Welcome!

Accelerating Climate Resilience Speaker Series

Decision-Making Tools for Heat and Stormwater Mitigation with the Smart Surfaces Coalition

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Zoom Logistics

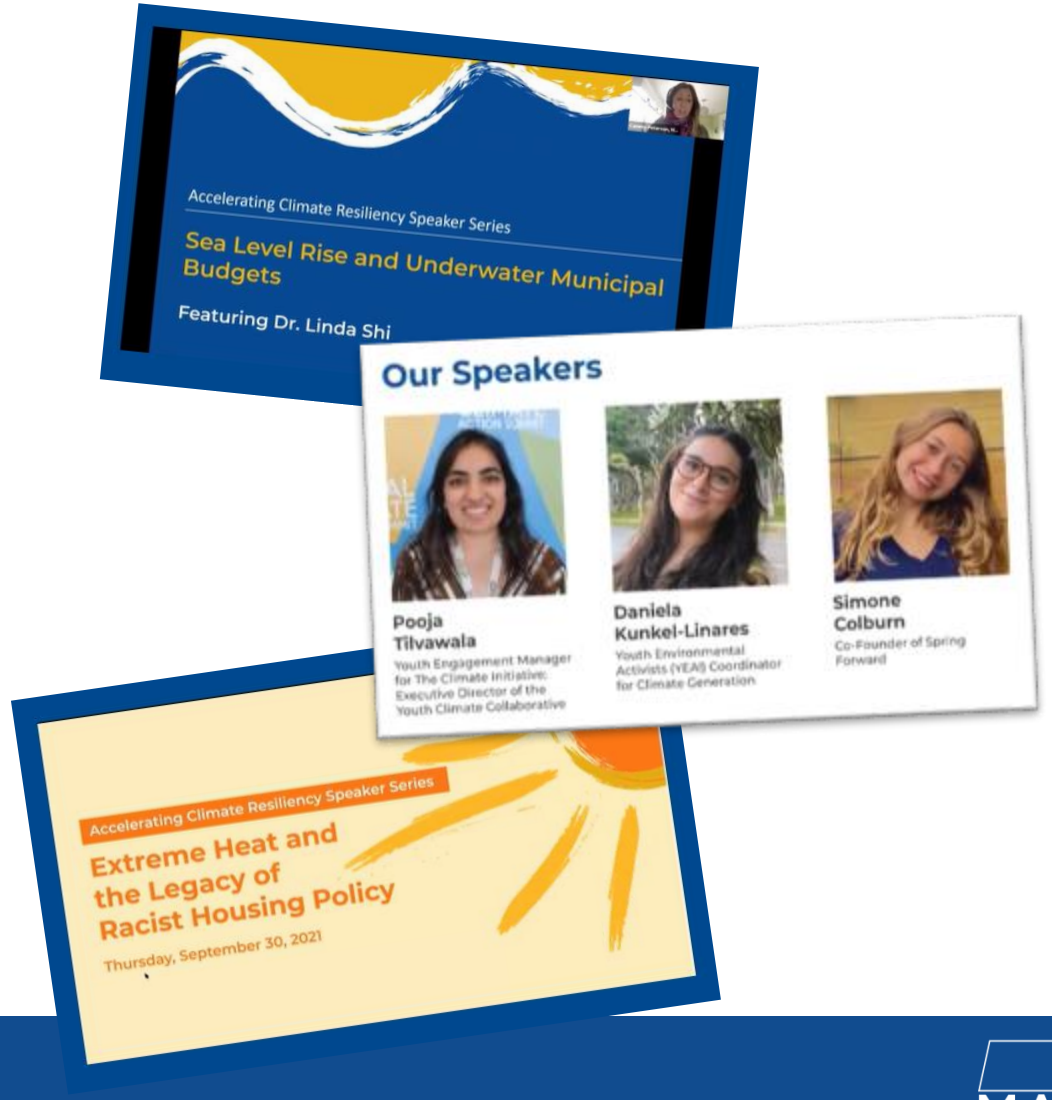
- Please enter questions in the chat box
- To use the chat, click on the “chat” icon at the bottom of your screen, type in your question, and hit enter.
- Remain on mute

We reserve the right to expel anyone at any point should they disrupt the meeting for any reason. Similarly, we may need to end the meeting early and will follow-up with participants.

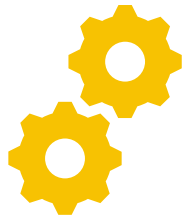
Accelerating Climate Resilience Speaker Series

Conversations with experts and practitioners from across the country who can speak to the ways they are perceiving and advancing resilience.

Past events include conversations about the effects of sea level rise on municipal budgets, climate resilience and racial justice, building social resilience through art, and empowering youth movements on climate.



Today's Agenda



Overview of MAPC's Cool Roof Resources

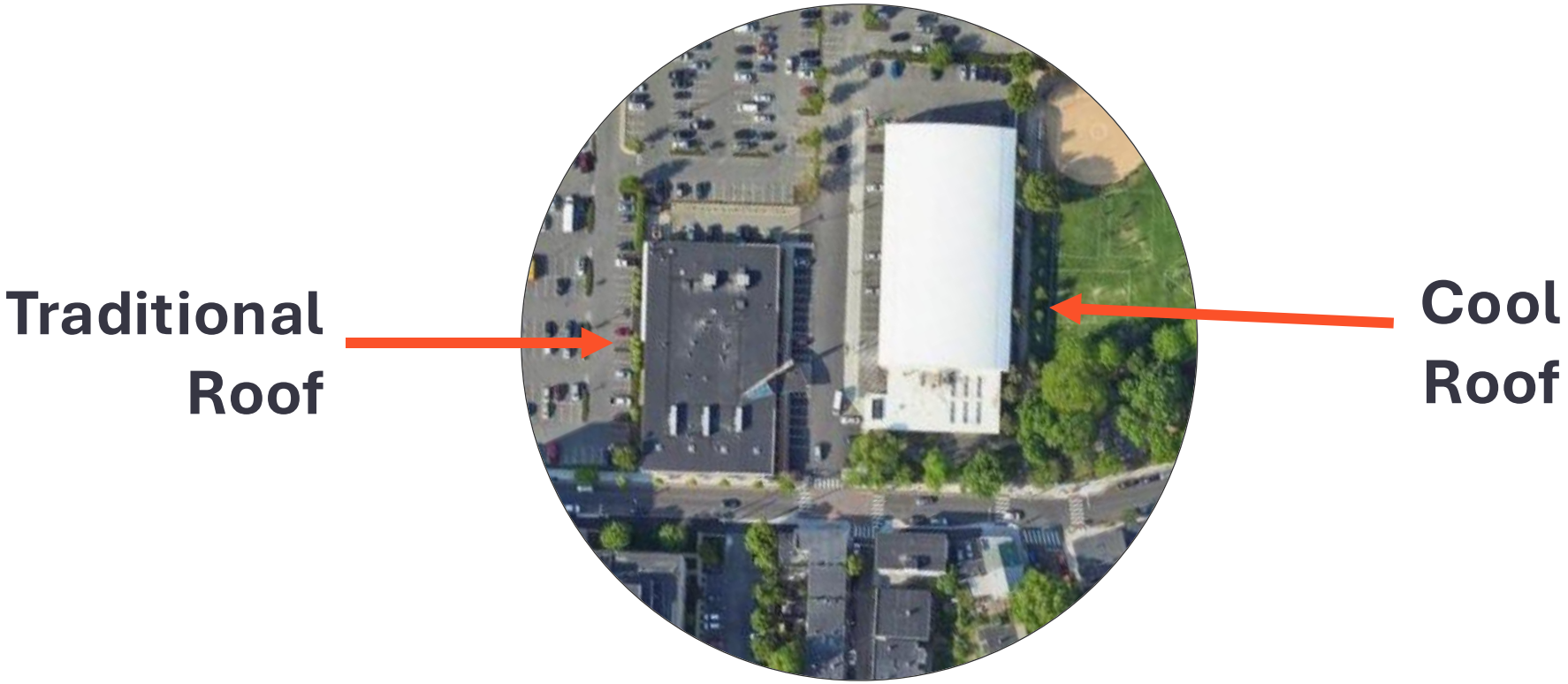
Demo of Smart Surfaces Coalition Tools

Open Q&A

Cool Roofs: An Extreme Heat Strategy

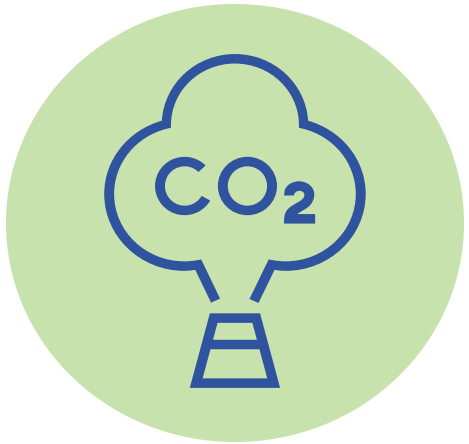
What are Cool Roofs?

Roofs designed to **reflect more sunlight** and **absorb less heat** than a conventional roof, keeping the building and surrounding area cooler.



Benefits of Cool Roofs

Economic



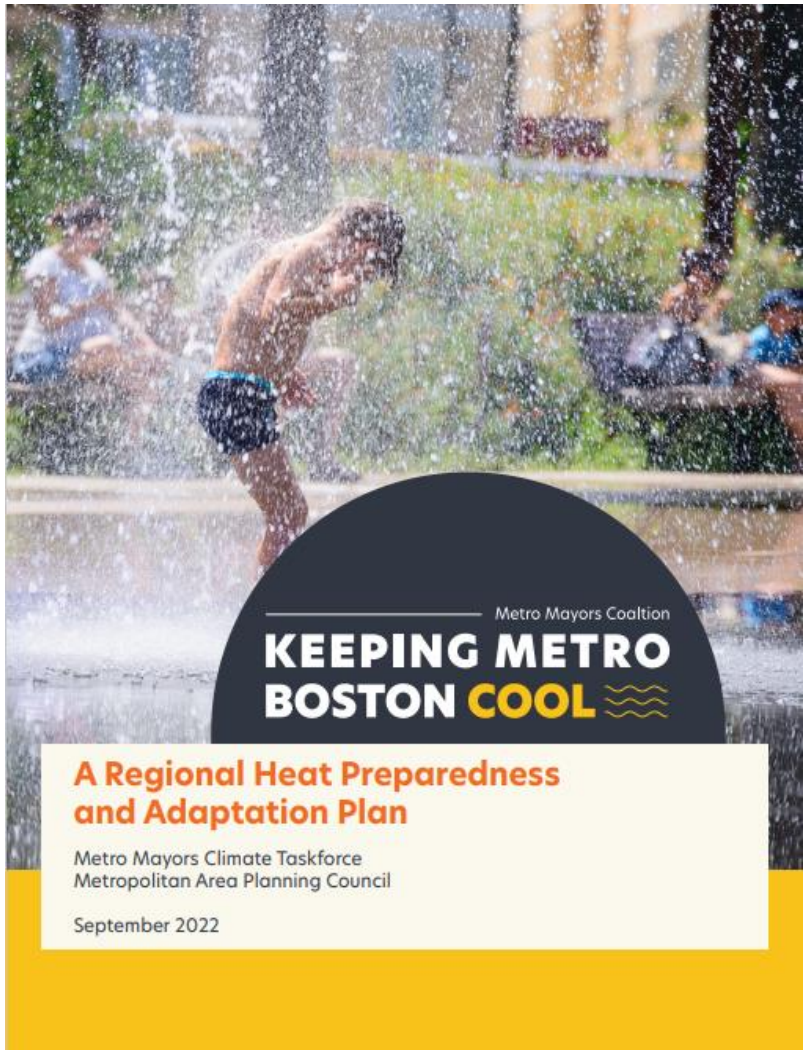
Environmental

Health & Well Being

MAPC's Cool Roof Resources: Overview

Municipal Vulnerability Preparedness (MVP) grant to MAPC on behalf of Metro Mayors Coalition Climate Taskforce

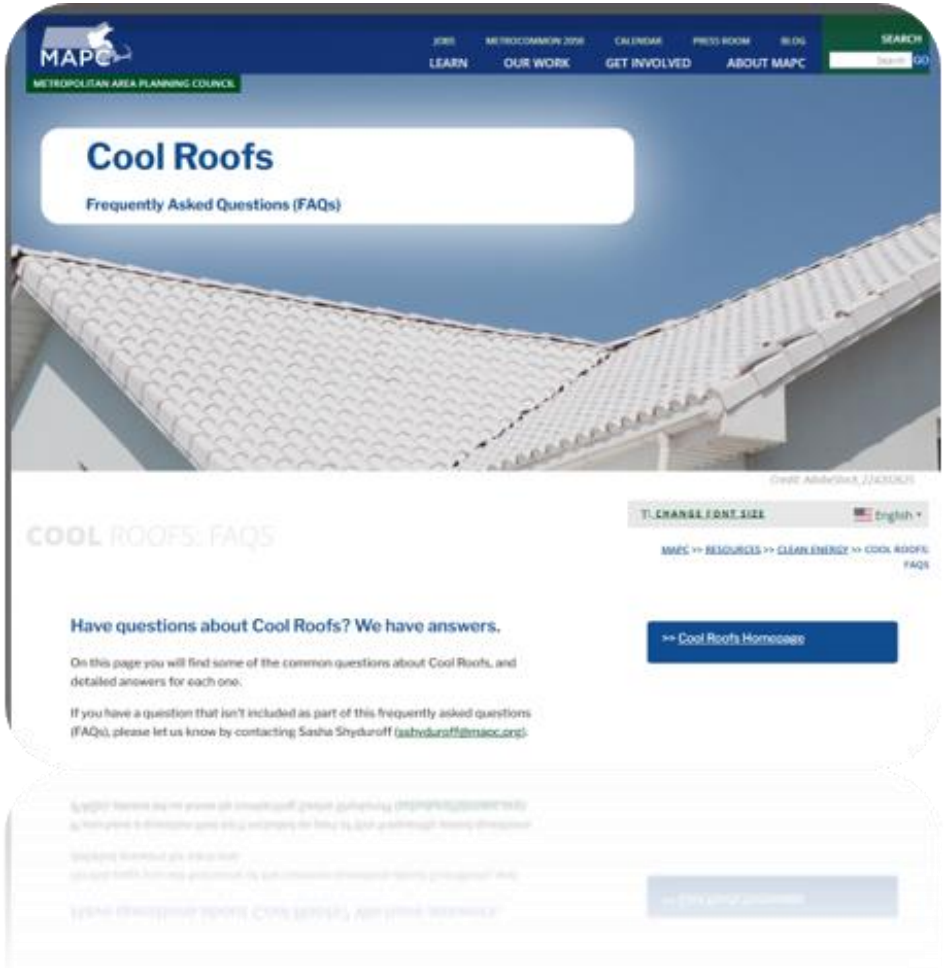
MVP
Municipal Vulnerability Preparedness



Goal: To increase awareness & promote adoption of cool roofs in the Metro Mayors region through developing support tools and resources.

MAPC's Cool Roof Resources: Overview

1. **Suitability Tool & Assessment**
2. **Educational Toolkit**
3. **Other Resources**
   - Incentive Program Guidance
   - Procurement Toolkit
   - Climate Resilient Land Use



Determining if a Cool Roof Right for **YOUR** Property

Step 1: Cool Roofs Suitability Tool

Step 2: Cool Roof Self Assessment

1. Is your building in need of a roof replacement or renovation?

Yes

No

2. Is your roof a dark color that absorbs more heat?

If your building is located in the Metro Mayors region, you can Tool to determine if your roof is considered dark-colored by c viewing the pop-up. If your building is not available in the tool answer the question.

Yes

No

4. Is your roof made of any of the following materials?

Metal, Granule, Smooth asphalt, EDPM rubber, or Smooth aluminum.

Yes

No

I'm not sure

5. Does your roof receive a lot of direct sunlight without significant shading from trees or other buildings?

Yes

No

6. Does your building have equipment on the roof (e.g., HVAC equipment)?

Yes

No

7. Does your building have rooftop solar panels?

Yes

No

Educational Toolkit Components

Factsheets*

- Cool Roofs 101 Factsheet
- Cool Roofs for Building Owners/Managers

Social Media Assets*

- For municipal planners and partners to raise awareness

Cool Roof FAQs

Recorded Webinars

- Basics & Benefits of Cool Roofs
- How Municipalities Can Use Cool Roofs to Advance Climate Goals

Blog Series

- Basics & Benefits of Cool Roofs
- Is a Cool Roof Right for **You**?
- Cool Roofs in Action: Spotlight on Successful Implementation

* Translated into Spanish, Brazilian Portuguese, Arabic, Haitian Creole, and Simplified Chinese.

MAPC

打造凉爽的街区：
冷屋顶基本原理及优点

什么是冷屋顶?

冷屋顶（也称为白屋顶或反射屋顶）就是比普通屋顶反射更多阳光的屋顶。通过反射更多阳光，屋顶的吸热量减少，让建筑和周边的区域更凉爽。

冷屋顶的类型

冷屋顶多种多样，有多种颜色和类型，大部分建筑都可以找到适合其使用的类型。冷屋顶可

冷屋顶的优点：

节能和省钱。冷屋顶可以降低
和风扇的使用频率，节省电费

保护屋顶和屋顶设备。冷屋顶
以减少热应力，帮助保护屋顶
屋顶设备，例如太阳能板或
HVAC 系统。

降低室内温度。冷屋顶可以让
内更凉爽，防止出现高温导致
疾病。

打造凉爽的街区。地表颜色浅
树木少的城市区域温度比周边
冷屋顶有助于降低街区的温度

减少碳排放。通过减少在高
天气的制冷需求，我们可以减
化石燃料产生的碳排放和空气
染。

Twati fre: Pou Pwopriyetè bilding ak Manadjè yo

Si ou
- Gen yon do kay ki gen koulè fonse, pant ki ba (plat), oswa
- Ap ranplase twati ou byento

Twati fre yo se yon evidans!

Kisa yon twati fre ye, ak kijan li ka benefisye building mwen an?

Twati fre (ke yo rele tou twati blan oswa twati meditativ) se tou senpleman twati ki fèt pou montre plis limyè solèy pase yon twati konvansyonèl. Lè yo reflete plis limyè solèy, twati fre ofri ekonomi sou bòdwo enèji ak tanperati andedan kay la ki pi konfòtab.

Èske yon twati fre oblije Blan?

Twati fre vini nan yon varyete koulè ak materyèl. Pandan ke twati ki gen koulè pi lejè yo gen tandans pou yo pi bon nan bese tanperati, yon twati fre pa oblije blan. Gen vèsyon ki "pi fre" nan koulè nwa ak pwodwi tankou bado fre, ki ka adapte preferans estetik ou.

E si mwen gen panno solè sou do kay mwen an?

Twati fre yo se yon gwo konpleman nan enèji solè sou twati! Yo ka amelyore efikasite panno yo lè yo kenbe tanperati do kay la pi ba. Ou pral bezwen pou retire panno yo tanporèman pandan y ap aplike yon revètman fre sou do kay la.

Èske twati fre egzije yon antretyen espesyal?

Twati fre yo ta dwe rete pwòp san pousyè ak debri pou ogmante reflektivite. Sinon, antretyen an se menm jan ak yon twati konvansyonèl. Kòm yon avantaj adisyonèl, twati fre ka diminye depans antretyen alontèm kòm yo dire pi lontan lè yo pa elaji / kontra nan absòpsyon chalè epi yo ka menm pwolonje garanti twati a.

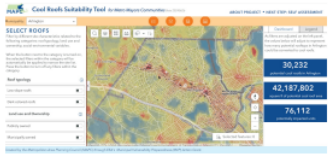
Konbyen yon twati fre koute?

Pri yon twati fre depann sou gwosè do kay la, pwodwi twati fre (egzanp, kouch, manbràn, bado, elatriye), ak konpleksite enstalasyon. Yon revètman twati fre ka koute ant $0.50-4.50 pou chak pye kare, tou depann de materyèl la, plis mendèv. [1] Sonje pou pran an kont tou faktè nan ekonomi enèji lè w ap konsidere depans: yon etid NYC te jwenn ke yon revètman meditativ ka diminye depans AC a 50% nan yon bilding yon etaj, 25% nan yon bilding de etaj, ak 10% nan yon bilding senk etaj.

Èske twati mwen an ka konvèti an yon twati fre?

Pwodwi ak teknoloji twati fre yo disponib pou yon pakèt kalite twati sa vle di twati ou a gen anpil chans pou l elijib. Tcheke Zouti **Cool Roof Suitability MAPC a*** epi pran **Oto-Evalyasyon** an pou detèmine si yon twati fre posib ak avantaje pou pwopriyete w la.

Zouti **Cool Roof Suitability MAPC a**
Oto-Evalyasyon: **Oto-Evalyasyon**



1- Mwayèn HomeGuide an 2024.
2- NYREJ (2010). https://nyrej.com/print/11547
3- Zouti disponib sèlman pou Arlington, Boston, Braintree, Brookline, Cambridge, Chelsea, Everett, Malden, Medford, Melrose, Newton, Quincy, Revere, Somerville, Watertown, ak Winthrop.

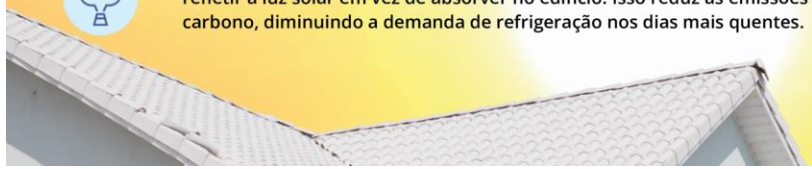
Pou w jwenn plis enfòmasyon, vizite
www.mapc.org/resource-library/cool-roofs/

Vantagens dos telhados frescos

Econômicas: Ao reduzir a necessidade de ar-condicionado e ventiladores, os telhados frescos ajudam a economizar nos custos de energia durante o verão.

Para saúde e bem-estar : Os telhados frescos melhoram o conforto das casas, escolas e outras edificações, mantendo os ambientes interiores mais frescos.

Ambientais: Os telhados frescos reduzem o efeito de ilha de calor urbano ao refletir a luz solar em vez de absorver no edifício. Isso reduz as emissões de carbono, diminuindo a demanda de refrigeração nos dias mais quentes.



Debunking the "heating penalty"

The "heating penalty" refers to a potential increase in winter heating bills since the roof reflects more heat than it absorbs. While this can happen, **the savings in the summer months usually far exceed any increases in the winter**.

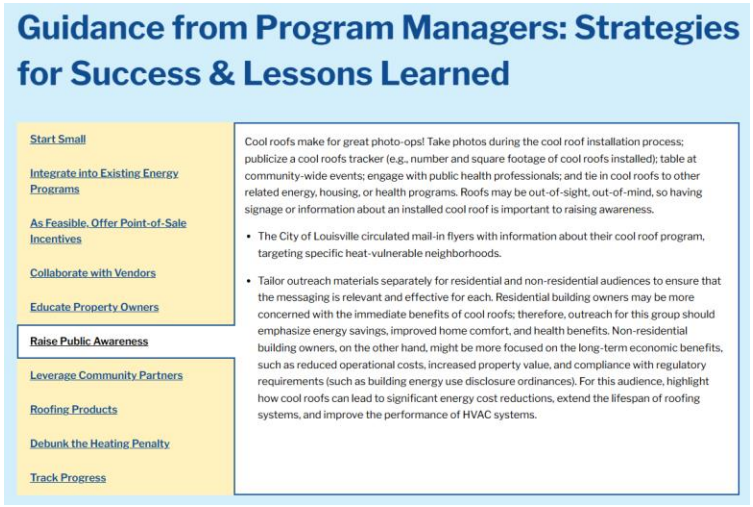
Residential Cool Roof Case Study

	Project Details
Overview	• Triple decker located in Cambridge • Roof Area: 1,100 sqft • Completed cool roof in 2020
Cool Roof Type	• Coating (Henry Tropi-cool silicone coating)
Cost	• $599
Testimonial	• “I live on the top (3rd) floor and do not have AC in my unit. On 90°F days, my home would reach around 5°F hotter than the highest outdoor temperature of the day. After painting the roof, the indoor temperature has been much more comfortable and has never exceeded the highest outside temperature. On a recent 95 plus degree day, the indoor temperature remained below 90°F. Cool roofs should be required on all new and replacement flat roofs.”

Triple Decker Residence in Cambridge

Additional Tools & Resources

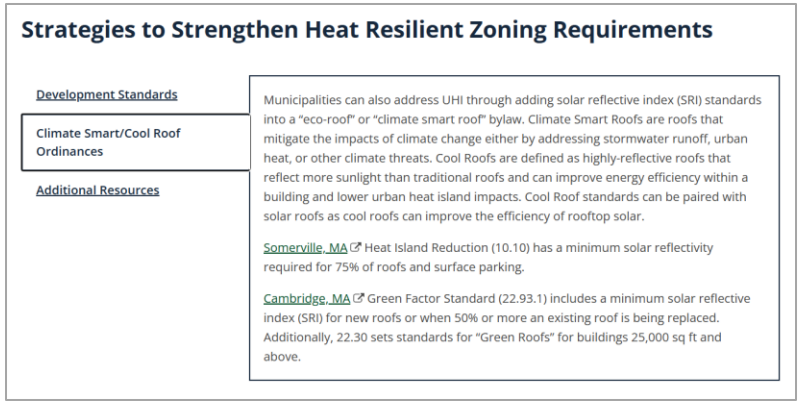
1. Guidance on Creating a Cool Roof Incentive Program



2. Municipal Procurement Toolkit

Chelsea Housing Authority – Public housing for the elderly and people with disabilities

3. Land Use / Zoning Guidance



Smart Surfaces Workshop

Heat and Stormwater Flood Mitigation Tools

SMART SURFACES COALITION

The Smart Surfaces Coalition is made up of more than 50 leading national and international organizations with a shared commitment to creating **cooler**, **healthier**, and **more resilient** cities by cost-effectively reducing the impacts of extreme urban heat and flooding.

What are Smart Surfaces?

Infrastructure strategies that cost-effectively manage urban heat and stormwater while maximizing health, climate, and equity co-benefits

Reflective/Cool Roofs

Green Roofs

Porous & Permeable Pavements

Solar Photovoltaics

Reflective/Cool Pavements

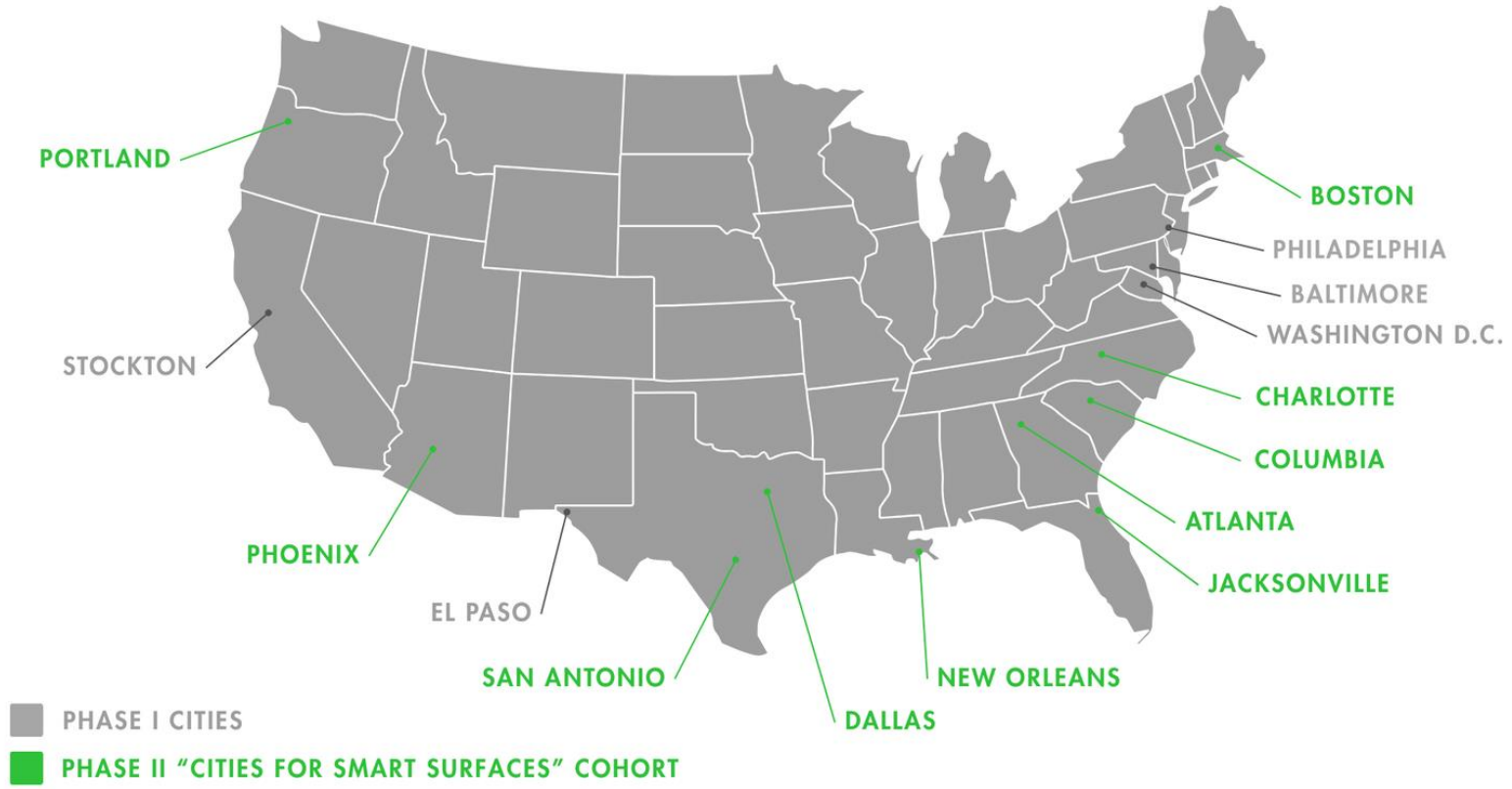
Trees

Green Stormwater Infrastructure

Zero & Negative-Carbon Concrete

Cities for Smart Surfaces

SSC is partnering with 10 metro areas across the US to facilitate the adoption of Smart Surfaces at the metropolitan level and working with communities in those regions to support community-led, local Smart Surface implementation projects.



Cities for Smart Surfaces Program Partners

Project Coordinator

SMART SURFACES COALITION

Data Visualization and Cost-Benefit Analysis

WORLD RESOURCES INSTITUTE

TRUST FOR PUBLIC LAND

Altostratus Inc.

open Technologies

City and Community Support

METROPOLITAN African Methodist Episcopal CHURCH

NLC NATIONAL LEAGUE OF CITIES CITIES STRONG TOGETHER

APHA

WE ACT FOR ENVIRONMENTAL JUSTICE

TRUST FOR PUBLIC LAND

THE OIKOS INSTITUTE FOR SOCIAL IMPACT

CITY FOREST CREDITS

Federal Funding

COLUMBIA LAW SCHOOL

SABIN CENTER FOR CLIMATE CHANGE LAW

ACEEE

NASEO National Association of State Energy Officials

NLC NATIONAL LEAGUE OF CITIES CITIES STRONG TOGETHER

CITY FOREST CREDITS

Policy + Legal

COLUMBIA LAW SCHOOL

SABIN CENTER FOR CLIMATE CHANGE LAW

American Lung Association.

NASEO National Association of State Energy Officials

NLC NATIONAL LEAGUE OF CITIES CITIES STRONG TOGETHER

METROPOLITAN African Methodist Episcopal CHURCH

APHA

Health Research and Communications

APHA

American Lung Association.

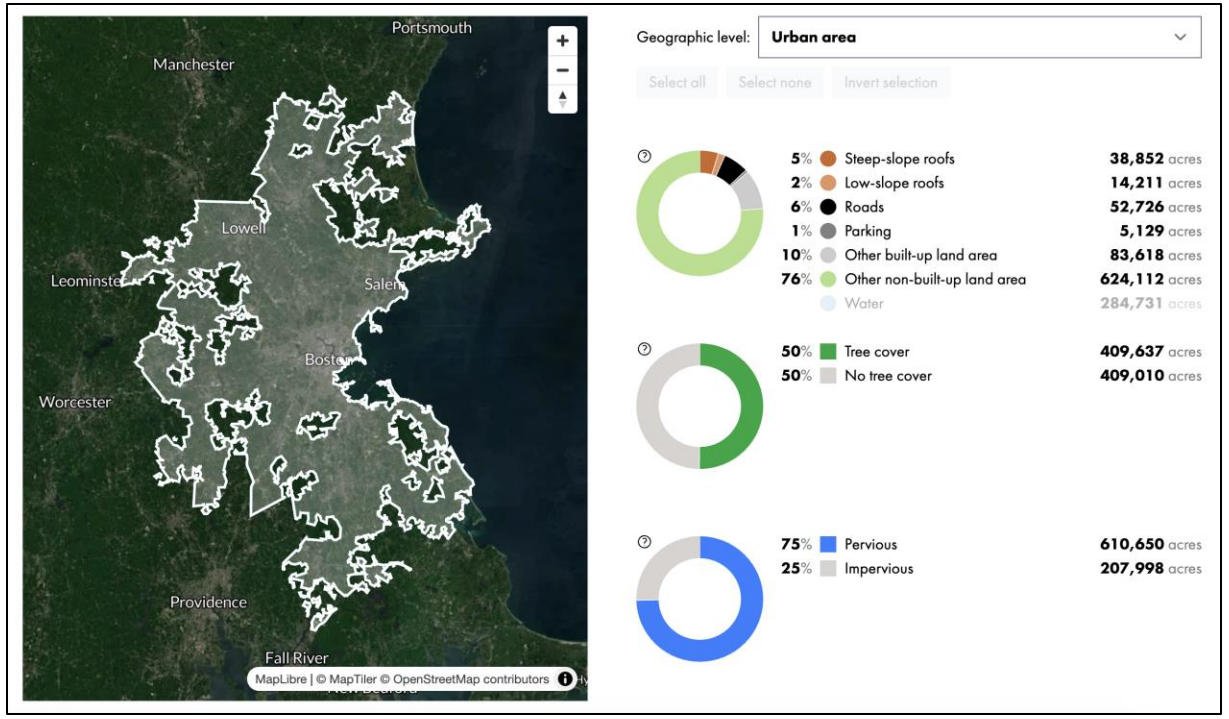
HARVARD T.H. CHAN SCHOOL OF PUBLIC HEALTH

SSC Web Tools

Decision Support Tool

Benefit Cost Analysis Tool

Smart Surfaces Policy Tracker



A snapshot from Boston's Custom Benefit-Cost Analysis Tool

Together, these tools help cities and metro areas develop and implement climate, sustainability, and resilience policies. They also can support in strategic planning, grant applications and infrastructure investments.

SSC Web Tool Demos

Decision Support Tool

web.tplgis.org/smart-surfaces-coalition/

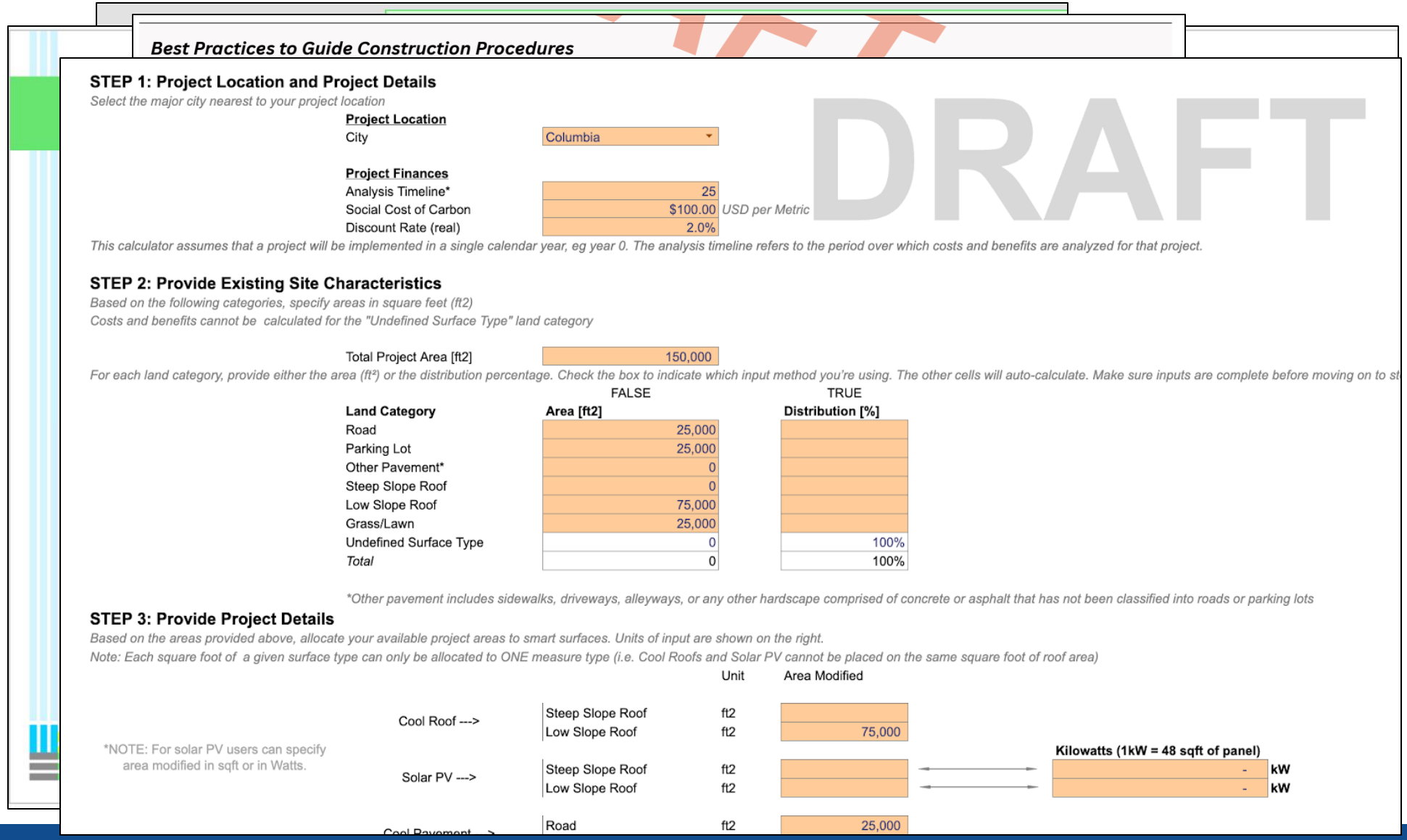
Benefit-Cost Analysis Tool

https://bca.smartsurfacescoalition.org/

Smart Surfaces Policy Tracker

https://smartsurfacespolicy.org/policies/

Project Implementation Platform



Best Practices to Guide Construction Procedures

STEP 1: Project Location and Project Details

Select the major city nearest to your project location

Project Location

City: Columbia

Project Finances

Analysis Timeline*	25	
Social Cost of Carbon	$100.00	*USD per Metric*
Discount Rate (real)	2.0%	

This calculator assumes that a project will be implemented in a single calendar year, eg year 0. The analysis timeline refers to the period over which costs and benefits are analyzed for that project.

DRAFT

STEP 2: Provide Existing Site Characteristics

Based on the following categories, specify areas in square feet (ft2)

Costs and benefits cannot be calculated for the "Undefined Surface Type" land category

Total Project Area [ft2]: 150,000

For each land category, provide either the area (ft²) or the distribution percentage. Check the box to indicate which input method you're using. The other cells will auto-calculate. Make sure inputs are complete before moving on to st

	FALSE	TRUE
Land Category	**Area [ft2]**	**Distribution [%]**
Road	25,000	
Parking Lot	25,000	
Other Pavement*	0	
Steep Slope Roof	0	
Low Slope Roof	75,000	
Grass/Lawn	25,000	
Undefined Surface Type	0	100%
Total	0	100%

**Other pavement includes sidewalks, driveways, alleyways, or any other hardscape comprised of concrete or asphalt that has not been classified into roads or parking lots*

STEP 3: Provide Project Details

Based on the areas provided above, allocate your available project areas to smart surfaces. Units of input are shown on the right.

Note: Each square foot of a given surface type can only be allocated to ONE measure type (i.e. Cool Roofs and Solar PV cannot be placed on the same square foot of roof area)

*NOTE: For solar PV users can specify area modified in sqft or in Watts.

		Unit	Area Modified	Kilowatts (1kW = 48 sqft of panel)	
Cool Roof --->	Steep Slope Roof	ft2			
	Low Slope Roof	ft2	75,000		
Solar PV --->	Steep Slope Roof	ft2		-	kW
	Low Slope Roof	ft2		-	kW
Cool Pavement --->	Road	ft2	25,000		

SMART SURFACES COALITION

MAPC

Questions?

Accelerating Climate Resilience Speaker Series

Thanks for joining!

Stay tuned for more climate resilience webinars in the new year! Please provide feedback for future topics!

Barr Foundation

MAPC