Part D5:

Management

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Federal Highway Administration

Overview (D5-Management)

- Where BridgeWare Fits In
- (Inspection) Condition Data Management
- Linking Deteriorated Inspection Condition to (Re-)Rating
- Preservation (Costs, etc)
- Programming
- Project Planning and Funding

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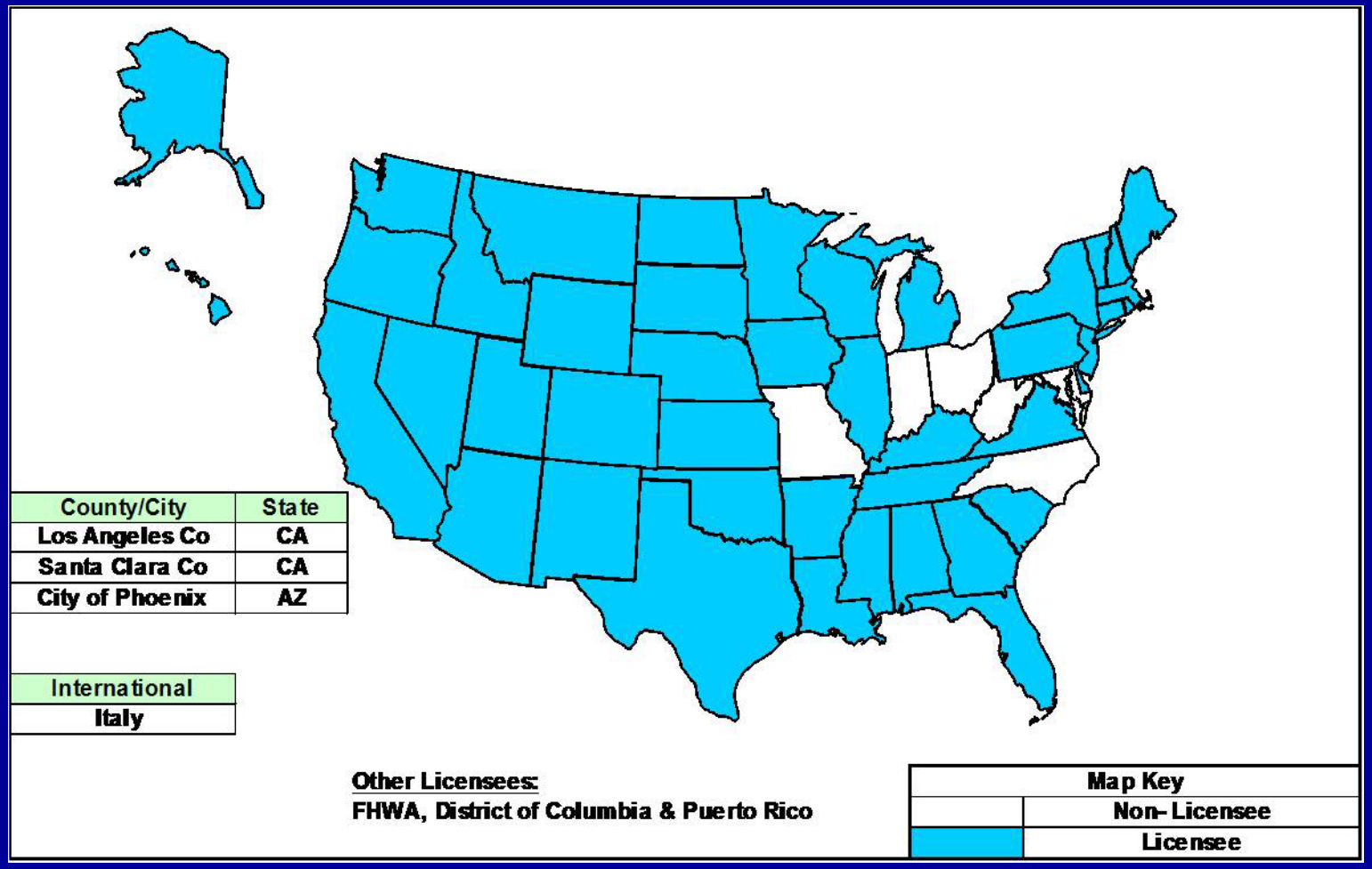
Map of Pontis Licensing States 2009



County/City	State
Los Angeles Co	CA
Santa Clara Co	CA
City of Phoenix	AZ

International
Italy

Other Licensees:
FHWA, District of Columbia & Puerto Rico

Map Key	
	Non-Licensee
	Licensee

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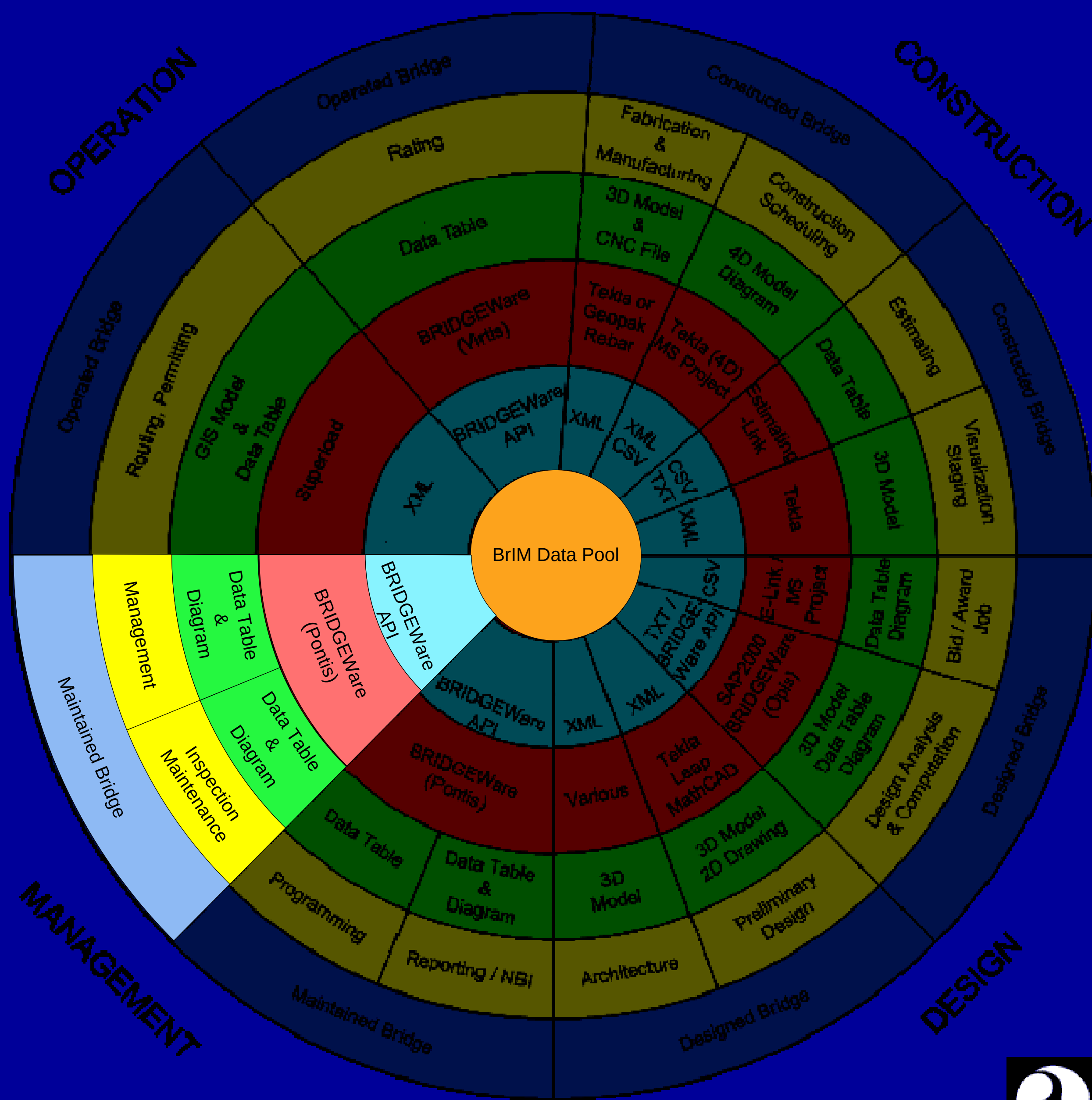

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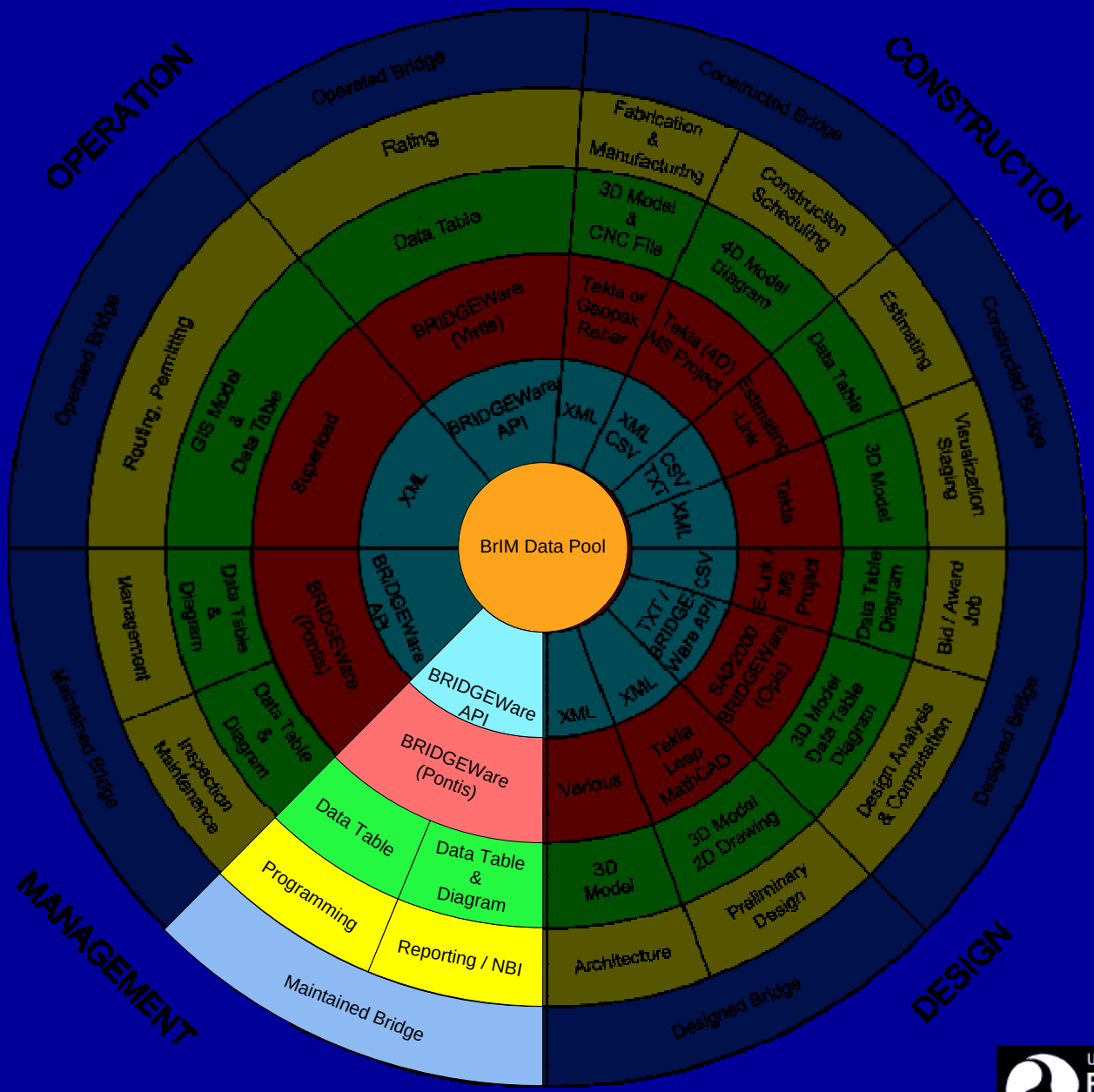

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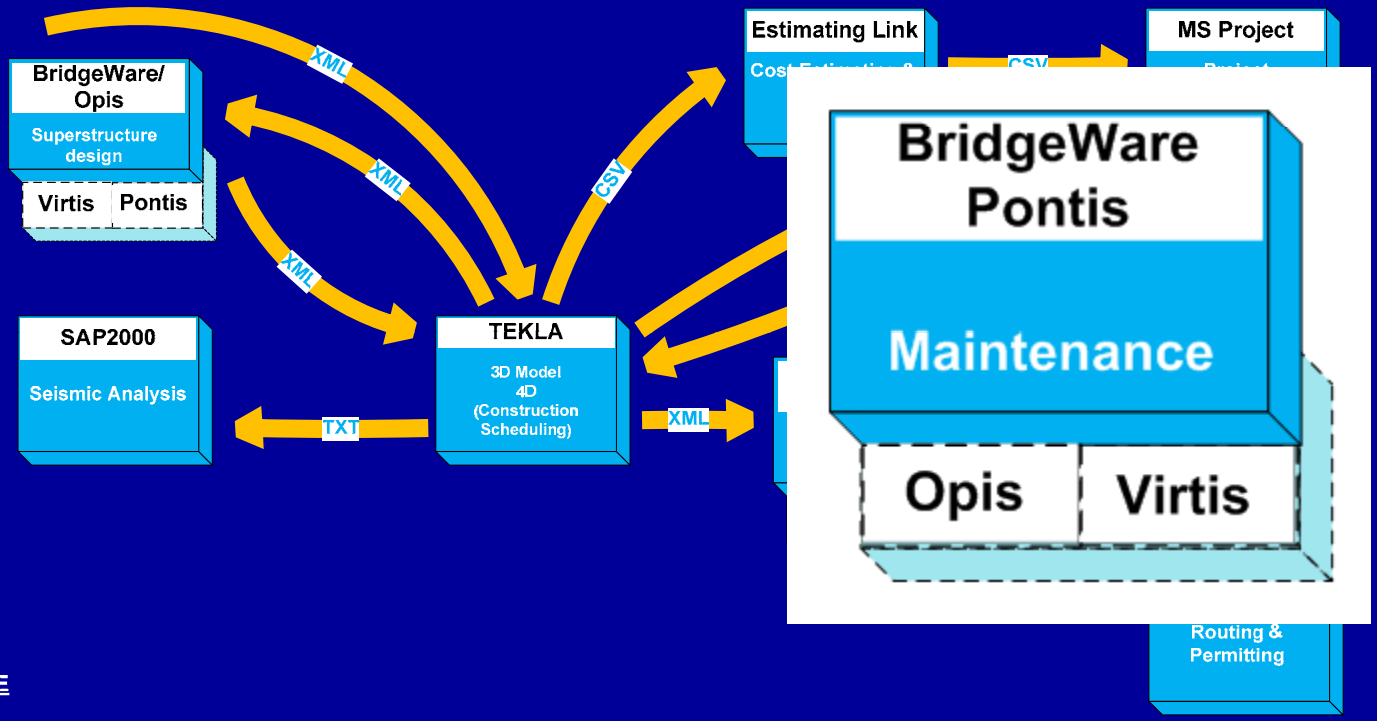

<u>METHOD OF DATA EXCHANGE</u>

TXT – TEXT FILE

XML – EXTENSIBLE MARKUP LANGUAGE

LANDXML – LAND EXTENSIBLE MARKUP LANGUAGE

VBA – VISUAL BASIC FOR APPLICATIONS

CSV – COMMA SEPARATED VALUES

BARS/LARS – AASHTOWARE AND BENTLEY SOFTWARE

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What is Pontis?

Pontis is a comprehensive bridge management system.

- It can assist agencies in allocating scarce resources to protect existing infrastructure investments, ensure safety and maintain mobility.
- It stores inventory and inspection information, and provides a rich set of modeling and analysis tools to support project development, budgeting and program development.
- It helps an agency to formulate network-wide preservation and improvement policies for use in evaluating the needs of each structure in a network; and makes recommendations for what projects to include in an agency's capital plan.
- It also provides the capability to analyze the impact of different project alternatives on the performance of individual structures and on a network of structures.

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Pontis Modules

- Inspection Module
  Collect and maintain inventory and inspection information about structures.
- Project Planning Module
  Build projects from Pontis-generated or inspector recommended work items.
- Programming Module
  Organize projects into agency-wide programs categorized by funding or maintenance needs.
- Preservation Module
  Develop a preservation strategy with cost and deterioration models to be used in analysis.
- Results Module
  View and present graphical information about needs, programmed work and expected performances between the various program simulations to aid in programming decisions.
- Gateway Module
  Import and export data between Pontis and other systems (i.e., NBIS submittals).
- Configuration Module
  Customize Pontis according to the needs of individual agencies.

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Pontis----Inspection Module

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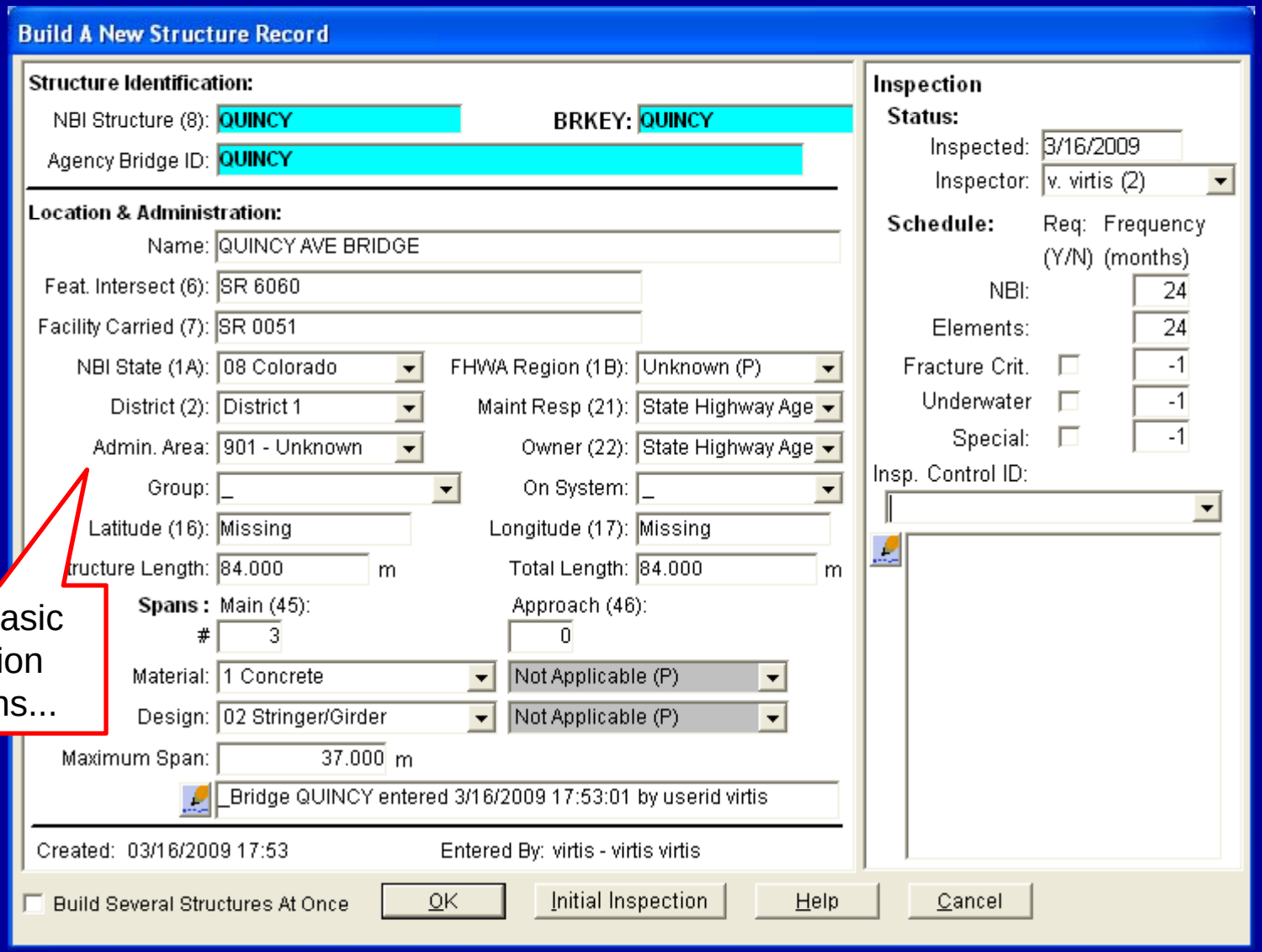
Federal Highway Administration

Create a New Bridge



Bridge basic information definitions...

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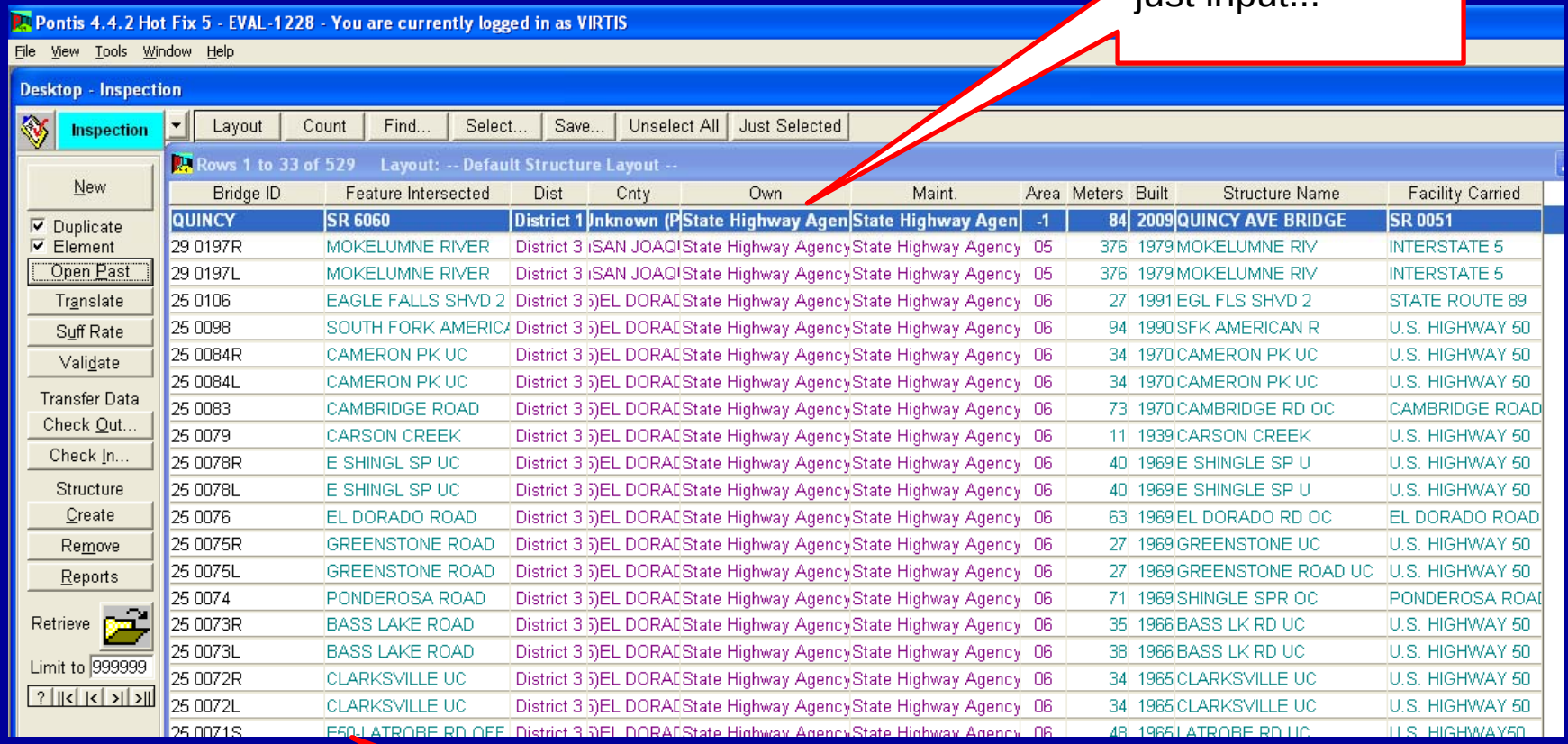
Structure (Bridge) List



The bridge we just input...

NBI (National Bridge Inventory)...

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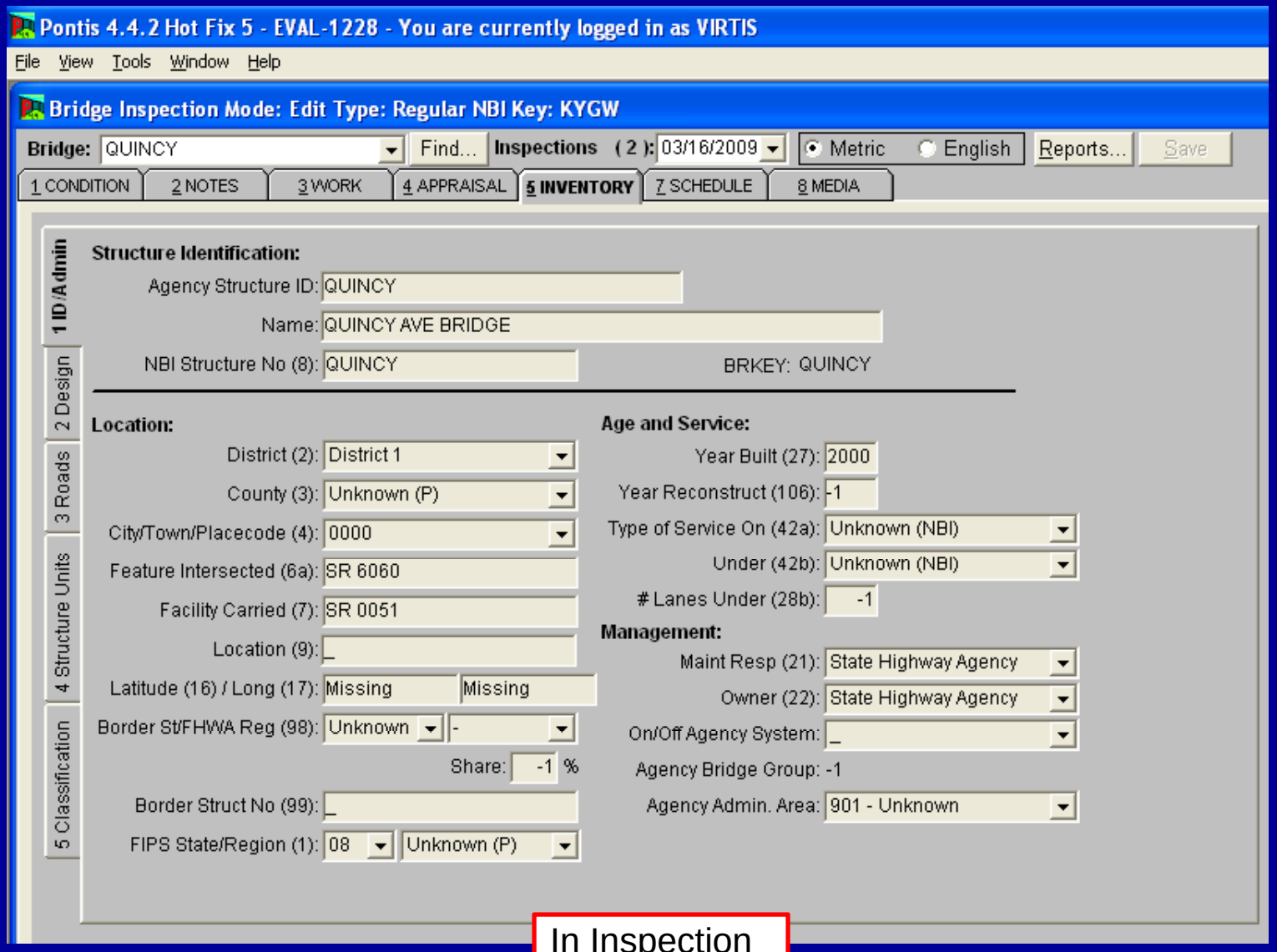
Federal Highway Administration

Inventory



In Inspection Module...

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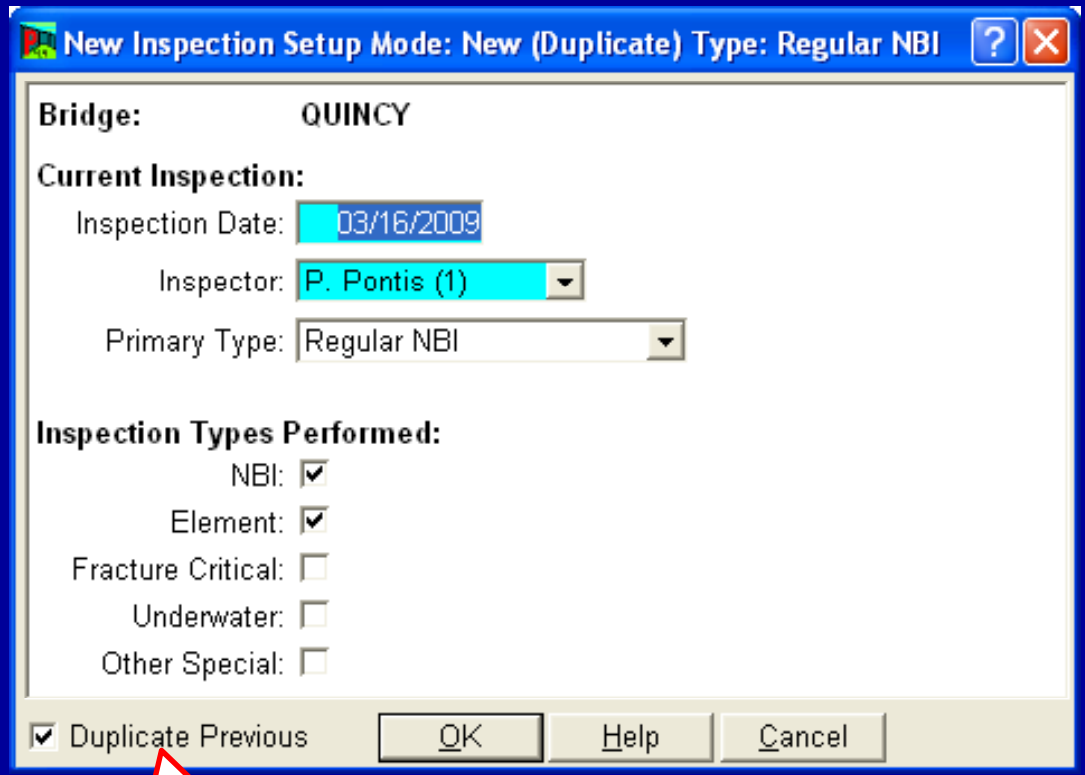
Federal Highway Administration

Create an inspection



We can duplicate previous inspection to setup a new one...

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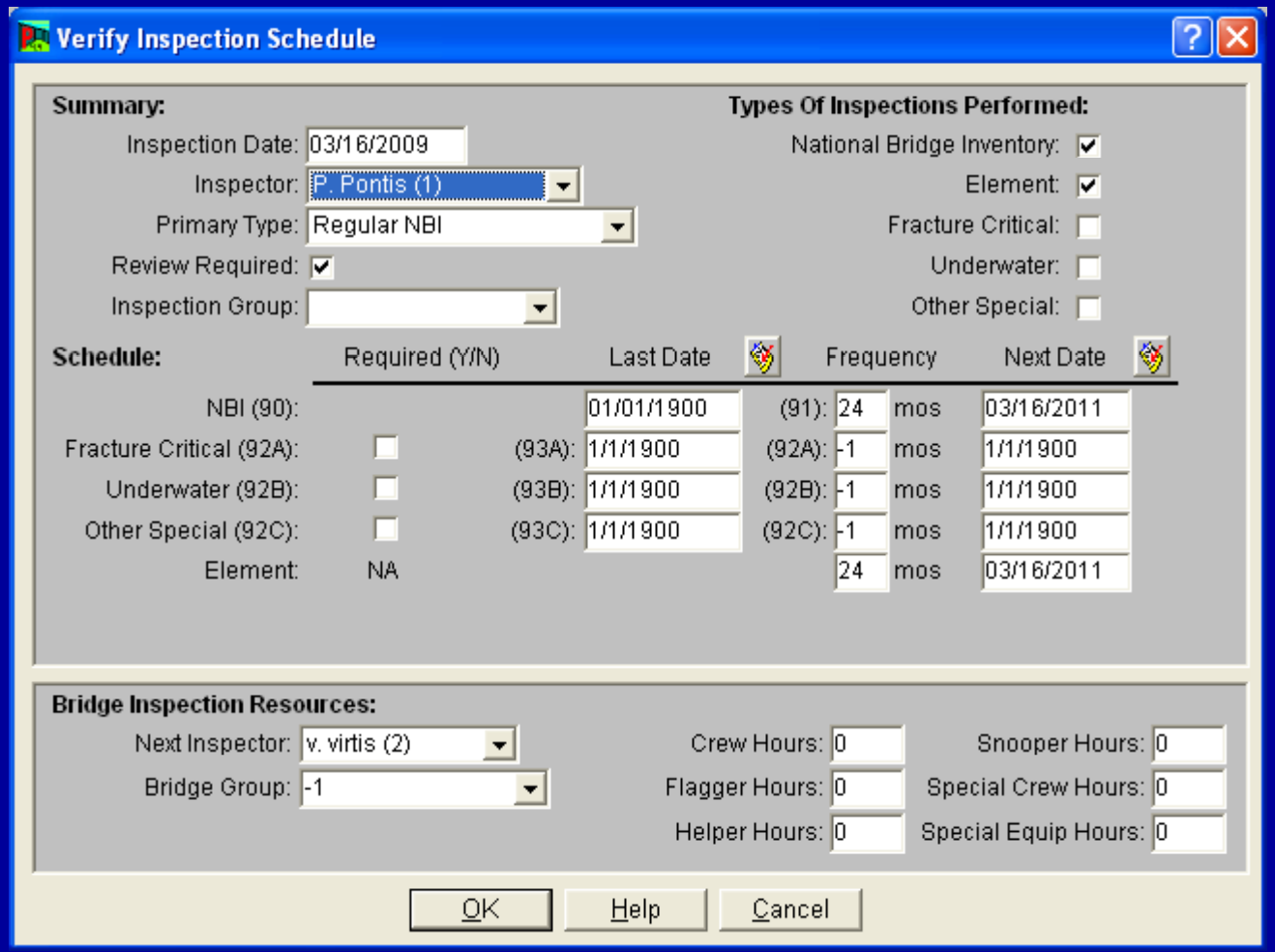
Verify the inspection schedule



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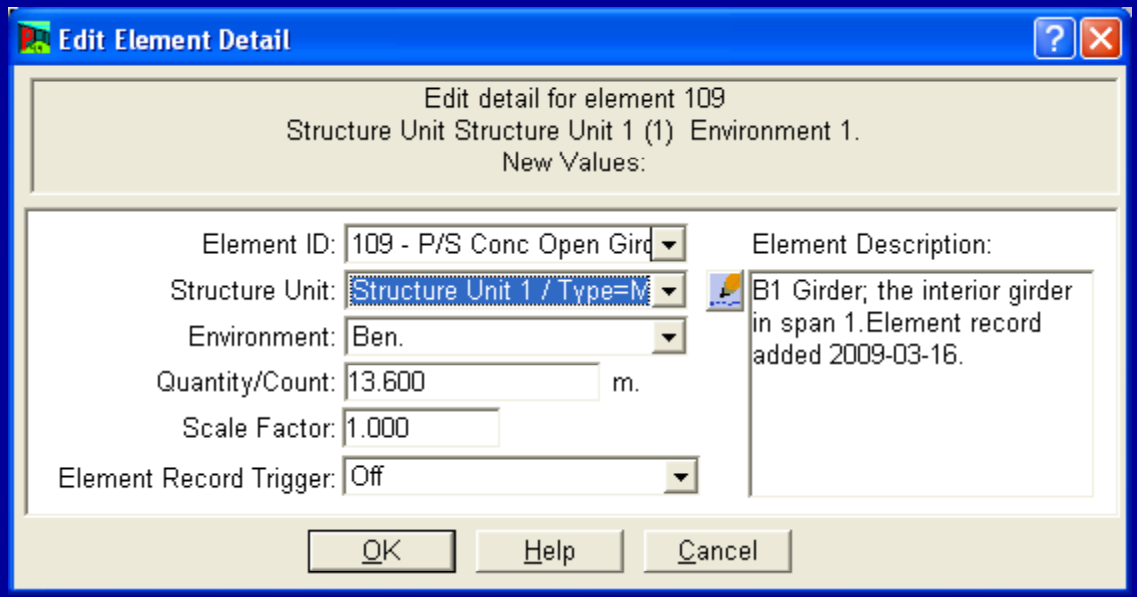
Define Element



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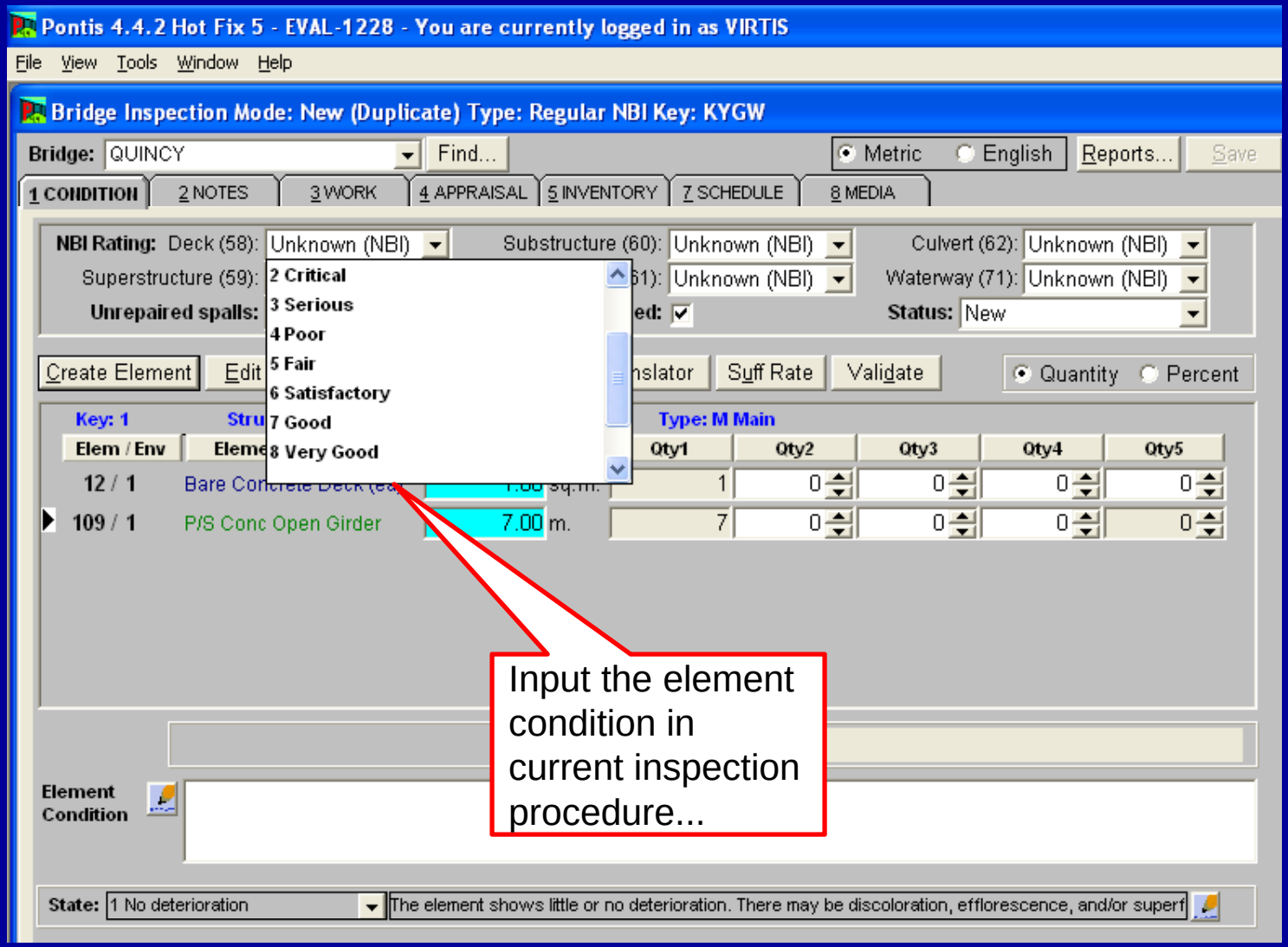
Condition Card Entry



Input the element condition in current inspection procedure...

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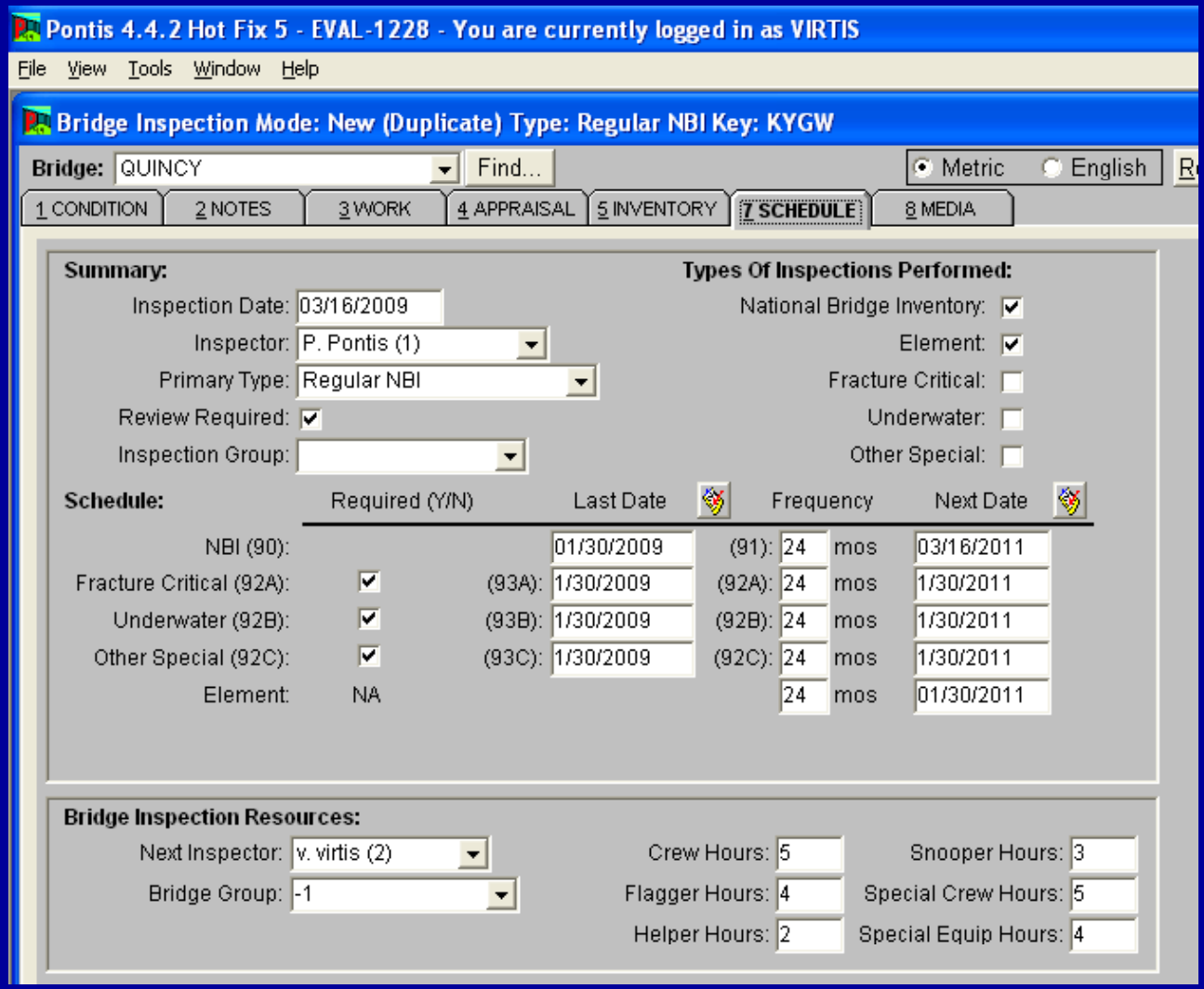
Inspection Schedule



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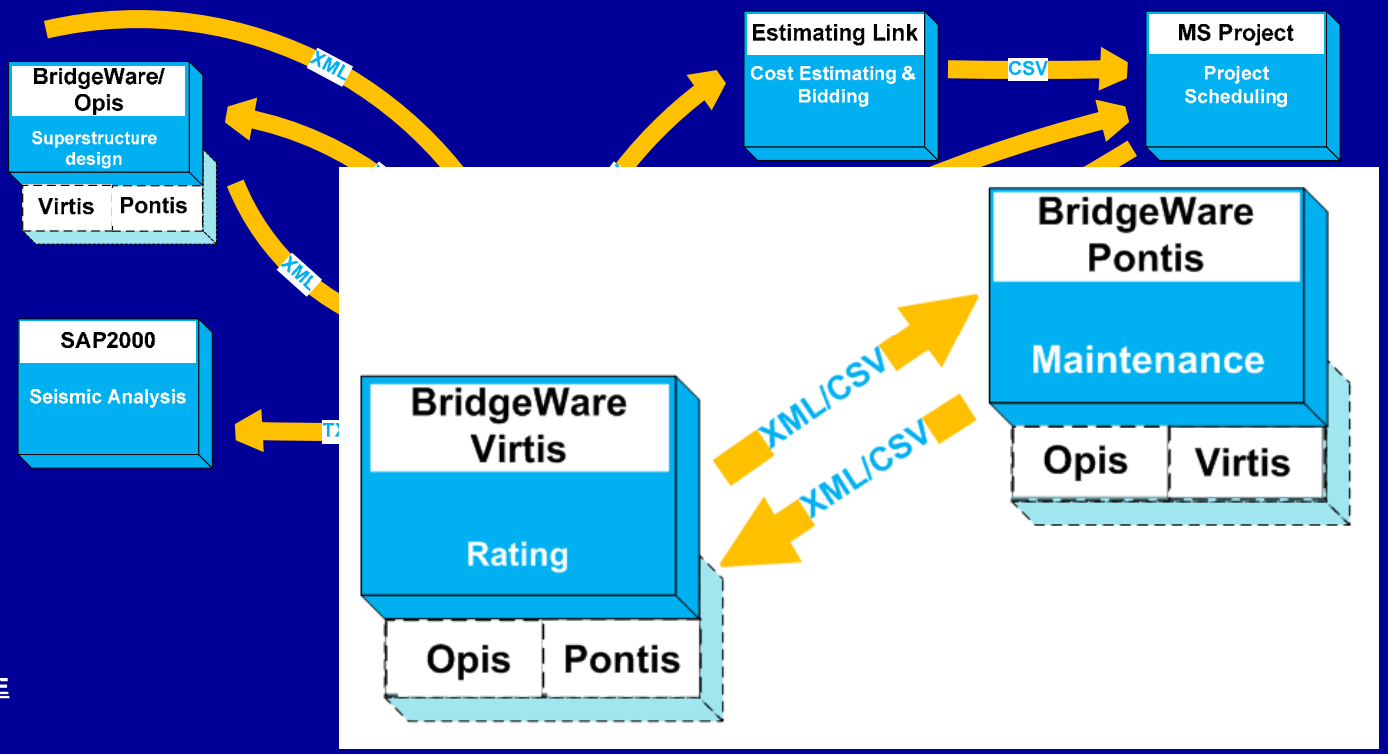
Pontis-Virtis Linkage



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Inspection Data: Girder Section Loss

Web Section Loss Input Form (web_Section_Loss.csv file):

	A	B	C	D	E	F
1	Girder Type (Interior = 1; External=0)	Girder No.	Thickness Loss (%)	Span No.	Start Distance (ft)	Length (ft)
2	1	1	20	1	13	2
3	0	1	10	1	3	0.5
4	1	2	5	1	1	0.4
5	1	3	5	1	3	7
6	1	4	10	2	5	2

Flange Section Loss Input Form (tf_Section_Loss.csv file):

	A	B	C	D	E	F	G
1	Girder Type (Interior = 1; External=0)	Girder No.	Widthness Loss (%)	Thickness Loss (%)	Span No.	Start Distance (ft)	Length (ft)
2	1	1	19	21	1	13	2
3	1	1	0	13	1	2	2
4	0	1	5	5	1	1	3

Input the section loss data from current inspection into csv (Comma Separated Value) linkage file which can be edited in Excel...

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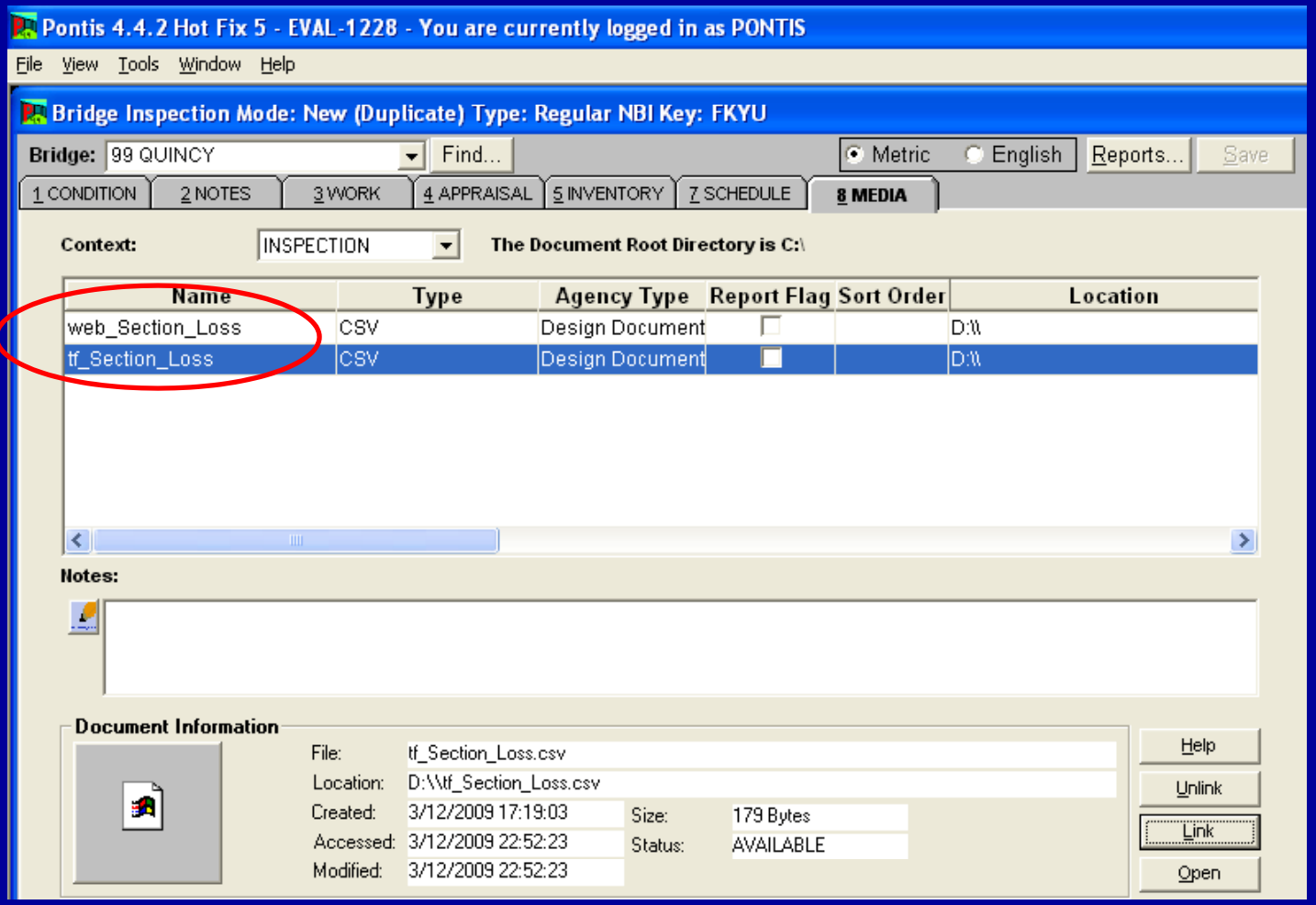
Inspection Data: Girder Section Loss

- Section loss data can be attached in Pontis:



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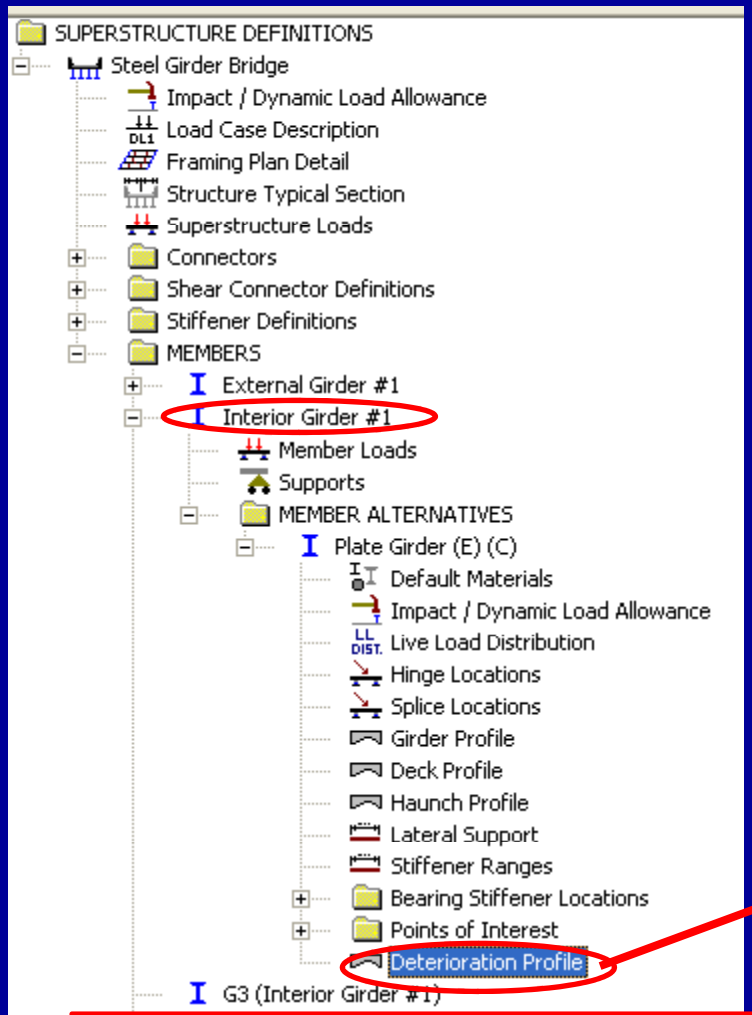
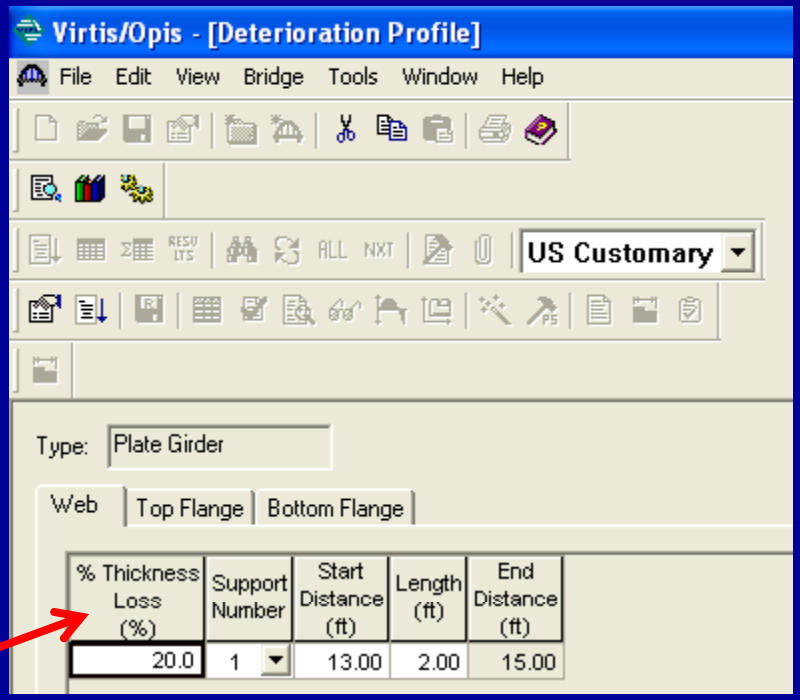
Girder Section Loss Data Inputs in Virtis





1. The program is developed by C# in Visual Studio;
2. It calls BRIDGEWare APIs to update the section loss data

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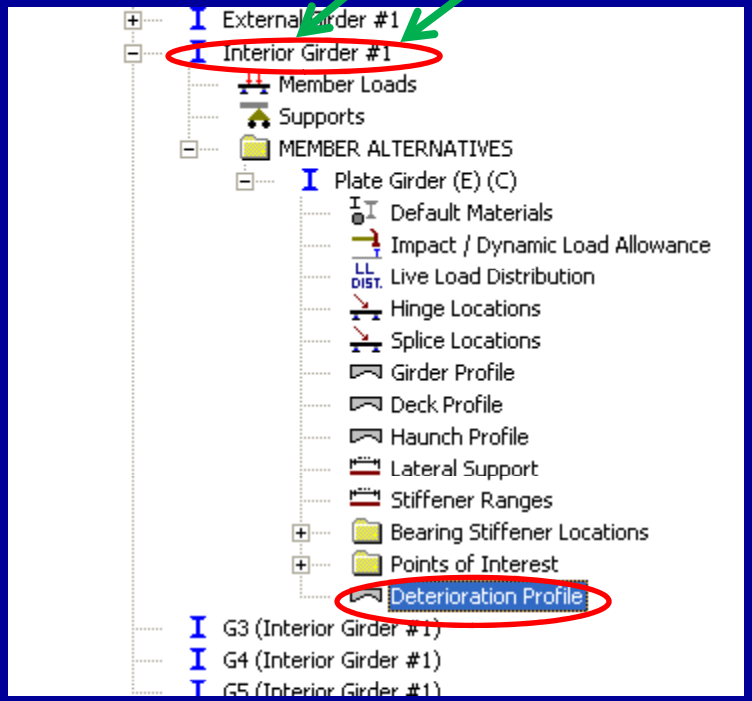
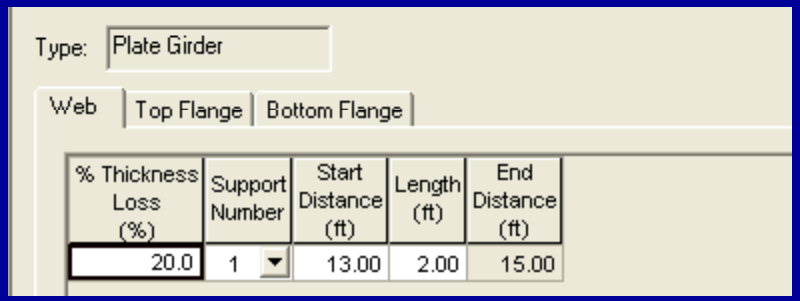
Transfer Section Loss Data into Virtis

	A	B	C	D	E	F
1	Girder Type (Interior = 1; External=0)	Girder No.	Thickness Loss (%)	Span No.	Start Distance (ft)	Length (ft)
2	1	1	20	1	13	2
3	0	1	10	1	3	0.5
4	1	2	5	1	1	0.4
5	1	3	5	1	3	7
6	1	4	10	2	5	2





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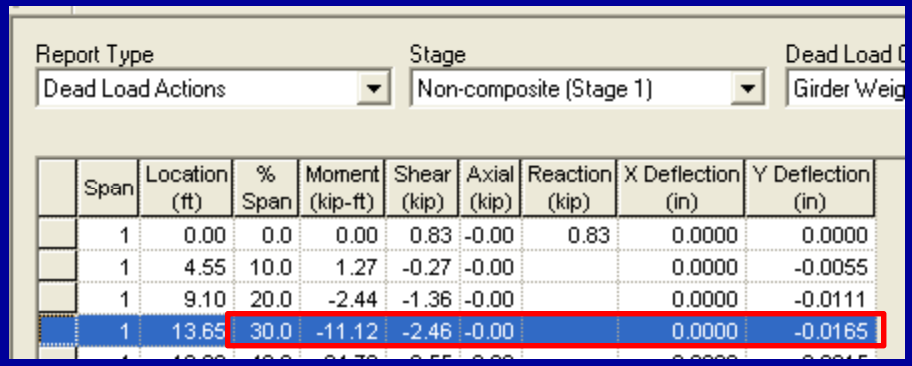
Compare the Rating Results (Dead Load)

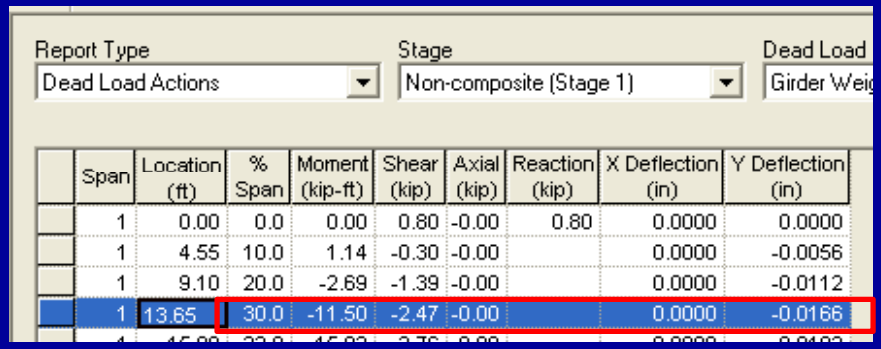
Before Section Loss:



Report Type: Dead Load Actions | Stage: Non-composite (Stage 1) | Dead Load: Girder Weig

	Span	Location (ft)	% Span	Moment (kip-ft)	Shear (kip)	Axial (kip)	Reaction (kip)	X Deflection (in)	Y Deflection (in)
	1	0.00	0.0	0.00	0.83	-0.00	0.83	0.0000	0.0000
	1	4.55	10.0	1.27	-0.27	-0.00		0.0000	-0.0055
	1	9.10	20.0	-2.44	-1.36	-0.00		0.0000	-0.0111
	1	13.65	30.0	-11.12	-2.46	-0.00		0.0000	-0.0165

After Section Loss:



Report Type: Dead Load Actions | Stage: Non-composite (Stage 1) | Dead Load: Girder Weig

	Span	Location (ft)	% Span	Moment (kip-ft)	Shear (kip)	Axial (kip)	Reaction (kip)	X Deflection (in)	Y Deflection (in)
	1	0.00	0.0	0.00	0.80	-0.00	0.80	0.0000	0.0000
	1	4.55	10.0	1.14	-0.30	-0.00		0.0000	-0.0056
	1	9.10	20.0	-2.69	-1.39	-0.00		0.0000	-0.0112
	1	13.65	30.0	-11.50	-2.47	-0.00		0.0000	-0.0166

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Compare the Rating Results (Live Load)

Before Section Loss:

Report Type: Live Load Actions | Stage: Composite (short term) (Stage 3) | Live Load: HL-93 (US) | Live Load Type: Design Truck

Span	Location (ft)	% Span	Positive Moment (kip-ft)	Negative Moment (kip-ft)	Positive Shear (kip)	Negative Shear (kip)	Positive Axial (kip)	Negative Axial (kip)	Positive Reaction (kip)	Negative Reaction (kip)	Positive X Deflection (in)	Negative X Deflection (in)	Positive Y Deflection (in)	Negative Y Deflection (in)	% Impact Pos Reaction	% Impact Neg Reaction
1	0.00	0.0	0.00	-0.00	70.63	-25.90	0.00	0.00	70.63	-25.90	0.0000	0.0000	0.0000	0.0000	33.000	33.000
1	4.55	10.0	274.56	-117.85	61.14	-25.90	0.00	0.00			0.0000	0.0000	0.0346	-0.0361		
1	9.10	20.0	458.69	-235.69	51.11	-25.90	0.00	0.00			0.0000	0.0000	0.0654	-0.0700		
1	13.65	30.0	560.29	-353.54	41.44	-25.90	0.00	0.00			0.0000	0.0000	0.0886	-0.0995		

After Section Loss:

Report Type: Live Load Actions | Stage: Composite (short term) (Stage 3) | Live Load: HL-93 (US) | Live Load Type: Design Truck

Span	Location (ft)	% Span	Positive Moment (kip-ft)	Negative Moment (kip-ft)	Positive Shear (kip)	Negative Shear (kip)	Positive Axial (kip)	Negative Axial (kip)	Positive Reaction (kip)	Negative Reaction (kip)	Positive X Deflection (in)	Negative X Deflection (in)	Positive Y Deflection (in)	Negative Y Deflection (in)	% Impact Pos Reaction	% Impact Neg Reaction
1	0.00	0.0	0.00	-0.00	70.62	-25.90	0.00	0.00	70.62	-25.90	0.0000	0.0000	0.0000	0.0000	33.000	33.000
1	4.55	10.0	274.54	-117.83	61.14	-25.90	0.00	0.00			0.0000	0.0000	0.0348	-0.0362		
1	9.10	20.0	458.63	-235.65	51.10	-25.90	0.00	0.00			0.0000	0.0000	0.0656	-0.0702		
1	13.65	30.0	560.18	-353.47	41.43	-25.90	0.00	0.00			0.0000	0.0000	0.0891	-0.0998		

Pontis: Preservation Module

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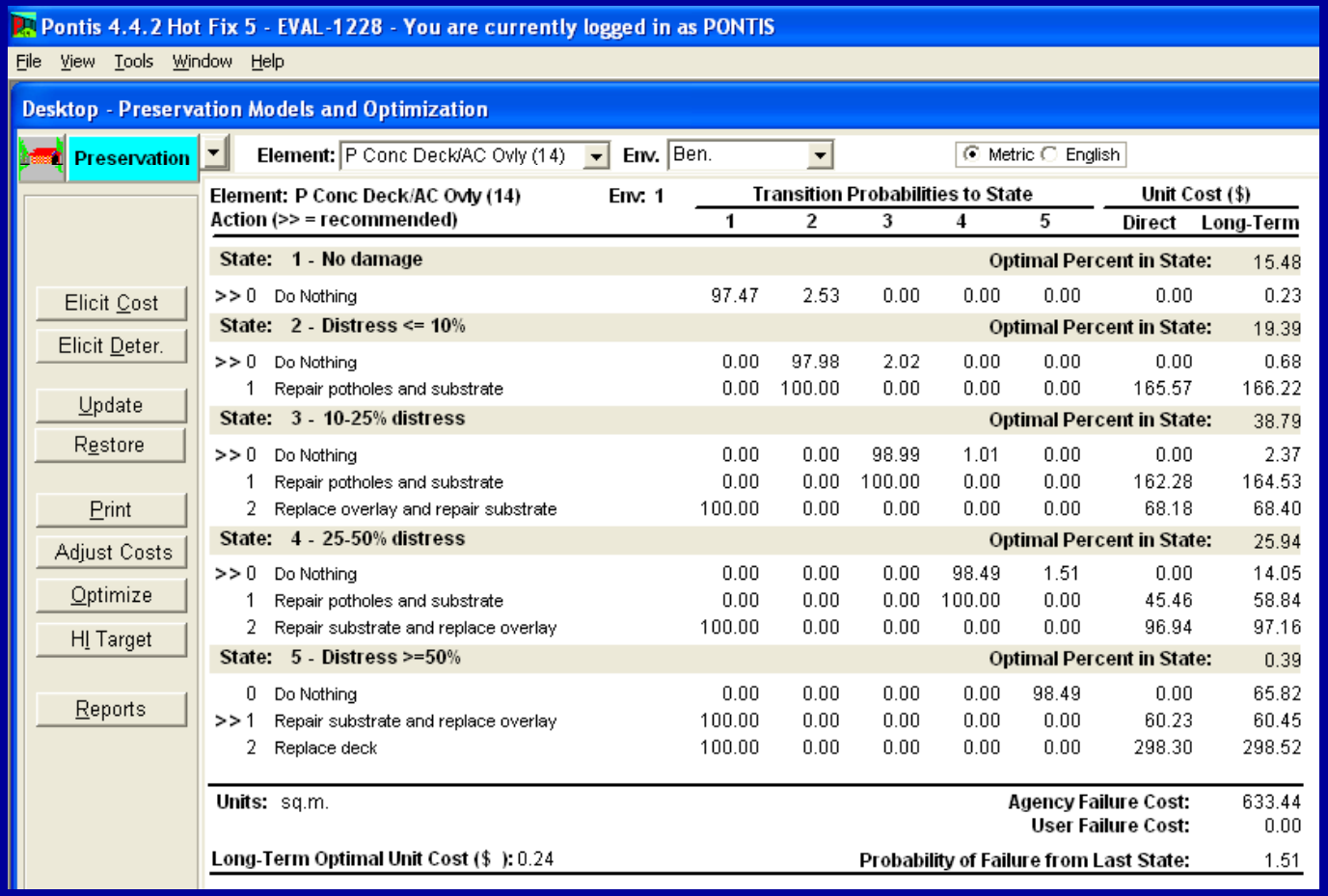
Federal Highway Administration

Preservation Module Desktop

The preservation module allows editing of the agency policies, cost, and deterioration models for a selected element and environment.

From here, you can select different elements and/or environments, edit expert elicitations, update the models based on elicitation or historical results, or build the preservation optimization model.



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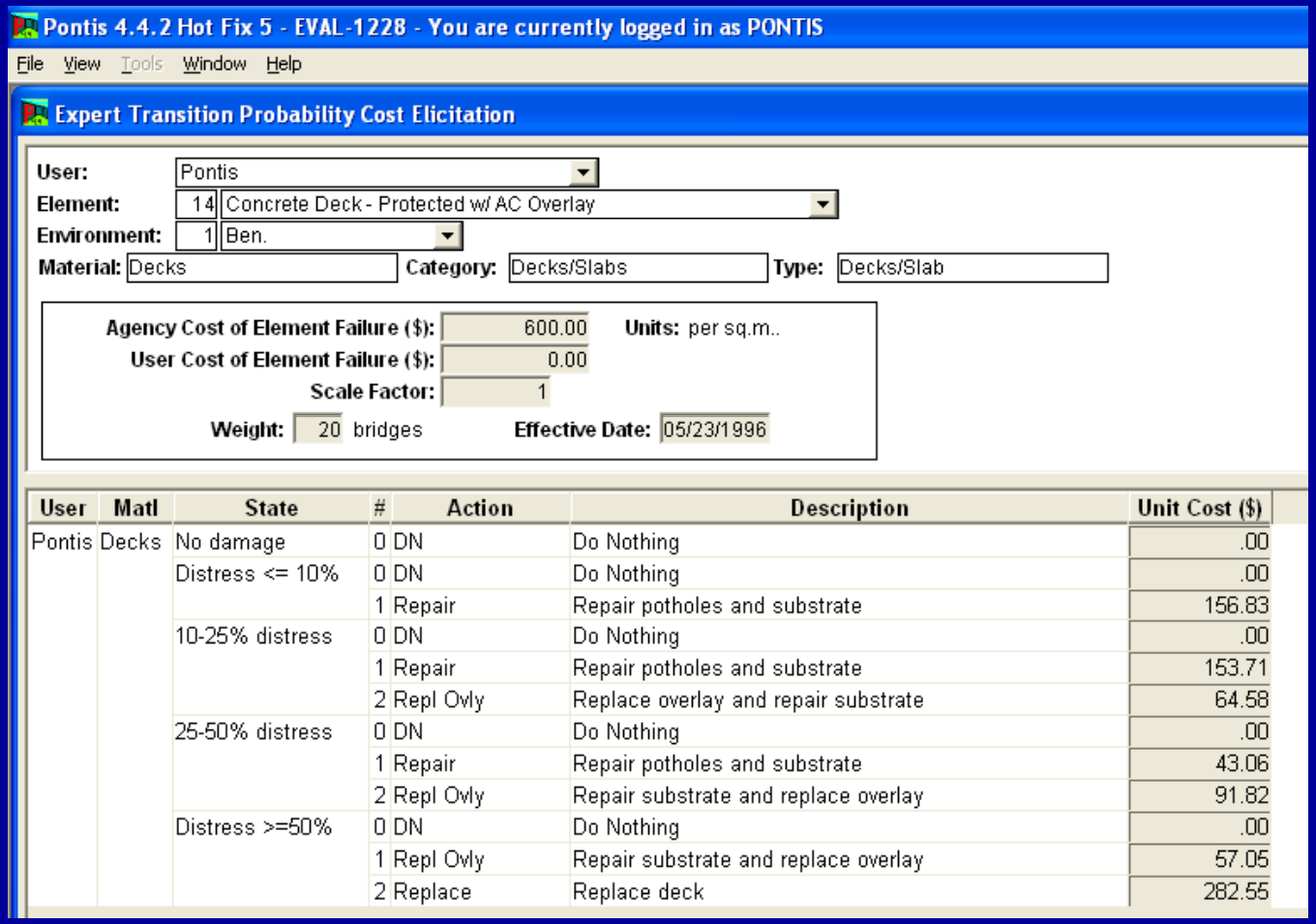
Elicit Cost



User	Matl	State	#	Action	Description	Unit Cost ($)
Pontis	Decks	No damage	0	DN	Do Nothing	.00
		Distress <= 10%	0	DN	Do Nothing	.00
			1	Repair	Repair potholes and substrate	156.83
		10-25% distress	0	DN	Do Nothing	.00
			1	Repair	Repair potholes and substrate	153.71
			2	Repl Ovly	Replace overlay and repair substrate	64.58
		25-50% distress	0	DN	Do Nothing	.00
			1	Repair	Repair potholes and substrate	43.06
			2	Repl Ovly	Repair substrate and replace overlay	91.82
		Distress >=50%	0	DN	Do Nothing	.00
			1	Repl Ovly	Repair substrate and replace overlay	57.05
			2	Replace	Replace deck	282.55

Edit agency-based costs of different preservation actions.

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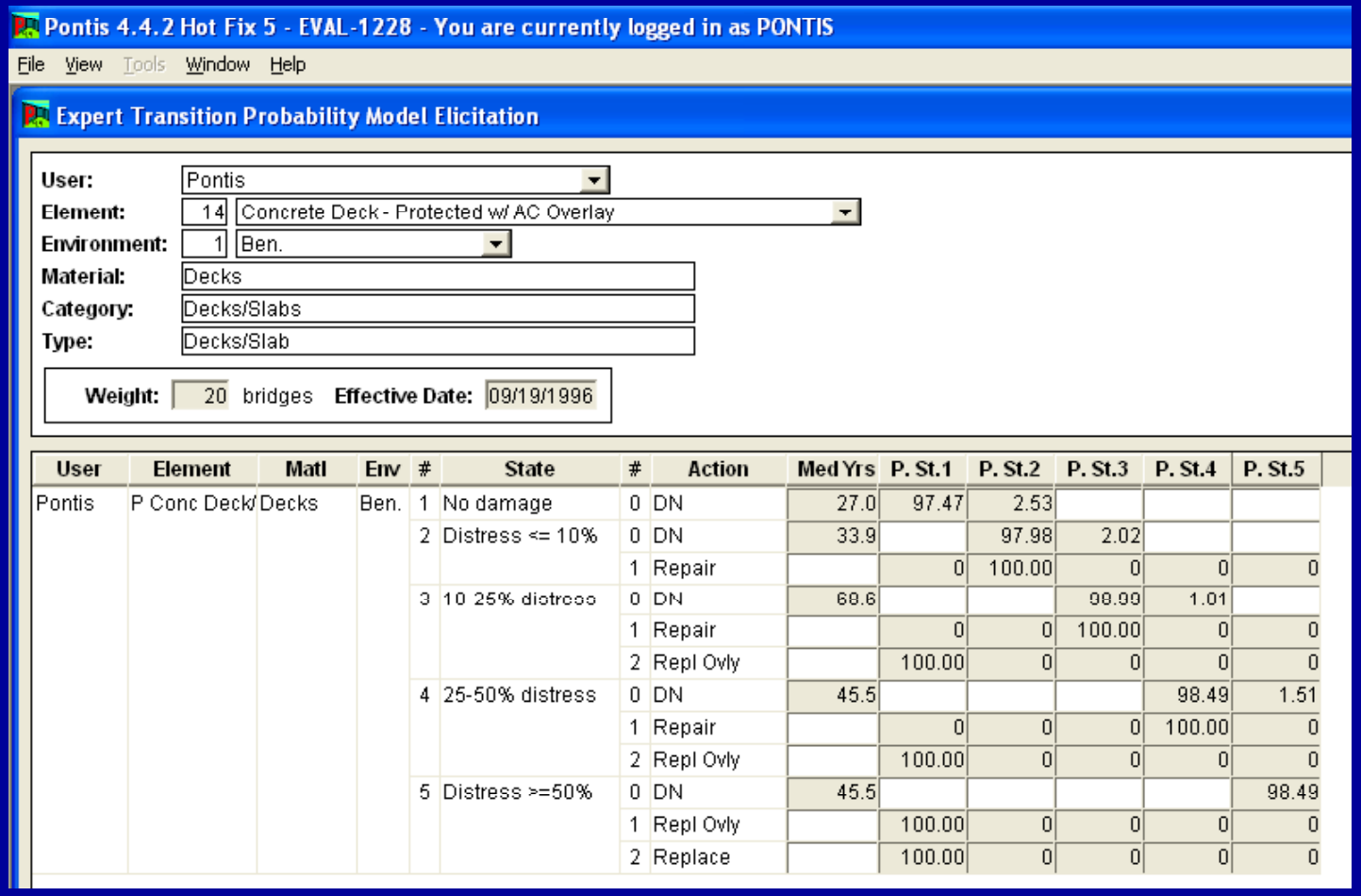
Expert Transition Probability Model Elicitation



User	Element	Matl	Env	#	State	#	Action	Med Yrs	P. St.1	P. St.2	P. St.3	P. St.4	P. St.5
Pontis	P Conc Deck/	Decks	Ben.	1	No damage	0	DN	27.0	97.47	2.53			
				2	Distress <= 10%	0	DN	33.9		97.98	2.02		
						1	Repair		0	100.00	0	0	0
				3	10-25% distress	0	DN	66.6			98.99	1.01	
						1	Repair		0	0	100.00	0	0
						2	Repl Ovly		100.00	0	0	0	0
				4	25-50% distress	0	DN	45.5				98.49	1.51
						1	Repair		0	0	0	100.00	0
						2	Repl Ovly		100.00	0	0	0	0
				5	Distress >=50%	0	DN	45.5					98.49
						1	Repl Ovly		100.00	0	0	0	0
						2	Replace		100.00	0	0	0	0

Edit agency-based actions regarding how different structure elements deteriorate.

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Adjust Costs

Inflation Adjustments:

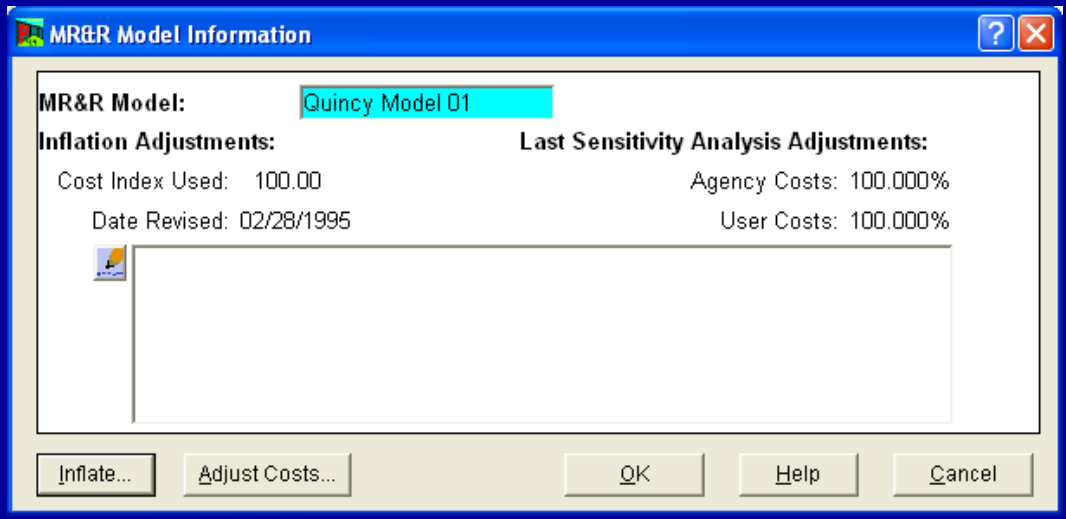
•**Cost Index Used----** Numeric value of cost index last used for inflation adjustments.

•**Date Revised----** Date the MR&R model information was last revised.

Last Sensitivity Analysis Adjustments:

•**Agency Costs----** Percentage by which MR&R unit costs were last adjusted for the preservation optimization. For example, to increase all agency costs by 20 percent, enter 120. To decrease all agency costs by 20 percent, enter 80.

•**User Costs**----Percentage by which user costs were last adjusted for the preservation optimization.



Adjust the preservation costs for inflation to determine the impact to a program of increases or decreases.

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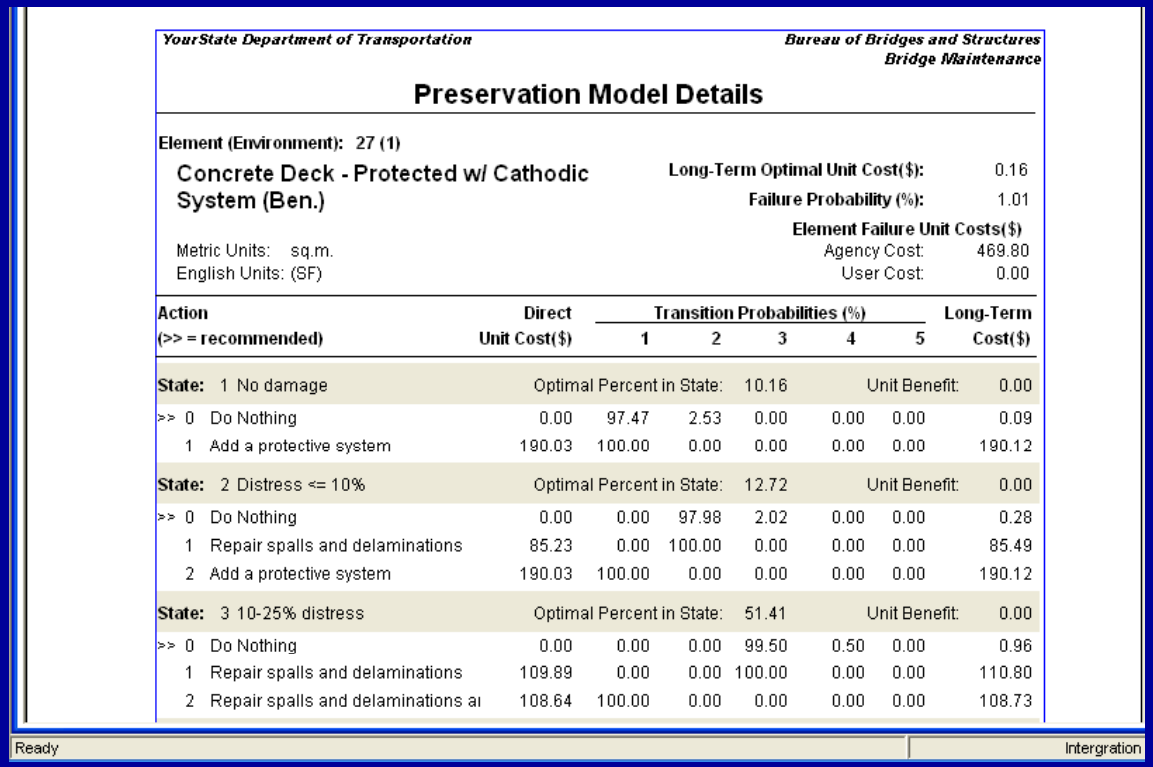
Reports----Preservation model details



YourState Department of Transportation — *Bureau of Bridges and Structures* / *Bridge Maintenance*

Preservation Model Details

Element (Environment): 27 (1)

Concrete Deck - Protected w/ Cathodic System (Ben.)

Metric Units: sq.m.
English Units: (SF)

Long-Term Optimal Unit Cost($): 0.16
Failure Probability (%): 1.01
Element Failure Unit Costs($)
Agency Cost: 469.80
User Cost: 0.00

Action (>> = recommended)	Direct Unit Cost($)	Transition Probabilities (%) 1	2	3	4	5	Long-Term Cost($)
State: 1 No damage	Optimal Percent in State: 10.16				Unit Benefit:		0.00
>> 0 Do Nothing	0.00	97.47	2.53	0.00	0.00	0.00	0.09
1 Add a protective system	190.03	100.00	0.00	0.00	0.00	0.00	190.12
State: 2 Distress <= 10%	Optimal Percent in State: 12.72				Unit Benefit:		0.00
>> 0 Do Nothing	0.00	0.00	97.98	2.02	0.00	0.00	0.28
1 Repair spalls and delaminations	85.23	0.00	100.00	0.00	0.00	0.00	85.49
2 Add a protective system	190.03	100.00	0.00	0.00	0.00	0.00	190.12
State: 3 10-25% distress	Optimal Percent in State: 51.41				Unit Benefit:		0.00
>> 0 Do Nothing	0.00	0.00	0.00	99.50	0.50	0.00	0.96
1 Repair spalls and delaminations	109.89	0.00	0.00	100.00	0.00	0.00	110.80
2 Repair spalls and delaminations al	108.64	100.00	0.00	0.00	0.00	0.00	108.73

Ready — Intergration

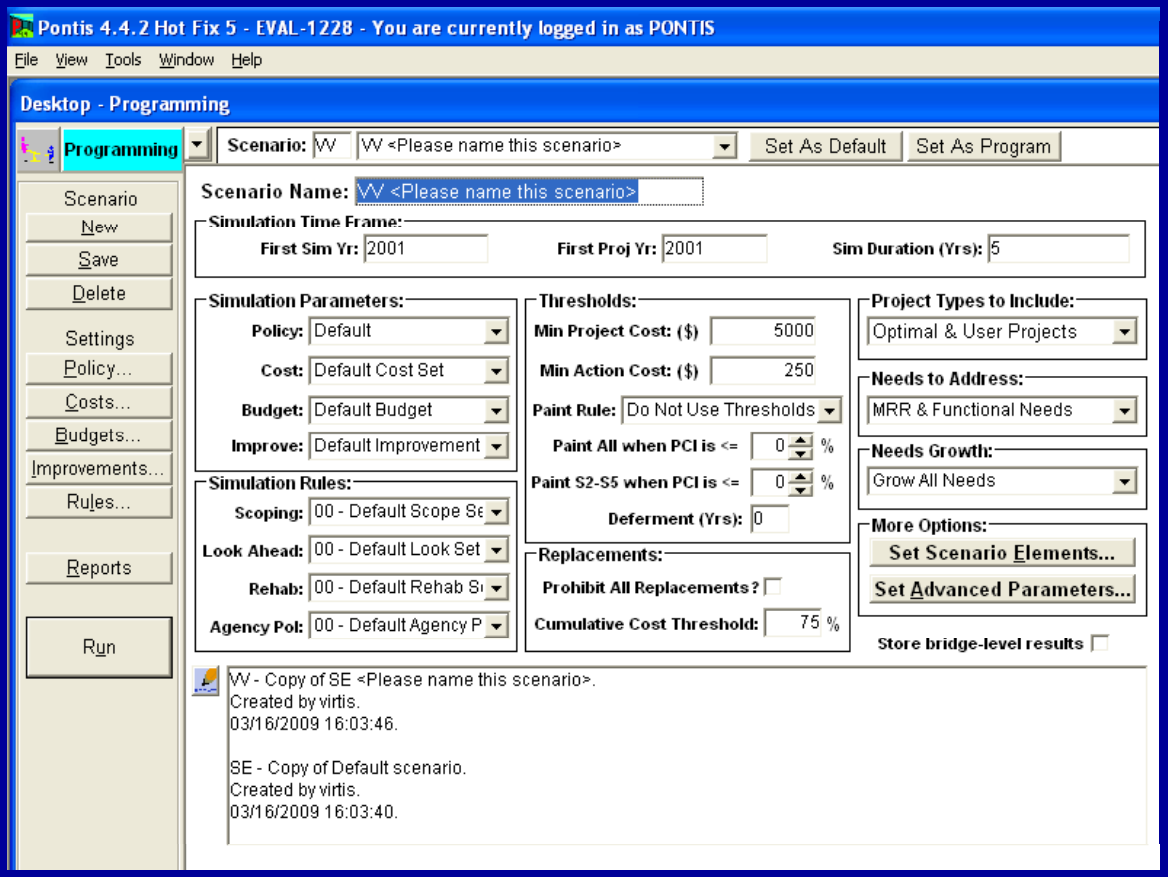
- A detailed report can be printed to view the preservation strategy for each condition unit, including the recommended actions (represented by **>>**) for each element/environment combination.
- The report also shows the long-term optimal cost for the condition unit, representing best cost-benefit choice.
- Also, the report indicates the percentage chance of failure from the worst condition state of the condition unit and the agency and user unit failure costs.

U.S. Department of Transportation
Federal Highway Administration

Pontis: Programming Module

U.S. Department of Transportation
Federal Highway Administration

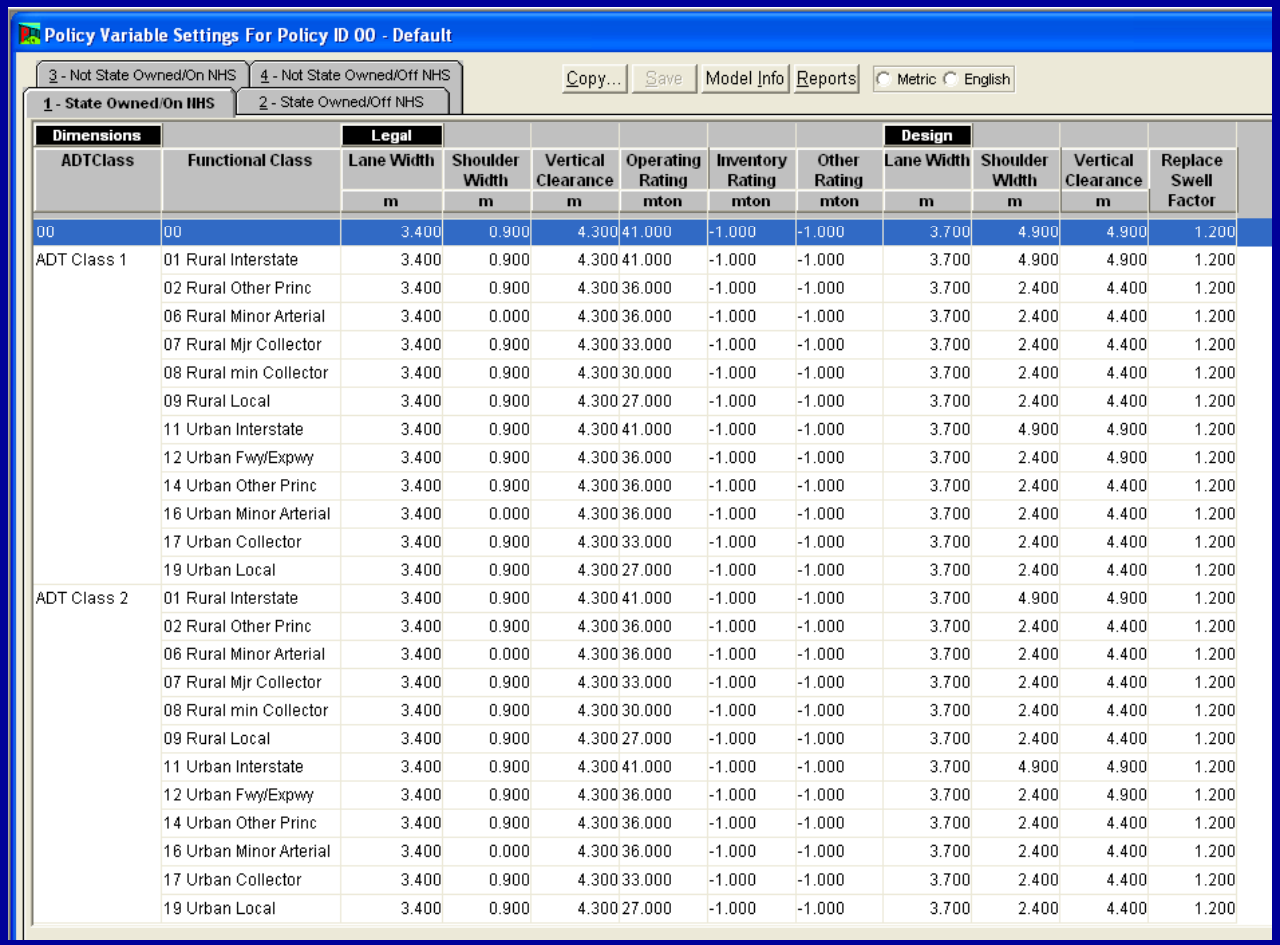
Programming Module Desktop



Define and run program scenarios. From this screen a user can edit functional improvement standards, cost and benefit assumptions, annual budgets, improvement models, and simulation rules.

U.S. Department of Transportation
Federal Highway Administration

Simulation Parameters----Policy Definition



Policy Variable Settings For Policy ID 00 - Default

3 - Not State Owned/On NHS | 4 - Not State Owned/Off NHS | 1 - State Owned/On NHS | 2 - State Owned/Off NHS

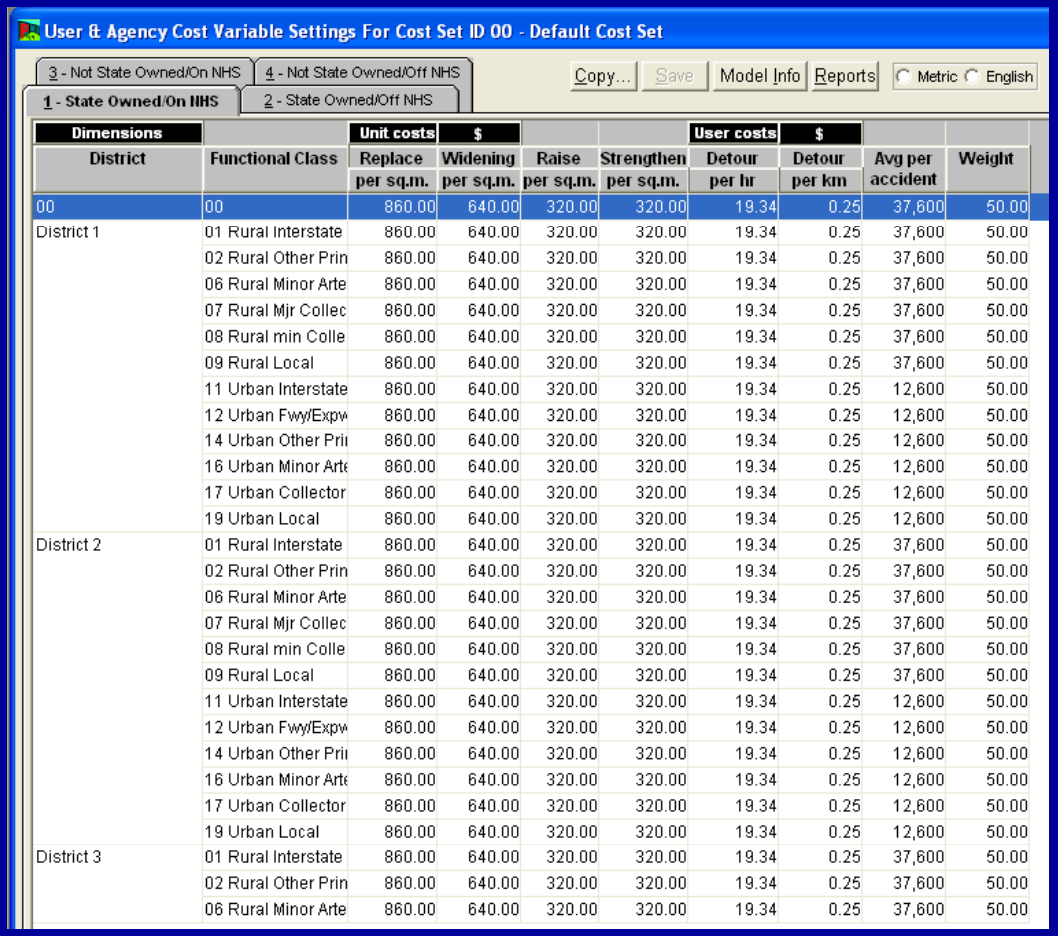
Copy... | Save | Model Info | Reports | Metric | English

Dimensions		Legal						Design			
ADTClass	Functional Class	Lane Width	Shoulder Width	Vertical Clearance	Operating Rating	Inventory Rating	Other Rating	Lane Width	Shoulder Width	Vertical Clearance	Replace Swell Factor
		m	m	m	mton	mton	mton	m	m	m	
00	00	3.400	0.900	4.300	41.000	-1.000	-1.000	3.700	4.900	4.900	1.200
ADT Class 1	01 Rural Interstate	3.400	0.900	4.300	41.000	-1.000	-1.000	3.700	4.900	4.900	1.200
	02 Rural Other Princ	3.400	0.900	4.300	36.000	-1.000	-1.000	3.700	2.400	4.400	1.200
	06 Rural Minor Arterial	3.400	0.000	4.300	36.000	-1.000	-1.000	3.700	2.400	4.400	1.200
	07 Rural Mjr Collector	3.400	0.900	4.300	33.000	-1.000	-1.000	3.700	2.400	4.400	1.200
	08 Rural min Collector	3.400	0.900	4.300	30.000	-1.000	-1.000	3.700	2.400	4.400	1.200
	09 Rural Local	3.400	0.900	4.300	27.000	-1.000	-1.000	3.700	2.400	4.400	1.200
	11 Urban Interstate	3.400	0.900	4.300	41.000	-1.000	-1.000	3.700	4.900	4.900	1.200
	12 Urban Fwy/Expwy	3.400	0.900	4.300	36.000	-1.000	-1.000	3.700	2.400	4.900	1.200
	14 Urban Other Princ	3.400	0.900	4.300	36.000	-1.000	-1.000	3.700	2.400	4.400	1.200
	16 Urban Minor Arterial	3.400	0.000	4.300	36.000	-1.000	-1.000	3.700	2.400	4.400	1.200
	17 Urban Collector	3.400	0.900	4.300	33.000	-1.000	-1.000	3.700	2.400	4.400	1.200
	19 Urban Local	3.400	0.900	4.300	27.000	-1.000	-1.000	3.700	2.400	4.400	1.200
ADT Class 2	01 Rural Interstate	3.400	0.900	4.300	41.000	-1.000	-1.000	3.700	4.900	4.900	1.200
	02 Rural Other Princ	3.400	0.900	4.300	36.000	-1.000	-1.000	3.700	2.400	4.400	1.200
	06 Rural Minor Arterial	3.400	0.000	4.300	36.000	-1.000	-1.000	3.700	2.400	4.400	1.200
	07 Rural Mjr Collector	3.400	0.900	4.300	33.000	-1.000	-1.000	3.700	2.400	4.400	1.200
	08 Rural min Collector	3.400	0.900	4.300	30.000	-1.000	-1.000	3.700	2.400	4.400	1.200
	09 Rural Local	3.400	0.900	4.300	27.000	-1.000	-1.000	3.700	2.400	4.400	1.200
	11 Urban Interstate	3.400	0.900	4.300	41.000	-1.000	-1.000	3.700	4.900	4.900	1.200
	12 Urban Fwy/Expwy	3.400	0.900	4.300	36.000	-1.000	-1.000	3.700	2.400	4.900	1.200
	14 Urban Other Princ	3.400	0.900	4.300	36.000	-1.000	-1.000	3.700	2.400	4.400	1.200
	16 Urban Minor Arterial	3.400	0.000	4.300	36.000	-1.000	-1.000	3.700	2.400	4.400	1.200
	17 Urban Collector	3.400	0.900	4.300	33.000	-1.000	-1.000	3.700	2.400	4.400	1.200
	19 Urban Local	3.400	0.900	4.300	27.000	-1.000	-1.000	3.700	2.400	4.400	1.200

Policy Sets can be edited that will specify the functional improvement standards used in the scenario.

U.S. Department of Transportation
Federal Highway Administration

Simulation Parameters----Costs Definition



User & Agency Cost Variable Settings For Cost Set ID 00 - Default Cost Set

3 - Not State Owned/On NHS | 4 - Not State Owned/Off NHS | 1 - State Owned/On NHS | 2 - State Owned/Off NHS

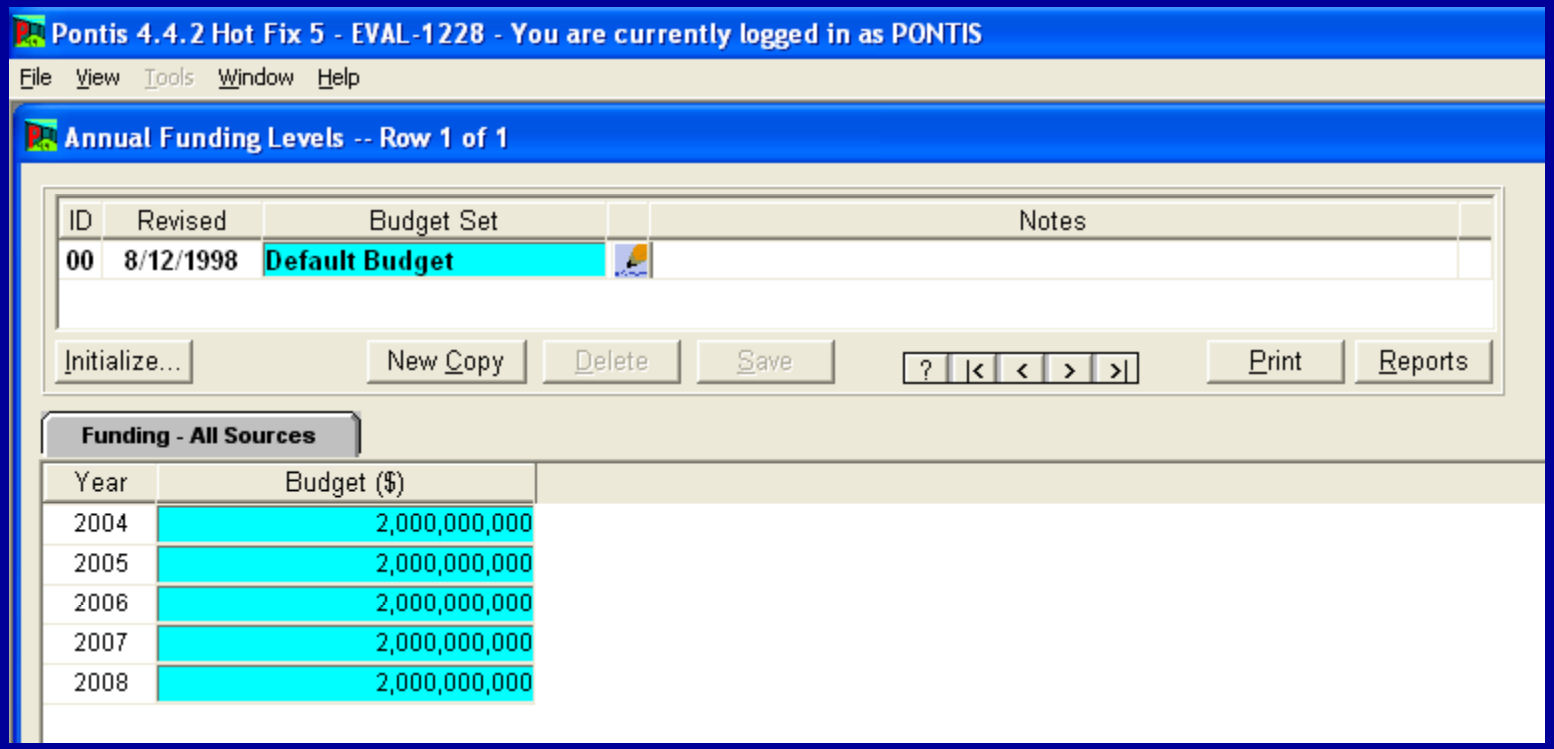
Copy... | Save | Model Info | Reports | Metric | English

Dimensions		Unit costs	$			User costs	$		
District	Functional Class	Replace per sq.m.	Widening per sq.m.	Raise per sq.m.	Strengthen per sq.m.	Detour per hr	Detour per km	Avg per accident	Weight
00	00	860.00	640.00	320.00	320.00	19.34	0.25	37,600	50.00
District 1	01 Rural Interstate	860.00	640.00	320.00	320.00	19.34	0.25	37,600	50.00
	02 Rural Other Prin	860.00	640.00	320.00	320.00	19.34	0.25	37,600	50.00
	06 Rural Minor Arte	860.00	640.00	320.00	320.00	19.34	0.25	37,600	50.00
	07 Rural Mjr Collec	860.00	640.00	320.00	320.00	19.34	0.25	37,600	50.00
	08 Rural min Colle	860.00	640.00	320.00	320.00	19.34	0.25	37,600	50.00
	09 Rural Local	860.00	640.00	320.00	320.00	19.34	0.25	37,600	50.00
	11 Urban Interstate	860.00	640.00	320.00	320.00	19.34	0.25	12,600	50.00
	12 Urban Fwy/Expw	860.00	640.00	320.00	320.00	19.34	0.25	12,600	50.00
	14 Urban Other Pri	860.00	640.00	320.00	320.00	19.34	0.25	12,600	50.00
	16 Urban Minor Art	860.00	640.00	320.00	320.00	19.34	0.25	12,600	50.00
	17 Urban Collector	860.00	640.00	320.00	320.00	19.34	0.25	12,600	50.00
	19 Urban Local	860.00	640.00	320.00	320.00	19.34	0.25	12,600	50.00
District 2	01 Rural Interstate	860.00	640.00	320.00	320.00	19.34	0.25	37,600	50.00
	02 Rural Other Prin	860.00	640.00	320.00	320.00	19.34	0.25	37,600	50.00
	06 Rural Minor Arte	860.00	640.00	320.00	320.00	19.34	0.25	37,600	50.00
	07 Rural Mjr Collec	860.00	640.00	320.00	320.00	19.34	0.25	37,600	50.00
	08 Rural min Colle	860.00	640.00	320.00	320.00	19.34	0.25	37,600	50.00
	09 Rural Local	860.00	640.00	320.00	320.00	19.34	0.25	37,600	50.00
	11 Urban Interstate	860.00	640.00	320.00	320.00	19.34	0.25	12,600	50.00
	12 Urban Fwy/Expw	860.00	640.00	320.00	320.00	19.34	0.25	12,600	50.00
	14 Urban Other Pri	860.00	640.00	320.00	320.00	19.34	0.25	12,600	50.00
	16 Urban Minor Art	860.00	640.00	320.00	320.00	19.34	0.25	12,600	50.00
	17 Urban Collector	860.00	640.00	320.00	320.00	19.34	0.25	12,600	50.00
	19 Urban Local	860.00	640.00	320.00	320.00	19.34	0.25	12,600	50.00
District 3	01 Rural Interstate	860.00	640.00	320.00	320.00	19.34	0.25	37,600	50.00
	02 Rural Other Prin	860.00	640.00	320.00	320.00	19.34	0.25	37,600	50.00
	06 Rural Minor Arte	860.00	640.00	320.00	320.00	19.34	0.25	37,600	50.00

Cost Sets can be edited that will specify the set of functional improvement unit costs and benefits used in the scenarios.

U.S. Department of Transportation
Federal Highway Administration

Simulation Parameters----Budgets Definition



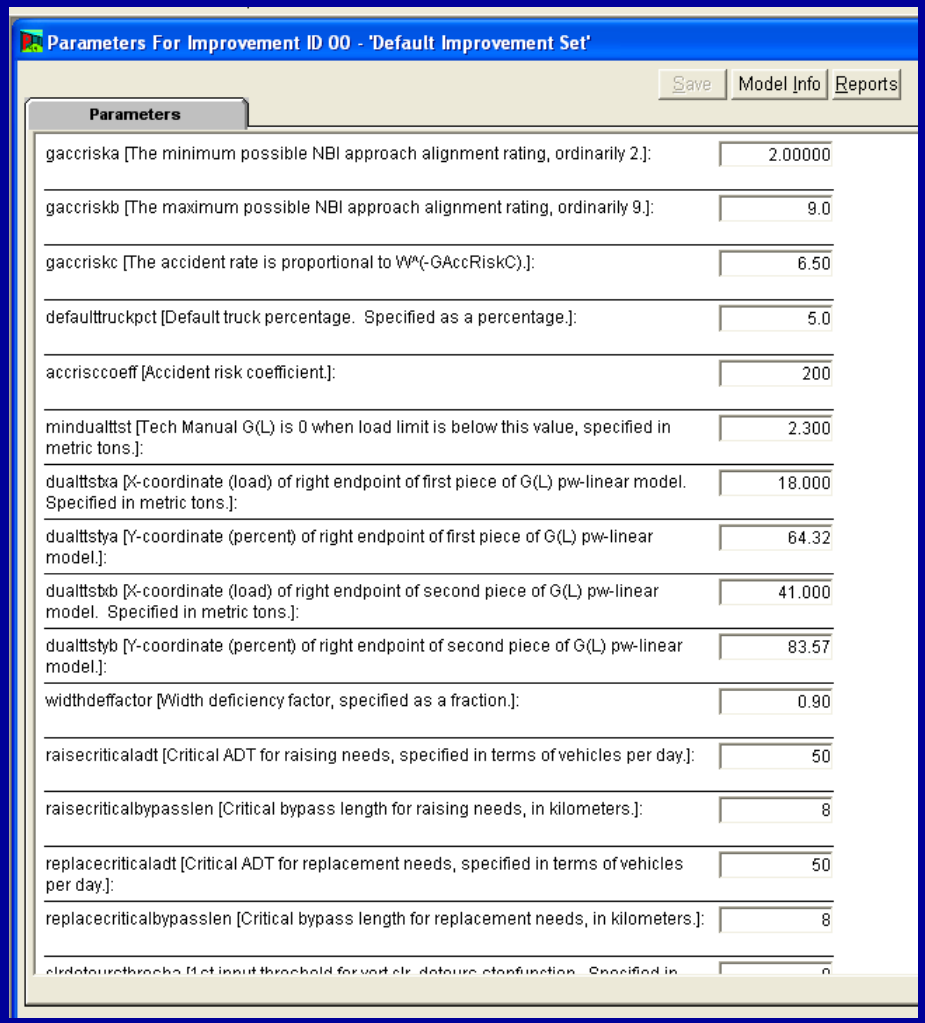
Budget Sets can be defined to be used in the various scenario simulations.

U.S. Department of Transportation
Federal Highway Administration

Simulation Parameters----Improvement Parameters Definition

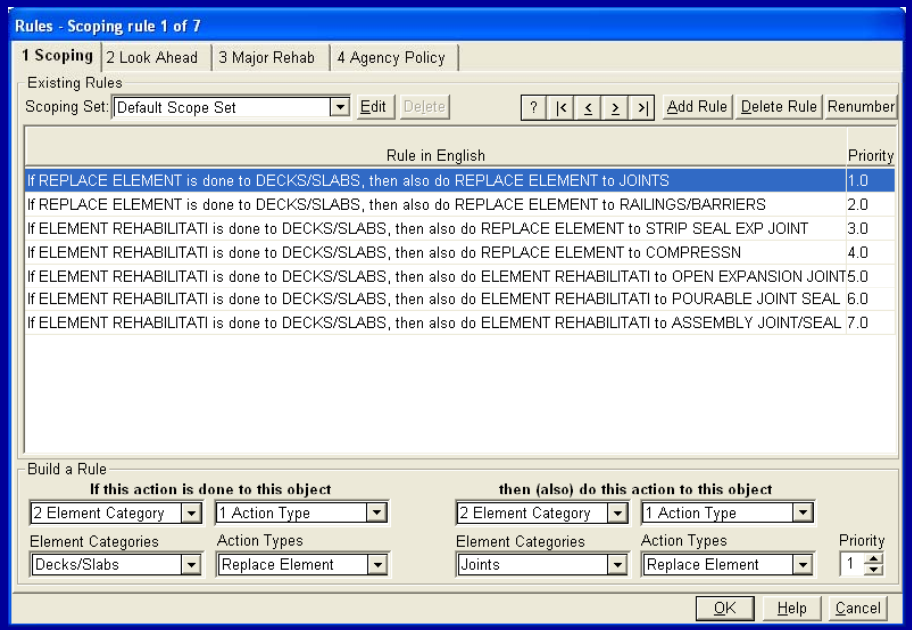
Improve:

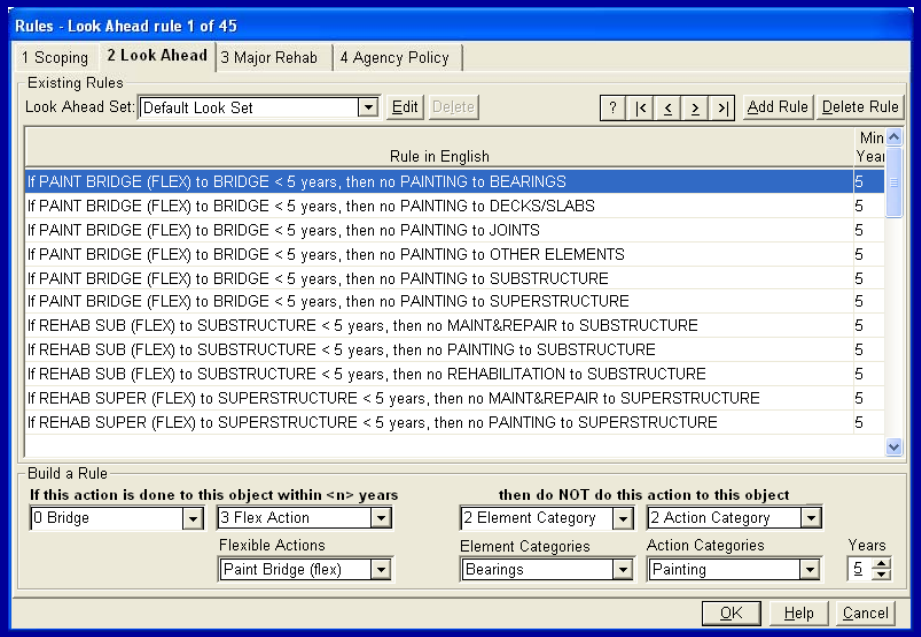
Improvement Sets can be edited that will specify the improvement benefit model parameters used by the scenario.



U.S. Department of Transportation
Federal Highway Administration

Simulation Rules

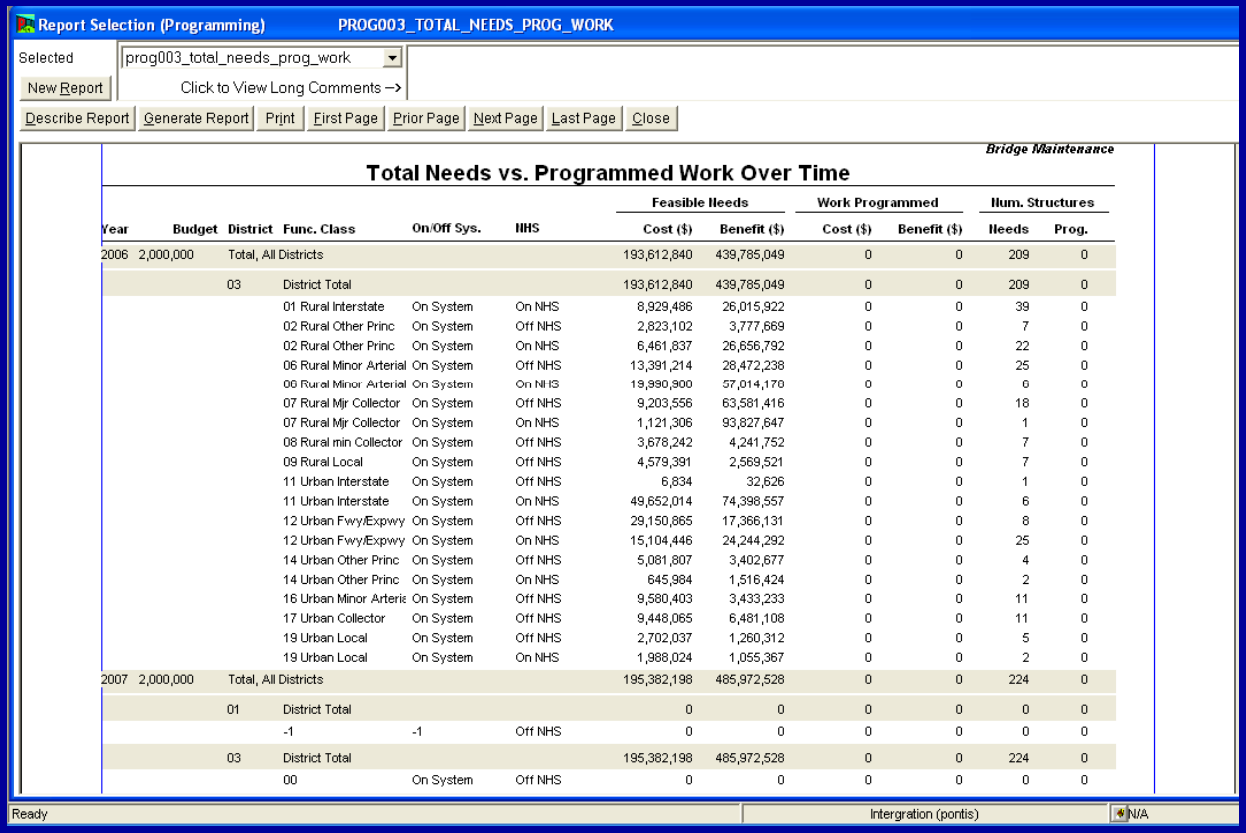




Rules that control the behavior of program simulation can be defined and edited (i.e. If a bridge replacement is < 5 years, then no rehab to any other elements).

U.S. Department of Transportation
Federal Highway Administration

Results----Total Needs vs. Programmed Work Over Time

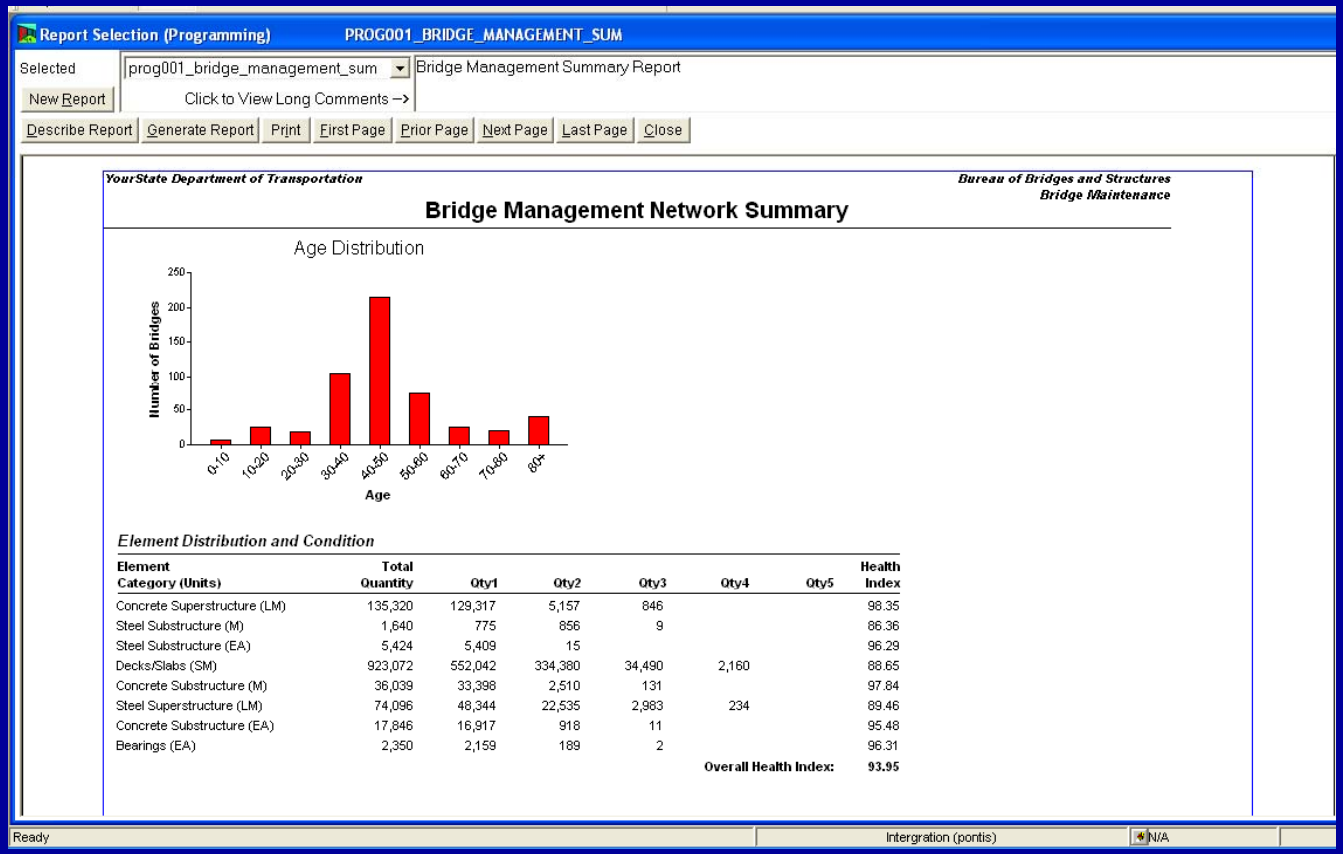


Year	Budget	District	Func. Class	On/Off Sys.	NHS	Feasible Needs Cost ($)	Feasible Needs Benefit ($)	Work Programmed Cost ($)	Work Programmed Benefit ($)	Num. Structures Needs	Num. Structures Prog.
2006	2,000,000	Total, All Districts				193,612,840	439,785,049	0	0	209	0
		03	District Total			193,612,840	439,785,049	0	0	209	0
			01 Rural Interstate	On System	On NHS	8,929,486	26,015,922	0	0	39	0
			02 Rural Other Princ	On System	Off NHS	2,823,102	3,777,669	0	0	7	0
			02 Rural Other Princ	On System	On NHS	6,461,837	26,656,792	0	0	22	0
			06 Rural Minor Arterial	On System	Off NHS	13,391,214	28,472,238	0	0	25	0
			06 Rural Minor Arterial	On System	On NHS	19,990,900	57,014,170	0	0	6	0
			07 Rural Mjr Collector	On System	Off NHS	9,203,556	63,581,416	0	0	18	0
			07 Rural Mjr Collector	On System	On NHS	1,121,306	93,827,647	0	0	1	0
			08 Rural min Collector	On System	Off NHS	3,678,242	4,241,752	0	0	7	0
			09 Rural Local	On System	Off NHS	4,579,391	2,569,521	0	0	7	0
			11 Urban Interstate	On System	Off NHS	6,834	32,626	0	0	1	0
			11 Urban Interstate	On System	On NHS	49,652,014	74,398,557	0	0	6	0
			12 Urban Fwy/Expwy	On System	Off NHS	29,150,865	17,366,131	0	0	8	0
			12 Urban Fwy/Expwy	On System	On NHS	15,104,446	24,244,292	0	0	25	0
			14 Urban Other Princ	On System	Off NHS	5,081,807	3,402,677	0	0	4	0
			14 Urban Other Princ	On System	On NHS	645,984	1,516,424	0	0	2	0
			16 Urban Minor Arteria	On System	Off NHS	9,580,403	3,433,233	0	0	11	0
			17 Urban Collector	On System	Off NHS	9,448,065	6,481,108	0	0	11	0
			19 Urban Local	On System	Off NHS	2,702,037	1,260,312	0	0	5	0
			19 Urban Local	On System	On NHS	1,988,024	1,055,367	0	0	2	0
2007	2,000,000	Total, All Districts				195,382,198	485,972,528	0	0	224	0
		01	District Total			0	0	0	0	0	0
			-1	-1	Off NHS	0	0	0	0	0	0
		03	District Total			195,382,198	485,972,528	0	0	224	0
			00	On System	Off NHS	0	0	0	0	0	0

A report that can be generated that summarizes the needs and programmed work over time for the current Pontis scenario by a specified budget year.

U.S. Department of Transportation
Federal Highway Administration

Results----Bridge Management Network Summary



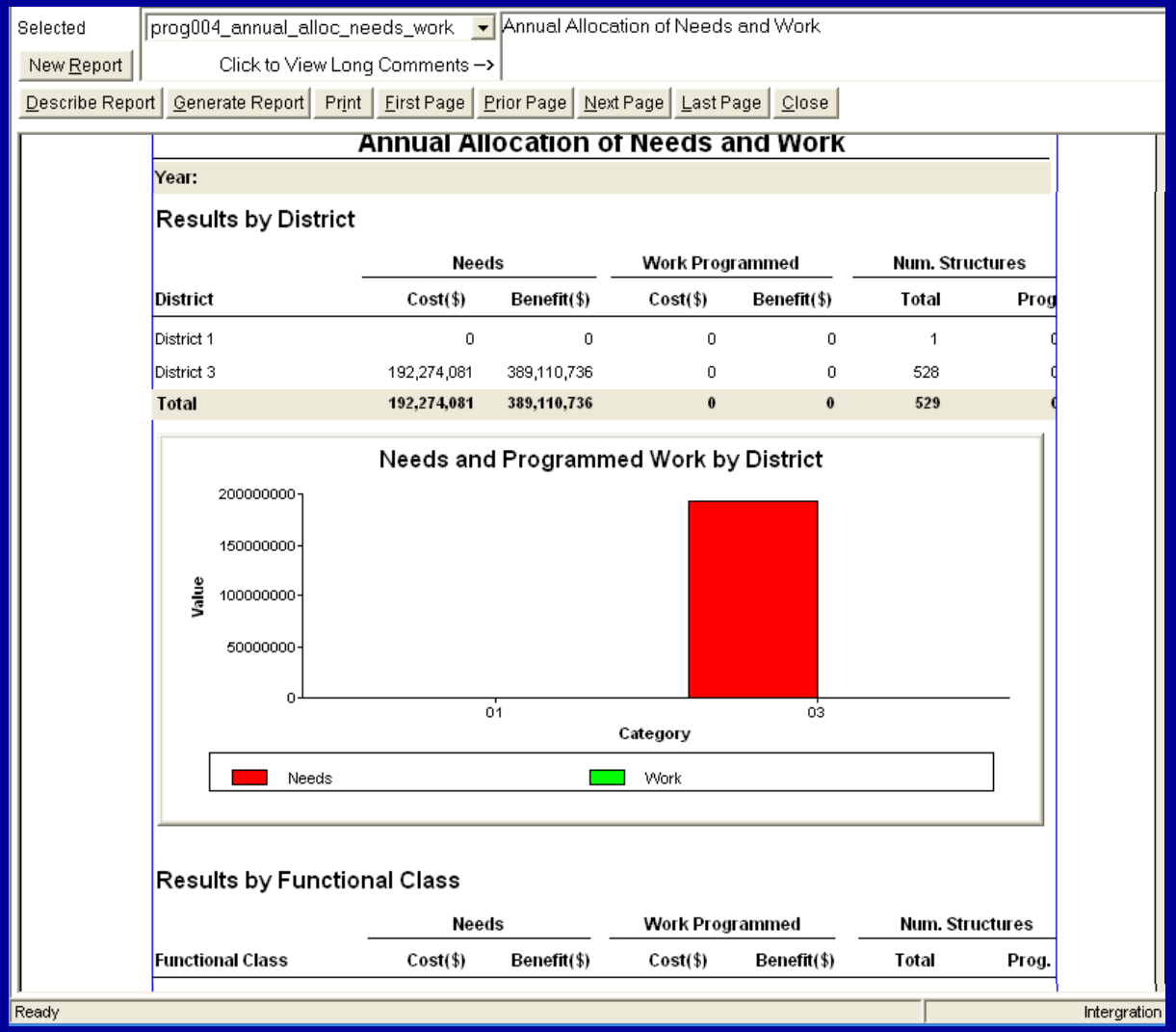
The Bridge Management Summary Report provides an overview of the state of the bridge network.

U.S. Department of Transportation
Federal Highway Administration

Results----Annual Allocation of Needs and Work

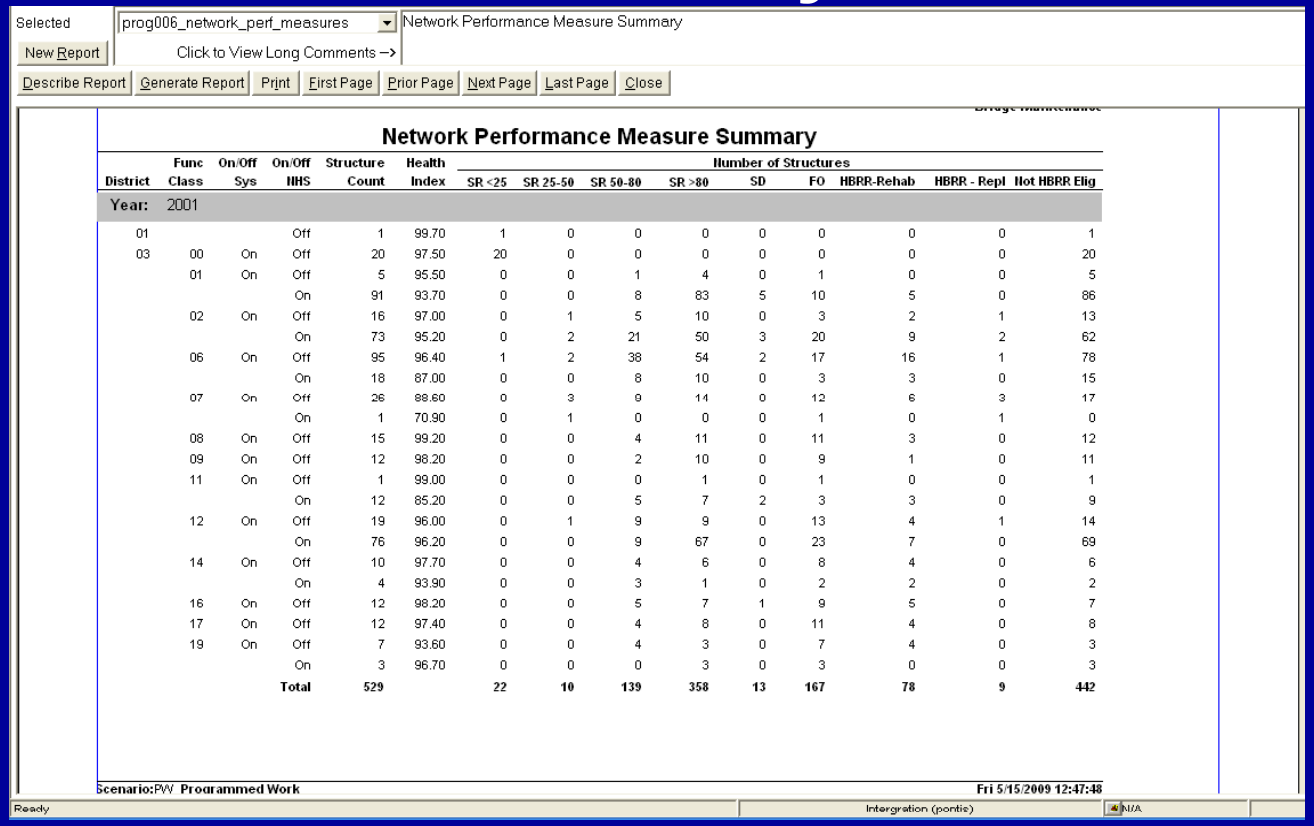
A report can be generated to summarize needs and programmed work for the current scenario for each program year, providing separate summaries and graphs for each program year by

- district,
- functional class,
- on/off National Highway System (NHS) status, and
- on/off State System status.



U.S. Department of Transportation
Federal Highway Administration

Results---- Network Performance Measure Summary


Selected prog006_network_perf_measures Network Performance Measure Summary
New Report Click to View Long Comments →
Describe Report | Generate Report | Print | First Page | Prior Page | Next Page | Last Page | Close

Network Performance Measure Summary

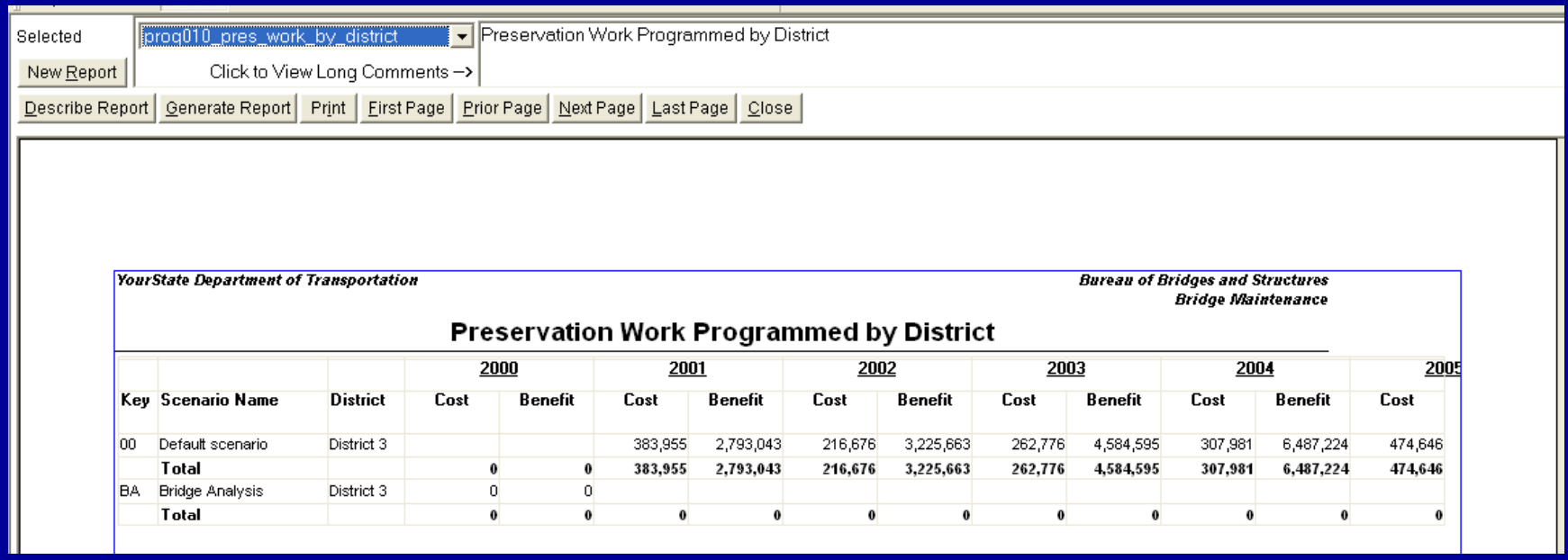
District	Func Class	On/Off Sys	On/Off NHS	Structure Count	Health Index	Number of Structures: SR <25	SR 25-50	SR 50-80	SR >80	SD	FO	HBRR-Rehab	HBRR - Repl	Not HBRR Elig
Year:	2001													
01			Off	1	99.70	1	0	0	0	0	0	0	0	1
03	00	On	Off	20	97.50	20	0	0	0	0	0	0	0	20
	01	On	Off	5	95.50	0	0	1	4	0	1	0	0	5
			On	91	93.70	0	0	8	83	5	10	5	0	86
	02	On	Off	16	97.00	0	1	5	10	0	3	2	1	13
			On	73	95.20	0	2	21	50	3	20	9	2	62
	06	On	Off	95	96.40	1	2	38	54	2	17	16	1	78
			On	18	87.00	0	0	8	10	0	3	3	0	15
	07	On	Off	26	88.60	0	3	9	14	0	12	6	3	17
			On	1	70.90	0	1	0	0	0	1	0	1	0
	08	On	Off	15	99.20	0	0	4	11	0	11	3	0	12
	09	On	Off	12	98.20	0	0	2	10	0	9	1	0	11
	11	On	Off	1	99.00	0	0	0	1	0	1	0	0	1
			On	12	85.20	0	0	5	7	2	3	3	0	9
	12	On	Off	19	96.00	0	1	9	9	0	13	4	1	14
			On	76	96.20	0	0	9	67	0	23	7	0	69
	14	On	Off	10	97.70	0	0	4	6	0	8	4	0	6
			On	4	93.90	0	0	3	1	0	2	2	0	2
	16	On	Off	12	98.20	0	0	5	7	1	9	5	0	7
	17	On	Off	12	97.40	0	0	4	8	0	11	4	0	8
	19	On	Off	7	93.60	0	0	4	3	0	7	4	0	3
			On	3	96.70	0	0	0	3	0	3	0	0	3
			Total	529		22	10	139	358	13	167	78	9	442

Scenario:PW Programmed Work Fri 5/15/2009 12:47:48
Ready Intergration (pontis) N/A

A report that summarizes performance measures for the entire network can be generated. Performance measures are broken down by district, functional class, on/off National Highway System (NHS) status, and on/off State System status.

U.S. Department of Transportation
Federal Highway Administration

Results---- Preservation Work Programmed by District



Your State Department of Transportation

Bureau of Bridges and Structures
Bridge Maintenance

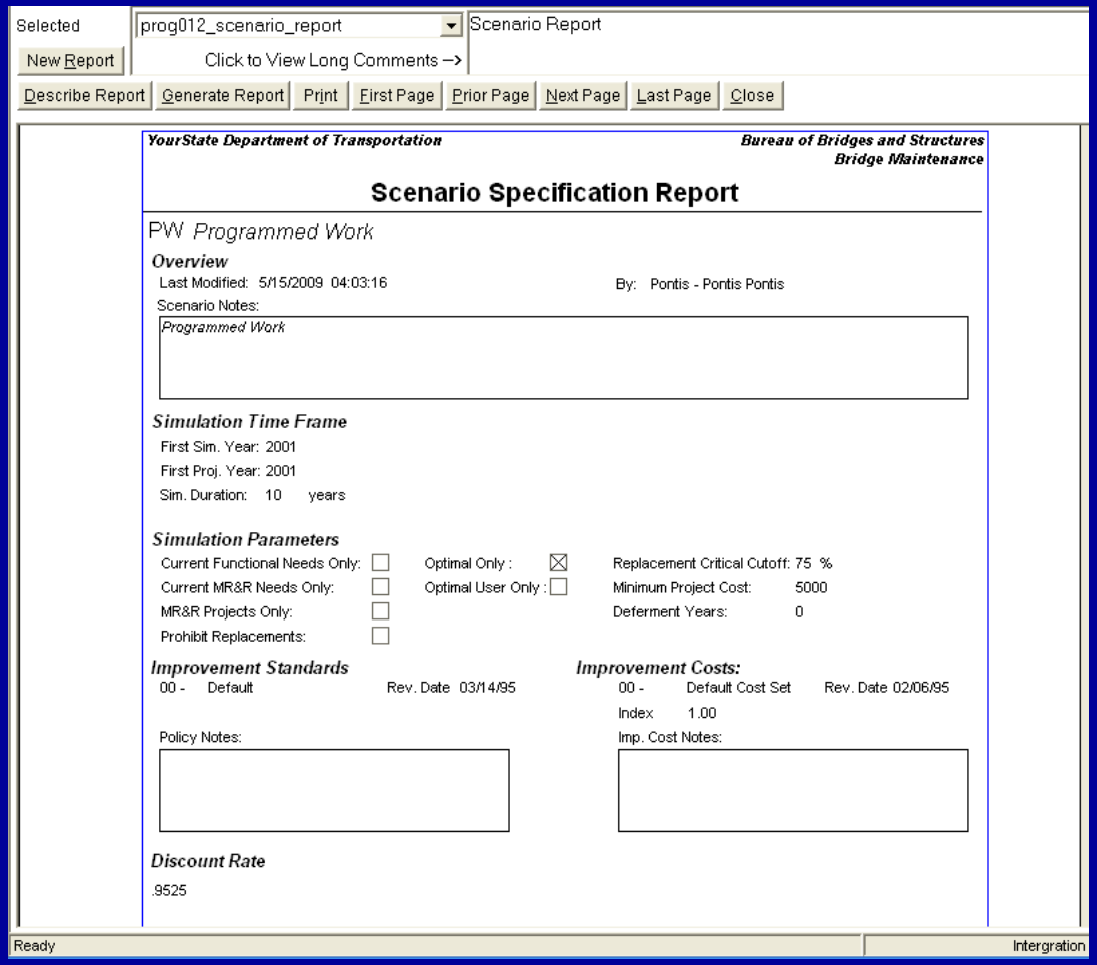
Preservation Work Programmed by District

			2000		2001		2002		2003		2004		2005
Key	Scenario Name	District	Cost	Benefit	Cost	Benefit	Cost	Benefit	Cost	Benefit	Cost	Benefit	Cost
00	Default scenario	District 3			383,955	2,793,043	216,676	3,225,663	262,776	4,584,595	307,981	6,487,224	474,646
	Total		**0**	**0**	**383,955**	**2,793,043**	**216,676**	**3,225,663**	**262,776**	**4,584,595**	**307,981**	**6,487,224**	**474,646**
BA	Bridge Analysis	District 3	0	0									
	Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

This report shows programmed preservation work (work modeled by Pontis as being programmed given the budget constraint), and the benefits of preservation work programmed by district and year for each scenario.

U.S. Department of Transportation
Federal Highway Administration

Results---- Scenario Specification Report



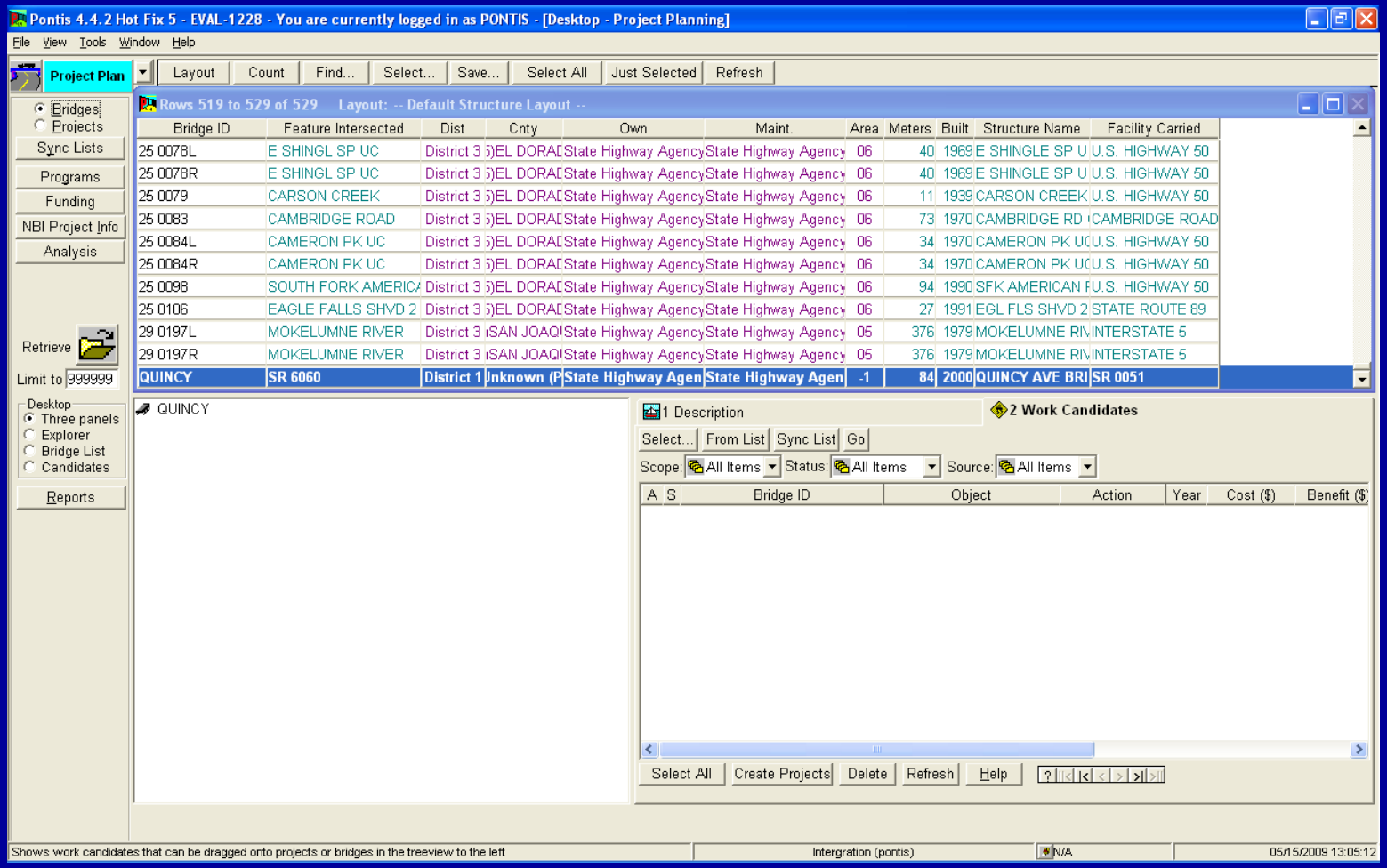
This report documents key elements of the current Pontis scenario being used.

U.S. Department of Transportation
Federal Highway Administration

Pontis: Project Planning Module

U.S. Department of Transportation
Federal Highway Administration

Project Planning Desktop

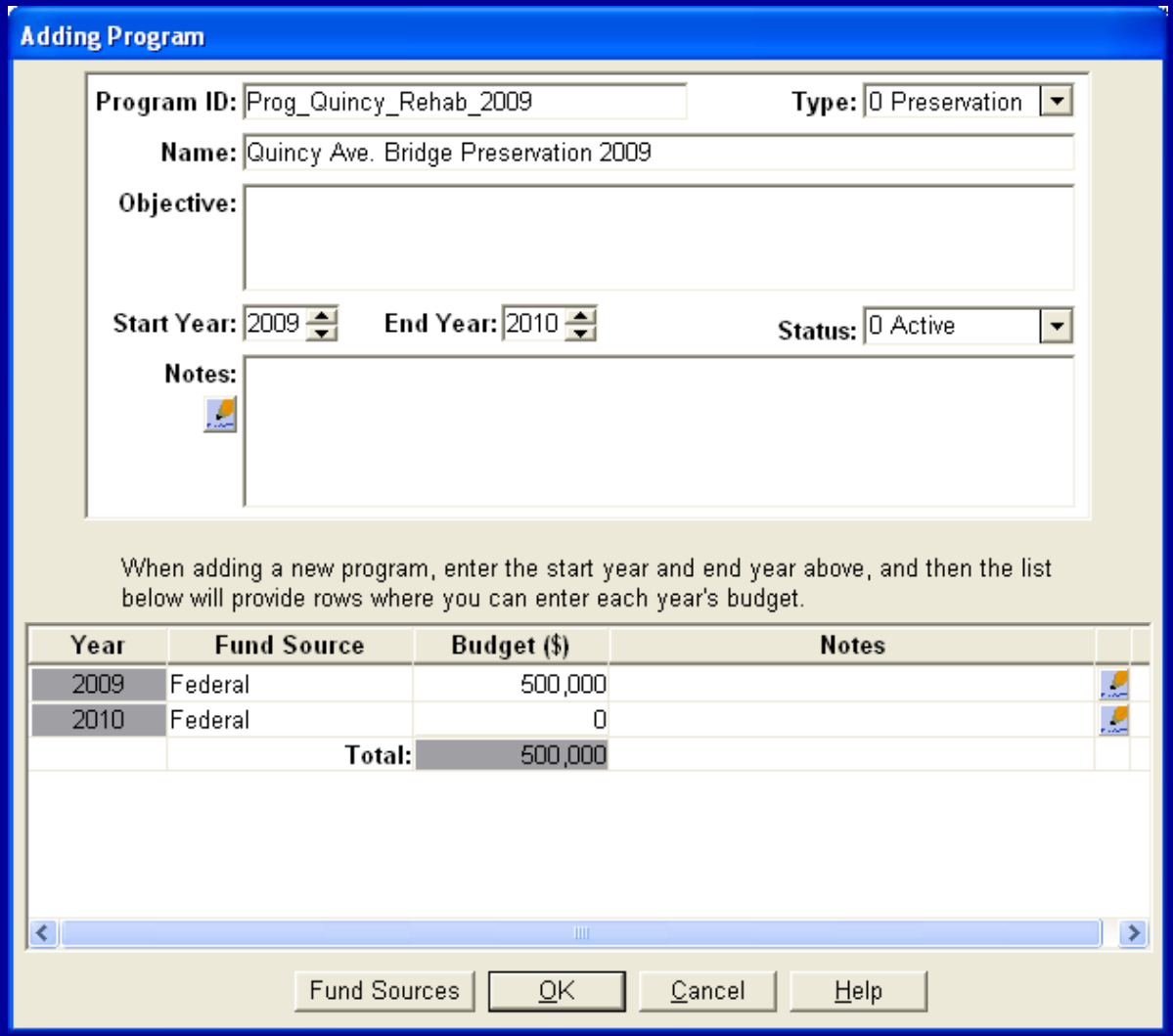


A user can search through a list of bridges or a list of projects and edit or create new projects.

U.S. Department of Transportation
Federal Highway Administration

Program Setup Screen

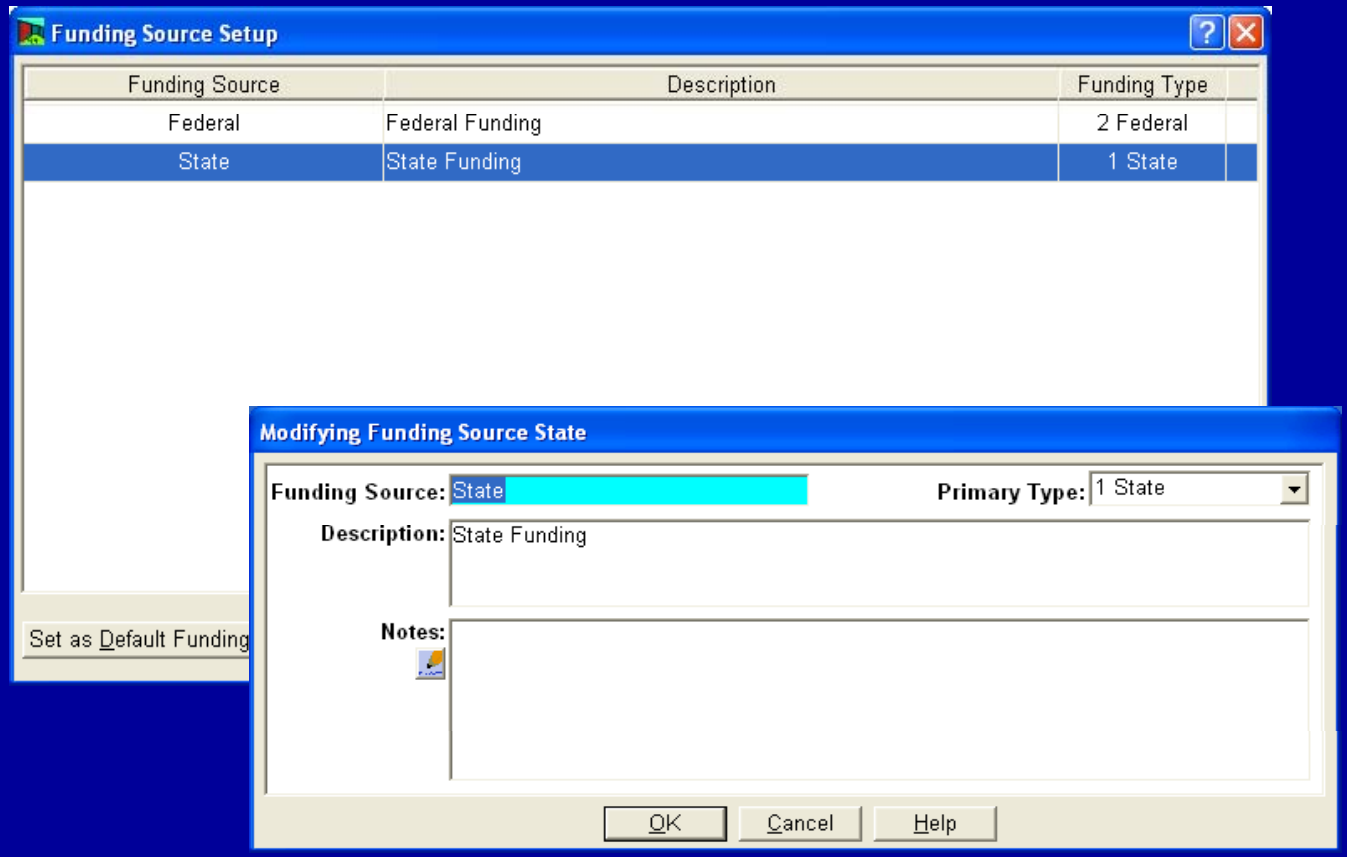
This screen allows you to define and edit the bridge construction or maintenance programs.



U.S. Department of Transportation
Federal Highway Administration

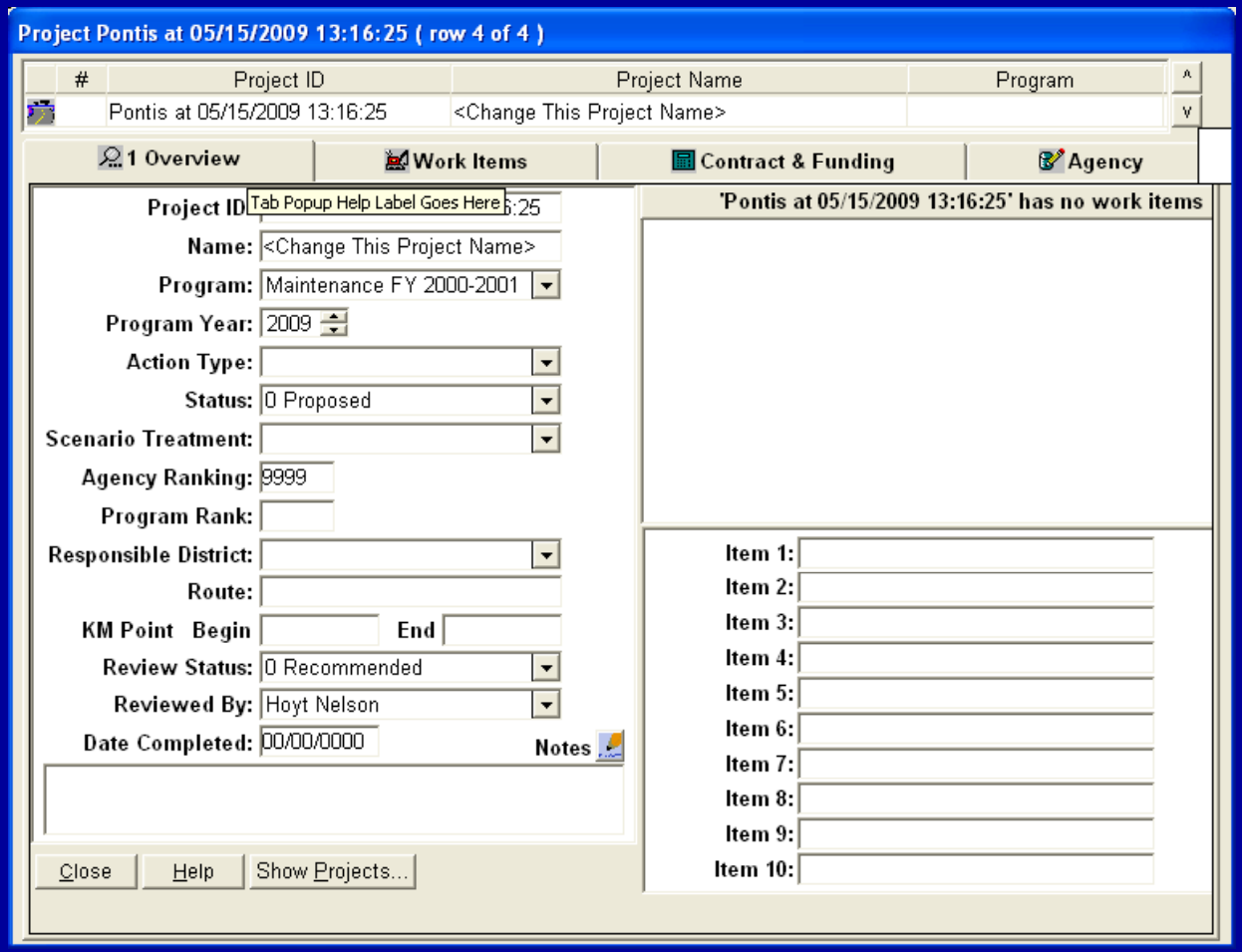
Funding Source Setup

This screen allows you to view and edit the funding sources defined in the database.



New/Open Project - Overview Screen

- The New/Open Project screen allows you to create a new project or edit the information for an existing project.
- The Overview tab contains general project-level information.



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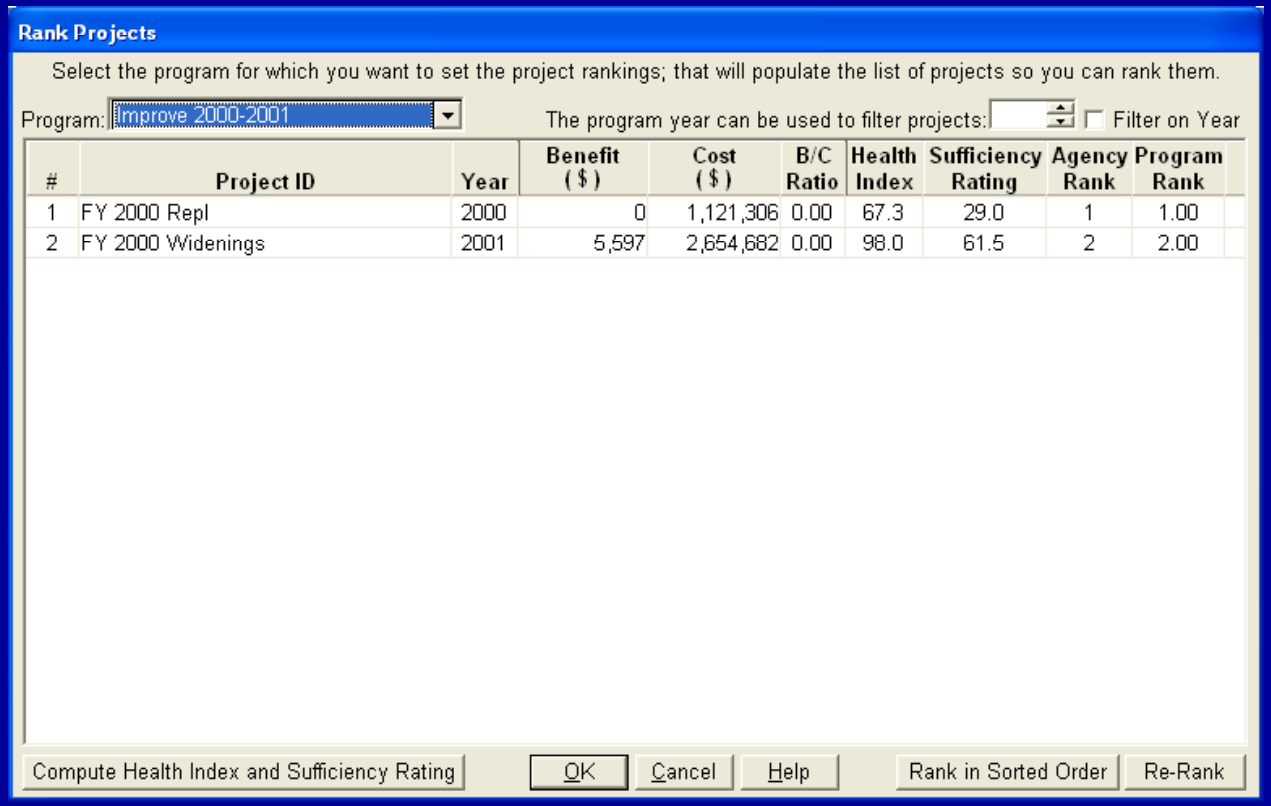
Rank Projects Screen



Projects can be assigned an agency program ranking based on project benefit, cost, benefit/cost ratio, health index or sufficiency rating or an agency preference.

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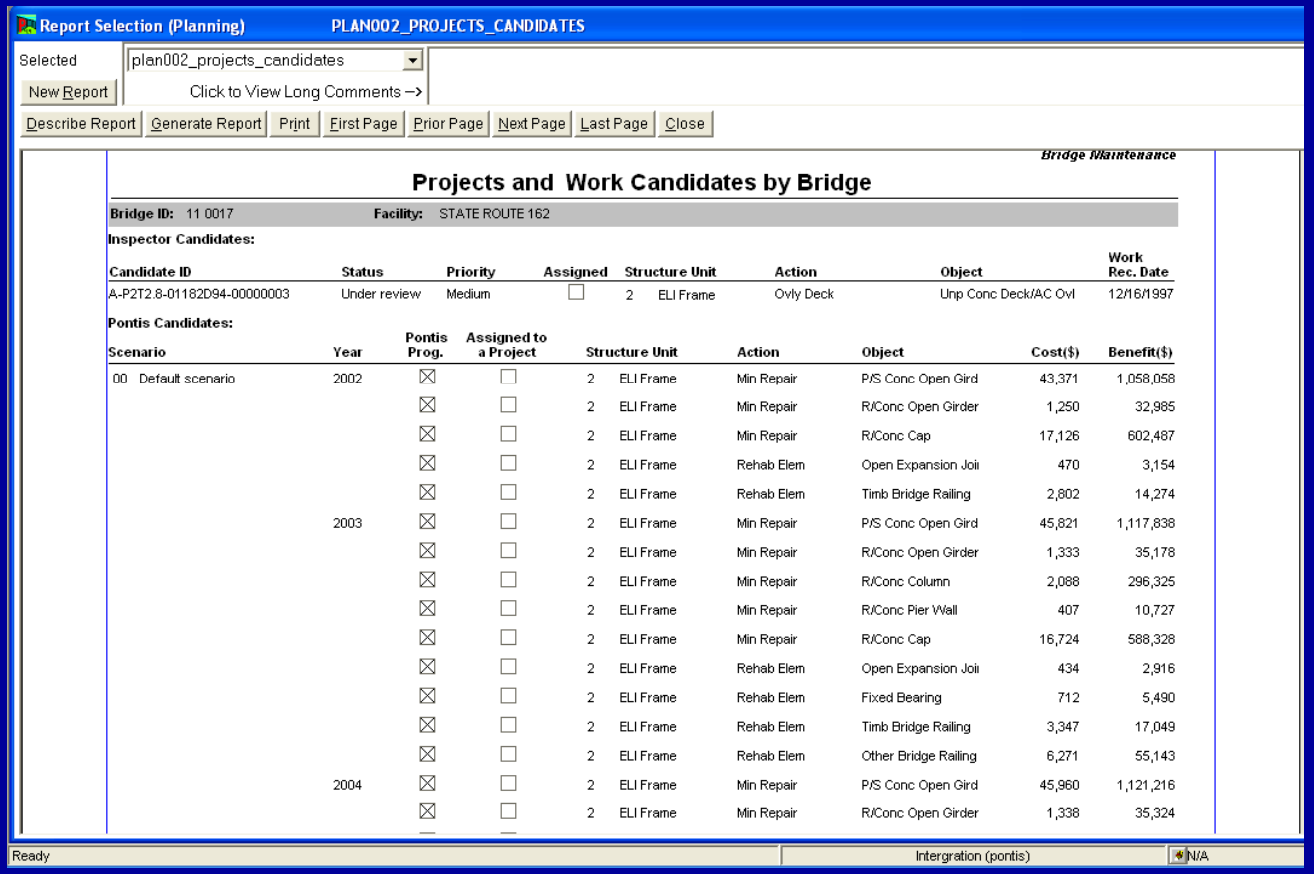
Reports---- Projects and Work Candidates by Bridge

A report can be generated to show all projects and work candidates for selected structures after a particular scenario has been run.



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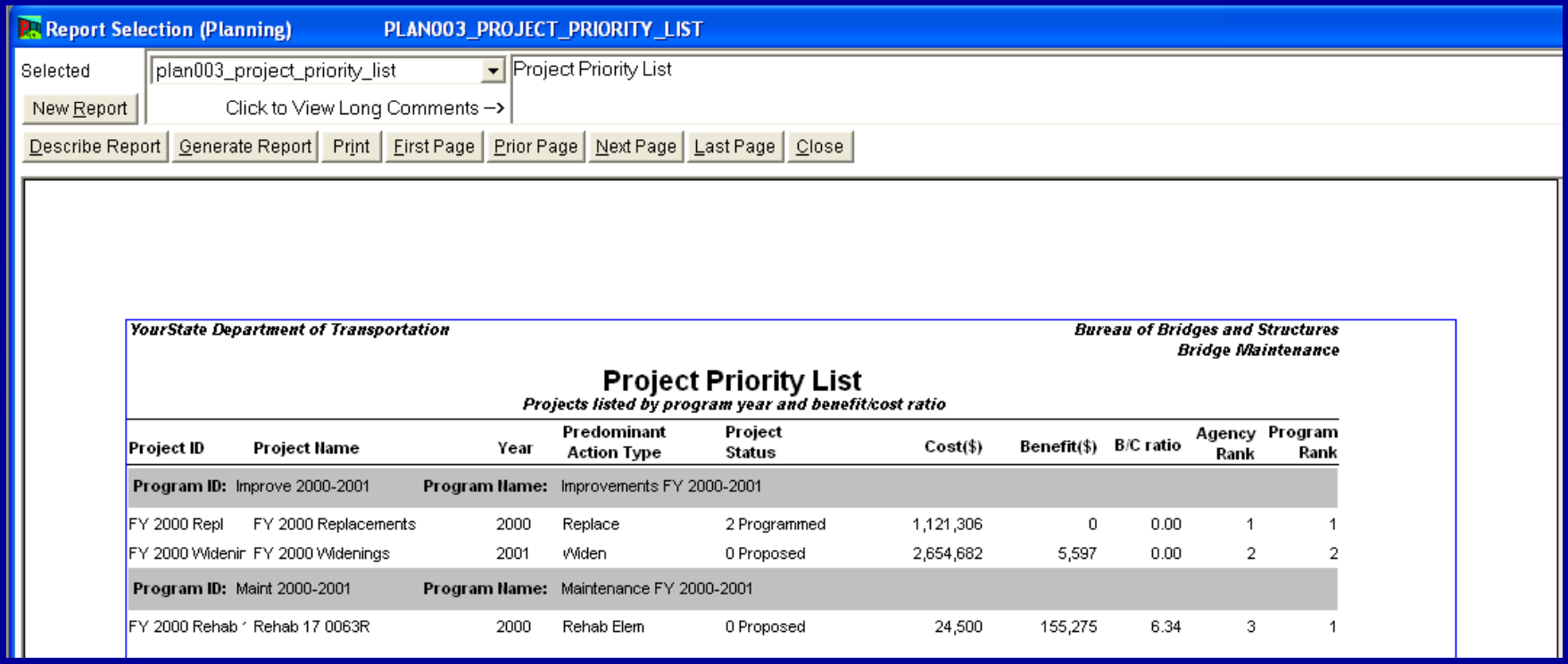
Reports---- Project Priority List on Actual Projects



YourState Department of Transportation

Bureau of Bridges and Structures
Bridge Maintenance

Project Priority List

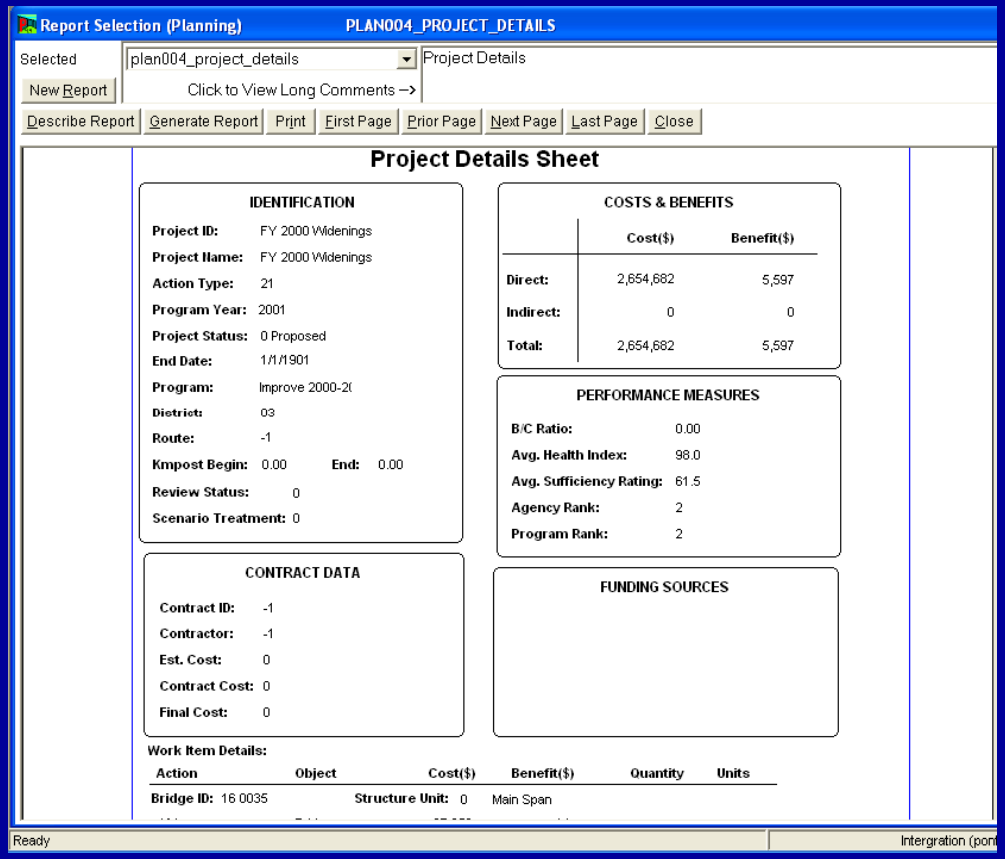
Projects listed by program year and benefit/cost ratio

Project ID	Project Name	Year	Predominant Action Type	Project Status	Cost($)	Benefit($)	B/C ratio	Agency Rank	Program Rank
Program ID: Improve 2000-2001	**Program Name:** Improvements FY 2000-2001								
FY 2000 Repl	FY 2000 Replacements	2000	Replace	2 Programmed	1,121,306	0	0.00	1	1
FY 2000 Widenir	FY 2000 Widenings	2001	Widen	0 Proposed	2,654,682	5,597	0.00	2	2
Program ID: Maint 2000-2001	**Program Name:** Maintenance FY 2000-2001								
FY 2000 Rehab '	Rehab 17 0063R	2000	Rehab Elem	0 Proposed	24,500	155,275	6.34	3	1

A report can be generated to display a list of projects, sorted by program, program year and benefit/cost ratio.

U.S. Department of Transportation
Federal Highway Administration

Reports---- Project Details Sheet



A report detailing project information can be generated.

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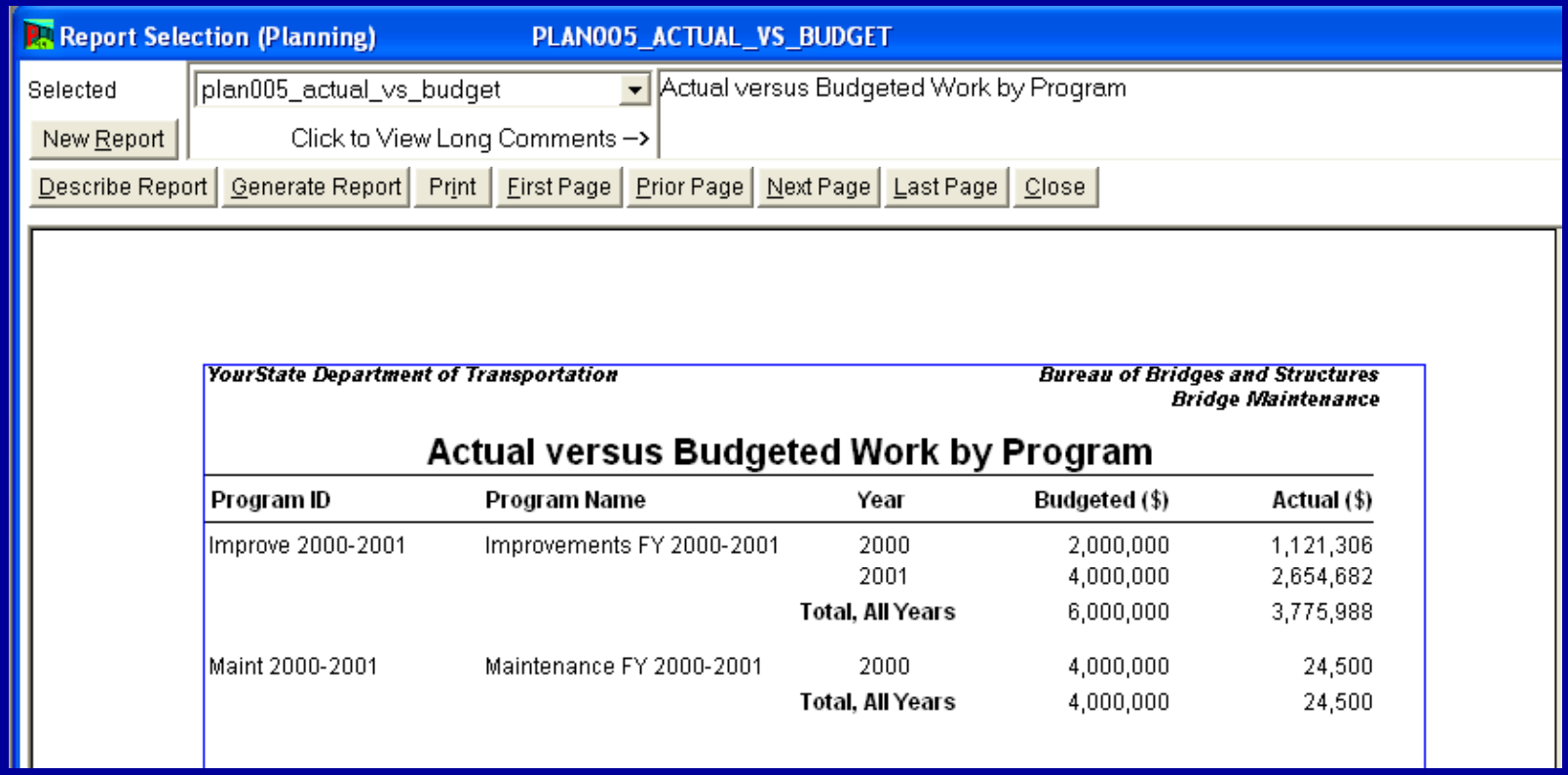
Federal Highway Administration

Reports---- Actual versus Budgeted Work



A report that indicates actual work accomplished versus budgeted work can be generated for each program.

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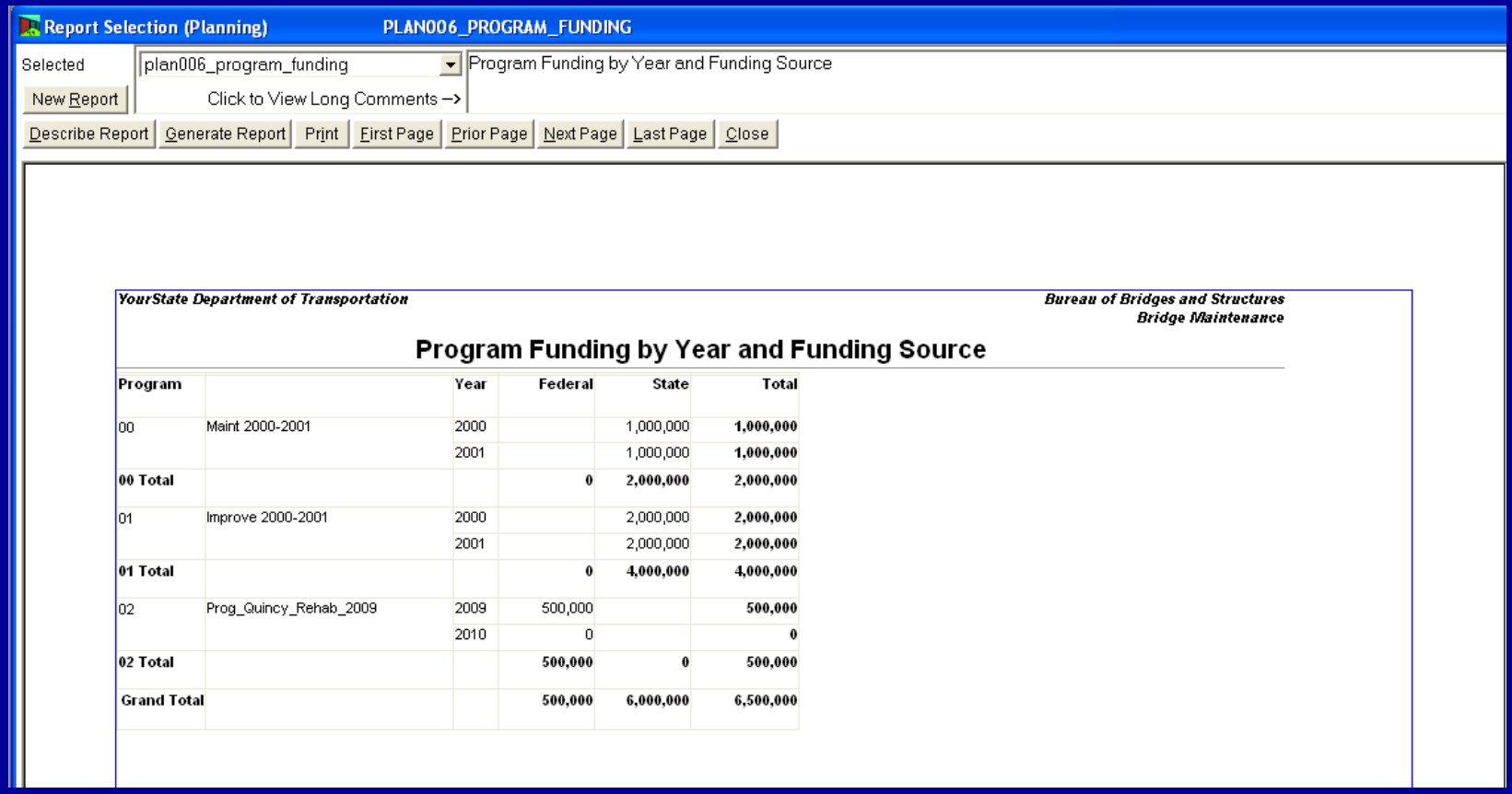
Federal Highway Administration

Reports---- Program Funding



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Bureau of Bridges and Structures
Bridge Maintenance

Program Funding by Year and Funding Source

Program		Year	Federal	State	Total
00	Maint 2000-2001	2000		1,000,000	**1,000,000**
		2001		1,000,000	**1,000,000**
00 Total			**0**	**2,000,000**	**2,000,000**
01	Improve 2000-2001	2000		2,000,000	**2,000,000**
		2001		2,000,000	**2,000,000**
01 Total			**0**	**4,000,000**	**4,000,000**
02	Prog_Quincy_Rehab_2009	2009	500,000		**500,000**
		2010	0		**0**
02 Total			**500,000**	**0**	**500,000**
Grand Total			**500,000**	**6,000,000**	**6,500,000**

A report to show the various programs, their funding and funding source details can be generated.

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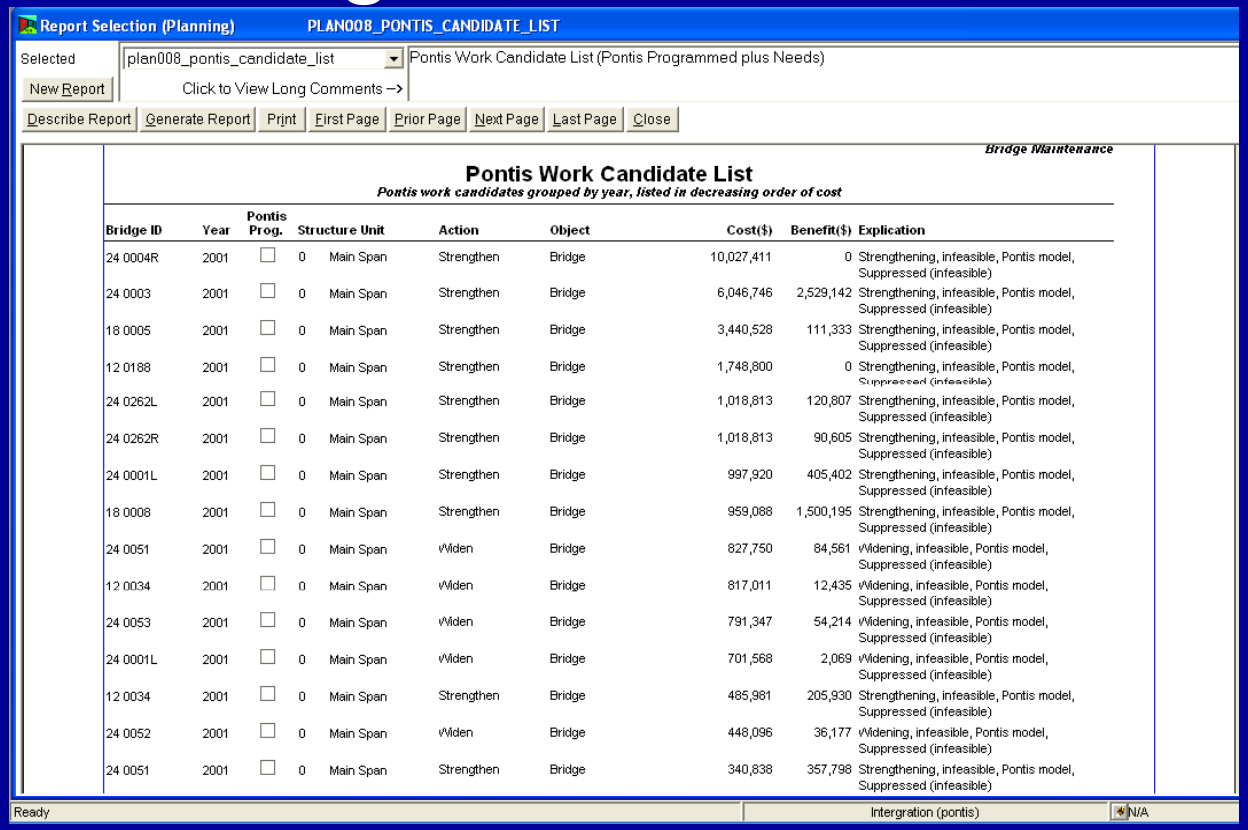
Reports---- Pontis Priority List on Program Simulation



Report Selection (Planning) PLAN008_PONTIS_CANDIDATE_LIST

Selected: plan008_pontis_candidate_list — Pontis Work Candidate List (Pontis Programmed plus Needs)

New Report | Click to View Long Comments –> | Describe Report | Generate Report | Print | First Page | Prior Page | Next Page | Last Page | Close

Bridge Maintenance

Pontis Work Candidate List

Pontis work candidates grouped by year, listed in decreasing order of cost

Bridge ID	Year	Pontis Prog.	Structure Unit	Action	Object	Cost($)	Benefit($)	Explication
24 0004R	2001	☐	0 Main Span	Strengthen	Bridge	10,027,411	0	Strengthening, infeasible, Pontis model, Suppressed (infeasible)
24 0003	2001	☐	0 Main Span	Strengthen	Bridge	6,046,746	2,529,142	Strengthening, infeasible, Pontis model, Suppressed (infeasible)
18 0005	2001	☐	0 Main Span	Strengthen	Bridge	3,440,528	111,333	Strengthening, infeasible, Pontis model, Suppressed (infeasible)
12 0188	2001	☐	0 Main Span	Strengthen	Bridge	1,748,800	0	Strengthening, infeasible, Pontis model, Suppressed (infeasible)
24 0262L	2001	☐	0 Main Span	Strengthen	Bridge	1,018,813	120,807	Strengthening, infeasible, Pontis model, Suppressed (infeasible)
24 0262R	2001	☐	0 Main Span	Strengthen	Bridge	1,018,813	90,605	Strengthening, infeasible, Pontis model, Suppressed (infeasible)
24 0001L	2001	☐	0 Main Span	Strengthen	Bridge	997,920	405,402	Strengthening, infeasible, Pontis model, Suppressed (infeasible)
18 0008	2001	☐	0 Main Span	Strengthen	Bridge	959,088	1,500,195	Strengthening, infeasible, Pontis model, Suppressed (infeasible)
24 0051	2001	☐	0 Main Span	Widen	Bridge	827,750	84,561	Widening, infeasible, Pontis model, Suppressed (infeasible)
12 0034	2001	☐	0 Main Span	Widen	Bridge	817,011	12,435	Widening, infeasible, Pontis model, Suppressed (infeasible)
24 0053	2001	☐	0 Main Span	Widen	Bridge	791,347	54,214	Widening, infeasible, Pontis model, Suppressed (infeasible)
24 0001L	2001	☐	0 Main Span	Widen	Bridge	701,568	2,069	Widening, infeasible, Pontis model, Suppressed (infeasible)
12 0034	2001	☐	0 Main Span	Strengthen	Bridge	485,981	205,930	Strengthening, infeasible, Pontis model, Suppressed (infeasible)
24 0052	2001	☐	0 Main Span	Widen	Bridge	448,096	36,177	Widening, infeasible, Pontis model, Suppressed (infeasible)
24 0051	2001	☐	0 Main Span	Strengthen	Bridge	340,838	357,798	Strengthening, infeasible, Pontis model, Suppressed (infeasible)

Ready | Intergration (pontis) | N/A

A report that outlines Pontis-generated projects fin order of cost/benefit ratio for the scenario selected can be generated and then compared to other scenarios for budgetary impact and/or policy change sensitivity.

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Federal Highway Administration

Summary (D5-Management)

- Workflow demonstrated leveraging constructed bridge (model) downstream for asset management concerns surrounding bridge condition
- One of several possible such workflows
- Encompassing individual bridge condition documentation using inspection data, bridge load (re-)rating, and network-level programming

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