

APPENDIX D MITIGATION ACTION WORKSHEETS

Blank Mitigation Worksheet

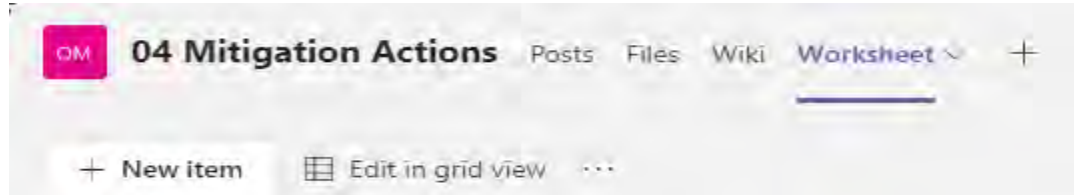
Mitigation Worksheet Instructions

Table Summary of Mitigation Action Worksheets for 47 projects



City of Seattle Hazard Mitigation Plan – 2020 Mitigation Action Worksheet

Worksheet is also available in MS List format (fill in form linked to Excel) on a new Teams Channel. Click “New Item” to enter each mitigation action.



1a. Mitigation Action Name: [Click here to enter text.](#)

1b. Mitigation Action Description: Provide a brief description of the action. Note if the action involves a cultural or historic resource.

[Click here to enter text.](#)

2a. Lead Department/Organization: [Click here to enter text.](#)

2b. Division/Line of Business (if applicable): [Click here to enter text.](#)

2c. Supporting Departments/Organizations: [Click here to enter text.](#)

3. Action Status: New Existing Potential (will not begin within 5 years)

NOTE: Completed actions should be reported in the Status updates (if in the 2015-2021 HMP) or in Capabilities under “Key Accomplishments.”

4. Type of Action (Check all that apply):

- Plans and Regulations Assessments and Studies Infrastructure/Capital Project
 Non-Structural Mitigation Measures Natural Systems Protection Education and Awareness

5. Hazards Addressed (Check all that apply):

- | | | |
|---|--|--|
| <input type="checkbox"/> All Hazards | <input type="checkbox"/> Flooding | <input type="checkbox"/> Snow and Ice Storm* |
| <input type="checkbox"/> Attacks | <input type="checkbox"/> HazMat Incidents/ Smoke | <input type="checkbox"/> Transportation Incident |
| <input type="checkbox"/> Cyber-attack/Disruption* | <input type="checkbox"/> Infrastructure/Structural Failure | <input type="checkbox"/> Tsunami/Seiches |
| <input type="checkbox"/> Disease Outbreaks | <input type="checkbox"/> Landslides | <input type="checkbox"/> Volcanic Hazards |
| <input type="checkbox"/> Earthquakes* | <input type="checkbox"/> Power Outages* | <input type="checkbox"/> Water Shortages |
| <input type="checkbox"/> Excessive Heat Events | <input type="checkbox"/> Social Unrest | <input type="checkbox"/> Windstorms* |
| <input type="checkbox"/> Fires | | |

NOTE: Hazards with an asterisk (*) are ranked as the highest risk in the SHIVA.

6a. Hazard Mitigation Plan Goals Supported (Check all that apply):

- Life and Safety Critical Infrastructure Protection Property Protection
 Natural, Historic or Cultural Resource Protection Resilient Economy Integrated Planning

6b. Race and Social Justice Focus Areas (Check all that apply): The action could reduce race-based disparities in any of the following focus areas (from Taskforce for Investments in the Black, Indigenous and People of Color Community).

- Inclusive Economy Climate Justice Community Safety Education Opportunity
 Community Supports (safety net) Community Wealth Building

6c. Description: Briefly describe how the action can have a positive impact in selected focus areas?
[Click here to enter text.](#)

7a. Location: Provide information about the geographic location(s) of an action.

- Citywide, no specific or targeted location
 District or Neighborhood
 Specific Site(s)

7b. Location Description: Provide addition information about location such as the name of the neighborhood or district, or address(es) for specific sites. [Click here to enter text.](#)

7c. Benefit Area: Describe the geographic area (citywide, district, neighborhood) that will benefit from this action. [Click here to enter text.](#)

8. Timeline: Immediate < 1 year 1 – 3 years 3 – 5 years

NOTE: Actions that will not begin within five years should be identified as a Potential Action in #3. Action Status.

9a. Anticipated Cost (if known): [Click here to enter text.](#)

9b. Funding Available: Yes Anticipated No

9c. Funding Source: Existing Budget Grant Bond/Levy No/minimal cost
 Other: [Click here to enter text.](#)

10. Date: [Click here to enter text.](#)

11. Contact Information:

Name: [Click here to enter text.](#) **Phone:** [Click here to enter text.](#) **E-Mail:** [Click here to enter text.](#)

12. Prioritization Criteria:

Mitigation Impact Criteria – How effective is this action? How does it impact broader City goals?

Mitigation Impact Criteria	Evaluation Rating	
Mitigation Effectiveness. Will the implemented action result in lives saved?	High = H Medium = M Low = L	
Mitigation Effectiveness. Will the implemented action result in a reduction of disaster damage?		
Multiple Benefits. Will the action provide multiple community benefits beyond mitigation?		
Collaboration. Will the action require collaboration between City departments and/or the community?		
Racial Equity. Will the action reduce hazard vulnerability for BIPOC communities?		

STAPLEE Criteria - How implementable is this action?

STAPLEE Criteria	Evaluation Rating	
Social: What is the anticipated level of public support for the overall implementation and specific mitigation action?	High = H Medium = M Low = L	
Technical To what degree is the proposed action technically feasible?		
Administrative What level of staff and capabilities necessary to implement the action is available?		
Political Is there political support to implement and maintain the action?		
Legal To what degree are proper laws, ordinances, and resolutions in place to implement the action?		
Economic How much do benefits seem to outweigh the costs?		
Environment Will the action positively affect the environment (land, water, endangered species)?		



City of Seattle Hazard Mitigation Plan – 2020 Mitigation Action Worksheet INSTRUCTIONS

The following instructions are designed to assist City of Seattle departments and community partners in identifying and prioritizing mitigation actions for the 2020 Hazard Mitigation Plan Update. The instructions supplement the 2020 Mitigation Action Worksheet and are meant to provide additional information for each of the worksheet elements.

You have two options for filling in and submitting the worksheet:

- **WORD document** – fill in save file with extension your dept acronym and upload to the Teams 04 Mitigation Action, Files. If you choose to submit your mitigation actions as a WORD document, please bundle all the actions for your departments into a single WORD file.
- **MS LIST “Worksheet”** - online form (a fill-in form linked to Excel) on Teams (or Sharepoint). If you enter mitigation actions here, you do not need to send any files to OEM. See page 8 for tips and instructions on using Worksheet.

General Guidance for Generating Mitigation Actions and Potential Actions

- Action should address the goals and objectives. Review the goals and strategies. (see #5).
- Action should be strategic, and could be implemented by multiple projects, plans or programs. For example, A group of ten related of capital projects would be one action, not ten actions. It should not be a standard or routine business practice.
- Actions should progress within a five-year period. They do not need to be fully implemented, but projects should begin substantially progress over that period.
- If an action does not meet the five-year criteria, but could become a high priority for your department, identify it as a **Potential Action** in question 3. Status. Potential Actions will not be included in the Mitigation Strategy table in the Plan but will be tracked by OEM for future mitigation funding opportunities.
- Consider your department’s goals and initiatives for race and social justice. Think about how mitigation actions could better address those goals.
- Consider including a Plans action for your department to reflect any longer-range plans that includes or could include strategies or actions that reduce risk to hazards.
- Scan HMPs from other cities for ideas, especially those from large cities or west coast cities. Some plans can be found on Teams – Background - Files.

1. Mitigation Action:

Describe your action in a manner detailed enough to be understood by the plan’s readers. Consider using the SMART method of describing objectives to develop your actions:

- **Specific** – target a specific area for improvement.
- **Measurable** – quantify or at least suggest an indicator of progress.
- **Assignable** – specify who will do it.

- **Realistic** – state what results can realistically be achieved, given available resources.
- **Time-related** – specify when the result(s) can be achieved.

2a, 2b, 2c. Lead and Supporting Department/Organization:

Identify what City department(s), or community partner(s), would be primarily responsible for implementing the action. If your department is large, identify the division or line of business associated with the action. Identify any other City departments or community partner(s) that will be supporting the project.

3. Action Status:

- **New Action**– The action is new and will be included for the first time in the 2020 plan update.
- **Existing Action** – The action was implemented prior to the 2020 plan update but is ongoing, and additional or ongoing action is required for completion.
- **Potential Action** – The action is speculative. It may not begin within the next five years, but could become a higher priority in future

4. Type of Action:

Type of Action	Description	Examples
Plans and Regulations	Regulatory actions or planning processes that result in reducing vulnerability to hazards. These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.	<ul style="list-style-type: none"> ▪ Comprehensive plans ▪ Director’s Rules ▪ Department Standard Operating Procedures ▪ Land Use Plans ▪ Subdivision regulations ▪ Building codes and enforcement ▪ NFIP Community Rating System ▪ Capital improvement programs ▪ Open Space Preservation ▪ Stormwater management regulations and master plan
Assessments and Studies	These actions are taken to better understand the potential impacts of identified hazards.	<ul style="list-style-type: none"> ▪ Seismic studies of City facilities
Infrastructure/Capital Project	These actions involve modifying existing buildings, structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.	<ul style="list-style-type: none"> ▪ Utility undergrounding ▪ Structural retrofits ▪ Non-structural measures ▪ Sea walls and retaining walls ▪ Detention and retention structures ▪ Culverts
Non-Structural Mitigation Measures	These actions are physical actions taken that do not include structural modifications.	<ul style="list-style-type: none"> ▪ Secure furniture ▪ Install backup generator
Natural Systems Protection	These actions minimize damage and losses and also preserve or restore the functions of natural systems and cultural and historic resources.	<ul style="list-style-type: none"> ▪ Sediment and erosion control ▪ Stream corridor restoration ▪ Green space management ▪ Conservation easements ▪ Wetland restoration and preservation ▪ Identification of historic and cultural resources in high hazard

Type of Action	Description	Examples
<p>Education and Awareness</p>	<p>These actions inform and educate residents, elected officials, and property owners about hazards and potential ways to mitigate them. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to lead to direct actions.</p>	<p>areas</p> <ul style="list-style-type: none"> ▪ Radio or television spots ▪ Websites with maps and information ▪ Real estate disclosure ▪ Presentations to school groups or neighborhood organizations ▪ Mailings to residents in hazard-prone areas ▪ StormReady ▪ Firewise Communities

5. Hazards Addressed:

This section lists all the hazards identified in the 2019 update of the *Seattle Hazard Identification and Vulnerability Analysis (SHIVA)*. Hazards with an asterisk (*) are the top five hazards as ranked in the SHIVA, however a comprehensive mitigation plan must identify actions that address all 18 hazards. Check all hazards that will be mitigated by the action. If it is a general action, then check “All Hazards.” Your department may have a specific responsibility for reducing the risk of certain hazards. If so, you may wish to focus your actions on those key hazards. Actions to address wildfire smoke are in the HazMat Incident category.

Examples:

- Seattle City Light should develop actions to reduce the effects of power outages.
- The Seattle Fire Department and Department of Transportation may develop actions to address hazardous materials.
- Seattle Public Schools should develop actions, in coordination with the Seattle Police Department, to address active shooter incidents.

6a. Hazard Mitigation Plan Goals Supported:

Identify which of the 2020 Hazard Mitigation Goals the action supports (you may select more than one):

GOAL 1: Protect **life and safety** and promote community resiliency.

- Objective 1.1. Conduct hazard specific public outreach to vulnerable areas.
- Objective 1.2: Reduce the possibility of damages and losses resulting from disease/pandemic hazards.
- Objective 1.3: Promote community resiliency through a comprehensive approach to preparing for the impacts of a changing climate.
- Objective 1.4: Increase the resiliency of the City’s food system.
- Objective 1.5: Enhance the City’s response capacity.

GOAL 2: Safeguard **critical infrastructure** and ensure continuity of service.

- Objective 2.1. Ensure system redundancies and backup power are available to support key City functions.

- Objective 2.2. Ensure protection of the City’s information technology infrastructure.

GOAL 3: Protect public and private **property.**

- Objective 3.1: Reduce the possibility of damages and losses to City facilities and infrastructure from earthquakes and other geo-physical hazards.
- Objective 3.2: Reduce the possibility of earthquake-related damages and casualties due to Unreinforced Masonry Buildings.
- Objective 3.3: Reduce the possibility of damages and losses resulting from weather hazards.
- Objective 3.4: Reduce the possibility of damages and losses resulting from transportation and infrastructure hazards.
- Objective 3.5: Reduce the possibility of damages and losses resulting from intentional acts of destruction.
- Objective 3.6: Ensure that City building codes reflect the latest standards in seismic safety.

GOAL 4: Protect the natural environment and cultural and historic resources.

- Objective 4.1: Determine the earthquake vulnerability of historic landmarked properties.
- Objective 4.2: Reduce the use of or minimize the impacts of the use of potentially hazardous substances in City operations.

GOAL 5: Promote a **resilient economy.**

- Objective 5.1. Collaborate with local business to promote hazard mitigation.

GOAL 6: Promote a collaborative and **integrated mitigation program.**

- Objective 6.1: Incorporate hazard mitigation into other City plans and programs.
- Objective 6.2. Engage external partners in the City’s mitigation planning process.

6b. Race and Social Justice Focus Areas:

Integrating race and social equity into the HMP is evolving. Methods proposed in this update may need more work. We look forward to feedback and more conversation with MWG to further refine our approach.

Below are focus areas for the City’s Taskforce for Investments in BIPOC Communities. Indicate if the action has the potential to reduce race-based disparities in these focus areas (you may check more than one).

Focus Area	Examples
Inclusive Economy	Develop a contingency planning toolkit for small businesses in multiple languages.
Climate Justice	Accelerate flooding and sewer backup prevention projects in BIPOC neighborhoods.
Community Safety	Provide disaster preparedness training to BIPOC community-based organizations.
Community Supports (safety)	Affordable housing seismic retrofit. Increase the quantity and quality of emergency food available.

net)	
Community Wealth Building	Integrate education about hazards into trainings for low income HH first time home buyer programs.
Education Opportunity	Assess early learning centers for seismic retrofits.

6c. Description:

Briefly describe how the action will have a positive impact in the selected focus areas. Example: Retrofitting early learning centers, which provide services to children from low income HH, will allow these centers to recover/ reopen more quickly after an earthquake.

7a & b. Location and Location Description:

As part of the update, OEM would like to collect location information that could be used to develop a GIS map of mitigation actions. For those projects with a specific location(s) (site, neighborhood, district), provide the name of the neighborhood(s), district(s) or the street address(es). If there is a long list of site addresses, it is not necessary to list in the worksheet. Instead note the number of locations, and if GIS data is available.

7c Benefit Area:

Briefly describe the area that will benefit from the action. Sometimes the location of a mitigation action may provide benefits to a much wider area., note the geographic area (citywide, district, neighborhood) that will benefit from this action. For example, seismic improvements to a major bridge may be in a specific neighborhood but will benefit the whole city.

8. Timeline for Implementation:

Indicate the expected timeline for completion of the action. Mitigation actions included in the plan are expected to begin implantation and show progress within five years. If your mitigation action does not meet this criterion, indicate it is a Potential Action in #3.

9a. Anticipated Cost (if known):

If possible, identify the estimated cost of the action based on best available data. If the cost is unknown, you may make a more qualitative assessment of the cost impact based on the following considerations:

- **High** – Existing funding levels are not adequate to cover the costs for the proposed action, and implementation would require an increase in revenue through alternate sources.
- **Medium** – The action could be implemented with existing funding but would require a reapportionment of the budget or a budget amendment, or the cost of the action would have to be spread out over time.
- **Low** – The action could be funded under the existing budget. The action is part of or can be part of an existing or ongoing program.

9b &c. Funding Available & Funding Source:

Identify whether funding for the action is currently or is anticipated to be available. If funding is available, please identify the anticipated funding source (e.g., existing budget, grants, bond/levy). The cost of some actions may consist only of staff time and administrative resources.

10. Date: Indicate the date the Worksheet was completed.

11. Contact Information: Contact should be the person could confirm information or provide additional information as needed. This could be you (MWG member) or another staff person at your department.

12. Prioritization Criteria

OEM will use the following ratings to identify potential projects for future funding opportunities. As criteria or programs vary, and new criteria or funding may arise, this information is not absolute. At the November 4th Meeting the MWG will review methods for developing an overall project ranking based on these criteria.

Mitigation Impact Criteria considers mitigation effectiveness, other benefits, and the City’s RSJI goals. Use the prompt questions to evaluate the degree of effectiveness or positive impact of each action.

Mitigation Impact Criteria	Evaluation Rating	
Mitigation Effectiveness. Will the implemented action result in lives saved?	High = H Medium = M Low = L	
Mitigation Effectiveness. Will the implemented action result in a reduction of disaster damage?		
Multiple Benefits. Will the action provide multiple community benefits beyond mitigation?		
Collaboration. Will the action involve collaboration between City departments and/or the community?		
Racial Equity. Will the action reduce hazard vulnerability for BIPOC communities?		

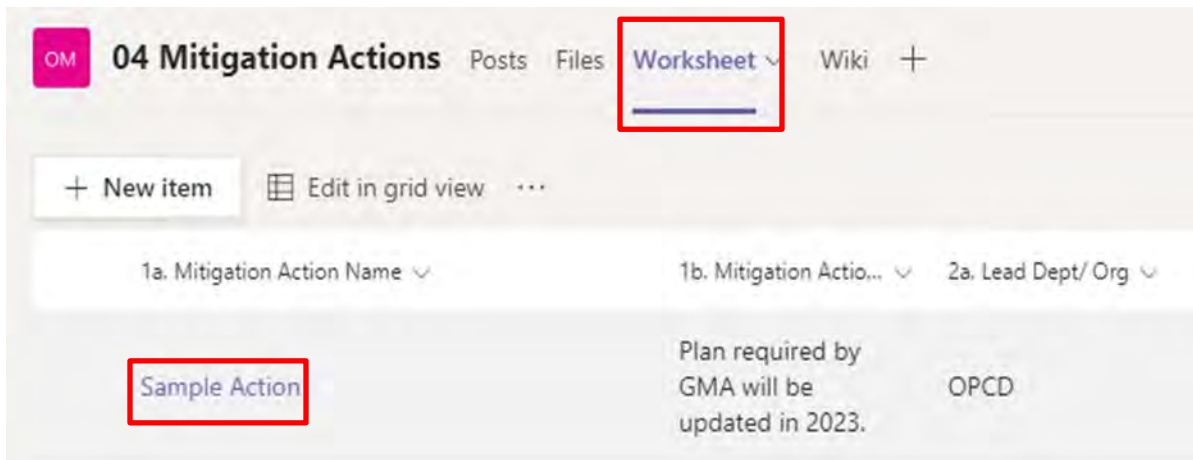
STAPLEE is an acronym for the seven criteria for action feasibility. Use the prompt questions to evaluate how well the criteria for each action is met.

STAPLEE Criteria	Evaluation Rating	
Social: What is the anticipated level of public support for the overall implementation and specific mitigation action?	High = H Medium = M Low = L	
Technical To what degree is the proposed action technically feasible?		
Administrative What level of staff and capabilities necessary to implement the action is available?		
Political Is there political support to implement and maintain the action?		
Legal To what degree are proper laws, ordinances, and resolutions in place to implement the action?		
Economic How much do benefits seem to outweigh the costs?		
Environment Will the action positively affect the environment (land, water, endangered species)?		

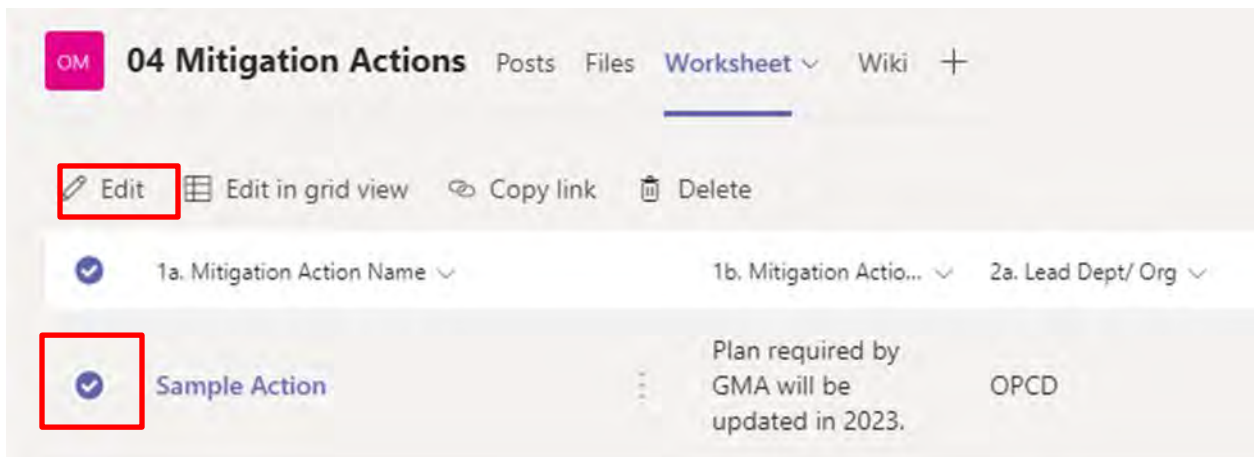
Submitting Mitigation Actions in Worksheet

The “Worksheet” is a fill in form created with the List App. It can be used in Teams or Sharepoint environments. The form has a series of fill in fields and pull-down menus to capture all the needed information for each mitigation action. The form is set up so you can enter some information, save, and return to the form later to edit or add information. Make sure to Save before exiting the form. You do not need to save after changing each item on the form.

1. Find Worksheet on Teams



2. **Get familiar with the New Item form.** Click the circle for “Sample Action” and then edit above. Explore what the form looks like and how it works. Make a change. Click Save at the top or the bottom left. Reopen the form to see if your change is still there.



04 Mitigation Actions Posts Files Worksheet Wiki +

Save Cancel Copy link

Sample Mitigation Action

1a. Mitigation Action Name *
Sample Mitigation Action

1b. Mitigation Action Description
Plan required by GMA will be updated in 2023.

2a. Lead Dept/ Org
OPCD

2b. Division/ Line of Business (if applicable)
Enter value here

2c. Supporting Dept/ Org
All Depts

3. Action Status
New

4. Type of Action
Plans and Regulations

5. Hazards Addressed
All Hazards

6a. HMP Goals Supported
Life and Safety, Integrated Planning

6b. RSJI Focus Areas
Inclusive Economy, Community Saf.

6c. Description
Enter value here

7a. Location *
Citywide, no specific or targete...

C4-Collaboration
Select an option

C5-Racial Equity
Select an option

C8-Administrative
Select an option

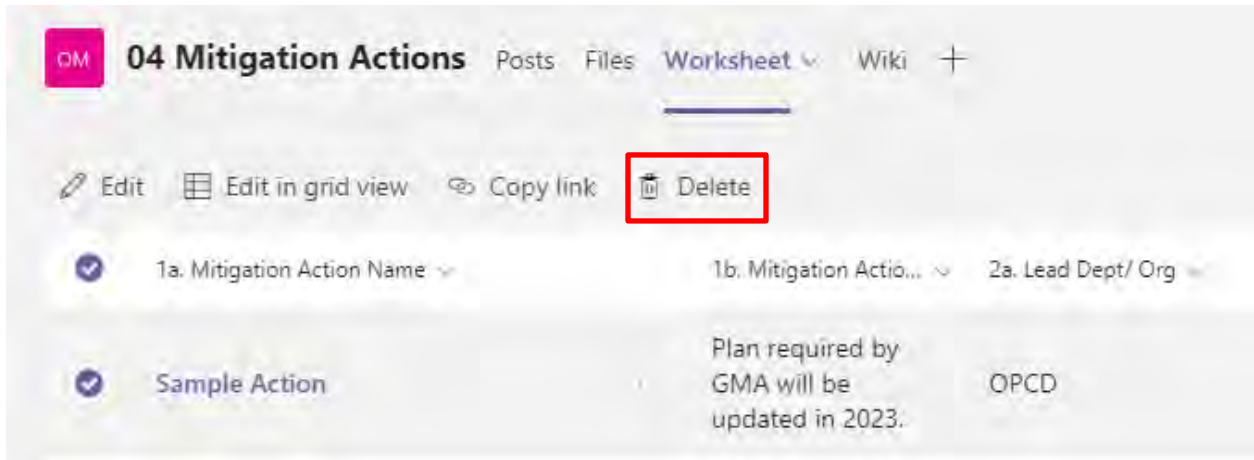
C9-Political
Select an option

C12-Environment
Select an option

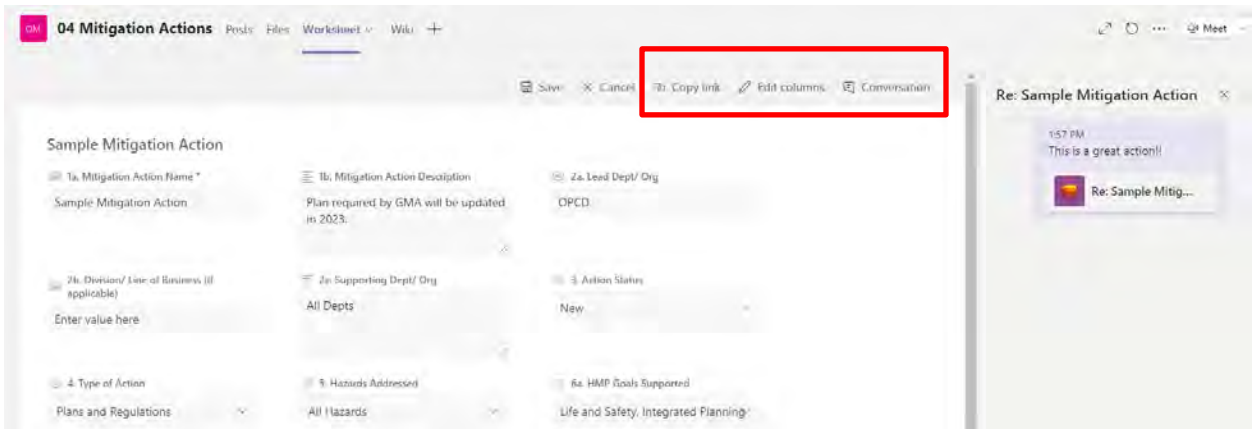
Attachments
Add attachments

Save Cancel

3. **Enter information for a Mitigation Action.** Click “New Item” to enter information for each mitigation action. Don’t forget to Save before closing the form. Click “New Item” to enter your next action.
4. **Edit or add information for a Mitigation Action.** Find the action you want to edit. Click the circle next to the action and then edit above. The form will open with the information you previously entered. Make changes or additions. Don’t forget to Save before closing the form.
5. **Delete a Mitigation Action.** Find the action you want to delete. Check the circle next to the action. Choose delete from the menu above.



6. **Sharing with Others.** You can share links and manage access for each action. There is a chat that can be used to ask questions or gather comments about an action from your colleagues. You can also attach documents to each form that has more detailed information.



A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG						
Count	Number	Title	1b. Mitigation Action Description	2a. Lead Dept/ Org	2b. Division/ Line of Business (If Applicable)	2c. Supporting Dept/ Org	3. Action Status	4. Type of Action	5. Hazard Addressed	6a. WMP Goals Supported	6b. RSI Focus Areas	6c. Description	7a. Location	7b. Location Description	7c. Benefit Area	8. Timeline	9a. Anticipated Cost (If Any)	9b. Funding Available	9c. Funding Source	10. Date	C1-Live Save	C2-Reduce Damage	C3-Multiple Benefits	C4-Collaboration	C5-Racial Equity	C6-Social	C7-Technical	C8-Administrative	C9-Publicity	C10-Legal	C11-Economic	C12-Environment						
1	FAS1	Seattle Animal Shelter Emergency Generator	The Seattle Animal Shelter existing generator was assessed in the aftermath of an extended power outage during the February 2019 winter storm. The generator was determined to have excess capacity to take on more electrical load. This offers an opportunity to provide backup power for portions of SAS critical operations (e.g. animal care, above and beyond what the generator powers for life safety requirements). However, during the replacement of the breaker connecting the generator to the building electrical system, it was discovered that the current wiring size on the electrical system was inadequate to match the additional load. To safely and properly use this additional capacity, the mitigation project would involve: Re-evaluating the Animal Shelter's emergency power needs to continue their critical operations, and Re-wiring the electrical components by increasing wiring size to match the full capacity of the generator.	Finance and Administrative Services	Facility Operations	Capital Development	New	Non-Structural Measures	Earthquakes, Power Outage, Wind Storms, Snow, Ice and Extreme Cold	Life and Safety, Property Protection	Community Safety	SAS handles all lost pets within the Seattle city limits, animal control, pet adoptions and boarding. Gray and Beaver Clinic is used. Improve preserve health and welfare of the animals and occupants in the facility.	Specific Site, provide address below	2061 15th Ave W	Seattle Animal Shelter is a one-story building located in the Inter Bay commercial/industrial core. Using excess capacity on the emergency generator can support other critical SAS operational functions including animal care, refrigeration and communications.	3-5 years	No	Other		11/2/2020	Medium	Low	Medium	Low	Low	Medium	Medium	Medium	Medium	Medium	Medium	Low						
2	FAS2	Seismic Retrofit Facilities Improvement Program	FAS facilities include important City services, many of which will be critical in the event of an earthquake. The average building age of the FAS portfolio is 50 years old and many of these facilities were not built or retrofitted under modern seismic codes. These facilities are at risk of sustaining damage from an earthquake that could render the building unusable, or in even worse scenario of structural failure resulting in injury or death of the occupants. Especially vulnerable are FAS buildings that are not dedicated first responder facilities, yet still directly support emergency operations. The Seismic Retrofit Facilities Improvement Program would be initiated to 1. Hiring consultants to perform a preliminary engineering evaluation of the current FAS real property portfolio including retrofit cost estimates. The program would utilize the Critical Facilities Index, a scoring methodology developed in 2013, and funded through the FEMA Pre-Disaster Mitigation Grant. 2. Seismic retrofits will then be prioritized by developing a Master Plan for FAS facilities. This includes coordinating the evaluation and design process by specifying other non-seismic related projects planned to be executed, and, designating immediate occupancy standards for new construction for City facilities with mission critical functions. The outcome of this program would be to increase the City's seismic resiliency and reduce the risk of downtime to critical City services post earthquake.	Finance and Administrative Services	Capital Development	N/A	Potential	Studies and Assessments	Earthquakes	Life and Safety	Community Safety, Community Wealth Building, Community Support (Safety net)		This program would provide City employees greater protection during a seismic occurrence and allow the City to resume its continuity of operations to serve Seattle residents with safer and more expeditious responses. The seismic program supports growth in Urban Centers and Urban Villages by reducing the risk of downtime to critical City services during a seismic event. WMBE vendors, construction contractors and subcontractors may be contracted for design and construction work. This further promotes the City's RSI goal to employ WMBE businesses on City funded projects.	District or Neighborhood, provide name below	FAS owned properties	Citywide		No	Other		11/2/2020	Medium	High	Medium	Medium	High	Low	Medium	High	Low	Low	Medium	Low					
3	FAS3	Install ShakeAlert Technology into Elevation	Install ShakeAlert technology into express elevators in SMT to send signal to the automated building emergency system that reads the elevators to be sent to ground floor. This is a nonstructural project costing through Oct. 2021. Anticipated cost to be \$15,000 and funded through operations budget. Where applicable, installation of ShakeAlert will expand to other buildings beyond SMT when elevator modernization or similar infrastructure project is funded. Project co-sponsored by OEM to connect city facilities to the USGS supported earthquake early warning system.	Finance and Administrative Services	Logistics and Emergency Management	Facility Operations	New	Non-Structural Measures	Earthquakes	Life and Safety, Critical Infrastructure Protection, Property Protection	Community Safety	ShakeAlert can provide seconds to minutes of warning about an earthquake before the ground starts shaking. It can provide verbal alerts to people or automated alerts to equipment.	Specific Site, provide address below	Seattle Municipal Tower	ShakeAlert is one of the components of the City's Downtown Civic Campus. Built in 1980, it is one of the tallest buildings in Seattle, and with a population of nearly 5,000 workers. It is primary office facility for multiple city departments and includes a number of critical city operations.	3-8 years	\$ 15,000	Yes	Existing Budget		11/2/2020	Medium	Low	Low	Low	Low	Low	High	Medium	Low	Low	High	Low					
4	HSD1	Flood Security	Increase community capacity for emergency feeding in 2021. HSD will develop a 3-5 year strategic feeding plan that will include 1) capacity building to increase food system resilience, 2) continuous improvement from 2019 winter storm and 2020 COVID-19 responses, including the identification of key city departmental risks, 3) new standard operating procedures for emergency feeding, 4) new communication structure and protocol with community agencies for meeting food needs in an emergency, and 5) investments in BPOC food and meal programs so they can be responsive to their local communities in a timely manner.	Human Services Department	Food & Nutrition	OS, DON	New	Plans and Regulations	All Hazards	Life and Safety	Community Support (Safety net)	Strengthen community capacity for emergency feeding and collaboration	Citywide, no specific or targeted location	Citywide		1-3 years		Anticipated		11/2/2020	Medium	Low	High	Medium	Medium	Medium	High	High	Medium	Medium	Medium	Medium						
5	ITD1	Communication Site on Wheels	Create 3-6 stand alone Communication Site on Wheels (CSOW) intended to provide localized communications in and around a specific venue or larger incident scene. CSOW for trunked radio, cellular, Wi-Fi, and Point to Point Network (Canyo) 3-6 Trainers. Initially provide emergency communication for first responders eventually could be reallocated to provide public Wi-Fi access for residents to allow for incident information and access to city, state, and federal emergency response programs.	ITD	Technology Infrastructure	SCL, SDOT, SPD, SFD, SPU, FAS, SPSA, HSD, SOG	New	Non-Structural Measures	All Hazards	Life and Safety	Community Safety	Provides access to essential communications during an event or incident.	District or Neighborhood, provide name below	North, Central, South, West, locations in Seattle	Seattle Area		1-3 years	\$ 600,000	No		11/17/2020	High	High	High	High	High	High	High	High	High	Medium	High	Medium					
6	OEM1	Community Led Mitigation Projects	Expand partnerships between the City and community based organizations to plan, fund and implement mitigation projects. Incorporate targeted outreach to high priority community service drops.	OEM		DON, OH	New	Plans and Regulations	All Hazards	Life and Safety, Property Protection, Critical Infrastructure Protection, Resilient Economy	Inclusive Economy, Climate Justice, Community Safety, Education Opportunity, Community Support (Safety net), Community Wealth Building	Projects are TBD and could address any of the RSI focus areas.	Citywide, no specific or targeted location	Citywide		3-5 years		No				Medium	Med	Medium	High	High	High	Medium	Medium	Medium	Medium	Medium						
7	OEM2	Hazard Mitigation Program Equity Analysis	OEM and MWG will undertake an analysis to better integrate equity into the hazard mitigation program. The analysis will use location data (specific sites, benefit areas, socially vulnerable populations) and hazard data to further understand which mitigation actions could improve outcomes for vulnerable and BPOC communities. The analysis will also be used to create equity criteria that could be used to prioritize mitigation actions.	OEM			New	Assessments and Studies	All Hazards	Integrated Planning	Climate Justice	This project will add transparency to where mitigation investments are being made, and where benefits would accrue.	Citywide, no specific or targeted location	Citywide		3-5 years		No				Medium	Low	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium						
8	OEM3	Update Home Retrofit Education Program	The materials for this existing education program will be updated to reflect the latest changes in the Project Impact plan set and guidance to residents on retrofitting their home and process for obtaining required permits. SOG is expecting a new plan set template to be available some time during 2021.	OEM		SOG	Existing	Education and Awareness	Earthquakes	Life and Safety, Property Protection	Community Safety		Citywide, no specific or targeted location	Citywide		< 1 year		No																				
9	OEM4	Ongoing support for URM Retrofits	Support ongoing efforts to identify additional financial resources, policies, programs, and partnerships to reduce risks posed by URMs. For example, support King County's efforts to develop Commercial Property Assessed Clean Energy + Resilience (C-PACER) program that could provide low cost, low term financing to property owners to implement URM retrofits. Continue outreach and education efforts to promote the benefits of URM seismic retrofits.	OEM			Existing	Plans and Regulations	Earthquakes	Life and Safety, Property Protection	Community Safety	Chittenden ID and Columbia City have a concentration of URMs and would be disproportionately affected by an earthquake.	Citywide, no specific or targeted location	Citywide		1-3 years		No			1/1/2021	High	High	Low	Medium	Medium	Medium	Medium	Medium	Medium	Low	Medium	High	Low				
10	OPCD1	Comprehensive Plan Update	MS Growth Management Act requires Seattle to update the comprehensive plan by June 2022. This is a foundational plan that guides Seattle's growth and development. This update will include more data/mapping on hazards and will provide more policy guidance about resilience and climate adaptation.	OPCD	Long Range Planning	All Dept	New	Plans and Regulations	All Hazards	Life and Safety, Critical Infrastructure Protection, Resilient Economy, Integrated Planning	Inclusive Economy, Community Safety	Plan for future growth in ways that enhance equity and mitigate impacts to BPOC communities. Program to advance environmental justice and equitable development, prioritizing the needs of those most affected by racial inequities and health disparities. This project is a long-term strategy in the Plan, will mitigate and adapt to flood risk, and support the ability of people and businesses to thrive in place. The goals of this strategy include: 1. Define Physical Adaptation Response in partnership with stakeholders, including a suite of adaptation projects that will advance at various scales and timing. Without the project, the flooded private parcel storage (inclusive of off high ground RDM) during the 1% annual exceedance probability is expected to increase from 11 to 63 acres between 2020 and 2030. This area is home to most of the 500 jobs in South Park. 2. Co-develop, through community collaborations, agreement on models, standards, guidelines, and data used in adaptation planning to produce flexible, multi-benefit, policy, regulatory, and financing solutions. 3. Co-develop a Resilience District that for the Lower Duwamish Valley, that includes a community-led organization with the capacity to attract and deploy capital at scale, to enter into formal agreements with agencies, and to lead and partner on environmental justice, equitable development and climate change adaptation projects and programs. Design and implementation of the project.	Citywide, no specific or targeted location	citywide plan	Citywide		10/9/2020	Low	Low	High	High	High	High	High	Medium	High	High	High	High	High	High	High	High	High	High	Low	Medium	
11	OSE1	Duwamish Valley Resilience and Adaptation Planning	Duwamish Valley Program (DVP) is an ongoing partnership between the City and the communities of South Park and Georgetown to address health outcomes, displacement, flooding, and climate change. Two related projects will address flooding due to sea level rise. Funding from the Robert Wood Johnson Foundation will support planning for a "resilience district" including scenario planning for a sea level rise adaptation strategy, research on financial models and equitable investment mechanisms, capacity building, inclusive community engagement, and implementation of "proof of concept" projects. A second project will develop designs and an implementation plan for constructing multi-purpose sea level protection infrastructure in the South Park neighborhood that will protect the area from flooding due to sea level rise, and to help residents and businesses thrive in place. A series of levees and flood walls would promote important marine industrial businesses, increase community access to the water, create open space, reduce the likelihood of potential future recontamination of the Duwamish River Superfund site, and improve habitat. The technical feasibility of implementing sea level rise protection infrastructure in South Park was documented in the USACE's report "Preliminary Flood Risk Management Study for the Duwamish River at South Park"	OS/OPCD/Lead		SPU, SPU, SDOT, OH, MO, RWJF	New	Assessments and Studies	Floods/Excessive Heat/Critical Infrastructure Failure	Life and Safety, Critical Infrastructure Protection, Resilient Economy, Integrated Planning	Inclusive Economy, Climate Justice, Community Safety, Education Opportunity, Community Wealth Building		District or Neighborhood, provide name below	Duwamish Valley (primarily in the industrial areas of the South Park neighborhood)	South Park and Georgetown neighborhoods	< 1 year	\$ 600,000	Yes	The Grant			Low	High	High	High	High	High	High	High	High	High	High	Medium					
12	SCL1	SCL Systems Operation Center Seismic Retrofit	Design and construction	SCL			Existing	Infrastructure/Capital Projects	Earthquakes	Life and Safety, Critical Infrastructure Protection, Resilient Economy	Community Safety	A resilient system will support RSI communities who are more impacted by power outages.	Citywide, no specific or targeted location	Systems Operation Center is located in the Fremont neighborhood.	Systemwide						12/2/2020																	
13	SCL2	Seismic Review of Vaults & Substations	An update of a 1993 study.	SCL			Existing	Assessments and Studies	Earthquakes	Life and Safety, Critical Infrastructure Protection	Community Safety		TBD		1-3 years	\$ 200,000	Anticipated			12/2/2020																		
14	SCL3	Substation Seismic Upgrade	14 substations require retrofit. Average cost is about \$600,000 per substation. Project begin in 2024 and will take 15 years to complete.	SCL			Existing	Infrastructure/Capital Projects	Earthquakes	Life and Safety, Critical Infrastructure Protection	Community Safety		TBD		3-5 years	\$ 8,400,000	Yes	Existing Budget			12/2/2020																	
15	SCL4	Non-structural Mitigation at SCL Facilities	This project will include seismically designed storage racks for critical parts and supplies, and will secure furniture.	SCL			Existing	Non-Structural Measures	Earthquakes	Life and Safety, Critical Infrastructure Protection, Property Protection	Community Safety		TBD		3-8 years		Yes				12/2/2020																	
16	SCL5	Install Impact Recordors at Substations		SCL			Existing	Non-Structural Measures	Earthquakes	Life and Safety, Critical Infrastructure Protection			TBD		1-3 years		No				12/2/2020																	
17	SCL6	Map Cell Towers & Identify Feeders		SCL			Existing	Assessments and Studies	Earthquakes, Power Outage, Snow, Ice and Extreme Cold/Wind Storms	Critical Infrastructure Protection		TBD			1-3 years		Yes				12/2/2020																	
18	SOCI	Ongoing Support for URM Retrofits	Support ongoing efforts to reduce risks posed by URMs, such as: update the confirmed URM inventory quarterly (review demolished buildings and retrofitted buildings); update the confirmed URM inventory of City worked buildings to help identify future funding opportunities; update the proposed URM retrofit technical standard to reflect changes in national/international building standards	SOCI			Existing	Plans and Regulations	Earthquakes	Life and Safety, Property Protection	Community Safety, Community Wealth Building, Community Support (Safety net)	Many URMs are located in equity focus areas such as Chittenden ID, Pioneer Square and Columbia City.	Citywide, no specific or targeted location	Citywide	Citywide	3-5 years		Yes	Existing Budget		1/14/2021	High	High	High	High	High	High	High	High	High	High	Medium	Low					
19	SDOT1	N. Northlake Way Seawall Replacement	Seismically retrofit a falling 66-year-old timber and steel retaining wall. The wall is 423 ft in length and 14 feet high. The retaining wall supports a sidewalk, the N. Northlake Way roadway, and provides access for the adjacent maritime businesses. Overhead power lines and several buried utilities are dependent on the retaining wall. A replacement retaining wall will also provide an environmental benefit by removing the existing cross-braced timbers and preventing the flow of asphalt and fill into Lake Union. The project is scheduled in 2022-23 planning and development, 2023-2022 final design and permitting, and construction in 2023.	SDOT	Roadway Structures Division	SOCI	New	Infrastructure/Capital Projects	Earthquakes, Power Outage, Infrastructure Failure	Life and Safety, Critical Infrastructure Protection		The project will protect Lake Union, secure North Northlake Way, protect the historic maritime businesses adjacent to the project, and protect the traveling public from a retaining wall failure.	Specific Site, provide address below	1101 N Northlake Way	The geographic area around the project include Lake Union and the Burke-Gilman Trail.		1-3 years	\$ 20,000,000	Anticipated	Grant/Existing Budget	11/24/2020	Low	High	Medium	High	High	High	High	High	High	High	High	High					
20	SDOT2	West Seattle High Bridge	Strengthen and seismically upgrade the diminished structural integrity of the West Seattle Bridge high span. Restore traffic to the West Seattle high bridge which will improve travel to West Seattle, improve emergency response times, protect the Duwamish water way, and improve Port of Seattle terminal operations.	SDOT	Roadway Structures Division	SDOT	New	Infrastructure/Capital Projects	Earthquakes, Power Outage, Infrastructure Failure	Life and Safety, Critical Infrastructure Protection, Resilient Economy, Integrated Planning	Inclusive Economy, Climate Justice, Community Safety	The project will improve emergency response times by reopening the busiest arterial in the city. And the only route to West Seattle that does not cross a reversible bridge. The project's purpose is to protect and restore the West Seattle high bridge. The project will improve Port of Seattle operations, improve commute times for the South and South West Seattle workforces, and improve the accessibility to local businesses. The project will provide a more reliable transit system for BPOC communities in White Center, along the Skyway Avenue corridor, and in the Duwamish Valley. The project will also reduce noise and air pollution caused by the thousands of vehicles each day into BPOC communities. The project can improve the safety of people who ride bikes and walk in BPOC communities experiencing high traffic volumes from restored West Seattle bridge traffic.	District or Neighborhood, provide name below	West Seattle, Harbor Island, South Harbor Island	The West Seattle Peninsula, Harbor Island and South Seattle will benefit directly from this action. The city will benefit economically with improved access to the Port of Seattle terminal on Harbor Island and improved access to the fuel farm on Harbor Island serves the region.	1-3 years	\$ 47,000,000	Anticipated	Existing Budget/Grant	11/24/2020	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
21	SDOT3	Post Earthquake Arterial Damage Spot Repair Planning and Forecast		SDOT		SPU, SCL, SPS, WSDOT	New	Education and Awareness	Earthquakes, Infrastructure Failure	Life and Safety, Critical Infrastructure Protection, Resilient Economy, Integrated Planning			TBD	Citywide		1-3 years	\$ 80,000	No	Grant		12/10/2020	Medium	Medium	Medium	High	Low	High	High	High	High	High	Low						

Table with columns: ID, Number, Title, Description, Lead Dept/Org, Division/Line of Business, Supporting Dept/Org, Action Status, Type of Action, Hazards Addressed, VMP Goals Supported, RSI Focus Areas, Description, Location, Location Description, Benefit Area, Timeline, Anticipated Cost, Funding Available, Funding Source, Start Date, C3 Live Save, C3 Reduce Damage, C3 Multiple Benefits, C4 Collaboration, C5 Racial Equity, C6 Social, C7 Technical, C8 Administrative, C9 Political, C10 Legal, C11 Economic, C12 Environment. Rows include projects like Bridge Seismic Retrofit, Vision Zero, Seismic Retrofit of Historic Libraries, Improvements for Clean Air, Cooling Centers, and Seismic Retrofits of SFR Programmed Buildings.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG
Count	Number	Title	1b. Mitigation Action Description	2a. Lead Dept/ Org	2b. Division/ Line of Business (if applicable)	2c. Supporting Dept/ Org	3. Action Status	4. Type of Action	5. Hazards Addressed	6a. WMP Goals Supported	6b. RSI Focus Areas	6c. Description	7a. Location	7b. Location Description	7c. Benefit Area	8. Timeline	9a. Anticipated Cost (if known)	9b. Funding Available	9c. Funding Source	10. Date	C3-Lives Saved	C4-Reduce Damage	C3-Multiple Benefits	C4-Collaboration	C5-Racial Equity	C6-Social	C7-Technical	C8-Administrative	C9-Political	C10-Legal	C11-Economic	C12-Environment
38	SPU08	Green Infrastructure Incentive Program	Add DWR system capacity and resilience to climate change impacts, in addition to decreasing the impact of polluted runoff to water quality, through funding community-identified green stormwater infrastructure.	SPU	Drainage and Wastewater		New	Infrastructure/Capital Projects	Floods#Excessive Heat	Property Protection#Natural Resource Protection#Integrated Planning	Indusive Economy#Climate Justice#Community Wealth Building	Programs center community in how the projects are developed, and offer economic opportunity through design, construction, and materials supply.	Citywide, no specific or targeted location			3-5 years	\$ 30,000,000	Yes	Existing Budget	11/1/2020	Low	Medium	High	Medium	Medium	Medium	Medium	Medium	Medium	High	High	
39	SPU09	Wildfire Strategic Plan	Study potential wildfire impacts on the water supply watersheds, identify mitigation actions and implement the plan.	SPU	Water	UW, Washington State University, University of Idaho	New	Natural System Protection	Fires#Infrastructure Failure#Water Shortages	Life and Safety#Critical Infrastructure Protection#Property Protection#Natural Resource Protection#Resilient Economy#Integrated Planning			Cedar and Tolt watersheds	The Cedar and Tolt watersheds are located in the Cascades	Seattle and wholesale customers (outside Seattle)	< 1 year		Yes	Existing Budget	11/1/2020	Medium	High	High	Low	Medium	High	Medium	Medium	High	High	High	
40	SPU10	Cascade Dam Project	The design phase for a project that would replace existing dam with one that meets current seismic standards.	SPU	Water		New	Parameters and Studies	Earthquakes#Floods#Water Shortages	Life and Safety#Critical Infrastructure Protection#Property Protection#Natural Resource Protection#Resilient Economy#Integrated Planning			Near the town of Covington	Lake Youngs	Whole water system service area, 1.5 million people.	3-5 years		Anticipated	Existing Budget	12/20/2020	High	High	High	Medium	Medium	High	High	High	High	High	High	
41	SPU11	Water System Seismic Plan	This 50 year plan that identifies a series of potential projects to improve seismic resilience in the water system. Projects include investments in critical infrastructure and facilities and emergency response capabilities.	SPU	Water		New	Infrastructure/Capital Projects	Earthquakes#Floods#Water Shortages	Life and Safety#Critical Infrastructure Protection#Property Protection#Natural Resource Protection#Resilient Economy#Integrated Planning	Community Safety	Loss of water supply will have potentially greater impacts on poorer communities.	Citywide, no specific or targeted location	Regional wide (water system serves wholesale customers outside Seattle)	Whole water system service area, 1.5 million people.	Immediate	No	Other	12/1/2020	High	High	High	Medium	Medium	High	High	High	High	High	High	High	
42	SPU12	Landsburg Flood Passage Project	This project is going to be designed to allow flood waters and large woody debris to pass around the dam to prevent dam failure.	SPU	Water		New	Infrastructure/Capital Projects	Earthquakes#Floods#Water Shortages#Infrastructure Failure	Life and Safety#Critical Infrastructure Protection#Natural Resource Protection#Resilient Economy#Integrated Planning			Cedar River near Issaquah	Landsburg Facility	Regional wide (water system serves wholesale customers outside Seattle)	3-5 years		Anticipated	Existing Budget	12/1/2020	High	High	High	Medium	Medium	High	High	High	High	High	High	High
43	SPU13	Lake City Floodplain Park	The project will restore and reconnect the floodplain in the North Branch of Thompson Creek to a 0.9-acre parcel. The site area includes approximately 200 linear ft of stream, 22,000 sq. ft of potential floodplain habitat, and ~10,000 sq. ft of upland habitat. Restoration of the site will create multiple benefits including: decreased downstream flooding, improved water quality, reduced erosion and sedimentation, improved creek habitat for fish and aquatic life, greater system resiliency due to lower stream velocities, easier maintenance and future replacement of the undersized NE 125th culvert, and increased public access to green space.	SPU	Drainage and Wastewater	SPU, Mid Sound Fisheries Enhancement Group	New	Natural System Protection	Floods	Life and Safety#Property Protection#Natural Resource Protection#Integrated Planning	Climate Justice#Community Safety	The provide will provide more greenspace in the underserved community of Lake City.	2318 NE 125th St	Six block west of Lake City, next to Thompson Creek.	Lake City area	1-3 years		Anticipated	Grant#Existing Budget	1/4/2021	Low	Medium	High	High	High	Medium	Medium	Medium	High	High	Low	High
44	SPU14	Cedar Falls power service upgrade project	Cedar Falls power service upgrade project will improve the quality, capacity, and redundancy of electrical service to the Cedar Falls campus, Mousie Dam, and Overflow Dam. Phase 1 of a potential two-phase project or provide permanent power to the Mousie Lake emergency pump plant project.	SPU	SPU / Water	SCL	New	Natural System Protection	Earthquakes#Fire#Power Disruption#Water Shortages#Wind Storms	Critical Infrastructure Protection			Cedar Watershed	Cedar River Watershed	Whole regional water system, 1.5 million people.	1-3 years	\$ 12,000,000	Yes	Existing Budget		Medium	High	High	Medium	Medium	High	Medium	High	High	High	Medium	
45	SPU15	Comprehensive Peak Flow Program	Comprehensive peak flow program to replace undersized culverts in the Cedar River Watershed to account for 100-year flood events and near-term climate change.	SPU	Water		New	Infrastructure/Capital Projects	Floods#Infrastructure Failure#Landslide#Earthquakes	Critical Infrastructure Protection#Natural Resource Protection			Cedar and Tolt watersheds	Cedar and Tolt Watersheds	Whole water system, 1.5 million people.	3-5 years	\$ 1,500,000	Anticipated	Existing Budget		Low	Medium	Medium	Medium	Medium	High	High	High	High	High	High	
46	SPU16	Storage Capacity for the Chester Morse Reservoir	Study and design of a project to increase the storage capacity for the Chester Morse Reservoir during drought conditions and also providing new opportunities to evacuate the reservoir more quickly in flood conditions in the fall and winter.	SPU	Water	SCL	New	Infrastructure/Capital Projects	Floods#Water Shortages	Critical Infrastructure Protection#Natural Resource Protection			Cedar River Watershed	Cedar River Watershed	1.5 million people, Whole water system.	3-5 years		Anticipated			Medium	Medium	High	Medium	Medium	High	High	High	High	High	High	Medium
47	SPU17	Design and repair/replace of the Tolt Dam spillway	Design and repair/replace of the Tolt Dam spillway used to release water from the Tolt Reservoir in flood and other emergency conditions (i.e. earthquakes).	SPU	Water	SCL	New	Infrastructure/Capital Projects	Floods#Earthquakes#Infrastructure Failure	Critical Infrastructure Protection#Natural Resource Protection			Tolt Watershed	Tolt Watershed	Whole water system service area, 1.5 million people.	3-5 years		Yes	Existing Budget		High	High	High	Medium	Medium	High	High	High	High	High	High	High