Illinois Department of Transportation
2300 South Dirksen Parkway / Springfield, Illinois / 62764

July 26, 2012

SUBJECT: FAI Route 94 (I-94)
Project ACIM-094-1(027)003
Section 49-1-R-1
Lake County
Contract No. 60L77
Item No. 40, August 03, 2012 Letting
Addendum A

NOTICE TO PROSPECTIVE BIDDERS:

Attached is an addendum to the plans or proposal. This addendum involves revised and/or added material.

1. Replaced the Schedule of Prices.
2. Revised the Table of Contents to the Special Provisions.
3. Revised paged 3, 5-7, 9-12, 37, 38, 52-57, 64, 80-83, 157-163, 230 & 231 of the Special Provisions.
4. Added pages 375 - 433 to the Special Provisions.
5. Revised sheets 1-28, 28A-28D, 41-50, 57-65, 67, 68, 70-72, 74-77, 79-85, 105, 109, 114, 116, 128, 133, 137, 138, 144, 151, 152, 154, 177, 185-187, 190, 193, 194, 197-204, 207, 208, 210, 214, 215-218, 220, 264-268, 273, 274, 276, 289-295, 297, 299, 301, 302, 307, 308, 311, 317, 318, 320-331, 331A-331C, 332, 339-343, 345, 347, 349, 350, 350A, 351, 352, 354, 356, 361, 366, 367, 370-372, 374-376, 414-436, 439, 475 & 574-588 of the Plans.
6. Added Sheets 217A, 217B, 304A, 304B, 382A & 603M-603S to the Plans.

Prime contractors must utilize the enclosed material when preparing their bid and must include any Schedule of Prices changes in their bidding proposal.

Bidders using computer-generated bids are cautioned to reflect any and all Schedule of Prices changes, if involved, into their computer programs.

Very truly yours,

John D. Baranzelli, P. E.
Acting Engineer of Design and Environment

By: Ted B. Walschleger, P. E.
Engineer of Project Management

cc: John Fortmann, Region 1, District 1; Mike Renner; D.Carl Puzey; Estimates

TW/MS/lll

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES

CONTRACT NUMBER - 60L77

State Job # - C-91-020-11

Project Number	Route
ACIM-0941/027/003	FAI 94

County Name - LAKE- -
Code - 97 - -
District - 1 - -
Section Number - 49-1-R-1

REVISED: JULY 25, 2012

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
A2002009	T-AESCUL FLVYSB 2-1/2	EACH	12.000				
A2002020	T-AESCULUS GLA 2-1/2	EACH	12.000				
A2002820	T-CATALPA SPEC 2-1/2	EACH	19.000				
A2002920	T-CELTIS OCCID 2-1/2	EACH	10.000				
A2005020	T-GYMNOCLA DIO 2-1/2	EACH	10.000				
A2006520	T-QUERCUS BICOL 2-1/2	EACH	22.000				
A2006570	T-QUERCUS BICL CL 8'	EACH	17.000				
A2016616	T-QUERCUS ELLIP 2	EACH	6.000				
A2016818	T-QUERC SCH SBO 1-3/4	EACH	10.000				
C2C06124	S-RHUS TYPH LAC 2'C	EACH	970.000				
C3006024	S-RHUS TYPHINA 2'BR	EACH	1,500.000				
E20200G1	V-PARTHEN QUINQ 1G	EACH	100.000				
JI312020	STAB SUBBASE HMA 3"	SQ YD	34,265.000				
JI420005	PCC PAVEMENT 10 JOINT	SQ YD	6,131.000				
JI481110	AGG SHLDR FLT FAB TB	TON	2,416.000				

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ACIM-0941/027/003

Route
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REVISED: JULY 25, 2012

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JI602010	CATCH BASIN TB	EACH	6.000				
JI602115	CATCH BASIN TG2 TG2FG	EACH	1.000				
JI602740	DR STR T4 W/2 T20AF&G	EACH	1.000				
JI606010	GUTTER TG-2	FOOT	1,457.000				
JI606020	GUTTER TG-3	FOOT	10.000				
JI630002	GSPBGR TA 6FT POSTS	FOOT	1,237.500				
JI630004	GSPBGR TA 9FT POSTS	FOOT	475.400				
JI631135	TRAF BAR TERM TT6B	EACH	3.000				
JI631140	TRAF BAR TERM TT10	EACH	2.000				
JI637001	CONC BARRIER BASE	FOOT	160.000				
JI664305	ROW FENCE T1 6	FOOT	470.000				
JI680020	HDWL TIII 36 1:4	EACH	2.000				
JI680120	SLOP HDWL TIII 6 1:3	EACH	12.000				
JI680130	SLOP HDWL TIII 6 1:4	EACH	52.000				
JI780245	POLYUREA MARK TI 10	FOOT	7,407.000				

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JS120100	TRMF MATPORT CHNGMES	EACH	12.000				
JS120410	PIPE RUNNER 3" S40	FOOT	85.000				
JS120610	HEADWALL GRATES	POUND	608.000				
JS250220	SEEDING CLASS 2E	ACRE	9.000				
JS250318	SEEDING CLASS 4F	ACRE	21.000				
JS280020	MGMT EROS & SED CONTR	CAL MO	14.000				
JS280150	TEMP STAB STRAW MULCH	ACRE	31.000				
JS280200	FILTER FAB INLET PROT	EACH	65.000				
JS701010	MAINTENANCE OF TRAF	L SUM	1.000				
JS733B30	OSS CANT TY STL 30 FT	FOOT	27.000				
JS734B10	FDN OSS CANT T IVBW	CU YD	16.000				
JS804100	ELECT SERV INSTALL	EACH	2.000				
JS810824	UNDRGRD C GALVS 4	FOOT	81.000				
JS810837	UNDRGRD C PVC 3	FOOT	96.000				
JS810842	UNDRGRD C PVC CT GS 2	FOOT	18.000				

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JS810843	UNDRGRD C PVC CT GS 3	FOOT	43.000				
JS811032	CON AS 1 PVC CT GALV	FOOT	244.000				
JS813001	JNC BOX SS ES 20X12X8	EACH	1.000				
JS813022	JUN BX SS AS 6X6X4	EACH	10.000				
JS813073	JUN BX SS AS 16X14X6	EACH	1.000				
JS814001	HANDHOLE TOLLWAY	EACH	10.000				
JS816025	UD 4#2#4G XLPUSE 2CNC	FOOT	836.000				
JS816033	UD 2#6#8G XLPUSE 2CNC	FOOT	4,087.000				
JS816074	UD 2#4#6G XLPUSE 2CNC	FOOT	891.000				
JS816078	UD 4#4#6G XLPUSE 2CNC	FOOT	2,923.000				
JS817211	EC C XLP USE 1C 10	FOOT	1,356.000				
JS821002	UNDERPS LUM 150 HP SV	EACH	10.000				
JS830030	TEMP WD POLE 60 CL 4	EACH	5.000				
JS830033	TEMP WD POLE 70 CL 3	EACH	1.000				
JS836001	LPF (RDWY) SH-7'/CONC	EACH	18.000				

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JS836005	LPF (RDWY) MEDIAN T1	EACH	1.000				
JS836011	REM/REL RTMS POLE FDN	EACH	5.000				
JS842080	REM EX LT UNIT SALV	EACH	1.000				
JS842100	REM UNDERPASS LUM	EACH	6.000				
JS842105	POLE FDN REMOVED	EACH	20.000				
JS845012	REMOV ELECT SERV INST	EACH	2.000				
JS846001	MAINTAIN LIGHT SYS	L SUM	1.000				
JT132603	POLE MT CAM FOC W/O W	EACH	4.000				
JT135002	AC POWER RTMS ASSMBLY	EACH	1.000				
JT135024	CCTV CAMERA SITE MOD	EACH	2.000				
JT135046	TRAILER MTD PORT CCTV	EACH	1.000				
JT135051	POLE MTD RTMS ASSMBLY	EACH	1.000				
JT135052	R&R P MTD RTMS ASMBLY	EACH	3.000				
JT135053	R&R P MTD CAM ASSMBLY	EACH	3.000				
JT135061	REAIM RTMS UNITS	L SUM	1.000				

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ACIM-0941/027/003

REVISED: JULY 25, 2012

Route
FAI 94

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JT211A11	SUBGRADE AGGREGATE 12	CU YD	21,814.000				
JT525125	BOND PREF JT SEAL 2	FOOT	84.000				
JT544030	CULVERT CLEANED 30	FOOT	201.000				
JT594010	SLOP HDWL TIII 10	EACH	1.000				
JT594015	SLOP HDWL TIII 15	EACH	6.000				
JT594018	SLOP HDWL TIII 18	EACH	1.000				
JT594024	SLOP HDWL TIII 24	EACH	1.000				
JT594030	SLOP HDWL TIII 30	EACH	2.000				
JT601900	TRENCH DRAIN	FOOT	358.000				
JT637023	CONC MED BAR TRAN TVF	FOOT	65.000				
JT780JA1	GROOVING RPM LN 5 GR	FOOT	44,736.000				
JT780JC1	GROOVING RPM LN 7 GR	FOOT	33,251.000				
JT780JE1	GROOVING RPM LN 11 GR	FOOT	7,407.000				
JT780JG1	GROOVING RPM LN 25 GR	FOOT	87.000				
JT780JH1	GROOVING RPM L-N-S TI	SQ FT	254.000				

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JT783005	WATERBLAS PM RM V/REC	SQ FT	28,261.000				
JT804001	ELECT CON LIGHT CONTR	EACH	1.000				
JT804002	ELECT POWER CONNECT	EACH	1.000				
JT836012	CAMERA POLE FDN SH 10	EACH	2.000				
JT836013	R&R RTMS POLE	EACH	5.000				
XX004339	BIKEPATH APP GDRL ADJ	FOOT	624.000				
XX005940	REMOTE CONTR VIDEO SY	EACH	1.000				
XX007952	TERMINAL SERVER	EACH	1.000				
XX008253	VIDEO ENCODER	EACH	1.000				
X0322765	REL VIDEO VEH DET SYS	EACH	2.000				
X0322936	REMOV EX FLAR END SEC	EACH	80.000				
X0324085	EM VEH P S LSC 20 3C	FOOT	1,541.000				
X0325201	SHOULDER RUM STRIP RM	SQ YD	8,875.000				
X0325734	SLOTTED DRAIN REMOVAL	FOOT	204.000				
X0326337	DRAINAGE CONTROL STR	EACH	1.000				

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X0327211	RELOCATE SWITCH	EACH	1.000				
X0327392	WOOD POLE 60 CL 4	EACH	1.000				
X0327425	REL WIRELESS INTR COM	L SUM	1.000				
X4021000	TEMP ACCESS- PRIV ENT	EACH	7.000				
X4811410	AGG SHLDS SPL C	TON	166.000				
X5420624	PIPE CULV CLEANED 24	FOOT	126.000				
X5420630	PIPE CULV CLEANED 30	FOOT	406.000				
X5420636	PIPE CULV CLEANED 36	FOOT	358.000				
X5420648	PIPE CULV CLEANED 48	FOOT	338.000				
X5420654	PIPE CULV CLEANED 54	FOOT	681.000				
X5428800	CIP RC END SEC	CU YD	18.000				
X6025300	CB ADJUST SPL	EACH	4.000				
X6060160	COMB CC&G OUTLET SPL	EACH	2.000				
X6061100	CONC MED TSB SPL	SQ FT	1,363.000				
X6063600	COMB CC&G TM4.24	FOOT	784.000				

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ACIM-0941/027/003

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Route
FAI 94

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X6310176	TRAF BAR TERM T2 SPL	EACH	3.000				
X6310195	TBT T1 SPL TANG MOD	EACH	6.000				
X6700410	ENGR FLD OFF A SPL	CAL MO	19.000				
X7010216	TRAF CONT & PROT SPL	L SUM	1.000				
X7013820	TR CONT SURVEIL EXPWY	CAL DA	231.000				
X8130390	JUN BX NM ES 12X10X06	EACH	4.000				
X8140115	HANDHOLE TO BE ADJUST	EACH	2.000				
X8250060	TEMP LIGHT CONTROLLER	EACH	1.000				
X8251388	LT CT BM 480V200D RS	EACH	1.000				
X8570226	FAC T4 CAB SPL	EACH	3.000				
X8620200	UNINTER POWER SUP SPL	EACH	3.000				
X8710024	FOCC62.5/125 MM12SM24	FOOT	3,844.000				
X8730571	EC C COAXIAL	FOOT	76.000				
X8730800	ELCBL C VIDE0 20 4C	FOOT	76.000				
X8950115	RELOC LIGHT DET	EACH	5.000				

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X8950120	RELOC LIGHT DET AMP	EACH	2.000				
Z0004552	APPROACH SLAB REM	SQ YD	408.000				
Z0005216	HMA STAB 6 AT SPBGR	SQ YD	1,221.000				
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000				
Z0018010	DRAINAGE SCUPPR DS-33	EACH	6.000				
Z0018800	DRAINAGE SYSTEM	L SUM	1.000				
Z0023500	FILL EXIST CULVERTS	CU YD	100.000				
Z0026407	TEMP SHT PILING	SQ FT	1,330.000				
Z0030250	IMP ATTN TEMP NRD TL3	EACH	12.000				
Z0030260	IMP ATTN TEMP FRN TL3	EACH	10.000				
Z0030270	IMP ATTN TEMP FRW TL3	EACH	4.000				
Z0030330	IMP ATTN REL FRD TL3	EACH	1.000				
Z0030332	IMP ATTN REL FRN TL3	EACH	13.000				
Z0030350	IMP ATTN REL NRD TL3	EACH	16.000				
Z0030850	TEMP INFO SIGNING	SQ FT	1,000.000				

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Z0033020	LUM SFTY CABLE ASMBLY	EACH	142.000				
Z0033028	MAINTAIN LIGHTING SYS	CAL MO	11.000				
Z0033056	OPTIM TRAF SIGNAL SYS	EACH	1.000				
Z0034210	MECH ST EARTH RET WL	SQ FT	3,200.000				
Z0040530	PIPE UNDERDRAIN REMOV	FOOT	25,450.000				
Z0046304	P UNDR FOR STRUCT 4	FOOT	287.000				
Z0062456	TEMP PAVEMENT	SQ YD	18,243.000				
Z0073345	SLEEPER SLAB	FOOT	386.000				
Z0073510	TEMP TR SIGNAL TIMING	EACH	2.000				
Z0076600	TRAINEES	HOUR	3,500.000		0.800		2,800.000
Z0076604	TRAINEES TPG	HOUR	3,500.000		10.000		35,000.000
20100110	TREE REMOV 6-15	UNIT	169.000				
20100500	TREE REMOV ACRES	ACRE	3.000				
20101000	TEMPORARY FENCE	FOOT	3,841.000				
20101100	TREE TRUNK PROTECTION	EACH	5.000				

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Route
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20200100	EARTH EXCAVATION	CU YD	64,637.000				
20201200	REM & DISP UNS MATL	CU YD	20,623.000				
20400800	FURNISHED EXCAVATION	CU YD	121,128.000				
20800150	TRENCH BACKFILL	CU YD	174.000				
20900110	POROUS GRAN BACKFILL	CU YD	638.000				
21101505	TOPSOIL EXC & PLAC	CU YD	66,091.000				
21101685	TOPSOIL F & P 24	SQ YD	2,747.000				
25000210	SEEDING CL 2A	ACRE	5.000				
25000310	SEEDING CL 4	ACRE	14.000				
25000312	SEEDING CL 4A	ACRE	3.000				
25000400	NITROGEN FERT NUTR	POUND	796.000				
25000500	PHOSPHORUS FERT NUTR	POUND	626.000				
25000600	POTASSIUM FERT NUTR	POUND	1,306.000				
25100105	MULCH METHOD 1	ACRE	52.000				
25100135	MULCH METHOD 4	ACRE	0.260				

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25100630	EROSION CONTR BLANKET	SQ YD	248,994.000				
25100900	TURF REINF MAT	SQ YD	514.000				
25200110	SODDING SALT TOLERANT	SQ YD	4,493.000				
25200200	SUPPLE WATERING	UNIT	54.000				
28000250	TEMP EROS CONTR SEED	POUND	3,755.000				
28000305	TEMP DITCH CHECKS	FOOT	809.000				
28000400	PERIMETER EROS BAR	FOOT	30,219.000				
28100101	STONE RIPRAP CL A1	SQ YD	312.000				
28200200	FILTER FABRIC	SQ YD	2,125.000				
28500400	ARTICUL BLOCK REV MAT	SQ YD	1,813.000				
30300001	AGG SUBGRADE IMPROVE	CU YD	17,869.000				
30300112	AGG SUBGRADE IMPR 12	SQ YD	108,702.000				
31200502	STAB SUBBASE HMA 4.5	SQ YD	73,153.000				
35101500	AGG BASE CSE B	CU YD	608.000				
35501308	HMA BASE CSE 6	SQ YD	390.000				

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40200900	AGG SURF CSE B	CU YD	22.000				
40600100	BIT MATLS PR CT	GALLON	4,225.000				
40603335	HMA SC "D" N50	TON	437.000				
42000411	PCC PVT 9 1/2 JOINTD	SQ YD	18,966.000				
42000506	PCC PVT 10 1/4 JOINTD	SQ YD	6,058.000				
42000541	PCC PVT 12 JOINTED	SQ YD	68,449.000				
42001300	PROTECTIVE COAT	SQ YD	20,017.000				
44000100	PAVEMENT REM	SQ YD	69,793.000				
44000200	DRIVE PAVEMENT REM	SQ YD	519.000				
44000300	CURB REM	FOOT	954.000				
44000500	COMB CURB GUTTER REM	FOOT	1,367.000				
44001980	CONC BARRIER REMOV	FOOT	508.000				
44003100	MEDIAN REMOVAL	SQ FT	8,088.000				
44004000	PAVED DITCH REMOVAL	FOOT	1,612.000				
44004250	PAVED SHLD REMOVAL	SQ YD	61,022.000				

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48101500	AGGREGATE SHLDS B 6	SQ YD	5,777.000				
48203021	HMA SHOULDERS 6	SQ YD	25,393.000				
48300410	PCC SHOULDERS 9 1/2	SQ YD	7,038.000				
48300505	PCC SHOULDERS 10 1/4	SQ YD	3,779.000				
48300700	PCC SHOULDERS 12	SQ YD	18,051.000				
50100100	REM EXIST STRUCT	EACH	1.000				
50102400	CONC REM	CU YD	149.000				
50104650	SLOPE WALL REMOV	SQ YD	350.000				
50105220	PIPE CULVERT REMOV	FOOT	730.000				
50157300	PROTECTIVE SHIELD	SQ YD	1,033.000				
50200100	STRUCTURE EXCAVATION	CU YD	1,348.000				
50300225	CONC STRUCT	CU YD	645.300				
50300255	CONC SUP-STR	CU YD	1,776.000				
50300260	BR DECK GROOVING	SQ YD	2,960.000				
50300280	CONCRETE ENCASEMENT	CU YD	30.000				

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50300300	PROTECTIVE COAT	SQ YD	4,825.000				
50400745	F&E PPC BULB T-BM 72	FOOT	4,757.000				
50800205	REINF BARS, EPOXY CTD	POUND	487,160.000				
50800515	BAR SPLICERS	EACH	1,322.000				
50901720	BICYCLE RAILING	FOOT	132.000				
50901735	BR FEN RAIL (SDWALK)	FOOT	626.000				
50901750	PARAPET RAILING	FOOT	618.000				
51100100	SLOPE WALL 4	SQ YD	1,566.000				
51201800	FUR STL PILE HP14X73	FOOT	7,302.000				
51202305	DRIVING PILES	FOOT	7,302.000				
51203800	TEST PILE ST HP14X73	EACH	3.000				
51500100	NAME PLATES	EACH	2.000				
54010704	PCBC 7X4	FOOT	213.000				
542A0223	P CUL CL A 1 18	FOOT	15.000				
542A1069	P CUL CL A 2 24	FOOT	41.000				
542A1075	P CUL CL A 2 30	FOOT	114.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60L77

State Job # - C-91-020-11

County Name - LAKE- -
Code - 97 - -
District - 1 - -
Section Number - 49-1-R-1

Project Number: ACIM-0941/027/003

Route: FAI 94

REVISED: JULY 25, 2012

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
542A1081	P CUL CL A 2 36	FOOT	406.000				
542A1093	P CUL CL A 2 48	FOOT	32.000				
542A1099	P CUL CL A 2 54	FOOT	351.000				
542A1915	P CUL CL A 3 30	FOOT	19.000				
542JA036	P CUL CL A 36 JKD	FOOT	359.000				
54213657	PRC FLAR END SEC 12	EACH	11.000				
54213663	PRC FLAR END SEC 18	EACH	3.000				
54213675	PRC FLAR END SEC 30	EACH	2.000				
54215424	CIP RC END SEC 24	EACH	2.000				
54215436	CIP RC END SEC 36	EACH	6.000				
54215448	CIP RC END SEC 48	EACH	1.000				
54215454	CIP RC END SEC 54	EACH	3.000				
550A0070	STORM SEW CL A 1 15	FOOT	12.000				
550A0090	STORM SEW CL A 1 18	FOOT	33.000				
550A0340	STORM SEW CL A 2 12	FOOT	692.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60L77

State Job # - C-91-020-11

	Project Number	Route
County Name - LAKE- -	ACIM-0941/027/003	FAI 94
Code - 97 - -		
District - 1 - -	REVISED: JULY 25, 2012	
Section Number - 49-1-R-1		

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
550A0360	STORM SEW CL A 2 15	FOOT	260.000				
550A0380	STORM SEW CL A 2 18	FOOT	16.000				
550A0410	STORM SEW CL A 2 24	FOOT	126.000				
55100700	STORM SEWER REM 15	FOOT	19.000				
55100900	STORM SEWER REM 18	FOOT	87.000				
55101200	STORM SEWER REM 24	FOOT	120.000				
58700300	CONCRETE SEALER	SQ FT	5,084.000				
59100100	GEOCOMPOSITE WALL DR	SQ YD	280.000				
60100060	CONC HDWL FOR P DRAIN	EACH	38.000				
60107700	PIPE UNDERDRAINS 6	FOOT	17,404.000				
60108200	PIPE UNDERDRAIN 6 SP	FOOT	2,836.000				
60109520	P UNDR FAB LINE TR 6	FOOT	15,213.000				
60200105	CB TA 4 DIA T1F OL	EACH	4.000				
60200805	CB TA 4 DIA T8G	EACH	6.000				
60201310	CB TA 4 DIA T20F&G	EACH	3.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60L77

State Job # - C-91-020-11

County Name - LAKE- -
Code - 97 - -
District - 1 - -
Section Number - 49-1-R-1

Project Number: ACIM-0941/027/003

Route: FAI 94

REVISED: JULY 25, 2012

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
60218400	MAN TA 4 DIA T1F CL	EACH	6.000				
60219000	MAN TA 4 DIA T8G	EACH	1.000				
60221700	MAN TA 5 DIA T8G	EACH	1.000				
60255500	MAN ADJUST	EACH	3.000				
60500050	REMOV CATCH BAS	EACH	6.000				
60600095	CLASS SI CONC OUTLET	CU YD	3.000				
60600605	CONC CURB TB	FOOT	66.000				
60602800	CONC GUTTER TB	FOOT	320.000				
60603800	COMB CC&G TB6.12	FOOT	130.000				
60605000	COMB CC&G TB6.24	FOOT	2,507.000				
60617310	PAVED DITCH TB-22	FOOT	125.000				
60618320	CONC MEDIAN SURF 6	SQ FT	5,412.000				
60624600	CORRUGATED MED	SQ FT	2,348.000				
63000001	SPBGR TY A 6FT POSTS	FOOT	3,300.000				
63100045	TRAF BAR TERM T2	EACH	5.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60L77

State Job # - C-91-020-11

County Name - LAKE- -
Code - 97 - -
District - 1 - -
Section Number - 49-1-R-1

Project Number
ACIM-0941/027/003

Route
FAI 94

REVISED: JULY 25, 2012

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
63100070	TRAF BAR TERM T5	EACH	1.000				
63100085	TRAF BAR TERM T6	EACH	3.000				
63100167	TR BAR TRM T1 SPL TAN	EACH	6.000				
63200310	GUARDRAIL REMOV	FOOT	11,747.000				
63500105	DELINEATORS	EACH	176.000				
63700155	CONC BAR 1F 32HT	FOOT	289.000				
63700900	CONC BARRIER BASE	FOOT	289.000				
64200116	SHOULDER RUM STRIP 16	FOOT	25,692.000				
66400105	CH LK FENCE 4	FOOT	1,664.000				
66900200	NON SPL WASTE DISPOSL	CU YD	25,500.000				
66900450	SPL WASTE PLNS/REPORT	L SUM	1.000				
66900530	SOIL DISPOSAL ANALY	EACH	5.000				
67000600	ENGR FIELD LAB	CAL MO	14.000				
67100100	MOBILIZATION	L SUM	1.000				
70300240	TEMP PVT MK LINE 6	FOOT	26,763.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60L77

State Job # - C-91-020-11

	Project Number	Route
County Name - LAKE- -	ACIM-0941/027/003	FAI 94
Code - 97 - -		
District - 1 - -	REVISED: JULY 25, 2012	
Section Number - 49-1-R-1		

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
70300510	PAVT MARK TAPE T3 L&S	SQ FT	160.000				
70300520	PAVT MARK TAPE T3 4	FOOT	239,643.000				
70300530	PAVT MARK TAPE T3 5	FOOT	11,192.000				
70300550	PAVT MARK TAPE T3 8	FOOT	23,807.000				
70300560	PAVT MARK TAPE T3 12	FOOT	1,237.000				
70300570	PAVT MARK TAPE T3 24	FOOT	375.000				
70301000	WORK ZONE PAVT MK REM	SQ FT	91,781.000				
70400100	TEMP CONC BARRIER	FOOT	43,513.000				
70400200	REL TEMP CONC BARRIER	FOOT	37,588.000				
72000100	SIGN PANEL T1	SQ FT	302.000				
72000200	SIGN PANEL T2	SQ FT	760.000				
72000300	SIGN PANEL T3	SQ FT	5,364.000				
72400100	REMOV SIN PAN ASSY TA	EACH	2.000				
72400200	REMOV SIN PAN ASSY TB	EACH	17.000				
72400310	REMOV SIGN PANEL T1	SQ FT	250.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60L77

State Job # - C-91-020-11

County Name - LAKE- -
Code - 97 - -
District - 1 - -
Section Number - 49-1-R-1

Project Number
ACIM-0941/027/003

REVISED: JULY 25, 2012

Route
FAI 94

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
72400320	REMOV SIGN PANEL T2	SQ FT	459.000				
72400330	REMOV SIGN PANEL T3	SQ FT	3,467.000				
72400730	RELOC SIGN PANEL T3	SQ FT	144.000				
72600100	MILEPOST MKR ASSEMBLY	EACH	21.000				
72700100	STR STL SIN SUP BA	POUND	14,926.000				
73000100	WOOD SIN SUPPORT	FOOT	1,310.000				
73300300	OVHD SIN STR-SPAN T3A	FOOT	369.000				
73400100	CONC FOUNDATION	CU YD	80.000				
73400200	DRILL SHAFT CONC FDN	CU YD	48.000				
73600100	REMOV OH SIN STR-SPAN	EACH	3.000				
73700100	REM GR MT SIN SUPPORT	EACH	106.000				
73700200	REM CONC FDN-GR MT	EACH	14.000				
73700300	REM CONC FDN-OVHD	EACH	6.000				
78000600	THPL PVT MK LINE 12	FOOT	1,404.000				
78008200	POLYUREA PM T1 LTR-SY	SQ FT	928.000				
78008210	POLYUREA PM T1 LN 4	FOOT	87,687.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60L77

State Job # - C-91-020-11

	Project Number	Route
County Name - LAKE- -	ACIM-0941/027/003	FAI 94
Code - 97 - -		
District - 1 - -	REVISED: JULY 25, 2012	
Section Number - 49-1-R-1		

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
78008220	POLYUREA PM T1 LN 5	FOOT	6,830.000				
78008230	POLYUREA PM T1 LN 6	FOOT	34,606.000				
78008240	POLYUREA PM T1 LN 8	FOOT	10,507.000				
78008250	POLYUREA PM T1 LN 12	FOOT	944.000				
78008270	POLYUREA PM T1 LN 24	FOOT	264.000				
78100100	RAISED REFL PAVT MKR	EACH	1,130.000				
78100105	RAISED REF PVT MKR BR	EACH	18.000				
78100300	REPLACEMENT REFLECTOR	EACH	10.000				
78200300	PRISMATIC CURB REFL	EACH	144.000				
78200410	GUARDRAIL MKR TYPE A	EACH	72.000				
78200530	BAR WALL MKR TYPE C	EACH	12,898.000				
78201000	TERMINAL MARKER - DA	EACH	13.000				
78300100	PAVT MARKING REMOVAL	SQ FT	19,473.000				
80400100	ELECT SERV INSTALL	EACH	3.000				
80400200	ELECT UTIL SERV CONN	L SUM	1.000		10,000.000		10,000.000

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60L77

State Job # - C-91-020-11

	Project Number	Route
County Name - LAKE- -	ACIM-0941/027/003	FAI 94
Code - 97 - -		
District - 1 - -	REVISED: JULY 25, 2012	
Section Number - 49-1-R-1		

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
80500020	SERV INSTALL POLE MT	EACH	2.000				
81028200	UNDRGRD C GALVS 2	FOOT	4,329.000				
81028210	UNDRGRD C GALVS 2 1/2	FOOT	248.000				
81028220	UNDRGRD C GALVS 3	FOOT	2,400.000				
81028240	UNDRGRD C GALVS 4	FOOT	1,147.000				
81028390	UNDRGRD C PVC 4	FOOT	80.000				
81100320	CON AT ST 1 PVC GS	FOOT	1,103.000				
81100600	CON AT ST 2 GALVS	FOOT	325.000				
81200230	CON EMB STR 2 PVC	FOOT	463.000				
81200270	CON EMB STR 4 PVC	FOOT	401.000				
81300220	JUN BX SS AS 6X6X4	EACH	14.000				
81300530	JUN BX SS AS 12X10X6	EACH	20.000				
81300730	JUN BX SS AS 16X14X6	EACH	2.000				
81400100	HANDHOLE	EACH	10.000				
81400200	HD HANDHOLE	EACH	13.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60L77

State Job # - C-91-020-11

	Project Number	Route
County Name - LAKE- -	ACIM-0941/027/003	FAI 94
Code - 97 - -		
District - 1 - -	REVISED: JULY 25, 2012	
Section Number - 49-1-R-1		

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
81400300	DBL HANDHOLE	EACH	4.000				
81603081	UD 3#2#4GXLPUSE 1.5 P	FOOT	3,616.000				
81603090	UD 3#4#6GXLPUSE 1 1/4	FOOT	33,129.000				
81702110	EC C XLP USE 1C 10	FOOT	4,557.000				
81702150	EC C XLP USE 1C 2	FOOT	105.000				
81702220	EC C XLP USE 1C 350	FOOT	150.000				
81702400	EC C XLP USE 3-1C 2	FOOT	96.000				
81800320	A CBL 3-1C4 MESS WIRE	FOOT	7,273.000				
81800330	A CBL 3-1C6 MESS WIRE	FOOT	1,452.000				
82102400	LUM SV HOR MT 400W	EACH	172.000				
82107100	UNDERPAS LUM 70W HPS	EACH	6.000				
82107200	UNDERPAS LUM 100W HPS	EACH	8.000				
82500360	LT CONT BASEM 480V100	EACH	1.000				
83050715	LT P A 47.5MH 6DA	EACH	2.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60L77

State Job # - C-91-020-11

County Name - LAKE- -
Code - 97 - -
District - 1 - -
Section Number - 49-1-R-1

Project Number: ACIM-0941/027/003

Route: FAI 94

REVISED: JULY 25, 2012

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
83050805	LT P A 47.5MH 12DA	EACH	92.000				
83050825	LT P A 47.5MH 15DA	EACH	31.000				
83050915	LT P A 47.5MH 2-6DA	EACH	5.000				
83050945	LT P A 47.5MH 2-10DA	EACH	2.000				
83050965	LT P A 47.5MH 2-15DA	EACH	1.000				
83057355	LT P WD 60 CL4 15MA	EACH	30.000				
83600200	LIGHT POLE FDN 24D	FOOT	1,200.000				
83800205	BKWY DEV TR B 15BC	EACH	126.000				
84100110	REM TEMP LIGHT UNIT	EACH	51.000				
84200500	REM LT UNIT SALV	EACH	25.000				
84200804	REM POLE FDN	EACH	19.000				
84400105	RELOC EX LT UNIT	EACH	19.000				
84500110	REMOV LIGHTING CONTR	EACH	1.000				
84500130	REMOV LTG CONTR FDN	EACH	1.000				
85000200	MAIN EX TR SIG INSTAL	EACH	1.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60L77

State Job # - C-91-020-11

County Name - LAKE- -
Code - 97 - -
District - 1 - -
Section Number - 49-1-R-1

Project Number: ACIM-0941/027/003

Route: FAI 94

REVISED: JULY 25, 2012

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
85700200	FAC T4 CAB	EACH	3.000				
86400100	TRANSCEIVER - FIB OPT	EACH	3.000				
87300925	ELCBL C TRACER 14 1C	FOOT	3,844.000				
87301225	ELCBL C SIGNAL 14 3C	FOOT	1,617.000				
87301245	ELCBL C SIGNAL 14 5C	FOOT	5,275.000				
87301255	ELCBL C SIGNAL 14 7C	FOOT	574.000				
87301305	ELCBL C LEAD 14 1PR	FOOT	4,656.000				
87301740	ELCBL C COMM 22 4PR	FOOT	942.000				
87301805	ELCBL C SERV 6 2C	FOOT	490.000				
87301900	ELCBL C EGRDC 6 1C	FOOT	2,056.000				
87502480	TS POST GALVS 14	EACH	7.000				
87502500	TS POST GALVS 16	EACH	1.000				
87700140	S MAA & P 20	EACH	1.000				
87700230	S MAA & P 38	EACH	1.000				
87702910	STL COMB MAA&P 36	EACH	1.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60L77

State Job # - C-91-020-11

County Name - LAKE- -
Code - 97 - -
District - 1 - -
Section Number - 49-1-R-1

Project Number: ACIM-0941/027/003

Route: FAI 94

REVISED: JULY 25, 2012

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
87702940	STL COMB MAA&P 42	EACH	1.000				
87702990	STL COMB MAA&P 54	EACH	1.000				
87800100	CONC FDN TY A	FOOT	32.000				
87800150	CONC FDN TY C	FOOT	12.000				
87800400	CONC FDN TY E 30D	FOOT	10.000				
87800415	CONC FDN TY E 36D	FOOT	50.000				
87900200	DRILL EX HANDHOLE	EACH	6.000				
87900205	DRILL EX HD HANDHOLE	EACH	1.000				
88030020	SH LED 1F 3S MAM	EACH	10.000				
88030050	SH LED 1F 3S BM	EACH	9.000				
88030110	SH LED 1F 5S MAM	EACH	1.000				
88030240	SH LED 2F 1-3 1-5 BM	EACH	1.000				
88200210	TS BACKPLATE LOU ALUM	EACH	11.000				
88500100	INDUCTIVE LOOP DETECT	EACH	14.000				
88600700	PREFORM DETECT LOOP	FOOT	1,050.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 60L77

State Job # - C-91-020-11

County Name - LAKE- -
Code - 97 - -
District - 1 - -
Section Number - 49-1-R-1

Project Number
ACIM-0941/027/003

Route
FAI 94

REVISED: JULY 25, 2012

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
89000100	TEMP TR SIG INSTALL	EACH	2.000				
89502300	REM ELCBL FR CON	FOOT	4,225.000				
89502375	REMOV EX TS EQUIP	EACH	3.000				
89502380	REMOV EX HANDHOLE	EACH	7.000				
89502385	REMOV EX CONC FDN	EACH	1.000				

TABLE OF CONTENTS

Revised 07/27/12

Revised 07/27/12

STATUS OF UTILITIES TO BE ADJUSTED
Effective: January 30, 1987 Revised: July 1, 1994

Utility companies involved in this project have provided the following estimated dates:

Name of Utility	Type	Location	Estimated Dates for Start and Completion of Relocation or Adjustments
ComEd	Relocating seven (7) power poles and aerial power lines	Along south side of IL 173	30 calendar days to relocate facilities, once permit is processed and proposed ROW acquired.
AT&T	Aerial fiber optic lines	Along south side of IL 173 (on ComEd poles)	60 calendar days to relocate facilities, once permit is processed and proposed ROW acquired.
North Shore Gas	Relocating one (1) underground 6" gas line	Along south side of IL 173	60 calendar days to relocate facilities, once permit is processed and proposed ROW acquired.
G4S (Formerly Adesta)	Fiber Optic	West of IL 173 bridge structure and along north side of IL 173	TBD– potential conflict.

The above represents the best information available to the Department and is included for the convenience of the bidder. The applicable portions of Articles 105.07 and 107.31 of the Standard Specifications shall apply.

COMPLETION DATE PLUS WORKING DAYS
Effective: September 30, 1985 Revised: January 1, 2007

Revise Article 108.05 (b) of the Standard Specifications as follows:

"When a completion date plus working days is specified, the Contractor shall complete all contract items and safely open all roadways to traffic by 11:59 PM on, **October 31, 2013** except as specified herein.

The Contractor will be allowed to complete all clean-up work and punch list items within **10** working days after the completion date for opening the roadway to traffic. Under extenuating circumstances the Engineer may direct that certain items of work, not affecting the safe opening of the roadway to traffic, may be completed within the working days allowed for clean up work and punch list items. Temporary lane closures for this work may be allowed at the discretion of the Engineer.

Article 108.09 or the Special Provision for "Failure to Complete the Work on Time", if included in this contract, shall apply to both the completion date and the number of working days.

Revised 07/27/12

The Contractor will be required to request written authorization through the ISTHA corridor coordinator ***Mr. Adam Lintner*** a minimum of two (2) weeks prior to any traffic pattern changes or lanes closures, and provide detailed description of the traffic pattern revisions and respective durations in his authorization request. Upon receipt of the permit and authorization, the Contractor shall submit a copy to the Engineer for recording. The ISTHA corridor coordinator may be contacted at:
Illinois Tollway
2700 Ogden Ave
Downers Grove, IL 60515
Phone Number 630-241-6800

Should the Contractor fail to install or maintain traffic control devices as provided for in the Contract, ISTHA, after giving prior notice to the Contractor, shall have the right to perform the work in any reasonable manner or cause the work to be performed on a force account basis at the expense of the Contractor.

ISTHA and its authorized agents shall have all reasonable rights of inspection (including pre-final and final inspection) during the progress of the Work as it affects Tollway facilities. All ISTHA communications and correspondence with the IDOT's Contractor relating to the contract shall be through IDOT, unless otherwise specifically approved by the Engineer. The Contractor shall immediately perform such work or replace or repair such non-complying work.

ISTHA will also make inspections upon completion of 70% and 100% of all work on each contract affecting a Tollway facility. Deficiencies thus identified shall be subject to reinspection upon completion of corrective work.

TOLLWAY PERMIT AND BOND
Effective: January 13, 1989

The Contractor will be required to obtain a permit from the Illinois State Toll Highway Authority (ISTHA) in accordance with Article 107.04 of the Standard Specifications prior to initiating any lane closures on the Tollway or doing any work on the ISTHA right of way. As part of the permit, the Contractor will be required to post a surety bond with the ISTHA.

The Contractor will furnish a copy of the authorized permit to the Engineer.

TOLLWAY FACILITIES

Tollway facilities, which include fiber optic cable, multi-mode cable, DMS signs, cameras, telecommunication cable, electrical, water and sewer, are installed along and across the rights-of-way of the Illinois Tollway system. The Contractor shall schedule, plan and execute the Work under the Contract such that work required to protect, adjust, relocate or accommodate the fiber optic cable or any other Tollway utility facility be coordinated with the Engineer to prevent damage and insure continuous service throughout the duration of the Contract.

The Contractor or Sub-Contractor performing the work shall have all Tollway facilities located anytime underground operations, excavations or digging of any type is contemplated in the general area of the facility. The location of the Tollway's fiber optic cable, as well as other Tollway facilities, is not available through the J.U.L.I.E. system

The Contractor shall initiate the locate process for the Tollway facilities by completing an online Locate Request Form A-36. To submit a Tollway Locate, log onto www.illinoisvirtualtollway.com/utilitylocates. The completed A-36 form, valid for 28 days, shall be transmitted, at least two (2) business days prior to starting any underground operations, excavations or digging of any type in the general area of the Tollway facility. If outside factors (weather, construction activity or vandalism) at the dig site have caused the markings to become disturbed and/or indistinguishable, a request for remarks/refresh is required. The request shall be electronically transmitted, at least two (2) business days prior to starting any underground operation. After remarking, the locate request is valid for another 28 days. A copy of all completed A-36 forms sent to the Tollway shall be provided to the Engineer.

For assistance in completing a locate request, please refer to:
Click for Contractor Manual or Click for Video Tutorial for instructions
First time users **MUST** click this button: Click to Create Account
follow instructions and complete

Click Submit Request:
Fill-in all required fields*
All sketches **MUST** be in .pdf and all lower case
MUST have the full eight digit project number or the complete permit number

Any questions or problems please direct to:

Tollway Utility / Permit Section
Patricia Mathez – Utility Administrator
Phone: 630.241.6800 Extension: 3306 Fax: 630.271.7568
Email: pmathez@getipass.com

When it is determined that the vertical location of the utility is necessary to facilitate construction, the Engineer may make the request for location from the utility after receipt of notice from the Contractor. If the utility owner does not field locate their facilities to the satisfaction of the Engineer, the Engineer will authorize the Contractor in writing to proceed to locate the facilities in the most economical and reasonable manner, subject to the approval of the Engineer, and be paid according to Article 109.04.

During and following excavation and/or demolition, the Contractor shall protect existing underground utility facilities in and near the excavation or demolition area as required to avoid damage to the facility.

The Contractor shall backfill all excavations in such manner and with such materials as may be reasonably necessary for the protection of existing underground utility facilities in and near the excavation or demolition area.

In addition to establishing the approximate location of the facility, the Contractor shall be required to fully expose the facility to verify its horizontal and vertical location, if underground operations are contemplated within the Tolerance Zone, which is defined to mean the approximate location of underground utility facilities defined as a strip of land at least 3 feet wide, but not wider than the width of the underground facility plus 2.0 feet on either side of the outside edge of such facility based upon the markings made by the Tollway or operator of the facility. Excavation within the tolerance zone requires extra care and precaution.

Revised 07/27/12

The Tollway's fiber optic system is a Utility Facility providing service to the Tollway and other telecommunication companies. The Contractor is responsible for coordinating and scheduling its work with all necessary work on the fiber optic system, so as not to interfere with any fiber optic system adjustment or relocation work to be done by or on behalf of the Tollway. The Contractor is responsible for coordinating and scheduling its work in a manner that such work to be done by or on behalf of the Tollway will not cause interference with the Contractor's completion of The Work by the Completion Date. All aspects of the Contractor's responsibilities as they relate to the Tollway facilities are specified in Article 105.07 of the Tollway supplemental Specifications.

The Contractor shall immediately notify the Engineer in the event the fiber optic cable is damaged or in danger of being damaged within the Contract Limits. In the event that the Contractor is found to be negligent and/or operating in violation of Industry Standards with regard to excavating, the Contractor shall be responsible for all costs incurred in connection with the repair, restoration, and testing of the system to insure it is operational and in the same condition as prior to the Contractor-caused damage. In addition, The Contractor shall pay to the Department the amount of $10,000.00 for each occurrence of Contractor-caused damage to the Tollway fiber optic cable, not as a penalty but as liquidated and ascertained damages. The Tollway reserves the right to identify each strand of fiber individually as Contractor-caused damage.

Should damage occur to any other Tollway utility within the contract limits, the Contractor shall immediately notify the Engineer. In the event that the Contractor is found to be negligent and/or operating in violation of Industry Standards with regard to excavating, the Contractor shall be responsible for all costs incurred in connection with the repair, restoration, and testing to insure it is operational and in the same condition as prior to the Contractor-caused damage. In addition, The Contractor shall pay to the Departmant the amount of $1,000.00 for each occurrence of Contractor-caused damage to any other Tollway facility not including the fiber optic cable, not as a penalty but as liquidated and ascertained damages.

TRAFFIC CONTROL PLAN

Effective: September 30, 1985 Revised: January 1, 2007

Traffic Control shall be according to the applicable sections of the Standard Specifications, the Supplemental Specifications, the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways", any special details and Highway Standards contained in the plans, and the Special Provisions contained herein.

Special attention is called to Article 107.09 of the Standard Specifications and the following Highway Standards, Details, Quality Standard for Work Zone Traffic Control Devices, Recurring Special Provisions and Special Provisions contained herein, relating to traffic control.

The Contractor shall contact the District One Bureau of Traffic at least 72 hours in advance of beginning work.

Revised 07/27/12

KEEPING THE EXPRESSWAY OPEN TO TRAFFIC
Effective: March 22, 1996 Revised: February 9, 2005

Whenever work is in progress on or adjacent to an expressway, the Contractor shall provide the necessary traffic control devices to warn the public and to delineate the work zone as required in these Special Provisions, the Standard Specifications, the State Standards and the District Freeway details. All Contractors' personnel shall be limited to these barricaded work zones and shall not cross the expressway.

The Contractor shall request and gain approval from the Illinois Department of Transportation's Expressway Traffic Operations Engineer (847-705-4151) twenty-four (24) hours in advance of all daily lane, ramp and shoulder closures and seventy-two (72) hours in advance of all permanent and weekend closures on all Freeways and/or Expressway in District One. This advance notification is calculated based on workweek of Monday through Friday and not include weekends or Holidays.

Allowable Temporary Lane Closures
IDOT Contract 60L77
I-94, M.P. 0.0 to 1.2 (IDOT Section)

DAY	**ALLOWABLE 1 LANE CLOSURE TIMES M.P. 0.0 to 1.2**	
	Eastbound	**Westbound**
Monday	9:30 p.m. – 5:30 a.m. Tues.	9:00 p.m. – 5:00 a.m. Tues.
Tuesday	9:30 p.m. – 5:30 a.m. Wed.	9:00 p.m. – 5:00 a.m. Wed.
Wednesday	9:30 p.m.– 5:30 a.m. Thurs.	9:00 p.m.– 5:00 a.m. Thurs.
Thursday	9:30 p.m. – 5:30 a.m. Fri.	9:00 p.m. – 5:00 a.m. Fri.
Friday	9:30 p.m. – 5:30 a.m. Sat.	11:00 p.m. – 6:00 a.m. Sat.
Saturday	9:30 p.m. – 5:30 a.m. Sun.	9:00 p.m. – 9:00 a.m. Sun.
Sunday	9:30 p.m. – 5:30 a.m. Mon.	9:00 p.m. – 5:00 a.m. Mon.

DAY	**ALLOWABLE 2 LANES CLOSURE TIMES M.P. 0.0 to 1.2**	
	Eastbound	**Westbound**
Monday	12:01 a.m. – 5:00 a.m.	12:01 a.m. – 5:00 a.m.
Tuesday	12:01 a.m. – 5:00 a.m.	12:01 a.m. – 5:00 a.m.
Wednesday	12:01 a.m. – 5:00 a.m.	12:01 a.m. – 5:00 a.m.
Thursday	12:01 a.m. – 5:00 a.m.	12:01 a.m. – 5:00 a.m.
Friday	12:01 a.m. – 6:00 a.m.	12:01 a.m. – 6:00 a.m.
Saturday	12:01 a.m. – 6:00 a.m.	12:01 a.m. – 7:00 a.m.
Sunday	12:01 a.m. – 5:00 a.m.	12:01 a.m. – 5:00 a.m.

In addition to the hours noted above, temporary shoulder and partial ramp closures are allowed weekdays between 9:00 A.M. and 3:00 P.M. Narrow lanes and permanent shoulder closures will not be allowed between Dec. 1st and April 1st, unless approved by the Department.

Revised 07/27/12

Full Expressway Closures will only be permitted for a maximum of 15 minutes at a time during the low traffic volume hours of 12:01 A.M. to 5:00 A.M. Monday thru Friday and from 1 :00 A.M. to 7:00 A.M. on Sunday. During Full Expressway Closures, the Contractor will be required to close off all lanes except one, using Freeway Standard Closures. Police forces should be notified and requested to close off the remaining lane at which time the work item may be removed or set in place. The District One Traffic Operations Department shall be notified (847-705-4151) at least 3 working days (weekends and holidays DO NOT count into this 72 hours notification) in advance of the proposed road closure and will coordinate the closure operations with police forces.

All stage changes requiring the stopping and/or the pacing of traffic shall take place during the allowable hours for Full Expressway Closures and shall be approved by the Department. All daily lane closures shall be removed during adverse weather conditions such as rain, snow, and/or fog and as determined by the Engineer.

Lane closures must be coordinated between the IDOT and ISTHA jurisdictional limits (see specification *Allowable Lane closures (ISTHA)),* with the more restrictive closure hours controlling. The jurisdiction of the lane closure shall not be considered only at the location of the work, but also throughout the length of anticipated traffic back up caused on account of the closures.

Additional lane closure hour restrictions may have to be imposed to facilitate the flow of traffic to and from major sporting events and/or other events. All lane closure signs shall not be erected any earlier than one-half (1/2) hour before the starting hours listed above.' Also, these signs should be taken down within one-half (1/2) hour after the closure is removed.

The Contractor will be required to cooperate with all other contractors when erecting lane closures on the expressway. All lane closures (includes the taper lengths) without a three (3) mile gap between each other, in one direction of the expressway, shall be on the same side of the pavement. Lane closures on the same side of the pavement with a half (1/2) mile or less gap between the end of one work zone and the start of taper of next work zone should be connected. The maximum length of any lane closure on the project and combined with any adjacent projects shall be three (3) miles. Gaps between successive permanent lane closures shall be no less than two (2) miles in length.

Private vehicles shall not be parked in the work zone. Contractor's equipment and/or vehicles shall not be parked on the shoulders or in the median during non-working hours. The parking of equipment and/or vehicles on State right-of-way will only be permitted at the locations approved by the Engineer.

ALLOWABLE LANE CLOSURES (ISTHA)

The Contractor will provide a proposed master plan schedule for lane closures during the pre-construction conference. On the last day of each month, the Contractor shall provide the Engineer with a listing of all anticipated lane closures for the upcoming month.

Temporary lane closures within the Contract limits will be permitted only with the Tollway's approval. Closures along I-94 within the Tollway jurisdictional limits shall be in accordance with Tollway Standard Lane Closure Detail E2.

Temporary, off-peak hour, lane closures must be requested through the Engineer in accordance with Section 701 of the Illinois Tollway Supplemental Specifications.

Revised 07/27/12

Lane closures must be coordinated between the IDOT and ISTHA jurisdictional limits (*see specification Keeping the Expressway Open to Traffic),* with the more restrictive closure hours controlling. The jurisdiction of the lane closure shall not be considered only at the location of the work, but also throughout the length of the anticipated traffic back up caused on account of the lane closure. Temporary lane closures will not be allowed, or must be removed, if so directed by the Engineer, due to inclement weather or heavy traffic, in accordance with the Standard Specifications.

No lane closure signs shall be erected any earlier than one-half (1/2) hour before the starting hours listed above. Also, these signs should be taken down within one-half (1/2) hour after the closure is removed.

When off-peak hour or weekend closures are required, trailer mounted full matrix portable changeable message signs shall be installed one week prior to the closure. Similarly, the Contractor will provide full matrix portable changeable signs one week in advance of any ramp closings. The wording and location shall be determined by the Engineer.

In all cases, the Contractor is expected to be working in the areas closed due to the temporary lane closures. The Contractor shall remove the temporary lane closure when the scheduled work shift is over or when so required by the Special Provisions, whichever occurs first.

Allowable Temporary Lane Closures
IDOT Contract 60L77
I-94, M.P. 1.2 to M.P. 4.0 (ISTHA Section)

DAY	**ALLOWABLE 1 LANE CLOSURE TIMES M.P. 1.2 to M.P. 4.0**	
	Eastbound	**Westbound**
Monday	6:00 p.m. – 7:00 a.m. Tues.	6:00 p.m. – 7:00 a.m. Tues.
Tuesday	6:00 p.m. – 7:00 a.m. Wed.	6:00 p.m. – 7:00 a.m. Wed.
Wednesday	6:00 p.m. – 7:00 a.m. Thru.	6:00 p.m. – 7:00 a.m. Thru.
Thursday	6:00 p.m.- 7:00 a.m. Fri.	6:00 p.m.- 7:00 a.m. Fri.
Friday	10:00 p.m.- 8:00 a.m. Sat.	10:00 p.m.- 8:00 a.m. Sat.
Saturday	8:00 a.m.- 8:00 a.m. Sun.	8:00 a.m.- 8:00 a.m. Sun.
Sunday	10:00 p.m.- 7:00 a.m. Mon.	8:00 a.m.- 7:00 a.m. Mon.

DAY	**ALLOWABLE 2 LANES CLOSURE TIMES M.P. 1.2 to M.P. 4.0**	
	Eastbound	**Westbound**
Monday	9:00 p.m. – 5:00 a.m. Tues.	10:00 p.m.– 5:00 a.m. Tues.
Tuesday	9:00 p.m. – 5:00 a.m. Wed.	10:00 p.m. – 5:00 a.m. Wed.
Wednesday	9:00 p.m. – 5:00 a.m. Thru.	10:00 p.m. – 5:00 a.m. Thru.
Thursday	9:00 p.m.- 5:00 a.m. Fri.	10:00 p.m.- 5:00 a.m. Fri.
Friday	NOT ALLOWED	NOT ALLOWED
Saturday	10:00 p.m.- 6:00 a.m. Sun.	10:00 a.m.- 6:00 a.m. Sun.
Sunday	10:00 p.m.- 5:00 a.m. Mon.	10:00 a.m.- 5:00 a.m. Mon.

Revised 07/27/12

FAI 94 (I-94)
Project ACIM-094-1(027)003
Section 49-1-R-1
Lake County
Contract 60L77

STANDARD LANE/SHOULDER CLOSURE REQUEST

DAYTIME: _____ ***Sun, Mon, Tues, Wed, etc.*** **OVERNIGHT:** _____ ***Sun, Mon, Tues, Wed, etc.*** **DATE:** _____ ***Date of Closure(s)***

Tollw'y #	Contract # or Maint. bldg.	CLOSURE from *M.P. to M.P.*	*DIR.*	Nearest underpass/overpass X-RD to X-RD	TYPE OF WORK	*LANE(S) or SHLD CLOSED*	*LANE(S) OPEN*	TIMES of *CLOSURE*
I-								
I-								
I-								
I-								
I-								
I-								
I-								
I-								
I-								

Cancellation notices must be received ASAP with copies also sent to the Traffic Center Staff at TIMSTOC@getipass.com.

All closure requests must be submitted to Lane Closures by e-mail (or by fax if computers down), **no later than 9am of the working day preceding the requested closure(s). Designate a read and/or delivery receipt within the e-mail to assure delivery.** *Follow up with a phone call **ONLY** if the e-mail read/delivery receipt is not verified.* A copy of this request should also go to Jan Kemp, Jon Bigness in Communications and Elyse Morgan in the Traffic Center.

e-mail:	**laneclosures@getipass.com**	**Fax#:**	**(630)241-6112**
	jkemp@getipass.com		**(630)795-2627**
	jbigness@getipass.com		**(630)241-6106**
	emorgan@getipass.com		**(630)241-6800 ext. 3703**

Phone#:	**(630)241-6800 ext. 3822**
	(630)241-6800 ext. 2381
	(630)241-2600 ext. 2388

Fill out following information:

Approved for submittal by: _____ Title _____ Co: _____ Phone#: _____

Emailed by: _____ Title: _____ Co: _____ Phone#: _____

Date submitted to Tollway: _____ Time submitted to Tollway: _____ If this is a revision, REVISION # _____

Revised 07/27/12

EMBANKMENT I
Effective: March 1, 2011

Description. This work shall be according to Section 205 of the Standard Specifications except for the following.

Material. All material shall be approved by the District Geotechnical Engineer. The proposed material must meet the following requirements.

a) The laboratory Standard Dry Density shall be a minimum of 90 lb/cu ft (1450 kg/cu m) when determined according to AASHTO T 99 (Method C).

b) The organic content shall be less than ten percent determined according to AASHTO T 194 (Wet Combustion).

c) Soils which demonstrate the following properties shall be restricted to the interior of the embankment and shall be covered on both the sides and top of the embankment by a minimum of 3 ft (900 mm) of soil not considered detrimental in terms of erosion potential or excess volume change.

    1) A grain size distribution with less than 35 percent passing the number 75 um (#200) sieve.

    2) A plasticity index (PI) of less than 12.

    3) A liquid limit (LL) in excess of 50.

Revised 07/27/12

EMBANKMENT I
Effective: March 1, 2011

Description. This work shall be according to Section 205 of the Standard Specifications except for the following.

Material. All material shall be approved by the District Geotechnical Engineer. The proposed material must meet the following requirements.

a) The laboratory Standard Dry Density shall be a minimum of 90 lb/cu ft (1450 kg/cu m) when determined according to AASHTO T 99 (Method C).

b) The organic content shall be less than ten percent determined according to AASHTO T 194 (Wet Combustion).

c) Soils which demonstrate the following properties shall be restricted to the interior of the embankment and shall be covered on both the sides and top of the embankment by a minimum of 3 ft (900 mm) of soil not considered detrimental in terms of erosion potential or excess volume change.

    1) A grain size distribution with less than 35 percent passing the number 75 um (#200) sieve.

    2) A plasticity index (PI) of less than 12.

    3) A liquid limit (LL) in excess of 50.

Revised 07/27/12

The Contractor shall also be responsible for notifying owners of other cables and underground facilities which may be jeopardized by the Contractor's operations in the same manner as required for notice to the Tollway.

Method of Measurement. This work will be measured for payment, complete in place, in feet. The length shall be the overall length of installed rail, measured along the top edge of the top rail element from end to end of the total rail.

Basis of Payment. This work will be paid for at the contract unit price per foot, for GALVANIZED STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS; GALVANIZED STEEL PLATE BEAM GUARDRAIL, TYPE A, 9 FOOT POSTS;
GALVANIZED STEEL PLATE BEAM GUARDRAIL, TYPE B, 6 FOOT POSTS; GALVANIZED STEELPLATE BEAM GUARDRAIL, TYPE B, 9 FOOT POSTS GALVANIZED STEEL PLATE BEAM GUARDRAIL, TYPE C, 6 FOOT POSTS; or GALVANIZED STEELPLATE BEAM GUARDRAIL, TYPE C, 9 FOOT POSTS, which payment shall constitute full compensation for furnishing and installing all material, including rail, posts, block-outs and hardware; and for all labor, equipment, tools and incidentals necessary to complete the work as specified.

TRAFFIC BARRIER TERMINAL TYPE 1, SPECIAL (TANGENT), MODIFIED

Description: This work shall consist of furnishing and erecting a Traffic Barrier Terminal, Type T1 (SPECIAL) Tangent as indicated on Tollway Standard C6, as shown in the Plans, and/or as directed by the Engineer.

Materials: Materials shall be in accordance with Article 631.02 of the Standard Specifications.

Construction Requirements.

General. General requirements for traffic barrier terminal shall be according to the following Article 631.03 of the Standard Specifications, except as modified herein:

Add the following to Article 631.03. The rail elements shall be of uniform section. Warped or deformed elements will be rejected. The edges of the elements shall be rolled or rounded so that they present no sharp edges. All connections and splices shall be made with button head bolts with oval shoulders in such a manner that there will be no appreciable projection on the road side of the guard rail.

Traffic Barrier Terminal, Type T1 (Special). This terminal shall meet the testing criteria contained in the National Cooperative Highway Research Program (NCHRP) Report 350 and be approved by the Tollway.

The terminal shall conform to the individual manufacturer's specifications and shall be installed according to the manufacturer's instructions. The terminal shall include all necessary transitions between the terminal and the item to which it is attached and shall be installed at the taper rate shown in the plans.

The terminal shall be delineated with a terminal marker direct applied. No other guardrail delineation shall be attached to the terminal section.

Revised 07/27/12

The traffic barrier terminals shall be as described in the following table.

Terminal	NCHRP 350 Test Level	Model No.	Manufacturer
Traffic Barrier Terminal, Type T1 (Special)	3	ET-PLUS	Trinity Industries, Inc.
		SKT-MGS	Road Systems, Inc.

Fabrication. The plates for the rail element shall be blanked to proper shape, fabricated, and ready for assembly when received. No punching, drilling, cutting, or welding will be permitted in the field.

Plates in lap splices shall make contact throughout the entire area of the splice.

Erection. Materials or hardware, on which the galvanizing has been damaged shall be replaced with new materials having properly galvanized surfaces, except that, subject to the approval of the Engineer, minor damage to galvanized surfaces may be repaired by field galvanizing in accordance with the recommendations of the American Hot Dip Galvanizers Association.

The rail and post elements shall be erected to the required elevation. The top of the rail shall be visually straight in horizontal alignment and shall be continuously parallel to the roadway profile grade in vertical alignment. If insufficient adjustment is available in the holes, posts shall be reset, at no additional cost to the Tollway, until the traffic barrier terminal is properly aligned. The brackets may be loosely bolted to the posts and, after erection of rail elements, the rail shall be carefully aligned and the bolts then fully tightened. Nuts shall be drawn up tight on all bolts.

Posts. Terminal posts (end and line) shall be a steel system. Wood posts shall not be permitted. Posts shall be erected according to Article 634.05.

Foundation Tubes. Foundation tubes (with or without soil plates) shall be steel and installed at post locations per manufacturer's specifications. The top of the foundation tube shall not project more than 4" above the ground line when measured along a 5' cord, in compliance with AASHTO specifications.

Block-outs. All block-outs shall be wooden. Plastic and/or steel block-outs shall not be permitted.

Contractor's Responsibility For Underground Facilities. It shall be the Contractor's responsibility to ascertain in advance of any work, by any and all possible means, the presence of underground electrical or telecommunications cables in or near the vicinity of the work. It shall be the Contractor's further responsibility to notify the Tollway at least ten days in advance of setting new posts when working near underground electrical or telecommunications cables. Tollway technicians will then locate any such cables which may be in jeopardy. It shall be the Contractor's responsibility to preserve cable location markings and all information relating thereto given to him, and to effectively communicate such information to his workers.

Revised 07/27/12

If the Contractor cuts or damages any such cables, either through carelessness or failure to follow the foregoing procedures, he will then be held responsible for repairing all damages or replacing the cable without splicing, at the Tollway's option, and all at no cost to the Tollway or cause for the Contractor claiming delay.

Such repair or replacement shall include the immediate installation by the Contractor, without further notice to him, of temporary cables satisfactory to the Tollway, the temporary cables to remain in service until the directed repairs or replacements are made. Stringing temporary cables on the ground will not be allowed in any circumstances. Temporary cables shall be:

(a) Suitable for direct burial installation, acceptable to the Tollway, and shall be buried to a depth not less than 12 inches;

Or

(b) Weather-proof cable, acceptable to the Tollway, and shall be suspended not less than 8 feet above the highest point of terrain between supports, unless otherwise directed by the Tollway. Suspended temporary cables may be attached to existing poles, or, in their absence, shall be attached to supports acceptable to the Engineer, furnished and installed by the Contractor.

Any posts that are to be located near or over any buried cable shall be installed by first digging a hole by hand, and then installing the post and backfilling the hole. No posts shall be driven under such conditions. Care shall be taken while digging by hand so as not to damage the cable.

All efforts on the Tollway's part to advise the Contractor as to the locations of underground cables notwithstanding, it shall be understood that such locations are at best approximate, may be in error, and that such efforts by the Tollway shall not relieve the Contractor of any responsibility for restoring damage resulting from the activities of any employee, Subcontractor, agent, or representative of the Contractor.

The Contractor shall also be responsible for notifying owners of other cables and underground facilities which may be jeopardized by the Contractor's operations in the same manner as required for notice to the Tollway.

Method of Measurement: This work will be measured for payment, complete in place, in units of each.

The pay limits between the traffic barrier terminal and the adjacent guardrail shall be as shown on Tollway Standard Drawing C6.

Basis of Payment: This work will be paid for at the contract unit price per each, for TRAFFIC BARRIER TERMINAL TYPE 1, SPECIAL (TANGENT), MODIFIED which payment shall constitute full compensation for furnishing and installing all material, including rail, posts, block-outs and hardware; and for all labor, equipment, tools and incidentals necessary to complete the work as specified.

Terminal markers-direct applied will be paid for separately.

Revised 07/27/12

TRAFFIC BARRIER TERMINAL, TYPE 2 (SPECIAL)

Description: This work shall consist of furnishing and erecting a Type T2 Traffic Barrier Terminal as shown in Tollway Standard Drawing C7, the Plans, and/or as directed by the Engineer.

Materials: Materials shall be in accordance with Article 631.02 of the Standard Specifications.

Construction Requirements.

General. General requirements for traffic barrier terminal shall be according to the following Article 631.03 of the Standard Specifications, except as modified herein:

Add the following to Article 631.03. The rail elements shall be of uniform section. Warped or deformed elements will be rejected. The edges of the elements shall be rolled or rounded so that they present no sharp edges. All connections and splices shall be made with button head bolts with oval shoulders in such a manner that there will be no appreciable projection on the road side of the guard rail.

Traffic Barrier Terminal, Type T2. The terminal shall conform to the individual manufacturer's specifications and shall be installed according to the manufacturer's instructions. The terminal shall include all necessary transitions between the terminal and the item to which it is attached.

Fabrication. The plates for the rail element shall be blanked to proper shape, fabricated, and ready for assembly when received. No punching, drilling, cutting, or welding will be permitted in the field.

Plates in lap splices shall make contact throughout the entire area of the splice.

Erection. Materials or hardware, on which the galvanizing has been damaged shall be replaced with new materials having properly galvanized surfaces, except that, subject to the approval of the Engineer, minor damage to galvanized surfaces may be repaired by field galvanizing in accordance with the recommendations of the American Hot Dip Galvanizers Association.

The rail and post elements shall be erected to the required elevation. The top of the rail shall be visually straight in horizontal alignment and shall be continuously parallel to the roadway profile grade in vertical alignment. If insufficient adjustment is available in the holes, posts shall be reset, at no additional cost to the Tollway, until the traffic barrier terminal is properly aligned. The brackets may be loosely bolted to the posts and, after erection of rail elements, the rail shall be carefully aligned and the bolts then fully tightened. Nuts shall be drawn up tight on all bolts.

Posts. Terminal posts shall be wood. Wood posts shall be treated. The posts shall be cut to the proper dimensions before treatment. No cutting of the posts will be permitted after treatment. Posts shall be erected according to Article 634.05.

Block-outs. When the terminal is installed behind a gutter, blockouts are required. All block-outs shall be wooden. Plastic and/or steel block-outs shall not be permitted.

Revised 07/27/12

Foundation Tubes. Foundation tubes shall be steel and installed at post locations per manufacturer's specifications. The top of the foundation tube shall not project more than 4" above the ground line when measured along a 5' cord, in compliance with AASHTO specifications.

Contractor's Responsibility For Underground Facilities. It shall be the Contractor's responsibility to ascertain in advance of any work, by any and all possible means, the presence of underground electrical or telecommunications cables in or near the vicinity of the work. It shall be the Contractor's further responsibility to notify the Tollway at least ten days in advance of setting new posts when working near underground electrical or telecommunications cables. Tollway technicians will then locate any such cables which may be in jeopardy. It shall be the Contractor's responsibility to preserve cable location markings and all information relating thereto given to him, and to effectively communicate such information to his workers. If the Contractor cuts or damages any such cables, either through carelessness or failure to follow the foregoing procedures, he will then be held responsible for repairing all damages or replacing the cable without splicing, at the Tollway's option, and all at no cost to the Tollway or cause for the Contractor claiming delay.

Such repair or replacement shall include the immediate installation by the Contractor, without further notice to him, of temporary cables satisfactory to the Tollway, the temporary cables to remain in service until the directed repairs or replacements are made. Stringing temporary cables on the ground will not be allowed in any circumstances. Temporary cables shall be:

(a) Suitable for direct burial installation, acceptable to the Tollway, and shall be buried to a depth not less than 12 inches;

or

(b) Weather-proof cable, acceptable to the Tollway, and shall be suspended not less than 8 feet above the highest point of terrain between supports, unless otherwise directed by the Tollway. Suspended temporary cables may be attached to existing poles, or, in their absence, shall be attached to supports acceptable to the Engineer, furnished and installed by the Contractor.

Any posts that are to be located near or over any buried cable shall be installed by first digging a hole by hand, and then installing the post and backfilling the hole. No posts shall be driven under such conditions. Care shall be taken while digging by hand so as not to damage the cable.

All efforts on the Tollway's part to advise the Contractor as to the locations of underground cables notwithstanding, it shall be understood that such locations are at best approximate, may be in error, and that such efforts by the Tollway shall not relieve the Contractor of any responsibility for restoring damage resulting from the activities of any employee, Subcontractor, agent, or representative of the Contractor.

The Contractor shall also be responsible for notifying owners of other cables and underground facilities which may be jeopardized by the Contractor's operations in the same manner as required for notice to the Tollway.

Revised 07/27/12

Method of Measurement: This work will be measured for payment, complete in place, in units of each.

The pay limits between the traffic barrier terminal and the adjacent guardrail shall be as shown on Tollway Standard Drawing C7.

Basis of Payment: This work will be paid for at the contract unit price per each, for TRAFFIC BARRIER TERMINAL, TYPE 2 (SPECIAL) as specified, which payment shall constitute full compensation for furnishing and installing all material, including rail, posts, blockouts, foundation tubes, cable and hardware; and for all labor, equipment, tools and incidentals necessary to complete the work as specified.

CONCRETE BARRIER (TOLLWAY BDE)
Effective: October 23, 2006 Revised : May 13, 2008

Revise Article 637.02 of the Standard Specifications to read:

"637.02 Materials. Materials for the barrier and the Portland cement concrete base shall conform to the requirements of the following Articles of Section 1000 - Materials:

Item	Article/Section
(a) Portland Cement Concrete	1020
(b) Tie Bars (Note 1)	1006.10(a)(b)
(c) Dowel Bars	1006.11(b)
(d) Protective Coat	1023
(e) Non-Shrink Grout	1024
(f) Chemical Adhesive Resin System	1027.01
(g) Preformed Expansion Joint Filler	1051.01 – 1051.08

Note 1. Tie bars shall meet the requirements of AASHTO M312 ,Grade 60 (400).

The coarse aggregate to be used in the concrete barrier walls shall conform to the requirements for the coarse aggregate that is used for superstructure concrete.

Hot mix asphalt (HMA) base shall not be allowed.."

Add the following to Article 637.06 of the Standard Specifications:

"When a reinforced single face barrier is specified, the required reinforcing shall be as detailed in the plans."

Revise Article 637.11(b) of the Standard Specifications to read:

Measured Quantities. Concrete barrier base will be measured for payment in feet in place , along the centerline of the barrier base.

Concrete barrier will be measured for payment in feet in place , along the centerline of the concrete barrier.

Revised 07/27/12

Method of Measurement: This work will be measured for payment in units of feet, from the inside wall of the structure as shown on the plans, along the center line of the channel complete in place.

Basis of Payment: This work will be paid for at the contract unit price per foot, for TRENCH DRAIN as specified, which payment shall constitute full compensation for furnishing all labor, materials (including frames, grates and hardware), backfill, excavation, tools, equipment and incidentals, and for doing all the work involved in installing the trench drain, complete in place, including structure excavation and concrete backfill and connecting trench drains to new or existing facilities, including concrete collars, reinforcement, or other connecting devices, as specified herein and shown on the plans.

DRAINAGE SCUPPERS

Description**:** This work shall consist of furnishing and installing Drainage Scuppers along with all necessary hardware, labor and equipment in accordance with the Plans and as directed by the Engineer.

The materials and other requirements are as shown on the plans.

Method of Measurement: Drainage Scuppers, of the type specified, will be measured for payment per each installed, completed and accepted.

Basis of Payment: The work will be paid for at the contract unit price per each for DRAINAGE SCUPPERS, of the type specified, which payment shall constitute full compensation for furnishing and installing the scupper (frame and grate), downspouts, anchor studs and accessories, and for furnishing all labor, equipment, tools and incidentals necessary to complete the work as specified.

CAST- IN-PLACE REINFORCED CONCRETE END SECTIONS

Description. This work shall consist of constructing concrete end sections in accordance with the applicable portions of the Tollway Standard Drawings B14 and plan details.

Construction Requirements. Work shall follow the applicable portions of Section 542 of the Standard Specifications for Road and Bridge Construction.

Method of Measurement. CAST-IN-PLACE REINFORCED CONCRETE END SECTIONS will be measured for payment, in place, in cubic yards.

Basis of Payment. When cast-in place reinforced concrete end sections are specified on the plans, the concrete will be paid for at the contract unit price per cubic yard for CAST-IN PLACE REINFORCED CONCRETE END SECTIONS. Reinforcement will be paid for according to Section 508 of the Standard Specifications.

Revised 7/27/12

"A dowel bar inserter used with a formless paver meeting the requirements of Article 1103.16 may be used in lieu of the assemblies specified above. When a dowel bar inserter is used to install load transfer bars, space the bars according to design requirements. Dowel bar inserters shall insert dowel bars into plastic concrete which has been placed and consolidated to full depth. The bars shall be inserted ahead of the finishing beam or screed and the installing device shall so consolidate the concrete that no voids exist around the dowel bars. The forward movement of the finishing beam or screed shall not be interrupted by the inserting of the dowel bars."

EXTENDED LIFE CONCRETE PAVEMENT (30 YEAR) (DISTRICT ONE)
Effective: January 3, 2005 Revised: July 1, 2012

Description. This work shall consist of constructing concrete pavement, shoulders and appurtenances of an extended life (30 year) design at locations specified on the plans. Work shall be performed according to the Standard Specifications except as modified herein:

Definitions.

a) Granular Subbase. The aggregate above the subgrade and below the granular subbase cap.

b) Granular Subbase Cap. The aggregate above the granular subbase and below the Hot-Mix Asphalt base.

c) Aggregate Subgrade. The Aggregate Subgrade layer shall contain the Granular Subbase and the Granular Subbase Cap.

d) Hot-Mix Asphalt Stabilized Subbase. The Hot-Mix Asphalt Stabilized Subbase layer is above the granular subbase cap and below the pavement.

Embankment. Add the following to Section 205:

"Embankment material shall be approved by the Engineer and shall have a standard laboratory density of not less than 90 lb/cu ft. It shall not have an organic content greater than ten percent when tested according to AASHTO T 194. Reclaimed Asphalt Pavement shall not be used within the ground water table or as a fill if ground water is present. Soils that demonstrate the following properties shall be restricted to the interior of the embankment:

a) A grain size distribution with less than 35 percent passing the #200 sieve.
b) A plasticity index (PI) of less than 12.
c) A liquid limit (LL) in excess of 50.
d) Potential for erosion.
e) Potential for excess volume change.

Such soils shall be covered on the side and top with a minimum of 3 ft. of soil not characterized by any of the five items above."

Revised 07/27/12

Revised the second paragraph of Article 205.06 to read:

"All lifts shall be compacted to not less than 95 percent of the standard laboratory density."

Revise the first sentence of the third paragraph of Article 205.06 to read:

"The embankment shall not contain more than 110 percent of the optimum moisture content for all forms of clay soils and not more than 105 percent of the optimum moisture content for all forms of clay loam soils determined according to AASHTO T 99 (Method C)."

Add the following paragraph to the end of Section 205.06:

"The requirement for embankment stability in Article 205.04 will be measured with a Dynamic Cone Penetrometer (DCP) according to the test method in the IDOT Geotechnical Manual. The penetration rate must be equal or less than 1.5 inches per blow."

Aggregate Subgrade. Work shall be done according to the Special Provision for "AGGREGATE SUBGRADE IMPROVEMENT (D1)".

Placement. Prior to starting the work, all granular subbase and granular subbase cap shall be placed and compacted in a manner meeting the approval of the Engineer.

The Granular subbase may be constructed in layers not more than 2 ft. thick when compacted. The finished granular subbase shall be covered with a granular subbase cap. All layers shall be compacted with a vibratory roller.

If the moisture content of the material is insufficient to obtain satisfactory compaction, sufficient water shall be added, at the Contractors expense, so that satisfactory compaction can be obtained.

Hot-Mix Asphalt Stabilized Sub Base. This work shall be performed according to Sections 312 and 1030. The mixture used shall be Stabilized Sub Base Hot-Mix Asphalt IL-19.0, N50, 3.0 percent voids.

Pavement and Shoulders. Add the following to Articles 420.03, 421.03, and 483.03:

"The Contractor shall submit to the Engineer, for approval before paving, the proposed internal type vibrator spacing for the paver. The Contractor shall also provide the proposed vibrator operating frequencies for a paving speed greater than or equal to 3 ft/min and a paving speed less than 3 ft/min."

Add the following to Article 420.07 and 421.04(a):

"When the surface temperature, as measured on the surface with a device as approved by the Engineer, of the Stabilized Sub-base is 115 °F or greater the Contractor shall spray the Stabilized Sub-base with a water mist with equipment that meets the approval of the Engineer. The Stabilized Sub-base shall be cooled below 115 °F prior to paving on top. The water spray shall not produce excessive water runoff or leave puddles on the Stabilized Sub-base at the time of paving.

Revised 07/27/12

All cooling shall be completed a minimum of 10 minutes prior to paving. The surface temperature shall be monitored during the paving operation to determine if the Stabilized Sub-base requires re-spraying. The water used shall meet the requirements of Section 1002."

Add the following to Article 1020.02(d):

"Note 1. For pavement, median, curb, gutter, combination curb and gutter and concrete barrier, the freeze-thaw rating expansion limit for the coarse aggregate shall be a maximum of 0.040 percent according to Illinois Modified AASHTO T 161, Procedure B."

Revise the curing table of Article 1020.13 as follows:

"The curing period for all pavement, shoulder, median, curb, gutter and combination curb and gutter shall be a minimum of 7 days."

Revise the first sentence of the second paragraph of Article 1020.13(a)(4) to read:

"Membrane curing shall be completed within ten minutes after tining."

Add the following to Article 1020.14(a):

"Prior to placing concrete, the Contractor shall indicate to the Engineer how the temperature of the concrete mixture will be controlled. If the temperature requirements are not being met, production of concrete shall stop until corrective action is taken. The Contractor will be allowed to deliver concrete already in route to the paving site."

Method of Measurement. This work shall be measured for payment per Sections 200, 300, and 400.

Basis of Payment. The plans indicate which roadways will be constructed to the 30 year extended life pavement requirements. The cost to construct the roadways to the 30 year extended life pavement requirements will not be paid for separately, but are included in the cost of the various items of work.

The additional costs to meet the various Material, Samples, Compaction, Stability, Placing and Trimming requirements for embankment beneath the 30 year extended life pavement will not be measured for payment, but are included in the cost of the various items of excavation.

The additional cost to meet the various Material, Equipment, Placing, Stability, Compaction, Trimming, and Finishing requirements for Granular Subbase beneath 30 year extended life pavement will not be paid for separately, but are included in the cost of the Aggregate Subgrade Improvement. Capping Aggregate shall be included in the cost of the Aggregate Subgrade Improvement.

The additional costs to meet the various Material, Placing, Stability, Compaction, Trimming, and Finishing requirements for the bituminous stabilized subbase beneath 30 year extended life pavement will not be paid for separately, but are included in the cost per square yard for STABILIZED SUBBASE - HMA, of the thickness specified.

Revised 07/27/12

At the option of the contractor, the trimming of the stabilized subbase will not be required as per Article 311.06 except the subbase shall be brought to true shape by either placing the material in two lifts or by using a grade controlled mechanical paver as approved by the Engineer.

The additional costs to meet the various Material, Equipment, Placement, Finishing, Curing, and Sealing requirements for 30 year extended life pavement will not be paid for separately but are included in the cost per square yard for PORTLAND CEMENT CONCRETE PAVEMENT (JOINTED) or CONTINUOUSLY REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT, of the thickness specified; and per square yard for PORTLAND CEMENT CONCRETE SHOULDER, of the thickness specified.

RECLAIMED ASPHALT PAVEMENT FOR NON-POROUS EMBANKMENT AND BACKFILL
Effective: April 1, 2001 Revised: January 1, 2007

Add the following sentence to Article 1004.05 (a) of the Standard Specifications:

> "Reclaimed Asphalt Pavement (RAP) may be used as aggregate in Non-porous Granular Embankment and Backfill. The Rap material shall be reclaimed asphalt pavement material resulting from the cold milling or crushing of an existing hot-mix bituminous concrete pavement structure, including shoulders. RAP containing contaminants such as earth, brick, concrete, sheet asphalt, sand, or other materials identified by the Department will be unacceptable until the contaminants are thoroughly removed.

Add the following sentence to Article 1004.05 (c)(2) of the Standard Specifications:

> "One hundred percent of the RAP when used shall pass the 3 inch (75 mm) sieve. The RAP shall be well graded from coarse to fine. RAP that is gap-graded or single-sized will not be accepted."

RECLAIMED ASPHALT PAVEMENT AND SHINGLES (D-1)
Effective: January 1, 2012

Revise Section 1031 of the Standard Specifications to read:

"**SECTION 1031. RECLAIMED ASPHALT PAVEMENT AND SHINGLES**

1031.01 Description. RAP is reclaimed asphalt pavement resulting from cold milling and crushing of an existing hot-mix asphalt (HMA) pavement. RAP will be considered processed FRAP after completion of both crushing and screening to size. The Contractor shall supply written documentation that the RAP originated from routes or airfields under federal, state, or local agency jurisdiction.

RAS is reclaimed asphalt shingles resulting from the processing and grinding of either preconsumer or post consumer shingles.

Revised 07/27/12

Operation of Lighting

The lighting shall be operational every night, dusk to dawn. Duplicate lighting systems (such as temporary lighting and proposed new lighting) shall not be operated simultaneously. Lighting systems shall not be kept in operation during long daytime periods.

Method of Measurement

The contractor shall demonstrate to the satisfaction of the Engineer that the lighting system is fully operational prior to submitting a pay request. Failure to do so will be grounds for denying the pay request. Months in which the lighting systems are not maintained and not operational will not be paid for. Payment shall not be made retroactively for months in which lighting systems were not operational.

Basis of Payment. Maintenance of lighting systems shall be paid for at the contract unit price per calendar month for **MAINTENANCE OF LIGHTING SYSTEM**, which shall include all work as described herein.

LUMINAIRE
Effective: January 1, 2012

Add the following to first paragraph of Article 1067(c) of the Standard Specifications:

> "The reflector shall not be altered by paint or other opaque coatings which would cover or coat the reflecting surface. Control of the light distribution by any method other than the reflecting material and the aforementioned clear protective coating that will alter the reflective properties of the reflecting surface is unacceptable"

Add the following to Article 1067(f) of the Standard Specifications:

> "The ballast shall be a High Pressure Sodium, high power factor, constant wattage auto-regulator, lead type (CWA) for operation on a nominal 240 volt system."

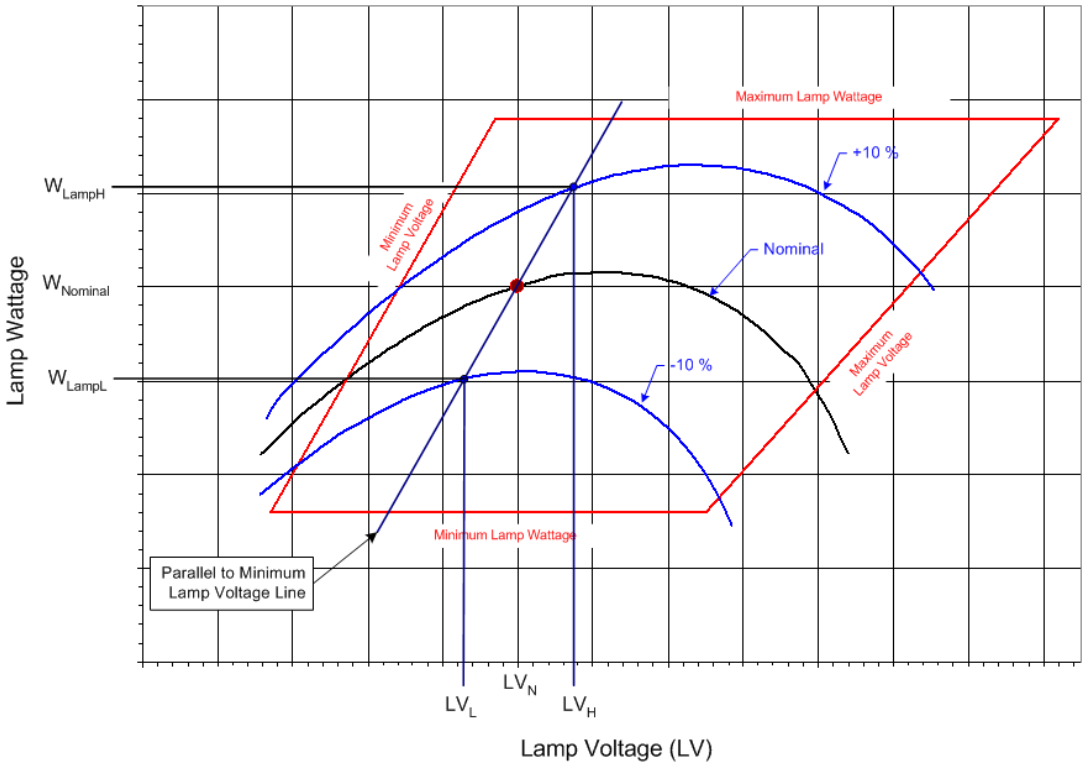
Revise Article 1067(f)(1) of the Standard Specifications to read:

> "The high pressure sodium, auto-regulator, lead type (CWA) ballast shall be designed to ANSI Standards and shall be designed and rated for operation on a nominal 240 volt system. The ballast shall provide positive lamp ignition at the input voltage of 216 volts. It shall operate the lamp over a range of input voltages from 216 to 264 volts without damage to the ballast. It shall provide lamp operation within lamp specifications for rated lamp life at input design voltage range. Operating characteristics shall produce output regulation not exceeding the following values:

Revised 07/27/12

Nominal Ballast Wattage	Maximum Ballast Regulation
750	25%
400	26%
310	26%
250	26%
150	24%
70	18%

For this measure, regulation shall be defined as the ratio of the lamp watt difference between the upper and lower operating curves to the nominal lamp watts; with the lamp watt difference taken within the ANSI trapezoid at the nominal lamp operating voltage point parallel to the minimum lamp volt line:



$$\text{Ballast Regulation} = \frac{W_{LampH} - W_{LampL}}{W_{LampN}} \times 100$$

where:
W_{LampH} = lamp watts at +10% line voltage when Lamp voltage = LV_H
W_{LampL} = lamp watts at - 10% line voltage when lamp voltage = LV_L
W_{lampN} = lamp watts at nominal lamp operating voltage = LV_N

Revised 07/27/12

Wattage	Nominal Lamp Voltage, LV_N	LV_L	LV_H
750	120v	115v	125v
400	100v	95v	105v
310	100v	95v	105v
250	100v	95v	105v
150	55v	50v	60v
70	52v	47v	57v

Ballast losses, based on cold bench tests, shall not exceed the following values:

Nominal Ballast Wattage	Maximum Ballast Losses
750	15%
400	20%
310	21%
250	24%
150	26%
70	34%

Ballast losses shall be calculated based on input watts and lamp watts at nominal system voltage as indicated in the following equation:

$$\text{Ballast Losses} = \frac{W_{Line} - W_{Lamp}}{W_{Lamp}} \times 100$$

where:
W_{line} = line watts at nominal system voltage
W_{lamp} = lamp watts at nominal system voltage

Ballast output to lamp. At nominal system voltage and nominal lamp voltage, the ballast shall deliver lamp wattage with the variation specified in the following table.

Nominal Ballast Wattage	Output to lamp variation
750	± 7.5%
400	± 7.5%
310	± 7.5%
250	± 7.5%
150	± 7.5%
70	± 7.5%

Example: *For a 400w luminaire, the ballast shall deliver 400 watts ±7.5% at a lamp voltage of 100v for the nominal system voltage of 240v which is the range of 370w to 430w.*

Revised 07/27/12

Ballast output over lamp life. Over the life of the lamp the ballast shall produce average output wattage of the nominal lamp rating as specified in the following table. Lamp wattage readings shall be taken at 5-volt increments throughout the ballast trapezoid. Reading shall begin at the lamp voltage (L_V) specified in the table and continue at 5 volt increments until the right side of the trapezoid is reached. The lamp wattage values shall then be averaged and shall be within the specified value of the nominal ballast rating. Submittal documents shall include a tabulation of the lamp wattage vs. lamp voltage readings.

Nominal Ballast Wattage	LV Readings begin at	Maximum Wattage Variation
750	110v	± 7.5%
400	90v	± 7.5%
310	90v	± 7.5%
250	90v	± 7.5%
150	50v	± 7.5%
70	45v	± 7.5%

Example: *For a 400w luminaire, the averaged lamp wattage reading shall not exceed the range of ±7.5% which is 370w to 430w*"

Add the following to Article 1067(h) of the Standard Specifications:

"Independent Testing. Independent testing of luminaires shall be required whenever the pay item quantity of luminaires of a given pay item, as indicated on the plans, is 50 or more. For each luminaire type to be so tested, one luminaire plus one luminaire for each 50 luminaires shall be tested. Example: *A plan pay item quantity of 75 luminaires for a specific pay item would dictate that 2 be tested; 135 luminaires would dictate that three be tested*." If the luminaire performance table is missing from the contract documents, the luminaire(s) shall be tested and the test results shall be evaluated against the manufacturer's data as provided in the approved material submittal. The test luminaire(s) results shall be equal to or better than the published data. If the test results indicated performance not meeting the published data, the test luminaire will be designated as failed and corrective action as described herein shall be performed.

The Contractor shall be responsible for all costs associated with the specified testing, including but not limited to shipping, travel and lodging costs as well as the costs of the tests themselves, all as part of the bid unit price for this item. Travel, lodging and other associated costs for travel by the Engineer shall be direct-billed to or shall be pre-paid by the Contractor, requiring no direct reimbursement to the Engineer or the independent witness, as applicable"

The Contractor shall select one of the following options for the required testing with the Engineer's approval:

a. Engineer Factory Selection for Independent Lab: The Contractor may select this option if the luminaire manufacturing facility is within the state of Illinois. The Contractor shall propose an independent test laboratory for approval by the Engineer. The selected luminaires shall be marked by the Engineer and shipped to the independent laboratory for tests.

Revised 07/27/12

b. Engineer Witness of Independent Lab Test: The Contractor may select this option if the independent testing laboratory is within the state of Illinois. The Engineer shall select, from the project luminaires at the manufacturer's facility or at the Contractor's storage facility, luminaires for testing by the independent laboratory.

c. Independent Witness of Manufacturer Testing: The independent witness shall select from the project luminaires at the manufacturers facility or at the Contractor's storage facility, the luminaires for testing. The Contractor shall propose a qualified independent agent, familiar with the luminaire requirements and test procedures, for approval by the Engineer, to witness the required tests as performed by the luminaire manufacturer.

The independent witness shall as a minimum meet the following requirements:

- Have been involved with roadway lighting design for at least 15 years.
- Not have been the employee of a luminaire or ballast manufacturer within the last 5 years.
- Not associated in any way (plan preparation, construction or supply) with the particular project being tested.
- Be a member of IESNA in good standing.
- Provide a list of professional references.

This list is not an all inclusive list and the Engineer will make the final determination as to the acceptability of the proposed independent witness.

d. Engineer Factory Selection and Witness of Manufacturer Testing: The Contractor may select this option if the luminaire manufacturing facility is within the state of Illinois. At the Manufacturer's facility, the Engineer shall select the luminaires to be tested and shall be present during the testing process. The Contractor shall schedule travel by the Engineer to and from the Manufacturer's laboratory to witness the performance of the required tests.

Should any of the tested luminaires fail to satisfy the specifications and perform according to approved submittal information, the luminaire shall be unacceptable and be replaced by alternate equipment meeting the specifications with the submittal and testing process repeated in their entirety; or corrections made to achieve required performance. In the case of corrections, the Contractor shall advise the Engineer of corrections made and shall request a repeat of the specified testing and, if the corrections are deemed reasonable by the Engineer, the testing process shall be repeated. The number of luminaires to be tested shall be the same quantity as originally tested; i.e. if three luminaires were tested originally, one, two or three failed, another three must be tested after corrective action is taken.

Revised 07/27/12

Revise Article 1067.06(a)(1) of the Standard Specifications to read:

> "The lamps shall be of the clear type and shall have a color of 1900° to 2200° Kelvin."

Revised 07/27/12

Add the following table(s) to Article 1067 of the Standard Specifications:

IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE

GIVEN CONDITIONS		
ROADWAY DATA	Pavement Width	48 (ft)
	Number of Lanes	4
	I.E.S. Surface Classification	R3
	Q-Zero Value	.07
LIGHT POLE DATA	Mounting Height	47.5 (ft)
	Mast Arm Length	10 (ft)
	Pole Set-Back From Edge of Pavement	18 (ft)
LUMINAIRE DATA	Lamp Type	HPS
	Lamp Lumens	51,000
	I.E.S. Vertical Distribution	Medium
	I.E.S. Control Of Distribution	Cutoff
	I.E.S. Lateral Distribution	Type III
	Total Light Loss Factor	0.7
LAYOUT DATA	Spacing	285 (ft)
	Configuration	Opposite
	Luminaire Overhang over edge of pavement	-8 (ft)

NOTE: Variations from the above specified I.E.S. distribution pattern may be requested and acceptance of variations will be subject to review by the Engineer based on how well the performance requirements are met.

PERFORMANCE REQUIREMENTS		

NOTE: These performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

LUMINANCE	Average Luminance, $\mathbf{L_{AVE}}$	0.8 Cd/m^2
	Uniformity Ratio, $\mathbf{L_{AVE}/L_{MIN}}$	3.0 (Max)
	Uniformity Ratio, $\mathbf{L_{MAX}/L_{MIN}}$	5.0 (Max)
	Veiling Luminance Ratio, $\mathbf{L_V/L_{AVE}}$	0.3 (Max)

Revised 07/27/12

Basis of Payment. This work will be paid for at the contract unit price per foot for EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C, which price shall be payment in full for furnishing, installing, and making all electrical connections necessary for proper operation.

FIBER OPTIC CABLE CONNECTIONS

This work shall consist of furnishing and installing Fiber Optical cable in conduit between the Ramp B traffic signal and Adesta/Tollway handhole with all accessories and connectors according to Section 871 of the "Standard Specifications". The cable shall be of the type, size, and the number of fibers specified, with six fibers per tube.

All fibers being terminated shall be connected to the existing distribution enclosure at the Adesta/Tollway handhole, or at the traffic signal cabinet, and labeled at the connector and also at the enclosure bulkhead. The label shall include the direction and also the fiber number (e.g. S1, S2, N11, N12). Both ends of each section of fiber optic cable being installed shall be spliced and/or terminated with approved mechanical connectors according to the following: This includes installing approved mechanical connectors on existing fibers that are being joined to the new fiber optic cable.

Multimode: The contractor shall coordinate with the equipment vendor, and shall terminate as many multimode fibers as are necessary to establish proper communications with signal controllers and/or video transmission equipment. In addition, the contractor shall terminate four unused multimode fibers and attach them to the distribution enclosure. All multimode terminations shall be ST compatible connectors with ceramic ferrules.

Singlemode: The contractor shall splice and/or terminate the number of singlemode fibers shown on the project plans, if any. Singlemode fiber terminations shall utilize pre-fabricated, factory-terminated pigtails fusion spliced to bare fibers. All fusion splices shall be secured on Corning splice trays, Models M67-068, M67-110, or approved equivalent, capable of accommodating the required number of fusion splices. All single-mode connectors shall be SC compatible, with ceramic ferrules.

A minimum of 13 feet of slack cable shall be provided for the controller cabinet. The controller cabinet slack cable shall be stored as directed by the Engineer.

Fiber Optic cable may be gel filled or have an approved water blocking tape.

Basis of Payment. The work shall not be paid for separately, but included in the cost of FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM24F.

RELOCATE LIGHT DETECTOR AMPLIFIER

This item shall consist of relocating the existing light detector amplifier from an existing traffic signal controller cabinet to a new traffic signal controller cabinet, as indicated in the plans or as directed by the Engineer.

Revised 07/27/12

The work shall include disconnecting the light detector amplifier and reconnecting it to a new wiring harness which is to be factory wired into the new traffic signal controller cabinet.

The Contractor shall store the existing light detector amplifier until such time the light detector amplifier is installed in the new traffic signal controller cabinet. The Contractor shall replace the light detector amplifier at no cost to the contract should the existing light detector amplifier become damaged while removing, storing, or relocating the light detector amplifier.

Light detector amplifiers required for proposed temporary traffic signals shall be included in the cost of TEMPORARY TRAFFIC SIGNAL INSTALLATION and shall be supplied by the Contractor and remain their equipment.

The emergency vehicle system is not to be inoperative for more than 8 hours and the Contractor must notify the Municipality or Fire Protection District 72 hours prior to the disconnection of the equipment. The Contractor must demonstrate to the satisfaction of the Engineer that the emergency vehicle system operates properly.

Basis of Payment. This item will be paid for at the contract unit price each for RELOCATE LIGHT DETECTOR AMPLIFIER.

RELOCATE LIGHT DETECTOR

This item shall consist of relocating the existing light detector (single channel or dual channel) from its existing location to a new traffic signal post or mast arm assembly and pole, and connecting it to an emergency vehicle priority system, phasing unit. If the existing light detector includes a Confirmation Beacon, the Confirmation Beacon shall also be relocated and connected to the Emergency Vehicle Priority System, Detector Unit and shall be included in this item.

The Contractor shall store the existing light detector until such time the light detector is installed on the new traffic signal post or mast arm assembly and pole. The Contractor shall replace the light detector at no cost to the contract should the existing light detector become damaged while removing, storing, or relocating the light detector.

Light detectors required for proposed temporary traffic signals shall be included in the cost of TEMPORARY TRAFFIC SIGNAL INSTALLATION and shall be supplied by the Contractor and remain their equipment.

The emergency vehicle system is not to be inoperative for more than 8 hours and the Contractor must notify the Municipality or Fire Protection District 72 hours prior to the disconnection of the equipment. The Contractor must demonstrate to the satisfaction of the Engineer that the emergency vehicle system operates properly.

Basis of Payment. This item will be paid for at the contract unit price each for RELOCATE LIGHT DETECTOR.

RELOCATE WIRELESS INTERCONNECT (COMPLETE)

This work shall consist of relocating all existing wireless interconnect equipment as indicated on the plans or as directed by the Engineer. This work shall meet all requirements included in the specifications for Temporary Traffic Signal Installation, Section e(3) (Temporary Wireless Interconnect, Complete).

Basis of Payment. This work will be paid for at the contract unit price per lump sum for RELOCATE WIRELESS INTERCONNECT (COMPLETE).

RELOCATE VIDEO VEHICLE DETECTION SYSTEM

This work shall consist of relocating all existing video detection equipment as indicated on the plans or as directed by the Engineer. This work shall meet all requirements included in the specifications for Temporary Traffic Signal Installation, Section g (Vehicle Detection).

Basis of Payment. This work will be paid for at the contract unit price per each for RELOCATE VIDEO VEHICLE DETECTION SYSTEM. Each intersection will be paid for separately.

Revised 07/27/12

CCTV CAMERA SITE MODIFICATION

Description. This work shall consist of converting an existing pole mounted CCTV camera's wireless Firetide connection to a single mode fiber connection.

Materials. The Contractor shall furnish components in accordance with the plan details and as specified herein. The contractor shall remove the following components from the cabinet /enclosure:

- Cisco WS-C2955-12 Switch
- Cisco PWR-2955-AC Power Supply
- Optelecom C40e Encoder

Furnish and install the following components into the existing cabinet/enclosure:

- One (1) Cisco Industrial Ethernet switch with eight Ethernet 10/100 ports and two dual-purpose uplink ports, Layer 2 Lan Base image included: Model # IE-3000-8TC
- One (1) Cisco Expansion Power Module for Cisco IE-3000-8TC Switch: Model # PWR-IE3000-AC=
- One (1) Corning Workstation Multimedia Outlet - quantity 6: Model # WMO-CP02-59-85
- One (1) Siqura Encoder: Model # C-60-E-MC/SA
- One (1) Siqura Encoder Power Supply: Model # PSR-12DC/US
- Two (2) Cisco 1 GBPS Single mode SFP Modules: Model # GLC-LX-SM-RGD=
- One (1) Digital Loggers, Inc. 8-Channel DIN Ethernet Relay
- One (1) Atlantic Scientific MTL Surge Technologies, Zone Barrier Cat. 5e Surge Protector – Catalog No. 24540
- One (1) MSTronic Co., Ltd. Power Over Ethernet Injector – Model # MIT 07H-48

and all necessary, brackets, and wiring required for a complete and operating system.

A Fiber optic connection shall be installed from the Pole Mount location back to Cisco switch location as shown on the plans. Raceways and other openings, including foundation, shall be sealed to prevent the intrusion of insects, rodents, pests and debris. Materials and methods shall be approved by the Engineer.

Cable connection shall be installed from the equipment cabinet to the Wireless Access Point Assembly as shown in the plans.

CONSTRUCTION REQUIREMENTS

The plans identify appropriate locations for CCTV camera site modifications. The Contractor shall notify the Engineer 72 hours prior to making CCTV camera site modifications.

The existing Cisco switch, power supply and Optelecom video encoder shall be decommissioned and delivered to the Tollway, 2700 Ogden Avenue, Downers Grove, Illinois 60515 (arrangements for the delivery shall be coordinated through the Engineer).

The Cisco switch should be previously programmed by the Tollway. The cost of delivery and retrieval of this switch is incidental to this pay item. The Contractor shall install the switch and power supply as shown on the plans and as approved by the Engineer.

Added 07/27/12

When all equipment is installed and connected, the Contractor shall test and demonstrate that the camera operates in accordance with the manufacturer's specifications. The test shall be as described in the "POLE MOUNTED CAMERA ASSEMBLY WITH FOC AND WITHOUT WIRELESS" specification as applicable. This test shall ensure that video acceptable to the Tollway is being transmitted to the Tollway's Traffic Operations Center.

All conduit and fiber optic cable and connectors required to connect the Cisco switch to the existing fiber optic cable, as designated on the construction documents, will be incidental to this pay item.

Final System Acceptance. When all equipment is installed and reconnected, the Contractor shall configure, test, and demonstrate that each affected camera and Wireless Detector Access Point Assembly operates in accordance with the manufacturer's specifications and performs at a level that is acceptable to the Tollway. For the cameras, this shall include transmission of distortion free video with balanced light levels, smooth pan-tilt-zoom operation, demonstration of auto focus and auto iris functionality using typical views of the surrounding roadways. The Wireless Detector Access Point Assemblies shall be tested in accordance with the requirements described under the specification for that item. This demonstration shall be done in the presence of the Engineer and Tollway ITS Deployment Engineer at each camera location. This same functionality will also be tested by the Tollway ITS Deployment Engineer remotely from the Traffic Operations Center prior to final acceptance.

Method of Measurement. This work will be measured for payment in units of each.

Basis of Payment. This work will be paid for at the contract unit price per each for CCTV CAMERA SITE MODIFICATION, which price shall be payment in full for the work described herein including all labor, patch cords, and any other materials for the successful installation and testing as stated herein.

POLE MOUNTED CAMERA ASSEMBLY WITH FOC AND WITHOUT WIRELESS

Description:
This item shall consist of furnishing, installing and testing a pole mounted camera assembly where shown on the plans and as directed by the Engineer.

The pole mounted camera assembly will consist of:

- Aluminum Pole
- Grounding System
- Camera
- Cabinet/Enclosure and all associated electronics
- All related connection cables, conduit, brackets, and other items incidental to the construction of the pole mounted camera assembly.

All work will require close coordination with the Tollway ITS Deployment Engineer and the Engineer. This includes the following:

a) Configuration of Cisco switch and Optelecom encoder
b) Pre-installation meeting with Tollway ITS Deployment Engineer and the Engineer
c) Integrating the camera into the Tollway system

Added 07/27/12

Materials:
The Contractor shall furnish components for each pole mounted camera assembly in accordance with the plan details and as herein specified.

Camera Pole.
The camera pole shall be a 50 feet (nominal) tapered aluminum anchor base pole conforming to the requirements of Tollway Supplemental Specification Section 830 for Light Poles and the plan details. A flat steel mesh panel shall be installed between the anchor base and the pole to prevent the entry of rodents into the pole. In addition to installing a steel mesh plate between the anchor plate and the steel pole to prevent entry of rodents into the CCTV pole, the contactor shall fill the hollow space inside the CCTV steel pole between the hand hole and the steel mesh, to provide additional protection against rodent entry. This shall be done using a 2" layer of steel wool followed by a hydrophobic, low-density high-strength two-part polyurethane composite backfill, commercially available as Q-SET^{TM} 250 manufactured by CHEMQUE. Any cables passing through the pole base shall be armored and shall be approved by the Engineer. The pole shall have a 10" base diameter, 6" top diameter and 0.250" wall thickness. The foundation is paid for separately.

Grounding System.
The ground rod shall be 5/8" x 10' in accordance with Section 806 of the Tollway Supplemental Specifications and shall be installed and connected as shown on Standard Drawing H1 unless noted otherwise on the plan details. The ground rod is to be installed inside a ground well. Any buried ground cable shall be stranded bare tinned copper with a minimum size of #2 awg unless otherwise noted on the plans..

Camera.
The camera shall be auto focus, high resolution, dome type with integrated camera/optics for day/night operation, and 35X optical zoom. Camera shall be suitable for pendant mounting and shall be equipped with a clear dome. Camera shall be suitable for use on 24 VAC and 24 VDC power sources but must be configured for AC operation. Camera shall be Model SD435-PG-E1 as manufactured by PELCO. A PELCO mounting bracket as shown on the plan details shall be provided to fasten the camera to the pole. RectorSeal duct seal shall be installed to ensure the camera is protected from moisture. An Uline Model # S-3902 silicon desiccant pack shall be secured inside the camera housing to help control the amount of moisture build up in the camera. Use outdoor environmental epoxy type conduit weatherseal fitting to prevent water, dust, salt, and rodents/insects from entering the CCTV camera through the mounting apparatus. In addition, this conduit weather seal fitting would include a vented drain to allow passage of air, water, etc. in order to prevent moisture build-up and fogging within the CCTV camera dome cover. DIP switches in the camera housing must be properly configured as directed by the Tollway ITS Deployment Engineer and as follows:

PELCO Model SD435-PG-E1 – DIP Switch Settings:

See attachment at the end of this special provision.

Added 07/27/12

Cabinet/Enclosure.
A pole mounted equipment cabinet shall be provided as shown on the plan details. The cabinet shall be furnished with necessary mounting brackets for attachment to the pole. The cabinet shall contain incoming circuit breaker, AC surge protective device, 208/240/480 to 120 volt power transformer (as required), 120 to 24 volt AC power transformer, ground bar, IP addressable power controller, Cisco IE-3000-8TC switch with PWR-IE3000-AC= power supply and two (2) Cisco Gigabit Ethernet SFP, LC connector, LH (1Gps single mode) transceivers Model GLC-LX-SM-RGD=, Siqura Model C-60-E-MC/SA video encoder with Model PSR-12DC/US power supply, two duplex receptacles (one GFI), surge suppressors for camera video, control, and 24 VAC power cables, and all necessary panels, brackets, and outdoor rated wiring required for a complete and operating system. Single Mode Fiber shall be installed from the Pole Mounted Camera enclosure to the nearest main line fiber splice enclosure as shown on the drawings. All coaxial, Cat 5E, power and PTZ cable shall be outdoor rated. All coaxial cable shall be RG-6/U. Raceways shall be sealed with steel wool and Dow Chemical spray foam sealant as specified in the plans to prevent the intrusion of insects, rodents, pests, and debris.

CONSTRUCTION REQUIREMENTS

Pre-Procurement Documentation Approvals:
All ITS submittals are to be submitted through the Tollway Web Based Project Management System (Proliance). Contractor shall submit catalog cut sheets for all system materials to the Tollway ITS Deployment Engineer and the Engineer within 30 days of the date of the Notice to Proceed. The Tollway shall have 2 weeks to review and comment on all submittals. The Contractor must obtain approval of the catalog cut sheets from the Engineer and the Tollway ITS Deployment Engineer prior to purchasing any equipment and performing the installation accordingly.

Pre-Installation Requirements:
The location of the pole mounted camera shall be staked in the field by the contractor. This effort shall be coordinated between the Engineer and Tollway ITS Deployment Engineer.

Within 2 weeks of camera installation commencement, the contractor shall deliver the Cisco IE-3000-8TC switch and the Siqura Model C-60-E-MC/SA video encoder to the Tollway ITS Deployment Engineer for configuring. The Tollway ITS Deployment Engineer has one week to configure the equipment and notify the contractor when complete.

Installation:

The camera pole assembly and foundation shall be installed outside the clear zone or in areas protected by guard rail. Breakaway poles or devices shall not be used. The plans identify appropriate locations for the pole mounted camera assemblies.

The ground rod shall be installed a minimum distance of 1.1 times the length of the ground rod away from the camera pole foundation. The ground rod to ground cable connection shall be a cadweld. For more detail of the ground bar and ground cable installation, refer to the plan details. Grounding techniques shall adhere to Motorola's R56 Manual (Standards and Guidelines for Communications Sites).

Added 07/27/12

Installation of the Q-Set 250 shall follow the manufacturer guidelines and the following: Once cables are run through the CCTV pole and before the pole gets bolted to the anchor plate on the helix foundation along with the steel mesh, the contractor is required to install a cap at the bottom open end of the CCTV pole to prevent the composite backfill from spilling out of the open end. Once capped, the steel pole can be bolted to the anchor plate using specified installation methods. The contractor is then required to mix and prepare the composite backfill as per the manufacturer's recommendation, in the presence of the Engineer and Tollway ITS Deployment Engineer who shall familiarize himself with the installation process as recommended by the manufacturer. Before the composite backfill starts expanding, the mix shall be poured quickly into the steel pole through the hand hole. As the composite backfill expands during the curing process, the contractor is to ensure that the hand hole remains accessible after the composite backfill is poured and the material achieves its fully cured strength. At no time should the hand hole access be blocked or obstructed by the composite filler.

The foundation for the camera pole will be a 10 foot helix light pole foundation in accordance with Tollway Standard Drawing H1 and Tollway Supplemental Specifications Section 836. The camera pole foundation will be paid for separately under Item CAMERA POLE FOUNDATION STEEL HELIX (10 FT.).

The Contractor shall install the cabinets and cameras at the locations approved by the Engineer. The Contractor shall coordinate with the Engineer and the Tollway ITS Deployment Engineer to ensure that the necessary video is available to the Tollway.

When all equipment is installed and connected, the Contractor shall test and demonstrate the performance and accuracy of the installed camera. This test shall ensure that video acceptable to the Tollway is being transmitted to the Tollway's Traffic Operations Center. The Contractor is required to follow the applicable parts of the Tollway Supplemental Specifications. This includes, but not limited to, the continuous operation of the existing traffic surveillance installations during construction, integration and testing of the proposed equipment. Specifically, additional care is to be taken during splicing into the existing fiber system to not interrupt these existing installations. All splicing within the existing fiber optic handholes shall be performed by G4S Technology LLC and shall be paid for under a separate contract.

All conduit, wire, and circuit breakers, etc., as shown on the plans, associated with providing power to the pole mounted communication enclosure will be incidental to this pay item. In addition all conduit and single mode fiber optic cable and connectors to connect the IE-3000-8TC switch to the 3560 switch at the plaza designated on the construction documents will be incidental to this pay item.

Ground System Testing. All testing shall be conducted in the presence of the Tollway ITS Deployment Engineer and the Engineer after a forty-eight (48) hour notification period. All test results, including those where the design criteria was not achieved, shall be documented. All retests shall be witnessed and documented.

The installed grounding system shall be tested to confirm that there is at most five (5) ohms to ground in the grounding system. The site grounding electrode system shall be tested using the three-point/fall-of-potential method. Proper grounding of AC power disconnect shall be verified by the use of a clamp-on ohmmeter.

Added 07/27/12

Testing of resistance to ground from the chassis of electronic equipment is not recommended due to the potential of damage to the electronics; however, the Contractor shall be required to test resistance to ground from each bus bar after all chassis grounds have been disconnected and taped to avoid accidental contact during testing.

Acceptance Testing. The Contractor shall submit a detailed system acceptance test plan to the Tollway ITS Deployment Engineer and the Engineer within 60 days following the Notice to Proceed for review and approval.

The Contractor acceptance test plan shall at a minimum consider the following:

- Preliminary Work Acceptance
- Local Field Test
- 30-Day "Burn-in" Period
- Separate Checklists at each testing stage

The Contractor test plans shall test all areas of system functionality described herein and be in accordance with the various equipment manufacturer recommendations. The Contractor shall provide copies of all test results to the Engineer in a format to be determined by the Tollway ITS Deployment Engineer and Engineer.

Preliminary Work Acceptance. The Contractor shall verify that physical construction has been completed as detailed herein, within the plan set, and/or in the Contract and shall complete the Field Inspection Checklist to be provided by the Tollway ITS Deployment Engineer for each camera with the Engineer sign off and submit to the Tollway ITS Deployment Engineer. The contractor shall schedule a field inspection with the Engineer and Tollway ITS Deployment Engineer in order to identify errors and/or emissions. A preliminary punch list will be generated from this field inspection meeting. When all items are completed on the preliminary punch list the work will receive preliminary acceptance and the local field test can then be scheduled and performed accordingly. The site field inspection checklist shall include at a minimum the following items:

- Inspect the quality and tightness of ground connections;
- Check all power supply voltages and outputs;
- Connect devices to the power sources;
- Verify installation of specified cables, connections and fiber links

Local Field Test Requirements. The Contractor shall perform Local Field Tests at the pole mounted camera field site in the presence of the Engineer and the Tollway ITS Deployment Engineer in accordance with the test procedures detailed herein, within the plan set, in the Contract, and as recommended by the various equipment manufacturers. This requirement is meant to confirm that all camera components have been installed, connected, and configured properly.

- Verify camera functionality. Verify the camera video stream can be viewed and the camera can be pan, tilted and zoomed using the Contractor's hand held test unit.
- Upon successful camera functionality verification and approval of Tollway ITS Deployment Engineer, connect the C-60-E-MC/SA video encoder Ethernet cable and install the fiber optic patch chord between the Cisco IE-3000-8TC assigned switch port and the fiber WMO unit.

Added 07/27/12

- ITS Network staff will ping the encoder and the switch and will assist the Contractor with any additional troubleshooting.
- ITS Network staff will exercise the camera functions remotely using the vlc test tool.
- ITS Network staff will test the IP relay functions with the Contractor to verify actual relay operation.

30-Day "Burn-in" Period Requirements. Before Final System Acceptance, the Contractor shall oversee a 30-Day Burn-in Period. This requirement is meant to demonstrate capabilities of the Pole Mounted Camera devices from the Tollway Central Administration Building via the installed/existing communications channels as well as the functionalities of the Local Field Test, troubleshooting and diagnostics for a 30-day period. Upon successful completion of the Local Field Test and approval by the Tollway ITS Deployment Engineer, the Contractor's 30-Day Burn-In Test shall begin. The 30-Day Burn-in Period start and end date shall be documented by the Engineer.

The Contractor shall correct any and all failures during the 30-Day Burn-in Test at no additional cost to the Tollway. The system may be shut down for purposes of testing and correcting identified deficiencies with prior approval from the Tollway ITS Deployment Engineer. For each period of system shut down, the scheduled 30-Day Burn-in Period shall be extended for the same period of time plus 1 day unless otherwise directed by the Tollway ITS Deployment Engineer and Engineer.

Final System Acceptance. Final acceptance of the work associated with this project will be made after satisfactory completion of the required 30-Day "Burn-in" Test period and on the basis of the final inspection completion of the entire system. The final inspection of the entire system will be performed by the Tollway ITS Deployment Engineer and the Engineer in the presence of a representative of the Contractor.

All "Record" documents shall be submitted to the Engineer at the time of Final Acceptance and include an electronic computer file of all components and GPS coordinates of the Pole Mounted Camera. The Contractor shall provide a copy of the operation and maintenance manuals for each device used in the Pole Mounted Camera assembly.

Notification of Final Acceptance will be in writing from the Tollway ITS Deployment Engineer.

Warranty. All equipment shall be warranted and guaranteed against defects and/or failure in design, materials and workmanship. The Contractor shall submit the warranty terms as part of the shop drawing submittal for each material item.

System components shall be warranted against all defects and/or failure in design, materials and workmanship for a minimum of one (1) year from the date of Final Acceptance, as recorded by the Engineer.

The warranty shall provide that, in the event of a malfunction during the warranty period, the defective system component shall be repaired or replaced with a new component by the Contractor or his/her representative within five (5) working days.

Added 07/27/12

Any component that, in the opinion of the Tollway ITS Deployment Engineer and the Engineer, fails three (3) times prior to the expiration of the warranty will be judged as unsuitable and shall be replaced by the Contractor or representative with a new component of the same type at no additional cost. The unsuitable component shall be permanently removed from the project. A failure shall also be defined as the field device becoming unable to comply with all applicable standards.

Any repairs made by the Contractor or representative shall be documented and that documentation shall be returned with the warranty repaired units. This documentation shall include an explanation of the exact repairs made and identification of parts replaced by part number and circuit number.

The warranty period shall not begin until the date that the Tollway ITS Deployment Engineer issues final acceptance to the project, as recorded by the Engineer.

Method of Measurement:
This work will be measured in units of each.

Basis of Payment:
This work will be paid for at the contract unit price per each for POLE MOUNTED CAMERA ASSEMBLY WITH FOC AND WITHOUT WIRELESS, which price shall be payment in full for the work described herein including all labor, patch cords and any other materials for the successful installation and testing as stated herein. The Contractor shall receive payment once camera is fully functional and producing acceptable video as described above.

PELCO Model SD435-PG-E1 – DIP Switch Settings:

Added 07/27/12

Installation

This manual contains installation instructions only for the Spectra IV/Spectra IV SE dome drive. For complete installation instructions for a Spectra IV/Spectra IV SE dome system, refer to the installation manual shipped with the back box.

SWITCH SETTINGS

Before installing the dome drive, configure the receiver address, termination, and baud setting. The DIP switches used to configure these settings are located on the base of the dome drive.

Figure 1 shows the default settings for the DIP switches. Switch SW1-1 (SW1, switch 1) is set to the ON position. All other switches are set to the OFF position.

Refer to the following sections to set the address, termination, and baud settings for the dome drive.

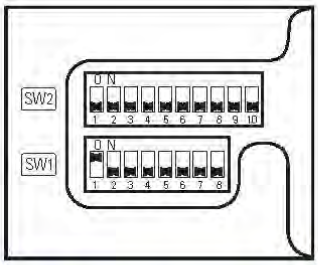


Figure 1. Default Switch Settings

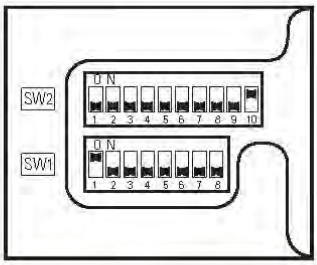


Figure 1A. Contractor Responsible Switch Settings

SW1: RECEIVER ADDRESS

Set the SW1 switches for the address of the dome drive. The following information is required to set the dome drive address:

P-type control: Default address is 2. Refer to Table A on page 10 for address settings that use P-type control. The maximum number of receivers is 32.

D-type control: Default address is 1. Refer to Table B on page 11 for address settings that use D-type control. The maximum number of receivers is 254.

SW2 SWITCHES 1-3: SPECIAL SYSTEM SETTINGS

SW 2 Switch 1: AD-32 Preset System

SW2-1 should be set to the ON position if an AD-32 controller and Pelco's TXB-AD translator board are used to control the dome system.

Added 07/27/12

SW2 Switch 2: CM9502 Setting

If a CM9502 matrix system is used with the dome drive, set SW2-2 to the ON position.

SW2 Switch 3: Coaxial Control Systems

Although Spectra IV/Spectra IV SE dome systems can operate with coaxial control systems from many manufacturers, the system is designed for optimal performance with Pelco Coaxitron® control products within the length specified for coaxial cable.

To compensate for coaxial control systems from other manufacturers, Pelco has provided DIP switch SW2-3. Setting SW2-3 to the ON position may improve dome control with these control systems.

If you are using a Pelco Coaxitron controller, leave SW2-3 in the default OFF position.

SW2 SWITCHES 4-5: SERIAL PORT SETTINGS

RS422 Setting (Default)

SW2-4 and SW2-5 should both be set to the OFF position for RS422 setting.

For control, only two wires should be connected to the RX- and RX+ connectors on the circuit board inside the back box. For bidirectional control, four wires should be connected to the RX-, RX+, TX-, and TX+ connectors on the circuit board inside the back box.

RS485, 4-Wire Setting

SW2-4 should be set to OFF and SW2-5 should be set to ON if a 4-wire serial port connection is used with RS485.

Note: This setting is most commonly used with Pelco Endura® systems.

RS485, 2-Wire Setting

SW2-4 and SW2-5 should both be set to the ON position if a 2-wire serial port connection is used with RS485.

This setting is used to allow the Spectra dome system to transmit and receive commands on the same pair of wires. Only two wires should be connected to the RX- and RX+ connectors on the circuit board inside the back box.

SW2 SWITCHES 6-8: BAUD SETTINGS

Pelco's D-type controllers are set for 2400 baud. The default setting for the dome drive is 2400 baud. If you are using a Pelco D-type controller, do not reset SW2 switches 1 through 3 or SW2 switches 6 through 8.

P-type controllers can operate at 2400, 4800, and 9600 baud. Set the SW2 switches (6, 7, and 8), located on the base of the dome drive, to the same baud as the P-type controller.

Switch Number	SW2-6	SW2-7	SW2-8
2400 Baud (default for D-type control)	Off	Off	Off
4800 Baud (default for P-type control)	On	Off	Off
9600 Baud	Off	On	Off

SW2 Switch 9: Coaxial/UTP Cable

SW2-9 should be set to the OFF position (default) if you are using coaxial cable. If you are using unsheilded twisted pair (UTP) cable, set SW2-9 to the ON position.

SW2 Switch 10: Termination Setting

When connecting more than one Spectra IV/Spectra IV SE dome system to a single controller, terminate the unit farthest from the controller. Termination is only required for the last dome in the series.

The dome drive is shipped from the factory in the unterminated (OFF) position. To terminate the dome drive, set SW2-10 to the ON position.

Note: Dome termination is not required for Coaxitron® control.

DOME DRIVE INSTALLATION

Install the dome drive. Line up the blue and red tabs with the blue and red arrows on the hinged door inside the back box. Push the tabs in. Insert one side and then the other side. Continue pushing on the ends of the tabs until both sides click into place. Refer to Figure 2.

To use your dome system, refer to *Getting Started* on page 19.

Figure 2. Dome Drive Installation

Note: When removing a dome drive that has been in use, caution should be taken to avoid direct contact with the top plate of the unit. This section of the unit will be warm to the touch when first removed from an operating unit.

Added 07/27/12

CAMERA POLE FOUNDATION STEEL HELIX (10FT.)

Description. This work shall consist of furnishing and installing a 10-foot helix foundation for a camera pole at location shown on the plans or as directed by the Engineer. This work shall be according to applicable portions of Section 836 of the Tollway Supplemental Specifications.

Installation. Prior to installation of foundation unit, the Contractor shall request a J.U.L.I.E. utility locate request at the location of the proposed foundation to ensure existing utilities are not located in the vicinity or will not conflict with placement of the new foundation.

The metal foundation shall be installed in undisturbed soil. The foundation shall be installed with its axis plumb. The camera pole shall be installed plumb without the use of shims, grout, or other leveling devices.

Method of Measurement. This work shall be measured for payment in units per each complete and in place.

Relocation of a foundation due to an obstruction and any shaft excavation to that point will not be measured for payment.

Excavation in rock will be measured for payment according to Article 502.12.

Basis of Payment. This work will be paid for at the contract unit price per each for CAMERA POLE FOUNDATION STEEL HELIX (10FT.) which price shall be payment in full for the work described herein.

Excavation in rock will be paid for according to Article 502.13 of the Standard Specifications.

AC POWERED RTMS ASSEMBLY

Description. This work shall consist of furnishing, installing, and calibrating an AC Powered RTMS assembly.

The AC Powered RTMS assembly vehicle detection station will include the following:

- RTMS Vehicle Detector
- Wireless Modem and Antenna
- All related connection cables, conduit, brackets, and other items incidental to the construction of the AC Powered RTMS assembly.

The AC Powered RTMS assembly will have access to normal power service.

All work will require close coordination with the Engineer.

Materials. The Contractor shall furnish components for each AC Powered RTMS assembly as described below and in accordance with the plan details.

Grounding System. All grounding shall be installed and connected as shown on the drawings and details. Ground testing shall be completed per the construction requirements of this special provision.

Added 07/27/12

RTMS Vehicle Detector. The remote traffic microwave sensor radar shall be designed for side-fired operation and shall be capable of detecting bi-directional traffic. The RTMS detector shall have the capability to detect vehicles within a ± 5% accuracy variance of actual vehicle occupancy and ± 10% accuracy variance of actual vehicle speed. The RTMS unit shall be furnished with a 40 foot UV protected RS-232 setup cable for connection to the wireless modem and shall be the G4 model as manufactured by Electronic Integrated Systems Inc. (EIS). The detector shall be mounted on the applicable pole with Side Kick Mounting Bracket manufactured by Image Sensing Systems, Inc. and made from die cast aluminum alloy body with chromate finish, stainless steel screws, bolts, etc. and brass dowel. The size of the mounting bracket shall be 11" long x 7" high x 5.25" wide and have a weight of 1.9 lbs.

Wireless Modem and Antenna. The wireless modem specified by Traffic.com shall be configured to operate on the cellular network determined by Traffic.com per the construction requirements of this special provision and shall be furnished with the necessary antenna and antenna cable.

Cabinet/Enclosure. The cabinet shall be installed and connected as shown on the drawings and details. Raceways and other openings, including foundation, shall be sealed to prevent the intrusion of insects, rodents, pests and debris and shall be installed as shown on the drawings and details.

CONSTRUCTION REQUIREMENTS

Installation. The Plans identify approximate locations for the AC Powered RTMS assemblies. The Contractor shall stake these locations in the field for approval by the Engineer and Tollway ITS Deployment Engineer.

The RTMS unit shall be mounted in a side-fired configuration in accordance with the plan details. The Contractor shall install the detector unit on the pole at the height above the road surface as necessary to achieve calibration acceptance.

The components shall be installed in the cabinet in accordance with the cabinet detail drawings.

The Contractor shall install the cabinets, detectors, and radios at the locations approved by the Engineer and as necessary to provide a working system. Although work performed by Traffic.com is not included under this contract, the Contractor shall coordinate with Traffic.com to ensure system functionality and to verify that the wireless modem will operate with the service provider selected by Traffic.com. Once the Contractor has received the wireless modem, the Contractor shall provide Traffic.com with the proposed RTMS site data and the pertinent characteristics of the wireless modem (e.g., serial number, ESN) in a format as specified by the Engineer. Based on this information, Traffic.com will integrate the communications with their network; will arrange cellular service; and will assume the costs of the cellular service. Contact information for Traffic.com is:

Tom Hewitt		Scott Perley
thewitt@traffic.com	or	sperley@traffic.com
(267) 250-7272		(601) 407-7400

The Contractor shall coordinate with the Traffic.com and the Engineer to ensure that the necessary data is available to the Tollway.

Added 07/27/12

When all equipment is installed and connected internally, the Contractor shall aim, calibrate and demonstrate the performance and accuracy of the installed detectors. This test shall match observed and detected vehicles, as well as the ability of Traffic.com and the Tollway's Traffic Incident Management System to collect and use the data for travel times. The accuracy of the travel times is not an issue for the Contractor, provided the detectors are reporting the vehicles' presence correctly.

The Contractor shall work with the Engineer to develop record drawings of all RTMS locations and connections (inclusive of electrical) if they differ from locations/routing identified in the plan set. Final documentation shall reflect all field changes, including but not limited to final coordinates of the RTMS station locations to the level of accuracy of 10 feet, and shall be provided within 30 days after successful completion of the 30-day test period. This documentation shall include drawings of cabinet layouts, wiring diagrams, and schematics for all elements of the wireless communications system. This shall also include detailed drawings identifying cable type, color code and function, the routing of all conductors in the communications system. The Contractor shall submit these plans, maps, and/or drawings to reflect a record condition, incorporating all changes made during installation and testing period within 15 days prior to final acceptance.

Ground System Testing. All testing shall be conducted in the presence of the Engineer and the Tollway ITS Deployment Engineer after a forty-eight (48) hour notification period. All test results, including those where the design criteria was not achieved, shall be documented. All retests shall be witnessed and documented.

The installed grounding system shall be tested to confirm that there is at most five (5) ohms to ground in the grounding system. The site grounding electrode system shall be tested using the three-point/fall-of-potential method. Proper grounding of AC power disconnect shall be verified by the use of a clamp-on ohmmeter. Testing of resistance to ground from the chassis of electronic equipment is not recommended due to the potential of damage to the electronics; however, the Contractor shall be required to test resistance to ground from each bus bar after all chassis grounds have been disconnected and taped to avoid accidental contact during testing.

RTMS Acceptance Test Plan. The Contractor shall submit a detailed system acceptance test plan and updated schedule to the Engineer and Tollway ITS Deployment Engineer for review and approval.

The Contractor acceptance test plan shall at a minimum consider the following:

- Local Field Test
- Aiming and Calibration
- Communication Verification with Traffic.com
- Integration into TIMS with Tollway Software Integrator
- Subsystem Test
- 30-Day "Burn-in" Period

The Contractor test plans shall test all areas of system functionality described herein and be in accordance with the various equipment manufacturer recommendations. The Contractor shall provide copies of all test results to the Engineer and Tollway ITS Deployment Engineer in a format to be determined by the Engineer and Tollway ITS Deployment Engineer.

Added 0727/12

Local Field Test Requirements. The Contractor shall perform Local Field Tests at each RTMS field site in the presence of the Engineer and the Tollway ITS Deployment Engineer in accordance with the test procedures detailed herein, within the plan set, in the Contract, and as recommended by the various equipment manufacturers. This requirement is meant to confirm that all RTMS site equipment has been installed, connected, and configured properly. The Contractor shall verify that physical construction has been completed as detailed herein and the plans;

- Inspect the quality and tightness of ground connections;
- Check power supply voltages and outputs;
- Connect devices to the power sources;
- Verify installation of specified cables and connections between the RTMS device and the communications system
- Configure the IP addresses for data input/output; this activity shall be coordinated with Traffic.com.
- Verify presence and quality of RTMS device data;
- Verify proper voltage of all power supplies; and interconnect the communication interface device into the communication network's assigned locations.
- Grounding System testing - To be completed as part of the POLE MOUNTED CAMERA ASSEMBLY WITH FOC AND WITHOUT WIRELESS pay item.

Aiming and Calibration.
The Contractor shall aim and calibrate the Remote Traffic Microwave Sensor (RTMS) units within the RTMS specification tolerances prior to final acceptance. Aiming and Calibration shall be done per the manufacturer's requirements and the attached RTMS Calibration checklist for the G4 model. The checklist must be fully completed and submitted for approval by the Engineer and the Tollway ITS Deployment Engineer. The Contractor shall be totally and completely responsible for the RTMS maintenance until project acceptance.

During the calibration step the proper equipment shall be onsite to support any reaiming of the detector that is required.

The properly aimed and calibrated units shall obtain traffic counts and average speed on a per lane basis with individual detection zones. When aiming the units, masking of vehicles shall be minimized and all detection zones shall be contained within the specified elevation angle as suggested by the manufacturer. The detection zones shall be viewable by the technician performing the work. The Contractor shall be responsible for maintaining power and communications. The firmware (hardware and software) used to calibrate the RTMS units shall be capable of allowing verification of correct setup, and diagnostics. It shall include facilities for saving verification data and collected data as well as saving and retrieving sensor setup from a disk file. Copies of this data shall be provided to the Engineer and Tollway ITS Deployment Engineer on completion of calibration. If the percent difference in the occupancy is greater than 5.0%, or the percent difference of the speed is greater than 10.0%, the unit has failed calibration and must be adjusted and/or reaimed and then recalibrated. The completed calibration worksheet shall be posted on the Web Based Project Management System (Proliance) within 2 business days of calibration of each unit. The Contractor shall download and use the current version of the manufacturer's calibration software. The Contractor is NOT to rely solely on the manufacturer's calibration wizard in automatic mode. It alone usually does not achieve the accuracy specified in the RTMS product data sheet.

Added 07/27/12

Recalibration shall involve conducting a manual traffic count per lane for 30 minutes (or a minimum of 50 vehicles, whichever yields a higher count) and comparing the manual counts to the counts from the RTMS unit. The two counts shall be within 5% of one another. Speed samples of 20 vehicles over an hour period (at highway speeds) shall also be taken manually using a lidar gun or other method as approved by the Tollway ITS Deployment Engineer and compared to those of the RTMS units. The two speeds shall be within 10% of one another.
All work shall be overseen and directed on-site by a qualified Contractor technician who has successfully completed the Tollway's RTMS training course within the past 3 years.

The RTMS detection and operational parameters set by the Tollway such as vehicle classification, transmission rate, unit address, firmware version, etc. shall be maintained.

All damage caused during the performance of this task shall be the responsibility of the Contractor with repairs completed within 24 hours.

Following aiming and calibration of the RTMS unit, the Contractor shall be responsible for maintenance of the units until contract completion. This shall include preventive maintenance as recommended by the manufacturer. Upon notification of a failure, the Contractor shall respond and repair the unit within 48 hours using manufacturer-approved parts and procedures. Maintenance responsibility shall include the mounting hardware, the RTMS unit, all cabling, the cabinet, and all equipment therein.

Communication Verification with Traffic.com. Following the RTMS installation and Local Field Testing, the Contractor shall coordinate with Traffic.com to provide them with any provisioning information required prior to acceptance. The Contractor shall receive communication verification in writing from Traffic.com and forward to the Engineer and Tollway ITS Deployment Engineer for approval. The Contractor shall identify, document, and submit to the Engineer the name, model number, serial number, technical support and warranty telephone numbers of all devices and ancillary components; categorized and uniquely numbered by site, and any other pertinent information required to facilitate project maintenance prior to acceptance of the Communication Verification with Traffic.com portion of this item.

Following approval of the Communication Verification with Traffic.com, the Tollway will conduct a Subsystem Test and will notify the Engineer and Contractor of any issues. The Tollway Software Integrator shall have 14 calendar days to confirm integration into TIMS.

30-Day "Burn-in" Period Requirements. Following integration approval into TIMS by the Tollway Software Integrator and before Final System Acceptance, the Contractor shall oversee a 30-Day Burn-in Period. This requirement is meant to demonstrate full monitoring capabilities of the RTMS devices from the TIMS Center via the installed/existing communications channels and Traffic.com network as well as the functionalities of the Stand-alone Test and troubleshooting/diagnostics for a 30-day period. The 30-day Burn-In Period shall be conducted based on the Engineer approved Contractor testing schedule. The Contractor shall notify the Engineer in writing the scheduled date of the 30-Day Burn-In Test 14 calendar days prior to the commencement of said test. The 30-Day Burn-in Period shall not be performed without prior written approval from the Engineer.

The Contractor shall correct any and all failures during the 30-Day Burn-in Test at no additional cost to the Tollway. The system may be shut down for purposes of testing and correcting identified deficiencies. For each period of system shut down, the scheduled 30-day Subsystem Test shall be extended for the same period of time plus 1 day unless otherwise directed by the Engineer. Shutdown of equipment that has been integrated into the TIMS network must be coordinated ahead of time as it may affect TIMS operations.

Added 07/27/12

Final System Acceptance. Final acceptance of the work associated with this project will be made after satisfactory completion of the required 30-Day "Burn-in" Test period and on the basis of the final inspection of the entire system. The final inspection of the entire system will be performed by the Engineer and the Tollway ITS Deployment Engineer in the presence of a representative of the Contractor. All "record" documents shall be submitted to the Engineer 15 days prior to Final Acceptance. Notification of Final Acceptance will be in writing from the Engineer.

Warranty. All equipment shall be warranted and guaranteed against defects and/or failure in design, materials and workmanship. The Contractor shall submit the warranty terms as part of the shop drawing submittal for each material item.

System components shall be warranted against all defects and/or failure in design, materials and workmanship for a minimum of one (1) year from the date of Final Acceptance, as recorded by Engineer.

The warranty shall provide that, in the event of a malfunction during the warranty period, the defective system component shall be repaired or replaced with a new component by the Contractor or representative within five (5) working days.

Any component that, in the opinion of the Engineer, fails three (3) times prior to the expiration of the warranty will be judged as unsuitable and shall be replaced by the Contractor or representative with a new component of the same type at no additional cost to the Tollway. The unsuitable component shall be permanently removed from the project. A failure shall also be defined as the field device becoming unable to comply with all applicable standards.

Any repairs made by a Contractor or representative shall be documented and that documentation shall be returned with the warranty repaired units. This documentation shall include an explanation of the exact repairs made and identification of parts replaced by part number and circuit number. All warranty repairs shall be completed within thirty (30) days of the notification of the repair.

The warranty period shall not begin until the date that the Chief Engineer issues final acceptance to the project, as recorded by the Engineer.

Method of Measurement. This work will be measured in units of each completed in place and accepted.

Basis of Payment. This work will be paid for at the contract unit price per each for AC POWERED RTMS ASSEMBLY, which price shall include all labor, materials, equipment and coordination with suppliers, manufacturers, and Traffic.com in order to deliver a fully functional system per the requirements of this special provision. This work will be paid for at the contract unit price each for AC POWERED RTMS ASSEMBLY. Seventy-five percent (75%) of the contract unit price will be paid at completion of the Communication Verification with Traffic.com. The final twenty-five percent (25%) of the payment due for this work will be paid after Final System Acceptance, which will be made after satisfactory completion of the required 30-Day Burn-in Period and on the basis of the final inspection of the entire system. The final inspection of the entire system will be performed by the Engineer in the presence of a representative of the Contractor.

Added 07/27/12

G4 RTMS Calibration Summary

Station #: _____

Date: ___/___/___ Start Time:_____ End Time:_____ Technician Name(s):_____

1. Site Information

Interstate: _____ Milepost: _____ Sensor located on (circle one): **NB EB WB SB** side

Sensor Distances

Distance from sensor to edge of nearest travel lane:	ft
Sensor height from roadway surface:	ft
Distance to nearest bridge, etc.:	ft

Obstructions (mark w/X)

	Barrier Wall	Guardrail	Other	None
Median				
SB/WB Shoulder				
NB/EB Shoulder				

Zone Layout (see zone numbering page from traffic.com for specific zone numbering instructions):

Southbound/Westbound	Median	Northbound/Eastbound

2. Laptop Connection

Laptop connection successful: ☐ **Yes** ☐ **No:** Network switch lights flashing: ☐ **Yes** ☐ **No**

Voltage: _____**volts** Evidence of rodents chewing cables: ☐ **Yes** ☐ **No**

Self Test Results: ☐ **All Systems OK** OR ☐ **Error(s):**_____

IMPORTANT: ☐ Save initial setup file to laptop: ***Station#_yyyymmdd***_initial.dtb

3. Initial and Revised Settings

	Required	Initial	Final
Firmware Version			
Application	SF Hwy		
Sensitivity			
Zones			
Message Period	60		
Sensor ID			
Mode:*	☐G4 ☐X3	☐G4 ☐X3	☐G4 ☐X3
High Resolution:	☑	☐	☐
6 ft. Loop Emulation:	☐	☐	☐
Speed:	☑ Km/h ☐MPH	☐ Km/h ☐ MPH	☐ Km/h ☐ MPH
Classes:	☐2 ☑4 ☐6	☐2 ☐4 ☐6	☐2 ☐4 ☐6
Gap/Headway:	☐	☐	☐
85% Speed:	☐	☐	☐
Real Time Clock:	☐	☐	☐
Vehicle Classification (meters)	Small 7.9 Med 14.9 Large 24.1 Truck	Small____ Med ____ Large____ Truck	Small____ Med ____ Large____ Truck

* If <=8 zones use X3 mode. If >8 zones, use G4 mode.

4. Calibration Results

(attach *Zone Setup* & *Speed Calibration* Worksheets)

Zone	Initial Distance Range	Final Distance Range	Final Volume % Difference	Final Speed % Difference
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%

5. Reconnection

IMPORTANT: ☐ Save revised setup file to laptop: ***Station#_yyyymmdd***_revised.dtb

☐ Reconnect RTMS sensor

☐ Traffic.com confirmed to be receiving data on: ___/___/_____ at _____AM/PM by ☐ website ☐ phone call.

Version 3.2 11/30/2010

Added 07/27/12

G4 RTMS Zone Setup Worksheet (G4 Manual, 3-46 to 3-49) Station #: ____________

Run wizard to adjust zones and sensitivity. Adjust zone widths using the Fine Tune screen. Adjust the zone widths as needed to reduce splashing. Adjust sensitivity up to detect small vehicles or down to reduce ghosting. **IMPORTANT: Zone setup is complete when volume difference is < +/- 5% for each zone.**

Zone	Sensitivity	Distance Range	RTMS Count	Manual Count	Volume Difference	Volume % Difference

Zone	Sensitivity	Distance Range	RTMS Count	Manual Count	Volume Difference	Volume % Difference

Version 3.2 11/30/2010

Added 07/27/12

G4 RTMS Speed Calibration Worksheet (G4 Manual, 3:55 to 3:56)

Station #: _____

Run auto calibration for at least **5 minutes** with a reference speed set as average lane speed. Check speeds for 10 vehicles. If speeds are >+/-10% difference for any lane, complete manual calibration for that lane by setting a speed adjustment value. Check speeds again. **IMPORTANT: Speed calibration is complete when all zones are <+/- 10%.**

Zone	Speed Calibration					Speed Checks													
		Auto Calibration					Vehicle Speeds (mph)												
	Initial Coefficient	Time Run	Reference Speed	Manual Adjustment (mph)	Final Coefficient	Speed Source	1	2	3	4	5	6	7	8	9	10	Average Speed	Speed % Difference (R-L)/L
						LIDAR (L)											L1:	R1:	____%
						RTMS (R)													
						LIDAR (L)											L2:	R2:	____%
						RTMS (R)													
						LIDAR (L)											L3:	R3:	____%
						RTMS (R)													
						LIDAR (L)											L4:	R4:	____%
						RTMS (R)													
						LIDAR (L)											L5:	R5:	____%
						RTMS (R)													
						LIDAR (L)											L6:	R6:	____%
						RTMS (R)													
						LIDAR (L)											L7:	R7:	____%
						RTMS (R)													
						LIDAR (L)											L8:	R8:	____%
						RTMS (R)													
						LIDAR (L)											L9:	R9:	____%
						RTMS (R)													
						LIDAR (L)											L10:	R10:	____%
						RTMS (R)													
						LIDAR (L)											L11:	R11:	____%
						RTMS (R)													
						LIDAR (L)											L12:	R12:	____%
						RTMS (R)													

Version 2.2 11/30/2010

Added 07/27/12

TRAILER MOUNTED PORTABLE CCTV CAMERA ASSEMBLY

Description:

This work shall consist of furnishing, delivering and operational maintenance including deployment and redeployment as directed by the Engineer within the contract limits and to provide 24/7 functionality of the System for the contract duration. The System is required to provide a trailer mounted portable closed circuit television (CCTV) camera assembly including a digital pan tilt zoom (PTZ) and digital video camera and the necessary cellular modem communications required to transmit and receive with the Illinois Tollway Traffic Information Management System (TIMS) Traffic operations Center (TOC) for the contract duration. Testing must be completed BEFORE the contractor is required to have the System in operation. Contractors are to contact the Tollway Intelligent Transportation System (ITS) Deployment Engineer to schedule pre-qualification testing. Only System's that have passed the pre-qualification testing will be allowed to be used on Tollway construction projects.

General Requirements:

The System shall have the following minimum functional requirements:

- Trailer
- Camera
- Tower
- Communications equipment
- Cabinets
- Electronic support components
- Power unit
- Associated cabling

1. Prior to deploying any System, the contractor must have each System inspected by the Tollway at the Central Shop location 3460 S. Finley Road, Downers Grove. The Tollway may at it's discretion install various equipment on each System. This equipment will remain the property of the Tollway and cannot be removed or altered. All Systems will be marked by the Tollway with a unique identification number. At the end of the contract period the contractor is required to deliver any and all Systems to the Central Shop location. A final System inspection will be performed to ensure no damage exists to the System.
2. The System shall be self-contained and shall be capable of setup by a one-person crew in less than 30 minutes.
3. The trailer shall have four 2,000 lb rated leveling jacks/stabilizers and have a 3,500 lb capacity trailer axle with 15" radial tires with fenders.
4. All external metal surfaces shall be powder coated in safety orange.
5. All four sides of the trailer must have 100 inches minimum of DOT rated reflective red and white safety tape.
6. Trailer lights and reflectors shall meet DOT standards.
7. The trailer shall have a lockable battery and compartment storage cover, an adjustable height pintle hitch with 3" eye opening, 3/8" safety chains and hooks, and a removable trailer tongue or hitch.
8. The trailer shall have a seven pole pin type trailer light plug wired to DOT standards.
9. The trailer shall include four leveling jacks/stabilizers that shall provide setup in areas with an incline of (+/-) 10 degrees and allow for leveling adjustments.
10. Trailer assembly shall be capable of withstanding a minimum wind load of 70 mph in any direction when the tower is completely extended and the trailer is in a normal operating configuration.

Added 07/27/12

11. The System shall provide an extendable tower that shall extend to at least 30 ft above ground level.
12. The tower shall fold down or collapse level as mounted on the trailer.
13. System shall be able to erect and lower the tower.
14. A back-up manual system for erecting and lowering the tower shall be included if the system is electric or hydraulically operated.
15. System shall prevent tower from retracting if primary system of erection is severed.
16. The System shall have a Closed Circuit Television (CCTV) Dome camera with Pan/Tilt/Zoom (PTZ) functionality and shall be Model SD435-PG-E1 as manufactured by Pelco
17. The camera shall be easily removable as to eliminate the possibility of damage during transport.
18. Camera shall be a minimum of 25 feet above pavement with the tower extended. The PTZ CCTV camera should have a minimum 315 degree horizontal view (i.e., a maximum of 45 degrees blocked by the tower) with any dead zone to the left or right side of the trailer – not the front or back.
19. The System cabinet shall include an Optelecom Model C-60-E/MC/SA video encoder with Model PSR 12DC/US power supply, two duplex receptacles (one GFI), surge suppressors for camera video, control, and 24 VAC power cables, and all necessary panels, brackets, and outdoor rated wiring required for a complete and operating system. Each component mounted outside of the cabinets shall be mounted with an approved equipment bracket on top of the tower or at an appropriate location so as not to impede the function or operations of the tower or components. All coaxial, Cat 5E, power and PTZ cable shall be outdoor rated. All coaxial cable shall be RG-6/U.
20. All equipment shall be manufactured for mobile applications. All components and mounting equipment must be secured during transport and hardened to ensure no damage during transport.
21. All external devices shall be NEMA 4X rated and field hardened. Controllers and servers for these devices shall be field hardened and at a minimum have the ability to withstand temperatures between -20°F to 140°F.
22. The system shall be equipped with a Grey Island Systems GPS/AVL WAAS transponder.

    Grey Island Systems Contact:

    Chris Jackson
    76 Stafford Street Suite 100
    Toronto Ontario M6J 2S1
    Phone: 416/248-9991 ext 312
    chrisj@interfleet.com
23. The contractor is responsible for establishing and maintaining data communication lines for the System for the duration of this contract.
24. The Tollway reserves the right to operate the System via the Tollway's TIMS Center which may take over control the System(s) remotely. The Contractor must notify the TIMS Center if a System(s) is inoperable for any reason. The contractor may be required to regularly update the TIMS Center on the System(s) location. The Tollway may move or alter the location of the System at its discretion.
25. Batteries shall be capable of running all components from full charge without recharging for 15 days minimum.
26. Solar recharging of batteries shall allow continuous full camera use during all weather conditions, year-round in northern Illinois.

Added 07/27/12

27. The System shall provide all cabling necessary to provide a connection to commercial power if available within 100 feet of the set up location.
28. The System shall provide for means to restrain all wiring cable from the mast to the equipment bracket. Cables shall be restrained from the wind when the system is fully deployed.
29. Cables shall move up and down with tower, provide guide for extend/retract of tower.
30. Security of components shall be provided by using positive latches and pad locks on housing and operational controls. Controls shall include at least the following:
    i. Main power switch
    ii. 12 volt system meter
    iii. Battery/Solar charge ammeter
31. Communications to the TIMS center shall be through an AirLink Raven XE EVDO Rev A Verizon DC Power Model # V2221E VD modem that is IP addressable. The System software shall have the capability of working with encrypted IP addresses as required by the Tollway's TIMS operating software. The modem shall be approved by Verizon Wireless for use on their network.
32. One hard copy and two CD/DVD copies of service, parts and operators manuals. Operators manual to include laminated abbreviated reminder sheet to assist operators in usage. There shall be 4 hours of training per System with a total not to exceed 16 hours for Tollway personnel including Traffic Operations Center Personnel.
33. The Contractor shall perform maintenance on all field equipment throughout each component specific warranty period and thereafter if requested and paid for by the successful bidder.
34. Traffic Operation Center Integration: Each individual unit shall provide communications to the Traffic Operation Centers systems for all video capture. The portable component requirements listed above pertain to the trailer mounted system and are to ensure the successful delivery of the video to the Traffic Operations Center. The bidder is expected to work with the Tollway's TIMS's integrator (Delcan) to develop the necessary software enhancements to integrate the video into the Tollway's Traffic Center system.

The traffic centers software integrator shall be considered a subcontractor to the successful bidder, so it is ultimately the responsibility of the successful bidder to ensure all components are working properly.

The Software Components shall meet the following requirements:

a. The bidder shall provide functionality for operators to manually locate trailer on the Traffic Operations Center's system map.
b. The bidder/Delcan shall create a new icon for the active CCTV camera using existing processes and procedures.
c. Mousing over the icon shall present a window to the operator with additional options.
d. Double clicking the icon shall present a CCTV Snapshot.

Interruption of Service: The Contractor shall provide all preventive efforts necessary to achieve uninterrupted service. Upon notification by the Engineer, the Contractor shall respond by arriving at the System location and commencing maintenance - failure to respond within 1/2 hour of said notification will result in the appropriate penalty, per Article 701.01(b)(2) of the Tollway Supplemental Specifications. If service is interrupted for any cause and not restored to full operational service within twelve (12) hours, the defective System shall be removed and a replacement System shall be provided.

Added 07/27/12

If after 24 hours the defective System has not been repaired or replaced, the Contractor shall be assessed a Non-Compliance with Specifications penalty, per Article 701.01(b)(1) of the Tollway Supplemental Specifications.

Method of Measurement: This work will be measured for payment in units of each camera provided and accepted.

Basis of Payment:Payment for TRAILER MOUNTED PORTABLE CCTV CAMERA ASSEMBLY will be made at the Contract unit price per each ordered, placed, tested and accepted required for the duration of the Contract.

Payment for the TRAILER MOUNTED PORTABLE CCTV CAMERA ASSEMBLY shall constitute full compensation for furnishing, placing, testing, maintaining, and relocating the System as directed by the engineer, including the warranty, for all labor, equipment, tools, and incidentals necessary to provide the System as specified, and for providing documentation and training.

POLE MOUNTED RTMS ASSEMBLY

Description. This work shall consist of furnishing, installing, and calibrating a pole mounted RTMS assembly.

The pole mounted RTMS assembly vehicle detection station will include the following:

- Galvanized Steel Pole
- Grounding System
- RTMS Vehicle Detector
- Wireless Modem and Antenna
- Solar Panel
- Solar Charger/Regulator
- Batteries
- Cabinet/Enclosure to house batteries and electronics
- All related connection cables, conduit, brackets, and other items incidental to the construction of the pole mounted RTMS assembly.

The pole mounted RTMS assembly will not have access to normal power service. These installations will use solar power for the radar detectors and radios.

All work will require close coordination with the Engineer.

Materials. The Contractor shall furnish components for each pole mounted RTMS assembly as described below and in accordance with the plan details.

RTMS Pole. The RTMS pole shall be a 40 feet (nominal) tapered galvanized steel anchor base pole conforming to the requirements of Tollway Supplemental Specification Section 830 for Light Poles and the plan details. The pole shall have a 10-inch base diameter and 4-inch top diameter.

Added 07/27/12

Grounding System. All grounding shall be installed and connected as shown on the drawings and details. Ground testing shall be completed per the construction requirements of this special provision.

RTMS Vehicle Detector. The remote traffic microwave sensor radar shall be designed for side-fired operation and shall be capable of detecting bi-directional traffic. The RTMS detector shall have the capability to detect vehicles within a ± 5% accuracy variance of actual vehicle occupancy and ± 10% accuracy variance of actual vehicle speed. The RTMS unit shall be furnished with a 40 feet UV protected RS-232 setup cable for connection to the wireless modem and shall be the G4 model as manufactured by Electronic Integrated Systems Inc. (EIS). The detector shall be mounted on the applicable pole with Side Kick Mounting Bracket manufactured by Image Sensing Systems, Inc. and made from die cast aluminum alloy body with chromate finish, stainless steel screws, bolts, etc. and brass dowel. The size of the mounting bracket shall be 11" long x 7" high x 5.25" wide and have a weight of 1.9 pounds.

Wireless Modem and Antenna. The wireless modem specified by Traffic.com shall be configured to operate on the cellular network determined by Traffic.com per the construction requirements of this special provision and shall be furnished with the necessary antenna and antenna cable.

Solar Package. The solar package shall consist of two 75 watt BP 275 solar panels as manufactured by BP Solar; three twelve volt batteries, Model # 8A27-DEKA, AGM style, 100 Ahr rated, as manufactured by MK Battery; a SunSaver Model # SS-20L solar controller as manufactured by Morning Star; and all necessary panels, brackets battery cables, wiring and circuit breakers required for a complete and operating system.

Cabinet/Enclosure. The vented aluminum cabinet shall have a full length hinged door, manufactured by Bison PreFab Model # BP2/6E with Corbin #1 police style lock and the Model # SM-0200 skeleton key and aluminum back panel. Cabinet shall be furnished with necessary mounting brackets for attachment to the pole. Raceways and other openings, including foundation, shall be sealed to prevent the intrusion of insects, rodents, pests and debris and shall be installed as shown on the drawings and details.

Batteries. Batteries shall be charged fully and tested before installation by the manufacturer. Test results shall be submitted to the Engineer and approved by the Tollway ITS Deployment Engineer prior to installation. Following physical battery installation, the battery system shall be fully charged by the **installed solar panel system** without the load connected for 48 hours to properly charge the installed batteries.

CONSTRUCTION REQUIREMENTS

Installation. The Plans identify approximate locations for the pole mounted RTMS assemblies. The Contractor shall stake these locations in the field for approval by the Engineer and Tollway ITS Deployment Engineer.

The RTMS unit shall be mounted in a side-fired configuration in accordance with the plan details. The Contractor shall install the detector unit on the pole at the height above the road surface as necessary to achieve calibration acceptance.

Added 07/27/12

The components shall be installed in the cabinet in accordance with the RTMS cabinet detail drawings.

The Contractor shall install the cabinets, detectors, and radios at the locations approved by the Engineer and as necessary to provide a working system. Although work performed by Traffic.com is not included under this contract, the Contractor shall coordinate with Traffic.com to ensure system functionality and to verify that the wireless modem will operate with the service provider selected by Traffic.com. Once the Contractor has received the wireless modem, the Contractor shall provide Traffic.com with the proposed RTMS site data and the pertinent characteristics of the wireless modem (e.g., serial number, ESN) in a format as specified by the Engineer. Based on this information, Traffic.com will integrate the communications with their network; will arrange cellular service; and will assume the costs of the cellular service. Contact information for Traffic.com is:

Tom Hewitt		Scott Perley
thewitt@traffic.com	or	sperley@traffic.com
(267) 250-7272		(601) 407-7400

The Contractor shall coordinate with the Traffic.com and the Tollway to ensure that the necessary data is available to the Tollway.

When all equipment is installed and connected internally, the Contractor shall aim, calibrate and demonstrate the performance and accuracy of the installed detectors. This test shall match observed and detected vehicles, as well as the ability of Traffic.com and the Tollway's Traffic Incident Management System to collect and use the data for travel times. The accuracy of the travel times is not an issue for the Contractor, provided the detectors are reporting the vehicles' presence correctly.

The Contractor shall work with the Engineer to develop record drawings of all RTMS locations and connections (inclusive of electrical) if they differ from locations/routing identified in the plan set. Final documentation shall reflect all field changes, including but not limited to final coordinates of the RTMS station locations to the level of accuracy of 10 feet, and shall be provided within 30 days after successful completion of the 30-day test period. This documentation shall include drawings of cabinet layouts, wiring diagrams, and schematics for all elements of the wireless communications system. This shall also include detailed drawings identifying cable type, color code and function, the routing of all conductors in the communications system. The Contractor shall submit these plans, maps, and/or drawings to reflect a record condition, incorporating all changes made during installation and testing period within 15 days prior to final acceptance.

Ground System Testing. All testing shall be conducted in the presence of the Tollway's designated representative after a forty-eight (48) hour notification period. All test results, including those where the design criteria was not achieved, shall be documented. All retests shall be witnessed and documented.

The installed grounding system shall be tested to confirm that there is at most five (5) ohms to ground in the grounding system. The site grounding electrode system shall be tested using the three-point/fall-of-potential method. Proper grounding of AC power disconnect shall be verified by the use of a clamp-on ohmmeter.

Added 07/27/12

Testing of resistance to ground from the chassis of electronic equipment is not recommended due to the potential of damage to the electronics; however, the Contractor shall be required to test resistance to ground from each bus bar after all chassis grounds have been disconnected and taped to avoid accidental contact during testing.

RTMS Acceptance Test Plan. The Contractor shall submit a detailed system acceptance test plan and updated schedule to the Engineer and Tollway ITS Deployment Engineer for review and approval.

The Contractor acceptance test plan shall at a minimum consider the following:

- Local Field Test
- Aiming and Calibration
- Communication Verification with Traffic.com
- Integration into TIMS with Tollway Software Integrator
- Subsystem Test
- 30-Day “Burn-in” Period

The Contractor test plans shall test all areas of system functionality described herein and be in accordance with the various equipment manufacturer recommendations. The Contractor shall provide copies of all test results to the Engineer and Tollway ITS Deployment Engineer in a format to be determined by the Engineer and Tollway ITS Deployment Engineer.

Local Field Test Requirements. The Contractor shall perform Local Field Tests at each RTMS field site in the presence of the Engineer in accordance with the test procedures detailed herein, within the plan set, in the Contract, and as recommended by the various equipment manufacturers. This requirement is meant to confirm that all RTMS site equipment has been installed, connected, and configured properly. The Contractor shall verify that physical construction has been completed as detailed herein and the plans;

- Inspect the quality and tightness of ground connections;
- Check power supply voltages and outputs;
- Connect devices to the power sources;
- Verify installation of specified cables and connections between the RTMS device and the communications system
- Configure the IP addresses for data input/output; this activity shall be coordinated with Traffic.com.
- Verify presence and quality of RTMS device data;
- Verify proper voltage of all power supplies; and interconnect the communication interface device into the communication network’s assigned locations.
- Grounding System testing.

Aiming and Calibration.
The Contractor shall aim and calibrate the Remote Traffic Microwave Sensor (RTMS) units within the RTMS specification tolerances prior to final acceptance. Aiming and Calibration shall be done per the manufacturer’s requirements and the attached RTMS Calibration checklist for the G4 model. The checklist must be fully completed and submitted for approval by the Tollway ITS Deployment Engineer. The Contractor shall be totally and completely responsible for the RTMS maintenance until project acceptance.

Added 07/27/12

During the calibration step the proper equipment shall be onsite to support any reaiming of the detector that is required.

The properly aimed and calibrated units shall obtain traffic counts and average speed on a per lane basis with individual detection zones. When aiming the units, masking of vehicles shall be minimized and all detection zones shall be contained within the specified elevation angle as suggested by the manufacturer. The detection zones shall be viewable by the technician performing the work. The Contractor shall be responsible for maintaining power and communications. The firmware (hardware and software) used to calibrate the RTMS units shall be capable of allowing verification of correct setup, and diagnostics. It shall include facilities for saving verification data and collected data as well as saving and retrieving sensor setup from a disk file. Copies of this data shall be provided to the Engineer and Tollway ITS Deployment Engineer on completion of calibration. If the percent difference in the occupancy is greater than 5.0%, or the percent difference of the speed is greater than 10.0%, the unit has failed calibration and must be adjusted and/or reaimed and then recalibrated. The completed calibration worksheet shall be posted on the Web Based Project Management System (Proliance) within 2 business days of calibration of each unit. The Contractor shall download and use the current version of the manufacturer's calibration software. The Contractor is NOT to rely solely on the manufacturer's calibration wizard in automatic mode. It alone usually does not achieve the accuracy specified in the RTMS product data sheet.

Recalibration shall involve conducting a manual traffic count per lane for 30 minutes (or a minimum of 50 vehicles, whichever yields a higher count) and comparing the manual counts to the counts from the RTMS unit. The two counts shall be within 5% of one another. Speed samples of 20 vehicles over an hour period (at highway speeds) shall also be taken manually using a lidar gun or other method as approved by the Tollway ITS Deployment Engineer and compared to those of the RTMS units. The two speeds shall be within 10% of one another.

All work shall be overseen and directed on-site by a qualified Contractor technician who has successfully completed the Tollway's RTMS training course within the past 3 years.

The RTMS detection and operational parameters set by the Tollway such as vehicle classification, transmission rate, unit address, firmware version, etc. shall be maintained.

All damage caused during the performance of this task shall be the responsibility of the Contractor with repairs completed within 24 hours.

Following aiming and calibration of the RTMS unit, the Contractor shall be responsible for maintenance of the units until contract completion. This shall include preventive maintenance as recommended by the manufacturer. Upon notification of a failure, the Contractor shall respond and repair the unit within 48 hours using manufacturer-approved parts and procedures. Maintenance responsibility shall include the pole, mounting hardware, the RTMS unit, all cabling, the cabinet, and all equipment therein.

Communication Verification with Traffic.com. Following the RTMS installation and Local Field Testing, the Contractor shall coordinate with Traffic.com to provide them with any provisioning information required prior to acceptance. The Contractor shall receive communication verification in writing from Traffic.com and forward to the Engineer and Tollway ITS Deployment Engineer for approval. The Contractor shall identify, document, and submit to the Engineer the name, model number, serial number, technical support and warranty telephone numbers of all devices and ancillary components; categorized and uniquely numbered by site, and any other pertinent information required to facilitate project maintenance prior to acceptance of the Communication Verification with Traffic.com portion of this item.

Added 07/27/12

Following approval of the Communication Verification with Traffic.com, the Tollway will conduct a Subsystem Test and will notify the Engineer and Contractor of any issues. The Tollway Software Integrator shall have 14 calendar days to confirm integration into TIMS.

30-Day "Burn-in" Period Requirements. Following integration approval into TIMS by the Tollway Software Integrator and before Final System Acceptance, the Contractor shall oversee a 30-Day Burn-in Period. This requirement is meant to demonstrate full monitoring capabilities of the RTMS devices from the TIMS Center via the installed/existing communications channels and Traffic.com network as well as the functionalities of the Stand-alone Test and troubleshooting/diagnostics for a 30-day period. The 30-day Burn-In Period shall be conducted based on the Engineer approved Contractor testing schedule. The Contractor shall notify the Engineer in writing the scheduled date of the 30-Day Burn-In Test 14 calendar days prior to the commencement of said test. The 30-Day Burn-in Period shall not be performed without prior written approval from the Engineer.

The Contractor shall correct any and all failures during the 30-Day Burn-in Test at no additional cost to the Tollway. The system may be shut down for purposes of testing and correcting identified deficiencies. For each period of system shut down, the scheduled 30-day Subsystem Test shall be extended for the same period of time plus 1 day unless otherwise directed by the Engineer. Shutdown of equipment that has been integrated into the TIMS network must be coordinated ahead of time as it may affect TIMS operations.

Final System Acceptance. Final acceptance of the work associated with this project will be made after satisfactory completion of the required 30-Day "Burn-in" Test period and on the basis of the final inspection of the entire system. The final inspection of the entire system will be performed by the Engineer and the Tollway ITS Deployment Engineer in the presence of a representative of the Contractor. All "record" documents shall be submitted to the Engineer 15 days prior to Final Acceptance. Notification of Final Acceptance will be in writing from the Engineer.

Warranty. All equipment shall be warranted and guaranteed against defects and/or failure in design, materials and workmanship. The Contractor shall submit the warranty terms as part of the shop drawing submittal for each material item.

System components shall be warranted against all defects and/or failure in design, materials and workmanship for a minimum of one (1) year from the date of Final Acceptance, as recorded by Engineer.

The warranty shall provide that, in the event of a malfunction during the warranty period, the defective system component shall be repaired or replaced with a new component by the Contractor or representative within five (5) working days.

Any component that, in the opinion of the Engineer, fails three (3) times prior to the expiration of the warranty will be judged as unsuitable and shall be replaced by the Contractor or representative with a new component of the same type at no additional cost to the Tollway. The unsuitable component shall be permanently removed from the project. A failure shall also be defined as the field device becoming unable to comply with all applicable standards.

Added 07/27/12

Any repairs made by a Contractor or representative shall be documented and that documentation shall be returned with the warranty repaired units. This documentation shall include an explanation of the exact repairs made and identification of parts replaced by part number and circuit number. All warranty repairs shall be completed within thirty (30) days of the notification of the repair.

The warranty period shall not begin until the date that the Chief Engineer issues final acceptance to the project, as recorded by the Engineer.

Method of Measurement. This work will be measured in units of each completed in place and accepted.

Basis of Payment. This work will be paid for at the contract unit price per each for POLE MOUNTED RTMS ASSEMBLY, which price shall include all labor, materials, equipment and coordination with suppliers, manufacturers, and Traffic.com in order to deliver a fully functional system per the requirements of this special provision. This work will be paid for at the contract unit price each for POLE MOUNTED RTMS ASSEMBLY. Seventy-five percent (75%) of the contract unit price will be paid at completion of the Communication Verification with Traffic.com. The final twenty-five percent (25%) of the payment due for this work will be paid after Final System Acceptance, which will be made after satisfactory completion of the required 30-Day Burn-in Period and on the basis of the final inspection of the entire system. The final inspection of the entire system will be performed by the Engineer in the presence of a representative of the Contractor.

Added 07/27/12

G4 RTMS Calibration Summary

Station #: _____

Date: ___/___/___ Start Time:_____ End Time:_____ Technician Name(s):_____

1. Site Information

Interstate: _____ Milepost: _____ Sensor located on (circle one): **NB EB WB SB** side

Sensor Distances

Distance from sensor to edge of nearest travel lane:	ft
Sensor height from roadway surface:	ft
Distance to nearest bridge, etc.:	ft

Obstructions (mark w/X)

	Barrier Wall	Guardrail	Other	None
Median				
SB/WB Shoulder				
NB/EB Shoulder				

Zone Layout (see zone numbering page from traffic.com for specific zone numbering instructions):

Southbound/Westbound	Median	Northbound/Eastbound

2. Laptop Connection

Laptop connection successful: ☐ **Yes** ☐ **No:** Network switch lights flashing: ☐ **Yes** ☐ **No**

Voltage: _____**volts** Evidence of rodents chewing cables: ☐ **Yes** ☐ **No**

Self Test Results: ☐ **All Systems OK** OR ☐ **Error(s):**_____

IMPORTANT: ☐ Save initial setup file to laptop: ***Station#_yyyymmdd***_initial.dtb

3. Initial and Revised Settings

	Required	Initial	Final
Firmware Version			
Application	SF Hwy		
Sensitivity			
Zones			
Message Period	60		
Sensor ID			
Mode:*	☐G4 ☐X3	☐G4 ☐X3	☐G4 ☐X3
High Resolution:	☑	☐	☐
6 ft. Loop Emulation:	☐	☐	☐
Speed:	☑ Km/h ☐MPH	☐ Km/h ☐ MPH	☐ Km/h ☐ MPH
Classes:	☐2 ☑4 ☐6	☐2 ☐4 ☐6	☐2 ☐4 ☐6
Gap/Headway:	☐	☐	☐
85% Speed:	☐	☐	☐
Real Time Clock:	☐	☐	☐
Vehicle Classification (meters)	Small 7.9	Small_____	Small_____
	Med 14.9	Med _____	Med _____
	Large 24.1	Large_____	Large_____
	Truck	Truck	Truck

* If <=8 zones use X3 mode. If >8 zones, use G4 mode.

4. Calibration Results

(attach *Zone Setup* & *Speed Calibration* Worksheets)

Zone	Initial Distance Range	Final Distance Range	Final Volume % Difference	Final Speed % Difference
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%

5. Reconnection

IMPORTANT: ☐ Save revised setup file to laptop: ***Station#_yyyymmdd***_revised.dtb

☐ Reconnect RTMS sensor

☐ Traffic.com confirmed to be receiving data on: ___/___/_____ at _____AM/PM by ☐ website ☐ phone call.

Version 3.2 11/30/2010

Added 07/27/12

G4 RTMS Zone Setup Worksheet (G4 Manual, 3-46 to 3-49) Station #: __________________

Run wizard to adjust zones and sensitivity. Adjust zone widths using the Fine Tune screen. Adjust the zone widths as needed to reduce splashing. Adjust sensitivity up to detect small vehicles or down to reduce ghosting. **IMPORTANT: Zone setup is complete when volume difference is < +/- 5% for each zone.**

Zone	Sensitivity	Distance Range	RTMS Count	Manual Count	Volume Difference	Volume % Difference

Zone	Sensitivity	Distance Range	RTMS Count	Manual Count	Volume Difference	Volume % Difference

Version 3.2 11/30/2010

Added 07/27/12

G4 RTMS Speed Calibration Worksheet (G4 Manual, 3-55 to 3-56)

Station #: _____

Run auto calibration for at least **5 minutes** with a reference speed set as average lane speed. Check speeds for 10 vehicles. If speeds are >+/-10% difference for any lane, complete manual calibration for that lane by setting a speed adjustment value. Check speeds again. **IMPORTANT: Speed calibration is complete when all zones are <+/- 10%.**

Zone	Speed Calibration					Speed Checks													
		Auto Calibration					Vehicle Speeds (mph)												
	Initial Coefficient	Time Run	Reference Speed	Manual Adjustment (mph)	Final Coefficient	Speed Source	1	2	3	4	5	6	7	8	9	10	Average Speed	Speed % Difference (R-L)/L
						LIDAR (L)											L1:	
						RTMS (R)											R1:	____%
						LIDAR (L)											R2:	
						RTMS (R)											L2:	____%
						LIDAR (L)											L3:	
						RTMS (R)											R3:	____%
						LIDAR (L)											L4:	
						RTMS (R)											R4:	____%
						LIDAR (L)											L5:	
						RTMS (R)											R5:	____%
						LIDAR (L)											L6:	
						RTMS (R)											R6:	____%
						LIDAR (L)											L7:	
						RTMS (R)											R7:	____%
						LIDAR (L)											L8:	
						RTMS (R)											R8:	____%
						LIDAR (L)											L9:	
						RTMS (R)											R9:	____%
						LIDAR (L)											L10:	
						RTMS (R)											R10:	____%
						LIDAR (L)											L11:	
						RTMS (R)											R11:	____%
						LIDAR (L)											L12:	
						RTMS (R)											R12:	____%

Version 3.2 11/30/2010

Added 07/27/12

REMOVE/RELOCATE POLE MOUNTED CAMERA ASSEMBLY

Description. This work shall consist of removing an existing pole mounted camera assembly and reinstalling the complete assembly in a new location as shown on the plans; or removing an existing pole mounted camera assembly and decommissioning and returning to the Tollway according to the project plans and as directed by the Engineer.

The existing ground wire connection shall be cut as close to the top of the ground rod as possible and the ground rod shall be abandoned in place.

Installation. The relocated pole mounted assembly shall be installed on a helix foundation in accordance with the Special Provision for *Remove and Relocate RTMS pole* located elsewhere within these specifications. A new ground rod shall be installed as shown on Tollway Standard H1. In addition, the unit shall be installed per the requirements of the Special Provision for *CCTV Camera Site Modfication* located elsewhere within these specifications.

The Contractor shall relocate the camera assembly with cabinets, detectors, and radios at the locations approved by the Engineer. The Contractor shall coordinate with the Tollway TIMS center during installation to verify camera placement and quality is adequate to meet Tollway viewing requirements. .

If the pole mounted camera assembly is damaged during removal and reinstallation the Contractor shall make the necessary repairs or provide new components necessary to provide a complete and working assembly to the satisfaction to the Engineer and at no additional cost to the Tollway.

Method of Measurement. This work shall be measured for payment in units per each complete and in place.

Basis of Payment. This work will be paid for at the contract unit price per each for REMOVE/RELOCATE POLE MOUNTED CAMERA ASSEMBLY, which price shall be payment in full for the work described herein.

REMOVE/RELOCATE POLE MOUNTED RTMS ASSEMBLY

Description. This work shall consist of removing an existing pole mounted RTMS assembly and reinstalling the complete assembly in a new location as shown on the plans or as directed by the Engineer. If specified in the plans, the work shall also include furnishing a new G4 RTMS sensor and removal of the existing RTMS sensor from the job site.

The existing ground wire connection shall be cut as close to the top of the ground rod as possible and the ground rod shall be abandoned in place.

Installation. The relocated pole mounted assembly shall be installed on a helix foundation in accordance with the Special Provision for *Remove and Relocate RTMS pole* located elsewhere within these specifications. A new ground rod shall be installed as shown on Tollway Standard H1. In addition, the unit shall be installed per the requirements of the Special Provision for *Reaiming RTMS Units* located elsewhere within these specifications.

Added 07/27/12

The RTMS detection zones and the wireless modem shall be set up by the Contractor for the new location using the licensed software provided by each manufacturer and the Contractor's Notebook PC.

The Contractor shall relocate the RTMS pole with cabinets, detectors, and radios at the locations approved by the Engineer. The Contractor shall coordinate with the Traffic.com and verify the wireless modem remains fully functional with the service provider selected by Traffic.com. The Contractor shall coordinate with the Tollway and Delcan to ensure that the necessary data is available to the Tollway.

When all equipment is installed and connected in the new location, the Contractor shall test and demonstrate the performance and accuracy of the installed detectors per the requirements of the Special Provision for *Reaiming RTMS Units* located elsewhere within these specifications. This test shall match observed and detected vehicles, as well as the ability of Travel.com and the Tollway's Traffic Incident Management System to collect and use the data for travel times.

If the pole mounted RTMS assembly is damaged during removal and reinstallation the Contractor shall make the necessary repairs or provide new components necessary to provide a complete and working assembly to the satisfaction to the Engineer and at no additional cost to the Tollway.

Method of Measurement. This work shall be measured for payment in units per each complete and in place.

Testing, aiming, and calibration of the relocated RTMS unit shall be measured for separately as REAIMING RTMS UNITS.

Basis of Payment. This work will be paid for at the contract unit price per each for REMOVE/RELOCATE POLE MOUNTED RTMS ASSEMBLY, which price shall be payment in full for the work described herein.

Testing, aiming, and calibration of the relocated RTMS unit will be paid for separately as REAIMING RTMS UNITS.

REAIMING RTMS UNITS

Description: This work shall consist of reaiming and recalibrating the Remote Traffic Microwave Sensor (RTMS) units to accommodate planned shifts in traffic patterns during construction, and reaiming and recalibrating the existing Remote Traffic Microwave Sensor (RTMS) units at the end of construction.

Construction Requirements: The Contractor shall reaim and recalibrate the Remote Traffic Microwave Sensor (RTMS) units when directed to do so by the Tollway ITS Deployment Engineer who gives direction to the Engineer. Usually, some reprogramming is necessary after each stage change to adjust for lane shifts, but full recalibration is not always necessary. And reaiming is rarely required - only if recalibration cannot be achieved within RTMS specification tolerances. This may occur if traffic is shifted to the shoulder of the road, or if temporary or permanent median barriers are erected which block part of the RTMS radar signal. If the contractor is unsure, The Tollway ITS Deployment Engineer has to review recalibration test data to determine if reaiming is needed.

Added 07/27/12

Recalibration and reaiming shall be done per the manufacturer's requirements and the attached RTMS Calibration checklist for the X3 model or G4 model must be fully completed and submitted for approval by the Tollway. Prior to initiating this work, the Contractor shall verify the RTMS units are performing correctly in their current location, and the attached RTMS Calibration Checklist for the X3 model or G4 model must be fully filled out and submitted for approval by the Tollway. Once the Contractor starts work on these units, he shall be totally and completely responsible for their maintenance until project acceptance.

The reaimed units shall obtain traffic counts and average speed on a per lane basis with individual detection zones. It is intended that the units will remain on the existing poles using existing mounting hardware. The Contractor shall maintain the RTMS unit at its current mounting height above the road surface unless a change is approved by the Tollway ITS Deployment Engineer. When reaiming the units, masking of vehicles shall be minimized and all detection zones shall be contained within the specified elevation angle as suggested by the manufacturer. The detection zones shall be viewable by the technician performing the work. The Contractor shall be responsible for maintaining existing power and communications. The firmware (hardware and software) used to recalibrate the RTMS units shall be capable of allowing verification of correct setup, and diagnostics. It shall include facilities for saving verification data and collected data as well as saving and retrieving sensor setup from a disk file. Copies of this data shall be provided to the Engineer on completion of recalibration. In addition, the Contractor shall continuously fill out the calibration worksheet as the work progresses, and use it to calculate the accuracy of lane by lane occupancy and speed. If the percent difference in the occupancy is greater than 5.0%, or the percent difference of the speed is greater than 10.0%, the unit has failed calibration and must be adjusted and recalibrated. The completed calibration worksheet shall be posted on the Web Based Project Management System (Proliance) within 2 business days of calibration of each unit. The Contractor shall download and use the current version of the manufacturer's calibration software. The Contractor is NOT to rely solely on the manufacturer's calibration wizard in automatic mode. It alone usually does not achieve the accuracy specified in the RTMS product data sheet.

Recalibration shall involve conducting a manual traffic count per lane for 30 minutes (or a minimum of 50 vehicles, whichever yields a higher count) and comparing the manual counts to the counts from the RTMS unit. The two counts shall be within 5% of one another. Speed samples of 20 vehicles over an hour period (at highway speeds) shall also be taken manually using a lidar gun or other method as approved by the Tollway ITS Deployment Engineer and compared to those of the RTMS units. The two speeds shall be within 10% of one another.

When traffic lanes are shifted requiring a reaiming and recalibration of the RTMS units, recalibration of the units shall begin within two hours of having traffic utilize the revised lane configuration and shall be completed within four hours.

All work shall be overseen and directed on-site by a qualified technician who has successfully completed the Tollway's RTMS training course within the past 3 years.

The RTMS detection and operational parameters set by the Tollway such as vehicle classification, transmission rate, unit address, firmware version, etc. shall be maintained.

All damage caused during the performance of this task shall be the responsibility of the Contractor with repairs completed within 24 hours.

Following reaiming and recalibration of the RTMS unit, the Contractor shall be responsible for maintenance of the units until project completion. This shall include preventive maintenance as recommended by the manufacturer. Upon notification of a failure, the Contractor shall respond and repair the unit within 48 hours using manufacturer-approved parts and procedures. Maintenance responsibility shall include the pole, mounting hardware, the RTMS unit, all cabling, the cabinet, and all equipment therein.

Added 07/27/12

Method of Measurement: This work will not be measured for payment.

Basis of Payment: This work will be paid for at the contract lump sum price for REAIMING RTMS UNITS. Payment for this item shall include all labor and materials necessary for the reaiming and recalibrating of all RTMS units within the project limits.

Added 07/27/12

G4 RTMS Calibration Summary

Station #: _____

Date: ___/___/___ Start Time:_____ End Time:_____ Technician Name(s):_____

1. Site Information

Interstate: _____ Milepost: _____ Sensor located on (circle one): **NB EB WB SB** side

Sensor Distances

Distance from sensor to edge of nearest travel lane:	ft
Sensor height from roadway surface:	ft
Distance to nearest bridge, etc.:	ft

Obstructions (mark w/X)

	Barrier Wall	Guardrail	Other	None
Median				
SB/WB Shoulder				
NB/EB Shoulder				

Zone Layout (see zone numbering page from traffic.com for specific zone numbering instructions):

Southbound/Westbound	Median	Northbound/Eastbound

2. Laptop Connection

Laptop connection successful: ☐ **Yes** ☐ **No:** Network switch lights flashing: ☐ **Yes** ☐ **No**

Voltage: _____**volts** Evidence of rodents chewing cables: ☐ **Yes** ☐ **No**

Self Test Results: ☐ **All Systems OK** OR ☐ **Error(s):**_____

IMPORTANT: ☐ Save initial setup file to laptop: ***Station#_yyyymmdd***_initial.dtb

3. Initial and Revised Settings

	Required	Initial	Final
Firmware Version			
Application	SF Hwy		
Sensitivity			
Zones			
Message Period	60		
Sensor ID			
Mode:*	☐G4 ☐X3	☐G4 ☐X3	☐G4 ☐X3
High Resolution:	☑	☐	☐
6 ft. Loop Emulation:	☐	☐	☐
Speed:	☑ Km/h ☐MPH	☐ Km/h ☐ MPH	☐ Km/h ☐ MPH
Classes:	☐2 ☑4 ☐6	☐2 ☐4 ☐6	☐2 ☐4 ☐6
Gap/Headway:	☐	☐	☐
85% Speed:	☐	☐	☐
Real Time Clock:	☐	☐	☐
Vehicle Classification (meters)	Small 7.9	Small_____	Small_____
	Med 14.9	Med _____	Med _____
	Large 24.1	Large_____	Large_____
	Truck	Truck	Truck

* If <=8 zones use X3 mode. If >8 zones, use G4 mode.

4. Calibration Results

(attach *Zone Setup* & *Speed Calibration* Worksheets)

Zone	Initial Distance Range	Final Distance Range	Final Volume % Difference	Final Speed % Difference
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%
			%	%

5. Reconnection

IMPORTANT: ☐ Save revised setup file to laptop: ***Station#_yyyymmdd***_revised.dtb

☐ Reconnect RTMS sensor

☐ Traffic.com confirmed to be receiving data on: ___/___/_____ at _____AM/PM by ☐ website ☐ phone call.

Version 3.2 11/30/2010

Added 07/27/12

G4 RTMS Zone Setup Worksheet (G4 Manual, 3-46 to 3-49) Station #: ____________

Run wizard to adjust zones and sensitivity. Adjust zone widths using the Fine Tune screen. Adjust the zone widths as needed to reduce splashing. Adjust sensitivity up to detect small vehicles or down to reduce ghosting. **IMPORTANT: Zone setup is complete when volume difference is < +/- 5% for each zone.**

Zone	Sensitivity	Distance Range	RTMS Count	Manual Count	Volume Difference	Volume % Difference	Zone	Sensitivity	Distance Range	RTMS Count	Manual Count	Volume Difference	Volume % Difference

Version 3.2 11/30/2010

Added 07/27/12

G4 RTMS Speed Calibration Worksheet (G4 Manual, 3-55 to 3-56)

Station #:_____

Run auto calibration for at least **5 minutes** with a reference speed set as average lane speed. Check speeds for 10 vehicles. If speeds are > +/-10% difference for any lane, complete manual calibration for that lane by setting a speed adjustment value. Check speeds again. **IMPORTANT: Speed calibration is complete when all zones are < +/-10%.**

Zone	Speed Calibration					Speed Checks												
		Auto Calibration					Vehicle Speeds (mph)											
	Initial Coefficient	Time Run	Reference Speed	Manual Adjustment (mph)	Final Coefficient	Speed Source	1	2	3	4	5	6	7	8	9	10	Average Speed	Speed % Difference (R-L)/L
						LIDAR (L)											L1:	
						RTMS (R)											R1:	____%
						LIDAR (L)											L2:	
						RTMS (R)											R2:	____%
						LIDAR (L)											L3:	
						RTMS (R)											R3:	____%
						LIDAR (L)											L4:	
						RTMS (R)											R4:	____%
						LIDAR (L)											L5:	
						RTMS (R)											R5:	____%
						LIDAR (L)											L6:	
						RTMS (R)											R6:	____%
						LIDAR (L)											L7:	
						RTMS (R)											R7:	____%
						LIDAR (L)											L8:	
						RTMS (R)											R8:	____%
						LIDAR (L)											L9:	
						RTMS (R)											R9:	____%
						LIDAR (L)											L10:	
						RTMS (R)											R10:	____%
						LIDAR (L)											L11:	
						RTMS (R)											R11:	____%
						LIDAR (L)											L12:	
						RTMS (R)											R12:	____%

Version 3.2 11/30/2010

Added 07/27/12

REMOVE AND RELOCATE RTMS POLE

Description. This work shall consist of removing an existing RTMS or CCTV pole and reinstalling the pole atop a helix foundation in a new location within the contract; or removing an existing RTMS or CCTV pole and removal from the job site according to the project plans and as directed by the Engineer.

If the existing pole is not to be reused on site, the pole shall be returned to Tollway ownership as directed by the Engineer.

Installation. The relocated pole mounted assembly shall be installed on a helix foundation in accordance with the project plans or as directed by the Engineer.

The Contractor shall relocate the RTMS or CCTV pole at the locations shown on the plans or as approved by the Engineer.

If the pole is damaged during removal and reinstallation the Contractor shall make the necessary repairs or provide new components necessary to provide a complete and working assembly to the satisfaction to the Engineer and at no additional cost to the Tollway.

Method of Measurement. This work shall be measured for payment in units per each complete and in place.

Testing, aiming, and calibration relocated RTMS units shall be measured for separately as REAIMING RTMS UNITS.

Basis of Payment. This work will be paid for at the contract unit price per each for REMOVE AND RELOCATE RTMS POLE, which price shall be payment in full for the work described herein.

TRAFFIC BARRIER TERMINAL, TYPE T6 (TOLLWAY RECURRING)
Effective: October 1, 2009

Description: This work shall consist of furnishing and erecting traffic barrier terminal as shown in the Plans and/or directed by the Engineer.

Materials: Materials shall be in accordance with Article 631.02 of the Standard Specifications.

Construction Requirements.

General. General requirements for traffic barrier terminal shall be according to the following Article 631.03 of the Standard Specifications, except as modified herein:

Add the following to Article 631.03. The rail elements shall be of uniform section. Warped or deformed elements will be rejected. The edges of the elements shall be rolled or rounded so that they present no sharp edges. All connections and splices shall be made with button head bolts with oval shoulders in such a manner that there will be no appreciable projection on the road side of the guard rail.

Added 07/27/12

Traffic Barrier Terminal, Type T6. The terminal shall include all necessary transitions between the terminal and the item to which it is attached.

When attaching the end shoe to concrete, constructed with forms and with a thickness of 12 in. or less, the holes may be formed, core drilled, or an approved 3/4 in. cast-in-place insert may be used.

When attaching the end shoe to concrete, constructed with forms and with a thickness greater than 12 in. an approved 3/4 in. bolt with an approved expansion device may be used in lieu of core drilled or formed holes.

When attaching the end shoe to concrete constructed by slipforming, the holes shall be core drilled.

The tapered, parapet, wood blockout shall be used on all appurtenances with a sloped face.

Fabrication. The plates for the rail element shall be blanked to proper shape, fabricated, and ready for assembly when received. No punching, drilling, cutting, or welding will be permitted in the field.

Plates in lap splices shall make contact throughout the entire area of the splice.

Erection. Materials or hardware, on which the galvanizing has been damaged shall be replaced with new materials having properly galvanized surfaces, except that, subject to the approval of the Engineer, minor damage to galvanized surfaces may be repaired by field galvanizing in accordance with the recommendations of the American Hot Dip Galvanizers Association.

The rail and post elements shall be erected to the required elevation. The top of the rail shall be visually straight in horizontal alignment and shall be continuously parallel to the roadway profile grade in vertical alignment. If insufficient adjustment is available in the holes, posts shall be reset, at no additional cost to the Tollway, until the traffic barrier terminal is properly aligned. The brackets may be loosely bolted to the posts and, after erection of rail elements, the rail shall be carefully aligned and the bolts then fully tightened. Nuts shall be drawn up tight on all bolts.

Posts. Posts shall be steel. Steel posts may be driven by hand or mechanical methods provided they are protected by a suitable driving cap and the earth around the posts compacted, if necessary, after driving. When steel posts are driven to incorrect alignment or grade, they shall be removed and set according to Article 634.05.

Block-outs. All block-outs shall be wooden. Plastic and/or steel block-outs shall not be permitted.

Contractor's Responsibility For Underground Facilities. It shall be the Contractor's responsibility to ascertain in advance of any work, by any and all possible means, the presence of underground electrical or telecommunications cables in or near the vicinity of the work. It shall be the Contractor's further responsibility to notify the Tollway at least ten days in advance of setting new posts when working near underground electrical or telecommunications cables. Tollway technicians will then locate any such cables which may be in jeopardy.

Added 07/27/12

It shall be the Contractor's responsibility to preserve cable location markings and all information relating thereto given to him, and to effectively communicate such information to his workers. If the Contractor cuts or damages any such cables, either through carelessness or failure to follow the foregoing procedures, he will then be held responsible for repairing all damages or replacing the cable without splicing, at the Tollway's option, and all at no cost to the Tollway or cause for the Contractor claiming delay.

Such repair or replacement shall include the immediate installation by the Contractor, without further notice to him, of temporary cables satisfactory to the Tollway, the temporary cables to remain in service until the directed repairs or replacements are made. Stringing temporary cables on the ground will not be allowed in any circumstances. Temporary cables shall be:

(a) Suitable for direct burial installation, acceptable to the Tollway, and shall be buried to a depth not less than 12 inches;

or

(b) Weather-proof cable, acceptable to the Tollway, and shall be suspended not less than 8 feet above the highest point of terrain between supports, unless otherwise directed by the Tollway. Suspended temporary cables may be attached to existing poles, or, in their absence, shall be attached to supports acceptable to the Engineer, furnished and installed by the Contractor.

Any posts that are to be located near or over any buried cable shall be installed by first digging a hole by hand, and then installing the post and backfilling the hole. No posts shall be driven under such conditions. Care shall be taken while digging by hand so as not to damage the cable.

All efforts on the Tollway's part to advise the Contractor as to the locations of underground cables notwithstanding, it shall be understood that such locations are at best approximate, may be in error, and that such efforts by the Tollway shall not relieve the Contractor of any responsibility for restoring damage resulting from the activities of any employee, Subcontractor, agent, or representative of the Contractor.

The Contractor shall also be responsible for notifying owners of other cables and underground facilities which may be jeopardized by the Contractor's operations in the same manner as required for notice to the Tollway.

Method of Measurement: This work will be measured for payment, complete in place, in units of each.

The pay limits between the traffic barrier terminal and the adjacent guardrail shall be as shown on Tollway Standard Drawing C9.

Basis of Payment: This work will be paid for at the contract unit price per each, for TRAFFIC BARRIER TERMINAL, TYPE T6 as specified, which payment shall constitute full compensation for furnishing and installing all material, including rail, posts, block-outs, plates and hardware; and for all labor, equipment, tools and incidentals necessary to complete the work as specified.

Added 07/27/12

TRAFFIC BARRIER TERMINAL, TYPE T10 (TOLLWAY RECURRING)
Effective: October 1, 2009

Description: This work shall consist of furnishing and erecting traffic barrier terminal as shown in the Plans and/or directed by the Engineer.

Materials: Materials shall be in accordance with Article 631.02 of the Standard Specifications.

Construction Requirements.

General. General requirements for traffic barrier terminal shall be according to the following Article 631.03 of the Standard Specifications, except as modified herein:

Add the following to Article 631.03. The rail elements shall be of uniform section. Warped or deformed elements will be rejected. The edges of the elements shall be rolled or rounded so that they present no sharp edges. All connections and splices shall be made with button head bolts with oval shoulders in such a manner that there will be no appreciable projection on the road side of the guard rail.

Traffic Barrier Terminal, Type T10. The terminal shall include all necessary transitions between the terminal and the item to which it is attached.

If any portion of the existing name plate of the bridge will be covered by the end shoe, the name plate shall be moved to an adjacent area along the rail or end post before the end shoe is installed.

The standard end shoe shall be attached to the existing concrete with pre-drilled or self-drilling anchor bolts. The anchor cone shall be set flush with the surface of the concrete. Externally threaded studs protruding from the surface of the concrete will not be permitted. The standard end shoe shall be placed between the splice plate and the rail element.

The distance between any anchor and the edge of existing concrete shall be 6 inches.

When a bridge expansion joint exists between the end shoe and the first post, all splice bolts at the end shoe shall be fitted with a lock nut or double nuts and tightened only to a point that will allow guardrail movement.

Fabrication. The plates for the rail element shall be blanked to proper shape, fabricated, and ready for assembly when received. No punching, drilling, cutting, or welding will be permitted in the field.

Plates in lap splices shall make contact throughout the entire area of the splice.

Erection. Materials or hardware, on which the galvanizing has been damaged shall be replaced with new materials having properly galvanized surfaces, except that, subject to the approval of the Engineer, minor damage to galvanized surfaces may be repaired by field galvanizing in accordance with the recommendations of the American Hot Dip Galvanizers Association.

Added 07/27/12

The rail and post elements shall be erected to the required elevation. The top of the rail shall be visually straight in horizontal alignment and shall be continuously parallel to the roadway profile grade in vertical alignment. If insufficient adjustment is available in the holes, posts shall be reset, at no additional cost to the Tollway, until the traffic barrier terminal is properly aligned. The brackets may be loosely bolted to the posts and, after erection of rail elements, the rail shall be carefully aligned and the bolts then fully tightened. Nuts shall be drawn up tight on all bolts.

Posts. Posts shall be steel. Steel posts may be driven by hand or mechanical methods provided they are protected by a suitable driving cap and the earth around the posts compacted, if necessary, after driving. When steel posts are driven to incorrect alignment or grade, they shall be removed and set according to Article 634.05.

Block-outs. All block-outs shall be wooden. Plastic and/or steel block-outs shall not be permitted.

Contractor's Responsibility For Underground Facilities. It shall be the Contractor's responsibility to ascertain in advance of any work, by any and all possible means, the presence of underground electrical or telecommunications cables in or near the vicinity of the work. It shall be the Contractor's further responsibility to notify the Tollway at least ten days in advance of setting new posts when working near underground electrical or telecommunications cables. Tollway technicians will then locate any such cables which may be in jeopardy. It shall be the Contractor's responsibility to preserve cable location markings and all information relating thereto given to him, and to effectively communicate such information to his workers. If the Contractor cuts or damages any such cables, either through carelessness or failure to follow the foregoing procedures, he will then be held responsible for repairing all damages or replacing the cable without splicing, at the Tollway's option, and all at no cost to the Tollway or cause for the Contractor claiming delay.

Such repair or replacement shall include the immediate installation by the Contractor, without further notice to him, of temporary cables satisfactory to the Tollway, the temporary cables to remain in service until the directed repairs or replacements are made. Stringing temporary cables on the ground will not be allowed in any circumstances. Temporary cables shall be:

(a) Suitable for direct burial installation, acceptable to the Tollway, and shall be buried to a depth not less than 12 inches;

or

(b) Weather-proof cable, acceptable to the Tollway, and shall be suspended not less than 8 feet above the highest point of terrain between supports, unless otherwise directed by the Tollway. Suspended temporary cables may be attached to existing poles, or, in their absence, shall be attached to supports acceptable to the Engineer, furnished and installed by the Contractor.

Any posts that are to be located near or over any buried cable shall be installed by first digging a hole by hand, and then installing the post and backfilling the hole. No posts shall be driven under such conditions. Care shall be taken while digging by hand so as not to damage the cable.

Added 07/27/12

All efforts on the Tollway's part to advise the Contractor as to the locations of underground cables notwithstanding, it shall be understood that such locations are at best approximate, may be in error, and that such efforts by the Tollway shall not relieve the Contractor of any responsibility for restoring damage resulting from the activities of any employee, Subcontractor, agent, or representative of the Contractor.

The Contractor shall also be responsible for notifying owners of other cables and underground facilities which may be jeopardized by the Contractor's operations in the same manner as required for notice to the Tollway.

Method of Measurement: This work will be measured for payment, complete in place, in units of each.

The pay limits between the traffic barrier terminal and the adjacent guardrail shall be as shown on Tollway Standard Drawing C11.

Basis of Payment: This work will be paid for at the contract unit price per each, for TRAFFIC BARRIER TERMINAL, TYPE T10 as specified, which payment shall constitute full compensation for furnishing and installing all material, including rail, posts, block-outs and hardware; and for all labor, equipment, tools and incidentals necessary to complete the work as specified.

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES

This work shall be according to Section 669 of the Standard Specifications and the following:

Revise the second and third sentence of the first paragraph of Article 669.08 to read: "The affected area shall be monitored with a photo ionization detector (PID) utilizing a lamp of 10.6 eV or greater or an instrument with a flame ionization detector (FID). Any reading on the PID or FID in excess of background levels indicates the potential presence of contaminated material requiring it to be properly managed as either a non-special waste, non-hazardous special waste, or hazardous waste."

Revise the fourth and fifth sentence of the second paragraph of Article 669.08 to read: "When the analytical results indicate that detected levels are at or below the most stringent maximum allowable concentration (MAC) for chemical constituents in uncontaminated soil established pursuant to the proposed Subpart F of 35 Illinois Administrative Code (IAC) 1100.605, the soil excavated shall be included in the storm sewer or earth excavation, as appropriate, and backfill shall be in accordance to Article 205 and/or 208. When the analytical results indicate that detected levels are above the most stringent MAC for chemical constituents in uncontaminated soil established pursuant to the proposed Subpart F of 35 IAC 1100.605, the soil excavated shall be considered a waste and managed appropriately."

Qualifications. The term environmental firm shall mean an environmental firm with at least five (5) documented leaking underground storage tank (LUST) cleanups or that is pre-qualified in hazardous waste by the Department. Documentation includes but not limited to verifying remediation and special waste operations for sites contaminated with gasoline, diesel, or waste oil in accordance with all Federal, State, or local regulatory requirements and shall be provided to the Engineer for approval. The environmental firm selected shall not be a former or current consultant or have any ties with any of the properties contained within and/or adjacent to this construction project.

Added 07/27/12

General. This Special Provision will likely require the Contractor to subcontract for the execution of certain activities.

All contaminated materials shall be managed as either "uncontaminated soil" or non-special waste. This work shall include monitoring and potential sampling, analytical testing, and management of a material contaminated by regulated substances. The Environmental Firm shall continuously monitor all soil excavation for worker protection and soil contamination. **Phase I Preliminary Engineering information is available through the District's Environmental Studies Unit.** Soil samples or analysis without the approval of the Engineer will be at no additional cost to the Department.

A) The Contractor shall manage and dispose of all soils excavated within the following areas as classified below. The lateral distance is measured from centerline and the farthest distance is the offset distance or construction limit whichever is less.

1. Station 2022+70 to Station 2030+50 (IL 173) 0 to 80 feet LT (Undeveloped Land, Site 1953-28, 17146-17320 West IL 173) – non-special waste. Contaminants of concern sampling parameters: Manganese.
2. Station 2019+50 to Station 2030+50 (IL 173) 0 to 60 feet RT (Agriculture Field #2, Site 1953-29/30, 16800-17300 and 16920-16980 West 173) – non-special waste. Contaminants of concern sampling parameters: Manganese.
3. Station 150+60 to Station 156+00 (Southbound Ramp) 0 to 40 feet LT and 0 to 20 feet RT (Agriculture Field #2, Site 1953-29/30, 16800-17300 and 16920-16980 West 173) – non-special waste. Contaminants of concern sampling parameters: Manganese.
4. Station 2033+00 to Station 2036+00 (IL 173) 0 to 140 feet LT and 0 to 60 feet RT (Undeveloped Land, Site 1953-28, 17146-17320 West IL 173) – non-special waste. Contaminants of concern sampling parameters: Manganese.
5. Station 54+00 to Station 58+50 (Ramp A) 0 to 30 feet LT and 0 to 40 feet RT (Agriculture Field #2, Site 1953-29/30, 16800-17300 and 16920-16980 West 173) – non-special waste. Contaminants of concern sampling parameters: Manganese.
6. Station 2041+00 to Station 2050+00 (IL 173) 0 to 70 feet LT and 0 to 90 feet RT (Agriculture Field #3, Site 1953-31, 16650-16980 West 173) – non-special waste. Contaminants of concern sampling parameters: Manganese.
7. Station 3988+50 to Station 4001+50 (I-94) 40 to 110 feet LT (Interstate 94, Site 1953-7, Russell Road to US 41) – non-special waste. Contaminants of concern sampling parameters: Manganese.
8. Station 4021+00 to Station 4041+50 (I-94) 0 to 100 feet LT (Interstate 94, Site 1953-7, Russell Road to US 41) – non-special waste. Contaminants of concern sampling parameters: Lead and Manganese.
9. Station 4048+00 to Station 4050+00 (I-94) 0 to 150 feet LT (Interstate 94, Site 1953-7, Russell Road to US 41) – non-special waste. Contaminants of concern sampling parameters: Manganese.
10. Station 4050+00 to Station 4052+80 (I-94) 0 to 100 feet LT (Interstate 94, Site 1953-7, Russell Road to US 41) – non-special waste. Contaminants of concern sampling parameters: Manganese.
11. Station 4074+30 to Station 4079+50 (I-94 Southbound) 0 to 100 feet LT and 0 to 20 feet RT (Interstate 94, Site 1953-7, Russell Road to US 41) – non-special waste. Contaminants of concern sampling parameters: Manganese.

Added 07/27/12

12. Station 4090+00 to Station 4095+00 (I-94 Southbound) 0 to 120 feet LT and 0 to 20 feet RT (Interstate 94, Site 1953-7, Russell Road to US 41) – non-special waste. Contaminants of concern sampling parameters: Iron and Manganese.
13. Station 4078++00 to Station 4095+30 (I-94 Northbound) 0 to 20 feet LT and 0 to 70 feet RT (Interstate 94, Site 1953-7, Russell Road to US 41) – non-special waste. Contaminants of concern sampling parameters: Lead, Iron, and Manganese.
14. Station 4095+00 to Station 4104+40 (I-94 Southbound) 0 to 70 feet LT and 0 to 20 feet RT (Interstate 94, Site 1953-7, Russell Road to US 41) – non-special waste. Contaminants of concern sampling parameters: Iron and Manganese.
15. Station 4101+50 to Station 4105+55 (I-94 Northbound) 0 to 20 feet LT and 0 to 70 feet RT (Interstate 94, Site 1953-7, Russell Road to US 41) – non-special waste. Contaminants of concern sampling parameters: Iron and Manganese.

B) The Contractor shall manage any excavated soils and sediment **within the construction limits of this project as fill.** Although the soil concentrations may exceed the stringent proposed Maximum Allowable Concentrations (MACs) of Chemical Constituents in Uncontaminated Soils, it does not exceed the proposed MACs for Metropolitan Statistical Area (MSA) County excluding Chicago or MACs within the Chicago corporate limits. Therefore, the following areas can be utilized within the construction limits as fill or managed off-site as "uncontaminated soil" to a Clean Construction and Demolition Debris (CCDD) or Uncontaminated Soil fill operation within the MSA County excluding Chicago and within the Chicago corporate limits. If the soils cannot be utilized within the construction limits as fill or off-site as "uncontaminated soil" to a CCDD or Uncontaminated Soil fill operation, then they must be managed off-site as a non-special waste.

1. Station 3993+00 to Station 3994+50 (I-94) 0 to 20 feet LT and RT (Interstate 94, Site 1953-7, Russell Road to US 41) – uncontaminated soil.

C) The Contractor shall manage any excavated soils and sediment **within the construction limits of this project as fill.** Although the soil concentrations may exceed the stringent proposed Maximum Allowable Concentrations (MACs) of Chemical Constituents in Uncontaminated Soils, it does not exceed the proposed MACs for Metropolitan Statistical Area (MSA) County excluding Chicago. Therefore, the following areas can be utilized within the construction limits as fill or managed off-site as "uncontaminated soil" to a Clean Construction and Demolition Debris (CCDD) or Uncontaminated Soil fill operation within the MSA County excluding Chicago. If the soils cannot be utilized within the construction limits as fill or off-site as "uncontaminated soil" to a CCDD or Uncontaminated Soil fill operation, then they must be managed off-site as a non-special waste.

1. Station 4041+50 to Station 4080+80 (I-94) 0 to 100 feet LT (Interstate 94, Site 1953-7, Russell Road to US 41) – uncontaminated soil.

Any waste generator as a special waste or a waste not certified as a non-special waste from this project should be manifested off-site using the generator number associated with Lake County. **The generator number for Lake County is 0978995044**

Added 07/27/12

UNDERGROUND CONDUIT, PVC COATED, GALVANIZED STEEL

Description. This work shall consist of furnishing and installing conduit, fittings and accessories as part of raceway either laid in trench, bored and pulled in place, or encased in concrete in accordance with applicable portions of Section 810 of the Standard Specifications.

Materials. Materials shall be in accordance with Article 810.02 of the Standard Specifications.

Construction Requirements. Work shall follow the applicable portions of Section 810 of the Standard Specifications.

Method of Measurement. This work shall be measured for payment in units per feet in accordance with Article 810.06 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price per foot for UNDERGROUND CONDUIT, PVC COATED, GALVANIZED STEEL of the size specified, which price shall be payment in full for the work described herein.

BIKE PATH APPROACH GURADRAIL ADJUSTMENT

Description. This work shall consist of furnishing and installing a protective guardrail extension on steel plate beam guardrail and guardrail terminals as shown on the plans and directed by the Engineer.

Materials.

A. The galvanized steel angles shall meet the requirements of steel posts according to Article 1006.23 of the Standard Specifications, and shall be cut to the size and dimensions shown on the plans.
B. The bolts and nuts for connections shall be according to Article 1006.25 of the Standard Specifications.
C. The plastic lumber shall be of the sizes shown on the plans and shall be supplied from one of the following manufacturers, in the color listed, or an approved equal:
    1.) Engineering Plastic Systems, LLC
    David Cook
    V.P. Sales and Marketing
    740 Industrial Dr. Suite B
    Cary, IL 60013
    PH: 847-462-9001
    Fax: 847-4642-9002
    davidcook@epsplasticlumber.com
    www.epsplasticlumber.com
    Required Manufacturer's color: GREY

Added 07/27/12

2.) American Plastic Lumber
PO Box 514
Shingle Springs, CA 95682
PH 530-677-7700
Toll Free 1-877-677-7701
Fax 530-677-6718
www.american-plasticlumber.com
Required Manufacturer's color: LIGHT GREY

3.) American Composite Timbers
366 Veterans Memorial Highway
Commack, NY 11725
PH 631.543.9200
Fax 631.543.5899
infor@compositetimbers.com
Required Manufacturer's color: GREY

A sample of the plastic lumber in both size and color shall be submitted to the Engineer for approval prior to ordering the material. The Engineer is the sole judge of what is an equivalent substitution.

Construction Requirements. Installation of the bike path approach guardrail adjustment shall be according to the applicable portions of Section 664 of the Standard Specifications, the special detail, and the manufacturer's recommendation. Bolts shall not be overtightened. The plastic lumber shall be allowed expansion and contraction movements through the bolt holes.
Method of Measurement. BIKE PATH APPROACH GURADRAIL ADJUSTMENT will be measured for payment in feet along the top of the installed rubrail.

Basis of Payment. This work will be paid for at the contract unit price per foot for BIKE PATH APPROACH GURADRAIL ADJUSTMENT which shall include furnishing and installing the protective guardrail extension, including all steel angles, railing connections, bolts, nuts, and plastic lumber.

TRAINING SPECIAL PROVISIONS

This Training Special Provision supersedes Section 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities," and is in implementation of 23 U.S.C. 140(a).

As part of the contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The contractor shall provide on-the-job training aimed at developing full journeyman in the type of trade or job classification involved. The number of trainees to be trained under this contract will be **7**. In the event the contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

Added 07/27/12

The number of trainees shall be distributed among the work classifications on the basis of the contractors' needs and the availability of journeymen in the various classifications within the reasonable area of recruitment. Prior to commencing construction, the contractor shall submit to the Illinois Department of Transportation for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g. by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Illinois Department of Transportation and the Federal Highway Administration. The Illinois Department of Transportation and the Federal Highway Administration shall approve a program, if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved by not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Illinois Department of Transportation and the Federal Highway Administration. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Added 07/27/12

Except as otherwise noted below, the contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, reimbursement will be made for training of persons in excess of the number specified herein. This reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirement of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program.

It is not required that all trainees be on board for the entire length of the contract. A contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The contractor shall furnish the trainee a copy of the program he will follow in providing the training. The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily complete.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

METHOD OF MEASUREMENT The unit of measurement is in hours.

BASIS OF PAYMENT This work will be paid for at the contract unit price of 80 cents per hour for TRAINEES. The estimated total number of hours, unit price and total price have been included in the schedule of prices.

Added 07/27/12

IDOT TRAINING PROGRAM GRADUATE ON-THE-JOB TRAINING SPECIAL PROVISION (TPG)

Effective: August 1, 2012

In addition to the Contractor's equal employment opportunity affirmative action efforts undertaken as elsewhere required by this Contract, the Contractor is encouraged to participate in the incentive program to provide additional on-the-job training to certified graduates of IDOT's community college pre-apprenticeship programs outlined by this Special Provision.

It is the policy of IDOT to fund IDOT pre-apprenticeship training programs based at Illinois Community Colleges throughout Illinois, by Intergovernmental Agreement with the Illinois Community College Board, to provide training and skill-improvement opportunities to assure the increased participation of minority groups, disadvantaged persons and women in all phases of the highway construction industry. The intent of this IDOT Training Program Graduate (TPG) Special Provision is to place certified graduates of these IDOT funded pre-apprentice training programs on IDOT project sites when feasible, and provide the graduates with meaningful on-the-job training intended to lead to journey-level employment. IDOT and its sub-recipients, in carrying out the responsibilities of a state contract, shall determine which state funded construction contracts shall include "Training Program Graduate (TPG) Special Provisions." To benefit from the incentives to encourage the participation in the additional on-the-job training under this Training Program Graduate (TPG) Special Provision, the Contractor shall make every reasonable effort to employ certified graduates of the IDOT funded Pre-apprenticeship Training Program to the extent such persons are available within a reasonable recruitment area.

Participation pursuant to IDOT's requirements by the Contractor or subcontractor in this Training Program Graduate (TPG) Special Provision entitles the Contractor or subcontractor to be reimbursed at $10.00 per hour for training given a certified graduate trainee on this contract. As approved by the Department, reimbursement will be made for training persons as specified herein. This reimbursement will be made even though the Contractor or subcontractor may receive additional training program funds from other sources for other trainees, provided such other source does not specifically prohibit the Contractor or subcontractor from receiving other reimbursement. For purposes of this Special Provision the Contractor is not relieved of requirements under the Illinois Prevailing Wage Act and is not eligible for other training fund reimbursements in addition to the Training Program Graduate (TPG) Special Provision reimbursement.

No payment shall be made to the Contractor if the Contractor or subcontractor fails to provide the required training. It is normally expected that a TPG will begin training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project through completion of the contract, so long as training opportunities exist in his work classification or until he has completed his training program. Should the TPG's employment end in advance of the completion of the contract, the Contractor shall promptly notify the designated IDOT staff member under this Special Provision that the TPG's involvement in the contract has ended and supply a written report of the reason for the end of the involvement, the hours completed by the TPG under the Contract and the number of hours for which the incentive payment provided under this Special Provision will be or has been claimed for the TPG.

The Contractor will provide for the maintenance of records and furnish periodic reports documenting its performance under this Special Provision.

Added 07/27/12

METHOD OF MEASUREMENT: The unit of measurement is in hours.

BASIS OF PAYMENT: This work will be paid for at the contract unit price of $10.00 per hour for TRAINEES TRAINING PROGRAM GRADUATE. The estimated total number of hours, unit price and total price have been included in the schedule of prices.

The Contractor shall provide training opportunities aimed at developing full journeyworker in the type of trade or job classification involved. The initial number of TPGs for which the incentive is available under this contract is **7 Trainees**. During the course of performance of the Contract the Contractor may seek approval from the Department for additional incentive eligible TPGs. In the event the Contractor subcontracts a portion of the contract work, it shall determine how many, if any, of the TPGs are to be trained by the subcontractor, provided however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by this Special Provision. The Contractor shall also insure that this Training Program Graduate Special Provision is made applicable to such subcontract if the TPGs are to be trained by a subcontractor and that the incentive payment is passed on to each subcontractor.

For the Contractor to meet the obligations for participation in this TPG incentive program under this Special Provision, the Department has contracted by Intergovernmental Agreement with the Illinois Community College Board to provide screening, tutoring and pre-training to individuals interested in working in the applicable construction classification and has certified those students who have successfully completed the program and are eligible to be TPGs. A designated IDOT staff member, the Director of the Office of Business and Workforce Diversity (OBWD), will be responsible for providing assistance and referrals to the Contractor for the applicable TPGs. For this contract, the Director of OBWD is designated as the responsible IDOT staff member to provide the assistance and referral services related to the placement for this Special Provision. For purposes of this Contract, contacting the Director of OBWD and interviewing each candidate he/she recommends constitutes reasonable recruitment.

Prior to commencing construction, the Contractor shall submit to the Department for approval the TPGs to be trained in each selected classification. Furthermore, the Contractor shall specify the starting time for training in each of the classifications. No employee shall be employed as a TPG in any classification in which he/she has successfully completed a training course leading to journeyman status or in which he/she has been employed as a journeyman. Notwithstanding the on-the-job training purpose of this TPG Special Provision, some offsite training is permissible as long as the offsite training is an integral part of the work of the contract and does not comprise a significant part of the overall training.

Training and upgrading of TPGs of IDOT pre-apprentice training programs is intended to move said TPGs toward journeyman status and is the primary objective of this Training Program Graduate Special Provision. Accordingly, the Contractor shall make every effort to enroll TPGs by recruitment through the IDOT Illinois Community College Program to the extent such persons are available within a reasonable area of recruitment. The Contractor will be responsible for demonstrating the steps that it has taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance and entitled to the Training Program Graduate TPG Special Provision $10.00 an hour incentive.

The Contractor or subcontractor shall provide each TPG with a certification showing the type and length of training satisfactorily completed.

Added 07/27/12

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES (BDE)
Effective: January 1, 2012

Revise Article 669.01 of the Standard Specifications to read:

"**669.01 Description.** This work shall consist of the transportation and proper disposal of contaminated soil and water. This work shall also consist of the removal, transportation, and proper disposal of underground storage tanks (UST), their content and associated underground piping to the point where the piping is above the ground, including determining the content types and estimated quantities."

Revise the second paragraph of Article 669.16 of the Standard Specifications to read:

"The transportation and disposal of soil and other materials from an excavation determined to be contaminated will be paid for at the contract unit price per cubic yard (cubic meter) for NON-SPECIAL WASTE DISPOSAL, SPECIAL WASTE DISPOSAL, or HAZARDOUS WASTE DISPOSAL."

PUBLIC CONVENIENCE AND SAFETY (DIST 1)
Effective: May 1, 2012 Revised: July 15, 2012

Add the following to the end of the fourth paragraph of Article 107.09:

"If the holiday is on a Saturday or Sunday, and is legally observed on a Friday or Monday, the length of Holiday Period for Monday or Friday shall apply."

Add the following sentence after the Holiday Period table in the fourth paragraph of Article 107.09:

"The length of Holiday Period for Thanksgiving shall be from 5:00 AM the Wednesday prior to 11:59 PM the Sunday after"

Delete the fifth paragraph of Article 107.09 of the Standard Specifications:

"On weekends, excluding holidays, roadways with Average Daily Traffic of 25,000 or greater, all lanes shall be open to traffic from 3:00 P.M. Friday to midnight Sunday except where structure construction or major rehabilitation makes it impractical."

Added 07/27/12

404 PERMIT

DEPARTMENT OF THE ARMY
CHICAGO DISTRICT, CORPS OF ENGINEERS
111 NORTH CANAL STREET
CHICAGO, ILLINOIS 60606-7206

REPLY TO
ATTENTION OF:

60L77

July 6, 2012

Technical Services Division
Regulatory Branch
LRC-2011-00806

SUBJECT: Authorization to Fill 0.90 Acres of Wetland for the I-94 Widening from Illinois Route173 to the Wisconsin State Line and Associated Activities in Wadsworth and Old Mill Creek in Lake County, Illinois

John Fortmann
Illinois Department of Transportation
Division of Highways / District 1
Schaumburg, Illinois 60196

Dear Mr. Fortmann:

The U.S. Army Corps of Engineers, Chicago District, has completed its review of your notification for authorization under the Regional Permit Program (RPP). This office has verified that your proposed activity complies with the terms and conditions of Regional Permit 3 (Transportation Projects) and the overall RPP under Category II of the Regional Permit Program dated April 1, 2012.

This verification expires three (3) years from the date of this letter and covers only your activity as described in your notification and as shown on the plans entitled "Proposed Highwy Plans – RAI Route 94: INT 94/US 41 Wisconsin State Line to IL 173 – Section 49-1-R-1 – Project: [Blank] – Additional Lanes / Interchange Reconstruction – Lake County – C-91-020-11" dated April 6, 2012 (revised May 15. 2012), prepared by Bowman, Barrett & Associates, Inc. Caution must be taken to prevent construction materials and activities from impacting waters of the United States beyond the scope of this authorization. If you anticipate changing the design or location of the activity, you should contact this office to determine the need for further authorization.

The activity may be completed without further authorization from this office provided the activity is conducted in compliance with the terms and conditions of the RPP, including conditions of water quality certification issued under Section 401 of the Clean Water Act by the Illinois Environmental Protection Agency (IEPA). If the design, location, or purpose of the project is changed, you should contact this office to determine the need for further authorization

The following special conditions are a requirement of your authorization:

1. This authorization is contingent upon implementing and maintaining soil erosion and sediment controls in a serviceable condition throughout the duration of the project. You

Added 7-27-2012

shall comply with the project's soil erosion and sediment control (SESC) plans and the installation and maintenance requirements of the SESC practices on-site. You shall notify this office any changes or modifications to the approved plan set. Please be aware that field conditions during project construction may require the implementation of additional SESC measures for further protection of aquatic resources. If you fail to implement corrective measures, this office may require more frequent site inspections to ensure the installed SESC measures are acceptable. Please be aware that work authorized herein may not commence until you receive written notification from this office that your plans meet technical standards.

As part of the soil erosion and sediment control (SESC) process, you are required to retain a qualified Independent SESC Inspector (ISI) to review the project's SESC plans and provide a detailed narrative that explains the measures to be implemented at the project site. The ISI is also required to perform site inspections of the implemented SESC measures to ensure proper installation and regular maintenance of the approved methods. The following requirements apply:

a. You shall contact this office prior to the preconstruction meeting so that a representative of this office may attend. The meeting agenda will include a discussion of the SESC plan and the installation and maintenance requirements of the SESC practices on the site.

b. Prior to commencement of any in-stream work, you shall submit constructions plans and a detailed narrative to this office that disclose the contractor's preferred method of cofferdam and dewatering method.

c. You shall retain a qualified SESC inspector to perform periodic inspections of the implemented SESC measures to ensure proper installation and regular maintenance of the approved methods. The contact information for the Independent SESC Inspector (ISI) shall be submitted to this office via e-mail and/or hard copy prior to the Corps counter-signature on the permit and prior to commencement of the permitted work;

d. Provide prior notification to a representative of this office and to the designated Independent SESC Inspector of the pre-construction meeting at least 10 calendar days in advance. The meeting shall be held to review the Corps approved SESC plans and if applicable, to discuss any necessary changes as required. The SESC inspector shall submit digital photographs of the SESC measures to the Corps on a weekly basis during the active and non-active phases of construction that represent the existing conditions of the site. Photographs shall be submitted at the completion of the project once the SESC measures have been removed and the area has been restored to pre-construction conditions; and

e. You shall contact this office immediately in the event of any changes or modifications to the approved plan set and non-compliance and/or failure/inadequacy of an existing SESC method. Upon direction of the Corps,

Added 7-27-2012

corrective measure shall be instituted at the site to correct the problem along with additional SESC measures which may be needed to ensure further protection of the resource and/or to restore the impacted jurisdictional area(s).

2. A copy of this authorization must be present at the project site during all phases of construction.

3. You shall notify this office of any proposed modifications to the project, including revisions to any of the plans or documents cited in this authorization. You must receive approval from this office before work affected by the proposed modification is performed.

4. You shall notify this office prior to the transfer of this authorization and liabilities associated with compliance with its terms and conditions. The transferee must sign the authorization in the space provided and forward a copy of the authorization to this office.

This office is in receipt of a the IDOT Ledger for the Lily Cache Wetland Mitigation Bank confirming your debit of 1.69 acres (1.36 acres for jurisdictional impacts) of uncertified mitigation credits.

Attached is an approved jurisdictional determination (JD). If you are not in agreement with that approved JD, you can make an administrative appeal under 33 CFR 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and a Request for Appeal (RFA) form. If you choose to appeal this JD, please fill out the RFA form and submit a completed RFA form to the Great Lakes/Ohio River Division Office at the following address:

US Army Corps of Engineers
Great Lakes and Ohio River Division
550 Main Street - 10th floor
Room 10032
Cincinnati, Ohio 45202-3222
ATTN: Regulatory Appeals Review Officer
(513) 684-6212

In order to be accepted, your RFA must be complete, meet the criteria for appeal and be received by the Division Office within sixty (60) days of the date of the NAP. If you concur with the determination in this letter, submittal of the RFA form to the Division office is not necessary.

The authorization is without force and effect until all other permits or authorizations from local, state, or other Federal agencies are secured. Please note that IEPA has issued Section 401 Water Quality Certification for this RP. These conditions are included in the enclosed fact sheet. If you have any questions regarding Section 401 certification, please contact Mr. Dan Heacock at IEPA's Division of Water Pollution Control, Permit Section #15, by telephone at (217) 782-3362.

Added 7-27-2012

Once you have completed the authorized activity, please sign and return the enclosed compliance certification. If you have any questions, please contact Mr. Soren Hall of my staff by telephone at 312-846-5532, or email at Soren.G.Hall@usace.army.mil.

Sincerely,

Kathleen G. Chernich
Chief, East Section
Regulatory Branch

Leesa A. Beal
Chief, Regulatory Branch
Chicago District

Enclosures

Copy Furnished:
Hey and Associates (Steve Rauch)

Added 7-27-2012