Office of Design

21M-47

iPD Project Cost Estimating

Design Manual
Chapter 21
Miscellaneous Topics
Originally Issued: 11-16-17

This software is a tool for developing cost estimates. Keep in mind that it cannot account for the special details in a project without the designer's input.

The following topics are included:

- Login
- Dashboard
- Filters
- Estimate Tree Structure
- Trend Filters
- Getting Started
- Percent Based Bid Items
- Composite Bid Items
- Finishing up an Estimate

Login

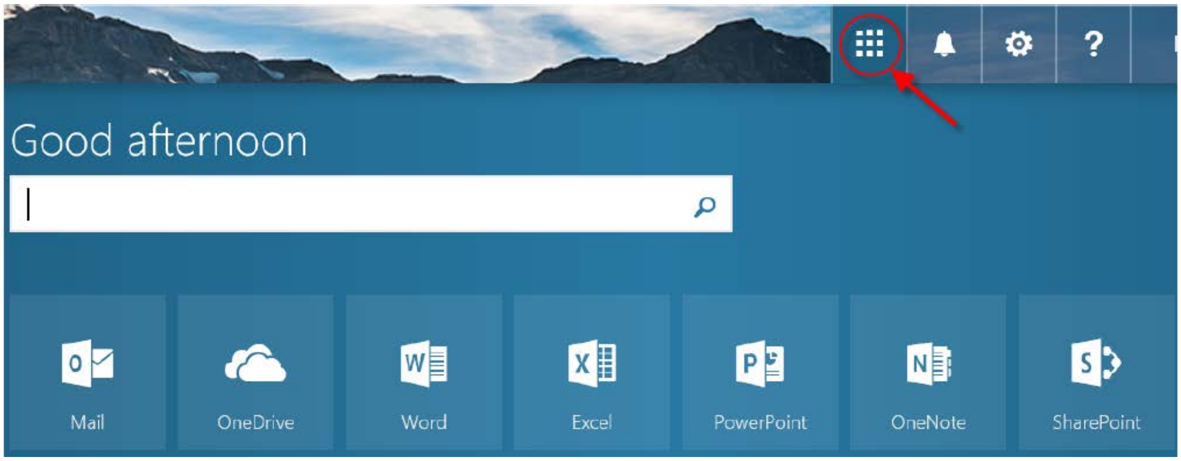
Consultants

Use the link below to get to the iPD cost estimating software (also on the Consultant/Designer Resources webpage):

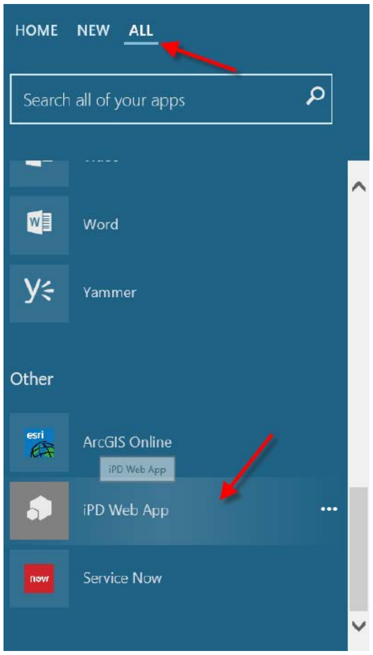
https://iadot.exevision.com/ipd/index.aspx?ln=app

DOT Employees

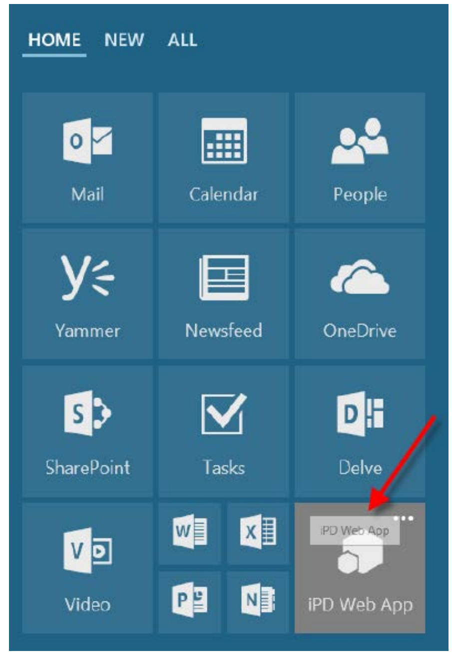
The cost estimating software can be accessed by logging into Office 365. Click on the "waffle".



Select "ALL" applications. If you scroll to the bottom of the list, you should see "iPD Web App". You can right-click on this and select "Pin to home" to save it. The iPD Web App will now show up in your home application list every time you login to Office 365.



Pinning iPD Web App to home application list

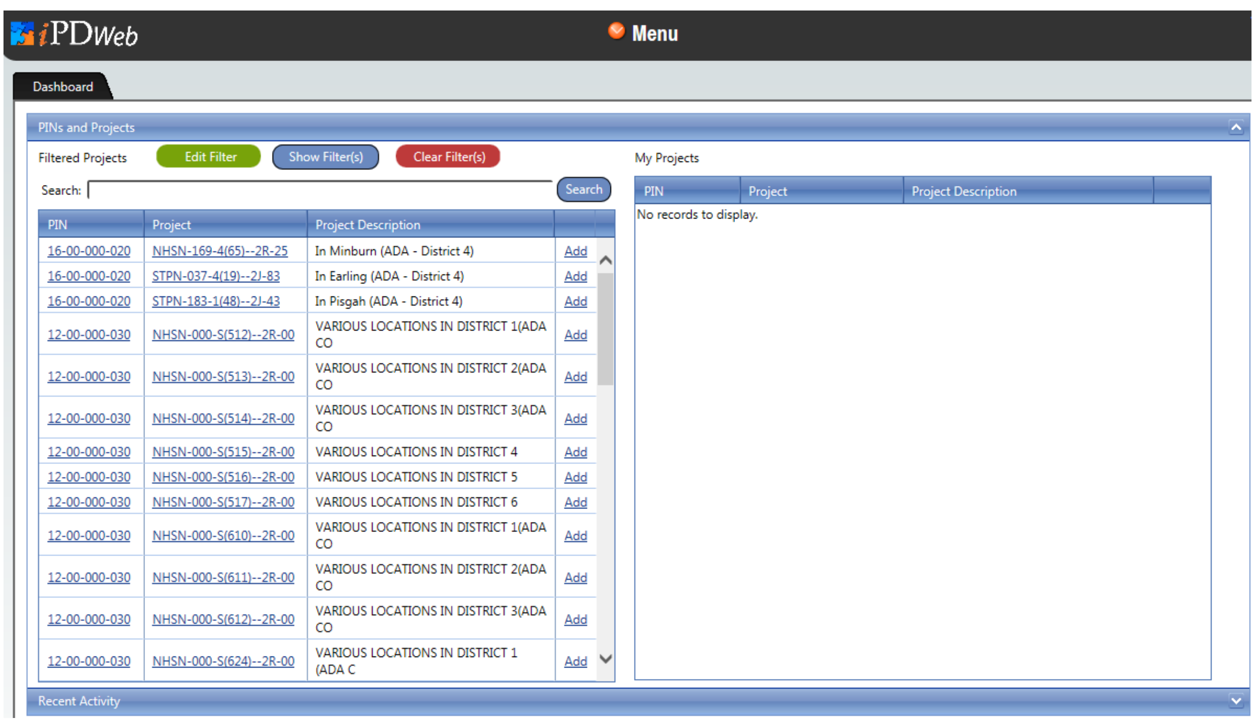


iPD Web App on home application list

Double-click the iPD Web App icon. Authentication should be automatic and you should be redirected to the iPD homepage.

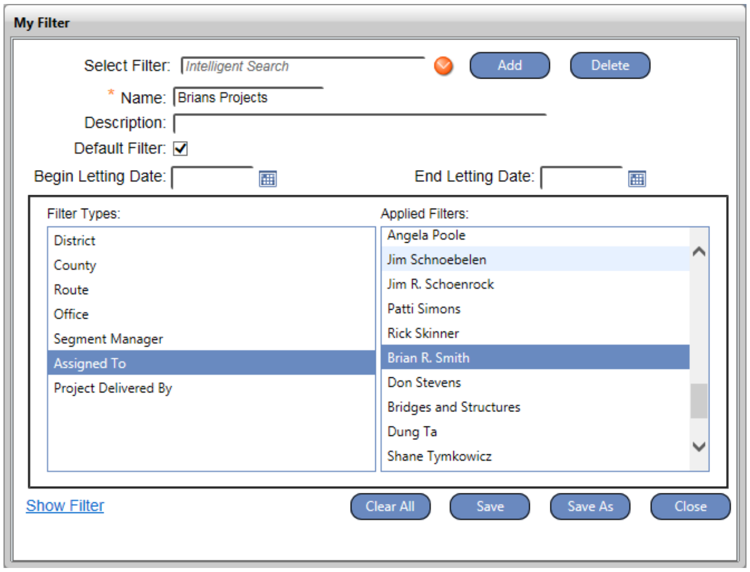
Dashboard

The Dashboard has two sections to it. The left hand side will contain a list of all active projects in the system. Users have the ability to create custom filters to limit the list of available projects. Click “Add” on the far right side of each record to add that project to the “My Projects” portion of the dashboard. “My Projects” is a list that is user specific to allow quick and easy access to saved projects.



Filters

Users have the ability to create and edit filters for the projects that display in the dashboard. Selecting "Edit Filter" from the dashboard will bring up the "My Filter" dialog.



To create a new filter:

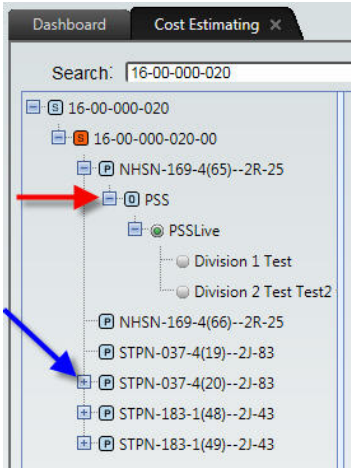
- Click on the "Add" button.
- Enter a name for the new filter you want to create.
- Enter any desired filter parameters.
- Click the "Save" button and then click "Close".

To edit an existing filter:

- Select the appropriate filter from the "Select Filter" drop-down. This should fill out the parameters for the selected filter.
- Edit any of the desired fields.
- Click the "Save" button and then click "Close".

Estimate Tree Structure

After you select a project from the dashboard, the estimate will open similar to that shown below.

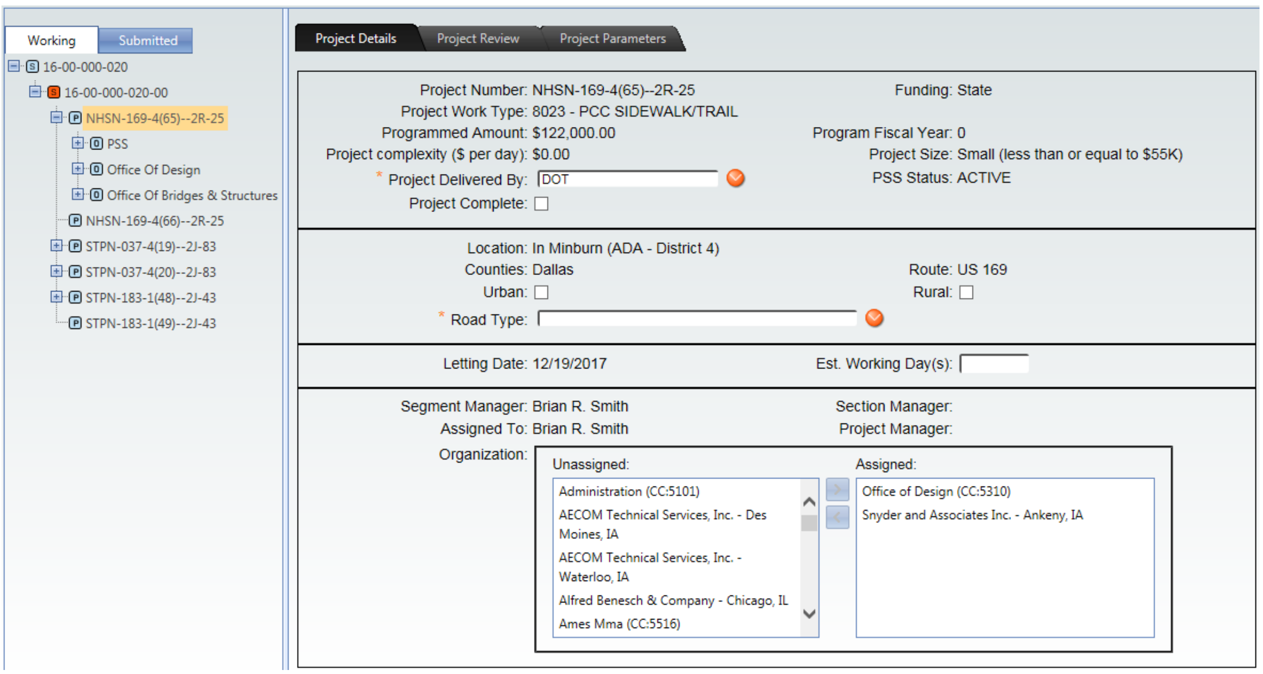


If a project has any existing estimates or the bid items for that project are entered into PSS, you will see a **+** symbol to the left (blue arrow).

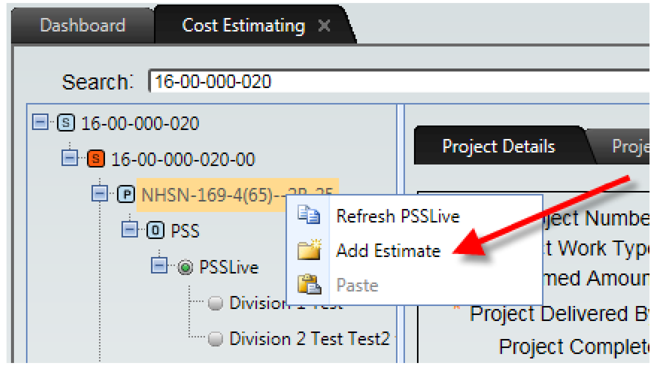
Projects that have bid items entered into PSS will have “PSS” at the office level (red arrow). You can expand this to see “PSSLive” at the estimate level. Below “PSSLive” will be the division level. If you have multiple divisions of bid items in PSS, they will be shown here. The easiest way to create an estimate is to copy an existing division under “PSSLive”. PSSLive information is updated hourly, so if you recently entered bid items into Project Scheduling System and they are not showing up in iPD, you may need to wait for the data to sync. You can force a refresh by right-clicking the project number in the estimate tree structure and selecting “Refresh PSSLive”.

When a project number is selected from the estimate tree structure, three tabs that provide information about the project become available:

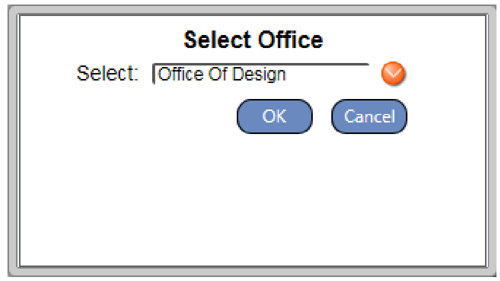
- **Project Details** – This tab provides detailed information about the project, often referred to as the project header information and the Organization table, identifying who has access to the project.
- **Project Review** – This tab provides a summary of the offices and office estimate totals that compose the project. An estimate needs to be marked “Select” and “Complete” to show up on this tab.
- **Project Parameters** – This tab contains the general scope of the project. These parameters are required when parametric bid items are used in an estimate. Even if you don’t plan on using parametric bid items, it is important this information be filled so that it can be used when calculating costs for future projects.

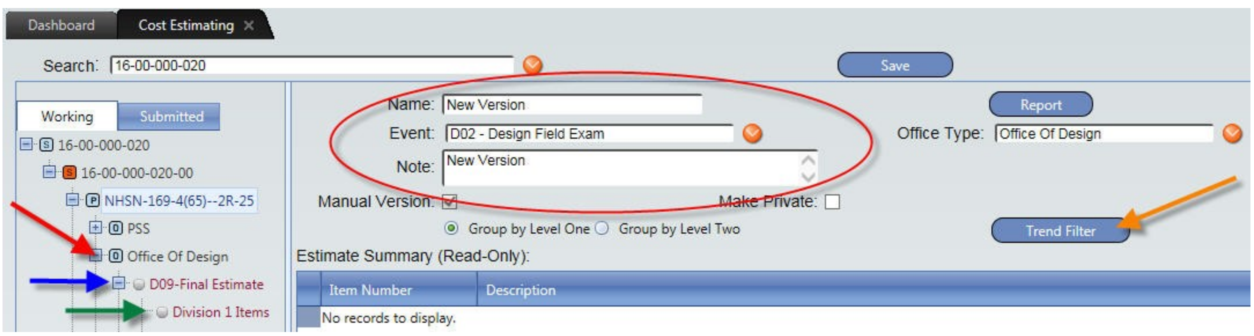


The office level folder will need to be created before starting any estimates. Right-click on the project number and select “Add Estimate”.



The dialog will ask which office folder you would like to create. Select the appropriate office from the drop-down and select OK.

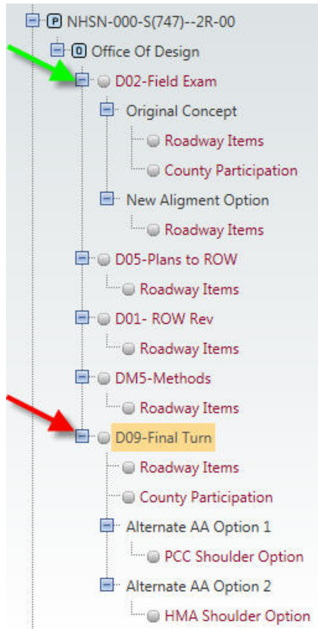




After you create an estimate, a folder will be created for the office you selected (red arrow). Underneath an office level folder will be the estimate level (blue arrow) and division (green arrow). Additional divisions can be added if needed for projects with multiple divisions or for creating alternates.

After selecting an estimate version from the tree structure, the information associated with this estimate is shown to the right (red oval). This is where you can edit all the information for this estimate. What shows on the left hand side of the screen will be a combination of the estimate event chosen and the estimate name.

The naming convention used for project estimates should follow the example below.



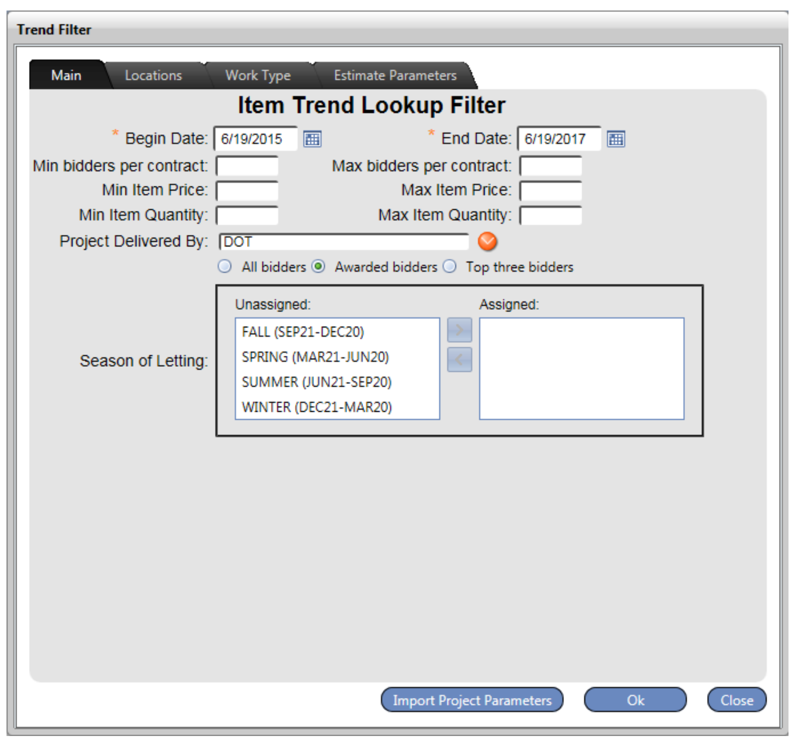
The name that displays at the estimate level in the tree structure will be a combination of the event you select and the name that you enter for the estimate. For D02 estimate shown to the left (green arrow), the event selected in the drop-down was “D02 – Design Field Exam” and the name entered was “Field Exam”.

In this example is another level for alternatives “Original Concept” and “New Alignment Option”. This is done by checking the “Alternate” box on the division estimate screen and entering a name in the “Alternate Name” text box.

The D09 estimate (red arrow) has 2 division estimates and also has shoulder alternates. Alternate bid items are listed in separate divisions similar to how they are entered into PSS.

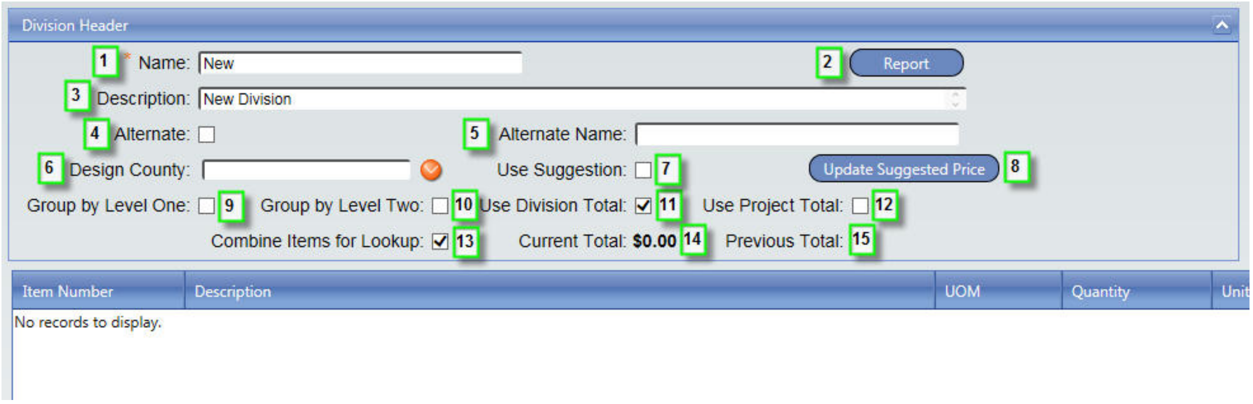
Trend Filters

Trend filter (orange arrow above) will open the item trend lookup filter dialog. The item trend filter dialog will have four tabs of different parameters. The trend filter is used to establish parameters and project characteristics that identify projects that are similar to your current estimate. Having the trend filter set at the estimate level insures that these settings are applied to all bid items in the estimate. There are also individual trend filters for each bid item in an estimate. These filters can be used to override trend filters at the estimate level. These item specific filters will be lost if changes are made after at the estimate level. Because many different filters combinations are possible, the number of projects used to calculate the suggested unit price can vary greatly. Use caution to avoid excluding too many projects.



Getting Started

The division/alternate window is displayed when a user clicks on a division/alternate name from the estimate tree structure. This window is where the primary work of cost estimating is performed. The numbers below describe the function of each item on the header portion of the estimate screen.



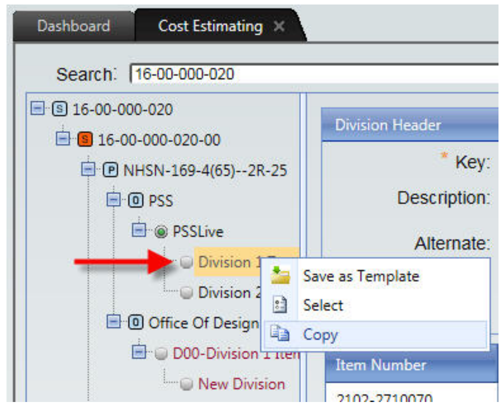
1. Name of the estimate version.
2. Currently there is only one report. Based on the work type set for the division, this report will do a percentage comparison of the items in the estimate compared to common items for this type of project.
3. Description of the estimate version.
4. If checked, an alternate group will be created under the estimate version.
5. Name used for the new alternate group.
6. County the project estimate version is for.
7. If checked, every item added to the division will have the “Use Suggestion” checked.
8. When clicked on, prices are calculated using a regression-based algorithm.
9. Groups all bid items for the estimate to D Group Level 1. The D group structure is discussed later in this document with the percent based bid items.
10. Groups all bid items for the estimate to D Group Level 2. The D group structure is discussed later in this document with the percent based bid items.
11. If checked, the total for all division items will be used when calculating costs for any percent based items on this division.
12. If checked, the total for all division items for the entire project will be used when calculating costs for any percent based items on this division. This would be commonly used for bridge repair projects.
13. If checked, combines quantities from like items when calculating suggested price. This is checked by default.
14. Estimate total for this division.
15. Previous estimate total before the last time suggested prices were updated.

Three ways are available to start creating an estimate:

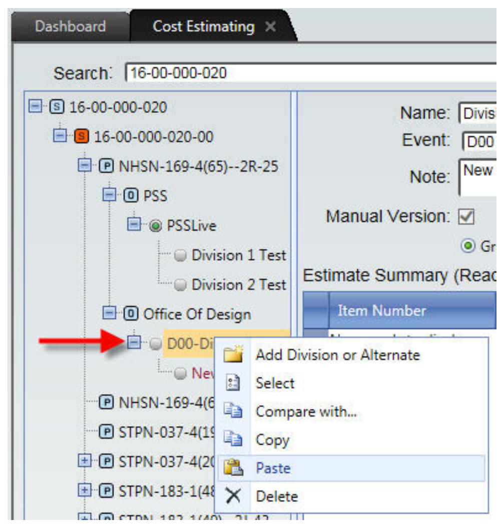
- Copying a division from "PSSLive" is the simplest way if you already have everything entered into PSS, or if you have another estimate division from a similar project, you can copy an entire division from one project to another.
- New division estimates can be started using a template for a particular work type or design.
- Estimates can be created from scratch, or manually adding each bid item individually.

Adding bid items individually to a new estimate is one option. Bid items can be added by simply right-clicking in the lower half of the estimate screen and selecting "Add Item(s)".

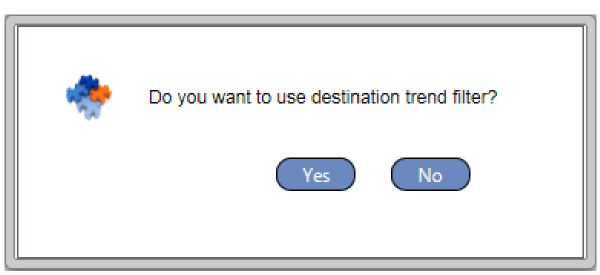
To copy all the bid items from another division or from PSS Live, simply right-click on that division and select "Copy". Copying from PSSLive or another project work the same.



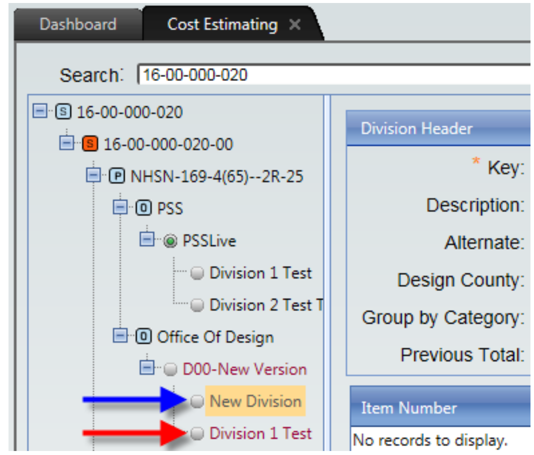
Then right-click on the estimate you want to copy to and select "Paste". It will copy the entire division to your estimate. The division name will remain the same. You can't select a division to paste to.



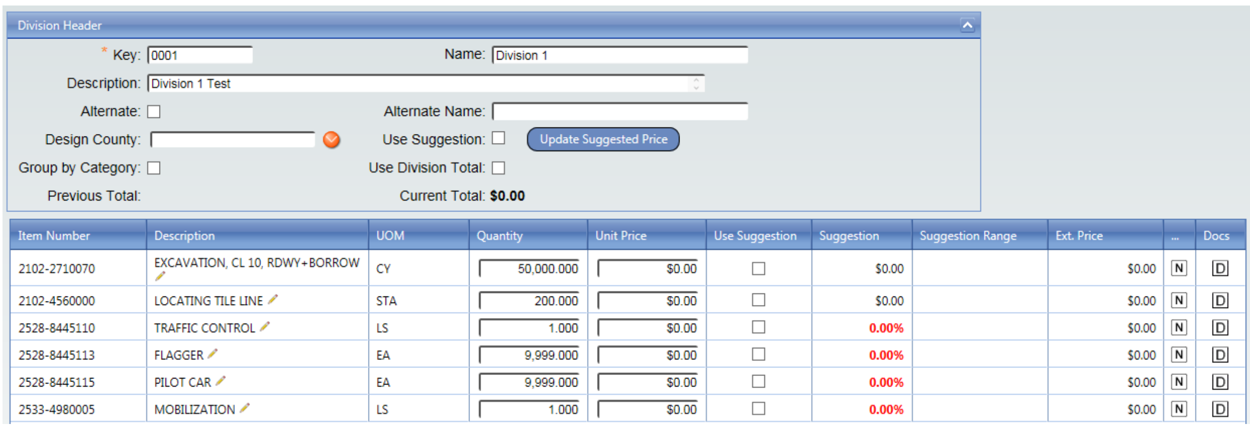
If the trend filter for the project you are pasting to varies from the project you copied from, you will receive a warning message "Do you want to use the destination trend filter?". Selecting "Yes" will update the trend filter settings to match the estimate version you are pasting to. "No" will maintain the trend filter settings from where the division was copied.



"Division 1 Test" (red arrow) has been copied from "PSSLive" and pasted under the D00 estimate. The "New Division" (blue arrow) that was created automatically can be deleted with a right-click and select "Delete".

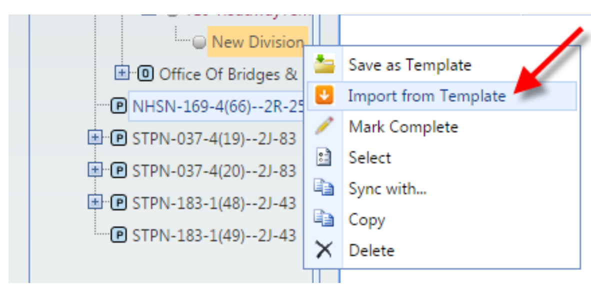


If you select the division you copied, it should look similar the picture above. By default, all bid items will show a Unit Price and Suggestion price of $0.00. Depending on the bid item and units, the suggestion will either be a dollar or percentage amount.

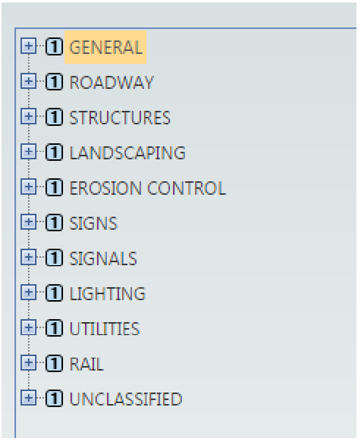


Item Number	Description	UOM	Quantity	Unit Price	Use Suggestion	Suggestion	Suggestion Range	Ext. Price	...	Docs
2102-2710070	EXCAVATION, CL 10, RDWY+BORROW	CY	50,000.000	$0.00		$0.00		$0.00	N	D
2102-4560000	LOCATING TILE LINE	STA	200.000	$0.00		$0.00		$0.00	N	D
2528-8445110	TRAFFIC CONTROL	LS	1.000	$0.00		0.00%		$0.00	N	D
2528-8445113	FLAGGER	EA	9,999.000	$0.00		0.00%		$0.00	N	D
2528-8445115	PILOT CAR	EA	9,999.000	$0.00		0.00%		$0.00	N	D
2533-4980005	MOBILIZATION	LS	1.000	$0.00		0.00%		$0.00	N	D

New division estimates can also be created using templates. Division templates can be found by right-clicking on a division and selecting "Import from Template". Templates are very handy because they have been setup to include common bid items for a particular type of design or project work type.



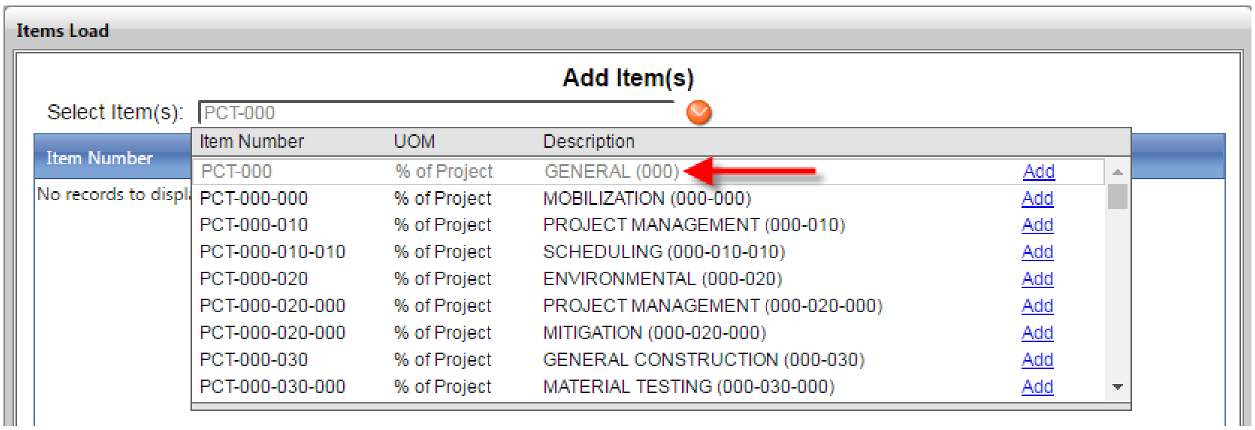
Percent Based Bid Items



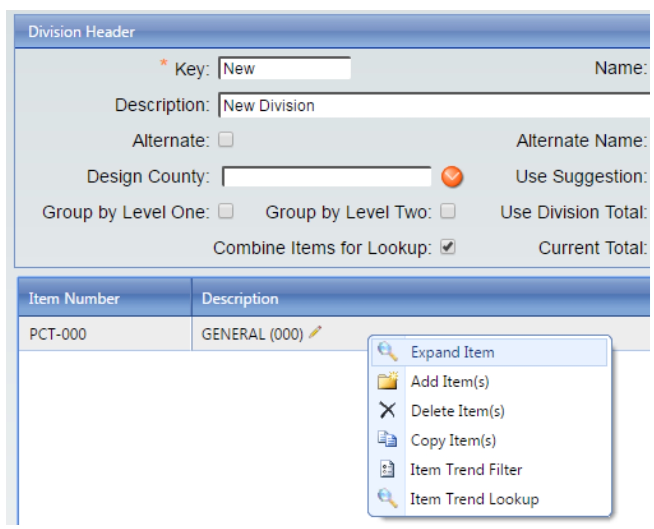
Percentage based items are used to enter a high level conceptual item that eventually breaks down to actual bid items throughout the life of a project.

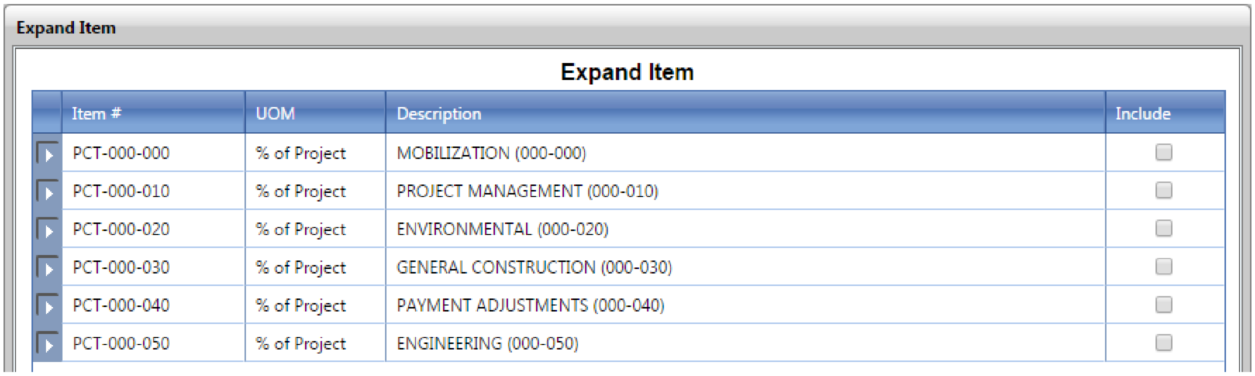
All bid items are sorted into a hierarchy structure. This structure has 11 main categories. Under each of these main categories are two additional levels. Each of these categories has a corresponding percent based bid item. These percent based bid items will include average percentages for all the bid items under them, based on the project work type filters that are applied.

As an example, look at the percent based item for General construction items at level one.



Once the item is added to an estimate, you can right-click on the item and select “Expand Item”.



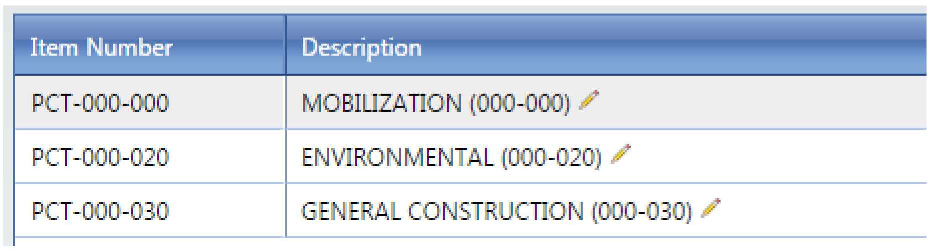


Expand Item

Expand Item

Item #	UOM	Description	Include
PCT-000-000	% of Project	MOBILIZATION (000-000)	
PCT-000-010	% of Project	PROJECT MANAGEMENT (000-010)	
PCT-000-020	% of Project	ENVIRONMENTAL (000-020)	
PCT-000-030	% of Project	GENERAL CONSTRUCTION (000-030)	
PCT-000-040	% of Project	PAYMENT ADJUSTMENTS (000-040)	
PCT-000-050	% of Project	ENGINEERING (000-050)	

Once expanded, you can see what additional levels are under General in the hierarchy structure. From here, you need to decide which of these items you will need to include in your estimate. If you think you need it or you're not sure, check the "include" box to carry these items over to the next step. You can always delete them later if it is not needed.



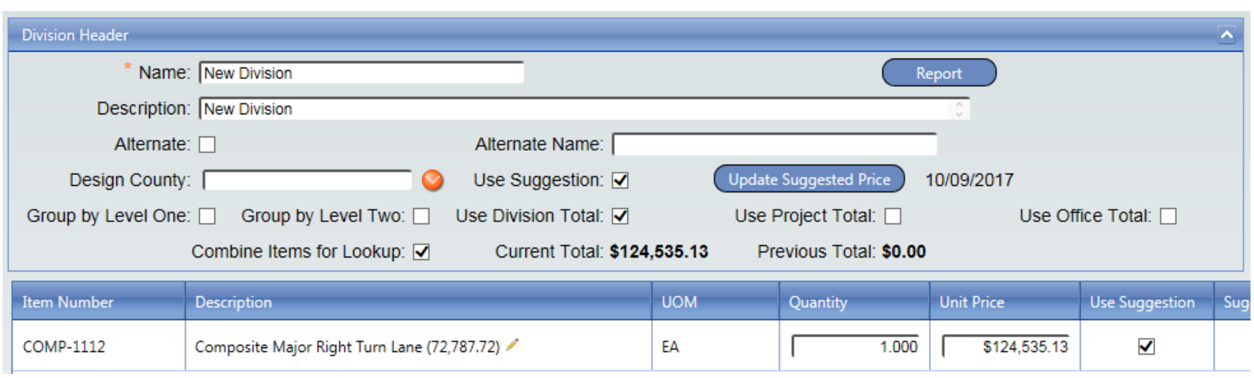
Item Number	Description
PCT-000-000	MOBILIZATION (000-000)
PCT-000-020	ENVIRONMENTAL (000-020)
PCT-000-030	GENERAL CONSTRUCTION (000-030)

General (000) has now been broken down to include Mobilization (000-00), Environmental (000-020), and General Construction (000-030). That will break down to actual bid items.

If you right-click on Mobilization (000-000) and "Expand Item", you now see and a list of actual bid items. Not all percentage based bid items will have actual bid items at this point.

Composite Bid Items

A composite bid item is a set of bid items that are grouped together for estimating purposes. As an example, the composite bid item for a major right turn lane appears as below.

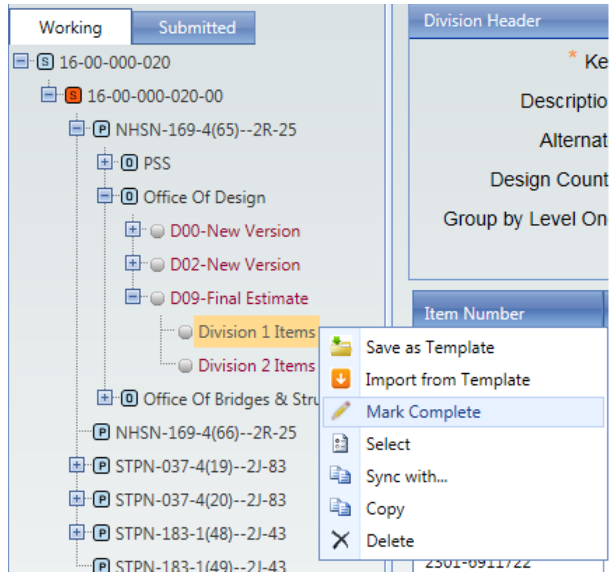


Item Number	Description	UOM	Quantity	Unit Price	Use Suggestion	Sug
COMP-1112	Composite Major Right Turn Lane (72,787.72)	EA	1.000	$124,535.13	☑	

By entering a quantity of 1, the average unit price for 1 major right turn lane is $124,535.13. By right-clicking on this item and choosing "Composite Items", you will see the bid items and average quantities used to make up this composite item. If desired, the quantities can be adjusted from this window. The suggested price will recalculate using the adjusted quantities and asterisks will be added to the end of the bid item number. The adjusted quantities will be stored for the current estimate only.

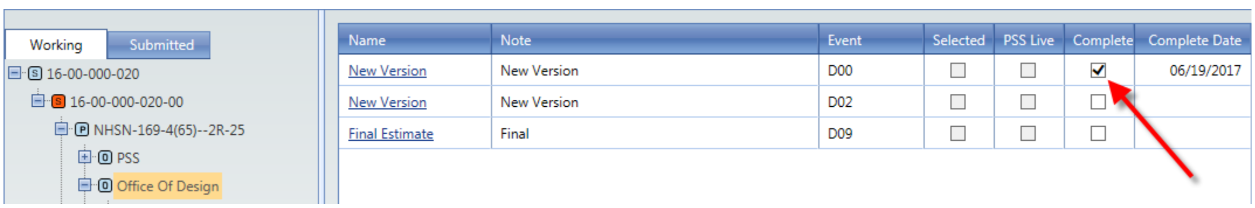
Finishing up an Estimate

When your estimate is all finished, each division to be included in the total should be marked complete. To do this, right-click on the appropriate division in the estimate tree structure and select “Mark Complete”. Marking a division complete indicates that no more items will be added or any modifications to prices will be made. You should see a red checkmark next to the division after a division is marked complete.



Supervisors and project managers will then need to review your estimate. After all the bid item costs and quantities have been reviewed and approved, the estimate divisions need to be selected by right-clicking on the division and picking “Select”. Selecting a division indicates that this particular division will be included in the total project cost. Generally, only supervisors and project managers will have this capability. The red checkmark next to the division will turn green once the division is selected.

Once all divisions are marked complete, then the estimate version should be checked complete. This is done by selecting the appropriate office from the estimate tree structure. Then find the correct version and click in the checkbox to complete the version.



After marking an estimate complete, a report will run to check for duplicate items. If no duplicate items are found, the report will be blank. If duplicate items are found, it will look similar to the report below. In the report below, several bid items are duplicated in the percentage based bid items. The program will allow you to continue but you should go back and correct these duplicates.

1 of 1 Export to the selected format Export

Version Duplicate Items

D02-17/06/21-New Version in Project NHSN-169-4(65)--2R-25

Comparing Item				Duplicate Item			
Item Number	**Item Description**	**Quantity**	**Unit Price**	**Item Number**	**Item Description**	**Quantity**	**Unit Price**
New Division							
2601-2634100	MULCH	20.60	$0.00	PCT-030	LANDSCAPING (030)	0.00	$0.00
2601-2636043	SEED+FERTILIZE (RURAL)	20.60	$0.00	PCT-030	LANDSCAPING (030)	0.00	$0.00
2595-0005140	RR PROT LIAB INSUR FOR IOWA NORTHERN	1.00	$0.00	PCT-090	RAIL (090)	0.00	$0.00
2102-2710070	EXCAVATION, CL 10, RDWY+BORROW	18,833.00	$0.00	PCT-010	ROADWAY (010)	0.00	$0.00
2102-2710080	EXCAVATION, CL 10, UNSUIT/UNSTABLE MAT'L	1,500.00	$0.00	PCT-010	ROADWAY (010)	0.00	$0.00
2105-8425015	TOPSOIL, STRIP, SALVAGE+SPREAD	14,994.00	$0.00	PCT-010	ROADWAY (010)	0.00	$0.00
2121-7425020	GRANULAR SHLD, TYPE B	16,258.00	$0.00	PCT-010	ROADWAY (010)	0.00	$0.00
2301-1033080	STD/S-F PCC PAV'T, CL C CL 3, 8"	78,662.00	$0.00	PCT-010	ROADWAY (010)	0.00	$0.00
2301-9091000	RUMBLE STRIP PANEL (PCC SURF)	2.00	$0.00	PCT-010	ROADWAY (010)	0.00	$0.00
2315-8275055	SURF, DRIVEWAY	300.00	$0.00	PCT-010	ROADWAY (010)	0.00	$0.00
2402-2720100	EXCAVATION, CL 20, RDWY PIPE CULV	64.00	$0.00	PCT-010	ROADWAY (010)	0.00	$0.00
2416-0100030	APRON, CONC, 30"	2.00	$0.00	PCT-010	ROADWAY (010)	0.00	$0.00
2416-1180030	CULV, CONC RDWY PIPE, 30"	48.00	$0.00	PCT-010	ROADWAY (010)	0.00	$0.00
2417-0225018	APRON, METAL, 18"	36.00	$0.00	PCT-010	ROADWAY (010)	0.00	$0.00
2417-0225024	APRON, METAL, 24"	4.00	$0.00	PCT-010	ROADWAY (010)	0.00	$0.00
2417-1040018	CULV, CMP ENT, 18"	1,104.00	$0.00	PCT-010	ROADWAY (010)	0.00	$0.00
2417-1040024	CULV, CMP ENT, 24"	96.00	$0.00	PCT-010	ROADWAY (010)	0.00	$0.00
2502-8212034	SUBDRAIN, LONGITUDINAL, (SHLD) 4"	55,540.00	$0.00	PCT-010	ROADWAY (010)	0.00	$0.00
2502-8221304	SUBDRAIN OUTLET, DR-304	108.00	$0.00	PCT-010	ROADWAY (010)	0.00	$0.00

After divisions have been marked complete and selected, and the estimate version has been marked complete, the estimate version can be selected. This is done by right-clicking on the estimate version from the estimate tree structure and clicking “Select”. You should see the radio button turn green. Only one estimate version can be marked select for each office. Selecting an estimate version indicates that this particular version will be used for the current estimate and be used for the total project costs. As the project progresses through the design life-cycle, different versions of the cost estimate will be selected for each office.

Chronology of Changes to Design Manual Section:

021M-047 iPD Project Cost Estimating

11/16/2017	NEW New. Describes process for accessing and using the iPD Project and Cost Estimating software.