# Mapping Problem Properties

## CENTRAL FALLS, RI

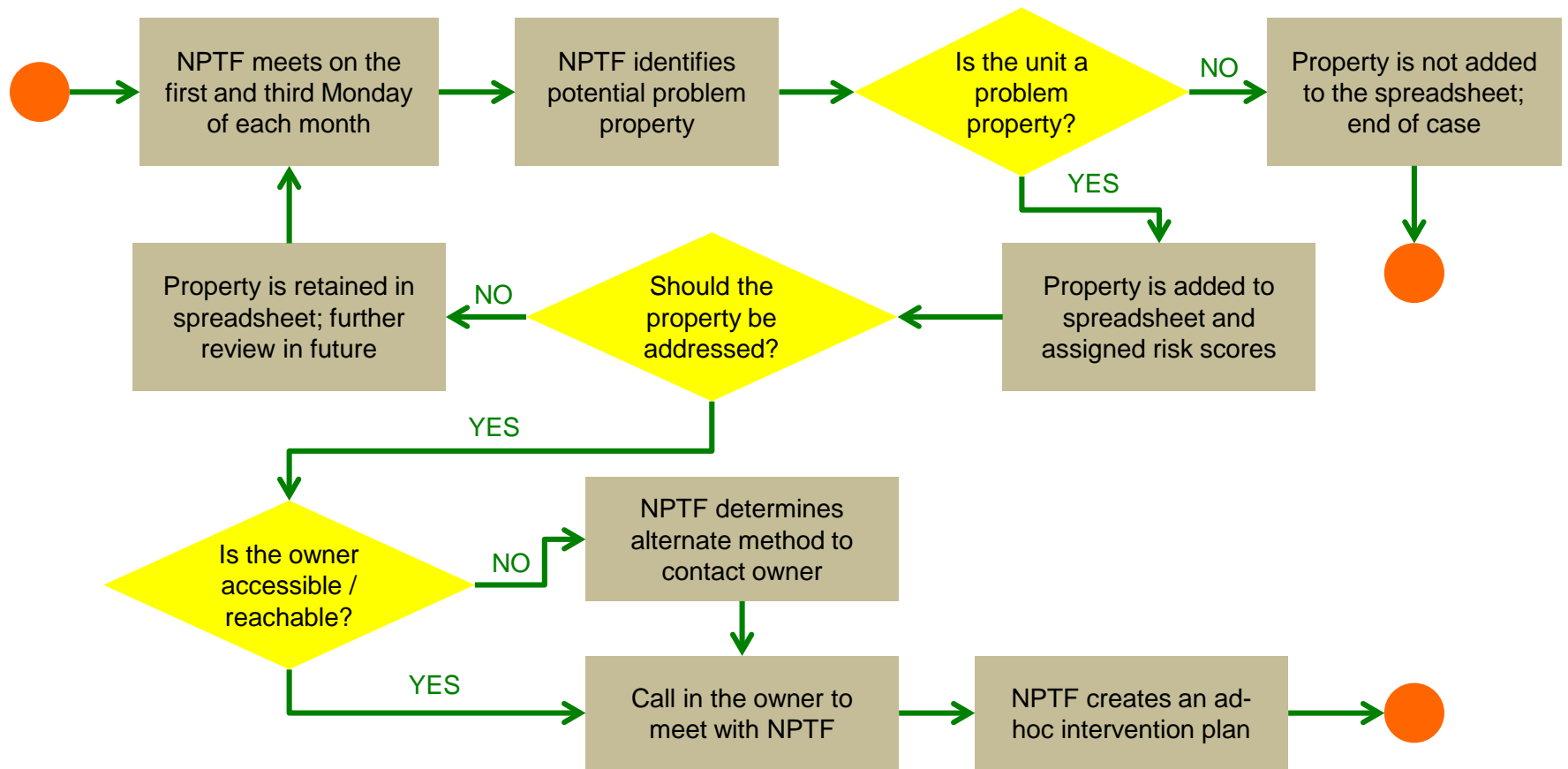HARVARD COMMUNITY DEVELOPMENT PROJECT

DRAFT FEBRUARY 22, 2016

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# Nuisance Property Task Force (NPTF) Process as Understood by CDP:

1. NPTF maintains a spreadsheet of problem properties with individual risk scores for code enforcement, police, fire, and tax (1-5) and a composite score (0-20).

2. The task force meets on the 1st and 3rd Monday of every month, and is represented by city officials and stakeholders.

3. To address properties on the list, NPTF contacts owner of a property on the list to discuss issues or meet with the task force to work out an ad-hoc intervention plan. This is dependent on which owners/landlords are **accessible and reachable.**

4. The NPTF does not currently have a system for adding more properties to the list

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# NPTF Current Process for identifying and addressing a problem property



Flowchart:

- Start → **NPTF meets on the first and third Monday of each month** → **NPTF identifies potential problem property** → Decision: **Is the unit a problem property?**
  - NO → **Property is not added to the spreadsheet; end of case** → End
  - YES → **Property is added to spreadsheet and assigned risk scores** → Decision: **Should the property be addressed?**
    - NO → **Property is retained in spreadsheet; further review in future** → (back to NPTF meets on the first and third Monday of each month)
    - YES → Decision: **Is the owner accessible / reachable?**
      - NO → **NPTF determines alternate method to contact owner** → **Call in the owner to meet with NPTF**
      - YES → **Call in the owner to meet with NPTF** → **NPTF creates an ad-hoc intervention plan** → End

**KEY** — Start/end, Tasks, Decisions, Workflows

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# Nuisance Properties in Central Falls
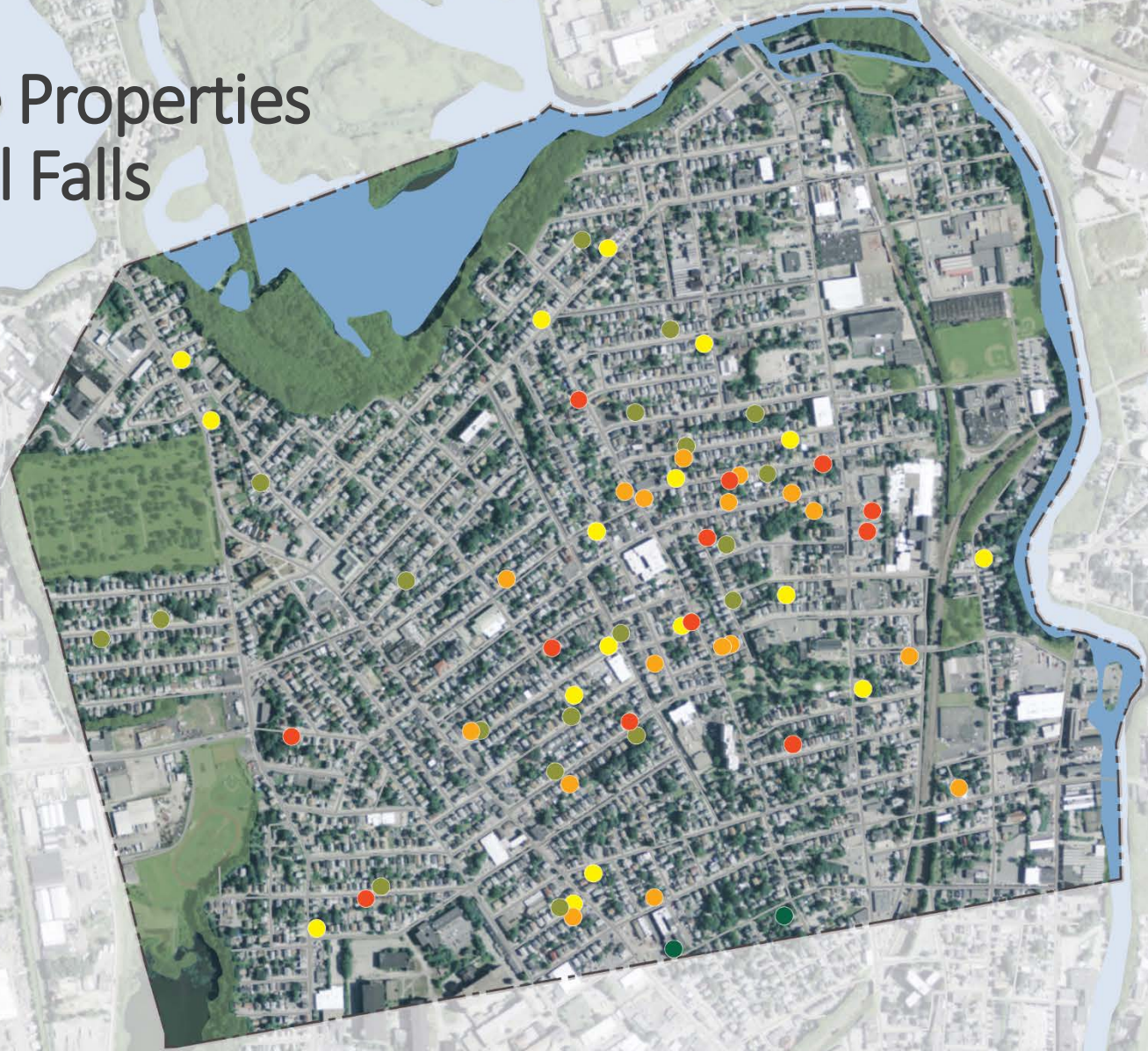
**Legend**

**NTF Composite Score**

- 4-9
- 10-12
- 13-14
- 14-19

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| 0 | 500 | 1,000 | 2,000 |
| --- | --- | --- | --- |

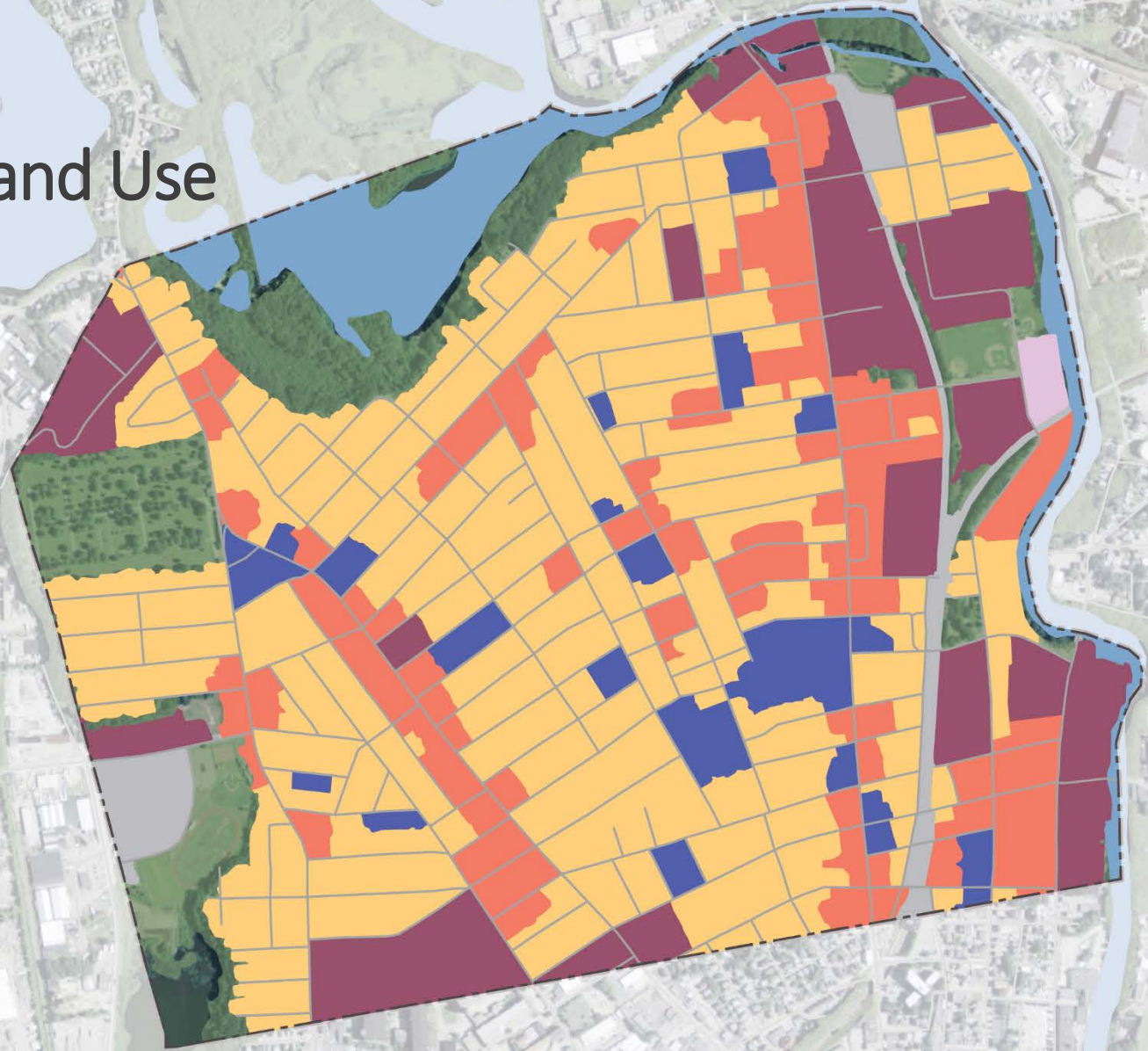Feet

# Existing Information

Available Data

1. NUISANCE PROPERTY LIST compiled by NPTF including code enforcement, police, fire and tax assessment

2. PARCEL DATA from assessor's office

# Key Issues

1. Property owners- absentee landlord status & availability

2. Vacant and problem properties as a result of Fire

3. Police calls tied to property address
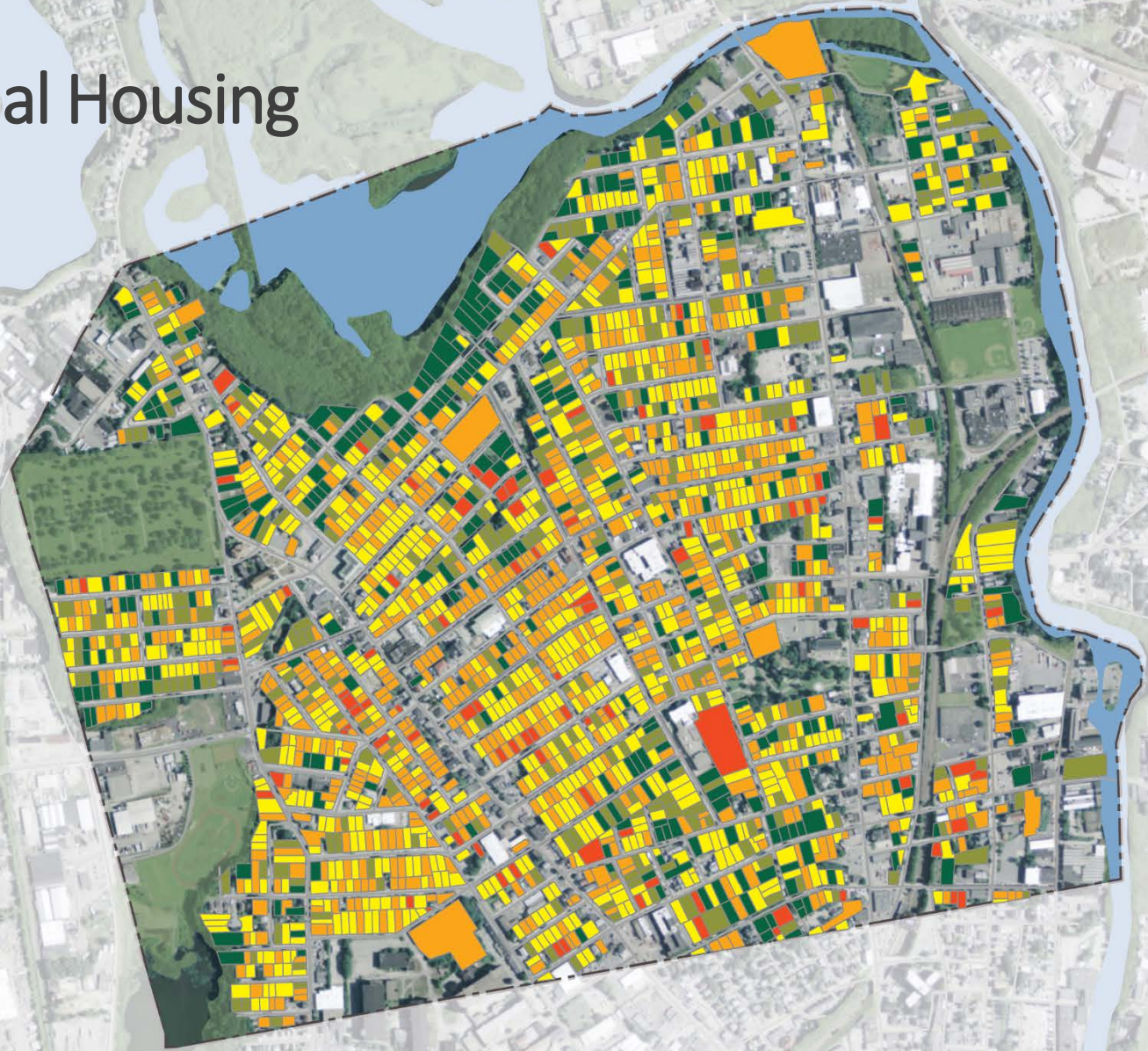
Overall Land Use

Legend

**Land Use**

- Residential
- Commercial
- Institutional
- Industrial
- Water/Sewer
- Transportation

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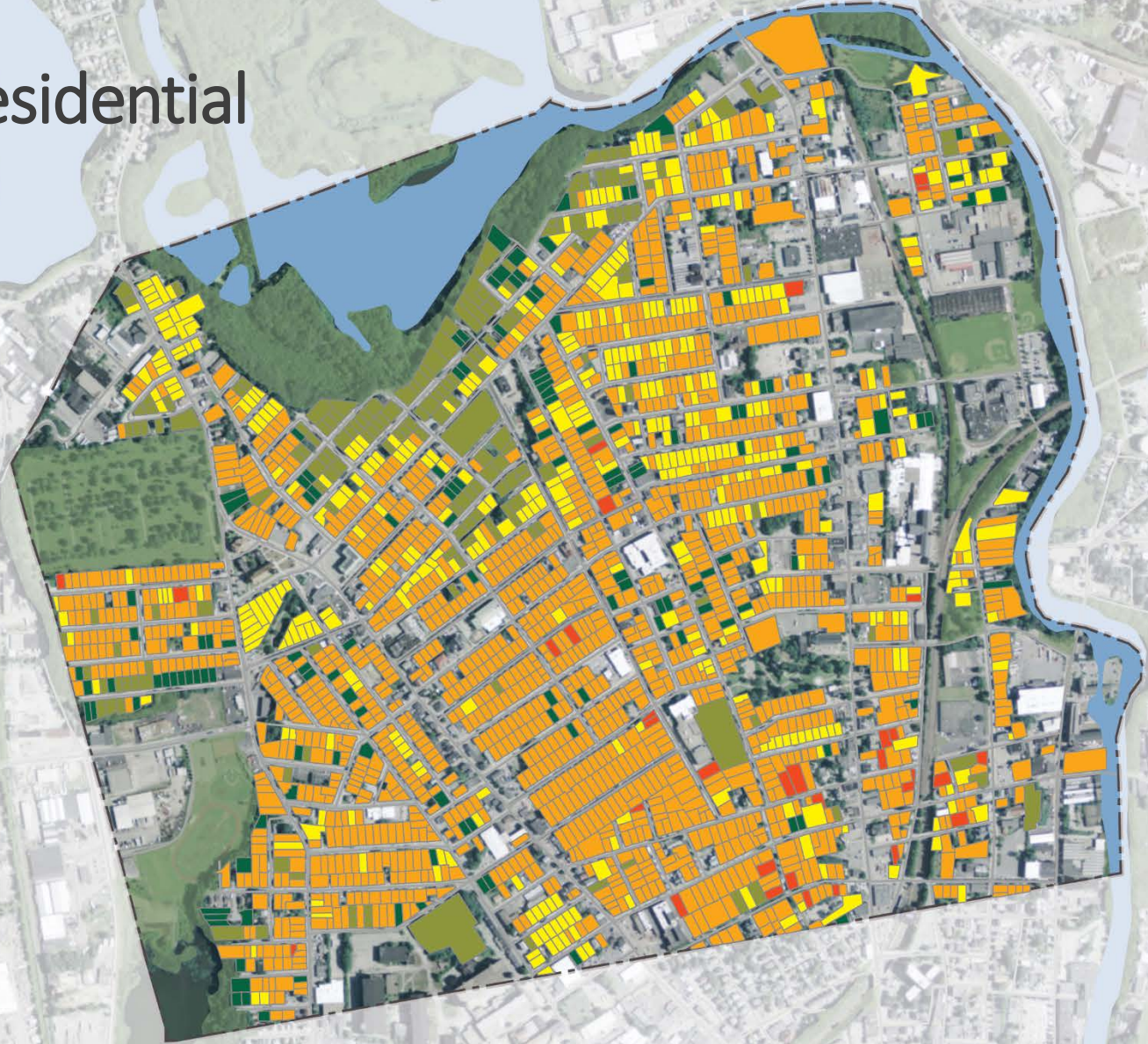
0    500   1,000        2,000
Feet

# Residential Housing Unit Size

## Legend

### Average Unit Size (square feet)

- 500-1,000
- 1,000-1,500
- 1,500-2,000
- 2,000-2,500
- Greater than 2,500

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0   500   1,000   2,000
Feet

# Age of Residential Housing

**Legend**

**Building Age (years)**

- 0-35
- 35-75
- 75-100
- 100-150
- 150-250

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0   500   1,000   2,000
Feet

# Landlord Availability



**Billing Address State, Non-owner occupied parcels**

| State | Value |
|-------|-------|
| AZ | 1 |
| CT | 2 |
| DE | 1 |
| FL | 12 |
| GA | 2 |
| IA | 3 |
| MA | 140 |
| NC | 2 |
| NE | 1 |
| NH | 1 |
| NY | 8 |
| OK | 1 |
| PA | 4 |
| RI | 890 |
| SC | 3 |
| TX | 4 |
| VA | 1 |
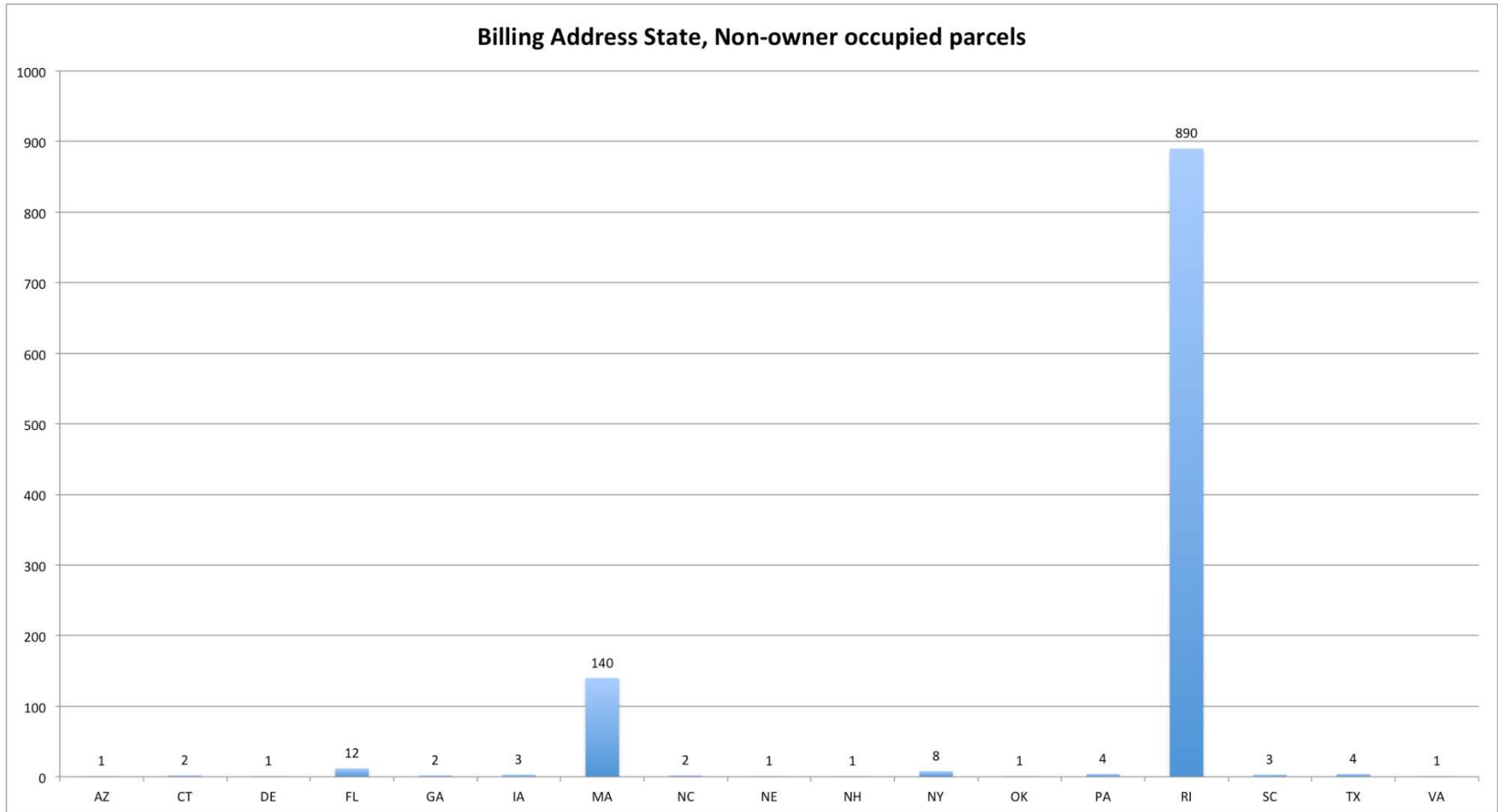
Owner Occupied Properties
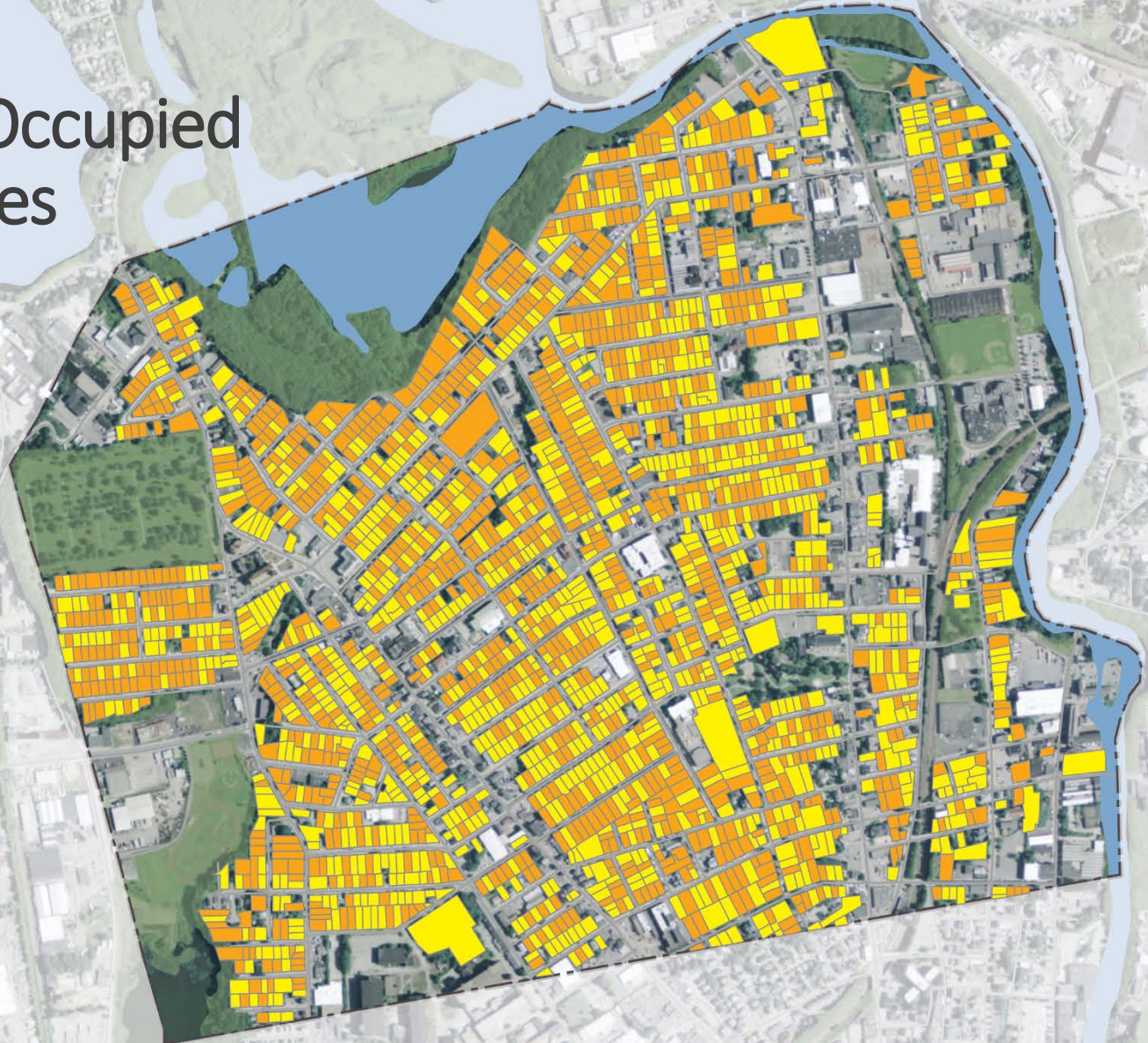
Legend
Ownership

Owner-occupied

Not Owner-occupied

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0    500   1,000              2,000
                             Feet

# Fire Risk Factors

1. Heating Systems

2. Vacancy

3. Criminal Activity

# Residential Heating Systems
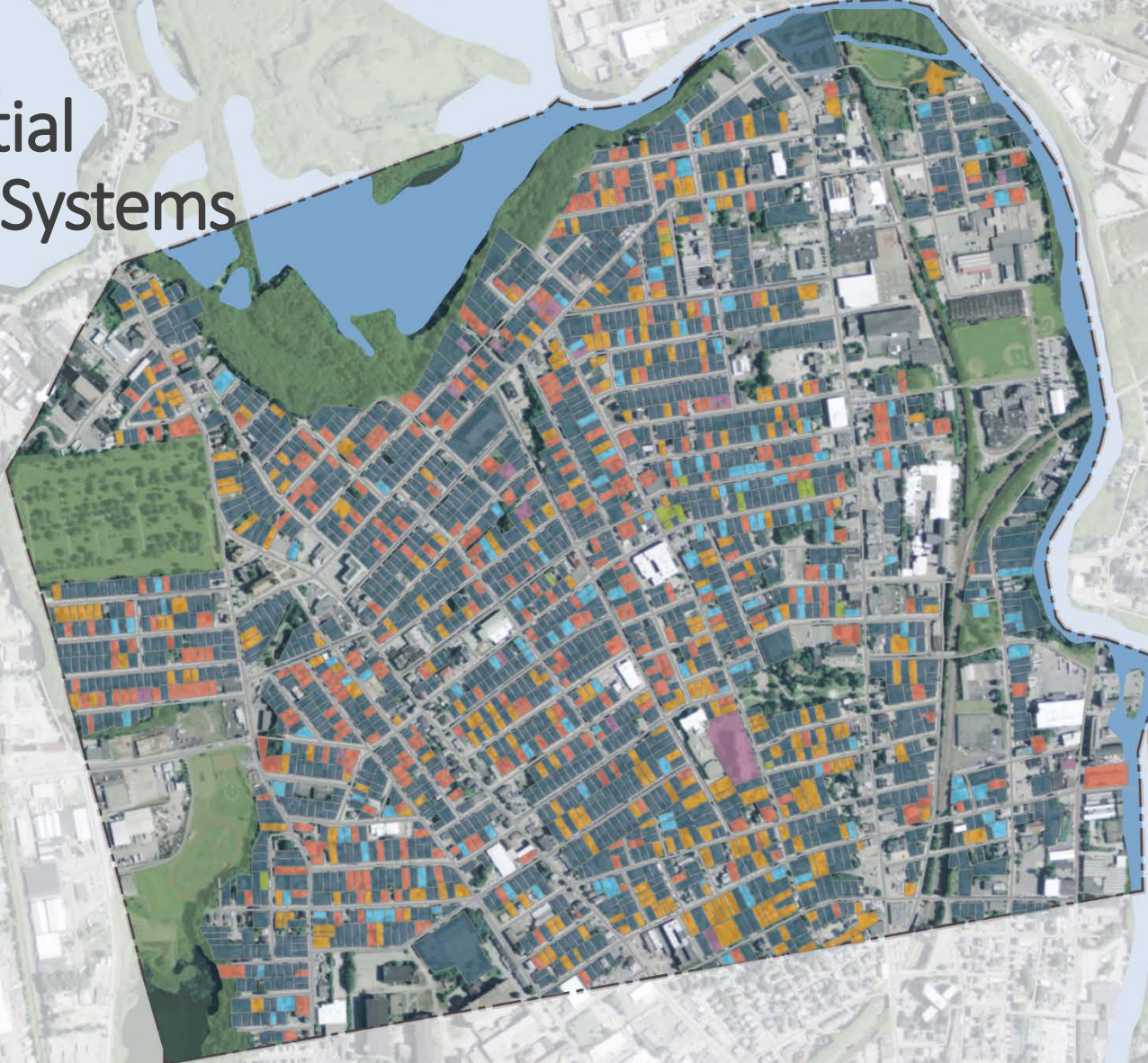
**Legend**

**Heating Category**

- Baseboard
- Forced Air
- Hot Water
- No Heat
- Space Heat
- Steam

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0    500    1,000              2,000
                               Feet

# Heating Type, Fire-Damaged NPTF Properties
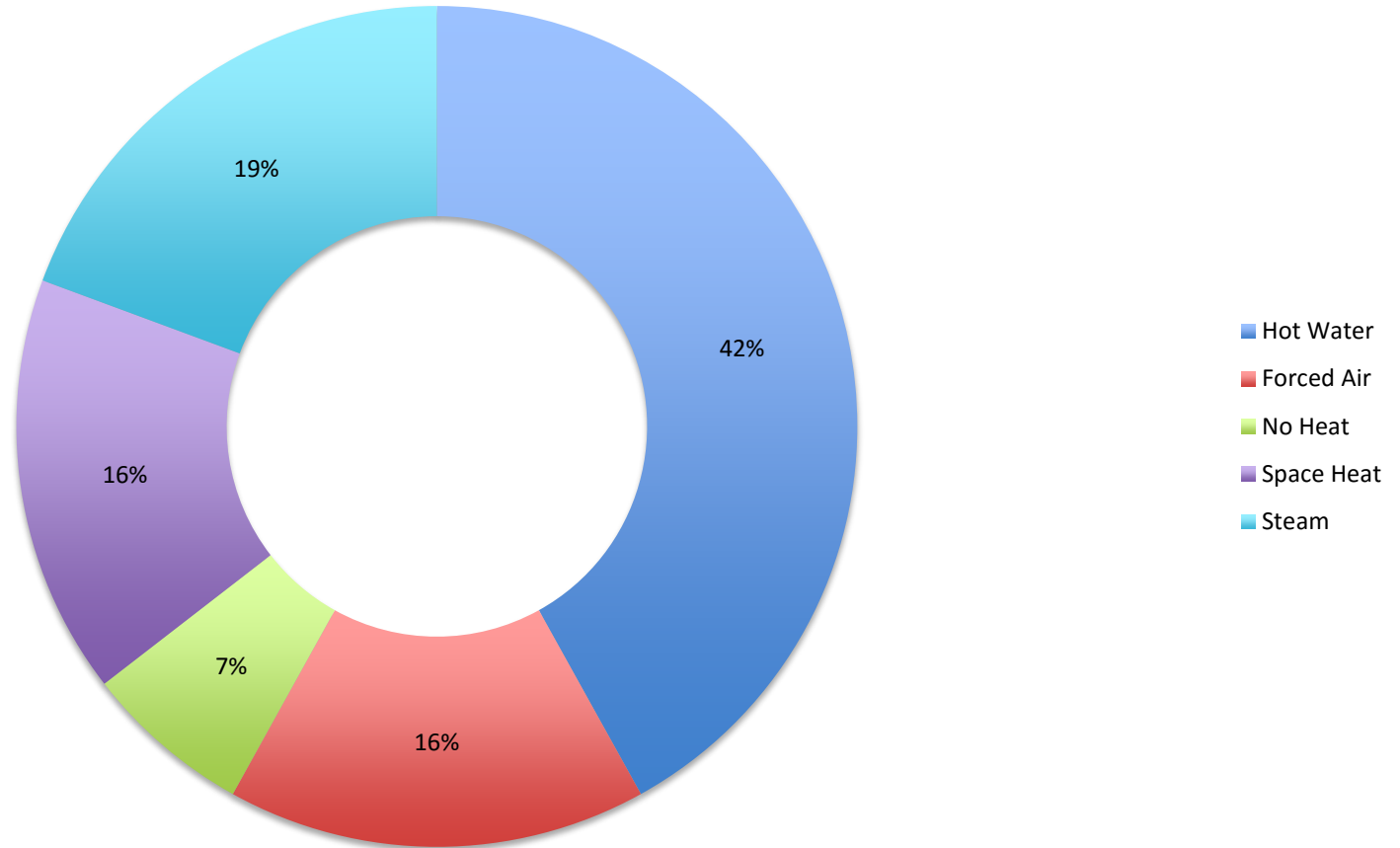
Vacancy due to Fire Damage
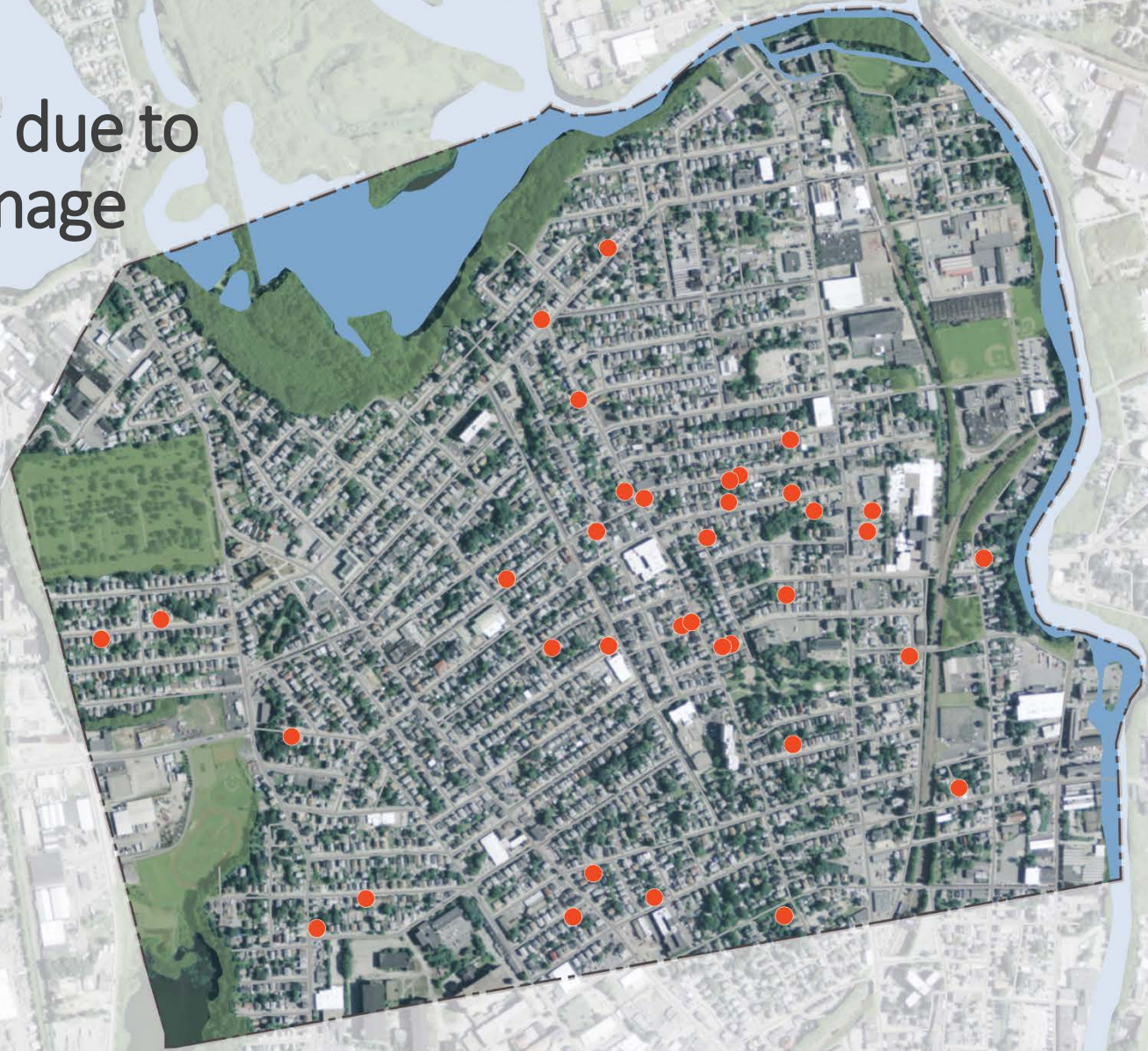
Legend

NTF Fire Score

● 5 (Highest rank)

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0    500    1,000         2,000
                          Feet

# Case Studies for Dealing with Vacancy

**Minneapolis** permits owners to board up buildings for up to 60 days. After that point, the building may be listed on the Vacant Building Registration list (can be viewed online by the public)

In **Sacramento,** one condition that would make a vacant property be considered a nuisance is if the property is boarded (windows and/or doors) for more than 30 days and not prepared for occupancy.

**Milwaukee** owners must register the property within 30 days and take certain steps, including following boarding/security requirements .

# Case Study: Mobile, AL
# Leveraging social media for blight management

**Background:**

Mobile won a Bloomberg Philanthropies grant in 2014 to develop an "innovation team" to tackle the lack of data on the city's blighted housing units

**Process:**
- Team sets up Instagram account
- Code enforcement officers take photos from field
- Instagram maps photos locations to show concentrations

**Advantages:**
- Data is highly accessible compared to 311 data
- Fairly seamless mapping of data
- Efficiently uses work smartphones

**Limitations:**
- Addresses not dynamically integrated
- Does not specify level of work needed for units

**Subsequent steps:**
- New app by GIS department for address collection
- Innovation team creating a blight scoring system

*Instagram map example*



Credit: Instagram/City of Mobile, cited by Governing Magazine

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# Case study: South Bend, IN Segmentation of abandoned properties

**Background:** Economic challenges in the Midwest and broader American housing crisis have driven abandoned property pattern

**Process:**

◦ Categorize houses into three groups using proper use of owner, property condition, and neighborhood market conditions

◦ Develop regular progress reports about efforts to prevent, reclaim and renew vacant and abandoned properties

◦ Make progress reports information freely available to the public

**Advantages:**

◦ Enables Code Enforcement to identify which abandoned house nuisances can be eliminated promptly through either repair order proceedings or demolition

*House categorization table*

| Type of Abandoned House | City Response |
|---|---|
| Houses to be repaired now | Code Enforcement Order to Repair |
| Houses that can be repaired, but only later | Land Bank without Demolition |
| Houses that will not be repaired | Demolition, then Land Bank |

*Abandoned house example*



Table and photo credit: City of South Bend

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# Case study: Chelsea, MA
# Problem Properties Risk Tool (CPR)

**Background:** Given the disunity in identification using different methods/sources, Chelsea sought a more strategic way of selecting problem properties

**Functions of CPR:**

◦ Unifies city department spreadsheets into one database by adapting properties' geographic data

◦ Produces a risk score based on the City's psychological, financial, and physical risk indicators

◦ Permits the City to choose and measure key performance indicators

**Technical process:** involves setting up folders and files specific to the time scope, quality control of file consistency, and running the Stata analysis program

**Advantages:**

◦ Tool comprehensively incorporate different risk types

◦ Allows City to be more proactive about identification

*Identification of properties using physical risk*
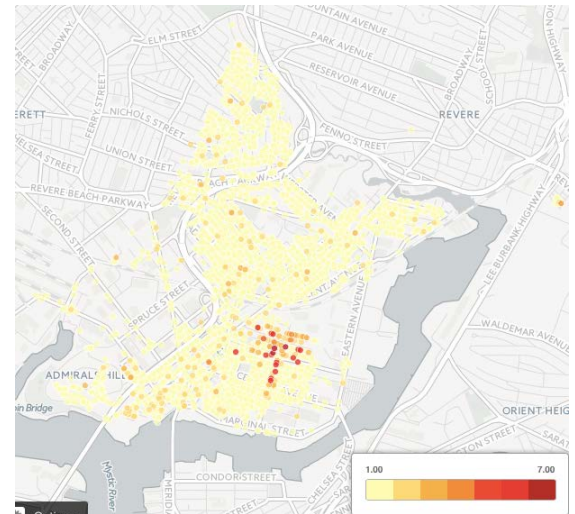


Credit: Ash Center for Democratic Governance and Innovation (Harvard Kennedy School) and City of Chelsea

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# What does a Predictive Analytic  Tool do?

1. **Data management:** it creates a property information database by gathering data from different sources and merging it by geocode.

2. **Risk analysis:** based on thresholds for key indicators selected by city hall, the tool generates a risk score for the property.

3. **Performance management:** the tool calculates key indicators related to the goals of the city.

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# 1. Data Management

1. City departments use different spreadsheets, which are organized by property address

2. The tool imports each spreadsheet and automatically assigns unique coordinates to each property address

3. The tool puts together department files by property geocode – creating a single database
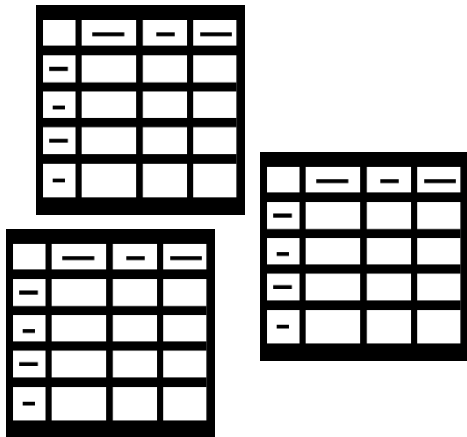


*Different spreadsheets spread across units*
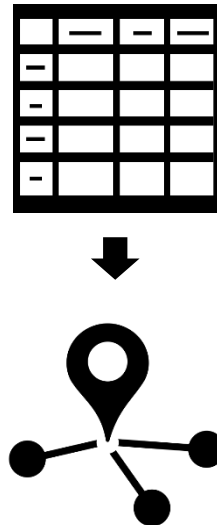
*Each property in each file is assigned a geocode (latitude and longitude)*
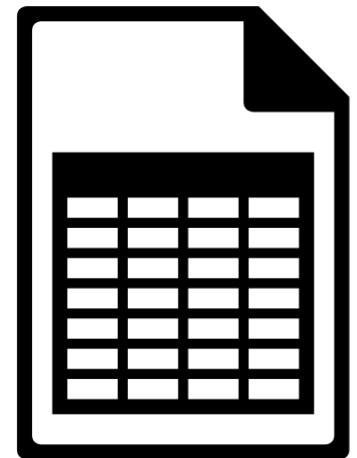
*Final consolidated property information database*

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# 2. Risk Analysis

Based on the consolidated data, the tool calculates indicators, which were selected by city hall.

*Ex.: Number of Code Violations.*

Based on specific thresholds, the tool calculates a risk score for each indicator, which is added to a final risk score for each property.

*Ex) if the property has received 0 tickets from the ISD, it received a score of 0. If it received up to 2 tickets, it received a score of 1. If it received more than 2 tickets, it received a score of 2.*

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# 2. Risk Analysis

The property's **risk score** compiles from three risks of abandonment:

- **Psychological Risk:** the risk of an owner abandoning a property due to insecurity (related to crime, foreclosures, nuisance, etc.).
- **Financial Risk:** the risk of an owner abandoning a property due to financial distress.
- **Physical Risk:** the risk of an owner abandoning a property due to advanced physical deterioration.

# 2. Risk Analysis

These are the **12 indicators** by risk area, which can be adjusted in the future.

Starred indicators have been weighted twice.

| Psychological Risk | Financial Risk | Physical Risk |
|---|---|---|
| Neighborhood Risk (NPTF-Generated)<br><br>Police Calls for Service (Police)*<br><br>Crime Reports (Police) | Tax Delinquency (Treasury)<br><br>Total Balance to City (Treasury) | Vacancy, Risk of Vacancy & Vacancy History (Fire; Water & Sewage)*<br><br>Tickets Issued (ISD)*<br><br>Total Fines Owed (ISD)<br><br>Absentee Landlord (Water)*<br><br>Overcrowding & Leaking (Water)* |

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# 2. Risk Analysis

Psychological Risk:

- ◦ **Risk area:** if the property is located in a problematic area, it received a risk score of 1. If otherwise, it received a score of 0. Problematic area:

  Chestnut St (North) to Fales St (South) Washington St (East) Broad St (West).

- ◦ **Calls for Service***:* if police department has received less than 10 calls from the property, it receives a score of 0. If police received from 10 to 30 calls from the property, it receives a score of 1. If police received more than 30 calls, the property received a score of 2.

     (need police call report for this)

- ◦ **Crime:** if the property is located in a violent crime scene, it received a risk score of 1. If otherwise, it received a score of 0. Violent crimes (shooting, assault, and stabbing) (need police crime report for this)

Proposed
Risk Area for
Central Falls
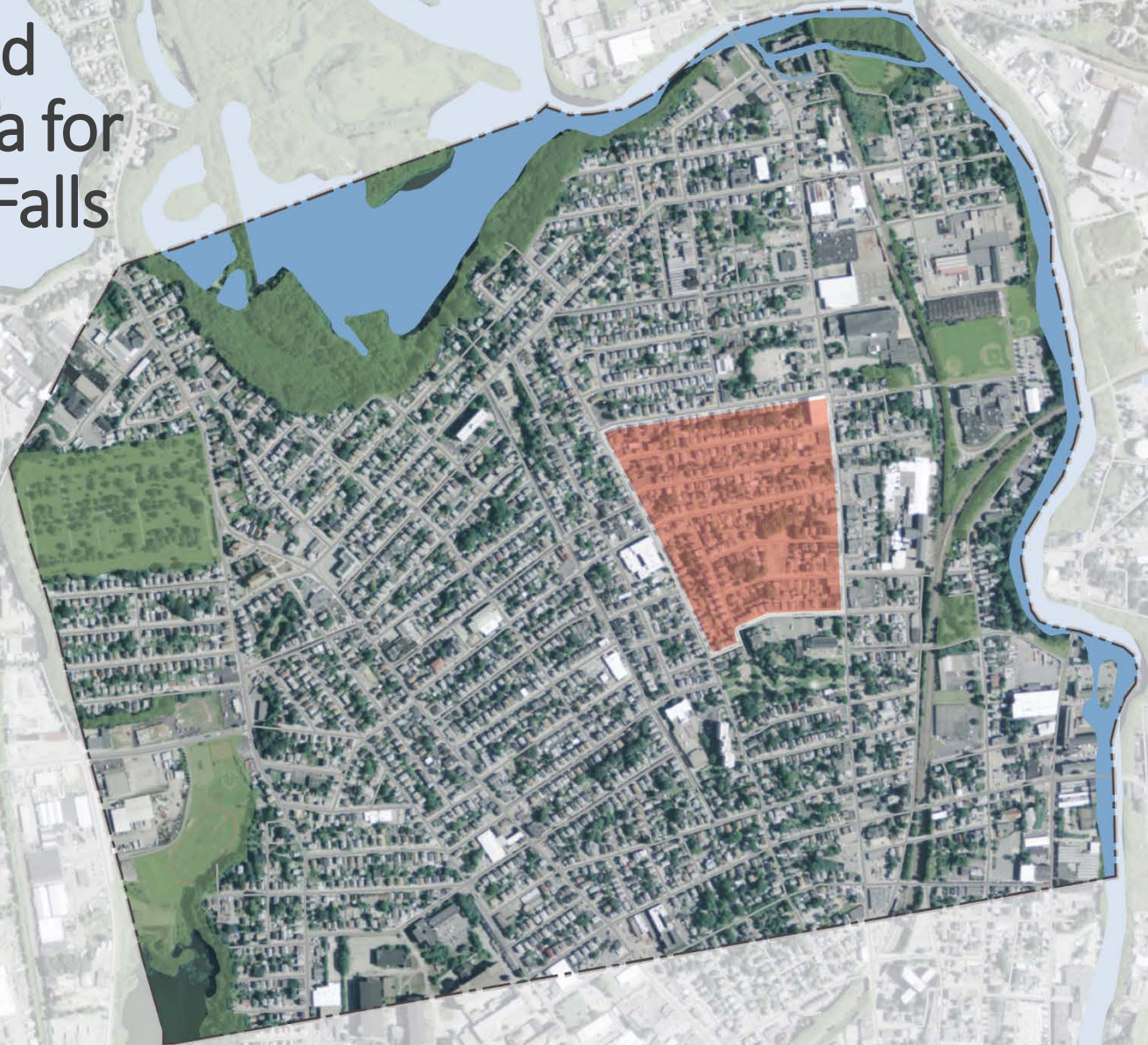
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0    500   1,000              2,000
                             Feet

# 2. Risk Analysis

Financial Risk:

◦ **Tax delinquency:** if the property has received 0 notifications from the treasury department, it received a score of 0. If it received up to 2 notifications, it received a score of 1. If it received more than 2 notifications, it received a score of 2. Number of notifications is defined as demand charges divided by $20.

◦ **Balance Due:** If the property had a delinquent balance under $1000, it received a score of 0. If the balance due was $1000-$5,000, it received a score of 1. If it was over $5,000, it received a score of 2.

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# 2. Risk Analysis

Physical Risk:

- **Fire Damage:** if the property is fire damaged, it received a score of 1.  If otherwise, it received a score of 0. Fire Damage is defined by the fire department.

- **Current vacancy:** if the property is currently vacant, it received a risk score of 1.  If otherwise, it received a score of 0.

- **History of vacancy / foreclosure:** if the property has a history of vacancy / foreclosure, it received a score of 1. If other, it received a score of 0.

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# Physical Risk:

- ◦ **Number of Tickets Issued:** if the property has received 0 tickets from the ISD, it received a score of 0. If it received up to 2 tickets, it received a score of 1. If it received more than 2 tickets, it received a score of 2. Number of tickets is mapped from ISD database for the COHs.

- ◦ **Amount of Fines:** If the property did not have to pay any fines, it received a score of 0. If the amount of fines owed was up to $100, it received a score of 1. If it was over $100, it received a score of 2.

- ◦ **Potential Absentee Landlord:** If the property does seem to have absentee landlord, it received a score of 0. If the property potentially involves an absentee landlord, it received a score of 1.

- ◦ **Leaking / Overcrowding:** If the property's water bill is below average (i.e. under the 50% percentile / 1$^{st}$ or 2$^{nd}$ percentile), the property received a score of 0. If the water bill is above average (75% percentile / 3$^{rd}$ percentile), the property received a score of 1. If the water bill is among the highest in the city (50% percentile / 4$^{th}$ percentile), the property received a score of 2.

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# 3. Performance Management

The tool allows the city management to select key indicators related to Central Fall's goals, set baseline, and measure progress overtime.

Some indicators that could be tracked are:
- ◦ % of properties with significant code violations;
- ◦ # of calls for service;
- ◦ average sale price;
- ◦ % of properties at risk of criminal activity;
- ◦ amount of taxes recovered from delinquent properties.

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# Predictive Tools

1. **Use existing data**

2. **Acquire new data**
   - Water Service: Pawtucket Water Supply Board
   - Sewer Service: Narragansett Bay Commission
   - Electric Service: National Grid
   - Natural Gas: National Grid
   - Liens: Rhode Island Housing

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# Next Steps

Additional Data Sources
- ◦ What data should we pursue?
- ◦ How can we gather that data?

NPTF Policies
- ◦ Connect with members of NPTF to discuss process & risk score factors
- ◦ Process mapping
- ◦ Policy recommendations

Data Analytics
- ◦ What other maps would be helpful for Central Falls?
- ◦ Revised risk score prioritization
- ◦ Populate predictive analytic tool with data

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# Thank you

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