



MICRO-SENSING

WHO WE ARE



LED Roadway Lighting Ltd. is a Canadian owned streetlighting and smart city provider which was originally established in 2007.

Our smart city sensors division, Liveable Cities, was established in 2019.

We design, manufacture, and distribute LED streetlighting, wireless intelligent controls, and smart city sensors.

Headquarters

- Halifax, NS, Canada

Office

- Victoria, BC, Canada

Manufacturing

- Amherst, NS, Canada

Manufacturing

- China, Caribbean

WORKING TOWARDS SUSTAINABILITY

Cities have a goal of improving the lives of their citizens, by focusing on making their cities more liveable.

For decades cities have collected data to help make more informed decisions.

Here are some examples:



Air quality



Speed



Traffic

Micro-sensing is the future.



SENSOR SUITE



Noise



Speed



Video



Air



Particulate



PLUG & PLAY DESIGN



Sensors plug into a standard socket.



Streetlights are highly standardized and have one global standard control socket (ANSI C136.41).



Works on any street light, from any vendor in the world.



Even works on 30+ year old lights, which still have the same basic control socket.



Tool-less Installation



One base. Several applications



Plug and Play Design



ONE INTERFACE, MANY SENSORS





Tool-less Installation

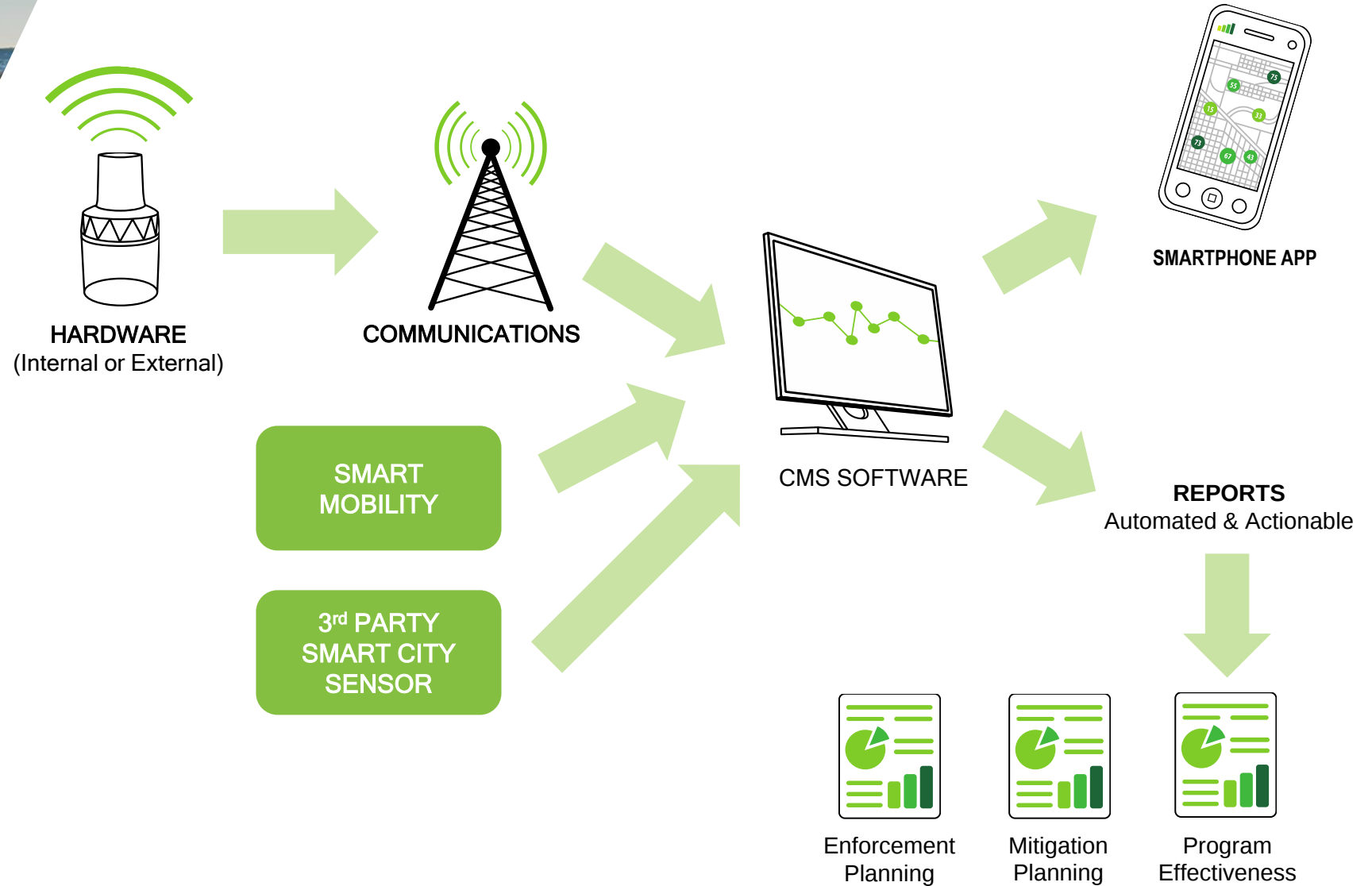


Suitable for Harsh Environments



New, Scalable Ways to get
Previously Unattainable City Insights

SMART SENSORS: DATA ACQUISITION



Our Different Solutions



FOR SPEED



**SLX-SPEED
Micro-sensor**

The speed sensor provides traditional speed metrics such as:

- Average Speed
- 85th Percentile
- Peak Speed
- Over Speeding

Applications



Road Safety Analysis



Enforcement Planning



Analyze Intervention Success

FOR AIR



SLX-PARTICULATE
Micro-sensor

SLX-PARTICULATE can provide measurement of airborne particulates in the following sizes:

- PM 2.5
- PM 10

Applications



Establish a Baseline



Prioritize Investment



Analyze Intervention Success

FOR NOISE



SLX-NOISE
Micro-sensor

The noise sensor provides sensing and reporting of the following noise levels:

- LEQ Lowest Sound Level
- LEQ Highest Sound Level
- LEQ Average Sound Level

Applications

-  Port Noise Monitoring
-  Construction Site Monitoring
-  Rail and Light rail Monitoring

OUR CAMERA



SLX-VIDEO
Micro-sensor

Traffic Counting



Asset Monitoring

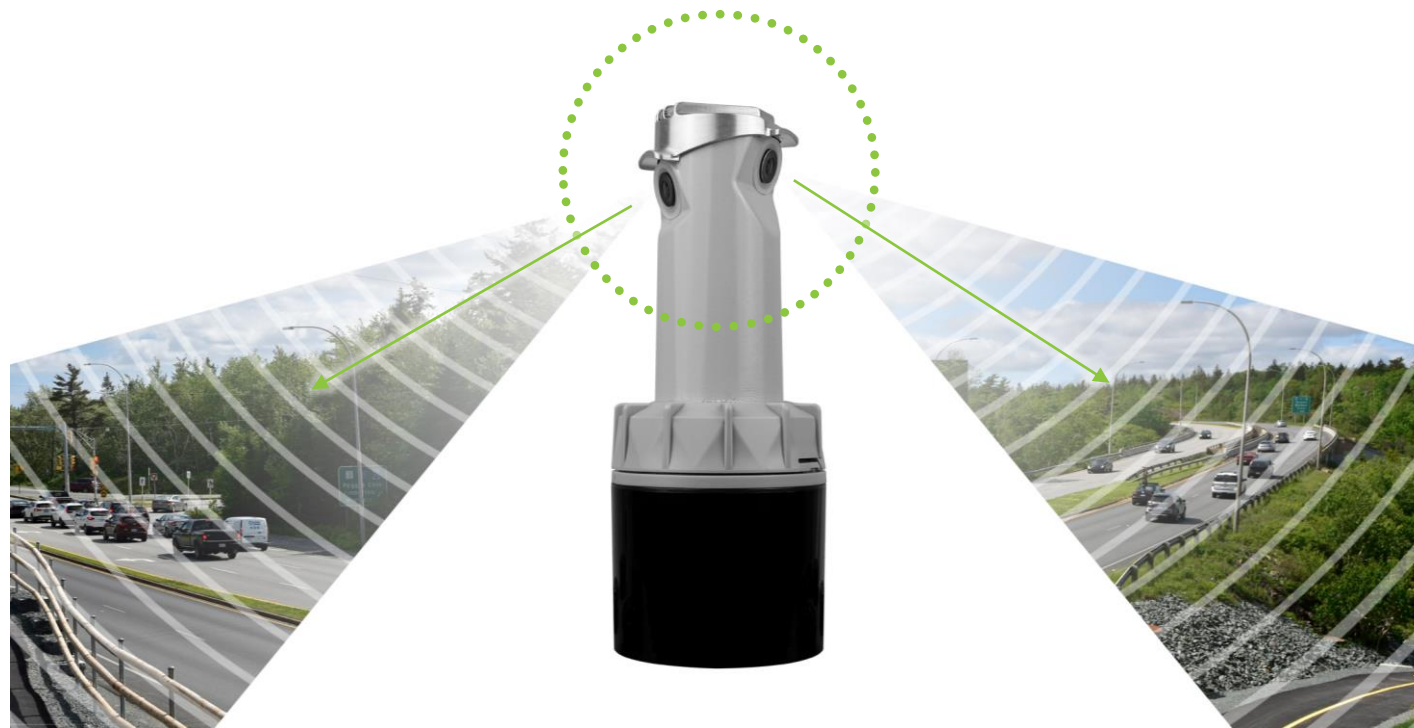


Community Safety



DUAL CAMERA CAPABILITY

2X normal field of view.



DUAL SENSOR OPTION



Power tap receptacle
accessory for
positioning

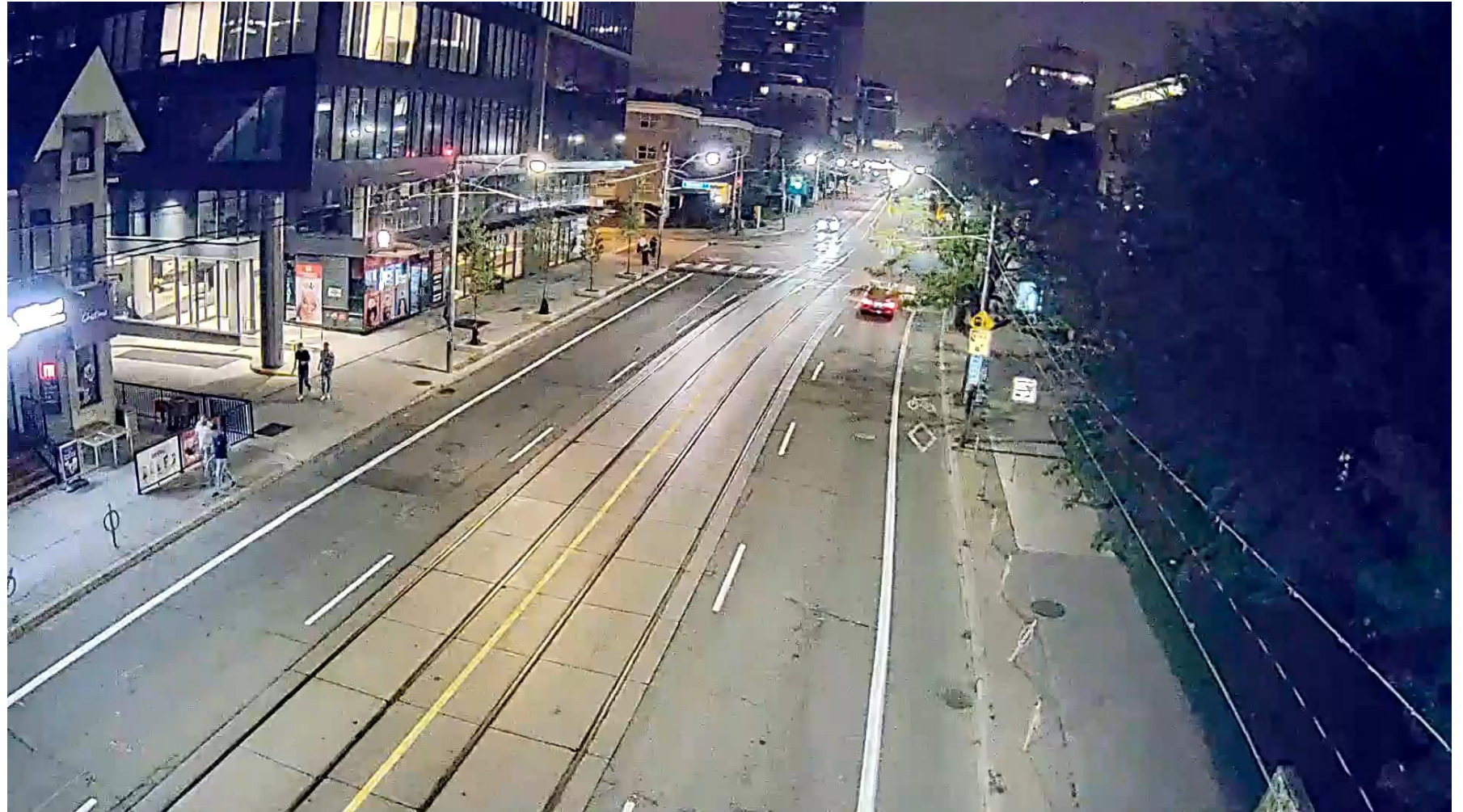


Exported Video Samples

VIDEO SAMPLE - DAYTIME



VIDEO SAMPLE - NIGHTTIME



Use Cases

SPEED & TRAFFIC ANALYTICS

Speed Sensors

Using speed sensors in areas where traffic calming is being evaluated to resolve speeding issues.

Traffic Calming Solutions

Data collected by sensors helps communities validate the requirement and measure effectiveness of traffic calming solutions.



"Low effort. Very convenient for measuring the effectiveness of traffic calming measures."

- City Traffic Engineer

SPEED & TRAFFIC ANALYTICS

Current Period vs Previous Period

F8A1880100000456 — Feb 1, 2023, 12:00:00 AM » Mar 1, 2023, 12:00:00 AM

Title	Measurement Counts on current period	Measurement Counts on past period	Difference between periods
0-10 kph	25710	23493	+9.44%
10-20 kph	3465	3473	-0.23%
20-30 kph	218	182	+19.78%
+30 kph	14	21	-33.33%
Vehicle Count	67753	65132	+4.02%

Over Speeding Volume

OverSpeeding — Feb 1, 2023, 12:00:00 AM » Mar 1, 2023, 12:00:00 AM

Aggregation: Hour

Name	Address	Speed Limit	Vehicle Volume	0-10 m/h	10-20 km/h	20-30 km/h ↓	+30 km/h	Weather Confidence
F8A1880100000456		50 kph	67753	25710	3465	218	14	99.67 %
F8A188010000044A		50 kph	58286	22072	1946	70	3	99.82 %
F8A188010000043B		50 kph	22994	2109	163	12	1	99.92 %
F8A1880100000431		50 kph	17441	13	N/A	N/A	N/A	99.92 %
F8A188010000043F		50 kph	12314	5	N/A	N/A	N/A	100 %

TRUCK ROUTING NOISE IMPACTS

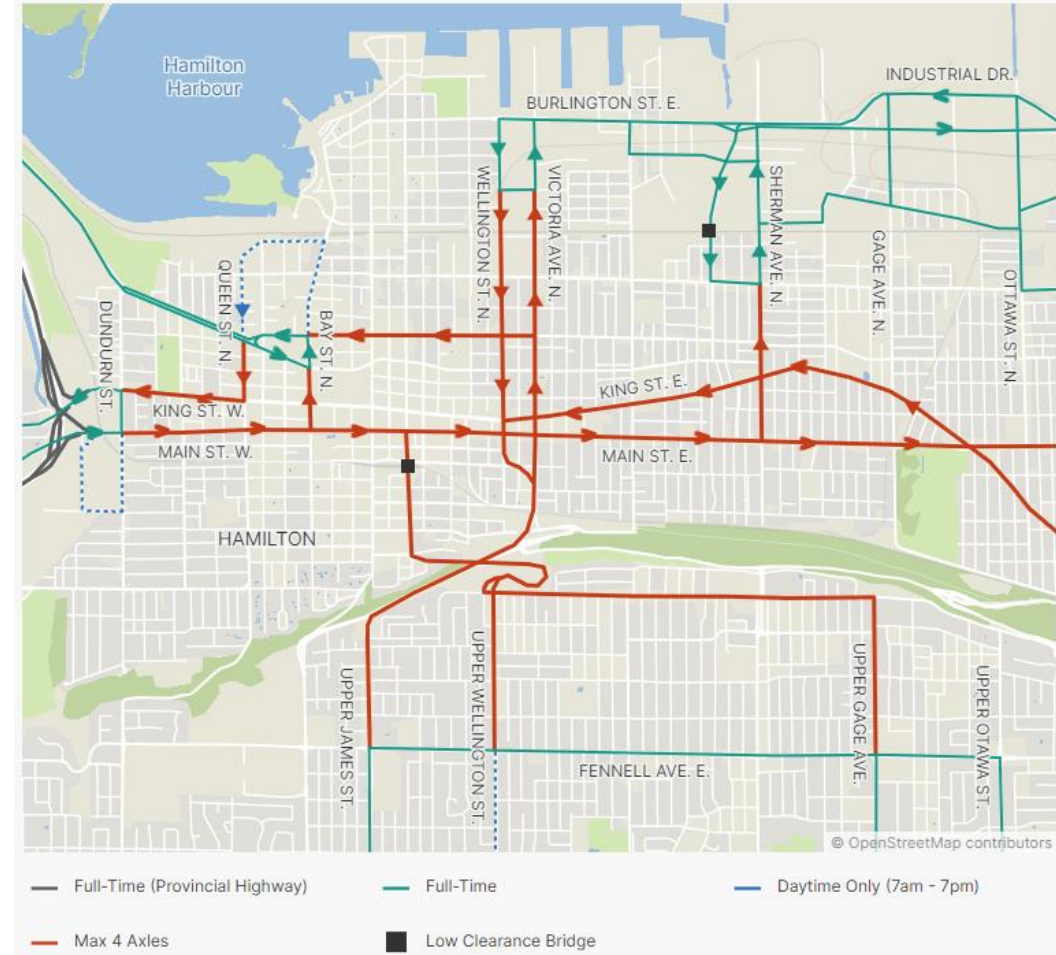
Ambient Noise Monitoring

Noise sensors placed on existing and new commercial truck routes to measure ambient noise levels.

Impact Monitoring & Reporting

Data collected by sensors will be used to establish a baseline prior to implementation of the ban. Continuous monitoring throughout the initiative will support before and after impact assessments.

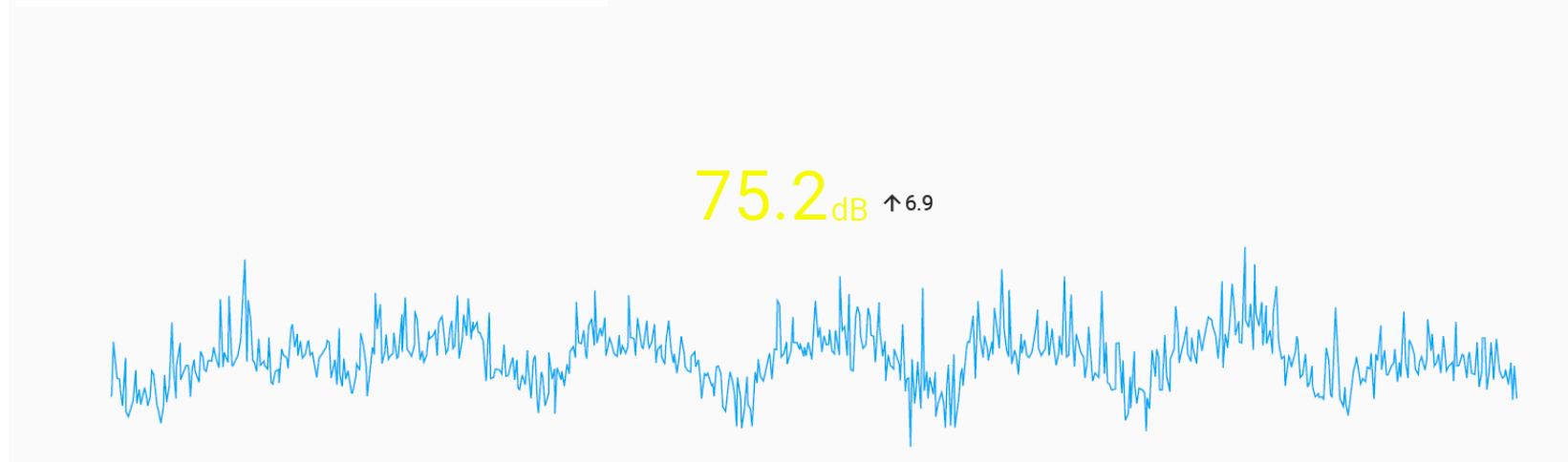
New Truck Routes



TRUCK ROUTING IMPACTS

MAC Address	Weighting	Threshold	Min LEQ	Max LEQ ↓	Avg LEQ
F8A188305000000D	1	150 dB	42.8 dB	99.8 dB	67.79 dB
F8A188305000000E	1	150 dB	40.2 dB	99.3 dB	68.76 dB
F8A18830500000018	1	150 dB	44.2 dB	98.3 dB	57.76 dB
F8A1883050000001E	1	150 dB	36.5 dB	97.2 dB	62.11 dB
F8A18830500000017	1	150 dB	38.5 dB	96.2 dB	59.22 dB
F8A1883050000001B	1	150 dB	32.9 dB	95.9 dB	62.71 dB
F8A1883050000001A	1	150 dB	43.2 dB	95.8 dB	61.47 dB

Peak Noise Trend



PUBLIC PARK MONITORING

Video Sensors

Placed in public spaces, such as parks, sports fields or storage facilities to support asset monitoring and community safety.

Post Incident Investigation

Passive monitoring to remotely extract video for incident investigation and deterrence.



"I really like the two viewpoint from one camera. Ease and speed of installation was great."

– Director of Parks and Recreation

PARK LIGHTING: AFTER HOURS DIMMING

Lighting Control

Using cellular lighting controllers in public parks to program lighting schedules.

After Hours Dimming

Intention is to deter late-night use of municipal-owned facilities, such as ice rinks and courts, to reduce community noise complaints.



“We have been looking for a solution like this for a very long time.”

– Director of Parks and Recreation



Thank You

ANY QUESTIONS?