

Abstract

Before letting any project, engineers at Texas Department of Transportation have to estimate unit bid prices for winning bidder. Our team at the Center for Transportation Research, UT Austin has created a tool which can be used for plan estimate development to achieve plan estimate within 5% of contractor's bid for each plan set. This tool automatically consolidates and analyzes previous bid tabs to estimate the best bid items prices. A separate version of this tool has been developed to detect the unusual projects where engineer's estimate of total project cost and winning bidder bid for total project cost deviates more than a given threshold. Additionally, this tool identifies crucial items within a project that are responsible for deviation in Engineer's estimate and winners bid. This tool has been built entirely using excel VBA and does not require any sophisticated programming packages or solver. This tool has been found to provide better and reliable price estimates on previous projects.

Tool Interface

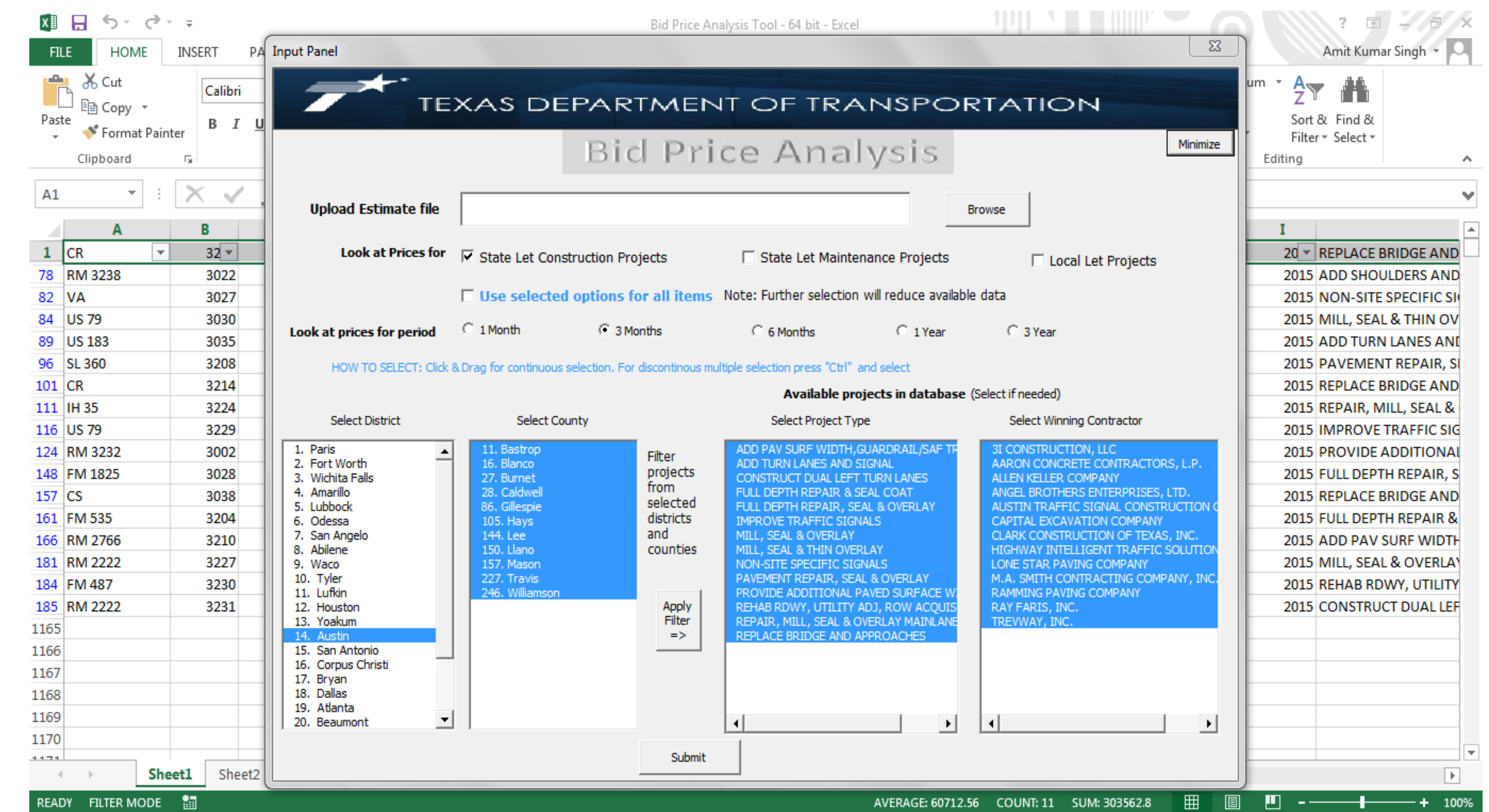
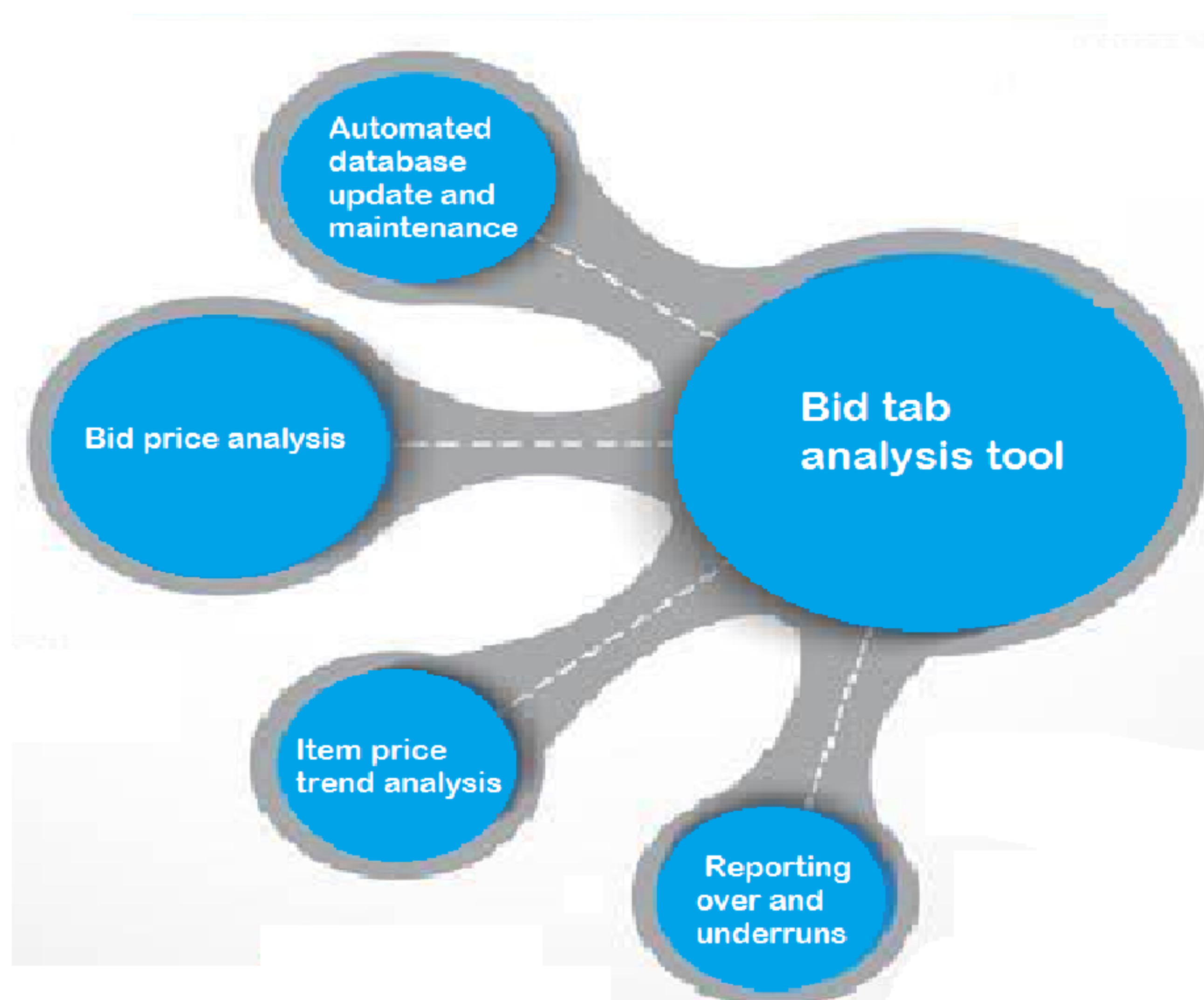


Figure 1. Bid price analysis tool interface

Features



Result Panel

PREPARED BY: CONTROL: 0440-04-014, ETC.
HIGHWAY: RM 243
COUNTY: BURNET

PROGRAM ESTIMATE
TEXAS DEPARTMENT OF TRANSPORTATION

TYPE: SAFETY TREAT FIXED OBJECTS

LENGTH: FEET = 65700
MILES = 12.44318182

LIMITS: FROM SH 29 TO WILLIAMSON C/L

DATE: 10/27/2015

ITEM NO.	DESC	SPEC	DESCRIPTION	UNIT	QTY	PRICE	AMOUNT	Price	25th Percentile	50th Percentile	t-stats
100	2002	2	PREPARING ROW	STA	380	\$750.00	\$285,000.00	479.34	264.57	830.88	-3.77
110	2001	0	EXCAVATION (ROADWAY)	CY	21562	\$10.00	\$215,620.00	9.14	7.04	11.23	-9.18
162	2003	11	EMBANKMENT (FINAL)(GRD COMP)(TY B)	CY	3357	\$10.00	\$33,570.00	17.77	14.23	21.63	-2.05
160	2003	0	FURNISHING AND PLACING TOPSOIL (4")	SY	77559	\$1.25	\$96,948.75	0.93	0.87	1.28	-10.86
164	2003	4	BROADCAST SEED (PERM) (RURAL) (CLAY)	SY	53167	\$0.10	\$5,316.70	0.09	0.08	0.1	-3.91
164	2009	4	BROADCAST SEED (TEMP) (WARM)	SY	25850	\$0.20	\$5,170.00	0.11	0.08	0.15	-3.01
164	2011	4	BROADCAST SEED (TEMP) (COOL)	SY	25850	\$0.10	\$2,585.00	0.1	0.08	0.14	-3.75
164	2035	4	DRILL SEEDING (PERM) (RURAL) (CLAY)	SY	58167	\$0.15	\$8,725.05	0.08	0.08	0.25	-0.78
168	2001	0	VEGETATIVE WATERING	MG	2325	\$18.00	\$41,850.00	12.52	8.84	18.74	-12.95
169	2006	2	SOIL RETENTION BLANKETS (CL 2) (TY F)	SY	12049	\$1.75	\$21,085.75	1.21	1.15	1.35	-6.3
169	2007	2	SOIL RETENTION BLANKETS (CL 2) (TY G)	SY	2376	\$5.00	\$11,880.00	4.6	4.25	6.02	-1.68
247	2392	40	FL BS(CMP IN PLC)(TY D GR S)(FNAL POS)	CY	12428	\$42.00	\$521,976.00	37.34	36.5	37.34	X
310	2005	0	PRIME COAT (MC-30 OR AE-P)	GAL	13619	\$4.50	\$61,285.50	4.09	3.91	4.58	-5.16
316	2706	16	ASPH (TIER II)	GAL	48919	\$4.00	\$195,676.00	3.82	3.58	4.11	-11.22
316	2718	16	AGGR (TIER II)	CY	1112	\$85.00	\$94,520.00	72.26	60.07	93.25	-8.19
400	2002	4	STRUCT EXCAV (BOX)	CY	20	\$15.00	\$300.00	20.76	4.35	20.76	X
400	2003	4	GRIT RESISTING PAV (ASPH)	SY	33	\$300.00	\$9,900.00	98.78	80.47	123.19	-4.65
401	2001	0	FLOWABLE BACKFILL	CY	64	\$130.00	\$8,320.00	126.87	109.06	156.33	-7.35
402	2001	4	TRENCH EXCAVATION PROTECTION	LF	42	\$5.00	\$210.00				
430	2009	0	CL C CONC FOR EXT STRU(CULV)(6X 3)	LF	15	\$750.00	\$11,250.00	350	330.53	413.14	-2.78
430	2036	0	CL C CONC FOR EXT STRU (CULV)(8X8)	LF	20	\$650.00	\$13,000.00	651.94	586.48	785.39	0.39
432	2001	0	RIPRAP (CONC)(4 IN)	CY	24	\$380.00	\$9,120.00	449.23	395.41	499.48	-10.53
432	2001	0	RIPRAP (CONC)(4 IN)	CY	20	\$400.00	\$8,000.00	455.31	401.48	507.86	-10.53
PROJECT TOTAL							\$3,242,205.48				

Project description
Total Project Cost

Individual Item Price Result

Figure 2. Result Panel