnel receive the full benefit of the structured training. The firefighter/operator training shall be conducted within one week after the vehicle is fully accepted and readied for service by the "Purchaser" or at a time mutually agreed upon by the "Purchaser" and "Supplier". A qualified factory representative shall be provided for a minimum of three (3) consecutive day(s) of instruction.

MAXIMUM OVERALL LENGTH REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum overall length.

MAXIMUM OVERALL HEIGHT REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum overall height.

MAXIMUM OVERALL WIDTH OF NINETY-NINE (99) INCHES

The apparatus specified shall be constructed as detailed and shall NOT exceed a Maximum Overall Width of Ninety-nine (99.00) inches.

This dimension shall include the primary construction of the apparatus body and chassis cab. Any peripheral items shall not be incorporated into this measurement.

The items included, but not limited to, are: Rub Rails, Fenderettes, Mirrors, Lights, Handrails, Front Bumpers, Cab Steps, Overlays, Etc.

MAXIMUM WHEEL BASE REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum wheel base.

MODEL

The chassis shall be a Metro Star model. The cab and chassis shall include design considerations for multiple emergency vehicle applications, rapid transit and maneuverability.

The chassis shall be manufactured for heavy duty service with the strength and capacity to support a fully laden apparatus, one hundred (100) percent of the time.

MODEL YEAR

The chassis shall have a vehicle identification number that reflects a 2022 model year.

COUNTRY OF SERVICE

The chassis shall be put in service in the country of United States of America (USA).

The chassis will meet applicable U.S.A. federal motor vehicle safety standards per CFR Title 49 Chapter V Part 571 as clarified in the incomplete vehicle book per CFR Title 49 Chapter V Part 568 Section 4 which accompanies each chassis. The chassis manufacturer is not responsible for compliance to state, regional, or local regulations. Dealers should identify those regulations and order any necessary optional equipment from the chassis manufacturer or their OEM needed to be in compliance with those regulations.

CAB AND CHASSIS LABELING LANGUAGE

The cab and chassis shall include the applicable caution, warning, and safety notice labels with text to be written in English. All applicable caution, warning, and safety notice labels shall be Innovative Controls brand. Where applicable to the location within the specific layout and label package of the cab and chassis, the labels shall include decorative chrome bezels. Designs shall include bezels that fit individual labels or packaged configurations of labels in certain common locations.

The following labels shall be Innovative Controls brand, each including a decorative chrome bezel (where applicable):

- Shoreline
- Aerial Stowed
- Aerial Breakers 2
- Air Conditioner
- Cab Tilt Plate
- Air Compressor Breaker
- Battery Conditioner Breaker
- Helmet Caution
- Horn Tag
- Q2B Tag
- Load Center Plate
- Not a Step Label
- Occupancy Tag
- Do Not Move
- Occupants Must Be Seated
- Do Not Stand
- Danger Do Not Weld
- Danger--Untrained Operator
- DEF Fill Access (Including Additional 2907 Optional Labels)
- Battery Direct

- Kneeling
- IFS Air Fault
- Engine Brake
- Retarder
- LR 100 Amp Node
- 300 Amp EPU
- 100 Amp Front O/R Node
- 100 Amp T/T Node
- 100 Amp RR O/R Node
- 10 Amp EPU
- Master Power
- 12 Volt Power
- Aerial Hours
- Pump In Drive

Windshield Washer Fluid

APPARATUS TYPE

The apparatus shall be a pumper vehicle designed for emergency service use which shall be equipped with a permanently mounted fire pump which has a minimum rated capacity of 750 gallons per minute (3000 L/min). The apparatus shall include a water tank and hose body whose primary purpose is to combat structural and associated fires.

VEHICLE TYPE

The chassis shall be manufactured for use as a straight truck type vehicle and designed for the installation of a permanently mounted apparatus behind the cab. The apparatus of the vehicle shall be supplied and installed by the apparatus manufacturer.

VEHICLE ANGLE OF APPROACH PACKAGE

The angle of approach of the apparatus shall be a minimum of 8.00 degrees.

NFPA1901 Angle of Approach definition:
“To determine the angle of approach, place a thin steel strip against the front of the tires where they touch the ground or stretch a tight string from one front tire to the other at the front where they touch the ground. Determine the lowest point (component or equipment) on the vehicle forward of the front tire that would make the smallest angle of approach. Hang a plumb bob from the lowest point and mark the point on the ground where the point of the plumb bob touches. Measure the vertical distance from the ground to the point where the plumb bob was hung (distance *V*). Measure the horizontal distance from the plumb bob point to the steel strip or string running from front tire to front tire (distance *H*). Divide the vertical distance by the horizontal distance. The ratio of *V/H* is the tangent of the angle of approach. If the ratio is known, the angle of approach can be determined from a table of trigonometric functions of angles or from a math calculator. The standard requires a minimum angle of approach of 8.00 degrees: since the tangent of 8.00 degrees is 0.1405, if *V* divided by *H* is 0.1405 or larger, the angle of approach is 8.00 degrees or greater.”

AXLE CONFIGURATION

The chassis shall feature a 4 x 2 axle configuration consisting of a single rear drive axle with a single front steer axle.

GROSS AXLE WEIGHT RATINGS FRONT

The front gross axle weight rating (GAWR) of the chassis shall be 21,500 pounds.

This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

GROSS AXLE WEIGHT RATINGS REAR

The rear gross axle weight rating (GAWR) of the chassis shall be 24,000 pounds.

This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

PUMP PROVISION

The chassis shall include provisions to mount a drive line pump in the middle of the chassis, behind the cab, more commonly known as the midship location. Chassis driveline pump provisions shall include an interlock feature for automatic setting of the park brake when the vehicle is shifted into pump mode while the transmission is in neutral and the transmission output speed translates to less than 1 mph. When the conditions are met the driver side parking brake valve shall activate. Once shifted to road mode the condition for electric automatic brake engagement is no longer present and the driver's parking brake control valve shall function normally.

WATER & FOAM TANK CAPACITY

The chassis shall include a carrying capacity of up to 750 gallons (2839 liters). The water and/or foam tank(s) shall be supplied and installed by the apparatus manufacturer.

CAB STYLE

The cab shall be a custom, fully enclosed, ELFD model with a 10.00 inch raised roof over the driver, officer, and crew area, designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. The cab shall be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle. This style of cab shall offer up to ten (10) seating positions.

The cab shall incorporate a fully enclosed design with side wall roof supports, allowing for a spacious cab area with no partition between the front and rear sections of the cab. To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side wall panels shall be assembled using a combination of welds and proven industrial adhesives designed specifically for aluminum fabrication for construction.

The cab shall be constructed using multiple aluminum extrusions in conjunction with aluminum plate, which shall provide proven strength and the truest, flattest body surfaces ensuring less expensive paint repairs if needed. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.

All interior and exterior seams shall be sealed for optimum noise reduction and to provide the most favorable efficiency for heating and cooling retention.

The cab shall be constructed of 5052-H32 corrosion resistant aluminum plate. The cab shall incorporate tongue and groove fitted 6061-T6 0.13 & 0.19 inch thick aluminum extrusions for extreme duty situations. A single formed, one (1) piece extrusion shall be used for the “A” pillar, adding strength and rigidity to the cab as well as additional roll-over protection. The cab side walls and lower roof skin shall be 0.13 inch thick; the rear wall and raised roof skins shall be 0.09 inch thick; the front cab structure shall be 0.19 inch thick.

The exterior width of the cab shall be 94.00 inches wide with a minimum interior width of 88.00 inches. The overall cab length shall be 151.10 inches with 74.00 inches from the centerline of the front of the axle to the back of the cab.

The cab interior shall be designed to afford the maximum usable interior space and attention to ergonomics with hip and legroom while seated which exceeds industry standards. The crew cab floor shall be flat across the entire walking area for ease of movement inside the cab.

The cab shall offer an interior height of 57.50 inches from the front floor to the headliner and a rear floor to headliner height of 65.00 inches in the raised roof area, at a minimum. The cab shall offer an interior measurement at the floor level from the rear of the engine tunnel to the rear wall of the cab of 71.88 inches. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.

The cab shall include a driver and officer area with two (2) cab doors large enough for personnel in full firefighting gear. The front doors shall offer a clear opening of 40.25 inches wide X 53.50 inches high, from the cab floor to the top of the door opening. The cab shall also include a crew area with up to two (2) cab doors, also large enough for personnel in full firefighting gear. The rear doors shall offer a clear opening of 32.25 inches wide X 61.00 inches high, from the cab floor to the top of the door opening.

The cab shall incorporate a progressive two (2) step configuration from the ground to the cab floor at each door opening. The progressive steps are vertically staggered and extend the full width of each step well allowing personnel in full firefighting gear to enter and exit the cab easily and safely.

The first step for the driver and officer area shall measure approximately 11.50 inches deep X 31.13 inches wide. The intermediate step shall measure approximately 8.50 inches deep X 32.50 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.

The first step for the crew area shall measure approximately 11.50 inches deep X 20.44 inches wide. The intermediate step shall measure approximately 10.25 inches deep X 22.75 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 12.80 inches.

OCCUPANT PROTECTION

The vehicle shall include the Advanced Protection System™ (APS) which shall secure belted occupants and increase the survivable space within the cab. The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

The system components shall include:

- Driver steering wheel airbag
- Driver dual knee air bags (patent pending) with energy management mounting (patent pending) and officer knee airbag.
- Large driver, officer, and crew area side curtain airbags
- APS advanced seat belt system - retractor pre-tensioners tighten the seat belts around the occupants, securing the occupants in seats and load limiters play out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries
- Heavy truck Restraints Control Module (RCM) - receives inputs from the outboard sensors, selectively deploys APS systems, and records sensory inputs immediately before and during a detected qualifying event
- Integrated outboard crash sensors mounted at the perimeter of the vehicle - detects a qualifying front or side impact event and monitors and communicates vehicle status and real time diagnostics of all critical subsystems to the RCM
- Fault-indicating Supplemental Restraint System (SRS) light on the driver's instrument panel

Frontal impact protection shall be provided by the outboard sensors and the RCM. In a qualifying front impact event the outboard sensors provide inputs to the RCM. The RCM activates the steering wheel airbag, driver side dual knee airbags (patent pending), officer side knee airbag, and advanced seat belts for each occupant in the cab.

Rollover, side impact, and ejection mitigation shall be provided by the outboard sensors and the RCM. In qualifying rollover or side impact events the outboard sensors provide inputs to the RCM. The RCM activates the side curtain airbags and advanced seat belts for each occupant in the cab. The RCM measures roll angle, lateral acceleration, and roll rate to determine if a rollover event or side impact event is imminent or occurring.

In the event of a qualifying offset or other non-frontal impact, the RCM shall determine and intelligently deploy the front impact protection system, the side impact protection system, or both front and side impact protection systems based on the inputs received from the outboard crash sensors.

CAB FRONT FASCIA

The front cab fascia shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate which shall be an integral part of the cab.

The cab fascia will encompass the entire front of the aluminum cab structure from the bottom of the windshield to the bottom of the cab and shall be the “Classic” design.

The front cab fascia shall include two (2) molded plastic modules on each side accommodating a total of up to four (4) Hi/Low beam headlights and two (2) turn signal lights or up to four (4) warning lights. A chrome plated molded plastic bezel shall be provided on each side around each set of four lamps.

FRONT GRILLE

The front fascia shall include a box style, 304 stainless steel front grille 44.45 inches wide X 33.50 inches high X 1.50 inches deep. The grille shall include a minimum free air intake of 732.00 square inches. The upper portion of the grille shall be hinged to provide service access behind the grille.

CAB UNDERCOAT

There shall be a rubberized undercoating applied to the underside of the cab that provides abrasion protection, sound deadening and corrosion protection.

CAB SIDE DRIP RAIL

There shall be a drip rail along the top radius of each cab side. The drip rails shall help prevent water from the cab roof running down the cab side.

CAB PAINT EXTERIOR

The cab shall be painted prior to the installation of glass accessories and all other cab trim to ensure complete paint coverage and the maximum in corrosion protection of all metal surfaces.

All metal surfaces on the entire cab shall be ground by disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once the surface is machine ground a high quality acid etching of base primer shall be applied. Upon the application of body fillers and their preparation, the cab shall be primed with a coating designed for corrosion resistance and surface paint adhesion. The maximum thickness of the primer coat shall be 2.00 mils.

The entire cab shall then be coated with an intermediate solid or epoxy surfacing agent that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be a sanding of the cab with 360 grit paper followed by sealing the seams with SEM brand seam sealer.

The cab shall then be painted the specific color designated by the customer with an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on the fire ground or emergency scene. The paint shall have a minimum

thickness of 2.00 mils, followed by a clear top coat not to exceed 2.00 mils. The entire cab shall then be baked at 180 degrees for one (1) hour to speed the curing process of the coatings.

CAB PAINT MANUFACTURER

The cab shall be painted with Sikkens paint.

CAB PAINT PRIMARY/LOWER COLOR

The primary/lower paint color shall be FLNA 30201 Red

CAB PAINT SECONDARY/UPPER COLOR

The secondary/upper paint color shall be Sikkens FLNA 40119 Black.

CAB PAINT EXTERIOR BREAKLINE

The upper and lower paint shall meet at a breakline on the cab which shall be located approximately 1.00 inch below the door windows on each side of the cab. The breakline shall curve down at the front cab corners to approximately 5.00 inches below the windshields on the front of the cab.

CAB PAINT PINSTRIPE

No pinstripe shall be provided over the cab paint break line by the chassis manufacturer. The paint break line shall be of a finish grade quality that shall not require that any pinstripe be installed over the paint break line.

CAB PAINT WARRANTY

The cab and chassis shall be covered by a limited manufacturer paint warranty which shall be in effect for ten (10) years from the first owner's date of purchase or in service or the first 100,000 actual miles, whichever occurs first.

The warranty details can be found in the chassis warranty document.

CAB PAINT INTERIOR

The visible interior cab structure surfaces shall be painted with an easy-to-clean gray texture finish.

CAB ENTRY DOORS

The cab shall include four (4) entry doors, two (2) front doors and two (2) crew doors designed for ease of entering and egress when outfitted with an SCBA. The doors shall be constructed of extruded aluminum with a nominal thickness of 0.13 inch. The exterior skins shall be constructed of 0.13 inch aluminum plate.

The doors shall include a double rolled style automotive rubber seal around the perimeter of each door frame and door edge which ensures a weather tight fit.

All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each door hinge shall be piano style with a 0.38 inch pin and shall be constructed of stainless steel.

CAB ENTRY DOOR TYPE

All cab entry doors shall be full length in design to fully enclose the lower cab steps. Entry doors shall include Pollak mechanical plunger style switches for electrical component activation.

CAB INSULATION

The cab ceiling and walls shall include a nonwoven polyester fiber insulation. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.

LH MID EMS COMPARTMENT

The cab shall include a compartment located in the middle of the wall above the left side wheel well. This compartment shall measure 17.00 inches wide X 26.00 inches high X 25.00 inches deep.

LH MID EMS EXTERIOR ACCESS

The cab shall include a hinged box pan door featuring a full length stainless steel piano style hinge and a bright aluminum tread plate inner panel located in the middle of the wall above the left side wheel well. The compartment shall have a clear door opening of 15.00 inches wide X 24.00 inches high.

LH MID EMS COMPARTMENT INTERIOR

The cab compartment located in the middle of the wall above the left side wheel well shall include solid aluminum walls with no interior access. This compartment shall be finished to customer specification.

LH MID EMS COMPARTMENT DOOR HARDWARE

The left side EMS compartment door shall include an Eberhard chrome plated slam latch. There shall be a switch to activate the open compartment warning light in the cab in the event the door is left ajar.

RH MID EMS COMPARTMENT

The cab shall include a compartment located in the middle of the wall above the right side wheel well. This compartment shall measure 17.00 inches wide X 26.00 inches high X 25.00 inches deep.

RH MID EMS EXTERIOR ACCESS

The cab shall include a hinged box pan door featuring a full length stainless steel piano style hinge and a bright aluminum tread plate inner panel located in the middle of the wall above the right side wheel well. The compartment shall have a clear door opening of 15.00 inches wide X 24.00 inches high.

RH MID EMS COMPARTMENT INTERIOR

The cab compartment located in the middle of the wall above the right side wheel well shall include solid aluminum walls with no interior access. This compartment shall be finished to customer specification.

RH MID EMS COMPARTMENT DOOR HARDWARE

The right side EMS compartment door shall include a locking Eberhard chrome plated slam latch. There shall be a switch to activate the open compartment warning light in the cab in the event the door is left ajar.

MID EMS COMPARTMENT LIGHTING

The interior portion of each of the mid EMS compartments shall include compartment door activated LED lighting to illuminate all usable surfaces within each compartment.

MID EMS COMPARTMENT EXTERIOR FINISH

The mid EMS compartment surfaces that are exposed to the interior of the cab shall be painted with an easy-to-clean gray texture finish.

MID EMS COMPARTMENT INTERIOR FINISH

The EMS compartment interior shall feature a DA sanded finish.

LH EXTERIOR REAR COMPARTMENT

The cab shall offer an exterior compartment on the left side of the cab behind the rear door. The compartment opening shall be 17.00 inches wide X 31.19 inches high. The compartment size shall be 17.34 inches wide X 31.19 inches high X 21.19 inches deep. The compartment shall have a 16.63 inch wide, 32.00 inch high and 1.50 inch thick hinged box pan style flush mount door with a bright aluminum tread plate inner panel and a locking Eberhard chrome plated slam latch. The door shall open towards the rear of the cab. There shall be a switch to activate a light inside the compartment and the open compartment warning light in the cab in the event the door is left ajar.

LEFT HAND EXTERIOR REAR COMPARTMENT LIGHTING

There shall be one (1) On-Scene brand Access LED strip light installed to illuminate the exterior rear compartment on the left side of the cab. The strip light shall be 18.00 inches long.

LH EXTERIOR COMPARTMENT INTERIOR FINISH

The interior of the left hand exterior compartment shall have a DA sanded finish.

RH EXTERIOR REAR COMPARTMENT

The cab shall offer an exterior compartment on the right side of the cab behind the rear door. The compartment opening shall be 17.00 inches wide X 31.19 inches high. The compartment size shall be 17.34 inches wide X 31.19 inches high X 21.19 inches deep. The compartment shall have a 16.63 inch wide, 32.00 inch high and 1.50 inch thick hinged box pan style flush mount door with a bright aluminum tread plate inner panel and a locking Eberhard chrome plated slam latch. The door shall open towards the rear of the cab. There shall be a switch to activate a light inside the compartment and the open compartment warning light in the cab in the event the door is left ajar.

RIGHT HAND EXTERIOR REAR COMPARTMENT LIGHTING

There shall be one (1) On-Scene brand Access LED strip light installed to illuminate the exterior rear compartment on the right side of the cab. The strip light shall be 18.00 inches in length.

RH EXTERIOR COMPARTMENT INTERIOR FINISH

The interior of the right hand exterior compartment shall have a DA sanded finish.

CAB STRUCTURAL WARRANTY

Summary of Warranty Terms:

THE FOLLOWING IS SUMMARY OF WARRANTY TERMS FOR INFORMATION ONLY. THE ACTUAL LIMITED WARRANTY TERMS CAN BE FOUND IN THE CHASSIS WARRANTY DOCUMENTS, WHICH CONTAINS THE COMPLETE STATEMENT OF THE WARRANTY. THE CHASSIS MANUFACTURER'S RESPONSIBILITY IS TO BE ACCORDING TO THE TERMS OF THE COMPLETE LIMITED WARRANTY DOCUMENTS.

The cab structure shall be warranted for a period of ten (10) years or one hundred thousand (100,000) miles which ever may occur first. The warranty period shall commence on the date the vehicle is delivered to the first end user.

CAB TEST INFORMATION

The cab shall have successfully completed the preload side impact, static roof load application and frontal impact without encroachment to the occupant survival space when tested in accordance with Section 4 of SAE J2420 COE Frontal Strength Evaluation Dynamic Loading Heavy Trucks, Section 5 of SAE J2422 Cab Roof Strength Evaluation Quasi –Static Loading Heavy Trucks and ECE R29 Uniform Provisions Concerning the Approval of Vehicles with regard to the Protection of the Occupants of the Cab of a Commercial Vehicles Annex 3 Paragraph 5.

The above tests have been witnessed by and attested to by an independent third party. The test results were recorded using cameras, high speed imagers, accelerometers and strain gauges. Documentation of the testing shall be provided upon request.

ELECTRICAL SYSTEM

The chassis shall include a single starting electrical system which shall include a 12 volt direct current multiplexing system, suppressed per SAE J551. The wiring shall be appropriate gauge cross link with 311 degree Fahrenheit insulation. All SAE wires in the chassis shall be color coded and shall include the circuit number and function where possible. The wiring shall be protected by 275 degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof.

MULTIPLEX DISPLAY

The multiplex electrical system shall include a Weldon Vista IV display which shall be located on the left side of the dash in the switch panel. The Vista IV shall feature a full color LCD display screen which includes a message bar displaying the time of day and important messages requiring acknowledgement by the user which shall all be displayed on the top of the screen in the order they are received. There shall be eight (8) push button virtual controls, four (4) on each side of the display for the on-board diagnostics. The display screen shall be video ready for back-up cameras, thermal cameras, and DVD.

The Vista IV display shall offer varying fonts and background colors. The display shall be fully programmable to the needs of the customer and shall offer virtually infinite flexibility for screen configuration options.

LOAD MANAGEMENT SYSTEM

The apparatus load management shall be performed by the included multiplex system. The multiplex system shall also feature the priority of sequences and shall shed electrical loads based on the priority list specifically programmed.

DATA RECORDING SYSTEM

The chassis shall have a Weldon Vehicle Data Recorder (VDR) system installed. The system shall be designed to meet NFPA 1901 and shall be integrated with the Weldon Multiplex electrical system. The following information shall be recorded:

- Vehicle Speed
- Acceleration
- Deceleration
- Engine Speed
- Engine Throttle Position
- ABS Event
- Seat Occupied Status
- Seat Belt Status
- Master Optical Warning Device Switch Position
- Time

- Date

Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system. The laptop connection shall be a panel mounted female type B USB connection point, remotely mounted in the left side foot well.

ACCESSORY POWER

The electrical distribution panel shall include two (2) power studs. The studs shall be size #10 and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40 amp battery direct load. One (1) power stud shall be capable of carrying up to a 15 amp ignition switched load. The two (2) power studs shall share one (1) #10 ground stud.

An OEM body connections bracket shall be installed on the chassis near the left hand battery box. The bracket shall include one (1) set each of 200 amp master power switched and 300 amp battery direct fused power and ground studs.

AUXILIARY ACCESSORY POWER

An auxiliary ten (10) position blade type fuse panel shall be installed behind the officer's seat. The fuse panel shall be protected by a 40 amp fuse. The panel shall be capable of carrying up to a maximum 40 amp battery direct load.

ADDITIONAL ACCESSORY POWER

An additional six (6) position Blue Sea Systems 5025 blade type fuse panel shall be installed behind the switch panel. The fuse panel shall be protected by a 60 amp fuse located behind the switch panel. The panel shall be capable of carrying up to a maximum 60 amp ignition switched load.

EXTRA ACCESSORY POWER

An extra six (6) position Blue Sea Systems 5025 blade type fuse panel shall be installed on the side wall of the engine tunnel behind the driver's seat. The fuse panel shall be protected by a 40 amp fuse. The panel shall be wired for a battery direct load.

EXTERIOR ELECTRICAL TERMINAL COATING

All terminals exposed to the elements will be sprayed with a high visibility protective rubberized coating to prevent corrosion.

ENGINE

The chassis engine shall be a Cummins L9 engine. The L9 engine shall be an in-line six (6) cylinder, four cycle diesel powered engine. The engine shall offer a rating of 450 horse power at 2100 RPM and shall be governed at 2200 RPM. The torque rating shall feature 1250 foot pounds of torque at 1200 RPM with 543 cubic inches (8.9 liters) of displacement.

The L9 engine shall feature a VGT™ Turbocharger, a high pressure common rail fuel system, fully integrated electronic controls with an electronic governor, and shall be EPA certified to meet the 2021 emissions standards using cooled exhaust gas recirculation and selective catalytic reduction technology.

The engine shall include an engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge for use with the engine lubrication system. The engine shall include Citgo brand Citgard 500, or equivalent SAE 15W40 CK-4 low ash engine oil which shall be utilized for proper engine lubrication.

A wiring harness shall be supplied ending at the back of the cab. The harness shall include a connector which shall allow an optional harness for the pump panel. The included circuits shall be provided for a tachometer, oil pressure, engine temperature, hand throttle, high idle and a PSG system. A circuit for J1939 data link shall also be provided at the back of the cab.

CAB ENGINE TUNNEL

The cab interior shall include an integrated engine tunnel constructed of 5052-H32 Marine Grade, 0.19 of an inch thick aluminum. The tunnel shall be a maximum of 41.50 inches wide X 25.50 inches high.

DIESEL PARTICULATE FILTER CONTROLS

There shall be two (2) controls for the diesel particulate filter. One (1) control shall be for regeneration and one (1) control shall be for regeneration inhibit.

ENGINE PROGRAMMING HIGH IDLE SPEED

The engine high idle control shall maintain the engine idle at approximately 1250 RPM when engaged.

ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with a virtual Vista button and an automatic high-idle speed control. It shall be pre-set so when activated, it will operate the engine at the appropriate RPM to increase alternator output. This device shall operate only when the engine is running and the transmission is in neutral with the parking brake set. The device shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to manually or automatically re-engage when the brake is released, or when the transmission is placed in neutral. There shall be an indicator on the Vista display and control screen for the high idle speed control.

ENGINE PROGRAMMING ROAD SPEED GOVERNOR

The engine shall include programming which will govern the top speed of the vehicle.

AUXILIARY ENGINE BRAKE

A compression brake, for the six (6) cylinder engine shall be provided. A cutout relay shall be installed to disable the compression brake when in pump mode or when an ABS event occurs.

The engine compression brake shall activate upon 0% accelerator when in operation mode and actuate the vehicle's brake lights.

The engine shall utilize a variable geometry turbo (VGT) as an integrated auxiliary engine brake to offer a variable rate of exhaust flow, which when activated in conjunction with the compression brake shall enhance the engine's compression braking capabilities.

AUXILIARY ENGINE BRAKE CONTROL

An engine compression brake control device shall be included. The electronic control device shall monitor various conditions and shall activate the engine brake only if all of the following conditions are simultaneously detected:

- A valid gear ratio is detected.
- The driver has requested or enabled engine compression brake operation.
- The throttle is at a minimum engine speed position.
- The electronic controller is not presently attempting to execute an electronically controlled final drive gear shift.

The compression brake shall be controlled via an off/low/medium/high virtual button on the Vista display and control screen. The multiplex system shall remember and default to the last engine brake control setting when the vehicle is shut off and re-started.

ELECTRONIC ENGINE OIL LEVEL INDICATOR

The engine oil shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal. The warning shall activate in a low oil situation upon turning on the master battery and ignition switches without the engine running.

FLUID FILLS

The front of the chassis shall accommodate fluid fill for the engine oil through the grille. This area shall also accommodate a check for the engine oil. The transmission, power steering, and coolant fluid fills and checks shall be under the cab. The windshield washer fill shall be accessible through the front left side mid step.

ENGINE DRAIN PLUG

The engine shall include an original equipment manufacturer installed oil drain plug.

ENGINE WARRANTY

The Cummins engine shall be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.

REMOTE THROTTLE CONTROL

A Fire Research In Control 400 pressure sensor governor shall be provided for the electronic engine. It shall include a remote mountable control head.

The In Control shall regulate the pump pressure and monitor all essential engine parameters.

LED readouts shall display RPM, PSI, pump discharge and intake pressure, engine oil pressure, engine temperature, transmission temperature and battery voltage. An audible alarm out put shall also be part of the system.

The rpm increase and decrease will be controlled by control knob on the face of the In Control 400.

REMOTE THROTTLE HARNESS

An apparatus interface wiring harness for the engine shall be supplied with the chassis. The harness shall include a connector for connection to the chassis harness which shall terminate in the left frame rail behind the cab for reconnection by the apparatus builder. The harness shall contain connectors for a Fire Research In Control 300/400 pressure governor and a multiplexed gauge. Separate circuits shall be included for pump controls, “Pump Engaged” and “OK to Pump” indicator lights, open compartment ground, start signal, park brake ground, ignition signal, master power, customer ignition, air horn solenoid switch, high idle switch and high idle indication light. The harness shall contain interlocks that will prevent shifting to road or pump mode unless the transmission output speed translates to less than 1 mph and the transmission is in neutral. The shift to pump mode shall also require the park brake be set. The harness shall be designed for a side mount pump panel.

An apparatus interface wiring harness shall also be included which shall be wired to the cab harness interface connectors and shall incorporate circuits with relays to control pump functions. This harness shall control the inputs for the transmission lock up circuits, governor/hand throttle controls and dash display which shall incorporate “Pump Engaged” and “OK to Pump” indicator lights. The harness shall contain circuits for the apparatus builder to wire in a pump switch.

ENGINE PROGRAMMING REMOTE THROTTLE

The engine ECM (Electronic Control Module) discreet wire remote throttle circuit shall be turned off for use with a J1939 based pump controller or when the discreet wire remote throttle controls are not required.

ENGINE PROGRAMMING IDLE SPEED

The engine low idle speed will be programmed at 700 rpm.

ENGINE AIR INTAKE

The engine air intake system shall include an ember separator. This ember separator shall be designed to protect the downstream air filter from embers using a combination of unique flat and crimped metal screens packaged in a heavy duty galvanized steel frame. This multilayered screen shall trap embers and allow them to burn out before passing through the pack.

The engine air intake system shall also include an air cleaner mounted above the radiator. This air cleaner shall utilize a replaceable dry type filter element designed to prevent dust and debris from being ingested into the engine. A service cover shall be provided on the housing, reducing the chance of contaminating the air intake system during air filter service.

The air intake system shall include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement.

ENGINE FAN DRIVE

The engine cooling system fan shall incorporate a thermostatically controlled, Horton fully variable type fan drive with SmartClutch J-1939 CAN controller.

The variable speed fan clutch only engages at the amount needed for proper cooling to facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design shall be fail-safe so that if the clutch drive fails the fan shall engage to prevent engine overheating due to the fan clutch failure. The fan speed shall include a J-1939 CAN clutch controller to receive signal from the engine control module to activate at variable rates of speed. Variable speeds shall be set through thermostatic and engine speed signals to run as efficiently and quietly as required to maintain temperature.

ENGINE COOLING SYSTEM

There shall be a heavy-duty aluminum cooling system designed to meet the demands of the emergency response industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the requirements specified by the engine and transmission manufacturer and all EPA requirements. The complete cooling system shall be mounted to isolate the entire system from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining cores.

The cooling system shall be comprised of a charge air cooler to radiator serial flow package that provides the maximum cooling capacity for the specified engine as well as serviceability. The main components shall include a surge tank, a charge air cooler bolted to the front of the radiator, recirculation shields, a shroud, a fan, and required tubing.

The radiator shall be a down-flow design constructed with aluminum cores, plastic end tanks, and a steel frame. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.

The cooling system shall include a one piece injected molded polymer fan with a three (3) piece fiberglass fan shroud.

The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and rearward oriented sight glass to observe coolant in the system. A cold fill and observation line shall be included within the frame mounted translucent recovery bottle to monitor the level of the coolant. The surge tank shall have a dual seal cap that meets the engine manufacturer's pressure requirements and allows for expansion and recovery of coolant into a separate integral expansion chamber.

All radiator tubes shall be formed from aluminized steel tubing. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance.

The charge air cooler shall be a cross-flow design constructed completely of aluminum with cast tanks. All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel “constant torque” style clamps meeting the engine manufacturer's requirements.

The radiator and charge air cooler shall be removable through the bottom of the chassis.

ENGINE COOLING SYSTEM PROTECTION

The engine cooling system shall include a recirculation shield designed to act as a light duty skid plate below the radiator to provide additional protection for the engine cooling system from light impacts, stones, and road debris. The skid plate shall be painted to match the frame components.

ENGINE COOLANT

The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees Fahrenheit.

Proposals offering supplemental coolant additives (SCA) shall not be considered, as this is part of the extended life coolant makeup.

ELECTRONIC COOLANT LEVEL INDICATOR

The instrument panel shall feature a low engine coolant indicator light which shall be located in the center of the instrument panel. An audible tone alarm shall also be provided to warn of a low coolant incident.

ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. The heat exchanger shall be designed to prohibit water from the pump from coming in contact with the engine coolant. This shall allow the use of water from the discharge side of the pump to assist in cooling the engine.

COOLANT HOSES

The cooling systems hose shall be formed silicone hose and formed aluminized steel tubing and include stainless steel constant torque band clamps.

ENGINE COOLANT OVERFLOW BOTTLE

A remote engine coolant overflow expansion bottle shall be provided in the case of over filling the coolant system. The overflow bottle shall capture the expansion fluid or overfill rather than allow the fluid to drain on the ground.

ENGINE EXHAUST SYSTEM

The exhaust system shall include an end-in end-out horizontally mounted single module after treatment device, and downpipe from the charge air cooled turbo. The single module shall include four temperature sensors, diesel particulate filter (DPF), urea dosing module (UL2), and a selective catalytic reduction (SCR) catalyst to meet current EPA standards. The selective catalytic reduction catalyst utilizes a diesel exhaust fluid solution consisting of urea and purified water to convert NOx into nitrogen, water, and trace amounts of carbon dioxide. The solution shall be mixed and injected into the system through the DPF and SCR.

The system shall utilize 0.07 inch thick stainless steel exhaust tubing between the engine turbo and the DPF. Zero leak clamps seal all system joints between the turbo and DPF.

The single module after treatment through the end of the tailpipe shall be connected with zero leak clamps. The discharge shall terminate horizontally on the right side of the vehicle ahead of the rear tires.

The exhaust system after treatment module shall be mounted below the frame in the outboard position.

DIESEL EXHAUST FLUID TANK

The exhaust system shall include a molded cross linked polyethylene tank for Diesel Exhaust Fluid (DEF). The tank shall have a capacity of six (6) usable gallons and shall be mounted on the left hand side of the chassis frame behind the batteries below the frame.

The DEF tank shall be designed with capacity for expansion in case of fluid freezing. Engine coolant, which shall be thermostatically controlled, shall be run through lines in the tank to help prevent the DEF from freezing and to provide a means of thawing the fluid if it should become frozen.

The tank fill tube shall be routed under the rear of the cab with the fill neck and splash guard accessible in the top rear step.

ENGINE EXHAUST ACCESSORIES

The tail pipe shall have a drop in it to allow additional clearance from the body.

The vehicle shall include a MagnaGrip exhaust extraction system collar which shall be shipped loose.

ENGINE EXHAUST WRAP

The exhaust tubing between the engine turbo and the diesel particulate filter (DPF) shall be wrapped with a thermal cover in order to retain the necessary heat for DPF regeneration. The exhaust wrap shall also help protect surrounding components from radiant heat which can be transferred from the exhaust.

The exhaust flex joint shall not include the thermal exhaust wrap.

TRANSMISSION

The drive train shall include an Allison model EVS 3000 torque converting, automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

The transmission shall include two (2) internal oil filters and Castrol TranSynd™ synthetic TES 295 transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.

The transmission gear ratios shall be:

1st	3.49:1
2nd	1.86:1
3rd	1.41:1
4th	1.00:1
5th	0.75:1
6th	0.65:1 (if applicable)
Rev	5.03:1

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will automatically select a four (4) speed operation. The fifth speed over drive shall be available with the activation of the mode button on the shifting pad.

TRANSMISSION FEATURE PROGRAMMING

The Allison Gen V-E transmission EVS group package number 127 shall contain the 198 vocational package in consideration of the duty of this apparatus as a pumper. This package shall incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector. This requires re-selecting drive range to shift out of neutral for the override.

This package shall be coupled with the use of a split shaft PTO and incorporate pumping circuits. These circuits shall be used allowing the vehicle to operate in the fourth range lockup while operating the pump mode due to the 1 to 1 ratio through the transmission, therefore the output speed of the engine is the input speed to the pump. The pump output can be easily calculated by using this input speed and the drive ratio of the pump itself to rate the gallons of water the pump can provide.

A transmission interface connector shall be provided in the cab. This package shall contain the following input/output circuits to the transmission control module. The Gen V-E transmission

shall include prognostic diagnostic capabilities. These capabilities shall include the monitoring of the fluid life, filter change indication, and transmission clutch maintenance.

Function ID	Description	Wire assignment
Inputs		
C	PTO Request	142
J	Fire Truck Pump Mode (4th Lockup)	122 / 123
Outputs		
C	Range Indicator	145 (4th)
G	PTO Enable Output	130
	Signal Return	103

ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR

The transmission fluid shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal.

TRANSMISSION SHIFT SELECTOR

An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach. The shift selector shall have a graphical Vacuum Florescent Display (VFD) capable of displaying two lines of text. The shift selector shall provide mode indication and a prognostic indicator (wrench symbol) on the digital display. The prognostics monitor various operating parameters and shall alert you when a specific maintenance function is required.

TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE

When the auxiliary brake is engaged, the transmission shall automatically shift to second gear to decrease the rate of speed assisting the secondary braking system and slowing the vehicle.

TRANSMISSION COOLING SYSTEM

The transmission shall include a water to oil cooler system located in the cooling loop between the radiator and the engine. The transmission cooling system shall meet all transmission manufacturer requirements. The transmission cooling system shall feature continuous flow of engine bypass water to maintain uninterrupted transmission cooling.

TRANSMISSION DRAIN PLUG

The transmission shall include an original equipment manufacturer installed magnetic transmission fluid drain plug.

TRANSMISSION WARRANTY

The Allison EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.

LH PTO

A PTO shall be installed on the transmission by the OEM.

LH PTO MODEL

A ten (10) bolt Chelsea model 280-GGFJP-B5XD heavy duty transmission driven PTO shall be installed. The clutched shifted PTO is designed specifically for the Allison world transmission and provides an intermittent and continuous torque rating of 360 lb. ft.

PTO LOCATION

The transmission shall have two (2) power take off (PTO) mounting locations, one (1) in the 8:00 o'clock position and one (1) in the 4:00 o'clock position.

DRIVELINE

All drivelines shall be heavy duty metal tube and equipped with MSI 1710 series universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration. In areas of the driveline where a slip shaft is required, the splined slip joint shall be coated with Glide Coat®. The drivelines shall include Meritor brand u-joints with thrust washers.

MIDSHIP PUMP / GEARBOX

A temporary jackshaft driveline shall be installed by the chassis manufacturer to accommodate the mid-ship split shaft pump as specified by the apparatus manufacturer.

MIDSHIP PUMP / GEARBOX MODEL

The midship pump/gearbox provisions shall be for a Waterous CSUC20 pump.

MIDSHIP PUMP GEARBOX DROP

The Waterous pump gearbox shall have a "C" (medium length) drop length.

MIDSHIP PUMP RATIO

The ratio for the midship pump shall be 2.27:1.

MIDSHIP PUMP LOCATION C/L SUCTION TO C/L REAR AXLE

The midship pump shall be located so the dimension from the centerline of the suction to the centerline of the rear axle is 107.00 inches.

PUMP SHIFT CONTROLS

One (1) air pump shift control panel shall be located on the left hand side of the engine tunnel, integrated with the shifter pod. The following shall be provided on the panel: a three (3) position control lever; an engraved PUMP ENGAGED identification light; and an engraved OK TO PUMP identification light. The pump shift control panel shall be black with a yellow border

outline and shall include pump instructions. An instruction plate describing the transmission shift selector position used for pumping shall be provided and located so it can be read from the driver's position per NFPA **16.10.1.3**. The road mode shall be selected when the control lever is in the forward position and pump mode shall be selected when the control lever is in the rearward position.

The control lever center position shall exhaust air from both pump and road sides of the pump gear box shift cylinder.

PUMP SHIFT CONTROL PLUMBING

Air connections shall be provided from the air supply tank to the pump shift control valve and from the pump shift control valve to the frame mounted bracket. The frame mounted bracket shall include labeling identifying the pump and road connection points with threaded 0.25 inch NPT fittings on the solenoid for attaching the customer installed pump. The air supply shall be pressure protected from service brake system.

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a Racor GreenMAX 6600R fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve and a see-through cover to allow visual inspection of fuel and filter condition. The Racor 6600R shall meet engine requirements for particulate size, collection capacity, removal efficiency, and water removal efficiency. The filter shall be capable of handling a maximum flow rate of 150 gallons per hour.

A secondary fuel filter shall be included as approved by the engine manufacturer.

An instrument panel lamp and audible alarm which indicates when water is present in the fuel-water separator shall also be included.

FUEL LINES

The fuel system supply and return lines installed from the fuel tank to the engine shall be black textile braided lines which are reinforced with braided high tensile steel wire. The fuel lines shall be connected with reusable steel fittings.

FUEL SHUTOFF VALVE

There shall be two (2) fuel shutoff valves which shall be installed, one (1) in the fuel draw line at the primary fuel filter and one (1) in the fuel outlet line at the primary fuel filter to allow the fuel filters to be changed without loss of fuel to the fuel pump.

A third fuel shutoff valve shall be installed in the fuel draw line, near the fuel tank to allow maintenance to be performed with minimal loss of fuel.

ELECTRIC FUEL PRIMER

Integral to the engine assembly is an electric lift pump that serves the purpose of pre-filter fuel priming.

FUEL COOLER

An aluminum cross flow air to fuel cooler shall be provided to lower fuel temperature allowing the vehicle to operate at higher ambient temperatures. The fuel cooler shall be located behind the rear axle.

FUEL TANK

The fuel tank shall have a capacity of sixty-five (65) gallons and shall measure 35.00 inches in width X 18.50 inches in height X 24.00 inches in length.

The baffled tank shall have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion and draw.

The tank is designed with dual draw tubes and sender flanges. The tank shall have 2.00 inch NPT fill ports for right or left hand fill. A 0.50 inch NPT drain plug shall be centered in the bottom of the tank.

The fuel tank shall be mounted below the frame, behind the rear axle. Two (2) three-piece strap hanger assemblies with “U” straps bolted midway on the fuel tank front and rear shall be utilized to allow the tank to be easily lowered and removed for service purposes. Rubber isolating pads shall be provided between the tank and the upper tank mounting brackets. Strap mounting studs through the rail, hidden behind the body shall not be acceptable.

FUEL TANK MATERIAL AND FINISH

The fuel tank shall be constructed of 12 gauge aluminized steel. The exterior of the tank shall be powder coated black and then painted to match the frame components.

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 Method B, results to be 5B minimum. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794, results to be 5B minimum.

Any proposals offering painted fuel tanks with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.

FUEL TANK STRAP MATERIAL

The fuel tank straps shall be constructed of ASTM A-36 steel. The fuel tank straps shall be powder coated black and then painted to match the frame components if possible.

FUEL TANK FILL PORT

The fuel tank fill ports shall be offset with the left fill port located in the rearward position and the right fill port located in the middle position on the fuel tank.

FUEL TANK SERVICEABILTY PROVISIONS

The chassis fuel lines shall have additional length provided so the tank can be easily lowered and removed for service purposes. The additional 8.00 feet of length shall be located above the fuel tank and shall be coiled and secured. The fuel line fittings shall be pointed towards the right side (curbside) of the chassis.

FUEL TANK DRAIN PLUG

A 0.5 inch NPT magnetic drain plug shall be centered in the bottom of the fuel tank.

FRONT AXLE

The front axle shall include an independent front suspension (IFS) offering superior ride and improved handling.

The suspension shall utilize fully independent double wishbone arms with carrier and kingpin for optimized scrub radius. Air springs are tuned for ride and help reduce suspension weight. The IFS reduces turn radius with improved wheel cut over beam axles. The hydraulic damper shall feature rebound control to ensure the maximum load stability and superior driver comfort. The IFS system shall improve handling and offer better braking because of improved ground to tire ratio. This design shall allow for independent adjustment of the vehicle's alignment settings. The IFS shall include an auxiliary transverse leaf spring.

Proposals offering independent front axles comprised of torsion bar style suspensions shall not be considered.

FRONT AXLE WARRANTY

The front axle shall be warranted by Tuthill for three (3) years or 150,000 miles, which ever comes first. Details of the Tuthill warranty are provided on the PDF document attached to this option.

FRONT WHEEL BEARING LUBRICATION

The front axle wheel bearings shall be lubricated with oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.

FRONT SHOCK ABSORBERS

Two (2) Koni shock absorbers shall be provided and installed as part of the front suspension system. Each shock shall deliver improved road handling and durability.

FRONT SUSPENSION

The chassis shall include an independent front suspension (IFS) system. The known advantages of IFS systems can be improved handling and better braking due to the increase in tire surface to ground contact area. The suspension travel of the IFS shall be approximately 6.50 inches, providing 3.00 inches bounce and 3.50 inches rebound of the suspension. The IFS front axle shall be rated between 21,000 and 24,000 pounds.

STEERING COLUMN/ WHEEL

The cab shall include a Douglas Autotech steering column which shall include a seven (7) position tilt, a 2.25 inch telescopic adjustment, and an 18.00 inch, four (4) spoke steering wheel located at the driver's position. The steering wheel shall be covered with black polyurethane foam padding.

The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.

ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR

The power steering fluid shall be monitored electronically and shall send a signal to activate an audible alarm and visual warning in the instrument panel when fluid level falls below normal.

POWER STEERING PUMP

The hydraulic power steering pump shall be a Vickers V20F and shall be gear driven from the engine. The pump shall be a fixed displacement vane type. The power steering system shall include an oil to air passive cooler.

FRONT AXLE CRAMP ANGLE

The chassis shall have a front axle cramp angle of 48-degrees to the left and right.

POWER STEERING GEAR

The power steering gear shall be a TRW model TAS 85/RCS 85.

CHASSIS ALIGNMENT

The chassis frame rails shall be measured to insure the length is correct and cross checked to make sure they run parallel and are square to each other. The front and rear axles shall be laser aligned. The front tires and wheels shall be aligned and toe-in set on the front tires by the chassis manufacturer.

REAR AXLE

The rear axle shall be a Meritor model RS-23-186 single drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 24,000 pounds.

The axle shall be built of superior construction and quality components to provide the rugged dependability needed to stand up to the fire industry's demands. The axle shall include rectangular shaped, hot-formed housing with a standard wall thickness of 0.50 of an inch for extra strength and rigidity and a rigid differential case for high axle strength and reduced maintenance.

The axle shall have heavy-duty Hypoid gearing for longer life, greater strength and quieter operation. Industry-standard wheel ends for compatibility with both disc and drum brakes, and unitized oil seal technology to keep lubricant in and help prevent contaminant damage will be used.

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

REAR AXLE WARRANTY

The rear axle shall be warranted by Meritor for five (5) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

VEHICLE TOP SPEED

The top speed of the vehicle shall be approximately 68 MPH +/-2 MPH at governed engine RPM.

REAR SUSPENSION

The single rear axle shall feature a Reyco 79KB vari-rate, self-leveling captive slipper type parabolic five (5) leaf spring pack suspension with 57.50 inch X 3.00 inch springs. The suspension shall also utilize one (1) adjustable and one (1) fixed torque rod.

The rear suspension capacity shall be rated from 21,000 to 26,000 pounds.

REAR RIDE HEIGHT ADJUSTMENT

The rear ride height shall be increased 1.00 inch by the addition of one (1) 1.00 inch thick spacer installed between the springs and the axle. This spacer shall be in addition to any spacers that are normally provided for the specific chassis configuration and may cause the frame to not be level when loaded to the rated capacity of the axles.

REAR SHOCK ABSORBERS

Two (2) Bilstein inert, nitrogen gas filled heavy duty shock absorbers shall be provided and installed as part of the rear suspension system. The shocks shall be a monotubular design and fabricated using a special extrusion method, utilizing a single blank of steel without a welded seam, achieving an extremely tight peak-to-valley tolerance and maintains consistent wall thickness. The monotubular design shall provide superior strength while maximizing heat dissipation and shock life.

The ride afforded through the use of a gas shock is more consistent and shall not deteriorate with heat, the same way a conventional oil filled hydraulic shock would.

The Bilstein front shocks shall include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design shall feature fewer parts than most conventional twin tube and “road sensing” shock designs and shall contribute to the durability and long life of the Bilstein shock absorbers.

The heavy duty shock absorbers shall be tuned to provide higher damping forces.

Proposals offering the use of conventional twin tube or “road sensing” designed shocks shall not be considered.

TIRE INTERMITTENT SERVICE RATING

The chassis shall be rated using Intermittent Service ratings provided to the emergency vehicle market by the tire manufacturers as the basis for determining the maximum vehicle load and speed.

FRONT TIRE

The front tires shall be Michelin 385/65R22.5 “L” tubeless radial X Multiway HD XZE regional tread.

The front tire stamped load capacity shall be 22,000 pounds per axle with a nominal speed rating of 68 miles per hour when properly inflated to 130 pounds per square inch.

The Michelin Intermittent Service Rating maximum load capacity shall be 23,540 pounds per axle with a maximum speed of 68 miles per hour when properly inflated to 130 pounds per square inch.

The Michelin Intermittent Service Rating maximum speed capacity shall be 22,000 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 130 pounds per square inch.

The Michelin Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

REAR TIRE

The rear tires shall be Michelin 12R-22.5 16PR "H" tubeless radial XZE regional tread.

The rear tire stamped load capacity shall be 27,120 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Tire Intermittent Service Rating load capacity shall be 28,880 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch. The Michelin Intermittent Service Rating limits the operation of the emergency vehicle to one (1) hour of loaded travel with a one (1) hour cool down prior to another loaded run.

REAR AXLE RATIO

The rear axle ratio shall be 5.13:1.

TIRE PRESSURE INDICATOR

There shall be electronic chrome LED valve caps shipped loose for installation by the OEM which shall illuminate with a red LED when tire pressure drops 8psi provided. The valve caps are self-calibrating and set to the pressure of the tire upon installation.

FRONT WHEEL

The front wheels shall be Alcoa hub piloted, 22.50 inch X 12.25 inch LvL One™ polished aluminum wheels. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts. The wheels shall feature one-piece forged strength and shall include Alcoa's Dura-Bright® finish as an integral part of the wheel surface. Alcoa Dura-Bright® wheels keep their shine without polishing. Brake dust, grime and road debris are easily removed by simply cleaning the wheels with soap and water.

REAR WHEEL

The outer rear wheels shall be Alcoa hub piloted, heavy duty, 22.50 inch X 9.00 inch LvL One™ aluminum wheels with Alcoa Dura-Bright® wheel treatment as an integral part of the wheel. The inner rear wheels shall be Alcoa hub piloted, 22.50 inch X 9.00 inch LvL One™ polished aluminum wheels. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

BALANCE WHEELS AND TIRES

All of the wheels and tires, including any spare wheels and tire assemblies, shall be dynamically balanced.

WHEEL TRIM

The front wheels shall include stainless steel lug nut covers and stainless steel baby moons shipped loose with the chassis for installation by the apparatus builder. The baby moons shall have cutouts for oil seal viewing when applicable.

The rear wheels shall include stainless steel lug nut covers and band mounted spring clip stainless steel high hats shipped loose with the chassis for installation by the apparatus builder.

The lug nut covers, baby moons, and high hats shall be RealWheels® brand constructed of 304L grade, non-corrosive stainless steel with a mirror finish. Each wheel trim component shall meet D.O.T. certification.

TIRE CHAINS

Onspot brand extreme duty six (6) strand automatic ice chains shall be installed on the rear axle of the chassis to provide instant traction while traveling on ice and snow at speeds below 35 MPH.

TIRE CHAINS ACTIVATION

The tire chain system shall be activated by an orange rocker locking switch on the dash to deter accidental activation. The light on the switch shall illuminate when the tire chains are engaged. The tire chains shall be interlocked with the transmission and shall engage only if the vehicle is traveling 30 MPH or less. After traveling over 30 MPH, the vehicle must be reduced to a speed below 5 MPH for the tire chains to be engaged or re-engaged.

BRAKE SYSTEM

A rapid build-up air brake system shall be provided. The air brakes shall include, at a minimum, a two (2) air tank, three (3) reservoir system with a total of 4152 cubic inch of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide a service brake application in the unlikely event of primary air supply loss. All air reservoirs provided on the chassis shall be labeled for identification.

The rear axle spring brakes shall automatically apply in any situation when the air pressure falls below 25 PSI and shall include a mechanical means for releasing the spring brakes when necessary. An audible alarm shall designate when the system air pressure is below 60 PSI.

A four (4) sensor, four (4) modulator Anti-lock Braking System (ABS) shall be installed on the front and rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.

Additional safety shall be accommodated through Automatic Traction Control (ATC) which shall be installed on the single rear axle. The ATC system shall apply the ABS when the drive wheels loose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on ice or wet surfaces.

A virtual style switch shall be provided and properly labeled “mud/snow”. When the switch is pressed once, the system shall allow a momentary wheel slip to obtain traction under extreme mud and snow conditions. During this condition the ATC light shall blink continuously notifying the driver of activation. Pressing the switch again shall deactivate the mud/snow feature.

The Electronic Stability Control (ESC) unit is a functional extension of the electronic braking system. It is able to detect any skidding of the vehicle about its vertical axis as well as any rollover tendency. The control unit comprises an angular-speed sensor that measures the

vehicle's motion about the vertical axis, caused, for instance, by cornering or by skidding on a slippery road surface. An acceleration sensor measures the vehicle's lateral acceleration. The Controller Area Network (CAN) bus provides information on the steering angle. On the basis of lateral acceleration and steering angle, an integrated microcontroller calculates a theoretical angular speed for the stable vehicle condition.

FRONT BRAKES

The front brakes shall be Knorr/Bremse SN7 disc brakes with 17.00 inch vented rotors.

REAR BRAKES

The rear brakes shall be Meritor EX225 Disc Plus disc brakes with 17.00 inch vented rotors.

PARK BRAKE

Upon application of the push-pull valve in the cab, the rear brakes will engage via mechanical spring force. This is accomplished by dual chamber rear brakes, satisfying the FMVSS parking brake requirements.

SUPPLEMENTAL BRAKE

A supplemental brake engagement shall be supplied that can only be engaged while the rear spring brakes are engaged. In addition to the mechanical rear brake engagement, the front service brakes shall also be engaged via air pressure, providing additional braking capability. Front service brake activation shall be accomplished with activation of the rear mechanical park brake valve.

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake.

The parking brake actuation valve shall be mounted to the left side of the engine tunnel integrated into the transmission shift pod console within easy access of the driver. The control shall include a protective guard which shall prevent accidental activation of the parking brake and still allow proper actuation of the control.

AIR DRYER

The brake system shall include a Wabco System Saver 1200 air dryer with an integral 100 watt heater with a Metri-Pack sealed connector. The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure. The air dryer shall be located on the right hand frame rail forward of the front wheel behind the right hand cab step.

FRONT BRAKE CHAMBERS

The front brakes shall be provided with type 24 brake chambers as supplied with the independent front suspension axle.

REAR BRAKE CHAMBERS

The rear axle shall include TSE 24/30 H.O.T. (High Output Technology) brake chambers shall convert the energy of compressed air into mechanical force and motion. This shall actuate the brake camshaft, which in turn shall operate the foundational brake mechanism forcing the brake pads against the brake rotor.

AIR COMPRESSOR

The air compressor provided for the engine shall be a naturally aspirated Wabco® SS440 single cylinder pass-through drive type compressor which shall be capable of producing 26.0 CFM at 1200 engine RPMs. The compressor shall include an aluminum cylinder head which shall improve cooling, reduce weight and decrease carbon formation.

AIR GOVERNOR

An air governor shall be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements. The air governor shall be located on the air dryer bracket.

MOISTURE EJECTORS

Heated, automatic moisture ejectors with a manual drain provision shall be installed on all reservoirs of the air supply system. The manual drain provision shall include an actuation pull cable coiled and tied at each drain valve. The supplied cables when extended shall be sufficient in length to allow each drain to be activated from the side of the apparatus.

AIR SUPPLY LINES

The air system on the chassis shall be plumbed with color coded reinforced nylon tubing air lines. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue.

Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.

AIR TANK SPACERS

There shall be spacers included with the air tank mounting. The spacers shall move the air tanks 1.50 inches inward towards the center of the chassis. This shall provide clearance between the air tanks and the frame for body U-bolt clearance.

REAR AIR TANK MOUNTING

If a combination of wheel base, air tank quantity, or other requirements necessitate the location of one or more air tanks to be mounted rear of the fuel tank, these tank(s) will be mounted perpendicular to frame.

WHEELBASE

The chassis wheelbase shall be 220.50 inches.

REAR OVERHANG

The chassis rear overhang shall be 47.00 inches.

FRAME

The frame shall consist of triple side rails and cross members forming a ladder style frame. The side rails shall be formed in the shape of a "C" channel, with the outer rail measuring 10.25 inches high X 3.50 inches deep X 0.38 inches thick, with an inner channel 9.44 inches high X 3.13 inches deep X 0.38 inches thick, and a second inner channel, 8.55 inches high X 2.75 inches deep X 0.25 inches thick which shall be provided extending from the rear of the cab to the forward rear suspension cross member. Each rail shall be constructed of 110,000 psi minimum yield high strength low alloy steel. The triple rail section shall be rated by a Resistance Bending Moment (RBM) minimum of 3,921,500 inch pounds and have a minimum section modulus of 35.65 cubic inches. The frame shall measure 35.00 inches in width.

Proposals calculating the frame strength using the “box method” shall not be considered.

Proposals including heat treated rails shall not be considered. Heat treating frame rails produces rails that are not uniform in their mechanical properties throughout the length of the rail. Rails made of high strength, low alloy steel are already at the required yield strength prior to forming the rail.

A minimum of seven (7) fully gusseted 0.25 inch thick cross members shall be installed. The inclusion of the body mounting, or bumper mounting shall not be considered as a cross member. The cross members shall be attached using zinc coated grade 8 fasteners. The bolt heads shall be flanged type, held in place by distorted thread flanged lock nuts. Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25 inch thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.

Any proposals not including additional reinforcement for each cross member shall not be considered.

All relief areas shall be cut in with a minimum 2.00 inch radius at intersection points with the edges ground to a smooth finish to prevent a stress concentration point.

REAR TOW DEVICE

The frame rails shall contain (6) holes per frame in a pattern specified by the OEM for mounting Spartan ERV tow eyes at the rear of the frame at a location defined by the OEM.

FRAME PAINT

The frame rails shall be hot dip galvanized prior to assembly and attachment of any components. The components that shall be galvanized shall include:

- Main frame “C” channel or channels

The frame parts which are not galvanized shall be powder coated prior to any attachment of components. Parts which shall be powder coated shall include but are not limited to:

- Steering gear bracket
- Front splayed rails and fish plates
- Bumper extensions
- Cross members
- Cross member gussets
- Fuel tank mounting brackets
- Fuel tank straps (unless material/finish is specified in 3130 subcat)
- Air tanks (unless color coded tanks are specified in 3205 subcat)
- Air tank mounting brackets
- Exhaust mounting brackets
- Air cleaner skid plate
- Radiator skid plate
- Battery supports, battery trays and battery covers

Other non-galvanized under carriage components which are received from the suppliers with coatings already applied shall include but are not limited to:

- Suspension components
- Front and rear axles

All powder coatings, primers and paint used on the non-galvanized components shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 shall not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794 shall have an impact resistance of 120.00 inches per pound at 2 mils.

The chassis under carriage consisting of frame, axles, driveline running gear, air tanks and other assorted chassis mounted components shall then be painted the primary lower cab color. Paint shall be applied prior to airline and electrical wiring installation.

FRAME WARRANTY

Summary of Warranty Terms:

THE FOLLOWING IS SUMMARY OF WARRANTY TERMS FOR INFORMATION ONLY. THE ACTUAL LIMITED WARRANTY TERMS CAN BE FOUND IN THE CHASSIS WARRANTY DOCUMENTS, WHICH CONTAINS THE COMPLETE STATEMENT OF THE WARRANTY. THE CHASSIS MANUFACTURER’S RESPONSIBILITY IS TO BE ACCORDING TO THE TERMS OF THE COMPLETE LIMITED WARRANTY DOCUMENTS.

The frame and cross members shall carry a limited lifetime warranty to the original purchaser. The warranty period shall commence on the date the vehicle is delivered to the first end user.

REAR MUD FLAP

The unit shall be equipped with a temporary wooden fender and mud flap assembly for transport to the body manufacturer.

FRONT BUMPER

The chassis shall be equipped with a severe duty front bumper constructed from structural steel channel. The bumper material shall be 0.38 thick ASTM A36 steel which shall measure 12.00 inches high with a 3.05 inch flange and shall be 99.00 inches wide with angled front corners.

The bumper shall be primed and painted as specified.

FRONT BUMPER EXTENSION LENGTH

The front bumper shall be extended approximately 21.00 inches ahead of the cab.

FRONT BUMPER PAINT

The front bumper shall be painted the same as the lower cab color. The front bumper apron and trim shall feature a black spray on bedliner coating.

FRONT BUMPER TRIM

A stainless steel trim angle, painted to the customer's specifications, shall be installed on the top corner of the bumper across the front and on the top corner of the bumper tails. The trim angle shall measure 1.10 inches wide on the horizontal flange and 1.60 inches tall on the vertical flange. The trim shall be affixed to the bumper, below the apron without holes and fasteners.

FRONT BUMPER APRON

The 21.00 inch extended front bumper shall include an apron constructed of 0.19 inch thick embossed aluminum tread plate.

The apron shall be installed between the bumper and the front face of the cab affixed using stainless steel bolts attaching the apron to the top bumper flange.

FRONT BUMPER COMPARTMENT CENTER

The front bumper shall include a compartment in the bumper apron located in the center between the frame rails which may be used as a hose well. The compartment shall be constructed of 0.13 inch 5052-H32 grade aluminum and shall include drain holes in the bottom corners to allow excess moisture to escape. The compartment shall be the full size of available space in the apron from the cab fascia to the bumper and 38.00 inches wide X 10.88 inches deep. The clear opening shall be 37.75 inches wide. The compartment shall include a notched cover constructed of 0.19 inch thick bright embossed aluminum tread plate. The notch shall be located in the right front portion of the cover and shall be 4.00 inches in length with a 2.00 inches wide radius.

FRONT BUMPER COMPARTMENT COVER HARDWARE

The front bumper compartment cover(s) shall include gas cylinder stays which shall hold the cover open. Each cover shall be held in the closed position via a D-ring style latch.

MECHANICAL SIREN

The front bumper shall include an electro mechanical Federal Q2B™ siren, which shall be streamlined, chrome-plated and shall produce 123 decibels of sound at 10.00 feet. The Q2B™ siren produces a distinctive warning sound that is recognizable at long distances. A unique clutch design provides a longer coast down sound while reducing the amp draw to 100 amps. The siren shall measure 10.50 inches wide X 10.00 inches high X 14.00 inches deep. The siren shall include a pedestal mount to surface mount on a horizontal surface.

MECHANICAL SIREN LOCATION

The siren shall be pedestal mounted on the bumper apron on the furthest outboard section of the bumper on the driver side.

AIR HORN

The chassis shall include two (2) Grover brand Stutter Tone air horns which shall measure 21.00 inches long with a 6.00 inch round flare. The air horns shall be trumpet style with a black powder coat finish.

AIR HORN LOCATION

The air horns shall be recess mounted in the front bumper face, one (1) on the right side of the bumper in the inboard position relative to the right hand frame rail and one (1) on the left side of the bumper in the inboard position relative to the left hand frame rail.

AIR HORN RESERVOIR

One (1) air reservoir, with a 2084 cubic inch capacity, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

ELECTRONIC SIREN SPEAKER

There shall be two (2) Whelen Engineering Inc. model SP123BMC, 100 watt cast aluminum speakers provided. Each speaker shall measure 7.25 inches tall X 9.25 inches wide X 5.25 inches deep. Each speaker shall have a natural cast aluminum finish and shall be installed using a custom Spartan grille. Each grille shall be painted gloss black.

ELECTRONIC SIREN SPEAKER LOCATION

The two (2) electronic siren speakers shall be located on the front bumper face outboard of the frame rails with one (1) on the right side and one (1) on the left side in the outboard positions.

CAB TILT SYSTEM

The entire cab shall be capable of tilting approximately 45-degrees to allow for easy maintenance of the engine and transmission. The cab tilt pump assembly shall be located on the right side of the chassis above the battery box.

The electric-over-hydraulic lift system shall include an ignition interlock and red cab lock down indicator lamp on the tilt control which shall illuminate when holding the “Down” button to indicate safe road operation.

It shall be necessary to activate the master battery switch and set the parking brake in order to tilt the cab. As a third precaution the ignition switch must be turned off to complete the cab tilt interlock safety circuit.

Two (2) spring-loaded hydraulic hold down hooks located outboard of the frame shall be installed to hold the cab securely to the frame. Once the hold-down hooks are set in place, it shall take the application of pressure from the hydraulic cab tilt lift pump to release the hooks.

Two (2) cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab tilt pivots shall be 1.90 inch ball and be anchored to frame brackets with 1.25 inch diameter studs.

A steel safety channel assembly, painted safety yellow shall be installed on the right side cab lift cylinder to prevent accidental cab lowering. The safety channel assembly shall fall over the lift cylinder when the cab is in the fully tilted position. A cable release system shall also be provided to retract the safety channel assembly from the lift cylinder to allow the lowering of the cab.

CAB TILT AUXILIARY PUMP

A manual cab tilt pump module shall be attached to the cab tilt pump housing.

CAB TILT LIMIT SWITCH

A cab tilt limit switch shall be installed. The switch will effectively limit the travel of the cab when being tilted. The limit adjustment of the switch shall be preset by the chassis manufacturer to prevent damage to the cab or any bumper mounted option mounted in the cab tilt arc. Further adjustment to the limit by the apparatus manufacturer shall be available to accommodate additional equipment.

CAB TILT CONTROL RECEPTACLE

The cab tilt control cable shall include a receptacle which shall be temporarily located on the right hand chassis rail rear of the cab to provide a place to plug in the cab tilt remote control pendant. The tilt pump shall include 8.00 feet of cable with a six (6) pin Deutsch receptacle with a cap.

The remote control pendant shall include 20.00 feet of cable with a mating Deutsch connector. The remote control pendant shall be shipped loose with the chassis.

CAB TILT LOCK DOWN INDICATOR

The cab dash shall include a message located within the dual air pressure gauge which shall alert the driver when the cab is unlocked and ajar. The alert message shall cease to be displayed when the cab is in the fully lowered position and the hold down hooks are secured and locked to the cab mounts.

In addition to the alert message an audible alarm shall sound when the cab is unlocked and ajar with the parking brake released.

CAB WINDSHIELD

The cab windshield shall have a surface area of 2825.00 square inches and be of a two (2) piece wraparound design for maximum visibility.

The glass utilized for the windshield shall include standard automotive tint. The left and right windshield shall be fully interchangeable thereby minimizing stocking and replacement costs.

Each windshield shall be installed using black self locking window rubber.

GLASS FRONT DOOR

The front cab doors shall include a window which is 27.00 inches in width X 26.00 inches in height. These windows shall have the capability to roll down completely into the door housing. This shall be accomplished manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.

There shall be an irregular shaped fixed window which shall measure 2.50 inches wide at the top, 8.00 inches wide at the bottom X 26.00 inches in height, more commonly known as “cozy glass” ahead of the front door roll down windows.

The windows shall be mounted within the frame of the front doors trimmed with a black anodized ring on the exterior.

GLASS TINT FRONT DOOR

The windows located in the left and right front doors shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

GLASS REAR DOOR RH

The rear right hand side door shall include a window which is 27.00 inches in width X 26.00 inches in height. This window shall roll up and down manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.

GLASS TINT REAR DOOR RIGHT HAND

The window located in the right hand side rear window shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

GLASS REAR DOOR LH

The rear left hand side door shall include a window which is 27.00 inches in width X 26.00 inches in height. This window shall roll up and down manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.

GLASS TINT REAR DOOR LEFT HAND

The window located in the left hand side rear door shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

GLASS SIDE MID RH

The cab shall include a window on the right side behind the front and ahead of the crew doors which shall measure 16.00 inches wide X 12.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self-locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

GLASS TINT SIDE MID RIGHT HAND

The window located on the right hand side of the cab between the front and rear doors shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

GLASS SIDE MID LH

The cab shall include a window on the left side behind the front door and ahead of the crew door and above the wheel well which shall measure 16.00 inches wide X 12.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self-locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

GLASS TINT SIDE MID LEFT HAND

The window located on the left hand side of the cab between the front and rear doors shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

CLIMATE CONTROL

A ceiling mounted combination defroster and cabin heating and air conditioning system shall be located above the engine tunnel area. The system covers and plenums shall be of severe duty design made of aluminum which shall be coated with a customer specified interior paint. The design of the system's covers shall provide quick access to washable air intake filters as well as easy access to other serviceable items.

Six (6) adjustable louvers shall provide comfort for the front seat occupants and ten (10) adjustable louvers shall provide comfort for the rear crew occupants. The plenum shall be shortened to terminate in the mid crew area on cabs with 10.00 inch raised roofs and greater. This shortened plenum shall allow for the customer to utilize the upper rear center wall for compartmentation, equipment, or apparatus operations.

Separate front and rear blower motors shall be of brushless design and shall be controlled independently. It shall be capable of reducing the interior cabin air temperature from 122˚ F (+/- 3˚ F) to 80˚ F in thirty minutes with 50% relative humidity and full solar load as described in SAE J2646.

The system shall also provide heater pull up performance which meets or exceeds the performance requirements of SAE J1612 as well as defrost performance that meets or exceeds the performance requirements of SAE J381.

A gravity drain system shall be provided that is capable of evacuating condensate from the vehicle while on a slope of up to a 13% grade in any direction.

The air conditioning system plumbing shall be a mixture of custom bent zinc coated steel fittings and Aeroquip flexible hose with Aeroquip EZ-Clip fittings.

The overhead heater/defroster plumbing shall include an electronic flow control valve that re-directs hot coolant away from the evaporator, via a bypass loop, as the temperature control is moved toward the cold position.

Any component which needs to be accessed to perform system troubleshooting shall be accessible by one person using basic hand tools. Regularly serviced items shall be replaceable by one person using basic hand tools.

*****The chassis manufacturer recommends that the overall climate system performance be based off third-party testing in accordance with the Society of Automotive Engineering standards as a complete system.***

Individual component level BTU ratings is not an accurate indicator of the performance capability of the completed system. System individual component BTU ratings:

- Air conditioning evaporator total BTU/HR: 82,000
- Air conditioning condenser total BTU/HR: 59,000
- Heater coil total BTU/HR: 98,000

Performance data specified is based on testing performed by an independent third-party test facility using a medium four-door 10" raised roof cab equipped with an ISL engine.

CLIMATE CONTROL DRAIN

The climate control system, including the roof mounted 110V auxiliary HVAC unit, shall include a gravity drain for water management. The gravity drain shall remove condensation from the air conditioning system without additional mechanical assistance.

CLIMATE CONTROL ACTIVATION

The heating, defrosting and air conditioning controls shall be in the center dash center switch panel, in a position which is easily accessible to the driver. The climate control shall be activated by a rotary switch.

HVAC OVERHEAD COVER PAINT

The overhead HVAC cover shall be painted with an easy-to-clean gray texture finish.

AUXILIARY A/C CAB CEILING/ROOF

A 110 volt Dometic Penguin II low profile high capacity air conditioning system shall be provided to cool the crew area of the cab. The system shall consist of one (1) 110 volt air conditioning roof mounted unit which shall be located above the crew area and centered left to right on the cab. The cover of the air conditioning unit shall be painted the upper cab color.

The system shall be pre-wired with 35.00 feet of coiled wire for installation of the 120 volt receptacle by the body manufacturer.

A/C CONDENSER LOCATION

A roof mounted A/C condenser shall be installed centered on the cab forward of the raised roof against the slope rise.

A/C COMPRESSOR

The air-conditioning compressor shall be a belt driven, engine mounted compressor. The compressor shall be compatible with R134-a refrigerant.

*****The chassis manufacturer recommends that the overall climate system performance be based off third-party testing in accordance with the Society of Automotive Engineering standards as a complete system.***

Individual component level ratings are not an accurate indicator of the performance capability of the completed system.
Refrigerant Compressor displacement: 19.1 cubic inches per revolution.

UNDER CAB INSULATION

The underside of the cab tunnel surrounding the engine shall be lined with multi-layer insulation, engineered for application inside diesel engine compartments.

The insulation shall act as a noise barrier, absorbing noise thus keeping the decibel level in the cab well within NFPA recommendations. As an additional benefit, the insulation shall assist in sustaining the desired temperature within the cab interior.

The engine tunnel insulation shall measure approximately 0.30 inch thick including a multi-layer foil faced glass cloth and polyester fiber layer. The foil surface acts as protection against heat, moisture and other contaminants. The insulation shall meet or exceed FMVSS 302 flammability test.

The cab floor insulation shall measure 0.56 inch thick including a 1.0#/sf PVC barrier and a moisture and heat reflective foil facing, reinforced with fiberglass strands. The foil surface acts as protection against moisture and other contaminants. The insulation shall meet or exceed FMVSS 302 flammability test.

The insulation shall be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation shall be held in place by acrylic pressure sensitive adhesive. In addition, the insulation on the underside of the cab floor shall have aluminum pins with hard hat, hold in place fastening heads and an expanded metal overlay to assist in retaining the insulation tight against the cab. The insulation inside the tunnel shall have a removable aluminum overlay installed to protect the insulation and assist in retaining the insulation tight against the engine tunnel surfaces.

INTERIOR TRIM FLOOR

The floor of the cab shall be covered with a multi-layer mat consisting of 0.25 inch thick sound absorbing closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive and aluminum trim molding. All exposed seams shall be sealed with silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention.

INTERIOR TRIM

The cab interior shall include trim on the front ceiling, rear crew ceiling, and the cab walls. It shall be easily removable to assist in maintenance. The trim shall be constructed of insulated vinyl over a hard board backing.

REAR WALL INTERIOR TRIM

The rear wall of the cab shall be trimmed with vinyl.

HEADER TRIM

The cab interior shall feature header trim over the driver and officer dash constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum.

TRIM CENTER DASH

The main center dash area shall be constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum plate. There shall be four (4) holes located on the top of the dash near each outer edge of the electrical access cover for ventilation. The center dash electrical access cover shall include a gas cylinder stay which shall hold the cover open during maintenance.

TRIM LH DASH

The left hand dash shall be constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum plate for a perfect fit around the instrument panel. For increased occupant protection the extreme duty left hand dash utilizes patent pending break away technology to reduce rigidity in the event of a frontal crash. The left hand dash shall offer lower vertical surface area to the left and right of the steering column to accommodate control panels.

TRIM RH DASH

The right hand dash shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate and shall include a glove compartment with a hinged door and a Mobile Data Terminal (MDT) provision. The glove compartment size will measure 14.00 inches wide X 6.38 inches high X 5.88 inches deep. The MDT provision shall be provided above the glove compartment.

ENGINE TUNNEL TRIM

The cab engine tunnel shall be covered with a multi-layer mat consisting of 0.25 inch closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The mat shall be held in place by pressure sensitive adhesive. The engine tunnel mat shall be trimmed with anodized aluminum stair nosing trim for an aesthetically pleasing appearance.

POWER POINT DASH MOUNT

The cab shall include two (2) dual universal serial bus (USB) charging receptacles in the cab dash switch panel to provide a power source for USB chargeable electrical equipment. Each dual USB receptacle shall include two ports and shall be capable of up to a 5 Volt 2.1 amp output. Port 1 is optimized for fast charging at 1 amp. Port 2 is optimized for fast charging up to 2.1 amps, when used individually. The receptacles shall be wired battery direct.

STEP TRIM

Each cab entry door shall include a three step entry. The first step closest to the ground shall be constructed of SAE 304 stainless steel with embossed perforations and diamond shaped cutout. The perforations and cutouts shall allow water and other debris to flow through rather than becoming trapped within the stepping surface. The step shall feature a splash guard to reduce water and debris from splashing in to the step. The splash guard shall have drainage holes beneath the back of the step to allow debris and water to flow through rather than becoming trapped within the stepping surface. The stainless steel material shall have a number 8 mirror finish. The lower step shall be mounted to a frame which is integral with the construction of the cab for rigidity and strength. The middle step shall be integral with the cab construction and shall be trimmed in 0.08 inch thick 3003-H22 embossed aluminum tread plate.

STEP TRIM KICKPLATE

The cab steps shall include a kick plate in the rise of each step. The risers shall be trimmed in 3003-H22 bright aluminum tread-plate which is 0.07 inch thick.

UNDER CAB ACCESS DOOR

The cab shall include an aluminum access door in the left crew step riser painted to match the cab interior paint with a push and turn latch. The under cab access door shall provide access to the diesel exhaust fluid fill.

INTERIOR DOOR TRIM

The interior trim on the doors of the cab shall consist of an aluminum panel constructed of Marine Grade 5052-H32 0.13 of an inch thick aluminum plate. The door panels shall include a painted finish.

DOOR TRIM CUSTOMER NAMEPLATE

The interior door trim on the front doors shall include a customer nameplate which states the vehicle was custom built for their Department.

CAB DOOR TRIM REFLECTIVE

In accordance with the current standards of NFPA, the body builder shall provide 96.00 square inches of reflective material on the interior of each cab door.

INTERIOR GRAB HANDLE "A" PILLAR

There shall be two (2) rubber covered 11.00 inch grab handles installed inside the cab, one on each “A” post at the left and right door openings. The left handle shall be located 7.88 inches above the bottom of the door window opening and the right handle shall be located 2.88 inches above the bottom of the door window opening. The handles shall assist personnel in entering and exiting the cab.

INTERIOR GRAB HANDLE FRONT DOOR

Each front door shall include one (1) ergonomically contoured 9.00 inch cast aluminum handle mounted horizontally on the interior door panels. The handles shall feature a textured black powder coat finish to assist personnel entering and exiting the cab.

INTERIOR GRAB HANDLE REAR DOOR

A black powder coated cast aluminum assist handle shall be provided on the inside of each rear crew door. A 30.00 inch long handle shall extend horizontally the width of the window just above the window sill. The handle shall assist personnel in exiting and entering the cab.

INTERIOR SOFT TRIM COLOR

The cab interior soft trim surfaces shall be gray in color.

INTERIOR TRIM SUN VISOR

The header shall include two (2) sun visors, one (1) on each side forward of the driver and officer seating positions above the windshield. The sun visors shall be constructed of impact resistant, transparent acrylic polycarbonate sun visors with a smoke gray tint.

The see thru visors are designed for maximum flexibility of positioning utilizing an arm with virtually unlimited adjustability with lateral travel of the tinted visor at the end of the arm which can be locked in place by a thumbscrew.

The visors are easily adjusted and can be placed into a chosen position with one hand. The sun visors will help protect vehicle occupants from solar glare without obscuring their vision.

INTERIOR FLOOR MAT COLOR

The cab interior floor mat shall be gray in color.

CAB PAINT INTERIOR DOOR TRIM

The inner door panel surfaces shall be painted with an easy clean-to-clean gray texture finish.

HEADER TRIM INTERIOR PAINT

The metal surfaces in the header area shall be coated with an easy-to-clean gray texture finish.

TRIM CENTER DASH INTERIOR PAINT

The entire center dash shall be coated with an easy-to-clean matte gray texture finish. Any accessory pods attached to the dash shall also be painted this color.

TRIM LH DASH INTERIOR PAINT

The left hand dash shall be painted with an easy-to-clean matte gray texture finish.

TRIM RIGHT HAND DASH INTERIOR PAINT

The right hand dash shall be painted with an easy-to-clean matte gray texture finish.

DASH PANEL GROUP

The main center dash area shall include three (3) aluminum removable panels located one (1) to the right of the driver position, one (1) in the center of the dash and one (1) to the left of the officer position. The panels shall be coated with a black texture finish. The center panel shall be within comfortable reach of both the driver and officer.

SWITCHES CENTER PANEL

The center dash panel shall include no rocker switches or legends.

SWITCHES LEFT PANEL

The left dash panel shall include one (1) windshield wiper/washer control switch located in the left hand side of the panel and one (1) rocker switch located in the left hand side of the panel.

A rocker switch with a blank legend installed directly above shall be provided for this position if not designated by a specific option. The non-designated switch shall be a two-position, black switch with a green indicator light. The blank switch legend can be custom engraved by the body manufacturer. The switch legend shall have backlighting provided.

SWITCHES RIGHT PANEL

The right dash panel shall six (6) rocker switch positions in a three (3) over three (3) switch configuration.

A rocker switch with a blank legend installed directly above shall be provided for any position without a switch and legend designated by a specific option. The non-specified switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.

SEAT BELT WARNING

A Weldon seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall provide a visual warning indicator in the Vista display and control screen(s).

The warning system shall activate when any seat is occupied with a minimum of 60 pounds, the corresponding seat belt remains unfastened, and the park brake is released. The warning system shall also activate when any seat is occupied, the corresponding seat belt was fastened in an incorrect sequence, and the park brake is released. Once activated, the visual indicators and applicable audible alarm shall remain active until all occupied seats have the seat belts fastened.

SEAT MATERIAL

The seats shall be covered with a 45.00 ounce vinyl material. This material shall be semi-resistant to UV rays and from being saturated or contaminated by fluids.

SEAT COLOR

All seats supplied with the chassis shall be gray in color. All seats shall include red seat belts.

SEAT BACK LOGO

The seat back shall include the Trophy Club logo. The logo shall be centered on the standard headrest of the seat back and on the left side of a split headrest.

SEAT DRIVER

The driver's seat shall be an H.O. Bostrom 500 Series Firefighter Sierra model seat. The seat shall feature eight-way electric positioning. The eight positions shall include up and down, fore and aft with 8.00 inches of travel, back angle adjustment and seat rake adjustment. The seat shall feature integral springs to isolate shock.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt, automatic retractor and buckle as an integral part of the seat assembly. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches measured with the seat height adjusted to the lowest position of travel.

This model of seat shall have successfully completed the static load tests set forth by FMVSS 207, 209, and 210 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity.

The materials used in construction of the seat shall also have successfully completed testing with regard to the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK DRIVER

The driver’s seat shall include a standard seat back incorporating the all belts to seat feature (ABTS). The seat back shall feature a contoured head rest.

SEAT MOUNTING DRIVER

The driver’s seat shall be installed in an ergonomic position in relation to the cab dash.

OCCUPANT PROTECTION DRIVER

The driver’s position shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

The driver’s seating area APS shall include:

- Advanced seat belt system - retractor pre-tensioner tightens the seat belt around the driver, securing the occupant in the seat and the load limiter plays out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.

- Large side curtain airbag - protects the driver's head, neck, and upper body from dangerous cab side surfaces and contact points with intrusive surfaces as a result of a collision as well as provides ejection mitigation protection to the driver in a qualifying event by covering the window and the upper portion of the door.

- Dual knee airbags (patent pending) with energy management mounting (patent pending) - protects the driver's lower body from dangerous surface contact injuries, acceleration injuries, and from intrusion as well as locks the lower body in place so the upper body shall be shall be slowed by the load limiting seat belt.

Steering wheel airbag - protects the driver's head, neck, and upper torso from contact injuries, acceleration injuries, and contact points with intrusive surfaces as a result of a collision.

SEAT OFFICER

The officer's seat shall be a H.O. Bostrom Firefighter series. The seat shall feature a tapered and padded seat, and cushion. The seat shall be a non-adjustable type seat.

There shall be a three-point shoulder harness with lap belt and an automatic retractor attached to the cab and available to the seat. The buckle portion of the seat belt shall be mounted on a rigid or semi-rigid stalk such that the buckle remains positioned in an accessible location. The seat belt assembly anchorages shall conform to the Federal Safety Standard (FMVSS) No. 210, "Seat belt assembly anchorages".

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK OFFICER

The officer's seat shall feature a two (2) way adjustable lumbar support and offer an infinite fully reclining adjustable titling seat back. The seat back shall also feature a contoured head rest.

SEAT MOUNTING OFFICER

The officer's seat shall offer a special mounting position which is approximately 2.50 inches rearward of the standard location offering increased leg room for the occupant. The front face of

the officer's under seat storage box shall be modified 8.13 inches rearward for floor storage below the seat eliminating the under seat storage compartment and access door.

OCCUPANT PROTECTION OFFICER

The officer's position shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

The officer's seating area APS shall include:

- Advanced seat belt system - retractor pre-tensioner tightens the seat belt around the officer, securing the occupant in the seat and the load limiter plays out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.

- Large side curtain airbag - protects the officer's head, neck, and upper body from dangerous cab side surfaces and contact points with intrusive surfaces as a result of a collision as well as provides ejection mitigation protection to the officer in a qualifying event by covering the window and the upper portion of the door.

Knee airbags - protects the officer's lower body from dangerous surface contact injuries, acceleration injuries, and from contact points with intrusive surfaces as a result of a collision as well as locks the lower body in place so the upper body shall be slowed by the load limiting seat belt.

POWER SEAT WIRING

The power seat or seats installed in the cab shall be wired directly to battery power.

SEAT BELT ORIENTATION CREW

The crew position seat belts shall follow the standard orientation which extends from the outboard shoulder extending to the inboard hip.

SEAT FORWARD FACING OUTER LOCATION

The crew area shall include two (2) forward facing outboard seats, which include one (1) located next to the outer wall of the cab on the left side of the cab and one (1) located next to the outer wall on the right side of the cab.

SEAT CREW FORWARD FACING OUTER

The crew area shall include a seat in the forward facing outer position which shall be a H.O. Bostrom 500 Series Firefighter model seat. The seat shall feature a tapered and padded seat back and cushion.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an

integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK FORWARD FACING OUTER

The seat back(s) in the forward facing outboard position shall be comprised of a standard seat back. The seat back shall feature an all belts to seat (ABTS) style safety restraint. The ABTS feature shall include a red, three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant. The seat back shall feature a contoured, adjustable head rest.

SEAT MOUNTING FORWARD FACING OUTER

The forward facing outer seat shall be mounted inboard from the side wall for additional clearance facing the front of the cab.

OCCUPANT PROTECTION FFO

The forward facing outer seat position(s) shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

Each forward facing outer seating position APS shall include:

- APS advanced seatbelt system - retractor pre-tensioners tighten the seat belts around each occupant, securing the occupants in seats and load limiters play out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.

Side curtain airbag - protects each occupant's head, neck, and upper body from dangerous cab side surfaces and contact points with intrusive surfaces as a result of a collision as well as

provides ejection mitigation protection to each occupant in a qualifying event by covering the windows and walls adjacent to each seating position with an airbag custom designed for each cab configuration.

SEAT FORWARD FACING CENTER LOCATION

The crew area shall include one (1) forward facing center crew seat located directly behind the engine tunnel in the center of the cab.

SEAT CREW FORWARD FACING CENTER

The crew area shall include a seat in the forward facing center position which shall be a theatre style series. The seat shall feature a padded seat cushion which shall be hinged and attached to the wall providing optimum space savings. The padded rear wall trim shall act as the backrest for the seat position. The seat shall remain in the stored position until occupied.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

The buckle portion of the seat belt shall be mounted on a rigid or semi-rigid stalk such that the buckle remains positioned in an accessible location. The seat belt assembly anchorages shall conform to the Federal Safety Standard (FMVSS) No. 210, “Seat belt assembly anchorages”.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK FORWARD FACING CENTER

The crew area shall include a seat in the forward facing center position which shall be a theatre style seat. The rear wall padded trim shall act as the backrest for each seat.

There shall be a red, three-point shoulder harness with lap belt and an automatic retractor attached to the cab and available to the seat. The buckle portion of the seat belt shall be mounted on a rigid or semi-rigid stalk such that the buckle remains positioned in an accessible location. The seat belt assembly anchorages shall conform to the Federal Safety Standard (FMVSS) No. 210, “Seat belt assembly anchorages”.

OCCUPANT PROTECTION FFC

The forward facing center seat position(s) shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries

in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

Each forward facing center seating position APS shall include:

- APS advanced seatbelt system - retractor pre-tensioners tighten the seat belts around each occupant, securing the occupants in seats and load limiters play out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.

Side curtain airbag - provides ejection mitigation protection to each occupant in a qualifying event by covering the windows and walls adjacent to crew seating with an airbag custom designed for each cab configuration.

SEAT FRAME FORWARD FACING

The forward facing outboard seating positions shall include individual enclosed seat frames for each position located and installed at the outer rear wall positions. The seat frames shall measure 32.19 inches wide X 12.38 inches high X 22.00 inches deep. The seat frame shall be constructed of Marine Grade 5052-H32 0.19 inch thick aluminum plate. The seat frames shall be painted with the same color as the remaining interior.

SEAT MOUNTING FORWARD FACING CENTER

The forward facing center seats shall be installed facing the front of the cab.

CAB FRONT UNDERSEAT STORAGE ACCESS DOOR

The left under seat storage area shall have a solid aluminum hinged door with non-locking latch.

SEAT COMPARTMENT DOOR FINISH

All underseat storage compartment access doors shall have an easy-to-clean gray texture finish.

WINDSHIELD WIPER SYSTEM

The cab shall include a triple arm linkage wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers; each shall be affixed to a radial arm. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver's position. The windshield wipers shall be interlocked with the park brake allowing activation only when the park brake is released.

ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR

The windshield washer fluid level shall be monitored electronically. When the washer fluid level becomes low the yellow "Check Message Center" indicator light on the instrument panel shall illuminate and the message center in the dual air pressure gauge shall display a "Check Washer Fluid Level" message.

CAB DOOR HARDWARE

The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be made of aluminum with a chrome plated finish.

The interior exit door handles shall be flush paddle type with a black finish, which are incorporated into the upper door panel.

All cab entry doors shall include locks which are keyed alike. The door locks shall be designed to prevent accidental lockout.

DOOR LOCKS

Each cab entry door shall include a manually operated door lock. Each door lock may be actuated from the inside of the cab by means of a red knob located on the paddle handle of the respective door or by using a TriMark key from the exterior. The door locks are designed to prevent accidental lock out.

DOOR LOCK LH EMS COMPARTMENT

The left hand side EMS compartment shall feature a manual door lock.

DOOR LOCK RH EMS COMPARTMENT

The right hand side EMS compartment shall feature a manual door lock.

DOOR LOCK LH REAR CAB COMPARTMENT

The left hand side rear compartment shall feature a manual door lock.

DOOR LOCK RH REAR CAB COMPARTMENT

The right hand side rear compartment shall feature a manual door lock.

GRAB HANDLES

The cab shall include one (1) 18.00 inch three-piece knurled aluminum anti-slip exterior grab handle behind each cab door. The Hansen Lit Anti-Slip Rails shall be mounted in bright anodized aluminum 4000 Series II stanchions, complete with weep holes to prevent the buildup of moisture.

The grab rails shall include a 12 volt, 17.00 inch long clear LED light to provide an increased margin of safety for night time cab entry and egress. The grab handles shall also include red reflective tape. The lights shall be activated when the ignition switch is on and the parking brake is set.

AUXILIARY GRAB HANDLE

There shall be a 7.00 inch molded stainless steel grab handle with a bright finish attached to the front fascia of the cab in the center below the windshield.

REARVIEW MIRRORS

Retrac Aerodynamic West Coast style dual vision mirror heads model 613305 shall be provided and installed on each of the front cab doors.

The mirrors shall be mounted via 1.00 inch diameter tubular stainless steel arms to provide a rigid mounting to reduce mirror vibration.

The mirrors shall measure 8.00 inches wide X 19.00 inches high and shall include an integral convex mirrors installed in the mirror head below the flat glass to provide a wider field of vision. The flat and convex mirrors shall be motorized with remote horizontal and vertical adjustment. The control switches shall be mounted within easy reach of the driver. The flat and convex mirrors shall be heated for defrosting in severe cold weather conditions.

The mirrors shall be constructed of a vacuum formed chrome plated ABS plastic housing that is corrosion resistant and shall include the finest quality non-glare glass.

REARVIEW MIRROR HEAT SWITCH

The heat for the rearview mirrors shall be controlled through a virtual button on the Vista display and control screen.

CAB FENDER

Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. Each two-piece liner shall consist of an inner liner 16.00 inches wide made of vacuum formed ABS composite and an outer fenderette 5.00 inches wide made of aluminum with a painted gloss black finish.

MUD FLAPS FRONT

The front wheel wells shall have mud flaps installed on them. The mud flaps shall extend from the outer edge of the wheel well to the inner edge of the wheel well to provide additional protection from road spray.

CAB EXTERIOR FRONT & SIDE EMBLEMS

The cab shall include three (3) Spartan emblems. There shall be one (1) installed on the front air intake grille and two (2) for the exterior sides of the cab shipped loose with the chassis for installation by the body manufacturer. The cab shall also include one (1) Advanced Protection System shield emblem on each front door.

ROOF ACCESSORY GUARD

The roof shall include a guard to protect roof mounted accessories. This guard shall be constructed of 0.13 inch thick aluminum, painted job color and shall be centered horizontally on the cab. The top opening of the guard shall measure approximately 61.00 inches wide X 64.00 inches long. The guard shall be 12.00 inches in height. The guard shall feature an angled front and vented rear panel.

IGNITION

A master battery system with a keyless start ignition system shall be provided. Each system shall be controlled by a one-quarter turn Cole Hersee switch, both of which shall be mounted to the left of the steering wheel on the dash. A chrome push type starter button shall be provided adjacent to the master battery and ignition switches.

Each switch shall illuminate a green LED indicator light on the dash when the respective switch is placed in the “ON” position.

The starter button shall only operate when both the master battery and ignition switches are in the “ON” position.

BATTERY

The single start electrical system shall include six (6) Harris BCI 31 925 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541.

BATTERY TRAY

The batteries shall be installed within two (2) steel battery trays located on the left side and right side of the chassis, securely bolted to the frame rails. The battery trays shall be coated with the same material as the frame.

The battery trays shall include drain holes in the bottom for sufficient drainage of water. A durable, non-conducting, interlocking mat made by Dri-Dek shall be installed in the bottom of the trays to allow for air flow and help prevent moisture build up. The batteries shall be held in place by non-conducting phenolic resin hold down boards.

BATTERY BOX COVER

Each battery box shall include a steel cover which protects the top of the batteries. Each cover shall include flush latches which shall keep the cover secure as well as a black powder coated handle for convenience when opening.

BATTERY CABLE

The starting system shall include cables which shall be protected by 275 degree F. minimum high temperature flame retardant loom, sealed at the ends with heat shrink and sealant.

BATTERY JUMPER STUD

The starting system shall include battery jumper studs. These studs shall be located in the forward most portion of the driver's side lower step, 8.00 inches apart. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.

ALTERNATOR

The charging system shall include a 320 amp Leece-Neville 12 volt alternator. The alternator shall include a self-exciting integral regulator.

STARTER MOTOR

The single start electrical system shall include a Delco brand starter motor.

BATTERY CONDITIONER

A Kussmaul Auto Charge 40 LPC battery conditioner shall be supplied. The battery conditioner shall provide a 40 amp output for the chassis batteries and a 15 amp output circuit for accessory loads. The battery conditioner shall be mounted in the cab in the LH rear facing outer seating position.

BATTERY CONDITIONER DISPLAY

A Kussmaul battery conditioner display shall be supplied. The battery conditioner display shall be mounted in the left side of the cab above the wheel well above the electrical inlet receptacle.

ELECTRICAL INLET LOCATION

An electrical inlet shall be installed on the left hand side of cab over the wheel well in the forward position rear of the grab handle and above the door entry key pad if applicable.

ELECTRICAL INLET

A Kussmaul 30 amp super auto-eject electrical receptacle shall be supplied. It shall automatically eject the plug when the starter button is depressed.

A single item or an addition of multiple items must not exceed the rating of the electric inlet that it's connected to.

Amp Draw Reference List:
Kussmaul 40 LPC Charger - 5 Amps
Kussmaul 40/20 Charger - 8.5 Amps
Kussmaul 80 LPC Charger - 13 Amps
Kussmaul EV-40 - 6.2 Amps
Blue Sea P12 7532 - 7.5 Amps
Iota DLS-45/IQ4 - 11 Amps
1000W Engine Heater - 8.33 Amps
1500W Engine Heater - 12.5 Amps
120V Air Compressor - 4.2 Amps
120V Dometic HVAC - 15 Amps

ELECTRICAL INLET CONNECTION

The electrical inlet shall be connected to the battery conditioner.

ELECTRICAL INLET COLOR

The electrical inlet connection shall include a red cover.

HEADLIGHTS

The cab front shall include two (2) FireTech rectangular LED headlamps with high/low beam in the same housing and two (2) separate FireTech LED high beam only headlamps mounted in bright chrome bezels.

HEADLIGHT LOCATION

The headlights shall be located on the front fascia of the cab directly below the front warning lights.

FRONT TURN SIGNALS

The front fascia shall include two (2) Whelen model M6 4.00 inch X 6.00 inch amber LED turn signals which shall be installed in a chrome radius mount housing above and outboard of the front warning and head lamps.

SIDE TURN/MARKER LIGHTS

The sides of the cab shall include two (2) Weldon 9186-8589-24 LED round side marker lights which shall be provided just behind the front cab radius corners.

MARKER AND ICC LIGHTS

In accordance with FMVSS, there shall be five (5) marker lamps on the front of the vehicle designating identification and clearance. There shall be five (5) face mounted lights integrated into the scene light.

HEADLIGHT AND MARKER LIGHT ACTIVATION

The headlights and marker lights shall be controlled via a virtual button on the Vista display. The headlights shall turn on in the low beam setting when the park brake is disengaged. The headlights shall turn off when the park brake is engaged. The marker lights shall turn on when the ignition switch is in the "On" position. There shall be a virtual dimmer control on the Vista display to adjust the brightness of the dash lights.

LIGHTBAR SWITCH

The light bar shall be controlled by a virtual button on the Vista display and control screen. This button shall be clearly labeled for identification.

INTERIOR OVERHEAD LIGHTS

The cab shall include a red/clear Whelen LED dome lamp located over each door. The dome lamps shall be rectangular in shape and shall measure approximately 7.00 inches in length X 3.00 inches in width with a black colored bezel. The clear function of each lamp shall be

activated by opening the respective door. While the door is closed the individual red or clear function of each lamp can be activated dependently by switches on each lamp.

An additional incandescent three (3) light module with dual map lights shall be located over the engine tunnel which can be activated by individual switches on the lamp.

LIGHTBAR PROVISION

There shall be one (1) light bar installed on the cab roof. The light bar shall be provided and installed by the chassis manufacturer. The light bar installation shall include a lowered mounting that shall place the light bar just above the junction box and wiring to a control switch on the cab dash.

CAB FRONT LIGHTBAR MODEL

The cab shall be provided with one (1) Whelen model F4N72 light bar. The light bar shall be 72.00 inches in length and feature eighteen (18) customizable pods.

See the light bar layout for specific details.

FRONT SCENE LIGHTS

The front of the cab shall include one (1) HiViz model FireTech FT-B-72-ML-W LED scene light installed on the brow of the cab. The light shall feature (5) five integrated marker lights.

The housing shall be powder coated white.

FRONT SCENE LIGHT LOCATION

There shall be one (1) scene light mounted center on the front brow of the cab.

FRONT SCENE LIGHTS ACTIVATION

The front scene lighting shall be activated by a virtual button on the Vista display and control screen and a lighted momentary rocker switch on the dash.

SIDE SCENE LIGHTS

The side of the cab shall include two (2) Firetech model FT-GESM Guardian Elite LED scene lights, one (1) each side which shall be surface mounted with a chrome bezel.

SIDE SCENE LIGHT LOCATION

The scene lighting located on the left and right sides of the cab shall be mounted in the upper mid forward portion of the 10.00 inch raised roof of the cab between the front and rear crew doors.

SIDE SCENE ACTIVATION

The scene lights shall be activated by two (2) lighted momentary rocker switches located in the switch panel, one (1) for each light, by two (2) virtual buttons on the Vista display and control screen(s), one (1) for each light, and by opening the respective side cab doors.

GROUND LIGHTS

Each door shall include a Tecniq T44 LED ground light mounted to the underside of the cab step below each door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock mounted for extended life.

GROUND LIGHTS

The ground lighting shall be activated when the parking brake is set, by the opening of the door on the respective cab side, and through a virtual button on the Vista display and control screen.

LOWER CAB STEP LIGHTS

The middle step located at each door shall include a Tecniq T44 LED light which shall activate with the opening of the respective door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock mounted for extended life.

INTERMEDIATE STEP LIGHTS

The intermediate step well area at each door shall include a TecNiq D06 LED light within a chrome housing. The egress step lights shall provide visibility to the step well area for the first step exiting the vehicle. The egress step lights shall activate with entry step lighting.

ENGINE COMPARTMENT LIGHT

There shall be a LED NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life. The light shall activate automatically when the cab is tilted.

DO NOT MOVE APPARATUS LIGHT

The front headliner of the cab shall include a flashing red Whelen Ion LED light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound while the light is activated.

The flashing red light shall be located centered left to right for greatest visibility.

The light and alarm shall be interlocked for activation when either a cab door is not firmly closed or an apparatus compartment door is not closed, and the parking brake is released.

MASTER WARNING SWITCH

A master switch shall be included, as a virtual button on the Vista display and control screen which shall be labeled “E Master” for identification. The button shall feature control over all devices wired through it. Any warning device switches left in the “ON” position when the master switch is activated shall automatically power up.

HEADLIGHT FLASHER

An alternating high beam headlight flashing system shall be installed into the high beam headlight circuit which shall allow the high beams to flash alternately from left to right.

Deliberate operator selection of high beams will override the flashing function until low beams are again selected. Per NFPA, these clear flashing lights will also be disabled “On Scene” when the park brake is applied.

HEADLIGHT FLASHER SWITCH

The flashing headlights shall be activated through a virtual button on the Vista display and control screen.

INBOARD FRONT WARNING LIGHTS

The cab front fascia shall include two (2) Whelen M6 Super LED front warning lights in the left and right inboard positions. The lights shall feature multiple flash patterns including steady burn. The lights shall be mounted to the front fascia of the cab within a chrome bezel. The lights shall be programmed to emit the "PinWheel Variable" non-flashing pattern.

INBOARD FRONT WARNING LIGHTS COLOR

The warning lights mounted on the cab front fascia in the inboard positions shall be red with a clear lens.

OUTBOARD FRONT WARNING LIGHTS

The cab front fascia shall include two (2) Whelen M6 Super LED front warning lights in the left and right outboard positions. The lights shall feature multiple flash patterns including steady burn. The lights shall be mounted to the front fascia of the cab within a chrome bezel. The lights shall be programmed to emit the "PinWheel Variable" non-flashing pattern.

OUTBOARD FRONT WARNING LIGHTS COLOR

The warning lights mounted on the cab front fascia in the outboard position shall be red with a clear lens.

AUXILIARY FRONT WARNING LIGHTS

The cab grill shall include five (5) Whelen ION Super LED warning lights horizontally mounted in a surface mount chrome bezel. The lights shall be surface mounted to the grill in the upper outboard grille one (1) on each side and three (3) between the latches of the grille

AUXILIARY FRONT WARNING LIGHTS COLOR

The auxiliary front warning lights shall be red, with clear lenses.

BUMPER FACE WARNING LIGHT

The front bumper face shall include two (2) Whelen M6 series 4.31 inch tall X 6.75 inch wide Super LED® warning lights located between the frame rails in the center right and left inboard positions. The warning lights shall feature multiple flash patterns including steady burn. The lights shall be programmed to emit the "Pin Wheel Variable" flash pattern. The lights shall be surface mounted within a chrome bezel.

BUMPER FACE WARNING LIGHT COLOR

The warning lights in the bumper shall be red with clear lenses.

FRONT WARNING SWITCH

The front warning lights shall be controlled through a virtual control on the Vista display and control screen. This switch shall be clearly labeled for identification.

INTERSECTION WARNING LIGHTS

The chassis shall include two (2) Whelen M6 series Super LED intersection warning lights, one (1) each side. The lights shall feature multiple flash patterns including steady burn. The lights shall be set to flash “DoubleFlash 150” in/out flash pattern. The lights shall be mounted within a black bezel.

INTERSECTION WARNING LIGHTS COLOR

The intersection lights shall be red with a clear lens.

INTERSECTION WARNING LIGHTS LOCATION

The intersection lights shall be mounted centered front to rear on the flat portion of the side of the bumper tail.

SIDE WARNING LIGHTS

The cab sides shall include two (2) Whelen M6 Super LED warning lights, one (1) on each side. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the sides of the cab within a chrome bezel. The light shall be programmed to emit the "DoubleFlash 150” in/out flash pattern.

SIDE WARNING LIGHTS COLOR

The warning lights located on the side of the cab shall be red with clear lens.

SIDE WARNING LIGHTS LOCATION

The warning lights on the side of the cab shall be mounted over the front wheel well forward from the center of the front axle.

SIDE AND INTERSECTION WARNING SWITCH

The side warning lights shall be controlled through a virtual button on the Vista display and control screen. This button shall be clearly labeled for identification.

TANK LEVEL LIGHTS

There shall be two (2) FRC MaxVision surface mount water level light strips.

The light strips shall feature four (4) colors of LED lights to indicate the fluid level of a tank. The colors from top to bottom shall be green, blue, amber, and red.

TANK LEVEL LIGHTS ACTIVATION

The tank level lights shall be pre-wired and coiled at rear of the cab for connection to the apparatus by the body builder.

TANK LEVEL LIGHTS LOCATION

There shall be water level lights mounted on each side of the cab, centered between the rear cab doors and the rear corners of the cab.

TRAFFIC CONTROL

There shall be one (1) GTT (Global Traffic Technologies) Opticom model 795H traffic control optical emitter mounted in the lightbar on the front of the cab roof. There shall be an indicator light on the dash. The emitter shall be activated with the lightbar switch and shall be deactivated when the parking brake is applied.

REAR WARNING LIGHTS

The cab shall be prewired and contain a cutout for a Whelen TACTL5 Traffic Advisor control head to be installed by the body builder. The prewire shall be coiled under the center dash panel.

Wiring provisions shall be provided routed to the rear of the frame for OEM installation of up to eight (8) individual traffic advisor warning lights rated at no more than one (1) amp each.

The power to the control head shall be ignition switched and activation dependent upon the state of the controllers switched position upon ignition.

INTERIOR DOOR OPEN WARNING LIGHTS

The interior of each door shall include one (1) 15.87 inch long X 0.73 inch tall amber Weldon LED warning light. The light shall be located on the upper portion of the door frame to be visible

when a person is standing in front of the door while entering or exiting the cab. Each light shall activate with a scrolling directional flash pattern which moves from inside to outside when the door is in the open position. This shall serve as a warning to oncoming traffic.

SIREN CONTROL HEAD

A Whelen 295HFS2 electronic siren control head with remote amplifier shall be provided and flush mounted in the switch panel with a location specific to the customer's needs. The siren shall feature 200-watt output, hands free mode and shall be in "standby" mode awaiting instruction. The siren shall offer radio broadcast, public address, wail, yelp, or piercer tones and hands free operation which shall allow the operator to turn the siren on and off from the horn ring if a horn/siren selector switch option is also selected.

STEERING WHEEL HORN BUTTON SELECTOR SWITCH

A virtual button on the Vista display and control screen shall be provided to allow control of either the electric horn or the air horn from the steering wheel horn button. The electric horn shall sound by default when the selector switch is in either position to meet FMCSA requirements.

AUDIBLE WARNING LH FOOT SWITCH

A foot switch wired to actuate the mechanical siren(s) shall be supplied for installation in the front section of the cab for driver actuation.

MECHANICAL SIREN FOOT SWITCH LH

The mechanical siren foot switch shall be a Linemaster model 491-S.

MECHANICAL SIREN FOOT SWITCH LH LOCATION

The mechanical siren foot switch shall be located on the left hand side accessible to the driver between the steering column and the door.

MECHANICAL SIREN FOOT SWITCH LH POSITION

The mechanical siren foot switch shall be positioned outboard of any other foot switch, if applicable.

AUDIBLE WARNING LH FOOT SWITCH BRACKET

A 30.00 degree angled foot switch bracket, wide enough to accommodate (2) foot switches, shall be installed outboard of the steering column for specified driver accessible foot switch activations.

AIR HORN AUXILIARY ACTIVATION

The air horn activation shall be accomplished by a momentary rocker switch on the switch panel.

MECHANICAL SIREN BRAKE/AUXILIARY ACTIVATION

The mechanical siren shall be actuated by a momentary rocker switch in the switch panel on the dash. A red momentary siren brake rocker switch shall be provided in the switch panel on the dash.

MECHANICAL SIREN INTERLOCK

The siren shall only be active when master warning switch is on to prevent accidental engagement.

BACK-UP ALARM

An ECCO model 575 backup alarm shall be installed at the rear of the chassis with an output level of 107 dB. The alarm shall automatically activate when the transmission is placed in reverse.

INSTRUMENTATION

An ergonomically designed instrument panel shall be provided. Each gauge shall be backlit with LED lamps. Stepper motor movements shall drive all gauges. The instrumentation system shall be multiplexed and shall receive ABS, engine, and transmission information over the J1939 data bus to reduce redundant sensors and wiring.

A twenty eight (28) icon lightbar message center with integral LCD odometer/trip odometer shall be included. The odometer shall display up to 999,999.9 miles. The trip odometer shall display 9,999.9 miles. The LCD message center screen shall be capable of custom configuration by the users for displaying certain vehicle status and diagnostic functions.

The instrument panel shall contain the following gauges:

One (1) three-movement gauge displaying vehicle speed, fuel level, and Diesel Exhaust Fluid (DEF) level. The primary scale on the speedometer shall read from 0 to 100 MPH, and the secondary scale on the speedometer shall read from 0 to 160 KM/H. The scale on the fuel and DEF level gauges shall read from empty to full as a fraction of full tank capacity. Red indicator lights in the gauge and an audible alarm shall indicate low fuel or low DEF at $1/8^{th}$ tank level.

One (1) three-movement gauge displaying engine RPM, and primary and secondary air system pressures shall be included. The scale on the tachometer shall read from 0 to 3000 RPM. The scale on the air pressure gauges shall read from 0 to 150 pounds per square inch (PSI) with a red line zone indicating critical levels of air pressure. Red indicator lights in the gauge and an audible alarm shall indicate low air pressure.

One (1) four-movement gauge displaying engine oil pressure, coolant temperature, voltmeter, and transmission temperature shall be included. The scale on the engine oil pressure gauge shall read from 0 to 100 pounds PSI with a red line zone indicating critical levels of oil pressure. A red indicator light in the gauge and audible alarm shall indicate low engine oil pressure. The scale on the coolant temperature gauge shall read from 100 to 250 degrees Fahrenheit (°F) with a red line zone indicating critical coolant temperatures. A red indicator light in the gauge and audible alarm shall indicate high coolant temperature. The scale on the voltmeter shall read

from 9 to 18 volts with a red line zone indicating critical levels of battery voltage. A red indicator light in the gauge and an audible alarm shall indicate high or low system voltage. The low voltage alarm shall indicate when the system voltage has dropped below 11.8 volts for more than 120 seconds in accordance with the requirements of NFPA 1901. The scale on the transmission temperature gauge shall read from 100 to 300 degrees °F with a red line zone indicating critical temperatures. A red indicator light in the gauge and an audible alarm shall indicate a high transmission temperature.

The light bar portion of the message center shall include twenty-eight (28) LED backlit indicators. The lightbar shall be split with fourteen (14) indicators on each side of the LCD message screen. The lightbar shall contain the following indicators and produce the following audible alarms when supplied in conjunction with applicable configurations:

RED INDICATORS
Stop Engine - indicates critical engine fault
Air Filter Restricted - indicates excessive engine air intake restriction
Park Brake - indicates parking brake is set
Seat Belt - indicates a seat is occupied and corresponding seat belt remains unfastened
Low Coolant - indicates critically low engine coolant
Cab Tilt Lock - indicates the cab tilt system locks are not engaged.

AMBER INDICATORS
Malfunction Indicator Lamp (MIL) - indicates an engine emission control system fault
Check Engine - indicates engine fault
Check Transmission - indicates transmission fault
Anti-Lock Brake System (ABS) - indicates anti-lock brake system fault
High exhaust system temperature – indicates elevated exhaust temperatures
Water in Fuel - indicates presence of water in fuel filter
Wait to Start - indicates active engine air preheat cycle
Windshield Washer Fluid – indicates washer fluid is low
DPF restriction - indicates a restriction of the diesel particulate filter
Regen Inhibit-indicates regeneration of the DPF has been inhibited by the operator
Range Inhibit - indicates a transmission operation is prevented and requested shift request may not occur.
SRS - indicates a problem in the supplemental restraint system
Check Message - indicates a vehicle status or diagnostic message on the LCD display requiring attention.

GREEN INDICATORS
Left and Right turn signal indicators
ATC - indicates low wheel traction for automatic traction control equipped vehicles, also indicates mud/snow mode is active for ATC system
High Idle - indicates engine high idle is active.
Cruise Control - indicates cruise control is enabled
OK to Pump - indicates the pump is engaged and conditions have been met for pump operations
Pump Engaged - indicates the pump transmission is currently in pump gear
Auxiliary Brake - indicates secondary braking device is active

BLUE INDICATORS
High Beam indicator

AUDIBLE ALARMS
Air Filter Restriction
Cab Tilt Lock
Check Engine
Check Transmission
Open Door/Compartment
High Coolant Temperature
High or Low System Voltage
High Transmission Temperature
Low Air Pressure
Low Coolant Level
Low DEF Level
Low Engine Oil Pressure
Low Fuel
Seatbelt Indicator
Stop Engine
Water in Fuel
Extended Left/Right Turn Signal On
ABS System Fault

BACKLIGHTING COLOR

The instrumentation gauges and the switch panel legends shall be backlit using white LED backlighting.

CAMERA RIGHT HAND

One (1) Audiovox Voyager heavy duty rearview teardrop shaped chrome plated housing camera shall be mounted on the officer side of the cab below the windshield ahead of the front door at approximately the same level as the cab door handles. The camera display shall activate when the right side turn signal is activated.

CAMERA REAR

One (1) Audiovox Voyager heavy duty box shaped HD camera shall be shipped loose for OEM installation in the body to afford the driver a clear view to the rear of the vehicle.

The camera system shall include a one-way communication device that shall be an integral part of the rear camera for the use of voice commands directly to the driver. The rear camera display shall activate when the vehicle's transmission is placed in reverse.

CAMERA DISPLAY

The camera system shall be wired to a single Weldon Vista display located on the driver's side dash. The camera system display can be activated through the Vista display panel.

CAMERA SPEAKER

The rear camera shall be wired to speaker(s) in the cab and shall audible to the driver and officer. There shall be a virtual button provided on the Vista display and control panel to deactivate the speaker(s).

COMMUNICATION ANTENNA

An antenna shall be installed on the cab. The antenna shall be a custom configured Sharkee model GPSB. The antenna shall be mounted on the left hand front corner of the cab lower roof so not to interfere with light bars or other roof mounted equipment installed by chassis builder. The antenna shall be chassis builder supplied.

The custom configuration shall include:

- GPSB MULTI-BAND GPS 2G/3G/4G/WLAN ANT
- C23F-5M, FME socket and UHF plug for radio, whip cable
- C74-FP-6-SMAP, FME plug fitted and SMA plug, GPS cable
- C29SP-5SJ, SMA plug to SMA jack, cell/data air card cable

C32SP-5SP, SMA plug fitted and SMA plug fitted, Wi-Fi/WLAN cabl

COMMUNICATION ANTENNA CABLE ROUTING

The antenna cable shall be routed from the antenna base mounted on the roof to the area inside the center rocker switch console.

TWO-WAY RADIOS

A radio wire conduit with a pull wire included shall be installed and routed from behind the dash to under the officer's seat for radio installation by the customer. The officer's under seat storage area shall include an access hole for the conduit cut into the rear face of the seat box. The hole shall be approximately 1.00 inch from the bottom and 1.00 from the inner wall of the seat box.

CAB EXTERIOR PROTECTION

The cab face shall have a removable plastic film installed over the painted surfaces to protect the paint finish during transport to the body manufacturer.

FIRE EXTINGUISHER

A 2.50 pound D.O.T approved fire extinguisher with BC rating shall be shipped loose with the cab.

ROAD SAFETY KIT

The cab and chassis shall include one (1) emergency road safety triangle kit.

DOOR KEYS

The cab and chassis shall include a total of four (4) door keys for the manual door locks.

DIAGNOSTIC SOFTWARE OCCUPANT PROTECTION

Diagnostic software for the Spartan Advanced Protection System shall be available for free download from the Spartan Chassis website to Spartan authorized OEMs, dealers and service centers, as well as the vehicle owner.

The software has been validated to be compatible with the following RP1210 interface adapters:

- Dearborn Group DPA4 Plus
- Noregon Systems JPRO® DLA+
- Cummins INLINE5
- Cummins INLINE6
- NexIQ™ USB-Link™

The software and adapter utilize the SAE J1939-13 heavy duty nine (9) pin connector which is located below the driver's side dash to the left of the steering column.

WARRANTY

Summary of Warranty Terms:

THE FOLLOWING IS SUMMARY OF WARRANTY TERMS FOR INFORMATION ONLY. THE ACTUAL LIMITED WARRANTY DOCUMENT CONTAINS THE COMPLETE STATEMENT OF THE CHASSIS MANUFACTURER'S LIMITED WARRANTY. THE CHASSIS MANUFACTURER'S RESPONSIBILITY IS TO BE ACCORDING TO THE TERMS OF THE COMPLETE LIMITED WARRANTY DOCUMENT.

The chassis manufacturer shall provide a limited parts and labor warranty to the original purchaser of the custom built cab and chassis for a period of twenty-four (24) months, or the first 36,000 miles, whichever occurs first. The warranty period shall commence on the date the vehicle is delivered to the first end user.

CHASSIS OPERATION MANUAL

There shall be two (2) digital copies of the chassis operation manual provided with the chassis. The digital data shall include a parts list specific to the chassis model.

ENGINE AND TRANSMISSION OPERATION MANUALS

The following manuals specific to the engine and transmission models ordered will be included with the chassis in the ship loose items:

(1) Hard copy of the Engine Operation and Maintenance manual with digital copy

(1) Digital copy of the Transmission Operator's manual

(1) Digital copy of the Engine Owner's manual

CAB/CHASSIS AS BUILT WIRING DIAGRAMS

The cab and chassis shall include two (2) digital copies of wiring schematics and option wiring diagrams.

SALES TERMS

The sale of the chassis shall be governed by the terms contained on the Sales Terms – Acceptance of Purchase Order document, a copy of which is attached to this option.

DRIVELINE LAYOUT CONFIRMATION

During the design phase of the chassis the Spartan Chassis driveline engineer shall submit the driveline layout to an OEM engineer to review the chassis design for any potential problems integrating the OEM body to the chassis. The OEM engineer shall provide approval to the driveline engineer prior to driveline bills of materials being released.

EXHAUST HEAT SHIELD

There shall be an exhaust heat shield added to the chassis provided exhaust. The shield shall terminate past the front compartment and shall incorporate a heavy duty spray on insulation under R1. With this shield, the temperature of the front compartment shall not exceed the ambient temperature.

The heat shield shall be attached to the underside of the body utilizing a flexible bracket.

UNIVERSAL MDT TRAY

There shall be one (1) Mobile Data Terminal (MDT) slide tray installed in the cab on the officer's side dash.

The tray shall incorporate one (1) locking and one (1) non-locking 10.00 inch bearing slides. The slides shall be installed 'flat' to reduce the overall height of the tray.

The tray shall be fabricated from .1875 inch smooth aluminum.

TRAY FINISH

The tray shall be a painted finish/color equivalent to the chassis interior unless specified otherwise.

CHASSIS REQUIRED LABELING

Signs that state "Occupants must be seated and belted when apparatus is in motion" shall be provided.

They shall be visible from each seating position.

There shall be a lubrication plate mounted inside the cab listing the type and grade of lubrication

used in the following areas on the apparatus and chassis:

- Engine oil
- Engine Coolant
- Transmission Fluid
- Pump Transmission Lubrication Fluid
- Drive Axle Lubrication Fluid
- Generator Lubrication Fluid (where applicable)
- Tire Pressures

APPARATUS INFORMATION LABEL

There shall be a high-visibility label installed in a location clearly detectable to the driver while in the seated position.

The label shall indicate the following specified information.

Overall Height (feet and inches)
Overall Length (feet and inches)
Overall GVWR (tons or metric tons)

CAB TILT CONTROL

There shall be a cab tilt pendant control provided and installed on the right side of the apparatus. The pendant shall be located directly behind the upper auxiliary pump access panel.

There shall also be a cab tilt instruction plate located as close as possible to the control pendant for ease of operation.

AIR TANK DRAIN LINES (extended)

There shall be manual pull air tank drain lines provided with the apparatus. The air drain lines shall be extended to the outer edge of the apparatus to facilitate draining moisture from the chassis air tanks to a single location for all drains and shall be actuated by a key ring. A label shall be affixed indicating “Air Tank Drain”.

HEAT EXCHANGER

The supplementary heat exchanger cooling system shall be provided and installed to the discharge side of the fire pump through to the engine compartment without intermixing, for absorption of excess heat.

The heat exchanger shall be adequate in size to maintain safe operating temperature of the coolant in the pump drive engine and not in excess of the engine manufacturer's temperature rating, under all pumping conditions. Appropriate drains shall be provided to allow draining the heat exchanger to prevent damage from freezing.

HELMET RESTRAINTS

All NFPA required helmet restraints will be supplied and installed by the Fire Department prior to

the truck being placed into service.

MUD FLAPS

Heavy-duty black rubber mud flaps with manufactures logo shall be provided behind the rear wheels. The mud flaps shall be bolted in place.

PUMP COMPARTMENT

The complete apparatus pump compartment shall be constructed of a combination of structural tubing and formed sheet metal. The same materials used in the body shall be utilized in the construction of the pump compartment. The structure shall be welded utilizing the same A.W.S. Certified welding procedure as used on the structural body module. These processes shall ensure the quality of structural stability of the pump compartment module.

The pump compartment module shall be separated from the apparatus body with a gap. This gap is necessary to accommodate the flexing of the chassis frame rails that are encountered while the vehicle is in transit so that harmful torsional forces are not transmitted into the structural framework.

VIBRA-TORQ™ PUMP MODULE MOUNTING SYSTEM

The entire pump module assembly shall be mounted so that it “floats” above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable pump module mounting system.

The pump module substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each pump compartment mount bracket shall be mounted to the side chassis frame flange with two 5/8”-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the pump module, apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All pump module to chassis connections shall be bolted so that in the event of an accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature pump module structural failures. The Vibra-Torq™ mounting system shall have a lifetime warranty.

PUMP COMPARTMENT WORK LIGHT

One (1) Weldon LED work light model #2631-0000-30 shall be installed in the pump compartment module to illuminate the piping and plumbing components.

The light shall be activated by a weather resistant toggle switch installed inside the pump compartment.

LEFT SIDE OPERATORS PANEL & PUMP PANEL

The pump operator's panel shall be located on the left side of the apparatus pump compartment. The panel shall be split into an upper and lower section.

The material of the operator's panel shall match that of the overlays and right side panels specified.

The upper panel shall house gauges and controls and be hinged to allow easy access to components. The door shall have a stainless steel hinge, dual point chrome push button latches and a rubber seal provided to prevent excessive moisture from entering or leaving the pump house.

The lower panel on the left side shall be a removable panel attached with mechanical fasteners.

Valve controls shall be immediately adjacent to its respective gauge. The valve controls shall be properly labeled and color coded for ease of use. All markings shall be permanent in nature.

OPEN DOOR WARNING

If the hinged panel is not properly closed and the parking brake is released, it shall activate the hazard light in the cab to alert the crew.

VALVE CONTROL - T-HANDLE PULL ASSEMBLY

Unless specified otherwise, the discharge valves shall be controlled from an Innovative Controls side mount valve control assembly. The ergonomically designed handle shall be chrome-plated with recessed areas for name plate and color code. A .75 inch (19.5 mm) diameter hardcoat anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation. The control assembly shall include a decorative chrome-plated panel-mounting bezel. The valve operating mechanism will indicate the position of the valve at all times.

PUMP PANEL LIGHTS

There shall be adequate illumination provided at the side pump panels with the installation of two (2) embossed aluminum diamond plate shielded light assemblies functioning as an intermediate step and installed on a stationary surface, one (1) on the left and one (1) on the right side pump compartment.

There shall be up to three (3) handhold cutouts provided in the top step surface measuring

approximately 2.50 inches deep. There shall be one (1) full length aluminum non lit handrail integrated into each side assembly.

Each shield shall contain the maximum number of lights permitted in the space available for OnScene "Access" 8.00 inch LED Tube lights.

PUMP PANEL LIGHT ACTIVATION

One (1) pump panel light at the operator's panel shall be illuminated at the time the pump is ready to pump and it is "OK TO PUMP". The Pump shift has been completed and the chassis automatic transmission is engaged.

The remaining lights shall illuminate with the activation of the park brake.

SPEEDLAY HOSE BEDS

Three (3) vertically stacked speedlay hose beds shall be provided in the forward portion of the pump compartment module. The speedlay hose beds shall be constructed as an integral part of the pump compartment tubular structure. Stainless steel scuff plates shall be installed at the bottom and at the vertical edges of the speedlay openings to protect the hose and hose ends.

The speedlay hose beds shall be tall and wide enough for laying each hose size specified in the plumbing specifications.

The speedlay hose beds shall span the entire width of the pump compartment module. Slotted flooring shall be provided for hose area drainage.

PUMP COMPARTMENT SERVICE

The front portion of the pump compartment structure shall be overlaid entirely with aluminum diamond plate fastened with mechanical fasteners.

There shall not be any service access openings provided in this area of the module.

REMOVABLE SPEEDLAY TRAYS

Removable speedlay hose bed trays shall be provided to facilitate hose loading. The speedlay hose beds trays shall be accessible from either side and be easily removed from the pump compartment tubular structure.

A removable speedlay hose bed tray shall be provided for each bay specified.

ALUMINUM SPEEDLAY TRAYS

The removable speedlay trays shall be made of .188-inch aluminum material with a DA finish.

Each tray shall have vertical and horizontal hand holds for ease of handling. Slots shall be provided in the floor of the tray for hose drainage.

SPARE SET OF SPEEDLAY TRAYS

There shall be one (1) spare set of removable speedlay hose bed trays provided and shipped loose with the apparatus. The speedlay trays shall be made of .188 inch aluminum material with a DA finish.

Each tray shall have vertical and horizontal hand holds for ease of handling. Slots shall be provided in the floor of the tray for hose drainage.

PUMP COMPARTMENT WIDTH

The width of the pump compartment (front to back) shall be 60.00 inches (1.52 m).

RIGHT SIDE PUMP PANELS STYLE

There shall be two (2) pump panels on the right side of the pump compartment, one (1) upper and one (1) lower. Each panel shall be reinforced with hat channels installed on the backside of the panel to add stiffness.

Both panels shall be vertically hinged on the rearward or body side of the panel with a gas shock hold open device installed. Both openings shall be accessible by quick-release mechanical type latches closing against a door seal.

When opened; the panels shall provide a large access opening to the pump for ease of serviceability.

The upper panel shall open first and there shall not be a fixed middle sill between the hinged panels.

RIGHT & LEFT SIDE BLACK LAMINOL PANELS & OVERLAYS

The panels for the pump compartment on the left and right side shall be made from heavy duty “Black Laminol” covered aluminum, capable of withstanding the conditions of effects of extreme weather and temperature changes.

The tubular structure shall be overlaid on each side of the pump compartment underneath the access panels and shall be made of heavy duty “Black Laminol” covered aluminum.

OPEN DOOR WARNING

If the hinged panel(s) are not properly closed and the parking brake is released, it shall activate the hazard light in the cab to alert the crew.

SOFT SUCTION HOSE STORAGE

There shall be a recessed cavity on the left side of the pump compartment module integrated into the side panel to store a roll of 25 feet of 5.00 inch suction hose. The cavity shall be approximately 10.00 inches (254 mm) wide. The floor area shall have a light taper downward so assist in restraining the hose. Drain holes shall be provided in the rear corners.

COMPARTMENT LOCATION

The storage cavity shall be located forward of the steamer inlet on the pump panel.

HOSE COMPARTMENT STORAGE CAVITY INTERIOR FINISH

The interior of the hose storage compartment shall feature a painted medium gray speedliner finish.

PUMP HOUSE STORAGE TRIM

The above storage compartment shall have brushed stainless steel trim provided around the opening.

SOFT SUCTION HOSE STORAGE

There shall be a recessed cavity on the right side of the pump compartment module integrated into the side panel to store a roll of 25' of 5" suction hose. The cavity shall be approximately 10.00 inches (254 mm) wide. The floor area shall have a light taper downward so assist in restraining the hose and notched as required for exhaust configurations. Drain holes shall be provided in the rear corners.

COMPARTMENT LOCATION

The storage cavity shall be located forward of the steamer inlet on the pump panel.

HOSE COMPARTMENT STORAGE CAVITY INTERIOR FINISH

The interior of the hose storage compartment shall feature a painted medium gray speedliner finish.

PUMP HOUSE STORAGE TRIM

The above storage compartment shall have brushed stainless steel trim provided around the opening.

TFT PROPAK STORAGE

There shall be a recessed cavity on the right side of the pump compartment module integrated into the side panel to store a TFT ProPak. The cavity shall be large enough to store the TFT ProPak orientated at 90 degrees in an upright position. Drain holes shall be provided in the rear corners.

COMPARTMENT LOCATION

The storage cavity shall be located forward of the steamer inlet on the pump panel.

HOSE COMPARTMENT STORAGE CAVITY INTERIOR FINISH

The interior of the hose storage compartment shall feature a painted medium gray speedliner finish.

PUMP HOUSE STORAGE TRIM

The above storage compartment shall have brushed stainless steel trim provided around the opening.

RUNNING BOARDS

The pump compartment running boards shall be made of a structural tubular framework. The tubular frame support all loads by transmitting the loads through the pump compartment structure directly to the chassis frame rails.

The running boards shall be independent of the apparatus body and shall be integrated to the pump compartment structure only, eliminating any pump compartment to body interference. This is essential in keeping a truly 'modular' configuration. Slip-resistant abrasive adhesive materials shall be applied to the top surface of the running board framework to provide a suitable stepping surface where applicable.

EMBOSSED ALUMINUM DIAMOND PLATE OVERLAYS

The side running boards shall have a .188 inch (4.76 mm) embossed aluminum diamond plate overlays installed. The stepping areas shall be as large as possible, overlapping the perimeter of the running board structure. The treadplate shall be finished in black speedliner. Steps will be non NFPA approved step surfaces.

APPARATUS PLUMBING LABELING

Innovative Controls verbiage tag bezels shall be installed. The bezel assemblies will be used to identify apparatus components. These tags shall be designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The verbiage tag bezel assemblies shall include a chrome-plated panel-mount bezel with durable easy-to-read UV resistant polycarbonate inserts featuring the specified verbiage and color coding. These UV resistant polycarbonate verbiage and color inserts shall be subsurface screen printed to eliminate the possibility of wear and protect the inks from fading. Both the insert labels and bezel shall be backed with 3M permanent adhesive, which meets UL969 and NFPA standards.

PLUMBING LABELS

The plumbing labels, where applicable, shall be full color in place of the standard grey.

Color code tag sheet to be provided during the preconstruction meeting.

FASTENERS FOR LABELS

All labels that are not installed into discharge handles shall be attached with mechanical

fasteners.

PRESSURE GOVERNOR

The Pressure Governing System provided with the chassis shall be installed on the pump operator's panel.

PRESSURE RELIEF VALVE

A Task Force Tips model #A18XX pressure relief valve shall be provided. The valve shall have an easy to read adjustment range from 90 to 300 PSI with easy to read 90, 125, 150, 200, 250, 300 psi settings and an “OFF” position. Pressure adjustment can be made utilizing a ¼” hex key, 9/16” socket or 14mm socket.

For corrosion resistance the cast aluminum valve shall be a hardcoat anodized with a powder coat interior and exterior finish. The valve shall meet (NFPA) 1901, Standard for Automotive Fire Apparatus, requirements for pump inlet relief valves. The unit shall be covered by a five year warranty. The valve shall be preset at 125 PSI (860 kPa) suction inlet pressure, unless otherwise shop noted. The valve shall be installed inside the pump compartment where it will be easily accessible for future adjustment. The excess water shall be plumbed to the atmosphere and shall dump on the opposite side of the pump operator.

For normal pumping operations, the relief valve shall not be capped and there shall be a placard stating "DO NOT CAP" installed.

TESTING PORTS

Test port connections for pressure and vacuum shall be provided at the pump operator's panel. One (1) shall be connected to the intake side of the pump, and the other to the discharge manifold side of the pump.

Each port shall have 0.25 inch (6.35 mm) standard pipe thread connection and be manufactured of non-corrosive polished stainless steel or brass plugs.

TANK LEVEL GAUGE

A Fire Research TankVision model WLA300-A00 tank indicator kit shall be installed at the pump operator's panel location. The kit shall include an electronic indicator module, a pressure sensor, and a 20.00 foot sensor cable. The indicator shall show the volume of water in the tank on nine (9) easy to see super bright LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of aluminum, and have a distinctive blue label.

The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, and a datalink to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.

The indicator shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the water tank near the bottom. No probe shall be placed on the

interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.

CHASSIS INSTALLED TANK LEVEL GAUGE

The chassis shall include two (2) tank level gauges installed.

AIR HORN BUTTON

There shall be an air horn activation red push button provided and installed on the pump operator's gauge panel. The air horn button shall be of weather resistance type and labeled “AIR HORN”.

PUMP COMPARTMENT TOP OVERLAY

The top of the pump compartment shall be overlaid with 3/16" embossed aluminum diamond plate.

The treadplate top shall be finished in black speedliner. Will be a non NFPA approved step surface.

TRANSVERSE STORAGE AREA

A single wall .188 inch (4.78 mm) aluminum diamond plate transverse storage area shall be provided at the top of the pump compartment for equipment mounting and storage. The compartment shall be as wide as possible from side to side, and as deep as allowed with the available space for the configuration.

The compartment shall be transverse with access doors on both sides of the pump compartment. The doors shall be fabricated of the same material as the pump house overlays. No plumbing shall be exposed in the compartment, it shall be finished off with protective aluminum diamond plate material to match the interior finish of the compartment.

The access doors shall be horizontally hinged at the top, and have a gas strut hold open device, with up to four (4) push button latches, and one (1) 7.00 inch (177.8 mm) chrome handle centered on the door.

If the door is not properly closed and the parking brake is released, it shall activate the hazard light in the cab to alert the crew.

COMPARTMENT LIGHTING

A minimum of two (2) lights shall be installed to illuminate the compartment provided. The lights shall be an OnScene Solutions "Access" Series LED and shall be of maximum length available for the compartment. The lights shall be installed on the forward and rear walls high in the compartment. If required, additional lighting may be provided for areas that prohibit full length lighting on either wall.

The lights shall be activated when the compartment door is open.

MIDSHIP PUMP

The pump shall have a capacity of 2000 gallons per minute, measured in U.S. Gallons. The pump shall be a Waterous model CSU, single stage midship pump.

The pump will be de-rated to 1750GPM at the time of the UL test.

The pumps impellers shall be bronze with double suction inlets, accurately balanced (mechanically and hydraulically), of mixed flow design with reverse-flow, labyrinth-type, wear rings that resist water bypass and loss of efficiency due to wear. The impeller shall have flame plated hub to assure maximum pump life and efficiency despite the presence of abrasive particles, such as fine sand, in the water being pumped. The wear rings shall be bronze and easily replaceable to restore original pump efficiency and eliminate the need for replacing the entire pump casing due to wear.

Pump casing shall be close grained gray iron, bronze fitted and horizontally split in two sections for easy removal of entire impeller assembly, including wear rings, without disturbing setting of pump in chassis or pump piping. The pump, for ease and rapid servicing in the future, shall have the separable impeller shaft which allows true separation of transmission or pump without disassembly or disturbing the other component. This shall be accomplished by using a two piece shaft. This feature will allow field service to accomplish in much less time since each component (pump or transmission) can be repaired independently. The impeller shaft shall be stainless steel, accurately ground to size and polished. Shaft shall be supported at each end by ball type oil grease lubricated bearings. Sleeve bearings or bushings will not be acceptable. The bearings shall be protected from water at each end of the impeller shaft.

The discharge manifold shall be cast as an integral part of the pump body assembly and shall provide at least three full 3.50 inch openings for ultimate flexibility in providing various discharge outlets for maximum efficiency, and shall be located as follows: one outlet on the right side of the pump body, one outlet on the left side of the pump body, and one outlet directly on top of the pump discharge manifold.

The entire pump shall be cast, manufactured and tested at the pump manufacturer's factory. The pump transmission housing shall be high strength aluminum, three pieces and horizontally split. Power transfer to the pump shall be through a Morse Hy-Vo drive chain. Chain shall be pressure lubricated through oil pump. Chain sprockets shall be cut from carbonized, hardened alloy steel. Spur gears will not be acceptable.

The drive shafts shall be 2.35 inches in diameter, made of hardened and ground alloy steel. All shafts shall be ball bearing supported. Case shall be designed to eliminate the need of water cooling.

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. A certificate documenting this test shall be provided with the completed apparatus. The pump shall be fully tested at the pump manufacturer's factory to the performance requirements as outlined by the latest (NFPA) 1901, Standard for Automotive Fire Apparatus. Pump shall be free from objectionable pulsation and vibration.

The pump shall be the Class "A" type and shall deliver the percentage of rated discharge at pressures indicated below.

100% of rated capacity at 150 PSI net pump pressure.
100% of rated capacity at 165 PSI net pump pressure.
70% or rated capacity at 200 PSI net pump pressure.
50% of rated capacity at 250 PSI net pump pressure.

PUMP WARRANTY

Waterous Co shall provide a limited manufacturer's pump warranty to be free from defects, under normal use and service, for a period of seven (7) years from the date placed into service.

PUMP SEALS

The pump shall be equipped with self-adjusting, maintenance free mechanical shaft seals that shall not require manual adjustment. These seals shall be designed in a manner that they will remain functional enough to permit continued use of the pump in the unlikely event of a seal failure.

AIR PRIMER SYSTEM

The priming system shall be a Trident Emergency Products compressed air powered high efficiency, multi-stage, venturi based Air Prime System.

All wetted metallic parts of the priming system are to be of brass and stainless steel construction. A single panel mounted control will activate the priming pump and open the priming valve to the pump.

The priming components shall be mounted above the highest priming point on the suction side of the pump to permit air removal and allow for drainage. The primer shall also automatically drain when the panel control actuator is not in operation. The inlet side of the primer shall include a brass ‘wye’ type strainer with removable stainless steel fine mesh strainer to prevent entry of debris into the primer body.

The system shall employ an 80 PSI (5.5 bar) pressure protection valve, located on the chassis auxiliary air tank.

The primer shall be covered by a five (5) year parts warranty.

PRIMER CONTROL

There shall be one (1) push button control to actuate the primer control valve at the operator's panel.

MAIN PUMP INLET-LEFT SIDE

A 6.00 inch (150 mm) pump manifold inlet shall be provided on the left side of the pump. The inlet shall protrude up to 2.00 inches (50 mm) away from the side panel and maintain a low connection height.

The main pump inlet shall have National Standard Threads and includes a removable screen

designed to provide cathodic protection for reducing deterioration in the pump.

MAIN PUMP INLET-RIGHT SIDE

A 6.00 inch (150 mm) pump manifold inlet shall be provided on the right side of the pump. The inlet shall protrude up to 2.00 inches (50 mm) away from the side panel and maintain a low connection height.

The main pump inlet shall have National Standard Threads and includes a removable screen designed to provide cathodic protection for reducing deterioration in the pump.

MASTER DRAIN VALVE

A Trident manifold type drain valve shall be installed in the pump compartment. All pump drains shall be connected to the master drain valve. The drain valve shall be controlled from the left side lower pump house sill. The control shall be a hand wheel knob marked “open” and “closed”.

The drain shall be located such that it shall not interfere with pumping operations or function such as soft suction hoses, etc. nor shall it protrude past the outer edge of the apparatus, to prevent damage to the valve.

In some cases, it is necessary to locate the master drain in a secondary location to ensure proper draining. If no lower or vertical sill exists, the drain shall be located below the bottom outside edge of the hose body near the forward most corner on the driver’s side hose body. The drain shall not protrude past the outer edge of the body, thus preventing damage to the valve.

PUMP COOLING LINE

There shall be a .38 inch (9.5 mm) line running from the pump to the water tank to assist in keeping the pump water from overheating. A valve shall be installed on the operator's panel.

PUMP ANODES

Two (2) pump anodes shall be installed in the pumping system, one (1) on the discharge side and one (1) on the suction side, to prevent damage from galvanic corrosion within the pump system.

PUMP ANODE INDICATOR

The pump anode(s) shall be painted orange in color.

PLUMBING PAINTED

The front bumper plumbing shall be painted as specified:

PLUMBING COLOR

The color shall be black.

STAINLESS STEEL PLUMBING

All auxiliary suction and discharge plumbing related fittings, and manifolds shall be fabricated with a minimum of 3.00 inch (77 mm), or greater as required by design, schedule 10 stainless steel pipe; brass or high pressure flexible piping with stainless steel couplings. Galvanized components and/or iron pipe shall NOT be accepted to ensure long life of the plumbing system without corrosion or deterioration of the waterway system. Where waterway transitions are critical (elbows, tees, etc.), no threaded fittings shall be allowed to promote the smooth transition of water flow to minimize friction loss and turbulence. All piping components and valves shall be non-painted, unless otherwise specified. All piping welds shall be wire brushed and cleaned for inspection and appearance.

The high pressure flexible piping shall be black SBR synthetic rubber hose with 300 PSI working pressure and 1200 PSI burst pressure for flexible piping sizes 1.50 inches (38 mm) through 4.00 inches (100 mm). Sizes .75 inch (19 mm), 1.00 inch (25 mm) and 5.00 inches (125 mm) are rated at 250 PSI working pressure and 1000 PSI burst pressure. All sizes are rated at 30 in HG vacuum. Reinforcement consists of two plies of high tensile strength tire cord for all sizes and helix wire installed in sizes 1.00 inch (25 mm) through 5.00 inches (125 mm) for maximum performance in tight bend applications. The material has a temperature rating of -40 degrees Fahrenheit to +210 degrees Fahrenheit.

The stainless steel full flow couplings are precision machined from high tensile strength stainless steel. All female couplings are brass. Mechanical grooved and male .75 inch (19 mm) and 1.00 inch (25 mm) couplings are brass. A high tensile strength stainless steel ferrule with serrations on the I.D. is utilized to assure maximum holding power when fastening couplings to hose.

PUMP HOUSE LINE PROTECTION

All drain lines for the discharges, suctions, ABS discharge gauge lines and any other appropriate connections in the pump house area shall have a protective cover provided on the lines in the required areas of the lines to prevent the lines from rubbing on any other components in the pump house area.

All drain lines, ABS lines, high pressure discharge lines and electrical wiring in the pump house area shall be properly and neatly routed, wire tied and rubber coated “P” clamped, to keep the items secured.

DRAIN VALVES

An Innovative Controls 3/4" quarter turn drain valve shall be included on each discharge, gated intake, and steamer valve (if applicable). A side stem, long stroke chrome plated lift handle shall be provided on the drain valve to facilitate use with a gloved hand. The drain valve shall have an ergonomically designed handle with a recessed verbiage tag area easily read by the operator before opening.

The drain valve shall be connected to the valve with a flexible hose that is routed in such a manner as to assure complete drainage to below the apparatus.

WATEROUS AQUIS 1.5 FOAM PROPORTIONER

A Waterous AQUIS 1.5 Foam Proportioner with 16-bit, mixed-signal microcontroller with a 60kB flash memory, 2 kb RAM and 12-bit analog to digital converter shall be provided and installed on the apparatus.

Operator Interface Terminal:
The Operator Interface Terminal (OIT), mounted on the pump operator's panel allows the operator to perform the following functions:
• Provide rotary dial control of foam proportioning rates from 0.1% to 1%, in infinite increments
• Calibrate flow rate
• Flashes and then displays a steady “low concentrate” warning when the foam concentrate tank runs low - system shuts off after two minutes
• Flash a “no concentrate” warning when the foam concentrate tank is empty
• Flash an “error” warning with associated code in the event of an electronic malfunction
• Provide a manual back-up mode, controlled by the operator

Remote Activation:
The system shall be activated from an external 12 or 24-volt electrical source such as a pump-in-gear circuit or engine ignition power which can eliminate one step in the operational sequence. An optional remote start/stop control and cable is available.

Flowmeter:
A paddlewheel-type flowmeter shall be installed in the process manifold upstream of the foam injection point, connects to the microcontroller. A flowmeter tee, constructed of stainless steel or brass with Victaulic groove outer connections and threaded NPT inner connections at each end of the tee, is provided for connection to the apparatus plumbing.
Flowmeter tees are available as follows:
• Standard - 1.5” ID (300 GPM / 1135 L/min)
• Optional - 2” ID (400 GPM / 1500 L/min)

Foam Pump:
The 12 or 24-volt, electric motor driven, positive displacement triplex plunger foam pump is equipped with an aluminum crankcase, ball bearings, forged brass pump body and manifold, solid ceramic plungers, stainless steel check valves and piston guides, Buna packing and preset thermal and pressure relief valves.

The foam pump is rated at 1.5 GPM @ 150 psi (5.68 l/min @ 10 bar) operating pressures up to 450 psi (32 bar). Maximum electrical load of 27 amps @ 12 VDC and 14 amps @ 24 VDC.

A pump motor electronic driver, located inside the controller housing, receives signals from the microcontroller and powers the 1/3 hp (.25 kW) electric motor in a variable speed duty cycle to ensure that the correct amount of foam concentrate set by the pump operator is injected into the water stream.

Control Cables and Connectors:
The cables for interconnection of the control unit, OIT, temperature sensor and flowmeter are electrically shielded to prevent radio frequency or electro-mechanical interference.

Foam Inject Check Valve:
A brass and stainless steel check valve provided in the foam concentrate line at the foam injection point prevents water backflow into the foam supply reservoirs.

Foam System Support:
The AQUIS™ is equipped with PC-Connectivity which allows a qualified technician to perform upgrades, diagnostics and monitor system functions in real-time. The system can also be remotely monitored using any PC with Internet access, allowing technicians to easily connect to the Waterous dedicated website to assure proper operation and to update the foam system software by uploading new features and functions as they become available.

Warranty
The system shall have a two-year limited manufacturer's warranty.

FOAM SYSTEM TESTING

The apparatus foam system shall be tested, and the Water Flow meter shall be certified by the manufacturer prior to delivery.

FOAM SYSTEM SUPPLY

The system shall be supplied by a single foam tank that shall be monitored by the control display. The display shall flash a "low concentrate" warning for two minutes when the foam tank runs low. In the event that no additional concentrate is added to the tank, the foam concentrate pump shall be deactivated.

FOAM TANK

A 25 gallon foam tank with square hinged lid, equipped with a hold down device shall be installed and plumbed with non-corrosive piping to the foam system. The fill tower shall be approximately 10.00 inch by 10.00 inch.

A label shall be affixed to the foam tank fill indicating: “WARNING” Class A (or B) foam tank fill, do not mix brands or types of foam.

Each foam tank shall be integral with the booster water tank provided.

FOAM TANK DRAIN

There shall be a 1.00 inch (25.4 mm) quarter turn drain valve installed to drain the foam tank. The valve shall be installed in the pump house with a drain line extended to the side running board.

The drain line shall be labeled "FOAM DRAIN".

SHUTOFF VALVE

There shall be a 1/4 turn valve installed at the foam tank to shut off the flow from the supply line.

FOAM TANK LEVEL GAUGE

Fire Research TankVision Pro model WLA360-A00 tank indicator kit shall be installed. The kit shall include an electronic indicator module, a pressure sensor, a 20.00 foot sensor cable and a tank vent. The indicator shall show the volume of Class A foam concentrate in the tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive green label.

The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a datalink to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.

The indicator shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the foam tank near the bottom. No probe shall be placed on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.

WATEROUS FOAM TANK REFILL SYSTEM

The apparatus shall be equipped with a 12-volt foam tank refill system operating independently from the foam injection system allowing refilling of the foam tank while the foam system is in operation. The system shall consist of a 12-volt electric motor driven concentrate pump that delivers a minimum flow of 10 GPM (37.8 L/min).

The system shall be controlled from a momentary type on/off switch located on the pump operators panel, and shall have an automatic shutoff switch when the foam tank is full. The system shall be provided with a pickup tube and be suitable for Class A or Class B foam concentrates, emulsifiers, gels and decontamination concentrates. Check valves shall be installed in the internal plumbing to prevent backflow.

The system operator panel shall include color coded stainless steel push button switches, LED indicator lights.

LEFT SIDE INLET

There shall be one (1) gated suction inlet with .75 inch (19mm) bleeder installed on the left side of the apparatus with the following specified components.

INTAKE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with stainless steel ball.

INTAKE VALVE CONTROL

The intake control valve shall be a 'swing out type' direct operation manual lever actuator at the valve.

INTAKE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

SUCTION/INTAKE TERMINATION

The termination shall include the following components:

One (1) 2.50 inch (65 mm) NST swivel female straight adapter with screen

One (1) 2.50 inch (65 mm) self-venting plug, secured by a chain

INLET LOCATION

The inlet shall be located on the pump panel in the forward position.

LEFT SIDE DISCHARGE

There shall be two (2) gated discharges installed on the left side of the apparatus with the following specified components.

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series rack and sector actuated valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from a rack and sector actuator having an ergonomically designed T-handle. The handle shall be chrome-plated with name plate insertion recess area.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) Male NST adapter

One (1) 2.50 inch (65 mm) NST female swivel by male with 45 degree polished elbow

One (1) 2.50 inch (65 mm) female self-venting cap, secured by a chain

RIGHT SIDE DISCHARGE

There shall be one (1) gated discharge installed on the right side of the apparatus with the

following specified components.

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) Male NST adapter

One (1) 2.50 inch (65 mm) NST female swivel by male with 45 degree polished elbow

One (1) 2.50 inch (65 mm) female self-venting cap, secured by a chain

RIGHT SIDE MASTER DISCHARGE

There shall be one (1) master discharge installed on the right side of the apparatus provided with the following specified components.

DISCHARGE VALVE

A 3.00 inch (77 mm) Akron Brass 8000 series 'electric valve' with stainless steel ball.

STYLE 9333 VALVE CONTROLLER

The controller shall be an Akron Brass Style 9333 Navigator Pro™ 2.0 Valve Controller and shall be installed at the pump operator's panel location. The electric controls must be of true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. Two additional buttons shall be available to be used for preset selection, preset activation and menu navigation. The controller must have up to three preset locations that can be user set and easily recalled upon each use.

The unit must be capable of being used in conjunction with at least two additional displays to control one valve. The unit must provide position indication through a full color backlit LCD display. The display shall be a full color LCD display with a backlight. It shall have manual adjustment of the brightness as well as an auto-dimming option. The unit must carry a five year warranty.

DISCHARGE PLUMBING

The plumbing shall consist of 3.00 inch (77 mm) piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 3.00 inch (77 mm) NST adapter

One (1) 3.00 inch (77 mm) NST female swivel by 5.00 inch (125 mm) Storz with 30 degree elbow

One (1) 5.00 inch (125 mm) Storz cap, secured by a chain

LEFT REAR DISCHARGE

There shall be one (1) gated discharge installed on the left rear of the apparatus with the following specified components.

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) Male NST adapter

One (1) 2.50 inch (65 mm) NST female swivel by male with 45 degree polished elbow

One (1) 2.50 inch (65 mm) female self-venting cap, secured by a chain

DISCHARGE CAPABILITY

The discharge shall be foam capable.

SPEEDLAYS/PRE-CONNECT PLUMBING

Chiksan swivels shall be installed above each plumbed speedlay hose bed, accessible enough for the hose couplings to be tightened onto the chiksans.

The chiksan swivels shall swing from left to right to allow the attached hose to be deployed from either side.

1 3/4" SPEEDLAY

A speedlay with the following specified components shall be provided for up to 200 feet (60 m) of 1.75 inch (44.4 mm) hose.

There shall be a total of two (2) provided.

DISCHARGE VALVE

A 2.00 inch (50 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.00 inch (50 mm) piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.00 inch (50 mm) NPT x 1.50 inch (38 mm) NST brass chiksan swivel

DISCHARGE CAPABILITY

Two (2) discharge(s) shall be foam capable.

2 1/2" SPEEDLAY

A speedlay with the following specified components shall be provided for up to 200 feet (60 m) of 2.50 inch (63.5 mm) hose. This speedlay will be on top.

There shall be a total of one (1) provided.

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) NPT x 2.50 inch (65 mm) NST brass chiksan swivel

SPEEDLAY TRIM

Brushed stainless steel trim shall be installed at the openings on each side of the speedlay hose bed area. The trim shall extend 8.00 inches into the speedlay bay opening from the outer edge. The trim shall reduce the chaffing of the hose jacket on the edges of the bay area.

SPEEDLAY HOSE BED HOSE RESTRAINTS

The Dealership shall provide a means of restraining the hose stored in the speedlays to prevent inadvertent deployment of hose during transit. A hose restraint safety label shall be affixed by the Dealership and visible to personnel at each hose storage area.

DECK GUN MONITOR WATERWAY

There shall be one (1) deck gun monitor waterway installed on the apparatus, recessed partially in a tub in the transverse storage, with the following components.

DISCHARGE VALVE

A 3.00 inch (77 mm) Akron Brass 8000 series 'electric valve' with stainless steel ball.

STYLE 9333 VALVE CONTROLLER

The controller shall be an Akron Brass Style 9333 Navigator Pro™ 2.0 Valve Controller and shall be installed at the pump operator's panel location. The electric controls must be of true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. Two additional buttons shall be available to be used for preset selection, preset activation and menu navigation. The controller must have up to three preset locations that can be user set and easily recalled upon each use.

The unit must be capable of being used in conjunction with at least two additional displays to control one valve. The unit must provide position indication through a full color backlit LCD display. The display shall be a full color LCD display with a backlight. It shall have manual

adjustment of the brightness as well as an auto-dimming option. The unit must carry a five year warranty.

DELUGE PLUMBING

The deluge waterway shall consist of 3.00 inch (77 mm) piping and shall be drained with an auto-drain located at the lowest point of the waterway plumbing if required.

DELUGE PIPE LOCATION

The deluge pipe shall be located up through the pump compartment, at the center location.

EXTEND-A-GUN-DEALER SUPPLIED

There will be one (1) dealer supplied Task Force Tips RC 18.00 inch (457.2 mm) Extenda-Gun and saddle bracket (if included) installed by Spartan on the deluge pipe.

If the Extenda-Gun/Saddle bracket (if provided) are not properly stowed and the parking brake is released, it shall activate the hazard light in the cab to alert the crew.

FRONT BUMPER DISCHARGE OUTLET

One (1) front bumper discharge outlet shall be provided and installed in the location specified.

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping, and shall incorporate a manual drain control installed below the pump area for ease of access. Auto-drain(s) shall be installed in the discharge piping at lowest point of the plumbed system.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) NPT x 2.50 inch (65 mm) NST SST chiksan swivel

FRONT BUMPER DISCHARGE LOCATION

The front bumper discharge shall be mounted on top of the gravel shield of the front bumper extension. The discharge shall be placed outboard of the frame rail extensions on the right side.

FRONT BUMPER DISCHARGE CHIKSAN GUARD

The front bumper discharge chiksan shall include a chiksan guard installed on the front bumper gravelshield to prevent the chiksan from hitting the cab. The guard shall be fabricated of smooth aluminum with a dual-action sanded finish on all sides. There shall be two (2) rubber bumper stops installed on the guard to protect the chrome chiksan.

DISCHARGE CAPABILITY

The discharge shall be foam capable.

WARM WATER WASHDOWN SYSTEM

A discharge from the pump shall be provided with a garden hose outlet/threads suitable for simple wash-down operations.

The system shall be comprised of a cold-water side and a hot-water side with independent valve controls for each system.

The cold-water system shall be activated using an illuminated rocker switch controlling a 1.00 inch (25.40 mm) ball valve at the tank and a 12 volt pump. The system shall be capable of a minimum of 5 GPM and 70 PSI. The plumbing to the pump shall contain a strainer connected to the master drain to prevent freezing.

The hot-water side shall be activated by using a quarter turn control controlling a .75 inch (19.05 mm) ball valve connected to the apparatus engine heat exchanger system.

The systems shall be plumbed in such a way that the hot-water side and the cold-water side can operate independently or be mixed together to provide warm water at the discharge of the system.

The discharge shall be labelled "NON-POTABLE WASHDOWN WATER".

WASHDOWN SYSTEM LOCATION

The washdown system shall be located on the officer side pump panel.

BOOSTER REEL

There shall be an electric rewind booster reel with automatic brake installed on the apparatus. The booster reel shall have a capacity to handle 1.00-inch diameter (25.4 mm) booster hose.

There shall be a manual rewind device provided. A manual crank shall be mounted adjacent to booster reel.

BOOSTER HOSE

The reel shall come equipped with 200 feet (60 m) of 800 psi (55 BAR) booster hose.

The hose shall be provided in two (2) 50 foot (30 m) and one (1) 100 foot lengths with hardcoat

aluminum couplings.

REEL FINISH

The hose reel specified shall be steel and painted the standard red utilized by Hannay.

HOSE REEL VALVE

The reel shall be plumbed to the pump with a 1.00 inch (25.40 mm) quarter turn Akron brass 8000 series ball valve and 1.00 inch (25.40 mm) high pressure hose and couplings.

The valve shall be controlled from the operator's panel.

REWIND ACTIVATION

An electric rewind switch shall be located adjacent to the booster reel. The switch shall have a weather resistant rubber cover and a label indicating its function.

The switch shall be labeled "HOSE REEL".

HOSE REEL LOCATION

The hose reel shall be mounted centered on the floor of the Rear Center, B-1 compartment.

HOSE REEL ROLLERS

There shall be a four-way roller assembly provided and installed directly to the reel.

Two (2) additional stainless steel hose roller guides shall be provided and installed, one (1) on either side of the compartment door openings. The rollers shall allow free hose deployment and retraction while preventing sharp edges from cutting or damaging the hose.

The discharge shall be plumbed with an auto-drain located at the lowest point of the plumbed system.

BOOSTER REEL GAUGE

There shall be a pressure gauge supplied for the Booster Reel as specified below.

DISCHARGE CAPABILITY

The discharge shall be foam capable.

DISCHARGE GAUGES

A NOSHOK (Innovative Controls) 2.50 inch (65 mm) gauge shall be supplied for reading the pressure of each discharge greater than 1.50 inches (38 mm) in diameter, unless otherwise specified.

The gauges shall have a rugged corrosion free stainless steel case that integrates the valve

stem connection, movement support, and bourdon tube support into a single unit that eliminates distortion and leakage. Clear scratch resistant molded lenses shall be used to ensure distortion-free viewing and they shall be sealed to the gauge by being trapped together with a profile gasket by a chromed stainless steel bezel. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from –40° F to +160°F.

GAUGE SCALE

Each gauge shall be marked for reading a pressure range of 0-400 PSI.

GAUGE FACE COLOR

Each gauge shall have black markings on a white face.

BEZELS FOR 2.5" DISCHARGE GAUGES

Highly-polished stainless steel Innovative Control bezels shall be provided around each of the 2.50 inch (65 mm) discharge pressure gauges to prevent corrosion and protect lenses and gauge cases. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve identifying verbiage and/or color labels.

TANK TO PUMP LINE

The connection between the tank and the pump shall be capable of the flow recommendations as set forth in (NFPA) 1901, Standard for Automotive Fire Apparatus, latest revision and shall be tested to those standards when the pump is being certified.

One (1) non-collapsible flexible hose and valve shall be incorporated into the tank to pump plumbing to allow movement in the line as the chassis flexes to avoid damage during normal road operation. Four (4) inch stainless steel schedule 10 piping shall be used to complete the connection from the tank to pump valve to the water tank.

TANK TO PUMP CHECK VALVE

There shall be a tank to pump check valve, conforming to NFPA standard requirements to prevent water from back flowing at an excessive rate if the pump is being supplied from a pressurized source. The check valve shall be mounted as an integral part of the pump suction extension. A hole up to .25 inch (6.00 mm) is allowable in the check valve to release steam or other pressure buildup so that the void between the valve and check valve may drain of water that could be subject to freezing.

TANK TO PUMP VALVE

A 3.50 inch (89 mm) Waterous valve shall be installed.

VALVE CONTROL

The valve shall be controlled from the pump operator's panel location.

TANK FILL LINE

One (1) 2.00 inch (50.80 mm) tank fill/recirculating line shall be installed from the pump directly to the booster tank.

TANK FILL VALVE

A 2.00 inch (50 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

VALVE CONTROL

The valve shall be controlled from the pump operator's panel location.

TRI-MAX™ *Space Frame Body* - ALUMINUM

The apparatus body shall be a Tri-Max™ **Space Frame** design, which serves as an incredibly durable, structural body framework. This framework acts as a series of beams and columns that support and protect the body and its contents. The space frame design provides maximum torsional resistance and load capabilities. The entire space frame structure shall be welded together utilizing an A.W.S. Certified welding procedure.

The space frame design shall also be required because it provides energy absorbing impact zones in the structure, thus providing increased safety to the rest of the apparatus and personnel on board. Documented proof of this extra safety shall be required upon request.

The Tri-Max™ body structure shall consist entirely of closed section members, except where the body is mounted to the chassis. Closed section members (such as square, rectangular, triangular, or round tubes) are required because they provide maximum strength and torsion rigidity. This solid tubular structural style of design ultimately adds longevity to the body structure by eliminating flex and twists in material, creating less stress and fatigue. Body designs that use independent sub-frames will not be acceptable.

BODY STRUCTURE MEMBERS

The space frame body shall have triangular shaped structural members in certain areas of the body. This shape is required to prevent loss of useable compartment space. Other body structure members shall be square or rectangular. Each structural member will have a nominal outside dimension of 2.50 inches (63.50 mm) in at least one direction. The body shall be designed for maximum strength to weight ratio, therefore the gauge of sheet metal and structural members varies from .125 inches (3.18 mm) to .250 inches (6.35 mm) throughout, dependent on the design requirement.

BODY MATERIAL TYPE

All body structural members shall be Aluminum 6061-T6 alloy material. All .125 inch (3.18 mm) sheet material shall be Aluminum Alloy 5052-H32 and .250 inch (6.35 mm) sheet materials shall be Aluminum Alloy 3003. These alloys are required because it provides optimum all-around performance for strength, manufacturing properties, and corrosion resistance.

ECK® ANTI-CORROSION PROCESS

Absolutely no dissimilar metals shall be used in the body and its supporting substructure without being separated by Eck®, which prevents corrosion by providing a barrier between dissimilar metals, sealing out moisture and absorbing energy created by a dissimilar metal reaction.

FRONT BODY COMPARTMENT WALLS

The front compartment walls of both forward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments.

REAR BODY COMPARTMENT WALLS

The rear compartment walls of both rearward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments. Access panels from the rear walls shall be strategically placed to ensure access to the rear taillight clusters for any servicing that may be completed.

COMPARTMENT TOP

The top of the compartments shall be an integral portion of the body. No overlay material shall be visible from the interior of the compartments.

COMPARTMENT FLOORS

The body compartments shall be enclosed with aluminum sheet metal as specified above. The compartment floors shall have a 1.00 inch (25.40 mm) lip downward at the door opening side of the compartment. This lip shall integrate with a structural member on the bottom edge and form a “sweep-out” compartment. This design shall also allow for a structural flush fitting door frame and a complete door/weather seal.

COMPARTMENT LOAD CAPACITY

Each compartment shall have a minimum of one additional structural compartment floor support centered on the underside of the compartment floor. This additional member shall be integral with the rest of the body structure. Each compartment must be designed, and 3rd party analyzed to carry a working load of:

Full depth side compartment: 1,000 lbs (453.59 kg) per compartment
Half depth side compartment: 750 lbs (340.19 kg) per compartment
Rear center compartment: 1,500 lbs (680.39 kg)

NOTE: These values are for design purposes only for individual compartment construction and are not meant to be used as an actual overall weight rating for equipment load per compartment for the specified apparatus. The apparatus shall be engineered such that the completed unit, when loaded to its estimated in-service weight, shall comply with the gross axle weight ratings {GAWR}, the overall gross vehicle weight rating {GVWR}, and the chassis manufacturer's load balance guidelines per NFPA.

EXTERIOR HOSE BED WALLS

The exterior hose bed walls shall be an integral portion of the body. The wall shall give a smooth exterior look and finish with no vertical supports tubing visible from the exterior of the truck.

FASTENERS

All bolts and nuts used in the finish construction of the apparatus shall be coated stainless steel which helps prevent dissimilar metal electrolytic reaction and corrosion. Any bolt extending into a compartment or into the hose bed area shall have an acorn nut attached or be protected in such manner where sharp edges are avoided.

FINITE ELEMENT ANALYSIS

The proposed body design must have completed a review and analysis by a legitimate 3rd party engineering firm. At a minimum, the 3rd party must have conducted a computer model finite element analysis of the proposed design. The analysis is to include real world working load scenarios. Analysis to cover both static and dynamic situations must be completed. The purpose of the finite element analysis is to ensure proper design of the apparatus body, and that it is capable of carrying the typical fire apparatus loads and those specified by NFPA for equipment. The analysis process must conclude that the body structure is properly designed and manufactured to provide longevity under normal conditions. The 3rd party must also validate the manufacturing processes are consistent with the design and analysis performed. Proof of having completed this testing must be submitted with the bid.

PAINT SPECIFICATIONS

All bright metal fittings, if unavailable in stainless steel, shall be heavily chrome plated.

Critical body and sub-frame area which cannot be primed after assembly shall be pre-painted.
Transition

All welded metal surfaces shall be ground to a smooth surface prior to a degreasing and high pressure, high temperature phosphatizing process. The entire surface shall be sprayed with a non-chromate sealing compound to prevent formulation of stains or flash rust on previously phosphatized parts.

The paint applied to the apparatus shall be Akzo Nobel, Sikkens brand, LVBT650 basecoat, applied throughout a multi-step process including at least two coats of each color and clear coat finish.

The coating shall be an infra-red, baked air dried. The coatings shall provide full gloss finished suitable for application by high-pressure airless or conventional low pressure air atomizing spray.

The coatings shall not contain lead, cadmium or arsenic. The polyisocyanate component shall consist of only aliphatic isocyanates, with no portion being aromatic isocyanates in character. The solvents used in all components and products shall not contain ethylene glycol mono-ethyl

ethers or their acetates (commercially recognized as cello solves), nor shall they contain any chlorinated hydrocarbons. The products shall have no adverse effects on the health or nor present any unusual hazard to personnel when used according to manufacturer's recommendations for handling and proper protective safety equipment, and for its intended use.

The coating system, as supplied and recommended for application, shall meet all applicable federal, state and local laws and regulations now in force or at any time during the courses of the bid.

The manufacturer shall supply (upon request) for each product and component of the system, a properly complete OSHA "Safety Data Sheet".

The following documents of the issue in effect on the date of the invitation to quote form a part of this document to the extent specified herein:

Federal Standards: Number 141A and 141B paint, varnish, lacquer and related material: methods of inspection, sampling, and testing.

Military Standard: MIL-C 83486B Coating, Urethane, Aliphatic Isocyanates, for Aerospace applications.

Industry Methods and Standards: ASTM Method of Analysis (American Society for testing and Materials). BMS 10-72A (Boeing Material Specifications).

The entire exterior body structure (excluding roll-up doors) shall receive the primer coats and the finish coats. The apparatus body will be painted in a down draft type paint booth to reduce dust, dirt or impurities in the finish paint. The painted surfaces shall have a finish with no runs, sags, craters, pinholes or other defects. The coating will meet the following test performance properties as a minimum standard.

TWO-TONE BODY PAINT COLOR

The apparatus lower body shall be painted FLNA 30201 Red.

The apparatus upper body shall be painted FLNA 40119 Black.

The two tone paint break line shall be just above the body compartment doors. The compartment door drip rail shall be applied to conceal the paint break line.

SPEEDLINER COMPARTMENT FINISH

The compartment interiors shall be coated with Speedliner.

COMPARTMENT FINISH COLOR

The Speedliner Color shall be Medium Gray.

STRUCTURAL BODY WARRANTY

A structural Aluminum body warranty shall be provided by the apparatus manufacturer for

products of its manufacture to be free from defects in material and workmanship under normal use and service for a period of ten (10) years.

PAINT WARRANTY

A Prorated Paint Warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years.

DIAMOND PLATE FRONT OVERLAYS

The entire front face of the apparatus body shall have aluminum diamond plate overlays installed. The treadplate shall be finished in black speedliner.

RAW ALUMINUM REAR OVERLAYS

The entire rear face of the apparatus body shall have raw aluminum overlays installed for the installation of chevron striping.

All overlay materials shall be coated with 3M adhesive sealant on the back portion to provide an insulating barrier between dissimilar metals.

FRONT CORNER TRIM 1/8" ALUMINUM DIAMOND PLATE

The front of the apparatus body, vertical wall overlay shall be integrated with a 1/8” aluminum diamond plate 1.00 inch x 1.00 inch corner trim pieces for edge protection. The vertical edge trim piece shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom. The treadplate shall be finished in black speedliner.

REAR CORNER TRIM 16 GAUGE BRUSHED STAINLESS STEEL

The rear face of the apparatus body, vertical wall overlays shall be installed with a 16 gauge brushed stainless steel 1.00-inch by 1.00-inch corner trim piece, for edge protection. The vertical edge trim piece shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

The vertical edge trim piece that is protecting the chevron striping surface or that is utilized for the purpose of striping, shall be secured utilizing fasteners only.

VIBRA-TORQ™ BODY MOUNTING SYSTEM

The entire body module assembly shall be mounted so that it “floats” above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable body mounting system.

The body substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each body mount bracket shall be mounted to the side chassis frame flange with two 5/8”-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All body to chassis connections shall be bolted so that in the event of an accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures. The Vibra-Torq™ body mounting system shall have a lifetime warranty.

BODY STRUCTURE WIDTH

The width of the apparatus body from the outside of the left compartments to the outside of the right compartments shall be 99.00 inch (2.51 m) excluding any attached peripherals such as rub rails, fenderettes, grab handles, etc.

COMPARTMENT VENTILATION

To allow for proper air circulation & flow, each compartment shall have a venting route. The venting locations shall be determined by best-fit for each body configuration. Chrome louvered plate vents shall be installed appropriately on the compartment interior walls.

COMPARTMENTATION

The following compartments shall be supplied on the apparatus:

Compartment "L1"

There shall be one (1) full height compartment ahead of the rear wheels on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 49.00 inches (1244.60 mm) wide by 74.00 inches (1879.60 mm) high with a lower depth of 25.50 inches (647.70 mm) and an upper depth of 12.50 inches (317.50 mm).

The framed opening shall measure 46.50 inches (1181.10 mm) wide by 70.00 inches (1778.00 mm) high.

The compartment will have approximately 38.00 cubic feet (1.08 cu m) of space.

Compartment "L2"

There shall be one (1) compartment located directly over the rear wheels on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 62.00 inches (1574.80 mm) wide by 44.50 inches (1130.30 mm) high with a depth of 12.50 inches (317.50 mm). The lower 4.50 inches of the compartment shall be a depth of 25.50 inches.

The framed opening shall measure approximately 62.00 inches (1574.80 mm) wide by 40.50 inches (1028.70 mm) high.

The compartment will have approximately 19.90 cubic feet (0.56 cu m) of space.

Compartment "L3"

There shall be one (1) full height compartment located behind the rear wheels on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 49.00 inches (1244.60 mm) wide by 74.00 inches (1879.60 mm) high with an upper depth of 12.50 inches (317.50 mm) and the lower portion being transverse into the rear compartment, unless partitions are installed.

The framed opening shall measure approximately 46.50 inches (1181.10 mm) wide by 70.00 inches (1778.00 mm) high.

The full depth area of this compartment shall extend approximately 47.00 inches (1193.80 mm) up from the compartment floor.

The compartment will have approximately 38.00 cubic feet (1.08 cu m) of space.

Compartment "R1"

There shall be one (1) full height compartment located ahead of the rear wheels on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 49.00 inches (1244.60 mm) wide by 74.00 inches (1879.60 mm) high with a lower depth of 25.50 inches (647.70 mm) and an upper depth of 12.50 inches (317.50 mm).

The framed opening shall measure approximately 46.50 inches (1181.10 mm) wide by 70.00 inches (1778.00 mm) high.

The compartment shall have approximately 38.00 cubic feet (1.08 cu m) of space.

Compartment "R2"

There shall be one (1) compartment located directly over the rear wheels on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 62.00 inches (1574.80 mm) wide by 44.50 inches (1130.30 mm) high with a depth of 12.50 inches (317.50 mm). The lower 4.50 inches of the compartment shall be a depth of 25.50 inches.

The framed opening shall measure approximately 62.00 inches (1574.80 mm) wide by 40.50 inches (1028.70 mm) high.

The compartment will have approximately 19.90 cubic feet (0.56 cu m) of space.

Compartment "R3"

There shall be one (1) full height compartment located behind the rear wheels on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 49.00 inches (1244.60 mm) wide by 74.00 inches (1879.60 mm) high with an upper depth of 12.50 inches (317.50 mm) and the lower portion being transverse into the rear compartment, unless partitions are installed.

The framed opening shall measure approximately 46.50 inches (1181.10 mm) wide by 70.00 inches (1778.00 mm) high.

The compartment shall have approximately 38.00 cubic feet (1.08 cu m) of space.

ROLL-UP DOOR CONSTRUCTION

All horizontal and vertical side compartment doors shall be roll-up style doors.

R·O·M ROLL-UP DOOR

A R•O•M Corporation Series IV roll-up shutter door shall be installed. Each shutter slat, track, bottom rail, and drip rail shall be constructed from anodized 6063 T6 aluminum.

Shutter slats shall feature a double wall extrusion 0.315 inches thick with a concave interior surface to minimize loose equipment jamming the shutter door closed. Shutter slats shall feature an interlocking end shoe to prevent side to side binding of the shutter door during operation. Slats must have interlocking joints with an inverted locking flange. Slat inner seal shall be a one piece PVC extrusion; seal design shall be such to prevent metal to metal contact while minimizing dirt and water from entering the compartment.

Shutter door track shall be one piece design with integral overlapping flange to provide a clean finished look without the need of caulk. Door track shall feature an extruded Santoprene rubber double lip low profile side seal with a silicone co-extruded back to reduce friction during shutter operation.

Shutter bottom rail shall be a one piece double wall extrusion with integrated finger pull. Finger pull shall be curved upward with a linear striated surface to improve operator grip while operating the shutter door. Bottom rail shall have a smooth contoured interior surface to prevent loose equipment from jamming the shutter door. Bottom rail seal shall be made from Santoprene; it will be a double “V” seal to prevent water and debris from entering compartment. Bottom rail lift bar shall be a one piece “D” shaped aluminum extrusion with linear striations to

improve operator grip during operation. Lift bar shall have a wall thickness of 0.125 inches. Lift bar shall be supported by no less than two pivot blocks; pivot blocks shall be constructed from Type 66 Glass filled reinforced nylon for superior strength. Bottom rail end blocks shall have incorporated drain holes which will allow any moisture that collects inside the extrusion to drain out.

Shutter door shall have an enclosed counter balance system. Counter balance system shall be 4.00 inches in diameter and held in place by 2 heavy duty 18 gauge zinc plated plates. Counter balance system shall have 2 over-molded rubber guide wheels to provide a smooth transition from vertical track to counter balance system.

SIDE COMPARTMENT DOORS/TRACK/TRIM/WET PAINTED

The side compartment roll up doors, track and trim shall be wet finish painted to color match the apparatus body.

ROLL-UP DOOR PROTECTORS

There shall be a protective cover installed under each body side compartment door roll to protect the door in the rolled up position.

ROLL-UP DOOR PROTECTOR FINISH

The roll-up door protector shall be left Natural finish.

DOOR ASSIST STRAPS

There shall be nylon straps installed on both the left and right body side 'high side' compartment doors to assist in closing the door. The strap shall be attached to each door and permanently mounted to the rearward wall with footman loops using Nutserts, half way between the top and bottom of the compartment.

DOOR OPEN INDICATOR

Each roll up door shall have an integral door open indicator magnet in the lift bar.

If the door is not properly closed and the parking brake is released, it shall activate the “hazard light” in the cab to alert the crew.

REAR CENTER COMPARTMENT

There shall be one (1) compartment, "B1", located at the rear of the apparatus, below the hose bed access area.

The approximate interior dimensions of this compartment shall be 43.00 inches (1092.20 mm) wide and as high as possible determined by the hose bed height and rear configuration. The depth shall be determined by the length of the rear side compartments specified and maximized for the suspension specified for the chassis.

The framed opening shall be approximately 38.00 inches (965.20 mm) wide and 27.00 inches

high.

This compartment will be as low as possible.

REAR CENTER COMPARTMENT DUTCH DOOR

The compartment shall have a bi-folding removable Dutch Style door installed with interior access open to the rear side compartments for maximum storage availability.

The door shall be horizontally hinged at the center location to allow the top panel to drop down for compartment access. The door assembly shall be pinned to the bottom frame of the rear compartment opening and can be easily removed for full access.

Upper door section shall be equipped with a D ring handle. Lower door section shall be equipped with a paddle latch.

There shall be angle trim installed around the door opening. The trim shall be mirrored stainless if body trim is specified as such, otherwise, the trim shall be brushed stainless.

REAR COMPARTMENT DOOR MATERIAL

The rear compartment doors shall be fabricated of 5052 smooth aluminum and finish painted to match the body.

REAR COMPARTMENT DOOR LINER MATERIAL

The rear compartment doors interior liners shall be fabricated of 5052 smooth aluminum and shall be dual-action sanded finish.

DOOR OPEN INDICATOR

Each flush door body compartment shall be provided with an auto door switch. The switch shall be installed on the primary compartment door and activate the open door indicator when the door is opened.

The switch shall be of a magnetic style reed indicator type. Each switch shall be hermetically sealed rated to 10,000,000 cycles. The contact and magnetic housing shall snap-lock in the body material, one on the body and one in the door.

If the door is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the “hazard light” in the cab to alert the driver.

RECESSED INTERMEDIATE REAR STEP

There will be an 8.00 inch recessed intermediate step above the rear center compartment designed into the rear body wall. This step will shorten the length of the hose bed by 8.00 inches and lower the door opening of the rear center compartment. The stepping surface shall be overlaid with embossed diamond plate, while the side shall be overlaid with standard diamond plate. The treadplate shall be finished in black speedliner. The step will be non NFPA approved step surface.

STEP LIGHTING

One (1) light shall be installed to illuminate the stepping areas as provided. The light shall be an OnScene Solutions "Access" Series 18.00 inch (457.20 mm) LED mounted below the 5" hose bed extension.

The light shall be directed towards and positioned above the stepping surface.

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

REAR COMPARTMENT PARTITIONS

The rear center compartment of the apparatus shall have permanent partitions installed on each side to increase utilization of the rear center area and to block access to either of the side compartments. The partitions shall be constructed of the same materials as used in the body structure and shall be welded in place to form permanent compartmentation.

LEFT REAR WALL REINFORCEMENT

The left rear vertical body panel shall be reinforced for installation of a TFT Blitzfire mount by the Dealership.

SILL PLATES

Brushed stainless steel sill plates shall be installed at the bottom of each body compartment door opening.

ONSCENE COMPARTMENT STRIP LIGHTING

OnScene "Access" LED strip lighting shall be installed in the compartments as specified. Each light strip shall be of maximum length available to fit the opening.

The lighting in each compartment shall be on a separate circuit, and only illuminate when the compartment doors are open.

Two (2) full length "Access" LED strip lights shall be installed in two (2) over wheel compartment(s), one (1) each side of framed opening.

Two (2) full length "Access" LED strip lights shall be installed in four (4) full height compartment(s), one (1) each side of framed opening.

Two (2) full length "Access" LED strip lights shall be installed in the rear center compartment, one (1) each side of framed opening.

REAR TAILBOARD

The rear of the apparatus body shall be vertical in design - otherwise known as a 'flat-back'.

The rear tailboard shall be fabricated of the same tubular materials as used in the apparatus body and shall have chamfered corners..

The tailboard shall be two (2) independent assemblies welded to the rear body structural framing to provide body protection and a solid rear stepping platform. The center section shall be framed for a slide out platform.

The rear step shall be designed to incorporate "crush zone" technology. This idea incorporates lighter materials in the tailboard than the body structure so the step will "crush" in a collision before the body structure.

On the rear body surface, a sign shall be attached that states: "DO NOT RIDE ON REAR STEP, DEATH OR SERIOUS INJURY MAY RESULT."

The rear tailboard and body shall be constructed such that the angle of departure shall be no less than 8 degrees at the rear of the apparatus when fully loaded (NFPA) 1901, Standard for Automotive Fire Apparatus.

TAILBOARD LENGTH

The rear tailboard shall be approximately 13.50 inches (342.90 mm) deep and shall incorporate a .188 inch (4.78 mm) embossed aluminum diamond plate overlay.

The stepping area shall span the width of the apparatus, overlapping the perimeter of the structural tailboard framework.

SLIDE OUT PLATFORM

One (1) slide out platform, utilizing an OnScene Solutions brand slide shall be installed at the center of the rear tailboard, approximately 1.00 inch (25.4 mm) below the split outward tailboard sections.

The platform shall be 41.00 inches wide and shall extend approximately 20.00 inches from the stowed position. The platform stepping surface shall be constructed of .188 inch (4.76 mm) embossed aluminum diamond plate material.

The face of the platform shall have no rub rail installed for ease of deployment. The step will be reinforced on the back edge.

The platform shall lock into place while in the extended and stowed positions. There shall be a reinforcement channel on the back of the step.

If the slide out platform is not properly stowed and the parking brake is released, it shall activate the hazard light in the cab to alert the crew.

WHEEL WELLS

Wheel wells shall have semicircular black polymer composite inner liners that are bolted to the wheel well panel and supported inboard by brackets that are connected to the body framework.

Each wheel well shall be a continuous piece with no breaks or ledges where road grime or debris may accumulate. This liner shall be removable for access to suspension assembly for repairs. There shall be no exception to the bolted wheel well inner liner requirement.

WHEEL WELL MODULES

The body wheel well area shall be fabricated of same material type as the body and finish painted. There shall be “smart storage” compartmentation features incorporated on each side of the apparatus body wheel well modules to utilize and maximize storage space availability.

LEFT FRONT WHEEL WELL

There shall be provisions in the wheel well on the left side in front of the axle.

SCBA COMPARTMENT

The compartment shall hold three (3) 6.75 inch (171.45 mm) Diameter x 24.00 inch (609.60 mm) long SCBA bottles with 1.00 inch (25.40 mm) nylon safety loops installed.

LEFT REAR WHEEL WELL

There shall be provisions in the wheel well on the left side behind the axle.

FUEL FILL

The fuel fill shall be located within the smart storage compartment.

SMART STORAGE FUEL FILL ASSEMBLY

There shall be a fuel fill assembly located on the apparatus body accessing the chassis supplied fuel tank. The assembly shall be located in the rear Smart Storage module specified behind the rear axle.

There shall be a drain in the fuel fill assembly to allow over flow to drain on the back side of the apparatus body. The fuel fill cap shall be manufactured of plastic materials, green in color and equipped with a tether.

The fuel fill cap shall be labeled "DIESEL FUEL". The stainless steel fuel fill neck shall have a .375 inch inside diameter vent line installed from the top of the fuel tank to the fill tube.

RIGHT FRONT WHEEL WELL

There shall be provisions in the wheel well on the front side in front of the axle.

SCBA COMPARTMENT

The compartment shall hold three (3) 6.75 inch (171.45 mm) Diameter x 24.00 inch (609.60 mm) long SCBA bottles with 1.00 inch (25.40 mm) nylon safety loops installed.

RIGHT REAR WHEEL WELL

There shall be provisions in the wheel well on the right side behind the axle.

FIRE EXTINGUISHER STORAGE COMPARTMENT

The compartment shall hold one (1) 2.5 gallon water extinguisher and one (1) 20 lb. ABC fire extinguisher.

SMART STORAGE DOORS

The smart storage compartment doors shall be .188 inch smooth aluminum and painted to match body job color. Where a module storage compartment is specified, a hinged door shall be provided. Each compartment door shall be secured with a push button latch.

DOOR OPEN INDICATOR

There shall be a switch installed for each smart storage compartment door.

If the door is not properly closed and the parking brake is released, it shall activate the “hazard light” in the cab to alert the crew.

FENDERETTES

Two (2) black (painted) aluminum fenderettes shall be provided and installed on body rear wheel well openings, one (1) each side. Rubber welting shall be provided between the body and the crown to seal the seam and restrict moisture from entering. A dielectric barrier shall be provided between the fender crown fasteners (screws) and the fender sheet metal to resist deterioration.

LEFT SIDE UPPER STORAGE COMPARTMENTS

Two (2) storage compartments shall be provided and installed on the upper left side of the apparatus body. The approximate length of each compartment shall be 80.00 inches long. The depth of the compartments shall be determined by the hose bed wall height however, shall be big enough to store 5 gallon pales of foam. The compartment shall extend beyond the apparatus body roof and walking surface and provide a vertical edge to prevent water intrusion. An adhesive backed bulb seal shall be applied to the underside perimeter of the lid, excluding the hinge side, to ensure a positive seal. The treadplate shall be finished in black speedliner. The surfaces shall not be NFPA approved step surfaces.

The 3/16" formed door incorporating a turned down edge that shall extend over the compartment raised edge approximately 1.00 inch, shall be held down with gas struts and sealed with a rubber seal to minimize water penetration. The door shall be fabricated of 3/16” embossed aluminum diamond plate and be secured by an stainless hinge and include a 7” suit case handle on each door. If deemed necessary due to width, the doors shall be reinforced to act as a suitable walking or standing surface. Each door shall be held open by a gas charged strut on each side and permit full access to the compartment along its length. The struts shall be concealed inside the compartment when the door is in the closed position. The compartments shall be constructed as part of the body and be accessible from the hose bed area.

The upper compartments shall not be vented. There shall be plastic tubing installed for adequate drainage that is routed from corners of the upper compartment floors down to below the lower compartment floor level.

The doors shall have a 3 second delay programmed in for the open door warning system.

RIGHT SIDE UPPER STORAGE COMPARTMENTS

Two (2) storage compartments shall be provided and installed on the upper right side of the apparatus body. The approximate length of each compartment shall be 80.00 inches long. The depth of the compartments shall be determined by the hose bed wall height however, shall be big enough to store 5 gallon pales of foam.. The compartment shall extend beyond the apparatus body roof and walking surface and provide a vertical edge to prevent water intrusion. An adhesive backed bulb seal shall be applied to the underside perimeter of the lid, excluding the hinge side, to ensure a positive seal. The treadplate shall be finished in black speedliner. The surfaces shall not be NFPA approved step surfaces.

The 3/16" formed door incorporating a turned down edge that shall extend over the compartment raised edge approximately 1.00 inch, shall be held down with gas struts and sealed with a rubber seal to minimize water penetration. The door shall be fabricated of 3/16" embossed aluminum diamond plate and be secured by an stainless hinge and include a 7" suit case handle on each door. If deemed necessary due to width, the doors shall be reinforced to act as a suitable walking or standing surface. Each door shall be held open by a gas charged strut on each side and permit full access to the compartment along its length. The struts shall be concealed inside the compartment when the door is in the closed position. The compartments shall be constructed as part of the body and be accessible from the hose bed area.

The upper compartments shall not be vented. There shall be plastic tubing installed for adequate drainage that is routed from corners of the upper compartment floors down to below the lower compartment floor level.

The doors shall have a 3 second delay programmed in for the open door warning system.

UPPER STORAGE COMPARTMENT LIGHTING

One (1) OnScene Solutions "Access" LED full length strip light shall be installed in each upper body storage compartment along the hinge. The light strip shall be of maximum length available to fit in the compartment.

The lights shall be on a separate circuit, activating only those lights that have an open compartment door.

HOSE STORAGE

A hose bed shall be provided and installed with the minimum capacity as required by (NFPA) 1901, Standard for Automotive Fire Apparatus.

The hose bed shall have a slotted .25 inch (6.35 mm) aluminum flooring installed to allow drainage through the tank cavity to the ground below.

The aluminum flooring shall be manufactured in discrete sections to allow for ease of removal and stability. The area shall be free of sharp edges to protect the hose when loading and unloading.

HOSE BED EXTENSION

A 5.00 inch (127.00 mm) deep hose bed extension shall be provided at the rear of the hosebed. The extension shall be constructed of .188 inch (4.78 mm) embossed diamond plate and shall be as wide as the hose bed.

HOSE BED AREA

The hose bed area of the apparatus shall be overlaid with brushed stainless steel material.

HOSE BED AREA TRIMMED W/ BRUSHED SST

The vertical corners at the back hose bed shall be trimmed with brushed stainless steel. The trim shall extend from the hose floor level up to the top edge of the body side.

HOSE BED WALL CAP

The top rail on the hose bed side walls shall have a trim cap fabricated of 16 gauge brushed 304L stainless steel. The cap shall run the entire length of the hose bed side wall and shall provide a smooth surface with a highly finished appearance. It shall extend down at least 1.00 inch on each side of the hose bed side wall.

HOSE BED WALL HEIGHT

The walls of the hose bed shall be 90.00 inches (2.29 m) tall, measured from the bottom edge of the compartments to the top flange.

'A' FRAME HOSE BED COVER

There shall be a double door cover provided and installed which overlays a tubular structure for the hose bed.

Each cover shall be capable of supporting 600 pounds (272 kg) while standing on the cover. Each cover shall be capable of being opened independently and rest on a tubular structure which runs down the middle of the hose bed with a truss support at the rear of the apparatus. The covers in the closed position shall be higher in the center of the hose bed than they are at the hinged end to create an 'A' frame appearance and to aid in water runoff.

The front and rear of hose bed covers shall have vertical end caps that extend down to create a level line of diamond plate the width of the covers.

The doors shall be fabricated of .125 inch (3.18 mm) embossed aluminum diamond plate with full length two-piece stainless steel piano hinges.

The hose bed covers shall be wired to the hazard light in chassis cab. Inductive proximity

switches shall be installed at the hose bed cover door hinges. If the door is not properly closed with the parking brake released, it shall activate the “hazard light” in the cab to alert the crew.

PNEUMATIC ACTUATION

The hose bed covers shall be supplied with two (2) pneumatically actuated cylinders, to assist in lifting and lowering the hose bed covers.

The pneumatic actuation device shall allow adjustment of the rate of speed for lift or lowering. The cylinders shall be equipped with low temperature seals, to extend operation down to -40 degrees Fahrenheit.

There shall be one black paddle switch for the cover assembly located at the left rear of the body.

CHROME HANDLES

Two (2) 7.00 inch (177.80 mm) chrome handles shall be provided and installed on top of the hose bed covers, one (1) each cover, accessible from the front. There will also be two (2) 18" knurled aluminum (non lit) handrails mounted to the rear face of the "A" frame. .

REAR HOSE BED RESTRAINT

The dealer shall provide a means of restraining the hose at the rear of the hose bed to prevent inadvertent deployment of hose during transit.

LED HOSE BED COVER LIGHTING

Two (2) OnScene "Access" LED strip lights of equal length shall be mounted to the underside of each hose bed cover.

The lights shall be on a circuit and turning on only when the covers are opened.

HOSE BED DUNNAGE AREA

A vertical bulkhead shall be provided and installed at the front of the hose bed area, behind the water tank fill tower, forming a storage area that is separated from the hose bed.

The rear face of the bulkhead shall serve as a mounting surface for the hose bed dividers, resulting in the ability to move any hose bed divider across the entire width of the hose bed.

REINFORCED HOSE BED DIVIDER WITH HAND CUTOUT

There shall be a full height adjustable reinforced hose bed divider provided and installed in the hose bed area of the apparatus body.

The divider shall be fabricated of .25 inch (6.35 mm) thick aluminum plate with a double sided reinforcement and attached to the adjustable slide rails. The rear of the divider shall have a radius to provide a smooth corner and a hand cut out to aid in access to the hose bed area. The top and rear edges shall be reinforced with 1.00 inch (25.40 mm) round aluminum tubing for

extra rigidity. Hose payout shall be unobstructed by the divider.

There shall be a total of two (2) provided and installed in the hose bed.

HOSE LOAD

The hose bed shall accommodate the following hose loads:

BAY 1:

-250 feet of 2.50 inch hose single stacked.

BAY 2:

-1000 feet of 5.00 inch hose

BAY 3:

-300 feet of 2.50 inch hose triple stacked

TANK CAPACITY

The tank shall be 500 gallons (1893 liters) in capacity. The tank shall be "L" shapped to allow the lowest hose bed possible.

PRO POLY POLYPRENE TANK

The water tank shall be designed to utilize cavities that have commonly been wasted space. The water tank shall extend up and over the rear center compartment to just behind the rear body wall. The water tank shall fill the void between the main hose bed floor and the top of the rear center compartment. This tank design shall provide for a lower overall tank height, resulting in a lower overall main hose bed height. In addition, this design shall create a lower center of gravity of the vehicle, for improved vehicle handling.

TANK CONSTRUCTION

The booster tank shall be constructed of .50 inch (12.70 mm) thick Polyprene sheet stock which is a non-corrosive stress relieved thermoplastic. It shall be designed to be completely independent of the body and compartments. All joints and seams are extrusion welded and/or contain the "Bent Edge" and tested for maximum strength and integrity. The top of the booster tank is fitted with lifting eyes designed with a 3 to 1 safety factor to facilitate tank removal.

COVER

The tank cover shall be constructed of .50 inch (12.70 mm) thick Polyprene and shall be recessed. A minimum of two lifting dowels shall be drilled and tapped .50 inch (12.70 mm) x 2.00 inch (50.00 mm) to accommodate the lifting eyes.

BAFFLES

The swash partitions shall be manufactured from .50 inch (12.70 mm) Polyprene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments to provide maximum water flow. All swash partitions interlock and are welded to one another as well as to the walls of the tank.

MOUNTING

The tank shall have a reinforced .75 inch (19.10 mm) floor for added strength and durability. The tank shall be isolated from the body substructure cross members with .50 inch (12.70 mm) x 2.50 inch (65.00 mm) rubber strips that are 60 durometer in hardness. The tank shall sit nested inside the center body substructure and shall be completely removable without disturbing the body side panels. Tank stops on all four sides will keep the tank from shifting front to back or side to side.

TANK WARRANTY

A lifetime tank warranty will be provided by the tank manufacturer, Pro Poly.

Please see the official warranty document in the appendix (attached) for specific details.

FILL TOWER

The fill tower opening shall be approximately 13.00 inches (330.20 mm) x 12.00 inches (304.80 mm).

The tower will have a .25 inch (6.40 mm) thick removable Polyprene screen and a Polyprene hinged type cover that will open if the tank is filled at an excess rate. There shall be a removable .25 inch (6.40 mm) thick Polyprene screen to prevent debris from falling into the tank.

The fill tower shall have a 4.00 inch (100.00 mm) overflow that will discharge underneath the tank, behind the rear axle(s), avoiding the chassis fuel tank and suspension components where applicable. The overflow shall terminate above the tank water level when filled to the rated capacity.

FILL TOWER LOCATION

The fill tower shall be located to the left side at the front of the hose bed.

SUMP

The sump will be constructed in an 8.00 inch (203.20 mm) x 16.00 inch (406.40 mm) x 3.00 inch (77.00 mm) deep area.

The construction material shall utilize .50 inch (12.70 mm) Polyprene and be located in line with the tank suction valve. There shall be a 4.00 inch (100.00 mm) schedule 40 Polyprene tube installed that will run from the suction outlet to the sump location. The tank will have an anti-swirl plate located approximately 2.00 inch (50.00 mm) above the sump.

SUMP PLUG

The sump shall have a 3.00 inch (77.00 mm) plug for use in draining and cleaning out the tank.

OUTLETS

In addition to the tank suction valve outlet located in the sump, there shall be an outlet provided for the tank fill valve. If there are any additional options selected (such as an extra tank suction or direct tank inlets), there shall be additional outlets provided to accommodate these items.

LADDER COMPARTMENT

The ground ladders shall be stored within a compartment installed beside the booster tank.

All items shall be stored in their own independent section to allow one item to be removed without disturbing another. There shall be polypropylene slide angles installed in each section where applicable, and for the ladders to slide on. There shall be a stop in the front of each section to prevent the items from sliding forward.

LADDER COMPARTMENT MATERIAL

The ground ladder compartment shall be fabricated of .125-inch smooth aluminum.

LADDER COMPARTMENT LOCATION

The ground ladder compartment shall be mounted vertically on the right side of the water tank.

LADDER COMPARTMENT OPEN END

The compartment shall be enclosed through the tank and open at the pumphouse end; where "stops" will be incorporated to prevent the ladders from sliding forward and damaging internal pumphouse components.

LADDER COMPARTMENT DOOR HINGE LOCATION

The door hinge shall be mounted vertically across the inboard edge of the compartment door opening.

LADDER COMPARTMENT DOOR

The door material shall match the rear overlay material. The door shall have two (2) push button type latches installed with a chrome handle centered between the push button latches.

If the door is not properly closed and the parking brake is released, it shall activate the “hazard light” in the cab to alert the crew.

LADDER COMPARTMENT DOOR REFLECTIVE CHEVRON

The ladder compartment door shall be left unfinished and include retro-reflective chevron material matching the rear of the apparatus.

LADDER COMPLEMENT

The following ladders shall be supplied with the apparatus:

One (1) Duo-Safety 24 foot (7.0 m) two (2) section aluminum extension ladder(s), model 900A.

One (1) Duo-Safety 14 foot (4.0 m) aluminum roof ladder(s) with double end hooks, model 775DR.

One (1) Duo-Safety 10 foot (3.0 m) aluminum attic ladder(s), model 585A.

PIKE POLE STORAGE

There shall be three (3) tubes provided for storage of the pike poles installed with the ground ladder complement. The hooks shall be:

One (1) 6' New York Roof Hook w/prying end no "D" handle
One (1) 8' New York Roof Hook w/prying end no "D" handle
One (1) 12' New York Roof Hook w/prying end no "D" handle

The pike poles shall be supplied and installed by the Fire Department before the apparatus is placed into service.

STORAGE ABOVE LADDER COMPARTMENT

The inner side wall of the ladder compartment shall be extended vertically to the same height as the body side sheet or as high as permitted by design to create a dunnage area above the ground ladder compartment.

This storage area shall be open to the top and to the rear.

Where applicable by design, the construction style of the extension shall be similar to hose bed divider style if provided. The inboard face of the sheet shall be overlaid with matching material type of the hose bed interior side sheets.

There shall be slotted hose bed flooring installed with approximately 1.00 inch clearance above the ladder box allowing for drainage.

COMPARTMENT UNISTRUT

Vertically mounted Unistrut shall be installed in all apparatus body compartments, in the upper and lower sections, to accommodate the installation of shelves, trays, and or other miscellaneous equipment.

OVER-WHEEL COMPARTMENT PARTITIONS- PARTIAL FRONT & FULL REAR

Compartment partitions fabricated of the same material as the body shall be permanently installed in the left over-wheel compartment, right over-wheel compartment, or both where applicable by design.

The partial-height partition shall be installed flush to the forward frame opening and the full-height partition shall be installed flush to the rearward frame opening. The partitions shall include slots cut into the partitions allowing 8.00 inches of vertical adjustment for the installation of shelves if specified.

The partitions shall aid in keeping loose equipment from falling into the fore and aft compartments.

Vertical uni-strut will not be installed in the over-wheel compartments or the upper rear wall of the forward full height compartments.

SHELVING

The shelving shall be made out of .190 inch (4.83 mm) smooth aluminum sheet material with a formed 2.00 inch (50.80 mm) lip on the front and back.

The side mounting brackets shall be provided for vertical adjustment.

Standard manufacture shelf construction capacity ratings are as follows, any requested change to the manufacture's standard design may affect/reduce the ratings accordingly:

Shelving shall be rated at a capacity of 200 pounds (90.72 kg) and applicable to the design configuration.

The following shelving shall be provided:

UPPER HALF DEPTH SHELVING

A full width x half depth shelf shall be provided and installed in the upper area of the compartment specified.

There shall be a total quantity of five (5) provided.

- One (1) located in the L-2 compartment.
- One (1) located in the L-3 compartment.
- One (1) located in the R-1 compartment.
- One (1) located in the R-2 compartment.
- One (1) located in the R-3 compartment.

LOWER FULL DEPTH SHELVING

A full width x full depth shelf shall be provided and installed in the lower area of the compartment as specified.

There shall be a total quantity of two (2) provided.

- One (1) located in the L-1 compartment.

- One (1) located in the L-3 compartment.

ROLL OUT TRAY(S)

Each tray shall be fabricated of .19 inch (4.83 mm) thick 3003 grade or higher aluminum sheet material with four (4) 3.00 inch (76.20 mm) side flanges, corner welded for maximum strength and shall be as wide and as deep as compartment allows.

The following shall be supplied:

ROLL-OUT ASSEMBLY/ONSCENE

The floor mounted tray shall be full width and shall be secured to an (OnScene) rollout slide system constructed of anodized aluminum extrusions and assembled using stainless steel fasteners (no welds).

The slide shall use a three extrusion rail design utilizing twelve to sixteen (12-16) urethane rollers. The roller shall contain two (2) precision roller bearings mounted in an aluminum hub with a molded on urethane cover. The slide shall have a cable operated, spring loaded latch complemented by a large hand opening and red pull handle (Pull to Release). The slide shall lock in the closed and full extension positions.

The tray shall have a 1000# capacity and 100% extension.

There shall be a total quantity of two (2) provided.

- One (1) located in the L-3 compartment.

- One (1) located in the R-3 compartment.

ROLL-OUT ASSEMBLY/AUSTIN

The floor mounted tray shall be full width and shall be secured to an Austin Hardware 22.00 inch (558.80 mm) long ball bearing "heavy duty" slide assembly. The slide assemblies shall incorporate cadmium plated ball bearing roller slides and a lock-in, lock-out front drawer release system (FDR).

The tray shall have a 300# capacity and 100% extension.

There shall be a total quantity of two (2) provided.

- One (1) located in the L2 compartment.

- One (1) located in the R2 compartment.

SHELF AND TRAY FINISH

Any shelf or roll-out tray installed shall have a dual-action sanded finish applied on the front and side faces.

FOLDING STEPS

Cast Products, Inc. model #SP6610-1CH dual LED illuminated folding steps, made of high strength die cast aluminum with a protective chromed coating, pyramid tread platform, conforming to current NFPA requirements, shall be provided and installed on the apparatus as specified.

The steps shall have a minimum of 46 sq. inches of surface area capable of sustaining a 1200 lb. static load. The steps shall be mounted no more than 18" inches between each step.

STEP LOCATION

Three (3) folding steps shall be installed on the right forward vertical wall of the front compartment.

10" HANDRAILS

One (1) 10.00 inch long by 1.25 inch diameter handrail constructed of extruded black aluminum with a knurled grip, full length red reflective strip and full length illuminated LED light strip shall be installed in a location above the forward step(s) and in accordance with (NFPA) 1901, Standard for Automotive Fire Apparatus, standard requirements. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

Each handrail LED light strip specified shall be white/clear in color.

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

STEP LOCATION

Two (2) folding steps shall be installed on the right rear vertical face of the body.

10" HANDRAIL

One (1) 10.00 inch long by 1.25 inch diameter handrail constructed of extruded aluminum with a knurled grip, full length red reflective strip and full length illuminated LED light strip shall be installed in a location above the rearward step(s) and in accordance with (NFPA) 1901, Standard for Automotive Fire Apparatus, standard requirements. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

Each handrail LED light strip specified shall be white/clear in color.

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

STEP LOCATION

Three (3) folding steps shall be installed on the left forward vertical wall of the front compartment.

10" HANDRAILS

One (1) 10.00 inch long by 1.25 inch diameter handrail constructed of extruded black aluminum with a knurled grip, full length red reflective strip and full length illuminated LED light strip shall be installed in a location above the forward step(s) and in accordance with (NFPA) 1901, Standard for Automotive Fire Apparatus, standard requirements. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

Each handrail LED light strip specified shall be white/clear in color.

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

HANDRAILS KNURLED ALUMINUM ILLUMINATED

Handrails shall be 1.25 inches in diameter, constructed of extruded black aluminum with a knurled grip, full length red reflective strip and full length illuminated LED light strip.

There shall be a 2.00 inch minimum clearance between the handrail and the body. The light shall illuminate an area adjacent to the handrail and in accordance with (NFPA) 1901, Standard for Automotive Fire Apparatus, standard requirements.

The following handrails shall be installed at the approximate lengths noted:

REAR HANDRAIL LOCATION

Three (3) handrails shall be installed on the rear of the apparatus. Each handrail shall be of an adequate length, as available usable space allows, to provide a suitable gripping area for personnel.

Two (2) vertical handrails shall be installed, one on each side, just below the hose bed sides. These vertical handrail(s) shall utilize an offset stanchion with the offset directed away from storage door openings for added clearance, where applicable. The remaining handrail shall be installed horizontally, just below the hose bed area.

Each handrail LED light strip specified shall be white/clear in color.

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

TOW EYES

There shall be two (2) rear tow eyes installed to the frame rails, one each side, accessible below the rear of the apparatus.

They shall be manufactured of 1.00 inch plate steel and each plate shall be bolted to the chassis frame rail with a minimum quantity of six (6) grade 8 bolts. The two plates shall be anchored together with 1.00 inch steel tubing to prevent swaying of the frame rails during a towing operation. All steel components shall be painted black.

LOW-VOLTAGE ELECTRICAL SYSTEM

The apparatus shall be equipped with a Logic Controlled, Low-Voltage (12v) Electrical System, compliant with the latest revision of the (NFPA) 1901, Standard for Automotive Fire Apparatus.

The system shall be capable of performing total load management, load management sequencing, and load shedding via continuous monitoring of the low-voltage electrical system. In addition, the system shall be capable of switching loads (similar to operating as an emergency warning lamp flasher) eliminating the dependency on many archaic electrical components such as conventional flasher modules. The system shall also incorporate provisions for future expansion or system modification.

The low-voltage electrical system shall be designed to distribute the placement of electrical system hardware throughout the apparatus thereby enabling a smaller, optimized wire harness. The programmable, logic controlled system shall eliminate redundant electrical hardware such as extra harnesses, circuit boards, relays, circuit breakers, and separate electrical or interlock subsystems and associated electronics for controlling various electrical loads and inputs.

As-built electrical system drawings and an apparatus-specific reference of I/O shall be furnished in the final delivery manuals. These drawings shall illustrate the electrical system broken down into separate functions, or small groups of related functions. Drawings shall depict circuit numbers, electrical components and connectors from beginning to end. **A single drawing for all electrical circuits installed by the apparatus manufacturer shall not be accepted**.

MULTI-PLEXED ELECTRICAL WARRANTY

A four (4) year limited (V-MUX) multiplex system warranty, of Weldon Technologies, Inc.; shall be provided by the apparatus manufacture for parts and labor, while under normal use and service; against mechanical, electrical and physical defects from the date of installation.

The warranty shall exclude; sensors, shunt interface modules, serial or USB kits, transceivers, cameras, GPS, and electrical display screens, which shall be limited to a period of one a (1) year repair parts and labor from the date of installation.

ELECTRICAL SYSTEM POWER UP WITH BATTERY

The Spartan provided electrical system shall be powered up with the master battery disconnect.

NODE

An electrical distribution node or relay shall be installed in the below locations of the apparatus body.

The pump node shall be mounted as high as practical in the full depth portion of the right front compartment.

The rear body nodes shall be mounted as high and as far rearward as practical on the back wall of the rearmost compartment.

A protective cover shall be installed to prevent damage to the node or electrical system during equipment installation and or removal. Node covers shall be approximately 16.00 to 22.00 inches in length with an inspection hole positioned for view of the node indicator LED lights. The finish of the cover shall match the compartments interior finish. Node covers will not include any type of shelve mounting structure and shall limit the height of unistrut or shelf height within the compartments.

PERIMETER LIGHTS LOCATION

There shall be four (4) underbody perimeter lights installed on the apparatus positioned to provide illumination to the immediate ground area around the unit.

One (1) under each side of the pumphouse running boards and two (2) under the rear tailboard.

PERIMETER LIGHTS

The underbody perimeter lights provided will be TecNiq model T44 series, 4" round, 8 diode LED lights.

PERIMETER LIGHTS ACTIVATION

The perimeter lights under the body shall illuminate the area with the activation of the chassis ground lights.

UPPER LIGHTING PACKAGE

The following NFPA lighting package, manufactured by Whelen, shall be supplied and installed in the upper areas of the vehicle.

UPPER ZONE B&D-FORWARD:

There shall be two (2) Whelen model M9 series LED lights with chrome bezels provided and installed with the apparatus.

There shall be one (1) each side of the body in the upper forward corners.

SIDE WARNING LIGHTS FLASH

The upper side lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The warning lights shall be set to emit the "DoubleFlash 150" in/out flash pattern.

SIDE WARNING LIGHTS COLOR

The upper warning lights mounted on the side positions shall be red with clear lenses.

UPPER ZONE B&D-REAR:

There shall be two (2) Whelen model M9 series LED lights with chrome bezels provided and installed with the apparatus.

There shall be one (1) each side of the body in the upper rear corners.

SIDE WARNING LIGHTS FLASH

The upper side lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The warning lights shall be set to emit the "DoubleFlash 150" in/out flash pattern.

SIDE WARNING LIGHTS COLOR

The upper warning lights mounted on the side positions shall be red with clear lenses.

UPPER SIDE WARNING LIGHT SWITCH E-MASTER/VISTA

The upper side warning lights shall be controlled through the master warning switch and a secondary side warning switch located on the Vista display control screen. The switches shall be clearly labeled for ease of identification.

UPPER ZONE C:

There shall be two (2) Whelen model L31H*FN beacons with 360 degree LED lights, provided and installed on the apparatus.

One (1) each side on the rear upper outboard corners of the apparatus.

REAR WARNING LIGHTS COLOR

The upper warning lights mounted at the rear shall be red with clear lenses.

LIGHT MOUNT LOCATION

The upper ZONE C specified lights shall be mounted directly to the horizontal body surface as far rearward as possible.

AUXILIARY UPPER ZONE C:

There shall be two (2) Whelen model M6 series LED lights with chrome bezels, one (1) each side, provided and installed with the apparatus.

REAR WARNING LIGHTS FLASH

The rear upper lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The warning lights shall be set to emit the "DoubleFlash 150" in/out flash pattern.

REAR WARNING LIGHTS COLOR

The upper warning lights mounted at the rear shall be red with clear lenses.

UPPER REAR WARNING LIGHT SWITCH E-MASTER/VISTA

The upper rear warning lights shall be controlled through the master warning switch and a secondary rear warning switch located on the Vista display control screen. The switches shall be clearly labeled for ease of identification.

LOWER LED WARNING LIGHTING

The following NFPA lighting package, manufactured by Whelen, shall be supplied and installed in the lower areas of the vehicle.

LOWER ZONE B&D:

There shall be two (2) Whelen model M6 series LED lights with chrome bezels, one (1) each side, provided and installed with the apparatus.

SIDE WARNING LIGHTS FLASH

The lower side lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The warning lights shall be set to emit the "DoubleFlash 150" in/out flash pattern.

SIDE WARNING LIGHTS COLOR

The lower side warning lights mounted on the side positions shall be red with clear lenses.

SIDE WARNING LIGHTS LOCATION

The warning lights on the side of the apparatus shall be mounted at the pump compartment.

AUXILIARY WARNING LIGHTS

There shall be four (4) full length Whelen Tracer Duo LED light strips provided and installed on the apparatus under the L/R 1 and L/R3 Compartments.

The tracers shall be in place of the side rub rails. They shall be Solid white when the park brake is applied and shall alternate red/white when the E-Master is on.

Each Tracer light shall be recessed in the poly rub rails (see Colleyville 220031).

SIDE WARNING LIGHTS FLASH

The lower side lights shall be Solid white when the park brake is applied and shall alternate red/white when the E-Master is on.

SIDE WARNING LIGHTS COLOR

The lower side warning lights mounted on the side positions shall be red with clear lenses.

LOWER ZONES B&D CAST ALUMINUM ANGLED LIGHT HOUSING WITH PAINTED INSERT

A cast aluminum light housing with painted outward facing inserts, shall be installed for the rearmost warning light in zones B&D. The housing will ensure the light is mounted as far rearward as possible on the tailboard.

The inserts shall be painted to color match the body.

LOWER SIDE WARNING LIGHT SWITCH E-MASTER/VISTA

The lower side warning lights shall be controlled through the master warning switch and a secondary side warning switch located on the Vista display control screen. The switches shall be clearly labeled for ease of identification.

LOWER ZONE C:

There shall be two (2) Whelen model M6 series Super-LED lights with chrome bezels, one (1) each side, on provided and installed on the rear of the body.

REAR WARNING LIGHTS FLASH

The lower rear lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The warning lights shall be set to emit the “DoubleFlash 150” in/out flash pattern.

REAR WARNING LIGHTS COLOR

The lower rear warning lights mounted at the rear shall be red with clear lenses.

LOWER REAR WARNING LIGHT SWITCH E-MASTER/VISTA

The lower rear warning lights shall be controlled through the master warning switch and a secondary rear warning switch located on the Vista display control screen. The switches shall be clearly labeled for ease of identification.

LED REAR TAIL LIGHT ASSEMBLY

There shall be Whelen M6-Series Super LED rear tail light assemblies provided and installed with the apparatus, one (1) each side at the rear.

The following shall be installed in the order as specified from top to bottom:

One (1) #M6BTT LED red brake light
One (1) #M6T LED series amber turn signal light
One (1) #M6 BUW LED clear back-up light

MOUNTING FLANGES

There shall be individual chrome bezels provided for each light of the tail light assembly.

REAR TAIL LIGHTS COLOR

The tail lights mounted at the rear shall have clear lenses.

BACKUP LIGHTS

The backup lights shall illuminate when the apparatus is placed in reverse.

LED DOT LIGHTING

There shall be a total of eleven (11) red clearance lights and two (2) amber clearance lights installed on the apparatus.

There shall be seven (7) red clearance lights located on the rear of the apparatus, three (3) of the lights shall be mounted on the rear of the apparatus center location, for use as identification lamps, two (2) additional lights shall be located on the rear outboard locations, one (1) each side as high as possible. Two (2) lights shall be mounted on the sides facing the side at the rear corners, for use as clearance lamps.

On the sides of the apparatus there shall be four (4) red clearance lights, two (2) located on each side of the apparatus in the lower body at the front and rear portion of the rear side compartments. Additionally, the sides of the apparatus shall have two (2) amber clearance lights installed, one (1) located on each side of the apparatus in the lower body at the front portion of front compartments.

The lights shall be Whelen OS series LED red and amber markers.

LED INTERMEDIATE TURN SIGNAL LIGHTING

There shall be two (2) amber intermediate turn signals and two (2) amber intermediate marker lights on the sides of the apparatus (one (1) each per side) between the front and rear axles.

The lights shall be Whelen OS series LED amber markers with black bezels.

INTERMEDIATE TURN SIGNALS

The intermediate turn signals will flash with the turn indicators.

REAR DIRECTIONAL LIGHTBAR

There shall be eight (8) rear directional lights provided and installed on the rear of the apparatus integrated to the rear face of hose bed cover vertical end cap.

The lights shall be Whelen model #WIONSMCA LED ION amber lights with clear lenses and black bezels, and mounted equally spaced, four (4) lights on each end cap.

The back of the hose bed cap shall be boxed in to provide protection and strength for the lights. The back of the protection panel shall be angled to provide protection when hose is deployed in case of contact. This protection panel shall be constructed of smooth aluminum diamond plate.

The lights shall be controlled by a Whelen TACTL5 control head.

RDL CONTROL HEAD MOUNTING LOCATION

Rear Directional Lightbar control head shall be recess mounted in the center rocker panel.

REAR VIEW CAMERA LOCATION

A camera shipped loose with the chassis shall be mounted at the center location to the underside of the hose bed extension at the rear of the apparatus body for maximum viewing capability.

SIDE SCENE LIGHT LOCATION

There shall be two (2) scene lights installed on the body side of the apparatus, one (1) on each side at the rear corner of the body side walls.

The scene lights on the side walls shall be positioned inboard of the warning lights specified.

SCENE LIGHT MODEL

FireTech Guardian Elite model #FT-GESM series LED scene lighting shall be surface mounted on the apparatus.

Each lamp head shall have one (1) 12v LED panel at 125 watts total. The light head shall draw 10.0 amps and generate 12,290 effective raw lumens. Each LED panel shall be mounted within

the chrome housing. Each lamp head shall be no more than 8.50 inches in height by 10.51 inches in width.

BODY SIDE SCENE LIGHT ACTIVATION

The scene lighting shall be activated with the chassis side scene lights.

REAR SCENE LIGHT LOCATION

There shall be two (2) scene lights installed on the rear facing vertical surface of the body, one (1) on each side.

The scene lights on the rear vertical walls shall be positioned far outboard on each side below the warning lights specified.

SCENE LIGHT MODEL

FireTech Guardian Junior model #FT-GSMJR series LED scene lighting shall be surface mounted on the apparatus.

Each lamp head shall have one (1) 12v LED panel at 40 watts total. The light head shall draw 3.33 amps and generate 5,000 raw lumens. Each LED panel shall be mounted within the chrome housing. Each lamp head shall be no more than 5.05 inches in height by 7.41 inches in width.

REAR SCENE LIGHT ACTIVATION

The rear scene lighting shall be activated by a virtual button on the **'VISTA'** display control screen. The scene shall also be interlocked with the park brake.

The switch shall be labeled as follows:

Rear Scene

RECEPTACLE INSIDE EMS COMPARTMENT

One (1) receptacle shall be provided and installed inside the chassis cab EMS compartment. The receptacle shall be low on the back wall and to the left side of the compartment.

RECEPTACLE TYPE

The receptacle(s) shall be type NEMA 5-20 120V/20A single receptacle with a cover.

RECEPTACLE POWER

The previously described outlet(s) shall be powered by the shoreline connection and shall be live when the shoreline power is provided.

LINE VOLTAGE OUTLET L-3

The L-3 body compartment shall be equipped with the following receptacle(s).

A total of one (1) shall be provided.

The outlet shall be located in the above compartment, as outboard as practical on the middle portion of the forward wall.

RECEPTACLE TYPE

The receptacle(s) shall be type NEMA 5-20 120V/20A duplex receptacle with a cover.

RECEPTACLE POWER

The previously described outlet(s) shall be powered by the shoreline connection and shall be live when the shoreline power is provided.

REFLECTIVE STRIPING

The reflective striping shall be supplied and installed by the Dealer.

REAR RETRO-REFLECTIVE CHEVRON STRIPING

A minimum of 50 percent of the rear-facing vertical surface, visible from the rear of the apparatus, shall be equipped with Diamond Grade, retro-reflective striping in a chevron pattern, sloping downward and away from the centerline of the vehicle at an angle of 45-degrees.

The stripe shall be 6.00 inches (152.40 mm) wide alternating in colors.

RETRO-REFLECTIVE STRIPING-SEVERE DUTY STEEL FRONT BUMPER

The vertical surfaces of the steel front bumper shall be equipped with Diamond Grade, retro-reflective striping in a chevron pattern, sloping downward and away from the centerline of the bumper at an angle of 45-degrees. The stripe shall be 6.00 inch (152.40 mm) wide alternating in colors.

CHEVRON COLOR

The retro-reflective chevron striping shall be red/black in color. Will be non NFPA color as approved by the Fire Department.

FIRE DEPARTMENT SUPPLIED LETTERING

The apparatus lettering shall be provided and installed by the Fire Department after final delivery of the completed apparatus.

FIRE DEPARTMENT SUPPLIED DECALS

The apparatus decals shall be provided and installed by the Fire Department after final delivery

of the completed apparatus.

LICENSE PLATE MOUNTING

A Cast Products, model LP0004-1-B, cast aluminum fully enclosed license plate bracket shall be installed. The bracket shall incorporate a clear LED light (WL0501) to illuminate the license plate and meet DOT requirements.

LICENSE PLATE BRACKET LOCATION

The above specified license plate bracket shall be installed at the back of the apparatus on the right side. The bracket shall be mounted to meet all applicable DOT standards.

DEALER SUPPLIED EXTRAS

EMS CABINETS

There will be two (2) EMS cabinets provided and installed on the apparatus. The cabinets will include one (1) shelf and cargo netting.

LISTA TOOL BOX

There will be a lista tool box provided and installed on the apparatus.

HOSE RESTRAITS

There will be a custom hose restraints provided and installed on the apparatus for the crosslays/speedlays and hose bed.

PACK TRAC

There will be a performance advantage mounting system provided and installed in six compartments and the back of the engine tunnel on the apparatus.

CUSTOMER SUPPLIED KNOX BOX INSTALLED

The customer supplied Knox Box will be installed in the apparatus.

JUNK TRAYS

There will be two (2) junk trays provided and installed on the back of the engine tunnel.

FUEL CAN MOUNT

There will be a fuel tank mount provided and installed on the apparatus.

ENGINE TUNNEL SHELF

There will be engine tunnel shelf provided and installed on the back of the engine tunnel.

TFT HURRICANE RC DECK GUN

There will be a TFT Hurricane RC deck gun with 18” extend-a-gun provided and installed on the apparatus.

CUSTOM ALUMINUM TOOL MOUNT

There will be a custom 3/16” aluminum rescue tool tray provided and installed on the apparatus. The tray will be covered in a bed liner material for dupability.

CUSTOM MAP BOOK ORGANIZER

There will be a custom 3/16” aluminum map book tray provided and installed on the apparatus. The tray will be covered in a bed liner material for durability

CUSTOM CRIBBING BOX

There will be a custom cribbing box provided and installed on the apparatus.

SURVIVOR LED FLASH LIGHTS

There will be four (4) survivor and two (2) Vulcan LED flashlights provided and installed on the apparatus.

SETCOM WIRELESS INTERCOM

There shall be a Sitcom Wireless intercom system provided and installed on the apparatus.

MOUNTING OF DEALER SUPPLIED EQUIPMENT

All equipment provided by the dealer will be installed.

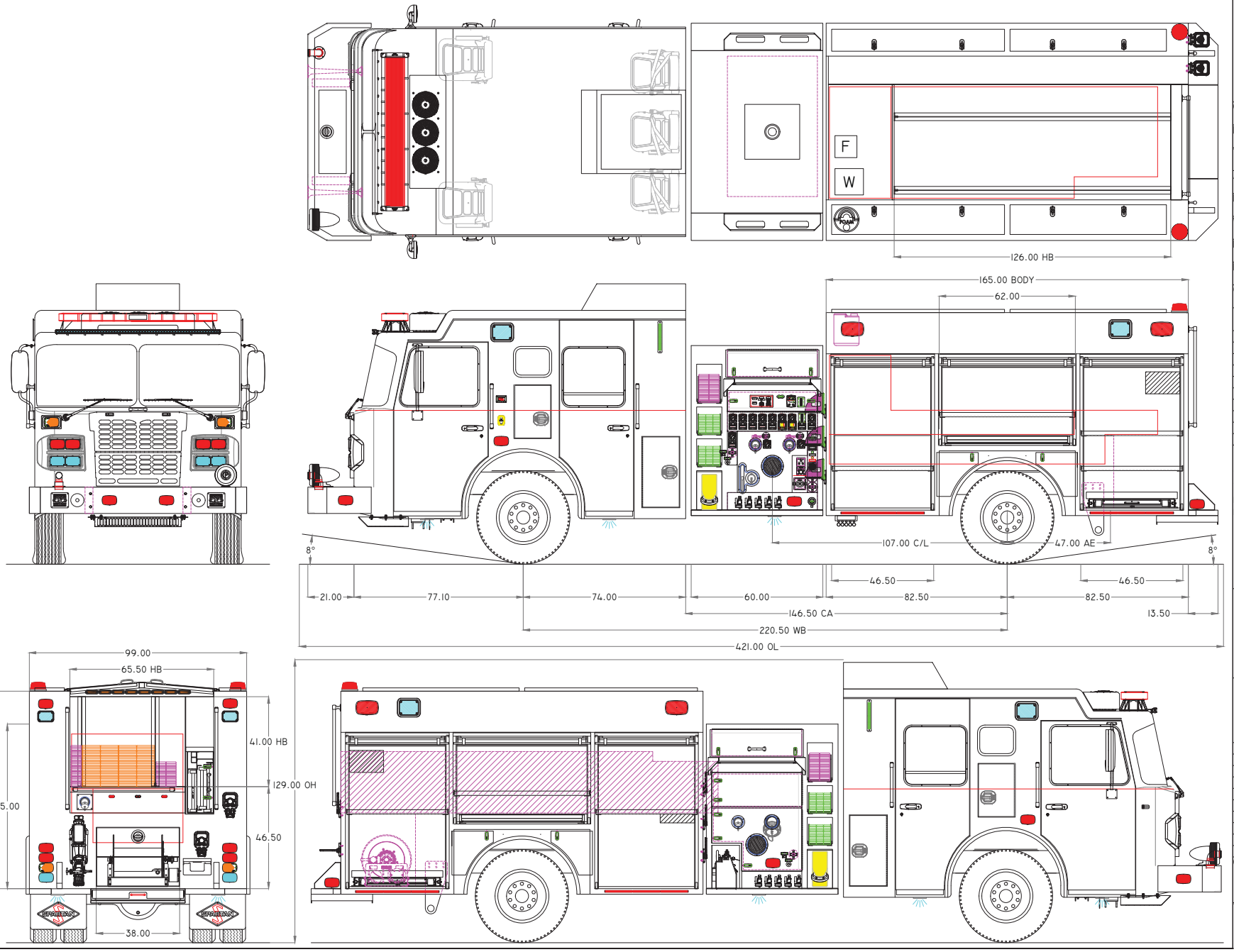
MOUNTING OF CUSTOMER SUPPLIED RADIOS AND MDC

All mobile radios and MDC provided by the customer will be installed by the dealer.

DEALER SUPPLIED EQUIPMENT

Item Number	Description	Ordered	U/M
BUL-ECLPOWERHOUSE	ECLIPSE POWERHOUSE	2	EA
CTL-C60F36	FIBERGLASS HANDLE FLATHEAD AXE	1	EA
CTL-C60P36	FIBERGLASS HANDLE PICKHEAD AXE	1	EA
ELK-S-454	ADJUSTABLE HYDRANT WRENCH	1	EA
ELK-T-464	UNIVERSAL SPANNER WRENCH	2	EA
FHU-PB-30	PRO BAR 30"	1	EA
KEY-DP17-800-ECO-RED-50-ARN	ECO-10 - 1.75" X 50'	17	EA
KEY-DP25-800-ECO-YLW-50-ARN	ECO-10 - 2.5" X 50'	18	EA
KEY-DP50-600-RED-100-STZ	ECO-10 - LDH 5" X 100'	10	EA

KEY-DP50-600-RED-25-STZ	ECO-10 - LDH 5" X 25'	2	EA
KEY-LASER ETCH	ALL COUPLINGS	47	EA
KEY-STENCIL	STENCIL	47	EA
KOC-35R1515-H52	1.5" F NH X 1.5" F NH	2	EA
KOC-35R2525-H52	DOUBLE FM 2.5" X 2.5" ADAPTER	2	EA
KOC-36R1515-H52	DOUBLE MALE 1.5"" ADAPTER	2	EA
KOC-36R2525-H52	DOUBLE MALE 2.5"" ADAPTER	2	EA
KOC-37R2515-H52	2.5"" X 1.5"" REDUCER ADAPTER	2	EA
KOC-CC507-H52	5" STORZ CAP W/ CHAIN	2	EA
KOC-S36S525-H53	5" STORZ X 2.5" M NH RIGID	1	EA
KOC-S54R525-H53	5" STORZ X 2.5" F NH SW RL	1	EA
KOC-SWC-P18	ALUMINUM WHEEL CHOCS STANDARD	2	EA
KOC-WSB-P18	HORIZONTAL MOUNTING BRACKET	2	EA
MET-HYDRANT/SPANNER SET	ONE ADJUSTABLE HYDRANT WRENCH	3	EA
MET-MISC-EQUIPMENT	DELETE KOC-K48-P18	1	EA
MET-SET UP	SCT-X8814025305304	6	EA
PAC-1004-PT	HANDLELOK STRAP MOUNT	9	EA
PAR-22-797E12E	SUPPORTER X2 ALL IN ONE	2	EA
SMC-0322-GG3-010	ROCKER SWITCH FOR A/C	2	EA
SVI-V18-BL-12-AC-SP	18" BATTERY PPV INCLUDES	1	EA
TFT-AB1ST-NX	BALL INTAKE VALVE	2	EA
TFT-AYNJ-NF	GATED WYE 2.5NH X 1.5NH	2	EA
TFT-BGHL-125	ULTIMATIC W/GRIP 1.5NH	1	EA
TFT-CC-300	CREWPROTECT AIR FILTRATION	1	EA
TFT-FS22STACK	1.5" SMOOTH BORE STACK TIP	2	EA
TFT-H-2VOI	DETENT VALVE WITH GRIP	2	EA
TFT-HML-VPGI	MID-MATIC W/GRIP 1.5	5	EA
TFT-UM12-D	TFT DECON PRO-PAK 1" NH INLET	1	EA
TFT-XX-B	BLITZFIRE STORAGE BRACKET	1	EA
ZIA-UH-5-30-2-SFPHS	SCBA WALKAWAY BRACKET	4	EA



SPARTAN REV GROUP

EMERGENCY RESPONSE

CHASSIS:	SPARTAN METRO STAR ELFD 10RR
ENGINE:	CUMMINS L9 450HP
TRANSMISSION:	ALLISON 3000 EVS
AXLES:	21,500# FRONT / 24,000# REAR
MODEL:	STAR PUMPER
WATER/FOAM:	500 / 25 GALLONS
PUMP:	WATEROUS CSU 1750GPM
FOAM SYSTEM:	WATEROUS AQUIS 1.5
GENERATOR:	-

DOOR FRAMED OPENINGS

COMPARTMENT	DOOR FRAMED OPENING
L1	46.5-W x 70.0-H
L2	62.0-W x 40.5-H
L3	46.5-W x 70.0-H
R1	46.5-W x 70.0-H
R2	62.0-W x 40.5-H
R3	46.5-W x 70.0-H
B1	38.0-W x 27.0-H

SPECIAL NOTES:

THE PUMP PANEL LAYOUT IS REFERENCE ONLY. THE LOCATION OF COMPONENTS WILL CHANGES AS REQUIRED FOR DESIGN AND CUSTOMER INPUTS POST THE PRE-CONSTRUCTION MEETING.

CUSTOMER

THIS DRAWING IS A CLOSE APPROXIMATION OF YOUR FIRE APPARATUS. IN ALL CASES WHERE THE DRAWING AND THE WRITTEN SPECIFICATION DIFFER, THE SPECIFICATION SHALL PREVAIL. PLEASE WORK WITH YOUR DEALER TO ASSURE THAT THE WRITTEN SPECIFICATION REPRESENTS WHAT YOU WANT IN YOUR FINISHED PRODUCT. SPARTAN EMERGENCY RESPONSE BUILDS TO THE WRITTEN SPECIFICATION, NOT THE DRAWING TO ASSURE THAT YOUR NEEDS ARE MET.

REV.	DATE	DESCRIPTION	NAME
1	10/08/21	NEW FILES	B.E.H.
0	09/15/21	INITIAL PROPOSAL	R.H.

SCALE: NOT TO SCALE

CUSTOMER: TROPHY CLUB FIRE DEPARTMENT

TRUCK NUMBER: 000000

DEALER: METRO FIRE APPARATUS

STAFF REPORT

October 18, 2021

AGENDA ITEM: Consider and act regarding approval of task order agreement with Halff Associates for professional engineering services for the replacement of the existing 8-inch water lines within Trophy Club Section 8 and Trophy Club Estates Section 5 at a total cost of $68,600 and authorize the General Manager to execute the task order documents.

DESCRIPTION: Halff Associates will provide professional engineering services for the design and bidding for the replacement of approximately 6,750 linear feet of asbestos cement (AC) water lines along and adjacent to Creek Courts Drive and Wilshire Drive as a part of FY 2022 Capital Improvement Projects.

ATTACHMENTS: Halff Task Order Proposal
Water line map

RECOMMENDATION: Approval of Task Order Agreement as stated above as part of FY2022 Capital Improvement Projects.

HALFF

September 28, 2021
P36681.003

Mr. Alan Fourmentin
Trophy Club Municipal Utility District No.1
100 Municipal Drive
Trophy Club, Texas 76262

RE: Proposal for FY 2022 8-Inch Water Line Design

Dear Mr. Fourmentin,

We are pleased to present the following scope of services and fee schedule to provide professional engineering services for the Trophy Club Municipal Utility District No. 1 (District). Per our discussion, the District would like Halff Associates to prepare engineering design plans for the replacement of the existing 8-inch water lines within Trophy Club Section 8 and Trophy Club Estates Section 5.

This contract proposal includes the following items: Attachment 'A' – Scope of Services and Attachment 'B' – Fee Summary. Refer to Halff's Agreement for Professional Engineering Services on a Task Order Basis, executed by the District on October 18, 2018, for the terms and conditions of this proposal. The fees quoted in this proposal will be honored for up to 60 days from the date of this proposal. The signed Agreement by both parties will serve as Notice to Proceed (NTP). Engineering services will begin upon NTP and following the initial meeting with the District. See Attachment 'B' for signature page.

We trust this proposal meets your requirements for this project. We appreciate the opportunity to be of service to you, and trust that our association on this project will be mutually beneficial. Please feel free to contact us if you have any questions or comments concerning this proposal.

Sincerely,

HALFF ASSOCIATES, INC.

Leah M Hodge

Leah M. Hodge, PE, CFM
Project Manager

C: Ron King, PE - Halff

HALFF ASSOCIATES, INC.

4000 FOSSIL CREEK BLVD
FORT WORTH, TX 76137

TEL (817) 847-1422
FAX (817) 232-9784

WWW.HALFF.COM

HALFF

ATTACHMENT 'A'

Scope of Services

Overview

Halff will prepare design plans for 8-inch water lines, an approximate total length of 6,750 lf. The existing asbestos cement (AC) lines will be replaced in-place by AWWA C-900 DR 14 pipe. The District has provided record drawings of the existing water lines. The water lines will be replaced in the existing alignment.

The Crooked Creek Ct. water line replacement will begin at the west cul-de-sac of Crooked Creek Ct and end at the cul-de-sac at the intersection of Crooked Creek Ct and Creek Courts Dr., a total length of approximately 550 lf.

The Creek Courts Dr. replacement will begin at Crooked Creek Ct. and end at Straight Creek Ct., a total length of approximately 2,320 lf.

The Oakmont Dr. replacement will begin at Creek Courts Dr and end at Trophy Club Dr., a total length of 330 lf.

The Roaring Creek Ct. replacement includes the entire cul-de-sac, a total length of 330 lf.

The Rushing Creek Ct. replacement includes the entire cul-de-sac, a total length of 360 lf.

The Spring Creek Ct. replacement includes the entire cul-de-sac, a total length of 260 lf.

The Brook Creek Ct. replacement includes the entire cul-de-sac, a total length of 300 lf.

The Narrow Creek Ct. replacement includes the entire cul-de-sac, a total length of 450 lf.

The Winding Creek Ct. replacement includes the entire cul-de-sac, a total length of 380 lf.

The Wilshire Dr. replacement will begin at Sunset Dr. (between 1035 and 1037 Wilshire Dr.) and end at east cul-de-dac, a total length of 1,470 lf.

Basemap Preparation

No survey will be performed as part of this project. The basemap will be prepared using an aerial image, record drawings, and field verification. GIS property boundaries from the Denton County Appraisal District will be utilized.

Final Design Phase (90% Submittal)

Final plans will be prepared and submitted to the District for review.
The plans will include the following sheets:

1. Cover Sheet with locator map and sheet index.
2. General notes/specifications sheet.
3. Project layout sheet.
4. Water line plan sheets; no profiles.
5. Construction detail sheets.
6. Contract Documents and Specifications (separate document).

Halff will deliver a PDF and two half size (11"x17") hard copies of the Construction Plans to the District for review. Halff will submit an estimate of probable construction cost with the 90% submittal. A review meeting with the District will be conducted at the end of the 90% Design Phase.

Construction Plans (100% Submittal)

District comments will be addressed, and the plans will be submitted for construction. Each plan sheet will be stamped, dated and signed by the Engineer. Contract Documents and Specifications will be prepared. Halff will submit an updated estimate of probable construction cost with the 100% submittal.

Halff will deliver a PDF, and one full size (22"x34") and three half size (11"x17") hard copies of the Construction Plans to the District.

Bidding and Construction Phase Services

Halff will provide bidding and construction phase services, including the following tasks:

1. Provide Link to Bidding Documents and Maintain Planholders List
2. Attend Pre-Bid Meeting
3. Issue Addenda and Respond to Contractor Questions
4. Prepare Bid Tabulation and Letter of Recommendation
5. Prepare Conformed Contract Documents for Execution (4 Originals)
6. Provide Plans for Construction (1-22"x34" and 3-11"x17")
7. Attend Pre-Construction Meeting
8. Review Submittals and Answer RFIs
9. Review Pay Applications
10. Prepare Project Closeout Documents
11. Prepare Record Drawings

Schedule

- Completion of final construction plans and contract documents and specifications (90%): 60 calendar days from notice to proceed.
- Completion of construction plans (100%): 90 calendar days from notice to proceed, excluding District review time.
- Bidding services: 30 calendar days from District's approval of construction plans.

- Construction services: In accordance with construction schedule
- Closure: 30 calendar days from the date of construction completion

Additional services not included in the Scope of Services:

- Geotechnical investigation
- Subsurface Utility Engineering (SUE) services
- Traffic control services
- ROW/Easement services, including temporary right-of-entries
- Public meetings
- Performance of materials testing or specialty testing services
- Services related to submitting for permits (ie. Town, utilities, etc.)
- Services related to survey construction staking
- Construction site visits
- Construction inspection services, including final walk through

HALFF

ATTACHMENT 'B'

Fee Summary

PROPOSED FEE SCHEDULE

I.	Construction Plan Preparation	$54,100 (Lump Sum)
II.	Bidding and Construction Phase Services	$14,500 (Lump Sum)

TOTAL FEE $68,600

This project will be a lump sum fee. The lump sum fee will not be exceeded without prior approval from the District. The lump sum fee will be invoiced monthly based on percent completed. Halff will coordinate with the District to establish the billing schedule.

Direct costs, including printing, plotting, and reproduction, postage, messenger service, specialized equipment (such as GPS), long distance telephone calls and vehicle mileage will be considered reimbursable and will be billed at 1.10 times the direct cost incurred.

Additional services may be requested by the District on a task order basis. Halff will develop a separate scope and fee for each additional service and obtain approval from the District prior to initiating work on the additional services. A summary of current hourly billing rates and current unit pricing schedule is in Halff's Agreement for Professional Engineering Services on a Task Order Basis with the District (dated October 18, 2018).

Unless otherwise stated, fees quoted in this proposal exclude state and federal sales taxes on professional services. Current Texas law requires assessment of sales tax on certain kinds of surveying services but does not require sales taxes on other professional services. In the event that new or additional state or federal taxes are implemented on the professional services provided under this contract during the term of the work, such taxes will be added to the applicable billings and will be in addition to the quoted fees and budgets.

The fees and budgets established above do not include revisions once the project is underway. If revisions are requested, a revision to the scope and budget will be required.

Refer to Halff's Agreement for Professional Engineering Services on a Task Order Basis, executed by the District on October 18, 2018, for the terms and conditions of this proposal. We will proceed upon receiving the signed copy of this proposal. Signature blocks are on the following page.

Submitted:

HALFF ASSOCIATES, INC.

By: _____

Signature

Ron King

Printed Name

W/WW Team Leader

Title

_____

Date

Approved:

TROPHY CLUB MUNICIPAL UTILITY DISTRICT NO.1

By: _____

Signature

_____

Printed Name

_____

Title

_____

Date

FY 2022 Water Line Project

Legend

drawGraphics_poly

User drawn polygons

WaterPipes

0 0.05 0.1

mi

N

Date: 9/28/2021

STAFF REPORT

October 18, 2021

AGENDA ITEM: Consider and act to approve Contract No. 2021092001 with Tyler Technologies Inc. for Utility Billing, Payroll, Finance Management Software and authorize the General Manager to execute the necessary documents.

DESCRIPTION: The District was notified that OpenGov made the decision to no longer support STW and the software will be phased out by 2023. The District has an effective contract until 09/2024 that OpenGov has agreed to mutually terminate without penalty on 9/2022. Staff has reviewed several ERP systems, both on premise and cloud and determined that Tyler Technologies Incode 10 has the most efficient performance at a competitive price.

ATTACHMENT: Tyler Technology License and Agreement and SOW for Incode 10

RECOMMENDATION:

Approval of License and Agreement with Tyler Technologies and SOW for implementation of Incode 10 on premise (option 1), budgeted as part of the FY 2022 Capital Improvements.

Cost Category	Current (STW/OpenGov) ON PREMISE	Option 1 Tyler (Incode 10) ON PREMISE	Option 2 Tyler (Incode 10) IN CLOUD	Option 3 OpenGov IN CLOUD	Option 4 Caselle ON PREMISE
One-Time Cost Summary					
Software License Fees & Solution Support	$ -	$ 76,033	$ 52,659	$ 49,445	$ 86,600
Consulting Implementation & Setup Management	$ -	$ 77,300	$ 77,300	$ 92,500	$ 20,050
Data Conversion & Training Fees	$ -	$ 19,470	$ 19,470	$ -	$ 37,999
Discount	$ -	$ (7,605)	$ (3,395)	$ -	$ (8,660)
Total One-Time Costs	**$ -**	**$ 165,198**	**$ 146,034**	**$ 141,945**	**$ 135,989**
Reoccurring Cost Summary					
Annual Software Licensing & Solution Support	$ 18,811	$ 18,620	$ 52,659	$ 49,445	$ 86,600
Extended Support Services	$ 2,500	$ 4,166	$ -	$ -	$ -
Discount	$ -	$ -	$ (3,395)	$ -	$ (6,785)
Additional Software- Time Management (TCP)	$ 1,550	$ -	$ -	$ 1,550	$ -
Additional Software- Budget (OpenGov)	$ 22,587	$ -	$ -	$ -	$ -
Total Annual Recurring Costs	**$ 45,448**	**$ 22,786**	**$ 49,264**	**$ 50,995**	**$ 79,815**
Initial Term	**3-Year Remaining**	**1-Year**	**3-Year**	**3-Year**	**1-Year**
1st-Year Grand Total Cost	**$ 45,448**	**$ 165,198**	**$ 146,034**	**$ 141,945**	**$ 135,989**
3-Year Estimate *	**$ 140,475**	**$ 212,841**	**$ 249,040**	**$ 248,570**	**$ 302,874**
3-Year Total Cost Increase from Current (STW)	**$ -**	**$ 72,366**	**$ 108,565**	**$ 108,095**	**$ 162,399**

* Estimate includes one-time costs year one and annual software licensing & solution support for years 2-3 plus 3% annual inflation

LICENSE AND SERVICES AGREEMENT

This License and Services Agreement is made between Tyler Technologies, Inc. and Client.

WHEREAS, Client selected Tyler to license the software products and perform the services set forth in the Investment Summary and Tyler desires to perform such actions under the terms of this Agreement;

NOW THEREFORE, in consideration of the foregoing and of the mutual covenants and promises set forth in this Agreement, Tyler and Client agree as follows:

SECTION A – DEFINITIONS

- **"Agreement"** means this License and Services Agreement.
- **"Business Travel Policy"** means our business travel policy. A copy of our current Business Travel Policy is attached as Schedule 1 to Exhibit B.
- **"Client**" means Trophy Club Municipal Utility District No. 1.
- **"Defect"** means a failure of the Tyler Software to substantially conform to the functional descriptions set forth in our written proposal to you, or their functional equivalent. Future functionality may be updated, modified, or otherwise enhanced through our maintenance and support services, and the governing functional descriptions for such future functionality will be set forth in our then-current Documentation.
- **"Defined Named Users"** means the maximum number of named users that are authorized to use the EnerGov labeled modules identified in the Investment Summary, if any.
- **"Developer"** means a third party who owns the intellectual property rights to Third Party Software.
- **"Documentation"** means any online or written documentation related to the use or functionality of the Tyler Software that we provide or otherwise make available to you, including instructions, user guides, manuals and other training or self-help documentation.
- **"Effective Date"** means the date by which both your and our authorized representatives have signed the Agreement.
- **"Force Majeure"** means an event beyond the reasonable control of you or us, including, without limitation, governmental action, war, riot or civil commotion, fire, natural disaster, or any other cause that could not with reasonable diligence be foreseen or prevented by you or us.
- **"Investment Summary"** means the agreed upon cost proposal for the software, products, and services attached as Exhibit A.
- **"Invoicing and Payment Policy"** means the invoicing and payment policy. A copy of our current Invoicing and Payment Policy is attached as Exhibit B.
- **"Maintenance and Support Agreement"** means the terms and conditions governing the provision of maintenance and support services to all of our customers. A copy of our current Maintenance and Support Agreement is attached as Exhibit C.
- **"Order Form"** means an ordering document that includes a quote or investment summary and specifying the items to be provided by Tyler to Client, including any addenda and supplements

thereto.

- **"Statement of Work"** means the industry standard implementation plan describing how our professional services will be provided to implement the Tyler Software, and outlining your and our roles and responsibilities in connection with that implementation. The Statement of Work is attached as Exhibit E.
- **"Support Call Process"** means the support call process applicable to all of our customers who have licensed the Tyler Software. A copy of our current Support Call Process is attached as Schedule 1 to Exhibit C.
- **"Third Party Hardware"** means the third party hardware, if any, identified in the Investment Summary.
- **"Third Party Products"** means the Third Party Software and Third Party Hardware.
- **"Third Party Services"** means the third party services, if any, identified in the Investment Summary.
- **"Third Party Software"** means the third party software, if any, identified in the Investment Summary.
- **"Third Party Terms"** means, if any, the end user license agreement(s) or similar terms for the Third Party Products or other parties' products or services, as applicable, and attached indicated at Exhibit D.
- **"Tyler"** means Tyler Technologies, Inc., a Delaware corporation.
- **"Tyler Software"** means our proprietary software, including any integrations, custom modifications, and/or other related interfaces identified in the Investment Summary and licensed by us to you through this Agreement.
- **"we", "us", "our"** and similar terms mean Tyler.
- **"you"** and similar terms mean Client.

SECTION B – SOFTWARE LICENSE

1. License Grant and Restrictions.

1.1 We grant to you a license to use the Tyler Software for your internal business purposes only, in the scope of the internal business purposes disclosed to us as of the Effective Date. You may make copies of the Tyler Software for backup and testing purposes, so long as such copies are not used in production and the testing is for internal use only.

1.2 Without limiting the terms of Section 1.1, you understand and agree that the Tyler Software set forth in the Investment Summary as subscription or software as a service ("SaaS") do not include perpetual rights. If you do not pay the required annual fee in accordance with the Invoicing and Payment Policy, your right to use the applicable Software will be suspended unless and until payment in full has been made. Tyler Software provided as SaaS is subject to the Tyler SaaS Services Terms and Service Level Agreement found here: https://www.tylertech.com/terms/tyler-saas-services.

1.3 The Documentation is licensed to you and may be used and copied by your employees for internal, non-commercial reference purposes only.

1.4 You may not: (a) transfer or assign the Tyler Software to a third party; (b) reverse engineer, decompile, or disassemble the Tyler Software; (c) rent, lease, lend, or provide commercial hosting services with the Tyler Software; or (d) publish or otherwise disclose the Tyler Software

or Documentation to third parties.

1.5 The license terms in this Agreement apply to updates and enhancements we may provide to you or make available to you through your Maintenance and Support Agreement.

1.6 The right to transfer the Tyler Software to a replacement hardware system is included in your license. You will give us advance written notice of any such transfer and will pay us for any required or requested technical assistance from us associated with such transfer.

1.7 Where applicable with respect to our applications that take or process card payment data, we are responsible for the security of cardholder data that we possess, including functions relating to storing, processing, and transmitting of the cardholder data and affirm that, as of the Effective Date, we comply with applicable requirements to be considered PCI DSS compliant and have performed the necessary steps to validate compliance with the PCI DSS. We agree to supply the current status of our PCI DSS compliance program in the form of an official Attestation of Compliance, which can be found at https://www.tylertech.com/about-us/compliance, and in the event of any change in our status, will comply with applicable notice requirements.

1.8 We reserve all rights not expressly granted to you in this Agreement. The Tyler Software and Documentation are protected by copyright and other intellectual property laws and treaties. We own the title, copyright, and other intellectual property rights in the Tyler Software and the Documentation. **The Tyler Software is licensed, not sold.**

2. License Fees. You agree to pay us the license fees in the amounts set forth in the Investment Summary. Those amounts are payable in accordance with our Invoicing and Payment Policy.

3. Escrow. We maintain an escrow agreement with a third party under which we place the source code for each major release of the Tyler Software. You may be added as a beneficiary to the escrow agreement by completing a standard beneficiary enrollment form and paying the applicable annual beneficiary fee. You will be responsible for maintaining your ongoing status as a beneficiary, including payment of the then-current annual beneficiary fees. Release of source code for the Tyler Software is strictly governed by the terms of the escrow agreement.

4. Limited Warranty. We warrant that the Tyler Software will be without Defect(s) as long as you have a Maintenance and Support Agreement in effect. If the Tyler Software does not perform as warranted, we will use all reasonable efforts, consistent with industry standards, to cure the Defect as set forth in the Maintenance and Support Agreement.

SECTION C – PROFESSIONAL SERVICES

1. Services. We will provide you the various implementation-related services itemized in the Investment Summary and described in the Statement of Work.

2. Professional Services Fees. You agree to pay us the professional services fees in the amounts set forth in the Investment Summary. Those amounts are payable in accordance with our Invoicing and Payment Policy. You acknowledge that the fees stated in the Investment Summary are good-faith estimates of the amount of time and materials required for your implementation. We will bill you

the actual fees incurred based on the in-scope services provided to you. To the extent additional services are needed or requested, they will be added to the Agreement in accordance with subsection (3) below. Any discrepancies in the total values set forth in the Investment Summary will be resolved by multiplying the applicable hourly rate by the quoted hours.

3. Additional Services. The Investment Summary contains, and the Statement of Work describes, the scope of services and related costs (including programming and/or interface estimates) required for the project based on our understanding of the specifications you supplied. If additional work is required, or if you use or request additional services, we will provide you with an addendum or change order, as applicable, outlining the costs for the additional work. The price quotes in the addendum or change order will be valid for thirty (30) days from the date of the quote.

4. Cancellation. We make all reasonable efforts to schedule our personnel for travel, including arranging travel reservations, at least two (2) weeks in advance of commitments. Therefore, if you cancel services less than two (2) weeks in advance (other than for Force Majeure or breach by us), you will be liable for all (a) non-refundable expenses incurred by us on your behalf, and (b) daily fees associated with cancelled professional services if we are unable to reassign our personnel. We will make all reasonable efforts to reassign personnel in the event you cancel within two (2) weeks of scheduled commitments.

5. Services Warranty. We will perform the services in a professional, workmanlike manner, consistent with industry standards. In the event we provide services that do not conform to this warranty, we will re-perform such services at no additional cost to you.

6. Site Access and Requirements. At no cost to us, you agree to provide us with full and free access to your personnel, facilities, and equipment as may be reasonably necessary for us to provide implementation services, subject to any reasonable security protocols or other written policies provided to us as of the Effective Date, and thereafter as mutually agreed to by you and us. You further agree to provide a reasonably suitable environment, location, and space for the installation of the Tyler Software and any Third Party Products, including, without limitation, sufficient electrical circuits, cables, and other reasonably necessary items required for the installation and operation of the Tyler Software and any Third Party Products.

7. Client Assistance. You acknowledge that the implementation of the Tyler Software is a cooperative process requiring the time and resources of your personnel. You agree to use all reasonable efforts to cooperate with and assist us as may be reasonably required to meet the agreed upon project deadlines and other milestones for implementation. This cooperation includes at least working with us to schedule the implementation-related services outlined in this Agreement. We will not be liable for failure to meet any deadlines and milestones when such failure is due to Force Majeure or to the failure by your personnel to provide such cooperation and assistance (either through action or omission).

8. Background Checks. For at least the past twelve (12) years, all of our employees have undergone criminal background checks prior to hire. All employees sign our confidentiality agreement and security policies.

SECTION D – MAINTENANCE AND SUPPORT

This Agreement includes the period of free maintenance and support services identified in the Invoicing and Payment Policy. If you have purchased ongoing maintenance and support services, and continue to make timely payments for them according to our Invoicing and Payment Policy, we will provide you with maintenance and support services for the Tyler Software under the terms of our standard Maintenance and Support Agreement.

If you have opted not to purchase ongoing maintenance and support services for the Tyler Software, the Maintenance and Support Agreement does not apply to you. Instead, you will only receive ongoing maintenance and support on the Tyler Software on a time and materials basis. In addition, you will:

(i) receive the lowest priority under our Support Call Process;
(ii) be required to purchase new releases of the Tyler Software, including fixes, enhancements and patches;
(iii) be charged our then-current rates for support services, or such other rates that we may consider necessary to account for your lack of ongoing training on the Tyler Software;
(iv) be charged for a minimum of two (2) hours of support services for every support call; and
(v) not be granted access to the support website for the Tyler Software or the Tyler Community Forum.

SECTION E – THIRD PARTY PRODUCTS

To the extent there are any Third Party Products set forth in the Investment Summary, the following terms and conditions will apply:

1. Third Party Hardware. We will sell, deliver, and install onsite the Third Party Hardware, if you have purchased any, for the price set forth in the Investment Summary. Those amounts are payable in accordance with our Invoicing and Payment Policy.

2. Third Party Software. Upon payment in full of the Third Party Software license fees, you will receive a non-transferable license to use the Third Party Software and related documentation for your internal business purposes only. Your license rights to the Third Party Software will be governed by the Third Party Terms.

   2.1 We will install onsite the Third Party Software. The installation cost is included in the installation fee in the Investment Summary.

   2.2 If the Developer charges a fee for future updates, releases, or other enhancements to the Third Party Software, you will be required to pay such additional future fee.

   2.3 The right to transfer the Third Party Software to a replacement hardware system is governed by the Developer. You will give us advance written notice of any such transfer and will pay us for any required or requested technical assistance from us associated with such transfer.

3. Third Party Products Warranties.

   3.1 We are authorized by each Developer to grant or transfer the licenses to the Third Party Software.

   3.2 The Third Party Hardware will be new and unused, and upon payment in full, you will receive free and clear title to the Third Party Hardware.

   3.3 You acknowledge that we are not the manufacturer of the Third Party Products. We do not warrant or guarantee the performance of the Third Party Products. However, we grant and pass through to you any warranty that we may receive from the Developer or supplier of the Third Party Products.

4. Third Party Services. If you have purchased Third Party Services, those services will be provided independent of Tyler by such third-party at the rates set forth in the Investment Summary and in accordance with our Invoicing and Payment Policy.

5. Maintenance. If you have a Maintenance and Support Agreement in effect, you may report defects and other issues related to the Third Party Software directly to us, and we will (a) directly address the defect or issue, to the extent it relates to our interface with the Third Party Software; and/or (b) facilitate resolution with the Developer, unless that Developer requires that you have a separate, direct maintenance agreement in effect with that Developer. In all events, if you do not have a Maintenance and Support Agreement in effect with us, you will be responsible for resolving defects and other issues related to the Third Party Software directly with the Developer.

SECTION F – INVOICING AND PAYMENT; INVOICE DISPUTES

1. Invoicing and Payment. We will invoice you for all fees set forth in the Investment Summary per our Invoicing and Payment Policy, subject to Section F(2).

2. Invoice Disputes. If you believe any delivered software or service does not conform to the warranties in this Agreement, you will provide us with written notice within thirty (30) days of your receipt of the applicable invoice. The written notice must contain reasonable detail of the issues you contend are in dispute so that we can confirm the issue and respond to your notice with either a justification of the invoice, an adjustment to the invoice, or a proposal addressing the issues presented in your notice. We will work with you as may be necessary to develop an action plan that outlines reasonable steps to be taken by each of us to resolve any issues presented in your notice. You may withhold payment of the amount(s) actually in dispute, and only those amounts, until we complete the action items outlined in the plan. If we are unable to complete the action items outlined in the action plan because of your failure to complete the items agreed to be done by you, then you will remit full payment of the invoice. We reserve the right to suspend delivery of all services, including maintenance and support services, if you fail to pay an invoice not disputed as described above within fifteen (15) days of notice of our intent to do so.

SECTION G – TERMINATION

1. Termination. This Agreement may be terminated as set forth below. In the event of termination, you will pay us for all undisputed fees and expenses related to the software, products, and/or

services you have received, or we have incurred or delivered, prior to the effective date of termination. Disputed fees and expenses in all terminations other than your termination for cause must have been submitted as invoice disputes in accordance with Section F(2).

1.1 For Cause. If you believe we have materially breached this Agreement, you will invoke the Dispute Resolution clause set forth in Section I(3). You may terminate this Agreement for cause in the event we do not cure, or create a mutually agreeable action plan to address, a material breach of this Agreement within the thirty (30) day window set forth in Section I(3).

1.2 Force Majeure. Either party has the right to terminate this Agreement if a Force Majeure event suspends performance of this Agreement for a period of forty-five (45) days or more.

1.3 Lack of Appropriations. If you should not appropriate or otherwise receive funds sufficient to purchase, lease, operate, or maintain the software or services set forth in this Agreement, you may unilaterally terminate this Agreement upon thirty (30) days written notice to us. You will not be entitled to a refund or offset of previously paid license and other fees. You agree not to use termination for lack of appropriations as a substitute for termination for convenience.

1.4 For Convenience. Either party may terminate this Agreement for its convenience by providing not less than sixty (60) days' prior written notice of termination. Fees paid by the Client prior to termination are non-refundable.

SECTION H – INDEMNIFICATION, LIMITATION OF LIABILITY AND INSURANCE

1. Intellectual Property Infringement Indemnification.

1.1 We will defend you against any third party claim(s) that the Tyler Software or Documentation infringes that third party's patent, copyright, or trademark, or misappropriates its trade secrets, and will pay the amount of any resulting adverse final judgment (or settlement to which we consent). You must notify us promptly in writing of the claim and give us sole control over its defense or settlement. You agree to provide us with reasonable assistance, cooperation, and information in defending the claim at our expense.

1.2 Our obligations under this Section H(1) will not apply to the extent the claim or adverse final judgment is based on your: (a) use of a previous version of the Tyler Software and the claim would have been avoided had you installed and used the current version of the Tyler Software, and we provided notice of that requirement to you; (b) combining the Tyler Software with any product or device not provided, contemplated, or approved by us; (c) altering or modifying the Tyler Software, including any modification by third parties at your direction or otherwise permitted by you; (d) use of the Tyler Software in contradiction of this Agreement, including with non-licensed third parties; or (e) willful infringement, including use of the Tyler Software after we notify you to discontinue use due to such a claim.

1.3 If we receive information concerning an infringement or misappropriation claim related to the Tyler Software, we may, at our expense and without obligation to do so, either: (a) procure for you the right to continue its use; (b) modify it to make it non-infringing; or (c) replace it with a functional equivalent, in which case you will stop running the allegedly infringing Tyler Software immediately. Alternatively, we may decide to litigate the claim to judgment, in which case you

may continue to use the Tyler Software consistent with the terms of this Agreement.

1.4 If an infringement or misappropriation claim is fully litigated and your use of the Tyler Software is enjoined by a court of competent jurisdiction, in addition to paying any adverse final judgment (or settlement to which we consent), we will, at our option, either: (a) procure the right to continue its use; (b) modify it to make it non-infringing; (c) replace it with a functional equivalent; or (d) terminate your license and refund the license fees paid for the infringing Tyler Software, as depreciated on a straight-line basis measured over seven (7) years from the Effective Date. We will pursue those options in the order listed herein. This section provides your exclusive remedy for third party copyright, patent, or trademark infringement and trade secret misappropriation claims.

2. General Indemnification.

2.1 We will indemnify and hold harmless you and your agents, officials, and employees from and against any and all third-party claims, losses, liabilities, damages, costs, and expenses (including reasonable attorney's fees and costs) for (a) personal injury or property damage to the extent caused by our negligence or willful misconduct; or (b) our violation of PCI DSS requirements or a law applicable to our performance under this Agreement. You must notify us promptly in writing of the claim and give us sole control over its defense or settlement. You agree to provide us with reasonable assistance, cooperation, and information in defending the claim at our expense.

2.2 To the extent permitted by applicable law, you will indemnify and hold harmless us and our agents, officials, and employees from and against any and all third-party claims, losses, liabilities, damages, costs, and expenses (including reasonable attorney's fees and costs) for personal injury or property damage to the extent caused by your negligence or willful misconduct; or (b) your violation of a law applicable to your performance under this Agreement. We will notify you promptly in writing of the claim and will give you sole control over its defense or settlement. We agree to provide you with reasonable assistance, cooperation, and information in defending the claim at your expense.

3. DISCLAIMER. EXCEPT FOR THE EXPRESS WARRANTIES PROVIDED IN THIS AGREEMENT AND TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, WE HEREBY DISCLAIM ALL OTHER WARRANTIES AND CONDITIONS, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES, DUTIES, OR CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

4. LIMITATION OF LIABILITY. EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS AGREEMENT, OUR LIABILITY FOR DAMAGES ARISING OUT OF THIS AGREEMENT, WHETHER BASED ON A THEORY OF CONTRACT OR TORT, INCLUDING NEGLIGENCE AND STRICT LIABILITY, SHALL BE LIMITED TO YOUR ACTUAL DIRECT DAMAGES, NOT TO EXCEED (A) PRIOR TO FORMAL TRANSITION TO MAINTENANCE AND SUPPORT, THE TOTAL ONE-TIME FEES SET FORTH IN THE INVESTMENT SUMMARY; OR (B) AFTER FORMAL TRANSITION TO MAINTENANCE AND SUPPORT, THE THEN-CURRENT ANNUAL MAINTENANCE AND SUPPORT FEE. THE PARTIES ACKNOWLEDGE AND AGREE THAT THE PRICES SET FORTH IN THIS AGREEMENT ARE SET IN RELIANCE UPON THIS LIMITATION OF LIABILITY AND TO THE MAXIMUM EXTENT ALLOWED UNDER APPLICABLE LAW, THE EXCLUSION OF CERTAIN DAMAGES, AND EACH SHALL APPLY REGARDLESS OF THE FAILURE OF AN ESSENTIAL

PURPOSE OF ANY REMEDY. THE FOREGOING LIMITATION OF LIABILITY SHALL NOT APPLY TO CLAIMS THAT ARE SUBJECT TO SECTIONS H(1) AND H(2).

5. **EXCLUSION OF CERTAIN DAMAGES. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL EITHER PARTY BE LIABLE FOR ANY SPECIAL, INCIDENTAL, PUNITIVE, INDIRECT, OR CONSEQUENTIAL DAMAGES WHATSOEVER, EVEN IF EITHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.**

6. Insurance. During the course of performing services under this Agreement, we agree to maintain the following levels of insurance: (a) Commercial General Liability of at least $1,000,000; (b) Automobile Liability of at least $1,000,000; (c) Professional Liability of at least $1,000,000; (d) Workers Compensation complying with applicable statutory requirements; and (e) Excess/Umbrella Liability of at least $5,000,000. We will add you as an additional insured to our Commercial General Liability and Automobile Liability policies, which will automatically add you as an additional insured to our Excess/Umbrella Liability policy as well. We will provide you with copies of certificates of insurance upon your written request.

SECTION I – GENERAL TERMS AND CONDITIONS

1. Additional Products and Services. You may purchase additional products and services at the rates set forth in the Investment Summary for twelve (12) months from the Effective Date, and thereafter at our then-current list price, by executing a mutually agreed addendum. If no rate is provided in the Investment Summary, or those twelve (12) months have expired, you may purchase additional products and services at our then-current list price, also by executing a mutually agreed addendum. The terms of this Agreement will control any such additional purchase(s), unless otherwise specifically provided in the addendum.

2. Optional Items. Pricing for any listed optional products and services in the Investment Summary will be valid for twelve (12) months from the Effective Date.

3. Dispute Resolution. You agree to provide us with written notice within thirty (30) days of becoming aware of a dispute. You agree to cooperate with us in trying to reasonably resolve all disputes, including, if requested by either party, appointing a senior representative to meet and engage in good faith negotiations with our appointed senior representative. Senior representatives will convene within thirty (30) days of the written dispute notice, unless otherwise agreed. All meetings and discussions between senior representatives will be deemed confidential settlement discussions not subject to disclosure under Federal Rule of Evidence 408 or any similar applicable state rule. If we fail to resolve the dispute, then the parties shall participate in non-binding mediation in an effort to resolve the dispute. If the dispute remains unresolved after mediation, then either of us may assert our respective rights and remedies in a court of competent jurisdiction. Nothing in this section shall prevent you or us from seeking necessary injunctive relief during the dispute resolution procedures.

4. Taxes. The fees in the Investment Summary do not include any taxes, including, without limitation, sales, use, or excise tax. If you are a tax-exempt entity, you agree to provide us with a tax-exempt certificate. Otherwise, we will pay all applicable taxes to the proper authorities and you will reimburse us for such taxes. If you have a valid direct-pay permit, you agree to provide us with a copy. For clarity, we are responsible for paying our income taxes, both federal and state, as

applicable, arising from our performance of this Agreement.

5. Nondiscrimination. We will not discriminate against any person employed or applying for employment concerning the performance of our responsibilities under this Agreement. This discrimination prohibition will apply to all matters of initial employment, tenure, and terms of employment, or otherwise with respect to any matter directly or indirectly relating to employment concerning race, color, religion, national origin, age, sex, sexual orientation, ancestry, disability that is unrelated to the individual's ability to perform the duties of a particular job or position, height, weight, marital status, or political affiliation. We will post, where appropriate, all notices related to nondiscrimination as may be required by applicable law.

6. E-Verify. We have complied, and will comply, with the E-Verify procedures administered by the U.S. Citizenship and Immigration Services Verification Division for all of our employees assigned to your project.

7. Subcontractors. We will not subcontract any services under this Agreement without your prior written consent, not to be unreasonably withheld.

8. Binding Effect; No Assignment. This Agreement shall be binding on, and shall be for the benefit of, either your or our successor(s) or permitted assign(s). Neither party may assign this Agreement without the prior written consent of the other party; provided, however, your consent is not required for an assignment by us as a result of a corporate reorganization, merger, acquisition, or purchase of substantially all of our assets.

9. Force Majeure. Except for your payment obligations, neither party will be liable for delays in performing its obligations under this Agreement to the extent that the delay is caused by Force Majeure; provided, however, that within ten (10) business days of the Force Majeure event, the party whose performance is delayed provides the other party with written notice explaining the cause and extent thereof, as well as a request for a reasonable time extension equal to the estimated duration of the Force Majeure event.

10. No Intended Third Party Beneficiaries. This Agreement is entered into solely for the benefit of you and us. No third party will be deemed a beneficiary of this Agreement, and no third party will have the right to make any claim or assert any right under this Agreement. This provision does not affect the rights of third parties under any Third Party Terms.

11. Entire Agreement; Amendment. This Agreement represents the entire agreement between you and us with respect to the subject matter hereof, and supersedes any prior agreements, understandings, and representations, whether written, oral, expressed, implied, or statutory. Purchase orders submitted by you, if any, are for your internal administrative purposes only, and the terms and conditions contained in those purchase orders will have no force or effect. This Agreement may only be modified by a written amendment signed by an authorized representative of each party.

12. Severability. If any term or provision of this Agreement is held invalid or unenforceable, the remainder of this Agreement will be considered valid and enforceable to the fullest extent permitted by law.

13. No Waiver. In the event that the terms and conditions of this Agreement are not strictly enforced

by either party, such non-enforcement will not act as or be deemed to act as a waiver or modification of this Agreement, nor will such non-enforcement prevent such party from enforcing each and every term of this Agreement thereafter.

14. Independent Contractor. We are an independent contractor for all purposes under this Agreement.

15. Notices. All notices or communications required or permitted as a part of this Agreement, such as notice of an alleged material breach for a termination for cause or a dispute that must be submitted to dispute resolution, must be in writing and will be deemed delivered upon the earlier of the following: (a) actual receipt by the receiving party; (b) upon receipt by sender of a certified mail, return receipt signed by an employee or agent of the receiving party; (c) upon receipt by sender of proof of email delivery; or (d) if not actually received, five (5) days after deposit with the United States Postal Service authorized mail center with proper postage (certified mail, return receipt requested) affixed and addressed to the other party at the address set forth on the signature page hereto or such other address as the party may have designated by proper notice. The consequences for the failure to receive a notice due to improper notification by the intended receiving party of a change in address will be borne by the intended receiving party.

16. Client Lists. You agree that we may identify you by name in client lists, marketing presentations, and promotional materials.

17. Confidentiality. Both parties recognize that their respective employees and agents, in the course of performance of this Agreement, may be exposed to confidential information and that disclosure of such information could violate rights to private individuals and entities, including the parties. Confidential information is nonpublic information that a reasonable person would believe to be confidential and includes, without limitation, personal identifying information (*e.g.*, social security numbers) and trade secrets, each as defined by applicable state law. Each party agrees that it will not disclose any confidential information of the other party and further agrees to take all reasonable and appropriate action to prevent such disclosure by its employees or agents. The confidentiality covenants contained herein will survive the termination or cancellation of this Agreement. This obligation of confidentiality will not apply to information that:

    (a) is in the public domain, either at the time of disclosure or afterwards, except by breach of this Agreement by a party or its employees or agents;
    (b) a party can establish by reasonable proof was in that party's possession at the time of initial disclosure;
    (c) a party receives from a third party who has a right to disclose it to the receiving party; or
    (d) is the subject of a legitimate disclosure request under the open records laws or similar applicable public disclosure laws governing this Agreement; provided, however, that in the event you receive an open records or other similar applicable request, you will give us prompt notice and otherwise perform the functions required by applicable law.

18. Business License. In the event a local business license is required for us to perform services hereunder, you will promptly notify us and provide us with the necessary paperwork and/or contact information so that we may timely obtain such license.

19. Governing Law. This Agreement will be governed by and construed in accordance with the laws of your state of domicile, without regard to its rules on conflicts of law.

20. Multiple Originals and Authorized Signatures. This Agreement may be executed in multiple originals, any of which will be independently treated as an original document. Any electronic, faxed, scanned, photocopied, or similarly reproduced signature on this Agreement or any amendment hereto will be deemed an original signature and will be fully enforceable as if an original signature. Each party represents to the other that the signatory set forth below is duly authorized to bind that party to this Agreement.

21. Cooperative Procurement. To the maximum extent permitted by applicable law, we agree that this Agreement may be used as a cooperative procurement vehicle by eligible jurisdictions. We reserve the right to negotiate and customize the terms and conditions set forth herein, including but not limited to pricing, to the scope and circumstances of that cooperative procurement.

22. Contract Documents. This Agreement includes the following exhibits:

Exhibit A	Investment Summary
Exhibit B	Invoicing and Payment Policy
	Schedule 1: Business Travel Policy
Exhibit C	Maintenance and Support Agreement
	Schedule 1: Support Call Process
Exhibit D	Third Party Terms
	Schedule 1: Hyperlinked Terms
Exhibit E	Statement of Work
Exhibit F	Web Services – Hosted Application Terms

IN WITNESS WHEREOF, a duly authorized representative of each party has executed this Agreement as of the date(s) set forth below.

Tyler Technologies, Inc.

By: Jisel Lopez

Name: Jisel Lopez

Title: Senior Corporate Attorney

Date: 10/07/2021

Address for Notices:
Tyler Technologies, Inc.
One Tyler Drive
Yarmouth, ME 04096
Attention: Chief Legal Officer

Trophy Club Municipal Utility District No. 1

By: _____

Name: _____

Title: _____

Date: _____

Address for Notices:
Trophy Club Municipal Utility District No. 1
100 Municipal Drive
Trophy Club, TX 76262
Attention: _____

Exhibit A
Investment Summary

The following Investment Summary details the software, products, and services to be delivered by us to you under the Agreement. This Investment Summary is effective as of the Effective Date. Capitalized terms not otherwise defined will have the meaning assigned to such terms in the Agreement.

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Quoted By:	Kirk Cunningham
Quote Expiration:	12/31/2021
Quote Name:	Trophy Club MUD LGD-FIN-PM-UB-TCM
Quote Number:	2021-128418-2
Quote Description:	Incode FIN-PM-UB-TCM 6-30-21 On Prem

Sales Quotation For
Steven Krolczyk
Trophy Club MUD
100 Municipal Drive
Trophy Club, TX 76262
Email: skrolczyk@tcmud.org

Tyler Software and Related Services

Description	License	Impl Hours	Impl Cost	Data Conversion	Module Total	Maintenance
Financial Management Suite						
Core Financials	$20,995	132	$17,160	$6,850	$45,005	$5,249
Purchasing	$5,280	28	$3,640	$0	$8,920	$1,320
Fixed Assets	$2,228	16	$2,080	$0	$4,308	$557
Personnel Management Suite						
Personnel Management (Includes Position Budgeting)	$6,995	88	$11,440	$4,040	$22,475	$1,749
ExecuTime						
ExecuTime Time & Attendance - Up to 50ee	$5,250	50	$6,500	$0	$11,750	$1,050
ExecuTime Time & Attendance Mobile Access License	$2,540	0	$0	$0	$2,540	$508
Customer Relationship Management Suite						
Utility CIS System	$18,995	172	$22,360	$8,580	$49,935	$4,749
Mobile Service Orders	$1,500	8	$1,040	$0	$2,540	$375
Third Party Printing Interface	$5,750	4	$520	$0	$6,270	$1,438
Cashiering	$6,500	44	$5,720	$0	$12,220	$1,625
Sub-Total:	*$76,033*		*$70,460*	*$19,470*	*$165,963*	*$18,620*
Less Discount:	*$7,605*					
TOTAL:	**$68,428**	**542**	**$70,460**	**$19,470**	**$158,358**	**$18,620**

Tyler Software and Related Services - Annual		**One Time Fees**			
Description		Impl. Hours	Impl. Cost	#Yrs	Net Annual Fee
Personnel Management Suite					
Employee Self Service (Employee Portal)		8	$1,040		$0
Customer Relationship Management Suite					
Utility Payment API Package		0	$0		$0
Tyler Hosted Applications					
Utility Billing Online Component		0	$0		$2,304
Notifications for Utility Billing		0	$0		$0
IVR Solution for Utility Billing		0	$0		$0

Tyler U		0	$0		$1,862
	Sub-Total:		*$1,040*		*$4,166*
	TOTAL:	**8**	**$1,040**	0	**$4,166**

Other Services

Description	Quantity	Unit Price	Extended Price	Maintenance
Online Application -Set up fee	1	$800	$800	$0
Project Management	1	$5,000	$5,000	$0
TOTAL:			**$5,800**	**$0**

Conversion Services

Description	Hours	Unit Price	Programming Fee	Extended Price
Financial Management Suite				
General Ledger Master	8	$130	$1,500	$2,540
General Ledger History	4	$130	$500	$1,020
Accounts Payable Master	4	$130	$1,750	$2,270
Accounts Payable History	4	$130	$500	$1,020
Personnel Management Suite				
Personnel Management -Payroll Master	4	$130	$2,000	$2,520
Personnel Management -Payroll History	4	$130	$1,000	$1,520
Customer Relationship Management Suite				
Utility Billing History	4	$130	$1,000	$1,520
Utility Billing Master	12	$130	$5,500	$7,060
Total:				**$19,470**

Summary	**One Time Fees**	**Recurring Fees**
Total Tyler Software	$68,428	$18,620
Total Tyler Annual	$0	$4,166
Total Tyler Services	$96,770	$0
Total Third Party Hardware, Software and Services	$0	$0
Summary Total	**$165,198**	**$22,786**

Comments

- All services quoted herein are assumed to be delivered remote unless otherwise indicated.
- Core Financials includes general ledger, budget prep, bank recon, AP, CellSense, a standard forms pkg, output director, positive pay, secure signatures (qty 2).
- Utility CIS System includes collections, tax lien process and import, utility payment import, a standard forms pkg., output director and one Utility handheld meter-reader interface.
- Cashiering supports credit/debit cards via ETS, includes PCI Compliant, a cash collection interface, a cashiering receipt import)
- Incode Utility Billing Online Component displays the current status (late, cut off etc), the action needed to avoid penalty, current balance, deposits on file (optional), last payment date, last payment amount, payment arrangements on file, last bill amount, last bill date, bill due date, contracts on file and status, transaction history (online payments). Payment packet is created to be imported to utility system. Address information includes legal description, precinct, school district, and services at address(subject to data availability). Includes consumption history by service (including graphs), request for service (optional), information change request (optional), security -SSL (secure socket layer). Note that the customer pays $1.25 fee per transaction for payment on-line.
- Notification for Utility Billing ($0.10 per call) includes Customer notification by phone (call late notices and general notifications). Call lists are automatically generated and the account is updated after the call. It includes a custom message for each call type and the call message can be in English or Spanish. It generates reports based on call results. Note: The Utility will be billed at the rate specified above for all the calls made. The Utility will be billed quarterly by Tyler Technologies for calls conducted.
- General Ledger conversions include Chart of Accounts - additional fee for historical views.
- Accounts Payable conversions include Vendor Master Only - additional fee for historical views.
- Utility Billing conversions include contacts/properties/accounts, service meter info - meter inventory, transaction/consumption/read history, metered services, non-metered service. Additional fee for historical views.
- Incode IVR Solution for Utility Billing-The payment packet is created in centralized cash collections. The IVR system gives the customer an account balance, the customer makes the payment by phone, and the account manager is updated with the payment record. NOTE: There is a $1.25 per transaction fee associated with the IVR that will be paid by client unless Tyler is instructed by the client to pass along to the user at time of payment.
- Personnel Management/Payroll conversions include employee master information. This includes master record, addresses, contact and dependent information, state and federal tax setup, direct deposit information, as well as state specific retirement. Additional fee for historical views.

Invoicing and Payment Policy

We will provide you with the software and services set forth in the Investment Summary. Capitalized terms not otherwise defined will have the meaning assigned to such terms in the Agreement.

Invoicing: We will invoice you for the applicable license and services fees in the Investment Summary as set forth below. Your rights to dispute any invoice are set forth in the Agreement.

1. Tyler Software.

   1.1 *License Fees*: License fees are invoiced as follows: (a) 25% on the Effective Date; (b) 60% on the date when we provide you with access to the applicable Tyler Software (the "Software Access Date"); and (c) 15% on the earlier of use of the Tyler Software in live production or 180 days after the Software Access Date.

   1.2 *Maintenance and Support Fees*: Year 1 maintenance and support fees are waived through the earlier of (a) availability of the Tyler Software for use in a live production environment; or (b) one (1) year from the Effective Date. Year 2 maintenance and support fees, at our then-current rates, are payable on that earlier-of date, and subsequent maintenance and support fees are invoiced annually in advance of each anniversary thereof. Your fees for each subsequent year will be set at our then-current rates.

   1.3 *SaaS & Subscription Fees*: SaaS (including hosting) fees and subscription fees are invoiced on an annual basis, beginning on the first day of the month immediately following the Effective Date. Your annual SaaS fees and subscription fees for the initial year one term are set forth in the Investment Summary. Upon expiration of the initial term, your annual SaaS fees and subscription fees will be at our then-current rates.

2. Other Tyler Software and Services.

   2.1 *Implementation and Other Professional Services (including training)*: Implementation and other professional services (including training) are billed and invoiced as delivered, at the rates set forth in the Investment Summary.

   2.2 *Consulting Services*: If you have purchased any Business Process Consulting services, if they have been quoted as fixed-fee services, they will be invoiced 50% upon delivery of the Best Practice Recommendations, by module, and 50% upon delivery of custom desktop procedures, by module. If you have purchased any Business Process Consulting services and they are quoted as an estimate, then we will bill you the actual services delivered on a time and materials basis.

   2.3 *Conversions*: Fixed-fee conversions are invoiced 50% upon initial delivery of the converted data, by conversion option, and 50% upon Client acceptance to load the converted data into Live/Production environment, by conversion option. Where conversions are quoted as estimated, we will bill you the actual services delivered on a time and materials basis.

2.4 *Requested Modifications to the Tyler Software*: Requested modifications to the Tyler Software are invoiced 50% upon delivery of specifications and 50% upon delivery of the applicable modification. You must report any failure of the modification to conform to the specifications within thirty (30) days of delivery; otherwise, the modification will be deemed to be in compliance with the specifications after the 30-day window has passed. You may still report Defects to us as set forth in the Maintenance and Support Agreement.

2.5 *Other Fixed Price Services*: Except as otherwise provided, other fixed price services are invoiced as delivered, at the rates set forth in the Investment Summary. For the avoidance of doubt, where "Project Planning Services" are provided, payment will be due upon delivery of the Implementation Planning document. Dedicated Project Management services, if any, will be billed monthly in arrears, beginning on the first day of the month immediately following initiation of project planning.

2.6 Web Services: Annual fees for web services are payable in advance, commencing upon the availability of the service. Your annual fees for the initial term are set forth in the Investment Summary. Upon expiration of the initial term, your annual fees will be at our then-current rates.

3. Third Party Products.

3.1 *Third Party Software License Fees*: License fees for Third Party Software, if any, are invoiced when we make it available to you for downloading.

3.2 *Third Party Software Maintenance*: The first year maintenance fees for the Third Party Software, if any, is invoiced when we make that Third Party Software available to you for downloading.

3.3 *Third Party Hardware*: Third Party Hardware costs, if any, are invoiced upon delivery.

3.4 *Third Party Services:* Fees for Third Party Services, if any, are invoiced as delivered, along with applicable expenses, at the rates set forth in the Investment Summary.

4. Transaction Fees. Unless paid directly by an end user at the time of transaction, per transaction (order, call, message, etc.) fees are invoiced on a quarterly basis. Fees are indicated in Schedule A and may be increased by Tyler upon notice of no less than thirty (30) days.

5. Expenses. The service rates in the Investment Summary do not include travel expenses. Expenses for Tyler delivered services will be billed as incurred and only in accordance with our then-current Business Travel Policy, plus a 10% travel agency processing fee. Our current Business Travel Policy is attached to this Exhibit B as Schedule 1. Copies of receipts will be provided upon request; we reserve the right to charge you an administrative fee depending on the extent of your requests. Receipts for miscellaneous items less than twenty-five dollars and mileage logs are not available.

Payment. Payment for undisputed invoices is due within forty-five (45) days of the invoice date. We prefer to receive payments electronically. Our electronic payment information is available by contacting AR@tylertech.com.

Schedule 1
Business Travel Policy

1. Air Travel

A. Reservations & Tickets

The Travel Management Company (TMC) used by Tyler will provide an employee with a direct flight within two hours before or after the requested departure time, assuming that flight does not add more than three hours to the employee's total trip duration and the fare is within $100 (each way) of the lowest logical fare. If a net savings of $200 or more (each way) is possible through a connecting flight that is within two hours before or after the requested departure time and that does not add more than three hours to the employee's total trip duration, the connecting flight should be accepted.

Employees are encouraged to make advanced reservations to take full advantage of discount opportunities. Employees should use all reasonable efforts to make travel arrangements at least two (2) weeks in advance of commitments. A seven (7) day advance booking requirement is mandatory. When booking less than seven (7) days in advance, management approval will be required.

Except in the case of international travel where a segment of continuous air travel is six (6) or more consecutive hours in length, only economy or coach class seating is reimbursable. Employees shall not be reimbursed for "Basic Economy Fares" because these fares are non-refundable and have many restrictions that outweigh the cost-savings.

B. Baggage Fees

Reimbursement of personal baggage charges are based on trip duration as follows:

- Up to five (5) days = one (1) checked bag
- Six (6) or more days = two (2) checked bags

Baggage fees for sports equipment are not reimbursable.

2. Ground Transportation

A. Private Automobile

Mileage Allowance – Business use of an employee's private automobile will be reimbursed at the current IRS allowable rate, plus out of pocket costs for tolls and parking. Mileage will be calculated by using the employee's office as the starting and ending point, in compliance with IRS regulations. Employees who have been designated a home office should calculate miles from their home.

B. Rental Car

Employees are authorized to rent cars only in conjunction with air travel when cost, convenience, and the specific situation reasonably require their use. When renting a car for Tyler business, employees should select a "mid-size" or "intermediate" car. "Full" size cars may be rented when three or more employees are traveling together. Tyler carries leased vehicle coverage for business car rentals; except for employees traveling to Alaska and internationally (excluding Canada), additional insurance on the rental agreement should be declined.

C. Public Transportation

Taxi or airport limousine services may be considered when traveling in and around cities or to and from airports when less expensive means of transportation are unavailable or impractical. The actual fare plus a reasonable tip (15-18%) are reimbursable. In the case of a free hotel shuttle to the airport, tips are included in the per diem rates and will not be reimbursed separately.

D. Parking & Tolls

When parking at the airport, employees must use longer term parking areas that are measured in days as opposed to hours. Park and fly options located near some airports may also be used. For extended trips that would result in excessive parking charges, public transportation to/from the airport should be considered. Tolls will be reimbursed when receipts are presented.

3. Lodging

Tyler's TMC will select hotel chains that are well established, reasonable in price, and conveniently located in relation to the traveler's work assignment. Typical hotel chains include Courtyard, Fairfield Inn, Hampton Inn, and Holiday Inn Express. If the employee has a discount rate with a local hotel, the hotel reservation should note that discount and the employee should confirm the lower rate with the hotel upon arrival. Employee memberships in travel clubs such as AAA should be noted in their travel profiles so that the employee can take advantage of any lower club rates.

"No shows" or cancellation fees are not reimbursable if the employee does not comply with the hotel's cancellation policy.

Tips for maids and other hotel staff are included in the per diem rate and are not reimbursed separately.

Employees are not authorized to reserve non-traditional short-term lodging, such as Airbnb, VRBO, and HomeAway. Employees who elect to make such reservations shall not be reimbursed.

4. Meals and Incidental Expenses

Employee meals and incidental expenses while on travel status within the continental U.S. are in accordance with the federal per diem rates published by the General Services Administration. Incidental expenses include tips to maids, hotel staff, and shuttle drivers and other minor travel expenses. Per diem rates are available at www.gsa.gov/perdiem.

Per diem for Alaska, Hawaii, U.S. protectorates and international destinations are provided separately by the Department of State and will be determined as required.

A. Overnight Travel

For each full day of travel, all three meals are reimbursable. Per diems on the first and last day of a trip are governed as set forth below.

Departure Day

Depart before 12:00 noon	Lunch and dinner
Depart after 12:00 noon	Dinner

Return Day

Return before 12:00 noon	Breakfast
Return between 12:00 noon & 7:00 p.m.	Breakfast and lunch
Return after 7:00 p.m.*	Breakfast, lunch and dinner

*7:00 p.m. is defined as direct travel time and does not include time taken to stop for dinner.

The reimbursement rates for individual meals are calculated as a percentage of the full day per diem as follows:

Breakfast	15%
Lunch	25%
Dinner	60%

B. Same Day Travel

Employees traveling at least 100 miles to a site and returning in the same day are eligible to claim lunch on an expense report. Employees on same day travel status are eligible to claim dinner in the event they return home after 7:00 p.m.*

*7:00 p.m. is defined as direct travel time and does not include time taken to stop for dinner.

5. Internet Access – Hotels and Airports

   Employees who travel may need to access their e-mail at night. Many hotels provide free high speed internet access and Tyler employees are encouraged to use such hotels whenever possible. If an employee's hotel charges for internet access it is reimbursable up to $10.00 per day. Charges for internet access at airports are not reimbursable.

6. International Travel

   All international flights with the exception of flights between the U.S. and Canada should be reserved through TMC using the "lowest practical coach fare" with the exception of flights that are six (6) or more consecutive hours in length. In such event, the next available seating class above coach shall be reimbursed.

   When required to travel internationally for business, employees shall be reimbursed for photo fees, application fees, and execution fees when obtaining a new passport book, but fees related to passport renewals are not reimbursable. Visa application and legal fees, entry taxes and departure taxes are reimbursable.

   The cost of vaccinations that are either required for travel to specific countries or suggested by the U.S. Department of Health & Human Services for travel to specific countries, is reimbursable.

   Section 4, Meals & Incidental Expenses, and Section 2.b., Rental Car, shall apply to this section.

Exhibit C
Maintenance and Support Agreement

We will provide you with the following maintenance and support services for the Tyler Software. Capitalized terms not otherwise defined will have the meaning assigned to such terms in the Agreement.

1. Term. We provide maintenance and support services on an annual basis. The initial term commences on the Effective Date, and remains in effect for one (1) year. The term will renew automatically for additional one (1) year terms unless terminated in writing by either party at least thirty (30) days prior to the end of the then-current term. We will adjust the term to match your first use of the Tyler Software in live production if that event precedes the one (1) year anniversary of the Effective Date. Client may also discontinue maintenance and support services on the Tyler Software at any time during the then-current term by providing 30 days' written notice to Tyler. Fees paid in advance of termination are non-refundable.

2. Maintenance and Support Fees. Your year 1 maintenance and support fees for the Tyler Software are listed in the Investment Summary, and your payment obligations are set forth in the Invoicing and Payment Policy. We reserve the right to suspend maintenance and support services if you fail to pay undisputed maintenance and support fees within thirty (30) days of our written notice. We will reinstate maintenance and support services only if you pay all past due maintenance and support fees, including all fees for the periods during which services were suspended.

3. Maintenance and Support Services. As long as you are not using the Help Desk as a substitute for our training services on the Tyler Software, and you timely pay your maintenance and support fees, we will, consistent with our then-current Support Call Process:

   3.1 perform our maintenance and support obligations in a professional, good, and workmanlike manner, consistent with industry standards, to resolve Defects in the Tyler Software (subject to any applicable release life cycle policy); provided, however, that if you modify the Tyler Software without our consent, our obligation to provide maintenance and support services on and warrant the Tyler Software will be void;

   3.2 provide support during our established support hours;

   3.3 maintain personnel that are sufficiently trained to be familiar with the Tyler Software and Third Party Software, if any, in order to provide maintenance and support services;

   3.5 provide non-Defect resolution support of prior releases of the Tyler Software in accordance with

any applicable release life cycle policy.

4. Client Responsibilities. We will use all reasonable efforts to perform any maintenance and support services remotely. Currently, we use a third-party secure unattended connectivity tool called Bomgar, as well as GotoAssist by Citrix. Therefore, you agree to maintain a high-speed internet connection capable of connecting us to your PCs and server(s). You agree to provide us with a login account and local administrative privileges as we may reasonably require to perform remote services. We will, at our option, use the secure connection to assist with proper diagnosis and resolution, subject to any reasonably applicable security protocols. If we cannot resolve a support issue remotely, we may be required to provide onsite services. In such event, we will be responsible for our travel expenses, unless it is determined that the reason onsite support was required was a reason outside our control. Either way, you agree to provide us with full and free access to the Tyler Software, working space, adequate facilities within a reasonable distance from the equipment, and use of machines, attachments, features, or other equipment reasonably necessary for us to provide the maintenance and support services, all at no charge to us. We strongly recommend that you also maintain a VPN for backup connectivity purposes.

5. Hardware and Other Systems. If you are a self-hosted customer and, in the process of diagnosing a software support issue, it is discovered that one of your peripheral systems or other software is the cause of the issue, we will notify you so that you may contact the support agency for that peripheral system. We cannot support or maintain Third Party Products except as expressly set forth in the Agreement.

   In order for us to provide the highest level of software support, you bear the following responsibility related to hardware and software:

   (a) All infrastructure executing Tyler Software shall be managed by you;
   (b) You will maintain support contracts for all non-Tyler software associated with Tyler Software (including operating systems and database management systems, but excluding Third-Party Software, if any); and
   (c) You will perform daily database backups and verify that those backups are successful.

6. Other Excluded Services. Maintenance and support fees do not include fees for the following services: (a) initial installation or implementation of the Tyler Software; (b) onsite maintenance and support (unless Tyler cannot remotely correct a Defect in the Tyler Software, as set forth above); (c) application design; (d) other consulting services; (e) maintenance and support of an operating system or hardware, unless you are a hosted customer; (f) support outside our normal business hours as listed in our then-current Support Call Process; or (g) installation, training services, or third party product costs related to a new release. Requested maintenance and support services such as those outlined in this section will be billed to you on a time and materials basis at our then current rates. You must request those services with at least one (1) weeks' advance notice.

7. Current Support Call Process. Our current Support Call Process for the Tyler Software is attached to this Exhibit C as Schedule 1.

Exhibit C
Schedule 1
Support Call Process

Support Channels

Tyler Technologies, Inc. provides the following channels of software support for authorized users*:

(1) On-line submission (portal) – for less urgent and functionality-based questions, users may create support incidents through the Tyler Customer Portal available at the Tyler Technologies website. A built-in Answer Panel provides users with resolutions to most "how-to" and configuration-based questions through a simplified search interface with machine learning, potentially eliminating the need to submit the support case.

(2) Email – for less urgent situations, users may submit emails directly to the software support group.

(3) Telephone – for urgent or complex questions, users receive toll-free, telephone software support.

** Channel availability may be limited for certain applications.*

Support Resources

A number of additional resources are available to provide a comprehensive and complete support experience:

(1) Tyler Website – www.tylertech.com – for accessing client tools, documentation, and other information including support contact information.

(2) Tyler Search -a knowledge based search engine that lets you search multiple sources simultaneously to find the answers you need, 24x7.

(4) Tyler University – online training courses on Tyler products.

Support Availability

Tyler Technologies support is available during the local business hours of 8 AM to 5 PM (Monday – Friday) across four US time zones (Pacific, Mountain, Central and Eastern). Tyler's holiday schedule is outlined below. There will be no support coverage on these days.

New Year's Day	Thanksgiving Day
Memorial Day	Day after Thanksgiving
Independence Day	Christmas Day
Labor Day	

For support teams that provide after-hours service, we will provide you with procedures for contacting support staff after normal business hours for reporting Priority Level 1 Defects only. Upon receipt of

such a Defect notification, we will use commercially reasonable efforts to meet the resolution targets set forth below.

We will also make commercially reasonable efforts to be available for one pre-scheduled Saturday of each month to assist your IT staff with applying patches and release upgrades, as well as consulting with them on server maintenance and configuration of the Tyler Software environment.

Incident Handling

Incident Tracking

Every support incident is logged into Tyler's Customer Relationship Management System and given a unique case number. This system tracks the history of each incident. The case number is used to track and reference open issues when clients contact support. Clients may track incidents, using the case number, through Tyler's Customer Portal or by calling software support directly.

Incident Priority

Each incident is assigned a priority level, which corresponds to the Client's needs. Tyler and the Client will reasonably set the priority of the incident per the chart below. This chart is not intended to address every type of support incident, and certain "characteristics" may or may not apply depending on whether the Tyler software has been deployed on customer infrastructure or the Tyler cloud. The goal is to help guide the Client towards clearly understanding and communicating the importance of the issue and to describe generally expected response and resolution targets in the production environment only.

References to a "confirmed support incident" mean that Tyler and the Client have successfully validated the reported Defect/support incident.

Priority Level	Characteristics of Support Incident	Resolution Targets*
1 Critical	Support incident that causes (a) complete application failure or application unavailability; (b) application failure or unavailability in one or more of the client's remote location; or (c) systemic loss of multiple essential system functions.	Tyler shall provide an initial response to Priority Level 1 incidents within one (1) business hour of receipt of the incident. Once the incident has been confirmed, Tyler shall use commercially reasonable efforts to resolve such support incidents or provide a circumvention procedure within one (1) business day. For non-hosted customers, Tyler's responsibility for lost or corrupted data is limited to assisting the Client in restoring its last available database.

Priority Level	Characteristics of Support Incident	Resolution Targets*
2 High	Support incident that causes (a) repeated, consistent failure of essential functionality affecting more than one user or (b) loss or corruption of data.	Tyler shall provide an initial response to Priority Level 2 incidents within four (4) business hours of receipt of the incident. Once the incident has been confirmed, Tyler shall use commercially reasonable efforts to resolve such support incidents or provide a circumvention procedure within ten (10) business days. For non-hosted customers, Tyler's responsibility for loss or corrupted data is limited to assisting the Client in restoring its last available database.
3 Medium	Priority Level 1 incident with an existing circumvention procedure, or a Priority Level 2 incident that affects only one user or for which there is an existing circumvention procedure.	Tyler shall provide an initial response to Priority Level 3 incidents within one (1) business day of receipt of the incident. Once the incident has been confirmed, Tyler shall use commercially reasonable efforts to resolve such support incidents without the need for a circumvention procedure with the next published maintenance update or service pack, which shall occur at least quarterly. For non-hosted customers, Tyler's responsibility for lost or corrupted data is limited to assisting the Client in restoring its last available database.
4 Non-critical	Support incident that causes failure of non-essential functionality or a cosmetic or other issue that does not qualify as any other Priority Level.	Tyler shall provide an initial response to Priority Level 4 incidents within two (2) business days of receipt of the incident. Once the incident has been confirmed, Tyler shall use commercially reasonable efforts to resolve such support incidents, as well as cosmetic issues, with a future version release.

Response and Resolution Targets may differ by product or business need

Incident Escalation

If Tyler is unable to resolve any priority level 1 or 2 defect as listed above or the priority of an issue has elevated since initiation, you may escalate the incident to the appropriate resource, as outlined by each product support team. The corresponding resource will meet with you and any Tyler staff to establish a mutually agreeable plan for addressing the defect.

Remote Support Tool

Some support calls may require further analysis of the Client's database, processes or setup to diagnose a problem or to assist with a question. Tyler will, at its discretion, use an industry-standard remote support tool. Tyler's support team must have the ability to quickly connect to the Client's system and view the site's setup, diagnose problems, or assist with screen navigation. More information about the remote support tool Tyler uses is available upon request.

Exhibit D
Third Party Terms

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Exhibit D
Schedule 1
Hyperlinked Terms

Pattern Stream Terms. Your use of Pattern Stream software and services is subject to the terms found here: https://www.tylertech.com/terms/finite-matters-ltd-consolidated-terms. By signing a Tyler Agreement or Order Form, or accessing, installing, or using Pattern Stream software or services, you agree that you have read, understood, and agree to such terms.

Quatred Terms. Your use of Quatred solutions is subject to the End User License Agreement terms found here: https://www.quatred.com/eula. By signing a Tyler Agreement or Order Form, or accessing, installing, or using Quatred solutions provided to you by Tyler, you agree that you have read, understood, and agree to such terms.

ThinPrint Terms. Your use of Tyler Forms software and forms is subject to the End User License Agreement terms for ThinPrint Engine, ThinPrint License Server, and Connected Gateway found here: https://www.thinprint.com/en/legal-notes/eula/. By signing a Tyler Agreement or Order Form, or accessing, installing, or using Tyler Forms software or forms, you agree that you have read, understood, and agree to such terms.

Twilio Acceptable Use Policy. Your use of the Tyler solutions listed below includes functionality provided by a Third Party Developer, Twilio. Your rights, and the rights of any of your end users, to use said functionality are subject to the terms of the Twilio Acceptable Use Policy, available at http://www.twilio.com/legal/aup. By signing a Tyler Agreement or Order Form, or accessing, installing, or using any such Tyler solution, you certify that you have reviewed, understand and agree to said terms. Tyler hereby disclaims any and all liability related to your or your end user's failure to abide by the terms of the Twilio Acceptable Use Policy. Any liability for failure to abide by said terms shall rest solely with the person or entity whose conduct violated said terms.

- Electronic Warrants
- Modria
- Odyssey Notifications Add On (text notifications)
- ReadySub
- Tyler ACFR
- Tyler Notify
- Tyler Jury Manager
- Tyler Supervision
- Virtual Court

Exhibit E
Statement of Work

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Trophy Club Municipal Utility District No. 1

SOW from Tyler Technologies, Inc.

8/23/2021

Presented to:
Steven Krolczyk
100 Municipal Drive
Trophy Club, TX 76262

Contact:
Kirk Cunningham
Email: Kirk.Cunningham@TylerTech.com
5519 53rd Street, Lubbock, TX 79414

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Part 1: Executive Summary

1. Project Overview

1.1 Introduction

Tyler Technologies ("Tyler") is the largest and most established provider of integrated software and technology services focused solely on the public sector. Tyler's end-to-end solutions empower public sector entities including local, state, provincial and federal government, to operate more efficiently and connect more transparently with their constituents and with each other. By connecting data and processes across disparate systems, Tyler's solutions transform how clients gain actionable insights that solve problems in their communities.

1.2 Project Goals

This Statement of Work ("SOW") documents the methodology, implementation stages, activities, and roles and responsibilities, and project scope listed in the Investment Summary of the Agreement between Tyler and Client (collectively the "Project").

The overall goals of the project are to:

- Successfully implement the contracted scope on time and on budget
- Increase operational efficiencies and empower users to be more productive
- Improve accessibility and responsiveness to external and internal customer needs
- Overcome current challenges and meet future goals
- Providing a single, comprehensive, and integrated solution to manage business functions
- Streamline business processes through automation, integration, and workflows
- Provide a user-friendly user interface to promote system use and productivity
- Eliminate redundant data entry

1.3 Methodology

This is accomplished by District and Tyler working as a partnership and Tyler utilizing its depth of implementation experience. While each Project is unique, all will follow Tyler's six-stage methodology. Each of the six stages is comprised of multiple work packages, and each work package includes a narrative description, objectives, tasks, inputs, outputs/deliverables, assumptions, and a responsibility matrix.

Tailored specifically for Tyler's public sector clients, the project methodology contains Stage Acceptance Control Points throughout each Phase to ensure adherence to scope, budget, timeline controls, effective communications, and quality standards. Clearly defined, the project methodology repeats consistently across Phases, and is scaled to meet the Client's complexity and organizational needs.

The methodology adapts to both single-phase and multiple-phase projects.

To achieve Project success, it is imperative that both District and Tyler commit to including the necessary leadership and governance. During each stage of the Project, it is expected that District and Tyler Project teams work collaboratively to complete tasks. An underlying principle of Tyler's Implementation process is to employ an iterative model where District's business processes are assessed, configured, validated, and refined cyclically in line with the project budget. This approach is used in multiple stages and work packages as illustrated in the graphic below.

The delivery approach is systematic, which reduces variability and mitigates risks to ensure Project success. As illustrated, some stages, along with work packages and tasks, are intended to be overlapping by nature to efficiently and effectively complete the Project.

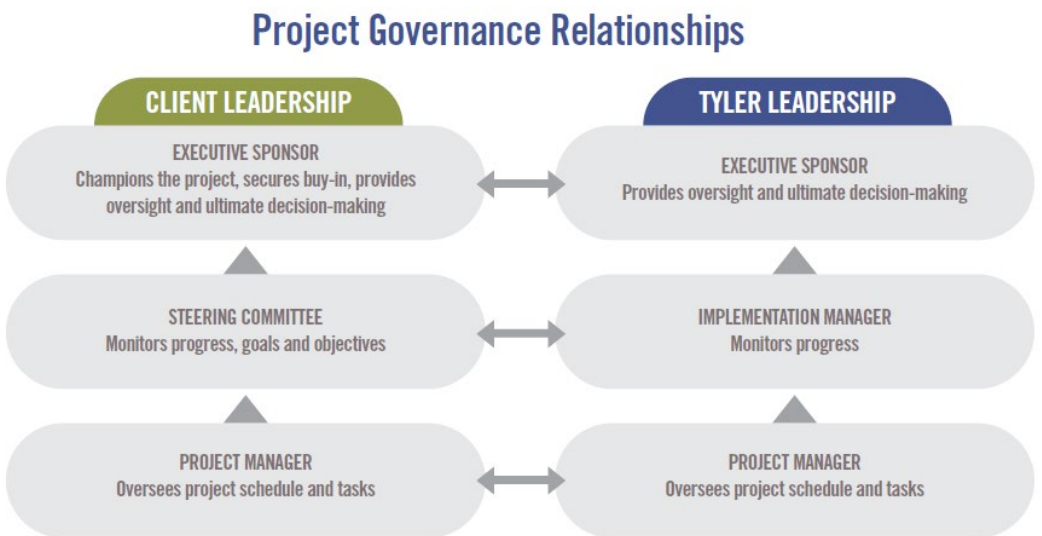
Part 2: Project Foundation

2. Project Governance

Project governance is the management framework within which Project decisions are made. The role of Project governance is to provide a decision-making approach that is logical, robust, and repeatable. This allows organizations to have a structured approach for conducting its daily business in addition to project related activities.

This section outlines the resources required to adequately meet the business needs, objectives, and priorities for the Project, communicate the goals to other Project participants, and provide support and guidance to accomplish these goals. Project governance defines the structure for escalation of issues and risks, Change Control review and authority, and Organizational Change Management activities. Throughout the Statement of Work Tyler has provided RACI Matrices for activities to be completed throughout the implementation which will further outline responsibilities of different roles in each stage. Further refinement of the governance structure, related processes, and specific roles and responsibilities occurs during the Initiate & Plan Stage.

The chart below illustrates an overall team perspective where Tyler and District collaborate to resolve Project challenges according to defined escalation paths. In the event that project managers do not possess authority to determine a solution, resolve an issue, or mitigate a risk, Tyler implementation management and District Steering Committee become the escalation points to triage responses prior to escalation to District and Tyler executive sponsors. As part of the escalation process, each Project governance tier presents recommendations and supporting information to facilitate knowledge transfer and issue resolution. District and Tyler executive sponsors serve as the final escalation point.



3. Project Scope Control

3.1 Managing Scope and Project Change

Project Management governance principles contend that there are three connected constraints on a Project: budget, timeline, and scope. These constraints, known as the 'triple constraints' or Project management triangle, define budget in terms of financial cost, labor costs, and other resource costs. Scope is defined as the work performed to deliver a product, service or result with the specified features and functions, while time is simply defined as the schedule. The Triple Constraint theory states that if you change one side of the triangle, the other two sides must be correspondingly adjusted. For example, if the scope of the Project is increased, cost and time to complete will also need to increase. The Project and executive teams will need to remain cognizant of these constraints when making impactful decisions to the Project. A simple illustration of this triangle is included here, showing the connection of each item and their relational impact to the overall Scope.

A pillar of any successful project is the ability to properly manage scope while allowing the appropriate level of flexibility to incorporate approved changes. Scope and changes within the project will be managed using the change control process outlined in the following section.

3.2 Change Control

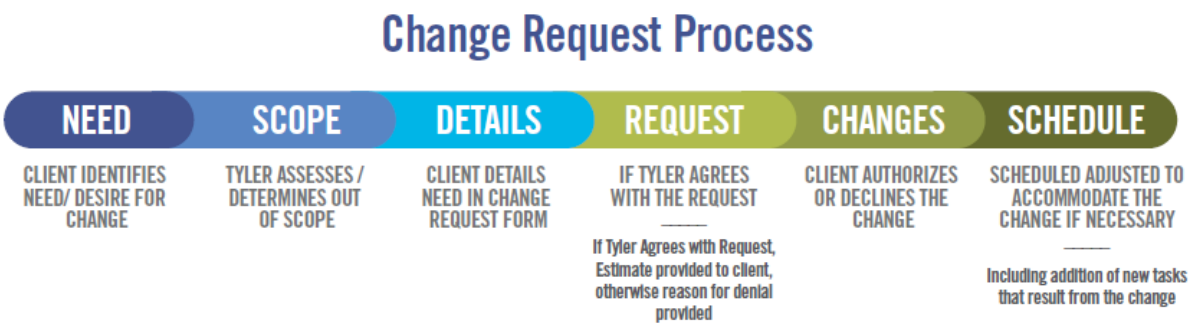
It may become necessary to change the scope of this Project due to unforeseeable circumstances (e.g., new constraints or opportunities are discovered). This Project is being undertaken with the understanding that Project scope, schedule, and/or cost may need to change in order to produce optimal results for stakeholders. Changes to contractual requirements will follow the change control process specified in the final contract, and as described below.

3.3 Change Request Management

Should the need for a change to Project scope, schedule, and/or cost be identified during the Project, the change will be brought to the attention of the Steering Committee and an assessment of the change will occur. While such changes may result in additional costs and possible delays relative to the schedule, some changes may result in less cost to District; for example, District may decide it no longer needs a deliverable originally defined in the Project. The Change Request will include the following information:

- The nature of the change.
- A good faith estimate of the additional cost or associated savings to District, if any.
- The timetable for implementing the change.
- The effect on and/or risk to the schedule, resource needs or resource responsibilities.

District will use its good faith efforts to either approve or disapprove any Change Request within ten (10) Business Days (or other period as mutually agreeable between Tyler and District). Any changes to the Project scope, budget, or timeline must be documented and approved in writing using a Change Request form. These changes constitute a formal amendment to the Statement of Work and will supersede any conflicting term in the Statement of Work.



4. Acceptance Process

The implementation of a Project involves many decisions to be made throughout its lifecycle. Decisions will vary from higher level strategy decisions to smaller, detailed Project level decisions. It is critical to the success of the Project that each District office or department designates specific individuals for making decisions on behalf of their offices or departments.

Both Tyler and the District will identify representative project managers. These individuals will represent the interests of all stakeholders and serve as the primary contacts between the two organizations.

The coordination of gaining client feedback and approval on Project deliverables will be critical to the success of the Project. The District project manager will strive to gain deliverable and decision approvals from all authorized District representatives. Given that the designated decision-maker for each department may not always be available, there must be a designated proxy for each decision point in the Project. Assignment of each proxy will be the responsibility of the leadership from each District department. The proxies will be named individuals that have the authorization to make decisions on behalf of their department.

The following process will be used for accepting Deliverables and Control Points:

- The District shall have five (5) business days from the date of delivery, or as otherwise mutually agreed upon by the parties in writing, to accept each Deliverable or Control Point. If the District does not provide acceptance or acknowledgement within five (5) business days, or the otherwise agreed upon timeframe, not to be unreasonably withheld, Tyler deems the Deliverable or Control Point as accepted.
- If the District does not agree the particular Deliverable or Control Point meets requirements, the District shall notify Tyler project manager(s), in writing, with reasoning within five (5) business days, or the otherwise agreed-upon timeframe, not to be unreasonably withheld, of receipt of the Deliverable.
- Tyler shall address any deficiencies and redeliver the Deliverable or Control Point. The District shall then have two (2) business days from receipt of the redelivered Deliverable or Control Point to accept or again submit written notification of reasons for rejecting the milestone. If the District does not provide acceptance within two (2) business days, or the otherwise agreed upon timeframe, not to be unreasonably withheld, Tyler deems the Deliverable or Control Point as accepted.

5. Roles and Responsibilities

The following defines the roles and responsibilities of each Project resource for District and Tyler. Roles and responsibilities may not follow the organizational chart or position descriptions at District, but are roles defined within the Project. It is common for individual resources on both the Tyler and client project teams to fill multiple roles. Similarly, it is common for some roles to be filled by multiple people.

5.1 Tyler Roles & Responsibilities

Tyler assigns a project manager prior to the start of each Phase of the Project (some Projects may only be one Phase in duration). Additional Tyler resources are assigned as the schedule develops and as needs arise.

5.1.1 Tyler Executive Sponsor

Tyler executive management has indirect involvement with the Project and is part of the Tyler escalation process. This team member offers additional support to the Project team and collaborates with other Tyler department managers as needed in order to escalate and facilitate implementation Project tasks and decisions.

- Provides clear direction for Tyler staff on executing on the Project Deliverables to align with satisfying District ’s overall organizational strategy.
- Authorizes required Project resources.
- Resolves all decisions and/or issues not resolved at the implementation management level as part of the escalation process.
- Acts as the counterpart to District ’s executive sponsor.

5.1.2 Tyler Implementation Manager

- Tyler implementation management has indirect involvement with the Project and is part of the Tyler escalation process. The Tyler project managers consult implementation management on issues and outstanding decisions critical to the Project. Implementation management works toward a solution with the Tyler Project Manager or with District management as appropriate. Tyler executive management is the escalation point for any issues not resolved at this level.
- Assigns Tyler Project personnel.
- Provides support for the Project team.
- Provides management support for the Project to ensure it is staffed appropriately and staff have necessary resources.
- Monitors Project progress including progress towards agreed upon goals and objectives.

5.1.3 Tyler Project Manager

- The Tyler project manager(s) provides oversight of the Project, coordination of Tyler resources between departments, management of the Project budget and schedule, effective risk and issue management, and is the primary point of contact for all Project related items. As requested by the client, the Tyler Project Manager provides regular updates to the client Steering Committee and other Tyler governance members. Tyler Project Manager’s role includes responsibilities in the following areas:

5.1.3.1 Contract Management

- Validates contract compliance throughout the Project.
- Ensures Deliverables meet contract requirements.
- Acts as primary point of contact for all contract and invoicing questions.
- Prepares and presents contract milestone sign-offs for acceptance by District project manager(s).
- Coordinates Change Requests, if needed, to ensure proper Scope and budgetary compliance.

5.1.3.2 Planning

- Delivers project planning documents.
- Defines Project tasks and resource requirements.
- Develops initial Project schedule and Project Management Plan.

- Collaborates with District project manager(s) to plan and schedule Project timelines to achieve on-time implementation.

5.1.3.3 Implementation Management

- Tightly manages Scope and budget of Project to ensure Scope changes and budget planned versus actual are transparent and handled effectively and efficiently.
- Establishes and manages a schedule and Tyler resources that properly support the Project Schedule and are also in balance with Scope/budget.
- Establishes risk/issue tracking/reporting process between District and Tyler and takes all necessary steps to proactively mitigate these items or communicate with transparency to District any items that may impact the outcomes of the Project.
- Collaborates with District ’s project manager(s) to establish key business drivers and success indicators that will help to govern Project activities and key decisions to ensure a quality outcome of the project.
- Collaborates with District ’s project manager(s) to set a routine communication plan that will aide all Project team members, of both District and Tyler, in understanding the goals, objectives, current status, and health of the Project.

5.1.3.4 Resource Management

- Acts as liaison between Project team and Tyler manager(s).
- Identifies and coordinates all Tyler resources across all applications, Phases, and activities including development, forms, installation, reports, implementation, and billing.
- Provides direction and support to Project team.
- Manages the appropriate assignment and timely completion of tasks as defined in the Project Schedule, task list, and Go-Live Checklist.
- Assesses team performance and adjusts as necessary.
- Consulted on in Scope 3rd party providers to align activities with ongoing Project tasks.

5.1.4 Tyler Implementation Consultant

- Completes tasks as assigned by the Tyler project manager(s).
- Documents activities for services performed by Tyler.
- Guides District through software validation process following configuration.
- Assists during Go-Live process and provides support until District transitions to Client Services.
- Facilitates training sessions and discussions with District and Tyler staff to ensure adequate discussion of the appropriate agenda topics during the allotted time.
- May provide conversion review and error resolution assistance.

5.1.5 Tyler Sales

- Supports Sales to Implementation knowledge transfer during Initiate & Plan.
- Provides historical information, as needed, throughout implementation.
- Participates in pricing activities if additional licensing and/or services are needed.

5.1.6 Tyler Technical Services

- Maintains Tyler infrastructure requirements and design document(s).
- Involved in system infrastructure planning/review(s).
- Provides first installation of licensed software with initial database on servers.

- Supports and assists the project team with technical/environmental issues/needs.
- Deploys Tyler products.

5.2 District Roles & Responsibilities

District resources will be assigned prior to the start of each Phase of the Project. One person may be assigned to multiple Project roles.

5.2.1 District Executive Sponsor

The District executive sponsor provides support to the Project by providing strategic direction and communicating key issues about the Project and its overall importance to the organization. When called upon, the executive sponsor also acts as the final authority on all escalated Project issues. The executive sponsor engages in the Project, as needed, in order to provide necessary support, oversight, guidance, and escalation, but does not participate in day-to-day Project activities. The executive sponsor empowers the District steering committee, project manager(s), and functional leads to make critical business decisions for District.

- Champions the project at the executive level to secure buy-in.
- Authorizes required project resources.
- Actively participates in organizational change communications.

5.2.2 District Steering Committee

The District steering committee understands and supports the cultural change necessary for the Project and fosters an appreciation for the Project's value throughout the organization. The steering committee oversees the District project manager and Project as a whole through participation in regular internal meetings. The District steering committee remains updated on all Project progress, Project decisions, and achievement of Project milestones. The District steering committee also serves as primary level of issue resolution for the Project.

- Works to resolve all decisions and/or issues not resolved at the project manager level as part of the escalation process.
- Attends all scheduled steering committee meetings.
- Provides support for the project team.
- Assists with communicating key project messages throughout the organization.
- Prioritizes the project within the organization.
- Ensures the project staffed appropriately and that staff have necessary resources.
- Monitors project progress including progress towards agreed upon goals and objectives.
- Has the authority to approve or deny changes impacting the following areas:
    - Cost
    - Scope
    - Schedule
    - Project Goals
    - District Policies
    - Needs of other client projects

5.2.3 District Project Manager

District shall assign project manager(s) prior to the start of this project with overall responsibility and authority to make decisions related to Project Scope, scheduling, and task assignment. District Project Manager should communicate decisions and commitments to the Tyler project manager(s) in a timely and efficient manner. When District project manager(s) do not have the knowledge or authority to make decisions, he or she engages the necessary resources to participate in discussions and make decisions in a timely fashion to avoid Project delays. The client project manager(s) are responsible for reporting to client steering committee and determining appropriate escalation points.

5.2.3.1 Contract Management

- Validates contract compliance throughout the project.
- Ensures that invoicing and Deliverables meet contract requirements.
- Acts as primary point of contact for all contract and invoicing questions. Collaborates on and approves Change Requests, if needed, to ensure proper scope and budgetary compliance.

5.2.3.2 Planning

- Reviews and accepts project planning documents.
- Defines project tasks and resource requirements for District project team.
- Collaborates in the development and approval of the project schedule.
- Collaborates with Tyler project manager(s) to plan and schedule project timelines to achieve on-time implementation.

5.2.3.3 Implementation Management

- Tightly manages project budget and scope.
- Collaborates with Tyler project manager(s) to establish a process and approval matrix to ensure that scope changes and budget (planned versus actual) are transparent and handled effectively and efficiently.
- Collaborates with Tyler project manager to establish and manage a schedule and resource plan that properly supports the project schedule as a whole and is also in balance with scope and budget.
- Collaborates with Tyler project manager(s) to establish risk and issue tracking and reporting process between District and Tyler and takes all necessary steps to proactively mitigate these items or communicate with transparency to Tyler any items that may impact the outcomes of the project.
- Collaborates with Tyler project manager(s) to establish key business drivers and success indicators that will help to govern project activities and key decisions to ensure a quality outcome of the project.
- Routinely communicates with both District staff and Tyler, aiding in the understanding of goals, objectives, current status, and health of the project by all team members.
- Manages the requirements gathering process and ensure timely and quality business requirements are being provided to Tyler.

5.2.3.4 Resource Management

- Acts as liaison between project team and stakeholders.
- Identifies and coordinates all District resources across all modules, phases, and activities including data conversions, forms design, hardware and software installation, reports building, and satisfying invoices.
- Provides direction and support to project team.

- Builds partnerships among the various stakeholders, negotiating authority to move the project forward.
- Manages the appropriate assignment and timely completion of tasks as defined.
- Assesses team performance and takes corrective action, if needed.
- Provides guidance to District technical teams to ensure appropriate response and collaboration with Tyler Technical Support Teams in order to ensure timely response and appropriate resolution.
- Owns the relationship with in-Scope 3rd party providers and aligns activities with ongoing project tasks.
- Ensures that users have appropriate access to Tyler project toolsets as required.
- Conducts training on proper use of toolsets.
- Validates completion of required assignments using toolsets.

5.2.4 District Functional Leads

- Makes business process change decisions under time sensitive conditions.
- Communicates existing business processes and procedures to Tyler consultants.
- Assists in identifying business process changes that may require escalation.
- Contributes business process expertise for Current & Future State Analysis.
- Identifies and includes additional subject matter experts to participate in Current & Future State Analysis.
- Validates that necessary skills have been retained by end users.
- Provides End Users with dedicated time to complete required homework tasks.
- Acts as an ambassador/champion of change for the new process and provide business process change support.
- Identifies and communicates any additional training needs or scheduling conflicts to District project manager.
- Actively participates in all aspects of the implementation, including, but not limited to, the following key activities:
    - Task completion
    - Stakeholder Meeting
    - Project Management Plan development
    - Schedule development
    - Maintenance and monitoring of risk register
    - Escalation of issues
    - Communication with Tyler project team
    - Coordination of District resources
    - Attendance at scheduled sessions
    - Change management activities
    - Modification specification, demonstrations, testing and approval assistance
    - Data analysis assistance
    - Decentralized end user training
    - Process testing
    - Solution Validation

5.2.5 District Power Users

- Participate in project activities as required by the project team and project manager(s).
- Provide subject matter expertise on District business processes and requirements.
- Act as subject matter experts and attend Current & Future State Analysis sessions as needed.
- Attend all scheduled training sessions.

- Participate in all required post-training processes as needed throughout project.
- Test all application configuration to ensure it satisfies business process requirements.
- Become application experts.
- Participate in Solution Validation.
- Adopt and support changed procedures.
- Complete all deliverables by the due dates defined in the project schedule.
- Demonstrate competency with Tyler products processing prior to Go-live.
- Provide knowledge transfer to District staff during and after implementation.
- Participate in conversion review and validation.

5.2.6 District End Users

- Attend all scheduled training sessions.
- Become proficient in application functions related to job duties.
- Adopt and utilize changed procedures.
- Complete all deliverables by the due dates defined in the project schedule.
- Utilize software to perform job functions at and beyond Go-live.

5.2.7 District Technical Lead

- Coordinates updates and releases with Tyler as needed.
- Coordinates the copying of source databases to training/testing databases as needed for training days.
- Coordinates and adds new users, printers and other peripherals as needed.
- Validates that all users understand log-on process and have necessary permission for all training sessions.
- Coordinates interface development for District third party interfaces.
- Develops or assists in creating reports as needed.
- Ensures on-site system meets specifications provided by Tyler.
- Assists with software installation as needed.
- Extracts and transmits conversion data and control reports from District's legacy system per the conversion schedule set forth in the project schedule.
- Client-hosted:
    - Involved in infrastructure planning/review
    - Purchases and sets up client-hosted servers

5.2.7.1 District Upgrade Coordination

- Becomes familiar with the software upgrade process and required steps.
- Becomes familiar with Tyler's releases and updates.
- Utilizes Tyler resources to stay abreast of the latest Tyler releases and updates, as well as the latest helpful tools to manage District's software upgrade process.
- Assists with the software upgrade process during implementation.
- Manages software upgrade activities post-implementation.
- Manages software upgrade plan activities.
- Coordinates software upgrade plan activities with District and Tyler resources.
- Communicates changes affecting users and department stakeholders.
- Obtains department stakeholder acceptance to upgrade production environment.

5.2.8 District Change Management Lead

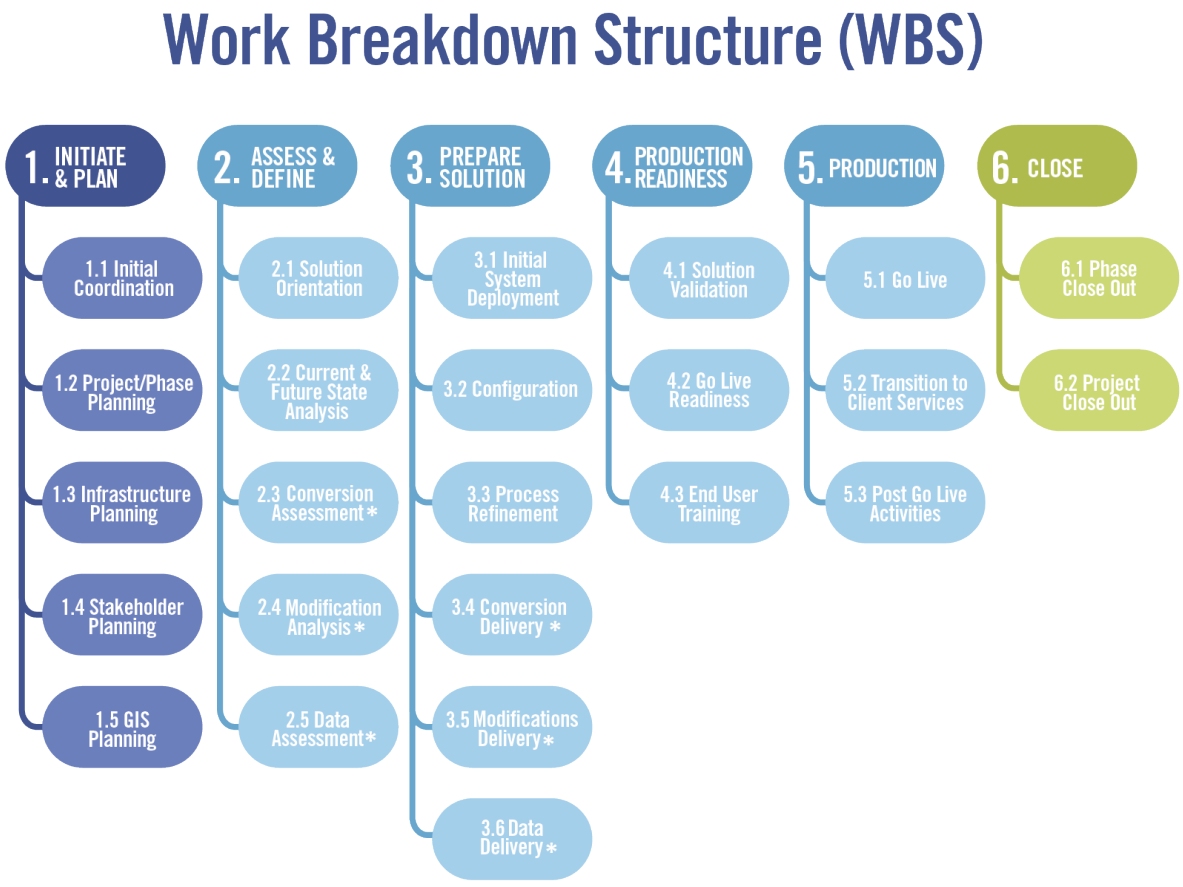
- Validates that users receive timely and thorough communication regarding process changes.
- Provides coaching to supervisors to prepare them to support users through the project changes.
- Identifies the impact areas resulting from project activities and develops a plan to address them proactively.
- Identifies areas of resistance and develops a plan to reinforce the change.
- Monitors post-production performance and new process adherence.

Part 3: Project Plan

6. Project Stages

Work Breakdown Structure

The Work Breakdown Structure (WBS) is a hierarchical representation of a Project or Phase broken down into smaller, more manageable components. The top-level components are called "Stages" and the second level components are called "Work Packages". The work packages, shown below each stage, contain the high-level work to be done. The detailed Project Schedule, developed during Project/Phase Planning and finalized during subsequent stages, lists the tasks to be completed within each work package. Each stage ends with a "Control Point", confirming the work performed during that stage of the Project has been accepted by District.



**Items noted with an asterisk in the graphic above relate to specific products and services. If those products and services are not included in the scope of the contract, these specific work packages will be noted as "Intentionally Left Blank" in Section 6 of the Statement of Work.*

6.1 Initiate and Plan

The Initiate and Plan stage involves Project initiation, infrastructure, and planning. This stage creates a foundation for the Project by identifying and establishing sequence and timing for each Phase as well as verifying scope for the Project. This stage will be conducted at the onset of the Project, with a few unique items being repeated for the additional Phases as needed.

6.1.1 Initial Coordination

Prior to Project commencement, Tyler management assigns project manager(s). Additional Project resources will be assigned later in the Project as a Project schedule is developed. Tyler provides District with initial Project documents used to gather names of key personnel, their functional role as it pertains to the Project, as well as any blackout dates to consider for future planning. District gathers the information requested by the provided deadline ensuring preliminary planning and scheduling can be conducted moving the Project forward in a timely fashion. Internally, the Tyler Project Manager(s) coordinate with sales to ensure transfer of vital information from the sales process prior to scheduling a Project Planning Meeting with District's team. During this step, Tyler will work with District to establish the date(s) for the Project and Phase Planning session.

Objectives:

- Formally launch the project.
- Establish project governance.
- Define and communicate governance for Tyler.
- Identify client project team.

STAGE 1	Initial Coordination																
	Tyler								Client								
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power	Department Heads	End Users	Technical Leads
Tyler project team is assigned	A	R	C	I	I	I	I		I		I						
Client project team is assigned									A	I	R	I	I	I			
Provide initial project documents to District		A	R	C			C		I		I						
Gather preliminary information requested			I						A		R	C		C		C	C
Sales to implementation knowledge transfer		A	R	I	I	I	I				I						
Create Project Portal to store project artifacts and facilitate communication		A	R								I						

Inputs	Contract documents
	Statement of Work

Outputs/Deliverables	Completed initial project documents
	Project portal

Work package assumptions:

- Project activities begin after the agreement has been fully executed.

6.1.2 Project/Phase Planning

Project and Phase planning provides an opportunity to review the contract, software, data conversions and services purchased, identify applications to implement in each Phase (if applicable), and discuss implementation timeframes.

During this work package Tyler will work with District to coordinate and plan a formal Project planning meeting(s). This meeting signifies the start of the Project and should be attended by all District Project team members and the Tyler Project Manager. The meeting provides an opportunity for Tyler to introduce its implementation methodology, terminology, and Project management best practices to District's Project Team. This will also present an opportunity for project managers and Project sponsors to begin to discuss Project communication, metrics, status reporting and tools to be used to measure Project progress and manage change.

Tyler will work with the District Project Team to prepare and deliver the Project Management Plan as an output of the planning meeting. This plan will continue to evolve and grow as the Project progresses and will describe how the project will be executed, monitored, and controlled.

During project planning, Tyler will introduce the tools that will be used throughout the implementation. Tyler will familiarize the client with these tools during project planning and make them available for review and maintenance as applicable throughout the project. Some examples are Solution validation plan, issue log, and go-live checklist.

STAGE 1	Project/Phase Planning															
	Tyler								Client							
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power	Department Heads	End Users	Technical Leads
Schedule and conduct planning session(s)		A	R						I		C	C	I				

Develop Project Management Plan		A	R						I		C	C	I				
Develop initial project schedule		A	R	I	I	I	I		I	I	C	C	I	I	C		I

Inputs	Contract documents
	Statement of Work
	Guide to Starting Your Project

Outputs / Deliverables		Acceptance Criteria [only] for Deliverables
	Project Management Plan	Delivery of document
	Project Operational Plan	Delivery of document
	Initial Project Schedule	District provides acceptance of schedule based on resource availability, project budget, and goals.

Work package assumptions:

- District has reviewed and completed the Guide to Starting Your Project document.

6.1.3 Infrastructure Planning

Procuring required hardware and setting it up properly is a critical part of a successful implementation. This task is especially important on-premise deployment models. In an On-premise deployment, the District will be responsible for the setup of the infrastructure. Tyler will install Licensed Software on application server(s) or train District to install License Software. The District is responsible for the installation and setup of all peripheral devices.

Objectives:

- Ensure District's infrastructure meets Tyler's application requirements.
- Ensure District's infrastructure is scheduled to be in place and available for use on time.

STAGE 1	Infrastructure Planning																
	Tyler								Client								
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts	Department Heads	End Users	Technical Leads
Provide Infrastructure Requirements and Design Document		A	R		C		C				I						I
Initial Infrastructure Meeting		A	R		C		C				C						C

Schedule Installation of All Licensed Software		A	R				C				I						I
Infrastructure Audit		A	R				C				I						C

Inputs	1. Initial Infrastructure Requirements and Design Document

Outputs / Deliverables		Acceptance Criteria [only] for Deliverables
	1. Completed Infrastructure Requirements and Design Document	Delivery of Document
	2. Infrastructure Audit	System Passes Audit Criteria

Work package assumptions:

- District will maintain environment (or virtual environment) for On-Premise deployments.

6.1.4 Stakeholder Meeting

Communication of the Project planning outcomes to the District Project team, executives and other key stakeholders is vital to Project success. The Stakeholder meeting is a strategic activity to inform, engage, gain commitment, and instill confidence in the District team. During the meeting, the goals and objectives of the Project will be reviewed along with detail on Project scope, implementation methodology, roles and responsibilities, Project timeline and schedule, and keys to Project success.

Objectives:

- Formally present and communicate the project activities and timeline.
- Communicate project expectations.

STAGE 1	Stakeholder Meeting																
	Tyler								Client								
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power	Department Heads	End Users	Technical Leads
Create Stakeholder Meeting Presentation	I	A	R	I	I				I	I	C		I				
Review Stakeholder Meeting Presentation		I	C						A		R		C				
Perform Stakeholder Meeting Presentation	I	A	R	I	I				I	I	C	I	I	I	I	I	I

Inputs	Agreement

	SOW
	Project Management Plan

Outputs / Deliverables		Acceptance Criteria [only] for Deliverables
	Stakeholder Meeting Presentation	

Work package assumptions:

- None

6.1.5 Intentionally left blank.

6.1.6 Control Point 1: Initiate & Plan Stage Acceptance

Acceptance criteria for this stage includes completion of all criteria listed below.

Note: Advancement to the Assess & Define stage is not dependent upon Tyler's receipt of this stage acceptance.

Initiate & Plan Stage Deliverables:

- Project Management Plan
- Initial Project Schedule

Initiate & Plan stage acceptance criteria:

- All stage deliverables accepted based on acceptance criteria previously defined
- Project governance defined
- Project portal made available to District
- Stakeholder meeting complete

6.2 Assess & Define

The Assess & Define stage will provide an opportunity to gather information related to current District business processes. This information will be used to identify and define business processes utilized with Tyler software. District collaborates with Tyler providing complete and accurate information to Tyler staff and assisting in analysis, understanding current workflows and business processes.

6.2.1 Solution Orientation

The Solution Orientation provides the Project stakeholders a high-level understanding of the solution functionality prior to beginning the current and future state analysis. The primary goal is to establish a foundation for upcoming conversations regarding the design and configuration of the solution.

Tyler utilizes a variety of tools for the Solution Orientation, focusing on District team knowledge transfer such as: eLearning, documentation, or walkthroughs. The District team will gain a better understanding of the major processes and focus on data flow, the connection between configuration options and outcome, integration, and terminology that may be unique to Tyler's solution.

Objectives:

- Provide a basic understanding of system functionality.
- Prepare District for current and future state analysis.

STAGE 2	Solution Orientation																
	Tyler								Client								
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power	Department Heads	End Users	Technical Leads
Provide pre-requisites			A	R							I	I		I	I		I
Complete pre-requisites											A	R		C			C
Conduct orientation			A	R							I	I		I	I		I

Inputs	Solution orientation materials
	Training Plan

6.2.2 Current & Future State Analysis

The Current & Future State Analysis provides the Project stakeholders and Tyler an understanding of process changes that will be achieved with the new system.

District and Tyler will evaluate current state processes, options within the new software, pros and cons of each based on current or desired state and make decisions about the future state configuration and processing. This may occur before or within the same timeframe as the configuration work package. The options within the new software will be limited to the scope of this implementation and will make use of standard Tyler functionality.

The District will adopt the existing Tyler solution wherever possible to avoid project schedule and quality risk from over customization of Tyler products. It is the client's responsibility to verify that in-scope requirements are being met throughout the implementation if functional requirements are defined as part of the contract. The following guidelines will be followed when evaluating if a modification to the product is required:

- A reasonable business process change is available.
- Functionality exists which satisfies the requirement.
- Configuration of the application satisfies the requirement.
- An in-scope modification satisfies the requirement.

Requirements that are not met will follow the agreed upon change control process and can have impacts on the project schedule, scope, budget and resource availability.

STAGE 2	Current & Future State Analysis

	Tyler								Client								
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power	Department Heads	End Users	Technical Leads
Current State process review			A	R	I	I	I				C	C	C	C			C
Discuss future-state options			A	R	C	C	C				C	C	C	C			C
Make future-state decisions (non-COTS)			C	C	C	C	C				A	R	I	C			C
Document anticipated configuration options required to support future state			A	R	C	C	C				I	I	I	I			I

Inputs	Client current state documentation
	Solution Orientation completion

Outputs / Deliverables		Acceptance Criteria [only] for Deliverables
	Documentation that describes future-state decisions and configuration options to support future-state decisions.	Delivery of document

Work package assumptions:

- District attendees possess sufficient knowledge and authority to make future state decisions.
- District is responsible for any documentation of current state business processes.
- Client is able to effectively communicate current state processes.

6.2.3 Conversion Assessment

Data Conversions are a major effort in any software implementation. Tyler's conversion tools facilitate the predictable, repeatable conversion process that is necessary to support a successful transition to the Tyler system. The first step in this process is to perform an assessment of the existing ("legacy") system(s), to better understand the source data, risks, and options available. Once the data has been analyzed, the plan for data conversion is completed and communicated to the appropriate stakeholders.

Objectives:

- Communicate a common understanding of the project goals with respect to data.
- Ensure complete and accurate source data is available for review/transfer.
- Map the data from the source to the Tyler system.
- Document the data conversion/loading approach.

STAGE 2	Data Conversion Assessment																
	Tyler								Client								
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power Users)	Department Heads	End Users	Technical Leads
Extract Data from Source Systems			I		C						A						R
Review and Scrub Source Data			I	I	I						A	R		C			I
Build/Update Data Conversion Plan			R	C	C						C	I	I	I			I

Inputs	Client Source data
	Client Source data Documentation (if available)

Outputs / Deliverables		Acceptance Criteria [only] for Deliverables
	Data Conversion Plan built/updated	Client Acceptance of Data Conversion Plan, if Applicable

Work package assumptions:

- Tyler will be provided with data from the Legacy system(s) in a mutually agreed upon format.
- Tyler will work with District representatives to identify business rules before writing the conversion.
- District subject matter experts and resources most familiar with the current data will be involved in the data conversion planning effort.

6.2.4 Intentionally left blank.

6.2.5 Intentionally left blank.

6.2.6 Control Point 2: Assess & Define Stage Acceptance

Acceptance criteria for this Stage includes completion of all criteria listed below.

Note: Advancement to the Prepare Solution Stage is dependent upon Tyler's receipt of the Stage Acceptance.

Assess & Define Stage Deliverables:

- Documentation of future state decisions and configuration options to support future state decisions.
- Modification specification document.

- Assess & Define Stage Acceptance Criteria:
- All stage deliverables accepted based on criteria previously defined.
- Solution Orientation is delivered.
- Conversion data extracts are received by Tyler.
- Data conversion plan built.

6.3 Prepare Solution

During the Prepare Solution stage, information gathered during the Initiate & Plan and Assess & Define stages will be used to install and configure the Tyler software solution. Software configuration will be validated by the client against future state decisions defined in previous stages and processes refined as needed to ensure business requirements are met.

6.3.1 Initial System Deployment

The timely availability of the Tyler Solution is important to a successful Project implementation. The success and timeliness of subsequent work packages are contingent upon the initial system deployment of Tyler Licensed Software on an approved network and infrastructure. Delays in executing this work package can affect the project schedule.

Objectives:

- District's hardware is available and set up appropriately to meet Tyler's requirements.
- All licensed software is installed and operational.
- District is able to access the software.

STAGE 3	Initial System Deployment (On-Premise)																
	Tyler								Client								
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power ...	Department Heads	End Users	Technical Leads
Review Purchased Hardware			A				R				I						C
Setup/Prepare Hardware for Deployment for Included Environments			I				C				A						R
Install Licensed Software with Initial Database on Server(s) for Included Environments			A				R				I						C

Install Licensed Software on Client Devices (if applicable)			I				C				A						R
Tyler System Administration Training (if applicable)			A				R				I						C

Inputs	Hardware is Procured and Made Available to Tyler

Outputs / Deliverables		Acceptance Criteria [only] for Deliverables
	Licensed Software is Installed on the Server(s)	Software is accessible
	Licensed Software is Installed on District devices (if applicable)	Software is accessible
	Installation Checklist/System Document	System Passes
	Infrastructure Design Document (If Applicable)	

Work package assumptions:

- The most current generally available version of the Tyler Licensed Software will be installed.
- The District will provide network access for Tyler modules, printers, and Internet access to all applicable District and Tyler Project staff.

On-Premise:

- The District has procured sufficient hardware by the agreed upon timeline.
- The procured hardware and software meets Tyler requirements to ensure sufficient speed and operability of Tyler Licensed Software. Tyler will not support the use of Licensed Software if the District does not meet minimum standards of Tyler's published specifications.
- The District has in place and keeps up to date all hardware, software, and technical infrastructure necessary to support the solution.

6.3.2 Configuration

The purpose of Configuration is to prepare the software product for validation.

Tyler staff collaborates with District to complete software configuration based on the outputs of the future state analysis performed during the Assess and Define Stage. District collaborates with Tyler staff iteratively to validate software configuration.

Objectives:

- Software is ready for validation.
- Educate District Power User how to configure and maintain software.
- Prepare standard interfaces for process validation (if applicable).

STAGE 3	Configuration	
	Tyler	Client

RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power	Department Heads	End Users	Technical Leads
Conduct configuration training			A	R							I	C		C			
Complete Tyler configuration tasks (where applicable)			A	R							I	I		I			
Complete Client configuration tasks (where applicable)			I	C							A	R		C			
Standard interfaces configuration and training (if applicable)			A	R			C				I	C		C			C
Updates to Solution Validation testing plan			C	C							A	R		C			C

Inputs	Documentation that describes future state decisions and configuration options to support future state decisions.

Outputs / Deliverables		Acceptance Criteria [only] for Deliverables
	Configured System	N/A

Work package assumptions:

- Tyler provides guidance for configuration options available within the Tyler software. District is responsible for making decisions when multiple options are available.

6.3.3 Process Refinement

Tyler will educate the District users on how to execute processes in the system to prepare them for the validation of the software. District collaborates with Tyler staff iteratively to validate software configuration options to support future state.

Objectives:

- Ensure that District understands future state processes and how to execute the processes in the software.
- Refine each process to meet the business requirements.
- Validate standard interfaces, where applicable.
- Validate forms and reports, where applicable.

STAGE 3	Process Refinement																
	Tyler								Client								
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power	Department Heads	End Users	Technical Leads
Conduct process training			A	R							I	C	I	C			
Confirm process decisions			I	C						A	R	C	I	C			
Test configuration			I	C							A	R		C			
Refine configuration (Client Responsible)			I	C							A	R		C			
Refine configuration (Tyler Responsible)			A	R							I	I		I			
Validate interface process and results			I	C			C				A	R		C			C
Update client-specific process documentation (if applicable)			I	C							A	R		C			
Updates to Solution Validation testing plan			C	C							A	R		C			C

Inputs	Initial Configuration
	Documentation that describes future state decisions and configuration options to support future state decisions.
	Solution validation test plan

Outputs / Deliverables		Acceptance Criteria [only] for Deliverables
	Updated solution validation test plan	
	Completed client-specific process documentation (completed by District)	

Work package assumptions:

- None

6.3.4 Conversion Delivery

The purpose of this task is to transition the District's data from their source ("legacy") system(s) to the Tyler system(s). The data will need to be mapped from the legacy system into the new Tyler system format. A well-executed data conversion is key to a successful cutover to the new system(s).

With guidance from Tyler, the District will review specific data elements within the system and identify / report discrepancies. Iteratively, Tyler will collaborate with the District to address conversion discrepancies. This process will allow for clean, reconciled data to transfer from the source system(s) to the Tyler system(s). Reference Conversion Appendix for additional detail.

Objectives:

- Data is ready for production (Conversion).

STAGE 3	Data Delivery & Conversion																
	Tyler								Client								
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power Users)	Department Heads	End Users	Technical Leads
Provide data crosswalks/code mapping tool			A	C	R						I	I		I			

Populate data crosswalks/code mapping tool			I	C	C						A	R		C			
Iterations: Conversion Development			A	C	R						I						I
Iterations: Deliver converted data			A		R		I				I						I
Iterations: Proof/Review data and reconcile to source system			C	C	C						A	R		C			C

Inputs	
	Data Conversion Plan
	Configuration

Outputs / Deliverables		Acceptance Criteria [only] for Deliverables
	Code Mapping Complete / Validated	N/A
	Conversion Iterations / Reviews Complete	Conversion complete, verified and ready for final pass

Work package assumptions:

- The District will provide a single file layout per source system as identified in the investment summary.
- The District subject matter experts and resources most familiar with the current data will be involved in the data conversion effort.
- The District project team will be responsible for completing the code mapping activity, with assistance from Tyler.

6.3.5 Intentionally left blank.

6.3.6 Intentionally left blank.

6.3.7 Control Point 3: Prepare Solution Stage Acceptance

Acceptance criteria for this Stage includes all criteria listed below in each Work Package.

Note: Advancement to the Production Readiness Stage is dependent upon Tyler's receipt of the Stage Acceptance.

Prepare Solution Stage Deliverables:

- Licensed software is installed.
- Installation checklist/system document.
- Conversion iterations and reviews complete.

Prepare Solution Stage Acceptance Criteria:

- All stage deliverables accepted based on criteria previously defined.
- Software is configured.
- Solution validation test plan has been reviewed and updated if needed.

6.4 Production Readiness

Activities in the Production Readiness stage will prepare the client team for go-live through solution validation, the development of a detailed go-live plan and end user training. A readiness assessment will be conducted with the client to review the status of the project and the organizations readiness for go-live.

6.4.1 Solution Validation

Solution Validation is the end-to-end software testing activity to ensure that District verifies all aspects of the Project (hardware, configuration, business processes, etc.) are functioning properly, and validates that all features and functions per the contract have been deployed for system use.

Objectives:

- Validate that the solution performs as indicated in the solution validation plan.
- Ensure District organization is ready to move forward with go-live and training (if applicable).

STAGE 4	Solution Validation																
	Tyler								Client								
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power	Department Heads	End Users	Technical Leads
Update Solution Validation plan			A	R	C						C	C		C			
Update test scripts (as applicable)			C	C	C						A	R		C			
Perform testing			C	C	C						A	R		C			
Document issues from testing			C	C	C						A	R		C			
Perform required follow-up on issues			A	R	C						C	C		C			

Inputs	Solution Validation plan
	Completed work product from prior stages (configuration, business process, etc.)

Outputs / Deliverables		Acceptance Criteria [only] for Deliverables

	Solution Validation Report	District updates report with testing results

Work package assumptions:

- Designated testing environment has been established.
- Testing includes current phase activities or deliverables only.

6.4.2 Go-Live Readiness

Tyler and District will ensure that all requirements defined in Project planning have been completed and the Go-Live event can occur, as planned. A go-live readiness assessment will be completed identifying risks or actions items to be addressed to ensure the client has considered its ability to successfully Go-Live. Issues and concerns will be discussed and mitigation options documented. Tyler and District will jointly agree to move forward with transition to production. Expectations for final preparation and critical dates for the weeks leading into and during the Go-Live week will be planned in detail and communicated to Project teams.

Objectives:

- Action plan for go-live established.
- Assess go-live readiness.
- Stakeholders informed of go-live activities.

STAGE 4	Go-Live Readiness																
	Tyler								Client								
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power	Department Heads	End Users	Technical Leads
Perform Readiness Assessment	I	A	R	C	C	I	C	I	I	I	I		I				I
Conduct Go-Live planning session		A	R	C							C	C	C	C	C		C
Order peripheral hardware (if applicable)			I							A	R						C
Confirm procedures for Go-Live issue reporting & resolution		A	R	I	I	I	I				C	C	I	I	I	I	I
Develop Go-Live checklist		A	R	C	C						C	C	I	C			C
Final system infrastructure review (where applicable)			A				R				C						C

Inputs	Future state decisions
	Go-live checklist

Outputs / Deliverables		Acceptance Criteria [only] for Deliverables
	Updated go-live checklist	Updated Action plan and Checklist for go-live delivered to District

Work package assumptions:

- None

6.4.3 End User Training

End User Training is a critical part of any successful software implementation. Using a training plan previously reviewed and approved, the Project team will organize and initiate the training activities.

Tyler Led: Tyler provides training for all applicable users. One or multiple occurrences of each scheduled training or implementation topic will be covered.

Tyler will provide standard application documentation for the general use of the software. It is not Tyler's responsibility to develop client specific business process documentation. Client-led training labs using client specific business process documentation if created by the client can be added to the regular training curriculum, enhancing the training experiences of the end users.

Objectives:

- End users are trained on how to use the software prior to go-live.
- District is prepared for on-going training and support of the application.

STAGE 4	End User Training																
	Tyler								Client								
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power	Department Heads	End Users	Technical Leads
Update training plan		A	R	C							C		I		C		
End User training (Tyler-led)		A	R	C							C	C	I	C	C	C	
Train-the-trainer		A	R	C							C	C	I	C			
End User training (Client-led)			C	C							A	R	I	C	C	C	

Inputs	Training Plan
	List of End Users and their Roles / Job Duties
	Configured Tyler System

Outputs / Deliverables		Acceptance Criteria [only] for Deliverables
	End User Training	District signoff that training was delivered

Work package assumptions:

- The District project team will work with Tyler to jointly develop a training curriculum that identifies the size, makeup, and subject-area of each of the training classes.
- Tyler will work with District as much as possible to provide end-user training in a manner that minimizes the impact to the daily operations of District departments.
- District will be responsible for training new users after go-live (exception—previously planned or regular training offerings by Tyler).

6.4.4 Control Point 4: Production Readiness Stage Acceptance

Acceptance criteria for this stage includes all criteria listed below. Advancement to the Production stage is dependent upon Tyler's receipt of the stage acceptance.

Production Readiness stage deliverables:

- Solution Validation Report.
- Update go-live action plan and checklist.
- End user training.

Production Readiness stage acceptance criteria:

- All stage deliverables accepted based on criteria previously defined.
- Go-Live planning session conducted.

6.5 Production

Following end user training the production system will be fully enabled and made ready for daily operational use as of the scheduled date. Tyler and District will follow the comprehensive action plan laid out during Go-Live Readiness to support go-live activities and minimize risk to the Project during go-live. Following go-live, Tyler will work with District to verify that implementation work is concluded, post go-live activities are scheduled, and the transition to Client Services is complete for long-term operations and maintenance of the Tyler software.

6.5.1 Go-Live

Following the action plan for Go-Live, defined in the Production Readiness stage, District and Tyler will complete work assigned to prepare for Go-Live.

District provides final data extract and Reports from the Legacy System for data conversion and Tyler executes final conversion iteration, if applicable. If defined in the action plan, District manually enters any data added to the Legacy System after final data extract into the Tyler system.

Tyler staff collaborates with District during Go-Live activities. District transitions to Tyler software for day-to day business processing.

Some training topics are better addressed following Go-Live when additional data is available in the system or based on timing of applicable business processes and will be scheduled following Go-Live per the Project Schedule.

Objectives:

- Execute day to day processing in Tyler software.
- Client data available in Production environment.

STAGE 5	Go-Live																
	Tyler								Client								
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power	Department Heads	End Users	Technical Leads
Provide final source data extract, if applicable			C		C						A						R
Final source data pushed into production environment, if applicable			A	C	R						I	C		C			C
Proof final converted data, if applicable			C	C	C						A	R		C			
Complete Go-Live activities as defined in the Go-Live action plan			C	C	C					A	R	C	I	C			
Provide Go-Live assistance			A	R	C	C		I			C	C	I	C		I	C

Inputs	Comprehensive Action Plan for Go-Live
	Final source data (if applicable)

Outputs / Deliverables		Acceptance Criteria [only] for Deliverables
	Data is available in production environment	Client confirms data is available in production environment

Work package assumptions:

- District will complete activities documented in the action plan for Go-Live as scheduled.
- External stakeholders will be available to assist in supporting the interfaces associated with the Go-Live live process.
- The Client business processes required for Go-Live are fully documented and tested.

- The District Project team and subject matter experts are the primary point of contact for the end users when reporting issues during Go-Live.
- The District Project Team and Power User's provide business process context to the end users during Go-Live.
- The Tyler Go-Live support team is available to consult with the District teams as necessary.
- The Tyler Go-Live support team provides standard functionality responses, which may not be tailored to the local business processes.

6.5.2 Transition to Client Services

This work package signals the conclusion of implementation activities for the Phase or Project with the exception of agreed-upon post Go-Live activities. The Tyler project manager(s) schedules a formal transition of District onto the Tyler Client Services team, who provides District with assistance following Go-Live, officially transitioning District to operations and maintenance.

Objectives:

- Ensure no critical issues remain for the project teams to resolve.
- Confirm proper knowledge transfer to District teams for key processes and subject areas.

STAGE 5	Transition to Client Services																
	Tyler								Client								
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power	Department Heads	End Users	Technical Leads
Transfer client to Client Services and review issue reporting and resolution processes	I	I	A	I	I			R	I	I	C	C		C			
Review long term maintenance and continuous improvement			A					R			C	C		C			

Inputs	Open item/issues List

Outputs / Deliverables		Acceptance Criteria [only] for Deliverables
	Client Services Support Document	

Work package assumptions:

- No material project issues remain without assignment and plan.

6.5.3 Post Go-Live Activities

Some implementation activities are provided post-production due to the timing of business processes, the requirement of actual production data to complete the activities, or the requirement of the system being used in a live production state.

Objectives:

- Schedule activities that are planned for after Go-Live.
- Ensure issues have been resolved or are planned for resolution before phase or project close.

STAGE 5	Post Go-Live Activities															
	Tyler								Client							
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power	Department Heads	End Users	Technical Leads
Schedule contracted activities that are planned for delivery after go-live		A	R	C	C	C	C	I			C	C	I	C			C
Determine resolution plan in preparation for phase or project close out		A	R	C	C	C		I			C	C	I	C			

Inputs	List of post Go-Live activities

Outputs / Deliverables		Acceptance Criteria [only] for Deliverables
	Updated issues log	

Work package assumptions:

- System is being used in a live production state.

6.5.4 Control Point 5: Production Stage Acceptance

Acceptance criteria for this Stage includes completion of all criteria listed below:

- Advancement to the Close stage is not dependent upon Tyler's receipt of this Stage Acceptance.
- Converted data is available in production environment.

Production Stage Acceptance Criteria:

- All stage deliverables accepted based on criteria previously defined.
- Go-Live activities defined in the Go-Live action plan completed.
- Client services support document is provided.

6.6 Close

The Close stage signifies full implementation of all products purchased and encompassed in the Phase or Project. District transitions to the next cycle of their relationship with Tyler (next Phase of implementation or long-term relationship with Tyler Client Services).

6.6.1 Phase Closeout

This work package represents Phase completion and signals the conclusion of implementation activities for the Phase. The Tyler Client Services team will assume ongoing support of District for systems implemented in the Phase.

Objectives:

- Agreement from Tyler and District teams that activities within this phase are complete.

STAGE 6	Phase Close Out																
	Tyler								Client								
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power	Department Heads	End Users	Technical Leads
Reconcile project budget and status of contract Deliverables	I	A	R						I	I	C						
Hold post phase review meeting		A	R	C	C	C	C				C	C	C	C			C
Release phase-dependent Tyler project resources	A	R	I								I						

Participants	Tyler	Client
	Project Leadership	Project Manager
	Project Manager	Project Sponsor(s)
	Implementation Consultants	Functional Leads, Power Users, Technical Leads
	Technical Consultants (Conversion, Deployment, Development)	
	Client Services	

Inputs	Contract
	Statement of Work
	Project artifacts

Outputs / Deliverables		Acceptance Criteria [only] for Deliverables
	Final action plan (for outstanding items)	
	Reconciliation Report	
	Post Phase Review	

Work package assumptions:

- Tyler deliverables for the phase have been completed.

6.6.2 Project Closeout

Completion of this work package signifies final acceptance and formal closing of the Project.

At this time District may choose to begin working with Client Services to look at continuous improvement Projects, building on the completed solution.

Objectives:

- Confirm no critical issues remain for the project teams to resolve.
- Determine proper knowledge transfer to District teams for key processes and subject areas has occurred.
- Verify all deliverables included in the Agreement are delivered.

STAGE 6	Project Close Out																
	Tyler								Client								
RACI MATRIX KEY: R = Responsible A = Accountable C = Consulted I = Informed	Executive Manager	Implementation Manager	Project Manager	Implementation Consultant	Data Experts	Modification Services	Technical Services	Client Services	Executive Sponsor	Steering Committee	Project Manager	Functional Leads	Change Management Leads	Subject Matter Experts (Power	Department Heads	End Users	Technical Leads
Conduct post project review		A	R	C	C	C	C				C	C	C	C			C
Deliver post project report to District and Tyler leadership	I	A	R						I	I	C						
Release Tyler project resources	A	R	I								I						

Inputs	Contract
	Statement of Work

Outputs / Deliverables		Acceptance Criteria [only] for Deliverables
	Post Project Report	Client acceptance; Completed report indicating all project Deliverables and milestones have been completed

Work package assumptions:

- All project implementation activities have been completed and approved.
- No critical project issues remain that have not been documented and assigned.
- Final project budget has been reconciled and invoiced.
- All Tyler deliverables have been completed.

6.6.3 Control Point 6: Close Stage Acceptance

Acceptance criteria for this Stage includes completion of all criteria listed below.

Close Stage Deliverables:

- Post Project Report.

Close Stage Acceptance Criteria:

- Completed report indicating all Project deliverables and milestones have been completed.

7. General Assumptions

Tyler and District will use this SOW as a guide for managing the implementation of the Tyler Project as provided and described in the Agreement. There are a number of assumptions which, when acknowledged and adhered to, will support a successful implementation. Assumptions related to specific work packages are documented throughout the SOW. Included here are general assumptions which should be considered throughout the overall implementation process.

7.1 Project

- Project activities will begin after the Agreement has been fully executed.
- The District Project Team will complete their necessary assignments in a mutually agreed upon timeframe in order to meet the scheduled go-live date, as outlined in the Project Schedule.
- Sessions will be scheduled and conducted at a mutually agreeable time.
- Additional services, software modules and modifications not described in the SOW or Agreement will be considered a change to this Project and will require a Change Request Form as previously referenced in the definition of the Change Control Process.
- Tyler will provide a written agenda and notice of any prerequisites to the District project manager(s) ten (10) business days or as otherwise mutually agreed upon time frame prior to any scheduled on-site or remote sessions, as applicable.
- Tyler will provide guidance for configuration and processing options available within the Tyler software. If multiple options are presented by Tyler, District is responsible for making decisions based on the options available.

- Implementation of new software may require changes to existing processes, both business and technical, requiring District to make process changes.
- District is responsible for defining, documenting and implementing their policies that result from any business process changes.

7.2 Organizational Change Management

Unless otherwise contracted by Tyler, District is responsible for managing Organizational Change. Impacted Client resources will need consistent coaching and reassurance from their leadership team to embrace and accept the changes being imposed by the move to new software. An important part of change is ensuring that impacted client resources understand the value of the change, and why they are being asked to change.

7.3 Resources and Scheduling

- District resources will participate in scheduled activities as assigned in the Project Schedule.
- The District team will complete prerequisites prior to applicable scheduled activities. Failure to do so may affect the schedule.
- Tyler and District will provide resources to support the efforts to complete the Project as scheduled and within the constraints of the Project budget.
- Abbreviated timelines and overlapped Phases require sufficient resources to complete all required work as scheduled.
- Changes to the Project Schedule, availability of resources or changes in Scope will be requested through a Change Request. Impacts to the triple constraints (scope, budget and schedule) will be assessed and documented as part of the change control process.
- District will ensure assigned resources will follow the change control process and possess the required business knowledge to complete their assigned tasks successfully. Should there be a change in resources, the replacement resource should have a comparable level of availability, change control process buy-in, and knowledge.
- District makes timely Project related decisions in order to achieve scheduled due dates on tasks and prepare for subsequent training sessions. Failure to do so may affect the schedule, as each analysis and implementation session is dependent on the decisions made in prior sessions.
- District will respond to information requests in a comprehensive and timely manner, in accordance with the Project Schedule.
- District will provide adequate meeting space or facilities, including appropriate system connectivity, to the project teams including Tyler team members.
- For on-site visits, Tyler will identify a travel schedule that balances the needs of the project and the employee.

7.4 Data

- Data will be converted as provided and Tyler will not create data that does not exist.
- District is responsible for the quality of legacy data and for cleaning or scrubbing erroneous legacy data.
- Tyler will work closely with District representatives to identify business rules before writing the conversion. District must confirm that all known data mapping from source to target have been identified and documented before Tyler writes the conversion.
- All in-scope source data is in data extract(s).
- Each legacy system data file submitted for conversion includes all associated records in a single approved file layout.

- The client will provide the legacy system data extract in the same format for each iteration unless changes are mutually agreed upon in advance. If not, negative impacts to the schedule, budget and resource availability may occur and/or data in the new system may be incorrect.
- The District Project Team is responsible for reviewing the converted data and reporting issues during each iteration, with assistance from Tyler.
- Client is responsible for providing or entering test data (e.g., data for training, testing interfaces, etc.)

7.5 Facilities

- District will provide dedicated space for Tyler staff to work with District resources for both on-site and remote sessions. If Phases overlap, District will provide multiple training facilities to allow for independent sessions scheduling without conflict.
- District will provide staff with a location to practice what they have learned without distraction.

8. Glossary

Word or Term	Definition
Acceptance	Confirming that the output or deliverable is suitable and conforms to the agreed upon criteria.
Accountable	The one who ultimately ensures a task or deliverable is completed; the one who ensures the prerequisites of the task are met and who delegates the work to those responsible. [Also see RACI]
Application	A computer program designed to perform a group of coordinated functions, tasks or activities for the benefit of the user.
Application Programming Interface (API)	A defined set of tools/methods to pass data to and received data from Tyler software products
Agreement	This executed legal contract that defines the products and services to be implemented or performed.
Business Process	The practices, policy, procedure, guidelines, or functionality that the client uses to complete a specific job function.
Business Requirements Document	A specification document used to describe Client requirements for contracted software modifications.
Change Request	A form used as part of the Change Control process whereby changes in the scope of work, timeline, resources, and/or budget are documented and agreed upon by participating parties.
Change Management	Guides how we prepare, equip and support individuals to successfully adopt change in order to drive organizational success & outcomes
Code Mapping [where applicable]	An activity that occurs during the data conversion process whereby users equate data (field level) values from the old system to the values available in the new system. These may be one to one or many to one. Example: Old System [Field = eye color] [values = BL, Blu, Blue] maps to New Tyler System [Field = Eye Color] [value = Blue].
Consulted	Those whose opinions are sought, typically subject matter experts, and with whom there is two-way communication. [Also see RACI]
Control Point	This activity occurs at the end of each stage and serves as a formal and intentional opportunity to review stage deliverables and required acceptance criteria for the stage have been met.
Data Mapping [where applicable]	The activity determining and documenting where data from the legacy system will be placed in the new system; this typically involves prior data analysis to understand how the data is currently used in the legacy system and how it will be used in the new system.
Deliverable	A verifiable document or service produced as part of the Project, as defined in the work packages.
Go-Live	The point in time when the Client is using the Tyler software to conduct daily operations in Production.
Informed	Those who are kept up-to-date on progress, often only on completion of the task or deliverable, and with whom there is just one-way communication. [Also see RACI]

Infrastructure	The composite hardware, network resources and services required for the existence, operation and management of the Tyler software.
Interface	A connection to and potential exchange of data with an external system or application. Interfaces may be one way, with data leaving the Tyler system to another system or data entering Tyler from another system, or they may be bi-directional with data both leaving and entering Tyler and another system.
Integration	A standard exchange or sharing of common data within the Tyler system or between Tyler applications
Legacy System	The software from which a client is converting.
Modification	Custom enhancement of Tyler's existing software to provide features or functions to meet individual client requirements documented within the scope of the Agreement.
On-site	Indicates the work location is at one or more of the client's physical office or work environments.
Organizational Change	The process of changing an organization's strategies, processes, procedures, technologies, and culture, as well as the effect of such changes on the organization.
Output	A product, result or service generated by a process.
Peripheral devices	An auxiliary device that connects to and works with the computer in some way. Some examples: scanner, digital camera, printer.
Phase	A portion of the Project in which specific set of related applications are typically implemented. Phases each have an independent start, Go-Live and closure dates but use the same Implementation Plans as other Phases of the Project. Phases may overlap or be sequential and may have different Tyler resources assigned.
Project	The delivery of the software and services per the agreement and the Statement of Work. A Project may be broken down into multiple Phases.
RACI	A matrix describing the level of participation by various roles in completing tasks or Deliverables for a Project or process. Individuals or groups are assigned one and only one of the following roles for a given task: Responsible (R), Accountable (A), Consulted (C), or Informed (I).
Remote	Indicates the work location is at one or more of Tyler's physical offices or work environments.
Responsible	Those who ensure a task is completed, either by themselves or delegating to another resource. [Also see RACI]
Scope	Products and services that are included in the Agreement.

Solution	The implementation of the contracted software product(s) resulting in the connected system allowing users to meet Project goals and gain anticipated efficiencies.
Stage	The top-level components of the WBS. Each Stage is repeated for individual Phases of the Project.
Standard	Software functionality that is included in the base software (off-the-shelf) package; is not customized or modified.
Statement of Work (SOW)	Document which will provide supporting detail to the Agreement defining Project-specific activities, services and Deliverables.
System	The collective group of software and hardware that is used by the organization to conduct business.
Test Scripts	The steps or sequence of steps that will be used to validate or confirm a piece of functionality, configuration, enhancement, or Use Case Scenario.
Training Plan	Document(s) that indicate how and when users of the system will be trained relevant to their role in the implementation or use of the system.
Validation (or to validate)	The process of testing and approving that a specific Deliverable, process, program or product is working as expected.
Work Breakdown Structure (WBS)	A hierarchical representation of a Project or Phase broken down into smaller, more manageable components.
Work Package	A group of related tasks within a project.

Part 4: Appendices

9. Conversion

9.1 Incode Utility Billing Conversion Summary

9.1.1 Utility Billing - Standard

- Utility Contact Information
- Utility Mailing and Billing Addresses
- Utility Parcels
- Account Master - (Average monthly payment, deposits, bank drafts, comments/notes)
- Meters/Services
- Transaction History – Includes current year plus one prior year
- Read History

9.1.2 Utility Billing – Legacy/Historical Views

- Unlimited historical transactions provided by client can be converted by Tyler into historical views

9.2 Incode Financials Conversion Summary

9.2.1 General Ledger

Standard Conversion Includes:

- Full chart of accounts listing, descriptions, and corresponding account types
- Element (segment) values and descriptions
- Summarized budget figures for current fiscal year
- Unlimited historical transactions as provided by client.

NOTE: Training will be provided on how to import additional budget years from Excel.

9.2.2 Accounts Payable

Standard Conversion Includes:

- Vendor master information, address, primary contact, and NOTEs
- Unlimited historical transactions as provided by client.

9.2.3 Personnel Management

Standard Conversion Includes:

- Basic employee information – employee master, address, primary contact, dates, phone numbers, dependents, NOTEs
- Employee Deductions & Taxes
- Employee Direct Deposit Information
- Employee Leave Balances
- Employee Retirement
- Rates/Base Pay (salary / hourly compensation)

- Unlimited historical transactions provided by client.

NOTE: Employee positions/deductions will be created according to recommended best business practices.

9.2.4 General Ledger

Standard Conversion Includes:

- Full chart of accounts listing, descriptions, and corresponding account types
- Element (segment) values and descriptions
- Unlimited historical transactions as provided by client.

NOTE: Summarized budget figures for current fiscal year and historical years can be imported into the system from Excel. The client is ultimately responsible for producing the budget figures in Excel and verifying the results. Training will be provided on how to import budgets from Excel.

NOTE: Summarized beginning balance sheet entries, as well as summarized fiscal year activity entries, can be imported into the system from Excel for the current year. The client is ultimately responsible for producing the entries in Excel and verifying the results. Training will be provided on how to import JE's from Excel.

9.2.5 Accounts Payable

Standard Conversion Includes:

- Vendor master information, address, primary contact, and NOTEs
- Unlimited historical transactions as provided by client.

NOTE: 1099 balances and non-1099 balances can be imported into the system using a standard import available to the client from Excel. The client will ultimately be responsible for creating the Excel spreadsheet and verifying the results. Training will be provided on how to import balances from Excel.

9.2.6 Personnel Management

Standard Conversion Includes:

- Basic employee information – employee master, address, primary contact, dates, phone numbers, dependents, NOTEs
- Current direct deposit bank information
- Federal and state tax withholding information
- Unlimited historical transactions provided by client.

NOTE: Employee positions/deductions will be created according to recommended best business practices.

NOTE: Clients going live on payroll mid-calendar year will have the option to import or enter quarterly employee payroll history to meet federal and state reporting requirements giving the ability to create a single set of W-2's at calendar year end. The client will ultimately be responsible for entering in the quarterly employee payroll history and verifying the results. Training will be provided on how to enter in this information.

10. Additional Appendices

10.1 Intentionally left blank.

11. Project Timeline

11.1 Incode Financial Management Timeline

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Implementation Schedule: Incode Financial Management Implementation

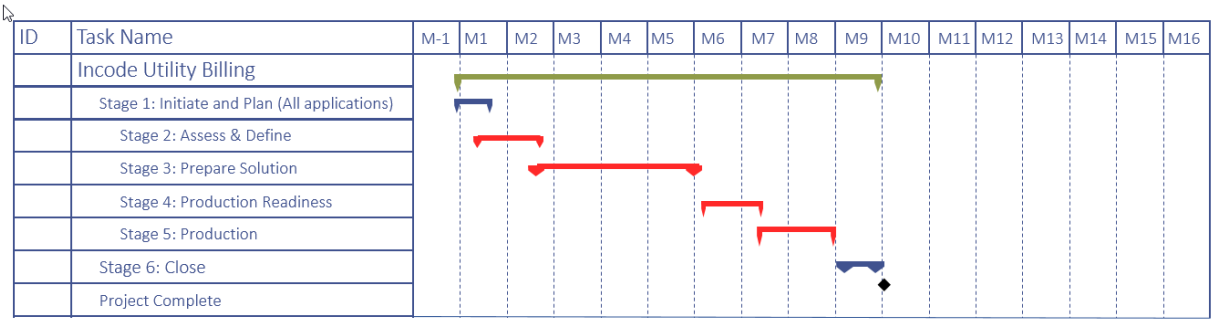
ID	Task Name	M-1	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16
	Incode Financial Management																	
	Stage 1: Initiate and Plan (All applications)																	
	Stage 2: Assess & Define																	
	Stage 3: Prepare Solution																	
	Stage 4: Production Readiness																	
	Stage 5: Production																	
	Stage 6: Close																	
	Project Complete																	

This timeline is an example. Please use it as a general guide…ONLY. Its purpose is to demonstrate the order in which various products are typically implemented and the potential overlap of stages for each phase. The exact timing of each deliverable depends on many factors including, but not limited to, the client's ability to commit resources to the project, client blackout dates, and the alignment of client business practices with Tyler implementation methodology. Tyler makes no guarantees that implementation schedules will align with this example.

11.2 Incode Utility Billing Timeline

tyler technologies

Implementation Schedule: Incode Utility Billing Implementation



This timeline is an example. Please use it as a general guide...ONLY. Its purpose is to demonstrate the order in which various products are typically implemented and the potential overlap of stages for each phase. The exact timing of each deliverable depends on many factors including, but not limited to, the client's ability to commit resources to the project, client blackout dates, and the alignment of client business practices with Tyler implementation methodology. Tyler makes no guarantees that implementation schedules will align with this example.

Exhibit F
Web Services – Hosted Application Terms

Tyler Technologies, Inc. will provide you with the hosted applications indicated in the Investment Summary. The terms and conditions contained in this document only apply to our provision of those applications. Capitalized terms not otherwise defined will have the meaning assigned to such terms in the Agreement.

1. Hosted Applications. We will provide you with any of the following hosted applications as indicated in the Investment Summary.

   1.1. *Web Services*: Our Web Services are designed to enable you to easily establish a presence on the Internet. Our Web Hosting and Design is composed of our Web Hosting and Design Publishing Component and other miscellaneous components. These components may be used independently or in conjunction with each other.

   1.2. *Utility Billing On-Line*: Our Utility Billing On-Line Component allows you to make available certain information from your utility billing system to citizens with Internet access. This information is posted to your web site, which is hosted on our web server. With the proper security clearance, citizens with Internet access have access to the data which can include: Consumption information, service level information, requests for service, accounting information and the opportunity to pay their Utility Bill over the Internet using a credit card.

   1.3. *Court On-Line*: Our Court On-Line Component provides the ability for municipal court fines to be paid by credit card via the Internet. This system interfaces seamlessly with our Incode Municipal Court System.

   1.4. *On-Line Records Search*: Our On-Line Records Search Component allows you to display citations and/or docket information. The website can be available for public view or locked down to secured access only. This system interfaces seamlessly with our INCODE Municipal Court System.

   1.5. *Building Projects On-Line*: Our Building Projects On-Line Component allows you to make available certain information from your building projects system to citizens with Internet access. This information is posted to your web site, which is hosted on our web server. With the proper security clearance, citizens with Internet access have access to the data which can include: Building project status, inspection results, inspection scheduling and the opportunity to pay their building projects over the Internet using a credit card.

   1.6. *Business License On-Line*: Our Business License On-Line Component allows you to make available certain information from your business license system to citizens with Internet access. This information is posted to your web site, which is hosted on our web server. With the proper security clearance, citizens with Internet access have access to the data which can include: business license status, business license renewal and the opportunity to pay their business license

over the Internet using a credit card.

1.7. *Accounts Receivable On-Line*: Our Accounts Receivable On-Line Component allows you to make available certain information from your accounts receivable system to citizens with Internet access. This information is posted to your web site, which is hosted on our web server. With the proper security clearance, citizens with Internet access have access to the data which can include: current balance, contract status, and the opportunity to pay the accounts receivable over the Internet using a credit card.

1.8. *Call Center On-Line*: Our Call Center On-Line Component allows you to make available certain information from your call center system to citizens with Internet access. This information is posted to your web site, which is hosted on our web server. With the proper security clearance, citizens with Internet access have access to the data which can include: current and past incidents, create a new incident and view status of incident.

1.9. *Property Tax On-Line*: Our Property Tax On-Line Component allows you to make available certain information from your Property Tax System to citizens with Internet access. This information is posted to your web site, which is hosted on our web server. With the proper security clearance, citizens with Internet access have access to the data which can include: parcel number, receipt number, tax amount due, and the opportunity to pay the Property Tax over the Internet using a credit card.

1.10. *Sales Tax On-Line*: Our Sales Tax On-Line Component allows you to make available certain information from your Sales Tax System to citizens with Internet access. This information is posted to your web site, which is hosted on our web server. With the proper security clearance, citizens with Internet access have access to the data to pay outstanding Sales Tax balances over the Internet using a credit card.

1.11. *Code Enforcement Online*: Our Code Enforcement Online component allows you to make available certain information from your code enforcement system to citizens with Internet access. This information is posted to your website, which is hosted on our web server. With the proper security clearance, citizens with Internet access have access to data which can include: Incident Status, Incident Results.

2. Term. We will grant you access to the hosted applications provided you timely pay all associated fees. The term of your subscription commences upon the availability of the service and will continue for one (1) year. Thereafter, the term will be automatically extended in separate one (1) year periods. Either party may cancel this subscription to the hosted applications upon sixty (60) days written notice to the other.

3. Nature of Website. We shall maintain a website for you, allowing a user to access relevant data provided by you. This data may include information from your Tyler Software system. This website will be capable of accepting payments via Secured Socket Layer (SSL) encryption and credit card or debit card charge.

4. Data Procurement. You must set up a merchant account with Electronic Transaction System Corporation or authorized.net to be solely used for our Web Service transactions. The merchant account must be set up to fund to your bank account. You are responsible for all fees and expenses of the merchant account. You must install and run Tyler Web Services to allow us to transfer the necessary

data from your system to our servers on a real time basis. Certain information, such as payment information, must be conveyed to you. We will be responsible for transferring such information to you on a regular basis. Tyler Web Services may require a dedicated IP address; assignment of this address is your responsibility. While we assume responsibility for data transfer, we are not responsible for accuracy of data transferred.

5. Limited License. Your license to use the hosted applications will automatically terminate upon cancellation of this subscription, or upon your failure to timely pay fees or otherwise comply with these terms and conditions.

6. Ownership of Data. All data you provide to us for the purposes of generating the website shall remain your property. Should you terminate your subscription, we shall return to you any such data in our possession.

7. Fees. You agree to pay the initial fee and annual subscription fees as stated in the Investment Summary and in accordance with our Invoicing and Payment Policy. We may increase the per-transaction fee for online payment no more than once per year with sixty (60) days prior written notice. Client may terminate this subscription by written notice, in accordance with paragraph 2 above, if it does not consent to such fee increase.

STAFF REPORT

October 18, 2021

AGENDA ITEM: Consider and act regarding approval of work order with Garver for professional engineering services related to Wastewater Treatment Plant MBR improvements at a total cost of $66,912 and authorize the General Manager to execute the contract documents.

DESCRIPTION: Garver will provide an assessment of existing MBR filtrate pumps to determine an effective way to correct issues related to loss of prime during “at-rest” stages as well as corrective measures to remediate fluctuation in backpressure that creates vibration and surges in pressure when pumps are operating. This effort will include assessment, design, solicitation of quotes, and bidding services in the event quotes trigger the need to advertise for bids. This project is part of FY 2022 Capital Improvement Projects.

ATTACHMENT: Work Order No. 1

RECOMMENDATION: Approval of Work Order No. 1 as provided.

This WORK ORDER ("Work Order") is made by and between the **Trophy Club Municipal Utility District No. 1** (hereinafter referred to as "**Owner**") and **Garver, LLC**, (hereinafter referred to as "**Garver**") in accordance with the provisions of the MASTER AGREEMENT FOR PROFESSIONAL SERVICES executed on July 27, 2021 (the "Agreement").

Under this Work Order, Garver intends to provide design services and on-call bidding and construction services to address operational issues with the Owner's existing MBR WWTP.

Garver will provide professional services related to these improvements as described herein. Terms not defined herein shall have the meaning assigned to them in the Agreement.

SECTION 1 - SCOPE OF SERVICES

Garver shall provide the following Services:
Scope of Services as described in Appendix A.

SECTION 2 – PAYMENT

For the Services set forth above, Owner will pay Garver as follows:
The table below presents a summary of the fee amounts and fee types for this Work Order.

WORK DESCRIPTION	FEE AMOUNT	FEE TYPE
Project Management	$1,704	LUMP SUM
Data Collection and Evaluation	$4,520	LUMP SUM
Tech Memo and Presentation of Findings	$28,386	LUMP SUM
Direct Solicitation of Construction Quotes	$7,302	LUMP SUM
Bidding and Construction Services	$25,000	HOURLY, NTE
Total Fee	$66,912	LUMP SUM + HOURLY, NTE

The lump sum amount to be paid under this Work Order is $66,912. For informational purposes, a breakdown of Garver's estimated costs is included herein with approximate current hourly rates for each employee classification.

Any unused portion of the fee, due to delays beyond Garver's control, will be increased three percent (3%) annually with the first increase effective on or about July 1st, 2022.

SECTION 3 – APPENDICES

3.1 The following Appendices are attached to and made a part of this Work Order:
- 3.1.1 Appendix A - Scope of Services
- 3.1.2 Appendix B – Fee Summary

This Work Order may be executed in two (2) or more counterparts each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

The effective date of this Work Order shall be the last date written below.

Trophy Club MUD No. 1	GARVER, LLC
By: _____ *Signature*	By: Lance Klement *Signature*
Name: _____ *Printed Name*	Name: Lance Klement *Printed Name*
Title: _____	Title: North Texas Team Leader
Date: _____	Date: September 16, 2021
Attest: _____	Attest: Jeffrey Sabo

APPENDIX A – SCOPE OF SERVICES

1. General

Trophy Club MUD #1 (Owner) is experiencing operational issues with their existing filtrate pumps. The pumps are self-priming design, but in their current configuration they lose prime during relax cycles of MBR operation. Because the pump controls have been developed to limit the number of filtrate pump starts per hour, a very long time can be required to restart the pumps when multiple start cycles are needed. By design, the filtrate pumps have an integral suction check valve that should prevent loss of prime. It is suspected that low backpressure, resulting from the discharge piping design, is providing insufficient backpressure to properly seat the valves.

Secondarily, the system hydraulics do not provide sufficient backpressure to the pumps during operation and throttling is required to prevent runout related issues (vibration and surging flow) during normal pump operation. To address the issue, the original engineer installed a pilot hydraulic loop where one of the pumps (from MBR Tank 2) discharges through a modified pipe loop which provides sufficient backpressure through piping modifications at the UV Basin. The hydraulic loop seems to work well, but the owner and membrane supplier have also developed filtrate throttling approaches to provide sufficient backpressure. Presently, the Owner is manually throttling butterfly isolation valves to provide the additional backpressure. The Owner has requested to maintain/relocate filtrate throttling capabilities in the improvements package.

Garver (Engineer) has been requested to perform an engineering assessment of the current operating conditions. The assessment will include design of piping improvements including new backpressure pipe loops and filtrate throttling controls with new valves and manual actuators that can provide more reliable backpressure control. The Owner prefers that the valves and manual actuators can be locked in position to hold the intended backpressure. The intent of the design will be to prepare a tech memo summarizing findings and a small drawing package (9 planned) to detail the improvements for a job order contractor to perform the work.

2. Engineering Assessment

Garver will evaluate the current system and develop a short tech memo summarizing key findings. The tech memo will include a small plan set to detail the recommended improvements. The following Tasks will be performed during the evaluation.

2.1. Task 1 - Project Management

Garver will perform project management services including project tracking, coordination, and invoicing. No kickoff meeting is included.

2.2. Task 2 – Data Collection and Evaluation

Garver will assist the Owner in data collection including:

- Evaluation of existing pump curves, piping design and SWMOR/Flow Data.

No workshop is included.

2.3. Task 3 – Tech Memo and Presentation of Findings

Once Task 2 is complete, Garver will develop a tech memo outlining key findings. The tech memo will include a small plan set that details the improvements for job order contracting.

The tech memo will have the following outline:

1. Data Evaluation and Summary of Findings
2. Recommended Improvements

Appendix A – Filtrate Pump Improvement Plan Set

Garver shall prepare and submit an electronic draft version of the report for Owner review. Upon receipt of the Owner review comments, Garver will submit a final version of the report.

2.4. Task 4 – Direct Solicitation of Construction Quotes

Once Task 3 is complete, Garver will solicit bids from up to five (5) contractors to perform the work. The bid solicitations will come from direct contact with potential contractors and does not include advertisement, bidding services, or construction services. Garver will receive the bids and send them to the Owner for review. No further contracting or bid solicitation is included in this task.

3. Project Deliverables

The following will be submitted to the Owner, or others as indicated, by Garver:

A. Electronic (.pdf) versions of the draft and final Preliminary Engineering Report.

4. Additional Services

The intent of the project plan is to construct the work using job order contracting, which may be used for low-cost construction projects. If the total cost of the construction project exceeds the Owner's threshold, then the work will be delivered using a conventional design, bid, build construction approach. If directed by Owner, Garver will perform the following additional services on an hourly, on-call not to exceed basis:

A. Bid Phase Services. During the bidding phase of the project, Garver will:
    a. Include front end documents and specifications necessary to procure bids.
    b. Prepare and submit Advertisement for Bids to newspaper(s) for publication as directed by the Owner. Owner will pay advertising costs outside of this contract.
    c. Dispense construction contract documents to prospective bidders (at the approximate cost of reproduction and handling).
    d. Support the contract documents by preparing addenda as appropriate.
    e. Participate in a pre-bid meeting if necessary.
    f. Bid Support: Attend the bid opening, prepare bid tabulation, evaluate bids and recommend award.
    g. Prepare construction contracts.
B. Construction Phase Services. During the construction phase of work, Garver will perform the following services:
    a. Issue a Notice to Proceed letter to the Contractor and attend preconstruction meeting.
    b. Attend up to three (3) progress/coordination meetings with the Owner/Contractor.
    c. Evaluate and respond to up to 10 construction material submittals and shop drawings. Corrections or comments made by Garver on the shop drawings during this review will not relieve Contractor from compliance with requirements of the drawings and specifications. The check will only be for review of general conformance with the design

concept of the project and general compliance with the information given in the contract documents. The Contractor will be responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, coordinating his work with that of all other trades, and performing his work in a safe and satisfactory manner. Garver's review shall not constitute approval of safety precautions or constitute approval of construction means, methods, techniques, sequences, procedures, or assembly of various components. When certification of performance characteristics of materials, systems or equipment is required by the Contract Documents, either directly or implied for a complete and workable system, Garver shall be entitled to rely upon such submittal or implied certification to establish that the materials, systems, or equipment will meet the performance criteria required by the Contract Documents.

d. Issue instructions to the Contractor on behalf of the Owner and issue necessary clarifications regarding the construction contract documents.

e. Review the Contractor's progress payment requests based on the actual quantities of contract items completed and accepted and will make a recommendation to the Owner regarding payment. Garver's recommendation for payment shall not be a representation that Garver has made exhaustive or continuous inspections to (1) check the quality or exact quantities of the Work; (2) to review billings from Subcontractors and material suppliers to substantiate the Contractor's right to payment; or (3) to ascertain how the Contractor has used money previously paid to the Contractor.

f. When authorized by the Owner, prepare change orders for changes in the work from that originally provided for in the construction contract documents. If redesign or substantial engineering or surveying is required in the preparation of these change order documents, the Owner will pay Garver an additional fee to be agreed upon by the Owner and Garver.

g. Participate in final project inspection, prepare punch list, review final project closing documents, and submit final pay request.

In performing construction observation services, Garver will endeavor to protect the Owner against defects and deficiencies in the work of the Contractor(s); but Garver cannot guarantee the performance of the Contractor(s), nor be responsible for the actual supervision of construction operations or for the safety measures that the Contractor(s) takes or should take. However, if at any time during construction Garver observes that the Contractor's work does not comply with the construction contract documents, Garver will notify the Contractor of such non-compliance and instruct him to correct the deficiency and/or stop work, as appropriate for the situation. Garver will also record the observance, the discussion, and the actions taken. If the Contractor continues without satisfactory corrective action, Garver will notify the Owner immediately, so that appropriate action under the Owner's contract with the Contractor can be taken.

5. Extra Work

The following items are not included under this agreement but will be considered as Extra Work:

A. The basis of this proposal is for development of a manual throttling approach for filtrate pump control. An automated approach can be developed, but additional services will be required to provide electrical engineering design to power and automate the valves.

B. Coordination with Authorities Having Jurisdiction (AHJs)

C. Specifications or specification development.

Extra Work will be as directed by the Owner in writing for an addition fee as agreed upon by the Owner and Garver.

6. Schedule

Garver shall begin work under this Agreement within ten (10) days of a Notice to Proceed and shall complete the work in accordance with the schedule below:

Phase Description	Calendar Days
Data Collection and Evaluation	14 calendar days from Notice to Proceed
Draft Tech Memo	45 calendar days from Notice to Proceed
Final Tech Memo	75 calendar days from Notice to Proceed
Bid Phase	75 calendar days from Findings Workshop
Construction Phase	180 calendar days from Contractor NTP

7. Assumptions and Exclusions

The following are assumed:

1. All new piping materials shall match the current piping material, end connections and design pressure class.
2. The filtrate pumps are adequate for the application and no changes in pump type will be required during this project.
3. The existing structural concrete around the filtrate pumps will be sufficient to carry the load from the piping modifications.

Appendix B

Trophy Club Mud #1
MBR Filtrate Piping Improvements

FEE SUMMARY

Basic Services Section	Estimated Fees	Fee Type
Task 1 - Project Management	$ 1,704.00	Lump Sum
Task 2 - Data Collection And Evaluation	$ 4,520.00	
Task 3 - Tech Memo And Presentation Of Findings	$ 28,386.00	
Task 4 - Direct Solicitation of Construction Quotes	$ 7,302.00	
Subtotal for Basic Services Section	**$ 41,912.00**	Lump Sum

Additional Services Section	Estimated Fees	
Task A1- Bidding and Construction Services	$ 25,000.00	Hourly, NTE
Subtotal for Additional Services Section	**$ 25,000.00**	Hourly, NTE

Total All Services	**$ 66,912.00**	Lump Sum + Hourly, NTE

Appendix B
Trophy Club Mud #1
MBR Filtrate Piping Improvements
Garver Hourly Rate Schedule: July 2021 - June 2022

Classification	Rates
Engineers / Architects	
E-1	$ 114.00
E-2	$ 132.00
E-3	$ 160.00
E-4	$ 187.00
E-5	$ 228.00
E-6	$ 280.00
E-7	$ 373.00
Planners / Environmental Specialist	
P-1	$ 137.00
P-2	$ 172.00
P-3	$ 209.00
P-4	$ 239.00
P-5	$ 273.00
P-6	$ 316.00
Designers	$ -
D-1	$ 106.00
D-2	$ 124.00
D-3	$ 148.00
D-4	$ 172.00
Technicians	
T-1	$ 83.00
T-2	$ 105.00
T-3	$ 128.00
Surveyors	
S-1	$ 51.00
S-2	$ 68.00
S-3	$ 91.00
S-4	$ 130.00
S-5	$ 172.00
S-6	$ 196.00
2-Man Crew (Survey)	$ 208.00
3-Man Crew (Survey)	$ 259.00
2-Man Crew (GPS Survey)	$ 228.00
3-Man Crew (GPS Survey)	$ 279.00
Construction Observation	
C-1	$ 100.00
C-2	$ 129.00
C-3	$ 158.00
C-4	$ 194.00
C-5	$ 232.00
Management/Administration	
M-1	$ 381.00
X-1	$ 65.00
X-2	$ 89.00
X-3	$ 123.00
X-4	$ 157.00
X-5	$ 193.00
X-6	$ 238.00
X-7	$ 287.00

STAFF REPORT

October 18, 2021

AGENDA ITEM: Consider and act regarding approval of Work Order No. 2 with Garver for professional services related to the rehabilitation of Lift Station #1 for a total cost of $83,188.00 and authorize the General Manager to execute the necessary documents.

DESCRIPTION: Professional engineering services for project management, surveying, design, bidding services, and construction administration related to the rehabilitation of Lift Station #1.

ATTACHMENT: Work Order No. 2

RECOMMENDATION: Approval of Work Order No. 2 with Garver for professional Services for rehabilitation of Lift Station #1.

Work Order No. 2

to the

Master Agreement

For

Professional Services

Trophy Club Municipal Utility District No. 1

Project No. 21W05181

This WORK ORDER ("Work Order") is made by and between the **Trophy Club Municipal Utility District No. 1** (hereinafter referred to as "**Owner**") and **Garver, LLC**, (hereinafter referred to as "**Garver**") in accordance with the provisions of the MASTER AGREEMENT FOR PROFESSIONAL SERVICES executed on July 27,2021 (the "Agreement").

Under this Work Order, the Owner intends to **Rehabilitate Lift Station No. 1 and will include the following**:

- Convert wet pit/ dry pit lift station to a full wet pit lift station.
- New equipment/pumps. Salvage existing pumps and keep as a spare.
- Electrical connections as need, it is assumed the existing electrical distribution system was recently upgraded and is adequate.
- New standby generator
- Structural repair and modifications as required to the wetwell
- Install new valve vault
- Remove antennae and convert to cellular but be compatible with new SCADA equipment.
- Add on-site jib crane to pull pumps.
- New privacy wrought iron fence
- Flexbase with filter fabric site paving.
- Verify if odor control is needed - no current complaints.
- Bypass pumping during construction.

Garver will provide professional services related to these improvements as described herein. Terms not defined herein shall have the meaning assigned to them in the Agreement.

SECTION 1 - SCOPE OF SERVICES

Garver shall provide the following Services:

1. TASK 1 - PROJECT MANAGEMENT

1.1. GARVER will also perform the following:

(a) Coordinate with team members during planning stages.
(b) Conduct internal reviews of deliverables with the comments incorporated prior to delivery to Owner.
(c) Provide project planning and scheduling including meeting with Owner as required to coordinate the planning and scheduling tasks of the project.
(d) Provide the Owner with monthly project status reports including progress on work tasks and schedule throughout the project.
(e) Submit to the Owner detailed monthly invoices.

2. TASK 2 - SURVEY

2.1. Design Surveys

(a) GARVER will provide field survey data for designing the project, and this survey will be tied to the Owner's control network.

(b) GARVER will conduct field surveys, utilizing radial topography methods, at intervals and for distances at and/or along the project site as appropriate for modeling the existing ground, including locations of pertinent features or improvements. GARVER will locate visible utilities as well as those underground utilities marked by their owners and/or representatives, and any other pertinent topographic features that may be present at and/or along the project site.

2.2. Property Surveys

(c) Garver will locate existing monumentation representing right of way and/or easements based on record data which will be provided by the Owner. Record research by abstractor will be considered extra work.

3. TASK 3 - PRELIMINARY DESIGN

The Preliminary Design phase submittal will include preliminary drawings only. No opinion of probable construction cost (OPCC) will be provided.

The preliminary design phase will represent approximately 30 percent of final construction contract plans. This submittal will not include technical specifications or “front end” contract documents. Garver will incorporate comments from the Owner on the Preliminary Design in the Final Design.

3.1. Deliverables

This task will include the following deliverables:

1. PDF format of Preliminary Design Drawings.

4. TASK 4 - FINAL DESIGN

During the final design phase of the project, GARVER will conduct final designs to prepare construction plans and specifications for one (1) construction contract, including final construction details, special provisions, and OPCC. The final design phase is anticipated to have two major submittals: a 100%, and Issued For Bid.

4.1. Drawings and Specifications

Based upon the results of the approved preliminary design by the Owner, GARVER will develop the detailed plans and specifications as a part of the Final Design for a single construction contract. GARVER will utilize Engineers Joint Council Documents Committee (EJCDC) standard documents as a base for developing the project’s front-end documents. EJCDC’s standard General Conditions shall be utilized with edits being provided by the Supplementary Conditions. Multiple design scenarios or bid packages and/or pre-purchased equipment packages are not included as part of the level of effort provided with this agreement.

The drawings will include at a minimum:

- Demolition Plans and Sections
- Site Plan
- Mechanical Plan and Section
- Structural Plan and Section
- Electrical Plans and Schematics
- Bypass Pumping Plan

- Tree Protection Plan
- Site Access plan

4.2. Contract Documents

The Contract Documents will consist of drawings and specifications that set forth requirements for construction of the improvements, and shall include proposal forms, notice to bidders, bid forms, bond forms, and other information as required by the Owner to competitively bid the work. GARVER's standard contract forms including documents from the Engineers Joint Contract Documents Committee (EJCDC) will be used, along with GARVER's standard drawing format and technical specifications. Standard forms required by the funding source will also be included as necessary.

4.3. TCEQ Construction Permit

GARVER will prepare and submit an TCEQ Construction Permit Application.

4.4. Construction Sequencing Review and Plan

GARVER will review potential construction sequencing and the overall approach to project implementation to minimize disruption of the operation during construction. This will include the bypass pumping plan. This review will occur at the Design Submittal Workshops.

4.5. Design Submittal Workshops

GARVER will lead a review workshop for one (1) final design phase 100%. This workshop will be held at the Owner's office to solicit comments and feedback from the Owner.

4.6. Deliverables

This task will include the following deliverables:

(a) PDF copies at 100% and IFB of plans, specifications, and OPCC

5. TASK 5 - BIDDING SERVICES

This task will accomplish the following:

- Include 2 site visits/coordination meetings, pre-bid, letter of recommendation, pre-con, final walk through.

5.1. Bidding Assistance

The scope of services assumes the bidding period for bidders is 30 calendar days. During the bidding period phase of the project, GARVER will:

(a) Prepare and submit Advertisement for Bids to newspaper(s) for publication as directed by the Owner. Owner will pay advertising costs outside of this contract.
(b) Post advertisement for bids, construction contract documents, and any associated information to GARVER's online plan room for download by prospective bidders (at an appropriate cost for handling).
(c) Support the contract documents by preparing addenda as appropriate and posting on GARVER's online plan room.

(d) Participate in a pre-bid meeting.
(e) Prepare pre-bid meeting minutes. Following Owner authorization, post the pre-bid meeting minutes with attendance record on GARVER's online plan room.
(f) Participate and chair a construction site tour by interested pre-bid meeting attendees and other interested parties.
(g) Prepare bid tabulation.
(h) Evaluate bids and recommend award.

6. TASK 6 - CONSTRUCTION ADMINISTRATION SERVICES

During the construction phase of work, GARVER will accomplish the following:

(a) Issue a Notice to Proceed letter to the Contractor and prepare and attend preconstruction meeting.
(b) Attend monthly progress/coordination meetings, up to a maximum of 2, with the Owner/Contractor.
(c) Evaluate and respond to construction material submittals and shop drawings. Corrections or comments made by GARVER on the shop drawings during this review will not relieve Contractor from compliance with requirements of the drawings and specifications. The check will only be for review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. The Contractor will be responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, coordinating his work with that of all other trades, and performing his work in a safe and satisfactory manner. GARVER's review shall not constitute approval of safety precautions or constitute approval of construction means, methods, techniques, sequences, procedures, or assembly of various components. When certification of performance characteristics of materials, systems or equipment is required by the Contract Documents, either directly or implied for a complete and workable system, GARVER shall be entitled to rely upon such submittal or implied certification to establish that the materials, systems or equipment will meet the performance criteria required by the Contract Documents. The fee is based upon approximately 20 estimated submittals, and up to 80 hours of review time.
(d) Issue instructions to the Contractor on behalf of the Owner and issue necessary clarifications (respond to RFIs) regarding the construction contract documents. The fee is based upon approximately 5 estimated RFIs, and up to 20 hours of review and response time.
(e) When authorized by the Owner, prepare change orders for changes in the work from that originally provided for in the construction contract documents. If redesign or substantial engineering or surveying is required in the preparation of these change order documents, the Owner will pay GARVER an additional fee to be agreed upon by the Owner and GARVER. The fee is based upon reviewing approximately 4 estimated contract modification requests and preparing up to 2 change orders. This corresponds to up to 48 hours of review and preparation time.
(f) Participate in final project inspection, prepare punch list, review final project closing documents, and submit final pay request. GARVER will also provide a project certification letter with final project cost to the Owner.

6.1. Deliverables

(a) PDF file of all submittals, RFIs, O&M manuals with digital bookmarks.

SECTION 2 – PAYMENT

For the Services set forth above, Owner will pay Garver as follows:

The table below presents a summary of the fee amounts and fee types for this Work Order.

WORK DESCRIPTION	FEE AMOUNT	FEE TYPE
Task 1 - Project Management	$2,324.00	LUMP SUM
Task 2 - Survey	$4,270.00	LUMP SUM
Task 3 - Preliminary Design	$23,520.00	LUMP SUM
Task 4 - Final Design	$38,074.00	LUMP SUM
Task 5 – Bidding Services	$15,000	HOURLY NTE
Task 6 – Construction Administration Services		HOURLY NTE
TOTAL FEE	$83,188.00	

The total amount to be paid under this Work Order is $83,188.00. For services associated with Tasks 5 and 6, the fee shall be paid on an hourly basis at the rates shown in this Appendix A for each classification of Garver's personnel (may include contract staff classified at Garver's discretion) plus reimbursable expenses including but not limited to printing, courier service, reproduction, and travel. The rates shown in Appendix A will be increased annually with the first increase effective on or about June 1, 2022.

Additional Services (Extra Work). For services not described or included in Section 2, but requested by the Owner in writing or otherwise permitted under Section 4, the Owner will pay Garver as expressly set forth in the applicable Amendment, or in the event the Amendment is silent, for the additional time spent on the Project, at the rates shown in this Appendix A for each classification of Garver's personnel (may include contract staff classified at Garver's discretion) plus reimbursable expenses including but not limited to printing, courier service, reproduction, and travel. The rates shown in Appendix A will be increased annually with the first increase effective on or about June 1, 2022.

SECTION 3 – APPENDICES

3.1 The following Appendices are attached to and made a part of this Work Order:

Appendix A – Hourly Rate Schedule

This Work Order may be executed in two (2) or more counterparts each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

The effective date of this Work Order shall be the last date written below.

Trophy Club Municipal Utility District No. 1	GARVER, LLC
By: _____ *Signature*	By: _____ *Signature*
Name: _____ *Printed Name*	Name: Lance Klement *Printed Name*
Title: _____	Title: North Texas Water Team Leader
Date: _____	Date: October 12th, 2021
Attest: _____	Attest: _____

APPENDIX A
HOURLY RATE SCHEDULE

Trophy Club Municipal Utility District No. 1
Lift Station No. 1 Rehabilitation
Garver Hourly Rate Schedule: July 2021 - June 2022

Classification	Rates
Engineers / Architects	
E-1	$ 114.00
E-2	$ 132.00
E-3	$ 160.00
E-4	$ 187.00
E-5	$ 228.00
E-6	$ 280.00
Planners / Environmental Specialist	
P-1	$ 137.00
P-2	$ 172.00
P-3	$ 209.00
P-4	$ 239.00
P-5	$ 273.00
Designers	
D-1	$ 106.00
D-2	$ 124.00
D-3	$ 148.00
D-4	$ 172.00
Technicians	
T-1	$ 83.00
T-2	$ 105.00
T-3	$ 128.00

Trophy Club Municipal Utility District No. 1
Lift Station No. 1 Rehabilitation
Garver Hourly Rate Schedule: July 2021 - June 2022

Classification	Rates
Surveyors	
S-1	$ 51.00
S-2	$ 68.00
S-3	$ 91.00
S-4	$ 130.00
S-5	$ 172.00
S-6	$ 196.00
2-Man Crew (Survey)	$ 208.00
3-Man Crew (Survey)	$ 259.00
2-Man Crew (GPS Survey)	$ 228.00
3-Man Crew (GPS Survey)	$ 279.00
Construction Observation	
C-1	$ 100.00
C-2	$ 129.00
C-3	$ 158.00
C-4	$ 194.00
C-5	$ 232.00
Management/Administration	
M-1	$ 381.00
X-1	$ 65.00
X-2	$ 89.00
X-3	$ 123.00
X-4	$ 157.00
X-5	$ 193.00
X-6	$ 238.00
X-7	$ 287.00

STAFF REPORT

October 18, 2021

AGENDA ITEM: Consider and act regarding approval of Master Services Agreement with Pipeline Analysis LLC to provide professional engineering services and technical support related to the District's wastewater collection system.

DESCRIPTION: Pipeline Analysis, LLC., will provide professional engineering services and technical support on a Work Order basis to the District to complete a comprehensive wastewater collection system condition assessment to include smoke testing, CCTV, flow monitoring, draw down testing, project oversight, and sanitary sewer overflow initiative assistance. Pipeline analysis performed the most-recent smoke testing, and the District will see cost savings by working directly with Pipeline Analysis.

ATTACHMENT: Master Agreement Pipeline Analysis, LLC.

RECOMMENDATION: Approval of Master Services Agreement with Pipeline Analysis, LLC.

PROFESSIONAL SERVICES IN SUPPORT OF THE TROPHY CLUB MUNICIPAL UTILITY DISTRICT No.1

Master Agreement

Alan Fourmentin
General Manager
100 Municipal Drive
Trophy Club, Texas 76262
(682) 831-4600

Pipeline Analysis, LLC
1115 Main Street
Garland, Texas 75040
972-470-0655
TBPE Firm No. 6538

CONTRACT FOR PROFESSIONAL SERVICES

Trophy Club Municipal Utility District No. 1 (the **"DISTRICT")**, acting through its duly authorized representative Alan Fourmentin, and **Pipeline Analysis, LLC (Consultant)**, 1115 Main Street, Garland, Texas, Dallas County Texas 75040 acting through its duly authorized President, James H. Forbes, Jr. (Project Manager), hereby agree as follows:

1. SCOPE OF PROJECT: Wastewater Staff Support

This contract will provide technical assistance, as requested, to DISTRICT in support of its efforts to improve the wastewater collection system's performance and extend the life of system assets. Pipeline Analysis' scope of possible services in Exhibit A outlines the types of potential services that may be requested by way of Work Orders given by DISTRICT to CONSULTANT as part of this Contract.

2. SCOPE OF SERVICES

CONSULTANT hereby agrees to perform professional services as requested to assist DISTRICT in performing professional services necessary in support of the Wastewater Staff Support Project as further described in Pipeline Analysis' Scope of Professional Services included as **Exhibit "A"**. CONSULTANT will provide monthly status updates with monthly invoices and provide contract administration services to complete each approved Work Order**.** Work will not begin on Services until requested by and authorized by DISTRICT. Each Work Order request from DISTRICT will be prepared by CONSULTANT and shall include a description the scope of services, deliverables, schedule, and fee.

3. ORDER OF SERVICES

The CONSULTANT agrees to be ready to work on Services for this contract upon receipt of the Notice to Proceed. Work will not begin on any Services until authorized in writing by DISTRICT project representative Alan Fourmentin or his successor.

The project representative may direct CONSULTANT to undertake additional services or tasks provided that no increase in fee is required. Services or tasks requiring an increase of fee will be mutually agreed and evidenced in writing as an amendment to the previously authorized Work Order scope, schedule, deliverables, and fee. CONSULTANT shall notify DISTRICT within three (3) days of notice if tasks requested require an additional fee.

4. INSURANCE

CONSULTANT agrees to the mandatory insurance requirements as set forth in Pipeline Analysis Contract document included as **Exhibit "B"**.

5. FEE

Depending on the scope of services, each work order may be a Time and Materials, Unit Price and/or Lump Sum form of fee for professional services. For services authorized by DISTRICT, CONSULTANT will be paid a not-to-exceed fee per the authorized work order for those services

requested. The negotiated fees will be based on the agreed to hourly rates, unit prices and/or lump sum fee provided in **Exhibit "D"**. Negotiated fees will be authorized through multiple work order authorizations detailing the scope of work, schedule of work and the negotiated fee. Negotiated fees may be adjusted on an annual basis.

The monthly invoice to DISTRICT is based on actual quantities of work completed for unit prices, working hours for time and materials, percentage completed for lump sum fees. CONSULTANT is required to submit detailed backup with monthly invoice to the Project Representative for payment.

6. TERMINATION OF CONTRACT

DISTRICT or CONSULTANT may, at any time, with or without cause, terminate this contract upon seven days written notice to the CONSULTANT or DISTRICT, respectively, at the address of record. In this event, the CONSULTANT will be compensated for its services on all stages authorized based upon CONSULTANT and DISTRICT estimate of the proportion of the total services completed at the time of receipt of notice of termination.

7. LOCAL PARTICIPATION

The DISTRICT stated policy is that expenditures on contracts for professional services be of maximum benefit to the local economy.

8. ASSIGNABILITY

CONSULTANT will not assign, transfer, or delegate any of its obligations or duties in this contract to any other person or company without the prior written consent of DISTRICT, except for routine duties delegated to personnel of the CONSULTANT staff. No part of CONSULTANT's fee may be assigned in advance of receipt by CONSULTANT without written consent of DISTRICT. DISTRICT will not pay the fees of expert or technical assistance and consultants, other than those of CONSULTANT unless such employment, including the rate of compensation, has been approved in writing by DISTRICT.

9. OWNERSHIP OF DOCUMENTS

All documents created exclusively for this project, and that are not derivative work product from pre-existing efforts, including contract documents (plans and specifications), record drawings, contractor's field data, and submittal data will be the sole property of DISTRICT, may not be used again by CONSULTANT without the express written consent of the DISTRICT. However, CONSULTANT may use standard details that are not specific to this project.

10. DISCLOSURE OF INTEREST

CONSULTANT further agrees to complete the *Disclosure of Interests* form attached hereto as **Exhibit "C"**.

OFFERED BY:

PIPELINE ANALYSIS, LLC
TBPE Firm Reg. No. F-6538

By_____
James H. Forbes, Jr., P.E.
President
1115 Main Street
Garland, Texas 75040
(972) 479-0655
(800) 637-0164 Office

ACCEPTED BY:

TROPHY CLUB MUNICIPAL UTILITY DISTRICT NO.1

By_____
Alan Fourmentin
General Manager
100 Municipal Drive
Trophy Club, Texas 76262

(682) 831-4600

Exhibit A
Work Order
Scope of Services

BACKGROUND

This project will provide the necessary support assistance as requested by the DISTRICT to supplement staff and perform professional services associated with the wastewater collection system. The proposed scope of services outlines the work tasks that may be requested by DISTRICT because of specific Work Orders approved by the DISTRICT General Manager.

The approach is organized around the objectives for this project:

- Reduction in Sanitary Sewer Overflows (SSO's)
- Cost controls and Least Cost Alternatives
- Attainment of long-term Infiltration/Inflow solutions
- Collection System Capacity Assurance
- Sustainability of Program Elements
- Customer satisfaction

Pipeline Analysis, LLC will perform professional services, when requested, for DISTRICT. Specific assignments to be performed by the consultant under each numbered Work Order will consist of engineering services to address specific requests by DISTRICT. These services will consist of engineering analysis to address wastewater collection system inspection, evaluation, planning, information management, training, preventative maintenance, hydraulic modeling and reporting that may be needed for wastewater collection system condition assessment.

The intent of this project will be to provide DISTRICT staff with technical support and assistance as they move forward with long-term collection system maintenance and renewal. In some cases, Pipeline Analysis LLC (CONSULTANT) may be tasked with performing services as described in Basic and Additional Services and in other cases the CONSULTANT may be tasked with assisting staff with preparing Request for Proposals, bid specifications, or other contract documents so that the services described below may be contracted directly to other firms.

The Program – The Program is the comprehensive multi-year effort by DISTRICT to effectively improve the wastewater collection and treatment system's performance and regulatory compliance. Pipeline Analysis LLC will provide support, as needed, and requested, to set the project goals and objectives, policies, procedures, standards, etc. for efficient program implementation and will provide staff when areas of need are identified. Other engineering firms, consultants, construction contractors, etc. may be involved in implementing the overall program and Pipeline Analysis LLC will coordinate effort with other engineers as necessary.

The Project – The Project is the individual Work Order. This includes the specific tasks that Pipeline Analysis is authorized to perform in support of the DISTRICT staff.

James H. Forbes, Jr. will serve as Project Manager. Depending on the specific needs of the Work Order, there may also be an assigned Work Order Manager(s).

Basic and Additional Services

This section defines the scope for services (summarized in **Exhibit "A"**) that **may be requested** as part of a Work Order, but the CONSULTANT will not begin work on this section without specific written approval by the General Manager. The CONSULTANT will, with authorization by the General Manager, develop a detailed scope of service, schedule and not to exceed fee to perform the following types of professional services:

BASIC SERVICES

1. Project Coordination

CONSULTANT may plan and assign proper qualified and experienced personnel to Project activities and provide other required equipment and material resources and maintain availability for proper Program execution. The CONSULTANT may coordinate the efforts of any SUB-CONSULTANT assigned to the Project to maintain budget, schedule, scope, and quality compliance. The CONSULTANT may prepare and submit monthly progress/status reports for the Project. In addition to the functions identified throughout this scope of work, the CONSULTANT may assist with the following representative Program functions:

- Document Control
- Program Progress Reporting
- Information System Management
- Risk Mitigation
- Cost and Schedule Management
- Quality Management

A. Project Kick-off Meeting - A project kick-off meeting may be conducted with core DISTRICT staff that will have the day-to-day responsibility for implementation of the project. Data and information needs will be identified along with project organization, management, and communication plans.

B. Project Goals and Objectives - The CONSULTANT may facilitate discussions to establish the strategic goals and objectives of the specific project work order. The discussion may include the core DISTRICT team and stakeholders identified in the Project Kick-off meeting. Key service levels or measurable performance indicators will be identified. Strategic goals and objectives will guide the project through completion.

C. Reporting Plan – The CONSULTANT may prepare a detailed Reporting Plan that aligns the various sources of data and information with the specific regulatory monitoring and reporting requirements. This plan will provide the specific business processes and procedures to routinely compile required data and information for compliance reporting. Specific roles and responsibilities for data collection, compilation and reporting will be identified along with routine schedules for data and report deliverables.

2. QA/QC Advisory

The CONSULTANT may assist DISTRICT in the development of a Quality Assurance and Quality Control (QA/AC) Plan to check, as a minimum, document management systems compliance, planning methods, design methods, calculations, engineering and design documents, construction documents, cost estimates, field investigations, measurements, and other technical issues associated with Program and Project planning and execution. The QA/QC plan may be designed to be expanded and modified as the Program needs change.

3. Project Scheduling

The CONSULTANT may assist DISTRICT in preparing and maintaining an integrated electronic Program schedule. Periodically update the schedule at all phases of the Program. Schedule shall include critical activity start and/or completion dates as milestones, including monthly progress meetings, proposed engineering design, and all deliverable due dates.

4. Cost Estimating

The CONSULTANT may assist DISTRICT in developing cost estimating guides and standards for Program related field surveys and inspections, design and construction of system rehabilitation and replacement and other related Program elements. The CONSULTANT may assist DISTRICT in preparing planning and design level construction cost estimates and in the review of cost estimates completed by others.

5. GIS Integration

DISTRICT may authorize CONSULTANT to perform various tasks associated with the integration of GIS mapping and other software systems. Tasks may include evaluation of existing software/hardware and recommending needed improvements, upgrades, custom programming, and support of other software to enhance GIS spatial reporting requirements, and develop automated reports, custom reports, and programming in support of regulatory compliance.

6. Reporting Templates

DISTRICT may authorize the CONSULTANT to assist in the development of various reporting templates and forms for the data and information stored in the asset management system. Reporting tools may be implemented to provide the required reporting.

7. TCEQ/EPA Reporting and Documentation

The Program may identify periodic reporting requirements that must be submitted to the TCEQ and or EPA. TCEQ reporting requirements already in place within the TPDES permitting framework will continue to be necessary. This task implements the recommendations of the Reporting Plan to provide the routine required regulatory reports and correspondence to provide: 1) that the required reports are generated and submitted on time; 2) the various required reports are consistent with one another in terms of the information reported; and 3) that the resources expended to generate these reports is managed to reduce project costs. Potential elements of this task include:

1. Update required monitoring and reporting requirements of the Program and other regulatory reports required by the TCEQ or EPA. Report requirements will be cross-referenced to identify report information needs in one report that may be common to other reports.
2. Development of a report schedule for the Program.
3. Development of a tracking system to ensure that required reports are generated on time.

Over time, other tasks may result in the need to modify the reporting schedule, tracking system, or report templates.

8. Public Relations and Outreach

The CONSULTANT may assist in providing information to educate the public about Program goals and objectives through various outreach techniques to gather and maintain public support for the Program and for individual projects. The public information program may be

designed to make direct contact, and nurture and maintain positive relationships with those individuals who reside, own businesses, work, and attend school in those areas affected by project construction as well as the community as a whole. The CONSULTANT may assist in the development of presentations, newsletters, press releases and other media materials required for the public information and participation program.

9. Presentation Support

The CONSULTANT may assist in the development of presentation material to communicate Program progress and explain technical and non-technical aspects of the Program to various stakeholder groups.

10. CIP/O&M Budget Planning

The CONSULTANT may assist in preparing annual Program budgets including capital improvement and operation and maintenance budgets as they relate to the collection system condition assessment(s) and rehabilitation projects.

11. CCTV/Line Cleaning Support

CONSULTANT may contract and manage cleaning and CCTV to inspect designated pipelines and provide data in PACP format for each pipeline inspected. Scope of work may only require delivery of PACP CCTV digital data and may also include analysis of the collected data to determine cause of obstructions, condition assessment of pipeline, establish preliminary repair methods and estimated costs. Cleaning may be requested to facilitate CCTV inspection, debris removal, or to facilitate annual cleaning goals and schedules established by DISTRICT.

12. Line and Manhole Inspections and Condition Assessment

DISTRICT may authorize the inspection of manholes including each line entering and exiting the manhole. Normally performed in conjunction with manhole inspection, data on each pipe rim to invert distance, size, material, condition, photograph observed defects, update GIS maps, etc. is obtained and documented. CONSULTANT may perform analysis of this data to establish prioritized remedial measures necessary to restore integrity along with estimated costs. Manhole inspections may be authorized to establish the existing condition and remedial measures necessary to prioritize and rehabilitate these assets. Inspection personnel will use digital cameras during the inspection of all manholes. All photographs will be included in the field inspection database so that a permanent electronic record can be maintained. During the preliminary and final data analysis, these photographs will provide detailed backup information on site conditions, observed defects and condition of the asset to assist in preparing recommended remedial action and estimated costs.

13. Smoke Testing

Smoke Testing may be authorized to locate both public and private sector defects contributing to wet weather inflow, trace sewer connections or identify illicit connections with the storm sewer system. Smoke testing will normally include public notification using door hangers and coordination with fire and other departments. Documentation of the tests will include digital database, photographs, and defect location sketches. CONSULTANT will perform analysis of collected data to include prioritized remedial measures and estimated costs.

14. PACP Coding/Training

DISTRICT may authorize QA/QC of outsourced CCTV data including review of PACP codes and/or coding of defects to meet PACP standards. CONSULTANT may be authorized to provide PACP training and certification.

15. Lift Station Assessment

DISTRICT may authorize the CONSULTANT to perform a condition and/or capacity assessment(s) of designated lift stations. The assessment may require specialized staff to evaluate and prioritize structural, electrical, mechanical, instrumentation, site conditions, hydraulics, pump performance, O&M history, SOPs, flow monitoring, etc. and recommend remedial measures to address observed deficiencies and estimated costs.

16. Force Main/ARV Assessment

DISTRICT may authorize the CONSULTANT to undertake an assessment of the lift station force main(s) and Air Release Valves (ARV). The assessment would include the walking of force mains and documenting observed depressions, wet soils, leaks, map location of ARV's, ARV condition, prioritized remedial measures and estimated costs.

17. I/I Prioritization and Reduction

DISTRICT may authorize CONSULTANT to prioritize areas of DISTRICT for I/I reduction efforts and develop documentation to establish the baseline I/I and subsequent percentage reduction in I/I following remedial measures. This scope may include analysis of flow data or installing flow meters to obtain detailed flow data for I/I prioritization. Analysis may include evaluating the cost effectiveness of transport treatment options, flow equalization, I/I reduction, etc.

18. information Systems integration

CONSULTANT may be authorized to facilitate integration of various software programs or databases from or to GIS. Such integration may include linking data from other software for use in generating standardized reports for internal or regulatory compliance. Wastewater system asset inventory, performance, compliance condition assessment, risk assessment, operations, and maintenance, rehabilitation and improvement data may be in several different information management systems. DISTRICT may authorize the CONSULTANT to develop protocols, common asset identification system, software, and hardware to integrate various wastewater information management systems within the overall Information Technology framework.

19. CMOM Plan Development and Implementation

CONSULTANT may be authorized to assist DISTRICT in the development and implementation of a CMOM (Capacity, Management, Operations and Maintenance) Plan. Tasks may include development of databases to track required progress, programing support to generate required reporting metrics, software/hardware upgrades, estimating least cost alternatives, training, SOP development, SSORP Plan development, FOG Plan development and updating narrative sections of the CMOM Plan.

20. FOG Program Support

CONSULTANT may be authorized to assist in the support and/or implementation of the FOG requirements that may include FOG Manual updates, software integration for monitoring and compliance reporting, software/hardware upgrades, inspection staff support, SOP development, training, cost estimating, public relations programs, and program evaluation.

21. SSORP Program Support

CONSULTANT may be authorized to assist in support and/or implementation of SSO Response Plan and/or Lift Station Overflow Response Plan. Task may include SSORP Manual updates, development of SOPs, software/hardware upgrades. SSO root cause analysis, CCTV in support of the SSORP, data analysis, training, cost estimating, software

integration for monitoring and compliance reporting, Lift Station Overflow Response Plan (LSORP) support and implementation assistance.

22. SSO Verification and Analysis

CONSULTANT may be authorized to perform inspections and analysis to verify occurrences of SSOs, establish the probable cause, repair method and estimated costs. Task may also include preparation of SOPs, staff training, software/hardware upgrades, software integration for monitoring and compliance reporting, and support in minimizing SSO occurrences.

23. GIS Mapping and Database Support

DISTRICT has invested in an enterprise GIS architecture capable of addressing the spatial and asset management needs for all municipal services. CONSULTANT may aid in pursuing a complete inventory of their wastewater utility infrastructure to be used within the GIS for asset management, modeling, and other functions. CONSULTANT may provide updated survey data of existing utilities in GIS format, digitization of project record drawings, updating of the geodatabases based on rehabilitation/replacement associated with this Project, assist in the development of a GIS management/update plan, etc. CONSULTANT may be tasked with evaluation of spatial data for identifying critical infrastructure and problem areas which can be used for prioritizing needs or to aid in reporting. Exhibits may be created for public meetings or for communication with DISTRICT management.

24. Asset Risk Analysis and Prioritization

The CONSULTANT may assist in a comprehensive risk of failure analysis and prioritization of its wastewater system assets. This analysis builds on a CMOM and condition assessment program to develop Likelihood of Failure, Consequence of Failure, and Risk of Failure analysis and rankings for all wastewater system assets. This analysis can be developed for manholes, pipes, lift stations and treatment facility assets. Using a common scoring approach, the risk results can be compared for assets in different asset groups. This analysis results in a quantitative risk score and ranking for all wastewater assets as the basis for determining the priority and funding requirements for system improvements.

25. Rehabilitation/Replacement Alternatives Analysis

Remedial measures analysis may be authorized to provide engineering evaluation of system deficiencies identified during condition assessment and capacity assessment activities. Defects identified during manhole inspection, smoke-testing, CCTV, FOG, etc. may be authorized for further analysis to establish the least cost remedial measure for each asset or additional investigations to establish best repair strategy.

26. Health and Safety

DISTRICT authorize CONSULTANT to assist in preparation of updated health and safety manuals, SOPs, training and support for the health and safety of staff, residents, and contractors.

27. Field Verification

CONSULTANT may be authorized to perform field verification to confirm site conditions, elevations, defect location(s), map update, sizes, materials, lengths, dimensions, etc. to confirm critical data. Field verification of potential capacity constraints may be authorized and may include installation of flow meters, rain gauges, level measurements, etc. to collect data for hydraulic model input, analysis, and report.

28. Flow and/or Rainfall Monitoring

CONSULTANT may be authorized to install, operate, and maintain temporary and/or permanent flow and/or rainfall monitors at key locations within DISTRICT. Task may include analysis of data and preparing report(s) on findings and recommendations. CONSULTANT may be authorized to assist in preparing a permanent flow/rainfall meter network plan with recommendations for meter site locations, equipment, estimated costs and staff training.

29. Pump Performance Testing

CONSULTANT may be authorized to perform pump performance tests to determine the performance of each pump and combination of pumps and prepare a report(s) on findings that may include comparison with design operating points, recommendations, and estimated cost of improvements. Analysis may be authorized to include force main C factor tests, flow tests, operating pressures, valve O&M, etc. necessary to evaluate lift station pumps.

30. Gravity Line Capacity Analyses

CONSULTANT may be authorized to perform various levels of capacity analysis depending on subsequent use and level of accuracy requested by DISTRICT. Depending on the level of accuracy required, CONSULTANT may use any existing hydraulic model, perform site flow monitoring to gather specific flows or perform simple calculations based on existing system data to determine existing and future capacity. CONSULTANT may prepare a report(s) describing the methodology and assumptions used in preparing the capacity analysis.

31. SSO Root Cause Analysis

CONSULTANT may be authorized to gather data to establish the root cause for SSOs. Such analysis may include performing CCTV or reviewing cleaning and CCTV data, determining if structural deficiencies, grease, debris, are contributing to the SSO, elevation survey, confirmation of pipe sizes, elopes, etc. and prepare report(s) identifying the probable cause with recommendations and estimated costs if requested.

VIII. FEE FOR BASIC AND ADDITIONAL SERVICES

For services authorized by the General Manager DISTRICT will pay the CONSULTANT a not to exceed fee per the negotiated cost for those services requested in each Work Order. The negotiated fee will be based on agreed to hourly rates, equipment charges, unit prices and/or lump sum costs provided in each Work Order Fee Schedule. CONSULTANT rates for FY 2021-2022 are summarized in Attachment B. These rates may be negotiated for each contract renewal period. The General Manager is responsible for assigning work orders to the CONSULTANT and approving monthly invoices.

VIX. TERM

This agreement shall have a term of one (1) year with the option to renew for five (5) additional terms of one (1) year each. Each additional term renewal will be subject to the approval of DISTRICT.

Exhibit A
Scope of Potential Services
Summary

Task	POTENTIAL ELEMENTS OR SERVICES AVAILABLE
1	Project Coordination
2	QA/QC - Advisory
3	Project Scheduling
4	Cost Estimating
5	GIS Integration
6	Reporting Templates
7	TCEQ/EPA Reporting and Documentation
8	Public Relations and Outreach
9	Presentation Support
10	CIP/O&M Budget Planning
11	CCTV/Line Cleaning Support
12	Line & Manhole Inspections and Assessment
13	Smoke Testing
14	PACP Coding/Training
15	Lift Station Assessment
16	Force Main/ARV Assessment
17	I/I Prioritization and Reduction
18	Information Systems Integration
19	CMOM Development Implementation
20	FOG Program Support
21	SSORP Program Support
22	SSO Verfication and Analysis
23	GIS Mapping and Database Support
24	Asset Risk Analysis and Prioritization
25	Rehab/Replacement Alternatives Analysis
26	Health & Safety
27	Field Verification
28	Flow and/or Rainfall Monitoring
29	Pump Performance Tests
30	Gravity Line Capacity Analyses
31	SSO Root Cause Analysis

Exhibit B
Insurance

The following summarizes Pipeline Analysis LLC insurance coverage.

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Susan Murphy	
Davis-Dyer-Max Insurance	PHONE (A/C, No, Ext): (972) 864-0400	FAX (A/C, No): (972) 278-8400
P.O. Box 495429	E-MAIL ADDRESS: susan@davis-dyer-max.com	
Garland TX 75049	INSURER(S) AFFORDING COVERAGE	NAIC #
INSURED	INSURER A : Ohio Security Insurance Co.	24082
Pipeline Analysis, LLC	INSURER B : Ohio Casualty Insurance Co.	24074
1115 Main Street	INSURER C : Travelers Casualty & Surety	19038
	INSURER D : Certain Underwriters @ Lloyds AA	1122000
Garland TX 75040-6130	INSURER E :	
	INSURER F :	

COVERAGES CERTIFICATE NUMBER: 21-22 REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☒ PRO-JECT ☐ LOC ☐ OTHER:			BKS 58768426	05/21/2021	05/21/2022	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG Drone Liability	$ 1,000,000 $ 1,000,000 $ 15,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $ Included
A	AUTOMOBILE LIABILITY ☒ ANY AUTO ☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY			BAS58768426	05/21/2021	05/21/2022	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
B	☒ UMBRELLA LIAB ☒ OCCUR ☐ EXCESS LIAB ☐ CLAIMS-MADE ☐ DED ☒ RETENTION $ 10,000			USO 58768426	05/21/2021	05/21/2022	EACH OCCURRENCE AGGREGATE	$ 5,000,000 $ 5,000,000 $
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y / N ☐ If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		UB6K13999A	05/21/2021	05/21/2022	☒ PER STATUTE ☐ OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
D	Professional Liability Claims Made			FEI-AEP-11898	05/21/2021	05/21/2022	Limit Retention	$2,000,000 $10,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER	CANCELLATION
TX 75240	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE Larry T. Hughston

ACORD 25 (2016/03) The ACORD name and logo are registered marks of ACORD

Exhibit C
Conflict of Interest

CONFLICT OF INTEREST QUESTIONNAIRE - FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local government entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

1 **Name of vendor who has a business relationship with local governmental entity.**

Pipeline Analysis LLC

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

NA

Name of Officer

This section, (item 3 including subparts A, B, C & D), must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of one percent or more?

☐ Yes ☐ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4 ☐ **I have no Conflict of Interest to disclose.**

5

Signature of vendor doing business with the governmental entity

September 7, 2021

Date

Exhibit D
FY2021-2022 Rates

This section defines the rates for compensation for services that may be included as part of this project. Pipeline Analysis LLC will not begin work without specific approval of the scope and fee. Fees for Services associated with each Work Order are an allowance with a not to exceed maximum fee. The Work Order fee may be lump sum, time and materials, unit price or a combination. Monthly billings will provide the backup quantities completed, time records, materials, and direct costs in support of the billing. The hourly rates may be adjusted annually with DISTRICT approval.

Pipeline Analysis LLC

Fully Burdened Hourly Rates

Principal/Sr. Project Manager	$198
Senior Engineer	$174
Field Operations Manager	$163
Crew Leader	$62
Technician	$49
GIS Technician	$78
General Labor/Clerical	$40
Overtime	150%
Per Diem	$25/day
Expense Multiplier	1.10

TC Meeting Spaces

Modifier

Calendars

- FS Conference Room
- FS Training Room
- PS Large Conference Room
- Svore Board Room

November 2021

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
45	Oct 31, 2021	Nov 1	2	3	4	5	6
46	7	8	9	10	11	12	13
47	14	15 6:30pm Board of D	16	17	18	19	20
48	21	22	23	24	25 Thanksgiving Holiday - Office Closed	26	27
49	28	29	30	Dec 1	2	3	4

TC Meeting Spaces

Modifier

Calendars

- FS Conference Room
- FS Training Room
- PS Large Conference Room
- Svore Board Room

December 2021

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
49	Nov 28, 2021	29	30	Dec 1	2	3	4
50	5	6	7	8	9	10	11
51	12	13	14 6:30pm Scheduled da	15	16	17	18
52	19	20	21	22	23	24 Office Closed - Chris	25
1	26	27 Office Closed - Chris	28	29	30	31	Jan 1