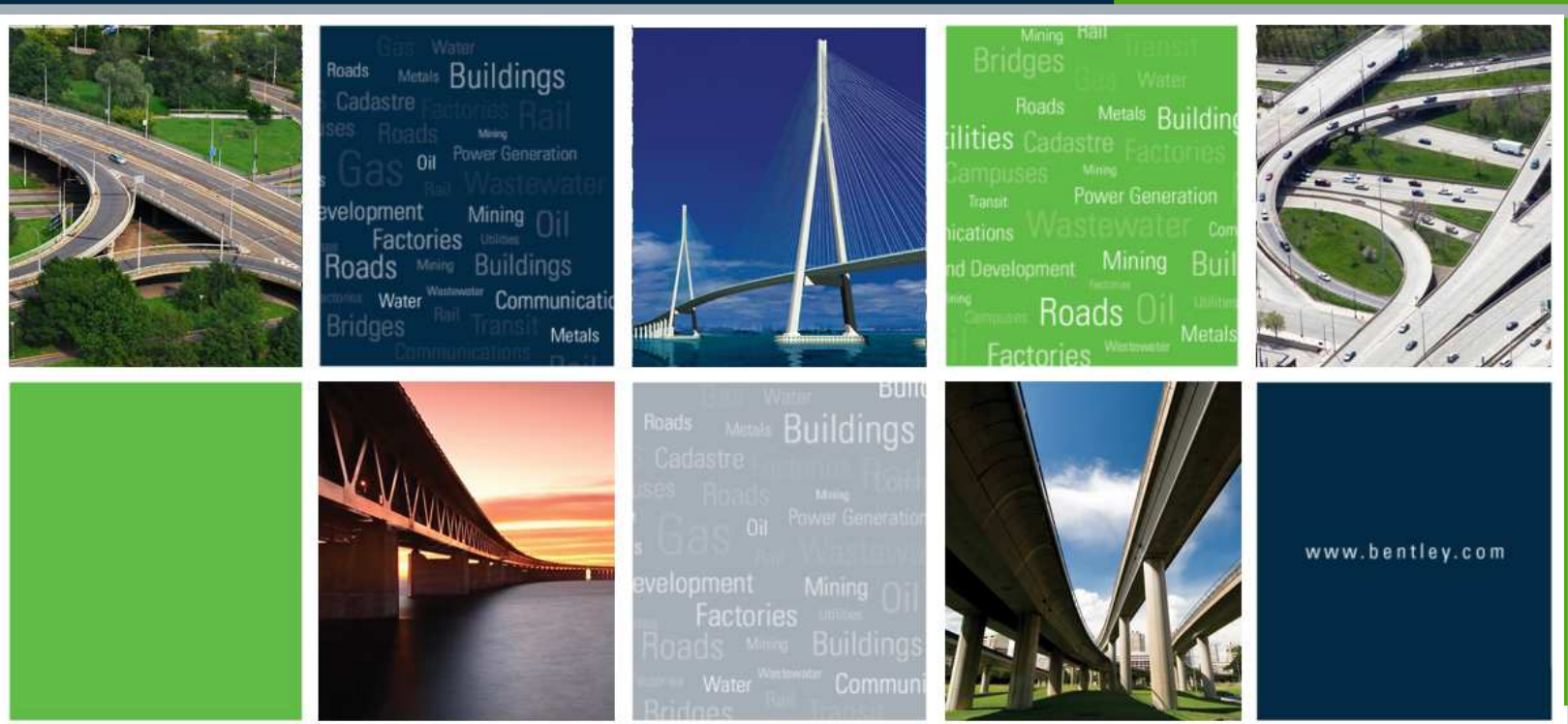
2009 ROADS AND BRIDGES CONFERENCE



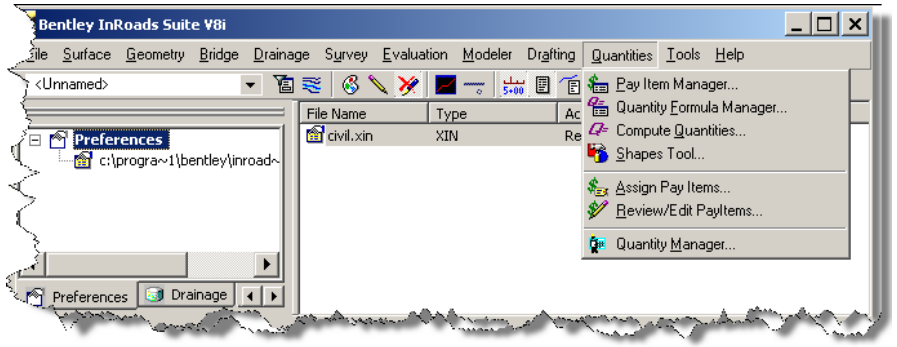
Earthwork and Harvesting Quantities from InRoads V8*i*

Robert Nice
Solutions Architect - Bentley Systems UK

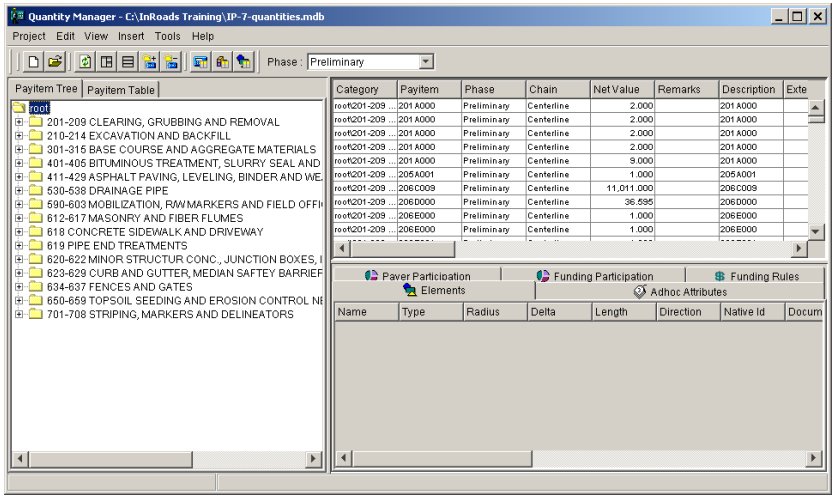
Bentley
Sustaining Infrastructure

InRoads Quantity Manager

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



  - Quantity Manager
    - External Application



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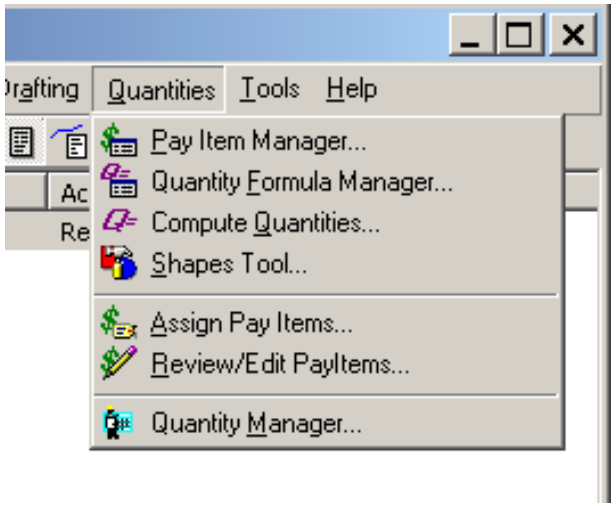
Functions of InRoads Quantity Tools

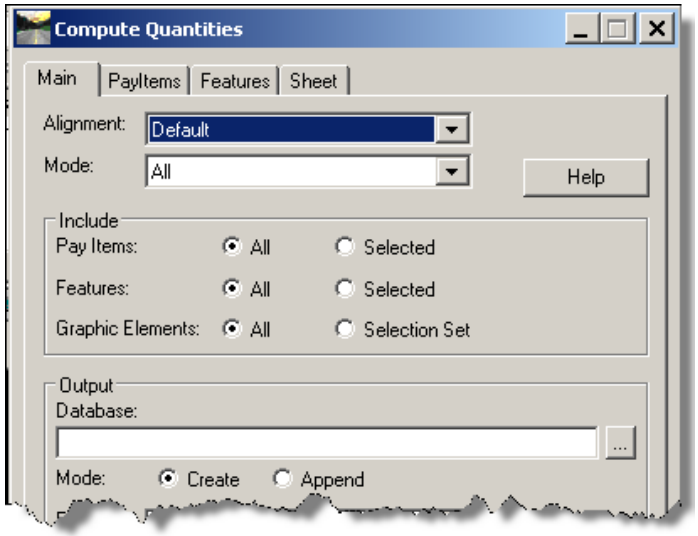
- Define Payitems
- Manage Quantity Formulas
- Assign Payitems to design data
- Compute Quantities
- Create a Quantities Database



The Quantities Database is created in the Compute Quantities process

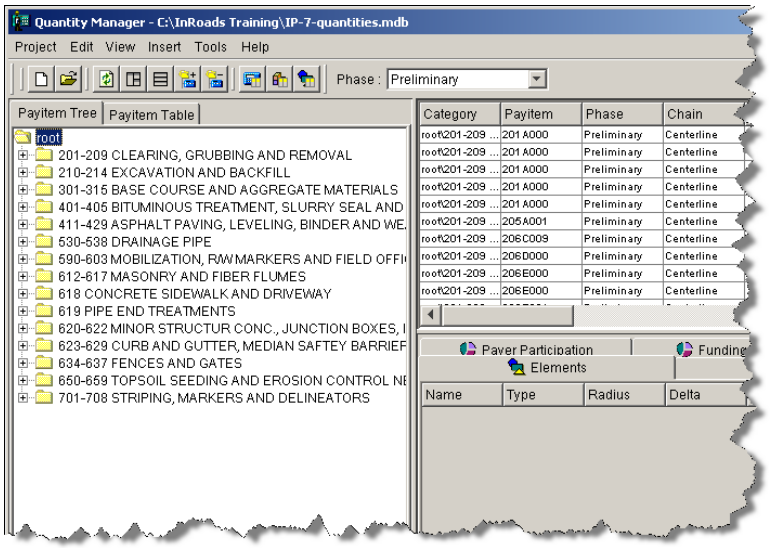
InRoads Quantity Tools

- 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



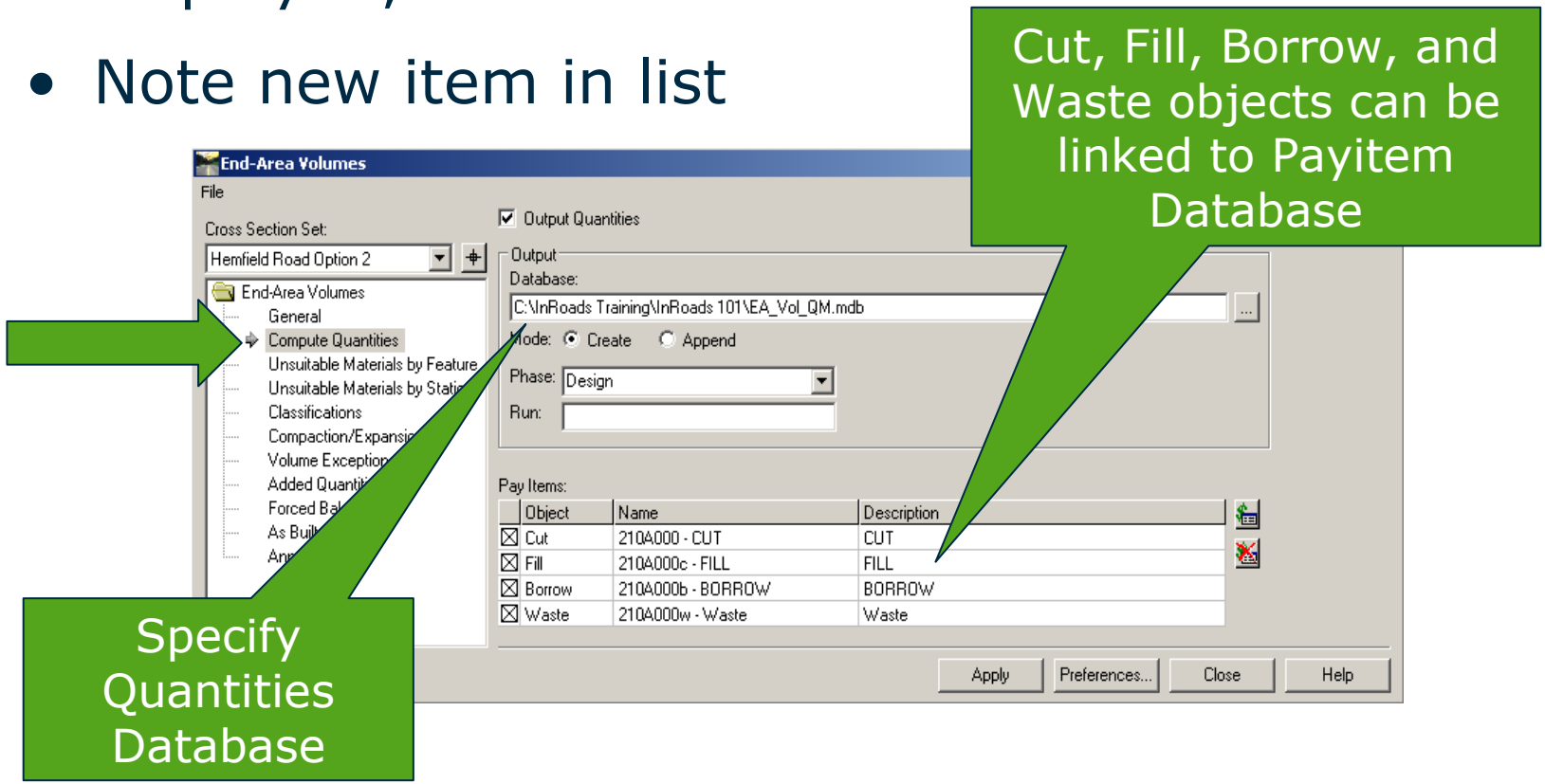
Functions of Quantity Manager

- 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



End Area Volumes and QM

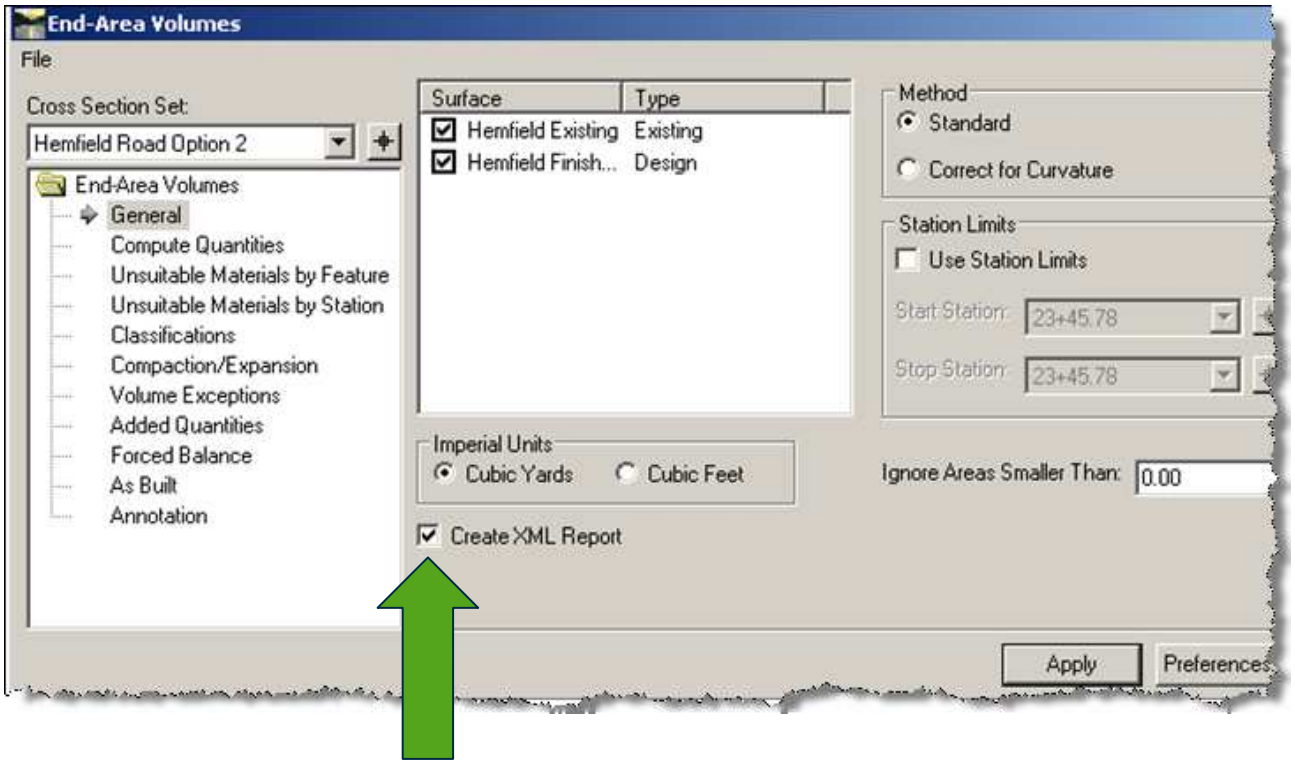
- Borrow and Waste
  - If the Mass Ordinate value is negative when completing the End Area Volumes, the Borrow field will be populated with the quantity required to balance the earthwork.
  - If the value is positive, then the Waste field will be populated with the quantity of extra materials.


Pay Items:

Object	Name	Description
☒ Cut	210A000 - CUT	CUT
☒ Fill	210A000c - FILL	FILL
☒ Borrow	210A000b - BORROW	BORROW
☒ Waste	210A000w - Waste	Waste

Calculating End Area Volumes

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



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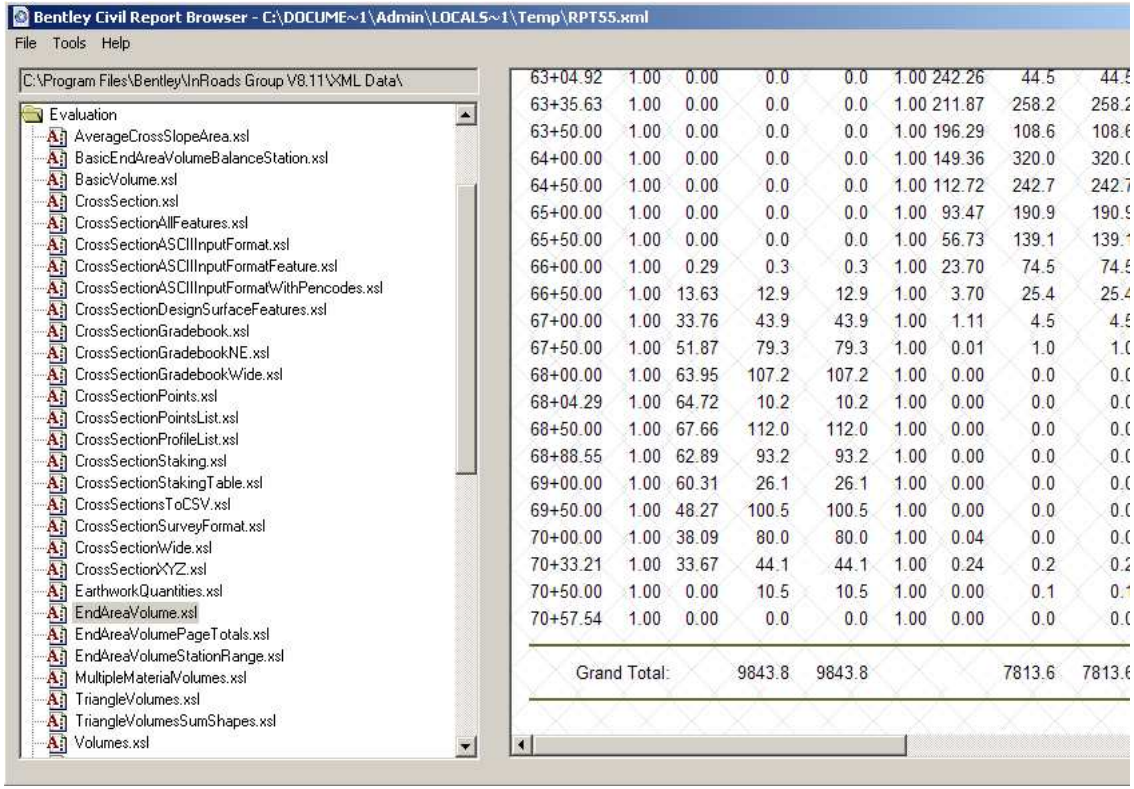
End Area Volumes Results

- InRoads Report Browser (XML data)



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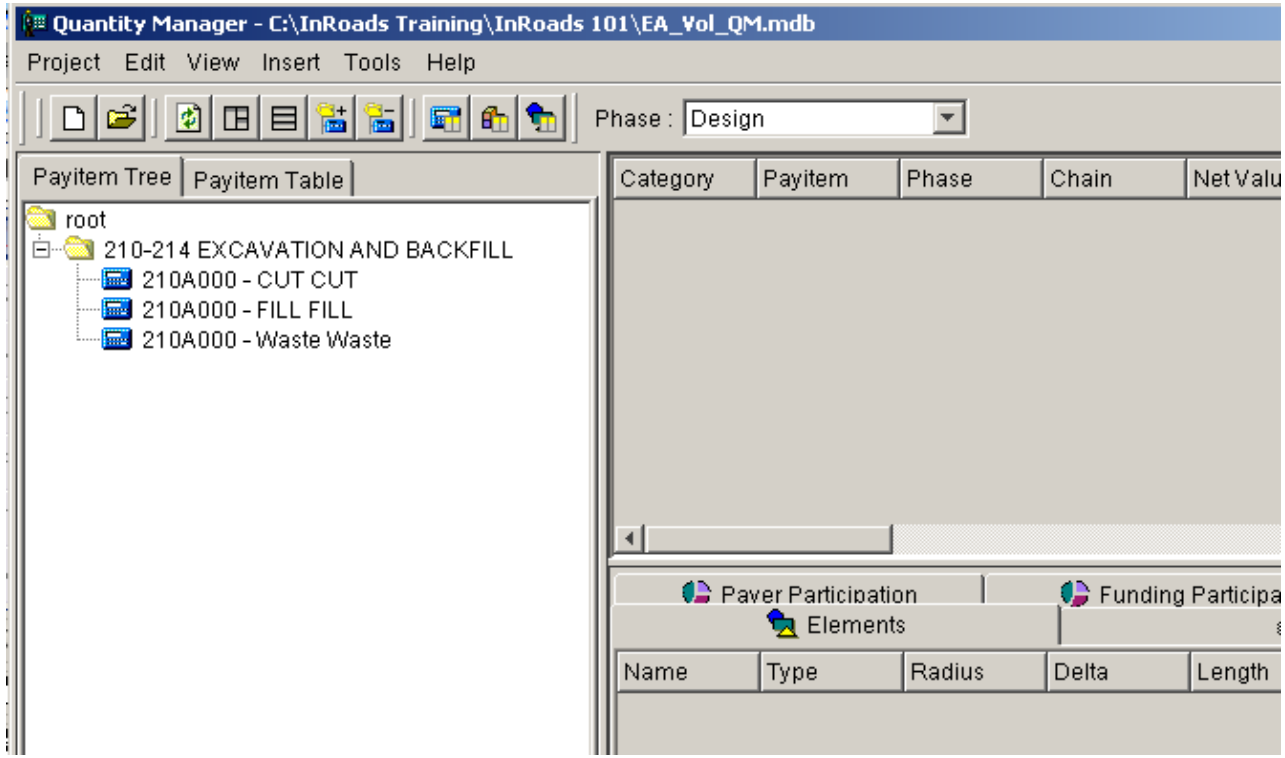
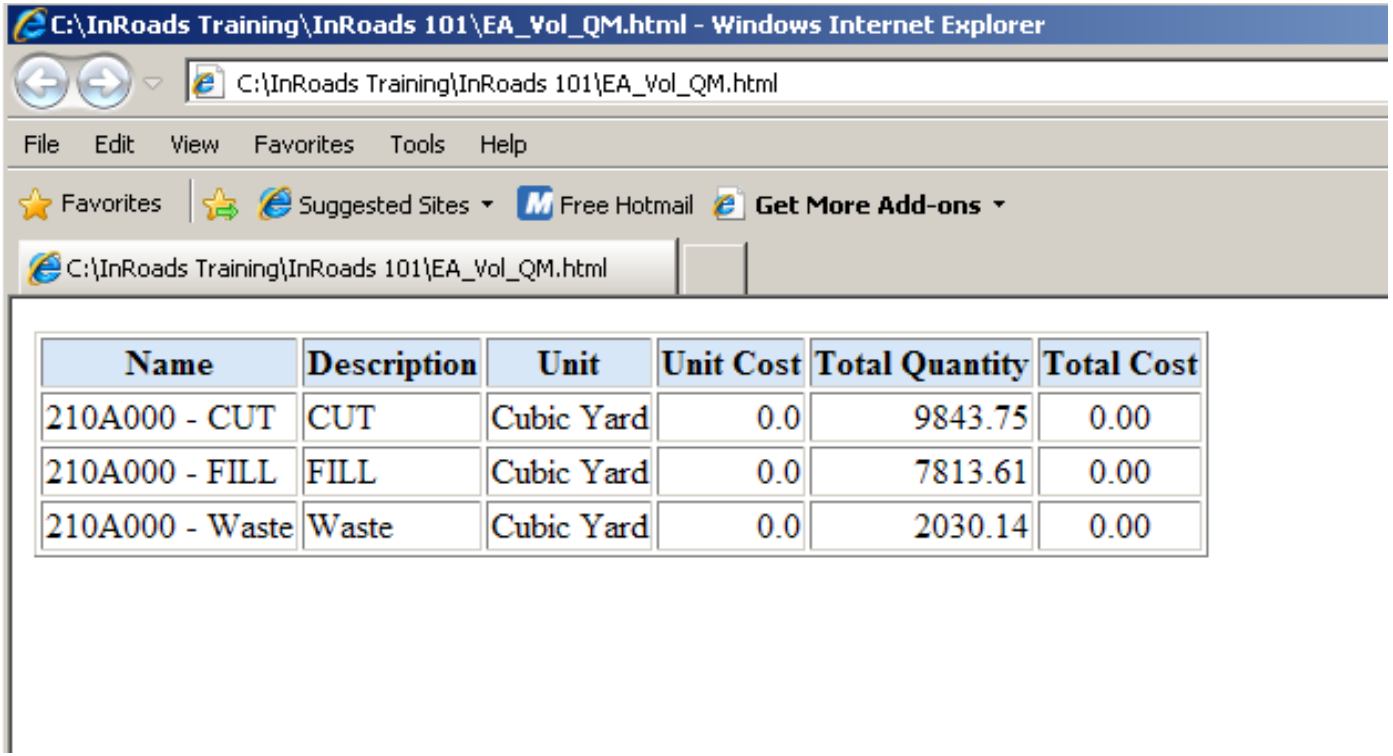
End Area Volumes and QM

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



End Area Volumes with QM

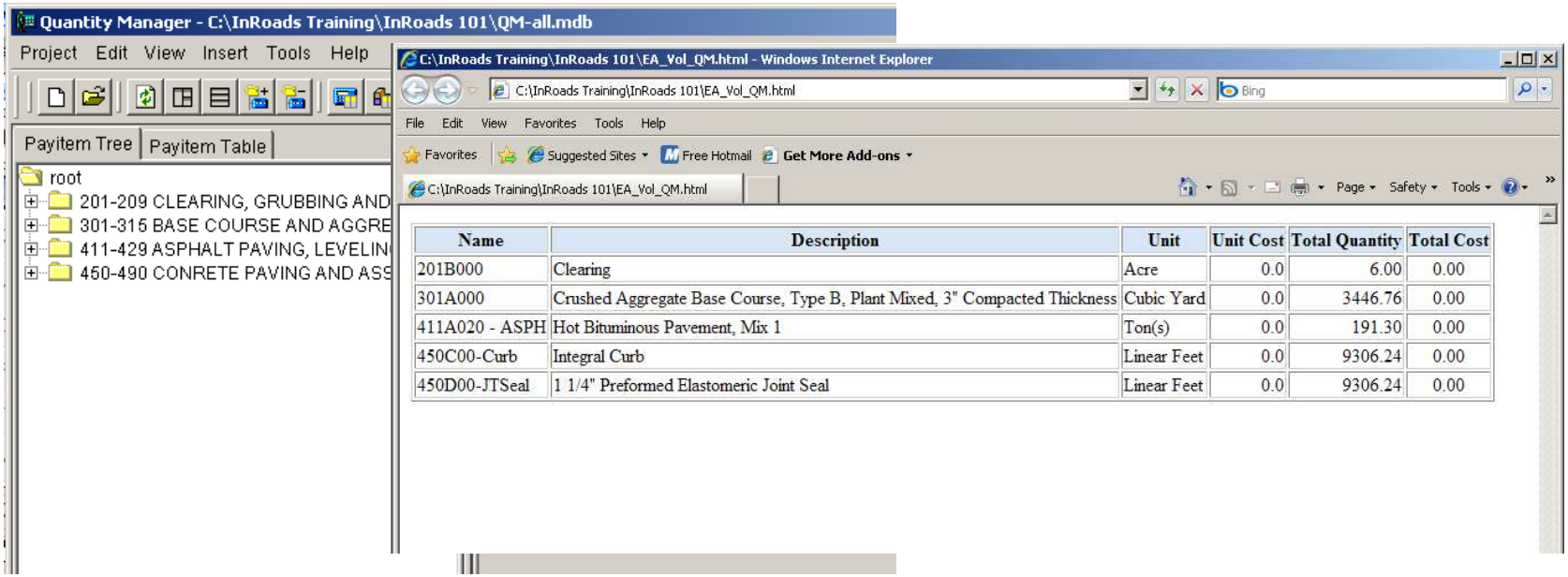
- Operates as any other Quantities Database
  - Reports, etc.



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



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

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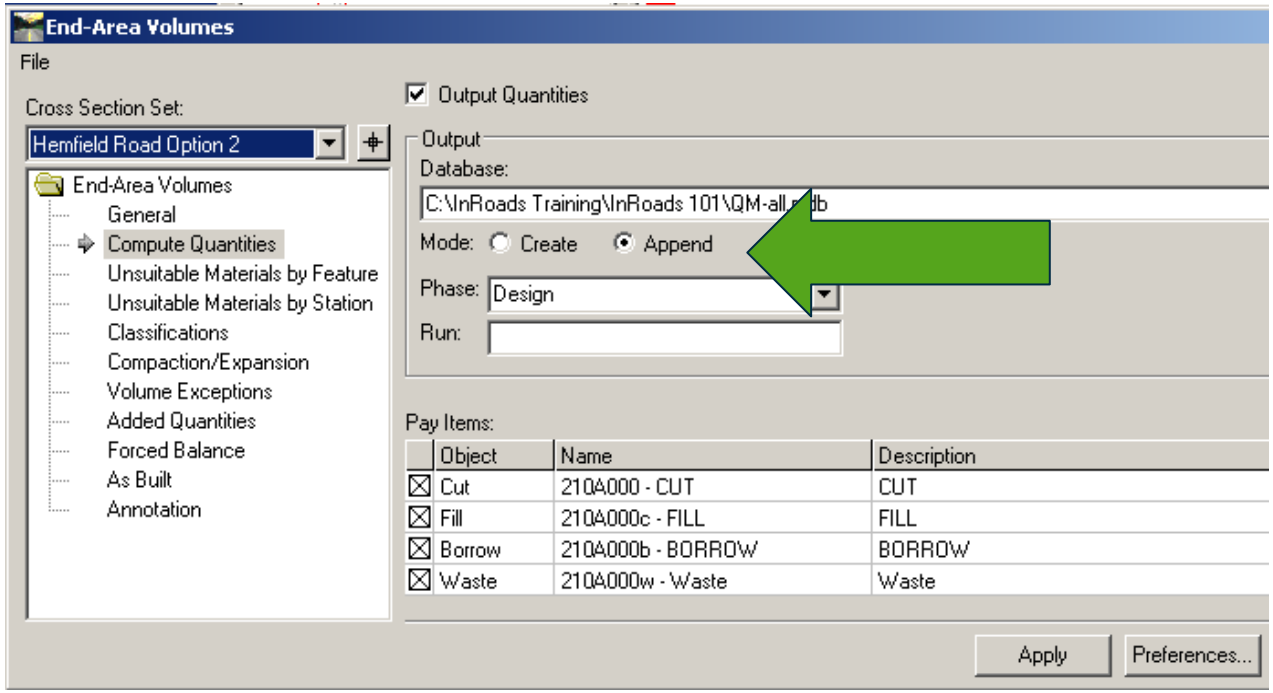
Including End Area Volumes in QM

- Easiest method
  - Append Database



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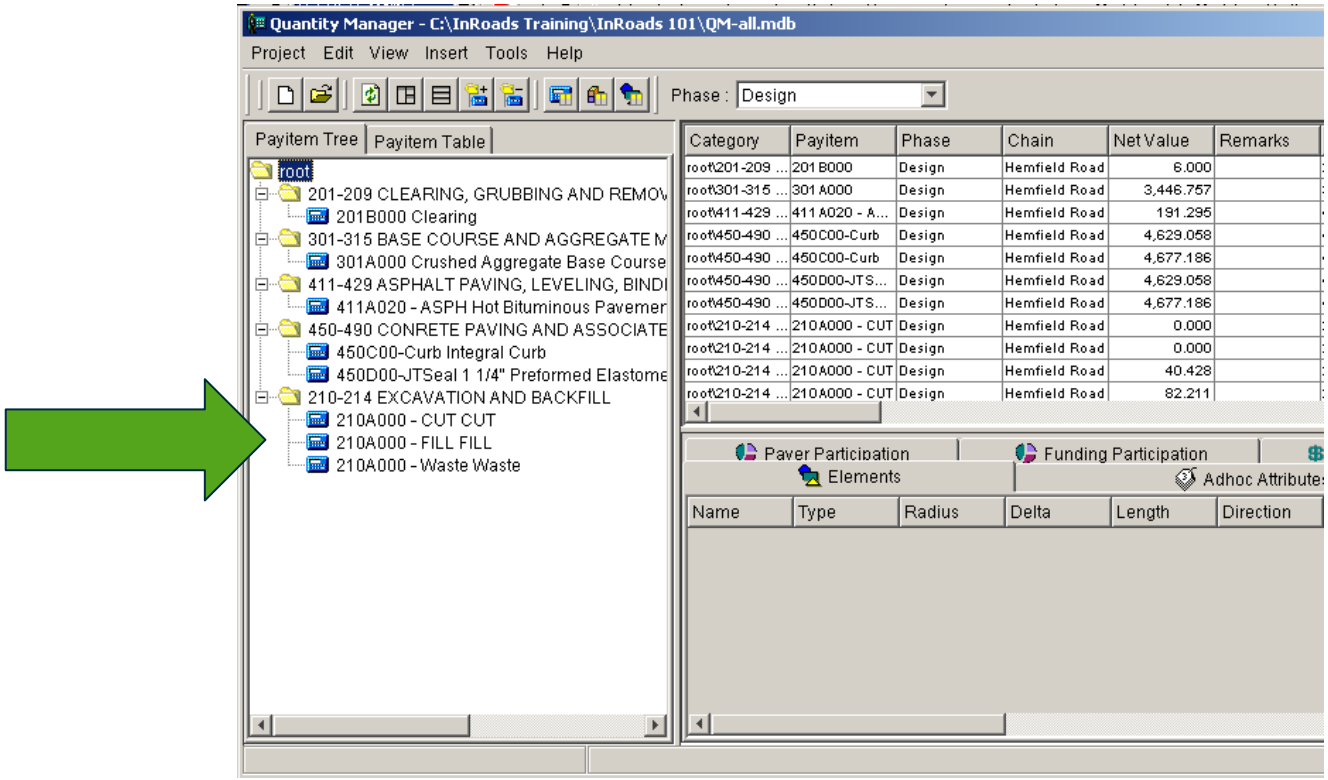
Quantity Manager

- Open Appended Quantities Database
- End Area Volumes are displayed



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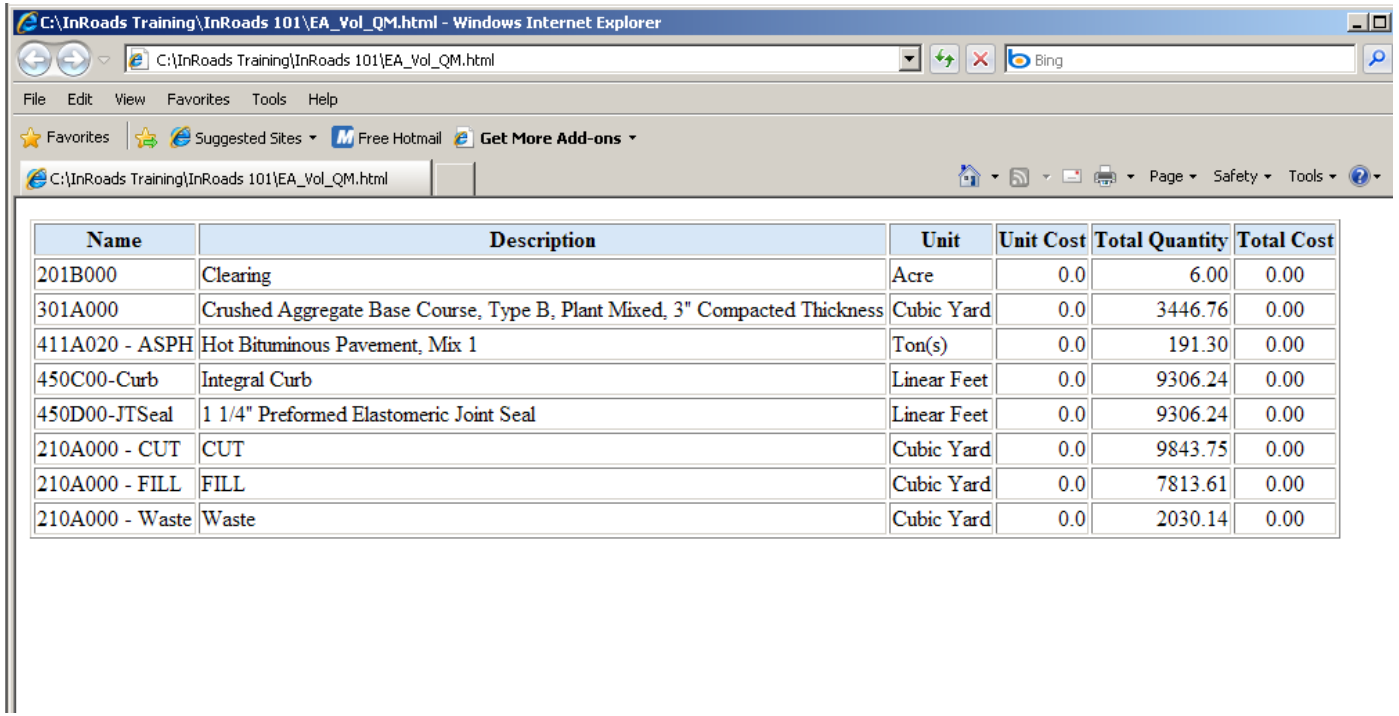
Quantity Manager

- Quantities Database operates normally
  - Reports, etc.



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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?