

Appendix E. 2021 Interim Update

Introduction

Background

The Regional Operations Plan (ROP) completed for the Central Regional Traffic Management Center (RTMC) Region in 2018 was the first in a statewide initiative to increase implementation of Transportation Systems Management and Operations (TSMO) projects. This ROP, and subsequent plans developed for the Western and Eastern RTMC Regions, were compiled based on guidance from PennDOT Publication 851 (TSMO Guidebook, Part I: Planning).

This addendum provides an interim update to the 2018 Central RTMC ROP, including the status of existing projects, a discussion of emerging trends related to traffic operations, and identification of new ROP projects which have been proposed during the update process.

Update Process

This interim update was completed through an expedited schedule of approximately two months. A kickoff meeting was held on May 14, 2021, followed by individual stakeholder outreach meetings with each of the region's eight MPO/RPO planning partners. A separate meeting was also held with the District 2-0 County Maintenance Managers to gather additional feedback. The stakeholder outreach meetings were used to confirm existing project status and gain insight into new traffic operations needs in each respective area. This information was evaluated with the project steering committee – including PennDOT Bureau of Maintenance and Operations (BOMO) and PennDOT Districts 2-0, 3-0, and 9-0 – and a list of new ROP projects was confirmed. A final meeting of stakeholders was held on June 22, 2021.

This process does not supplant the extensive stakeholder outreach and data analysis completing during the 2018 ROP development. New projects identified within this update process should be considered alongside, and not in place of, previously confirmed projects when funding opportunities arise.

Status of Existing ROP Projects

In the initial 2018 Central RTMC ROP, 42 projects were identified, ranging from intelligent transportation systems (ITS) and traffic signal improvements to incident management and preventive safety technologies. Integrated Corridor Management (ICM) was also a key component of the ROP. These projects take a holistic approach, maximizing existing capacity of parallel routes and emphasizing multimodal approaches to congestion management. A table is attached which shows the status of each of these previously documented projects. Status updates fall into the following categories shown in **Table 1**.

TABLE 1: PROJECT STATUS DEFINITIONS

Project Status	Definition
Documented	Project has been included in the ROP.
Programmed	Project has been included in a planning document, such as a Transportation Improvement Program (TIP), Twelve Year Program (TYP), or Long-Range Transportation Plan (LRTP) and/or another a funding source has been secured. Specific funding sources are noted were applicable.
Partial Progress	Progress has been made on some component of the project. The "Notes" column provides more detail. For example, a project that might have included both traffic signal improvements and ITS devices could have seen the signal work progressed but not the ITS devices, or vice versa.
In Design	Project is currently in design.
In Construction	Project is currently in construction.
Complete	Project has been completed.

A number of ROP projects have progressed in the region, including a few which have been completed. Completed projects include traffic signal improvements along PA-56, near US 219 in Cambria County and retrofit of existing Dynamic Message Signs (DMS) in McKean County. A number of projects have seen partial progress of varying degrees. This includes partial completion of the scope of some traffic signal improvement projects as well as completion of some ITS installations that cover wider geographic areas.

Two major projects are currently under design: I-80 ICM (Exit 97 to 101) in DuBois and the Atherton Street (SR 3014) traffic signal improvement components of I-99/US 322 ICM in the State College area.

Emerging Trends

The stakeholder engagement process was also used to discuss noteworthy regional, industry, and technology-related trends in the region which could impact transportation operations. This discussion included discussion of some general trends, including:

- Funding challenges – Transportation agencies throughout the country are grappling with growing gaps in transportation funding, brought on by reduced gas tax funds, as well as other factors. PennDOT is currently conducting the PennDOT Pathways Planning and Environmental Linkages (PEL) Study which is evaluating the near-term and long-term revenue options and strategies to mitigate this issue and ensure the Commonwealth's highways and bridges are maintained in a state of good repair. One outcome of this process could include an increased focus on TSMO projects – prioritizing more efficient usage of existing capacity could decrease funding needs and ensure available funds are spent on projects that maximize potential benefits to safety and mobility.
- Future of work – As the region shifts into a post-pandemic "new normal," some degree of long-term reduction in peak hour travel is anticipated. Given that capacity-adding projects are generally warranted through analysis of future peak periods, these changes should also result in an increased focus on TSMO solutions which produce improvements within the existing transportation network.

The discussions also included specific planned developments and other location-specific trends, as discussed below.

Centre County MPO

In the State College area, a large amount of development has occurred over the last few years and is anticipated to continue. Substantial mixed-use development has occurred along College Avenue and Beaver Avenue in downtown State College near Penn State's University Park campus, including sizable student housing combined with ground floor retail. Student housing is also anticipated to spread east along College Avenue towards the US 322 interchange. Further east on this corridor, development is also occurring around the Nittany Mall site, with the possibility of a future casino.

This increasing density places an increased importance on prioritizing projects to improve mode share – reducing personal vehicle usage and increasing mobility opportunities for transit users, cyclists, and pedestrians. Centre Area Transportation Authority (CATA) is about to begin a System Reimagine Study and Transportation Development Plan. This will include a ground up evaluation of bus stop spacing and amenities, bus routes, access to transit, and connections to micromobility, microtransit, intercity buses and other services and modes. The study will also consider possibilities for Bus Rapid Transit, particularly along SR 3014 (Atherton St) and SR 0026 (College Ave/Beaver Ave) in State College and adjacent municipalities. Initiatives and projects stemming from this process should be strongly considered for future ROP updates.

Also in the State College area, the Borough of State College is partnering with Penn State University to pursue a significant bike share deployment with a major micromobility provider. The system is anticipated to have approximately 300 e-assist bicycles. The system would be dockless but will have established parking and deployment hubs arranged throughout the service area.

This system would fill the void of the previous system operated by Zagster, a company which ceased operations in 2020. Bike share, coupled with continued investments in both trails and on-street bike infrastructure, could greatly increase biking as a viable means of transportation for more residents and visitors and lead to positive impacts on congestion issues. Investments in bike share development and expansion, as well as introduction of e-assist bicycles to bike share fleets, have been included in other ROPs throughout the state. Future ROP updates should evaluate this anticipated bike share system and consider any additional needs which should be documented as ROP projects.

Elsewhere in Centre County, considerable development activity has occurred in Benner and Spring Townships along the PA-150 corridor between I-99 and Bellefonte. Multiple traffic impact studies have been completed for commercial and residential developments in the corridor.

North Central RPO

In Sandy Township (Clearfield County), development is progressing in the area between I-80, PA-255 and Industrial Drive. Long-term plans would likely extend Industrial Drive east to connect with PA-255 near I-80 Exit 101. Land uses in the development are primarily warehousing/logistics centers and would result in impactful traffic, particularly freight traffic, which should be considered in subsequent ROPs if the project moves forward.

Williamsport MPO

A county-owned property, previously used as a landfill, has been sold to build a manufacturing facility which will bring approximately 150 employees to the site, located on US 15 south of Williamsport. Another planned development within Williamsport is a proposed sports facility to be located north of I-180 and west of Maynard Street. A potential driveway onto Maynard Street, given the proximity to the I-180 ramps, could greatly disturb traffic operations.

Northern Tier RPO

Finally, in Bradford County, there is a planned development of a liquified natural gas plant near Wyalusing. Progress is stalled for now, however this proposal should be monitored as it would likely bring significant increases in truck traffic to the area.

New ROP Needs and Projects

During the stakeholder engagement process for this interim update, a number of new issues and needs were discussed. These locations were reviewed and, where applicable, new ROP projects have been drafted for consideration. These projects have not undergone the data-heavy prioritization process which was used during the major update in 2018. Therefore, these projects should be considered alongside, but not in lieu of, projects previously included.

In total, 16 new projects have been included in this interim ROP update. They are summarized in **Table 2**. The projects include additional ITS needs, traffic signal improvement corridors, fiber optic communications deployment, and safety systems such as variable speed displays and dynamic curve warning. Project summary sheets have also been included as attachments. Projects are numbered sequentially for referencing, but no hierarchy should be assumed from the order given. No quantitative or qualitative prioritization was completed during this interim update. Prioritization can be revisited during a subsequent major ROP update. One previously documented project, LT-11 (PA-54 Traffic Signal Improvements), has also been updated to include expanded scope. An updated project summary sheet has been included for this project, supplanting the previous summary provided in the 2018 ROP. Revisions to the original project scope are noted in red text. Cost estimates for this interim update generally follow the approach utilized in subsequent ROPs for the Western and Eastern Regions. This approach places projects into one of four cost categories, as outlined in **Figure 1**. One exception is IU.06 (PA-879 Signal Improvements) which has a more exact cost as it was recently submitted for Automated Red Light Enforcement (ARLE) funding.

FIGURE 1: COST ESTIMATE CATEGORIES

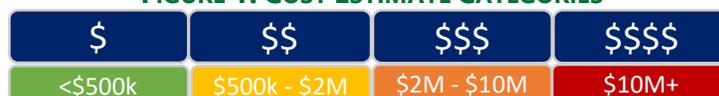


TABLE 2: INTERIM UPDATE ROP PROJECT ADDITIONS

Project #	Project	Stakeholders	Planned Improvements
IU.01	PA-150 ICM	PennDOT 2-0; Centre MPO	Traffic Signal Improvements, CCTV, Type A DMS
IU.02	College Twp. Signal Improvements	PennDOT 2-0; Centre MPO	Traffic Signal Improvements, CCTV, Type A DMS
IU.03	DuBois Fiber Deployment	PennDOT 2-0; North Central RPO	Fiber Backbone
IU.04	I-80 VSL Pilot	PennDOT 2-0; North Central RPO	Variable Speed Displays
IU.05	North Central ITS	PennDOT 2-0; North Central RPO	CCTV, DMS, RWIS
IU.06	PA-879 Signal Improvements	PennDOT 2-0; North Central RPO	Traffic Signal Improvements
IU.07	PA-655 Signal Improvements	PennDOT 2-0; SEDA-COG MPO	Traffic Signal Improvements
IU.08	US 220 Corridor ITS	PennDOT 2-0; SEDA-COG MPO	CCTV, Type A DMS
IU.09	US 15 Corridor ITS	PennDOT 3-0; Northern Tier RPO	CCTV, DMS
IU.10	CSVt Signal Improvements	PennDOT 3-0; SEDA-COG MPO	Traffic Signal Improvements
IU.11	Middleburg Signal Improvements	PennDOT 3-0; SEDA-COG MPO	Traffic Signal Improvements
IU.12	Montoursville Signal Improvements	PennDOT 3-0; Williamsport MPO	Traffic Signal Improvements
IU.13	Third Street Signal Improvements	PennDOT 3-0; Williamsport MPO	Traffic Signal Improvements
IU.14	I-70 Curve Warning	PennDOT 9-0; Southern Alleghenies RPO	Dynamic Curve Warning
IU.15	I-70 ITS Gaps	PennDOT 9-0; Southern Alleghenies RPO	CCTV, DMS
IU.16	Pleasantville ITS	PennDOT 9-0; Southern Alleghenies RPO	Type A DMS

Previous Project Status

Project #	Project Name	PennDOT District(s)	Planning Partner	Priority Area	Project Location	Planned Improvements	Stakeholders	Estimated Cost (Capital)	Timing	Project Status	Funding Source	Notes
LT-01	I-80 ICM (Exit 232 to 241) + Parallel Corridor Improvements	3	SEDA-COG	Transportation System Safety	I-80/US 11/PA-42, Bloomsburg	DMS, Integrated Corridor Management, Traffic Signal Improvements	PennDOT 2-0/3-0; SEDA-COG MPO	\$ 4,402,000	Long-Term	Partial Progress		3 Signals being replaced on East St in Bloomsburg as part of the SR 11-114 Project which started in April of this year. These will be tied into the maxview. An ARLE has been granted to Bloomsburg to replace controller cabinets at the rest of the signals in Bloomsburg and tie them into Maxview. the design kickoff meeting for that will happen in mid June. Also looking at adding a CCTV and a DMS in the WB direction at exit 232 (Buckhorn interchange). Identified as need in LRTP process.
LT-02	I-80/I-99 Fiber Backbone	2,3,9	various	Communications Network	various	Fiber Backbone	PennDOT 2-0/3-0/9-0; Centre MPO; North Central RPO; SEDA-COG MPO; Altoona MPO; Southern Alleghenies RPO	\$ 41,600,000	Long-Term	Documented	MPMS 112320 MPMS 3142 MPMS 74910/109243 MPMS 112324 MPMS 112323 (included in 2021 SEDA-COG LRTP) MPMS 112374/112376 MPMS 112380	
LT-03	I-80 ICM (Exit 97 to 101) + Parallel Corridor Improvements	2	North Central	Transportation System Safety	I-80/US 219/PA-255, DuBois	DMS, Integrated Corridor Management, Traffic Signal Improvements	PennDOT 2-0; North Central RPO	\$ 604,000	Long-Term	In Design	TSMO Funding Initiative	
LT-04	I-180 Interchange Improvements	3	Williamsport	Transportation System Safety	I-180, Williamsport	Queue Detection, Traffic Signal Improvements	PennDOT 3-0; Williamsport MPO	\$ 76,000	Long-Term	Documented		D3 continuing to encourage municipality to submit for funding
LT-05	I-99/US 322 ICM (Atherton Street)	2	Centre	Transportation System Safety	I-99/US 322/SR 3014, State College	Traffic Signal Improvements, CCTV, DMS, Integrated Corridor Management	PennDOT 2-0; Centre MPO	\$ 1,536,000	Long-Term	In Design	TSMO Funding Initiative	
LT-06	I-80 ICM (Exit 111 to 123)	2	North Central	Transportation System Safety	I-80/PA-153/US 322/PA-879/PA-970	Integrated Corridor Management, DMS	PennDOT 2-0; North Central RPO	\$ 550,000	Long-Term	Programmed	HSIP MPMS 93330	Anticipated 2027 letting for SR 0153-N46
LT-07	I-80 ICM (Exit 173 to 185)	2	SEDA-COG	Transportation System Safety	I-80/PA-64/PA-477	Integrated Corridor Management	PennDOT 2-0; SEDA-COG MPO	\$ 1,169,000	Long-Term	Partial Progress		Four signals on PA-64 near I-80 were upgraded - just need to connect to the network for UCC. Nearby CCTV to connect to for all 5 signals on PA-64.
LT-08	PA-56 Signal Improvements	9	Johnstown	Traffic Signals	PA-56, near US 219	Traffic Signal Improvements	PennDOT 2-0/9-0; Johnstown MPO	\$ 755,000	Long-Term	Complete	CMAQ	
LT-09	US 220-Business Signal Improvements	9	Altoona	Traffic Signals	US 220-Business/Plank Road	CCTV, Integrated Corridor Management, Traffic Signal Improvements	PennDOT 2-0/9-0; Altoona MPO	\$ 3,100,000	Long-Term	In Construction		
LT-10	Central Region Dynamic Curve Warning	2,3,9	various	Transportation System Safety	various	Dynamic Curve Warning	PennDOT 2-0/3-0/9-0; Centre MPO; SEDA-COG MPO; Altoona MPO; Johnstown MPO; Southern Alleghenies RPO	\$ 1,775,000	Long-Term	Documented		
LT-11	PA-54 Signal Improvements	3	SEDA-COG	Traffic Signals	PA-54, Danville	Traffic Signal Improvements, CCTV, DMS	PennDOT 2-0/3-0; SEDA-COG MPO	\$ 2,795,000	Long-Term	Partial Progress		Signal system retimed. Congestion still an issue. No ITS devices planned at this time. Consider extending signal improvement scope to include US 11 intersections with State Hospital Dr and with Woodbine Ln. Consider extending scope to include considering removal of existing signal at intersection of US-11 intersection with Mill St., conversion of Mill St. to Right-in/Right-out. Consider addition of CCTV cameras for US-11/PA 54 intersection and PA 54/SR 4001 intersection at south end of Danville River Bridge.
LT-12	Central Region DMS Gaps	2,3,9	various	Traveler Information	various	DMS	PennDOT 2-0/3-0/9-0; Centre MPO; SEDA-COG MPO; Altoona MPO; Southern Alleghenies RPO	\$ 3,774,000	Long-Term	Partial Progress	TSMO Funding Initiative I-70 MPMS 112704	TFI funded Altoona MPO and Southern Alleghenies RPO devices. I-70 DMS in construction Some boards will be added to Atherton project.
LT-13	PA-36 Signal Improvements	9	Altoona	Traffic Signals	PA-36, Roaring Spring to I-99	Traffic Signal Improvements	PennDOT 2-0/9-0; Altoona MPO	\$ 185,000	Long-Term	Documented		
LT-14	US 6 Corridor ITS	3	Northern Tier	Traveler Information	various	DMS, CCTV	PennDOT 2-0/3-0; Northern Tier RPO	\$ 2,581,000	Long-Term	Documented		
LT-15	PA-150 Signal Improvements	2	SEDA-COG	Traffic Signals	PA-150 (Hogan Blvd), near Mill Hall	Traffic Signal Improvements	PennDOT 2-0; SEDA-COG MPO	\$ 175,000	Long-Term	Documented		coordinate with current multimodal study
LT-16	Sayre Signal Improvements	3	Northern Tier	Traffic Signals	US 220 Ramps/SR 1069, Sayre	Traffic Signal Improvements	PennDOT 2-0/3-0; Northern Tier RPO	\$ 210,000	Long-Term	Partial Progress		Safety study is currently in progress to improve the SR220/4022 interchange. Looking at replacing the signal at 4022/1069 with a roundabout and changing on/off ramp geometrics.
LT-17	PA-144 Truck Enforcement	2	Centre	Transportation System Safety	PA-144, west of Centre Hall	Automated Truck Enforcement	PennDOT 2-0; Centre MPO; PA State Police	\$ 730,000	Long-Term	Documented		
ST-01	CSVT ICM	3	SEDA-COG	Transportation System Safety	US 11/US 15/PA-61/PA-147	Integrated Corridor Management, TIM Team	PennDOT 2-0/3-0; SEDA-COG MPO; Local Municipalities; Emergency Personnel	\$ 5,442,000	Short-Term	Programmed	TYP	anticipated 2027
ST-02	I-80/I-99 Existing CCTV Replacements	2,9	various	Traveler Information	various	CCTV	PennDOT 2-0/9-0; Centre MPO; Altoona MPO	\$ 110,000	Short-Term	Partial Progress		D-9 portion completed.
ST-03	Breezewood ICM	9	Southern Alleghenies	Transportation System Safety	I-70/I-76 (PA Turnpike)/US 30	Integrated Corridor Management	PennDOT 2-0/9-0; Southern Alleghenies RPO	\$ 155,000	Short-Term	In Construction		
ST-04	I-80 ICM (Exit 147 to 158)	2	Centre	Transportation System Safety	I-80/PA-144/PA-150	Integrated Corridor Management, Variable Speed Displays	PennDOT 2-0; Centre MPO	\$ 3,679,000	Short-Term	Documented		

Project #	Project Name	PennDOT District(s)	Planning Partner	Priority Area	Project Location	Planned Improvements	Stakeholders	Estimated Cost (Capital)	Timing	Project Status	Funding Source	Notes
ST-05	US 22 Queue Detection	9	Johnstown	Transportation System Safety	US 22 Eastbound, near US 219	Queue Detection	PennDOT 2-0/9-0; Johnstown MPO	\$ 66,000	Short-Term	Documented		Existing Queue preemption was removed. Traffic signal equipment at US 22 and Mini Mall Rd was replaced. New stop bar radar detection and advanced radar detection were installed. New signal timing was also implemented and signal is operating efficiently. Monitor crash data to determine continued project need.
ST-06	I-80 CCTV Gaps	2,3	SEDA-COG	Traveler Information	various	CCTV	PennDOT 2-0/3-0; SEDA-COG MPO	\$ 245,000	Short-Term	Partial Progress		CCTV to be installed at the Danville interchange along with highway lighting. Let date sometime in 2022.
ST-07	I-80 TIM Team	2,3	various	Incident and Emergency Management	I-80 corridor	TIM Team	PennDOT 2-0/3-0; Centre MPO; North Central RPO; SEDA-COG MPO; Local Municipalities; Emergency Personnel	\$ 20,000	Short-Term	Partial Progress		Stage 1 complete - meeting with PSP and emergency responders (Clearfield County)
ST-08	US 219/Elton Road Queue Preemption	9	Johnstown	Traffic Signals	US 219 SB Off-Ramp at Elton Road	Traffic Signal Improvements	PennDOT 2-0/9-0; Johnstown MPO	\$ 60,000	Short-Term	Documented		Other issues along Elton Rd - recent study completed. Refer to study and ensure TSMO-related recommendations are accounted for in ROP project.
ST-09	Philipsburg Signal Improvements	2	Centre	Traffic Signals	Philipsburg Borough	Traffic Signal Improvements	PennDOT 2-0; Centre MPO	\$ 325,000	Short-Term	Partial Progress		In construction for 3 of 5 intersections. Will have Unified Command/Control
ST-10	I-80 Existing HAR Replacements	2	various	Traveler Information	various	Replace HAR	PennDOT 2-0; Centre MPO; North Central RPO; SEDA-COG MPO	\$ 1,100,000	Short-Term	Partial Progress		Received upgraded parts from PTC. Mntc contract looking into solutions. Working with Central Office/511 on future information dissemination.
ST-11	Existing DMS Retrofit - Centre County	2	Centre	Traveler Information	I-99/US 322, Port Matilda	DMS	PennDOT 2-0; Centre MPO	\$ 105,000	Short-Term	Documented		DMS 3 will be completed 114393. DMS 4 - hoping to get antiquated funding for next year
ST-12	US 322, Philipsburg to I-99 ITS	2	Centre	Traveler Information	US 322, west of I-99	Variable Speeds, CCTV, RWIS	PennDOT 2-0; Centre MPO	\$ 2,300,000	Short-Term	Documented		
ST-13	I-80 Slow Vehicle Warning	2	North Central	Transportation System Safety	I-80 MM 120 to 111	Slow Vehicle Warning	PennDOT 2-0; North Central RPO	\$ 1,010,000	Short-Term	Documented		
ST-14	I-99 TIM Team	2,9	various	Incident and Emergency Management	I-99 corridor	TIM Team	PennDOT 2-0/9-0; Centre MPO; Altoona MPO; Southern Alleghenies MPO; Local Municipalities; Emergency Personnel	\$ 20,000	Short-Term	Documented		
ST-15	US 322 Slow Vehicle Warning	2	SEDA-COG	Transportation System Safety	US 322, Seven Mountains	Slow Vehicle Warning	PennDOT 2-0; SEDA-COG MPO	\$ 342,000	Short-Term	Documented		
ST-16	I-99 CCTV Gaps	2	Centre	Traveler Information	various	CCTV	PennDOT 2-0; Centre MPO	\$ 700,000	Short-Term	Documented		some antiquated funding has been available. CCTV 1 (Bald Eagle) was captured.
ST-17	Existing Bridge De-Icing Retrofit	2	various	Transportation System Safety	various	Bridge De-icing	PennDOT 2-0; Centre MPO; North Central RPO	\$ 610,000	Short-Term	Documented		Maintenance recently completed. Likely upgrading parts on existing systems. Long-term plan to possibly replace systems.
ST-18	I-99 RWIS	2	Centre	Traveler Information	I-99 at Skytop	CCTV, RWIS	PennDOT 2-0; Centre MPO	\$ 245,000	Short-Term	Documented		existing power/comm is available at location.
ST-19	US 15 to I-180 Dynamic Curve Warning	3	Williamsport	Transportation System Safety	US 15 SB, prior to I-180	Dynamic Curve Warning	PennDOT 2-0/3-0; Williamsport MPO	\$ 262,000	Short-Term	Documented		Recently had a string of truck crashes which has put this back on the radar. Internally, traffic has been looking at adding a DMS with radar and speed display system and sequential curve warning system.
ST-20	Central Region CCTV Gaps	2,9	various	Traveler Information	various	CCTV	PennDOT 2-0/9-0; North Central RPO; Altoona MPO	\$ 462,000	Short-Term	Documented		
ST-21	Existing DMS Retrofit - District 9-0	9	various	Traveler Information	various	DMS	PennDOT 2-0/9-0; Altoona MPO; Johnstown MPO; Southern Alleghenies RPO	\$ 352,000	Short-Term	In Construction	TSMO Funding Initiative (MPMS 112704)/ Antiquated Devices (MPMS 114493)	TFI funded Southern Alleghenies RPO devices (now complete). Altoona devices complete.
ST-22	Existing DMS Retrofit - McKean County	2	North Central	Traveler Information	US 219, near Bradford	DMS	PennDOT 2-0; North Central RPO	\$ 105,000	Short-Term	Complete	Antiquated Device funding	
ST-23	US 22/322 RWIS	2	SEDA-COG	Traveler Information	US 22/322, near Thompsettown	RWIS	PennDOT 2-0; SEDA-COG MPO	\$ 135,000	Short-Term	Documented		
ST-24	PA-350 RWIS	2	Centre	Traveler Information	PA-350, west of Bald Eagle	RWIS	PennDOT 2-0; Centre MPO	\$ 135,000	Short-Term	Documented		
ST-25	Special Event Use of Portable DMS	2,3,9	various	Traveler Information	various	Portable DMS	PennDOT 2-0/3-0/9-0; Centre MPO; North Central RPO; SEDA-COG MPO; Altoona MPO	\$ 250,000	Short-Term	Documented		

Updated ROP Projects

LT-11: PA-54 Traffic Signal Improvements

PROJECT DESCRIPTION AND SCOPE: This signal improvement project includes upgrades at 9 signalized intersections along US 11 and PA-54 in Danville. This will include full replacements of signal equipment at each intersection, including upgraded signal controllers to allow for command/control functionality. This project also includes 2 HD CCTV cameras, 1 full-color standard DMS, and 1 full-color Type A DMS. Study potential conversion of Mill St. to right-in/right-out at US 11 with removal of the traffic signal or use of blank-out signs. Consider development of local signing district to improve wayfinding to medical, educational, industrial, and commercial destinations in the Danville area.

STAKEHOLDERS: PennDOT 2-0 and 3-0; SEDA-COG MPO

ESTIMATED SCHEDULE: 4+ years

ESTIMATED COSTS: \$\$\$

Life Cycle: 10-15 years

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): Traffic Signal Systems; DMS System; CCTV System

PREREQUISITES AND DEPENDENCIES: N/A

PERFORMANCE MEASURES: Improved Travel Time Ratio; Reduced Bottleneck Delay Surrogate; Improved Incident Response Time

BENEFITS: Improved traffic flow and reduced congestion along an important arterial running through Danville.

OTHER CONSIDERATIONS AND ISSUES: Green Light-Go application submitted to improve US 11/State Hospital Dr intersection and extend Liberty St to US 11, adding an additional traffic signal. This work is related to Danville Area School District plan to relocate middle school operations.

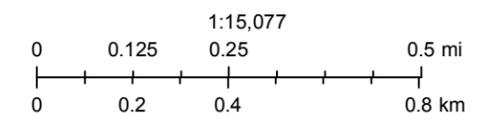
For potential signal removal at US 11/Mill St., consider operational effects during closures in adjacent Continental Blvd.

LT-11: PA-54 Traffic Signal Improvements



August 21, 2018

- + Master Traffic Signals
 + Statewide Rear-End Crash Clusters
- TTR_Peak(2 - 3)
- Bottlenecks - D3 Top 25
- Traffic Signals
 + Crash Rate per 100 Miles > 500 and AADT > 5000
- TTR_Peak(1.5 - 2)
- Bottlenecks - Central Top 50
- Statewide Intersection Crash Clusters
 - TTR_Peak(3 - 4)
- Bottlenecks - SEDA-COG Top 10



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New ROP Projects

IU-01: PA-150 ICM

PROJECT DESCRIPTION AND SCOPE: Upgrade traffic signal controllers as necessary in order to allow for command/control functionality and performance measures at five intersections along the PA-150 corridor in Benner and Spring Townships between I-99 and Bellefonte. Also consider installation of CCTV cameras and Type A DMS, as needed.

STAKEHOLDERS: PennDOT 2-0; Centre County MPO

ESTIMATED SCHEDULE: 1-3 years

ESTIMATED COSTS: \$\$

Life Cycle: 10-15 years

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): CCTV System; DMS System; Traffic Signal Systems

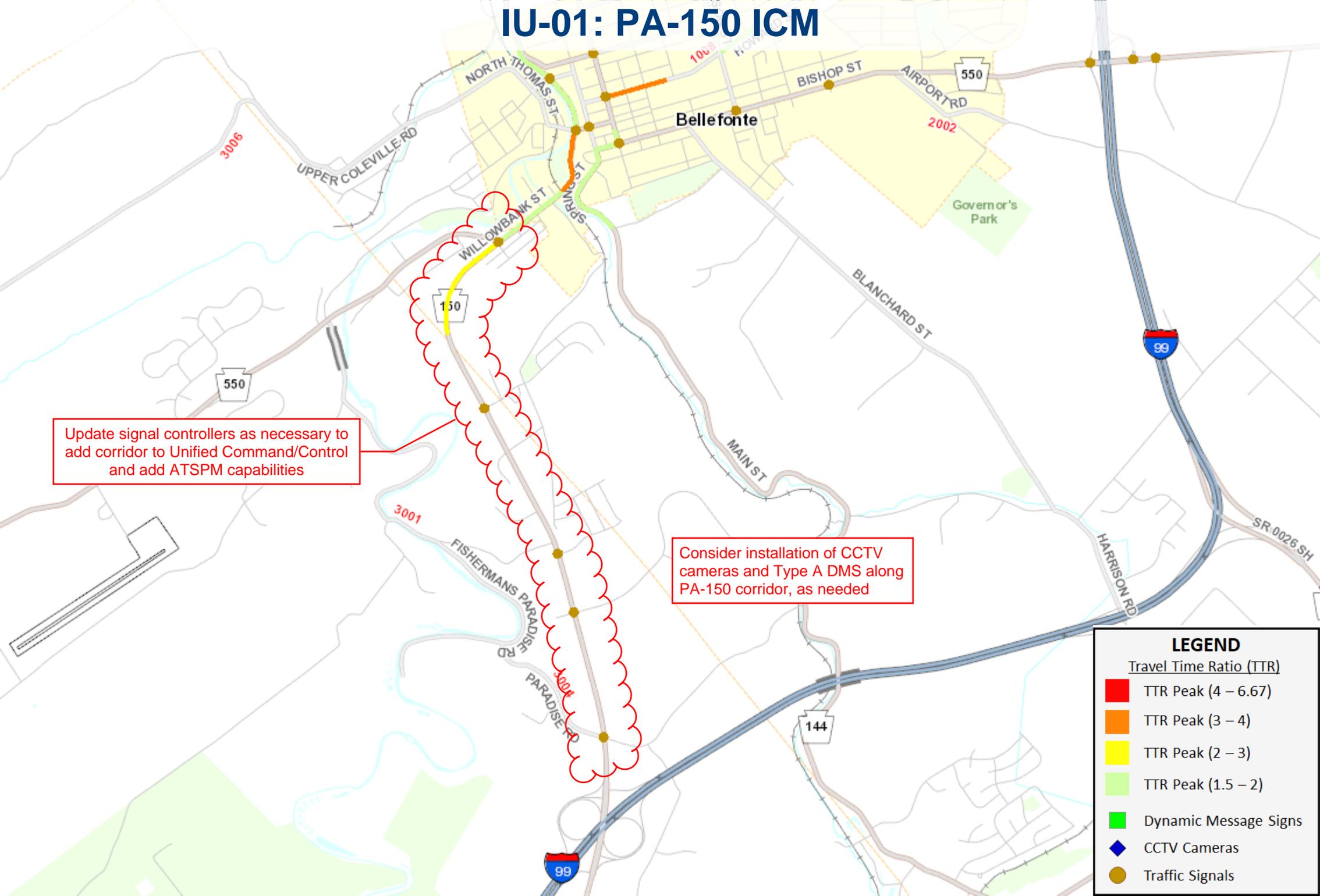
PREREQUISITES AND DEPENDENCIES: N/A

PERFORMANCE MEASURES: Improved Travel Time Ratio; Reduced Bottleneck Delay Surrogate; Reduced Rear End Crash Rate

BENEFITS: Improved traffic flow and reduced congestion along an important signalized corridor within the region.

OTHER CONSIDERATIONS AND ISSUES: Considerable development activity, including retail and housing, has occurred along the PA-150 corridor. Multiple traffic impact studies have been completed for commercial and residential developments in the corridor. Traffic volume and congestion levels are expected to increase and impact traffic signal operations.

IU-01: PA-150 ICM



Update signal controllers as necessary to add corridor to Unified Command/Control and add ATSPM capabilities

Consider installation of CCTV cameras and Type A DMS along PA-150 corridor, as needed

LEGEND

Travel Time Ratio (TTR)

- TTR Peak (4 – 6.67)
- TTR Peak (3 – 4)
- TTR Peak (2 – 3)
- TTR Peak (1.5 – 2)

Dynamic Message Signs

CCTV Cameras

Traffic Signals

IU-02: College Twp. Signal Improvements

PROJECT DESCRIPTION AND SCOPE: Upgrade traffic signal controllers as necessary in order to allow for command/control functionality and performance measures along the PA-26 and PA-150 corridors in College Township (11 intersections). Consider installation of ramp preemption at the PA-26 interchange with US 322. Also consider installation of CCTV cameras and Type A DMS, as needed.

STAKEHOLDERS: PennDOT 2-0; Centre County MPO

ESTIMATED SCHEDULE: 1-3 years

ESTIMATED COSTS: \$\$

Life Cycle: 10-15 years

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): CCTV System; DMS System; Traffic Signal Systems

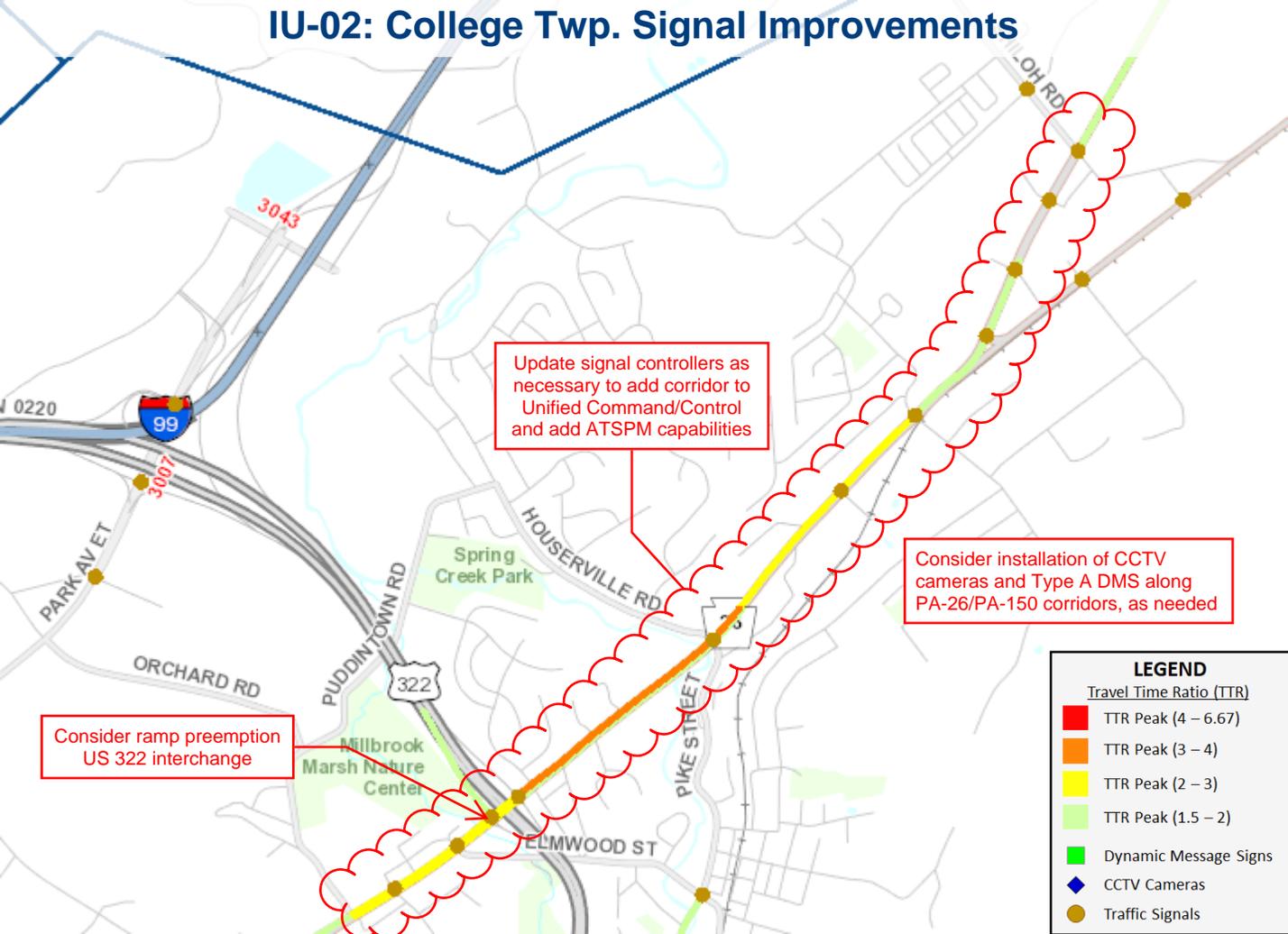
PREREQUISITES AND DEPENDENCIES: N/A

PERFORMANCE MEASURES: Improved Travel Time Ratio; Reduced Bottleneck Delay Surrogate; Reduced Rear End Crash Rate

BENEFITS: Improved traffic flow and reduced congestion along an important signalized corridor within the region.

OTHER CONSIDERATIONS AND ISSUES: Considerable development activity has occurred along the PA-26 corridor. Traffic volume and congestion levels are expected to increase and impact traffic signal operations. Large casino development planned for former mall site in 2022.

IU-02: College Twp. Signal Improvements



Update signal controllers as necessary to add corridor to Unified Command/Control and add ATSPM capabilities

Consider installation of CCTV cameras and Type A DMS along PA-26/PA-150 corridors, as needed

Consider ramp preemption US 322 interchange

LEGEND	
Travel Time Ratio (TTR)	
Red	TTR Peak (4 – 6.67)
Orange	TTR Peak (3 – 4)
Yellow	TTR Peak (2 – 3)
Light Green	TTR Peak (1.5 – 2)
Green	Dynamic Message Signs
Blue Diamond	CCTV Cameras
Brown Circle	Traffic Signals

IU-03: DuBois Fiber Deployment

PROJECT DESCRIPTION AND SCOPE: Installation of fiber optic backbone along the US 219/PA-255 corridors through the DuBois area.

STAKEHOLDERS: PennDOT 2-0; North Central RPO

ESTIMATED SCHEDULE: 4+ years

ESTIMATED COSTS: \$\$\$

Life Cycle: 10-15 years

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Complex

TECHNOLOGY COMPONENTS (*if applicable*): Communications Infrastructure

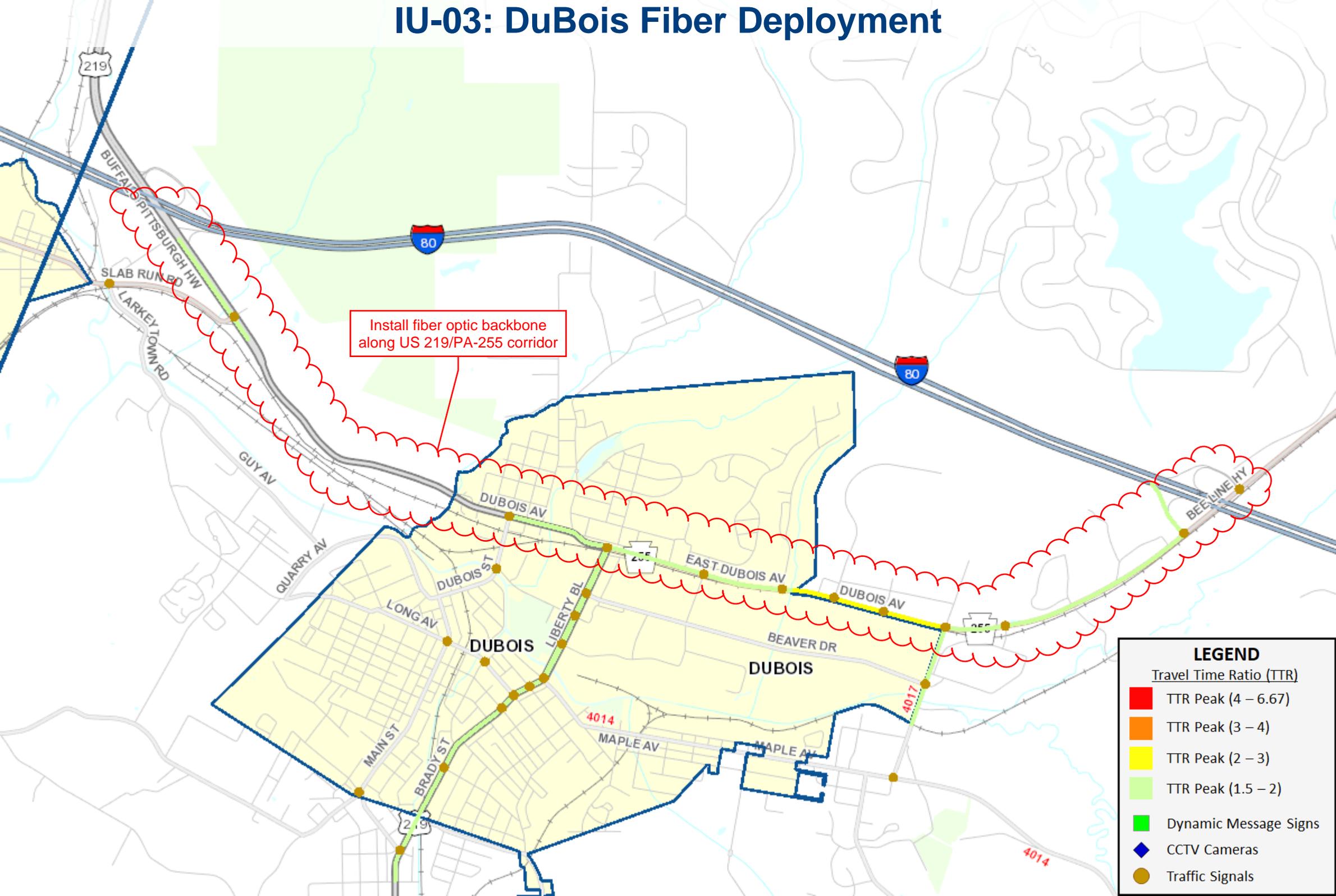
PREREQUISITES AND DEPENDENCIES: Project LT-03 is currently under design and will install ITS and signal improvements along these corridors. Project should also be coordinated with LT-02 (I-80/I-99 Fiber Backbone) as this project would install fiber west along I-80 to DuBois.

PERFORMANCE MEASURES: Number of Miles of Installed Fiber Optic Cable

BENEFITS: A fiber optic backbone along this key corridor would increase connectivity and greatly increase the ability of the Department to expand their deployment of ITS, connected vehicles, and other emerging transportation technology.

OTHER CONSIDERATIONS AND ISSUES: N/A

IU-03: DuBois Fiber Deployment



IU-04: I-80 VSL Pilot

PROJECT DESCRIPTION AND SCOPE: Install Variable Speed Displays along I-80 between Mile Markers 111-120. This would serve as a pilot for further Variable Speed deployment along the I-80 corridor.

STAKEHOLDERS: PennDOT 2-0; North Central RPO

ESTIMATED SCHEDULE: 4+ years

ESTIMATED COSTS: \$\$\$

Life Cycle: 10-15 years

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): Variable Speed Limit System

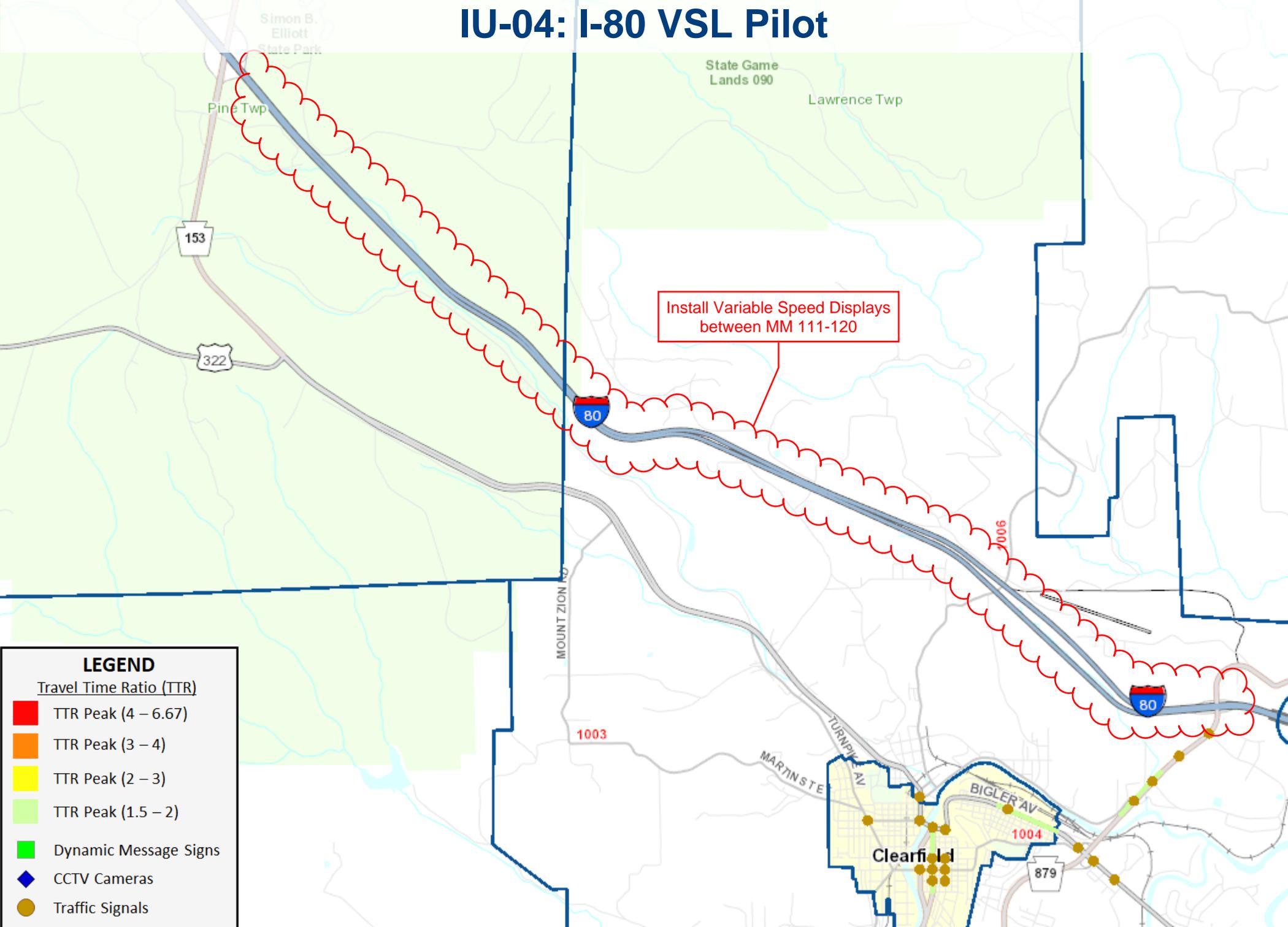
PREREQUISITES AND DEPENDENCIES: N/A

PERFORMANCE MEASURES: Improved Travel Time Ratio; Reduced Rear End Crash Rate

BENEFITS: Improved traffic flow and reduced congestion along an important interstate corridor within the region.

OTHER CONSIDERATIONS AND ISSUES: N/A

IU-04: I-80 VSL Pilot



IU-05: North Central ITS

PROJECT DESCRIPTION AND SCOPE: Install/upgrade the following ITS devices in the North Central RPO region:

- Install CCTV camera on PA-153 at Boone Mountain
- Install CCTV camera at Lantz Corners (US 219/US 6 intersection)
- Install CCTV cameras and possible DMS at PA-255/PA-153 intersection
- Install DMS on US 322 westbound approaching US 219 (prior to Shaffer Rd)
- Upgrade existing RWIS at I-80 MM 111 to include grit factor measurement capability

STAKEHOLDERS: PennDOT 2-0; North Central RPO

ESTIMATED SCHEDULE: 1-3 years

ESTIMATED COSTS: \$\$

Life Cycle: 10-15 years

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): CCTV System; DMS System; RWIS System

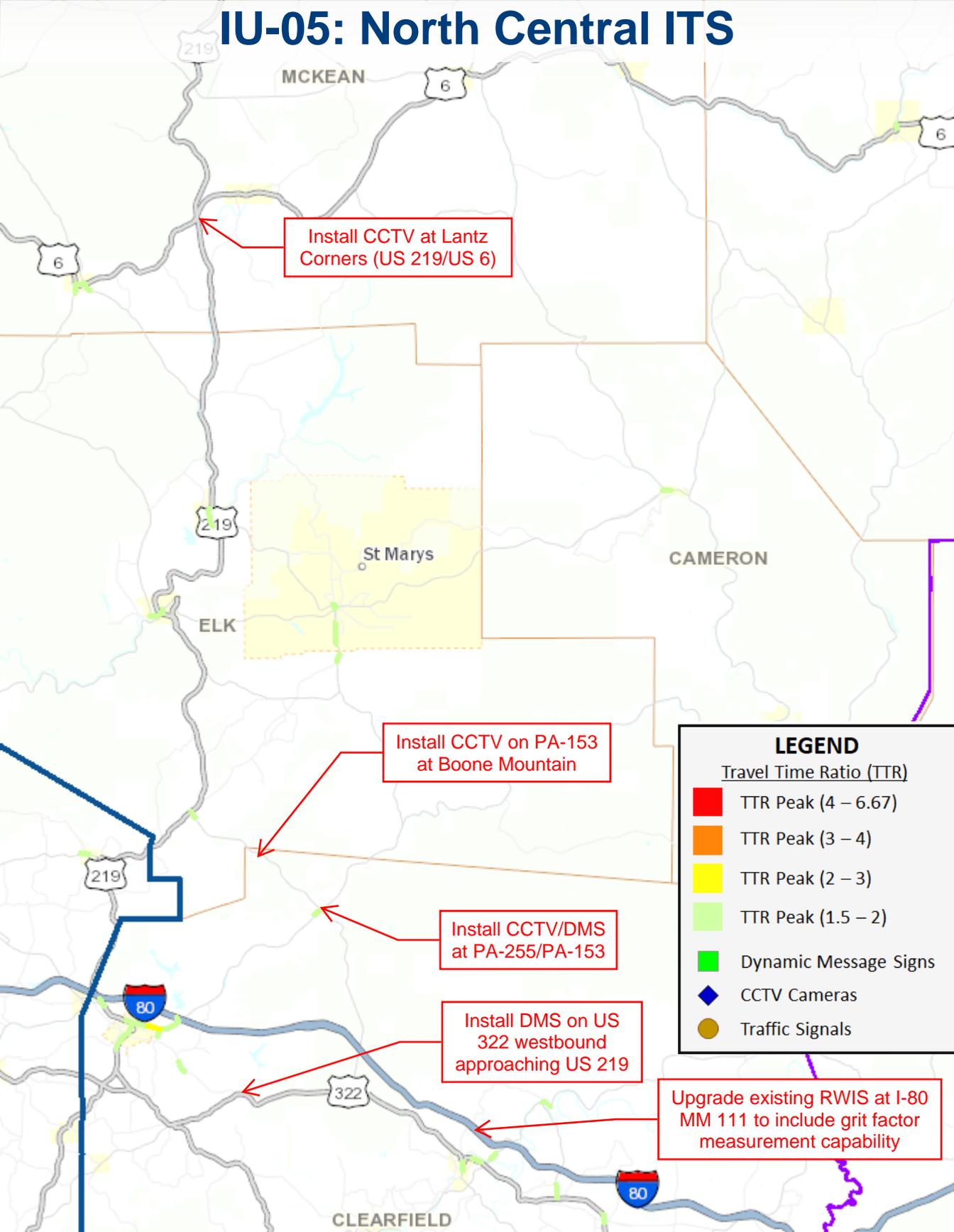
PREREQUISITES AND DEPENDENCIES: N/A

PERFORMANCE MEASURES: Improved Incident Response Time; Improved Travel Time Ratio

BENEFITS: Fill in gaps in camera coverage and traveler information to improve incident response and congestion monitoring from the RTMC at key locations in the North Central region.

OTHER CONSIDERATIONS AND ISSUES: N/A

IU-05: North Central ITS



IU-06: PA-879 Signal Improvements

PROJECT DESCRIPTION AND SCOPE: South of I-80 in Lawrence Township, connect four traffic signals along PA-879 to the command and control network via existing CCTV camera at I-80 Exit 120 interchange. Upgrade signal controllers as necessary. Upgrade detection to infrared video.

STAKEHOLDERS: PennDOT 2-0; North Central RPO

ESTIMATED SCHEDULE: 1-3 years

ESTIMATED COSTS: \$300,000

Life Cycle: 10-15 years

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (*if applicable*): Traffic Signal Systems

PREREQUISITES AND DEPENDENCIES: N/A

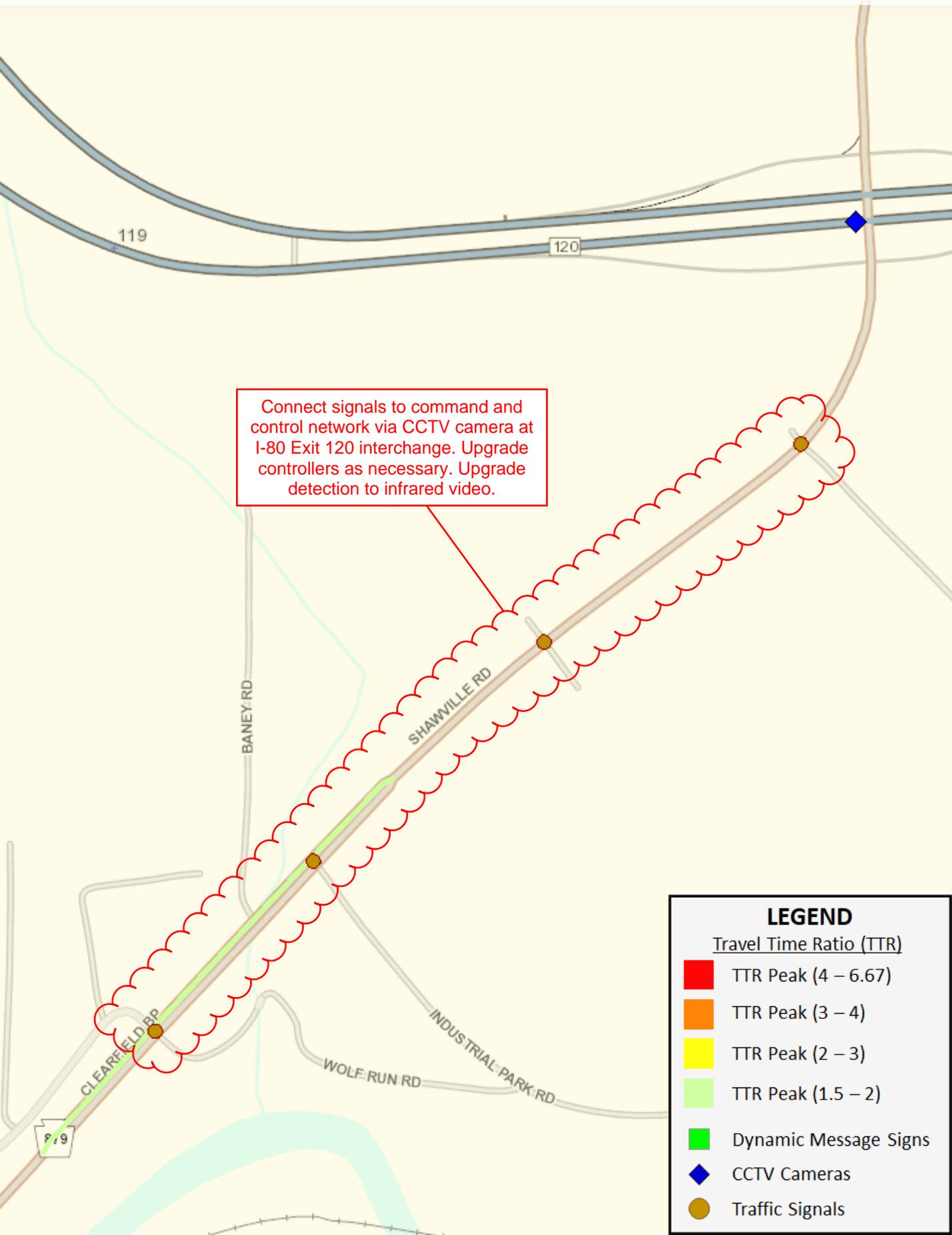
PERFORMANCE MEASURES: Improved Travel Time Ratio

BENEFITS: Improved traffic flow and reduced congestion along important signalized corridor in Lawrence Township.

OTHER CONSIDERATIONS AND ISSUES: Important corridor for I-80 detours. Potential landfill development occurring near corridor which would bring increased traffic.

IU-06: PA-879 Signal Improvements

879



Connect signals to command and control network via CCTV camera at I-80 Exit 120 interchange. Upgrade controllers as necessary. Upgrade detection to infrared video.

LEGEND

Travel Time Ratio (TTR)

- TTR Peak (4 – 6.67)
- TTR Peak (3 – 4)
- TTR Peak (2 – 3)
- TTR Peak (1.5 – 2)
- Dynamic Message Signs
- ◆ CCTV Cameras
- Traffic Signals

IU-07: PA-655 Signal Improvements

PROJECT DESCRIPTION AND SCOPE: In Brown Township, connect four signalized intersections along PA-655 to the command and control network via an existing CCTV camera at the US 322 interchange. Upgrade signal controllers at the westbound US 322 ramps and at SR 1005 (Tea Creek Road) in order to allow for command and control functionality.

STAKEHOLDERS: PennDOT 2-0; SEDA-COG MPO

ESTIMATED SCHEDULE: 1-3 years

ESTIMATED COSTS: \$\$

Life Cycle: 10-15 years

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): Traffic Signal Systems

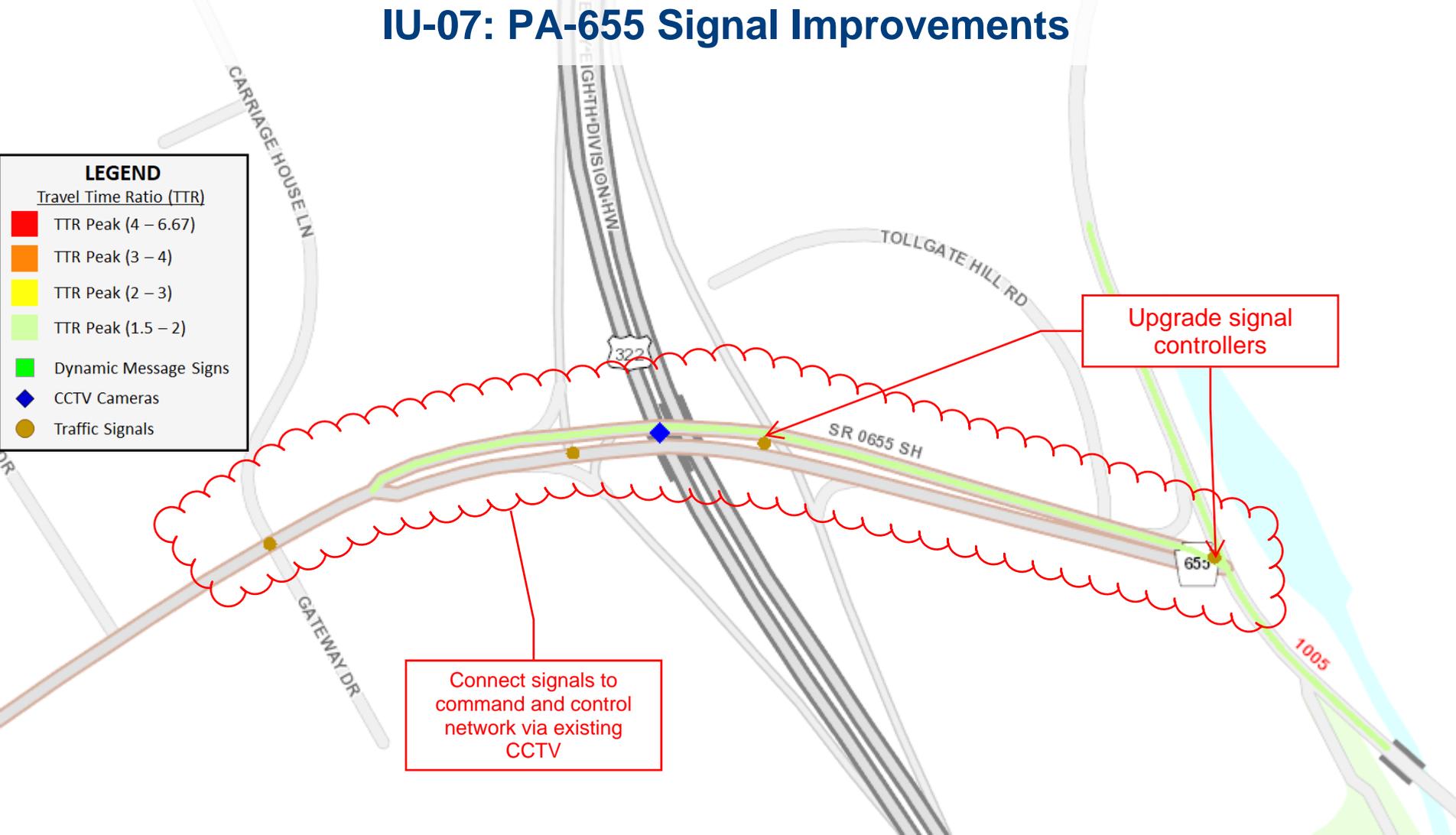
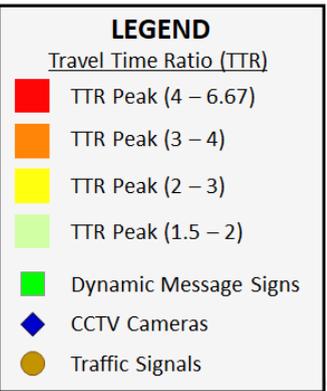
PREREQUISITES AND DEPENDENCIES: N/A

PERFORMANCE MEASURES: Improved Travel Time Ratio

BENEFITS: Improved traffic flow and reduced congestion along important signalized corridor in Brown Township.

OTHER CONSIDERATIONS AND ISSUES: Increased development – Geisinger and Kish Bank.

IU-07: PA-655 Signal Improvements



IU-08: US 220 Corridor ITS

PROJECT DESCRIPTION AND SCOPE: Install CCTV cameras and Type A DMS along US 220 corridor, north and south of Mill Hall. CCTV cameras should be mounted onto the DMS.

STAKEHOLDERS: PennDOT 2-0; SEDA-COG MPO

ESTIMATED SCHEDULE: 1-3 years

ESTIMATED COSTS: \$\$

Life Cycle: 10-15 years

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): CCTV System; DMS System

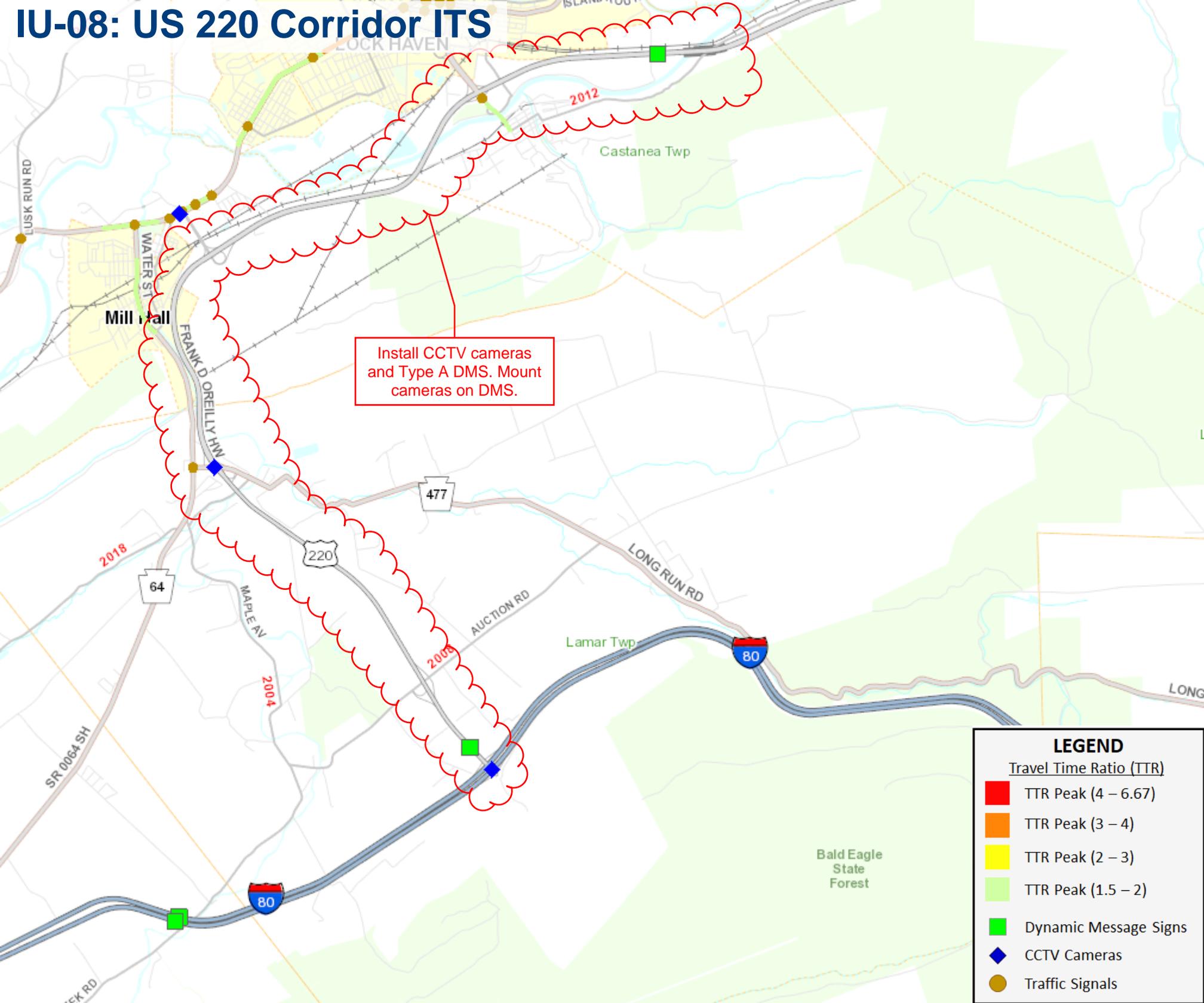
PREREQUISITES AND DEPENDENCIES: N/A

PERFORMANCE MEASURES: Improved Incident Response Time; Improved Travel Time Ratio

BENEFITS: Fill in gaps in camera coverage and traveler information to improve incident response and congestion monitoring from the RTMC at key locations on the US 220 corridor.

OTHER CONSIDERATIONS AND ISSUES: N/A

IU-08: US 220 Corridor ITS



Install CCTV cameras and Type A DMS. Mount cameras on DMS.

LEGEND

Travel Time Ratio (TTR)

- TTR Peak (4 – 6.67)
- TTR Peak (3 – 4)
- TTR Peak (2 – 3)
- TTR Peak (1.5 – 2)
- Dynamic Message Signs
- CCTV Cameras
- Traffic Signals

IU-09: US 15 Corridor ITS

PROJECT DESCRIPTION AND SCOPE: Install CCTV cameras and Dynamic Message Signs at key locations along the US 15 corridor, between US 6 and Williamsport.

STAKEHOLDERS: PennDOT 3-0; Northern Tier RPO

ESTIMATED SCHEDULE: 1-3 years

ESTIMATED COSTS: \$\$

Life Cycle: 10-15 years

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): CCTV System; DMS System

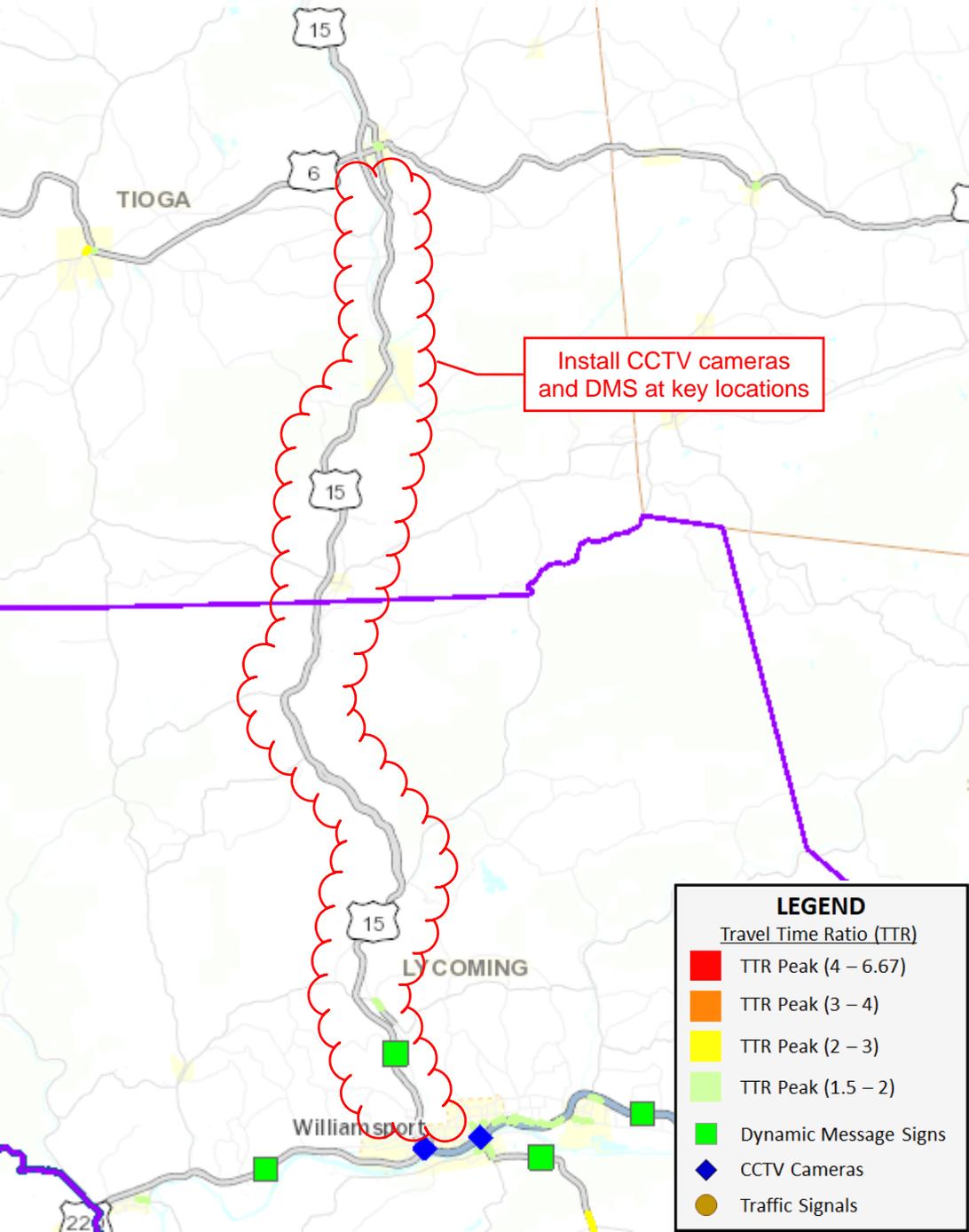
PREREQUISITES AND DEPENDENCIES: N/A

PERFORMANCE MEASURES: Improved Incident Response Time; Improved Travel Time Ratio

BENEFITS: Fill in gaps in camera coverage and traveler information to improve incident response and congestion monitoring from the RTMC at key locations on the US 15 corridor.

OTHER CONSIDERATIONS AND ISSUES: N/A

IU-09: US-15 Corridor ITS



IU-10: CSVT Signal Improvements

PROJECT DESCRIPTION AND SCOPE: Evaluate traffic signal operations along two corridors and complete retiming if necessary:

- US 15 – Smoketown Road/Moore Avenue to Ziegler Road (Lewisburg)
- US 11 – Duke Street to King Street (Northumberland)

STAKEHOLDERS: PennDOT 3-0; SEDA-COG MPO

ESTIMATED SCHEDULE: 1-3 years

ESTIMATED COSTS: \$

Life Cycle: 10-15 years

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (*if applicable*): Traffic Signal Systems

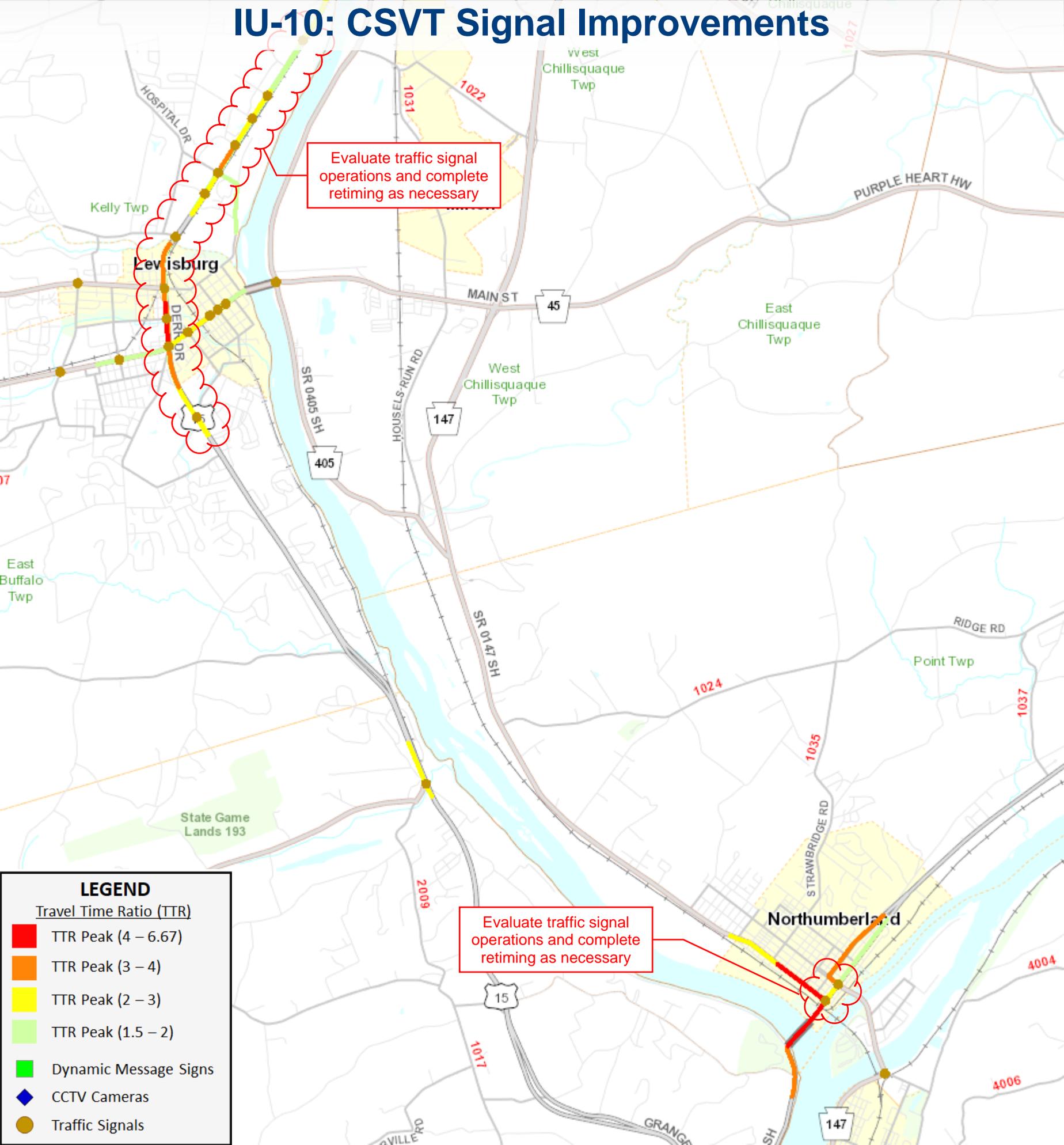
PREREQUISITES AND DEPENDENCIES: N/A

PERFORMANCE MEASURES: Improved Travel Time Ratio

BENEFITS: Improved traffic flow and reduced congestion along important signalized corridors in the region. Mitigate potential effects of ongoing CSVT construction project.

OTHER CONSIDERATIONS AND ISSUES: N/A

IU-10: CSVT Signal Improvements



LEGEND

Travel Time Ratio (TTR)

- TTR Peak (4 – 6.67)
- TTR Peak (3 – 4)
- TTR Peak (2 – 3)
- TTR Peak (1.5 – 2)
- Dynamic Message Signs
- CCTV Cameras
- Traffic Signals

IU-11: Middleburg Signal Improvements

PROJECT DESCRIPTION AND SCOPE: At the US 522/PA-104 intersection, upgrade traffic signal controller and detection to connect to Unified Command and Control network and allow for Automated Traffic Signal Performance Measures

STAKEHOLDERS: PennDOT 3-0; SEDA-COG MPO

ESTIMATED SCHEDULE: 1-3 years

ESTIMATED COSTS: \$

Life Cycle: 10-15 years

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): Traffic Signal Systems

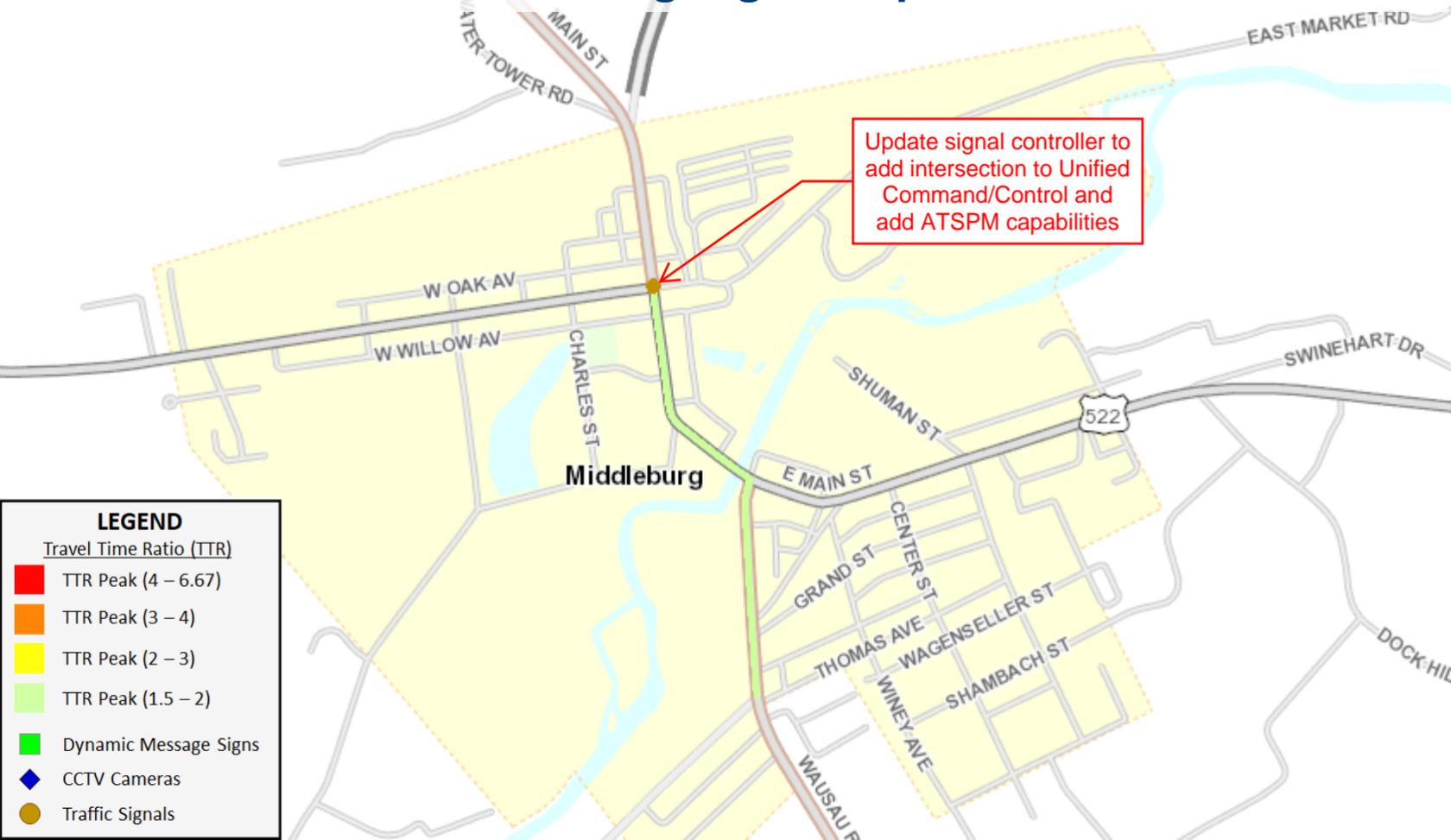
PREREQUISITES AND DEPENDENCIES: N/A

PERFORMANCE MEASURES: Improved Travel Time Ratio

BENEFITS: Improved traffic flow and reduced congestion through this key intersection in the region.

OTHER CONSIDERATIONS AND ISSUES: N/A

IU-11: Middleburg Signal Improvements



IU-12: Montoursville Signal Improvements

PROJECT DESCRIPTION AND SCOPE: Full equipment upgrade at the SR 2014 (Broad Street) intersections with Walnut Avenue and with Willow Street. Add corridor to the Unified Command/Control network.

STAKEHOLDERS: PennDOT 3-0; Williamsport MPO

ESTIMATED SCHEDULE: 1-3 years

ESTIMATED COSTS: \$\$

Life Cycle: 10-15 years

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (*if applicable*): Traffic Signal Systems

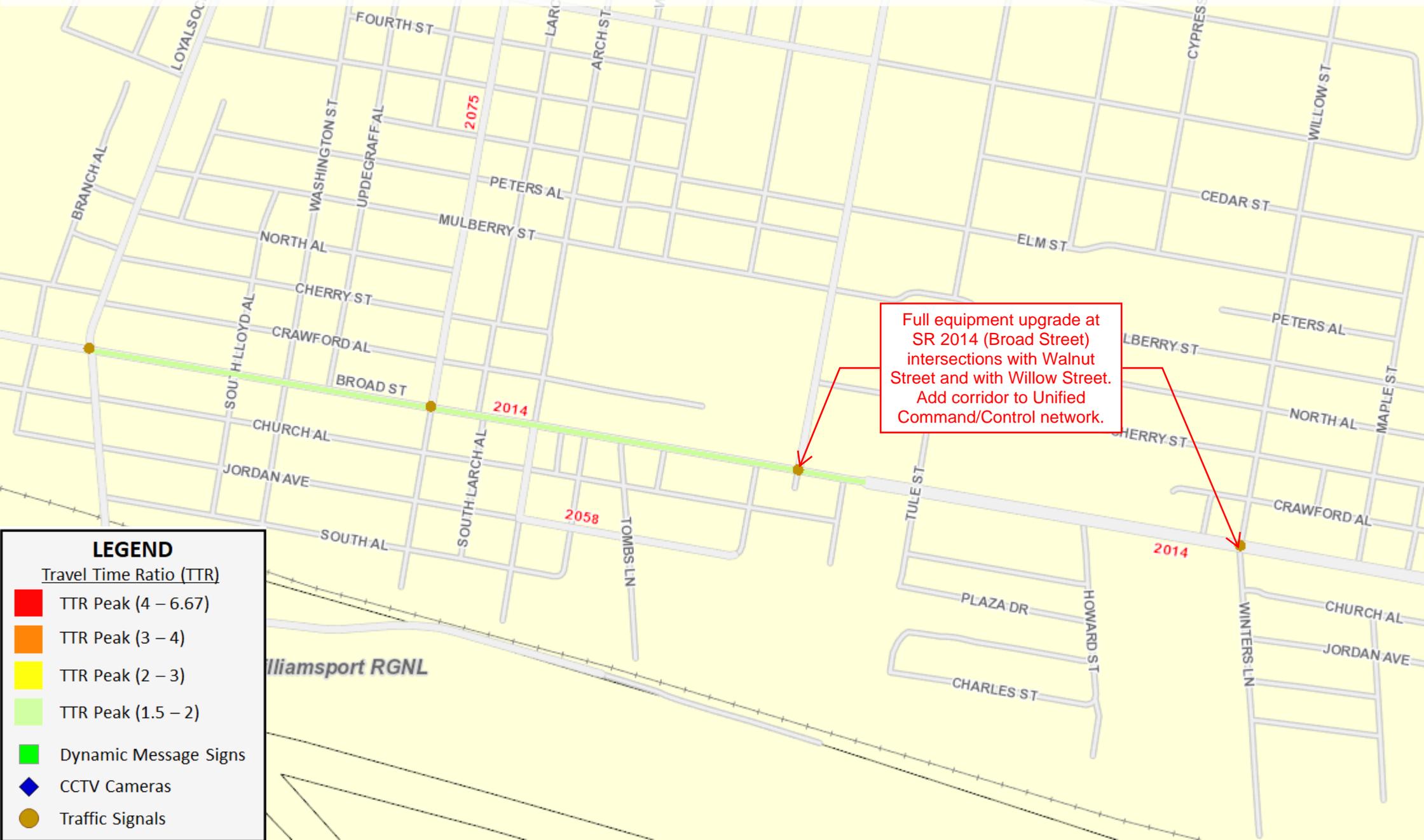
PREREQUISITES AND DEPENDENCIES: N/A

PERFORMANCE MEASURES: Improved Travel Time Ratio

BENEFITS: Improved traffic flow and reduced congestion along an important signalized corridor within the region.

OTHER CONSIDERATIONS AND ISSUES: Coordinate with Montour Street Airport connector project (ECMS 110772).

IU-12: Montoursville Signal Improvements



IU-13: Third Street Signal Improvements

PROJECT DESCRIPTION AND SCOPE: Full signal equipment replacement and retiming along SR 2014 (Third St.) in Loyalsock Township. This includes seven intersections spanning from Country Club Road to Northway Road. In addition, also retime signal at Third St. and Shiffler Ave. Consider installation of CCTV cameras at Faxon interchange (I-180 Exit 25) and connection of traffic signals to the Unified Command and Control network via this camera.

STAKEHOLDERS: PennDOT 3-0; Williamsport MPO

ESTIMATED SCHEDULE: 1-3 years

ESTIMATED COSTS: \$\$

Life Cycle: 10-15 years

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): CCTV System; Traffic Signal Systems

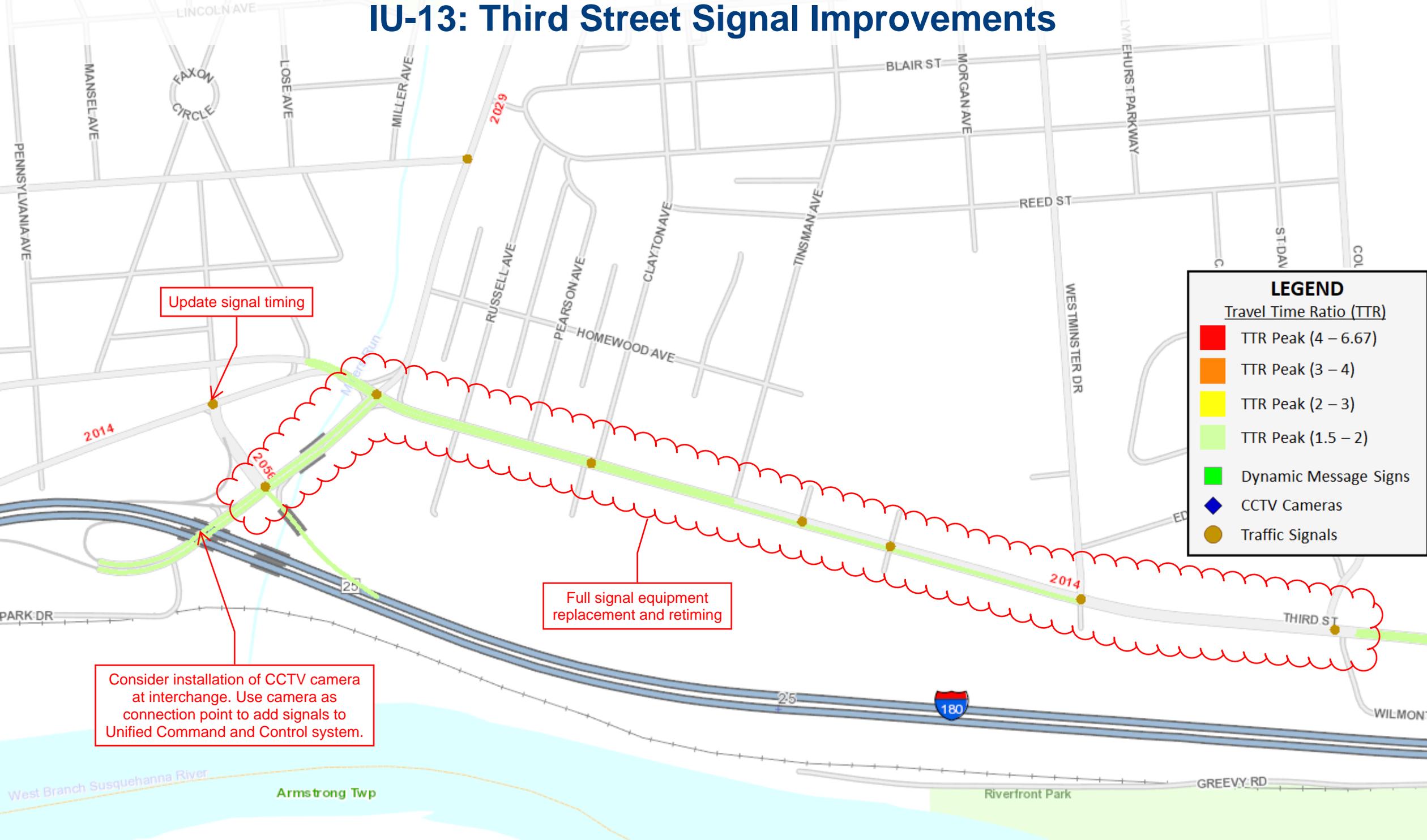
PREREQUISITES AND DEPENDENCIES: N/A

PERFORMANCE MEASURES: Improved Incident Response Time; Improved Travel Time Ratio

BENEFITS: Improved traffic flow and reduced congestion along an important signalized corridor within the region. Fill in gap in camera coverage to improve incident response and congestion monitoring from the RTMC at a key location on the I-180 corridor.

OTHER CONSIDERATIONS AND ISSUES: N/A

IU-13: Third Street Signal Improvements



LEGEND

Travel Time Ratio (TTR)

- TTR Peak (4 – 6.67)
- TTR Peak (3 – 4)
- TTR Peak (2 – 3)
- TTR Peak (1.5 – 2)
- Dynamic Message Signs
- ◆ CCTV Cameras
- Traffic Signals

IU-14: I-70 Curve Warning

PROJECT DESCRIPTION AND SCOPE: Install Dynamic Curve Warning systems at the following noted curved road problem areas along I-70:

- Westbound at PA-643 overpass (Exit 156)
- Eastbound before and after PA-915 interchange (Exit 151)

Curve warning alerts will be broadcast via Dynamic Message Signs installed upstream of the curve locations.

STAKEHOLDERS: PennDOT 9-0; Southern Alleghenies RPO

ESTIMATED SCHEDULE: 1-3 years

ESTIMATED COSTS: \$

Life Cycle: 10-15 years

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): Dynamic Curve Warning System; DMS System

PREREQUISITES AND DEPENDENCIES: N/A

PERFORMANCE MEASURES: Reduced Curved Road Crashes

BENEFITS: Reduce crashes, particularly at high speeds, in the area of some of the most dangerous curves on the I-70 corridor.

OTHER CONSIDERATIONS AND ISSUES: N/A

IU-14: I-70 Curve Warning

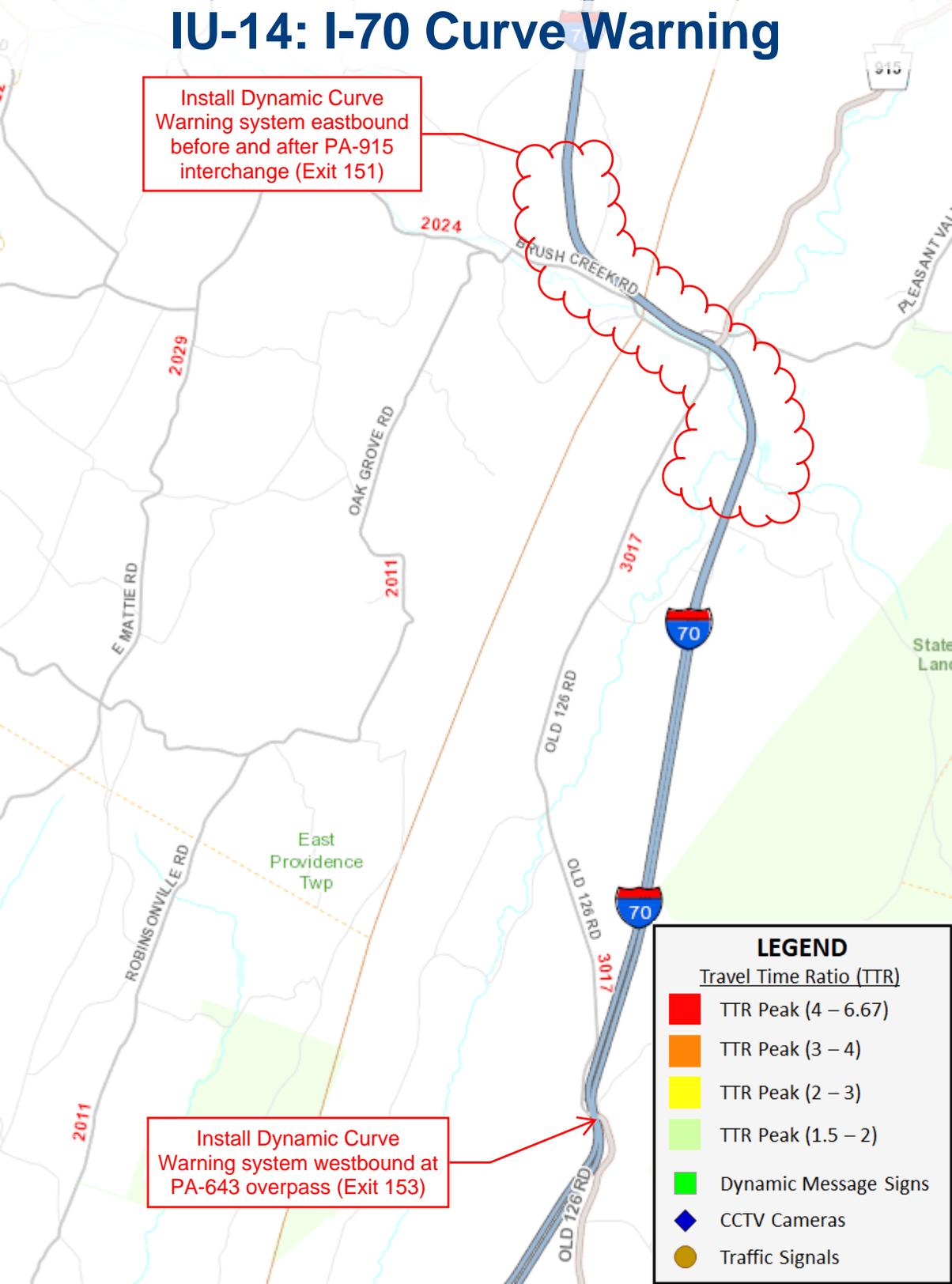
Install Dynamic Curve Warning system eastbound before and after PA-915 interchange (Exit 151)

Install Dynamic Curve Warning system westbound at PA-643 overpass (Exit 153)

LEGEND

Travel Time Ratio (TTR)

- TTR Peak (4 – 6.67)
- TTR Peak (3 – 4)
- TTR Peak (2 – 3)
- TTR Peak (1.5 – 2)
- Dynamic Message Signs
- CCTV Cameras
- Traffic Signals



IU-15: I-70 ITS Gaps

PROJECT DESCRIPTION AND SCOPE: Install CCTV cameras and Dynamic Message Signs along the I-70 corridor between the Maryland state line and Breezewood at key locations to be determined.

STAKEHOLDERS: PennDOT 9-0; Southern Alleghenies RPO

ESTIMATED SCHEDULE: 1-3 years

ESTIMATED COSTS: \$\$

Life Cycle: 10-15 years

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): CCTV System; DMS System

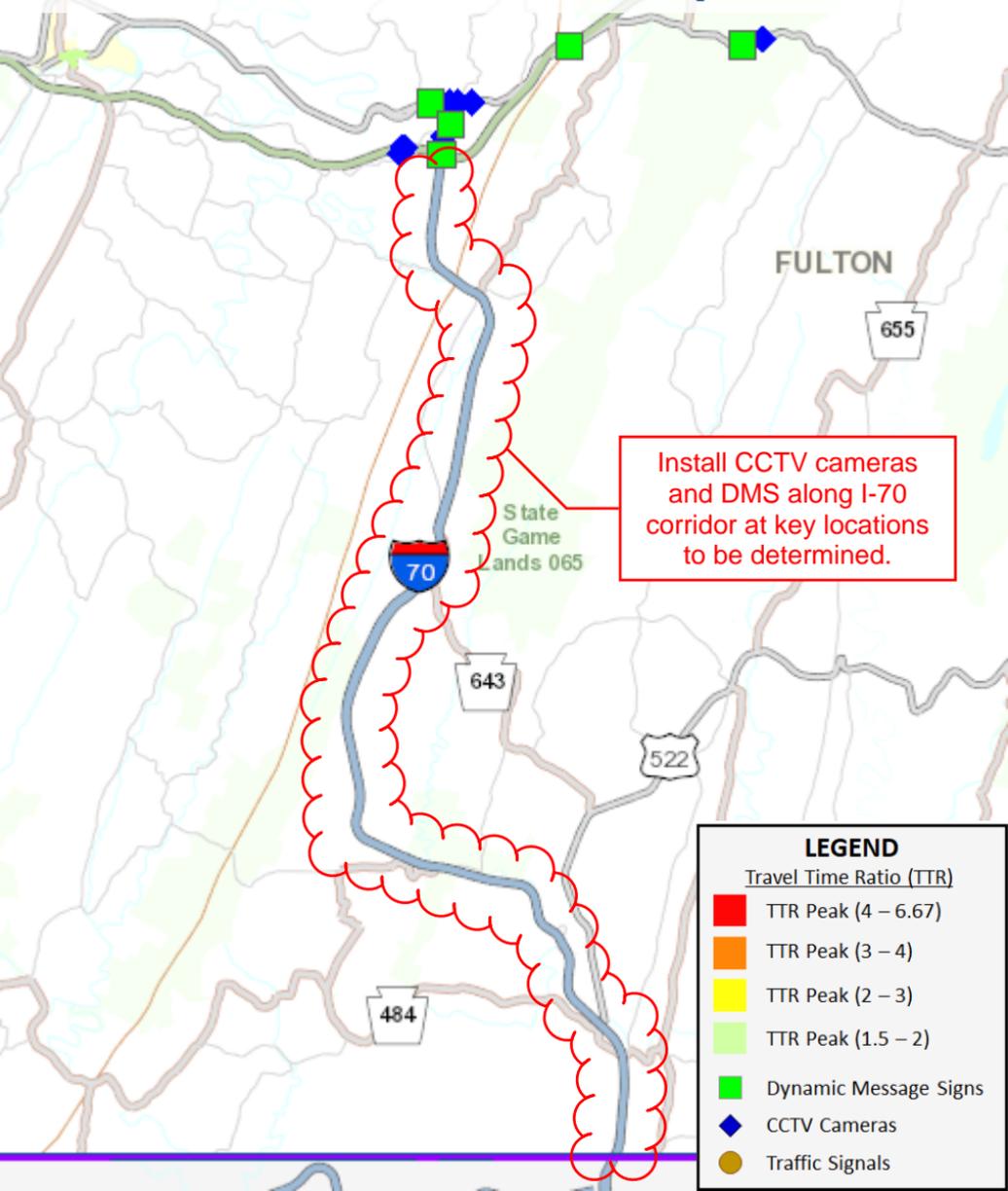
PREREQUISITES AND DEPENDENCIES: N/A

PERFORMANCE MEASURES: Improved Travel Time Ratio; Improved Incident Response Time

BENEFITS: Improve incident response, congestion monitoring, and traveler information along I-70 Corridor. Improve monitoring of weather and roadway conditions.

OTHER CONSIDERATIONS AND ISSUES: N/A

IU-15: I-70 ITS Gaps



LEGEND

Travel Time Ratio (TTR)

Red square: TTR Peak (4 – 6.67)

Orange square: TTR Peak (3 – 4)

Yellow square: TTR Peak (2 – 3)

Light green square: TTR Peak (1.5 – 2)

Green square: Dynamic Message Signs

Blue diamond: CCTV Cameras

Brown circle: Traffic Signals

IU-16: Pleasantville ITS

PROJECT DESCRIPTION AND SCOPE: Install Type A DMS westbound on PA-56 prior to PA-96 (Pleasantville Borough).

STAKEHOLDERS: PennDOT 9-0; Southern Alleghenies RPO

ESTIMATED SCHEDULE: 1-3 years

ESTIMATED COSTS: \$

Life Cycle: 10-15 years

PROJECT TYPE: Deployment

LEVEL OF EFFORT: Moderate

TECHNOLOGY COMPONENTS (if applicable): DMS System

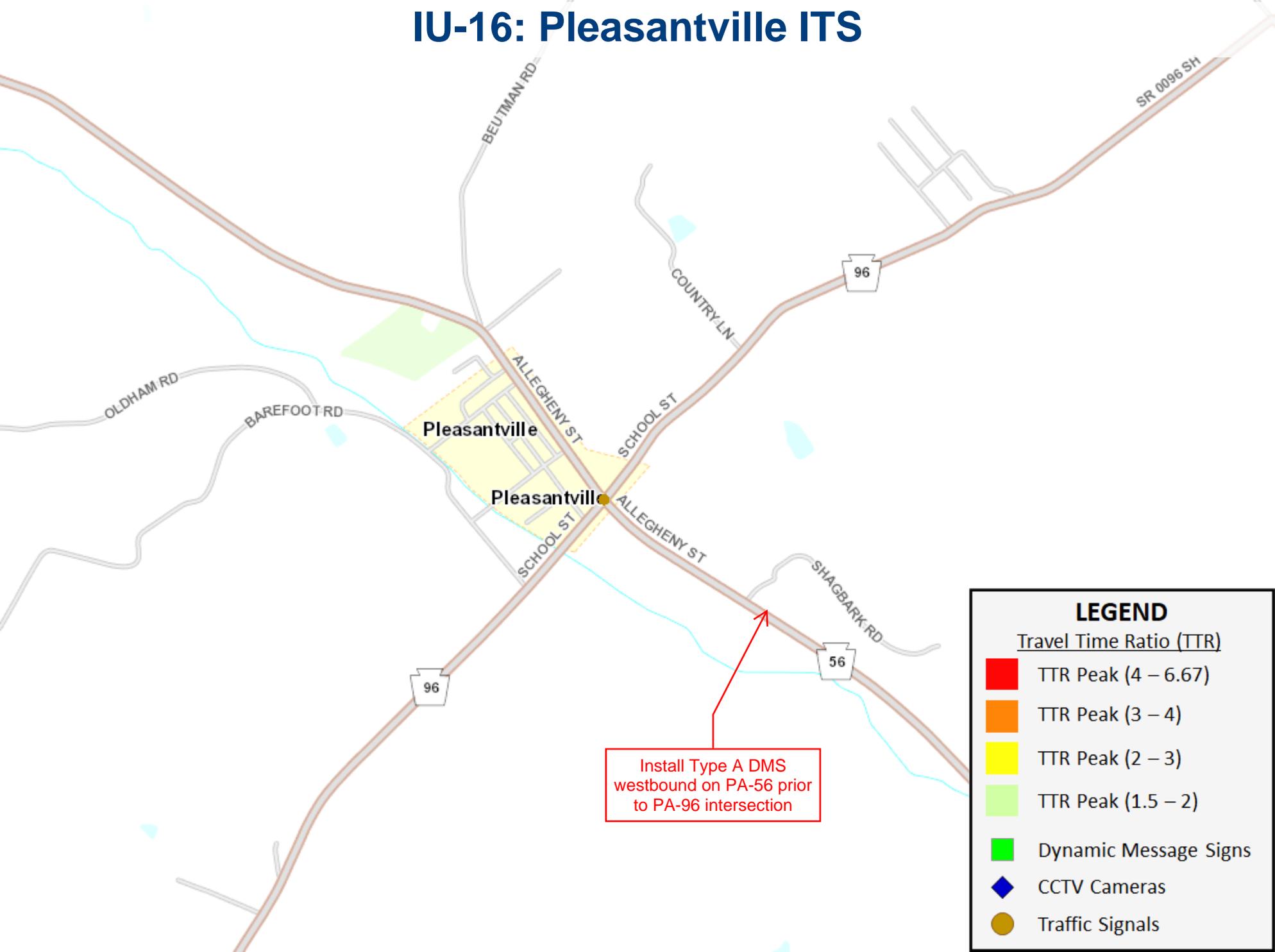
PREREQUISITES AND DEPENDENCIES: N/A

PERFORMANCE MEASURES: Improved Travel Time Ratio

BENEFITS: Fill an important gap in traveler information in the region.

OTHER CONSIDERATIONS AND ISSUES: N/A

IU-16: Pleasantville ITS



Install Type A DMS
westbound on PA-56 prior
to PA-96 intersection