COST ESTIMATE WORKBOOK

User's Guide

Version 2.1

February 1, 2023

Cost Estimating Workbook User's Guide

Thank you for choosing to use VDOT's Cost Estimate Workbook (CEWB). This is a brief introduction into the inner workings and data input needed to complete the CEWB. This tutorial will provide a discussion on the use of the tool, the different elements that makes up the tool and provide guidance for individual phases.

Table of Contents

I. Revision History

A. Version 2.0 (12/5/2022)
- Revised Construction Contract Contingency to Management Reserve/Construction Contract Contingency
- Modified how Management Reserve/Construction Contract Contingency, Contract Requirements and CEI is calculated when using discipline specific contingency
- Revised Inflation Tables and Added an Inflation Summary Tab

B. Version 2.1 (2/1/2023)
- Revised Discipline Categories
- Updated a number of notes in the CEWB
- All Estimate Summaries are rounding to the nearest dollar
- Update the User's Guide to address previous changes
- Included an Upload Function from the CEWB to a PCES (Workbook)

II. Instructions Tab

A. General

The first tab in the spreadsheet is labeled 'INSTRUCTIONS'. This tab provides some instructions for use in entering data into the workbook. The details contained in this manual are to assist with those instructions.

III. Cost Estimate Tab

A. General

This is the Main page of the document. Information entered here will ultimately be tied to the final estimate of the project as shown at the bottom yellow filled row marked "Total Project Cost Estimate (excluding inflation)." This page displays the total project estimate as the data is entered in the provided spreadsheet tabs.

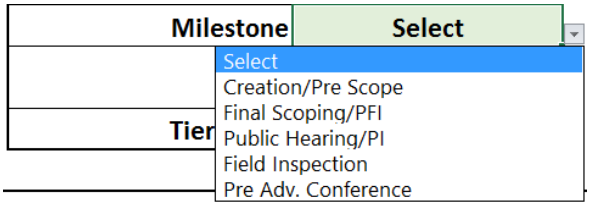
Note: All cells highlighted "Green" require data input

At the top of the sheet, there are the nine input fields: **Portal ID, Project UPC, Prepared by** (Estimator's name followed by employer), Milestone, **Reviewed by, Date** the workbook is being initiated, **City/County/Town, Tier Level** and **Project Complexity Classification**. For each of the phases there is also an Estimate Date required and these dates are to be entered when the workbook for that particular phase has been completed.
The following **four** selections have drop down menus to assist in selection of a particular category.

B. Project Information

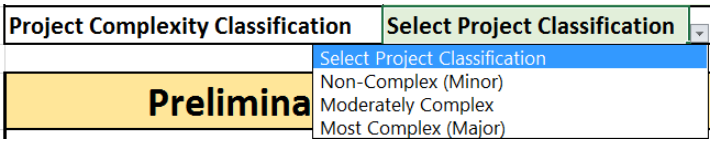
1. Milestone

Shown with the five choices via drop down menu



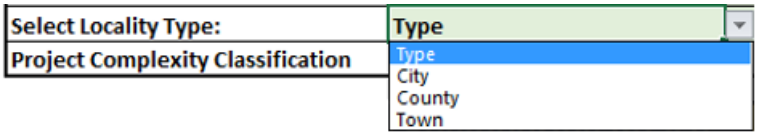
2. Project Complexity Classification

Shown below is based on AASHTO Chapter 5. Please select from the three types of projects. See the Cost Estimating Manual Section 5.3.1 for guidance on Project Complexity Classification.



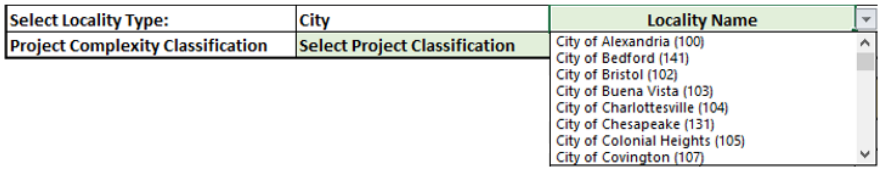
3. Locality Type

This drop down selection in the "Type" cell allows for user input to select either of the following three types of localities (City, County, Town), which will then allow the user to select which named locality is being selected based on its incorporation status.

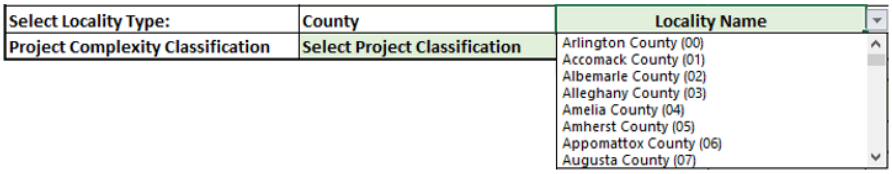


Each county, City, Town that is listed in the Road Design Manual is shown in these menus. The following three illustrations show the various selections via the drop down menu. Once the locality type is selected then if the user moves onto the Locality Name, each named locality of the type is displayed via drop down menu. For ease of use, each of the drop down menus are in alphabetical order.

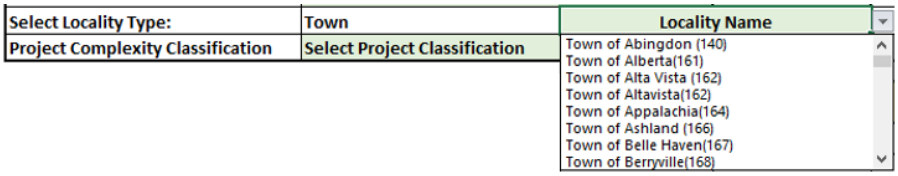
For example if the user selects "City" for the "Locality Type" dropdown in cell C6, then all named Cities are shown via drop down in cell D7 or the "Locality Name" cell.



Above is the list shown with City names



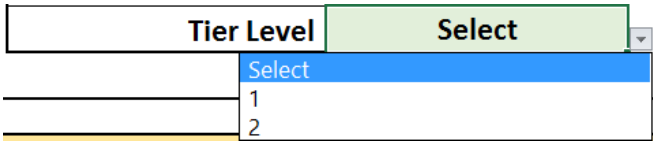
Above is the list shown with County names



Above is the list shown with Town names

4. Tier level

   This is a drop down menu based on IIM-LD-249 2-Tiered Approach to Project Oversight. Please select which Tier the project will fall under.



C. Project Development Process

1. Preliminary Engineering Phase

The Preliminary Engineering (PE) Phase encompasses the location, design, and related work to prepare and advance the project to construction. PE includes, but is not limited to, administrative tasks, project management, all field investigations, and all engineering discipline specific tasks that support or advance project design and preparation of Plans, Specifications, and Estimates (PSE).

The **"Discipline"** column of the PE Phase is where a cost for each discipline involved in the Project Development Process as shown in the Scoping Phase and the Preliminary Design Phase part of the Project Development Process.

In addition, details on the specific tasks and milestones of the PDP can be found in the Project Tasks & Scheduling Guide

2. Right of Way & Utilities Phase

The Right of Way Phase encompasses securing of all rights-of way and easements required to complete the project and clearing the project site from all utility conflicts so construction may commence. RW includes, but not limited to, administrative tasks, appraisals, negotiations, acquisitions, relocations, and utility relocations.

3. Construction Phase

The Construction (CN) Phase encompasses all activities to build and complete construction of the project according to approved plans and applicable specifications. CN includes, but not limited to, administration, material procurement, Bid Item costs, Non-Bid Item costs, and CEI.

Many of the disciplines in this phase allow selection of risk type and to input the contingency percentage.

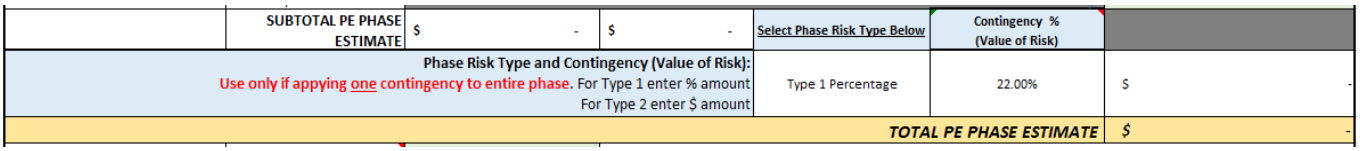
D. Oversight Costs

Oversight costs are included in the ROW and CN phases individually. Oversight costs in the PE phase should be shown in the Project Management discipline. The first type of oversight cost would be for a VDOT administered project. Any VDOT oversight costs on the project for the phase could include Design Exception Review, Design Waiver Review, District Reviews, Tier 2 reviews, meetings, etc.

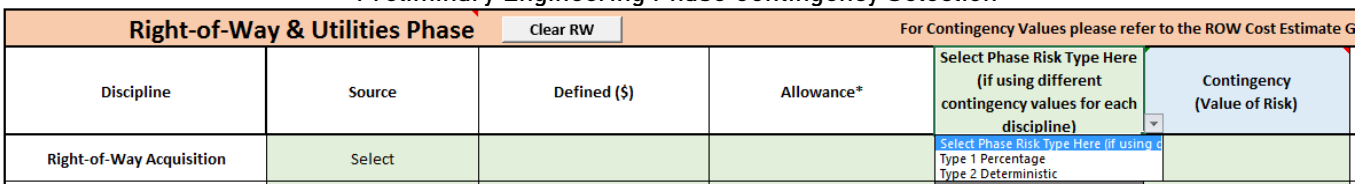
For Locally Administered Projects, a cost for VDOT oversight is included. Each row has with it an associated risk type. See Right of Way Acquisition & Utility Relocation Estimates section in Chapter 1 of the VDOT Cost Estimating Manual. Also see the Defined, Allowance, and Contingency Assumptions section in this manual. Refer to Section 9.4.2 VDOT Risk and Project Oversight in the Locally Administered Projects Manual.

E. Phase Contingency

For the Preliminary Engineering phase, the Contingency selection will apply to all the disciplines. This Contingency will allow for a user to select either Type 1 Percentage or Type 2 Deterministic.

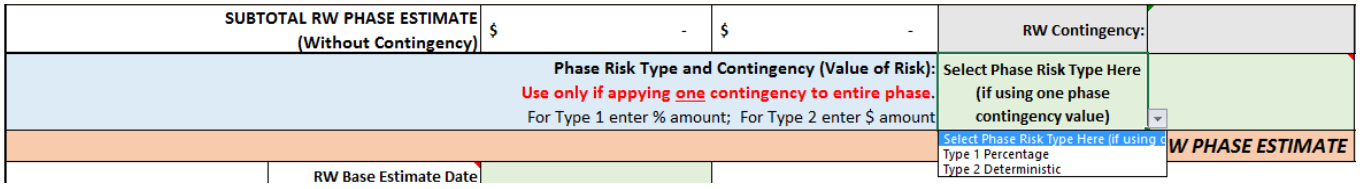


Preliminary Engineering Phase Contingency Selection

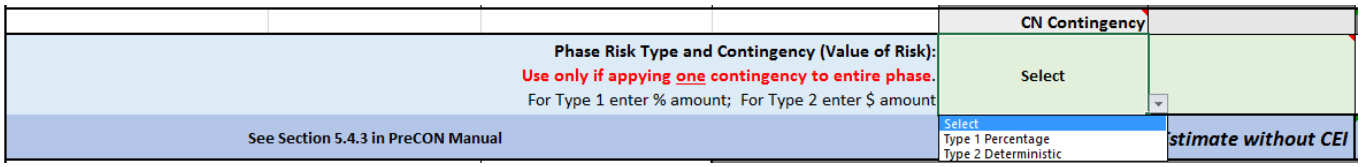


Right-of-Way Phase Discipline Contingency Selection

Located near the bottom of both the Right-of-Way & Utilities phase and Construction phase is where the user can choose to select an overall phase contingency and does not require you to select a separate contingency for each discipline. However the user should exercise caution when selecting an overall phase contingency as this leads to applying the same percentage to the entire phase, across all of the disciplines.



Right-of-Way Total Phase Contingency Selection



Construction Total Phase Contingency Selection

F. Project Estimate Components

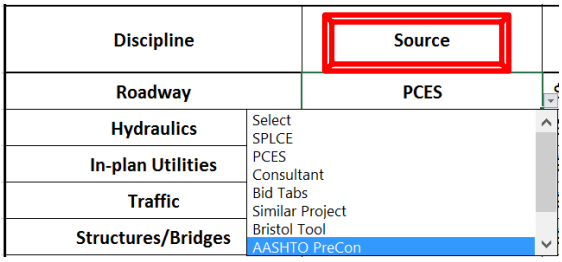
1. Discipline Column

   The Discipline Column contains each of the defined areas of the Project Development Process in which a cost estimate to complete the phase is required.

2. Source column

   Shown below provides another drop down menu that has many selections available to the estimator. An example of this is shown below. There are too many choices in the menu to show here, so please scroll through in the workbook to determine what

source will fit the need. Included in the dropdown but not shown below are two more selections: Professional Judgement and norms. Each discipline should have a source associated with it.



3. Defined ($) column

   This column shall contain an amount derived from the source and as explained on page 10 of the VDOT Cost Estimating Manual.

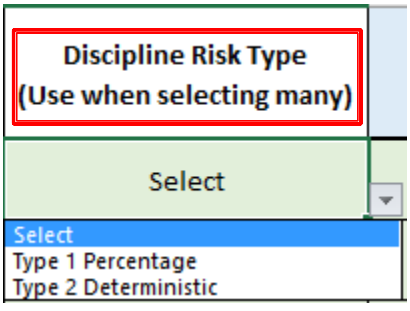
4. Allowance* column

   The Allowance column provides for the entering of data to account for costs of known items whose requirements are as of yet undefined. For more information please see the Allowance key term on page 10 of the VDOT Cost Estimating Manual.

Project Estimate Component						
Discipline	Source	Defined($)	Allowance*	Risk Type	Contingency % (Value of Risk)	Total

5. Risk Type

   Only two types of risks are allowed as shown in the following figure, Type 1 Percentage and Type 2 Deterministic. For the definitions and use of Risk Type please see the definitions shown on page 86 of the VDOT Cost Estimating Manual. The use of Type 1 will result in a percentage being placed in the Contingency Column. The use of Type 2 will result in a dollar amount being placed in the Contingency Column.

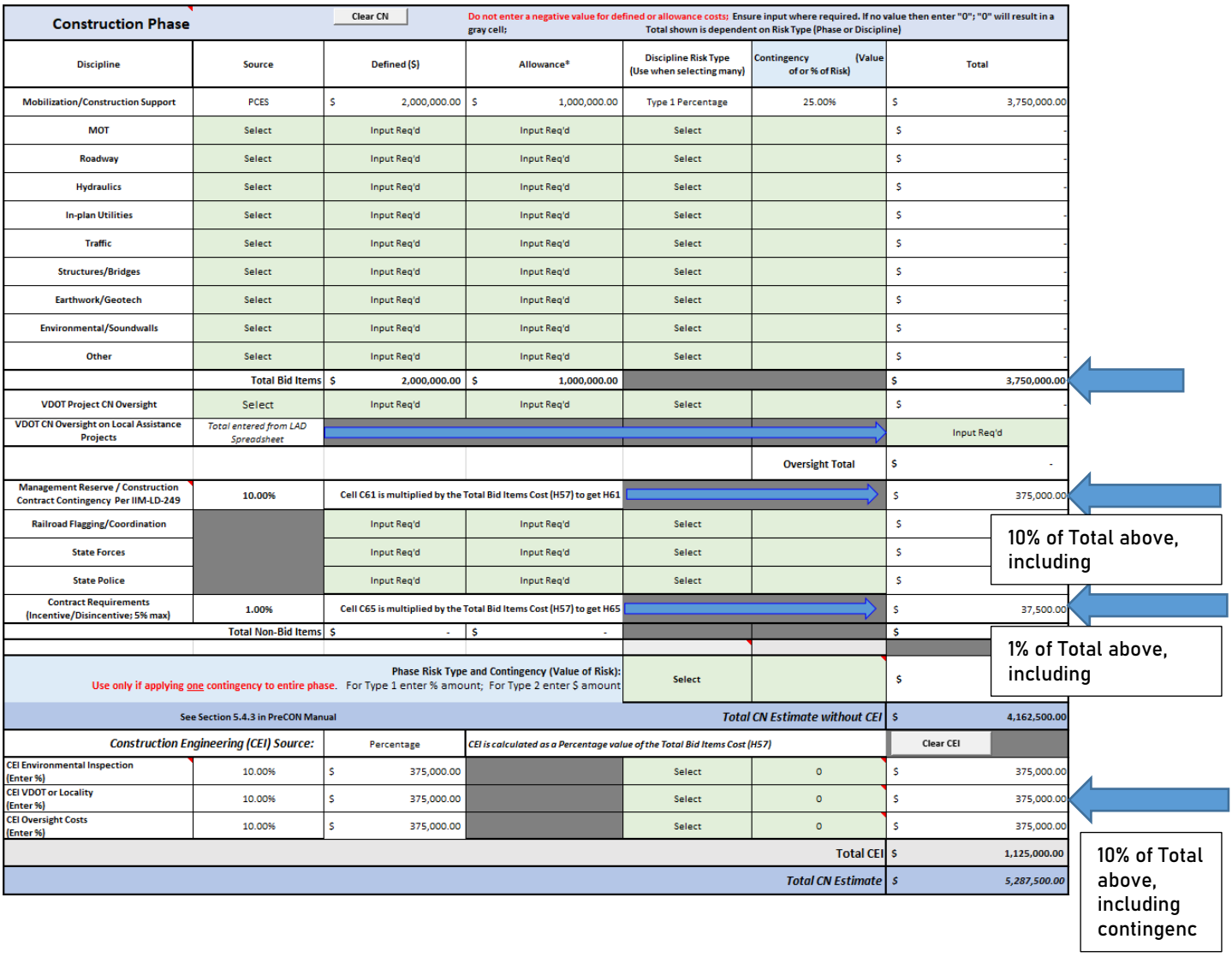


6. Contingency (Value of Risk)

   This is an amount added to the base estimate to account for identified and unidentified risks whose likelihood of occurrence and significance of impact are uncertain. Contingencies can be assigned to a projects phases or engineering disciplines within a phase. As a project develops, Contingencies will typically

decrease as risks should be more fully understood and properly addressed. Contingencies shall be determined based upon provided guidance described in Chapter 5 of the VDOT Cost Estimating Manual. For the Estimates prepared in AASHTOWare Preconstruction, contingency can be calculated based on a percentage applied to a group of item codes or entered as a lump sum non-bid item.

In this workbook, Contingency can be input in one of two ways; either by the discipline listed in each phase or by the entire phase itself. Careful consideration by the estimator should determine which contingency calculation is warranted. For more information see Chapter 5 of VDOT Cost Estimating Manual. If using Discipline specific contingency, the contingency costs are included in the following calculations: Management Reserve/Construction Contract Contingency, Contract Requirements and all CEI costs. As illustrated below.



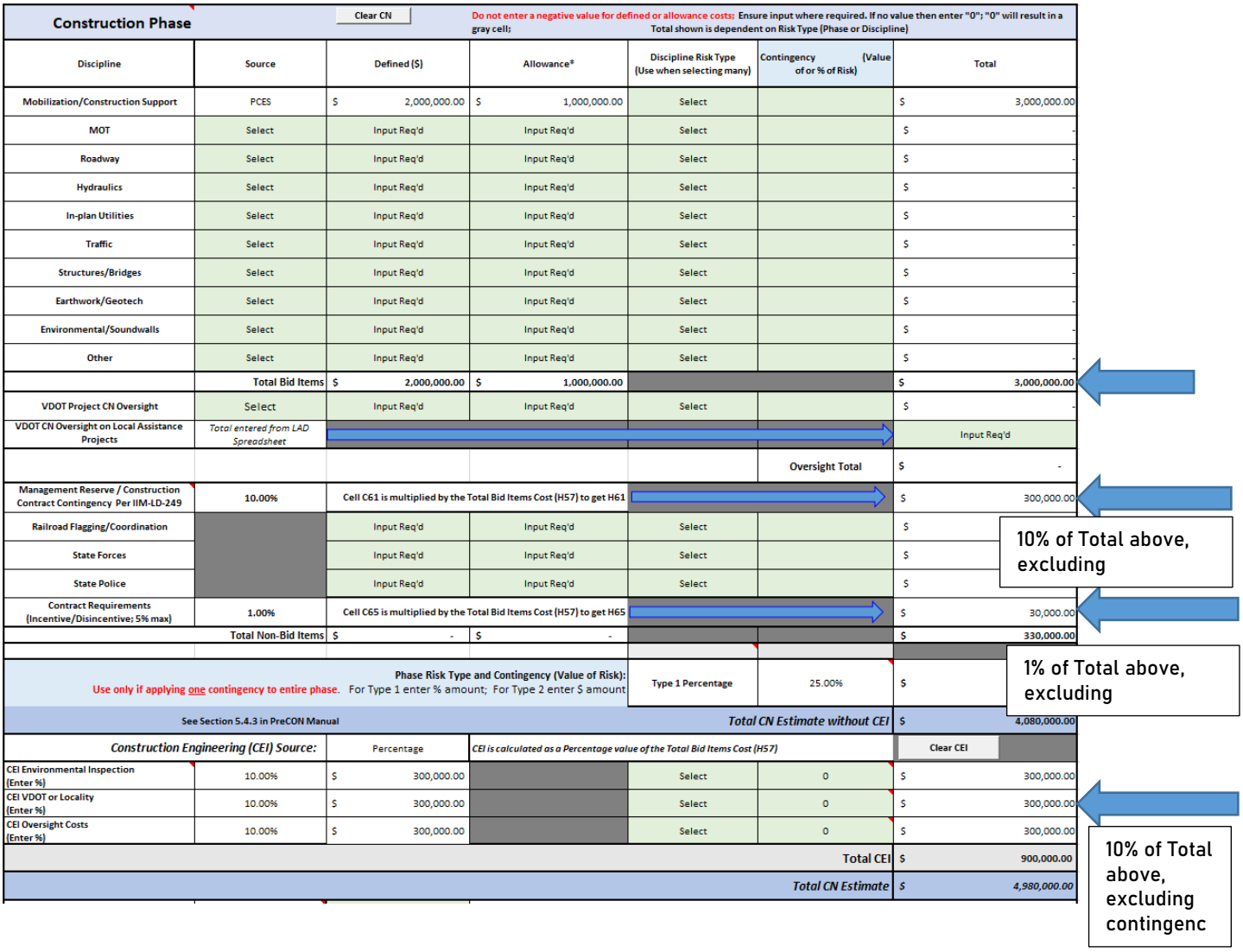
Construction Phase		Clear CN	Do not enter a negative value for defined or allowance costs; Ensure input where required. If no value then enter "0"; "0" will result in a gray cell; Total shown is dependent on Risk Type (Phase or Discipline)			
Discipline	Source	Defined ($)	Allowance*	Discipline Risk Type (Use when selecting many)	Contingency (Value of or % of Risk)	Total
Mobilization/Construction Support	PCES	$ 2,000,000.00	$ 1,000,000.00	Type 1 Percentage	25.00%	$ 3,750,000.00
MOT	Select	Input Req'd	Input Req'd	Select		$ -
Roadway	Select	Input Req'd	Input Req'd	Select		$ -
Hydraulics	Select	Input Req'd	Input Req'd	Select		$ -
In-plan Utilities	Select	Input Req'd	Input Req'd	Select		$ -
Traffic	Select	Input Req'd	Input Req'd	Select		$ -
Structures/Bridges	Select	Input Req'd	Input Req'd	Select		$ -
Earthwork/Geotech	Select	Input Req'd	Input Req'd	Select		$ -
Environmental/Soundwalls	Select	Input Req'd	Input Req'd	Select		$ -
Other	Select	Input Req'd	Input Req'd	Select		$ -
	Total Bid Items	$ 2,000,000.00	$ 1,000,000.00			$ 3,750,000.00
VDOT Project CN Oversight	Select	Input Req'd	Input Req'd	Select		$ -
VDOT CN Oversight on Local Assistance Projects	*Total entered from LAD Spreadsheet*					Input Req'd
					Oversight Total	$ -
Management Reserve / Construction Contract Contingency Per IIM-LD-249	10.00%	Cell C61 is multiplied by the Total Bid Items Cost (H57) to get H61				$ 375,000.00
Railroad Flagging/Coordination		Input Req'd	Input Req'd	Select		$
State Forces		Input Req'd	Input Req'd	Select		$
State Police		Input Req'd	Input Req'd	Select		$
Contract Requirements (Incentive/Disincentive; 5% max)	1.00%	Cell C65 is multiplied by the Total Bid Items Cost (H57) to get H65				$ 37,500.00
	Total Non-Bid Items	$ -	$ -			$
Use only if applying one contingency to entire phase.		For Type 1 enter % amount; For Type 2 enter $ amount		Phase Risk Type and Contingency (Value of Risk): Select		$
See Section 5.4.3 in PreCON Manual					*Total CN Estimate without CEI*	$ 4,162,500.00
Construction Engineering (CEI) Source:		Percentage	*CEI is calculated as a Percentage value of the Total Bid Items Cost (H57)*			Clear CEI
CEI Environmental Inspection (Enter %)	10.00%	$ 375,000.00		Select	0	$ 375,000.00
CEI VDOT or Locality (Enter %)	10.00%	$ 375,000.00		Select	0	$ 375,000.00
CEI Oversight Costs (Enter %)	10.00%	$ 375,000.00		Select	0	$ 375,000.00
					Total CEI	$ 1,125,000.00
					Total CN Estimate	$ 5,287,500.00

10% of Total above, including

1% of Total above, including

10% of Total above, including contingenc

Conversely if using phase contingency, the contingency costs are excluded from the same calculations: Management Reserve/Construction Contract Contingency, Contract Requirements and all CEI costs. This rationale is based on those discipline risks eventually being reallocated into the Defined costs, Allowance costs or mitigated through the project development process. As illustrated below.



Construction Phase		Clear CN	Do not enter a negative value for defined or allowance costs; Ensure input where required. If no value then enter "0"; "0" will result in a gray cell; Total shown is dependent on Risk Type (Phase or Discipline)				
Discipline	Source	Defined ($)	Allowance*	Discipline Risk Type (Use when selecting many)	Contingency (Value of or % of Risk)	Total	
Mobilization/Construction Support	PCES	$ 2,000,000.00	$ 1,000,000.00	Select		$ 3,000,000.00	
MOT	Select	Input Req'd	Input Req'd	Select		$ -	
Roadway	Select	Input Req'd	Input Req'd	Select		$ -	
Hydraulics	Select	Input Req'd	Input Req'd	Select		$ -	
In-plan Utilities	Select	Input Req'd	Input Req'd	Select		$ -	
Traffic	Select	Input Req'd	Input Req'd	Select		$ -	
Structures/Bridges	Select	Input Req'd	Input Req'd	Select		$ -	
Earthwork/Geotech	Select	Input Req'd	Input Req'd	Select		$ -	
Environmental/Soundwalls	Select	Input Req'd	Input Req'd	Select		$ -	
Other	Select	Input Req'd	Input Req'd	Select		$ -	
	Total Bid Items	$ 2,000,000.00	$ 1,000,000.00			$ 3,000,000.00	
VDOT Project CN Oversight	Select	Input Req'd	Input Req'd	Select		$ -	
VDOT CN Oversight on Local Assistance Projects	*Total entered from LAD Spreadsheet*					Input Req'd	
					Oversight Total	$ -	
Management Reserve / Construction Contract Contingency Per IIM-LD-249	10.00%	Cell C61 is multiplied by the Total Bid Items Cost (H57) to get H61				$ 300,000.00	
Railroad Flagging/Coordination		Input Req'd	Input Req'd	Select		$ -	
State Forces		Input Req'd	Input Req'd	Select		$ -	
State Police		Input Req'd	Input Req'd	Select		$ -	
Contract Requirements (Incentive/Disincentive; 5% max)	1.00%	Cell C65 is multiplied by the Total Bid Items Cost (H57) to get H65				$ 30,000.00	
	Total Non-Bid Items	$ -	$ -			$ 330,000.00	
Use only if applying one contingency to entire phase.		Phase Risk Type and Contingency (Value of Risk): For Type 1 enter % amount; For Type 2 enter $ amount		Type 1 Percentage	25.00%	$	
See Section 5.4.3 in PreCON Manual					*Total CN Estimate without CEI*	$ 4,080,000.00	
Construction Engineering (CEI) Source:		Percentage	*CEI is calculated as a Percentage value of the Total Bid Items Cost (H57)*			Clear CEI	
CEI Environmental Inspection (Enter %)	10.00%	$ 300,000.00		Select	0	$ 300,000.00	
CEI VDOT or Locality (Enter %)	10.00%	$ 300,000.00		Select	0	$ 300,000.00	
CEI Oversight Costs (Enter %)	10.00%	$ 300,000.00		Select	0	$ 300,000.00	
					Total CEI	$ 900,000.00	
					Total CN Estimate	$ 4,980,000.00	

10% of Total above, excluding

1% of Total above, excluding

10% of Total above, excluding contingenc

WARNING: Extreme caution should be used, when updating the CEWB and switching from phase based contingencies to discipline based contingencies, due to the changes it can make in the overall estimated costs.

For the Preliminary Engineering (PE) Phase, the ability to enter individual discipline contingencies has been removed. The PE Phase allows only a Total phase contingency at the bottom of the section. See figure below.

Preliminary Engineering Phase	7	Clear PE	Do not enter a negative value for defined or allowance; Ensure input where required. If no value then enter "0"			
Project Estimate Component						
Discipline	Source	Defined($)	Allowance*			Total
Project Management	Select					$ -
Roadway	Select					$ -
Hydraulics	Select					$ -
Utilities	Select					$ -
Traffic	Select					$ -
Structures/Bridges	Select					$ -
Materials/Geotech	Select					$ -
Survey/SUE/Quality Level A SUE	Select					$ -
Environmental	Select					$ -
Right of Way	Select					$ -
Other	Select					$ -
VDOT PE Oversight on Local Assistance Projects	*Total entered from LAD Spreadsheet*					Input Req'd
	SUBTOTAL PE PHASE ESTIMATE (Without Contingency)	$ -	$ -	Select Phase Risk Type Below	Contingency	
			Phase Risk Type and Contingency (Value of Risk): For Type 1 enter % amount; For Type 2 enter $ amount	Select		$ -
						L PE PHASE ESTIMATE $ -
Phase dates (XX/XX/XXXX)	PE Base Estimate Date					
	Start Date					
	End Date					

Select
Type 1 Percentage
Type 2 Deterministic

PE Phase

When selecting a contingency for the PE Phase, the contingency block will change based on the selection made. Therefore if you select Type 1 Percentage, then the contingency will be shown in percent. If Type 2 Deterministic is selected, then a dollar amount will be shown.

	SUBTOTAL PE PHASE ESTIMATE	$ -	$ -	Select Phase Risk Type Below	Contingency % (Value of Risk)
	Phase Risk Type and Contingency (Value of Risk): Use only if appying one contingency to entire phase. For Type 1 enter % amount; For Type 2 enter $ amount			Type 1 Percentage	12.00%
					TOTAL PE PHASE ESTIMATE

Type 1 Percentage

	SUBTOTAL PE PHASE ESTIMATE	$ -	$ -	Select Phase Risk Type Below	Contingency $ (Value of Risk)
	Phase Risk Type and Contingency (Value of Risk): Use only if appying one contingency to entire phase. For Type 1 enter % amount; For Type 2 enter $ amount			Type 2 Deterministic	$ 300,000.00
					TOTAL PE PHASE ESTIMATE

Type 2 Deterministic

WARNING: Do not combine individual discipline contingency and phase contingency in RW/UT or CN Phase.

For each of the disciplines involved in the cost estimate, a value of contingency should be input based on the Project Complexity Classification and phase of project development in the workbook. The information contained in the charts is based on material from Chapter 5 of the AASHTO Practical Guide to Cost Estimating (2013). The charts are provided in the lower right corner and represent the three types of project complexity classification previously discussed above and as defined in Figures 5-3b, 5-4b and 5-5 b in the VDOT Cost Estimating Manual. The chart will change automatically with the Project Complexity selected earlier.

7. Total column

   The total takes the base, adds it to the allowance and when a risk type is selected for the discipline, then multiplies the subtotal of the two by the Contingency (Value of Risk). The equation for Type 1 Percentage is as follows:

(Defined + Allowance) x (1+Contingency %) = Total

Utilizing the "1+contingency%" ensures that the contingency % is added to the subtotal and the not just the percentage of the subtotal has been calculated. See example of correct calculation below:

Discipline	Source	Defined ($)	Allowance*	Discipline Risk Type (Use when selecting many)	Contingency (Value of or % of Risk)	Total
Mobilization/Construction Support	PCES	$ 25,000.00	$ 15,000.00	Type 1 Percentage	12.00%	$ 44,800.00

NOTE: The contingency percentage will not be applied to the total column unless a source is selected.

See below:

Discipline	Source	Defined($)	Allowance*	Risk Type	Contingency % (Value of Risk)	Total
Roadway	Select	$ 100,000.00	$ 100,000.00	Type 1 Percentage	10.00%	$ 200,000.00

For Type 2 Deterministic, a lump sum is added to the Defined and Allowance to provide a total. The formula used for this is:

(Defined + Allowance) + Contingency ($) = Total

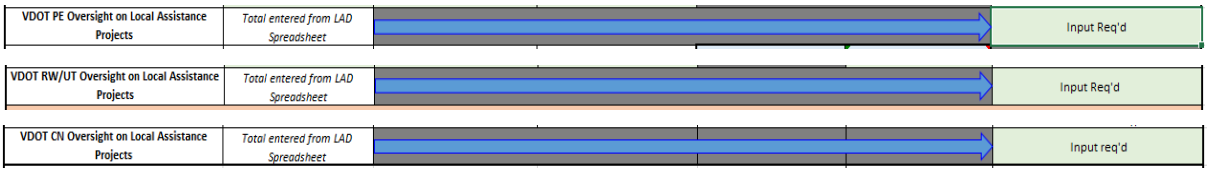
Discipline	Source	Defined ($)	Allowance*	Discipline Risk Type (Use when selecting many)	Contingency (Value of or % of Risk)	Total
Mobilization/Construction Support	PCES	$ 25,000.00	$ 15,000.00	Type 2 Deterministic	$ 12,500.00	$ 52,500.00

G. VDOT Project Oversight Costs (to be used in each phase if applicable)

These costs are associated with any other staff costs, such as reviews by Central Office that are not included specifically in other disciplines. VDOT Project Oversight costs in the PE Phase should be shown in the Project Management discipline. The gray areas are not to be filled out. Each VDOT Oversight block in the RW and CN phases is completed from left to right and will not compute if a source is not selected first.

H. VDOT Oversight Costs on Local Assistance Projects (to be used in each phase if applicable)

A Locally Administered Project (LAP) is administered in whole, or in part, by the locality. VDOT provides oversight of the project as outlined in the LAP Manual. Each of the project phases (PE, RW, and CN) may have VDOT oversight costs. Chapter 3 and Chapter 9.4 of the LAP Manual provides some instances of General VDOT Oversight Expectations or Obligations that will be captured.



A monetary value is assigned to reflect the time spent in the oversight of the project. Oversight costs will include, but are not limited to, providing guidance, reviewing plans and documents, attending coordination meetings, providing authorization approvals, and other project associated activities. There may be a contingency assigned to this cost. Please refer to Contingency % Value of Risk section in this manual.

I. Subtotal Phase Estimates

The cells for this row take all the Defined costs and the allowance costs for each phase and provide a subtotal for the phase. There are subtotals provided for the PE and RW/UT Phases.

J. Bid Items

The bid item rows and columns are to be input with the amounts for defined and allowance costs. The Discipline risk type should be selected for each discipline, unless there is an overall Phase Risk Type. Should the overall Risk Type be selected at the bottom of the phase then each discipline risk should be shown as "Select". The estimator cannot pick both ways to fill out this workbook. There will be an error message shown in the totals column if both Contingencies are selected and no cost will be associated with the discipline until one risk is removed. See below for Example.

Construction Phase		Clear CN		Do not enter a negative value for defined or allowance costs; Ensure input where required. If no value then enter "0"; "0" will result in a gray cell; Total shown is dependent on Risk Type (Phase or Discipline)		
Discipline	Source	Defined ($)	Allowance*	Discipline Risk Type (Use when selecting many)	Contingency (Value of or % of Risk)	Total
Mobilization/Construction Support	SPLCE	$ 10,000.00	$ 10,000.00	Select		$ 20,000.00
MOT	Select	Input Req'd	Input Req'd	Select		$ -
Roadway	PCES	$ 10,000.00	$ 12,000.00	Type 1 Percentage	12.00%	Remove Phase or Change Discipline Risk type to 'Select'
Hydraulics	Select	Input Req'd	Input Req'd	Select		$ -
In-plan Utilities	Select	Input Req'd	Input Req'd	Select		$ -
Traffic	Select	Input Req'd	Input Req'd	Select		$ -
Structures/Bridges	Select	Input Req'd	Input Req'd	Select		$ -
Earthwork/Geotech	Select	Input Req'd	Input Req'd	Select		$ -
Environmental/Soundwalls	Select	Input Req'd	Input Req'd	Select		$ -
Other	Select	Input Req'd	Input Req'd	Select		$ -
	Total Bid Items	$ 20,000.00	$ 22,000.00			$ 20,000.00
VDOT Project CN Oversight	SPLCE	$ 10,000.00	$ 10,000.00	Type 1 Percentage	10.00%	Remove Phase or Change Discipline Risk type to 'Select'
VDOT CN Oversight on Local Assistance Projects	*Total entered from LAD Spreadsheet*					Input Req'd
					Oversight Total	$ -
Management Reserve / Construction Contract Contingency Per IIM-LD-249	Select	Cell C61 is multiplied by the Total Bid Items Cost (H57) to get H61				$ -
Railroad Flagging/Coordination		Input Req'd	Input Req'd	Select		$ -
State Forces		Input Req'd	Input Req'd	Select		$ -
State Police		Input Req'd	Input Req'd	Select		$ -
Contract Requirements (Incentive/Disincentive; 5% max)	Select	Cell C65 is multiplied by the Total Bid Items Cost (H57) to get H65				$ -
	Total Non-Bid Items	$ -	$ -			$ -
Use only if applying one contingency to entire phase.			Phase Risk Type and Contingency (Value of Risk): For Type 1 enter % amount; For Type 2 enter $ amount	Type 1 Percentage	12.00%	$ 2,400.00
See Section 5.4.3 in PreCON Manual					*Total CN Estimate without CEI*	$ 22,400.00

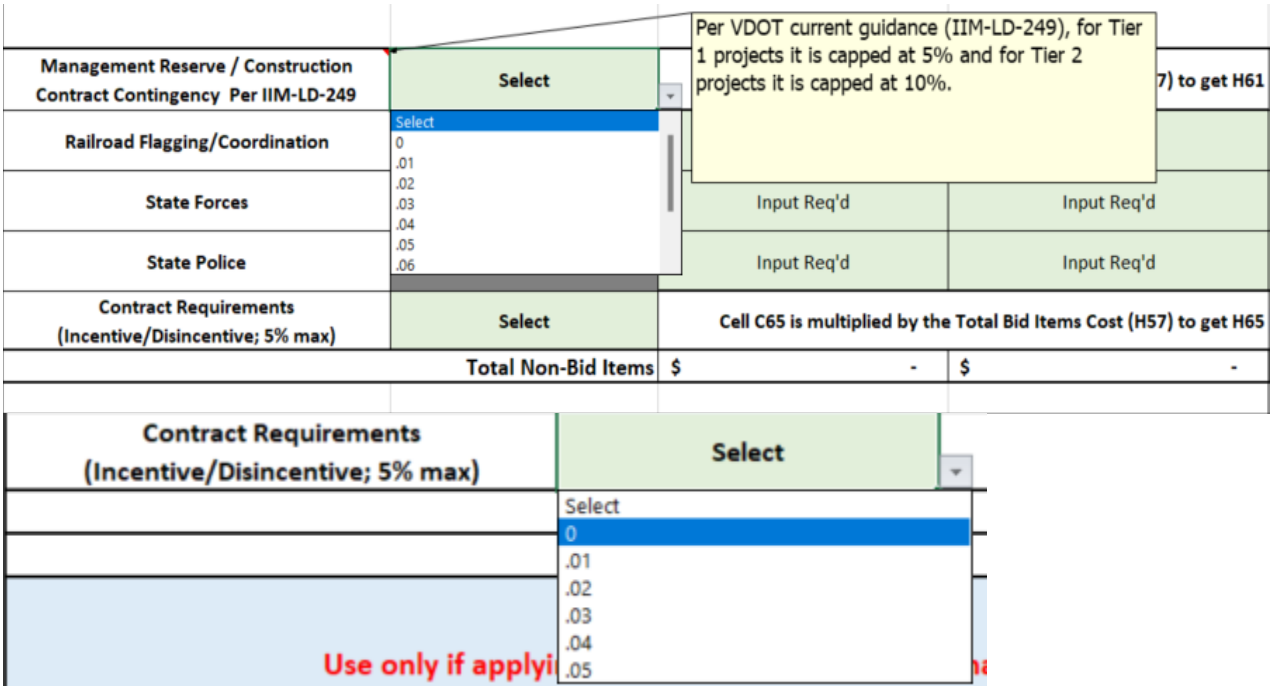
K. Non-Bid Items

This section contains all those items that are defined in the AASHTO PRECON Manual as Shown on Page 74. The list as shown in the manual is as follows and are shown in the CEWB as separate items:

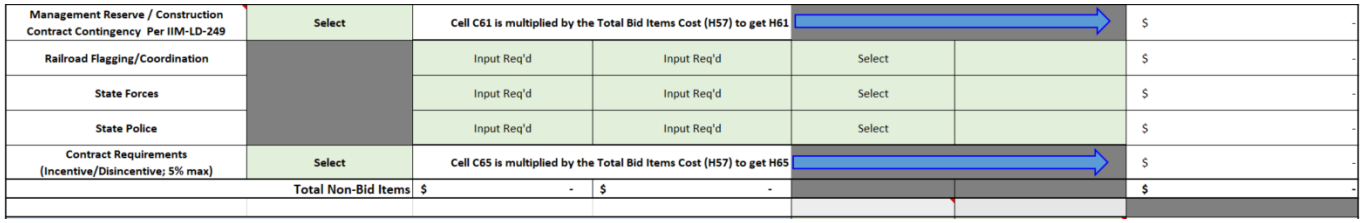
- Police work, State Force work, Utility inspectors, Railway flagging/coordination, Construction Engineering and Inspection (CEI), Contract incentives and disincentives.

When entering values in this section, please note that the Management Reserve/Construction Contract Contingency row and the Contract Requirements row automatically provide the Defined and Allowance Costs as well as Discipline Risk Cost based on the total bid item amount. The comment shown below provides instruction on where to find guidance for selecting the percentage amounts.

Both the Management Reserve/Construction Contract Contingency and Contract Requirements rows have a drop down that will show between 0-10 % in decimal (0 to 0.10). In order for the values to be calculated, a percentage in cells C61 and C65 should be selected. This number is then multiplied by the Total bid items in cell H57 to provide a value. It has been determined that these two rows will not be included in the overall contingency percentage calculations as they are already a contingency themselves. They will be included in the total cost of the project.



The three remaining (Railroad, State Forces and State Police) are to follow the instructions for the bid items and fill out Defined, allowance and if no overall phase risk is selected, then the Risk Type and Contingency should be completed.



L. Calculated Contingency Value

A calculated contingency is provided for each phase if the user needs the value to input into the Smart Portal. This value is also recorded at the bottom of the CEWB in table format.

M. Dates (Base, Start and End)

Each phase has three dates that are to be entered. The base date for each phase is the date that the estimate was created. The dates can be changed if/when there are any updates to the estimate.

The dates that are input into this spreadsheet should match those from the Project Manager and through the use of the PMO Project Development Schedules Procedure PMO 2.6.

For additional guidance, please read the Instructions Tab in the workbook.

N. Defined, Allowance, and Contingency Assumptions

Any project assumptions that would affect the Defined, Allowance or Contingency should be shown and explained in the space provided. These could include but are not limited to: Technical risks (unexpected geotech*nical*, incomplete design); External risks (funding changes, stakeholder objections); Environmental Risks (permit requirements, historic site); Organizational risk (loss of staff, inexperience); Right of Way risk (utility delay, Railroad agreement); Construction risk (work hour windows, unidentified buried objects) and Regulatory risk (water quality regulations change). See Chapter 5 'Design and Estimate Assumptions and Concerns' of the VDOT Cost Estimating Manual. Each of the assumptions should be written in such a way as to be easily interpreted for a reviewer / approver. Explain in detail why the assumption was made. Do not limit the verbiage to the size of the cell as the cell will expand to capture the entire assumption.

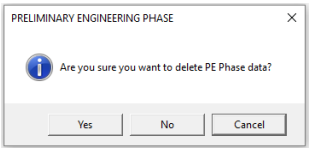
O. Interactive Buttons found in the Cost Estimate Summary tab

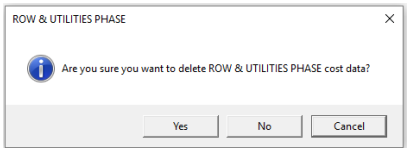
1. 'Clear Heading' Button 

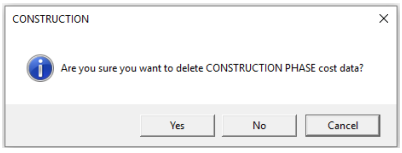
This button when pushed, deletes all the heading information. It provides clean project information blocks ready for new project information.

2. Clear 'Phase' Buttons 

These buttons when pushed, delete all the phase cost information. Once pushed, an option dialog box appears (see below) for the user to agree to delete the information contained in the phase. When 'yes' is selected to delete, all cost data will be removed. **This cannot be undone.** The user will have to go back and re-enter all the lost information. Selecting 'no' will return the user back to the spreadsheet with no change to the data.

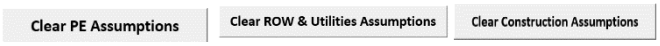




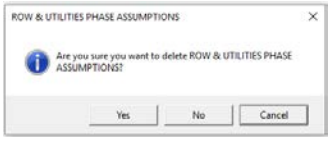


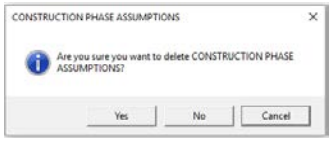
3. Clear CEI Button 

This button when pushed resets the Construction Engineering (CEI) Source: section to its original state. This means that the source cell D70 is reset to provide the option of Percentage or Lump Sum, (See Section O for more information)

4. Clear 'Assumptions' Buttons 

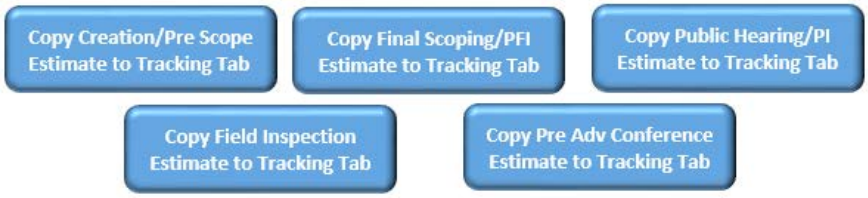
These buttons when pushed, delete all the phase assumptions information. It provides a clean cell for the new assumption input if a new or updated cost estimate workbook is being submitted. Once pushed and selected to delete, an option dialog box to delete will appear as shown below:





When "yes" is selected, all assumptions in the cells in the phase (PE, RW/UT, and CN) will be deleted. **This selection cannot be undone** and all information will be lost, so use caution when using these buttons. These buttons are located in the Cost Estimate Summary tab. The buttons shown as "Delete xx Comments in the Cost Estimate Tracking V2 Tab perform the same function, which is to delete all information from selected phase.

5. Blue 'Copy' Buttons



These buttons when pushed, automatically transfer all the Cost Estimate Summary information to the **Cost Estimate Tracking V2** tab in the workbook. This tab shows all the values of the Cost Estimate Summary tab as a snapshot of each phase along the PDP and is recorded here. Please review the information that has been copied. Assure that the information contained in the tracking reflects the information from the Cost Estimate Summary. These buttons also copy the Defined, Allowance and Contingency assumptions to the **Assumptions Tracking** tab. This is to keep records of when the any of the assumptions have changed based on new information gathered along the Project Development Process.

A new spreadsheet is not created at each milestone, rather this is one document that is designed to be carried through the life of the project. This information is to be saved for each milestone so one can see how the estimate progresses through the life of the project.

P. Construction Engineering Source

The CEI source can either be selected as a percentage of the total bid items, or a lump sum placed in the Defined and Allowance columns. The amounts shown in column C are to be input based on the selection of Percentage or Lump Sum for the CEI. When choosing a percentage, place a value in column B for any of the three rows shown below. The amount in column D will be calculated based on the Total Bid Items amount found in Cell H57. This method is consistent with the Management Reserve/Contract Contingency and Incentives/Disincentives shown above.

Construction Engineering (CEI) Source:		Select	*Please select Percentage or Lump sum from Cell D70*			Clear CEI	
CEI Environmental Inspection				Select	0	$	-
CEI VDOT or Locality				Select	0	$	-
CEI Oversight Costs				Select	0	$	-
					Total CEI	$	-

CEI Source Selection

Q. Total Project Cost Estimate Summary Table

Total Project Cost Estimate Summary				Date of Current Cost
				Enter date here
Phase	Estimate ($) without LAP OVERSIGHT COST	Contingency ($)		Total Phase*
PE Phase Estimate	$ -	$ -		$ -
RW Phase Estimate	$ -	$ -		$ -
CN Phase Estimate(without CEI)	$ -	$ -		$ -
Total CEI	$ -	$ -		$ -
CN Phase Estimate(with CEI)	$ -	$ -		$ -
Total Estimate	$ -	$ -		$ -

* Use combined Defined, Allowance, Contingency Costs and LAP Oversight. Total Phase includes Oversight Costs and Contract Requirements.

1. Included in this table is an input cell for the estimator to provide the current date for the CEWB. This provides a completion date for the CEWB.
2. The final section in the CEWB Cost Estimate Summary tab is for the calculations and summary information after all the data is placed in the workbook. This section provides a synopsis of all the cost data input in the other three sections (Preliminary Engineering, Right of Way/Utilities, Construction).
3. The table follows the layout of the three phases.
4. Contingencies are computed and are shown as separate results for each Phase.
5. The "Total Phase*" (Current Cost) is shown prior to any inflation multipliers and is shown as a raw total cost (current year $) from the each phase of the estimate.

R. Smart Portal Base Estimate and Contingency Input

This section produces the ultimate phase contingencies of the project. The contingencies are required as input into the Smart Portal for a Smart Scale project. See Smart Portal Application for assistance.

Since smart portal has the flexibility to input either a percentage or a dollar amount, the CEWB has provided both a percentage format and a dollar amount format for assistance.

Base Estimate Dollar amounts for SMART PORTAL entry:		*Risks/Contingency/Unknowns Dollar amounts for SMART PORTAL entry*	
PE Base Estimate =	$ -	*PE Phase Risk/Contingency/Unknowns =*	$ -
RW Base Estimate =	$ -	*RW Phase Risk/Contingency/Unknowns =*	$ -
CN Base Estimate =	$ -	*CN Phase Estimate Risk/Contingency =*	$ -
		CEI amount =	$ -

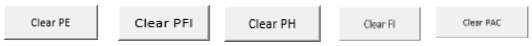
IV. COST ESTIMATE TRACKING V2 TAB

A. Cost Estimate Tracking Tab

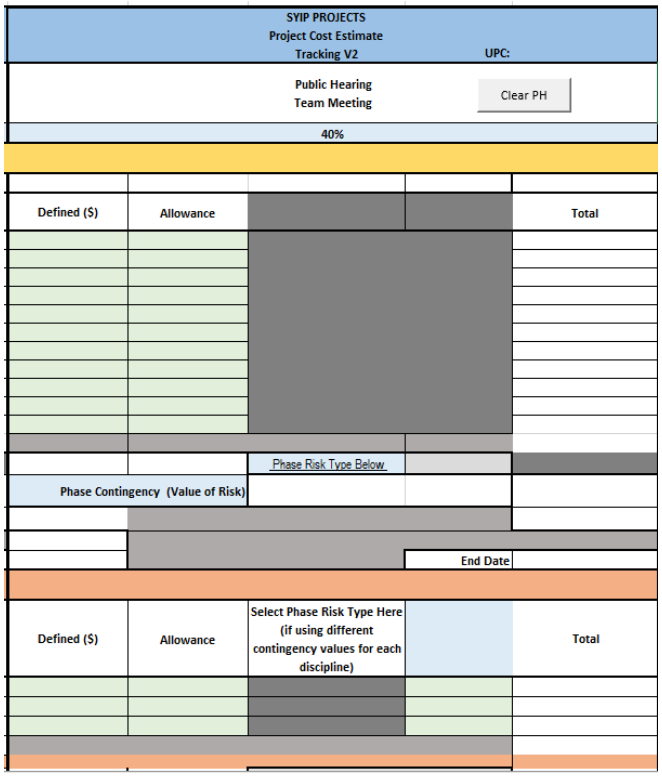
The cost estimate tracking tab is used to track variations in the cost estimate throughout the life of the project. One CEWB is to be used for each project being estimated and the values are to be tracked and recorded for each milestone listed:

1. Creation / Pre-Scope
2. Final Scoping (PFI)
3. Public Hearing
4. Field Inspection
5. Pre-Advertisement Coordination meeting

B. Clear Buttons included in the Cost Estimate Tracking Tab



Each of the five phases shown above in Section A has a "clear" button that will allow the user to delete all information in that phase. These buttons when pushed, delete all the phase cost information. Once pushed, an option dialog box appears (see below) for the user to agree to delete the information contained in the phase. When 'yes' is selected to delete, all cost data will be removed. This cannot be undone. The user will have to go back and re-enter all the lost information. Selecting 'no' will return the user back to the spreadsheet with no change to the data.



V. ASSUMPTIONS TRACKING TAB

A. Assumptions Tracking Tab

Any assumptions made in the CEWB for each individual PE discipline or associated Right of Way / Utility, or Construction discipline assigned a cost are recorded in this tab. If the discipline does not have a cost associated with it, then the assumption could either be blank or filled out with an explanation as to why such discipline was not selected in the project.

	Delete Prescope Assumptions
Preliminary Engineering	Creation / Pre-scope (prior to project initiation)
Project Management	
Roadway	
Hydraulics	
In-Plan Utilities	
Traffic	
Structures/Bridges	
Materials/Geotech	
Survey	
Environmental	
Right-of-Way	
Other	
VDOT PE Oversight on Local Assistance Projects	
Right-of-Way & Utilities	
Right-of-Way	
Utilities	
VDOT Project RW Oversight	
VDOT RW/UT Oversight on Local Assistance Projects	
Construction	
Mobilization/Constr. Support	
MOT	
Roadway	
Hydraulics	
In-plan Utilities	
Traffic	
Structures/Bridges	
Earthwork/Geotech	
Environmental/Soundwalls	
Other	
VDOT Project CN Oversight	
VDOT CN Oversight on Local Assistance Projects	
Management Reserve / Construction Contract Contingency Per IIM-LD-249	
Railroad Flagging/Coordination	
State Forces	
State Police	
Contract Requirements (Incentive/Disincentive; 5% max)	

VI. INFLATION SUMMARY & UPLOAD TAB

B. Inflation Summary

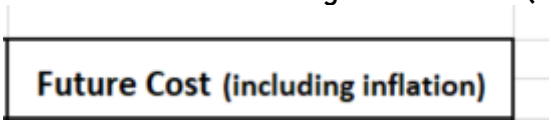
In order to provide consistency in VDOT estimates, the CEWB has incorporated VDOT's FY2024 Inflation Table that was issued on December 5, 2022. These inflation factors are to be used on all projects regardless of estimate type.

	Inflation Factors	Future Cost (including inflation)
	Inflation	Total Cost***
PE Phase Estimate	1.0000	$ -
RW Phase Estimate	1.0000	$ -
CN Phase Estimate(without CEI)	1.0000	$ -
Total CEI	1.0000	$ -
CN Phase Estimate(with CEI)	1.0000	$ -
Total Estimate	***Total:***	***$ -***

** Inflation rates taken from VDOT Inflation/Escalation Memorandum, Dated 12/5/2022
*** Total Costs should match with total costs output from SMART Portal.

1. The Future Cost is shown as the final summary amount, which applies an inflation factor that is based on the dates provided in the Phase dates sections of the CEWB.

Inflation will automatically be calculated in the "Inflation Summary & Upload" Tab within the CEWB and shown with the heading Future Cost (including inflation)



C. Upload (CEWB to PCES (Workbook)

Instructions for transferring a CEWB estimate into a PCES (Workbook)

1. Download the current version of the PCES workbook for your project from the PCES site and save to your computer **(you do not need to open it yet)**.
2. Click the "Transfer CEWB to PCES" button.
3. After you click the button you will be prompted to open your PCES workbook. After opening the workbook, the following will happen automatically:
    a. The inflated PE, RW and CN estimate will be populated in the MANUAL tab, along with standard phase comments.
    b. The PE, RW, Utility and CN phase will all be set to "Manual" on the SUMMARY tab.
    c. The Ad Year and Construction End Year cells will be set to "FY2022" to avoid any inflation calculations in PCES.
    d. The estimate shown in the SUMMARY tab should match the inflated estimate from your CEWB.

4. Review the standard phase comments imported and adjust the comments in the "MANUAL" tab for specificity regarding your estimate.
5. Save the updated PCES workbook for upload to the PCES site.