

Vision Zero Through A Traffic Safety Technology Lens

STRATEGY SESSION
OCTOBER 4, 2021

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Purpose

Review Charlotte's commitment to Vision Zero

Highlight Vision Zero traffic safety technology tools

Summarize Charlotte's automated enforcement programs in operation from 1998-2007

Review traffic safety questions from August 10, 2021 Safe Communities Committee

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Traditional Approach

Traffic deaths are INEVITABLE
PERFECT human behavior
Prevent COLLISIONS
INDIVIDUAL responsibility
Saving lives is EXPENSIVE

VS

Vision Zero

Traffic deaths are PREVENTABLE
Integrate HUMAN FAILING in approach
Prevent FATAL AND SEVERE CRASHES
SYSTEMS approach
Saving lives is NOT EXPENSIVE

Vision Zero: Traffic Safety Technology Tools

Current Vision Zero Technology Tools

Leading Pedestrian Interval (LPI)

Leading Pedestrian Interval Plus Enhancements

Pedestrian Rectangular Rapid Flash Beacons

LED “Smart” Streetlights

CMPD Enforcement programs based on High Injury Network

Driver feedback speed signs

Leading Pedestrian Interval

Walk signal starts 3 seconds before a green light in same direction

Safety enhancement - the pedestrian has a head start to enter crosswalk

Deployed at 248 locations citywide



Leading Pedestrian Interval “Plus” Enhancements

Signalized intersection
Includes a flashing yellow arrow for right turn and blank-out sign “yield to peds”

Installed at 21 locations with a large right turn volume that coincides with pedestrian phase



Pedestrian Rectangular Rapid Flashing Beacons

Installed with marked crosswalks

Includes rectangular rapid flashing lights – strobe effect

Alerts driver to presence of pedestrian in crosswalk

Installed at 5 locations



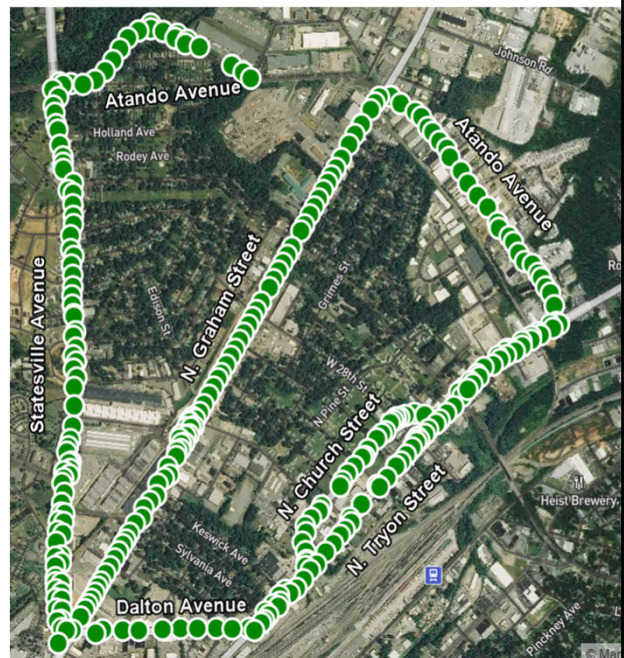
LED “Smart” Streetlights

**North End Smart District -
Pilot with Duke Energy**

**Smart devices on individual
streetlights**

**Detects outage and self-
reports**

**Replaces manual process
of nighttime inventory by
staff**



Speeding – The Issue

Leading factors in fatal and serious injury crashes:

- Speeding
- Distracted driving
- Driving while impaired

2020 – Major Crash Unit investigated 81 fatalities

**2021 (to date) – Major Crash Unit investigated 56 fatal
crashes resulting in 59 fatalities**

Focus Areas

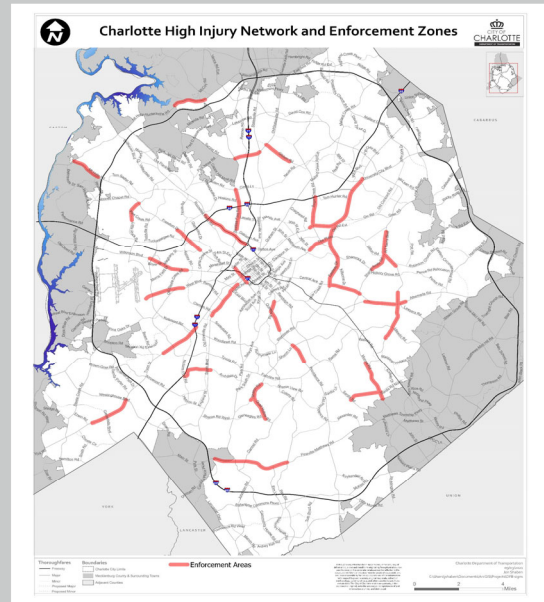
30 Corridors on High Injury Network

Transportation Unit Focus

- Seatbelt checks
- Saturation patrol
- DWI checkpoints
- Radar

Citizen requests

- Speeding
- Stop sign violations
- Passing stopped school bus



Driver Feedback Signs

Speed signs (2)

Solar/battery powered radar

Deploy quickly - affix to any type of pole

Speed data collected in device

Cost is \$4,500



Charlotte Driver Feedback Sign Locations

Criteria for Installation

1. Documented speeds more than 10 mph over speed limit **and**
2. High injury Network location
3. Citizen requested and meets at least one criteria above

Program Details

- Signs can be moved every few weeks to maximize safety benefits
- 15 signs part of rotation
- Speed data collected from signs

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Automated Enforcement

14

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Speed Camera Program in Charlotte

Charlotte operated the *SafeSpeed* program from 2003 to 2006

Legislation required CMPD Officers be present to log speeds with radar

14 Locations were specifically included in legislation

Location were primarily near schools, not based on crash data

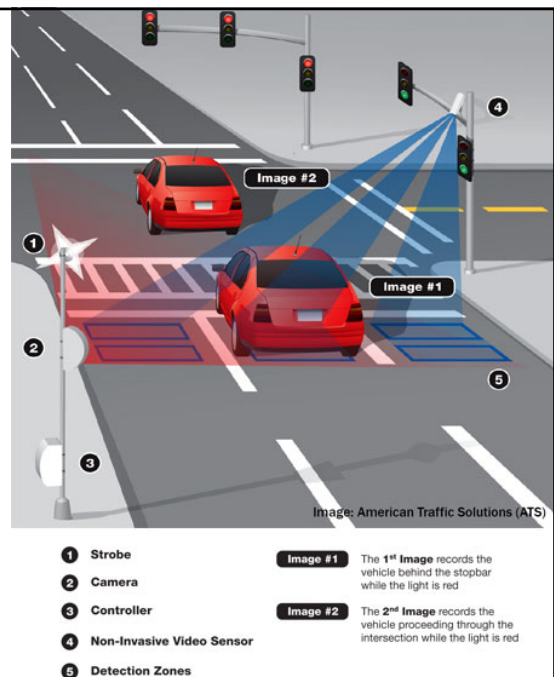
North Carolina General Statute enabling legislation for speed camera programs sunset in 2007

No North Carolina municipalities operating speed camera programs today

SafeLight Camera Program

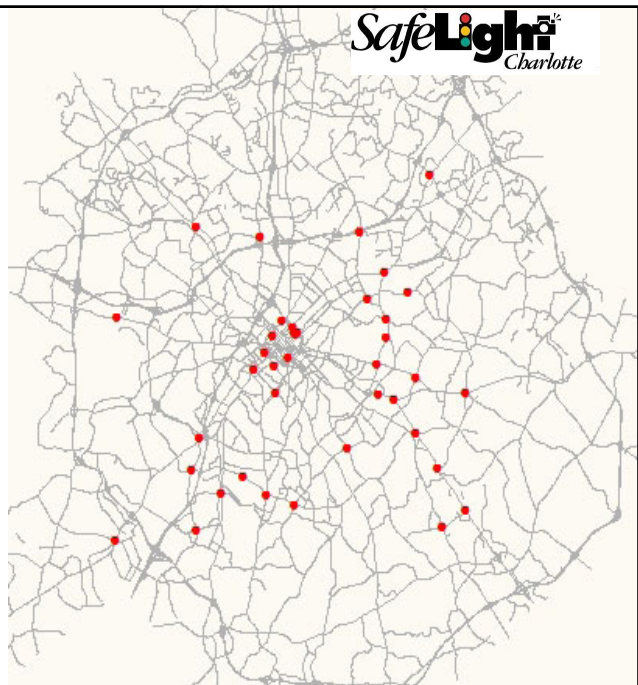
What are Red-Light Cameras?

- Deployed at signalized intersections
- Detect vehicles that pass white stop bar after a traffic signal has turned red
- Sensors trigger high-speed cameras that take two photos per violation
- Citation mailed to the registered owner of the vehicle



Charlotte's SafeLight Program

- North Carolina General Statute enacted in 1997
 - § 160A-300.1 Use of traffic control photographic
- Charlotte began program in 1998
- Expanded to 20 locations during program



Charlotte Analysis & Evaluation Four Locations



Number of Crashes at All Approaches of Intersection

Crash Type	3 years before 1995-1998	3 years during 1998-2001	3 years after 2006-2009
Angle	94	48	41
Rear End	258	322	187

Number of Crashes at Camera Approach Only

Crash Type	3 years before 1995-1998	3 years during 1998-2001	3 years after 2006-2009
Angle	41	11	14
Rear End	88	88	62

Program Termination

A lawsuit was filed against the City of High Point claiming camera enforcement programs were illegal

In 2006, the North Carolina Court of Appeals decided:

- Camera enforcement programs were not illegal, but
- The “clear proceeds” (90%) of civil penalties must be paid to the local school board per the North Carolina State Constitution

Charlotte suspended program in 2006 and formally terminated program in 2010

Automated Enforcement Program Cost

SafeSpeed

2006 Revenues	\$1,480,000
2006 Expenses	(\$1,195,000)

SafeLight

2006 Revenues	\$1,300,000
2006 Expenses	(\$ 910,000)

Red Light Camera Programs in North Carolina

Current North Carolina Programs

Special Legislation

1. Raleigh

Applies only to municipalities in Wake County (§ 160A-300.2)

Defines “clear proceeds” as the funds remaining after covering the costs of the program

Interlocal Agreements

1. Fayetteville

2. Greenville

3. Wilmington

No special legislation (§ 160A-300.1)

Defines citations as civil penalties so 90% rule applies

Agreements with Counties or School Boards to share in program costs

Safe Communities August 10, 2021

Provide list of 30 High Injury enforcement corridors (slide #11)

Can CDOT control the traffic signal operations? (slide #17)

Was there an impact on number of crashes with red-light cameras? (slide #19)

What is the cost of the red-light camera program and revenue generated? (slide #21)

What Can Charlotte Do

Implement Vision Zero Action Plan with partner agencies Focus on technology solutions that address Charlotte's top transportation safety priorities

- Continue deployment of Leading Pedestrian Interval signals, pedestrian rectangular rapid flashing beacons and smart streetlights to address pedestrian crashes
- Continue installation of driver feedback signs in priority locations to address speeding
- Explore technology solutions that address speed-related fatalities and serious injuries

Questions?