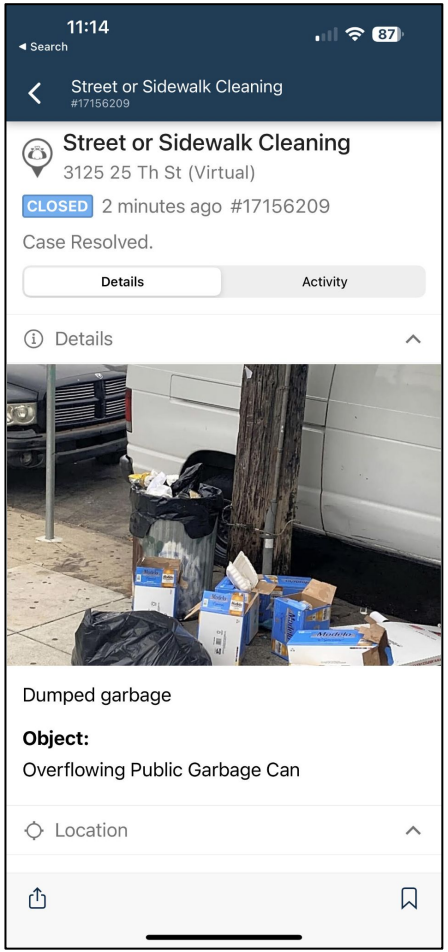
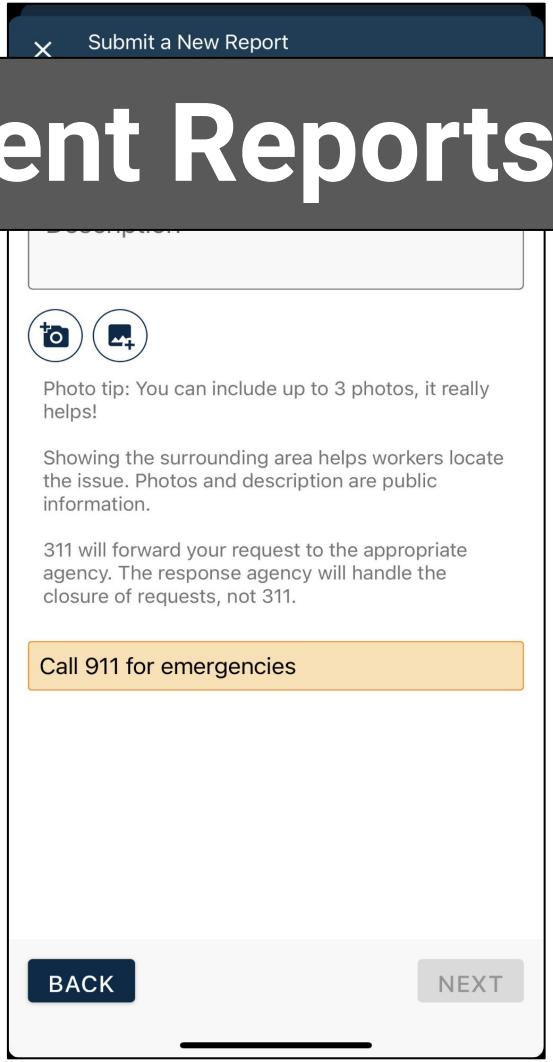
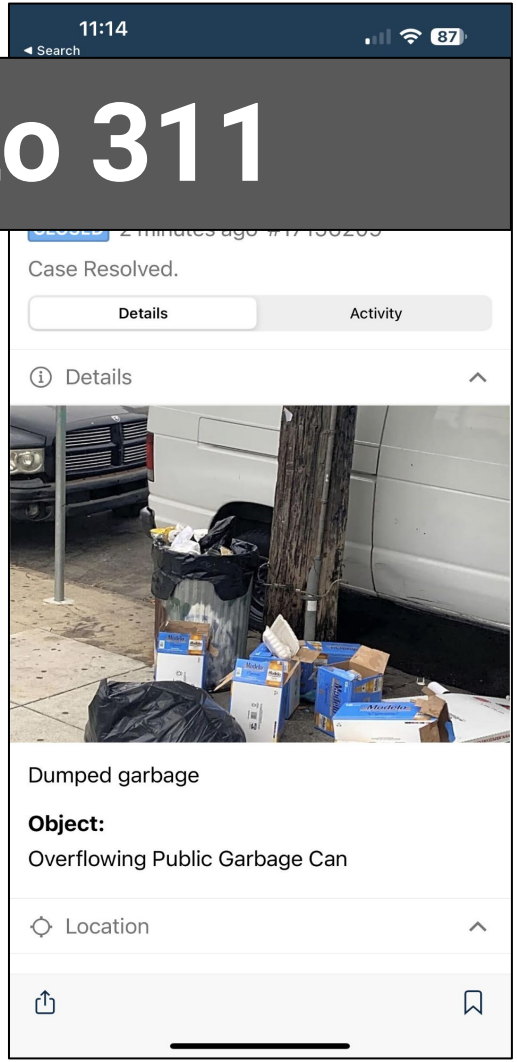
Cities Serving Equitably with AI/Drones

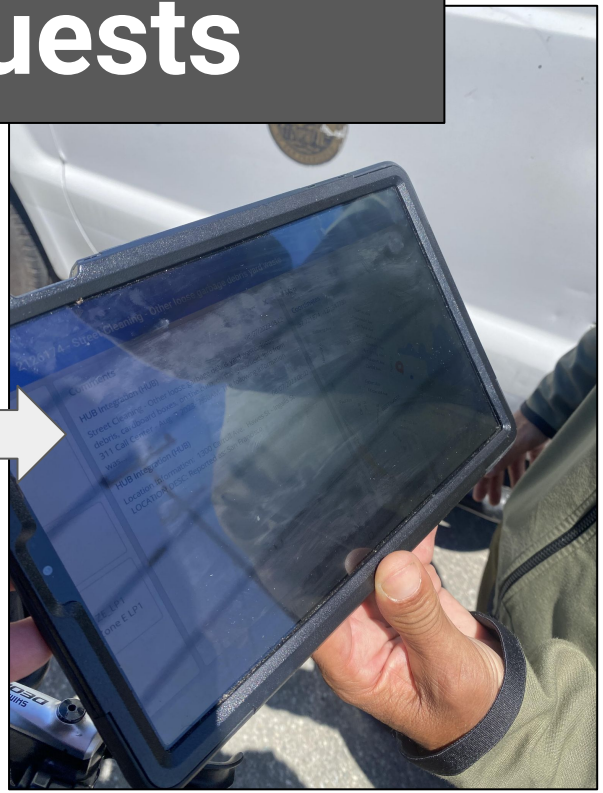


1 Resident Reports to 311





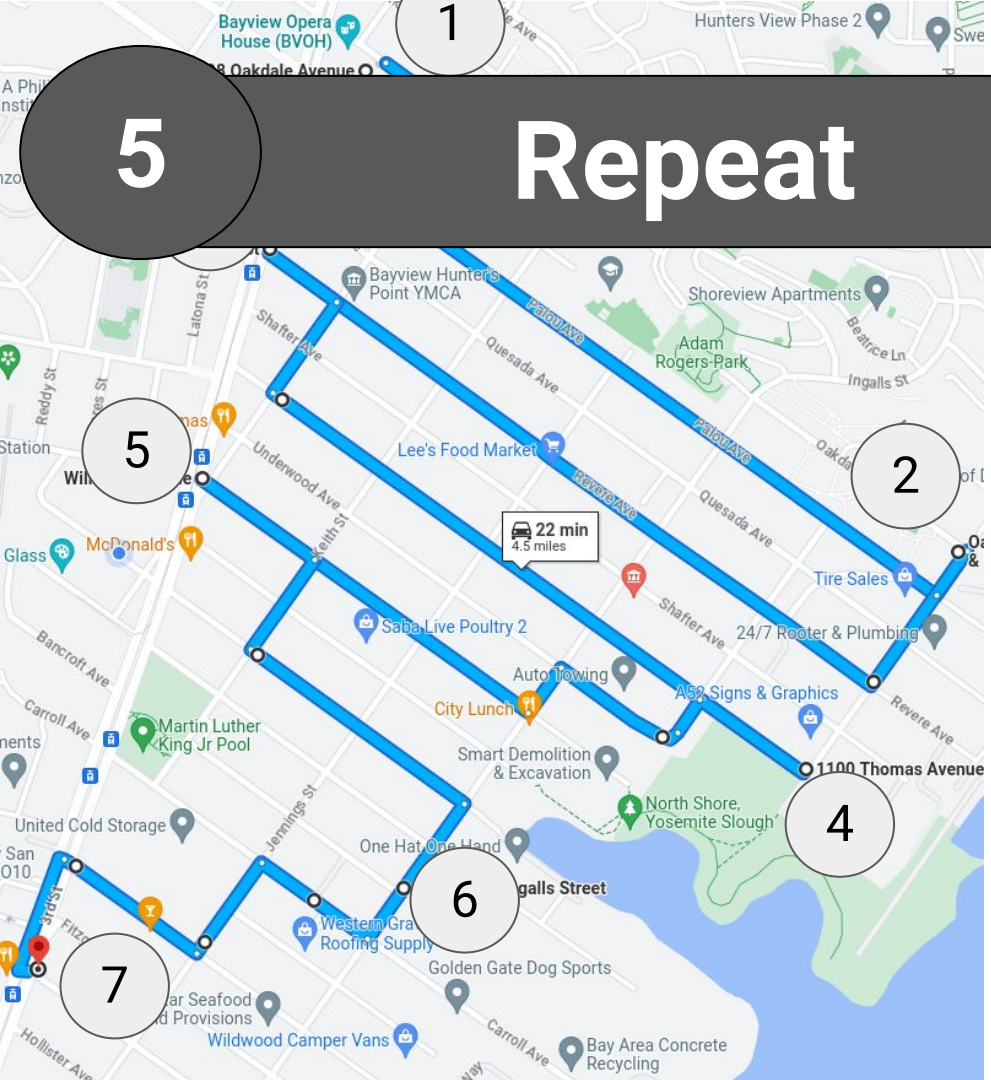
2 311 Routes Requests



3 DPW Assess Site

4 Deposit at Processing Center

5 Repeat

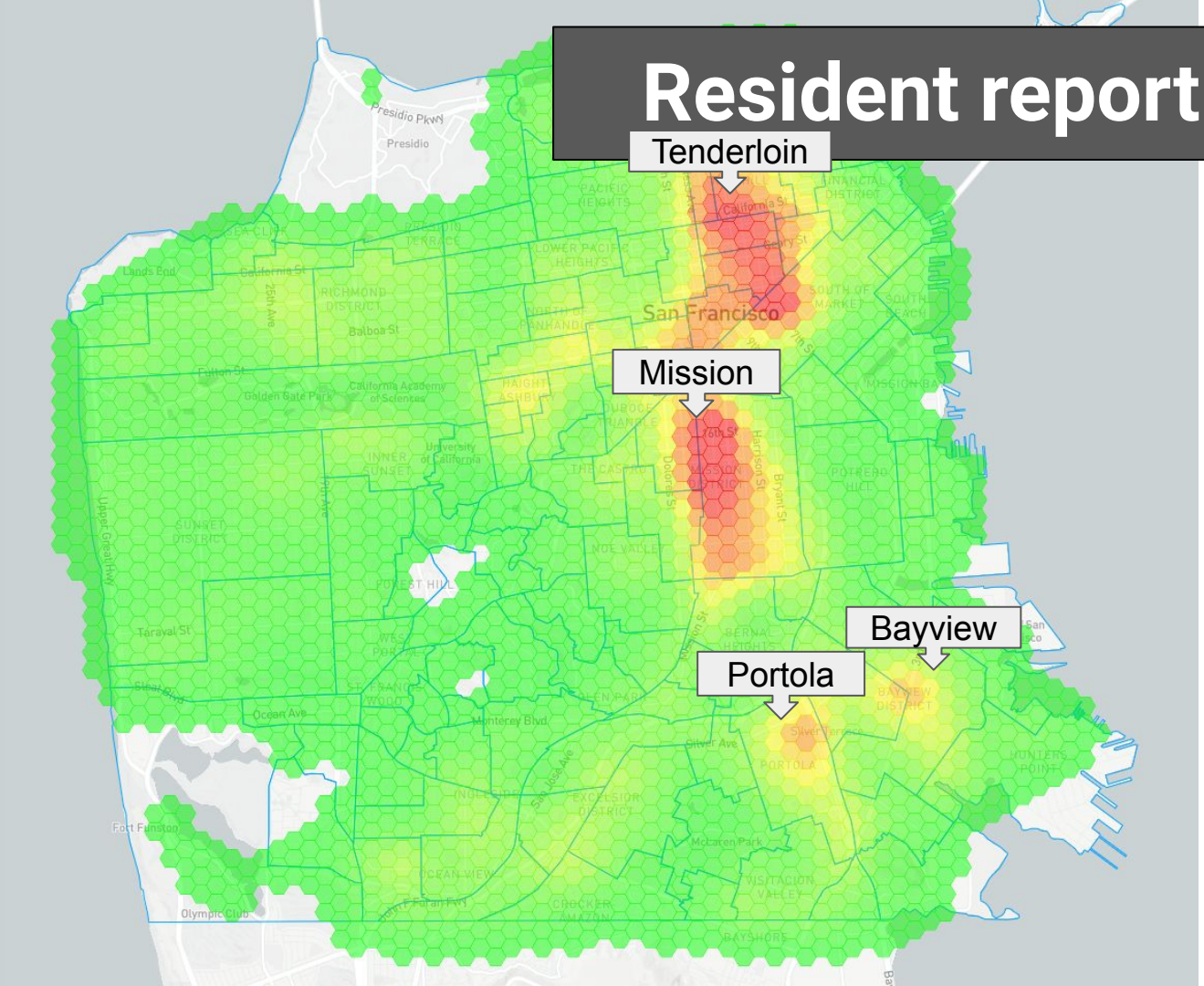


4.5 Miles

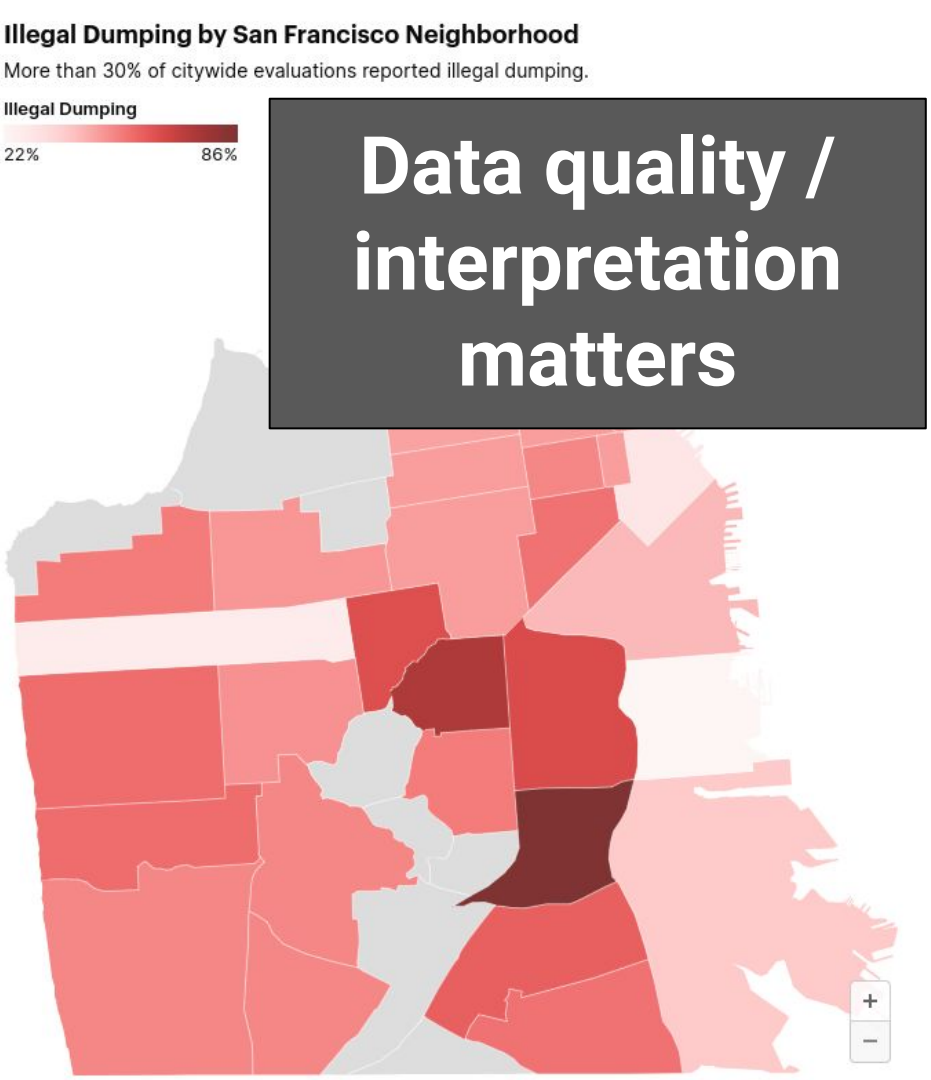
Chronological Order

~~456456~~	~~8/12/2023 8:12 AM~~	~~1598 Oakdale Ave.~~
562346	8/12/2023 9:22 AM	Oakdale & Griffith
224653	8/12/2023 9:33 AM	Revere Ave & 3rd
867652	8/12/2023 9:42 AM	1100 Thomas Ave.
464586	8/12/2023 10:42 AM	Williams & 3rd
365642	8/12/2023 11:02 AM	2454 Ingalls
456862	8/12/2023 11:45 AM	Gilman & 3rd

Resident reporting matters



Tenderloin
Inner Mission
Mission Dolores
Downtown
SOMA
Bayview
Silver Terrace

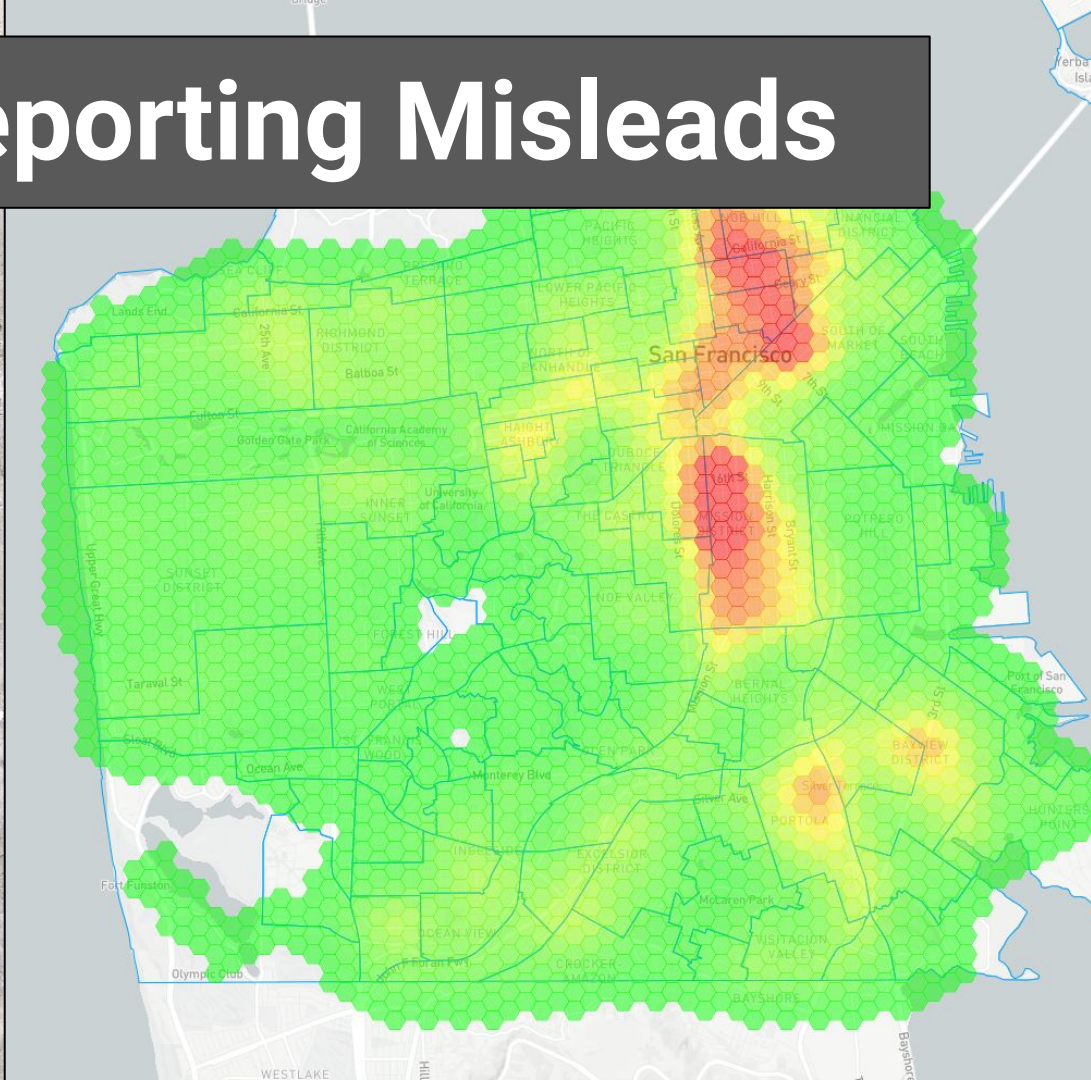


Trash [is expensive in San Francisco](). [Trash *cans* can be elusive]() and [expensive, too]().

The result? Dumping has become a huge problem in the city, as folks drop mounds of trash and large debris on sidewalks and known dumping hot spots—a practice that is free but also illegal, not to mention gross for anyone living in high-dumping zones.

Though the [Bayview-Hunters Point neighborhood]() has been highlighted as a dumping hot spot, the **Portola and Bernal Heights neighborhoods have taken the crown in 2022**: Both neighborhoods reported illegal dumping activity in over 80% of their commercial area evaluations, compared with a citywide commercial areas rate of 36%.

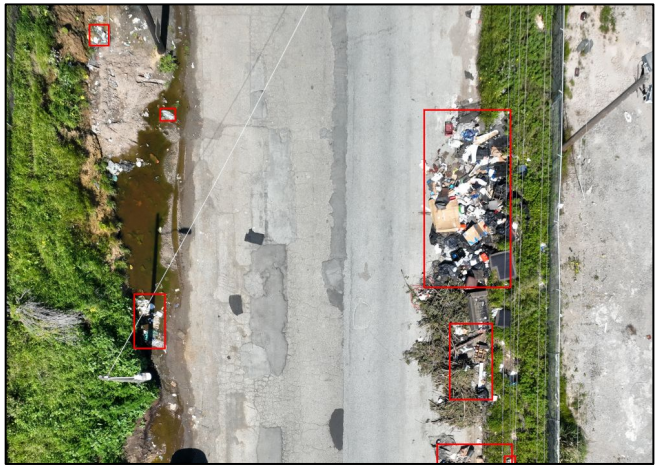
Resident Reporting Misleads



Unreliable for planning

Requires Planning

What if we had perfect data?



Drones / AI

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Creating a dumpsite AI

Narrow Dumpsite AI

Dedicated to finding dumpsite textures in photos.

Creating a Dumspite Dataset While Reporting

1. **Train low accuracy model**
   Using low accuracy model to get a small productivity gain

2. **Actively learn**
   continuously add new positive/negative cases to dataset

3. **Automate top 10%**
   where the model has high confidence automate reporting

4. **Continuously add more automation**
   every automated improvement pays dividends

12,000+ annotated dumpsites

Texture bias

From the air garbage is texture

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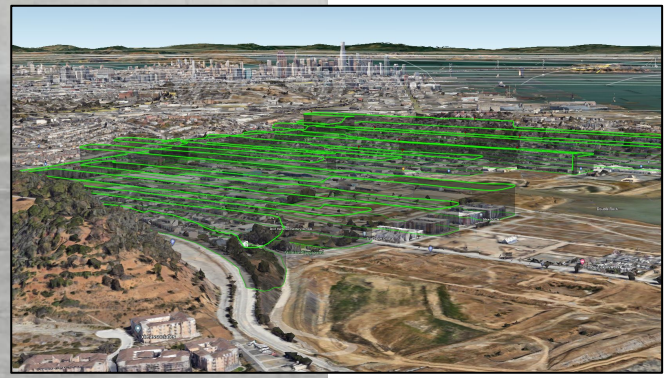
Using a dumpsite AI

1 Take 1000 photos

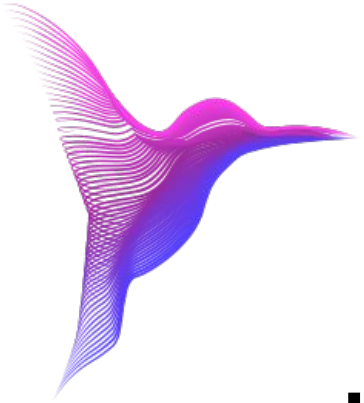


2 Scrub private property

3 Detect dumpsites with AI

4 Measure and describe

5 Pinpoint dumpsite location



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Using Drones + AI reporting dumpsites

1 Daily city-wide report

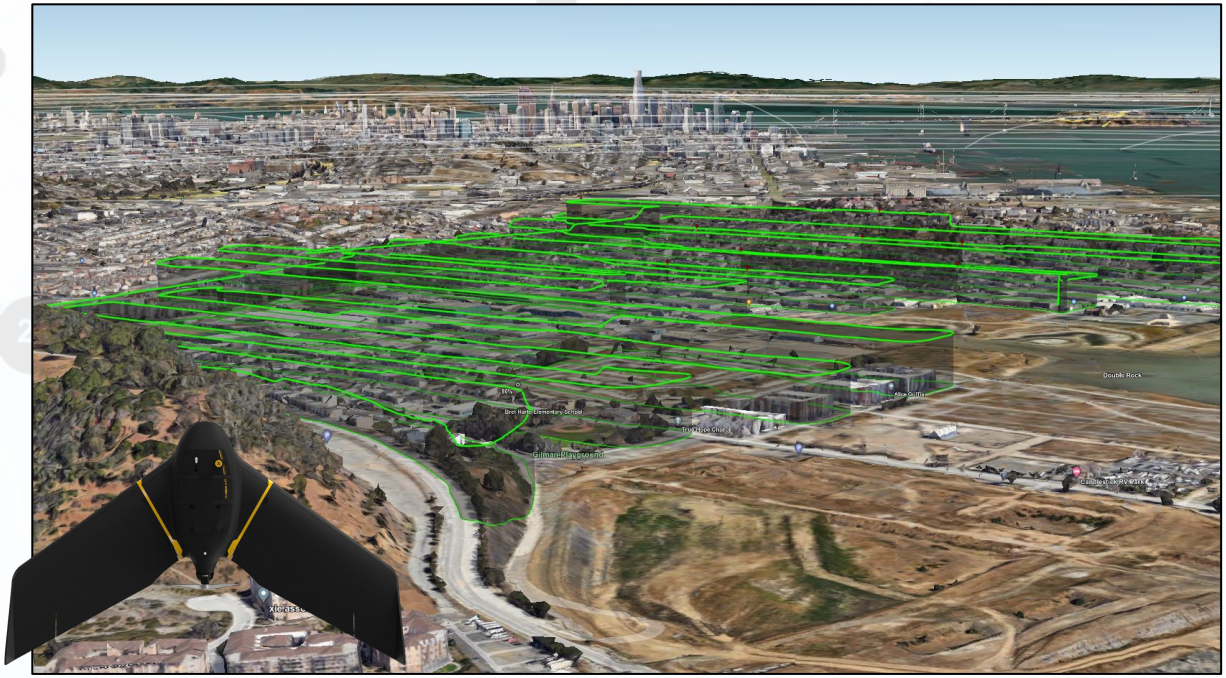
Snapshot / mask

Detect dumpsites

Analyze size / content

Integrate with 311

Feedback from DPW



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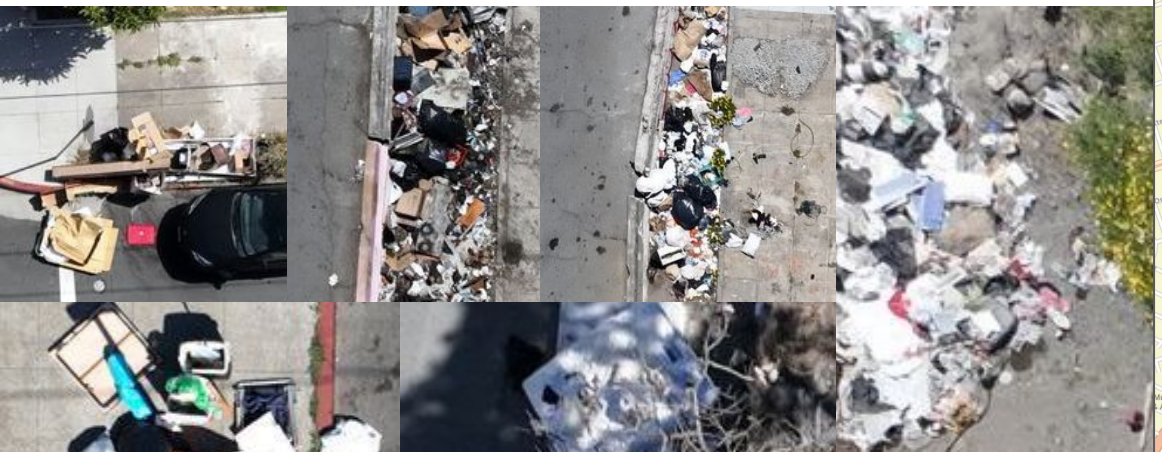
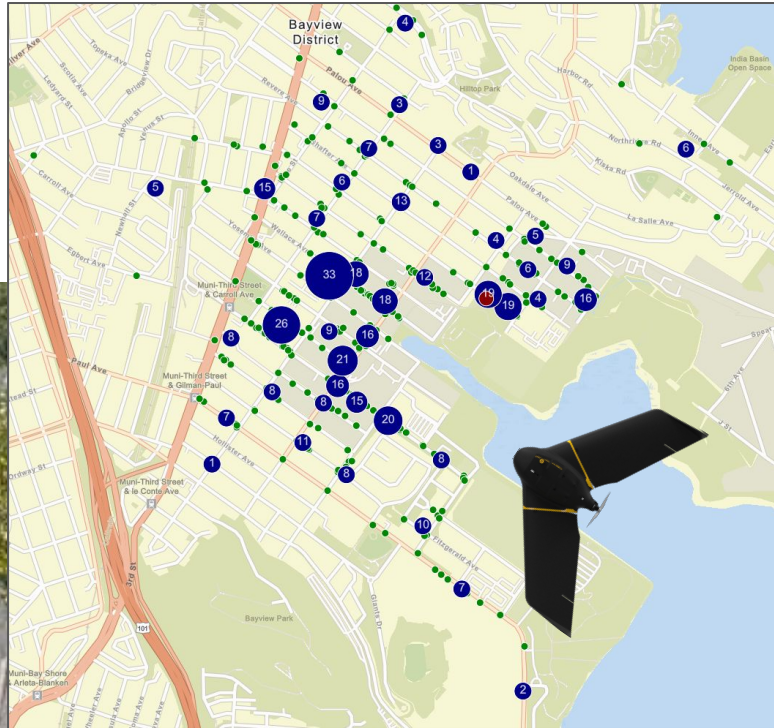
2 Every street / every pile

3 City operates more efficiently

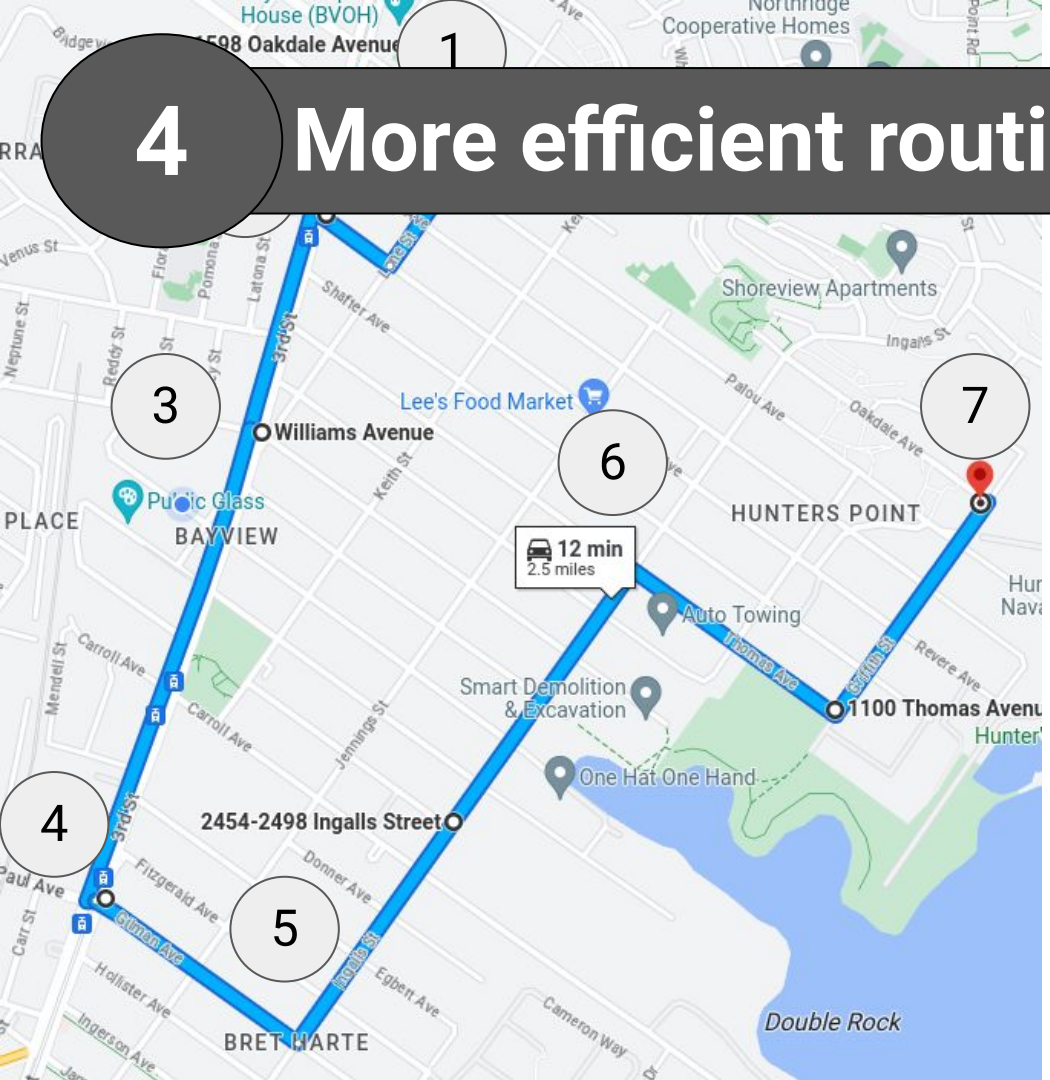
Total knowledge of the

state of waste / streets





4 More efficient routing



Only 2.5 Miles

Geographical Order

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224653	8/12/2023 9:33 AM	Revere Ave & 3rd
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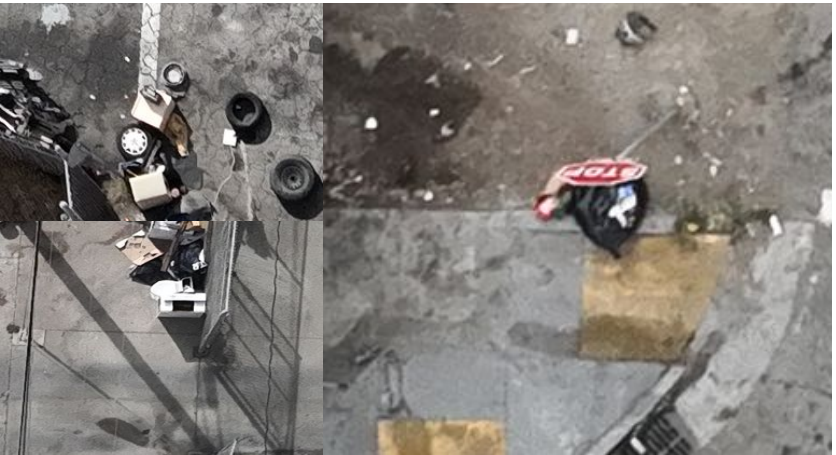
4 Cleaner community for all

Consistent cleaning

Leads to cleaner streets



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