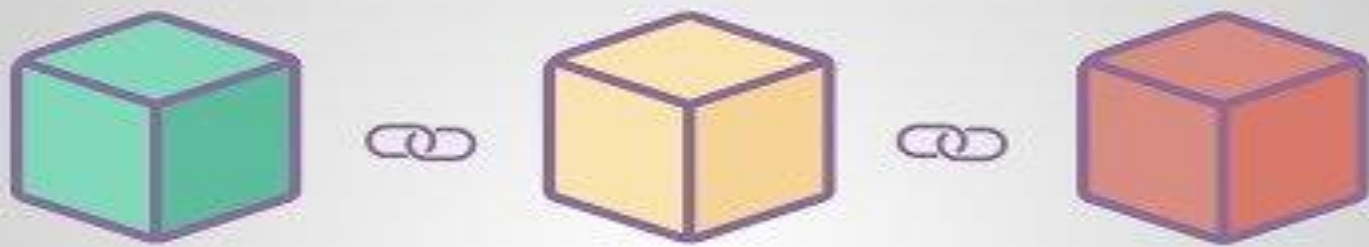


**SPUR**

**Ideas + Action for a Better City**

learn more at [SPUR.org](http://SPUR.org)

*tweet about this event:  
@SPUR\_Urbanist  
#Blockchain*



# Blockchain

— *Simply explained* —

# Blockchain 101

## Decentralized

No middle man

## Distributed

Community oriented

## Chronological

All transactions time stamped in order

## Anonymous

No surveillance

## Interoperability

Exchange and use information.

## Currency Layer

Ability to develop currency with specified game theory

# Components of Blockchain

**Hashing:** How addresses are created. Uses randomization

**Nodes:** Prevents bias on blockchain. Acts as unbiased consensus mechanism

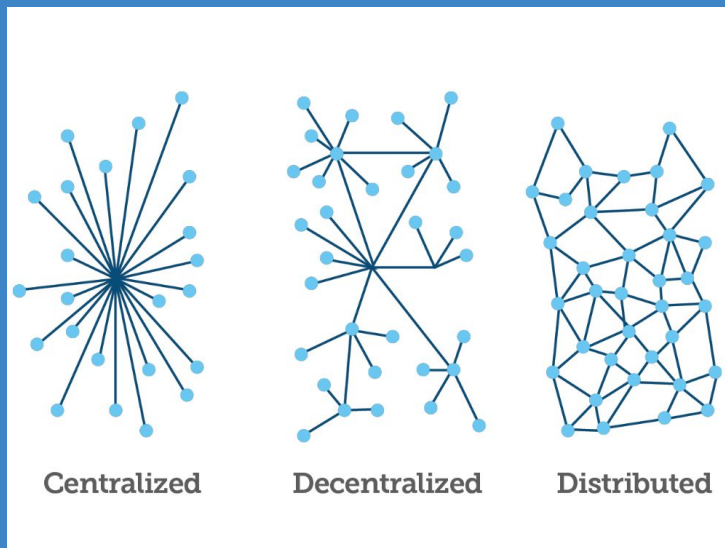
**Consensus Models:** How governance and consensus is dictated

**Mining:** the approval of transactions on a network

**Smart contracts(ETH):** protocol intended to digitally facilitate, verify, or enforce the negotiation or performance of a contract

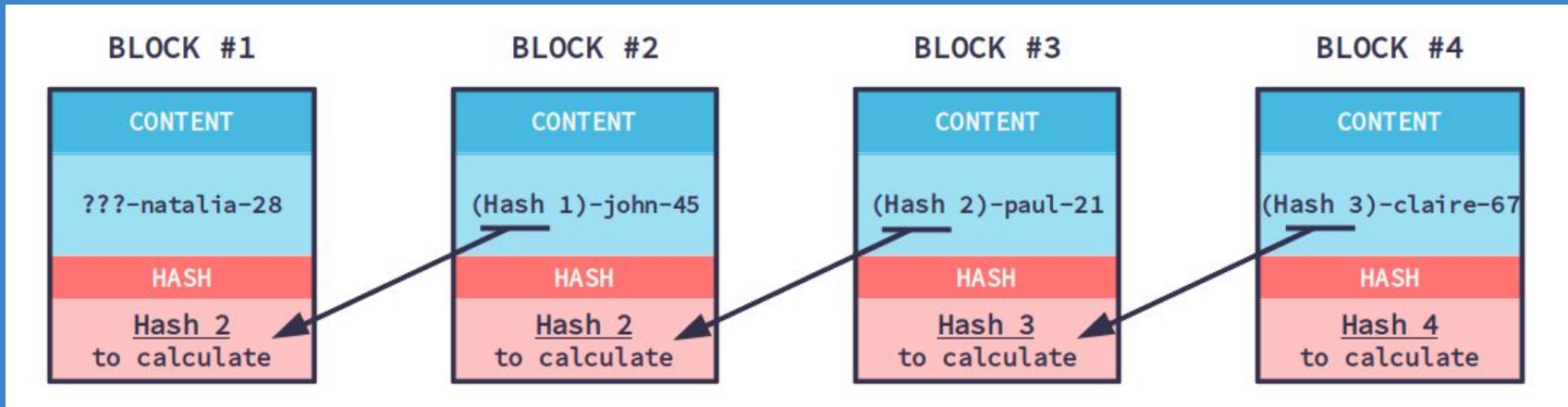
# Distributed Ledger

A **distributed ledger** is a database that is consensually shared and synchronized across multiple sites.



# Blockchain

A **blockchain** is a distributed ledger in which every entry(block) must be confirmed and encrypted ...



# Addresses

A secure and unique identifier that identifies each participant on a blockchain



0x9f15e05fbfa195bd807f1f60ca6f9b8d7fddb75e

# Mining

The process of validating a blockchain transaction or set of transactions, usually by solving a really hard math problem.





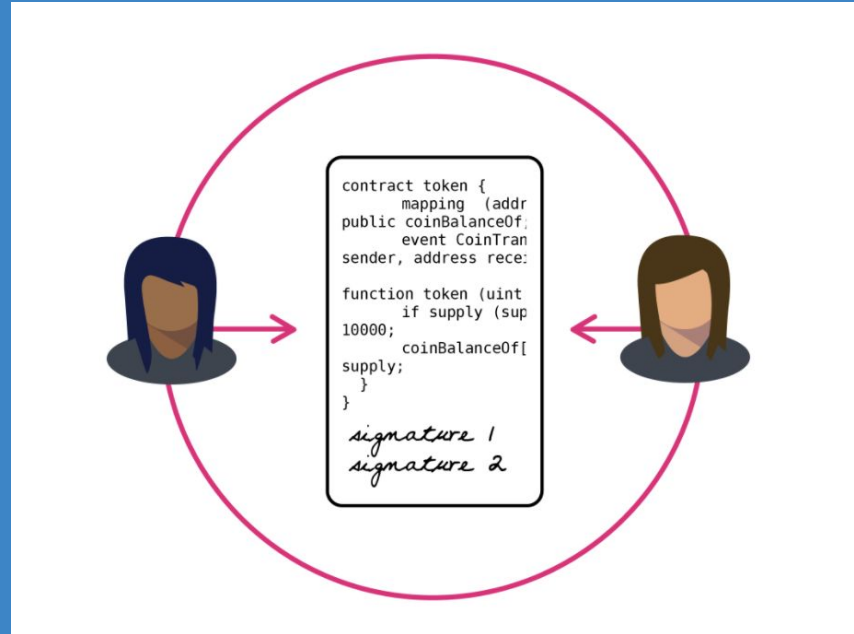
# Nodes

Computers that run copies of the blockchain software. They validate transactions and store a copy of the blockchain's transaction history.



# Smart Contract

A self-executing set of rules coded into a computer program usually used to facilitate a negotiation between two parties.



# Cryptocurrency

A cryptocurrency (or crypto currency) is a digital asset designed to work as a medium of exchange using cryptography to secure the transactions, to control the creation of additional units, and to verify the transfer of assets.



# Token Economics

## Game Theory

How you engage participants, what rules do participants follow, how rewards are distributed for actions.

## Consensus Model

Ensures that the next block in a blockchain is the one and only version of the truth, and it keeps powerful adversaries from derailing the system and successfully forking the chain.tokens and

## Token Economics

How tokens are distributed to players within the ecosystem. Dictates how tokens rise in value over time.

# Types of Blockchains

01	Public	State of the art public Blockchain protocols based on Proof of Work (PoW) consensus algorithms are open source and not permissioned. Anyone can participate, without permission.
02	Private	Example applications include database management, auditing, etc. which are internal to a single company.
03	Federated	Federated Blockchains operate under the leadership of a group. As opposed to public Blockchains, they don't allow any person with access to the Internet to participate in the process of verifying transactions. Federated Blockchains are faster (higher scalability) and provide more transaction privacy.

# Blockchain and Urban Planning



# Why Blockchain?

## What can it do for Urban Planning?

- Transparency
  - Efficiency
  - Data Management
  - Results Based Accountability
  - Decentralizing Power
- 

# Areas of Focus

Funding & Budgeting

Systems Integration

Energy

Smart Cities

IOT Interoperability

Data Management

Healthcare

Agriculture



# Examples

City of Berkeley Blockchain Initiative

State of Wisconsin-Voting

State of Ohio-Tax Payments

Estonia-Digital Society

State of Illinois-Land Registry

Jordan-Refugee Camp

State of Texas- Homeless Services

State of New York-Energy Microgrid

# How can Blockchain Help?

**Ending generational poverty:** By empowering traditionally marginalized people to build wealth with crypto, we accelerate closure of the wealth gap and spark change on a economic, social and cultural level within impoverished communities.

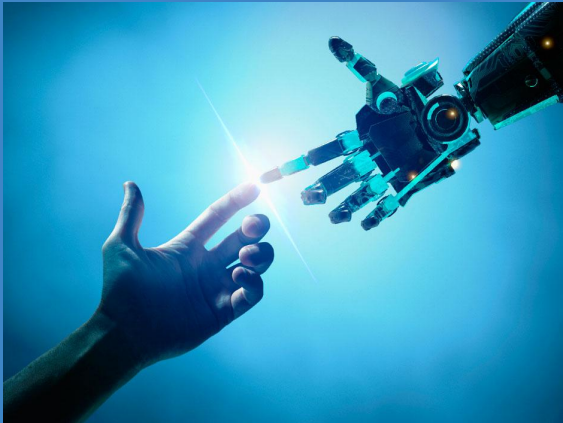
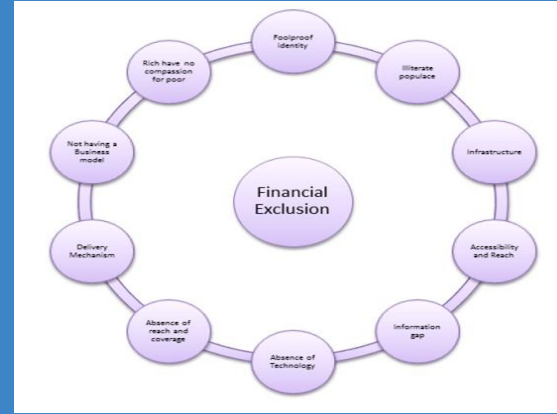
**Decentralizing bureaucracy:** blockchains can be designed to accelerate access to data and resources and eliminate the need for a human who can have their own bias and lack of altruism.

**Accelerating change:** ICOS and the decentralized, peer to peer nature of blockchain can assist in fast tracking alot of the projects we are working on.

**Build localized economies:** We can absorb the impact of a crashing economy by using blockchain to build localized economies that use a holocracy system and inherently rely on one another for advancement. Scott Morris from Qoin is working on this!

**Improving transparency for publicly sourced funds:** Blockchain can also allow us to see where all of our public dollars are going! Corruption and embezzlement are so rampant that it goes under the table. Allowing taxpayers to vote on where there funds should go and how money should be used is a great way to use this technology.

# What are some of the pitfalls?



# Current Legislation-Local/State

**AB 953-Cannabis**

**AB 1489- Virtual Currency**

**AB 1242-Cybersecurity**

**SB 323-Elections**

# Current Legislation-Federal

Match	State	Bill	Status	Summary/Title	Last Action ▼
100%	US	HB528	Intro	Blockchain Regulatory Certainty Act This bill exempts from certain financial reporting and licensing requirements blockchain developers and providers of blockchain services that do not take control of consumer funds. [Detail] [Text] [Discuss]	<b>2019-01-14</b> To House Financial Services Committee
90%	US	HB41	Intro	RESCUE Act for Black and Community Banks Reenergized Economic Sustainability for Community and Urban Entities Act for Black and Community Banks [Detail] [Text] [Discuss]	<b>2019-01-03</b> To House Financial Services Committee
87%	US	HB923	Intro	U.S. Virtual Currency Market and Regulatory Competitiveness Act of 2019 [Detail] [Text] [Discuss]	<b>2019-02-25</b> To House Commodity Exchanges, Energy, and Credit Committee
84%	US	HB1361	Intro	To direct the Secretary of Commerce to establish a working group to recommend to Congress a definition of blockchain technology, and for other purposes. [Detail] [Text] [Discuss]	<b>2019-02-26</b> To House Energy And Commerce Committee
84%	US	SB553	Intro	A bill to direct the Secretary of Commerce to establish a working group to recommend to Congress a definition of blockchain technology, and for other purposes. [Detail] [Text] [Discuss]	<b>2019-02-26</b> To Senate Commerce, Science, And Transportation Committee

# Resources



**CALIFORNIA  
STATE  
BLOCKCHAIN  
POLICY  
PRIORITIES**

**BLOCKCHAIN  
ADVOCACY  
COALITION**



**B4SJ**



**BLOCKCHAIN TECHNOLOGY:**  
LOCAL GOVERNMENT APPLICATIONS AND CHALLENGES

An International City/County Management Association (ICMA) and  
Government Finance Officers Association (GFOA)  
White Paper

**ICMA** 

November 2018



 **Neighborly**



# Resources

## Invest

- <https://www.coinbase.com>
- <https://www.airswap.io/>
- <https://www.binance.com/en>
- <https://www.B4SJ.com>

## Meetups

- [Oakland Blockchain Developers](#)
- [SF Blockchain Developers Meetup](#)
- [Women in Blockchain](#)
- [Starfish Mission](#)

## Miscellaneous

- [positiveblockchain.io](#)
- [testnet](#)

## Build Dapps

- [Cryptozombies.io](#)
- [Omisego.io](#)
- [Bitski.io](#)
- <https://github.com/yshuman1/certification-course>

## Mining

- <https://www.genesis-mining.com/>
- <https://www.bitmain.com/>
- <https://coinwebmining.com/browser-miner/monero>

## Decentralized Internet

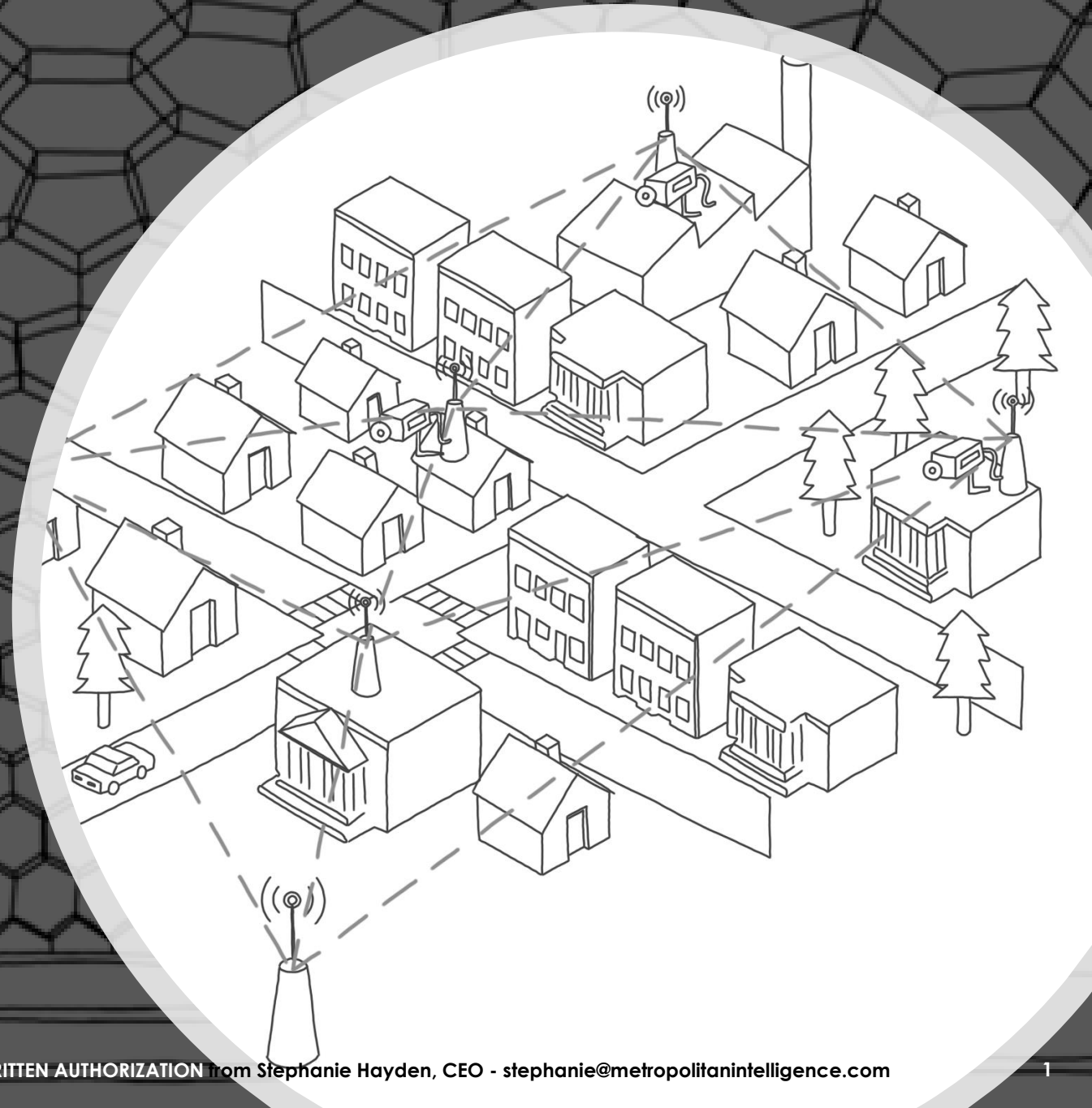
- [ipfs](#)
- [altheamesh](#)

# Augmented Neighborhood Watch

## Metropolitan Intelligence

SPUR: Blockchain in Urban  
Planning and Transportation  
Oakland, CA

Stephanie Hayden, CEO & Founder  
October 23, 2019





I'm going to tell you  
my story about people  
coming together to  
build Smart Cities and  
Safer Communities  
and that evolution...



Stephanie Hayden, CEO & Founder, Metropolitan Intelligence  
*My journey through Smart City, Mobility, Health & Intelligence Projects 20+ Years*



- I recognized patterns while working on projects to find new ways to make or save money for private and public organizations.
- There must be ways to use these patterns and scale of resources to aim them at cities to solve large-scale challenges.
- Everyone needs to know what The People need and want but few want to interact directly with The People – and there are so many of them...





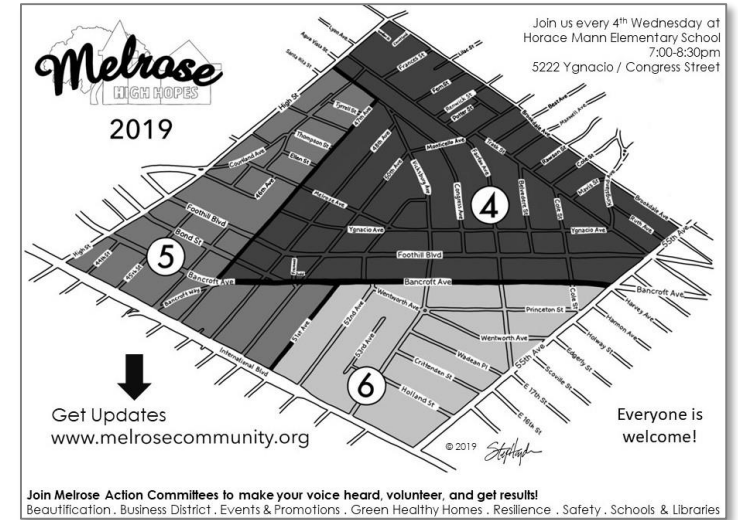
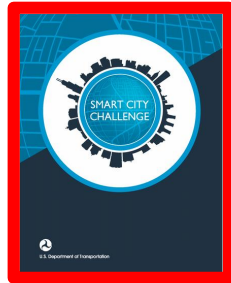
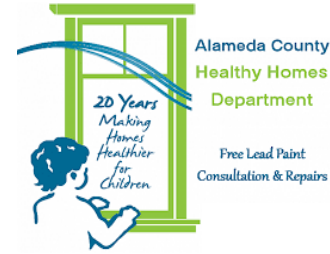
# Apply patterns from what's been learned to address large-scale societal and environmental hazards as a network of communities

This is about what happened when I **asked The People what they need and want** and what we created together over 3 years...



PIONEERED BY THE ROCKEFELLER FOUNDATION

100 RESILIENT CITIES



Daimler Mercedes-Benz

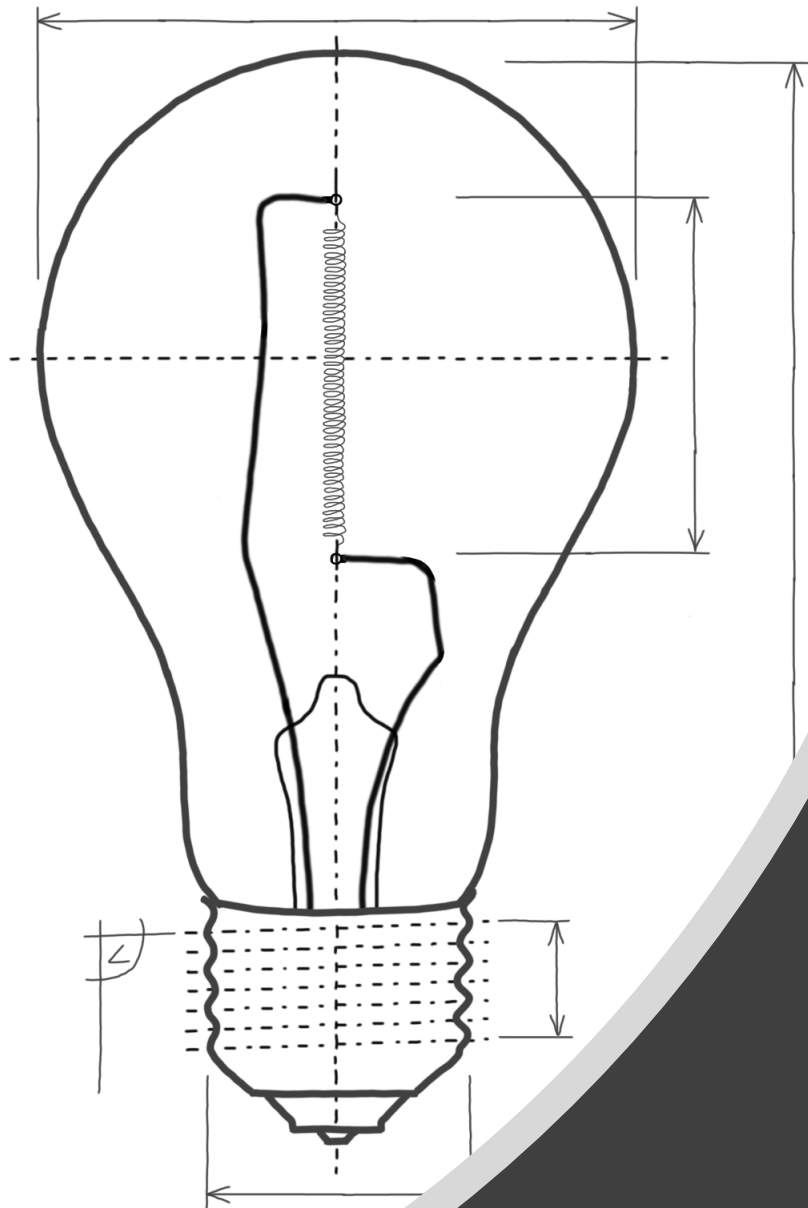


2016

2017

2018

2019



2016  
Enough  
Ideas Time  
for Action

2016

The year began envisioning a Smart Transportation City and Resilient Oakland as an inclusive, verdant, and rewarding town for all communities and ended in deaths and sickness caused by unsafe housing environments...

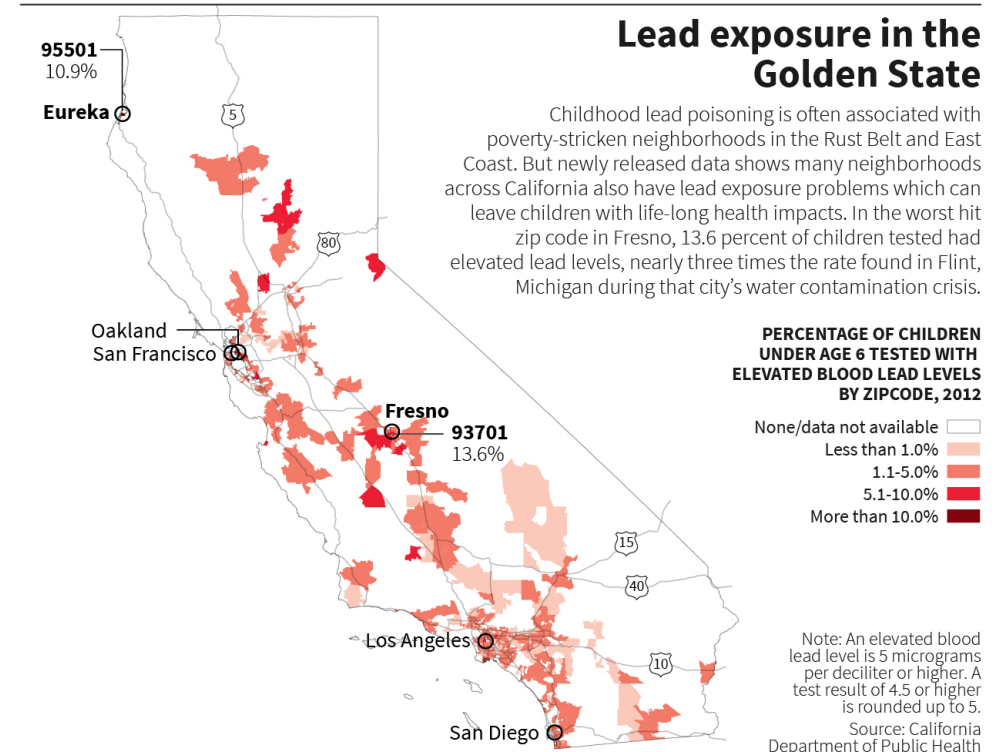


Dec. 2: Ghost Ship Warehouse fire kills 36



PIONEERED BY THE ROCKEFELLER FOUNDATION

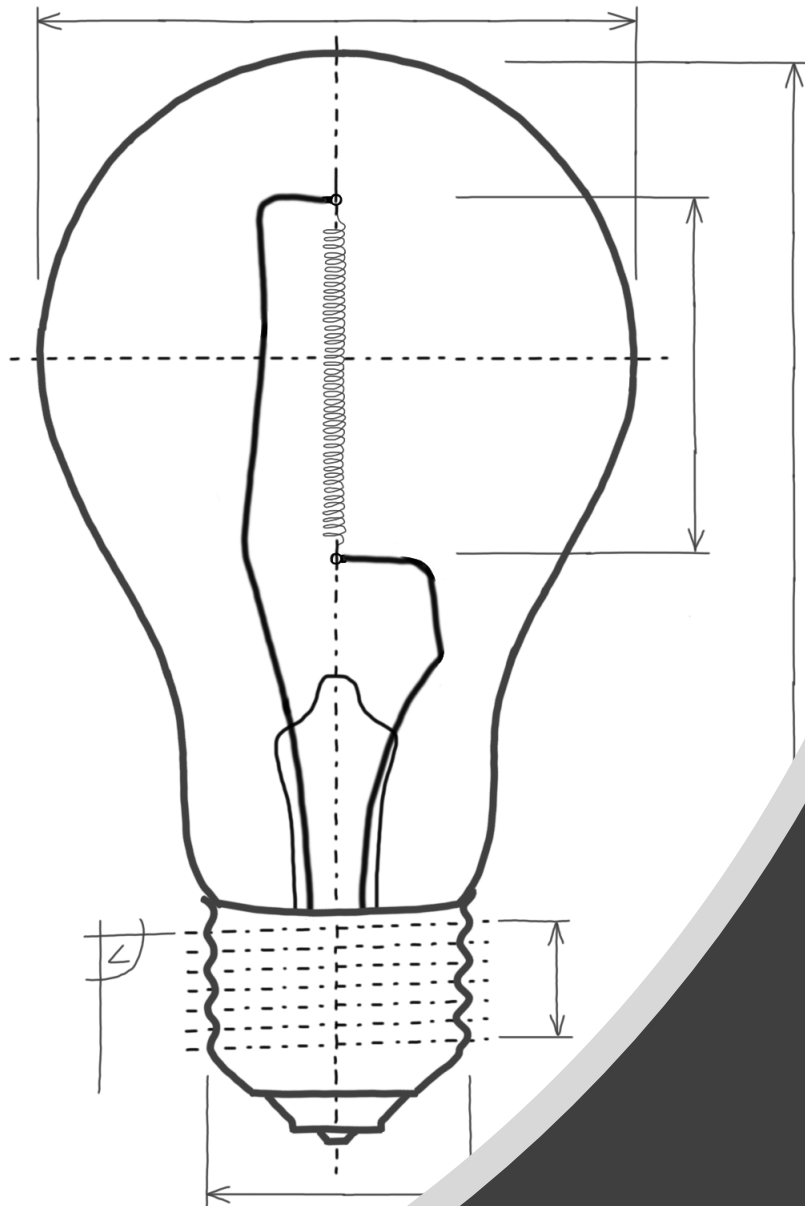
100 RESILIENT CITIES



C. Chan, M.B. Pell 21/03/2017



Dec. 19: Reuters breaks story of lead poisoning in Fruitvale



2017

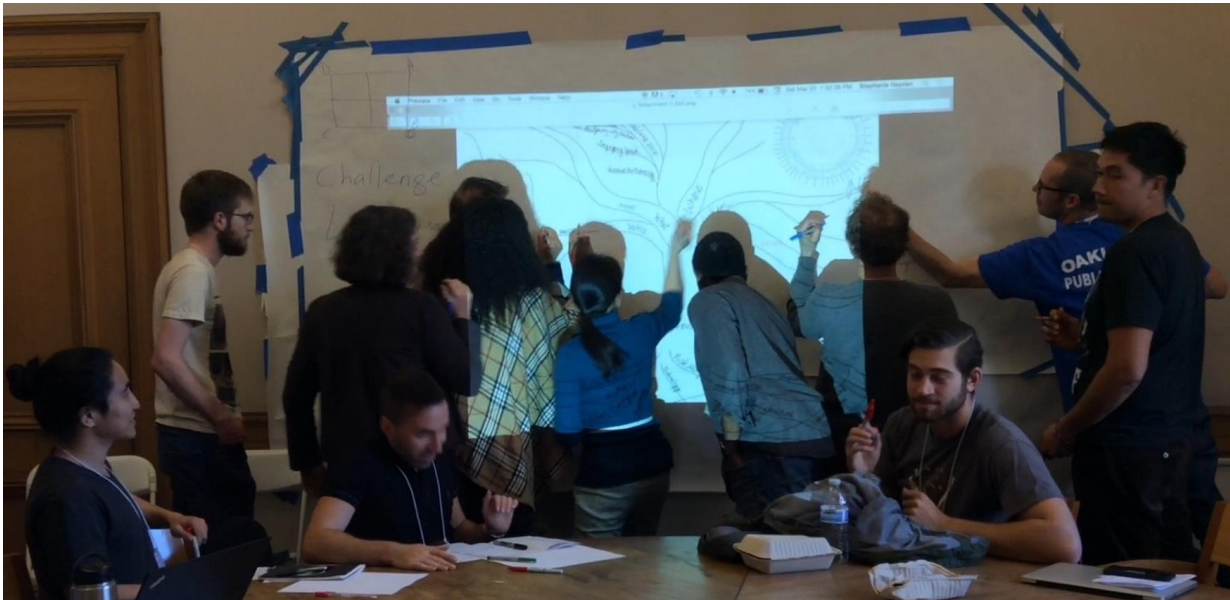
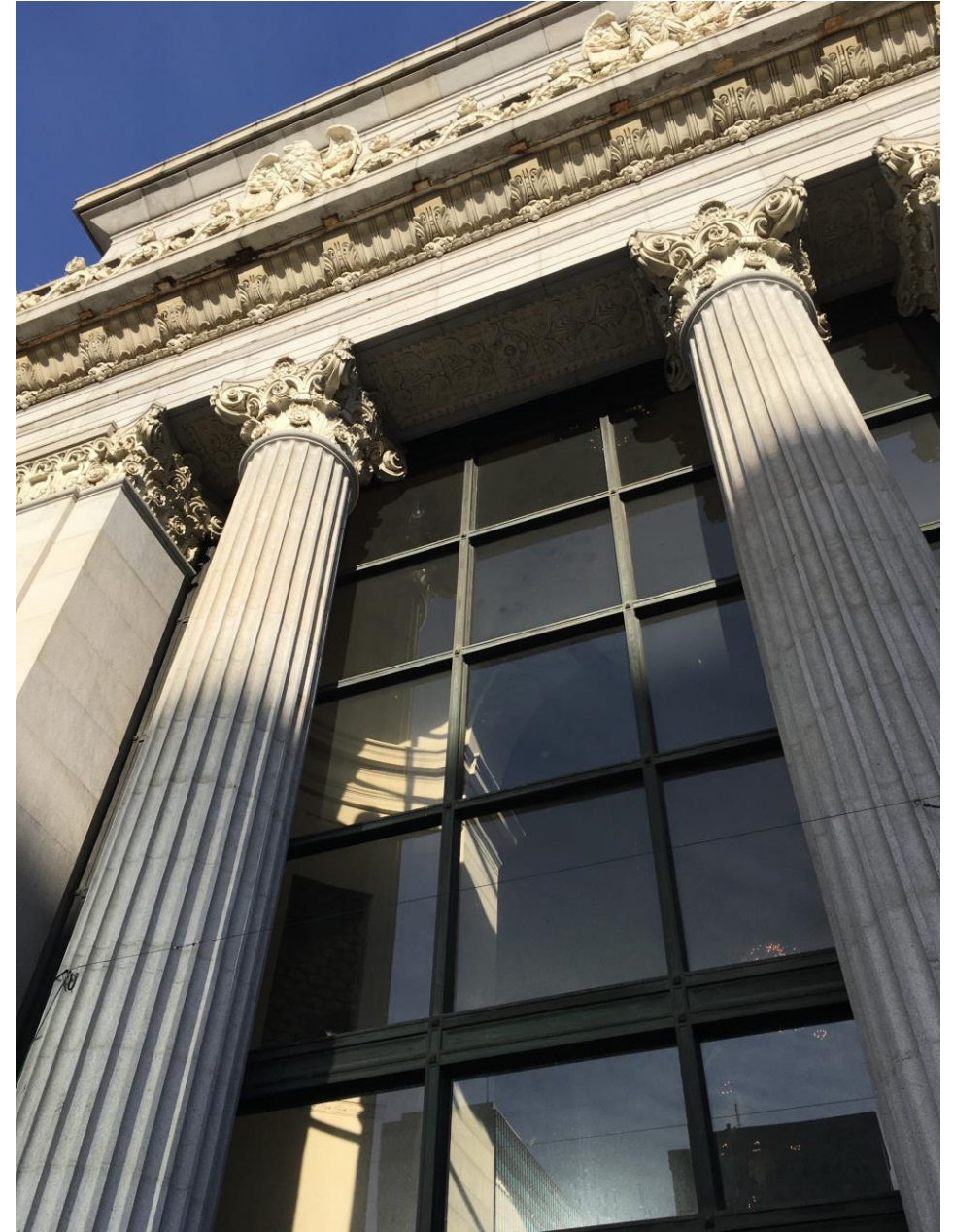
Blueprints,  
IoT, Data Kits  
Outreach &  
Blockchain



Early 2017 we asked  
The People at a Code for America  
City Camp:

Should Zip Code Determine  
Life Expectancy?

If it should not, would they join us  
using data & IoT to solve lead  
poisoning in Oakland? So, it  
began...



| Here's a list of things that happen to people when they're exposed to lead poison at some point in their lifetime:

**Aggression, anemia, Alzheimer's Disease, Autism, Attention Deficit Hyperactivity Disorder, brain damage, cancer, Dementia, hearing impairment, heart attacks, high blood pressure, infertility, IQ loss, kidney failure, low educational attainment, personality disorders, premature death, special education requirements, speech impairments, and violent criminal behavior.**

This is why it matters for you and everyone you know – we need to get the lead out of Oakland now.

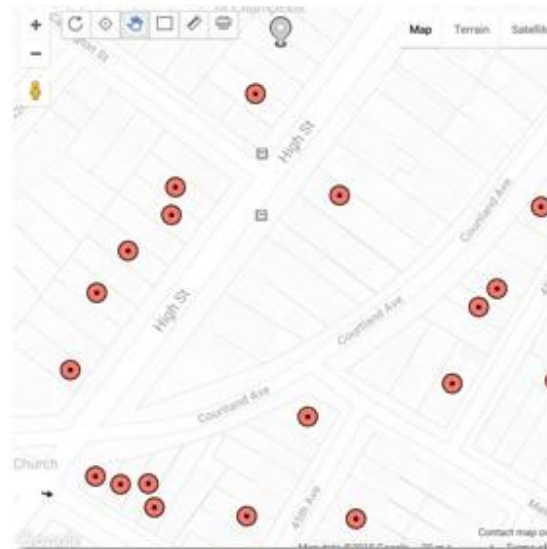
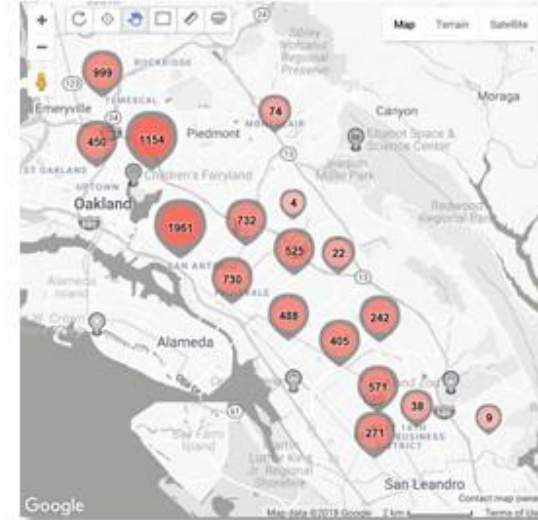
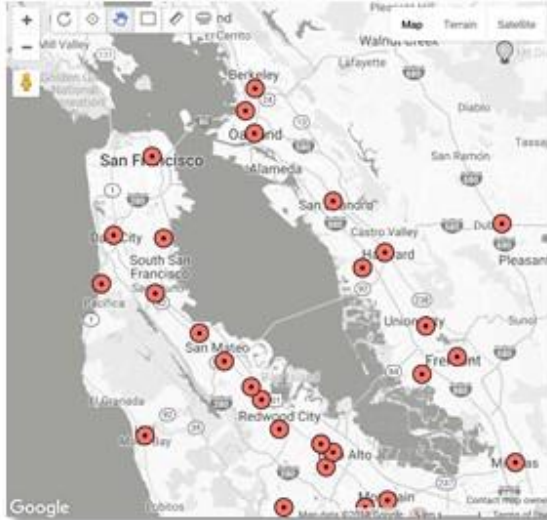
| **“Each dollar invested in lead paint hazard control results in a return of \$17–\$221 or a net savings of \$181–269 billion.”**

*Elise Gould, Economic Policy Institute, Environmental Health Perspectives 2009*



1

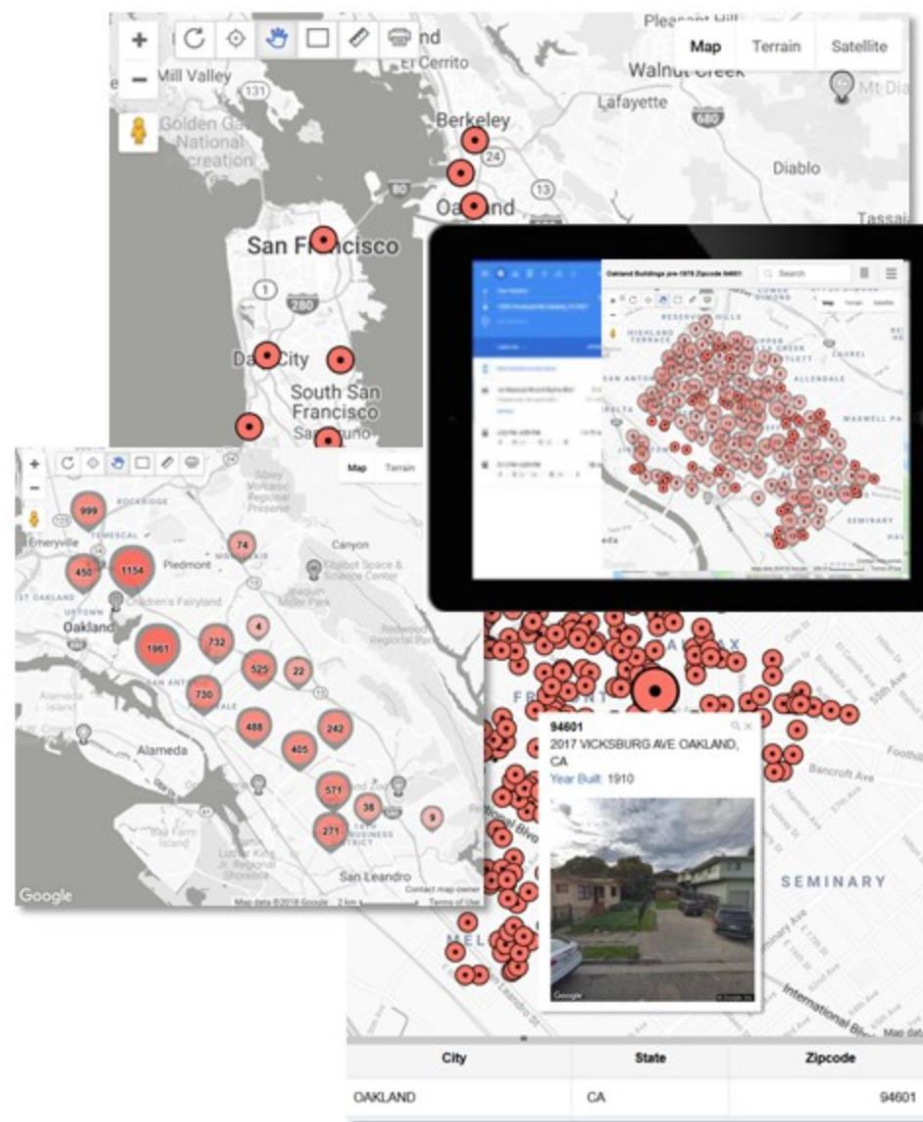
Use data to find where lead paint poison probably exists in housing units & warn public it may not be safe, then get people to test it and register results



# b

## Learn About Lead Using Data Then Find Lead Using Data

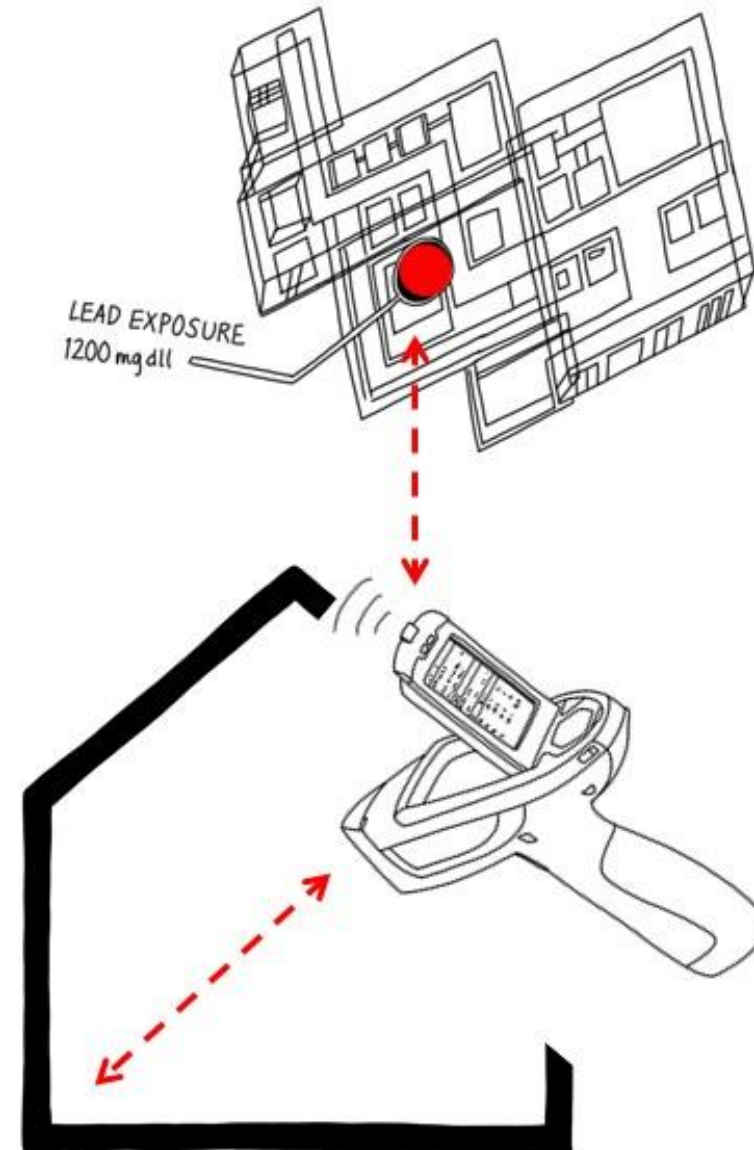
- Once you get your map via email, pull it up on a laptop to view full screen and/or if you have a mobile device with Internet access you can open your email and your map to see what it looks like using Google Map functionality and driving directions.
- This is very useful as you think about what you're going to do with this data. Make sure to try zooming into red dots to see actual houses using Street View so you can spin around 360 degrees and see the houses behind you to get a feel for how you can use these maps to see what you couldn't without them.
- Once you see how they work consider ordering data maps for groups to prepare for in person testing.



# C

## Learn About Lead Using Data Then Prove It Using Data

- If you got a pink or red 3M test result, or if you just want to be certain there is no lead paint poison in your house paint, soil, dust or air your next step is to book a scientific “**XRF**” test
- XRF stands for **Xray Fluorescent** which means **the device uses XRAY technology** to shoot light into the surface of paint or soil “see” if there is lead in the underlying layers of paint or soil.
- This XRF test result will define the rest of your remediation process because different treatments work for different lead levels and different funding exists for varying levels of lead content.
- A XRF test can range between \$250-600 per home and we are building relationships with service providers now to aim to bring that price down. We want to keep in touch with you through this process and will be offering small payments for people who are willing to share test results with us so we can negotiate better pricing for members overall.



# GTLO Role-based views:

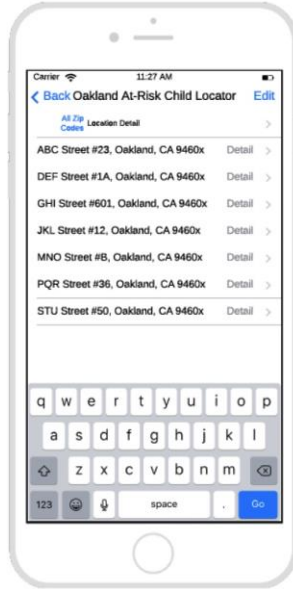
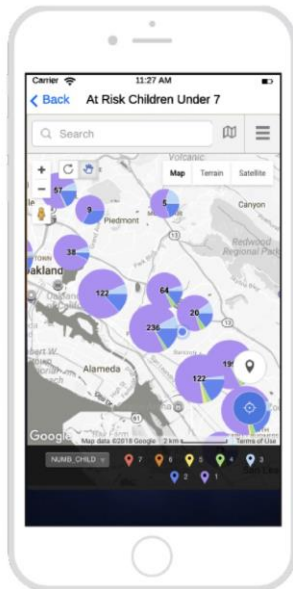
- Attorneys
- Health Care Providers
- Housing Organizations
- Funding agencies
- City & County Council & Supervisors
- Constituents



Red dots are low income kids 6 years of age and under currently residing in lead poisoned homes...



**SmartOakland's Get the Lead Out High Risk Intersections** data screening estimates 1285 housing units with 1847 At Risk children currently reside in locations where there is a high probability they will sustain lead poisoning if they remain in this location. Our goal is to connect emergency, health, housing and support services with these intersections to intervene in a sensitive and strategic way to support and protect to parents, children, and tenants to address immediate health risks and work with landlords to bring abatement services to remediate lead-poisoned housing units. **Contact Us to Assist**



Resilient Awareness Apps "Get the Lead Out" for locating lead paint poison in housing units

**GTLO**  
GET THE LEAD OUT

Welcome William Reynolds

Our City

Map View

Summary Child Stats Compliance Stats Fines & Fees Litigation Stats

West Oakland (94612, 94610, 94609) District 6, Rep. Barbara Lee

Children under 6 currently residing in lead-poisoned units	576
Children testing positive for lead in blood in this area	32
Total fines issued to property owners in this area	\$226,876.58
Compliance citations in this area	116
Civil cases filed for plaintiff attorneys of impacted families	76
Units registered to property owners with lead-poisoned properties	124
Total daily fine assessments	\$17,654.32
Average days late in EPA compliance	12.6
Total lead abatement required to clean up housing units	\$435,975.61

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Overview Notify Interim Control Renovation PFI Program

Districts: All Date: 12/16/15 10/16/17

New Case Reports Case Statuses Case Expenditure

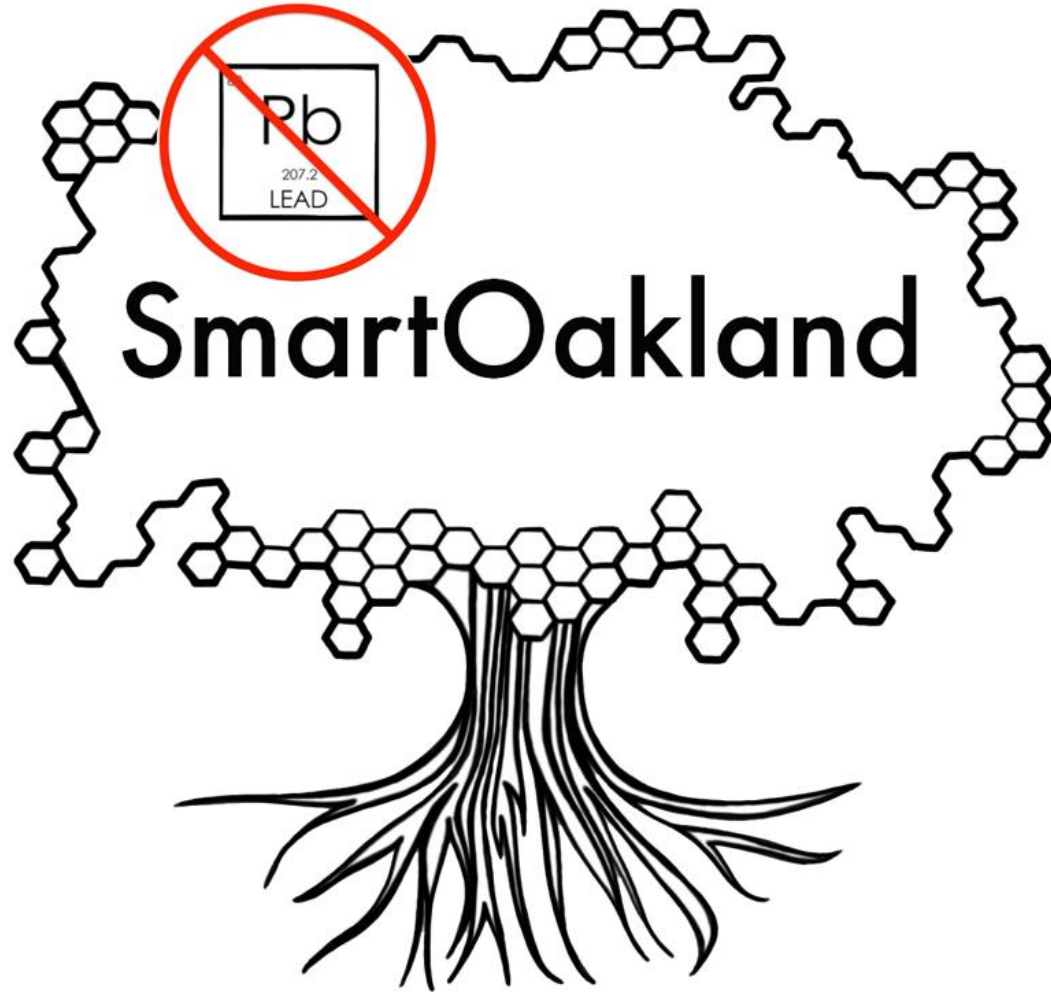
Smart Contracts Certifications PoW Permits Evidence

- EPA Certified Renovator Valid through: May 23, 2019
- EPA Certified Renovator Valid through: Aug 12, 2020
- EPA Certified Lead Inspection Contractor Valid through: May 23, 2019
- Lead Based Paint Renovation, Repair & Painting RRP Valid through: Aug 12, 2020

Ask to see the **Get the Lead Out** application

Ask the  
community  
what they  
want...

**Listen to  
The People**



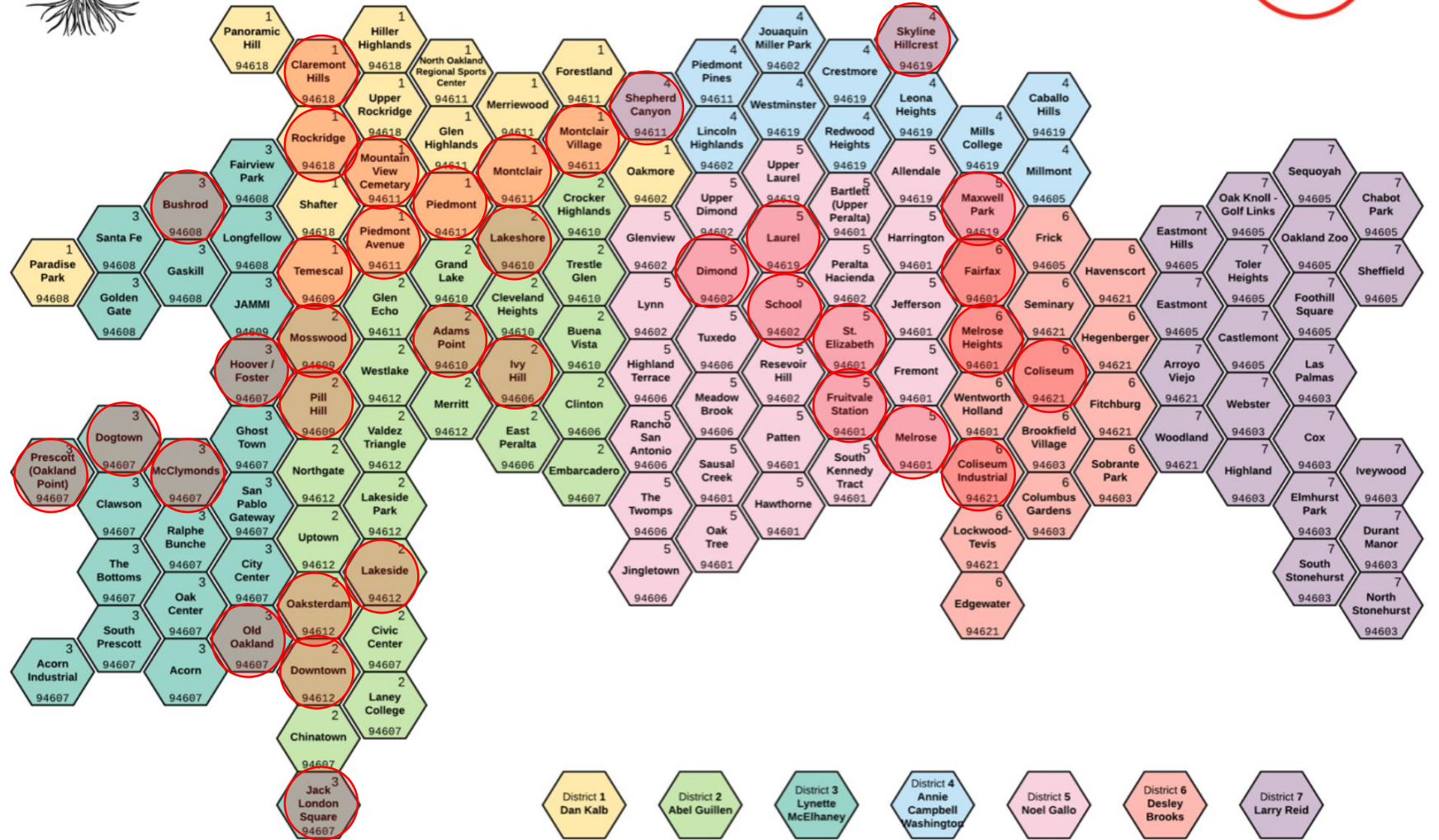
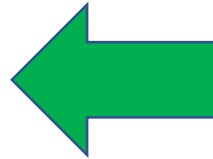
Moved my house into storage and started staying in AirBnBs for 3 years gathering requirements



# 2017-2019 SmartOakland Neighborhood Map



SmartOak.org  
Neighborhood Data Map

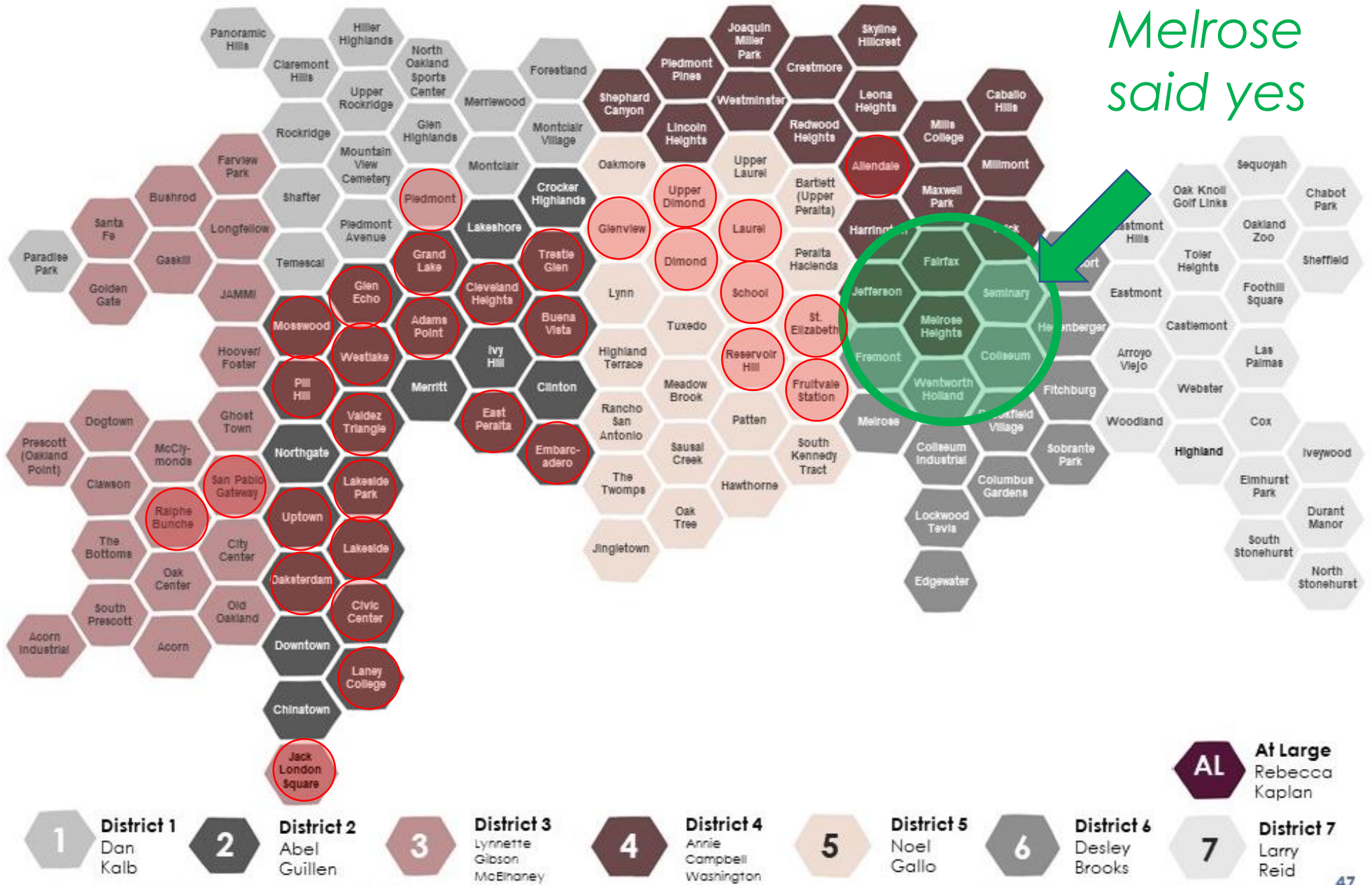


SmartOak.org

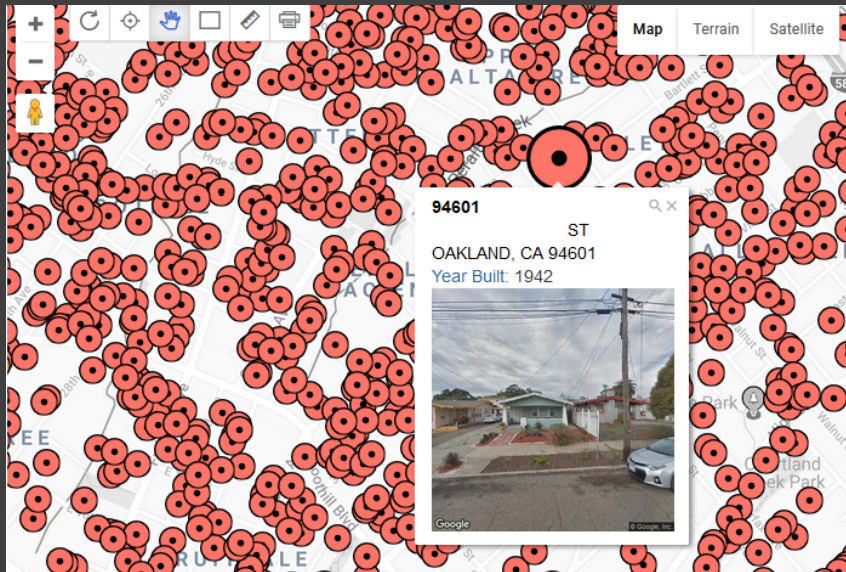
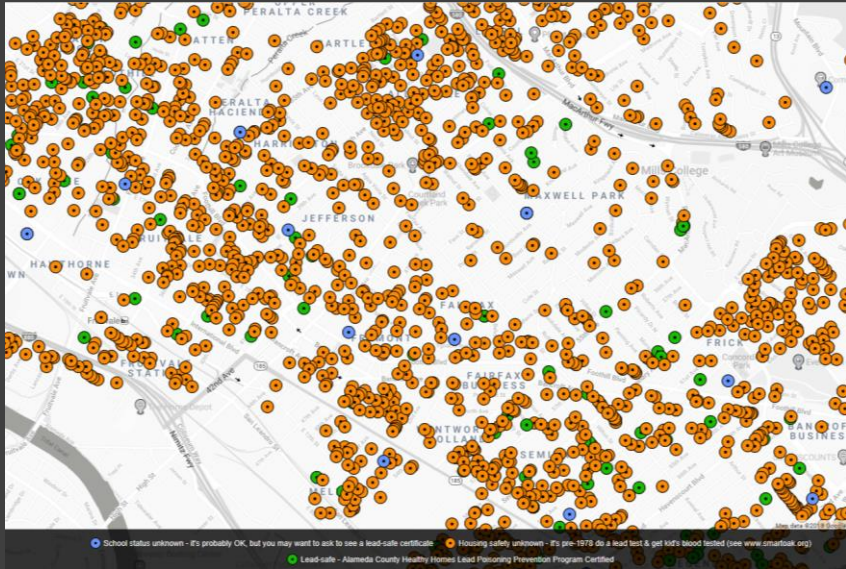
Join Us for our monthly SmartOakland Smart City Meetups Every 3rd Thursday  
6-8pm Oakland City Hall, Civic Design Lab, 1 Frank Ogawa Plaza, 9th Floor, Oakland, CA 94612

Use kits and blueprints and begin introducing the idea of securing and making all housing in 146 micro-communities safe from lead poisoning

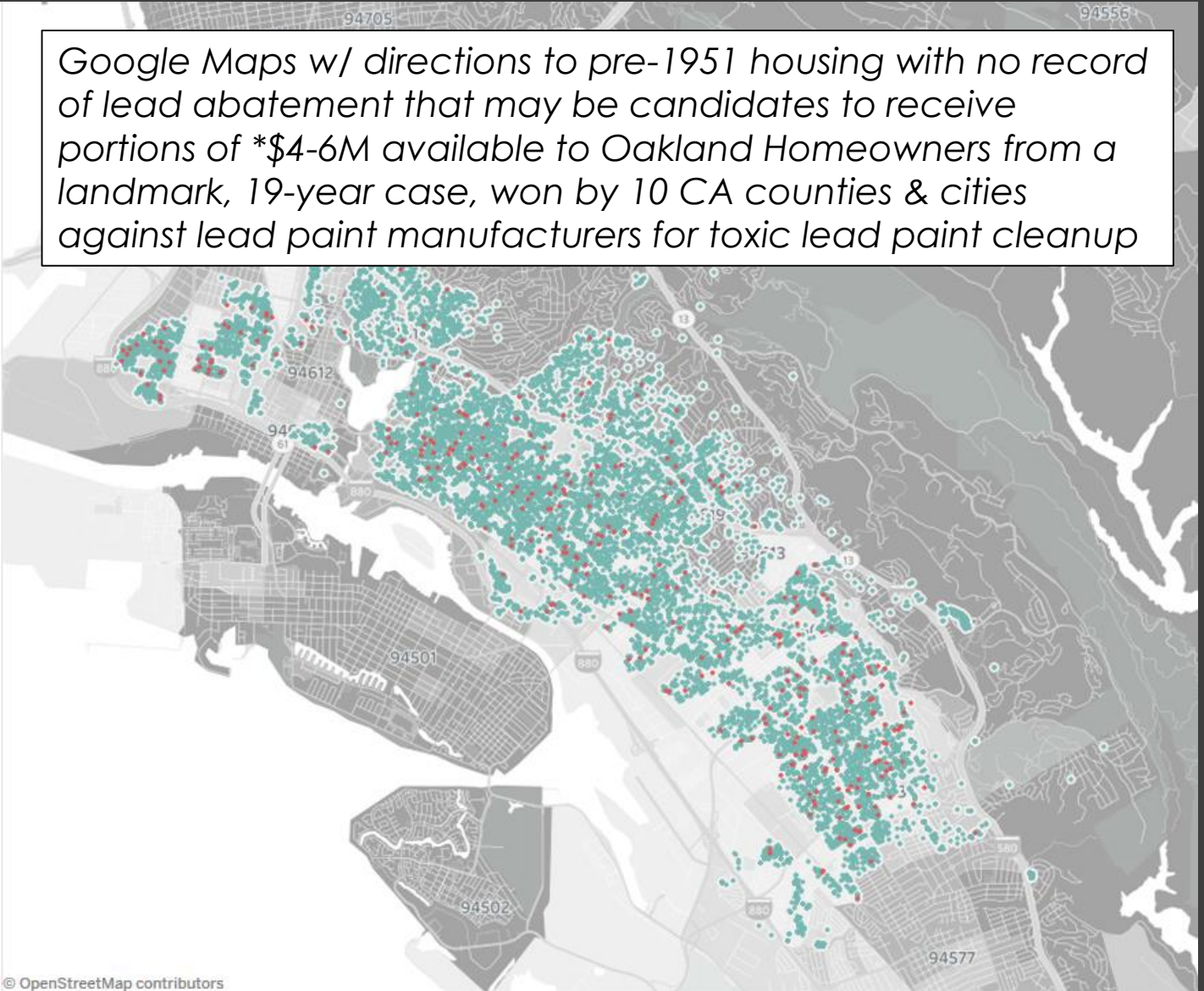
Melrose said yes





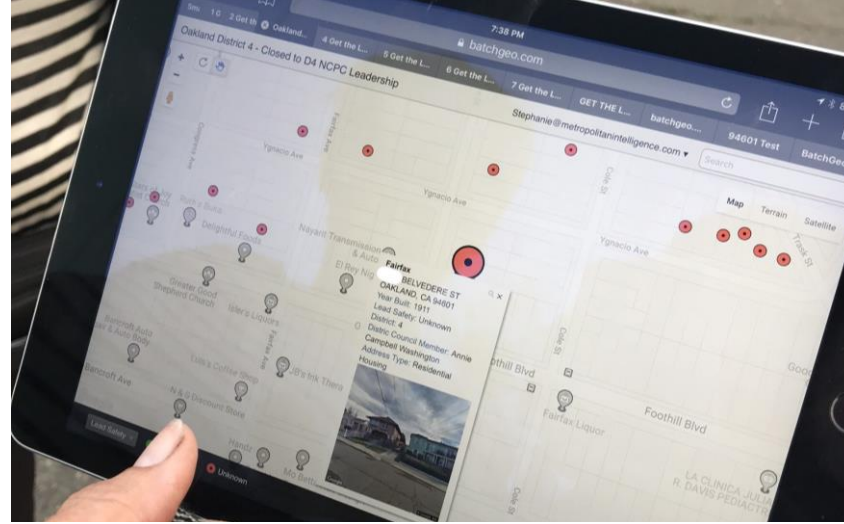


Google Maps w/ directions to pre-1951 housing with no record of lead abatement that may be candidates to receive portions of \*\$4-6M available to Oakland Homeowners from a landmark, 19-year case, won by 10 CA counties & cities against lead paint manufacturers for toxic lead paint cleanup

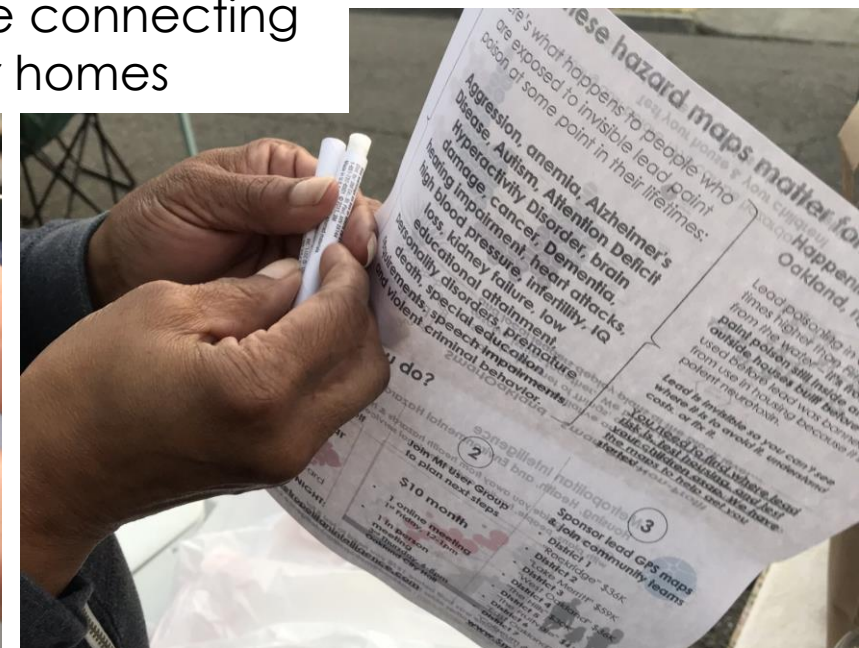
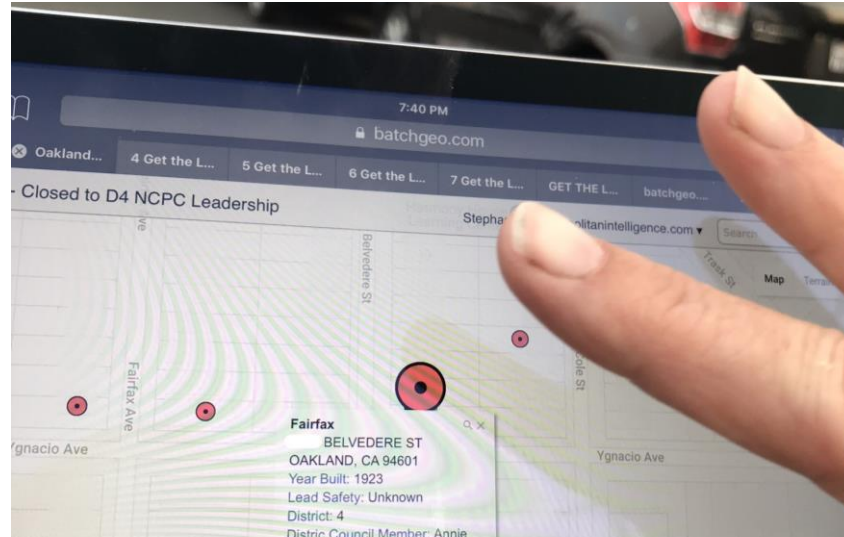
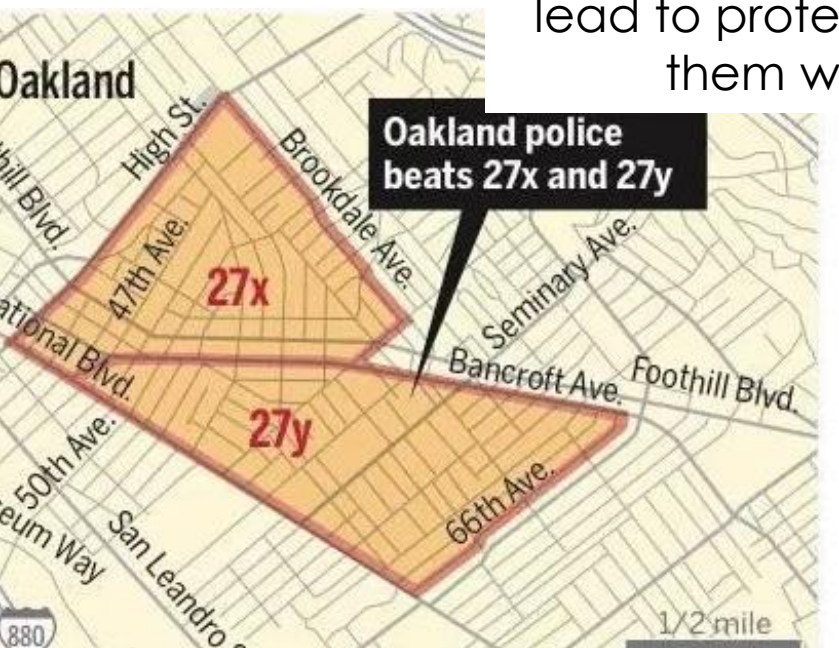


© OpenStreetMap contributors

\* Lead paint settlement funds are estimated to be available in 2019, exact dates and delivery methods are to be determined  
 All rights reserved © 2019 Metropolitan Intelligence - Proprietary - DO NOT DISTRIBUTE WITHOUT WRITTEN AUTHORIZATION from Stephanie Hayden, CEO - stephanie@metropolitanintelligence.com



August 2018 Districts 4 & 5 NCPC 27x constituents and Block Captains began using the Get the Lead Out Google App to walk door to door and talk w/ neighbors about testing their homes for lead to protect themselves and their children while connecting them with resources to abate lead from their homes



b

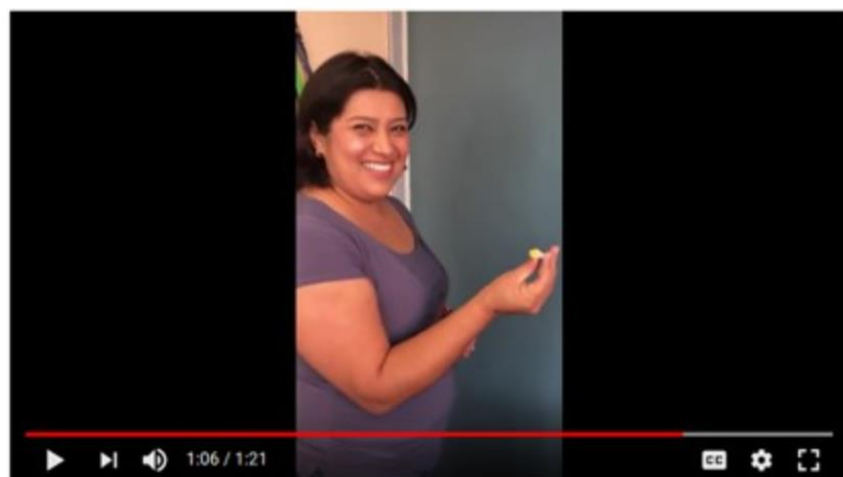
## Learn About Lead Using a Do It Yourself Instant Lead Check Test by 3M

**NOTE:** a 3M Lead Test is a great, quick answer tool, but it is not official and it is possible to do it wrong and possibly get a false result. The only way to be CERTAIN your home is lead-safe is with a XRF test described on the next page.

Once you've looked at your maps and you decide to test your house, by yourself, instead of with a group of people testing many houses look for these colors in your test results:

- **Yellow** which means negative – no lead was detected in the exact location where you tested - like Nalleli Cruz at Unity Council in Fruitvale
- **Red or Pink** which means there is lead in the exact spot you tested –like Blair Matsuura of SmartOakland did in his video
- **White** which means you didn't break the glass tubes and the yellow liquid did not come out which means you did not do the test – try again

**NOTE REMINDER:** The only way to be sure there is no lead in your home is to have a Xray Fluorescent (XRF) scientific scan performed by an EPA Certified Lead Inspector who is trained and licensed to use the XRF scanner to detect exact lead concentration levels in paint, soil, dust and air. Instructions about XRFs are on the next pages.



SmartOakland CrowdLead Get the Lead Out Nalleli Albarran Cruz Unity Council Green Dot 11092917

10 views

0 likes 0 comments SHARE

YouTube

smartoakland get the lead out 3m test videos



SmartOakland At Home Instant Lead Test GET THE LEAD OUT Blair Matsuura 10212017

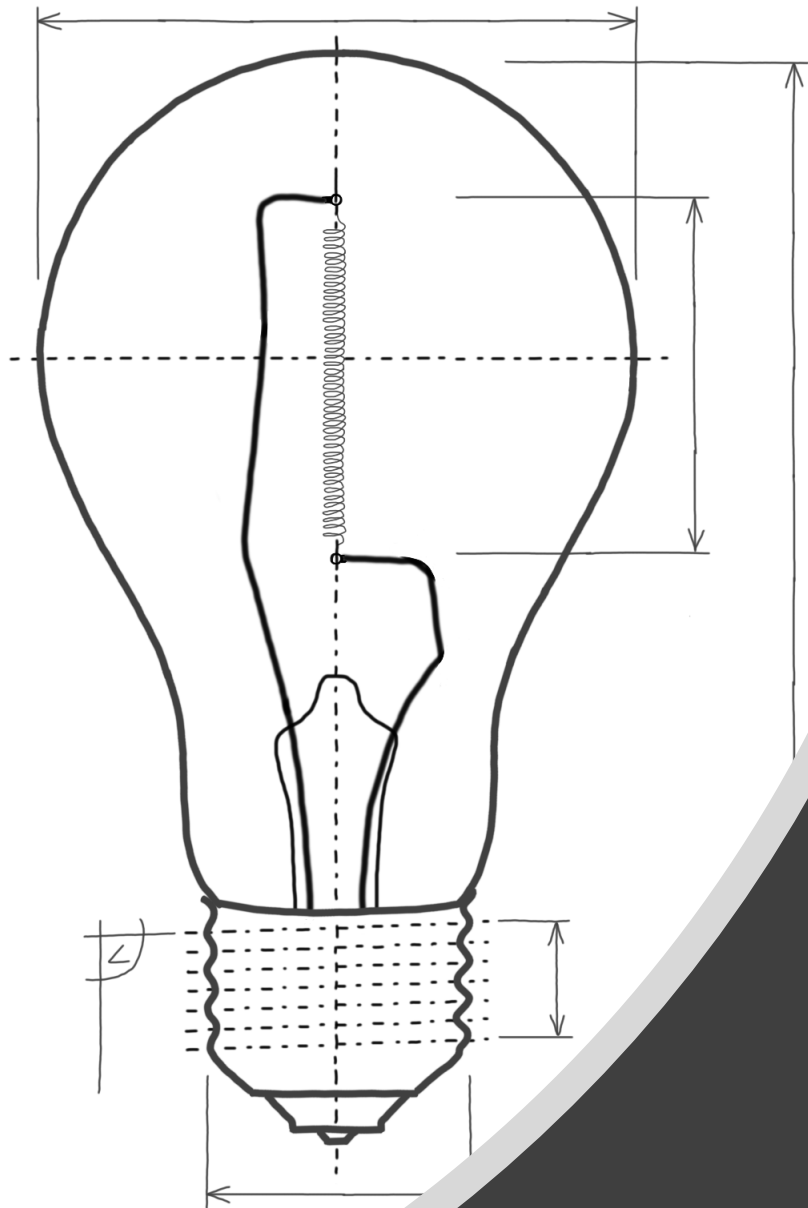
# SmartOakland | 2018 – Learn. Find. Fund. Fix. Grow...

**Learn** - Help a lot of people learn quickly about the threat of lead poison and ask people share with everyone they know in every language

1. **Find** where the poison is probably located using predictive data then engage people to test their homes to verify if it is there, and if so, confirm exact locations so it can be treated
2. **Fund** remediation options including private financing, third-party investors, Green Bonds, Resilience Bonds, Energy Efficiency programs, Low Income Housing Programs, government grants, and non-profit volunteer housing renovation programs – there are many choices
3. **Fix housing, soil, dust, and air** using certified professionals and sustainable, lead-safe, environmentally friendly products and solutions that can be automatically monitored

**Grow** – Creating lead-safe, green housing, is beneficial for everyone's health, housing property values, workforce development, jobs creation, and digital transformation that brings economic development to lead-safe communities





2018

Give  
The People  
What They  
Want

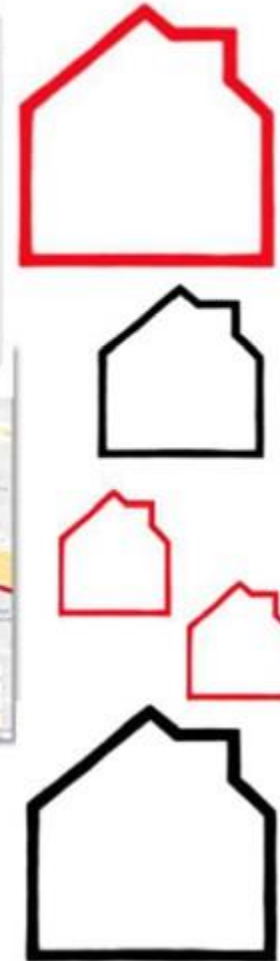
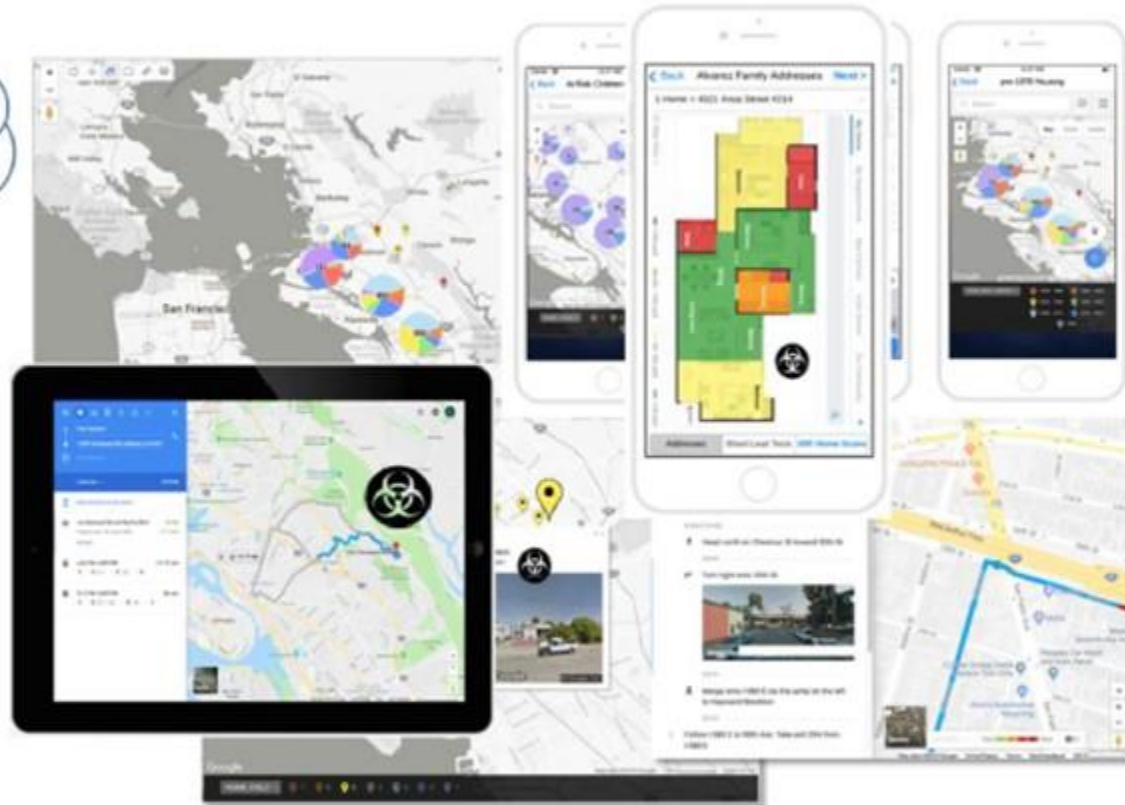
# Find at-risk kids before poison finds them and connect to 911 for emergency response...

Joe uses MI to rescue people who've realized they're in poison rooms. | And to keep himself safe too



Joe is a fire fighter and First Responder who takes action on 911 calls and risks his life saving others.

He uses MI 911 to locate at risk children in lead poisoned homes and to know if the burning building he's running into will poison his team. He can take extra precautions as they arrive on scene to assist with the emergency call.

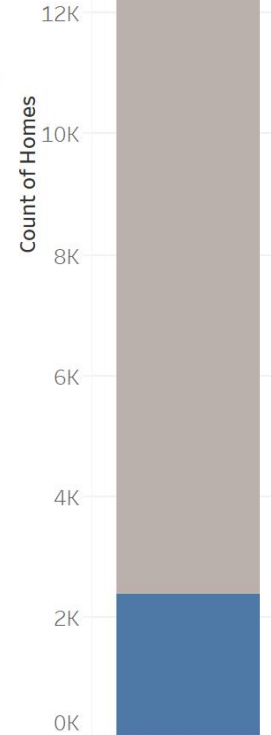
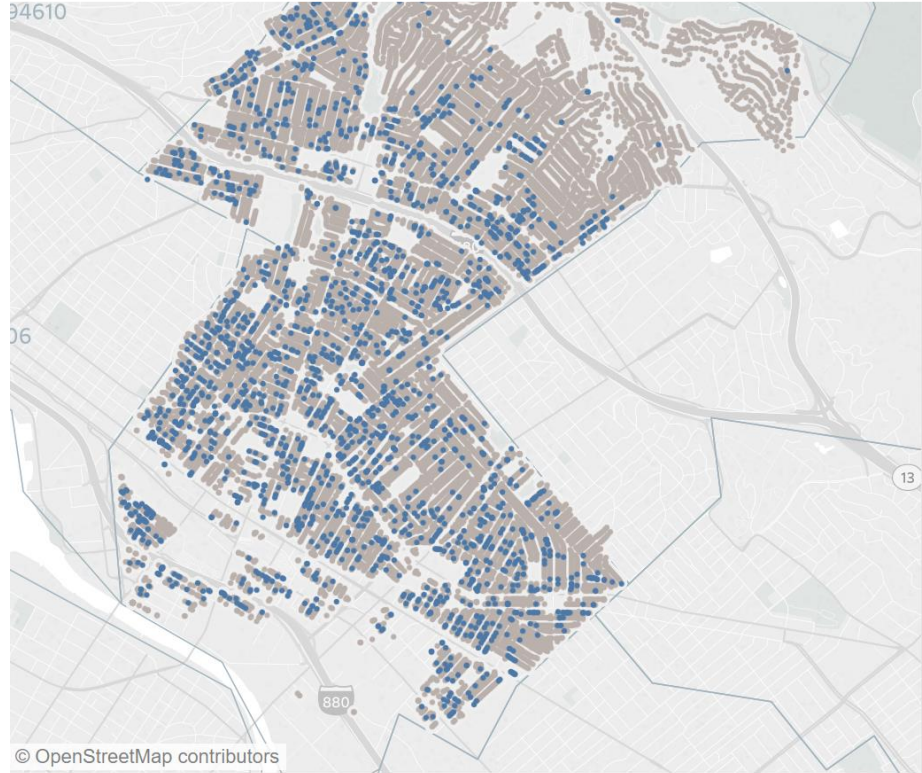


Conference: May 14, 2018  
Santa Clara Convention Center  
Santa Clara, CA

CO-LOCATED WITH  
Internet  
of Things  
World

**Geospatial Zip Code dashboards for Opportunity Zone, philanthropic, and community investments in toxic lead paint cleanup costs to revitalize disadvantaged communities impacted by historic environmental hazards**

Investor Role  
 Zip Code to individual housing unit investment opportunities in Oakland Opportunity Zones



Cost per Home (Estimate)

Built Year (Low)  Built Year (High)

Children % (Low)  Children % (High)

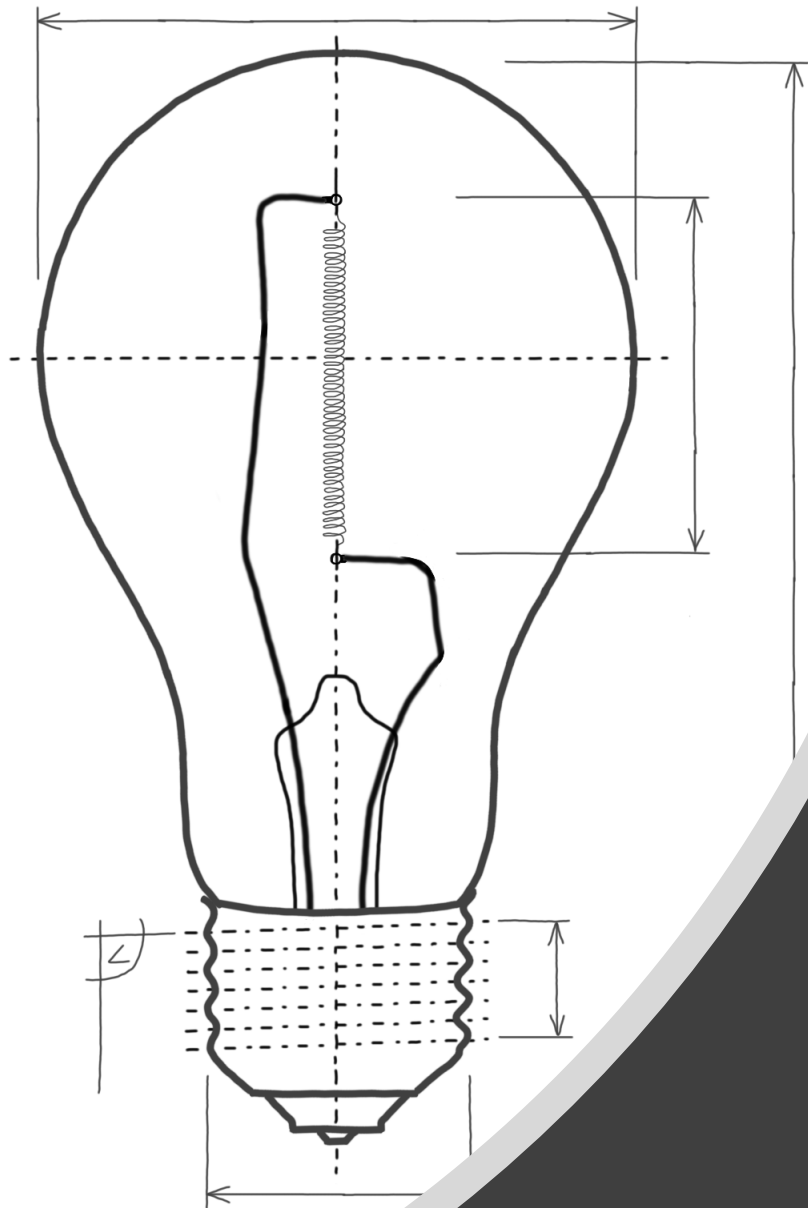
Housing Burden (Low)  Housing Burden (High)

Poverty % (Low)  Poverty % (High)

Crime (Low)  Crime (High)



	Candidate	Not Candidate
Homes	2,427	15,283
Cost	\$22,965,800	

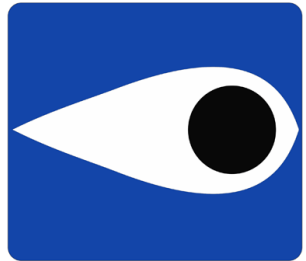


2019

The People  
Want More  
& Want to  
Go Faster

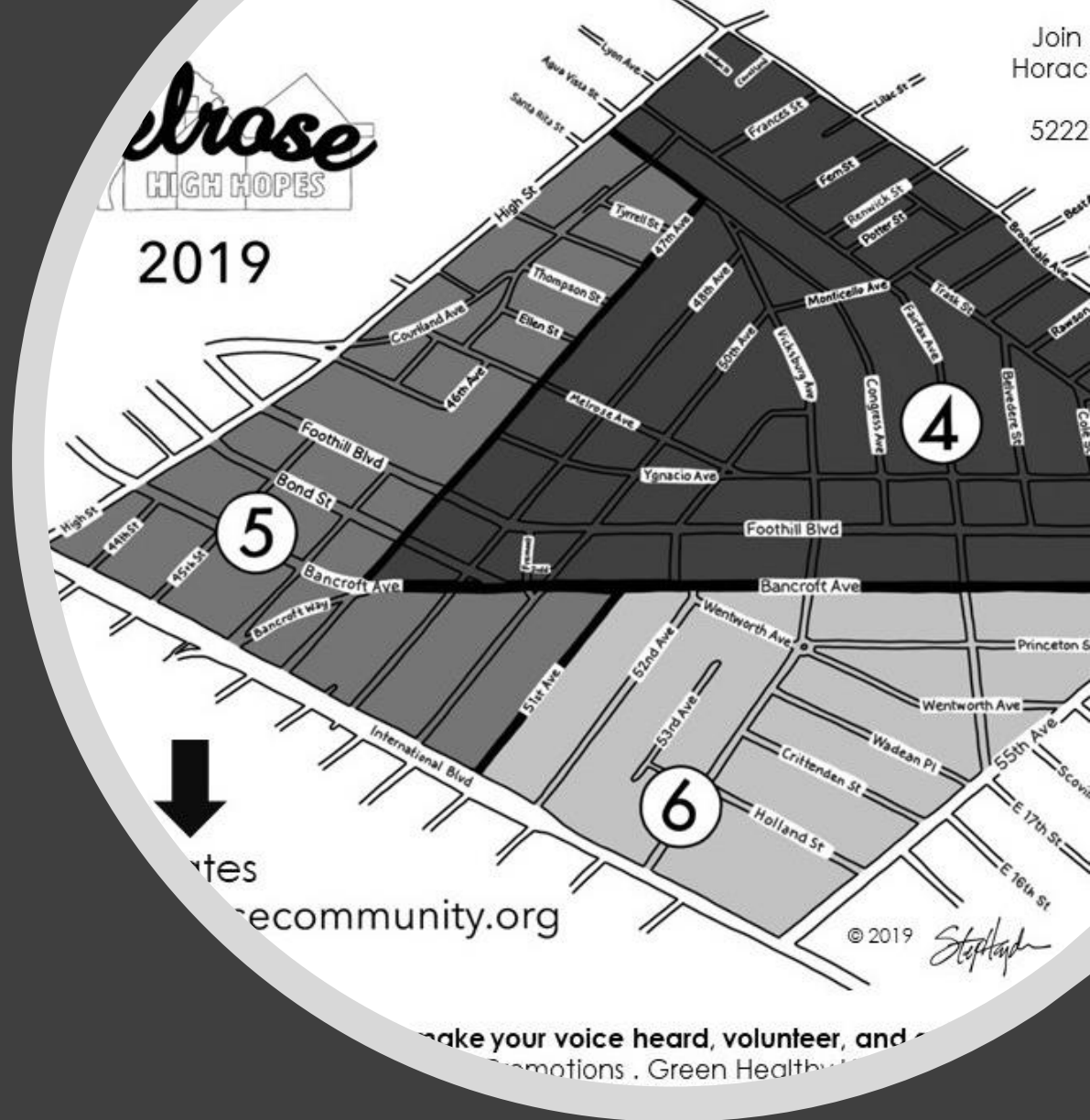
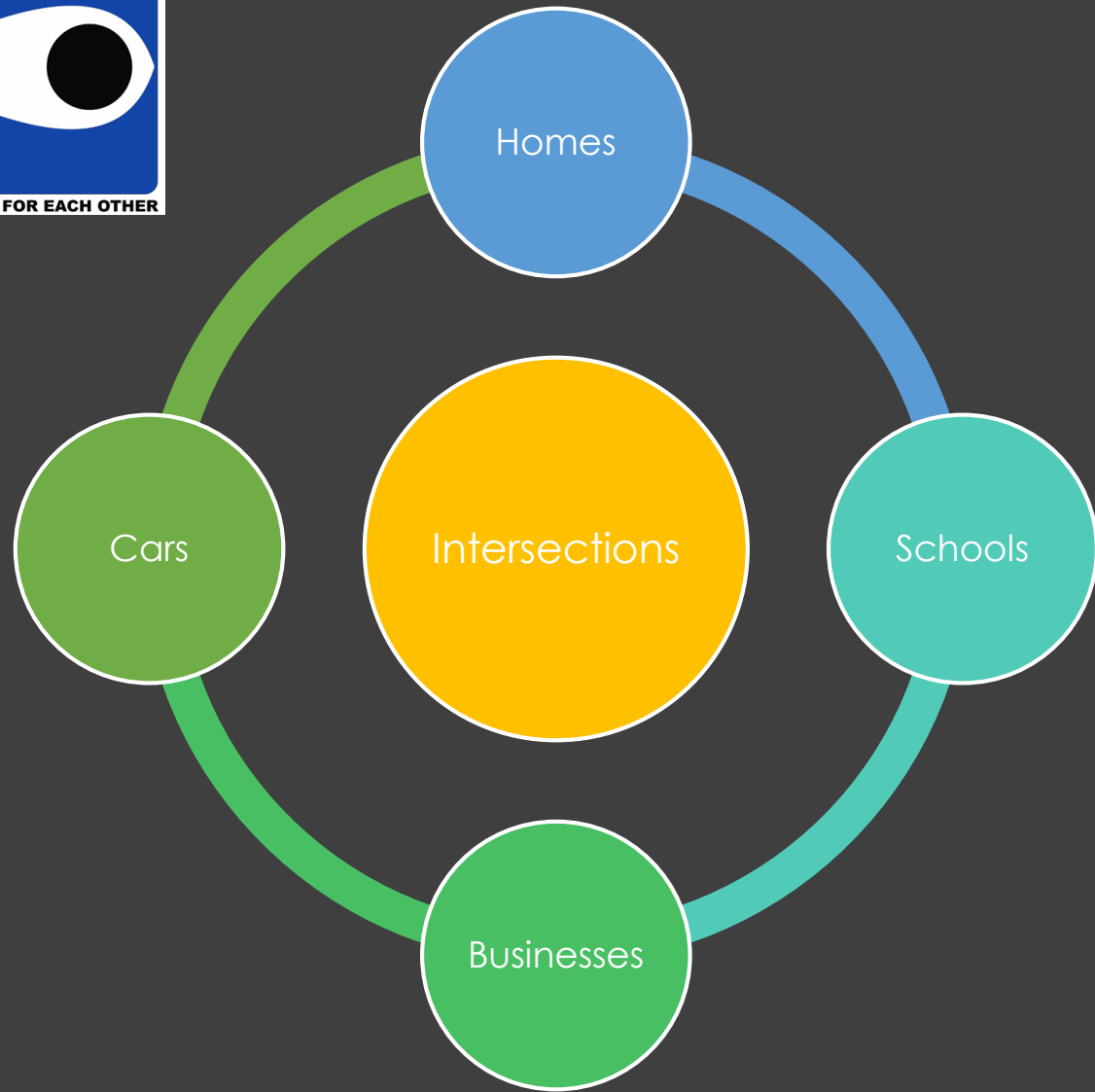


NEIGHBORHOOD  
**WATCH**



WE LOOK OUT FOR EACH OTHER

2019



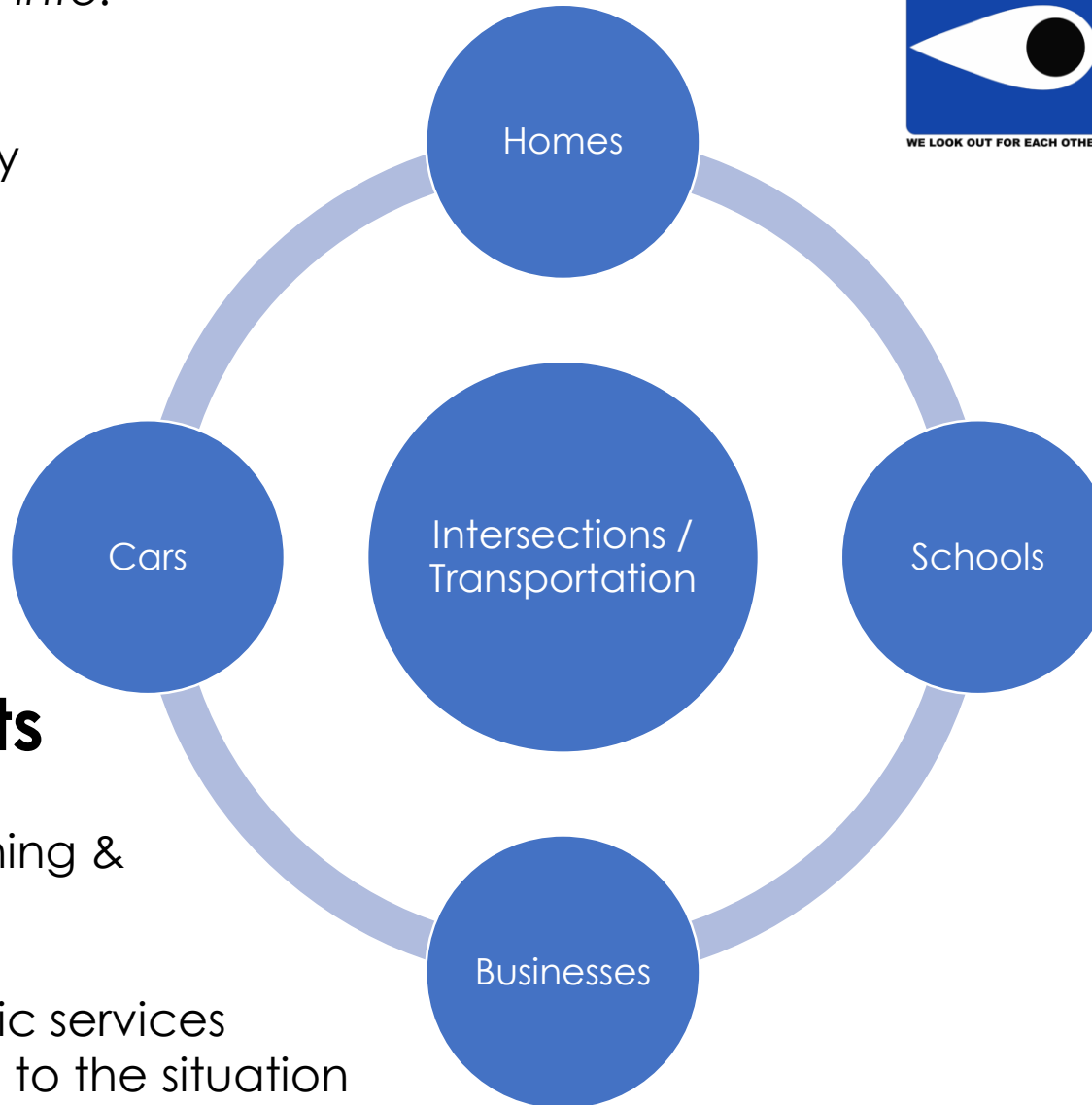
# Community Councils Want Awareness

*persistent real-time insight into:*

- Natural Environment
- Urban/Industrial Legacy
- Housing
- Streets
- Cars
- Intersections
- Hazards
- Humans
- Animals
- Weather

## Acting on Insights

- Identify what's happening & notify someone
- Capture video & text it
- Send it to police / public services
- Send help and funding to the situation



# Augmented Neighborhood Watch for

**Heavy Metal Toxins**  
**Sideshows**  
**Illegal Dumping**

Speeding  
Running Stop Signs / Lights  
Robberies  
Homeless without resource  
Lost people  
Prostitution / Trafficking  
Lost animals  
Trip & Fall Hazards  
Potholes  
Car Damages  
Drug Dealing  
Cruelty to Humans  
Cruelty to Animals

# Sideshows case study...

- ❑ Orchestrated swarms of people and cars who spontaneously descend upon and take over spaces until they feel like leaving
- ❑ Include too many moving parts and are too big and dangerous for individuals or groups to break up
- ❑ Cause danger to constituents, property damage to businesses, and damage to city resources used by constituency



## Public Safety can't stop them...

- illegal to block or trap drivers
- chase or follow drivers
- arrest without evidence

## Constituents are not safe...

- Sideshows in residential blocks
- Near schools & school crossings
- Outside local businesses

## Business Owners are impacted...

- Business property damage
- Customers fear for safety
- Cannot grow new business

April 19, 2019 media covered Sideshows throughout Oakland during the day that ended in a large one at the intersection of International and 42<sup>nd</sup> Street at night

- Channel 5 KPIX ["Oakland Police Overwhelmed By Sideshow Violence; Big Rig, Bus Burned"](#)
- SF Gate, ["Oakland sideshow ends with AC Transit bus going up in flames"](#)



## OPD's Current Plan...

50 Overtime Police each weekend on the clock in case a Sideshow erupts somewhere in Oakland...

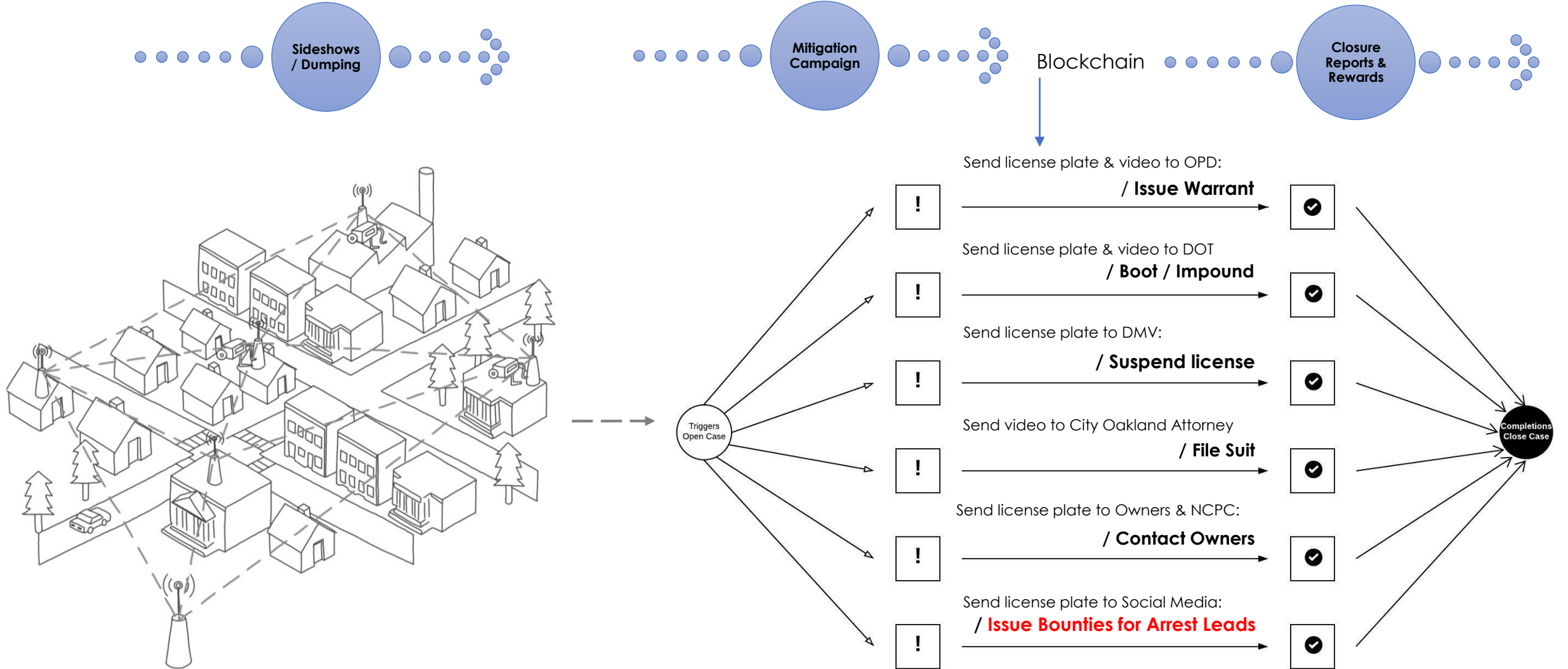
**COST ESTIMATE: \$500K per year**

average OPD salary \$6170 mo. or approximately \$35 hr  
+ Overtime is \$52.50 hr x 8 hrs for 12 months  
\$10,080 per officer x 50

Computer Vision Kits & Internet of Things Sensors are owned by communities watching...

Events trigger cases, alerts, live streaming evidence & tracking to city & NCPCs...

City issue orders, bounties, and timelines for case closure & community / public responds to close...



# Get Data to learn where to look next and drive future outcomes

Past



Present

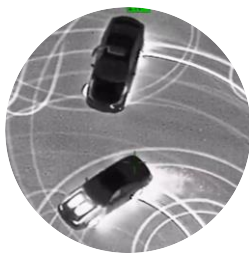
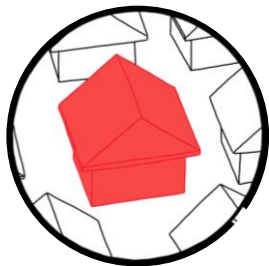


Future

- Public Data Requests
- Public Works
- Oakland 311
- CHP
- OPD
- Tax Assessor

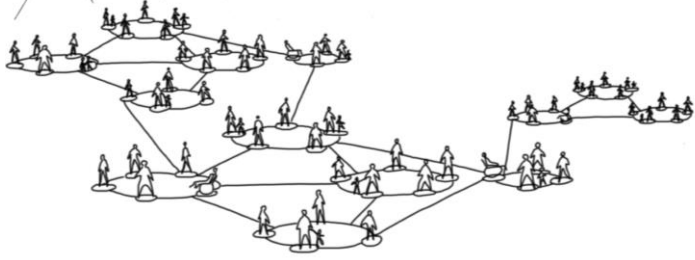
- Sensor Data
- Camera & Computer Vision Data
- Machine Data
- Internet of Things Connected Devices

- Machine Learning
- Pattern Recognition
- Predictive Analytics
- Secure data exchanges
- Data investment
- Opportunity Zone investment



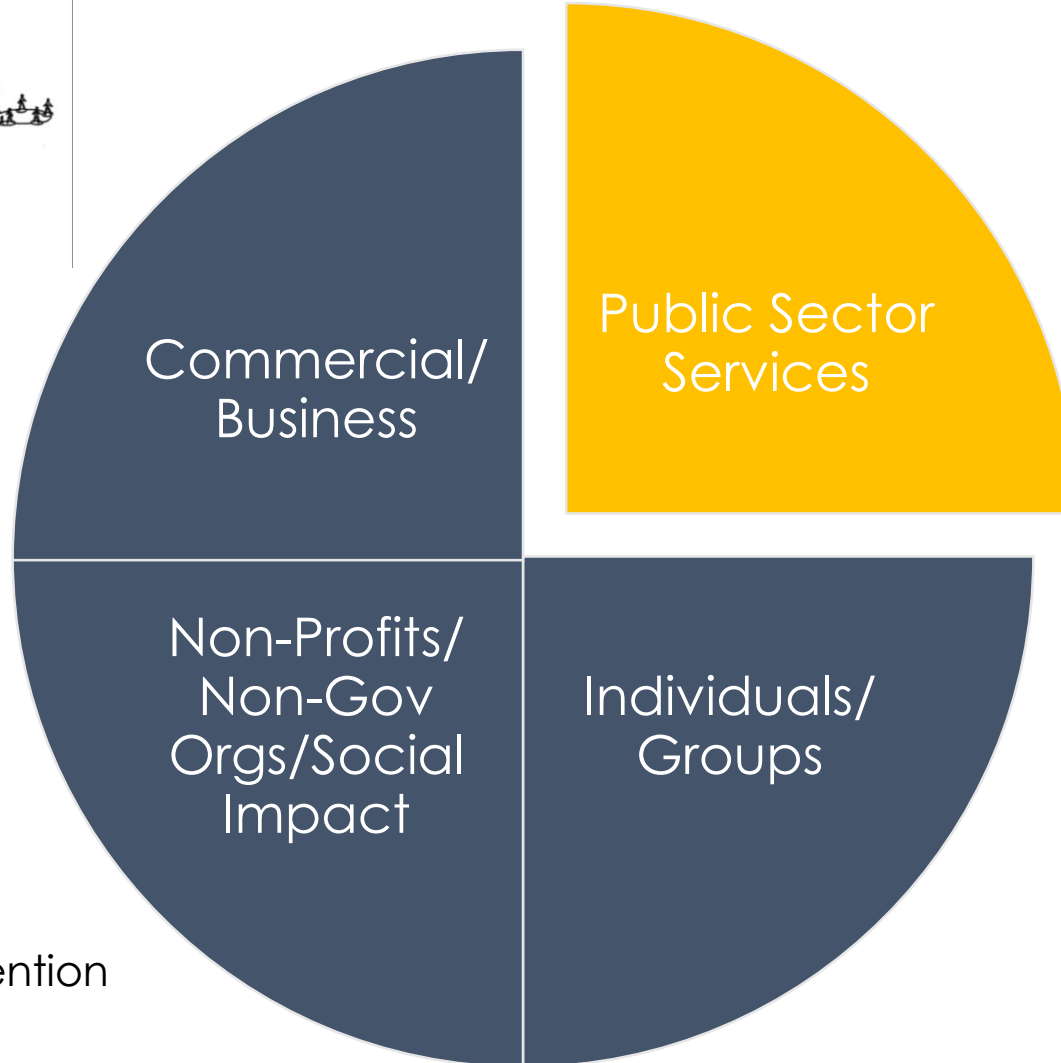


- Define Role-based Resilient Awareness for Individuals, Groups & Investors to Understand What's Happening and Act upon Insights
- Secure, Buy, and Sell Constituent-owned data captured via micro-grid IoT infrastructure



- Business Owners
- **Opportunity Zone Investors**
- Real Estate Developers

- **Green Healthy Homes**
- Environmental Justice
- Race, Equity, & Inclusion
- Sustainability Orgs
- Homeless Services Orgs
- Faith-based Orgs
- Human Trafficking Intervention
- Affordable Housing Orgs
- Food Banks



- **City Council Members**
- City Staff
- City Administrator
- City Housing & Health Staff
- County Housing & Health Staff
- Building Inspectors
- City Planners
- Oakland Public School Admins

- **NCPC Block Captains**
- **Home Owners**
- **Renters**
- **Landlords**
- **Parents**
- Children
- Seniors
- Community Councils
- Nextdoor.com
- Neighborhood Groups

# The foundation for MI is **micro-grid infrastructure in communities**

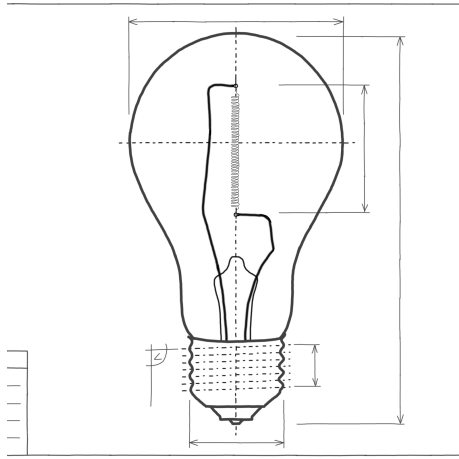
Infrastructure



Applications

- Home Kits interior
- Home Kits exterior
- Intersection Kits
- Spaces Kits
- Business District Kits
- School Kits
- Connectivity
- Radio networks
- Mesh networks
- Solar power
- Backup systems
- Resilience plans

- Machine Learning
- Pattern Recognition
- Predictive Analytics
- Complex Event Handling
- Sentiment Analysis
- Data Protection, Privacy, & Loss Prevention
- Cybersecurity
- Device Management



**Innovation with vision.**

Artificial intelligence technologies allow us to not only understand what is being captured through vision—the actual context of a given situation—but also comprehend what the video and data are showing us.

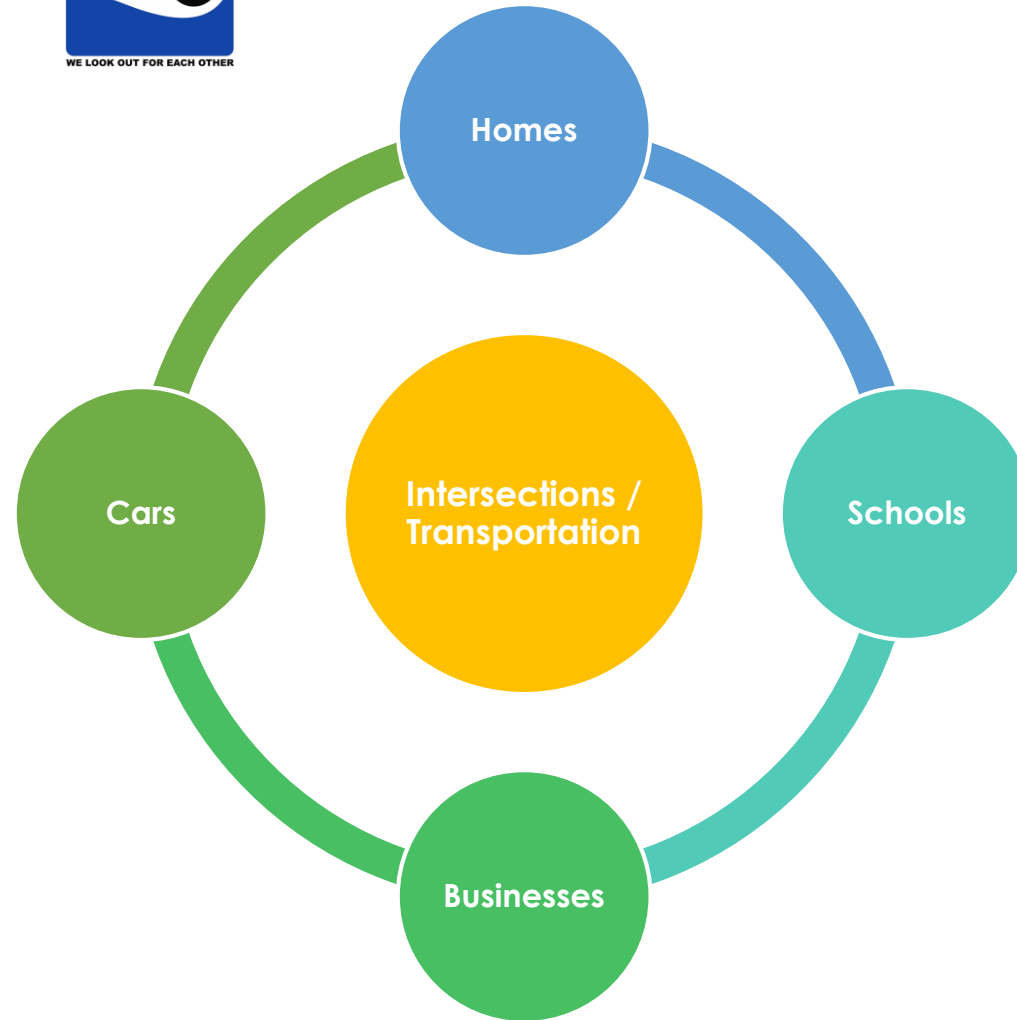


# Augmented Neighborhood Watch Traffic Case Study Demo

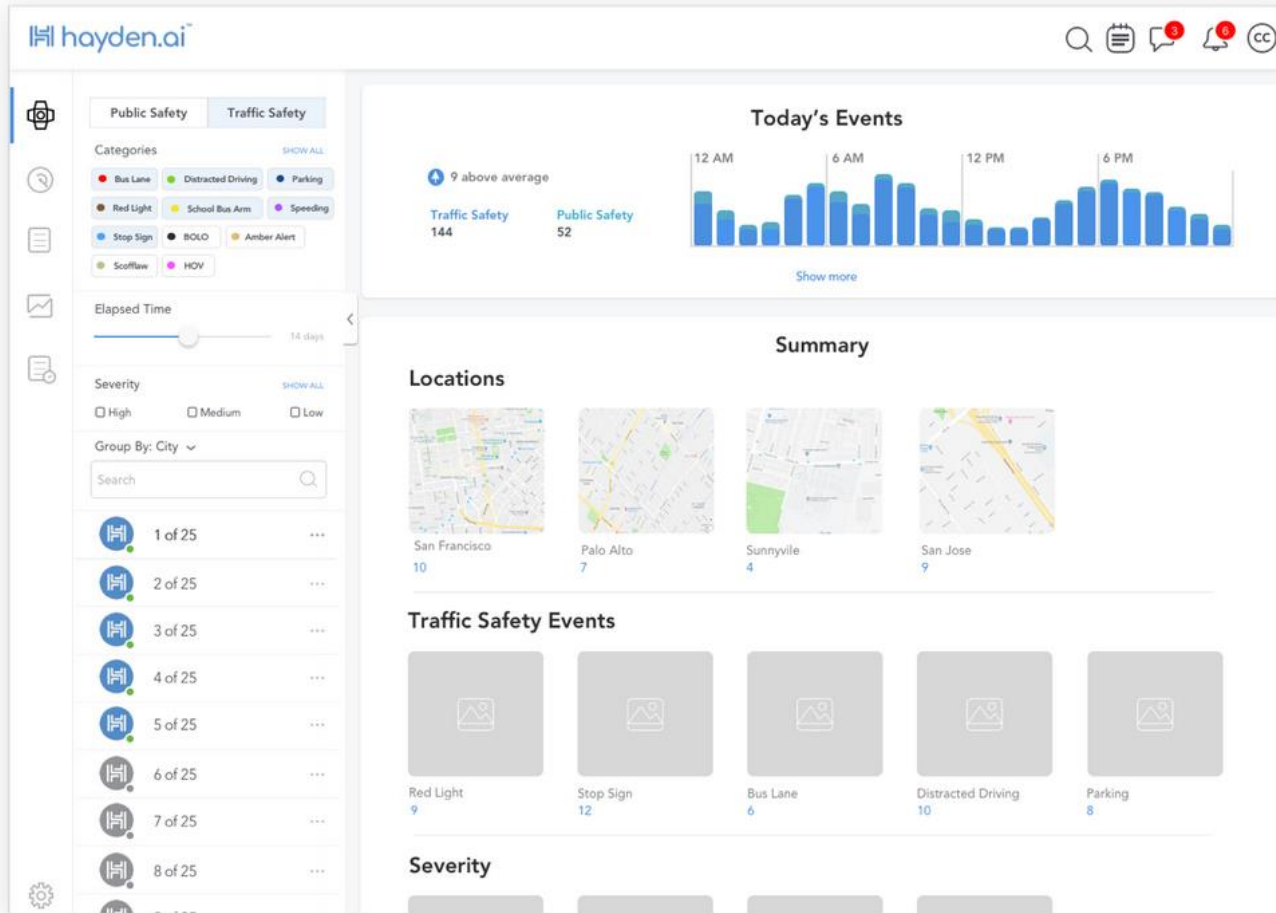




Constituents use micro-grid infrastructure, computer vision, and sensors to automatically “watch” for behaviors they do not accept in their neighborhood then alert the appropriate responders...



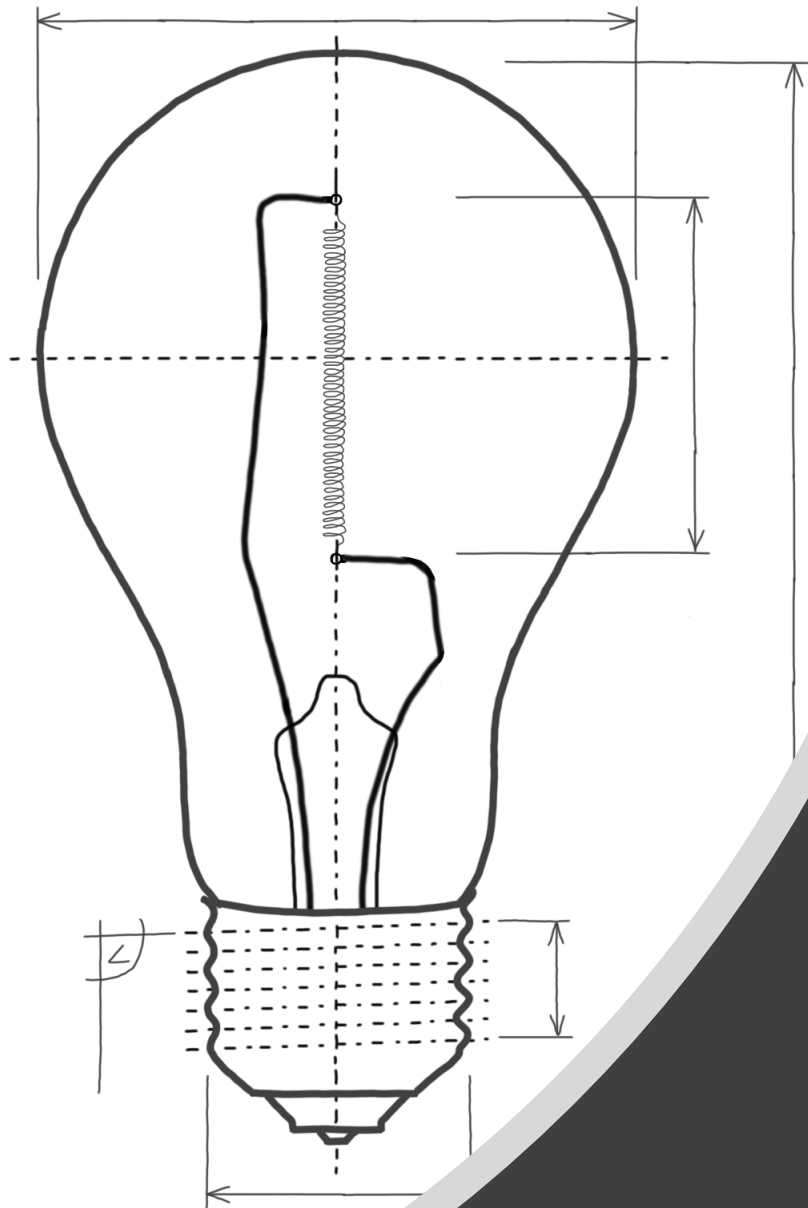
Public Sector and law enforcement can see constituent data along with computer vision mobile App contributions to help resolve issues with real-time streaming video and data



## Spotlight

# City-wide situational awareness.

Quickly visualize the safety of your city. Uncover insightful trends and browse the highlights of the day.



2019

Meanwhile  
back at  
Melrose...

**10 California Cities & Counties  
(134 cities total)**

**win a 19-year lawsuit with lead  
paint manufacturers who must pay  
to remediate 10s of 1000s of homes**

**– there is 1 system that exists to  
handle this need...**

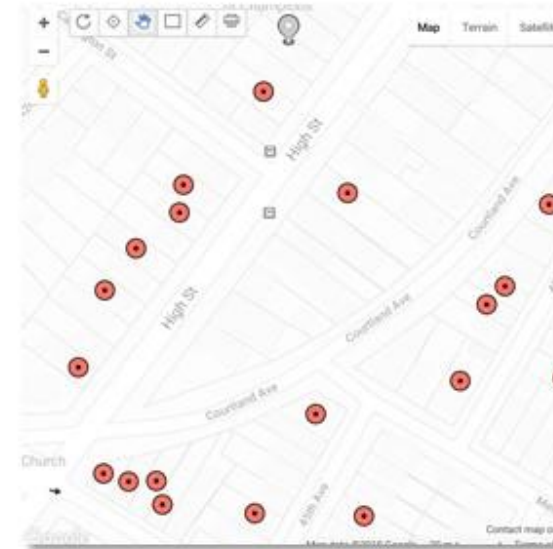
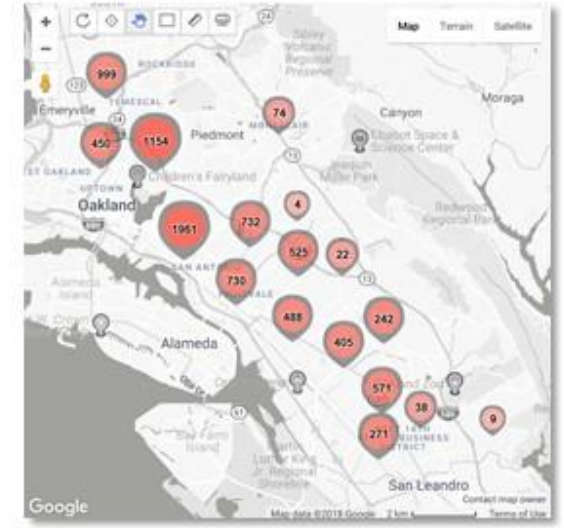
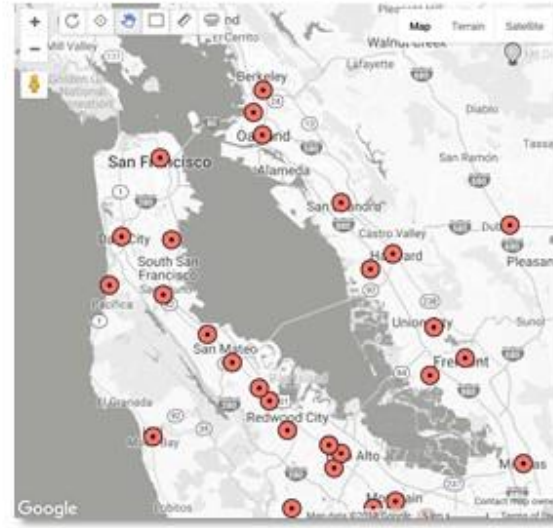
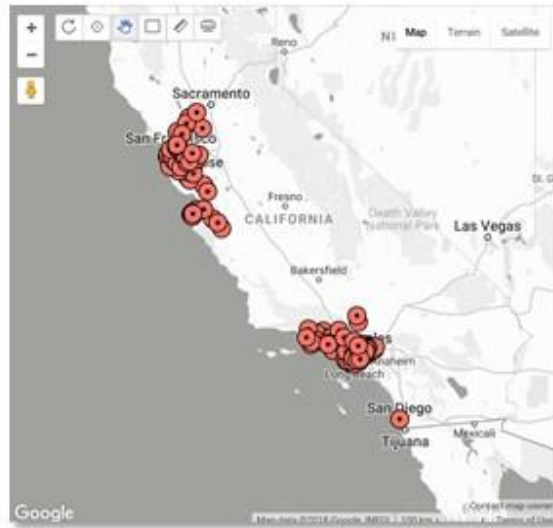
Our deployment methodology, data, IoT infrastructure and Blockchain-enabled toolset has existed for 3 years..

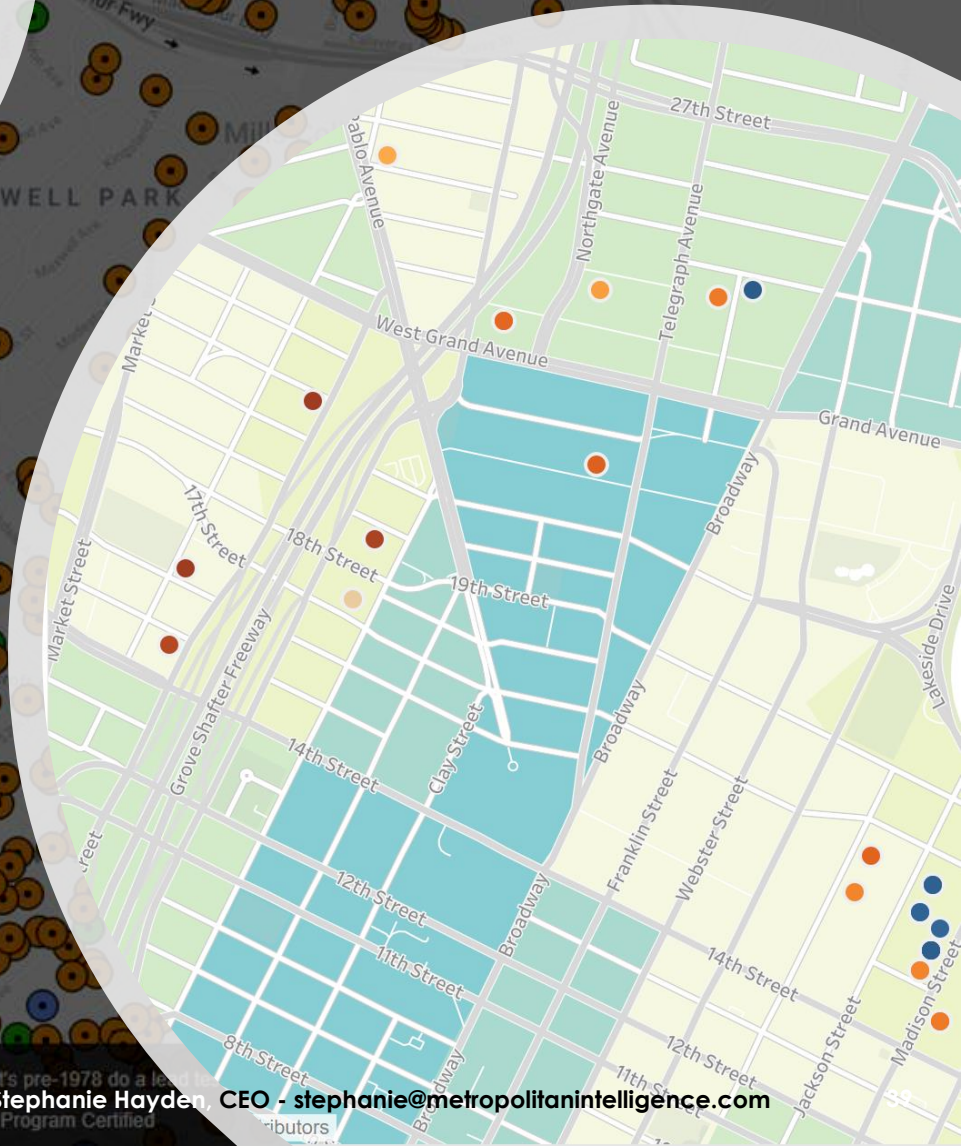
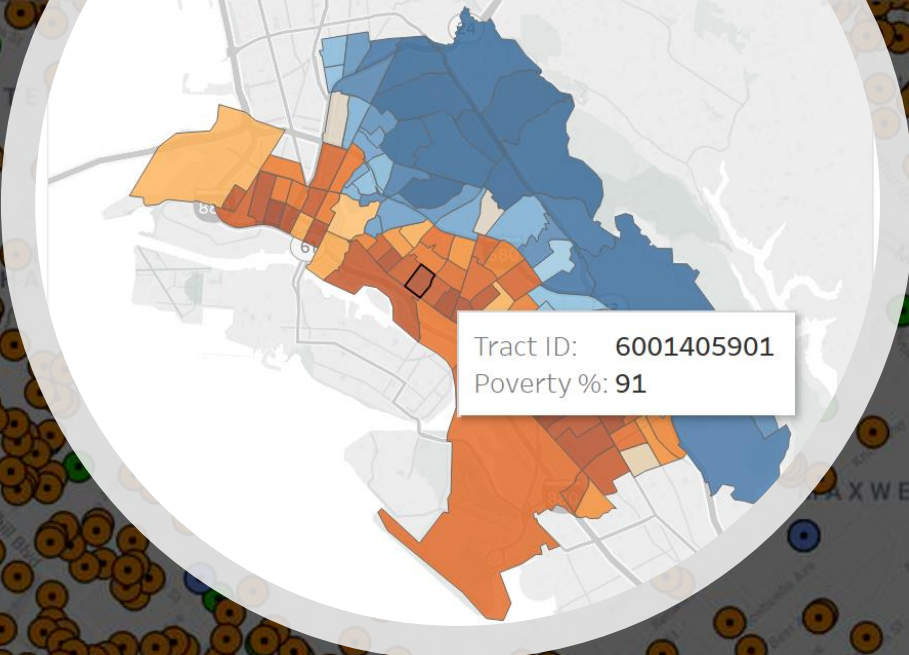
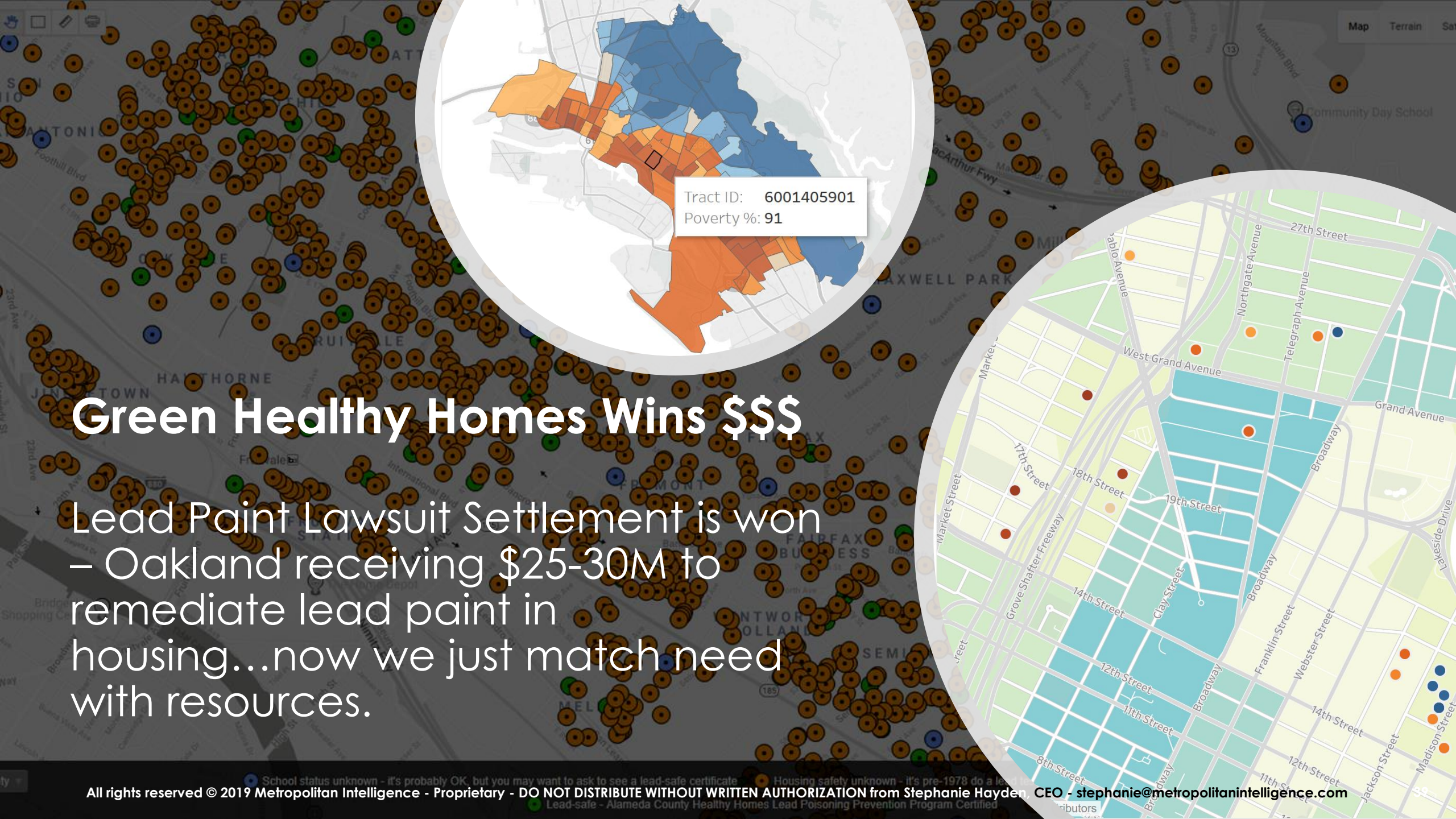
Now, money exists to begin work in 134 cities to remediate lead paint hazards

They'll need to track live progress for investors, local constituents, municipalities, and collaborate at city, state, and federal levels...

1

Use data to find where lead paint poison probably exists in housing units & warn public it may not be safe, then get people to test it and register results





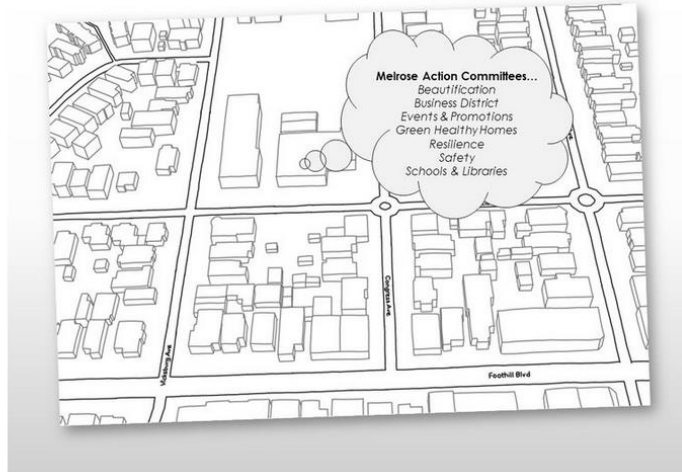
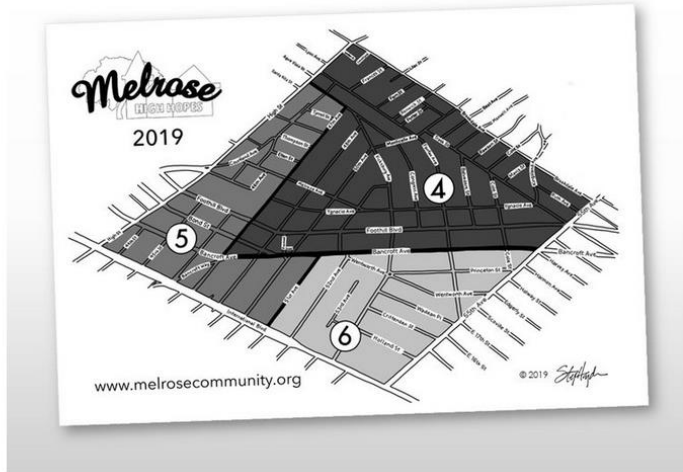
# Green Healthy Homes Wins \$\$\$

Lead Paint Lawsuit Settlement is won  
 – Oakland receiving \$25-30M to  
 remediate lead paint in  
 housing...now we just match need  
 with resources.

- Join [Street Scape](#) letter writing [campaign](#) to stop hit-and-run on Foothill Blvd
- Join Safe [School Pathways](#) letter writing campaign re; Bond Street Encampment

ACCESSIBILITY & MOBILITY  
 BEAUTIFICATION  
 BUSINESS & EVENTS  
 GREEN HEALTHY HOMES  
 PUBLIC SAFETY  
 SAFE SCHOOL PATHWAYS  
 SPEEDING & SIDESHOWS  
 STREET SCAPE

COMMUNITY UPDATES



**CO-CREATE FUTURE OF MELROSE WITH YOUR NEIGHBORS**

Our Community Council meetings are creative, collaborative, and open to all ideas. We want to learn what people are interested in working on to resolve challenges so we can operate as a network of people who share the same interests and goals and have creative approaches to getting things done in our community. Our meetings occur monthly - the last Wednesday of each month - and Action Committee meetings will start to pop at other times throughout the month.

JOIN OUR NEXT COMMUNITY MEETUP...

**ACTION COMMITTEES FOCUS ON SPECIFIC AREAS OF INTEREST**

People come to our meetings to talk about what they're concerned about so they can find answers and that will not go away. We're expanding to include more topics members have suggested about what's curious, beautiful, interesting and valuable about living in Melrose. We're looking at topics like gardens, schools, arts & culture, earthquake preparedness, green healthy homes, pets, and more. Nothing is set in stone, you can make this what you want it to be.

CHECK OUT THE STREET SCAPE ACTION COMMITTEE...

**SEE YOUR CONTRIBUTIONS CREATE REAL IMPACT FOR MELROSE**

When we come together as a community of people who share vision, strategy, and approach to gaining results we can make real change happen. For instance, our Street Scape Letter Writing Campaign lead to more of us getting involved in the subject and figuring out how to get the attention of City Hall, our Council Members, and people handling the budget. This lead to our group confirming the Street Scape project does still exist and there's renewed focus on getting it started.

SEE OUR TRIP TO OAKLAND CITY HALL...

### Nov. 13: Department of Transportation's, Michael Ford, will Visit Melrose Council for Discussions

Join us at the last meeting for Melrose in 2019 with Michael Ford, our featured speaker from the City of Oakland Department of Transportation working in depth the programs that his division, Parking and Mobility, works on throughout the City of Oakland neighborhoods. [Read More](#) →

STEPHANIE HAYDEN - OCTOBER 22, 2019

### Oct. 23: Melrose Victim Impact Letters to DOT re; Traffic Deaths on Foothill are Working

Our community members have witnessed 4 traffic-related deaths in the last 6 months on Foothill Blvd.

Melrose community members decided to take immediate action following the last death on Oct. 1 on Foothill and Cole to write letters the our four representative Council Members, the Mayor's office, the Department of Transportation, and the Oakland Police Department to demand immediate protections and actions to protect Melrose neighbors and our nearby communities. [Read More](#) →

STEPHANIE HAYDEN - OCTOBER 22, 2019

### Oct. 8: District 5 Reminder to attend Public Safety Meeting re; Bond Street Encampment Oakland City Hall 4:00pm

This is a message from Rosa Velasquez, Special Assistant, to District 5 Council Member Noel Gallo  
Good afternoon Community Partners and Members,

**FRIENDLY REMINDER** of tomorrow's Public Safety Meeting in regards to the Bond Street encampment. Oakland Charter Academy (OCA) - students, parents, and staff, Bond Street residents and surrounding businesses need your support! The enforcement of safe and drug free zones, as well as the clearing up encampments around schools - due to the illegal activity that occurs by the residents living in the encampments, should be a priority for the safety and wellbeing of our students in our City.

**Before** 4:30pm tomorrow, please reply to this email or call us at 510-238-7005, if you will be attending and/or speaking at the meeting. This is the link to the [online Speaker Registration Form](#) ( <https://solar.oaklandnet.com/SpeakerForm> ), and the [paper](#) form will also be available before the meeting (please arrive early for assistance in filling it out and submitting it before the meeting starts). [Read More](#) →

STEPHANIE HAYDEN - OCTOBER 8, 2019

### Sept 25: Melrose Elects New Leadership - Braunz Courtney is now Vice Chair

I am Braunz Courtney, your new Vice Chair and my interests lay in building collaboration between Melrose and other neighboring East Oakland districts. As a collective group I want us to constructively identify present and arising issues, brainstorm solutions and create action items that hold ourselves and local government accountable. I want to see our efforts display impactful change in our communities. As a Bay Area Realtor and Public Health professional rooted in Harm Reduction, I strive to increase awareness and access to tools that enhance the quality of life for us all to stay healthy, alive and able to thrive. [Read More](#) →

STEPHANIE HAYDEN - OCTOBER 8, 2019

### Sept 25: Melrose Business & Events Action Committee - Andre Isler as Lead

Andre Isler's Business District & Events Action Committee will focus on bringing more new businesses to Melrose, promoting existing merchants, and introducing the community to services that already exist they may not know are here.

Andre's AC grouped up with the Street Scape AC. [Read More](#) →

STEPHANIE HAYDEN - OCTOBER 8, 2019

### Sept 25: Melrose Accessibility Action Committee - Irma Swygert as Lead

Irma and her group discussed methods they could consider using to get assistance more quickly in the event they are stuck or blocked from access to their homes and or services in Melrose.

We'll add more detail to this blog as we have notes on the formation of the Accessibility Action Committee. [Read More](#) →

STEPHANIE HAYDEN - OCTOBER 8, 2019

### Oct 4: Melrose Call to Action for a Letter Writing Campaign for Safety on Foothill Blvd

Attention Those with Power to Act.

My name is Stephanie Hayden and I'm a constituent, business owner, registered voter, and Chair of the Melrose Community Council living in the Melrose neighborhood of Oakland, CA [Zip Code 94601](#).

As you are aware, extensive data prove Zip Code determines life expectancy in Oakland.

### Sept 25: Melrose Monthly Recap These Committees are Taking Action...

Melrose Sept 25, 2019 Recap Notes from the Monthly Member meeting

These are very rough notes everyone bare with us as we recruit for a Secretary to take live meeting minutes to share with people who can't make a meeting in person. For now, we have this format - using the planned agenda and adding notes into those sections. Braunz Courtney is now Vice Chair, Andre Isler is Business District AC, Irma Swygert is Accessibility AC, Razu Engen is Beautification, Litter, and Street Scape ACs, Chris for Bond Street Homeless Encampment issues, Stephanie Hayden is for Speeding, Sideshows, and traffic-related Safety AC. [Read More](#) →

### Sept. 10: Join Melrose at Oakland City Hall for Public Safety & Public Works to Make Your Voice Heard

This message is from Braunz Courtney who invites all Melrose members to join him at Oakland City Hall to address the following agenda as a Call to Action to move the Homeless Encampment at Bond Street for child safety issues.

[Read More](#) →

STEPHANIE HAYDEN - SEPTEMBER 10, 2019

Join us every 4<sup>th</sup> Wednesday at  
Horace Mann Elementary School  
7:00-8:30pm  
5222 Ygnacio / Congress Street

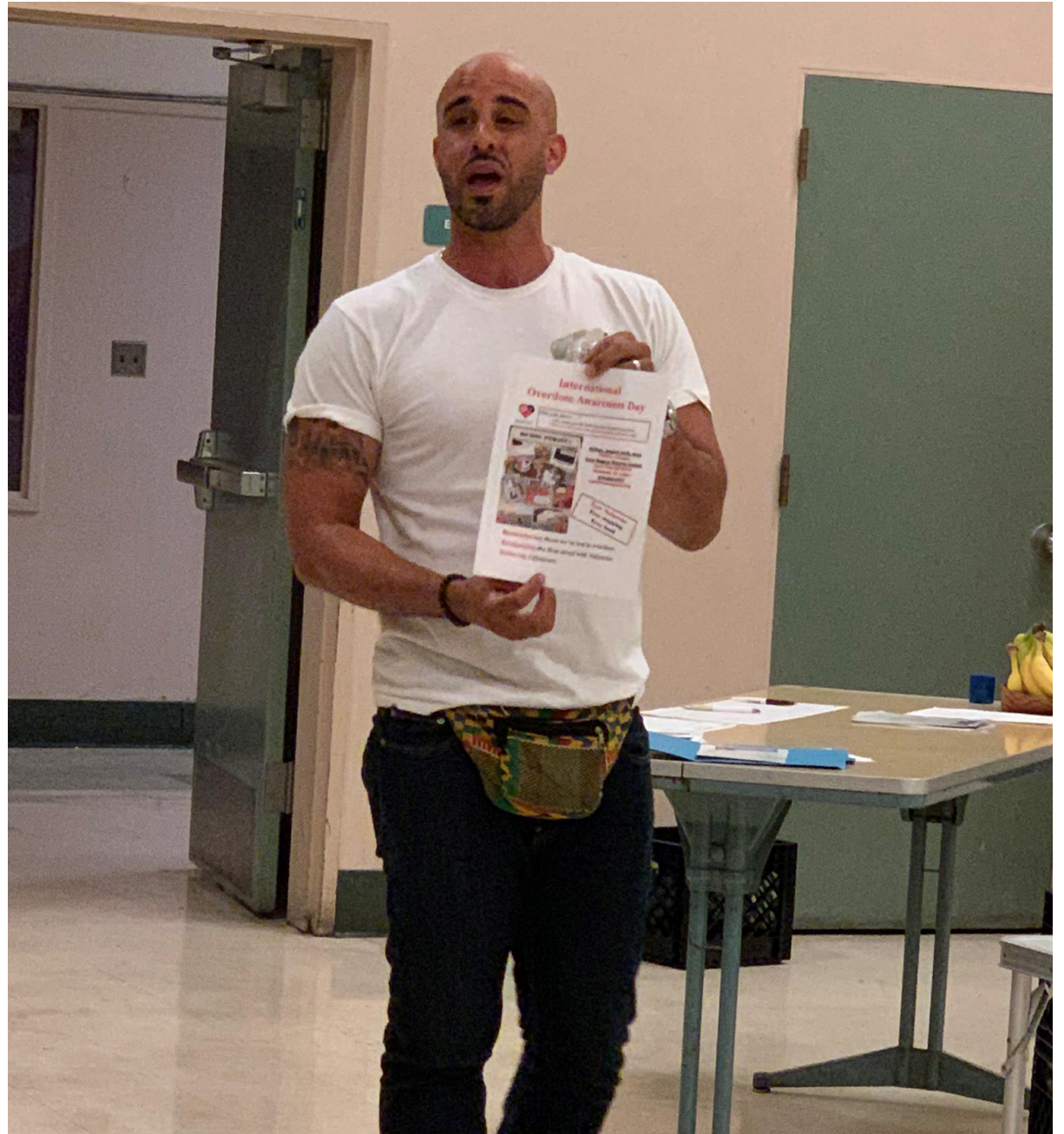
Get Updates  
[www.melrosecommunity.org](http://www.melrosecommunity.org)

Everyone is welcome!

© 2019 Stephanie Hayden

Join Melrose Action Committees to make your voice heard, volunteer, and get results!  
Beautification . Business District . Events & Promotions . Green Healthy Homes . Resilience . Safety . Schools & Libraries





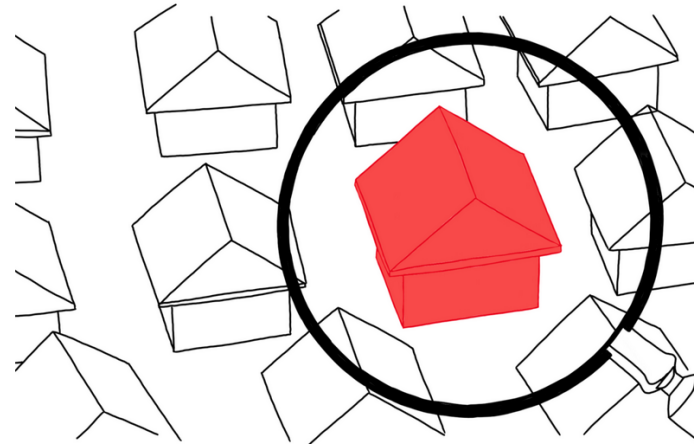
## Green Healthy Homes

To build upon an ongoing initiative in Alameda County driven by local non-profits, health organizations, and volunteers the Green Healthy Homes AC will help get information out to community members about health risks that may exist in their homes so the sources can be identified and remediated with funds coming to Oakland in 2019.

### Lead

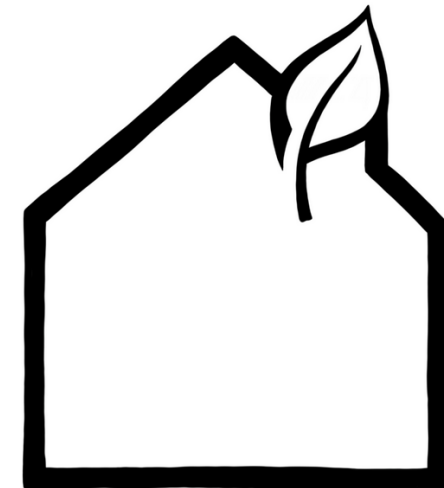
Stephanie Hayden

## Learn About Risks



There are a number of reasons housing can become unsafe over time and while most of it is related to the age of the structure sometimes it has to do with products that were used that are now known to cause health issues. The Green Healthy Homes AC will focus on providing information about what to look out for in your home to make sure things are safe for you and your kids and to give advice on what to do if you find a problem.

## Get \$ to Fix Them



In some cases where there is a problem that will cost money to fix, there are funds available through federal, state, and local grants and sometimes through lawsuit settlements an organization has been ordered to pay to remediate the issue for current residents and/or home owners.

The Green Healthy Homes AC will help Melrose residents discover if there is funding to help pay to fix issues when they're found.

## Melrose Speeding & Sideshows

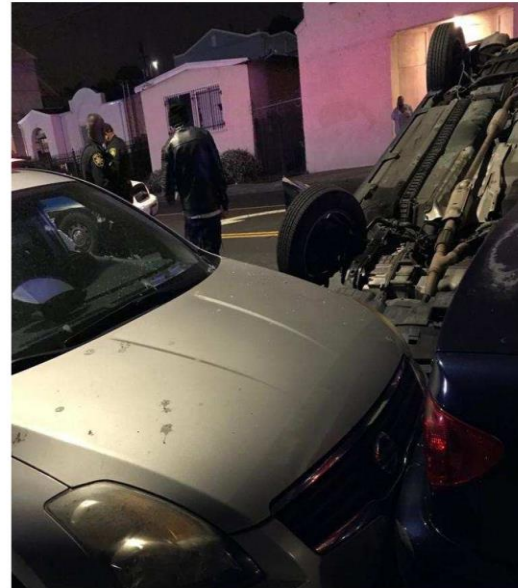
Speeding is a daily issue in Melrose and we don't mean 10 miles over the limit - more like 50-60 miles over the limit.

Sideshows are happening more frequently and are turning into major threats to community members' lives and businesses.

### Leads

Temporary: Stephanie Hayden

### Speeding



This accident happened recently, the week of June 15, 2019. Imagine how fast this car must've been going to flip over and crash into a car parked on the street.

Foothill and Bancroft run parallel to each other and people drag race, play Chicken, and speed down them every day. We frequently see people passing cars and staying in the oncoming lane to intimidate other drivers to swerve out of the lane to avoid being hit head-on.

Our hope is the Street Scaping project that was approved but not yet delivered back in 2014 will help calm this traffic as it will not be able to have so much open, flat, runway to pick up so much speed in residential areas.

### Sideshows



Sideshows are spontaneous events that occur quickly and include cars, people, cell phones, and social media. The network of people and cars can take over an intersection within a few seconds and maintain control of that intersection for hours at a time often trapping people who happened to be waiting at a stop light when the crowd landed there.

It's dangerous while it's happening and law enforcement is limited in what they're legally allowed to do about the crowd and the reckless drivers.

Recently, Melrose lost a mother and daughter who were run down when Sideshow drivers raced through the neighborhood to escape being caught for an earlier Sideshow.

## Melrose Street Scape

Back in 2012+ a group of dedicated Melrose residents worked many long hours to co-create a Street Scape plan for the district to not only beautify the area but to use transportation-related street scaping solutions to cut down on speeding and Sideshows in the community.

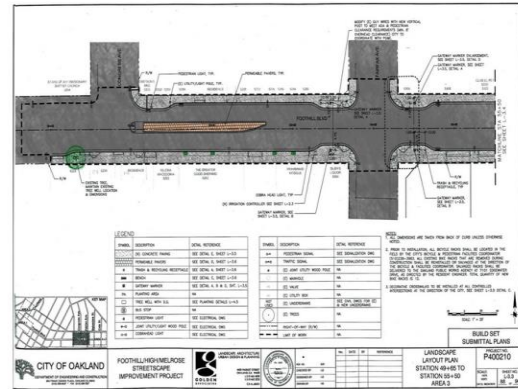
The plan was approved and budgeted through the Department of Public Works back in 2014, and while other communities that engaged in the same process have already received and been living with the benefits of their Street Scape projects Melrose has yet to break ground on this already funded project.

Join the Street Scape 2014 AC to bring this project to Melrose.

## Leads

Barbara Oplinger  
Lynne Ching  
Razzu Mitos

## The 2014 Blueprints



These are the plans created by the City of Oakland in collaboration with Melrose community members and the Chair of the NCPC, Preston Turner, back in 2014.

The plans were created in the Department of Public Works and in 2015 work did not start on the project as a new Department of Transportation was forming at the City of Oakland and delays caused residents to become concerned the project would not be fulfilled as promised and budgeted.

The community members got together and created a letter writing campaign to continue asking what had become of the Melrose Street Scape project.

Barbara Oplinger, Lynne Cheng, and Razzu Mitos have begun this effort and appreciate all community members joining them in this Letter Writing Campaign in order to get the project going.

[More information](#) → visit the Melrose High Hopes NCPC 27x [website](#).

## Letter Writing Campaign



Barbara Oplinger kicked off the community Letter Writing Campaign for the inquiries sent to City of Oakland Staff and Elected Officials. She sent the letters to staff email addresses and went the extra mile to print and send physical pieces of mail to the City of Oakland to amplify her message.

Join our next Community Council meeting to join in this campaign and/or learn how to start your own for a subject you feel strongly about. The odds are other people feel the same way you do and the more people we can connect the louder our voices become.

At a certain point the weight should shift and we should start getting traction and action that leads to change.

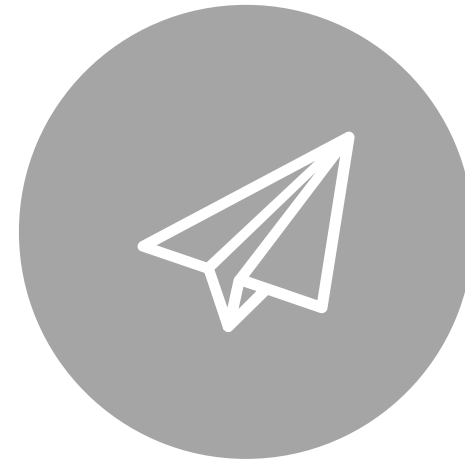
[More information](#) → visit the Melrose High Hopes NCPC 27x [website](#).

**The People** have spoken...

Who's ready for an Augmented  
Neighborhood and/or Get the  
Lead Out project today?



510-390-6580 M



[STEPHANIE@METROPOLITANINTELLIGENCE.COM](mailto:STEPHANIE@METROPOLITANINTELLIGENCE.COM)

[www.metropolitanintelligence.com](http://www.metropolitanintelligence.com)

# Stephanie Hayden

## Oakland Background

- [Stephanie Hayden](#) has been a **resident, voter, and volunteer in Oakland since 2005** providing **over 5,500 hours of pro bono** time working on equity, health, housing, transportation, environment, policy, women's leadership, Women of Color social programs, STEAM education and Smart City initiatives including the [Federal DOT's Smart City Challenge](#)
- She was a lead for the City of Oakland's [Rockefeller Foundation 100 Resilient Cities](#) initiative which created the [Resilient Oakland Program](#). Her initiative created a program to **Engage Youth in Shaping the Future of Oakland** using arts and storytelling for which she created a [Resilient Oakland Coloring Book](#) for the people of Oakland featuring 110 years of stories of Oaklander resilience beginning in World War II up through 2017. 3<sup>rd</sup> grade girls from The Fruitvale co-authored the book by designing Smart City apps to keep their families and neighbors safe, connected, and personally resilient. It's here on [OaklandCA.gov](#)
- [Vision Architecture](#) is her technology consulting firm registered as a City of Oakland Preferred Vendor with a Very Small Local Business Enterprise ([VSLBE](#)) classification and 100% woman-owned
- [Metropolitan Intelligence](#) is her smart city resilient awareness and investment data platform and is a 100% woman-owned software company based in Oakland
- [SmartOakland](#) is a non-profit co-founded by Stephanie Hayden and [Michael Ford](#), City of Oakland Parking & Mobility Manager for the Dept. of Transportation to provide data to Oaklanders to combat the fact Zip Code determines life expectancy in The Town
- Stephanie's methodology and technology solutions for Smart Cities have been endorsed by the [US Department of Commerce National Institute of Standards and Technology \(NIST\) Global City Teams Challenge \(GCTC\)](#)
- In April 2019 Stephanie was nominated by Oakland Neighborhood Crime Prevention Council members to Chair ([NCPC](#)) [Beat 27X](#) for the term of 2019-2020 for Central East Oakland's [Melrose High Hopes](#) neighborhood which sits in [Districts 4, 5 & 6](#)



The logo consists of a central grey circle containing the text 'Metropolitan Intelligence'. This circle is surrounded by a larger, faint outline of a globe. The globe's surface is covered with a pattern of interconnected hexagons, resembling a honeycomb or molecular structure. Numerous thin, grey lines radiate outwards from the central circle, extending across the globe's surface.

# Metropolitan Intelligence





## CONSTRUCTION WITH CONFIDENCE

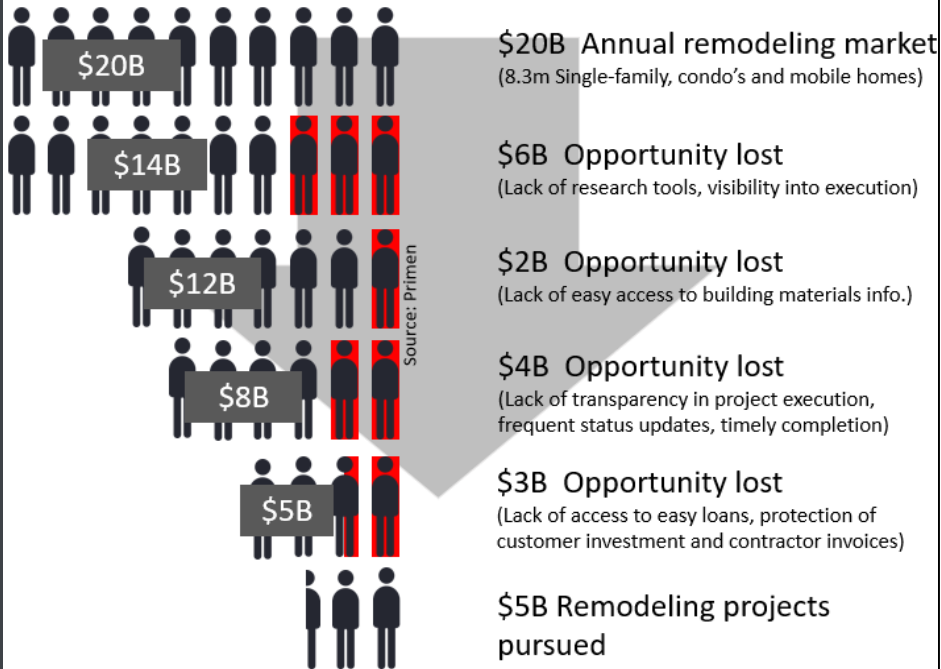
We believe the future of home improvements is going to be driven by “easily accessible” and transparent solution

Contact us: [hello@bluelife.io](mailto:hello@bluelife.io)



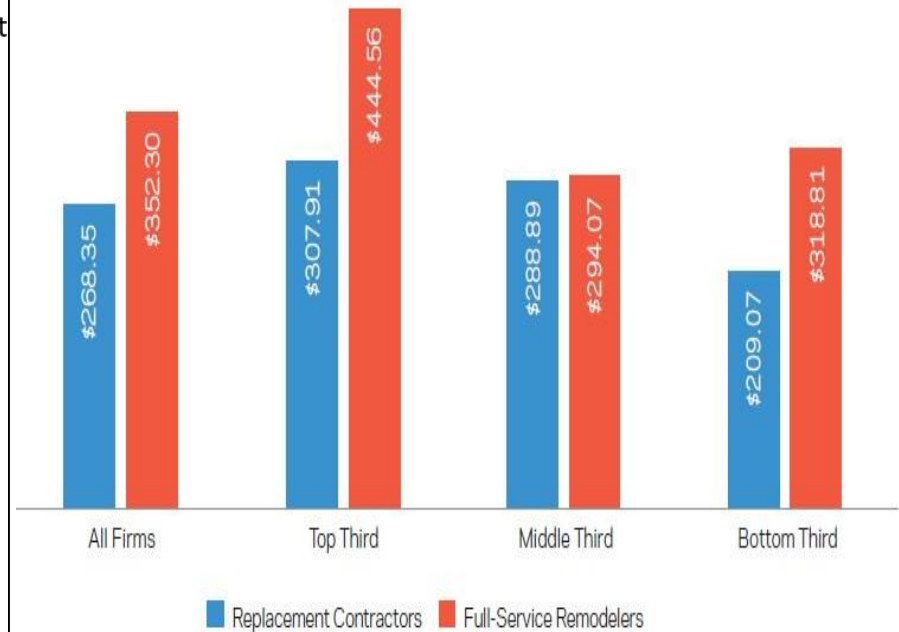
# Trends

## California Home improvements market



## Cost per lead incurred by contractors

Source: remodeling.com





# Opportunity

\$1.1 T/yr. nationwide retail  
construction market



*Retail construction will grow  
from \$346b into \$1.1 Trillion  
market by 2024*

Source: remodeling.com

*Everybody wants it now and is  
willing to pay 5% premium price  
for transparency and easy to use*



***Opportunity: Blockchain based one-stop solution  
to provide transparency, consensus based  
approvals, contractor commitment backed by  
loans, and internet based frequent updates.***



*Demand for transparency and  
real-time updates of home  
improvement projects*

*Continuous growth through  
partnership commitment from  
PayPal, East West Bank,  
Realitems.org*

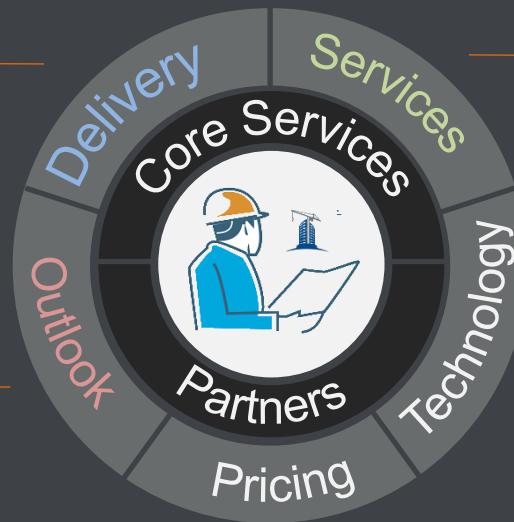


# Plan

*“Scalable product that use blockchain for tamper-proof contracts, automatic payments, loan backed commitment from contractor; directly solving the problem of transparency and reliability”*

De-centralized smart contracts, approvals and vendor references

Partner with universities to train laborers



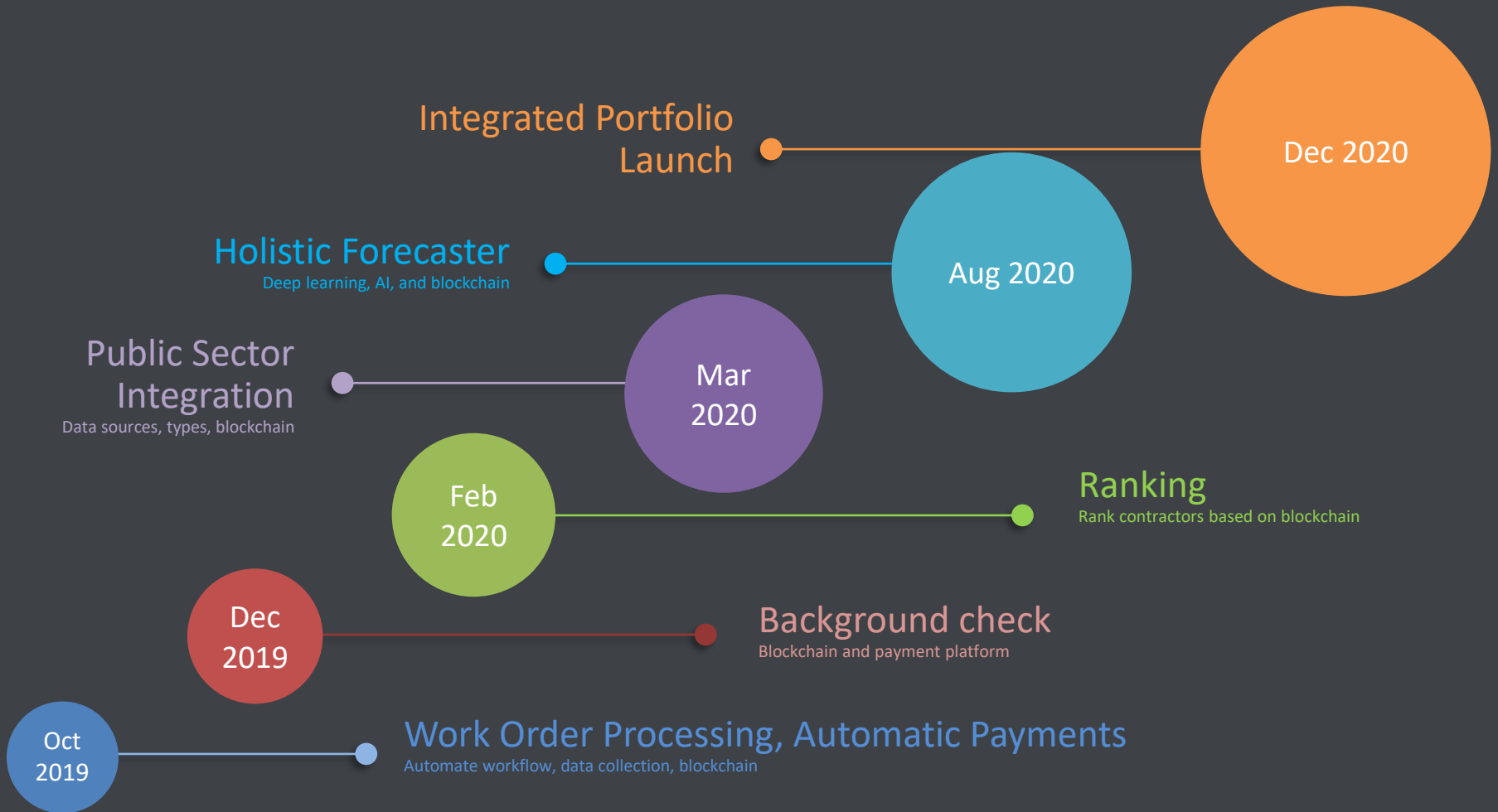
One stop shop for payments, status, contract life-cycle, materials tracking, video chat with contractors and catering partners

Scalable 3 tier tech. architecture that share services between partners, website , and decentralized blockchain.

Tiered pricing for individuals, contractors and partners



# Product Milestones



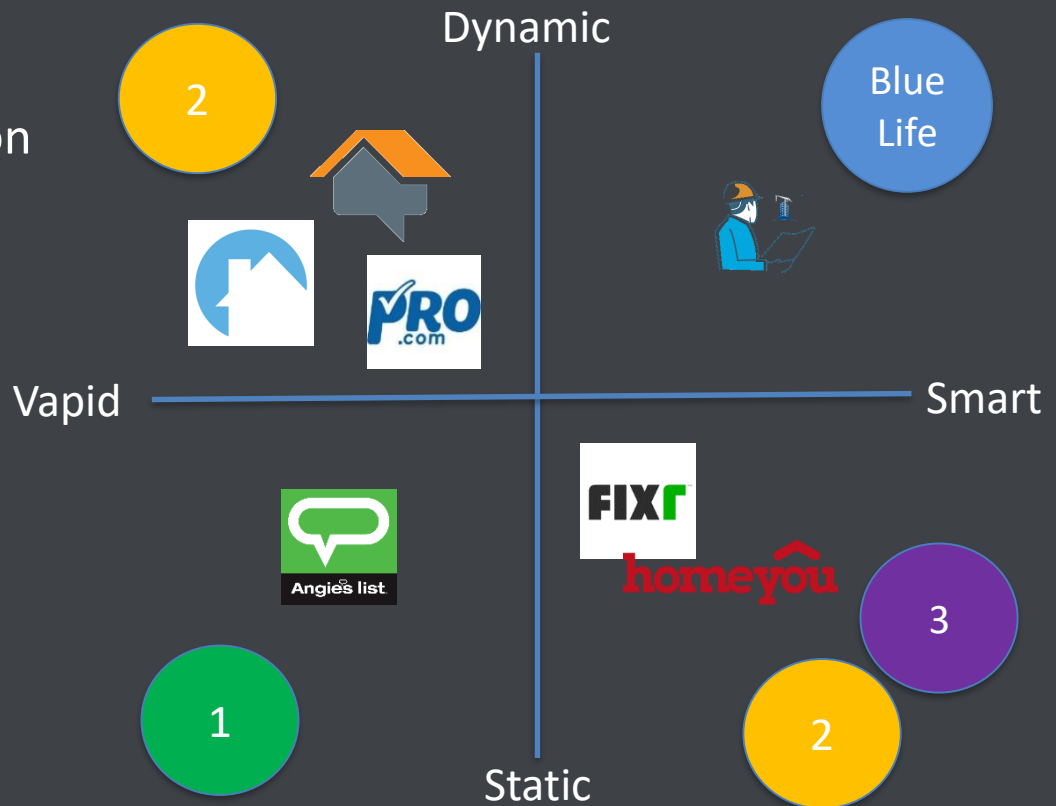
# Competitive Landscape



- One stop solution
- easy to use “on the go” solution
- 360° view of project status & approvals

## Three Competitor Segments

1. Incumbents
2. New kids on the block
3. Startups could grow into us





# Revenue streams



## Customer Deposits/Loan

Hold project amount as security deposit.  
T-Bill opportunities



## Transaction charges

Blockchain based gas charges  
backed by fiat currency



## Supply chain

Home Depot, Lowe's interior  
decorations, Solar panel suppliers  
(commission, revenue sharing)



## E-Governance

Consulting services to plug into Blue  
Life



## Local business

Uber Eats, Doordash, truck food  
vendors, Airbnb, Uber, Lyft  
(revenue sharing through pre-  
planned projects)



## Advertisements

Coupons, discount vouchers,  
commercial property owners,  
homeowners



## Education

Partnership with universities to  
offer courses in hi-tech  
construction jobs

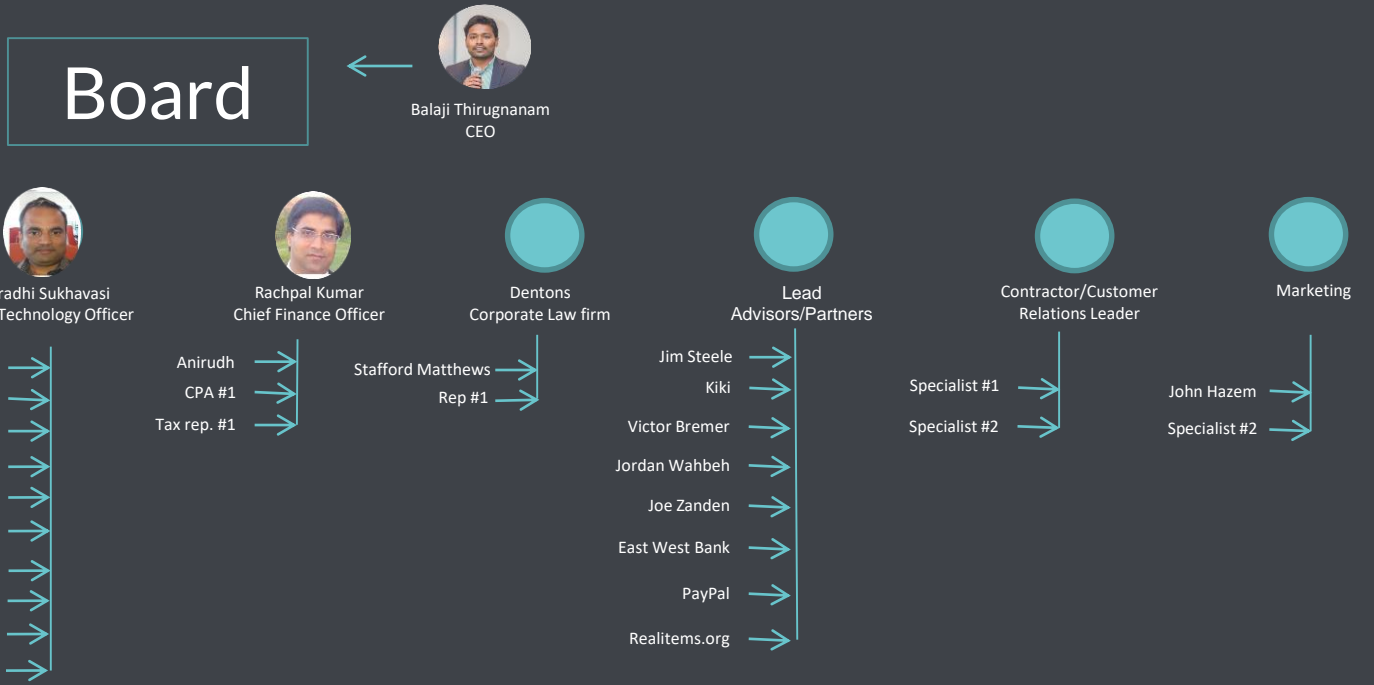


## Job Market

Laborers (local, nationwide)  
Brick & Mortar recruitment  
agencies



# Team







# Traction Plan





# Financials

	Launch	3 months
<b>Project revenue/year</b>	<b>\$3,600,000.00</b>	<b>\$14,400,000.00</b>
<b>Blue Life revenue/year (2% margin)</b>	<b>\$72,000.00</b>	<b>\$288,000.00</b>
<b>Contractors</b>	<b>20</b>	<b>80</b>
<b># projects</b>	<b>6</b>	<b>6</b>
<b>Average size</b>	<b>\$30,000.00</b>	<b>\$30,000.00</b>
<b>Customers</b>	<b>120</b>	<b>480</b>



# Ask

**\$2M Seed**  
(300k+700k+1M)

6 MONTHS

MVP, Background check service - **COMPLETE**

Revenue - \$900k



## Making Money

- Monthly subscription
- Transaction fee
- Profit-sharing from partners

## Exit Plan/Terms

- Patents, IP Rights
- Customer base



# Questions ?



[hello@bluelife.io](mailto:hello@bluelife.io)



<http://bluelife.io>



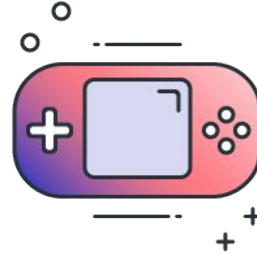
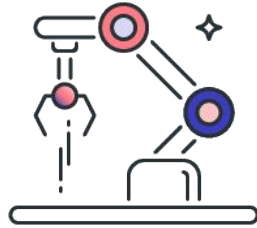
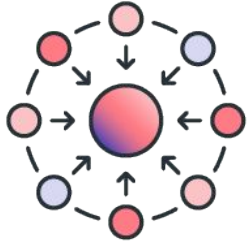
Totem



## WHO WE ARE

**Totem tests, designs, and builds  
creative, cutting-edge software  
solutions.**

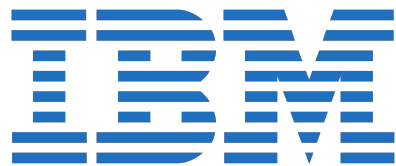
# TOOLS WE WORK WITH



- Blockchain
- Machine learning
- Augmented reality
- Edge computing
- Cryptography

- TensorFlow (Machine Learning)
- Content-Addressable Data
- Multi-Cloud Serverless
- Kubernetes

# EDUCATION & MENTORSHIP IN PARTNERSHIP WITH





# Blockchain the Breakdown

# Blockchain technology as a “buffet”

The best solutions might use a combination of the following already-widely-used technologies, but not all of them. Many companies find the best application of blockchain to their business to be a custom stack of these technologies that suits their unique domain (e.g. Estonia’s KSI).

Here are the different features of blockchain:

- Hashing
- Asymmetric keys
- Immutability
- Peer-to-peer networks
- Ordering
- Encryption

# Hashing

## What Is it?

The algorithmic process of creating a small fingerprint from a larger piece of data that uniquely identifies it and can cryptographically assert existence, uniqueness or identity of that data.

## Why Useful

- Simplify and accelerate proof of existence for documents
- Storage systems where the contents can be shared or cached based on their contents, improving efficiency significantly (Content addressable storage)

# Asymmetric Keys

## What Is it?

Asymmetric cryptography, also known as public key cryptography, uses public and private keys to encrypt and decrypt data. The keys are simply large numbers that have been paired together but are not identical (asymmetric). One key in the pair can be shared with everyone; it is called the public key.

## Why Useful

- Signing things (documents for your bank, transactions etc.)

# Immutability

## What Is it?

Making data unchanging over time or unable to be changed.

## Why Useful

- If more databases (eg. of products) switch to storing the whole history instead of storing the state of things, they can have a trusted history. This is called event sourcing.

# Peer-to-Peer Networks

## What Is it?

In a P2P network, the "peers" are computer systems which are connected to each other via the Internet. Items can be shared directly between systems on the network without the need of a central server. In other words, each computer on a P2P network becomes a server as well as a client.

## Why Useful

- No single point of failure
- Resource sharing

# Ordering

## What Is it?

Ordering, also known as consensus, is only needed if you don't have a single trusted party to decide what order transactions happened in

## Why Useful

- To allow a large number of entities to agree upon the exact order in which operations occurred without trust.
- If you have several different systems deployed you have a consensus algorithm to help decide which system takes over in the event of a failure (eg. load balancing)

# Encryption

## What Is it?

Encryption is an integral part of the inner workings of blockchain technology. It makes data readable only by the intended parties, e.g. the sender and the receiver, and nobody in between. All non-trivial computer systems nowadays use at least some kind of encryption, as privacy and data access control becoming basic human rights.

## Why Useful

- Storing any sensitive data and allowing only intended parties to read
- Protecting the data travelling between parties



# Use Cases



**Government**

## **Viable Use Case:**

**Verifying a Document with a Hash**

**Transparent tracking of money  
transfers**

## **Non-Viable Use Case:**

**Storing Actual Documents**

**Or Large Amounts of Data**



**Voting**



**Viabile Use Case:**

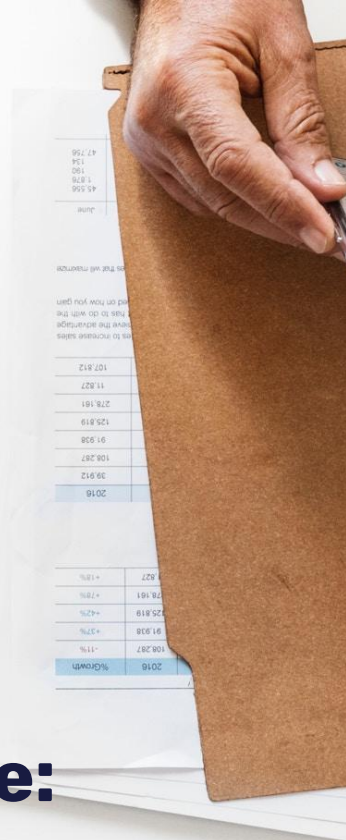
**Decision Making in**

**Large Organizations (DAOs)**

**Polling**

**Non-Viable Use Case:**

**Government Elections**



# Civic Engagement App

The goal of the Civic Engagement app is to provide incentives to be civically engaged in a way that can't be tampered with, and to showcase a real-world distributed ledger technology (DLT) solution. We want to provide a platform where citizens can get information about their communities and also provide feedback to their local governments.

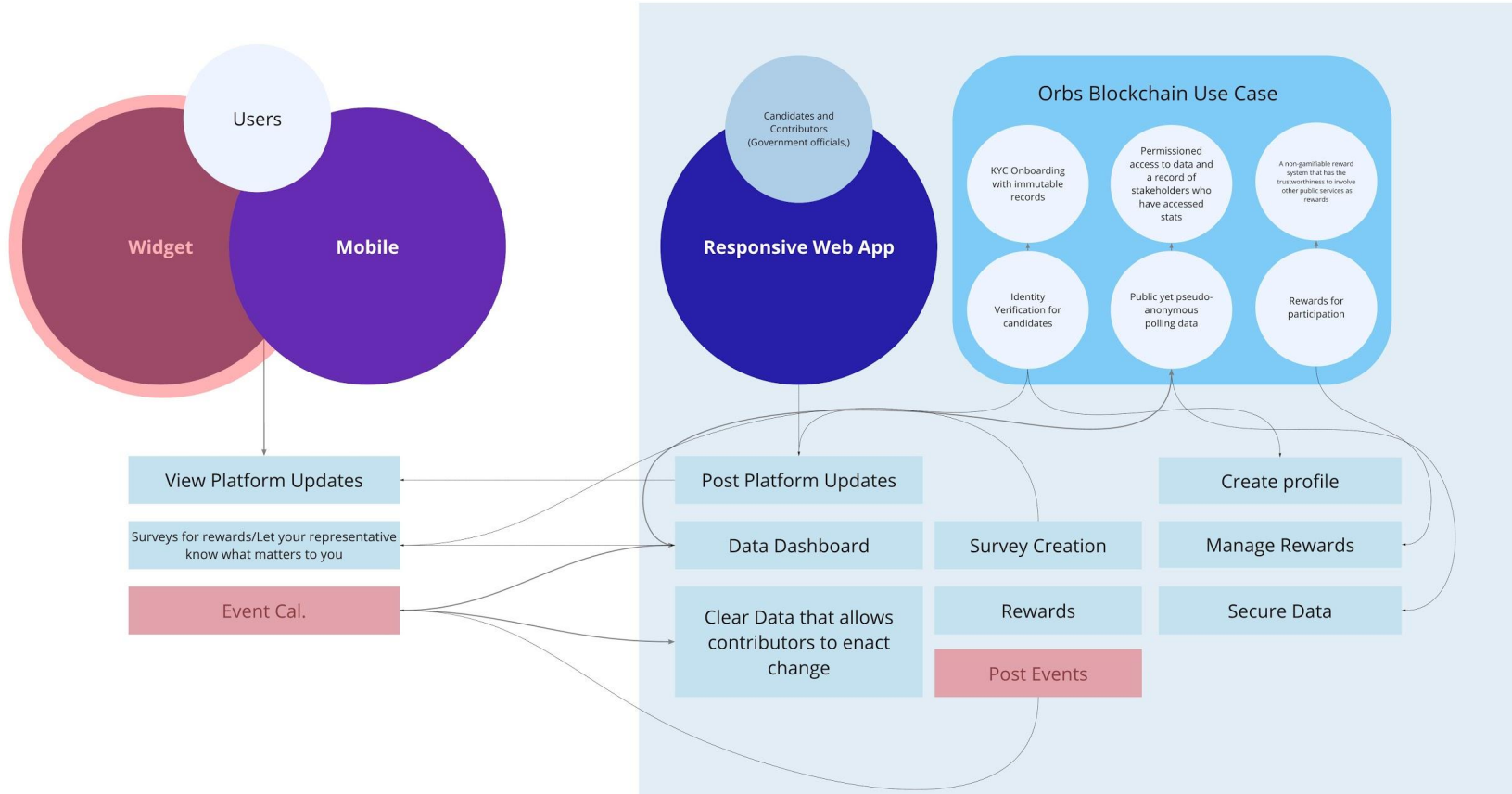


# Application Goals

1. Keep citizen's data private and secure—especially polling data they share on the app—and give public access to other, less sensitive data.
2. Allow citizens to get involved and take action with their local communities.
3. Combat voter fatigue by providing the most relevant, important information.



# MVP Solution Architecture







**Non-Profits**

# Nonprofit Donor Management

We are going to use blockchain technology to increase transparency for donors and create a plan for data governance, making donation management seamless for nonprofits from intake to finish.



# Application Goals

1. Provide donor receipts post-donation, and nonprofits will be able to access a detailed admin dashboard that will track what the donation was (whether money, time, or goods), where it came from, donor location, and many other data points.
2. Allow nonprofits to accept multiple digital asset donations and manage their holdings with little friction.



# Other Ways Nonprofits Can Use Blockchain

## Sending money overseas

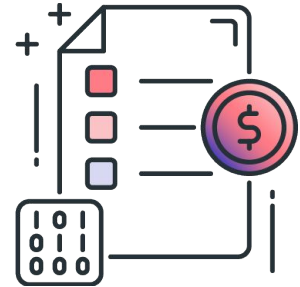
No transaction fees or bank hours

## Document timestamping

Put a document on immutable ledger

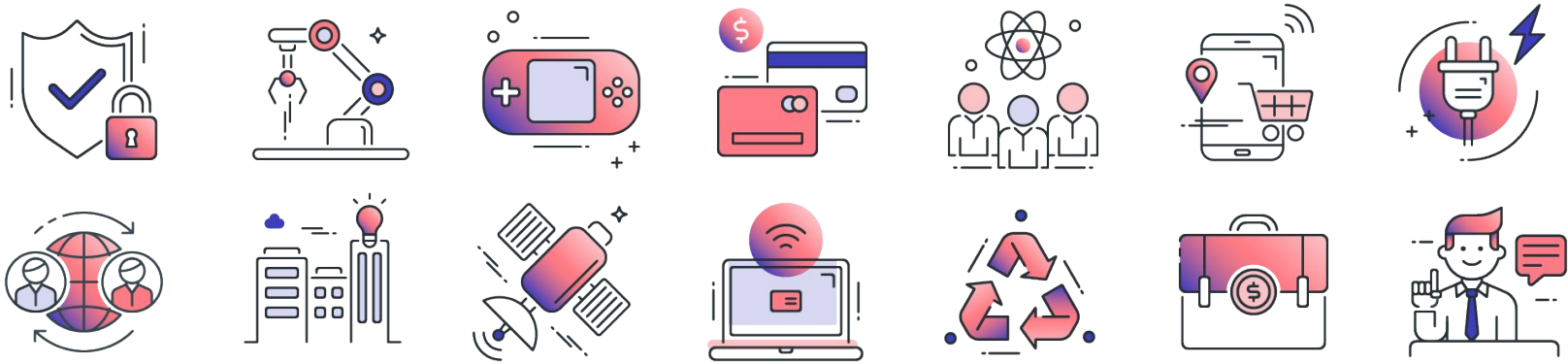
## Financial ledger

Track payments or donations



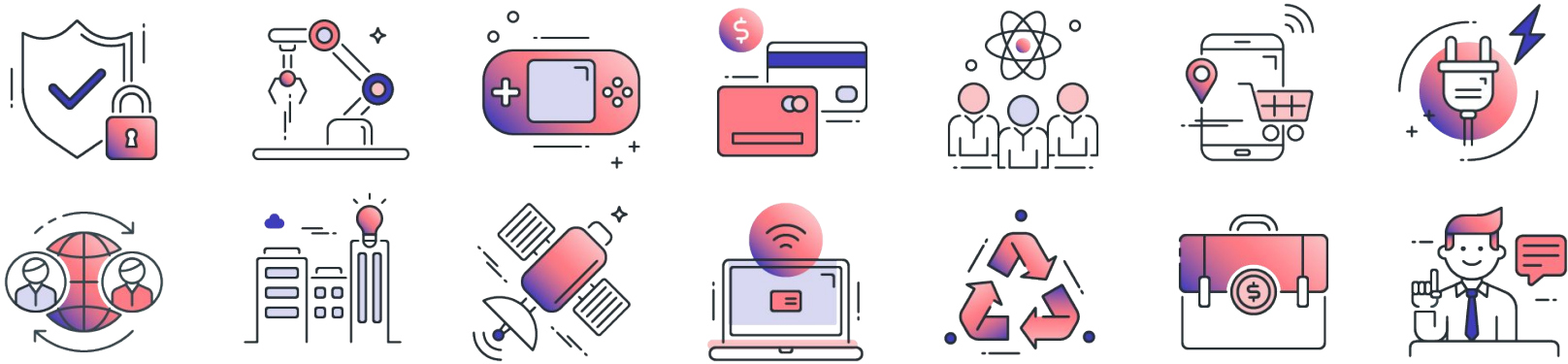
# Digital Currencies

## the Breakdown



# Benefits of Accepting Digital Currencies

- Gain an understanding of how they work
- New revenue streams: able to accept from a wider audience and more sources
- Possibility that they will increase in value



# Risks of Accepting Digital Currencies



- More complicated or undefined **accounting**
- **Storage and security of cryptocurrencies** lie solely on the organization. If something goes wrong or any fraud transactions happen, there is no safe keep or “undo button,” like a bank.
- The possibility that they will **decrease** in value (unless you sell them immediately afterward)

# Considerations

## Size of data

Since a blockchain retains all historical data, the size of an established blockchain at each node might become unsustainable.

Instead, a mechanism to archive historical data needs to be looked at.

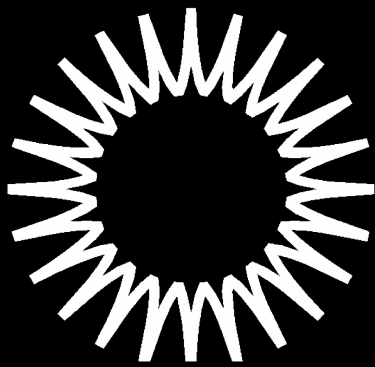
## Conforming to existing data standards

in terms of both structure and transport for sharing of information could prove to be an initial hurdle.

## Clear regulatory frameworks

need to be defined for the implementation of agreements as digital, smart contracts





# SPUR

**Ideas + Action for a Better City**

learn more at [SPUR.org](http://SPUR.org)

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