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FDOT Automated Quantities (Part 1)

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Objective

Explore the workflow for developing and recording/managing quantities for FDOT projects using tools and resources in the FDOTSS4 workspace for MicroStation/GEOPAK or PowerGEOPAK.

- FDOT Standards/Resources
- Overview Automated Quantities Workflow
- Calculate Quantities with D&C Manager
- Export to Quantity Manager Database
- Label Areas
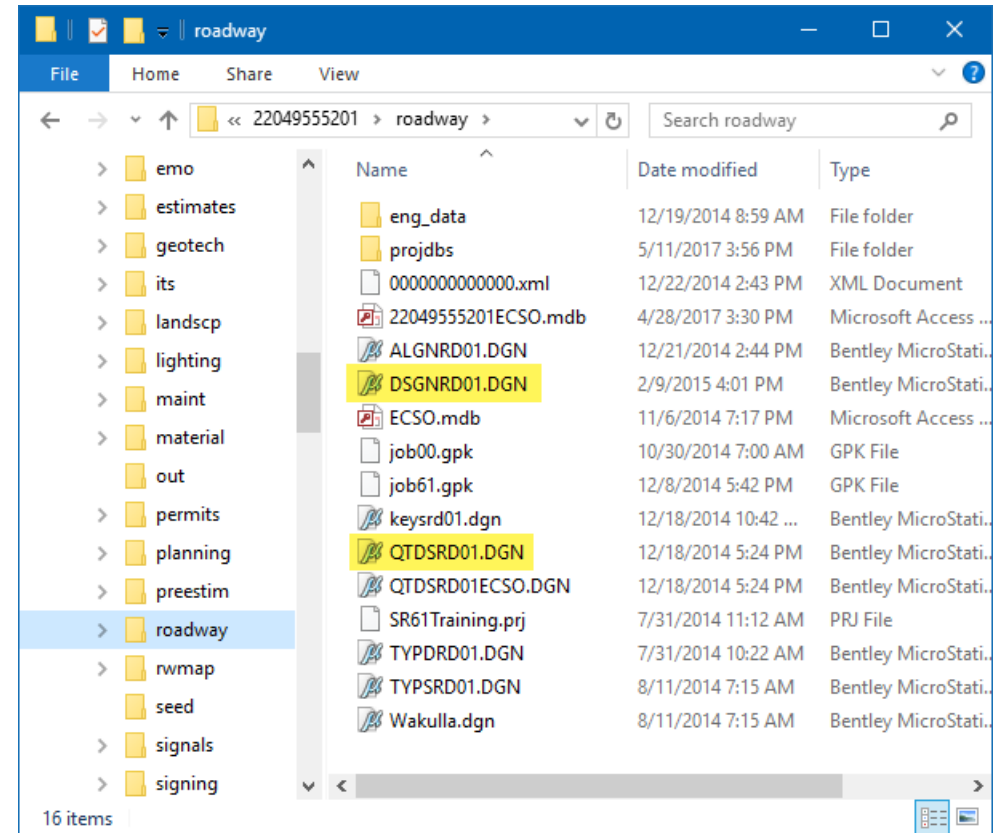- Add Quantities in Quantity Manager

FDOT Standards

- Specifications
- Design Standards
- Basis of Estimates Manual
  - Master Pay Item List
  - Pay Item Computation Methods
  - Chapter 8, Plan Summary Boxes
- Plans Preparation Manual / Florida Design Manual
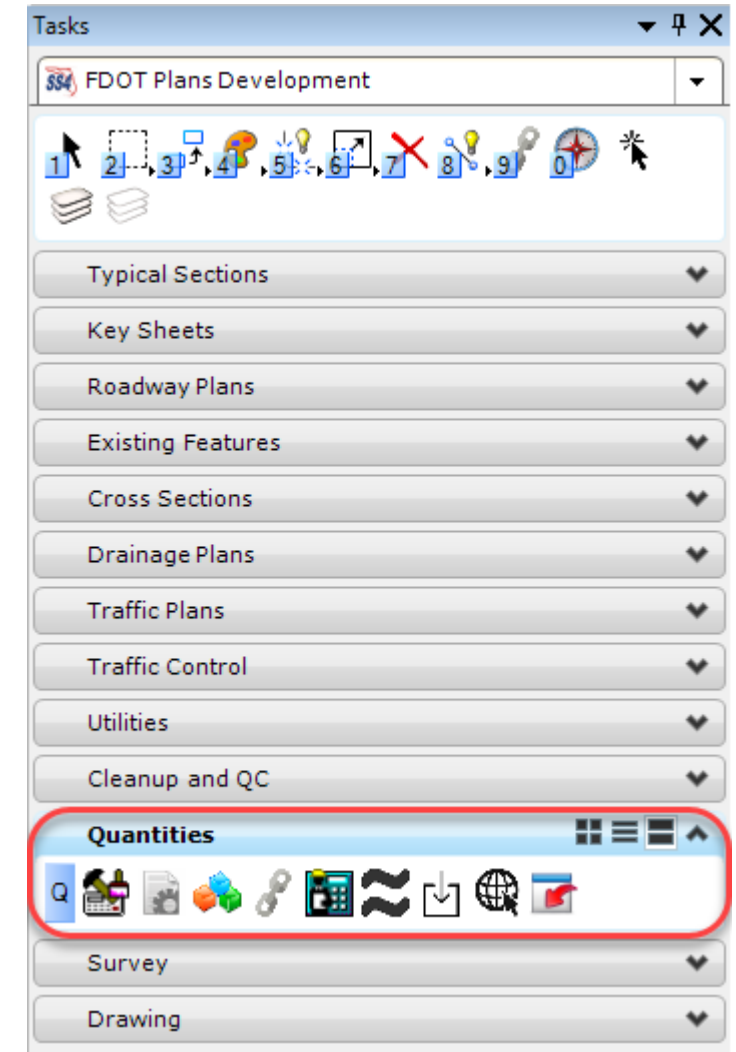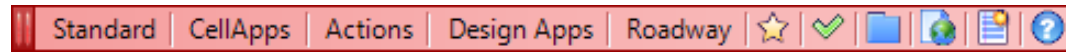- CADD Manual

CADD Standards

- Files

  - DSGN**

    - Linear and Each items

  - QTDSRD**

    - Area/Tonnage/Cubic Yard items

- Quantity Design Files are to be located in the appropriate Discipline directory of the project. This also applies to the Quantity Manager *.mdb file.

- Create with the Create File/Project tool to insure correct locations and seed files.
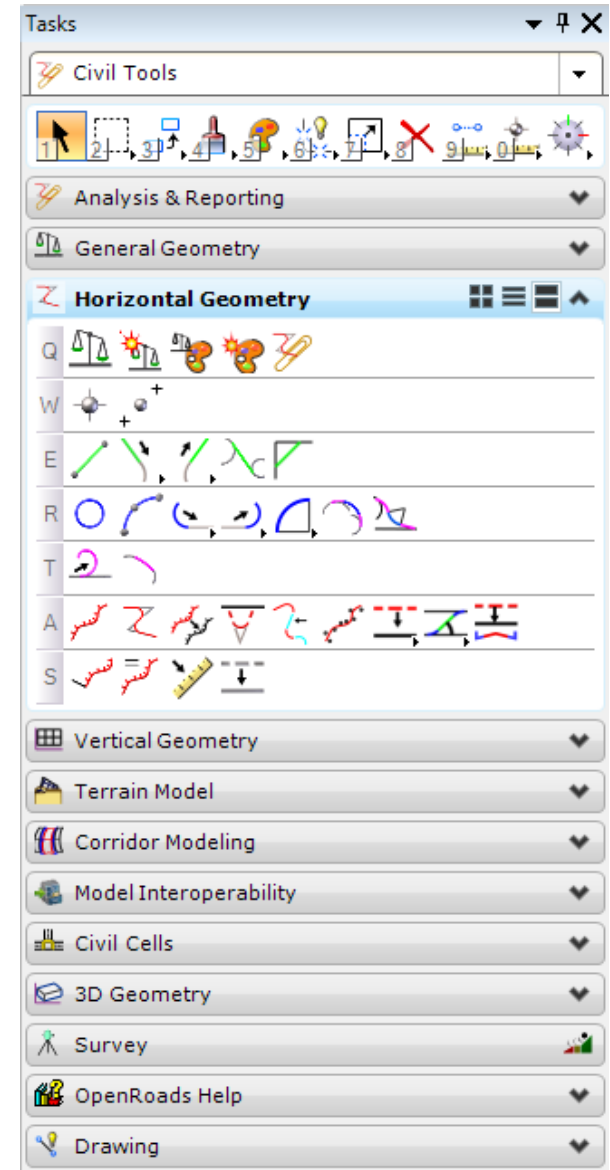
FDOT Workspace

- FDOT Menu
  - Standard
    - Links to Documentation for Standards
  - Actions
    - Label Shapes with ID
    - LDM
    - AASHTOWare Project Preconstruction links

- Quantities Task Menu
  - Located under FDOT Plans Development
  - Collection of Quantity related tools all in one place

Linear/Each Features

- Most linear and each quantity features are included in the plan view and therefore drawn in the DSGN** file.

- These elements can be drawn using:
  - D&C Manager in the Design mode
  - Using Civil Features
    - Many of the FDOT Features are set up to use "Native Style". This means that in the background it is using the D&C settings to define the element. With most of the Civil Tools, this will include the adhoc attributes.
    - CHECK the adhocs set on the elements.
      - No ability to modify the default values when placing with Civil Tools. Do they need to be modified?
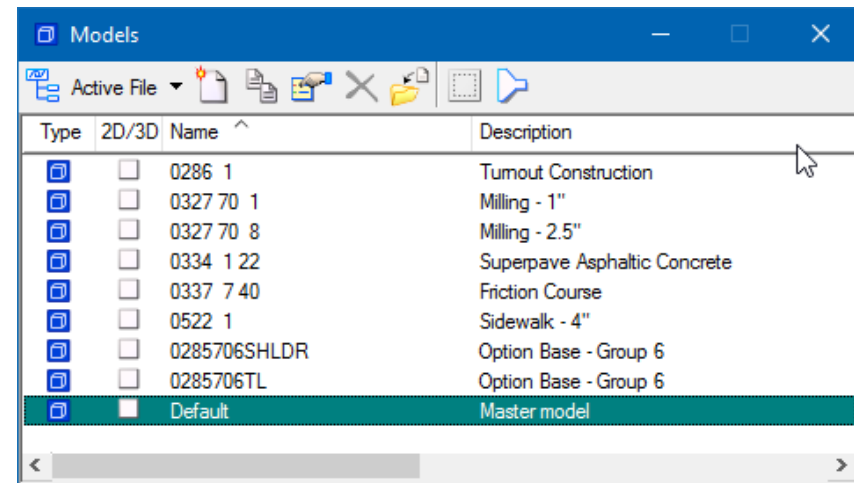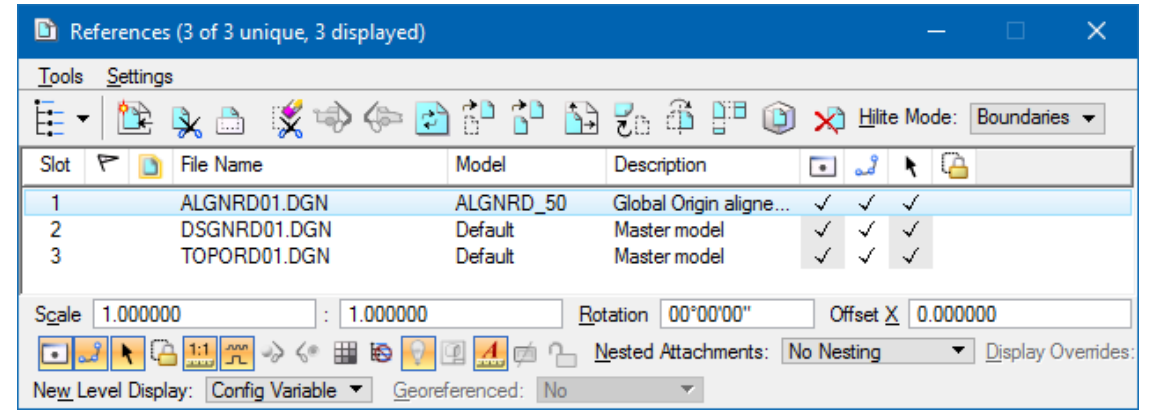   - Use the 3pc AdHoc Attribute tool to make changes.

Area Quantities
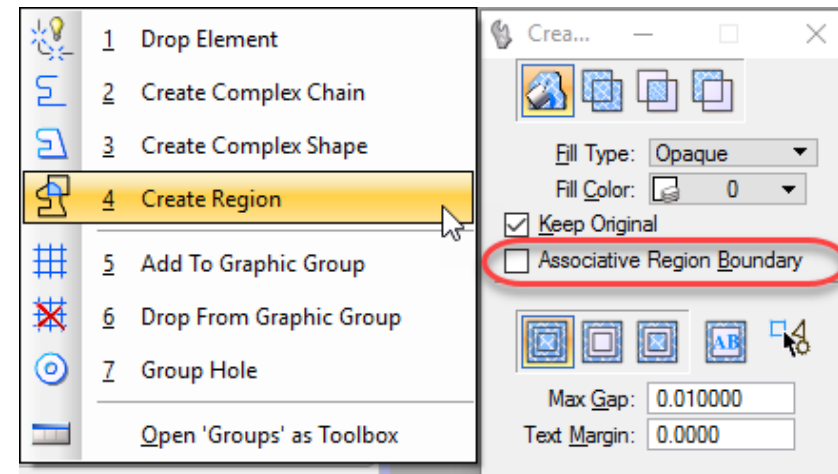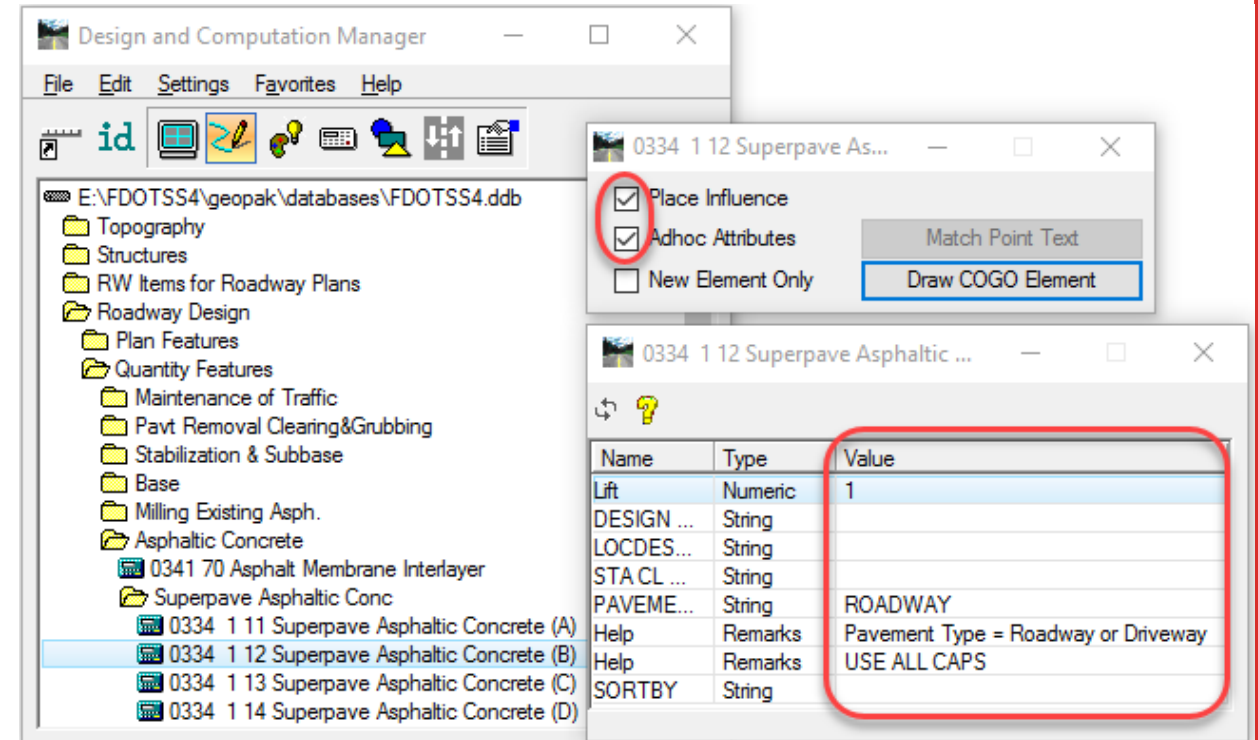
QTDSRD** Set Up

Recommended workflow:

1. In the Default model, attach all the reference files that may be needed for calculations.

2. Copy the pre-referenced Default model to create new models for each individual quantity/pay item.

Area Quantities

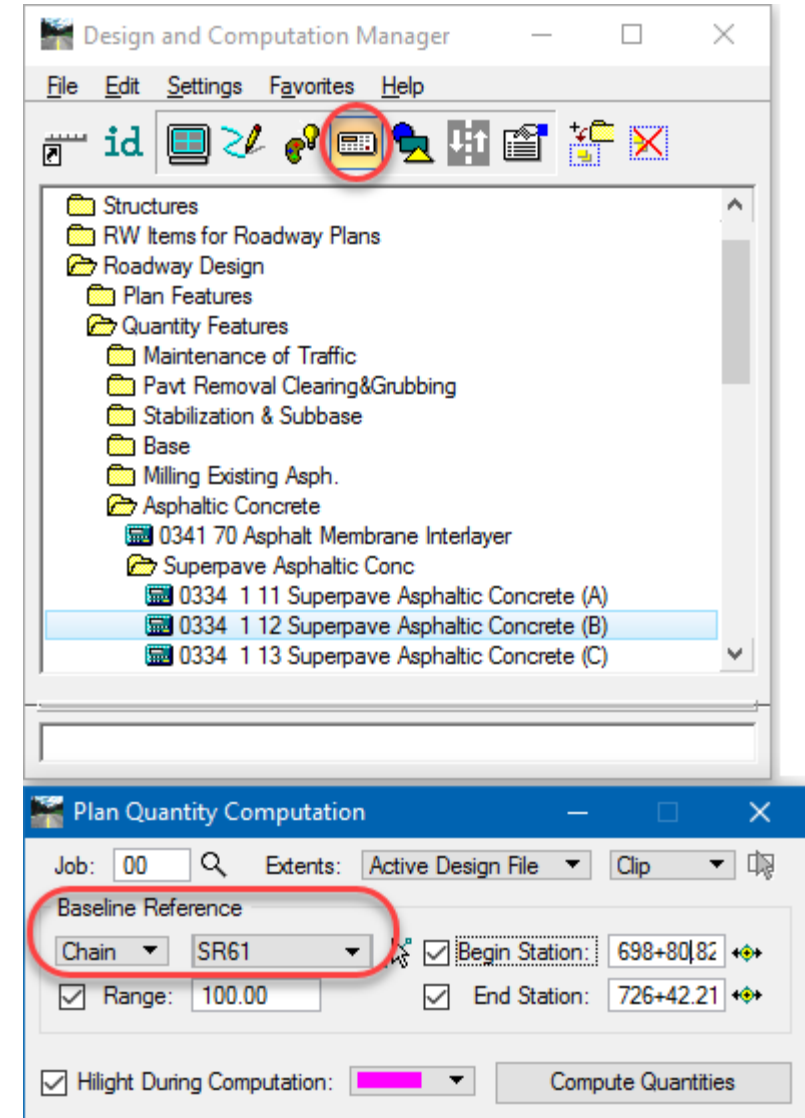Use the Create Region tool (recommended) to create area shapes with Place Influence from the D&C Manager

- D&C Manager Shape tool does NOT "play well" with Civil Elements.

- Make sure the setting for Associative Region Boundary is NOT checked. D&C will NOT recognize the shape if this option is on!!!

- Adjust the Adhoc Values before creating the shapes.

Calculate Quantities

Use the D&C Manager – Compute Mode

- Calculate by single item, Category, or Collection Set

- Make sure to use the option for Chain
  - Automated quantities must have a station associated with the quantity for LDM to include in the summary box.
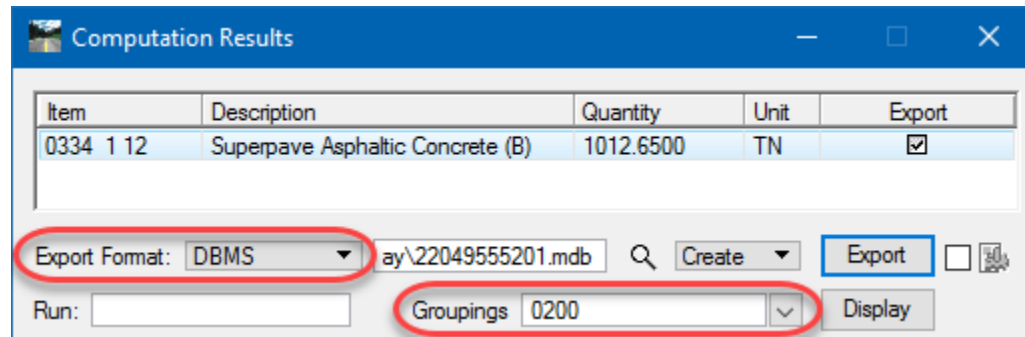
Export Quantities

To export to Quantity Manager the Export Format needs to be set to DBMS

- Computation Results dialog allows the option to Export the quantities in multiple formats.

Make sure to modify the Groupings to the correct AASHTOWare Project Preconstruction category. (See BOE Chapter 9)

Items are categorized by pay item range:

Item Numbers (Specification Sections)	SUBJECT/GROUP		Category / Design Group/ Plans
100-102	MOT		0200 Roadway
103	Temporary Structures		
104	Erosion Control	Drainage	
		Environmental	
106-108	Environmental	Coordinator	
		Water/Erosion Control	
		Air Quality	
		Decontamination/Hazardous Materials	
109	Field Office		
110-199	"Dirt" Earthwork	Roadway	
		Erosion Control	
		Topsoil/Vegetation	
200-299	Base Courses		
300-399 except 346-347	Surface Courses, Concrete Pavement		
	Concrete		0100 Structures or 0200 Roadway
400-499	Structures		0100 Structures
except 425-449	Drainage Structures		0200 Roadway
500-515	Incidental Construction- Structures		0100 Structures
516-559	Incidental Construction- Roadway Items		0200 Roadway
560-569	Incidental Construction- Structural Paint		0100 Structures
570-599	Incidental Construction- Turf & Landscaping		0200 Roadway or 0600 Landscaping
600-699	Traffic Control Devices (Signals & ITS)		0500 Signals
	Conduit and other "common use" items		Other categories, as needed
700-714	Traffic Control		0300 Signing
715	Traffic Control- Lighting		0400 Lighting
720-740	Incidental Construction- Other		0200 Roadway
741-749	Incidental Construction- Traffic Monitoring (TMS)		
750-770	Incidental Construction- Other		
780-789	Intelligent Transportation Systems (ITS)		0550 ITS
800-899	Mass Transit (Railroad)		0900 Mass Transit
1000-1999	Utilities		0100 Structures

NOTE: While pay item ranges are generally grouped by category, some items may be used in multiple categories. Refer to the specific items for details.

Category 550 ITS: This category may be used through June 2018 lettings. All projects with ITS components let July 2017 or later should include the ITS work in the signalization plans. Additional information will be posted in the 2018 Design Manual (PPM replacement) in November 2017.
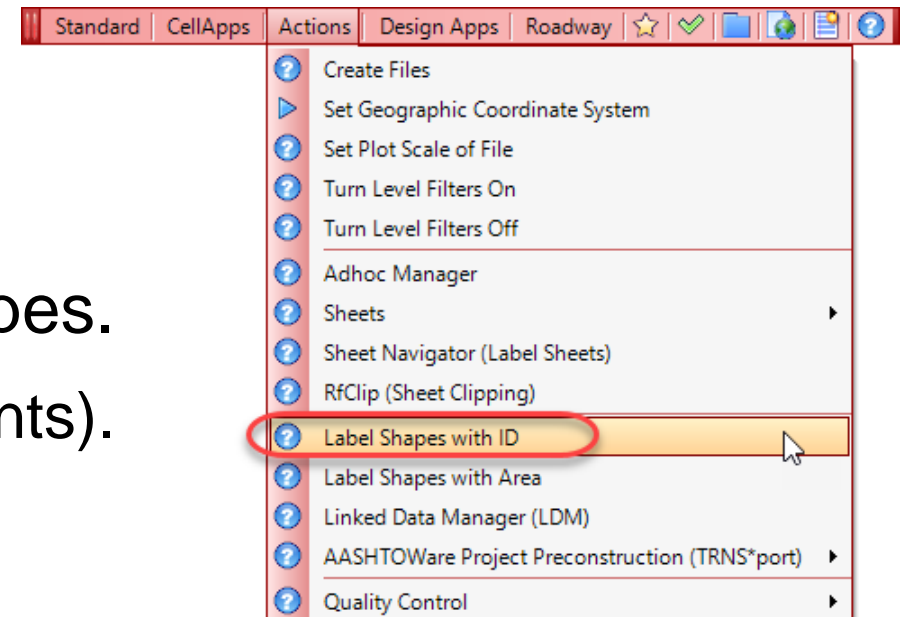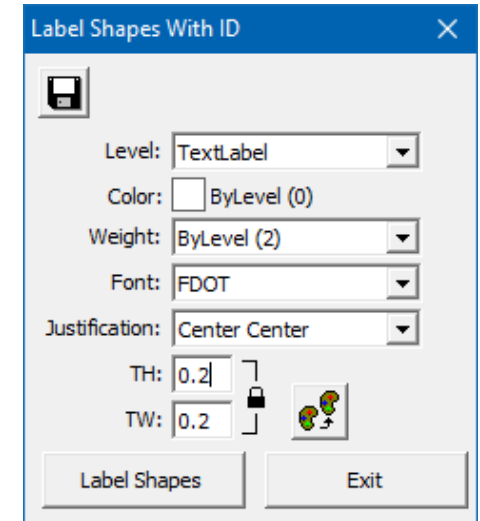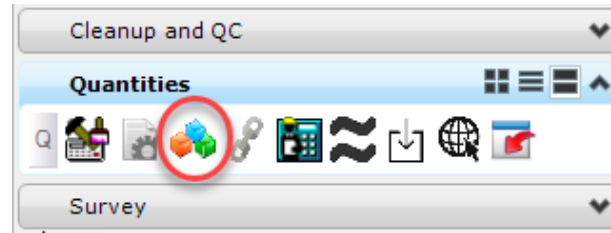

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Label Area IDs

Labeling Area IDs is REQUIRED.

Use the VBA to label these areas.

- Found on the FDOT Plans Development > Quantities Task Menu

- OR on the FDOT Menu under Actions > Label Shapes with ID

Create a selection set & then click Label Shapes.
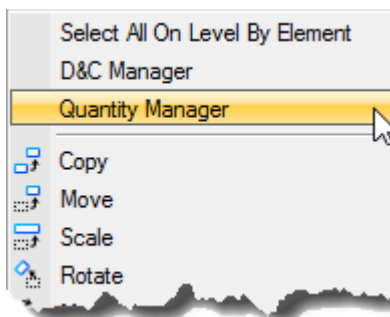
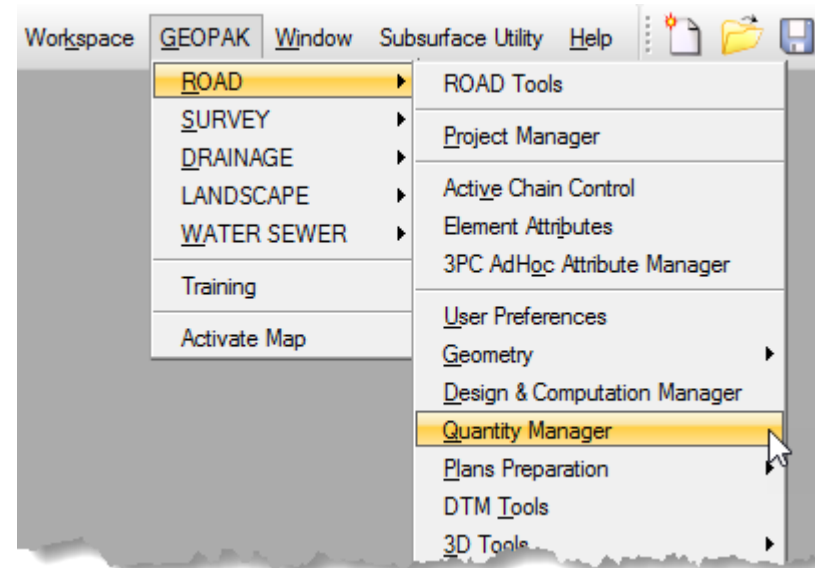- Only labels shapes (you can select ALL elements).

Quantity Manager

Quantity Manager is a GEOPAK application used to manage quantities.

Access Options:

Right click in the MicroStation window and select Quantity Manager from the context pop up menu

Select GEOPAK > ROAD > Quantity Manager from the MicroStation menu

Select the Quantity Manager icon on the FDOT Plans Development > Quantities Task Menu

Quantity Manager

- Right click on the Quantity or Element Pane headers to change the column options.

- Right click in the Pay Item Pane for context sensitive menu options to add, edit and delete categories, items and quantities

Quantity Manager

New Quantity Properties dialog boxes:

Questions?

Thank you for joining today's session!

Need HELP? Contact me…

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http://www.fdot.gov/cadd/

FDOT CADD Support Forum On-line

https://communities.bentley.com/communities/user_communities/fdot_cadd_support/

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