



NORTH CAROLINA
Department of Transportation

Traffic Safety Data Trends, Project Funding, and Data Resources

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Connecting people, products and places safely and efficiently with customer focus, accountability and environmental sensitivity to enhance the economy and vitality of North Carolina

Presentation Overview

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Statewide Data Trends

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Rockingham County Data Trends

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High Level Overview of Safety Programs

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Questions / Discussion

Statewide Data Trends

- State Population
- Vehicle Miles Travelled
- Fatalities
- Serious Injuries
- Pedestrian Fatal and Serious Injuries
- Bicycle Fatal and Serious Injuries

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2024



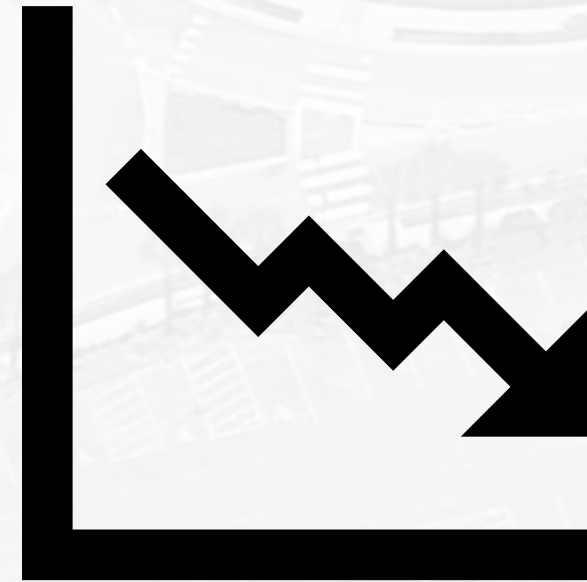
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North Carolina Strategic Highway Safety Plan Update



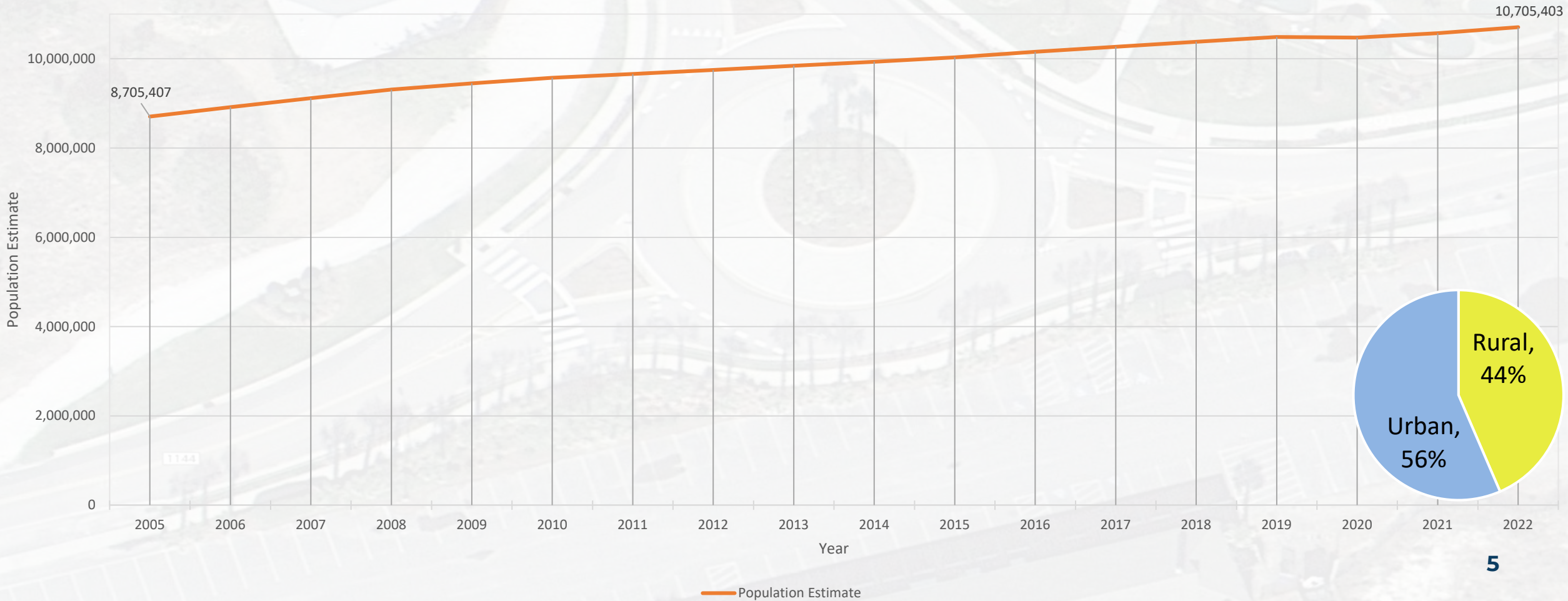
SHSP Goal

- Reduce all fatalities and serious injuries by half by 2035, moving towards zero by 2050.



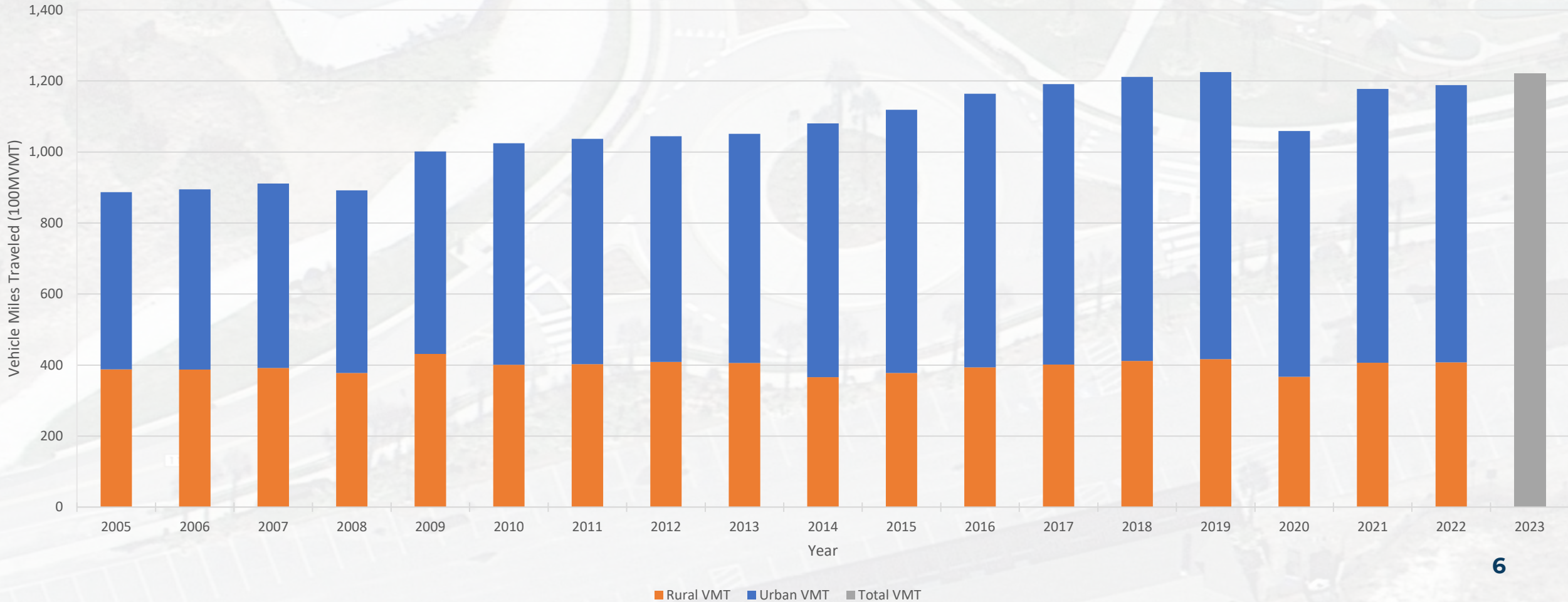
State Population

State Population Estimates by Year
(2005 - 2022)



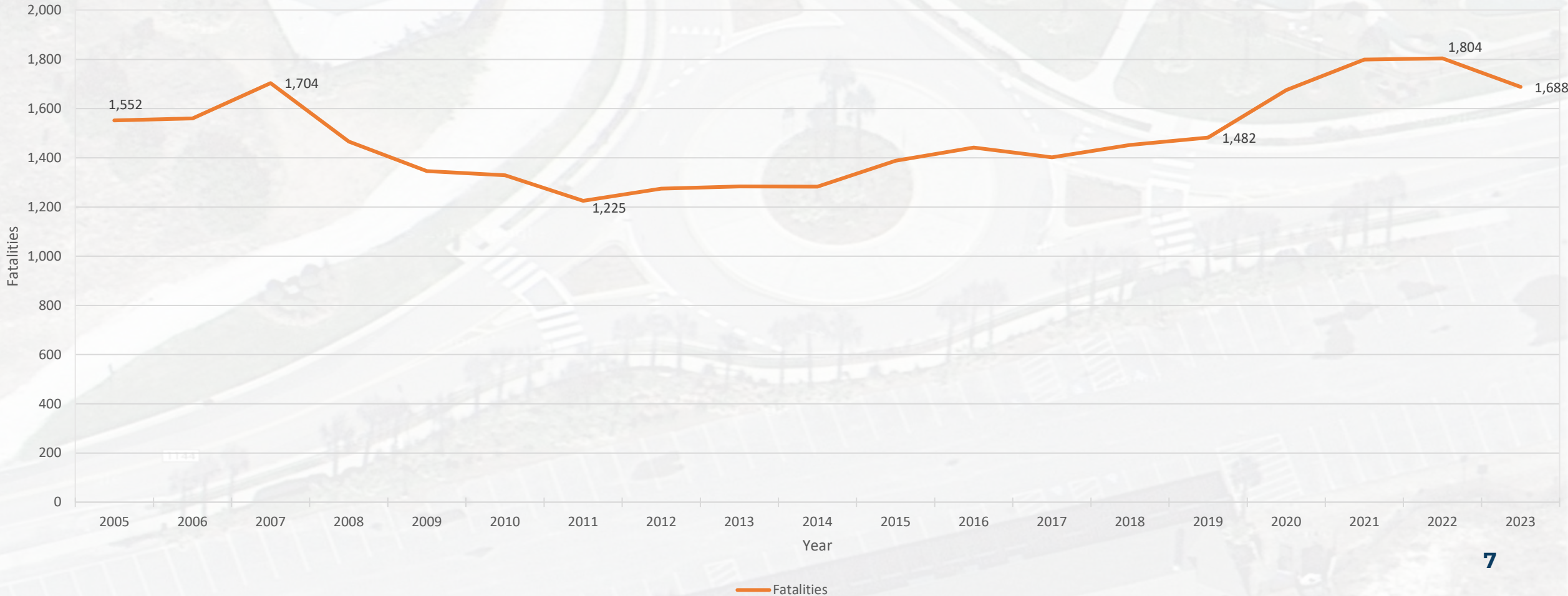
Vehicle Miles Traveled (VMT)

North Carolina VMT Estimates by Year
(2005 - 2023)



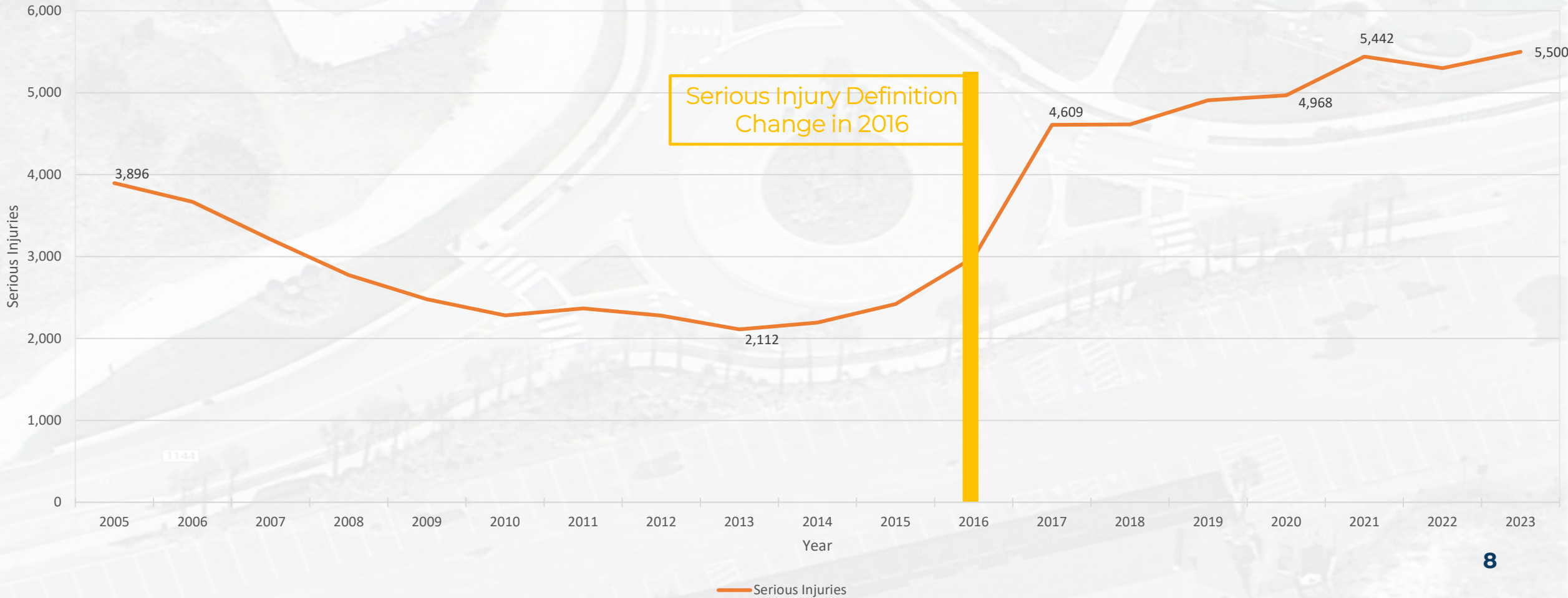
Fatalities

Fatalities by Year
(2005 - 2023)



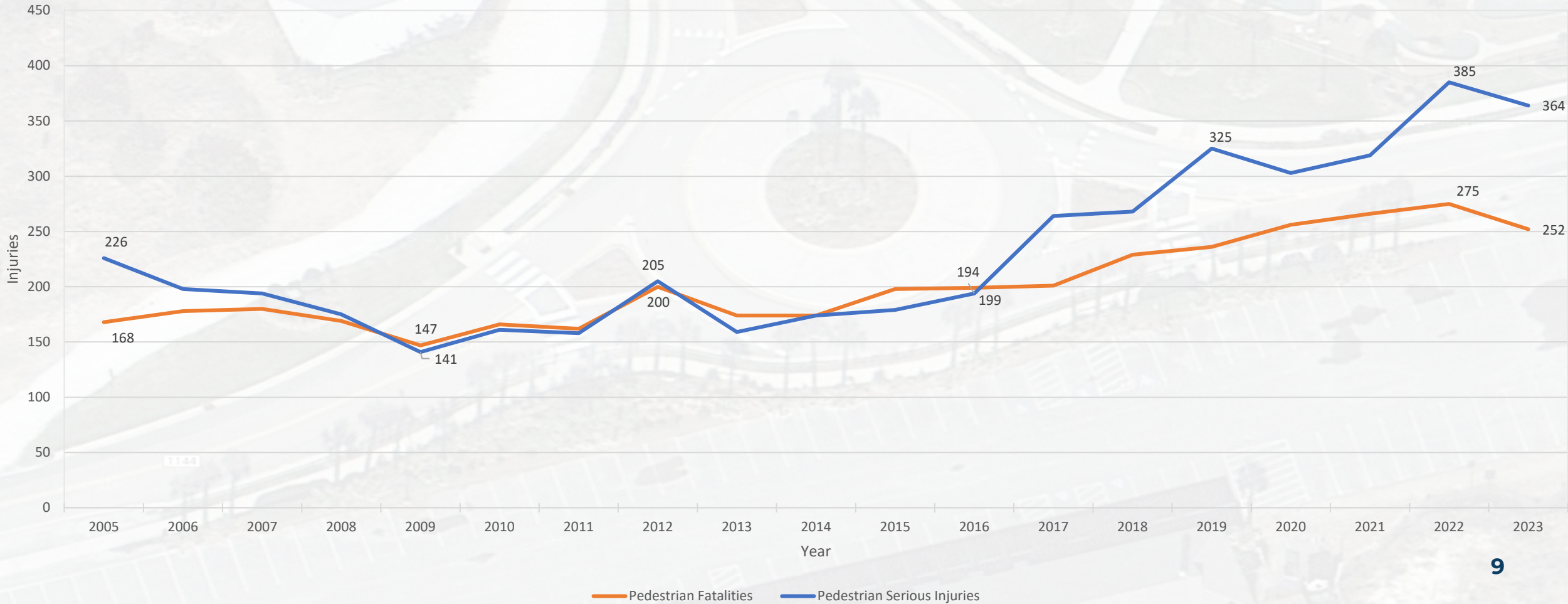
Serious Injuries (A Type – Disabling)

Serious Injuries (A Type Injuries) by Year
(2005 - 2023)



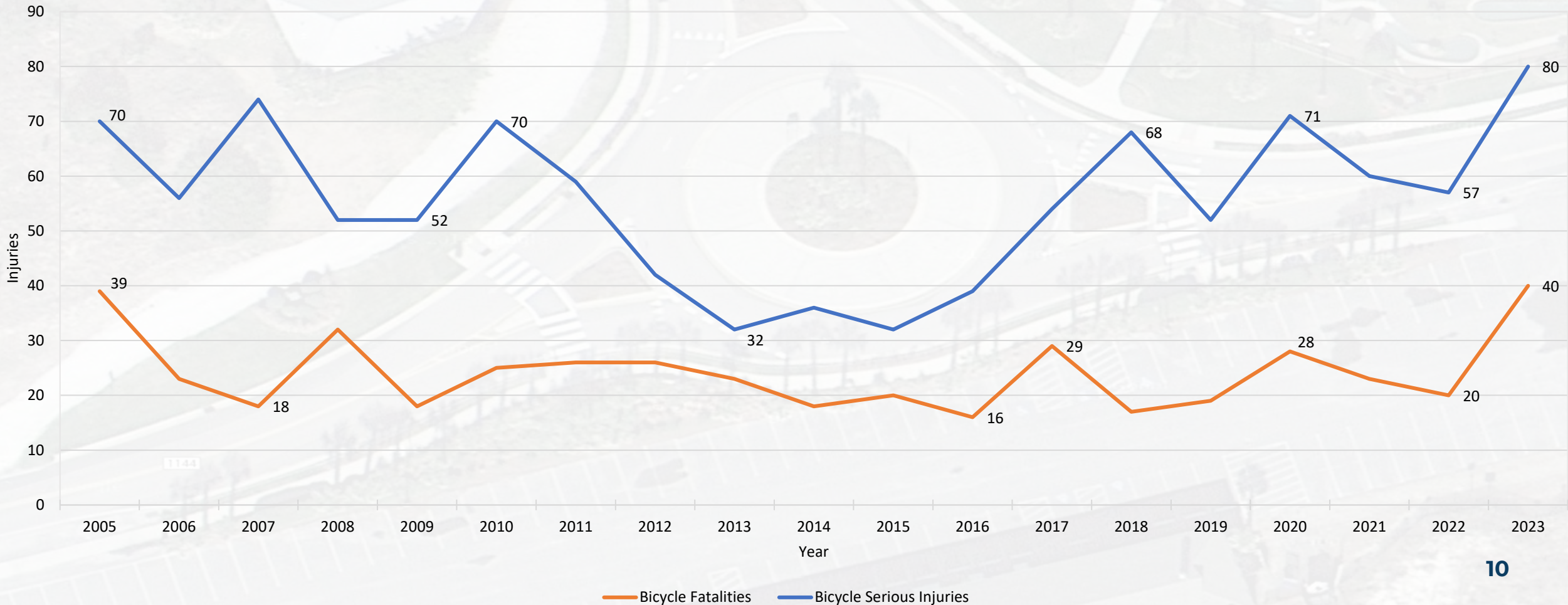
Pedestrian Fatalities and Serious Injuries

Reported Pedestrian Fatalities and Serious Injuries by Year
(2005 - 2023)



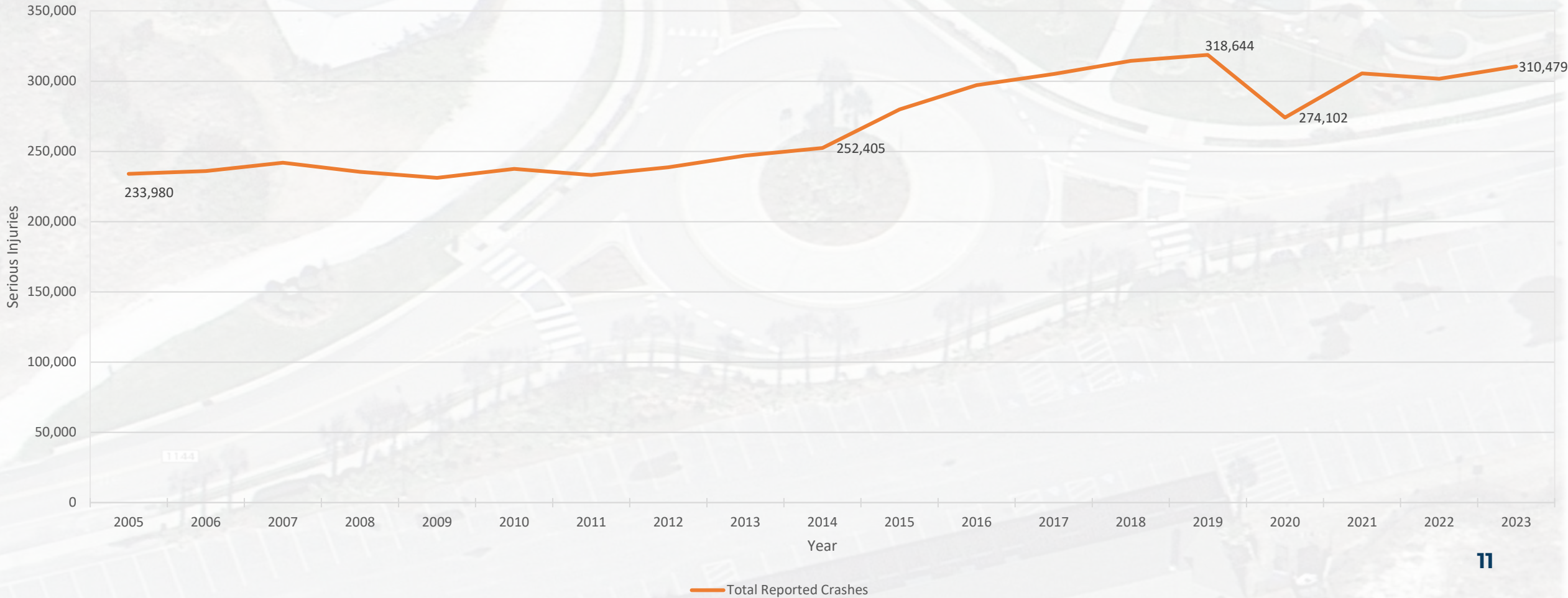
Bicycle Fatalities and Serious Injuries

Bicycle Fatalities and Serious Injuries by Year
(2005 - 2023)



Reported Crashes

Reported Crashes by Year
(2005 - 2023)



Rockingham County Data Trends

- Vehicle Miles Traveled
- Total Reported Crashes
- Fatalities
- Serious Injuries
- Non-Motorized Fatal and Serious Injuries
- Reported Pedestrian Crashes
- Breakdown by Municipality within Rockingham County

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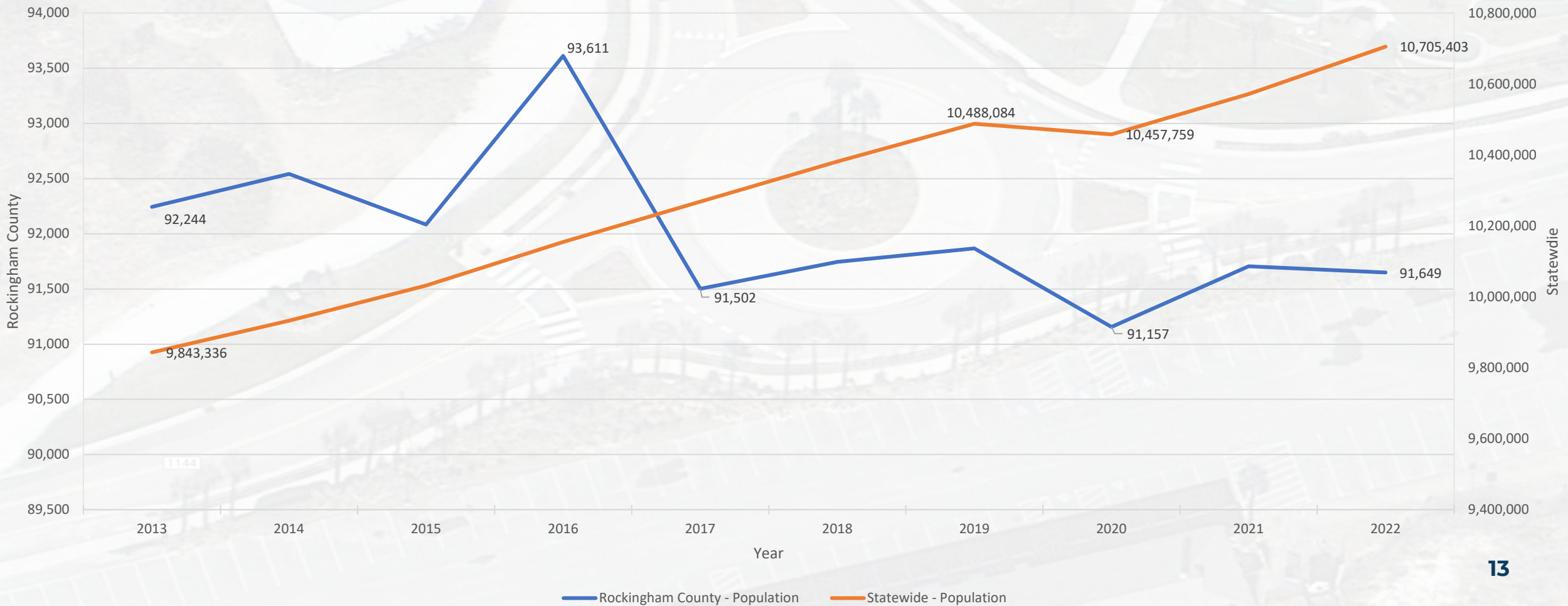
Safety Data
Resources

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Questions /
Discussion

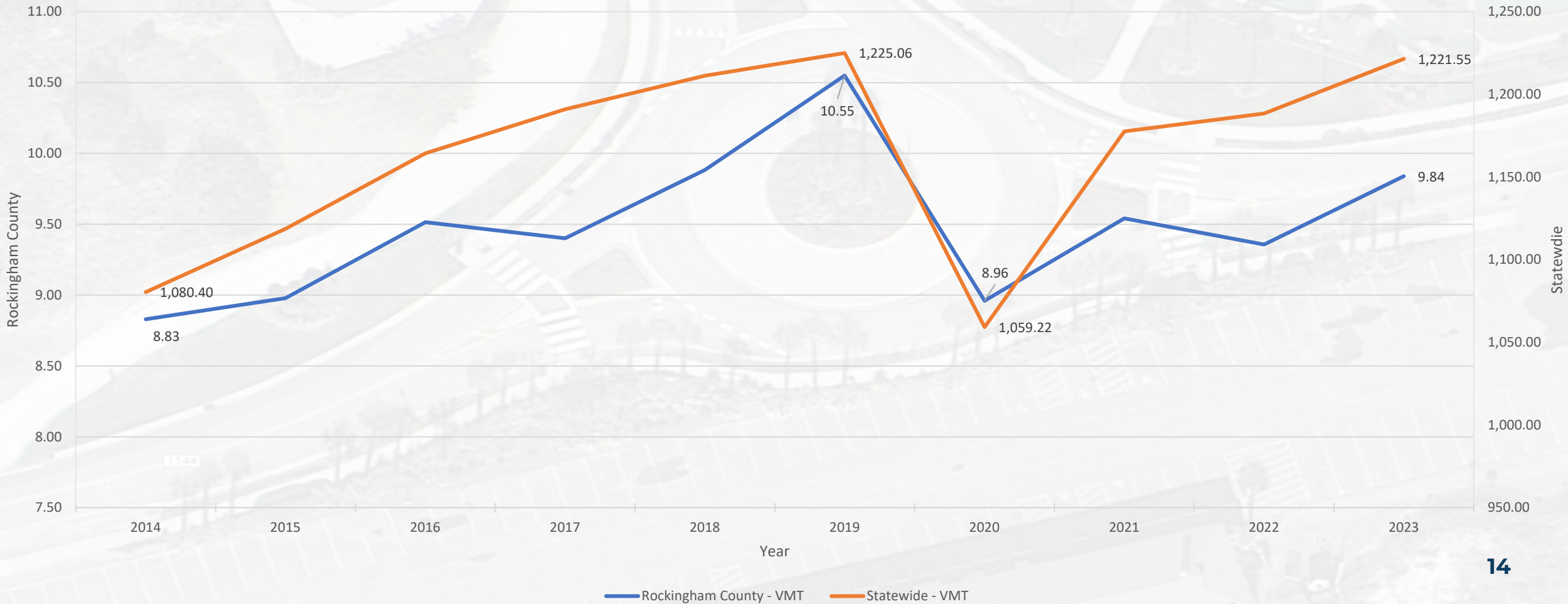
Population

Population by Year
(2013 - 2022)



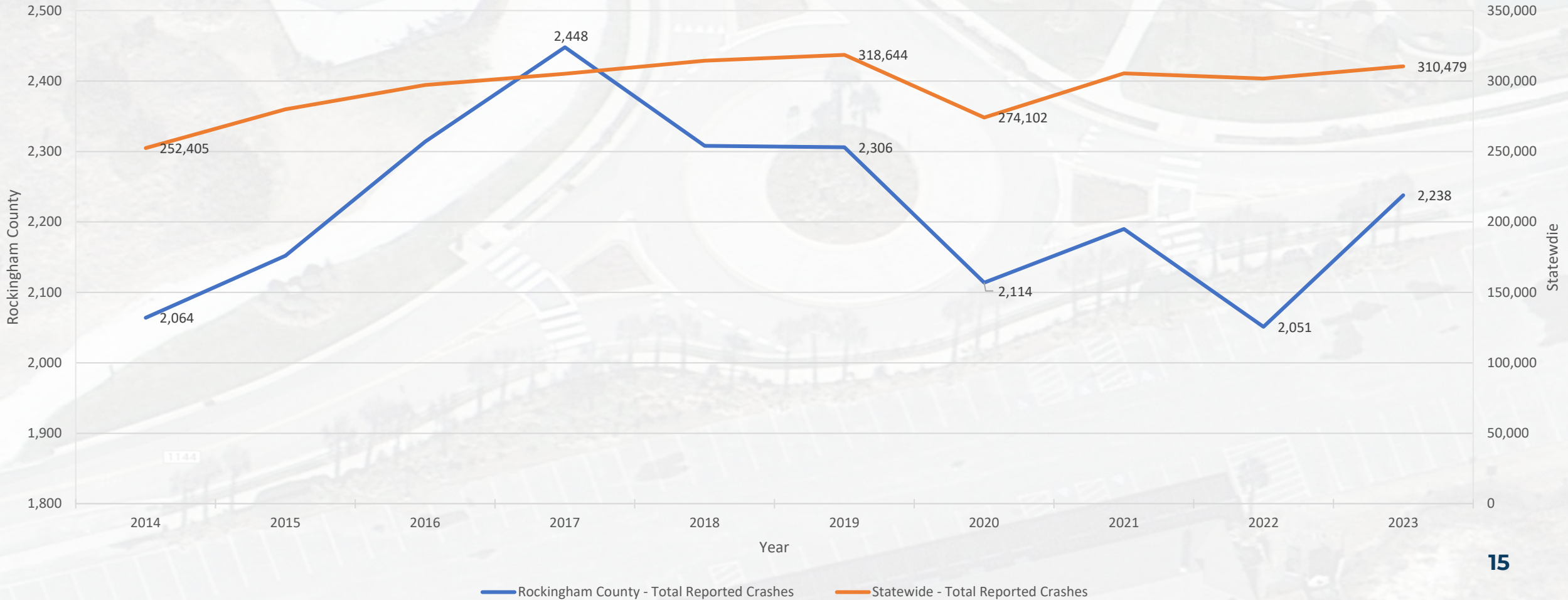
Vehicle Miles Traveled (VMT)

Vehicle Miles Traveled (100 MVM) by Year
(2014 - 2023)



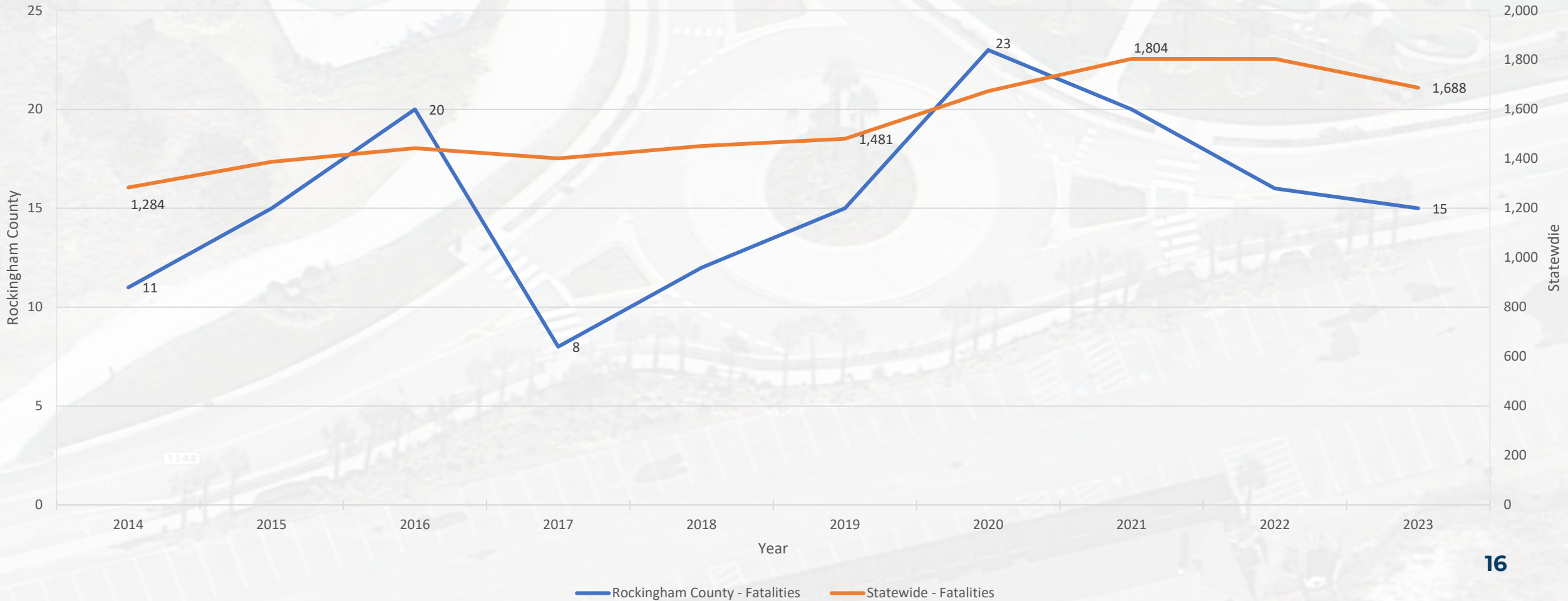
Reported Crashes

Total Reported Crashes by Year
(2014 - 2023)



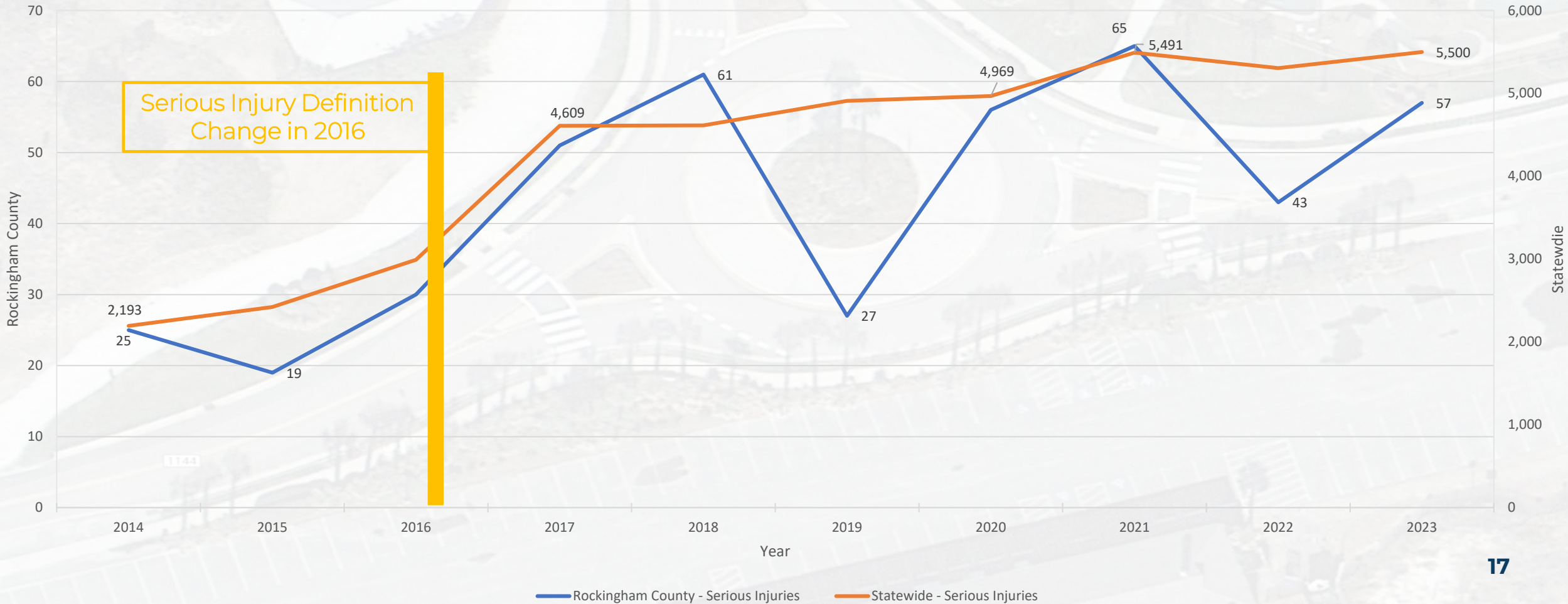
Fatalities

Fatalities by Year
(2014 - 2023)



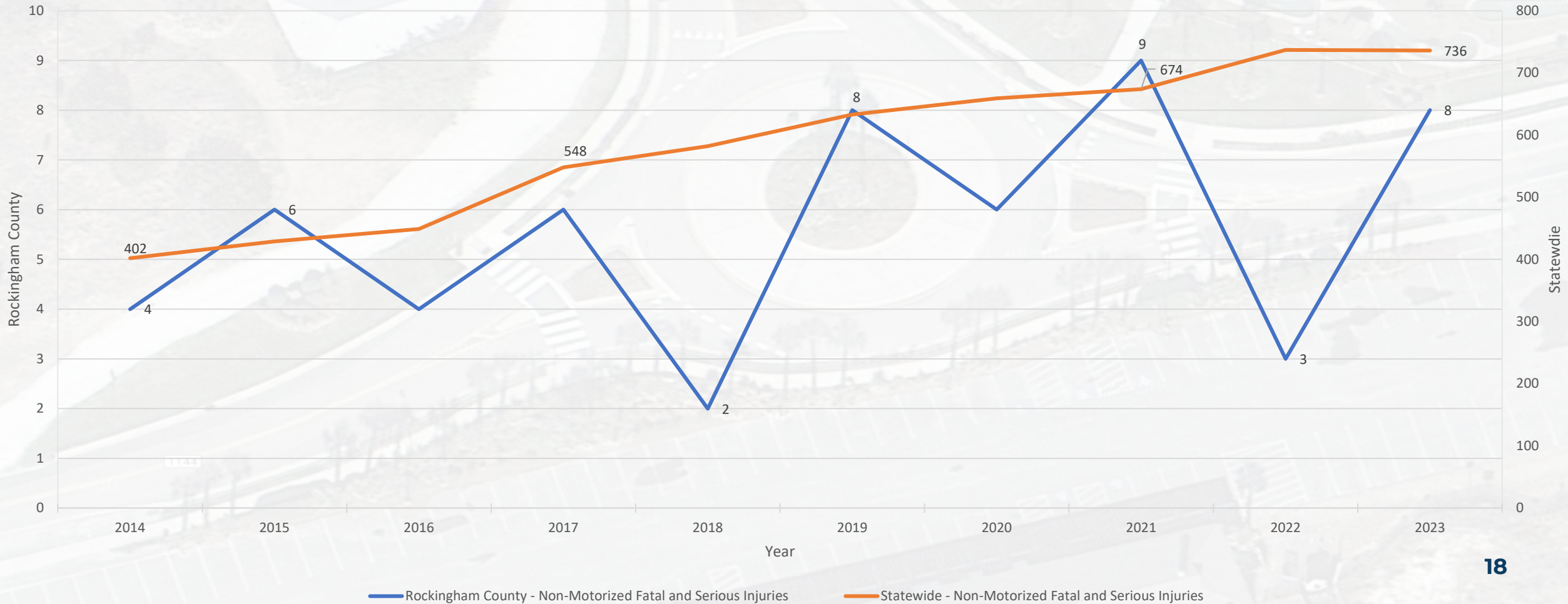
Serious Injuries (A Type – Disabling)

Serious Injuries by Year
(2014 - 2023)



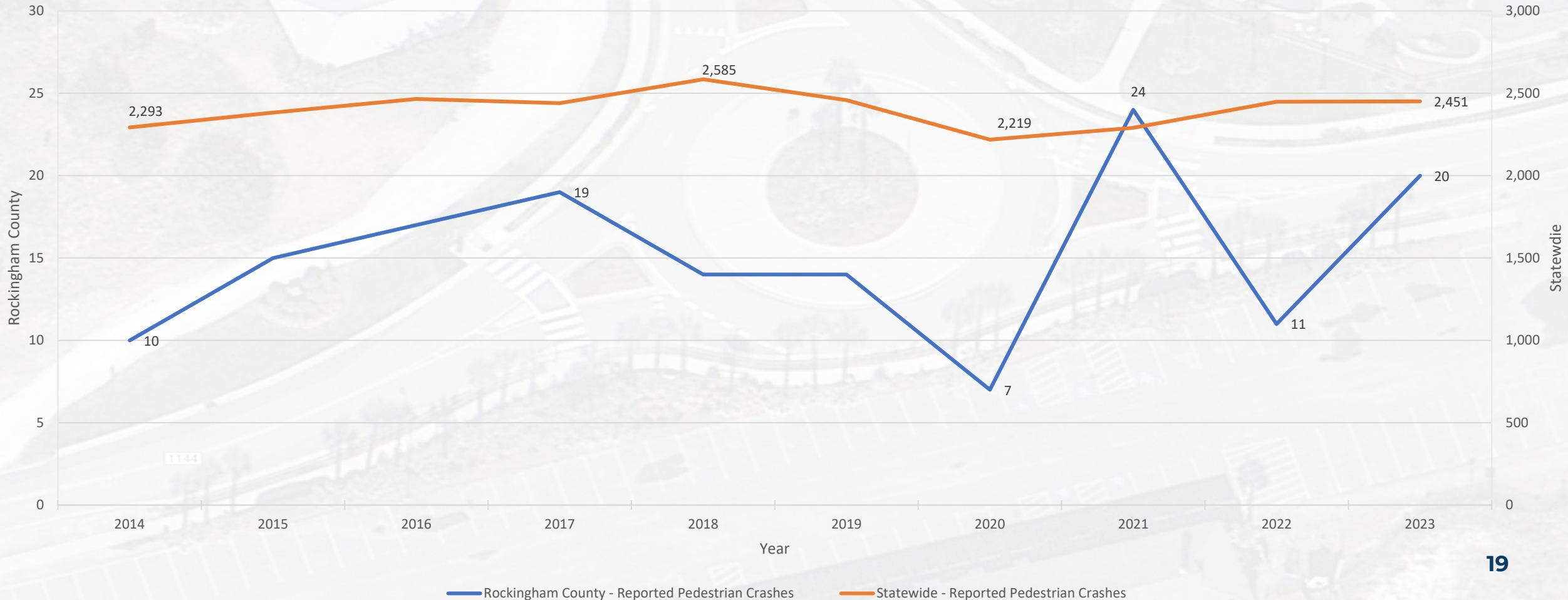
Non-Motorized Fatalities and Serious Injuries

Non-Motorized Fatal and Serious Injuries by Year
(2014 - 2023)



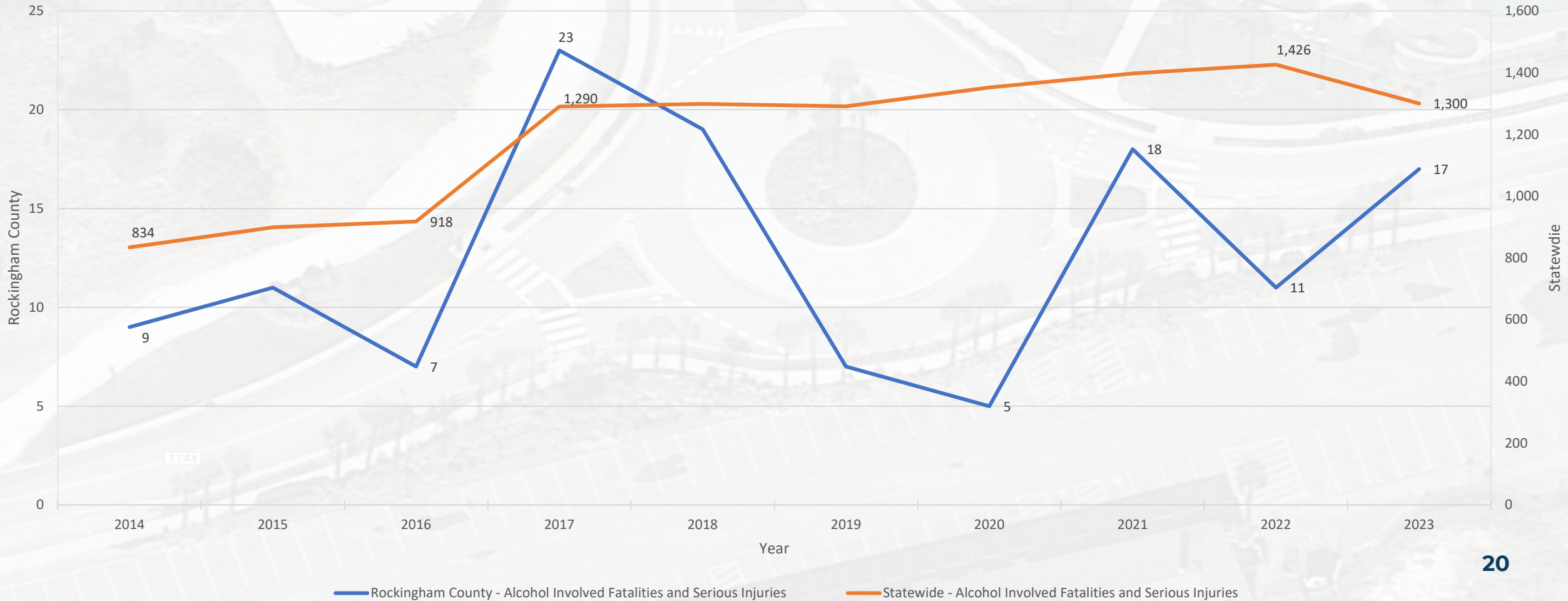
Reported Pedestrian Crashes

Reported Pedestrian Crashes by Year
(2014 - 2023)



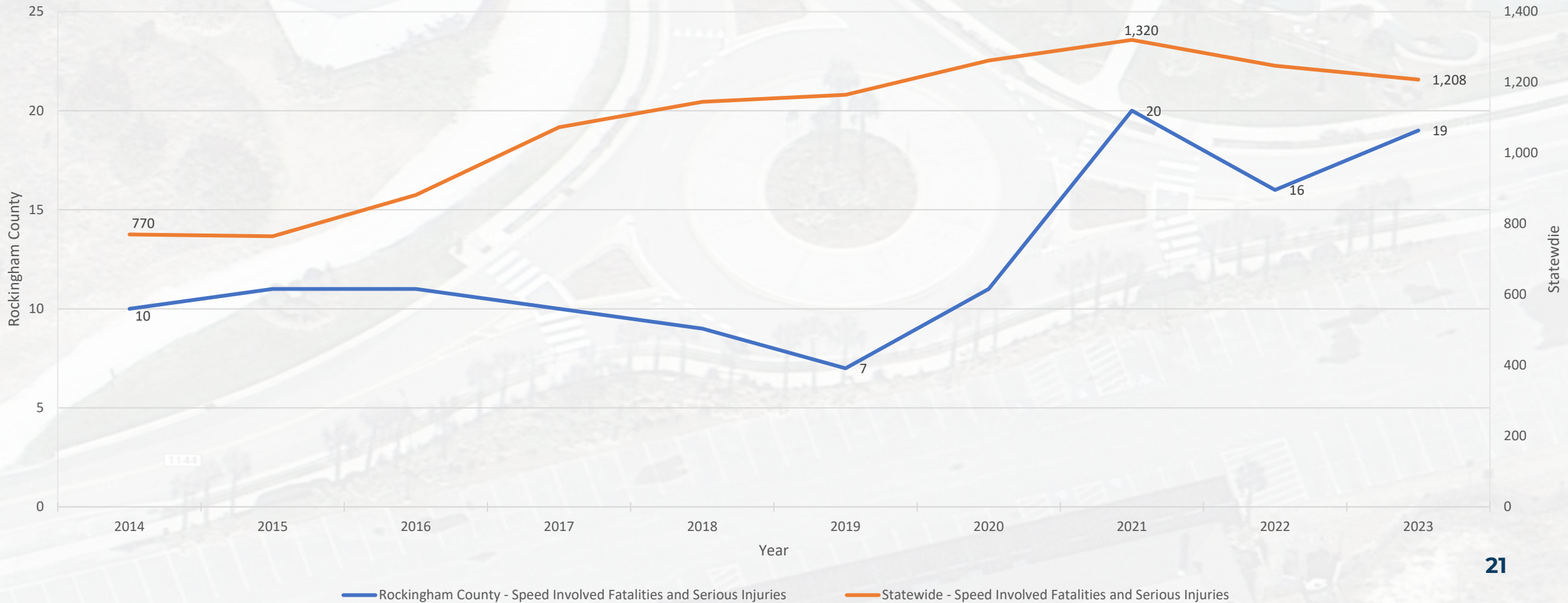
Alcohol Involved Fatalities and Serious Injuries

Alcohol Involved Fatalities and Serious Injuries by Year
(2013 - 2024)



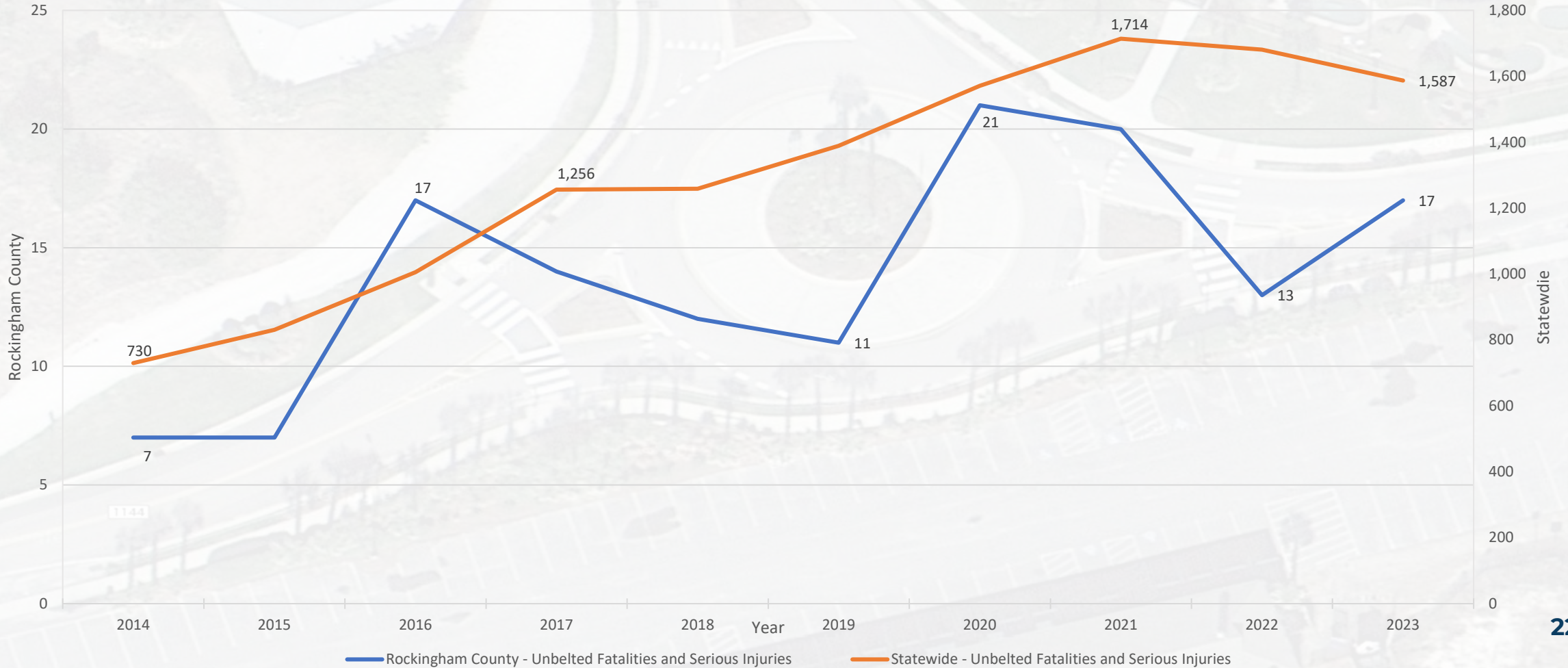
Speed Involved Fatalities and Serious Injuries

Speed Involved Fatalities and Serious Injuries by Year
(2013 - 2024)



Unbelted Fatalities and Serious Injuries

Unbelted Fatalities and Serious Injuries by Year
(2013 - 2024)



Breakdown by Municipality within Rockingham County (2014 – 2023)

Municipality	Total Reported Crashes	Fatal Crashes	Serious Injury Crashes
Eden	4,403	12	53
Madison	760	2	4
Mayodan	91	0	1
Reidsville	3,558	9	17
Ruffin	22	0	1
Stoneville	113	0	1
Wentworth	472	0	4
<i>Rural</i>	<i>12,766</i>	<i>123</i>	<i>259</i>
Total	22,185	146	340

High Level Overview of Safety Programs

- Safety Funding
- Safety Projects

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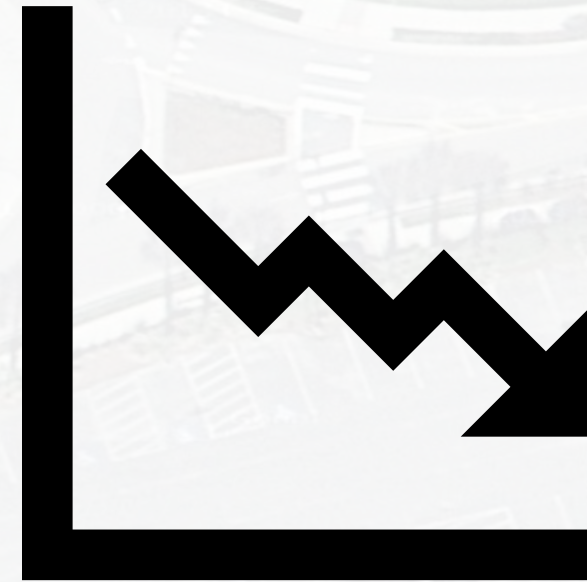
North Carolina Strategic Highway Safety Plan Update



Image Credit: VisitNC.com







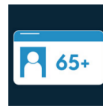


SHSP Goal

- Reduce all fatalities and serious injuries by half by 2035, moving towards zero by 2050.



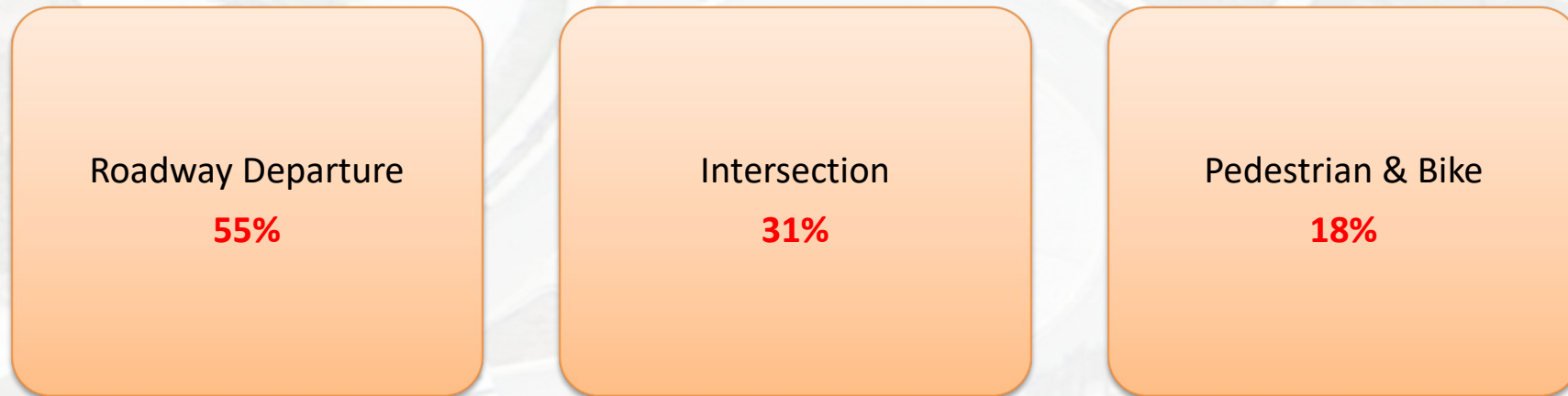
NC Highway Safety Improvement Program



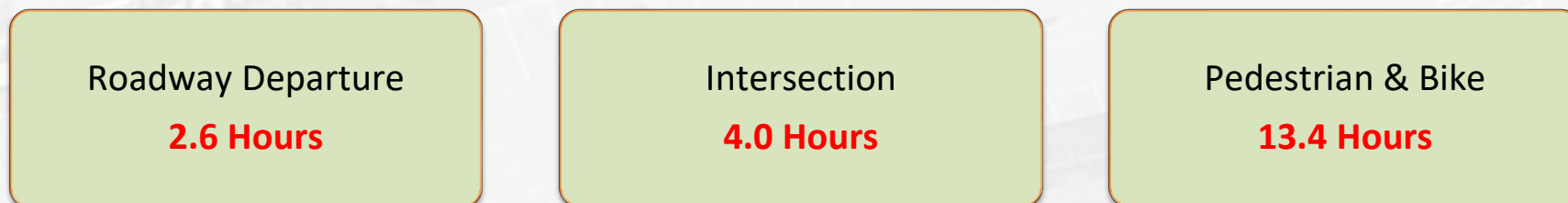
 Lane Departure	 Intersections	 Pedestrians, Bicyclists, and Personal Mobility	 Seat Belts and Car Seats	 Substance Impaired Driving
 Safer Speeds	 Older Drivers	 Motorcyclists	 Younger Drivers	

NC Highway Safety Improvement Program

Fatality and Serious Injury share by SHSP emphasis areas



Time to Next Fatality or Serious Injury



Safety Funding Sources

HSIP (Highway Safety Improvement Program)	Spot Safety
\$79M Per Year	\$12.1M Per Year
Federal Funds	State Funds
Soft cap of \$1M per project (>\$1M requires advance approval from State Traffic Engineer)	\$400K cap per project
B/C based prioritization and systemic investments	Prioritization is based on the Spot Safety Index
Selected bi-annually	Selected quarterly

Safety Program Funding Targets

Roadway Departure

50%

Intersection

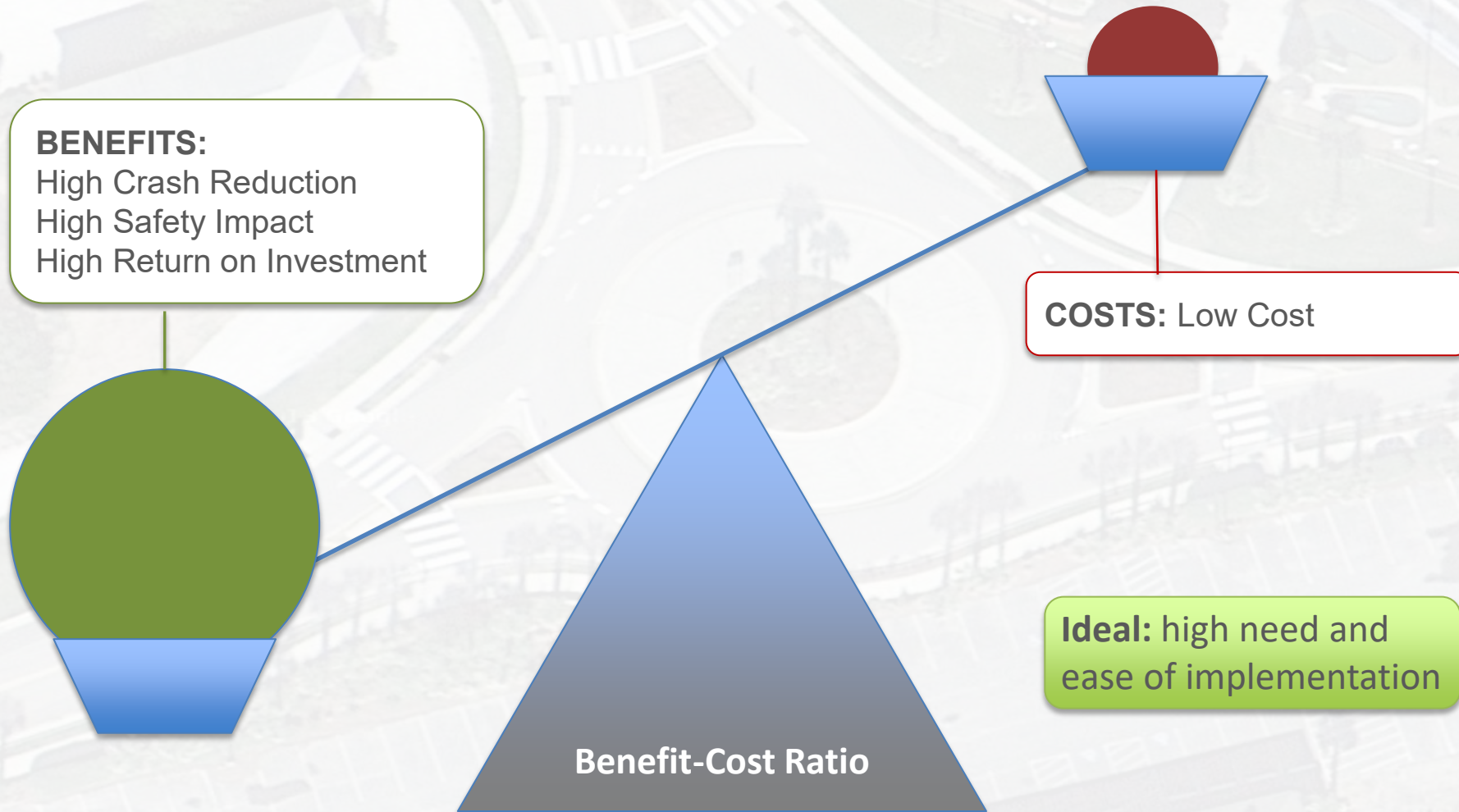
35%

Pedestrian & Bike

15%

- Correlates with approximate share of fatal and serious injuries by SHSP emphasis area
- Emphasis area goals are soft targets with flexibility
- Projects will be considered within context of Emphasis areas
 - Road Departure, Intersection, and Pedestrian & Bike

Countermeasure Selection



Safety Project Cycle



Lane Departure Crash Strategies

Section Safety Countermeasures:

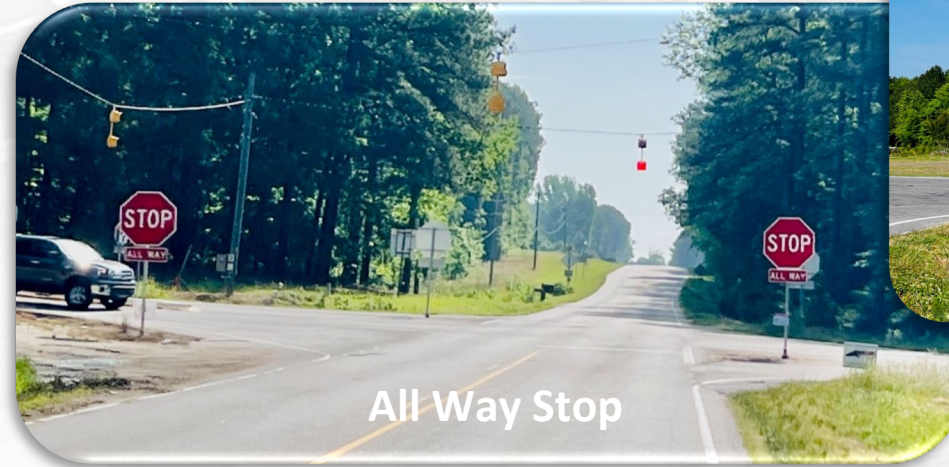
- Delineation
 - Pavement Markings
 - Chevrons
 - Advanced Warning
- Rumble Strips
 - Edgeline Stripe
 - Centerline Stripe
 - Shoulder Rumble Strip
- Speed – 40,000 Miles of Statutory 55 MPH
- High and Low Shoulders
- Guardrail
- Super Elevation / Curve Realignment
- Widen / Paved Shoulders



Frontal Impact Crash Strategies

Intersection Safety Countermeasures:

- All Way Stop
- Reduced Conflict
- Roundabout
- Medians
- Signal
- Signal Updates
- Sight Distance Improvements



Pedestrian and Bicycle Crash Strategies

Pedestrian and Bike Safety Countermeasures:

- VISIBILITY
 - Signs
 - Markings
 - Lighting
 - Flashing beacons



Pedestrian and Bicycle Crash Strategies

Pedestrian and Bike Safety Countermeasures:

- PROTECTION
 - Active control
 - Signals
 - Hybrid Beacons
 - Speed management



A pedestrian's chance of survival exponentially increases at lower speeds.²⁵

If hit by a vehicle driven at this speed a:

■ Person survives the collision

■ Collision results in fatality

20 MPH



90%

30 MPH



60%

40 MPH



20%



Pedestrian and Bicycle Crash Strategies

Pedestrian and Bike Safety Countermeasures:

- CONTROL

- Refuge islands
- Marked crosswalks
- Lead pedestrian interval at signals
- Separate facilities, sidewalks, bridges, etc.



Safety Data Resources

- Safety Project Mapping
- Bicycle and Pedestrian Crash Data Dashboard

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North Carolina Strategic Highway Safety Plan

- <https://spatial.vhb.com/ncdotshsp/>

General Safety Data Mapping Site / Dashboards

- Link to general safety data mapping site. Includes links to dashboards for total crashes, pedestrian and bicycle crashes, and MPO safety performance measures: <https://www.ncdot.gov/initiatives-policies/safety/traffic-safety/Pages/safety-data-maps.aspx>

Highway Safety Improvement Program (HSIP)

- Our HSIP program is our primary method of identifying locations that are likely to produce a safety project. Locations are flagged if they exceed certain criteria and have patterns that we believe are correctable.
- Link to webpage with description of program and tabular reports: <https://connect.ncdot.gov/resources/safety/pages/nc-highway-safety-program-and-projects.aspx>
- Link to mapped HSIP locations for the last 5 years: <http://ncdot.maps.arcgis.com/home/webmap/viewer.html?webmap=bb6dd277ce6247438fc096200141949a>

Total Crash Frequency Grouped By Intersection

- This product contains planning level crash data grouped by intersection. This data should not be used for detailed design decisions.
 - Special consideration should be given to data at ramps or loop locations.
- Link to ArcGIS Online mapped data: <http://ncdot.maps.arcgis.com/home/webmap/viewer.html?webmap=dc944f1c834f49a18479c17df1f783b9>

Planning Level Safety Scoring Data

- This product contains planning level crash data for each half mile section of roadway. This data should not be used for detailed design decisions. This is the dataset that is used to score projects from a safety perspective as they go through the STI process.
- Link to ArcGIS Online mapped data: <http://ncdot.maps.arcgis.com/home/webmap/viewer.html?webmap=7415a4df4df1468585225bc74a77369b>

Fatal and Serious Injury Crashes

- This product contains fatal and severe injury crashes mapped for the last 10 years.
- Link to ArcGIS Online mapped data: <http://ncdot.maps.arcgis.com/home/webmap/viewer.html?webmap=9a25021dbe91427a92f2eca57bd71ee2>

Bicycle and Pedestrian Crash Data

- This product contains bicycle and pedestrian crashes mapped back to 2007. Link to ArcGIS Online mapped data: <https://ncdot.maps.arcgis.com/home/webmap/viewer.html?webmap=b4fcdc266d054a1ca075b60715f88aef>
- Link to pedestrian and bicycle dashboard information: <https://ncdot.maps.arcgis.com/apps/dashboards/78046d11cabd4658a4d45b88c52ab8af>

Safety Project Mapping

- This product displays completed, funded, and on-hold safety projects since 2019, and is updated quarterly.
- Link to mapped safety project locations: <https://ncdot.maps.arcgis.com/home/webmap/viewer.html?webmap=3f8b32844ad04673b391033a86496852>

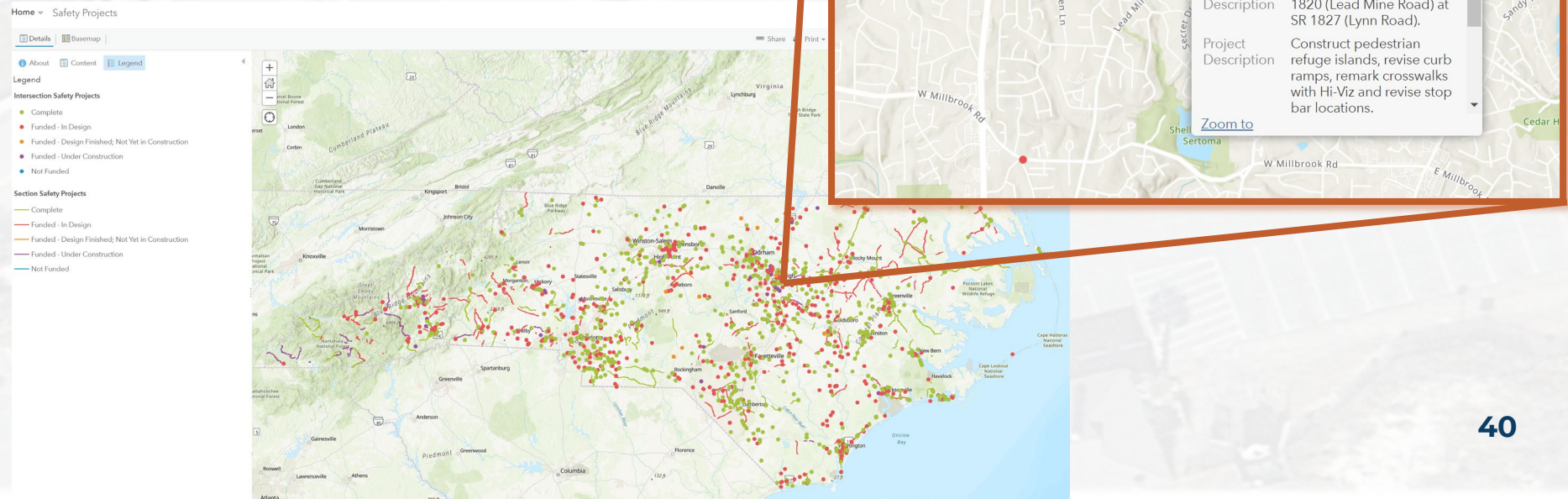
Spot Mobility Project Mapping

- This product displays completed, funded, and on-hold spot mobility projects since 2019, and is updated quarterly.
- Link to mapped safety project locations: <https://ncdot.maps.arcgis.com/home/webmap/viewer.html?webmap=af5150835edb4502a26762e966cb5dfa>

Safety Project Mapping

Safety Project Mapping

- Projects completed since 2019 are mapped
- All funded, but not completed projects are mapped
- Some systemic or area-wide projects are not mapped
 - e.g. regional guardrail projects, systemic signing projects
- Link: [Safety Project Mapping](#)



Bicycle and Pedestrian Crash Data Dashboard

Bicycle and Pedestrian Crash Data Dashboard

- All bicycle and pedestrian crashes geolocated and crash typed since 2007
- Query by boundary, get information on individual crashes
- Link: [Pedestrian and Bicyclist Crash Dashboard](#)

Pedestrian and Bicyclist Crash Dashboard
Explore statewide numbers (default), or select a geography from the options at right

Select Years: 2016 - 2022 | Select an MPO-RPO: All | Select a Division: All | Select a County: All | Select a municipality: Salisbury

Pedestrian Crashes by Year

Year	Crashes
2016	8
2017	12
2018	14
2019	16
2020	15
2021	14
2022	9

Bicyclist Crashes by Year

Year	Crashes
2016	7
2017	6
2018	7
2019	5
2020	9
2021	8
2022	12

Most Common Pedestrian Crash Types

Crash Type	Killed	No Injury
Crossing Roadway - Vehicle Not Turning	1	8
Crossing Roadway - Vehicle Turning	1	10

Most Common Bicyclist Crash Types

Crash Type	Killed	No Injury
Crossing Roadway - Vehicle Not Turning	1	8
Crossing Roadway - Vehicle Turning	1	10
Bicyclist Failed to Yield - Midblock	0	3
Crossing Paths - Other Circumstances	0	1

All Pedestrian Crashes

Severity	Percentage
A: Suspected Serious Injury	27.77%
B: Suspected Minor Injury	44%
C: Possible Injury	36.36%
K: Killed	9.09%

All Bicyclist Crashes

Severity	Percentage
A: Suspected Serious Injury	1.85%
B: Suspected Minor Injury	48.15%
C: Possible Injury	27.78%
O: No Injury	20.37%
K: Killed	1.85%

Additional Safety Resources

- Downloadable Shapefile of Bike/Ped Crash Locations (ArcGIS Online)
- Safety Data Maps (NCDOT)
- Statewide Crashes Dashboard (ArcGIS Online)

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Thank you!

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