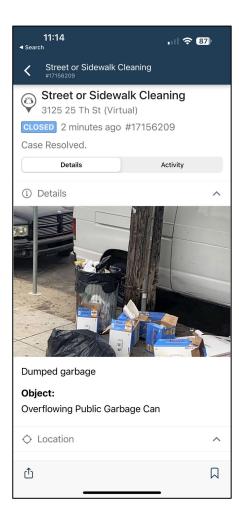


Cities Serving Equitably with Al/Drones



• II 🗢 87)

Resident Reports to 311

NEW REPORT SAN FRANCISCO Featured News AT YOUR SERVICE News · Feb 20 New SF311 App This is the official app for reporting non-emergency issues to the City and ... SHOW ALL **Frequently Reported** STREET OR SIDEWALK CLEANING **BLOCKED DRIVEWAY & ILLEGAL PARKING** GRAFFITI SHOW ALL **Recent Reports** Street or Sidewalk Cleaning 0 2898 Jones St



Photo tip: You can include up to 3 photos, it really helps!

Showing the surrounding area helps workers locate the issue. Photos and description are public information.

311 will forward your request to the appropriate agency. The response agency will handle the closure of requests, not 311.

Call 911 for emergencies

BACK

Case Resolved. Details Activity (i) Details $\overline{}$ Dumped garbage

Object: Overflowing Public Garbage Can

🔆 Location

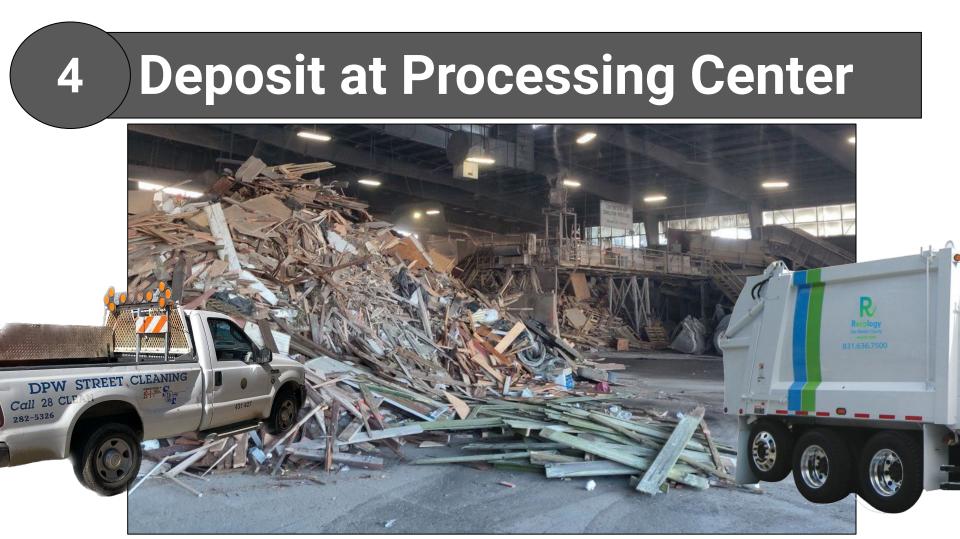
Û

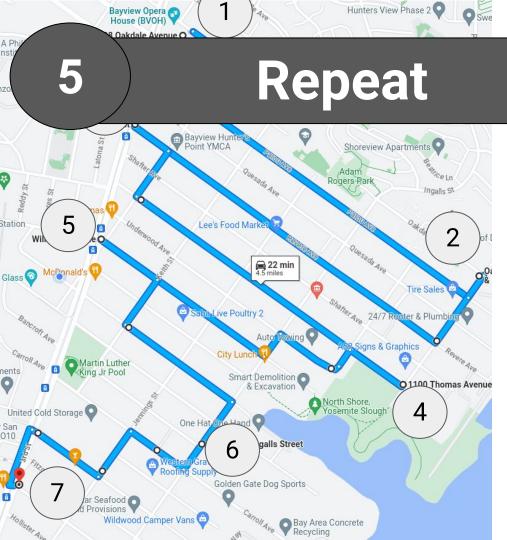
NEXT

~







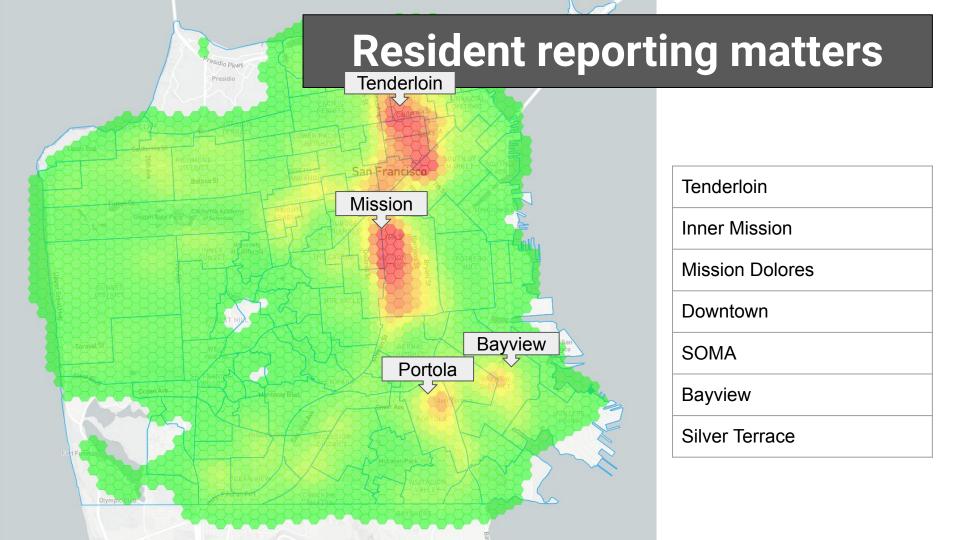




Chronological Order

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





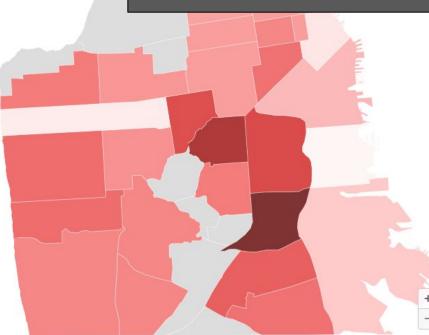
Illegal Dumping by San Francisco Neighborhood

More than 30% of citywide evaluations reported illegal dumping.

Illegal Dumping

22% 86%

Data quality / interpretation matters



Trash <u>is expensive in San Francisco</u>. <u>Trash *cans* can be elusive</u> and <u>expensive</u>, 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 <u>Bayview-Hunters Point neighborhood</u> 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



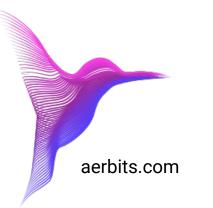


What if we had perfect data?



Drones / Al





Creating a dumpsite AI



Narrow Dumpsite Al

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

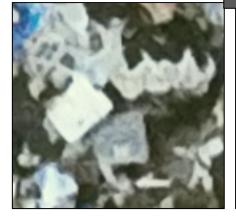
every automated improvement pays dividends





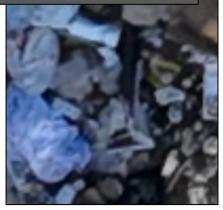


Texture bias



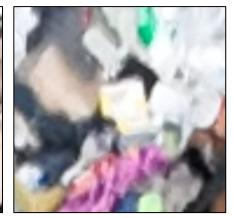






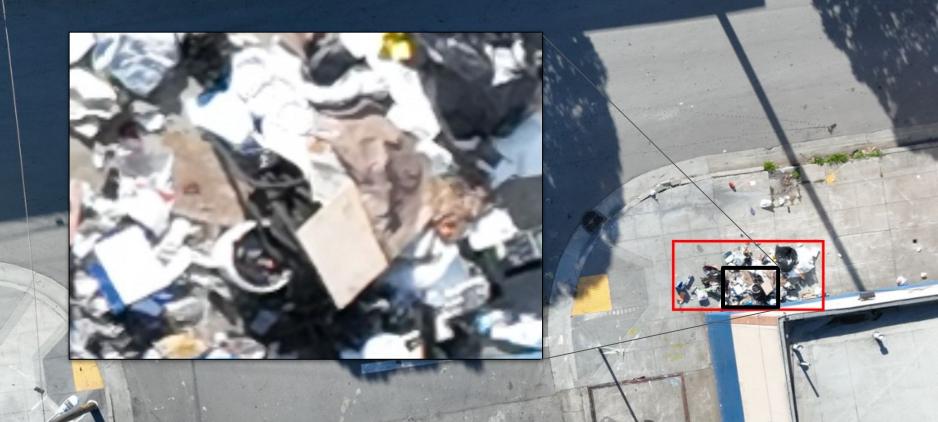


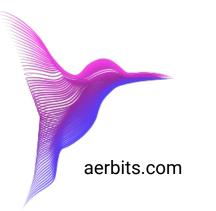






From the air garbage is texture





Using a dumpsite Al



Take 1000 photos





W122°23'21,12"

*** 40 40

a the second of the

2 Scrub private property

A ST REAL

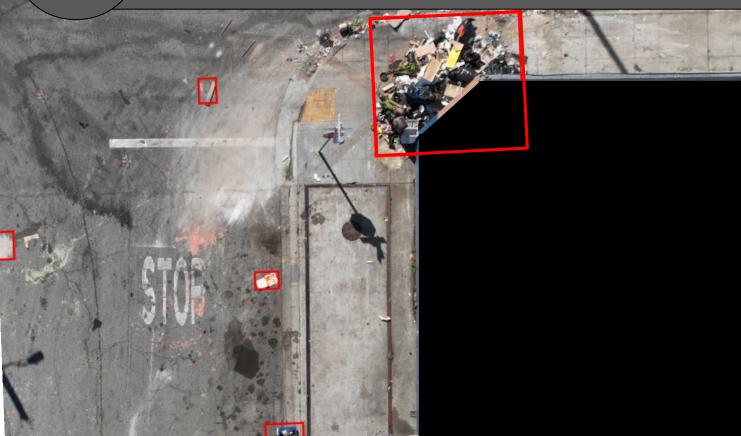
ALL AND CONTRACTOR OF COLOR

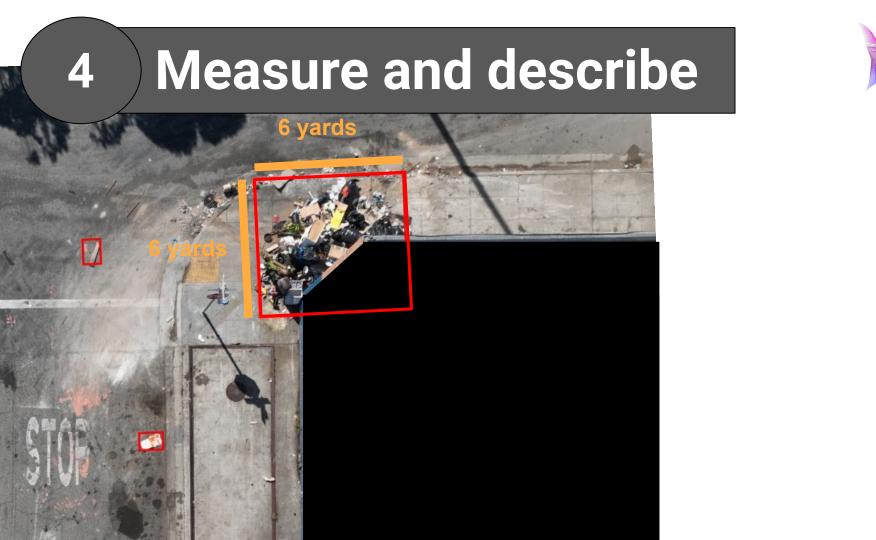
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1S sliebui 1S sllepn silebu Dumpsite location Baneroft Bancroft Ave

5



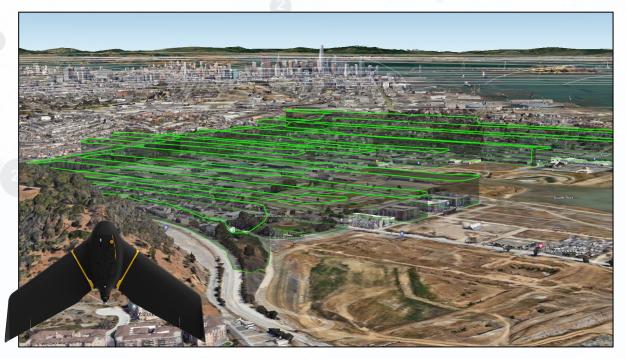
aerbits.com

Using Drones + AI reporting dumpsites



Daily city-wide report

Snapshot / mask **Detect dumpsites** Analyze size / content Integrate with 311 Feedback from DPW



Confidential material by Aerbits (Everyone Codes, Inc. No not share. Copyright Aerbits, Everyone Codes INC.



2 Every street / every pile

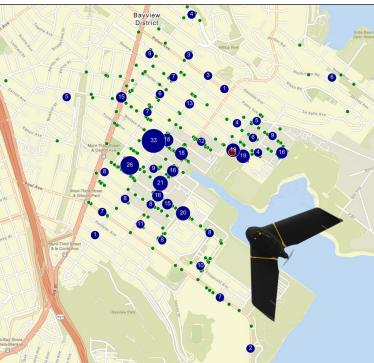


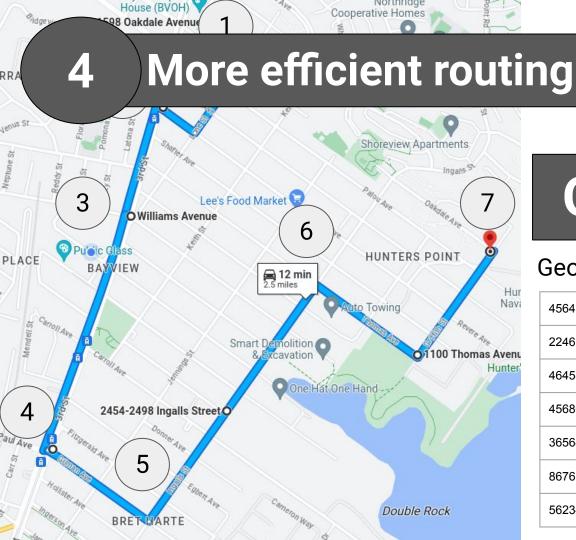


Total knowledge of the

state of waste / streets







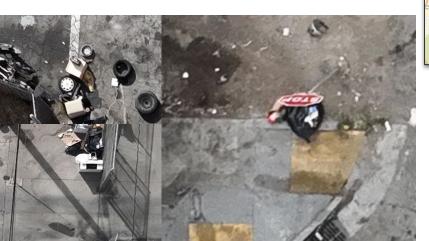
Only 2.5 Miles

Geographical Order

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Consistent cleaning Leads to cleaner streets





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Lessons from building a Gov-tech Drone+Al Business