

OUTCOME CRITERIA

PROJECT INTRODUCTION

Butler County, Pennsylvania is requesting \$60,990,000 from the United States Department of Transportation's (USDOT) FY25 Multimodal Project Discretionary Grant (MPDG) Program to complete Mars Railroad Bridge West, a \$101,650,000 construction project referred heretofore as the MRBW Project. The MRBW Project is part of the broader State Route (SR) 228 Corridor Improvement Project (referred to as "Gateway 228"), a \$286 million investment aimed at enhancing safety, mobility, and efficiency on SR 228, stretching from its western terminus in Beaver County to its eastern terminus at Route 356 near the Armstrong County border. This multi-jurisdictional investment spans the entirety of SR 228, which is vital to the connectivity, economic activity, and sustainability of Butler County, particularly the seven communities along Gateway 228 (Cranberry, New Sewickley, Seven Fields, Adams, Middlesex, Clinton, and Buffalo). SR 228, a principal arterial on the National Highway System (NHS), is a key connection to Interstate 79 and the Pennsylvania Turnpike (Interstate 76), linking Butler County to the region, state, and nation. Pennsylvania Department of Transportation (PennDOT) classifies SR 228 as an Urban Arterial Highway. The MRBW Project, which constitutes 3.25-miles of the 26.4-mile Gateway 228 corridor, is the last and final segment that needs to be constructed.

STATEMENT OF WORK

The requested MPDG funds will be designated exclusively for the construction phase of the MRBW Project, which will expand capacity and improve safety along the 3.25-mile section of SR 228. This Project is located from Franklin Road in Cranberry Township to just east of Beaver Street Extension in Adams Township, Butler County, Pennsylvania. The following studies have been completed to inform the design of the Project. A [2018 Traffic Design Report](#) completed for MRBW Project assessed current and anticipated traffic operations, capacity, mobility, and safety, compiling relevant data to inform design. A "confidential" Safety Study based on corridor-specific crash histories was conducted to analyze existing and future safety conditions and determine proposed improvements. An [Addendum](#) was issued in 2020 to address changes to intersection configurations, supplementing the original report and validating updates within the current Design Field View package. Furthermore, the Project received a [Categorical Exclusion, Class 2](#) resulting from completion and approval of the NEPA process on February 20, 2024.

1 UPGRADE ROADWAY RELIABILITY

2 IMPROVE SAFETY

3 EXPAND ACCESS

4 PROMOTE ECONOMIC VITALITY

DETAILED STATEMENT OF WORK:

ADDITIONAL CAPACITY:

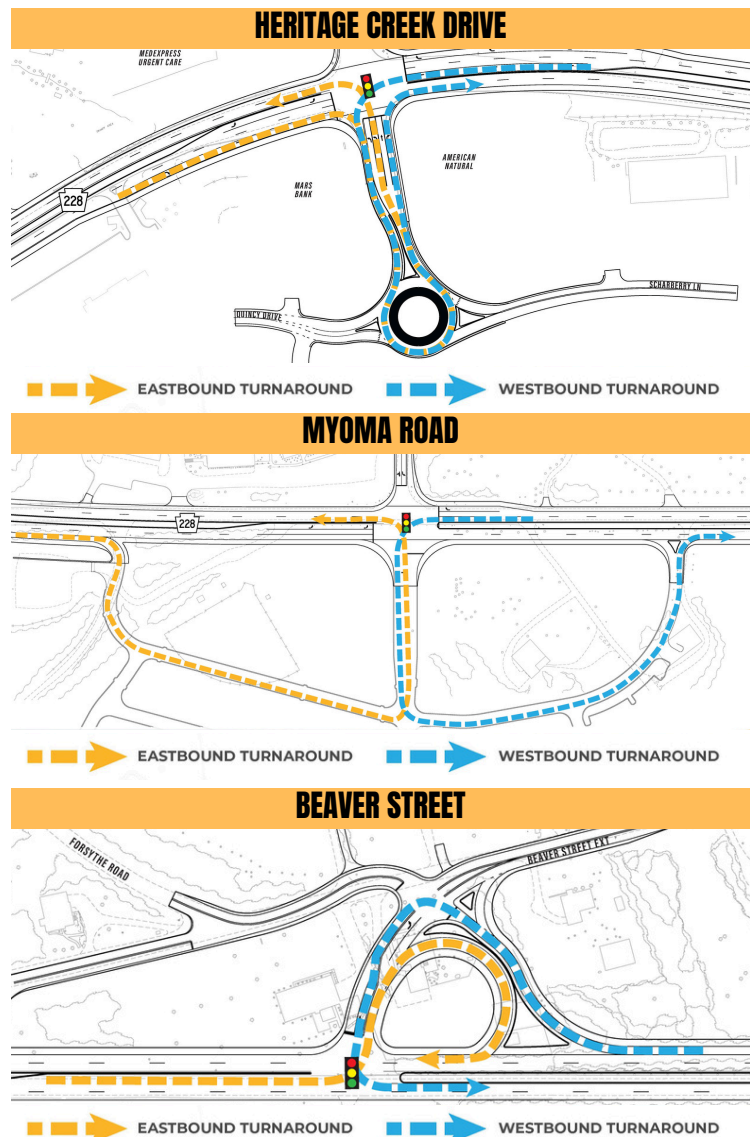
MRBW Project will widen and add lanes (17,161 linear feet) to the 3.25-mile segment of SR 228 and modernize 8 intersections. Specifically, four 11-foot lanes (two in each direction), a 16-foot median, and 10-foot shoulders will be installed. Additionally, turning lanes will be strategically integrated at various points, including at side roads along the corridor, to enhance capacity and alleviate queuing and congestion.

SAFE CONNECTIONS:

Heritage Creek Single-Lane Roundabout: Just south of SR 228, the intersection of Heritage Creek Drive and Scharberry Lane will be updated to a new single-lane roundabout configuration. The roundabout is anticipated to serve local traffic and planned developments in the immediate vicinity. This roundabout will also cater to motorists intending to turn left into Fox Trot Drive (from SR 228 East). These motorists will, instead, continue along SR 228 East to Heritage Creek Drive, turn right to access this new roundabout at Heritage Creek Drive and Scharberry Lane, and then use the roundabout to turnaround and return to Fox Trot Drive via SR 228 West.

Mars Alliance/Church Road: Movement at the Mars Alliance Church driveway on SR 228 will be restricted to right in/right out only. Access to the church will be added via Roxsan Drive from Myoma Road. An access road (Roxsan Drive) will be introduced, enabling departing traffic to make left turns eastbound onto SR 228 from Myoma Road and from Roxsan Drive onto SR 228.

Beaver Street Extension: The intersection of Beaver Street Extension and SR 228 will be relocated approximately 700' to the east. The new intersection will incorporate a signalized jughandle offering access to Beaver Street and a turnaround for both eastbound and westbound traffic on SR 228. The new layout will include adequate storage length per the Traffic Design Report, including a 345' eastbound left-turn lane, 295' westbound right-turn lane, and a 75' southbound left-turn lane. The new jughandle will require a cul-de-sac modification at Scharberry Lane.



OUTCOME CRITERIA

NON-MOTORIZED TRANSPORTATION IMPROVEMENTS:

No bicycle or pedestrian facilities exist along SR 228 within the Project area. Thus, the Project will include sidewalk connections at two key locations: from Castle Creek Drive to Shoppes at Adams Ridge Driveway/Seven Fields Boulevard and from Heritage Creek Drive south to the Heritage Creek Drive/Scharberry Lane roundabout. To bolster safety enhancements, the Project will install a total of 42 LED pedestrian countdown signals and 42 pedestrian push buttons at all improved and newly constructed intersections. Crosswalks and ADA curb cuts will also be installed at these locations to reduce crossing conflicts and enhance pedestrian safety.

INTERSECTION IMPROVEMENTS:

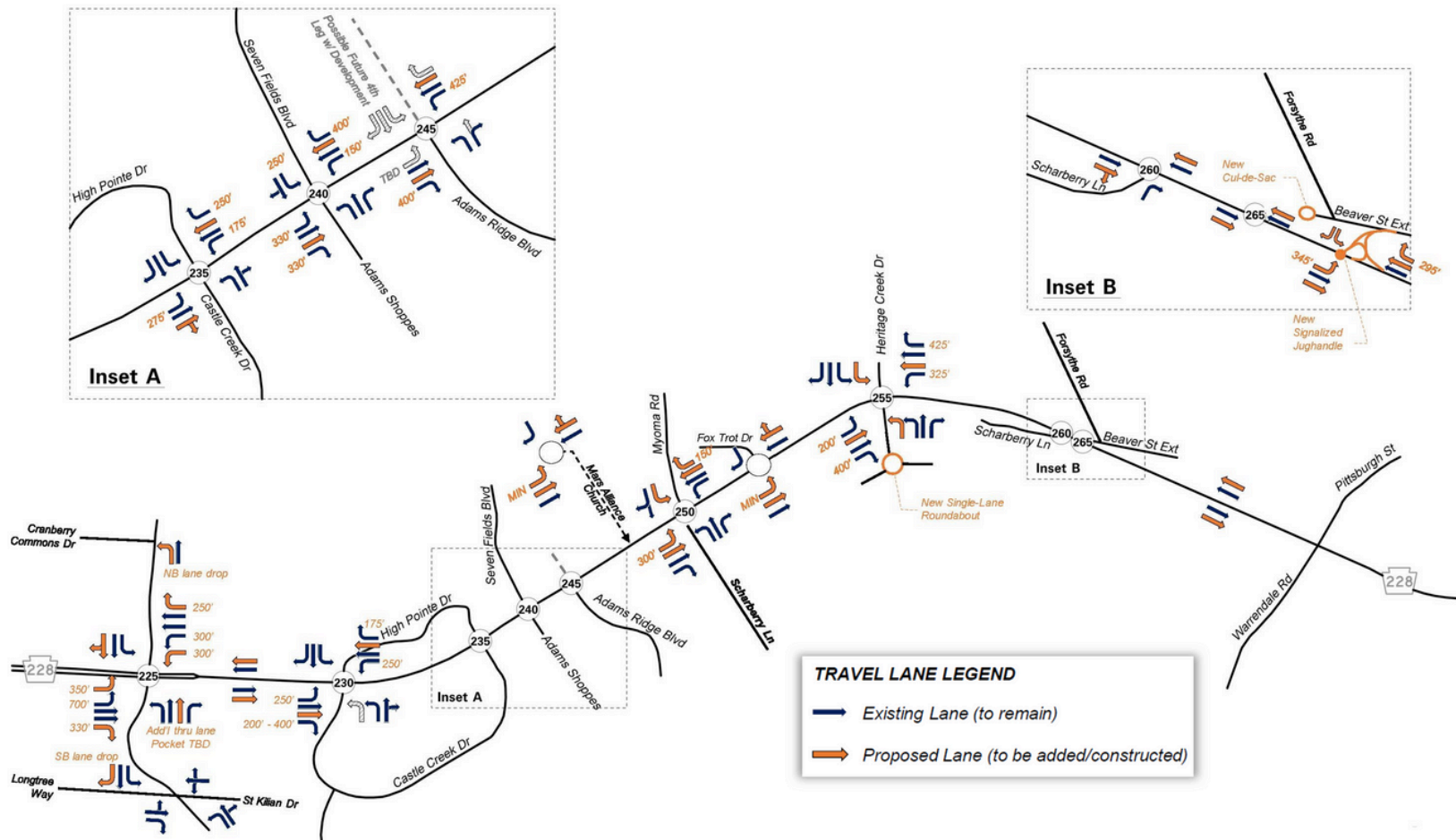
Within the MRBW Project, various intersection-specific improvements will be implemented, including additional turning and through lanes. The specific improvements that will be made at each intersection include:

SR 228/Franklin Road (#225) <ul style="list-style-type: none"> SR 228 EB: 300' left and 250' right turn lanes SR 228 WB: 350' left and 330' right turn lanes Franklin SB: Right turn and through lanes Franklin NB: Through lane 	SR 228/Heritage Creek Drive (#255): <ul style="list-style-type: none"> SR 228 EB/WB: Passthrough lanes Heritage Creek SB: right turn lane Heritage Creek NB: Left turn lane SR 228 EB/WB: Additional through lane
SR 228/Castle Creek Dr East (#235): <ul style="list-style-type: none"> SR 228 EB: 275' right turn and through lane SR 228 WB: Additional through lane 	SR 228/Scharberry Lane (#260): <ul style="list-style-type: none"> SR 228 EB: Right turn and passthrough lanes SR 228 WB: Passthrough lane
SR 228/Adams Ridge Blvd (#245): <ul style="list-style-type: none"> Restricted right-in/right-out movements Installation of median islands along SR 228 SR 228 EB/WB: Additional through lane 	SR 228/Myoma Road (#250): <ul style="list-style-type: none"> SR 228 EB: 300' left turn and through lanes SR 228 WB: 150' right turn and through lanes Myoma SB: Left turn lane onto SR 228
SR 228/High Pointe Drive (#230) <ul style="list-style-type: none"> SR 228 EB/WB: Additional through lane 	SR 228/Seven Fields Blvd (#240): <ul style="list-style-type: none"> SR 228 EB/WB: Additional through lane

TRAFFIC SIGNAL ENHANCEMENTS:

The Project will enhance corridor operations by installing new traffic signal equipment and system upgrades. This encompasses eight video detection systems, eight advanced radar detection systems, eight acoustic emergency vehicle preemption systems, and eight CCTV video cameras. These enhancements will optimize traffic signal operations and minimize both recurring and non-recurring congestion.

MRBW PROPOSED LANE CONFIGURATIONS



OUTCOME CRITERIA

CRITERION #1: SAFETY

Safety is a primary project purpose. The MRBW Project targets known safety challenges along the SR 228 Corridor to ensure the health and safety of both motorized and non-motorized travelers, including vulnerable users. Safety implementations will yield tangible and immediate benefits.

As part of the MRBW Project's design process and in conjunction with the Project's [Traffic Design Report](#), a Confidential Safety Study (CSS) was conducted in 2018 to assess current and projected safety conditions along the corridor. This study analyzed historical crash data and evaluated the safety implications of proposed Project enhancements. Crash characteristics were examined to identify potential causes or contributing factors to historical crash patterns, with data from the 2015 Pennsylvania Crash Facts and Statistics report used for comparison. Additionally, SR 228, in the MRBW Project area from Franklin Road to Beaver Street Extension underwent further analysis to evaluate safety performance based on existing and anticipated roadway conditions.

The CSS obtained reported crash data from PennDOT's Crash Data Access and Retrieval Tool (CDART) for a five-year period from January 2011 through December 2015 for the MRBW Project area. Based on the CDART data, a total of 203 reportable crashes were documented, with the number of crashes steadily increasing since 2013 and climbing from 32 to 48 total crashes in 2015. In preparation for the submission of the FY25 MPDG application, more recent crash data was obtained from publicly available data from PennDOT's Pennsylvania Crash Information Tool (PCIT) for the timeframe between January 2016 and December 2023. The updated PCIT data revealed a significant increase in accidents, nearly doubling to a total of 405 reported incidents.

The dangers within the MRBW Project area were identified and confirmed in a variety of plans and studies. Southwestern Pennsylvania Commission's (SPC) [2020 Regional Transportation Safety Action Plan](#) (SAP), which aligns with the region's SmartMoves for a Changing Region, outlines strategies and locations for potential mitigations along SR 228. Using FHWA's Data Driven Safety Analysis tools, the SAP identified high-potential safety improvement areas and solutions. The analysis also utilized PennDOT's Highway Safety Manual (HSM) network screening data from 2012-2016, prioritizing locations based on excess crash values. Excess value, calculated by subtracting predicted crashes from expected crashes, signified areas that underperform from a safety perspective and need improvements.

Within PennDOT District 10, the portion of SR 228 between Castle Creek Drive and just past Myoma Road intersection, which falls within the MRBW Project boundary, ranked the highest for safety improvement needs. This segment had an excess value of 2.80, indicating a significant discrepancy between the predicted and expected number of crashes and highlighting a critical need for safety enhancements. Similarly, the section of SR 228 between Beaver Street Extension and Pittsburgh Street ranked 16th in terms of safety improvement priority within the district, showed an excess value of 1.12. This suggests a notable need for safety improvements in this area as well. Additionally, the intersection of SR 228 and Adams Ridge Boulevard emerged as the third-highest safety hotspot intersection within the district, with an excess value of 2.27. These findings underscore the urgent need for the installation of safety enhancements along the MRBW Project.

BETWEEN 2016 AND 2023, THERE HAVE BEEN

405 ACCIDENTS

- 34% RESULTING IN INJURIES
- 3 INCIDENTS INVOLVING SCHOOL BUSES

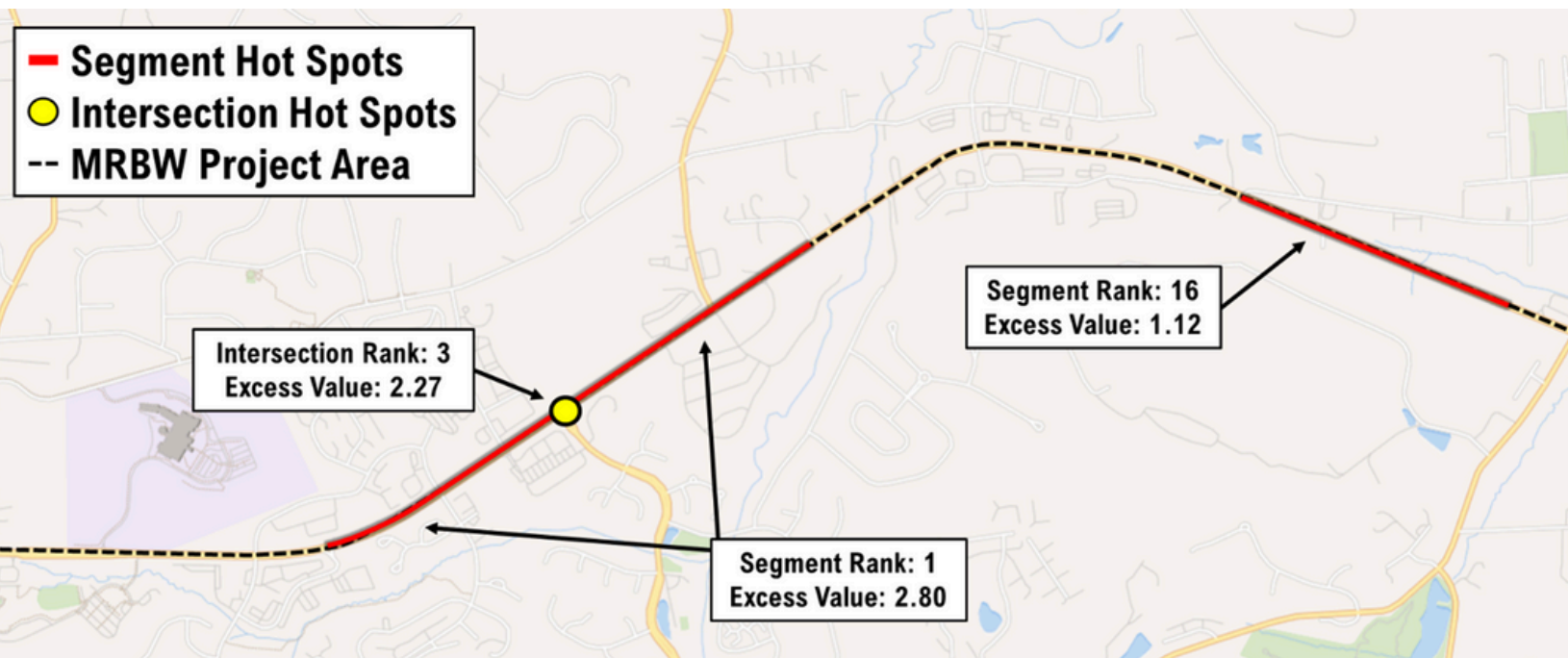


ACCIDENTS ARE LARGELY ATTRIBUTED TO HIGH TRAFFIC VOLUMES AND CONGESTED TRAFFIC CONDITIONS.

REAR-END CRASHES MAKE UP THE MAJORITY (70%) OF INCIDENTS, FAR EXCEEDING THE STATEWIDE AVERAGE OF 22%.



FIGURE 1. MRBW PROJECT SAFETY HOTSPOTS



OUTCOME CRITERIA

- **Reduce fatalities and/or injuries:**

The MRBW Project will significantly enhance safety along the SR 228 corridor by addressing key factors contributing to crashes. Currently, congestion, queuing, and issues like unsignalized intersections and lack of left-turn lanes contribute to accidents within the MRBW Project area. To tackle these challenges, the Project includes widening the MRBW segment to a four-lane cross section from Cranberry Township to Adams Township and integrating turn lanes at identified intersections. This expansion will reduce queuing and congestion, improve traffic flow, and enhance safety for turning vehicles. Additionally, by adding through lanes, dual left-turn lanes, and increasing turn bay storage, the Project will improve both safety and traffic operations at each intersection. Intersection-related accidents are primarily linked to congestion, queuing, and capacity deficiencies in the current two-lane configuration, queue spillback, and the absence of turn lanes at unsignalized intersections. Addressing these issues will mitigate risks and create a safer travel.

- **Significantly reduces fatalities and/or serious injuries with specific data-driven estimates:**

Data-driven forecasts indicate that the MRBW Project's proposed improvements will lead to a notable reduction in fatalities and serious injuries. The anticipated implementation of these improvements is expected to result in a 65% decrease in serious accidents and a 59% decrease in minor accidents. The high occurrence of Rear-End crashes (70%) and Intersection-related accidents (68%) in the MRBW Project area highlights the urgent need for intervention. Projections for the Project indicate a significant 45% reduction in crash activity at key intersections like Castle Creek Drive (East), Seven Fields Boulevard, Adams Ridge Boulevard, Myoma Road, and Beaver Street Extension. Overall, the MRBW Project will achieve a **61% reduction in total accidents annually**.

65% DECREASE
IN SERIOUS
ACCIDENTS

59% DECREASE
IN MINOR
ACCIDENTS

- **Protects vulnerable (non-motorized) users from health and safety risks:**

Improving infrastructure for non-motorized travelers along Gateway 228, particularly in the SR 228 corridor, has been challenging due to its high-speed, densely populated nature. Only Cranberry Township has mandated sidewalks and pedestrian pockets adjacent to intersections, leaving other areas lacking in pedestrian amenities. Currently, crossing the Project area is difficult for pedestrians due to the absence of designated crossing zones, signal phases at intersections, and limited lighting. Therefore, a key objective of the MRBW Project is to address these issues by installing pedestrian crossings and modernizing intersections to current standards, bringing this segment of Gateway 228 in line with the infrastructure found elsewhere in the corridor.

The MRBW Project will install 42 LED pedestrian countdown signals and push buttons at improved and newly constructed intersections. Crosswalks and curb-cuts will also be added to enhance pedestrian safety. Additionally, extra lighting coverage will be installed at traffic signal locations to improve safety for both pedestrians and vehicles. These enhancements are expected to significantly improve safety and support walkable development by making crossing SR 228 safer and more accessible, with an anticipated daily usage of 95 to 110 crossings upon project completion.

SAFE ROUTES TO SCHOOL:



The MRBW Project, located within multiple Safe Routes to School (SRTS) Zones, aligns with national and international initiatives promoting safe walking and biking to school. The proximity of Saint Killian Parish School, within 1,000 feet of the Franklin Road intersection, underscores the significance of pedestrian safety in the project area. By enhancing pedestrian safety measures, such as installing crosswalks and pedestrian signals, the project actively supports the Safe Routes to School initiative, encouraging more students to safely walk or bike to school.

- **Implements actions and activities identified in the National Roadway Safety Strategy:**

The MRBW Project is not just a local initiative; it aligns with critical objectives outlined in the National Roadway Safety Strategy, reflecting a commitment to enhancing safety on a broader scale. By focusing on "Increasing commercial motor vehicle highly visible traffic enforcement against risky driver behavior focused on high crash locations," the Project emphasizes the importance of proactive measures to address aggressive driving and reduce accidents. This strategy includes supporting the expansion of radar and video detection signals along the Project, effectively targeting areas prone to congestion and high crash rates. Furthermore, the Project aligns with the goal of "Supporting the planning, design, and implementation of safer roads and streets in all communities" by leveraging federal funding resources to enhance roadway safety infrastructure. Through strategic planning and execution, the MRBW Project aims to significantly reduce accidents along the corridor by expanding roadways and mitigating congestion, ultimately contributing to safer transportation networks for all users.

Moreover, the Project goes beyond mere infrastructure improvements by incorporating advanced emergency preemption systems at key intersections. These systems enhance the responsiveness of traffic signals to emergency vehicles, facilitating quicker and safer emergency responses. This aspect of the Project directly addresses the post-crash care objectives outlined in the National Roadway Safety Strategy, emphasizing the importance of implementing cutting-edge technologies to improve responder and motorist safety.

Additionally, the inclusion of the MRBW Project in the 2020 SPC Regional Transportation Safety Action Plan underscores its significance as a safety focus area for the Southwestern PA region. Identified as a priority for addressing safety concerns, the Project highlights the collaborative efforts between local authorities and regional stakeholders to proactively tackle transportation safety challenges. By recognizing and prioritizing safety hot spots along SR 228, the Project ensures that resources are directed towards areas with the highest potential for safety improvements, ultimately contributing to a safer and more resilient transportation infrastructure.

- **Targets the shortage of long-term parking for commercial motor vehicles on the National Highway System:**

The MRBW Project is not applicable to this outcome.

- **Promotes safer speeds in all roadway environments through a combination of thoughtful, equitable, context-appropriate roadway design, targeted education, outreach campaigns, and enforcement:**

The MRBW Project is not applicable to this outcome.

OUTCOME CRITERIA

CRITERION #2: STATE OF GOOD REPAIR

State of good repair is a primary project purpose. The MRBW Project is (1) consistent with relevant plans to maintain transportation facilities in a state of good repair; and (2) it tackles current and projected vulnerabilities that, if unaddressed, will compromise the overall efficiency of the SR 228 network, hinder the mobility of goods and people, and impede economic growth. Furthermore, by prioritizing investments to address present challenges while also redesigning the infrastructure to meet future needs, the MRBW Project contributes to advancing the "High-Performing Core Assets" objective outlined in the USDOT's [Fiscal Year 2022-2026 Strategic Plan](#).

(1) Relevant Plans: The Project is consistent with state of good repair maintenance plans. PennDOT District 10 will assume responsibility for the operations and maintenance of the MRBW Project, ensuring adherence to [PennDOT Maintenance Activities and Pennsylvania's Transportation Asset Management Plan](#) (TAMP). PennDOT oversees and maintains an extensive network, encompassing 39,714 linear miles of pavement, constituting 33 percent of the total National Highway System (NHS) network. In line with the TAMP, PennDOT employs state measures of asset condition for state-owned assets and utilizes performance measures established by FHWA to assess asset condition for NHS assets. The Lowest Practical Life-Cycle Cost (LLCC) represents PennDOT's asset management strategy, aimed at maximizing asset lifespan at minimal expense through a risk-based prioritization of preservation, rehabilitation, and reconstruction efforts. This strategy, encapsulated in PennDOT's asset management motto and guiding principle of applying "the right treatment at the right time," recognizes that strategic intervention at key stages in an asset's life cycle profoundly impacts the total cost of maintaining it in a state of good repair over its entire lifespan. It serves as the cornerstone of PennDOT's implementation and investment strategy, facilitating the attainment of asset condition targets, sustaining NHS performance, and advancing progress towards national goals outlined in [23 U.S.C. 150\(b\) \(23 CFR 515.13\(b\) \(2\)\)](#).

(2) Current and Projected Vulnerabilities: In 2018, a [Corridor Design Study](#) was conducted, followed by an [Addendum](#) in 2020, examining nine crucial intersections within the MRBW Project area. The analysis, based on conditions from the Base Year of 2016, revealed that seven out of the nine locations experienced intersection approach failures (rated as LOS E/F) during all three peak periods assessed (weekday AM, weekday PM, and Saturday midday). Without improvements, anticipated traffic growth up to the 2045 Design Year will exacerbate existing operational shortcomings significantly, jeopardizing the state of good repair along the corridor.

The analysis forecasts that under No-Build conditions for 2045, four of the nine locations will suffer overall intersection failures during multiple peaks, while all nine locations will witness intersection approach failures throughout every peak period. The MRBW segment within the larger Gateway 288 Project is expected to witness imminent traffic growth, with estimated daily traffic increasing by over 33% (2016 AADT of 27,000 increasing to 2045 AADT of 36,000). Furthermore, pending anticipated future development of at least 10 major development parcels that directly influence the corridor, additional supplemental growth is projected to increase the estimated growth to almost 52% (2016 AADT of 27,000 increasing to 2045 AADT with supplemental growth of 41,000), further emphasizing the imperative to ensure the state of good repair for sustainable infrastructure.

• **Restores and modernizes existing core infrastructure that will result in lower long-term maintenance costs:**


The MRBW Project employs a comprehensive strategy to revitalize and modernize the SR 228 corridor's core infrastructure, ultimately leading to decreased long-term maintenance expenses. By adhering to PennDOT's state of good repair maintenance plans and prioritizing investments that address present and future challenges, the Project ensures the corridor's sustained optimal condition, mitigating the need for expensive reactive maintenance and fostering a more sustainable approach.

Central to the MRBW Project is the extensive upgrade of traffic signal systems at targeted intersections. These enhancements involve replacing the current radio communications system with new fiber optic cable connectivity, integrating advanced acoustic emergency preemption systems and video detection equipment, and introducing closed-circuit television (CCTV) camera coverage for enhanced monitoring. These upgraded signals, part of the Southwestern Pennsylvania Commission (SPC) Regional Traffic Signal Program, will seamlessly integrate into Cranberry Township's Traffic Management Center (TMC), enabling centralized monitoring and operation. By modernizing and improving traffic signal efficiency, the Project significantly contributes to core infrastructure restoration and modernization.

Furthermore, the upgraded traffic signal systems will play a crucial role in reducing long-term maintenance costs through several avenues. Firstly, modernized equipment enhances reliability, reducing breakdowns and failures, and subsequently lowering the frequency of repairs and replacements. This reduction translates to long-term savings for the maintenance budget. Additionally, optimized traffic signal operations minimize wear and tear on infrastructure components, extending their overall lifespan and reducing maintenance interventions. Moreover, enhanced monitoring and control capabilities facilitate proactive maintenance strategies, identifying and resolving issues promptly to prevent costly emergency repairs and associated expenses. In summary, the upgraded traffic signal system enhances operational efficiency, safety, and yields tangible cost savings by lowering long-term maintenance expenditures. Strengthening asset management systems and practices remains integral in reducing lifecycle management costs.

• **Addresses current and projected vulnerabilities that if left unaddressed will threaten future transportation network efficiency, mobility of good or people, or economic growth:**

The MRBW Project represents the final 3.25-mile segment of the comprehensive 26.4-mile Gateway 228 Corridor Improvement Project. Traffic analysis forecasts underscore the critical need for intervention, revealing that without intervention, four of the nine locations within the MRBW Project area will suffer from overall intersection failures during multiple peak periods by 2045. Moreover, all nine locations are projected to experience intersection approach failures throughout every peak period. Anticipated traffic growth within the MRBW segment of the larger Gateway 288 Project is substantial, with estimated daily traffic set to increase by over 33% from 2016 to 2045. Additionally, pending future development of at least 10 major parcels directly impacting the corridor is expected to further exacerbate this growth, projecting an increase of nearly 52% in traffic volume by 2045.



**59.2 SECOND
DELAY PER
VEHICLE**

Failure to advance the MRBW project will create a bottleneck, impeding improvements already made in the Gateway 228 Corridor.

OUTCOME CRITERIA

These projections highlight the urgent need to address current and projected vulnerabilities to safeguard future transportation network efficiency, mobility of goods and people, and economic growth. The MRBW Project is pivotal in ensuring the state of good repair for sustainable infrastructure in the region. By enhancing the capacity, functionality, and safety of the corridor, the Project not only mitigates existing operational deficiencies but also prepares the transportation network to accommodate future growth and demand. Furthermore, the completion of the MRBW Project is instrumental in unlocking the full economic potential of the region.

A more efficient and safer transportation network facilitated by the Project directly contributes to economic vitality. Improved accessibility fosters smoother movement of goods and services, benefiting businesses and industries along the corridor. Moreover, the Project's completion is expected to attract investment and spur even more economic development, creating job opportunities, and driving prosperity for the local community and the broader region. Thus, the MRBW Project serves as a catalyst for economic growth and prosperity, underscoring its significance in addressing current and projected vulnerabilities threatening the region's transportation network and economic well-being.

- **Restores existing core infrastructure at the end of its useful life to a state of good repair:**

The MRBW Project stands as a comprehensive solution to restore the final segment of SR 288 that has reached the end of its useful life to a state of good repair. As discussed above, seven out of nine intersections within the MRBW Project area currently grapple with intersection approach failures, causing significant queuing, delays, and blocked auxiliary lanes. These challenges not only impede mainline travel but also affect upstream intersections and side-street connections, amplifying the corridor's operational deficiencies. Notable impacts have been observed between Franklin Road and Castle Creek Drive (West), in Seven Fields Borough, Heritage Creek Drive, and other busy side-street approaches along the corridor. By not reconstructing the Project site, which is situated between a wider five-lane section to the west and ongoing PennDOT widening and reconstruction activities to the east, deteriorating conditions exacerbate the issue, creating a 2.6-mile-long two-lane bottleneck that hampers connectivity between existing and future corridor widening plans.

To address these challenges, the MRBW Project will implement necessary upgrades and enhancements, thereby restoring the corridor to a state of good repair. Through targeted improvements to intersections, roadway capacity enhancements, and modernization of traffic signal systems, the MRBW Project aims to revitalize aging infrastructure and enhance operational efficiency. By mitigating intersection approach failures, alleviating queuing, and tackling congestion, the Project will breathe new life into the corridor, ensuring it meets the demands of modern transportation. Moreover, by integrating cutting-edge technology and design enhancements, the Project will not only bolster safety, mobility, and connectivity but also contribute significantly to the restoration of the corridor's core infrastructure to a state of good repair.

- **Creates new infrastructure in remote communities that will be maintained in a state of good repair, as evidenced by the project's inclusion in an Asset Management Plan:**

The MRBW Project is not applicable to this outcome.

CRITERION #3: ECONOMIC IMPACTS, FREIGHT MOVEMENT, AND JOB CREATION

Economic vitality, efficient freight movement, and job creation are primary purposes of this Project. Butler County stands out as a dynamic hub of economic activity, attracting both businesses and residents with its diverse opportunities and high quality of life. Cranberry Township, in particular, serves as a thriving center for technology, engineering, and customer service, boasting major operations of renowned companies like UPMC Lemieux Sports Complex, MSA Safety Corporate Center, McKesson, and Kawneer Company. Its strategic location along major transportation corridors, including I-79 and SR 228, positions it as a prime destination for businesses seeking accessibility and connectivity.

Moreover, Butler County's economic growth is evident in its ranking as the ninth in business growth, with numerous new businesses opening in recent years. While ranking outside the top 10 in GDP growth, the county leads in new building permits, reflecting a vibrant real estate market and a robust construction sector. Manufacturing, healthcare, education, and tourism are among the key sectors propelling Butler County's economy, generating a substantial \$11 billion in gross domestic product in 2020.

The significance of transportation infrastructure, particularly the improved segments of SR 228, cannot be overstated in fostering economic vitality in Butler County. With a solid workforce and excellent transportation infrastructure, including the ongoing MRBW Project, Butler County is well-equipped to address the needs of its thriving manufacturing sector. The Project is expected to enhance freight movement, job creation, and economic growth by reducing congestion, improving safety, and facilitating efficient transportation networks. Furthermore, tourism plays a significant role in Butler County's economy, with travelers spending over \$600 million annually. Attractions like Moraine State Park, along with events such as the Bantam Jeep Heritage Festival and the Big Butler Fair, draw visitors from far and wide, increasing commerce and enhancing the county's appeal. Additionally, initiatives like the Last Mile Service (microtransit) pilot program demonstrate Butler County's commitment to addressing transportation challenges and enhancing accessibility for its workforce. By fostering collaboration and innovation, the county is positioning itself as a model for sustainable transportation solutions.

In essence, Butler County's economic vibrancy, supported by robust infrastructure and collaborative initiatives, underscores its status as a premier destination for businesses, residents, and visitors. The MRBW Project, alongside other strategic efforts, will further amplify the county's growth trajectory, ensuring a prosperous future for generations to come.

KEY FACTS:



GLOBAL DISTRIBUTION

THE GATEWAY 228 CORRIDOR PROVIDES CRITICAL CONNECTIONS TO THE OHIO RIVER SHIPPING PORT ON THE WEST AND FREEPORT BOROUGH'S SHIPPING PORT ON THE EAST.



\$20 BILLION IN FREIGHT

OVER 93% OF TOTAL FREIGHT IN BUTLER COUNTY IS ESTIMATED TO MOVE BY TRUCK. IN THE GATEWAY 228 CORRIDOR, MORE THAN \$20 BILLION WORTH OF GOODS ARE EXPORTED EACH YEAR.



\$6 BILLION CRACKER PLANT

GATEWAY 228 PROVIDES DIRECT ACCESS TO SHELL'S CRACKER PLANT IN BEAVER COUNTY, WHICH SUPPORTS OVER 600 JOBS.



CRANBERRY TOWNSHIP

THE FASTEST GROWING TOWNSHIP IN PENNSYLVANIA IS LOCATED ON THE GATEWAY 228 CORRIDOR.



CITY OF PITTSBURGH

GATEWAY 228 IS LOCATED APPROXIMATELY 18-MILES NORTH OF THE CITY OF PITTSBURGH, AND PROVIDES ACCESS TO THE PITTSBURGH INTERNATIONAL AIRPORT FOR RURAL AND SUBURBAN RESIDENTS IN BUTLER.

OUTCOME CRITERIA

ECONOMIC IMPACT

- **Improves multimodal transportation systems and incorporate affordable transportation options to improve mobility:**

The MRBW Project plays a crucial role in enhancing multimodal transportation systems by improving accessibility and connectivity for both people and goods. By upgrading roadway infrastructure along SR 228, the Project facilitates more efficient flow of traffic, reducing congestion and improving mobility for commuters and freight carriers. The incorporation of pedestrian-friendly features such as LED pedestrian countdown signals, crosswalks, and curb-cuts at intersections enhances safety and encourages active transportation options. This not only improves mobility for pedestrians but also contributes to a more sustainable and inclusive transportation system. Moreover, by reducing travel times and enhancing connectivity, the MRBW Project promotes the efficient movement of goods, supporting economic activities and regional commerce. With improved infrastructure, businesses can access affordable transportation options, including trucking and shipping services, leading to more efficient logistics and supply chain operations. Overall, the MRBW Project contributes to the development of a comprehensive multimodal transportation network that incorporates affordable options for both people and goods, thereby enhancing mobility, fostering economic growth, and improving quality of life in the region.

- **Decreases transportation costs and improves access to employment centers and job opportunities:**

The MRBW Project is instrumental in reducing transportation costs and improving access to employment centers and job opportunities along the bustling Gateway 228 Corridor. It plays a pivotal role in catalyzing economic vitality, fostering job creation, and enhancing mobility in the region, thereby contributing to the overall prosperity and sustainability of Butler County and its surrounding communities. With over 35,700 job opportunities and 2,600 businesses located in the area, including major employers like Giant Eagle Headquarters and MSA Headquarters, this corridor serves as a vital commuter route, connecting residents from rural communities to emerging regional employment hubs further west, such as Cranberry Township and the Shell Chemicals' ethane cracker plant in Beaver County.

63% REDUCTION IN PEAK HOUR DELAYS
\$13.9 MILLION OPERATING COST SAVINGS
\$151 MILLION TRAVEL TIME SAVINGS

Cranberry Township has evolved into a pivotal activity center, attracting businesses, entrepreneurs, and corporate headquarters. With the establishment of the UPMC Lemieux Sports Complex in 2015, Cranberry Township witnessed a surge in economic development, resulting in the creation of over 25,200 jobs by 2017, with more than 3,110 new job opportunities in less than two years. This rapid growth underscores the township's status as a dynamic economic powerhouse within the region. The MRBW Project aligns perfectly with the evolving needs of Cranberry Township and the broader Gateway 228 Corridor. By implementing lane widening, additional turning lanes, and adaptive signal technology, among other enhancements, the Project aims to expand capacity and improve access along this major commuter route. This not only reduces transportation costs for commuters but also facilitates easier access to job centers and employment opportunities, driving further economic growth and development in the region.

In addition to the economic growth and job opportunities facilitated by the MRBW Project, the findings from the [Benefit Cost Analysis](#) (BCA) underscore its profound impact on reducing transportation costs and enhancing access to employment centers. After the completion of construction, a significant 63% reduction in peak hour delay is projected across all intersections analyzed, resulting in an estimated total saving of 15,017,528 hours of travel time. This substantial reduction in delay translates into significant cost savings for commuters, further escalating the Project's economic benefits. Moreover, the MRBW Project anticipates a remarkable reduction of approximately 6.48 million gallons of gasoline usage and 325,000 gallons of diesel fuel usage. Valued at \$25,247,641 in savings, these fuel consumption reductions are attributed to minimized queuing times and enhanced traffic flow facilitated by the Project. By reducing the time vehicles spend idling, the MRBW Project not only decreases fuel consumption but also lowers transportation costs for commuters and businesses.

- **Enhances recreational and tourism opportunities by providing direct access to Federal land, national parks, national forests, national recreation areas, national wildlife refuges, wilderness areas, or State parks:**

The recreational and tourism opportunities surrounding the MRBW Project are abundant, with attractions like the UPMC Lemieux Sports Complex, UPMC Passavant Sportsplex at Graham Park, and Urban Air Trampoline and Adventure Park offering diverse experiences for visitors. The expansion of SR 228 within the MRBW segment promises safer and more efficient travel, which is expected to encourage increased tourism to the area. This expansion aligns with findings from the SPC Tourism Report, which highlights the substantial economic impact of tourism in Butler County. With visitors spending \$601.8 million in 2022 and creating nearly 4,000 jobs, the influence of tourism on the local economy is evident. By attracting more tourists to Cranberry Township and surrounding communities, the MRBW Project stands to stimulate further economic growth in the region.

- **Help the United States compete in a global economy by encouraging the location of important industries and future innovations and technology in the U.S. and facilitating efficient and reliable freight movement:**

The MRBW Project holds immense potential for helping the United States compete in the global economy by attracting emerging industries and facilitating efficient freight movement. Currently, the surrounding area of the MRBW Project hosts several multinational companies, including MSA International, PPG Industries, Omnicell, and Shell Chemical's ethane cracker plant, among others. These companies rely heavily on transportation infrastructure for the movement of goods and materials, making efficient freight access critical for their operations. Expansions of the MRBW segment will play a vital role in attracting more important industries to the area. By increasing road capacity and improving transportation efficiency, the Project creates an attractive environment for businesses seeking reliable infrastructure. The improved connectivity provided by the MRBW Project will make the area even more appealing to industries looking to establish or expand their operations in the region.



OUTCOME CRITERIA

According to the Butler County Freight Profile, SR 228 is identified as a critical roadway corridor for truck freight transporting more than \$20 billion of exports annually. With lane additions and widening of the MRBW segment and the resulting reduction in congestion, SR 228 will become even more integral for regional freight access. The enhanced transportation infrastructure provided by the MRBW Project will not only support and cut costs for existing industries in the area but also attract new ones that will bring future innovations and technological advancements to the region. By providing reliable infrastructure for freight movement and encouraging the location of key industries, the Project contributes to strengthening the United States' position in the global economy.

- **The project will directly, and in the near-term, result in greater public and private investments in land-use productivity, including rural main street revitalization, equitable commercial and mixed-income residential development:**

The MRBW Project is poised to stimulate greater public and private investments in land-use productivity and promoting equitable commercial and mixed-income residential development in the near term. By enhancing transportation infrastructure and improving connectivity along the Gateway 228 Corridor, the project creates an environment conducive to economic growth and development. Improved roadways facilitate easier access to rural main streets, encouraging revitalization efforts and attracting investments in local businesses and amenities. Moreover, the project's focus on expanding road capacity and reducing congestion enhances the attractiveness of the surrounding areas for commercial and residential development. Businesses are more likely to invest in locations with efficient transportation networks, while residents benefit from improved accessibility to employment centers and amenities. Additionally, the MRBW Project promotes equitable development by creating opportunities for mixed-income residential development. Improved transportation infrastructure provides greater accessibility to affordable housing options, ensuring that economic development benefits all members of the community.



Between 2020 and 2023, there have been 4,836 new residential lots developed and/or reviewed by the Butler County Planning Commission.



GROWING AGRICULTURAL INDUSTRY

There are 16 farms along Gateway 228. These farms, along with related businesses, rely on MRBW for shipping their products.



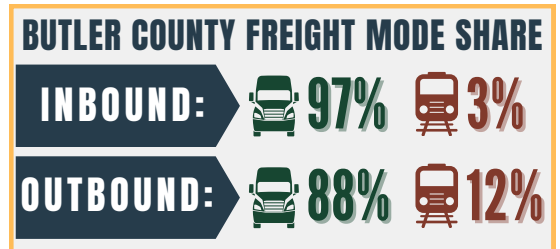
OVER 6,000 BUSINESSES WITHIN A 3-MILE RADIUS OF MRBW

In the last 4-years, the Planning Commission has reviewed 49 site plans for businesses that are new or located to expand along the Gateway 228 Corridor.

FREIGHT MOVEMENT

The reliability of freight movement along SR 228 is paramount to the regional economy, particularly considering that over 93% of total freight in Butler County relies on truck transportation. This high dependence on trucks is influenced by several factors, including the composition of local industries with heavy freight demand, the presence of regional retail and distribution sites in southern Butler County, and the expansion of industrial and business park operations along SR 228.

According to the SPC's [Regional Freight Plan](#), [Butler County](#) stands out as one of the few counties in the region that generates more outbound freight than inbound freight. Outbound products are predominantly related to the county's production of petroleum or coal products and nonmetallic minerals, which collectively constitute 75% of all outbound freight. The importance of Gateway 228 in facilitating this freight movement is evident, with over \$20 billion worth of goods exported annually along this corridor (although import data is currently unavailable). Projections suggest that by 2040, approximately 21 million tons of goods—a 48% increase over baseline—will be exported from Butler County.



Given the dispersed nature of freight development across various sites in Butler County, access to numerous state and other roadways, especially SR 228, is crucial for truck mobility. The Freight Plan highlights key focus areas within the County, predominantly comprising freight clusters and connectivity interests accessible only via the roadway network. SR 228, including the MRBW Project, is recognized as a significant freight growth location, positioned between two localized freight activity centers (Cranberry Township and Victoria Road Business Park) and adjacent to the Mars Valencia/SR 228 intersection, which serves as a notable cluster of freight activity. Moreover, the MRBW Project is specifically identified as a freight focus area for corridor travel, underscoring its importance in facilitating efficient and reliable freight movement within the region.

- **Improves intermodal and/or multimodal freight mobility:**

Time is money. The MRBW Project is pivotal in reducing traffic congestion and time delays thereby increasing multimodal freight mobility. Through planned roadway improvements on SR 228, a key freight corridor, the Project widens and upgrades infrastructure to manage increasing traffic volumes and accommodate larger vehicles. This boosts capacity and accessibility, improving flow and connectivity for trucks within the local multimodal transportation network. Additionally, by integrating with existing and planned freight networks in Butler County, including rail and shipping terminals, the Project enhances overall efficiency and connectivity within the intermodal freight transportation system, facilitating the movement of goods and services in both Butler County and the broader region.

- **Improve freight mobility, reliability, and efficiency at locations identified as major freight highway bottlenecks in regional plan:**

The Butler County Freight Profile from the Southwestern Pennsylvania Regional Freight Plan identifies upgrades to SR 228 in Cranberry and Adams townships as a freight focus area. Focal points for this area include future development, infrastructure, operations, and access and connectivity. Cranberry Township has experienced substantial corporate, industrial, and research growth in recent years. This growth, especially on SR 228, necessitates improved freight access to key transportation corridors. Without better freight access, future development of the area will be hindered, limiting economic growth. The MRBW Project is explicitly named in the Butler County Freight Profile as a highway candidate that has regionally relevant freight influence. The MRBW expansion is expected to increase the freight and goods pipeline on a broader regional level beyond just Butler County. If the MRBW segment is not completed, freight will bottleneck at either end of the segment as it is the final segment to be completed in the middle of the broader Gateway 228 Corridor.

OUTCOME CRITERIA

- Improves freight reliability and efficiency by reducing freight congestion or addressing a freight/supply chain bottleneck:**

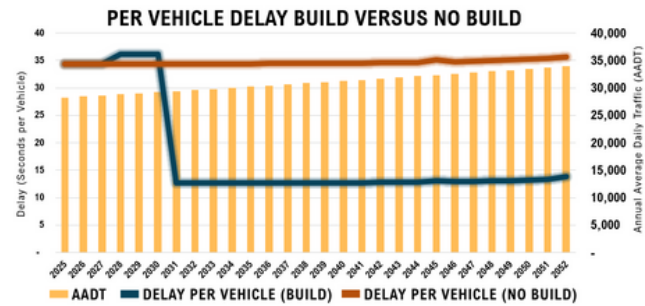
Completing the MRBW Project is essential as it represents the final phase of reconstruction and modernization in the Gateway 228 segment, positioned centrally within SR 228. Failing to address this segment will significantly hamper corridor efficiency, particularly for freight, leading to bottlenecks of traffic from both directions at MRBW. The Butler County Freight Profile underscores SR 228's critical role as a roadway corridor for truck access, with this specific segment identified as a Freight Focus Area. Neglecting to finalize the MRBW segment risks creating a supply chain bottleneck, affecting the steady and efficient flow of goods and services along the corridor.

The MRBW Project's comprehensive approach to transportation improvement yields substantial benefits for freight movement efficiency. Upon completion of construction, the Project anticipates a remarkable 63% reduction in peak hour delay across all intersections analyzed, resulting in an estimated total saving of 15,017,528 hours of travel time. This significant reduction in delay translates into substantial cost savings for commuters, reinforcing the project's economic advantages.

Additionally, the MRBW Project aims to reduce approximately 6.48 million gallons of gasoline and 325,000 gallons of diesel fuel use. Valued at \$25,247,641 in savings, these fuel consumption reductions are attributed to minimized queuing times and enhanced traffic flow facilitated by the Project. By mitigating idle time, the Project not only reduces fuel consumption but also lowers transportation costs for both commuters and businesses. By incorporating these efficiency measures, the MRBW Project not only enhances transportation reliability but also contributes to significant economic savings and environmental benefits, further underscoring its importance for the region's overall prosperity and sustainability.

- Project directly supports the development of coastal and inland ports that provide supply chain improvements and reduce supply chain disruption:**

The Gateway 228 Corridor is the critical connection to the Ohio River Shipping Port on the west in Beaver County and Freeport Borough's shipping port on the east in Armstrong County. Without the MRBW Project completion, the last remaining Gateway 228 segment to be reconstructed and modernized, the Gateway 228 Corridor will bottleneck and eventually fail. This will negatively impact corridor efficiency and increase supply chain disruptions. Investing in the MRBW Project will improve travel time, aiding the supply chain between southwestern Pennsylvania's two critical ports - the Ohio River Shipping Port and Freeport Borough's port.



JOB CREATION

- Results in high quality job creation by supporting good-paying jobs with a free and fair choice to join a union, in project construction and in on-going operations and maintenance and incorporate strong labor standards, such as through the use of project labor agreements:**

Gateway 228 is the artery through which Butler County's economy pulses and, therefore, vital to future development opportunities in urban and rural communities along the corridor. Results of IMPLAN modeling show that the MRBW Project has a significant role in supporting the economic vitality of Butler County, generating temporary jobs and one-time tax impact because of construction. IMPLAN is an input-output (I-O) modeling system that estimates the cumulative effects of economic change. Construction of the MRBW Project will result in significant economic benefits for local and state governments, including:

CONSTRUCTION ECONOMIC IMPACTS
640 TEMPORARY CONSTRUCTION JOBS
\$31M IN EMPLOYEE COMPENSATION

SUPPORT 237 INDIRECT AND INDUCED JOBS THAT ALREADY EXIST WITHIN REGIONAL ECONOMY, REPRESENTING AN ADDITIONAL \$12.9 MILLION IN EMPLOYEE COMPENSATION.

INJECT \$5.9 MILLION IN ONE-TIME STATE AND LOCAL TAXES

- Results in workforce opportunities for historically underrepresented groups, such as through the use of local hire provisions or other workforce strategies targeted at or jointly developed with historically underrepresented groups, to support project development:**

Butler County is committed to upholding PennDOT's Disadvantaged Business Enterprise (DBE) participation and trainee requirements to ensure inclusive participation in the Project's execution. While the final participation goals will be determined during the PS&E (plans, specifications & estimates) phase of Final Design, PennDOT District 10 anticipates setting DBE participation goals ranging from 8-10%. Also, the Project intends to engage 8 to 10 trainees/apprentices, each completing 1,000 hours of work for 8,000 to 10,000 apprentice hours.

Building upon the success of the previous Gateway 228 segments funded by Federal BUILD funds, which met or exceeded DBE participation and trainee goals, the MRBW Project seeks to maintain similar levels of DBE participation. However, with its larger scope, the Project most likely will expand participation by increasing the number of trainees and hours worked.

For example, in previous segments such as BUILD 1 Freedom Road (Commonwealth-Haine School), the DBE goal of 10% was exceeded, reaching 11.47%, while the trainee goal of one trainee at 1,000 hours was achieved. Similarly, in BUILD 1 Balls Bend, where the DBE goal was 8%, the project established a trainee goal of five trainees at 5,000 hours, or 1,000 hours per trainee, currently being monitored and reported bi-monthly during construction. In ongoing segments like BUILD 2 Freedom Road (Haine School to County Line) and BUILD 2 Three Degree Road, where the DBE goals are set at 10%, the project has set trainee goals of three trainees at 3,000 hours and seven trainees at 7,000 hours, respectively. These goals are monitored and reported regularly during construction to ensure accountability and progress.

Through its dedicated DBE participation and trainee programs, the MRBW Project not only promotes diversity and inclusion within the construction industry but also provides valuable training and employment opportunities for individuals from disadvantaged backgrounds, contributing to the overall economic empowerment of the community.

OUTCOME CRITERIA

CRITERION #4: CLIMATE CHANGE, RESILIENCE, AND THE ENVIRONMENT

Environmental Sustainability is a primary Project purpose. The MRBW Project demonstrates a proactive approach to addressing climate change, resilience, and environmental considerations both during the planning stage and next throughout Project construction. This includes a comprehensive assessment of potential environmental impacts and integration of climate resilience strategies into Project design.

During the planning stage, the Project team conducted thorough analyses to identify and evaluate potential environmental impacts, including those related to climate change. This involved assessing factors such as greenhouse gas emissions, stormwater management, and impacts on sensitive habitats and species. By incorporating climate change considerations into the planning process, the Project aimed to minimize its environmental footprint and enhance overall resilience to climate-related risks. Furthermore, the Project team prioritized environmental justice considerations through the National Environmental Policy Act (NEPA) process. This involved engaging with stakeholders from diverse communities in the corridor to ensure that the Project's benefits and burdens are equitably distributed. By incorporating feedback from community members and considering potential impacts on vulnerable populations, the Project aims to promote social equity and environmental justice.

Throughout Project delivery, environmental considerations will remain a key focus, with ongoing monitoring and mitigation measures to reverse and minimize adverse impacts on the environment. This includes adherence to regulatory requirements, implementation of best management practices, and ongoing engagement with stakeholders to address concerns and optimize Project outcomes.

Overall, the MRBW Project exemplifies a holistic approach to infrastructure development that prioritizes sustainability, resilience, and environmental stewardship from the planning stage through Project delivery. By integrating climate change considerations and environmental justice principles into each phase of the Project, MRBW can create lasting benefits for communities and the environment.

EMISSION REDUCTIONS

- **Reduces greenhouse gas (GHG) emissions relative to a no-action baseline:**

The MRBW Project's anticipated reduction in greenhouse gas (GHG) emissions is a significant environmental benefit. By constructing a second lane throughout the entire Project segment and redesigning intersections to improve turning flow and alleviate congestion, the Project decreases the time vehicles spend idling. This reduction in idle time translates to lower emissions released by combustion-powered vehicles. Overall, these improvements are projected to result in a substantial reduction of GHG CO₂, NO_x, and PM_{2.5} emissions over the lifetime of the Project compared to the No-Build alternative. This demonstrates the Project's commitment to sustainability and its positive impact on mitigating climate change by reducing emissions.



60,904 METRIC TONS REDUCTION



63,687,700 GRAMS REDUCTION



940,838 GRAMS REDUCTION



- **Supports a modal shift in freight or passenger movement to reduce emissions:**

The MRBW Project is not applicable to this outcome.

- **Utilizes traffic demand strategies to reduce emissions:**

The MRBW Project utilizes traffic demand strategies to effectively reduce emissions by optimizing traffic flow and minimizing vehicle idling times. Through expanding functions of the state-of-the-art Traffic Operations Center operated by Cranberry Township's traffic division for all the communities located in the Project area, light timing and signal phases based on real-time traffic demand are actively managed. Implementing additional hardware to extend this dynamically adjusted system of signal timings and traffic patterns, the Project optimizes movement and reduces congestion and queuing at intersections along this segment of SR 228. These advanced traffic management techniques reduce idling, decrease emissions, and ensure a more efficient, cleaner and sustainable transportation system for local communities and Butler County.

- **Supports a Local/Regional/State Climate Action Plan or State Carbon Reduction Strategy:**

The Pennsylvania State Carbon Reduction Strategy (CRS) emphasizes addressing transportation-related carbon emissions, with a focus on supporting traffic operation initiatives. The MRBW Project aligns with two key criteria outlined in the CRS: "Traffic Incident Management" and "Traffic Signal Optimization/Retiming and Traffic Adaptive Signal Control." As part of the Project, new signals will be installed and managed by the Cranberry Traffic Operations Center. This center utilizes state-of-the-art programs and timing principles to ensure coordination of traffic flow. In cases of accidents or other traffic incidents, the operations center can promptly adjust signal timing in real-time to manage traffic flow around the incident. These improvements are designed to facilitate the movement of traffic, ultimately reducing the time vehicles spend idling at intersections. By optimizing traffic flow and minimizing delays, the Project contributes to a reduction in vehicle emissions, aligning with the objectives of the CRS and supporting efforts to mitigate carbon emissions from transportation sources.

- **Recycles materials or uses construction methods that have lower emissions:**

PennDOT's adoption of warm mix asphalt, which allows for reduced production temperatures compared to traditional hot-mix asphalt, is a significant step toward sustainability and emission reduction. This innovation will be integrated into the scope of the MRBW Project, contributing to its environmental objectives. Furthermore, utilization of reclaimed asphalt pavement (RAP) presents another eco-friendly solution within the Project's scope. By incorporating RAP for temporary pavement, resurfacing, and new pavement, the Project minimizes the need for new aggregates and asphalt binder materials, effectively reducing emissions associated with their production. In line with PennDOT's commitment to sustainability, waste tire material has been approved for various applications within asphalt mixtures, pervious pavement systems, joint materials, traffic control devices, and noise walls. The Project aims to prioritize the use of these recycled materials and lower emission construction methods wherever feasible, further demonstrating its dedication to environmental stewardship and reducing carbon footprint in transportation infrastructure development.

OUTCOME CRITERIA

- ***Supports deployment of electric or zero-emission transportation:***

The MRBW Project is not applicable to this outcome.

RESILIENCE AND THE ENVIRONMENT

- ***The project is specifically identified in a Resilience Improvement Plan or similar plan and advances objectives in the National Climate Resilience Framework***

The MRBW Project will directly contribute to achieving Objective 6 of the National Climate Resilience Framework: “Help communities become not only more resilient, but also more safe, healthy, equitable, and economically strong” and aligns with the framework's first opportunity for action, which emphasizes the importance of ensuring the stability of access to lifeline services during both acute and chronic climate events.

One of the Project's key contributions to climate resilience lies in its capacity expansion of SR 228, a critical artery that links thousands of residents, businesses, schools, and healthcare facilities to other parts of Butler County, adjacent counties, Pittsburgh, the region and the Commonwealth. During emergencies, SR 228 serves as a primary evacuation route for communities spanning Cranberry Township, Adams Township, and Seven Fields Borough. However, the existing bottleneck along the route, where the road narrows from four lanes to two lanes for approximately 3.25 miles, poses a significant risk.

Without the improvements proposed in the Project, this bottleneck represents a vulnerability that could impede evacuation efforts and jeopardize the safety of residents in southern Butler County. In the event of an accident or blockage, the potential shutdown of this key route would not only delay evacuation procedures but also exacerbate the risks faced by the community during crisis situations. By expanding capacity of SR 228 and eliminating the bottleneck at the Project area, MRBW substantially enhances Butler County's resilience during climate events by ensuring the uninterrupted flow of critical lifeline services, facilitating efficient evacuation procedures, and mitigating the potential catastrophic impacts. Ultimately, the Project's completion will improve the region's ability to withstand and recover from adverse weather conditions and emergent threats, safeguarding the well-being and livelihoods of its residents.

- ***Incorporates nature-based solutions, natural infrastructure, or standard stormwater management improvements:***

One key aspect of the MRBW Project's stormwater management strategy is the integration of 18 basins, strategically sized to facilitate infiltration of the bottom one foot of storage. These basins, coupled with outlet structures designed to mitigate peak rate increases, play a crucial role in managing runoff volume and reducing the Project's environmental footprint.

Additionally, the Project utilizes the Managed Release Concept design within Stormwater Control Measures (SCMs) to manage runoff volume effectively. A Water Quality analysis will be conducted to ensure that the increased runoff volume does not degrade the receiving waterway, underscoring the Project's commitment to environmental stewardship.

The layout of the proposed storm drains' system mirrors that of the rest of the upgraded Gateway 228 corridor, aiming to replicate drainage patterns while directing runoff towards stormwater SCMs. Roadside swales are employed to facilitate sheet flow from the roadway surface, with amended soils and check dams enhancing peak rate and volume management. In areas with proposed curbing, inlets intercept water along the curb line, further optimizing stormwater capture. Moreover, the Project seeks to bypass existing flow from adjacent off-site stormwater management basins and storm sewer systems where feasible, minimizing disruptions to existing drainage infrastructure. Proposed stormwater detention basins are meticulously designed to mitigate increases in peak rate, ensuring that the Project's expansion of impervious areas does not exacerbate flow to receiving waterways.

Overall, the Project's comprehensive stormwater management approach represents a significant improvement over current practice. By integrating nature-based solutions and standard stormwater management techniques, the MRBW Project not only addresses increased impervious areas resulting from road widening but also prioritizes water quality preservation and environmental sustainability.

- ***Improves disaster preparedness, or upgrades projects in a floodplain:***

The Project will enhance a critical evacuation route by installing traffic signal pre-emption technologies, adding an extra lane and increasing capacity to effectively manage accidents, ensuring continuous flow during emergencies. These enhancements are anticipated to significantly reduce emergency response times, particularly along SR 228, which serves as the primary access route to essential facilities like the UPMC Passavant-Cranberry Hospital.

If MRBW Project is not constructed, bottleneaking along the segment will impede emergency response times and responders' ability to reach these vital locations fast. By accelerating traffic flow, the Project aims will mitigate delays that could otherwise jeopardize timely access to victims and medical facilities during emergencies.

- ***Improves disaster preparedness in an area most vulnerable to climate change impacts, such as a FEMA-designated Community Disaster Resilience Zone:***

The MRBW Project is not applicable to this outcome.

- ***Avoids adverse environmental impacts to air or water quality, wetlands, and endangered species:***

Approximately 2,911 linear feet of permanent stream impacts are expected across 17 jurisdictional watercourses within the Project area. These impacts stem primarily from fill encroachments associated with road widening and infrastructure installations. The Project is designed to minimize these adverse environmental impacts, particularly to air and water quality, wetlands, and endangered species. To address water quality and aquatic habitats, the Project includes measures to mitigate stream impacts by replacing culverts and installing stormwater basins and purchasing credits from a private mitigation banking entity.

Through collaboration with relevant environmental agencies such as the PA DEP, PFBC, and USACE, specific mitigation details will be finalized during the Project's Final Design phase. This ensures that mitigation efforts align with regulatory requirements and effectively address environmental concerns. By proactively addressing potential adverse impacts and implementing appropriate mitigation measures, the Project demonstrates a commitment to environmental stewardship and responsible infrastructure development.

OUTCOME CRITERIA

- **Repairs existing dilapidated or idle infrastructure that is currently causing environmental harm:**

The MRBW Project is not applicable to this outcome.

CRITERION #5: EQUITY, MULTIMODAL OPTIONS, AND QUALITY OF LIFE

Promoting equity, multimodal options, and enhancing quality of life is a primary Project purpose. The MRBW Project modernizes public infrastructure that establishes a foundation and ability to create a more inclusive, accessible, and sustainable transportation network that benefits all members of the community.

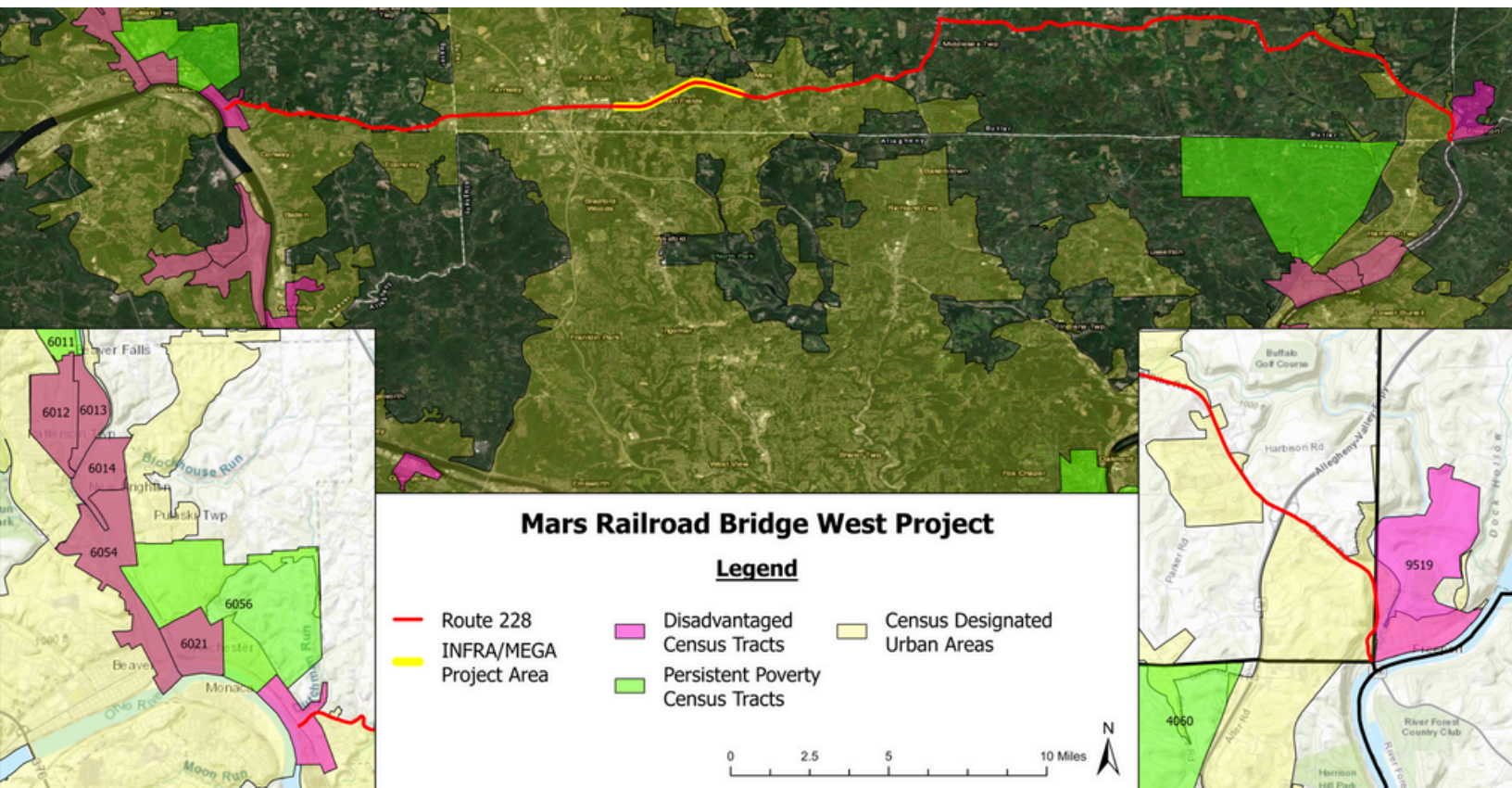
The MRBW Project completes Gateway 228, the primary employment, education, shopping, and healthcare corridor for Butler County. As such, the Project enhances opportunities for equitable access to employment centers, educational institutions, healthcare facilities, and other essential services for underserved communities. Because of the Project, Butler County commissioners have entered discussions with Butler Transit Authority to design and implement a microtransit system that will enable residents from other parts of Butler County, particularly a Justice40 community Butler City, to access vital life services in the corridor. Furthermore, the MRBW Project is adding sidewalks at key locations where gaps on side streets exist to improve walking and biking opportunities. By investing in infrastructure that sets the stage for alternative modes of transportation, the Project prepares the way to reduce dependence on single-occupancy vehicles, alleviate congestion, and improve air quality. This not only enhances transportation choices for residents but also promotes environmental sustainability and public health. Enhancing the quality of life is another key objective of the MRBW Project. By constructing safer, more efficient, and reliable transportation infrastructure, the Project creates more vibrant and sustainable communities along the Project corridor. This focuses primarily on upgrading crossings and segregating pedestrian movements along the network to eliminate conflicts and keep residents and visitors safe.

- **The project is located in an Area of Persistent Poverty or Historically Disadvantaged Community and the project significantly benefits the population in that area:**

The MRBW Project is a vital link connecting Justice40 communities to employment opportunities along SR 228, facilitating access to quality jobs in Cranberry Township and beyond. State Route 228 is the County's primary link between several burgeoning economic activity centers – southern Butler County, the fastest growing community in the Commonwealth of Pennsylvania, and Shell Chemicals' \$6 billion ethane cracker plant in neighboring Beaver County. Additionally, the Corridor intersects with I-79 and I-76 connecting the region to the nation. SR 228 is the most critical connection between Butler County's rural and suburban residents and emerging regional employment opportunities. Communities such as Freedom, Aliquippa, Rochester, Beaver Falls in Beaver County, and Butler City in Butler County, all of which are included in Justice40 initiatives due to various socioeconomic challenges, including low-income levels, use this corridor to connect to life's activities (see map below).

Given the significant growth in recent years, Cranberry Township is constantly looking for workers to serve unfilled job opportunities throughout the corridor and Project area. The infrastructure upgrades and potential new microtransit system will offer access to employment for residents of these Justice40 communities. However, without efficient transportation infrastructure, accessing these employment opportunities can be challenging.

The MRBW Project will enhance access to quality jobs along the Gateway 228 Corridor, benefiting residents in Justice40 communities by improving safety and efficiency for commuting to Cranberry Township and other employment centers along SR 228. This initiative will not only increase economic opportunities but also uplift the overall well-being and socioeconomic mobility of community residents. By ensuring equitable access to transportation options connecting residents to essential services, the project advances social equity and economic empowerment.



OUTCOME CRITERIA

- **The project sponsor has adopted an equity and inclusion program/plan or has otherwise instituted equity-focused policies related to project procurement, material sourcing, construction, inspection, hiring, or other activities designed to ensure equity in the overall project delivery and implementation**

Butler County is dedicated to civic rights and has implemented various plans and procedures to ensure compliance and fairness in their operations, which can found be [here](#).

- **Increases affordable and accessible transportation choices :**

As mentioned previously, the MRBW Project creates the opportunity to connect Butler County by transit. Design of a microtransit system for Cranberry Township with key connections to Butler City has been completed and is seeking operational funds. Cranberry has contemplated and studied transit for their community for more than 30-years and now, with construction of the MRBW Project which completes the corridor, this alternate mobility option can become reality. Butler City residents seeking employment in Cranberry Township (and along SR 228), and Cranberry residents without cars, senior citizens, persons with disabilities and those concerned with the environment will soon have a way to move around and participate in the economy and life.

- **The project includes comprehensive planning and policies to promote hiring of underrepresented populations including local and economic hiring preferences and investments in high-quality workforce development programs with supportive services, including labor-management programs, to help train, place, and retain people in good-paying jobs or registered apprenticeship:**

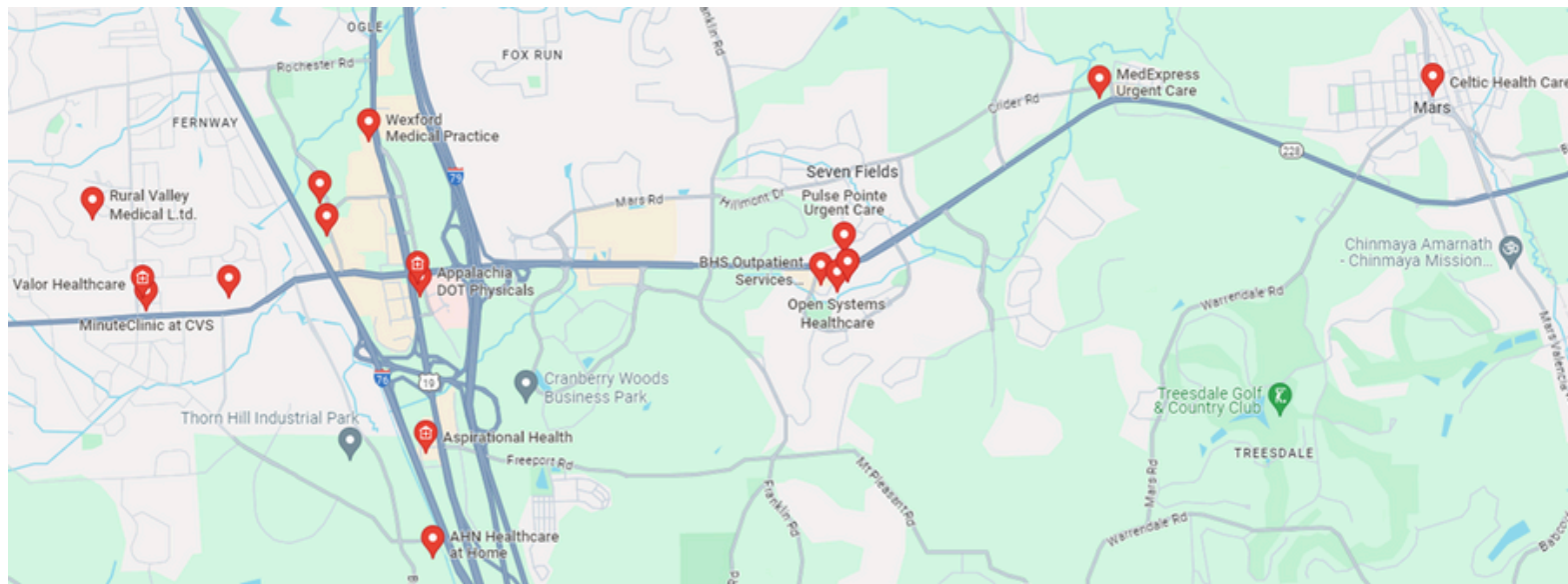
The MRBW Project prioritizes hiring underrepresented populations by implementing local and economic preferences, ensuring equitable access to job opportunities. It invests in workforce development programs and supportive services, including labor-management initiatives, to train, place, and retain individuals in good-paying jobs or registered apprenticeships, fostering economic growth and inclusivity within the community.

The MRBW Project will comply with PennDOT's Disadvantaged Business Enterprise (DBE) participation and trainee (apprentice) requirements. Final participation goals will be determined at the PS&E (plans, specifications & estimates) level of Final Design, based on project specifics. However, PennDOT District 10 anticipates DBE participation goals to range from 8-10%, with 8 to 10 trainees/apprentices logging 8,000 to 10,000 hours.

Previous Gateway 228 segments, funded by Federal BUILD funds, met, or exceeded DBE participation and trainee/apprentices goals. Given the MRBW Project's larger scope, it aims to maintain similar DBE participation levels but with increased trainees and hours.

- **Improves access to emergency care, essential services, healthcare providers, or drug and alcohol treatment and rehab centers:**

The MRBW Corridor hosts numerous healthcare facilities, including urgent cares and a UPMC emergency room, along with addiction treatment centers. Access to these critical services is facilitated by SR 228. Additionally, the area features essential amenities such as childcare providers, schools, grocery stores, and fire stations. The MRBW segment expansions will enhance efficiency and safety, further improving access to these vital services. See map below identifying critical medical facilities connected by SR 228.



- **Results in lower transportation and housing cost burdens, including through public and private investments to support greater commercial and mixed-income residential development near public transportation, along rural main streets or in walkable neighborhoods:**

The MRBW Project is not applicable to this outcome.

- **Increases the walkability and accessibility for pedestrians and encourage thriving communities for individuals to work, live, and play by creating transportation choices for individuals to move freely with or without a car:**

The MRBW Project will greatly improve pedestrian walkability and accessibility along SR 228, fostering vibrant communities where residents can work, live, and enjoy recreational activities. Currently lacking pedestrian infrastructure, the project will introduce sidewalks at key locations such as Castle Creek Drive and Heritage Creek Drive, enhancing accessibility. Additionally, the installation of 42 LED pedestrian countdown signals and push buttons at intersections will enhance safety, particularly for visually impaired individuals. Crosswalks, curb-cuts, and increased lighting coverage will further enhance pedestrian safety, reducing conflicts and encouraging walkable development. These improvements will offer transportation options and promote easier movement for individuals, fostering more lively and accessible communities.

OUTCOME CRITERIA

- ***The project includes physical-barrier-mitigating land bridges, caps, lids, linear parks, and multimodal mobility investments that either redress past barriers to opportunity or that proactively create new connections and opportunities for disadvantaged and other communities that are underserved by transportation:***

The MRBW Project is not applicable to this outcome.

- ***Increases affordable and accessible transportation choices :***

As mentioned previously, the MRBW Project creates the opportunity to connect Butler County by transit. Design of a microtransit system for Cranberry Township with key connections to Butler City has been completed and is seeking operational funds. Cranberry has contemplated and studied transit for their community for more than 30-years and now, with construction of the MRBW Project which completes the corridor, this alternate mobility option can become reality. Butler City residents seeking employment in Cranberry Township (and along SR 228), and Cranberry residents without cars, senior citizens, persons with disabilities and those concerned with the environment will soon have a way to move around and participate in the economy and life.

- ***The project includes new or improved walking and bicycling infrastructure, reduces automobile dependence, and improves access for people with disabilities and proactively incorporates Universal Design:***

The MRBW Project includes comprehensive enhancements to walking and bicycling infrastructure, which will contribute to reducing automobile dependence and improving accessibility for people with disabilities. The project will introduce sidewalks along key stretches of the SR 228 roadway, specifically at Castle Creek Drive to Shoppes at Adams Ridge Driveway/Seven Fields Boulevard and Heritage Creek Drive South up to Heritage Creek Drive/Scharberry Lane Roundabout. These new walking pathways aim to increase walkability and accessibility for pedestrians, promoting alternative modes of transportation. Moreover, the project incorporates Universal Design principles by installing 42 LED pedestrian countdown signals with push buttons at intersections, facilitating safer crossings and providing vital information to visually impaired pedestrians through audible cues and vibrating surfaces. Additionally, enhancements such as crosswalks, curb-cuts, and improved lighting further ensure accessibility and safety for pedestrians and cyclists, fostering a more inclusive and pedestrian-friendly environment.

- ***The project includes new or improved freight access to disadvantaged and underserved communities to increase access to goods and job opportunities for those communities:***

While the project primarily focuses on improving transportation infrastructure along the SR 228 corridor, its benefits extend to disadvantaged and underserved communities by enhancing freight access and increasing opportunities for economic growth and job creation. By reducing congestion and improving efficiency along this critical transportation route, the project indirectly facilitates better access to goods and job opportunities for these communities. Moreover, the project's emphasis on multimodal transportation and enhanced freight movement ensures that businesses in disadvantaged areas have improved connectivity to regional markets and distribution networks. Through these efforts, the project aims to promote equity and foster economic development, thereby benefiting disadvantaged and underserved communities by providing better access to essential goods and employment opportunities.

CRITERION #6: INNOVATION - TECHNOLOGY, PROJECT DELIVERY, AND FINANCING

INNOVATIVE TECHNOLOGY

- ***Deploys innovative technology:***

The project deploys innovative technologies by seamlessly integrating the corridor into Cranberry Township's adaptive traffic signal system operations. This integration promises optimized traffic flow, reduced congestion, and enhanced safety, aligning with SPC's award-winning regional traffic signal program. By leveraging state-of-the-art traffic signal controllers and potential fiber optic connectivity upgrades, the project ensures that traffic operations along the corridor are not only efficient but also adaptive to real-time traffic demands.

Furthermore, the installation of battery back-up systems at each traffic signal enhances the resilience of the system, ensuring uninterrupted operation even during power outages or emergencies. The modernization of signal phasing operations, including the integration of four-section flashing yellow arrow displays, enhances safety for drivers, particularly during left-turn maneuvers, while also optimizing traffic movement efficiency.

Moreover, the project's emphasis on enhanced lighting coverage at newly constructed traffic signal locations contributes to improved visibility for both vehicular and pedestrian traffic, further enhancing safety measures. By embracing these comprehensive upgrades, the project demonstrates a commitment to leveraging cutting-edge technologies to address traffic management challenges effectively while prioritizing the safety and resilience of transportation infrastructure.

- ***Enhance the environment for electric, connected, and automated vehicles to improve the detection, mitigation, and documentation of safety risks:***

The MRBW Project is not applicable to this outcome.

- ***Use low-carbon materials:***

The project utilizes low-carbon materials like warm mix asphalt, which reduces production temperatures, minimizing energy use and emissions. Reclaimed asphalt pavement (RAP) and waste tire material are also employed, reducing reliance on new materials and diverting waste from landfills. These measures align with sustainability goals, mitigating the project's carbon footprint and environmental impact.

- ***Use caps, land bridges, or underdecks:***

The MRBW Project is not applicable to this outcome.



OUTCOME CRITERIA

INNOVATIVE PROJECT DELIEVERY

- **Use practices that facilitate accelerated project delivery such as single contractor design-build arrangements, congestion management, asset management, or long-term operations and maintenance:**

Bidding: Various innovative construction procedures have been successfully applied by PennDOT on similar projects within the same corridor. The procedures that will be utilized are detailed in the guidelines in Publication 448.

Use of these new bidding practices will be evaluated after the features and details of the traffic control phasing strategy have been determined. The techniques that may be utilized of this project include:

- Incentive/Disincentive Clause Applications
- Cost Plus Time Method (A + Bx Concept)
- Lane Rental Method

Critical Path Method (CPM) Scheduling: This Project involves major traffic disruptions; therefore, a CPM schedule will be developed to analyze disruptions and develop subsequent strategies to minimize interruptions.

INNOVATIVE FINANCING

- **Secure TIFIA, RRIF, or private activity bond financing:**

Recognizing that completing each segment of Gateway 228 through the typical TIP will take decades to accomplish, Butler County Commissioners, in coordination with local municipal officials, designed a financial strategy that focuses on maximizing local funding sources. These local funding sources have been successfully utilized to leverage federal and state funding for other segments of Gateway 228, including the 2018 and 2020 BUILD grants. Butler County's current MPDG request will be matched with 1) \$20,330,000 in federally programmed TIP funds; 2) \$9,619,825 in state programmed TIP funds; and 3) \$10,710,175 in local funds will be sourced from an innovate local approach using multiple sources to leverage funds and maximize non-federal share.

- On July 18, 2018, Butler County Commissioners adopted the Pennsylvania's [Use Fee Ordinance](#) that authorizes counties to implement a \$5 local use fee for each vehicle registered within the County. For Butler County, this fee will produce over \$1,000,000 annually which can be used to leverage approximately \$9 million from Pennsylvania's Infrastructure Bank (PIB).
 - Butler County also has access to additional new revenue through the County's [Infrastructure Bank](#). On November 15, 2017, Butler County created the infrastructure bank, which is funded with revenue from PA ACT 13 Impact Fees (oil and gas). The County's Infrastructure Bank is replenished annually with about \$1.5 million in allocations from the Unconventional Gas Well Fee Fund.
- **Funding Strategy:**

The total cost to complete the MRBW Project is \$119,550,000 and includes \$17.9 million in previously incurred or ineligible future costs. These previously incurred or future ineligible costs are not within the scope of the FY25 MPDG Project and have either been incurred to date or will be incurred prior to obligation of FY25 MPDG funding. Preliminary engineering, totaling \$2.1 million, was funded by federal funds programmed on the TIP. The remaining ineligible costs amounting to \$15.8 million covering final design, right-of-way, and utilities, are fully funded through National Highway Performance Program (NHPP) funds, also programmed on the PennDOT TIP. Documentation of these programmed TIP funds can be accessed [here](#).

Milestone Description	Project Cost	FEDERAL		NON-FEDERAL	
		MPDG	Other - TIP	State	Local
Previously Incurred or Future Ineligible Costs					
Preliminary Engineering	\$2,100,000	\$0.00	\$2,100,000	\$0.00	\$0.00
Final Design	\$2,300,000	\$0.00	\$2,300,000	\$0.00	\$0.00
Right-of-Way	\$9,300,000	\$0.00	\$9,300,000	\$0.00	\$0.00
Utilities	\$4,200,000	\$0.00	\$4,200,000	\$0.00	\$0.00
Total:	\$17,900,000	\$0.00	\$17,900,000	\$0.00	\$0.00
FY25 MPDG Project Scope (Future Eligible Costs)					
Construction	\$101,650,000	\$60,990,000	\$20,330,000	\$9,619,825	\$10,710,175
Total:	\$101,650,000	\$60,990,000	\$20,330,000	\$9,619,825	\$10,710,175
<i>Percentage Share (Future Eligible Costs):</i>		60%	20%	9%	11%
<i>Percentage Share (Future Eligible Costs):</i>		80%		20%	