

DRAFT

READING AREA TRANSPORTATION STUDY

**ANNUAL
PAVEMENT
AND BRIDGE
CONDITION
REPORT 2021**

SPRING 2023

SECTION 1

Acronyms and Definitions.....	1
Introduction.....	2
RATS Concurrence with Statewide Performance Measures	2
Goal	3

SECTION 2 - PAVEMENT

Roadway Background and Data.....	4
Pavement Data	7
NHS Pavement Performance Measures.....	7
Berks County Pavement Condition Scorecard	10
NHS, State, and Local Pavement Smoothness (IRI) Summaries	11

SECTION 3 - BRIDGES

Bridge Background and Data	17
Bridge Inspection Overview	18
Bridge Data	19
NHS Bridge Performance Measures	20
Berks County Bridge Condition Scorecard	23
State Bridge Condition Summaries	24
Local Bridge Condition Summaries	26

SECTION 4 – PAVEMENT AND BRIDGE CONDITION MAPS BY PLANNING REGION

IRI of NHS Roads in Berks County	29
IRI and Bridge Conditions for Hawk Mountain Region.....	30
IRI and Bridge Conditions for Tulpehocken Region	31
IRI and Bridge Conditions for Southern Highlands Region.....	32
IRI and Bridge Conditions for Oley Hills Region	33
IRI and Bridge Conditions for Metro Region.....	34

SECTION 5 – PAVEMENT AND BRIDGE PROJECTS ON FFY 2023-2026 TRANSPORTATION IMPROVEMENT PROGRAM

Pavement Projects.....	35
Bridge Projects.....	36

APPENDICES

Reading MPO 2021 Pavement Performance Report	37
Reading MPO 2021 Bridge Performance Report.....	38

Goal

Our experience and perception of the transportation system is largely based on the condition of the roads and bridges we drive on every day. This report is prepared for the Reading Metropolitan Planning Organization (Reading MPO) detailing the conditions of the roads and bridges throughout Berks County. **This report will help guide investment decisions to keep Berks County's roads and bridges in good order by determining potential projects for inclusion in the Reading Area Transportation Study Transportation Improvement Program and Long Range Transportation Plan.**



RATS Concurrence with Statewide Performance Measures

The Moving Ahead for Progress in the 21st Century Act (MAP-21) and Fixing America's Surface Transportation (FAST) Act established a series of performance measures to ensure effective use of Federal transportation funds.

PM-2 BASELINE AND TARGET VALUES FOR 2022-2025 PERFORMANCE PERIOD

PERFORMANCE MEASURE	URBAN-IZED AREA	2021 BASELINE	2023 2-YEAR TARGET	2025 4-YEAR TARGET
Percentage of Pavements of the Interstate System in Good Condition	Statewide	68.8%	69.0%	65.0%
Percentage of Pavements of the Interstate System in Poor Condition	Statewide	0.4%	2.0%	2.0%
Percentage of Pavements of the Non-Interstate NHS in Good Condition	Statewide	37.2%	31.0%	29.0%
Percentage of Pavements of the Non-Interstate NHS in Poor Condition	Statewide	1.5%	6.0%	6.5%
Percentage of NHS Bridges Classified as in Good Condition	Statewide	27.5%	28.0%	28.0%
Percentage of NHS Bridges Classified as in Poor Condition	Statewide	4.4%	7.5%	7.5%

As Reading MPO's interests extend beyond those included in PennDOT's Performance Measure Annual Reports, the data will be analyzed not only for road and bridge groups for PennDOT-owned assets but Local Federal Aid (LFA) roads and locally owned bridges.

Reported Pavement Data

MAP-21 Reported Road Groups (2)

- NHS
 - NHS – Interstate
 - NHS – Non-Interstate

PennDOT Reported Road Groups (4)

- NHS
 - NHS – Interstate
 - State-Owned
 - NHS – Non-Interstate
 - State-Owned
- Non-NHS
 - Non-NHS \geq 2,000 ADT
 - State-Owned
 - Non-NHS $<$ 2,000 ADT
 - State-Owned

RATS Reported Road Groups (7)

- NHS
 - NHS – Interstate
 - State-Owned
 - NHS – Non-Interstate
 - State-Owned
 - LFA
- Non-NHS
 - Non-NHS \geq 2,000 ADT
 - State-Owned
 - LFA
 - Non-NHS $<$ 2,000 ADT
 - State-Owned
 - LFA



MAP-21 Pavement Performance

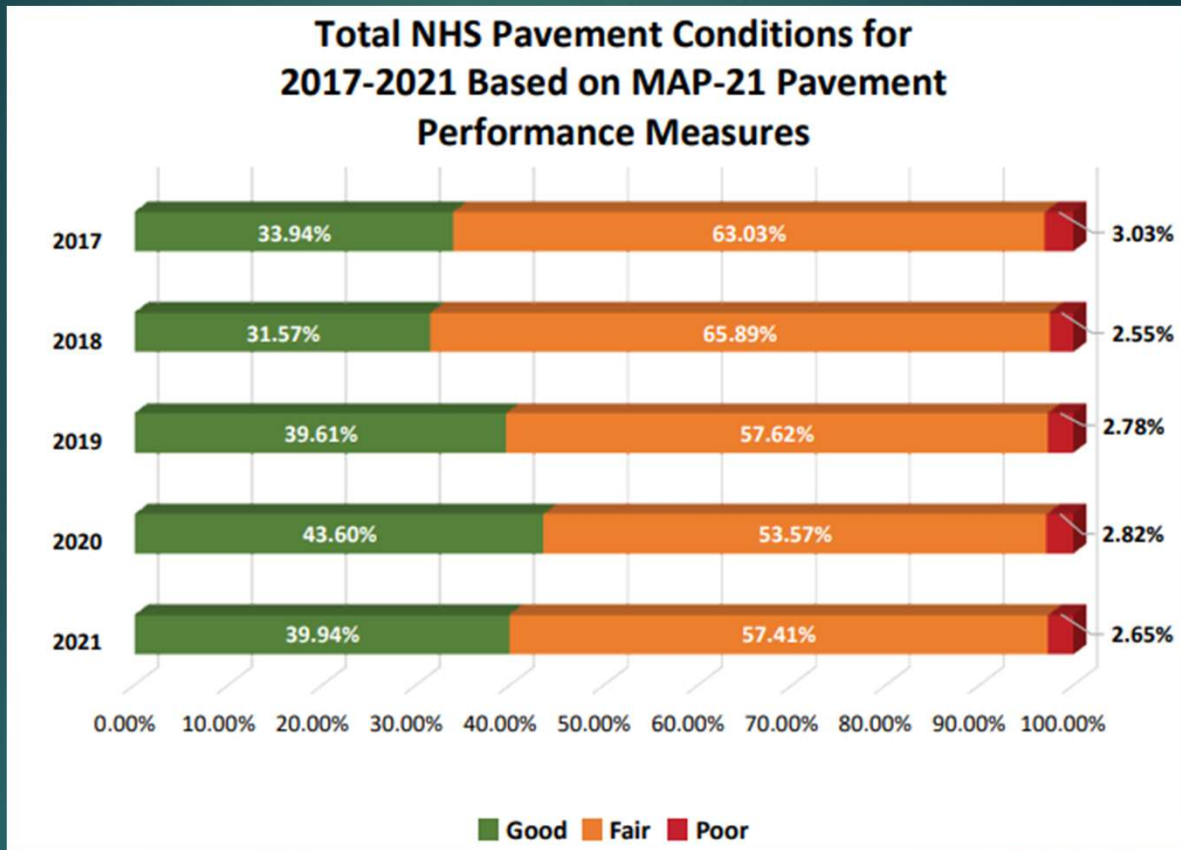
Map-21 Pavement Performance, Pavement in Good Condition by Business Plan Network (2017-2020 Based on PA Lane Miles, 2021 Based on Total PA Lane Miles)

MAP-21 PAVEMENT PERFORMANCE MEASURE										
Business Plan Network	2017 Good %	2018 Good %	2019 Good %	2020 Good %	2021 Good %	2021 Good % Target	2022 Good % Target	2023 Good % Target	2024 Good % Target	2025 Good % Target
Interstate	63.36%	45.24%	57.56%	62.39%	59.73%	n/a	n/a	69%	67%	65%
NHS, Non-Interstate	20.32%	25.54%	30.99%	35.72%	31.31%	26%	30%	31%	30%	29%
Total NHS	33.94%	31.57%	39.61%	43.60%	39.94%	n/a	n/a	n/a	n/a	n/a

Map-21 Pavement Performance, Pavement in Poor Condition by Business Plan Network (2017-2020 Based on PA Lane Miles, 2021 Based on Total PA Lane Miles)

MAP-21 PAVEMENT PERFORMANCE MEASURE										
Business Plan Network	2017 Poor %	2018 Poor %	2019 Poor %	2020 Poor %	2021 Poor %	2021 Poor % Target	2022 Poor % Target	2023 Poor % Target	2024 Poor % Target	2025 Poor % Target
Interstate	0.11%	0.17%	0.23%	0.30%	0.14%	n/a	n/a	2%	2%	2%
NHS, Non-Interstate	4.37%	3.63%	4.00%	3.90%	3.75%	5%	6%	6%	6%	6.5%
TOTAL NHS	3.03%	2.55%	2.78%	2.82%	2.65%	N/A	N/A	N/A	N/A	N/A

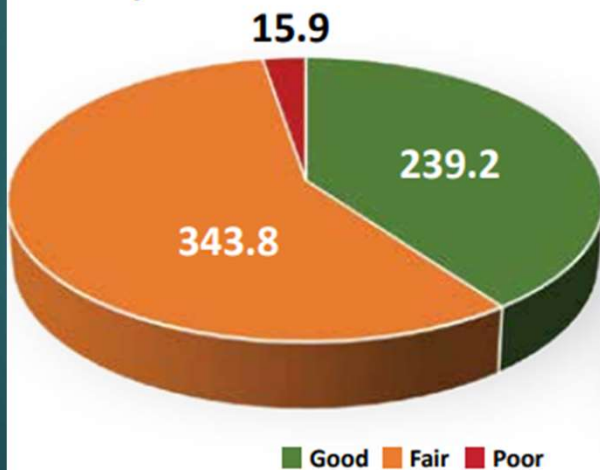
Including NHS Fair Condition Pavement for a More Complete Picture



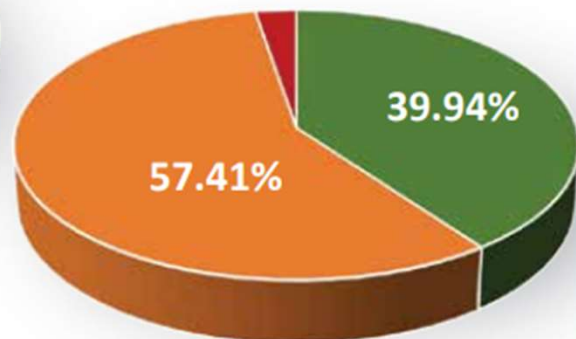
The pavement performance is shown in the following pie charts for 2021.

MAP-21 NHS PAVEMENT PERFORMANCE 2021

By Total PA Lane Miles



By %



BERKS COUNTY PAVEMENT CONDITION SCORECARD BASED ON MAP-21 PAVEMENT PERFORMANCE MEASURES (Based on Total PA Lane Miles)

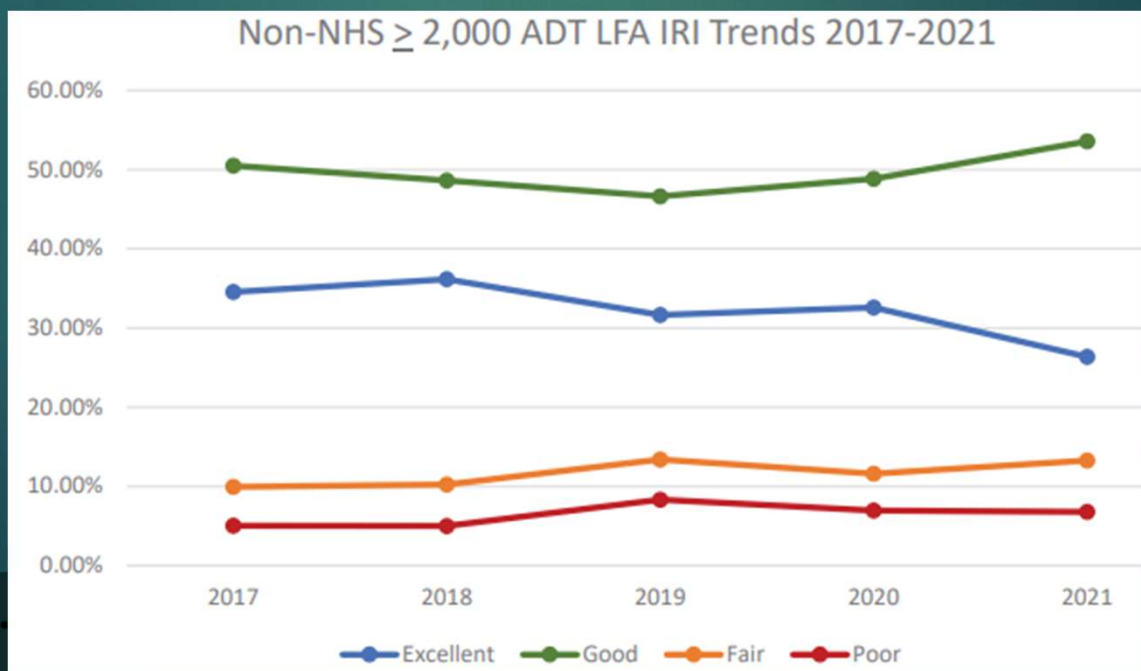
INDICATOR	DESCRIPTION	TREND	TREND
Interstate Pavement in Good Condition	In 2021, 59.73% of Interstate Pavement was in Good Condition. This value has ranged from 45.24% to 63.36% over the last 5 years, however, needs to improve to meet 2023-2025 Targets, which range from 65% to 69%.	<p style="text-align: center;">STEADY</p>	
Interstate Pavement in Poor Condition	In 2021, 0.14% of Interstate Pavement was in Poor Condition. This value has ranged from 0.11% to 0.30% over the last 5 years, and is on track to remain well below the upcoming 2% Targets.	<p style="text-align: center;">STEADY</p>	
Non-Interstate NHS Pavement in Good Condition	In 2021, 31.31% of Non-Interstate, NHS Pavement was in Good Condition. This value has improved from 20.32% in 2017, however, will need to remain steady as the 2022-2025 Targets range from 29%-31%.	<p style="text-align: center;">IMPROVING</p>	
Non-Interstate NHS Pavement in Poor Condition	In 2021, 3.75% of Non-Interstate, NHS Pavement was in Poor Condition. This value has ranged from 4.37% to 3.63% over the last 5 years, and is on track to remain below the 2022-2025 Targets, which range from 6% to 6.5%.	<p style="text-align: center;">STEADY</p>	



2021 Pavement IRI Summary by Business Plan Network (Based on PennDOT Segment Miles)

BUSINESS PLAN NETWORK	EXCELLENT		GOOD		FAIR		POOR		TOTAL Tested Seg Mi
	Seg Mi	%	Seg Mi	%	Seg Mi	%	Seg Mi	%	
Interstate	24.8	26.60%	39.8	42.68%	20.4	21.85%	8.3	8.87%	93.3
TOTAL NHS NON-INTERSTATE	28.3	13.80%	83.1	40.55%	57.8	28.21%	35.7	17.45%	204.9
State-Owned	0	0.00%	8.4	29.47%	11.1	38.95%	9.0	31.58%	28.5
LFA	29.6	16.36%	77.0	42.56%	45.7	25.26%	28.6	15.81%	180.9
TOTAL NON-NHS ≥ 2,000 ADT	60.5	16.97%	185.4	51.97%	71.5	20.05%	39.3	11.02%	356.7
State-Owned	35.2	12.69%	138.0	49.77%	64.3	23.19%	39.8	14.35%	277.3
LFA	24.8	26.35%	50.4	53.56%	12.5	13.28%	6.4	6.80%	94.1
TOTAL NON-NHS < 2,000 ADT	26.7	7.91%	120.1	35.60%	132.8	39.38%	57.7	17.11%	337.3
State-Owned	28.2	8.62%	116.9	35.74%	125.8	38.46%	56.2	17.18%	327.1
LFA	0	0.00%	0.8	8.89%	3.6	40.00%	4.6	51.11%	9.0

10 Line Graphs included show the trends for each level of the Business Plan Network from 2017-2021



Reported Bridge Data

MAP-21 Reported Bridge Groups (2)

- NHS
 - NHS – Interstate
 - NHS – Non-Interstate

PennDOT Reported Bridge Groups (5)

- NHS
 - NHS – Interstate/Ramps
 - State-Owned $\geq 8'$
 - NHS – Non-Interstate
 - State-Owned $\geq 8'$
- Non-NHS
 - Non-NHS $> 2,000$ ADT
 - State-Owned $\geq 8'$
 - Non-NHS $< 2,000$ ADT
 - State-Owned $\geq 8'$
 - Local ≥ 20

RATS Reported Bridge Groups (8)

- NHS
 - NHS – Interstate/Ramps
 - State-Owned $\geq 8'$
 - NHS – Non-Interstate
 - State-Owned $\geq 8'$
- Non-NHS
 - Non-NHS $\geq 2,000$ ADT
 - State-Owned $\geq 8'$
 - Non-NHS $< 2,000$ ADT
 - State-Owned $\geq 8'$
 - Local $\geq 20'$
 - County $\geq 20'$
 - Township $\geq 20'$
 - Borough/City $\geq 20'$
 - Railroad $\geq 20'$



MAP-21 Bridge Performance

MAP-21 BRIDGE PERFORMANCE POOR CONDITION DECK AREA BY BUSINESS PLAN NETWORK
(BASED ON ALL NHS BRIDGES GREATER THAN OR EQUAL TO 20' IN LENGTH)

MAP-21 BRIDGE PERFORMANCE MEASURE

Business Plan Network	2017 Poor Deck Area %	2018 Poor Deck Area %	2019 Poor Deck Area %	2019 Target	2020 Poor Deck Area %	2021 Poor Deck Area %	2021 Target	2023 Target	2025 Target
Interstate	34.66%	34.66%	33.27%	n/a	32.64%	33.27%	n/a	n/a	n/a
NHS, Non-Interstate	15.05%	15.05%	14.91%	n/a	7.28%	7.23%	n/a	n/a	n/a
Total NHS	19.33%	19.33%	18.91%	18.00%	12.96%	12.93%	16.00%	14.00%	13.00%

MAP-21 BRIDGE PERFORMANCE PERCENTAGE OF POOR CONDITION BRIDGES BY BUSINESS PLAN NETWORK
(BASED ON ALL NHS BRIDGES GREATER THAN OR EQUAL TO 20' IN LENGTH)

MAP-21 PAVEMENT PERFORMANCE MEASURE

Business Plan Network	2017 Poor %	2018 Poor %	2019 Poor %	2020 Poor %	2021 Poor %	2021 Poor % Target	2022 Poor % Target	2023 Poor % Target	2024 Poor % Target	2025 Poor % Target
Interstate	0.11%	0.17%	0.23%	0.30%	0.14%	n/a	n/a	2%	2%	2%
NHS, Non-Interstate	4.37%	3.63%	4.00%	3.90%	3.75%	5%	6%	6%	6%	6.5%
TOTAL NHS	3.03%	2.55%	2.78%	2.82%	2.65%	N/A	N/A	N/A	N/A	N/A

MAP-21 Bridge Performance Continued

MAP-21 BRIDGE PERFORMANCE PERCENTAGE OF GOOD CONDITION BRIDGES BY BUSINESS PLAN NETWORK
(BASED ON ALL NHS BRIDGES GREATER THAN OR EQUAL TO 20' IN LENGTH)

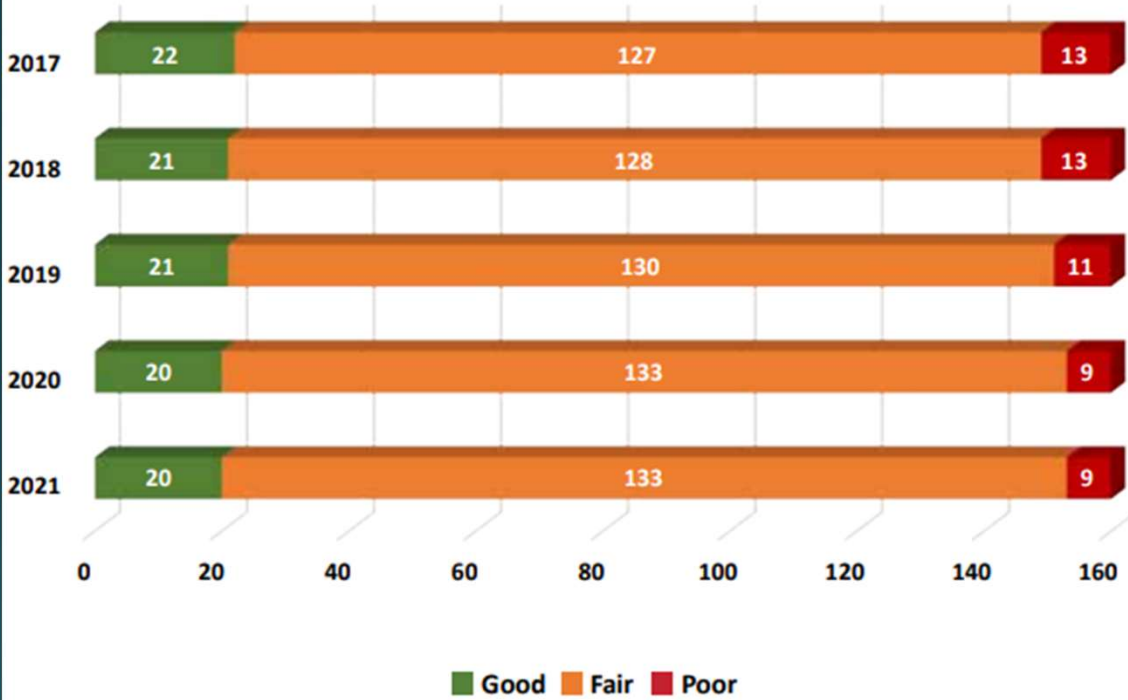
MAP-21 BRIDGE PERFORMANCE MEASURE

Business Plan Network	2017 Good Count %	2018 Good Count %	2019 Good Count %	2020 Good Count %	2021 Good Count %	2023 Target	2025 Target
Interstate	11.90%	11.90%	11.90%	11.63%	11.90%	n/a	n/a
NHS, Non-Interstate	14.17%	13.33%	13.33%	12.50%	12.40%	n/a	n/a
Total NHS	13.58%	12.96%	12.96%	12.27%	12.27%	28.00%	28.00%

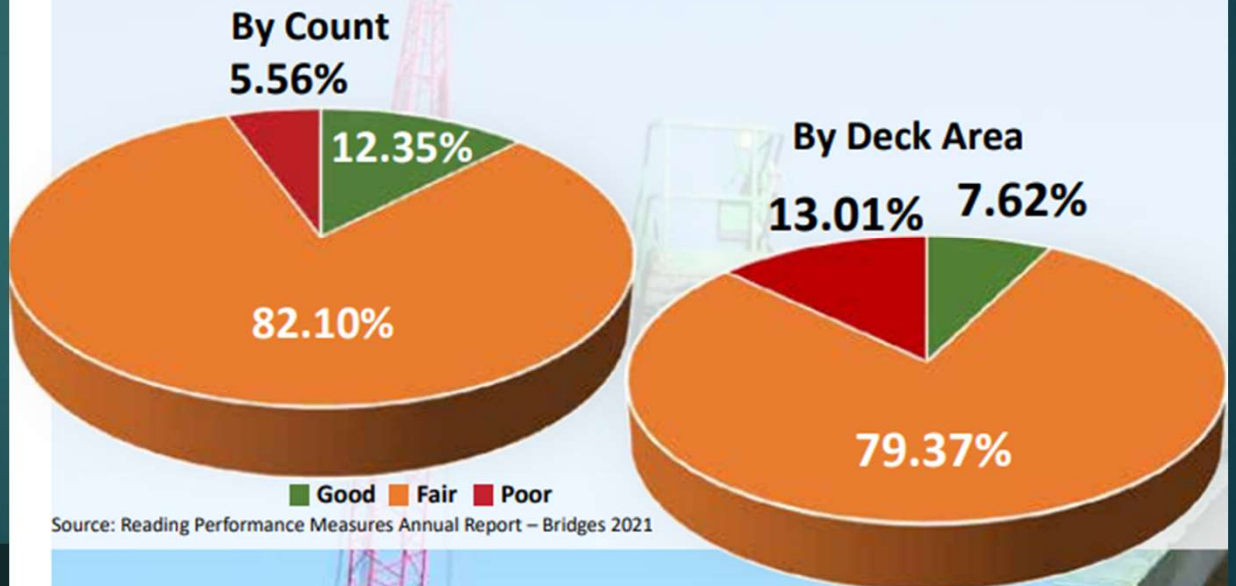


Including NHS Fair Condition Bridges for a More Complete Picture

NHS Bridges Greater than or Equal to 20' in Length Conditions for 2017-2021



MAP-21 BRIDGE PERFORMANCE 2021
(BASED ON ALL NHS BRIDGES GREATER THAN OR EQUAL TO 20' IN LENGTH)

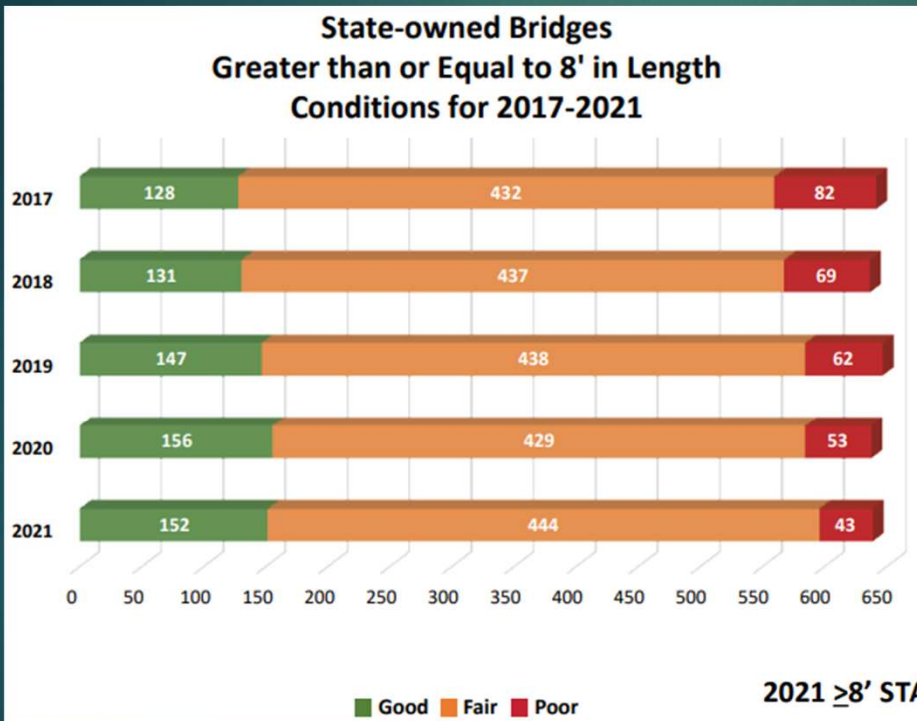


BERKS COUNTY BRIDGE CONDITION SCORECARD BASED ON MAP-21 BRIDGE PERFORMANCE MEASURES (BASED ON TOTAL PA LANE MILES)

INDICATOR	DESCRIPTION	TREND	TREND										
<p>NHS Bridge Deck Area in Poor Condition</p>	<p>In 2021, 12.93% of the NHS Bridge Deck Area was in Poor Condition. This value has improved by 6.4% over the last 5 years, and is on track to meet the set Targets through 2023, however, needs to improve to meet the 2025 Target and should continue improving to meet the overall statewide 10% target set by FHWA.</p>	<p style="text-align: center;">IMPROVING</p> <table border="1"> <caption>NHS Bridge Deck Area in Poor Condition (2017-2021)</caption> <thead> <tr> <th>Year</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>2017</td> <td>19.33%</td> </tr> <tr> <td>2018</td> <td>19.33%</td> </tr> <tr> <td>2021</td> <td>12.93%</td> </tr> <tr> <td>2022</td> <td>12.93%</td> </tr> </tbody> </table>	Year	Percentage	2017	19.33%	2018	19.33%	2021	12.93%	2022	12.93%	
Year	Percentage												
2017	19.33%												
2018	19.33%												
2021	12.93%												
2022	12.93%												
<p>Bridges in Good Condition</p>	<p>In 2021, 12.27% of NHS Bridges were in Good Condition. This is a slight decline from the 13.58% in 2017, however, this number needs to greatly improve to meet the 2023 and 2025 Targets, which are set at 28%.</p>	<p style="text-align: center;">STEADY</p> <table border="1"> <caption>Bridges in Good Condition (2017-2021)</caption> <thead> <tr> <th>Year</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>2017</td> <td>13.58%</td> </tr> <tr> <td>2018</td> <td>12.93%</td> </tr> <tr> <td>2021</td> <td>12.93%</td> </tr> <tr> <td>2022</td> <td>12.27%</td> </tr> </tbody> </table>	Year	Percentage	2017	13.58%	2018	12.93%	2021	12.93%	2022	12.27%	
Year	Percentage												
2017	13.58%												
2018	12.93%												
2021	12.93%												
2022	12.27%												
<p>NHS Bridges in Poor Condition</p>	<p>In 2021, 5.52% of NHS Bridges were in Poor Condition. This is an improvement from the 8.02% in 2017, and meets the 7.5% Targets set for 2023 and 2025</p>	<p style="text-align: center;">IMPROVING</p> <table border="1"> <caption>NHS Bridges in Poor Condition (2017-2021)</caption> <thead> <tr> <th>Year</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>2017</td> <td>8.02%</td> </tr> <tr> <td>2018</td> <td>8.02%</td> </tr> <tr> <td>2021</td> <td>6.52%</td> </tr> <tr> <td>2022</td> <td>5.52%</td> </tr> </tbody> </table>	Year	Percentage	2017	8.02%	2018	8.02%	2021	6.52%	2022	5.52%	
Year	Percentage												
2017	8.02%												
2018	8.02%												
2021	6.52%												
2022	5.52%												

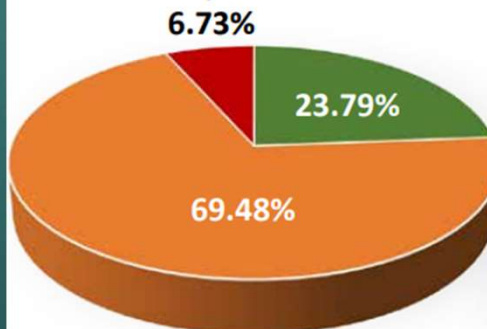
State-owned Bridge Conditions

STATE-OWNED POOR BRIDGES ≥ 8' BY DECK AREA					
Business Plan Network	2017 Poor Deck Area %	2018 Poor Deck Area %	2019 Poor Deck Area %	2020 Poor Deck Area %	2021 Poor Deck Area %
State ≥ 8'; Interstate/Ramps	36.68%	37.19%	35.73%	34.50%	35.21%
State ≥ 8'; NHS (non-Interstate)	14.86%	14.86%	14.72%	7.22%	7.16%
State ≥ 8'; non-NHS > 2000 ADT	12.34%	10.29%	6.23%	5.79%	4.36%
State ≥ 8'; non-NHS < 2000 ADT	19.34%	15.93%	12.21%	9.70%	7.89%
Total State Bridges ≥ 8'	17.63%	16.81%	14.97%	10.80%	10.24%

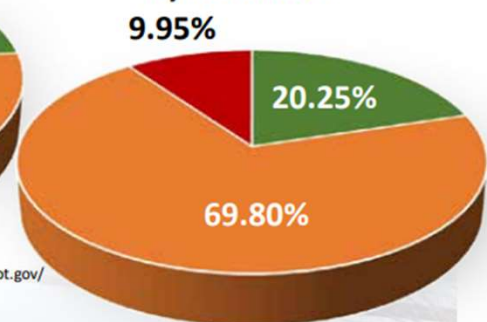


2021 ≥8' STATE-OWNED BRIDGE CONDITIONS

By Count



By Deck Area



Source: PennDOT Bridge Conditions State Excel Files gis.penndot.gov/paprojects/BridgeConditions.aspx 12/08/2022



Local-owned Bridge Conditions

2021 LOCAL-OWNED BRIDGES \geq 20' CONDITIONS BY COUNT BY BUSINESS PLAN NETWORK

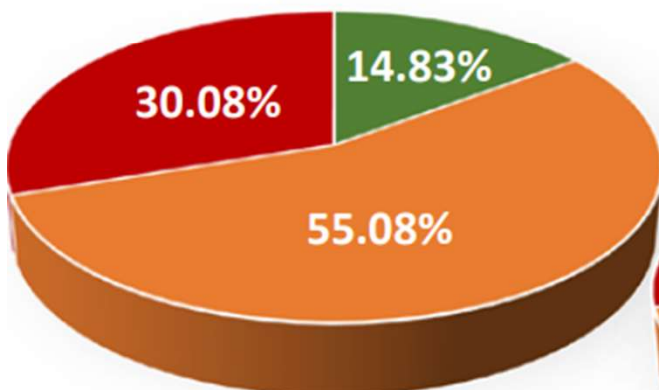
BUSINESS PLAN NETWORK	GOOD		FAIR		POOR		TOTAL
	#	%	#	%	#	%	#
Local \geq 20'	35	14.83%	130	55.08%	71	30.08%	236
County	14	25.93%	22	40.74%	18	33.33%	54
Township	18	11.46%	95	60.51%	44	28.03%	157
Borough/City	2	9.09%	13	59.09%	7	31.82%	22
Railroad	1	33.33%	0	0.00%	2	66.66%	3

2021 LOCAL-OWNED BRIDGES \geq 20' CONDITIONS BY DECK AREA BY BUSINESS PLAN NETWORK

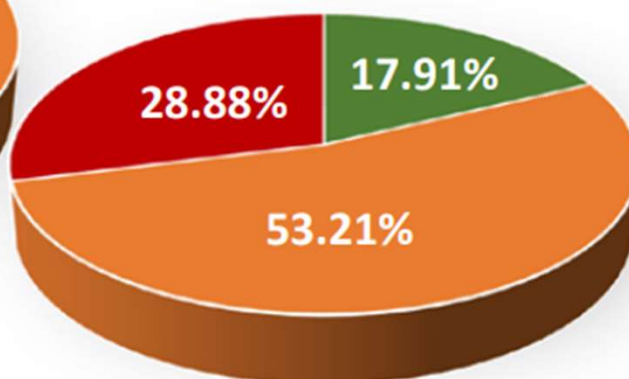
BUSINESS PLAN NETWORK	GOOD		FAIR		POOR		TOTAL
	Deck Area SF	%	Deck Area SF	%	Deck Area SF	%	Deck Area SF
Local $>$ 20'	81,572.8	17.91%	242,340.8	53.21%	131,560.2	28.88%	455,473.8
County	44,427.7	25.46%	92,343.6	52.93%	37,696.4	21.61%	174,467.7
Township	31,277.0	15.33%	101,062.2	49.54%	71,658.2	35.13%	203,997.4
Borough/City	3,338.5	4.98%	48,935.0	72.98%	14,782.0	22.04%	67,055.5
Railroad	2,529.6	25.41%	0.0	0.00%	7,423.6	74.59%	9,953.2

2021 LOCAL-OWNED BRIDGES \geq 20' IN LENGTH

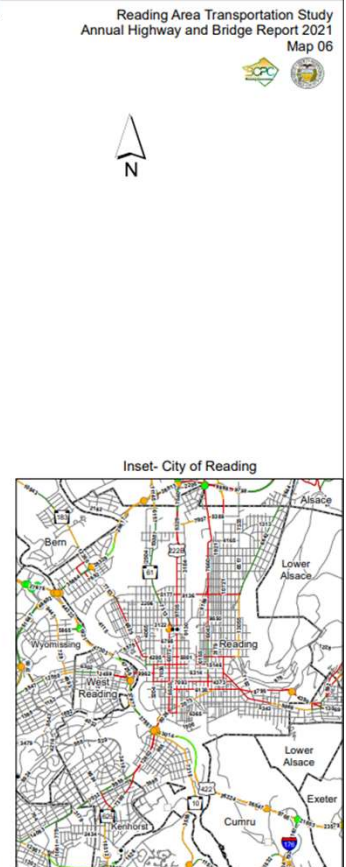
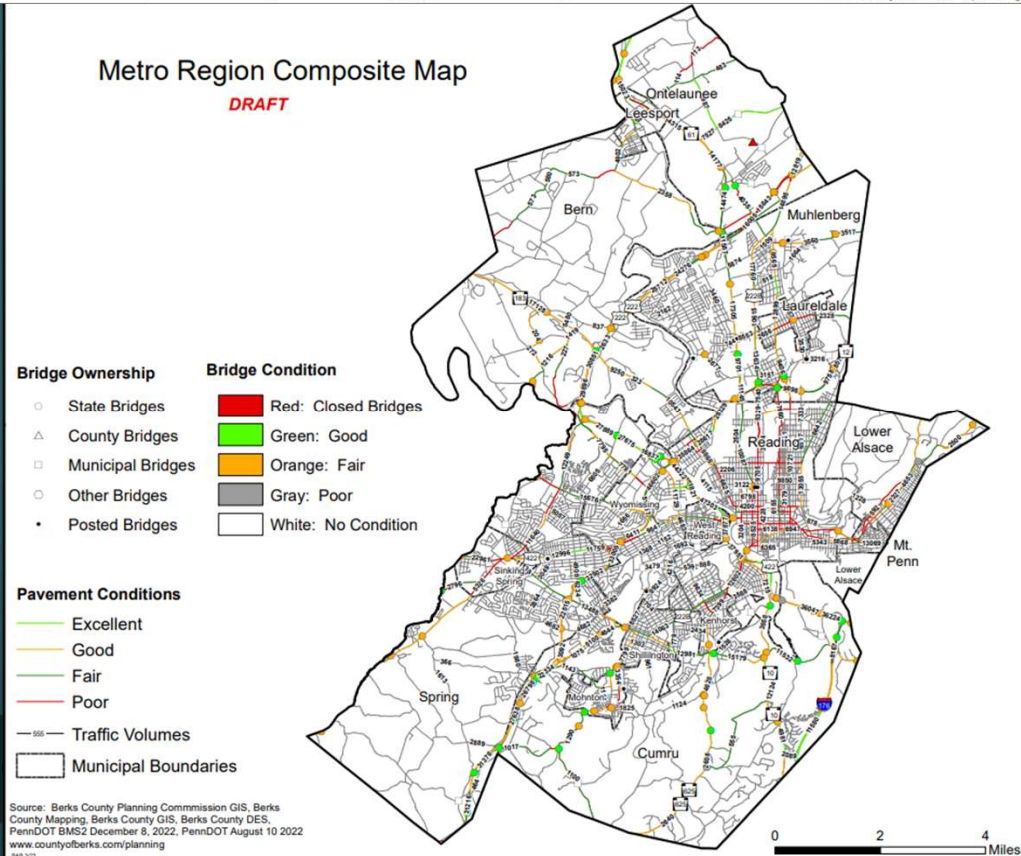
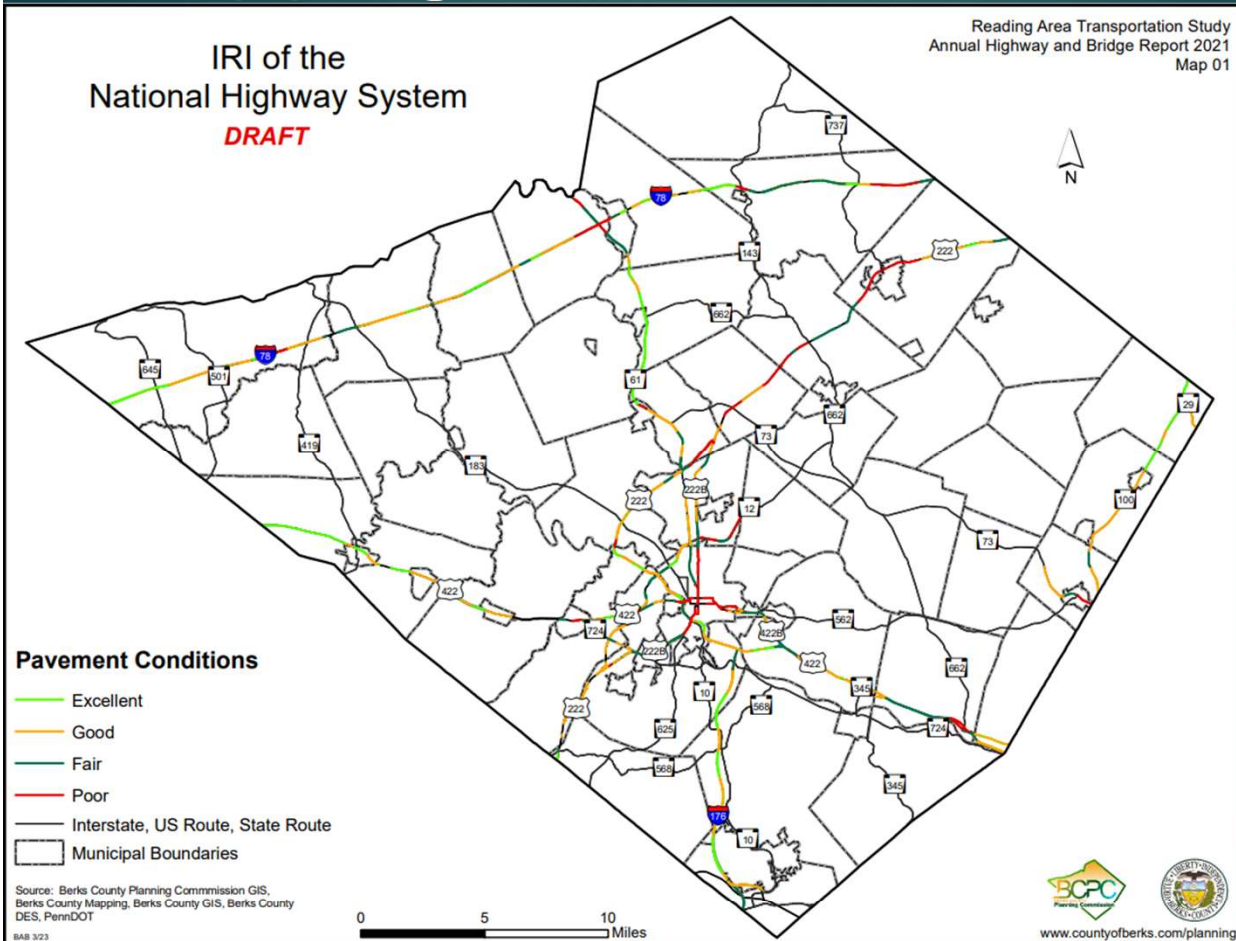
By Count



By Deck Area



Pavement and Bridge Condition Mapping



Pavement and Bridge Projects on FFY 2023-2026 Transportation Improvement Program (TIP)

Pavement Projects

MPMS #	PROJECT	DESCRIPTION AND LOCATION
89215	PA 12 West Resurface – 422 WB Ramps to SR 183	Project involves highway resurfacing of PA 12 (Warren Street Bypass) from US 422 WB ramps in Wyomissing Borough to PA 183 (Schuylkill Avenue) in the City of Reading. This project also involves driveway curb closures, guiderail and barrier upgrades, and pavement restriping to provide lengthened acceleration lanes.
96373	PA 61 Restoration – Phase 1	Project involves highway restoration of PA 61 from approximately 1700 feet south of Cabela’s Drive to the south end of the bridge over the Schuylkill River in Tilden Township.
10328	PA 61 Restoration – Phase 2A	Project involves highway restoration of PA 61 from 4th Street to the bridge over the Schuylkill River and State Street.
10867	PA 61 Restoration – Phase 2B	Project involves highway restoration of PA 61 from Zion’s Church Road in Perry Township through Windsor Township to the 4th Street intersection in Hamburg. The 4th Street intersection will be reconfigured.
110007	222 Warren Street - Wyomissing	Project involves concrete patching and ultra-thin overlay of US 222 from the Spring Township line near the Reading Boulevard overpass to a point between the State Hill Road and Paper Mill Road interchanges. The project also involves similar improvements to the ramps to US 422 Penn Avenue and State Hill Road.

Bridge Projects

MPMS #	PROJECT	DESCRIPTION AND LOCATION
109894	SR 61 Bridge Rehabilitation	Project involves the rehabilitation of the PA 61 bridge over the Schuylkill River and SR 4028 (West State Street) in the Borough of Hamburg and Tilden Township.
92070	US 422 (Penn Avenue) over Cacoosing Creek	Project involves the rehabilitation or replacement of US 422 over the Cacoosing Creek in Sinking Spring Borough.
10613	5th Street Bridge over NS RR	Project involves the rehabilitation or replacement of the Fifth Street (US 222-B) bridge over the Norfolk Sothern Railroad in the City of Reading.
93626	5th Street Bridge over PA 12	Project involves the rehabilitation or replacement of the Fifth Street (US 222-B) bridge over PA 12 in Muhlenberg Township.
91995	Centre Avenue over Norfolk Southern RR	Project involves the rehabilitation or replacement of the bridge carrying Centre Avenue (SR2087) over the Norfolk Southern Railroad in the City of Reading
91091	Schuylkill Avenue Bridge SB	Project involves a bridge replacement on Schuylkill Avenue (PA 183) southbound over the Norfolk Southern Railroad in the City of Reading.
91908	North Third Street over Tulpehocken Creek	Project involves the rehabilitation or replacement of the PA 419 (North Third Street) bridge over the Tulpehocken Creek in Marion and Heidelberg Townships.



Questions or Comments:
Email: Devon Hain at
dhain@countyofberks.com

READING AREA TRANSPORTATION STUDY

**ANNUAL
PAVEMENT
AND BRIDGE
CONDITION
REPORT 2021**
