Carbon Reduction Program (CRP) Project Solicitation Spring 2024

March 12, 2024

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Carbon Reduction Program information

The Infrastructure Investment and Jobs Act (IIJA) established the CRP which provides federal funds for projects designed to reduce carbon emissions from surface transportation. The legislation also requires each state to develop a Carbon Reduction Strategy[1] (CRS) in consultation with MPOs to identify projects and strategies to support the reduction of transportation emissions. In Minnesota, the CRS was completed in November 2023 and submitted to FHWA for review and approval. MnDOT developed the Minnesota CRS in coordination with MPOs, ATPs, the public, transportation advocacy groups and other partners across Minnesota. Implementation of the CRS requires coordination among MnDOT and partner agencies.

The CRP provides Minnesota with approximately $20.9 million annually over five years to fund projects that reduce carbon emissions from surface transportation. Program funding is distributed across the state, with some funds allocated proportionally based on population[2]. MnDOT Districts, MPOs and ATPs will select projects to receive CRP funding.

Areas that receive funding will use a consistent set of criteria and scoring techniques detailed in this document to support prioritization and selection of projects. While the primary intent of the CRP is to advance projects that reduce carbon from the surface transportation sector, the Minnesota CRS also advances goals of equity, safety, transportation access and public health.

Eligible Project Types

There are many project types that can address the goals of the CRP and reduce carbon emissions from the transportation sector. The Minnesota CRS prioritizes projects in three broad strategy categories: electrification, travel options and low carbon infrastructure and system management. Most of the projects identified in the CRS are eligible for CRP funding, with exceptions identified in the sections below.

Electrification

The primary goal of electrification projects is the decarbonization of the vehicle fleet in Minnesota. Electric vehicles (EVs) and other zero emissions vehicles (ZEVs) are critical to achieving the carbon reduction goals set forward in the CRS because they can reduce transportation emissions for traveling

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[1] "Carbon Reduction Strategy 2023", https://edocs-public.dot.state.mn.us/edocs_public/DMResultSet/download?docId=36928262, MnDOT, (2023).
[2] Under federal law, within each state, 65% of CRP funds must be allocated to areas of the state in proportion to population size and 35% of CRP funds may be allocated in any area of the state (23 U.S.C. 175(e)).

that cannot be reduced or shifted to another mode. There are a wide range of electrification projects and projects that support EVs or ZEVs. Eligible projects can support three strategies in the CRS:

- Install EV or ZEV charging infrastructure.
- Purchase or leasing EVs or ZEVs.
- Support EV and ZEV adoption through outreach and education.

Figure 1: 2023 Minnesota CRS Electrification priority strategies and project types, MnDOT 2023[3]
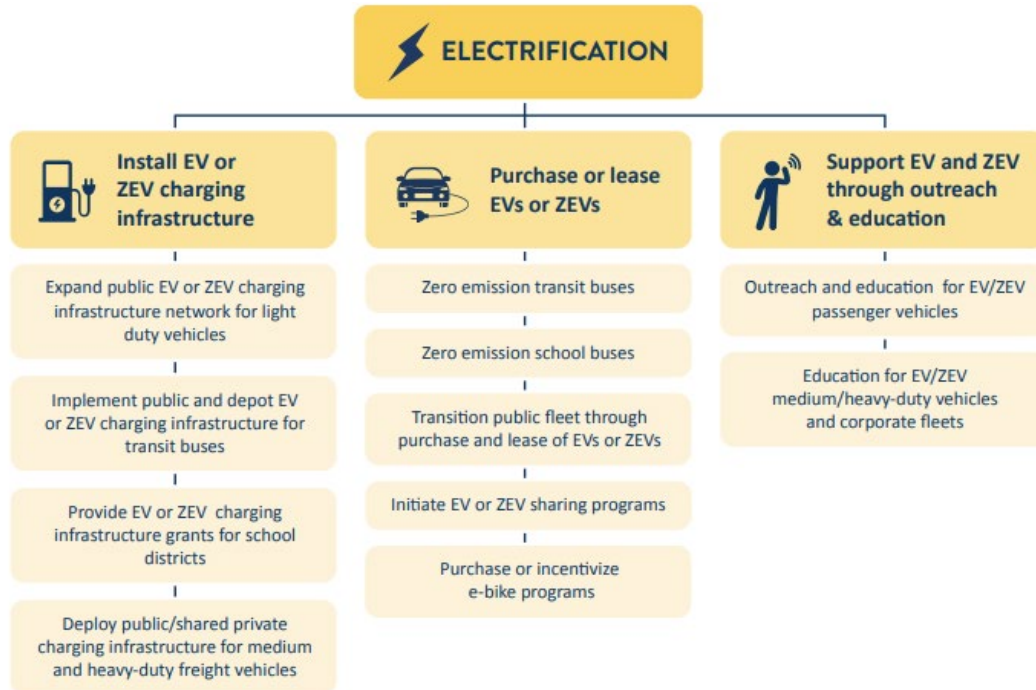
Travel Options

Travel options projects reduce per-capita vehicle miles traveled (VMT). Reducing VMT supports achieving the carbon reduction goals set forward in the CRS because a reduction in per-capita VMT reduces per-capita transportation emissions. Eligible projects can support six strategies in the CRS:

- Install and maintain infrastructure network improvements for walking, rolling and biking.
- Plan, design and engineer infrastructure network improvements for walking rolling and biking.
- Implement context sensitive design for travel options.
- Add high-capacity transit options.
- Add intercity and regional public transit options.

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[3] "Carbon Reduction Strategy 2023", MnDOT, (2023).

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- Implement travel demand management.

Figure 2: 2023 Minnesota CRS Travel Options priority strategies and project types,

MnDOT 2023

(CRP ineligible project types noted)[4]
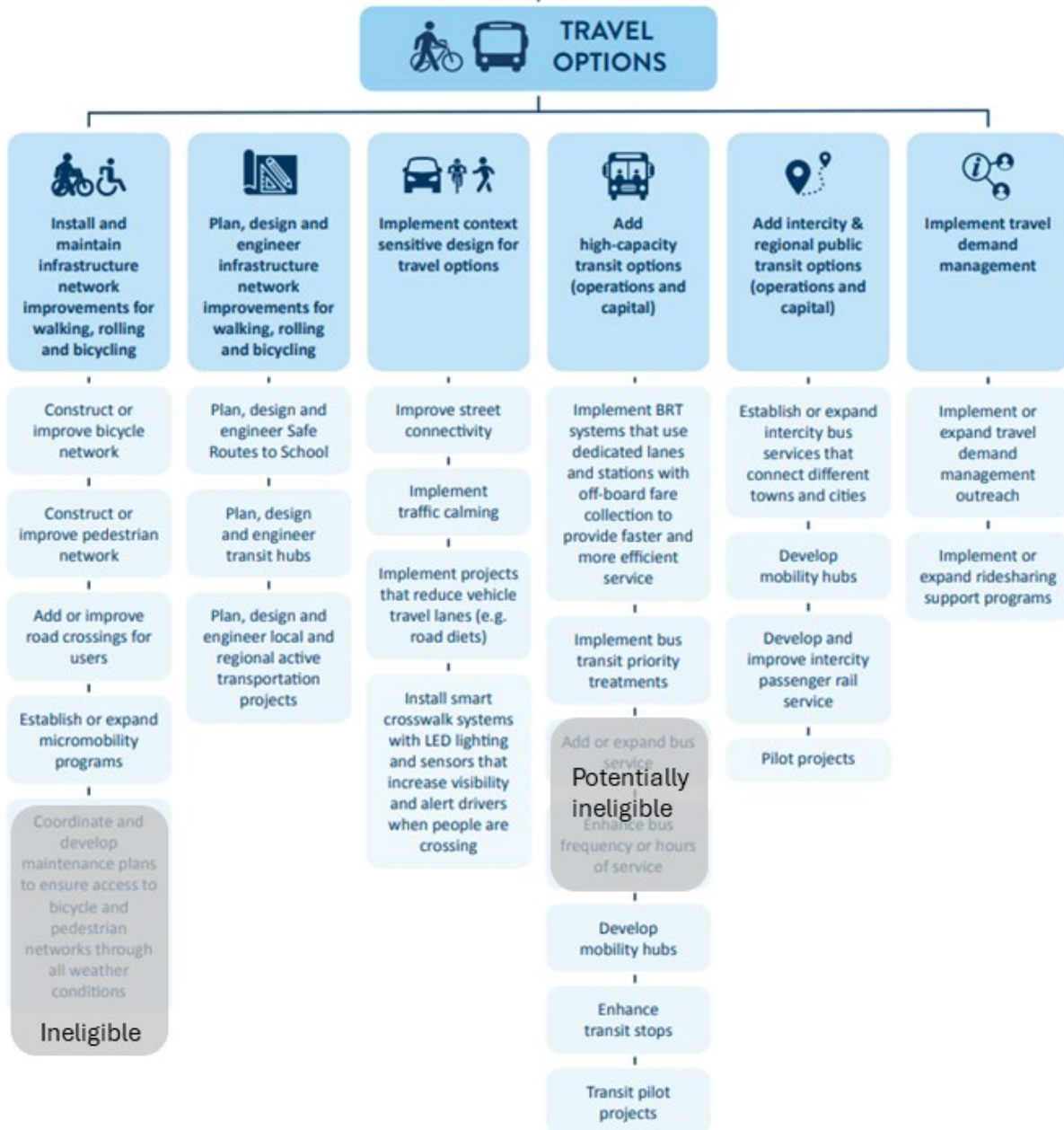
Low Carbon Infrastructure and System Management

Low carbon and infrastructure system management projects reduce carbon emissions throughout the entire transportation process, from construction and maintenance of infrastructure to vehicle operations. These projects support the use of:

- Low carbon materials in project construction.
- Improving construction and maintenance practices.
- Reducing emissions associated with transportation infrastructure and vehicle operations.

Eligible projects can support three strategies in the CRS:

- Optimize transportation systems management and operations.
- Utilize low carbon methods for construction and maintenance of transportation infrastructure.
- Support renewable energy generation.

Figure 3: 2023 Minnesota CRS Low Carbon Infrastructure and System Management priority strategies and project types, MnDOT 2023

(CRP ineligible project types noted)[5]

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[5] "Carbon Reduction Strategy 2023", MnDOT, (2023).

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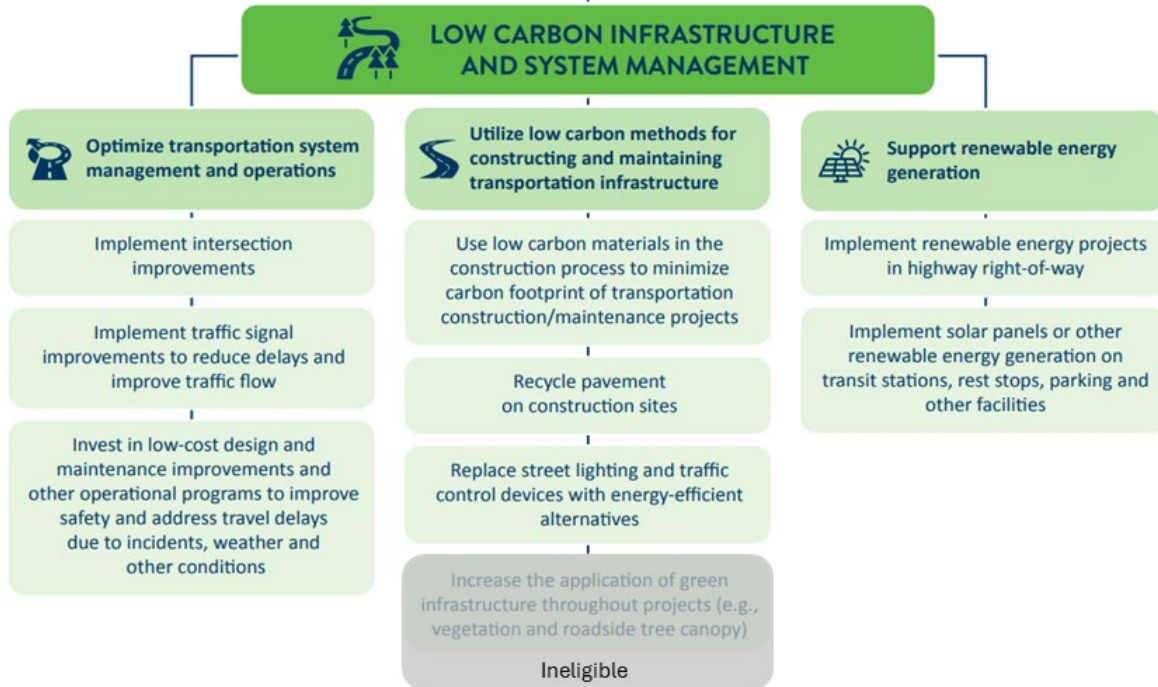
Solicitation timeline

Project solicitations will be conducted by MPOs and ATPs and specific dates will be determined by those entities.

- **Solicitation Opens:** March 12, 2024.
- **Application Deadline:** 3 p.m. Friday, May 10, 2024. Applications are due to Vicki Johnson (ikeogu@stcloudapo.org).
- **APO staff internal project DRAFT project scoring:** Week of May 13-May 17.
- **TAC Discussion and Funding Prioritization:** May 30, 2024.
- **Policy Board Action:** June 13, 2024.
- **Project incorporated into the 2025-2028 APO Transportation Improvement Program:** June 30, 2024.

The MnDOT CRP website will provide information as to what years of funding are available for solicitation each year. MPOs, ATPs and District staff should check the website for updates.

Evaluation Criteria

Each application includes a section for a project description, project timeline and milestones to showcase the project's eligibility, quality and readiness. These items will be reviewed to identify project readiness.

Projects will be evaluated based on cost-effectiveness and the following four co-benefit categories. Cost-effectiveness will account for a minimum of 50% of the project scoring. The final score for a project is determined by adding the cost-effectiveness score with the co-benefit score, giving each project a score out of 100 points.

The following sections detail the cost-effectiveness and co-benefit evaluation and scoring processes.

Cost-effectiveness

The primary metric against which projects will be selected is the cost-effectiveness of a project's carbon reduction. Applicants will need to use the Carbon Emissions Tool (CET) to calculate a project's carbon reduction and associated cost-effectiveness. The basic equation for cost-effectiveness is in Figure 4. The CET Instructions and Tips provide guidance on how to use the CET.

Figure 4: Equation for calculating cost-effectiveness of a project's carbon reduction, MnDOT CET 2024

$$Cost\text{-}Effectiveness = \frac{Total\ Project\ Cost}{Cumulative\ CO_2\ Reduction}$$

To be able to score projects, a consistent scoring scale needs to be established. This means that the cost-effectiveness of carbon must fit into a 20-point scale where 20 points is used to describe the project with highest cost-effectiveness and 0 represents that there is no cost-effectiveness of the project. Of all the projects submitted for the solicitation, the project that is most cost-effective receives 20 points, then all other project cost-effectiveness' are proportionately scaled and scored to the cost-effectiveness of the most cost-effective project submitted. This means that one project in every solicitation will receive 20 points for cost-effectiveness.

Co-benefits

There are many co-benefits that projects can have in addition to carbon reduction. In alignment with the Minnesota CRS, four primary co-benefit categories have been identified.

- Equity
- Safety
- Access
- Health

Each co-benefit is scored on a scale of five points, amounting to a maximum of 20 total points for each proposed project. A description of each point level is provided in Table 1.

Each applicant should provide separate narrative descriptions for each co-benefit category (i.e., a narrative for equity, another narrative for safety, etc.). These narratives should describe qualitatively, quantitatively, or both, how the proposed project will fulfill each co-benefit category. When writing

narratives applicants are encouraged, but not required, to use established datasets, benchmarks, best practices, standards set forward in planning documents (i.e., Statewide Multimodal Transportation Plan) or other similar material (i.e., Justice40) to identify how the co-benefit is met by the project.

Applicants are encouraged to respond to each co-benefit in the application. If no connection to a co-benefit can be found in a project, the project may still be eligible for funding. Applicants are still encouraged to apply, as a project may be selected even if it does not receive a high score for all co-benefits.

Table 1: Scoring Scale for Co-Benefits, MnDOT 2024

Score	Description
0	This project demonstrates no connection to the co-benefit.
1	This project shows minimal connection to the co-benefit with little to no documentation in datasets, plans or narrative. Narrative text describes a weak connection to a co-benefit with no supporting datasets or plans provided.
2	This project shows a moderate connection to the co-benefit with some documentation in datasets, plans or narrative. Narrative text makes the case that there is a connection to the co-benefit, based on the applicant's understanding, but there are no further datasets or plans provided.
3	This project shows good connection to the co-benefit somewhat documented with datasets, plans or narrative. There are plans or maps with data that shows a connection to the co-benefit Narrative text makes a connection between the data provided and the co-benefit.
4	This project shows well-defined connection to the co-benefit with well documented datasets, plans or narrative. There are plans or maps with data that shows a connection to the co-benefit. Narrative text provides thorough detail on how the project will benefit area communities using the data provided.
5	This project shows outstanding connection to the co-benefit through thoroughly documented datasets, plans or narrative. There are comprehensive planning, engineering or equity focused studies carried out prior to or as part of the project development process that provide detailed and specific connections to the co-benefit.

Project scoring

Using the above consistent scoring methods, the cost-effectiveness and co-benefits criteria are combined to create a composite score for each project. This composite score may be used to rank projects. Composite scores may be entered into the CRP Project Scoring tool, which provides a total score out of 100 for each project. This score is calculated using the equation in Figure 5.

Figure 5: Cost-effectiveness scoring equation, MnDOT 2024

$$Final\ Weighted\ Score = \left(\sqrt{Normalized\ Cost\text{-}Effectiveness} + \sqrt{Co\text{-}Benefits}\right) \cdot 11.18$$

$$Where: 11.18 \approx \frac{100}{\sqrt{20}+\sqrt{20}}$$

In Figure 5, square roots were used to modify the scores for the co-benefits and cost-effectiveness to take advantage of the parabolic curve this formula creates. Using a parabola as opposed to a linear curve ensures that projects that have scores on extreme ends of both these factors do not skew the results. Using this method, a project with a very high cost-effectiveness score and very low co-benefit scores will not have as high of a final weighted score than projects that score well in both categories.

Figure 6: Cost-effectiveness scoring equation with weights, MnDOT 2024

$$Final\ Weighted\ Score = \left((2 \cdot W)\sqrt{NCE} + (2 \cdot (1-W)\sqrt{CB}\right) \cdot 11.18$$

$$Where: \quad 11.18 \approx \frac{100}{\sqrt{20}+\sqrt{20}}$$

$$W = relative\ weight\ percentage\ of\ Cost\text{-}effectiveness$$

$$NCE = Normalized\ Cost\text{-}Effectiveness$$

$$CB = Co\text{-}Benefits$$

In Figure 6, MPO and ATP Project Review and Selection Committees are able to modify the weight of cost-effectiveness and co-benefits. The default weight is 50% for cost-effectiveness and 50% for co-benefits, meaning that the sum of the co-benefits and the carbon reduction cost-effectiveness are weighted equally. To further prioritize carbon cost-effectiveness in project selection, an ATP or MPO may increase the percentage that carbon reduction cost-effectiveness is weighted to higher than 50% (it cannot be lower than 50%). This allows regional agencies to determine the importance of carbon reduction cost-effectiveness and each co-benefit based on their regional priorities. *For purposes of this solicitation, the APO is opting to align with the default weight setting for 50% cost-effectiveness and 50% for co-benefits.*

This weight is incorporated by simply multiplying the percentage weight against the respective square-rooted score (Figure 6). This maintains the 100-point scale for final scores but allows for different weights between the cost-effectiveness and co-benefits.

Basic Project Information

Please provide the following basic project information.

- Applicant:

- Applicant Contact Information (Name, Phone, Email):

- Total project cost:

- Total amount of CRP funds requested (maximum of 80% of the project total can be federal funds):

- Total amount and source of local funds committed to the project (minimum of 20% of project total):

- Total amount and source of additional federal funds obligated to the project already, if applicable:

- Identify the jurisdiction responsible for completing the project and receiving the CRP funds as partial reimbursement:

- Is this project able to accept partial funding (yes/no):

Project Description

Please provide an overview of the proposed project. Include the project category in this description.

Project Readiness

Please also provide the project timeline and milestones, including any relevant planning or engineering studies. Be sure to describe how the project can be completed in the requisite timeframe as defined in the project solicitation.

Carbon Cost-Effectiveness

The amount of CO_2e reduced and the cost-effectiveness are estimated using the Carbon Emissions Tool (CET) and associated CET Instructions and Tips. The total project cost is determined by the applicant. Further details regarding calculating the total costs of a project can be found in the CET. Similarly, the total carbon reduced is calculated for the whole project, not just a portion funded by the CRP. List your value for cost-effectiveness below in the units of Dollars/Metric Ton CO_2e reduced.

_____ Dollars/Metric Ton CO_2e reduced.

Which project types were used to calculate the carbon cost-effectiveness and what were the Year 1 and cumulative emissions reductions for the project? Applicant may include a replica table or screenshot of the 'Results Summary' tab in the space below.

Co-benefit: Equity

Please describe how this project benefits disadvantaged communities. These communities can be defined through the Justice40 framework or alternative framework for assessing disadvantaged populations, including households without a motor vehicle and people with disability (see Appendix A).

Co-benefit: Safety

Please describe how this project will improve real or perceived safety concerns in the community. These can be identified in a safety study or plan. If the safety concerns are not identified in a plan, they may be identified with an alternative approach, such as providing an aerial photo of the safety concern. Describe whether the project occurs in an area with high rates of motor vehicle serious injury or fatal crashes and/or areas with high rates of non-motorized serious injury or fatal crashes and whether the project has a safety component that addresses these challenges (See Appendix B).

Co-benefit: Access

Please describe how the project improves non-motorized access and transit or shared mobility access to key destinations. This can include improvements that encourage these modes through both infrastructure and land use. Describe how the project improves travel efficiency (via driving, carpool or other methods) to key destinations and how the project improved traveler comfort.

Co-benefit: Health

Please describe how this project improves localized air quality, especially in communities with high rates of asthma (see Appendix C). Also describe how this project supports active transportation.

Appendices

Appendix A: Definition of disadvantaged communities (Justice40)

Justice40 is an initiative set forth through Federal Executive Order 14008 that aims to provide 40% of the benefits from certain federal grants, programs and initiatives to disadvantaged communities. To achieve this goal, many agencies have created definitions of disadvantaged communities to use in the solicitation of grants and other projects to ensure that disadvantaged communities are being served. Three tools have been identified for applicants to use if they wish, though using these tools is not required for determining whether a community is disadvantaged or not. Applicants are also encouraged to use other publicly available tools to showcase how their projects help serve disadvantaged communities. These tools are:

- USDOT Climate and Economic Justice Screening Tool (CEJST Tool)
- USDOT RAISE Mapping Tool
- EPA EPA Environmental Justice Screening Tool (EJ Screen Tool)

Currently, the USDOT uses the CEJST Tool to define census tracts that are disadvantaged. This tool, created by the Department of Energy, uses 8 categories of burdens to define disadvantaged communities: Climate Change, Energy, Health, Housing, Legacy Pollution, Transportation, Water and Wastewater and Workforce Development. Any census tract is considered disadvantaged if it meets one of the 8 burdens listed above, is surrounded by disadvantaged census tracts and is at or above the 50th percentile for low income or is a federally recognized tribe. More information on the methodology and data of this tool is available here.

The USDOT uses another tool for its RAISE (Rebuilding American Infrastructure with Sustainability and Equity) Grants, called the RAISE Mapping Tool. This tool identifies census tracts that are either areas of persistent poverty[6] or historically disadvantaged communities. More information on tool use and methodology is available here.

The EJ Screening Tool is used by the EPA to measure metrics related to environmental and public health impacts on communities. As part of this tool, there is a metric that measures general socioeconomic disparities called the EPA IRA Disadvantaged Communities that shows communities and census tracts that are disadvantaged. More information on the tool and methodology is available here.

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[6] Areas of persistent poverty are defined as counties or census tracts where more than 20% of the population were recorded to live in poverty by the 1990 Census, 2000 Census, and the 2021 Small Area income Poverty Estimates, or recorded a 20% poverty rate in the 2014-2018 5-year data series of the American Community Survey or is located in any US territory.

Appendix B: Definition of high crash locations

High crash locations are generally defined and identified in local planning documents (e.g., roadway safety plans). There are online tools for identifying high-risk crash locations. Below are a few options, but others may be used as well with justification.

- Minnesota Crash Mapping Analysis Tool provides several analytical tools that allow users to assess crashes with 10-year rolling crash data. Applicants may need to coordinate with MnDOT District traffic staff to access the data.
- Suitability for the Pedestrian and Cycling Environment (SPACE) Tool combines many indicators, both sociodemographic and transportation related, that indicate the extent to which a community is suitable for active transportation (e.g., walking and bicycling). This tool is scored on a scale of 0 to 100, with 1 indicating the least suitable and 100 indicating the most suitable. One of the criteria for this tool is the safety risk of intersections for active transportation users. As an example, this can be used to showcase an area of high crash risk for non-motorized users. More details on SPACE tool use and score methodology can be found here.

Appendix C: Definition of localized air quality improvements

Localized air quality improvements occur when lower quantities of harmful pollutants are emitted and therefore health outcomes for the community improve. These pollutants can include, but are not limited to:

- Fine particulate matter (PM 2.5)
- Particulate matter (PM-10)
- Oxides of nitrogen (NOx) and volatile organic compounds (VOCs), which contribute to ozone formation
- Carbon monoxide (CO)

Most projects that reduce carbon emissions will also reduce localized air pollution, including projects that replace conventional vehicles with zero emission vehicles (ZEVs) and projects that reduce motor vehicle travel through mode shifts to walking, bicycling, transit and other options. As a result, the level of air pollutant emissions reduced may either be analyzed quantitatively or provide a qualitative discussion of how the project will reduce emissions, particularly in areas with high asthma rates.

To identify areas with high asthma rates, the EJ Screening Tool can be used. This tool has a metric for assessing asthma rates in communities. More information on the tool and methodology can be found here. This tool provides information normalized to both the national and state level. Figures C1 and C2 show the Asthma Rates for the MSP metro area and the state of Minnesota which applicants may use if desired.

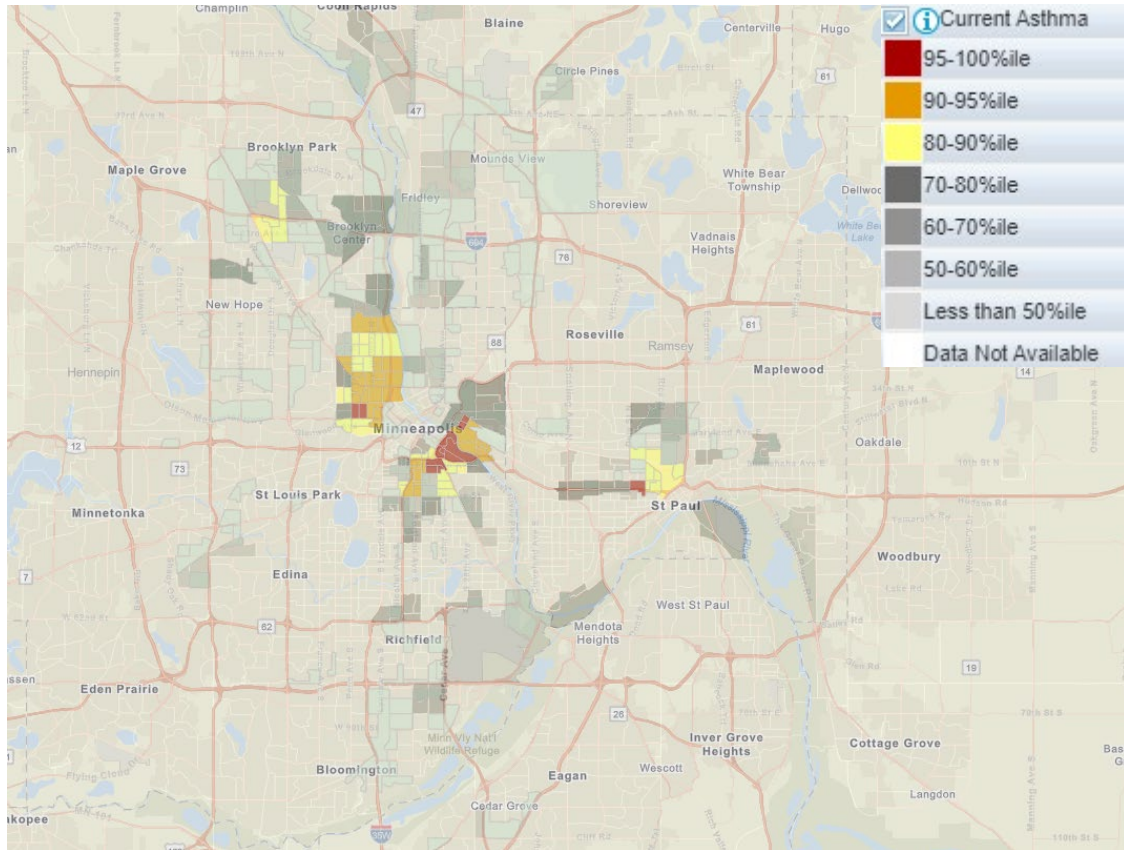**Figure C1: Asthma rates in the Minneapolis St. Paul area, EJSCREEN 2024**

Figure C2: Asthma Rates in Minnesota, EJSCREEN 2024