“...Kids born today will never get to drive a car”

- Henrik Christensen
65% OF U.S. ROADS ARE IN POOR CONDITION
Labor Intensive
Subjective
Time Consuming
Partial Coverage
StreetScan launched as a spin off from Northeastern U. on 03/2015.

- **3 Patents Awarded** on 06/2016.
- **2 CT Municipalities Completed:**
  - Somers, CT - 2018
  - New Milford, CT - 2017

- **Start-up program** selected by Esri on 03/2009.
- **Partnership with CCM** in 2017.
- **60+ Cities in 10 states & 2 Countries** in 2018.

- **Streetlogix Software Launch** in 2017.

- **Providence, RI** – 800 Miles / 10,000 Ramps
- **Braintree, MA** – 200 Miles
- **Brockton, MA** – 75 Miles
- **Haverhill, MA** – 200 Miles
Smart City Asset Management

STEP 1: DATA COLLECTION

ScanVan

3D Imaging  Surface Radar  Video/Imagery

HIGHLY AUTOMATED
Surface Radar Array – SR-5

- Sensor Height: 14 inch
- Sampling Rate: 200 kHz
- Channels: 5 (10-20 on next van)
- Measures Reflectivity and Range
- Provides pavement distress rating
- Patent Pending
Automated Crack Detection Algorithm
Pavement Condition Index (PCI)

Smart City Mobile Sensing Services

STEP 1: DATA COLLECTION PLATFORMS
- ROADS / PARKING LOTS
  - Video
  - Surface Radar
- SIDEWALKS / PATHWAYS
  - 3D Imaging

STEP 2: ASSET EXTRACTION AND CONDITION ANALYSIS
- Vertically Integrated
- Control of Data
- Flexibility

HIGHLY AUTOMATED
- PAVEMENT MANAGEMENT
- SIDEWALKS / ADA RAMPS
- PAVEMENT MARKINGS
- STREET LIGHTS
- TREES
- TRAFFIC LIGHTS
- ENVIRONMENTAL DATA
- UTILITY ASSETS
- TRAFFIC SIGNAGE
- STREET LIGHT LEVELS
- 360 IMAGERY
Sidewalk Inspection Systems

Using three platforms to cover any sidewalk width using the same sensing systems: GPS, 3D imaging, video, and IMU.

- **Handheld Platform for smallest spaces**
- **T3 Platform for wide sidewalks**
- **Stroller Platform for narrow sidewalks**
Sidewalk Visualization Examples
ADA Ramps
SOFTWARE DEMO

- City of Providence
  - Roads/Ramps/Sidewalks
- City of Portland
  - Traffic Signs/Pavement Markings
Software Integration

Advanced Analytics & Hosting Imagery

- Run multiple scenarios & push results to Central Database
- If not available, StreetScan will set up a central database for all systems to communicate seamlessly
- Based on the Municipalities asset management platforms, StreetScan outputs will be converted to integrate

Asset Management Platform

Central Database

Work Order System
PAVEMENT/SIDEWALK MANAGEMENT REPORT

PCI DISTRIBUTION

COST ASSUMPTIONS (CLIENT PROVIDED)

<table>
<thead>
<tr>
<th>Repair Type</th>
<th>Unit Cost (per square feet)</th>
<th>Total Cost per square feet (With Contingency and Police Costs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reclamation</td>
<td>$ 6.67</td>
<td>$ 12.67</td>
</tr>
<tr>
<td>Rehabilitation (Mill &amp; Overlay)</td>
<td>$ 3.75</td>
<td>$ 6.38</td>
</tr>
<tr>
<td>Preventive (Crack Seal/Microsurfacing)</td>
<td>$ 0.63</td>
<td>$ 0.73</td>
</tr>
<tr>
<td>Defer Maintenance</td>
<td>$ 0.00</td>
<td>$ 0.00</td>
</tr>
</tbody>
</table>

PROJECTED PCI
PAVEMENT/SIDEWALK MANAGEMENT REPORT

20-YEAR LIFECYCLE COST

![Graph showing 20-year lifecycle cost with data points and cost values for different years.](image)
Complete Smart City Asset Management Platform

- Pavement Management
- Sidewalk Management
- Work Order Management System
- Traffic Sign Management
- Street Lighting Management
- Pavement Markings Management
- Tree Management
- Air Quality Monitoring
- Smart City Devices

2015-16
2017
2018 +

Bridging the Gap between Conventional Asset Management Software and Smart City IoT
QUESTIONS?

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