

ESTIMATING SOFTWARE DEVELOPED BY ENGINEERS, FOR ENGINEERS

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Volkert, Inc.



Overview - Agenda

- History of how these tools came to be
- Developing the solutions
- What are these tools
- Evolution of the tools

History

- Off the Shelf Tools

- Often these did not do what is needed by the user
- Expensive and inflexible

- Using Internal Information

- Published information was often averages, which are of limited accuracy
- Information was dated and inconsistent
- Static

Solutions

- There were needs

- Across the State, users needed something to fill the void
- Info supplied by VDOT was unsearchable and price info was only averages and lagged.
- There was a lack of available tools
- Necessity is the mother of invention

- Tool creation by user

- In general, users are not normally programmers
- If given the choice, I'd rather have bad code and a useful product.
- More user friendly

Tool Development

Tool #1: Statewide Bidtab Query

Statewide Bidtab Query

- The most common estimating method
 - Historical bid-based – uses recently let contract data to determine unit prices
 - Originally developed as a Construction tool for construction claims/change order analysis.

Date Printed: 01/10/2022
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Tabulation of Bids

Contract ID: C0000106670C01 **Counties:** CAROLINE
Letting Date: November 17, 2021 **District(s):** FREDERICKSBURG / FREDERICKSBURG
Call Order: F31 **Project(s):** NFO 0639-016-623,C501, STP-016-6(063); 0639-016-623,C501, STP-016-6(063);

Contract Time: 12/05/23 COMPLETION DATE **Min:** **Max:**
Contract Description: SMART SCALE - ROADWAY WIDENING

Line No / Item ID Item Description	Alt Set / Alt Member	Quantity and Units	(1) J. L. KENT & SONS, INC.		(2) CATON CONSTRUCTION GROUP, INC.		(3) CURTIS CONTRACTING, INC.	
			Unit Price	Ext Amount	Unit Price	Ext Amount	Unit Price	Ext Amount
SECTION: 0001		REGULAR ITEMS	Cat Alt Set:		Cat Alt Member:		LCC:	
0010 00100		(1)	370,000.00000	370,000.00	695,000.00000	695,000.00	755,000.00000	755,000.00
MOBILIZATION		LS						
0020 00101		(1)	186,700.00000	186,700.00	200,000.00000	200,000.00	121,548.74000	121,548.74
CONSTRUCTION SURVEYING CONSTRUCTION		LS						
0030 00110		(1)	153,000.00000	153,000.00	420,000.00000	420,000.00	1,625,287.00000	1,625,287.00
CLEARING AND GRUBBING		LS						
0040 00120		32,483.000	32.10000	1,042,704.30	28.00000	909,524.00	28.76000	934,211.08
REGULAR EXCAVATION		CY						
0050 00140		27,877.000	16.90000	471,121.30	26.00000	724,802.00	23.74000	661,799.98
BORROW EXCAVATION		CY						
0060 00211		291.100	15.60000	4,541.16	45.00000	13,099.50	13.32000	3,877.45

Let's Look at Statewide Bid Tab Query

Statewide Bid Tab Query

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Item Code

District

County

Quantity between &

Contracts Let between &

Apply Inflation

Order Number

Contract Totals between \$ & \$

Highway System

Custom Additions

Exclude High & Low Bids from Stats

Search Criteria AND

Unit of Measure

Bidder

Vendor Number

Item Description

Category

Bidtabs Searched Current

Contract ID

Contract Description

Route

Convert

Only past 24 Months of bid history

Metric to English

Submit Clear Input Show Query Criteria Order By Order Number in Ascending order Additional Web Applications Back

Item Code	Item Name	Bidder	Letting Date	Quantity	Bid Price	District	Contract ID
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Development

- There were needs
 - It was based on a previous application for searching the Statewide Structures Database
 - It started as a construction claims/work order analysis tool
 - It evolved into a statistical analysis tool, eventually supplying information for estimating

Development

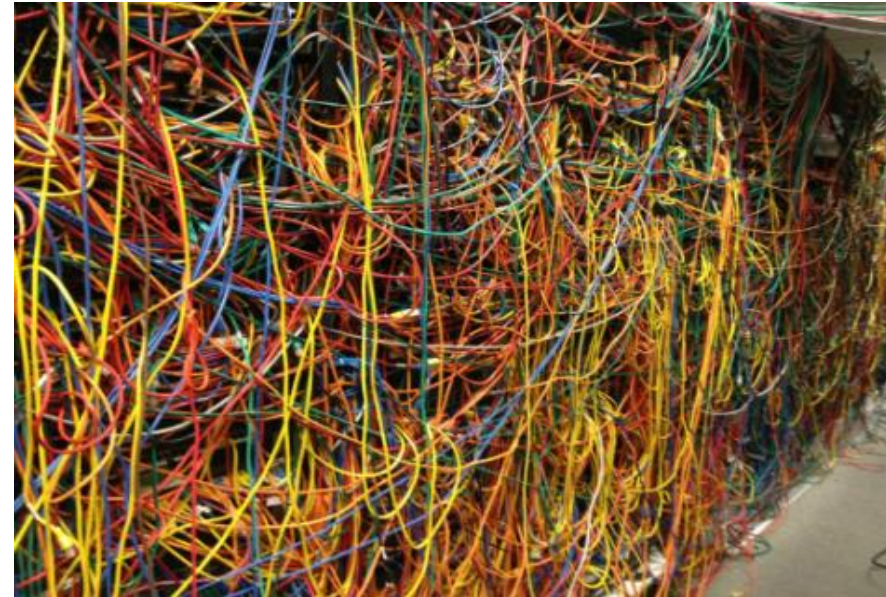
- It is not pretty

Development

- It is 10,000 Lines of code. I'm sure a good programmer could easily have done that in much fewer lines.
- An Experienced Programmer's Code

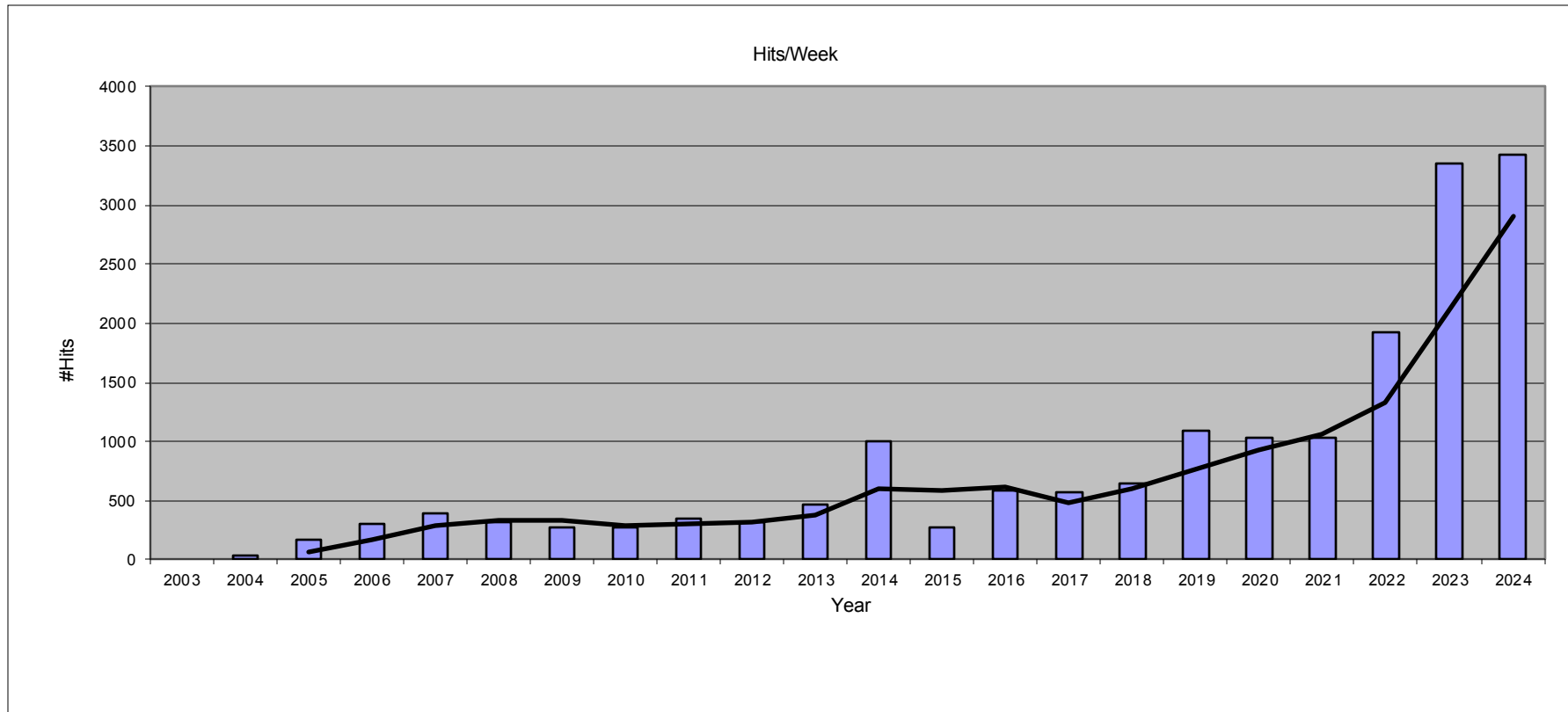


My Code



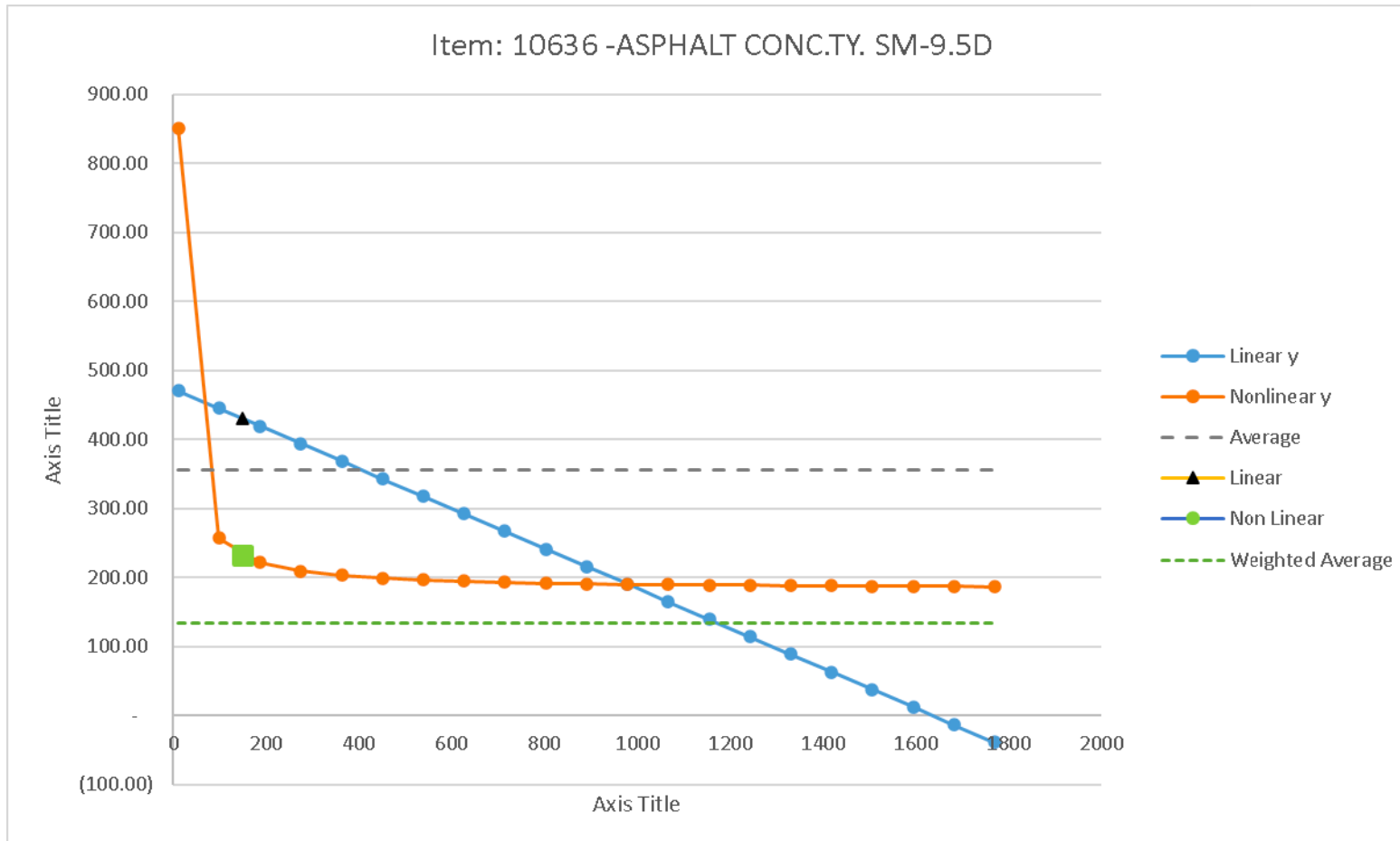
Statewide Bidtab Query

- The Application has been around since October 2004.
- Its 5-year rolling average usage increase is 131%/year



Statistical Methods / Best Practices

- Statistical methods to use to analyze the Bid Tabs to generate unit costs

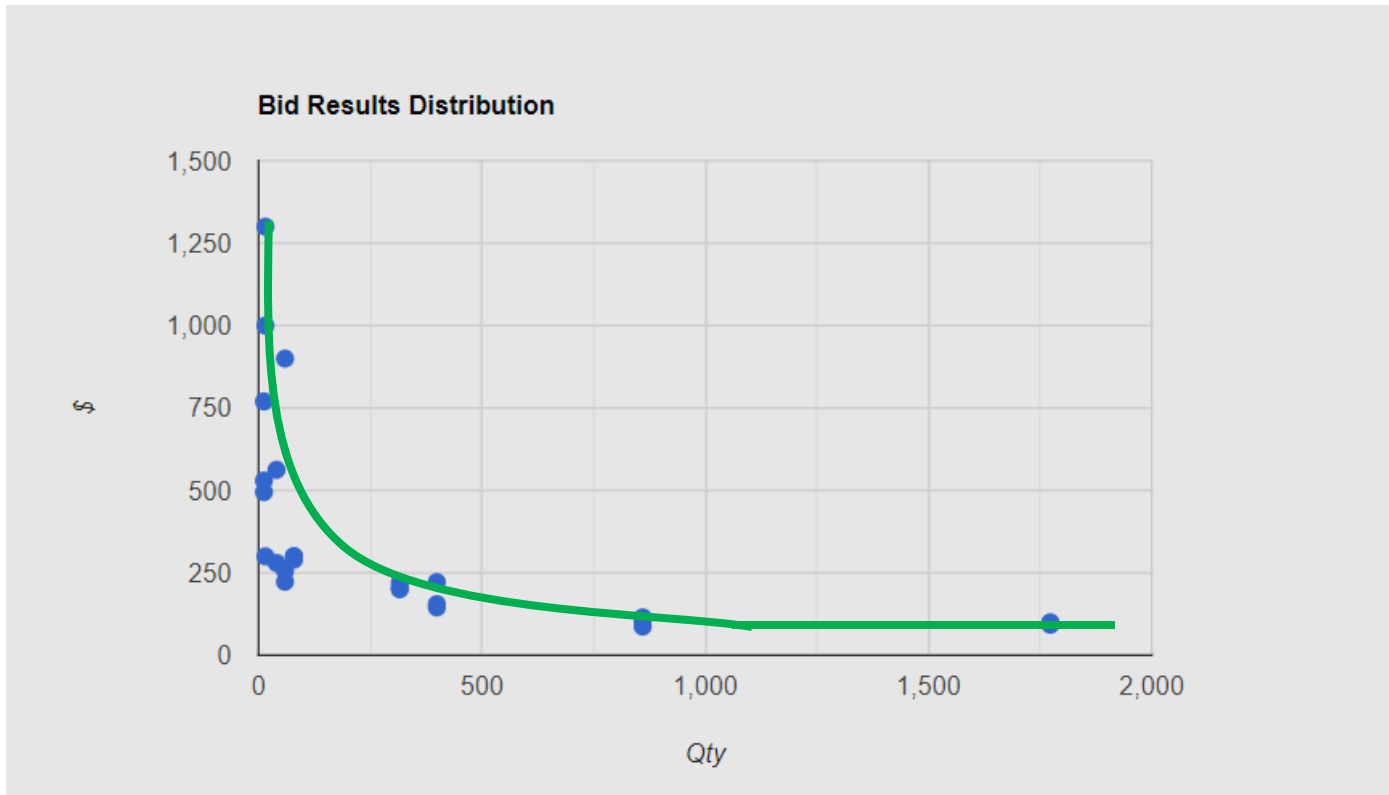


- **Average**
- **Weighted average**
- **Linear regression**
- **Nonlinear regression**

- **Chapter 4.3 of the VDOT Cost Estimating Manual (CEM)**

Statistical Methods / Best Practices

- Statistical methods to use to analyze the Bid Tabs to generate unit costs
 - Item #120 Regular Excavation, NoVA District.



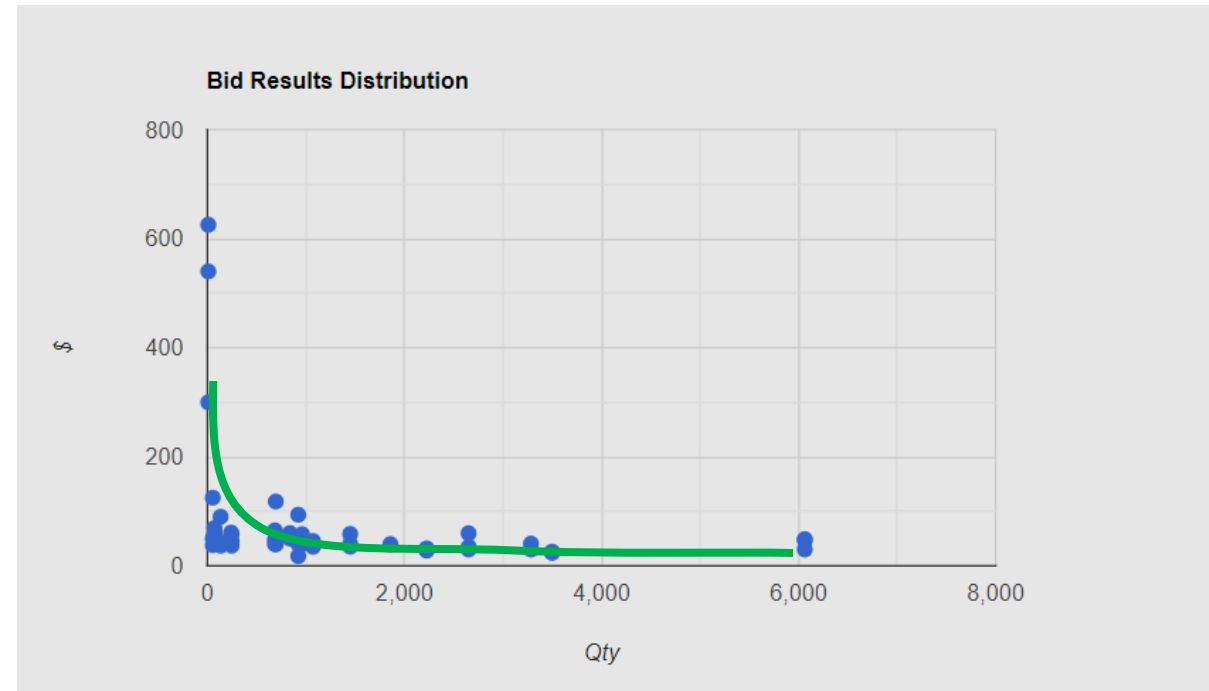
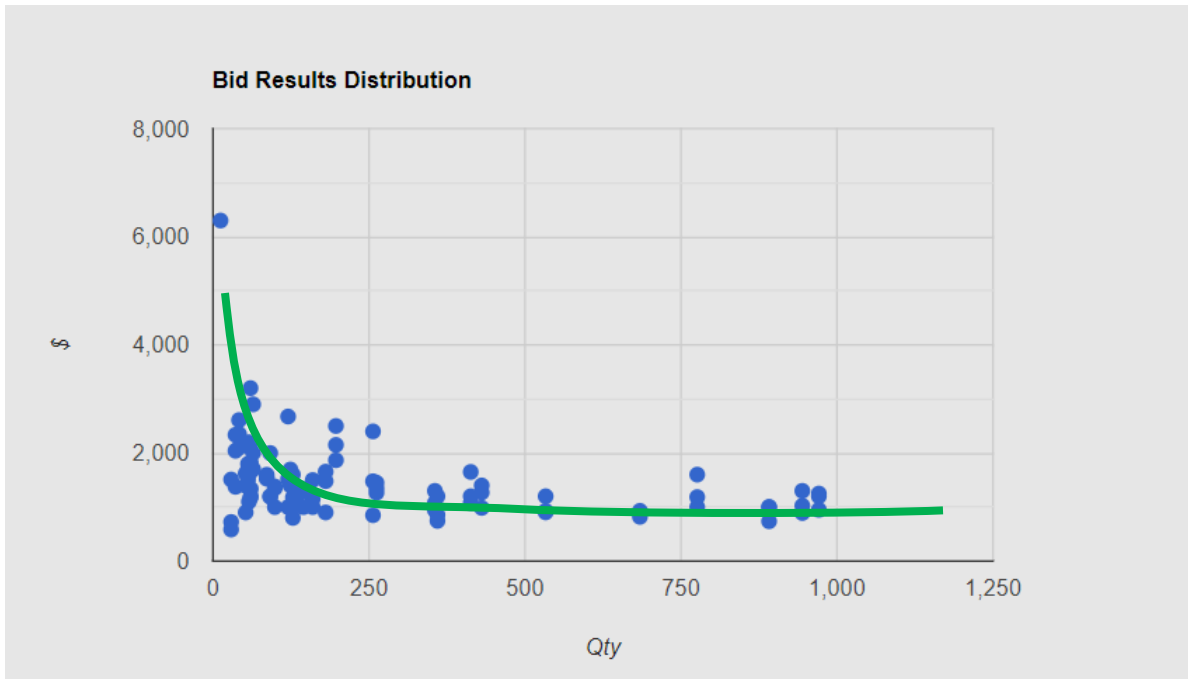
With the exception of Lump Sum (LS) Items, nearly every item in VDOT's bid list exhibits a non-linear distribution

Statistical Methods / Best Practices

- More Examples of Nonlinear Distribution of bid vs quantity.

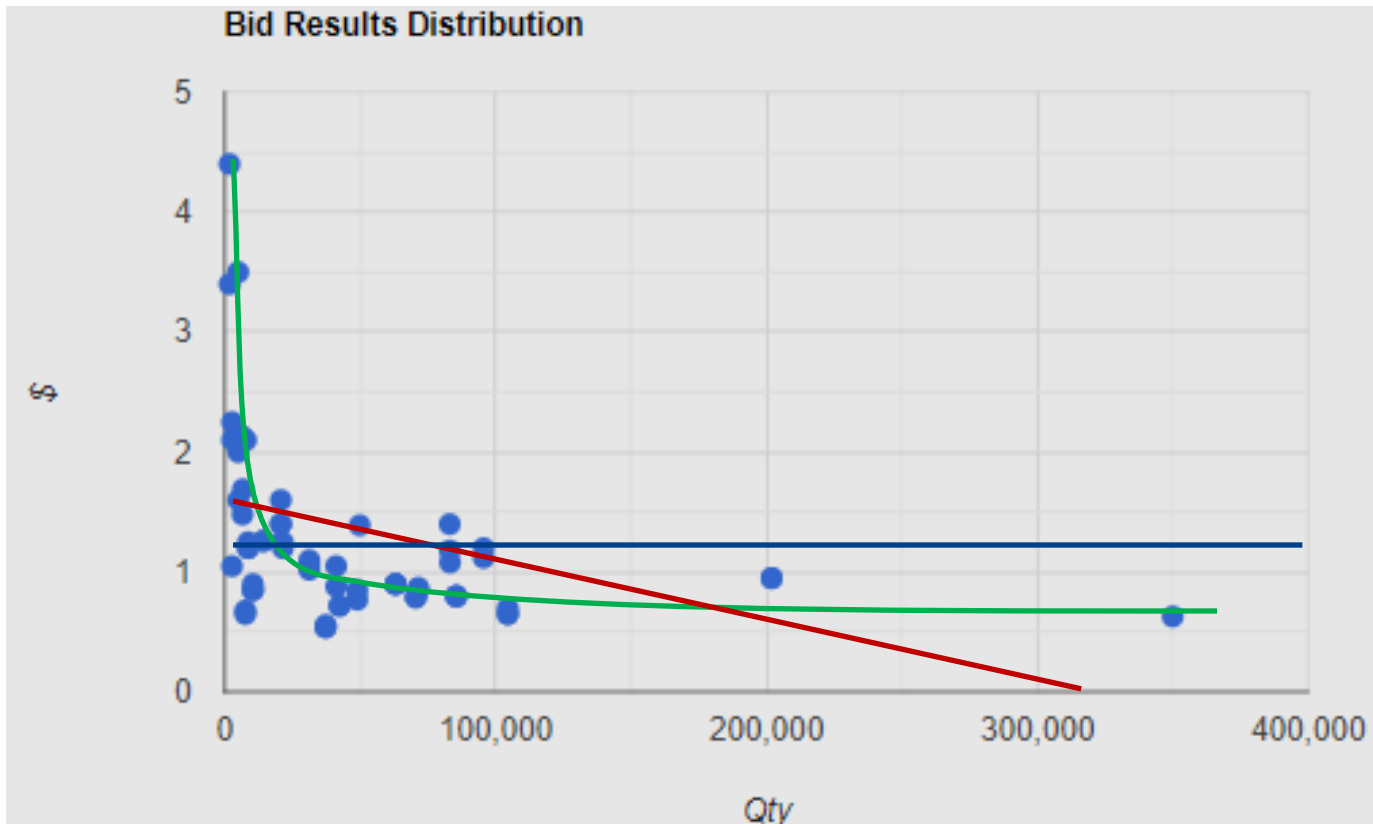
• Item #60409 Bridge Deck Conc. (Statewide)

Item #10128 Agg. Base Mat'l Ty. 21-B (Rich. Dist)



Statistical Methods / Best Practices

- Statistical methods to use to analyze the Bid Tabs to generate unit costs
 - Item #54032 TYPE B CLASS I PVMT LINE MRKG 4", Lynchburg District.



As you can see, the Nonlinear model closely follows the data distribution, whereas the linear regression and average is only accurate for a very small range.

Let's Look at Statewide Bid Tab Query

Statewide Bid Tab Query

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[Item Code](#)

[District](#)

[County](#)

[Quantity between](#) &

[Contracts Let between](#) &

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[Route](#)

[Convert](#)

[Only past 24 Months of bid history](#)

Submit Clear Input Show Query Criteria Order By: in: order Additional Web Applications Back

Item Code	Item Name	Bidder	Letting Date	Quantity	Bid Price	District	Contract ID
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Statewide Bid Tab Query

• Overview of functionality

- Item Code: 16365
- District: NOVa
- County: Fairfax



Item Code: 16365
 District: NOVa (9) ▼
 County: FAIRFAX ▼

The magnifying glass indicates an App that
 May be helpful in your searches.

Geography is a criteria to consider when Evaluating Bid Tabs

See Table 4-2, CEM

Item Code Lookup

Enter a portion of the bid item description to see a list of Item Codes.

Item Description:

Submit Clear Input Return to Bridge Home Page

There Were 3 Results Found.

Item Code	Units	Description	Category
10621	TON	ASPHALT CONCRETE TY. BM-25.0D+0.4	Road Construction
16366	TON	ASPH. CONC. TY. BM-25.0D+0.4	Road Construction
16396	TON	ASPH. CONC. TY. BM-25.0D-0.4 T	Road Construction

Statewide Bid Tab Query

•Open Statewide Bid Tab Query

- Quantity between: 5000 to 10000 ton
- Contract let between: 01-01-2020 and 01-01-2022
- There should be 24 results
- Quantity is a criteria to consider when Evaluating
- Bid Tabs. See Table 4-2 & Table 4-6, CEM

Item Code	16365
District	NOVa (9)
County	FAIRFAX
Quantity between	5000 & 10000
Contracts Let between	1/1/2020 & 1/1/2022

Price Statistics

Average Unit Price=\$72.37 & Weighted Average Unit Price=\$72.21 & Median Bid=\$70.25

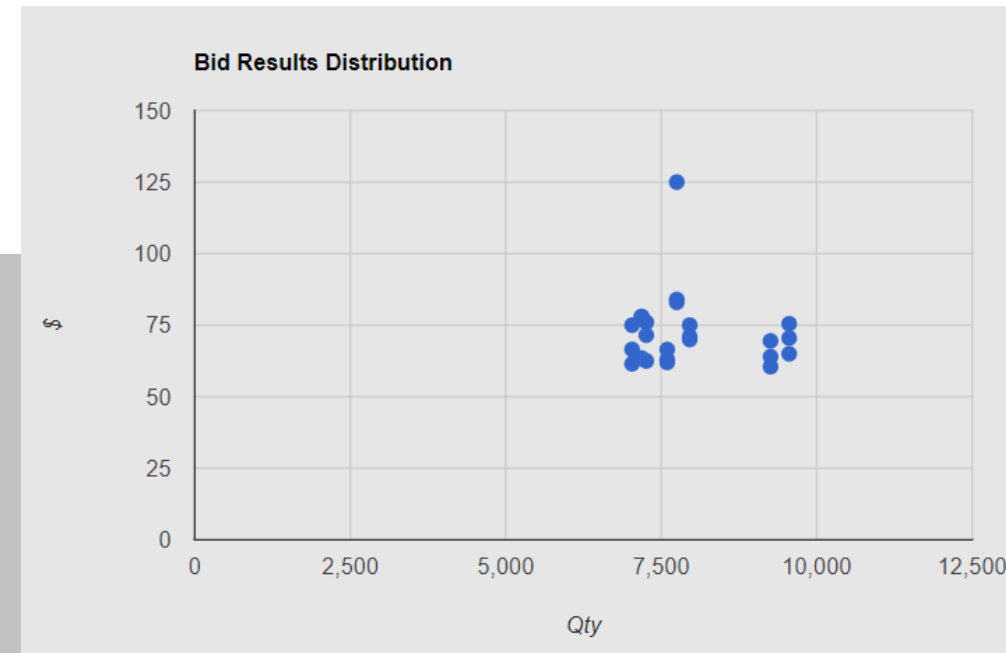
For Linear Regression: Unit Cost(\$)= 84.85 + Quantity * -0.0016

For Non-Linear Regression: Unit Cost(\$)= 61.68 + 84050.53/Quantity

Standard Deviation: \$13.12. (90% CI Range: \$50.79-\$93.95)

Quantity Range: 7031.56. to 9557.44 TON

If only data points within the 90% confidence interval are used, the resulting stats are: Average Unit Price=\$70.09 & Weighted Average Unit Price=\$69.99 which includes 23 of the original 24 data points



Statewide Bid Tab Query

- Open Statewide Bid Tab Query
 - Apply inflation: check the box

Item Code
District
County
Quantity between &
Contracts Let between &
Apply Inflation

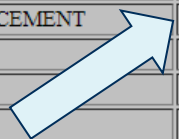
Letting Date	Quantity	Inflated Price	Contract ID
1/22/2020	7,031.6 TON		01160522
1/22/2020	7,031.6 TON		01160522
1/22/2020	7,031.6 TON		01160522
2/26/2020	7,596.6		01160532

Item Code	Item Name	Bidder	Letting Date	Quantity	Bid Price	Inflated Price	Contract ID
16365	ASPHALT CONC. TY. IM-19.0A	EUROVIA ATLANTIC COAST LLC DBA VIRGINIA PAVING COMPANY *	1/22/2020	7,031.6 TON	\$61.50	\$65.32	C0000116052N01
16365	ASPHALT CONC. TY. IM-19.0A	ARTHUR CONSTRUCTION CO., INC.	1/22/2020	7,031.6 TON	\$75.00	\$79.66	C0000116052N01
16365	ASPHALT CONC. TY. IM-19.0A	SUPERIOR PAVING CORPORATION	1/22/2020	7,031.6 TON	\$66.55	\$70.68	C0000116052N01
16365	ASPHALT CONC. TY. IM-19.0A	JULIUS BRANSCOME, INC. *	2/26/2020	7,596.6 TON	\$66.50	\$70.65	C0000116053N01

Statewide Bid Tab Query

- Open Statewide Bid Tab Query
 - View Entire Contract


Item Code	Item Name	Bidder	Letting Date	Quantity	Bid Price	District	Contract Description	Contract ID
120	REGULAR EXCAVATION	A.L.L. CONSTRUCTION, INC. *	9/27/2023	86197 CY	\$74.40	Staunton (8)	SMART SCALE - ROAD IMPROVEMENTS	C000109378C01D
120	REGULAR EXCAVATION	TRITON CONSTRUCTION INC. OF VIRGINIA *	4/27/2022	24868 CY	\$23.25	Staunton (8)	SMART SCALE - ACCELERATION LANE EXTENSION	C0000111054B01
120	REGULAR EXCAVATION	CATON CONSTRUCTION GROUP, INC. *	6/22/2022	109022 CY	\$12.75	Staunton (8)	SMART Scale - ROUNDABOUT CONSTRUCTION AT STAUNTON CROSSING	C0000111048C01
120	REGULAR EXCAVATION	GENERAL EXCAVATION, INC. *	1/19/2022	5000 CY	\$42.00	Staunton (8)	LURAY INTERSECTION IMPROVEMENTS (ROUNDABOUT)	C0000088300C01
120	REGULAR EXCAVATION	TRITON CONSTRUCTION INC. OF VIRGINIA *	3/23/2022	1529 CY	\$30.00	Staunton (8)	BRIDGE REPLACEMENT OVER I-81	C0000097112B84
120	REGULAR EXCAVATION	TRITON CONSTRUCTION INC. OF VIRGINIA *	6/22/2022	34487 CY	\$20.00	Staunton (8)	SGR/SMART SCALE - RTE 33 BRIDGES OVER I81 & NSRR REPLACEMENT	C0000104177B24
120	REGULAR EXCAVATION	FAIRFIELD-ECHOLS, LLC *	5/25/2022	2960 CY	\$69.30	Staunton (8)	SGR - BRIDGE REPLACEMENT OVER LINVILLE CREEK	C000113033B02
120	REGULAR EXCAVATION	GENERAL EXCAVATION, INC. *	2/22/2023	7005 CY	\$25.00	Staunton (8)	SMART SCALE- INTERSECTION IMPROVEMENTS	C0000111052M01
120	REGULAR EXCAVATION	BRANCH CIVIL, INC. *	5/24/2023	109333 CY	\$10.00	Staunton (8)	CONSTRUCTION WIDENING	C0000105907C01
120	REGULAR EXCAVATION	NORTH CONSTRUCTION, INC. *	5/24/2023	30 CY	\$70.00	Staunton (8)	ON-CALL ADA COMPLIANCE	C0000122393N01
120	REGULAR EXCAVATION	A & J DEVELOPMENT AND EXCAVATION, INC. *	6/21/2023	8885 CY	\$32.00	Staunton (8)	NORTH BOUND WIDENING SAFETY IMPROVEMENTS	C0000115738M01
120	REGULAR EXCAVATION	FAIRFIELD-ECHOLS, LLC *	9/27/2023	8827 CY	\$27.83	Staunton (8)	ADD AUXILIARY LANE ON I-81; BRIDGE REPLACEMENT OVER I-81	C0000116279B33
120	REGULAR EXCAVATION	SHIRLEY CONTRACTING COMPANY, LLC *	9/27/2023	3742 CY	\$95.00	Staunton (8)	BRIDGE OVERPASS AND ROAD CONSTRUCTION	C0000112945C01



Statewide Bid Tab Query

Contract Information

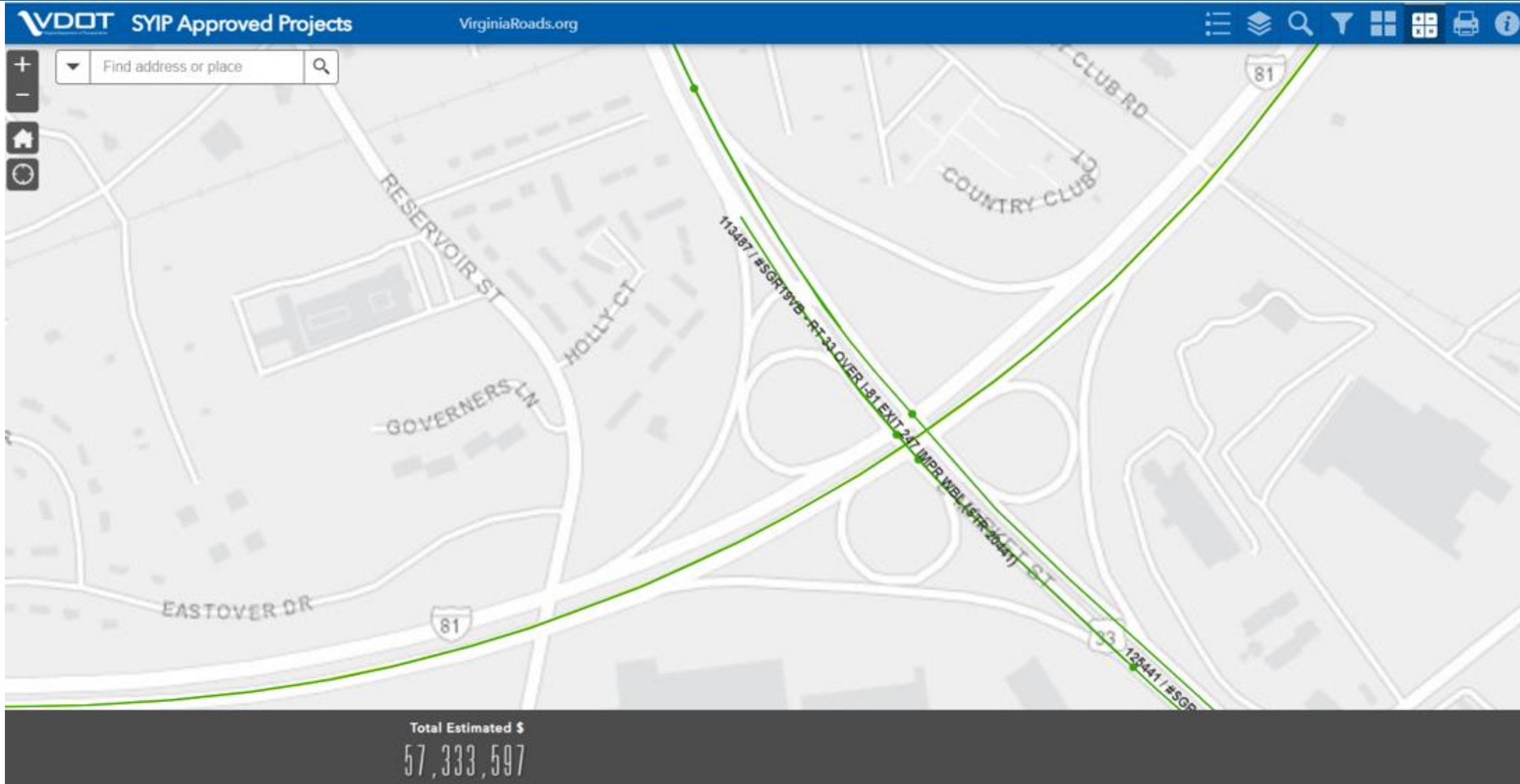
Order Number : G77 County:ROCKINGHAM District:Staunton (8)

 [Contract ID](#) : C0000104177B24 Project: NHPP-5115(246)0033-082-805,B624,C501
Letting Date : 6/22/2022
Contract Description : SGR/SMART SCALE - RTE 33 BRIDGES OVER IS1 & NSRR REPLACEMENT

Contract Total: \$43,339,568

Line #	Old Item Code	New Item Code	Item Description	Measure	Quantity	Bid 1	Bid 2	Bid 3	Bidder 1	Bidder 2	Bidder 3
10	100	513SD20-0001	MOBILIZATION	LS	1	\$2,208,000.00	\$2,780,000.00	\$2,825,000.00	T2998-TRITON CONSTRUCTION INC. OF VIRGINIA	O017-ORDERS CONSTRUCTION COMPANY, INC.	A210-ARCHER WESTERN CONSTRUCTION, LLC
20	101	517SD20-0001	CONSTRUCTION SURVEYING CONSTRUCTION	LS	1	\$163,498.98	\$320,000.00	\$495,000.00	T2998-TRITON CONSTRUCTION INC. OF VIRGINIA	O017-ORDERS CONSTRUCTION COMPANY, INC.	A210-ARCHER WESTERN CONSTRUCTION, LLC
30	110	301SD20-0001	CLEARING AND GRUBBING	LS	1	\$459,000.00	\$710,000.00	\$750,000.00	T2998-TRITON CONSTRUCTION INC. OF VIRGINIA	O017-ORDERS CONSTRUCTION COMPANY, INC.	A210-ARCHER WESTERN CONSTRUCTION, LLC
40	120	303SD20-0001	REGULAR EXCAVATION	CY	34487	\$20.00	\$50.00	\$34.60	T2998-TRITON CONSTRUCTION INC. OF VIRGINIA	O017-ORDERS CONSTRUCTION COMPANY, INC.	A210-ARCHER WESTERN CONSTRUCTION, LLC
50	141	305SX20-0005	NS BORROW EXCAVATION (MIN. CBR-5)	CY	42806	\$28.00	\$55.00	\$31.80	T2998-TRITON CONSTRUCTION INC. OF VIRGINIA	O017-ORDERS CONSTRUCTION COMPANY, INC.	A210-ARCHER WESTERN CONSTRUCTION, LLC
60	155	303SD20-0013	GEOTEXTILE EMBANKMENT STABILIZATION	SY	1825	\$3.00	\$14.00	\$2.93	T2998-TRITON CONSTRUCTION INC. OF VIRGINIA	O017-ORDERS CONSTRUCTION COMPANY, INC.	A210-ARCHER WESTERN CONSTRUCTION, LLC
70	170	523SX20-0002	NS SOIL BIORETENTION SOIL MEDIA	CY	1827	\$184.00	\$230.00	\$172.82	T2998-TRITON CONSTRUCTION INC. OF VIRGINIA	O017-ORDERS CONSTRUCTION COMPANY, INC.	A210-ARCHER WESTERN CONSTRUCTION, LLC

Statewide Bid Tab Query



Statewide Bid Tab Query

- Open Statewide Bid Tab Query
 - View Entire Contract

Item Code	Item Name	Bidder	Letting Date	Quantity	Bid Price	District	Contract Description	Contract ID
120	REGULAR EXCAVATION	A.L.L. CONSTRUCTION, INC. *	9/27/2023	86197 CY	\$74.40	Staunton (8)	SMART SCALE - ROAD IMPROVEMENTS	C000109378C01D
120	REGULAR EXCAVATION	TRITON CONSTRUCTION INC. OF VIRGINIA *	4/27/2022	24868 CY	\$23.25	Staunton (8)	SMART SCALE - ACCELERATION LANE EXTENSION	C0000111054B01
120	REGULAR EXCAVATION	CATON CONSTRUCTION GROUP, INC. *	6/22/2022	109022 CY	\$12.75	Staunton (8)	SMART Scale - ROUNDABOUT CONSTRUCTION AT STAUNTON CROSSING	C0000111048C01
120	REGULAR EXCAVATION	GENERAL EXCAVATION, INC. *						C00000883300C01
120	REGULAR EXCAVATION	TRITON CONSTRUCTION INC. OF VIRGINIA *						C0000097112B84
120	REGULAR EXCAVATION	TRITON CONSTRUCTION INC. OF VIRGINIA *						C0000104177B24
120	REGULAR EXCAVATION	FAIRFIELD-ECHOLS, LLC *						C000113033B02
120	REGULAR EXCAVATION	GENERAL EXCAVATION, INC. *						C0000111052M01
120	REGULAR EXCAVATION	BRANCH CIVIL, INC. *						C0000105907C01
120	REGULAR EXCAVATION	NORTH CONSTRUCTION, INC. *						C0000122393N01
120	REGULAR EXCAVATION	A & J DEVELOPMENT AND EXCAVATION, INC. *						C0000115738M01
120	REGULAR EXCAVATION	FAIRFIELD-ECHOLS, LLC *						C0000116279B33
120	REGULAR EXCAVATION	SHIRLEY CONTRACTING COMPANY, LLC *						C0000112945C01

Bid Item Cost Lookup. Choose a Dataset, and Cost Model, and enter a quantity.

Data Set

Item Code

Quantity

[Click Here for Conversion Utility](#)

Based on Quantity range of 30 to 109333 for 36 occurrences. Current to 6/26/2024 letting.

Old Item Code/New Item Code	Name	Units	Quantity	Average	Linear	Nonlinear	Category
120 /303SD20-0001	REGULAR EXCAVATION	CY	34487	\$57.20	\$55.64	\$51.69	Road Construction
Total Cost of Item:				\$1,972,656.40	\$1,918,856.68	\$1,782,633.03	

[Linear Model](#) [Non-Linear Model](#)

[Print this Page](#)

Statewide Bid Tab Query

•Other Tips & Tricks

- Use w wild card (%) with the UPC in the Contract ID
- To find a specific contract

Contract ID

Item Code	Item Name	Bidder	Letting Date	Quantity	Bid Price	District	Contract ID
24430	DEMOLITION OF PAVEMENT FLEXIBLE	D. A. BROWN, INC. *	5/26/2021	1554 SY	\$10.00	Salem (2)	C0000104184M01
24430	DEMOLITION OF PAVEMENT FLEXIBLE	HAYMES BROTHERS, INC.	5/26/2021	1554 SY	\$5.00	Salem (2)	C0000104184M01
24430	DEMOLITION OF PAVEMENT FLEXIBLE	W. C. ENGLISH, INCORPORATED	5/26/2021	1554 SY	\$6.00	Salem (2)	C0000104184M01

- Use a wild card (%) with the descriptors in the Contract Description to find a specific contract

Contract Description

- Use Item 100 (Mobilization) to narrow results list.

Item Code
District

Item Code	Item Name	Bidder	Letting Date	Quantity	Bid Price	District	Contract Description	Contract ID
100	MOBILIZATION	CATON CONSTRUCTION GROUP, INC. *	6/22/2022	1 LS	\$437,500.00	Staunton (8)	SMART Scale - ROUNDABOUT CONSTRUCTION AT STAUNTON CROSSING	C0000111048C01
100	MOBILIZATION	GENERAL EXCAVATION, INC. *	1/19/2022	1 LS	\$54,000.00	Staunton (8)	LURAY INTERSECTION IMPROVEMENTS (ROUNDABOUT)	C0000088300C01
100	MOBILIZATION	CATON CONSTRUCTION GROUP, INC. *	2/23/2022	1 LS	\$168,000.00	Richmond (4)	INTERSECTION IMPROVEMENT - ROUNDABOUT	C0000105734C01
100	MOBILIZATION	CATON CONSTRUCTION GROUP, INC. *	3/23/2022	1 LS	\$170,000.00	Salem (2)	SMART SCALE - INSTALL ROUNDABOUT	C0000111364M01
100	MOBILIZATION	J. L. KENT & SONS, INC. *	10/26/2022	1 LS	\$210,000.00	Richmond (4)	SMART SCALE - ROUNDABOUT CONSTRUCTION	C0000111635C01B
100	MOBILIZATION	MCC ACQUISITION, LC dba VIRGINIA-CAROLINA PAVING CO. *	3/22/2023	1 LS	\$215,000.00	Lynchburg (3)	CONSTRUCT ROUNDABOUT AT RTE 360	C0000110767C01
100	MOBILIZATION	J. R. CASKEY, INC. *	11/15/2023	1 LS	\$132,000.00	Lynchburg (3)	SMART SCALE - ROUNDABOUT	C0000110766C01
100	MOBILIZATION	RAMIREZ CONTRACTING, L.L.C. *	1/17/2024	1 LS	\$150,000.00	Bristol (1)	SMART SCALE - ROUNDABOUT	C0000115485C01

Statewide Bid Tab Query

• Other Tips & Tricks

- Use a wild card (%) with the Bidder to find a specific contractor's bids

Bidder 🔍

- Use as an example for work order research.

Item Code 🔍

District

Item Code	Item Name	Bidder	Letting Date	Quantity	Bid Price	District	Contract ID
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION *	2/26/2020	14,624.9 TON	\$65.80	NOVa (9)	C000115030N501
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION *	2/26/2020	22,497.3 TON	\$70.09	NOVa (9)	C000115934N501
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	2/26/2020	617.2 TON	\$69.00	NOVa (9)	C0000115935N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION *	2/26/2020	35,937.0 TON	\$68.50	NOVa (9)	C0000116051N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	2/26/2020	21,299.5 TON	\$69.00	NOVa (9)	C0000115932N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	2/26/2020	23,581.6 TON	\$72.00	NOVa (9)	C0000115933N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	1/22/2020	30,257.6 TON	\$77.00	NOVa (9)	C0000116052N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	2/26/2020	26,374.4 TON	\$71.45	NOVa (9)	C0000116053N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	2/26/2020	24,106.2 TON	\$79.00	NOVa (9)	C0000116054N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	2/26/2020	28,035.8 TON	\$75.00	NOVa (9)	CM920PMV116055
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	2/26/2020	19,372.2 TON	\$79.00	NOVa (9)	CM920PMV116056
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION *	1/20/2021	37,130.6 TON	\$72.00	NOVa (9)	C0000117812N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	2/24/2021	28,363.1 TON	\$77.00	NOVa (9)	C0000117815N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	2/24/2021	23,147.0 TON	\$70.00	NOVa (9)	C0000117827N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	1/20/2021	36,043.0 TON	\$73.00	NOVa (9)	C0000117830N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	3/24/2021	29,629.2 TON	\$71.00	NOVa (9)	C0000117829N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	2/24/2021	25,647.0 TON	\$67.25	NOVa (9)	C0000117817N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	2/24/2021	29,960.8 TON	\$78.00	NOVa (9)	C0000117819N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	2/24/2021	9,176.1 TON	\$72.00	NOVa (9)	C0000117822N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	4/28/2021	13,781.1 TON	\$77.00	NOVa (9)	C0000118379N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION *	6/23/2021	49,306.6 TON	\$69.00	NOVa (9)	C0000118222N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	4/28/2021	22,293.3 TON	\$75.00	NOVa (9)	C0000118247N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	6/23/2021	11,811.3 TON	\$73.00	NOVa (9)	C0000118719N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION *	1/12/2022	46,558.9 TON	\$78.00	NOVa (9)	C0000119871N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	2/2/2022	47,412.6 TON	\$76.00	NOVa (9)	C0000119867N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	1/19/2022	33,492.3 TON	\$86.00	NOVa (9)	C0000118655N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	2/2/2022	16,596.6 TON	\$78.50	NOVa (9)	C0000119833N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION *	2/2/2022	34,204.3 TON	\$75.84	NOVa (9)	C0000119837N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	1/12/2022	32,430.9 TON	\$82.00	NOVa (9)	C0000119866N01
16335	ASPHALT CONC. TY. SM-9.5A	SUPERIOR PAVING CORPORATION	1/22/2020	15,515.9 TON	\$72.00	NOVa (9)	C0000116048N01

Results can be cut & Pasted into spreadsheets and hyperlink functionality will follow. Choose “Quantity (value only)” from the Dropdown for math operations

Converted Quantity
 Converted Quantity (value only)
Quantity (value only)
 Highway System

Statewide Bid Tab Query

•Other Tips & Tricks

- Results can show previous bidding history for that contractor for that item.
- You could further bracket it in for even tighter results (quantity range, date range, county, etc.)
- See Sec. 4.3 of the CEM

Price Statistics

Average Unit Price=\$73.94 & Weighted Average Unit Price=\$74.35 & Median Bid=\$73.00

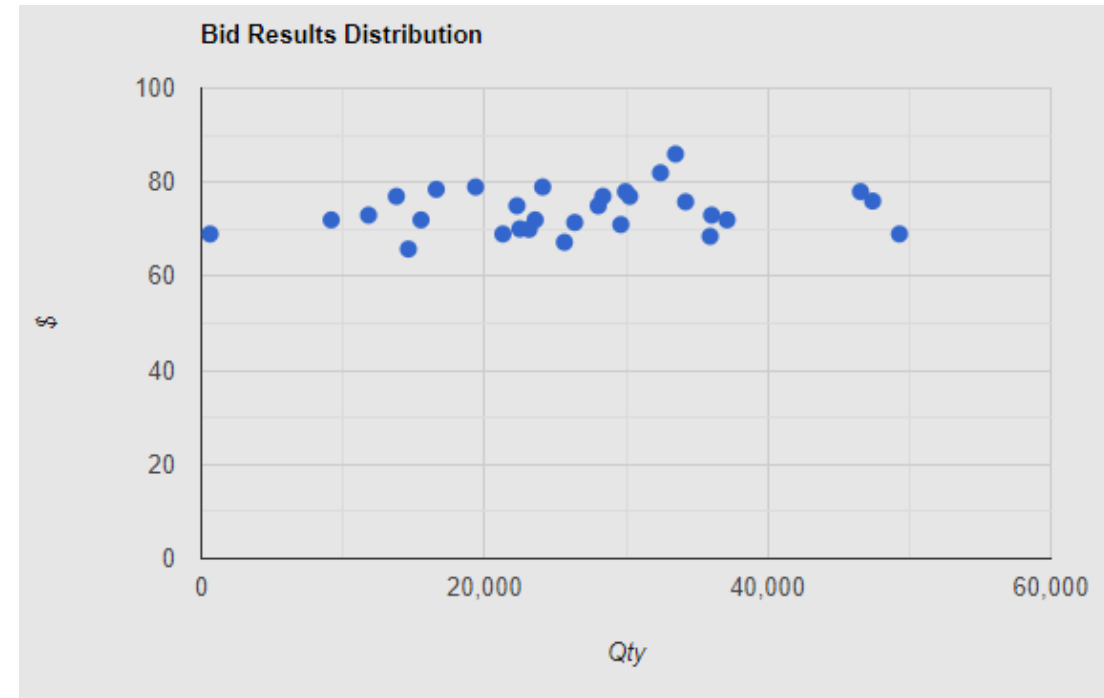
For Linear Regression: Unit Cost(\$)= 71.63 + Quantity * 8.7976x10⁽⁻⁵⁾

For Non-Linear Regression: Unit Cost(\$)= 74.27 + -3414.024/Quantity

Standard Deviation: \$4.65. (90% CI Range: \$66.29-\$81.59)

Quantity Range: 617.16. to 49306.57 TON

If only data points within the 90% confidence interval are used, the resulting stats are: Average Unit Price=\$73.50 & Weighted Average Unit Price=\$73.63 which includes 27 of the original 30 data points



Statewide Bid Tab Query

•Other Tips & Tricks

• Using the Stats, Assuming a Quantity of 2500Tons, the Calculated Unit Prices would be:

• Average: \$93.56/Ton **Inflated: \$126.39**

• Weighted Average: \$84.68/Ton **Inflated: \$113.48**

• Linear Regression: $112.28 + 2500 * (-5.435 \times 10^{-3}) = \$98.69/\text{Ton}$

• **Inflated: $153.61 + 2500 * (-0.00791) = \$133.84/\text{Ton}$**

• Nonlinear Regression: $78.06 + 12,887.332 / 2500 = 83.21\$/\text{Ton}$

• **Inflated: $153.61 - 2500 / 3618.46 = \$72.26/\text{Ton}$**

Sec. 4.3 & Table 4-7 CEM

Original Price Statistics

Average Unit Price=\$93.56 & Weighted Average Unit Price=\$84.68 & Median Bid=\$89.00

For Linear Regression: Unit Cost(\$) = $112.28 + \text{Quantity} * -5.43504026221786\text{E-}03$

For Non-Linear Regression: Unit Cost(\$) = $78.06 + 12887.332/\text{Quantity}$

Inflated Price Statistics

Average Unit Price=\$126.39 & Weighted Average Unit Price=\$113.48 & Median Bid=\$118.30

For Linear Regression: Unit Cost(\$) = $153.61 + \text{Quantity} * -0.00791$

For Non-Linear Regression: Unit Cost(\$) = $103.71 + 18864.86/\text{Quantity}$

Statewide Bid Tab Query

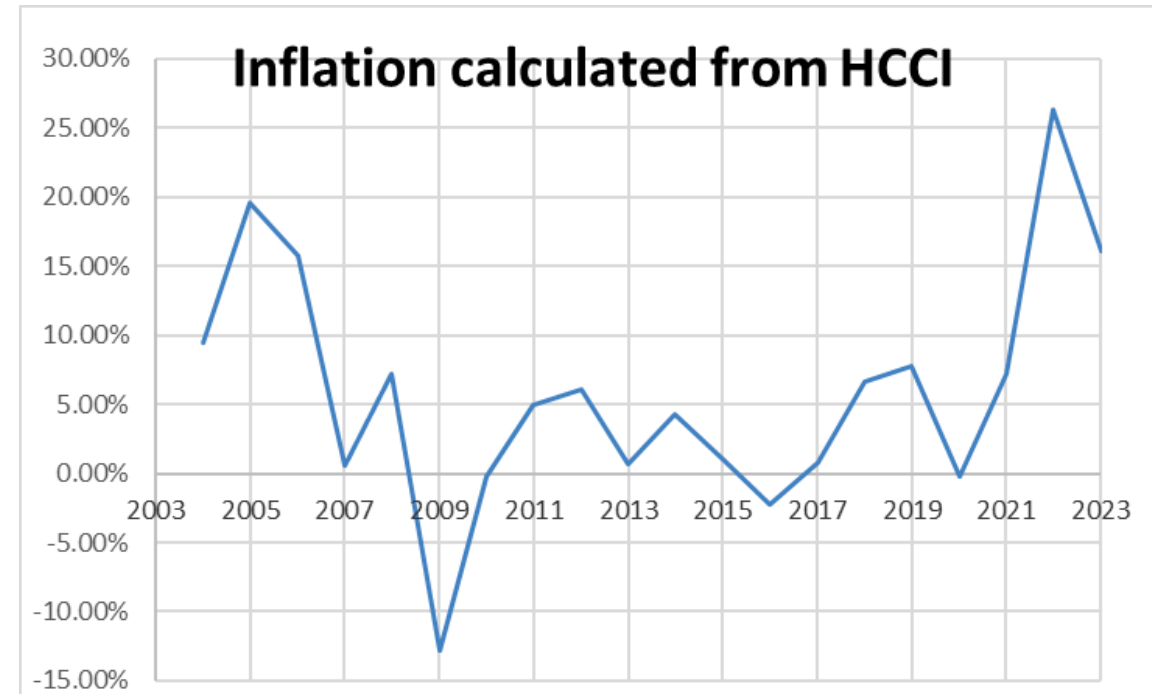
• Inflation Discussion

- Inflation is based on the FHWA Heavy Highway Construction Cost Index (HCCI)
- Specific to our industry; specific to what we do.
- Backward facing, determined by economists.
- When you “apply inflation”



- It adjusts previous costs to present value dollars
- I.E., the day the query is run. There is a lag, so you may need to apply Additional inflation to fully inflate numbers.
- See Figure 4.5, CEM

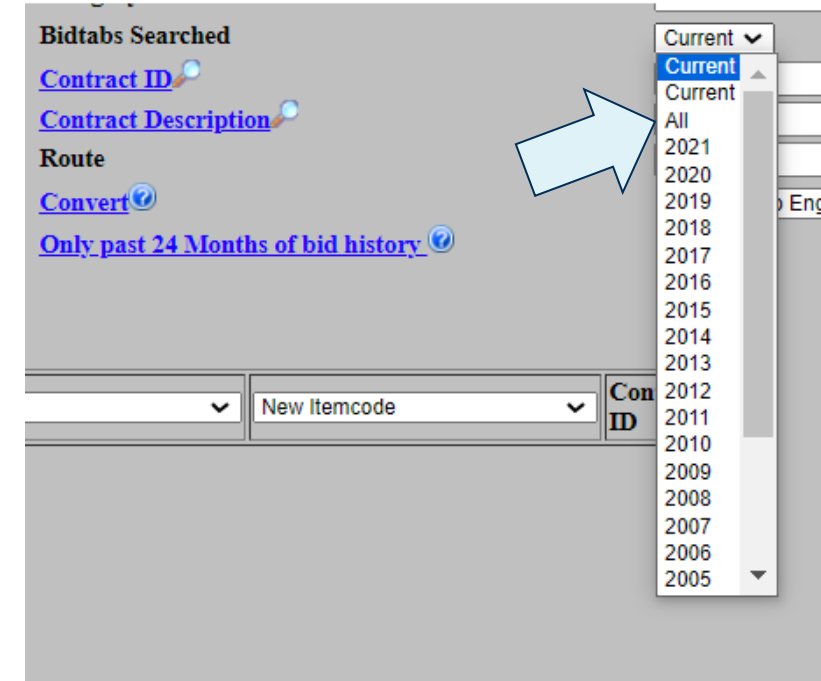
• Link: <https://www.fhwa.dot.gov/policy/otps/nhcci/> Top Right, “Interactive Dashboard”



Statewide Bid Tab Query

•Other Tips & Tricks

- Use the “all” Option to search all bidtabs from 1998 to current.
 - This allows for broader searches, especially for less frequently bid,
 - or specific nonstandard items. Use the inflation checkbox to
 - Adjust prices to current day dollars.
-
- Bidders with an asterisk beside them in the results are the low bidders.



Item Code	Item Name	Bidder	Letting Date	Quantity	Bid Price	District	Contract ID
60409	CONC. CLASS A4 MOD. LOW SHRINKAGE	BRAYMAN CONSTRUCTION CORPORATION *	5/24/2017	386.1 CY	\$1,150.00	Salem (2)	C0000062650B01
60409	CONC. CLASS A4 MOD. LOW SHRINKAGE	ENGLISH CONSTRUCTION COMPANY, INCORPORATED	5/24/2017	386.1 CY	\$850.00	Salem (2)	C0000062650B01
60409	CONC. CLASS A4 MOD. LOW SHRINKAGE	ORDERS CONSTRUCTION COMPANY, INC.	5/24/2017	386.1 CY	\$940.00	Salem (2)	C0000062650B01
60409	CONC. CLASS A4 MOD. LOW SHRINKAGE	FIELDER'S CHOICE ENTERPRISES, INC. *	7/26/2017	511.2 CY	\$1,015.00	Salem (2)	C000082193B01

Statewide Bid Tab Query

•Other Tips & Tricks

- At the bottom of the results are the price statistics:
- Average, & Weighted Average (See Sec. 7.3 & Table 4-7, CEM)

Original Price Statistics

Average Unit Price=\$74.86 & Weighted Average Unit Price=\$73.06 & Median Bid=\$74.00

For Linear Regression: Unit Cost(\$)= 77.31 + Quantity * -1.60034717421032E-04

For Non-Linear Regression: Unit Cost(\$)= 72.41 + -5638.021/Quantity

Standard Deviation: \$5.98. (90% CI Range: \$65.02-\$84.7)

Quantity Range: 182.399993896484. to 33093.5703125TON

If only data points within the 90% confidence interval are used, the resulting stats are: Average Unit Price=\$73.31 & Weighted Average Unit Price=\$71.32 which includes 18 of the original 21 data points

- If the “Apply Inflation box is checked”, Stats will also appear for inflated prices.

Inflated Price Statistics

Average Unit Price=\$79.25 & Weighted Average Unit Price=\$77.25

For Linear Regression: Unit Cost(\$)= 81.97 + Quantity * -0.001

For Non-Linear Regression: Unit Cost(\$)= 76.79 + -6021.632/Quantity

Statewide Bid Tab Query

•Other Tips & Tricks

- The full stats include regression models for the 90% confidence intervals, for both the as Queried results and the inflated results.

Original Price Statistics

Average Unit Price=\$93.56 & Weighted Average Unit Price=\$84.68 & Median Bid=\$89.00

For Linear Regression: Unit Cost(\$)= 112.28 + Quantity * -5.43504026221786E-03

For Non-Linear Regression: Unit Cost(\$)= 78.06 + 12887.332/Quantity

Standard Deviation: \$41.01. (90% CI Range: \$26.1-\$161.02)

Quantity Range: 84.4800033569336. to 9610.7197265625 TON

If only data points within the 90% confidence interval (\$26.1 to \$161.02)are used, the resulting stats are: Average Unit Price=\$85.74 & Weighted Average Unit Price=\$84.46 which includes 76 of the original 80 data points

For Linear Regression: Unit Cost(\$)= 89.36 + Quantity * -0.001

For Non-Linear Regression: Unit Cost(\$)= 84.91 + 1192.199/Quantity

Statewide Bid Tab Query

• Other Tips & Tricks

- The High & Low Bid prices from the results of the Query and corresponding quantities are shown:

	Unit Price	Bidder	Quantity	Contract ID
Minimum Bid	\$900.00	BURLEIGH CONSTRUCTION CO., INC. *	180.5	C0000110624B15
Maximum Bid	\$2,200.00	HAYMES BROTHERS, INC.	57.5	C0000111309B16

- You can exclude the High & Low bids for better statical results. The values still appear in the query results (shaded red), just not the generated statistics.

[Exclude High & Low Bids from Stats](#) 

Item Code	Item Name	Bidder	Letting Date	Quantity	Bid Price	District	New Itemcode	Contract ID
10642	ASPHALT CONCRETE TY. BM-25.0A	M. D. MILLER CO., INC. *	1/19/2022	147 TON	\$500.00	Lynchburg (3)	315SD20-0010	C0000115563B23
10642	ASPHALT CONCRETE TY. BM-25.0A	HAYMES BROTHERS, INC. *	1/19/2022	748 TON	\$160.00	Lynchburg (3)	315SD20-0010	C0000118783B51
10642	ASPHALT CONCRETE TY. BM-25.0A	W. C. ENGLISH, INCORPORATED *	1/19/2022	2536 TON	\$174.00	Lynchburg (3)	315SD20-0010	C0000108914C30
10642	ASPHALT CONCRETE TY. BM-25.0A	BRANCH CIVIL, INC. *	11/16/2022	30611 TON	\$112.00	Lynchburg (3)	315SD20-0010	C0000115493C01
10642	ASPHALT CONCRETE TY. BM-25.0A	PEARSON CONSTRUCTION, INC. *	11/16/2022	871 TON	\$160.00	Lynchburg (3)	315SD20-0010	C0000111306C01
10642	ASPHALT CONCRETE TY. BM-25.0A	MCC ACQUISITION, LC dba VIRGINIA-CAROLINA PAVING CO. *	3/22/2023	4462 TON	\$106.50	Lynchburg (3)	315SD20-0010	C0000110767C01


Statewide Bid Tab Query

- Other Tips & Tricks

- You can limit the results to the past 2 years easily without entering dates.

[Only past 24 Months of bid history](#) 

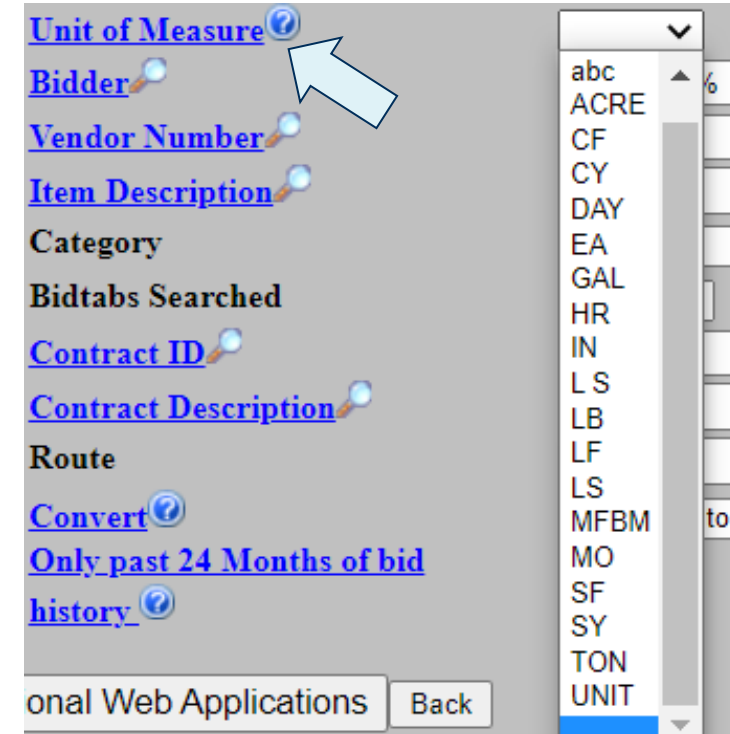
- You can limit results to only the low bidders.

[Custom Additions](#) 

Low Bidders Only 

Description field to find specific items.

- Highway System can be used to further focus results.



Tool #2: Project Estimating Spreadsheet/Project Estimating Tool

Project Estimating Tool

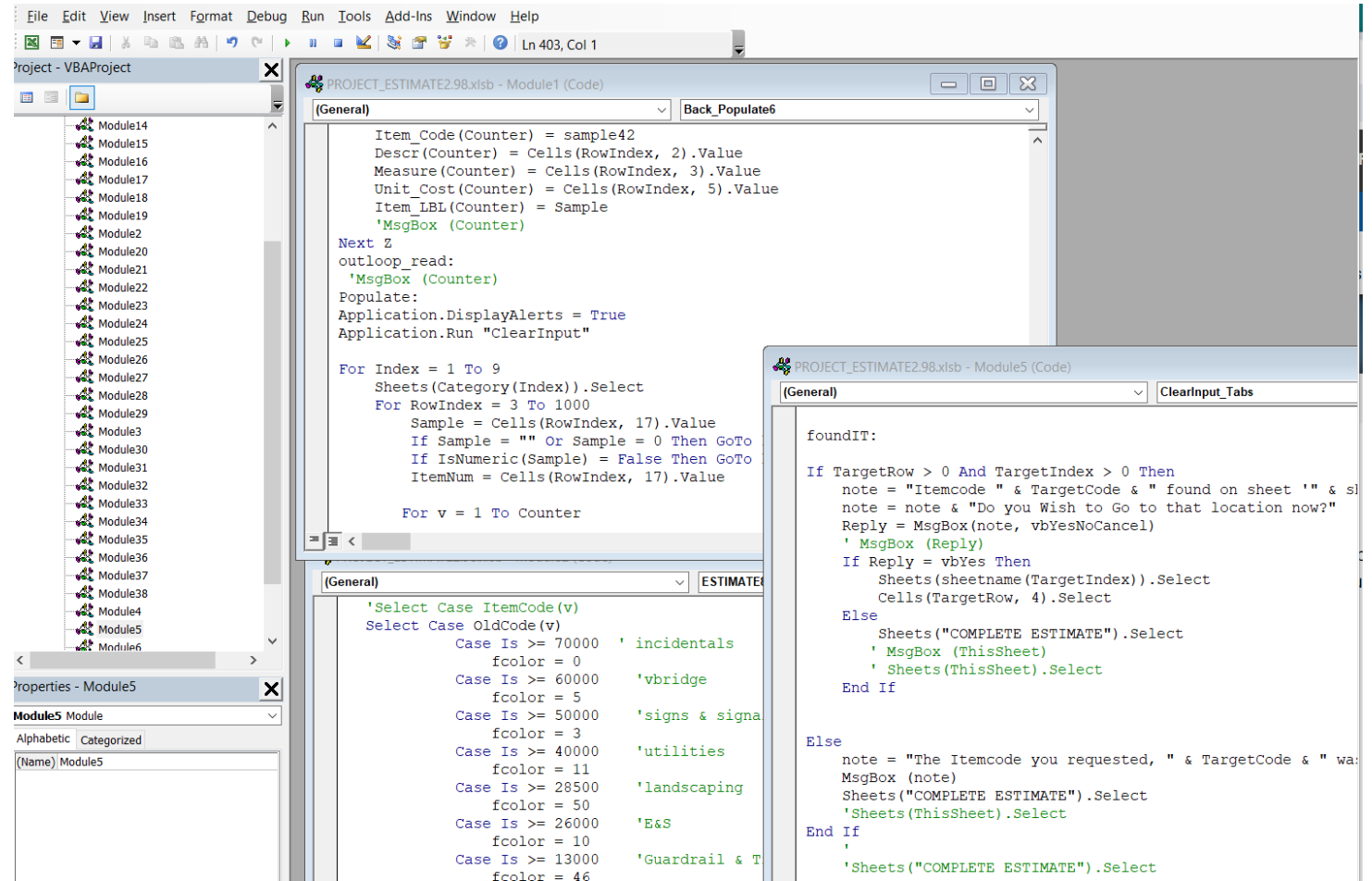
•Development

- Although the web application is good for researching individual unit prices, it is not good for developing an estimate
- At the time, the approved program used for preliminary estimates often returned no unit prices.
- With the availability of the bid data, there was an obvious advantage of developing the regression models, to which the non-linear model become the obvious choice.
- Over the years, it grew as more and more functionality was added, using graphs, charts and VBA code.
- This code is just as ugly as the web application

Project Estimating Tool

•Development

- This code is just as ugly as the web application



Project Estimating Tool

• A Quantity based estimating tool

- Uses same dataset as the Statewide Bidtab Query
- Generates regression models using this dataset

• Available on the VDOT Website for use by consultants and localities:

• <https://www.vdot.virginia.gov/doing-business/technical-guidance-and-support/cost-estimation/>

Project Estimating Tools

VDOT is providing the following project cost estimating tools for internal and external use. These tools assist in providing conceptual project estimates for all funding applications (includes SMART SCALE, SGR, etc.) and tracking of project estimates currently under design. Project estimators and Project Managers are expected to use the available tools to ensure all aspects of the project costs are addressed and improve the accuracy of project estimates for all applications and throughout the project development process.

- [SPECC \(Similar Project Estimates by Cost Category\) 4/22/2024](#)
- [Bristol_Scoping_Estimating_Tool.xlsx - 3/2020](#)
- [Culpeper_Concept_Estimate_Workbook.xlsx - 6/2023](#)
- [How to gain External Access to the Statewide Bid Tab Query - 12/12/2023](#)
- [Statewide Bid Tab Query User's Manual - 3/12/2024](#)
- [Statewide Bid Tab Query Tool - 11/2/2023](#)
- [Pre-Quantity Tool \(PQT\) User's Guide -Version 1.3 - 3/28/2024](#)
- [Pre-Quantity Tool \(PQT\) - Version 1.3 - 6/27/2024](#)
- [Project Estimating Spreadsheet \(Staunton Estimating Tool\) - 7/23/2024](#)
- [Project Estimating Spreadsheet / \(Staunton Estimating Tool\) Instructions - 5/2020](#)



ITEM	ITEM DESCRIPTION	UNITS	QUAN.	UNIT PRICE	AMOUNT	Locked	MOBILIZATION	\$	132,793.94	= \$80,000 + 5% OF (THE SUM OF E
100	MOBILIZATION	LS	1	\$100,000.00	\$ 100,000.00		SUBTOTAL	\$	2,188,672.64	
101	CONSTRUCTION SURVEYING CONSTRUCTION	LS	1	\$17,500.00	\$ 17,500.00		ENGINEERING	\$	218,867.26	10.0% OF SUBTOTA
110	CLEARING AND GRUBBING	LS	1	\$20,000.00	\$ 20,000.00		CONTINGENCIES	\$	437,734.53	20.0% OF SUBTOTA
120	REGULAR EXCAVATION	CY	543	\$20.00	\$ 10,860.00		TOTAL	\$	2,845,274.43	
140	BORROW EXCAVATION	CY	9004	\$22.50	\$ 202,590.00		Regression Model:	Non-Linear	Enhanced Regres:	
1150	15" PIPE	LF	3	\$80.00	\$ 240.00		District:	Salem		
1152	15" CONC. PIPE	LF	46	\$80.00	\$ 3,680.00		Pricing Model Date:	4/27/2022	Current To 2/2022 Letting	
1156	STORM SEWER PIPE 15"	LF	33	\$80.00	\$ 2,640.00		NOTE: Don't forget to enter the proj. no. and the site description in cells B1 and B2.			
2112	NS DRAINAGE 15" END WALL EW-1	EA	1	\$750.00	\$ 750.00		Click here to run New Estimate			
6750	DROP INLET DI=26L=10"	EA	1	\$5,000.00	\$ 5,000.00		Load Tool Bar			
9056	MANHOLE MH-1 OR 2	LF	19.1599998	\$300.00	\$ 5,748.00		Help			
9057	FRAME & COVER MH-1	EA	1	\$500.00	\$ 500.00					
9148	EROSION CONTROL STONE CLASS A1 EC-1	TON	4.5999999	\$100.00	\$ 460.00					
9150	EROSION CONTROL STONE CLASS 1, EC-1	TON	34.7999992	\$100.00	\$ 3,480.00					
10128	AGGR. BASE MATL. TY. I NO. 21B	TON	610	\$40.00	\$ 24,400.00					
10635	ASPHALT CONC TY. SM-9.5A	TON	163	\$148.50	\$ 24,205.50					
10642	ASPHALT CONCRETE TY. BM-25.0A	TON	271	\$129.00	\$ 34,959.00					
11070	NS SAW-CUT ASPH CONC FULL DEPTH	LF	32	\$12.00	\$ 384.00					
12030	STD. CURB CG-3	LF	27	\$100.00	\$ 2,700.00					
12032	RADIAL CURB CG-3	LF	81	\$100.00	\$ 8,100.00					
13232	GEOTEXTILE DRAINAGE FABRIC	SY	9	\$5.00	\$ 45.00					
13280	GUARDRAIL GR-MGS1	LF	187.5	\$26.40	\$ 4,950.00					
13283	RADIAL GUARDRAIL GR-MGS1	LF	125	\$30.80	\$ 3,850.00					
13286	GUARDRAIL TERMINAL GR-MGS2	EA	4	\$3,300.00	\$ 13,200.00					
13349	GUARDRAIL TERMINAL SITE PREPARATION	EA	4	\$200.00	\$ 800.00					
13394	FIXED OBJECT ATTACH. GR-FOA-5	EA	4	\$3,740.00	\$ 14,960.00					
13460	MEDIAN BARRIER MB-7D	LF	40	\$65.00	\$ 2,600.00					
24100	ALLAYING DUST	HR	20	\$10.00	\$ 200.00					
24150	TYPE 3 BARRICADE 4'	EA	4	\$500.00	\$ 2,000.00					
24152	TYPE 3 BARRICADE 8'	EA	4	\$700.00	\$ 2,800.00					
24160	TEMPORARY (CONSTRUCTION) SIGN	SF	502	\$28.00	\$ 14,056.00					
24260	CR. BUN AGGR. NO. 25 OR 26	TON	214	\$45.00	\$ 9,630.00					
24278	GROUP 2 CHANNELIZING DEVICES	DAY	100	\$1.50	\$ 150.00					
24279	PORTABLE CHANGEABLE MESSAGE SIGN	HR	672	\$10.00	\$ 6,720.00					
24282	FLAGGER SERVICE	HR	100	\$45.00	\$ 4,500.00					
24288	WARNING LIGHT TY. B	DAY	8760	\$2.00	\$ 17,520.00					
24430	DEMOLITION OF PAVEMENT FLEXIBLE	SY	1554	\$10.00	\$ 15,540.00					
24600	REMOVE EXISTING GUARDRAIL	LF	370	\$5.00	\$ 1,850.00					
25507	FIELD OFFICE TY. II	MO	12	\$2,500.00	\$ 30,000.00					
27022	TOPSOIL CLASS B 2"	ACRE	0.77999997	\$7,000.00	\$ 5,460.00					
27101	TEMPORARY SEED	LB	78	\$17.60	\$ 1,372.80					
27102	REGULAR SEED	LB	112	\$18.70	\$ 2,094.40					
27103	OVERSEEDING	LB	90	\$18.70	\$ 1,683.00					
27104	LEGUME SEED	LB	5	\$32.00	\$ 160.00					
27105	LEGUME OVERSEEDING	LB	4	\$32.00	\$ 128.00					
27110	HYDRAULIC EROSION CONTROL PRODUCT TYPE 1	SY	121	\$0.75	\$ 90.75					
27112	HYDRAULIC EROSION CONTROL PRODUCT TYPE 3	SY	8373	\$1.00	\$ 8,373.00					
27120	SEDIMENT RETENTION ROLL 18" MN	LF	378	\$7.00	\$ 2,646.00					
27230	FERTILIZER NITROGEN - N	LB	75	\$3.30	\$ 247.50					
27231	FERTILIZER PHOSPHOROUS - P	LB	102	\$3.30	\$ 336.60					
27232	FERTILIZER POTASSIUM - K	LB	51	\$3.30	\$ 168.30					
27250	LIME	TON	4	\$137.50	\$ 550.00					
27284	EROSION CONTROL MULCH	SY	403	\$0.55	\$ 221.65					
27318	ROLLED EROSION CTRL PRODUCT EC-2 TYPE 1	SY	324	\$9.25	\$ 2,997.00					
27319	ROLLED EROSION CTRL PRODUCT EC-2 TYPE 2	SY	101	\$3.70	\$ 373.70					
27325	ROLLED EROSION CTRL PRODUCT EC-3 TYPE 1	SY	514	\$6.50	\$ 3,341.00					
27345	TEMPORARY DIVERSION DIKE	LF	565	\$2.00	\$ 1,130.00					
27410	CHECK DAM, ROCK TY. I	EA	9	\$220.00	\$ 1,980.00					
27415	CHECK DAM ROCK TY. II	EA	17	\$220.00	\$ 3,740.00					
27430	SILTATION CONTROL EXCAVATION	CY	839	\$1.00	\$ 839.00					
27440	MOWING	HR	10	\$50.00	\$ 500.00					
27481	INLET PROTECTION TYPE B	EA	1	\$50.00	\$ 50.00					
27500	GEOTEXTILE FABRIC	SY	10	\$100.00	\$ 1,000.00					
27505	TEMP. SILT FENCE TYPE A	LF	2808	\$5.00	\$ 14,040.00					
27553	NS PERMANENT SWM FACILITY AS-BUILT DOCUMENTATION.	LS	1	\$2,000.00	\$ 2,000.00					
27580	TEMP. SEDIMENT BASIN EXCAVATION	CY	489	\$2.00	\$ 978.00					
50108	SIGN PANEL	SF	40.5	\$40.00	\$ 1,620.00					
50300	REMOVE EXISTING 1 POST SIGN STRUCTURE	EA	12	\$500.00	\$ 6,000.00					
50320	REMOVE EXISTING 1 POST SIGN PANEL	EA	16	\$250.00	\$ 4,000.00					

PROJ.: BROS-009-2(061)0715-009-792, M501, B664 Letting: 5/26/2021
SITE: C0000104184M01

PROJ.: BROS-009-2(061)0715-009-792, M501, B664 Letting: 5/26/2021
SITE: C0000104184M01

Regression Model: Non-Linear
District: Salem
Pricing Model Date: 4/27/2022

Current To 2/2022 Letting

NOTE: Don't forget to enter the proj. no. and the site description in cells B1 and B2.

Click here to run New Estimate

Load Tool Bar

Help

Estimate Breakdown (no PE or CEI)

Asphalt Type Distribution

Bridge Category Breakdown

Project Estimating Tool

- Basic Operation
- Color Coding: Tabs, Charts and line entries are all color coordinated:

9057	FRAME & COVER MH-1	EA	1	\$500.00	\$	500.00
9148	EROSION CONTROL STONE	TON	4.5999999	\$100.00	\$	460.00
9150	EROSION CONTROL STONE CLASSI	TON	34.7999992	\$100.00	\$	3,480.00
10128	AGGR. B. MATL. TY. I NO. 21B	TON	610	\$40.00	\$	24,400.00
10635	ASPHALT CONC. TY. SM-9.5A		163	\$148.50	\$	24,205.50
10642	ASPHALT CONC. CRETE TY. BM-25.0A		271	\$129.00	\$	34,959.00
11070	NS SAW-CUT CURB FULL DEPTH	LF		\$12.00	\$	384.00
12030	STD. CURB		27			2,700.00
12032	RADIAL CURB		81	\$100.00		8,100.00
13232	GEOTEXTILE FABRIC	SY		\$5.00		
13280	GUARDRAIL GALV. STEEL	LF	187.5			4,950.00
13283	RADIAL GUARDRAIL	LF	125	\$30.80		3,850.00
13286	GUARDRAIL TER. R-MGS2	EA	4	\$3,300.00		13,200.00
13349	GUARDRAIL TER. R-MGS2	EA	4	\$200.00		800.00
13394	FIXED OBJECT ATTACHMENT	EA		\$3,740.00		14,960.00
13460	MEDIAN BARRIER	LF	48			2,600.00
24100	ALLAYING DUST	HR	20	\$10.00		200.00
24150	TYPE 3 BARRICADE	EA	4	\$500.00		2,000.00
24152	TYPE 3 BARRICADE	EA	4	\$700.00		2,800.00
24160	TEMPORARY (CONSTRUCTION) SIGN	SF	502	\$28.00		14,056.00
24260	CR. RUN AGGR. TY. 2 1/2" 96	TON	214	\$45.00		9,630.00
24278	GROUP 2 CHARACTERIZING SERVICES	DAY	100	\$1.50		150.00
24279	PORTABLE CONCRETE MESSAGE SIGN	HR	672	\$10.00		6,720.00
24282	FLAGGER SERVICE	HR	100	\$45.00		4,500.00
24288	WARNING LIGHT TY. B	DAY	8760	\$2.00		17,520.00
24430	DEMOLITION PAVEMENT EXIBLE	SY	1554	\$10.00		15,540.00
24600	REMOVE EXISTING GUARDRAIL	LF	370	\$5.00		1,850.00
25507	FIELD OFFICER TY. III	MO	12	\$2,500.00		30,000.00
27022	TOPSOIL CLASS B 2"	ACRE	0.77999997	\$7,000.00		5,460.00
27101	TEMPORARY SEED	LB	78	\$17.60		1,372.80
27102	REGULATED SEED	LB	112	\$18.70		2,094.40
27103	OVERSEEDING	LB	90	\$18.70		1,683.00
27104	LEGUMINOUS SEED	LB	5	\$32.00		160.00
27105	LEGUMINOUS SEEDING	LB	4	\$32.00		128.00
27110	HYDRAULIC EROSION CONTROL PRODUCT TYPE 1	SY	121	\$0.75		90.75
27112	HYDRAULIC EROSION CONTROL PRODUCT TYPE 3	SY	8373	\$1.00		8,373.00

Click here to run New Estimate

Load Tool Bar

Help

NOTE: Don't forget to enter the proj. no. and the site description in cells B1 and B2.

Grading & Pavement Hydraulics Guardrail, MOT & Traffic Control Erosion Control Landscaping Utilities Signs & Signals Bridge ...

Project Estimating Tool

- Ways to Input data for an estimate

- Manual input on each tab
- Import a previously bid estimate
- Back Populate
- Import form PreCON (AASHTOware)

-

Project Estimating Tool

- Manual entry into Tabs
- Find the desired itemcode on each tab
- Enter the desired quantity
- Choose a Regression model and District

		Network Version
Regression Model:	<i>Non-Linear</i>	<i>Enhanced Regression</i>
District:	<i>Fredericksburg</i>	
Pricing Model Date:	<i>7/22/2024</i>	<i>Current To 6/2024 Letting</i>

- Click the

[Click here to run New Estimate](#)

GRADING & PAVEMENT ITEMS			
ITEM	DESCRIPTION	UNIT	QUAN
112	CLEARING AND GRUBBING	UNIT	0
115	NS SOIL	TON	0
117	NS DEBRIS REMOVAL	LOAD	0
118	NS EXCAVATION	CY	0
119	NS EXCAVATION	LS	0
120	REGULAR EXCAVATION	CY	543
122	NS GRADING	LF	0
123	GRADING RURAL RUSTIC ...	LF	0
124	ROCK EXCAVATION	CY	0
125	GRADING	LS	1
126	EARTHWORK	LS	0
128	EXTRA EXCAVATION	CY	0
134	NS TEST EXCAVATION	EA	0
140	BORROW EXCAVATION	CY	9004
142	BORROW EXCAVATION MIN. CBR-20	CY	0
143	BORROW EXCAVATION MIN. CBR-30	CY	0
147	DESIGN BUILD STIPEND	EA	0
148	DESIGN BUILD STIPEND (EXTRA)	EA	0
150	EMBANKMENT	CY	0
152	EMBANKMENT MIN. CBR-20	CY	0
153	EMBANKMENT MIN. CBR-30	CY	0
154	NS GEOTEXTILE	S.Y.	0
155	GEOTEXTILE (EMBANKMENT STAB.)	SY	0
160	NS GRADING	LS	0
162	NS ACCESS ROAD	LS	0
165	NS RESHAPE & CLEAN	STA	0
166	NS RESHAPE	SF	0
170	NS SOIL	CY	0
180	UTILITY TEST PIT UNPAVED RECONSTRUCT UTILITY	EA	3
181	UTILITY TEST PIT ASPHALT CONCRETE RECONSTR	EA	3

Project Estimating Tool

- Back Populate
- Paste your data on COMPLETE ESTIMATE
- Tab, starting at row 6
- (Itemcode, Description, Units, Quantity)
- Open the Toolbar

Load Tool Bar

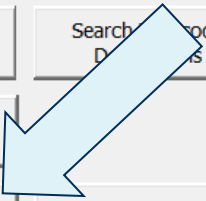
- Choose “Back Populate Item List”
- Items will be dispersed to the appropriate tabs.
- To price, use same steps as the manual estimate

Click here to run New Estimate

ITEM	ITEM DESCRIPTION	UNITS	QUAN.	UNIT PRICE	AMOUNT
100	MOBILIZATION	LS	1	\$100,000.00	\$ 100,000.00
101	CONSTRUCTION SURVEYING CONSTRUCTION	LS	1	\$17,500.00	\$ 17,500.00
110	CLEARING AND GRUBBING	LS	1	\$20,000.00	\$ 20,000.00
120	REGULAR EXCAVATION	CY	543	\$20.00	\$ 10,860.00
140	BORROW EXCAVATION	CY	9004	\$22.50	\$ 202,590.00
1150	15" PIPE	LF	3	\$80.00	\$ 240.00
1152	15" CONC. PIPE	LF	46	\$80.00	\$ 3,680.00
1156	STORM SEWER PIPE 15"	LF	33	\$80.00	\$ 2,640.00
2112	NS DRAINAGE 15" END WALL EW-1	EA	1	\$750.00	\$ 750.00
6750	DROP INLET DI-28,L=10'	EA	1	\$5,000.00	\$ 5,000.00
9056	MANHOLE MH-1 OR 2	LF	19.1599998	\$300.00	\$ 5,748.00
9057	FRAME & COVER MH-1	EA	1	\$500.00	\$ 500.00
9148	EROSION CONTROL STONE CLASS A1 EC-1	TON	4.5999999	\$100.00	\$ 460.00
9150	EROSION CONTROL STONE CLASS I, EC-1	TON	34.7999992	\$100.00	\$ 3,480.00
10128	AGGR. BASE MATL. TY. I NO. 21B	TON	610	\$40.00	\$ 24,400.00
10635	ASPHALT CONC.TY. SM-9.5A	TON	163	\$148.50	\$ 24,205.50
10642	ASPHALT CONCRETE TY. BM-25.0A	TON	271	\$129.00	\$ 34,959.00

Estimating Spreadsheet Toolbar Close Toolbar before Returning to Spreadsheet X

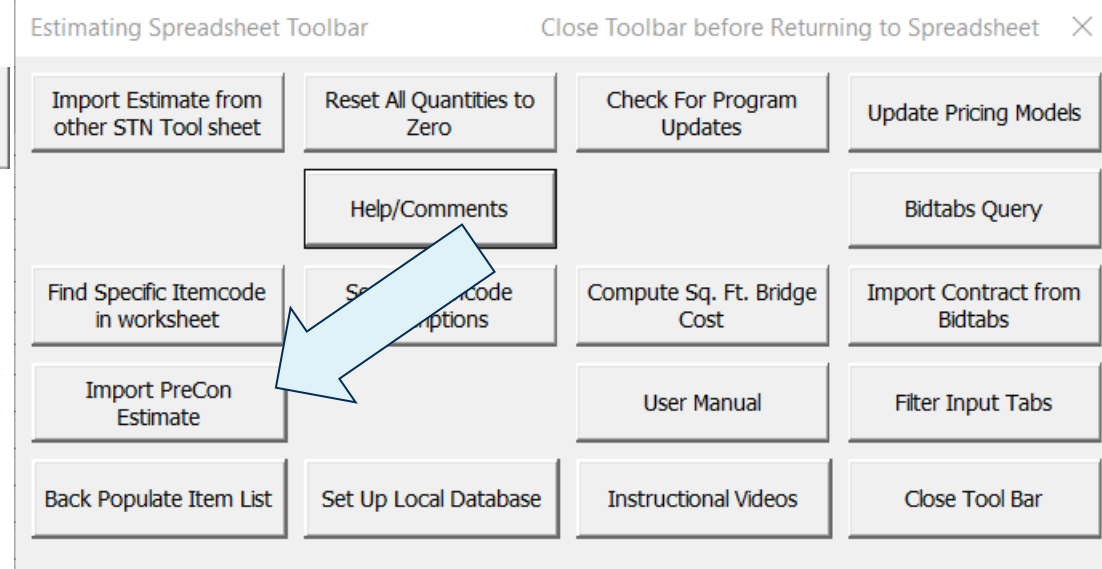
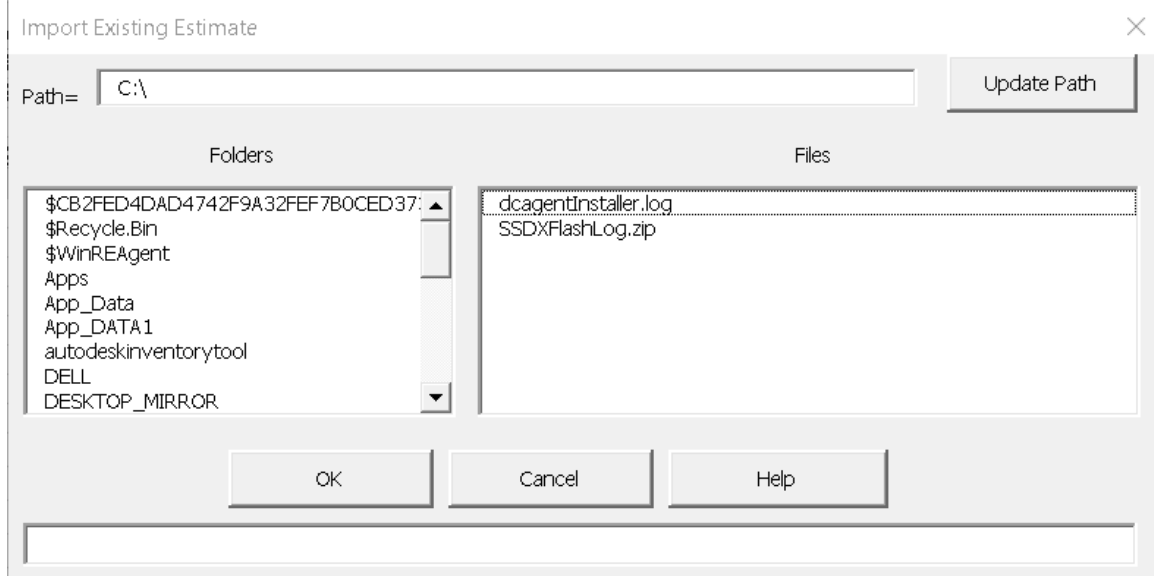
Import Estimate from other STN Tool sheet	Reset All Quantities to Zero	Check For Program Updates	Update Pricing Models
Help/Comments		Bidtabs Query	
Find Specific Itemcode in worksheet	Search Itemcode	Compute Sq. Ft. Bridge Cost	Import Contract from Bidtabs
Import PreCon Estimate		User Manual	Filter Input Tabs
Back Populate Item List	Set Up Local Database	Instructional Videos	Close Tool Bar



Project Estimating Tool

• Import PreCon Estimate

- Open the Toolbar
- Choose “Import PreCon Estimate”
- Older Versions say “Import TRANSPRT Estimate”
- A File search window will open

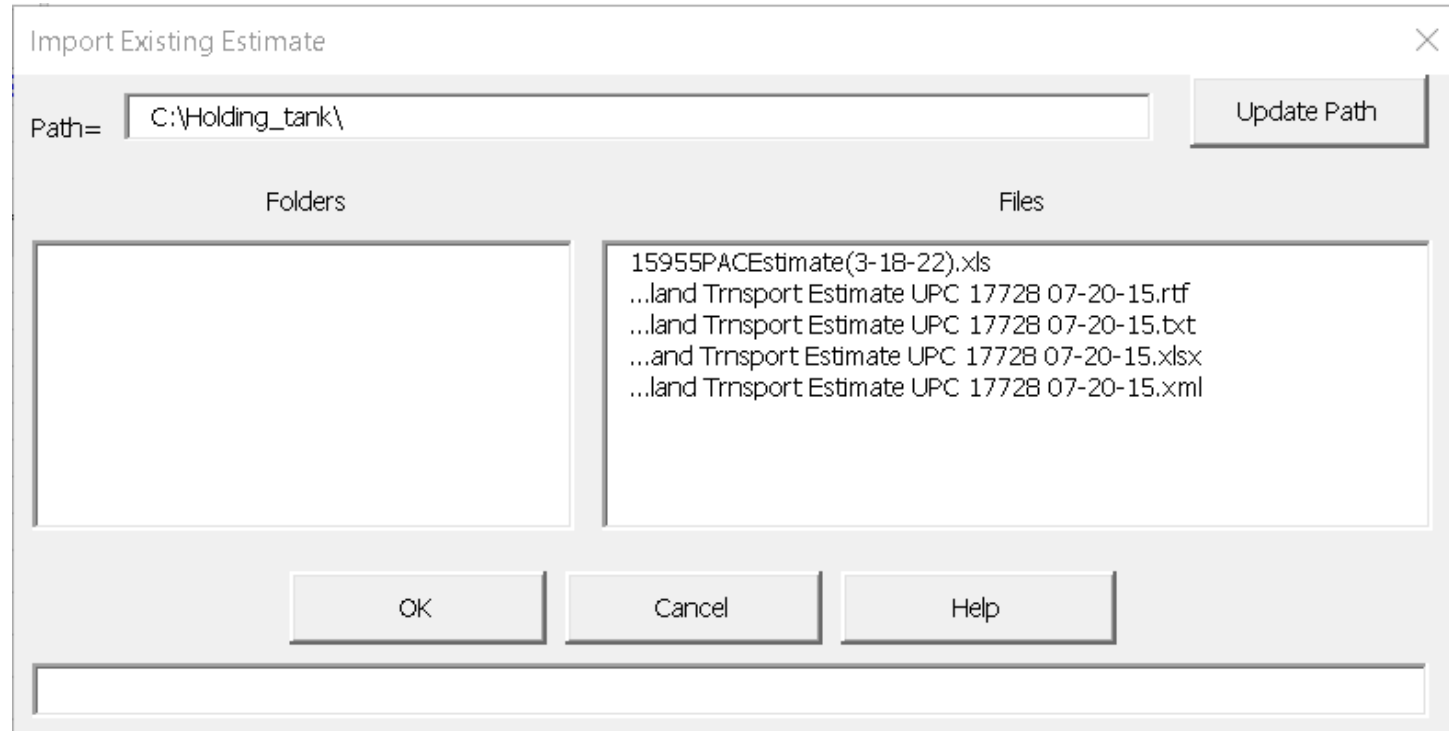
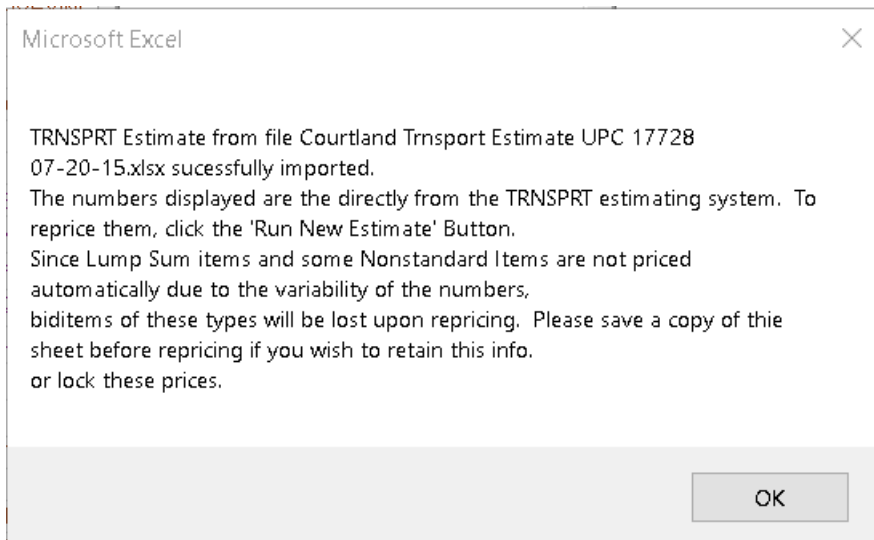


Project Estimating Tool

• Import PreCon Estimate

- Navigate to the desired folder
- Select a file
- Click OK

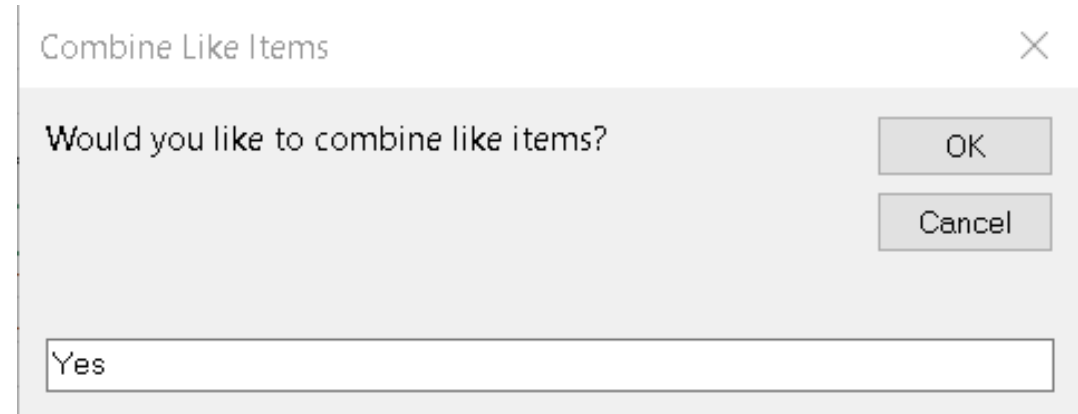
- If all goes well, it will be imported



Project Estimating Tool

- Import PreCon Estimate

- It will ask if you want to combine like items
- This can often become inoperable due to frequent changes in the output format, requiring updates



Project Estimating Tool

•Other Features & Tips

- You can “lock” prices that you manually input so they do not get repriced later.
- Clicking the Itemcode will take you to the Statewide Bidtab pricing App.

<u>NT</u>	<u>Locked</u>	<u>I</u>
-		
-		
-		
32,480.03	Locked	
359,451.38	Locked	O
399.89		
3,009.21	Locked	

10128	AGGR. BASE MATL. TY. I NO. 21B
10635	ASPHALT CONCRETE TY. SM-9.5A
10642	ASPHALT CONCRETE TY. BM-25.0A
11070	MANUFACTURED CUT ASPH CONC
11070	-----

Project Estimating Tool

•Pricing Model Links

- Clicking on the Itemcode in Column A opens the Pricing Model
- It will load the District and quantity to calculate unit Prices
- The district, Itemcode and quantity can be changed for recalculation.
- External users need to be logged in to the external site for this to operate properly.

Bid Item Cost Lookup. Choose a Dataset, and Cost Model, and enter a quantity.

Data Set: English Units

Item Code:

Quantity:

[Click Here for Conversion Utility](#)

Based on Quantity range of 50 to 41756 for 36 occurrences. Current to 1/6/2023 letting.

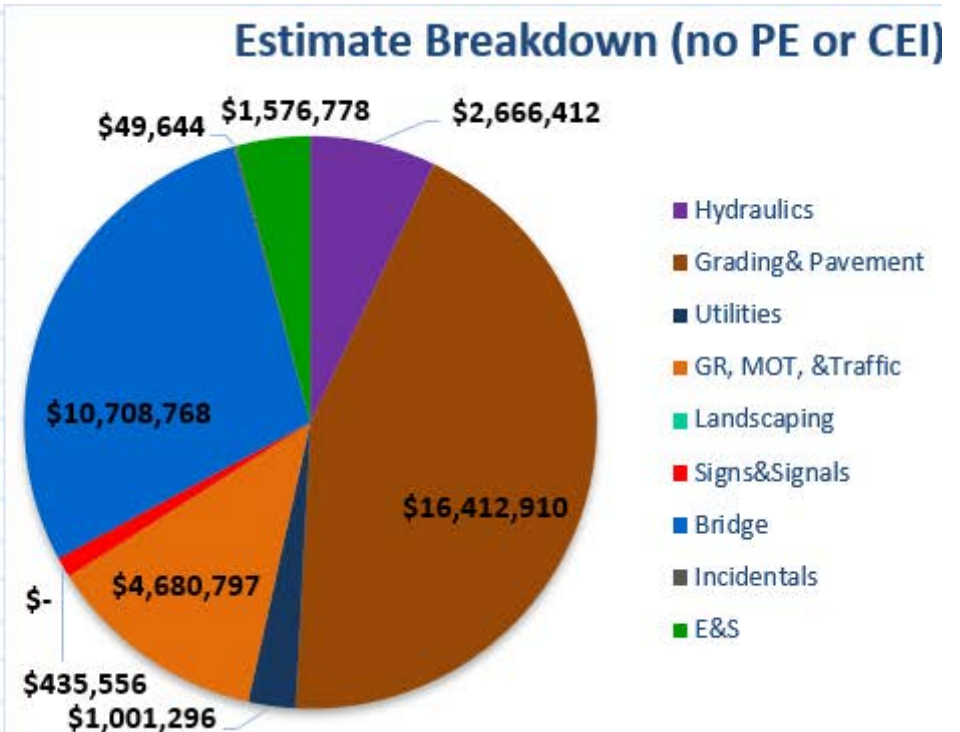
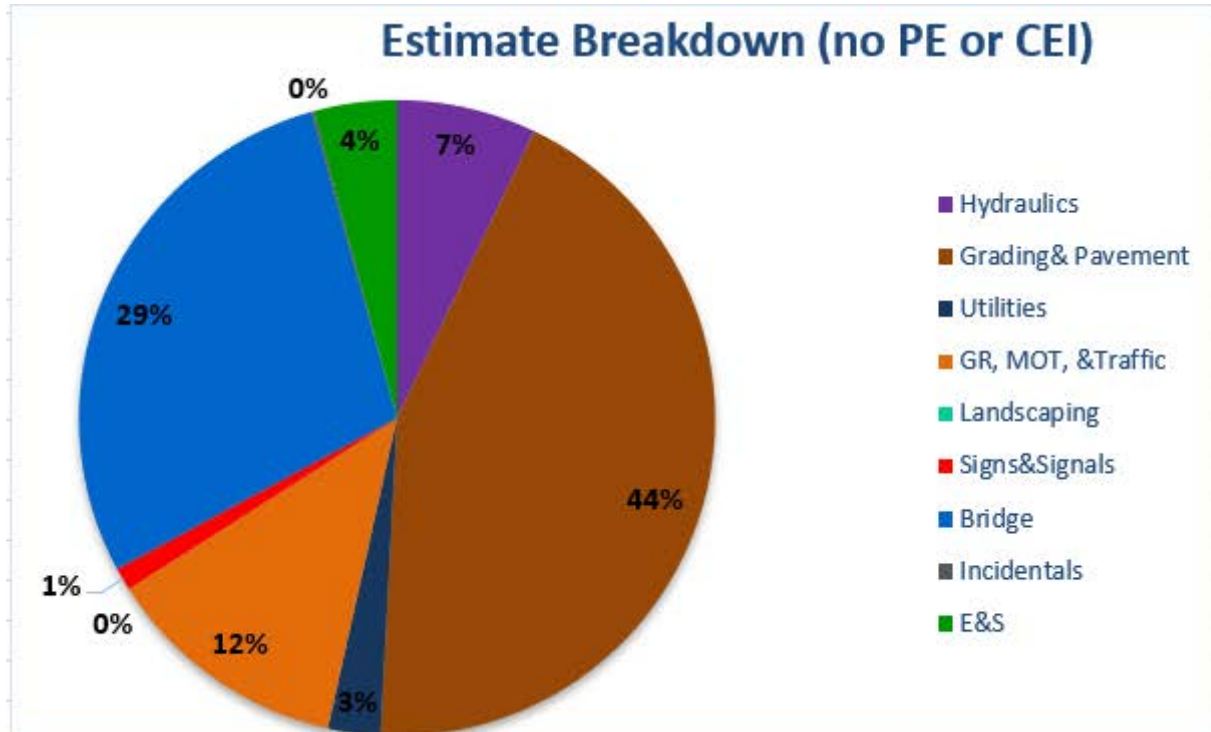
Old Item Code/New Item Code	Name	Units	Quantity	Average	Linear	Nonlinear	Category
140 /305SD20-0001	BORROW EXCAVATION	CY	90	\$48.81	\$52.63	\$59.32	Road Construction
Total Cost of Item:				\$4,392.90	\$4,736.70	\$5,338.80	

Project Estimating Tool

- Statistics

- Graphs for breakdown of estimate dollars

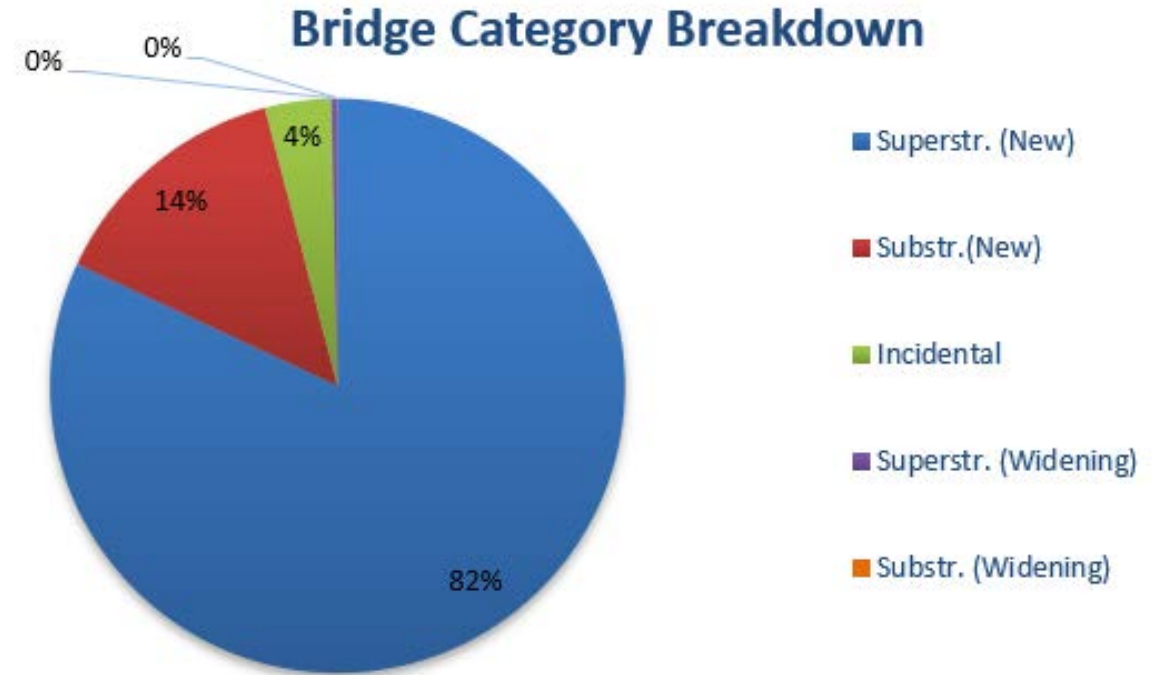
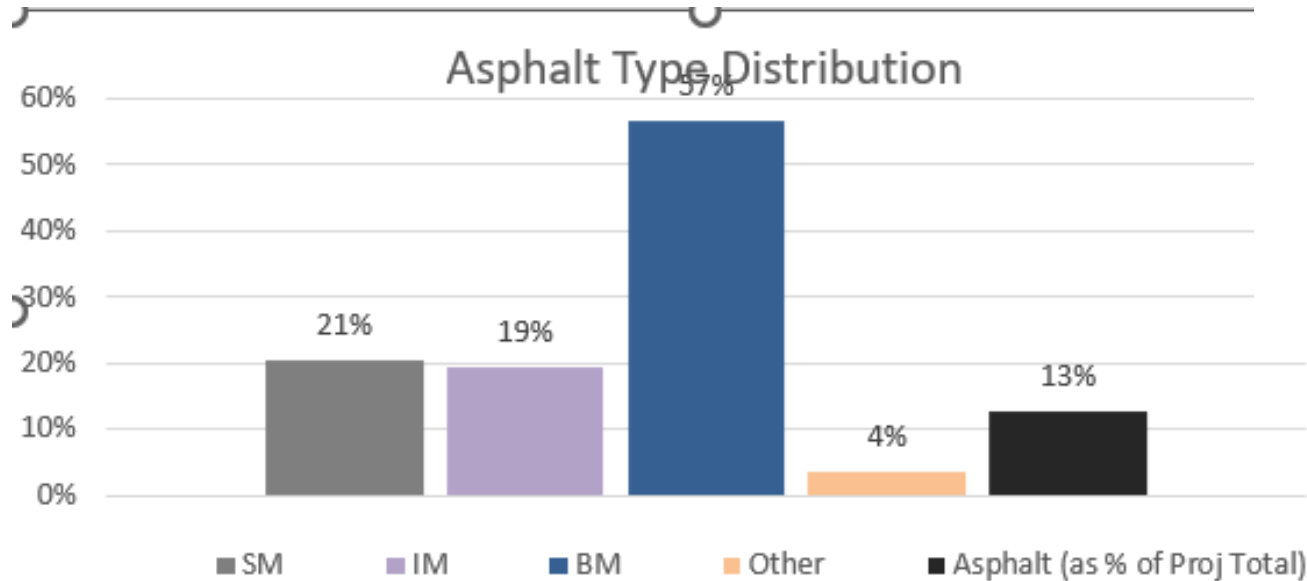
- Categories



Project Estimating Tool

•Statistics

- Graphs for breakdown of estimate dollars by percent
 - Asphalt
 - Bridge



Project Estimating Tool

•Other Features

- Right Click Itemcode
- Jumps to MATRIX tab.
- This shows all unit prices for all price models.
- Shows # of data points, Min & Max Quantities
- Can be helpful to find unit prices when the estimate
- Pulls in the Quantity from the COMPLETE Estimate tab

ITEM	ITEM DESCRIPTION	UNITS
100	MOBILIZATION	LS
101	CONSTRUCTION SURVEYING CONSTRUCTION	LS
110	CLEARING AND GRUBBING	LS
120	REGULAR EXCAVATION	CY
140	BYPASS EXCAVATION	CY
1150	15" PIPE	LF
1152	15" CONC. PIPE	LF

Itemcode:	120	Enter Itemcode & Quantity	Reset Links for Itemcode and Quantity				
Item Description:	REGULAR EXCAVATION						
Quantity:	143.0 CY						
<i>Enhanced Regression</i>							
District	Average	Linear	Nonlinear	# Data Points	Min Qty	Max Qty	
1	\$ 188.66	\$ 204.76	\$ 95.59	49	4	787,113	Bristol
2	\$ 99.38	\$ 124.82	\$ 117.09	35	25	8,704	Salem
3	\$ 70.31	\$ 81.74	\$ 70.10	20	25	182,989	Lynchburg
4	\$ 169.95	\$ 190.77	\$ 141.10	44	5	18,766	Richmond
5	\$ 75.51	\$ 89.43	\$ 142.27	32	170	4,471	Hampton Roads
6	\$ 101.28	\$ 149.28	\$ 101.64	27	19	49,238	Fredericksburg
7	\$ 101.84	\$ 125.69	\$ 102.93	28	28	5,691	Culpeper
8	\$ 45.30	\$ 53.78	\$ 398.93	26	1,529	109,022	Staunton
9	\$ 78.15	\$ 82.37	\$ 84.79	53	46	10,435	NoVa
Statewide	\$ 111.24	\$ 114.41	\$ 103.45	314	4	787,113	

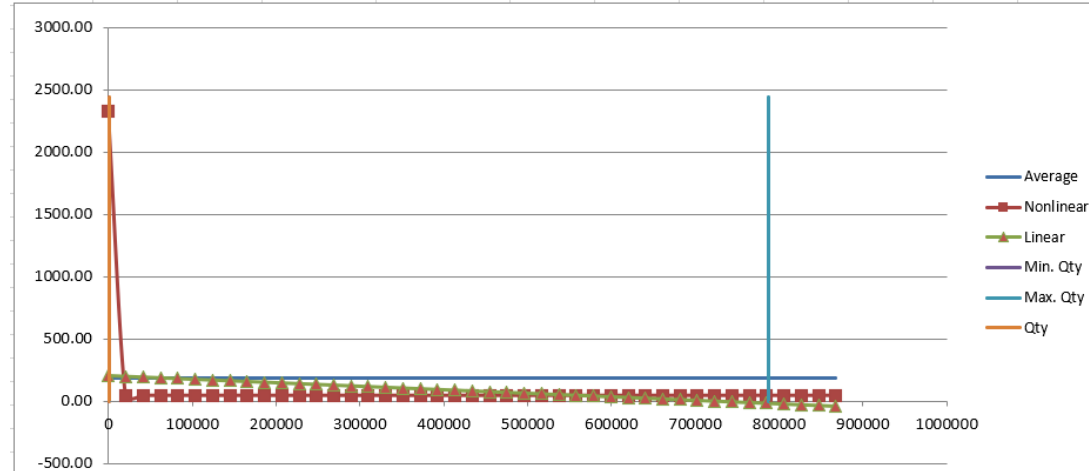
Project Estimating Tool

- Other Features
- Double Click District Number
- Jumps to GRAPHING tab
- You can Change the Quantity & Itemcode

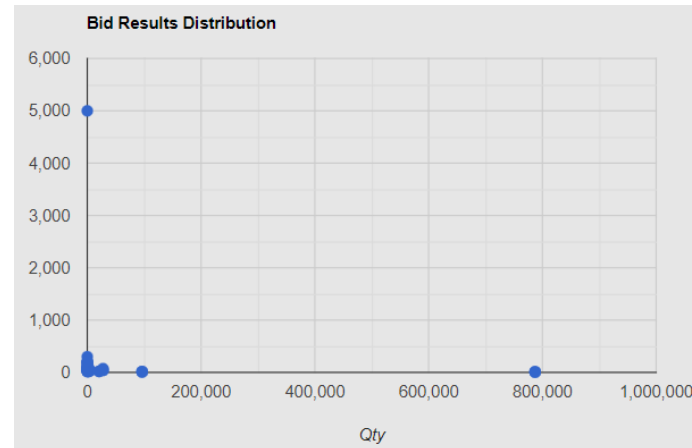
Pricing Model Graphical Analysis

Choose a locality, enter an Itemcode, and click the Button to the right for Graphing.

District:	Bristol	Graph Pricing Models
Itemcode:	120	
REGULAR EXCAVATION		
Min Quantity:	4	CY Return to Main Page
Max Quantity:	787,113	CY Reestablish Links
Number of Data Points:	49	
Quantity in Question:	143.0	CY (can be changed after running macro for dynamic adjustments)



Itemcode:	120	Enter Itemcode & Quantity	Reset Links for Itemcode and Quantity				
Item Description:	REGULAR EXCAVATION						
Quantity:	143.0	CY					
<i>Enhanced Regression</i>							
District	Average	Linear	Nonlinear	# Data Points	Min Qty	Max Qty	
1	\$ 188.66	\$ 204.76	\$ 95.59	49	4	787,113	Bristol
2	\$ 99.38	\$ 124.82	\$ 117.09	35	25	8,704	Salem
3	\$ 70.31	\$ 81.74	\$ 70.10	20	25	182,989	Lynchburg
4	\$ 169.95	\$ 190.77	\$ 141.10	44	5	18,766	Richmond
5	\$ 75.51	\$ 89.43	\$ 142.27	32	170	4,471	Hampton Roads
6	\$ 101.28	\$ 149.28	\$ 101.64	27	19	49,238	Fredericksburg
7	\$ 101.84	\$ 125.69	\$ 102.93	28	28	5,691	Culpeper
8	\$ 45.30	\$ 53.78	\$ 398.93	26	1,529	109,022	Staunton
9	\$ 78.15	\$ 82.37	\$ 84.79	53	46	10,435	NoVa
Statewide	\$ 111.24	\$ 114.41	\$ 103.45	314	4	787,113	



Project Estimating Tool

- Matrix Tab

- You can Change the Quantity to recalculate the regression prices. The Average will not change

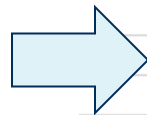
Itemcode:	120	Enter Itemcode & Quantity	Reset Links for Itemcode and Quantity			
Item Description:	REGULAR EXCAVATION					
Quantity:	50,000.0	CY				
<i>Enhanced Regression</i>						
District	Average	Linear	Nonlinear	# Data Points	Min Qty	Max Qty
1	\$ 188.66	\$ 190.70	\$ 44.71	49	4	787,113
2	\$ 99.38	\$ (403.56)	\$ 66.07	35	25	8,704
3	\$ 70.31	\$ 62.26	\$ 67.09	20	25	182,989
4	\$ 169.95	\$ (407.26)	\$ 118.53	44	5	18,766
5	\$ 75.51	\$ (410.79)	\$ 51.67	32	170	4,471
6	\$ 101.28	\$ (15.55)	\$ 90.05	27	19	49,238
7	\$ 101.84	\$ (621.69)	\$ 96.36	28	28	5,691
8	\$ 45.30	\$ 34.27	\$ 32.76	26	1,529	109,022
9	\$ 78.15	\$ (33.04)	\$ 67.55	53	46	10,435
Statewide	\$ 111.24	\$ 103.82	\$ 63.02	314	4	787,113
						Bristol
						Salem
						Lynchburg
						Richmond
						Hampton Roads
						Fredericksburg
						Culpeper
						Staunton
						NoVa

Project Estimating Tool

•Matrix Tab

- If No bids were received in the time period, there will be no data available on the row for that district

Itemcode:	12940	Enter Itemcode & Quantity		Reset Links for Itemcode and Quantity		
Item Description:	ENTRANCE GUTTER CG-9D					
Quantity:	30.0 SY					
<i>Enhanced Regression</i>						
District	Average	Linear	Nonlinear	# Data Points	Min Qty	Max Qty
1	\$ 140.22	\$ 140.22	\$ 140.22	2	118	118
2	\$ 200.12	\$ 499.63	\$ 1,263.65	6	101	113
3	\$ 219.57	\$ 213.09	\$ 123.16	8	50	496
4	\$ 224.15	\$ 232.87	\$ 232.87	6	30	80
5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
6	\$ 197.77	\$ 192.90	\$ 193.34	15	48	308
7	\$ 146.03	\$ 160.68	\$ 173.99	5	45	90
8	\$ 256.75	\$ 311.82	\$ 353.12	4	39	75
9	\$ 99.57	\$ 152.06	\$ 133.83	12	19	100
Statewide	\$ 181.05	\$ 173.95	\$ 192.73	58	19	496



Project Estimating Tool

•Compare Tab

- Across the top in pale orange are 3 target Contract ID's. You can use other methods to find those to enter. Either the Lookup App, or the Statewide Bidtab Query to search for Contract Description.
- Click on the “Compare Contracts” button.
- For each Contract ID, the project information will be retrieved, as well as the 3 low bidders, and their respective total bids.

Target Contract ID:

C0000109287M01



C0000109287M01			
SMART SCALE - INTERSECTION IMPROVEMENTS ROUNDAABOUT			
Salem (2)			
2/24/2021			
Qty	CATON CONSTRUCTION GROUP, INC.	BORING CONTRACTORS, INC.	ALLEGHENY CONSTRUCTION COMPANY, INC.
Total:	\$ 1,898,391	\$ 1,939,875	\$ 2,258,179

Project Estimating Tool

•Compare Tab

- For every itemcode in the Target list, the corresponding Quantity and unit price for the corresponding bidders is displayed.

ITEM	ITEM DESCRIPTION	UNITS	Target Qty	Qty	CATON CONSTRUCTION GROUP, INC.	BORING CONTRACTORS, INC.	ALLEGHENY CONSTRUCTION COMPANY, INC.
				Total:	\$ 1,898,391	\$ 1,939,875	\$ 2,258,179
100	MOBILIZATION	LS	1	1	\$ 125,400.00	\$ 100,000.00	\$ 130,000.00
101	CONSTRUCTION SURVEYING CONSTRUCTION	LS	1	1	\$ 27,000.00	\$ 35,000.00	\$ 45,000.00
125	GRADING	LS	1	0	\$ -	\$ -	\$ -
136	BORROW EXCAVATION	CY	1258	0	\$ -	\$ -	\$ -
180	UTILITY TEST PIT UNPAVED	EA	3	3	\$ 250.00	\$ 500.00	\$ 600.00
181	UTILITY TEST PIT ASPHALT CONCRETE	EA	3	0	\$ -	\$ -	\$ -
529	FLOWABLE BACKFILL	CY	6.6	4	\$ 550.00	\$ 255.00	\$ 875.00
585	UNDERDRAIN UD-2	LF	130	0	\$ -	\$ -	\$ -
595	OUTLET PIPE	LF	62	0	\$ -	\$ -	\$ -
1156	STORM SEWER PIPE 15"	LF	266	445	\$ 100.00	\$ 65.00	\$ 130.00
1186	STORM SEWER PIPE 18"	LF	125	0	\$ -	\$ -	\$ -
1246	STORM SEWER PIPE 24"	LF	171	122	\$ 200.00	\$ 95.00	\$ 330.00
6150	15" END SECTION ES-1 OR 2	EA	1	0	\$ -	\$ -	\$ -
6240	24" END SECTION ES-1 OR 2	EA	1	0	\$ -	\$ -	\$ -

Project Estimating Tool

- Usage grew to the point that it was adapted to be used outside of VDOT; by consultants and localities.
- Several of the features came about by users asking “Hey, do you think you could make it do...”

Questions?

• Keith.Weakley@Volkert.com

• 703-298-8428

