HATS

REGIONAL TRANSPORTATION PLAN 2045

www.hatsregionaltransportationplan.org

Harrisburg Area Transportation Study
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— ABOUT RTP 2045 —

The Harrisburg Area Transportation Study (HATS) is the designated Metropolitan Planning Organization (MPO) for Cumberland, Dauphin and Perry counties and their 103 municipalities. It works with federal, state and local agencies and officials from throughout South-Central Pennsylvania, including the City of Harrisburg and Capital Area Transit, to meet the transportation needs of an area covering nearly 1,700 square miles.

In this role, HATS develops a Regional Transportation Plan (RTP), which documents the current status of transportation projects and programs, identifies long-term needs and recommends projects to meet those needs. The long-range RTP sets a framework and priorities for the expenditure of federal transportation funds over a 25-year period.

Current federal surface transportation legislation requires the RTP to:

- have a minimum 20-year planning horizon;
- be updated every four years;
- be based on the latest available estimates and assumptions for population, land use, travel, employment, congestion and economic activity;
- identify an integrated, multimodal transportation system, giving emphasis to facilities that serve important national and regional functions;
- contain operational and management strategies to improve the performance of existing infrastructure to maximize the safety and mobility of people and goods;
- conform to air quality standards;
- provide for multimodal capacity increases based on regional needs and priorities;
- be fiscally constrained by identifying sources "reasonably expected to be available" to implement the plan;
- discuss potential environmental mitigation activities;
- include pedestrian walkway and bicycle transportation facilities;
- include transportation and transit enhancement activities; and,
- provide for public participation, including publication with electronically accessible formats.

In 2019, HATS' lead staff agency, the Tri-County Regional Planning Commission, began updating the RTP, building upon the dynamic approach of the 2040 update. HATS staff, with assistance from seven advisory groups comprised of various local stakeholders and experts, reviewed the region's current transportation system and developed key recommendations to address its long-term needs.

Each group had a specific focus, including: safety and congestion; freight; asset management; environment; alternative modes (bicycle, pedestrian, transit); mobility and accessibility (disabled and elderly); and growth and development (land use). HATS will continue to coordinate with these groups through the implementation of the plan.

The RTP is required to be financially constrained so that cost of the planned transportation projects and programs are within the estimated available future funding.

The required public comment period of the 2045 Regional Transportation Plan is July 1, 2021 to August 31, 2021.

— INTRO —

HARRISBURG AREA TRANSPORTATION STUDY (HATS) STRUCTURE

The Harrisburg Area Transportation Study (HATS) was created in response to the Federal-Aid Highway Act of 1962, which mandated regional transportation planning as a condition for receiving federal funds for transportation projects. Under the law, transportation planning must be supported through a continuing, comprehensive and coordinated (3C) process.

HATS is the designated Metropolitan Planning Organization (MPO) for Cumberland, Dauphin and Perry counties and their 103 municipalities. It works with federal, state and local agencies and officials from throughout South-Central Pennsylvania, including the City of Harrisburg and Capital Area Transit, to meet the transportation needs of an area covering nearly 1,700 square miles.

The area is home to more than a half-million people, with its development patterns and transportation system influenced by its geography and location. It lies within the Capital Region of Pennsylvania; in the fringe of a major urban corridor along the northeastern US coast; in the Appalachian Mountains and their foothills; and in the Susquehanna River Valley.

HATS is comprised of Technical and Coordinating committees:

- The Technical Committee oversees analyses and preparation of plans and studies; reviews transportation items brought before HATS to consider; and makes recommendations to the Coordinating Committee.
- The Coordinating Committee is the policy body, which formally takes action based on Technical Committee input and adopts transportation plans and improvement programs.

Each committee has a chairman, vice-chairman and secretary, elected to one-year terms by voting members.

HATS' lead staff agency, the Tri-County Regional Planning Commission (TCRPC), provides planning and administrative support services, and ensures that the transportation planning process is being carried out in accordance with federal and state regulations.

HATS planning staff prepare the annual Unified Planning Work Program (UPWP), biennial Transportation Improvement Program (TIP), the Regional Transportation Plan and other planning studies supported by the FHWA, the FTA, PennDOT and the municipalities HATS serves. The Congestion Management Process (CMP) is integrated into its overall program efforts as well.

VISION, GOALS & OBJECTIVES

Vision —

A safe, efficient, environmentally responsible and seamless multi-modal transportation system integrated with sustainable land use patterns to serve the mobility and accessibility needs of our residents, businesses and through-travelers.

Goals & Objectives —

1. Provide an efficient, seamless and reliable transportation system:
    - Provide funding priority to preservation and maintenance activities;
    - Address safety and security concerns in all transportation projects and programs.

2. Improve the performance and operation of our transportation system for all modes and all users:
    - Promote efficient management and operation efforts to lessen traffic congestion;
    - Manage access to the transportation system to enhance mobility;
    - Accommodate increasing truck volumes and minimize conflict with passenger vehicles;
    - Expand opportunities for intermodal connections;
    - Identify and address conflicts between various modes, focusing on the needs of youth, elderly, low-income persons and individuals with disabilities.

Bicyclists and pedestrians on the Walnut St. Bridge, Harrisburg

3. Expand transportation choices:
    - Channel transportation funds toward alternate modes;
    - Increase transit ridership and carpooling;
    - Facilitate increased travel by bicycle and pedestrian modes;
    - Encourage innovative transit solutions including BRT, autonomous vehicles and ITS upgrades.

Construction on Routes 11/15 in Penn Twp., Perry County

4. Improve quality of life, promote human health and provide a safe experience for all users:
    - Encourage context sensitive design (aesthetics, urban design, etc.) in transportation corridors;
    - Promote a full range of transportation choices concurrent with development;
    - Identify and pursue innovative opportunities to enhance bicycle and pedestrian accommodations.

5. Reduce environmental impacts:
    - Promote a more direct link between the transportation planning process, project development and environmental enhancement while addressing environmental justice;
    - Implement programs to increase the use of alternate modes and reduce SOVs.

6. Encourage livable communities and efficient land use:
- Focus transportation infrastructure capacity in areas planned for growth;
- Promote land use patterns that encourage or support walking, biking and access to transit.

7. Efficiently utilize existing transportation funds and pursue other funding opportunities for transportation system improvements:
- Bring additional, non-traditional transportation funds to the HATS region;
- Distribute information regarding innovative funding sources and strategies.

8. Implement and evaluate appropriate planning and programming to meet the approved HATS safety goal adopted at the January 2020 HATS Meeting:
- HATS' safety goal is to eliminate crashes, particularly those resulting in fatalities and serious injuries, throughout the region and educate the traveling public on the threats posed by unsafe driving practices such as driving under the influence, distracted, and aggressive driving.
- Toward this end, HATS adopts the annual Safety Performance Measures adopted by PennDOT and will also work toward the overall goal by engaging in an ongoing safety planning effort and development of a safety education program for the region.
- The safety planning efforts will enable HATS to evaluate the results of its efforts and identify any additional actions necessary to accomplish the long-term goal.

PUBLIC PARTICIPATION & OUTREACH

Public education and participation are key to understanding our local communities' concerns and making effective decisions on their behalf.

Amish buggy in Blain, Perry County

With that in mind, HATS' Public Participation Plan accomplishes the following:
- encourages citizens and groups to participate and influence decisions in the development of regional planning processes such as the RTP and the four-year Transportation Improvement Program (TIP);
- assists Limited English Proficiency (LEP) individuals as well as other underrepresented and underserved communities;
- maintains a list of agencies that work with traditionally underserved populations so they can be included in all outreach activities (HATS utilized the outreach work performed by the State Transportation Commission [STC] as part of the 2019 Twelve Year Program [TYP]. These results helped to identify an array of transportation issues that exist across the Tri-County region.);
- provides an ongoing, proactive approach to public involvement and outreach.

Recognizing there is a growing Amish and Mennonite community in the region, HATS has initiated an effort to actively engage members of these communities. With the RTP as the focus, meetings have been held in all three of the region's counties. Discussion topics included horse-and-buggy, bicycle and pedestrian incidents; road and highway conditions; facilities repair and replacement; detours; and other topics.

Plan Development

Throughout the development of the 2045 Regional Transportation Plan, regular updates, including draft chapters, were provided to members of HATS Technical and Coordinating Committees, as well as both stakeholders and the advisory groups established during the development of the 2040 Regional Transportation Plan update.

Flyers were distributed to the region's municipalities and non-profit organizations throughout the fall and winter of 2020/2021 to make these entities aware of the transportation planning process and seek their assistance in the outreach effort. Additionally, the TCRPC/HATS website and social media was routinely used to solicit both general comments and submissions of transportation needs to be considered for inclusion on the Project Pipeline.

As part of the development of the Project Pipeline, meetings with municipalities were held to discuss transportation needs to be added and considered. This process involved the following meetings:

- Carlisle Borough (9/9/2020)
- Halifax Borough (9/17/2020)
- Shippensburg Borough (9/17/2020)
- Susquehanna Township (9/22/2020)
- Hampden Township (9/23/2020)
- South Middleton Township (9/23/2020)
- Lemoyne Borough (9/24/2020)
- Middletown Borough (9/29/2020)
- Derry Township (10/2/2020)
- East Pennsboro Township (10/2/2020)
- Tyrone Township (10/5/2020)
- Lower Allen Township (10/8/2020)
- Harrisburg City (10/29/2020)
- Penn Township (11/3/2020)
- Swatara Township (11/9/2020)
- Duncannon Borough (11/17/2020)
- East Hanover Township (11/19/2020)
- Middle Paxton Township (12/2/2020)
- Silver Spring Township (12/3/2020)
- Marysville Borough (12/10/2020)
- North Middleton Borough (12/10/2020)

Website Analytics (September 1, 2020 - April 1, 2021)

- Visitors: 10,277
- Sessions: 14,872
- Page Views: 30,720
- Average sessions per user: 1.45
- Other PA cities represented: Philadelphia, Lancaster, Pittsburgh, York, Chambersburg, Lebanon, Elizabethtown, Ephrata, State College, Lewistown
- Other U.S. cities represented: Washington, DC; New York, NY; Portland OR; Columbus OH; Chicago IL; San Francisco-Oakland-San Jose CA; Cheyenne WY-Scottsbluff NE; Spokane WA; Boston MA-Manchester NH; Los Angeles CA
- Foreign visitors: Philippines, India, Canada, Tanzania, Ethiopia, United Kingdom, China, Indonesia, United Arab Emirates, Argentina

Official Public Comment Period

The official public comment period for the 2045 Regional Transportation Plan was held from July 1, 2021 - August 31, 2021. During that time, public outreach consisted of notifications sent via email and public meetings/information sessions held with various stakeholder groups in the region.

Public Information Sessions

As part of the official public comment period, HATS staff hosted online public information sessions at the following dates and times:

- July 14, 2021 (click here for recording)
- August 11, 2021(click here for recording)

Notifications

In addition to the public information sessions, notifications were also sent via email that included as attachments the RTP brochure and an overview of the updated Project Development process.

Comments

Comments received through the various outreach methods outlined above prior to July 1, 2021 were incorporated into the draft RTP, as appropriate. As indicated above, the formal public review and comment period occurred from July 1, 2021 to August 31, 2021.

A summary of the comments received during this time frame, and the official HATS responses, are available here and in the RTP Appendices.

IMPORTANCE OF EMERGING TECHNOLOGIES

A number of technologies have had a significant impact on the region's transportation system since the last RTP update.

For example:

- smartphone technology has enabled Uber and other ridesharing applications to begin operating in the region;
- Capital Area Transit and rabbittransit users can now track their bus locations on their smartphones;
- adaptive traffic signal technology has improved the operation of some of our most congested corridors; and,
- Global Positioning System (GPS) technologies are now widely available in cars and trucks, enabling drivers to more easily reach their destinations and deal with detours and other unexpected conditions.

Emerging technologies that improve safety and traffic flow -- most notably connected and autonomous vehicle technology (CV/AV) -- have the potential to substantially change how our transportation system operates within the RTP's planning period. For example:

- trucks will regularly operate in connected "platoons";
- transit vehicles will be driverless; and,
- automobiles will be highly autonomous and/or connected.

These developments could enable connected vehicles to travel much closer together, reducing driver distractions, accidents and injuries while also increasing existing roadway capacity.

These technologies are changing so rapidly, however, that it is impossible to predict their impact over a 20-year planning horizon. As an alternative to making predictions, this plan recognizes the technologies already impacting transportation in the region along with those expected to have the greatest potential impact in the near term.

This section of the plan will be updated regularly as new technologies emerge and their impacts are better understood.

Adaptive Traffic Control Systems —

(Source of material in quotes: Federal Highway Administration)

Cameron and Market streets, Harrisburg

"Poor traffic signal timing contributes to traffic congestion and delay. Conventional signal systems use pre-programmed, daily signal timing schedules. Adaptive signal control technology adjusts the timing of red, yellow and green lights to accommodate changing traffic patterns and ease traffic congestion. The main benefits of adaptive signal control technology over conventional signal systems are that it can:

- Continuously distribute green light time equitably for all traffic movements;
- Improve travel time reliability by progressively moving vehicles through green lights;
- Reduce congestion by creating smoother flow;
- Prolong the effectiveness of traffic signal timing.

"The process is simple. First, traffic sensors collect data. Next, traffic data is evaluated and signal timing improvements are developed. Finally, ASCT implements signal timing updates. The process is repeated every few minutes to keep traffic flowing smoothly. On average ASCT improves travel time by more than 10 percent. In areas with particularly outdated signal timing, improvements can be 50 percent or more . . .

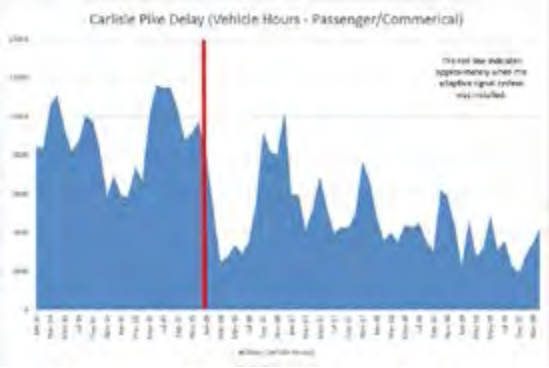
"Special events, construction, or traffic incidents typically wreak havoc on traffic conditions. While large-scale construction projects and regular events can be anticipated, determining their impact on traffic conditions can be extremely difficult. Other disruptions, such as crashes, are impossible for time-of-day signal timing to accommodate . . .

"Outdated traffic signal timing incurs substantial costs to businesses and consumers. They account for more than 10 percent of all traffic delay and congestion on major routes alone. For consumers, this causes excess delays and fuel consumption. For businesses, it decreases productivity and increases labor costs. According to the Texas Transportation Institute, the cost of traffic congestion is $87.2 billion in wasted fuel and lost productivity. That translates to $750 per traveler . . .

"Adaptive signal control technologies are also kinder to the environment. Using ASCT can reduce emissions of hydrocarbons and carbon monoxide due to improved traffic flow."

Adaptive signals have been installed within the HATS region in portions of the Carlisle Pike and Jonestown Road corridors. The charts below show the vehicle hours of delay, for both passenger and commercial vehicles, along the Carlisle

Pike and Jonestown Road corridors where ASCT signalization is installed. The charts show data beginning in January 2014 and go until December 2019. The red lines in each chart note the approximate time period in which the adaptive signals went live.



HATS will review congestion along these corridors and other signalized corridors throughout the region as part of the upcoming Congestion Management Process update. As part of the upcoming CMP, HATS will continue to monitor congestion and delay on these two corridors to Adaptive signal control technology will be considered for other signalized corridors identified as highly congested as a possible means of reducing congestion without substantial infrastructure investments.

GPS-Related Technologies —

Global Positioning System (GPS) technology is based on a number of government-owned satellites that allow for highly accurate positional information at any location on Earth. GPS mapping applications are now nearly universal in passenger vehicles, trucks, trains and aircraft as a directional aid that typically provides visual and audible directions to any designated location.

GPS technology has also facilitated a number of applications that provide directional guidance for users, in many cases providing specialized service like detour guidance for congestion, accidents and road closures. Examples include Google Maps, Waze and many others. Such applications are likely to become even more numerous and provide enhanced services throughout the planning period, thereby helping to reduce congestion.

However, directional GPS technologies have also led to problems with trucks in residential and rural areas because drivers are simply following the GPS directions. HATS plans to investigate the potential for working with GPS providers in identifying such constraints as vertical clearances and restricted bridges so trucks can be directed to the most appropriate routes.

GPS technology is also a critical component in the growth of microtransit services, such as rabbittransit's Stop Hopper service, as well as other ridesharing applications like Uber and Lyft. Microtransit is an app-driven, demand responsive, zonal-based transit service currently used around Pennsylvania in fixed route first-and-last mile solutions and where fixed route transit service may not be viable, among others. Several areas in the HATS planning region are being considered for microtransit service expansion. While private-sector Uber and Lyft services can be easily accessed in the urban and suburban portions of the planning area, they are not viable options in rural areas like northern Dauphin County, Perry County or western Cumberland County. These services may take advantage of driverless vehicle technology in urban areas in the future. HATS intends to track the expansion of microtransit and applications like Uber and Lyft to study their impact on overall traffic conditions and travel throughout the HATS region.

Today's transit vehicles also take advantage of GPS technology through the FRITS (Fixed Route ITS) system being

installed throughout the state.CAT buses are currently undergoing the upgrade to the new technology. Through the FRITS system information, automatic passenger counters (APCs) collect rider data by bus stop, and fixed route operations can track the location and operation of buses in service. Riders can track the location of their bus and estimated stop arrival times through the MyStop app. HATS intends to work with transit provider stop determine their usage and impact on overall ridership, potentially assisting in educational campaigns if it is determined that awareness of such technology increases transit ridership.

Air travel is also being enhanced through GPS technology. "FlightAware," "FlightRadar 24," "Trip Tracker" and many others enable users to verify the precise location of a specific aircraft and make plans in the event of delays, etc. Updates to flight schedules can be sent directly to smartphones, allowing for much more accurate passenger arrival and pickup times.

Connected & Autonomous Vehicles —

Automated or autonomous vehicles (AV) are cars, trucks or buses that take full control of all aspects of the dynamic driving task for at least some of the time. A connected vehicle (CV) has internal devices that connect it to other vehicles, as in vehicle-to-vehicle (V2V) communication, or a back-end infrastructure system as in vehicle-to-infrastructure (V2I) communication. V2V applications enable crash prevention and V2I applications enable telecommunication, safety, mobility and environmental benefits.

At TCRPC's May 2018 luncheon, national expert on automated and "connected" vehicles Matt Smith (left), of Michael Baker International, previewed what local governments and communities can expect when driverless cars and trucks take to the roads in the future.

Implementing CV technology requires vehicles to be able to communicate, with "Dedicated short-range communication" (DSRC) currently being the leading medium for such applications. At present, V2V and V2I applications only provide driver alerts and do not control vehicle operation.

As more vehicles become automated and connected, they have the potential to profoundly change personal, freight and public transportation. As producers sell AVs and CVs and consumers buy them, crashes, traffic congestion, air pollution and other impacts associated with travel may significantly diminish.

On the other hand, because technology can solve some problems and create new ones, AVs and CVs may have drawbacks and risks. For example, cybersecurity vulnerabilities associated with CVs could compromise safety. Also, congestion could increase with the proliferation of AVs as driving becomes less onerous and individuals who do not drive today have more opportunities for travel.

There is significant debate about the implementation rate for CV and AV technologies and their likely impacts. Given how quickly these technologies have grown, their impacts will certainly be felt long before this plan's 20-year horizon.

Given the potential of these technologies to significantly improve safety and reduce congestion on our roadways -- minimizing crashes, facilitating the movement of freight, reducing single occupancy travel through ridesharing and transit applications -- it is HATS' policy to facilitate their implementation.

As an initial step in a proactive approach, TCRPC led a study to assist PennDOT District 8's planning partners and MPOs/RPOs across the Commonwealth with the implementation of DSRC technology. The study helped to define

and discuss connected and autonomous vehicle technology, summarize DSRC V2I deployment impacts and priorities, and provide cost/design considerations for implementation. V2I technology has been deployed within 19 states, with Harrisburg and Pittsburgh having some V2I infrastructure deployed and Philadelphia in the process to install infrastructure throughout the city. The study completed in 2019 helps prioritize corridors and will help integrate MPO planning efforts into future TIPs.

HATS' most appropriate roles at this point appear to be education/outreach relating to these technologies to reduce residents' fears associated with their use and in the deployment of DSRC technology as a means to facilitate the most rapidly deployed components of CV applications.

As such, HATS should meet periodically with PennDOT and other leaders in this field to explore educational opportunities and any financial commitments necessary to most effectively deploy DSRC (or related, as appropriate) technology.

REGIONALLY INTEGRATED TRANSPORTATION SYSTEM COMPONENTS

The Harrisburg region's centralized location makes it a transportation hub, served by a diverse transportation system including several interstates, intermodal and freight centers, freight and passenger rail, transit and a non-motorized network.

Roadways & Bridges —

Harrisburg's highway and bridge network, with 5,000 miles of roadway, is used most often by the region's residents and commuters. Being on the Federal Aid System is a common denominator when it comes to funding transportation improvements with federal dollars. In the HATS region, approximately 1,700 miles of roadway are on the Federal Aid System.

The region is served by many major highways on the National Highway System (NHS), including I-81, I-83, I-76 (PA Turnpike), I-283, US 11, US 15, US 22, US 322, US 422, PA 283, PA 581, PA 230 and the Airport Connector (SR 3032). In total, the three counties have 323 linear miles of the NHS.

Below the NHS, the region's remaining minor arterials and major collectors comprise the Harrisburg area's Federal-Aid Highway System. As the name suggests, Federal-Aid roads are eligible for construction, maintenance and operation funding. They are critical to the HATS region, providing linkages between the NHS and local communities. Some notable Federal-Aid roads in the region include US 209, PA 34, PA 74, PA 147 and PA 225.

When they are sound, bridges are often taken for granted by the average motorist. But in cases where they cannot accommodate modern loads or traffic volumes, bridges can exact significant costs in time and fuel as users are forced to detour to their destination.

Bridges are eligible for federal funding when they are over 20 feet. In every case, a bridge's sufficiency rating determines its federal funding eligibility. Sufficiency ratings between 50 and 80 are eligible for rehabilitation

"Share the Road" sign in Hershey

funding. A bridge is eligible for replacement funds when its sufficiency rating is below 50. More information on bridge condition can be found in the Asset Management chapter of the 2045 Regional Transportation Plan.

Bicycle, Pedestrian —

Existing Bike-Ped Facilities:

The HATS region boasts many important bicycle and pedestrian facilities. The City of Harrisburg is home to the Capital Area Greenbelt, a 20-mile loop trail connecting downtown to the surrounding neighborhoods and communities, including the new extension to Fort Hunter Park. The Jonathon Eshenour Memorial Trail is a 13.5-mile multi-use trail connecting parks, commercial areas and neighborhoods in Derry Township. The Cumberland County Rail Trail currently connects Newville to Shippensburg Borough, with connections to Carlisle currently underway. Other important bicycle and pedestrian trails include the Stony Valley Rail Trail and Lykens Valley Rail Trail in northern Dauphin County and the Appalachian Trail, which runs through the HATS region from southwest Cumberland County to northeast Dauphin County.

Finally, PennDOT's State Bicycle Route J is located along Route 11/15 in Cumberland and Perry counties. On the west side of the Market Street Bridge in Wormleysburg, it splits into three branches heading to various points south.

Transit —

Fixed-route transit is provided in the HATS region by Capital Area Transit, with local routes serving locations in Cumberland and Dauphin Counties and commuter service connecting to Gettysburg, York, and Lebanon. CAT operates more than 30 routes including express routes to Shippensburg, Carlisle and Hershey Park.

These fixed-routes connect to Amtrak stations in Harrisburg and Middletown, as well as Harrisburg International Airport, enabling connections well beyond the HATS region. At the other end of the spectrum, CAT facilitates "last mile" connections by accomodating bikes on all local and commuter buses.

Rail —

Amtrak

The HATS region supports two Amtrak passenger stations. The Harrisburg Station (HAR) is located in the Harrisburg Transportation Center and saw a total of 504,192 on/offs in 2017. This station is the western terminus of the Keystone service, which provides access to most of the eastern seaboard. The Pennsylvanian service runs once daily through Harrisburg, providing service to Pittsburgh and points west.

The second station in the region is located in Middletown (MID). This station only provides access to the Keystone service, with transfer available at other stations. Amtrak service between Harrisburg and Middletown is used for commuting as well as business and leisure travel. The station saw a total of 68,132 on/offs in fiscal year 2017.

The eastern portion of Amtrak's Keystone Corridor, the primary service connecting Harrisburg and Philadelphia, is currently seeing construction of new stations and facilities and improvements at others, including the Middletown station.

Norfolk Southern

The area is also served by Class I railroad Norfolk Southern. It is the region's primary provider of rail freight service, with over 198 miles of track in the three-county region. Norfolk Southern is currently investing millions of dollars to improve the segment of the Crescent Corridor that traverses the HATS region.

The Norfolk Southern Harrisburg Line is expected to remain critical and is currently expanding capacity. Intermodal shipments, converted to trucks at a rail intermodal yard (e.g. NS Rutherford and Harrisburg Yards), are the fastest growing segment of the rail industry. Norfolk Southern's intermodal yards also represent two of four National Highway System intermodal connectors in the region -- a federal designation noting the importance of these facilities for goods movement. It also applies to facilities that are essential to people movement such as the Harrisburg Transportation Center and Harrisburg International Airport, an NHS connector that moves both people and freight.

Rutherford rail yard, Swatara Twp.

Short Lines

The **Steelton and Highspire Railroad** provides access between Pennsylvania Steel Technologies on the former Bethlehem Steel site in Steelton and Highspire boroughs and Norfolk Southern's operations along the Amtrak Keystone Corridor.

The **Middletown and Hummelstown Railroad** (M&H) operates a short-line railroad between its namesake communities in southern Dauphin County. In Hummelstown, the line connects with the Norfolk Southern Harrisburg line. The railroad has four at-grade crossings, including a notable one across US 322. This crossing in particular limits crossings to Hummelstown at 12 per year, which minimizes freight movement along the line. The line also features several shippers that would not survive without rail freight access. In addition to freight services, the M&H also provides passenger excursion trips from Middletown.

The **Gettysburg and Northern Railroad** operates a 25-mile long line between Gettysburg in Adams County and Mount Holly Springs in Cumberland County. In Gettysburg, the line interchanges with CSX; in Mount Holly Springs, it interchanges with Norfolk Southern. In 2017, the railroad received $107,250 in state funding to rehabilitate and install a new turnout to an existing dead-end stub track siding to create a 2,400 turnaround track.

Air —

The region is served by two primary airports: Harrisburg International Airport (HIA) in Lower Swatara Township, Dauphin County, and Capital City Airport (CCA) in Fairview Township, York County.

HIA is south-central Pennsylvania's primary passenger and air freight facility while CCA provides general aviation services. Since January 2, 1998, both HIA and CCA have been owned and operated by the Susquehanna Area Regional Airport Authority (SARAA).

HIA is Pennsylvania's third-largest passenger airport. Most major US airline carriers and their subsidiary regional carriers serve the airport. It also houses an air cargo apron used by UPS, Fedex and American Airlines. The airport is about 800 acres in size and has one 10,004-foot-long runway. Air traffic is controlled by the Federal Aviation Administration. The airport also has a US Customs facility to handle international activity.

Harrisburg International Airport (courtesy Buchart Horn)

In addition to its general aviation services, CCA functions as a reliever airport for HIA, handling excess aviation operations that would overburden or create safety hazards at HIA. CCA has two runways measuring 5,001 feet and 3,925 feet. The shorter secondary runway is used mainly to avoid aircraft conflicts with HIA, which is located three miles to the east and has intersecting flight patterns with CCA. CCA also provides aircraft maintenance services and flight instruction classes.

Several other general aviation facilities also serve the region, including:

- Carlisle Airport
- Bendigo Airport
- Shippensburg Airport
- Penn Valley Airport
- Gettysburg Regional Airport
- Franklin County Regional Airport

All of the region's airports have a significant impact on the local and state economy, as shown in the table below:

Airport	Location	Type	Economic Output
Harrisburg International (HIA)	Lower Swatara Twp., Dauphin Co.	Commercial Service	$946,577,100
Capital City (CCA)	Fairview Twp., York Co.	General Aviation	$42,242,700
Carlisle	Carlisle, Cumberland Co.	General Aviation	$6,953,300
Shippensburg	Shippensburg, Cumberland Co.	General Aviation	$3,700
Bendigo	Tower City, Schuylkill Co.	General Aviation	$244,400
Penn Valley	Selinsgrove, Snyder Co.	General Aviation	$3,895,100
Gettysburg Regional	Gettysburg, Adams Co.	General Aviation	$736,200
Franklin Co. Regional	Chambersburg, Franklin Co.	General Aviation	$1,822,600

Source: The Economic Impact of Aviation in Pennsylvania (2011), PennDOT Bureau of Aviation

• SYSTEM DEMAND •

SAFETY

See Safety map in Appendix

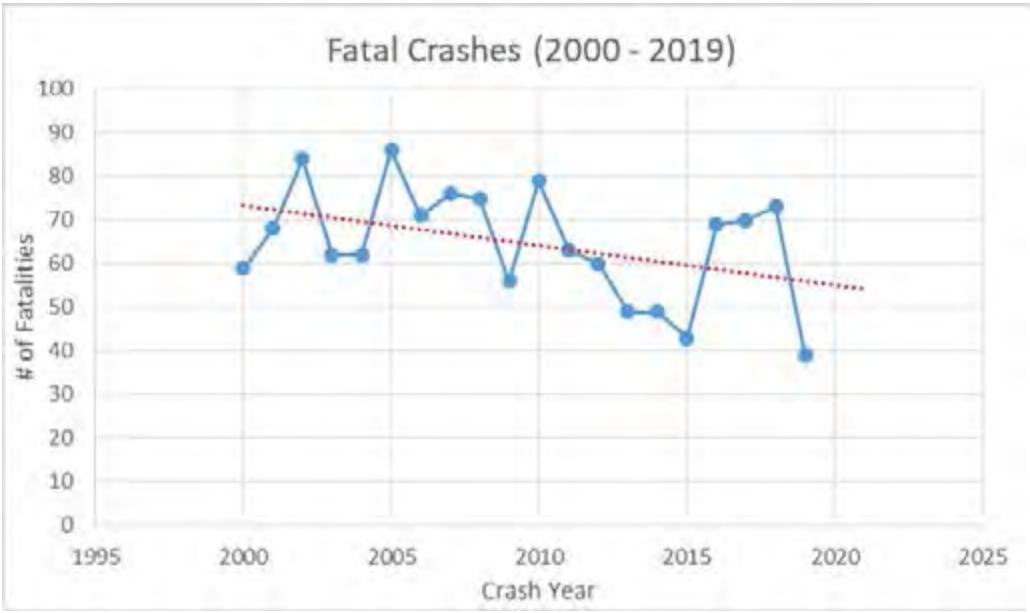
Coordination with PennDOT District 8-0 has resulted in the identification of priority crash segments in the HATS region where the actual number of crashes exceeds the predicted number of crashes, which are calculated based on road conditions and crash history. The segments depicted in the map reflect areas that have a repeated number of crashes or "crash clusters" as identified by PennDOT. "Crash cluster" locations can be used as an initial identification for focus areas in order to analyze underlying causes of vehicle crashes.

In January 2020, the HATS Technical and Coordinating committees adopted a safety motion reaffirming the ultimate goal of eliminating crashes in the Tri-County region. The motion emphasized reducing crashes that result in fatalities and serious injuries, in part by educating the public about unsafe driving practices such as distracted and aggressive driving as well as driving under the influence. As a result of this motion, HATS is engaging in an ongoing safety planning effort and is working to create partnerships with organizations and agencies in the region to promote safety. This includes regional Traffic Incident Management (TIM) teams and other special interest groups.

In February 2021, HATS committees adopted the PennDOT 2017-2021 state targets for performance measure for safety improvement, which calls for a 2 percent annual reduction in fatal and major injury crashes based on five-year running average crash rates. By adopting PennDOT targets, HATS agreed to plan and program projects which directly support these safety targets to reduce the number of fatalities, serious injuries, and reportable crashes in the HATS region.

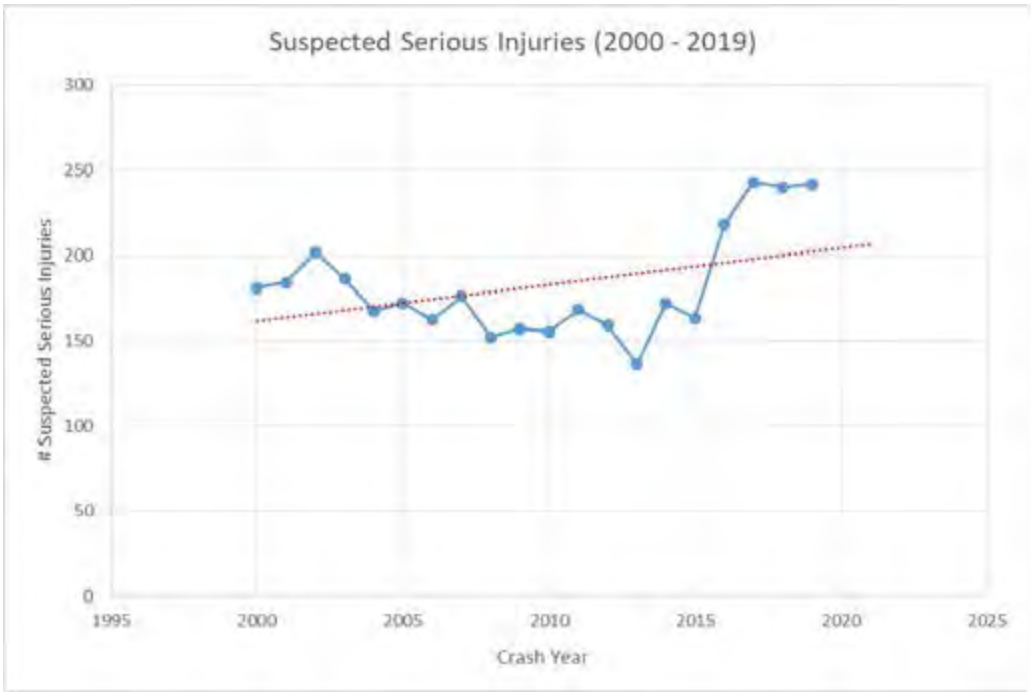
As part of the adoption of the PennDOT State Targets and the ongoing safety data collection efforts, HATS staff has compiled some of the key safety data points for PM-1 into 20 year trends. Below are three figures which show motorized

vehicle fatalities, motorized vehicle suspected serious injuries, and non-motorized fatalities and suspected serious injuries from 2000 to 2019 (the latest year of crash data).



Source: PennDOT

The above chart shows the latest 20 year trend of motorized vehicle fatalities. Overall, it can be seen that there is a general downward trend in vehicle fatalities. Below is a chart noting the trends in suspected serious injuries within the HATS region. Starting in 2016, there is a significant increase in suspected serious injuries. This is due to both safety enhancements in motor vehicles that have reduced fatalities and a change in injury classification.



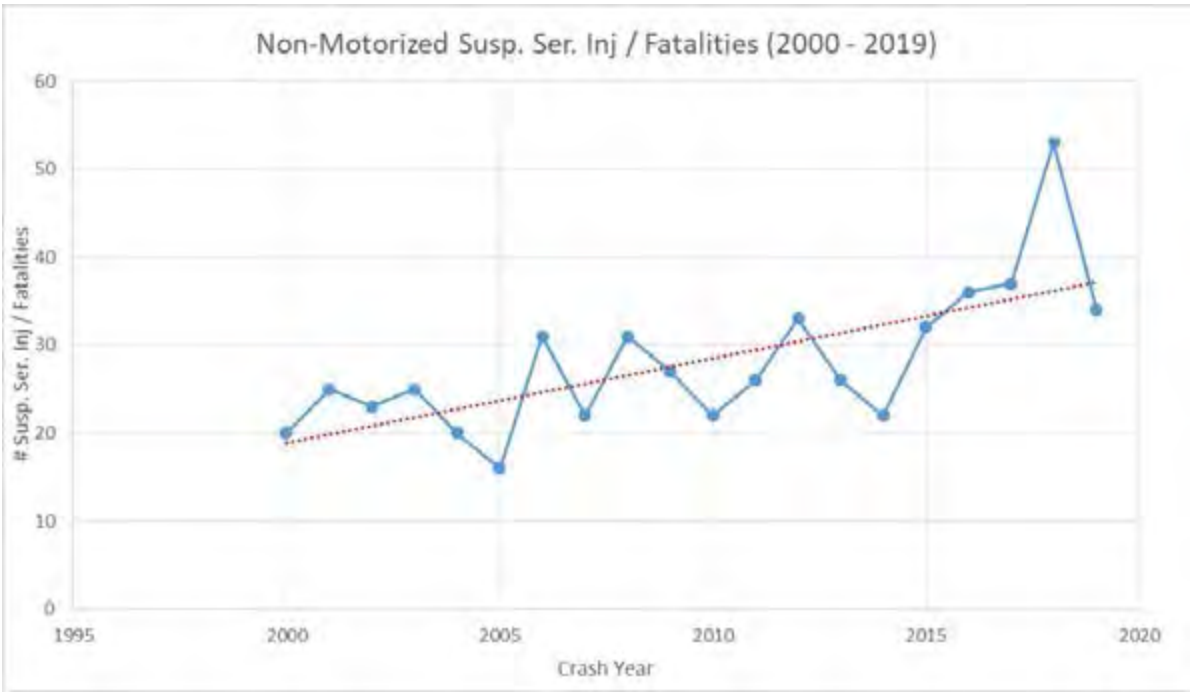
Source: PennDOT

A note from PennDOT's Pennsylvania Crash Information Tool:

> *"that beginning January 1, 2016, PennDOT adopted the Federal standard for collecting injury severity data. The field descriptions and definitions changed from the state standard*

that had been in use for decades. This resulted in a substantial shift in severity levels. Therefore, comparison of the "Suspected Serious Injury", "Suspected Minor Injury" and "Possible Injury" categories will not be consistent for crashes taking place before versus after the adoption of the new standard."

Below is a chart noting trends in non-motorized fatalities and suspected serious injuries within the HATS region. The PennDOT targets and PM-1 combines suspected serious injuries and fatalities for non-motorized vehicles. There has been an overall increase in non-motorized fatalities and suspected serious injuries.



Source: PennDOT

In an effort to meet the performance targets and overall goal of eliminating fatal and serious injury crashes, HATS has also adopted a process of conducting detailed studies in corridors like those depicted here or as otherwise identified by constituent municipalities where crash causes and roadway conditions are evaluated, enabling a range of recommendations to be made to reduce future crashes. These may include large-scale engineering improvements, but also low-cost safety improvements, often using Highway Safety Improvement Program (HSIP) funding. Examples of low-cost improvements include curve warning signs, tree cutting, lighting and pavement markings. These are characterized by high cost-benefit ratios and short implementation times. HATS has been successful in completing corridor-based safety studies and programming implementation projects so the recommendations can be rapidly implemented once such studies are completed. While this approach has been historically successful, HATS intends to refine this approach through a more detailed and ongoing analysis of crash data across the region.

Publicly available datasets dating back to the year 2000 have been downloaded and stored in a central repository. This data gives HATS a greater capacity to analyze longer term trends of data. Additionally, HATS staff has created an online GIS web application which allows the public to view, filter, and select crash data. The application can be accessed here. Building on this online tool, HATS staff, with consultant assistance, are developing an analysis tool to more accurately define regional priority corridors, intersections, and segments for further study in an effort to further optimize our programming efforts aimed toward safety enhancement.

An example of the current approach to safety planning can be seen through the I-81 Improvement Strategy that is currently ongoing in cooperation with the Franklin County and Lebanon County MPOs. PennDOT conducted a study in 2018 to update the cost estimate found in the 2005 I-81 Widening Study to widen I-81 from the Mason-Dixon Line to the interchange with I-78, resulting in an estimate of approximately $3,000,000,000.

Recognizing the wide variety of safety, congestion and asset condition along this nearly 100-mile corridor, the I-81 Improvement Strategy is designed to take a detailed look at available data along the corridor and identify a range of conceptual improvements closely tailored to address the range of existing needs. Partnering with PennDOT, FHWA, and key stakeholders along the corridor, it is hoped that this effort can transition directly into the design phases for short-, medium, and long-term improvements that can be accommodated within available funding levels. The Improvement Strategy planning efforts began in Fall 2019 with initial planning. Estimated completion of the Improvement Strategy is scheduled for Summer 2021.

Key Recommendations —

- Based on the listing of top crash corridors provided by PennDOT and the safety planning tools under development by HATS, and in coordination with the region's municipalities and stakeholders, conduct a series of corridor studies that seek to identify a range of recommended safety improvements.
- Integrate implementation of corridor studies and/or other safety planning efforts into existing Project Pipeline process, minimizing delay between the planning and construction phases for safety enhancements.
- Annually update crash data and evaluate conformance with the safety performance measures adopted as part of this plan. This ongoing effort will be used to focus safety programming efforts and evaluate crash frequency in areas where improvements have been implemented as part of the RTP process.
- Establish a safety education program within the HATS region build upon the TIM Team initiative and promote safe transportation practices consistent with FHWA and PennDOT guidance.

ASSET MANAGEMENT

In 2019, PennDOT adopted a Transportation Asset Management Plan (TAMP), as required of each state department of transportation by MAP-21 and the FAST Act. The TAMP established targets for National Highway System (NHS) pavement and bridge condition, summarized and forecasted Pennsylvania's inventory of NHS pavement and bridge assets, and outlined Pennsylvania's asset management processes. While future editions would incorporate additional non-NHS assets, the 2019 TAMP focused on NHS pavement and bridge assets only.

In accordance with MAP-21 and FAST ACT legislation, PennDOT now utilizes a Lowest Life Cycle Cost (LLCC) method for their asset management program. LLCC is an asset management strategy which focuses on asset preservation and well-timed maintenance activities to extend the operational life of assets with a lower annual cost (when compared to the worst-first strategy). This LLCC asset management strategy replaces the worst-first strategy which prioritized assets in the poorest condition first without consideration of an asset's remaining life. LLCC is intended to increase funding efficiency and maximize asset lifespan. For more information on PennDOT's Lowest Life Cycle Cost approach, click here.

In development of the 2045 RTP and coordination with municipalities, a need for the collection and analysis of condition data for locally owned, federal aid eligible assets was repeatedly identified. To ensure the transportation assets of the region are being considered in a comprehensive manner, HATS staff will work to establish a process to collect and analyze data on these assets to ensure equal consideration in project selection and development.

CURRENT CONDITIONS

The HATS region has nearly 5,000 miles of roadway with nearly 1,700 miles on the Federal Aid System:

County	Federal Aid Mileage
Cumberland	569.37
Dauphin	699.7
Perry	422.96
Total	**1692.03**

Looking at the overall comparison of pavement quality in the HATS region, there has been improvement. Fair and poor segment miles have seen a slight decrease while Excellent and Good segment miles have seen an increase. Between 2014 and 2018, there has been an improvement of approximately 35 "Excellent" segment miles on Federal Aid roadways in the region while "Poor" segment miles have seen a decrease of the same amount, most likely due to recent resurfacing projects.

Reported in inches per mile, International Roughness Index (IRI) ratings provide a metric which illustrats the smoothness of the ride on a surveyed stretch of road. While IRI provides a rating for the road, the evaluation of that rating varies depending on characteristics of the road itself. IRI evaluation and overall rating of a road depends on which business plan network it falls in. PennDOT's breakdown of IRI evaluation is shown in the following graphic:

As shown below, the median IRI ratings for all business plan networks in the Federal Aid System fall within "Good" or "Excellent" ranges.

Roadway Condition - 2020						
Business Plan Network	Excellent Segment Miles	Good Segment Miles	Fair Segment Miles	Poor Segment Miles	Median IRI Rating	Median Rating Condition
Interstate	82.57	29.58	20.87	6.49	63	Excellent
NHS, Non-Interstate	81.02	139.25	62.63	31.31	102	Good
Non-NHS, >2000 ADT	213.23	237.98	76.73	35.36	117	Good
Non-NHS, <2000 ADT	173.67	275.50	145.04	142.53	155	Good
Total - Roadway	550.49	682.31	305.27	215.69		

As shown below, from 2014 to 2018, segment miles rated excellent and good increased, while segment miles rated fair and poor decreased. However, from 2018 to 2020, segment miles rated excellent and poor increased, while segment miles rated good and fair decreased. The end result has been a general improvement in pavement condition since 2014.

These trends illustrate the impacts of the new LLCC approach. The number of poor segment miles in 2020 is roughly equal to the number of poor segment miles in 2014. At the same time frame, the reduction in good and fair segment miles is roughly equal to the increase in excellent segment miles. These are the kinds of impacts we can expect with a shift away from a "worst first" approach and toward the LLCC approach.

Change from 2014					
Business Plan Network	Excellent Segment Miles	Good Segment Miles	Fair Segment Miles	Poor Segment Miles	Median IRI Rating
Interstate	12.77	(6.92)	(5.03)	(1.01)	(7.00)
NHS, Non-Interstate	17.62	(5.05)	(14.77)	2.31	(6.00)
Non-NHS, >2000 ADT	(4.07)	24.56	(20.47)	(11.14)	(2.00)
Non-NHS, <2000 ADT	12.87	(28.30)	12.84	12.13	3.00
Total - Roadway	39.19	-15.6853	-27.4815	2.2913	

The summary of bridge condition in the HATS region is shown below.

Bridge Condition - 2020					
Business Plan Network	Total Bridge Count	Bridges Rated "Good"	Bridges Rated "Fair"	Bridges Rated "Poor"	Percent Rated "Poor"
Interstate	134	14	117	3	2.24%
NHS, Non-Interstate	223	52	164	7	3.14%
Non-NHS, >2000 ADT	289	83	179	27	9.34%
Non-NHS, <2000 ADT	441	133	253	55	12.47%
Total State Bridges	1,087	282	713	92	8.46%
Local >20'	241	142	50	46	19.09%

Since 2018, when PennDOT instituted a new bridge condition rating system and the LLCC approach, bridge condition has stayed relatively consistent in the HATS region. There has been a reduction in both number and percent deck area of state bridges rated "poor". While there was a slight increase in the number of local bridges rated "poor", there was a reduction in percent of deck of local bridges rated "poor". This illustrates the need for HATS to focus on the collection and analysis of condition data for locally owned assets to ensure equal consideration in the project selection and development process.

Change from 2018					
Business Plan Network	Closed Bridges	Posted Bridges	Poor Count	Percent Rated Poor	Percent Poor Deck Area
Interstate	0	0	0	0.02%	0.00%
NHS, Non-Interstate	1	0	0	0.00%	0.00%
Non-NHS, >2000 ADT	0	-2	-3	0.00%	-2.58%
Non-NHS, <2000 ADT	0	1	1	0.00%	0.00%
Total State Bridges	1	-1	-2	0.00%	-0.68%
Local >20'	3	-2	4	0.91%	-0.60%

Key Recommendations:

- Continue coordination with PennDOT to select projects for future TIP updates to address assets with the Lowest Life Cycle Cost methodology;
- Work with municipalities and PennDOT to collect and analyze data on locally owned, federal aid eligible assets to ensure equal consideration in project selection and development.
- Consider a program to assist municipalities in data collection and capital improvement programming for local bridge and roadway projects;
- Continue coordination with the necessary agencies to measure progress and work toward asset management performance targets for pavement and bridges (PM-2).

See Asset Management map in Appendix

MOBILITY & ACCESSIBILITY

See Mobility & Accessibility map in Appendix

In transportation planning, mobility and accessibility refers to the ability of users to move through the transportation system (mobility) and how users connect to places within the transportation system (accessibility). Mobility is typically concerned with addressing issues of efficiency and capacity, while accessibility focuses on travel modes, comfort, and safety.

Federal regulations such as Title VI, Environmental Justice, and the Americans With Disabilities Act require and allow HATS to account for the needs of the disabled and elderly (individuals aged 65 years and older) as well as the underrepresented and underserved communities of our region. While most people associate the disabled community as individuals who are physically impaired (i.e. wheelchair, walker and scooter users), this community also factors in those that are sensually impaired such as visual and hearing disabilities. According to the American Community Survey, 5 percent of citizens in our region currently live with a sensory disability (vision and hearing).

According to 2019 American Community Survey estimates from the US Census Bureau, the HATS region's disabled population accounts for approximately 12.1 percent, while the elderly population accounts for 17.3 percent. Heavy concentrations of the elderly population can be found in Carlisle Borough and Middlesex Township in Cumberland County, and in Harrisburg and Hummelstown and Steelton boroughs in Dauphin County -- partly because retirement communities and assisted living facilities are located in these areas. Heavy concentrations of the disabled population can be found in Carlisle, Mechanicsburg and Shippensburg boroughs in Cumberland County; Harrisburg, Derry Township and Hummelstown Borough in Dauphin County; and Liverpool Borough and Carroll, Tuscarora and Tyrone townships in Perry County. The portion of the population that is both disabled and elderly are primarily found in Carlisle and Mechanicsburg boroughs in Cumberland County; Lower Paxton, Susquehanna and Washington townships in Dauphin County; and Miller, Penn and Wheatfield townships in Perry County.
While Cumberland County and southern Dauphin County's populations are well served by fixed route transit provided by Capital Area Transit, there is always a need for dependable paratransit. Rabbittransit serves as Perry County's paratransit provider. Other programs that serve the elderly and disabled can be found in the HATS 2015 Coordinated Human Services Plan.

With the help of a Mobility and Accessibility Committee, HATS was able to identify focus corridors and prioritize the transportation needs of the disabled and elderly populations in the region. This group represented a variety of organizations that assist or represent disabled and elderly individuals. It was determined that there were many gaps in facility networks that are essential to the disabled and elderly population.
To begin identifying these gaps and addressing this issue, a Regional Sidewalk Inventory was developed to evaluate and map sidewalk presence, condition, and material along the HATS transportation system. The Regional Sidewalk Inventory can be viewed in the online interactive web mapping application.

An older couple walking on the Capital Greenbelt in Wildwood Park, Harrisburg

Key Recommendations —

- Coordinate with the Mobility and Accessibility committee on a regular basis to continue the ongoing evaluation of the transportation needs of these populations;
- Continue work with regional transit and paratransit service providers to ensure equitable access for all populations;
- Engage with public, regional partners and stakeholders on Regional Coordinated Public Transit-Human Services Transportation Plan Update being conducted for Adams, Franklin, York, Cumberland, Dauphin, and Perry Counties;
- Create and maintain a listing of transportation services in the HATS region.

CONGESTION (CMP) / TRANSPORTATION SYSTEMS MANAGEMENT & OPERATIONS

See Congestion Management map in Appendix

HATS undertakes an ongoing Congestion Management Process (CMP), with a report generated about every five years. These plans were adopted in 2003, 2008, 2013, and 2017. The MPO also conducts corridor-specific or regional congestion analyses for key areas on an as-needed basis. Such plans have included:

- Congested Corridor Improvement Program Carlisle Pike;
- Congested Corridor Improvement Program US 11/15; and
- Cumberland & Perry Counties Safety & Congestion Study.

The complete content of the 2017 CMP report and the studies listed above are all available on the TCRPC website. In an effort to ensure that the HATS CMP is flexible and evolves to meet changing and current conditions, the RTP contains a summary of the 2017 CMP report's key recommendations, but also looks at how congestion has changed over the past 15 years as a means of projecting future change throughout the planning period. The 2017 CMP recommendations include:

- Review the priority congested corridors and intersections and other congested intersections with planning partners to further prioritize and provide a more detailed assessment of congestion mitigation strategies. This would include making short- and long-term improvements and proposing estimated costs.
- Integrate the CMP priority corridors and intersections and other congested intersections into the RTP project priority ranking process. Projects in priority areas are given high benefit and receive a higher point value. This system of ranking criteria allows projects to be prioritized based on quantitative factors, with the expectation that high priority projects will generate the most benefit to the regional transportation network.
- Integrate performance measures into the CMP as part of the May 2017 updated federal rulemaking (23 CFR Par 490 Subparts E, F, G, H) as required by the Moving Ahead for Progress in the 21st Century (MAP-21) Act and the Fixing America's Surface Transportation (FAST) Act. State DOTs along with MPOs are now required to establish congestion performance measures and set targets as part of the rulemaking. HATS will work with FHWA and PennDOT to establish performance measures and associated

Congestion on HATS region roadways, including I-83 South in Dauphin County, I-81 North in Cumberland County, Route 39 in Dauphin County and 3rd Street in Lemoyne

targets through various means such as training and workshops.

- Analyze congestion in more detail on the limited access roadways, including I-83, I-81, I-283 and PA 581. Analyze locations from interchange to interchange and between interchanges using peak travel delay and travel time index performance measures. In addition, review the most current crash frequency and severity information, and freeway incident clearance times to better understand non-recurring congestion on the roadways.
- Perform additional multimodal and transit data analysis. Most CMPs rely heavily on roadway data and measure congestion based on this information. It is important to know how other modes of transportation are growing or declining. For example, data from CAT's new real-time passenger information system can be used to better analyze peak congestion ridership level of service (LOS) for certain parts of routes, rather than for the entire route.

With Vehicle Miles Traveled (VMT) increasing in the HATS region by 12 percent from 1995-2015, passenger car registrations increasing by about 15 percent over the same time period, population projected to increase by 14.2 percent between 2010 and 2040, and employment projected to increase by 20.8 percent over the same period, it is clear that congestion management needs to be a focus in planning transportation system improvements. The rapid rise in registrations, population and employment, when compared to vehicle miles traveled, indicates that encouraging transit usage, ridesharing and telecommuting may be effective. These measures should be encouraged throughout the planning period.

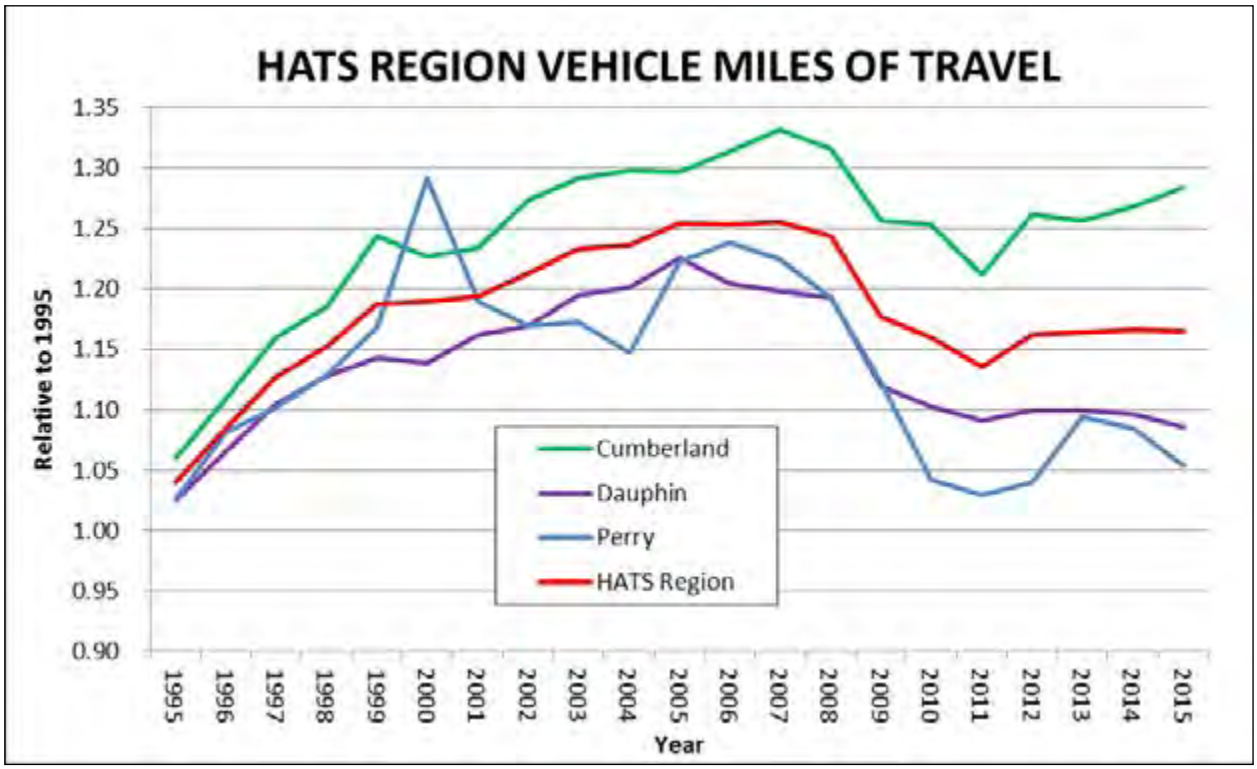


Figure 1. Vehicle Miles Traveled (VMT) in the HATS region for 1995-2015.

The MPO has a two-prong strategy for addressing congestion issues over time. The first part of the strategy involves a corridor-specific approach of focusing on areas where congestion and safety concerns are greatest and facilitating a detailed corridor plan for these areas as described under the safety section of this plan. Detailed physical and operational improvements that are identified by these studies will then be programmed as the implementation phase of such studies. In cases where congestion is identified, but not safety to the same degree, the MPO will engage in a phased improvement approach that will first look to optimize traffic operations in the corridor (access management, signal enhancements, etc.) before investing in any physical infrastructure improvements that may reduce congestion. It is important to note that some degree of congestion may be more acceptable in urbanized areas as there is more of a focus on accommodating all modes. The second phase of the congestion management approach involves improved coordination with the transit providers and Susquehanna Regional Transportation Partnership in identified congested corridors to enhance access to transit and ridesharing/carpooling/vanpooling opportunities for residents and employers. HATS is currently seeking access to employer data through the Department of Labor & Industry to enhance our ability to coordinate closely with employers in congested corridors and throughout the region.

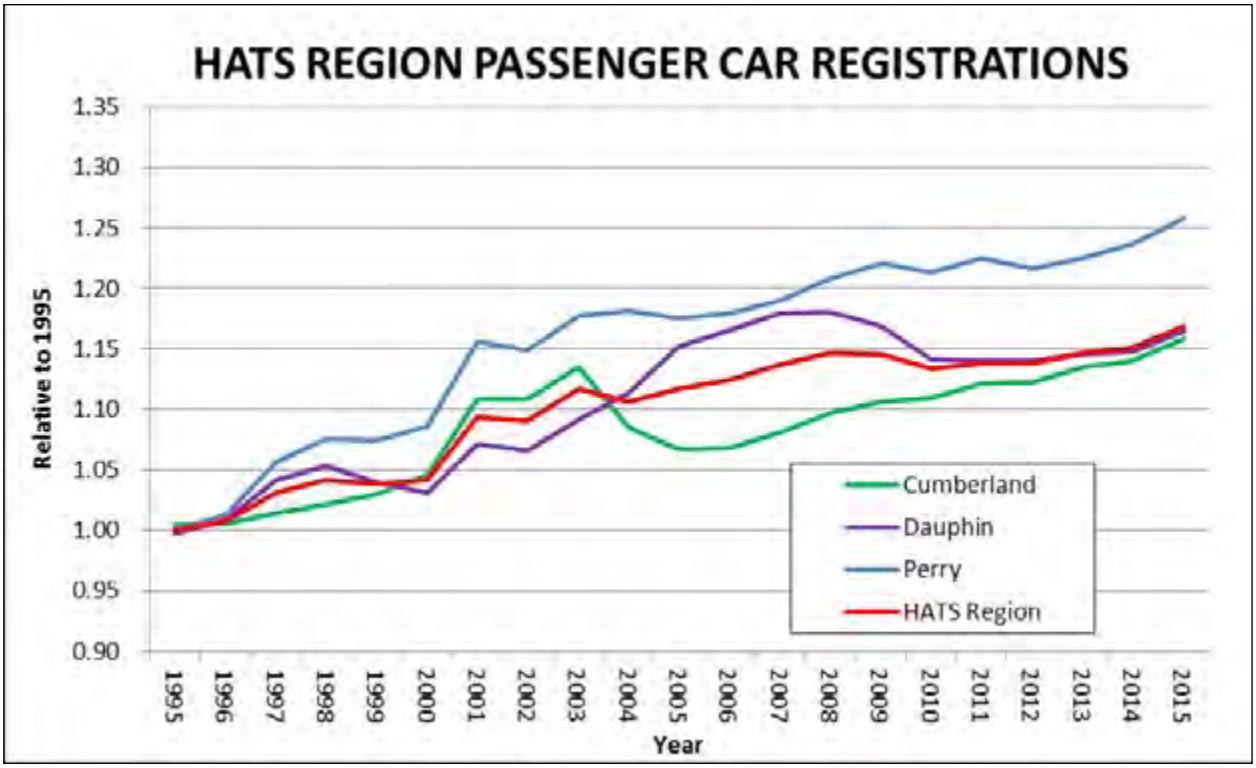


Figure 2. Passenger car registrations in the HATS region for 1995-2015.

In addition, HATS is attempting to address the non-recurring congestion associated with crashes by working with local emergency management officials, municipalities, PEMA, the Turnpike Commission and PennDOT to form Traffic Incident Management (TIM) teams for the most congested and crash-prone corridors. The first group to form in 2018 is Beltway East, which includes the section of I-83 and I-81 that wraps around the city and includes Harrisburg, Swatara Township, Lower Paxton Township, Susquehanna Township, and Lower Swatara Township. The overall goal is to bring the traffic incident together to ensure events are handled quickly and safely, ultimately reducing the number of secondary crashes and injuries/fatalities. Pending the success of this initiative, additional TIM teams will be established based on need and municipal support.

Key Recommendations —

- Conduct studies of the corridors and intersections where congestion and safety are of high concern;
- Implement operational improvements that reduce vehicle congestion and encourage alternative modes of transportation;
- Establish Traffic Incident Management (TIM) teams for the most congested and crash-prone corridors.

• TRAVEL MODES •

MOVING GOODS VIA ROADWAYS

See Moving Goods map in Appendix

In 2017, HATS completed a Regional Freight Plan. The plan shows that the region is in a prime location when it comes to freight and goods movement. It is within one day's drive of 40 percent of the US population, which represents 60 percent of the nation's buying power.

While the region's freight system is multimodal, its roadways are the backbone, making up a 5,000-mile network. The

Harrisburg area is crossed by several major interstates including Interstate 81, Interstate 83, Interstate 283, and the Pennsylvania Turnpike (Interstate 76), making up 120 miles of its freight network, and has nearly 325 miles in National Highway System routes. The region's interstates comprise only 4 percent of the entire regional roadway network, yet they facilitate over a third of all travel.

While 6 percent of all travel in Pennsylvania runs through the Harrisburg region, it carries 8 percent of total truck traffic. There are several areas of high truck activity in the region, including: Mechanicsburg, which houses the Naval Support Activity, Capital City Mall, and several warehouses; Harrisburg, notably the Norfolk Southern Intermodal Yards in Susquehanna and Swatara Townships and warehousing activity along I-83 at the Eisenhower Interchange and the interchange at Union Deposit Road; and Carlisle, which includes the growing Allen Road interchange off of I-81. These are just a few examples of the many commercial and industrial centers located in the Tri-County Region.

Amazon fulfillment center on Allen Road, Carlisle

Eighty-five percent of the region's exports moves by trucks on roadways. Interstate 81 by far carries the largest volume of truck traffic with the most segments carrying between 7,500 and 12,000 trucks daily. In terms of commodity flow, the HATS region is expected to export 38.7 million tons of goods valued at $35.8 billion and import 30.7 million tons valued at $81.3 billion in 2040. This shows a 73.2 percent and 76 percent change in tonnage respectively.

The Regional Freight Plan's defined trends show an increasing demand for goods movement based on the forecasts for Transportation and Warehousing employment. Movement of retail goods (truck trips to distribution centers, etc.) has an implied upward trend with modest increases in Retail Trade and e-Commerce. With the expansion of the Panama Canal in 2016, larger container ships are being accommodated, and the Suez Canal now allows for two-way travel. While these lanes of travel are far away from the immediate HATS region, the implications and impacts are more close to home. The ports of Baltimore, New York, Norfolk, and southeast Pennsylvania will get busier, meaning more cargo for trucks and railroads to carry. Major truck and rail corridors will see increased demand in the immediate future and will continue to grow through 2040.

In 2019, approximately 28 miles of roads in the HATS region were certified as part of the Critical Urban and Critical Rural Freight Corridors (CUFCs, CRFCs) by the Federal Highway Administration. This certification allows the corridors to be added to the National Highway Freight Network and make them eligible for National Highway Freight Program funding. These critical corridors, as well as the National Primary Highway Freight Network and other important freight corridors in the HATS region, are shown in the online interactive mapping application.

Key Recommendations —

The key strategies and actions from the Regional Freight Plan that apply to freight movement by trucks and roadways include:

- Address regional interstate capacity, existing freight bottlenecks, and spot improvements;
- Continue to monitor system performance for freight and mobility per national freight performance measures;
- Address the region's needs for truck parking;
- Address intersections with substandard turning radii;
- Improve motor carrier safety by identifying truck crash clusters;
- Minimize truck traffic on lower-order roadways.

MOVING PEOPLE VIA ROADWAYS

See Moving People map in Appendix

Traffic Volumes —

Average Annual Daily Traffic (AADT) measures the total volume of vehicle traffic on a roadway for a year divided by 365 days. These levels can help transportation planners and other agencies anticipate where roadway resurfacings and reconstructions are going to be needed in the upcoming years. Looking at this particular measure on the region's roadways, almost all federal aid system roadways measure as high volume, seeing 3,001 or more vehicles on the roads per day.

Route 39 truck stop in Dauphin County

See Transit interactive map in Appendix

Transit —

Capital Area Transit (CAT) provides fixed route transit service to Cumberland and Dauphin Counties, with the City of Harrisburg serving as the major hub in the system. The Market Square transfer center, located at the intersection of Market and 2nd Streets, is the primary transfer center. The Derry Township Intermodal Transportation Center in downtown Hershey is a major park and ride location, providing over 600 parking spaces and access to both CAT and Lebanon Transit service.

CAT is currently conducting a complete review and redesign of their fixed–route service network. As part of that process, a State of the System report, which provides an assessment of existing service and identifies opportunities and challenges, and Market Analysis report, which evaluates and identifies transit market demand, were created. These documents provide valuable insights into existing and potential service areas and are available at the links above. As the CAT 2020 Network Redesign is finalized and implemented, the changes in the system will be reflected in this plan.

The urban areas of York, Lancaster, and Lebanon are served by their own transit authorities. York County's Rabbittransit provides express service to and from downtown Harrisburg. Lebanon Transit provides service to downtown Harrisburg and Hershey. Lancaster County's Red Rose Transit Authority does not currently provide service to the HATS region. Improving the service and coordination with surrounding transit providers is a high priority long term goal for the HATS region.

	FY 2012-2013	FY 2013 -2014	FY 2014-2015	FY 2015-2016	FY 2016-2017	FY 2017-2018	FY 2018-2019	FY 2019-2020
Total Passengers	2,541,378	2,575,844	2,514,573	2,347,144	2,119,384	2,042,493	1,985,147	1,722,870
Percent Change		1.36%	-2.38%	-6.66%	-9.70%	-3.63%	-2.81%	-13.21%

Source: Capital Area Transit

Park & Ride Facilities —

The CAT fixed route system is supported by 35 park and ride facilities. Some are formally identified and maintained by PennDOT and/or CAT; some are established through agreements with retailers and shopping centers; and some are informal locations near popular transit stops. Not all park and ride facilities are dedicated to transit use; locations outside the CAT service area serve car- and van-pool users.

Published in December 2010, the HATS Upper Dauphin and Perry Counties Park and Ride Project study examined existing and potential park and ride facilities and provided recommendations. A similar study should be conducted to identify possible park and ride locations in the more developed areas immediately surrounding the City of Harrisburg, possibly as part of the recommended long-term transit system planning or transit development plan.

Route 114 Park & Ride, Silver Spring Township, Cumberland County

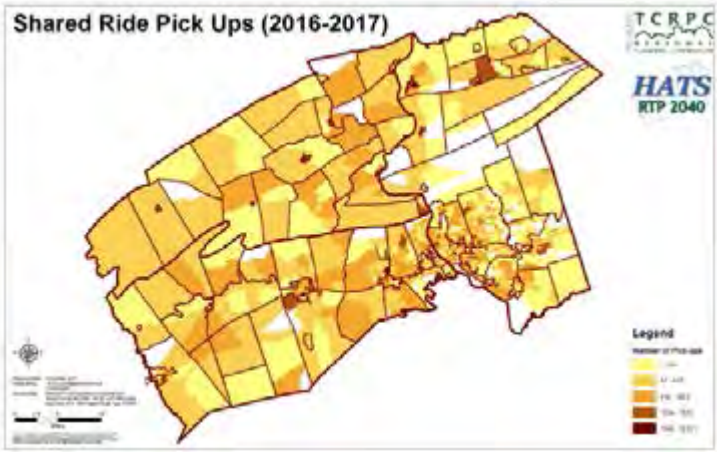
Intercity Service —

Intercity bus service is provided to State College, New York, Philadelphia, and Pittsburgh from the Harrisburg Transportation Center from Greyhound and Trailways. Additionally, Megabus provides direct service to Philadelphia, Pittsburgh, and State College from their stop located in the Harrisburg Mall Parking Lot.

Shared Ride / Paratransit —

Shared Ride/Paratransit service is provided in Dauphin County by CAT and in Cumberland and Perry Counties by rabbittransit. These services, with recommendations for each geographic subregion, are covered extensively in the HATS Coordinated Public Transportation – Human Service Transportation Plan.

The map at right shows shared ride pick-up/drop-off locations. Both pick-ups and drop-offs are evenly distributed throughout the HATS region. Improving the coordination between the centrally managed and located shared ride hubs and the geographic dispersed location of their users will be key to improving efficiencies in the shared ride system.



Commuter Services —

Commuter Services of PA is a professionally staffed organization whose purpose is to reduce traffic congestion and pollution by helping commuters find alternatives to driving alone. Their service area covers 13 counties, including Cumberland, Dauphin and Perry Counties, from south-central to northeastern Pennsylvania, and 1.3 million commuters living or working in these areas. The organization is funded by federal Congestion Mitigation & Air Quality (CMAQ) funds and overseen by the Susquehanna Regional Transportation Partnership, which consists of local chambers and transit and planning agencies. Their many services include assisting employers and individuals with information and/or coordination related to car- or van-pools, transit and trains, walking and biking, and telecommuting.

For more information on Commuter Services of PA, visit their website at *www.pacommuterservices.org*

COMMUTER SERVICES
OF PENNSYLVANIA

Road Diets —

Road Diets are becoming increasingly popular in communities across the country as a way to address critical transportation needs without significant capital investment. While the exact design and configuration can vary based on a variety of factors, the typical Road Diet involves converting a four-lane, undivided roadway to a three lane roadway with improved accommodations for non-motorized road users. Road Diets represent excellent "bang for your buck", often requiring little investment beyond repainting for implementation, yet significant safety benefits by calming traffic through the reduction of travel lanes and reducing collisions by providing a dedicated left turn lane. Additionally, the space gained by eliminating one travel lane can be used to provide dedicated, buffered bicycle lanes or wider shoulders, depending on the characteristics of the road.

Road Diets are not effective for all roads, particularly those with average daily traffic exceeding 20,000 vehicles. Further study and cooperation with municipalities will be required to identify implementation opportunities.

Key Recommendations —

- Consider access to transit -- and related bicycle and pedestrian accommodations -- a high priority in areas identified for growth in the RGMP;
- Work with CAT and other area transit providers on long-term planning efforts to improve service access and efficiency within the HATS region and surrounding communities;
- Identify and pursue additional park and ride facilities throughout the HATS region;
- Conduct system-wide analysis during next update of Coordinated Public Transit -- Human Service Transportation Plan;
- Continue supporting Commuter Services of PA and other community organizations providing transportation services to residents of the HATS region through funding, coordination or planning assistance.
- Conduct further analysis and work with municipalities to identify opportunities for Road Diet implementation

NON-MOTORIZED

While often overlooked in the traditional planning process, walking and biking are important modes in any comprehensive transportation system. Providing a safe, efficient and convenient route for non-motorized transportation can improve a community's economic development, access to jobs and transit.

By ensuring these connections are made and maintained, the HATS region's transportation system will accommodate users of all modes, ages and abilities.

See Regional Non-Motorized Needs map in Appendix

Regional Bicycle & Pedestrian Demand —

According to 2018 American Community Survey five-year estimates on commuting, the HATS region walks to work (3.6%) above the nation average (2.7%), but bikes to work (0.4%) slightly below the national average (0.6%).

To illustrate the areas in which demand for bicycle and pedestrian facilities is highest, important destinations for walking and biking were identified. These destinations include retail commercial establishments, schools, neighborhood parks, employment centers, hospitals and transit nodes. A half-mile buffer, the generally accepted distance to measure walkability, was drawn around each destination and an overlap analysis was performed. Areas with more overlapping buffers are considered to have a higher bicycle and pedestrian demand and are shown in darker colors on the map.

As expected, our region's bicycle and pedestrian demand generally follows existing development patterns, concentrated around Shippensburg, Carlisle, Harrisburg and Hershey, with very little in western Cumberland County, northern Dauphin County and Perry County.

Bicycle Level of Stress —

Bicycle Level of Stress analysis was performed to estimate the level of stress felt by cyclists based on a combination of speed limit, lane count, and shoulder width taken from PennDOT Road Management System data for our region's roads. The lowest numbers represent roads and bike facilities considered comfortable for all ages and abilities. The highest numbers represent roads only considered comfortable for experienced road cyclists. Many of our region's most important corridors and connections are considered to have a high level of stress.

Regional Sidewalk Inventory —

The Regional Sidewalk Inventory provides a comprehensive review of the pedestrian accommodations along federal-aid eligible roads in the HATS region. Data includes sidewalk condition, presence, and materials and can be used to identify critical gaps in the walkable transportation network. More information, and a link to the interactive mapping application, can be found in the Mobility & Accessibility chapter of this plan.

Regional Bicycle and Pedestrian Backbone —

The HATS region boasts many important bicycle and pedestrian facilities, such as the Capital Area Greenbelt, the Cumberland Valley Rail Trail and State Bicycle Route J. Additionally, in recent years, the HATS region has seen significant planning efforts and studies undertaken to identify the most appropriate and desirable routes to connect our communities for pedestrians and cyclists. The Eastern Cumberland County Trails Master Plan, Regional Bicycle Connections Study and the Cross Rivers Connection Study have all examined how best to accomplish this at the regional level, while more communities have developed their own municipal plans.

To better coordinate the existing facilities with the planning efforts already completed, and to identify and begin filling in gaps, the Regional Bicycle and Pedestrian Backbone was developed. The intention of the Backbone is not to prescribe specific solutions or to supersede local planning efforts, but to provide a broad vision that connects the region's places and communities by roads under HATS' purview.

Routes shown in green represent our major regional trails and facilities existing and in development or construction. This does not include every multi-use trail and pedestrian facility, but instead identifies those used for transportation as opposed to recreation. Routes shown in purple are those officially designated as bicycle routes, such as Bicycle Route J, but do not feature dedicated bicycle facilities. Routes shown as solid orange lines represent important routes or facilities documented in a local or regional bicycle and pedestrian transportation plan. These routes are concentrated along the Harrisburg to Hershey corridor and in the West Shore suburban communities, and in some cases have specific facility recommendations that should be considered. Finally, routes shown as dashed orange lines represent those that have not yet been subject to local study, but were identified by our region's bicycle advocate community as an important regional transportation connection. Because the orange "conceptual" routes haven't been specifically studied, the exact route should not be considered final. Further study is needed to evaluate alternate routes.

Volunteer Diana Sheppard records the number of bicyclists and pedestrians traveling through the intersection of 3rd & Market streets in Lemoyne during an October 2017 rush hour.

HATS Regional Bicycle & Pedestrian Study —

Adopted in Fall 2014, the HATS Regional Bicycle and Pedestrian Study identified bicycle and pedestrian related issues and opportunities for the region, while providing a cohesive direction and specific steps to align the efforts of the many communities and stakeholders. The development of the study was driven by significant public outreach, including multiple surveys, stakeholder meetings and targeted interviews. The end result was a document articulating a vision for making the region more walkable and bikeable, and identifying goals and strategic actions required to achieve it.

The full HATS Regional Bicycle and Pedestrian Study is available on the TCRPC website.

Plain Sect —

See Plain Sect map in Appendix

All three counties in the HATS region have significant concentrations of Amish and Mennonite populations, with many of the residents using predominately non-motorized (pedestrian, bicycle and buggy) travel.

In an effort to better understand the areas where these populations are focused and their key transportation issues, a series of outreach meetings were held to solicit their input.

The map at left illustrates the areas where these populations are focused. Their primary travel routes have been highlighted. The map also shows the width of shoulders on all of the region's roadways, which is particularly important in areas with heavy buggy and non-motorized travel. When shoulders are lacking or narrow, these modes must mix with traditional vehicular traffic. Other key safety concerns include vertical curves where motorists often approach buggies rapidly after cresting a hill and/or roadways and driveways that access major routes with limited visibility close to hills or other obstructions.

Lastly, Plain Sect residents have expressed concern about the lack of awareness of the presence of buggies, bicycles and pedestrians and have indicated that more signage may be warranted in key areas where they travel most frequently.

HATS will hold periodic outreach meetings with the Plain Sect community to refine the areas of concern, provide timely information on construction projects and potential detours, and provide coordination between PennDOT and the community to incorporate improvements such as shoulder widening, vertical curvature reduction, and/or signage in areas with the greatest safety issues.

An Amish buggy in Blain, Perry County

Transit Connections —

Virtually every transit trip involves the user walking to and from the bus, making the quality of the pedestrian environment around bus routes and stops vitally important to the viability and success of the transit system. In addition to pedestrians, bicyclists are becoming increasingly important transit users. Improving accommodations at existing transit stops and facilities, while also working to integrate them into future stops and facilities, will increase ridership and make

investments by transit providers, like CAT's bikes-on-buses program, more beneficial.

Key Recommendations —

- Work with municipalities and community members to continue refining the Regional Backbone and ensure any future project (transportation or land development) makes appropriate bicycle and pedestrian accommodations a high priority;
- Work with transit providers and other relevant parties to improve pedestrian and bicycling accommodations near transit stops and routes;
- Work with PennDOT and municipalities to identify low-cost and important opportunities to improve the region's bicycle and pedestrian safety and connectivity;
- Maintain communication with the Plain Sect community to refine the areas of concern, provide timely information on construction projects and potential detours, and provide coordination between PennDOT and the community to incorporate improvements such as shoulder widening, vertical curvature reduction, and/or signage in areas with the greatest safety issues.

RAIL

The HATS region is served by several railroads that provide both passenger and freight services.

Amtrak —

Connecting Harrisburg and Philadelphia, the Keystone Corridor is the primary passenger railway serving the Harrisburg area. Amtrak, SEPTA and PennDOT continue to make high-speed rail improvements to the Keystone Corridor, a 104-mile long corridor that connects Harrisburg and Philadelphia. Improvements are currently in construction and include closure of three public highway-rail grade crossings, preliminary engineering of interlocking/signal system reconfigurations, and the rebuilding of state interlocking in Harrisburg. In addition to the improvements to this infrastructure, Amtrak, SEPTA and PennDOT continue to work together to make improvements to the stations along the Keystone Corridor. The most notable station improvements in the Harrisburg area are the construction of a new Middletown Station and the modernization of the Harrisburg Transportation Center.

The new Middletown Station is set to be located near Ann and W. Main streets. The facility will provide ADA accessibility to the site, which is currently lacking at the existing station. It will also improve multimodal connections with a pedestrian overpass, on-site parking and bus loading zones.

In 2010, Amtrak completed a 20-year Northeast Corridor Infrastructure Plan which includes the Harrisburg station. It looks at ridership and analyzes where to expand and build new infrastructure to improve or enhance regional and corridor-wide rail service in both passenger and freight realms. Looking toward their horizon year of 2030, Amtrak's goals for the Northeast Corridor include supporting economic growth; supporting states in their vision of broad regional connectivity throughout the Northeast and beyond; and maintaining, improving and expanding rail infrastructure and capacity as well as inter- and multimodal connections. Amtrak anticipates more riders, which means more trains and constantly striving to provide better service.

Keystone Corridor Map (Amtrak)

Norfolk Southern —

Harrisburg is just one of three primary intermodal hubs in the NS system east of the Mississippi. The region is situated at the northern extent of the railroad's Crescent Corridor initiative, which is its highest expansion priority.

The Crescent Corridor traverses the HATS region and facilitates movement of domestic intermodal traffic. NS is currently investing millions of dollars on this section of the Crescent Corridor to parallel I-81 with double track, double stack service. The Harrisburg region sees an average of 60-70 freight trains daily.

Mahantango Creek railroad bridge and crossing, northern Dauphin County

Some of the strategies and actions regarding rail freight defined in the HATS Regional Freight Plan include:

- Improve at-grade rail crossing safety;
- Improve overall rail freight safety;
- Support Operation Lifesaver and its public awareness campaigns;
- Coordinate with PennDOT and railroads to address the region's many railroad bridges and underpasses that feature overhead height restrictions;
- Investigate the needs for improving short line rail service.

The Pennsylvania State Rail Plan identifies proposed passenger and rail freight projects from 2015 through 2040. The passenger project listing includes approximately $1.7 billion on Amtrak passenger projects which include approximately $521 million on the Keystone Corridor and $90.2 million in Dauphin County alone. Specific projects include:

- State Interlocking Renewal (Harrisburg);
- New Middletown Station;
- Installation of Royalton Sub 71 Transformer and Harrisburg Sub 72 Transformer;
- Harrisburg ADA Improvements.

Proposed freight rail projects from the plan include project investment on Class I and short lines. Projects in both Cumberland and Dauphin Counties made the list.

Overall goals of the Pennsylvania State Rail Plan include bringing the priority rail system to a state of good repair and maintenance; developing an integrated rail system; supporting the future needs of residents and businesses; enhancing the quality of life in Pennsylvania; assuring personal safety and infrastructure security; supporting energy efficiency and environmental sustainability; identifying stable and predictable funding; and building public support for rail system services and assets.

Key Recommendations —

The key strategies and actions regarding rail freight defined in the HATS Regional Freight Plan include:

- Improve at-grade rail crossing safety;
- Improve overall rail freight safety;
- Support Operation Lifesaver and its public awareness campaigns;
- Coordinate with PennDOT and railroads to address the region's many railroad bridges and underpasses that feature overhead height restrictions;
- Investigate the needs for improving short-line rail service.

Jet at Harrisburg International Airport (photo courtesy Michael Baker International)

AVIATION

The Harrisburg area is served by several airports within the region and beyond. These airports provide both passenger and freight transport both in and out of the region.

Harrisburg International Airport (HIA) is located on the southern end of Dauphin County and is south-central Pennsylvania's primary commercial service, passenger, and air freight facility. The Airport is not in constrained, or slot controlled, airspace. Airport Connector (PA 3032) is approximately two miles long and provides robust primary access to the passenger terminal area and all air cargo landside activity from PA Route 283. The Airport is two miles southeast of the Pennsylvania Turnpike (1-76) and Interstate 283 interchange.

HIA is home to more than 60 companies, employing approximately 1,700 full- and part-time employees, as well as the 193rd Special Operations Wing base of the PA Air National Guard .

In 2016, HIA adopted an updated master plan for the airport which provides a forecast of HIA's expected operations up through 2033 using a base year of 2013.

The Capital City Airport (CXY) owned and operated by SARAA, is the HIA sister airport in New Cumberland, Pennsylvania, offering general aviation services to the business communities of Dauphin, Cumberland and York counties. CXY provides daily services through its Fixed Base Operator (FBO), SkyPort Aviation, and air traffic control tower and averages more than 30,000 corporate, charter and private aircraft operations every year.

In terms of passenger travel, HIA continues to be the third-largest commercial airport in Pennsylvania with 746,369 enplanements in 2019, behind Philadelphia International and Pittsburgh International, according to the FAA. HIA anticipates a 1.4 percent annual growth in enplanements through 2033.

In regards to air cargo, HIA ranks fourth in the state and 63rd in the country in cargo weight landed, according to the FAA. It anticipates an exponential increase in air cargo tonnage from its current 58,000 tons to approximately 70,000 in 2033. In order to accommodate this demand, the HIA Master Plan recommends a two-phase improvement. Phase 1 includes the realignment of Olmsted Drive to reduce conflict between tugs, cargo trucks and the Pennsylvania Air National Guard, expanding landside area, and constucting a new Third Street. Phase 2 includes expansion of its cargo apron and landside area, as well as construction of new cargo terminal buildings and expansion of existing cargo terminal buildings.

Key Recommendations —

As part of its transportation planning efforts, HATS can continue to do the following in terms of aviation:

- Continue to support regional economic growth through SARAA's efforts;
- Be proactive in planning for the anticipated increase in traffic with new developments in and around HIA;
- Educate nearby municipalities on transportation and land use controls to help monitor the anticipated increase in traffic with new developments in and around HIA.

• LINKAGE TO LAND USE •

REGIONAL GROWTH MANAGEMENT PLAN

Regional Growth Management Plan 2040 Update available online

In September 2017, the Tri-County Regional Planning Commission formally adopted the 2040 Update of the Regional Growth Management Plan. The RGMP is a functional, "30,000 foot" plan for the region, focusing on guiding physical development to areas in which public investments in infrastructure and services have already been made, as well as protecting and enhancing our natural, cultural, historic and scenic resources. The studies and analyses contained in the plan and the resulting policy statements will serve as a frame work for use by the region's counties and municipal governments in their own plan development. The Pennsylvania Municipalities Planning Code, Act 247, gives municipalities, not counties or regional entities, the power to manage and regulate land use. Therefore, inter-jurisdictional cooperation is vital to ensure the RGMP fulfills its purpose.

The purpose of the RGMP is to address the broader multi-jurisdictional issues from a regional perspective, to act as an informational resource, and to provide an overarching model for development of more detailed and specific county and municipal comprehensive plans. It is intended to be a plan that ensures the long-term sustainability of our region's land use and economic development for the benefit of our region's citizens, business owners and visitors.

Transportation & Regional Growth Management —

Like other public infrastructure such as sewer and water service, transportation infrastructure is a driving factor in regional land use planning and the formulation of the Regional Growth Management Plan.

Access to transportation facilities and systems directly affects how much population, housing and employment growth our region's communities can support. Likewise, the various land uses that are allowed by municipalities affects the level of travel demand and where subsequent infrastructure investments need to be made. Transportation infrastructure requires a significant capital investment and lasts for decades, making coordination between land use and transportation efforts vital. Without this coordination, significant investments in transportation infrastructure can go underutilized and dispersed development can cause unnecessary economic burdens in developing new transportation facilities.

Integrating and coordinating land use and transportation planning improves the livability and sustainability of our region's communities. Developing communities that encourage access to transit, improve bicycle and pedestrian connectivity and provide links between where people live, work, shop and play not only enhances the livability and sustainability of those communities, it also reduces the pressure on our transportation facilities and the need for future investments and the resources (i.e. taxes, fees) they require.

Lemoyne bottleneck, Cumberland County

The spatial relationship between jobs and housing is a significant factor in both land use and

transportation planning. Decreasing density also reduces transportation options, making transit service more difficult for the resident and more expensive for the provider. Traditional transit systems, like our region's CAT system, are based on a "hub and spoke" model, with routes radiating out from a central location. When jobs or houses are concentrated in that central location, the system works well. But when jobs and houses move away from that central location, transit service becomes less convenient, efficient and effective. For our region's car-less residents, the lack of reliable transportation choices presents a significant obstacle to getting from home to work, school, shopping or any other daily activity.

Car passing a farmer's tractor on Route 225 in Jackson, Township, Dauphin County

Our region's residents with cars are also affected by these spatial relationships. Commute times, according to US Census data, are increasing throughout the nation and in each of our region's counties. This phenomenon has an impact on not just our region's residents, who are spending more time and money getting to and from work, but also on our region's economic strength as well. Economic development relies on access to labor markets, which is directly tied to our residents' ability to get to and from those jobs. Making sound land use decisions while considering transportation and economic development will ensure that our region remains a place people want to live and businesses want to locate.

REGIONAL ISSUES

See Existing Land Use & Cover map in Appendix

During the development of the RGMP, our Steering Committee established a prioritized list of the issues facing our region. Those issues informed the development of various aspects of the RGMP, including the scenario planning performance measures, and will continue to do so throughout TCRPC's ongoing implementation efforts.

Comprehensive Transportation —

Transportation planning and investment traditionally focuses on accommodating automobile drivers, often to the detriment of other users. Transportation, land use and economic development plans need to be developed in an integrated manner, designed and operated with all users and land uses in mind and serving all users equally.

Aging Infrastructure —

The supporting infrastructure's long-term maintenance costs increase over time and, unfortunately, our communities lack tools to recoup those costs after development has occurred. Developing tools to help municipalities and government agencies cooperatively estimate or anticipate these costs can alleviate pressure on both budgets and operations.

Infrastructure Of The Future —

Our region's growing communities need infrastructure that can grow and adapt. Access to public sewer and water service

is a driving factor in land development decisions, as areas that lack it have limited potential density. Identifying these preferred or anticipated expanded service areas is an important aspect of any planning activity.

Natural Resource Protection —

Our region's natural resources account for more than 50 percent of our total land area. Unplanned, low-density, dispersed development threatens to impact our region's vast natural resources and the benefits we get from them. Infill, redevelopment and compact, contiguous development must be encouraged to preserve and protect our natural areas and resources.

Inefficient Land Use Patterns —

Patterns of development are linked to virtually every land planning issue. Inefficient use of land, often in the form of non-contiguous, low density development, makes it difficult to provide services and access daily needs while increasing the cost of development and maintaining the supporting physical infrastructure.

Unrealized Potential For Reuse —

Municipal regulations and market forces often encourage development of "cheaper" land in less densely developed/populated areas, discouraging the use or reuse of land within areas of existing services and infrastructure. Inefficient land use patterns put our older, established communities at an economic disadvantage, while also increasing the long-term provision and maintenance costs for the communities in which the development does occur.

SCENARIO PLANNING

To better understand the impacts of our region's projected development, TCRPC utilized scenario planning, an analytical tool or framework that incorporates many different environmental, regulatory and community factors and examines how they will affect projected growth over the

NEXT 25 years. The goal of scenario planning is to identify issues and trends and compare possible strategies -- not to perfectly model what the solution to those issues and trends will look like. Scenario planning is analytical, not predictive. Using GIS modeling and analysis, we are able to identify areas suitable and not suitable for development, and examine how the projected growth can impact our region moving forward.

The five scenarios examined by TCRPC were:

- Scenario 1A: Land Development Trend -- Examines the impacts of continuing the development patterns of the recent past with no geographic constraint.
- Scenario 1B: Existing Zoning Trends -- Examines the existing municipal zoning ordinances with no geographic constraint.
- Scenario 2: Transportation Corridors -- Examines the impacts of concentrating development around our region's transportation infrastructure (land around arterial roads, collector roads and interstate exits).
- Scenario 3: Expanded Public Transit -- Examines the impacts of concentrating development around an expanded public transit system (land around the existing fixed route transit system as well as a conceptual expansion).
- Scenario 4: Regional Population Center -- Examines the impacts of concentrating development around our region's cities, boroughs and villages.

Each scenario was built by identifying areas where residential develop could occur, establishing the amount of anticipated growth and applying growth rates to approximate how much land would be consumed in the process. Because each scenario had a different combination of geographic constraints and growth rates, the amount and location of land

consumed was distinct to each.

Using 10 different performance measures, each scenario was evaluated for its positive and negative impacts on the region. Through an exercise conducted during a series of six outreach meetings with municipal officials, these 10 performance measures were ranked by their importance. The results of these exercises were used to determine the region's "preferred scenario" -- the scenario that had the best results for the performance measures deemed most important.

Regional Population Centers -- Scenario 4 above -- is the scenario with the best results for the performance measures ranked most important as well as the majority of the others. As such, it is the region's "preferred scenario," and changes to the planned growth area designations were made with this in mind.

IMPLEMENTATION

Community Service Areas —

See Community Service Areas map in Appendix

Community Service Areas establish where significant public investment has already occurred or can be reasonably expected to occur based on current plans and policies. The primary factors in establishing CSAs are transportation infrastructure and public sewer and water service areas, although other factors are also considered, including access to public transit, emergency services and community services. Due to the different development patterns and characteristics of our region's communities, the standard to establish a CSA varies from rural areas to suburban/urban areas.

Planned Growth Areas —

See Planned Growth Areas map in Appendix

Established as part of TCRPC's first Regional Growth Management Plan in 1994, Planned Growth Areas delineate target areas appropriate for more intense economic activity, urban and suburban residential development and areas more suitable for rural development, agriculture and conservation areas. PGA designations do not mean development is not planned or expected to occur in non-PGA areas. Rather, the housing and commercial activity in PGAs will typically support higher densities and intensities of development due to the proximity to available public services, and should be the first preference of municipalities as they plan for and manage future growth.

Planned Growth Areas are based on the following generalized planning typologies:

- **Urban Cores:** Urban areas fully served with public facilities and accessible transportation networks.
- **Rural Cores:** Rural towns with partial public facilities, typically little to no access to mass transit, possibly linked through connections of any public service with Growth Areas.
- **Suburban Cores:** Suburban and town areas with locally oriented public utilities and services and limited mass transit access, with the possibilities of connections of public services between Urban Core and Growth Areas.
- **Rural Reserve Areas:** Areas characterized by very low-density residential development that will be necessary to sustain the population in perpetuity.
- **Conservation Areas:** Environmentally sensitive areas less conducive to development, including agricultural and forested areas.
- **Urban Cores, Rural Cores and Suburban Cores are considered to be the Planned Growth Areas.**

This update of the RGMP included an analysis of the existing Planned Growth Areas and their ability to accommodate our region's projected growth. Modifications of the Planned Growth Areas were made in areas for which the current designations were not reflective of current development patterns or unable to accommodate projected growth for the municipality, with the modifications shaped by the results of our scenario planning, our established Community Service Areas and the municipal comprehensive plans.

Key Recommendations —

- Manage growth toward areas with existing or planned public facilities and services, consistent with the identified Community Service Areas and Planned Growth Areas
- Promote the creation of livable, sustainable communities through community design which accommodates a range of lifestyles, age groups and working conditions and development patterns which promote active living and access to recreation, service, food and a multi-modal transportation network
- Encourage an adequate amount and mix of safe and sustainable utility facilities and services consistent with projections through 2040
- Encourage the use of and planning for "green infrastructure" and other clean, efficient innovations
- Promote compact and infill development and redevelopment consistent with capacities and planned facilities and services.

• CAPITAL INVESTMENT •

CONVENTIONAL TRANSPORTATION FUNDING

Federal regulations require that Long Range Transportation Plans include a financial plan. The financial plan should identify reasonable funding resources sufficient to implement the current and proposed projects through 2045 to demonstrate the federal transportation system is being adequately operated and maintained. The program of projects will be implemented if the project development process requirements are satisfied and the financial resources assumed in the RTP are in place.

PennDOT provided financial guidance in the 2021-2024 Transportation Improvement Program (TIP) entitled "Scenario 4: Transportation Program Financial Guidance." The document provided Year of Expenditure (YOE) calculations for estimating project costs and inflation factors for projecting transportation revenue growth over the life span of the RTP. Project revenue was projected to the year 2045 using baseline funding provided in the HATS 2021-2024 TIP, estimated inflation rate factors consistent with the financial guidance recommendations, as well as historic revenue trends and financial assumptions developed by evaluating prior years' federal, state and local expenditures. The total projected revenue anticipated to be available through 2045 is approximately $3.6 billion.

Estimated Revenue Summary ($000)

	Short Range *TIP: 2021-2024*	Mid Range *12YP: 2025-2032*	Long Range *2033-2045*	TOTAL
Highway/Bridge	266,043	483,938	770,039	1,520,020
Interstate	306,597	498,215	871,884	1,676,696
Transit	68,215	138,915	236,435	443,565
Total Revenues	**640,855**	**1,121,068**	**1,878,358**	**3,640,281**

Assumptions based on FFY 2021-2024 TIP Update financial workgroup guidance:

1) Revenue growth based on annual average increase in third 4 years of TYP.
2) Local highway-bridge funds based on FFY 2021-2024 TIP proportion of total funds (0.09%)
3) Local transit funds based on FFY 2019-2022 TIP yearly average growth rate (4.89%).
4) STU funds are based on the balance after distribution to York and Lebanon MPOs.
5) IM funds are based on 12YP to 2032, then per year funding average to 2045
6) Discretionary funds (spike, MMTF, P3, TIGER) not assumed/included after 2021-2024 TIP

Estimated Cost Summary ($000)

	Short Range *TIP: 2021-2024*	Mid Range *12YP: 2025-2032*	Long Range *2033-2045*	TOTAL
Project Pipeline	0	187,420	46,148	0
Highway/Bridge Est.	266,043	299,003	591,005	1,156,051
Interstate Est.	306,597	498,215	984,438	1,789,250
Transit Est.	68,215	136,430	256,767	461,412
Total Costs	**640,855**	**1,121,068**	**1,878,358**	**3,640,281**

Assumptions based on FFY 2021-2024 TIP Update financial workgroup guidance:

1)Highway/Bridge cost based on annual average expenditure asset management expenditure and funds required to complete projects programmed on 2021-2024 TIP.

2) Interstate cost based on TYP through 2032, then annual average expenditure of 3rd four years.

3) Transit cost based on annual average expenditure on 2021-2024 TIP.

HATS programs projects in 4-year increments, commonly known as the TIP. The current TIP became effective October 1, 2020. The total amount of funding for the TIP is $640 million. Based on coordination with PennDOT, the total amount of funding necessary to fully complete the projects on the 2021 TIP is $104 million. In total, PennDOT has estimated that the funding necessary to complete projects programmed in the 12YP and maintain the current condition of the transportation assets in the HATS region throughout the planning period is approximately $890 million. With post-2024 estimates for transit and interstate investments at $393 million and $1.48 billion respectively, there will be approximately $233 million available ($187 million in the mid-range and $46 million long-range) in the MPO's anticipated level of funding through 2045 to meet the needs and recommendations evaluated in the Project Pipeline listing. The large gap between projected revenues and costs for the Interstate Program represents a significant hurdle to addressing all our transportation needs in the region. Should dedicated funding or revenue be identified outside other HATS sources, the number of transportation needs that could be addressed would increase.

In addition to the Project Pipeline needs, the I-83 South Bridge Replacement represents a significant financial investment anticipated in the short- to mid-term of the plan. This project will be fully programmed under the Interstate Management Program and the associated funding source is currently PennDOT's Major Bridge P3 Project. The Major Bridge P3 initiative is the first alternative funding initiative of the PennDOT Pathways Program and is design to raise revenue through tolling to address the state's growing backlog of major replacement and rehabilitation needs. As such, the I-83 South Bridge Replacement is not included in the fiscal constraint analysis. It was, however, included in the Air Quality Conformity Analysis discussed later in the plan.

Through the Project Pipeline process, a total of 73 transportation needs were identified and evaluated. The estimated costs to complete these needs is between approximately $540 million (short-term) and $890 million (long-term). Due to the funding limitation discussed above, only a portion of the needs identified in the Project Pipeline are anticipated to be met through 2045 in order to maintain fiscal constraint. In total, 33 regional transportation needs are unable to be met which total between $319 million (short-term) and $543 million (long-term). These remaining, unmet Transportation Needs have been listed as illustrative, along with projects identified from planning study recommendations, Regional Connections program projects, and HATS' congestion management and safety analyses. The complete illustrative project listing totals $3.6 billion.

The key recommendations contained in the RTP and input received through the Transportation Need Form that is integrated into this plan are designed to identify transportation system needs within the planning period that are not addressed by the projects contained in the TIP. Once the needs are identified and prioritized, HATS will work with PennDOT and other stakeholders to develop projects that can fit within the funds available, thereby maintaining fiscal constraint throughout the planning period. This ongoing planning process ensures that the projects contained in future TIPs are consistent with the RTP priorities when federal transportation funds are to be used for project implementation.

The financial analysis relies on current recommended economic factors to estimate future available revenue and project cost estimates. The calculations do not consider any potential unforeseen economic events that may present a positive or

negative impact to the current projection of available revenue, as well as estimates of project needs and associated costs. Any such major events may necessitate a revision to the RTP.

The RTP is not intended to be a standalone funding program. The plan serves as the basis for determining project priorities among many competing regional transportation needs and improves the decision-making process for the development of the biannual TIP. Other funding opportunities including the PennDOT and DCED Multimodal Fund and Public-Private Partnerships are identified in the following sections of the plan.

MULTIMODAL FUNDING

HATS RTP Implementation Program —

Created in 2020, the RTP Implementation Grant Program funds transportation studies and improvements that meet HATS Regional Transportation Plan and TCRPC Regional Growth Management Plan goals while "providing for safer, more walkable, bikeable and transit-friendly transportation systems." Funded through HATS STP-Urban TIP funds, eligible projects range from feasibility plans/studies that integrate land use and transportation system improvements to non-motorized transportation facilities to low-cost investments to improve safety and/or reduce congestion.

Transportation Alternatives Set-Aside —

The Transportation Alternatives Set-Aside provides funding for projects across 10 different eligibility definitions, but is primarily focused on construction of bicycle and pedestrian facilities. Under the TA Set-Aside, 100 percent of construction costs are covered, with the project sponsor responsible for 100 percent of pre-construction costs. As a large MPO (urbanized population greater than 200,000), HATS is responsible for determining eligibility and selecting projects to be awarded $465,000 of annual funding. Additionally, projects in the HATS region are eligible to be selected for the statewide allocation, which totaled approximately $13 million in FFY 2022.

PENNDOT Multimodal Transportation Fund —

PennDOT's Multimodal Transportation Fund provides funding for projects that enhance communities, pedestrian safety and transit revitalization. Eligible applicants include municipalities, councils of government, businesses, non-profits, economic development organizations, public transportation agencies, ports or rail/freight entities. Eligible projects include transit facilities, bicycle and pedestrian facilities, streetscapes and transit-oriented development. Grants cannot exceed $3 million for any project, except for those that will significantly impact PennDOT's goal to leverage private development and create jobs in the Commonwealth.

PA DCED Multimodal Transportation Fund —

PA DCED's Multimodal Transportation Fund provides grants to encourage economic development and ensure that a safe and reliable system of transportation is available to state residents. Funds may be used for the development, rehabilitation and enhancement of transportation assets to existing communities, streetscape, lighting, sidewalk enhancement, pedestrian safety, connectivity of transportation assets and transit-oriented development. Eligible applicants include municipalities, councils of government, businesses, economic development organizations, public transportation agencies, ports or rail/freight entities. Grants range between $100,000 and $3 million.

PA DCNR Trail Funding —

Through its Community Conservation Partnerships Program, PA DNCR assists local governments and recreation and conservation organizations with funding for projects related to recreation and conservation, including motorized and non-motorized trails. Funding can cover acquisition, planning, development, rehabilitation, maintenance, purchase of equipment and education programs. Eligible project sponsors include counties, municipalities, non-profit organizations, state heritage areas, pre-qualified land trusts and for-profit enterprises (for some grant types). Most programs require a minimum cash or non-cash matching contribution from the applicant that is equal to 50 percent of the project cost.

PUBLIC / PRIVATE PARTNERSHIP OPPORTUNITIES

A public-private partnership (P3)project is a contractual agreement between a public entity and a private entity (or another public entity) in which the public entity transfers the responsibility for engineering, construction, operation, financing and/or maintenance of a transportation project or facility to the private sector for a defined period of time.

PennDOT operates one of the most ambitious and comprehensive P3 programs in the nation. These projects bring value to PA by significantly reducing structurally deficient bridges, supporting motorist safety, enhancing mass transit and rail service, and in some cases, generating new revenue to support future investment.

In addition to cost savings, P3 projects have other advantages over traditional procurement such as:

- Risk-sharing protecting project sponsors from the cost and consequences of negative events;
- Accelerated project delivery compared to traditional public-sector project scheduling and delivery methods;
- Improved quality and system performance from the use of innovative materials and management techniques that may result in higher initial quality to minimize long-term maintenance and operations costs;
- Ability to apply special incentives to improve project performance and operating efficiencies;
- A more optimal distribution of risks by allocating certain project risks to the private sector (e.g., financing, schedule, long-term operations and maintenance) and retaining others with the public agency (e.g., program management, environmental clearance, permitting and right-of-way acquisition);
- Use of private financial resources and personnel;
- Access to new sources of private capital, while leveraging scarce public resources and conserving public-sector debt capacity.

HATS will continue to identify potential P3 opportunities in the region and coordinate with PennDOT and other agencies on significant infrastructure projects administered through the P3 program.

PROJECT PIPELINE

See Project Pipeline maps in Appendix

The HATS transportation project development process begins with the identification of specific project needs as submitted

through the Transportation Need Form that is integrated into the RTP. Municipalities and other stakeholders are encouraged to use the form so that transportation needs can be identified and prioritized through the HATS Committees. The RTP is then implemented through the regular activities of HATS staff in coordination with various federal, state and local transportation planning agencies, other stakeholders, and the general public.

The sequence of decisions made through the project development process progressively narrows the project focus and, ultimately, leads to a project that addresses the identified needs. There are ample opportunities for public participation throughout the process. HATS staff continually works with local elected officials and business leaders that have an interest in funding the studies, programs, and/or projects that will improve the transportation network in the region to supplement federal and state transportation funds.

Stakeholders seeking funding for a locally identified transportation need are encouraged to review the RTP and submit an electronic Transportation Need Form. Hard copy versions of the form are available through the Tri-County Regional Planning Commission. Those submitting a form are asked to identify the primary need from one of the options listed below. Needs are then evaluated and ranked as a high, medium, or low regional priority across all the aspects of regional transportation need listed below. Rankings are determined statistically using a range of points awarded for the forms that have been submitted. This enables HATS to evaluate needs submitted through the Transportation Need Forms for consistency with the priorities of the RTP and refine project elements so they address the full range of needs that may be present at a given location.

The following point structure was developed in coordination with the RTP Implementation Work Group. A maximum of 100 points is possible.

Safety:

- Points awarded for corridors and locations identified by the PennDOT Highway Safety Manual methodology, locations of fatal/suspected serious injury crashes, and locations of bicycle or pedestrian crashes.

Congestion:

- Maximum points are awarded to needs identified within the high priority congested corridors or intersections as identified in the Congestion Management Plan and RTP, with lesser points awarded to the secondary tier of congested corridors. Additional points are also awarded in corridors with higher average daily traffic.

Asset Management:

- Maximum points are awarded to roadway segments with a "Poor" International Roughness Coefficient, with progressively lower points awarded in segments with "Fair," "Good," or "Excellent" ratings.
- Maximum points are awarded to bridges identified as "Poor" condition, with progressively lower points awarded to bridges identified as "Fair" or Good condition.

Accessibility/Transportation for the Disabled and Elderly:

- Points are awarded in areas with the high percentages of elderly and/or disabled residents, locations within ¼ mile of key community facilities (fire stations, police, medical facilities, etc.), major employers, commercial facilities, and transit stops, and corridors with poor sidewalk connectivity.

Freight Movement:

- Maximum points are awarded to needs identified along the National Highway Freight Network and high priority freight corridor candidates. Points are also awarded to medium and low priority freight corridor candidates, as well as needs within a half mile of an intermodal facility or major freight generator.

Transit Access and Facilities:

- Points are awarded to needs identified along or ¼ mile of a CAT bus stop.

Bicycle and/or Pedestrian Movement:

- Maximum points are awarded to needs identified along or within ¼ mile of the "Regional Backbone" and/or in areas depicted as having high bicycle/pedestrian demand. Maximum points are also awarded to needs along

major Plain Sect travel routes. Lesser points are also awarded to areas identified as having medium or low bicycle/pedestrian demand.

Land Use and Growth Management:

- Maximum points are awarded to needs identified within the Community Service Areas as identified in the Regional Growth Management Plan and RTP. Lesser points are awarded to needs within 1 mile of a CSA and within the Urban or Suburban Core of Planned Growth Areas.

Resiliency

- Points awarded to locations and corridors identified as High Risk in PennDOT Extreme Weather Vulnerability Study.

Environmental Justice

- Points awarded based on concentration of populations of low-income or racial minorities determined by census block-group.

Final implementation of the RTP projects occurs through the four-year Transportation Improvement Program (TIP), updated on a biennial cycle and modified on an as needed basis, as agreed upon through formal HATS action. By processing the project needs submitted by PennDOT or other project sponsors through the project development process identified here, all proposals eligible to receive federal transportation funds are given an equal opportunity to be included on the HATS TIP for implementation. Thus, the TIP serves as a local capital investment plan for the use of federal transportation funds.

To see the full, fiscally constrained list of projects and needs identified through the RTP, see the Appendix.

• ENVIRONMENT & MITIGATION •

ENVIRONMENTAL RESOURCES

In an effort to be more proactive when environmental resources may be impacted, HATS established an environmental advisory committee to serve as a permanent advisory group for the MPO. The committee has the following agency representation:

- Alliance for the Chesapeake Bay;
- Capital Region Water;
- Dauphin County Conservation District;
- Department of Conservation and Natural Resources;
- Department of Environmental Protection (Office of Field Operations & Stormwater);
- Federal Highway Administration;
- Manada Conservancy;
- PA Fish & Boat Commission;
- PA Game Commission;
- PA Historic & Museum Commission;
- PennDOT (District 8-0 Environmental, Central Office Environmental Policy & Development Section, Bureau of Maintenance & Operation);
- Pennsylvania State University Cooperative Extension Service;
- Susquehanna River Basin Commission;
- Trout Unlimited;
- US Army Corps of Engineers.

The advisory group is provided with mapping and a potential impact summary for projects included in the TIP/TYP and RTP, along with a listing of potential impact mitigation opportunities that not only address the resources that may

be impacted, but also address key local/regional priorities and may contribute toward MS4 permit requirements for local municipalities or others. The mapping of key resources is included in this section along with the listing of potential resource impacts as identified by buffering projects on the 2021 TIP/TYP and 2045 RTP Project Pipeline by 100 feet. Project-specific impact minimization is expected to significantly reduce the number of actual resource impacts.

See Aquatic Resources, Cultural Resources, Terrestrial Resources, and Waste Sites maps in Appendix

Potential Environmental Impacts*

Resource	Potential TIP/TYP Impacts	Potential RTP Pipeline Impacts	Total Potential Impacts
Aquatic Resources			
Rivers and Major Streams	108	8	116
Minor Streams & Tributaries	212	24	236
Non-Attaining Streams**	150	21	171
HQ/EV Streams**	54	2	56
Trout Streams**	52	3	55
Wetlands	82	5	87
FEMA 100-Year Floodplain	208	22	230
Terrestrial Resources			
Productive Agriculture With Prime Farmland Soils	150	24	174
Natural Areas Inventory	70	9	79
State Game Lands	8	0	8
State Forests	5	1	6
State Parks	4	0	4
Appalachian Trail	4	1	5
Cultural Resources			
Historic Resources	103	23	126
Cemeteries	8	2	10
Waste Sites			
Active Storage Tanks	7	4	11
Inactive or Abandoned Storage Tanks	6	2	8
Hazardous Waste Operations	3	2	5

*Numbers calculated using GIS software using a 100' buffer added to project/need boundaries
**These waterbodies may be primary streams or smaller tributaries

Resiliency

As part of PennDOT's 2017 Extreme Weather Vulnerability Study, a risk score is assigned to state-owned roadways and bridges at risk from floodwaters. This score combines variables of precipitation, floodplain location, reported past closures, bridge scour, deficient pipes, road classification, and traffic volumes. The highest possible score is 100 being the most vulnerable. Road Condition Reporting System (RCRS) events from 2006-2015 and stakeholder comments were combined to identify the vulnerable areas.

See the PennDOT Extreme Weather Vulnerability Study for more information, data, and statewide maps.

ENVIRONMENTAL JUSTICE

See Environmental Justice map in Appendix

Identifying Populations —

Title VI of the Civil Rights Act prohibits discrimination on the basis of race, color, or national origin. The Office of Management and Budget (OMB) issued Policy Directive 15, Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity, in 1997, establishing five minimum categories for data on race. Executive Order 12898 of 1994 and DOT Environmental Justice Order 5610.2(a) of 2012 address persons belonging to any of the following groups:

Minority, meaning a person is:

- Black -- a person having origins in any of the black racial groups of Africa.
- Hispanic or Latino -- a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.
- Asian -- a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent.
- American Indian and Alaskan Native -- a person having origins in any of the original people of North America, Central America, or South America, and who maintains cultural identification through tribal affiliation or community recognition.
- Native Hawaiian or Other Pacific Islander -- a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

Low-Income -- a person whose household income (or in the case of a community or group, whose median household income) is at or below the U.S. Department of Health and Human Services poverty guidelines.

American Community Survey data (2015-2019 5-year estimates) was compiled, analyzed, and mapped to show the concentrations and distribution of environmental justice populations in the HATS Region. In past environmental justice analyses, census block groups with minority or low-income higher than the regional average were identified as "environmental justice communities". To provide a more nuanced and complete picture of the geographic location and needs of, as well as potential impacts on, the HATS region's environmental justice populations, this analysis will examine statistically grouped concentrations, rather than solely using a threshold distinction.

Table 1 provides a demographic profile of the HATS region at the county and regional level. The minority population comprises 23.16% of the total regional population, with the vast majority (approximately 70%) located in Dauphin County. The low-income population accounts for 9.77% of the total regional population, a majority (approximately 60%) located in Dauphin County.

Table 2 and Table 3 show the distribution of minority and low-income populations by percentage interval. Approximately 34.06% of the region's total population and 73.55% of the region's minority population lives within a block group with higher than average minority population. Approximately 33.08% of the region's total population and 70.74% of the region's low-income population lives within a block group with higher than average low-income population. However, the percentages associated with the intervals show the minority population is much more concentrated in the region than the low-income population.

Table 4 shows cross-tabulation of minority and low-income populations by percentage interval. The cross-tabulation data shows minority populations are more likely to be low-income than non-minority populations, indicating a high degree of cross-over between minority and low-income populations in the region.

Map 1 and Map 3 (in the Appendix) also illustrate this data, by displaying percentage minority and low-income populations by census block groups. These maps illustrate significant concentrations of both low-income and minority populations in and around our urban centers of Harrisburg, Carlisle, and Shippensburg. Map 2 and Map 4 (in the Appendix) add dot densities for the demographic data, which depicts minority and low-income populations within census

Table 1

Profile of Low-Income and Minority Populations, 2019

Demographic Indicator	HATS MPO		Cumberland County		Dauphin County		Perry County	
	Population	Percentage	Population	Percentage	Population	Percentage	Population	Percentage
White, Non-Hispanic	438,775	76.84%	213,638	85.69%	181,239	65.75%	43,898	95.32%
Minority	132,238	23.16%	35,690	14.31%	94,393	34.25%	2,155	4.68%
Black or African American, Non-Hispanic	59,309	10.39%	9,190	3.69%	49,695	18.03%	424	0.92%
American Indian and Alaska Native, Non-Hispanic	649	0.11%	200	0.08%	357	0.13%	92	0.20%
Asian alone, Non-Hispanic	22,806	3.99%	10,602	4.25%	12,042	4.37%	162	0.35%
Native Hawaiian and Other Pacific Islander, Non-Hispanic	29	0.01%	20	0.01%	9	0.00%	0	0.00%
Some other race, Non-Hispanic	730	0.13%	290	0.12%	411	0.15%	29	0.06%
Two or more races, Non-Hispanic	12,504	2.19%	5,573	2.24%	6,422	2.33%	509	1.11%
Hispanic	36,211	6.34%	9,815	3.94%	25,457	9.24%	939	2.04%
Low-Income Households	20,933	9.09%	6,675	6.69%	12,540	11.18%	1,718	9.42%
Low-Income Population	53,947	9.77%	16,370	6.95%	33,354	12.31%	4,223	9.29%

Source: 2015-2019 American Community Survey 5-Year Estimates

Table 2

Distribution of Population by Minority Population Intervals

Population/Asset	Percent Minority Population Intervals					Total
	0% -9.49%	9.50% -23.16%	23.17% -44.58%	44.59% -70.93%	70.94% -97.60%	
Total Population	199,795	176,735	107,702	50,785	35,996	**571,013**
Total Population (in %)	34.99%	30.95%	18.86%	8.89%	6.30%	**100%**
Minority Population	8,268	26,705	36,465	29,530	31,270	**132,238**
Minority Population (in %)	6.25%	20.19%	27.58%	22.33%	23.65%	**23.16%**

Source: 2015-2019 American Community Survey 5-Year Estimates

Table 3

Distribution of Population by Poverty Population Intervals

Population/Asset	Percent Below Poverty Population Intervals					Total
	0% -4.88%	4.89% -9.77%	9.78% -21.60%	21.61% -37.46%	37.47% -80.41%	
Total Population	221,827	147,694	128,761	31,783	22,081	**552,146**
Total Population (in %)	40.18%	26.75%	23.32%	5.76%	4.00%	**100%**
Below Poverty Population	5,151	10,634	18,695	8,804	10,663	**53,947**
Below Poverty Population (in %)	9.55%	19.71%	34.65%	16.32%	19.77%	**9.77%**

Source: 2015-2019 American Community Survey 5-Year Estimates

Table 4

Poverty Rate among Racial/Ethnic Groups

		HATS MPO	Cumberland County	Dauphin County	Perry County
White, Non-Hispanic	Total	426,253	204,106	178,680	43,467
	Low-Income	28,872	11,811	13,145	3,916
	Percentage	6.77%	5.79%	7.36%	9.01%
Black, Non-Hispanic	Total	60,525	7,722	52,474	329
	Low-Income	14,660	2,003	12,644	13
	Percentage	24.22%	25.94%	24.10%	3.95%
American Indian, Non-Hispanic	Total	1,148	322	719	107
	Low-Income	246	60	155	31
	Percentage	21.43%	18.63%	21.56%	28.97%
Asian, Non-Hispanic	Total	22,350	10,207	11,981	162
	Low-Income	1,698	542	1,151	5
	Percentage	7.60%	5.31%	9.61%	3.09%
Native Hawaiian, Non-Hispanic	Total	114	52	51	11
	Low-Income	0	0	0	0
	Percentage	0.00%	0.00%	0.00%	0.00%
Some Other Race, Non-Hispanic	Total	9,356	2,420	6,758	178
	Low-Income	2,698	614	2,049	35
	Percentage	28.84%	25.37%	30.32%	19.66%
Two or More, Non-Hispanic	Total	15,065	6,085	8,470	510
	Low-Income	2,062	614	1,405	43
	Percentage	13.69%	10.09%	16.59%	8.43%
Hispanic	Total	34,374	8,619	24,872	883
	Low-Income	8,505	1,909	6,407	189
	Percentage	24.74%	22.15%	25.76%	21.40%

Source: 2015-2019 American Community Survey 5-Year Estimates

block groups that have relatively low concentrations. It is important to note that these dot densities are a graphic devise used to illustrate a population within the entire census block group and should not be interpreted to be portraying an exact location.

Assess Conditions —

To provide an accurate picture of the impacts of transportation planning on our region's environmental justice populations, the current conditions of the transportation system must be evaluated in the context of environmental justice. This will allow us to not just evaluate the impact of any one plan or program, but to examine the impacts of the decades of decisions made that comprise our comprehensive transportation planning process while identifying additional areas of need and gaps in our system. Working cooperatively with PennDOT, a variety of indicators were compared to the distribution and concentration of environmental justice populations and are presented below.

As previously mentioned, the regional threshold will not be solely used to identify specific communities as "environmental justice communities". However, the regional average will still be referenced in some of the following analyses.

Bridge Condition

Table 5 and Table 6 show the distribution of poor condition bridges and all bridges, respectively, by minority population interval. There are a total of 138 poor condition bridges in the HATS region, of which 17 (12.3%) are located within census block groups whose concentration of minority population exceeds the regional average. Conversely, there are a total of 1,328 bridges in the HATS region, of which 237 (17.8%) are located within census block groups whose concentration of minority population exceeds the regional average.

Table 5
Distribution of Poor Condition Bridges by Minority Population Intervals

Population/Asset	Percent Minority Population Intervals					Total
	0% -9.49%	9.50% -23.16%	23.17% -44.58%	44.59% -70.93%	70.94% -97.60%	
Poor Condition Bridge Count	91	30	10	2	5	138
Percentage	65.9%	21.7%	7.2%	1.4%	3.6%	100%
Total Population	199,795	176,735	107,702	50,785	35,996	571,013
Total Population (in %)	35.0%	31.0%	18.9%	8.9%	6.3%	100%
Minority Population	8,268	26,705	36,465	29,530	31,270	132,238
Minority Population (in %)	6.3%	20.2%	27.6%	22.3%	23.6%	23%
Poor Condition Bridges Per 1000 Pop.	0.46	0.17	0.09	0.04	0.14	0.24

Source: 2015-2019 American Community Survey 5-Year Estimates, PennDOT

Table 6
Distribution of All Bridges by Minority Population Intervals

Population/Asset	Percent Minority Population Intervals					Total
	0% -9.49%	9.50% -23.16%	23.17% -44.58%	44.59% -70.93%	70.94% -97.60%	
Total Bridge Count	810	281	145	47	45	1,328
Percentage	61.0%	21.2%	10.9%	3.5%	3.4%	100%
Total Population	199,795	176,735	107,702	50,785	35,996	571,013
Total Population (in %)	35.0%	31.0%	18.9%	8.9%	6.3%	100%
Minority Population	8,268	26,705	36,465	29,530	31,270	132,238
Minority Population (in %)	6.3%	20.2%	27.6%	22.3%	23.6%	23%
Total Bridges Per 1000 Pop.	4.05	1.59	1.35	0.93	1.25	2.33

Source: 2015-2019 American Community Survey 5-Year Estimates, PennDOT

Table 7
Distribution of Poor Condition Bridges by Poverty Population Intervals

Population/Asset	Percent Below Poverty Population Intervals					Total
	0% -4.88%	4.89% -9.77%	9.78% -21.60%	21.61% -37.46%	37.47% -80.41%	
Poor Condition Bridge Count	20	57	54	3	4	138
Percentage	14.5%	41.3%	39.1%	2.2%	2.9%	100%
Total Population	221,827	147,694	128,761	31,783	22,081	552,146
Total Population (in %)	40.2%	26.7%	23.3%	5.8%	4.0%	100%
Below Poverty Population	5,151	10,634	18,695	8,804	10,663	53,947
Below Poverty Population (in %)	9.5%	19.7%	34.7%	16.3%	19.8%	10%
Poor Condition Bridges Per 1000 Pop.	0.09	0.39	0.42	0.09	0.18	0.25

Source: 2015-2019 American Community Survey 5-Year Estimates, PennDOT

Table 8

Distribution of All Bridges by Poverty Population Intervals

Population/Asset	Percent Below Poverty Population Intervals					Total
	0% -4.88%	4.89% -9.77%	9.78% -21.60%	21.61% -37.46%	37.47% -80.41%	
Total Bridge Count	420	485	348	36	39	1,328
Percentage	31.6%	36.5%	26.2%	2.7%	2.9%	100%
Total Population	221,827	147,694	128,761	31,783	22,081	552,146
Total Population (in %)	40.2%	26.7%	23.3%	5.8%	4.0%	100%
Below Poverty Population	5,151	10,634	18,695	8,804	10,663	53,947
Below Poverty Population (in %)	9.5%	19.7%	34.7%	16.3%	19.8%	10%
Total Bridges Per 1000 Pop.	1.89	3.28	2.70	1.13	1.77	2.41

Source: 2015-2019 American Community Survey 5-Year Estimates, PennDOT

Table 7 and Table 8 show the distribution of poor condition bridges and all bridges, respectively, by low-income population interval. Of the 138 poor condition bridges in the HATS region, 61 (44.2%) are located within census block groups whose concentration of low-income population exceeds the regional average. Of the 1,328 total bridges in the HATS region, 423 (31.9%) are located within census block groups whose exceed the regional average.

Map 5 and Map 6 (in the Appendix) display the distribution of poor condition bridges by minority population and low-income population, respectively.

Pavement Condition

Table 9 and Table 10 show the distribution of poor condition pavement and excellent condition pavement, respectively, by minority population interval. There are a total of 215.59 miles of poor condition pavement in the HATS region, of which 45.58 (21.1%) are located within census block groups whose concentration of minority population exceeds the regional average. Conversely, there are a total of 550.49 miles of excellent condition pavement in the HATS region, of which 56.18 (17.8%) are located within census block groups whose concentration of minority population exceeds the regional average. Table 11 and Table 12 show the distribution of poor condition pavement and excellent condition pavement, respectively, by low-income population interval. Of the 215.59 miles of poor condition pavement in the HATS region, 104.38 (48.4%) are located within census block groups whose concentration of low-income population exceeds the regional average. Of the 550.49 miles of excellent condition pavement in the HATS region, 163.96 (29.8%) are located within census block groups whose exceed the regional average.

Table 9

Distribution of Poor Pavement by Minority Population Intervals

Population/Asset	Percent Minority Population Intervals					Total
	0% -9.49%	9.50% -23.16%	23.17% -44.58%	44.59% -70.93%	70.94% -97.60%	
Poor Pavement Mileage	142.31	27.81	22.74	12.56	10.27	215.69
Percentage	66.0%	12.9%	10.5%	5.8%	4.8%	100%
Total Population	199,795	176,735	107,702	50,785	35,996	571,013
Total Population (in %)	35.0%	31.0%	18.9%	8.9%	6.3%	100%
Minority Population	8,268	26,705	36,465	29,530	31,270	132,238
Minority Population (in %)	6.3%	20.2%	27.6%	22.3%	23.6%	23%
Poor Pavement Per 1000 Pop.	0.71	0.16	0.21	0.25	0.29	0.38

Source: 2015-2019 American Community Survey 5-Year Estimates, PennDOT

Table 10

Distribution of Excellent Pavement by Minority Population Intervals

Population/Asset	Percent Minority Population Intervals					Total
	0% -9.49%	9.50% -23.16%	23.17% -44.58%	44.59% -70.93%	70.94% -97.60%	
Excellent Pavement Mileage	373.08	121.24	43.03	7.32	5.83	550.49
Percentage	67.8%	22.0%	7.8%	1.3%	1.1%	100%
Total Population	199,795	176,735	107,702	50,785	35,996	571,013
Total Population (in %)	35.0%	31.0%	18.9%	8.9%	6.3%	100%
Minority Population	8,268	26,705	36,465	29,530	31,270	132,238
Minority Population (in %)	6.3%	20.2%	27.6%	22.3%	23.6%	23%
Excellent Pavement Per 1000 Pop.	1.87	0.69	0.40	0.14	0.16	0.96

Source: 2015-2019 American Community Survey 5-Year Estimates, PennDOT

Table 11

Distribution of Poor Pavement by Poverty Population Intervals

Population/Asset	Percent Below Poverty Population Intervals					Total
	0% -4.88%	4.89% -9.77%	9.78% -21.60%	21.61% -37.46%	37.47% -80.41%	
Poor Pavement Mileage	24.80	86.51	83.88	10.37	10.12	215.69
Percentage	11.5%	40.1%	38.9%	4.8%	4.7%	100%
Total Population	221,827	147,694	128,761	31,783	22,081	552,146
Total Population (in %)	40.2%	26.7%	23.3%	5.8%	4.0%	100%
Below Poverty Population	5,151	10,634	18,695	8,804	10,663	53,947
Below Poverty Population (in %)	9.5%	19.7%	34.7%	16.3%	19.8%	10%
Poor Pavement Per 1000 Pop.	0.11	0.59	0.65	0.33	0.46	0.39

Source: 2015-2019 American Community Survey 5-Year Estimates, PennDOT

Table 12

Distribution of Excellent Pavement by Poverty Population Intervals

Population/Asset	Percent Below Poverty Population Intervals					Total
	0% -6.67%	6.68% -10.51%	10.52% -30.33%	30.34% -52.55%	52.56% -85.92%	
Excellent Pavement Mileage	155.48	231.05	148.84	8.34	6.78	550.49
Percentage	28.2%	42.0%	27.0%	1.5%	1.2%	100%
Total Population	221,827	147,694	128,761	31,783	22,081	552,146
Total Population (in %)	40.2%	26.7%	23.3%	5.8%	4.0%	100%
Below Poverty Population	5,151	10,634	18,695	8,804	10,663	53,947
Below Poverty Population (in %)	9.5%	19.7%	34.7%	16.3%	19.8%	10%
Excellent Pavement Per 1000 Pop.	0.70	1.56	1.16	0.26	0.31	1.00

Source: 2015-2019 American Community Survey 5-Year Estimates, PennDOT

Map 7 and Map 8 (in the Appendix) display the distribution of poor and excellent condition pavement by minority population and low-income population, respectively.

Bike/Ped Crashes

Table 13 shows the distribution of bicycle and pedestrian related crashes (2013-2017) by minority population interval. Of the total 877 bicycle and pedestrian related crashes in the HATS region, 554 (63.2%) occurred within census block groups whose concentration of minority population exceeds the regional average. Additionally, the number of bicycle and pedestrian crashes per 1000 population is approximately 400% higher in census block groups whose concentration of minority population exceeds the regional average (3.86 average) than in census block groups whose concentrations of minority population does not (0.86 average). The census block groups in the lowest minority population interval have the lowest number of crashes per 1000 population and the census block groups in the highest minority population interval have the highest number of crashes per 1000 population. This shows a strong connection between concentration of minority population and incidence of bicycle and pedestrian crashes.

Table 13

Distribution of Bicyle & Pedestrian related crashes by Minority Population Intervals

Population/Asset	Percent Minority Population Intervals					Total
	0% -9.49%	9.50% -23.16%	23.17% -44.58%	44.59% -70.93%	70.94% -97.60%	
Bike-Pedestrian Crash Count	152	171	210	141	203	877
Percentage	17.3%	19.5%	23.9%	16.1%	23.1%	100%
Total Population	199,795	176,735	107,702	50,785	35,996	571,013
Total Population (in %)	35.0%	31.0%	18.9%	8.9%	6.3%	100%
Minority Population	8,268	26,705	36,465	29,530	31,270	132,238
Minority Population (in %)	6.3%	20.2%	27.6%	22.3%	23.6%	23%
Crashes Per 1000 Pop.	0.76	0.97	1.95	2.78	5.64	1.54

Source: 2015-2019 American Community Survey 5-Year Estimates, PennDOT

Table 14 shows the distribution of bicycle and pedestrian related crashes (2013-2017) by low-income population interval. Of the 877 bicycle and pedestrian related crashes in the HATS region, 542 (61.8%) occurred within census block groups whose concentration of low-income population exceeds the regional average. The number of bicycle and pedestrian crashes per 1000 population is approximately 450% higher in census block groups whose concentrations of low-income population exceeds the regional average (4.22 average) than census block groups whose concentrations of low-income population does not (0.92 average). Similar to the trend discussed in the minority population data, census block groups in the lowest low-income population interval have the lowest number of crashes per 1000 population and the census block groups in the highest low-income population interval have the highest number of crashes per 1000 population. This shows

a strong connection between concentration of low-income population and incidence of bicycle and pedestrian crashes. Map 9 and Map 10 (in the Appendix) display the distribution of bicycle & pedestrian crashes by minority population and low-income population, respectively.

Table 14
Distribution of Bicylce & Pedestrian related crashes by Poverty Population Intervals

Population/Asset	Percent Below Poverty Population Intervals					Total
	0% -9.49%	9.50% -23.16%	23.17% -44.58%	44.59% -70.93%	70.94% -97.60%	
Bike-Pedestrian Crash Count	186	149	261	151	130	877
Percentage	21.2%	17.0%	29.8%	17.2%	14.8%	100%
Total Population	221,827	147,694	128,761	31,783	22,081	552,146
Total Population (in %)	40.2%	26.7%	23.3%	5.8%	4.0%	100%
Below Poverty Population	5,151	10,634	18,695	8,804	10,663	53,947
Below Poverty Population (in %)	9.5%	19.7%	34.7%	16.3%	19.8%	10%
Crashes Per 1000 Pop.	0.84	1.01	2.03	4.75	5.89	1.59

Source: 2015-2019 American Community Survey 5-Year Estimates, PennDOT

Fatal/Serious Injury Crashes

Table 15 shows the distribution of fatal and serious-injury related crashes (2013-2017) by minority population interval. Of the 1,044 fatal and serious-injury related crashes in the HATS region, 340 (32.6%) occurred within census block groups whose concentration of minority population exceeds the regional average. While the average crashes per 1000 population was slightly higher in census blocks whose concentration of minority population exceeds the regional average than those that do not (1.95 average vs 1.84 average), the difference does not appear to be significant.

Table 15
Distribution of Injury & Fatal related crashes by Minority Population Intervals

Population/Asset	Percent Minority Population Intervals					Total
	0% -9.49%	9.50% -23.16%	23.17% -44.58%	44.59% -70.93%	70.94% -97.60%	
Injury-Fatal Crash Count	453	251	156	87	97	1,044
Percentage	43.4%	24.0%	14.9%	8.3%	9.3%	100%
Total Population	199,795	176,735	107,702	50,785	35,996	571,013
Total Population (in %)	35.0%	31.0%	18.9%	8.9%	6.3%	100%
Minority Population	8,268	26,705	36,465	29,530	31,270	132,238
Minority Population (in %)	6.3%	20.2%	27.6%	22.3%	23.6%	23%
Crashes Per 1000 Pop.	2.27	1.42	1.45	1.71	2.69	1.83

Source: 2015-2019 American Community Survey 5-Year Estimates, PennDOT

Table 16 shows the distribution of fatal and serious-injury related crashes (2013-2017) by low-income population interval. Of the 1,044 fatal and serious-injury related crashes in the HATS region, 122 (32.6%) occurred within census block groups whose concentration of low-income population exceeds the regional average. The average crashes per 1000 population was slightly higher in census blocks whose concentration of low-income population exceeds the regional average than those that do not (2.15 average vs 1.88 average), indicating a possible connection between concentration of low-income population and fatal and serious-injury related crashes.

Table 16
Distribution of Injury & Fatal related crashes by Poverty Population Intervals

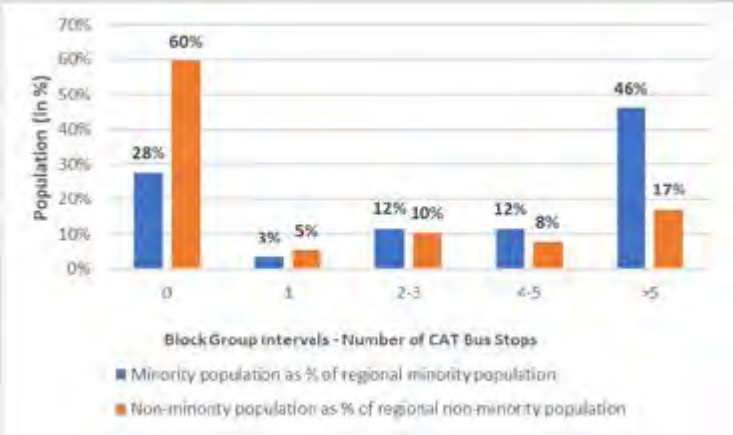
Population/Asset	Percent Below Poverty Population Intervals					Total
	0% -9.49%	9.50% -23.16%	23.17% -44.58%	44.59% -70.93%	70.94% -97.60%	
Injury-Fatal Crash Count	366	313	247	58	60	1,044
Percentage	35.1%	30.0%	23.7%	5.6%	5.7%	100%
Total Population	221,827	147,694	128,761	31,783	22,081	552,146
Total Population (in %)	40.2%	26.7%	23.3%	5.8%	4.0%	100%
Below Poverty Population	5,151	10,634	18,695	8,804	10,663	53,947
Below Poverty Population (in %)	9.5%	19.7%	34.7%	16.3%	19.8%	10%
Crashes Per 1000 Pop.	1.65	2.12	1.92	1.82	2.72	1.89

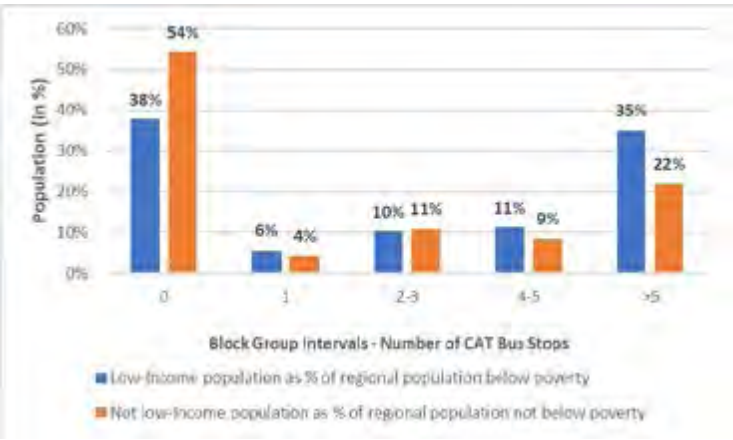
Source: 2015-2019 American Community Survey 5-Year Estimates, PennDOT

Map 11 and Map 12 (in the Appendix) display the distribution of poor condition bridges by minority population and low-income population, respectively.

Transit Access

Figure 1 shows approximately 28% of the minority population and 60% of the non-minority population lives within a census block group with no designated CAT bus stops, while approximately 46% of the minority population and 17% of the non-minority population lives within a block group with more than 5 designated CAT bus stops. Figure 2 shows approximately 54% of the non-low-income population and 38% of the low-income population lives within a block group with no designated CAT bus stops, while approximately 35% of the low-income population and 27% of the non-low-income population lives within a block group with more than 5 designated CAT bus stops.





Map 13 and Map 14 (in the Appendix) display the distribution of poor condition bridges by minority population and low-income population, respectively.

Conclusions

Based on the above analyses, poor pavement condition and bicycle/pedestrian-related crashes are more prevalent in areas with higher than average concentrations of minority and/or low-income populations.

The Environmental Justice analysis conducted for the previous Regional Transportation Plan found similar discrepancies with poor condition pavement, particularly in census block groups with concentrations of minority population that exceeds the regional average, indicating an area in need of attention and/or mitigation. The 2045 RTP Project Pipeline evaluation criteria included environmental justice populations, applying points along the population intervals discussed above. Additionally, locally-owned, federal-aid eligible asset data collection and analysis will be a focus of the implementation of the RTP. These may help alleviate issues regarding discrepancies in bridge and pavement condition.

The Environmental Justice analysis conducted for the previous Regional Transportation Plan did not conduct a comparable evaluation of bicycle and pedestrian-related crashes to indicate performance over time. However, non-motorized transportation and safety are high priorities of the RTP. The on-going safety plan update will directly address non-motorized crashes. The RTP Project Pipeline criteria applies points for bike/ped crashes and important bike/ped transportation routes (the Regional Backbone). Finally, the RTP Implementation Grant Program was created specifically to fund transportation studies and construction projects that make walking, biking, and accessing transit safer and more convenient.

Benefits & Burdens —

The benefits that the regional transportation program can bring are access, mobility, safety and environmental quality. The burdens of the program can be a reduction in any of those areas to a community. Many transportation projects require a trade-off between those aspects of the transportation system and the distribution of the benefits and burdens. For example, a project that will decrease congestion in one community may result in a decrease in the environmental quality of another as additional vehicles begin utilizing the improved route. Increased safety may require a trade off in access or mobility, and increased access may bring mobility concerns. Benefits and burdens analysis in respect to environmental justice is done to ensure that the benefits of transportation investment are being shared equally and that the burdens created by new projects are not being borne by one part of the public over another.

Current Program

To assess the impacts our current transportation program has on EJ communities in the HATS region, we must examine all aspects of that program. This includes the HATS Transportation Improvement Program (TIP), the PennDOT 12-Year Transportation program (TYP), and the HATS Regional Transportation Plan (RTP). Each of these programs covers different time frames. The 2021-2024 HATS TIP, adopted in June 2020, covers the next 4 years of programming and has the most well-developed information regarding estimated costs and project details. It also contained its own Environmental Justice Analysis. The PennDOT TYP covers the next 12 years of transportation improvements (incorporating the TIP as the first four years), and contains relatively well-developed information regarding estimated costs and project details. The HATS RTP project pipeline identifies long-range transportation needs, but lacks reliable information regarding estimated costs and project details. As such, the quantitative analysis will focus on the projects contained in the 2021-2024 HATS TIP and the PennDOT TYP, while the qualitative analysis will focus on the long range needs identified in the HATS RTP project pipeline.

The quantitative analysis used GIS software to compare projected investment to the location of EJ populations (low-income and minority) in the HATS region. The analysis was heavily impacted by the programmed Interstate projects, which represents approximately 73% of the total estimated spending in the HATS region over the next 12 years.

Percent Population Minority - Block Group Intervals		0% - 5.49%	5.50% - 23.16%	23.17% - 44.58%	44.59% - 70.93%	70.94% - 97.50%	TOTAL
Population Shares by Interval	Total Population	199,796	176,735	107,702	50,785	35,996	571,013
	Regional Share of Total Population (in %)	35.0%	31.0%	18.9%	8.9%	6.3%	100%
	Minority Population	8,268	26,705	36,465	29,530	31,270	132,238
	Regional Share of Minority Population (in %)	6.3%	20.2%	27.6%	22.3%	23.6%	100%
Bike-Ped Projects	Percentage of Funding	10.7%	18.8%	27.9%	32.9%	7.3%	
	Amount of Funding	$732,330	$1,290,606	$1,918,730	$2,257,850	$500,000	$6,867,521
Bridge Projects	Percentage of Funding	42.3%	14.4%	13.3%	17.2%	11.9%	
	Amount of Funding	$155,250,858	$52,015,196	$46,522,500	$62,291,500	$42,798,000	$362,858,064
Intermodal Projects	Percentage of Funding	54.0%	0.0%	0.0%	0.0%	0.0%	
	Amount of Funding	$1,450,000	$0	$0	$0	$0	$7,686,960
Roadway Projects	Percentage of Funding	17.9%	34.3%	32.0%	5.9%	10.0%	
	Amount of Funding	$56,087,011	$108,082,567	$100,737,352	$18,605,438	$31,539,375	$314,069,344
All Projects (Without Interstate)	Percentage of Funding	31.1%	23.5%	22.2%	12.1%	10.9%	
	Amount of Funding	$213,450,199	$161,389,569	$152,478,580	$83,154,590	$74,837,375	$685,731,179
	Per Capita Funding	$1,068.35	$913.22	$1,415.75	$1,637.38	$2,079.06	$1,202.88
Interstate Projects	Percentage of Funding	0.0%	1.5%	0.0%	44.2%	54.2%	
	Amount of Funding	$0	$20,378,730	$0	$857,788,266	$1,053,030,000	$1,941,196,996
All Projects (With Interstate)	Percentage of Funding	8.1%	7.3%	5.8%	35.8%	42.9%	
	Amount of Funding	$213,450,199	$181,717,299	$152,478,580	$940,942,856	$1,127,867,375	$2,627,316,315
	Per Capita Funding	$1,068.35	$1,085.11	$1,415.75	$18,527.97	$31,333.13	$4,601.15

As shown in the table above, per capita spending generally increases in each subsequently higher minority population percent interval, with block groups below the regional average having lower than average per capita spending and block groups above the regional average having higher than average per capita spending. This is true whether the Interstate projects (which, as discussed heavily skew this analysis) are included or not. Roadway and Bridge projects dominate the non-Interstate investments programmed on the TYP, accounting for more than 98% of the total. Approximately 54% of roadway and bridge investments are located within block groups below the regional average for minority population. However, as noted above, the per capita spending is higher in for block groups above the regional average than below the regional average. Bicycle/Pedestrian are relatively equally distributed throughout the percent intervals, but concentrated in the third and fourth highest percent interval. Intermodal projects programmed consist primarily of park-and-ride projects and are located within the lowest percent interval. It should be noted that, in addition to the projects identified on the TYP, HATS provides support for transit, typically through CMAQ funding, and has unmapped investments (such as the CAT Employment Access project) that aren't included in the quantitative analysis, but provide benefits to environmental justice populations by increasing access to transit.

Percent Population Low-Income - Block Group Intervals		0% - 4.58%	4.59% - 9.77%	9.78% - 21.60%	21.61% - 37.46%	37.47% - 60.41%	TOTAL
Population Shares by Interval	Total Population	221,827	147,594	126,761	31,783	22,081	552,146
	Regional Share of Total Population (in %)	40.2%	26.7%	23.3%	5.8%	4.0%	100%
	Low-Income Population	5,151	10,634	18,895	8,864	10,685	53,847
	Regional Share of Low-Income Population (in %)	9.5%	19.7%	34.7%	16.3%	19.8%	100%
Bike-Ped Projects	Percentage of Funding	18.2%	11.0%	23.2%	37.9%	7.3%	
	Amount of Funding	$1,251,058	$752,709	$1,592,070	$2,603,664	$500,000	$6,867,521
Bridge Projects	Percentage of Funding	14.8%	30.3%	26.7%	16.1%	12.3%	
	Amount of Funding	$53,631,514	$109,275,226	$96,556,306	$58,250,000	$44,473,000	$362,858,064
Intermodal Projects	Percentage of Funding	20.5%	0.0%	33.5%	0.0%	0.0%	
	Amount of Funding	$550,000	$0	$900,000	$0	$0	$7,686,960
Roadway Projects	Percentage of Funding	23.2%	14.6%	43.5%	4.0%	14.8%	
	Amount of Funding	$73,025,236	$45,976,636	$136,984,176	$12,469,748	$46,522,946	$314,069,344
All Projects (Without Interstate)	Percentage of Funding	18.7%	22.7%	34.4%	10.7%	13.3%	
	Amount of Funding	$128,460,608	$156,004,579	$236,033,151	$73,322,032	$91,495,949	$685,731,179
	Per Capita Funding	$579.10	$1,056.27	$1,833.13	$2,306.98	$4,143.65	$1,243.75
Interstate Projects	Percentage of Funding	0.0%	26.9%	12.6%	60.4%	0.0%	
	Amount of Funding	$0	$522,493,036	$245,390,694	$1,173,313,266	$0	$1,941,196,996
All Projects (With Interstate)	Percentage of Funding	4.9%	25.8%	18.3%	47.4%	3.5%	
	Amount of Funding	$128,460,608	$678,497,615	$481,423,845	$1,246,635,098	$91,495,949	$2,627,316,315
	Per Capita Funding	$579.10	$4,593.84	$3,738.91	$39,223.30	$4,143.65	$4,756.37

As shown in the table above, per capita spending as it relates to low-income population percentage intervals are similar to the trends discussed for minority populations above – generally higher in the block groups above the regional average than below and generally increasing in each subsequently higher interval. Approximately 59% of roadway and bridge projects are located in block groups above the regional average for low-income population. Bicycle/pedestrian projects and intermodal projects follow the same general pattern as discussed above as well.

While the distribution of projects and investment appears to be equitable, large projects, such as the Eisenhower Interchange and I-83 East Shore Section 3 projects can skew the analysis. These large projects can impose burdens on the surrounding community, particularly during the construction phases of the project, but can also provide benefits through improving connectivity and safety, particularly from improvements done on secondary roads as part of the larger overall project. The decision to locate these interstates was made long ago, but through consistent input from and outreach to our region's environmental justice populations, we can work to minimize the burdens and maximize the benefits.

Map 15 and Map 16 (in the Appendix) display the distribution of poor condition bridges by minority population and low-income population, respectively.

Future Needs

The process of identifying new needs typically comes from analyses, plans, and studies, as well as comments from the public. While these sources often have recommendations regarding the solutions to the identified long-term needs, exact projects and implementation efforts are rarely developed. As such, information related to the exact cost and scope is often not known, which makes substantive quantitative analysis difficult.

The long-term needs identified in the 2045 Regional Transportation plan are primarily related to maintaining or enhancing our existing transportation system, minimizing the need to acquire significant right-of-way or displace people. The notable exceptions to this is the identified interchange/interstate needs. These projects can involve significant right-of-way acquisition, prolonged construction periods, and increased traffic volumes upon completion. Outreach to low-income and minority communities early in the project development process is key to ensuring the benefits and burdens are shared equally among all of the public.

To provide some guidance, the table below shows the needs identified in our project pipeline, and the size of the low-income and minority populations present within the same census block group as the identified need. While the early stages of every project should involve outreach to environmental justice populations, this table provides an overview on the projects for which these outreach efforts will be particularly crucial.

Map 17 and Map 18 (in the Appendix) display the distribution of poor condition bridges by minority population and low-income population, respectively.

Conclusion —

The analysis of conditions highlighted two areas of concern – road condition and bicycle/pedestrian crashes. Each are disproportionally represented in block groups with higher than average concentrations of minority populations or low-income populations. The quantitative analysis shows the majority of bicycle/pedestrian projects are located in block groups above the regional average for low-income populations and minority populations. However, roadway projects (which includes resurfacing projects) are not distributed in a way that would address the discrepancies found in the condition analysis. There can be a variety of reasons for this, including asset management needs and funding limitations, but the consistent identification of this issue requires continued monitoring in future environmental justice analyses.

Further, HATS is already implementing efforts to address these discrepancies. As discussed above, the RTP Implementation Grant Program will provide funding to studies and projects that make walking, biking, and using transit safer and easier. HATS is also coordinating an effort to collect and analyze locally owned assets so that they will be equally considered during the Project Pipeline and TIP project selection processes. Finally, the Project Pipeline evaluation criteria includes concentration of environmental justice populations.

The analysis conducted is only a snapshot captured of this point in time. Continued refinement of the methodology and analysis of trends in both system condition and programmed investments will be required to fully understand how well we are addressing environmental justice concerns. These efforts, along with improved data sources and expanded public outreach must be a goal for HATS moving forward.

Regional Priority Threshold	Project/Location	Low-Income	Minority	Total
High	Trindle Road (Sporting Hill Road to Camp Hill Borough)	461	713	1,103
High	Bridge Market Street over Paxton Creek	377	338	715
High	Derry St Bridge over Spring Creek	354	835	1,069
High	Intersection of Otts Bridge Road, Carlisle Pike & Central Blvd	201	1,664	1,865
High	Intersection of Carlisle Pike and St. Johns Church Rd	157	1,435	1,592
High	Hogestown - Carlisle Pike from Commerce Drive to VA 114	414	1,842	2,256
High	Hockenville Road between Route 422 and Route 322	859	1,175	2,034
High	13th St over Norfolk Southern Railroad	919	3,824	4,743
High	Wertzville Road (Otts Bridge Road to North Enola Drive)	558	1,590	2,148
High	Middletown Road from Schoolhouse Road to Route 322	498	1,652	2,150
High	US 422, 322, and Hershey Park Drive Interchange	626	920	1,546
High	Intersection of Simpson Ferry Road & Wesley Dr/Sheely Dr	578	929	1,507
High	Greenbelt Front Street Gap Closure	251	1,708	1,959
Medium	Market Street, Cameron St to Front St	1563	3,636	5,199
Medium	Union Deposit Rd between I-83 Interchange and South Side Elementary	244	1,812	2,056
Medium	Main Street (Route 230)	1869	6,423	8,292
Medium	Route 147, Route 225, 4th Street, Armstrong Street	273	200	473
Medium	Foster Street from 2nd Street to 3rd Street, southside	708	1,103	1,811
Medium	Wertzville Road (Valley Road to East Pennsboro Twp)	75	867	942
Medium	Route 422 (W Chocolate Ave) and Old West Chocolate Ave	532	776	1,308
Medium	Intersection of Hummel Avenue and 18th Street	73	843	916
Medium	Intersection of Hummel Avenue and 17th Street	143	452	595
Medium	Intersection of State Street and 17th Street	143	452	595
Medium	I-81 Interchange at Mountain Road	47	589	636
Medium	Intersection of West Street, Willow Street, Walnut Bottom Rd	451	726	1,177
Medium	US 15/Rossmoyne Rd/Wesley Dr Interchange	232	440	672
Medium	Intersection of Gettysburg Road and St. Johns Road	0	94	94
Medium	22/322 Railroad Overpass	29	49	78
Medium	Good Hope Road (Hempt Drive to Silvercreek Drive)	220	1,463	1,683
Medium	Lucy Ave and the Intersection of Route 422 and Lucy Ave	626	920	1,546
Medium	Route 944/Miller's Gap and Old Willow Mill	81	154	235
Medium	York Rd, Petersburg Rd, and Carlton Avenue	117	296	413
Medium	Bloomfield Rd (SR 274) and Locust Street	240	169	409
Medium	Intersection of Lisburn Rd and Creek Rd	264	557	821
Medium	Route 322 from University Drive to Homestead Lane	659	1,820	2,479
Medium	S 17th Street from Derry Street to Market Street	1224	3,258	4,482
Medium	Intersection of Eisenhower Boulevard and Highland Street	28	930	958
Medium	Route 944/Deer Lane	123	240	363
Medium	Route 114/I-81 Interchange	384	1,188	1,572
Medium	Route 743 (Cocoa Ave) from Route 322 to Route 422	339	1,552	1,891
Medium	Division Street Bridge	843	2,020	2,863
Medium	Intersection of Lisburn Rd and Carlisle Rd	264	557	821
Medium	Exit 29 of Interstate 81	1050	731	1,781
Medium	Intersection of Lisburn Rd and Spangler's Mill Rd	760	2,137	2,897
Medium	Spring Rd (RT34) and Longs Gap Road	188	497	685
Medium	Intersection of Holly Pike (Rt 34) and Pine Road	108	205	313
Medium	Lower Allen Dr. Extension	61	2,752	2,813
Medium	SR 0233, South High Street	225	81	306
Medium	Intersection of Rt 641 (Main Street) and Rt 233 (High Street)	58	40	98
Medium	SR 2015 (Sand Beach Rd), approximately 1500' south of Meadow Lane	133	50	183
Medium	PA 533 (Vine/Fairfield St)	240	110	355
Medium	Intersection of Wertzville Rd and Rt 114	81	154	235
Medium	Rt 850	364	305	669
Medium	Intersection of Gettysburg Road and Slate Hill Rd/Locust St	286	551	837
Medium	Route 944/Tuch Valley Road	81	154	235
Medium	PA 743/Dairy Lane, PA 743/Colt Drive, and SR 2015/Meadow Lane	306	191	497
Medium	Route 225, Elizabeth Ave, Chester Blvd	84	96	180
Medium	US 15/Slate Hill Rd Interchange	737	534	1271
Medium	SR 2015 and US 22	353	61	414
Low	Intersection of PA 743 and Earlys Mill Road	133	50	183
Low	West Omaha Street Streetscape Improvements	209	415	624
Low	Intersection of Orr's Bridge Rd and Mountain View Rd	67	857	924
Low	Bow Creek Road (I-81 to Route 22)	411	164	575
Low	State Road (Towson Rd to Fellowship Dr)	109	375	484
Low	Colonial Club Drive from Linglestown Rd to Lockaville Ave	81	853	934
Low	HIA Airport Connector Access Issues	315	867	1,182
Low	Oberlin Road (Shady Lane to Spring Garden Drive)	131	110	241
Low	Bridge TYT-5 (Ernest Rd) over Manoour Creek	111	56	167
Low	Bridge TYT-2 (McCabe Run/Barkley Rd)	111	56	167
Low	Cinema Mill Road from Deerfine Rd to Lansky Drive	53	479	532
Low	Fayge Road and Fairview Street	21	176	197
Low	Fayge Road and Lindsey Road	43	420	463
Low	Tobyne Twp. Bridge TBT-3 (Back Hollow Rd T-800)	57	6	63

IMPACTS & MITIGATION OPPORTUNITIES

See Mitigation Sites map in Appendix

Water resources are by far the most likely environmental feature to be potentially impacted by the projects on the current TIP. In an effort to identify potential mitigation projects that would enhance water resources on a local or regional scale, HATS conducted an extensive outreach effort to municipalities throughout the MPO and compiled a list of planned projects from Pollution Prevention Plans and other sources that would enhance water resources across the region while also filling MS4 permit requirements for municipalities. Information including project descriptions, cost and anticipated pollution reduction potential has been compiled in an effort to provide matches for project-specific impacts. Working through the environmental advisory committee, it may be possible to complete many of these projects as a form of "mitigation bank" for future water resource impacts.

Historic or other cultural resources may also be impacted by the projects on the 2019 TIP. However, while the number of potential impacts is significant, HATS is also aware that the available data on historic resources throughout the region is limited, so the potential for even greater impacts is clear. In an effort to help clarify potential impacts, minimize actual impacts, and offer mitigation opportunities with the greatest possible value, HATS is currently working with the PA Historic and Museum Commission (PHMC) to expand the National Register eligibility database throughout the HATS region. Once this improved database is available, impacts and mitigation opportunities can be more clearly defined and evaluated through the advisory committee.

Potential impacts to agricultural lands are the last category with a large number of transportation system potential impacts. The Dauphin County Conservation District and Manada Conservancy both play significant roles in efforts to preserve/protect agricultural resources in Dauphin County, as do the Perry County Conservation District and Cumberland County Planning Department in their respective counties. All three public entities participate in the state agricultural preservation program and each have the mandatory property evaluation process focusing on high quality soil and likelihood for conversion without preservation, thereby making participation in their programs an ideal opportunity for addressing agricultural resource and/or secondary or cumulative growth impacts caused by improved transportation system access. There is also the potential for working with private organizations like the Manada Conservancy that may provide additional program flexibility. Therefore, it is the desire of the MPO to work with PennDOT, FHWA, and the Agency Coordination Meeting (ACM) to develop a viable "mitigation bank" involving contributions to the applicable county programs to account for agricultural resource and/or secondary/cumulative impacts arising from the current TIP.

In addition to the specifically identified mitigation opportunities identified above, PennDOT has created a Watershed Resources Registry which includes areas best suited for wetland, riparian and stormwater preservation and restoration. Using this tool during the transportation planning process is an important tool for HATS in the identification of ideal areas for project-specific mitigation opportunities. This tool is expected to be especially valuable where more specific mitigation opportunities are not well-matched to project-specific resource impacts.

AIR QUALITY CONFORMITY

Air quality conformity analysis was completed for this update of the RTP and the 2021-2024 TIP and will be included in the public comment period. The report can be found in the Appendix.

The Air Quality Conformity Resolution states the HATS 2045 RTP and 2021-2024 TIP will meet and maintain all applicable Air Quality Conformity requirements. The resolution will be included in the public comment period and can be found in the Appendix.

KEY RECOMMENDATIONS

A summary of the key recommendations identified throughout this plan.

Safety —

- Based on the listing of top crash corridors provided by PennDOT and the safety planning tools under development by HATS, and in coordination with the region's municipalities and stakeholders, conduct a series of corridor studies that seek to identify a range of recommended safety improvements.
- Integrate implementation of corridor studies and/or other safety planning efforts into existing Project Pipeline process, minimizing delay between the planning and construction phases for safety enhancements.
- Annually update crash data and evaluate conformance with the safety performance measures adopted as part of this plan. This ongoing effort will be used to focus safety programming efforts and evaluate crash frequency in areas where improvements have been implemented as part of the RTP process.
- Establish a safety education program within the HATS region build upon the TIM Team initiative and promote safe transportation practices consistent with FHWA and PennDOT guidance.

Asset Management —

- Continue coordination with PennDOT to select projects for future TIP updates to address assets with the Lowest Life Cycle Cost methodology;
- Work with municipalities and PennDOT to collect and analyze data on locally owned, federal aid eligible assets to ensure equal consideration in project selection and development.
- Consider a program to assist municipalities in data collection and capital improvement programming for local bridge and roadway projects;
- Continue coordination with the necessary agencies to measure progress and work toward asset management performance targets for pavement and bridges (PM-2).

Mobility & Accessibility —

- Coordinate with the Mobility and Accessibility committee on a regular basis to continue the ongoing evaluation of the transportation needs of these populations;
- Continue work with regional transit and paratransit service providers to ensure equitable access for all populations;
- Engage with public, regional partners and stakeholders on Regional Coordinated Public Transit-Human Services Transportation Plan Update being conducted for Adams, Franklin, York, Cumberland, Dauphin, and Perry Counties;
- Create and maintain a listing of transportation services in the HATS region.

Congestion Management

- Conduct studies of the corridors and intersections where congestion and safety are of high concern;
- Implement operational improvements that reduce vehicle congestion and encourage alternative modes of transportation;
- Continue to engage with Traffic Incident Management (TIM) teams for ongoing incident management coordination for the most congested and crash-prone corridors

Moving Goods Via Roadways —

- Address regional interstate capacity, existing freight bottlenecks, and spot improvements;
- Continue to monitor system performance for freight and mobility per national freight performance measures;
- Address the region's needs for truck parking;
- Address intersections with substandard turning radii;
- Improve motor carrier safety by identifying truck crash clusters;
- Minimize truck traffic on lower-order roadways.

Moving People Via Roadways —

- Consider access to transit -- and related bicycle and pedestrian accommodations -- a high priority in areas identified for growth in the RGMP;
- Work with CAT and other area transit providers on long-term planning efforts to improve service access and efficiency within the HATS region and surrounding communities;
- Identify and pursue additional park and ride facilities throughout the HATS region;
- Conduct system-wide analysis during next update of Coordinated Public Transit -- Human Service Transportation Plan;
- Continue supporting Commuter Services of PA and other community organizations providing transportation services to residents of the HATS region through funding, coordination or planning assistance.
- Conduct further analysis and work with municipalities to identify opportunities for Road Diet implementation

Non-Motorized —

- Work with municipalities and community members to continue refining the Regional Backbone and ensure any future project (transportation or land development) makes appropriate bicycle and pedestrian accommodations a high priority;
- Work with transit providers and other relevant parties to improve pedestrian and bicycling accommodations near transit stops and routes;
- Work with PennDOT and municipalities to identify low-cost and important opportunities to improve the region's bicycle and pedestrian safety and connectivity;
- Maintain communication with the Plain Sect community to refine the areas of concern, provide timely information on construction projects and potential detours, and provide coordination between PennDOT and the community to incorporate improvements such as shoulder widening, vertical curvature reduction, and/or signage in areas with the greatest safety issues.

Rail —

- Improve at-grade rail crossing safety;
- Improve overall rail freight safety;
- Support Operation Lifesaver and its public awareness campaigns;
- Coordinate with PennDOT and railroads to address the region's many railroad bridges and underpasses that feature overhead height restrictions;
- Investigate the needs for improving short line rail service.

Aviation —

- Continue to support regional economic growth through SARAA's efforts;
- Be proactive in planning for the anticipated increase in traffic with new developments in and around HIA;
- Educating nearby municipalities on transportation and land use controls to help monitor the anticipated increase in traffic with new developments in and around HIA.

Land Use —

- Manage growth toward areas with existing or planned public facilities and services, consistent with the identified Community Service Areas and Planned Growth Areas;
- Promote the creation of livable, sustainable communities through community design which accommodates a range of lifestyles, age groups, and working conditions and development patterns which promote active living and access to recreation, service, food, and a multi-modal transportation network;
- Encourage provision of an adequate amount and mix of safe and sustainable utility facilities and services, consistent with projections through 2040;
- Encourage the use of and planning for "green infrastructure" and other clean, efficient innovations;
- Promote compact development, infill development, and redevelopment consistent with capacities and planned facilities and services.

PERFORMANCE MEASURES

Safety —

TThe FHWA final rule for the National Performance Management Measures: Highway Safety Improvement Program (Safety PM) and Highway Safety Improvement Program (HSIP) were published in the Federal Register (81 FR 13881 and 81 FR 13722) on March 15, 2016 and became effective on April 14, 2016.

These final rules are the first in a series of three rulemakings that together establishes a set of performance measures for State Departments of Transportation (State DOTs) and MPOs to use as required by MAP-21 and the FAST Act.

The Safety PM Final Rule, also referred to as PM 1, supports the HSIP, as it establishes safety performance measure requirements for carrying out the HSIP and to assess fatalities and serious injuries on all public roads.

The Safety PM Final Rule establishes five performance measures as the five-year rolling averages to include the following:

- Number of fatalities
- Rate of fatalities per 100 million Vehicle Miles Traveled (VMT)
- Number of serious injuries
- Rate of serious injuries per 100 million VMT
- Number of non-motorized fatalities and non-motorized serious injuries

Once notified of the state targets, MPOs and RPOs must either choose to adopt the state's performance targets and support the state's efforts in achieving those targets or establish their own quantifiable performance targets. The MPO's decision will be communicated to PennDOT within 180 days of August 31 each year.

In February 2021, HATS adopted the 2017-2021 PennDOT performance targets for safety improvement, which calls for a 2 percent annual reduction in fatal and major injury crashes based on five-year running average crash rates. With this adoption, HATS agrees to support the targets by working with PennDOT to plan and program projects that contribute to meeting or making significant progress toward the established targets:

Safety Performance Measure	Statewide Baseline (2015-2019)	Statewide Target (2017-2021)	HATS MPO Target (2017-2021)
Number of Fatalities	1,154.8	1,088.2	51.5
Fatality Rate	1.135	1.059	0.828
Number of Serious Injuries	4,166.6	4,551.2	241.8
Serious Injury Rate	4.097	4.431	3.888
Number of Non-motorized Fatalities and Serious Injuries	741.6	800.8	38.3

Source: PennDOT, 2020

PennDOT and HATS will coordinate annually in tracking this performance measure and ensure the regional TIP, the STIP, and RTP are developed and managed to support progress toward the achievement of these targets. In addition, coordination will continue on an ongoing bases during the development of corridor safety studies and implementation projects described in the plan.

Pavement & Bridge —

The FHWA final rule for the National Performance Management Measures; Assessing Pavement Condition for the National Highway Performance Program and Bridge was published in the Federal Register (82 FR 5886) on January 18, 2017 and became effective on February 17, 2017.

This final rule establishes a set of performance measures for State Departments of Transportation (State DOTs) and MPOs to use as required by MAP-21 and the FAST Act.

The final rule established performance measures for all State DOTs to use to use to carry out the National Highway Performance Program (NHPP) and to assess the condition of the following: Pavements on the National Highway System (NHS) (excluding the Interstate System), bridges carrying the NHS which includes on- and off-ramps connected to the NHS, and pavements on the Interstate System. The NHPP is a core Federal-aid highway program that provides support for the condition and performance of the NHS and the construction of new facilities on the NHS. The NHPP also ensures that investments of Federal-aid funds in highway construction are directed to support progress toward the achievement of performance targets established in a State's transportation asset management plan (TAMP) for the NHS. This final rule establishes regulations for the new performance aspects of the NHPP that address measures, targets, and reporting.

The pavement and bridge performance measures include:

- % of Interstate pavements in Good condition;
- % of Interstate pavements in Poor condition;
- % of non-Interstate NHS pavements in Good condition;
- % of non-Interstate NHS pavements in Poor condition;
- % of NHS bridges by deck area classified in Good condition;
- % of NHS bridges by deck area classified in Poor condition.

In February 2021, HATS adopted the 2017-2021 PennDOT performance targets for pavement and bridge conditions, which aims to maintain the system in a state of good repair. With this adoption, HATS agrees to support the targets by working with PennDOT to plan and program projects that contribute to meeting or making significant progress toward the established statewide targets shown on the following page.

As with the safety measures, PennDOT and HATS will coordinate annually in tracking this performance measure and ensure the regional TIP, the STIP, and the RTP are developed and managed to support progress toward achievement of these targets.

System Performance, Freight, CMAQ —

The FHWA final rule for the National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program was published in the Federal Register (82 FR 5970) on January 18, 2017 and became effective on May 20, 2017.

The final rule is the third in a series of three related rulemakings that together establishes a set of performance measures for State DOTs and MPOs to use as required by MAP-21 and the FAST Act.

The measures in this final rule will be used by State DOTs and MPOs to assess the performance of the Interstate and non-Interstate National Highway System (NHS) for the purpose of carrying out the National Highway Performance Program (NHPP); to assess freight movement on the Interstate System; and to asses traffic congestion and on-road mobile source emissions for the purpose of carrying out the Congestion Mitigation and Air Quality (CMAQ) Improvement Program.

Performance Measures		2017 Baseline	2-Year (2019) Performance	2-Year Target	4-Year Original Target	4-Year Adjusted Target
Pavement (Statewide)	Percentage of Pavements of the Interstate System in Good Condition		75.1%		60.0%	
	Percentage of Pavements of the Interstate System in Poor Condition		0.4%		2.0%	
	Percentage of Pavements of the Non-Interstate NHS in Good Condition	47.8%	49.0%			
	Percentage of Pavements of the Non-Interstate NHS in Good Condition		37.6%	35.0%	33.0%	
	Percentage of Pavements of the Non-Interstate NHS in Poor Condition	15.9%	15.2%			
	Percentage of Pavements of the Non-Interstate NHS in Poor Condition		2.0%	4.0%	5.0%	
Bridge (Statewide)	Percentage of NHS Bridges Classified as in Good Condition	23.7%	27.0%	25.8%	26.0%	
	Percentage of NHS Bridges Classified as in Poor Conditions	5.1%	5.1%	5.5%	6.0%	

Source: PennDOT, 2020

These measures include:

- Percent of Person-miles Traveled on the Interstate System that are Reliable;
- Percent of Person-miles Traveled on the Non-Interstate NHS that are Reliable;
- Interstate System Truck Travel Time Reliability Index;
- Annual Hours of Peak-Hour Excessive Delay (PHED) per Capita;
- Percent Non-Single Occupant Vehicle (SOV) Travel;
- On-Road Mobile Source Emissions Reduction for CMAQ-funded Projects.

For the three reliability measures, PennDOT has set statewide targets and MPO baseline reliability measures have been provided for informational purposes. While the Philadelphia and Pittsburgh areas are required to have annual peak hour excessive delay and non-SOV travel measures in the first performance cycle, HATS will move forward with the expectation of being added in the future for these measures.

The mobile source emission reduction measures are produced for each MPO that is in a non-attainment or maintenance area in accordance with the National Ambient Air Quality Standards. HATS is a non-attainment area for PM 2.5 and has targets set for this.

In February 2021, HATS agreed to support the 2017 – 2021 state performance targets. With this adoption, HATS agrees to work with PennDOT to plan and program projects that contribute to meeting or making significant progress toward the established targets shown on the following page.

	Performance Measures		2017 Baseline	2-Year (2019) Performance	2-Year Target	4-Year Original Target	4-Year Adjusted Target
PM-3	Reliability (Statewide)	Percentage of the Persons-Miles Traveled on the Interstate That Are Reliable	89.8%	89.9%	89.8%	89.8%	89.5%
		ercent of the Persons-Miles Traveled on the Non-Interstates NHS That Are Reliable		88.5%		87.4%	
		Truck Travel Time Reliability (TTTR) Index	1.35	1.36	1.34	1.34	1.4
	CMAQ - Delay and Non-SOV (Urbanized Area)	Annual Hours of Peak House Excessive Delay Per Capita: Philadelphia		14.6%		17.2%	
		Annual Hours of Peak House Excessive Delay Per Capita: Pittsburgh		10.1%		11.8%	
		Percent of Non-Single Occupancy Vehicle (Non-SOV) Travel: Philadelphia	27.9%	28.2%	28.0%	28.1%	
		Percent of Non-Single Occupancy Vehicle (Non-SOV) Travel: Pittsburgh	24.8%	25.5%	24.6%	24.4%	
	CMAQ - Emissions (Statewide)	Total Emission Reductions: PM2.5	25.870	143.210	10.760	20.490	
		Total Emission Reductions: NOx	971.780	971.050	337.700	612.820	
		Total Emission Reductions: VOC	302.380	231.780	109.460	201.730	
		Total Emission Reductions: PM10	24.780	0.000	9.540		
		Total Emission Reductions: CO	1135.400	2969.640	567.700	1135.400	250.000

Source: PennDOT, 2020

Below is a summary of the PM-3 Reliability Performance report from PennDOT for the 2017-2021 statewide system reliability targets. Statewide targets and baselines are provided as well regional performance total. Note the 2- and 4-year reliability targets are only applicable statewide. The MPO value is only provided for informational purposes.

Area (MPO/RPO)	Interstate Reliability			Non-Interstate Reliability			Truck Travel Time Reliability		
	2017 Baseline	2018	2019	2017 Baseline	2018	2019	2017 Baseline	2018	2019
Statewide Total	89.8%	89.6%	89.9%	87.4%	88.2%	88.4%	1.34	1.39	1.36
Statewide Target	89.8% -> Adjusted to 89.5% 2 & 4-Year Target			87.4% 4-Year Target			1.34 -> Adjusted to 1.40 2 & 4-Year Target		
Harrisburg MPO	91.3%	92.7%	92.4%	91.0%	92.4%	90.3%	1.32	1.33	1.31

Source: PennDOT, 2020

As with the other defined measures, PennDOT and HATS will coordinate regularly in tracking this performance measure and ensure the regional TIP, the STIP, and the RTP are developed and managed to support progress toward achievement of these targets.

Transit Safety

Based on a 2018 Federal Transit Administration final rule, MPOs are required to establish Transit Safety performance targets.

In 2020, the Cumberland-Dauphin-Harrisburg Transit Authority adopted a Public Transit Agency Safety Plan that establishes targets for fatalities, injuries, safety events, and system reliability. At their June 25 meeting, the Harrisburg Area Transportation Study passed a resolution adopting the performance targets of the Cumberland-Dauphin-Harrisburg Transit Authority Public Transportation Agency Safety Plan and agreeing to plan and program projects that contribute to meeting the safety targets. Unless approved differently in the future, the HATS MPO safety targets will coincide with whatever is in the most current Cumberland-Dauphin-Harrisburg Transit Authority Public Transportation Agency Safety Plan.

Transit Asset Management

Based on a 2016 Federal Transit Administration final rule on planning, MPOs are required to establish Transit Asset Management performance targets, incorporate those targets into long-range plan updates, and coordinate to the maximum extent practicable with the state DOT and transit providers on their development.

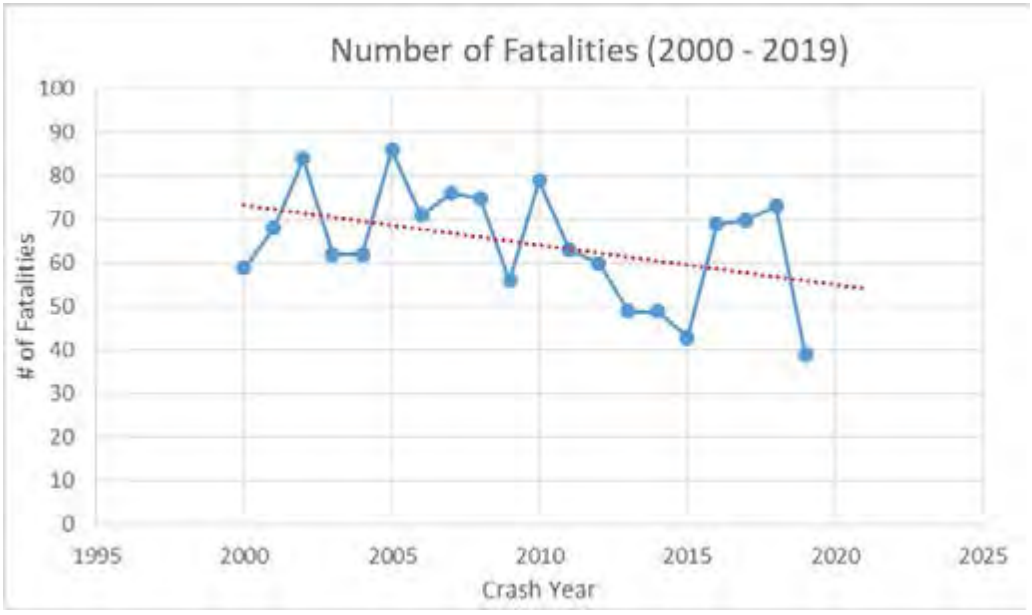
Capital Area Transit participates in the PennDOT Transit Asset Management Group Plan, which establishes performance targets for rolling stock, equipment, and facilities. At their June 25 meeting, the Harrisburg Area Transportation Study passed a resolution adopting the performance targets of the Pennsylvania Transit Asset Management Group Plan and agreeing to plan and program projects that contribute to meeting the TAM targets. Unless approved differently in the future, the HATS MPO TAM targets will coincide with whatever is included in the most recent Pennsylvania TAM Group Plan.

TRACKING OUR PROGRESS

PM-1 Safety

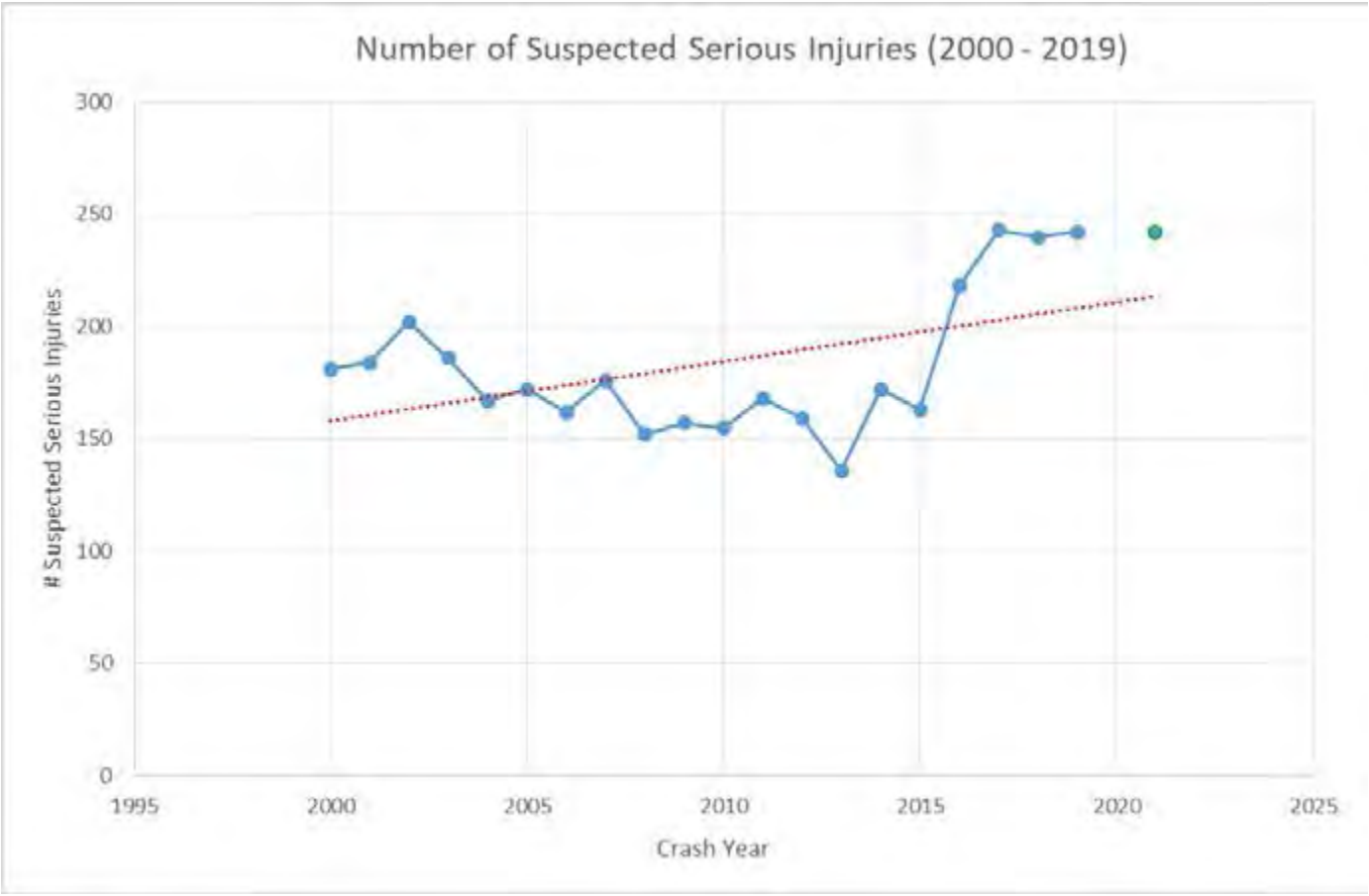
The figures below explore historical trends and the current status of the HATS region relative to the performance measures listed above. Each of the five distinct safety performance measures are shown below tracked from the year 2000 through 2019. These charts reflect the most recent trend 20-year trend of data available.

Overall, there is a downward trend in fatalities within the Harrisburg region. The number of Serious Injuries and the Serious Injury Rate has shown an increase starting in 2016. This can likely be attributed to the reclassification of serious injuries as of January 1, 2016. The non-motorized fatalities and serious injuries within the Harrisburg region are currently on an upward trend.

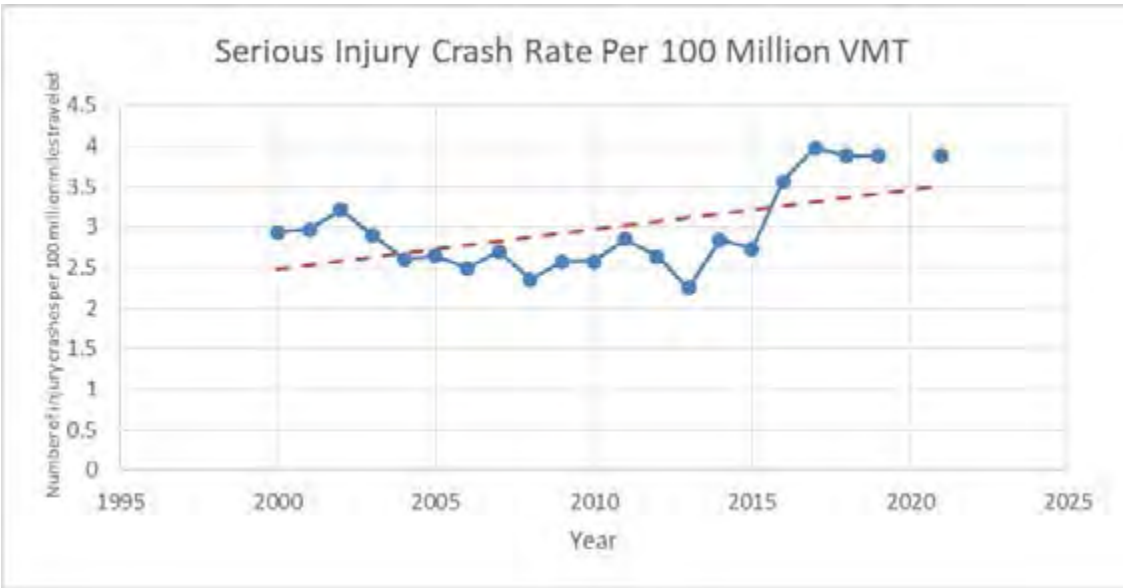


Source: PennDOT

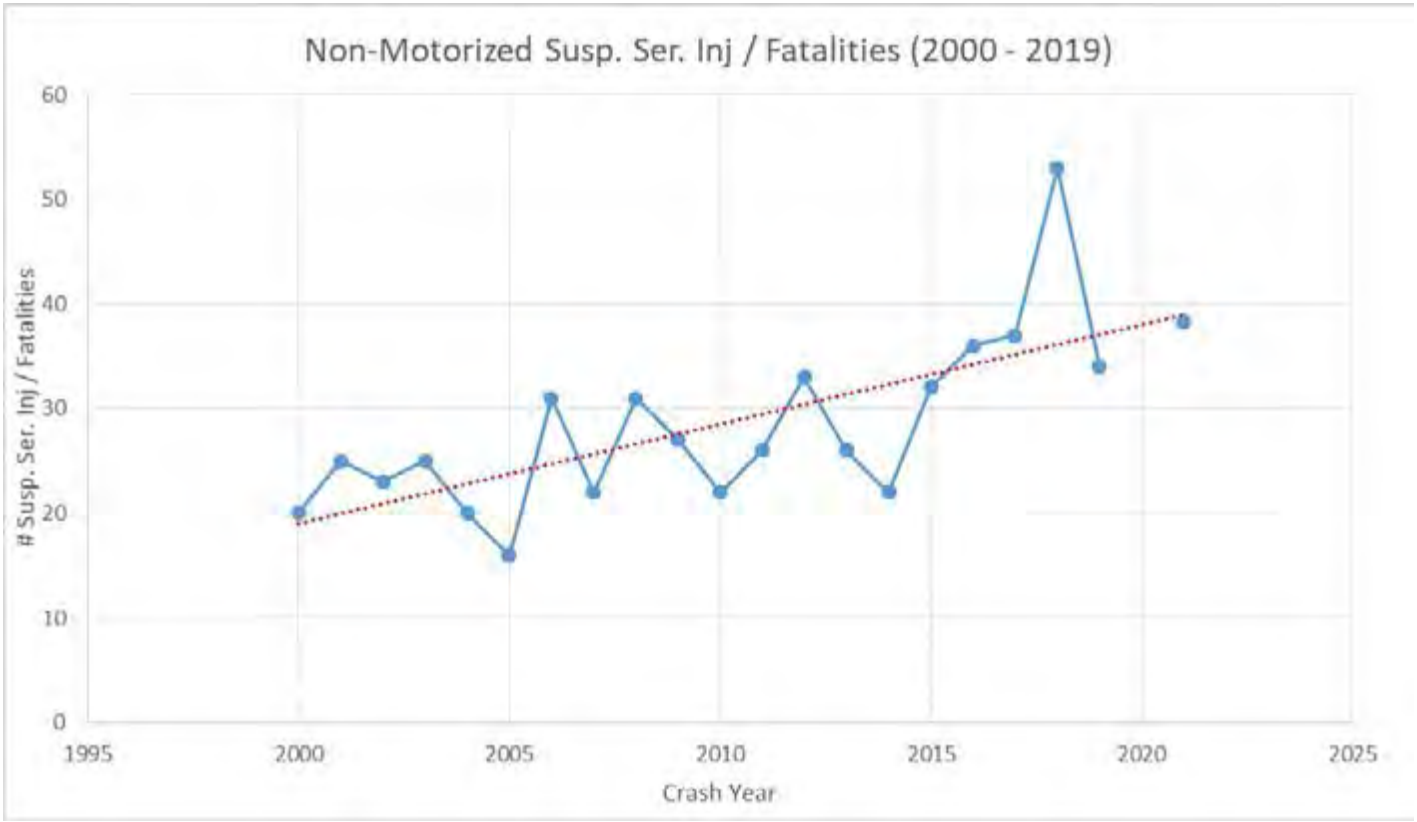
Source: PennDOT



Source: PennDOT, 2020



Source: PennDOT, 2020



Source: PennDOT, 2020

These charts were developed from information from PennDOT's PCIT crash portal and the Annual Highway Statistics reports.

PM-2 Pavement and Bridge Condition

PennDOT distributes annual reports to the MPOs to show progress towards meeting the statewide targets for the pavement and bridge condition performance measures. Below are tables reporting the HATS region progress towards the pavement and bridge condition performance measures for the 2019 reporting year.
The chart from the pavement performance report shoes that the Harrisburg Region meets the goal for the "Good" condition pavements and is slightly over the "Poor" condition pavements goal for the 2021 targets.

	MAP-21 Pavement Performance Measure											
	Good				Fair		Poor				Missing (Max 5%)	
Business Plan Network	Miles	%	2021 Target	2023 Target	Miles	%	Miles	%	2021 Target	2023 Target	Miles	%
Interstate	80.4	63.58%	-	41%	45.7	36.17%	0.3	0.25%	-	2%	3.8	2.89%
NHS, Non-Interstate	140.2	47.35%	45%	45%	142.9	48.25%	13.0	4.40%	4%	4%	20.0	6.33%

Source: PennDOT, 2020

	MAP-21 Bridge Performance Measure											
	Good				Fair				Poor			
Business Plan Network	Count	Count %	Deck Area (Msf)	Deck Area %	Count	Count %	Deck Area (Msf)	Deck Area %	Count	Count %	Deck Area (Msf)	Deck Area %
Interstate	37	22.98%	0.400	16.34%	121	75.16%	2.036	83.08%	3	1.86%	0.014	0.57%
NHS, Non-Interstate	36	21.18%	0.419	15.65%	126	74.12%	2.112	78.85%	8	4.71%	0.147	5.50%
Total NHS	73	22.05%	0.820	15.98%	247	74.62%	4.148	80.87%	11	3.32%	0.161	3.15%

Source: PennDOT, 2020

The chart above shoes that the Harrisburg Region's National Highway System bridges fall below the 2021 target of 25.8% of bridges rated in "Good" condition. The Harrisburg Region is currently well below the 6.0% target of National Highway System bridges.

PM-3 System Performance/Reliability/CMAQ

Annual reports for regional progress towards the statewide performance measures are not provided for PM-3. The chart below shows the statewide targets for System Performance in addition to the Harrisburg Regional performance.

Area (MPO/RPO)	Interstate Reliability			Non-Interstate Reliability			Truck Travel Time Reliability		
	2017 Baseline	2018	2019	2017 Baseline	2018	2019	2017 Baseline	2018	2019
Statewide Total	89.8%	89.6%	89.9%	87.4%	88.2%	88.4%	1.34	1.39	1.36
Statewide Target	89.8% -> Adjusted to 89.5% 2 & 4-Year Target			87.4% 4-Year Target			1.34 -> Adjusted to 1.40 2 & 4-Year Target		
Harrisburg MPO	91.3%	92.7%	92.4%	91.0%	92.4%	90.3%	1.32	1.33	1.31

Source: Harrisburg Region PM-3 Report

• CONTACT US •

Thanks for your interest! Please feel free to get in touch with Andrew Bomberger, AICP at abomberger@tcrpc-pa.org with your questions or comments about the HATS Regional Transportation Plan.

WOULD YOU LIKE TO REPORT A TRANSPORTATION NEED?

Please feel free to bring a specific problem to our attention by completing the Transportation Need Form on the RTP website: www.hatsregionaltransportationplan.org. Hard copies of the Transportation Need Form are available at the Tri-County Regional Planning Commission office, 112 Market Street, 2nd Floor, Harrisburg.