

Appendix B: Matrix Scoring Spreadsheet

Methodology

The Matrix Scoring Spreadsheet contains the scoring information from the public involvement process and calculations to develop the mitigation action priorities.

The first five numerical columns include averaged information from the public involvement process, on a scale of 1-5, where 5 was the highest score/priority:

1. Cost-Effective Average Score
2. Technically Feasible
3. Environmentally Sound
4. Immediate Need
5. Total Risk Reduction

These scores were then summed into the next column, the Raw Score. Next, the hazard priorities were converted from a rank (1-15) to a value, where:

Rank Value		Rank Value		Rank Value	
1	1500	6	1000	11	500
2	1400	7	900	12	400
3	1300	8	800	13	300
4	1200	9	700	14	200
5	1100	10	600	15	100

The Raw Score was then added to the Hazard Priority Score to calculate the Adjusted Score. For the few mitigation actions that still had a “tie” score, the County EMA Director determined which should be prioritized and a small adjustment value was then added to account for this decision.

The Adjusted Score resulted in a unique value for every mitigation action, so the mitigation actions were then sorted in order of the Adjusted Score value, from highest (1,516.54) to lowest (109.13), and then given a sequential priority value from 1 to 90, where 1 has the highest priority and 90 has the lowest.

The following pages include the information described above for all of the mitigation actions.

Mitigation Action Matrix Scoring Spreadsheet									
Hazard & Mitigation Action	Cost-Effective	Technically Feasible	Environmentally Sound	Immediate Need	Total Risk Reduction	Raw Score	Hazard Priority	Adjusted Score (Raw+Hazard Multiplier)	Mitigation Action Priority
Dam Failure									
1 Coordinate with the Ohio Department of Natural Resources, Division of Water, in accordance with ORC Section 1512.062, to periodically reclassify any dam within Guernsey County in response to any changes, directly to the dam or otherwise, to ensure safety for downstream residents.	3.87	3.80	3.81	3.00	3.69	18.17	6	1018.18	47
2 Coordinate with the US Army Corps of Engineers to update any potentially outdated flood studies encompassing areas affected by the failure or topping of the Salt Fork Lake Dam.	3.72	3.83	3.94	3.55	3.87	18.91	6	1018.89	45
3 Coordinate with the Ohio Department of Natural Resources, Dam Safety Engineering Program to conduct periodic safety inspections of existing dams in Guernsey County.	3.85	3.85	3.92	3.23	3.85	18.70	6	1018.67	46
4 Garner community support for the removal or repair of dams in disrepair.	3.35	3.25	3.47	2.60	3.12	15.79	6	1015.76	50

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Assess the vulnerability of all dams in Guernsey County (31)	3.57	3.30	3.82	3.14	3.25	17.08	6	1017.18	49
Coordinate with officials throughout the County to provide notification and warning of a failure of the Salt Fork Lake Dam	3.69	3.70	3.69	3.06	3.06	17.20	6	1017.25	48
Damaging Winds / Tornadoes									
Protect Power Lines and infrastructure by inspecting utility poles to ensure they meet specifications and are wind resistant, burying power lines to provide uninterrupted power after severe winds, considering both maintenance and repair issues and upgrading overhead utility lines (e.g., adjust utility pole sizes, utility pole span widths, and/or line strength).	2.94	3.35	3.25	3.20	3.57	16.31	4	1216.32	41
Provide permanent shelters for residents of mobile home parks and campgrounds, where citizens may seek safety.	2.10	2.56	2.94	3.31	2.87	13.78	4	1213.62	43
Upgrade the radio communications system throughout the County for all public safety services.	2.86	3.57	3.64	3.79	3.50	17.36	4	1217.36	38

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10	Provide back-up generators for critical facilities, including shelters, which need to maintain continuous power to protect human health and life.	3.15	3.13	3.33	3.69	3.14	16.44	4	1216.35	40
11	Promote or Require Site and Building Design Standards to Minimize Wind Damage	2.93	3.07	2.93	2.87	2.46	14.26	4	1214.26	42
12	Provide/encourage NOAA weather radios for all critical facilities within the County	3.80	3.44	3.65	3.88	3.21	17.98	4	1217.97	36
13	Seek funding to acquire portable generators to loan out to critical facilities and shelters to loan out to critical facilities and shelters. This is noted as a high priority request by attendee(s).	3.19	3.40	3.90	3.67	3.36	17.52	4	1217.42	37
14	Developing and maintaining a database to track community vulnerability to severe wind.	2.86	3.15	3.08	2.50	2.08	13.67	4	1213.60	44
15	Coordinate with the National Weather Service (NWS) to warn residents of impending severe winds and possible tornado conditions.	4.40	4.26	4.20	3.87	3.79	20.52	4	1220.53	34

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16	Implementation of Outdoor Warning Sirens for Tornado and severe wind events	3.40	3.75	3.53	3.73	4.00	18.41	4	1218.26	35
17	Conduct outreach activities to increase awareness of tornado risk.	3.64	3.69	3.69	2.95	3.00	16.97	4	1216.95	39
Drought										
18	Develop Water Conservation Plan	3.00	3.00	4.00	3.08	2.60	15.68	12	415.68	72
19	Install Waterlines in rural areas where none exist	1.92	2.46	3.08	3.09	3.10	13.65	12	413.64	73
20	Pursue Sole Source Aquifer Designation	2.00	2.02	2.40	1.90	1.90	10.22	12	410.20	78
21	Identify the value of crops and property in Guernsey County	2.64	2.31	3.14	2.90	2.08	13.07	12	412.36	76
22	Provide alternative potable water source in the event that existing water supplies are disrupted or wells run dry.	2.60	2.25	3.07	2.73	2.67	13.32	12	413.34	74
23	Construct additional water storage facility for emergency crop management and fire suppression.	2.00	2.20	2.44	2.46	2.56	11.66	12	411.71	77
24	Develop a public education program concerning the hazards associated with droughts and water restrictions during drought conditions.	2.85	2.91	2.92	2.46	1.90	13.04	12	412.90	75

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Earthquakes										
25	Collect geologic information on seismic sources, soil conditions, and related potential hazards.	1.92	2.08	2.33	1.52	1.30	9.15	15	109.13	90
Extreme Cold & Wind Chill / Extreme Heat (Extreme Temperatures)										
26	Identify location of vulnerable populations in Guernsey County. Collaborate with hospitals & retirement homes for the elderly to provide services to these vulnerable populations	3.56	3.31	2.96	3.31	3.57	16.71	9	716.94	62
27	Set up a program for more regular inspections of endangered facilities during extreme temperature events.	2.54	2.62	2.77	2.31	2.46	12.70	9	712.70	67
28	Establish cooling centers in centralized locations to serve the largest populations.	2.94	2.81	2.69	2.65	2.57	13.66	9	713.64	65
29	Provide Electric Heaters or Oscillating Fans for the specific-at-risk population especially the elderly.	2.07	2.57	2.57	2.71	2.78	12.70	9	712.63	68

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30	Educate the public about the symptoms associated with dehydration and hypothermia or other illnesses that can result from extreme temperatures.	2.94	3.00	2.81	2.38	2.13	13.26	9	713.26	66
31	Educate residents how to weather proof and protect their property.	3.06	3.06	3.20	2.46	2.54	14.32	9	714.32	64
32	Develop a brochure to distribute to local residents.	3.43	3.36	3.21	2.43	2.33	14.76	9	714.76	63
Extreme Heat - see Extreme Cold & Wind Chill										
Flooding										
33	Acquisitions & demolition of flood-prone residences	2.64	2.93	3.50	3.14	3.00	15.21	1	1515.21	2
34	Elevation of flood-prone residences	2.58	2.38	3.15	2.62	2.91	13.64	1	1513.64	5
35	Retrofit of utilities for residents prone to basement flooding	2.15	2.15	3.38	2.62	2.54	12.84	1	1512.84	8
36	Elevate flood-prone roads	2.00	2.27	2.42	2.73	2.40	11.82	1	1511.82	12

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37	Replace undersized culverts	2.69	3.13	3.87	3.47	3.38	16.54	1	1516.54	1
38	Dike Cambridge Sewer Treatment Plant	2.08	2.42	2.83	2.50	2.36	12.19	1	1512.19	10
39	Dike Cambridge Water Treatment Plant	2.10	2.70	2.60	2.42	2.44	12.26	1	1512.24	9
40	Relocation of Cambridge Sewer Collection and Transmission Infrastructure	2.00	2.33	2.89	2.67	2.00	11.89	1	1511.89	11
41	Connect main sewer line at North Guernsey Sewer Plant to Cambridge City System, bypassing flood hazard plant.	2.45	3.13	3.09	2.70	2.87	14.24	1	1514.31	4
42	Comprehensive Watershed Analysis and Implementation of Recommendations to Reduce the hazards associated with floods.	2.91	2.81	3.21	2.27	2.44	13.64	1	1513.61	6
43	Remove debris from streams	2.58	2.92	3.42	3.00	3.00	14.92	1	1514.92	3
44	Join the NFIP	2.88	2.50	3.25	2.50	2.29	13.42	1	1513.42	7

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Frozen Precipitation / Heavy Snow / Ice Storms (Winter Storms)									
45 Develop a Resource Manual Database that can be used to inventory emergency resources that can be employed to aid in emergency snow removal.	3.31	3.19	3.46	2.81	3.07	15.84	3	1315.82	31
46 Identify existing sites inside or adjacent to homes that could be used as emergency shelters to prevent injuries during severe hail and winter storms in Guernsey County.	3.16	2.81	3.05	2.87	2.16	14.05	3	1314.04	32
47 Develop techniques and improvements in infrastructure and building practices in new and existing structures to minimize damage from hail, snow, and ice.	2.60	2.54	2.87	2.47	1.37	11.85	3	1311.84	33
48 Encourage the use of NOAA weather radios that continuously broadcast National Weather Service forecasts that provide direct warnings to the public for natural, technological, and man-made hazards.	3.37	3.33	3.75	3.44	3.00	16.89	3	1316.87	30

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Hazardous Material Spills (Sites and Transportation)									
49 Conduct a yearly drill to prepare for a disaster involving hazardous materials	3.61	4.06	4.00	4.13	4.00	19.80	2	1419.80	17
50 Report what hazardous materials are being handled on-site and amounts according to regulation	3.86	4.07	4.00	3.64	3.91	19.48	2	1419.48	20
51 Report if additional hazardous materials are added or removed to the site	4.40	4.20	4.25	3.93	3.85	20.63	2	1420.65	13
52 New facilities to report what hazardous materials are being handled on-site	4.21	4.14	4.14	3.86	3.67	20.02	2	1420.02	15
53 Schedule for periodic and random load checks of incoming biomass truckloads.	3.64	3.52	4.50	3.71	3.77	19.14	2	1419.12	23
54 Restrict public access to facilities handling hazardous materials and holding waste through various measures (e.g., fencing).	3.36	3.75	4.29	3.90	4.08	19.38	2	1419.30	21

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55	Provide fire lanes between piles in landfills to allow fire control equipment access to all operational areas.	4.00	4.25	4.18	3.67	3.73	19.83	2	1419.82	16
56	Perform regular visual inspections and temperature monitoring of storage piles in landfills to observe whether temperature-related effects are occurring (e.g., steam).	3.23	3.46	3.62	2.92	3.45	16.68	2	1416.68	28
57	Notify public in implementing any landfill reclamation.	3.92	3.67	3.83	3.00	2.90	17.32	2	1417.32	27
58	Inform the public about digging near pipelines.	3.73	3.73	3.93	3.80	3.69	18.88	2	1418.88	24
59	Ensure proper inspection & maintenance of pipelines.	3.53	3.76	4.24	4.12	3.93	19.58	2	1419.58	19
60	Conduct annual drills to prepare for hazards involving pipelines.	3.38	3.94	3.94	3.88	3.64	18.78	2	1418.78	25
61	Work with villages and townships to create or improve development standards near pipelines.	3.76	4.00	4.00	3.82	3.61	19.19	2	1419.19	22
62	Create commodity flow study for chemical transport in Guernsey County	3.07	3.21	3.57	3.21	3.50	16.56	2	1416.56	29

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63	Identify transportation routes that traverse waterways	4.13	4.00	4.13	3.69	3.79	19.74	2	1419.74	18
64	Create emergency protocol to stop hazardous spills near waterways as quickly as possible	3.75	4.06	4.31	4.01	4.43	20.56	2	1420.55	14
65	Identify vulnerability zones for chemicals in accordance with the commodity flow study	3.65	3.59	4.00	3.65	3.57	18.46	2	1418.46	26
Heavy Snow - see Frozen Precipitation										
Ice Storm - see Frozen Precipitation										
Invasive Species										
66	Develop a public education program concerning the hazards associated with invasive species.	3.23	3.23	3.31	2.62	2.46	14.85	14	214.85	88
67	Educate the public on dangers of West Nile Virus and proper precautions.	3.42	3.42	3.65	2.81	2.81	16.11	14	216.11	86
68	Disseminate information to the public that explains the importance of only planting plants that are native to Ohio.	3.63	3.38	3.54	2.79	2.46	15.80	14	215.80	87

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69	Disseminate information to the public that explains the importance not importing or exporting firewood.	3.25	3.11	3.25	2.61	2.25	14.47	14	214.47	89
Landslides & Land Subsidence										
70	Completing an inventory of locations where critical facilities, other buildings, and infrastructure are vulnerable to landslides.	2.71	2.93	3.00	2.29	2.14	13.07	13	313.07	85
71	Develop a public education program concerning the hazards associated with landslides and how to report landslides.	3.11	3.00	3.38	2.23	2.38	14.10	13	314.07	83
72	Defining Steep slope/high-risk areas in land use and in comprehensive plans and creating guidelines or restricting new development in those areas.	3.18	2.91	3.20	2.78	2.18	14.25	13	314.18	82
73	Develop and use a Guernsey County GIS map that identifies landslide hazardous areas (Steep slopes and soils susceptible to landslides).	3.60	3.33	3.15	2.46	2.62	15.16	13	315.16	80
74	Creating or increasing setback limits on parcels near high-risk areas.	3.20	2.83	2.83	2.67	2.17	13.70	13	313.67	84

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Work with villages and townships to create standards and regulations for development in or adjacent to landslide prone areas.	2.93	3.07	3.43	2.57	2.43	14.43	13	314.43	81
Follow proper techniques and protocols to eliminate threats from existing land subsidence and landslides.	3.08	3.25	3.42	3.08	3.17	16.00	13	316.00	79
Lightning									
Installing lightning protection devices and methods, such as lightning rods and grounding, on communications infrastructure and other critical facilities	2.62	3.08	3.33	2.92	2.90	14.85	11	514.85	71
Installing and maintaining surge protection on critical electronic equipment.	3.06	2.77	3.28	3.23	3.00	15.34	11	515.39	70
Developing a lightning safety brochure for distribution.	3.50	2.92	2.92	3.33	2.90	15.57	11	515.57	69

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Mine Subsidence									
Coordinate with the ODNR's Office of Abandoned Mine Lands & Reclamation to undertake reclamation projects after subsidence incidents.	3.23	3.31	3.85	3.08	3.25	16.72	8	816.72	59
Consider developing a land use plan or modifying an existing plan to guide development away from & reduce population density in subsidence-prone areas.	2.77	2.69	3.16	2.69	2.42	13.73	8	813.73	61
Consider creating a Guernsey County GIS map to identify subsidence hazard areas.	3.77	3.85	3.92	3.85	3.92	19.31	8	819.31	57
Permanently & physically close open mine shafts.	2.43	2.50	3.24	2.86	3.08	14.11	8	814.11	60
Develop a public notification platform for people to report potential land subsidence or sinkhole development.	3.50	3.75	4.00	3.75	3.91	18.91	8	818.91	58

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Wildfires									
85 Monitor and collect data on wildfires and other fires in the County	2.94	3.43	3.66	2.71	3.00	15.74	7	915.71	54
86 Establish an enforceable open burning ban to be implemented during droughts.	3.92	3.29	3.83	3.17	3.00	17.21	7	917.17	53
87 Clear excess brush away from potentially combustible properties and areas.	2.23	2.44	3.07	2.71	2.85	13.30	7	913.27	55
88 Develop an education program for County residents on wildfire prevention.	3.72	3.19	3.64	3.91	3.10	17.56	7	917.55	52
89 Maintain, improve, and expand existing fire hydrant data.	3.18	3.08	4.08	3.69	3.77	17.80	7	917.75	51
90 Provide chemical disposal station in County.	2.33	2.50	3.01	2.55	2.17	12.56	7	912.58	56