Subject:	URGENT MATTER +++
Attachments:	Hand On Museum - 220 E Ann St, Ann Arbor, MI 48104.pdf; crime-index-complete-methodology.pdf; Memo to Ann Arbor City Concil - 7-9-25.pdf
Importance:	High

From: Jack Zahran
Sent: Wednesday, July 9, 2025 7:36 PM
To: Taylor, Christopher (Mayor) <CTaylor@a2gov.org>
Cc: City Council <CityCouncil@a2gov.org>; Dohoney Jr., Milton <MDohoney@a2gov.org>; Planning <Planning@a2gov.org>
Subject: URGENT MATTER +++
Importance: High

Dear Mayor Taylor,

Please find attached a memo and supporting attachments for your urgent attention.

In addition to sharing the attached with other local Ann Arbor leaders, I have copied City Council, Mr. Dohoney, and The planning commission.

Regards,

Jack Zahran | CEO
PINKERTON
www.pinkerton.com
===

Memo to Ann Arbor City Council

Date: July 9, 2025
To: Mayor Taylor, City Council, City Administrator Dohoney, Planning Commission and Staff

Allow me to introduce myself and provide some background. I am a local resident of 13 years, a father of four, and the CEO of Pinkerton, a corporate employer with its global HQ in downtown Ann Arbor. I am proud to sponsor University of Michigan Athletics and partner with the Ross School of Business to name a few.

My story starts with my father who was born in Jerusalem in 1941. At age 7 his life was upended by a devastating war in 1948, and again in 1967. This led to him to flee to Canada in 1971 along with my mother. Therefore, my life has been shaped by violence that caused displacement. It is from this multi-stakeholder perspective that I reach out to you today.

It is with a heavy heart that I write these words. I urge you to treat the concerns conveyed here with the highest priority and address the alarming trends with a sense of urgency. Without immediate action, I believe further decline threatens the very existence of our city.

With decades of authority backed by institutional knowledge dating back to 1850, I cannot stand idly by in the face of this existential threat. This is not hyperbole. The city of Ann Arbor is deteriorating, and crime has reached unacceptable levels. The safety of our whole community is in jeopardy, with violent crime rates—such as rape, assault, and homicide—four times the national average. City safety is unraveling, and I fear we have not yet reached the peak.

The following outlines the basis of my deep concern and why, for the safety of my children, coworkers, friends, and neighbors, that we need to be transparent about these matters:

- Attached is a crime index report for the **Hands-on Museum located at – 220 E Ann St**.

- The crime index was created to ensure integrity in crime reporting and is constructed using frontier data science. For transparency I have also attached an explainer on the methodology. In addition, you will find how it's assembled-on page 3 of the Crime Index report.   Moreover, you can go to the following link to watch a video to understand why it is critical to have a holistic measure of crime risk that goes beyond basic incident reporting:

- https://pinkerton.com/our-insights/video/pinkerton-crime-index-beyond-the-data--video

- To address any requests for proof of accuracy see the R2 scores:

Predicted vs. Observed PCI (Overall R2: 0.917)
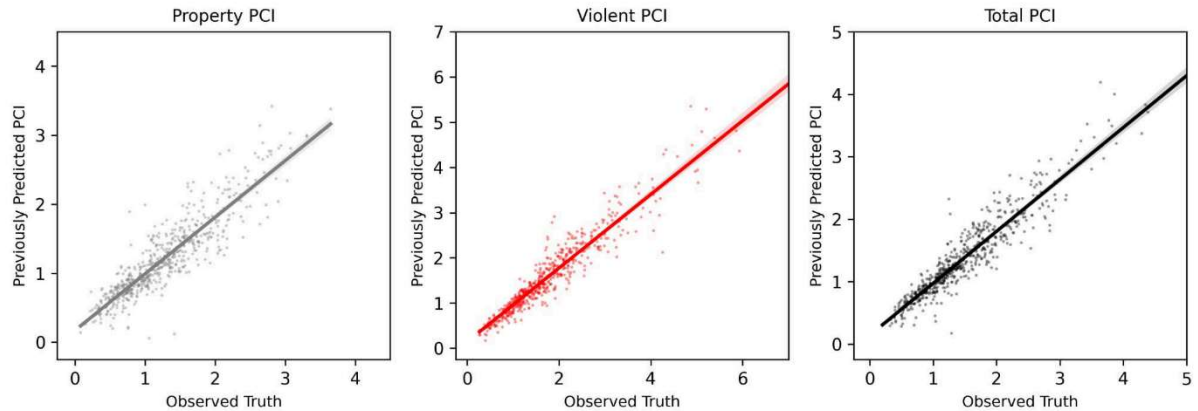
- The attached report provides scores that reflect Crime risk relative to the current National Average. It provides a score for combined crime score, Property Crime, and Violent Crime. We benchmark the neighborhood level vs County vs the State. Comparisons to city peers, 5 year trend lines, Annual seasonality, Spill over, and Hourly time step detail.

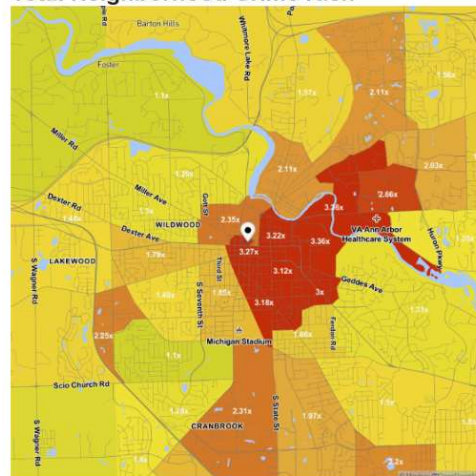- For July 2025 – The attached Crime Index report shows:

REPORT SUMMARY

Neighborhood Risk

The boxes below show the neighborhood crime index for **220 East Ann Street, Ann Arbor, Michigan 48104, United States**. Scores are defined as a multiple of the national average. The map shows crime risk averaged over the last 12 months surrounding your location within a 3 mile radius.

Total	Violent	Property
3.27x	4.46x	2.27x

Total Neighborhood Crime Risk

Washtenaw County Risk

Total	Violent	Property
1.78x	2.38x	1.28x

Michigan Risk

| Total	Violent	Property
1.76x	2.52x	0.94x

- **The Hands-on Museum is to be a place for our children. The current Violent Crime Risk is 4.46X the national average.**

- **This is not an isolated location. We have 3X to 4X violent crime risk at beloved spots such as:**
  - Country Farm Park, Michigan Theater, Gallup Park, CS Mott Children's Hospital, Yost Ice Area, Gerald Ford Presidential Library, and Ann Arbor Art Center.
  - Our schools, places of worship, libraries, and local business are all in the crosshairs

Here is an enlarged Map of the Violent Crime Scores you can find on page 9:

* VIOLENT CRIME INDEX: NEIGHBORHOOD SCALE

4.46x Neighborhood violent crime risk for 220 East Ann Street, Ann Arbor, Michigan 48104, United States is 4.46 times the national average. The below map shows crime risk averaged over the last 12 months surrounding your location within a 3 mile radius.
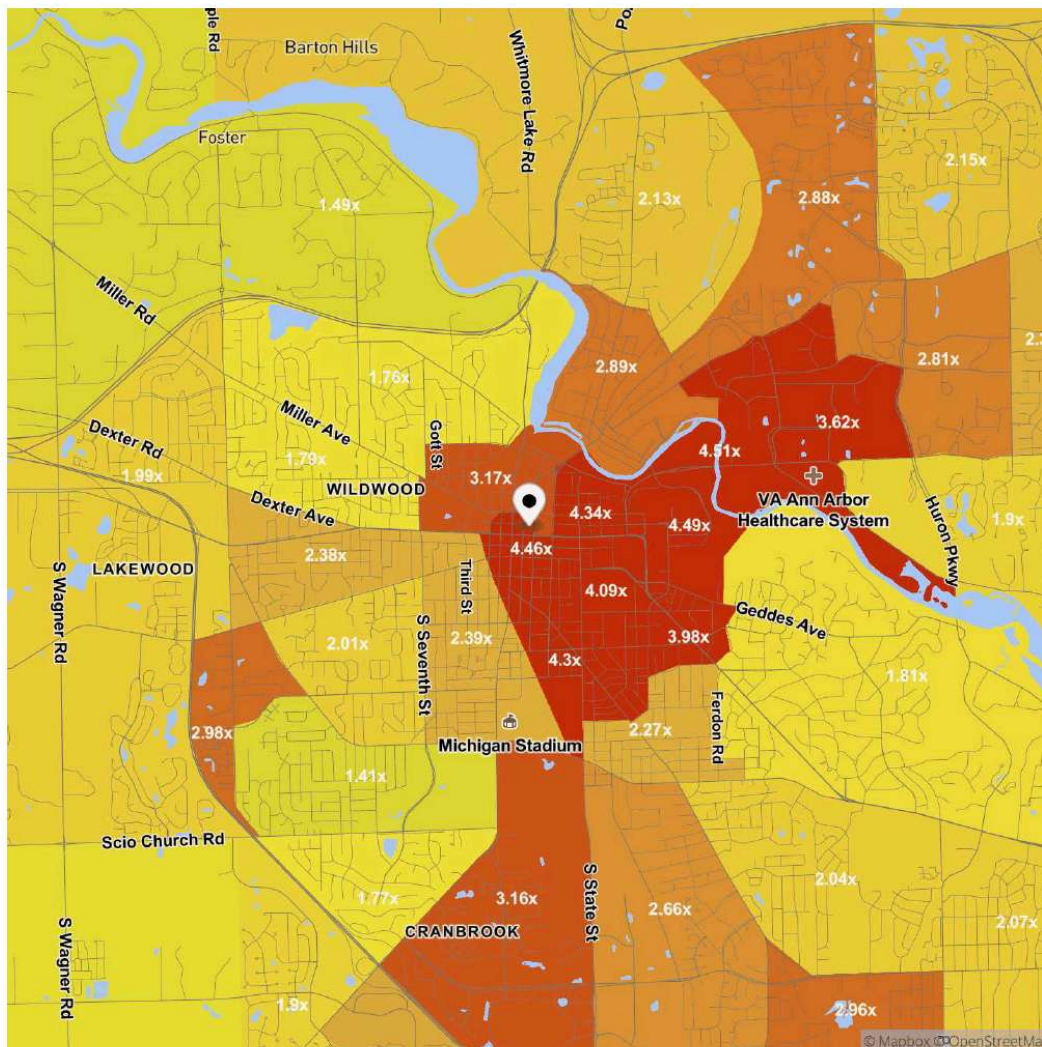
And yet, despite the overwhelming data, this growing threat to public safety is entirely absent from the City's Draft Comprehensive Plan. As you prepare a 25-year vision for Ann Arbor's future, it is unthinkable that violent crime is not mentioned once. A plan that fails to acknowledge reality cannot protect future generations. To ignore this now is to embed failure into the foundation of our city's future.

Implications of Rising Crime in Ann Arbor:

Rising crime in Ann Arbor threatens not only our property and people but also the economic, social, and cultural fabric of our community. Below are the critical implications:

- **Economic and Community Ecosystem Damage:** Beyond direct harm, crime undermines the Ann Arbor economic and community ecosystem, eroding the foundation that makes our city a desirable place to live, work, and invest.

- **Rising Insurance Costs and Affordability Challenges:** The cost of insuring homes, cars, and businesses will increase, exacerbating affordability issues. This reduces Ann Arbor's attractiveness to investors, as a triple-A bond rating means little when victimization risks are high.

- **Talent Attraction and Retention Barriers:** World-class talent, critical to organizational success, is deterred by safety concerns. No amount of financial incentive can compensate for a lack of ensured safety, threatening Ann Arbor's ability to attract and retain top professionals.

- **Decline in Property Values:** Rising crime is strongly correlated with declining property values over time. Many residents have significant life savings invested in home equity, and its destruction is both immoral and economically devastating.

- **Cascading Operational Impacts:** Crime's effects are not linear; they cascade, creating momentum in crime rates that disrupts supply chains and daily operations. This uncertainty strains businesses' competitiveness, leading to high opportunity costs and potential migration out of Ann Arbor, as the "juice is no longer worth the squeeze."

- **Threat to University of Michigan's Reputation and City Partnership:** Ann Arbor's vitality depends on a thriving University of Michigan. Parents must feel confident sending their children to a safe college town. A reputation for violent crime could cause irreversible, generational damage to both the University and the city's interdependent relationship.

- **Strain on Local Businesses and Entrepreneurship:** Small businesses and startups, vital to Ann Arbor's economic diversity, face increased security costs and reduced customer traffic. This could deter new ventures and drive existing ones away, weakening the innovation ecosystem tied to the University.

- **Burden on Public Resources:** Escalating crime strains law enforcement, emergency services, and healthcare, potentially leading to higher taxes or reduced funding for schools and infrastructure. This diminishes the quality of life that defines Ann Arbor.

- **Erosion of Community Trust and Cohesion:** Crime undermines the sense of community, reducing civic engagement and trust in local institutions. This loss of social cohesion has long-term cultural and psychological impacts, threatening Ann Arbor's vibrant community spirit.

- **Impact on Tourism and Local Events:** Safety concerns could deter visitors to events like the Ann Arbor Art Fair or University football games, hurting hotels, restaurants, and businesses that rely on tourism revenue.

- **Stalled Urban Development:** Rising crime may discourage developers and investors, leading to blight, reduced property tax revenue, and a cycle of disinvestment, counteracting efforts to maintain Ann Arbor's reputation as a forward-thinking city.

Pinkerton, as an organization, turned 175 years old this year. I have had the privilege of studying our archives and developing a deep understanding of how crime and violence can destroy the fabric of a vibrant community. Early newspaper accounts characterized our founder, Allan Pinkerton, as "indefatigable," a term not commonly used today. It means being incapable of being worn out, tirelessly relentless, and never yielding to fatigue.

Now, more than ever, we need to be indefatigable in our response to restore our safety. Heed this call to action. Inaction must be viewed as dereliction of the highest order. Do not risk the lives of your residents by dismissing this plea as a political tactic. History teaches attempts to downplay crime rates fail due to the unavoidable impact felt by residents and the rise against violence is inevitable.

True character is revealed in moments of consequence. I pray for my loved ones that you have the courage to acknowledge the realities happening on our city streets and in our backyards. Failure to do so will be viewed as an unforgivable betrayal and judged harshly. Mr. Taylor I have heard you speak about your childhood and your fond memories walking in our neighborhoods. I hope memories like yours can be passed down to future generations. Without safety those will be distant memories and I fear Ann Arbor will be yet another cautionary tale.

Regards,

Jack Zahran

UNITED STATES
CRIME INDEX REPORT

CONTENTS

CRIME DATA

Our data collection systems continuously ingest the best available crime data from key sources, including federal, state and local law enforcement and public security agencies, police dispatch data, and cause-specific mortality and injury data from the Centers for Disease Control and Prevention, among other sources. These data sources are cross-referenced to establish a more realistic portrait of crime in the United States.
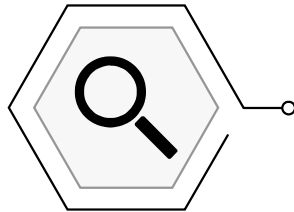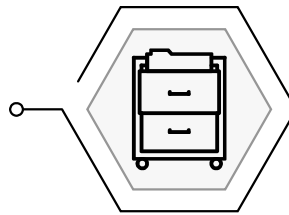
OUTLIER DETECTION

Each source of crime data is inspected and interrogated to flag and correct missing information, data-entry errors, periodic revisions, and irregular fluctuations in reported crimes. To correct the data, we cross-reference the behavior of crime types across sources and deploy various signal detection algorithms to see crime risk over time and at neighborhood, county, state, and national scales.

REPORTING BIAS

The crimes known to police do not capture all incidents of crime in a community. For various reasons, criminal offenses that cause alarm, distress, and calls for service in one community may go unreported to police in other communities. To enable reliable comparison across communities, we combine data on crimes known to police with victimization and perception of security survey data, local demographics, and economic conditions that are correlated with reporting behavior.

SEVERITY WEIGHTING

While it is common practice to naively add different crime types to produce indices of crimes against persons and property, we know that crime types vary considerably in the harm caused to victims and the public. In the Pinkerton Crime Index, each crime type is assigned a severity weight based on prison sentences issued by courts across the country. Intuitively, more serious but less frequent crimes like homicide contribute more to crime risk scores.

PREDICTORS OF CRIME

Crimes are more likely to occur when a motivated offender finds a suitable target in the absence of capable guardianship. Informed by risk management and law enforcement professionals, our data systems track the underlying sources of crime, including (but not limited to) age structures, vacancy rates, poverty, housing prices, miscellaneous offences, and fast-moving economic information to capture movements in crime-causing neighborhood conditions.
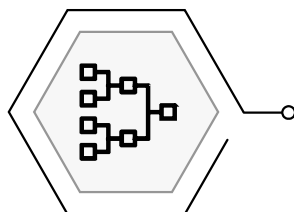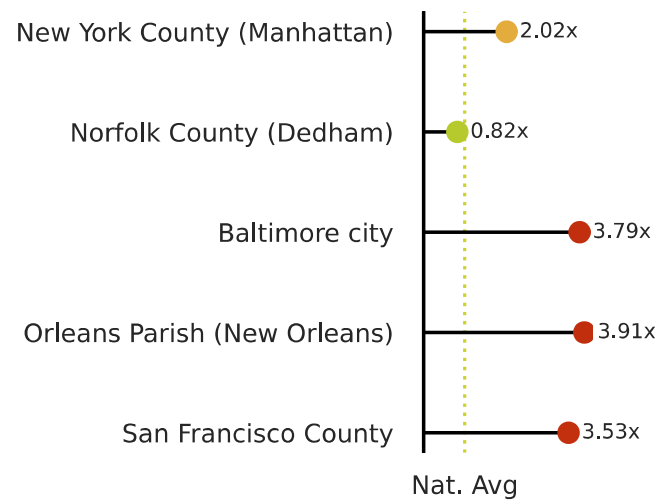
ALGORITHM TOURNAMENT

We use a wide variety of statistical and machine-learning algorithms to forecast crime risk. We pit our algorithms against one another in a double-elimination tournament, assessing the predictive accuracy of each algorithm against unseen crime risk data. Our crime risk forecasts are calculated from an ensemble of winning algorithms for each crime type and community.

* PINKERTON CRIME INDEX

Crime risk scores define risk as a multiple of the national-average level. An index score of 1.0x indicates crime risk that is equal to national average risk. An index score of 2.0x indicates that an area is twice as risky as the national average. An index score of 0.5x indicates that an area is half as risky as the national average. The image presents total crime risk scores for various communities in the United States to help contextualize the meaning of your location scores throughout this report. **Crime scores reflect an average taken over the last 12 months**.

New York County (Manhattan) — 2.02x

Norfolk County (Dedham) — 0.82x

Baltimore city — 3.79x

Orleans Parish (New Orleans) — 3.91x

San Francisco County — 3.53x

Nat. Avg

* COMPONENTS OF CRIME RISK

Certain types of crime occur more or less frequently than other types of crime. In general, criminal homicide is less common than larceny and aggravated assault. The first image below shows the distribution of crimes by type in your community. The second image shows the severity-weighted distribution of each crime type used to capture total crime risk in your community.
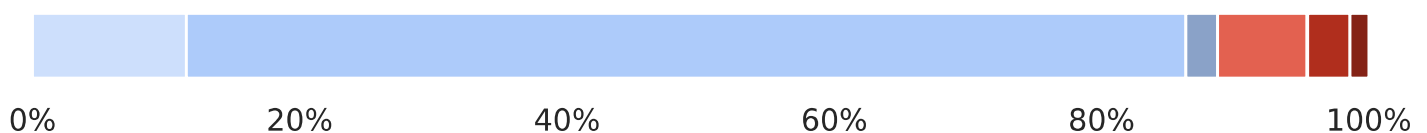
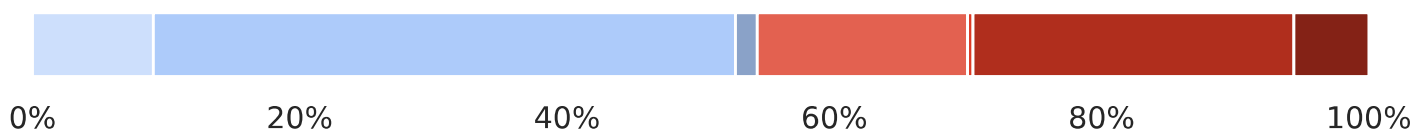PROPERTY:
Burglary   Larceny   MV Theft

VIOLENT:
Assault   Murder   Rape   Robbery

Distribution of Crime

0%   20%   40%   60%   80%   100%

Crime Score Weighting

0%   20%   40%   60%   80%   100%

⁕ REPORT SUMMARY

Neighborhood Risk

The boxes below show the neighborhood crime index for **220 East Ann Street, Ann Arbor, Michigan 48104, United States**. Scores are defined as a multiple of the national average. The map shows crime risk averaged over the last 12 months surrounding your location within a 3 mile radius.

Total	Violent	Property
3.27x	4.46x	2.27x

Total Neighborhood Crime Risk

Washtenaw County Risk

Total	Violent	Property
1.78x	2.38x	1.28x

Michigan Risk

Total	Violent	Property
1.76x	2.52x	0.94x

County Crime Dynamics

The below image depicts past and forecasted total crime risk in Washtenaw County. Both monthly scores and 12-month rolling averages are depicted.
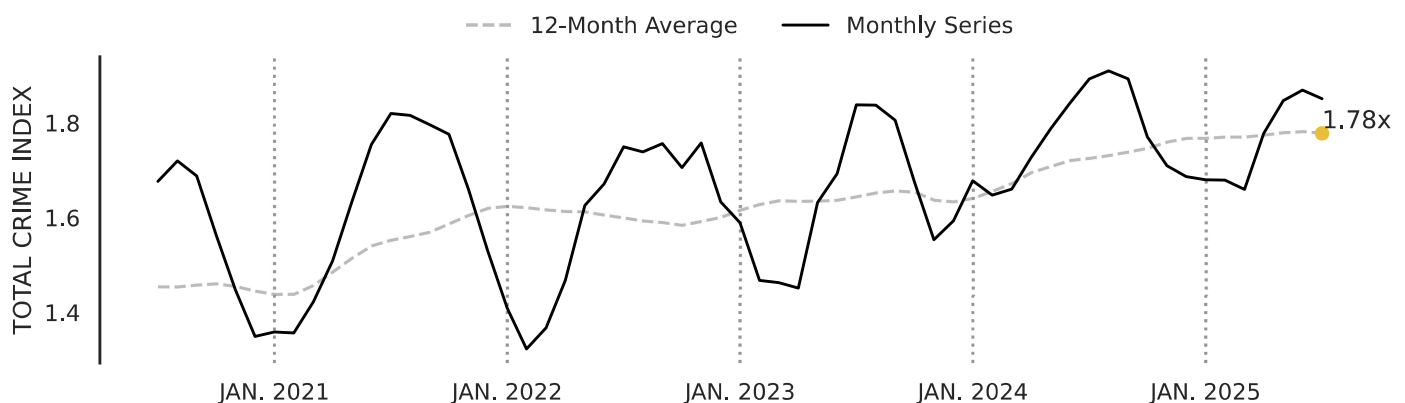
3.27x

Neighborhood total crime risk for 220 East Ann Street, Ann Arbor, Michigan 48104, United States is 3.27 times the national average. The below map shows crime risk averaged over the last 12 months surrounding your location within a 3 mile radius.

1.5   3mi

	Low	Low-Med	Med-High	High

1.0x   1.4x   2.0x

25%   50%   75%

In most cities, crime is highly concentrated in a small number of neighborhood hotspots. In the absence of effective security, these hotspots of crime can expand and migrate from one neighborhood to the next. We estimate this risk of crime spillover into your neighborhood by tracking criminal activity in the forty closest neighboring communities. In the figure below, the innermost circle is total crime risk in your neighborhood, surrounded first by total crime risk in your ten nearest neighborhoods and then expanding outward to your more distant neighborhoods.
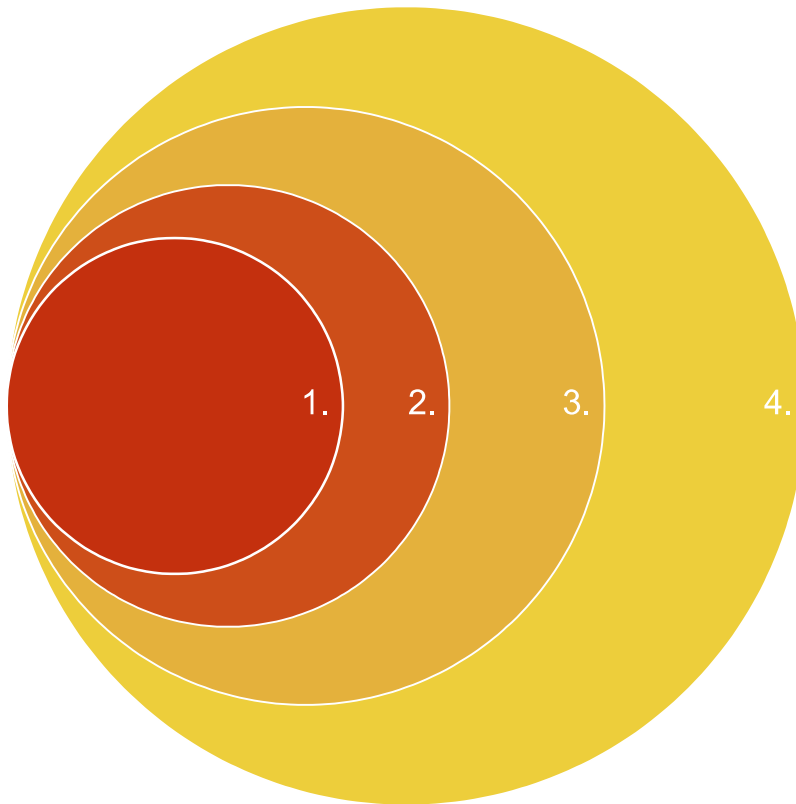
	Total Crime Risk
1. Your Neighborhood Score	**3.27x**
2. Closest Ten	2.64x
3. Next Ten	1.93x
4. Next Twenty	1.63x

* TOTAL CRIME INDEX: COUNTY SCALE

60   120mi
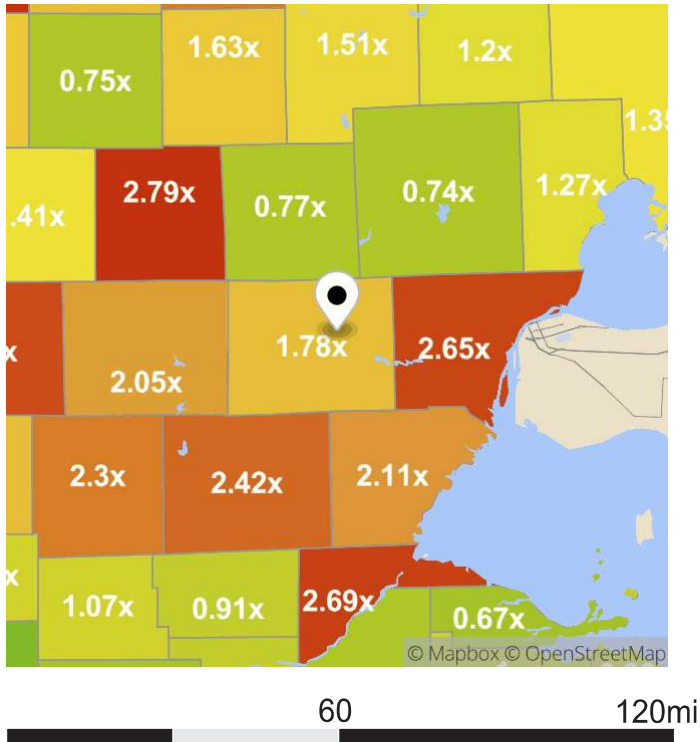
1.78x

Zooming out, your address is situated in Washtenaw County. **Total crime risk for Washtenaw County is 1.78 times the national average.** The map shows county level crime risk averaged over the last 12 months surrounding your location within a 60 mile radius.

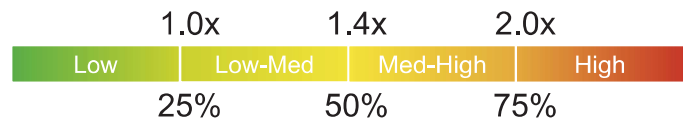|	1.0x		1.4x		2.0x	
Low		Low-Med		Med-High		High
	25%		50%		75%	

* TOTAL CRIME RISK: PEER COMPARISON

Orleans Parish (New Orleans)
Nueces County (Corpus Christi)
Hamilton County (Chattanooga)
Horry County (Conway)
Lane County (Eugene)
Bell County (Belton)
Stark County (Canton)
Washtenaw County (Ann Arbor)
Rutherford County (Murfreesboro)
Galveston County (Galveston)
Larimer County (Fort Collins)
Forsyth County (Winston-Salem)
Mercer County (Trenton)
Anoka County (Anoka)
Douglas County (Castle Rock)
Brazoria County (Angleton)
Davis County (Farmington)
Lehigh County (Allentown)
Chesterfield County (Chesterfield)
Hamilton County (Noblesville)
Westmoreland County (Greensburg)

0.0   0.5   1.0   1.5   2.0   2.5   3.0   3.5   4.0
TOTAL CRIME INDEX

We compare total crime risk in Washtenaw County with similar sized counties based on population level. The figure shows total crime risk in Washtenaw County alongside 20 peers, sorting counties from highest to lowest risk. Washtenaw County has the 8th highest crime risk in the group.

⊀ TOTAL CRIME RISK: PEER RANKINGS

Comparing total crime trends in your county versus counties of similar size provides additional insight into how total crime risk is changing in your community relative to other communities across the country. The figure below tracks how Washtenaw County ranks in risk relative to 20 peers over a six-year period

Orleans Parish (New Orleans)

Nueces County (Corpus Christi)

Hamilton County (Chattanooga)

Horry County (Conway)

Lane County (Eugene)

Bell County (Belton)

Stark County (Canton)

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Chesterfield County (Chesterfield)

Hamilton County (Noblesville)

Westmoreland County (Greensburg)

Jul 2019　　　　　Jul 2022　　　　　Jul 2025

✱ TOTAL CRIME RISK: CRIME DYNAMICS

ONE-YEAR-TREND

3%
Increase

FIVE-YEAR-TREND

23%
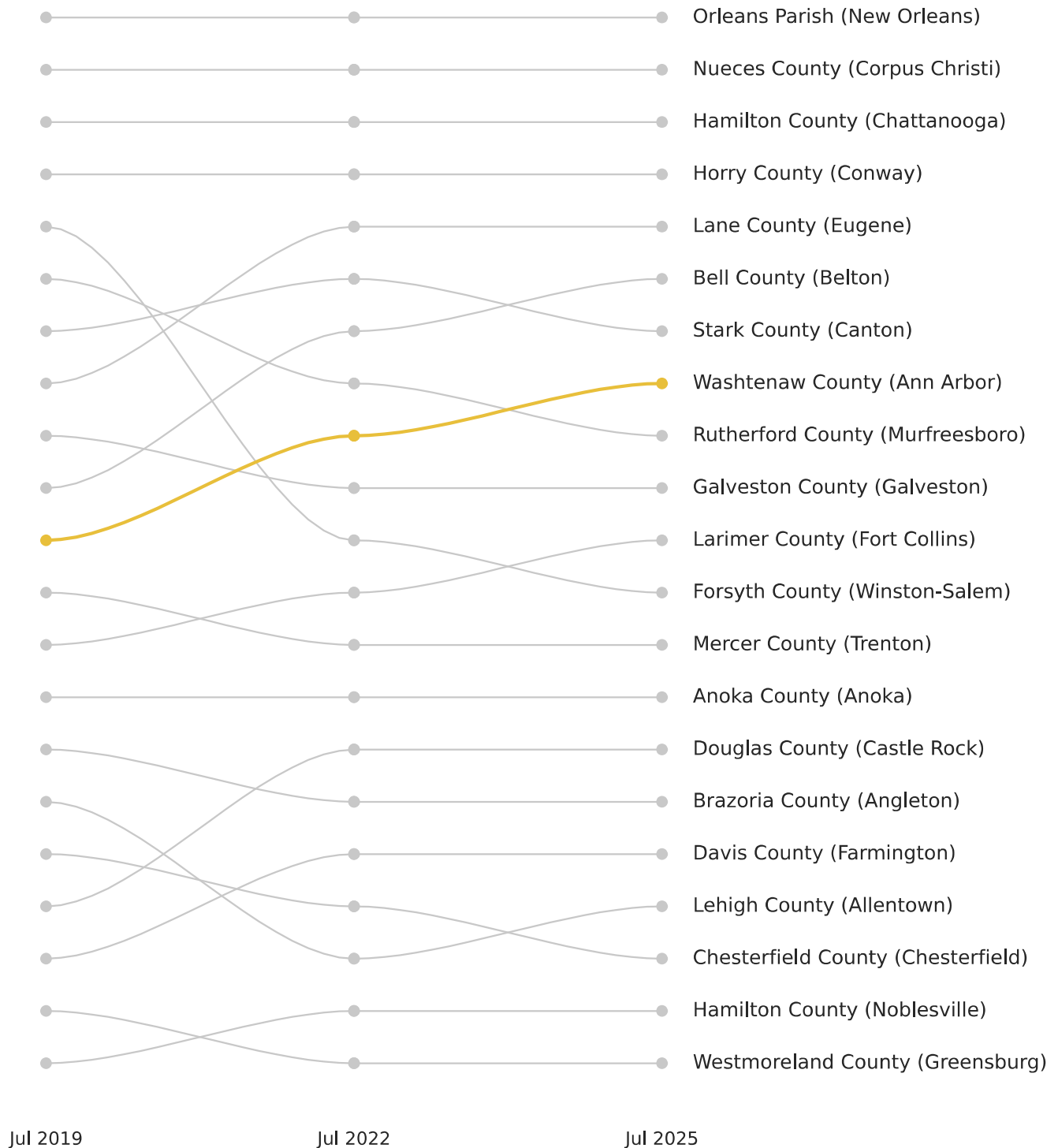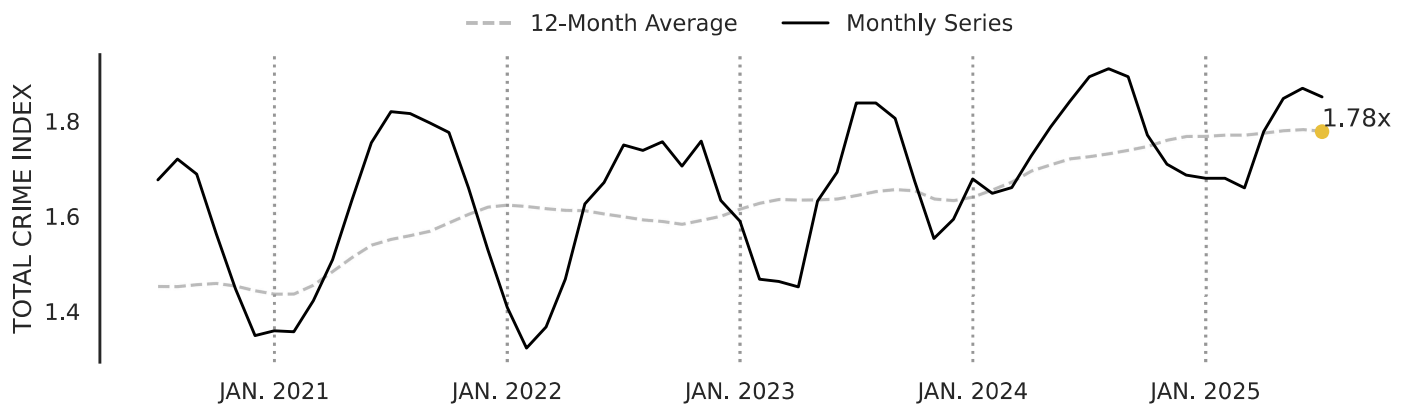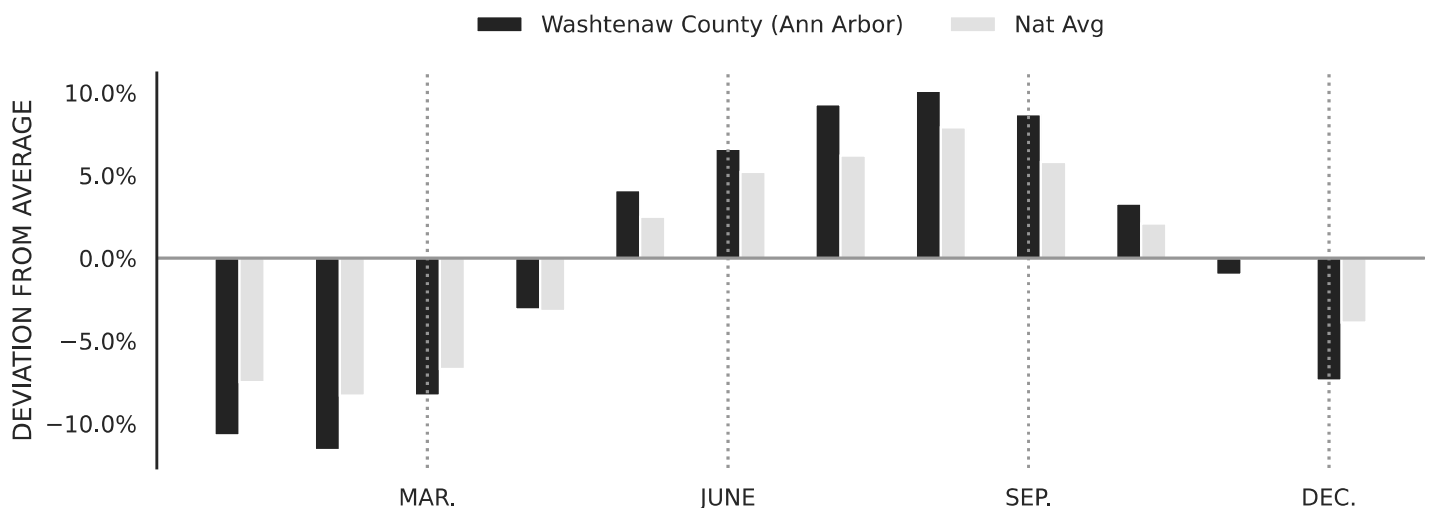Increase

Total crime risk in Washtenaw County is 1.78 times the national average. The above image depicts past and forecasted total crime risk in your county. Both monthly scores and 12-month rolling averages are depicted. One and five year trends are calculated using the rolling-average series.
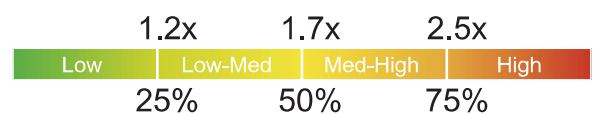
✱ TOTAL CRIME RISK: SEASONALITY

In many areas in the United States, crime exhibits strong seasonality. The figure below decomposes this structure for both Washtenaw County and the United States as a whole. Negative values indicate lower-than average crime months. Positive values indicate higher-than average crime months.

4.46x

Neighborhood violent crime risk for 220 East Ann Street, Ann Arbor, Michigan 48104, United States is 4.46 times the national average. The below map shows crime risk averaged over the last 12 months surrounding your location within a 3 mile radius.

1.5   3mi

	1.2x	1.7x	2.5x
Low	Low-Med	Med-High	High
	25%	50%	75%

In most cities, crime is highly concentrated in a small number of neighborhood hotspots. In the absence of effective security, these hotspots of crime can expand and migrate from one neighborhood to the next. We estimate this risk of crime spillover into your neighborhood by tracking criminal activity in the forty closest neighboring communities. In the figure below, the innermost circle is violent crime risk in your neighborhood, surrounded first by violent crime risk in your ten nearest neighborhoods and then expanding outward to your more distant neighborhoods.
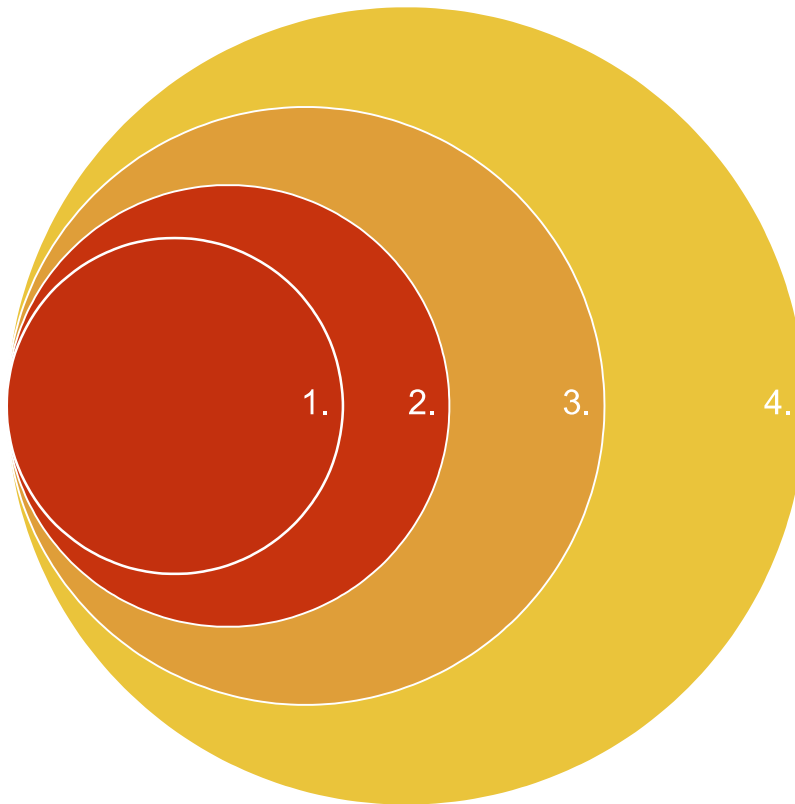
	Violent Crime Risk
1. Your Neighborhood Score	**4.46x**
2. Closest Ten	3.53x
3. Next Ten	2.61x
4. Next Twenty	2.21x

* VIOLENT CRIME INDEX: COUNTY SCALE
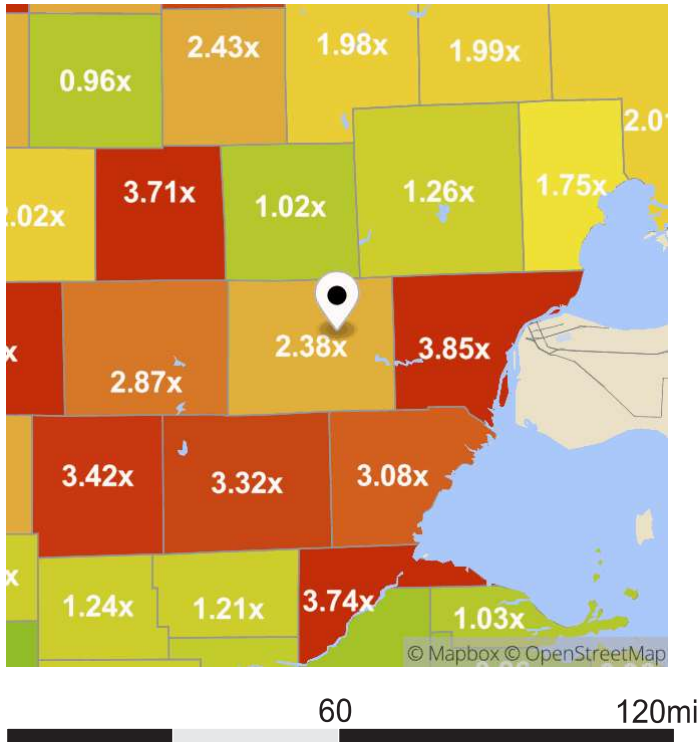
2.38x

Zooming out, your address is situated in Washtenaw County. **Violent crime risk for Washtenaw County is 2.38 times the national average.** The map shows county level crime risk averaged over the last 12 months surrounding your location within a 60 mile radius.

	1.2x		1.7x		2.5x	
	Low	Low-Med		Med-High		High
	25%		50%		75%	
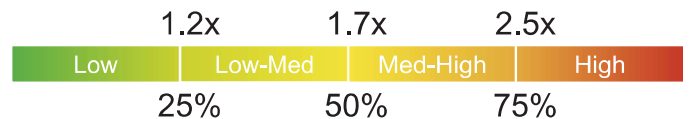
* VIOLENT CRIME RISK: PEER COMPARISON
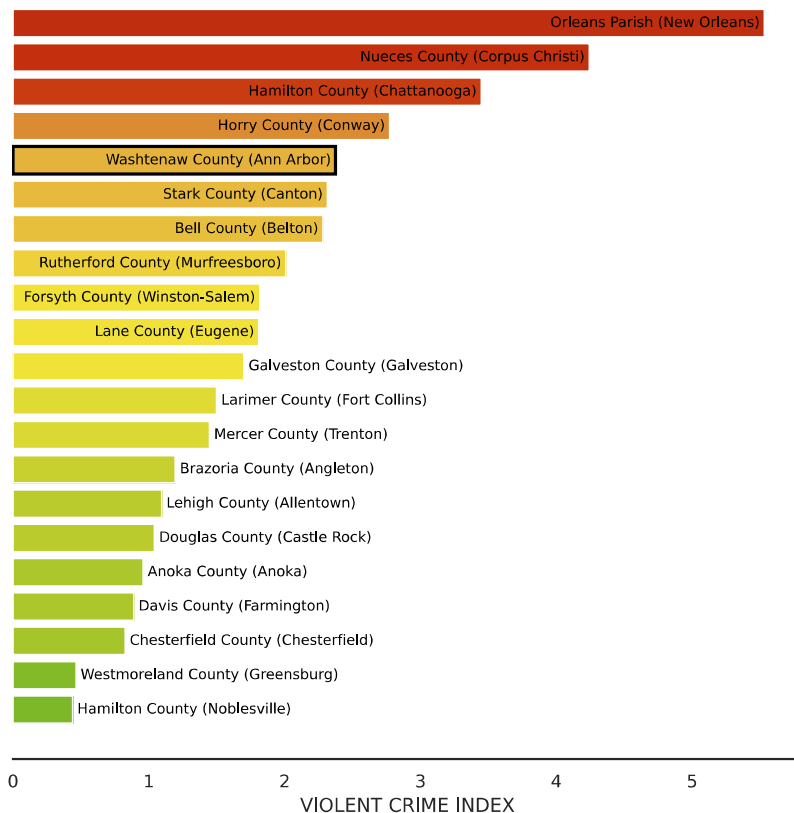
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Hamilton County (Chattanooga)

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Douglas County (Castle Rock)

Anoka County (Anoka)

Davis County (Farmington)

Chesterfield County (Chesterfield)

Westmoreland County (Greensburg)

Hamilton County (Noblesville)

Jul 2019   Jul 2022   Jul 2025

* VIOLENT CRIME RISK: CRIME DYNAMICS
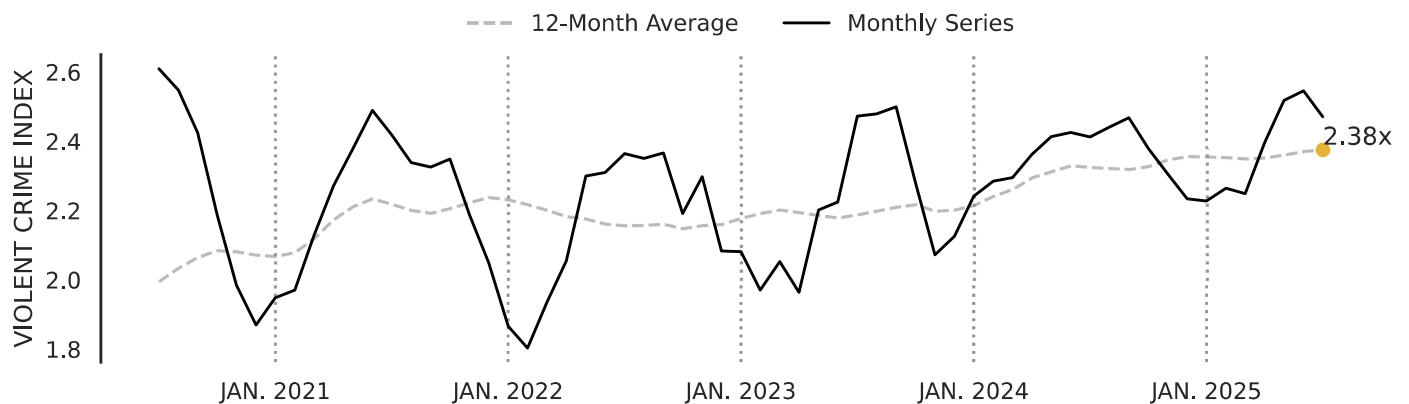
ONE-YEAR-TREND

3%
Increase

FIVE-YEAR-TREND

19%
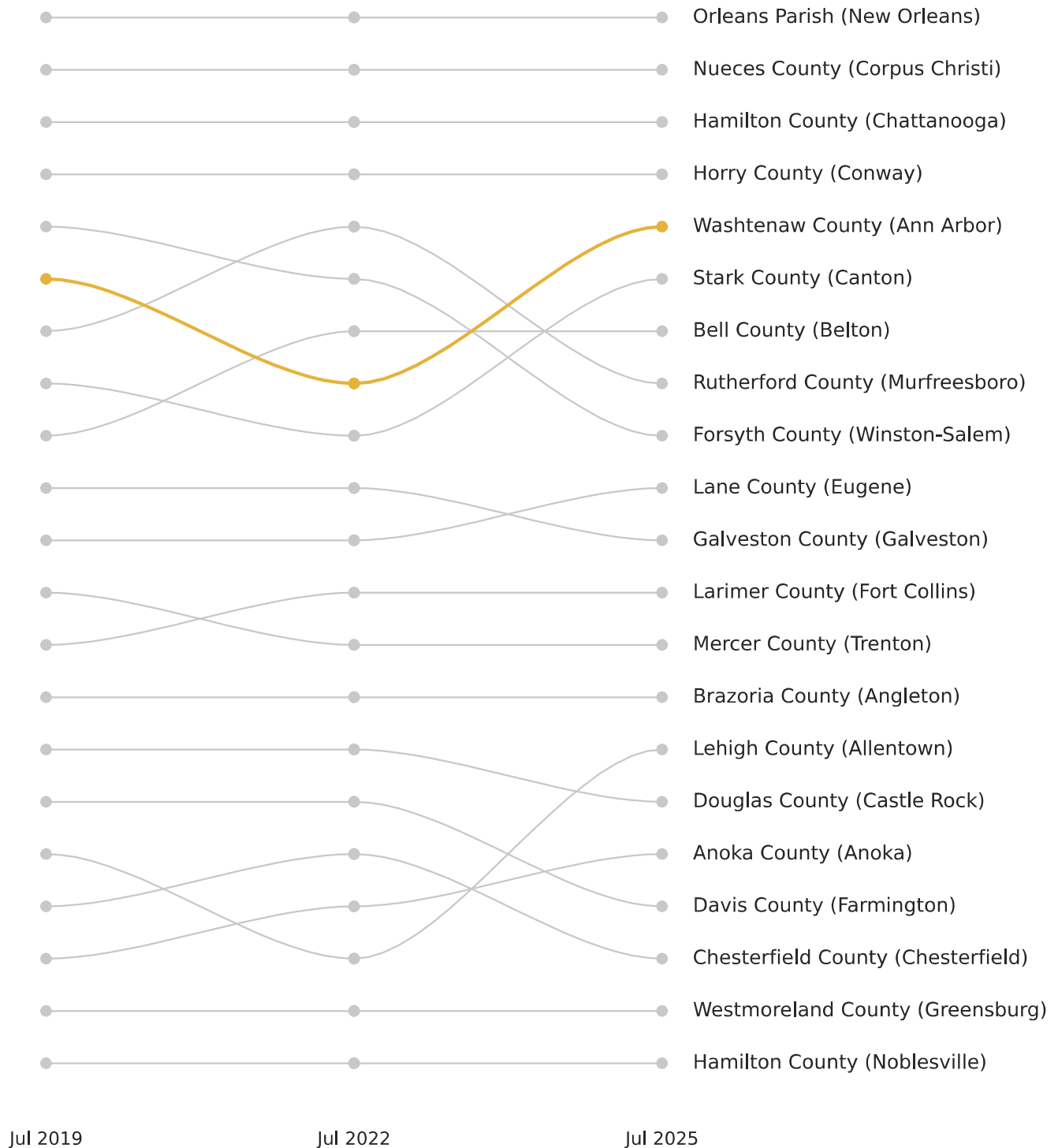Increase

Violent crime risk in Washtenaw County is 2.38 times the national average. The above image depicts past and forecasted violent crime risk in your county. Both monthly scores and 12-month rolling averages are depicted. One and five year trends are calculated using the rolling-average series.

* VIOLENT CRIME RISK: SEASONALITY

In many areas in the United States, crime exhibits strong seasonality. The figure below decomposes this structure for both Washtenaw County and the United States as a whole. Negative values indicate lower-than average crime months. Positive values indicate higher-than average crime months.
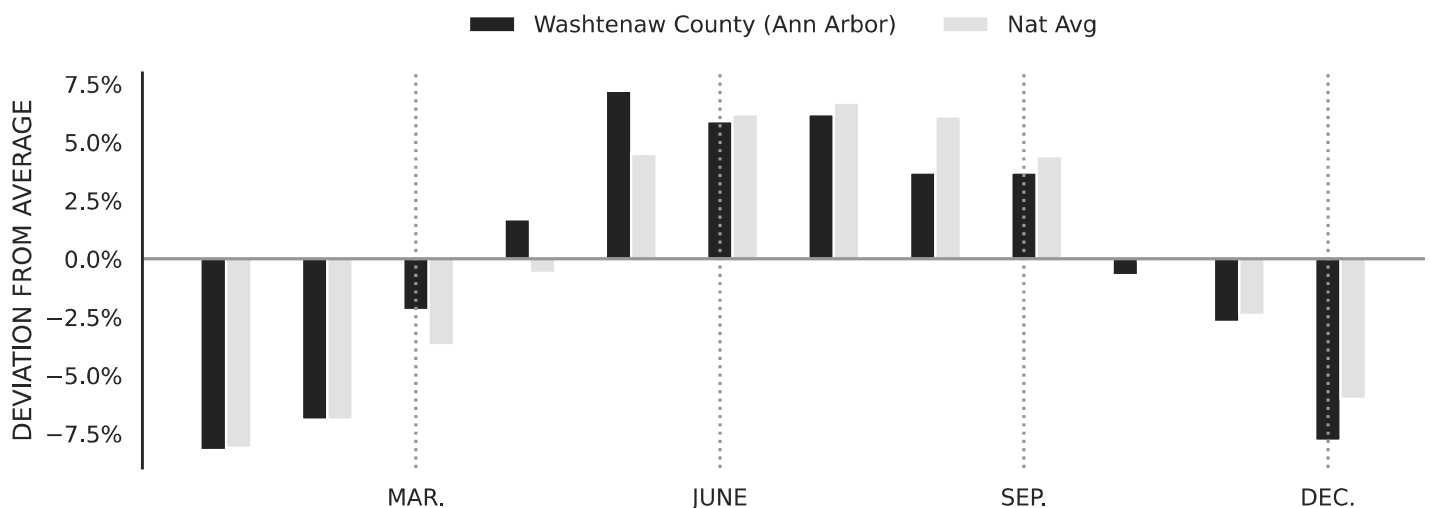
2.27x

Neighborhood property crime risk for 220 East Ann Street, Ann Arbor, Michigan 48104, United States is 2.27 times the national average. The below map shows crime risk averaged over the last 12 months surrounding your location within a 3 mile radius.

1.5   3mi

Low	Low-Med	Med-High	High

0.8x   1.1x   1.6x

25%   50%   75%

In most cities, crime is highly concentrated in a small number of neighborhood hotspots. In the absence of effective security, these hotspots of crime can expand and migrate from one neighborhood to the next. We estimate this risk of crime spillover into your neighborhood by tracking criminal activity in the forty closest neighboring communities. In the figure below, the innermost circle is property crime risk in your neighborhood, surrounded first by property crime risk in your ten nearest neighborhoods and then expanding outward to your more distant neighborhoods.
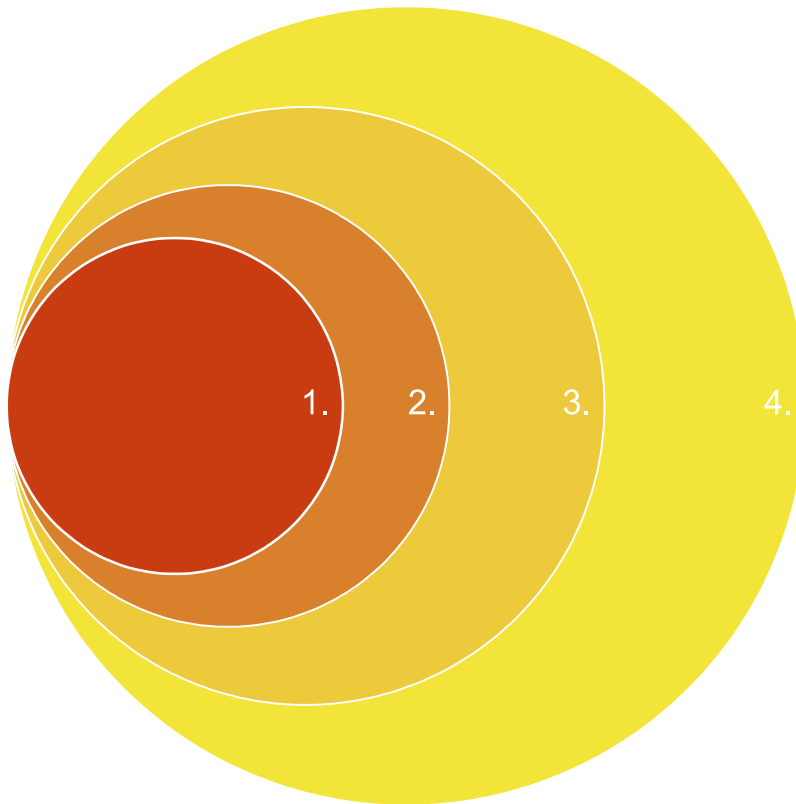
	Property Crime Risk
1. Your Neighborhood Score	**2.27x**
2. Closest Ten	1.90x
3. Next Ten	1.36x
4. Next Twenty	1.14x

* PROPERTY CRIME INDEX: COUNTY SCALE

1.28x

Zooming out, your address is situated in Washtenaw County. **Property crime risk for Washtenaw County is 1.28 times the national average.** The map shows county level crime risk averaged over the last 12 months surrounding your location within a 60 mile radius.
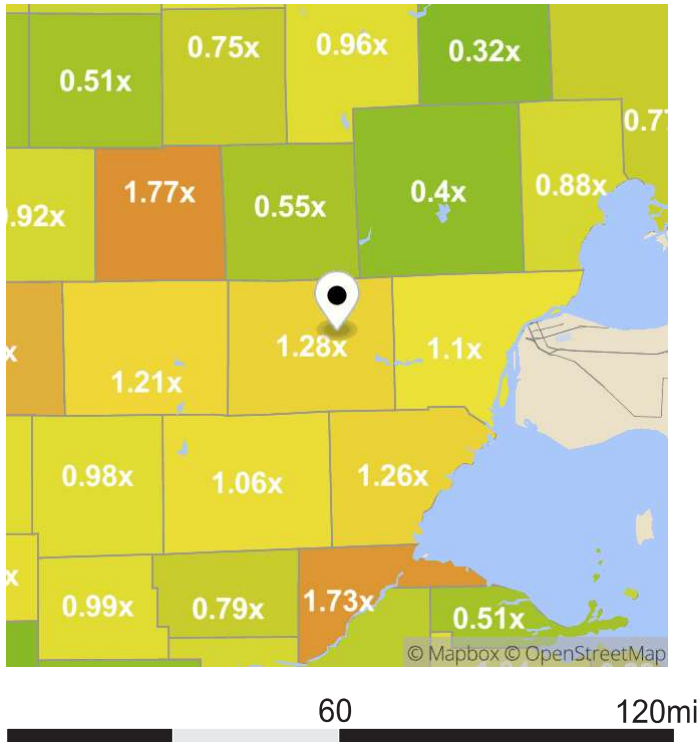
	0.8x		1.1x		1.6x	
	Low		Low-Med		Med-High	High
	25%		50%		75%	
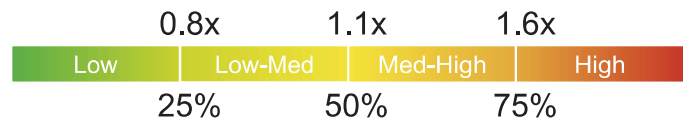
* PROPERTY CRIME RISK: PEER COMPARISON
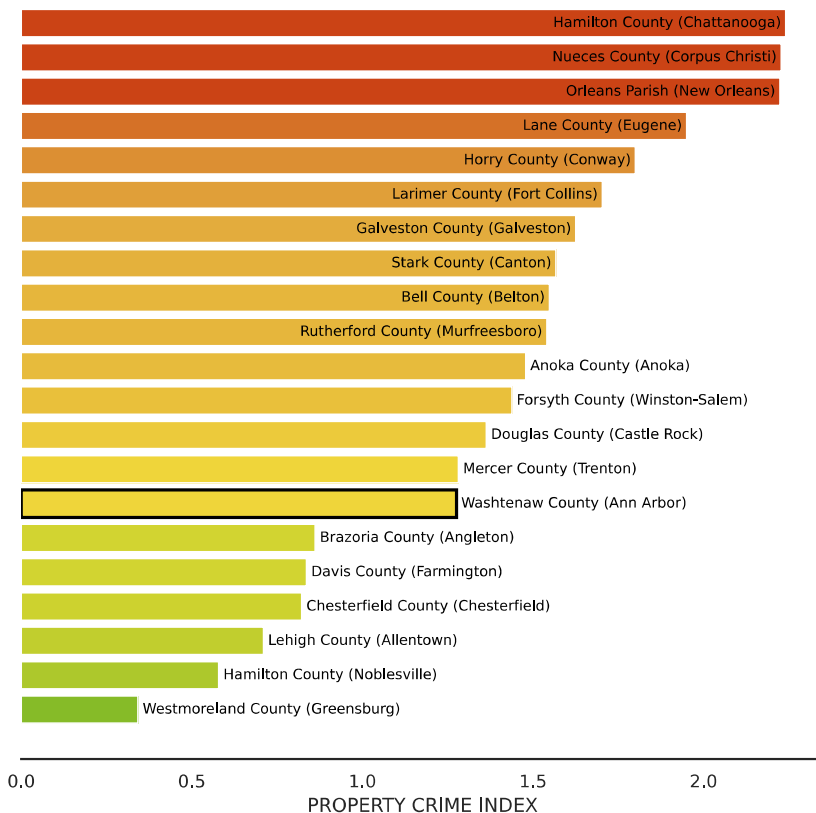
We compare property crime risk in Washtenaw County with similar sized counties based on population level. The figure shows property crime risk in Washtenaw County alongside 20 peers, sorting counties from highest to lowest risk. Washtenaw County has the 15th highest crime risk in the group.

＊ PROPERTY CRIME RISK: PEER RANKINGS

Comparing property crime trends in your county versus counties of similar size provides additional insight into how property crime risk is changing in your community relative to other communities across the country. The figure below tracks how Washtenaw County ranks in risk relative to 20 peers over a six-year period

Hamilton County (Chattanooga)

Nueces County (Corpus Christi)

Orleans Parish (New Orleans)

Lane County (Eugene)

Horry County (Conway)

Larimer County (Fort Collins)

Galveston County (Galveston)

Stark County (Canton)

Bell County (Belton)

Rutherford County (Murfreesboro)

Anoka County (Anoka)

Forsyth County (Winston-Salem)

Douglas County (Castle Rock)

Mercer County (Trenton)

Washtenaw County (Ann Arbor)

Brazoria County (Angleton)

Davis County (Farmington)

Chesterfield County (Chesterfield)

Lehigh County (Allentown)

Hamilton County (Noblesville)

Westmoreland County (Greensburg)

Jul 2019   Jul 2022   Jul 2025

* PROPERTY CRIME RISK: CRIME DYNAMICS
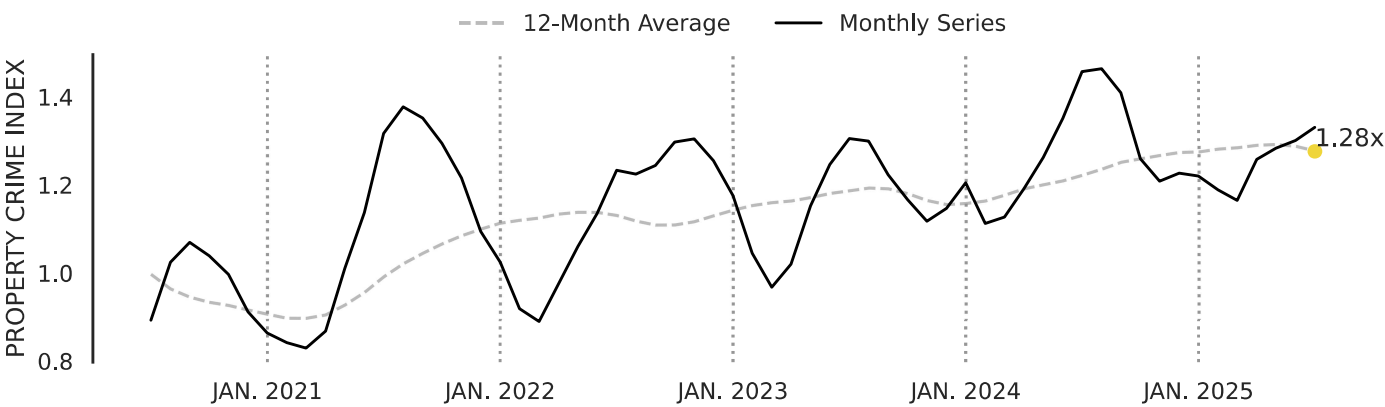
ONE-YEAR-TREND

5%
Increase

FIVE-YEAR-TREND

28%
Increase

Property crime risk in Washtenaw County is 1.28 times the national average. The above image depicts past and forecasted property crime risk in your county. Both monthly scores and 12-month rolling averages are depicted. One and five year trends are calculated using the rolling-average series.

* PROPERTY CRIME RISK: SEASONALITY

In many areas in the United States, crime exhibits strong seasonality. The figure below decomposes this structure for both Washtenaw County and the United States as a whole. Negative values indicate lower-than average crime months. Positive values indicate higher-than average crime months.
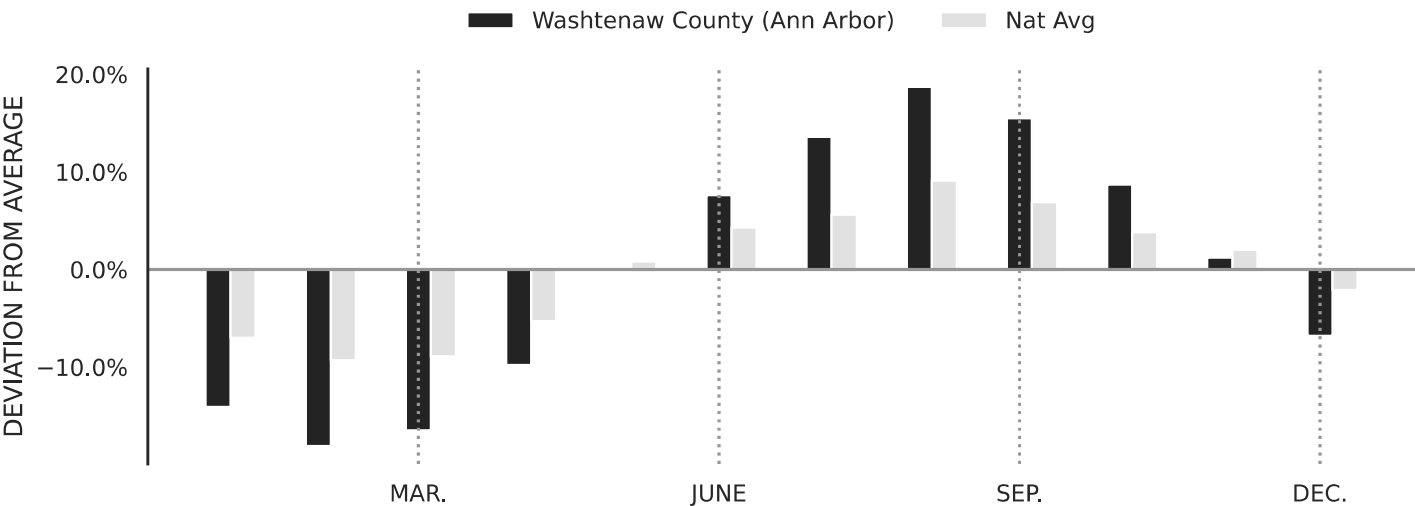
✴ HOURLY CRIME RISK

Crime risk is not static. It ebbs and flows over the course of day and day of the week. The heatmaps below show how violent and property crime risk indices fluctuate in your county.

VIOLENT CRIME

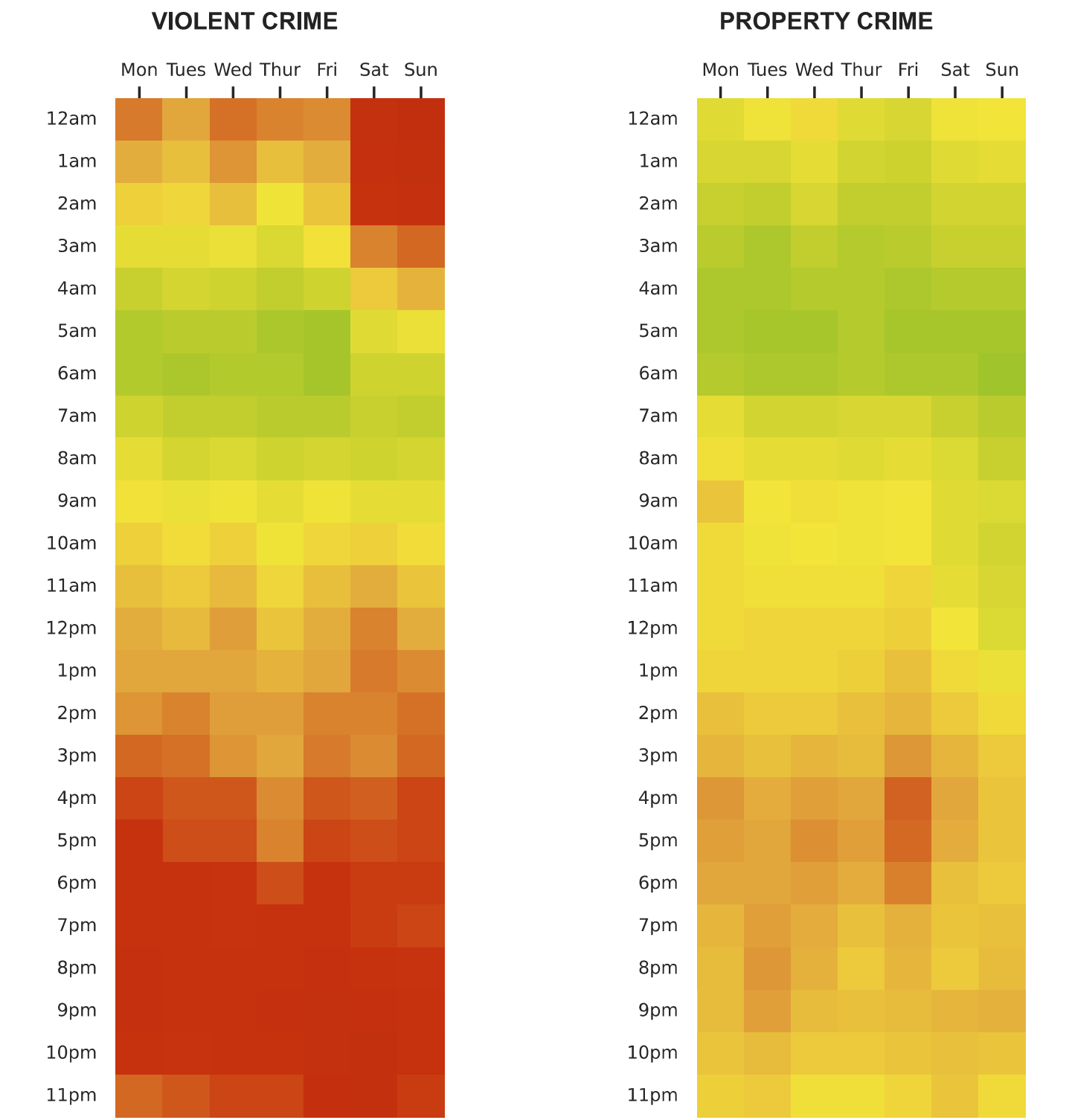|	Mon	Tues	Wed	Thur	Fri	Sat	Sun
12am							
1am							
2am							
3am							
4am							
5am							
6am							
7am							
8am							
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9pm							
10pm							
11pm							

PROPERTY CRIME

	Mon	Tues	Wed	Thur	Fri	Sat	Sun
12am							
1am							
2am							
3am							
4am							
5am							
6am							
7am							
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9pm							
10pm							
11pm							

* STATE CRIME RISK

Among all states, Michigan ranks as the 39th safest in terms of total crime risk. The figure below shows total crime risk for Michigan over the last five years. Both monthly scores and 12-month rolling averages are depicted. The table below summarizes crime risk trends for total, violent and property crimes, as well as the seven underlying crime types. The table also describes how Michigan ranks in terms of safety relative to the other 52 states (including the District of Columbia and Puerto Rico) across all subtypes of crime. Here, states are ranked from lowest risk (1st) to highest risk (52nd) .
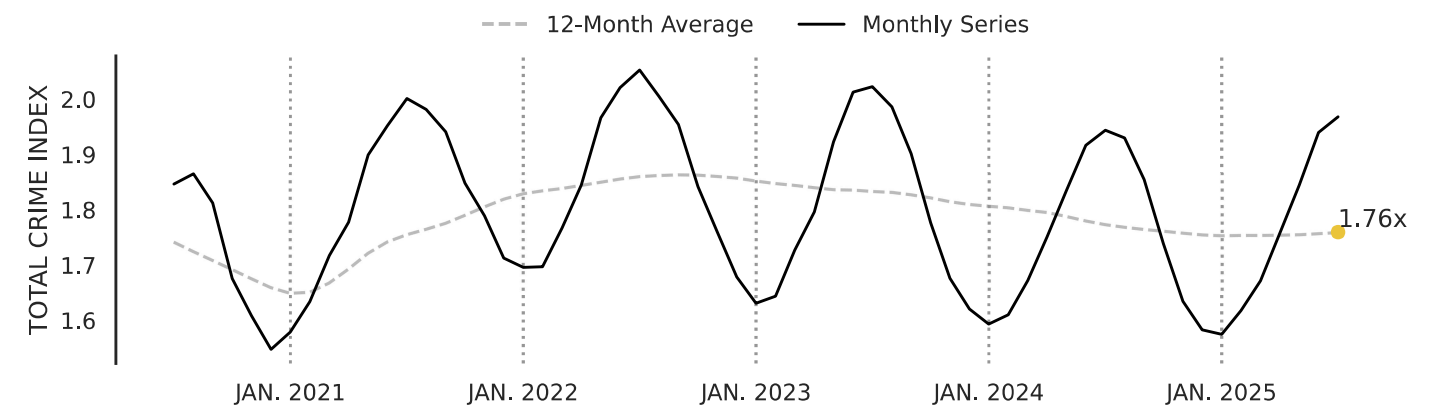
TOTAL	VIOLENT	PROPERTY
1.76x	2.52x	0.94x

Crime Types	One-Year-Trend	Five-Year-Trend	State Rank
Total	**-1%**	**1%**	**39th**
Violent	**-1%**	**4%**	**43rd**
Assault	2%	10%	43rd
Murder	1%	25%	38th
Rape	-5%	1%	49th
Robbery	4%	-11%	21st
Property	**1%**	**-5%**	**13th**
Burglary	0%	-28%	17th
Larceny	0%	-4%	11th
Motor Vehicle Theft	5%	44%	35th

Pinkerton is a global comprehensive risk and security management leader focused on delivering specialized risk advisory, investigations, and protection solutions. With over 170 years of legacy, Pinkerton has built unparalleled institutional knowledge, while having sight into future risks businesses will face.

We bring a total risk perspective, knowledge-based design, and end-to-end delivery in everything we do. With our three-pronged approach, we assess the risk factors you are facing today, design an effective solution that fits your unique needs, and can deliver tactical services to assist you with execution — in an ad hoc to prolonged capacity.

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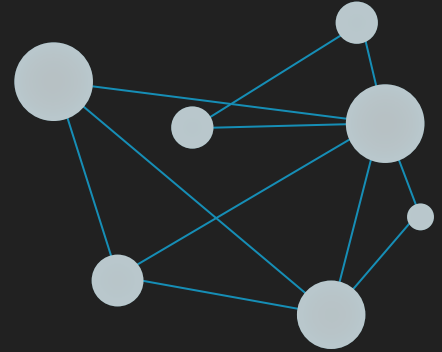+1 800-724-1616
www.pinkerton.com

We never sleep

# COLLECT DATA ON CRIME OUTCOMES

DATA ARE MESSY

Each source of crime data is inspected and analyzed to flag data-entry errors. To fix mistakes, we blend information from diverse sources to triangulate crime risk moving over time at the neighborhood scale.
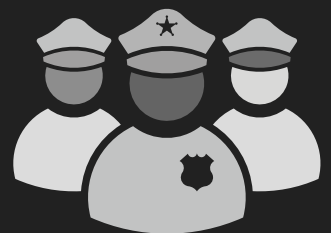
NOT EVERY CITY REPORTS CRIME IN THE SAME WAY

A bicycle theft is more likely to be reported in a small town than in a big city. Such differences complicate the comparison of crime rates in different places. To enable an apples-to-apples comparison, we combine data on crimes reported to police with national crime victimization surveys.
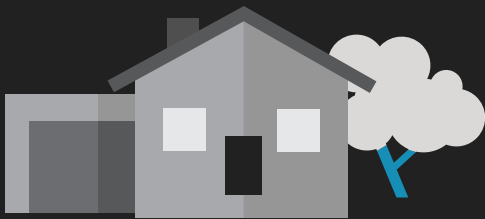
NOT EVERY POLICE AGENCY REPORTS CRIME IN THE SAME WAY

Crime data from police agencies can differ in surprising ways. For example, while most agencies report monthly, some report bi-monthly, or even less frequently. To estimate monthly crime risk in a consistent way over time, we use a wide variety of statistical methods to reconcile reporting differences across agencies.

PINKERTON®

IDENTIFY THE DETERMINANTS OF CRIME

Motivated Offenders

Guardianship

Target Suitability

CAUSES OF CRIME

Pinkerton leads a collaborative effort, combining the expertise and practical experience of law enforcement with leading criminology experts. The effort guides our selection of practical frameworks for determining the underlying causes of crime. An example is Routine Activities Theory, which recognizes that crimes occur when a motivated offender finds a suitable target in the absence of a capable guardian.

QUANTIFYING DETERMINANTS

To quantify the causes of crimes, we have built systems to collect a wide variety of continuously updated data that reflect important aspects of each concept. For example, a high percentage of crimes are committed by persons between the ages of 16-24, known as the age-crime curve. Thus, one dimension of our **Motivated Offenders** concept is captured by Census data on the age distribution within a community. Similarly, an important dimension of **Target Suitability** is captured by recent property value data as well as income and wealth data for residents. Formal **Guardianship** can be quantified using measures such as police or security force density. Informal guardianship can be quantified using variables related to housing tenure. This type of logic motivates our selection of hundreds of variables relevant for predicting crime.

CRIMES COMMITTED

AGE

PINKERTON®
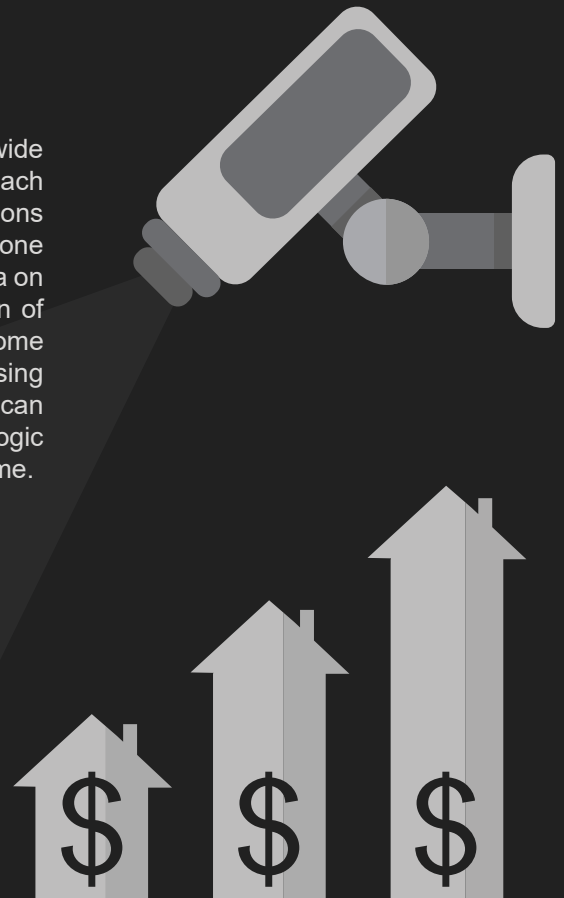
USE DATA SCIENCE TO PREDICT FUTURE CRIME

OUR ALGORITHMS

We use a wide variety of algorithms to ensure robust and accurate predictions. Time-series models detect seasonality and shifting trends, deep neural networks find complicated patterns among variables, and econometric models capture structural characteristics of place. By separately forecasting each crime type, in each county, we find models best suited to capture the unique dynamics of each community.
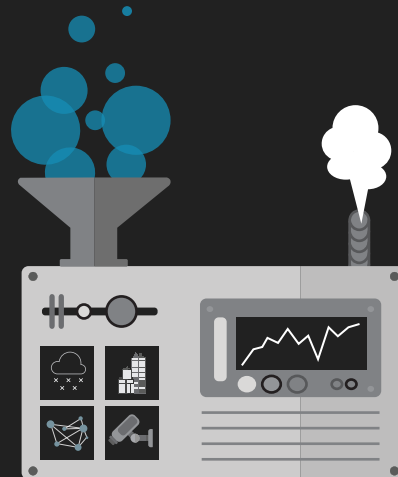
THE TOURNAMENT

With over 3100 counties and seven different crime types, our data scientists perform over 20 thousand forecasting problems every month. We pit our algorithms against one another in a double-elimination tournament. Winners are chosen based on the algorithm's ability to predict recent crime data that the algorithm has not yet seen.

INDEX ASSEMBLY

Our final predictions represent an **ensemble** (or averaging) of top-performing models. We also quantify the range of uncertainty surrounding every estimate. In the end, a single risk score summarizes total crime risk in each place, while separate indices summarize risk for property crime and violent crime. Each score reflects a community's risk relative to the national-average level.

PINKERTON®

THE PINKERTON CRIME INDEX

HOW WE BUILD OUR CRIME INDEX

PINKERTON®

STEP ONE

COLLECT DATA ON CRIME OUTCOMES

Our data collection systems continuously ingest the best available crime data from key sources, including FBI and local police. Data are cross-referenced to flag errors and establish a realistic view of crime in America.

IDENTIFY THE DETERMINANTS OF CRIME

Combining Pinkerton's grounded experience fighting crime with leading experts from criminology and policing, we have developed effective models to track the shifting determinants of crime risk over time.

STEP TWO

STEP THREE

USE DATA SCIENCE TO PREDICT FUTURE CRIME

Our data scientists use a double elimination tournament to select the best-performing prediction algorithms, optimally honed for different crime categories and different community types.

BUILD INDEX TO SUMMARIZE LOCAL RISK

The result is an index of overall crime risk at the neighborhood scale, along with separate measures for property and violent crime. Each index measures risk relative to the national-average level.

2.6x