

Table 4-7. Summary of Climate Risk Reduction Measures and Descriptors

#	Measure Title	Scale of Application	Risk Reduction Benefit			Co-Benefits											
			Reduces Exposure	Reduces Sensitivity	Increases Adaptive Capacity	Improved Air Quality	Energy and Fuel Savings	Vehicle Miles Traveled Reductions	Water Conservation	Enhanced Pedestrian or Traffic Safety	Improved Public Health	Improved Ecosystem Health	Enhanced Energy Security	Enhanced Food Security	Social Equity		
Multiple Hazards																	
Infrastructure Improvements and Projects																	
MH-1.	Strengthen Energy Infrastructure*	P/C	0	2-4	0	●	○	○	○	○	○	○	○	●	○	○	
MH-2.	Use Climate-Resilient Design for Infrastructure	P/C	0	1-3	1-3	○	○	○	○	○	●	○	○	○	○	○	
MH-3.	Coordinate Redundant Transportation Access*	P/C	0	0	2-4	○	○	○	○	○	●	○	○	○	○	○	
MH-4.	Strengthen Building Structures	P/S	0	1-3	0	○	○	○	○	○	○	○	○	○	○	○	
MH-5.	Use Green Infrastructure for Stormwater Management*	All	2-3	0	1-3	○	○	○	○	●	○	○	●	○	○	○	
MH-6.	Upgrade Water Systems*	P/C	0	0	2-3	○	○	○	○	○	○	○	○	○	○	○	
MH-7.	Construct Water Storage Facilities*	P/C	0	0	2-3	○	○	○	○	○	○	○	○	○	○	○	
MH-8.	Decrease Road Vulnerability to Landslides	All	0	1-3	0	○	○	○	○	○	○	○	○	○	○	○	
Education, Outreach, Coordination																	
MH-9.	Support Business Resiliency	P/C	0	0	1-3	○	○	○	○	○	○	○	○	○	○	○	●
MH-10.	Implement Community-wide Climate Change Outreach Program	P/C	0	0	1-3	○	○	○	○	○	○	○	○	○	○	○	●
MH-11.	Encourage/Actively Engage Community in Local Planning	P/C	0	0	1-2	○	○	○	○	○	○	○	○	○	○	○	●
MH-12.	Enhance Community Network Support	P/C	0	0	1-2	○	○	○	○	○	○	○	○	○	○	○	●
MH-13.	Support Local Food Systems	All	0	0	1-2	○	○	○	○	○	○	○	○	○	○	○	●
MH-14.	Maintain Trails and Parks	P/C	0	1-2	1-2	○	○	○	○	○	○	○	○	○	○	○	●
MH-15.	Identify Alternative Activities in Climate Sensitive Recreation Areas	All	0	0	1-3	○	○	○	○	○	○	○	○	○	○	○	○

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			Reduces Exposure	Reduces Sensitivity	Increases Adaptive Capacity	Improved Air Quality	Energy and Fuel Savings	Vehicle Miles Traveled Reductions	Water Conservation	Enhanced Pedestrian or Traffic Safety	Improved Public Health	Improved Ecosystem Health	Enhanced Energy Security	Enhanced Food Security	Social Equity
Evaluation															
MH-16.	Identify At-Risk Transportation Corridors	P/C	0	0	1-3	○	○	○	○	●	○	○	○	○	○
MH-17.	Identify Alternative Routes for Transit Service	P/C	0	0	1-3	○	○	◐	○	●	○	○	○	○	◐
Operational															
MH-18.	Maintain Soil Health	All	0	1-2	1-2	○	○	○	○	○	○	●	○	●	○
MH-19.	Stabilize Burned Slopes in Key Assets	All	0	1-2	0	○	○	○	○	○	○	○	○	○	○
MH-20.	Improve Medical Facility Preparedness	P/C	0	0	1-4	○	○	○	○	○	○	○	○	○	○
MH-21.	Ensure Homeless Services' Availability in Hazardous Conditions	P/C	0	1-3	2-4	○	○	○	○	○	●	○	○	○	●
MH-22.	Improve Poor Drainage	All	0	1-3	0	○	○	○	○	○	●	○	○	○	○
Plans, Regulations, and Policy Development															
MH-23.	Landscape with Climate Considerations	All	0	1-2	0	○	○	○	●	○	○	●	○	○	○
MH-24.	Develop Climate Emergency/Business Resilience Plan	All	0	0	1-3	○	○	○	○	○	○	○	○	○	○
MH-25.	Revise Emergency Plans	P/C	0	0	1-3	○	○	○	○	○	○	○	○	○	○
MH-26.	Integrate Climate Change Considerations into Public Safety and Emergency Planning	All	1-3	1-3	1-4	○	○	○	○	○	○	○	○	○	●
MH-27.	Provide Greater Affordable Housing Options	P/C	0	1-2	1-3	○	○	○	○	○	●	○	○	○	●
MH-28.	Transition to Climate-Smart Energy	All	0	2-3	2-3	○	○	○	○	○	○	○	●	○	○
MH-29.	Identify Climate Hazard Overlay Zones	All	2-4	1-3	1-3	○	○	○	○	○	○	○	○	○	○
MH-30.	Establish Community Resilience Hubs	P/C	0	0	2-3	○	○	○	○	○	○	○	○	○	●
MH-31.	Improve Transportation Maintenance	P/C	0	1-3	0	○	○	○	○	●	○	○	○	○	○
MH-32.	Establish Urban Tree Management Plan	All	1-2	1-2	0	●	●	○	○	○	●	●	○	○	●

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			Reduces Exposure	Reduces Sensitivity	Increases Adaptive Capacity	Improved Air Quality	Energy and Fuel Savings	Vehicle Miles Traveled Reductions	Water Conservation	Enhanced Pedestrian or Traffic Safety	Improved Public Health	Improved Ecosystem Health	Enhanced Energy Security	Enhanced Food Security	Social Equity	
MH-33.	Implement Park and Natural Resources Protection	P/C	1-2	1-2	0	○	○	○	●	○	○	●	○	○	○	
MH-34.	Implement Integrated Watershed Management	P/C	1-4	0	0	○	○	○	●	○	○	●	○	○	○	
MH-35.	Increase Parks in Underserved Communities	P/C	1-2	2-3	0	○	○	○	○	○	●	○	○	○	●	
MH-36.	Decentralize and Localize Energy Production and Storage	All	0	1-3	2-4	●	○	○	○	○	○	○	●	○	●	
Programmatic																
MH-37.	Develop Climate Hazard Notification System	P/C	0	0	1-3	○	○	○	○	○	○	●	○	○	○	●
MH-38.	Integrate Climate into Health Programs	P/C	0	0	1-4	○	○	○	○	○	○	●	○	○	○	●
MH-39.	Implement Pervious and Climate-Smart Surfaces	All	0	1-3	0	⊙	●	○	●	○	⊙	●	○	○	○	
MH-40.	Address Energy/Water Efficiency Funding Barriers	P/C	0	1-2	1-3	○	●	○	●	○	○	○	○	○	○	●
MH-41.	Expand Urban Greening/Agriculture	P/C	1-2	1-2	1-2	⊙	○	○	⊙	○	○	○	○	○	●	●
MH-42.	Provide Vaccinations for Changed Transmission Vectors	P/C	0	1-2	1-3	○	○	○	○	○	○	●	○	○	○	●
Sea Level Rise and Coastal Flooding/Erosion																
Infrastructure Improvements and Projects																
SLR-1.	Implement Engineering Solutions*	All	2-4	0	0	○	○	○	○	○	○	○	○	○	○	○
SLR-2.	Raise Building Floor Elevations	P/S	2-4	1-4	0	○	○	○	○	○	○	○	○	○	○	○
SLR-3.	Implement Natural Coastline Infrastructure*	All	1-4	0	2-3	○	○	○	○	○	○	●	○	○	○	○
SLR-4.	Strengthen Building Against Flood	P/S	0	2-3	0	○	○	○	○	○	○	○	○	○	○	○
SLR-5.	Use Moveable Infrastructure	P/S	0	2-3	0	○	○	○	○	○	○	○	○	○	○	○

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Evaluation																
SLR-6.	Develop Adaptive Management Plan	All	0	0	2-4	○	○	○	○	○	○	○	○	○	○	●
Plans, Regulations, and Policy Development																
SLR-7.	Require Consideration of Sea Level Rise for New Development	All	2-4	2-4	0	○	○	○	○	○	○	○	○	○	○	○
SLR-8.	Develop Setbacks	All	1-3	0	0	○	○	○	○	○	○	○	○	○	○	○
SLR-9.	Develop Regional Sediment Management	All	0	1-2	2-3	○	○	○	○	○	○	●	○	○	○	○
SLR-10.	Sell off High-Risk Area Development Rights	All	1-3	0	2-3	○	○	○	○	○	○	○	○	○	○	○
SLR-11.	Site Outside Coastal Hazard Zone	All	2-4	0	0	○	○	○	○	○	○	○	○	○	○	○
SLR-12.	Limit Basements in Flood Zones	P/S	0	2-3	0	○	○	○	○	○	○	○	○	○	○	○
SLR-13.	Provide Removal Options in Flood Zones	All	1-2	1-3	0	○	○	○	○	○	○	○	○	○	○	○
SLR-14.	Coordinate with Regional Planning Efforts	All	1-3	1-3	1-3	○	○	○	○	○	○	○	○	○	○	○
SLR-15.	Alert Public of Storm Surge Risk	P/C	0	1-2	0	○	○	○	○	○	○	○	○	○	○	○
Extreme Precipitation and Inland Flooding																
Infrastructure Improvements and Projects																
EP-1.	Incorporate Runoff Projections in Hydrologic Designs	All	1-3	0	0	○	○	○	○	○	●	●	○	○	○	○
EP-2.	Install Stormwater Outfall Pumps/Lift Station for Water Drainage	All	0	1-3	0	○	○	○	○	○	●	●	○	○	○	○
EP-3.	Install Stormwater Cistern/Retention Basin	All	0	1-3	0	○	○	○	●	○	○	○	○	○	○	○
EP-4.	Waterproof Operational Equipment	All	0	2-4	0	○	○	○	○	○	○	○	○	○	○	○
EP-5.	Upgrade Wastewater Systems	All	0	0	2-3	○	○	○	●	○	○	●	○	○	○	○

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Plans, Regulations, and Policy Development															
EP-6.	Site Outside Floodplain	All	2-4	0	0	○	○	○	○	○	○	○	○	○	○
Operational															
EP-7.	Maintain Stormwater Infrastructure on Key Routes	All	0	1-2	0	○	○	○	○	●	○	○	○	○	○
Wildfire															
Infrastructure Improvements and Projects															
WF-1.	Implement Fire-Safe Landscaping	All	0	1-2	0	●	○	○	○	○	●	●	○	○	○
WF-2.	Install Fire Suppression Systems and Improve Structural Strength	P/S	0	1-3	0	●	○	○	○	○	●	○	○	○	○
WF-3.	Strengthen Vulnerable Assets in High Wildfire Risk Areas*	All	0	2-4	0	○	○	○	○	○	○	○	○	○	○
Education, Outreach, Coordination															
WF-4.	Educate on Wildfire Resistant Landscaping	P/C	0	0	1-2	○	○	○	○	○	●	○	○	○	○
WF-5.	Site Outside Wildland-Urban Interface (WUI)	All	2-4	0	0	○	○	○	○	○	●	○	○	○	○
Evaluation															
WF-6.	Designate and Strengthen Wildfire Emergency Routes	P/C	0	0	1-3	○	○	○	○	○	●	○	○	○	●
WF-7.	Develop Fire Risk Assessment for New Development	All	1-2	1-2	0	○	○	○	○	○	●	○	○	○	○
Operational															
WF-8.	Implement Fuel Management	All	2-3	0	0	●	○	○	○	○	●	○	○	○	○
WF-9.	Install Air Filters	All	0	1-3	1-2	●	○	○	○	○	●	○	○	○	○
WF-10.	Adopt WUI Building Standards	All	0	1-3	1-2	○	○	○	○	○	●	○	○	○	○

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Temperature/Extreme Heat																
Infrastructure Improvements and Projects																
EH-1.	Install Green Infrastructure*	All	1-3	1-3	0	●	◐	○	○	○	○	●	●	○	○	●
EH-2.	Provide Heat Mitigation for Public Walkways and Transit Stops	All	2-4	0	0	●	○	○	○	○	○	●	○	○	○	○
EH-3.	Install Heat-Reducing Roof	All	2-3	0	0	●	●	○	○	○	○	●	○	○	○	○
EH-4.	Enhance Building Envelope Efficiency	P/S	0	0	1-3	●	●	○	○	○	○	●	○	○	○	○
EH-5.	Upgrade to Efficient Equipment/Infrastructure	All	0	0	1-3	○	●	○	○	○	○	○	○	○	○	○
EH-6.	Install Refillable Water Stations	All	0	0	1-2	○	○	○	○	○	○	●	○	○	○	○
EH-7.	Install Equipment Cooling System	All	0	2-3	0	○	●	○	○	○	○	○	○	○	○	○
EH-8.	Use Alternative Pavement Surfaces	All	0	1-2	0	○	●	○	○	○	○	○	○	○	○	○
EH-9.	Expand Urban Tree Canopy	All	1-2	1-2	0	●	●	○	○	○	○	●	○	○	○	○
EH-10.	Install Covered Parking	P/S	0	0	1-2	●	○	○	○	○	○	●	○	○	○	○
Education, Outreach, Coordination																
EH-11.	Work with Schools to Reduce Heat Exposure	P/C	1-3	1-3	0	○	○	○	○	○	○	●	○	○	○	○
Plans, Regulations, and Policy Development																
EH-12.	Provide Backup Power for Cooling Centers	All	0	1-2	1-3	○	○	○	○	○	○	●	○	○	○	○
EH-13.	Develop Heat Emergency Plan	P/C	0	0	2-4	○	○	○	○	○	○	●	○	○	○	○
Programmatic																
EH-14.	Develop Low-Income Energy Programs	P/C	0	1-2	2-3	○	●	○	○	○	○	●	○	○	○	○
EH-15.	Provide Low-Income Air Conditioning	All	0	2-4	2-4	○	○	○	○	○	○	●	○	○	○	○
EH-16.	Establish a Shuttle System to Cooling Centers	P/C	0	1-2	2-3	○	○	○	○	○	○	●	○	○	○	○

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Drought																
Infrastructure Improvements and Projects																
D-1.	Install Water Efficient Appliances	P/S	0	0	1-3	○	○	○	●	○	○	○	○	○	○	●
D-2.	Install Water Reuse Infrastructure	P/S	0	0	1-3	○	○	○	●	○	○	○	○	○	○	○
Education, Outreach, Coordination																
D-3.	Install Drought Resistant Landscaping	P/S	0	1-2	1-2	○	○	○	●	○	○	○	○	○	○	○
D-4.	Educate on Water Conservation	P/C	0	0	1-2	○	○	○	●	○	○	○	○	○	○	○
D-5.	Outreach to Educate About Recycled Water Safety	P/C	0	0	1-2	○	○	○	●	○	○	○	○	○	○	○
D-6.	Build Alternatives Forms of Water Recreation	All	0	0	1-2	○	○	○	○	○	○	○	○	○	○	○
Plans, Regulations, and Policy Development																
D-7.	Diversify Water Supply Sources	P/C	0	0	2-4	○	○	○	○	○	●	○	○	○	○	●
D-8.	Develop Groundwater Sustainability Plan	P/C	0	0	2-4	○	○	○	○	○	○	●	○	○	○	○
D-9.	Implement Local Water Recycling	All	0	0	1-4	○	○	○	●	○	○	○	○	○	○	○

Climate hazard abbreviations: MH = multiple hazards; SLR = sea level rise; F = flooding; EH = temperature/extreme heat; EP = extreme precipitation; WF = wildfire; D = drought; DS = decrease in snowpack; AQ = air quality degradation.

For action type, major infrastructure improvements and projects are noted with an asterisk (*).

Scale of application column abbreviations: P/S = Project/Site; P/C = Plan/Community; All = Project/Site and Plan/Community.

Risk reduction benefit and co-benefits columns symbols: ● = may be achieved by the measure; ⊙ = may be achieved by the measure depending on local implementation specifics; ○ = likely not achieved by the measure.