

TOLEMI



NY Geo Con 2017

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Wednesday, October 18, 2017

Agenda



- Cities RISE
- BuildingBlocks overview
- Spatial analytics and code enforcement
- Questions

Cities RISE initiative



J.P.Morgan
Goldman
Sachs



Cities RISE initiative



J.P.Morgan
Goldman
Sachs



Cities RISE initiative



J.P.Morgan
Goldman
Sachs

\$5.5 B



- ✓ Software license
- ✓ Capacity-building
- ✓ Up to \$1M add'l funding

Objectives



“Provide the **tools** necessary to rebuild and strengthen our neighborhoods”

“**21st Century approach** to overcoming the crisis and revitalizing New York’s communities”

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“Provide the **tools** necessary to rebuild and strengthen our neighborhoods”

“**21st Century approach** to overcoming the crisis and revitalizing New York’s communities”

DATA
INTEGRATION

SPATIAL
ANALYTICS

PREDICTIVE
MODELING

Agenda



- Cities RISE
- **BuildingBlocks overview**
- Spatial analytics and code enforcement
- Questions

What is BuildingBlocks?



- **A one-stop web portal for all neighborhood and property data**

Data aggregation



Police Case (5)

Type	Description	Date
Part I:Property	BURGLARY - UNLAWFUL ENTRY (NON FORCIBLE)	04/08/2014
Part II	ASSAULT - SIMPLE PHYSICAL	09/04/2011
Part II	ASSAULT - SIMPLE PHYSICAL	08/07/2011
Part II	DRUG LAW SALE OTHER DANGEROUS DRUGS	08/02/2011
Part I:Violent	ASSAULT - OTHER DANGEROUS WEAPON	05/09/2007



“I keep getting calls about 809 E. Main St. What’s going on there?”

Code Violation (1)

Type	Description	Status	Date
Substandard Housing	Closed - Owner Repair	ALJ Case Updates	01/03/2017

Tax Owed (1)

Amount Owed	Date
\$585	12/31/2016

What is BuildingBlocks?

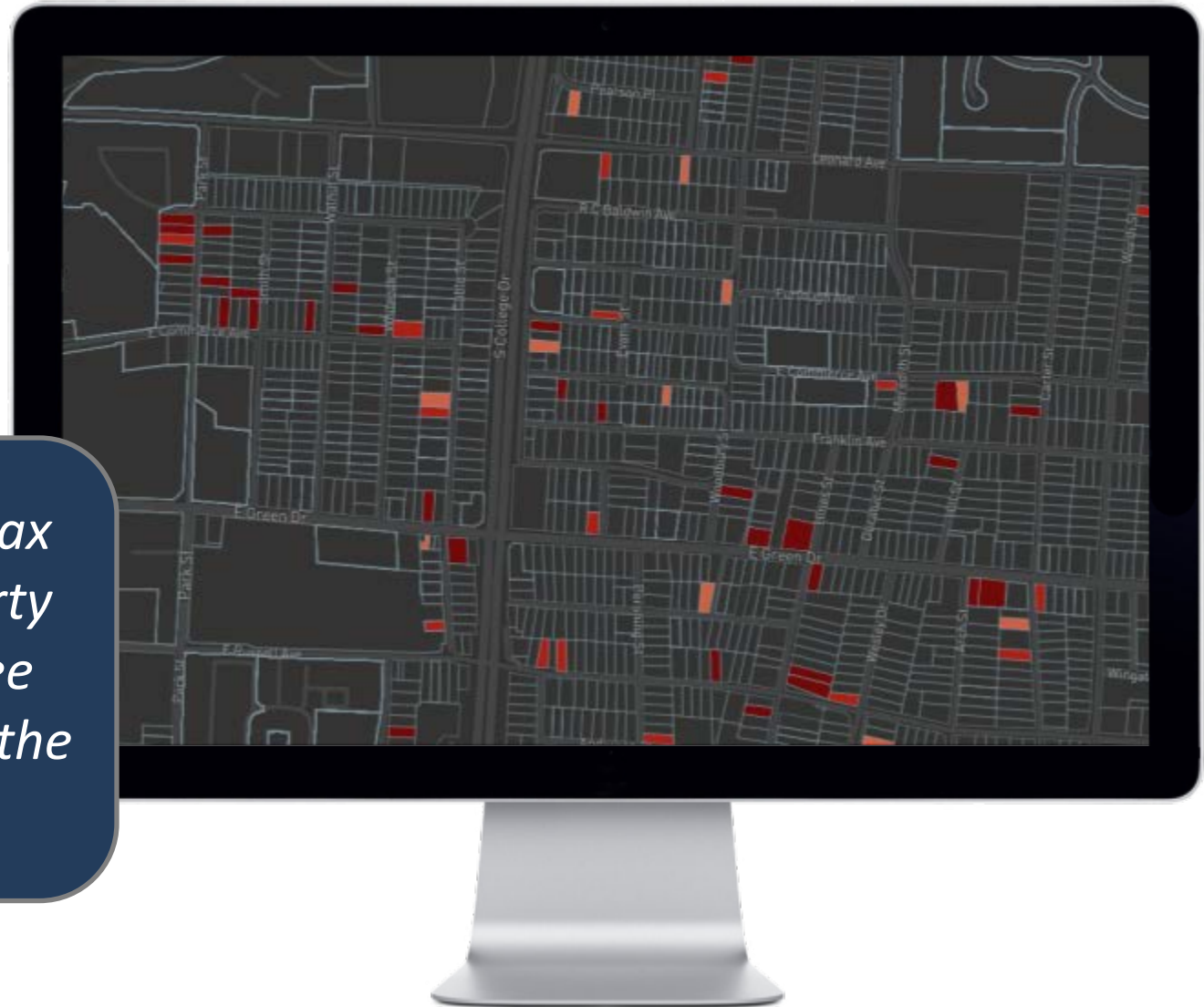


- A one-stop web portal for all neighborhood and property data
- **Aggregates, cleans, and maps all of your property data from across departments**

Mapping & visualization



“Show me every tax delinquent property with at least three police incidents in the past year.”



What is BuildingBlocks?



- A one-stop web portal for all neighborhood and property data
- Aggregates, cleans, and maps all of your property data from across departments
- **Updates automatically so you always have access to current information**

Reports and tracking



“How many violations have we issued in each District over the past three years?”



What is BuildingBlocks?



- A one-stop web portal for all neighborhood and property data
- Aggregates, cleans, and maps all of your property data from across departments
- Updates automatically so you always have access to current information & reports
- **Generates powerful analytics on property and neighborhood indicators**

Real-time spatial analytics



“Where are there clusters of three or more nuisance properties close to elementary schools?”

Neighborhood scores



“What neighborhoods have the highest rate of open violations?”

How does it work?





iiii
iii

Police



iiii
iii

Fire



iiii
iii

Tax
Collection



iiii
iii

Code
Enforcement



iiii
iii

Utilities





↑
Production

↑
Transformation

↑
Automated data pull

TOLEMI

City

↑
Rest services

↑
Spatial join

↑
DB extract





**BUILDING
BLOCKS**



Production



Spatial join + transformation



Automated data pull



Rest services or API end point



DB extract



TOLEMI

City



Production



Spatial join + transformation



Automated data pull

TOLMI

City



DB extract or file upload





Production



Spatial join + transformation



Automated data pull



DB integration

TOL  **MI**



Common data sets



Property Attribute

Current Use
Owner-Occupied
Assessed Value
Land Size
Building Size

Common data sets



Property Attribute

Current Use
Owner-Occupied
Assessed Value
Land Size
Building Size

Tax

Tax delinquency
Tax liens
Tax lien/deed sales
Tax collection
Sherriff sales
Foreclosures

Common data sets



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Gov't foreclosures

License + Permits

Building permits
Electrical permits
Elevator permits
Business licenses

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Code Enforcement

Violations
Demolitions
Condemnations
Environmental svcs
Court case tracker
Code liens
Inspections

Common data sets



Property Attribute

- Current Use
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- Land Size
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Tax

- Tax delinquency
- Tax liens
- Tax lien/deed sales
- Tax collection
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- Gov't foreclosures

License + Permits

- Building permits
- Electrical permits
- Elevator permits
- Business licenses

Code Enforcement

- Violations
- Demolitions
- Condemnations
- Environmental svcs
- Court case tracker
- Code liens
- Inspections

Public Safety

- Police service calls
- Police cases
- Police incidents
- Fire service calls
- Fire incidents
- Fire inspections
- Fire violations

Common data sets



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Police service calls
Police cases
Police incidents
Fire service calls
Fire incidents
Fire inspections
Fire violations

Utilities

Water billing
Water usage
Shut-offs
Inactive meter

Common data sets



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Registry

Vacant registry
Rental registry
Foreclosure registry

Common data sets



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Mortgage & Sales

Lis pendens
Home sales

Common data sets



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Layers

Neighborhoods
Districts
Flood plains
Inspections areas
Police beats

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Sample use cases



1. High Point, NC: Property lookup
2. Providence, RI: Problem owners
3. Syracuse, NY: Filtering criteria
4. Rockford, IL: Crime & code violations
5. High Point, NC: Proactive code enforcement
6. Louisville, KY: Parcel and neighborhood scores

What our partners are saying



It's more than just a common repository of data; it is the go-to answer machine, our in-house "Watson", and as close to a "set it and forget it" application as I've seen. Best of all, my team can focus on value-added GIS services, instead of recompiling datasets for individual requests.

Thomas Tricot, PhD, CGCIO, GISP

GIS Manager, IT Services

City of High Point, NC



Trusted by cities big + small



New York City
pop. 8.3 million



Las Vegas, NV
pop. 622,448



Louisville, KY
pop. 253,128



Syracuse, NY
pop. 143,378



Binghamton, NY
pop. 45,672



Kingston, NY
pop. 23,210



Batavia, NY
pop. 14,801

Key takeaways



- Pushes spatial analysis enterprise-wide and enables data-driven government
- Scoring models and predictive analytics provide decision-support
- No more one-off data compilation
- Automated data refresh—“set it and forget it”
- **Grant funding still available for free access to BuildingBlocks**

Questions and discussion



Appendix



Use cases



- ① **Assess** the scope of the problem
- ② **Identify** problem properties, areas, owners
- ③ **Match** appropriate tools with properties
- ④ **Measure** efficacy and refine strategy

1 Assess: Rockford, IL



DATA APPLIED:

✓ '1331 Greenwood'

⚠ Code Violation (1) ↑

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1 Assess: Rockford, IL



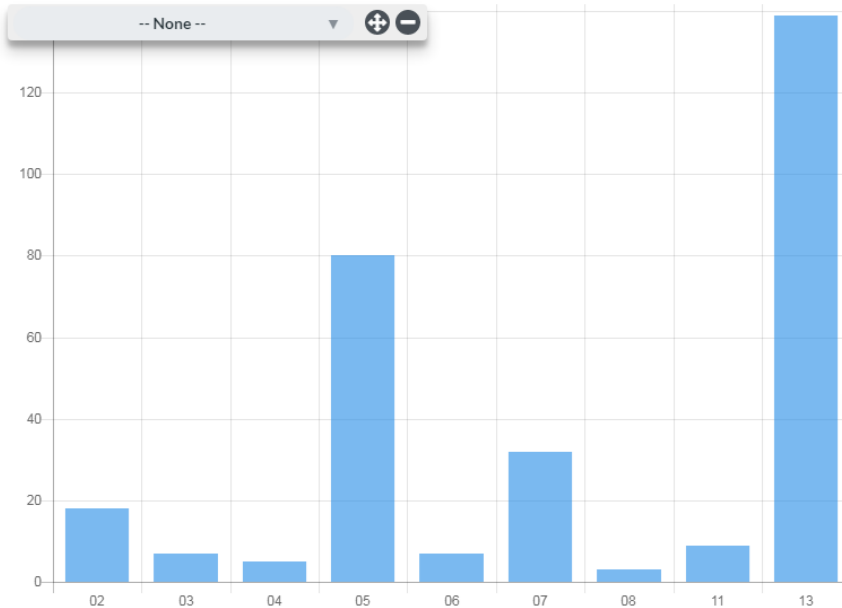
- Objective: Make a case for policy change, operational improvements, and/or additional resources
- Approach: Communicate the scope and impact of vacant properties

109 vacant properties

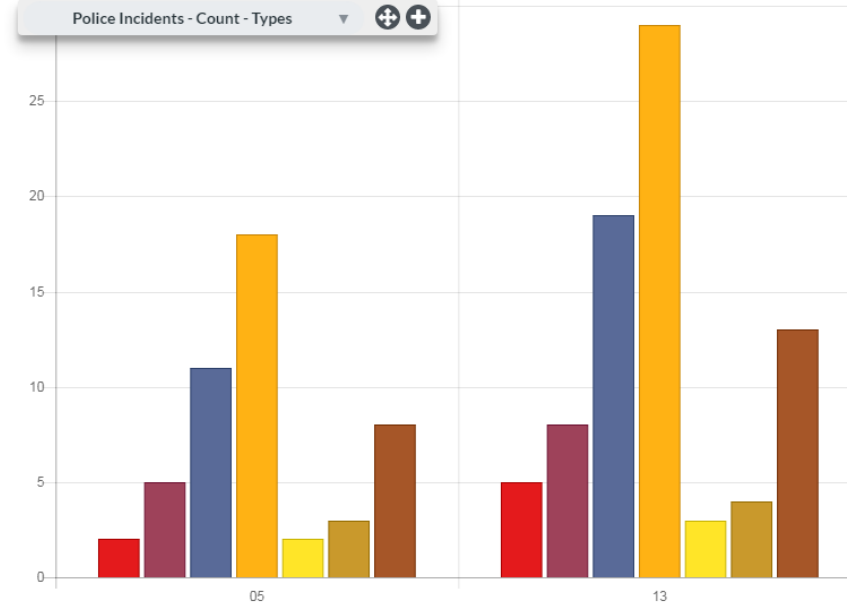


DATA APPLIED:

- ✓ Vacant
- ✓ Within 500 ft of an elementary school



300+ police incidents
Nearly 200 in Wards 5 and 13 alone



47 destruction of property, 43 assault,
7 weapons, 5 narcotics

1

Assess: Louisville, KY

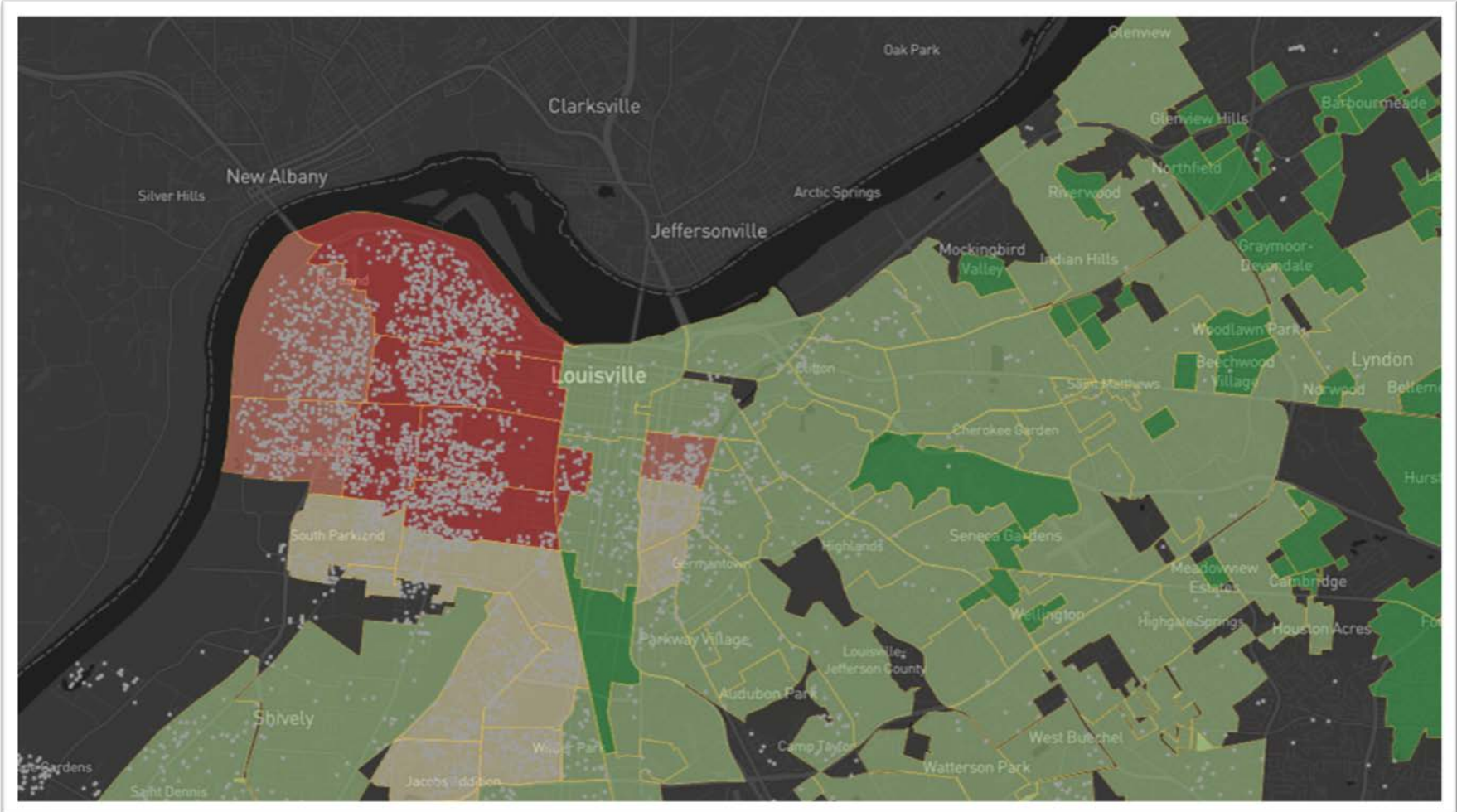


- Objective: Align anti-vacancy efforts with the Mayor's strategic objective
- Approach: Rank and monitor neighborhood vacancy rates

DATA APPLIED:

- ✓ Vacants as a percent of total properties

6 neighborhoods at >15% vacancy



1 Assess: Providence, RI



- Objective: Build political capital to take on problem owners
- Approach: Identify extent and impact of bank-owned properties

DATA APPLIED:

- ✓ Vacant
- ✓ Open violation
- ✓ Bank listed as owning entity

26 properties
>10% of addressable vacant stock
Deutsche, Wells Fargo, US Bank

Providence, RI					
Parcel ID	Address	Owner	Code Violations - Count	Code Violations - Open	
105-0329-0000	60 WHITTIER AVE	JP Morgan Chase Bank, NA	19	08-23-2016	
107-0279-0000	143 LABAN ST	PNC Bank NA	4	01-09-2017	
109-0364-0000	33 HILLHURST AVE	Wells Fargo Bank NA	7	07-27-2016	
120-0154-0000	81 PEMBROKE AVE	Flagstar Bank, FSB	29	11-13-2014	
123-0116-0000	145 SUNBURY ST	Us Bank National Assoc	19	07-05-2016	
028-0101-0000	73 VERNON ST	JP Morgan Chase bank NA	7	07-21-2016	
031-0220-0000	43 HOLLIS ST	Wells Fargo Bank NA	23	04-23-2013	
042-0261-0000	140 SORRENTO ST	Wells Fargo Bank NA	25	04-18-2012	
044-0074-0000	25 DABOLL ST	PNC Bank NA	8	07-12-2016	
048-0285-0000	72 POTTERS AVE	JP Morgan Chase Bank	63	07-27-2016	
048-0761-0000	90 BAXTER ST	Wells Fargo Bank NA	9	07-29-2016	
048-0782-0000	5 NORWICH AVE	M&T Bank	38	07-21-2016	
052-0164-0000	157 HAMILTON ST	Wells Fargo Bank NA	5	07-05-2016	
053-0458-0000	148 NIAGARA ST	US Bank National Association	21	05-21-2012	
053-0528-0000	21 SACKETT ST	OneWest Bank, FSB	24	04-20-2015	
060-0165-0000	121 SACKETT ST	Deutsche Bank Nation Trust Comp	2	07-29-2016	
062-0023-0000	57 FLORENCE ST	Branch Banking and Trust Company	34	09-25-2014	
062-0319-0000	9 AUDREY ST	Fidelity Bank	52	04-29-2013	
063-0017-0000	996 ATWELLS AVE	M&T Bank	5	08-23-2016	
070-0064-0000	69 HAWKINS ST	OneWest Bank, FSB	37	09-16-2014	
070-0256-0000	68 MOWRY ST	Bank America	15	12-06-2012	
070-0321-0000	471 DOUGLAS AVE	JP Morgan Chase Bank	6	07-05-2016	
071-0038-0000	56 RUSSO ST	JPMorgan Chase Bank	5	06-07-2016	
077-0131-0000	31 ARMORY	Deutsche Bank National Trust	6	07-12-2016	
095-0201-0000	75 PARNELL ST	Wells Fargo Bank NA	15	03-06-2013	
097-0867-0000	4 HAGAN ST	Deutsche Bank National Trust Co	6	11-24-2015	

2 Identify: High Point, NC



- Objective: Shift a portion of code enforcement to proactive efforts
- Approach: Surface “blind spot” properties that potentially warrant a closer look

DATA APPLIED:

- ✓ 1 + year no water billing
- ✓ \$500 + taxes owed
- ✓ 5 + years tax delinquent
- ✓ NO code violations

Parcel ID	Address	Calls for Service - Co...
0173662	522-A ROY AV	87
0191217	511 GUILFORD AV	68
0173544	1618 CULLER PL	30
0173781	1200 KADAN AV	20
0187520	509 CHESTNUT DR	23
0171120	881 CHESTNUT DR	16
0184704	515 GREENSBORO ...	16
0185982	3113 WAYNE AV	10
0192254	1345 WESTCHESTE...	9
0190900	114 UNDERHILL ST	7
0183264	1006 MEADOWBRO...	5
0175355	402 WALNUT ST	4
0190890	1119 WASHINGTON...	2

50 properties
540 calls for service



- \$7,000 + in taxes owed
- 3 police cases
- 23 calls for service
- 17 ensuing violations

② Identify: Syracuse, NY



3 Match: Pittsburgh, PA



- Objective: Align vacant properties with optimal end use
- Approach: Apply criteria to segment population of vacants well-suited for green space

DATA APPLIED:

- ✓ Land
- ✓ Under 4000 sf
- ✓ Vacant (USPS)
- ✓ In MVA G, H, or I
- ✓ Undermined area

463 properties segmented as “Push to Green”



10 properties fast-tracked in landslide-prone area

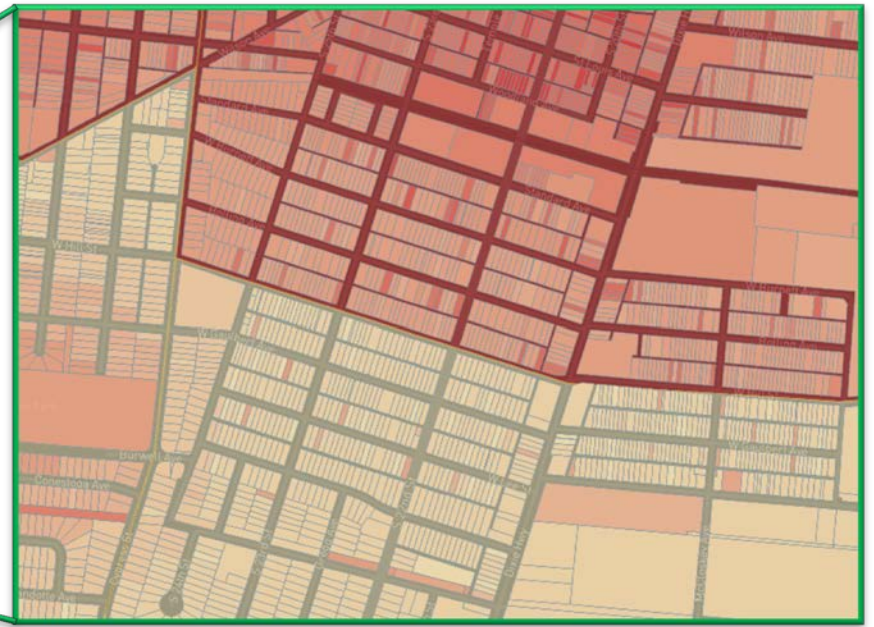
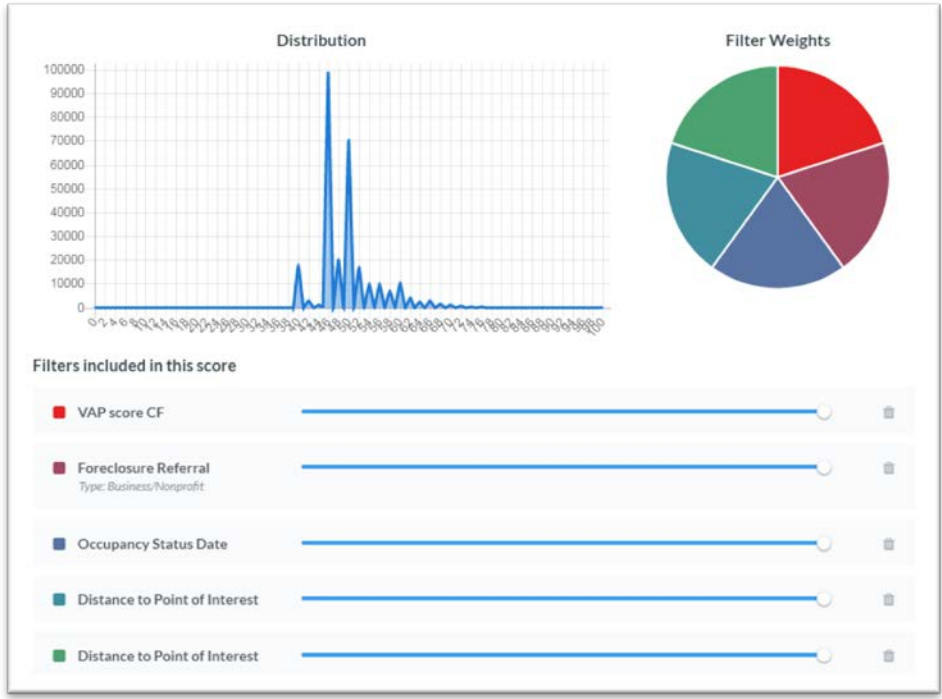
3 Match: Louisville, KY



- Objective: Ensure legal & admin resources are allocated to the right properties
- Approach: Build a score to prioritize properties for Metro foreclosure

DATA APPLIED:

- ✓ Vacant
- ✓ Length of time vacant
- ✓ Back taxes
- ✓ Code fees owed
- ✓ Proximity to school/park
- ✓ VAP neighborhood score



4

Measure: Richmond, CA



- Objective: Track impact of a rehab program funded by a \$10M social impact bond
- Approach: Monitor area surrounding rehabbed properties for indicators of revitalization

DATA APPLIED:

- ✓ Within 250 ft of a rehabbed or rehabbed and sold property

