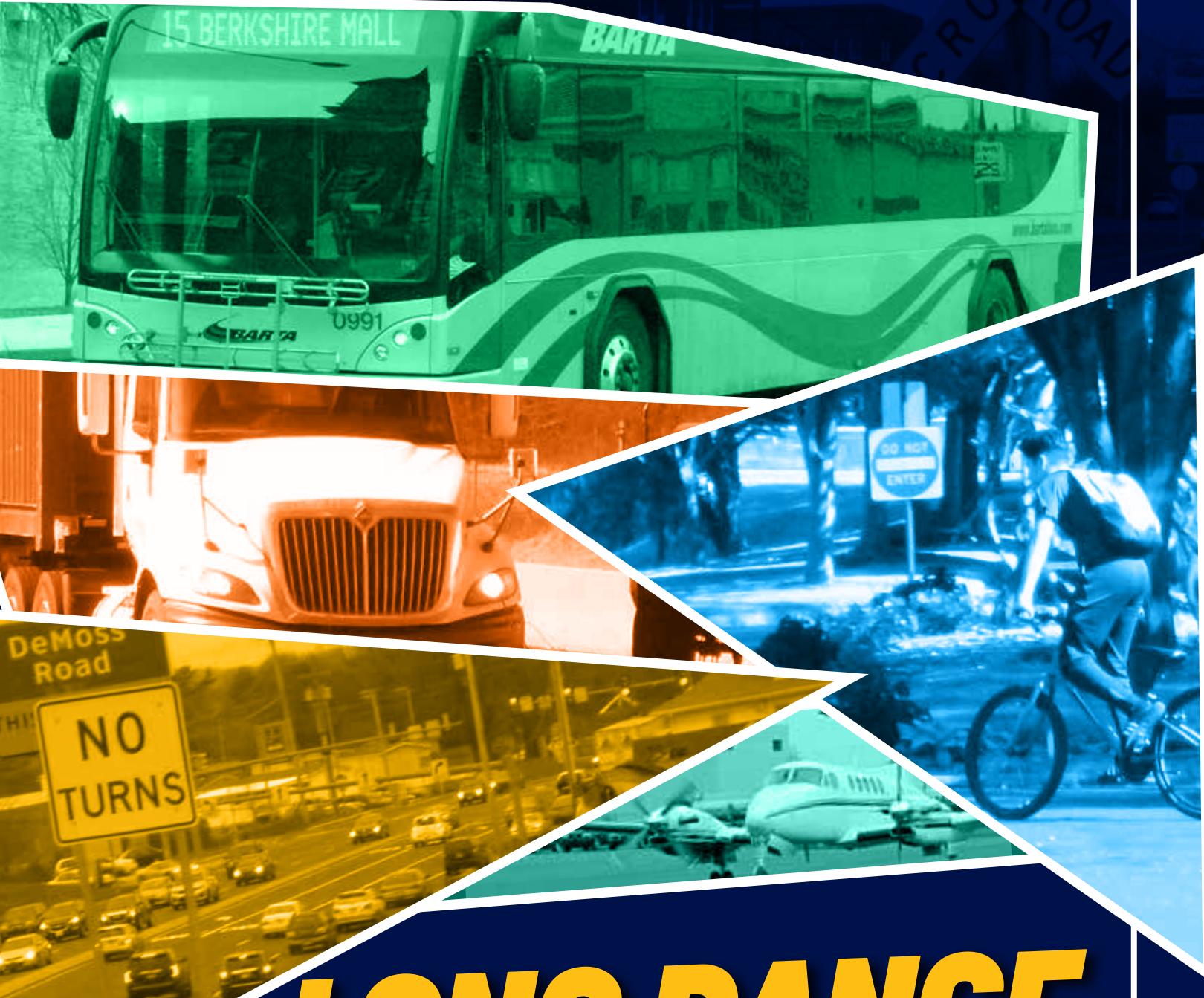


# READING AREA TRANSPORTATION STUDY

FFY 2023-2045



# LONG RANGE *Transportation Plan*

ADOPTED JULY 14, 2022

**READING AREA  
TRANSPORTATION STUDY  
C/O BERKS COUNTY PLANNING COMMISSION**

**633 COURT STREET, 14TH FL  
READING, PA 19601  
Phone: (610) 478-6300  
Fax: (610) 478-6316**

**Email: [planning@berkspa.gov](mailto:planning@berkspa.gov)**

**Web Site: <https://www.countyofberks.com/departments/planning-commission>**

The preparation of this report has been financed in part through grants from the U.S. Department of Transportation and the Pennsylvania Department of Transportation. The contents of this report reflect the views of the authors who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official policies of the U.S. Department of Transportation, Federal Highway Administration (FHWA), Federal Transit Administration (FTA) or the Commonwealth of Pennsylvania at the time of publication. This report does not constitute a standard, specification, or regulation.

The Reading Area Transportation Study (RATS) fully complies with Title VI of the Civil Rights Act of 1964, Executive Order 12898 on Environmental Justice, and related nondiscrimination statutes and regulations in all programs and activities. The Berks County/RATS website provides language translation software, offering translation between English, Spanish, and multiple other languages. Publications and other public documents can be made available in alternative languages and formats, if requested. Any person who believes they have been aggrieved by an unlawful discriminatory practice by RATS under Title VI has a right to file a formal complaint. Any such complaint must be in writing and filed with RATS's Title VI Compliance Officer and/or the appropriate state or federal agency within 180 days of the alleged discriminatory occurrence. For more information on RATS' Title VI program, or to obtain copies of RATS' Title VI Policies, Complaint Procedures, or Complaint Form, please contact the Title VI Compliance Officer at (610) 478-6300 x6304, email [planning@countyofberks.com](mailto:planning@countyofberks.com), or visit our website at <https://www.countyofberks.com/departments/planning-commission/transportation-reading-mpo/reading-area-transportation-study-2023-meeting-schedule>.

In accordance with the requirements of Title II of the Americans with Disabilities Act of 1990 ("ADA"), RATS will not discriminate against qualified individuals with disabilities based on disability in its services, programs, or activities. RATS' public meetings are always held in ADA-accessible facilities and in transit-accessible locations when possible. Auxiliary services can be provided to individuals who submit a request at least seven (7) days prior to a meeting. Requests made within seven (7) days will be accommodated to the greatest extent possible. Anyone who requires an auxiliary aid or service for effective communication, or a modification of policies or procedures to participate in a program, service, or activity of RATS, or has complaints that a program, service, or activity of RATS is not accessible to persons with disabilities please contact the ADA Point of Contact at (610) 478-6300 x6304, email [planning@countyofberks.com](mailto:planning@countyofberks.com), or visit our website at <https://www.countyofberks.com/departments/planning-commission/transportation-reading-mpo/reading-area-transportation-study-2023-meeting-schedule>

Documents will be made available in alternative languages or formats if requested. Persons requiring additional accommodations or those with questions should call 610-478-6300.

Estos informes y/o documentos estarán disponibles en diversos lenguajes y formatos si es necesario. Personas que necesiten acomodo razonable o con preguntas pueden comunicarse l 610-478-6300.

# TABLE OF CONTENTS

<b>Chapter 1 – Introduction .....</b>	<b>1</b>
<b>Chapter 2 – Background .....</b>	<b>7</b>
Demographics .....	9
Economics .....	21
Environmental Integration .....	38
Resiliency.....	42
<b>Chapter 3 – State of the System .....</b>	<b>51</b>
Roads and Bridges.....	53
Congestion Management Process.....	74
Safety and Security.....	79
Transit .....	95
Freight.....	100
Non-Motorized Transportation .....	111
Aviation .....	117
Issues and Needs.....	121
<b>Chapter 4 – Recommendations .....</b>	<b>125</b>
Goals and Strategic Performance Measures .....	127
Project Prioritization.....	130
Project and Financial Planning.....	146
Travel Demand Modeling .....	184
Air Quality .....	184
<b>Appendix .....</b>	<b>189</b>
Public Participation Process .....	191
Amendment Procedures.....	245
Highway and Transit Program Funding.....	247

# LIST OF TABLES AND FIGURES

<i>County Population Between 2000 and 2019</i> .....	10
<i>County Population Projections 2010-2045</i> .....	10
<i>County Migration for 2011-2012 and 2017-2018</i> .....	11
<i>Population Density by County</i> .....	11
<i>Number of Households by County 2013-2018</i> .....	11
<i>Total Employment by County and Pennsylvania 2013-2018</i> .....	21
<i>Berks County Employment 2011-2018</i> .....	24
<i>Berks County Labor Force 2011-2018</i> .....	24
<i>Berks County Percent of Population by Age in Labor Force 2013-2018</i> .....	25
<i>Berks County Employment Projections 2031</i> .....	25
<i>Berks County 2018 Annual Averages</i> .....	26
<i>Top 25 Employers in Berks County 2020</i> .....	27
<i>Berks County Gross Domestic Product in 2018</i> .....	28
<i>Commuting Patterns by County 2014-2018</i> .....	29
<i>Where Most Enter Berks County to Work</i> .....	29
<i>Where Most Leave Berks County to Work</i> .....	29
<i>Berks County Distance to Work Comparison</i> .....	30
<i>Mode of Travel to Work by Age Group in Berks County 2013-2018</i> .....	30
<i>Mode of Travel to Work by Industry in Berks County 2013-2018</i> .....	31
<i>Travel Time to Work in Berks County 2013-2018</i> .....	31
<i>Comparison of Berks County DVMT and GDP 2010-2018</i> .....	32
<i>Berks County Existing Land Use 2013</i> .....	34
<i>Berks County Future Land Use 2030 Update</i> .....	35
<i>Potential Project Impacts</i> .....	41
<i>Berks County Roads by Ownership</i> .....	53
<i>Berks County Roads by Functional Class</i> .....	53
<i>Miles of National Highway System (NHS) in Berks County</i> .....	54
<i>Miles of Roads in Berks County Eligible for Federal Aid</i> .....	54
<i>DVMT by Road Ownership</i> .....	59
<i>DVMT by Road Class</i> .....	59
<i>Licensed Drivers in Berks County 2016-2020</i> .....	60
<i>Registered Vehicles in Berks County 2010, 2015, 2020</i> .....	61
<i>Pennsylvania Gasoline Prices 1996-2020</i> .....	62
<i>International Roughness Index (IRI) Scale</i> .....	62
<i>IRI of Interstate Highways in Berks County 2016-2020</i> .....	64
<i>IRI of NHS Highways not on the Interstate System in Berks County 2016-2020</i> .....	64
<i>IRI of Non-NHS Roads with More than 2000 AADT in Berks County 2016-2020</i> .....	64
<i>IRI of Non-NHS Roads with Less than 2000 AADT in Berks County 2016-2020</i> .....	65
<i>Berks County Bridge Inventory 2016-2020</i> .....	65
<i>Berks County Closed Bridges 2016-2020</i> .....	66
<i>Berks County Posted Bridges 2016-2020</i> .....	66
<i>Berks County Poor Rated Bridges 2016-2020</i> .....	66
<i>Most Congested Corridors Ranked by TTI and AADT</i> .....	75
<i>Top 10 Crashes by County 2015-2019</i> .....	79

<i>Top 10 Fatal Crashes by County 2015-2019.....</i>	79
<i>Berks County Crashes by Type 2015-2019 .....</i>	80
<i>Persons and Vehicles Involved in Crashes in Berks County 2015-2019 .....</i>	80
<i>Fatal Crashes in Berks County 1999-2019 .....</i>	84
<i>Fatal Crashes in Berks County by Type of Driving Behavior 2015-2019.....</i>	84
<i>Crash Locations Where Fatal Injury Occurred in Berks County 2015-2019.....</i>	85
<i>Fatal Crashes in Berks County by Mode 2014-2018 .....</i>	85
<i>Crash Locations Where Suspected Serious Injury Occurred 2015-2019.....</i>	86
<i>Injury Crashes in Berks County 1998-2019 .....</i>	87
<i>Percent Seatbelt Use in Berks County Crashes 2009-2019 .....</i>	87
<i>Unbelted Occupants in Berks County Crashes 2015-2019 .....</i>	87
<i>Passenger Fatalities by Seatbelt Use in Berks County Crashes 2014-2018.....</i>	88
<i>Driving Behaviors that Lead to Crashes in Berks County 2015-2019.....</i>	88
<i>Top 3 Most Common Driving Behaviors that Lead to Crashes in Berks County 1999-2019.....</i>	88
<i>Road Conditions at the Time of Crash in Berks County 2015-2019.....</i>	89
<i>Crashes at Intersection Type in Berks County 2015-2019.....</i>	89
<i>Crashes in Special Zones (School, Work) in Berks County 2015-2019.....</i>	89
<i>Crashes by Vehicle Type 2015-2019.....</i>	90
<i>Crashes Involving At-Risk Drivers in Berks County 2015-2019.....</i>	90
<i>Crashes Involving Vulnerable Road Users (VRU) in Berks County 2015-2019.....</i>	91
<i>Crashes Involving Motorcycles in Berks County 2014-2018.....</i>	91
<i>Crashes Involving Large Trucks 2015-2019.....</i>	92
<i>Fatal Crashes Involving Large Trucks 2015-2019.....</i>	92
<i>Injury Crashes Involving Large Trucks 2015-2019.....</i>	92
<i>Berks County Freeway Service Patrol Assists and Actions Taken by Quarter 2019-2020.....</i>	93
<i>BARTA Fixed Route Service Ridership 2016-2020.....</i>	96
<i>BARTA Fixed Route Service by Route 2019-2020.....</i>	96
<i>BARTA Special Services Ridership 2016-2020 .....</i>	98
<i>Commuter Services of PA Rideshare Program Enrollment in Berks County 2016-2020.....</i>	99
<i>Commuter Services of PA Rideshare Program Performance Measures 2016-2020 .....</i>	99
<i>Freight Originating and Arriving in Berks County by Type and Tonnage 2020.....</i>	101
<i>Rail/Road Crossings with Greater than 5,000 Trips per Day in Berks County .....</i>	106
<i>Top Ten Road/Rail Crossing with Greatest Potential for Crashes in Berks County.....</i>	107
<i>Crashes Involving Horse &amp; Buggy in Berks County 2015-2019 .....</i>	112
<i>Percent of Berks County Workers that Walk and Bike to Work 2000-2018.....</i>	112
<i>Reading Regional Airport Aircraft Inventory 2020.....</i>	118
<i>Reading Regional Airport Historical and Forecast Operations 2016-2020 .....</i>	118
<i>Berks County Airports .....</i>	119
<i>Berks County Heliports .....</i>	119
<i>Highway, Bridge and Transit Projects – Short, Mid and Long Range Planning Periods .....</i>	150-163
<i>Transportation Plan Estimated Funding Summary.....</i>	171
<i>Projected Reading MPO Transportation Funding by Year.....</i>	174-175
<i>Reading Regional Airport Capital Improvement Plan.....</i>	178-179
<i>Unfunded Projects .....</i>	182-183
<i>Ozone Emissions Analysis Results and Conformity Test (Summer Weekday).....</i>	186

# LIST OF MAPS

<i>Map 1</i>	<i>Berks County Location</i> .....	9
<i>Map 2</i>	<i>Population Density by Municipality</i> .....	12
<i>Map 3</i>	<i>Persons Per Household by Municipality</i> .....	13
<i>Map 4</i>	<i>Poverty Rates by Municipality</i> .....	16
<i>Map 5</i>	<i>Elderly Population by Municipality</i> .....	17
<i>Map 6</i>	<i>Disabled Population by Municipality</i> .....	18
<i>Map 7</i>	<i>Limited English Households by Municipality</i> .....	19
<i>Map 8</i>	<i>Zero Vehicle Households by Municipality</i> .....	20
<i>Map 9</i>	<i>Minority Households by Municipality</i> .....	22
<i>Map 10</i>	<i>Largest Employers</i> .....	23
<i>Map 11</i>	<i>Traffic Generators</i> .....	33
<i>Map 12</i>	<i>Existing Land Use</i> .....	36
<i>Map 13</i>	<i>Future Land Use</i> .....	37
<i>Map 14</i>	<i>Hydrology Network</i> .....	43
<i>Map 15</i>	<i>Slopes Greater Than 25%</i> .....	44
<i>Map 16</i>	<i>Prime Agricultural Soils</i> .....	45
<i>Map 17</i>	<i>County Greenway Network</i> .....	46
<i>Map 18</i>	<i>Natural Heritage Areas and Trout Streams</i> .....	47
<i>Map 19</i>	<i>Easements and Agricultural Zoning</i> .....	48
<i>Map 20</i>	<i>Historical Resources Listed on National Register</i> .....	49
<i>Map 21</i>	<i>Functional Classification</i> .....	55
<i>Map 22</i>	<i>National Highway System</i> .....	56
<i>Map 23</i>	<i>Intermodal Connectors</i> .....	57
<i>Map 24</i>	<i>Traffic Volumes</i> .....	58
<i>Map 25</i>	<i>Pavement Conditions</i> .....	63

Map 26	<i>County Bridge Inventory</i> .....	67
Map 27	<i>Closed and Posted Bridges</i> .....	68
Map 28	<i>Hawk Mountain Region Bridge Composite Map</i> .....	69
Map 29	<i>Oley Hills Region Bridge Composite Map</i> .....	70
Map 30	<i>Southern Highlands Region Bridge Composite Map</i> .....	71
Map 31	<i>Metro Region Bridge Composite Map</i> .....	72
Map 32	<i>Tulpehocken Region Bridge Composite Map</i> .....	73
Map 33, 34, 35	<i>Top 10 Congested Corridors Based on Travel Time and Volume</i> .....	76, 77, 78
Map 36	<i>PennDOT Crash Locations with Greater than 20 Reportable Crashes 2015-2019</i> ....	81
Map 37, 38	<i>Top 10 High Crash Corridors in Berks County</i> .....	82, 83
Map 39	<i>Intelligent Transportation Systems (ITS)</i> .....	94
Map 40	<i>BARTA Bus Routes</i> .....	97
Map 41	<i>Freight Generators by Sales Volume</i> .....	103
Map 42	<i>Freight Corridors</i> .....	105
Map 43	<i>Federal Railroad Administration Office of Safety Analysis Road/Rail Crossings with Greatest Potential for Crashes</i> .....	108
Map 44	<i>Trail and Sidewalk Network</i> .....	116
Map 45	<i>FAA Licensed Aviation Facilities</i> .....	120
Map 46	<i>Berks County LRTP Project Map</i> .....	164
Map 47	<i>Urban Area Inset LRTP Project Map</i> .....	165
Map 48	<i>Hawk Mountain Region LRTP Map</i> .....	166
Map 49	<i>Oley Hills Region LRTP Map</i> .....	167
Map 50	<i>Southern Highlands Region LRTP Map</i> .....	168
Map 51	<i>Metro Region LRTP Map</i> .....	169
Map 52	<i>Tulpehocken Region LRTP Map</i> .....	170

