

Co-Benefits of CMAQ Projects

Benefits in Addition to Emissions Reductions



What is CMAQ?

The Congestion Mitigation and Air Quality Improvement (CMAQ) Program provides funding for surface transportation projects and programs to help meet requirements of the Clean Air Act and its amendments. CMAQ funded projects contribute to attainment or maintenance of National Ambient Air Quality Standards (NAAQS) for ozone, carbon monoxide, particulate matter, and their precursors.

Projects are eligible for CMAQ funding if they demonstrate reduction in at least one criteria pollutant or its precursors in nonattainment or maintenance areas. States without nonattainment and maintenance areas may use CMAQ funds to support projects that are eligible under CMAQ or the Surface Transportation Block Grant Programs.

While CMAQ-eligible projects are required to show a decrease in emissions of a criteria pollutant or precursor, many CMAQ

projects may also provide additional co-benefits, such as carbon dioxide (CO₂) reductions, fuel reductions, health and safety improvements, and increased access to employment opportunities. Co-benefits create additional value for funding projects by reducing emissions while simultaneously meeting other goals

Emissions reduction is one of several criteria that State and local transportation agencies may use to prioritize projects for CMAQ funding. Many agencies, such as the Atlanta Regional Commission (ARC) and Massachusetts Department of Transportation (MassDOT) are also incorporating co-benefits into their project evaluation and prioritization frameworks

How do Certain CMAQ Projects Contribute to CO₂ Emission Reductions?

Potential co-benefits of CMAQ projects include cost savings, congestion relief, climate change mitigation, health and safety benefits, and equity improvements. CMAQ projects can contribute to a more equitable transportation system by addressing imbalance in access to resources (e.g., mass transit or electric vehicle chargers) and by distributing potential environmental benefits proportionately. For example, a CMAQ project which expands transit bus service to a low income community and replaces older diesel vehicles with electric buses may lead to improved transportation equity and less pollution burden in an underserved area.

Although CMAQ projects are funded based on CMAQ Program eligibility criteria and their emissions reduction potential, co-benefits increase the cost effectiveness of the project by providing additional benefits per dollar spent

What is Justice40?

CMAQ projects may be located to align with the Justice40 initiative.

Justice40 aims to deliver 40 percent of the overall benefits of federal investments in climate and clean energy to disadvantaged communities (DAC). DAC may include communities with limited transit options, higher poverty, and higher exposures to harmful air pollutants

How Can Agencies Use Co-Benefits to Prioritize CMAQ Projects?

Each agency determines how to take co-benefits into consideration when allocating funding for transportation projects.

Here are some examples:

- ARC developed the Transportation Improvement Plan (TIP) Project Evaluation Framework, which helps incorporate a range of co-benefits, including reliability, social equity, and employment accessibility, into funding decisions, including CMAQ funding.
- MassDOT's statewide travel model estimates future travel behavior in Massachusetts and adjacent commuting regions. The model considers changes in the costs of different transportation modes, levels of congestion, and equity for nearly 6,000 geographic zones.



MassDOT Transportation Analysis Zones used in travel modeling (Source: Mass DOT)

CMAQ Project Co-Benefits: Project Highlight

The Green Line Extension (GLX) project in Somerville, Massachusetts will add 4.7 miles of rail transit, seven new stations, and new vehicle storage and maintenance facilities. The project will create a one-seat ride from Somerville to downtown Boston and eliminate the need for bus and rail transfers. The first branch of GLX (Union Square, Somerville) opened in March 2022.

To determine the co-benefits of GLX, MassDOT used travel data from the statewide transportation model and emissions data from the Environmental Protection Agency's Motor Vehicle Emissions Simulator (MOVES). Co-benefits of the project include:

- ARC Increased transit options in disadvantaged communities
- Expanded access to public transit (expected increase in daily ridership of 32% by 2030)
- 50 to 65% decrease in travel times from Somerville to downtown Boston
- CO₂ emissions savings of 17,682 kg/day
- Reduced congestion and air quality impacts, due to a decrease in daily vehicle miles traveled (VMT) of 25,728 miles

Common CMAQ Project Co-Benefits

Common co-benefits that state and local transportation agencies use to evaluate projects include:

- Mobility and Congestion
- Reliability
- Network Connectivity
- Multi-modalism
- Asset Management and Resiliency
- Safety
- Air Quality and Climate Change
- Cultural and Environmental Resources
- Social Equity
- Land Use Compatibility
- Goods Movement
- Employment Accessibility



Photo: FHWA

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