



Lehigh Valley Green Transportation Infrastructure Project

Submitted by



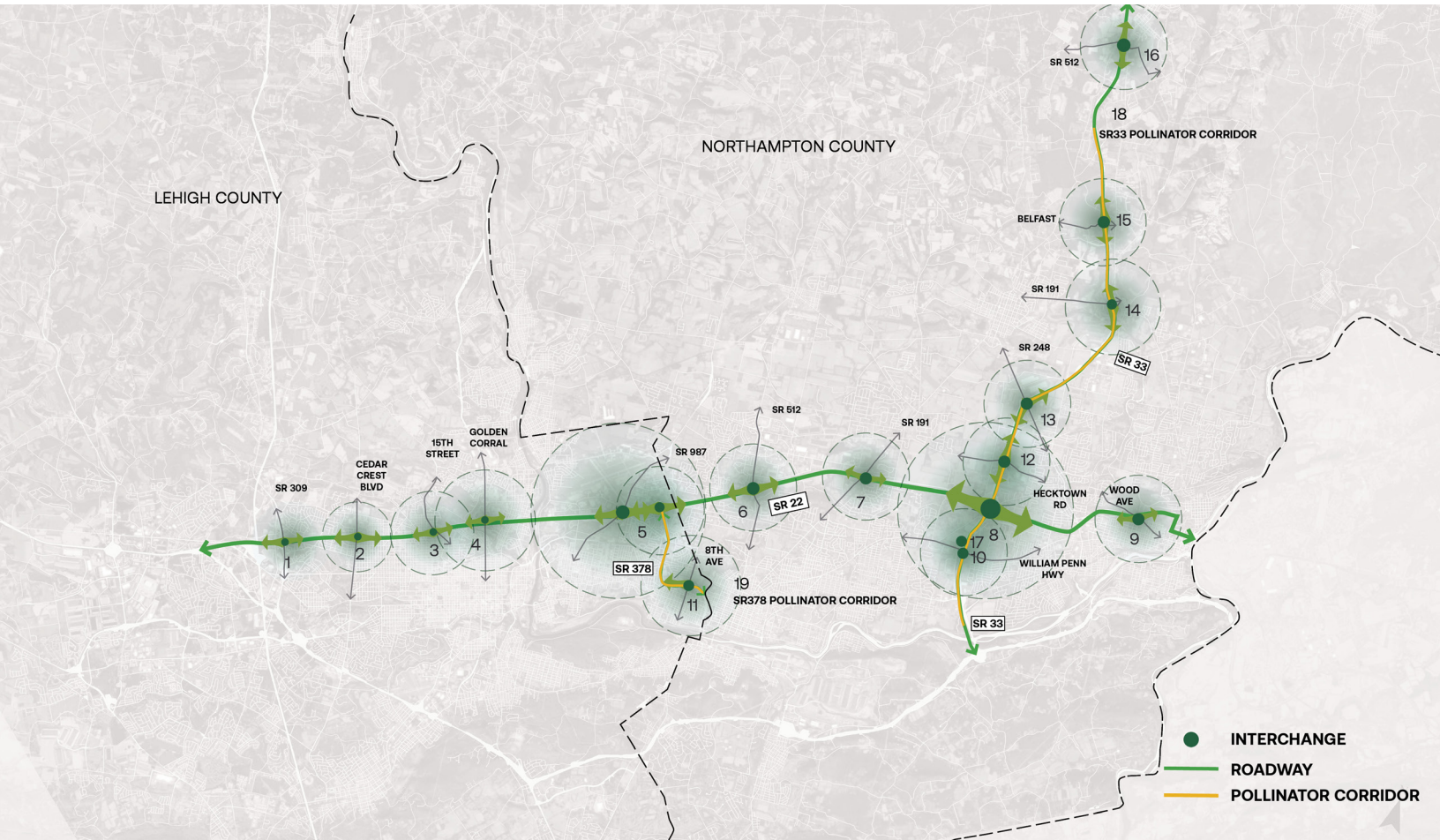
pennsylvania
DEPARTMENT OF TRANSPORTATION



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Lehigh Valley Green Transportation Infrastructure Project Locations



10,076 MTCO₂e

Greenhouse Gas Reduction by 2030

53,876 MTCO₂e

Greenhouse Gas Reduction by 2050

522 Acres of Public Right-of-Way

Transformed from the Greenhouse Reductions

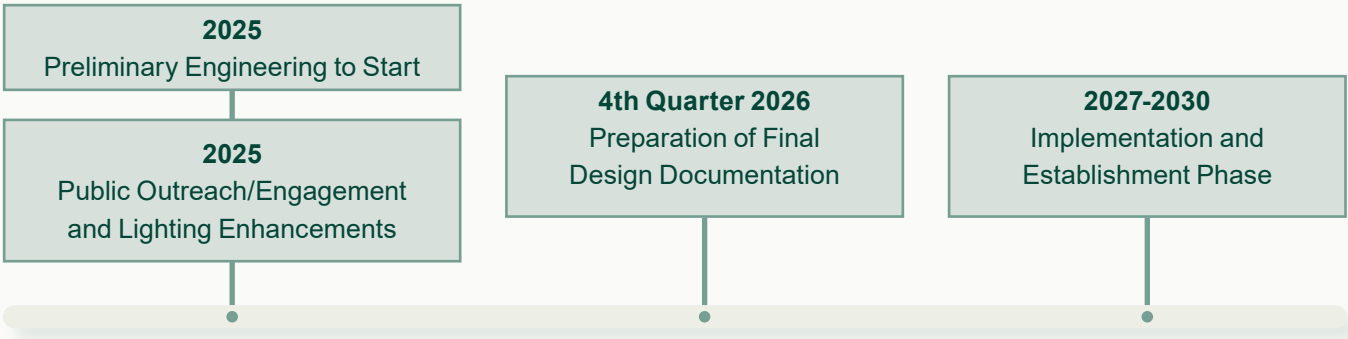
Development of Monitoring Plan

Contract Administration: Includes grant management tasks (semi-annual reporting), budget monitoring, consultant management

The above tasks layout a structured process, consistent with PennDOT internal construction engineering and planning procedures. As all project areas are owned and maintained by PennDOT, site acquisition and ownership issues would not pose a major impediment project implementation. The project team gave careful consideration to the selection of targeted regional corridors for green infrastructure and then selection of individual sites within these corridors. Drivers influencing selection of sites included:

- **Land Availability and Use:** The availability of suitable publicly-owned and controlled land within right-of-way without conflicting land uses.
- **Carbon Sequestration Potential:** Sites that can maximize the absorption of CO₂, including areas that are able to support forests, grasslands or similar ecosystems.
- **Environmental Justice:** Sites in proximity to sensitive user groups such as Justice40 communities, schools, hospitals and playgrounds.
- **Safety Improvement:** Sites near high-crash corridors where improvements can minimize hazard and maximize carbon absorption.

The Major Tasks and Milestones Required to Implement This Project Include:



Challenges & Risks

As mentioned previously, the karst landscape will add complexity to some of the design/engineering which may delay permitting and final design. However, this is a common issue and there is much experience in the engineering design of these sites. Implementing green infrastructure may help in high karst topography areas. Root systems keep the ground more secure and absorb runoff that may contribute to sinkholes caused by karst topography. The project will require environmental regulatory clearances which may cause unintended delays in the project implementation schedule. Should there be unforeseen delays, full implementation may be pushed to later years, leading to reduction in estimated GHG targets by 2030.

Project Coalition

The project coalition is made up of members from the Lehigh Valley Planning Commission (LVPC) and PennDOT. LVPC was responsible for the creation of the PCAP and will also develop the Comprehensive Climate Action Plan (CCAP), both supporting the projects identified in the implementation grant. The LVPC, as the federally designated Metropolitan Planning Organization, manages much of the public engagement and community collaboration with PennDOT for transportation planning and investment and will continue in this role as it relates to the grant. The LVPC will also monitor the project construction and GHG reductions as an air quality monitoring activity. PennDOT is the responsible party for and has the authority to implement the Green Infrastructure measures identified in the grant application as the owner of the land. They will be responsible for obtaining required permits and clearances, preparing contract bid documents for engineering and landscape design, construction services, and maintaining proposed project sites. LVPC and PennDOT will jointly develop green infrastructure standards for the project area and as transferrable model guidance for all highway corridors. It is of note that the LVPC and PennDOT have been transportation planning, investment and implementation partners since 1961, maintaining an active program supporting multimodal connectivity, mobility, resource and asset preservation and protection. Air quality, transportation safety, asset maintenance and preservation monitoring of the project, once constructed and beyond the grant period, are expected to become part of the metropolitan planning organization alliance activities, as well. Commitments beyond the grant period will be developed and agreed to as part of project implementation.

Relevance to GHG Reduction in the PCAP and Additional Key Information

Green Infrastructure is one of the main reduction measures included in the Lehigh Valley's PCAP. Goal 5 is to 'Reimagine and retrofit major transportation corridors with the green infrastructure'. The goal integrates carbon sequestration into transportation infrastructure, utilizing natural systems services to enhance the interconnected network of open spaces and natural areas. When communities utilize and enhance their natural environmental assets as an integral part of their infrastructure, they can reduce their impact on climate change and increase their ability to adapt to changes that may occur. Traditional methods focus, on enhancing fuel efficiency and transitioning to electric vehicles as prioritized in PCAP goals three and four. However, these approaches, while critical, tackle only a part of the problem. The necessity for a more comprehensive strategy, one that includes carbon sequestration as a key component in transportation decarbonization, is reflected in PCAP goal five and through the implementation of the green infrastructure project in this grant application. This innovative approach aims to increase capture and store atmospheric CO₂, thereby reducing the overall carbon footprint of the transportation network.

This measure was selected as a priority due to the amount of land in public ownership that could benefit from green infrastructure. In fact, more public land in the Lehigh Valley is in transportation rights-of-way than any other single form of ownership. This green infrastructure strategy is also part of evolved land conservation and enhancement, hazard mitigation, air and water quality, karst geology, pollination and habitat enhancement strategies embedded in *FutureLV: The Regional Plan*. The PCAP was adopted by the LVPC as priority action plan for climate action, in accordance with the broader goals of *FutureLV: The Regional Plan*. In addition, the transportation sector is the second most contributor of GHG emissions in the Lehigh Valley. In 2022, the *Lehigh Valley Greenhouse Gas Assessment* found that the transportation sector was responsible for 26% of all GHG emissions in the Lehigh Valley in 2019. With the region's population growing from approximately 695,000 people per year to more than 786,000 by 2050 and with jobs, especially in the industrial and healthcare sectors, growing at a higher rate than the population, even with improvements in fuel economy the gradual transition to alternative fueled vehicles and increase in non-vehicular modes of travel will not be enough to offset the growth in emissions without additional intervention. The natural systems services provided by green infrastructure in the most heavily traveled corridors resulted as a primary objective for the region.

All in all, the Lehigh Valley Green Transportation Infrastructure Project will reduce GHG by 10,076 metric tons of carbon dioxide (MTCO₂) by 2030 and 53,876 MTCO₂ by 2050, while transforming 522 acres of public rights-of-way.

Need for Funding

As noted above, the Lehigh Valley is experiencing intense growth in population and the economy. Over 600 transportation maintenance and transit projects costing over \$4.3 billion between 2024 and 2050 are planned throughout the Lehigh Valley. However, the US Department of Transportation (USDOT) and Commonwealth of Pennsylvania funding provides for basic road maintenance, bridge rehabilitation and replacement, and funding of the rolling stock for the transit system. It is of note that the Lehigh and Northampton Transportation Authority (LANTA), the region's transit agency already operates a 100% hybrid and alternative fueled bus fleet that works towards achieving the transition to clean low-carbon and zero-emissions fuels noted in the PCAP. Increasing non-vehicle travel options and access to transit, in PCAP Goal 1, and transportation systems management and operations strategies in goal six along with supporting operation of LANTA's low and zero-emissions fleet will continue to be funded utilizing USDOT and Pennsylvania state formula funding and specific transportation grant programs through the Infrastructure Investment and Jobs Act. The green transportation infrastructure project as proposed in this application is not eligible for federal and state transportation formula funding. Furthermore, the Commonwealth of Pennsylvania does not allow regional, county or municipal voter referendum or other public revenue-raising tax or fee programs to maintain, protect, improve or enhance transportation infrastructure. The US EPA Carbon Pollution Reduction Grant program is the only option to advance this critical climate action project.

Transformative Impacts

The project team will utilize the green infrastructure standards and measures set as part of the Lehigh Valley Green Transportation Infrastructure Project as a blueprint for all highway projects in the region. In addition, the intent is to develop the green transportation infrastructure standards into a guide that can be utilized anywhere and include information on how to develop, coordinate, construct and monitor outcomes. Essentially, a 'model guide' will be one of the key outcomes of the project, in addition to the project construction.

Overall, the intent is that the interchanges and corridors that are transformed will become a standard for future implementation projects to enhance the green transportation infrastructure system.

The implementation grant also incorporates an air quality and transportation safety monitoring systems for the project area. The project team believes that it is imperative that the performance of the green transportation infrastructure improvements be monitored and reported. An operating hypothesis is that if the transportation infrastructure system is 'greened', motorists will have a higher level of respect for the infrastructure itself, and driver behavior will improve, reducing trash, traffic incidents, serious injuries and potentially even fatalities. It is of note that transportation safety systems monitoring already occurs and is funded by other sources. Air quality monitoring is intended to be added as a specific CPRG activity. The potential to measure and monitor educational and even health outcomes in the environmental justice communities along the new green infrastructure corridor is also possible, and baseline data has already been established through federal Justice40 and LVPC equity data and analyses. The LVPC will also continue to fund the Justice40/LVPC equity measuring and monitoring after the grant period. Writing and publishing the combined air-quality, transportation system safety and environmental justice findings, including how to establish a green transportation system monitoring program is replicable nationwide. The Lehigh Valley Green Transportation Infrastructure Project's ability to transform an entire region is undeniable. Couple this with the establishment of standards to expand a comprehensive natural systems transportation corridor program to other roadways, regions and states, matched with a long-term, post-grant commitment to measuring, monitoring, developing tools and promoting them, and we have an incredible opportunity to have impacts that reach well beyond the Lehigh Valley.

The Impact of Greenhouse Gas Reduction Measures

Introduction

Greenhouse Gas (GHG) Reduction Measures refer to specific actions or strategies implemented to decrease GHG emissions or enhance their removal from the atmosphere. This proposal outlines direct and indirect reduction measures. Direct measures are quantifiable, utilizing documented methodologies. Indirect measures are strategies that lead to a decrease in greenhouse gas emissions as a secondary effect of the direct measures and currently do not have known associated methodologies to supply quantifications. The proposed direct GHG reduction employs a range of measures including:

- **GHG sequestration** through conversion of land to a higher efficiency vegetative cover
- **Energy efficiency** improvements through lighting conversion
- **Land use and management** through reduced maintenance practices

In tandem with these direct measures, the proposal also considers indirect GHG reduction strategies that influence:

- **Agricultural efficiency**, correlating pollinator availability with efficient crop yields
- **Reduced temperatures**, correlating reduction of heat island effect to reduce energy used for cooling and improve community health
- **Community health**, correlating lowered air and noise pollution from highways to decreased GHG through lowering chronic disease and medical facility demand
- **Safe corridors**, correlating traffic-calming to improved vehicular behavior, traffic efficiency, and crash reduction
- **Emergency access and hazard mitigation**, correlating protections from road flooding to improved emergency response to minimize facility damage and demands on medical facilities

In conjunction with co-benefits, this comprehensive approach aims to integrate various facets of environmental and community health to achieve a significant reduction in GHG emissions.

This section describes the various methods proposed for reducing GHG emissions from the Lehigh Valley's major transportation corridors, prioritizing urban greening practices within available rights-of-way, and enhancing existing stormwater control measures, as well as adding efficient lighting fixtures and improving multi-modal transportation connections. The general methodologies used to determine areas and GHG emissions will be described. Detailed methodologies, assumptions and calculations are included in Technical Appendix A, which can be found on the [Lehigh Valley Green Transportation Infrastructure webpage](#).

In total, 19 'enhancement sites' are proposed for retrofitting. Sites include: 17 interchanges (9 within State Route 22, six within State Route 33, and two along State Route 378, and two linear areas along State Route 33 and State Route 378 for pollinator corridor establishment. Within these sites are nine existing stormwater basins that will be redesigned to enhance their water quality features, increase resiliency to more frequent and intense storms and manage stormwater volume and velocity. Through a site selection process that considered land availability and use, carbon sequestration potential, environmental justice and safety improvement, the project team identified nearly 30 million square feet or 683 acres of right-of-way areas for potential enhancement opportunities within public right-of-way exclusive of road, bridges and ramps. A detailed site by site analysis was then conducted which considered PennDOT highway clearances and limitations, resulting in proposed enhancements of nearly 76% of the existing right-of-way or 23.5 million square feet (522 acres). The team evaluated current land cover conditions of these areas related to GHG emissions and then evaluated the net reduction of GHG emissions with completion of proposed green infrastructure improvements. The net result of the analysis estimated a total benefit of 2,042 Metric Tons of Carbon Dioxide Equivalent (MTCO₂e) sequestered annually as a result of the landscape projects proposed in this plan.

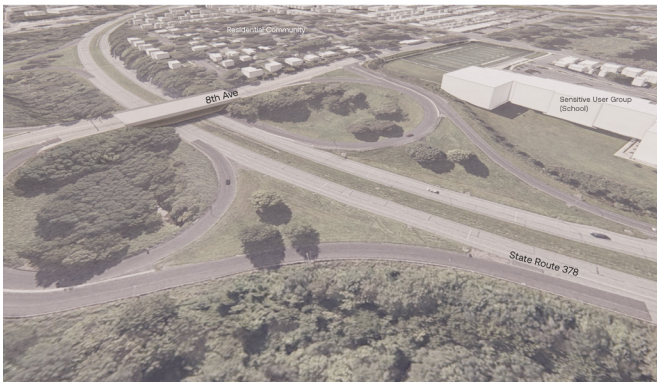
Additional direct GHG reductions were evaluated based on the installation of 578 new, energy efficient lighting fixtures. Reductions in GHG emissions were calculated based on information from PennDOT on current and proposed lighting fixtures used along mainline and ramps. Monthly Kilowatt hour (kWh) figures were generated for both types and then entered into [EPA's power profile calculator tool](#) to generate pounds of CO₂ emitted per year (466,654). It was recalculated based on reported energy efficiency factor of 70%, which resulted in reduction to 139,999 pounds of CO₂ emitted per year, a difference of 326,655 pounds of CO₂ or 148 MTCO₂e annually. Calculations and links to sources are provided in [Technical Appendix A](#).

Existing Conditions – Transportation Corridor Rights-of-Way Landscape Features

Existing areas of available right-of-way that provided opportunities for landscape enhancements, were derived via Geographic Information Systems (GIS) analysis of land cover and converted to both square feet and acres. Carbon Dioxide (CO₂) emissions and/or sequestered emissions equivalents were calculated for each lawn, naturalized grassland and meadows, shrubs, tree canopy and stormwater, to establish baseline conditions to compare with proposed interventions at each site. Data and resources cited to determine GHG emissions and sequestration are included in [Technical Appendix A](#). Carbon sequestered is expressed in pounds or metric tons of CO₂e.

Analysis of the net carbon emissions within these areas estimated that 283 metric tons of CO₂ are being sequestered per year by the existing landscaping including trees and various vegetation features (995-712 = 283). This excludes emissions generated by existing highway infrastructure and mobile sources using the highway.

INTERCHANGE OF 378/8TH AVE



BEFORE



AFTER



GHG REDUCTION STRATEGIES

Renderings by OJB Landscape Architects

SR33/WILLIAM PENN HIGHWAY



BEFORE



AFTER



GHG REDUCTION STRATEGIES

Renderings by OJB Landscape Architects

Proposed Impact on GHG Emissions Resulting From Green Infrastructure Enhancements

Proposed areas for enhancement were derived based on GIS analysis and eliminating areas within PennDOT right-of-way restrictions enhancements including clear zones for maintenance and viewshed. As noted above this resulted in 522 acres available for intervention.

The GHG calculations spreadsheet summarizes the proposed enhancements at a few of the 19 sites including the estimated GHG reductions (improvements), over existing conditions at individual sites related to the proposed landscape enhancements. The full spreadsheet with formulas and data sources for all 19 sites is included in [Technical Appendix A](#).

The estimated cumulative GHG emissions reduction outcome resulting from the proposed enhancements are 2,042 MTCO₂e each year. Detailed calculations and description of each measure, its GHG conversion value and sources are described in the [Technical Appendix](#). Also included is an explanation of the models chosen.

A. Magnitude of GHG Reductions from 2025 through 2030

The magnitude of cumulative GHG emission reductions is expected to be modest during this period as the majority of measures involve installation of vegetative elements that can take three to five years to fully establish. These measures provide durability as native vegetation and trees create above ground and below ground biomass for CO₂ sequestration which extends through multiple decades. The estimated sum of landscape GHG reductions is shown below, assuming a phase-in rate of 50% starting in year 3 (2027), and full implementation of lighting fixtures in 2025.

Measure Year	2025	2026	2027	2028	2029	2030	Sum
Landscape MTCO ₂ e Reduction			1,021	2,042	2,042	2,042	7,147
Addition of Energy Efficient Lighting Fixtures MTCO ₂ e Reduction	148	148	148	148	148	148	888
Summary	148	148	1,679	2,190	2,190	2,190	8,035

B. Magnitude of GHG Reductions from 2025 through 2050

The magnitude of cumulative GHG emission reductions is expected to be fully realized during this period, as the majority of measures planned will have been completed, including installation and establishment of meadows, bio-retention features and bioswales. Trees plantings will be completed and continue to grow. As noted above, these measures provide durability as native vegetation and trees create above ground and below ground biomass for CO₂ sequestration which extends through multiple decades. Indirect CO₂ capture and co-benefits of these transformed landscapes will be realized during this period. Community health benefits should result in improved health outcomes via measurements collected by CDC and disseminated to local entities such as LVPC. The estimated sum total of GHG reductions described in this are shown below.

Measure Year	2025-2050
Landscape Emissions Reductions	47,987 MTCO ₂ e
Lighting Emissions Reductions	3,848 MTCO ₂ e
Summary	51,835 MTCO₂e

C. Cost Effectiveness of GHG Reductions

Cost effectiveness of GHG reductions = Requested CPRG Funding (\$115,000,000)/Sum of Quantified GHG reductions from CPRG funding from 2025-2030. (8,035 MTCO₂e) = \$14,312 per MTCO₂e reduced.

Factors affecting the cost effectiveness of the measures include the broad range of co-benefits and potential beneficiaries of these approaches and the unique set of cost items associated with green vs. gray infrastructure. For example, green infrastructure systems (soil and native plant systems, landscaping treatments) require specific species and installation methods and an establishment period to properly function. Establishment costs are included in the grant proposal as it's considered critical to the success of these systems and considered separate from typical maintenance costs for greened areas. Working within highway right-of-way involves other complexities related to site access, wildlife interactions, and safety.

Careful consideration was given to the selection of targeted regional corridors for green infrastructure and then selection of individual sites within these corridors. Drivers influencing selection of sites included:

- **Land Availability and Use** – The availability of suitable publicly-owned and controlled land within right-of-way without conflicting land uses.
- **Carbon Sequestration Potential** – Sites that can maximize the absorption of CO₂, including areas that are able to support forests, grasslands or similar ecosystems.
- **Environmental Justice** – Sites in proximity to sensitive user groups such as Justice40 communities, schools, hospitals and playgrounds.
- **Safety Improvement** – Sites near high-crash corridors where improvements can minimize hazard and maximize carbon absorption.

Many of these important considerations are not captured in the GHG reduction number and are more difficult to quantify. Nevertheless, they should be considered as part of the overall social, economic and community benefits of this project.

This project proposes measures that, when viewed cumulatively, will reduce the overall carbon footprint of the regional transportation network infrastructure. Furthermore, these landscaping, lighting, land maintenance and stormwater management improvements will result in multiple co-benefits to the communities bisected by these corridors. By implementing these techniques, the project team aims to create a transportation network that facilitates movement and actively contributes to the reduction of greenhouse gases.

D. Documentation of GHG Reduction Assumptions

The GHG emission reduction estimates in this proposal reflect thoughtful application of green infrastructure concepts that considered varied factors related to each site's unique land cover, adjacent land uses and the broader community benefits resulting from projects that incorporate aesthetics, habitat considerations and safety, along with the air quality improvements associated with emission reductions that extend beyond the project's physical boundaries. The project team carefully considered and factored the existing conditions of these 19 sites in its calculation of GHG reductions resulting from the site transformations. Each land cover type was assigned either a CO₂ emissions value or CO₂ sequestration value based on data and conversion factors identified via literature review and use of several models and tools including [Greenhouse Gases Equivalencies Calculator - Calculations and References | US EPA](#), [Carbon Conscience](#) and [EPA's power profiler](#). Conversion factors used to calculate carbon emissions or carbon sequestration values are provided in the [Technical Appendix](#) including specific sources and citations of studies consulted. The selection of the Carbon Conscience tool, for example, was made due to its significant research on many different landscape typologies, allowing more precise estimates based on local conditions.

Environmental Results

Expected Outputs and Outcomes

1. Direct Reduction of GHG Production

Reduced Land Maintenance: Current land management and maintenance practices of vegetated areas within the implementation corridors are primarily associated with lawn care, shrubs and tree maintenance, and stormwater basin cleaning. The proposal includes replacement of traditional lawn with no/low-mow groundcover to reduce mowing operations. Shrubs and trees species that are vulnerable to pests and disease, climate change, are short-lived, invasive, and/or are hazard creating will be selectively harvested to maintain onsite biomass/carbon. Select replacement species will target durable vegetative cover palettes, with non-invasive habit, that will minimize maintenance created GHG production over the study period and beyond.

Primary GHG reduction outcome reflects the modification to PennDOTs current mowing regime related to its lawn and tall grass/meadow areas. PennDOT mows these areas 3 times per growing season.

Energy Efficient Lighting: The retrofitting of existing light poles with sodium ballast fixtures to incorporate light-emitting diode (LED) fixtures. The LED fixtures will lower energy consumption by approximately 70% from current kWh usage per month (55,199 kWh). Replacing will result in 38,639 kWh reduction or 148 MTCO₂e, according to [EPA's power profile calculator](#). Sequestration sources and assumptions are further described in the [Technical Appendix](#).

2. Direct GHG Capture

Proposed landscape and green infrastructure strategies along right-of-way and interchanges at Routes 22, 33, and 378 will help sequester carbon through strategies such as reforestation, restoration of habitat, lawn conversion to meadows and pollinator habitats. These strategies also provide additional co-benefits such as habitat creation, stormwater management, air quality improvement, noise attenuation, and mitigation of heat island effect.

- **Land Conversion:** Land conversion from turf and shrub to various vegetation typologies that provide multilayer ecosystem services such as improved habitat quality, improved carbon sequestration rates, stormwater management and quality. This conversion of right-of-way lawn areas to typologies such as meadow or deciduous woodlands that now emit 1,543 pounds per acre, will instead have sequestration rates of 8,222 to 13,227 pounds of CO₂ per acre annually. Introducing native keystone species also provides food, nesting, and shelter for pollinators and birds, thus improving habitat value along the corridor.
- **Lawn Alternatives:** Conversion of lawn from mowed lawn to low mow lawn increases sequestration rates to 3,108 pounds of CO₂ per acre annually by eliminating or reducing operation and maintenance related emissions. This lawn conversion also improves habitat quality as well as soil microbiology. Improved soil microbiology also provides additional benefits of increased sequestration rates by the soil itself as well as improved ability to filter stormwater runoff. Outcomes from reduced mowing are noted above.
- **Stormwater Basins/Management Areas:** Retrofitting stormwater basins will improve functioning to more effectively treat roadway runoff and mitigate hazards related to karst degradation, as well as improve regional emergency vehicle access during severe weather. Green stormwater infrastructure reduces the GHG emissions as well as capital and operational costs associated with extensive gray infrastructure such as channels, tanks and pipes. EPA study of the Lancaster, PA CSS area showed savings of \$120 million dollar in gray infrastructure capital costs by replacing it with green infrastructure.

3. Indirect GHG Capture/Co-Benefits of Project

- Pollinator Pathways – Regional Farming:** The proposal will establish pollinator pathways along medians on Routes 378 and 33, improving GHG reduction as well as providing habitat value. Further, providing pollinator habitat along agricultural land at the right-of-way enhances regional farming productivity and biodiversity. By integrating native flowering plants with pollinator habitats around the implementation corridors (Route 378 and 33), it increases agricultural efficiency and crop yields, reducing the need for synthetic fertilizers and pesticides, which are energy-intensive and contribute to GHG emissions.
- Heat Island Reduction:** Shade from trees can reduce microclimate temperatures up to 30°F. Asphalt and concrete have high surface temperatures when exposed to direct solar radiation and cause a heat island effect. Planting trees along right-of-way will reduce the heat island effect. With climate change, there will be about 52 days of heat index above 100°F by 2,100 in Lehigh County ([Climate Mapper | Climate Toolbox](#)), and adding shade strategies will help mitigate the heat stress.
- General Community Health – Air Quality, Noise, Stress Reduction:** The introduction of vegetative cover and green spaces will act as natural filters, absorbing pollutants and particulate matter from the air. Providing air quality measures such as vegetative buffers, noise walls, or combination of the two helps reduce particulate matter dispersion. EPA's studies on air quality suggest that "exposures to traffic-emitted air pollution have been identified as a major public health concern. Using green infrastructure along roadways has been shown to mitigate these air pollution impacts when designed properly." This research shows that roadside vegetation can greatly reduce air pollution levels by 50% or more. Including vegetative barriers with canopy as understory along rights-of-way helps reduce particulate matter (PM) penetration and deposition. Further, benefits can be achieved by combining walls with plantings along highway, which improves noise as well as air quality. Vegetative buffer of about 100 feet along with berms can also reduce noise levels up to 30 Decibel (dB). Sites along Route 378 and 33 have site capacity to include these landscape buffers.

Sensitive User Group Health Impact: There are about 18 schools immediately along the rights-of-way of major highways in Lehigh Valley and they lack proper vegetative buffer to the highway. Sensitive groups such as children experience further health risks due to exposure to traffic related pollutants, as well as noise pollution caused by the vehicles along the highway. The implementation of plant species which have high surface area and the reduction of heat islands will directly benefit sensitive user groups by creating healthier living environments that support respiratory health and overall well-being.

Safety Corridors – Accident Reduction:

Accident reduction measures such as improved lighting, planting strategies and maintenance measures provide indirect GHG reduction. In clear area on interchanges, the turf lawn is converted into meadow/low-mow grass that still provides visibility as well as safety, but also provides GHG reduction as well as habitat value. By enhancing existing stormwater infrastructure, we are managing stormwater runoff and hazards related to localized flooding.

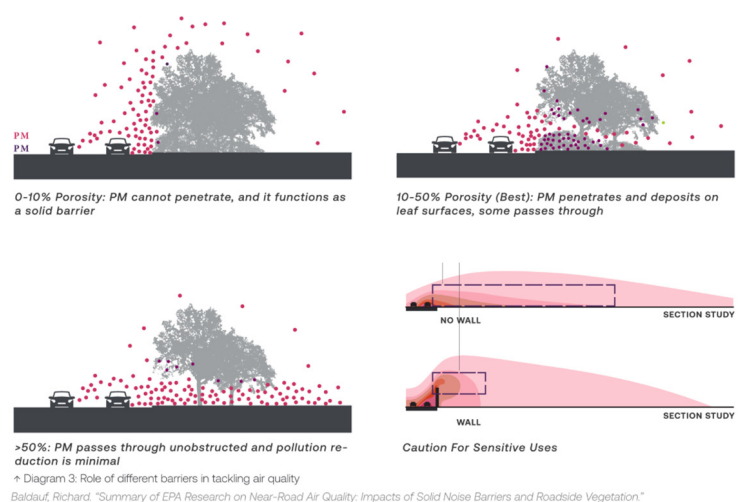


Diagram Credits: OJB and EPA

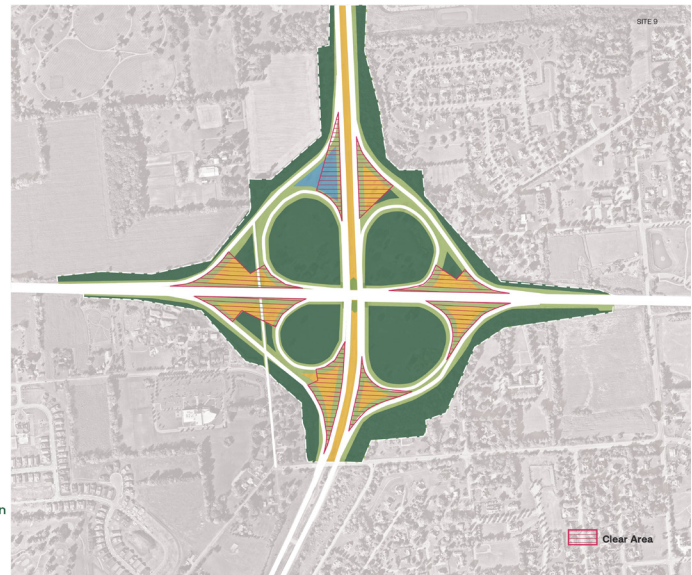
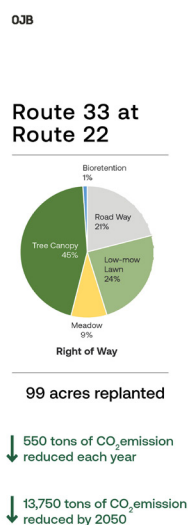
[Investigating Contaminant Accumulation in Landscapes Adjacent to Highways | Landscape Architecture Foundation \(lafoundation.org\)](#)

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Safety Corridors – Improved Emergency Access: Enhancing emergency access in safety corridors with resilient infrastructure improves GHG management by ensuring that emergency responses are swift and efficient, reducing the overall carbon footprint of emergency services. The integration of green infrastructure within these corridors, such as permeable pavements, bioretention and bioswales, reduces flood risks and mitigates stormwater runoff. This further contributes to GHG reduction by enhancing ecosystem services that support carbon sequestration and resilience against climate change impacts.

Additional Measures: This project avoids impacts to current healthy stands of trees and wetlands in the project area, thus preserving current natural carbon stocks as they continue to sequester GHG.

INTERCHANGE OF US 22/SR 33 CARBON SEQUESTRATION POTENTIAL



Performance Measures and Plan

Performance Measures:

- A GHG Reduction tracker- will be developed to quantify and report GHG emissions against baseline conditions using a number of state and regional resources noted below. These reports would be created at the end of the grant period and continue annually.
- Air Quality improvements can be measured using air quality monitors that measure reduction in traffic-related air pollutants such as PM 2.5 and CO₂. The project includes the purchase of ten additional air quality monitors to supplement existing monitors along the project corridors to provide data to evaluate and track changes in GHG emissions over time. Currently, air quality information in the Lehigh Valley comes from two monitoring sites located in Freemansburg and East Allentown that are used by the Pennsylvania A Department of Environmental Protection (DEP) for federal Clean Air Act regional compliance. PurpleAir is a sharable publicly accessible platform where more localized air monitoring site information is available, focusing on PM2.5 : [Real-Time Air Quality Map | PurpleAir](#). Access to these various regional and local air monitoring data will help evaluate changes over time and inform adaptations or additional monitoring needs and provide the basis for annual reporting on an annual basis throughout the grant period and in future years.

- Performance measures for pollinator habitat creation include using a tracking pollinator scorecard that tracks pollinator-friendly species, pollinator visitations, and diversity along rights-of-way. Other measuring techniques include Simpson's Diversity Index, which measures the number of species and their relative abundance.
- Health and wellness data, including measures for asthma, diabetes, and heart disease, are obtained using the Centers for Disease Control (CDC) PLACES data portal. These measures are obtained at the Census Tract level and updated annually. PLACES data is also obtained through the Climate and Economic Justice Screen Tool (CEJST) developed by the Council on Environmental Quality to identify Justice40 Disadvantaged Communities. LVPC has access to this information and will review and report on these data points annually.
- PennDOT monitors lighting fixture energy consumption and can provide data on annual energy costs associated with its lighting infrastructure.
- Performance measures for stormwater basin retrofits include water quality information within receiving streams that can be monitored with instream water quality monitors. LVPC will work with watershed organizations in the Valley who monitor water quality in the Lehigh River. [USGS maintains water quality sensors in Glendon Borough.](#)

Authorities, Implementation Timeline, and Milestones

PennDOT is the responsible party for and has the authority to implement the Green Infrastructure measures identified in the grant application as the owner of the land. They will be responsible for obtaining required permits and clearances, preparing contract bid documents for engineering, and landscape design and construction services, and maintaining proposed project sites. LVPC will be responsible for continuing research into GHG reduction measures with the creation of the Comprehensive Climate Action Plan (CCAP) and evaluating air quality data from existing and proposed monitors. PennDOT currently has the authority to implement the measures.

Under the assumption that notification of the grant is received by October 1, 2024, preliminary engineering (start design) could occur in early 2025. This includes identifying and obtaining needed environmental permits and clearances and preparing contract bid documents for engineering, landscape design and construction services. LVPC will produce the *Comprehensive Climate Action Plan* by June 2025 which will further support the ideals aligned in the PCAP as well as the projects identified for the implementation grant. In October of 2025, one year after the proposed grant reception, the team's second semi-annual report will be submitted including a report that quantifies the benefits to LIDAC communities. As all the proposed sites are currently within legal right-of-way that is controlled by the Pennsylvania Department of Transportation, the team anticipates being able to achieve NEPA Clearance by December 2025. NPDES permits would be in hand by summer 2026 and as no utilities would be impacted, construction could commence in early 2027. Construction is anticipated to be complete by spring 2028 at which point the three-to-five-year establishment period would commence. During fall of 2029, the implementation grant team's final report will be submitted detailing the post-construction status including the total amount of GHG reduced thus far, a report on community engagement performed, as well as a reflection on the lessons learned during the project processes, problems/successes. The three-to-five-year establishment period would then be fully complete by 2031-2033.

Low-Income and Disadvantaged Communities

Community Benefits

The Lehigh Valley has 41 Census Block Groups that meet the EPA threshold for disadvantaged, with 21 Census Block Groups in Lehigh County and 18 Census Block Groups in Northampton County.

Low-income and disadvantaged communities (LIDAC) stand to benefit from efforts to reduce GHG emissions if historical inequities and the results of disproportionate impacts are considered to ensure that vulnerable populations are not further marginalized or burdened by environmental challenges.

Transportation emissions contribute to climate change and indirectly contribute to other environmental risks resulting from increasing global temperatures and extreme weather events. Reducing transportation emissions supports the reduction of other climate change impacts on low-income and disadvantaged communities, such as the risk of flooding and associated property loss or damage, and heat island effects, where areas with a high rate of impervious cover and a low rate of green space experience hotter temperatures than surrounding areas.

The proposed enhancements aim to directly and indirectly benefit low-income and disadvantaged communities in the following ways:

Climate Resilient Infrastructure

- Reduced risk of extreme weather events and improved resilience against climate change effects through the introduction of green spaces and tree canopies, which also mitigate urban heat islands.
- Upgrading stormwater basins can significantly reduce flooding vulnerability, offering protection to schools, homes and workplaces in these communities.
- The initiative will contribute to decreased energy costs through improved infrastructure efficiency with the conversion to LED street lighting and the promotion of electric vehicle (EV) use, enhancing energy resilience.

Public Health Benefits

- The Environmental Protection Agency, on its website [epa.gov](https://www.epa.gov), states that the benefits of green infrastructure includes the reduction of smog and particulate pollution, which cause respiratory ailments, such as chest pain, coughing, aggravation of asthma, and even premature death. The EPA cited the City of Philadelphia, where the city's triple bottom line study on the benefits of green infrastructure, found that increased tree canopy could reduce ozone and particulate pollution levels enough to significantly reduce hospital admissions, work loss days and significantly reduce mortality.
- Such communities are frequently exposed to greater environmental pollution exposure, including contaminated water sources. Enhancing stormwater management directly benefits these populations by reducing waterborne pollutants, contributing to better health outcomes and reduction of healthcare costs.
- New green spaces will reduce noise pollution and improve overall living conditions.

Equitable Access to Alternative Transportation

- The upgraded park and ride, alongside improved transportation alternatives, will enhance community mobility and access to services, contributing to an overall social well-being and economic opportunities.

Direct Benefits: Improvements within LIDAC neighborhoods increase climate resiliency for LIDAC properties, preventing property damage or loss during extreme weather events.

Indirect Benefits: Investments outside of LIDAC neighborhoods that target flood sources can prevent property damage or loss within LIDAC neighborhoods. Within the Lehigh Valley, many low-income and disadvantaged communities are concentrated in more developed areas with a high proportion of grayscape, such as in cities and boroughs. Center City Allentown and Southside Bethlehem are at the 90th percentile nationwide for share of land area covered by impervious surface. LIDAC neighborhoods in urban areas are susceptible to extreme heat and urban island effects as temperatures rise, and heat islands are made worse by vehicle exhaust in areas with a high proximity to traffic. Converting impervious areas to natural spaces and reducing traffic in developed areas can significantly improve temperature conditions for low-income and disadvantaged communities, while also helping with other climate change impacts, such as flooding and air quality.

Potential Disbenefits and Mitigation Strategies

While the project promises extensive benefits, we acknowledge potential disbenefits, such as temporary disruptions during construction. Mitigation strategies include:

- Keeping communities informed about construction schedules and disruptions
- Implementing strict environmental safeguards to minimize noise, dust and other construction-related pollutants

As required, we will include a comprehensive list of EPA's EJScreen Census block group IDs, along with relevant jurisdictions, to pinpoint the low-income and disadvantaged communities set to benefit from the project. This detailed analysis will guide our targeted efforts and ensure the project's positive impacts are maximally distributed among those who need them most.

Our project not only aligns with the EPA's guidelines for benefiting low-income and disadvantaged communities but also sets as a precedent for sustainable development and community engagement. Fostering a collaborative approach and focusing on long-term environmental and economic health allows us to transform our regions' infrastructure for the better, ensuring inclusivity and resilience for all community members.

Attachment B includes a list of the EPA's EJScreen Census block group IDs and name of the relevant jurisdiction (e.g., city, town, etc.) for areas that may be affected by the proposed GHG reduction measures.

Community Engagement

This application is a direct result of the *Lehigh Valley Priority Climate Action Plan* (PCAP), which integrates public engagement throughout its goals and measures. Outreach to low-income and disadvantaged communities was incorporated into the public engagement strategy for the PCAP, particularly elevated by the relationships with local non-profit organizations that work within those communities. The PCAP utilized public workshops, known as *WorkshopLV: Environment + Transportation*, to gather public input for the plan, and this platform provided ample opportunity to participate in decisions about activities that may affect the environment and/or health of low-income and disadvantaged communities. *WorkshopLVs* are public working groups that were established to serve as open task forces through which any person participating becomes a decision-maker. Nearly 40% of participants in *WorkshopLV: Environment + Transportation* were members of the public or representatives of local non-profit organizations.

Public engagement will be essential to this project and will follow the LVPC's newly adopted Public Participation Plan (PPP). Early and consistent outreach, particularly with low-income and disadvantaged communities, will be woven throughout the public engagement process. The LVPC's outreach network is extensive, and the full list of partnership types can be found in the PPP. Among these partners are more than 150 community-based organizations, the majority of whom work with low-income and disadvantaged communities. Specific outreach efforts will be targeted to communities within a .25 mile buffer of the project locations, with a particular focus on reaching the 41 low-income and disadvantaged communities census block groups identified within this area. The Limited English Proficiency (LEP) Plan will also serve as a reference for the connection with individuals and communities that do not communicate in English.

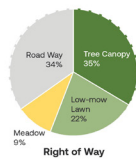
A public engagement strategy and transparent planning process will be developed to facilitate early, frequent and continuing opportunities for community engagement. The PPP will serve as the basis for the process, with additional consultation with communities impacted by the scope of the project. The public engagement process for the project will rely on *WorkshopLV: Environment + Transportation* to provide opportunities for community members to voice concerns and comments, as well as project development updates. In-person meetings will be held in locations that are compliant with the Americans with Disabilities Act, and that are also accessible by public transit. *WorkshopLV* meetings on the project will be targeted towards communities directly impacted by the project, including the 45 low-income and disadvantaged block groups identified along the project corridors, and will be open to the public. Per the PPP, federally recognized Tribes and Tribal communities with ancestral ties to the region will also be notified of the project and process, and encouraged to participate as they see fit. The results of *WorkshopLV* meetings will be regularly transmitted to the core project team for incorporation into the decision-making process. Project team members will also be encouraged to participate in the *WorkshopLV* meetings to provide technical expertise on project updates and answer questions from the public.

Additional strategies and tactics to ensure equitable public participation will also incorporate opportunities for passive engagement, including surveys, a project website and a comment box. Surveys may cover topics including general feedback, visual preferences and prioritization for the project. The project website will include critical information on the project itself, a full listing of meetings and participation options, and a comment box through which the public will be encouraged to submit feedback throughout the process. Feedback on the public engagement process itself will also be considered, with adaptations and amendments made as needed to ensure a truly transparent and meaningful public engagement process.

INTERCHANGE OF SR 378/8TH AVE CARBON SEQUESTRATION POTENTIAL

03B

Route 378 at 8th Ave



0.98 acres replanted

↓ 22 tons of CO₂ emission reduced each year

↓ 1,100 tons of CO₂ emission reduced by 2050



Job Quality

The Lehigh Valley Green Transportation Infrastructure Project is a partnership between LVPC and PennDOT, who as a coalition, will work to implement the CRPG Implementation funding for US Route 22, Routes 33, 309, 378 and Park Ride Multimodal facilities green infrastructure project as outlined in this application. This targeted project intends to use the public right-of-way owned by PennDOT and use the existing government workforce already employed by PennDOT, or contractors hired by PennDOT. This project may not create new job opportunities directly.

However, PennDOT, LVPC and any contractors/subrecipients must be in compliance with all Federal and State Department of Labor laws when hiring their respective workforces. Included here is an outline of those practices and laws that are direct by the United State Department of Labor (USDOL) and the PA Department of Labor and Industry (PADLI) that support the creation of high-quality, family-sustaining jobs, with a diverse, highly skilled workforce and support 'high road' labor practices.

PennDOT operates in compliance with 1961 Pennsylvania Act 442 as well as the Davis-Bacon Act. In accordance with the Davis-Bacon Act, wage rate compliance requires PennDOT contracts pay workers' wages and fringe benefits at rates not less than what is specified by the U.S. Department of Labor. In addition, 1961 Pennsylvania Act 442 states that it shall be the duty of every public body which proposes the making of a contract for any project of public work to determine from the Secretary of Labor the prevailing minimum wage rates which shall be paid by the contractor to the workmen upon such project. All workers on the project will be paid wages and benefits in accordance with these rules.

Pursuant to Executive Order 2021-06, Worker Protection and Investment (October 21, 2021), the Commonwealth is responsible for ensuring that every worker in Pennsylvania has a safe and healthy work environment and the protections afforded them through labor laws. To that end, contractors and grantees of the Commonwealth must certify that they are in compliance with Pennsylvania's Unemployment Compensation Law, Workers' Compensation Law, and all applicable Pennsylvania state labor and workforce safety laws including, but not limited to:

1. Construction Workplace Misclassification Act
2. Employment of Minors Child Labor Act
3. Minimum Wage Act
4. Prevailing Wage Act
5. Equal Pay Law
6. Employer to Pay Employment Medical Examination Fee Act
7. Seasonal Farm Labor Act
8. Wage Payment and Collection Law
9. Industrial Homework Law
10. Construction Industry Employee Verification Act
11. Act 102: Prohibition on Excessive Overtime in Healthcare
12. Apprenticeship and Training Act
13. Inspection of Employment Records Law

Pennsylvania law establishes penalties for providing false certifications, including contract termination; and three-year ineligibility to bid on contracts under 62 Pa. C.S. § 531 (Debarment or suspension).

Programmatic Capability and Past Performances

Past Performance

LVPC is in very good fiscal condition as the lead applicant in the coalition. LVPC has a fully funded pension, no debt, healthy reserves and sound annual audits. The LVPC is also well-equipped to manage this federal grant. The agency currently holds or recently held various state grants from the PA Department of Conservation and Natural Resources (PADCNR), PA Department of Community and Economic Development (PADCED), PA Emergency Management Agency (PEMA) and PA Department of Environmental Protection (PADEP) to complete several specific projects to support the communities in Lehigh and Northampton Counties. Staff from the LVPC also support and manage the Metropolitan Planning Organization (MPO) resources associated with the Lehigh Valley Transportation Study (LVTS). LVPC's MPO responsibilities include management, coordination and administration of Pennsylvania and US Departments' of Transportation funds. The LVPC maintains a good standing with both state and federal agencies and had no findings in the most recent Federal Certification Review of MPO activities. The LVPC staff continually deliver, without blemish, on the contract to administer the transportation and community planning programs for the Lehigh Valley.

PennDOT contracts for over \$2 billion in Federal dollars every year over the last five years (2020-2024). Most of these federal funds are through the Federal Highway Administration, but the Department is also experienced with Federal Grants including programs like, Transportation Investment Generating Economic Recovery (TIGER), Better Utilizing Investments to Leverage Development (BUILD), Rebuilding American Infrastructure with Sustainability and Equity (RAISE), Infrastructure for Rebuilding America (INFRA), National Infrastructure Project Assistance (MEGA) and other federal grants.

LVPC and the PennDOT are currently working together to implement a Federal RAISE grant for the construction of a parkway type roadway known as Riverside Drive. Riverside Drive and a multi-use trail to parallel it will connect multiple communities along the Lehigh River to employment centers and amenities in the City of Allentown. The preliminary design of Riverside Drive is nearly complete, and the Department anticipates putting a construction contract out to bid in July 2024 to make this vision a reality.

LVPC and PennDOT will continue their existing relationship to meet all requirements of administering US EPA CRPG funds while meeting the goals outlined in the *Lehigh Valley Priority Climate Action Plan* and grant application for the reduction of the GHG through transportation decarbonization.

Reporting Requirements

LVPC has a long and accurate history of submitting acceptable interim and/or final reports for all grant agreements it has held over the years. For the state grants, (PADCNR, PADCED, PEMA and PADEP), LVPC is required to fill out progress reports quarterly, along with invoicing as work progresses, not more than monthly, to each of the programs. The final report for each includes extensive documentation of all expenditures the grant funds were used for. This documentation LVPC's Controller keeps track of monthly and ensures that the coding for the project work is accurate and reasonable.

LVPC also submits monthly progress report narratives as well as invoices to PennDOT for the MPO functions. This process requires specific forms, documentation and an explanation of necessary and reasonable costs expended to complete the work. LVPC completes these monthly invoices as timely as possible. Along with these monthly reports, LVPC is responsible for providing PennDOT with a Disadvantaged Business Enterprise (DBE) report quarterly for any subrecipients of funds for transportation planning efforts and projects. LVPC works with PennDOT closely on all projects where consultant support is necessary to determine if there is a DBE goal to be set prior to Request for Proposals. The goal, if applicable, is built into the process and becomes part of the normal reporting process for the administration of the funds.

In addition, PennDOT advertises and awards approximately 40 construction contracts each month for construction of various types of projects ranging from \$50,000 to \$250 million contracts statewide. PennDOT is efficient and experienced overseeing complex projects throughout construction including in some cases, long-term maintenance and/or monitoring periods after construction is complete. Throughout construction, PennDOT staff or independently contracted inspectors monitor construction and process monthly invoices from the construction contractors including subconsultants. Once approved, invoices are processed within 30 calendar days and all subconsultants must be paid within seven calendar days of the prime contractor being paid. All of this is tracked in PennDOT's Engineering and Construction Management System (ECMS). ECMS is the system that PennDOT uses to process all design and construction contracts around the state. ECMS is able to be accessed by our federal partners as well so that they can review and/or approve invoices or other documents as required.

Using the Multimodal Project Management System (MPMS), PennDOT and our federal partners are able to share information on federal, state and local funding that is applied to each project statewide. This system includes milestones such as start of preliminary engineering, National Environmental Policy Act clearance, bid opening (let), construction award, and completion of construction for every project in the state. This project, like all our other projects, will be tracked in this system for the Department and all of our stakeholders and planning partners to review.

Past Performance of Grants

Project Title	Agreement #	Funding Agency + Point of Contact	Project Period	Amount Awarded	Description
Lehigh Valley Climate Pollution Reduction Priority and Regional Action Plan	Grant Number (FAIN): 95318301	US EPA EPA Project Officer Allison Riley	7/1/2023- 6/30/2027	\$1,000,000	This assistance agreement provides funding under the Inflation Reduction Act (IRA) to the LVPC to develop or update existing regional climate mitigation plans to address GHG emissions and reduction measures through the metropolitan area, and to conduct meaningful engagement with low-income and disadvantaged communities and coordinate with geographically proximate tribes as appropriate. The recipient will utilize their own staff and resources to develop a Priority Climate Action Plan (PCAP) and Comprehensive Climate Action Plan (CCAP), which will serve as the metro area's climate action plan and roadmap to meeting interim climate targets; and a Status Report, to assess each GHG reduction measure identified in the CCAP that covers the Lehigh Valley Region.
Lehigh Valley Metropolitan Planning Organization (MPO) Work	Master Grant Agreement No: C920001370	PennDOT Kristin Mulkerin, Deputy Secretary for Planning, PennDOT	7/1/2022- 6/30/2028	Varies by UPWP Year	This master grant agreement is further defined by Unified Planning Work Programs (UPWPs) and associated work orders. The UPWPs generally cover a two-year period and include a work order process and detailed scope of services to be performed by the grantee. In general, the UPWP identifies services in the field of transportation planning and/or programming work items to be performed during the two-year period.
	Unified Planning Work Plan (UPWP) - 589	PennDOT Kristin Mulkerin, Deputy Secretary for Planning, PennDOT	7/1/2020- 6/30/2022	\$2,203,670.00	The Unified Planning Work Program (UPWP) describes the transportation-related work activities that the Lehigh Valley Planning Commission (LVPC) and Lehigh and Northampton Transportation Authority (LANTA) (with the aid of a planning consultant, if necessary) will perform in the 2022 and 2023 state fiscal years for the two-county area.
Northern Lehigh Multi-Municipal Comprehensive Plan Update	Municipal Assistance Program (MAP) Grant Contract No: C000071590	Pennsylvania Department of Community and Economic Development	7/1/2018- 6/30/2021	\$49,000.00	The municipalities of Heidelberg Township, Weissenberg Township, Lynn Township, Lowhill Township, Washington Township, and Slatington Borough will engage a consultant to prepare a Comprehensive Plan update to reflect changes in the communities' land use ordinances, take into account actual and future uses of land, develop feasible and appropriate recommendations and be consistent with the Lehigh and Northampton Counties Comprehensive Plan. The services will include all information and tasks required by the MPC, as amended, as it relates to the amendment and adoption of a Comprehensive Plan.
Northampton County Blight Reversal and Remediation Plan Agreement	Agreement No: TGCDBG-2018-1	County of Northampton Department of Community & Economic Development Tina Smith, Director, Community & Economic Development Department, County of Northampton	8/1/2018- 12/31/2019	\$150,000.00	Collaborate with consultant to create a Blight Mitigation and Remediation Plan for Northampton County. Together, the Consultant team possesses considerable experience at the nexus of planning and policy, stakeholder engagement, and neighborhood revitalization. The Consultant will complete all tasks within a unique market-based analytic approach that will ensure that all deliverables are relevant and effective in combating blight in Northampton County. The Team will work closely with the Client Team of the Lehigh County Planning Commission (LVPC) and Department of Community and Economic Development (DCED), to ensure that deliverables are satisfactory and actionable.

Staff Expertise

The team assembled for the Lehigh Valley Green Transportation Infrastructure project is made up of PennDOT experts in project design and delivery and LVPC's expertise in grant and fiscal management.

The PennDOT team as outline in this section are the experts when it comes to project management, design and construction. They have extensive experience in implementing public funds, both federal and state as it relates to construction projects and delivering on time and budget. They have processes in place to mitigate should any obstacles arise.

Scott Vottero, P.E. – PennDOT Assistant District 5-0 Executive for Design

Scott Vottero received his Bachelor of Science (BS) Degree in Civil Engineering from Penn State University and has been with PennDOT for 29 years. He is responsible for planning, directing, and coordinating all Highway and Bridge Design program areas for Engineering District 5-0. Mr. Vottero directs plans, organizes, and coordinates the District's plans development and Project Management function which include highway design, bridge design, right-of-way, contract management, pavement engineering, utility relocations, surveys and environmental management. He also has previous experience managing the reviews of construction projects with respect to plan and bid proposal documents, specifications, cost estimates, bid justifications, and construction schedules.

Michael Guidon, P.E. – PennDOT Assistant District 5-0 Executive for Construction

Mike Guidon, P.E., currently serves as the Assistant District Executive for Construction at PennDOT Engineering District 5-0, bringing over 13 years of invaluable experience to his role. In 2020, he assumed the position of Construction Support Services Engineer before advancing to Assistant District Executive for Construction in 2022. In his current capacity, Mike oversees a team of 76 engineers, managers, and technical staff responsible for construction field inspection, materials, structure control and finals. Prior to his role in District 5, Mike spent a decade as an Inspector-in-Charge managing various projects in the Lehigh Valley region, including the American Parkway Project, the Alburus L. Meyers (8th Street) Bridge Rehabilitation, and Route 22 Section 400 Lehigh River Bridge Replacement. A registered Professional Engineer in Pennsylvania, Mike earned his B.S. in Civil and Environmental Engineering from Pennsylvania State University in 2010.

Jerry Neal – Senior Environmental Planner Manager, PennDOT District 5-0

Jerry Neal has been with PennDOT Engineering District 5-0 since November 1991. Originally hired as an Environmental Planner, he is currently serving as Environmental Planner Supervisor. His primary responsibilities are overseeing District 5-0 compliance with the National Environmental Policy Act and soil and waterways permitting. He also provides technical assistance to District 5-0 employees, management and other state agencies.

John Bohman – Senior Civil Engineer Supervisor – Permit Coordinator, PennDOT District 5-0

John Bohman has been with PennDOT Engineering District 5-0 since May 2011 as Civil Engineer Trainee and currently as Senior Civil Engineer Supervisor-District Permit Coordinator. He is a Certified Professional in Erosion Control. At PennDOT John's primary responsibility is coordinating all the Districts Design, Maintenance and Construction permits, Municipal Separate Storm Sewer System (MS4) program and Hydrologic and Hydraulic submissions. He also provides technical assistance to other district employees, and other agencies as well as any other duties as assigned.

Becky Bradley, AICP – Executive Director, LVPC

Becky Bradley has more than 20 years of experience in city, regional, economic development, historic preservation and transportation planning, including experience in small town revitalization, roadway redesign and trail construction. She has been the Executive Director of the Lehigh Valley Planning Commission (LVPC) since August 2013 and is leading the update of the region's \$4.3 billion regional transportation planning program, as well as balancing the needs of the Lehigh Valley's rapidly growing population through the LVPC's county planning responsibilities. Prior to joining the LVPC, Bradley was the Director of Planning, Codes and Development at the City of Easton, where she was instrumental in the more than \$500 million revitalization of the community, including the addition of the Lehigh Valley's first sculpture trail, the state's first road diet and the opening of more than 60 restaurants and shops. She holds a Bachelor of Science, Historic Preservation degree from Southeast Missouri State University and a Master of City Planning degree from University of Pennsylvania.

Tracy Oscavich – Director of Administration, LVPC

Oscavich has a Master of Arts degree in Environmental Policy from Lehigh University. Prior to joining LVPC in 2014, Oscavich worked for the Lehigh Valley Economic Development Corporation. Oscavich has extensive experience in grant writing and management, having overseen EPA brownfield assessment grants as well as various federal, state and local grant funds in her career. At LVPC, she has successfully administered state and local grant funds for multiple projects, including all of the required reporting and close out documentation necessary.

Vicki Weidenhammer – Controller, LVPC

Weidenhammer has a Bachelor of Arts degree in Accounting from Kutztown University. Prior to joining the LVPC in 2020, Weidenhammer worked for Glen-Gery Corporation, a large brick manufacturing company, where she worked her way up from Staff Accountant to Assistant Corporate Controller over a 25-year period. Weidenhammer gained extensive experience in accounts payable, accounts receivable, financial reporting, internal and external audits, forecasting and budgeting, and the month end closing process while working at Glen-Gery Corporation. Since joining the LVPC team in 2020, Weidenhammer is responsible for maintaining the financial records of the Commission, including paying vendors, processing payroll, preparing monthly financial reports, audits and fiscal management of grant programs. Those include include preparation of requests for disbursements, tracking of project spending, grant reporting and close documentation.

Budget

The LVPC intends to make a subaward to the Pennsylvania Department of Transportation (PennDOT) for the entirety of the project. The project is expected to cost \$115 million. The subaward will all fall into the 'other' category in the budget sheets. PennDOT, as the state agency for transportation infrastructure, has extensive experience working with and managing federal funds for projects like this one. LVPC has an existing relationship with a federal USDOT RAISE grant in which the grant funds were transferred to PennDOT to execute the project. LVPC is still very involved in the oversight and design, however the engineering, technical design, overall consultant project management and construction are being handled by PennDOT.

Budget Overview

Category	Cost Estimate
Engineering and Design	\$9,064,009.00
Construction Breakdown:	
Deciduous Trees (123 acres)	\$33,560,000
Meadow Planting (166 acres)	\$10,565,000
Bioretention/Bioswale (12 acres)	\$7,410,000
Paving for Truck Use	\$3,000,000
Reconfiguration of Lots	\$8,000,000
Clearing and Grubbing	\$1,225,000
Upgrade Lighting to LED (578 luminaries)	\$520,200
Electric Charging	\$500,000
Light Poles/Systems	\$8,985,200
Mobilization	\$4,425,924
Traffic Control	\$3,995,627
Period of Establishment	\$12,507,000
CMCI (10-15%)	\$10,112,040
Construction Total:	\$104,805,991
Equipment:	
Air Quality Monitors	\$30,000
Consultant Project Management:	\$1,100,000
TOTAL PROJECT	\$115,000,000

LVPC, through our existing working relationship with PennDOT, will ensure that the project is managed and monitored in compliance with the applicable regulations and in a manner that promotes accountability while minimizing burdens on LVPC, as the 'pass-through' entity, and EPA staff. PennDOT and LVPC have adequate systems in place to comply with 2 CFR 200.331, 2 CFR 200.332 and section 9.0 of EPA's Subaward Policy during post-award monitoring.

PennDOT advertises and awards approximately 40 construction contracts each month for construction of various types of projects ranging from \$50,000 to \$250 million contracts statewide. PennDOT is efficient and experienced overseeing complex projects throughout construction including in some cases, long-term maintenance and/or monitoring periods after construction is complete. Throughout construction, PennDOT staff or independently contracted inspectors monitor construction and process monthly invoices from the construction contractors including subconsultants. Once approved, invoices are processed within 30 calendar days and all subconsultants must be paid within seven calendar days of the prime contractor being paid. All of this is tracked in PennDOT's Engineering and Construction Management System (ECMS). ECMS is the system that PennDOT uses to process all design and construction contracts around the state. ECMS can be accessed by our federal partners so that they can review and/or approve invoices or other documents as required.

Using the Multimodal Project Management System (MPMS), PennDOT and our federal partners can share information on federal, state and local funding that is applied to each project statewide. This system includes milestones such as the start of preliminary engineering, NEPA clearance, bid opening (let), construction award and completion of construction for every project in the state. This project, like all our other projects, will be tracked in this system for the Department and all of our stakeholders and planning partners to review.

The overall budget for this project includes 19 sites for \$115 million. Of those, two are pollinator corridors, one is a multimodal center, and the rest are specific interchanges or sites along the State Routes 22, 33 and 378.

LVPC has included in this application a [detailed budget spreadsheet](#) that outlines what costs are at the 19 sites identified for this green transportation infrastructure project. Each of the 19 sites is included in the excel workbook as a tab. Each site tab includes a description of the site with a breakdown of costs that include preliminary engineering and construction. Each justification for cost is provided on each individual site tab.

For all sites, Engineering and Design includes the preliminary engineering and design as well as the planning, implementation meetings, workshops and convenings that will foster collaboration among and between the coalition members, public and stakeholders. Also included in that category are funds for a Landscape Architect in order to make sure the design and planting decisions are best for long-term success of the project.

This project will purchase air quality monitors and install them at the upfront of the project to be able to measure the outcomes of the project accurately and timely. The project sets aside \$30,000 to procure monitors using the procurement procedures outlined in 2 CFR 200 for EPA.

This project also has funds set aside for consultant project management to ensure that the project meets all regulatory and reporting requirements. This is something that is part of the PennDOT process already for construction management and underlying in the outlined process above.