

C40 Cities Climate Leadership Group

**Integrated Climate Actions Prioritisation
Framework, Process Guide and Tool**

Action Prioritisation Tool User Manual

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Introduction

Purpose of the User Manual

The purpose of this document is to provide specific instructions on how to use the C40 Action Prioritisation Tool, an Excel-based software tool that documents action information and provides graphic outputs to support the decision-making process through a comparison of action benefits and challenges. This Tool was developed by C40 to support cities in completing the steps of the Climate Action Prioritisation Process.

The User Manual begins with general information necessary to understand the Tool overall, followed by specific instructions on how to use each tab within the Tool.

The User Manual was designed as a concise explanation of how to use the specific Tool features. For an explanation of how to implement the overall prioritisation process, and detailed information on criteria definitions, calculation methodologies, stakeholder engagement, and other topics, refer to the Climate Action Prioritisation Process Guide.

General Information

Macros

The Tool is an Excel macro-enabled workbook designed specifically for the C40 Action Prioritisation Process. Macros must be enabled for the Tool to work properly. Upon opening the Tool, users will see a prompt and will need to click the “Enable Content” button (shown below) to enable macros.



Navigation

All tabs have a similar navigation bar at the top with buttons that allow users to navigate through the Tool following the steps of the prioritization process outlined in the Climate Action Prioritisation Process Guide.

Data Entry

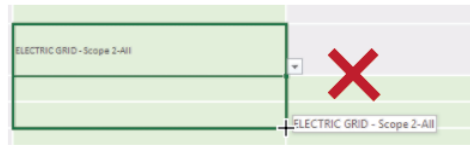
Throughout the Tool, cells colored in green will accept user data (shown below). Grey cells are calculation cells and are not editable. In some instances, grey cells will turn green following a user action, at which point the cells will become editable.

	Total GHGs (metric tonnes CO2e)	Percent of Total Emissions
	1,377,291	41%
Data Entry Cells	428,245	13%
	290,527	9%
	399,089	12%
	219,899	7%
		Calculated Cells

Avoiding Copy/Paste Errors

Users may copy and paste into green cells one at a time but should never copy and paste multiple cells at a time as this may inadvertently eliminate data or formulas in hidden cells.

Similarly, users should not click and drag a cell to copy it as this may also overwrite hidden cells.



Do not click and drag to copy cells

Tooltips and Help

Explanatory text can be found throughout the Tool. In the header of each tab, there is a short description of the tab's purpose and high-level instructions. Tooltips are delineated with an icon (🗨️)—clicking this icon will reveal a message box with specific instructions or tips.

User Manual

Step 1: Emissions and Climate Hazard Context

In this step, users enter information on the city's emissions sources and climate hazards. Click "Step 1: Emissions and Climate Hazard Context" in the navigation bar to begin.

Emissions Sources

Click "Emissions Sources" in the navigation bar and enter greenhouse gas emissions (in MT CO_{2e}) by subsector into the emissions sources screen. Subsector emissions and total Scope 2 emissions can be entered directly from the city's CIRIS inventory file on the Results_Overview tab. Or, users can find this information in the city's Pathways tool GHG inventory module; total Scope 2 emissions will need to be summed independently if this information is collected from the Pathways tool, and users should be sure to include all Scope 2 emissions from the Stationary Energy and Transportation sectors. Emissions subsectors omitted from the city's inventory can be left blank in the Tool.

Sector	Subsector	GPC Reference	Total GHGs (metric tonnes CO _{2e})	Percent of Total Emissions
STATIONARY ENERGY	All	I	1,377,291	41%
	Residential buildings	I.1	428,245	13%
	Commercial and institutional buildings and facilities	I.2	290,527	9%
	Manufacturing industries and construction	I.3	399,089	7%
	Energy industries	I.4.1/2/3	219,899	16%
	Energy generation supplied to the grid	I.4.4	Not included in Basic/Basic+	0%
	Agriculture, forestry and fishing activities	I.5	10,291	0%
	Non-specified sources	I.6		0%
	Fugitive emissions from mining, processing, storage, and transport	I.7		0%
	Fugitive emissions from oil and natural gas systems	I.8	19,240	1%
TRANSPORTATION	All	II	1,812,031	54%
	On-road transportation	II.1	1,113,501	36%
	Railways	II.2	11,833	0%
	Waterborne navigation	II.3	384,862	11%
	Aviation	II.4	186,738	6%
	Off-road transportation	II.5	14,947	0%
WASTE	All	III	176,851	5%
	Solid waste generated in the city	III.1.1/2	173,164	5%
	Biological waste generated in the city	III.2.1/2		0%
	Incinerated and burned waste generated in the city	III.3.1/2	95	0%
	Wastewater generated in the city	III.4.1/2	3,592	0%
	Solid waste generated outside the city	III.1.3	Not included in Basic/Basic+	NA
	Biological waste generated outside the city	III.2.3	Not included in Basic/Basic+	NA
	Incinerated and burned waste generated outside city	III.3.3	Not included in Basic/Basic+	NA
	Wastewater generated outside the city	III.4.3	Not included in Basic/Basic+	NA
IPPU	All	IV	-	0%
	Emissions from industrial processes occurring in the city boundary	IV.1		0%
	Emissions from product use occurring within the city boundary	IV.2		0%
AFOLU	All	V	-	0%
	Emissions from livestock	V.1		0%
	Emissions from land	V.2		0%
	Emissions from aggregate sources and non-CO ₂ emission sources	V.3		0%
TOTAL EMISSIONS			3,366,173	100%
ELECTRIC GRID - Scope 2			707,138.00	21%
	Emissions from electricity consumption city-wide	Scope 2	707,138	

1 Enter emissions by subsector

2 Enter scope 2 emissions

Climate Hazards

Click "Climate Hazards" in the navigation bar. First, enter information on which timeframe and emissions scenario climate hazard ratings will be based. Then, enter each climate hazard the city is considering, with ratings of likelihood and impact. Five climate hazards (i.e., rainfall flooding, storm surge and sea-level

rise, extreme heat, drought, wildfires) are included by default. Users can modify these options or add other hazards in the rows below.

Climate Hazards
Rate the likelihood and impact of all climate hazards relevant to your city based on a single timeframe and emissions scenario. Default climate hazards are provided, but these can be modified and additional climate hazards can be added in the empty spaces.

Climate Hazard	Likelihood	Impact	Risk
Extreme Heat	2	2	4
Drought	4	3	12
Wildfire	5	4	20
Rainfall Flooding	3	5	15
Coastal Flooding	3	4	12

Timeframe
Enter a year in the future for which the frequency and consequence of all climate hazards will be estimated.
2050

Emissions Scenario
Enter an emissions scenario for which the frequency and consequence of all climate hazards will be estimated.
RCP 8.5

① Enter timeframe and emissions scenario

② List all climate hazards

③ Rate likelihood and impact for each climate hazard

Once you have entered likelihood and impact ratings for all climate hazards, click this button to continue to Step 2 and begin entering actions.

[Continue to Step 2](#)

To the right of the likelihood and impact table is a reference table with the suggested definitions for each option. These tables are explained in greater detail in the Process Guide. Users have the option to customize the definitions based on local city context.

Tables summarizing options for likelihood and impact ratings are included for reference below. Cities may modify the definitions for rating options based on local context. For more information on rating likelihood and impact, please see the Process Guide.

[Customize Definitions](#) **Optional: Select "Customize definitions" and then make changes below**

Likelihood
Likelihood of a given climate hazard is the frequency at which the climate hazard is expected to occur by the chosen date under the chosen emissions scenario (recommended 2050, RCP 8.5). Likelihood is sometimes also referred to as probability.

Rating	Score	Definition
Very Low	1	Once every 20 years or less
Low	2	Once every 5-10 years
Medium	3	Once every 1-4 years
High	4	Annually
Very High	5	Several times each year or more

Impact
Impact of a given climate hazard is the consequences anticipated to people, assets, or services when the climate hazard does occur, whichever would experience the greatest impacts (such as hospital admissions from heat stroke, homes flooded, transit service disrupted). Impact is sometimes also referred to as consequence.

Rating	Score	People	Assets	Services
Very Low	1	Inconvenience/Discomfort	Very minor damage to some assets	Minor disruption of non-critical services
Low	2	Small number of injuries/illnesses	Minor but repairable damage to some assets	Major disruption of non-critical services
Medium	3	Large number of injuries/illnesses	Major damage to some assets	Prolonged disruption of non-critical services or short disruption of critical services
High	4	Small number of deaths	Widespread major damage to assets	Major disruption of critical services
Very High	5	Large number of deaths	Widespread destruction of assets	Prolonged disruption of critical services

Step 2: Action Development

Click "Step 2: Action Development" to show the Initial Action Entry screen. For each action, enter the following attributes into the table:

- Action Title** – a short phrase that succinctly describes the action (less than 100 characters). The title will identify the action in subsequent modules in the Tool, so it is important that the Action Title differentiate one action from another.
- Description** – a brief description (1-3 sentences) that provides more detail/context than the action title. The description will ensure that all participants have the same understanding of what the action will do in later stages of the prioritisation process.
- Primary Action or Sub-action**– actions that support another action (such as a feasibility study or funding action to implement a specific project) must be designated as 'sub-actions'. Actions that are supported by others are called 'primary actions.' A primary action can also stand alone, without any designated sub-actions.
- Primary Action Supported** – if an action is designated as a sub-action, the primary action that it supports must be identified. To select the corresponding primary action, click in the Primary Action Supported column for a drop-down menu of all previously entered primary actions. If the primary

action supported has not been entered yet, users can enter it into a new row, and it will appear in the drop-down menu of primary actions.

- Once all actions have been entered, click the “Load Actions” button to load the actions into the Tool. The Tool will automatically load all Primary Actions into the next step. Sub-actions will be bundled with their Primary Action.

Initial Action Entry

List all actions that are being considered by the city, provide a description, and indicate whether the action is a Primary action or Sub-action. For more information on primary actions and sub-actions, please see Step 1: Action Development in the Process Guide.

When all actions have been entered, click this button to load them into the next step:



Action Title <i>(less than 100 characters)</i>	Description <i>(1-3 sentences)</i>	Primary or Sub-action <i>Select Primary or Sub-action</i>	Primary Action Supported <i>Only necessary if the action is a sub-action</i>
Investigate Feasibility of Managed Retreat	Explore managed retreat options for vulnerable shoreline infrastructure through land acquisition and relocation programs.		
Evaluate feasibility of storm Surge barrier at Alamitos Bay	Conduct a feasibility study to evaluate construction of a storm surge / tide gate barrier at entrance to Alamitos Bay		
Dune Reinforcement	Embed coastal protection structure inside / underneath coastal dunes to harden shoreline and provide	Primary	
Active dune restoration	Convert sea-facing dunes to vegetated dunes through native plant restoration	Sub-action	
Passive dune restoration	Discontinue beach grooming and plant native dune species to allow natural vegetation to stabilize dunes and hold sand.	Sub-action	
Evaluate feasibility of Dutch "sand engine" for nourishment	Conduct a study to investigate the feasibility of large-scale nourishment programs such as the Dutch "sand engine"	Sub-action	
Upgrade Storm Drain System	Low-lying areas can flood during high precipitation events although flooding is localized. The storm drain system could be upgraded to accommodate higher intensity rainfall events. This may require upsizing on conveyance pipes and/or new pump stations.		

Click "Load Actions" 5

3 Designate as primary action or sub-action

1 Enter Action Title

2 Enter Action Description

For sub-actions choose the primary action supported

4

Adding or Editing Actions

Adding Actions

If at any future stage it is necessary to add new actions, users may return to Step 2 and the Initial Action Definition screen and enter new actions. However, new actions must be entered at the bottom of the list. **Do not re-order actions in this list or insert actions between previously entered actions.**

Editing Actions

If it is necessary to modify the attributes of an action (e.g., action title, action definition), users may do so on the Initial Action Definition screen in Step 2. However, **do not** replace an existing action with an entirely new action; as described above, new actions must be entered at the bottom of the actions list.

After modifying actions or adding new actions to the list, click the “Load Actions” button again to load the updates into the subsequent modules.

If users change an action title of a Primary Action, they will need to re-select that new action title for any Sub-actions associated with that Primary Action.

Step 3: Initial Screening

After clicking the “Load Actions” button in the previous step, the Tool will move users to the Initial Screening screen with all primary actions pre-populated in the table. Alternatively, users may access this section by clicking “Initial Screening” in the navigation bar.

In this module, users must answer all screening questions for each action in the list using the binary drop-down menus (yes/no). When an action fails a screening question, the cell is flagged in red and the user is prompted to decide if the action should pass or not pass onto the next step in the action prioritisation

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process. The final column provides a space for users to document a short explanation of why any flagged actions were passed.

If an action is flagged during this screening step, users can return to “Step 2: Action Development” to revise the action title and/or description in a way that will cause the action to pass all screening questions, if desired (see call-out box on previous page for instructions on editing actions). Alternatively, users can decide to move flagged actions forward as they are initially written.

Once the screening questions have been answered for all actions and any necessary pass/not pass decisions have been made, click the “Screen Actions” button to complete the screening process. Any actions for which all screening questions have not been answered will automatically fail.

Screening Questions
Primary Actions listed in the previous step will automatically appear here. Answer all screening questions for each action.
If the answer to a screening question flags a potential problem, the cell will turn red, and a decision to pass or not pass the action must be made.

After all screening questions have been answered and pass/not pass decisions have been entered, click the buttons to finalize the screening and view the results

Screen Actions

4 Click the “Screen Actions” button

Action Title	Description	Does this action reduce greenhouse gas emissions or vulnerability, or support an action that does?	Would this action result in substantial misadaptation or increased vulnerability?	Would this action result in substantial emissions lock-in?	Could this action result in substantial negative impacts to people/communities?	Pass / Not Pass?	Explanation of Pass/Not Pass Decision
This column will automatically populate after the “Load Action” button is clicked in Step 2. Any changes to action titles must be made in the Step 2 page.	This column will automatically populate after the “Load Action” button is clicked in Step 2. Any changes to action descriptions must be made in the Step 2 page.	Would this action lead to reduced emissions, directly or indirectly? Would this action lead to reduced vulnerability, directly or indirectly?	Would this action result in increased vulnerability to climate hazards, either directly or indirectly? Would this action undermine the capability or opportunities for adaptation in the future?	Would this action create a new source of emissions in the city, or replace one emission type with another (e.g., replacing diesel trucks with natural gas buses)? Would this action undermine the opportunities to reduce emissions in the city?	Could this action result in substantial negative impacts or unintended consequences to people or communities, such as new or increased costs, loss of property rights or use of land, or new environmental hazard?	Pass / Not Pass	Use the notes column to record why a flagged action was passed
Ordinance: Require renewable energy systems in new non-residential development	Require renewable energy systems in new non-residential development from residential construction will be required to provide solar power in 2020	Yes	No	No	No	Pass	
Incentive: Low interest solar loan program	Develop a low-interest loan program or provide information on local bank sustainability values advertising available solar/renewable energy/incentive programs	Yes	No	No	No	Pass	
Program: Community solar	Develop a community solar program to increase access to locally generated renewable energy	Yes	No	No	No	Pass	
Provide access to renewable natural gas	Regulation: Define third procurement targets for energy resources	Yes	No	Yes	No	Not Pass	
Increase building airtightness through replacement of natural gas appliances	Develop a program through which landlords must acquire a rental license with a provision that requires disclosure of their property's energy performance to potential tenants. The program would allow tenants to consider energy efficiency in their decision-making process.	Yes	No	No	No	Pass	
Develop a rental licensing program with energy disclosure requirements	Develop a program through which landlords must acquire a rental license with a provision that requires disclosure of their property's energy performance to potential tenants. The program would allow tenants to consider energy efficiency in their decision-making process.	Yes	No	No	No	Pass	
Develop a home energy audit program	Develop a program through which landlords must acquire a rental license with a provision that requires disclosure of their property's energy performance to potential tenants. The program would allow tenants to consider energy efficiency in their decision-making process.	Yes	No	No	No	Pass	
Increase express bus routes and dedicated bus lanes	Evaluate opportunities to expand express bus routes and/or provide dedicated bus lanes to reduce travel time and increase ridership.	Yes	No	No	No	Pass	
Increase frequency and connectivity of transit options	Implement Bicycle Plan Priority Projects	Yes	No	No	No	Pass	
Increase bicycle and scooter infrastructure	Require installation of active transportation supportive infrastructure in new development	Yes	No	No	No	Pass	
Implement an outreach and awareness campaign for waste diversion	Develop a transit system study to evaluate current and future service demands	Yes	No	No	No	Pass	

1 Answer all screening questions for all actions

2 Select “pass” or “not pass” for all flagged actions

3 Use the notes column to record why a flagged action was passed

If at any future stage it is necessary to change the answers to screening questions or the pass/not pass decision for a particular action, users may do so on this screen. Be sure to click the “Screen Actions” button after making updates to ensure that changes are reflected in the subsequent modules. If an action that was not passing has been updated to pass, it will appear in the subsequent modules. If an action that was previously passing the screening is updated to not pass, it will be removed from the subsequent modules.

After the initial screening is complete, users may review the results of the analysis in the Screening Results screen.

Screening Results
This tab summarizes the results of the previous steps into three lists. Each are described below.

Passed Primary Actions
Primary Actions that passed the initial screening will appear in this list.

Sub-actions Assigned to Primary Actions
Actions that were designated as sub-actions will appear in this list, along with the Primary Action that they were assigned to. In future steps, only Primary Actions will be prioritized and sub-actions become an attribute of their Primary Action.

Flagged Actions
Primary Actions that were flagged in the initial screening are listed here. The questions each action failed are highlighted in red.

Action	Sub-Action	Primary Action	Does this action reduce greenhouse gas emissions or vulnerability, or support an action that does?	Would this action result in substantial misadaptation?	Would this action result in substantial emissions lock-in?	Could this action result in substantial negative impacts to people/communities?	Did the flagged action pass the screening?
Ordinance: Require renewable energy systems in new non-residential development	Active dune restoration	Dune Reinforcement	Yes	No	Yes	No	Not Pass
Incentive: Low interest solar loan program	Passive dune restoration	Dune Reinforcement	No	No	No	No	Not Pass
Program: Community solar	Evaluate feasibility of Dutch “sand engine” for nourishment	Dune Reinforcement	Yes	No	No	Yes	Pass
Increase building airtightness through replacement of natural gas appliances	Implement Bicycle Plan Priority Projects	Increase bicycle and scooter infrastructure	Yes	No	No	No	Pass
Develop a rental licensing program with energy disclosure requirements	Require installation of active transportation supportive infrastructure in new development	Increase bicycle and scooter infrastructure	Yes	No	No	No	Pass
Develop a home energy audit program	Develop a transit system study to evaluate current and future service demands	Increase frequency and connectivity of transit options	Yes	No	No	No	Pass
Increase express bus routes and dedicated bus lanes	Evaluate the feasibility of providing flex or reduced priced transit passes	Increase frequency and connectivity of transit options	Yes	No	No	No	Pass

Primary actions that passed the screening are listed here

Sub-actions are listed here with the primary action they are connected to

Primary actions that were flagged in the screening are displayed here with the corresponding pass/not pass decision.

Step 4: Action Refinement

Click “Step 4: Action Refinement” in the navigation bar to show the Action Refinement screen, where users designate the emissions source(s) and/or climate hazard(s) that each action addresses, and other action information (i.e., action scale, timescale, and type).

The Tool allows users to specify up to three emissions sources and three climate hazards for each action using pre-populated drop-down menus. The menu of climate hazard options is based on the climate hazards entered in “Step 1: Emissions and Climate Hazard Context”. Users must specify at least one emissions source or climate hazard for each action, or the action will receive no Primary Benefits score. The Additional Action Attributes columns do not have any impact on the calculation of scores but can provide useful information during “Step 7: Final Prioritization”.

Action Refinement

Enter basic information for each action that passed the initial screening. Every action must address at least one emissions source or climate hazard. Adding additional action attributes to the right will enable actions to be filtered by them in a later phase.

Action Title <small>This will auto-populate from previous steps</small>	Description <small>This will auto-populate from previous steps</small>	Emissions Source(s) Addressed <small>Choose up to three (3) emissions sources that the action addresses. If Scope 2 emissions are selected, subsector cannot be entered, and vice versa.</small>			Climate Hazard(s) Addressed <small>Choose up to three (3) climate hazards that the action addresses.</small>			Additional Action Attributes <small>Provide additional context of information about each action which can be used to filter actions by in later steps.</small>		
		Source 1	Source 2	Source 3	Hazard 1	Hazard 2	Hazard 3	Scale	Timescale	Action Type
Ordinance: Require renewable energy systems on new residential developments	Require renewable energy systems in new residential development (new residential construction will be required to provide solar panels on 2020).	STATIONARY ENERGY-Commercial and institutional buildings and facilities						Citywide	Medium-term	Policy
Incentive: Low-interest solar loan program	Develop a low-interest loan program or provide information on local financing options for residential solar energy systems.	STATIONARY ENERGY-Commercial and institutional buildings and facilities						Citywide	Short-term	Programme
Program: Community Solar	Develop a community solar program to provide access to locally generated renewable energy.	ELECTRIC GRID-Subsectors						Citywide	Medium-term	Programme
Increase building electrification through replacement of natural gas appliances		STATIONARY ENERGY-Commercial and institutional buildings						Citywide	Short-term	Programme
Develop a rental licensing program with energy disclosure requirements	Develop a program through which landlords must require a rental license with a provision that requires disclosure of their property's energy performance to potential tenants. The program would allow tenants to consider energy efficiency in their decision-making process.	STATIONARY ENERGY-Commercial and institutional buildings						Citywide	Short-term	Programme
Develop a home energy audit program	Develop a program through which landlords must require a rental license with a provision that requires disclosure of their property's energy performance to potential tenants. The program would allow tenants to consider energy efficiency in their decision-making process.	STATIONARY ENERGY-Residential buildings						Citywide	Short-term	Programme
Increase express bus routes and dedicated bus lanes	Evaluate opportunities to expand express bus routes and/or provide dedicated bus lanes to reduce travel time and increase ridership.	TRANSPORTATION-On-road transportation						Citywide	Medium-term	Project
Increase frequency and connectivity of transit options		TRANSPORTATION-On-road transportation						Citywide	Medium-term	Project
Increase bicycle and scooter infrastructure		TRANSPORTATION-On-road transportation						Citywide	Medium-term	Project

1 Enter up to three emissions sources; if Scope 2 emissions are selected, the user cannot choose a subsector source

3 Enter additional action attributes

2 Enter up to three climate hazards

Scope 2 Emissions

Note that if grid electricity is specified as the targeted emissions source for an action, no subsector emissions sources (e.g., Residential Energy) can be specified or vice versa. This is to avoid double counting the potential emissions reduction of actions based on the overlap between the subsectors and the total Scope 2 emissions.

In the top right of the Action refinement screen, a table is provided for users to modify the specific definitions of the Timescale attribute options: short-term, medium-term, and long-term. This will not impact action evaluation score calculations in any way but provides a space to record this information so that users have a shared understanding of the action timescales.

	Start of Implementation
Short-term	<5 years
Medium-term	5-10 years
Long-term	10+ years

Optional: Modify timescale definitions here based on city context, such as budgeting cycles, terms for elected officials, or other timing considerations

Step 5: Criteria Selection & Weighting

Selecting Criteria

Click “Step 5: Criteria Selection & Weighting” in the navigation bar and then Co-Benefit Criteria Selection or Feasibility Criteria Selection to select criteria that will be used to rate actions; both screens are structured the same way and users should complete both screens. Pre-populated criteria in the Tool are listed by category and include a definition. In the column titled Include in Analysis, users will select which criteria to include in the action evaluation process. The Tool includes several pre-selected criteria that are either mandatory or recommended for use in the analysis; users can deselect the recommended options and/or select additional criteria, if desired, but cannot deselect the mandatory criteria.

Users can define up to three additional criteria in each criteria category. To add a custom criterion, enter a criterion name in a green cell in the Criteria column within a row in the relevant criteria category, and then provide a definition. **Be sure to enter the custom criterion into the correct criteria category** and be sure to enter “Yes” in the Include in Analysis column to ensure that custom criteria are included in the analysis moving forward. Users may also click in the Definition column to modify the definitions of existing criteria based on city context.

Modifying Criteria Weights

Users can modify the Weight column to change the weight for each criterion individually. The weights are multipliers applied to the raw evaluation scores; for example, if the weight for a given criterion is set to 2, all raw scores from that criterion will be multiplied by 2. Weights can be defined as any number between 1 and 3 (e.g., 1.25, 2.5, 3.0).

While most weights are set to 1 by default within the Tool, two criteria—Air Quality and Stakeholder Engagement—are weighted higher by default to reflect their importance in cities. If desired, users can set the weights for these criteria back to 1. As Primary Benefits (GHG reduction and risk reduction) are fixed in the Action Selection and Prioritisation process, their weights cannot be modified.

If users wish to change the weight of an entire criteria category (e.g., “Essential Public Services”) they can do so by increasing or decreasing the weights of all criteria in that category by the same amount. Note that weights will influence the relative importance of criteria within their score area (i.e., co-benefits, feasibility), but because the three scores are not combined into a single score, weighting is not intended to reflect relative importance of co-benefits criteria versus feasibility criteria.

Co-benefit Criteria Selection

Select co-benefit criteria that your city would like to evaluate actions based on. Suggested criteria are selected by default.

Users may enter additional custom criteria or modify the definitions of existing criteria. If desired, users may also modify the weights of individual criteria.

Co-benefit Category	Criteria	Definition	Include In Analysis? ¹	Weight ²
	** = mandatory * = recommended Add any additional custom criteria in the open rows below.	Definitions for criteria may be modified based on city context. For additional custom criteria, please provide a definition.	Choose whether to include each criterion. By default, recommended criteria are included	Choose between 1 and 3. By default, most weights are set to 1.
Health and Wellbeing	Air Quality	Reduced exposure to particulate matter (PM2.5 and PM10), NO2, O3, SO2 or air-borne toxins	Yes	2.00
	Physical Health	Increased life expectancy, or reduced incidents of diseases or deaths attributed to pollution, poor sanitation, or lack of access to nutrients	No	
	Safety	Reduced incidents of traffic accidents or violent crimes		
	Wellbeing	Reduced levels of stress/anxiety, time spent working/commuting, and increased gender equality in housework/childcare		
	Healthcare	Increased access to essential health services, health insurance, and emergency response		
Environment	Water Quality	Reduced levels of dissolved oxygen, phosphorous, nitrates, nitrites, fecal matter, sedimentation, chemicals, and/or heavy metals in freshwater and marine water bodies	Yes	1.00
	Habitat	Increased creation, preservation, or restoration of natural environments	Yes	1.00
	Greenspace	Increased percentage of urban area that is greenspace, urban tree canopy, and/or access to parks		

Optional: Enter custom criteria here (points to the empty rows in the table)

1 Optional: Add or modify definitions (points to the Definition column)

2 Select criteria (points to the Include In Analysis? column)

3 Choose Weights (points to the Weight column)

Loading Criteria

Once co-benefit and feasibility criteria have been selected, navigate to the Criteria Summary screen and click the “Load Selected Criteria and Prepare Action Rating Matrix” button to reflect the criteria selection in the subsequent modules. The selected criteria will appear on the screen. Note that Primary Benefits criteria are not editable. If it is necessary to add or remove a criterion later, users may do so on the Co-Benefit Criteria Selection or Feasibility Criteria Selection screens; users must click the “Load Selected Criteria and Prepare Action Rating Matrix” button again to reflect changes in the subsequent modules.

Criteria Summary
 After the Load Selected Criteria button is clicked, this tab will summarize the criteria chosen for action. Refer to the Process Guide for an explanation of how each criterion informs scoring.

① Click this button after making or updating criteria selections

Load Selected Criteria and Prepare Action Rating Matrix

Primary Benefits Criteria		Co-benefit Criteria		Feasibility Criteria	
Category	Criteria	Category	Criteria	Category	Criteria
Emissions	Percent of Total Emissions Addressed	Health and Wellbeing	Air Quality	Authority	City Authority
Emissions	Extent	Environment	Water Quality	Support	Political Acceptability
Emissions	Reduction Potential	Environment	Habitat	Financing and Funding	Funding Source Secured/Identified
Emissions	Uptake Potential	Economic Prosperity	Cost of Living	Technology	Technology/Market Readiness
Risk	Hazard	Essential Public Services	Housing	Selected co-benefit and feasibility criteria will appear here	
Risk	Coverage	Essential Public Services	Mobility		
Risk	Effectiveness	Inclusivity and Civil Society	Stakeholder Engagement		

Primary benefits criteria are not modifiable

Customizing Criteria Options

Users will need to provide the evaluation options for any custom criteria entered in the Co-benefit Criteria Selection and/or Feasibility Criteria Selection screens. After clicking the “Load Selected Criteria and Prepare Action Rating Matrix” button on the Criteria Summary screen, users can navigate to the Criteria Customization screen using the Tool navigation bar. All loaded criteria will appear here with their default scoring and options.

It is anticipated that most custom co-benefit criteria can use the same qualitative scale as the default co-benefit criteria options in the Tool, but all custom feasibility criteria will require individually defined evaluation scoring options. It is important that users define these scoring options because they will populate the drop-down menus for ranking actions by that criterion in the rating matrix in the next step.

The upper table on this screen includes rating options for each criterion. These rating options will appear as drop-down menus in the action rating matrix during the next step. Modifying text here will change the options in those drop-down menus. The lower table includes the corresponding score for each option. Custom evaluation scores can be defined on this screen using integers between -2 and 2 (including zero).

Criteria Customization
 This screen allows users to modify the definitions and rating scales for each of the selected criteria. For additional custom criteria, please provide definitions for each category. For each criterion, the evaluation option name refers to the corresponding score value in the lower table.

Health and Wellbeing	Environment		Economic Prosperity	Essential Public Services		Inclusivity and Civil Society	Authority	Support	Financing and Funding
Air Quality	Water Quality	Habitat	Cost of Living	Housing	Mobility	Stakeholder Engagement	City Authority	Political Acceptability	Funding Source Secured/Identified
Very Negative	Very Negative	Very Negative	Very Negative	Very Negative	Very Negative	Very Negative	Outside city authority - federal/State/Provincial	Very Politically Challenging	No funding secured/identified
Somewhat Negative	Somewhat Negative	Somewhat Negative	Somewhat Negative	Somewhat Negative	Somewhat Negative	Somewhat Negative	Outside city authority - utility/Agency/Private	Somewhat Politically Challenging	Identified but unlikely
Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Yes, but would require new policy	Neutral or Unclear	Identified
Somewhat Positive	Somewhat Positive	Somewhat Positive	Somewhat Positive	Somewhat Positive	Somewhat Positive	Somewhat Positive	Yes, but would require amending existing policy	Politically Acceptable	Partially Secured
Very Positive	Very Positive	Very Positive	Very Positive	Very Positive	Very Positive	Very Positive	Yes, under existing policy	Politically Popular	Secured

Modifying text here...

Scoring Customization
 ...will change the option for this score and will be reflected in corresponding drop-down menus for rating in the next step.

-3	-2	-1	0	1	2	-2	-1	0	1	2
-1	0	1	2	-2	-1	0	1	2	-2	-1
0	1	2	-2	-1	0	1	2	-2	-1	0
1	2	-2	-1	0	1	2	-2	-1	0	1
2	-2	-1	0	1	2	-2	-1	0	1	2

Step 6: Action Rating

Click “Step 6: Action Rating” in the navigation bar to show the Action Rating Matrix. The columns of the matrix are auto-generated based on the criteria selected in “Step 5: Criteria Selection & Weighting”, and the rows are populated with actions based on the results of the initial action screening in “Step 3: Initial Screening”.

The matrix is divided into 3 areas: Primary Benefits (Emissions Reduction and Risk Reduction), Co-Benefits, and Feasibility. The options in the drop-down menu for the cells in each column are based on the corresponding criterion. Specific guidance on the definition of each criteria and the options within a criterion are detailed in the Process Guide.

As on all other screens, users should enter information in green cells. Grey cells are either calculated fields or do not require information because they are not relevant to a specific action (for example, risk reduction criteria should not be rated for actions that do not address climate hazards).

Action Rating Table Revisions

Note that if users need to change criteria selection or add/modify actions after the action rating table has been generated, these updates can be made to prior Tool steps without overwriting any ratings for actions that have already been entered. However, there are hidden rows and columns in this table, so **users cannot copy and paste multiple cells at once** or fill cells by clicking and dragging.

Once the ratings for all actions has been completed, the user can move onto the next screen.

Actions List		Primary Benefits Criteria						Co-Benefits Criteria					Feasibility Criteria				Notes
Actions List	Subcategory or Risk Profile	Reduction Emissions	Risk Reduction	Health and Well-being	Environment	Economic Prosperity	Resilient Public Services	Equity and Social Justice	Healthier and More Resilient	Healthier	Thriving	Feasible and Affordable	Feasible	Notes			
A				
B				
C				
D				
E				
F				
G				
H				
I				
J				
K				
L				
M				
N				
O				
P				
Q				
R				
S				
T				
U				
V				

Optional: Use this button to clear any filters applied (the clear filters button in the Excel ribbon will be locked)

Optional: Apply filters to only reveal a subset of actions for rating at a time

Optional: Add notes to record why rating decisions were made

1 Choose ratings in green cells from drop-down menu options, as defined in the Process Guide

Grey cells require no input

Step 7: Final Prioritisation

Once “Step 6: Action Rating” has been completed, the Tool will generate graphic and tabular outputs displaying the results. Click on “Step 7: Final Prioritisation” in the navigation bar and then choose one of the following options:

- ▶ Tabular Results & Prioritised Action Selection
- ▶ Matrices
- ▶ Top Scoring Actions
- ▶ Co-benefits Performance
- ▶ Individual Action Dashboard
- ▶ Summary Dashboard

Tabular Results & Prioritised Action Selection

An explanation of how to interpret the different graphics for use in prioritisation is included in the Process Guide. As users determine which actions should be prioritised, they can click on the Tabular Results & Prioritised Action Selection under “Step 7: Final Prioritisation” in the navigation bar. The screen displays a list of the actions that passed the Step 3: Initial Screening and summarizes their scores within the three evaluation areas (i.e., Primary Benefits, Co-benefits, and Feasibility). Users can click the Expand Co-Benefit or Expand Feasibility buttons to show/hide details for the various evaluation categories. In the final column to the right titled “Select for Final Prioritisation?”, users can select which actions to include in the CAP using a binary dropdown list (yes/no).

Tabular Results & Prioritised Action Selection
 This chart summarizes the results of action rating. After viewing this and the other graphic output screens, determine whether or not to include each action using the drop down in the far right column.

③ Export tabular results or charts for use in plan graphics

Action Title	Definition	Mitigation Action?	Emissions Source(s) Addressed	Adaptation Action?	Climate Hazard(s) Addressed	Scale	Timescale	Action Type	Expand Co-Benefits		Expand Feasibility		Select for Final Prioritisation?
									Primary Benefits Primary Benefits Score	Total Co-benefits Score	Feasibility Total Feasibility Score		
Ordinance: Require renewable energy systems in new non-residential development	Require renewable energy systems in new non-residential development (new residential construction will be required to provide solar power in 2020)	Yes	Stationary Energy	No		Citywide	Medium-term	Policy	4.14	2	0	Yes ②	
Incentive: Low interest solar loan program	Develop a low-interest loan program or provide information on Long Beach Sustainability website advertising available solar/renewable energy incentive programs	Yes	Electric Grid	No		Citywide	Short-term	Programme	2.52				
Program: Community Solar	Develop a community solar program to increase access to locally-generated renewable energy	Yes	Electric Grid	① View tabular results and graphic outputs to make prioritisation decision		Citywide	Medium-term	Programme	4.20	4	3		
Program: Community Solar	Increase building electrification through replacement of natural gas appliances	Yes	Stationary Energy	No		Citywide	Medium-term	Programme	5.12	4	4		
Develop a rental licensing program with energy disclosure requirements	Develop a program through which landlords must acquire a rental license with a provision that requires disclosure of their property's energy performance to potential tenants. The program would allow tenants to consider energy efficiency in their decision-making process.	Yes	Stationary Energy	No		Citywide	Short-term	Programme	4.27	2	3		

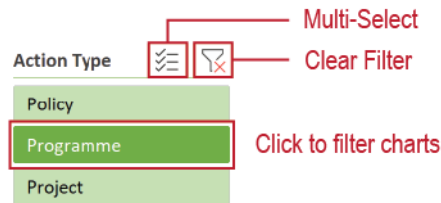
Record prioritisation decisions here

Matrices and Top Scoring Actions

For the Matrices and Top Scoring Actions charts, the displayed actions can be filtered based on:

- ▶ Mitigation (emissions reduction) vs. Adaptation (risk reduction) actions (actions that provide both benefits will display in both instances)
- ▶ Actions that address specific emissions sources or climate hazards
- ▶ Attributes from the Additional Action Attributes criteria that were entered in the Action Rating Matrix during “Step 4: Action Definition”, including action scale, timescale, and type

Each filter enables the user to select a subset of actions to be displayed based on their attributes. Multiple filters can be used at the same time, and the multi-select option allows the user to select multiple options from a single filter.



On the Matrices screen users can define thresholds for high and low Primary Benefits, Co-Benefits, and Feasibility. Setting these thresholds will add dashed lines to the matrices which form quadrants that can be used to identify which actions are high performing across multiple score types. For information on how to interpret the matrices, please see the Process Guide.

Score Comparison Matrices
Use this screen to compare Primary Benefits, Co-benefits, and Feasibility score performance for all actions. Users should discuss what qualifies as a high performing action based on the following matrices depending on the city's priorities (e.g., Primary benefits versus co-benefits versus feasibility). These distinctions will be different for each city.

Filters (all charts)

Mitigation?	Adaptation?	Scale	Timescale
No	No	Citywide	Long term
Yes	Yes	Neighborhood	Medium term

Optional: Apply filters to display a subset of criteria

Performance Thresholds
Use the table below to indicate what qualifies as a high or low performing action for each score type. This will update the dashed lines in the charts below, creating quadrants for categorizing actions.

Threshold	Score
3.00	Primary Benefits
4.00	Co-Benefits
2.50	Feasibility

Legend (all matrices)
Use this table to identify actions by Action ID on all three matrices

Action ID	Action Title
A	Ordinance: Require renewable energy systems in new non-residential development
B	Ordinance: Low interest rate loan program
C	Ordinance: Require energy audits for all commercial buildings
E	Incentive building energy audits and implementation of natural gas appliances
F	Ordinance: Require energy audits for all commercial buildings
G	Ordinance: Require energy audits for all commercial buildings
H	Ordinance: Require energy audits for all commercial buildings
I	Ordinance: Require energy audits for all commercial buildings
L	Increase bicycle and scooter infrastructure
O	Implement an outreach and awareness campaign for waste diversion
P	Enforce existing requirements for multi-family residential and commercial property recycling programs
R	Develop a residential organic waste collection program
T	Extend/Upgrade Existing Sewerline
U	Construct Living Shoreline/Berm
V	Investigate feasibility of Managed Retreat
W	Evaluate feasibility of storm surge barrier at Alameda Bay
Y	Dune Reinforcement
AA	Upgrade Storm Drain System
BA	Install new pump stations
CA	Increase presence of cool roofs
DA	Increase presence of reflective streets, parking lots and playgrounds
EA	Increase presence of green roofs/ecoroofts
FA	Expand cooling centers
GA	Develop emergency response plan for power outages related to extreme heat
HA	Expand usage of green infrastructure and green streets
IA	Enforce strong leak detection programs
JA	Undertake additional outreach and education related to water conservation

Co-benefit Criteria vs Primary Benefits

1 Use this table to indicate what qualifies as a high or low performing action for each score type

2 View chart to understand how actions perform across each score type

Refer to the legend to identify actions by Action ID on all three matrices

Dashed lines on each chart will update accordingly

Co-benefits Performance and Individual Action Dashboard

On the Co-benefits Performance and Individual Action Dashboard screens, users must select the action(s) they want to display. On the Co-benefits Performance screen, users must then click the “Refresh” button to update the graphics based on the selection; this update automatically occurs on the Individual Action Dashboard screen.

Summary Dashboard

The Summary Dashboard displays information about all actions. On this screen, users can filter the results to display analytics for the subset of actions chosen to be included in the CAP (see Tabular Results & Prioritised Action Selection section above), the subset of actions determined to not be included in the CAP, or the full set of actions that passed the initial screening step.

Step 8: Communicating Results

The Tool is designed so that both graphic and tabular outputs can be exported from the Tool for use in presentations with the city. While Step 8 does not have its own screen in the Tool, the “Export Chart” buttons on all graphic outputs in Step 7 and the “Export Data” button on the Tabular Results & Prioritised Action Selection screen can be used to copy graphics or data from the Tool into a blank Excel sheet for use in reports or presentations.

Climate Action Prioritisation Tool – Frequently Asked Questions

This document provides answers to some common questions about using the Climate Action Prioritisation Tool (Tool). For detailed information on how to use the Tool, please refer to the User Manual. Tooltips and guidance text are also included throughout the Tool.

Should I read the Process Guide before using the Tool?

Yes – The Process Guide provides detailed information and definitions that users will find helpful in using the Tool, including guidance on how to select evaluation criteria, definitions for the criteria and scoring options, and information for using the graphic outputs in Step 7: Final Prioritisation to identify the final set of actions to be included in the Climate Action Plan.

I just opened the Tool - why are none of the buttons working?

If the buttons are not working, this is because macros have been disabled. Macros must be enabled for the Tool to work properly. Close the Tool and re-open it. Upon opening the Tool, you will see a prompt to click the Enable Content button to enable macros.

If the prompt does not appear, click the File tab in the Excel ribbon, click the Options button, select Trust Center in the menu on the left and then click Trust Center in the menu on the right. In the new window that opens, click Macro Settings in the menu on the left. Macro settings should be set to “Disable all macros with notification”. After making this change, click OK and then close the Tool. When you re-open it, you should now see the Enable Content prompt. Click the Enable Content button to enable macros.

I can click into a grey cell. Aren't these supposed to be un-editable?

Yes, cells that are grey should not be modified even if they will accept user inputs. However, in some instances, cells will change from grey to green based on user inputs in another cell, which will then make the previously grey cells editable.

Can I add additional actions after I have loaded an initial list of actions into the tool?

If at any future stage it is necessary to add new actions, you may return to Step 2: Action Development and the Initial Action Entry screen and enter new actions. However, new actions must be entered at the bottom of the list. **Do not re-order actions in this list or insert actions between previously entered actions.**

After adding new actions to the list, click the “Load Actions” button again to load the updates into the subsequent modules.

Can I change the name of an action after I have loaded an initial list of actions into the Tool?

If it is necessary to modify the attributes of an action (e.g., action title, action definition), you may do so on the Initial Action Entry screen in Step 2: Action Development. However, **do not** replace an existing action with an entirely new action; as described above, new actions must be entered at the bottom of the actions list.

After modifying actions, click the “Load Actions” button again to load the updates into the subsequent modules.

If you change an action title of a Primary Action, you will need to re-select that new action title for any Sub-actions associated with that Primary Action.

Can I delete actions after I have loaded an initial list of actions into the Tool?

After actions have been loaded into the Tool, they cannot be deleted. The Tool is designed to be a transparent record of the decision-making process. If an action is initially considered but ultimately determined to be undesirable, it should either not pass the initial screening or not be selected for prioritisation in the Tool outputs. Even actions that are known to be undesirable should remain in the Tool to provide a record that they were considered.

After actions have been loaded, do not attempt to delete any from the list of actions in Step 2: Action Development, as this will cause errors in other portions of the Tool.

After I click “Screen Actions” in Step 3: Initial Screening, why are some of the actions not appearing in the list of actions in Step 4: Action Refinement, even though they were not flagged in the screening?

If actions that you expect to see in the Step 4: Action Refinement list are missing, it is due to one of two reasons:

- 1) If the action has been designated as a Sub-action in Step 2, it will not carry forward in the Tool as a Primary Action. Make sure that all Sub-actions also have a designated Primary Action in the Primary Action Supported column of Step 2: Action Development to ensure they are packaged with a Primary Action. Sub-actions will be listed with their Primary Action in the Tool’s outputs.
- 2) If answers to any of the screening questions in Step 3: Initial Screening have been omitted, the action will automatically fail the screening and not make it into the action list in Step 4: Action Refinement. Review the list of actions in Step 3: Initial Screening to ensure that all screening questions have been answered for all actions. Click the “Screen Actions” button again to reflect any changes.

Why are columns for my custom criteria not displaying in the Action Rating matrix?

If you have defined a custom criterion in Step 5: Criteria Selection & Weighting, you must also select “Yes” in the “Include in Analysis?” column for it to be reflected in the Action Rating Matrix. Then you must click the “Load Selected Criteria and Prepare Action Rating Matrix” button in the Criteria Summary screen.

Why are there no drop-down menu options for my custom feasibility criterion in the Action Rating matrix?

If you have defined a custom feasibility criterion in Step 5: Criteria Selection & Weighting, after clicking the “Load Selected Criteria and Prepare Action Rating Matrix” button in the Criteria

Summary screen you will need to define the rating options in the Criteria Customization screen. Note that custom co-benefit criteria are automatically assigned the rating options of Very Positive, Somewhat Positive, Neutral, etc. to match the other co-benefit criteria (though these options can also be edited in the Criteria Customization screen).

Can I use copy and paste to fill out the action rating matrix faster?

Generally, copying and pasting is not recommended. You may copy and paste into green cells one at a time but should never copy and paste multiple cells at a time as this may inadvertently eliminate data or formulas in hidden cells. Similarly, do not click and drag a cell to copy it as this may also overwrite hidden cells.

Can I merge the Action Rating matrix from multiple copies of the Tool if I asked multiple people to fill out ratings for different actions?

No – the Tool is not designed to accommodate the merging of multiple versions. As described above, copying and pasting more than one cell at a time will result in formulas in hidden cells to be modified which creates errors in the Tool. It is recommended that users (e.g., City Advisors, city staff) maintain a single version of the Tool. Outside information from others, such as action lists, ratings, etc., can be gathered in other documents or spreadsheets and then entered into the Tool. This also avoids the need to train many people on how to use the Tool.

Can I add, remove, or modify my criteria selection after I have started rating actions?

Yes – after you have begun rating actions, you may add, remove, or modify criteria using the screens in Step 5: Criteria Selection & Weighting. Be sure to click the “Load Selected Criteria and Prepare Action Rating Matrix” button in the Criteria Summary screen to update the Action Rating Matrix with your new criteria settings.

I just made changes to the actions in the Step 4: Action Refinement screen after I had already started rating actions. Why are these changes not being reflected in the Action Rating Matrix or graphic/tabular outputs?

If you make any changes in Step 4: Action Refinement, you will need to click “Load Selected Criteria and Prepare Action Rating Matrix” in Step 5: Criteria Selection & Weighting (on the Criteria Summary screen) for these changes to be reflected in the Action Rating Matrix. If you are already at Step 7: Final Prioritisation, you will also need to click “Refresh Data for All Charts” on any of the graphic output screens for these changes to be reflected in the graphic outputs.

I just made changes to the Action Rating Matrix – why are these changes not being reflected in the graphic/tabular outputs?

Any changes made to the Action Rating Matrix will not be reflected in the graphic outputs until you click the “Refresh Data for All Charts” button on any of the graphic output screens. Once this button has been clicked, all charts on all screens will refresh, except for the Co-benefits Performance pie charts. To refresh these charts, click the “Refresh Pies” button.

How can I perform my own calculations or analysis on the tabular results?

The tabular results can be filtered or sorted within the Tool. However, the cells themselves are locked to prevent users from accidentally modifying or deleting formulas. If you wish to perform custom calculation on the tabular results, click the “Export Data” button. This will automatically create a new Excel workbook with the tabular results in a table. This table can then be modified or manipulated in whatever way the user wishes.

Note that the data included in this table will reflect whatever was in the tabular results table in the Tool when the results were exported.

How can I customize or edit the graphic outputs?

Filters can be applied to the graphic outputs via the filter options adjacent to each chart. However, the charts are locked to prevent users from accidentally making a formatting change that could cause them to stop functioning. If you wish to customize the charts in anyway, click the “Export All Charts” button. This will automatically create a new Excel workbook with all the graphic outputs of the Tool in separate tabs. These charts can be modified in whatever way the user wishes.

Note that the exported charts are not connected to the data in the Tool and will reflect whatever the charts showed when they were exported, including any filters that are applied. If you recently made changes to the Action Rating Matrix or Action Refinement, be sure to click “Refresh Data for All Charts” to ensure that these changes are reflected in the tabular results.