

2009 ROADS AND BRIDGES CONFERENCE

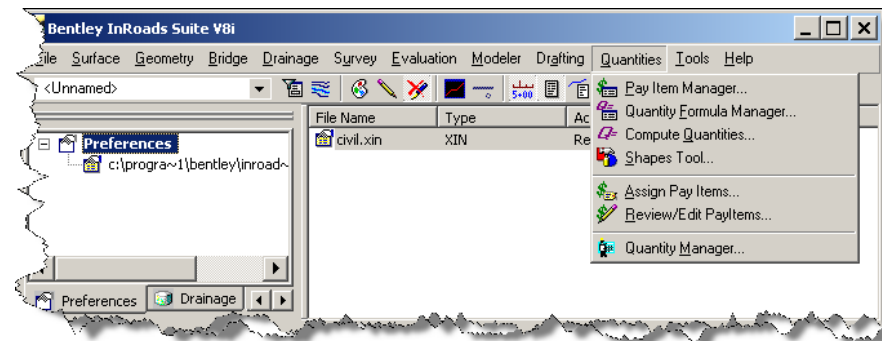


Earthwork and Harvesting Quantities from InRoads V8i

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InRoads Quantity Manager

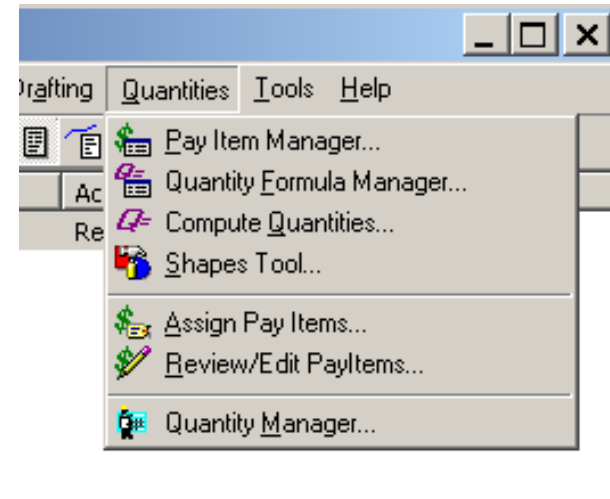
- 2 Parts to Quantity Management
 - InRoads Quantity Tools
 - No longer an Add-in Application
 - Quantity Manager
 - External Application



Category	PayItem	Phase	Chain	Net Value	Remarks	Description	Ext
root201-209...	201 A000	Preliminary	Centerline	2,000		201 A000	
root201-209...	201 A000	Preliminary	Centerline	2,000		201 A000	
root201-209...	201 A000	Preliminary	Centerline	2,000		201 A000	
root201-209...	201 A000	Preliminary	Centerline	2,000		201 A000	
root201-209...	201 A000	Preliminary	Centerline	9,000		201 A000	
root201-209...	205 A001	Preliminary	Centerline	1,000		205 A001	
root201-209...	206 C009	Preliminary	Centerline	11,011,000		206 C009	
root201-209...	206 D000	Preliminary	Centerline	36,595		206 D000	
root201-209...	206 E000	Preliminary	Centerline	1,000		206 E000	
root201-209...	206 E000	Preliminary	Centerline	1,000		206 E000	

Functions of InRoads Quantity Tools

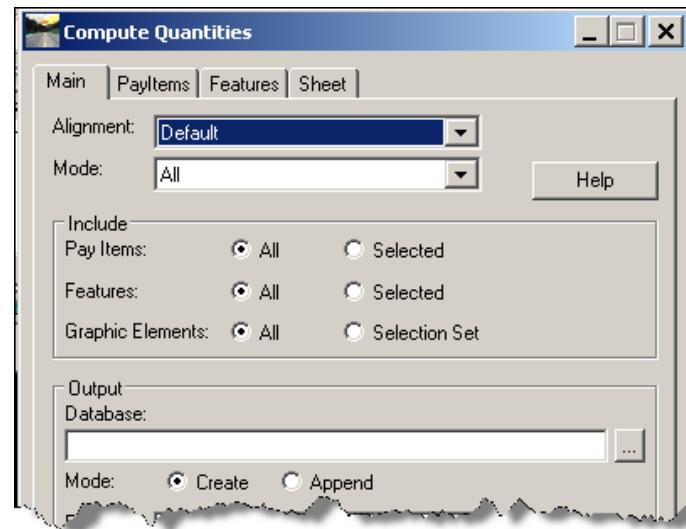
- Define Payitems
- Manage Quantity Formulas
- Assign Payitems to design data
- Compute Quantities
- Create a Quantities Database



The Quantities Database is created in the Compute Quantities process

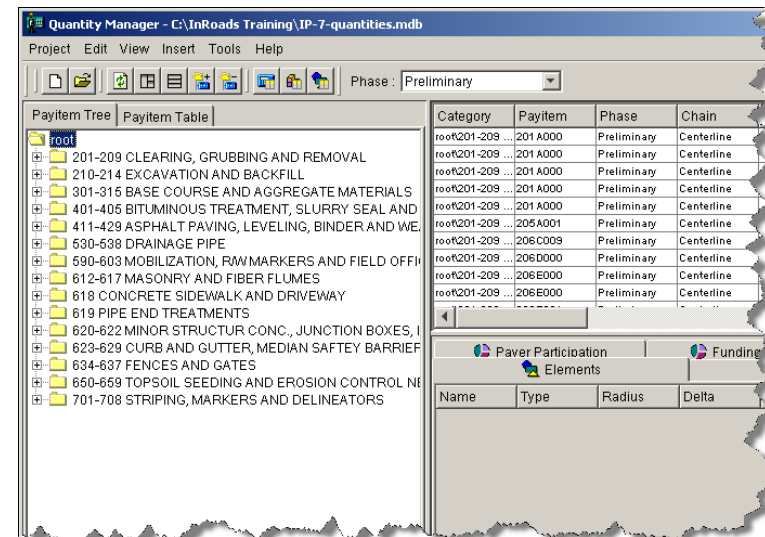
InRoads Quantity Tools

- What can be computed?
 - Linear Elements
 - Area (Polygon/Shapes)
 - Each (Points, cells, etc.)
- Graphic or "drawn" data – not the result of Roadway Designer
- DTM Features from Roadway Designer



Functions of Quantity Manager

- Read Quantities Database
- Create Funding and Payer Rules/Splits
- Export to external applications (ex:Trns*Port)
- Create Quantity Reports



New! End Area Volumes in QM

- After Cross sections have been extracted and displayed, Calculate End Area Volumes.
- Note new item in list

Specify Quantities Database

Cut, Fill, Borrow, and Waste objects can be linked to Payitem Database

Object	Name	Description
<input checked="" type="checkbox"/>	210A000 - CUT	CUT
<input checked="" type="checkbox"/>	210A000c - FILL	FILL
<input checked="" type="checkbox"/>	210A000b - BORROW	BORROW
<input checked="" type="checkbox"/>	210A000w - Waste	Waste

End Area Volumes and QM

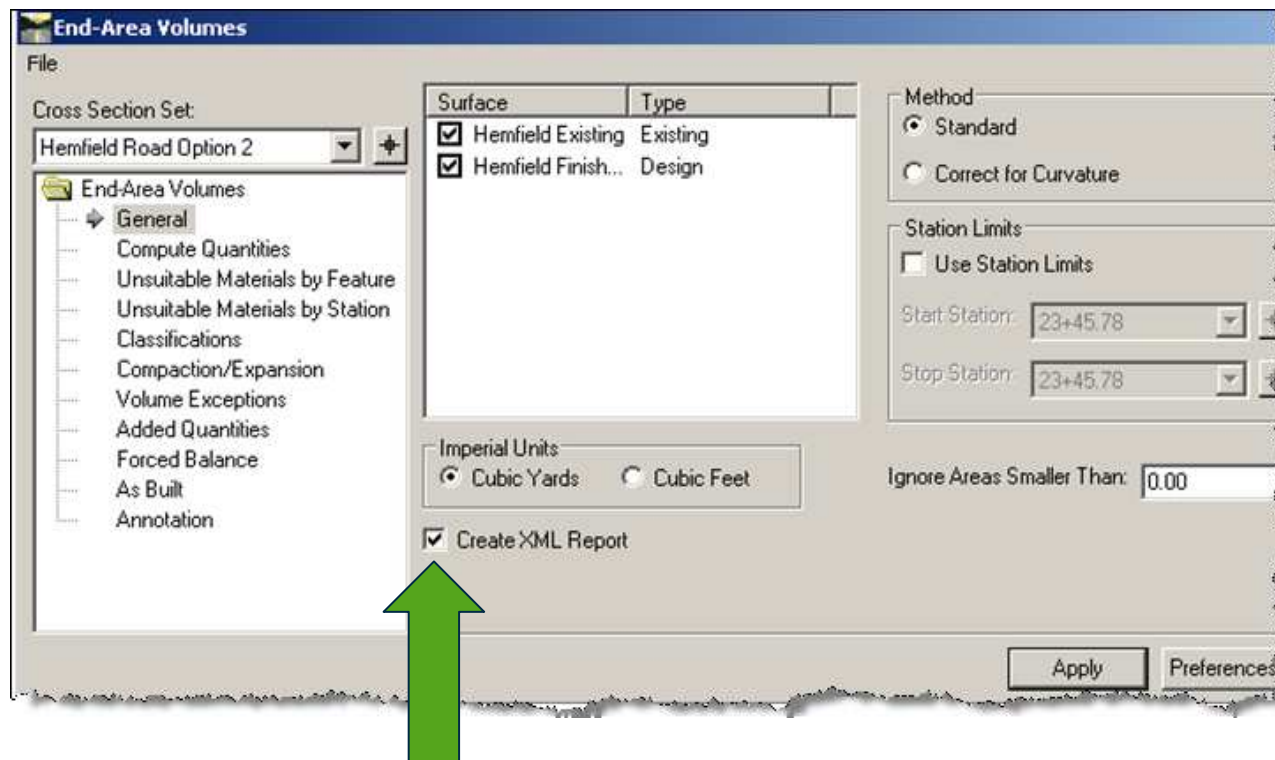
- Borrow and Waste
 - If the Mass Ordinate value is negative when completing the End Area Volumes, the Borrow field will be populated with the quantity required to balance the earthwork.
 - If the value is positive, then the Waste field will be populated with the quantity of extra materials.

Pay Items:

<input type="checkbox"/>	Object	Name	Description
<input checked="" type="checkbox"/>	Cut	210A000 - CUT	CUT
<input checked="" type="checkbox"/>	Fill	210A000c - FILL	FILL
<input checked="" type="checkbox"/>	Borrow	210A000b - BORROW	BORROW
<input checked="" type="checkbox"/>	Waste	210A000w - Waste	Waste

Calculating End Area Volumes

- Select "Create XML Report"
 - Verify Quantities DB info



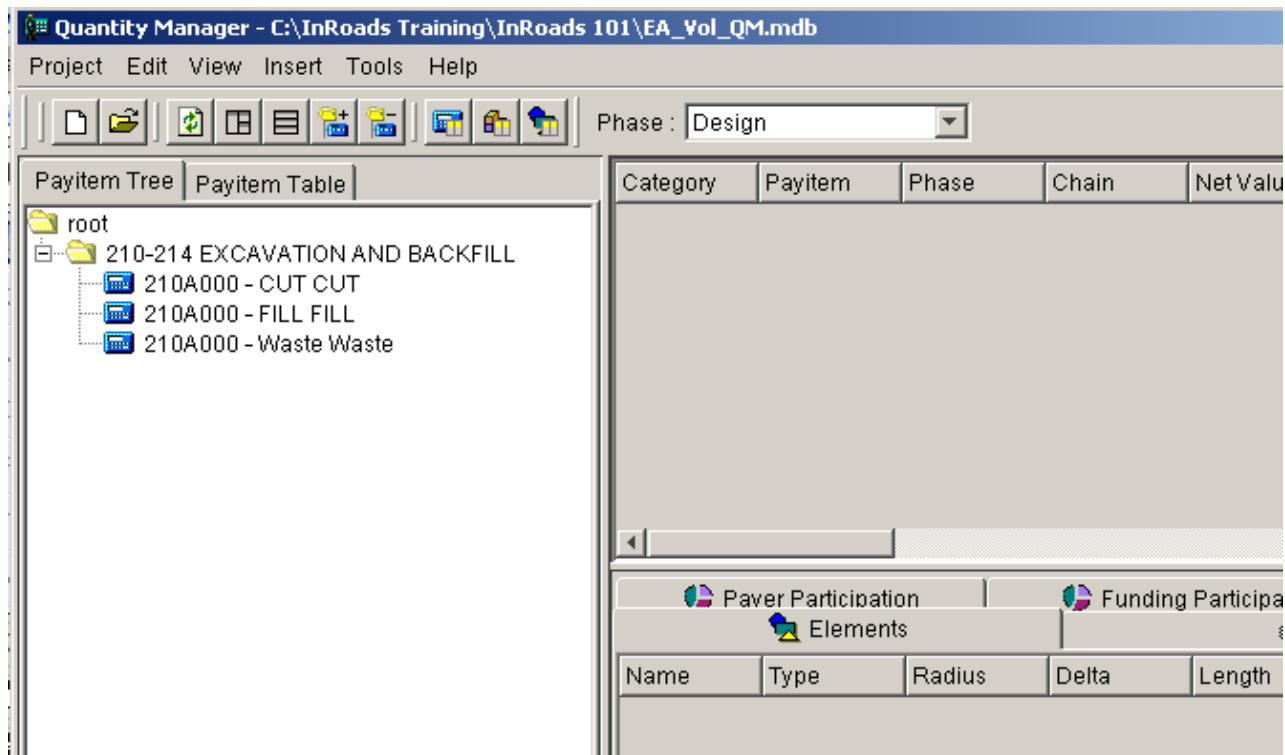
End Area Volumes Results

- InRoads Report Browser (XML data)

Station	Material 1 (%)	Material 2 (%)	Material 3 (%)	Material 4 (%)	Material 5 (%)	Material 6 (%)	Material 7 (%)	Material 8 (%)	Material 9 (%)
63+04.92	1.00	0.00	0.00	0.00	1.00	242.26	44.5	44.5	
63+35.63	1.00	0.00	0.00	0.00	1.00	211.87	258.2	258.2	
63+50.00	1.00	0.00	0.00	0.00	1.00	196.29	108.6	108.6	
64+00.00	1.00	0.00	0.00	0.00	1.00	149.36	320.0	320.0	
64+50.00	1.00	0.00	0.00	0.00	1.00	112.72	242.7	242.7	
65+00.00	1.00	0.00	0.00	0.00	1.00	93.47	190.9	190.9	
65+50.00	1.00	0.00	0.00	0.00	1.00	56.73	139.1	139.1	
66+00.00	1.00	0.29	0.3	0.3	1.00	23.70	74.5	74.5	
66+50.00	1.00	13.63	12.9	12.9	1.00	3.70	25.4	25.4	
67+00.00	1.00	33.76	43.9	43.9	1.00	1.11	4.5	4.5	
67+50.00	1.00	51.87	79.3	79.3	1.00	0.01	1.0	1.0	
68+00.00	1.00	63.95	107.2	107.2	1.00	0.00	0.0	0.0	
68+04.29	1.00	64.72	10.2	10.2	1.00	0.00	0.0	0.0	
68+50.00	1.00	67.66	112.0	112.0	1.00	0.00	0.0	0.0	
68+88.55	1.00	62.89	93.2	93.2	1.00	0.00	0.0	0.0	
69+00.00	1.00	60.31	26.1	26.1	1.00	0.00	0.0	0.0	
69+50.00	1.00	48.27	100.5	100.5	1.00	0.00	0.0	0.0	
70+00.00	1.00	38.09	80.0	80.0	1.00	0.04	0.0	0.0	
70+33.21	1.00	33.67	44.1	44.1	1.00	0.24	0.2	0.2	
70+50.00	1.00	0.00	10.5	10.5	1.00	0.00	0.1	0.1	
70+57.54	1.00	0.00	0.0	0.0	1.00	0.00	0.0	0.0	
Grand Total:		9843.8	9843.8			7813.6	7813.6		

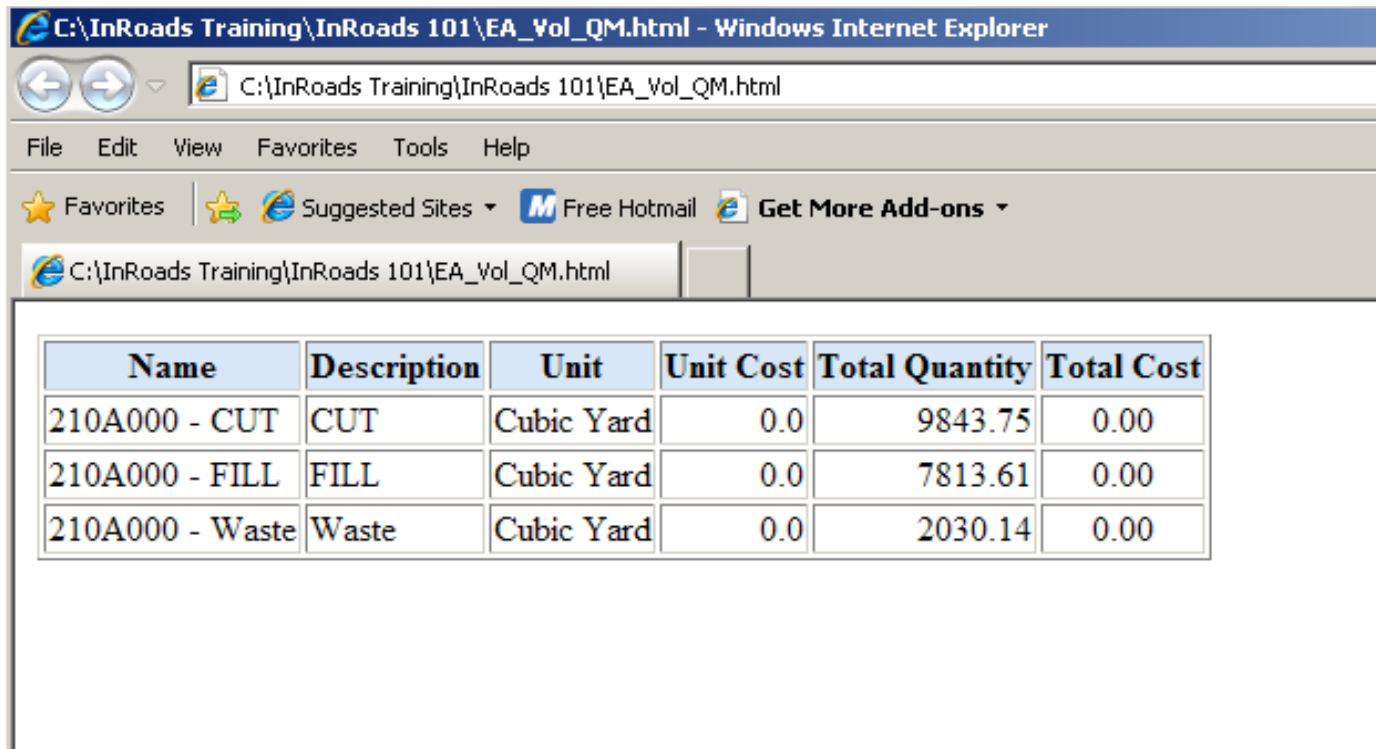
End Area Volumes and QM

- Open Quantity Manager
- Connect to Quantities Database specified when computing End Area Volumes



End Area Volumes with QM

- Operates as any other Quantities Database
 - Reports, etc.



Name	Description	Unit	Unit Cost	Total Quantity	Total Cost
210A000 - CUT	CUT	Cubic Yard	0.0	9843.75	0.00
210A000 - FILL	FILL	Cubic Yard	0.0	7813.61	0.00
210A000 - Waste	Waste	Cubic Yard	0.0	2030.14	0.00

Important info

- End Area Volumes create a SEPARATE Database
- NOT included when executing Compute Quantities

The screenshot shows the Quantity Manager application window with a Payitem Table. The table contains the following data:

Name	Description	Unit	Unit Cost	Total Quantity	Total Cost
201B000	Clearing	Acre	0.0	6.00	0.00
301A000	Crushed Aggregate Base Course, Type B, Plant Mixed, 3" Compacted Thickness	Cubic Yard	0.0	3446.76	0.00
411A020 - ASPH	Hot Bituminous Pavement, Mix 1	Ton(s)	0.0	191.30	0.00
450C00-Curb	Integral Curb	Linear Feet	0.0	9306.24	0.00
450D00-JTSeal	1 1/4" Preformed Elastomeric Joint Seal	Linear Feet	0.0	9306.24	0.00

Including End Area Volumes in QM

- Easiest method
 - Append Database

End-Area Volumes

File

Cross Section Set:
Hemfield Road Option 2

End-Area Volumes

- General
- Compute Quantities
- Unsuitable Materials by Feature
- Unsuitable Materials by Station
- Classifications
- Compaction/Expansion
- Volume Exceptions
- Added Quantities
- Forced Balance
- As Built
- Annotation

Output Quantities

Output Database:
C:\InRoads Training\InRoads 101\QM-all.mdb

Mode: Create Append

Phase: Design

Run:

Pay Items:

	Object	Name	Description
<input checked="" type="checkbox"/>	Cut	210A000 - CUT	CUT
<input checked="" type="checkbox"/>	Fill	210A000c - FILL	FILL
<input checked="" type="checkbox"/>	Borrow	210A000b - BORROW	BORROW
<input checked="" type="checkbox"/>	Waste	210A000w - Waste	Waste

Apply Preferences...

Quantity Manager

- Open Appended Quantities Database
- End Area Volumes are displayed

The screenshot shows the Quantity Manager application window. The title bar reads "Quantity Manager - C:\InRoads Training\InRoads 101\QM-all.mdb". The menu bar includes "Project", "Edit", "View", "Insert", "Tools", and "Help". The toolbar contains various icons for file operations and editing. The "Phase" dropdown is set to "Design".

The interface is divided into two main panes. The left pane, titled "Payitem Tree", shows a hierarchical tree structure. A green arrow points to the folder "210-214 EXCAVATION AND BACKFILL". The right pane, titled "Payitem Table", displays a table of payitem data.

Category	Payitem	Phase	Chain	Net Value	Remarks
root201-209 ...	201 B000	Design	Hemfield Road	6.000	
root301-315 ...	301 A000	Design	Hemfield Road	3,446.757	
root411-429 ...	411 A020 - A...	Design	Hemfield Road	191.295	
root450-490 ...	450C00-Curb	Design	Hemfield Road	4,629.058	
root450-490 ...	450C00-Curb	Design	Hemfield Road	4,677.186	
root450-490 ...	450D00-JTS...	Design	Hemfield Road	4,629.058	
root450-490 ...	450D00-JTS...	Design	Hemfield Road	4,677.186	
root210-214 ...	210A000 - CUT	Design	Hemfield Road	0.000	
root210-214 ...	210A000 - CUT	Design	Hemfield Road	0.000	
root210-214 ...	210A000 - CUT	Design	Hemfield Road	40.428	
root210-214 ...	210A000 - CUT	Design	Hemfield Road	82.211	

Below the table, there are sections for "Paver Participation" and "Funding Participation". The "Elements" section has a table with columns: Name, Type, Radius, Delta, Length, and Direction.

Quantity Manager

- Quantities Database operates normally
 - Reports, etc.

Name	Description	Unit	Unit Cost	Total Quantity	Total Cost
201B000	Clearing	Acre	0.0	6.00	0.00
301A000	Crushed Aggregate Base Course, Type B, Plant Mixed, 3" Compacted Thickness	Cubic Yard	0.0	3446.76	0.00
411A020 - ASPH	Hot Bituminous Pavement, Mix 1	Ton(s)	0.0	191.30	0.00
450C00-Curb	Integral Curb	Linear Feet	0.0	9306.24	0.00
450D00-JTSeal	1 1/4" Preformed Elastomeric Joint Seal	Linear Feet	0.0	9306.24	0.00
210A000 - CUT	CUT	Cubic Yard	0.0	9843.75	0.00
210A000 - FILL	FILL	Cubic Yard	0.0	7813.61	0.00
210A000 - Waste	Waste	Cubic Yard	0.0	2030.14	0.00

Questions?