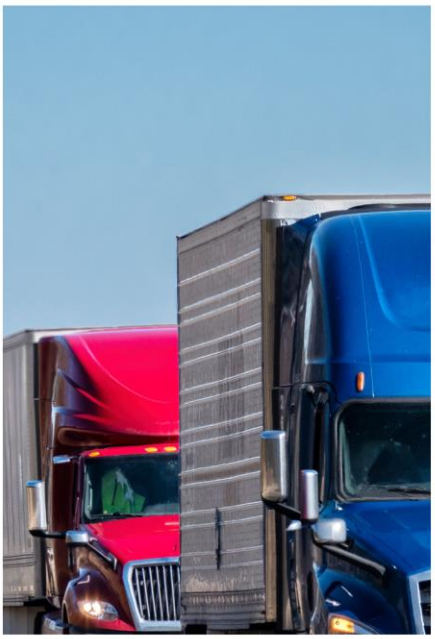
STAMP SYSTEM PERFORMANCE REPORT 2022



SCDOT

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South Carolina Department of Transportation
STAMP System Performance Report 2022

Full Performance Period Progress (FPP) Results of the 1st Performance Period (2018-2021) and Baseline Performance Period (BPP) of the 2nd Performance Period (2022-2025)

Through the federal rulemaking process, the Federal Highway Administration (FHWA) is requiring state DOTs and MPOs (and by extension the South Carolina Department of Transportation (SCDOT) is requiring COGs) to monitor the transportation system using specific performance measures. These measures are associated with the national goal areas prescribed in MAP-21 and the FAST Act. The following System Performance Report describes these national goal areas, rulemakings, performance areas, and prescribed measures. Performance measures have been identified for highway systems, including a set of measures to assess progress toward achieving the goals of the Congestion Mitigation Air Quality (CMAQ) Program. The requirements and targets of these measures and tools to calculate them are summarized in this report.

This System Performance Report presents the baseline, performance/condition measures, targets and the progress made towards achieving those targets. These performance measures are a part of SCDOT's Strategic Ten-Year Asset Management Plan (STAMP). SCDOT's STAMP has been developed in a collaborative effort with South Carolina's Division Office of the Federal Highway Administration (FHWA). The plan has been designed to not only satisfy federal rulemaking, but to transcend these requirements by setting performance estimates for ***all*** state maintained roads and bridges. By clearly identifying the needs of South Carolina's transportation infrastructure, the STAMP has provided SCDOT a platform to communicate existing infrastructure conditions and project constrained performance targets for SCDOT's physical assets over the next decade. The STAMP is an all-inclusive document that houses the Strategic Plan, Ten-Year Plan (2018-2027), Asset Management Plan (2022-2032) and Performance Measures. The timelines and horizons are illustrated below in Figure 1.

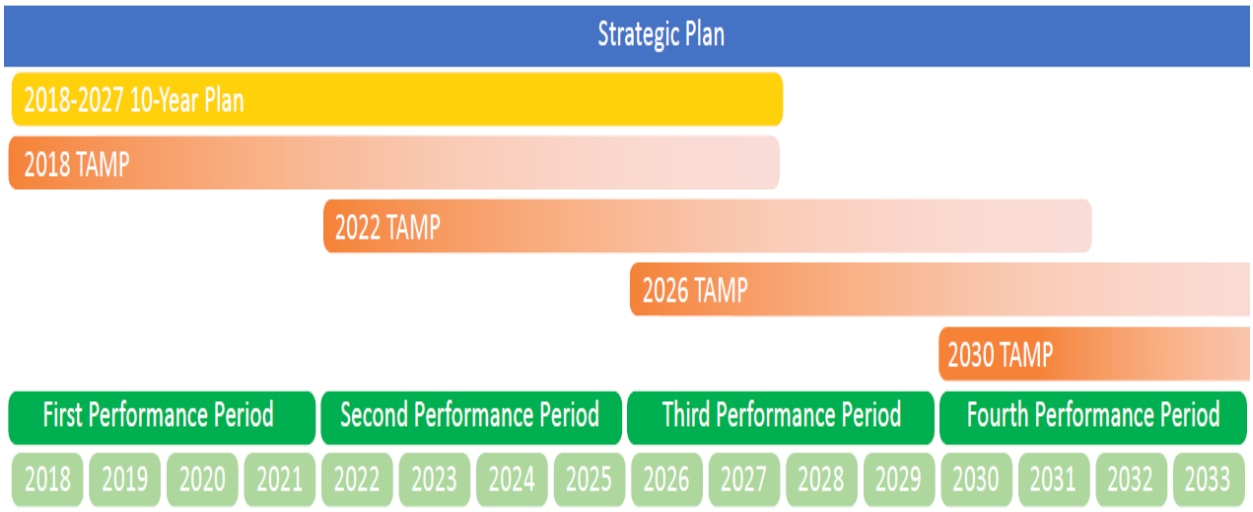

Figure 1. STAMP Timelines and Horizons

In 2017, The General Assembly passed legislation (the South Carolina Infrastructure and Economic Development reform Act (Act 40)) to increase the State gas tax by (12) twelve cents by phasing in the increase at (2) two cents per year for (6) six years. These funds are deposited into a new trust fund called the Infrastructure Maintenance Trust Fund (IMTF). In addition to state funding, SCDOT has received an increase of federal funding through the Infrastructure Investment and Jobs Act (IIJA) and recurring matching state funds. These new revenues, coupled with other Federal and State funds and one-time appropriations, form the financial foundation of SCDOT's Ten-Year Plan and performance targets. For the first time in 30 years, the South Carolina Department of Transportation has been provided with an increased and sustainable revenue stream. The additional funding gives the agency the opportunity to make gradual, but real and significant strides toward bringing the highway system back from three decades of neglect.

The SCDOT's Strategic Plan forms the guiding principles of the agency's Investment Strategies, focusing on the maintenance, preservation and safety of the existing transportation infrastructure, directing investments of highway systems and priority networks, integrating risk-based prioritization, improving safety, advancing lifecycle cost in investment programming and enhancing mobility. The three major goals of the Strategic Plan are:

SCDOT Strategic Plan Goals

Figure 2. Strategic Plan Goals

The Moving Ahead for Progress in the 21st Century (MAP-21) surface transportation legislation established National Goals and a performance and outcome based program. As part of the program federally established performance measures are set and those targets shall be monitored for progress. There is alignment between SCDOT's Strategic Plan Goals and the MAP-21 National Goals. The MAP-21 National Goals are as follows:

MAP-21 National Goals

- **Safety** - To achieve a significant reduction in traffic fatalities and serious injuries on all public roads
- **Infrastructure Condition** - To maintain the highway infrastructure asset system in a state of good repair
- **Congestion Reduction** - To achieve a significant reduction in congestion on the National Highway System
- **System Reliability** - To improve the efficiency of the surface transportation system
- **Freight Movement and Economic Vitality** - To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development
- **Environmental Sustainability** - To enhance the performance of the transportation system while protecting and enhancing the natural environment
- **Reduced Project Delivery Delays** - To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices

These goals provide clear asset management performance based direction to support the effective movement of people and goods. Specifically, transportation asset management focuses on preservation of existing infrastructure with a more cost-effective and efficient approach. SCDOT also utilizes transportation asset management principles to address mobility by planning for future demands on the system. These actions facilitate safe and efficient movement of citizens, goods and services, thereby, enhancing performance of state and national commerce.

This System Performance Report details the federally required (MAP-21/FAST Act) performance measures for a State DOT. The following sections detail the performance measures, baseline and targets and the progress towards those targets based on the most recent Full Performance Period (FPP) that was submitted December 16, 2022, which is based on the first performance period (January 2018 – December 2021) and the Baseline Performance Period (BPP) submitted December 16, 2022, which is based on the second performance period (January 2022 - December 2025).

Highway Safety / PM-1

Effective April 14, 2016, FHWA established the highway safety performance measures to carry out the Highway Safety Improvement Program (HSIP). Safety performance targets are developed in coordination with the South Carolina Department of Public Safety (SCDPS) and reported annually to FHWA in the state's Highway Safety Improvement Program (HSIP) Annual Report and to the National Highway Traffic Safety Administration (NHTSA) in the state's Highway Safety Plan (HSP) developed by SCDPS. The performance measures are:

1. Number of fatalities
2. Rate of fatalities per 100 million vehicle miles traveled
3. Number of serious injuries
4. Rate of serious injuries per 100 million vehicle miles traveled
5. Number of combined non-motorized fatalities and non-motorized serious injuries

The most recently assessed safety targets were for the five-year rolling average from 2016 to 2020. South Carolina's statewide safety performance targets for this time period are included in Table 1, along with actual performance and the state's baseline data for the (5) five year rolling average from 2014 to 2018. A state is said to have met or made significant progress toward meeting its safety performance targets when at least (4) four of the (5) five targets established under 23 CFR 490.209(a) have been met or the actual outcome is better than the baseline performance. **As shown in Table 1 below, South Carolina met or performed better than baseline for 2 of the 5 safety targets**. SCDOT continues to implement proven countermeasures addressing the engineering emphasis areas identified in the State's Strategic Highway Safety Plan (SHSP). For more information regarding the recently updated SHSP, please visit our website here: https://www.scdot.org/performance/pdf/reports/BR1_SC_SHSP_Dec20_rotated.pdf. In response to the increasing number of non-motorized user fatalities, SCDOT has developed the state's first Pedestrian and Bicycle Safety Action Plan (PBSAP). It is available here: https://www.scdot.org/projects/pdf/SC%20Pedestrian%20and%20Bicycle%20Safety%20Action%20Plan.pdf. For a national perspective on state's setting and achieving safety performance targets, please visit FHWA's website https://safety.fhwa.dot.gov/hsip/spm/state_safety_targets/.

Table 1. South Carolina 2016-2020 Safety Performance Target Assessment

Performance Measure	2016-2020 Target	2016-2020 Outcome	2014-2018 Baseline	Met Target	Better than Baseline	Met / Made Significant Progress
Number of Traffic Fatalities	1,011.0	1,023.0	969.4	No	No	No
Rate of Traffic Fatalities	1.819	1.836	1.802	No	No	
Number of Traffic Serious Injuries	2,781.0	2,888.2	2,938.8	No	Yes	
Rate of Traffic Serious Injuries	4.979	5.180	5.584	No	Yes	
Number of Non-motorized Traffic Fatalities and Serious Injuries	380.0	438.8	393.2	No	No	

Table 2 and 3 below provides a historical look at the results of the department's Safety Performance Target Assessment for 2015-2019 and 2014-2018. **During the 2015-2019 assessment, South Carolina met 1 of the 5 safety targets.**

Table 2. South Carolina 2015-2019 Safety Performance Target Assessment

Performance Measure	2015-2019 Target	2015-2019 Actual	2013-2017 Baseline	Met Target	Better than Baseline	Met or Made Significant Progress
Number of Traffic Fatalities	988.0	1005.0	915.6	No	No	No
Rate of Traffic Fatalities	1.790	1.818	1.752	No	No	
Number of Traffic Serious Injuries	2986.0	2986.6	3108.2	No	Yes	
Rate of Traffic Serious Injuries	5.420	5.412	5.986	Yes	N/A	
Number of Non-motorized Traffic Fatalities & Serious Injuries	380.0	414.2	382.6	No	No	

South Carolina met 4 of the 5 safety targets in 2014-2018. During this time period, SCDOT began implementing the state's Rural Road Safety Program, specifically targeting roadway departure collisions on rural roads.

Table 3. South Carolina 2014-2018 Safety Performance Target Assessment

Performance Measure	2014-2018 Target	2014-2018 Actual	2012-2016 Baseline	Met Target	Better than Baseline	Met or Made Significant Progress
Number of Traffic Fatalities	970.0	969.6	890.4	Yes	N/A	YES
Rate of Traffic Fatalities	1.810	1.804	1.748	Yes	N/A	
Number of Traffic Serious Injuries	3067.0	2988.4	3195.4	Yes	N/A	
Rate of Traffic Serious Injuries	5.708	5.590	6.304	Yes	N/A	
Number of Non-motorized Traffic Fatalities & Serious Injuries	371.3	389.8	378.8	No	No	

Pavement and Bridge Condition / PM-2 – First Performance Period (2018-2021)

Pavement and bridge performance measures are assessed and reported over a (4) four-year period with the first period beginning on January 1, 2018 and ending December 31, 2021. SCDOT reported baseline targets to FHWA on October 1, 2018. Mid-point (2) two-year performance targets were reported on October 1, 2020, and represented expected pavement and bridge conditions at the end of calendar year 2019. Final (4) four-year performance targets were reported on December 16, 2022, and represent expected pavement and bridge condition at the end of calendar year 2021. MPOs and COGs can elect to establish their own targets or support the statewide targets. The SCDOT statewide PM-2 targets for the first performance period are listed in Table 4.

1. Percent of Interstate pavements in good condition – (4) four-year target
2. Percent of Interstate pavements in poor condition – (4) four-year target
3. Percent of non-Interstate NHS pavements in good condition – (2) two and (4) four year targets
4. Percent of non-Interstate NHS pavements in poor condition – (2) two and (4) four year targets
5. Percent of NHS bridges by deck area in good condition – (2) two and (4) four year targets
6. Percent of NHS bridges by deck area in poor condition – (2) two and (4) four year targets

Table 4 provides a summary of pavement and bridge performance measures. The SCDOT has made measurable and positive progress implementing the strategic priorities of the STAMP that are key to aligning with SCDOT's internal and external efforts towards achievable results. The Ten-Year Plan is underway to address infrastructure needs across the state which was initiated in 2017. The plan has seen progress, most notably in the pavement performance measures. At the update of the 2021 Annual Report https://www.scdot.org/performance/pdf/reports/SCDOT_Annual_Report_2021.pdf?v=2 the agency is on target with approximately 82.5 miles of interstate widening completed or advancing to construction. Widening projects are currently completed on I-20 and under construction on I-85, and I-26 and are expected to be completed within the next performance period. System to system interchange improvement projects that are moving forward include I-26/526, I-26/I-95 and I-26/I-126/I-20. The system to system interchange improvement at I-85/I-385 has been completed and is operational. To date approximately 5,800 lane miles of paving have been completed along with 274 bridges that are completed or under contract.

SCDOT made significant progress from the baseline statewide Percentage of Pavements on the Interstate in Good Condition of 63.2% to the actual 4-year performance condition of 75.8%. SCDOT also improved from the baseline statewide Percentage of Pavements on the Interstate in Poor Condition of 1.2% to the actual 4-year performance condition of 0.2%. The percentage of good pavements on the Interstate System will only continue to improve over the next performance period as the agency works towards a State of Good Repair (SOGR) and additional interstate work is completed in accordance with the asset management principles in the STAMP. Note that pavement metrics are reported in the federal metric of Full Distress + International Roughness Index (IRI) only for the 2nd Performance Period.

Significant progress has been made from the baseline statewide Percentage of Pavements on the Non-Interstate NHS System in Good Condition of 21.1% to the actual 4-year performance condition of 38.8%. SCDOT also improved from the baseline statewide Percentage of Pavements on the Non-Interstate NHS System in Poor Condition of 4.6% to the actual 4-year performance condition of 1.6%. Over the last 5-years the agency has spent over $419 million on paving the Non-Interstate NHS in addition to the 100% state funded $50 million annual program to address Rural Road Safety that improves select Non-Interstate NHS roadways. The percentage of good pavements on the Non-Interstate NHS System will only continue

to improve over the next performance period as the agency works towards a SOGR and additional paving is completed in accordance with the asset management principles in the STAMP.

SCDOT's Bridge Program was completely restructured in the middle of SFY 2022, focusing on regional mobility throughout the State. Changes to the program are detailed in the 2022 STAMP update. The Load Rating Program was completed in 2021, and based on those results the agency has implemented a balanced approach to bridge preservation, rehab and replacement. The agency presented new priorities and a new list of prioritized bridges that blended the original bridge list with the State's most pressing needs to Commission on December of 2021.

SCDOT did not meet the 4-year target for statewide Percentage of deck area of Bridges on the NHS classified as in Good Condition of 42.7% to the actual 4-year performance condition of 38.5%. The agency did meet the 4-year target of statewide Percentage of deck area of Bridges on the NHS classified as in Poor Condition of 6.0% to the actual 4-year performance condition of 4.3%. In the near term although the percent good target was not met the agency has boosted the funding to the bridge program by $69 million and has balanced the approach to bridge preservation, rehabilitation and replacement projects. Additional funding has been strategically aligned with the STAMP to achieve asset management objectives and rebuild and improve the bridge network as the agency works towards a SOGR. The agency is well below the minimum threshold of 10% for the percentage of deck are of bridges on the NHS as classified in poor condition.

Table 4. SCDOT Pavement and Bridge Performance Measures (1st Performance Period)

Performance Measure	Baseline	2-Year Condition/ Performance	2-Year Target	4-Year Condition/ Performance	4-Year Target
Percentage of Pavements on the Interstate System in Good Condition (Federal Metric)	NA	63.2%	NA	75.8%	71.0%
Percentage of Pavements on the Interstate System in Poor Condition (Federal Metric)	NA	1.2%	NA	0.2%	3.0%
Percentage of Pavements of the Non-Interstate NHS in Good Condition (IRI)	50.4%	54.3%	NA	56.9%	NA
Percentage of Pavements of the Non-Interstate NHS in Good Condition (Federal Metric)	NA	27.4%	14.9%	38.8%	21.1%
Percentage of Pavements of the Non-Interstate NHS in Poor Condition (IRI)	8.6%	8.4%	NA	7.7%	NA
Percentage of Pavements of the Non-Interstate NHS in Poor Condition (Federal Metric)	NA	3.9%	4.3%	1.6%	4.6%
Percentage of NHS Bridges Classified as in Good Condition	41.1%	40.0%	42.2%	38.5%	42.7%
Percentage of NHS Bridges Classified as in Poor Condition	4.0%	4.2%	4.0%	4.3%	6.0%

Pavement and Bridge Condition / PM-2 – Second Performance Period (2022-2025)

The second year performance period began January 1, 2022 and ends December 31, 2025, with additional (4) four-year performance periods to follow (See Figure 1). The new 2 and 4-year targets for the 2nd performance period for pavements and bridges are listed in Table 5 below.

The pavement targets were developed from historical performance trends and planned investments. The targets below are all reported in the federal metric of Full Distress + IRI which varies from the SCDOT metric of Pavement Quality Index (PQI). The trendlines derived to project targets were validated using project and budget data. The 75th percentile value was determined and used as the basis for establishing targets. With the expansive amount of Interstate work taking place and replacement of Open Graded Friction Course (OGFC) during the 2nd performance period, the working group recommended the targets below. For the Non-Interstate NHS System the agency used the same methodology described above but noted that the agency delegates the District Offices within each county of South Carolina to propose resurfacing projects causing the amount of Non-Interstate NHS versus Non-NHS projects to fluctuate from year to year.

Bridge targets were established using historical National Bridge Inventory (NBI) data and planned investments. The model was used to forecast a trendline and incorporated any projects that were let, forecasted to let and planned capital projects that would "move the needle" on bridge condition. The established targets took into consideration on-going inspections of NHS bridge condition and underwater inspections that would shift bridge condition categories. The group also expressed concern over effects of rising inflation costs for bridge letting over the 2nd performance period. Gathering all available data the agency established the targets below in Table 5 for bridges over the next performance period.

Table 5. SCDOT Pavement and Bridge Performance Measures (2nd Performance Period)

Performance Measure	Baseline	2-Year Condition/ Performance	2-Year Target	4-Year Condition/ Performance	4-Year Target
Percentage of Pavements on the Interstate System in Good Condition (Federal Metric)	75.8%		77.0%		78.0%
Percentage of Pavements on the Interstate System in Poor Condition (Federal Metric)	0.2%		2.5%		2.5%
Percentage of Pavements of the Non-Interstate NHS in Good Condition (Federal Metric)	38.8%		36.0%		38.0%
Percentage of Pavements of the Non-Interstate NHS in Poor Condition (Federal Metric)	1.6%		10.0%		10.0%
Percentage of NHS Bridges Classified as in Good Condition	38.5%		35.0%		34.0%
Percentage of NHS Bridges Classified as in Poor Condition	4.3%		6.0%		6.0%

System Performance, and Freight Movement / PM-3 - First Performance Period (2018-2021)

FHWA established measures to assess the performance and reliability of the National Highway System and freight movement on the interstate. These measures became effective on May 20, 2017, and are as follows:

System Performance Measures

1. Percent of person-miles on the Interstate system that are reliable – (2) two-year and (4) four-year targets
2. Percent of person-miles on the non-Interstate NHS that are reliable – (4) four-year targets
    - Performance measure assesses the reliability of travel time on the Interstate or non-Interstate NHS through the Level of Travel Time Reliability (LOTTR). It is ratio of longer travel times (80th percentile) to a normal travel time (50th percentile) over four time periods (AM peak, Mid-day, PM Peak, and weekends) which covers 6AM to 8PM each day. The ratio is expressed as a percentage of the person miles traveled that are reliable through the sum of the number of reliable person miles traveled divided by the sum of total person miles traveled.

Freight Movement Performance Measures

3. Truck Travel Time Reliability (TTTR) – (2) two-year and (4) four-year targets
    - Performance measure is a ratio generated by dividing the longer travel time (95th percentile) by a normal travel time (50th percentile) for each segment of the interstate over five time periods throughout weekdays and weekends (AM Peak, Mid-day, PM peak, weekend and overnight). This performance measure covers all hours of the day. The TTTR's of Interstate segments are then used to create the TTTR index for the entire system using a weighted aggregate calculation for the worst performing times of each segment.

Table 6 displays the results of the performance measures and targets for system performance. The 4-year condition of 95.9% outperformed the 4-year target of 90.0% for the Percent of Person Miles Traveled on the Interstate that are Reliable. The number of Vehicle Miles Traveled (VMT) has an inverse relationship with reliability. The VMT share of unreliable TMC decreased from the baseline year due to the effects of COVID pandemic contributing to the difference in actual and target 4-year values. Over the first performance period over 82.5 miles of Interstate have been improved. Interstate capacity widening projects on I-85, I-26 and I-20 are currently under construction or completed in addition to preservation and rehabilitation projects that contributed towards progress towards the 4-year target. There are consistently unreliable sections on the Interstate System in South Carolina that are responsible for making 4.1% of the Interstate's unreliable, the majority of which are located in 3 MPO's: Charleston (CHATS), Greenville-Pickens (GPATS) and Columbia (COATS). Addressing these unreliable sections and pinch points of System to System Interchanges in these areas has been a top priority for the agency and is being completed through the management of the STAMP.

Table 6. System Performance Measures, and Freight (1st Performance Period)					
Performance Measure	Baseline	2-Year Condition/ Performance	2-Year Target	4-Year Condition/ Performance	4-Year Target
Percent of the Person-Miles Traveled on the Interstate that are Reliable	94.7%	94.8%	91.0%	95.9%	90.0%
Percent of the Person-Miles Traveled on the Non-Interstate NHS that are Reliable	91.4%	NA	NA	95.0%	81.0%
Truck Travel Time Reliability Index (TTTR)	1.34	1.33	1.36	1.31	1.45

Table 6 also displays the (4) four-year performance measure for Truck Travel Time Reliability (TTTR) at 1.31, which outperformed the target of 1.45. The SCDOT has made addressing congestion at freight bottlenecks a priority to improve operational efficiency and accommodate future traffic volumes. Some of the bottleneck areas with projects currently under construction and/or in planning stages include:

- **I-20**: The I-77 and Clemson Road interchanges are the respective bottleneck points along I-20 during the AM peak hour and PM peak hour. **This Corridor and Interchange improvement Project is complete and operational.**

- **I-77**: The primary bottleneck point along I-77 southbound is approaching the Forest Drive interchange in the Columbia area every Thursday in the AM peak hour, due to weekly graduation ceremonies of Fort Jackson. **This Corridor Improvement Project is complete and operational.**

- **I-26**: In the Columbia area, bottleneck points during the PM peak hours are located at the Broad River Road (Exit 101). Capacity improvements are needed from Exit 101 to east of the Saluda River (Exit 85). C**orridor improvements are currently underway to address these issues and estimated to be complete in 2024.**

- **I-26**: In the Columbia area, the I-20 interchange is the primary bottleneck points during the AM peak hour and the I-126, I-20 and St. Andrews Road interchanges are the primary bottleneck points during the PM peak hour. **As part of the 5-phase Carolina Crossroads Project, corridor and interchange improvement projects have begun and all phases are currently scheduled for completion by 2029.**

- **I-26**: In the Charleston area, the U.S. 52 Connector/Ashley Phosphate Road interchange and the merge to I-526 are the primary bottleneck points during the AM peak hour and the I-526 and Ashley Phosphate Road interchanges are the primary bottleneck points during the PM peak hour. **Planning activities for the Ashley Phosphate Road Safety Improvements Project are currently underway for these areas. ROW acquisition is estimated to begin in Fall 2022 with construction start estimated for 2023.**

- **I-526**: During the PM peak hour, the primary bottleneck along I-526 eastbound is the I-26 interchange and the primary bottleneck points along I-526 westbound are the I-26 interchange,

the merge from Leeds Avenue, and the Paul Cantrell Boulevard interchange. **Preliminary activities are underway on I-526 East & West interchange and corridor improvements. Phase 1 construction estimated to start 2023.**

- **I-85:** Corridor improvements necessary to alleviate traffic congestion, improve safety, and increase capacity. Widening and rehabilitation of the existing Interstate 85 beginning at mile marker 96 and continuing to the North Carolina state line. **Corridor Improvements are currently in construction.**

- **I-85**: The Woodruff Road/I-385 interchange is the primary bottleneck for both directions of I-85 during both the AM and PM peak hours. **Preliminary activities are underway for the Woodruff Road Congestion Relief Project. Estimated construction start is to be determined.**

- **I-385**: The primary bottleneck along I-385 is the interchange with I-85. **This interchange improvement project (as part of the 85/385 Gateway project) is complete and operational.**

In October 2018, the SCDOT Commission approved the Rural Interstate Freight Mobility Improvement Program (RIFMIP). This interstate widening program specifically targets rural sections of South Carolina's interstate system with a focus on freight safety and mobility. These projects can be found on the SCDOT website under "Interstate Capacity" https://www.scdot.org/inside/planning-project-prioritization-list.aspx . This program is in addition to the interstate widening projects planned for urban areas of the state.

- **I-26:** between Columbia and Charleston (MM-125 to MM-194). **Corridor Improvement Project construction between mile marker 184 and 194 near Charleston began in 2022. Preliminary activities for the remaining Corridor Improvement Project are underway. Construction estimated to begin in 2023.**

- **I-26 at I-95 Interchange:** in Dorchester and Orangeburg Counties (MM-172-182 and MM 69-86). **Preliminary activities for this Corridor Improvement Project are underway. Construction estimated to begin in 2023.**

- **I-95:** in the Lowcountry from the Georgia State Line (MM-0 to MM-33). **Preliminary activities for this Corridor Improvement Project are underway. Construction estimated to begin in 2024.**

- **I-85:** in the Upstate from the Georgia State Line (MM-0 to MM-19). **Preliminary activities for this Corridor Improvement Project are underway. Construction estimated to begin in 2035.**

- **I-77:** in the Catawba Region (MM-65 to MM-77). **Preliminary activities for this Corridor Improvement Project are underway. Construction estimated to begin in 2035.**

The RIFMIP was recently re-examined in 2022 based on new Transearch data and other data that was available to initiate planning to align with an updated 2050 horizon. Three additional segments were identified for future projects which include:

- **I-95:** from US-17 (Ridgeland North) / Exit 33 to I-26 / Exit 86

- **I-95:** from the North Carolina State Line (MM 198.76) to Exit 170 (SC-327)

- **I-26:** from I-385 / Exit 51 to SC-202 / Exit 85

System Performance, and Freight Movement / PM-3 - Second Performance Period (2022-2025)

For the 2nd Performance Period (2022-2025) the following targets were set in Table 7 below. To calculate travel time reliability the System Performance Group in the Planning Office observed historical trends and created scenarios to model the future impact that construction projects would have on the effected segments. *Due to the impacts of COVID-19 the years of 2020 and 2021 were excluded from the data set.* The baseline numbers below reflects the impacts of COVID-19 and the expectation is for a return to normal patterns of congestion which will negatively impact the performance measures.

Similar to Travel Time Reliability, Truck Travel Time Reliability (TTTR) was also effected by COVID-19 patterns. The expectation is for normal congestion patterns to return which will negatively impact the performance measures for TTTR. The established targets were adjusted to the 97th percentile to accommodate for the construction impact of interstate projects within the appropriate time frames.

Table 7. System Performance Measures, and Freight (2nd Performance Period)

Performance Measure	Baseline	2-Year Condition/ Performance	2-Year Target	4-Year Condition / Performance	4-Year Target
Percent of the Person-Miles Traveled on the Interstate that are Reliable	95.9%		89.1%		89.1%
Percent of the Person-Miles Traveled on the Non-Interstate NHS that are Reliable	95.0%		85.0%		85.0%
Truck Travel Time Reliability Index (TTTR)	1.31		1.45		1.45

Congestion Mitigation & Air Quality Improvement Program / PM-3

Congestion Mitigation and Air Quality Improvement Program (CMAQ) measures apply to MPOs that are within the boundaries of each U.S. Census Bureau-designated Urbanized Area (UZA) that contains a NHS road, has a population of more than one million, and contains any part of nonattainment or maintenance area for emissions. If applicable the FHWA has established measures, which became effective on May 20, 2017 to assess the following performance measures.

1. CMAQ Only - Annual hours of peak hour excessive delay per capita (PHED) – (4) four-year targets
    - Peak Hour Excessive Delay (PHED) is a measurement of traffic congestion and is expressed as annual hours of peak hour excessive delay per capita. The threshold for excessive delay is based on travel time at 20 miles per hour or 60% of the posted speed limit travel time, whichever is greater, and is measured in 15-minute intervals on National Highway System (NHS) roads. Peak travel hours are defined as 6:00 to 10:00 a.m. on weekday mornings; the weekday afternoon period is 3:00 to 7:00 p.m. or 4:00 to 8:00 p.m. The total excessive delay metric is weighted by vehicle volumes and occupancy. Thus, PHED is a measure of person-hours of delay experienced on NHS roads on an annual basis.

2. CMAQ Only - Percent of non-single occupant vehicle travel (Non-SOV) – (2) two-year and (4) four-year targets
    - Non-Single Occupancy Vehicle (Non-SOV) Travel measures the percent of vehicle travel that occurs with more than one occupant in the vehicle.

3. CMAQ Only - Cumulative two-year and four-year reduction of on-road mobile source emissions for CMAQ funded projects (CMAQ Emission Reduction) – (2) two-year and (4) four-year targets
    - The On-Road Emissions Reduction measure represents the cumulative two-year and four-year emission reductions in kg/day for CMAQ funded projects within the boundaries of the planning area.

Table 8 provides the System Performance Congestion Mitigation and Air Quality Improvement Program. The SCDOT worked in conjunction with NCDOT and the relative MPO to develop the (2) two-year and (4) four-year targets with NCDOT taking the lead on data gathering and analysis due to most of the UZA being located in North Carolina. Trend lines in data have changed with the uncertainty involved with COVID-19 and reduced travel and social distancing practices that have affected travel behavior through the remainder of the performance period. Due to this uncertainty the (4) four-year target was elected to stay at 34.0 annual hours of Peak Hour Excessive Delay (PHED) even though the (2) two-year performance target was reduced.

To develop the Non-Single Occupancy Vehicle (SOV) travel target a conservative approach was taken based on a trend analysis that was completed. Data used for the measure was developed from the communizing to work data from the American Community Survey. The data fluctuates slightly above 21.0%. The (2) two-year performance was slightly above the (2) two-year target, but in line with the trending data that was expected.

Total Emission reduction for Nitrous Oxide (NOx) and for Volatile Organic Compounds (VOC) performance measures were less than the expected (2) two-year target due to changes in project delivery schedules and a series of challenges encountered by the project management team. Six (6) of the eight (8) CMAQ projects in the 2020 CMAQ Performance Plan were completed with two projects expected to be completed in the next performance period.

Table 8. System Performance Congestion Mitigation & Air Quality Improvement Program (1st Performance Period)

Performance Measure	Baseline	2-Year Condition/ Performance	2-Year Target	4-Year Condition / Performance	4-Year Target
Annual Hours of Peak Hour Excessive Delay Per Capita: Urbanized Area 1	NA	14.8	NA	9.8	34.0
Percent of Non-Single Occupancy Vehicle (Non-SOV) Travel: Urbanized Area 1	21.7%	21.6%	21.0%	25.6%	21.0%
Total Emission Reductions: NOx	18.800	8.290	58.670	8.290	58.730
Total Emission Reductions: VOC	22.430	11.010	40.820	11.010	46.262

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Table 9 represents the CMAQ Program for the 2nd Performance Period (January 2022 – December 2025). The unified PHED and Non-SOV targets were set in conjunction with NCDOT and represent continued uncertainty about the lingering effects from the COVID pandemic.

Total Emission reductions for Nitrous Oxide (NOx) and Volatile Organic Compounds (VOC) represent the estimated reductions benefit resulting from the CMAQ projects authorized for funding in the 2022-2025 performance period. These benefits are highly dependent on the project type and project delivery schedules.

Table 9. System Performance Congestion Mitigation & Air Quality Improvement Program (2nd Performance Period)

Performance Measure	Baseline	2-Year Condition/ Performance	2-Year Target	4-Year Condition / Performance	4-Year Target
Annual Hours of Peak Hour Excessive Delay Per Capita: Urbanized Area 1	9.8		34.0		34.0
Percent of Non-Single Occupancy Vehicle (Non-SOV) Travel: Urbanized Area 1	25.6%		21.0%		21.0%
Total Emission Reductions: NOx	8.290		58.670		58.963
Total Emission Reductions: VOC	11.010		40.820		41.894