IOWA | DOT
TRANSPORTATION DEVELOPMENT DIVISION

Specialty Plan Items In iPDWeb

Specialty Plan Items are categorized as Percentage (PCT-), Percentage Lump Sum (LS), Parametric (PARA-), and Composite (COMP-). These plan items can be used to generate a high-level conceptual estimate early in the development of a project or when the standard plan items and quantities have not been fully defined. **Specialty plan items can NOT be entered in Masterworks. Specialty plan items can only be entered in iPDWeb and these items will not be able to be used for final plan turn-in to Contracts.**

> **NOTE:** Special care needs to be taken when using specialty plan items to make surer that plan items are not being duplicated in the estimate. This can occur where a plan item is already included in the specialty plan item and then added again as a standard plan item into the estimate.

This chapter contains the following sections:

Percentage Based Plan Items: Labeled as PCT- and are mainly used to identify pricing for elements in the design that have not been fully determined.

Percentage Lump Sum Items: Lump Sum items that are percentage based pricing.

Parametric Plan Items: Labeled as PARA- and can be used to develop early conceptual estimates when only a rough approximation of the project's dimensions are known.

Composite Plan Items: Labeled as COMP- and these plan items will be assigned quantities based on typical design sections. Composite items are built and maintained by each Bureau.

Percentage Based Plan Items

Percentage based plan items begin with "PCT- "and are searchable in the same method as standard plan items. Percentage items are composed of groups of standard plan items based on work type.

NOTE: A division must be selected for percent-based items to calculate correctly

It is important to understand the structure and what plan items are being included in a percentage-based item in order to avoid adding duplicate plan items to an estimate. This can occur when a standard plan item is already being included in the Percentage plan item and then was added as a separate plan item to the estimate. To view the components that make up a percentage-based item, right click on the PCT plan item and choose "Expand Item".

Clicking on the arrow will expand the percentage item showing the hierarchy of subcategories down to the standard plan items that make up the percentage-based plan item.

Expand Item

Expand Item

Item #	UOM	Description	Include
▶ PCT-020-000	% of Project	STRUCTURE REMOVALS (020-000)	☐
▼ PCT-020-010	% of Project	EARTHWORK (020-010)	☐

	Item #	UOM	Description	Include
	▶ PCT-020-010-010	% of Project	STRUCTURE BACKFILL (020-010-010)	☐
	▼ PCT-020-010-020	% of Project	TEMPORARY SHORING (020-010-020)	☐

		Item #	UOM	Description	Include
		2501-8400170	LS	TEMP SHEET PILE+SHORING	☐
		2501-8400171	LS	TEMP SHEET PILE, RETAIN WALL	☐
		2501-8400172	LS	TEMP SHORING	☐
		2501-8400179	LS	TEMP SUPRT	☐

	Item #	UOM	Description	Include
	▶ PCT-020-010-030	% of Project	DEWATERING (020-010-030)	☐
	▶ PCT-020-010-040	% of Project	FOUNDATION IMPROVEMENTS (020-010-040)	☐

Item #	UOM	Description	Include
▶ PCT-020-020	% of Project	BRIDGES (020-020)	☐
▶ PCT-020-030	% of Project	BOX CULVERT (020-030)	☐
▶ PCT-020-040	% of Project	RETAINING WALLS (020-040)	☐

(OK) (Cancel)

The expanded screen also allows for the existing percentage item to be sub divided into more detailed categories and further down to the individual plan items. This can be done by selecting the box in the include column. Once finished click on "OK".

NOTE: Expanding a PCT based item is permanent and cannot be undone. Make sure that the expanding of the item is necessary, and all items are selected before clicking on "OK".

In this example, the original PCT-020-010 Earthwork item has now been expanded and broken out into the selected plan items. Care should be taken when moving forward to make sure that additional PCT items are not added that already include the plan items and other PCT items already in the estimate. Once an estimate is marked as complete the software will run a duplicate plan item analysis to check for any possible duplicate plan items in the estimate.

Percentage-based plan items are calculated based on the value of the total price of the division. Therefore, it is necessary to have other items in the estimate with an assigned price for the percentage-based items to be analyzed correctly. In this example, a bridge project is currently priced at $1,751,989.63, but needs to have temporary shoring added. No design information is currently available for this item so a percentage-based item will be used at this stage to price shoring. Adding a percentage plan item uses the same process as described in Chapter 5.2.1.3 Add Or Delete Plan Items.

Historically we added a percentage to the total project. It now makes the item a % of the total project by running iterations. Example of the old method: $100 x 1.2 would be the add for a 20% item. The system now runs iterations to make the item exactly 20% of the project total. The reason for the change is to better align with the history of the item.

Item Number	Description	UOM	Quantity	Unit Price	Use Suggestion	Suggestion	Suggestion Range	Ext. Price		Docs
2104-2710020	EXCAVATION, CL 10, CHANNEL	CY	650.000	$9.82	✓	$9.82	$8.35 - $11.54	$6,383.00	N A	D
2402-2720000	EXCAVATION, CL 20	CY	500.000	$24.89	✓	$24.89	$21.87 - $28.33	$12,445.00	N A	D
2403-0100010	STRUCT CONC (BRIDGE)	CY	600.000	$542.55	✓	$542.55	$510.42 - $576.70	$325,530.00	N A	D
2403-7000210	HIGH PERFORMANCE STRUC CONC	CY	600.000	$663.70	✓	$663.70	$643.54 - $684.49	$398,220.00	N A	D
2404-7775005	REINFORC STEEL, EPOXY COATED	LB	115,000.000	$1.00	✓	$1.00	$0.94 - $1.06	$115,000.00	N A	D
2404-7775009	REINF STEEL, STAINLESS STEEL	LB	110,000.000	$2.63	✓	$2.63	$2.46 - $2.81	$289,300.00	N A	D
2414-6424110	CONC BARRIER RAIL	LF	500.000	$70.16	✓	$70.16	$63.62 - $77.38	$35,080.00	N A	D
2501-0201473	PILE, STEEL, HP 14X73	LF	5,000.000	$52.67	✓	$52.67	$47.65 - $58.23	$263,350.00	N A	D
2507-2638650	BRIDGE WING ARMORING - EROSION STONE	SY	200.000	$25.06	✓	$25.06	$5.52 - $113.81	$5,012.00	N A	D
2507-3250005	ENGINEER FABRIC	SY	500.000	$3.37	✓	$3.37	$3.15 - $3.61	$1,685.00	N A	D
2507-6800061	REVETMENT, CLASS E	TON	6,000.000	$35.63	✓	$35.63	$31.93 - $39.77	$213,780.00	N A	D
2526-8285000	CONSTRUCTION SURVEY	LS	1.000	$11,452.93	✓	0.65%	0.40% - 1.20%	$11,452.93	N A	D
2533-4980005	MOBILIZATION	LS	1.000	$84,751.70	✓	4.81%	3.50% - 6.50%	$84,751.70	N A	D

The Temporary Shoring plan item is now shown on the plan item page with the suggested price. For percentage-based items the suggestion and suggestion range will be shown as a percentage and the quantity will be the dollar value of the "Current Total".

Item Number	Description	UOM	Quantity	Unit Price	Use Suggestion	Suggestion	Suggestion Range	Ext. Price		Docs
2104-2710020	EXCAVATION, CL 10, CHANNEL	CY	650.000	$9.82	✓	$9.82	$8.35 - $11.54	$6,383.00	N A	D
2402-2720000	EXCAVATION, CL 20	CY	500.000	$24.89	✓	$24.89	$21.87 - $28.33	$12,445.00	N A	D
2403-0100010	STRUCT CONC (BRIDGE)	CY	600.000	$542.55	✓	$542.55	$510.42 - $576.70	$325,530.00	N A	D
2403-7000210	HIGH PERFORMANCE STRUC CONC	CY	600.000	$663.70	✓	$663.70	$643.54 - $684.49	$398,220.00	N A	D
2404-7775005	REINFORC STEEL, EPOXY COATED	LB	115,000.000	$1.00	✓	$1.00	$0.94 - $1.06	$115,000.00	N A	D
2404-7775009	REINF STEEL, STAINLESS STEEL	LB	110,000.000	$2.63	✓	$2.63	$2.46 - $2.81	$289,300.00	N A	D
2414-6424110	CONC BARRIER RAIL	LF	500.000	$70.16	✓	$70.16	$63.62 - $77.38	$35,080.00	N A	D
2501-0201473	PILE, STEEL, HP 14X73	LF	5,000.000	$52.67	✓	$52.67	$47.65 - $58.23	$263,350.00	N A	D
2507-2638650	BRIDGE WING ARMORING - EROSION STONE	SY	200.000	$25.06	✓	$25.06	$5.52 - $113.81	$5,012.00	N A	D
2507-3250005	ENGINEER FABRIC	SY	500.000	$3.37	✓	$3.37	$3.15 - $3.61	$1,685.00	N A	D
2507-6800061	REVETMENT, CLASS E	TON	6,000.000	$35.63	✓	$35.63	$31.93 - $39.77	$213,780.00	N A	D
2526-8285000	CONSTRUCTION SURVEY	LS	1.000	$11,641.33	✓	0.65%	0.40% - 1.20%	$11,641.33	N A	D
2533-4980005	MOBILIZATION	LS	1.000	$86,145.85	✓	4.81%	3.50% - 6.50%	$86,145.85	N A	D
PCT-020-010-020	TEMPORARY SHORING (020-010-020)	% of Project	1,790,974.090	1.53%	☐	1.53%	0.20% - 27.80%	$27,401.90	N A	D

> **NOTE:** The Ext Price of the PCT plan item is also calculated into the Current Total.

Analyzing and modifying the price for percentage-based plan items uses the same method described in Chapter 5.2.2.4.5 Item Trend Filters In iPDWeb. The only difference is the regression analysis is based on the total project price and the percentage of the project that is associated with the percentage plan item.

Percentage Lump Sum Items

For most Lump Sum Items pricing cannot have a suggested price calculated by the software due to varying quantity and materials that are usually found in such plan items. However, the 4 Lump Sum Items shown above differ in the fact that there is no variance in the quantity or the materials. These plan items are known as Percentage Lump Sum Items.

Item Number	Description	UOM
2526-8285000	CONSTRUCTION SURVEY ✏	LS
2528-8445110	TRAFFIC CONTROL ✏	LS
2533-4980005	MOBILIZATION ✏	LS
2590-0000020	PROJECT MANAGEMENT ✏	LS

The Percentage Lump Sum Items are calculated using a method similar to the Percentage Based Plan Items described earlier in this chapter. When generating a suggested percentage price, the software analyzes other projects that contain the Percentage Lump Sum Item and runs a regression analysis based on the Project Total and the % of the Project for the Lump Sum Item.

Item Number	Description	UOM	Quantity	Unit Price	Use Suggestion	Suggestion	Suggestion Range
2526-8285000	CONSTRUCTION SURVEY ✎	LS	1.000	$0.00	✔	0.00%	0.00% - 0.00%
2528-8445110	TRAFFIC CONTROL ✎	LS	1.000	$0.00	✔	0.00%	0.00% - 0.00%
2533-4980005	MOBILIZATION ✎	LS	1.000	$0.00	✔	0.00%	0.00% - 0.00%
2590-0000020	PROJECT MANAGEMENT ✎	LS	1.000	$0.00	✔	0.00%	0.00% - 0.00%
2590-0000020	PROJECT MANAGEMENT ✎	LS	1.000	$0.00	✔	0.00%	0.00% - 0.00%

NOTE: Since the suggested percentage is based on total project value it is necessary to have other plan items priced out in the estimate for the Percentage Based Lump Sum Items to calculate correctly.

Once the suggested price is calculated the percentage used can be modified by right clicking on the plan item and selecting "Modify Lumpsum Percent". It is a good idea to document the reason for manual changes in the notes for that item.

This will open a pop-up window and will allow for a new percentage to be input by the estimator.

Parametric Plan Items

Adding a parametric plan item uses the same process described in Chapter 5.X.X.X: Adding Plan Items. This example is for a 6,000 square foot PPCB bridge.

Parametric plan items begin with "PARA-"and can be used to develop early conceptual estimates when only a rough approximation of the projects dimensions are known such as square yards of paving or square footage of bridge deck. They are searchable similar to standard plan items.

Parametric plan items are composed of a hierarchy of standard plan items that have been grouped together similar to the percent-based plan items. As with the Percentage Based Plan Items, care should be taken when adding Parametric based plan items to avoid duplicating any existing plan items in the estimate.

When working with Parametric plan items it is important to select filters that are similar to the material of construction. In this scenario we only want the price for PPCB and will need to adjust the assigned work types. It will be necessary to clear all existing work types. To do this, select all the items shown in the Assigned Work Type box and then click on "Remove" to clear out all existing filters. Then click on 010-PPCB and "Add" to have those filters applied to the Assigned Work Type box. Click on "Lookup" to go to the Item Trend Filter Screen.
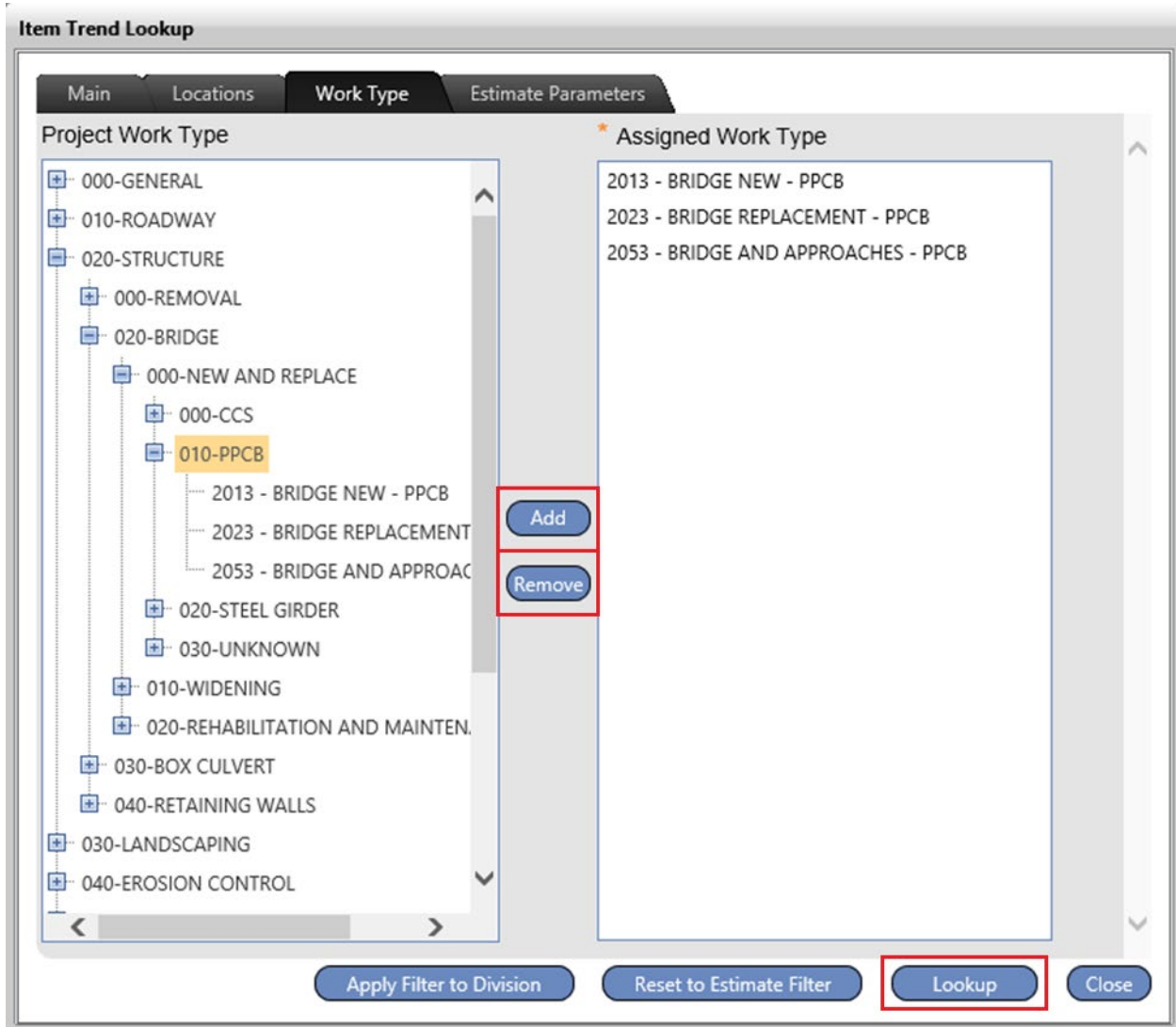
The Item Trend Lookup screen will display the analysis of other PPCB bridges based on the size and unit cost. Additional analysis of the price and modification of the filters can be done as described in Chapter 5.2.2.4.5 Item Trend Filters In iPDWeb.

Item Trend Lookup

Item #: PARA-020-020 (Bridges)   ☐ Exclude All ☑ Show all items in Chart ○ Exclude Outliers

Project Number	Work Type	Location	Bid Date	Square Feet of Deck	Price per unit	Excl.
NHSX-030-6(220)--3H-86	2013-BRIDGE NEW - PPCB	OTTER CREEK 0.7 MI W OF CO RD E66	12/19/2017	48,640.00	$39.84	☐
IM-NHS-080-5(240)176--03-50	2023-BRIDGE REPLACEMENT - PPCB	N Skunk River 2.1 mi E of IA 224 (EB)	09/18/2018	21,288.00	$72.20	☐
NHSX-030-8(34)--3H-16	2013-BRIDGE NEW - PPCB	Mt. Vernon/Lisbon Bypass On E. Kirkwood Blvd./Exist. US 30 O ver US 30	10/16/2018	8,504.00	$127.36	☐
NHSX-020-9(211)--3H-31	2023-BRIDGE REPLACEMENT - PPCB	US 20 EB & WB OVER S. FORK CATFISH CREEK IA 32 (SW ARTERIAL) INTERCHANGE	12/19/2017	12,000.00	$142.83	☐
NHSX-061-2(71)--3H-29	2013-BRIDGE NEW - PPCB	Flint Creek 0.6 mi N of Memorial Park Rd (SB)	07/17/2018	12,000.00	$154.27	☐

Average Value: $152.18   Median Value: $142.83   Predicted Value: $142.83
# of Samples: 7   High Value: $271.78   Low Value: $39.84
R^2: 0.88   Standard Deviation: 80.19   Suggestion Range: $135.10 - $264.40

Item Trend Chart

Price per unit ($) vs Square Feet of Deck

Legend:
■ Excluded data
■ Included data
■ Predicted data

Updated By: euser2 Update Date: 05/16/2019   (Export) (Modify Filter) (Accept) (Cancel)

Additional costs may need to be added to the base parametric cost to have a better estimate of the total bridge costs. Some items such as bridge removal, revetment, and mobilization can be accounted for by adding the appropriate plan item.

Division Header

Name: Design 1031   (Report)
Description: Parametric Example

Alternate: ☐   Alternate Name: [_____]
Design Number: [_____]   Use Suggestion: ☑ (Update Suggested Price) 05/16/2019
Group by Level One: ☐ Group by Level Two: ☐   Current Total: $997,648.43   Previous Total: $942,678.00

Item Number	Description	UOM	Quantity	Unit Price	Use Suggestion	Suggestion	Suggestion Range	Ext. Price		Docs
2401-6745625	RMVL OF EXISTING BRIDGE	LS	1.000	$0.00	☑	$0.00		$0.00	N A	D
2507-6800061	REVETMENT, CLASS E	TON	000	$0.00	☑	$0.00		$0.00	N A	D
2526-8285000	CONSTRUCTION SURVEY	LS	1.000	$7,582.13	☑	0.76%	0.40% - 1.60%	$7,582.13	N A	D
2533-4980005	MOBILIZATION	LS	1.000	$47,388.30	☑	4.75%	3.50% - 6.40%	$47,388.30	N A	D
PARA-020-020	Bridges	Parametric (Square Feet of Deck)	6,600.000	$142.83	☑	$142.83	$135.10 - $264.40	$942,678.00	N A	D

Composite Plan Items

Composite plan items are a set of plan items that have been grouped together for estimating purposes. These plan items will form a larger component of a project. These plan items will be assigned quantities based on typical design sections. They begin with "COMP- "and are searchable like standard plan items. Composite items are built and maintained by each Bureau.
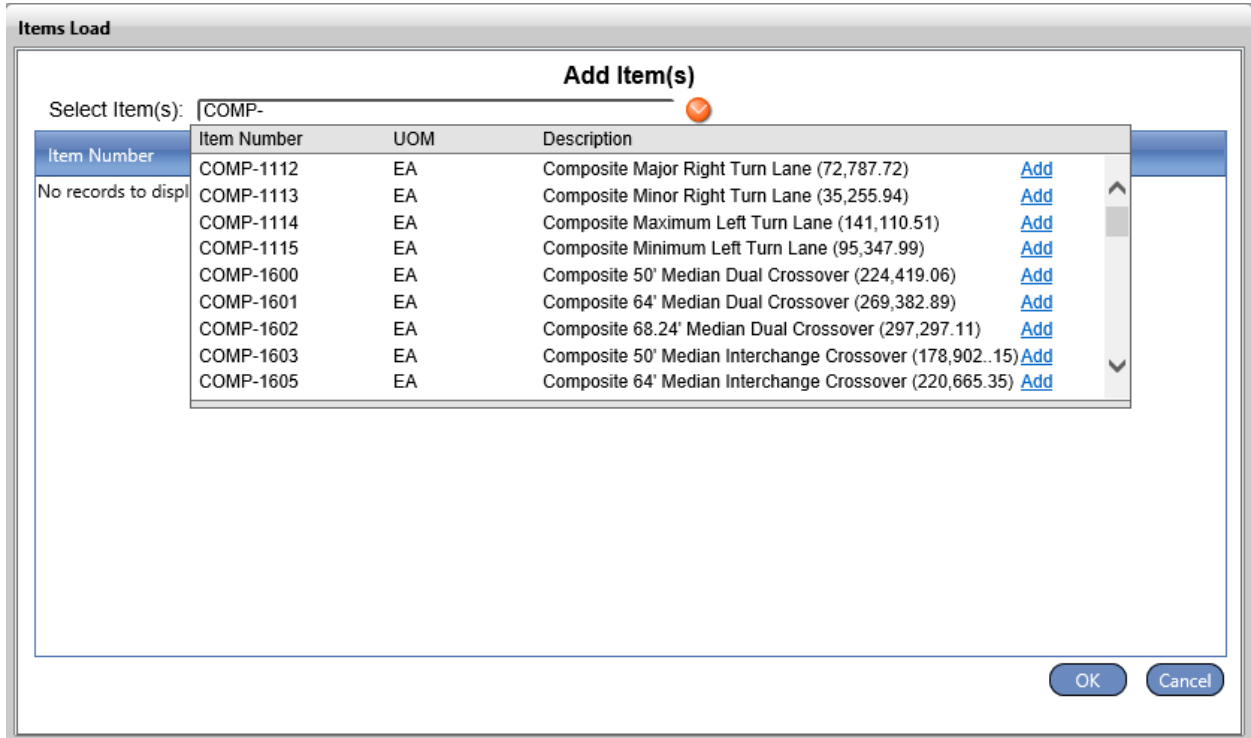
The individual plan items that make up a composite item can be viewed by right clicking on the composite item and clicking "Composite Items".
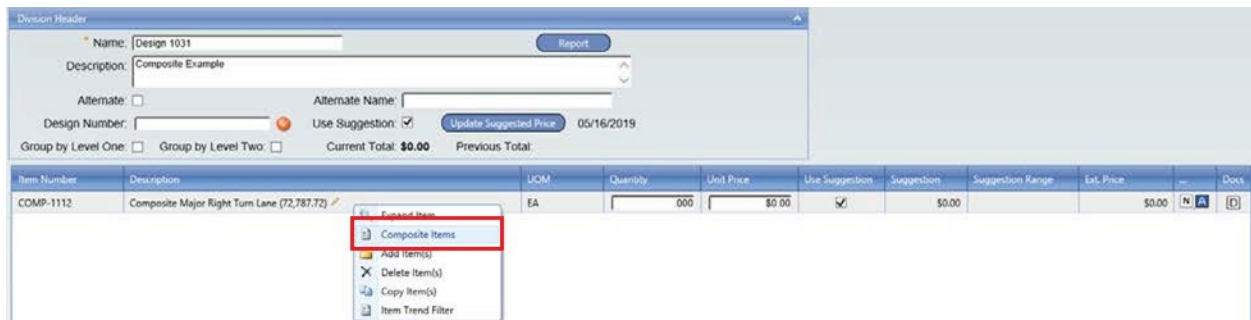
Composite items have pre-assigned typical quantities that are based on experience with the type of work, however these quantities can be adjusted in the Composite Items screen. The software will analyze and assign a price for each of the plan items.

Composite Items

Item Number	Description	Unit	Org. Quantity	Quantity
2102-2710070	EXCAVATION, CL 10, RDWY+BORROW	CY	1,222.000	1,222.000
2102-2710090	EXCAVATION, CL 10, WASTE	CY	668.000	668.000
2111-8174100	GRANULAR SUBBASE	SY	1,136.000	1,136.000
2121-7425010	GRANULAR SHLD, TYPE A	TON	159.000	159.000
2301-1033090	STD/S-F PCC PAV'T, CL C CL 3, 9"	SY	913.000	913.000
2601-2636044	SEED+FERTILIZE (URBAN)	ACRE	.750	.750

OK   Cancel

This price is then combined into an overall price for the composite item. Composite items can also be expanded into the individual plan items by right clicking on the composite item and then selecting "Expand Item".

NOTE: It is a good idea to review the attached document on the far right of the item information. That document should explain the assumptions and dimensions used for the component item. If a document is not attached to the item, please contact Design Methods Section.

These plan items can then be adjusted and analyzed separately.

Item Number	Description	UOM	Quantity	Unit Price	Use Suggestion	Suggestion	Suggestion Range	Ext. Price		Docs
2102-2710070	EXCAVATION, CL 10, RDWY+BORROW (Composite Major Right Turn Lane (72,787.72))	CY	1,222.000	$10.30	✔	$10.30	$9.13 - $11.61	$12,585.38	N A	D
2102-2710090	EXCAVATION, CL 10, WASTE (Composite Major Right Turn Lane (72,787.72))	CY	668.000	$10.40	✔	$10.40	$7.63 - $14.17	$6,948.54	N A	D
2111-8174100	GRANULAR SUBBASE (Composite Major Right Turn Lane (72,787.72))	SY	1,136.000	$8.35	✔	$8.35	$6.49 - $10.74	$9,482.19	N A	D
2121-7425010	GRANULAR SHLD, TYPE A (Composite Major Right Turn Lane (72,787.72))	TON	159.000	$27.10	✔	$27.10	$23.26 - $31.58	$4,308.93	N A	D
2301-1033090	STD/S-F PCC PAV'T, CL C CL 3, 9" (Composite Major Right Turn Lane (72,787.72))	SY	913.000	$56.92	✔	$56.92	$55.27 - $63.54	$51,963.40	N A	D
2601-2636044	SEED+FERTILIZE (URBAN) (Composite Major Right Turn Lane (72,787.72))	ACRE	.750	$2,806.05	✔	$2,806.05	$2,290.33 - $3,437.88	$2,104.53	N A	D

Division Header

Name: Design 1031
Description: Composite Example
Alternate: ☐   Alternate Name:
Design Number: ⊗   Use Suggestion: ✔   Update Suggested Price   05/16/2019
Group by Level One: ☐   Group by Level Two: ☐   Current Total: **$87,392.97**   Previous Total: **$0.00**

Report

Chronology of Changes to Manual Section:

5.1.2 Specialty Plan Items in iPDWeb

11/07/2024   NEW