

Mitigation Strategies

Mitigation strategies are based on the vulnerability to communities from hazards and the goals that are determined to mitigate the hazard. The following list of measures is a reference to develop strategies in hazard mitigation planning. Some strategies qualify for funding under Hazard Mitigation Assistance (HMA) while others do not. The state Hazard Mitigation Assistance program should be contacted to determine if the measure qualifies for federal assistance.

Structural Projects

1. Acquire, relocate, or floodproof properties in flood zones
2. Bury or strengthen power transmission lines
3. Construct safe rooms in schools and community facilities
4. Establish storm shelters for mobile home parks
5. Establish recreational area storm shelters
6. Living snow fence to control snow drifts on highways
7. Install fixed or mobile wildfire protection sprinklers
8. Install river height and weather gauges for warning and tracking
9. Well head protection
10. Tile project on catch basin
11. Construct/elevate wastewater lift station
12. Replace undersized sewer and stormwater pipe
13. Install and/or add new fire hydrants
14. Increase throat capacity of bridges
15. Construct municipal water works flood protection projects
16. Flood protection for critical facilities
17. Maintain intra-county roads
18. Establish sanitary sewer maintenance programs
19. Clean agricultural drains
20. Build airport consolidated fuel storage facilities
21. Construct airport drainage system
22. Elevate levees
23. Develop reservoirs/lakes
24. Construct dams
25. Build drainage culverts
26. Construct storm sewer drainage
27. Install water impervious manhole covers
28. Separate sewer and stormwater lines
29. Construct and improve berms
30. Raise grade to eliminate backup flooding
31. Raise roads
32. Clear and deepen ditches
33. Clean sewage lagoons and install rock
34. Install curbs/gutters in areas of standing water
35. Construct backup wells for water systems

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36. Construct new wells
37. Replace bridges and culverts
38. Construct elevated walkway

Prevention

1. Install hurricane clips in park shelters
2. Complete and update local hazard mitigation plans
3. Plans and procedures are in place and current (i.e. emergency operations procedures for dams)
4. Adopt and enforce ordinances that limit development in flood plain areas
5. Patrol streams and rivers for beaver dams
6. Promote purchase of flood insurance
7. Promote community participation in the National Floodplain Insurance Program and the Community Rating system to reduce costs to policyholders
8. Update local flood maps and upgrade to D-FIRMS when possible
9. Develop and implement watershed studies and implement watershed plans
10. Survey flood prone areas within city limits
11. Develop study of river channels
12. Develop engineering feasibility studies for treatment lagoons
13. Encourage communities to adopt tree trimming ordinances
14. Maintain, enforce, and update zoning ordinances
15. Enforce burning restrictions
16. Encourage the development of wellhead protection ordinances
17. Conduct engineering studies on water/sewage treatment plants (in floodplains)
18. Enhance building codes to prevent damage from high winds
19. Encourage adoption of manufactured home development storm shelter ordinances
20. Conduct sanitary sewer system study
21. Conduct stormwater management studies for retention/detention ponds
22. Subdivision ordinance on retention basins
23. Conduct hydrology studies
24. Conduct study on use of sump pumps
25. Check and test wells
26. Inspect water lines
27. Annual levee inspections—reports to USACE
28. Develop earthquake evacuation plans
29. Inspect dams
30. Study groundwater pollution and availability
31. Enforce snow removal policies
32. Determine population trends to project future services

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33. Refuge area evaluation
34. Install buffer strips against river/flash flooding (also under Natural Resources Protection)
35. Provide Certified Flood Manager training
36. Encourage watershed groups to develop/implement watershed plans
37. Encourage communities to adopt building codes regarding expansive soils
38. Encourage communities to adopt building codes that regulate construction in landslide areas
39. Feasibility study to protect high service pump station
40. Install hazard signs in county campgrounds
41. Promote landscaping practices
42. Backup city files and records—store in alternate locations
43. Designate community shelters for evacuees
44. Promote safe rooms in schools and community facilities
45. Investigate alternative water sources for fire suppression
46. Support legislation increasing shelter standards
47. Promote legislation for satellite dish owners access to weather advisories
48. Encourage housing codes to require fire extinguishers in multi-family units
49. Formulate partnerships to gain legislation
50. Establish multi-jurisdictional partnerships to reduce runoff

Property Protection

1. Increase defensible space around structures in wildfire areas
2. Trim tress around power lines to reduce outages
3. Promote Community Wildfire Protection Plans
4. Adopt ordinance to use fire resistant construction in wildfire areas
5. Install riprap
6. Repair structurally weak homes
7. Install large filters for water treatment
8. Designate post-disaster debris disposal sites
9. Purchase standby pumps for flood fight

Public Education and Awareness

1. Provide safe room education for builders, developers, and prospective home owners
2. Promote NOAA weather radio, including citizen purchase of receivers and rebate program
3. Improve public awareness of hazard risks
4. Operation Life Saver Program—rail and highway
5. Encourage citizen purchase/use of smoke detectors
6. Increase public awareness on household hazardous materials
7. Dispense educational materials to citizens about potential disasters
8. Establish Good Neighbor programs for winter storms

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Natural Resources Protection

1. Tree and vegetation planting to control erosion
2. Install buffer strips against river/flash flooding
3. Develop soil erosion stabilization projects
4. Implement channel improvement project
5. Install riprap
6. Remove unused chemical containers
7. Post "No Dumping" signs
8. Improve forestry methods to reduce wildfire
9. Remove dead vegetation

Emergency Services

1. Install NOAA towers
2. Install siren warning systems
3. Develop recovery plan for natural disasters
4. Maintain/update plan to contact utility companies
5. Develop plans to address utility outages and emergencies
6. Maintain list of shelters for evacuation
7. Maintain list of storm shelters and safe rooms for search and rescue
8. Develop storm spotter training
9. Train key county and community leaders
10. Develop/update/publicize city evacuation plans
11. Install flood gauge (also under Prevention and Property Protection)
12. Review/update local emergency operations plan
13. Review/update hazardous materials emergency plan
14. Maintain sandbags and flood fighting equipment
15. Establish alert systems for vulnerable populations
16. Create cable television weather advisories
17. Stock public shelters
18. Designate equipment/personnel for tornado response
19. Smoke detectors/panic buttons/communications systems
20. Develop plowing routes for response to snow storms
21. Train local emergency disaster responders (Citizen Emergency Response Teams)
22. Emergency/disaster response disaster training for local officials and staff