

# **Assessing the Influence of Gambling on Public Safety in Massachusetts Cities and Towns**

*Baseline analysis of crime, call-for-service, and collision data in the communities near Encore Boston Harbor*

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1 November 2019

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# Executive summary

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This report is part of a series of studies commissioned by the Massachusetts Gaming Commission to determine the effects of Massachusetts' new casinos on the public safety of the surrounding regions. A crime analyst with expertise in police data systems and police data analysis was contracted to extract data and provide before-and-after comparisons of crime, calls for service, and traffic collisions.

This is the first report concerning the Everett-area agencies likely to be affected by Encore Boston Harbor. It is baseline report, and as such, there are no particular "findings" in relation to any changes in public safety issues caused by the casino. Those will be covered in a series of late 2019 and 2020 reports. The most important points covered in this report are:

- Everett, Boston, Chelsea, Lynn, Malden, Melrose, Revere, and Somerville all contributed data to this report. Medford was not able to contribute data in time but hopefully will join us in future reports. Cambridge declined to participate.
- Statistics were calculated by fusing data on crimes, calls for service, and collisions extracted from each participating agency's records management system (RMS) and computer-aided dispatch (CAD) system.
- There are means by which Encore's presence could cause crime to increase (e.g. a larger population of visitors and vehicles providing more opportunities for offenders) and there are means by which it could decrease (e.g., by supplying more law enforcement presence, economic development, and legitimate activity in the area). We are prepared to analyze either possibility.
- Full statistics for crimes, calls for service, and traffic collisions are given for each participating agency from the 2012-2018 period. The data tables indicate how much the categories typically fluctuate from year to year and how the trend has been progressing over time. Potential errors and pitfalls are noted. No agency has data so poor that it cannot be effectively used to compare changes post-Encore.
- Analysis will need to consider the presence of several existing types of facilities have seen increased traffic and usage in other communities across the nation with new casinos, including hotels, gas stations, convenience stores, transportation centers, pawn shops, and social service agencies.
- Local police agencies supply most of the actual crime data from the region, but State Police data was collected primarily to determine patterns on state roadways. Crashes have been on an upward trend (as they have for many area communities), which may be accelerated with extra traffic in the area.
- Future evaluation of changes will have to use multiple analytical models, in particular depending on whether the crime was already showing an increasing or decreasing trend. They will probably also have to divide the communities into smaller geographies to make new patterns easier to detect.
- There were many possible statistics from the collected data that this report does not cover, but that does not necessarily mean that such statistics will not be used in subsequent evaluations. The importance of this process is less this baseline *report* and more in having a baseline *dataset*, a process that went relatively smoothly.

# Background and methodology

## Background

In 2014, the Massachusetts Gaming Commission, in an effort to better assess the impacts of new gaming facilities across the state, commissioned a series of efforts to study, assess, and prepare for the social and economic impacts of gambling. Primary work in this area is being done by the Social and Economic Impacts of Gambling in Massachusetts (SEIGMA) study at the University of Massachusetts Amherst School of Public Health & Health Sciences, drawing upon research and experiences in many other states. For public safety issues specifically, however, the MGC felt it best to contract with someone with direct experience analyzing the crime, call-for-service, and collision records collected daily by Commonwealth police agencies.

While many studies had attempted to study the effects of gambling on overall rates for serious crimes, aggregated annually, hardly any studies have attempted to analyze more specific and minute changes in public safety activity following the opening of casinos, including variations by hour, month, and season, changes in patterns and hot spots, and changes in non-crime activity such as traffic collisions and calls for service. The MGC was interested in the answers to these questions—in analyzing public safety at a level of detail that would actually help police agencies anticipate and respond to emerging and changing problems.

In 2014, the MGC contracted with a career crime analyst, the author of this report, to extract data from the agencies likely to be affected by the opening of Massachusetts’s new casinos, and to design a process for assessing changes in those agencies’ activity on a periodic basis. Work began in 2015 with baseline and first-quarter analyses of the Plainville area, where Plainridge Park opened in June. A new phase began in 2018, when MGM Springfield opened in August. This is the first report on the area influenced by Encore Boston Harbor, which opened in June 2019.

### Publicly-issued and planned reports on changes in crime and police activity from this project

Issued	Report	Notes
August 2015	Report on baseline activity at Plainville area agencies	Established statistical measures for post-casino comparison
November 2015	Evaluation of change in police data after the first three months of Plainridge Park	Few changes discernible in immediate 3 months.
April 2016	Analysis of changes in police data after the first six months of operation at Plainridge Park Casino	Identified traffic-related calls for service as likely related to PPC. Noted increases in fraud-related crimes.
December 2016	Analysis of changes in police data after the first year of operation at Plainridge Park Casino	Continued to note increases in traffic-related calls; established credit card fraud increases as “likely related.”
December 2017	Analysis of changes in police data after the first 2 years of operation at Plainridge Park Casino	Most comprehensive report so far. Included comparative analysis of control areas.
June 2018	Report on baseline activity in Springfield-area agencies	First report in preparation for MGM casino.
December 2018	Three-year analysis of Plainridge Park area.	Includes comprehensive traffic study
March 2019	Four-month analysis of MGM Springfield	Found mostly traffic changes, some property crime patterns
November 2019	Eight-month analysis of MGM Springfield	
November 2019	Four-year analysis of Plainridge Park	
November 2019	Baseline analysis of Encore Boston Harbor	This report

## Methodology

The data used in this report was collected from the contributing agencies. For Chelsea, Lynn, Malden, Melrose, Revere, and Somerville, I established an ODBC connection to each of these agencies' records management and computer-aided dispatch databases, connected to the databases via Microsoft Access, and used a series of "make table" queries to copy the data into Access data tables. I then copied the Access databases to my own computer, password-protecting them in the process, but leaving the originals on the agencies' networks so they could be updated by designated agency members when necessary. No information specific enough to identify any person (offender or victim) was collected, and I complied with various agency requests to exclude particular data elements of concern to them. These requests did not affect the integrity and completeness of the overall dataset.

Everett uses a records management system that is incompatible with ODBC. We had to get the support of the records management vendor to perform regular extracts from the system, but otherwise they were able to supply a full dataset. The Boston Police also did their own extraction, but unfortunately were unable to supply all the requested data tables.

After receiving the data from each individual system, I combined each table into a series of "master" tables. This required translating each dataset into a common set of codes. The uniformity imposed by the NIBRS reporting system made the translation fairly easy for crime tables; it was a bit more difficult for CAD tables, which have no uniform coding even among agencies using the same system. Boston is the only agency that does not currently report to the NIBRS standard, but they had comparable data elements that required only a brief translation.

The resulting *baseline dataset* supplied the data organized in this report. It is important to recognize that any complex dataset is capable of generating statistics, maps, and charts in a near-infinite number of ways. The metrics offered in this report represent my assessment of the most important figures and indexes against which to measure activity after Encore opens. In some cases, I will probably *not* be using the specific figures in this report. For instance, I offer annual breakdowns and averages for crimes and calls for service, but it is more likely that I will take quarterly slices of this data to compare to activity post-casino (otherwise, we would have to wait an entire year to measure changes). I do not offer quarterly breakdowns of activity simply in the interests of space.

Nor do I offer many statistics involving multiple variables, such as crimes committed by juveniles on weekends, or property stolen at nighttime from newer-model vehicles. There are innumerable ways to slice data this way, and some of them might turn out to be important in analysis of data after Encore opens. Until we have this post-casino data, however, we don't know what will be important, and at the present time it would simply waste everyone's time if I tried to slice the data too thinly. In this regard, the data tables and figures in this report are best regarded as examples of *the types of outputs possible from the baseline dataset*. The dataset itself, rather than this report, is the true "baseline" against which changes in any combination of factors can be measured.

## Threats to validity

There are four different records management vendors represented among the eight contributing communities. Although three of the four code crimes according to the NIBRS standard, slight variances in their approaches make some of the data inconsistent between agencies. Some of the agencies switched records systems during the 7-year period represented by these statistics, and in each case, some immediate changes can be seen in crimes and calls for service, suggesting those changes have more to do with record-keeping than actual prevalence of social harms.

One records system, used by three of the contributing agencies, is notorious among local analysts for a data structure that makes it difficult to weed out duplications. The system also does not apply NIBRS standards correctly on the concept of "lesser included offenses," meaning that the agencies that use this system tend to over-report their crime totals.

incnum	Agency	IBR	Offense	dtreported	X	Y	Weapon
18005854	MA	13B	Simple Assault	12/31/2018 18:04:01	-71.069834	42.426462	NONE
18076669	SO	26C	Identity Theft	12/31/2018 17:42:40	-71.083401	42.39404	
753445	EV	220	Burglary	12/31/2018 15:58:32	-71.057296	42.412166	
18076644	SO	13A	Aggravated Assault	12/31/2018 15:48:47	-71.121912	42.395141	KNIFE/CUTTING INSTRUMENT
18005853	MA	13A	Aggravated Assault	12/31/2018 15:25:15	-71.051193	42.434867	NONE
753442	EV	26B	Credit Card Fraud	12/31/2018 14:54:21	-71.053824	42.404598	
18REV-65247-C	RE	26A	Fraud	12/31/2018 14:44:10	-71.000926	42.397641	Other/Unknown
753441	EV	23H	Other Theft	12/31/2018 14:22:17	-71.054624	42.40637	
18076629	SO	290	Vandalism	12/31/2018 13:20:28	-71.083469	42.394272	
18REV-65229-C	RE	290	Vandalism	12/31/2018 13:14:10	-71.002183	42.402729	Other/Unknown
18094612	LY	23H	Other Theft	12/31/2018 12:54:42	-70.941054	42.467241	
18005852	MA	23H	Other Theft	12/31/2018 12:47:42	-71.07116	42.423585	
18094573	LY	23H	Other Theft	12/31/2018 10:29:14	-70.987031	42.468115	
18REV-65196-C	RE	13A	Aggravated Assault	12/31/2018 09:46:10	-70.963049	42.441273	Knife/Cutting
18REV-65130-C	RE	13C	Threats	12/30/2018 22:01:10	-71.006515	42.414351	Other/Unknown
18094457	LY	13B	Simple Assault	12/30/2018 21:59:42	-70.943632	42.464357	PERSONAL WEAPONS
1182105000	BO	220	Burglary	12/30/2018 21:55:00	-71.056904	42.379116	
753393	EV	13B	Simple Assault	12/30/2018 20:25:38	-71.044959	42.412724	None

Figure 1: The result of a query using the combined dataset.

Finally, the Boston Police Department uses a system that does not comply with NIBRS rules. In particular, it uses the “hierarchy rule,” which counts only the most serious offense committed in each incident. Since all other agencies count multiple offenses per incident, statistics for Boston are artificially low.

## Interpreting the statistics in this report

This report looks at crime, calls-for-service, and collision statistics for each of 8 participating agencies. In doing so, it attempts to assess, qualitatively and quantitatively, any errors and oddities in the data that might affect future evaluation reports. To assist with this analysis, each data table offers a common set of statistical measures:

- The simple mean of the seven years between 2012 and 2018.
- The standard deviation for the same time period, which indicates how much the category typically deviates from its mean from year to year.
- The *coefficient of variation* (c.v.), which is calculated by dividing the standard deviation by the mean. The c.v. indicates how reliable, predictable, or consistent the category is across time, with 0 indicating no variance at all and scores close to 1 indicating an extreme amount of variance. Lower c.v. scores make it easier to detect changes in the category after a new element—such as a nearby casino—is introduced. In categories with high coefficients, new patterns may go undetected because they get lost in the overall volume and variance of the category. However, note that it is also common to find high coefficients of variation with small numbers, and that high coefficients can indicate inconsistency in reporting in that category.
- The *slope*, which tells on a linear trendline plotted through the 2012–2018 period, how many incidents have been gained or lost each year.
- The *prediction type*, which indicates which of two methods was used to predict the 2019 values. A “C” is used when the slope is small relative to the mean, and it indicates that the prediction is based on measures of *central tendency*: the mean and the standard deviation from the mean. A “T” indicates that the slope is high in comparison to the mean and thus the prediction is based on an upward or downward trendline.
- The *2019 prediction*: a window in which we would expect 2019’s total to fall with 85% confidence. Later, when we evaluate what really happened in 2019, a value outside this window may indicate that the category was influenced by an external factor like the casino. Note that erratic data in the past may create large ranges in the predictive window.



It is finally important to note the nature of the three tables. *Crimes* are actual offenses of the law for which a police officer wrote a full report after speaking with victims and witnesses. They may or may not have resulted in arrests.

*Calls for service* represent the initial “incident” that summoned police officers to a scene. Such events can be both criminal and noncriminal. I have selected noncriminal events for the tables, since the criminal event codes would simply duplicate (though less accurately) the data offered in the crime tables. The remaining noncriminal events in the table still represent significant issues that affect residents’ quality of life.

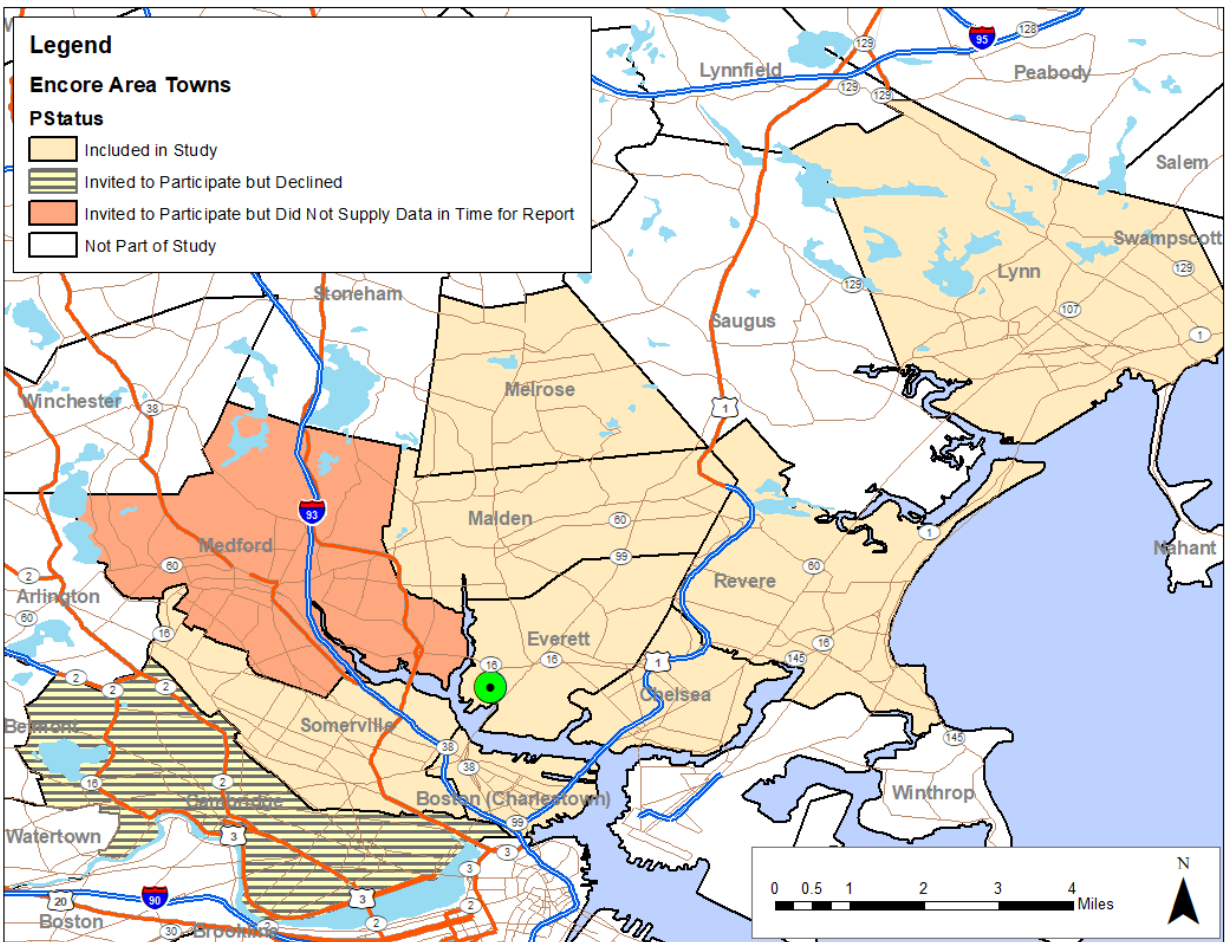
*Collisions* are those traffic collisions that meet the threshold to be reported to the state Department of Transportation—namely, those that involve injury, or that occur on public property and involve damage in excess of \$1,000. Many minor “fender-benders” do not meet this threshold and will thus not appear in these statistics. The “traffic collision” call for service category does include such minor incidents and will therefore usually be higher than the collision figures.

## **About the author**

Christopher W. Bruce is a professor of criminal justice at Husson University in Bangor, Maine. He is also a career crime analyst with previous service at the Cambridge Police Department (1994–2001) and the Danvers Police Department (2001–2010). He was president of the Massachusetts Association of Crime Analysts from 2000 to 2004 and president of the International Association of Crime Analysts from 2007 to 2012; he currently serves as vice president of membership for the IACA. He has served as an instructor in criminal justice and crime analysis topics at Suffolk University (2001–2010), Westfield State University (2009–2010), the University of Massachusetts Lowell (2009–2010), Middlesex Community College (2007–2011), Western Oregon University (2012–2016), and Tiffin University (2006–2018).

Professor Bruce is an internationally-recognized expert in police data systems and police data analysis. He has trained, consulted, and provided technical assistance for various programs of the U.S. Department of Justice, Bureau of Justice Assistance; the U.S. Department of Transportation, National Highway Traffic Safety Administration; the Texas Department of Transportation; the U.S. Department of Justice, International Criminal Investigative Training Assistance Program; and the International Association of Directors of Law Enforcement Standards and Training. He lives in Maine.

# Analysis of baseline activity: All Agencies



The initial study area was limited to those agencies that signed a “surrounding community” agreement with the Massachusetts Gaming Commission: Boston, Cambridge, Lynn, Malden, Medford, Melrose, and Somerville. Together, these cities represent a population of nearly 1.3 million, although limiting the analysis of Boston to Charlestown effectively reduces that number to just over 600,000.

Of the invited communities, Cambridge declined to participate by supplying the data necessary for this analysis. Medford expressed willingness to participate but had not supplied the necessary data in time for this report; we hope to include them in future reports measuring change. The MBTA Transit Police Department was also invited to participate but had not responded in time for this report.

Although the Massachusetts State Police did contribute data for this report, its format makes it inconsistent with the local agency submissions and is thus analyzed in a later section of this report rather than in the totals offered below.

## Crimes in all 8 participating communities

Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
<b>Murder</b>	11	5.87	1	0.52	C	4–18

Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
Sexual Assault	304	21.89	4	0.07	C	278–330
Kidnapping	45	5.94	0	0.13	C	38–52
Robbery	535	119.98	-60	0.21	T	316–370
Aggravated Assault	1236	105.27	-51	0.08	T	1051–1168
Simple Assault	2697	266.68	-115	0.09	T	2122–2664
Threats	909	158.88	-72	0.16	T	550–813
Arson	23	10.5	-4	0.41	T	0–21
Burglary	1309	444.56	-219	0.31	T	387–695
Theft from Persons	80	13.28	-6	0.16	T	51–68
Purse-Snatching	27	8.65	-3	0.29	T	5–33
Shoplifting	591	94.26	9	0.15	C	478–704
Theft from Building	499	57.91	-21	0.11	T	366–526
Theft from Machine	1	0.73	0	1.27	C	0–2
Theft from Vehicle	1247	323.86	-160	0.24	T	605–802
Theft of MV Parts	94	32.58	-3	0.32	C	55–133
Other Theft	2560	467.63	-225	0.17	T	1596–2100
Auto Theft	806	132.37	-60	0.15	T	514–747
Forgery	188	21.18	-9	0.10	T	147–185
Fraud	589	38.47	-15	0.06	T	505–607
Credit Card Fraud	263	61.03	22	0.22	T	275–447
Identity Theft	347	56.99	-7	0.16	C	279–415
Employee Theft	15	4.71	-2	0.29	T	3–18
Stolen Property	83	14.94	-7	0.16	T	52–74
Vandalism	2788	525.86	-257	0.17	T	1752–2205
Drugs	679	105.24	-45	0.14	T	442–665
Drug Equipment	22	3.25	0	0.13	C	18–26
Statutory Rape	30	5.84	1	0.21	C	23–37
Gambling	5	2.85	0	0.59	C	2–8
Pornography	22	7.03	2	0.31	T	21–42
Prostitution	80	44.72	-20	0.51	T	0–47
Weapons	260	22.62	-4	0.08	C	233–287
Bad Checks	47	11.35	-3	0.22	T	20–59
Disorderly	508	88	-37	0.16	T	296–492
Drunk Driving	296	31.5	13	0.10	T	326–400
Drunkenness	313	57.77	-26	0.17	T	188–286
Family Offenses	411	39.65	6	0.09	C	363–459
Liquor Laws	124	10	-2	0.08	C	112–136
Runaway	10	5.83	-2	0.51	T	0–11
Trespassing	303	32.88	6	0.10	C	264–342
<b>Violent Total</b>	<b>5737</b>	<b>609.68</b>	<b>-293</b>	<b>0.10</b>	<b>T</b>	<b>4587–5265</b>
<b>Property Total</b>	<b>12186</b>	<b>2068.05</b>	<b>-1011</b>	<b>0.16</b>	<b>T</b>	<b>8164–9925</b>
<b>Total</b>	<b>18889</b>	<b>2824.17</b>	<b>-1689</b>	<b>0.13</b>	<b>T</b>	<b>15450–17047</b>

Although several of the individual communities have seen trends so erratic that it makes it difficult to predict future volumes, when we aggregate all the communities together, the numbers are reasonably tight. In general,

the region has seen a significant downward trend in the 2010s, with total crimes losing 1,689 per year (from a starting value of 25,370) on the trendline, reaching a decade low in 2018. Only a few crimes have seen a consistently positive upward trend, including shoplifting, credit card fraud, and drunk driving.

### Selected calls for service in all 8 participating communities

Crime	2012–2018 Average	St. Dev.	C.V.	Slope	Prediction Type	Prediction Window
Abandoned Vehicle	697	100.25	0.14	-42	T	451–677
Disabled Vehicle	1936	231.95	0.11	10	C	1658–2214
Domestic Dispute	2749	172.71	0.06	-67	T	2405–2848
General Service	8114	468.57	0.06	-78	C	7552–8676
Gunshots	328	53.17	0.16	23	T	378–488
Liquor	1284	310.29	0.23	-151	T	633–914
Lost Property	1161	88.54	0.07	41	T	1295–1439
Medical	31293	4879.52	0.15	120	C	25438–37148
Overdose	583	297.75	0.49	137	T	922–1394
Psychological	1229	193.73	0.15	90	T	1481–1772
Suspicious Activity	7052	444.56	0.06	-163	T	6214–7431
Traffic Collision	12985	1043.56	0.08	394	T	13690–16451
Traffic Complaint	9341	1951.97	0.21	888	T	11441–14697
Vagrancy	402	37.27	0.09	-7	C	357–447

Providing call-for-service sums for the area is a bit misleading because not all agencies have codes that correspond with all categories. Despite this problem, the summation creates surprisingly consistent categories. We will be keeping a particular eye on call types that fluctuate with a large visiting population. These include disturbance, medical aids, suspicious activity, traffic collisions, traffic complaints, and lost property.

### Collisions in all participating communities<sup>1</sup>

Collision Category	2012–2018 Average	St. Dev.	C.V.	Slope	Prediction Type	Prediction Window
Vehicle in Traffic	3895	371.39	0.09	105	T	3919–5155
Parked Vehicle	443	43.86	0.09	-3	C	390–496
Pedestrian	297	43.12	0.14	16	T	323–437
Bicyclist	37	9.26	0.24	-1	C	26–48
Animal	4	2.17	0.56	0	C	1–7
Fixed Object	135	25.84	0.18	8	T	133–215
Curb/Barrier/Embankment	60	11.25	0.18	5	T	75–94
Rollover/Non-Collision	8	3.25	0.44	0	C	4–12
Other/Unknown	253	24.47	0.09	-11	T	202–243
<b>Total</b>	<b>5131</b>	<b>461.55</b>	<b>0.09</b>	<b>119</b>	<b>T</b>	<b>5108–6701</b>

Collisions in the region showed a modest upward trend between 2012 and 2016 and then reversed and went down significantly in 2017 and 2018. This inconsistency in the trend creates large windows in the predicted range. Identifying any changes caused by Encore will probably require dividing by multiple geographic and temporal factors.

<sup>1</sup> Because of data collection problems, collision totals count only Everett, Chelsea, Malden, Melrose, Revere, and Lynn, excluding Somerville and Boston.

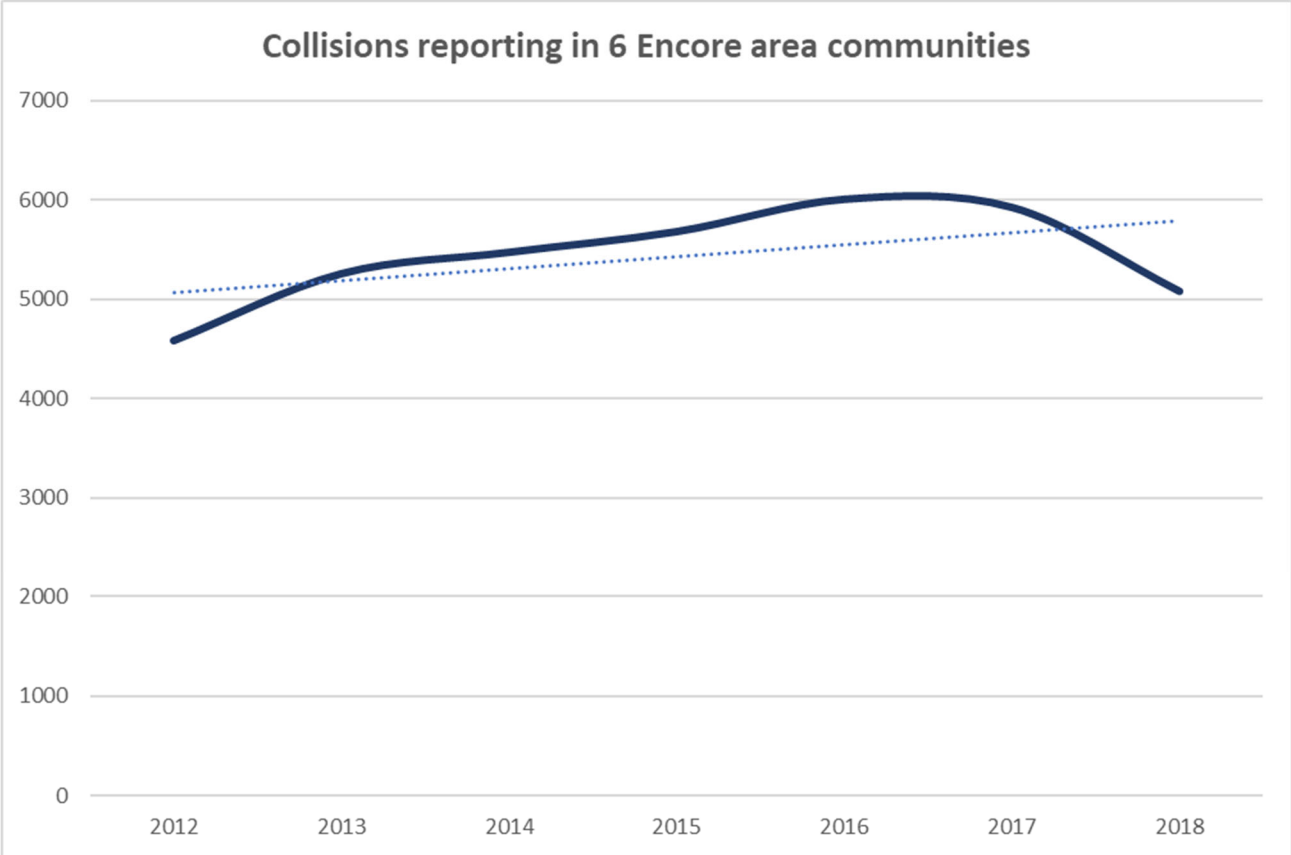
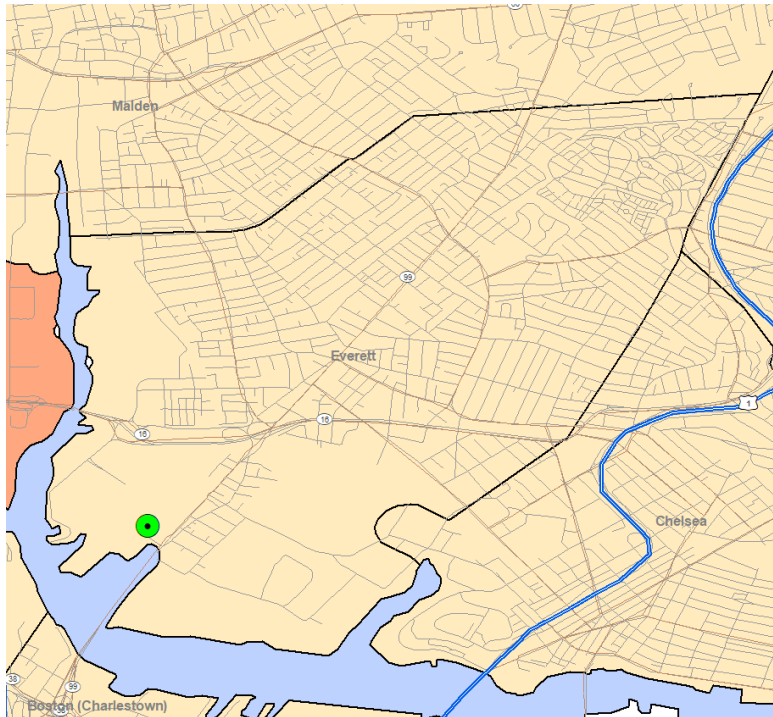


Figure 2: Collisions in the area have seen an inconsistent trend over the last 7 years.

# Analysis of baseline activity: Everett



**Population (est. 2018):** 47,005

**Area:** 3.7 square miles

**Police officers:** 117

**City center distance to Encore:**  
0.93 miles

Encore Boston Harbor is being built on the south border of a densely-populated suburban community. The site is a formerly unsightly industrial area on the Mystic River. The revitalization occasioned by the casino has transformed and is likely to continue transforming the waterfront on both sides of the river, both creating opportunities for crime and providing natural guardians against it.

We will be watching carefully the impact of Encore Boston Harbor on the immediate waterfront area, including the Gateway shopping center just to its west, as well as major travel routes along Route 16 and Broadway and transportation stops. We'll also be tracking any potential influence on hotels, restaurants, and other locations in town that cater to tourists.

The Everett Police Department's two crime analysts are vital partners in this project. The senior analyst has worked for the agency for more than 10 years.

## Crimes in Everett

Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
<b>Murder</b>	2	0.83	0	0.45	C	1–3
<b>Sexual Assault</b>	22	4.59	1	0.20	C	16–28
<b>Kidnapping</b>	3	1.16	0	0.43	C	1–5
<b>Robbery</b>	45	15.34	-6	0.32	T	24–42
<b>Aggravated Assault</b>	87	9.06	2	0.10	T	77–100
<b>Simple Assault</b>	130	71.34	-29	0.52	T	30–119
<b>Threats</b>	86	9.41	-2	0.10	T	73–99
<b>Arson</b>	1	0.7	0	0.54	C	0–2
<b>Burglary</b>	146	47.01	-21	0.30	T	80–120

Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
Theft from Persons	1	1.03	0	0.80	C	0–2
Purse-Snatching	5	2.77	-1	0.50	C	1–9
Shoplifting	106	19.5	1	0.17	C	79–133
Theft from Building	34	16.2	-6	0.45	T	11–37
Theft from Machine	0	0.7	0	2.45	T	0–1
Theft from Vehicle	151	46.16	-20	0.28	T	86–135
Theft of MV Parts	8	4.05	-2	0.50	T	2–5
Other Theft	230	19.08	-4	0.08	C	203–257
Auto Theft	84	20.39	-9	0.22	T	55–79
Forgery	13	6.25	-1	0.43	C	4–22
Fraud	24	9.04	2	0.37	C	11–37
Credit Card Fraud	69	29.2	11	0.40	T	73–110
Identity Theft	25	21.12	-10	0.74	T	0–12
Employee Theft	1	1.73	0	1.51	C	0–3
Stolen Property	13	4.89	-2	0.36	T	6–17
Vandalism	285	41.11	-19	0.13	T	227–272
Drugs	52	6.02	-2	0.11	T	44–60
Drug Equipment	20	2.19	1	0.10	T	20–23
Statutory Rape	2	1.81	0	0.97	C	0–5
Gambling	2	3.09	-1	1.66	T	0–3
Pornography	2	0.99	0	0.53	C	1–3
Prostitution	2	2.05	-1	1.20	T	0–2
Weapons	22	17.21	6	0.74	T	20–46
Bad Checks	16	5.55	0	0.34	C	8–24
Disorderly	19	7.65	1	0.42	C	8–30
Drunk Driving	29	6.93	1	0.23	C	19–39
Drunkenness	0	1.05	0	2.45	T	0–1
Family Offenses	121	64.28	27	0.52	T	154–211
Liquor Laws	2	1.25	0	0.67	C	0–4
Runaway	7	2.8	-1	0.34	C	3–11
Trespassing	11	2.23	1	0.22	T	8–14
<b>Violent Total</b>	<b>373</b>	<b>83.27</b>	<b>-35</b>	<b>0.21</b>	<b>T</b>	<b>256–361</b>
<b>Property Total</b>	<b>1250</b>	<b>165.46</b>	<b>-81</b>	<b>0.12</b>	<b>T</b>	<b>1018–1096</b>
<b>Total</b>	<b>1763</b>	<b>169.00</b>	<b>-70</b>	<b>0.08</b>	<b>T</b>	<b>1616–1813</b>

Everett has not only seen a downward trend during the last 7 years, it has been so consistent that on a graphic, the actual trend is almost indistinguishable from a linear trendline running through the same data points.

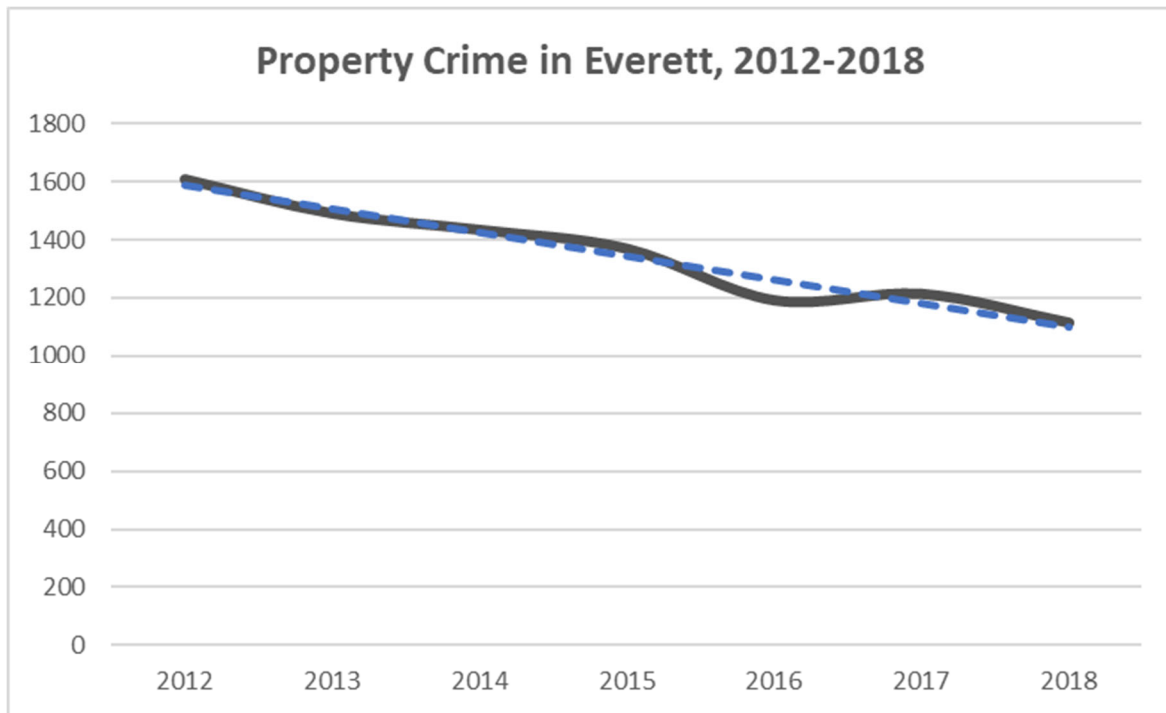


Figure 3: Property crime in Everett has been on a highly predictable decrease for 7 years.

This incredible consistency makes each year highly predictable with a small predictive window, making it easier to note when something disrupts this trend. Everett’s data is the most consistent of the eight contributing agencies, which is particularly useful since Everett is the host community.

Violent crime has been slightly less consistent than property crime but has still shown decreases in the 2010s. The only crime to go up consistently has been “family offenses,” including child abuse and neglect and violations of restraining orders. However, extremely low totals in 2012 and 2013 suggest the agency did not code these crimes accurately until 2014.

### Selected calls for service in Everett

Crime	2012–2018 Average	Standard Deviation	C.V.	Slope	Prediction Type	Prediction Window
Abandoned Vehicle	464	97.57	0.20	-43	T	219–411
Disabled Vehicle	131	17.60	0.13	3	C	110–152
Domestic Dispute	37	7.59	0.20	-1	C	28–46
General Service	1388	243.47	0.16	-117	T	900–1158
Gunshots	22	12.47	0.55	5	T	29–57
Liquor	15	4.95	0.32	0	C	9–21
Lost Property	130	44.48	0.33	20	T	173–254
Medical	2021	267.27	0.12	-123	T	1441–1858
Overdose	90	30.37	0.32	13	T	112–179
Psychological	41	13.44	0.32	6	T	50–80
Suspicious Activity	803	70.73	0.08	-34	T	676–768
Traffic Collision	1095	50.67	0.04	12	T	1120–1299
Traffic Complaint	1177	96.17	0.08	41	T	1278–1484
Vagrancy	95	15.46	0.15	-7	T	61–82



As with crimes, calls for service are coded consistently enough by the Everett Police Department to create very predictable ranges. This will make it easier to note unusual changes post-Encore.

### Collisions in Everett

Collision Category	2012–2018 Average	St. Dev.	C.V.	Slope	Prediction Type	Prediction Window
Vehicle in Traffic	175	29.30	0.16	14	T	208–245
Parked Vehicle	63	11.93	0.18	6	T	76–100
Pedestrian	20	6.36	0.29	-1	C	11–29
Bicyclist	7	3.01	0.41	0	C	3–11
Animal	0	0.35	2.45	0	C	0–0
Fixed Object	26	5.69	0.21	2	T	21–46
Curb/Barrier/Embankment	5	1.25	0.24	0	T	4–9
Rollover/Non-Collision	2	1.03	0.80	0	T	0–5
Other/Unknown	12	2.43	0.19	0	C	9–15
<b>Total</b>	<b>309</b>	<b>46.25</b>	<b>0.14</b>	<b>21</b>	<b>T</b>	<b>353–404</b>

Everett has seen a steady increase in crashes since 2012, although it has leveled a bit since 2016. The predictive windows are tight enough that changes caused by Encore should be detectable even with city-wide data.

# Analysis of baseline: Boston/Charlestown



- Population (est. 2016):** 17,201
- Area:** 24.2 square miles
- Police officers:** 2,122 (city wide)
- City center distance to Encore:** 1.87 square miles

As the capital and the largest city in the Commonwealth, Boston gives its name to the casino and will likely supply much of its traffic, both residents and visitors, arriving via Logan Airport shuttles, the MBTA, vehicles, or ferries from Long Wharf and the World Trade Center.

Because any casino influence on the totality of the city would likely be undetectable amidst the normal volume of crimes and calls for service that this city generates, analysis of changes will be largely confined to Charlestown, Boston Police District A-15, Boston’s oldest neighborhood. This detached area is north of the Charles River, west of the main channel of Boston Harbor, south of the Mystic River, and east of Route 93. It contains Bunker Hill, the U.S.S. Constitution, several waterfront parks, two colleges, and about 17,000 of the city’s 700,000 residents.

The Mystic River serves as a practical barrier to activity spilling into the neighborhood from Encore except in a few geographically-concentrated ways. Changes in Charlestown may be reflected in extra traffic along Rutherford Avenue and Alford Street, as well as increased usage of tourist destinations within the area and facilities near Exit 28 off I-93. The neighborhood’s few hotels might see extra occupancy.

Although not in Charlestown and thus not part of these baseline statistics, we will also be working with the Boston Police to determine if crime or calls for service increase in reporting areas surrounding Long Wharf, the World Trade Center, and the Logan Airport pier, where water taxi and ferry traffic take visitors to and from the casino.

## Crimes in Boston/Charlestown<sup>2</sup>

Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
<b>Murder</b>	0	0.49	0	0.00	C	0–1

<sup>2</sup> Boston’s records management system does not follow NIBRS standards and only records the most serious offense code with each incident rather than each separate offense. Hence, while the statistics here are internally consistent, they are not directly comparable with other agencies, with the disparity getting more significant the further one goes down the list of crimes.

Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
Sexual Assault	7	4.21	1	0.60	T	5–19
Kidnapping	0	0.35	0	0.00	C	0–0
Robbery	26	6.57	0	0.23	C	18–34
Aggravated Assault	47	8.22	1	0.17	C	37–57
Simple Assault	124	10.27	-2	0.08	T	101–138
Threats	60	16.01	-6	0.25	T	18–58
Arson	0	0	0	0.00	C	0–0
Burglary	38	10.86	-3	0.26	T	11–45
Theft from Persons	1	0.64	0	0.75	C	0–2
Purse-Snatching	1	1.36	0	1.58	C	0–3
Shoplifting	19	10.11	2	0.49	T	13–48
Theft from Building	55	7.7	-1	0.13	C	46–64
Theft from Machine	0	0.35	0	0.00	T	0–0
Theft from Vehicle	81	33.41	-14	0.38	T	0–64
Theft of MV Parts	23	11.08	-4	0.44	T	0–25
Other Theft	68	9.39	-1	0.14	C	57–79
Auto Theft	28	8.31	-2	0.27	T	8–37
Forgery	6	2.25	0	0.39	C	3–9
Fraud	38	14.38	-6	0.36	T	0–33
Credit Card Fraud	9	8.55	4	0.95	T	18–32
Identity Theft	6	6.52	3	1.17	T	8–24
Employee Theft	2	1.03	0	0.80	T	0–2
Stolen Property	4	2.37	-1	0.55	T	0–5
Vandalism	115	25.42	-10	0.20	T	54–112
Drugs	67	10.22	3	0.15	T	66–99
Drug Equipment	0	0.35	0	0.00	C	0–0
Statutory Rape	0	0	0	0.00	C	0–0
Gambling	0	0	0	0.00	C	0–0
Pornography	2	1.25	0	0.67	C	1–3
Prostitution	0	0	0	0.00	C	0–0
Weapons	8	4.56	-1	0.53	C	3–13
Bad Checks	0	0	0	0.00	C	0–0
Disorderly	8	3.91	-1	0.48	T	0–10
Drunk Driving	4	1.12	0	0.29	C	3–5
Drunkenness	1	1.46	-1	1.70	T	0–1
Family Offenses	25	6.3	0	0.24	C	17–33
Liquor Laws	1	1.05	0	0.67	T	0–1
Runaway	0	0.45	0	0.00	T	0–2
Trespassing	12	3	-1	0.25	T	3–11
<b>Violent Total</b>	<b>264</b>	<b>27.68</b>	<b>-6</b>	<b>0.10</b>	<b>T</b>	<b>202–302</b>
<b>Property Total</b>	<b>559</b>	<b>73.62</b>	<b>-30</b>	<b>0.12</b>	<b>T</b>	<b>390–562</b>
<b>Total</b>	<b>827</b>	<b>93.35</b>	<b>-26</b>	<b>0.10</b>	<b>T</b>	<b>751–918</b>

The Charlestown neighborhood of Boston has internally-consistent crime statistics that have been on a modest downward trend for the past seven years. Low use of “all other” and “all other theft” codes suggest that the

agency has taken pains to accurately code offense statistics. The agency's adherence to the old "hierarchy rule" (on the most serious offense is coded for each incident) means that we miss a lot of secondary and tertiary offenses, particularly in the lower part of the list, which helps explain low values in categories like weapon violations, disorderly conduct, drunkenness, liquor laws, and trespassing.

### Selected calls for service in Boston/Charlestown

Crime	2012–2018 Average	Standard Deviation	C.V.	Slope	Prediction Type	Prediction Window
General Service	47	21.03	0.44	10	T	74–102
Gunshots	20	6.62	0.30	-1	C	12–28
Lost Property	81	13.24	0.16	6	T	99–113
Medical	52	5.46	0.10	0	C	45–59
Overdose	27	6.71	0.23	1	C	19–35
Psychological	62	6.52	0.10	1	C	54–70
Suspicious Activity	112	93.12	0.75	-42	T	0–33
Traffic Collision	621	99.94	0.16	46	T	746–900

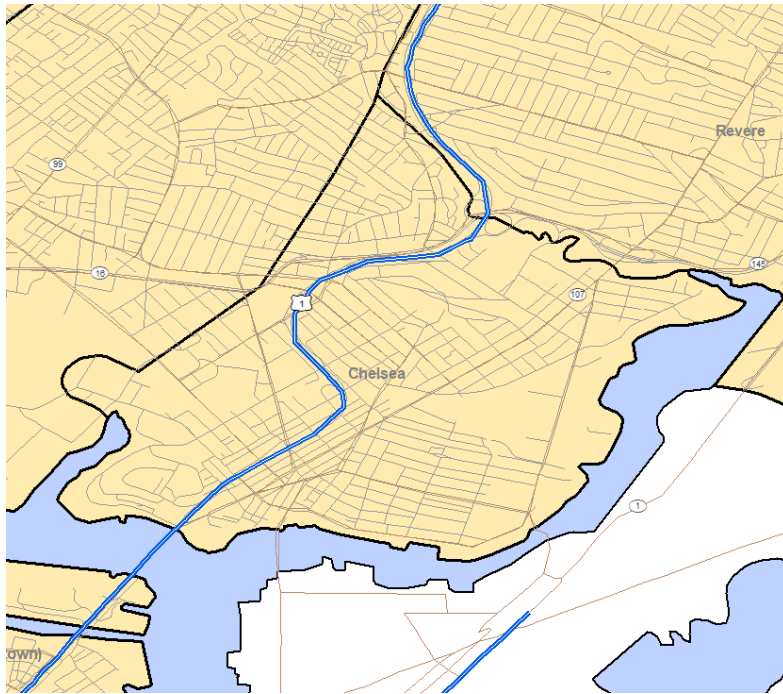
Boston changed computer-aided dispatch systems in 2015 and completely revamped its coding system. Because of that, some categories exhibit such inconsistencies from year to year that I cut them out entirely. A lack of good historical data will make it difficult to measure changes in non-crime events.

### Collisions in Boston/Charlestown

Collision Category	2012–2018 Average	St. Dev.	C.V.	Slope	Prediction Type	Prediction Window
Vehicle in Traffic						
Parked Vehicle						
Pedestrian						
Bicyclist						
Animal						
Fixed Object						
Curb/Barrier/Embankment						
Rollover/Non-Collision						
Other/Unknown						
<b>Total</b>						

Unfortunately, the Boston Police Department does not have electronic crash report data beyond what is recorded in the computer-aided dispatch (CAD) system and thus listed above under calls for service. Until this situation changes or we are able to get crash report data from the state, we will be unable to note changes in Charlestown-area crashes.

# Analysis of baseline activity: Chelsea



**Population (est. 2018):** 40,974

**Area:** 2.5 square miles

**Police officers:** 110

**City center distance to Encore:**  
1.83 miles

Chelsea is a diverse working-class community. The smallest city in the Commonwealth, and the second densely-populated, Chelsea is one of only three Massachusetts cities with a Hispanic-majority population. It has bounded back from crippling crime rates and near-bankruptcy in the 1990s and has enjoyed significant economic growth and gentrification in the past 15 years.

The city is physically close to Encore, and visitors coming from eastern Massachusetts or even Logan Airport might pass through the city's boundaries. Extra tourist traffic to Encore might bring extra visitors to its hotel and restaurant cluster off Everett Avenue.

Chelsea has a full-time crime analyst who is able to assist with the analysis of new patterns and trends in the city.

## Crimes in Chelsea

Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
Murder	2	1.84	0	0.76	C	0–4
Sexual Assault	57	10.2	0	0.17	C	45–69
Kidnapping	12	5.13	0	0.39	C	6–18
Robbery	149	58.5	-28	0.36	T	18–87
Aggravated Assault	234	60.82	-28	0.24	T	89–193
Simple Assault	656	67.35	-31	0.10	T	524–634
Threats	315	50.76	-23	0.15	T	206–284
Arson	3	1.76	0	0.49	C	1–5
Burglary	160	70.76	-34	0.41	T	1–67
Theft from Persons	23	11.05	-5	0.42	T	0–12

Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
Purse-Snatching	9	6.4	-1	0.63	C	1–17
Shoplifting	132	21.41	-3	0.15	C	106–158
Theft from Building	147	34.21	-5	0.22	C	106–188
Theft from Machine	0	0.35	0	0.00	C	0–0
Theft from Vehicle	164	52.06	-20	0.29	T	30–163
Theft of MV Parts	40	27.9	6	0.65	C	7–73
Other Theft	155	160.45	-67	0.95	T	0–78
Auto Theft	118	38.64	-19	0.31	T	30–74
Forgery	27	5.57	-2	0.18	T	14–32
Fraud	84	17.7	-4	0.20	C	63–105
Credit Card Fraud	27	8.46	1	0.29	C	17–37
Identity Theft	59	12.34	-5	0.19	T	29–61
Employee Theft	4	0.99	0	0.26	C	3–5
Stolen Property	32	11.18	-5	0.31	T	8–21
Vandalism	530	164.35	-80	0.28	T	184–339
Drugs	91	29.07	-14	0.29	T	26–63
Drug Equipment	1	0.83	0	0.97	C	0–2
Statutory Rape	7	4.65	2	0.88	T	6–18
Gambling	1	2.1	1	2.45	T	0–7
Pornography	5	2.14	1	0.53	T	3–10
Prostitution	11	3.85	-1	0.32	C	6–16
Weapons	70	18.9	-7	0.25	T	22–70
Bad Checks	12	3.66	-1	0.26	C	8–16
Disorderly	89	28.38	-14	0.29	T	31–54
Drunk Driving	46	10.67	2	0.21	C	33–59
Drunkenness	240	41.6	-16	0.16	T	142–251
Family Offenses	1	1.12	0	1.31	C	0–2
Liquor Laws	50	9.6	1	0.18	C	38–62
Runaway	2	5.47	-2	2.02	T	0–5
Trespassing	65	6.69	-2	0.09	T	53–73
<b>Violent Total</b>	<b>1425</b>	<b>222.61</b>	<b>-110</b>	<b>0.15</b>	<b>T</b>	<b>1034–1148</b>
<b>Property Total</b>	<b>1803</b>	<b>520.07</b>	<b>-258</b>	<b>0.27</b>	<b>T</b>	<b>795–1068</b>
<b>Total</b>	<b>3387</b>	<b>811.47</b>	<b>-406</b>	<b>0.20</b>	<b>T</b>	<b>2579–2700</b>

Once well-known locally for a fairly high crime rate, Chelsea has made excellent strides over the last two decades, as can be seen in these crime statistics, which show a very large decreasing trend. But as dramatic as the decrease has been, it has also been highly stable, and thus highly predictable from year to year. Both factors should make it easier to detect new patterns and trends emanating from Encore Boston Harbor.

### Selected calls for service in Chelsea

Crime	2012–2018 Average	Standard Deviation	C.V.	Slope	Prediction Type	Prediction Window
Abandoned Vehicle	59	16.19	0.26	-1	C	40–78
Disabled Vehicle	181	32.70	0.17	5	C	142–220
Domestic Dispute	613	95.97	0.15	-43	T	400–578

Crime	2012–2018 Average	Standard Deviation	C.V.	Slope	Prediction Type	Prediction Window
General Service	843	196.26	0.22	-65	T	340–933
Gunshots	42	28.83	0.69	12	T	53–123
Liquor	81	17.18	0.21	7	T	90–131
Lost Property	29	9.20	0.32	4	T	38–53
Medical	991	195.89	0.18	12	C	756–1226
Psychological	308	44.24	0.14	17	T	331–445
Suspicious Activity	1370	305.82	0.20	-116	T	731–1238
Traffic Collision	1369	128.54	0.09	63	T	1639–1728
Traffic Complaint	1050	319.22	0.30	150	T	1435–1873
Vagrancy	99	50.18	0.46	-7	C	45–153

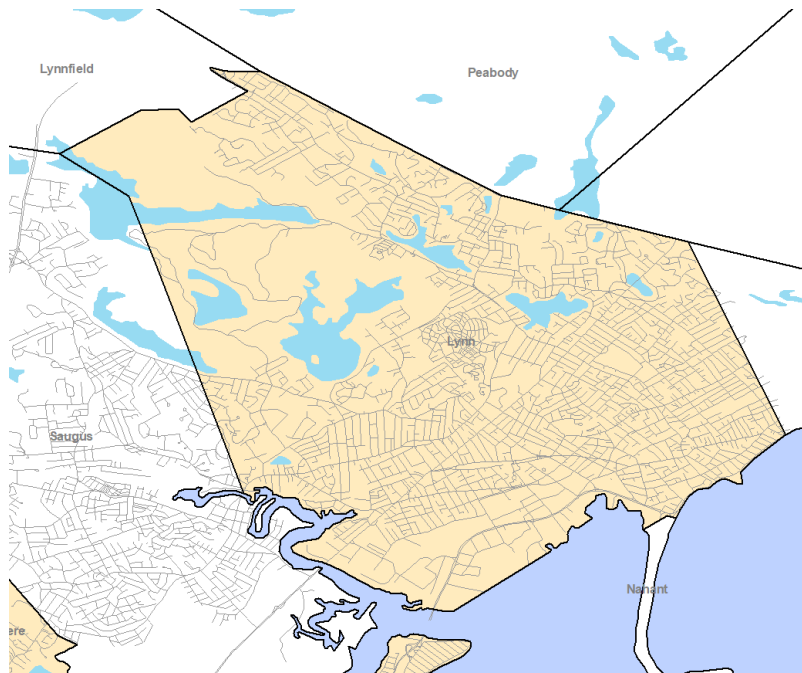
Like crime, most calls for service have been on a downward trend in Chelsea during this period—some predictably, some erratically.

### Collisions in Chelsea

Collision Category	2012–2018 Average	St. Dev.	C.V.	Slope	Prediction Type	Prediction Window
Vehicle in Traffic	417	53.17	0.12	20	T	452–490
Parked Vehicle	212	45.82	0.20	-18	T	102–172
Pedestrian	45	12.18	0.26	-2	C	30–60
Bicyclist	9	3.33	0.35	-1	T	0–12
Animal	0	0.73	1.70	0	C	0–1
Fixed Object	38	7.95	0.19	1	C	28–48
Curb/Barrier/Embankment	13	2.80	0.20	1	C	10–16
Rollover/Non-Collision	2	1.12	0.60	0	T	0–3
Other/Unknown	14	7.33	0.48	-1	C	5–23
<b>Total</b>	<b>750</b>	<b>34.88</b>	<b>0.04</b>	<b>0</b>	<b>C</b>	<b>708–792</b>

Chelsea has seen relatively predictable, stagnant crash figures during this period. Decreases in parked vehicle collisions have been balanced with increases in vehicle-in-traffic collisions. This backdrop should make it easy to identify new patterns in the area.

# Analysis of baseline activity: Lynn



**Population (est. 2018):** 94,558

**Area:** 13.5 square miles

**Police officers:** 161

**City center distance to Encore:**  
7.62 miles

Lynn is the city farthest removed from Encore Boston Harbor. Although its storied past as the “city of sin” has been tempered by crime decreases over the past two decades, its large population generates enough activity that any changes brought by Encore Boston Harbor will be difficult to detect.

Lynn has no travel routes to Encore excepting those that its own residents will use. A couple of bed-and-breakfasts make up its only lodging. It may see an increase in visitation from a small percentage of Encore visitors interested in the city’s growing arts culture.

## Crimes in Lynn

Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
<b>Murder</b>	4	3.69	1	0.86	T	2–14
<b>Sexual Assault</b>	116	7.61	0	0.06	C	107–125
<b>Kidnapping</b>	13	3.74	-1	0.28	T	3–15
<b>Robbery</b>	157	14.08	-4	0.08	T	130–174
<b>Aggravated Assault</b>	418	45.28	-20	0.10	T	325–409
<b>Simple Assault</b>	789	89.98	-31	0.11	T	581–847
<b>Threats</b>	91	14.87	2	0.16	C	73–109
<b>Arson</b>	7	2.44	-1	0.32	C	4–10
<b>Burglary</b>	381	127.38	-63	0.31	T	119–210
<b>Theft from Persons</b>	43	8.81	-1	0.20	C	32–54
<b>Purse-Snatching</b>	0	0	0	0.00	C	0–0
<b>Shoplifting</b>	139	34.58	-8	0.23	T	57–181
<b>Theft from Building</b>	54	11.96	-3	0.21	T	23–63
<b>Theft from Machine</b>	0	0	0	0.00	C	0–0



Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
Theft from Vehicle	310	94.75	-41	0.28	T	80–270
Theft of MV Parts	14	7.46	-3	0.49	T	0–9
Other Theft	799	159	-69	0.19	T	425–739
Auto Theft	238	39.16	-8	0.15	C	191–285
Forgery	54	15.65	-8	0.27	T	20–37
Fraud	140	22.06	-10	0.15	T	87–130
Credit Card Fraud	63	12.95	-3	0.20	C	47–79
Identity Theft	0	0	0	0.00	C	0–0
Employee Theft	1	0.49	0	0.87	C	0–2
Stolen Property	0	0.45	0	0.00	T	0–2
Vandalism	810	133.68	-62	0.15	T	529–722
Drugs	254	65.04	-22	0.24	T	91–284
Drug Equipment	0	0	0	0.00	C	0–0
Statutory Rape	9	1.28	0	0.15	T	7–12
Gambling	1	1.5	0	1.05	C	0–3
Pornography	5	1.81	1	0.35	T	7–10
Prostitution	54	43.28	-18	0.71	T	0–37
Weapons	81	10.03	0	0.12	C	69–93
Bad Checks	0	0.35	0	0.00	C	0–0
Disorderly	168	36.04	-12	0.20	T	77–188
Drunk Driving	102	11.4	4	0.11	T	102–138
Drunkenness	0	0	0	0.00	C	0–0
Family Offenses	155	30.5	-9	0.18	T	79–177
Liquor Laws	32	6.76	-1	0.20	C	24–40
Runaway	0	0	0	0.00	C	0–0
Trespassing	109	18.58	2	0.16	C	87–131
<b>Violent Total</b>	<b>1588</b>	<b>138.52</b>	<b>-53</b>	<b>0.08</b>	<b>T</b>	<b>1296–1657</b>
<b>Property Total</b>	<b>3306</b>	<b>630.32</b>	<b>-301</b>	<b>0.18</b>	<b>T</b>	<b>1991–2741</b>
<b>Total</b>	<b>5227</b>	<b>843.77</b>	<b>-561</b>	<b>0.14</b>	<b>T</b>	<b>4062–4716</b>

### Selected calls for service in Lynn

Crime	2012–2018 Average	Standard Deviation	C.V.	Slope	Prediction Type	Prediction Window
Disabled Vehicle	845	156.72	0.17	-16	C	657–1033
Domestic Dispute	744	118.65	0.15	-55	T	490–678
General Service	751	49.10	0.06	2	C	692–810
Gunshots	155	15.73	0.10	2	C	136–174
Liquor	483	116.89	0.22	-55	T	222–374
Lost Property	378	37.44	0.09	0	C	333–423
Medical	8460	422.13	0.05	205	T	9395–9789
Overdose	272	139.66	0.51	68	T	490–607
Psychological	351	48.66	0.13	23	T	430–495
Suspicious Activity	1516	154.26	0.10	-51	T	1173–1639
Traffic Collision	3124	228.62	0.07	93	T	3377–3912
Traffic Complaint	2968	603.59	0.19	149	T	2663–4778
Vagrancy	182	29.34	0.16	10	T	157–251

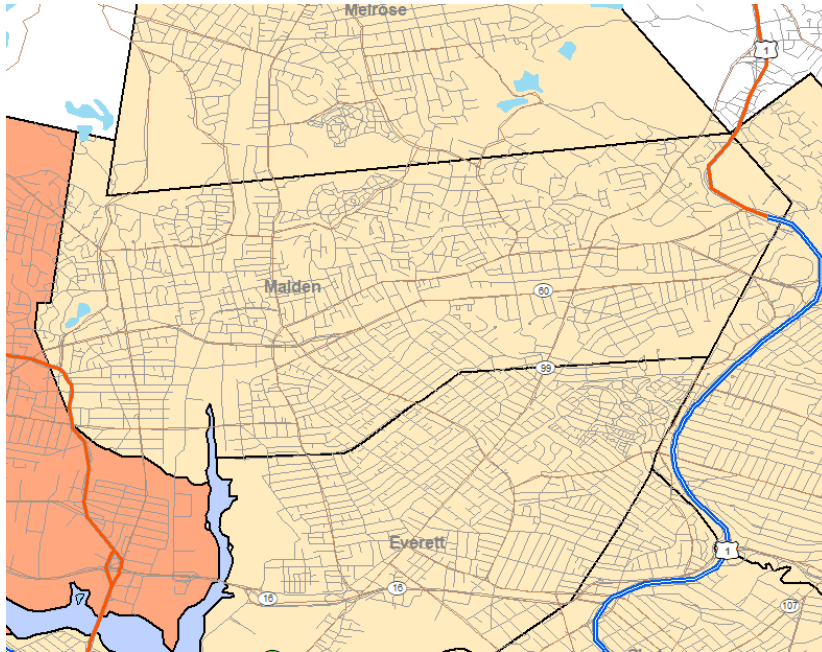
Lynn has exhibited a mix of upward and downward trends in its various calls for service over the past seven years, and almost all of its predictions are trend-based. Unfortunately, wildly varying numbers in the “traffic complaint” and “suspicious activity” categories will make it difficult to note changes there.

### Collisions in Lynn

Collision Category	2012–2018 Average	St. Dev.	C.V.	Slope	Prediction Type	Prediction Window
Vehicle in Traffic	2112	263.69	0.12	2	C	1796–2428
Parked Vehicle	8	3.24	0.35	1	T	8–18
Pedestrian	137	34.71	0.24	13	T	155–245
Bicyclist	5	3.28	0.57	0	C	1–9
Animal	2	1.29	0.53	0	C	0–4
Fixed Object	0	0.00	0.00	0	C	0–0
Curb/Barrier/Embankment	0	0.00	0.00	0	C	0–0
Rollover/Non-Collision	0	0.00	0.00	0	C	0–0
Other/Unknown	129	35.18	0.25	-16	T	46–110
<b>Total</b>	<b>2394</b>	<b>294.16</b>	<b>0.11</b>	<b>0</b>	<b>C</b>	<b>2041–2747</b>

Lynn’s vehicle (in traffic and parked) and total collisions have low variances and virtually no trend. It seems unlikely that the agency has seen no fixed object, curb/embankment, or rollover collisions in 7 years, which suggests officers are not using these categories when coding. The high “other/unknown” total bears out this inference.

# Analysis of baseline activity: Malden



**Population (est. 2016):** 61,469

**Area:** 5.1 square miles

**Police officers:** 102

**City center distance to Encore:**  
2.28 miles

Bordering Everett to the north, Malden has one of the lower crime rates (for both violent crime and property crime) among the jurisdictions in this study. With the exception of a small part of U.S. Route 1 (a stretch mostly clear of businesses except a single liquor store), the city does not have many significant auto travel routes leading to Encore. However, the casino does operate a free shuttle out of Malden Center, which may increase foot and vehicle traffic to the businesses in the region.

## Crimes in Malden

Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
Murder	1	0	0	0.00	C	0–0
Sexual Assault	18	7.05	1	0.38	C	10–26
Kidnapping	5	3.33	1	0.73	T	6–14
Robbery	51	17.59	-9	0.32	T	13–29
Aggravated Assault	133	20.59	-3	0.15	C	108–158
Simple Assault	341	54.95	-24	0.16	T	202–316
Threats	83	68.07	-29	0.75	T	0–47
Arson	1	2.44	-1	1.55	T	0–0
Burglary	156	78.04	-38	0.47	T	0–58
Theft from Persons	13	3.25	0	0.23	C	9–17
Purse-Snatching	0	0.35	0	0.00	T	0–0
Shoplifting	99	30.28	-13	0.28	T	23–89
Theft from Building	24	8.63	1	0.36	C	14–34
Theft from Machine	0	0	0	0.00	C	0–0
Theft from Vehicle	164	40	-13	0.24	T	56–176
Theft of MV Parts	3	2.27	0	0.76	C	0–6

Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
Other Theft	334	78.16	-31	0.22	T	136–329
Auto Theft	95	18.3	-7	0.19	T	46–92
Forgery	27	9.75	-4	0.33	T	3–23
Fraud	62	7.59	0	0.12	C	53–71
Credit Card Fraud	15	9.51	4	0.62	T	20–42
Identity Theft	1	0.9	0	1.58	C	0–2
Employee Theft	0	0.49	0	0.00	T	0–2
Stolen Property	0	0	0	0.00	C	0–0
Vandalism	278	48.26	-22	0.16	T	166–242
Drugs	47	15.55	-5	0.30	T	7–54
Drug Equipment	0	0	0	0.00	C	0–0
Statutory Rape	1	0.83	0	0.97	T	1–3
Gambling	0	0	0	0.00	C	0–0
Pornography	2	1.36	0	0.63	T	1–6
Prostitution	5	3.16	0	0.63	C	1–9
Weapons	16	4.1	0	0.25	C	11–21
Bad Checks	0	0.45	0	0.00	C	0–1
Disorderly	54	14.62	-3	0.25	T	18–71
Drunk Driving	19	6.52	-3	0.33	T	2–17
Drunkenness	0	0	0	0.00	C	0–0
Family Offenses	62	19.08	-6	0.30	T	10–67
Liquor Laws	3	3.57	-1	0.96	C	0–7
Runaway	0	0	0	0.00	C	0–0
Trespassing	41	14.42	5	0.35	T	37–82
<b>Violent Total</b>	<b>631</b>	<b>130.59</b>	<b>-61</b>	<b>0.20</b>	<b>T</b>	<b>325–513</b>
<b>Property Total</b>	<b>1319</b>	<b>274.89</b>	<b>-129</b>	<b>0.20</b>	<b>T</b>	<b>688–1060</b>
<b>Total</b>	<b>1961</b>	<b>419.18</b>	<b>-215</b>	<b>0.18</b>	<b>T</b>	<b>1483–1844</b>

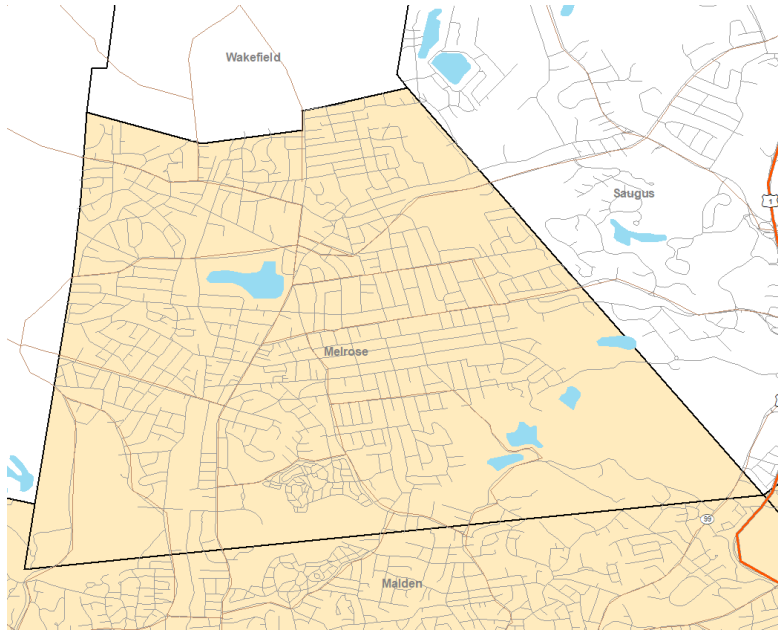
### Selected calls for service in Malden

Crime	2012–2018 Average	Standard Deviation	C.V.	Slope	Prediction Type	Prediction Window
Disabled Vehicle	169	33.87	0.19	-5	C	128–210
Domestic Dispute	130	21.69	0.17	3	C	104–156
General Service	828	218.42	0.25	101	T	1095–1438
Gunshots	17	7.59	0.45	-2	T	0–21
Liquor	301	119.13	0.36	-56	T	26–189
Lost Property	18	6.99	0.38	1	C	10–26
Medical	8660	2844.12	0.33	1150	T	9896–16642
Psychological	117	20.97	0.17	2	C	92–142
Suspicious Activity	622	37.15	0.06	-1	C	577–667
Traffic Collision	2020	270.63	0.13	110	T	2178–2816
Traffic Complaint	620	173.52	0.26	32	C	412–828
Vagrancy	13	7.70	0.65	-2	C	4–22

## Collisions in Malden

Collision Category	2012–2018 Average	St. Dev.	C.V.	Slope	Prediction Type	Prediction Window
Vehicle in Traffic	650	75.69	0.11	34	T	741–867
Parked Vehicle	5	1.25	0.24	0	C	4–6
Pedestrian	56	9.64	0.17	4	T	66–83
Bicyclist	5	1.46	0.28	0	C	3–7
Animal	0	0.35	2.45	0	C	0–0
Fixed Object	0	0.00	0.00	0	C	0–0
Curb/Barrier/Embankment	0	0.00	0.00	0	C	0–0
Rollover/Non-Collision	0	0.00	0.00	0	C	0–0
Other/Unknown	71	20.46	0.30	7	T	65–127
<b>Total</b>	<b>787</b>	<b>97.35</b>	<b>0.12</b>	<b>45</b>	<b>T</b>	<b>912–1056</b>

# Analysis of baseline activity: Melrose



**Population (est. 2018):** 28,552

**Area:** 4.8 square miles

**Police officers:** 47

**City center distance to Encore:**  
4.16 miles

On the outskirts of our study, Melrose is smaller and more suburban than most of the other communities analyzed here. It is avoided by highways and other major travel routes to Encore, it has no hotels, and it lacks most of the other attractions and amenities that a visitor to the area would seek out. Hence, it is unlikely to experience much impact from Encore unless this region experiences the type of wide-ranging crime patterns that have been rare in the other casino communities. We will be monitoring activity in and around MelroseWakefield Hospital, which serves as one destination for medical events at Encore.

## Crimes in Melrose

Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
Murder	0	0	0	0.00	C	0–0
Sexual Assault	3	1.2	0	0.40	C	2–4
Kidnapping	1	0.7	0	0.54	T	2–3
Robbery	5	2.85	-1	0.55	T	0–7
Aggravated Assault	17	4.43	-1	0.27	C	12–22
Simple Assault	64	9.11	-4	0.14	T	40–61
Threats	29	11.88	-5	0.38	T	0–23
Arson	1	1.76	0	1.23	C	0–3
Burglary	41	23.84	-11	0.55	T	0–20
Theft from Persons	1	1.36	0	1.58	C	0–3
Purse-Snatching	1	0.99	0	0.87	T	0–4
Shoplifting	9	4.16	-1	0.42	T	0–12
Theft from Building	33	10.7	-4	0.30	T	6–33
Theft from Machine	0	0	0	0.00	C	0–0

Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
Theft from Vehicle	50	18.01	-5	0.34	T	4–64
Theft of MV Parts	1	0.76	0	0.76	C	0–2
Other Theft	88	8.87	-2	0.10	T	69–100
Auto Theft	18	5.8	0	0.31	C	11–25
Forgery	6	2.9	0	0.47	C	3–9
Fraud	23	6.5	0	0.27	C	15–31
Credit Card Fraud	2	0.9	0	0.35	C	1–3
Identity Theft	7	2.36	0	0.29	C	4–10
Employee Theft	1	1.2	-1	1.20	T	0–0
Stolen Property	5	2.17	0	0.45	C	2–8
Vandalism	108	25.5	-12	0.23	T	46–87
Drugs	9	4.06	-2	0.42	T	0–9
Drug Equipment	0	0.35	0	0.00	C	0–0
Statutory Rape	1	1.03	0	1.44	C	0–2
Gambling	0	0	0	0.00	C	0–0
Pornography	1	1.05	0	1.84	C	0–2
Prostitution	0	0	0	0.00	C	0–0
Weapons	2	2.12	0	0.93	C	0–5
Bad Checks	2	1.29	0	0.50	C	0–4
Disorderly	10	3.99	-2	0.42	T	0–8
Drunk Driving	9	4.31	0	0.48	C	4–14
Drunkenness	8	4.13	-1	0.47	C	3–13
Family Offenses	0	0.35	0	0.00	T	0–0
Liquor Laws	4	3.88	-2	0.91	T	0–2
Runaway	0	0	0	0.00	C	0–0
Trespassing	7	3.37	-1	0.46	T	0–9
<b>Violent Total</b>	<b>120</b>	<b>23.82</b>	<b>-10</b>	<b>0.19</b>	<b>T</b>	<b>57–108</b>
<b>Property Total</b>	<b>404</b>	<b>79.10</b>	<b>-38</b>	<b>0.18</b>	<b>T</b>	<b>234–316</b>
<b>Total</b>	<b>515</b>	<b>112.78</b>	<b>-55</b>	<b>0.19</b>	<b>T</b>	<b>401–438</b>

With the lowest crime totals among the participating agencies, Melrose presents something of a paradox. Its 7-year crime trends have either been *dramatic* or *erratic*. For an example of the former, consider burglaries, which have decreased every year but one between 2012 and 2018, starting at a high of 86 in 2012 and reaching a low of 19 in 2016. The decrease is so steep that the predictive formula puts the window of its lower boundary at 0.

We also have a number of *erratic* categories, such as drunk driving, which ranged from 2 to 16 during the period while exhibiting no particular trend. Both dramatic and erratic crimes are hard to predict, but fortunately Melrose's generally-low volumes will make any new patterns easy to detect.

Also over concern is the agency's heavy use of the "all other" theft category, representing around 48% of its theft totals. More accurate coding of thefts (which we encourage regardless) might create illusory trends.

### Selected calls for service in Melrose

Crime	2012–2018 Average	Standard Deviation	C.V.	Slope	Prediction Type	Prediction Window
Abandoned Vehicle	5	2.70	0.56	0	C	2–8

Crime	2012–2018 Average	Standard Deviation	C.V.	Slope	Prediction Type	Prediction Window
Disabled Vehicle	51	11.78	0.23	3	T	42–83
Domestic Dispute	78	12.98	0.16	-5	T	47–78
General Service	1021	72.54	0.07	30	T	1086–1246
Gunshots	2	1.03	0.60	0	C	1–3
Lost Property	95	36.51	0.38	16	T	129–193
Medical	1474	157.20	0.11	68	T	1602–1923
Overdose	20	6.40	0.31	1	C	12–28
Suspicious Activity	507	40.45	0.08	10	T	489–630
Traffic Collision	576	39.89	0.07	5	C	528–624
Traffic Complaint	696	278.98	0.43	120	T	839–1417

Melrose showed the same issues with calls for service as with crime. They are mostly low, but somewhat erratic, creating large predictive windows.

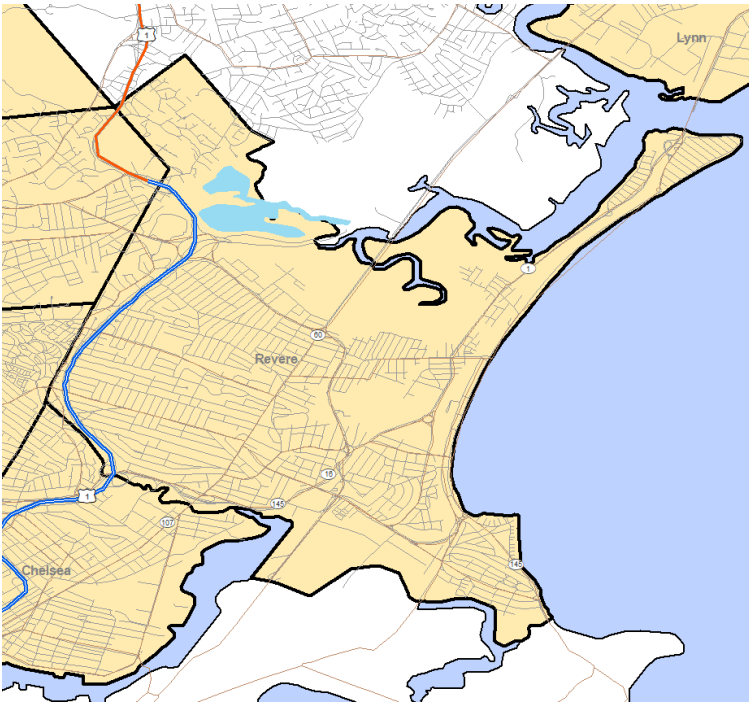
### Collisions in Melrose

Collision Category	2012–2018 Average	St. Dev.	C.V.	Slope	Prediction Type	Prediction Window
Vehicle in Traffic	182	18.23	0.10	6	T	185–240
Parked Vehicle	73	6.25	0.08	0	C	66–80
Pedestrian	9	1.73	0.20	0	C	7–11
Bicyclist	4	1.28	0.34	0	C	2–6
Animal	0	0.45	1.58	0	T	0–0
Fixed Object	24	3.64	0.15	1	T	23–34
Curb/Barrier/Embankment	9	2.23	0.24	0	C	6–12
Rollover/Non-Collision	1	0.88	0.68	0	C	0–2
Other/Unknown	10	1.60	0.16	-1	T	6–9
<b>Total</b>	<b>312</b>	<b>21.06</b>	<b>0.07</b>	<b>6</b>	<b>T</b>	<b>314–382</b>

Melrose has exhibited low and generally predictable collision volume. Analysis suggests high data quality and consistency in crash reporting at the agency, which will make changes all that easier to identify.



# Analysis of baseline activity: Revere



**Population (est. 2018):** 54,296

**Area:** 10.0 square miles

**Police officers:** 103

**City center distance to Encore:**  
3.52 miles

A reasonably busy north shore community, Revere shares a small part of its western border with Everett. It is far enough from Encore not to be in the facility's immediate area of influence, but the city might see increases in activity along travel routes or at hotels, restaurants, and shopping centers. The agency employs a full-time crime analyst, which always makes this process easier.

## Crimes in Revere

Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
Murder	1	0.83	0	0.97	C	0–2
Sexual Assault	40	12.09	1	0.28	C	25–55
Kidnapping	6	1.4	0	0.22	T	3–7
Robbery	53	14.69	-6	0.26	T	16–50
Aggravated Assault	178	14.26	1	0.07	C	161–195
Simple Assault	379	64.21	2	0.16	C	302–456
Threats	206	37.11	-4	0.17	C	161–251
Arson	3	2.49	-1	0.76	T	0–4
Burglary	147	31.36	-11	0.19	T	73–163
Theft from Persons	11	3.34	0	0.30	C	7–15
Purse-Snatching	11	4.36	-2	0.37	T	0–11
Shoplifting	186	48.68	19	0.25	T	205–333
Theft from Building	91	20.03	-6	0.20	T	42–104
Theft from Machine	0	0	0	0.00	C	0–0
Theft from Vehicle	69	14.39	3	0.20	C	52–86
Theft of MV Parts	5	3.25	1	0.60	T	3–14

Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
Other Theft	365	65.23	-16	0.16	T	228–459
Auto Theft	120	25.44	-12	0.19	T	63–107
Forgery	25	6.53	1	0.24	C	17–33
Fraud	87	11.97	1	0.13	C	73–101
Credit Card Fraud	29	11.01	-4	0.34	T	1–32
Identity Theft	42	8.1	-1	0.18	C	32–52
Employee Theft	7	2.13	-1	0.29	T	1–8
Stolen Property	29	7.87	0	0.25	C	20–38
Vandalism	375	73	-24	0.18	T	200–419
Drugs	88	19.29	-4	0.20	T	44–113
Drug Equipment	1	1.69	-1	1.69	T	0–1
Statutory Rape	7	3.24	0	0.48	C	3–11
Gambling	1	1.39	0	1.94	C	0–3
Pornography	4	2.9	1	0.75	T	2–12
Prostitution	5	2.12	1	0.57	T	3–10
Weapons	24	5.47	-1	0.22	C	17–31
Bad Checks	16	5.36	-2	0.29	T	3–18
Disorderly	82	14.45	0	0.17	C	65–99
Drunk Driving	56	23.14	9	0.39	T	63–125
Drunkenness	64	24.31	-9	0.34	T	3–72
Family Offenses	2	1.69	0	0.85	C	0–4
Liquor Laws	16	6.59	2	0.40	T	13–35
Runaway	0	0.7	0	0.00	T	0–1
Trespassing	36	9.5	1	0.25	C	25–47
<b>Violent Total</b>	<b>862</b>	<b>118.45</b>	<b>-6</b>	<b>0.13</b>	<b>C</b>	<b>720–1004</b>
<b>Property Total</b>	<b>1689</b>	<b>226.37</b>	<b>-58</b>	<b>0.12</b>	<b>T</b>	<b>1210–1994</b>
<b>Total</b>	<b>2787</b>	<b>365.11</b>	<b>-215</b>	<b>0.12</b>	<b>T</b>	<b>2262–3040</b>

Revere has seen decreases in crime during this period, but unlike many agencies, it did not decline steadily from 2012. Instead, it showed an increase between 2012 and 2014–2015, then saw decreases from 2015 onward. This makes the future of the trend less obvious and thus creates some large predictive windows.

### Selected calls for service in Revere

Crime	2012–2018 Average	Standard Deviation	C.V.	Slope	Prediction Type	Prediction Window
Abandoned Vehicle	133	32.04	0.23	12	T	143–231
Disabled Vehicle	331	67.13	0.20	22	T	328–533
Domestic Dispute	576	150.97	0.26	69	T	736–980
General Service	1301	241.09	0.17	-66	T	717–1528
Gunshots	31	17.77	0.57	7	T	37–81
Liquor	14	11.63	0.74	0	C	0–28
Lost Property	120	23.11	0.18	5	C	92–148
Medical	624	414.23	0.69	162	T	724–1767
Overdose	171	16.78	0.09	-3	C	151–191
Psychological	9	2.60	0.27	0	C	6–12
Suspicious Activity	1168	242.83	0.20	96	T	1299–1901

Crime	2012–2018 Average	Standard Deviation	C.V.	Slope	Prediction Type	Prediction Window
Traffic Collision	1651	280.90	0.16	139	T	2190–2330
Traffic Complaint	1033	359.36	0.34	211	T	1394–2243

Most call-for service categories have been trending upwards in Revere over the last 7 years but inconsistently, resulting in some large predictive windows in which changes will be hard to detect. Consider suspicious activity calls, which increased between 2012 and 2013, decreased through 2015, and then saw a dramatic increase through 2018.

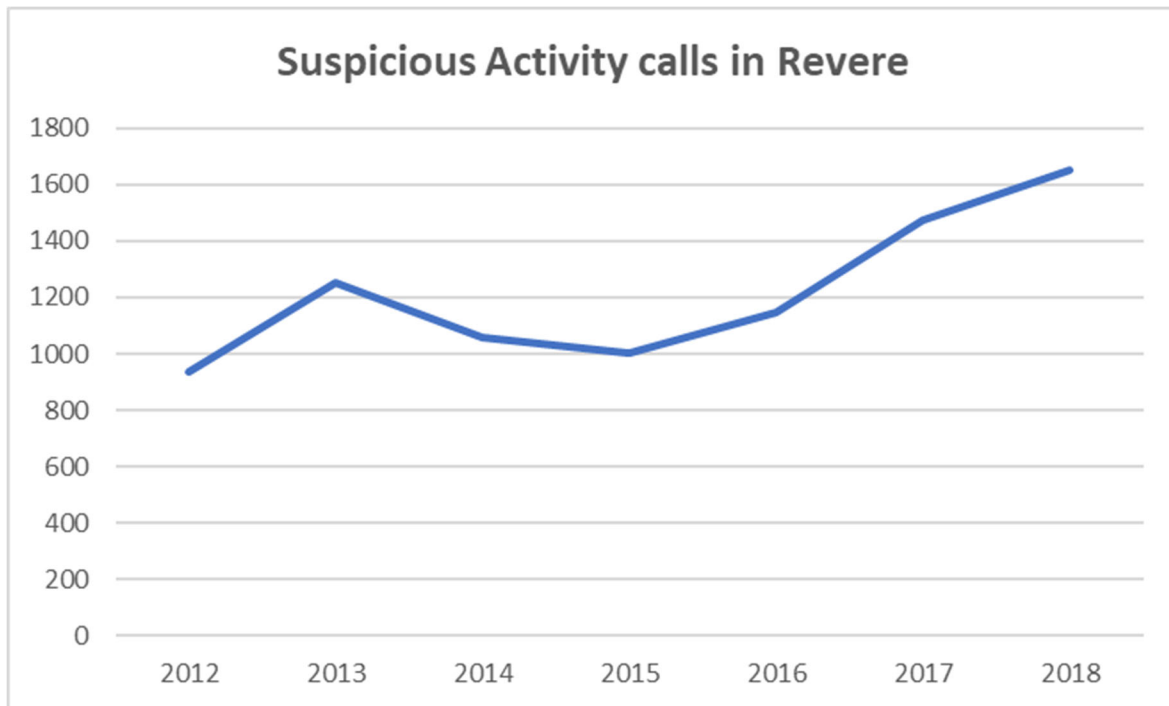


Figure 4: The change in suspicious activity calls over the years has been so erratic that the predictive window for 2019 is quite high.

Smaller time periods and smaller geographic areas within the city might tighten these windows and make changes occasioned by Encore easier to detect.

### Collisions in Revere

Collision Category	2012–2018 Average	St. Dev.	C.V.	Slope	Prediction Type	Prediction Window
Vehicle in Traffic	359	74.59	0.20	29	T	419–511
Parked Vehicle	82	21.37	0.26	9	T	94–131
Pedestrian	31	5.26	0.16	1	C	25–37
Bicyclist	7	2.49	0.32	0	C	4–10
Animal	1	1.05	2.45	0	C	0–2
Fixed Object	47	15.11	0.30	4	T	38–91
Curb/Barrier/Embankment	34	9.97	0.28	5	T	45–62
Rollover/Non-Collision	3	2.00	0.67	0	C	1–5
Other/Unknown	17	1.83	0.10	-1	T	14–19
<b>Total</b>	<b>581</b>	<b>118.49</b>	<b>0.19</b>	<b>47</b>	<b>T</b>	<b>680–849</b>

Revere has seen steady increases in collisions since 2012, a situation not likely to change with extra traffic on Route 1 and Revere Beach Parkway (Route 16).

# Analysis of baseline activity: Somerville



**Population (est. 2018):** 82,161

**Area:** 4.2 square miles

**Police officers:** 124

**City center distance to Encore:**  
1.45 miles

The most densely populated city in New England, Somerville sits across the Mystic River from Everett. Once known as Cambridge’s working-class sibling, Somerville has experienced significant growth and revitalization in the 21st century, greatly reducing its historic crime rate. A full-time crime analyst is contributing her expertise to this project.

The neighborhood most likely to be affected by the proximity of the casino is Assembly Square, soon to be connected to Encore Boston Harbor by a pedestrian footbridge across the Mystic. This should bring additional visitors to the already well-trafficked shops and restaurants on Assembly Row.

## Crimes in Somerville

Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
Murder	0	0.73	0	0.00	C	0–1
Sexual Assault	43	8.25	0	0.19	C	33–53
Kidnapping	5	1.18	0	0.22	T	2–6
Robbery	50	14.02	-5	0.27	T	13–51
Aggravated Assault	122	13.55	-3	0.10	T	92–139
Simple Assault	215	34.39	3	0.16	C	174–256
Threats	38	17.14	-5	0.43	T	25–47
Arson	6	6.94	-1	1.03	C	5–14
Burglary	241	95.1	-38	0.37	T	120–225
Theft from Persons	0	0	0	0.00	C	0–0
Purse-Snatching	0	0	0	0.00	C	0–0
Shoplifting	0	0	0	0.00	C	0–0
Theft from Building	61	13.73	3	0.22	T	52–100
Theft from Machine	0	0	0	0.00	C	0–0

Crime	2012–2018 Average	St. Dev.	Slope	C.V.	Prediction Type	2019 Prediction
Theft from Vehicle	258	101.33	-48	0.37	T	90–144
Theft of MV Parts	1	0.53	0	0.53	T	1–3
Other Theft	522	100.96	-36	0.18	T	265–550
Auto Theft	107	14.75	-3	0.13	T	72–125
Forgery	30	11.33	4	0.36	T	33–64
Fraud	119	25.87	3	0.21	C	88–150
Credit Card Fraud	48	26.57	9	0.56	T	46–123
Identity Theft	108	52.43	19	0.48	T	111–258
Employee Theft	1	0.73	0	1.27	C	0–2
Stolen Property	0	0	0	0.00	C	0–0
Vandalism	287	60.43	-27	0.20	T	141–248
Drugs	70	12.21	1	0.16	C	55–85
Drug Equipment	0	0	0	0.00	C	0–0
Statutory Rape	4	2.95	-1	0.71	T	0–3
Gambling	0	0	0	0.00	C	0–0
Pornography	3	1.2	0	0.40	C	2–4
Prostitution	4	2.7	-1	0.65	T	0–3
Weapons	37	6.82	-1	0.18	C	29–45
Bad Checks	0	0	0	0.00	C	0–0
Disorderly	79	14	-7	0.17	T	47–68
Drunk Driving	32	8.07	1	0.23	C	22–42
Drunkenness	0	0	0	0.00	C	0–0
Family Offenses	45	12.64	-5	0.27	T	11–45
Liquor Laws	16	4.22	-1	0.26	T	4–17
Runaway	0	0	0	0.00	C	0–0
Trespassing	22	6.16	3	0.27	T	26–40
<b>Violent Total</b>	<b>474</b>	<b>49.25</b>	<b>-12</b>	<b>0.10</b>	<b>T</b>	<b>359–484</b>
<b>Property Total</b>	<b>1858</b>	<b>297.45</b>	<b>-115</b>	<b>0.15</b>	<b>T</b>	<b>1120–1679</b>
<b>Total</b>	<b>2422</b>	<b>363.90</b>	<b>-141</b>	<b>0.13</b>	<b>T</b>	<b>1982–2804</b>

Somerville has experienced significant decreases in violent and property crimes during the past 7 years. Robbery, burglary, thefts from vehicles and vandalism have all been cut in half or more. Such dramatic increases make for unhelpfully large predictive windows. Thus, analysis of changes in Somerville might be best accomplished by breaking the city into smaller geographies.

### Selected calls for service in Somerville

Crime	2012–2018 Average	Standard Deviation	C.V.	Slope	Prediction Type	Prediction Window
Abandoned Vehicle	23	5.67	0.25	0	C	16–30
Disabled Vehicle	198	35.48	0.18	15	T	225–296
Domestic Dispute	573	84.11	0.14	-36	T	366–546
General Service	1937	240.70	0.12	28	C	1648–2226
Gunshots	43	10.81	0.25	-1	C	30–56
Liquor	383	96.27	0.24	-41	T	139–339
Lost Property	310	40.93	0.13	-12	T	211–348

Crime	2012–2018 Average	Standard Deviation	C.V.	Slope	Prediction Type	Prediction Window
Medical	9011	4598.13	0.47	-1353	T	4700–7813
Overdose	69	51.58	0.74	19	T	74–216
Psychological	341	86.34	0.25	41	T	453–555
Suspicious Activity	954	136.34	0.14	-25	C	790–1118
Traffic Collision	2530	393.13	0.15	-75	C	2058–3002
Traffic Complaint	1656	749.21	0.47	324	T	2142–3660

Somerville has shown mostly erratic trends in its call-for-service data over this period, making the prediction windows unusefully large. Breaking up the numbers into small geographic neighborhoods will be more useful when it comes to assessing change.

### Collisions in Somerville

Collision Category	2012–2018 Average	St. Dev.	C.V.	Slope	Prediction Type	Prediction Window
Vehicle in Traffic						
Parked Vehicle						
Pedestrian						
Bicyclist						
Animal						
Fixed Object						
Curb/Barrier/Embankment						
Rollover/Non-Collision						
Other/Unknown						
<b>Total</b>	<b>575</b>	<b>56</b>	<b>0.10</b>	<b>9</b>	<b>C</b>	<b>491-659</b>

Somerville did not implement electronic crash reporting using the agency's records management system until 2018. Data provided for the period prior to 2018 lacks the "category" field, although it may be ultimately possible to assemble some of the categories from other variables. For now, totals are provided.

# Spatial patterns of activity

Crime among the contributing communities tends to follow several broad geographic patterns regardless of the crime. The highest densities for most crimes (relative to the data contributed by all 8 communities) are found in the center of Chelsea and an east-west linear hot spot between East and West Lynn.

Other hot spots change depending on the crime. For burglaries, in addition to Chelsea and Lynn, we see high density in downtown Everett and the East Somerville, Prospect Hill, Winter Hill and Spring Hill neighborhoods of Somerville. The Bunker Hill area of Charlestown pops out for thefts from vehicles, as does a residential neighborhood in east Everett around the hospital. Gun violence stretches from its Chelsea hot spot westward into the center of Everett and also pops up in a residential neighborhood east of Malden Center and the intersection of Washington Street and McGrath Highway in Somerville.

No matter what crimes we put on the map, the area immediately around Encore Boston Harbor shows low crime rates historically.

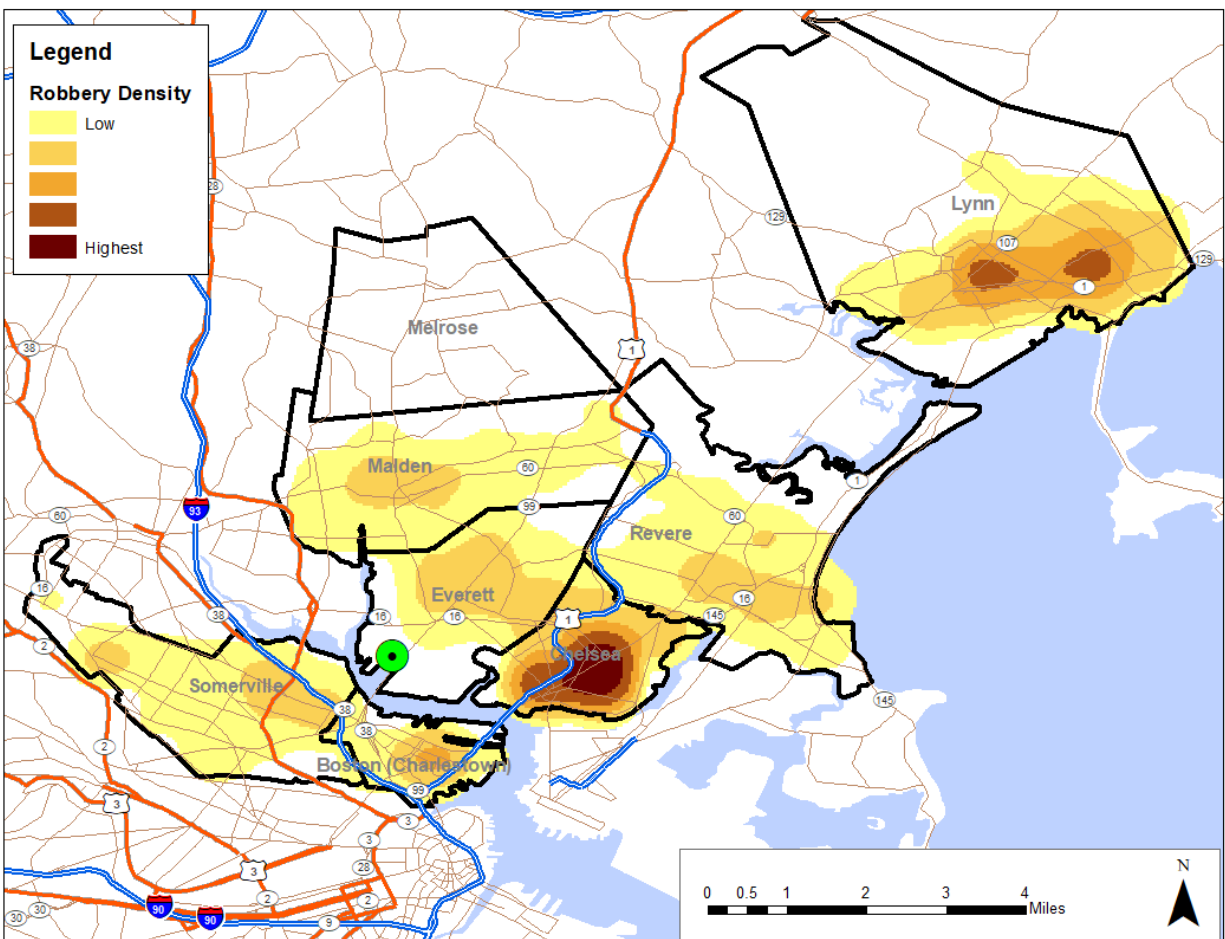


Figure 5: Robbery density among the contributing communities.



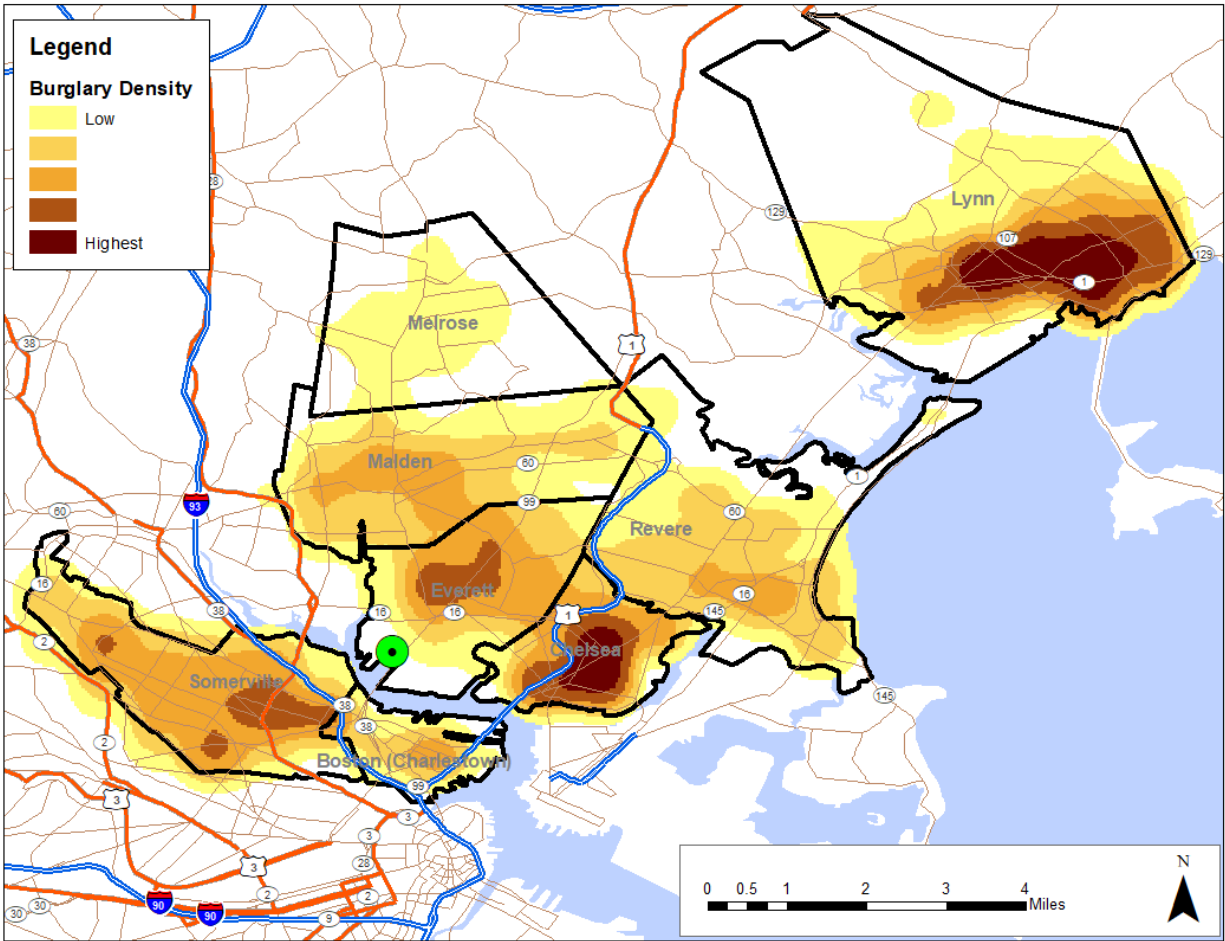


Figure 6: Burglary density among the contributing communities

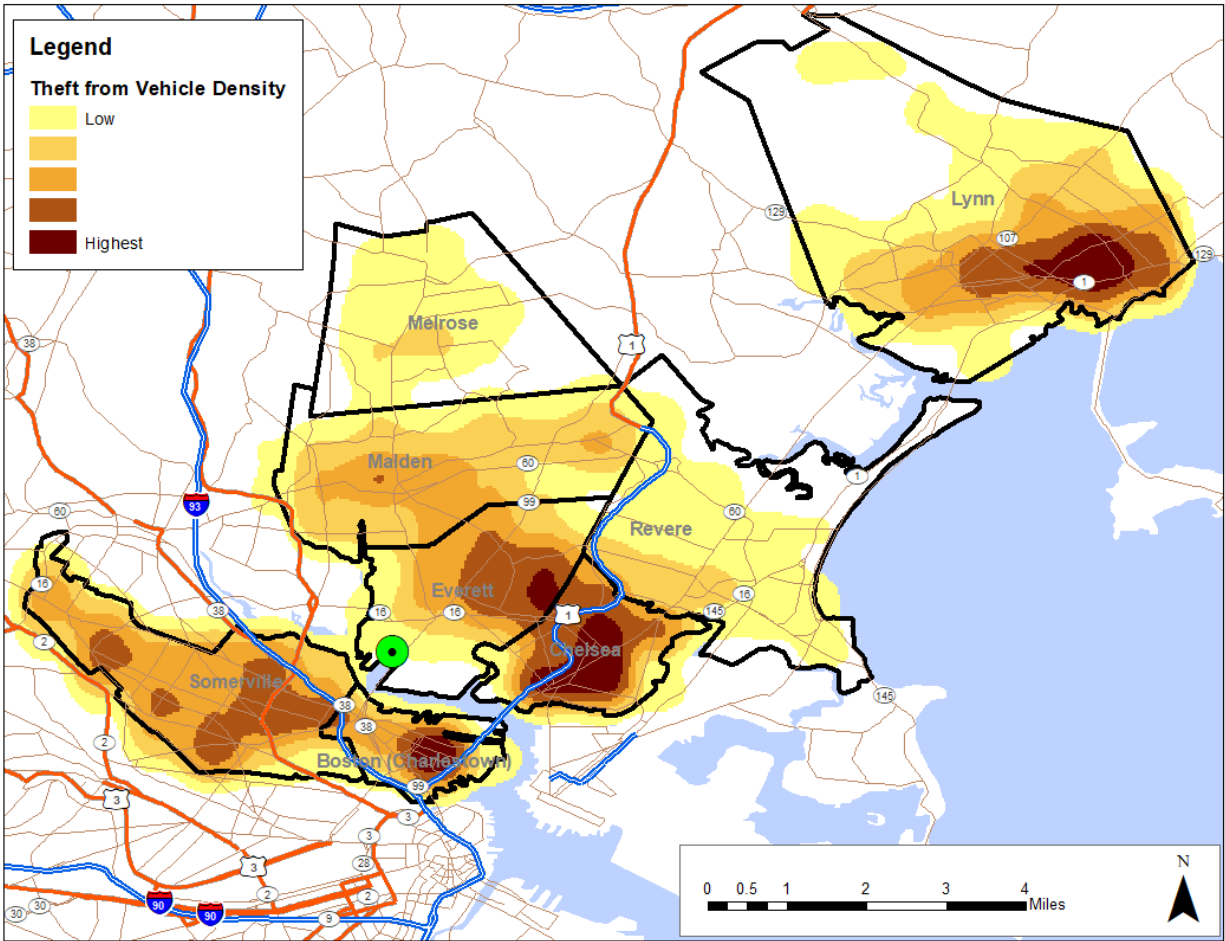


Figure 7: Theft-from-vehicle density among the contributing communities.

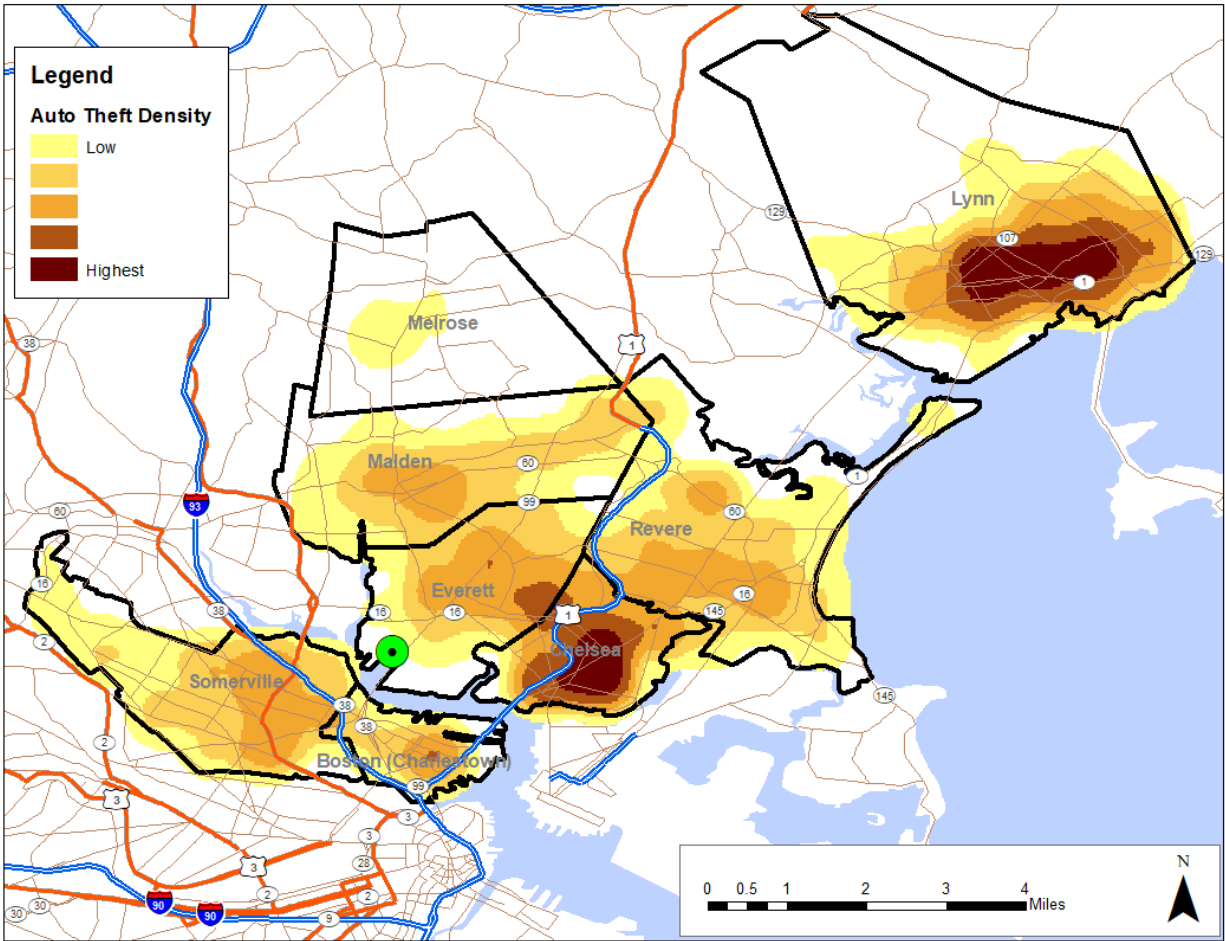


Figure 8: Auto theft density among the contributing communities.

### Possible effects based on travel patterns

The primary concern that many surrounding communities will face is a simple increase in traffic. Even without any criminal intent, a traffic increase brings traffic collisions, traffic complaints, disabled vehicles, medical issues, lost property, suspicious activity complaints, disturbances, and a variety of other calls for service related to the sheer number of people in an area.

Encore Boston Harbor’s position ensures that most vehicle traffic will arrive by one of six routes:

- **From the north:** Route 1 southbound, across the Tobin Bridge, to Rutherford Avenue, then across the Malden Bridge to Encore
- **Alternate from the north:** Route 1 southbound to Route 16 west to Broadway
- **From the south:** I-93 to Exit 28 in Somerville, across the Malden Bridge to Encore
- **From metro Boston/Cambridge:** Soldier’s Field Road/Storrow Drive or Memorial Drive to the Gilmore Bridge to Route 99 to the Malden Bridge to Encore
- **From the west:** I-90 east to I-93 north to exit 28 in Somerville, across the Malden Bridge to Encore
- **From the northwest:** I93 south to exit 28 in Somerville, across the Malden Bridge to Encore

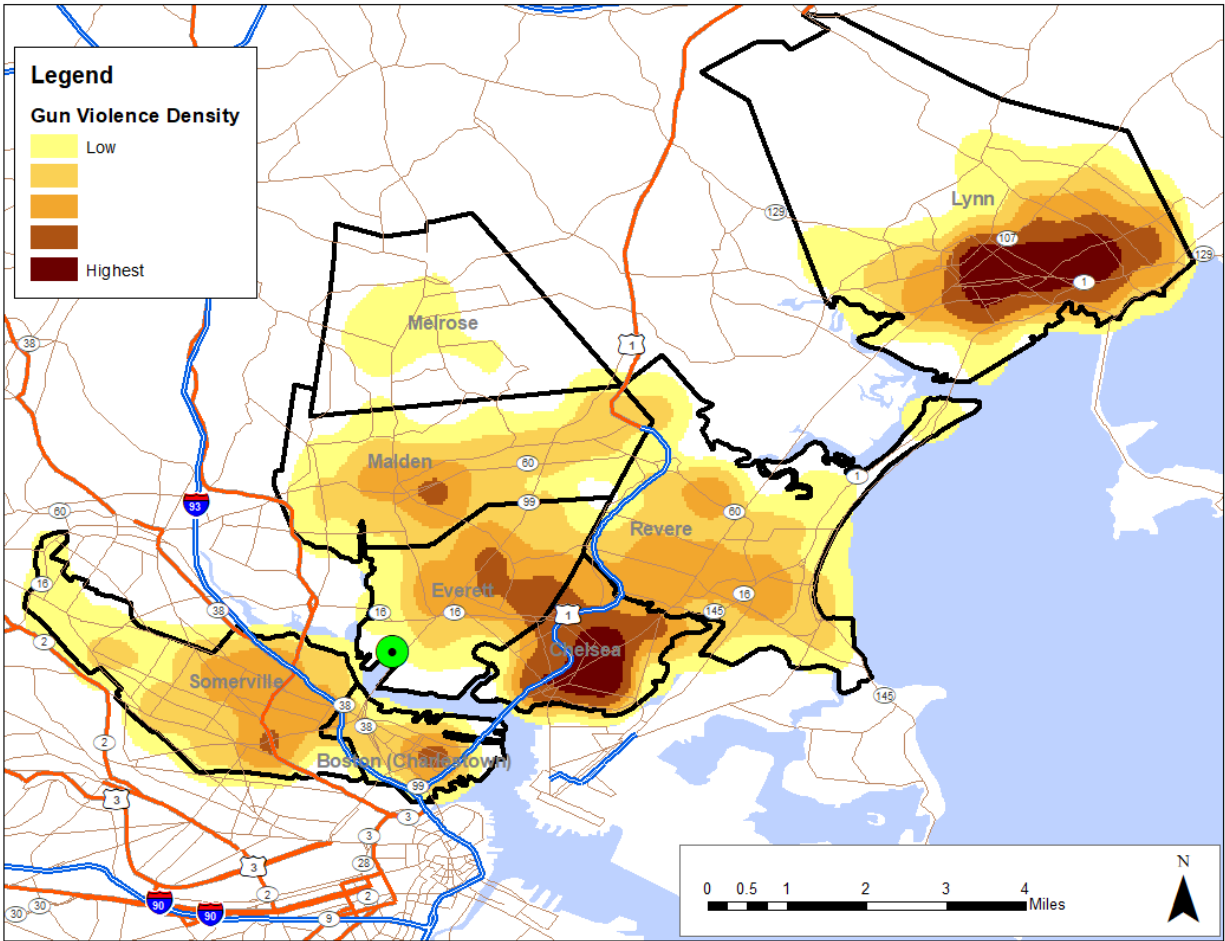


Figure 9: Gun violence density among the contributing communities

Extra traffic on these routes—which might be scarcely noticeable given the volume the highways already support—will mostly impact the State Police. Local communities will have to be concerned with travelers using their routes exits for food, gas, lodging, and shopping, and thus it will be important to analyze changes along local routes and within a certain radius of highway exits. These include:

- Exits off Route 1 in Revere and Chelsea
- Businesses along Route 16 through Everett, Chelsea, and Medford
- Exits off I-93 in Charlestown, Somerville, and Medford
- The river roads through Boston and Cambridge
- The local streets immediately around the casino

It is beyond the scope of this report to estimate the actual traffic volume on these routes, and of course any individual traveler may have reasons for ignoring his GPS; traffic is likely to increase in general on other local roads. Nonetheless, it will be important to analyze changes in activity on likely travel routes in particular.

## Possible effects in immediate casino area

Encore Boston Harbor was built in an area that had previously been an unsightly industrial area. As such, there was little to no crime in the surrounding area, with the exception of a small smattering in the mixed residential/commercial area east of Broadway.

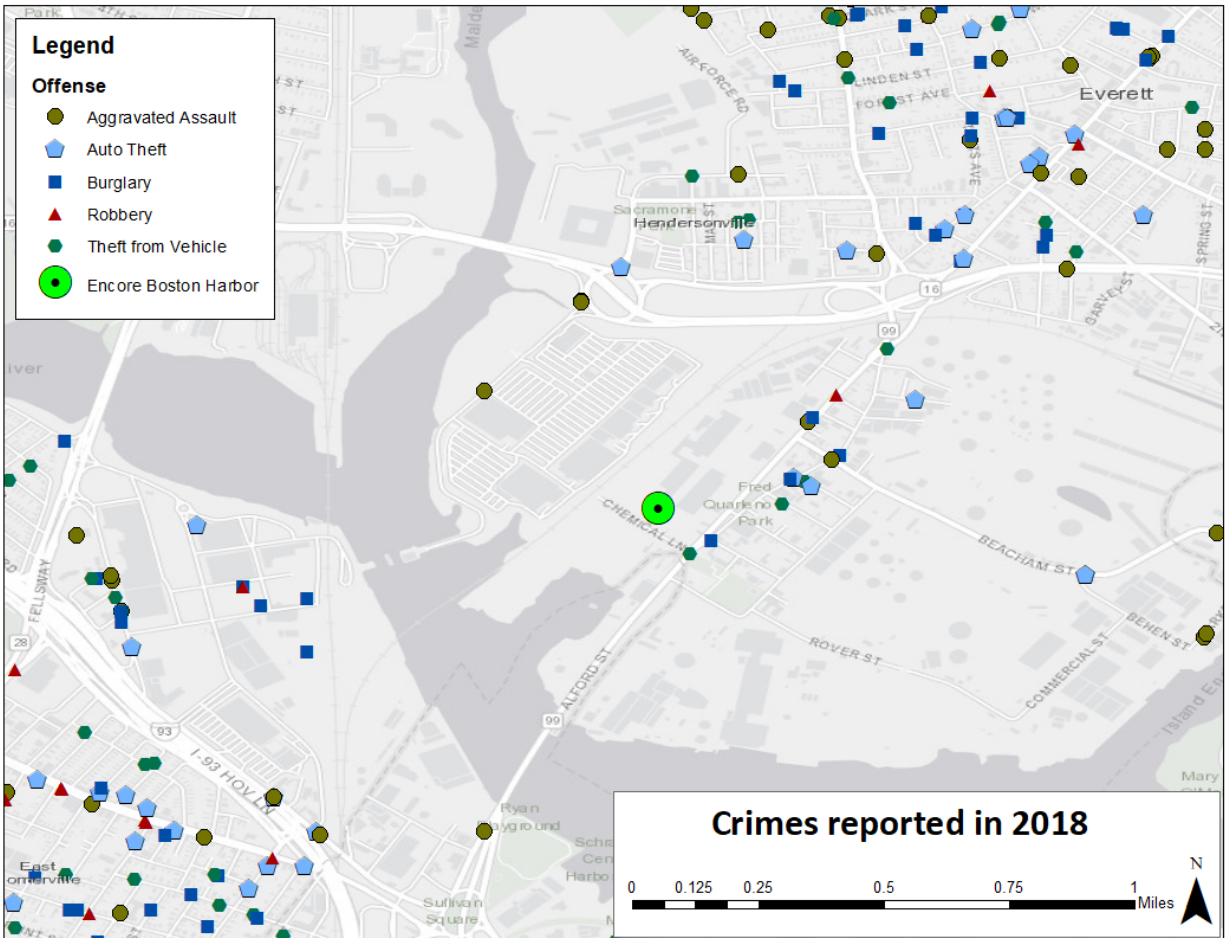


Figure 10: A map of selected crimes shows that the immediate area around Encore Boston Harbor had few crimes in 2018.

Unlike MGM Springfield, which was constructed in the middle of a busy commercial area with a high existing crime rate, where the extra law enforcement presence and “legitimate” traffic could help suppress historic crime hot spots, the Encore Boston Harbor neighborhood can really only increase. Whether new crime is confined largely to the casino itself (as it has generally been in Plainville and Springfield) or whether it spreads to the surrounding neighborhood is something future reports will analyze in detail.

In addition to the immediate blocks and streets around Encore, including the Gateway shopping center, we will be looking carefully at the Assembly Square neighborhood in Somerville, soon to be connected to Encore by a pedestrian bridge. This mixed residential/commercial neighborhood has undergone significant revitalization over the past decade and stands to gain more traffic from the proximity of Encore.

## Location type

If crimes do increase in the areas surrounding Encore Boston Harbor, we might expect them to increase particularly at the types of establishments frequented by users of a casino (or any entertainment venue),

particularly hotels, restaurants, bars, and transit hubs. Calculating baseline volumes by type of location allows us to measure these specific changes.

Location type codes are based on IBR definitions. See the appendix for a list of crimes in each category.

**Average annual crimes by category at selected location types, all participating agencies**

Location Type	Violent Crimes	Property Crimes	Drug/Alcohol Crimes	Societal Crimes	Other Crimes
Air/bus/train terminal	12	14	4	1	11
Bank	31	224	3	1	29
Bar	62	51	15	11	38
Church	9	34	2	1	16
Commercial Building	18	150	2	2	1
Construction Site	5	44	1	1	14
Convenience store	110	240	16	6	51
Department store	35	496	12	6	55
Drug store/Doctor/Hospital	53	161	11	5	103
Field/woods	22	13	6	3	41
Gas station	23	85	3	1	18
Government/public building	87	104	17	10	245
Grocery store	45	309	10	3	79
Hotel/motel	30	41	7	9	43
Liquor store	12	33	2	1	9
Office	29	130	6	4	84
Park	37	25	7	3	12
Parking lot/garage	134	826	50	16	121
Residence	3047	4369	209	127	2605
Restaurant	92	198	38	14	131
School	154	154	15	23	148
Specialty store	34	260	5	3	28
Street	1462	2912	747	306	2288

# State police data

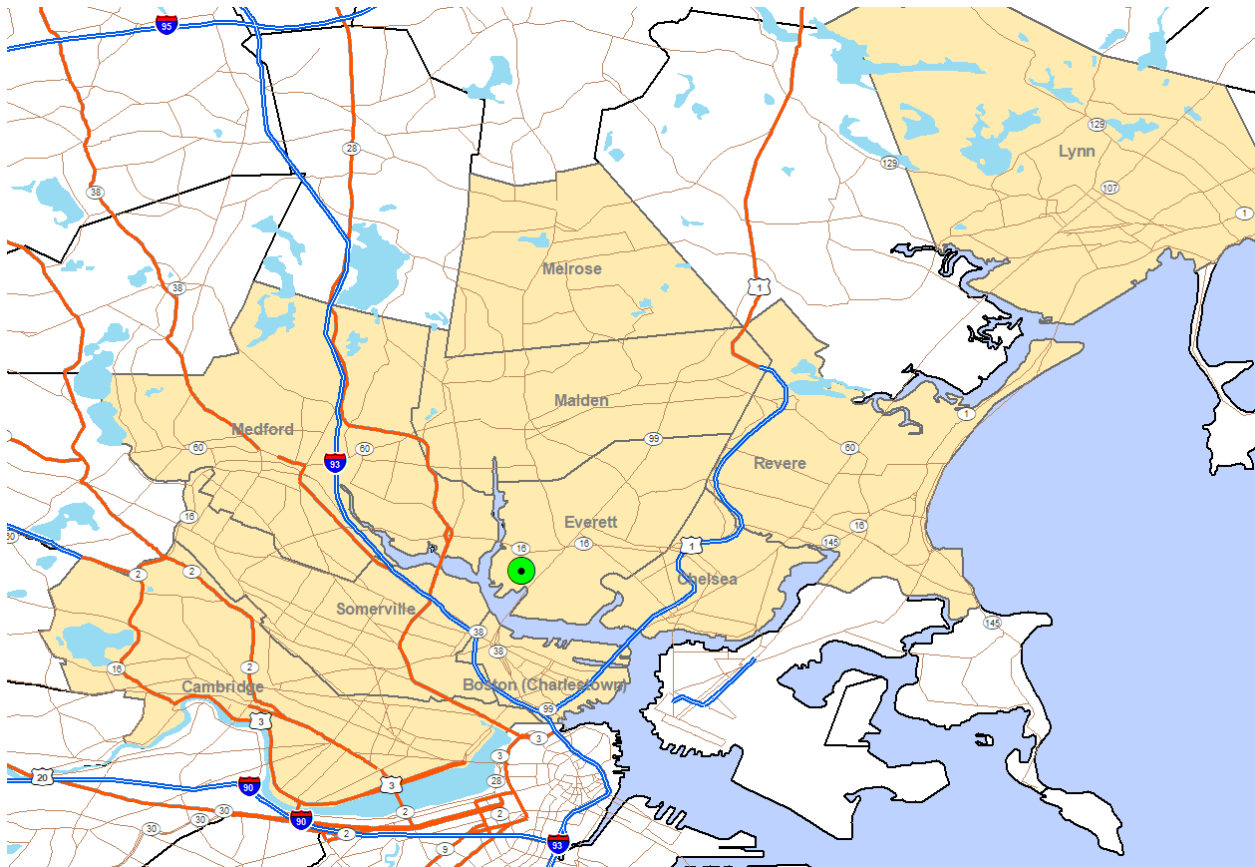


Figure 11: A network of State Police-patrolled highways and routes feeds the Encore Boston Harbor area.

State Police patrol state highways (principally I-90, I-93, and U.S. Route 1) in the Boston area, plus state properties and parks. They assist local police in response to some crime issues, and the State Police Gaming Enforcement Unit has taken over primary enforcement responsibilities at Encore Boston Harbor.

The Massachusetts State Police operate a records system with different conventions and reporting rules than the local agencies, so the categories and totals are not directly compatible. In some cases, where both agencies responded to an incident, the two systems may duplicate each other.

Naturally, the State Police are poised to see an increase in traffic on state roads that feed Encore Boston Harbor as well as at the casino itself. This will primarily be reflected in traffic-related calls for service and crimes, including collisions, drug possession, and drunk driving.

The data below comes from a combination of multiple State Police stations, including A-5 (Revere), A-4 (Medford), H-5 (Brighton), H-4 (downtown Boston), A-6 (Danvers), a section of Troop E eliminated and re-allocated in 2018, and various mobile statewide units such as headquarters units, canine units, and investigators.



## Selected activity

Activity	2012–2018 Average	Standard Deviation	C.V.	Slope	Predictive Method	Predictive Window
911 Hangup or Error	6	2.19	0.64	0	C	3–9
Abandoned Vehicle	15	2.39	0.16	0	C	12–18
Abduction	2	1.67	0.97	-1	T	0–2
Alarm	16	4.20	0.27	-1	C	11–21
All Other	407	109.41	0.26	22	C	276–538
Animal Complaint	67	16.57	0.25	3	C	47–87
Arson	2	1.46	0.68	0	C	0–4
Assault	50	11.20	0.22	-1	C	37–63
Assist Other Agency	408	56.94	0.14	27	T	496–563
Bomb Threat	4	3.49	0.81	-1	T	0–3
Burglary	17	6.49	0.36	-2	T	0–21
Death	254	19.78	0.07	4	C	230–278
Disabled Vehicle	1570	149.97	0.09	-37	T	1220–1747
Disorderly	242	23.62	0.09	-2	C	214–270
Domestic Dispute	16	5.17	0.31	1	C	10–22
Drugs	33	10.29	0.30	1	C	21–45
Field Interview	24	8.02	0.33	2	T	21–47
Fire	120	13.50	0.11	-4	T	87–132
Found Property	3	1.88	0.60	0	C	1–5
General Service	189	85.48	0.47	32	T	196–422
Gunshots	17	4.23	0.24	1	C	12–22
Investigation	212	17.75	0.08	-7	T	166–215
Liquor	20	6.31	0.29	1	C	12–28
Lost Property	37	5.79	0.16	2	T	35–52
Medical	295	22.37	0.07	3	C	268–322
Missing Person	38	9.89	0.25	0	C	26–50
Municipal or Utility	163	38.42	0.23	-3	C	117–209
Other Theft	22	11.22	0.50	-5	T	0–15
Prisoner Transport	263	130.53	0.53	47	T	252–618
Psychological	16	4.49	0.26	-1	C	11–21
Recovered Vehicle	59	27.21	0.44	-11	T	0–53
Road Conditions	339	50.25	0.14	6	C	279–399
Robbery	16	4.24	0.25	-1	T	5–20
Suspicious Activity	114	21.28	0.19	-2	C	88–140
Threats or Harassment	11	2.78	0.28	1	T	10–18
Traffic Collision	3619	205.79	0.05	97	T	4037–4308

In situations where local police usually handle the report, as in most crimes, State Police activity varies considerably from year to year, though maintaining low numbers overall. But for highway-specific activity such as aggressive driving, disabled vehicles, erratic driving, vehicle stops, and traffic collisions, the figures are more consistent and predictable and thus will make it easier to note changes occasioned by the extra traffic in the area.

Note that these categories are based on the initial circumstances of the call and not necessarily the final criminal charges. The number of drug arrests is likely far higher than indicated here, as they would have initially been coded as vehicle stops, suspicious activity, or some similar call type.



### Crashes on state roadways

Activity	2012–2018 Average	Standard Deviation	C.V.	Slope	Predictive Method	Predictive Window
Route 16	754	57.20	0.07	23	T	812–949
I-93	418	38.16	0.09	8	C	372–464
Route 28	416	14.82	0.03	4	T	430–481
Route 1	323	36.62	0.11	11	T	328–446
Memorial Drive	195	24.52	0.12	-10	T	138–195
Route 1A	114	9.36	0.08	2	C	103–125
Alewife Brook Pkwy	100	12.30	0.12	3	T	95–136
Route 38	90	8.00	0.08	1	C	80–100
Fresh Pond Pkwy	60	11.87	0.19	5	T	71–95
Lynnway	85	11.88	0.13	-3	T	58–99
Mystic Avenue	57	19.36	0.34	8	T	71–111
Revere Beach Blvd	56	9.66	0.17	4	T	64–82
Route 2	49	3.73	0.07	2	T	54–62
Revere Beach Pkwy	59	15.12	0.23	-4	T	23–74
Roosevelt Circle	41	10.55	0.25	3	T	35–72
Lynn Fells Pkwy	29	8.61	0.29	1	C	19–39
Msgr. O'Brien Hwy	40	5.90	0.15	2	T	39–57

State police-patrolled roadways show reasonably predictable crash volumes over the 7-year period, which should make it easier to detect if extra traffic heading to Encore Boston Harbor occasions any changes.

# Conclusion and planned analysis of changes

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Encore Boston Harbor is in the middle of a densely-populated, urban area with relatively invisible borders between communities. Existing crime patterns and trends are frequently shared by multiple agencies, and public transportation facilitates travel among them. Communities close to Encore will likely see increases in crimes and calls for service if based on nothing else than extra volumes of people and cars in the area.

The question is whether such changes will be detectable amidst the overall volume experienced in the area. No city or town in the Encore Boston Harbor region has a high crime rate by national standards, but each one has enough crime, crashes, and calls for service—based on population alone—that new trends caused by Encore may be hard to detect within the existing sea of data. It will be particularly important in this project for agencies to record incidents and offenders that they *know* are related to the casino, and it will be necessary to conduct effective spatial analysis around transportation routes and hubs.

Encore Boston Harbor opened on 23 June 2019, meaning that the participating agencies will have four months of post-casino data shortly after this report is released. In November or December of 2019, I will perform another extract from each of the participating agencies' records management systems and compare activity in previous July–October periods to what happened after the opening of Encore. I will:

- Assess in overall volume of crimes, calls for service, and collisions in this period
- Analyze for patterns in any categories that did experience significant change
- Look for changes in hot spots and temporal patterns, including those immediately around the casino
- Study changes in offender and victim demographics, including journey to crime
- Flag emerging problems involving particular types of crime, properties, or offenders

The analysis of the Encore area will have to use multiple methods of looking at change, some to account for trends that were already increasing or decreasing before the casino was built. This will bring a greater statistical complexity to this project's evaluations.

I will work with the agencies and their records management vendors to find a standardized method for flagging incidents that have a known relationship to the casino. While this will not provide a comprehensive statistical measure of casino-related crimes (particularly since the offender is unknown in most incidents), it will help identify casino-specific trends.

In all my work, of course, I will work closely with each of the participating agencies, and particularly the region's crime analysts, to achieve their perspectives and additional data elements.

I will repeat this analysis in the spring of 2020, after which the Massachusetts Gaming Commission and the participating agencies will help determine if continual four-month reports are needed or whether we can move to a 6-month report cycle.

# Appendix: Abbreviations and definitions

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## Acronyms and abbreviations

CAD	Computer-aided Dispatch (system)	A police database that holds information about police dispatches to calls for service, including incidents discovered by police officers. Some but not all of the incidents reported in CAD are crimes and have longer records in the RMS.
IBR	Incident-based reporting	See NIBRS.
MGC	Massachusetts Gaming Commission	The commonwealth agency charged with overseeing and regulating gaming in Massachusetts
FBI	Federal Bureau of Investigation	National investigative agency, part of the U.S. Department of Justice, in charge of collecting national crime statistics.
IACA	International Association of Crime Analysts	A global nonprofit professional association that provides training, literature, and networking to individuals who analyze crime data.
MACA	Massachusetts Association of Crime Analysts	A nonprofit professional association that provides training, literature, and networking to individuals who analyze crime data in New England.
NIBRS	National Incident-based Reporting System	FBI program for data collection that supersedes UCR. Collects more specific data about a wider variety of crimes. With only a few exceptions, all Massachusetts agencies report to NIBRS and all Massachusetts RMS vendors have implemented NIBRS coding standards.
ODBC	Open Database Connectivity	A technology developed by Microsoft that allows any application that uses a database to connect to any database source. The primary mechanism by which we can extract data from police CAD and RMS databases.
PVTA	Pioneer Valley Transit Authority	The organization that operates bus service and other public transportation in western Massachusetts.
RMS	Records Management System	A police data system that stores information about crimes and offenders. See also CAD.
SEIGMA	Social and Economic Impacts of Gaming in Massachusetts	A multi-year research project hosted by the University of Massachusetts Amherst School of Public and Health Sciences. The SEIGMA project has a much broader mandate for its study than just crime.
UCR	Uniform Crime Reporting (program)	National program for the reporting of crime statistics to the FBI. Captures only summary data about a limited number of crime types. Contrast with NIBRS.

## Crime definitions

The following are definitions of the crime categories used in this report. These are mostly drawn without modification from the FBI's definitions for NIBRS crime categories. In almost all cases, *attempts* to commit these crimes are counted equally with completed offenses. These crimes must, of course, be reported to the police to be included in this report.

**Aggravated Assault:** An attack by one person upon another for the purpose of inflicting severe bodily injury. Aggravated assault is either accompanied by the use of a deadly weapon (e.g., gun, knife, club) or some mechanism that would result in serious harm (e.g., pushing someone down a staircase), or by serious injury even with a weapon that isn't normally "deadly" (e.g., punching someone and breaking his jaw). If the incident involved neither a deadly weapon nor serious injury, it's coded as a simple assault instead.

**Arson:** Intentional burning of a structure, vehicle, or personal property.

**Auto theft:** Thefts of vehicles capable of operating under their own power, including automobiles, trucks, buses, motorcycles, and snowmobiles.

**Bad checks:** The issuance of checks on accounts with insufficient funds. This type of crime is typically only reported by police when an arrest is made or an individual is charged.

**Burglary:** Unlawful entry of a structure, including residences, commercial buildings, and government buildings. The entry does not have to occur by force (e.g., a "break-in"). The usual motive for burglary is to steal something inside, but this isn't a necessary part of the definition.

**Counterfeiting/forgery:** Use or possession of an altered, copied, or imitated negotiable or non-negotiable instrument, including U.S. currency, checks, and money orders.

**Credit card fraud:** Use of a stolen credit card or credit card data to obtain goods or services.

**Disorderly:** Disorderly conduct that rises to the level of a criminal charge.

**Drug offenses:** Manufacturing, sale, trafficking, transporting, or possession of controlled substances. Typically, "incidents" of such crime are arrests, as the only way such incidents are reported is when they are discovered by the police.

**Drunk driving:** Operation of a motor vehicle while intoxicated; usually while above a state-designated legal blood alcohol level. As with many of the drug and alcohol categories, such incidents are only reported when discovered by the police, usually resulting in an arrest.

**Drunkness:** Naturally, not all incidents of intoxication are a police matter. Police incidents that fall into this category are usually incidents of either public intoxication or individuals so dangerously intoxicated that they are placed into protective custody until sober.

**Employee theft:** Also, "embezzlement." Theft of an employer's property by an employee.

**Extortion:** Theft or attempted theft of money, goods, or services through non-violent coercion.

**Family offenses:** Unlawful, nonviolent acts by a family member that threaten the physical, mental, or economic well-being of another family member and are not classified under any other category. This category is only reported when someone is charged, and it almost always involves violations of restraining orders or child neglect.

**Forgery:** Forgery of personal checks, business checks, U.S. currency, or similar negotiable and nonnegotiable documents.

**Fraud.** Theft of property by lying in such a way that convinces a victim to surrender money or goods. It is theft through some kind of scheme, "con game," or ruse.

**Gambling offenses:** Crimes related to illegal gambling, promoting gambling, operating gambling machines, bookmaking, and sports tampering.

**Identity theft:** Representation of oneself as another (actual) person or use of another person's identifying information to obtain goods or services, housing, medical care, or status.

**Kidnapping:** The abduction of one person by another, whether through force or guile. Most incidents coded as such as "custodial" kidnappings involving a parent taking a child in violation of a custodial agreement.

**Liquor law violations:** Illegal manufacturing, sale, possession, or consumption of intoxicating drinks, often because the offender is below the legal age.

**Murder:** the killing of one person by another, including non-negligent homicides.

**Other thefts:** A general category that includes thefts of services (e.g., gas drive-offs), thefts from persons (e.g., pocket-picking), thefts from outdoor public areas. Essentially, any non-burglary, non-robbery theft that is not covered in one of the "theft" or "shoplifting" categories (below) is categorized here.

**Pornography:** Possession, sale, or manufacturing of illegal pornography. Since pornography is legal in Massachusetts, such incidents generally involve minors, either as the subjects or recipients of the pornography.

**Property crime:** An aggregate category that sums the totals of arson, burglary, thefts from persons, purse snatching, shoplifting, thefts from buildings, thefts from machines, thefts from vehicles, thefts of vehicle parts, other theft, auto theft, forgery, fraud, credit card fraud, identity theft, employee theft, extortion, stolen property, and vandalism.

**Prostitution:** Promotion or participation of sexual activities for profit. As with drug offenses, most "incidents" of prostitution are arrests, as the crime is rarely reported except when discovered by the police.

**Purse snatching:** A theft in which an offender grabs a purse off the arm of the victim. If any significant force, violence, or threats are employed, this crime becomes a robbery.

**Robbery:** Taking or attempting to take anything of value from another person by force or violence or threat of force or violence. "Muggings" and "hold-ups" are examples of robberies. A robbery requires a direct confrontation between the offender and victim; houses and buildings cannot be "robbed."

**Sexual assault:** Any sexual act directed against another person (of either sex), either by force or otherwise against the person's will, or non-forcibly but when the victim is incapable of giving consent because of temporary or permanent mental or physical incapacity. This category combines rapes, indecent assaults, molestation, and sexual penetration with an object.

**Shoplifting:** Thefts of items offered for sale at retail establishments.

**Simple assault:** An assault that does not involve a dangerous weapon and does not result in significant injury.

**Statutory rape:** Nonforcible sexual activity with an individual who is unable to give legal consent because of age.

**Stolen property offenses:** Possession or sale of property previously stolen including motor vehicles and personal property. Often, the person possessing the property is the one who stole it in the first place, but this category is used when the actual thief cannot be determined.

**Thefts from buildings:** Thefts of items from commercial or government buildings open to the public, where such entry does not constitute burglary. This often takes the form of thefts of employees' property at businesses open to the public.

**Thefts from machines:** Thefts from coin-operated machines, either for the coins or for the products inside.

**Thefts from persons:** Thefts of personal property from the direct control of the owner. These often take the form of pocket-pickings or thefts of or from diners' purses at restaurants. If any force, violence, or threats are employed, this crime becomes a robbery.

**Thefts from vehicles:** Thefts of items from motor vehicles. The category includes breaking into vehicles (e.g., smashing a window), unlocked entry, and thefts of items from a vehicle's exterior, such as pickup truck beds. Note that thefts of vehicle parts are in a separate category.

**Thefts of vehicle parts:** Theft of parts or accessories from motor vehicles, including wheels, license plates, and engine parts.

**Threats:** Threats to commit physical violence by one person against another. If any weapon is actually displayed or employed, or if an assault is actually attempted, the crime is categorized as a simple or aggravated assault instead.

**Trespassing:** Illegal entry to a non-public part of a residence or business. Such entry is rarely to the *interior* of the property, or it would be coded as burglary instead. Most reportable incidents of trespassing are either after notice (e.g., a repeat shoplifter who is ordered not to return to a store) or at posted locations (e.g., construction sites, abandoned buildings).

**Vandalism:** Destruction or defacement of public property, buildings, vehicles, or personal property.

**Violent crime:** An aggregate category that sums totals for murder, sexual assault, kidnapping, robbery, aggravated assault, simple assault, and threats.

**Weapon offenses:** Possession, sale, or manufacturing of illegal weapons. This is often an additional offense discovered by police during arrests for other crimes.

## Call for service definitions

*Calls for service* include both criminal and noncriminal police incidents and activities. In the case of criminal activities, such incidents receive a longer, more detailed report in the police records management system, and it so it makes more sense to analyze them using the crime categories above than in their original call-for-service form. Thus, the only incident types we have selected for analysis in this report are noncriminal. Definitions of those types appear below. Because the police officer does not usually write a full report for calls for service, the dataset available for analysis is more limited.

**Administrative:** A wide variety of call types that have to do with the administration of a police department, such as delivery of documents to businesses or other government facilities, attendance at meetings, vehicle maintenance, or even meal breaks. Agencies use their call-for-service systems to document such activities so that, later, they can determine what a particular officer or unit was doing at a particular time, although the incidents

are not truly "calls for service." Practices differ significantly between police agencies as to what is reported under this category, and it is generally not useful for analysis.

**Alarm:** A burglar, panic, or medical alarm that required a response but (probably) turned out to be false or would have a different final code.

**Animal complaint:** Calls involving sick, dangerous, or wild animals, animals in danger (e.g., left in a hot or cold car), or loose or noisy pets.

**Assist other agency:** A call type that involves rendering aid to a neighboring police or other government agency for any number of purposes, including serious crimes, fire and medical issues, and traffic issues.

**Crime enforcement:** Any number of pro-active police activities meant to deter crime, generally taking the form of a "directed patrol" to a particular location during a peak time for criminal activity (based either on citizen complaints or internal analysis). Though not a technical "call for service," such incidents are recorded in the CAD database to document the officer's activity.

**Disabled vehicle:** A call for service for a vehicle suffering physical or mechanical trouble, usually broken down in an active roadway.

**Disturbance:** Any of a variety of types of disorderly conduct, disputes, fights, and excessive noise.

**Domestic dispute:** A dispute between family members, spouses, or intimate partners that has not risen to the level of physical violence.

**General service:** Minor calls for service that involve rendering aid to residents and visitors for a variety of issues such as giving directions, installing car seats, dealing with lockouts, and providing physical aid.

**Gunshots:** Reports of gunshots fired, whether phoned in by a resident or received from automatic detection services.

**Hunting:** Reports of hunters hunting off-season, in protected areas, with illegal gear, or in an unsafe manner.

**Lost property:** Calls for service involving lost personal property such as wallets and mobile phones. If there is any indication of theft, these incidents are typically reported under the appropriate crime category.

**Medical aid:** All calls for medical aids except unattended deaths and overdoses. Police responses only are included in the figures in this report.

**Missing person:** a runaway or other missing person.

**Prisoner transport:** documentation of a police agency transporting an arrested person from one facility to another.