

ELECTRIC BICYCLING IN NC

eBike Central's Perspective



OUTLINE

- eBike Central
- What are Electric Bicycles?
- E-Bike Laws & Categories
- E-Bike Usage - NITC Study
- Bicycle Usage during the Pandemic
- E-Bike Share Programs
- DOT Focus on Bicycles
- Trends with E-Bikes





- **eBike Central is an exclusive electric bicycle (e-Bike) dealer** specializing in premium brand eBikes for Road, Off Road, Compact, Cargo, City and Commuting transportation.
- **Locations in Charlotte and Greensboro NC**
- **Market is primarily the Southeast US.**



WHAT ARE ELECTRIC BICYCLES?

- **Electric Motor provides Variable Pedal Assistance** with 30-50 mile range.
- **Developed in Europe/Asia and Trending in North America:** Numerous Manufacturers; Variety of Models; Support different uses.
- **New Mode of Transportation** that could substantially improve efficiency in the transportation system if adopted, especially if they substitute for car use.
- **Enhances the Role of the Bicycle**, especially for errands and commuting.
- **Increasingly integral part of transportation network and trail system.**
- **Allows new categories of riders to participate in bicycling** (i.e. physical limitations, older adults and people in geographically challenging areas).

E-BIKE LAWS

E-Bikes are defined by Three Classes under Federal Law:

- **Class 1:** pedal-assist only to a maximum assisted speed of 20 mph.
- **Class 2:** pedal-assist only to a maximum assisted speed of 20 mph, Throttle option.
- **Class 3:** pedal-assist only to a maximum assisted speed of 28 mph.

All classes limit the motor's power to one horsepower or 750 Watts.

Where to ride?

- Treated as a Bicycle and not a Motorized Vehicle.
- Streets, Greenways and Off Road Trails with Limitations.
- National Parks recognize E-Bikes as Bicycles with designated areas to ride.

E-BIKE CATEGORIES

Compact/Folding



Urban/City



Off Road



Cargo/Utility



E-BIKE USAGE - NITC STUDY

National Institute for Transportation and Communities (NITC) Study - 2018; 1,796 survey respondents.

- Reduce the riding effort for Health, Fitness and Recreation.
- Replace car trips and make commuting easier.
- Carry Cargo, Children and Keeping up with Other Riders.
- Feel safer riding an e-bike than they do a standard bicycle.
- Can take longer routes to utilize lower volume or more comfortable streets.
- Can maintain higher speeds to eliminate speed differentials of cars.
- Focus on the 'Ride' and not 'Riding'.



E-BIKE USAGE - NITC STUDY

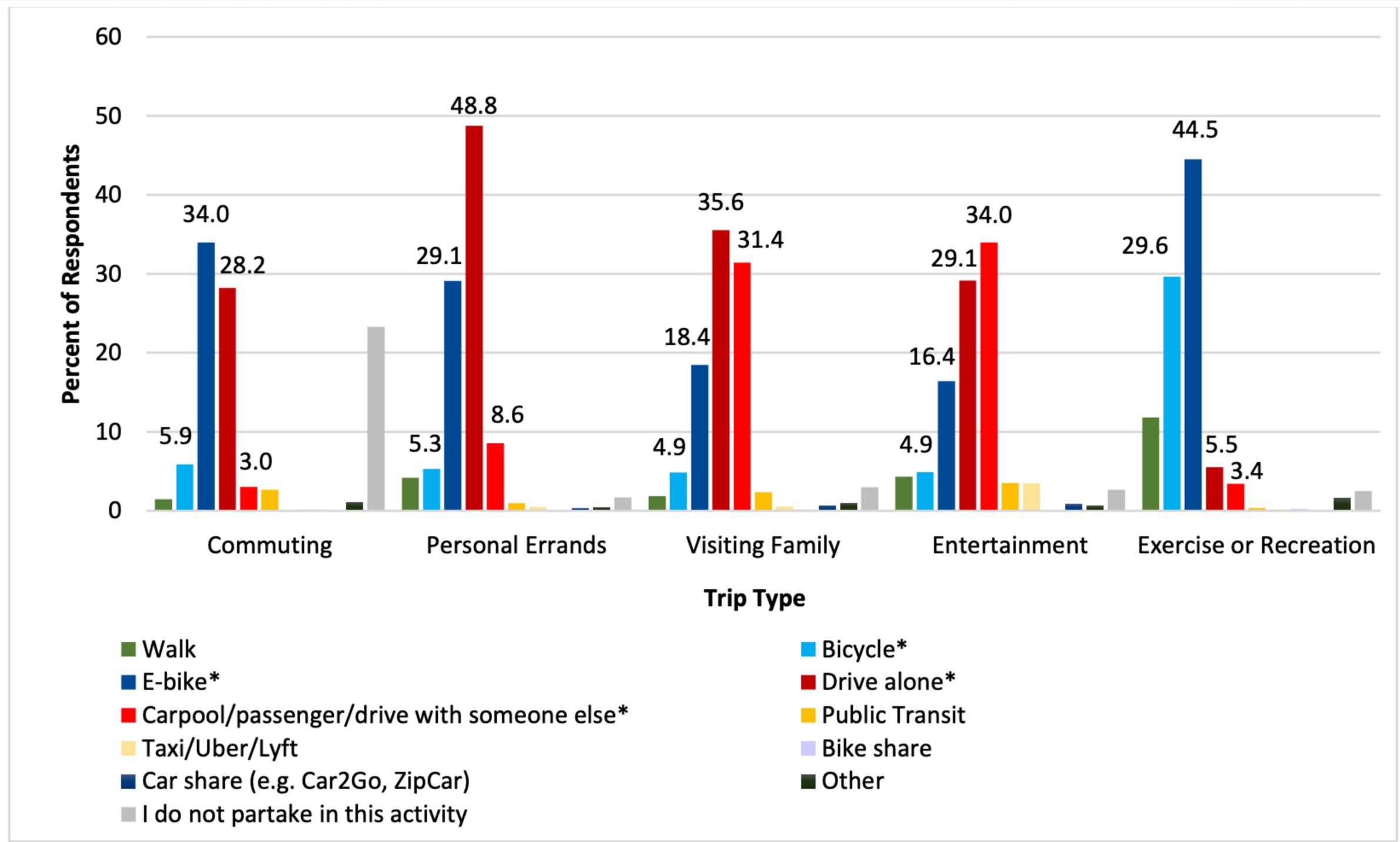


Figure 3.2: Mode Used for Various Trip Types Made by Respondents

E-BIKE USAGE - NITC STUDY

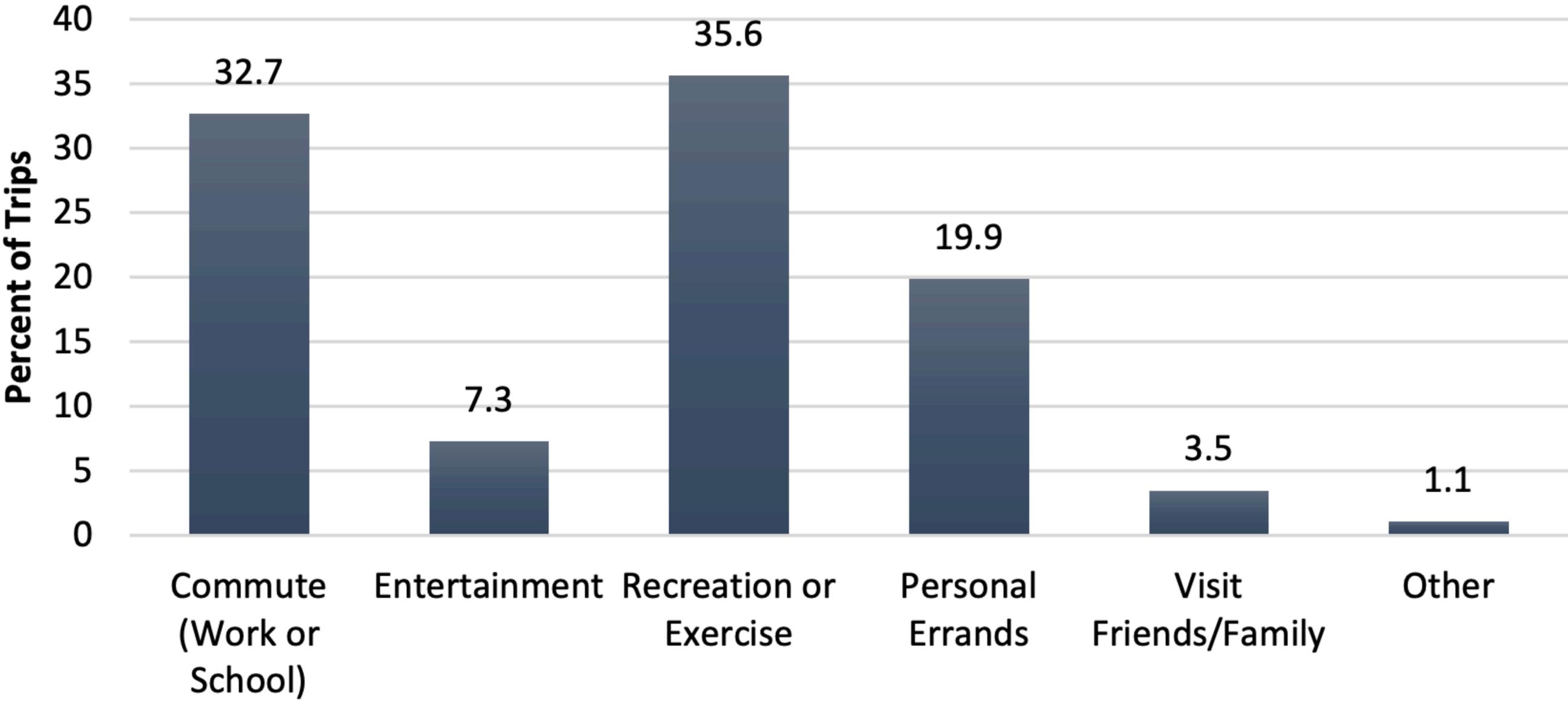
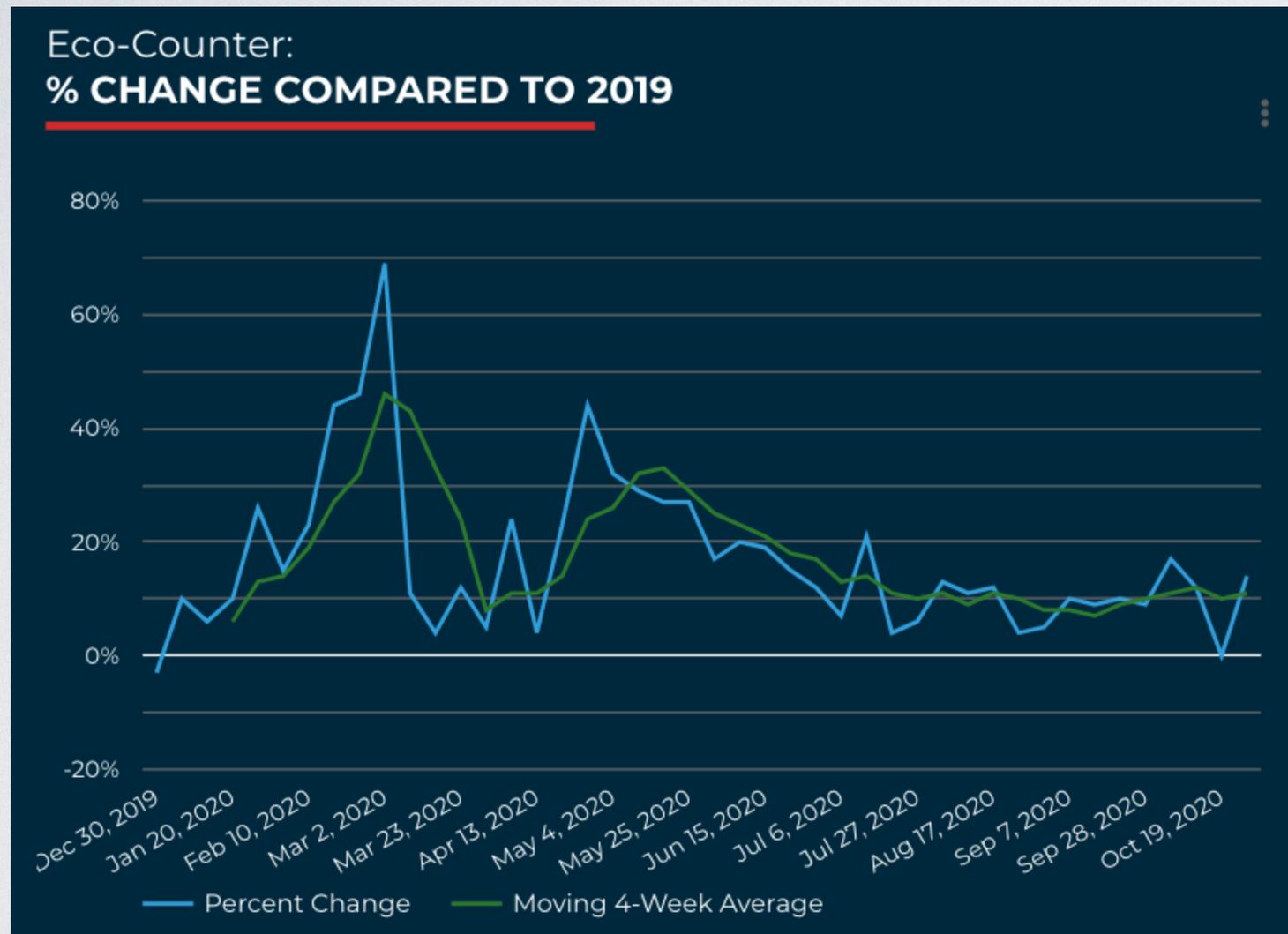
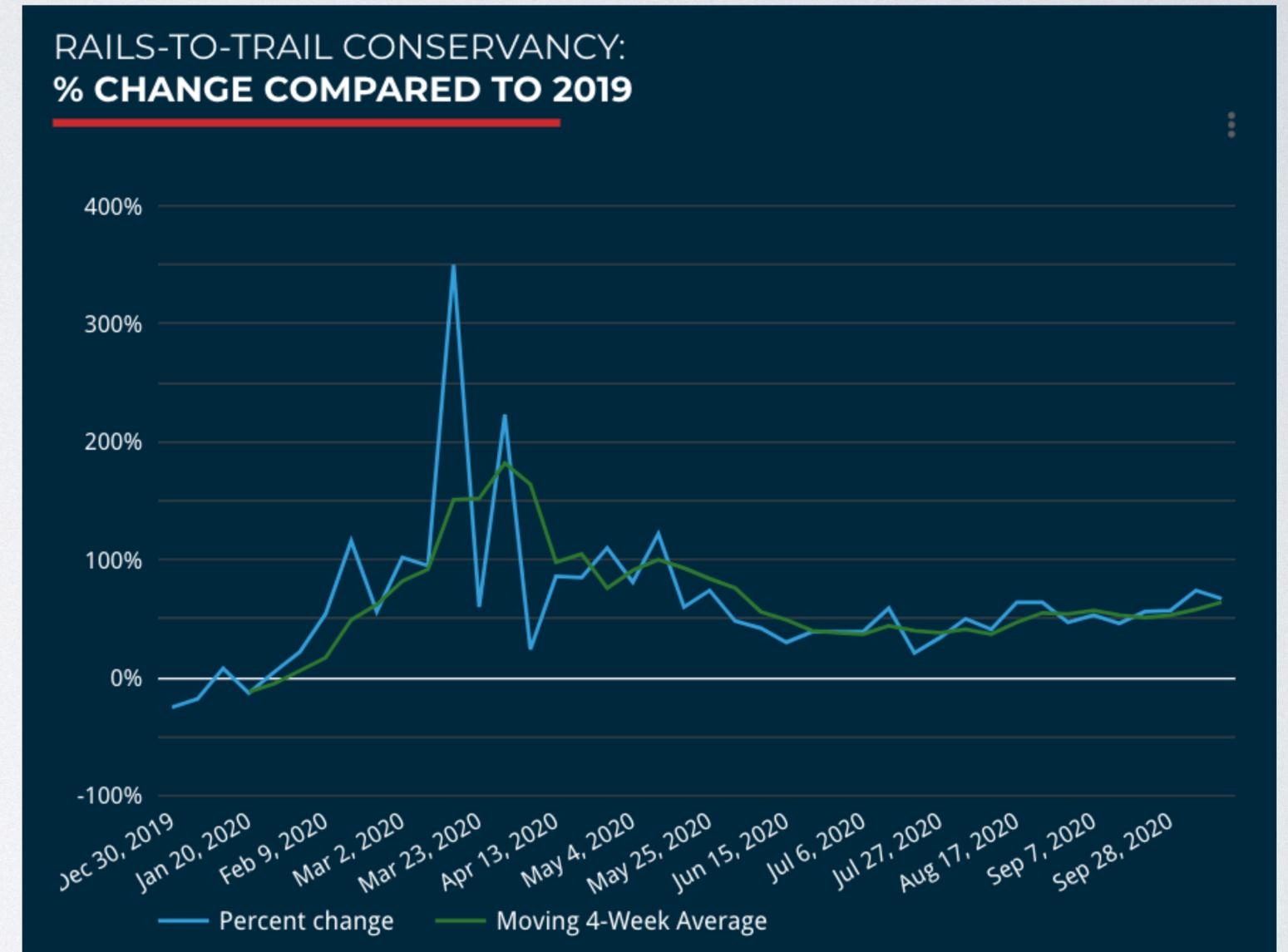


Figure 3.8: Percentages of Trip Types, Based on Respondents Three Most Recent E-bike Trips

BICYCLE USAGE - 2020 VS 2019

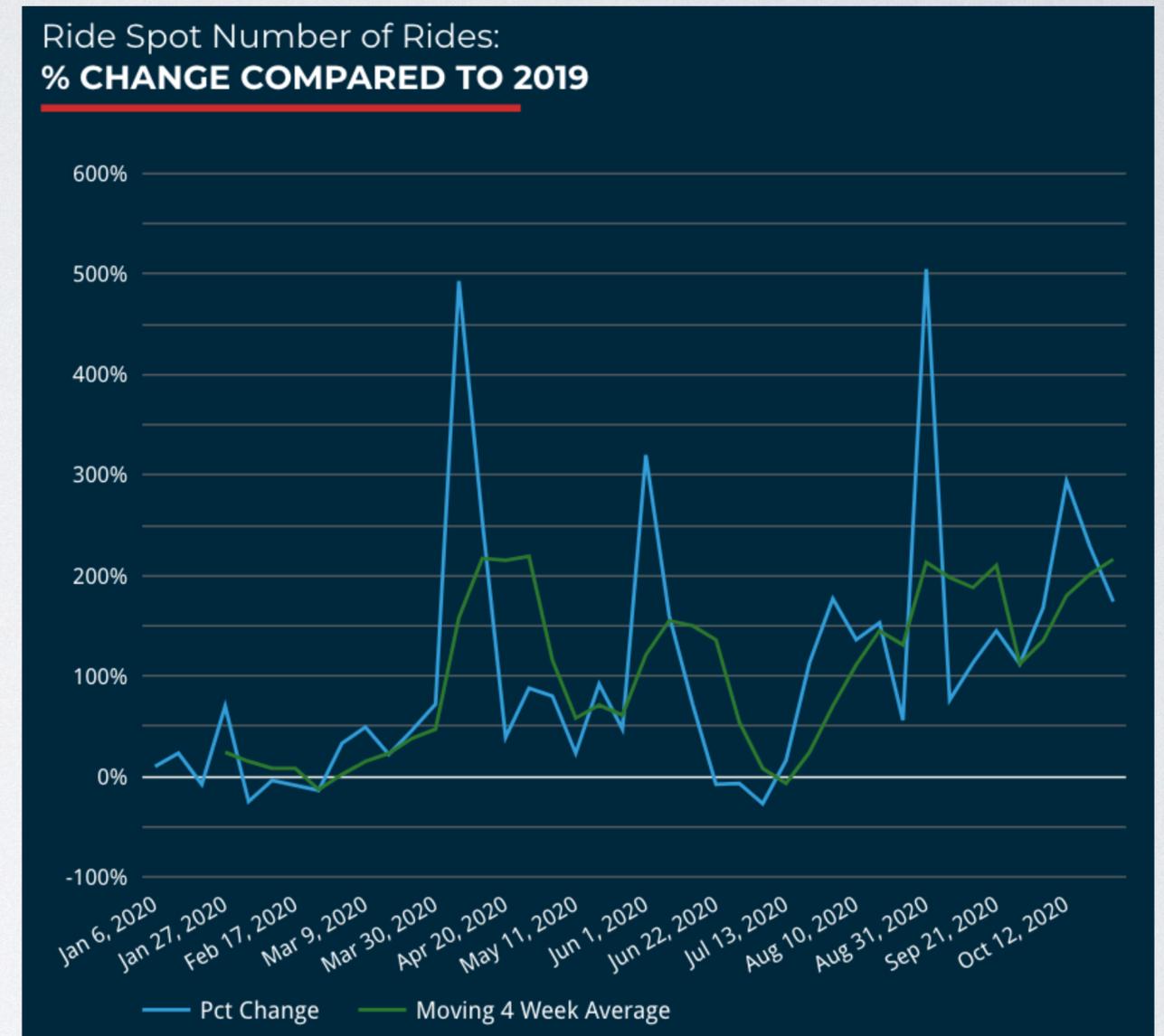
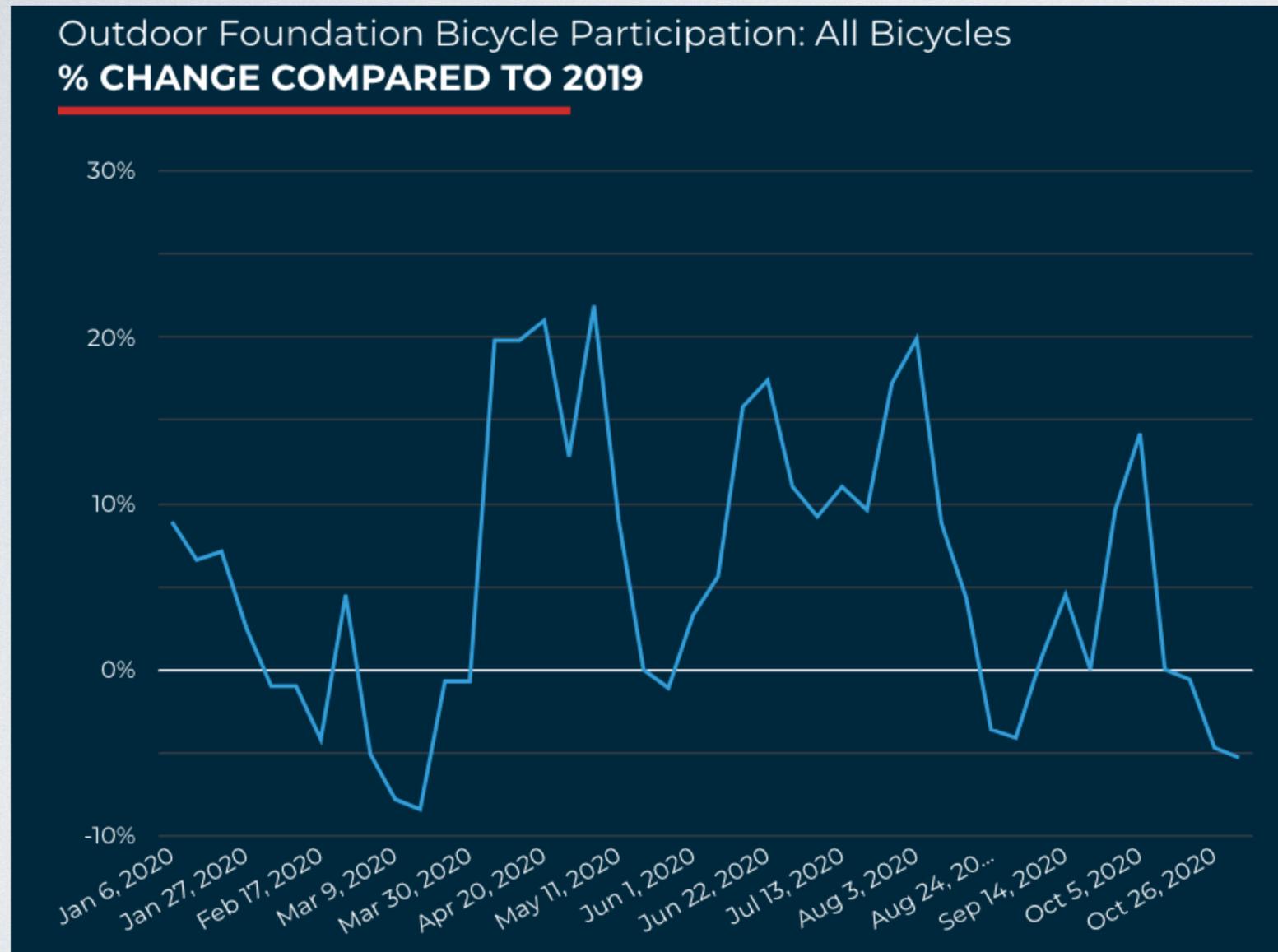


• **Number of bike trips taking place in urban areas**



• **% change in the number of bicycle trips** recorded by 14 bicycle-specific counters located on rail-trails across the U.S.

BICYCLE USAGE - 2020 VS 2019



• **Weekly estimates of ages 6+ who participate in recreational bicycling**

• **change in the number of bike rides and bike riders** recorded in *Ride Spot*

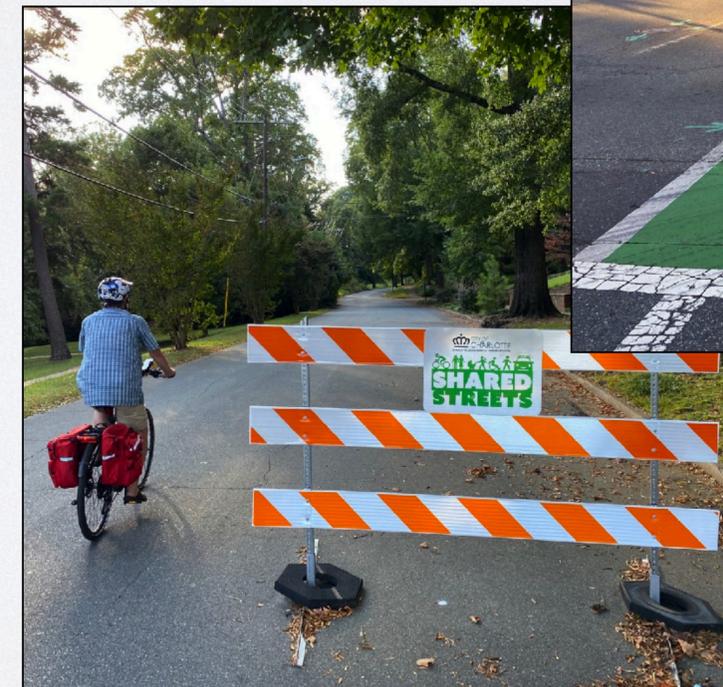
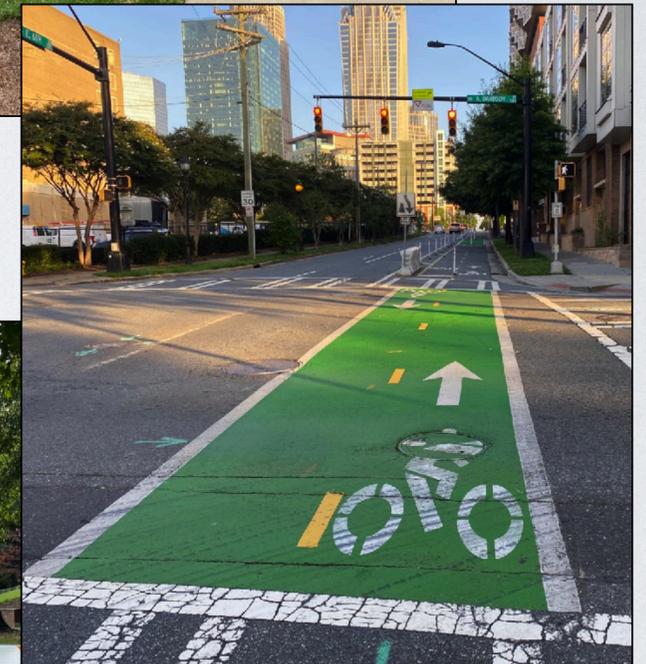
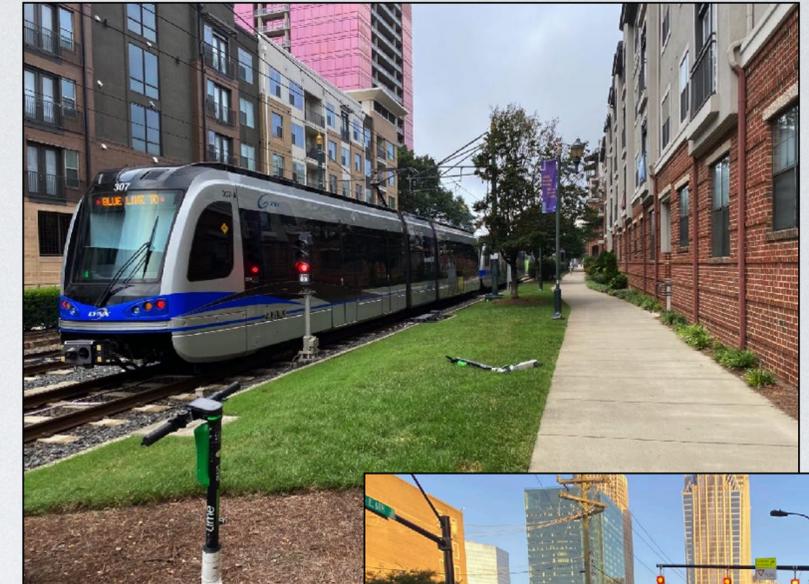
E-BIKE SHARE PROGRAMS

- Electric Bike Share programs have had mixed results, constant improvement.
- Scooters and Bike Share programs thrive in dense urban population areas.
- Parking Challenges and Cost of Car Ownership support Share Programs.
- Multi-modal transportation options support each other, bikes/trains/buses/cars.
 - First & Last Mile Solutions to Bus/Train.
- Riders enjoy riding with others as an experience.
- E-Bike Share Programs build awareness and support Ownership, Bicycle Advocacy and Policy Changes.



INFRASTRUCTURE IN N.C.

- **Greenways** - every major city has projects in progress.
- **Shared Streets Initiative** - major cities are testing and adopting this approach.
- **Protected Bike Lanes** - larger cities see benefits of committing street space.
- **Bus/Bike Lanes** - dedicated lanes for buses and bicycles.
- **Trail Access** - off road or e-Mountain Bikes are allowed on certain trails, but more are needed.



DOT PROJECTS IN N.C.

- **Statewide Pedestrian & Bicycle Plan was passed in 2013 but the goals** to improve Mobility, Safety, Health, the Economy and the Environment:
 - **Have been left unfunded** at the state level.
 - **Restricted to utilizing federal money** for projects.
 - **Left to local municipalities to fund at a unequal rate** across urban and rural areas.
- **NCDOT funded projects have been vastly limited since 2013 and the Interconnectedness of its facilities is lacking.**
- <https://ncdot.maps.arcgis.com/home/webmap/viewer.html?webmap=f03c2cabd13949d0918a4024a440acda>

DEVELOPING INFRASTRUCTURE

- **Left to Local Organizers to Plan, Design and Build in the absence of State Level Funding** for Greenway, Protected Lane and Trail projects.
- **Improvements are Incremental, Inconsistent and Unsubstantial** due to the lack of Complete Streets integration into NCDOT codification.
- **NC has left the integration as an Unfunded Mandate.**
- **NC has the second largest roadway network in the nation but only ranks 22nd for cycling.**

E-BIKE TRENDS

- E-Bikes and other **personal mobility technologies are creating a more diverse transportation profile** (E-Bikes, Scooters, other e-mobility).
- E-Bike's **growing popularity in cities require greater focus on support** for their specific needs.
- Increasingly, **Older and Younger Residents are finding ways to leave the car behind to Live, Learn and Earn without driving.**
- Residents are **attracted to cities that support Healthy Living.**
- Ridership would **grow dramatically with Safer Riding.**



N.C. CAN INNOVATE

State funding and renewing the Statewide Pedestrian & Bicycle Plan to support:

MORE **Connected Greenways**

MORE **Protected Bike Lanes**

MORE **Off Road Trail Access**

MORE **Education**

Ridership will significantly increase when it is safer to ride, not competing with cars.

END

Pedal Farther, Faster on an eBike!

Joe Michel

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INFRASTRUCTURE ADENDUM

- NC is the second largest roadway network in the nation but only ranks 22nd for cycling
- In some of the largest cities like Charlotte, congestion makes the ranks of the 24th most congested city. (<https://inrix.com/scorecard-city/?city=Charlotte%2C%20NC&index=127>) with last mile speeds at 15mph. Raleigh ranks 54th and the last mile speeds are 22mph (<https://inrix.com/scorecard-city/?city=Raleigh%2C%20NC&index=425>)
- Due to the lack of complete streets integration into NCDOT codification, incremental improvements are inconsistent and unsubstantial.
- NCDOT has left active transportation projects out of competitive funding to fulfill its commitment to provide safe, usable roads for all users by not prioritizing projects in the STI over toll road and highway projects.
- On road, off road, greenway and protected facilities within and along roadway right of ways have been left for the most part to local bodies to plan, design and build.
- Since 2013, the NCGA has limited the state from funding any stand alone bicycle or pedestrian projects, thereby limiting all opportunity for critical infrastructure improvements at the local or state level.
- NC has made strides to plan for the future but, has left this as an unfunded mandate. (https://bikeleague.org/sites/default/files/BFS%20Report%20Card_2019_NorthCarolina.pdf) In the most recent Bike League Scorecard, NC gets a C in infrastructure, a D+ in education and enforcement and a C in policies and programs. So plenty of room to improve.
- Since the active transportation users cross over into every segment, NC also has two of the top 100 house districts in the nation for pedestrian fatalities (<https://smartgrowthamerica.org/dangerous-by-design/>). 59th and 99th for District 9 and 12 respectively.

RESOURCES

“A North American Survey of Electric Bicycle Owners”, National Institute for Transportation and Communities (NITC), March 2018

“BUSINESS INTELLIGENCE HUB: RIDERSHIP TRENDS”, People for Bikes, <https://peopleforbikes.org/business-intelligence-hub/>, November, 2020.

BIKEWALKNC, Terry Lansdell, Director.