State of Florida Department of Transportation



FDOT SS4 Automated Quantities

User Training Guide

February 2019

PRODUCTION SUPPORT / CADD OFFICE TALLAHASSEE, FLORIDA <u>http://www.fdot.gov/cadd</u>

FDOT SS4 Automated Quantities

Description

This training course details the Florida Department of Transportation (FDOT) Quantity Workflow developed for the Plan Summary Boxes required in FDOT Plan Sets. The participants will learn the use of FDOT and GEOPAK tools required in the workflow. This includes GEOPAK's Design & Computation (D&C) Manager and Quantity Manager, used to create quantity shapes, calculate quantities, export quantities and generate reports. This course also covers the FDOT Linked Data Manager (LDM), used to generate, link and place Plan Summary Boxes in the MicroStation design file.

This course includes, but is not limited to the following:

- D&C Manager
- Drawing Shapes Representing Pavement and Sidewalk areas
- Generating Quantities in D&C Manager
- Linked Data Manager
- Generating Plan Summary Boxes
- Quantity Manager Basics
- Pay Items and Quantities
- Quantity Manager Reports
- Exporting Data to Designer Interface
- Generating Summary of Pay Items Sheet

Objectives

Students will learn how to use GEOPAK's Design & Computation Manager, Quantity Manager, and the FDOT Linked Data Manager tools to draw, calculate, and document design quantities.

<u>Audience</u>

FDOT Designers and Engineers

Prerequisites

The following course is required:

FDOT Roadway Design and 3D Modeling – Basic 2D Rule Based Design Training

Participants need to have a basic understanding of Computer Aided Drafting and Design (CADD) using MicroStation, a basic understanding of GEOPAK concepts and a solid understanding of the engineering necessary to design a Roadway.

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1 INTRODUCTION

OBJECTIVES

Review the workflow and components of computing quantities.

- Define the Workflow for Project Quantities and Recommended Tools
- Requirements of Florida Department of Transportation (FDOT)

DOCUMENT STYLE

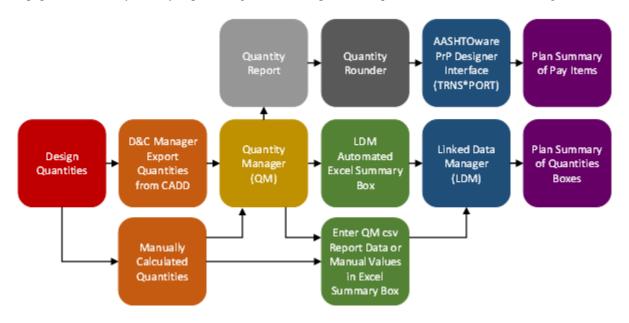
The following table shows the style conventions used throughout the course guide.

| Item | Convention | Example |
|----------------------------|--|--|
| Menu Names and Commands | Bold, names separated with > symbol | File > Open File > Compress > Design |
| Dialog Box Actions | Bold | Click the Apply button. Click the Graphic Select button to the right of the <i>Horizontal Alignment Include</i> box. In the <i>Segment Type</i> list, click Lines . |
| Dialog Box Field Names | Italic | Key in Hemfield Road in the <i>Alignment Name</i> field. Click the Graphic Select button to the right of the <i>Horizontal Alignment Include</i> field. In the <i>Segment Type</i> list, click Lines . |
| Key-ins | Bold | Key in Hemfield Road in the <i>Alignment Name</i> field. |
| File Names | Italic | . Open the file <i>Working Graphics.dgn</i> in the C:\Bentley Training\GEOPAK 101\Project Setup\Practice\ directory. |
| File Paths | Non-italic | . Open the file <i>Working Graphics.dgn</i> in the C:\Bentley Training\GEOPAK 101\Project Setup\Practice\ directory. |
| New Terms or Emphasis | Italic | . The Template Library contains <i>templates</i> , which represent typical sections of the proposed roadway. |

AUTOMATED QUANTITIES WORKFLOW

Shown in the figure below, is a workflow that represents the process of creating and providing pay item quantities for FDOT projects. GEOPAK supplies a tool called the Design & Computation Manager (D&C Manager) that is both a design tool and a quantity calculator. The FDOT Workspace is set up to use the D&C Manager items to set the Civil Features for linear design elements. Once the elements are drawn and the quantities computed, the data is transferred into Quantity Manager for review and/or modification. Linked Data Manager (LDM), delivered in the FDOT CADD Software, uses the Quantity Manager database to automate summary boxes in Excel and link them to the MicroStation DGN file.

For those summary boxes which are not automated, CSV reports can be generated from Quantity Manager to help speed up the process of populating the summary box Excel templates from LDM. Quantities not automatically computed with D&C Manager are entered manually into Quantity Manger and the summary box template is populated manually. Finally, reports are generated to export all the quantities in the database to Designer Interface.



FDOT STANDARDS

FDOT provides several resources to instruct and aid designers in computing pay item quantities. The Estimates Office publishes the *Basis of Estimates Manual*, the governing document that specifies how to compute each pay item. The Estimates Office also provides a *Master Pay Item* list containing every pay item available for use in Florida. The Production Support CADD Office provides tools to simplify the process of generating quantities. The D&C Manager database (FDOT*.ddb) and several Quantity Manager report styles are delivered with the FDOT CADD Software. The FDOT D&C Manager database is pre-set to comply with both drafting standards specified by the *CADD Manual* and the Pay Item Computation Methods supplied by the *Basis of Estimates Manual*.

FDOT recommends the use of Civil Features for all linear feature drafting to ensure that each element is on the correct symbology and that quantities may be automatically calculated. FDOT also recommends the use of the D&C Manager for all quantity shape drafting for the same reasons. The *FDOT*.ddb* database that is supplied by FDOT includes most of the items that will be used on a FDOT project.

FDOT STANDARD FILES

Quantity information is stored in CADD files designated with one of two standard FDOT File Names, located in the appropriate discipline directory:

- **DSGN**** for Linear/Each Features (where ** indicates the 2-letter characters for the discipline)
- QTDSRD for Area/Tonnage/Cubic Yard Features

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The FDOT tool Create File available from the FDOT Menu creates these files.

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| CLIF | RD | Clip Borders | | |
| ► DSG | INRD | Proposed Design | | |
| MOI | DLRD | Proposed Design Model | | |
| KEY | SRD | Key Sheet | | |
| TMS | SRD | Traffic Monitoring Site Plan Sheet | | |
| SIG | NCB | Signature Sheet Core Borings | | |
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SETTING UP THE QTDSRD FILE

The QTDSRD is the file used to create the shapes required to calculate area quantities. FDOT recommends the use of models within this file instead of creating a separate DGN file for each pay item and its shapes. Each model is named using the pay item number, TRNS*port format or with the use of dashes. Each model should have the Alignment, Design, and TOPO files referenced. These references assist with the creation of the shapes needed as well as to provide helpful information for Construction personnel who need to access this file.

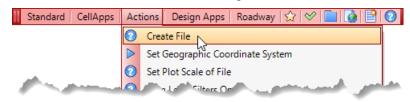
HINT To save time, set up the default model with the desired references, and then copy this model to create the additional models needed for the pay item shapes.

Note Do NOT create shapes for all the area quantities in one model. This makes it difficult for Construction to locate the shapes they need to verify. If the intent is to be able to calculate all the quantities at one time, create the separate models breaking the shapes down by pay item and then reference these models to a single composite model.

Exercise 1.1 Create and Set Up the QTDSRD File

This exercise uses the Create File tool to create the QTDSRD file. Once created, the user attaches the references to the Default model and copies it to create new models for each pay item number needed to create shapes for generating quantities.

- 1. Open the MicroStation design file *DSGNRD01.dgn* using the FDOTSS4 icon in the FDOTSS4 folder located on the desktop.
- 2. On the FDOT Menu, select Actions > Create File to open the Create File tool.



3. In the Create File dialog, click on Select Project to set the project directory.

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- 4. Browse to the project directory, C:\e\projects\22049555201\. Click Select Folder.
- 5. In the Create File dialog, complete selection of the *Discipline* and *File Group* as shown below using the drop-down options.

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6. Scroll down under *File Type*, select **Quantity Computation Shapes-Calculations** and verify the Output settings. Set *County* as shown and click **Create - Open File**. The application creates the *QTDSRD01.dgn* file and stores it in the *Output Folder* selected.

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| Bas | se Filename | Description | ^ |
| DSF | PFRD | Proposed Profile | |
| INT | PRD | Intersection-Interchange Profiles | |
| | OSRD | Quantity Computation Shapes-Calculations | |
| QU/ | ANRD | Quantity Computation Details | |
| BDX | (SRD | Border Sheet Reference File for Cross Section Sheet | |
| RDX | KSRD | Roadway Cross Sections, Pattern Line and Shapes | |
| RW | DTRD | Right of Way Details for Roadway | |
| GKL | .NRD | Geopak Lines for Existing Features | |
| TCD | SRD | Traffic Control Design | |
| | TRD | Traffic Control Detail Sheet | |
| TCP | LRD | Traffic Control Plan Sheets | ~ |
| Output File | | | |
| | Base Filenam | e: Modifier (Optional) Sequence #: | Extension: |
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- 7. Once the new file opens, the Set Plot Scale dialog displays. Click **OK** and then click **Close** on the Create File dialog to close it.
- 8. On the MicroStation menu select **File > References** to open the References dialog.

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10. On the MicroStation menu select File > Models to open the Models dialog.

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a. Select the Copy a Model icon. Fill out the Copy Model dialog as shown below and click OK.

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b. Select the **Copy a Model** icon. Fill out the Copy Model dialog as shown below and click **OK**.

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11. Close MicroStation.

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2 D&C MANAGER

OBJECTIVES

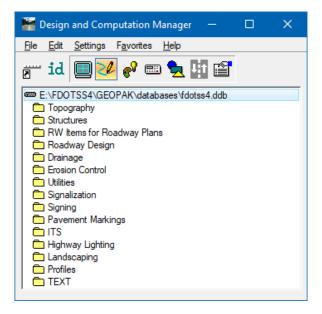
- Introduce the D&C Manager and Tools
- Explore Identify Item, Display Item
- Set Item Tools in Plans Production

D&C MANAGER DIALOG BASICS

To access D&C Manager, from the *Road* toolbox, click the **Design & Computation Manager** icon.

From the MicroStation menu, select GEOPAK > ROAD > Design & Computation Manager. <0R>

From the FDOT Plans Development > Quantities Tasks menu, select the D&C Manager icon.



D&C Manager uses a hierarchical database (the *.ddb* file) which stores information concerning functional classification and display preferences for each feature and item used in a MicroStation file. FDOT uses this database to set the Civil Features that control the symbology of elements in the different design Views.

The Production Support CADD Office is responsible for the development of the FDOT standard GEOPAK D&C Manager database. It complies with the CADD Standards as defined in the *CADD Manual*. This database may need modification for project-specific items or for compliance with District standards. If the user customizes the database, the user saves this customized database into the project directory under the *symb* directory. Saving the database to the project directory is important because this ensures delivery of the modified database with the project. Saving this file to the project directory ensures that the same pay items are available later in the life of the project that are applicable at the time of letting.

MENU ITEMS

The D&C Manager dialog has five menus.

| File | This menu creates a new .ddb file, displays an existing .ddb file, saves a .ddb file, save as, merges .ddb files, compresses .ddb files, uses a password for a .ddb file, and exits D&C Manager. |
|-----------|---|
| Edit | This menu performs multiple edit functions to the .ddb file: Undo or Redo database changes and Copy, Move, Rename, and Delete database Items and Categories. There are also options to Find an item or Category, Identify a database Item, Create a New Category or New Item, as well as Modify Item and Review Item. |
| Settings | This menu has six items pertaining to setting default options in D&C Manager and MicroStation, and the methods of computing quantities. |
| Favorites | This menu allows for storing, recalling and managing frequently used items. |
| Help | This menu displays the Bentley help files for the D&C Manager. Use this documentation for information not covered by this manual. The exercises in this manual define critical settings required for the FDOT Workflow. |

TOOL BAR

D&C Manager has a toolbar for quick access to different modes.





Switch to Toolbox Mode - D&C Manager is set up to work in two different modes, dialog box or toolbox. This icon displays the toolbox mode. This toolbox is resizable and dockable. To change the display back to the dialog box, click the Switch to Dialog Mode icon, the last icon on the right. The Place Influence check box is at the left end of the toolbox.



Identify Item - This tool sets the D&C Manager item to match an existing MicroStation element previously drawn by the D&C Manager. If the Identified element does not match an item in the opened database, a message appears in the status bar saying: No matching database item.

• **Display** - The Display icon filters the MicroStation elements in the design file to control the display of specific features. This icon expands D&C Manager to show a collection bin. This collection bin is for selecting multiple items at one time. This icon also displays a second toolbox with four icons as seen in the image below. From left to right the icons are Normal Display, Highlight Selection, Hide Selection and Display Only Selection.



• **Design** - The Design icon is used to draw MicroStation elements in the design file with the defined symbology by use of Draw Plan and Profile or in conjunction with MicroStation element placement commands with Place Influence activated.

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| Draw P | lan & Prot | file |
| | | Match Point Te |

• *Set* - The Set icon sets the symbology of previously drawn MicroStation graphic elements in accordance with the parameters of a selected item in the database. This tool applies D&C Manager attributes to an element or selection set of elements drawn without using the Design mode of D&C Manager, or fixes items originally drawn with the wrong symbology. The Set icon also appends, replaces or deletes Adhoc Attributes.

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• *Compute* - The Compute icon tabulates quantities of items placed as Pay Items using the Design or Set mode. If drafting elements using the MicroStation tools, quantities do not compute unless an attribute is applied using the Set tool. This tool also expands D&C Manager to show the collection bin, allowing for processing multiple pay items at one time. A second toolbox also displays as seen in the figure below.

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| Baseline Reference |
| Chain ▼ <select> ▼ 🖧 🔽 Begin Station: ↔</select> |
| ✓ Range: 100.00 ✓ End Station: ↔ |
| |
| Hilight During Computation: Compute Quantities |



Shape - The Shape icon uses Plan View MicroStation graphics to place shapes required for quantities. This tool displays a second dialog box as shown in the following figure.



r

• **Pavement Marking** - This mode dynamically provides additional options for placing pavement striping and markings. This tool adds four additional tools to D&C Manager as shown in the following figure. The four Pavement Marking tools from left to right are: Striping, Separation, Chevron Diverge, Chevron Merge



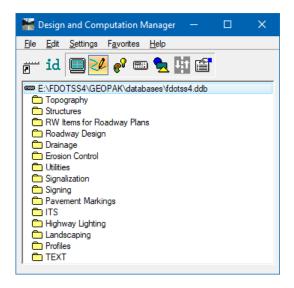
- *Note* The FDOT Traffic Plans Course covers the Pavement Marking tools and this manual will not be detailing these tools.
- **Preference** This icon expands the toolbar to include four additional icons to configure D&C Manager. These same tools are also accessible through the Edit menu and Right-click options.



EXPLORING FDOT'S .DDB FILE

FDOT delivers a database file in the FDOTSS4 directory located at GEOPAK\databases\fdotss4.ddb. FDOT specifically set up this database to create elements with the correct level symbology according to FDOT CADD Standards. The .ddb file is set up with discipline directories called Categories. Inside each Category are Items.

Categories The basic component of the hierarchical tree is the Category, represented by a folder icon. The FDOT database is set up with categories representing the different disciplines. The following figure shows the Categories with a description relative to their discipline. These Categories are composed of Subcategories and/or Items.



Items The other database component is the Item that correlates to the definition of the elements or feature. This can be a Drafting Item, a Compute Item, a Default Item or a Pavement Item. (FDOT does not use Pavement Items and they are not discussed here). Items contain specific functions related to defined element symbology or quantity calculations.

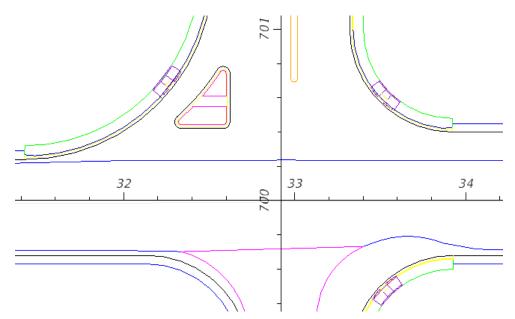
> Opening a Category reveals Items as shown below:

| B | Default | The Default Items set element symbology for drawing elements and search parameters. |
|---|-----------------------|---|
| ≜ | Drafting Standards | The Drafting Standards Items set element symbology for the placement of coordinate geometry elements, i.e., points, curves, parcels, chains, and profiles. |
| | Compute Parameters | The Compute Parameters Items set element symbology and parameters associated with computation procedures, i.e., unit of measure, rounding factors, pay item, etc. |

Exercise 2.1 Identify an Existing Element

This exercise uses the ID tool to set the D&C Manager to match the item used to draw an existing element in the design file. It is designed to explore the FDOTSS4.ddb file to get familiar with its contents.

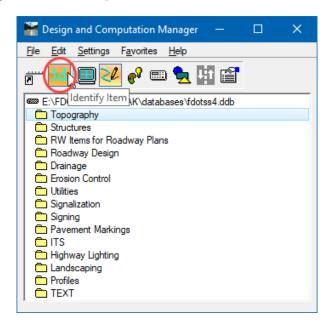
- 1. Open the MicroStation file C:\e\Projects\2204955201\roadway\DSGNRD01.dgn.
- 2. Zoom the MicroStation View to the new intersection near the beginning of the project.



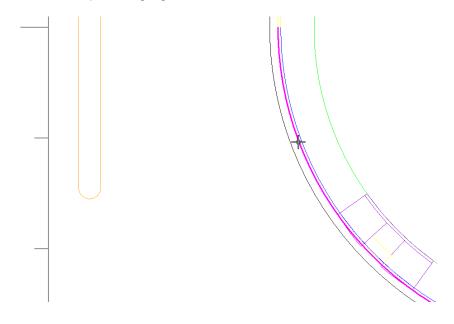
3. From the FDOT Plans Development > Quantities Tasks menu select Open D&C Manager.

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| Roadway Plans 🔹 |
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| Cross Sections |
| Drainage Plans 🔹 |
| Traffic Plans 🔹 |
| Traffic Control |
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| Cleanup and QC 🔹 |
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| Open D&C Manager |
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4. From D&C Manager click the Identify Item icon.



5. In the design file, select the **Face of Curb** on the intersection return in the Northeast quadrant of the intersection. The *Face of Curb* highlights.



6. Place a **Data Point** in the design file to accept the command. The *Concrete Curb & Gutter*, *Type F* Item highlights in D&C Manager. This indicates that D&C Manager found a match to the selected element and has set this as the *Active Item*. From this point, the user can implement any other tool from the D&C Manager using this Item.

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| 0520 2 1 Concrete Curb, Type A | | | | | | | |
| 0520 2 2 Concrete Curb, Type B | | | | | | | |
| Concrete Curb, Type D | | | | | | | |
| 3 0520 2 8 Concrete Curb, Type RA | ¥ | | | | | | |

7. With the *Concrete Curb & Gutter*, *Type F* selected, click on the **Display** icon.

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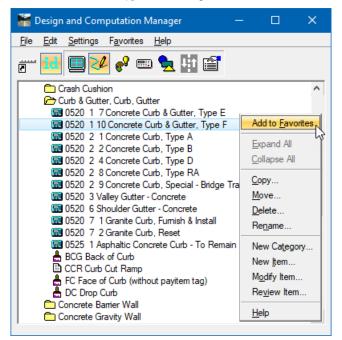
8. On the display settings toolbox, select **Highlight Selection**. Note all the face of curb elements matching the settings for the *Concrete Curb & Gutter*, *Type F* highlight.



Exercise 2.2 Create a Collection Set and Add to Favorites

In this exercise, you will create a collection set of commonly used items in the D&C Manger and then save as a Favorite to recall later.

- 1. Continuing in the D&C Manager, go to File > Save As > New File. Save the database as 22049555201.ddb in the project *symb* directory.
- 2. Open the saved database by selecting File > Open C:\e\Projects\2204955201\symb\22049555201.ddb
- 3. Highlight the Concrete Curb & Gutter, Type F item, right-click and select Add to Favorites.



- 4. Navigate to the following items in the D&C Manager, right-click and Add to Favorites.
 - EOPA Edge of Asphalt Pavement
 - BSW Back of Sidewalk
 - FSW Front of Sidewalk
 - 0520 5 11 Traffic Separator Concrete Type I, 4' wide
 - Guardrail, Roadway TL-3 (Left)
 - Guardrail, Roadway TL-3 (Right)
- 5. From the D&C Manager dialog, go to the Menu option: **Favorites** and select the **Concrete Curb & Gutter**, **Type F** item from the list on the bottom. The active item changes to the **Type F** curb.

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| | 1 | 50 | Add to F | avorites | | | | | |
| 2 | | (<u>C</u> e | Organize | e Favorites | | | | | |
| | SRTI | | / Roadv | vay Design/ | Plan Fea | atures/G | uardrail/ | Guardrail/ | GuardrailRT_TL3 Guardrail, Roadway TL-3 (Right) |
| | ST1 | | / Roadv | vay Design/ | Plan Fea | atures/G | iuardrail/ | Guardrail/ | GuardrailLT_TL3 Guardrail, Roadway TL-3 (Left) |
| | STR. | | | vay Design/ | Plan Fea | atures/C | oncrete T | Fraffic Sep | arators/0520 5 11 Traffic Separator, Concrete, Type I, 4' wide |
| | 📕 USH | | / Roadv | vay Design/ | Plan Fea | atures/M | lisc Drafti | ng & Crite | ia Items/ FSW Front of Sidewalk |
| | | | / Roadv | vay Design/ | Plan Fea | atures/M | lisc Drafti | ng & Crite | ia Items/ BSW Back of Sidewalk |
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6. Select **Favorites > Organize Favorites**. The My Favorites dialog opens. On this dialog, modify the order of the list by selecting the **Up** or **Down** button on the bottom and deleting undesired items.

| My Favorites |
|---|
| GuardrailRT_TL3 Guardrail, Roadway TL-3 (Right GuardrailLT_TL3 Guardrail, Roadway TL-3 (Left) 0520 5 11 Traffic Separator, Concrete, Type I FSW Front of Sidewalk BSW Back of Sidewalk EOPA Edge of Asphalt Pavement 0520 1 10 Concrete Curb & Gutter, Type F |
| Up Down Delete Open Save As Close |

7. On My Favorites dialog, select **Save As**. Save the file as *drafting.col* in the symb folder of the project directory. Recall this file at any time by using the **Open** option. You may create collections for drafting items, calculation/quantity items, groups for specific design areas like drainage, traffic control, S&PM, utilities, erosion control, etc.

3 CIVIL FEATURES AND ADHOC ATTRIBUTES MANAGER

OBJECTIVES

- Introduce Civil Features
- Introduce the Adhoc Attributes Manager

CIVIL FEATURES

Civil Features define the symbology of elements much like using Place Influence with D&C Manager. The difference is only the Civil tools use the Feature definitions. Each design Feature has only one definition. Within this definition, symbology is set up for each design View. The tools use the correct symbology for the elements drawn based on the type of model or design View (Plan, Cross Section, Profile, or 3D). FDOT has set up the Feature tables using Native Style. Native Style looks in the *.ddb* file for the symbology settings, including the GEOPAK attribute tag and any adhocs defined in the *.ddb* file.

Exercise 3.1 Draw Guardrail with Civil Tools

In this exercise, the students use the back of sidewalk and paved shoulder lines to draw in guardrail using Civil tools and Features.

1. Open the MicroStation file C:\e\Projects\2204955201\roadway\DSGNRD01.dgn.

Note If continuing from previous exercise, make sure to close D&C Manager before continuing.

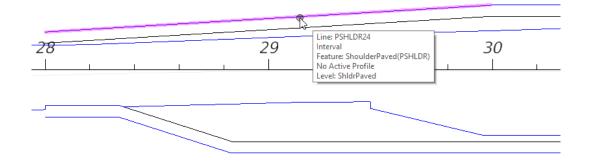
- 2. Zoom into the *NW corner* of the new intersection.
- 3. On the *Civil Tools > Horizontal Geometry* Tasks menu, select the Single Offset Entire Element tool.

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| E Vertical Geometry | |

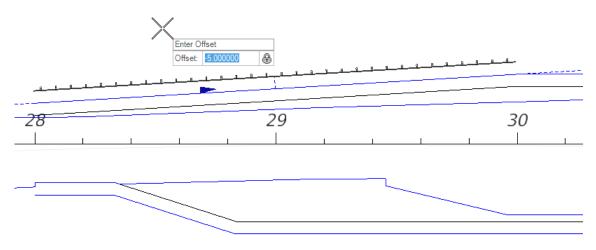
4. Set the *Feature*. From the *Feature Definition* drop down arrow, navigate to *Plan* (2*D*) > *Guardrail* and select the *Feature* **GuardrailLT_TL2**. Accept the default *Name* set.



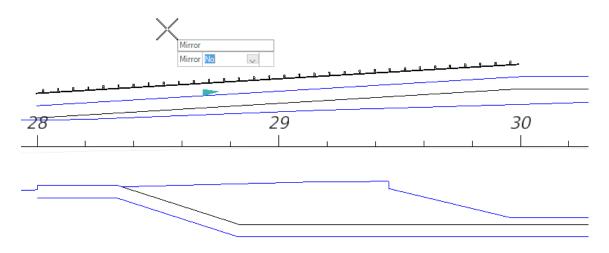
- 5. Follow the prompts on the cursor to **Copy Parallel** the *Paved Shoulder line* **5 feet** for the *Guardrail line*.
- 6. Select the **Paved Shoulder** line.



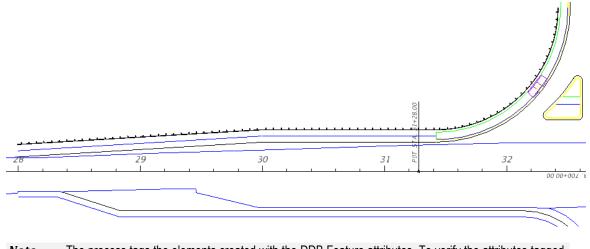
7. Enter -5 and press Enter <OR> Data Point in the file to accept.



8. Leave *Mirror* unchecked to the default of No and press Enter <OR> Data Point in the file to accept.



- 9. Repeat to draw in **Guardrail** as shown. Use an *Offset* value of **2 feet** behind the sidewalk.
- 10. Use the MicroStation modify tool Trim to Intersection to connect the segments together.



Note The process tags the elements created with the DDB Feature attributes. To verify the attributes tagged, open the Application Attribute Viewer by going to **GEOPAK > ROAD > Element Attributes**.

ADHOC ATTRIBUTES

Adhoc Attributes are tags that apply to graphic elements to provide more information. Adhoc Attributes are comprised of three types of information that require mandatory definitions: *Name, Type*, and *Value*.

- Name An identifying term used when GEOPAK is searching for a specific Adhoc Attribute.
- Type Identifies the nature of the information, and has several different setting options. The options for Type are *Numeric*, *String*, *Unit*, *Quantity*, and *Remarks*.
- Value The actual information to be used by GEOPAK, and is determined by the Type. For example, if the Type is Numeric then the Value must be a number.

FDOT has set up Adhoc Attributes for many of the Items in the D&C Manager. The functionality of these Adhocs range from setting variables used in the calculation of quantities to adding notes for later retrieval. It is important to note that in many cases specific projects may require modification of these Adhoc values. The creation process of design elements using the Civil Tools and Features will assign the default. FDOT recommends the review of these elements to ensure the correct values are set on the elements.

| Name | Туре | Default Value | Description |
|--------------------|--------|--------------------|--|
| DESIGN NOTES | STRING | | Used in automation; Provide extra detail or formula used to derive quantity |
| SortBy | STRING | | Extra control for sorting quantities into the summary boxes. Can be alpha or numeric. LDM will sort by the value set with this adhoc first and then sort by station. |
| SYSTEM CBW | STRING | | |
| SYSTEM GUARDRAIL | STRING | | |
| DESIGN SPEED | STRING | | Permanent crash cushion details – see Standard Plans Index 544-001 and associated Standard Plans Instructions |
| CRASH TEST LEVEL | STRING | | for more information. Used in automation to fill out the summary box information. |
| HAZARD WIDTH | STRING | | |
| LENGTH RESTRICTION | STRING | | |
| TTC PHASE | STRING | | |
| WORK ZONE SPEED | STRING | | |
| CRASH TEST LEVEL | STRING | | Temporary crash cushion details. Used in automation to |
| HAZARD WIDTH | STRING | | fill out the summary box information. |
| LENGTH RESTRICTION | STRING | | |
| OFFSET | STRING | | |
| LOC DESCRIPTION | STRING | | Used in automation; gives extra description for the location of the quantity shapes in the pavement summary box, i.e. shoulder, median, side road name, etc. |
| STA CL DRIVEWAY | STRING | | Used in automation when pavement or 6" sidewalk area is documented in a summary for driveways. |
| PAVEMENT TYPE | STRING | ROADWAY | Used to sort the quantities in a database into either the Summary of Pavement or the Summary of Permanent Driveways. |
| FUNCTION | STRING | UNDER GUARDRAIL | Used in automation to determine documentation on which column the quantity needs in the Summary of Miscellaneous Asphalt. |

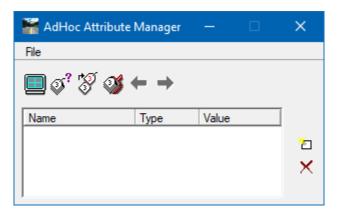
Note Place these adhocs on the elements BEFORE exporting the quantities to Quantity Manager.

| Name | Туре | Default Value | Description |
|------------------|----------|------------------|--|
| SW TYPE | STRING | SIDEWALK | Used to sort the quantities in a database into either the Summary of Sidewalk or the Summary of Permanent Driveways. |
| HELP | REMARKS | VARIES | Extra guidance provided to help determine the value of another adhoc. These adhocs do not pull over into Quantity Manager. |
| VARIOUS ITEMS*** | UNIT/QTY | VARIES | Sets pay item quantities |
| DAYS | NUMERIC | VARIES | Used in formula to calculate pay item. |
| LIFT | NUMERIC | 1 | Used in formula to calculate pay item. |
| THICKNESS | NUMERIC | VARIES | Used in formula to calculate pay item. |
| SLOPE | NUMERIC | 0 | Used in formula to calculate pay item. |

ADHOC ATTRIBUTE MANAGER

Adhoc Attribute Manager is the tool used for tagging, reviewing, and manipulating Adhoc Attributes. Access this tool from the MicroStation Menu selecting GEOPAK > ROAD > GEOPAK 3pc Adhoc Attributes.

Or by selecting the Open Adhoc Manager button on the FDOT Plans Development > Quantities Tasks menu.



The Adhoc Attribute Manager has four icons on the tool bar for viewing and tagging elements with Adhoc Attributes. From left to right these icons are: *Attribute Display Filter, Identify Element, Set Attribute,* and *Adhoc Scooper.* The two icons on the right side of the dialog are *Create New Row* and *Delete Row.*

Click F1 with the toolbox active to see the GEOPAK Help files for more detailed information.

Exercise 3.2 Tagging Adhoc Attributes

In this exercise, the value for the Design Notes adhoc will be set using the 3PC Adhoc Attribute Manager.

1. Continuing in the DSGNRD01.dgn file, from the FDOT Plans Development > Quantities Tasks menu,

select the **Open Adhoc Manager** button **11**. Adhoc Attribute Manager displays.

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2. Select File > Preferences.

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3. On the Preferences dialog, select **Replace** from the drop-down menu for the Set Mode.

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- 4. Click on the **X** to close the dialog.
- 5. Click the **Identify Element** icon, and then select the **Guardrail** drawn in Exercise 3.1. Click anywhere in the drawing to accept the selection. The dialog populates with the *Adhocs* attached to the selected element.

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6. Select the **Value** field for **Design Notes** and type in notes as shown. This text will be included later in the quantity summary box.

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- 7. Create a Selection Set of the guardrail elements.
- 8. Click the **Set Attribute** icon. An Alert displays.

| 🕌 AdHoc Attrib | ute Mai | nager — 🗆 | × |
|----------------|----------------|------------------------|---------|
| File | | | |
| Name Set | 🕉 🗲 Attribu | tes lue | |
| 0536 1 0 | Unit | LF | <u></u> |
| DESIGN NOTES | String | Protecting Steep Slope | 1 |
| SORTBY | String | | × |
| | | | |

9. From Alert, click **Yes**.

| Alert | |
|-------|--|
| ? | You are about to set the AdHoc attributes for a Selection Set. Are you sure? |
| | <u>Y</u> es <u>No</u> |

10. With the *Selection Set* still active, select the **Identify Element** icon. The Adhocs for all the elements in the selection are now available in the Adhoc Attribute Manager in *read-only* mode. Use the arrows to scroll through the elements. Selecting the **Identify Element** icon again will empty the *Selection Set*.

| 🕌 AdHoc Attrib | ute Mar | nager — 🗆 | × |
|----------------|------------------|-------------------------|---------|
| File | | | |
| u 💰 🕉 🤇 | ¥ (- | → 1 of 3 : Line | |
| Name | Туре | Value | |
| 0536 1 0 | Unit | LF | <u></u> |
| DESIGN NOTES | String | Proctecting Steep Slope | 2 |
| SORTBY | String | | × |
| | | | |
| 1 | | | |

11. Close Adhoc Attribute Manager.

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4 CALCULATING QUANTITIES

OBJECTIVES

- Understand D&C Manager Compute Settings
- Understand and Draw Quantity Shapes
- Calculate Area and Linear Quantities with the D&C Manager
- Label Shapes with Area ID

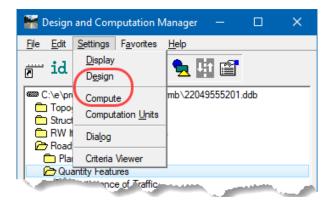
CALCULATING QUANTITIES WITH D&C MANAGER

Once all design elements and quantity shapes are completed, calculating quantities with D&C Manager is a simple process with four parts:

- Settings to Consider
- Selecting Database Items to Compute
- Calculating Quantities
- Exporting Quantities

SETTINGS TO CONSIDER

The D&C Manager has many Settings options to consider. For many of these, the Production Support CADD Office recommends the Default Settings.



Design Settings

Within the Design Settings options, there are settings for Element Connectivity. These options set the tolerances used by GEOPAK during different operations.

- <u>Maximum Gap Tolerance</u> The application uses this to determine whether two elements are connected. FDOT recommends Maximum Gap Tolerance be set no higher than 0.2.
- <u>Deduction Tolerance</u> The application uses this in the Compute Mode, the deduction tolerance sets the distance used to search for other elements used to subtract a given value from the total quantity. FDOT uses deductions for inlets in the calculation of curb and gutter. Increase the value when drawing curb through inlet cells. The suggested value is 3.0.

| 🚟 Design Settings — 🗆 🗙 |
|--|
| Element Connectivity |
| Maximum Gap Tolerance : 0.50000 Deduction Tolerance : 0.50000 |
| Custom Line Style Creation |
| Cell Creation |
| Plot Scale : 1.000 / Creation Scale |

COMPUTE SETTINGS

Compute Settings control how D&C Manager processes information gathered when exporting quantities. Review Compute Settings before every session of computing quantities, with careful thought about the desired final product. As a rule, some settings are always the same. The DBMS Properties is always set to Microsoft Access (*.mdb*) as the Driver. Having these options set ensures that the quantity database matches the graphical elements of the *.dgn* file and that all available information carries over to Quantity Manager.

Compute Settings apply during the Compute Mode to help ensure accurate quantity generation. This manual will focus on the DBMS Properties.

- <u>Driver</u> FDOT recommends using Microsoft Access (*.mdb*), which does not require a User Name and Password.
- <u>Purge Quantities</u> Scans the design file for elements previously quantified and purges the quantity database of any elements not found in the file. This is not automatic by default. Use this option only if ALL the quantities in the database are contained in the Active Model, otherwise the process will delete the other quantities.

| 🎬 Compute Settings — 🗆 🗙 | | |
|---|--|--|
| Baseline Chain Reference | | |
| Adhoc Attribute Name: | | |
| CSV Export Properties | | |
| Delimiter: " Prepend Header Record | | |
| DBMS Properties | | |
| Driver: Microsoft Access (.mdb) 🔻 | | |
| User Name: | | |
| Password: | | |
| Purge Quantities for Deleted DGN Elements | | |
| Update Quantities for Designated Phase Only | | |
| Create Adhoc Attribute Table | | |
| Project Specific Supplemental Descriptions | | |
| Description Prefix: { Description Suffix: } | | |
| | | |

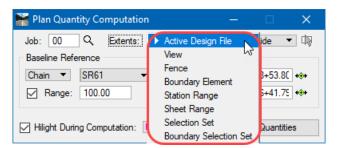
Note With the recommended workflow, FDOT does **NOT** recommend the use of the Purge Quantities for Deleted DGN Elements option.

COMPUTE MODE

The Compute mode tabulates quantities of items placed as Pay Items by the D&C Manger. This option uses the Collection Set option to allow processing of multiple pay items at one time.

| 🚟 Plan Quantity Computation 🦳 — | | × |
|---|----------------|----------------|
| Job: 00 Q Extents: Active Design File 🔻 | Inside 🔻 | фį |
| Baseline Reference | | |
| Chain 🔻 SR61 💌 💦 🗹 Begin Station: | 698+53.8(+ | •• |
| Range: 100.00 End Station: | 726+41.75 • | • + |
| Hilight During Computation: Comp | ute Quantities | |

- Job The COGO job**.gpk database for the project used for chain information.
- <u>Extents</u> The Extents determines which elements are included in the set. If selecting the Range check box, the element must exist within the extents and range (distance left and right of the baseline) for the element computed.



| Active Design File | All elements in the active Design file that match the selected items. |
|--------------------|---|
|--------------------|---|

| U | e |
|---------------------------|--|
| View | Computes items that display in MicroStation View One. |
| Fence | Computes items within a MicroStation fence. |
| Boundary Element | Uses a MicroStation shape to define the boundary of computable elements. The Fence mode affects the computation of elements within the boundary. |
| Station Range | Computes items using a Baseline Reference (chain or dgn). The Begin and End station limits the extent of the computations. |
| Sheet Range | Uses the clip borders created with the Plan & Profile Sheet Composition tool to define the area of computation. |
| Selection Set | Computes those items that are in a previously created selection set that meets the definition of the compute items. |
| Boundary Selection Set | Computes items that are within a boundary element that is in a selection set that meets the definition of the selected elements. |

• <u>Baseline Reference</u> – The Baseline Reference section defines the reference element for quantities.



Chain This uses a previously stored COGO chain.

- DGN This uses a graphic element. The stationing based on the length of the element starting at 0.
- None No reference is required, and the Baseline Reference is blank. This option limits the type of output available, as computations will not have station/offset values.
- *Note* FDOT recommends using the **Chain** option. This option gathers the station/offset information of the elements when calculating. This information is **required** for the Plan Summary Boxes and automation with Linked Data Manager (LDM).

SELECTING DATABASE ITEMS TO COMPUTE

Before computation, the collection set of the Items and/or Categories calculated is set from the D&C Manager database: single Items, multiple Items, multiple Categories, Favorites Collection, or any combination of Items, Categories and Favorite Collections. A collection set is not required when computing quantities for a single Item or Category.

> To Select Only One Item

1. In D&C Manager, select the **Item** for computation.

> To Select Multiple Items

- 1. In D&C Manager, select an Item for computation.
- 2. Right-click the selected *Item*. A menu displays.
- 3. From the menu, click **Add to Collection**. The Item displays in the collection box at the bottom of D&C Manager.

Note The collection box appears when D&C Manager is in Compute Mode.

4. Repeat steps 1 through 3 to add *Multiple Items* to the collection box.

> To Select Categories

- 1. In D&C Manager, select the desired **Category** for computation.
- 2. For multiple categories, right-click the *Category*. A menu displays.
- 3. From the menu, click **Add to Collection**. The Category places in the collection box at the bottom of D&C Manager.
- 4. Repeat steps 1 through 3 to add *Multiple Categories* to the collection box.
- *Note* When selecting Categories, all Items in the Categories present in the DGN file will compute.

> To Select a Favorites Collection

- 1. Right-click in the collection box and select **Open a Collection**.
- 2. Select the desired collection file and click **Open**.
- 3. Repeat steps 1 and 2 to add multiple collections.

COMPUTATION RESULTS

After defining the settings, clicking on **Compute Quantities** opens the Computation Results dialog.

| Computat | tion Results | | | – 🗆 X | | |
|---|--------------------------------|----------|------|-------------------------------|--|--|
| Item | Description | Quantity | Unit | Export | | |
| 0520 1 7 | Concrete Curb & Gutter, Type E | 933.6000 | LF | 2 | | |
| 0520 1 10 | Concrete Curb & Gutter, Type F | 408.9000 | LF | × | | |
| Export Format: DBMS Export Create Export Export | | | | | | |
| Run: | Groupings 02 | 200 | | ✓ Display | | |

Computation Results displays a table of all computed Items processed during computation. From here, the user can review the results and export quantity computations to a variety of formats. The box to the right of the Export Format is for supplying a file name for the report or quantities database. The computation can *Create* or *Append* the report or quantity database by making the selection to the right of the file name box. The *Run* box identifies the session when the quantities compute. *Groupings* is used to identify the TRNS*PORT Grouping in Quantity Manager. The *Display* button highlights any item selected in the Table View in the design file.

> To Sort Items in the Table

1. In the table, click the **column header**. All Items will sort by that column.

> To Exclude Individual Items

1. Clear the *check box* in the **Export** column for any individual items excluded.

FDOT recommends using the **Export Format** option **DBMS** to export quantities to Quantity Manager. From Quantity Manager, reports can be generated to help fill out non-automated summary boxes as well as generate the xml file that can be used to upload the pay items and quantities to AASHTOWare Project Preconstruction (formerly known as Trns*port). Linked Data Manager (LDM) uses the Quantity Manager database to automate summary boxes.

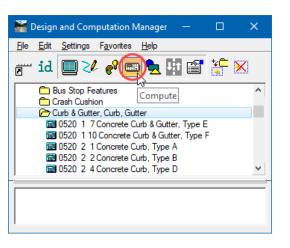
Exercise 4.1 Calculating Linear Foot Quantities with D&C Manager

This exercise calculates and exports linear foot quantities to a Quantity Manager database using the D&C Manager.

- 1. Open the design file *DSGNRD01.dgn*.
- 2. In the D&C Manager, navigate to Roadway Design > Plan Features > Curb & Gutter, Curb, Gutter and select the Curb & Gutter, Curb Gutter category.



3. Select the **Compute** *Mode*.



4. Set the Plan Quantity Computation dialog as shown and click Compute Quantities.

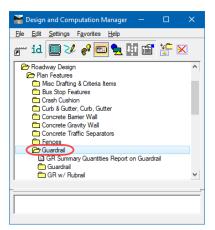
| 🚟 Plan Quantity Computation — | □ × |
|---|-----------------|
| Job: 00 Q Extents: Active Design File 🔻 | Inside 🔻 🕼 |
| Baseline Reference | |
| Chain 🔻 SR61 💌 🛵 Begin Station: | 698+53.80 ++ |
| Range: 175.00 End Station: | 726+41.75 ++ |
| Hilight During Computation: | oute Quantities |

5. On the Computation Results dialog, set the *Export Format* to **DBMS**, type in the *project number* for the *file name* with the *Mode* set to **Create**, and for *Groupings* type in **0200**. Click **Export**.

| ltem | Description | Quantity | Unit | Export |
|---------------|--------------------------------|--------------|---------|--------|
| 0520 1 7 | Concrete Curb & Gutter, Type E | 933.6000 | LF | 2 |
| 0520 1 10 | Concrete Curb & Gutter, Type F | 408.9000 | LF | ✓ |
| xport Format: | DBMS | <u>م</u> د د | reate 🔹 | Export |

- *Note* It is very important to change the Groupings value before exporting. The default value, Design Estimate, will result in errors when importing quantities through Designer Interface.
- 6. Close the Computation Results dialog.

7. In the D&C Manager, navigate to and select the Guardrail category.



8. On the Plan Quantity Computation dialog, change the *Chain* to **BL98** and then click **Compute Quantities**.

| 🕌 Plan Quantity Computation — | |
|---|-----------------|
| Job: 00 Q Extents: Active Design File 🔻 | Inside 🔻 🕼 |
| Baseline Reference | |
| Chain 🔻 BL98 💌 🎼 🗹 Begin Station: | 18+15.67 +++ |
| Range: 175.00 End Station: | 46+11.26 ++ |
| | |
| Hilight During Computation: 🗾 🗨 🤇 Comp | oute Quantities |

9. On the Computation Results dialog, change the *Export* option to **Append** and click **Export**.

| 🚪 Comput | ation Results | | — | □ × |
|-----------------------|--|----------|------|--------|
| ltem | Description | Quantity | Unit | Export |
| 0536 1 0 | Guardrail, Roadway, General/Low Speed TL-2 | 500.3000 | LF | 2 |
| Export Format Run: | : DBMS 22049555201.mdb Groupings 0200 | Append - | Б | (port |

10. Change the D&C Manager back to the **Design** *Mode*.

CREATING SHAPES

Shape creation is generally not done during the design process. As such, quantity shapes for these areas need to be created. The quantity shape file (*qtdsrd01AQT.dgn*) provided with this course already has most of the needed shapes built. This course focuses on creating shapes near the existing intersection. It is important to remember that the methods of computation shown in this manual may not be complete, and the designer should consult the appropriate governing documents for calculation procedures.

With the introduction of Open Roads Civil Tools, the Production Support CADD Office recommends using the MicroStation Create Region tool to create quantity shapes. The Shape Mode of the D&C Manager is accessible; however, this tool does not function properly with some civil elements, especially Civil Cells. When creating quantity shapes with the Create Region tool, it is very important to turn **OFF** the **Associative Region Boundary** option. If it is on, D&C Manager will NOT recognize the elements for computations.

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|----------------|-----------------|------------------|----------|
| 3 | | | |
| S | or: 😡 iginal | aque O | • |
| Associat | tive Reg | ion <u>B</u> our | ndary |
| | 1 (2) | | 4 |
| | نک) ا | <u>AB</u> | ¢. |
| Max <u>G</u> a | ap: 0.0 | 10000 | * |

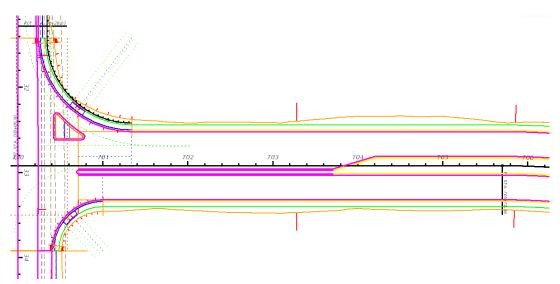
Although it is possible for quantity shapes to span the entire length of the project, FDOT recommends that they be broken into intervals. The designer can choose to break the shapes at intersections, or at a set distance.

Note For area shapes with "holes", the Locate Interior Shapes option is not recommended, as the stationing is not exported properly to Quantity Manager for Grouped Holes. Creating two or more shapes may be necessary to quantify the area.

Exercise 4.2 Calculating Area Quantities with D&C Manager

This exercise creates, calculates and exports quantity shapes to a Quantity Manager database using the D&C Manager.

- 1. Open the design file *QTDSRD01.dgn*, **Model 0334 1 52** from Exercise 1.1.
- 2. Rotate the view and zoom to the beginning of the new construction.



3. On the MicroStation menu select **File > References** to open the References dialog and turn off the display for the *ALGNRD01.dgn* and *TOPORD01.dgn reference files*.

| 🗈 Ref | ferences (3 of 3 uniqu | ue, 1 displayed) | | | | | - | - | | × |
|---------------|--------------------------------------|--|---|----------------------------|--|-------------------------------------|--------|----------------------------|-----------------|---|
| <u>T</u> ools | <u>S</u> ettings | | | | | | | | | |
| i - | 🖹 🔍 🗎 🔇 | 🤹 🏟 🌾 🗈 🕯 | - i i i i | â 🛈 | ₩ <u>Hi</u> lite Mode: Boundaries | • | \sim | | | |
| Slot 1 | 🏱 🛅 File Name | Model | Description | Logical | Orientation | Presentation | • | لا گ | G_ | |
| 1 2 3 | ALGNRD01.1 DSGNRD01. TOPORD01. | .DGN Default | Global Origin align Master Model Master model | e | Coincident - World Coincident - World Coincident - World | Wireframe Wireframe Wireframe | | 1 1 1 1 1 1 | | |
| • | 1.000000 | : 1.000000 <* : : : : : : : : : : : : : : : : : : : | 🚮 📹 💁 <u>N</u> ested | 00°00'00'' Attachments: | Offset <u>X</u> 0.00 ▼ <u>Di</u> splay Ove | Y 0.00 emides: | | lesting | De <u>p</u> th: | 1 |

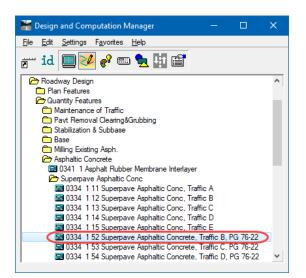
4. On the MicroStation menu select **Settings > Levels > Display** (or click the Level Display button) to open the Level Display dialog and select the DSGNRD01.dgn, Default attachment. Right-click in the Level Name area and select All Off then select the level names to turn back On as shown below.

| | 🥩 Level Display - View 1 | — | □ × | |
|-----------------------|--|--------------|-----|--------|
| | Uiew Display | • | | |
| | 🌾 📴 🍃 All Leve 🕶 🛛 | Levels 🔻 📈 🗸 | | |
| | CTDSRD01.DGN, 0334 ALGNRD01.DGN, A DSGNRD01.DGN, I M TOPORD01.DGN | LONDD 50 | ĺ | * * |
| | Name | Used | ~ | ^ |
| | | | | |
| | Default | • | | |
| | BaselineSurvey | • | | |
| | CLConst_dp | • | | |
| | ConstLines | • | | |
| | CorrHndlStg3_dp | • | | |
| | Curb_pm CurbBack | • | | |
| | CurbFace | | | |
| | CurbRamp | • | | |
| | CurbRampWarning | • | | |
| | Driveway | • | | |
| | GuardrailLt | • | | |
| | PavtAsphalt | • | | |
| Set Active | PavtAsphalt_ep | • | | |
| Jump To Active Level | PavtBase_pm | • | | |
| Create Display Set | PavtBreak_dp PavtCrown | | | |
| | PavtMilling | | | |
| All O <u>n</u> | Scratch1_dp | • | | |
| All Off | Scratch2_dp | • | | |
| Invert On/Off | ShldrPaved | • | | |
| Off By Element | SidewalkBack | | | |
| All Except Element | SidewalkFront | ٠ | | |
| Air Except Element | TmpDrpHndlStg3_dp | • | | |
| Save Filter | TrafSeparator Yellow Point | • | | |
| Level <u>M</u> anager | Berm_px | | | ~ |

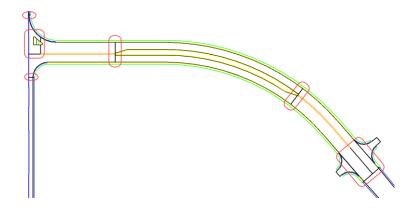
5. From the FDOT Plans Development > Quantities Tasks menu, select the Open D&C Manager icon.

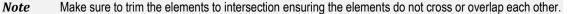
| Tasks 👻 🕂 🕇 | × |
|---|---|
| 🗱 FDOT Plans Development 🗸 | - |
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| Typical Sections | |
| Key Sheets | |
| Roadway Plans | • |
| Existing Features | • |
| Cross Sections | • |
| Drainage Plans | • |
| Traffic Plans | • |
| Traffic Control | • |
| Utilities | • |
| Cleanup and QC | • |
| Quantities II = I 🗸 | • |
| 💽 🕁 🚓 🖉 🛅 ズ 🕁 | |
| Open D&C Manager Survey | • |
| Drawing | • |

6. Navigate to Roadway Design > Quantity Features > Asphaltic Concrete > Superpave Asphaltic Conc and select 0334 1 52.



7. Using the MicroStation **Place Line** command, draw in lines to segment the new construction area into smaller areas for reporting purposes.





8. The D&C Manager should still be open. Make sure the Adhoc Attributes dialog displays. If it does not, toggle **On** the *Place Influence* and *Adhoc Attributes* in the Place Influence dialog box.

| 🕌 Design and Computation Manager 🛛 🗆 | × | F 0334 1 | 52 Superpay | re As — 🗆 🗙 |
|--|---|-----------------|--------------|------------------------------------|
| <u>File E</u> dit <u>S</u> ettings F <u>a</u> vorites <u>H</u> elp | | Place | Influence | |
| ē" id 🔲 🚧 🚱 📾 🐂 🔢 🖀 | | | Element Only | Match Point Text Draw COGO Element |
| Roadway Design | ^ | | | |
| Den Features | | 0334 | 1 52 Superpa | ive Asphal — 🔲 🗙 |
| Quantity Features | | | | |
| Maintenance of Traffic | | ድ 💡 🚽 | | |
| Stabilization & Subbase | | Name | Туре | Value |
| Base | | Lift | Numeric | 1 |
| Milling Existing Asph. | | DESIGN | String | |
| Asphaltic Concrete | | LOCDES | String | |
| 0341 1 Asphalt Rubber Membrane Interlayer | | STA CL | String | |
| 🗁 Superpave Asphaltic Conc | | PAVEME | String | ROADWAY |
| 📟 0334 1 11 Superpave Asphaltic Conc, Traffic A | | Help | Remarks | Pavement Type = Roadway or Dri |
| 0334 1 12 Superpave Asphaltic Conc, Traffic B | | Help | Remarks | USE ALL CAPS |
| 🔜 0334 1 13 Superpave Asphaltic Conc, Traffic C | | SORTBY | String | |
| 📟 0334 1 14 Superpave Asphaltic Conc, Traffic D | | | | |
| 0334 1 15 Superpave Asphaltic Conc, Traffic E | | | | |
| 0334 1 52 Superpave Asphaltic Concrete, Traffic B, PG 76-22 | | | | |
| 0334 1 53 Superpave Asphaltic Concrete, Traffic C, PG 76-22 | | | | |
| 0334 1 54 Superpave Asphaltic Concrete, Traffic D, PG 76-22 | ¥ | < | | > |

9. In the Adhoc Attributes dialog box, add the Value, SR61, for the Adhoc LOCDESCRIPTION.

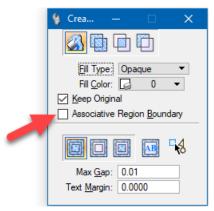
| ው <mark>ዋ</mark> | | | | | | |
|------------------|---------|-------------------------------------|--|--|--|--|
| Name | Туре | Value | | | | |
| Lift | Numeric | 1 | | | | |
| DESIGN NOTES | String | | | | | |
| LOCDESCRIPTION | String | SR61 | | | | |
| STA CL DRIVEWAY | String | | | | | |
| PAVEMENT TYPE | String | ROADWAY | | | | |
| Help | Remarks | Pavement Type = Roadway or Driveway | | | | |
| Help | Remarks | USE ALL CAPS | | | | |
| SORTBY | String | | | | | |

10. Open the MicroStation tool Create Region.

| 🗳 Tasks | | — | | × | |
|----------------------|------|--------------|------------------|-----------|--------------|
| 🗱 FDOT Plans Develop | ment | | | - | |
| 1 2 3 3 4 5 | | \mathbf{x} | | > | |
| 骨 Ҟ 🕬 🖗 | 2 | <u>1</u> | Drop Eler | ment | |
| Typical Sections | ۶ | <u>2</u> | Create Co | omplex (| Chain |
| Key Sheets | Z | <u>3</u> | Create Co | omplex S | Shape |
| Roadway Plans | £ | 4 | Create Re | egion | |
| Existing Features | ₩ | <u>5</u> | Add To G | iraphic (| iroup |
| Cross Sections | ₩ | <u>6</u> | Drop Fro | m Graph | ic Group |
| Drainage Plans | 0 | Z | Group He | ole | |
| Traffic Plans | | | <u>O</u> pen 'Gr | oups' as | Toolbox |
| Teaffic Coptor | | | and a second | المعنى | and a second |

11. Define the settings in the dialog as shown.

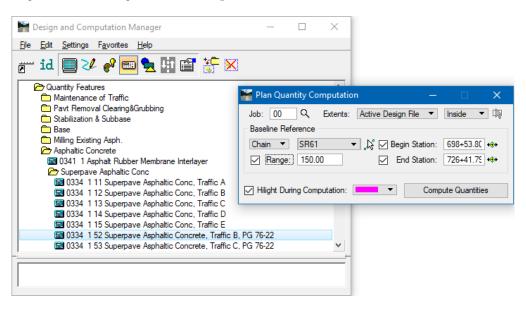
Important! DO NOT check ON the Associative Region Boundary option; otherwise, the D&C Manager will not recognize the shape when calculating.



Note Using a Fill Type is optional.

12. **Data Point** inside of one of the *mainline areas* to flood the area and create the quantity shape. Continue selecting areas to create shapes for the remaining mainline areas.

13. Change the D&C Manager *Mode* to **Compute**.



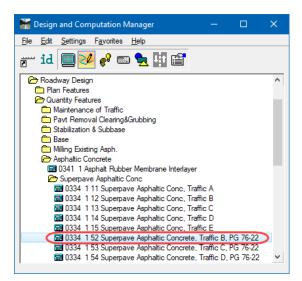
- 14. Set up the Plan Quantity Computation dialog as shown above and click on **Compute Quantities**. The shapes along the mainline highlight and the Computation Results dialog displays.
- 15. On the Computation Results dialog, make sure to set the *Groupings* to **0200** as shown below and then click **Export**. Close the dialog when export is complete.

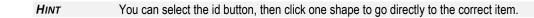
| 🚟 Comput | ation Results | _ | - [| × |
|---------------|---|----------|----------------|--------|
| Item | Description | Quantity | Unit | Export |
| 0334 1 52 | Superpave Asphaltic Concrete, Traffic B, PG 76-22 | 667.4000 | TN | 7 |
| Export Format | : DBMS | Append 🔻 | Expo Displa | |

Exercise 4.3 Modifying Adhocs with D&C Manager for Quantity Calculations

This exercise modifies the Lift Adhoc value on the Asphalt Shapes. LDM automation uses these Adhocs to sort the quantities in the Quantity Manager database into the correct summary box.

- 1. Open the MicroStation design file, *QTDSRD01.dgn*, Model 0334 1 52.
- 2. Turn **Off** the display for all the *Reference files*.
- 3. In the D&C Manager, navigate to Roadway Design > Quantity Features > Asphaltic Concrete > Superpave Asphaltic Conc and select 0334 1 52.





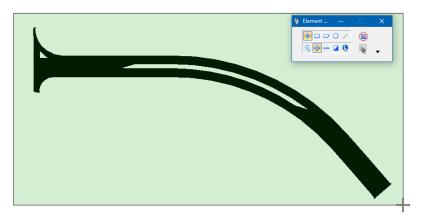
4. Select the Set icon.



5. Toggle **On** the *Adhoc Attributes* option and set the *Attach Mode* to **Replace**.

| 🚟 0334 1 52 Superpave / | Asph — | | × |
|-------------------------|-------------|--------|------|
| Use Complex Chain | Adhoc Att | | |
| Set | Attach Mode | Replac | xe ▼ |

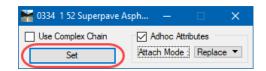
6. Select all the **Shapes** in the file with the *Element Selection* tool by clicking out to the upper left of the shapes and dragging the mouse to encompass all the shapes.



- *Note* Take care when setting Adhoc values to Selection Sets. Make sure NOT to overwrite other Adhoc values that may be different on individual elements.
- 7. In the Adhoc Attributes dialog, set the *Lift Adhoc Value* to **2.5**.

| 1 0334 | 52 Superpa | ve Asphaltic Concr — 🗆 🗙 |
|--------|------------|-------------------------------------|
| ታ 💡 | | |
| Name | Туре | Value |
| Lift | Numeric | 2.5 |
| DESIGN | String | \smile |
| LOCDES | String | SR61 |
| STA CL | String | |
| PAVEME | String | ROADWAY |
| Help | Remarks | Pavement Type = Roadway or Driveway |
| Help | Remarks | USE ALL CAPS |
| SORTBY | String | |
| | | |

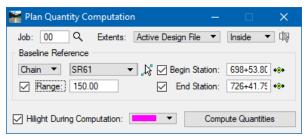
8. In the Set dialog, click the **Set** button.



9. Change the D&C Manager *Mode* to **Compute**.

| 🚟 Design and Computation Manager | | | × |
|--|------|---|---|
| <u>File E</u> dit <u>S</u> ettings F <u>a</u> vorites <u>H</u> elp | | | |
| 🖅 id 🔲 🌽 🕐 🛄 🔛 🖆 | te 🔀 | | |
| Roadway Design Compute Plan Features Compute | | - | |

10. Modify the Settings as shown and click Compute Quantities.



- *Note* In the previous exercise, the user exported a quantity for the same pay item to the database. Re-exporting the quantity will NOT overwrite what is already in the database. Delete the quantity from Quantity Manager before exporting the new quantity. The next steps will define the basics for doing this. The next chapter covers the Quantity Manager.
- 11. From the FDOT Plans Development > Quantities Tasks menu select Open Quantity Manager.
 - < OR >

In the MicroStation View, right-click and hold for the context menu, then select Quantity Manager.

| 🛳 Tasks 🛛 — | | \times |
|---|---------|-----------|
| 👪 FDOT Plans Development | | • |
| <u>♪</u> <u>, , , , , , , , , , , , , , , , , , ,</u> | * *? | |
| 🔐 🌾 🧺 😂 | | |
| Typical Sections | | * |
| Key Sheets | | * |
| Roadway Plans | | • |
| | | |
| Existing Features | | * |
| Cross Sections | | * |
| Drainage Plans | | * |
| Traffic Plans | | * |
| Traffic Control | | * |
| Utilities | | * |
| Cleanup and QC | | • |
| | | |
| Quantities | | _ |
| 일 😂 🗟 🚧 🥇 🛅 🛱 | • 🕁 🗬 🛙 | \$ |
| Survey | | * |
| Drawing | | |
| Didning | | |

12. On the Quantity Manager dialog, click on Open Project.

| 😰 Quantity Manager | — | × |
|---|---|----------|
| Project Edit View Insert Tools Help | | |
| D 🗃 🔁 🖽 🔚 🛗 🔚 🖛 🏤 Trns*port Groupings : Open Project | ~ | |
| and a second and a s | | . A. |

13. On the Connect To Database dialog, click on the icon to Select Database Filename.

| Connect To Database | | × | |
|----------------------------------|--------|------|-----------------------|
| File: User Name: Password: | | Sele | ect Database Filename |
| CI | onnect | | |

- 14. Navigate to C:\e\projects\22049555201\roadway\ and select the 22049555201.mdb file. Click **Open**.
- 15. On the Connect To Database dialog, click Connect.

| Connect To Da | itabase | × |
|---------------|---------------------|---|
| | | |
| File: | way\22049555201.mdb | ۹ |
| User Name: | | |
| Password: | | _ |
| | | |
| | | |
| | | |
| | | |
| | Connect | |

16. Navigate to the *asphalt quantity* under Roadway Design > Quantity Features > Asphaltic Concrete > Superpave Asphaltic Conc.

| 📴 Quantity Manager - C:\e\projects\22049555201\roadway\22049555201.mdb | | | | | | | | × |
|--|---------------|------------|-----------|-------|-----------|---------|---------|-------|
| Project Edit View Insert Tools Help | | | | | | | | |
| 🗅 😅 🕑 🖽 🖶 🔚 🔚 🖬 Trns*port | Groupings : [| ALL TRNS*F | PORT GR 🗸 | | | | | |
| Payitem Tree Payitem Table | Category | Payitem | Trns*port | Chain | Net Value | Remarks | Descrip | otion |
| 🔄 root | root\Roadwa | 0334 1 52 | 0200 | SR61 | 23.780 | | | |
| 🔤 loot 🖮 🖄 Roadway Design | root\Roadwa | 0334 1 52 | 0200 | SR61 | 85.500 | | | |
| i → □ Plan Features | root\Roadwa | 0334 1 52 | 0200 | SR61 | 76.070 | | | |
| | root\Roadwa | 0334 1 52 | 0200 | SR61 | 141.220 | | | |
| 🖻 🔄 Asphaltic Concrete | root\Roadwa | 0334 1 52 | 0200 | SR61 | 135.350 | | | |
| Asphalic Concrete | root\Roadwa | 0334 1 52 | 0200 | SR61 | 121.690 | | | |
| | root\Roadwa | 0334 1 52 | 0200 | SR61 | 83.790 | | | |
| 0334 1 52 Superpave Asphaltic Concrete, | root\Roadwa | 0334 1 52 | 0200 | SR61 | 83.790 | | | |

17. Right-click on the *Pay Item* **0334 1 52** and select **Delete**.

| Payitem Tree | Payitem Ta | ble | Category | Pa | |
|--------------|------------------------|------------------------------------|-------------|-----|--|
| 🔊 root | | | root\Roadwa | 033 | |
| | ay Design | | root\Roadwa | 033 | |
| | n Features | | root\Roadwa | 033 | |
| | antity Feature | s | root\Roadwa | 033 | |
| | Asphaltic Co | | root\Roadwa | 033 | |
| | | ve Asphaltic Conc | root\Roadwa | | |
| | | 1 52 Superpave Asphaltic Concrete, | root\Roadwa | 033 | |
| | | Payitem: 0334 1 52 Super | oave Asp | | |
| | 6 | Insert Payitem Above | | | |
| | 🔜 Insert Payitem Below | | | | |
| | 💕 Insert Quantity | | | | |
| | 1 | Edit | | | |
| | (| Delete | | | |
| | | Rename | | | |
| | | Cut | | | |
| | | Review Fund Participation | | | |
| | 6 | Customize View | | | |
| | | | | | |

18. On the Delete Payitem? Alert dialog, click Yes to delete the selected Pay Item.

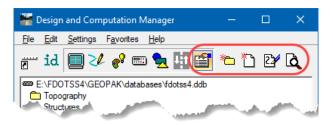
| Delete Pa | ayitem? X |
|-----------|---|
| ? | Are you sure you want to delete the selected payitem: |
| - | 0334 1 52 |
| | including all associated information ? |

- 19. Close Quantity Manager.
- 20. In MicroStation, on the Computation Results dialog, use the same settings shown to *Export* the **Asphalt Quantities**.

| K Computation Results | - | - 🗆 | × |
|---|-----------|---------|--------|
| tem Description | | | Export |
| 0334 1 52 Superpave Asphaltic Concrete, Traffic B, PG 76-22 | 1668.3400 | TN | |
| Export Format: DBMS | Append 🔻 | Export | |
| Run: Groupings 0200 | ~ | Display | |

PREFERENCES MODE

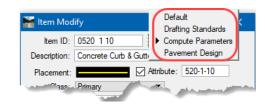
Use the Preferences Mode of the D&C Manager to create, review, and modify items.



There are times when items needed are not included in the D&C Manager database. For example, a pay item is needed or an item to count elements in a design file. In these situations, toggle on the icon for Preferences. This is an administrative mode to make it easier to modify items in the database. With Preferences Mode active, double clicking on a database item opens the Item Modify dialog box.

| 🚟 ltem Mod | lify | — | |
|--------------|----------------------|----------------|--------------|
| tem ID: | 0520 1 10 | Compute F | Parameter 💌 |
| Description: | Concrete Curb & C | Gutter, Type F | |
| Placement: | | Attribute: | 520-1-10 |
| Class: | Primary | • | |
| Cell Name: | | Set Scale | ▼ 1.000 |
| Supplementa | al Search Criteria – | | |
| Leve | is: | | 1 |
| Colo | ns: |] " | Match |
| Style | es: |] 治 | Match |
| Weigh | ts: | 1 1 1 | Reset |
| | | | |
| Key-in Comm | Acbook Influence | off:MDL Load | CGMK |
| | On=curbface:mdl | | |
| | On=curbface | | |
| Dispidy. | OII-COIDIACE | | |
| Adha | oc Attributes | Compute | e Parameters |
| | ОК | Can | al |
| | OK | Can | |

- <u>Item ID</u> Name of the database item. For Compute Parameter items, it is important to name the item using the Project Preconstruction formatting.
- <u>*Type*</u> Four types are supported: Default, Drafting Standards, Compute Parameters, and Pavement Design.



| Default | Identifies element symbology for drawing elements and search parameters. |
|--------------------|---|
| Drafting Standards | Defines element symbology for the placement of coordinate geometry elements, i.e. points, lines, curves, parcels, chains, and profiles. |
| Compute Parameters | Identifies parameters associated with calculating quantities, i.e. unit of measure, rounding factors, pay item, formulas. |
| Pavement Design | FDOT does not use this classification and this manual will not cover. |

- <u>Description</u> Description of the item.
- <u>Placement</u> Sets the symbology for elements drawn or set using this item.
- <u>Attribute</u> When toggled ON, adds a special adhoc to the element used to make the element unique for identification purposes.
- <u>*Class*</u> Primary or Construction.
- <u>Cell Name</u> Sets the cell name.
- <u>Scale</u> Sets how the scale of the cell is determined when placing.
- <u>Supplemental Search Criteria</u> Defines additional symbology parameters to identify elements for the item.
- <u>*Key-In Commands*</u> MicroStation key-in commands executed when double clicking on an item when in the different modes.
- <u>Adhoc Attributes</u> When toggled ON, assigns adhoc attributes to elements with Place Influence or using the Set command.

| 🚟 Adhoc Attrib | utes for (| 0520 1 10 — 🛛 | × |
|----------------|------------|---------------|------|
| Name | Туре | Default Value | Lock |
| DESIGN NOTES | | | No |
| SORTBY | String | | No |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| "ם 🗙 | 0 | K Cancel | |
| | | | |

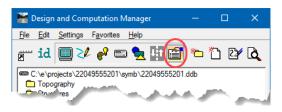
• <u>Compute Parameters</u> - When setting Classification to Compute Parameters, toggled ON. Defines how to calculate the item, and sets the Units and Rounding.

| 🕌 Parameters for Targe | t Item: 0520 1 10 | — | | × |
|-----------------------------|------------------------------|-----------------|-------------|----------|
| <u>E</u> dit | | | | |
| Computation Method | | | | |
| Standard Unit 🔻 | LF | | Q | |
| Rounding: | 0.10000 | Round Up | | |
| String Processing: | Continuous 🔹 | Quantity F | actor: 1.00 | 000 |
| Quantity Deduction | Description | | Quantity | ^ |
| 0425 131b | Inlets, Curb, Type P-1 | (3.5' diameter) | | |
| 0425 132b | Inlets, Curb, Type P-2 | | | |
| 0425 133b | Inlets, Curb, Type P-3 | (3.5' diameter) | 9.00 | ~ |
| | b 🗙 ९ | | 0.00 |) |
| Length Computation Break | k around semi-circles with s | weep angle >= | .0.01 |] |
| ОК | (| Cancel |] | |

Exercise 4.4 Add an Item to the D&C Manager

This exercise adds an item to the D&C Manager database for pay item 520-1-11, variable height Type F Curb & Gutter. Since we are creating an item to calculate curb and gutter, we going to copy a similar item and then modify the new item to suit the needs for the new pay item required.

- 1. Continuing with the D&C Manager in the saved project database 22049555201.ddb, navigate to the item **520-1-10 Curb & Gutter, Type F**.
- 2. Select the **Preferences** *Mode*.



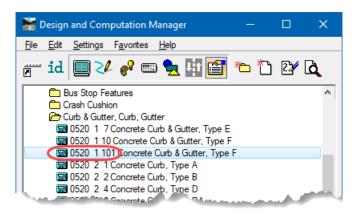
3. Right-click and select Copy.

| 🚟 Design and Computation Manager 🧼 — | |
|--|---|
| <u>F</u> ile <u>E</u> dit <u>S</u> ettings F <u>a</u> vorites <u>H</u> elp | |
| 严 id 🔲 🥓 🥐 📼 🐂 🚻 🚰 🍋 |) 🏷 🗗 🔍 |
| C:\e\projects\22049555201\symb\22049555201.ddb Topography Stuctures RW Items for Roadway Plans Plan Features Misc Drafting & Criteria Items Bus Stop Features Crash Cushion PC rub & Gutter, Curb, Gutter | |
| Control Control Control Control & Gutter, Type E Concrete Curb & Gutter, Type F Concrete Curb & Gutter, Type F Concrete Curb, Type A Concrete Curb, Type B Concrete Curb, Type B Concrete Curb, Type B Concrete Curb, Type D | Add to <u>F</u> avorites Expand All <u>C</u> ollapse All |
| OS20 2 8 Concrete Curb, Type RA OS20 2 9 Concrete Curb, Special - Bridge Tran OS20 3 Valley Gutter - Concrete OS20 6 Shoulder Gutter - Concrete OS20 7 1 Granite Curb, Furnish & Install OS20 7 2 Granite Curb, Reset | <u>Copy</u> <u>M</u> ove Delete Re <u>n</u> ame |
| Grant Carlos Concrete Curb , Reset Grant Curb Concrete Curb - To Remain Grant Curb Curb Curb Curb Curb Curb Curb Curb | New Ca <u>t</u> egory New <u>I</u> tem M <u>o</u> dify Item Re <u>vi</u> ew Item <u>H</u> elp |
| Concrete Traffic Separators | |

4. On the Copy to... dialog box, scroll down to and select the **0520 1 10** *item* and select **OK**. When copying or moving items or categories, the item places below the item or category selected.

| Copy to | |
|--|----|
| | |
| C:\e\projects\22049555201\symb\22049555201.ddb | ~ |
| C Topography | |
| Structures | |
| RW Items for Roadway Plans | |
| 🗁 Roadway Design | |
| 🗁 Plan Features | |
| Misc Drafting & Criteria Items | |
| Bus Stop Features | |
| Crash Cushion | |
| 🗁 Curb & Gutter, Curb, Gutter | |
| 0520 1 7 Concrete Curb & Gutter, Type E | |
| 0520 1 10 Concrete Curb & Gutter, Type F | |
| 📾 0520 2 1 Concrete Curb, Type A | |
| 📾 0520 2 2 Concrete Curb, Type B | |
| 0520 2 4 Concrete Curb, Type D | Υ. |
| OK Cancel | |

5. Double-click on the new item 0520 1 101 to open *Item Modify*.



6. On the Item Modify dialog, edit the Item ID, Description and Attribute values as shown below.

| l | 🚪 ltem Mod | ify | - | | × |
|---|--------------|----------------------|----------------|--------------|---------------|
| | Item ID: | 0520 1 11 | Compute | Parametei 🔻 | |
| | Description: | increte Curb & Gutte | er, Variable I | HeightType F |] |
| | Placement: | | Attribute: | 520-1-11 | \mathcal{I} |
| | Class: | Primary | • | | |
| | Cell Name: | | Set Scale | 7. 1.000. | L., |

- 7. Click **OK**. The item is now ready to use to draw/set elements and calculate the quantity.
- 8. Select **File > Save** to save the modified database to the project symb directory so that the changes will be delivered with the project.

LABEL SHAPES WITH AREA ID

When designing an FDOT project, labeling the areas used to generate quantities is REQUIRED. The delivery to Construction includes the QTDSRD file as part of the backup information for the quantities. FDOT delivers the Label Shapes with ID VBA application on the FDOT Menu to automate labeling: It is also included on the **FDOT Plans Development > Quantities** Tasks menu.

| | Tasks | - | | × | | | | | | | | | |
|--------|--|--|---------------------|--------|----------|-------------------------|-----|---------|--------------------|---|------------------------------------|---|---|
| 554 | FDOT Plans Dev | elopment | | • | | | | | | | | | |
| | <u>,</u> קר, | <u>*</u> , , , , , , , , , , , , , , , , , , , | <mark>%, 9</mark> € | | | | | | | | | | |
| | Typical Sections | | | * | | | | | | | | | |
| | Key Sheets | | | * | | | | | | | | | |
| | Roadway Plans | | | * | | | | | | | | | |
| | Existing Feature | s | | * | | | Act | Actions | Actions Design App | Actions Design Apps Roadway | Actions Design Apps Roadway 🟠 🔗 | Actions Design Apps Roadway 🏠 🔗 📄 🕻 | Actions Design Apps Roadway 😭 🔗 🔲 🔕 |
| | Cross Sections | | | * | | |) | | | | | | |
| | Drainage Plans | | | * | | | | | | Set Geographic Coordinate Sys Set Plot Scale of File | Set Geographic Coordinate System | | |
| | Traffic Plans | | | * | | õ | | | | urn Level Filters On | | | |
| | Traffic Control | | | * | | $\overline{\mathbf{O}}$ | Tur | m | n Level Filters | rn Level Filters Off | n Level Filters Off | n Level Filters Off | n Level Filters Off |
| | Utilities | | | * | | 0 | Ac | lh | dhoc Manager | ihoc Manager | ihoc Manager | ihoc Manager | ihoc Manager |
| \geq | Cleanup and QC | • | | • | | 0 | | | leets | | | | |
| _ | Quantities | · | | | | 0 | | | - | eet Navigator (Label Sheets) | - | - | - |
| | | e 📼 👡 - | | | | | | - | | lip (Sheet Clipping) | | | |
| Q | 🛅 📓 🙀 🖉 | ء 🏹 🔊 🖻 🖇 | ⊻] ₩3% | 1 | | 0 | | _ | | pel Shapes with ID | | | |
| | Survey Lat | el Shapes with I | D | ۷ | | $\overline{\mathbf{O}}$ | | | | ked Data Manager (LDM) | | | |
| | Drawing | | | * | | 0 | AAS | | HTOWare Pro | HTOWare Project Preconst | HTOWare Project Preconstruction (T | HTOWare Project Preconstruction (TRNS*por | HTOWare Project Preconstruction (TRNS*port) |
| | ن سيساند | | للمصيري | | | \bigcirc | Qua | lit | y Control | y Control | y Control | y Control | y Control |
| | | | | | | | | | | | | | |
| | | | Label Sha | ipes | With ID | | | | × | × | × | × | × |
| | | | | | | | | | | | | | |
| | | | Le | evel: | TextLabe | 4 | | • | - | - | - | - | - |
| | | | | olor: | <u></u> | /el (0) | | | | | | | |
| | | | | | ByLevel | | _ | • | - | - | - | - | |
| | | | | | FDOT | / | | | | | | | |
| | | | | | Center C | enter | | l | | | | | |
| | | | Susancu | | 0.07 | enter | | | <u> </u> | <u> </u> | <u> </u> | | |
| | | | | | 0.07 | • | ç | | | | | | |
| | | | Labe | el Sha | ipes | | Exi | it | | | | | |

This tool can label all the shapes in a model at one time by creating a selection set of all the elements in the file and then clicking Label Shapes. FDOT recommends creating the labels at a larger scale than for normal drawings. These labels are not printed. The intent of these labels is to help downstream location of specific shapes.

Exercise 4.5 Label Areas

This exercise creates the Area ID Label on the quantity shapes using the Label Shapes with ID tool.

1. On the FDOT Plans Development > Quantities Tasks menu select Label Shapes with ID.



2. Set up the Label Shapes with ID dialog as shown below.

| Label Shapes | With ID | × |
|----------------|-----------------|---|
| | | |
| Level: | TextLabel 💌 | |
| Color: | ByLevel (0) | |
| Weight: | ByLevel (2) 💌 | |
| Font: | FDOT 💌 | |
| Justification: | Center Center 💌 | |
| TH: | 0.2 | |
| TW: | 0.2 | |
| Label Sha | pes Exit | |

Note This tool works with Annotation Scale. If the text comes in too small with the above setting, go to the Settings > Drawing Scale dialog and adjust the Annotation Scale for the model.

- 3. Using the *Element Selection* tool, select ALL the Shapes in the *Model*.
- 4. Click Label Shapes.
- 5. Select CTL-B on the keyboard to open View Attributes. Toggle OFF the Fill option.
- 6. Save Settings with *CTL-F* on the keyboard.
- 7. Review the results.

5 QUANTITY MANAGER

OBJECTIVES

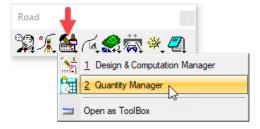
- Detail the Functions of Quantity Manager
- Open a Quantity Database in Quantity Manager
- Detail the Quantity Manager Window
- Navigate Through Quantity Manager
- Generate Quantity Reports

QUANTITY MANAGER OVERVIEW

Quantity Manager is the GEOPAK tool used to store, organize, and manipulate quantities generated by the D&C Manager. Pay items and quantities can also be stored in the database manually. It is not the intent of this chapter is to provide full training on all the functions within Quantity Manager. For more in depth information, see the Bentley Help files.

ACCESS QUANTITY MANAGER

To access Quantity Manager, from the Road toolbox, pull down the options under the D&C Manager icon and click the **Quantity Manager** icon.



 $\langle OR \rangle$

From the MicroStation menu, select GEOPAK > ROAD > Quantity Manager.

 $\langle OR \rangle$

From the FDOT Plans Development > Quantities Tasks menu, select the Quantity Manager icon.

From MicroStation, right-click and hold for the context menu, select Quantity Manager.

Note The right-click menu options change with the type of active file open.



QUANTITY MANAGER DIALOG

Quantity Manager has three parts, as shown in the following figure: *Menu bar, Tool Bar* and *Window Area*. The Window area has three panes: *Pay Item, Quantity,* and *Element*.

| Quantity Manager - C:\e\projects\22049555201\roadw | ay\2204955520 | 1AQT.mdb | | | | | | — | | × |
|--|---------------------|--------------------|------------------------|--------------|-------------|----------------|--------------------|-------------|------|-------|
| Project Edit View Insert Tools Help | | | | | | | | | | |
| D 🗳 🖉 🗷 🖶 🔚 🔚 🐂 | Trns*port Gro | upings : ALL | TRNS*PORT | GR 🗸 | | | | | | |
| Payitem Tree Payitem Table | Category | Payitem | Trns*port | Chain | Net Value | Remarks | Description | Extended | Comp | utati |
| root Roadway Design Quantity Features Pavt Removal Clearing&Grubbing Base Milling Existing Asph. Asphaltic Concrete Sidewalk Guardrail Curb & Gutter, Curb, Gutter Concrete Traffic Separators | < Elemen Name | ts 💓 Adhoc Type | Attributes (Radius | Payer Partic | ipation 🚺 🎲 | Eunding Partic | Ipation 8 F | unding Rule | \$ | > |

- > Opening a Project
 - 1. From the MicroStation Menu, select GEOPAK > ROAD > Quantity Manager.
 - 2. From the Quantity Manager Menu, select **Project** > **Open**. Connect to Database dialog displays.

| Connect To Da | itabase | × |
|---------------|---------------------|---|
| | | |
| File: | (22049555201AQT.mdb | Q |
| User Name: | | |
| Password: | | |
| | | |
| | | |
| | | |
| | Connect | |

3. In the *File* box, enter the path to 22049555201AQT.mdb

<OR> click the **Browse** icon and navigate to the file.

4. Leave the *User Name* and *Password* boxes **blank**.

Note For this course will use the pre-existing 22049555201AQT.mdb file.

5. Click the **Connect** button. The database displays.

PROJECT PROPERTIES

Once a project displays in Quantity Manager, the Project Properties need to be set. There are two methods for setting the project properties. The preferred method is using the Designer Interface, unless the user does not have a TRNS*PORT login.

DEFINING PROJECT PROPERTIES

- > To Define Project Properties from within Quantity Manager, if no TRNS*PORT login.
 - From the Quantity Manager menu, select Project > Properties. Project Properties displays.
 - 2. In the *Project Number* box, enter the **Project FIN Number**.
 - 3. In the *Description* box, enter the **Project** description.
 - 4. In the *Unit System* box, select **English**.
 - 5. In the *Spec Year* box, enter the **Specification Year**.
- *Note* The Spec Year definition must match the Pay Item *aecXML* file exactly.

| roject | |
|-------------------------|-----------------------------------|
| General | |
| General Informati | on |
| Project N | umber: 000000000000 |
| Desc | ription: CADD office testing only |
| Unit S | ystem: ENGLISH 🗸 Spec Year: 13 |
| Station Range Begin: | End: |
| Mile Post / Refer | ence Point |
| 10111011 0000111 (01010 | |
| Begin: | End: |
| | |
| Begin: | |

> To Define Project Properties using Designer Interface, if Login Exists.

If user has a login to access Designer Interface, this is the preferred method for populating the Project Properties.

Note For illustration purposes in this course, the CADD office test project in Designer Interface will be used.

1. Once logged into Designer Interface, use "**Export Header**" to create an *XML* file to import into Quantity Manager. This file contains the Quantity Manager Project Properties.

| Project I | List | | | | | | | | |
|-----------|-----------------------------|-------------------------|---|--------------|----------|----------|---------------------|----------|---|
| Project S | Project Number | aecXML Proc | Description | Letting Date | Unit Sys | Proposal | District | Designer | |
| Update | 000000000000 | Export Header Import | CADD office testing only | | English | T8888 | 05 | | ^ |
| Update | 0000000001 | Export Header Import | US 19 (SR 55) FROM W GREEN ACRES ST TO W JUMP CT - ADD LANES & REHABILITATE PVMNT | 05/25/2016 | English | | 07 | X353 | ļ |
| Update | 1234Nasser | Export Header Import | SR 45 | 11/01/2013 | English | | 00 | 0JM | |
| Update | 19363715201 | Export Header Import | DESIGN CES TRAINING - TRAINING | 01/29/2030 | English | | 00 | W705 | |
| Update | 19602255201 | Export Header Import | SR 64 @ RYE ROAD - ROUNDABOUT | 06/14/2018 | English | E1R07 | 01 | W563 | |
| Update | 19602255601 | Export Header Import | SR 64 @ RYE ROAD - ROUNDABOUT | 06/14/2018 | English | E1R07 | 01 | W563 | |
| Update | 19602255602 | Export Header | SR 64 @ RYE ROAD - ROUNDABOUT | 06/14/2018 | English | E1R07 | 01 | W563 | ~ |
| Update | 19602255602 Page 1 of 44 | Export Header | SR 64 @ RYE ROAD - ROUNDABOUT | 06/14/2018 | English | E1R07 | 01 1 - 25 of 108 | | (|

- 2. Select **Save As** to save the file to your project discipline directory. By default, the filename of this file becomes [*FPID#*].xml.
- *Note* The bar and save options shown are in Internet Explorer. Other internet browsers may save the file directly to the downloads folder. If this happens, simply copy the file from the downloads folder to the project discipline directory.
 - 3. In Quantity Manager, open the same Project as selected in Designer Interface.
 - 4. From the Quantity Manager menu, select **Project** > **Properties**.
 - 5. From Project Properties, select Project > Import aecXML Infrastructure V33 Project.

| Project Properties | × |
|--|---|
| Project | |
| Import aecXML Infrastructure v33 Project | |
| General Information | |

- 6. Select the Location and File Name of the XML file exported from Designer Interface.
- 7. Click **OPEN.** The Project Properties populates in Quantity Manager.
- 8. Select the TRNS*port Groupings tab.

| Import Trns*port Groupings Ø 102 Structures Ø 0103 Structures Ø 0200 Roadway Ø 0301 Signing Ø 0400 Lighting Ø 0500 Signalization Ø 0600 Signalization Ø 0600 Lintelligent Transportation System Ø 0600 Landscape / Peripheral Ø 0700 Utilities Ø 0800 Architectural Ø 0900 Mass Transit | eneral (Trns*po | rt Groupings | |
|--|-----------------|---------------------|-----|
| Image: Construction of the second | Import | Trns*port Groupings | |
| 0200 Roadway 0301 Signing 0400 Lighting 0500 Signalization 0650 Intelligent Transportation System 0600 Landscape / Peripheral 0700 Utilities 0800 Architectural | | 0102 Structures | |
| 0301 Signing 0400 Lighting 0500 Signalization 0600 Intelligent Transportation System 0600 Landscape / Peripheral 0700 Utilities 0800 Architectural | | 0103 Structures | |
| 0400 Lighting 1/2 0500 Signalization 0650 Intelligent Transportation System 0600 Landscape / Peripheral 0700 Utilities 0800 Architectural | | 0200 Roadway | |
| 0500 Signalization 0550 Intelligent Transportation System 0600 Landscape / Peripheral 0700 Utilities 0800 Architectural | | 0301 Signing + | |
| O560 Intelligent Transportation System O600 Landscape / Peripheral O700 Utilities O800 Architectural | | | |
| 0600 Landscape / Peripheral 0700 Utilities 0800 Architectural | | | |
| 0700 Utilities 0800 Architectural | | | |
| 0800 Architectural | | | - |
| | | | _ |
| 0900 Mass Transit | | | |
| | | 0900 Mass Transit | - 1 |
| | | | |

- 9. Select the TRNS*PORT Groupings applicable to your Project. The Default checks all ON.
- 10. Select Import. Project Properties closes.
- 11. Select the drop-down list for TRNS*PORT Groupings.

| Trns*port Group | pings : | ALL TRNS*PORT GR 🗸 | |
|-----------------|---------|-------------------------|---|
| Category I | Payiten | ALL TRNS*PORT GROUPINGS | ^ |
| Category | rayiten | 0200 🗟 | |
| | | DEFAULT PHASE | |
| | | 0102 Structures | |
| | | 0103 Structures | |
| | | 0104 Structures | |
| | | 0301 Signing | |
| | | 0400 Lighting | ¥ |

Note Notice the creation of the Groupings. See the *Basis of Estimates Manual*, Chapter 9 for the Grouping definitions.

Preferences

The preferences are set to enable Adhoc Attribute editing, define the aecXML Import Documents file locations, and set the Display Accuracy of Distance Decimal, Station Decimal, and Station Format.

- > To Define Project Preferences
 - 1. From the Quantity Manager menu, select **Project** > **Preferences**. Project Preferences displays.

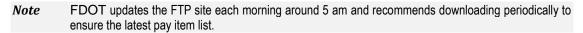
| Project Preferences | × |
|---------------------|----------------------|
| Enable Adh | oc Attribute Editing |
| Payitem: Payer: | <u>a</u> |
| Display Accuracy | |
| Distance Decimal: | 99.123 🗸 |
| Station Decimal: | 9+99(9).12 ~ |
| Station Format: | 12+34 ~ |
| | OK Cancel |

- 2. Check **On** the Enable Adhoc Attribute Editing.
- 3. Download the FDOT pay item list from FDOT's FTP site into the Project *Symb* directory. There is a link on the FDOT Menu under Actions > AASHTOWare Project Preconstruction (TRNS*port) > AECITEM.xml Download. Login as "guest".

| Welcome to the FDOT External FTP Server. To login, please type in the word 'guest' (no parentheses), then click the 'Sign in' button. No password is required. To log out, click 'Logout' in the upper right corner. Please contact the FDOT Service Desk at 866-955-4357 for further assistance. | Client Login Username: guest × Password: (Forgot your password?) |
|---|---|
| CONFIDENTIAL and/or SENSITIVE data should NEVER be placed on this server. Please contact the FDOT Service Desk with any questions or concerns. | Sign in Lu |

4. Select the **Expand** button at the far-right side of the **aecitem.xml** file link, then select **Download** and save the file to the Project *Symb* directory.

| FDOT | | | Logged in as 'gue |
|--|--------|---------|----------------------------------|
| | | Home | Account Share 🕒 Logou |
| File Manager | | | |
| 📮 / FTP / FDOT / co / CADD / payitems | | | |
| C 🖸 Check All 着 Delete 🖸 Rename 🚔 New Folder | | | ₿≩Zip 🖌 Unzip |
| Q Filter | | | Show 1000 🗸 |
| Name | Type | Size 🔶 | Date 崇 |
| 🤹 Go Up One Folder | up | | |
| wttest | folder | | 7 months ago 🗈 |
| aecitem.xml | file | 1.70 MB | about 8 hours ago 😰 |
| New Window: aecitem.xml | | Preview | O Download Share Email |
| Last Modified: about 8 hours ago | | | |
| owing 1 to 2 of 2 entries | | | Previous 1 Next |



5. In the Project Preferences dialog *Pay Item* box, enter the path to **AECITEM.xml**, located in the Project *Symb* directory.

<OR> click the **Browse** icon and navigate to the file.

- 6. In the *Payer* box, leave **blank**.
- 7. Click the **OK** button. The information saves and Project Preferences closes.

INTERFACE DETAILS

The main body of Quantity Manager comprises three panes: Pay Item, Quantity, and Element.

| D 🛩 🖄 🗉 🖶 🔚 🔚 🖷 🏠 | Trns*port Gro | upings : ALI | _ TRNS*P(| ORT GR 🗸 | | | | | |
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| Guardy Design Guartity Features | root\Roadwa | 0327 70 1 | 0200 | BL98 | 266.100 | | | | [ELEMENT_ |
| Galance Clearing&Grubbing | root\Roadwa | 0327 70 1 | 0200 | BL98 | 54.900 | | | | [ELEMENT_ |
| Base | root\Roadwa | 0327 70 1 | 0200 🥜 | BI 98 | 27 400 | | | | [ELEMENT_ |
| | root\Roadwa | 0327 70 1 | 0200 | QUANTI | | NIE C | | | [ELEMENT_ |
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| Gurden State Concrete Gurden State Stat | < | ts 🐼 Adho Type Line String Line String | c Attribute: | s 🅩 Payer Partic | ipation 🕩 F Length 206.376 469.884 | unding Partic | Native Id 16335 | Document C:\e\projects\2 | 20495552011 |
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PAY ITEM PANE

The Pay Item Pane is located on the left side of Quantity Manager in Normal View and is the top pane when tiled horizontally. Two tabs control the display type for the Pay Item pane:

- <u>Payitem Tree</u> This tab displays the contents in a hierarchical structure easily navigated in the same manner as D&C Manager.
- <u>Payitem Table</u> This tab displays the database Pay Items in a table format that contains additional information about Pay Items and is useful for selecting multiple items.

QUANTITY PANE

The Quantity Pane displays only quantity information under the current Phase selected on the tool bar about the specifically selected Pay Item or Category. The information is customizable by selecting which columns to display and sorts by clicking on any of the column headers.

ELEMENT PANE

The Element Pane displays information specific to the selected Quantity. Each tab displays different attributes. The Elements tab shows all the elements that make up the selected Quantity. Adhoc Attributes tab displays any Adhoc related to the Quantity. Funding Participation, Funding Rules, and Payer Participation tab displays information related to funding sources.

RIGHT-CLICK MENUS

Select an item or category and right-click in the *Pay Item Pane* or *Quantity Pane* to display a popup menu with a list of shortcuts to tools related to the View Pane.

| roject Edit View Insert Tools Help | | | | | | | | | | |
|--|------------------|-----------------|-----------|------------|-------------------|---------------|-------------|--------------|---------|------|
| D 📽 🙆 🗷 🖶 🕌 🐂 🏠 | Trns"port Gro | oupings : ALL | TRNS*PORT | GR ~ | | | | | | |
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| 0.327 70 8 Mill | _ | ang raspir. | | BL98 | 3,028.700 | | | | [ELEMEN | |
| Asphaltic Concrete Insert Catego | ry Above | | | BL98 | 3,604.900 | | | | [ELEMEN | _ |
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| 🖄 Delete Categ | ory | | dius | Delta | Length | Direction | Native Id | Document | | |
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| roject Edit View Insert Tools Help | 6 6 | Trns*port Gro | upings : ALL | TRNS*PORT | GR 🗸 | | | | | |
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| Quantity Manager - C:\e\projects\22049555201\roadw Project Edit View Insert Tools Help | ay\22049555201 Trns*port Grou | | | | | | | - | | × |
|--|--|---|------------------------|-------------------|-----------------------|-------------|----------------|------------------------------------|---|---------------------------------|
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| | 16335 (Com 16335 (Com | | | | 128.282 | | 16335 | C:\e\projects\2 C:\e\projects\2 | | |
| < >> | < | Line | 1 | | 4.200 | 323.331 | | o.resprojectore. | 204000020 | > |

INSERT OPTIONS

Quantity Manager has an option for manually adding Quantities. The Insert menu has the options to add Categories, Pay Items, and Quantities <OR> access by right-clicking in the Pay Item Pane of the dialog. The options will vary when accessing through the right-click menus.

INSERT CATEGORY

A Category is comparable to a folder in a directory structure. When exporting quantities from D&C Manager, the Categories from the D&C Manager export along with the quantities. Manually create Categories above, below, or as subcategories to the selected Category.

> To Create a New Category:

- 1. Select an existing **Category** in the *Pay Item Pane*.
- 2. Right-click and select the option to Insert Above, Below or Subcategory.

| New Category Properties - Inse | erting Below: Qua | ntity Fe 🗙 |
|--------------------------------|-------------------|------------|
| Category Name: | | |
| | ОК | Cancel |

- 3. On the New Category Properties dialog, enter the new *Category Name*.
- 4. Click OK.

INSERT PAY ITEM

In Quantity Manager, the Pay Item is a special "file" that contains the quantity information. Add Pay Items Above or Below a selected Pay Item. Highlighting a Category and selecting the option to *Insert Pay Item* ensures the new Pay Item adds to the selected Category.

- > To Create a New Pay Item:
 - 1. Select an existing **Pay Item** or **Category**.
 - 2. Right-click and select the option to Insert Pay Item.

| New Payitem Properties - Inserting in Category: Asphaltic C 🗙 | | | | | | | |
|---|----------------|--|--|--|--|--|--|
| Payitem Name: | <u>Q</u> | | | | | | |
| Description: | | | | | | | |
| Unit Cost: | 0.0 🗌 Lump Sum | | | | | | |
| Unit | ~ | | | | | | |
| Total Rounding: | 0.0 | | | | | | |
| Quantity | | | | | | | |
| Rounded Val | ue | | | | | | |
| | OK Cancel | | | | | | |

3. Complete the New Pay Item Properties dialog.

HINT The aecitem.xml file is accessible through Quantity Manager by clicking on the Browse icon next to the Pay Item Name, then the Pay Item Number may be selected from the list.

4. Click OK.

INSERT QUANTITY

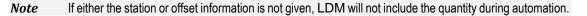
Manually add Quantities to the database by right-clicking on a Pay Item in the Pay Item pane of the dialog. These can be new quantities not calculated by the D&C Manger or could include a contingent quantity added after the project quantities have been calculated.

- > To create a new quantity:
 - 1. Select the desired **Pay item** to add a new *Quantity*.
 - 2. Right-click and select Insert Quantity.
 - 3. Fill out the New Quantities Properties dialog box. There are three tabs for entering information.
 - a. <u>General Tab</u> Enter quantity information.

| New Quantity Properties | - For Payitem: 0334 1 52 | | × |
|-------------------------|--------------------------|--------------|--------|
| General Location Ad | hoc Attributes | | |
| Measurement Basis: | Each ~ | | Create |
| Measurement Value: | 0.000 | 2 | Close |
| Computed Quantity: | 0.000 | Ľ | |
| Rounded Quantity: | 0.000 | | |
| Deduction Quantity: | 0.000 | | |
| Net Quantity: | 0.000 | | |
| Boundary Type: | None ~ | | |
| Boundary Name: | ~ | Boundary | |
| Run Name: | | | |
| Trns*port Groupings: | 0200 ~ | Trns*port Gr | |
| Date / Time: | 2018-04-02 14:03:58 | Set Current | |
| Remarks: | | | |
| Description: | | | |
| Extended Description: | | | |
| | | | |

b. <u>Location Tab</u> – Enter Baseline and Station/Offset Information

| New Quantity Properties - For Payitem: 0334 1 52 | × |
|--|--------|
| General Location Adhoc Attributes | |
| | Create |
| Baseline Chain: | Close |
| Minimum Station | |
| Station: Region: V | |
| Offset. | |
| Maximum Station | |
| Station: Region: | |
| | |
| Offset: | |
| | |
| Very important to include | |
| Very important to include | |
| for LDM Summary of | |
| Quantities automation. | |
| | |
| | |



c. <u>Adhoc Attributes Tab</u> - Add Adhocs - they must match D&C Manager for LDM to use during automation.

| New Quantit | ty Properties - Fo | or Payitem: 0334 | 1 52 | | × |
|-------------|--------------------|------------------|--------|-----------------|--------|
| General L | ocation Adho | : Attributes | | | |
| | | | | | Create |
| Name | Туре | Value | Source | Dirty New Phase | Close |
| New 1 | String | | Manual | | |
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Exercise 5.1 Navigating Quantity Manager

This exercise will explore Quantity Manager to get familiar with how it is set up and displays the contents of the database.

- 1. From the MicroStation Menu, select Applications > GEOPAK Road > Quantity Manager.
- 2. From the Quantity Manager Menu, select **Project** > **Open**. Connect to Database dialog displays.

| Connect To Da | itabase | × |
|---------------|---------------------|---|
| File | | |
| File. | (22049555201AQT.mdb | Q |
| User Name: | | |
| Password: | | |
| | | |
| | | |
| | | |
| | Connect | |

- 3. In the *File* box, enter the path to 22049555201AQT.mdb <OR> click the **Browse** icon and navigate to the file.
- 4. Leave the *User Name* and *Password* boxes **blank**.
- 5. Click the **Connect** button. The database displays.
- 6. From Quantity Manager, select the **Pay Item Tree** tab.
- 7. Navigate through the database and select *Pay Item* **0285706**.

| roject Edit View Insert Tools Help | ort Groupings : | ALL TRNS | PORT GR 🗸 |] | | | | |
|---|----------------------------|----------|---------------|--------------|-----------------------|-----------|--------------|--------------|
| Payitem Tree Payitem Table | Category | Payitem | Trns*port | Chain | NetValue | Remarks | Description | Extended |
| ¶ root ⊡ Roadway Design | root\Roadwa root\Roadwa | 0285706 | 0200 | SR61 SR61 | 2,804.800 | | | |
| | root\Roadwa | 0285706 | 0200 | SR61 | 470.400 | | | 1 |
| Quantity Features | root\Roadwa | 0285706 | 0200 | SR61 | 593.400 | | | 1 |
| ia 🛄 Pavt Removal Clearing&Grubbing i∃ 😋 Base | root\Roadwa | 0285706 | 0200 | SR61 | 1,522.900 | | | i |
| Turnout Construction | root\Roadwa | 0285706 | 0200 | SR61 | 2,212.000 | | | 1 |
| Optional Base | root\Roadwa | 0285706 | 0200 | SR61 | 2,567.600 | | | |
| Optional Base Optional Base, Base Group 06 | root\Roadwa | 0285706 | 0200 | SR61 | 2,460.900 | | | |
| ■ Milling Existing Asph. | root\Roadwa | 0285706 | 0200 | SR61 | 1,554.500 | | | |
| E asphaltic Concrete | root\Roadwa | 0285706 | 0200 | SR61 | 1,383.100 | | | |
| Sidewalk | root\Roadwa | 0285706 | 0200 | SR61 | 432.400 | | | |
| e-⊖ Plan Features e-⊖ Guardrail e-⊖ Curb & Gutter, Curb, Gutter | root\Roadwa < | | oc Attributes | BL98 | 146.900 ticipation | | cipation 🔹 F | unding Rules |
| | | Ture | Radius | Delta | Length | Direction | Native Id | Document |
| - 🔄 Concrete Traffic Separators | Name | Туре | i tuutus | 1 | - | | | 1 |

8. In the *Quantity Pane*, right-click on a *column header*. Quantity Table displays.

| Quantity Table | × |
|--------------------------------|----|
| 🗹 Select All | |
| 🗹 Select Payers 🛛 Select Fundi | ng |
| Select Adhoc Attributes | |
| Column | |
| Category | ~ |
| 🗹 Payitem | |
| Trns*port Groupings | |
| 🗹 Chain | |
| 🗹 Net Value | |
| Remarks | |
| Description | |
| Extended Description | |
| Computation Method | |
| Measurement Basis | |
| Measurement Value | |
| Computed Value | |
| Rounded Value | |
| Deduction Value | |
| Dirty | |
| Run Name | |
| Boundary | |
| Minimum Absolute Station | × |
| < > | |

- 9. Clear the Remarks, Description, and Extended Description check boxes.
- 10. Close Quantity Table dialog.
- 11. From Quantity Manager, select the first item in the *Quantity Pane*.

| oject Edit View Insert Tools Help | | | | | | | | | |
|---|----------------------|------------|------------------|----------------|---------------|----------------|------------|--------------------|-----|
| 🗅 📽 😰 🖽 🗮 🔚 🖬 🖬 🖬 Tr | rns*port Groupings : | ALL TRNS*F | °ORT GR ∨ | | | | | | |
| ayitem Tree Payitem Table | Category | Payitem | Trns*port | Chain | NetValue | Computati | Measurem | Measurem | . c |
| 1 root | root\Roadwa | 0285706 | 0200 | SR61 | 593.400 | [ELEMENT_A | Area | 5,340.240 | 5 |
| ⊢© Roadway Design | root\Roadwa | 0285706 📈 | 0200 | SR61 | 2,804.800 | [ELEMENT_A | Area | 25,243.403 | 3 |
| e- Quantity Features | root\Roadwa | 0285706 | 0200 | SR61 | 470.400 | [ELEMENT_A | Area | 4,233.840 | 7 |
| Guanny Founds Gaung Founds Gaung Founds | root\Roadwa | 0285706 | 0200 | SR61 | 593.400 | [ELEMENT_A | Area | 5,340.906 | 3 |
| | root\Roadwa | 0285706 | 0200 | SR61 | 1,522.900 | [ELEMENT_A | Area | 13,705.835 | 5 |
| Turnout Construction | root\Roadwa | 0285706 | 0200 | SR61 | 2,212.000 | [ELEMENT_A | Area | 19,907.732 | 2 |
| Optional Base | root\Roadwa | 0285706 | 0200 | SR61 | 2,567.600 | [ELEMENT_A | Area | 23,108.483 | 3 |
| 0285706 Optional Base, Base Group | ne root\Roadwa | 0285706 | 0200 | SR61 | 2,460.900 | [ELEMENT_A | Area | 22,148.547 | 7 |
| Milling Existing Asph. | root\Roadwa | 0285706 | 0200 | SR61 | 1,554.500 | [ELEMENT_A | Area | 13,990.650 | σŢ |
| Asphaltic Concrete | root\Roadwa | 0285706 | 0200 | SR61 | 1,383.100 | [ELEMENT_A | Area | 12,447.474 | ŧ |
| Asphalut Contrete Sidewalk | root\Roadwa | 0285706 | 0200 | SR61 | 432.400 | [ELEMENT_A | Area | 3,891.415 | 5 |
| Image: Sidewark I | root\Roadwa | 0285706 | 0200 | BL98 | 146.900 | ELEMENT A | Area | 1,321.983 | 3 |
| Guardrail | < | | | | | | | | > |
| 🖮 🧰 Curb & Gutter, Curb, Gutter | 🖢 🖢 Elemen | ts 🚿 Adho | c Attributes 🏼 🍕 | 👂 Payer Partic | ipation 🏾 🍤 F | unding Partici | pation 💲 F | unding Rules | , |
| ie⊸🧰 Concrete Traffic Separators | Name | Туре | Radius | Delta | Length | Direction | Native Id | Document | |
| | 241612 (Co | Line | | | 5.000 | 190.939 | 241612 | C:\e\projects\22 | 20 |
| | 241612 (Co | Line | | | 1.793 | 279.384 | 241612 | C:\e\projects\22 | 20 |
| | 241612 (Co | Line | | | 10.004 | 279.384 | 241612 | C:\e\projects\22 | 20 |
| | 241612 (Co | Line | | | 10.004 | 279.384 | 241612 | C:\e\projects\22 | 20 |
| | 241612 (Co | Line | | | 10.004 | 279.384 | 241612 | C:\e\projects\22 | 20 |
| | 241612 (Co | Line | | | 10.004 | 279.384 | 241612 | C:\e\projects\22 | 20 |
| | 241612 (Co | Line | | | 10.004 | 279.384 | 241612 | C:\e\projects\22 | |
| | 241612 (Co | Line | | | 10.004 | 279.384 | 241612 | C:\e\projects\22 | _ |
| | 241612 (00 | | | | 10.004 | 070.004 | | C:\e\projects\22 | _ |
| | | Line | | | 10.004 | 279.384 | 241612 | U: Velprojects V2. | Ωt |

12. In the *Elements Pane*, select the **Elements** tab and review the components of the selected quantity.

| ject Edit View Insert Tools Help | Trns*port Groupings : | ALL TRNS | PORT GR 🗸 |] | | | | | |
|---|--------------------------|-------------------|----------------|--------------------|-------------------|------------|---------------------------|-----------------|------------|
| yitem Tree Payitem Table | Category | Payitem | Trns*port | Chain | Net Value | Computati | Measurem | . Measurem | 0 |
| root | root\Roadwa | 0285706 | 0200 | SR61 | 593.400 | [ELEMENT_A | Area | 5,340.240 | 5 |
| 🔄 Roadway Design | root\Roadwa | 0285706 | 0200 | SR61 | 2,804.800 | [ELEMENT_A | Area | 25,243.403 | 3 |
| 🔤 Roadway Design 🖻 🖳 Quantity Features | root\Roadwa | 0285706 | 0200 | SR61 | 470.400 | [ELEMENT_A | Area | 4,233.840 | Æ |
| Guardy Founds Guards | root\Roadwa | 0285706 | 0200 | SR61 | 593.400 | [ELEMENT_A | Area | 5,340.906 | \$ |
| | root\Roadwa | 0285706 | 0200 | SR61 | 1,522.900 | [ELEMENT_A | Area | 13,705.835 | i |
| E Turnout Construction | root\Roadwa | 0285706 | 0200 | SR61 | 2,212.000 | [ELEMENT_A | Area | 19,907.732 | Ł |
| Optional Base | root\Roadwa | 0285706 | 0200 | SR61 | 2,567.600 | [ELEMENT_A | Area | 23,108.483 | 3 |
| 0285706 Optional Base, Base Group | root\Roadwa | 0285706 | 0200 | SR61 | 2,460.900 | [ELEMENT_A | Area | 22,148.547 | 7 |
| Image: Base of the second | root\Roadwa | 0285706 | 0200 | SR61 | 1,554.500 | [ELEMENT_A | Area | 13,990.650 | ιŢ |
| Asphaltic Concrete | root\Roadwa | 0285706 | 0200 | SR61 | 1,383.100 | [ELEMENT_A | Area | 12,447.474 | ŧŢ |
| i Sidewalk | root\Roadwa | 0285706 | 0200 | SR61 | 432.400 | [ELEMENT_A | Area | 3,891.415 | <i>i</i> [|
| Ban Features | root\Roadwa | 0285706 | 0200 | BL98 | 146.900 | ELEMENT A | Area | 1,321.983 | 3 |
| ie- | Name | ts 🔊 Adhi Type | c Attributes 🍕 | Payer Par Delta | rticipation 🏼 🔑 F | | pation 🏽 🔀 F Native Id | Funding Rules | |
| | 241612 (Co, | Line | - | - | 5.000 | 190.939 | 241612 | C:\e\projects\2 | 2 |
| | 241612 (Co | <u> </u> | | | 1.793 | | | C:\e\projects\2 | _ |
| | 241612 (Co | Line | | | 10.004 | 279.384 | 241612 | C:\e\projects\2 | _ |
| | 241612 (Co | Line | | | 10.004 | 279.384 | 241612 | C:\e\projects\2 | |
| | 241612 (Co | Line | | | 10.004 | 279.384 | 241612 | C:\e\projects\2 | |
| | 241612 (Co | Line | | | 10.004 | 279.384 | 241612 | C:\e\projects\2 | 2 |
| | 241612 (Co | Line | | | 10.004 | 279.384 | 241612 | C:\e\projects\2 | |
| | · · · · | Line | | | 10.004 | 279.384 | 241612 | C:\e\projects\2 | _ |
| | 241612 (Co | | | | | | | | - |
| | 241612 (Co 241612 (Co | Line | | | 10.004 | 279.384 | 241612 | C:\e\projects\2 | 2 |

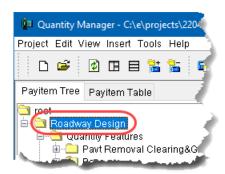
- 13. In the *Payitem Pane*, select the *Payitem Tree* tab and navigate the database to *Item* **0334 1 52** (Superpave Asphaltic Concrete, Traffic B, PG 76-22).
- 14. Select one of the Quantities that appears in the Quantity Table.
- 15. In the *Element Pane*, select the Adhoc Attributes tab. The Adhoc tags display for this element.

| ject Edit View Insert Tools Help | ort Groupings : | 0200 | ~ | 1 | | | | | |
|--|------------------|------------|------------|--------------|---------------|---------------|---------------|-------------|---------|
| iyitem Tree Fr. com | Category | Pavitem | Trns*port | Chain | NetValue | Computati | Measurem | Measurem | Т |
| | | 0334 1 52 | 0200 | SR61 | | ELEMENT A | | 2,481,86 | _ |
| root | E | 0334 1 52 | 200 | SR61 | | ELEMENT A | | 2,850.52 | |
| Cadway Design | root\Roadwa | | 10. 1 | SR61 | | [ELEMENT_A | | 25,243.40 | _ |
| Quantity Features | | 0334 1 52 | 0206 | SR61 | | ELEMENT_A | | 5,340.24 | - |
| ie Pavt Removal Clearing&Grubbing ie Base | root\Roadwa | 0334 1 52 | 0200 | SR61 | | ELEMENT_A | | 4,233.84 | 0 |
| Base Base Milling Existing Asph. | root\Roadwa | 0334 1 52 | 0200 | SR61 | 81.600 | ELEMENT_A | Area | 5,340.90 | 16 |
| Asphaltic Concrete | root\Roadwa | 0334 1 52 | 0200 | SR61 | 209.390 | [ELEMENT_A | Area | 13,705.83 | 5 |
| Asphaluc Concrete Asphaluc Concrete Superpaye Asphaltic Conc | root\Roadwa | 0334 1 52 | 0200 | SR61 | 304.150 | [ELEMENT_A | Area | 19,907.73 | 12 |
| - Superpare Asphalic Conc - I Superpare Asphalic Concrete | root\Roadwa | 0334 1 52 | 0200 | SR61 | 353.050 | [ELEMENT_A | Area | 23,108.48 | ā |
| AC Friction Course | root\Roadwa | 0334 1 52 | 0200 | SR61 | 338.380 | [ELEMENT_A | Area | 22,148.54 | 7 |
| ⊕ i Sidewalk | root\Roadwa | 0334 1 52 | 0200 | SR61 | 213.750 | [ELEMENT_A | Area | 13,990.65 | ō |
| Plan Features | root\Roadwa | 0334 1 52 | 0200 | SR61 | 190.170 | [ELEMENT_A | Area | 12,447.47 | 4 |
| i Guardrail | root\Roadwa | 0334 1 52 | 0200 | SR61 | 59.450 | [ELEMENT_A | Area | 3,891.41 | 5 |
| 🖮 🧰 Curb & Gutter, Curb, Gutter | root\Roadwa ≪ | 0334 1 52 | 0200 | BL98 | 18.210 | IELEMENT A | Area | 1.191.69 | 90 > |
| ⊞- <mark></mark> Concrete Traffic Separators | 鴙 Elemen | ts 🐼 Adhoo | Attributes | Payer Partic | ipation 🏾 🍤 F | unding Partic | ipation 🏾 🤀 F | unding Rule | s |
| | Name | Туре | Value | Source | Dirty | N | | | Ī |
| | Lift | Numeric | 2.5 | CAD | | 1 | | | |
| | DESIGN N | String | | CAD | |] | | | |
| | LOCDESC | String | SR61 | CAD | |] | | | |
| | STA CL DR. | String | 714+83.20 | CAD | | | | | |
| | PAVEMEN | String | DRIVEWAY | CAD | | | | | |
| | SORTBY | String | | CAD | | J | | | |

Exercise 5.2 Creating a Category

This exercise creates a new Category for manually added Pay Items.

1. From Quantity Manager, select the **Payitem Tree** tab and then select the **Roadway Design** Category.



- 2. From the Quantity Manager menu, select **Insert** > **Category** > **Subcategory**. New Category Properties displays.
- 3. From New Category Properties, enter Manual Pay Items in the Category Name box.

| New Category Properties - Inserting Subcategory in: Ro \times | | | | | | |
|---|------------------|----|--------|--|--|--|
| Category Name: | Manual Pay Items | | | | | |
| | | ОК | Cancel | | | |

4. Click the **OK** button to create the new Category.

Exercise 5.3 Importing Pay Items

This exercise sets the preferences to find the *aecitem.xml* file and imports Pay Items to the database.

- 1. From Quantity Manager, select **Project > Preferences**.
- 2. On the Project Preferences dialog, check **On** the *Enable Adhoc Attribute Editing*.
- 3. Click on the **Browse** icon next to the *Payitem* box, browse to the Project **Symb** directory, and select the *aecitem.xml* file.
- 4. Set the *Display Accuracy* settings as desired and click **OK**.

| Project Pref | erences | | × | | | | |
|----------------------------------|---------------------------------------|------------|--------|--|--|--|--|
| 🗹 Enable Adhoc Attribute Editing | | | | | | | |
| aecXML Import Documents | | | | | | | |
| Payitem: | Payitem: !2049555201\symb\aecitem.xml | | | | | | |
| Payer: | | | ٩ | | | | |
| -Display Ac | ccuracy | | | | | | |
| Distar | nce Decimal: | 99.12 | \sim | | | | |
| Stati | ion Decimal: | 9+99(9).12 | ~ | | | | |
| Sta | ation Format: | 12+34 | ~ | | | | |
| | | | | | | | |
| | | ОК | Cancel | | | | |

- 5. From Quantity Manager, Set the **TRNS*PORT Groupings** to **0200**, select the **Payitem Tree** tab and then select the **Manual Pay Items** *Category*.
- 6. Right-click and select **Insert Payitem...** from the popup menu. New Payitem Properties dialog displays. (This option allows for adding the pay item as well as the quantity.)

| New Payitem Prope | erties - Inserting in Cate | gory: Manual Pay 🗙 |
|-------------------|----------------------------|--------------------|
| Payitem Name: | | Q |
| Description: | | |
| Unit Cost: | 0.0 | 🗌 Lump Sum |
| Unit | ~ |] |
| Total Rounding: | 0.0 |] |
| Quantity | | |
| Rounded Val | ue | |
| | | |
| | | OK Cancel |

7. Click on the Browse Master Payitem Document icon.

| New Payitem Prop | erties - Inserting in Category: Manual Pay 🗙 |
|------------------|--|
| Payitem Name: | |
| Description: | १७ Browse Master Payitem Document |
| Unit Cost: | 0.0 Lump Sum |
| Unit | ✓ |
| Total Rounding: | 0.0 |
| Quantity | |
| Rounded Va | ue |
| | OK Cancel |

8. In the Select Payitem dialog, clear the *Description Filter* box and then enter **M**. All *Payitems* with Descriptions beginning with the letter *M* display.

| 🕼 Select Payitem 🗙 | | | | |
|---------------------|------|-------------------------------------|---|--|
| 🗹 Payitem Filter: | | * | | |
| Description Filter: | | М | | |
| Payitem | Desc | ription | | |
| 0000900 1 | MAS | S TRANSIT DESIGN GROUP- GENERIC PAY | | |
| 0101 1 | MOB | LIZATION | | |
| 0101 1100 | MOB | LIZATION- 🚧 R WORK ORDER/PUSH BUTT | | |
| 0102 1 | MAIN | TENANCE OF TRAFFIC | | |
| 0102 1100 | MAIN | TENANCE OF TRAFFIC, WORK ORDER/PUS. | | |
| 0102 21 | MAIN | TENANCE OF TRAFFIC- TEMPORARY BRID | | |
| 0102 22 | MAIN | TENANCE OF TRAFFIC- TEMPORARY BRID | × | |
| | | Import | | |

9. In the table, select **0101 1 Mobilization** and click the **Import** button.

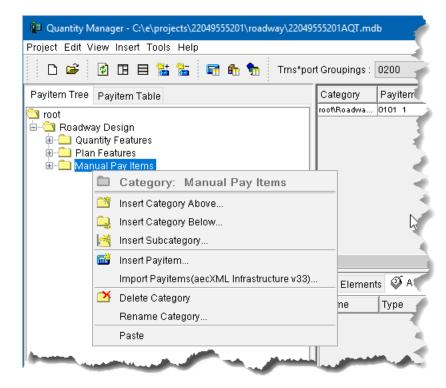
10. The Mobilization Payitem information populates on the New Payitem Properties dialog.

| New Payitem Properties - Inserting in Category: Manual Pay 🗙 | | | | |
|--|--------------|------------|--|--|
| Payitem Name: | 0101 1 | | | |
| Description: | MOBILIZATION | | | |
| Unit Cost: | 0.0 | 🗹 Lump Sum | | |
| Unit | LS ~ | | | |
| Total Rounding: | 0.0 |] | | |
| Quantity | | | | |
| 🗌 Rounded Val | ue | | | |
| | | OK Cancel | | |
| | | outon | | |

11. Toggle **ON** the option for the *Rounded Value* and type in a value of **1**.

| New Payitem Prop | erties - Inserting in Cate | egory: Manual Pay 🗙 |
|------------------|----------------------------|---------------------|
| Payitem Name: | 0101 1 | Q |
| Description: | MOBILIZATION | |
| Unit Cost: | 0.0 | 🗹 Lump Sum |
| Unit | LS ~ | • |
| Total Rounding: | 0.0 | |
| Quantity | | |
| Rounded Va | lue 1 | |
| | | OK Cancel |

- 12. Click **OK** to add the pay item and quantity to Quantity Manager.
- 13. Select the Manual Pay Items Category.
- 14. Right-click and select **Import Payitems (aecxml Infrastructure v33)** from the popup menu. Select Payitems dialog displays. (This option allows for the insertion of pay items only.)



15. On the Select Payitems dialog, clear the *Description Filter* box and then enter **M**. All *Payitems* with Descriptions beginning with the letter *M* display.

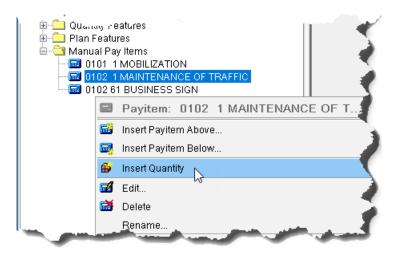
| 😰 Select Payi | tems | | × | | |
|---------------------|------|--|---|--|--|
| 🗹 Payitem Filter: | | * | | | |
| Description Filter: | | М | | | |
| Payitem | Desc | ription | | | |
| 0000900 1 | MASS | MASS TRANSIT DESIGN GROUP- GENERIC PAY | | | |
| 0101 1 | MOBI | MOBILIZATION | | | |
| 0101 1100 | MOBI | MOBILIZATION- FOR WORK ORDER/PUSH BUTT | | | |
| 0102 1 | MAIN | TENANCE OF TRAFFIC | | | |
| 0102 1100 | MAIN | TENANCE OF TRAFFIC, WORK ORDER/PUS | | | |
| 0102 21 | MAIN | TENANCE OF TRAFFIC- TEMPORARY BRID | 1 | | |
| 0102 22 | MAIN | TENANCE OF TRAFFIC- TEMPORARY BRID | × | | |
| | | Import Update | | | |

- 16. In the table, select 0102 1 Maintenance of Traffic.
- 17. Click the Import button. The Maintenance of Traffic Payitem adds to Quantity Manager.
- 18. Repeat steps 15 through 17 to import Payitem 0102 61 Business Sign using B in the Description Filter.
- 19. Close Select Payitems.

Exercise 5.4 Creating Quantities

This exercise adds quantities to Pay Items included in the database.

- 1. In the Payitem Tree tab, select Manual Pay Item 0102 1 Maintenance of Traffic.
- 2. Right click and select **Insert Quantity**.



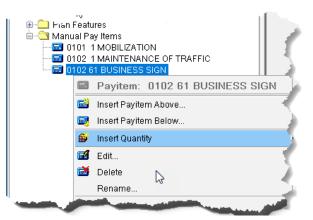
- 3. From New Quantity Properties, General tab:
 - a. In the *Measurement Value* box, enter 60. This value is the number of days for the project.
 - b. In the Computed Quantity box, enter 1. This Pay Item is an example of a Hybrid Lump Sum Quantity.

| New Quantity Properties | - For Payitem: 0102 1 | | × |
|-------------------------|-----------------------|--------------|--------|
| General Location Ad | hoc Attributes | | _ |
| Measurement Basis: | Each ~ | | Create |
| Measurement Value: | 60.00 |] | Close |
| Computed Quantity: | 1.00 |] | |
| Rounded Quantity: | 1.00 |] | |
| Deduction Quantity: | 0.00 |] | |
| Net Quantity: | 1.00 | | |
| Boundary Type: | None ~ |] | |
| Boundary Name: | ~ | Boundary | |
| Run Name: | |] | |
| Trns*port Groupings: | 0200 ~ | Trns*port Gr | |
| Date / Time: | 2018-04-02 15:31:08 | Set Current | |
| Remarks: | | | |
| Description: | Manual Pay Item |] | |
| Extended Description: | | | |

- 4. Select the Location tab.
 - a. In the *Baseline Chain* box, select **SR61** (**JOB00.GPK**). The *Minimum* and *Maximum Station* will populate from the chain automatically.

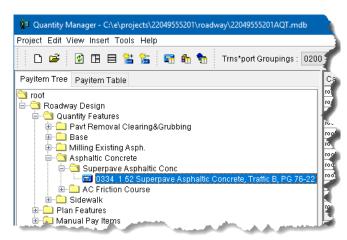
| lew Quantity Properties - For Payitem: 0102 1 | × |
|---|--------|
| Seneral Location Adhoc Attributes | |
| | Create |
| Baseline Chain: SR61 (JOB00.GPK) ~ | Close |
| Minimum Station | 01056 |
| Station: 698+53.80 Region: 1 ~ | |
| Offset: | |
| Maximum Station | |
| Station: 726+41.79 Region: 1 ~ | |
| Offset: | |

- b. Click the **Create** icon. The *Quantity* adds to Quantity Manager.
- 5. Close the New Quantity Properties dialog box.
- 6. In the Payitem Tree tab, select Pay Item 0102 61 Business Sign.



- 7. Right click and select Insert Quantity.
- 8. From New Quantity Properties, select the General tab.
 - a. In the Measurement Value box, enter 1.
- 9. Select the Location tab.
- 10. In the Baseline Chain box, select SR61 (JOB00.GPK).
 - a. Under *Minimum Station*, enter **706+00** in the *Station* box and enter **100** in the *Offset* box.
 - b. Under *Maximum Station*, enter **706+00** in the *Station* box and enter **100** in the *Offset* box.
 - c. Click the Create icon. The Quantity adds to Quantity Manager.
 - d. Under *Minimum Station*, enter **782+00** in the *Station* box and enter **-100** in the *Offset* box.
 - e. Under Maximum Station, enter 782+00 in the Station box and enter -100 in the Offset box.
 - f. Click the Create icon. The Quantity adds to Quantity Manager.
 - g. Under *Minimum Station*, enter **791+00** in the *Station* box and enter **100** in the *Offset* box.
 - h. Under *Maximum Station*, enter **791+00** in the *Station* box and enter **100** in the *Offset* box.
 - i. Click the Create icon. The Quantity adds to Quantity Manager.

- 11. Close New Quantity Properties.
- 12. In the *Payitem Tree* tab, select *Pay Item* **0334 1 52** Superpave Asphaltic Concrete, Traffic B, PG 76-22.



13. Right click and select **Insert Quantity**. From New Quantity Properties, select the **General** tab. Fill out as shown below.

| New Quantity Properties | - For Payitem: 0334 1 52 | | × |
|-------------------------|--------------------------|--------------|--------|
| General Location Ad | hoc Attributes | | |
| Measurement Basis: | Area ~ | | Create |
| Measurement Value: | 5.26 | | Close |
| Computed Quantity: | 5.26 | | |
| Rounded Quantity: | 5.26 | | |
| Deduction Quantity: | 0.00 | | |
| Net Quantity: | 5.26 | | |
| Boundary Type: | None ~ | • | |
| Boundary Name: | ~ | Boundary | |
| Run Name: | | | |
| Trns*port Groupings: | 0200 ~ | Trns*port Gr | |
| Date / Time: | 2018-04-02 15:50:33 | Set Current | |
| Remarks: | | | |
| Description: | | | |
| Extended Description: | | | |

14. Select the Location tab. Fill out as shown below.

| ew Quantity | Properties - For P | Payitem: 0334-1-52 | |
|-------------|--------------------|--------------------|--------|
| Seneral Lo | cation Adhoc A | ttributes | |
| +13 | | | Create |
| Baseline | Chain: SR61 (J | 0B00.GPK) ~ | Close |
| Minimum | n Station | | 01056 |
| Station: | 698+53.80 | Region: 1 | |
| Offset: | | | |
| 011360 | | | |
| Maximur | n Station | | |
| Station: | 726+41.79 | Region: 1 V | |
| Offset: | | | |

15. Select the Adhoc Attributes tab. Click on the New Phase button to add a new adhoc attribute.

| General Loca | ation Adhoc Attr | ibutes | | | | |
|--------------|------------------|--------|--------|-------|-----------|--------|
| | | | | | | Create |
| Name | Туре | Value | Source | Dirty | New Phase | Close |
| New 1 | String | | Manual | | | |
| | | | | | | |
| | | | | | | |

16. Add the Adhoc names, types, and values as shown below:

| New Quantity Propert | ies - For Payit | em: 0334 152 | | | × |
|----------------------|-----------------|--------------|--------|-------|--------|
| General Location | Adhoc Attribu | utes | | | |
| | | | | | Create |
| Name | Туре | Value | Source | Dirty | Close |
| Lift | Numeric | | Manual | | |
| DESIGN NOTES | String | OVERBUILD | Manual | | |
| LOCDESCRIPTION | String | | Manual | | |
| STA CL DRIVEWAY | String | | Manual | | |
| PAVEMENT TYPE | String | ROADWAY | Manual | | |
| SORTBY | String | | Manual | | |
| | | | | | |
| | | | | 2 | |

- *Note* The Adhoc Names and Types MUST match the Adhocs of the item in D&C Manager for LDM automation to include the manually created quantity item in the Summary box.
- 17. Click **Create** to add the quantity.
- 18. Close the New Quantity Properties dialog box.
- 19. Click on the new item in the *Quantity Pane*. In the *Element Pane*, select the **Adhoc Attributes** tab. Review the Adhoc values.

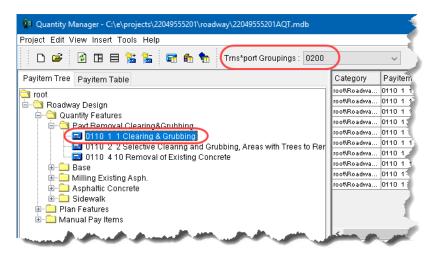
REPORTS

Quantity Manager has the option to create Reports in PDF or CSV formats. For non-automated Plan Summary Boxes, use the CSV Reports to generate the data needed to fill out the summary box Excel templates.

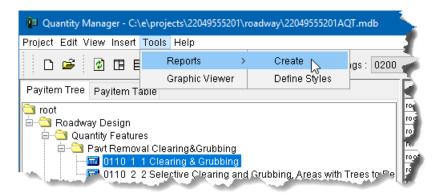
Exercise 5.5 Creating CSV Reports

This exercise generates an Area Report for Clearing and Grubbing and the Removal of Existing Concrete quantities used to fill out the Summary of Clearing and Grubbing and Removal Items.

 Continuing in the 22049555201AQT.mdb file, navigate to Roadway Design > Quantity Features > Pavt Removal Clearing & Grubbing and select the Pay Item 0110 1 1 Clearing & Grubbing and verify that the Trns*port Groupings is set to 0200.



2. Select *Item* 0110 1 1 and then select Tools > Reports > Create.



3. On the Create Report dialog, set the *Report Style* to **FDOT Form 700-050-01 Area Computations** (CSV).

| Create Report | × | |
|----------------------------|---|---|
| Active Trns*port Groupings | : 0200 | |
| Report Style | : FDOT Form 700-050-01 A 🗸 | |
| Report Type | FDOT Form 700-050-01 Area Computations (CSV) | ^ |
| Report File Name | FDOT Form 700-050-01 Area Computations (PDF) | |
| report rile Name | FDOT Form 700-050-02 Curb and Gutter Computations (CSV) | |
| Starting Page Number | FDOT Form 700-050-02 Curb and Gutter Computations (PDF) | |
| Report Only Selected Q | uFDOT Form 700-050-03 Linear Measurement Computations (CSV) | |
| | FDOT Form 700-050-03 Linear Measurement Computations (PDF) | |
| A | PIFDOT Form 700-050-03 Per Each Computations (CSV) | |
| | FDOT Form 700-050-03 Per Each Computations (PDF) | ~ |

4. In the *Report File Name*, click the **Select Report Filename** icon.

| Create Report | | × |
|-----------------------------|-------------------------------|---------------------|
| Active Trns*port Groupings: | 0200 | |
| Report Style: | FDOT Form 700-050-01 A \sim | |
| Report Type: | CSV | |
| Report File Name: | .CSV | 및 |
| Starting Page Number: | 1 | Select Report Filer |
| Report Only Selected Qua | antities | |
| Ap | pend Create Cance | 91 |

| Note | The creation process saves the CSV to the GEOPAK working directory when not defining the full path |
|------|--|
| | for the Report File Name. |

5. Navigate to the project calculations folder, enter **0110_1_1.csv** as the file name and then click **Open**.

| 🚺 Report File | | × |
|---------------|--|----------------|
| Look in: | calculations v | |
| Recent Items | | |
| Desktop | File name: 0110_1_1.csv Files of type: *.csv | Open Cancel |

6. In the Create Report dialog, click **Create**.

| Create Report | × |
|---|----|
| Active Trns*port Groupings: 0200 | |
| Report Style: FDOT Form 700-050-01 A 🗸 | |
| Report Type: CSV | |
| Report File Name: 201\calculations\0110_1_1.csv | 2 |
| Starting Page Number: 1 | |
| Report Only Selected Quantities | |
| Append Create Cance | el |

- 7. Excel opens the CSV spreadsheet. View the exported data. Close Excel.
- 8. Repeat steps 2 5 for *Pay Item* 0110 2 2 Selective Clearing and Grubbing, Areas with Trees to Remain and *Pay Item* 0110 4 10 Removal of Existing Concrete.
- 9. Close Quantity Manager.

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6 PLAN SUMMARY BOXES & LDM

OBJECTIVES

- Define Plan Summary Boxes and workflow requirements.
- Introduce Linked Data Manager (LDM).
- Create Plan Summary Boxes using LDM and reports.

PLAN SUMMARY BOXES

FDOT requires that all quantities are documented in Plan Summary Boxes located on the Summary of Quantity sheets. Computation Books are no longer required. Do NOT mix and match the old summary boxes with the new ones in the same plan set. The *FDOT Design Manual (FDM)* and the *Structures Design Manual* along with the *CADD Manual* and the *Basis of Estimates* post documentation to define the following.

- > Plan Set Location
 - Roadway Summary of Quantities sheets are to be placed after the numbered Plan Sheets.
 - Structures Directly after the Index/Key Sheet (or after the Summary of Pay Items if the Structures Plans are stand-alone with no Roadway component.)

➢ File Name

- Roadway SUMQRD
- Structures B#SumofQuantities*

> Sheet Prefix

FDOT uses Sheet Prefixes to keep separate for re-numbering.

- Roadway SQ-
- Structures BQ#-

Note Each Bridge will have a separate Summary of Structure Quantities sheet(s) numbered as: BQ#-#.

For Example, if there are general bridge Pay Items (Mobilization MOT, etc.), the sheet will be the first Summary of Structure Quantities sheet numbered BQ-1. The Summary of Structure Quantities for Bridge 1 will follow with sheet numbers BQ1-1, BQ1-2, etc.; followed by Bridge 2 with sheet numbers BQ2-1, BQ2-2, etc.

\geq Formatting

FDOT controls Summary Box formatting through Excel spreadsheet files.

FDOT-delivered Summary Box templates for use with LDM in both automated and manual formats:

Permanent Crash Cushions

Temporary Crash Cushions

Temporary Driveways

Turf and Prepared Soil

Permanent Crash Cushions 2019

0 Barrier Walls 0 Pedestrian Longitudinal Channeling Devices 0

0

0

0

0

0

0

0

0

- Curb and Traffic Separators 0
- **Ditch Pavement** 0
- Driveways 0
- 0 Edgedrain
- Erosion Control 0
- Fencing 0
- 0 French Drain

Pavement

- Guardrail 0
- Mailboxes 0

0

0

- Miscellaneous Asphalt
- Turnouts Underdrain 0

Railing

Sidewalk

Trench Drain

- Utility Adjustments 0
- FDOT-delivered Summary Box templates for use with LDM in manual format only:
 - Box Culverts Pedestrian Special Detours 0 0 Clearing and Grubbing and Removal Items Side Drain and Mitered End Sections 0 0 Earthwork Side Drains and Mitered End Section with Flowlines 0 0 General Items Structures Quantities 0 0 Geotechnical Items 0 Temporary Traffic Control Plan Items 0 Litter Removal and Mowing Temporary Highway Lighting 0 0 Lump Sum Items Temporary Signalization and Detection 0 0 Traffic Monitoring Site Items Miscellaneous Drainage 0 0
 - 0 Monitor Existing Structures
- Keep all summary box Excel files and any other quantity related files (PDF or output from other programs) in a directory named "calculations" under the root Project Directory. (Roadway and Structures subdirectories within the calculations folder may be used to help organize this directory. This is optional.)

\geq Summary Box Exceptions

- Component sets of plans currently using Tabulation of Quantities sheets will continue to do so with • NO change in their workflow.
- Summary of Drainage Structures Sheets will not change. Do NOT add Pay Items to these sheets. •

LDM BASICS

Access LDM through the FDOT Menu to create a link between the Summary Excel spreadsheet file and the MicroStation design (DGN) file for easy placement and updating of Summary Boxes. The LDM link provides easy access to the Excel spreadsheet for modification and update with a simple right-click on the link.

Access LDM from the FDOT Menu by selecting Actions > Linked Data Manager. <OR>

From the FDOT Plans Development > Quantities Tasks menu, select the Linked Data Manager icon.

| Standard CellApps | Actions | 🛛 Design Apps Roadway 🏠 🔗 🛅 🗔 | 20 |
|-------------------|---------|--|----|
| | 📀 Cre | ate Files | |
| | Set | Geographic Coordinate System | |
| | 📀 Set | Plot Scale of File | |
| | 📀 Tur | n Level Filters On | |
| | 📀 Tur | n Level Filters Off | |
| | Adl | noc Manager | |
| | 📀 She | ets | • |
| | 📀 She | et Navigator (Label Sheets) | |
| | 📀 RfC | lip (Sheet Clipping) | |
| | 📀 Lab | el Shapes with ID | |
| | 📀 Lab | el Shapes with Area | |
| | 📀 Lini | (ed Data Manager (LDM) | |
| | 2 AA | SHTOWare Project Preconstruction (TRNS*port) | • |
| | 📀 Qua | ality Control | • |

| 🚟 FDOT Linked Data Manager 1.01.10 | | | | × |
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| ID Source Path | Description | Туре | Update | Locked |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Note For more in-depth information on the features of this tool, refer to the LDM Help file or Posted Webinars.

CREATE SUMMARY BOXES FROM QUANTITY MANAGER

LDM provides an automated option (*Create New from Quantities*) to create FDOT Summary Boxes that only need to be run once to generate an Excel file from Quantity Manager with all worksheets created and contained in a single file.

1. Select Create New Link

| 🚟 FDOT Linked Data Manager 1.01.10 | | — | | × |
|------------------------------------|-------------|------|--------|--------|
| 📼 🧔 🗶 🕕 😰 | | | | |
| IDSource_Path | Description | Туре | Update | Locked |
| Create new link | | | | |
| C:\e\projects\22049555201 | | | | .:: |

- 2. For the Source File, select Create New from Quantities.
- 3. Select the Quantity Manager Database.
- 4. Select Report Description/File Name for the desired Summary to create and click OK.

| Link Information | | | |
|------------------|--|--|--------|
| Source File | Create New from Template | | |
| Source Path | Quantity Manager Summary Reports | | |
| Description | Quantity Manager Database: .voadway\22049555201AQT.mdb | ↓ VPPER CASE |] |
| | Report Description | File Name | ~ |
| | | | |
| | Summary of Barrier Walls Summary of Curb and Traffic Separators | Summary_of_Barrier_Walls Summary of Curb and Tr | |
| | Summary of Ditch Pavement | Summary_of_Curb_and_1r Summary of Ditch Pavem | |
| Graphics Set | | | |
| | Summary of Edgedrain | Summary of Edgedrain | |
| FDOT | Summary of Erosion Control | Summary of Erosion Control | |
| 0.5% | Summary of Fencing | Summary_of_Fencing | |
| O Site | Summary of French Drain | Summary_of_French_Drain | |
| O Project | Summary of Guardrail | Summary of Guardrail Ex | |
| <i>.</i> . | Summary of Mailboxes | Summary of Mailboxes | |
| | Summary of Miscellaneous Asphalt | Summary of Misc Asphalt | |
| | Summary of Pavement | Summary of Pavement | |
| | Summary of Pedestrian Longitudinal Channeling Devices | Summary of Pedestrian L | |
| | Summary of Permanent Crash Cushions | | |
| | Summary of Railing | Summary of Railing Expa | \sim |
| | | Summary_of_Permanent_C Summary of Railing Expa | |

- 5. Save the file in the project calculations folder.
- 6. Place the Summary Box in MicroStation.

Exercise 6.1 Create New Summary Boxes from Quantities

- 1. Open the MicroStation file *QTDSRD01.dgn*.
- 2. On the FDOT Menu, select **Actions > Create Files**.

| Standard CellApps | Actions | Design Apps Roadway 🏠 🔗 📄 🚺 | 0 |
|--|---------|---|----------|
| | 📀 Crea | ate Files | |
| | Set | Geographic Coordinate System | |
| and the second s | <u></u> | the statement of the same of the second | <u> </u> |

3. Confirm that the Project, Discipline, and File Group are as shown below, scroll down the *File Type* list, select SUMQRD **Summary of Quantities Sheets.** Set county as shown and click **Create – Open File**.

| 🦻 Create Fil | le (v 2.0) | | > | |
|--------------|----------------|--|------------------|--|
| Project: | C:\e\projects | 22049555201 | ✓ Select Project | |
| Discipline: | ROADWAY | | \sim | |
| File Group: | Roadway File | 3 | \sim | |
| File Type: | | | | |
| Bas | se Filename | Description | ^ | |
| MIT | GRD | Mitigation Areas | | |
| TEX | TRD | Text Labels and Miscellaneous Descriptions | | |
| CSI | NRD | Concrete Slab Inventory | | |
| CES | SRD | Summary of Pay Item Sheets | | |
| SUI | /QRD | Summary of Quantities Sheets | | |
| TCG | INRD | Traffic Control General Note Sheets | | |
| SBV | /HRD | Summary of Verified Utilities 2D | | |
| BDF | PRD | Border Sheet Reference File for Plan and Profile Sheet | | |
| BDF | PRRD | Border Sheet Reference File for Profile Sheet | | |
| | RRD | Plan and Profile Sheets | | |
| PRE | DSRD | Project Profile Layout | | |
| Output File: | | | | |
| | | File | | |
| | Base Filenam | e: Modifier (Optional) Sequence #: | Extension: | |
| | SUMQRD | 01 | .dgn | |
| Output File: | C:\e\projects\ | 2049555201\roadway\SUMQRD01.dgn | | |
| Output Fol | der: roadway | | Browse | |
| Seed File : | fdotseed | d.dgn | Browse | |
| County: | Wakulla | Coordinate System: FL83-NF | \sim | |
| Action: | mdl I plots | cale;plotscale set | | |
| | | Create - Open File | e Close | |

- 4. Upon opening, click **OK** on the Set Plot Scale dialog, and then **Close** on the Create File dialog to close it.
- 5. From the FDOT Plans Development > Quantities Tasks menu, select the Linked Data Manager icon to open LDM.

| Quantities | |
|---|--|
| See | |
| Survey Open Link Data Manager | |

6. From LDM, select the **Create new link** button.

| 🚟 FDOT Linked Data Manager 1.01.10 | | | — | | × |
|------------------------------------|-------------|----|-----|--------|--------|
| 📼 🔅 🗶 🕤 🛃 | | | | | |
| ID Source Path Create new link | Description | Ту | ype | Update | Locked |
| Create new link | | | | | |
| | | | | | |
| | | | | | |
| C() a) projects) 22040555201 | | | | | |
| C:\e\projects\22049555201 | | | | | |

7. On the Link Information dialog, select the Create New from Quantities button.

| Link Information | |
|------------------|--|
| Source File | Create New from Template Create New from Quantities |
| Source Path | [*] |
| Description | |

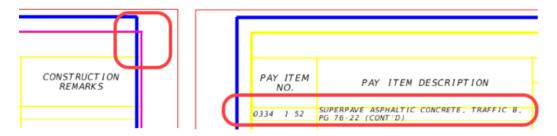
- 8. From the Quantity Manager Summary Reports dialog, select the Quantity Manager Database. Click the **Browse** icon and select the database file *22049555201AQT.mdb*.
- 9. Check **On** the option to Force all text imported from database to be UPPER CASE.
- 10. Select the **Summary of Pavement** report from the list and click **OK**.

| Quantity Manager Summary Reports | | | | | |
|----------------------------------|----------------------------------|------------------------------|---------------------|----------------------------|---|
| | Quantity Manager Database: | .\roadway\22049555201AQT.r | ndb | × 🙋 | |
| | | Force all text imported from | n database to be UP | PER CASE | |
| | Report Description | | | File Name | ^ |
| | Summary of Barrier Walls | | | Summary_of_Barrier_Walls | |
| | Summary of Curb and Traffic Sep | arators | | Summary_of_Curb_and_Tr | |
| | Summary of Ditch Pavement | | | Summary_of_Ditch_Pavem | |
| | Summary of Driveways | | | Summary_of_Driveways_E | |
| | Summary of Edgedrain | | | Summary_of_Edgedrain | |
| | Summary of Erosion Control | | | Summary_of_Erosion_Control | |
| | Summary of Fencing | | | Summary_of_Fencing | |
| | Summary of French Drain | | | Summary_of_French_Drain | |
| | Summary of Guardrail | | | Summary_of_Guardrail_Ex | |
| | Summary of Mailboxes | | | Summary_of_Mailboxes | |
| | Summary of Miscellaneous Aspha | t | | Summary_of_Misc_Asphalt | |
| | Summary of Pavement | | | Summary_of_Pavement | |
| | Summary of Pedestrian Longitudir | al Channeling Devices | | Summary_of_Pedestrian_L | |
| | Summary of Permanent Crash Cus | hions | | Summary_of_Permanent_C | |
| | Summary of Railing | | | Summary of Railing Expa | × |
| | | ок | Cancel | | |

- 11. Save the *Summary_of_Pavement.xlsx* Excel file to the project calculations folder.
- 12. On the Link Information dialog, the *Source Path* populates. Complete the dialog as shown below and click **OK**.

| Link Information | |
|--------------------|--|
| Source File | |
| | Screate New from Template Create New from Quantities |
| Source Path | .\calculations\Summary_of_Pavement.xlsx 🗸 🔯 🗈 🗐 |
| Description | Pavement |
| Quantity Report | Place Title Block Header Rows 2 Cell Library roadway.cel Cell Offset X 0.2 |
| | Table Array X 18 Cell Name shplan Cell Offset Y 9.4 |
| Graphics Set | ttings |
| FDOT | Standard V |
| O Site | ✓ |
| O Project | 2 |
| | Use Drawing Scale 🔽 Update Graphics on File Open 🗌 Lock Graphics 🗌 Use Print Area |
| | OK Cancel |

13. Data Point in the design file to place the Summary Box sheets. Notice that the Summary Box does not fit on the Plan sheet and the Pay Item description wraps on the line.



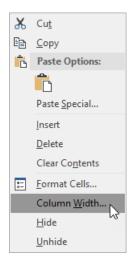
14. Right-click on one of the new links in the LDM dialog for the **Summary of Pavement** and select **Open Source**. Excel opens.

| FDO1 | FLinked Data Manager 1.01.10 | | — | · 🗆 | × |
|------------|---|--------------------------|------|--------|--------|
| | 🍥 🗶 🕕 👔 | | | | |
| ID | Source Path | Description | Туре | Update | Locked |
| 3744 | .\calculations\Summary_of_Pavement.xlsx | Open Source | XLS | | |
| 4656 | .\calculations\Summary_of_Pavement.xlsx | Update Now | XLS | | |
| 5555 | .\calculations\Summary_of_Pavement.xlsx | Fit | XLS | | |
| | | Lock Data | | | |
| | | Delete Link | | | |
| | | Delete Link and Graphics | | | |
| | | Properties | | | |
| | | Add (Create Link) | | | |
| | | | | | |
| | | | | | |
| C:\e\proje | ects\22049555201 | | | | |

- 15. Holding down the *shift* key in Excel, select *Worksheets* **Box1** and then **Box3** to select all the Summary Box worksheets.
- 16. Select the columns *Length* (I) and *Width* (J); right-click and select the popup menu option **Hide** to remove the columns selected from the display. **Hide** the *Location Description* column (F) as well.

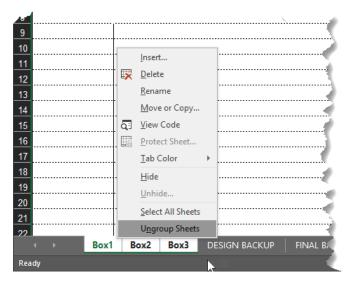
| ile Home Insert | Page Layout Formula | s Data | Review View | Help BLUEBEA | λM Ω | | | | | | | | ି ନ |
|-----------------|-----------------------|------------|-------------|----------------------|---------------------------------------|-------------|----------------|---------------|----------|------------------|-----------------|----------------------|-----------------|
| FDOT Mono E | | | Wrap Text | Number | ▼ 00. 0.7 | | ormat as Cell | Insert Delete | Format | Fill * | Arr Sort & Find | BL Da | ange Settings |
| board 5 | | Align | | ra Numbe | | | Table * Styles | Cells | | Clear * Editi | Filter * Select | | |
| board is | Font 🕞 | Aligni | nent | ra Numbe | r Gi | 5 | yies | Cells | | Editi | ng | FI | DOT MI + 8 |
| • : × | $\sqrt{f_x}$ | | | | | | | | | | | E | B I = 👌 |
| | | | | | | | | | | | | J | l v l |
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| | | | | | | | | 50 | JMMART C | DF PAVE | | E | |
| | | | | | | LOCATIO | N | | | | т | | Paste Optio |
| PAY ITEM | PAY ITEM D | ESCRIPTION | | | | LUCATIO | | | SIDE | AREA | ENGTH | WIDTH | Ē |
| NO. | | 2001111101 | | STA. TO STA. | | DESCRIPTION | | 5100 | ID | TEV | W.I. | Paste <u>S</u> pecia | |
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| | IONAL BASE, BASE GROU | | | 28+00.00 | | | | | LT | 244252 | | | Delete |
| | | | | 28+00.00 | | | | | LT | 244302 | | | Clear Conte |
| | | | | 28+00.00 28+35.00 | | | | | RT RT | 244438 | | | Eormat Cells |
| | | | | 31+42.20 | | | | | RT | 244392 | | | Column Wie |
| | | | | 33+12.13 | · · · · · · · · · · · · · · · · · · · | | | | RT | 244703 | | (| Hide . |
| | | | | 33+92.00 | | | | | LT | 244906 | | | Unitide |
| | | | | | | | | | LT | 244986 | | | <u>o</u> miliae |
| | | | | 33+92.92 | to 38? | +70.00 | | | RT | 245228 | | | |
| | | | | 33+93.00 |) to 36 | +39.72 | | | RT | 245136 | | | |
| | | | | 36+61.83 | 1 to 38 | +69.00 | | | RT | 245337 | | | |
| | | | | 39+39.18 | 3 to 40 | | | | RT | 245441 | | | |
| | | | | 39+42.20 |) to 46 | +11.26 | | | LT | 245472 | | | |
| | | | | 39+42.80 |) to 40 | +20.00 | | | RT | 245424 | | | |
| | | | | 40+70.00 |) to 46 | +11.26 | | | RT | 245639 | | | |
| | | | | 700+21.93 | 8 to 70 | 0+71.00 | | | LT/RT | 244107 | | | |
| | | | | 700+23.52 | | | | | RT | 243943 | | | |

- *Note* Delete or hide unused columns in a summary box from the worksheet. The only exceptions are the F quantity columns and the Construction Remarks column DO NOT delete or hide these columns.
- 17. Right click on the *Pay Item Description* column (B) and select **Column Width...**change the column width to 95. Click **OK**.



Note To correct the word wrap, the text may be broken up and placed in different rows instead of modifying the column width. Use spaces to create an indent on the second row of the description. Be sure to ungroup the worksheets before modifying individual cells or text.

18. Right-click on the Worksheet tabs and select Ungroup Sheets. Save the file.



19. In MicroStation, use the shift key to select all the links to the **Summary of Pavement Summary Box**, right-click and select **Update Now**.

| 🕌 FDOT Linked Data Manager 1.01.10 — 🗆 | | | | | | |
|--|---|--|------|--------|--------|--|
| | 🍥 🗶 🕤 😰 🖓 | | | | | |
| ID | Source Path | Description | Туре | Update | Locked | |
| 3744 | .\calculations\Summary_of_Pavement.xlsx | Pavement | XLS | | | |
| 4656 | .\calculations\Summary_of_Pavement.xlsx | Pavement | XLS | | | |
| 5555 | .\calculations\Summary_of_Pavement.xlsx | Open Source | XLS | | | |
| | | Update Now Fit Lock Data Delete Link Delete Link and Graphics Properties Add (Create Link) | | | | |
| C:\e\proje | ects\22049555201 | | | | .:: | |

CREATE SUMMARY BOXES FROM FDOT TEMPLATES

LDM provides an option (*Create New from Template*) to create FDOT Summary Boxes using the FDOT templates provided in the FDOT CADD software. Access all the FDOT Summary Box templates in the Computation Summary Boxes group from the drop down.

| Link Information | | |
|------------------|---|---|
| Source File | Create New from Template Create New from Quantities | |
| Source Path | | ✓ 🖄 🗅 III |
| Description | Select FDOT Template | |
| | Computation Summary Boxes | File Name ^ |
| | Word Documents Misc Boxes | |
| | Data Boxes Sheets | Summary_of_Barrier_Walls Summary_of_Box_Culverts |
| | Computation Summary Boxes Removal Items | Summary of CG and Re |
| Graphics Set | | Summary_of_Curb_and_Tr |
| didpineo out | Summary of Ditch Pavement | Summary of Ditch Pavem |
| FDOT | Summary of Driveways | Summary_of_Driveways.xlsx |
| 0 | Summary of Earthwork | Summary of Earthwork xlsx |
| O Site | Summary of Edgedrain | Summary_of_Edgedrain_xlsx |
| O Project | Summary of Erosion Control | Summary_of_Erosion_Cont |
| 0.10,001 | Summary of Fencing | Summary_of_Fencing_xlsx |
| | Summary of French Drain | Summary_of_French_Drain |
| | Summary of General Items | Summary_of_General_Item |
| | Summary of Geotechnical Items | Summary_of_Geotech.xlsx |
| | Summary of Guardrail | Summary_of_Guardrail_xlsx |
| | Summary of Litter Removal and Mowing | Summary_of_Litter_Remov |
| | Summary of Lump Sum Items | Summary_of_Lump_Sum_lt |
| | Summany of Mailhovae | Summany of Mailhovae vlev |
| | OK Cancel | |

HINT For the Summary of Structure Quantities in the Structures workspace, place the Plan Sheet border at a scale of 12. Do NOT turn on the Use Drawing Scale option when creating a link.

Exercise 6.2 Create New Summary Boxes from Template

This exercise creates the Summary Boxes from FDOT Templates and links to MicroStation using LDM.

- 1. From the FDOT Menu, select Actions > Sheets > Plan Sheet.
- 2. Data point in the design file to place the border. Place the cell using a scale of 1:1.
- 3. From LDM, click the **Create Link** button. Link Information dialog displays.

| FDOT | Linked Data Manager 1.01.10 | | — | | × |
|--|---|-------------|------|--------|--------|
| (m) ė | 🍥 🗶 🕕 🛐 | | | | |
| ID Cre | ate new link | Description | Туре | Update | Looked |
| 31464 | .\calculations\Summary_of_Pavement.xlsx | Pavement | XLS | | |
| 32360 | .\calculations\Summary_of_Pavement.xlsx | Pavement | XLS | | |
| 33242 | .\calculations\Summary_of_Pavement.xlsx | Pavement | XLS | | |
| I have the manual and the second seco | | | | | |

4. On the Link Information dialog, select **Create New from Template**. The Select FDOT Template dialog displays.

| Link Information |
|---------------------|
| Source File |
| Source Path 🗸 🖄 🖾 🖽 |
| Description |

5. From the Select FDOT Template drop down, select Computation Summary Boxes.

| Computation Summary Boxes 🗸 | | |
|---|---------------------------|---|
| Text Notes | File Name | |
| Word Documents Misc Boxes | File Name | |
| Data Boxes | Summary_of_Barrier_Walls | |
| Sheets | Summary_of_Box_Culverts | |
| Computation Summary Boxes Removal Items | Summary_of_CG_and_Re | |
| Summary of Curb and Gutter and Traffic Separators | Summary_of_Curb_and_Tr | |
| Summary of Ditch Pavement | Summary of Ditch Pavem | |
| Summary of Driveways | Summary of Driveways.xlsx | |
| Summary of Earthwork | Summary of Earthwork xlsx | |
| Summary of Edgedrain | Summary of Edgedrain.xlsx | |
| Summary of Erosion Control | Summary of Erosion Cont | |
| Summary of Fencing | Summary of Fencing xlsx | |
| Summary of French Drain | Summary of French Drain | |
| Summary of General Items | Summary of General Item | |
| Summary of Geotechnical Items | Summary of Geotech xlsx | |
| Summary of Guardrail | Summary of Guardrail xlsx | |
| Summary of Litter Removal and Mowing | Summary_of_Litter_Remov | |
| Summary of Lump Sum Items | Summary of Lump Sum It | |
| Summary of Mailhover | Summany of Mailhovee view | ~ |

- 6. Select the Summary of Lump Sum Items and click **OK**.
- 7. On the Save As dialog, navigate to the 22049555201/calculations folder and click Save.
- 8. The *Source Path* populates on the Link Information dialog. Complete the dialog with the information shown below and click **OK**.

| Link Information | |
|------------------|---|
| Source File | |
| | Create New from Template Create New from Quantities |
| Source Path | .\calculations\Summary_of_Lump_Sum_Items.xlsx 🗸 🔯 🗈 🗐 |
| Description | Lump Sum Items |
| Excel Settings | Worksheet Box1 ~ Header Rows 2 |
| | Width / Height Offset X / Y U Use Title Cell |
| Graphics Set | ttings |
| FDOT | Standard V |
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| O Project | 2 |
| | Use Drawing Scale 🛛 Update Graphics on File Open 🗌 Lock Graphics 🗌 Use Print Area |
| | OK Cancel |

9. The Summary Box attaches to the cursor. Data point inside the Plan Sheet border to place the Summary Box. The link displays in the LDM dialog box.

| | SUMMARY OF LUMP SUM ITEMS | | | | | | | |
|--|---|----------------------------------|-----------------|---------------------------|----------------------|--------|--|--|
| PAY I NO | TEM PAY ITEM DESCRIPTION | QUANT ITY P F | DESIGN NOTES | CO | VSTRUCTIC REMARKS | N | | |
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| | T Linked Data Manager 1.01.10 | Description | | | | | | |
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| | in 🗶 🕦 😰 💄 Source Path | | | Туре | | | | |
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| ID 31464 32360 33242 | Source Path ·cealculations/Summary_of_Pavement.xtsx ·cealculations/Summary_of_Pavement.xtsx | Pavement Pavement Pavement | | Type XLS XLS XLS | Update | | | |
| ID 31464 32360 33242 | Source Path ·cealculations/Summary_of_Pavement.xtsx ·cealculations/Summary_of_Pavement.xtsx | Pavement Pavement Pavement | | Type XLS XLS XLS | Update | | | |
| ID 31464 32360 33242 33464 | Source Path ·cealculations/Summary_of_Pavement.xtsx ·cealculations/Summary_of_Pavement.xtsx | Pavement Pavement Pavement | | Type XLS XLS XLS | Update | | | |

10. Right-click on the link in LDM and select the popup menu option **Open Source**. The *Summary_of_Lump_Sum_Items.xlsx* opens in Excel.

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|---------|---|----------------|-------------|------------|--------|-------|
| ID | Source Path | Description | | Туре | Update | Locke |
| 31464 | .\calculations\Summary_of_Pavement.xlsx | Pavement | | XLS | | |
| 32360 | .\calculations\Summary_of_Pavement.xlsx | Pavement | | XLS | | |
| 33242 | .\calculations\Summary_of_Pavement.xlsx | Pavement | | XLS | | |
| 33464 | .\calculations\Summary_of_Lump_Sum_Items.xlsx | Lump Sum Items | Open Sour | ce | | - P |
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11. Complete the Summary Box with *Mobilization* pay item information as shown below. **Save** and **Close** the Excel file.

| | A | В | С | D | E | F |
|---|-----------------|----------------------|-----------|-------------|-----------------|-------------------------|
| 1 | | SUMMARY | OF LUMP | SUM ITE | MS | |
| 2 | PAY ITEM NO. | PAY ITEM DESCRIPTION | QUAN P | T I TY F | DESIGN NOTES | CONSTRUCTION REMARKS |
| 4 | | MOBILIZATION | 1 | | | |
| 5 | | | | | | |
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| 7 | | | | | | |
| 8 | | | | | | |

Note If the Pay Item No. auto-corrects/drops the leading zero, you can set the Excel Number format to Text.

12. In MicroStation, right-click on the link in LDM. Select the option to **Update Now**. The Summary Box updates with the new information.

Exercise 6.3 Create Summary Box with LDM and CSV files

This exercise creates a summary box using a LDM template and CSV files generated from Quantity Manager.

- 1. Continuing in the file *SUMQRD01.dgn*, place (or copy) a plan sheet border in the file.
- 2. From LDM, click the Create new link button. Link Information dialog displays.

| FDOT | Linked Data Manager 1.01.10 | | _ | | × |
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| Creat | e new link th | Description | Туре | Update | Locked |
| 31464 | .\calculations\Summary_of_Pavement.xlsx | Pavement | XLS | | |
| 32360 | .\calculations\Summary_of_Pavement.xlsx | Pavement | XLS | | |
| 33242 | .\calculations\Summary_of_Pavement.xlsx | Pavement | XLS | | |
| 33562 | .\calculations\Summary_of_Lump_Sum_Items.xlsx | Lump Sum Items | XLS | | |
| 1 | French and provide | Na sana sa | - and | mana | J~. |

3. On the Link Information dialog, select **Create New from Template**. The Select FDOT Template dialog displays.

| Link Information |
|---------------------|
| Source File |
| Source Path 🗸 🖄 🖾 🧮 |
| Description |

4. From the Select FDOT Template drop down, select Computation Summary Boxes.

| Computation Summary Boxes 🗸 🗸 | |
|---|---------------------------|
| Text Notes | 51 N |
| Nord Documents Misc Boxes | File Name |
| Nisc Boxes Data Boxes | Summary_of_Barrier_Walls |
| Sheets | Summary_of_Box_Culverts |
| Computation Summary Boxes 💦 Removal Items | Summary_of_CG_and_Re |
| Summary of Curb and Gutter and Traffic Separators | Summary_of_Curb_and_Tr |
| Summary of Ditch Pavement | Summary_of_Ditch_Pavem |
| Summary of Driveways | Summary_of_Driveways.xlsx |
| Summary of Earthwork | Summary_of_Earthwork.xlsx |
| Summary of Edgedrain | Summary_of_Edgedrain.xlsx |
| Summary of Erosion Control | Summary_of_Erosion_Cont |
| Summary of Fencing | Summary_of_Fencing.xlsx |
| Summary of French Drain | Summary_of_French_Drain |
| Summary of General Items | Summary_of_General_Item |
| Summary of Geotechnical Items | Summary_of_Geotech.xlsx |
| Summary of Guardrail | Summary of Guardrail.xlsx |
| Summary of Litter Removal and Mowing | Summary of Litter Remov |
| Summary of Lump Sum Items | Summary of Lump Sum It |
| Summan of Mailhovae | Summany of Mailhovae view |

- 5. Select the Summary of Clearing and Grubbing and Removal Items and click OK.
- 6. On the Save As dialog, navigate to the 22049555201/calculations folder and click Save.
- 7. The *Source Path* populates on the Link Information dialog. Complete the dialog with the information shown below and click **OK**.

| Link Information | |
|------------------|---|
| Source File | |
| | Create New from Template Create New from Quantities |
| Source Path | .\calculations\Summary_of_CG_and_Removal_Items.xlsx 🗸 🕑 🔯 |
| Description | Removal Items |
| Excel Settings | Worksheet Box1 V Header Rows 2 |
| | Width / Height Offset X / Y Use Title Cell |
| Graphics Se | |
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| O Site | V |
| O Project | 2 |
| | Use Drawing Scale 🛛 Update Graphics on File Open 🗌 Lock Graphics 🗌 Use Print Area |
| | OK Cancel |

8. The Summary Box attaches to the cursor. Data point inside the Plan Sheet border to place the Summary Box. The link displays in the LDM dialog box.

| PAY ITEM NO. | PAY ITEM DESCRIPTION | | LOCATION | 5 I DE | AREA ID | LENGTH | WIDTH | UNITS | SECONDARY UNIT (IF LUMP SUM) | s ou | ANTITY | 7 | OTAL | DESIGN NOTES | CONSTRUCTION REMARKS |
|-----------------|-------------------------------|-----------|------------------------|----------|------------|----------|---------|----------|---------------------------------|----------|--------|--------|------|-----------------|-------------------------|
| | | 5 | TA. TO STA. | | | 37 | M | | AREA (AC) | Р | F | Р | F | | |
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| | | 31464 | .\calculations\Summary | () | | | Paveme | | | XLS | | | | | |
| | | | | | | | | | | | | | | | |
| | | 32360 | .\calculations\Summary | | | | Paveme | | | XLS | | | | | |
| | | 33242 | .\calculations\Summary | _of_Pave | ment.xlsx | | Paveme | int | | XLS | | | | | |
| | | 33562 | .\calculations\Summary | _of_Lump | _Sum_Ite | ems xlsx | Lump S | um Items | | XLS | | | | | |
| | | 33662 | .\calculations\Summary | of CG a | and Rem | oval It | Remova | al Items | | XLS | | | | | |
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9. Right-click on the link in LDM and select the popup menu option **Open Source**. The *Summary_of_CG_and_Removal_Items.xlsx* opens in Excel.

| FDO | F Linked Data Manager 1.01.10 | | | — | | × |
|----------|---|----------------|---------------------------|--------------|--------|--------|
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| ID | Source Path | Description | | Туре | Update | Locked |
| 31464 | .\calculations\Summary_of_Pavement.xlsx | Pavement | | XLS | | |
| 32360 | .\calculations\Summary_of_Pavement.xlsx | Pavement | | XLS | | |
| 33242 | .\calculations\Summary_of_Pavement.xlsx | Pavement | | XLS | | |
| 33562 | .\calculations\Summary_of_Lump_Sum_Items.xlsx | Lump Sum Items | | XLS | | |
| 33662 | .\calculations\Summary_of_CG_and_Removal_lt | Removal Items | Open Source Update Now | $\mathbf{>}$ | 6 | |
| :\e\proj | ects\22049555201 | | Fit | | | |
| | | | Lock Data | | | |
| | | | Delete Link | | | |
| | | | Delete Link a | nd Graphi | cs | |
| | | | Properties | | | |
| | | | Add (Create l | .ink) | | |

- 10. In Excel, select the Length and Width columns. Right-click and select Hide.
- 11. Open the file 0110_1_1.csv created in Exercise 5.5.
- 12. Copy the pay item number, pay item description, and units from the CSV and paste VALUES into the first row ONLY for the pay item in the *Summary_of_CG_and_Removal_Items.xlsx*.
 - *Note* Since Clearing & Grubbing has primary units of LS and secondary Units of AC, the CSV file shows the units as AC. Be sure to enter the correct Units (LS) in the Units column of the Summary Box and enter the AC Area values in the Secondary Units column.

Also, FDOT requires summary box data to be UPPERCASE. If the pay item description is copied from the CSV, it will need to be edited to change it to uppercase text.

| | A | В | C | D | E | F | G | J | K | L | M | |
|---|-----------------|----------------------|-----|--------|---------|-------|-------------|--------|----------------------------------|---------|-------|---|
| 1 | | | | | SUMMARY | OF CL | EARING | AND GI | RUBBING & REMOVAL | L ITEMS | | 1 |
| 2 | PAY ITEM NO. | PAY ITEM DESCRIPTION | L | OCAT I | ON | SIDE | AREA I D | UNITS | SECONDARY UNITS (IF LUMP SUM) | QUA | NTITY | Ţ |
| 4 | | | STA | . то : | STA. | | | | AREA (AC) | Р | F | |
| 5 | 0110 1 1 | CLEARING & GRUBBING | | | | | | LS | | | | |
| 6 | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | |

13. Select the values in the CSV for the Begin Station, to, End Station. Right-click and select copy.

| | А | В | С | D | E | F | G | | н | | | J | K | | М | N | 0 |
|----|------|-------|----------|---------------------|----------------------|----|-------------|-------------|--------------|---------------|------|-----|-------|-----------|------|--------------|---------|
| Fo | rm01 | Chain | Pay Item | Description | Begin Station | to | End Station | Sin | le ∆r | ea ID | Len | øth | Width | Units | ∆rea | Design Notes | Remarks |
| | | BL98 | 0110 1 1 | Clearing & Grubbing | 28+00.00 | to | 32+71.89 | Cali | bri 🔹 | 11 | - / | A A | \$ - | % , | 5 | | |
| | | BL98 | 0110 1 1 | Clearing & Grubbing | 28+00.00 | to | 32+92.20 | в | $I \equiv$ | ه. | - A | - | - €.0 | .00 •0 | 9 | | |
| | | BL98 | 0110 1 1 | Clearing & Grubbing | 32+92.20 | to | 39+99.57 | <u>j</u> LT | 23 | 2075 | , — | | | AC | 1.07 | | |
| 5 | | BL98 | 0110 1 1 | Clearing & Grubbing | 33+12.93 | to | 36+39.47 | × | Cut | | | | | C | 0.29 | | |
| 5 | | BL98 | 0110 1 1 | Clearing & Grubbing | 36+60.49 | to | 38+88.72 | | - | | | - | | C | 0.21 | | |
| | | BL98 | 0110 1 1 | Clearing & Grubbing | 39+17.37 | to | 46+11.26 | B | <u>С</u> ору | | | 2 | | C | 0.79 | | |
| | | BL98 | 0110 1 1 | Clearing & Grubbing | 39+91.18 | to | 44+98.16 | B | Paste | Optio | ons: | | | С | 1.15 | | |
| | | BL98 | 0110 1 1 | Clearing & Grubbing | 45+12.43 | to | 46+11.26 | | 1 | | | | | С | 0.22 | | |
| 0 | | SR61 | 0110 1 1 | Clearing & Grubbing | 701+32.00 | to | 704+12.00 | | Paste S | _ | | | | C | 0.87 | | |
| 1 | | SR61 | 0110 1 1 | Clearing & Grubbing | 706+04.27 | to | 706+04.27 | _ | | | | | | С | 3.56 | | |
| 2 | | | | | | | | Ø | Smart | <u>L</u> ooki | цр | | | | | | |
| 1 | | | passan . | and a second | - | | in a second | - | | | | - | | | A.44 | A summer of | |

14. In Summary_of_CG_and_Removal_Items.xlsx click in the cell C5 and select the option to Paste Values.

| | A | В | C | D E | F | G | J | |
|-------------|---------------------------------------|--|--|----------------------|-----------------------|--------|--------|-----------------|
| 1 | | | | SUMMARY | OF CL | EARING | AND GI | RUBBIN |
| 2 3 4 | PAY ITEM NO. | PAY ITEM DESCRIPTION | L FDC STA | | \$ • % • • €.838 ∢ | | UNITS | SECON. (IF L |
| 5 | | CLEARING & GRUBBING | 0 | Quantity Link | • ····· | | LS | |
| 6 | | | ······ | Cut | | | | |
| 7 | | | | Cur | | | | |
| 8 | | | -= | Сору | | | | |
| 9 | | | | Paste Options: | | | | ् र |
| 10 | | | | | s 📜 | | | 1 |
| 11 | | | | Paste <u>special</u> | I ▶ | | | |
| 12 | | | | Smart Lookup | | | | |
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| 14 | · · · · · · · · · · · · · · · · · · · | the second s | and the second sec | Insert Copied Colls | and a | | | |

15. Continue copying and pasting the required values from the CSV file into the summary box template as shown below. Place a value of 1 in the total column since this is a LS pay item.

| | X ✓ fx =SUM(K5:K14)&" TOTAL AC" | _ | _ | _ | _ | _ | _ | | _ | _ | | |
|-----------------|---------------------------------|---------|-----------|---------|-------|------------|--------|----------------------------------|-------|------|-------|-----------------|
| A | В | C | D | E | F | G | J | K | L | М | N 0 | P |
| | | | | SUMMARY | OF CL | EARING | AND GI | RUBBING & REMOVAL | ITEMS | | | |
| PAY ITEM NO. | PAY ITEM DESCRIPTION | L | OCAT I ON | | SIDE | AREA ID | UNITS | SECONDARY UNITS (IF LUMP SUM) | QUAN | ΤΙΤΥ | TOTAL | DESIGN NOTES |
| | | STA | . TO ST | Α. | 1 | | | AREA (AC) | Р | F | P F | |
| 0110 1 1 | CLEARING & GRUBBING | 28+00.0 | 0 to 32- | +71.89 | RT | 252059 | LS | 0.450 | | | 1 | 10.4 TOTAL AC |
| | | 28+00.0 | 0 to 32- | +92.20 | LT | 252065 | | 1.190 | | | | |
| | | 32+92.2 | 0 to 39- | +99.57 | LT | 252079 | | 1.670 | | | | |
| | | 33+12.9 | 3 to 36+ | +39.47 | RT | 252073 | | 0.290 | | | | |
| | | 36+60.4 | 9 to 38+ | +88.72 | RT | 252089 | | 0.210 | | | | |
| | | 39+17.3 | 7 to 464 | +11.26 | RT | 252095 | | 0.790 | | | 1 | |

Note If desired, use a formula in the Design Notes column totaling the number of acres for the Clearing & Grubbing. Ex. =SUM(K5:K14)&" TOTAL AC"

- 16. Open the file *0110_2_2.csv*.
- 17. Type or copy in the Pay Item Number, Pay Item Description, and Units for **0110 2 2**, **Selective Clearing** and Grubbing, Areas with Trees to Remain.
- 18. Copy and paste the required information from the CSV file into the summary box template. Place the area quantities in the Quantity (P) column.
- 19. In the total column, on the first row for the pay item include the formula for the total SY for the pay item. =SUM(L15:L24)

20. Repeat steps 16-19 for 0110_4.csv.

Note Due to the differences in precision required for the different units of measurement, the cell format number of decimal places in the Summary Box will need to be adjusted to the appropriate number of decimal places as indicated in the BOE, Chapter 2.

| A | B | SUMMARY OF CLE | ARING AN | G D GRUB | BING & | REMOVAL ITEMS | L | M | N | 0 | P |
|-----------|---|------------------------|----------|-------------|--------|----------------------------------|-------|------|------|----|-----------------|
| PAY ITEM | PAY ITEM DESCRIPTION | LOCATION | SIDE | AREA ID | UNITS | SECONDARY UNITS (IF LUMP SUM) | QUAN | πΙτγ | тот | AL | DESIGN NOTES |
| NO. | | STA. TO STA. | - | 10 | | AREA (AC) | Р | F | Р | F | Nores |
| 110 1 1 | CLEARING & GRUBBING | 28+00.00 to 32+71.89 | RT | 252059 | LS | 0.450 | | | 1 | | 10.4 TOTAL AC |
| | | 28+00.00 to 32+92.20 | LT | 252065 | | 1.190 | | | | | |
| | | 32+92.20 to 39+99.57 | LT | 252079 | | 1.670 | | | | | |
| | | 33+12.93 to 36+39.47 | RT | 252073 | | 0.290 | | | | | |
| | | 36+60.49 to 38+88.72 | RT | 252089 | | 0.210 | | | | | |
| | | 39+17.37 to 46+11.26 | RT | 252095 | | 0.790 | | | | | |
| | | 39+91.18 to 44+98.16 | LT | 252111 | | 1.150 | | | | | 1 |
| | | 45+12.43 to 46+11.26 | LT | 252104 | | 0.220 | | | | | |
| | | 701+32.00 to 704+12.00 | LT/RT | 252119 | | 0.870 | | | | | |
| | | 706+04.27 to 706+04.27 | RT | 252147 | | 3.560 | | | | | |
| 0110 2 2 | SELECTIVE CLEARING AND GRUBBING. AREAS WITH TREES TO REMAIN | 708+29.80 to 714+75.45 | LT/RT | 252280 | AC | | 1.318 | | 4.25 | | |
| | | 709+24.14 to 710+27.60 | LT/RT | 252331 | | | 0.109 | | | | |
| | | 710+54.23 to 714+12.82 | RT | 252338 | | | 0.161 | | | | |
| | | 714+43.31 to 714+84.11 | RT | 252354 | | | 0.041 | | | | |
| | | 714+94.95 to 717+68.24 | LT/RT | 252270 | | | 0.412 | | | | |
| | | 715+04.95 to 715+34.85 | RT | 252346 | | | 0.029 | | | | |
| | | 715+34.09 to 721+26.85 | RT | 252318 | | | 0.620 | | | | |
| | | 717+64.93 to 726+41.79 | LT | 252361 | | | 0.656 | | | | |
| | | 721+32.53 to 721+86.17 | RT | 252241 | | | 0.070 | | | | |
| | | 721+88.92 to 726+41.79 | RT | 252234 | | | 0.835 | | | | |
| 0110 4 10 | REMOVAL OF EXISTING CONCRETE | 711+01.82 to 711+11.29 | RT | 254589 | SY | | 4.1 | | 34.1 | | |
| | | 711+44.71 to 711+61.75 | RT | 254587 | | | 13.4 | | | | |
| | | 712+09.97 to 712+18.41 | RT | 254585 | | | 4.3 | | | | |
| | | 712+66.31 to 712+75.02 | RT | 254583 | | | 4.2 | | | | |
| | | 713+18.68 to 713+27.29 | RT | 254581 | | | 4.1 | | | | |
| | | 713+74.76 to 713+83.07 | RT | 254579 | | | 4.0 | | | | |
| | | | - | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | : 1 | | | | | | _ |

- 21. Delete or Hide rows 31 54.
- 22. Save the file Summary_of_Removal_Items.xlsx.
- 23. In MicroStation, select the link in LDM. Right-click and select Update Now.
- 24. Review the results in MicroStation.
 - *Note* If word wrapping occurs, Open Source, adjust column widths, save and Update Now until the text fits in the column and Summary Box fits within the sheet border. If necessary, the Pay Item Description can be split into two lines.

HELPFUL INFORMATION

- ♦ MicroStation commands will modify the elements drawn by LDM.
 - This is a ONE-WAY process. Make changes within LDM to the Source Excel File and then use the Update Now (right-click) option in LDM to update the design file. Changes made *with* MicroStation tools CANNOT update automatically to the Source Excel File within LDM.
 - Move Summary Boxes or Text linked in with LDM with MicroStation commands and LDM WILL remember the data and location.
- Control formatting for FDOT Summary Boxes through the Excel Template Files created and delivered in the FDOT CADD software, NOT within MicroStation. Use LDM to access those Excel Template Files to populate and make modifications.
 - Within the FDOT Summary Box Excel templates, columns and rows may be adjusted or hidden with changes reflected in MicroStation when updating links.
 - Within the FDOT Summary Box Excel templates, delete any column when not used.

EXCEPTION: DO NOT delete the "Construction Remarks" or "F" columns.

- DO NOT add columns for additional information, i.e. Sheet Number. The Summary Box format is defined in the BOE and should not be modified. Contact Kandi Daffin or Melissa Hollis if there is justification for modifications to the forms.
- Most of the FDOT Summary Box Excel templates have been set up to fit on a Plan sheet.

DO NOT add rows. Copy the Worksheet as needed to create additional Summary Box Worksheets.

- * FDOT requires only one Source Excel File for each Summary Box type in FDOT Plans.
- Use Quantity Manager CSV Reports to help populate the Summary Boxes not automated. Be sure to *Paste* using *Values* only to preserve the cell formatting in Excel.
- Expect to encounter Word wrapping when placing the Summary Box in MicroStation even though the text displays on a single line in Excel. This is due in part because of a variable for a buffer in LDM that keeps the text from overlapping the column lines when placed in MicroStation. Make additional adjustments to the column widths in Excel as needed.
- ✤ As shown in the example shown below, the Pay Item No, Description, Unit and Quantity Total is shown only on the **first** line for each Pay Item.

| A A | В | С | D | E | F | G | J | К | L | M | N | 0 | P |
|---------------------|---|----------|------|----------|----------------------|--------|-------|----------------------------------|-----------|-------|-------|---|--|
| 1 | SUMMARY OF CLEARING AND GRUBBING & REMOVAL ITEMS | | | | | | | | | | | | |
| 2 PAY ITEM 3 NO. | | | | LOCATION | | | UNITS | SECONDARY UNITS (IF LUMP SUM) | QUANT ITY | | TOTAL | | DESIGN NOTES |
| 4 | | STA. | TO S | STA. | 1 | | | AREA (AC) | Р | F | Ρ | F | |
| 5 0110 1 1 | CLEARING & GRUBBING | 28+00.00 | to 3 | 82+71.89 | RT | 252059 | LS | 0.450 | | | | 1 | 10.4 TOTAL AC |
| 6 | | 28+00.00 | to 3 | 32+92.20 | LT | 252065 | | 1.190 | | | | | |
| 7 | | 32+92.20 | to 3 | 89+99.57 | LT | 252079 | | 1.670 | | | | | |
| | and the parameters of the second s | 23+12 | | 6+3947 | In the second second | -07 | | | | Allon | | | and an and a second sec |

- Place all Summary Boxes with quantities on the designated Summary of Quantities sheets, not scattered within other areas of the Plans, i.e. Traffic Control Plan items, Earthwork, Bridge sheets, etc.
 - Place Summary Boxes in the Summary of Quantities sheets as close as possible to *numerical order*.
 See *Chapter 8* of the *Basis of Estimates Manual* posted on the Estimates website.
- If backup information for the quantity is in the GEOPAK GPK file, FDOT requires NO Printout.
- (Optional) Include Formulas in the Summary Boxes in the Design Notes column, if desired.
 - Formulas or Notes can be stored in the Back Up spreadsheet available in each of the Summary Box Excel files.

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7 SUMMARY OF PAY ITEMS WORKFLOW

OBJECTIVES

- Review the workflow for generating the Summary of Pay Items for Plans
- Export data from Quantity Manager
- Import to Designer Interface
- Generate Summary of Pay Items report from AASHTOWare Project Webgate Reporting
- Create Summary of Pay Items sheets using FDOT TRNS*port tool

SUMMARY OF PAY ITEMS WORKFLOW

The Summary of Pay Items sheet is a required sheet in the plans. It contains the output from AASHTOWare Project Preconstruction (PrP) of all the pay items and quantities loaded for the project.

To get the quantity information to PrP, an XML file generated from the Quantity Manager Export function imports the quantities to Designer Interface. The Designer Interface is a user-friendly interface to PrP. Additional quantities can be manually added, modified and deleted using Designer Interface.

Once the quantities are loaded, access AASHTOWare Project Webgate Reporting to generate the Summary of Pay Items Report. This report for CADD is an XML file used by the FDOT TRNS*port tool to create Summary of Pay Item sheets.

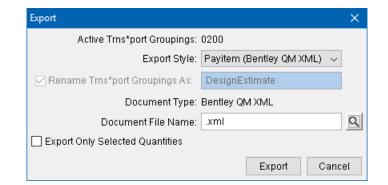
EXPORT

Quantity Manager includes a utility that facilitates exporting various database information. The format of this information is in .XML format that Designer Interface can import.

ACCESSING EXPORT

From the Quantity Manager menu, select **Project** > **Export** > **Export**. Export dialog displays.

| | Quantity Manager - C:\e\projects\22049555201\roadway\22049555 | 201AQT.mdb | | |
|----------|---|----------------|--------------|-----|
| Proj | ect Edit View Insert Tools Help | | | |
| D | New | pupings : 0200 |) | |
| 6 | Open | | | Lo |
| | Close | | Category | P |
| | New Trns*port Groupings | | | 1 |
| | Import > | | | _ 1 |
| | Export > | Export | N | 1 |
| | Merge Database | Define Sty | vles 😡 | H |
| | Properties | VDOT Trn | s*prt Format | B |
| | Preferences | | | 1 |
| | C:\e\projects\22049555201\roadway\22049555201AQT.mdb | | | |
| | Exit | | | |



Active Trns*port Groupings Only a single Trns*port Grouping may be exported at one time. If All Trns*port Groupings are selected, the Export icon is disabled.

| Export Style | • Pay item (Bentley QM XML) | | | | | |
|------------------------------------|---|--|--|--|--|--|
| | • Pay item + Funding (Bentley QM XML) | | | | | |
| | • Pay item + Quantity (Bentley QM XML 2) | | | | | |
| | • Pay item + Quantity (Bentley QM XML) | | | | | |
| | • Pay item + Quantity + Element (Bentley QM XML) | | | | | |
| | • Pay item + Quantity + Element Sorted (Bentley QM XML) | | | | | |
| | • Pay item + Quantity Sorted (Bentley QM XML) | | | | | |
| | • aecXML | | | | | |
| | • aecXML + Funding (This is the option used for FDOT projects.) | | | | | |
| Rename Trns*port Groupings As | This option renames the XML tag "costType". For FDOT projects, toggle this option on and set to DesignEstimate. It does not change the Trns*port Grouping (GroupId tag) value set for the quantity. | | | | | |
| Document Type | aecXML Infrastructure v33 is the standard schema used for creating custom reports. | | | | | |
| Document File Name | The file name including directory path to which the report will export. If the directory path is not defined, the file will be saved to the working directory. | | | | | |
| Export Only Selected Quantities | Option to export only selected pay items/quantities into the report. | | | | | |

Only the items *displayed* in the Quantity Manager Pay Item Quantity pane export. The Quantity Manager Export XML file is used for the Designer Interface "import" option which will add/update the Pay Items, their Quantities and add Project Categories into AASHTOWare Project Preconstruction.

EXPORTING DATA TO XML FILE

> To export quantity data from Quantity Manager.

- 1. Set the Trns*port Groupings to the desired group.
- 2. In the Quantity Manager Pay Item Table pane, select the root folder and expand all the categories. Use CTL+A to select all the pay items. Only the Pay Items included in the active Trns*port Grouping will be exported.

| Quantity Manager - C:\e\projects\22049555201\roadway\22049555201AQT.mdb | | |
|---|----------|---------|
| Project Edit View Insert Tools Help | | |
| 🗅 🖻 🖻 🖪 🗐 🔚 🖛 🖬 Trns*port Groupings : 0200 | | ~ |
| Payitem Tree Payitem Table Expand Tree | Category | Payitem |
| Contemporal Clearing&Grubbing | | 3 |
| Off D D D D D D D D D D D D D D D D | | |

- 3. From the Quantity Manager menu, select **Project** > **Export** > **Export**. Export displays.
- 4. In the *Export Style* box, select **aecXML** + **Funding.**
- 5. Check **On** the *Rename Trns*port Groupings As* box and enter **DesignEstimate**.
- 6. In the *Document File Name*, enter quantity.xml.

| Export | × |
|----------------------------------|---------------------------|
| Active Trns*port Groupings: | 0200 |
| Export Style: | aecXML + Funding 🛛 🗸 🗸 |
| 🗹 Rename Trns*port Groupings As: | DesignEstimate |
| Document Type: | aecXML Infrastructure v33 |
| Document File Name: | quantity.xml |
| Export Only Selected Quantities | |
| | Export Cancel |

- 7. Click the **Export** button.
- 8. An Information dialog displays. This is normal and not an error. Click **OK**. Another Information dialog then displays with the export completed successfully message. Click **OK**.

| Informat | tion X | Informat | ion | \times |
|----------|--|----------|--------------------------------|----------|
| 1 | Some information in the Project Properties dialog is missing. This information is needed by Trnsport. | i | Export completed successfully. | |
| | ОК | | ОК | |

9. Navigate to the *Quantity.xml* file just created and review.

```
</Cust>
   </PayItem>

    <PayItem>

    <PayItemID>

          <ID>0110 4 10</ID>
      </PayItemID>
      <SpecBookVersion>13</SpecBookVersion>
      <PayItemDescription>Removal of Existing Concrete</PayItemDescription>
      <UnitOfMeasure units="SY"/>
       <LumpSum>false</LumpSum>
      <SupplementalDescriptionRequired>false</SupplementalDescriptionRequired>
      <GroupId>0200</GroupId>

    <Cost costType="DesignEstimate">

          <UnitPrice>0.0</UnitPrice>
          <Quantity>34.1</Quantity>
      </Cost>
   </PayItem>

    <PayItem>

    <PavItemID>

          <ID>0286 1</ID>
      </PayItemID>
      <SpecBookVersion>13</SpecBookVersion>
       <PayItemDescription>Turnout Construction</PayItemDescription>
      <UnitOfMeasure units="SY"/
      <LumpSum>false</LumpSum>
      <SupplementalDescriptionRequired>false</SupplementalDescriptionRequired>
      <GroupId>0200</GroupId>
      <Cost costType="DesignEstimate">
          <UnitPrice>0.0</UnitPrice>
          <Quantity>728.1</Quantity>
      </Cost>
   </PayItem>

    <PayItem>

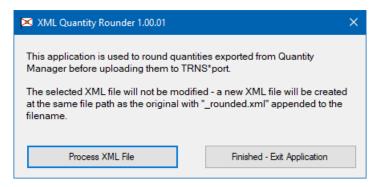
    <PayItemID>

          <ID>0285706</ID>
      </PayItemID>
      <SpecBookVersion>13</SpecBookVersion>
      <PayItemDescription>Optional Base, Base Group 06</PayItemDescription>
      <UnitOfMeasure units="SY"/>
       <LumpSum>false</LumpSum>
      <SupplementalDescriptionRequired>false</SupplementalDescriptionRequired>
      <GroupId>0200</GroupId>
      <Cost costType="DesignEstimate">
          <UnitPrice>0.0</UnitPrice>
          <Quantity>20352.5</Quantity>
      </Cost>
   </PayItem>
Pavitem>
                                                 the part of the second second
                                  and the second second
                                                                             40.
```

- *Note* The rounding for the pay items are to 1 decimal place farther than the unit requirements in the BOE. (See Chapter 2 of the BOE.) FDOT has developed the XML Quantity Rounder tool to round the values in the xml exported by Quantity Manager to the correct decimal place for importing in Designer Interface. Incorrect accuracy generates errors when importing.
 - 10. Close the XML file.
 - 11. On the FDOT Plans Development > Quantities Tasks menu, select Quantity Rounder.



12. On the XML Quantity Rounder tool, click on **Process XML File**.



- 13. Navigate to the *quantity.xml* file and select **Open**.
- 14. An Information alert pops up when the process is finished. Click OK.
- 15. Click on **Finished Exit Application** to close XML Quantity Rounder tool.
- 16. Open the new file, *quantity_rounded.xml*, and review.



IMPORT QUANTITIES IN DESIGNER INTERFACE

This process imports the XML file saved from the Quantity Manager *Export* function and processed through the XML Quantity Rounder. The XML file should contain the Project Pay Items, Quantities and the Project Categories to which the Pay Items apply.

Note Update/Import will only occur if no errors exist in the XML file.

> To Import Quantities in Designer Interface

- 1. Select appropriate **Project Number** from *Designer Interface* for the same Project you performed the Quantity Manager Export function.
- 2. Click the **IMPORT** link.

| FD | | | Designer Interfa | ACE Web T | rns*port | Precons | struction | | |
|-----------|---------------------------|---------------|--------------------------|---------------------|----------------|-------------|-------------|----------|------|
| | | | Logged in as: ps972kd | i [Logout] | | Webgat | e Reporting | Home | Help |
| Project L | .ist | | | | | | | | |
| Project S | Project Number | aecXML Proc | Description | Letting Date | Unit Sys | Proposal | District | Designer | |
| Update | 000000000000 | Export Header | CADD office testing only | | English | T8888 | 05 | | ^ |
| | and the sum in the second | Lick and an | want of | and a second second | and the second | Martin Same | | an sere | |

3. Click the **Select files...** icon to browse to and select the *quantity_rounded.xml* file saved from the XML Quantity Rounder tool.

| FDOT | Designer Interface Web Trns*port Preconstruction | | | | | | | | | |
|--|--|------------------------|------|------|--|--|--|--|--|--|
| | Logged in as: ps972kd [Logou | t] Webgate Reporting | Home | Help | | | | | | |
| Project List >> Project Details - 000 | 0000000000 >> Import XML | | | | | | | | | |
| Only upload XML files generated by Quantity Manager. | | | | | | | | | | |
| # quantity_rounded.xml | | | | × | | | | | | |
| | Upload file Cancel | | | | | | | | | |
| Contact the Servi | ce Desk | Web Policies & Notices | | | | | | | | |

- 4. Click the **UPLOAD file** button to process the XML file.
- 5. Other updates may be required using Designer Interface once the Pay Items and Quantities import (i.e. mark item non-participating, structure info ...)

6. If errors exist, a Data Validation Error page will show (red highlighted title below) listing all errors in the XML file. It is required to correct all errors in Quantity Manager, re-export, re-process and then re-import into Designer Interface before applying any updates/additions to the Designer Interface database. There are Error Number links to Help Messages to assist in error corrections.

| FDC | | gged in as: ps972kd [Logout] | Webgate Reporting Ho | ome Help |
|--------------------------|---|--|---|----------------------------|
| Project Lis | st >> Project Details | - Project Details >> Import X | ML | |
| | | | | |
| Only upload XML fi | iles generated by Quantity Manag | jer. | | |
| Select files | | | | |
| | | | | |
| | | | Data | Velidetien II. |
| Tree | late | Data Validation Errors | Data \ | Validation He |
| Туре | Info | Data Validation Errors | Data \ | Validation He |
| Туре | Info Project: | Data Validation Errors Invalid category number. Must be numer | | Validation He |
| Туре | | | ic (E16) | |
| | Project: | Invalid category number. Must be numer | ic (E16) roup code value to the correct number i | range |
| | Project: Category: DesignEstimate | Invalid category number. Must be numer Go to Quantity Manager and change PES G | ic (E16) roup code value to the correct number rma (0100-0199 Structures, 0200-0299 | range Roadway, |
| Type Project Category | Project: Category: DesignEstimate Item: | Invalid category number. Must be numer Go to Quantity Manager and change PES G according to the PES category number sche | ic (E16) iroup code value to the correct number ma (0100-0199 Structures, 0200-0299 00-0549 Signalization, 0550-0599 Intelli | range Roadway, igent |

- *Note* If there is a Trns*port Grouping in Quantity Manager for DesignEstimate, this will cause the error shown above. This Trns*port Grouping must be deleted from Quantity Manager before exporting the quantities. Go to the Pay Item Table view of the Pay Item pane. Select the Trns*port Grouping DesignEstimate. You must correct any quantities that are associated with this grouping before it can be deleted. Highlight the pay items (one at a time) and then select all the quantities in the Quantities pane. Right-click, select edit, and correct the Trns*port Grouping value. Repeat this process for all the pay items with quantities under DesignEstimate. Once they are all corrected, go to the menu Edit > Trns*port Groupings. Select DesignEstimate from the list and select Delete. Re-export the XML file, process the Quantity Rounder tool and import the new file into DesignEr Interface.
 - 7. If no errors exist, you will get a *Project Load Log Message* page (green highlighted title below), listing all updates or inserts performed in Designer Interface for the project.

| FDOT | Designer Interfac | e Web Trns*port Preconstru | ction | |
|--|---|------------------------------|--------------|------|
| | Logged in as: ps972kd [L | ogout] Webgate Rep | porting Home | Help |
| Project List >> Pro Only upload XML files generated Select files | ject Details - Project Details by Quantity Manager. | s >> Import XML | | |
| | Project Load Log | Messages | | |
| | Data validation successful. | Project successfully loaded. | | |
| INSERT Project Item | Project: 000000000000 Category: 0200 Item: 0110 2 2 Quantity: 04.300 | | | ^ |
| INSERT Project Item | Project: 000000000000 Category: 0200 | ورور المستعون المست | - | - |

Open Web Gate

GENERATE REPORTS

Once the pay items and quantities are loaded, either through the import process or manually in Designer Interface, the next step is to run the *Project Edit* and *Summary of Pay Items* reports from AASHTOWare Project Webgate Reporting.

ACCESS AASHTOWARE PROJECT WEBGATE REPORTING

Access the AASHTOWare Project Webgate Reporting through the Web Gate site which is opened from the FDOT Menu option: Actions > AASHTOWare Project Preconstruction (TRNS*port) > Web Gate Website <OR> from the Open Web Gate icon on the FDOT Plans Development > Quantities Tasks menu.

| Standard | CellApps | Act | tions | Design Apps | Roadway | ☆ ♥ ■] | P | 0 | | |
|----------|----------|---------|-------|--------------------|---------------|--------------------|----------|---|--------------------|----|
| | | 0 | Crea | ate Files | | | | | | |
| | | | Set | Geographic Coo | rdinate Syste | em | | | | |
| | | \odot | Set | Plot Scale of File | • | | | | | |
| | | \odot | Tun | n Level Filters Or | n | | | | | |
| | | 0 | Tun | n Level Filters Of | f | | | | | |
| | | 0 | Adł | hoc Manager | | | | | | |
| | | 0 | She | ets | | | • | | | |
| | | 0 | She | et Navigator (La | bel Sheets) | | | | | |
| | | 0 | RfC | lip (Sheet Clippir | ng) | | | | | |
| | | 0 | Lab | el Shapes with II |) | | | | | |
| | | 0 | Lab | el Shapes with A | rea | | | | | |
| | | 0 | Link | ked Data Manag | er (LDM) | | | | | |
| | | 0 | AAS | SHTOWare Proje | ct Preconstru | uction (TRNS*port) | • | | AECITEM.xml Downlo | ad |
| | | 0 | Qua | ality Control | | | • | | Web Gate Website | |
| | | | - | | | | | | FDOT TRNS*port | 43 |
| | | | | | | | | | Quantity Rounder | |
| | - | | | | | | | | | |
| | | | Qua | antities | | | ^ | | | |
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On the Web Gate page, select the link AASHTOWare Project Webgate Reporting Login.

| Note | To login. | an FDOT | RACF | User | ID is | required. |
|-------|------------|---------|--------|------|-------|-----------|
| 11000 | ro iogini, | | 10.001 | 0001 | 10 10 | roquirou |

| FDOT | Florida Department of E-Updates FL511 Mobile Site Map TRANSPORTATION Search FDOT | | | | | | | |
|---------------------------------|--|--|--|--|--|--|--|--|
| | Home About FDOT Contact Us Offices Maps & Data Performance Projects | | | | | | | |
| Select a link below to access | Department of Transportation resources, some applications will require additional security | | | | | | | |
| AASHTOWare Project Web Interfac | 'S | | | | | | | |
| | Bid Letting Entry | | | | | | | |
| | Bid Letting Results | | | | | | | |
| | Designer Interface | | | | | | | |
| | AASHTOWare Project Webgate Reporting Login) FM Project Interface, Vendor Interface) | | | | | | | |
| | AASHTOWare Project Preconstruction Application | | | | | | | |
| ی جو ای سنوسی ا | and the second | | | | | | | |

GENERATE SUMMARY OF PAY ITEMS REPORT

Many reports are available within Webgate Reporting. There are two reports important for designer to run for this process:

Project Edit Report, found under Designers, Estimators, and Reviewers, identifies any errors with the pay items loaded on the project. It also identifies pay items that require extra documentation such as a Technical Special Provision (TSP).

| FDOT | Florida Department of Transportation | Session Time remaining: 00:19:27 |
|---|--|--|
| | AASHTOWare Project Webgate Reporting | Kandi Daffin <u>Help</u> <u>Logout</u> |
| | Project Edit Report | |
| Construction Sitemanager Designers, Estimators, and Reviewers | This report performs edits on the item records and will print a listing of any errors encou Project number. Project number is a required input parameter. | untered. The selection criteria will be |
| Compbook Master Payitem Extract Historical Bid Item | Select/Enter Parameter Information: Required fields marked with asterisk(*) | |
| Project Edit Report Equal Opportunity | *Project Number: 00000000000 V | |
| General Reports Landscape Reports | + ‡+ | |
| Maintenance Sitemanager | | |
| and the second second | and all and a second and a second | and proved a second of a |

Summary of Pay Items, found under General Reports, is used by CADD to generate the Summary of Pay Items sheet.

| | FDOT | Florida Department of Transportation Session Time remaining: 00:18:41 |
|--------|---|--|
| | | AASHTOWare Project Webgate Reporting Kandi Daffin Help Logout |
| | | Summary of Pay Items |
|)) | Construction Sitemanager Designers, Estimators, and Reviewers | This report produces a summary of pay items and quantities for a selected project. If proposal exist the report will be of the proposal level, if no proposal the report will be of the proejct level. Either level, project or proposal, may be used for phase reviews; the proposal summary must be used for final plans. Identifies the participating and non-participating quantity for each |
| بخ | Equal Opportunity General Reports | pay item. Use the button "Auto-Generate Proposal Sections" to assign proposal section numbers and proposal item line numbers if some items are not ordered correctly in report or XML file. |
| | Item Average Unit Cost by Item Number Report | Click to view video for the CADD Workflow for Quantities with Designer Interface. Note: Scroll to the bottom of the table of contents for how to create the Summary of Pay Items Sheets. |
| | Item Average Unit Cost by Item Range Report | |
| | Contract Project Directory Report | Select/Enter Parameter Information: Required fields marked with asterisk(*) |
| | Crosswalk Report | |
| | Master PayItem List Report | |
| | Proposal Section and Line Numbers Report | |
| , | Summary of Pay Items Report Landscape Reports | Select Project: 00000000000 V Auto-Generate Proposal Sections |
| • | Maintenance Sitemanager | |
| | | Report Type: CADD File |
| | James Consumer | the horizon of a series and a series of a series of a series of the seri |

Generate the Summary of Pay Items Report

- 1. Select the *Project* from the drop-down list.
- 2. Click on the **Auto-Generate Proposal Sections**. (This process regenerates the section and line numbers for the proposal. It corrects any errors that may result from adding/updating/deleting any pay items or quantities for the project.)
- 3. Select the *Report Type* CADD File to generate the XML file needed in the CADD Software.

| Construction Sitemanager Designers, Estimators, and Reviewers Equal Opportunity General Reports Item Number Report Item Average Unit Cost by Item Average | enerate Proposal Sections" to assign propo | project or proposal, may be used for phase cipating and non-participating quantity for each ssal section numbers and proposal item line |
|---|---|---|
| Construction Sitemanager Designers, Estimators, and Reviewers Equal Opportunity General Reports Item Average Unit Cost by Contract Project Directory Conswalk Report Master PayItem List Report Summary of Pay Items Report Select Project: [0000000000 | I pay items and quantities for a selected proj port will be of the proejct level. Either level, ist be used for final plans. Identifies the parti nerate Proposal Sections" to assign propo ered correctly in report or XML file. | project or proposal, may be used for phase cipating and non-participating quantity for each ssal section numbers and proposal item line |
| Designers, Estimators, and Reviewers Equal Opportunity General Reports Item Average Unit Cost by Item Average Unit Cost by Contract Project Directory Report Select/Enter Parameter Informati Summary of Pay Items Report Select Project: 0000000000 | port will be of the proejct level. Either level, j ist be used for final plans. Identifies the partit nerrate Proposal Sections' to assign propo ered correctly in report or XML file. | project or proposal, may be used for phase cipating and non-participating quantity for each ssal section numbers and proposal item line |
| Designers, Estimators, and Reviewers Equal Opportunity General Reports Item Average Unit Cost by Item Average Unit Cost by Contract Project Directory Report Select/Enter Parameter Informati Select Project: 0000000000 | port will be of the proejct level. Either level, j ist be used for final plans. Identifies the partit nerrate Proposal Sections' to assign propo ered correctly in report or XML file. | project or proposal, may be used for phase cipating and non-participating quantity for each ssal section numbers and proposal item line |
| Equal Opportunity General Reports Item Average Unit Cost by Contract Project Directory Conswalk Report Master PayItem List Report Proposal Section and Line Numbers Report Summary of Pay Items Report Select Project: [000000000 | enerate Proposal Sections" to assign propo ered correctly in report or XML file. | ssal section numbers and proposal item line |
| Item Average Unit Cost by Item Number Report Item Average Unit Cost by Item Range Report Contract Project Directory Crosswalk Report Master Payttem List Report Proposal Section and Line Numbers Report Summary of Pay Items Report Select Project: 000000000 | /orkflow for Quantities with Designer Interfac | |
| Item Number Report Item Average Unit Cost by Item Range Report Contract Project Directory Report Consawalk Report Master Paytem List Report Proposal Section and Line Numbers Report Summary of Pay Items Report Select Project: 000000000 | | |
| Item Average Unit Cost by Item Range Report Contract Project Directory Report Crosswalk Report Proposal Section and Line Numbers Report Summary of Pay Items Report Select Project: 000000000 | de of contents for now to create the Salimital | |
| Report Crosswalk Report Master Payltem List Report Proposal Section and Line Numbers Report Summary of Pay Items Report Select Project: 000000000 | | , , |
| Master Payltem List Report Proposal Section and Line Numbers Report Summary of Pay Items Report Select Project: 000000000 | on: Required fields marked with asterisk(|) |
| Proposal Section and Line Numbers Report Summary of Pay Items Report Select Project: 000000000 | | |
| Numbers Report Summary of Pay Items Report Select Project: 0000000000 | | |
| Report Select Project: 000000000 | | |
| Landscane Reports | 000 V Auto-Generate Proposal Sec | tions |
| - considerate | | |
| Maintenance Sitemanager | | |
| Re | oort Type: Report File CADD File | |

- 4. Click Submit.
- 5. When the option pops up at the bottom of the page, click on the drop-down and select **Save As**. (This may take some time depending on the size of the project and the internet connection speed.)

| Do you want to save T8888.xml from fdotwp1.dot.state.fl.us? | Save Cancel | × |
|---|---------------|---|
| | Save | |
| | Save as | |
| | Save and open | L |

- 6. Save the XML file to the project directory.
- 7. Logout of the AASHTOWare Project Webgate Reporting site.

CREATE THE SUMMARY OF PAY ITEMS SHEET

FDOT has an application, FDOT TRNS*port, that will import the data from the Summary of Pay Items Report XML file to create the Summary of Pay Items sheet(s) that are required with the lead component of the project.

To access the FDOT TRNS*port tool, on the FDOT Menu select Actions > AASHTOWare Project Preconstruction (TRNS*port) > FDOT TRNS*port <OR> click on the Import Pay Item Summaries icon on the **FDOT Plans Development > Quantities** Tasks menu.

| Standard | CellApps | Acti | ions | Design Apps Roadway 🏠 🔗 📄 🚺 🔮 | 0 | |
|----------|----------|------------|------|---|--------|----------------------|
| | | \bigcirc | Crea | te Files | | |
| | | | Set | Geographic Coordinate System | ι. | |
| | | \bigcirc | Set | Plot Scale of File | ι. | |
| | | \odot | Turr | Level Filters On | ι. | |
| | | \bigcirc | Turr | Level Filters Off | ι. | |
| | | \odot | Adh | oc Manager | | |
| | | \bigcirc | She | ets 🔹 | ι. | |
| | | \bigcirc | She | et Navigator (Label Sheets) | ι. | |
| | | \odot | RfCl | ip (Sheet Clipping) | ι. | |
| | | \odot | Lab | el Shapes with ID | | |
| | | \bigcirc | Lab | el Shapes with Area | ι. | |
| | | \bigcirc | Link | ed Data Manager (LDM) | | |
| | | 0 | AAS | HTOWare Project Preconstruction (TRNS*port) | | AECITEM.xml Download |
| | | \bigcirc | Qua | lity Control | | Web Gate Website |
| | | | | | | FDOT TRNS*port |
| | | | | | | Quantity Rounder |
| | | | | | | |
| | Qua | ntiti | es | | | |
| | Q 🔮 | ð | é, | 🖌 🖉 ズ 🕁 🎕 🛃 | ay Ite | em Summaries |

- Create the Summary of Pay Items Sheet
 - 1. On the FDOT Menu, select Actions > Create File to open the Create File tool.
 - 2. In the *ROADWAY* > *Roadway Files* file group, select the **Summary of Pay Items Sheets**. Verify the Project and Output settings are correct, then click **Create-Open File**.

| 🦻 Create Fi | le (v 2.0) | | \times | | | |
|-------------|-----------------|--|------------|--|--|--|
| Project: | C:\e\projects | √22049555201 ~ Selec | ct Project | | | |
| Discipline: | ROADWAY | ~ | | | | |
| File Group: | Roadway Files | s v | | | | |
| File Type: | | | | | | |
| Bas | se Filename | Description | ^ | | | |
| INT | DRD | Intersection-Interchange Details | | | | |
| MIT | GRD | Mitigation Areas | | | | |
| TEX | TRD | Text Labels and Miscellaneous Descriptions | | | | |
| CSI | NRD | Concrete Slab Inventory | | | | |
| ► CES | SRD | Summary of Pay Item Sheets | | | | |
| SUN | MQRD | Summary of Quantities Sheets | | | | |
| TCG | INRD | Traffic Control General Note Sheets | | | | |
| SBV | /HRD | Summary of Verified Utilities 2D | | | | |
| BDF | PRD | Border Sheet Reference File for Plan and Profile Sheet | | | | |
| BDF | PRRD | Border Sheet Reference File for Profile Sheet | | | | |
| PLP | RRD | Plan and Profile Sheets | | | | |
| Output File | Base Filename | File e: Modifier (Optional) Sequence #: Extens 01 .dgn | sion: | | | |
| Output File | C:\e\projects\2 | 22049555201\roadway\CESSRD01.dgn | | | | |
| Output Fol | der: roadway | Br | owse | | | |
| Seed File : | fdotseed2 | 2d.dgn Brows | | | | |
| County: | Wakulla | Coordinate System: FL83-NF ~ | | | | |
| Action: | mdl I plots | cale;plotscale set | | | | |
| | | Create - Open File | lose | | | |

3. Set the *Plot Scale* to **1.0** on the Set/Update Plot Scale dialog box.

| 🞬 Set/Update Plot Scale 🛛 🗙 | | | | | | |
|-----------------------------|--|--|--|--|--|--|
| Scale: 1.0000 | | | | | | |
| Units: English 🔻 | | | | | | |
| Process File List | | | | | | |
| File List: | | | | | | |
| OK Cancel | | | | | | |

- 4. Click **Close** to close Create File dialog box.
- 5. Open the FDOT TRNS*port tool (Import Pay Item Summaries).



- 6. Click **Browse** to select the report *XML* file generated from the Webgate Reporting site.
- 7. Toggle **On** Label Sheet.
- 8. Complete the information. (By default, the fields *Sheet Title*: **Summary of Pay Items**, and *Number*: **2**, are populated.)

| FDOT TRNS*port 3.00.20 | - | |
|--|---|--------|
| Input File: C:\e\projects\22049555201\voadway\T8888.xml County: VOLUSIA ~ Financial Number: 000000-0-00-00 ~ | | Browse |
| C Label Sheet Road Number: Line 1: SUMMARY OF PAY ITEMS Sheet Title: Line 2: Sheet Number Prefix: Number: 2 | | |
| Load Summary of Pay Items | | .:: |

9. Click Load Summary of Pay Items.

Note If the Load Summary of Pay Items button does not appear on the dialog box, click on the bottom right corner of the dialog to re-size it.

10. Finished loading Pay Items displays. Click OK.

| FDOT TRNS*port | × |
|----------------------------|---|
| Finished loading Pay Items | |
| ОК | |

- 11. Fit view in the MicroStation CESSRD01.dgn file to view the Summary of Pay Items tables.
- 12. Save settings. Close MicroStation.