

Part D4:

Operations



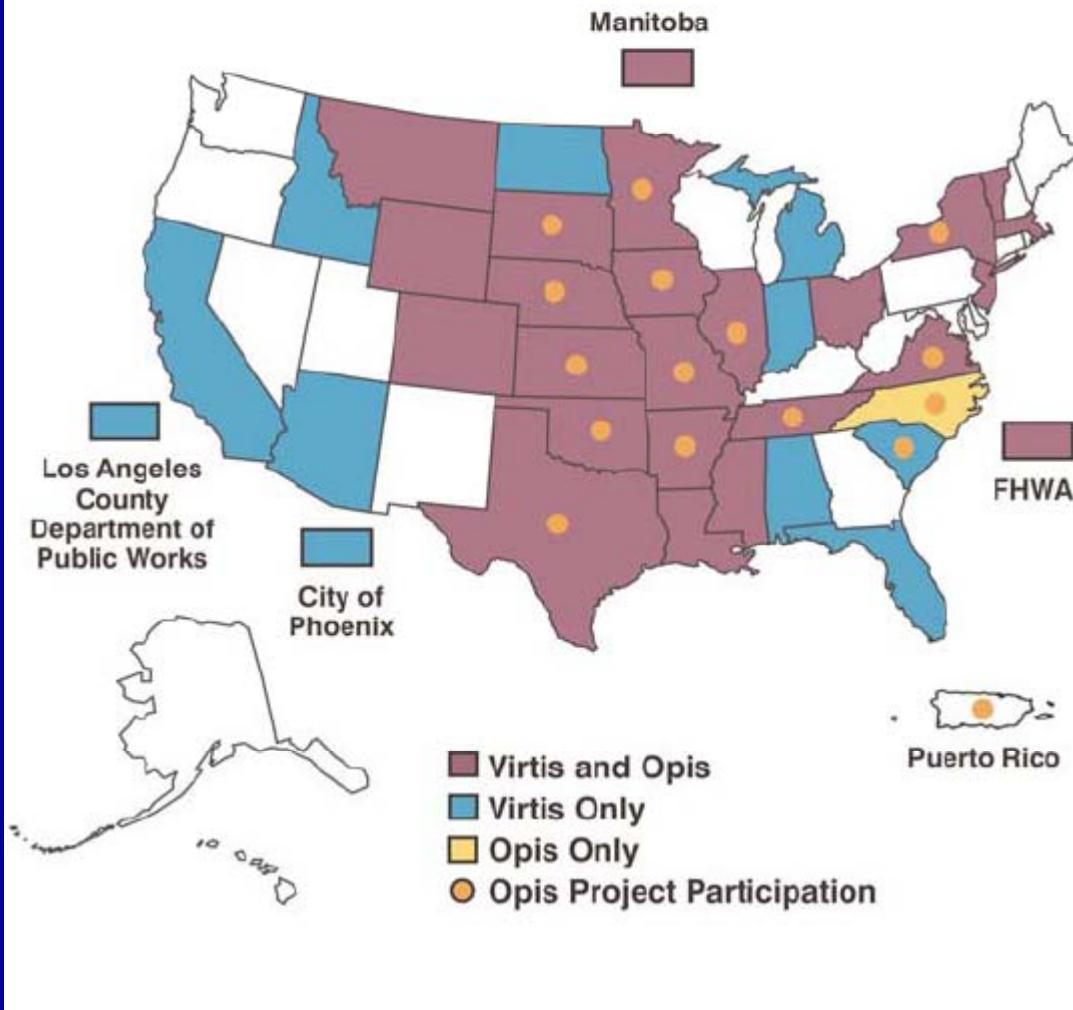
Overview (D4-Operations)

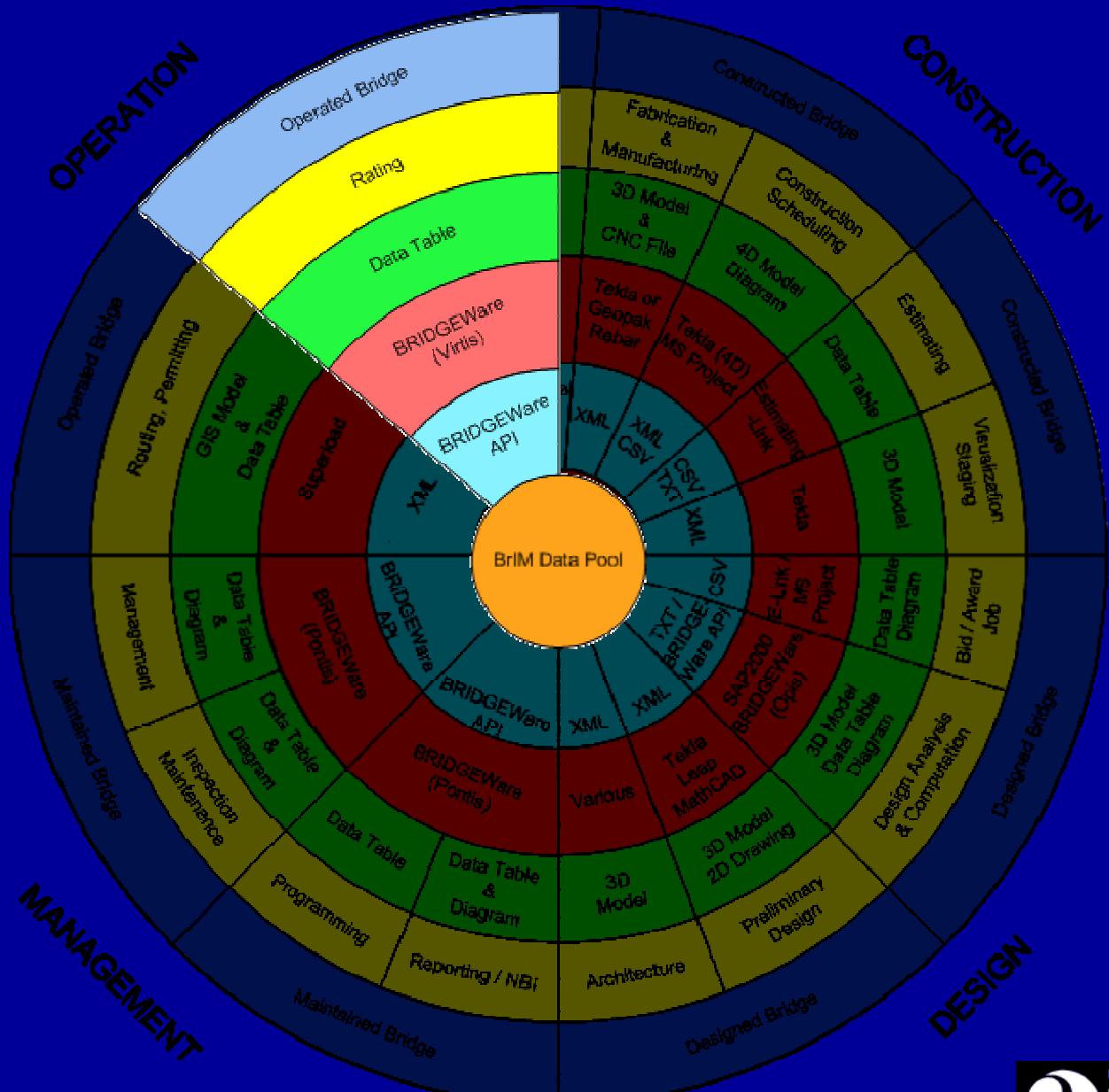
- Where BridgeWare Fits (in the lifecycle)
- Load Rating (Individual Bridge)
 - Steel Alternate
 - Concrete Alternate
- Load Rating (Multiple Bridges)
 - Bridges on Network(s)
 - Permitting

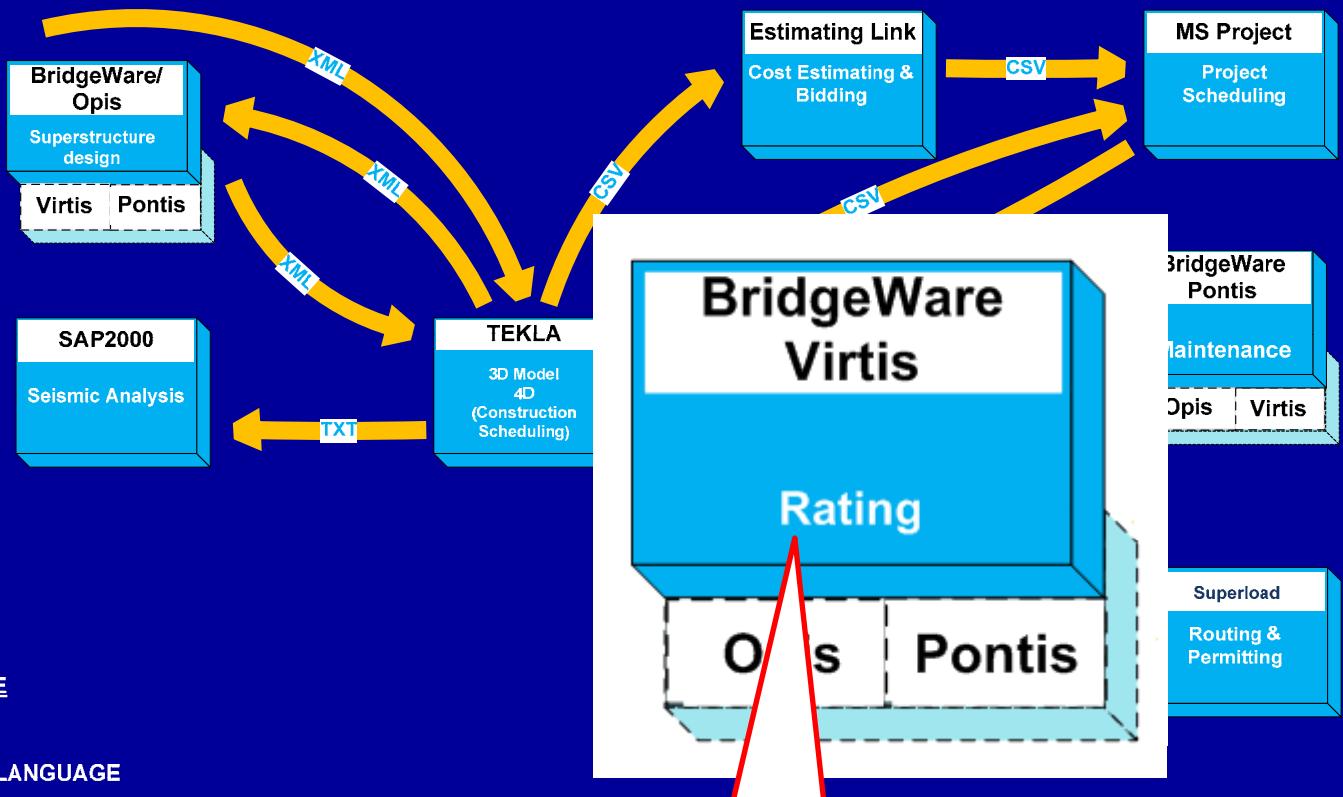


Current Licensees

70 Consultant Licenses of Virtis and/or Opis







METHOD OF DATA EXCHANGE

TXT – TEXT FILE

XML – EXTENSIBLE MARKUP LANGUAGE

LANDXML – LAND EXTENSIBLE MARKUP LANGUAGE

VBA – VISUAL BASIC FOR APPLICATIONS

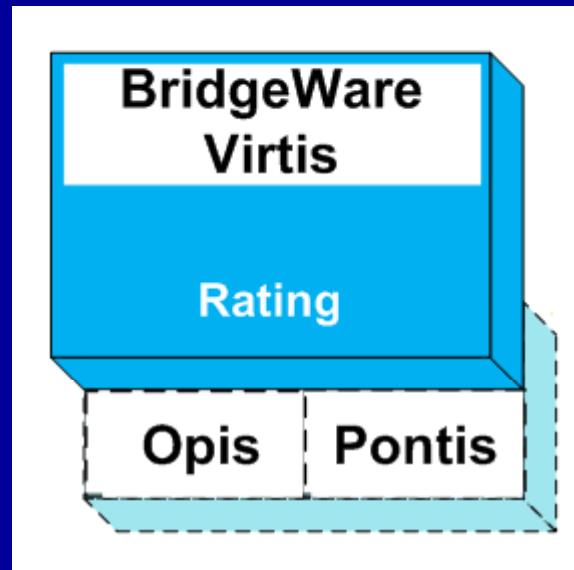
CSV – COMMA SEPARATED VALUES

BARS/LARS – AASHTOWARE AND BENTLEY SOFTWARE

Rating is a part of
workflow...



15 Virtis Steel Alt. Rating



Bridge Operations (Load Rating)

Check
beam
definition

Detailed Spec
Computations
→ Load Rating
reports

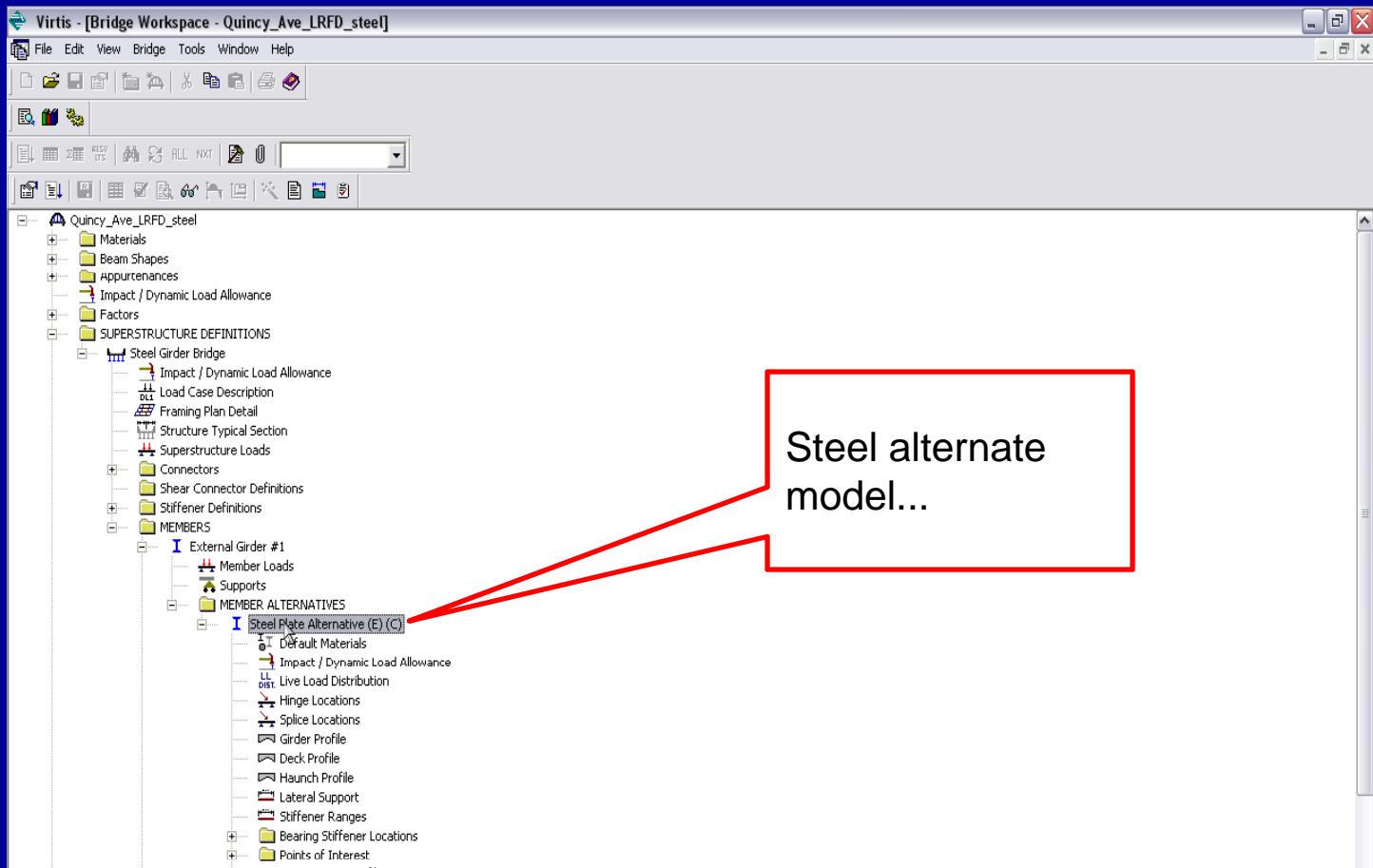
The screenshot displays the Virtis/Opis software interface for bridge operations and load rating. It includes three main windows:

- Bridge Explorer:** Shows a tree view of "All Bridges" and "Deleted Bridges". A table lists the selected bridge: BID 21, Bridge Id "Quincy Ave. Bridge", Bridge Name "Quincy Ave. Bridge1", District, County, Facility, Location, Route, and Feature Intersected.
- PS I Beam:** A configuration dialog for a beam section named BT-72. It shows dimensions: Top Flange Type (Narrow), Flange width 3.5000 in, Web height 2.0000 in, and Total height 7.7 mm. Options for Deck and Radius Fillet are available.
- Specification Reference:** Two tables showing compliance status for various bridge components.
 - The top table covers Stage 1 and Points of Interest, listing items like "6.10.8.2.4 Bearing Stiffeners: Axial Resis..." under Limit State STRENGTH I, with results for Positive Flexure and Negative Flexure.
 - The bottom table covers Stages and points, listing items like "6.10.5.2.3d-1 Compact Sections: Slende..." under Limit State SERVICE II, with results for Positive Flexure.



15 Virtis Steel Alt. Rating

Steel
alternative

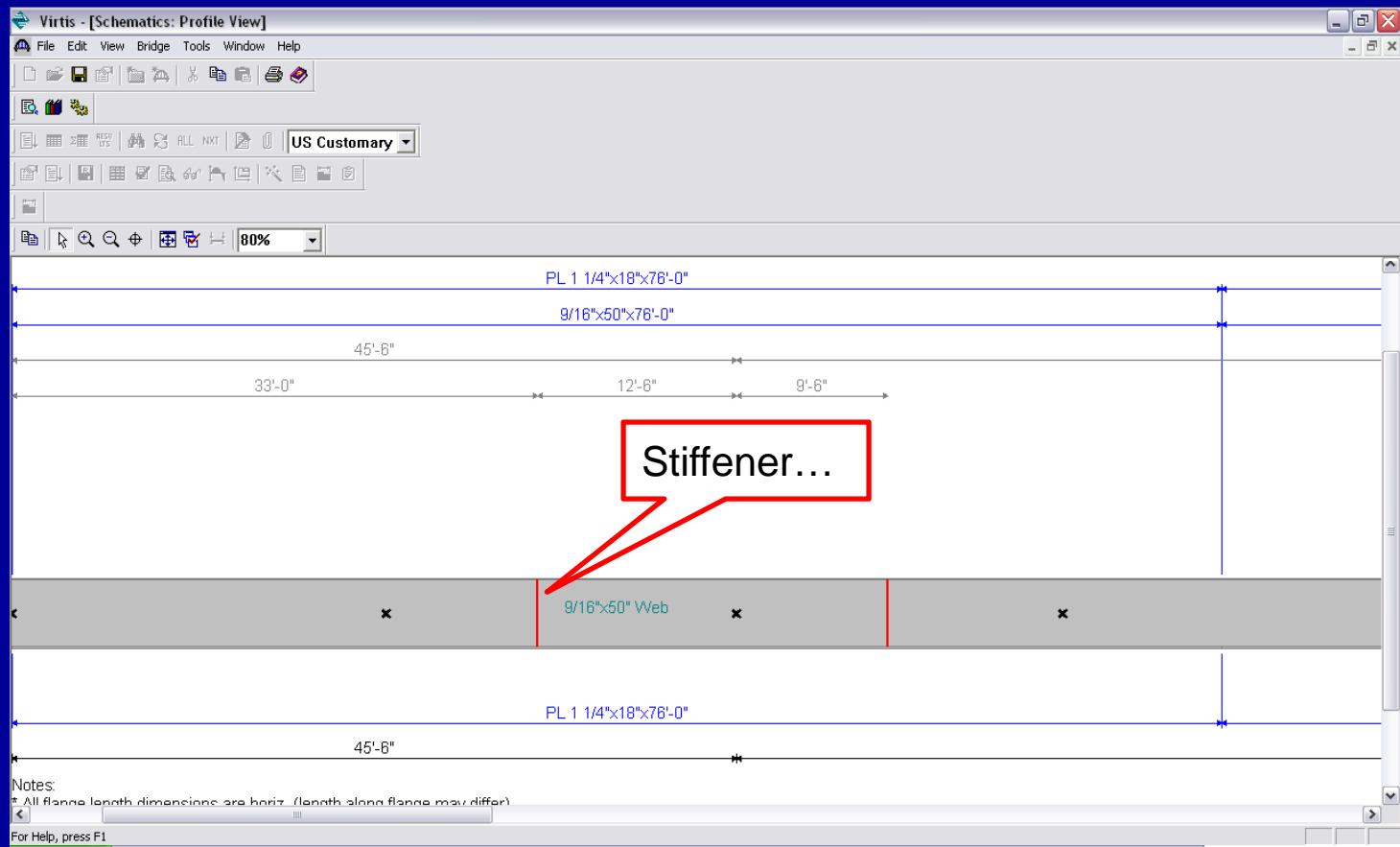


Steel alternate
model...



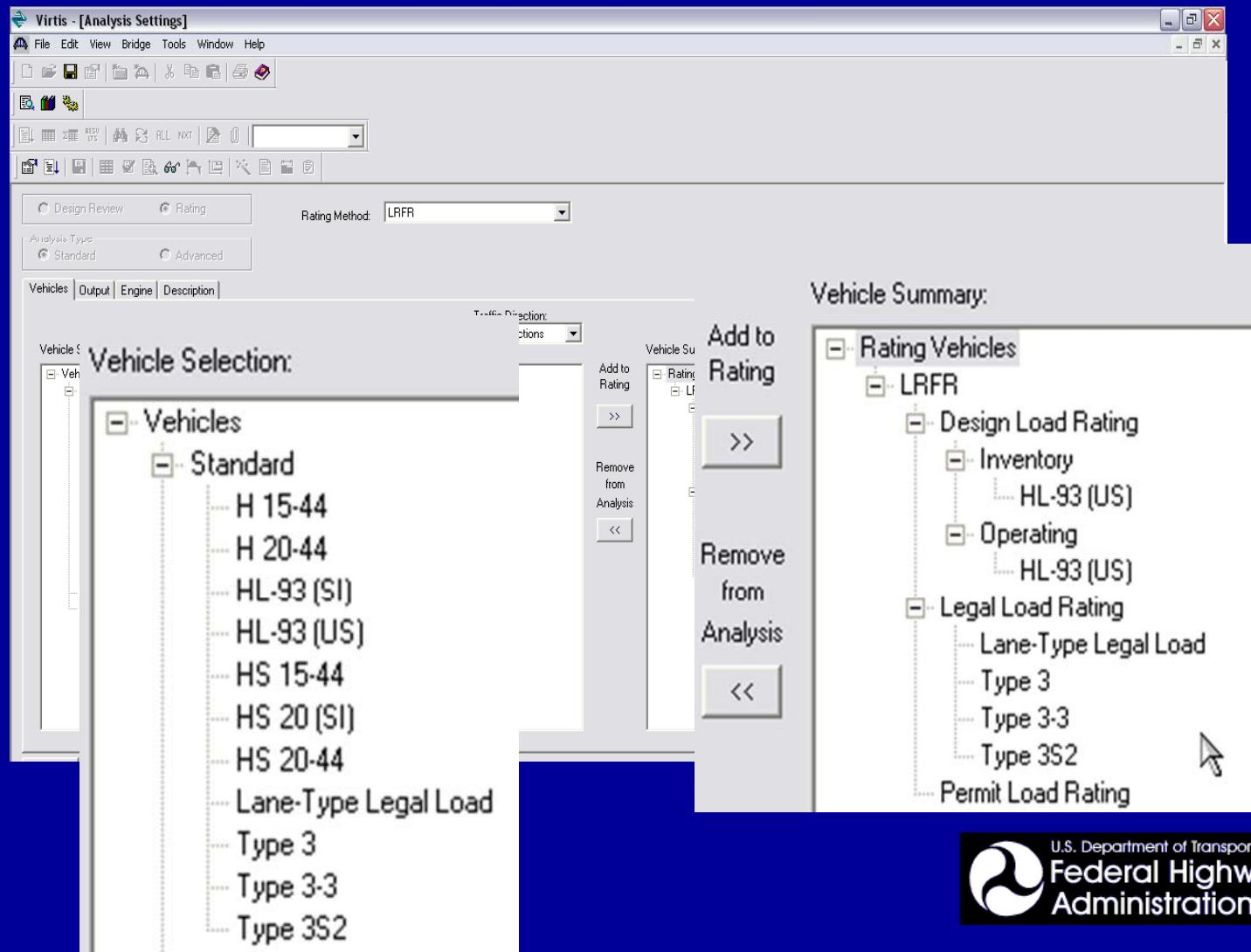
15 Virtis Steel Alt. Rating

Side view
of steel
girders



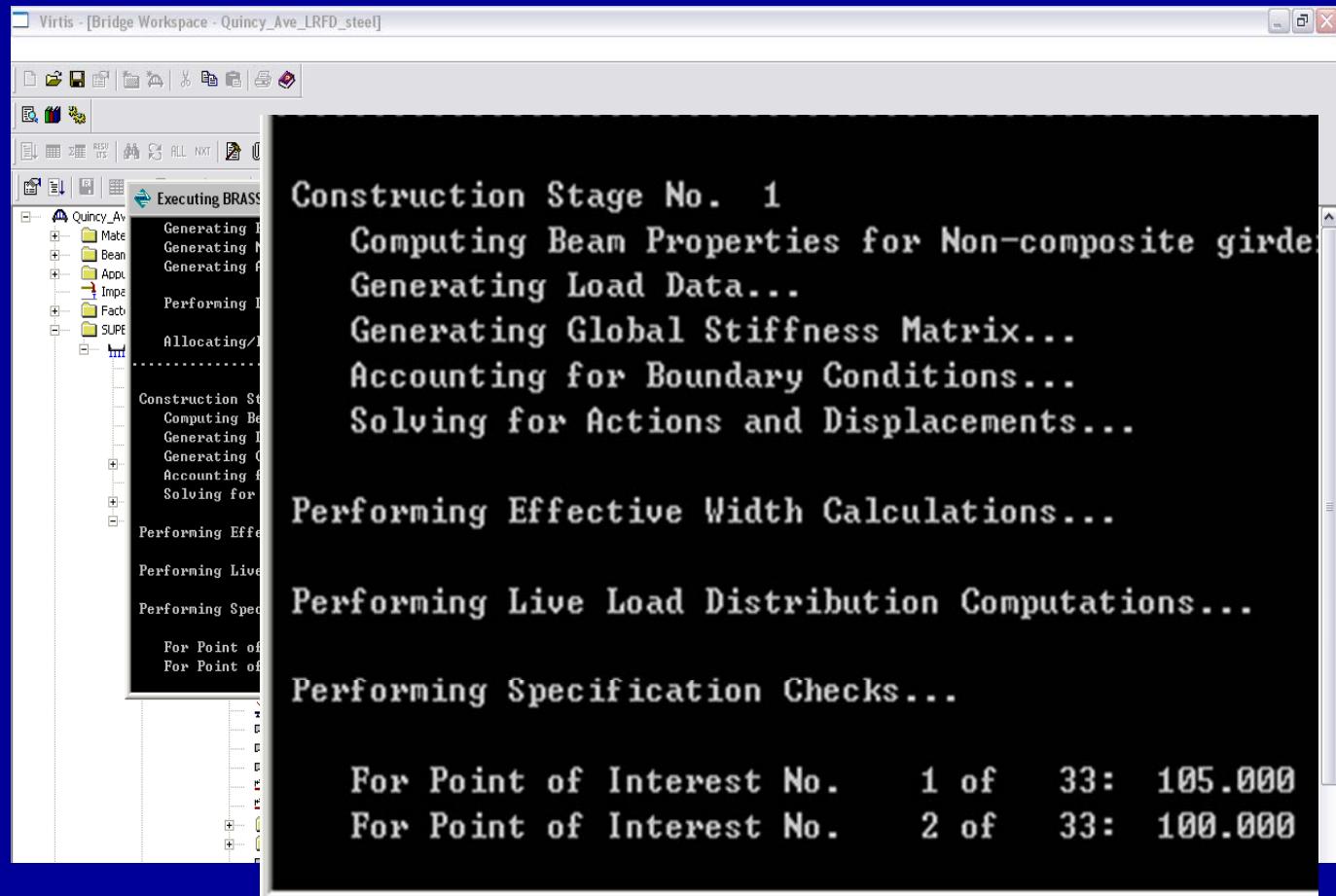
15 Virtis Steel Alt. Rating

Define rating load case



15 Virtis Steel Alt. Rating

Run rating
analysis
using
BRASS



15 Virtis Steel Alt. Rating

Rating results: rating factors

The screenshot shows the Virtis software interface with the title "Virtis - [Analysis Results - Steel Plate Alternative]". The menu bar includes File, Edit, View, Bridge, Tools, Window, Help. The toolbar contains various icons for file operations. The top navigation bar shows "US Customary". The main area displays a table of analysis results. A red box highlights the "Rating factors..." section in the bottom right corner.

Report Type: Rating Results Summary

Lane/Impact Loading Type: As Requested

Display Format: Multiple rating levels per row

Live Load	Live Load Type	Rating Method	Inventory Load Rating (Ton)	Operating Load Rating (Ton)	Legal Load Rating (Ton)	Permit Load Rating (Ton)	Inventory Rating Factor	Operating Rating Factor	Legal Rating Factor	Permit Rating Factor	Inventory Location (ft)	Inventory Location Span-(%)	Operating Location (ft)	Operating Location Span-(%)	Legal Location (ft)	Legal Location Span-(%)	Permit Location (ft)	Permit Location Span-(%)									
HL-93 (US)	Design Truck	LRFR	41.68	54.03			1.158	1.501			167.53	2 - (100.0)	167.53	2 - (100.0)													
HL-93 (US)	Design Tandem	LRFR	33.78	43.79			1.351	1.752			167.53	2 - (100.0)	167.53	2 - (100.0)													
HL-93 (US)	Design Truck Pair	LRFR	31.14	40.37			0.865	1.121			167.53	2 - (100.0)	167.53	2 - (100.0)													
HL-93 (US)	Fatigue	LRFR									1 - (0.0)		1 - (0.0)														
Lane-Type											3.834																
											4.099																
											3.036																

Rating factors...

U.S. Department of Transportation
Federal Highway Administration



15 Virtis Steel Alt. Rating

Rating results:
rating factors

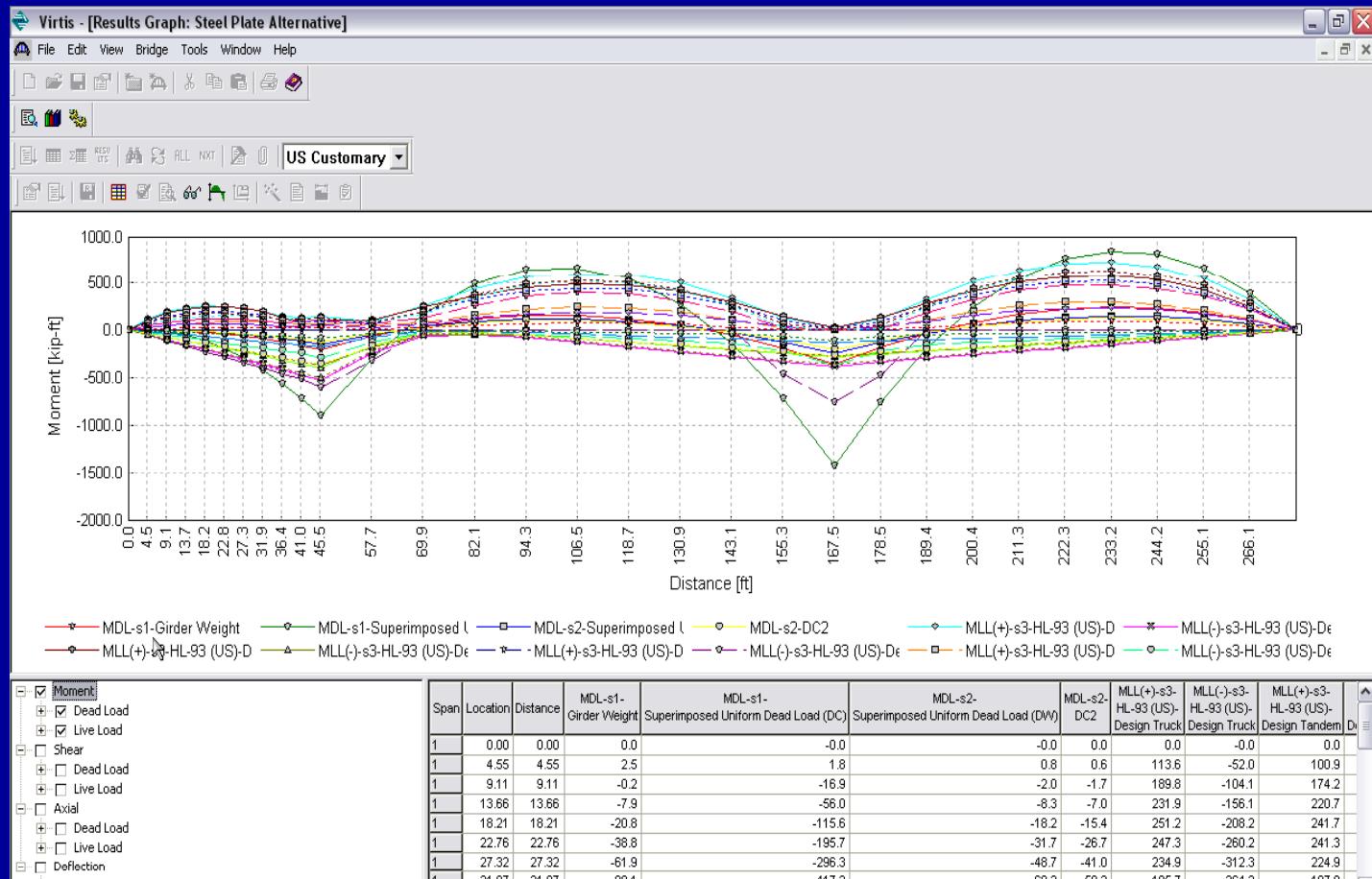
Rating factors...

Live Load	Live Load Type	Rating Method	Rating Level	Load Rating (Ton)	Rating Factor	Location (ft)	Location Span(%)	Limit State	Impact	Lane
HL-93 (US)	Design Truck	LRFR	Inventory	41.68	1.158	167.53	2 - (100.0	STRENGTH I - Flexure (stress	As Requested	As Requested
HL-93 (US)	Design Truck	LRFR	Operating	54.03	1.501	167.53	2 - (100.0	STRENGTH II - Flexure (stress	As Requested	As Requested
HL-93 (US)	Design Tand	LRFR	Inventory	33.78	1.351	167.53	2 - (100.0	STRENGTH I - Flexure (stress	As Requested	As Requested
HL-93 (US)	Design Tand	LRFR	Operating	43.79	1.752	167.53	2 - (100.0	STRENGTH II - Flexure (stress	As Requested	As Requested
HL-93 (US)	Design Truck	LRFR	Inventory	31.14	0.865	167.53	2 - (100.0	STRENGTH I - Flexure (stress	As Requested	As Requested
HL-93 (US)	Design Truck	LRFR	Operating	40.37	1.121	167.53	2 - (100.0	STRENGTH II - Flexure (stress	As Requested	As Requested
Lane-Type Legal Load	Design Truck	LRFR	Legal	115.02	3.834	167.53	2 - (100.0	STRENGTH I - Flexure (stress	As Requested	As Requested
Type 3	Design Truck	LRFR	Legal	102.48	4.099	167.53	2 - (100.0	STRENGTH I - Flexure (stress	As Requested	As Requested
Type 3-3	Design Truck	LRFR	Legal	115.02	2.876	167.53	2 - (100.0	STRENGTH I - Flexure (stress	As Requested	As Requested
Type 3S2	Design Truck	LRFR	Legal	109.31	3.036	167.53	2 - (100.0	STRENGTH I - Flexure (stress	As Requested	As Requested



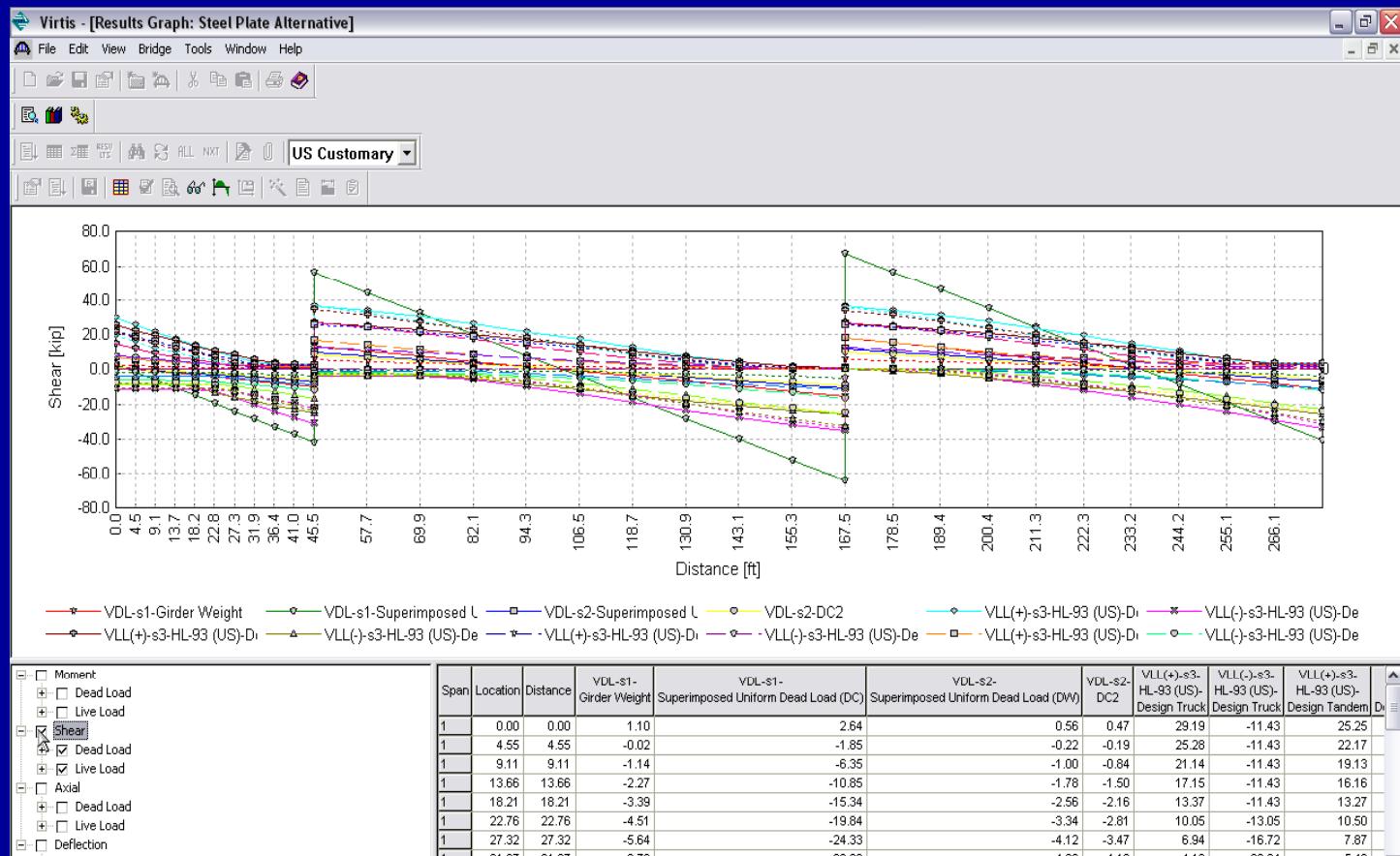
15 Virtis Steel Alt. Rating

Rating
results:
Moment
diagram



15 Virtis Steel Alt. Rating

Rating
results:
Shear
diagram



15 Virtis Steel Alt. Rating

Define
deterioration
Profile:
Thickness
loss and
location

The screenshot shows the Virtis software interface for defining a deterioration profile. A red box highlights the 'Section loss (%)...' column in the table, and another red box highlights the 'Loss position...' button in the toolbar.

Type: Plate Girder

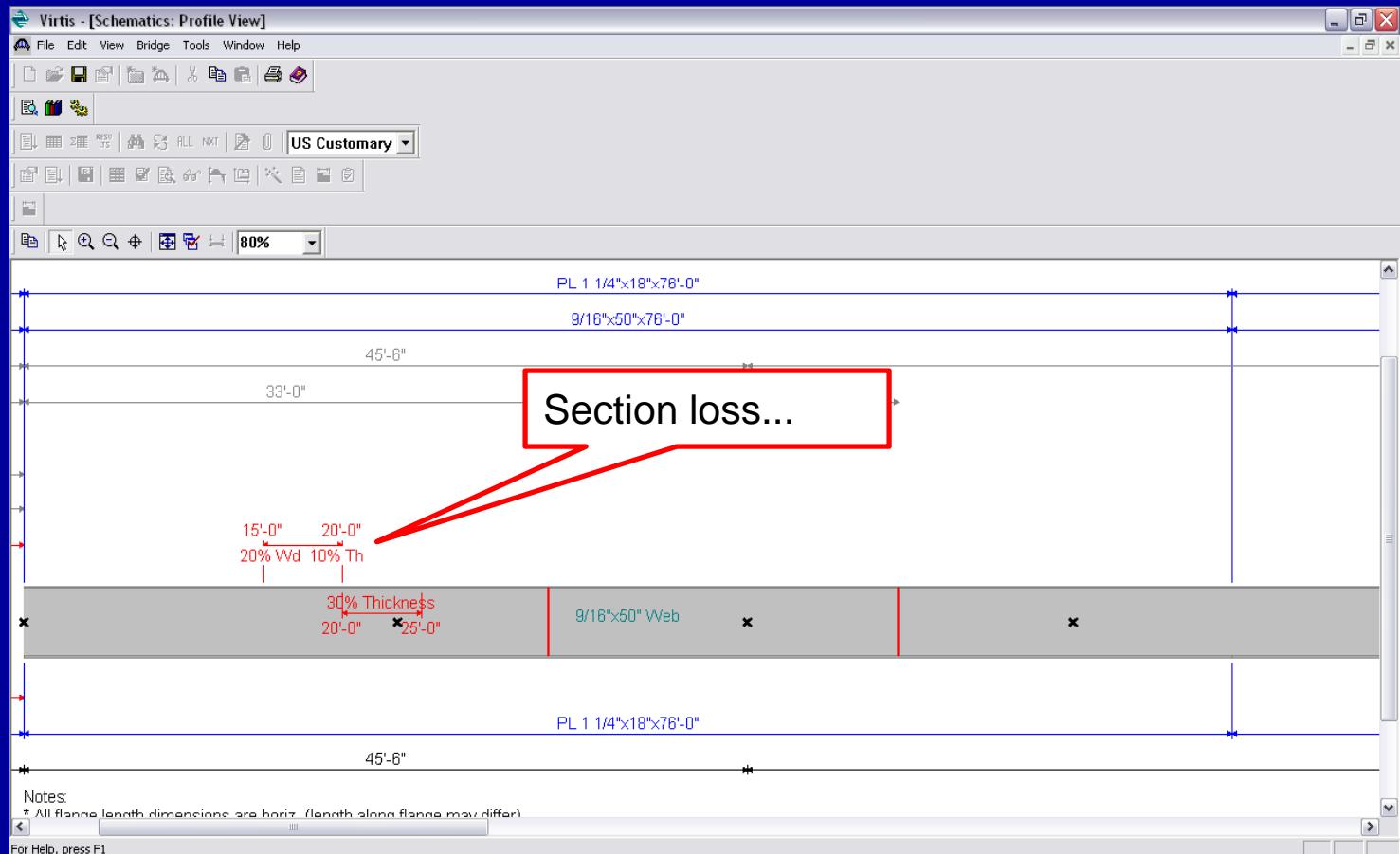
Web Top Flange Bottom Flange

% Thickness Loss (%)	Support Number	Start Distance (ft)	Length (ft)	End Distance (ft)
20.0	1	30.00	5.00	35.00
50.0	2	50.00	5.00	55.00
30.0	1	100.00	3	100.00



15 Virtis Steel Alt. Rating

Side view
of steel
girders
after
defining
section loss



15 Virtis Steel Alt. Rating

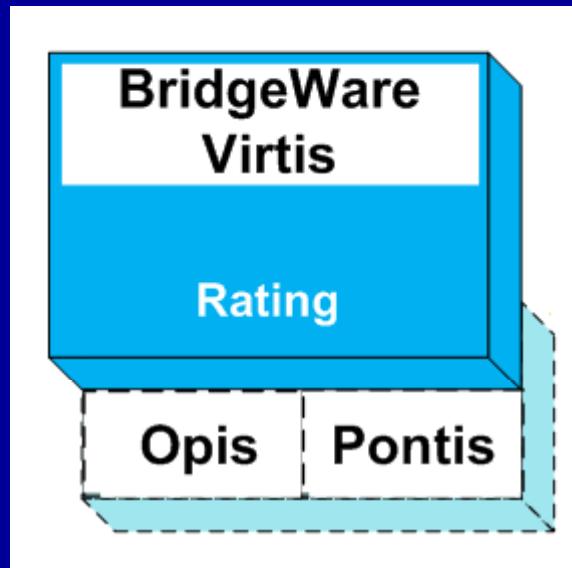
Rerun
rating
analysis
and get
rating
results:
rating
factors

The rating factors change...

Live Load	Live Load Type	Rating Method	Inventory Load Rating (Ton)	Operating Load Rating (Ton)	Legal Load Rating (Ton)	Permit Load Rating (Ton)	Inventory Rating Factor	Operating Rating Factor	Legal Rating Factor	Permit Rating Factor	Inventory Location (ft)	Inventory Location Span-(%)	Operating Location (ft)	Operating Location Span-(%)	Legal Location (ft)	Legal Location Span-(%)	Permit Location (ft)	Permit Location Span-(%)
HL-93 (US)	Design Truck	LRFR	41.44	53.72			1.151	1.492			167.53	2 - (100.0)	167.53	2 - (100.0)				
HL-93 (US)	Design Tandem	LRFR	33.58	43.53			1.343	1.741			167.53	2 - (100.0)	167.53	2 - (100.0)				
HL-93 (US)	Design Truck Pair	LRFR	30.93	40.10			0.859	1.114			167.53	2 - (100.0)	167.53	2 - (100.0)				
HL-93 (US)	Fatigue	LRFR									1 - (0.0)		1 - (0.0)					
Lane-Type Legal Load	Design Truck	LRFR			114.51				3.817							167.53	2 - (100.0)	
Type 3	Design Truck	LRFR			102.03				4.081							167.53	2 - (100.0)	
Type 3-3	Design Truck	LRFR			114.51				2.863							167.53	2 - (100.0)	
Type 3S2	Design Truck	LRFR			108.82				3.023							167.53	2 - (100.0)	

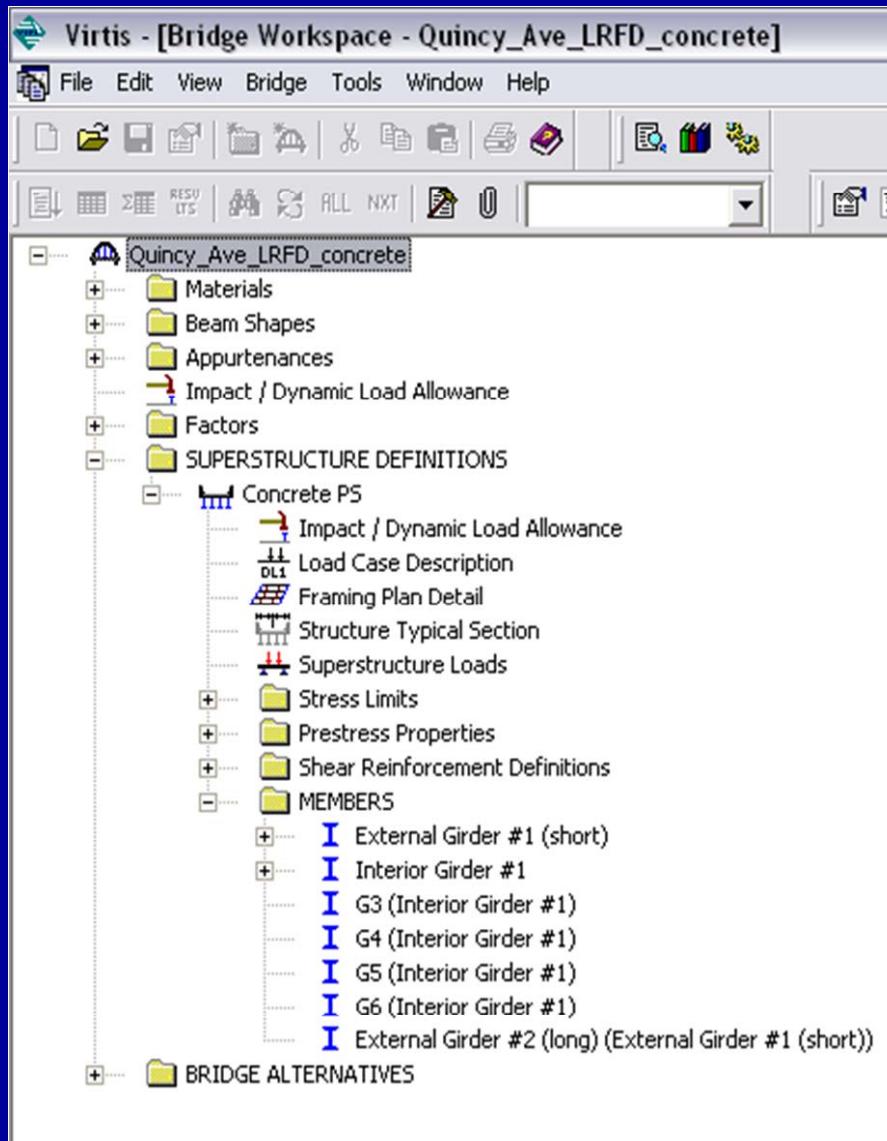


14 Virtis Concrete Alt. Rating



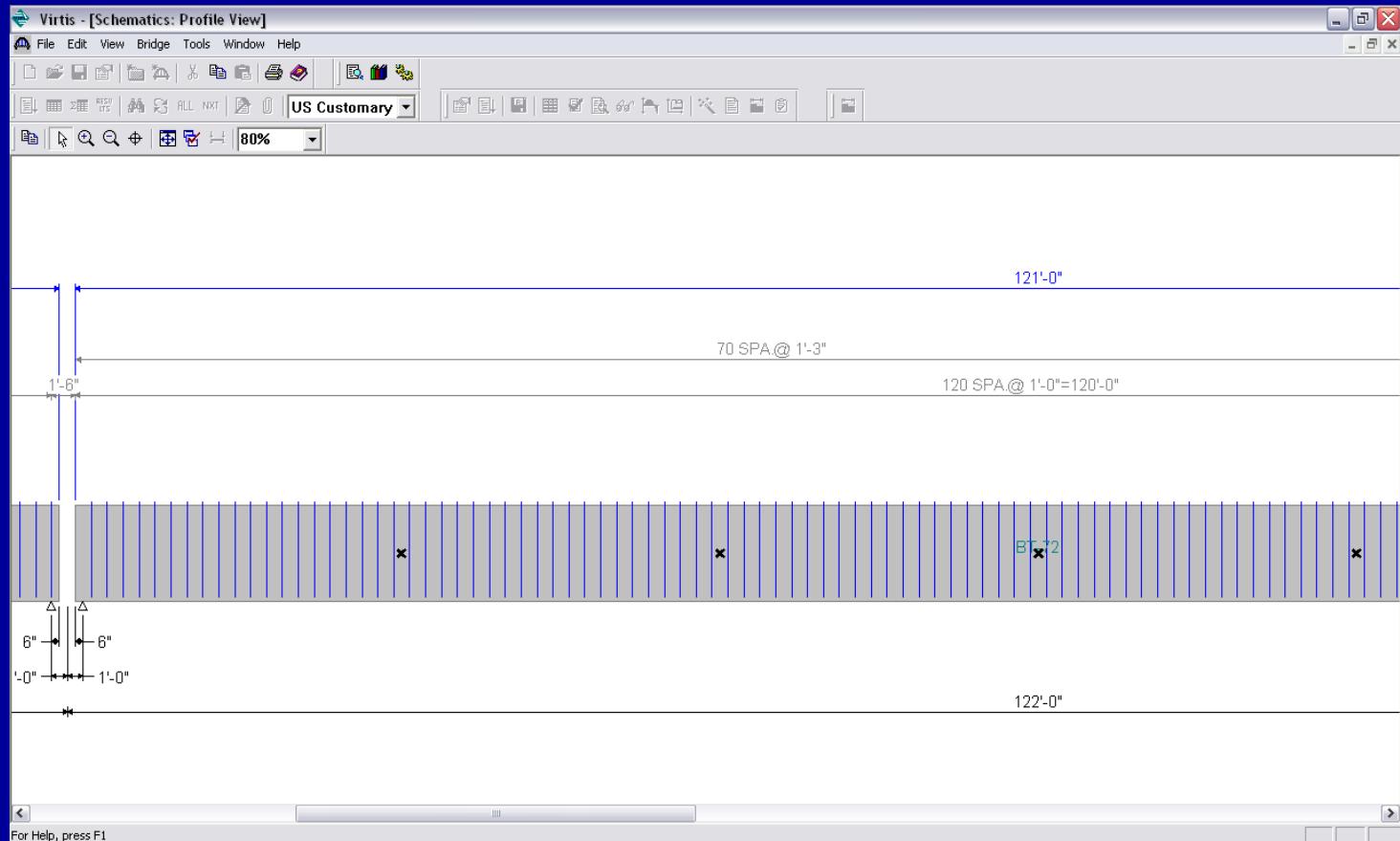
14 Virtis Concrete Alt. Rating

Concrete alternative



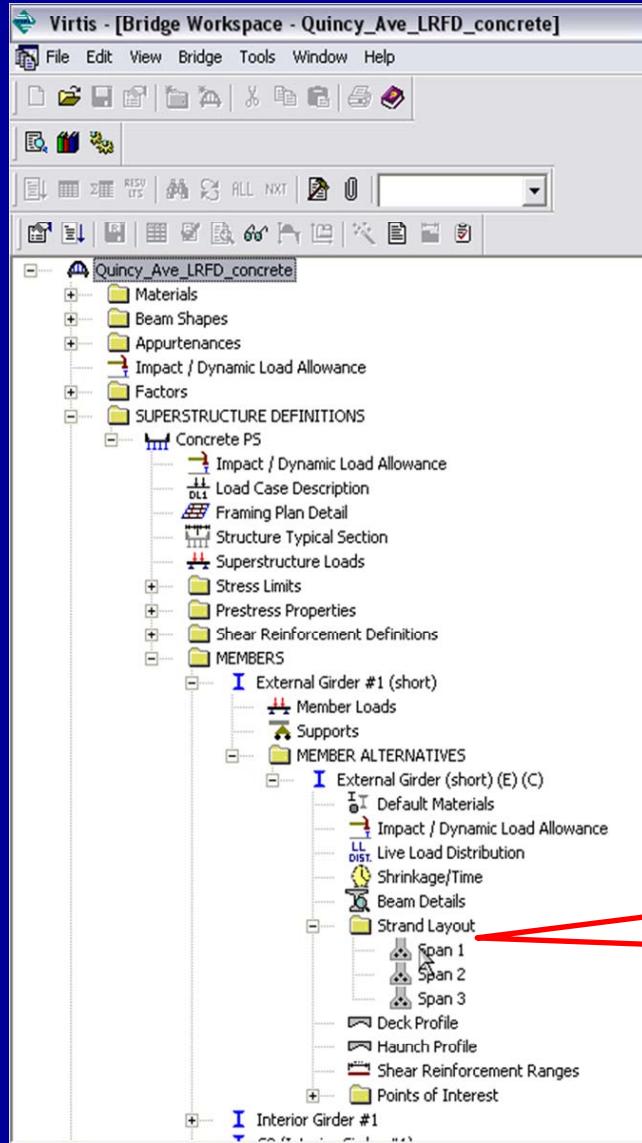
14 Virtis Concrete Alt. Rating

Side view
of Concrete
girders



14 Virtis Concrete Alt. Rating

Design
Strand
layouts

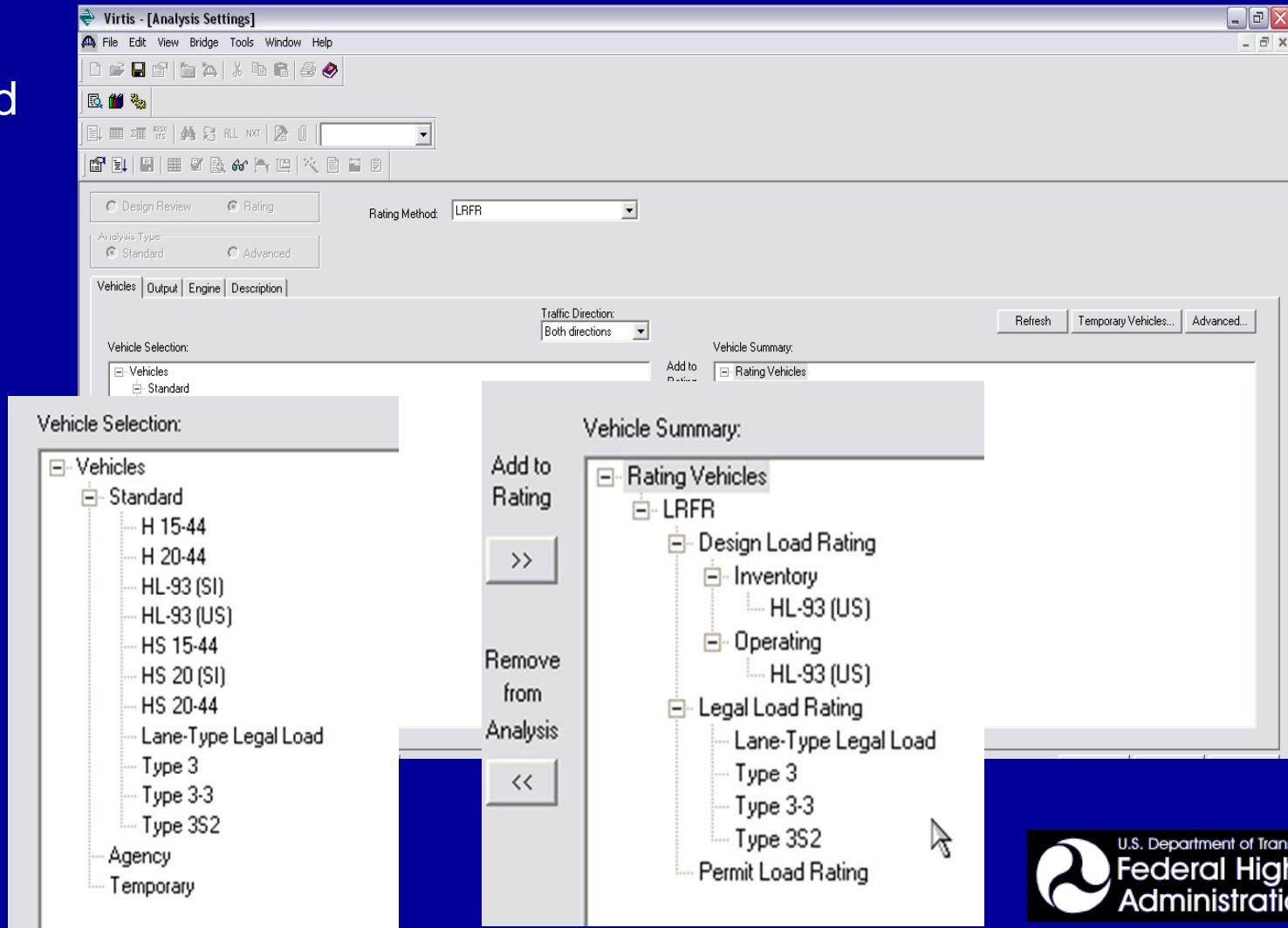


Strands layout
definition...



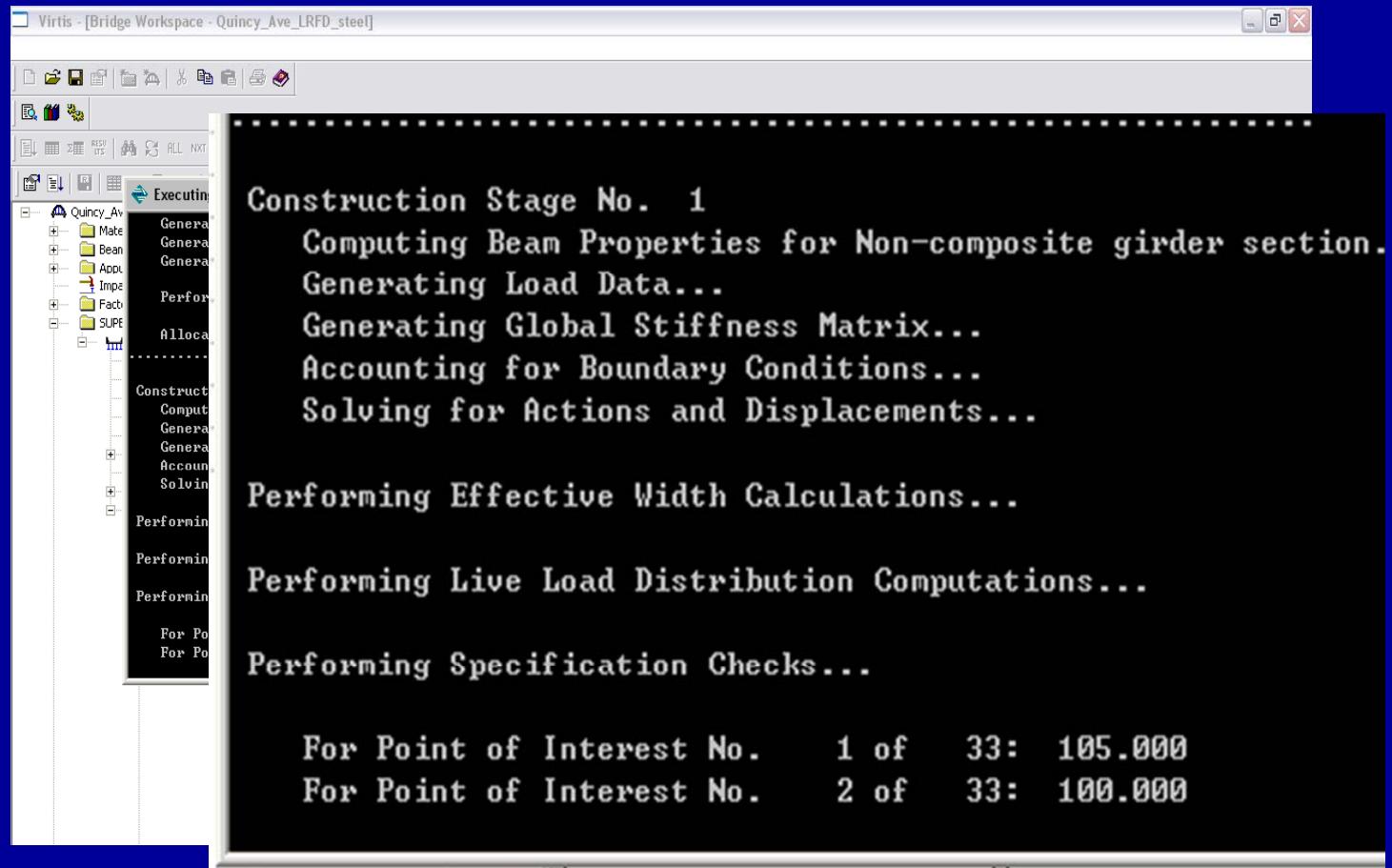
14 Virtis Concrete Alt. Rating

Define
rating load
case



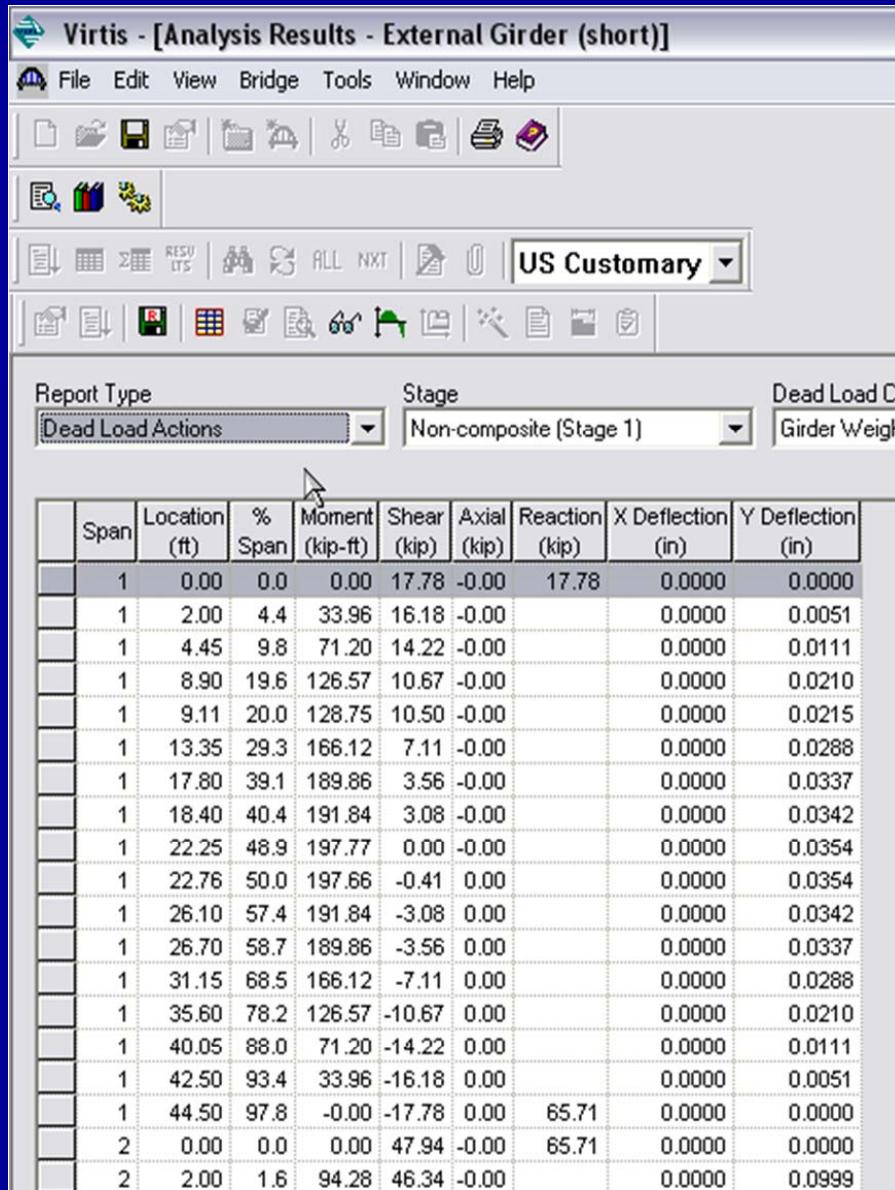
14 Virtis Concrete Alt. Rating

Run rating
analysis
using
BRASS



14 Virtis Concrete Alt. Rating

Rating
results:
Moment
and Shear
Force



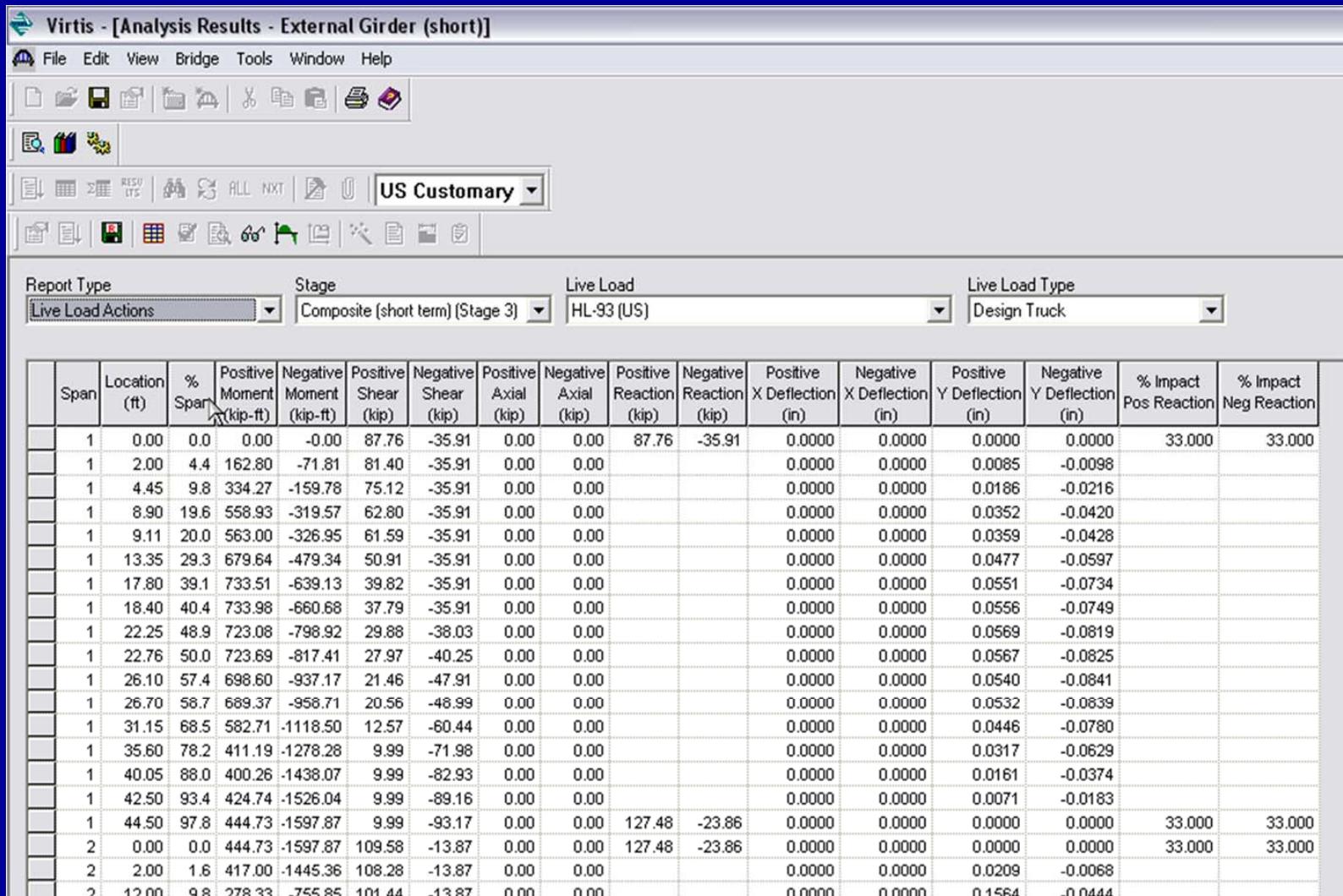
The screenshot shows the Virtis software interface with the title bar "Virtis - [Analysis Results - External Girder (short)]". The menu bar includes File, Edit, View, Bridge, Tools, Window, and Help. Below the menu is a toolbar with various icons. A status bar at the bottom indicates "US Customary". The main window displays a report table with the following columns: Span, Location (ft), % Span, Moment (kip-ft), Shear (kip), Axial (kip), Reaction (kip), X Deflection (in), and Y Deflection (in). The report type is set to "Dead Load Actions", the stage to "Non-composite (Stage 1)", and the dead load category to "Girder Weight". The table contains data for multiple spans, with the first few rows shown below:

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	17.78	-0.00	17.78	0.0000	0.0000
1	2.00	4.4	33.96	16.18	-0.00		0.0000	0.0051
1	4.45	9.8	71.20	14.22	-0.00		0.0000	0.0111
1	8.90	19.6	126.57	10.67	-0.00		0.0000	0.0210
1	9.11	20.0	128.75	10.50	-0.00		0.0000	0.0215
1	13.35	29.3	166.12	7.11	-0.00		0.0000	0.0288
1	17.80	39.1	189.86	3.56	-0.00		0.0000	0.0337
1	18.40	40.4	191.84	3.08	-0.00		0.0000	0.0342
1	22.25	48.9	197.77	0.00	-0.00		0.0000	0.0354
1	22.76	50.0	197.66	-0.41	0.00		0.0000	0.0354
1	26.10	57.4	191.84	-3.08	0.00		0.0000	0.0342
1	26.70	58.7	189.86	-3.56	0.00		0.0000	0.0337
1	31.15	68.5	166.12	-7.11	0.00		0.0000	0.0288
1	35.60	78.2	126.57	-10.67	0.00		0.0000	0.0210
1	40.05	88.0	71.20	-14.22	0.00		0.0000	0.0111
1	42.50	93.4	33.96	-16.18	0.00		0.0000	0.0051
1	44.50	97.8	-0.00	-17.78	0.00	65.71	0.0000	0.0000
2	0.00	0.0	0.00	47.94	-0.00	65.71	0.0000	0.0000
2	2.00	1.6	94.28	46.34	-0.00		0.0000	0.0999



14 Virtis Concrete Alt. Rating

Rating
results:
Moment
and
Shear
Force



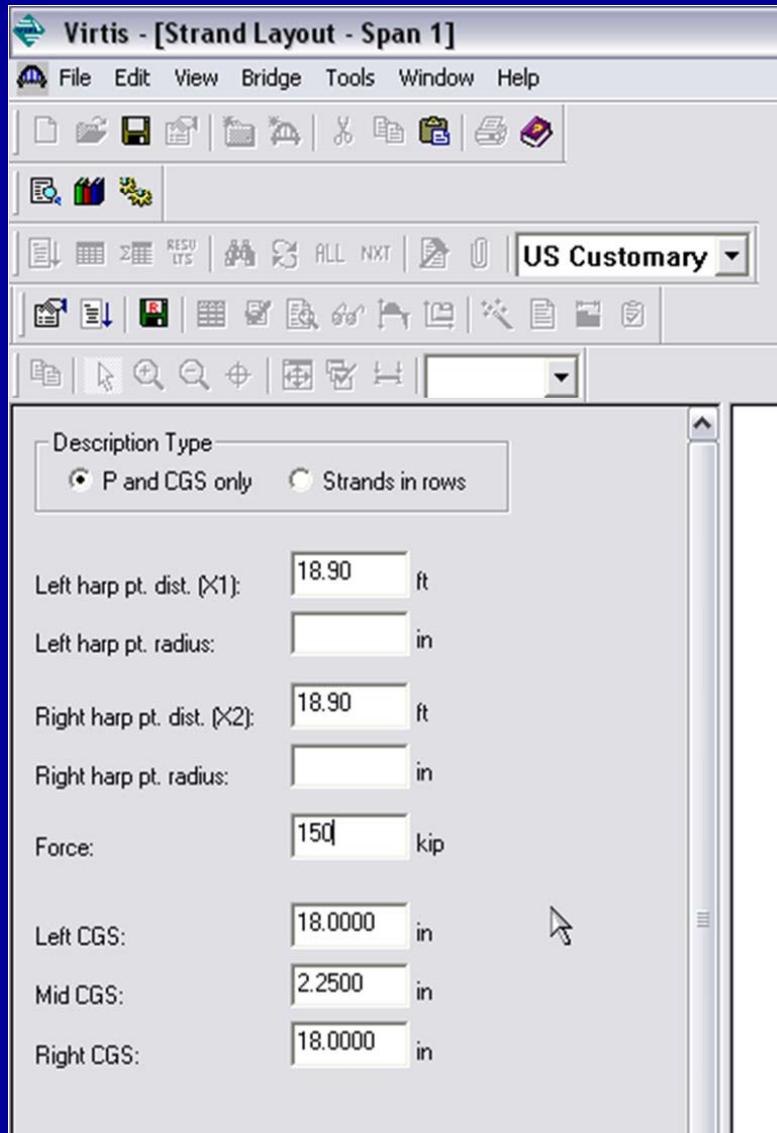
The screenshot shows the Virtis software interface with the title bar "Virtis - [Analysis Results - External Girder (short)]". The menu bar includes File, Edit, View, Bridge, Tools, Window, and Help. Below the menu is a toolbar with various icons. The interface is set to "US Customary" units. The report type is set to "Live Load Actions", stage is "Composite (short term) [Stage 3]", live load is "HL-93 (US)", and live load type is "Design Truck". The main area displays a table of analysis results:

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	87.76	-35.91	0.00	0.00	87.76	-35.91	0.0000	0.0000	0.0000	0.0000	33.000	33.000
1	2.00	4.4	162.80	-71.81	81.40	-35.91	0.00	0.00			0.0000	0.0000	0.0085	-0.0098		
1	4.45	9.8	334.27	-159.78	75.12	-35.91	0.00	0.00			0.0000	0.0000	0.0186	-0.0216		
1	8.90	19.6	558.93	-319.57	62.80	-35.91	0.00	0.00			0.0000	0.0000	0.0352	-0.0420		
1	9.11	20.0	563.00	-326.95	61.59	-35.91	0.00	0.00			0.0000	0.0000	0.0359	-0.0428		
1	13.35	29.3	679.64	-479.34	50.91	-35.91	0.00	0.00			0.0000	0.0000	0.0477	-0.0597		
1	17.80	39.1	733.51	-639.13	39.82	-35.91	0.00	0.00			0.0000	0.0000	0.0551	-0.0734		
1	18.40	40.4	733.98	-660.68	37.79	-35.91	0.00	0.00			0.0000	0.0000	0.0556	-0.0749		
1	22.25	48.9	723.08	-798.92	29.88	-38.03	0.00	0.00			0.0000	0.0000	0.0569	-0.0819		
1	22.76	50.0	723.69	-817.41	27.97	-40.25	0.00	0.00			0.0000	0.0000	0.0567	-0.0825		
1	26.10	57.4	698.60	-937.17	21.46	-47.91	0.00	0.00			0.0000	0.0000	0.0540	-0.0841		
1	26.70	58.7	689.37	-958.71	20.56	-48.99	0.00	0.00			0.0000	0.0000	0.0532	-0.0839		
1	31.15	68.5	582.71	-1118.50	12.57	-60.44	0.00	0.00			0.0000	0.0000	0.0446	-0.0780		
1	35.60	78.2	411.19	-1278.28	9.99	-71.98	0.00	0.00			0.0000	0.0000	0.0317	-0.0629		
1	40.05	88.0	400.26	-1438.07	9.99	-82.93	0.00	0.00			0.0000	0.0000	0.0161	-0.0374		
1	42.50	93.4	424.74	-1526.04	9.99	-89.16	0.00	0.00			0.0000	0.0000	0.0071	-0.0183		
1	44.50	97.8	444.73	-1597.87	9.99	-93.17	0.00	0.00	127.48	-23.86	0.0000	0.0000	0.0000	0.0000	33.000	33.000
2	0.00	0.0	444.73	-1597.87	109.58	-13.87	0.00	0.00	127.48	-23.86	0.0000	0.0000	0.0000	0.0000	33.000	33.000
2	2.00	1.6	417.00	-1445.36	108.28	-13.87	0.00	0.00			0.0000	0.0000	0.0209	-0.0068		
2	12.00	9.8	278.33	-755.85	101.44	-13.87	0.00	0.00			0.0000	0.0000	0.1564	-0.0444		



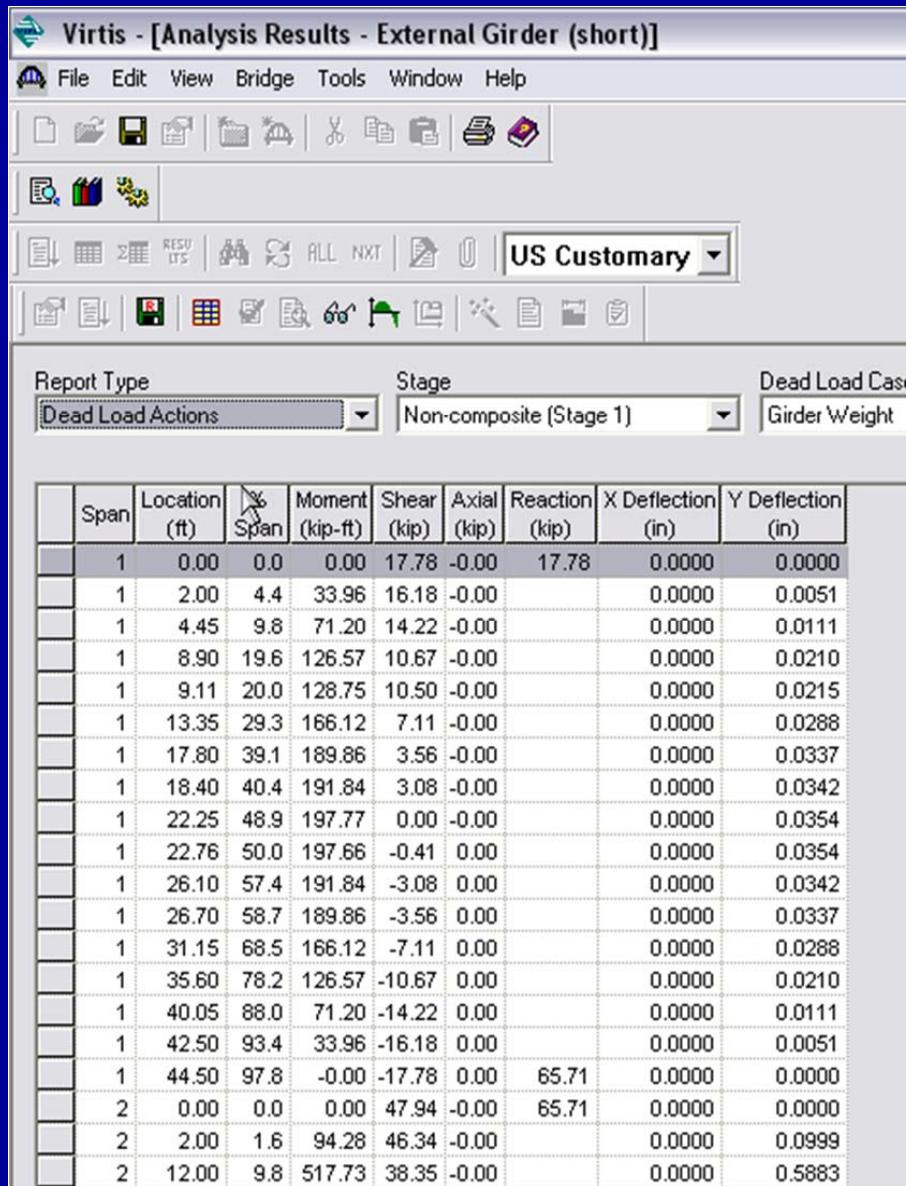
14 Virtis Concrete Alt. Rating

Change
Strand
layouts



14 Virtis Concrete Alt. Rating

Re-rating
results:
Moment
and Shear
Force



The screenshot shows the Virtis software interface with the title bar "Virtis - [Analysis Results - External Girder (short)]". The menu bar includes File, Edit, View, Bridge, Tools, Window, and Help. The toolbar contains various icons for file operations like Open, Save, Print, and zoom. A language dropdown shows "US Customary". The main window displays a report table with the following columns: Span, Location (ft), Span, Moment (kip-ft), Shear (kip), Axial (kip), Reaction (kip), X Deflection (in), and Y Deflection (in). The report type is set to "Dead Load Actions", the stage to "Non-composite (Stage 1)", and the dead load case to "Girder Weight". The table lists 20 spans, with the last two being for a second girder.

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	17.78	-0.00	17.78	0.0000	0.0000
1	2.00	4.4	33.96	16.18	-0.00		0.0000	0.0051
1	4.45	9.8	71.20	14.22	-0.00		0.0000	0.0111
1	8.90	19.6	126.57	10.67	-0.00		0.0000	0.0210
1	9.11	20.0	128.75	10.50	-0.00		0.0000	0.0215
1	13.35	29.3	166.12	7.11	-0.00		0.0000	0.0288
1	17.80	39.1	189.86	3.56	-0.00		0.0000	0.0337
1	18.40	40.4	191.84	3.08	-0.00		0.0000	0.0342
1	22.25	48.9	197.77	0.00	-0.00		0.0000	0.0354
1	22.76	50.0	197.66	-0.41	0.00		0.0000	0.0354
1	26.10	57.4	191.84	-3.08	0.00		0.0000	0.0342
1	26.70	58.7	189.86	-3.56	0.00		0.0000	0.0337
1	31.15	68.5	166.12	-7.11	0.00		0.0000	0.0288
1	35.60	78.2	126.57	-10.67	0.00		0.0000	0.0210
1	40.05	88.0	71.20	-14.22	0.00		0.0000	0.0111
1	42.50	93.4	33.96	-16.18	0.00		0.0000	0.0051
1	44.50	97.8	-0.00	-17.78	0.00	65.71	0.0000	0.0000
2	0.00	0.0	0.00	47.94	-0.00	65.71	0.0000	0.0000
2	2.00	1.6	94.28	46.34	-0.00		0.0000	0.0999
2	12.00	9.8	517.73	38.35	-0.00		0.0000	0.5883



14 Virtis Concrete Alt. Rating

Re-rating
results:
Moment
and Shear
Force

Virtis - [Analysis Results - External Girder (short)]

File Edit View Bridge Tools Window Help

US Customary

Report Type Stage Live Load Live Load Type

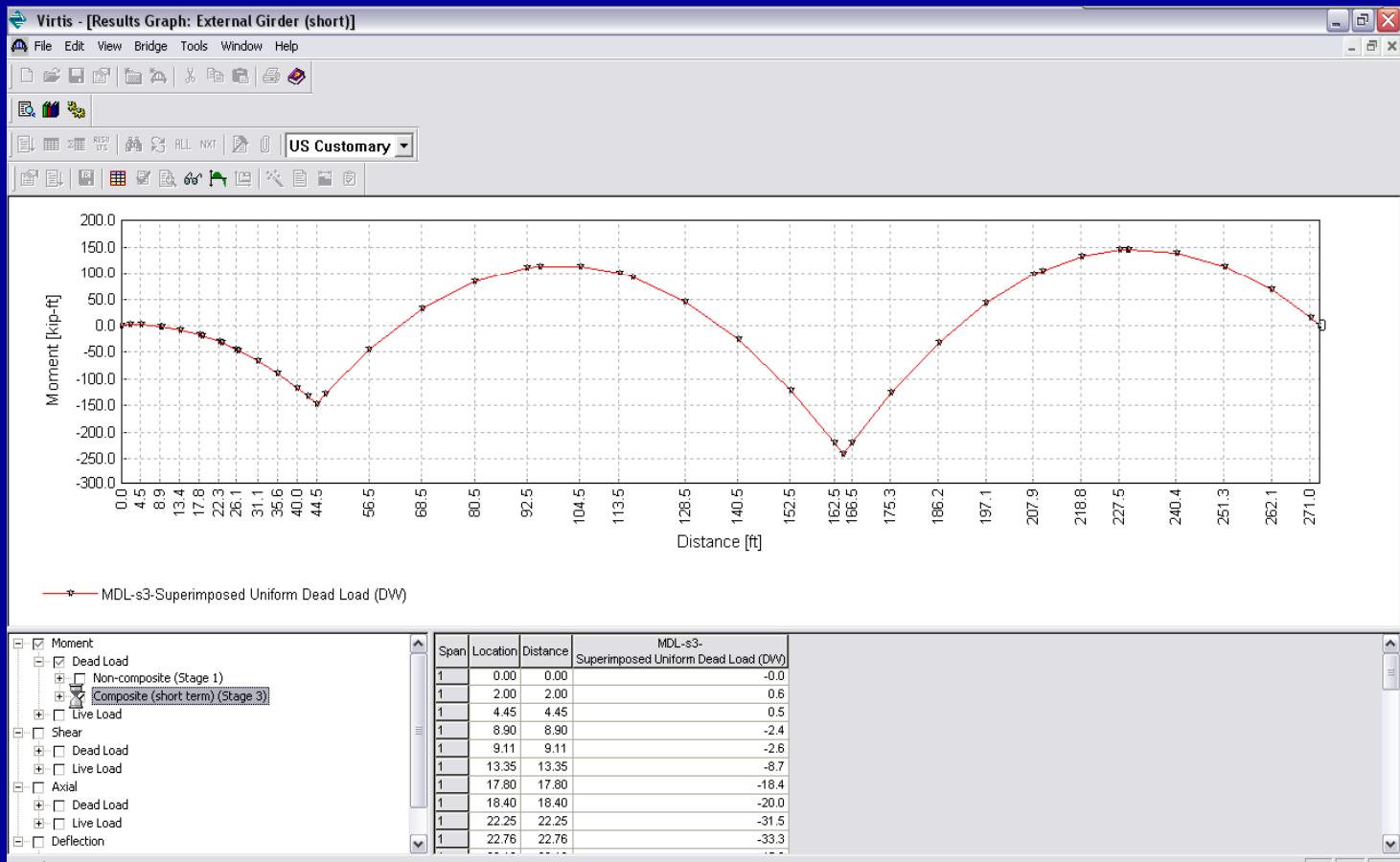
Live Load Actions Composite (short term) (Stage 3) HL-93 (US) Design Truck

	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	87.76	-35.91	0.00	0.00	87.76	-35.91	0.0000	0.0000	0.0000	0.0000	33.000	33.000
	1	2.00	4.4	162.80	-71.81	81.40	-35.91	0.00	0.00			0.0000	0.0000	0.0085	-0.0098		
	1	4.45	9.8	334.27	-159.78	75.12	-35.91	0.00	0.00			0.0000	0.0000	0.0186	-0.0216		
	1	8.90	19.6	558.93	-319.57	62.80	-35.91	0.00	0.00			0.0000	0.0000	0.0352	-0.0420		
	1	9.11	20.0	563.00	-326.95	61.59	-35.91	0.00	0.00			0.0000	0.0000	0.0359	-0.0428		
	1	13.35	29.3	679.64	-479.34	50.91	-35.91	0.00	0.00			0.0000	0.0000	0.0477	-0.0597		
	1	17.80	39.1	733.51	-639.13	39.82	-35.91	0.00	0.00			0.0000	0.0000	0.0551	-0.0734		
	1	18.40	40.4	733.98	-660.68	37.79	-35.91	0.00	0.00			0.0000	0.0000	0.0556	-0.0749		
	1	22.25	48.9	723.08	-798.92	29.88	-38.03	0.00	0.00			0.0000	0.0000	0.0589	-0.0819		
	1	22.76	50.0	733.69	-817.41	27.97	-40.25	0.00	0.00			0.0000	0.0000	0.0567	-0.0825		
	1	26.10	57.4	698.60	-937.17	21.46	-47.91	0.00	0.00			0.0000	0.0000	0.0540	-0.0841		
	1	26.70	58.7	683.37	-958.71	20.56	-48.99	0.00	0.00			0.0000	0.0000	0.0532	-0.0839		
	1	31.15	68.5	582.71	-1118.50	12.57	-60.44	0.00	0.00			0.0000	0.0000	0.0446	-0.0780		
	1	35.60	78.2	411.19	-1278.28	9.99	-71.98	0.00	0.00			0.0000	0.0000	0.0317	-0.0629		
	1	40.05	88.0	400.26	-1438.07	9.99	-82.93	0.00	0.00			0.0000	0.0000	0.0161	-0.0374		
	1	42.50	93.4	424.74	-1526.04	9.99	-89.16	0.00	0.00			0.0000	0.0000	0.0071	-0.0183		
	1	44.50	97.8	444.73	-1597.87	9.99	-93.17	0.00	0.00	127.48	-23.86	0.0000	0.0000	0.0000	33.000	33.000	
	2	0.00	0.0	444.73	-1597.87	109.58	-13.87	0.00	0.00	127.48	-23.86	0.0000	0.0000	0.0000	33.000	33.000	
	2	2.00	1.6	417.00	-1445.36	108.28	-13.87	0.00	0.00			0.0000	0.0000	0.0209	-0.0068		
	2	12.00	9.8	379.22	-755.95	104.44	-12.97	0.00	0.00			0.0000	0.0000	0.1564	-0.0444		



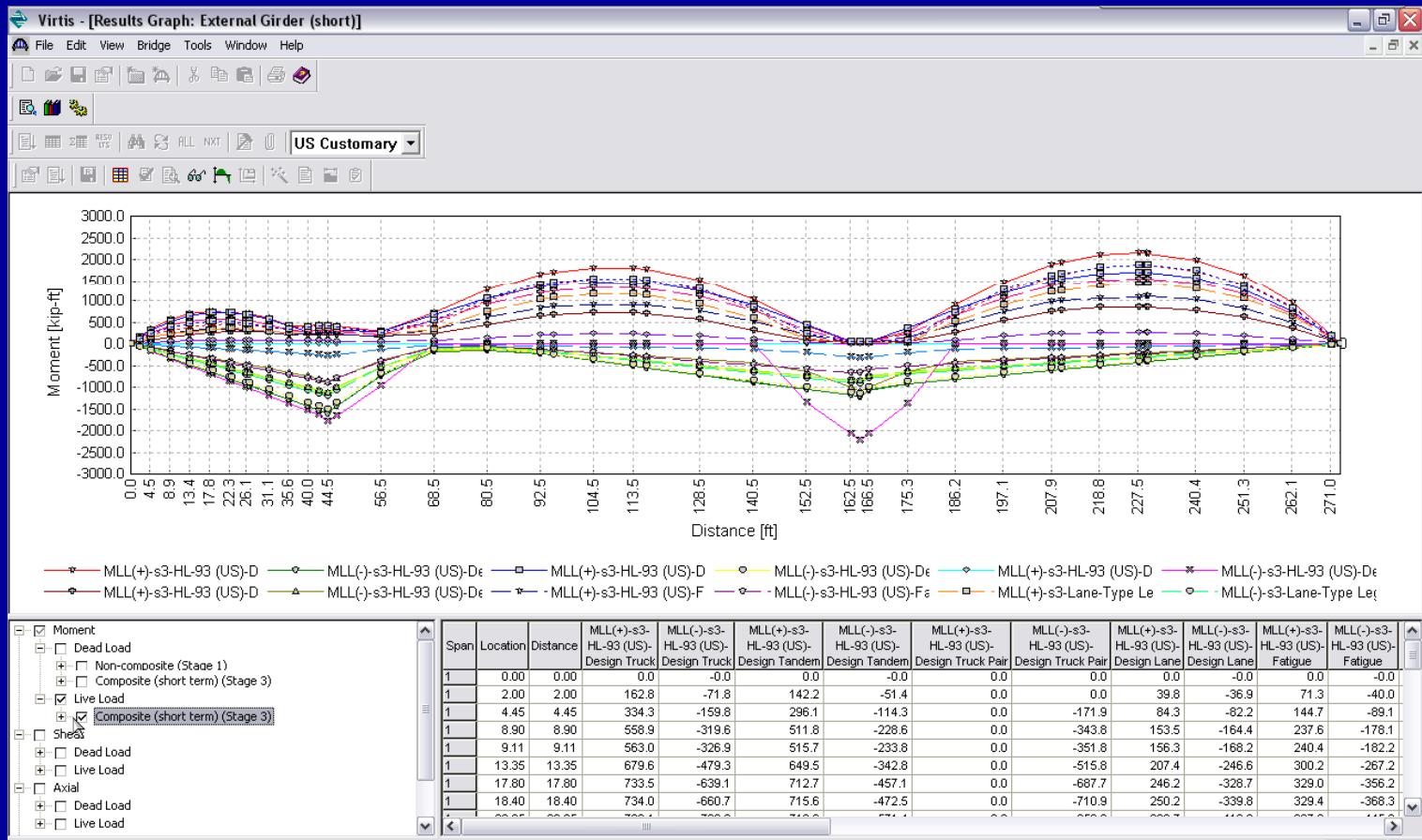
14 Virtis Concrete Alt. Rating

Re-rating
results:
Moment
Diagram



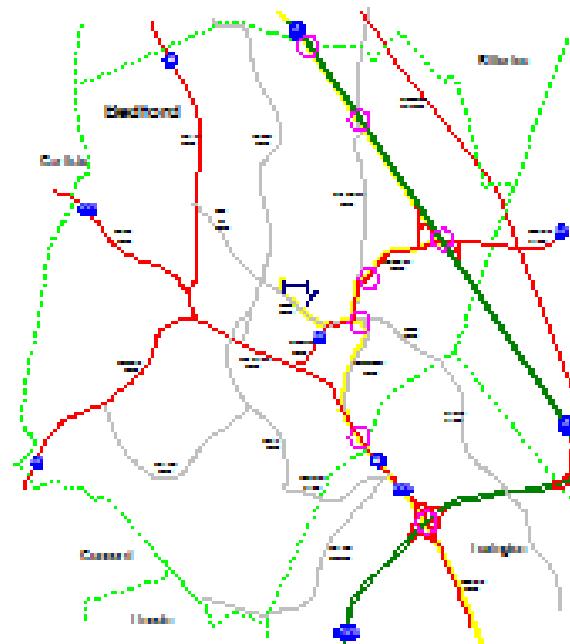
14 Virtis Concrete Alt. Rating

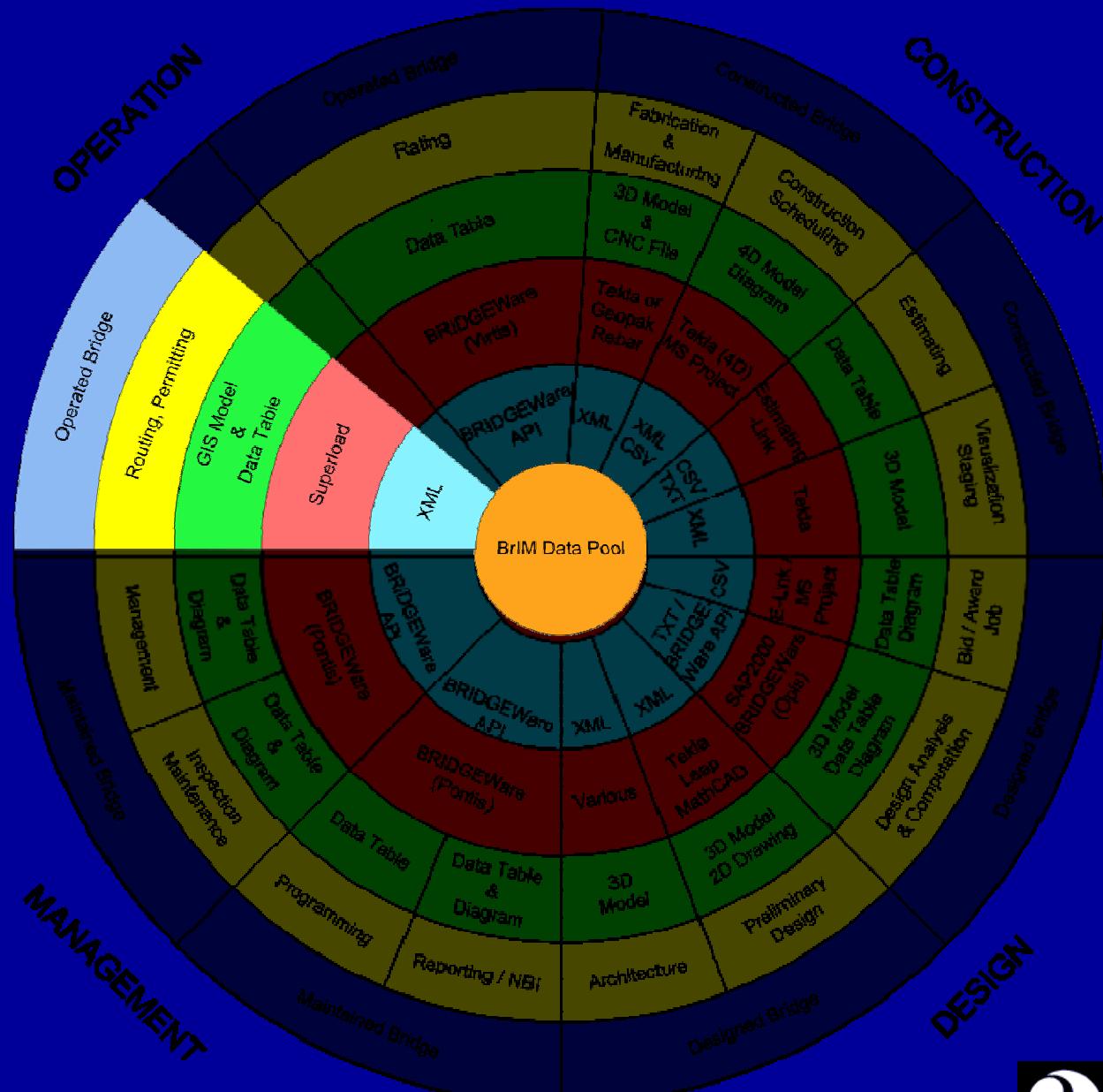
Re-rating
results:
Moment
Diagrams

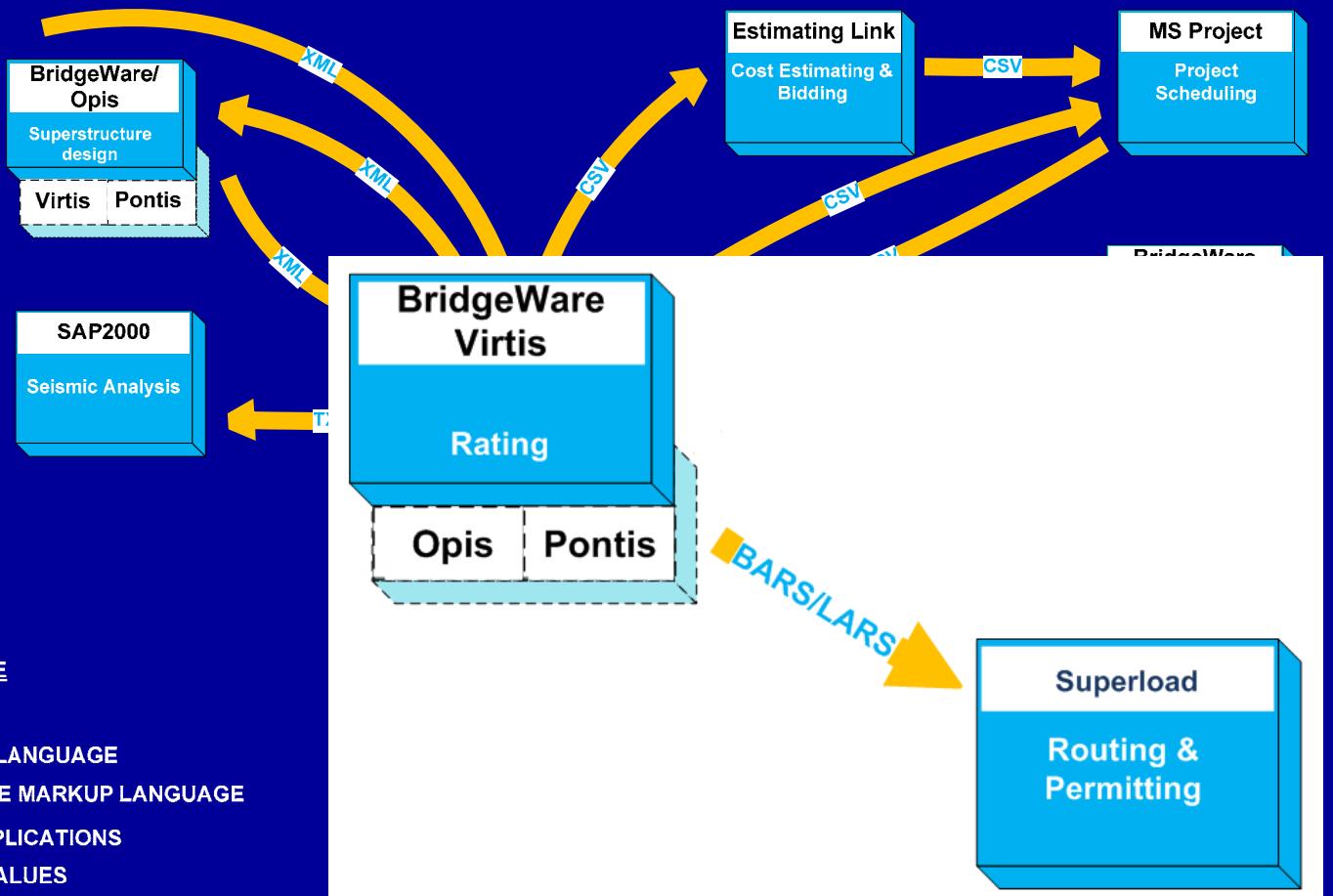


Virtis Use Cases

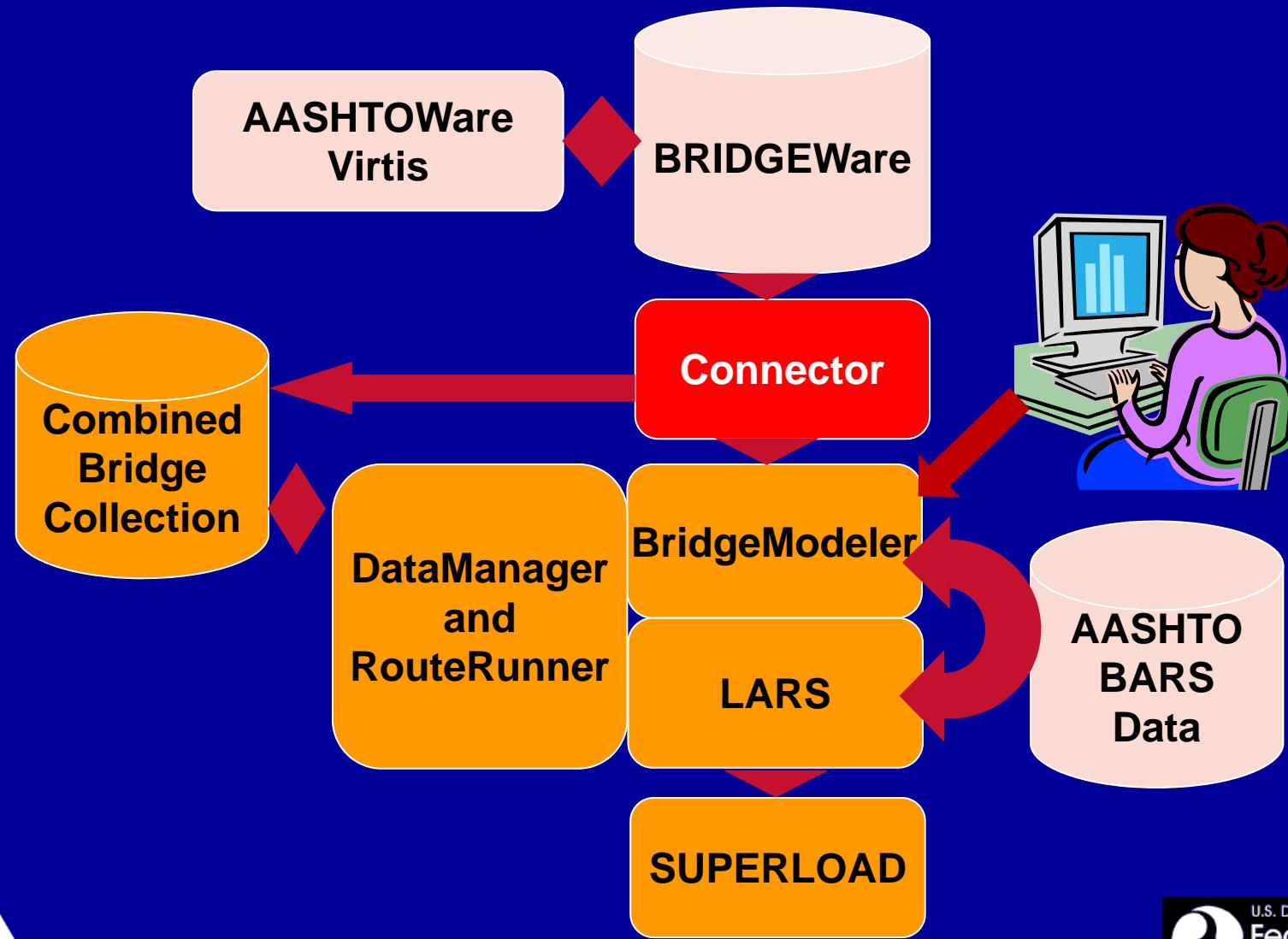
- Support Vehicle Routing







Leveraging Data



Slide courtesy BSI

RouteRunner – Truck Definition

Vehicle Description

Truck Name	CRANE3	Max. Length (ft.)	75' 0"
Max. Height (ft.)	13' 2"	Max. Width (ft.)	10' 0"
Number of Axles	10	Ht Tolerance (ft.)	0' 3"

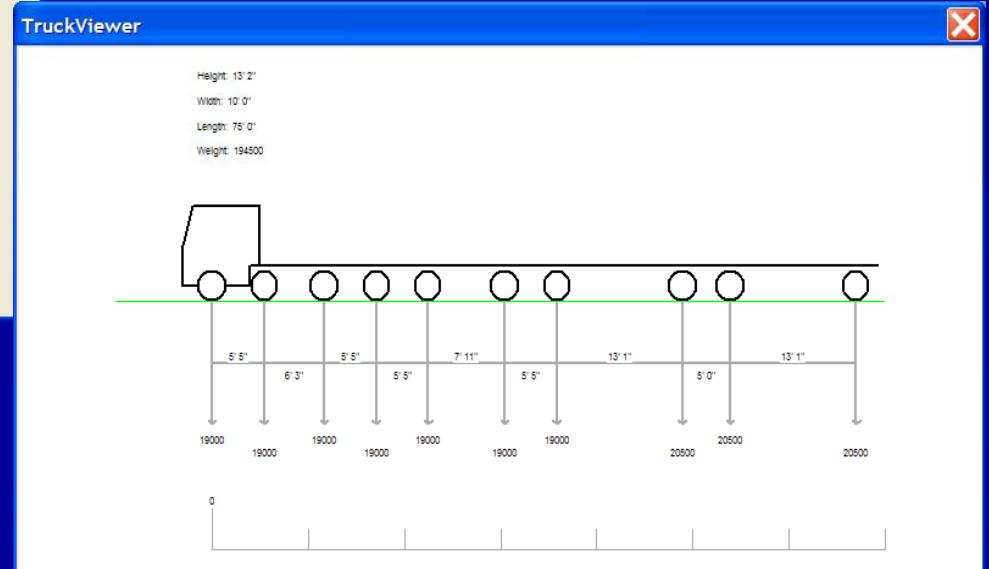
Axle Number Axle Load (kips) Space between Axles (ft.)

<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------

Add Axle Modify Axle Remove Axle Load Vehicle Save Vehicle

Axle No	Axle Wgt	Space
01	19.0	5' 5"
02	19.0	6' 3"
03	19.0	5' 5"
04	19.0	5' 5"
05	19.0	7' 11"
06	19.0	5' 5"
07	19.0	13' 1"
08	20.5	5' 0"
09	20.5	13' 1"
10	20.5	

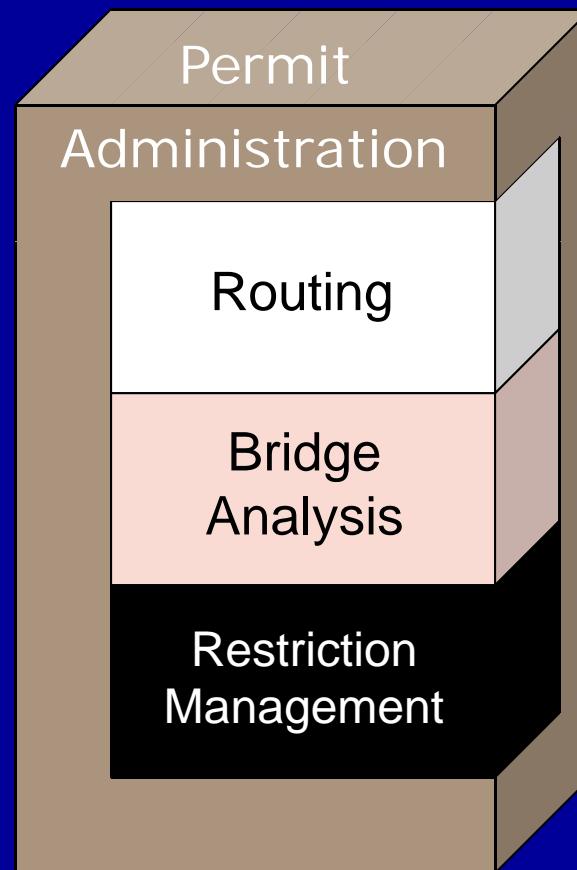
Display Close



Slide courtesy BSI

End-to-End Permitting Functionality

The integration of automated, specialized, OS/OW functionality includes

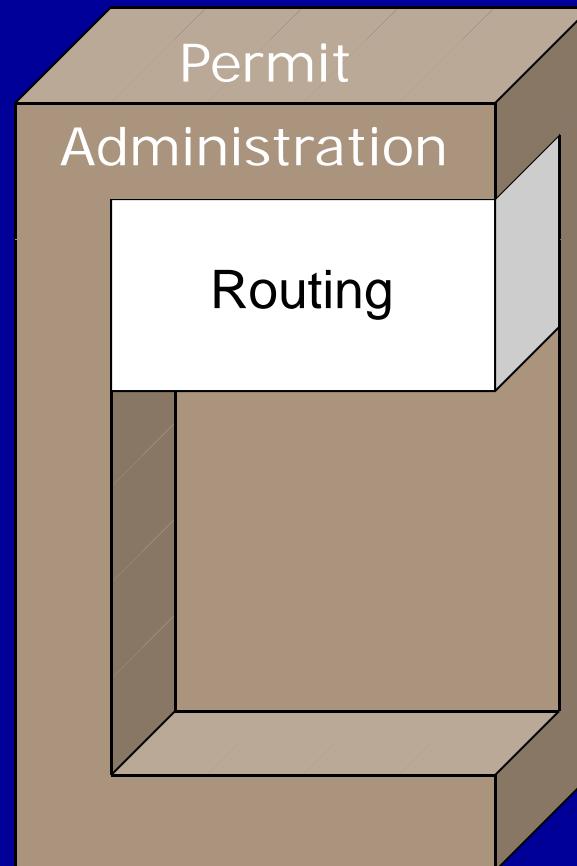


Routing/PermitSlides courtesy of BSI

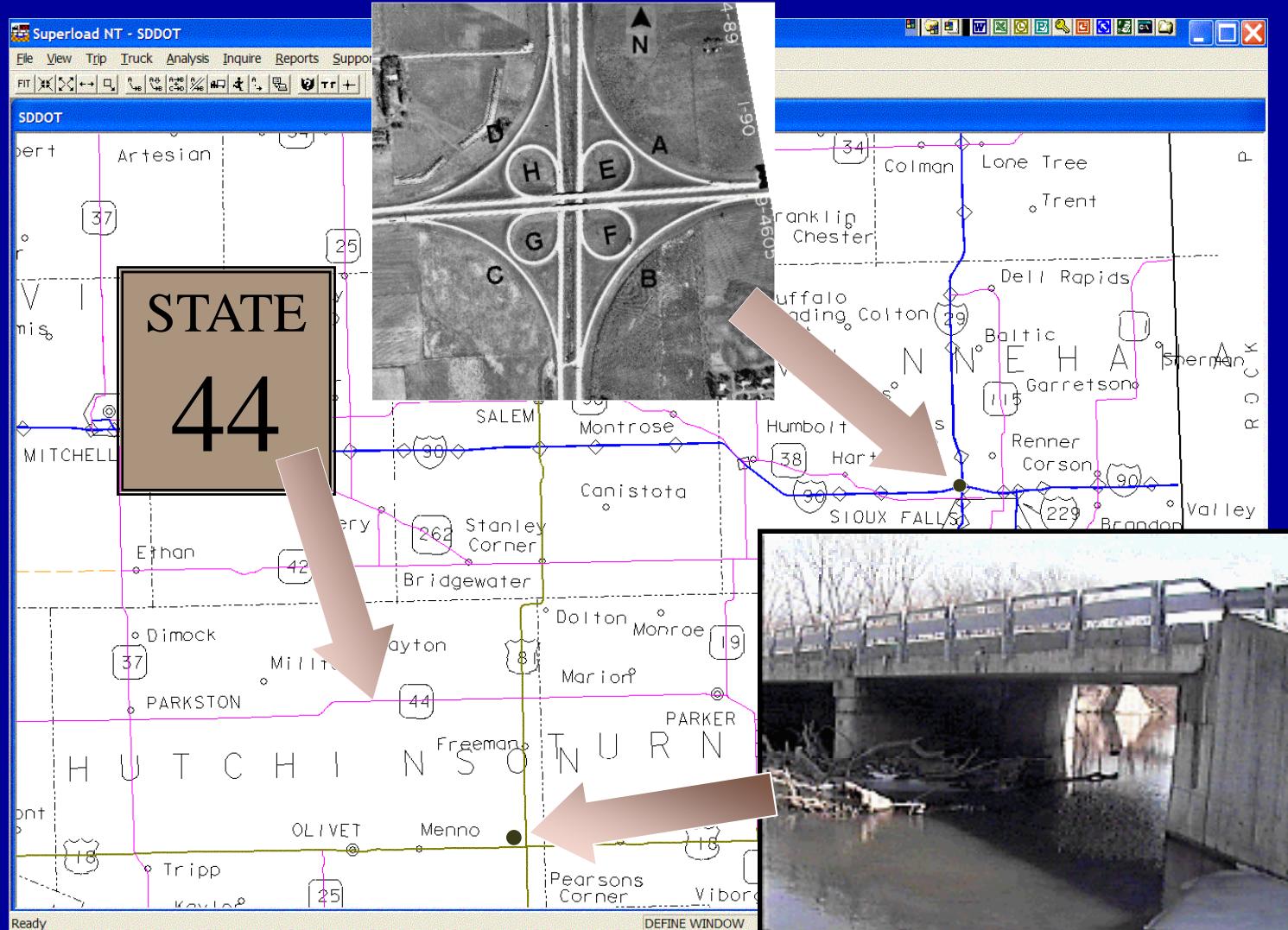


Routing

- Route Selection
- Continuity Checking
- Validation
- Clearance Checking
- Integration w/
Live Load Bridge
and Restrictions
Analysis



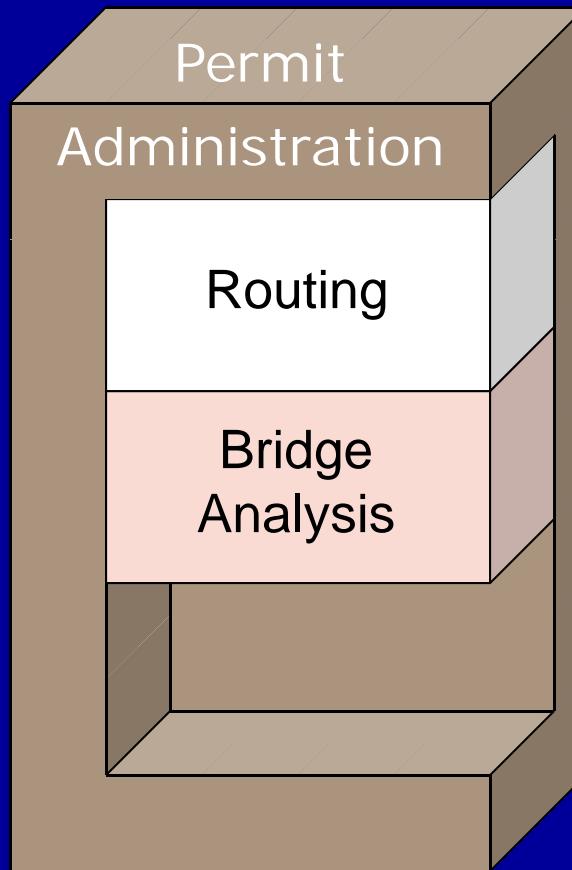
Overview - Routing



Bridge Analysis

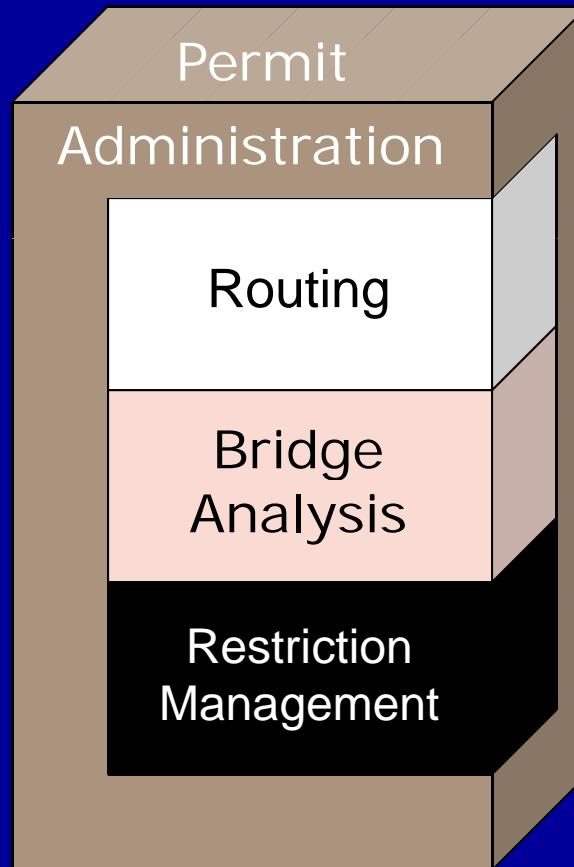
The integration of automated, specialized, OS/OW functionality includes

- Live Load Analysis
- Analysis of the specific vehicle for each specific bridge crossed over



Restriction Management

- Analysis and management of all temporary route restrictions (closure, attribute, and informational)



Do Your Own Routing

Application Routing - Windows Internet Explorer
http://www.gotpermits.com/permittrip.asp

GotPermits.com
Permits in Web Time

Home Application My Vehicles My Permits My Reports My Profile FAQ Logout

Step 8 Nebraska Route Selection

Select the route of travel for the permit by following the steps below. You can select the description of each step to perform the action (each step is a hyperlink). You can use the map controls located on the border of the map to navigate around the map and identify items such as routes, intersections, and cities. You cannot continue with the permit application approval process until you select a route that has been successfully analyzed. If you are having problems selecting a route, you can submit your permit application to the permit office for review.

1. Select method of routing
Picking Route Segments
2. Select route on the map
3. Analyze the route

Analysis Status:
Passed

4. Route Usage
 Use selected route to request permit
 Request office review (for failing routes or questions)

Optional
Save route for future use
Delete a saved route
Clear the current route

Advanced Options
Add additional trip
Remove last trip segment

Next Back Help

Display Full Map Zoom In Zoom Out ↑ Move North ↑ Map Options Clear Highlighted Items
↓ Move West ↓ ↑ Move East ↑

Find / Locate Item Command: Analyze Trip Prompt: Analyze the defined trip
Display Temporary Restrictions

Current Trip: US-81 E, NE-64 E, NE-15 N, S12A N

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Javascript:onClick=onClick_TripAnalyze()

Local intranet 100%



Get Your Permits

http://www.gotpermits.com/WV/permits/viewpermit.asp?Permit=10017241 - Windows Internet Explorer
http://www.gotpermits.com/WV/permits/viewpermit.asp?Permit=10017241

Save a Copy Print Search Select 136% Adobe Reader 7.0

(Firm Name Or Owner of Equipment) (Mailing Address)

To Move GROVE RT 745 CRANE

(GENERAL DESCRIPTION OF VEHICLE AND LOAD)

Overweight 0.05M 30.00T, 75.50M 26.00T

Length 73' 0" Front Overhang 0' Rear Overhang 5' 0" Width 11' 0" Height 13' 6"

(SHOW TOTAL OVERALL MEASUREMENTS INCLUDING LOAD)

Between sunrise and sunset, on the following date or dates 02/22/2007 – 02/28/2007

NO TRAVEL IS ALLOWED WHEN SURFACE OF HIGHWAY IS MADE HAZARDOUS BY RAIN, SLEET, SNOW, ICE OR WHEN MOVEMENT IS MADE HAZARDOUS BY FOG OR WIND.

Between NEW HAVEN AND ST. ALBANS

(ORIGIN OF TRIP) (DESTINATION)

A Distance of 75.55 Miles, Over State Roads Nos. WV-62 N, WV-331 E, WV-62 N, I-77 S, I-64
W, US-60 W

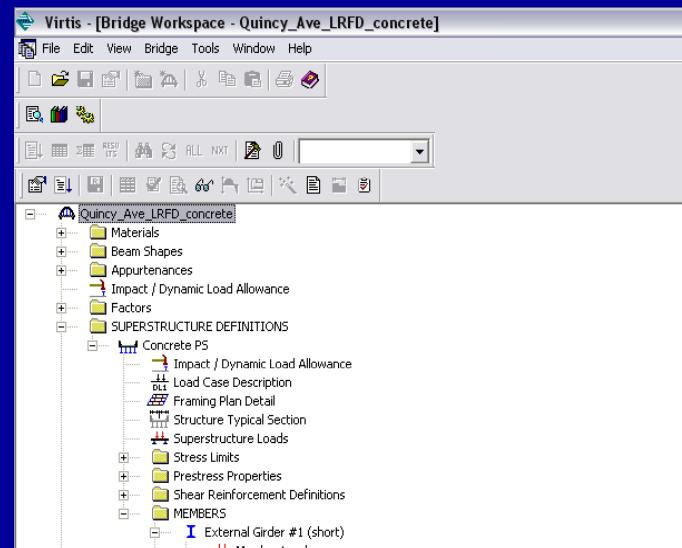
Weight of Load <u>82000</u>	Pounds	Gross Load <u>132000</u>	Pounds
Truck or Tractor License No. <u>BA508592</u>		State of <u>WV</u>	For <u>80000</u>
Trailer or Semi Trailer No. <u>523141</u>		State of <u>WI</u>	For <u>0</u>
Basic Fee <u>\$ 20.00</u>			
Ton-Mile or Fraction @ \$0.04 <u>1964.5</u>	<u>\$ 78.58</u>		
Turnpike Ton-Mile or Fraction @ \$0.04 <u>0</u>	<u>\$ 0.00</u>		
Return: oversize <u>No</u> overweight <u>No</u>	<u>\$ 0.00</u>	Approved <u>JOHN WALKER</u>	
Low Impact Monitoring <u></u>	<u>\$ 0.00</u>	DEPUTY STATE HIGHWAY ENGINEER	
Other Charges <u></u>	<u>\$ 0.00</u>		
Check <u></u> Cash <u></u>	<u>\$ 0.00</u>		
Charge Account No. <u>GD-161</u>	<u>\$ 0.00</u>		

Page 1 (1 of 3) Unknown Zone



Linkage for AASHTOWare (Virtis/Opis/Pontis)

Use BRIDGEWare
APIs...



```
<?xml version="1.0" encoding="utf-8" standalone="no"?>
<bridge bridge_name="Rt 7 over I-87" bridge_id="1234567-89" date="2-8-2008 14:34:24">
<structure structure_id="All spans">
<HCL_at_brgs>...
<deck>...
<beams beam_type="Steel I Girders">...
<cross_frames>...
</structure>
</bridge>
```



XML File for Virtis/Opis/Pontis



Summary (D4-Operations)

- Workflow demo'd leveraging constructed bridge (model) downstream for operational concerns surrounding load rating
- One of several possible such workflows
- Encompassing individual bridge load rating, multiple bridge load rating (on a route), and permitting

