

Strategies to address the impacts of urban heat island and improve resilience

UHI Action Item	Definition	Benefits	Cost	What CMB is doing about it	Policy Options
Cool or White Roofs	Cool or White roof means a roof that has been coated white or is surfaced with some other light or reflective material.	Most studies demonstrate that cool or white roofs reduce roof surface temperatures, lower electricity consumption for the building and reduce the heat island effect. A cool roof reflects more sunlight and absorbs less heat than a standard roof. This allows for a cooler rooftop surface and less heat being transferred into the building. In turn, less cooling is needed which lowers electricity consumption and reduces the building's GHG emissions. According to the U.S. Environmental Protection Agency (EPA), a cool roof can reduce the roof surface temperature by 55 degrees Fahrenheit on average during peak summer temperature and lower cooling costs by 20 percent	The average cost to coat an existing system (granulated or smooth built-up) would be between \$2.5 and \$7 per square foot, depending on the labor and initial work involved in preparing the roof for coating	1) The city adopted a sustainable roofing ordinance which incentivizes and facilitates the installation of solar roofs, blue roofs, cool roofs, green roofs, and other roofing systems that will reduce the heat island effect, allow reuse or retention of stormwater, or reduce greenhouse gases to be used in the city. 2) In addition, last year, the city adopted a green building ordinance requiring new construction over 7,000 square feet to obtain LEED Gold or Living Building Challenge certification. Part of the credits required to obtain these certifications include heat island reduction, optimizing energy performance and thermal comfort. For example, a project can receive up to 2 points for LEED certification for heat island reduction by installing a roof meeting a certain initial solar reflectance index (SRI) or 3-year aged SRI value.	Provide incentives for the installation of white roofs, such as: <ul style="list-style-type: none"> Waive building and zoning permit fees Expedite our permitting process within 3 days Waive Planning boards/committees plan review Tax Abatement
Green Roofs	Green roof means a green space created by layers of growing medium and vegetation added on top of a traditional roofing system. It may also include additional layers such as a root barrier and drainage and irrigation systems.	Green roofs can help keeping rainwater out of overburdened storm sewer systems, improving water quality, and reducing flooding. Additionally, it provides habitat, increases open space, lowers urban temperatures, and improves air quality.	Green roof can vary significantly, depending on soil depth, plants, features and subcontractor arrangement. On average, extensive green roof can cost between \$15-25/sq ft, while intensive can cost between \$25-35/sq ft.	Same as above (1)	Provide incentives for the installation of green roofs, such as: <ul style="list-style-type: none"> Waive building and zoning permit fees Expedite our permitting process within 3 days Tax Abatement
Blue Roofs	Blue roof means a non-vegetated source control to detain stormwater. A blue roof slows or stores storm-	Blue roofs are less costly than green roofs. Its main benefits are rainwater detention and stormwater runoff reduction. Coupled with light colored roofing material they can provide sustainability benefits	Costs vary according to the technology used but on average it can costs about \$1-4/sq ft.	Same as above (1)	Provide incentives for the installation of blue roofs, such as: <ul style="list-style-type: none"> Waive building and zoning permit fees Expedite our permitting process within 3 days Provide tax abatement Provide stormwater fee

	water runoff by using various kinds of flow controls that regulate, block, or store water instead of vegetation.	through rooftop cooling.			reduction according to the percentage of water retained or reused within the project site.
Solar Carports	Solar carports are overhead canopies built to cover parking areas with solar panels.	Solar Carports can minimize energy expenses, while keeping the vehicle cooler and preserve the usefulness of the ground. In addition the energy is renewable so it's also reducing GHG emissions.	Varies pending on size, solar panels. On average about \$4/watt.	The City has incentives for solar projects, including waiving building permit fees and zoning review fees.	Provide incentives for the installation of solar carports, such as: <ul style="list-style-type: none"> • Waive building and zoning permit fees • Expedite our permitting process within 3 days • Provide tax abatement and additional square footage for single family districts in single family districts for homes that are targeting to become 100% (renewable) powered on solar, installing solar panels and solar carports. • Include language within our Code for solar carports incentives, including exceptions for structures that solely support solar energy systems: reductions in parking stall length and width; limited waivers for non-conforming parking lots; and modified height exceptions;
Cool Pavements	Cool pavements refer to a range of established and emerging materials that can store less heat and may have lower surface temperatures compared with conventional products.	Cool pavements can reduce stormwater runoff and the need for other stormwater infrastructure, as well as assist to reduce the pavement temperature and the heat island effect.	Costs can range from \$0.10 to 10/sq ft	The City has installed porous pavements on parking lots located at 10 Street and Washington. CIP will be installing porous pavements on other parking facilities projects. No difference in maintenance has been identified by Parking or PW.	Provide incentives for the installation of cool pavements, such as: <ul style="list-style-type: none"> • Waive building and zoning permit fees • Expedite our permitting process within 3 days • Provide tax Abatement • Require a percentage of pavement areas to implement permeable pavement technology for new construction. • Require a percentage of surface parking areas to implement permeable pavement technology for new construction.
White Streets	White streets are streets that have been coated white.	Reduces the pavement temperature (10-30 degrees), helping reduce the heat island effect.	The white coating product used in Los Angeles costs about \$0.40 /sq ft		The City could look for funds to initiate a pilot project in an area with low-medium traffic area.