

Adaptation & Resilience: Civil Infrastructure & Natural Systems

Strategies & Actions		Hazard			Data				Partners		Co-Benefits
Strategy	Development & Implementation	Heat	Fire & Smoke	Winter Weather	Long term strategy	Short term strategy	Progress Metric	Frequency of Data	Internal Partners	Local Partners	
Urban Forestry & Natural Spaces											
<p>Create and implement an outreach strategy on the benefits of urban canopy for water retention and urban heat island mitigation</p>	<p>Collaborate with internal & local partners to: (a) Develop messaging and resources that are consistent across departments & organizations, and translated in a diversity of languages (b) Distribute messaging, resources, and information</p>	x		x		x	(1) Identification of local partners & establishment of partnership for program development & implementation (2) Development of messaging and resources for each climate hazard (3) Translations of messaging and resources (4) Number of resources distributed (5) First year feedback from local partners	Annual	Communications Community Engagement Parks & Recreation Solid Waste & Sustainability Urban Forestry Subcommittee Watershed Resources	Columbia Slough Watershed Council Easty Multnomah County Soil & Water Conservation District Friends of Trees The Intertwine Alliance Johnson Creek Watershed Council Recode Urban Greenspaces Institute	Equitable Access to Critical Infrastructure Community Health & Resilience
<p>Create and implement a strategy to revegetate neighborhoods most vulnerable to urban heat island with adequate tree coverage & understory</p>	<p>Collaborate with internal & local partners to: (a) Identify communities & neighborhoods most vulnerable to urban heat islands in terms of frequency, severity, and lack of tree canopy (b) Collect & disaggregate data on lack of canopy & vegetation, appropriate canopy coverage levels, and appropriate tree types (c) Directly engage with & involve community members in revegetation planning (d) Develop messaging, information, and resources that are translated in a diversity of languages (e) Apply for & award grant funding for planting projects (f) Develop an arterial street tree plan (g) Coordinate plantings of new trees</p>	x		x	x		(1) Number of established partnerships dedicated to collaboration (2) Number of vulnerable communities & assets identified for inclusion in tool (4) Colletion of disaggregated data on identified communities & assets (5) Completed qualitative studies on vulnerable communities & assets and their relationships (6) Development of messaging, information and resources that are translated in a diversity of languages (7) Number of resources distributed	Annual	Communications Community Engagement Geographic Information Systems Parks & Recreation Solid Waste & Sustainability Urban Forestry Subcommittee Watershed Resources	Columbia Slough Watershed Council Easty Multnomah County Soil & Water Conservation District Friends of Trees The Intertwine Alliance Johnson Creek Watershed Council Recode Urban Greenspaces Institute	Economic Inclusion & Savings Reduce Pollution Burden Equitable Access to Critical Infrastructure Community Health & Resilience
<p>Review & update tree code to support planting of drought & heat resistant trees and understory vegetation</p>	<p>Collaborate with internal partners to: (a) Review tree code to support planting drought & heat resistant tree & understory vegetation species in appropriate locations (b) Develop messaging, information, and resources that are translated in a diversity of languages (c) Initiate and complete review of tree code using information collected on drought & heat resistant tree & understory species</p>	x		x	x		(1) Initiation of internal workshops on code development (2) Number of internal workshops (3) Development of potential code changes (4) Initiation of formal code review	Annual	Infrastructure Development Services Parks & Recreation Solid Waste & Sustainability Urban Forestry Subcommittee Urban Design & Planning Watershed Resources	Columbia Slough Watershed Council Easty Multnomah County Soil & Water Conservation District Friends of Trees The Intertwine Alliance Johnson Creek Watershed Council Recode Urban Greenspaces Institute	Economic Inclusion & Savings Equitable Access to Critical Infrastructure Community Health & Resilience
<p>Review & update tree code to support the preservation of mature, significant shade-giving trees</p>	<p>Collaborate with internal to: (a) Identify sections of tree code that disincentivize the preservation of large shade-giving trees (b) Identify sections of code that can be updated to support significant shade-giving trees</p> <p>Collaborate with internal & local partners to: (a) Identify locations of existing significant shade-giving trees (b) Identify potential locations for significant shade-giving trees (c) Map existing & potential locations for significant shade-giving trees</p>	x		x	x		(1) Initiation of internal workshops on code development (2) Number of internal workshops (3) Development of potential code changes (4) Initiation of formal code review	Annual	Infrastructure Development Services Parks & Recreation Solid Waste & Sustainability Urban Forestry Subcommittee Urban Design & Planning Watershed Resources	Columbia Slough Watershed Council Easty Multnomah County Soil & Water Conservation District Friends of Trees The Intertwine Alliance Johnson Creek Watershed Council Recode Urban Greenspaces Institute	Economic Inclusion & Savings Equitable Access to Critical Infrastructure Community Health & Resilience
<p>Create and implement a strategy to provide incentives that reduce the cost-burden of maintaining urban canopy in communities at the edge of fire-defensible spaces and/or are vulnerable to urban heat island</p>	<p>Collaborate with internal & local partners to: (a) Develop incentive program structure & program administration (b) Identify communities, neighborhoods, and locations for targeted incentive offerings (c) Directly engage & involve community in planning process (d) Apply for & award grant funding to support programming (e) Develop information & resources that are translated in a diversity of languages (f) Administer program, verify applicants, & distribute incentives</p>	x	x		x		(1) Number of established partnerships dedicated to collaboration (2) Completed assessment of similar programs (3) Identification of program and incentive structure (4) Application & award of grant funding	Annual	Parks & Recreation Solid Waste & Sustainability Urban Forestry Subcommittee Urban Design & Planning Watershed Resources	Columbia Slough Watershed Council Easty Multnomah County Soil & Water Conservation District Friends of Trees The Intertwine Alliance Johnson Creek Watershed Council Recode Urban Greenspaces Institute	Economic Inclusion & Savings Reduce Pollution Burden Equitable Access to Critical Infrastructure Community Health & Resilience
<p>Create and implement an outreach strategy for maintaing appropriate canopy coverage at edge of fire defensible spaces</p>	<p>Collaborate with internal & local partners to: (a) Develop messaging and resources that are consistent across departments & organizations, and translated in a diversity of languages (b) Distribute messaging, resources, and information</p>						(1) Identification of local partners & establishment of partnership for program development & implementation		Emergency Management Fire & Emergency Services	Columbia Slough Watershed Council Easty Multnomah County Soil & Water Conservation	Economic Inclusion &

Adaptation & Resilience: Civil Infrastructure & Natural Systems

Strategies & Actions		Hazard			Data				Partners		Co-Benefits
Strategy	Development & Implementation	Heat	Fire & Smoke	Winter Weather	Long term strategy	Short term strategy	Progress Metric	Frequency of Data	Internal Partners	Local Partners	
			x		x		(2) Development of messaging and resources for each climate hazard (3) Translations of messaging and resources (4) Number of resources distributed (5) First year feedback from local partners	Annual	Parks & Recreation Solid Waste & Sustainability Urban Forestry Subcommittee Urban Design & Planning Watershed Resources	District Friends of Trees The Intertwine Alliance Johnson Creek Watershed Council Recode Urban Greenspaces Institute	Savings Reduce Pollution Burden Equitable Access to Critical Infrastructure Community Health & Resilience
Create and implement a strategy to vegetate areas most vulnerable to extreme precipitation, heavy run-off, erosion, and landslides	Collaborate with internal & local partners to: (a) Identify areas most at-risk to extreme precipitation (b) Collect data and map at-risk areas, their proximity and relationship to one another (c) Directly engage community members that occupy these areas (d) Develop messaging, information, and resources that are translated in a diversity of languages (e) Apply for & award grant funding for project implementation & administration			x	x		(1) Number of established partnerships dedicated to collaboration (2) Number of vulnerable communities & assets identified for inclusion in tool (4) Collection of disaggregated data on identified communities & assets (5) Completed qualitative studies on vulnerable communities & assets and their relationships (6) Development of messaging, information and resources that are translated in a diversity of languages (7) Number of resources distributed	Annual	Geographic Information Systems Infrastructure Development Services Parks & Recreation Solid Waste & Sustainability Urban Forestry Subcommittee Urban Design & Planning Watershed Resources	Columbia Slough Watershed Council Easty Multnomah County Soil & Water Conservation District Friends of Trees The Intertwine Alliance Johnson Creek Watershed Council Recode Urban Greenspaces Institute	Economic Inclusion & Savings Equitable Access to Critical Infrastructure Community Health & Resilience
Update City code and policy to officially designate parks & natural spaces as essential green infrastructure	Collaborate with internal partners to: (a) Initiate a study of existing climate informed policies that designate parks, natural spaces, and urban canopy as essential infrastructure (b) Review existing code and policy to assess opportunities & challenges of updates	x	x	x	x		(1) Initiation of internal workshops on code development (2) Number of internal workshops (3) Development of potential code changes & rationale (4) Initiation of formal code review	Annual	Infrastructure Development Services Parks & Recreation Solid Waste & Sustainability Urban Forestry Subcommittee Urban Design & Planning Watershed Resources	Columbia Slough Watershed Council Easty Multnomah County Soil & Water Conservation District Friends of Trees The Intertwine Alliance Johnson Creek Watershed Council Recode Urban Greenspaces Institute	Community Health & Resilience
Establish an ambitious goal for increasing total urban canopy coverage with intermediate targets, as recommended in Urban Forestry Management Plan	Collaborate with internal & local partners to: (a) Initiate an updated inventory of private & public trees and urban canopy (b) Collect data & map findings of inventory (c) Review canopy management plans & canopy goals of neighboring communities (d) Analyze findings to set coverage goals and intermediate targets	x		x	x		(1) Initiation of internal workshops for goal & target setting (2) Number of internal workshops (3) Completed review of similar programs (4) Development of rationale for proposed goal & targets (5) Adoption of goals & targets	Annual	Geographic Information Systems Parks & Recreation Solid Waste & Sustainability Urban Forestry Subcommittee Urban Design & Planning Watershed Resources	Columbia Slough Watershed Council Easty Multnomah County Soil & Water Conservation District Friends of Trees The Intertwine Alliance Johnson Creek Watershed Council Recode Urban Greenspaces Institute	Community Health & Resilience
Structures & Surfaces											
Create and implement a strategy to replace impermeable surfaces with permeable surfaces, where appropriate & cost-effective	Collaborate with internal partners to: (a) Initiate a study of existing alternatives to impermeable surfaces in terms of cost, application, performance, and maintenance (b) Initiate a study of surfaces in community that are appropriate for resurfacing with permeable materials (c) Apply for & award grant funding to implement projects (d) Evaluate & allocate budget sources for implementation	x		x	x		(1) Initiation of internal workshops for developing strategy (2) Number of internal workshops (3) Completed review of similar programs & alternative materials (4) Development of rationale for program (5) Application & award of grant funds	Annual	Infrastructure Development Services Solid Waste & Sustainability Transportation Urban Design & Planning Watershed Resources	Recode Urban Greenspaces Institute	Community Health & Resilience
Create and implement a strategy to depave & revegetate vacant lots or underused permeable services	Collaborate with internal & external partners to: (a) Establish partnerships dedicated to collaboration (b) Initiate a study of potential locations for depavement & revegetation (c) Develop plans, rationale, and cost-benefits analysis for location use as greenspace alternatives to pavement (d) Apply for & award grant funding to implement projects (e) Evaluate & allocate budget sources for						(1) Initiation of internal workshops for developing strategy (2) Number of internal workshops (3) Completed review of similar programs &		Infrastructure Development Services		

Adaptation & Resilience: Civil Infrastructure & Natural Systems

Strategies & Actions		Hazard			Data				Partners		Co-Benefits
Strategy	Development & Implementation	Heat	Fire & Smoke	Winter Weather	Long term strategy	Short term strategy	Progress Metric	Frequency of Data	Internal Partners	Local Partners	
	implementation	x		x	x		alternative materials (4) Development of rationale for program (5) Application & award of grant funds	Annual	Solid Waste & Sustainability Transportation Urban Design & Planning Watershed Resources	DepavePDX Recode Urban Greenspaces Institute	Community Health & Resilience
Conduct a culvert study to identify vulnerabilities to flooding and wash-outs during extreme weather events	Collaborate with internal partners to: (a) Inventory all publicly owned culvert locations, conditions, and estimated need for retrofit & repair (b) Use findings of inventory to develop work plans & allocate budget resources (c) Map culverts, vulnerabilities, and relationship to other infrastructure			x	x		(1) Development of work plan & assessment criteria (2) Collection & visualization of data (3) Development of strategy for upgrades where necessary	Annual	Infrastructure Development Services Solid Waste & Sustainability Transportation Urban Design & Planning Watershed Resources		Equitable Access to Critical Infrastructure Community Health & Resilience

Public Health Resources

Create and implement a strategy to develop a network of community air quality monitors	Collaborate with internal & external partners to: (a) Establish partnerships in the community dedicated to collaboration (b) Identify & inventory potential locations for air monitors (c) Develop & train program volunteers (d) Develop messaging, resources, and information that is translated in a diversity of languages		x		x		(1) Number of established partnerships dedicated to collaboration (2) Number of vulnerable communities & assets identified for inclusion in tool (3) Collection of disaggregated data on identified communities & assets (4) Completed qualitative studies on vulnerable communities & assets and their relationships (5) Development of messaging, information and resources that are translated in a diversity of languages (7) Number of resources distributed	Monthly	Geographic Information Systems Solid Waste & Sustainability Watershed Resources	Neighbors For Clean Air	Reduced Pollution Burden Community Health & Resilience
--	--	--	---	--	---	--	--	---------	---	-------------------------	---