CLASSES OF MITIGATION STRATEGIES, HEALTH PATHWAYS, AND HEALTH OUTCOMES

Many climate mitigation strategies can generate health benefits, sometimes called co-benefits. This table highlights some examples from peer reviewed literature. Strategies are grouped into seven classes that span several sectors. The presented strategies are not exhaustive. The table focuses on those that are often influenced by city and state governments. Health pathways are the various ways a mitigation strategy may influence public health-either directly or indirectly. Some strategies have multiple pathways. In this table, examples of health pathways and outcomes found in the literature are presented.

Class of Strategy	Mitigation Strategy	Health Pathways	Health Outcomes
Transportation	Active Transportation	Physical Activity	Health outcomes associated with this strategy include decreased Type 2 diabetes incidence, all-cause mortality, cardiovascular disease incidence, and some cancer incidence, as well as improved physical well-being and mental health.
		Air Quality	Active transport is known to eliminate air pollution. Positive health outcomes associated with increased active transportation and improved air quality include decreases in overall mortality.
	Vehicle Electrification	Air Quality	Positive health outcomes associated with improved air quality and vehicle electrification include decreased mortality and decreased prevalence of chronic disease, such as asthma.
Vegetation	Green Infrastructure, Green Space, and Tree Canopy	Heat Exposure	Increased tree canopy is associated with reductions in extreme air and land surface temperatures and decreased heat stress and improved thermal comfort
		Air Quality	Green infrastructure, green space, and tree canopy can improve air quality by catching particle pollutants on vegetation surfaces, reducing downwind exposure to air pollutants, and absorbing gaseous pollutants. While the health outcomes of improved air quality through green infrastructure and green space remain to be adequately quantified, these strategies may result in decreased cardiovascular disease.

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Building Systems & Performance	Green Building	Indoor Air Quality and Lighting	Green buildings have improved indoor air quality in comparison to non-green buildings. . Additionally, these buildings may also positively impact health outcomes. For example, one study found that in comparison to conventional housing, living in green homes reduced the number of symptoms adults experienced from sick building syndrome. It also found that children with asthma living in green buildings were at lower risk of asthma-related health concerns, including symptoms, attacks, hospital visits, and school absences.
		Outdoor Air Quality	Green buildings can improve outdoor air quality through reduced emissions from electricity generation and on-site fuel use. By reducing harmful air pollutants, energy efficient buildings in the United States were estimated to have averted between 172 and 405 premature deaths, 171 hospital admissions,11,000 asthma exacerbations, 54,000 respiratory symptoms, 21,000 lost days of work, and 16,000 lost days of school from 2000 to 2016.
	Building Weatherization	Indoor Air Quality and Temperature Regulation	Positive health outcomes related to building weatherization include thermal comfort improvements,, decreased respiratory and asthma symptoms, and improvements in general physical and mental health.
		Reduced Energy Burden	High energy burden among people with lower incomes may exacerbate a variety of health conditions such as mental and respiratory health. Building weatherization may reduce indoor sources of asthma triggers.
	Phasing out of fossil fuels for indoor appliances	Indoor Air Quality	Use of gas for cooking may be associated with some negative respiratory health outcomes when compared to electric stoves, including increased risk of asthma.

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Waste Management;	Reducing Solid Waste Incineration	Air Quality	Living near landfills or waste incinerators has been significantly associated with increased risk of adverse reproductive outcomes, including preterm birth and infant death. Exposure to pollutants from waste incineration may also be associated with some cancers, respiratory illness. Overall, people who live and work near waste sites may be exposed to noxious pollutants, and thus may have higher health and environmental risks compared to those residing a greater distance away from landfills.
Land Use	Compact and Connected Development	Physical Activity	Varying degrees of evidence indicate positive health outcomes, including decreased Type 2 diabetes incidence, cardiovascular disease incidence, and some cancer incidence and mortality, as well as improved physical well-being and mental health.
Food Systems	Sustainable Agriculture	Air Quality	Positive health outcomes associated with more sustainable agricultural practices include decreased mortality and reduced PM2.5, largely in connection with reduced ammonia emissions. Negative health outcomes associated with exposure to various agriculture-related air pollutants include increased risk of breast cancer, cardiovascular illness, respiratory morbidity, neurological illness, and low-term birth weight.
	Local Food Production and Distribution	Food Resilience	Food insecurity and lack of access to affordable nutritious food have been associated with obesity, type 2 diabetes, cardiovascular morbidity and mortality, immune activation and inflammation, depression and stress.
	Promoting Dietary Changes	Nutrition	Health benefits associated with vegetarian and semi-vegetarian diets in particular include lower all-cause mortality, and lower risk of chronic diseases such as obesity, heart disease, type 2 diabetes, and certain cancers.
		Air Quality	Dietary changes have been suggested to improve air quality and therefore reduce mortality. One study estimated that 17,900 deaths per year can be attributed to U.S. agriculture due to reduced air quality, mainly from livestock waste, fertilizer, and PM2.5 pollution.