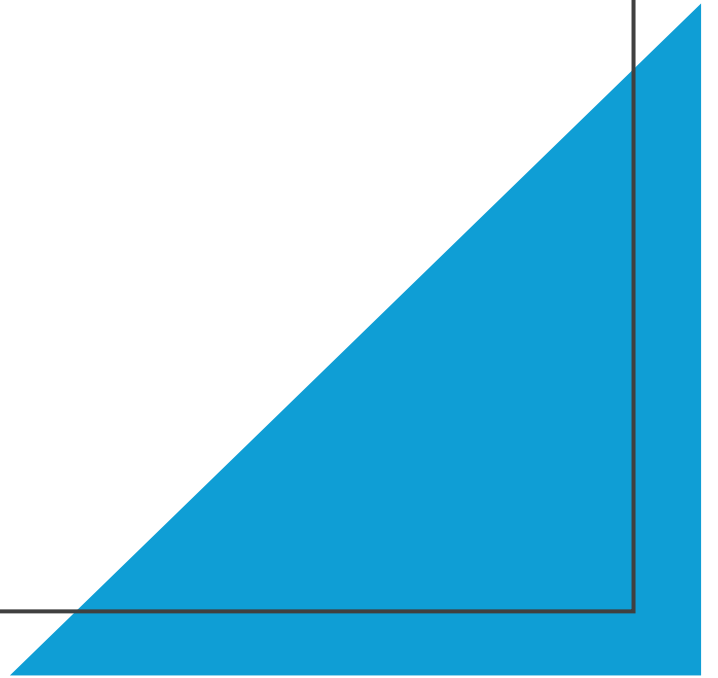


Asset Management Needs AI Support

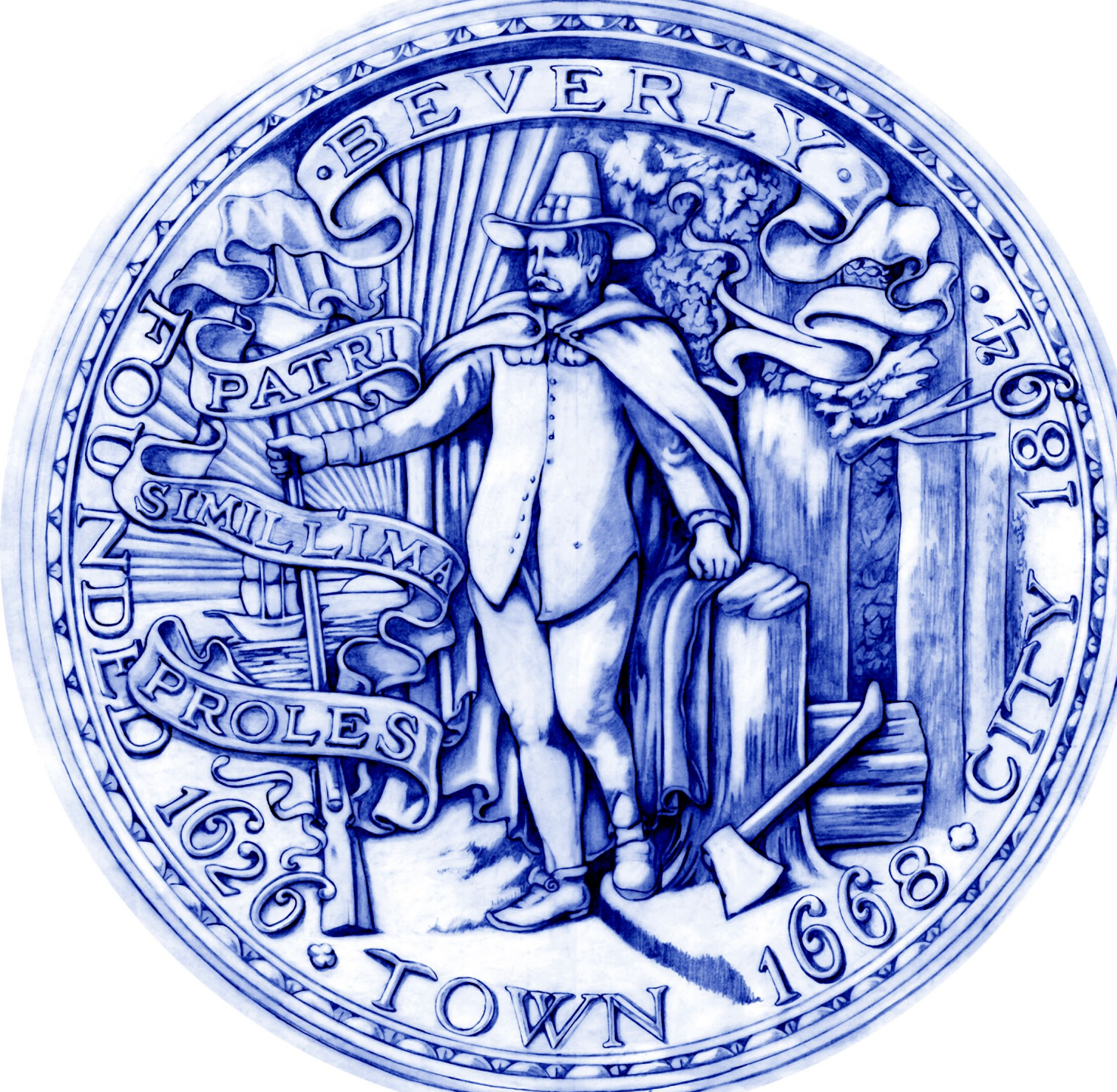
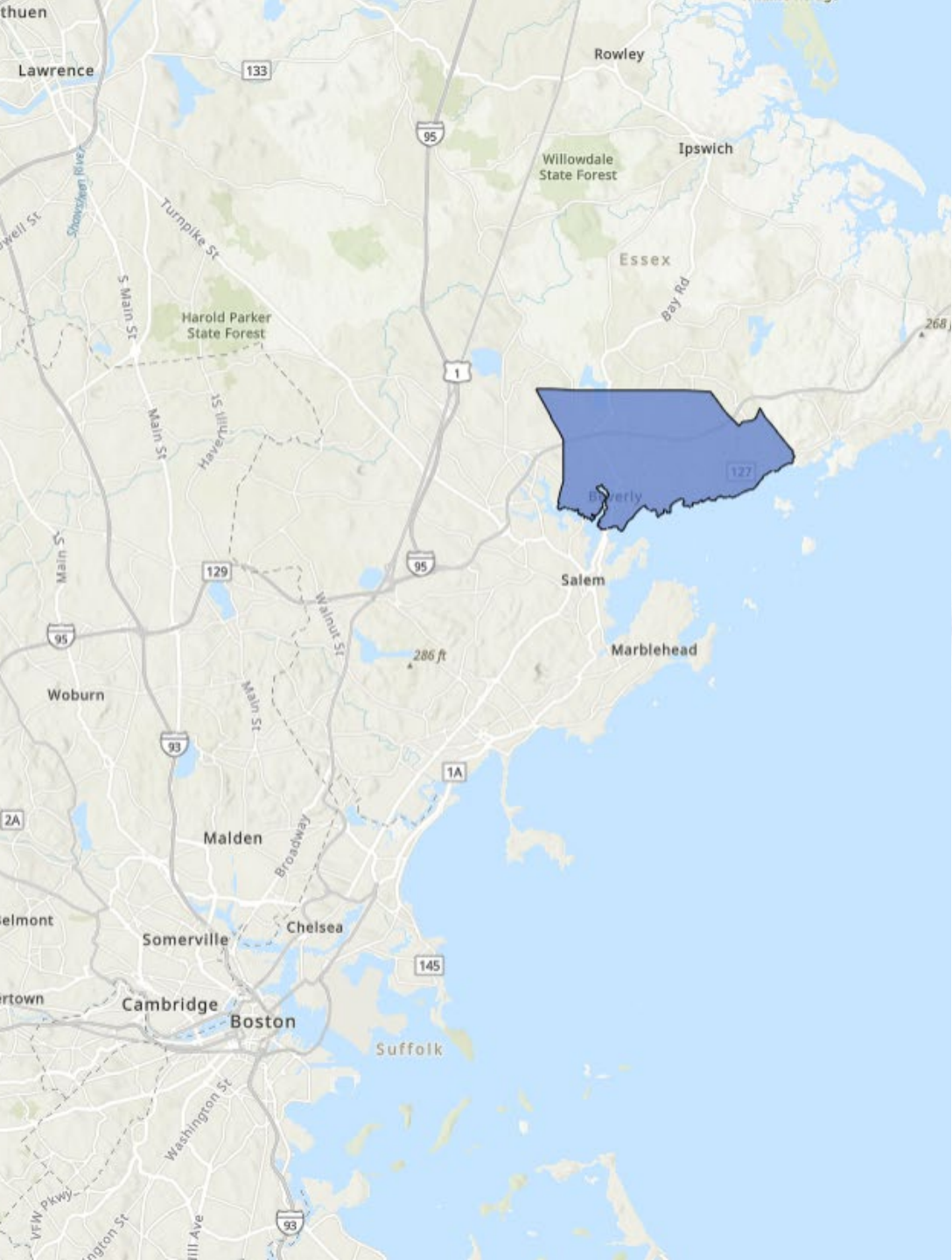
- Perspective
- Lessons Learned
- Get AI Ready
- Form Strategic Partnerships
- Execute the Plan
- Practical Examples



Where are You in Your Asset Management Journey?

- Informal vs Formal Asset Management Process
- Beverly Currently in 5th Year of a FORMALIZED Plan
 - 120 Distinct & Identified Steps in the plan.

[illegible]





Persepctive

- Labor/Workforce
- Technical/Engineering/Design
- Politics
- Operations
- Accountability
- Regulatory Responsibility
- Environmental Stewardship
- Legal/Risk Mitigation

Municipal Challenges

- Turnover / Legacy Knowledge
- Financial Hardship
- Limited Talent Pools
- Non-Competitive Wages

Enterprise Level Thinking

- Break Down the Barriers – Horizontal and Vertical

Open the *Government* page

Executive Office

Office of the Mayor
Constituent Services
Diversity, Equity & Inclusion and Belonging
Grants Office
Sustainability Office

City Council

Directory of Elected Officials

Departments A through K

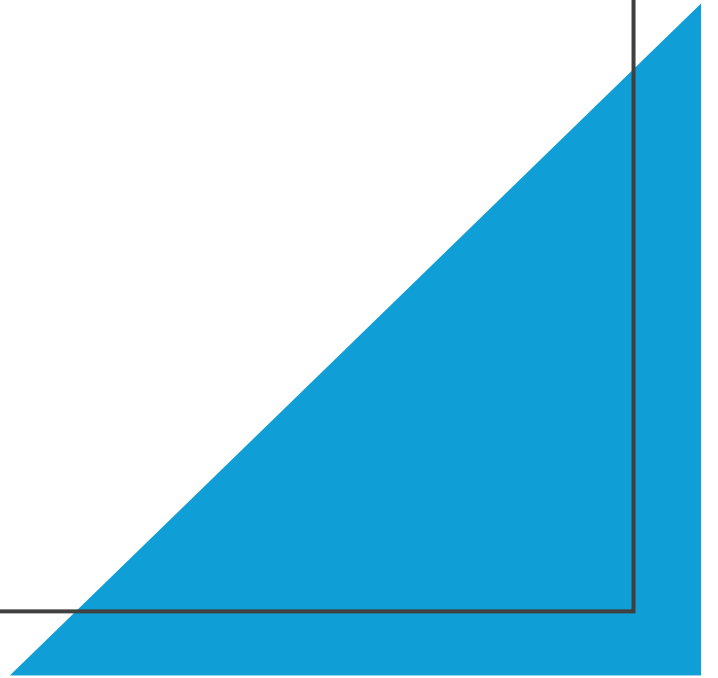
Americans with Disabilities Act (ADA) Office
Animal Control
Cemetery Department
City Accountant
City Assessors
City Clerk
City Solicitor
Collector of Taxes
Council on Aging
Emergency Management
Engineering
Finance
Fire
Grants Office
Harbor Master
Health Department
Human Resources

Departments L through Z

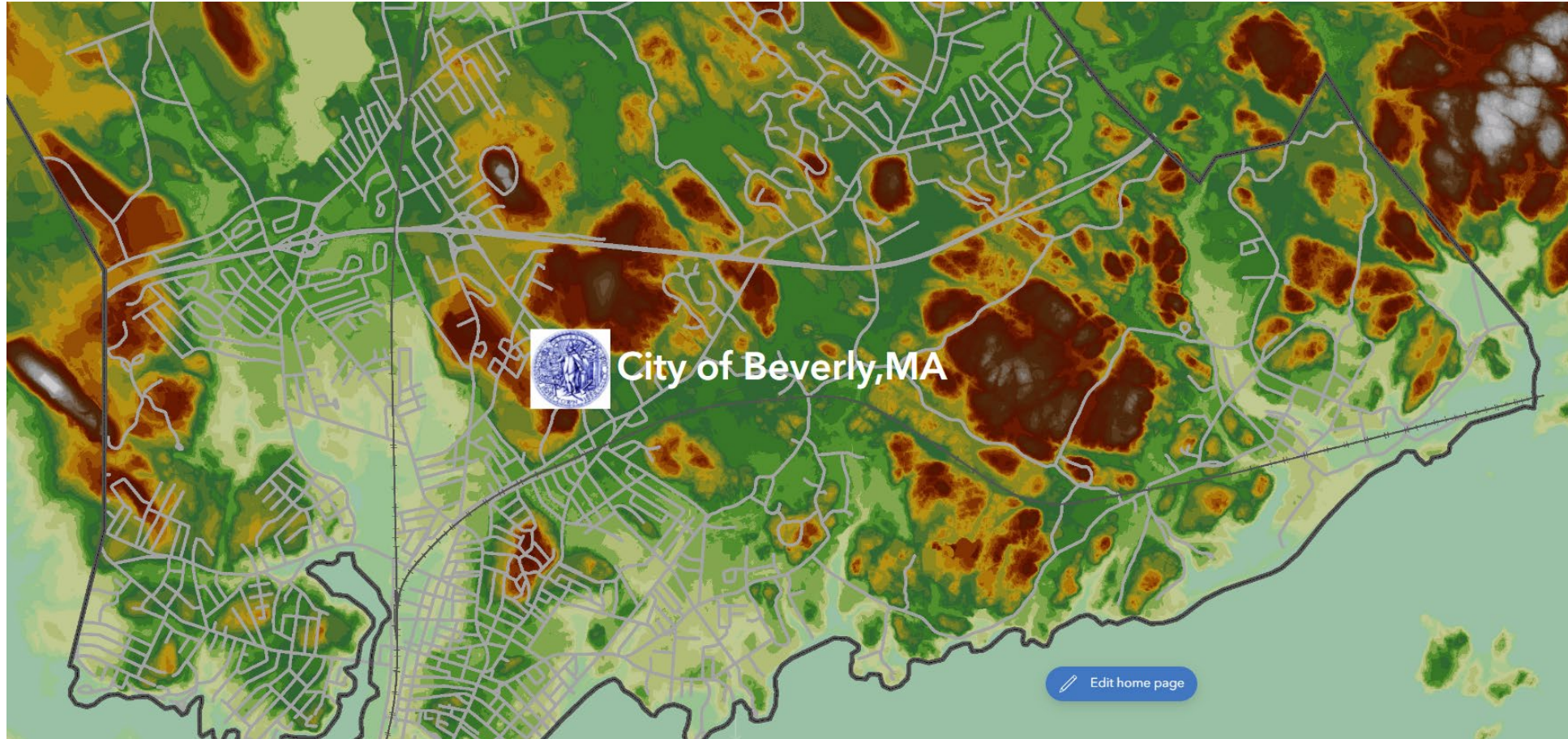
Library
Municipal Airport
Municipal Inspections / Building Department
Parks & Recreation
Planning Department
Police
Procurement (Purchasing)
Public Services
Schools
Sustainability
Solid Waste and Recycling
Veterans' Services

Enterprise Asset Managment

- For the benefit of our communities
- Future workforce development
- Outside Agency Reporting
- Capital Planning
- Many other benefits – wide ranging audiences



Visually Demonstrated Data



Build Your DATA CENTER

OpenGov

Asset Management

Home

Dashboard

Resources

Reports

Administration

Switch to the Classic UI

Search

Create Asset

16

EB

Search Address or Record

Map

Layers

Back

Filter Layers

All Layers Off

Tasks

Requests

Assets

Work Orders

Task Not Greased 143

Task 2026 Paving Tasks 76

Task My Tasks 80

Task Hydrants - DID NOT FLUSH 2

Task Hydrants - Pump Out List 7

Task Hydrants - Flushing Complete 147

Task Hydrants - In Progress 1,088

Tasks 1,168

Assets 0

Work Orders 26

Show Selected

Tasks of 0 Total Records

Map Filter Off

Sort

Actions

	Task ID	Entry Date	Asset	Activity	Instructions	Proximi...
	24412	05/18/2026 01:28 PM	Water Hydrant 936	Flush		- mi
	24399	05/18/2026 01:12 PM	Water Hydrant 1505	Flush		- mi
	20861	05/12/2026 03:54 PM	Water Hydrant 994	Flush		- mi

Data Integrity



Garbage In – Garbage Out



Reliability & Accuracy Is Critical

Enterprise level buy-in

Accurate Reporting

Accurate Planning

Efficient Operations



GIS Investment

- Hit it From all Angles
 - Positions
 - Specialists
 - Engineering/Design Consultants
 - Capital Project

Build your business and process with GIS in mind EVERY SINGLE STEP



Someone NEEDS to be the CHAMPION

- GIS Role?
 - Project Manager?
 - Who is your program administrator?
 - Who can DRIVE this THROUGH the organization?
-

[Solutions](#)[Case Studies](#)[News](#)[About Us](#)[Login](#)[Talk to our team →](#)

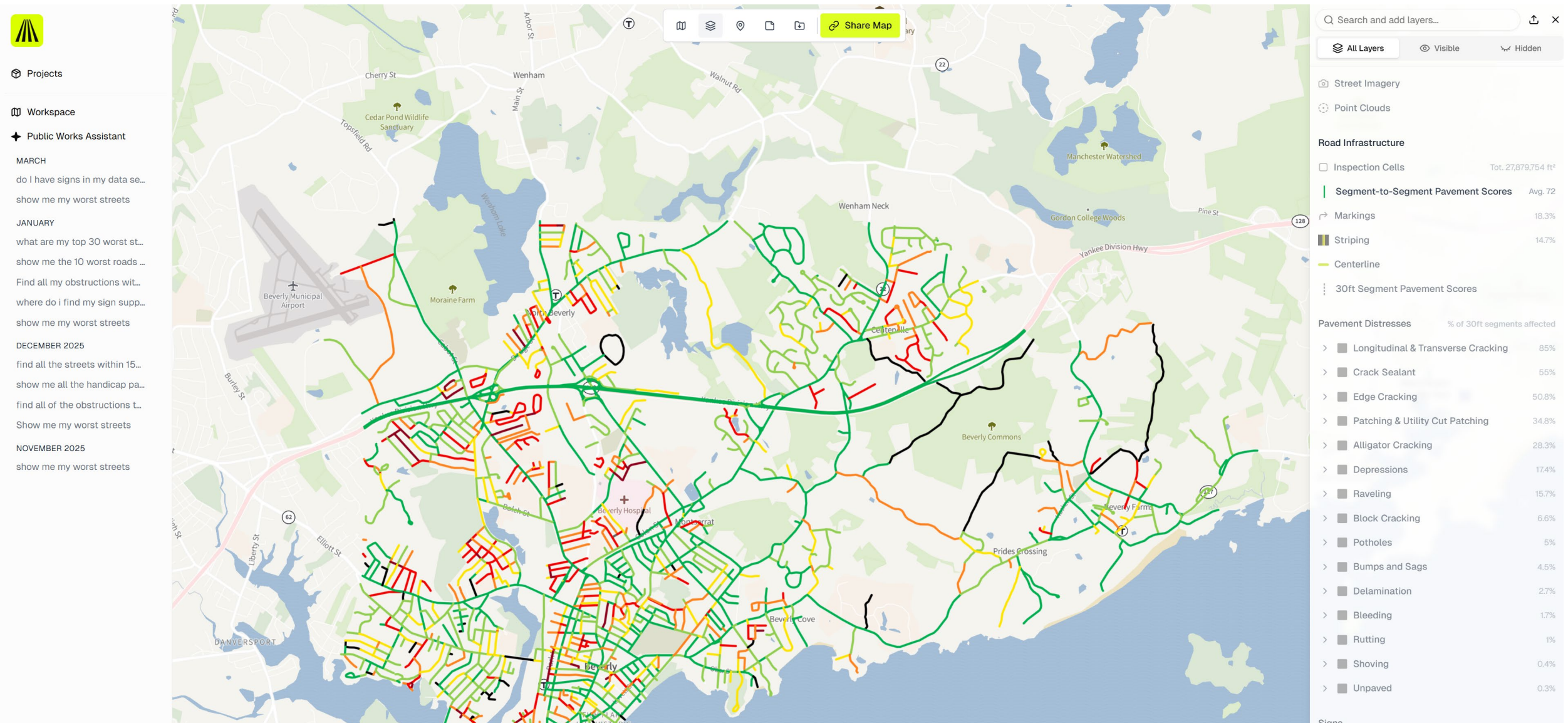
See your city. Act before it fails.

Boston, Buffalo, New York, Nashville, Atlanta, Green Bay, and 700+ other cities run their streets with CYVL – the single source of truth for every road, sidewalk, sign, and asset they own.

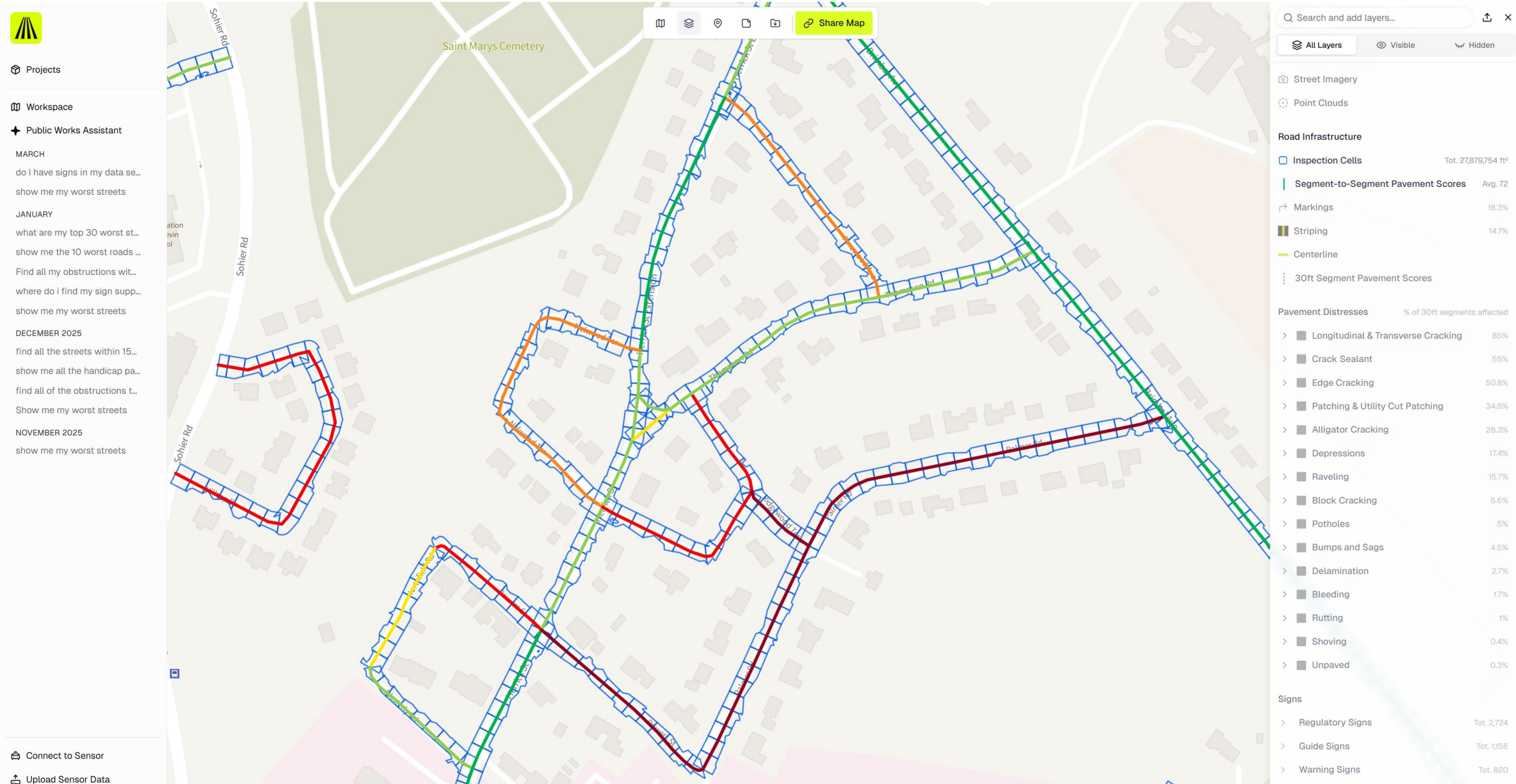
[Enter interactive demo →](#)A background image showing a group of people in a meeting, with a semi-transparent white banner overlaid. The banner contains the text "Strategic Partnership - Cyvl".

Strategic Partnership - Cyvl

Condition Indexing – PCI to Street Centerline



Condition Cells



Condition & Deficiency Mapping

Map Interface Elements:

- Top Bar: Map, Layers, Location, Document, Folder icons, and a **Share Map** button.
- Search Bar: Search and add layers...
- Layer Controls: All Layers, Visible, Hidden.

Defect Details Panel (Alligator Cracking):

Alligator Cracking ✕

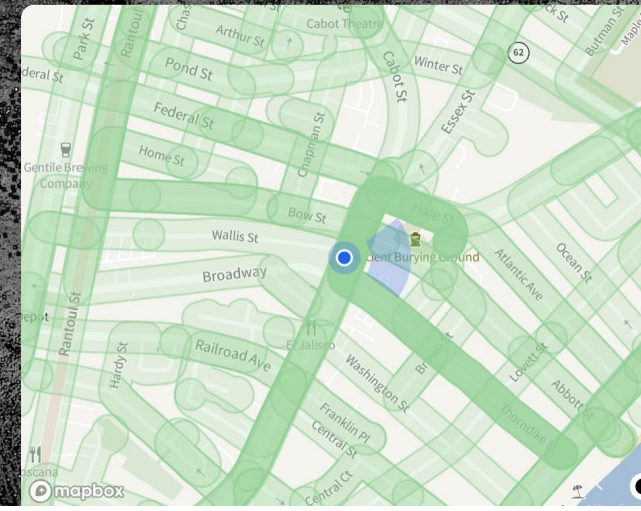
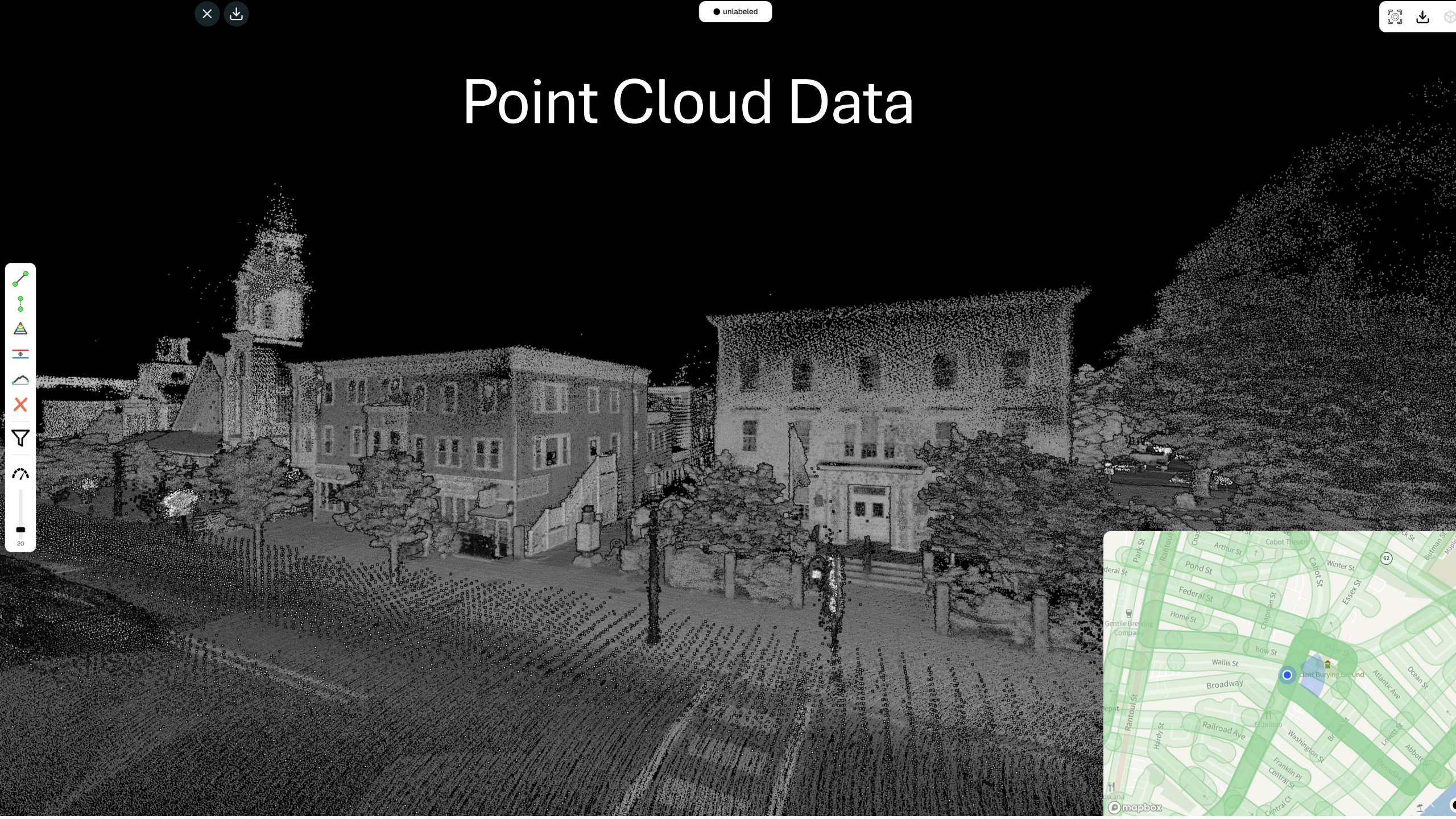
Pavement Distresses

Type	Alligator Cracking
Severity	Medium
Area	183.6 ft ²
Length	214 ft

Defect List:

>	Depressions	17.4%
>	Raveling	15.7%
>	Block Cracking	6.6%
>	Potholes	5%
>	Bumps and Sags	4.5%
>	Delamination	2.7%
>	Bleeding	1.7%
>	Rutting	1%
>	Shoving	0.4%

Point Cloud Data



Extracting Assets



Projects

Workspace

Public Works Assistant

MARCH

do I have signs in my data se...

show me my worst streets

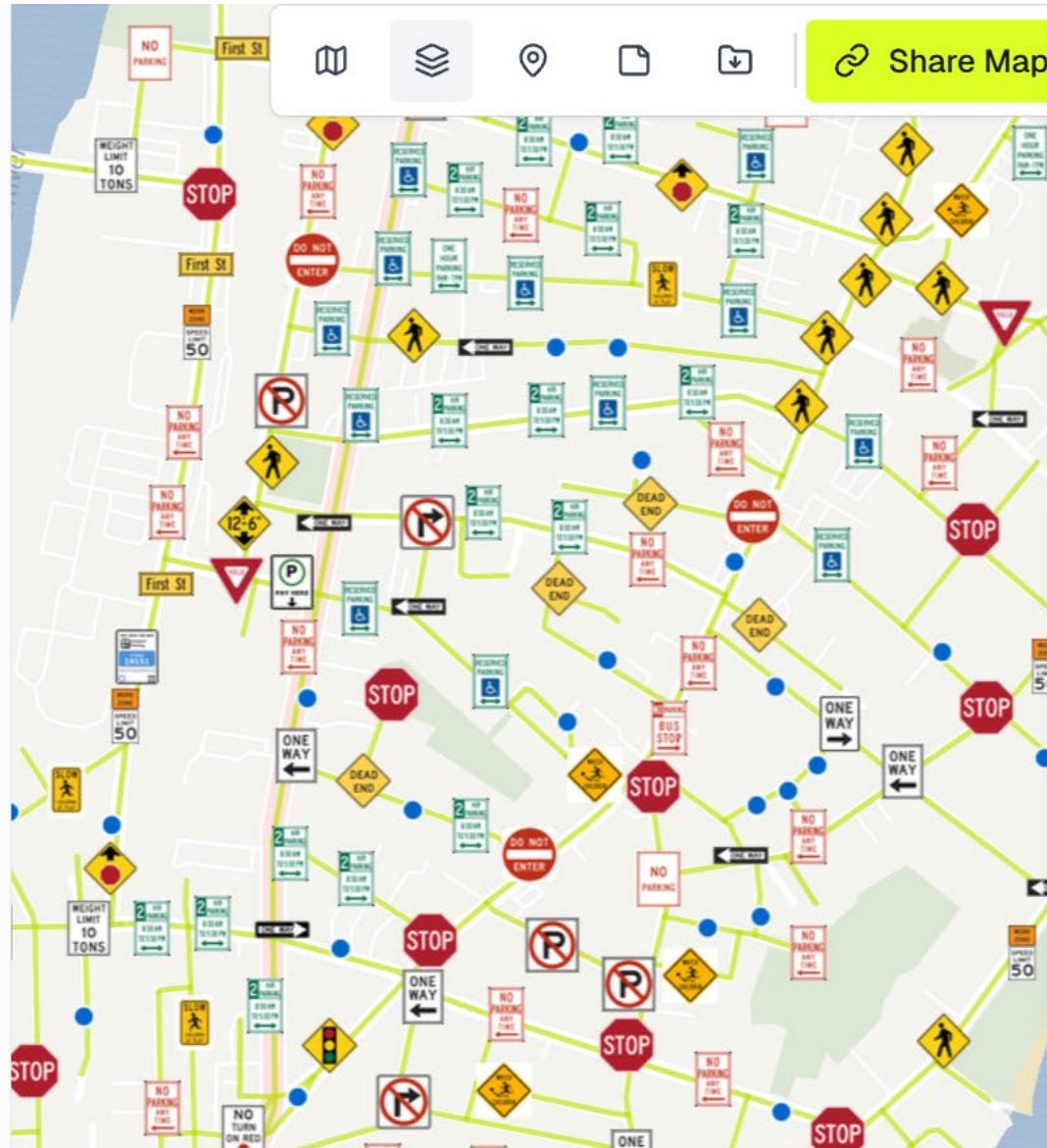
Connect to Sensor

Upload Sensor Data

Request Support



ebarber
ebarber@beverlyma.gov



Search and add layers...

All Layers

Visible

Hidden

Signs

> Regulatory Signs	Tot. 2,724
> Guide Signs	Tot. 1,156
> Warning Signs	Tot. 820
> Other Signs	Tot. 463
> Parking signs in the City of Beverly, MA	Tot. 386
> Marker Signs	Tot. 82
> School Signs	Tot. 77
> Other-mutcd	

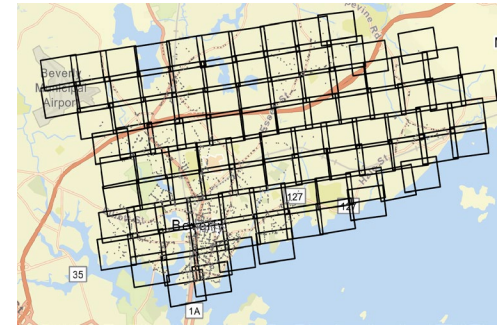
CYVL Data Integration

Asset ID for Parent/Child Relationships



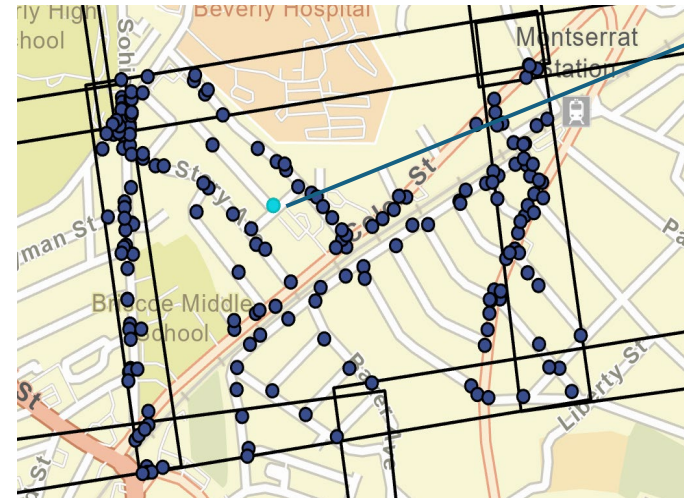
Signs, and many other assets, can have one-to-many relationships with other assets. Here, we have three signs on one sign pole. The signs and the pole are also related to the street centerline, the crosswalk, the curb and, possibly, nearby addresses.

To manage these relationships we developed a unique asset ID for each asset class.



The City has 98 tax maps throughout the city. We used map numbers as one feature in our asset ID. With this, we have a general idea where the asset lies in the city just from it's asset ID.

Map 31 Signs



Asset ID: STRCSN-310148

Associated Centerline ID: STRCTL-310026

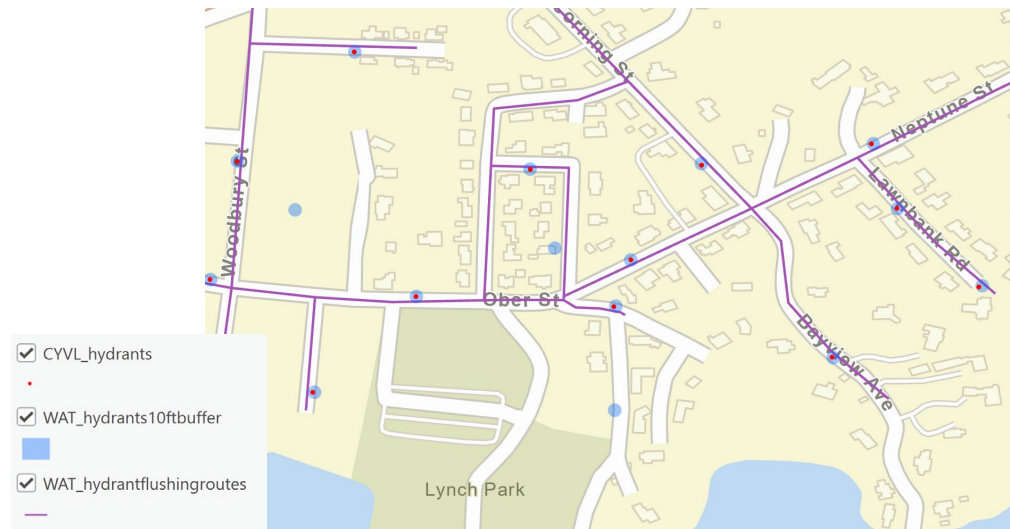
For this sign in Map 31, the ID begins with our asset code for signs: STR for the general street asset class, CSN for signs, then map number followed by a sequential number.

CYVL Data Integration

QC Process for two asset classes, hydrants and signs

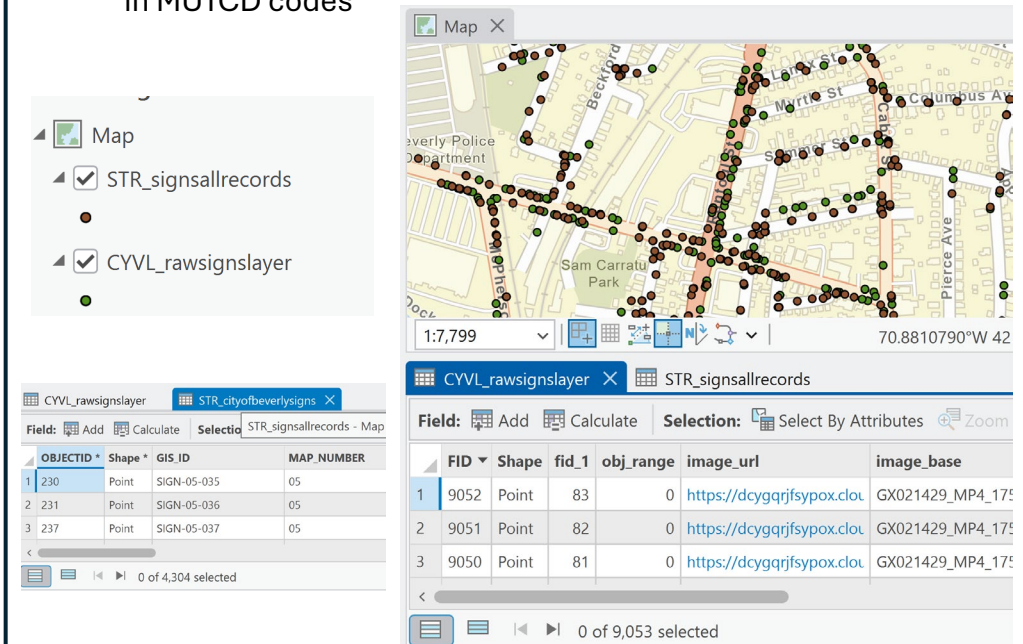
Hydrants

- Only 28 features that are 'new' or not co-located (within 10 feet)
- Did an excellent job improving the location of City owned hydrants that are on our main flushing routes
- CYVL data does not include hydrants on private roads
- Image URL was available to join for 968 hydrants, excellent for our flushing crews



Signs

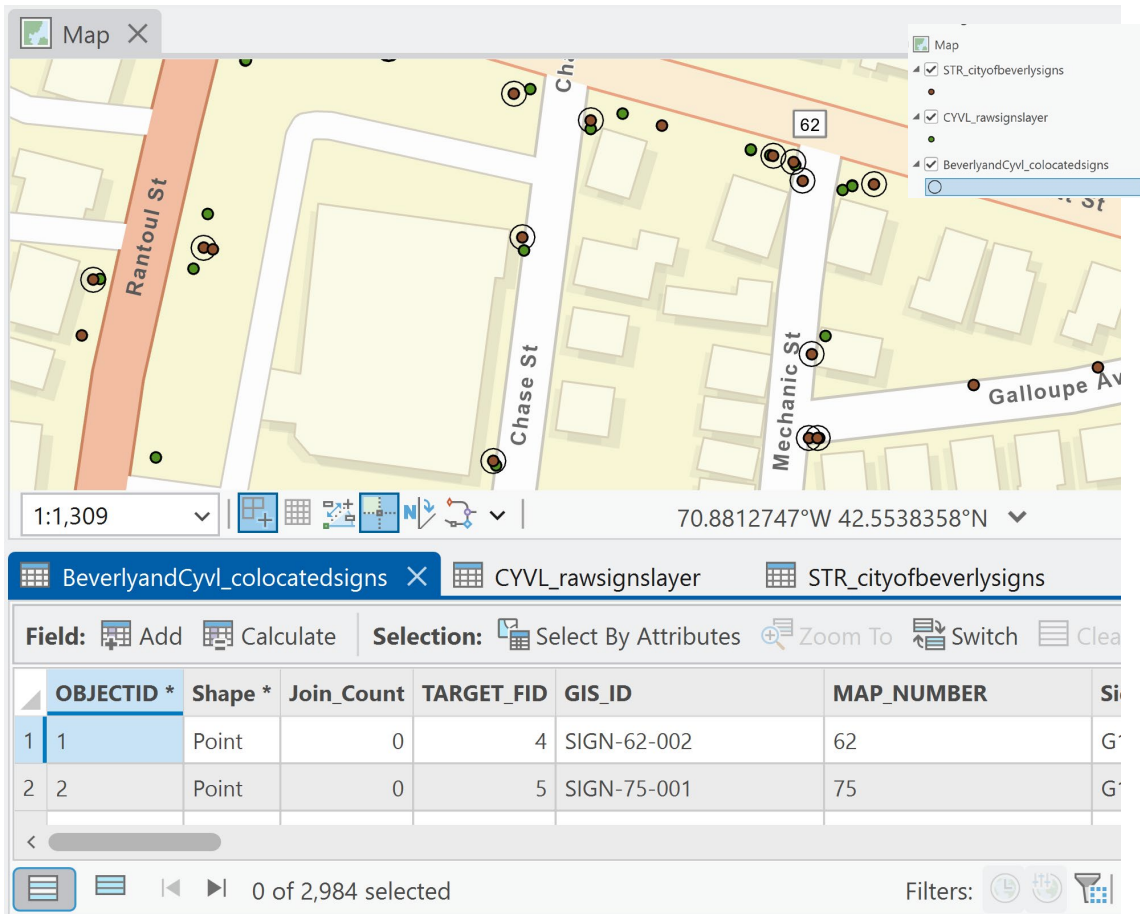
- CYVL captured 9,053 signs; City of Beverly data has 4,304
- We took a stepwise approach to QC, starting with discrepancies in MUTCD codes



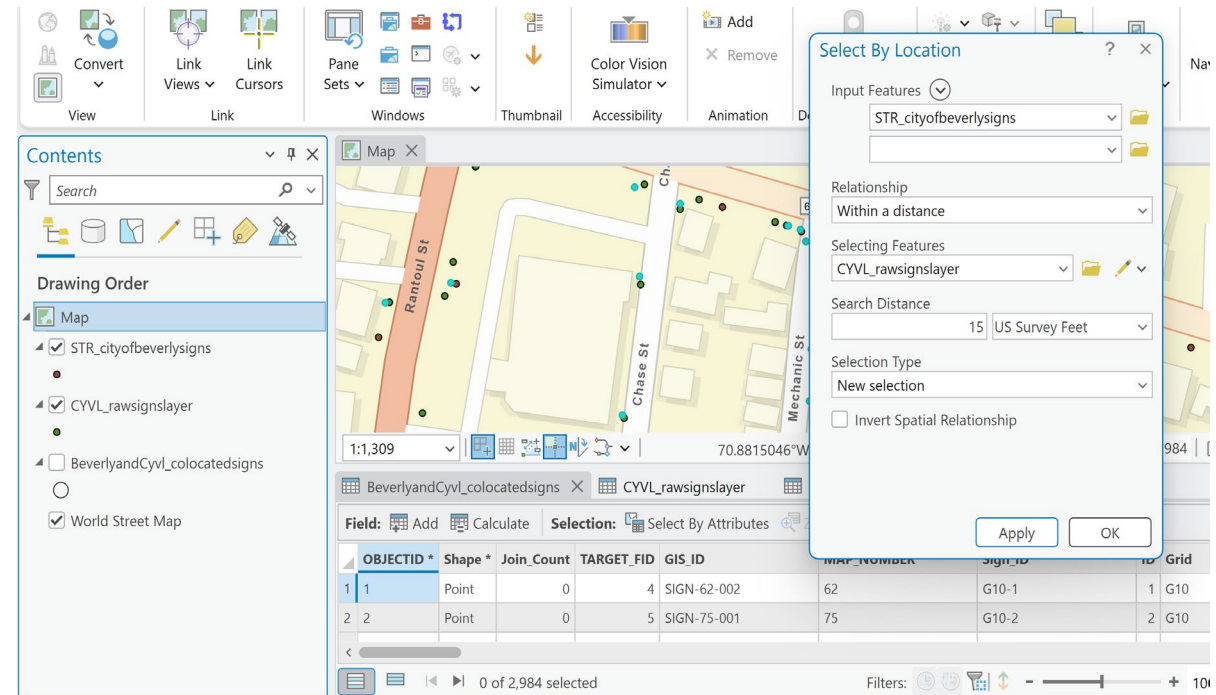
CYVL Data Integration

Discrepancies in Sign Type (MUTCD) Codes

Our goal was to provide CYVL with a list of discrepancies in MUTCD codes developed from a sample of co-located signs.



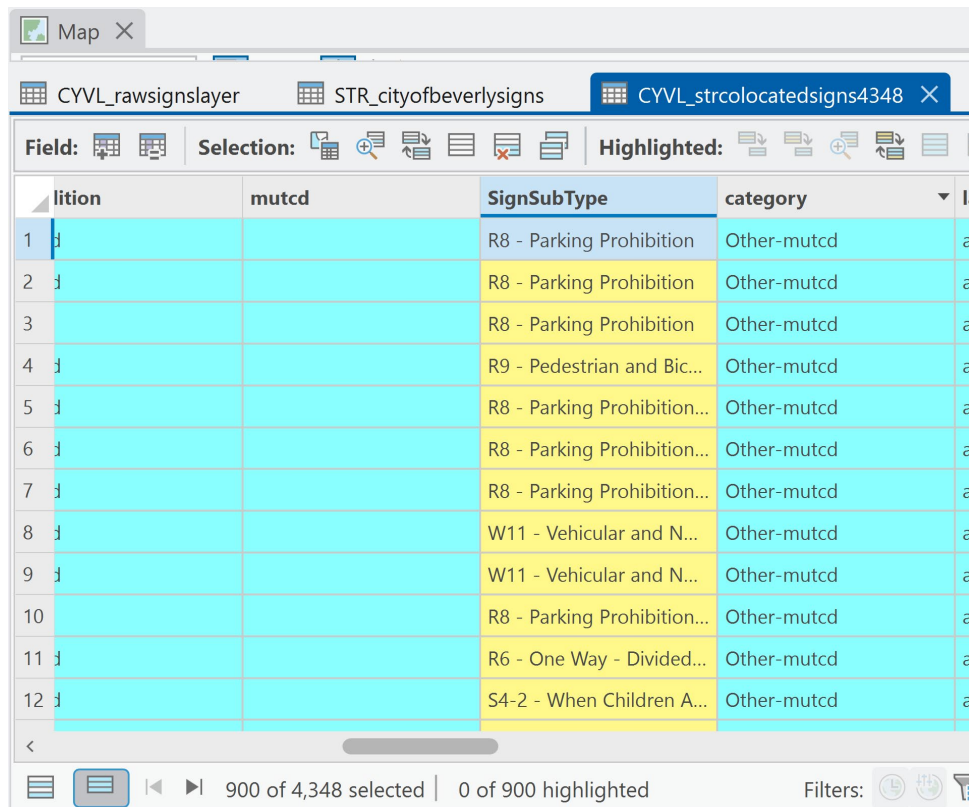
- To generate a sample of co-located signs, we used 'select by location' to capture signs in both layers that are within 15' of each other
- That selection resulted in a set of 2,984 signs from which we created a working layer 'BeverlyandCylv_colocatedsigns'



CYVL Data Integration

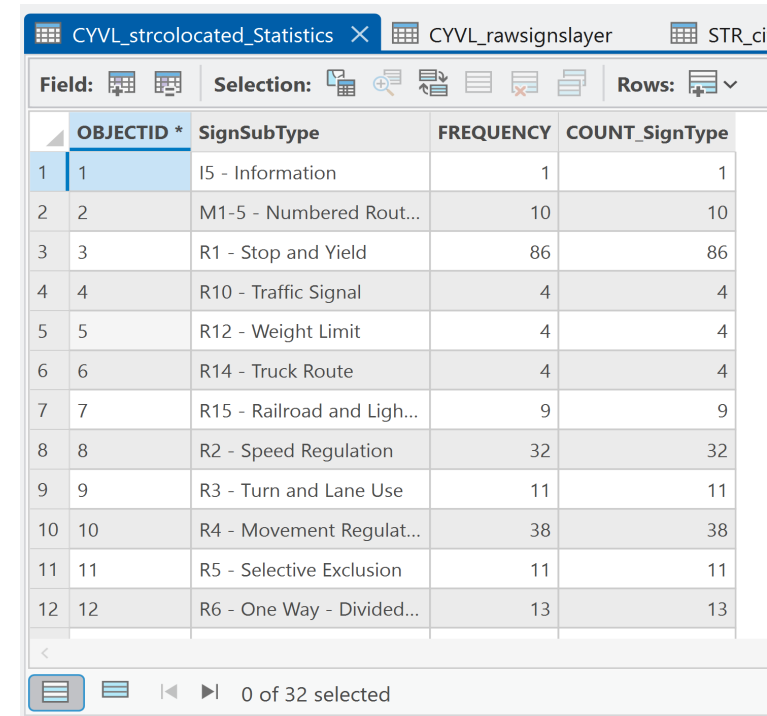
Working with the MUTCD Codes Across Layers

We decided to narrow in on discrepancies with a focus on CYVL's Other-mutcd category, 900 records.



location	mutcd	SignSubType	category	location
1		R8 - Parking Prohibition	Other-mutcd	al
2		R8 - Parking Prohibition	Other-mutcd	al
3		R8 - Parking Prohibition	Other-mutcd	al
4		R9 - Pedestrian and Bic...	Other-mutcd	al
5		R8 - Parking Prohibition...	Other-mutcd	al
6		R8 - Parking Prohibition...	Other-mutcd	al
7		R8 - Parking Prohibition...	Other-mutcd	al
8		W11 - Vehicular and N...	Other-mutcd	al
9		W11 - Vehicular and N...	Other-mutcd	al
10		R8 - Parking Prohibition...	Other-mutcd	al
11		R6 - One Way - Divided...	Other-mutcd	al
12		S4-2 - When Children A...	Other-mutcd	al

Of the records coded as 'Other-mutcd' by CYVL, we found that the City had 32 different MUTCD codes and no null values. Therefore, we had a great list to start researching discrepancies.



OBJECTID *	SignSubType	FREQUENCY	COUNT_SignType
1	I5 - Information	1	1
2	M1-5 - Numbered Rout...	10	10
3	R1 - Stop and Yield	86	86
4	R10 - Traffic Signal	4	4
5	R12 - Weight Limit	4	4
6	R14 - Truck Route	4	4
7	R15 - Railroad and Ligh...	9	9
8	R2 - Speed Regulation	32	32
9	R3 - Turn and Lane Use	11	11
10	R4 - Movement Regulat...	38	38
11	R5 - Selective Exclusion	11	11
12	R6 - One Way - Divided...	13	13

CYVL Data Integration

Examples of Discrepancies

Custom Beverly signs. This is an example of our parking signs that are always in two groups of two. CYVL has now created a custom reclass of these signs so they will no longer be coded as 'Other-mutcd' in future scans.

- CYVL feature ID: 100671

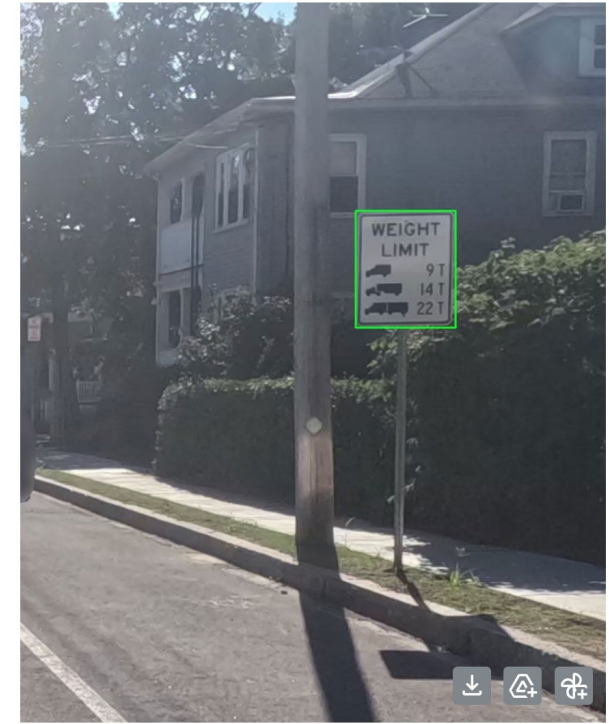


Identical signs mis-classified by CYVL. They have updated their classification so these will be resolved in future scans.

Classified by CYVL at 'Other-mutcd'
CYVL feature ID: 100424



Classified by CYVL as 'R12'
CYVL feature ID: 100126





“Real Time” As-Builts

- Paving Project Progress
 - Roadway Construction
 - “As-Built” asset locations
 - GIS Updates
 - Better reporting/more accurate to current conditions.
-