MEGA DATA PLAN

Butler County, in collaboration with our principal partner, PennDOT District 10, demonstrates a comprehensive grasp of the stringent parameters set forth by MEGA for the meticulous collection and analysis of performance metrics and impact assessments pertaining to the MRBW Project. Through concerted efforts, and in conjunction with the Data & Modeling Department of the Southwestern Pennsylvania Commission (SPC), we have formulated a robust framework aimed at quantifying the performance benchmarks stipulated by prior Federal funding initiatives, such as the BUILD program, which are being utilized across four additional segments of Gateway 228. Given the auspicious approval of this methodology by the Federal Highway Administration (FHWA), we are confident in its suitability to function as a standardized model for gauging the performance metrics of the MRBW Project within the ambit of MEGA's directives.

METHODOLOGY AND APPROACH:

Presented herein is the methodology devised to ascertain the performance of the MRBW Project over a five-year timeframe subsequent to its construction, in alignment with the specifications outlined by the MEGA Program:

(1) Specifically Define the Study Area: The study area for the MRBW Project is precisely delineated as a 3.25-mile segment situated within the broader 26.4-mile SR 228 corridor. More specifically, it spans from Franklin Road in Cranberry Township, Butler County, extending to just east of Beaver Street Extension in Adams Township, Butler County. Notably, this project constitutes the central segment and final component of Gateway 228, culminating in the comprehensive reconstruction and modernization of SR 228 from its western boundary with Beaver County to its eastern boundary with Armstrong County.

(2) Identification and Consensus on Performance Measures: Performance measures, meticulously identified and unanimously agreed upon by the project's primary stakeholders – namely Butler County, PennDOT District 10, and SPC – consist of:

- ***Auto Crash Rates by Type/Severity:*** This metric stands as a critical gauge for evaluating the safety impact of the MRBW Project. It entails a meticulous examination of crash incidents categorized by type and severity within the designated project area. Such data will play a pivotal role in assessing the effectiveness of safety interventions and infrastructure enhancements implemented as part of the MRBW Project. Stakeholders, including Butler County, PennDOT District 10, and SPC, have unanimously agreed upon this metric, recognizing its significance in addressing safety concerns arising from non-compliance with PennDOT standards, escalating traffic conflicts, and the presence of school facilities along the corridor. The objective is to achieve a substantial 61 percent reduction in crash rates within the project area, reflecting the project's success in mitigating safety hazards.
- ***Travel Time Savings:*** Acknowledging the imperative of alleviating congestion and improving travel efficiency, the MRBW Project prioritizes the quantification of travel time reductions experienced by motorists post-project completion. This metric assesses enhancements in travel time reliability and congestion alleviation efforts, offering insights into the project's broader impact on regional mobility and transportation efficiency. Stakeholders have identified this metric as pivotal in addressing chronic congestion resulting from inadequate infrastructure and burgeoning economic activity. The project's proposed enhancements, including additional lanes, intersection improvements, and upgraded access points, aim to achieve a notable 63 percent reduction in travel times within the project area. This metric will serve as a fundamental benchmark for evaluating the project's performance in optimizing corridor movement and efficiency. the imperative of addressing congestion and enhancing travel efficiency within the project area, this metric quantifies the tangible reductions in travel time experienced by motorists following the completion of the MRBW Project. By gauging improvements in travel time reliability and congestion mitigation efforts, this metric offers insights into the project's overall impact on regional mobility and transportation efficiency.

Additionally, stakeholders remain committed to accommodating any additional metrics mandated by the Department of Transportation (DOT), ensuring comprehensive alignment with the project's objectives and regulatory requirements.

(3) Data Collection and Impact Analysis Strategy: The Southwestern Pennsylvania Commission (SPC), serving as the metropolitan planning organization (MPO) for the 10-county southwestern Pennsylvania region, will spearhead the data collection efforts for both performance measures – auto crash rates by type/severity and travel time savings. Leveraging its established programs and processes geared towards performance-based planning and programming, SPC will serve as the primary source of baseline and performance data.

For auto crash rates analysis, SPC relies on PennDOT's Crash Information System tool, TIRe (Traffic Information Repository), as part of its Transportation Performance Management program. This tool facilitates the reporting of crash rates and types across specified roadway segments in five-year increments. SPC adopts a five-year average approach to accommodate the variability of crash data. Utilizing metrics such as crash rates per million vehicle miles traveled (MVMT), SPC extracts and summarizes crash data annually following PennDOT's release, aligning with FHWA's mandated Transportation Performance Measures (PM1 Safety Measures) updates.

Travel time data for the MRBW Project area along State Route 228 is sourced from INRIX, a comprehensive suite of location intelligent solutions. INRIX aggregates data from various sources, including travel time data points, traffic sensors from local Departments of Transportation (DOT), and GPS-equipped vehicle networks, providing minute-by-minute insights into travel time dynamics. This data is crucial for monitoring and identifying traffic performance trends on a daily, monthly, and yearly basis. SPC integrates INRIX travel time data into its Congestion Management Process (CMP), using PennDOT's TIRe for roadway data acquisition. The baseline travel time data, representing the final full year preceding the MRBW Project's construction, is meticulously compiled and analyzed by SPC.

SPC ensures the timely acquisition and review of INRIX travel time data on a monthly basis, aligning with FHWA's mandated Transportation Performance Measures (PM3 Reliability Measures) updates, which occur biennially.

Through these meticulous data collection and analysis methodologies, SPC ensures the availability of accurate and comprehensive performance data crucial for evaluating the impact of the MRBW Project on auto crash rates and travel time savings.

(4) Consideration of Local/Regional Factors Influencing Project Outcome: Foremost among the factors potentially impacting the performance outcomes of the MRBW Project are population growth and private development dynamics within Southern Butler County and the SR 228 corridor. Historically recognized as one of the fastest-growing regions within the Commonwealth, this area has experienced robust demographic expansion over the past two decades. At times, this growth has outstripped the pace of infrastructure enhancements along the corridor, necessitating a proactive approach to address past, present, and anticipated future conditions.

- ***Population Growth:*** The persistent influx of residents into Southern Butler County and the broader SR 228 corridor has exerted substantial pressure on transportation infrastructure, amplifying congestion and safety concerns. The MRBW Project must factor in population growth trends to ensure that proposed improvements adequately accommodate existing and projected demand, thereby enhancing mobility and safety for both current and future residents.
- ***Private Development:*** Concurrent with population growth, private development endeavors have flourished within the project area, further intensifying demands on transportation infrastructure. Commercial, residential, and industrial developments contribute to increased vehicular traffic and congestion, necessitating comprehensive planning measures to mitigate potential adverse impacts on project performance.
- ***Integration of Past, Current, and Future Conditions:*** Given the historical precedence of growth outpacing infrastructure enhancements, the MRBW Project must adopt a forward-looking approach that reconciles past challenges with present realities and future projections. By incorporating comprehensive data analysis and predictive modeling techniques, the project can proactively anticipate and address evolving transportation needs, ensuring the longevity and effectiveness of proposed infrastructure solutions.

CONCLUSION:

In culmination, the collaborative efforts between Butler County, PennDOT District 10, and the Southwestern Pennsylvania Commission (SPC) have yielded a robust framework for evaluating the performance of the MRBW Project. By meticulously defining the study area, identifying consensus on performance measures, and implementing a comprehensive data collection and analysis strategy, we have laid the groundwork for a thorough assessment of the project's impact.

The chosen performance measures, auto crash rates by type/severity and travel time savings, reflect our commitment to addressing critical safety concerns and enhancing transportation efficiency within the project area. Through the utilization of advanced methodologies and data sources, including PennDOT's Crash Information System (TIRe) and INRIX, we ensure the availability of accurate and comprehensive performance data crucial for evaluating the project's efficacy.

Moreover, our acknowledgment of local and regional factors, particularly population growth and private development dynamics, underscores our proactive approach in addressing evolving transportation needs. By integrating past, current, and future conditions into our planning and analysis, we endeavor to ensure the resilience and effectiveness of proposed infrastructure solutions.

Moving forward, we remain steadfast in our commitment to transparency, accountability, and continuous improvement. The conclusions drawn from the performance evaluation of the MRBW Project will inform future decision-making processes, guiding our efforts in enhancing safety, mobility, and efficiency within the SR 228 corridor.

Through our collective dedication and expertise, we are poised to realize the vision of a safer, more resilient transportation network that meets the needs of both present and future generations.