

APPENDIX

Q

DESIGN
ALTERNATIVE
SENSITIVITY
ANALYSIS



Design Alternative Sensitivity Analysis

Scenario		Design Alt Ranking								Design Alt Ranking		
		Design Alt 1A	Design Alt 1B	Design Alt 2	Design Alt 3A	Design Alt 3B	Design Alt 4A	Design Alt 4B	Design Alt 5	1st	2nd	3rd
1	Transportation	35.0	35.0	22.4	33.6	33.6	9.8	9.8	16.8			
	Engineering	10.0	10.0	14.0	10.7	10.0	14.7	14.0	18.0			
	Cultural	12.0	12.0	12.0	12.0	12.0	12.0	12.0	16.0			
	Socio-Economic	8.4	8.4	5.2	8.0	8.0	4.0	4.0	5.6			
	Natural	5.0	4.0	5.5	3.5	4.5	4.5	4.5	8.5			
	Capital Cost	2.0	4.0	3.0	1.0	2.0	2.0	4.0	5.0			
	Total	72.4	73.4	62.1	68.8	70.1	47.0	48.3	69.9	1B	1A	3B
2	Transportation	10.0	10.0	6.4	9.6	9.6	2.8	2.8	4.8			
	Engineering	10.0	10.0	14.0	10.7	10.0	14.7	14.0	0.0			
	Cultural	12.0	12.0	12.0	12.0	12.0	12.0	12.0	16.0			
	Socio-Economic	8.4	8.4	5.2	8.0	8.0	4.0	4.0	5.6			
	Natural	17.5	14.0	19.3	12.3	15.8	15.8	15.8	29.8			
	Capital Cost	2.0	4.0	3.0	1.0	2.0	2.0	4.0	5.0			
	Total	59.9	58.4	59.9	53.5	57.4	51.2	52.6	61.2	5	1A	2
3	Transportation	15.0	15.0	9.6	14.4	14.4	4.2	4.2	7.2			
	Engineering	7.5	7.5	10.5	8.0	7.5	11.0	10.5	0.0			
	Cultural	9.0	9.0	9.0	9.0	9.0	9.0	9.0	12.0			
	Socio-Economic	12.6	12.6	7.8	12.0	12.0	6.0	6.0	8.4			
	Natural	7.5	6.0	8.3	5.3	6.8	6.8	6.8	12.8			
	Capital Cost	10.0	20.0	15.0	5.0	10.0	10.0	20.0	25.0			
	Total	61.6	70.1	60.2	53.7	59.7	47.0	56.5	65.4	1B	5	1A
4	Transportation	20.0	20.0	12.8	19.2	19.2	5.6	5.6	9.6			
	Engineering	17.5	17.5	24.5	18.7	17.5	25.7	24.5	2.0			
	Cultural	6.0	6.0	6.0	6.0	6.0	6.0	6.0	8.0			
	Socio-Economic	8.4	8.4	5.2	8.0	8.0	4.0	4.0	5.6			
	Natural	10.0	8.0	11.0	7.0	9.0	9.0	9.0	17.0			
	Capital Cost	2.0	4.0	3.0	1.0	2.0	2.0	4.0	5.0			
	Total	63.9	63.9	62.5	59.9	61.7	52.3	53.1	47.2	1A	1B	2
5	Transportation	20	20	12.8	19.2	19.2	5.6	5.6	9.6			
	Engineering	7.5	7.5	10.5	8	7.5	11	10.5	0			
	Cultural	6	6	6	6	6	6	6	8			
	Socio-Economic	16.8	16.8	10.4	16	16	8	8	11.2			
	Natural	12.5	10	13.75	8.75	11.25	11.25	11.25	21.25			
	Capital Cost	4	8	6	2	4	4	8	10			
	Total	66.8	68.3	59.45	59.95	63.95	45.85	49.35	60.05	1B	1A	3B

Sensitivity Weighting Factors					
	Weighting Scenario 1	Weighting Scenario 2	Weighting Scenario 3	Weighting Scenario 4	Weighting Scenario 5
Transportation	35	10	15	20	20
Engineering	20	20	15	35	15
Cultural	20	20	15	10	10
Socio-Economic	10	10	15	10	20
Natural	10	35	15	20	25
Capital Cost	5	5	25	5	10

Weighting Scenario just represent the importance of the category compared to the others.

It is not related to the individual solutions (e.g. do nothing)