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# Noise Camera Pilot

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Background, Insights, and Update

# Agenda



1. Current Noise Level- Local Context
  1. Complaints from neighbors
  2. Knoxville vehicle noise ordinance
  3. Current enforcement challenges
2. Noise Camera Pilot Program
  1. Starting the pilot
  2. How the camera works and what is recorded
  3. Data overview
3. Additional information and next steps

# Local Context



- Excessive vehicle noise has been a consistent complaint from Downtown residents and business owners
- Concerns focus on:
  - Loud engine revving
  - Modified mufflers
  - Racing in parking garages and streets
- Knoxville is not unique. Cities around the country are struggling with similar concerns, with increased disruptions in recent years

# Local Context



## Chapter 17- Motor Vehicles and Traffic:

### Sec. 17-383. - Excessive noise:

- Every motor vehicle shall at all times be equipped with a muffler in good working order and in constant operation to prevent excessive or unusual noise, and no person shall use a muffler cutout, bypass or similar device upon a vehicle on a highway
- Noise Limit: Any motor vehicle with a manufacturer's gross vehicle weight rating of 6,000 pounds or more, any combination of vehicles towed by such motor vehicle, and any motorcycle: 86 dBA in speed limits <35mph, 90dBA in speed limits >35mph

# Local Context: Enforcement



- Excessive vehicle noise is hard to enforce due to technology and staffing limitations. Stationary, consistent noise (e.g. from a house party) is easier to enforce
- Traditional hand-held decibel reader limitations
  - Must manage ambient noise level calibrations for consistent readings
- Defending citations in court can be difficult
  - Burden of proof requires technical knowledge of equipment and noise
- City Court issues are limited by State Law to \$50 fines.

# Noise Camera Pilot



- In late 2021, City staff connected with Intelligent Instruments, a London-based firm that had developed a camera to capture excessive vehicle noise “events”
- Camera used in New York, NY and London, UK
- Company offered Knoxville a free demo to test camera technology in the field
- During the demo, the camera could not be used to issue citations, but would gather data on noise events and help more precisely target action

# Noise Camera Pilot



- Camera was deployed in February 2022 on Gay Street
- City Policy team manages operation, footage/data review, and policy decisions associated with demo
- KPD or other enforcement bodies do not have system access at this time



# How The Camera Works

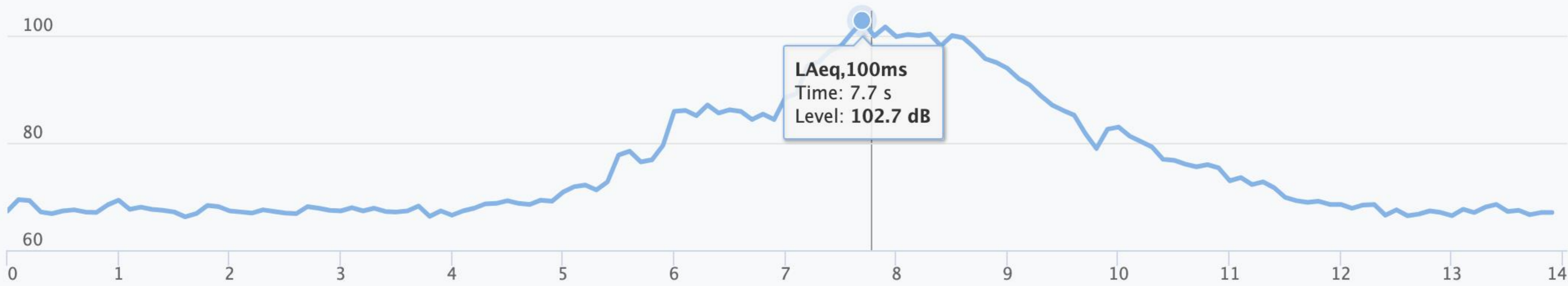


- The noise camera has two cameras angled to capture the front and back of vehicle.
- Noise meter and algorithm trigger recording when a vehicle noise is over 86dBA
- records for ~10 seconds
- After noise event, camera immediately sends footage and noise meter recording to software interface





Video 0 Export 1-sec noise levels ?



Device name: INM-411

Location: Knoxville Location 1

Number plate

Foreign plate

False positive

# Data Overview



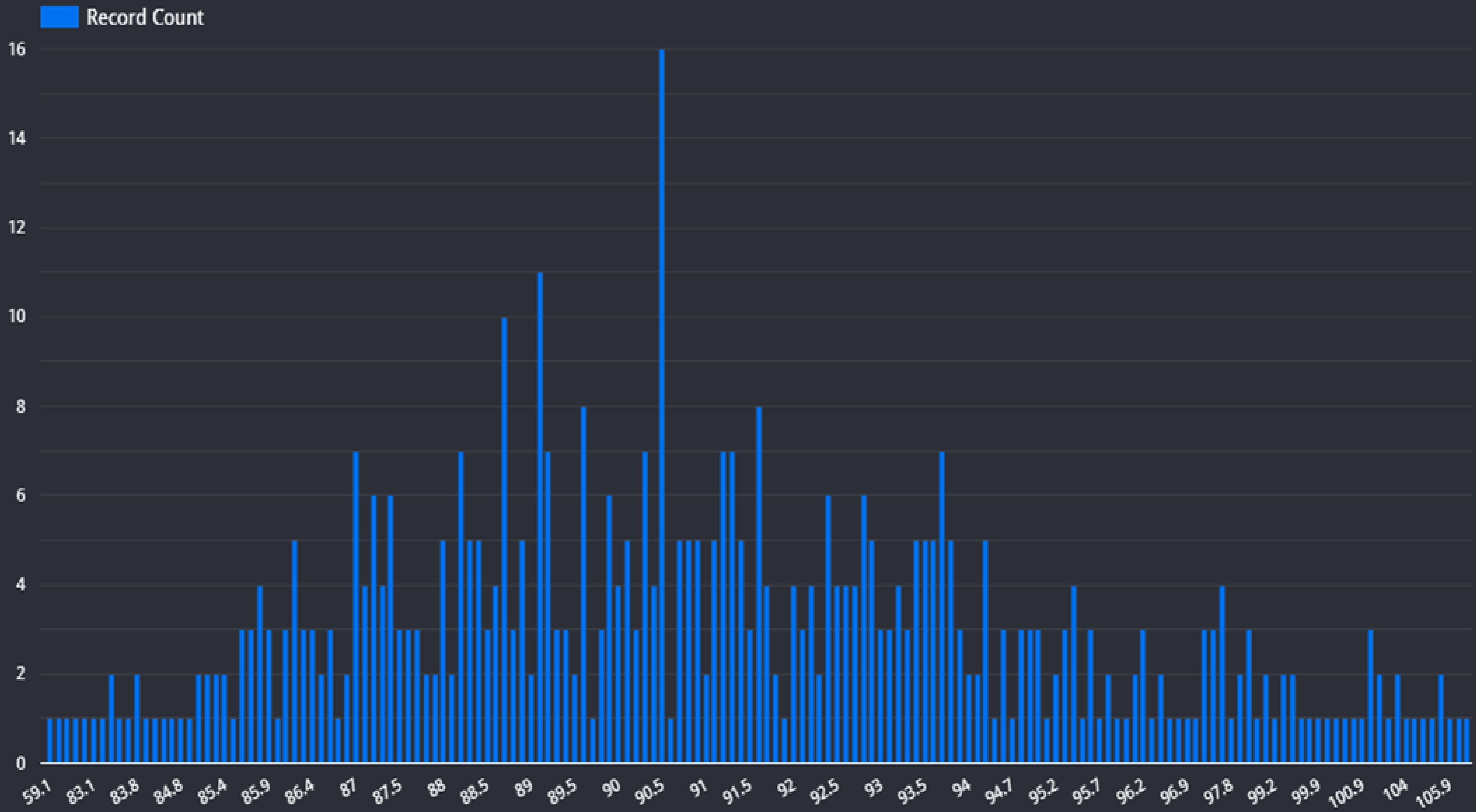
- As of July 12th 2022:
  - ~ 1300 excessive noise events recorded
  - Average event is ~90 dBA
    - Equivalent to a concert or leaf blower
- Excessive noise violations happen in clusters, and range between 90-100 dBA

# Noise Report

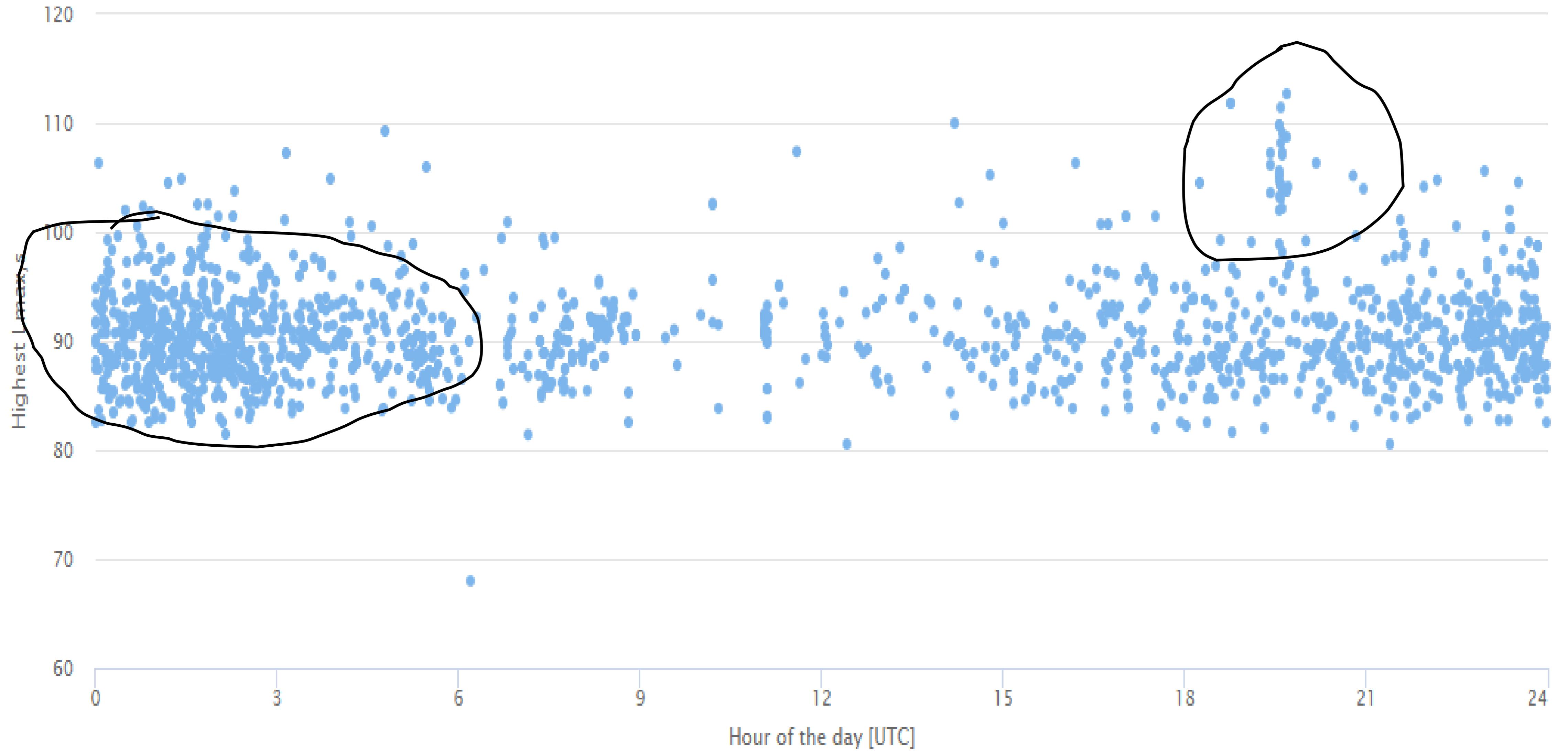


- Pick-up trucks, motorcycles, and groups of vehicles are biggest concern
  - Violations most likely have modified mufflers.
  - Unmodified V4 engines average 50-60 decibels. Motorcycles average 80 unmodified
- Peaks are at 8pm on Saturdays, 2am on Sundays
- It is not a small group of vehicles causing the violations

# Number of Events by Decibel Level



# Knoxville Location 1



# Next Steps



- City plans to purchase one camera that can be stationed at different locations to collect data
  - Focus on commercial corridors
  - Camera and software cost: \$27k
- Continue exploring enforcement options
- Initiate partnerships to enable technology-based enforcement options
  - Issue request for information seeking service provider similar to RedFlex

# Additional Information: Other Cities



- **New York City:** NYC Department of Environmental Protection uses the camera to issue violations. Violators must appear before the Environmental Control Board and noise certified inspectors speak to violations if requested by judges.
- Update Ordinances:
  - **Kansas City:** Illegal if audible from 300 feet or more or above 55 decibels from vehicle between 10pm and 7am. 90 decibel limit during daytime hours
  - **New Orleans:** Annual vehicle inspections (brake tags) to capture modified mufflers
  - **Fort Lauderdale:** Increased penalties for vehicle violations >\$100
- Most cities continue to struggle, even with these additional tools

# Questions?

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