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 2017, HATS’ lead staff agency, the Tri-County Regional Planning Commission, began updating the RTP with an all-new, dynamic approach. 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.

HATS’ Coordinating Committee adopted the updated RTP at its February 22, 2019 meeting.
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. For current members, click here.

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.

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.

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.

**PUBLIC PARTICIPATION & OUTREACH**

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

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.

**Outreach & Activities Summary 2018 –**

- Flyers were distributed to the region’s municipalities and non-profit organizations the week of January 8.
- Public review began in May, as did information sessions conducted by HATS staff.
- Responses to comments from the formal public review period can be found in the Appendix.
- Outreach activities continued through summer and fall.

Information Sessions:
- 5/7: Perry County Commissioners
- 5/23: Strawberry Square Public Outreach
- 5/30: Mid-Atlantic Section Institute of Transportation Engineers Luncheon
- 5/31: CAT Board Meeting
- 6/4: Dauphin County Planning Commission
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)*

“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. As the charts below indicate, congestion in the Carlisle Pike corridor has dropped significantly since the system became active in January and February 2016.

This technology will be considered for other signalized corridors identified as highly congested as a possible means of reducing congestion without substantial infrastructure investments. Also, HATS will periodically review congestion levels in adaptive signal corridors to make sure the systems are optimized.
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 applications like Uber and Lyft. Usage of these applications is growing rapidly in the suburban and urban portions of the planning area. They are much less available in rural areas like northern Dauphin County, Perry County and western Cumberland County. These services may take advantage of driverless vehicle technology in the future and may significantly enhance ridesharing opportunities through small- to mid-size vehicles, much like the shared ride vehicles of today. HATS intends to track the expansion of applications like Uber and Lyft and determine their impact on overall traffic conditions, transit usage, demand response bus service, etc.

Today’s transit vehicles also take advantage of GPS technology through the use of computer or smartphone based applications like “Find my CAT bus,” rabbittransit’s “My Stop Bus Tracker,” etc. These applications enable users to find the exact location of their bus and approximate arrival times. These applications are valuable to veteran users of the system as well as infrequent or new users who are not as familiar with bus schedules and routes. Such user-friendly applications should help to increase transit usage, so HATS intends to work with transit providers to 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.

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

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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.
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.

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 funding. A bridge is eligible for replacement funds when its sufficiency rating is below 50.

About 9 percent of the region’s bridges are structural deficient (SD) and about 18 percent are functional obsolete (FO). Local bridges are twice as likely to be SD when compared with their state counterparts. The same applies to FO bridges but to a lesser extent. Overall, the region’s structurally deficient bridges have increased nearly 10 percent from 142 in 2013 to 155 in 2018. Square footage of structurally deficient deck area has increased in the same period.

**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. The Jonathon Eshenour Memorial Rail 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.

**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/off s 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.

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.

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:

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

Source: The Economic Impact of Aviation in Pennsylvania (2011), PennDOT Bureau of Aviation
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. The top 10 worst crash cluster segments for each county are shown, along with other segments that have potential for safety improvements.

HATS has 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. HATS intends to continue this approach to address safety needs for the corridors depicted in this section or identified by the region’s municipalities.

In December 2017, HATS adopted the PennDOT 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. The MPO will coordinate annually with PennDOT to track this performance measure and regularly during the corridor safety studies and implementation projects as described above.

In accordance with the process identified above and the overall project development process, a Transportation Needs Form was submitted during the development of the RTP that focused on safety concerns along the entire portion of the I-81 corridor within the HATS region. Also, PennDOT is conducting a study in 2018 that updates the cost estimate found in the 2005 I-81 Widening Study, anticipated to be approximately $3,000,000,000.

Since the updated widening study did not focus on the needs identified in the submitted Transportation Needs Form and the cost estimate in the updated study exceeds the funding anticipated to be available to HATS during the planning period, it is recommended that a “Master Plan” be conducted for the I-81 corridor that seeks to identify existing and anticipated transportation needs and evaluates a range of fiscally constrained and illustrative alternative improvements that can be incorporated into future Transportation Improvement Programs and the RTP. The “Master Plan” should be developed in coordination with PennDOT District 8-0, the Franklin and Lebanon County MPOs.

Key Recommendations –

- Based on the listing of top crash corridors and/or other key areas of safety concern as identified by the region’s municipalities and stakeholders, conduct a series of corridor studies that seek to identify a range of recommended safety improvements.
- Program implementation projects matching each corridor study to minimize delay between the planning and
construction phases for safety enhancements.

- Annually update crash data and evaluate for conformance with the safety performance measure adopted as part of this plan. Also evaluate crash frequency in areas where improvements have been implemented as part of the RTP process.
- Conduct a “Master Plan” for the I-81 corridor that seeks to identify existing and anticipated transportation needs and evaluates a range of fiscally constrained and illustrative alternative improvements that can be incorporated into future Transportation Improvement Programs and the RTP. The “Master Plan” should be developed in coordination with PennDOT District 8-0, the Franklin and Lebanon County MPOs.

**ASSET MANAGEMENT**

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

<table>
<thead>
<tr>
<th>County</th>
<th>Federal Aid Mileage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumberland</td>
<td>569.37</td>
</tr>
<tr>
<td>Dauphin</td>
<td>699.7</td>
</tr>
<tr>
<td>Perry</td>
<td>422.96</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1692.03</strong></td>
</tr>
</tbody>
</table>

Reported in inches per mile, International Roughness Index (IRI) ratings provide a metric which illustrates 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:

<table>
<thead>
<tr>
<th>IRI Ranges (inches per mile)</th>
<th>National Highway System</th>
<th>Non-National Highway System</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Interstate</td>
<td>Non- Interstate</td>
</tr>
<tr>
<td>≤ 70</td>
<td>Excellent</td>
<td>Excellent</td>
</tr>
<tr>
<td>71.75</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>76-100</td>
<td>Fair</td>
<td>Fair</td>
</tr>
<tr>
<td>101-120</td>
<td>Poor</td>
<td>Poor</td>
</tr>
<tr>
<td>121-150</td>
<td>Fair</td>
<td>Poor</td>
</tr>
<tr>
<td>151-170</td>
<td>Poor</td>
<td>Poor</td>
</tr>
<tr>
<td>171-195</td>
<td>Poor</td>
<td>Poor</td>
</tr>
<tr>
<td>&gt; 220</td>
<td>Poor</td>
<td>Poor</td>
</tr>
</tbody>
</table>

Broadly, the median IRI ratings for all business plan networks in the Federal Aid System fall within “Good” or “Excellent” ranges. Non-NHS roadways with less than 2000 ADT have seen overall improvement. In 2014, the median IRI rating in this business plan network fell into the “Fair” range. At the time of the writing of this plan, it has improved to the “Good” range.

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.
In terms of bridges, the region continues to be in good standing in regards to District targets in all areas except for poor condition bridge deck area on the NHS Non- Interstate network (BPN2) and on the local network. HATS will move forward with a focus on bridges in these particular networks and continue to find resources to address bridge needs.

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.

In 2017, Dauphin County received a $2 million grant to implement the $5 registration fee to address county bridges. Cumberland County also recently received state funding to complete one of their local bridges through PennDOT’s LaSeR initiative.

**Key Recommendations:**

- Continue coordination with PennDOT to select projects for future TIP updates to address eligible SD or FO bridges or poor IRI roadway miles;
- Continue to assist municipalities in finding financial means to address local bridge projects;
- When released, coordinate with the necessary agencies to work toward applicable performance targets for pavement and bridges.

See Asset Management map in Appendix.
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 2016 American Community Survey estimates from the US Census Bureau, the HATS region’s disabled population accounts for nearly 12.5 percent, while the elderly population accounts for 16.1 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 that HATS currently does not have a comprehensive database including sidewalk and curb ramp condition as well as transit access.

**Key Recommendations** –

- Develop an inventory of sidewalk existence and condition and continue to define areas of greatest need for disabled and elderly populations;
- Coordinate with the Mobility and Accessibility committee on a regular basis to continue the ongoing evaluation of the transportation needs of these populations;
- 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 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.

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
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.

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.

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.

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.

See Moving Goods map in Appendix
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 Intermodal Yard 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.

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 2016, HATS identified almost 50 miles of candidate Critical Urban and Critical Rural Freight Corridors (CUFCs, CRFCs) to be considered for certification by the Federal Highway Administration (FHWA). This certification would allow the corridors to be added to the National Highway Freight Network and make them eligible for National Highway Freight Program funding. At the time of this plan update, the candidate corridors are still under review by PennDOT and will eventually be passed to FHWA for consideration and possibly certification.

Moving forward, these corridors continue to be primary areas of focus for HATS as key freight movement corridors along with the existing National Highway Freight Network.
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.

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.

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The table above shows CAT ridership trends over five years. Since FY 2012/13, CAT has experienced a significant 17 percent drop in ridership. Conversely, CAT ridership had increased in the previous five years (2007/08 to 2012/13), which was attributed in part to increased fuel prices and the economic downturn. The recent decreases in ridership may be partly attributable to relatively low fuel prices and an improved economic/employment environment. However, a comprehensive review of CAT service and adoption of a transit development plan are crucial to ensuring the long-term success of public transit to Harrisburg and the surrounding communities.

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 provide service to the HATS region. Improving service and coordination with surrounding transit providers is a high-priority goal for the HATS region.

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 vanpool 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.

**Intercity Service —**

Private intercity bus companies provide service to State College, New York, Philadelphia, and Pittsburgh from the Harrisburg Transportation Center. These companies include 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/
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 Transportation -- 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 2012-2016 American Community Survey five-year estimates on commuting, the HATS region walks to work (3.4%) above the nation average (2.8%), 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.

**Existing Bicycle & Pedestrian Facilities –**

See Regional Sidewalk Network map in Appendix

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 existing major regional trails and facilities. 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 blue represent important routes identified in the region's already completed bicycle and pedestrian transportation plans. These routes are concentrated along the Harrisburg to Hershey corridor and in the West Shore suburban communities. Finally, routes shown in red 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 red “conceptual” routes haven't been specifically studied, the exact route should not be considered final. Further study is needed to evaluate alternate routes.

**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.

**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.

**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.
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.
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.

The primary airport serving the Harrisburg area is Harrisburg International Airport (HIA). This airport, 8 miles southeast of Harrisburg city in Lower Swatara Township, serves both passenger and freight transport needs and has begun to see substantial growth in recent years. 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.

In terms of passenger travel, HIA continues to be the third-largest commercial airport in Pennsylvania with 589,511 enplanements in 2016, 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 third in the state and 68th in the country in cargo weight landed. 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 expansion of its cargo apron, sorting facilities and landside area. Along with this expansion, the plan recommends the realignment of Olmsted Drive to reduce conflict between tugs, cargo trucks and the Pennsylvania Air National Guard.

HIA is also seeing growth in private development on its property and surrounding areas. In 2018, two new hotels, a new corporate hangar, a new rental car facility and a new fixed base operator facility will be constructed to meet growing demand. In 2020, HIA's cargo facilities will be expanded, and a new Amtrak train station will be constructed in Middletown.

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.
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.

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.

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 development 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.

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**CAPITAL INVESTMENT**

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**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 within the 20-year fiscal constraint period 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 2019-2022 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 2040 using baseline funding provided in the draft HATS 2019-2022 TIP, estimated inflation rate factors consistent with the financial guidance recommendations, as well as historic revenue trends and financial assumptions developed by evaluating prior year’s federal, state and local expenditures. The total projected revenue anticipated to be available through 2040 is approximately $3.8 billion.

HATS programs projects in 4-year increments, commonly known as the TIP. The current TIP became effective October 1, 2018 as this RTP was being finalized. The total amount of funding for the TIP is $569 million. Based on coordination with PennDOT, the total amount of funding necessary to fully complete the projects on the 2019 TIP is $97 million.
Additionally, 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 $875 million. With estimates for transit and interstate investments at $339 million and $1 billion respectively, this provides for approximately $311 million remaining in the MPO’s anticipated level of funding through 2040 beyond meeting the needs and recommendations evaluated in the regional priority project pipeline listing. However, $3.7 billion remains unfunded for projects identified from planning study recommendations, Regional Connections program projects, and HATS’ congestion management and safety analyses. A listing of these projects is included in the regional priority project pipeline listing as illustrative.

Therefore, the HATS 2040 RTP is fiscally constrained, as the estimated year of expenditure cost of the identified transportation investments proposed to meet the needs and recommendations ranges from $600 to $900 million and is within the projected revenue available for the next 20 years, as illustrated below.

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.

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<th>Estimated Revenue Summary ($000)</th>
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<td>Highway/Bridge</td>
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<td>Interstate</td>
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<td>Transit</td>
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<td>Total Revenues</td>
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Assumptions based on FFY 2019-2022 TIP Update financial workgroup guidance:
1) Revenue growth based on FFY 2019 TIP average annual percent increase.
2) Local highway-bridge funds based on FFY 2019-2022 TIP proportion of total funds (0.18%).
3) Local transit funds based on FFY 2019-2022 TIP proportion of total funds (3.9%).
4) STU funds are based on the balance after distribution to York and Lebanon MPOs.
5) IM funds are based on 12YP to 2026, then average annual increase from 2027-2040.
6) Discretionary funds (spike, MMTF, P3, TIGER) not assumed/included.

Therefore, the HATS 2040 RTP is fiscally constrained, as the estimated year of expenditure cost of the identified transportation investments proposed to meet the needs and recommendations ranges from $600 to $900 million and is within the projected revenue available for the next 20 years, as illustrated below.

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.

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<th>Estimated Cost Summary ($000)</th>
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<td>RTP Project Pipeline</td>
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<td>Interstate</td>
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<td>Transit</td>
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<td>Total Costs</td>
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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**

**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 2018.

**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.
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 or assessed using a 5-point scale for each of the categories and ranked as a high, medium, or low priority in terms of the primary need and across the full range of transportation conditions 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.

**Safety:**

- Maximum points are awarded to locations within those areas identified as being in the top 10 crash locations, with lesser points awarded to “other crash locations.” See the System Demand – Safety section of the RTP.

**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. See the System Demand – Congestion Management section of the RTP.

**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. See the System Demand – Asset Management section of the RTP.

**Accessibility/Transportation for the Disabled and Elderly:**

- Maximum points are awarded in areas with the highest percentages of elderly and/or disabled residents. Additional points are also awarded when needs are identified within ¼ mile of key community facilities (fire stations, police, medical facilities, etc.), major employers, commercial facilities, and transit stops. See the System Demand – Mobility & Accessibility section of the RTP.

**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 mile of an intermodal facility or major freight generator. See the Travel Modes – Moving Goods via Roadways section of the RTP.
Transit Access and Facilities:
Points are awarded to needs identified within 10 miles of a park and ride facility and within ¼ mile of a CAT bus stop. See the Travel Modes – Moving People via Roadways section of the RTP.

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. See the Travel Modes – Non-Motorized section of the RTP.

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. See the Linkage to Land Use section of the RTP.

Other options that could be selected as a “primary issue” include stormwater management and other, which allows an individual to explain the primary issue if it does not fall within one of the above categories.

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 HATS Regional Transportation Plan Project Listing 2018 in the Appendix.

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**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 and/ or 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 2019 TIP 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

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*Numbers were calculated using GIS software and may not be wholly accurate
**Non-major streams, creeks, or other waterways

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.

**Sources & Methodology –**

A method was developed to identify and locate Environmental Justice (EJ) populations within the Harrisburg Area Transportation Study (HATS) region.

Data was gathered at the regional level for each of our 376 Census block groups within the region for minority (any race or ethnicity other than “One race – White”) and low-income persons and depicted two different ways, as a percentage of total population and as a dot density displaying actual population numbers. To display population percentages, census blocks were separated into five distinct intervals (below 50%, 50-100%, 100-150%, 150-200%, and greater than 200% of the regional average). All data is from the Census Bureau’s American Community Survey 5 year data estimates from 2012 to 2016.

Census data was downloaded and mapped using GIS. The demographic groups of EJ populations within the HATS regions are shown on the following thematic maps:

See Low-income Populations and Minority Populations maps in Appendix

The following table provides an overview of the HATS region’s EJ communities, broken down by county. Minority populations account for 21.40% of our region’s total population, with 72.83% located in Dauphin County. Low income populations account for 11.00% of our region’s total population, with 60.22% located in Dauphin County. The mapping provided in the links above shows significant concentrations of both low-income and minority populations in and around our urban centers of Harrisburg, Carlisle, and Shippensburg. However, examining the dot density mapping for each indicator provides approximate locations of additional populations that, while still important to our transportation

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<th>Region</th>
<th>Number</th>
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<td>8.13%</td>
<td>561,447</td>
<td>81.97%</td>
</tr>
<tr>
<td>White Alone</td>
<td>213,028</td>
<td>48.27%</td>
<td>195,198</td>
<td>42.73%</td>
<td>43,804</td>
<td>9.93%</td>
<td>441,289</td>
<td>78.60%</td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>203,283</td>
<td>48.02%</td>
<td>184,457</td>
<td>41.80%</td>
<td>42,992</td>
<td>9.38%</td>
<td>430,732</td>
<td>78.39%</td>
</tr>
<tr>
<td>Hispanic White</td>
<td>10,741</td>
<td>26.82%</td>
<td>10,741</td>
<td>26.82%</td>
<td>651</td>
<td>1.48%</td>
<td>21,533</td>
<td>3.98%</td>
</tr>
<tr>
<td>Non-White Alone</td>
<td>26,635</td>
<td>25.47%</td>
<td>76,764</td>
<td>52.85%</td>
<td>1,192</td>
<td>0.79%</td>
<td>104,591</td>
<td>18.63%</td>
</tr>
<tr>
<td>Black or African American</td>
<td>8,668</td>
<td>14.71%</td>
<td>49,840</td>
<td>84.60%</td>
<td>408</td>
<td>0.79%</td>
<td>58,916</td>
<td>10.49%</td>
</tr>
<tr>
<td>American Indian and Alaska Native</td>
<td>183</td>
<td>20.72%</td>
<td>634</td>
<td>71.80%</td>
<td>66</td>
<td>7.47%</td>
<td>883</td>
<td>0.16%</td>
</tr>
<tr>
<td>Asian</td>
<td>9,019</td>
<td>46.36%</td>
<td>10,281</td>
<td>52.85%</td>
<td>153</td>
<td>0.79%</td>
<td>19,453</td>
<td>3.46%</td>
</tr>
<tr>
<td>Native Hawaiian/Pacific Islander</td>
<td>13</td>
<td>17.11%</td>
<td>63</td>
<td>82.89%</td>
<td>0</td>
<td>0.00%</td>
<td>76</td>
<td>0.01%</td>
</tr>
<tr>
<td>Some other race</td>
<td>2,990</td>
<td>28.95%</td>
<td>7,263</td>
<td>70.33%</td>
<td>74</td>
<td>0.72%</td>
<td>10,327</td>
<td>1.84%</td>
</tr>
<tr>
<td>Two or more races</td>
<td>5,762</td>
<td>38.58%</td>
<td>8,616</td>
<td>58.13%</td>
<td>497</td>
<td>3.29%</td>
<td>14,936</td>
<td>2.66%</td>
</tr>
<tr>
<td>Hispanic Origin</td>
<td>8,263</td>
<td>28.90%</td>
<td>7,263</td>
<td>70.33%</td>
<td>74</td>
<td>0.72%</td>
<td>16,217</td>
<td>2.91%</td>
</tr>
<tr>
<td>Minority Population</td>
<td>30,810</td>
<td>25.64%</td>
<td>87,505</td>
<td>72.82%</td>
<td>1,843</td>
<td>1.53%</td>
<td>120,158</td>
<td>21.40%</td>
</tr>
<tr>
<td>Total Population (Poverty Status Determined)</td>
<td>230,275</td>
<td>42.43%</td>
<td>267,468</td>
<td>49.28%</td>
<td>44,963</td>
<td>8.28%</td>
<td>542,706</td>
<td>11.00%</td>
</tr>
<tr>
<td>Income Below Poverty Level</td>
<td>15,828</td>
<td>33.21%</td>
<td>35,950</td>
<td>60.22%</td>
<td>3,521</td>
<td>6.57%</td>
<td>55,299</td>
<td>11.99%</td>
</tr>
</tbody>
</table>
planning efforts, aren’t large enough to make that census block group’s value exceed the regional average. (Please note: the specific location of the individual dots is a graphic representation of the low-income or minority population within that entire census block group.)

**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.

**Past Investment –**

The impact of transportation investments over time on EJ communities was evaluated. The following tables display bridge condition by EJ community. Using GIS, the state- and locally-owned “structurally deficient” bridges were compared to the intervals of minority and low-income populations. The analysis showed 31% of all state- and locally-owned bridges were located within census blocks greater than the regional average for low-income population, with 35% of all state- and locally-owned “structurally deficient” bridges located within these census blocks.

The analysis also showed 17% of all state- and locally-owned bridges were located within census blocks greater than the regional average for minority population, with 13% of all state- and locally-owned “structurally deficient” bridges located within these census blocks.
The above tables display road condition by EJ community. Similar to the bridge condition analysis, road condition data was compared to the intervals of minority and low-income populations. The analysis showed while approximately 28% of the region's roads are located within census blocks greater than the regional average for low-income population, approximately 53% of the region's road rated “poor” are located within these census blocks.

The analysis also showed approximately 17.5% of all roads are located within census blocks greater than the regional average for minority population, and approximately 16.5% of the region's roads rated “poor” are located within these census blocks.

To measure safety, we analyzed crash rates of roads in relation to census tract data. The following tables illustrate the results. For both low-income and minority populations, the crash rate was generally higher in census blocks greater than the regional average, but the difference does not appear to be significant. Because of the number of external factors that can influence crash rates (surrounding land uses, traffic volumes, traffic speeds), it is difficult to determine what effect past MPO investment has had.

<table>
<thead>
<tr>
<th>Crash Rate by Percent Poverty (Block Group Intervals)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 10.7%</td>
</tr>
<tr>
<td>2.14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Crash Rate by Percent Minority (Block Group Intervals)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 10.7%</td>
</tr>
<tr>
<td>2.22</td>
</tr>
</tbody>
</table>

Our analysis also examined the location of the HATS Priority Safety areas, which includes the top-10 intersections and corridors in each county. The following tables display those results, which show priority corridors are well-represented within higher concentrations of EJ populations (37.8% for greater than average minority census blocks, 44.0% for greater than average low-income census blocks). Conversely, Priority intersections are predominantly located in areas with lower than average concentration of EJ populations. In the HATS region, high concentrations of EJ populations are found in urban areas, which typically experience lower speeds and may explain why relatively few priority intersections are located in those areas.
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 2019-2022 HATS TIP, adopted in June 2018, 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 2019-2022 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 estimated costs of the Eisenhower Interchange and I-83 East Shore Section 3 projects, which represents approximately 61% of the total estimated spending in the HATS region over the next 12 years.
As shown in the table above, per capita is significantly higher in areas with the highest concentration of minority population. This is due to approximately 54% of the total spending over the next 12 years being projected to occur in these census blocks. The majority of spending on roadway and bridge projects is projected to occur in census blocks below the regional average for minority population. The majority of spending on bike-ped projects and interstate projects is projected to occur in census blocks above the regional average for minority population.

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.

**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 2040 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.

**Conclusion —**

The analysis of conditions showed areas with high concentrations of EJ populations had “poor” bridges roughly equal to the proportion of the region’s bridges. The analysis of road condition showed census blocks greater than the regional average for poverty population were disproportionately represented in roads rated “poor”. The analysis of our region’s crash rates – our best indicator of roadway safety – shows them to be consistent across all level of EJ population concentrations.

When we examine the quantitative analysis of the programmed projects, we see bike-ped, intermodal, and interstate spending generally higher in census blocks greater than the regional average for EJ populations. Conversely, bridge and roadway spending appears to be generally lower in those census blocks. Because the bridge condition analysis showed “poor” bridges are not more likely to be located in areas with high concentration of EJ populations, the lower bridge spending can be attributed to the low number of bridges overall in these census blocks. However, the lower roadway spending in these census blocks, combined with the analysis showing roads rated “poor” to be over-represented, indicates this to be an area in need of improvement for HATS transportation programming going forward and a logical place to focus environmental justice implementation efforts.

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.
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. View the Watershed Resources Registry here.
AIR QUALITY CONFORMITY

An air quality conformity analysis for the 2019 TIP and air quality significant projects from the previous RTP, adopted in December 2014, was completed in May 2018, with final EPA approval on September 25, 2018.

Air quality conformity analysis for the 2040 RTP update was completed prior to its adoption on December 14, 2018. The document can be found in this plan’s appendix.

• PERFORMANCE & PROGRESS •

KEY RECOMMENDATIONS

A summary of the key recommendations identified throughout this plan.

Safety –

• Based on the listing of top crash corridors and/or other key areas of safety concern as identified by the region’s municipalities and stakeholders, conduct a series of corridor studies that seek to identify a range of recommended safety improvements;
• Program implementation projects matching each corridor study to minimize delay between the planning and construction phases for safety enhancements;
• Annually update crash data and evaluate for conformance with the safety performance measure adopted as part of this plan. Also evaluate crash frequency in areas where improvements have been implemented as part of the RTP process.

Asset Management –

• Continue coordination with PennDOT on selecting projects for future TIP updates to address eligible SD or FO bridges or poor IRI roadway miles;
• Continue to assist municipalities in finding financial means to address local bridge projects;
• When released, coordinate with the necessary agencies to work toward applicable performance targets for pavement and bridges.

Mobility & Accessibility –

• Develop an inventory of sidewalk existence and condition and continue to define areas of greatest need for disabled and elderly populations;
• Coordinate with the Mobility and Accessibility committee on a regular basis to continue the ongoing evaluation of the transportation needs of these populations;
• Create and maintain a listing of transportation services in the HATS region.

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 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 HATS region through funding, coordination, or planning assistance.

**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 the pedestrian and bicycling accommodations in the vicinity of transit stops and routes;
• Work with PennDOT and municipalities to identify low cost and important opportunities to improve the bicycle and pedestrian safety and connectivity of the region;
• 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**

The 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 December 2017, HATS adopted the 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:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of fatalities</td>
<td>1,220.2</td>
<td>1,177.6</td>
<td>59.0</td>
</tr>
<tr>
<td>Rate of fatalities per 100 million VMT</td>
<td>1.220</td>
<td>1.161</td>
<td>0.965</td>
</tr>
<tr>
<td>Number of serious injuries</td>
<td>3,434.0</td>
<td>3,799.8</td>
<td>195.2</td>
</tr>
<tr>
<td>Rate of serious injuries per 100 million VMT</td>
<td>3.433</td>
<td>3.746</td>
<td>3.191</td>
</tr>
<tr>
<td>Number of non-motorized fatalities and non-motorized serious injuries</td>
<td>602.4</td>
<td>654.4</td>
<td>32.0</td>
</tr>
</tbody>
</table>

The figures below explore historical trends and the current status of the HATS region relative to the performance measures listed above:
Despite a recent spike in fatalities in 2015, the HATS region is currently seeing an overall downward trend in the number of fatalities with a 2018 target of 59 fatalities.

With a 2018 target fatal crash rate at 0.965, the HATS region is also seeing a gradual downward trend in fatal crashes per 100 million vehicle miles traveled (VMT).

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 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.

On September 21, 2018, HATS adopted the 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 targets:

<table>
<thead>
<tr>
<th>Pavement Performance</th>
<th>Measure</th>
<th>Baseline 2017</th>
<th>2-year Target 2019</th>
<th>4-year Target 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of interstate pavements in Good condition</td>
<td>67.2 %</td>
<td>N/A</td>
<td>60.0 %</td>
<td></td>
</tr>
<tr>
<td>% of interstate pavements in Poor condition</td>
<td>0.4 %</td>
<td>N/A</td>
<td>2.0 %</td>
<td></td>
</tr>
<tr>
<td>% of non-Interstate NHS pavements in Good condition</td>
<td>36.8 %</td>
<td>35.0 %</td>
<td>33.0 %</td>
<td></td>
</tr>
<tr>
<td>% of non-Interstate NHS pavements in Poor condition</td>
<td>2.3 %</td>
<td>4.0 %</td>
<td>5.0 %</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bridge Performance</th>
<th>Measure</th>
<th>Baseline 2017</th>
<th>2-year Target 2019</th>
<th>4-year Target 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of NHS bridges by deck area classified in Good condition</td>
<td>25.6 %</td>
<td>25.8 %</td>
<td>26.0 %</td>
<td></td>
</tr>
<tr>
<td>% of NHS bridges by deck area classified in Poor condition</td>
<td>5.5 %</td>
<td>5.6 %</td>
<td>6.0 %</td>
<td></td>
</tr>
</tbody>
</table>

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 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 assess traffic congestion and on-road mobile source emissions for the purpose of carrying out the Congestion Mitigation and Air Quality (CMAQ) Improvement Program.

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.

On September 21, 2018, HATS agreed to support the 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:

### Travel Time and Annual Peak Hour Excessive Delay Measures (Estimated using RITIS Data Extract from May 8, 2018)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Baseline 2017</th>
<th>2-year Target 2019</th>
<th>4-year Target 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interstate Reliability (Statewide)</td>
<td>89.8 %</td>
<td>89.8 %</td>
<td>89.8 %</td>
</tr>
<tr>
<td>Non-Interstate Reliability (Statewide)</td>
<td>87.4 %</td>
<td>N/A</td>
<td>87.4 %</td>
</tr>
<tr>
<td>Truck Reliability Index (Statewide)</td>
<td>1.34</td>
<td>1.34</td>
<td>1.34</td>
</tr>
<tr>
<td>Annual Peak Hour Excessive Delay Hours Per Capita (Urbanized Area)</td>
<td>DVRPC - 16.8</td>
<td>N/A</td>
<td>17.2</td>
</tr>
<tr>
<td></td>
<td>SPC - 11.1</td>
<td>N/A</td>
<td>11.8</td>
</tr>
</tbody>
</table>

### PM-3 Baseline and Target Values for Non-SOV Travel Measure

<table>
<thead>
<tr>
<th>Measure</th>
<th>Baseline 2017</th>
<th>2-year Target 2019</th>
<th>4-year Target 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent Non-Single Occupant Vehicle Travel (Urbanized Area)</td>
<td>DVRPC - 27.9 %</td>
<td>28.0 %</td>
<td>28.1 %</td>
</tr>
<tr>
<td></td>
<td>SPC - 24.8 %</td>
<td>24.6%</td>
<td>24.4%</td>
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<tr>
<td>Measure</td>
<td>MPO</td>
<td>Emissions (kg/day)</td>
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<td>------------</td>
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<td>--------------------</td>
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<tr>
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<td></td>
<td>2-year Target²</td>
<td>4-year Target</td>
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<tr>
<td></td>
<td></td>
<td>2019</td>
<td>2021</td>
</tr>
<tr>
<td>NOx Emissions</td>
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<td>Statewide</td>
<td>337.700</td>
<td>612.820</td>
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<tr>
<td></td>
<td>DVRPC (PA only)</td>
<td>23.420</td>
<td>42.500</td>
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<tr>
<td></td>
<td>SPC</td>
<td>256.110</td>
<td>464.770</td>
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<td></td>
<td>Lehigh Valley</td>
<td>57.850</td>
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<td>Lancaster</td>
<td>0.570</td>
<td>1.030</td>
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<td>Reading</td>
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<td>0.080</td>
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<tr>
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<td>NEPA</td>
<td>0.000</td>
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<tr>
<td>PM2.5 Emissions</td>
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<td>Statewide</td>
<td>10.760</td>
<td>20.490</td>
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<tr>
<td></td>
<td>DVRPC (PA only)</td>
<td>1.080</td>
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<td>SPC</td>
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<td>Lehigh Valley</td>
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<td>Johnstown</td>
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<td>PM10 Emissions</td>
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<td>Statewide</td>
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<td>17.470</td>
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<tr>
<td></td>
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<td>17.470</td>
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<tr>
<td>CO Emissions</td>
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<td>1135.400</td>
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<td>DVRPC (PA only)</td>
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<tr>
<td></td>
<td>SPC</td>
<td>284.970</td>
<td>569.930</td>
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</table>

* 2-year emission targets are only applicable for SPC, DVRPC and Statewide targets (bold above). MPOs with populations < 1 million are not required to report 2-year emission targets. The values were used to establish statewide 2-year targets.

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.

**TRACKING OUR PROGRESS**

As new data becomes available, HATS will update essential information in the RTP and track progress toward meeting goals and performance measures. HATS will track these implementation milestones and will continue to review progress annually.
Thanks for your interest! Please feel free to get in touch with Casey Baxendale at cbaxendale@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.