

Integration of Performance Measures into the Bryan/College Station MPO FY 2021 – FY 2024 Transportation Improvement Program

Introduction

Begun as part of the Moving Ahead for Progress in the 21st Century (MAP-21) and continued in the Fixing America's Surface Transportation (FAST) Act, State DOT's and Metropolitan Planning Organizations (MPOs) are required to move towards a performance-based planning process with an emphasis on project selection based on specific planning factors. In the Bryan/College Station MPO 2040 Metropolitan Transportation Plan (MTP) developed under MAP-21, the MPO focused on the following factors for selection of projects in its Fiscally-Constrained Project List:

- Highway Safety: Five-year average of auto-related fatal and incapacitating crashes within the project limits
- Bicycle and Pedestrian Safety: Five-year average of bicycle and pedestrian-related fatal and incapacitating crashes within the project limits
- Congestion: Modeled Annual Hours of Delay/mile
- Mobility: Bicycle and pedestrian level-of-service

Safety

Under Map-21, States are required to set annual safety performance targets. The annual measures States set targets for include:

- Number of fatalities (The total number of persons suffering fatal injuries in a motor vehicle crash during a calendar year).
- Rate of fatalities per 100 million vehicle miles traveled (VMT) (The ratio of total number of fatalities to the number of vehicle miles traveled (VMT expressed in 100 Million VMT) in a calendar year).
- Number of serious injuries (The total number of persons suffering at least one serious injury in a motor vehicle crash during a calendar year).
- Rate of serious injuries per 100 million VMT (The ratio of total number of serious injuries to the number of VMT (VMT expressed in 100 Million VMT) in a calendar year).
- Number of non-motorized fatalities and number of non-motorized serious injuries combined (The combined total number of non-motorized fatalities and non-motorized serious injuries involving a motor vehicle during a calendar year).

The Texas Department of Transportation established the statewide targets to support the Strategic Highway Safety Plan (SHSP) and the Highway Safety Improvement Program (HSIP). Once the State of Texas set their safety targets, MPOs within Texas were required to either adopt the Texas targets or set their own that would help achieve the statewide target. The Bryan/College Station MPO chose to adopt the state targets. These statewide targets for 2020 - 2022 are:

Safety Targets (expressed as a five year average)	Adopted January 2018	Adopted January 2019	Adopted January 2020	Adopted January 2021	Adopted February 2022
Total Traffic Fatalities Year per Calendar Year	3,703.80	3,791	3,840	3,687	3.563
Rate of Traffic Fatalities per 100M VMT	1.432	1.413	1.406	1.33	1.27
Number of Serious Injuries	17,565.40	17,751	17,394	17,151	16,677
Rate of Serious Injuries per 100M VMT	6.74	6.55	6.286	6.06	5.76
Number of Non Motorized Fatalities and Serious Injuries	2,250.60	2,237.60	2,285	2,316.40	2,367

Transit Asset Management

As part of the FAST act, performance measures were incorporated for transit agencies, primarily through the Transit Asset Management (TAM) assessment and planning requirements. The Brazos Transit District (BTD) TAM plan was developed to meet that requirement. All assets owned by BTD were examined using the Federal Transit Administration (FTA) Transit Economic Requirements Model (TERM) which uses a scale of one to five to determine the quality of the asset. The scale is as follows:

- 1 = Poor The asset is critically damaged or in need of immediate repair; well past useful life.
- 2 = Marginal Defective or deteriorated in need of replacement; exceeded useful life.
- 3 = Adequate Moderately deteriorated or defective; has not exceeded useful life.
- 4 = Good Good condition, no longer new, may be slightly defective/deteriorated but is functional.
- 5 = Excellent No visible defects, new or near new, may still be under warranty if applicable.

An asset is deemed to be in good repair if it has a rating of 3, 4, or 5 on this scale. Likewise, a facility is deemed to not be in good repair if it has a rating of 1 or 2. Using this scale, BTD examined revenue vehicles, non-revenue vehicles and facilities. Based on the rating, BTD developed investment priorities for vehicles and facilities and these are:

Revenue Vehicles

1. Replacement of the Bryan/College Station fixed route buses, currently 17 medium duty cutaways. The plan is to replace four of these buses by 2019, and two each year thereafter unless additional funding is received.
2. Replacement of 14 LD cutaways that are 2007 and 2009 models.
3. Replace 2 mini-vans that are 2010 models.

Non-Revenue Vehicles

1. Replace nine maintenance/support trucks that are all 2010 models.
2. Replace six vans that are support vehicles and are all 2010 models.

Facilities

1. Rehabilitation of the Livingston Facility
2. Rehabilitation of the Transfer Point in Bryan
3. Add bus shelters at stop locations

While not listed in the investment priorities, BTD noted that under facility conditions that 33% of passenger and parking facilities are under 3 on the TERM scale and 20% of administrative and maintenance facilities are under 3 on the TERM scale. The TAM Plan was accepted by the MPO Policy Board on October 3, 2018.

Upon adoption of the FAST Act, a direct correlation between safety targets and TAM plans needed to be established through project selection as reflected in the Transportation Improvement Programs (TIPs). By rule, TIPs amended or updated on or after 5/27/2018 must meet the Performance-Based Planning and Programming (PBPP) planning requirements [81 FR 34050] for the safety performance measures. TIPs amended or updated on or after 10/1/2018 must meet the PBPP planning requirements for FTA's Transit Asset Management Final Rule. Since the MPO is making amendments to the FY 2021- FY 2024 TIP, the entire TIP must be reviewed and a narrative developed showing how projects included in the Bryan/College Station MPO TIP help achieve safety, bridge, pavement and travel time reliability targets and TAM plan requirements.

Roadway System Performance Targets

Under the FAST Act, States are required to set targets for Roadway System Performance, specifically Interstate Reliability, Non Interstate National Highway System Reliability and Truck Travel Time Reliability on the Interstate System. The state of Texas established Bridge Deck Condition on the National Highway System targets in October of 2018. The Bryan/College Station MPO initially established their bridge deck condition targets in December of 2018. Based on TxDOT revisions, the MPO adopted the state's new target in March of 2022. These targets are:

Bridge Deck Condition (Percent in Poor Condition)			
Target	State	BCSMPO	TxDOT 2020 Adjusted Four- year Target
2020 Target	0.80%	0.80%	1.5%
2022 Target	0.80%	0.80%	

Bridge Deck Condition (Percent in Good Condition)			
Target	State	BCSMPO	TxDOT 2020 Adjusted Four-year Target
2020 Target	50.58%	60%	N/A
2022 Target	50.42%	60%	

Per federal requirements, the state of Texas and MPOs are also required to set Interstate and Non-Interstate National Highway System Pavement Condition targets. Since the Bryan/College Station MPO is not served by an interstate, the MPO only adopted targets for non-interstate National Highway System targets. Those targets are the same as the state targets, were adopted in December of 2018, readopted in March 2022 and are:

NHS Pavement Condition (Percent in Poor Condition)			
Target	State	BCSMPO	TxDOT 2020 Adjusted Four- year Target
2020 Target	14.3%	14.3%	14.2%
2022 Target	14.3%	14.3%	

NHS Pavement Condition (Percent in Good Condition)			
Target	State	BCSMPO	TxDOT 2020 Adjusted Four- year Target
2020 Target	52.0%	52.0%	54.1%
2022 Target	52.3%	52.3%	

Finally, the state and MPOs are required to set Travel Time Reliability targets as part of their performance measures. The Bryan/College Station MPO set targets more stringent than the state target. These targets were adopted in December of 2018 and readopted in March 2022 and are:

Non-Interstate Travel Time Reliability			
Target	State	BCSMPO	TxDOT Adjusted 2020 (Four-year Target)
2020 Target	N/A	N/A	70.0%
2022 Target	55.4%	75%	

In reviewing the data provided to us by TxDOT prior to its submission to the Federal Highway Administration (FHWA), we were asked to make changes to reflect local growth rate and to consider what should be done with Person Miles Traveled (PMT) that was greater than 1.4 but less than 1.5. The MPO understands that any PMT with a value greater than 1.5 is considered unreliable and that PMT between 1.4 and 1.5 could become unreliable if a small change in conditions were to occur. The MPO chose a 5% growth rate which reflects observed local growth rate instead of the 2% assumed by TxDOT. Even with this change our reliable PMT was 83% (with the assumption that all segments between 1.4 and 1.5 would become unreliable).

After considering the State Target and the need for some areas of the State to have a more aggressive target than the one selected by TxDOT to balance some of the larger urban areas that couldn't meet the state target, the Bryan/College Station MPO adopted a more stringent target in 2018. We selected a target of 75% for several reasons. First, the change in data sets and the limited amount of experience with this data gave us pause to not select the 83% PMT that is reliable in case unforeseen variability in the new data set had not yet been revealed. Second, we have two major roadways in our area that have been selected for Category Two funding and will be under construction between now and 2022.

For March of 2022, the MPO adopted the state target.

The FY 2021 – FY 2024 Bryan College Station Transportation Improvement Program Analysis

The Bryan/College Station MPO staff have reviewed projects in the TIP for compliance with four performance measures as mandated by federal law. The four performance measures are safety (defined as projects which help reduce fatalities and serious injuries for vehicles and non-motorized modes of transportation), bridge deck condition, Non-Interstate National Highway System Pavement Condition, and travel time reliability. In addition, the TIP and any amendments to the TIP were reviewed to determine their relevance to the Transit Asset Management Plan developed for Brazos Transit District.

Because the 2045 Metropolitan Transportation Plan included selection criteria based on safety, most of the highway projects included in the TIP have significant impact on improving safety and thus help work

towards the safety targets. These projects include:

- FM 158 (William J. Bryan Parkway) between Business Route 6 and State Highway 6. This safety project removes continuous center turn lanes and replaces them with raised medians where applicable, incorporates deceleration lanes at accident-prone intersections and adds a shared-use path.
- State Highway 6 between State Highway 21 and State Highway 40. Traffic volumes of 93,000 vehicles per day on a four-lane section result in numerous crashes along this corridor. The project will add one lane in each direction and include additional operational improvements including interchange U-turn lanes, collector/distributor lanes and frontage road geometric improvements.
- Business Route 6 between Old Hearne Road and 15th Street. The project replaces continuous center turn lanes with raised medians and constructs sidewalks and replaces the intersection at State Highway 21 and Business Route 6 with an urban intersection.
- Business Route 6 between State Highway 21 to FM 158. The project replaces continuous center turn lanes with raised medians and constructs sidewalks.
- Business Route 6 between FM 158 to FM 60. The project replaces continuous center turn lanes with raised medians and constructs sidewalks.
- State Highway 47 at FM 1688. The project installs right turn lanes.
- FM 2154 (Wellborn Road) at Holloman. The project brings both roads to the same elevation at a railroad crossing to improve sightlines.
- State Highway 21 at Smetana Road. The project installs a flashing beacon to warn drivers that this is a high traffic intersection.
- State Highway 30 at Bird Pond Road. The project installs a flashing beacon to warn drivers that this is a high traffic intersection.
- FM 60 at Nimitz Street. The project installs a traffic signal.
- State Highway 40 (William Fitch Parkway) at FM 2154 (Wellborn Road). The project installs a traffic signal.
- State Highway 30 at Buena Vista Drive. The project installs safety lighting at the intersection.
- Two projects on FM 1179 to add raised medians.
- State Highway 30 (Harvey Road) from Business Route 6 to State Highway 6. The project installs medians to replace continuous center turn lanes.

Regarding bridge deck targets, the TIP contains \$17.69 million for the following:

- A total of six bridge replacement and approach railing projects on State Highway 6 to modernize facilities.
- Replacement of State Highway 30 bridge over the Navasota River to modernize the facility.
- Bridge improvements on FM 1179 (Briarcrest Road) at State Highway 6.
- Replace a bridge at Woodville Road and State Highway 6.

For Non-Interstate National Highway System Pavement Condition targets the TIP contains \$9.25 million for the following projects:

- One mill and inlay projects to allow for achieving designed loading.
- Road rehabilitation project on FM 1179 including grading, base structure, surface, signs and pavement markings.

One target in the Bryan/College Station MPO area that is of great concern to local residents is travel time reliability. To that end the MPO has programmed \$174.3 million on one project:

- State Highway 6 between State Highway 21 and State Highway 40. Traffic volumes of 93,000 vehicles per day on a four-lane section result in numerous crashes and congestion delay along this corridor. The project will add one lane in each direction and include additional operational improvements including interchange U-turn lanes, collector/distributor lanes, and frontage road geometric improvements.

The BCSMPO has used its travel demand model to evaluate the projects listed in its Destination 2045 Metropolitan Transportation Plan, the table below shows the adopted projects in the MTP do fairly maintain speeds, thus maintaining travel reliability on the system.

Facility Type	2011 Speed (mph)	2040 Speed (mph)
Freeways	51.1	50.5
Expressways	45.1	41.0
Principal Arterials	33.6	32.1
Minor Arterials	33.0	31.6
Collectors	32.7	31.2
Frontage Roads	40.1	36.9
Ramps	33.0	34.0
Totals	38.4	36.8

According to the Brazos Transit District (BTD) TAM plan all 17 medium duty cutaway buses used in the Bryan/College Station Urbanized area needed replacement as they fail to meet their useful life benchmark. In FY 2019 BTD received a BUILD Grant to replace all of the fixed route vehicles in the BTD fleet. As a result, anticipated expenditures for fleet replacement in FY 21 and FY 22 were accelerated into the previous TIP. Projects included in the FY 2021 – FY 2024 Transportation Improvement Program that address Transit Asset Management requirements include:

- Purchase of bus shelters in FY 2021, FY 2022, FY 2023 and FY 2024.

The FY 2021 – FY 2024 Bryan College Station Transportation Improvement Program Amendment I Analysis

Transit Asset Management Plan

Project #5012 – provides for the rehabilitation of the Brazos Transit District (BTD) downtown parking garage which not only provides parking for numerous downtown destinations such as the Brazos County Courthouse, but also serves as a stop and transfer station for various fixed transit routes, notably the Texas Avenue Express Route. It also functions as the local Greyhound bus depot.

Project #5013 – provides for construction of a new administrative building on the BTD campus located on Earl Rudder Freeway (SH 6). The new facility will allow BTD to expand its administrative staff to meet growing demands on the public transportation services that it provides in Brazos County as well as other counties in Texas.

The FY 2021 – FY 2024 Bryan College Station Transportation Improvement Program Amendment II Analysis

Safety

Project CSJ# 0050-02-117 - State Highway 6 between State Texas Ave South and State Highway 40 added to the TIP. The project will add one lane in each direction and include additional operational improvements including interchange U-turn lanes, collector/distributor lanes and frontage road geometric improvements.

Project CSJ# 0049-09-087 - Business Route 6 between Old Hearne Road and 15th Street. The project replaces continuous center turn lanes with raised medians and constructs sidewalks and replaces the intersection at State Highway 21 and Business Route 6 with an urban intersection. This project was moved from FY 2021 to FY 2022

Project CSJ# 0049-09-076 - Business Route 6 between 15th Street and FM 158. The project replaces continuous center turn lanes with raised medians and constructs sidewalks. Added to the FY 2021 – 2024 TIP

Project CSJ# 0050-01-083 - Business Route 6 between FM 158 to FM 60 Funding update. The project replaces continuous center turn lanes with raised medians and constructs sidewalks.

Project CSJ# 0212-03-050 - FM 158 (William J. Bryan Parkway) between Business Route 6 and State Highway 6. Construction Cost update. This safety project removes continuous center turn lanes and replaces them with raised medians where applicable, incorporates deceleration lanes at accident-prone intersections and adds a shared-use path.

Transit Asset Management

Project #521 – Funding adjustment. This project uses FTA funds for Operating Assistance to maintain the reliability of the public transportation system.

Project #5014 Added to TIP. This project funds BTD Planning staff to manage increasing public transportation system demand.

Project #526 - Funding adjustment. This project uses FTA funds for Operating Assistance to maintain the reliability of the public transportation system.

Project #5014 – Added to the TIP. This project funds BTD Planning staff to manage increasing public transportation system demand.

Project #5015 - Added to TIP. This project funds BTD Planning staff to manage increasing public transportation system demand.

Project #5016 - Added to TIP. This project funds the acquisition of real estate to support expansion of the public transportation system.

Project #5001 - Funding adjustment. This project uses FTA funds for Operating Assistance to maintain the reliability of the public transportation system.

Project #5017 - Added to TIP. This project funds BTD Planning staff to manage increasing public transportation system demand.

Project #5018 - Added to the TIP. This project funds BTD Planning staff to manage increasing public transportation system demand.

Project #5005 - Funding adjustment. This project uses FTA funds for Operating Assistance to maintain the reliability of the public transportation system.

Project #5019 - Added to TIP. This project funds the acquisition of real estate to support expansion of the public transportation system.

Project #5020 - Added to the TIP. This project funds BTD Planning staff to manage increasing public transportation system demand.

The FY 2021 – FY 2024 Bryan College Station Transportation Improvement Program Amendment III Analysis

Safety

Project CSJ# 1318-01-081, FM 2818 to SH 47, this project will construct a 12 foot Shared-use Path and lighting along the north side of the facility to provide a safe route for non-motorized travel.

Transit Asset Management

Project #5021 – provides for the renovation of the Brazos Transit District (BTD) Transfer Point which serves as a stop and transfer station for various fixed transit routes.

Project #5022 - Added to TIP. This project funds the acquisition of real estate to support expansion of the public transportation system.

The FY 2021 – FY 2024 Bryan College Station Transportation Improvement Program Amendment IV Analysis

Amendment IV is comprised of funding adjustments to existing projects within the FY 2021 – 2024 Transportation Improvement Program. In some cases, funding categories were removed or added. In other cases, funding levels were adjusted to meet the realities of current transportation funding. None of the changes involve changes in project description or scope and therefore, the performance measures analysis has remained unchanged. For information on any project, please refer to the performance measures analysis listed above in previous amendments to this document.