



COST ESTIMATION OFFICE – OVERVIEW & STATUS

Presented to ACEC - Hampton Roads (Virtual Meeting)

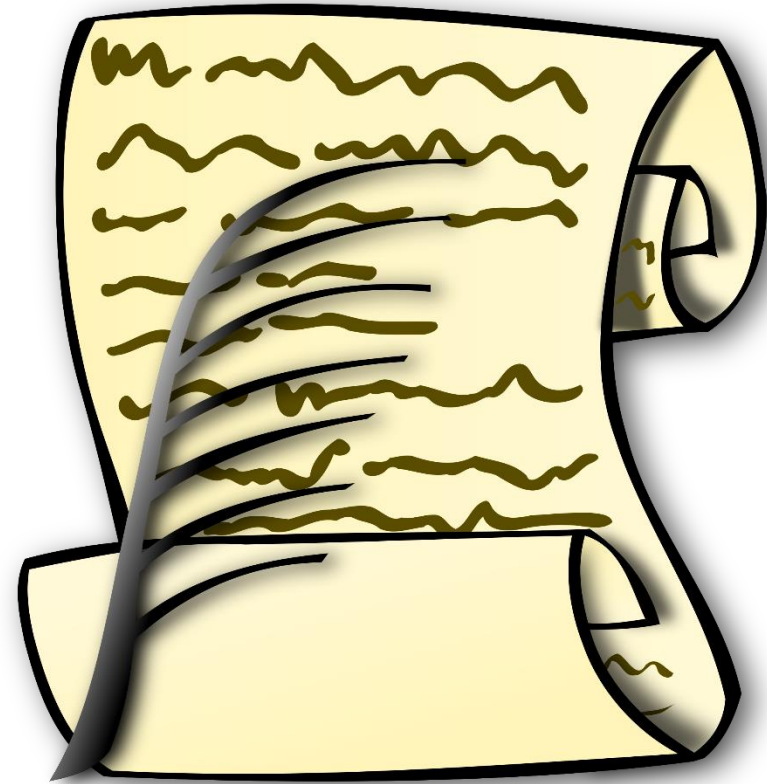
 Mitch Ball, Director, VDOT's Cost Estimation Office

April 21, 2022

Cost Estimation Office – April 2022 Update

Mission Statement:

Our mission is to equip and enable VDOT personnel and business partners with leading cost estimating practices, philosophies, approaches and tools.



Cost Estimation Office - April 2022 Update

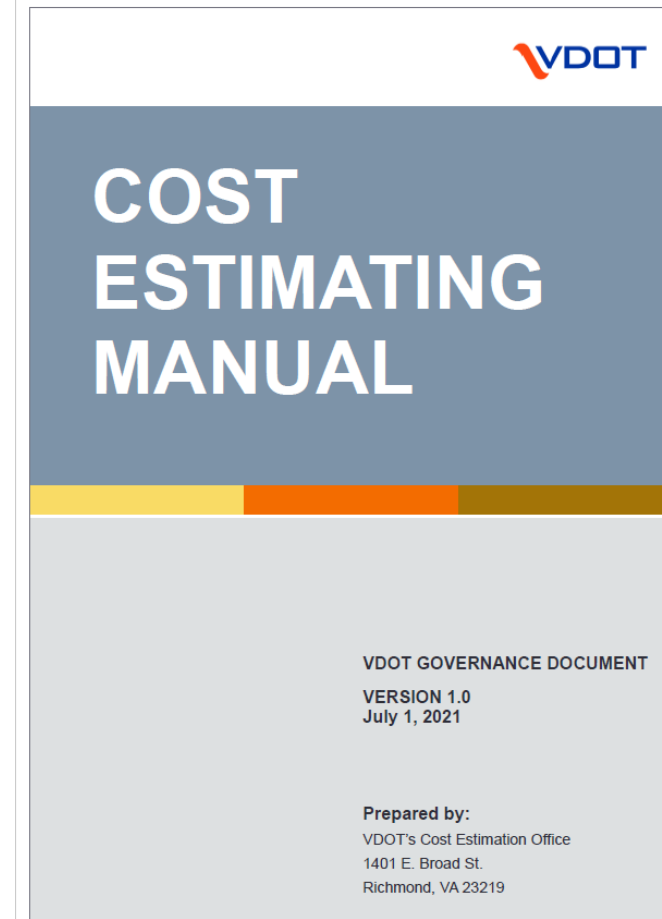
Agenda / Topics:

- **Cost Estimation Office Status**
- **Estimating Manual & Policy**
- **Estimating Training**
- **Estimating Tools & Systems**
- **Market Trends**

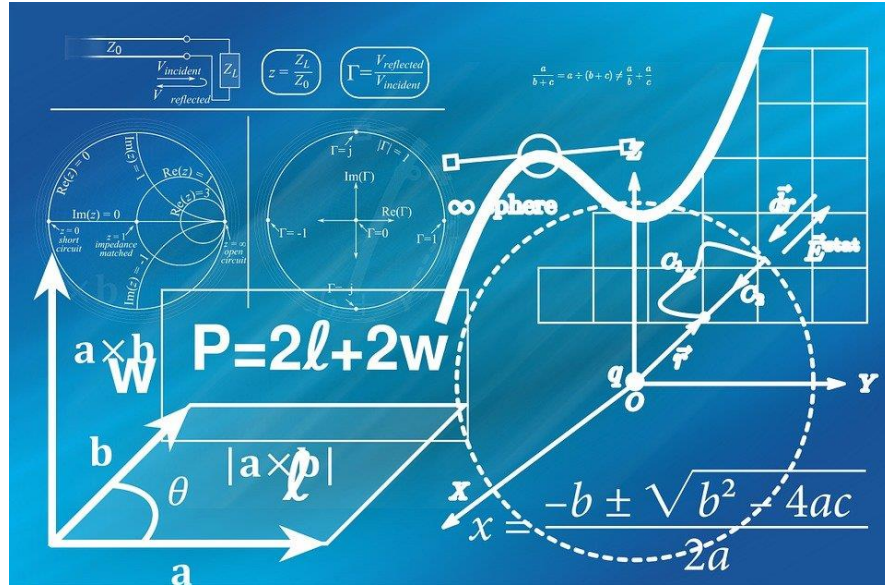


VDOT's Estimating Manual & Policy - April 2022 Update

- **Cost Estimating Manual:**
 - **Published in August 2021**
 - **Highest Priority & 1st Deliverable**
 - **Very Challenging (Inexact Science)**
 - **Resource Manual**
 - **Living Document – Updated Regularly**
 - **Available on VDOT Website:**
 - https://www.virginiadot.org/business/resources/Cost_Estimation_Office/VDOT_Cost_Estimating_Manual.pdf



VDOT's Estimating Manual & Policy - April 2022 Update



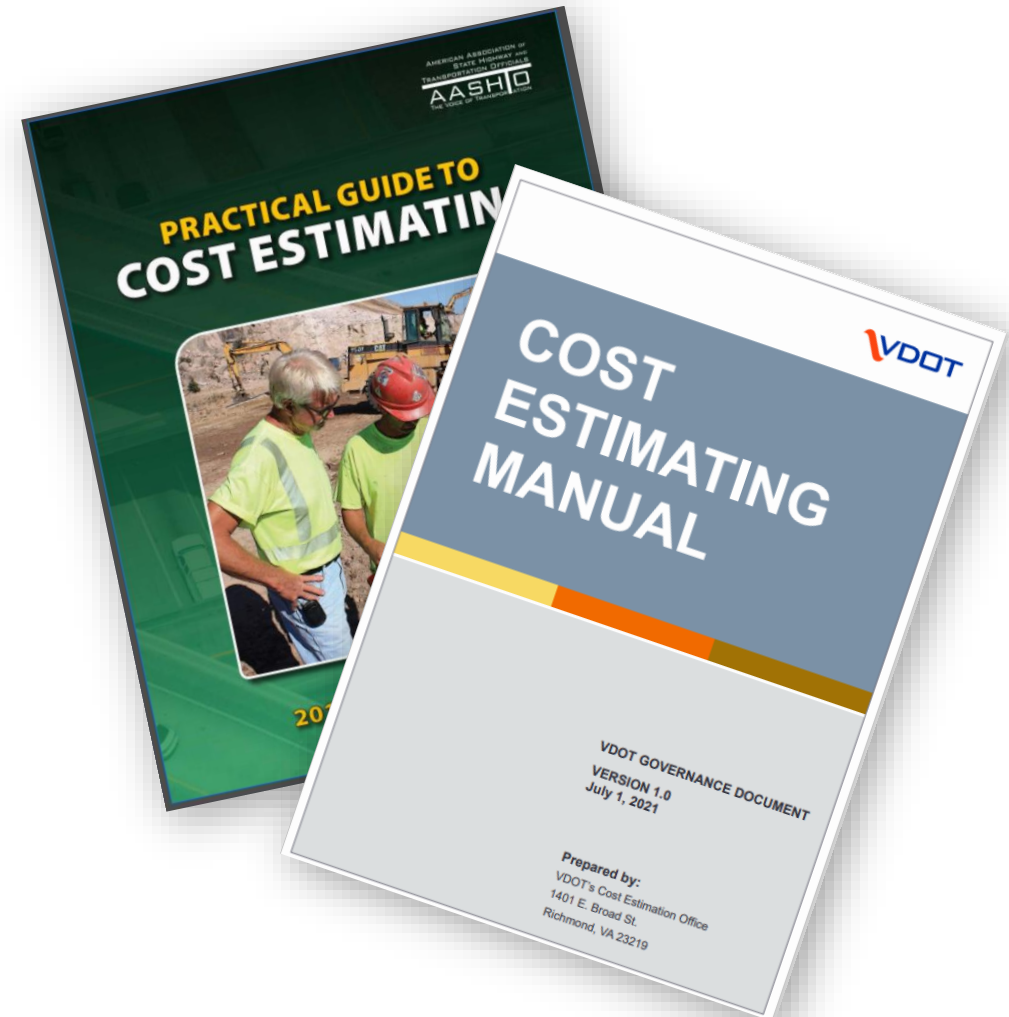
Science Aspect of Estimating:
In Engineer's Comfort Zone



Art Aspect of Estimating: Not
In Most Engineer's Comfort Zone

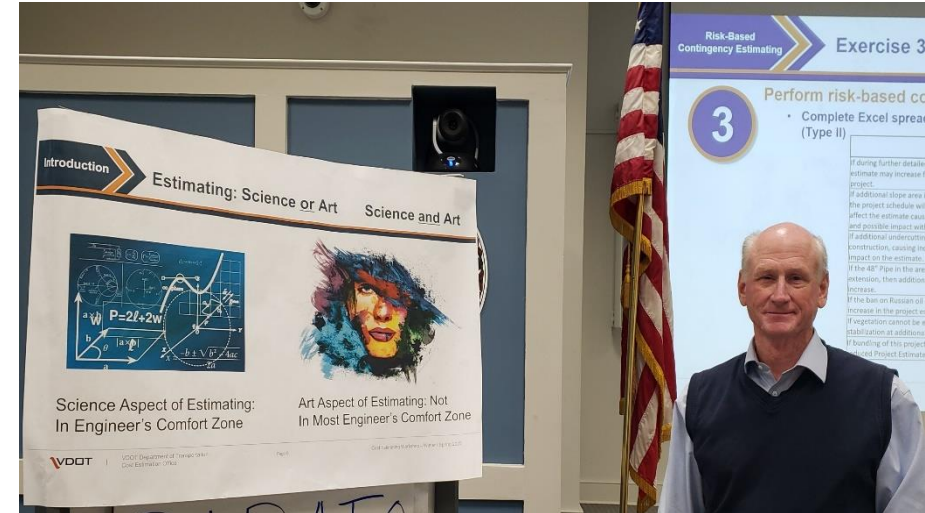
VDOT's Estimating Manual & Policy – April 2022 Update

- **VDOT has Adopted Some of AASHTO's Recommended Practices:**
 - VDOT Manual: Resource Document
 - AASHTO Manual: More of a Text Book
- **AASHTO's:**
 - Risk Based Contingencies
 - Formalized Estimate Documentation



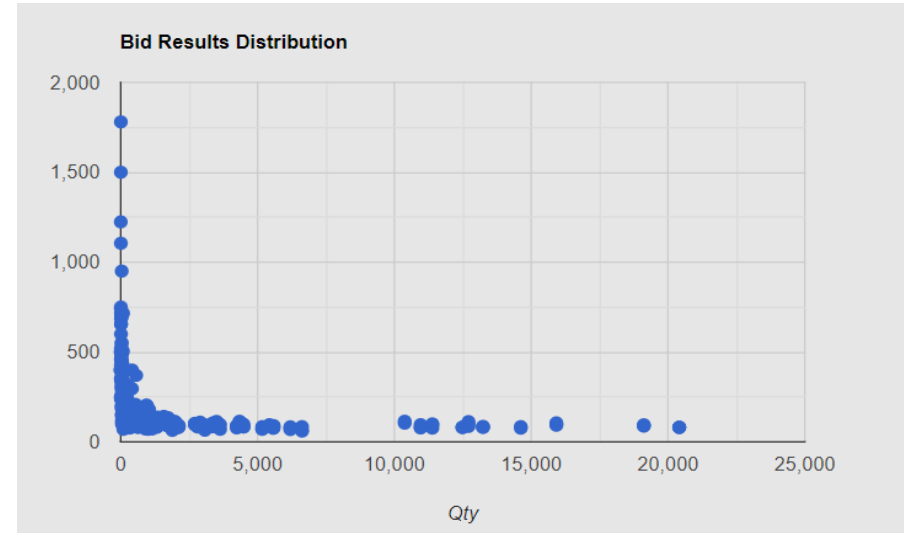
VDOT's Estimating Training – April 2022 Update

- Estimating Training – A Significant Component of CEO
- Published Estimating Manual Overview on VDOT University in December of 2021
- Delivered 10 - Two Day Estimating Workshops: February 2022 to April 2022
- **Over 700 Participants!**



VDOT's Estimating Training – April 2022 Update

- **Two Day Workshops – Beginner / Intermediate Estimator Training**
- **Targeted Continuous and Ongoing Training Planned**
- **Coming Soon:**
- **In-depth Training on Bid Tab Analysis Techniques**



Price Statistics

Average Unit Price=\$183.56 & Weighted Average Unit Price=\$96.17 & Median Bid=\$125.00

For Linear Regression: Unit Cost(\$)= 205.69 + Quantity * -0.0126

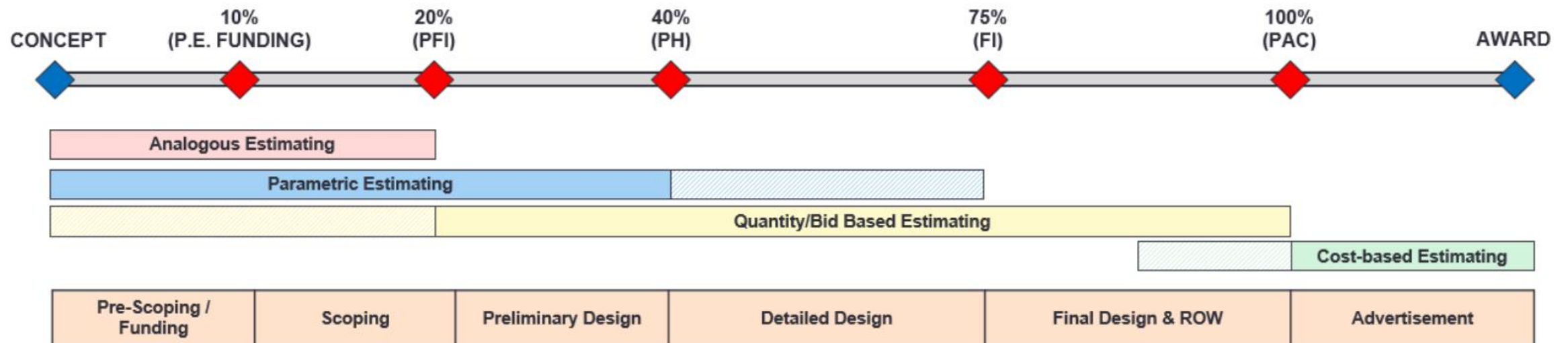
For Non-Linear Regression: Unit Cost(\$)= 150.71 + 1998.108/Quantity

Standard Deviation: \$171.64. (90% CI Range: \$-98.79-\$465.9)

Quantity Range: 2. to 20413 TON

VDOT's Estimating Tools & Systems – April 2022 Update

- Learned Many Things Through Manual Development & Training Initiatives:
- Greatest Need for Upgraded Tools and More Useful Data: Conceptual & Pre-Scoping Estimates



CEM – Figure 1-4 For Details of Tools Available at Various Stages

VDOT's Estimating Tools & Systems – April 2022 Update

VDOT's Estimating Tools & Systems:

- VDOT has Many Estimating Tools
- Some Excellent Tools
- Many Tools not well Integrated
- Working with SWWG on Roadmap – Due July 2022
- Upgrades Are Forthcoming!
- Must Provide Consultants & Locality Access to Tools!



VDOT's Estimating Tools & Systems – April 2022 Update

VDOT's New Consistent Estimate Summary

- Cost Estimate Workbook (CEWB)

A	B	C	D	E	F	G	H
1	SYIP PROJECTS						
2	DETAILED PROJECT COST ESTIMATE SUMMARY						
3	(Version: March 2022)						
4	Portal ID:	777		Project UPC:	777777		Clear Heading
5	Prepared By:	One Sharp Techno Savvy Estimator		Milestone	Creation/Pre Scope		
6	Reviewed By:	One Highly Experienced Estimator		Date:	1/1/2020		
7	Project Location:	County	Smyth County (86)	Tier Level	1		
8	Project Complexity Classification	Moderately Complex		Estimate Type	Smart Portal		
9	Preliminary Engineering Phase 7 Clear PE Ensure input where required. If no value then enter "0"						
10	Project Estimate Component						
11	Discipline	Source	Defined(\$)	Allowance*			Total
12	Roadway	Norms	\$ 250,000.00	\$ -			\$ 250,000.00
13	Hydraulics	Similar Project	\$ 20,000.00	\$ -			\$ 20,000.00
14	Utilities	Select					\$ -
15	Traffic	Similar Project	\$ 25,000.00				\$ 25,000.00
16	Structures/Bridges	Select					\$ -
17	Materials/Geotech	Norms	\$ 20,000.00	\$ -			\$ 20,000.00
18	Survey/SUE/Quality Level A SUE	Similar Project	\$ 15,000.00				\$ 15,000.00
19	Environmental	Similar Project	\$ 25,000.00				\$ 25,000.00
20	Right of Way	Select					\$ -
21	Other	Norms	\$ 20,000.00	\$ -			\$ 20,000.00

Cost Estimating Market Trends - April 2022

Market Trend Analysis - Ongoing:

- **Cost Estimation Office Reviewing Bids and Trends Monthly**
- **Engaged Professional Economists**
- **Nearly Unprecedented Market Place:**
 - Post Pandemic Economy
 - Russia's Invasion of Ukraine



Crude Oil Prices – Past 6 Months

Cost Estimating Market Trends - April 2022

Market Trend Analysis - Ongoing:

- Increases Across Program
- Steel (Rebar, Structural, Guardrail, Other)
- Asphalt
- Excavation
- Pavement Markings (Resins)
- Monthly, VDOT Publishes 3 Month, 1 Year, and 2 Year Averages Available:
<https://www.virginiadot.org/business/cost/resource.asp>



Cost Estimating Market Trends - April 2022

Great Opportunities in Data Mining:

- Currently we are *“data rich and information poor.”* KAB
- Data Mining will enable us to glean useful estimating information from the vast amount of data we collect.



Cost Estimating Market Trends - April 2022

Sample Data Analytics: Inflation - Top 10 Ranking

	A	B	C	D	E	F	G	H	I
1									
2	Apr-22								
3	Inflation				Minimum	Maximum	Minimum	Maximum	Annual
4	Ranking	Item	Description	Num	Quantity	Quantity	Date	Date	Inflation %
5									
6	1	27113	HYDRAULIC EROSION CONTROL PRODUCT TYPE 4	66	182	31,098.00	19-12-18	21-12-15	17.0
7	2	140	BORROW EXCAVATION	210	10	68,615.00	19-12-18	21-12-15	16.5
8	3	54440	TEMP. PVMT MRKG, TY. A, 24"	212	12	8,215.00	19-12-18	21-12-15	15.0
9	4	13392	FIXED OBJECT ATTACH. GR-FOA-2 TY. I	100	1	6	19-12-18	21-12-15	14.9
10	5	12322	ASPHALT CONC. CURB TY. MC-3B	68	5	6,547.00	19-12-18	21-12-15	13.8
11	6	54589	SYMB MRKG LANE REDUCTION ARR TY B CL I	98	1	30	19-12-18	21-12-15	12.3
12	7	54042	TY.B CL.I PAVE. LINE MARK. 24"	597	11	12,521.00	19-12-18	21-12-15	12.1
13	8	16161	MODIFIED SINGLE SEAL	83	20,000.00	1,388,171.00	19-12-18	21-12-15	10.2
14	9	27101	TEMPORARY SEED	363	1	5,204.00	19-12-18	21-12-15	10.0
15	10	1152	15" CONC. PIPE	85	19	3,147.00	19-12-18	21-12-15	9.8
16	Disclaimer:								
17	This data is in no way a comprehensive list of items that are currently experiencing an unusual high rate of inflation. It is a simple snapshot of data for April 2022								

Cost Estimation Office Team - April 2022

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(Joined: January 2021
Focus Area: Leadership &
Vision)

**Ray Johnston, P.E.,
CCM**

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(Joined: September 2021
Focus Area: Estimating
Training and CN
Estimation)

**Harold R. Caples, P.E.,
CCM, VCCO**

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(Joined: February 2022
Focus Area: Estimating Tools
& Technology and Project
Development Estimates)

Cost Estimation Office Overview & Update – April 2022

**Thank you ACEC-HR for
Opportunity!**

Mitch Ball, Director

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