

Balancing Safety and Mobility:

E-Bike Policy Best Practices for the City of Charlotte

Benchmarking report and recommended framework for city streets and sidewalks

September 8, 2026

Executive summary

E-bikes are an increasingly important mobility option in Charlotte. They enable many residents - including older adults, people with disabilities, people returning to bicycling, caregivers, and workers making everyday trips - to travel farther and more reliably than they could on a conventional bicycle. Because Charlotte's bicycle network remains incomplete, a sidewalk is often the only practical, low-stress route, even along streets posted at 25 mph where actual vehicle speeds, traffic volumes, and/or driver behavior make riding on the roadway feel unsafe.¹

Charlotte should therefore adopt an e-bike policy that protects both mobility and pedestrian safety. The City can address the serious concerns raised by speeding, weaving, and youth use of high-speed electric motorcycles, mopeds, or modified devices without broadly restricting responsible riders of lawful Class 1 and Class 2 e-bikes.

A balanced ordinance should preserve low-speed sidewalk access where no safe bicycle facility is available, require pedestrian priority and safe passing, apply tighter controls to Class 3 e-bikes, clearly distinguish e-bikes from e-motos, and focus enforcement on dangerous conduct rather than the mere presence of electric assistance.

Priority recommendations

1. Adopt a mobility-and-safety purpose statement that explicitly protects lawful e-bike use as transportation and accessibility-enhancing mobility.
2. Allow Class 1 and Class 2 e-bikes on sidewalks subject to a context-sensitive low-speed rule, pedestrian priority, safe passing, and designated dismount zones only where justified.
3. Generally exclude motor-assisted Class 3 operation from sidewalks, while allowing riders to walk the bicycle and providing narrowly tailored access exceptions.
4. Define and enforce against e-motos and other devices that exceed legal e-bike power, pedal, or assisted-speed limits.
5. Create a mode-neutral reckless-operation provision covering dangerous speeds, weaving, stunts, unsafe passing, and failure to yield.
6. Use warnings, parent notification, and a safety-course diversion option for first minor youth offenses; reserve fines and impoundment for repeated or serious conduct.
7. Pair regulation with protected bikeway construction, traffic calming, retailer education, and a one-year data review.

Policy objective: protect both safety and mobility

Charlotte should frame the ordinance around two coequal obligations: protecting people walking in pedestrian space and preserving a practical mobility option for people who cannot safely use the roadway. A sidewalk can be the least dangerous available route when a street has no protected bicycle facility, even when the posted motor-vehicle speed limit is 25 mph. Posted speed alone does not describe actual operating speed, traffic volume, lane width, turning conflicts, lighting, or driver behavior.

This is especially important for older adults, people with disabilities, people returning to bicycling, caregivers carrying children, and residents making transportation trips. Electric assistance can make bicycling possible where a conventional bicycle is not. A blanket Class 1 and Class 2 sidewalk ban would therefore have mobility and equity consequences beyond the conduct the City is trying to stop.

Policy recommendations for e-bikes on sidewalks

Device/Conduct	Recommended Sidewalk Rule	Rationale
Class 1	Allow at a safe operating speed; yield to pedestrians; audible warning before passing.	Preserves access for riders who need assistance and for trips on streets without a comfortable bikeway.
Class 2	Allow under the same low-speed sidewalk rules as Class 1.	Throttle capability can be an accessibility aid; risk is better controlled through speed and conduct rules.
Class 3	Generally prohibit motor-assisted operation on sidewalks, with narrow exceptions for access, emergencies, or walking the bike.	Motor assistance to 28 mph creates a materially different risk in pedestrian space.
E-moto / noncompliant device	Prohibit on sidewalks and bicycle facilities unless the device independently qualifies for access under another law.	These are not legal e-bikes merely because they are marketed or styled as bicycles.
All riders	Prohibit reckless operation, unsafe passing, stunts in active travel areas, and speeds unreasonable for conditions.	Behavior-based rules reach the actual hazard and apply fairly across device types.

Key legal timing: North Carolina Session Law 2026-46 creates the three-class system and expressly authorizes cities to regulate e-bike classes and speeds on sidewalks and multiuse paths. **The e-bike section takes effect December 1, 2026.** Charlotte should draft now, but align the ordinance's effective date and final legal review with that statute.

North Carolina legal landscape

Current law through November 30, 2026, defines an electric-assisted bicycle as a two- or three-wheeled bicycle with a seat, fully operable pedals, a motor no greater than 750 watts, and a

motor-only maximum speed no greater than 20 mph. Bicycles and electric-assisted bicycles are treated as vehicles on highways, except where a rule cannot logically apply.²

Session Law 2026-46 replaces that definition with the standard Class 1/2/3 framework, beginning December 1, 2026. It permits e-bikes on roadways, bicycle lanes, and multi-use paths unless otherwise regulated, authorizes cities to restrict classes and establish speeds on sidewalks and multi-use paths, and allows cities to require helmets for riders under 18 on Class 1 or Class 2 bikes. Riders under 18 on Class 3 bikes must wear helmets statewide.³

Three classes of e-bikes in NC (effective December 1, 2026)

Class	Motor Operation	Assistance Cutoff	Charlotte Policy Implication
1	Pedal assist only	20 mph	Broad access; low-speed sidewalk operation allowed.
2	May propel without pedaling	20 mph	Broad access; regulate actual sidewalk speed, not throttle presence alone.
3	Pedal assist only	28 mph	Street and bikeway access; generally no motor-assisted sidewalk operation.
Not an e-bike	Exceeds 750 watts, lacks operable pedals, or does not fit a class	Varies	Apply the correct moped, motorcycle, or other vehicle rules.

What best-practice ordinances have in common

- Pedestrians retain priority on sidewalks and shared paths.
- Rules focus on speed, yielding, passing distance, visibility, and reckless behavior - not merely whether a motor is present.
- High-speed devices are clearly separated from legal e-bikes.
- Sidewalk access is preserved outside limited pedestrian-priority zones, or at a minimum, where no comfortable bicycle facility exists.
- Class 3 access is more limited than Class 1 and Class 2 access.

- Local government retains the ability to post lower speeds or dismount zones at specific locations based on observed conditions.

Peer-city case studies

No peer is a perfect match. The most useful comparison is a portfolio: large Sun Belt cities with incomplete bicycle networks, plus a city with a mature class-based e-bike framework. Together, the cases show that Charlotte can protect pedestrians without imposing a citywide ban on low-speed bicycle access to sidewalks.

Austin, Texas

Why it is relevant. Large, fast-growing Sun Belt city with a dispersed street network and significant gaps in all-ages bicycle infrastructure.

Policy approach. Austin amended its code to regulate bicycles and micromobility on sidewalks and roadways rather than using a blanket prohibition. Its approach treats sidewalk operation as permissible subject to pedestrian priority, local restrictions, and safe operation.⁴

Charlotte takeaway. Use a general sidewalk permission rule, then create limited signed exclusion or dismount areas where pedestrian volumes warrant them. Pair the ordinance with a city bike map that communicates route comfort.

Denver, Colorado

Why it is relevant. Large regional center with a three-class e-bike framework and a mix of protected bikeways, trails, and incomplete connections.

Policy approach. Denver defines all three e-bike classes. Class 1 and 2 e-bikes generally follow bicycle rules, while Class 3 is handled separately. On ordinary sidewalks, Class 1 and 2 e-bikes are generally prohibited except on designated bicycle routes and in limited-access situations; where riding is allowed, the speed limit is 6 mph, and pedestrians have priority.⁵

Charlotte takeaway. Denver provides a useful class definition and low-speed benchmark, but its broad ordinary-sidewalk restriction is not appropriate for Charlotte's incomplete bicycle network.

Nashville-Davidson, Tennessee

Why it is relevant. Consolidated city-county, auto-oriented Sun Belt peer with many corridors that remain uncomfortable for bicycling.

Policy approach. Nashville permits conventional bicycle riding on sidewalks outside business districts, requires riders to yield and give an audible signal, and requires walking-speed entry at driveways and crosswalks. Tennessee law is more restrictive for powered e-bike sidewalk operation, so Nashville is most useful for its behavior rules rather than its e-bike access rule.⁶

Charlotte takeaway. Borrow the yielding, audible-warning, and walking-speed driveway/crosswalk language, but do not import Tennessee's motor-disabled requirement.

Boulder, Colorado

Why it is relevant. Smaller and more bicycle-oriented than Charlotte, but a leading example of clear class-based communication and e-moto differentiation.

Policy approach. Boulder generally allows Class 1 and 2 e-bikes on sidewalks and multiuse paths outside designated dismount zones, while Class 3 bikes are directed to streets and bike lanes. It also clearly explains that high-powered e-motos are not e-bikes.⁷

Charlotte takeaway. This is the closest substantive model for Charlotte's desired balance: preserve Class 1 and 2 access, restrict Class 3, and distinguish e-motos.

Peer city policy comparison

Jurisdiction	Sidewalk Principle	Pedestrian Safeguards	Class Distinction	Best Element to Borrow
Davidson / Cornelius ⁹	Conditional access, including where adjacent speed is 25+ mph	Yielding, equipment, youth rules	High-speed devices are treated differently	Local familiarity and explicit unsafe-street exception
Austin	Generally allowed unless specifically restricted	Yield and safe operation	Micromobility categories	Targeted restrictions instead of a blanket ban
Denver	Generally prohibited; bike-route/access exceptions	6 mph where allowed; yield	Class 1/2 rules; Class 3 separate	Clear definitions + 6 mph benchmark
Nashville	Allowed outside business districts for bicycles	Yield, audible signal, walking speed at crossings	Limited local e-bike lesson	Strong behavioral language
Boulder ¹⁰	Class 1/2 generally allowed; dismount zones possible	Pedestrian priority and designated zones	Yes	Class 1/2 access + Class 3 restriction + e-moto clarity

Recommended Charlotte ordinance framework

Include findings that e-bikes expand transportation access, reduce car dependence, and support people with varied physical abilities; that pedestrians are the most vulnerable sidewalk users; that Charlotte's bicycle network remains incomplete; and that unsafe conduct by a subset of riders should be addressed without unnecessarily restricting responsible riders.

A. Sidewalk access by class

- Class 1 and Class 2: permitted unless a location is signed as a dismount or exclusion zone. Riders must operate at a safe speed, yield to pedestrians, and slow to

approximately walking speed when crossing driveways or entering crosswalks where visibility is limited.

- Class 3: motor-assisted operation prohibited on sidewalks, except for narrowly defined access situations; walking the bicycle is always permitted. Consider allowing a rider to use a sidewalk at Class 1 performance only if the device has a manufacturer-set mode that verifiably limits assistance to 20 mph, though enforceability should be reviewed.
- Legal disability mobility devices: expressly protected and not swept into e-bike restrictions.
- E-motos and noncompliant devices: prohibited from sidewalks unless separately authorized under applicable vehicle law.

B. A context-sensitive sidewalk speed rule

- Avoid a single number as the sole standard. A rider traveling 10 mph may still be unsafe beside a crowded bus stop, while 12 mph may be reasonable on an empty, wide sidewalk with clear sight distance. Use both a numeric ceiling and a reasonable-for-conditions duty.
- When passing or approaching pedestrians: slow substantially and provide an audible warning.
- At blind driveways, building exits, transit stops, crowded blocks, and crosswalk entries: proceed at or near walking speed.
- Allow signed lower-speed or dismount zones in high-pedestrian locations based on documented conditions.

C. Prohibit the dangerous behavior residents are reporting

- Reckless or careless operation that endangers a person or property.
- Weaving unpredictably among moving vehicles or pedestrians.
- Racing, wheelies, burnouts, intentional skidding, or stunts in active streets, sidewalks, parking areas, or shared paths when the conduct creates a hazard.
- Passing a pedestrian without adequate clearance or without slowing.
- Operating faster than is reasonable for the width, congestion, visibility, surface, weather, and nearby users.
- Carrying passengers on a device not designed and equipped for them.
- Tampering with a class label or speed governor, when legally supportable.

D. Youth safety without overcriminalization

- Require helmets for riders and passengers under 18 on all classes once state authority takes effect; the statewide Class 3 helmet rule will already apply.
- Provide a first-offense diversion option: parent/guardian notification, an approved safety course, and proof of completion in lieu of a fine for non-injury violations.
- Focus enforcement on conduct and device legality, not a rider's age, race, neighborhood, or the visual style of the bicycle.
- Partner with CMS, private schools, retailers, pediatric health providers, and neighborhood groups on a parent-facing "Is this really an e-bike?" guide.
- Explore state authority before adopting a local minimum operating age. Age limits may be appropriate for Class 3 or throttle devices, but legal authority and equity impacts should be evaluated.

E. Enforcement and implementation

- Begin with a 60- to 90-day education period.
- Use warnings and education for low-risk first offenses; prioritize citations for reckless conduct, dangerous speeds, repeated violations, and illegal e-motos.
- Train CMPD and code personnel to identify legal classes based on pedals, labeling, power, and assisted speed - not tire width or motorcycle-like appearance alone.
- Create a public reporting form and track location, device type, rider age range, behavior, injury, enforcement outcome, and whether the location had a safe bicycle alternative.
- Review the ordinance after 12 months and publish the results.

Suggested policy language for discussion

"A person operating a Class 1 or Class 2 electric-assisted bicycle on a sidewalk shall yield the right-of-way to pedestrians; provide an audible warning before overtaking; operate at a speed that is reasonable and prudent under existing conditions; and reduce speed to walking speed when necessary at driveways, building entrances, transit stops, crosswalks, or other locations with limited visibility or pedestrian conflict. Class 3 electric-assisted bicycles shall not be operated under motor assistance on a sidewalk, except as expressly authorized by ordinance or official traffic-control device. Nothing in this section prohibits a

person from walking an electric-assisted bicycle or limits the lawful use of a mobility device by a person with a disability.”

This is policy language, not final legal drafting. The City Attorney should reconcile it with the Charlotte Code, Session Law 2026-46, state vehicle classifications, disability law, and enforcement procedures.

Charlotte network context

Charlotte’s ordinance should not assume that a 25 mph posted street is automatically a safe route for a person riding a bicycle or e-bike. The City’s Vision Zero materials identify speeding as a major contributor to fatal crashes and state that 13% of city streets account for roughly 80% of serious crashes. Charlotte continues to invest in protected bikeways, sidewalks, crossings, and traffic calming precisely because the existing network is incomplete.⁸

Legal access to sidewalks should depend on actual facility safety, not the posted speed of the adjacent street alone.

Conclusion

Charlotte does not have to choose between pedestrian safety and e-bike mobility. The strongest policy is narrowly tailored:

- Preserve low-speed Class 1 and Class 2 sidewalk access where it may be the safest practical route.
- Protect pedestrians through existing—and potentially additional—yielding, passing, and speed rules.
- Restrict Class 3 operation in pedestrian space.
- Clearly remove e-motos from the e-bike category.

Focus enforcement on dangerous and illegal conduct. Educate youth about safe operation. Educate parents about the dangers of higher speed e-motos for youth.

This approach responds to the Safety Committee’s concerns while advancing Charlotte’s stated commitment to safe and equitable mobility for all.

Sources and footnotes

Source titles are hyperlinked for direct access to the cited materials.

1. [U.S. Department of Transportation, Urban Electric Mobility Toolkit \(2023\), “Access, Mobility, and Equity”](#). The toolkit notes that electric and adaptive micromobility can increase mobility for older adults, parents with young children, and people with disabilities.
2. [N.C. Gen. Stat. § 20-4.01\(7a\)](#), electric-assisted bicycle definition in effect through Nov. 30, 2026.
3. [N.C. Session Law 2026-46, § 19](#) (effective Dec. 1, 2026), establishing the three-class e-bike framework and local authority over sidewalk and multiuse-path class restrictions and speed limits.
4. [City of Austin, Ordinance No. 20190523-059](#), amending City Code Chapter 12-2 to regulate bicycles and micromobility devices on streets and sidewalks.
5. [Denver Code of Ordinances, Chapter 54, Article IX](#). Denver applies bicycle rules to Class 1 and 2 e-bikes, treats Class 3 separately, and caps sidewalk speed at 6 mph where sidewalk riding is permitted.
6. [Metro Nashville Code § 12.60.100](#). Sidewalk riders must yield to pedestrians, give an audible signal before passing, and enter roadways or driveways from sidewalks or paths at no greater than ordinary walking speed.
7. [City of Boulder, E-Micromobility: E-Bikes, E-Scooters and More](#). Boulder allows Class 1 and 2 e-bikes on qualifying sidewalks and multiuse paths, restricts Class 3 e-bikes to streets and bike lanes, and separately explains e-motos.
8. [City of Charlotte, 2025 Vision Zero Annual Report](#); [Charlotte Strategic Mobility Plan \(2022\), Bicycle Priority Network](#). The Vision Zero report states that the High Injury Network is 13% of the street network but accounts for 80% of fatal and serious-injury crashes; the Strategic Mobility Plan identifies the need to fill bicycle-network gaps.
9. [Town of Davidson, Ordinance Chapter 70, Article II, § 70-47 \(2026\)](#); [Town of Cornelius e-bike ordinance \(2025\)](#). Davidson allows sidewalk riding in specified circumstances, including where the adjacent highway speed limit is 25 mph or more; both jurisdictions distinguish higher-speed devices from legal e-bikes.
10. [City of Boulder, E-Micromobility: E-Bikes, E-Scooters and More](#), including the “Which Wheels Go Where” chart.