

Appendix M – Evaluation Criteria and Strategy Prioritization Results

The intent of mitigation strategy prioritization is to rank the strategies in descending order of importance for the State’s Hazard Mitigation Program and to assist the State in determining the allocation of resources. Prioritization worksheets were distributed to the stakeholders in January, 2007. A total of 15 stakeholders contributed to the evaluation of the criteria, and eight stakeholders completed worksheets evaluating the strategies based on those criteria.

Seven criteria were used to evaluate the strategies: Social, Technical, Administrative, Political, Legal, Economic, and Environmental. Table M-1 presents the rating scale used to conduct a pair-wise comparison of the criteria. Table M-2 displays the rating for each pair of criteria as determined by the stakeholders. The mean of these ratings determined the appropriate weighted value for each criterion, as summarized in Table M-3.

**Table M-1
Pair-Wise Rating Scale**

Rating Scale	
Much Greater Than	5
Greater Than	4
The Same As	3
Lower Than	2
Much Lower Than	1

**Table M-2
Pair-Wise Evaluation of Criteria**

# Completed	15																
Criteria	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C Sum	C Average
S/T	4	4	3	5	2	2	1	2	2	3	2	2	2	2	3	39	2.60
S/A	2	4	2	5	4	2	2	2	4	4	2	2	3	4	2	44	2.93
S/P	1	3	1	2	5	2	2	3	3	4	1	4	3	3	3	40	2.67
S/L	1	4	4	3	2	3	2	2	2	3	2	3	2	2	3	38	2.53
S/EC	5	5	3	4	4	2	3	2	4	3	2	3	2	3	4	49	3.27
S/EN	5	3	1	4	2	2	3	3	5	3	3	1	2	1	2	40	2.67
T/A	3	5	3	3	4	3	4	4	4	4	4	2	3	4	3	53	3.53
T/P	2	4	4	1	4	5	4	5	4	3	2	2	4	4	4	52	3.47
T/L	2	3	3	2	2	4	4	3	2	5	3	2	3	3	3	44	2.93
T/EC	3	4	1	2	3	3	2	3	3	3	3	3	3	4	4	44	2.93
T/EN	5	2	3	3	2	3	5	3	4	3	2	3	4	3	3	48	3.20
A/P	2	1	3	1	3	5	3	4	2	5	4	3	2	2	4	44	2.93
A/L	2	1	2	2	2	3	3	3	2	4	3	2	3	3	3	38	2.53
A/EC	3	2	2	2	3	4	3	3	2	4	3	2	2	1	4	40	2.67
A/EN	3	2	2	2	2	3	4	2	2	3	2	1	3	2	2	35	2.33
P/L	1	2	4	4	1	2	4	3	3	5	1	4	4	2	2	42	2.80
P/EC	3	3	2	4	1	1	3	2	4	2	2	5	3	3	3	41	2.73
P/EN	3	1	2	4	1	1	4	2	3	2	2	3	3	1	2	34	2.27
L/EC	2	2	1	2	5	2	4	4	5	3	5	4	4	2	3	48	3.20
L/EN	2	2	2	4	3	3	4	3	3	4	5	3	3	2	2	45	3.00
EC/EN	5	1	3	4	2	5	5	2	4	3	4	3	2	1	2	46	3.07

**Table M-3
Pair-Wise Criteria Evaluation Results**

State of West Virginia Pair-Wise Criteria Evaluation	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Sum
	Social		2.6	2.9	2.7	2.5	3.3	2.7
Technical	3.4		3.5	3.5	2.9	2.9	3.2	19
Administrative	3.1	2.5		2.9	2.5	2.7	2.3	16
Political	3.3	2.5	3.1		2.8	2.7	2.3	17
Legal	3.5	3.1	3.5	3.2		3.2	3.0	19
Economic	2.7	3.1	3.3	3.3	2.8		3.1	18
Environmental	3.3	2.8	3.7	3.7	3.0	2.9		19

All of the criteria were rated to have similar value by the stakeholders. The Administrative criterion received the lowest rating (16), while the Technical, Legal, and Environmental criteria received the highest rating (19).

Next, stakeholders were asked to complete an individual strategy worksheet for each of the seven criteria. They were asked to compare the strategies based on that criterion. For example, they would ask themselves, “Is strategy one more socially acceptable than strategy two?” They then distributed 100 points according to that evaluation. The tabulated results for each of these worksheets are displayed in Table M-4 through Table M-10.

**Table M-4
Strategy Evaluation Based on “Social” Criterion**

Distribute 100 points for each evaluation criterion amongst the strategies	Social								Total Votes
Coordination with Utilities	0	0	5	0	10	25	0	5	45
Hazard Warning Systems	20	10	40	5	0	30	10	3	118
Non-Flood Funding, Legislation & Planning	0	1	5	0	10	0	10	4	30
Building Code Legislation	0	5	10	5	0	0	0	7	27
All-Hazards Public Education	40	5	5	25	20	0	10	3	108
Drought Mitigation	0	1	5	0	0	0	0	3	9
Promote Wildfire Mitigation	0	5	0	0	0	0	0	3	8
Urban Fire Mitigation	0	5	0	0	0	0	5	5	15
Inter-agency Coordination	0	1	10	10	0	10	0	5	36
Review of Capital Projects	0	1	0	0	0	0	0	5	6
Data Clearinghouse	0	1	5	0	0	0	5	5	16
Promote Flood Insurance	10	10	0	10	0	0	10	4	44
Enforce Existing NFIP Regulations	0	10	5	0	20	0	0	7	42
Amend WV Code for Flood Mitigation	0	10	0	15	0	0	10	4	39
Programs for In-Stream Disturbances	10	10	0	0	0	0	10	5	35
Hazard Mapping	0	5	10	0	0	0	0	6	21
Land Disturbance BMPs	0	5	0	0	0	20	10	7	42
Flood-Prone Structures	0	10	5	10	20	0	10	7	62
Storm Water Ordinances	0	5	0	0	0	15	0	7	27
Support Local Planning	20	5	0	20	20	0	10	6	81
Total Points	100	105	105	100	100	100	100	101	811

**Table M-5
Strategy Evaluation Based on “Technical” Criterion**

Distribute 100 points for each evaluation criterion amongst the strategies	Technical								Total Votes
Coordination with Utilities	10	1	10	20	0	0	0	2	43
Hazard Warning Systems	10	15	50	10	0	0	5	3	93
Non-Flood Funding, Legislation & Planning	0	1	0	0	0	0	0	5	6
Building Code Legislation	20	0	0	5	0	25	0	7	57
All-Hazards Public Education	0	1	0	10	0	0	5	1	17
Drought Mitigation	0	1	0	5	30	0	10	1	47
Promote Wildfire Mitigation	0	1	0	0	0	0	5	2	8
Urban Fire Mitigation	0	1	0	0	0	0	5	5	11
Inter-agency Coordination	10	1	10	10	0	0	0	2	33
Review of Capital Projects	0	5	0	5	0	0	10	7	27
Data Clearinghouse	30	10	10	10	15	0	10	6	91
Promote Flood Insurance	0	2	0	0	0	0	0	7	9
Enforce Existing NFIP Regulations	0	10	0	0	10	10	0	7	37
Amend WV Code for Flood Mitigation	0	1	0	0	0	10	0	7	18
Programs for In-Stream Disturbances	0	10	0	0	10	10	5	6	41
Hazard Mapping	20	10	20	20	15	0	10	6	101
Land Disturbance BMPs	0	10	0	0	10	0	20	6	46
Flood-Prone Structures	0	10	0	0	0	25	5	7	47
Storm Water Ordinances	0	0	0	0	10	20	10	7	47
Support Local Planning	0	10	0	5	0	0	0	6	21
Total Points	100	100	100	100	100	100	100	100	800

**Table M-6
Strategy Evaluation Based on “Administrative” Criterion**

Distribute 100 points for each evaluation criterion amongst the strategies	Administrative								Total Votes
Coordination with Utilities	10	10	5	10	10	0	10	3	58
Hazard Warning Systems	0	5	10	0	10	0	10	3	38
Non-Flood Funding, Legislation & Planning	10	5	5	10	0	0	0	3	33
Building Code Legislation	10	5	0	0	0	25	0	4	44
All-Hazards Public Education	0	5	5	5	10	0	10	4	39
Drought Mitigation	0	1	5	0	10	0	0	4	20
Promote Wildfire Mitigation	10	1	5	0	0	0	0	4	20
Urban Fire Mitigation	10	1	5	0	0	0	0	3	19
Inter-agency Coordination	20	10	0	10	10	0	20	5	75
Review of Capital Projects	10	10	10	35	10	0	10	4	89
Data Clearinghouse	0	1	0	15	10	0	20	6	52
Promote Flood Insurance	0	5	0	0	0	0	0	6	11
Enforce Existing NFIP Regulations	10	1	10	0	0	10	10	7	48
Amend WV Code for Flood Mitigation	0	5	10	0	0	10	0	6	31
Programs for In-Stream Disturbances	0	5	10	0	10	10	0	6	41
Hazard Mapping	0	5	5	5	0	0	0	6	21
Land Disturbance BMPs	0	1	0	0	10	0	0	7	18
Flood-Prone Structures	0	4	5	0	0	25	0	7	41
Storm Water Ordinances	0	10	5	0	10	20	0	6	51
Support Local Planning	10	10	5	10	0	0	10	6	51
Total Points	100	100	100	100	100	100	100	100	800

**Table M-7
Strategy Evaluation Based on “Political” Criterion**

Distribute 100 points for each evaluation criterion amongst the strategies	Political								Total Votes
Coordination with Utilities	0	5	0	10	0	0	0	2	17
Hazard Warning Systems	0	5	10	25	0	30	0	2	72
Non-Flood Funding, Legislation & Planning	20	10	20	0	10	0	20	5	85
Building Code Legislation	10	10	10	0	0	0	20	7	57
All-Hazards Public Education	10	0	5	0	0	25	0	2	42
Drought Mitigation	0	5	5	0	0	0	0	3	13
Promote Wildfire Mitigation	0	5	5	0	0	0	0	3	13
Urban Fire Mitigation	0	5	5	0	0	0	5	4	19
Inter-agency Coordination	10	5	0	10	0	10	0	4	39
Review of Capital Projects	20	5	5	0	10	0	10	7	57
Data Clearinghouse	0	0	0	0	0	20	0	6	26
Promote Flood Insurance	0	5	10	0	0	0	5	6	26
Enforce Existing NFIP Regulations	0	5	0	0	15	0	0	7	27
Amend WV Code for Flood Mitigation	10	10	10	15	0	0	10	6	61
Programs for In-Stream Disturbances	0	5	0	0	15	0	0	7	27
Hazard Mapping	0	0	0	15	0	0	0	6	21
Land Disturbance BMPs	0	5	5	0	20	0	5	7	42
Flood-Prone Structures	0	5	0	20	0	0	5	7	37
Storm Water Ordinances	10	5	10	0	30	15	10	6	86
Support Local Planning	10	5	0	5	0	0	10	6	36
Total Points	100	100	100	100	100	100	100	103	803

**Table M-8
Strategy Evaluation Based on “Legal” Criterion**

Distribute 100 points for each evaluation criterion amongst the strategies	Legal								Total Votes
Coordination with Utilities	0	5	20	0	0	0	0	3	28
Hazard Warning Systems	20	5	0	0	0	25	5	3	58
Non-Flood Funding, Legislation & Planning	0	5	10	20	0	0	10	5	50
Building Code Legislation	20	10	20	10	20	25	10	7	122
All-Hazards Public Education	10	0	0	0	0	0	0	3	13
Drought Mitigation	0	5	0	0	0	0	0	3	8
Promote Wildfire Mitigation	0	5	0	0	0	0	0	3	8
Urban Fire Mitigation	0	5	0	0	0	0	10	3	18
Inter-agency Coordination	10	0	0	10	0	0	5	5	30
Review of Capital Projects	0	5	0	0	0	0	10	5	20
Data Clearinghouse	10	0	0	0	0	0	0	5	15
Promote Flood Insurance	0	5	0	0	20	0	0	7	32
Enforce Existing NFIP Regulations	0	5	10	0	20	0	10	7	52
Amend WV Code for Flood Mitigation	10	5	10	20	0	0	5	7	57
Programs for In-Stream Disturbances	0	10	0	0	0	0	5	6	21
Hazard Mapping	10	5	0	0	0	0	0	5	20
Land Disturbance BMPs	0	10	5	0	0	0	10	7	32
Flood-Prone Structures	0	10	10	20	20	25	10	6	101
Storm Water Ordinances	10	5	10	0	20	25	0	7	77
Support Local Planning	0	0	5	20	0	0	10	3	38
Total Points	100	100	100	100	100	100	100	100	800

**Table M-9
Strategy Evaluation Based on “Economic” Criterion**

Distribute 100 points for each evaluation criterion amongst the strategies	Economic								Total Votes
Coordination with Utilities	0	0	0	0	0	0	0	2	2
Hazard Warning Systems	0	10	10	0	0	25	0	3	48
Non-Flood Funding, Legislation & Planning	10	5	20	0	20	0	10	3	68
Building Code Legislation	0	10	0	20	10	25	10	5	80
All-Hazards Public Education	10	10	5	20	0	0	0	3	48
Drought Mitigation	0	1	5	0	0	0	10	3	19
Promote Wildfire Mitigation	0	1	5	0	0	0	0	3	9
Urban Fire Mitigation	0	3	5	0	0	0	10	3	21
Inter-agency Coordination	0	0	0	10	0	0	0	3	13
Review of Capital Projects	20	0	20	10	30	0	20	4	104
Data Clearinghouse	10	5	0	0	0	0	0	5	20
Promote Flood Insurance	20	5	10	0	10	0	10	7	62
Enforce Existing NFIP Regulations	0	10	5	0	0	0	0	7	22
Amend WV Code for Flood Mitigation	0	5	0	15	0	0	10	7	37
Programs for In-Stream Disturbances	0	10	5	0	0	0	0	7	22
Hazard Mapping	10	5	5	0	0	0	0	7	27
Land Disturbance BMPs	0	5	0	0	0	0	10	7	22
Flood-Prone Structures	20	10	5	15	30	25	0	7	112
Storm Water Ordinances	0	0	0	0	0	25	0	7	32
Support Local Planning	0	5	0	10	0	0	10	7	32
Total Points	100	100	100	100	100	100	100	100	800

**Table M-10
Strategy Evaluation Based on “Environmental” Criterion**

Distribute 100 points for each evaluation criterion amongst the strategies	Environmental								Total Votes
Coordination with Utilities	0	0	5	10	0	0	0	3	18
Hazard Warning Systems	0	0	5	10	0	25	5	3	48
Non-Flood Funding, Legislation & Planning	10	5	0	0	0	0	0	3	18
Building Code Legislation	0	5	0	15	0	25	0	5	50
All-Hazards Public Education	10	0	0	15	0	0	5	4	34
Drought Mitigation	10	5	5	0	20	0	10	5	55
Promote Wildfire Mitigation	10	5	5	0	0	0	10	5	35
Urban Fire Mitigation	10	5	5	0	0	0	0	6	26
Inter-agency Coordination	10	0	0	10	0	0	0	3	23
Review of Capital Projects	0	0	0	0	0	0	0	4	4
Data Clearinghouse	0	0	0	10	0	0	10	3	23
Promote Flood Insurance	0	0	10	0	0	0	0	3	13
Enforce Existing NFIP Regulations	0	5	20	0	20	0	10	5	60
Amend WV Code for Flood Mitigation	0	5	0	0	0	0	10	7	22
Programs for In-Stream Disturbances	10	20	5	0	20	0	0	7	62
Hazard Mapping	0	0	10	20	0	0	10	6	46
Land Disturbance BMPs	20	20	10	0	0	0	10	7	67
Flood-Prone Structures	0	15	10	0	0	25	0	7	57
Storm Water Ordinances	10	10	10	0	40	25	10	7	112
Support Local Planning	0	0	0	10	0	0	10	7	27
Total Points	100	100	100	100	100	100	100	100	800

Table M-11 shows the final results of the strategy evaluations. Each sum from a criterion worksheet is multiplied by the appropriate rating assigned to that criterion (see Table M-3 for final ratings) to produce a weighted score. The weighted scores are added together to determine the final rankings for each strategy.

Table M-11
Pair-wise Strategy Prioritization Final Results

Strategy Ranking	Criteria 1 Social		Criteria 2 Technical		Criteria 3 Administrative		Criteria 4 Political		Criteria 5 Legal		Criteria 6 Economic		Criteria 7 Environmental		Total Sum
	Sum (Social)	Pairwise Criteria Evaluation Weighted Sum	Sum (Technical)	Pairwise Criteria Evaluation Weighted Sum	Sum (Administrative)	Pairwise Criteria Evaluation Weighted Sum	Sum (Political)	Pairwise Criteria Evaluation Weighted Sum	Sum (Legal)	Pairwise Criteria Evaluation Weighted Sum	Sum (Economic)	Pairwise Criteria Evaluation Weighted Sum	Sum (Environmental)	Pairwise Criteria Evaluation Weighted Sum	
1	118	2,006	93	1,767	38	608	72	1,224	58	1,102	48	864	48	912	8,483
2	62	1,054	47	893	41	656	37	629	101	1,919	112	2,016	57	1,083	8,250
3	27	459	57	1,083	44	704	57	969	122	2,318	80	1,440	50	950	7,923
4	27	459	47	893	51	816	86	1,462	77	1,463	32	576	112	2,128	7,797
5	6	102	27	513	89	1,424	57	969	20	380	104	1,872	4	76	5,336
6	108	1,836	17	323	39	624	42	714	13	247	48	864	34	646	5,254
7	42	714	37	703	48	768	27	459	52	988	22	396	60	1,140	5,168
8	30	510	6	114	33	528	85	1,445	50	950	68	1,224	18	342	5,113
9	81	1,377	21	399	51	816	36	612	38	722	32	576	27	513	5,015
10	42	714	46	874	18	288	42	714	32	608	22	396	67	1,273	4,867
11	21	357	101	1,919	21	336	21	357	20	380	27	486	46	874	4,709
12	39	663	18	342	31	496	61	1,037	57	1,083	37	666	22	418	4,705
13	35	595	41	779	41	656	27	459	21	399	22	396	62	1,178	4,462
14	16	272	91	1,729	52	832	26	442	15	285	20	360	23	437	4,357
15	36	612	33	627	75	1,200	39	663	30	570	13	234	23	437	4,343
16	45	765	43	817	58	928	17	289	28	532	2	36	18	342	3,709
17	44	748	9	171	11	176	26	442	32	608	62	1,116	13	247	3,508
18	9	153	47	893	20	320	13	221	8	152	19	342	55	1,045	3,126
19	15	255	11	209	19	304	19	323	18	342	21	378	26	494	2,305
20	8	136	8	152	20	320	13	221	8	152	9	162	35	665	1,808

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