ALTERNATIVES COMPARISON MATRIX

Local Concept Development Study for Valley Road Bridge over the Passaic River
Bernards Township, Somerset County and Long Hill Township, Morris County, NJ

VALLEY ROAD BRIDGE OVER THE PASSAIC RIVER LOCAL CONCEPT DEVELOPMENT STUDY Bernards Township, Somerset County, and Long Hill Township, Morris County, New Jersey	No Build	Bridge Rehabilitation	Replace In-Kind	Concept 1 New Bridge on Existing Alignment, Full Detour				Concept 2 New Bridge on Existing Alignment with Realigned River Road, Full Detour				Concept 3 New Bridge on North Alignment with Realigned River Road, 2-Staged Construction				Concept 4 New Bridge on South Alignment with Realigned River Road, 2-Staged Construction				Concept 5 New Bridge on North Alignment (Narrower Width) with Realigned River Road, 2-Staged Construction				Concept 6 New Bridge on North Alignment with Realigned River Road, 3-Staged Construction			
Alternatives				Alternative 1A - Single Span	Alternative 1B - 2-Span	Alternative 1C - 2-Span	Alternative 1D - 2-Span	Alternative 2A - Single Span	Alternative 2B - 2-Span	Alternative 2C - 2-Span	Alternative 2D - 2-Span	Alternative 3A - Single Span	Alternative 3B - 2-Span	Alternative 3C - 2-Span	Alternative 3D - 2-Span	Alternative 4A - Single Span	Alternative 4B - 2-Span	Alternative 4C - 2-Span	Alternative 4D - 2-Span	Alternative 5A - Single Span	Alternative 5B - 2-Span	Alternative 5C - 2-Span	Alternative 5D - 2-Span	Alternative 6A - Single Span	Alternative 6B - 2-Span	Alternative 6C - 2-Span	Alternative 6D - 2-Span
Superstructure Type	Concrete encased multi-stringer	Concrete encased multi-stringer	Steel Multigirders	Steel Rolled Beams; W24x250	Steel Rolled Beam; W24x68	Prestessed Slab Beam; 36"x21"	Prestessed Spread Box Beam; 48"x27"	Steel Rolled Beams; W24x250	Steel Rolled Beam; W24x68	Prestessed Slab Beam; 36"x21"	Prestessed Spread Box Beam; 48"x27"	Steel Rolled Beams; W24x250	Steel Rolled Beam; W24x68	Prestessed Slab Beam; 36"x21"	Prestessed Spread Box Beam; 48"x27"	Steel Rolled Beams; W24x250	Steel Rolled Beam; W24x68	Prestessed Slab Beam; 36"x21"	Prestessed Spread Box Beam; 48"x27"	Steel Rolled Beams; W24x250	Steel Rolled Beam; W24x68	Prestessed Slab Beam; 36"x21"	Prestessed Spread Box Beam; 48"x27"	Steel Rolled Beams; W24x250	Steel Rolled Beam; W24x68	Prestessed Slab Beam; 36"x21"	Prestessed Spread Box Beam; 48"x27"
Criteria																											
Meets Project Purpose and Need	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Maintenance and Protection of Traffic																											
Number of lanes provided during construction	2	1	1	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Is Detour Required?/Length of detour	No	No	No	Yes, length varies from 2.6 to 13 miles	Yes, length varies from 2.6 to 13 miles	Yes, length varies from 2.6 to 13 miles	Yes, length varies from 2.6 to 13 miles	Yes, length varies from 2.6 to 13 miles	Yes, length varies from 2.6 to 13 miles	Yes, length varies from 2.6 to 13 miles	Yes, length varies from 2.6 to 13 miles	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Roadway																											
Controlling Substandard Design Elements Remaining	9	4	3	3	3	3	3	2	2	2	2	2	2	2	2	3	3	3	3	2	2	2	2	3	3	3	3
Improves Lane Widths	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Improves Shoulder Widths	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Improves Sight Distance at River Road intersection	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Profile Raise at the Bridge	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Traffic Operations & Bicycle/Pedestrian																											
Accommodates design year traffic volumes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bicycle/Pedestrian compatibility provided with connectivity to approach roadways	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sidewalks provided	2	2	2	2	2	2	2	2	2	2	2	2 final / 1 during construction	2 final / 1 during construction	2 final / 1 during construction	2 final / 1 during construction	2 final / 1 during construction	2 final / 1 during construction	2 final / 1 during construction	2 final / 1 during construction	2 final / 1 during construction	2 final / 1 during construction	2 final / 1 during construction	2 final / 1 during construction	2 final / 1 during construction	2 final / 1 during construction	2 final / 1 during construction	2 final / 1 during construction
Construction Duration																											
Duration (Month)	0	3	12	12	14	14	14	12	14	14	14	24	28	28	28	24	28	28	28	26	30	30	30	30	34	34	34
Right of Way Impacts																											
Required ROW (Acres)	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Number of Temporary construction easements	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of partial property acquistions	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1
Number of entire property acquistions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Access																											
# of Access Impacts to adjacent properties during construction	0	0	0	1	1	1	1	4	4	4	4	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
# of Permanent Access Impacts to adjacent properties	0	0	0	0	0	0	0	2	2	2	2	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3
Structural Design																											
Accelerated Bridge Construction Methodology	N/A	N/A	N/A	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Bridge opening meets design year storm (H&H)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seismic Design addressed	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bridge Approach Safety Upgraded	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
75 yr. Bridge Life Cycle	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Environmental Impacts																											
Passaic River County Park - Green Acres & Section 4(f)	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
Total Wetlands Impacts (acres)	No	Yes	Yes	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.27	0.27	0.27	0.27	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05
Threatened and Endangered Species Habitat	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Floodplain (acres)	No	Yes	Yes	0.29	0.29	0.29	0.29	0.34	0.34	0.34	0.34	0.35	0.35	0.35	0.35	0.40	0.40	0.40	0.40	0.36	0.36	0.36	0.36	0.33	0.33	0.33	0.33
Riparian Zone (acres)	No	Yes	Yes	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.10	0.10	0.10	0.10	0.13	0.13	0.13	0.13	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Historic Resources (# of sites)	No	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Hazardous Waste/Contaminated Sites	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Seasonal restrictions	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Utilities																											
Anticipated relocations	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cost																											
Construction Cost	$0	$1,175,000	$2,350,000	$5,660,000	$5,310,000	$5,550,000	$5,130,000	$5,720,000	$5,370,000	$5,620,000	$5,190,000	$6,970,000	$6,570,000	$6,820,000	$6,280,000	$7,330,000	$6,930,000	$7,180,000	$6,640,000	$6,970,000	$6,570,000	$6,820,000	$6,280,000	$7,318,500	$6,898,500	$7,161,000	$6,594,000
Estimated Utility Relocation Cost	$0	$0	$0	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$950,000	$950,000	$950,000	$950,000	$2,650,000	$2,650,000	$2,650,000	$2,650,000	$950,000	$950,000	$950,000	$950,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000
Estimated Right of Way Cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,000	$15,000	$15,000	$15,000	$65,000	$65,000	$65,000	$65,000	$8,000	$8,000	$8,000	$8,000	$3,000	$3,000	$3,000	$3,000
Life Cycle Cost (Present Value)	N/A	N/A	$316,000	$507,000	$507,000	$316,000	$316,000	$507,000	$507,000	$316,000	$316,000	$507,000	$507,000	$316,000	$316,000	$507,000	$507,000	$316,000	$316,000	$507,000	$507,000	$316,000	$316,000	$507,000	$507,000	$316,000	$316,000
Detour Cost (Option 2)	N/A	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Project Cost	**N/A**	**$1,255,000**	**$2,746,000**	**$8,047,000**	**$7,697,000**	**$7,746,000**	**$7,326,000**	**$8,107,000**	**$7,757,000**	**$7,816,000**	**$7,386,000**	**$8,442,000**	**$8,042,000**	**$8,101,000**	**$7,561,000**	**$10,552,000**	**$10,152,000**	**$10,211,000**	**$9,671,000**	**$8,435,000**	**$8,035,000**	**$8,094,000**	**$7,554,000**	**$9,628,500**	**$9,208,500**	**$9,280,000**	**$8,713,000**