An Assessment of Counter Insurgency-Inspired Policing Methods in the North End of Springfield Massachusetts

Borna Dabiri, Riju Agrawal, Hilton Augustine III, Grant Gonzalez, Ryan Hellar, Yasha Iravantchi, Stuart Mason, Sloan Zimmerman, Emiko Zumbro, Kevin Kit Parker*

School of Engineering and Applied Sciences, Harvard University, Cambridge, MA
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*To whom correspondance should be addressed:
Kevin Kit Parker
29 Oxford St Rm 321
617-495-2850
kkparker@seas.harvard.edu

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In 2009, the Massachusetts State Police (MSP) introduced Counter Criminal Continuum (C3) Policing© in the North End of Springfield, MA in order to combat gang activity. To measure the efficacy of C3, the MSP needed an objective analysis of their efforts. If the C3 method has been effective in countering gang activity, then both quantitative and qualitative measures of crime and quality of life should show improvement. To test this hypothesis, both quantitative and qualitative data were collected from various city and neighborhood sources to analyze the effects of C3 on the community. Some metrics such as litter and graffiti reduction showed clear improvement, while others such as academic school performance remained unchanged in the short term. Overall, the community of the North End has improved since the implementation of C3, but work remains to be done to measure the full effect of this policing model on the community.

I. History of Springfield and the North End

In 2011, Springfield (Fig. 1) was ranked the 12th most violent city in the United States according to data gathered from the FBI's Uniform Crime Report (1). The presence of violence followed the influx of gangs into the city. Gang-infested communities often result from an environment that passively permits continued criminal activity and undermines policing efforts. Much like insurgents in a failed state, gangs thrive on community apathy (2). To alleviate conditions, police can utilize counterinsurgency (COIN) tactics that are based on several principles, including building and maintaining legitimacy within the community, emphasizing intelligence driven operations, and focusing on unity of effort among all service providers (3). Given the growing gang problem of Springfield, it is important to first place the problems of the city within historical context.

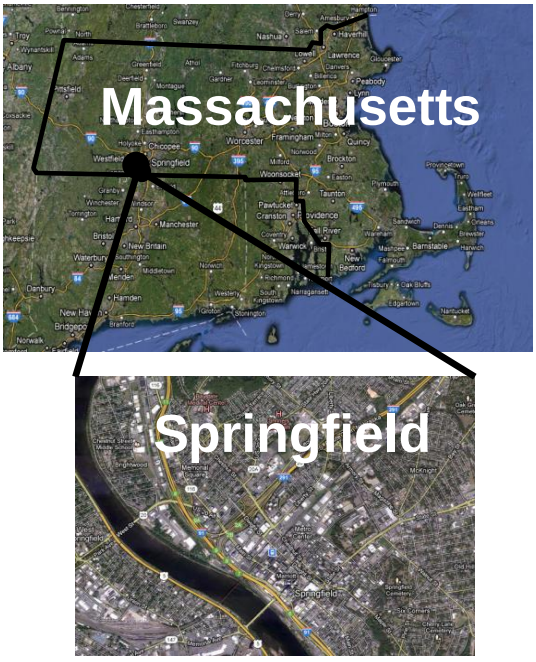


Figure 1. Springfield, MA.

In the 1950s and 1960s, Springfield was primarily characterized as a manufacturing town. Many of the largest employers in the area, including the Springfield Armory and Smith & Wesson, relied on the city's highly skilled workforce to generate revenue (4). In the late 1960s and 1970s however, many of these businesses left Springfield in search of more favorable tax conditions (5). Furthermore, in 1968 the federal government closed the Springfield Armory. This out flux of industry dealt a significant blow to the city and was the first of many events that heralded an era of decline. From 1970 to 2000, the percentage of the

* To whom correspondence should be addressed
Email: kkparker@seas.harvard.edu

population employed by the manufacturing industry decreased by more than half. As the city's unemployment rate rose, the poverty rate increased from 13% to 20% by the year 2000 (6).

Springfield's problems, especially those of the North End neighborhood, were compounded by the construction of Interstate 91 (I-91) in the 1960s, which impeded the city's access to the Connecticut River (7). Prior to the construction of I-91, the land along the riverfront was some of the city's most economically valuable land. In 1958, as part of the City of Springfield's Urban Renewal Plan, city planners lobbied for I-91 to be constructed along the riverfront because they believed that the river had become too polluted and that I-91 would catalyze economic growth (8). However, the construction of I-91 blocked access to the river and had the unintended effect of splintering communities like the North End. Thus, the highway came to epitomize the city's most unsuccessful attempt at urban renewal.

Along with the exodus of employers and the construction of I-91, many middle-class residents left the city for the surrounding suburbs. This departure was accompanied by an influx of Hispanic migrant workers, particularly during the 1970s. Many were enticed by relatively affordable housing and agricultural employment opportunities. Today, Springfield, which was once a predominately Caucasian city, has equal proportions of Hispanics and Caucasians (6).

While the demographics of the city shifted, political power was slowly transferring from the city to the state government. In the early 2000s, Springfield city government repeatedly ran deficits that forced the Commonwealth of Massachusetts to assume financial responsibility (5). The State Secretary of Finance and Administration established the Financial Control Board (FCB) that was responsible for administering a loan of $52 million while devising a plan to cut the city's deficits (5). During the administration of the

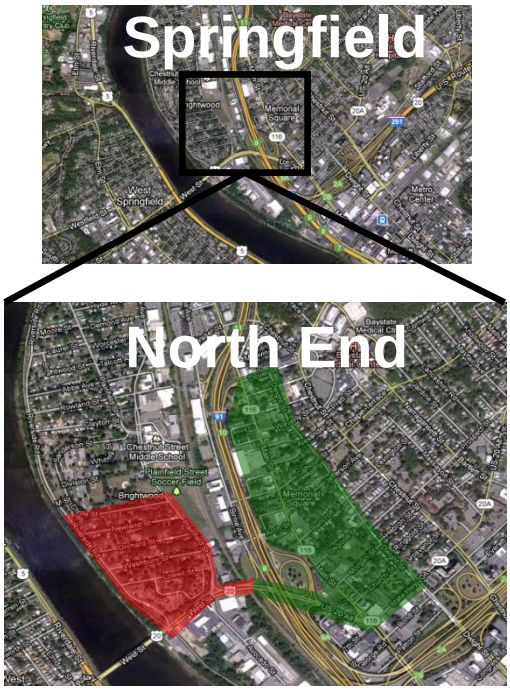


Figure 2. Map of the North End with respect to Springfield. Brightwood is highlighted in red and Memorial Square in green.

Financial Control Board, the National Urban Land Institute (ULI) was hired to develop the "Plan for Springfield," to help reduce citywide crime and established plans for the city's revival (9). In 2012, Mayor Domenic Sarno then replaced the ULI's plan with a privately funded plan known as "Rebuild Springfield." As one of the poorest neighborhoods in Springfield, the North End received city, state, and federal aid in hopes of renewal.

The North End of Springfield—a hard-hit area and the focus for the MSP's new C3 Program—consists of two neighborhoods separated by I-91: Brightwood and Memorial Square. Over 75% of the 11,000 residents in the North End are of Puerto Rican heritage. Commercial activity, which is comprised primarily of retail and service businesses, is centered on Main Street in Memorial Square, while the Brightwood side of the North End is primarily residential (Fig. 2) (10).

In an attempt to improve these conditions, the Massachusetts State Police (MSP) Special Projects Team

instituted a new policing method in the fall of 2009—Counter Criminal Continuum (C3) Policing©—to help address gang crime in the North End of Springfield, one of the most depressed neighborhoods of the city. C3 attempts to dismantle criminal gang activity through long term police and community commitment. In order to facilitate cooperation with the community, the MSP first sought to build legitimacy within the North End. Based on COIN principles, C3 aimed to build rapport with the community and underscored unity of effort among the community, local police, and state police. When taken together, these facets of C3 are intended to facilitate cooperative and intelligence driven operations that may separate gangs from their cause and support.

II. Determining the Effects of C3

For several years, the North End had endured a significant gang presence. In 2009, the Las Boricuas gang moved into the North End and exerted control over the local drug trade (11). Gangs in the North End are characterized as posses, which are loosely organized groups comprised mostly of young males 14-19 years of age (12) and are geographically defined to operate near their constituents (13). The gang problem in the North End was difficult for traditional law enforcement to combat due to the lack of structure within the posse that hindered long term investigations (13). Therefore, C3 in the North End focused on detecting, disrupting, degrading, and dismantling criminal activity. More specifically, according to the mission statement of the MSP Special Projects Team, it aimed to separate gangs from their cause and support. However, the MSP did not possess adequate tools to assess the efficacy of C3. To this end, we reasoned that if the C3 method has been effective in countering gang activity, then both quantitative and qualitative measures of crime and quality of life should show improvement.

To accurately interpret data, a control group was established to distinguish changes in the North End due to C3 from other factors. To this end, both temporal and spatial controls were used. The temporal control group allowed for the comparison of quality of life indicators before and after the implementation of C3. The advantage of this control is that it is inherent in the data that spans 2007 – 2012, as C3 commenced in the fall of 2009. The disadvantage was that C3 is not the only factor that affected metrics in this time period. To isolate the effects of other factors, a spatial control was utilized and the North End was analyzed relative to the entirety of the city of Springfield. The advantage of this control group was that it permitted the isolation of city-wide trends. A disadvantage was that this control is not truly independent since the North End is part of the Springfield aggregate.

To assess the overall effectiveness of C3, distinct metrics that determined changes in the quality of life within the North End were analyzed including health, economy, education, politics, housing, crime, community, and perception.

A. Crime-Related Medical Calls

The health status of individuals in a community is one indicator of their quality of life. Health status can be affected by local crime rates since crime and the fear of crime are directly correlated with increased anxiety and decreased physical activity (e.g., walking and exercising) (14). Thus, health is adversely impacted not only by the direct effects of crime, but also by the indirect effects of exposure to the neighborhood disorder that accompanies crime. Residing in a neighborhood where there is excess violence, graffiti, and litter can adversely affect one's health due to stress induced from chronic exposure to disorder (15). If C3 is reducing crime in the community, then a corresponding improvement in overall health should emerge.

To gain insight into the community's state of health, crime-related medical services were analyzed. Records from American Medical Response (AMR), a private ambulance company serving the North End, and Bay State Medical Center, a local level I trauma center, were collected (16, 17). AMR serves as a first responder to various medical emergencies, and along with Bay State Medical Center's 24 hour surgical trauma service, tends to the North End's emergent medical needs. Since C3 activities were aimed at curtailing gang activity, relevant medical incidents such as overdoses, gunshot wounds, and stabbings were tabulated. These data for the North End were pooled for each year ranging from 2007-2012 (Fig. 3). Comparing number of calls for service in each category per month as a function of year revealed no conclusive trends in the number of calls for overdoses, gunshot wounds, stabbings, and assaults.

A potential shortcoming of the AMR data was it did not necessarily capture all gang activity since individuals involved may not request an ambulance for fear of police involvement, and they may self-report to the local emergency room (ER) as a result. To circumvent this shortcoming, gunshot wounds and stabbings reported directly to Bay State Medical Center's ER (17) were tabulated per capita and plotted by year ranging from 2007 to 2012 (Fig. 4). Although data for 2012 was not available at the time of this writing, it is noteworthy that relative to Springfield, the North End exhibited decreasing incidences of gunshot wounds and stabbings from 2008 to 2010 per ER admissions. While in contrast with the AMR data, a decrease in gunshot wounds and stabbings reported to Baystate's ER partially depicts improving conditions in the North End.

B. Licit Economy

According to an Economic Assessment Report prepared in 2008 for the City of Springfield Office of Planning and Economic Development, 33% of small businesses in

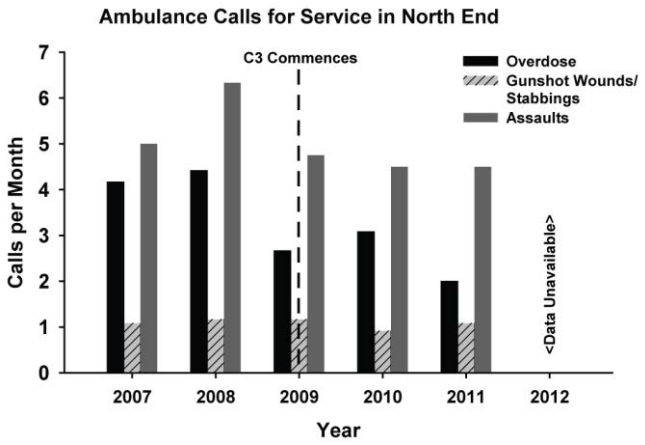


Figure 3. Ambulance Calls for Service in the North End.

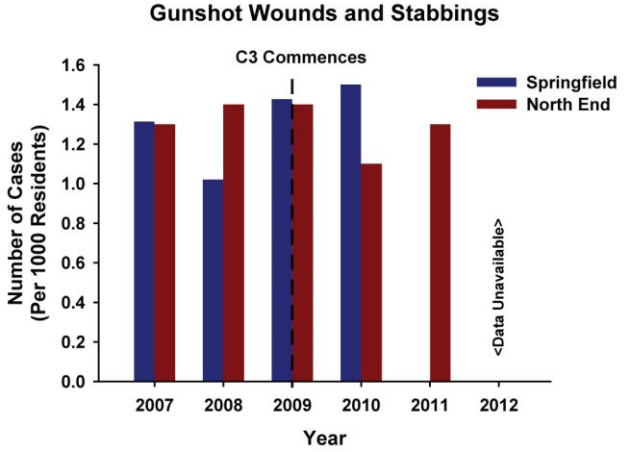


Figure 4. Gunshot wounds and stabbings in the North End and in Springfield.

Springfield reported that neighborhood crime was the top inhibitor to their growth (18). Furthermore, 48% of respondents reported that theft/petty crime limited the success of their business (18). As such, we hypothesized that businesses would suffer in areas with high gang activity, like the North End. On the other hand, if C3 were effectively reducing gang presence and activity in the North End, a concomitant improvement in business activity should surface.

Because of the importance of middle class business ownership and income equality to the stability of any community (19), an increase in the number of business

registrations would indicate that the economic health of the North End has improved as a result of C3. To this end, the number of business registrations in the North End relative to the number of business registrations in all of Springfield were obtained (20).

New business registrations in the North End and Springfield were normalized per capita and tallied per year. The trends in business registrations in the North End paralleled the trends in Springfield (Fig. 5) and no appreciable increase in business registrations since the implementation of C3 was noted. However, these data may be confounded by several factors. For example, business registrations may not properly represent an improvement in the business environment because the North End has limited real estate availability (21, 22). Accordingly, even if the business environment has been improving, it may not necessarily be reflected in the short term by the number of new business registrations. Additionally, the North End of Springfield benefits from the vitality of a sizable informal economy (22). Not all businesses are registered with the city and some, including smaller food vendors and retailers, have been doing business in the North End for more than a decade (22). Any trends in the informal economy would not be reflected in the obtained data.

To gain better insight into the overall state of the economy in the North End, average home values in the North End over the past five years were surveyed. The values for both the North End and all of Springfield were collected and tabulated from 2007-2012 (23). Between 2007 and mid-2008, the average home values in the North End were consistent with the rest of Springfield (Fig 6). In response to the national housing crisis, North End home values fell more precipitously than the rest of Springfield from mid-2008 until mid-2009. However, despite an overall downward trend, there was a surprising uptick of North End home values from mid-2009 until late in 2010 that was not paralleled by the home values throughout the rest of

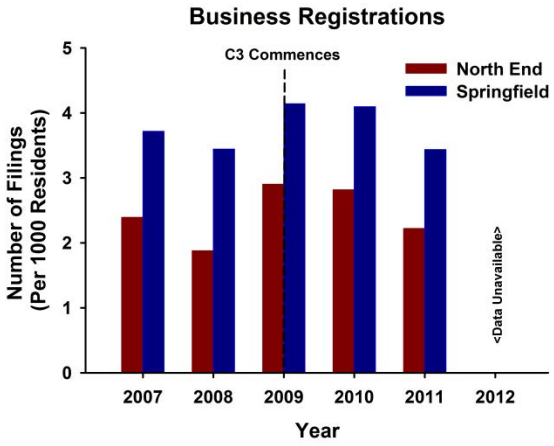


Figure 5. The number of business registrations in the North End and Springfield from 2007 – 2011.

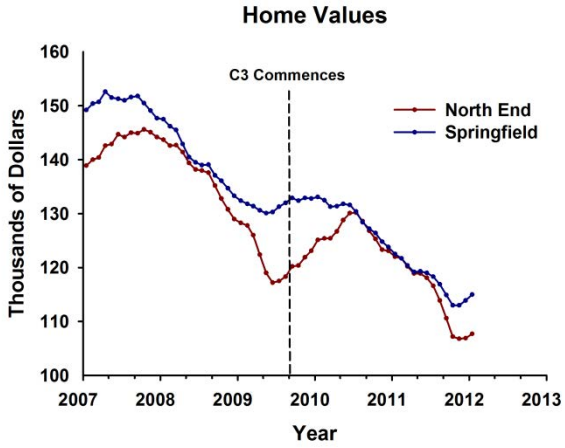


Figure 6. Average home values in the North End and Springfield from 2007 – 2012.

Springfield. It should be noted that this upward slope began before C3 commenced and alternative explanations must also be considered. Over the past several years multiple redevelopment projects have contributed to an influx of capital into the North End (21). In November 2009, the Borinquen Apartment project invested $8.1 million to rehabilitate 41 housing units in the North End (24, 25). The City of Springfield's North End Improvement Project had also been investing several million dollars to improve roadways and sidewalks on Main Street (26). Lastly, Baystate Medical Center opened its new $300 million facility in the North End, dubbed the ~~–~~Hospital of the

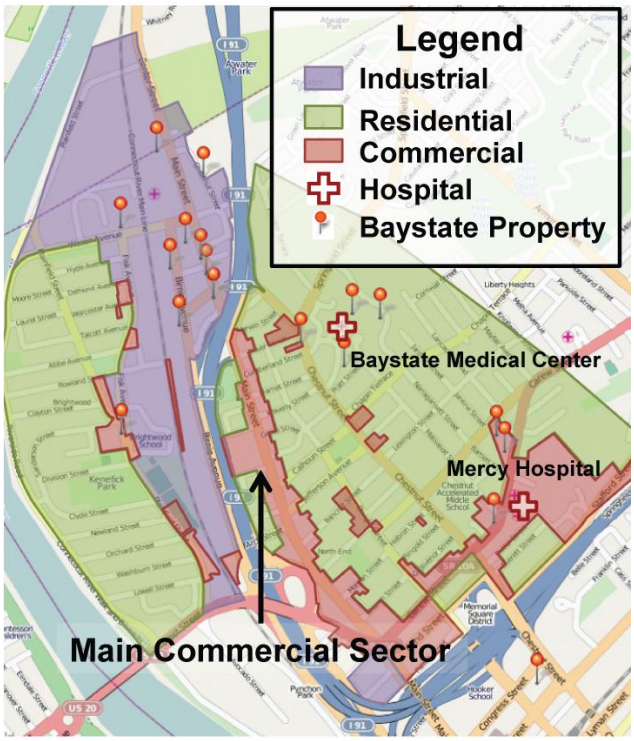


Figure 7. Baystate medical properties in the North End as of 2012.

Future," in February of 2012 (27). Baystate has made multiple land purchases for this project leading up to the opening of the new facility. These purchases were made in areas zoned for industrial development (28, 29) primarily to the north of the main commercial center of the North End (Fig 7). These purchases, taken together with the other improvement projects in the North End, provide a possible explanation for the upward trend in property values.

In addition to quantitative data, qualitative and anecdotal information about the business environment were collected by surveying business owners in the North End directly. Though opinion was by no means unanimous, most of the business owners said that they had seen an improvement in the crime environment over the past few years:

— ~~I~~"I feel safe…haven't had any problems with crime or shoplifting in the past several years" (30).

— "There hasn't really been a change in crime for the past 10-12 years" (31).

— ~~S~~"Several of our customer are gang members…they buy new phones every month. They think the cops have them bugged or something" (32).

— "Things are quieter. We haven't seen any shootings on the street for the past 2 years" (33).

Together, the quantitative and qualitative data provided mixed evidence for the economic efficacy of C3. It is likely that the indicators analyzed show greater sensitivity to changes in the national economy and other confounding factors than to the advent of C3. Like the health data, business data may need to be monitored over a longer time period and studied in more detail before the effects of C3 on local business can be fully assessed.

C. Youth and Education

The majority of crimes in the North End of Springfield are either directly or indirectly due to posses and involve young males from ages 14 to 19 (13). Based on data from the Springfield Public School system (SPS), approximately 2,000 students (including teenagers) live in the North End (Appendix D) (34). Since a significant portion of North End's residents are of school age, investigation of their behavior while in school, as well as their participation in afterschool programs, is warranted.

1) Student Truancy

Improving school attendance provides positive alternatives for potential young gang members and can lead to reduced gang violence (35). Therefore, examination of North End school truancy rates can serve as a barometer for local gang activity. Because of their physical proximity to the North End, two schools, Brightwood Elementary School and Chestnut Middle School, were surveyed. Brightwood elementary has 400 students, 75% of whom live in the

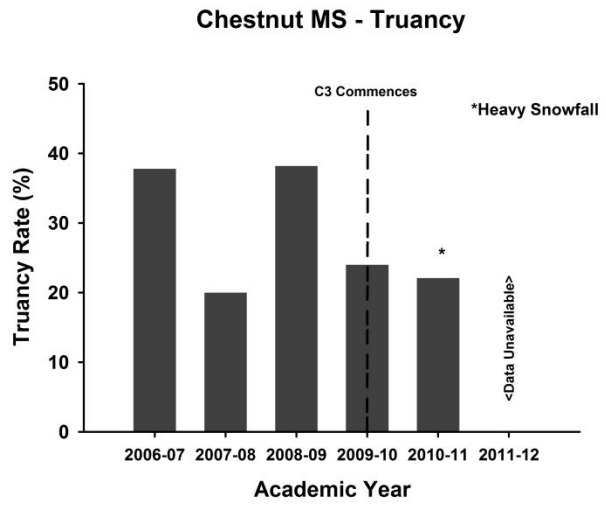


Figure 8. Chestnut Middle School truancy rates.

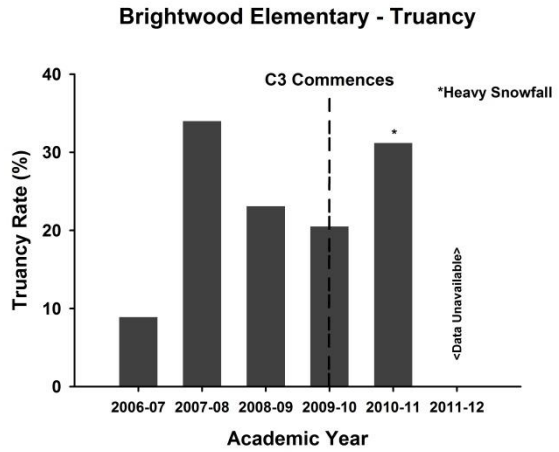


Figure 9. Brightwood Elementary truancy rates.

North End while 40% of Chestnut Middle School's 1,000 students reside in the North End (34). School truancy was measured by totaling the number of days a student has an unexcused or illegal absence from school and dividing that number by the total number of possible days the student was enrolled.

When plotting the truancy rates for Chestnut Middle School and Brightwood Elementary School, it was evident that while unexcused absences jumped from year to year, they have been trending downward for Chestnut Middle

Figure 10. The Walking School Bus. Chaperones escort students along designated walking paths to schools. (Image taken 11/3/2012)

School since the 2008 - 2009 academic year (Fig. 8). Truancy rates for Brightwood Elementary School showed a downward trend starting in the 2007 - 2008 school year but saw a nearly 50% increase from the 2009 - 2010 to the 2010 - 2011 school years (Fig. 9). One confounding factor might be weather conditions in the 2010-2011 winter. While there was some indication of improved school attendance in response to C3, there is still room for improvement.

As stated earlier, while law enforcement plays an important role in community stability, an important tenet of C3 relies on increasing community involvement. To improve school attendance, one such community-initiated program was deployed when a nurse practitioner from Bay State Medical center conceived and implemented the Walking School Bus initiative for students living too close to schools to qualify for busing. The program was designed to promote the safety of the children and their physical health and commenced in the fall of 2010 with 40 participating students who were escorted to Brightwood Elementary School (Fig. 10). By the 2011-2012 school year, the program had more than tripled its participation to include 136 students, and an additional route was added. Current trends in truancy data fail to provide a consistent positive trend, however, local initiatives such as the

Walking School Bus program are indicators of increasing unity of effort between the community and schools.

2) Criminal Behavior in Schools

Another facet of student life in the North End corresponds with how children are behaving once in school. This may be determined by examining the reported violence and drug activity that North End students engage in during school hours. These data were collected for middle schools and high schools that contain North End students (36). In addition to Chestnut Middle School, data from Van Sickle Middle School, another middle school with significant portions of North End students, was also used. High School delinquency data from nearby schools, including Springfield Central High School, High School of Commerce, Putnam Vocational School, Springfield High School of Science and Technology, and Renaissance High School were also collected (34). It should be noted that these data were screened so that only North End students were counted, as the schools include students from various neighborhoods. The number of violent and drug-related incidents from the two middle schools in the North End and the five nearby high schools were combined to reveal the total amount of delinquent activity ascribed to North End students. When comparing reported incidents each year, a decreasing trend in violent and drug activities for both middle schools and high schools was seen (Fig. 11). In addition to the advent of C3, other factors may have contributed to the decrease over the last few years, including a truce created by two gangs in Commerce High School who agreed to suspend fighting on school grounds and during school hours. Furthermore, a citywide school uniform policy was instituted in the 2008-2009 academic year, and both administrators at each school and officers stationed in the schools said they saw a marked decrease in violence as a result of this policy. The analysis would have been enriched if data comparing the North End student incidents relative to the rest of the school was available. This would lead to an understanding of whether North End students are responsible for an outsized proportion of the crimes in a given school.

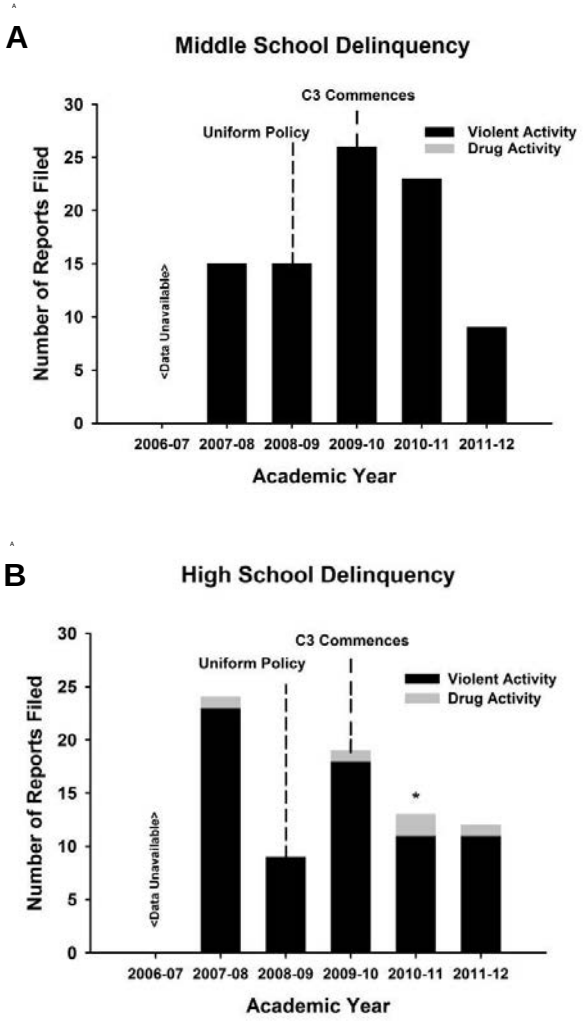


Figure 11. (A) Middle School violence and drug activity. Total police reports filed for North End resident students for Chestnut (located in the North End) and Van Sickle middle schools. Black indicates reports of violence and grey indicates drug-related activity. Note that no drug activity was recorded for middle schools. (B) High School Violence and Drug Activity. Total police reports filed for North End resident students across the five main high schools: Central HS, HS of Science and Technology, Putnam Vocational HS, Springfield Renaissance School, and HS of Commerce. Black indicates reports of violence and grey indicates drug-related activity. *Gangs call truce during school hours.

3) Afterschool Programs

While student behavior during school hours predicts the liklihood of trouble outside of school, afterschool programs

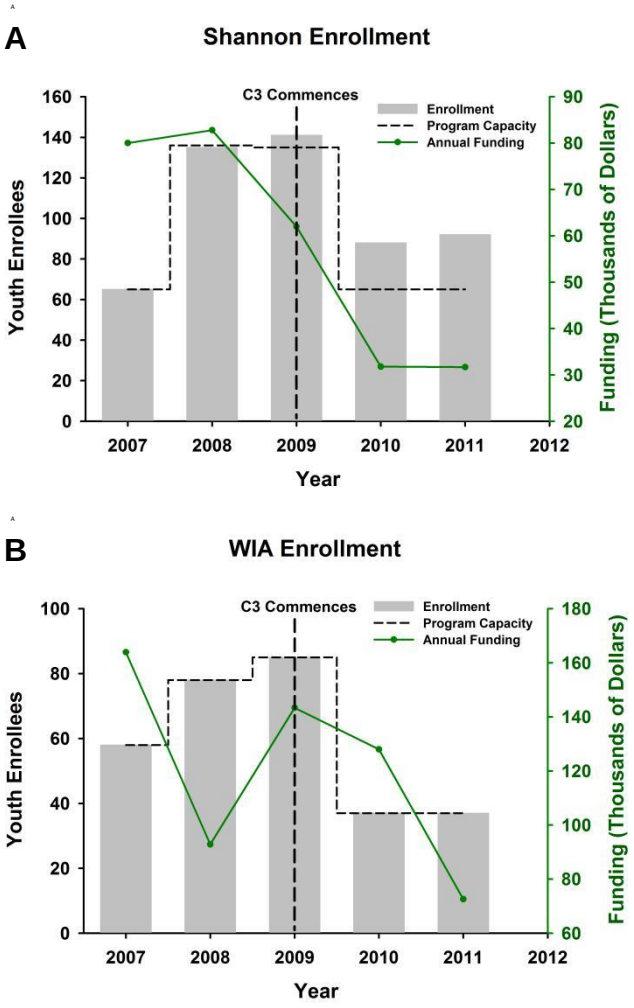


Figure 12. (A) Shannon Grant Program Enrollment. The green line represents funding allocated to the program, the dashed line represents the program's stated capacity, and the grey bars represent the number of participating students. (B) Workforce Investment Act Program Enrollment.. The green line represents funding allocated to the program, the dashed line represents the program's stated capacity, and the grey bars represent the number of participating students.

have been shown to have a profound impact on the behavior of city youth as participation in afterschool programs negatively correlates with violent behavior (37). The New North Citizens' Council (NNCC), an organization providing advocacy and human services to the North End, has secured funding for programs like the Shannon Mentorship Program and the Workforce Investment Act (WIA) program that help young adults secure employment or continued education opportunities. For both programs, enrollment either matched or exceeded program capacity every year, implying that the demand for these programs is likely higher than available supply (Fig 12). It was also apparent that funding was correlated with program capacity as both had decreased in recent years. This decline, along with the programs' high enrollment, indicated that there are many young adults in the North End who would like to participate in these extracurricular programs but are unable to do so. The effectiveness of these programs is illustrated by some of its recent successes. Since 2009, 24 youth who had formally been gang members or aspiring gang members have been placed in GED classes or assisted in securing employment opportunities (38).

Directly ascribing positive trends in school truancy and delinquency to MSP activity is difficult when considering the various policies instituted by schools in the same time period. Nonetheless, improved behavior in schools and particiaption in afterschool programs are relevant since the majority of gangs involve school-aged children.

D. Politics in the North End

The ability of a community to engage politically is an important facet of its well-being. For instance, the political climate has direct ties to the effectiveness of the police force in combating organized crime (39), and a community's trust in an elected official is positively correlated with how local that individual is to the community (40). Furthermore, political endorsement of the police positively affects public opinions of law enforcement (41). To correctly survey the political environment of the North End, it must be placed within context of the political history of Springfield. In the 1960s, Mayor Charles Ryan changed the city's representation from ward to at-large leading to city council representation that no longer mapped to specific locales but resulted in the election of nine city council members receiving votes from the entire city of Springfield (42). In short, the North End could not vote for a ~~"~~North End"

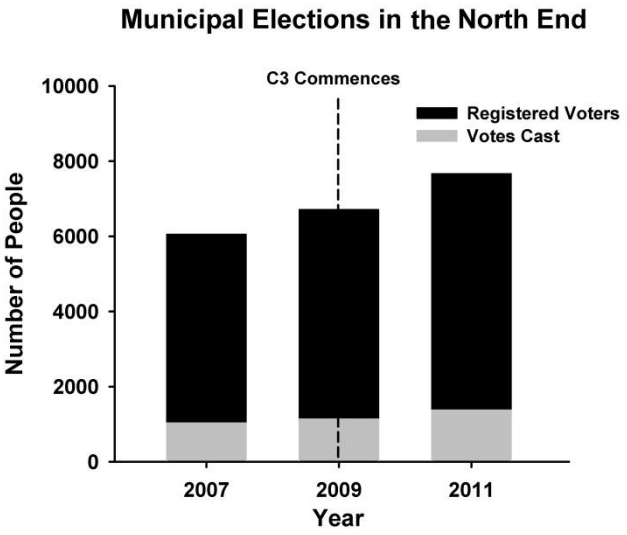


Figure 13. Voter activity in the North End.

representative. North End representation became more disproportionate as the region became more Hispanic (6), and over 30 years passed until Representative Cheryl Coakley-Rivera became the region's first Hispanic representative to be elected to the Massachusetts legislature in 1999 (43).

Mayor Charles Ryan was challenged in 2007, and Domenic Sarno subsequently defeated him in that election. He ran on the platform of better city management and was reelected in 2010 (44), the same year he reinstituted ward representation (42). In the 2011 election, not only did voter registration increase (Fig. 13), but four Latino City Council representatives were elected, one of whom was from the North End (45). All these factors in concert indicate increasing community involvement and trust in politics, ultimately pointing to increased legitimacy of government officials in the region.

E. Housing

The qualities of local housing conditions have important ramifications for the crime status of community. For example, greater socioeconomic diversity in a housing complex can been linked to reduced crime rates (46). This is

6 Kinetic Operations with MSP/SPD since 2010	
Operation	**Results**
Operation Anvil 1.0 (June 2010)	16 arrests, 12 summonses
Operation Anvil 2.0 (October 2010)	9 arrests, 1 warrant service, 2 weapons recovered, 1 missing juvenile recovered
Operation Flashcard (February 2011)	5 arrests, 2 weapons seized
Operation Anvil 3.0 (May 2011)	20 arrests, 12 summonses
Operation Anvil 4.0 (October 2011)	8 arrests, 5 warrant services, 20 K-9 engagements
Operation Viper's Nest (January 2012)	6 arrests, cocaine, marijuana, hashish, and US currency seizures

Table 1. Kinetic Operations at 101 Lowell since 2010

Figure 14. 101 Lowell had the highest number of kinetic operations (red circle).

pertinent since the average annual household income in the North End is less than $22,000, and most residents are renters that live in Section eight housing that is government subsidized (47). Moreover, the population distribution of renters and of Hispanic residents overlap and are both densely populated in the North End (47). This correlation has been linked to section eight housing (48) and the largest relevant rental properties in the North End are the Edgewater Apartments that are located at 101 Lowell Street (Fig. 14). This property is the largest rental property in the North End, and as the only high-rise in the North End, it is the most densely populated area in the neighborhood,

consisting of approximately 2,000 occupants, with more than 600 waitlisted renters (49).

101 Lowell Street also offers an interesting perspective concerning crime. In order to combat criminal activity, the MSP utilizes "kinetic operations" that are joint operations between the MSP, Springfield Police Department (SPD), and other partnering agencies (2). Since 2010, 101 Lowell has been subject to six kinetic operations resulting in more than 60 arrests and numerous weapons and drug seizures (Table 1), and 90% of arrests made here are due to drug related crimes (2). In short, 101 Lowell has the highest crime density in the North End making it an important focus of criminal activity (see Appendix E).

Apart from incident reports provided by the MSP, anecdotal evidence offers a glimpse into the housing conditions in the North End. Employees of several housing complexes have noted significant changes since the inception of C3: "Over the last 2 years, we've begun to work much more closely with the MSP to evict people who are arrested" (50). These views were echoed by an employee from another housing complex that related, "there are many more evictions now. The relationship with the police is great. Every time someone is arrested, I get a report, and the person is in housing court by Monday" (51). It is thus apparent that there is an increasingly close and focused partnership with the various housing authorities, the MSP, the SPD and most of all, the renters.

F. Crime

The most direct indicator of C3's effects on the North End is the level of local crime activity. Crime reporting is typically divided into distinct categories, which include calls for service, incidents, and arrests, which together serve as an indicator of a community's state of criminal activity (2, 11, 52). A call for service describes a request for police presence. It occurs when an individual witnesses a crime in progress and reports it to the police. If available, a police officer will respond. At the scene of the reported crime, the officer will take one of three courses of action. (1) If the officer finds no evidence of crime or suspicious activity, no written report is produced. (2) If the officer finds evidence of a crime but finds no suspect to arrest, then an incident report will be filed. (3) Lastly, if evidence and the suspect who committed the crime are obtainable, an arrest will be made. However, not every incident or arrest report stems from a call for service. For instance, an officer on patrol may witness a crime and either write an incident report or make an arrest without an originating call. In order to analyze crime, all three data types from 2007-2011 for the streets corresponding to the North End (Brightwood neighborhood) were collected (52). Furthermore, arrest reports from the Holyoke Police Department, which patrols South Holyoke, a community similar to the North End, were also collected (53) to serve as a control for total arrests made in the North End.

For the purpose of this analysis, calls for service and arrests were highlighted. Calls for service provides the most direct link between the community and crime, indicating the community's involvement in reporting crime. Similarly, arrests are an inherent indicator of police efforts. Totals from each category were further subdivided and activities most affected by C3 (2, 11) were isolated from other calls for service and arrests (Table 2).

Although total calls for service in the North End did not fluctuate between 2007 and 2012, total arrests in the North End revealed an increasing trend (Fig. 15). These arrests

Calls for Service Breakdown	
C3 Indirectly Affected	C3 Directly Affected
Larceny	Armed Robbery
Suspicious MV	Assault with Weapon
Suspicious Person	Breaking and Entering
Unnecessary Noise	Drug Activity
Trespass	Gun Call
Domestic Disturbance	Shots Fired
Disabled Vehicle	Stolen Vehicle
.....	Street Gang

Arrest Breakdown	
C3 Indirectly Affected	C3 Directly Affected
Disorderly Conduct	Weapons/Guns
Uninsured Motor Vehicle	Assault/ Aggravated Assault
Resist Arrest	Drug Crimes
Speeding	Stolen Motor Vehicle
.....	Breaking and Entering

Table 2. Crime breakdown for calls for service and arrests.

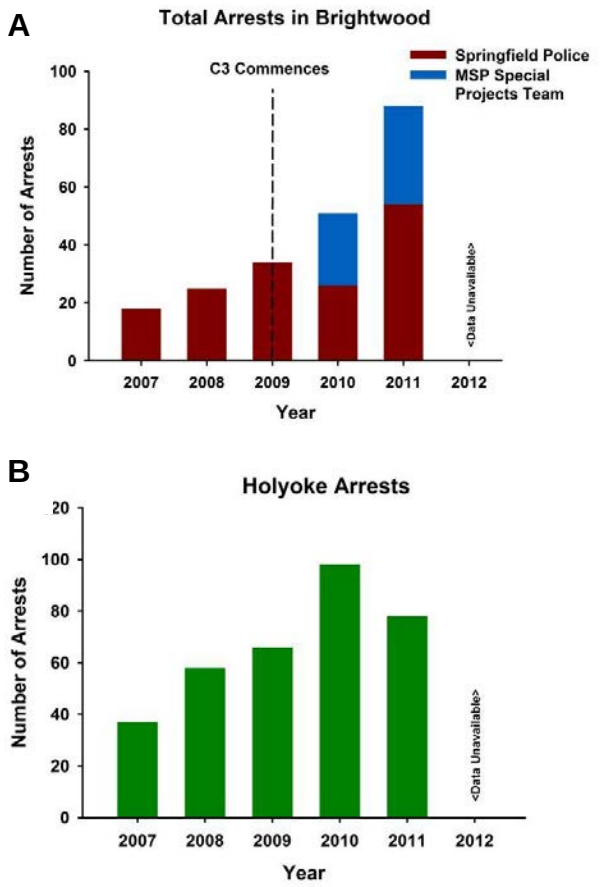


Figure 15. (A) Total arrests for Brightwood and comparable (B) arrests for Holyoke.

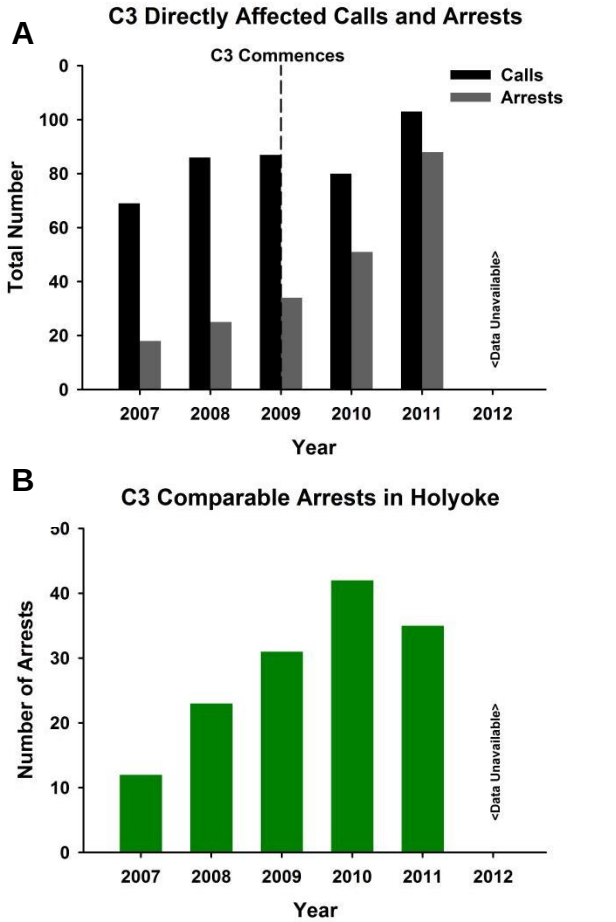


Figure 16. C3 directly affected calls for service and arrests for (A) Brightwood with comparable arrests for (B) Holyoke.

include the kinetic operations run by the MSP and the SPD, and indicated a two-fold increase between 2010 and 2011. Although these raw numbers do not reveal if an increase in arrests is positive or negative, the trend in total arrests in Holyoke, where C3 was not employed, was the opposite of those found in the North End during the 2010-2011 timeframe.

When isolating C3 directly affected crimes, calls for service increased between 2007 and 2009, dipped in 2010, and rose in 2011 (Fig. 16). During the same period, arrests also increased steadily over the years and spiked in 2011. Interestingly, South Holyoke's comparable arrests actually decreased during the same time period. This inverse relation is significant since between 2007 and 2009, calls for service for South Holyoke and the North End were consistent. This comparison implied that a factor must have been acting on one of the communities only, suggesting that C3 may have played a role.

In addition to the collection of quantitative arrest and calls data, qualitative data regarding crime was also gathered by interviewing local service providers and residents. Although some held neutral opinions, feedback regarding C3 was generally positive and led one individual to say that ~~"t~~he best kept secret in Springfield is that the North End isn't that dangerous" (54). The positive anecdotal feedback and the increasing trends in arrests and calls for service suggest that the community is beginning to take ownership and responsibility for reporting crime, which has ultimately led to more arrests and calls for service.

G. Litter and Graffiti

Orderliness in a community is linked to resident perceptions of safety. Litter and vandalism lead to the perception of increased crime (55) and are often tied to communities with increased incidence of crime (56). Moreover, graffiti affects the appearance of a neighborhood and is also important to the function of gangs (57). It is used to mark turf and to encode information such as where to buy drugs or where homicides have occurred. Therefore, not only does graffiti affect the appearance of a community, it is also a direct measure of gang presence. If the quality of life in the North End has improved, there should be a measurable drop in the litter and graffiti of the region (Fig. 17).

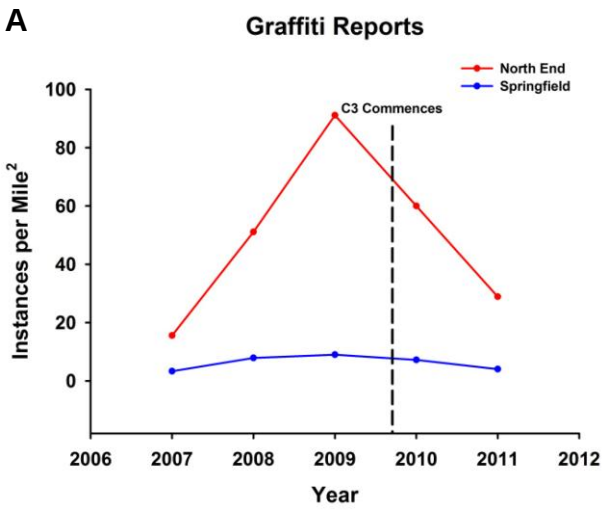
Graffitti incidence reports and litter indices were provided by an employee of the city of Springfield, whose records originated from a variety of both public and private sources (58). Graffiti records included date and location of each instance, whereas litter indices were maintained as part of the Keep America Beautiful initiative (58). The index is informed by teams of four or five surveyors who ride around the city, observe litter, and assign each neighborhood a score. These scores range from one—clean—to four—extremely littered and were averaged together to provide the total index.

To isolate the graffiti of the North End from the rest of the city, only graffiti data for the North End was tabulated. This also allowed Springfield to be used as a reference. However, because Springfield is much larger in area than the North End, it was necessary to normalize each data set to their respective areas: 0.45 mi^2 for the North End, and 32.1 mi^2 for Springfield.

Plotting graffiti incidents per square mile by year for both the North End and Springfield revealed a considerable spike in 2009 (Fig. 18A). However, the high incidence of graffiti in the North End was subsequently diminished by nearly 68% in 2011. Next, graffiti instances for each month were assessed and revealed highly variable data for the North End (Fig 18B). July 2009 was an outlier for both the North End and Springfield because during this time, a few pathological graffiti artists were overactive and raised overall averages (58). Regardless, relative to all of Springfield, the North End had denser graffiti and an upward trend from 2007 to 2009, which reversed from 2009 to 2011. Moreover, since C3 began in October 2009, there has only been one month with more than 10 instances of graffiti per square mile, and the number of months without any graffiti has risen. Before October 2009, virtually only winter months had zero graffiti. In contrast, the summer and fall of 2011 also had no instance of reported graffiti. Thus, graffiti-free months in the North End have increased dramatically from 2007 to 2011 (Fig. 19), a trend unique to the North End.

To analyze litter data, the indices for each year since 2007 were tabulated. The Brightwood section of the North End, the neighborhood where C3 first began, became the focus of this data set. Due to changing waste management budgets, litter tends to fluctuate from year to year and to establish a baseline for comparison data was compared to the citywide average and the nearby neighborhood of Memorial Square, with both regions outside of C3's area of

Figure 17. (A) Graffiti in and (B) Litter in Springfield. (Images taken 3/31/2012)



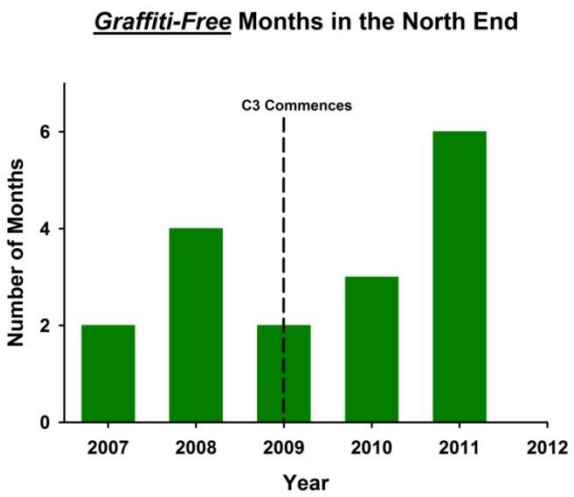


Figure 19. Graffiti-free months in per year.

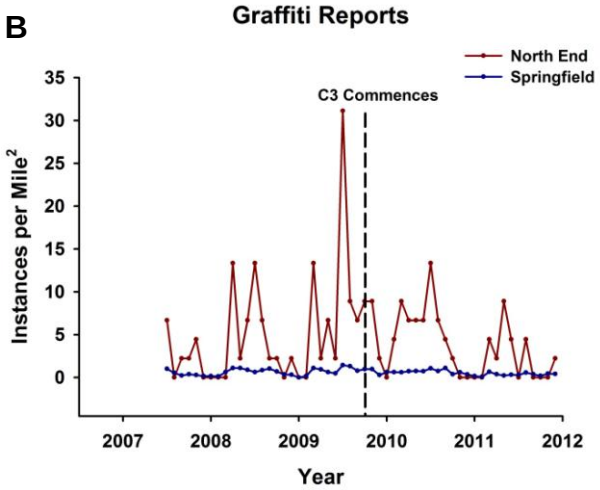


Figure 18. Graffiti reports per square mile for the North End and Springfield per (A) year and per (B) month.

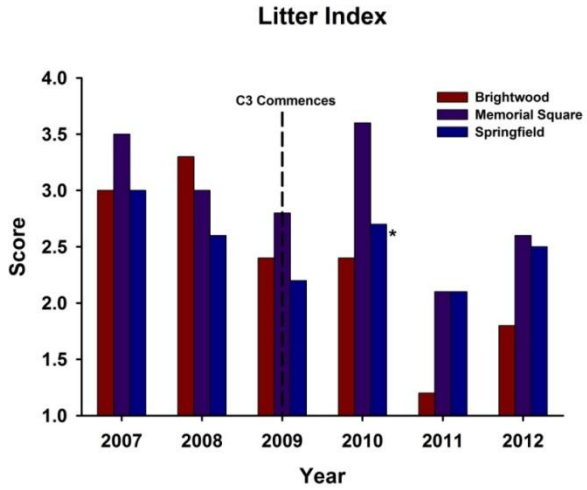


Figure 20.Averaged litter index scores per year.

focus.

The litter data did not require normalization, as scores do not scale with the size of the neighborhood in question, so data from Brightwood, Memorial Square, and the entire city were directly comparable. Before 2009, Brightwood was typically as littered as the rest of the city, if not more (Fig. 20). Since then, it has always fared better than the rest of Springfield, and in 2011 it was the single cleanest neighborhood in the entire city.

These measures of community appearance together depict a community that is trending positively. While graffiti in the North End surpasses that of Springfield as a whole, there are fewer spikes since C3 commenced, and the number of months without graffiti increased. Litter in the North End has dropped considerably compared to the rest of Springfield, a trend not paralleled by Memorial Square. Taken together, these factors indicate that the physical appearance of the neighborhood where C3 is focused on is improving. Because neighborhood appearance is linked to feelings of public safety (56), these conditions suggest improving feelings of welfare in the community.

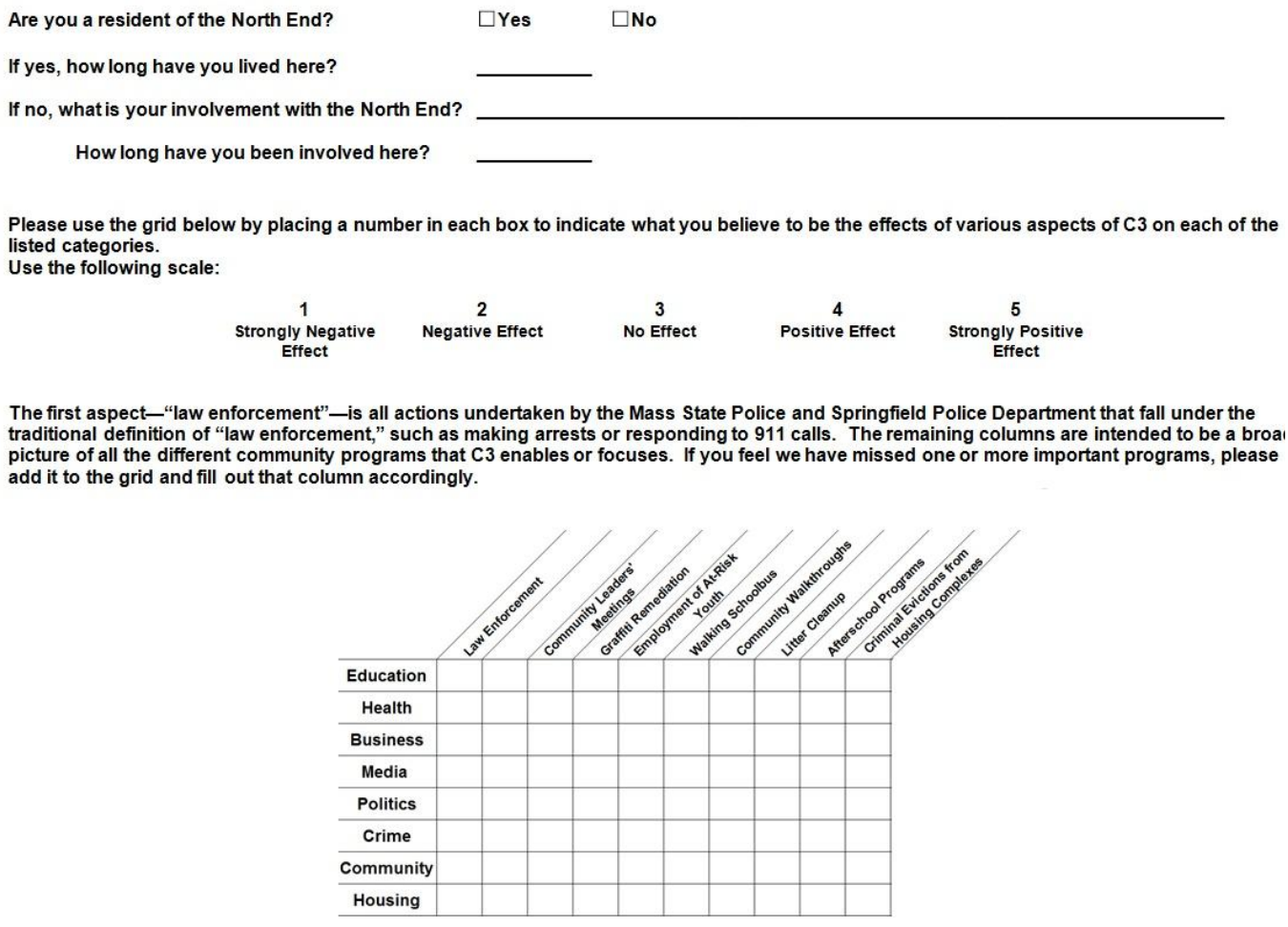
H. Qualitative vs. QuantitativeMetrics

The metrics analyzed thus far have been predominately based on quantitative indicators. This is in line with how

COIN-based strategies are normally assessed (59), where two categories of assessment are utilized. The first is an effects-based assessment that requires researchers to track the results of specific events in the target area over time and build a picture of campaign momentum. The second is pattern and trends analysis that identifies various metrics for study and identifies trends in each over time. This approach, which is similar to the methods of this study, conveys some of the outcomes of C3. However, debate continues regarding the correct method of analyzing COIN efforts, and no single model has been deemed appropriate (59).

Pattern and trends analysis alone cannot determine what metrics are important to a given community *a priori*. What is important in one location may be irrelevant in another. Additionally, an outside observer cannot determine if increases in certain metrics are indicative of positive trends, exemplified by the increased arrests and calls for service in the North End, either an indicator of higher criminal activity or raised community awareness in reporting crimes.

Therefore, it is important that the assessment of C3 be bottom-up. Metrics and the analysis thereof should start with individuals who are well in tune with the character of the community. In other words, it is possible to quantitatively model conflict, but such a model must be specific to the community to which it is applied. Additionally, its development must be colored by contextual



Are you a resident of the North End? ☐Yes ☐No

If yes, how long have you lived here? _____

If no, what is your involvement with the North End? _____

How long have you been involved here? _____

Please use the grid below by placing a number in each box to indicate what you believe to be the effects of various aspects of C3 on each of the listed categories.
Use the following scale:

1	2	3	4	5
Strongly Negative Effect	Negative Effect	No Effect	Positive Effect	Strongly Positive Effect

The first aspect—"law enforcement"—is all actions undertaken by the Mass State Police and Springfield Police Department that fall under the traditional definition of "law enforcement," such as making arrests or responding to 911 calls. The remaining columns are intended to be a broa picture of all the different community programs that C3 enables or focuses. If you feel we have missed one or more important programs, please add it to the grid and fill out that column accordingly.

	Law Enforcement		Community Leaders' Meetings	Graffiti Remediation	Employment of At-Risk Youth	Walking Schoolbus	Community Walkthroughs	Litter Cleanup	After-school Programs	Criminal Evictions from Housing Complexes
Education										
Health										
Business										
Media										
Politics										
Crime										
Community										
Housing										

Figure 21. The survey given to those present at the community leaders' meeting.

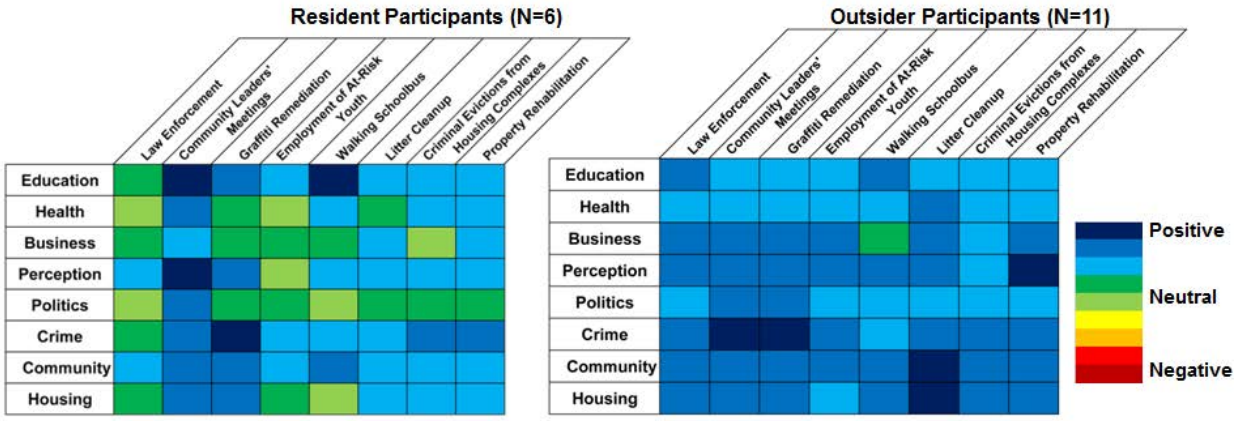


Figure 22. Color-coded survey responses.

knowledge of the community in question. Residents understand the area better than an outside observer necessitating a means of analysis that would enlist their expertise. For this reason, the quantitative data has been placed in context with qualitative data from residents of the North End.

I. Community Perceptions

In order to systematically assess the qualitative data from the North End, a survey was administered to the people who live and work in the area. This allowed a snapshot of the effectiveness of C3 from the point of view of a North End resident.

The survey was administered at a Community Leaders Meeting, which is attended by individuals aware of C3 initiatives including those residing in the North End and to those living elsewhere. Persons surveyed were not aware of the results of the analysis presented herein. The survey sought to assess how C3 and associated programs have affected various quality of life indicators on a scale of 1 to 5, where 1 was strongly negative and 5 was strongly positive (Fig. 21). Additionally, the survey queried whether they lived in the North End and how long they had been engaged in the North End. These data were then split based on whether or not respondents lived in the North End, and responses were averaged and color coded (Fig. 22). Participants who did not live in the North End indicated that they were more willing to say that quality of life is improving, as indicated by the blue regions in the survey results. On the other hand, North End residents indicated more areas where they felt that effects were neutral. Notably, outsiders seemed to value litter and graffiti cleanup, as well as property rehabilitation, as more important than residents did which could indicate a higher preoccupation with aesthetics. The ―politics" row is also largely neutral (green regions) for residents, which may hint at feelings of disenfranchisement. The results together highlight the fact that the qualitative assessment of C3 must be colored by the viewpoints of the residents in the North End, since outside observers may confound results.

Finally, we developed a 10 dimensional index to qualitatively summarize the aggregated data. These indices depict a broader picture of the changes in the quality of life in the North End since C3 policing was implemented. Anecdotal and quantitative data were captured in a heat map that displays the change in the different quality of life indicators assessed since C3 began (Fig 23). The map is read like the results from the perception survey and assigns a color to the metrics that were studied. This color takes into account the numerical data, the perception survey, and the obtained qualitative reports. The color coding of the dimensions was determined by debate within the Analysis

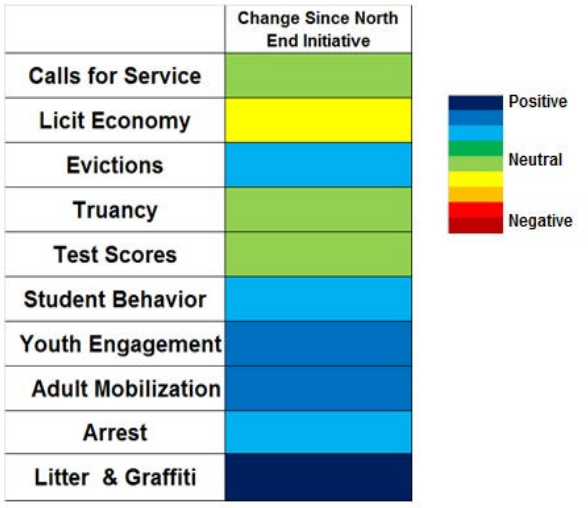


Figure 23. North End quality of life heat map.

team. In the figure most indicators are trending positive, suggesting the efficacy of C3 policing.

In the context of the classical counterinsurgency practice of *Clear* (ridding an area of insurgency leadership and quick impact efforts to degrade their legitimacy), *Hold* (securing the area against further insurgency activity while building legitimacy and working to stabilize the population), and *Build* (effectively immunizing the community against further insurgent activity by increasing their ability to provide their own security, economic stability and growth, and the development of civil order and governance) it would appear that C3 policing in the North End can generally be considered in the *Hold* phase. In this phase, acute flare ups of gang activity and low level gang activity continue while measures of the community's stabilization against the escalation of gang violence trend more slowly. Given the dynamics of population changes, public housing policies, and resources in the North End, it is reasonable to assume that in the absence of acute, strategic intervention beyond the scope of influence of law enforcement agencies and local community leaders, the current positive trends are tenuous.

III. Conclusions

The metrics assessed showed both definitive and nebulous trends. While economic and health data failed to provide convincing positive trends, at-capacity community and youth engagement in filled afterschool programs depicted community facing challenges, but with a strong interest in participating in programs designed to offer an alternative to gang activity. Meanwhile, school indicators such as truancy rates and test scores remained relatively unchanged and may require longer periods of observation. Increases in calls for service and arrests made in the North End suggest increased community involvement, ensuing in more arrests. Finally, clear improvements in litter and graffiti showcase a community that disallows the control that gangs can exert. Thus, this study suggests improving conditions in the North End, but also that not all metrics show clear improvement and ongoing analysis is required.

IV. RECOMMENDATIONS AND LESSONS LEARNED

Based on the study, several lessons learned can be applied to future studies and the practice of C3 policing:

1. Issue: Metrics of C3 efficacy

Recommendation: Planning and resourcing of analysis protocols and procedures should precede deployment of the Special Projects Team into an Area of Operation. Aligning metrics with lines of efforts should include an assessment of where and how the data will be obtained, the reliability of the data, how the parameter values will change with phases of the operation, and how the data will be analyzed. In short, the proper application of the scientific method and experimental design techniques are the best means possible of assessing C3 operations

2. Issue: Access to data collected by government agencies

Recommendation: Obtain a memorandum of understanding from the mayor or town manager that explicitly states the requirement to release data to the analysis team.

3. Issue: A comparison, or control experiment, is required to test a hypothesis-driven assessment of C3 efficacy.

Recommendation: Establish a temporal and spatial control to remove various confounding factors. Political influences that would prevent such a comparison must be mitigated at the beginning of the project so that full access to data in both the intervention and control communities is possible.

4. Issue: Qualitative data from human subjects

Recommendation: Develop a human subjects research protocol with appropriate authorities or oversight committee. While our project was designed to examine only data that communities and government agencies are required by law to provide, validating this data set against bias required converstations often with nonexperts. Furthermore, we were surprised at the number of North End residents who insisted on sharing their opinions with us upon learning of our story. Awkwardness of gathering polling data and other qualitative vignettes would be mitigated with an appropriate protocol.

4. Issue: Institutions collect data in varying formats and for different purposes.

Recommendation: Protocols for handling and analyzing data in various formats (different time scales, such as semiannually versus annually; different spatial scales, such as zip code demographics versus smaller neighborhoods within the zip code) must be developed prior to the study and consistently reexamined during the course of the study. It is important to understand that the tactical situation will affect, alter, and perhaps potentiate the termination of an experiment. Furthermore, law enfocement efforts are often effects-driven versus scheduled. Study design should take this into account with an appropriate protocol, taking in mind the various ways that the data of interest may vary with time, space, and effects.

5. Issue: A neighborhood may not welcome outside involvement.

Recommendation: Permissive entry of C3 policing and accompany metrics assessment team should be sought prior to commencing operations. The ability of C3 to work with local leaders, commandeer and exploit local community groups and physical facilities, and the ability to gather data to assess the efficacy of ongoing operations depends on good relations. A reasonable approach may be to dictate minimal requirements of communities for them to qualify for C3 policing, effectively making these communities compete for this specialized assistance. This is a competition not based on finances or resources, but with a commitment of human capital and openness.

6. Issue: High impact data and what it means

Recommendation: In the North End study, data regarding calls for service, reported crime, litter and graffiti, and school disciplinary reports suggested a positive impact. These data suggest that for C3 policing a multidisciplinary team of law enforcement, public health, public works, and school officials should be assembled and marshaled in the planning phases before operations commence. Priorities of effort within the C3 campaign plan should be directed towards measureable effects within the expertise of the team.

7. Issue: The C3 team

Recommendation: The MSP Special Projects Team was hand selected based on prior experience, both in law enforcement, military deployments in support of the Global War on Terror, language, and technical skills. Assessment and selection of candidate officers should take into account the multidisciplinary skills required of C3, many of which may not be obtained in traditional law enforcement training. The task and organization of the team, much like the measures of success and failure, may be unique to the mission, tactical situation, the technical, cultural, and social terrains. Support of the law enforcement chain of command and civil officials for unconventional methods and measures of success and failure is important.

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APPENDIX

A. *Holyoke Youth and Education*

The Holyoke Boys & Girls Club in South Holyoke served as a launching point for our collection of data to use as a control against the North End. Many of the programs offered there fall under the umbrella of The Shannon Grant. The New North Citizen's Council also has Shannon Grant programs. Unfortunately, the Holyoke Boys & Girls Club is a much larger scale operation than the New North Citizens Council, and it services more children, the vast majority of which are not from South Holyoke (60). It would be useless to compare the raw attendance of each, as the South Holyoke data is about an order of magnitude larger than the North End data. Still, because they are the same program, there is a degree of validity to comparing the two in *some* way. Additionally, both programs were subjected to similar adverse budget situations in the time span between 2007 and 2012, so it could provide a circumvention of the budget-related limitations on our original interpretation of the North End data.

In order to compare the disparately-sized datasets, percent change in each year was compared. Data from each year was normalized as a percent difference from the first year using the following formula:

$$\Delta\%$$

Where $\Delta\%A_i$ is the percent change in attendance for the i^{th} year, A_i is the attendance in the i^{th} and A_1 is the attendance in the first year.

The North End managed to remain higher than its 2007 attendance every year in between 2008 and 2011(Fig. A1). Holyoke was unable to accomplish this. However, it is difficult to draw conclusions from this due to differences in the datasets that have already been noted,

A future study building on this work could improve this comparison by limiting the attendance statistic to youth who live in South Holyoke in addition to directly comparing budget information for the two programs.

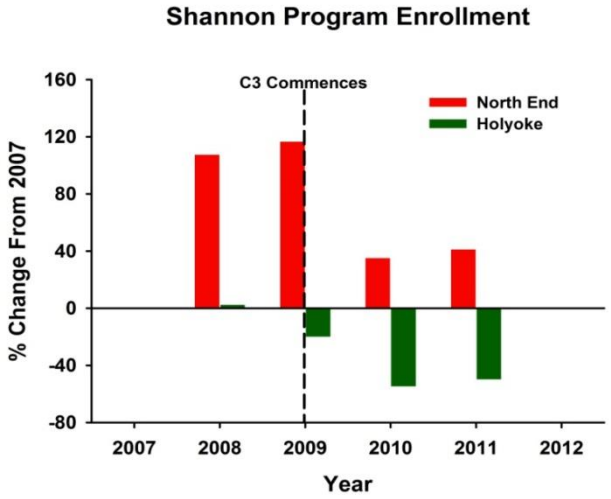

Figure A1. The percent change in Shannon Program enrollment for the North End and a control neighborhood.

B. *Sacred Heart Church*

One array of diversionary youth activities includes programs offered through the church. The Sacred Heart Church, located just outside the C3 target area, is important to C3 since the church itself houses the community leaders' meetings every other Thursday. Sacred Heart's records on youth enrollment in bible study programs, mass attendance, and confirmation class size were analyzed. Unfortunately, the Church was unable to provide a complete data set (Fig. A2). Additionally, it was the only church in Springfield that

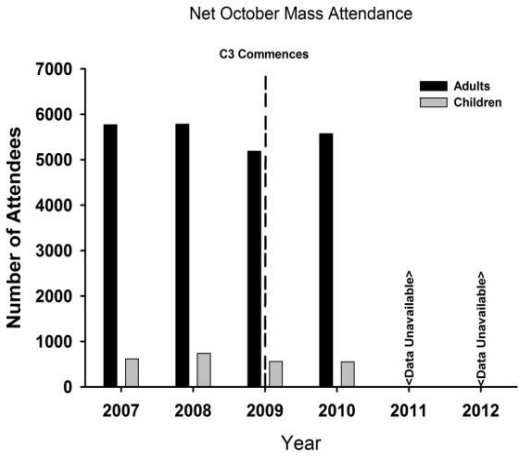

Figure A2. Sum of mass attendance for October at Sacred Heart.

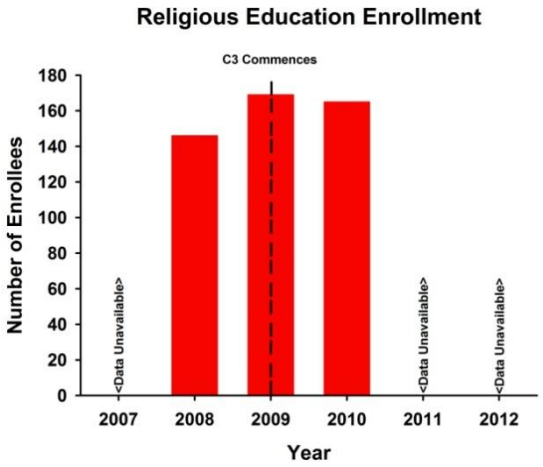

Figure A3: Enrollment in a bible study program at Sacred Heart. The age group is pre-kindergarten through seniors in high school.

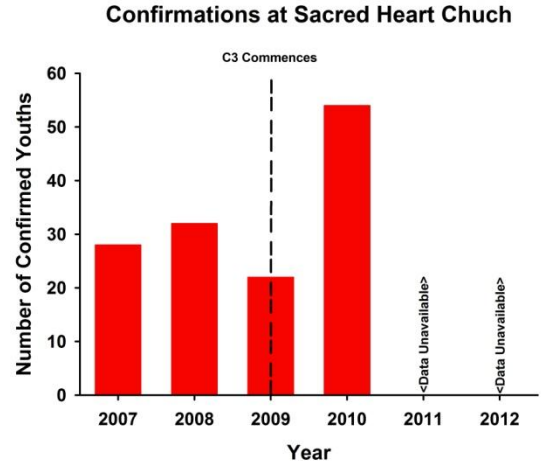

Figure A4. Number of confirmations at Sacred Heart Church. The age group of those confirmed is 18+.

was able to provide data. This, coupled with the lack of comparable church-related statistics for the control neighborhood of South Holyoke, rendered the data difficult to interpret.

At first glance, confirmations seem to spike in the year following the implementation of C3, however, without a control, this spike is impossible to place in context. Data was also obtained regarding the attendance of mass by both adults and children. "Children" here define anyone below the age of 18. Sacred Heart does not track attendance each weekend, but only does so for three weeks in October. This is because October is distant enough from major Christian holidays that it provides a clearer picture of baseline mass attendance (Fig. A2 – A4). It is difficult to perform meaningful analysis without some baseline for comparison. It is also unhelpful that the missing portion of the data set is years wherein the effects of C3 were likely to be noticed.

C. Housing

Similar to crime data, apartment complexes record the number of incidents occurring on their premises. From Springfield Housing Authority, incidents reported for all of Springfield from 2010 to the first three months of 2012 was collected (50). Two of the eighteen apartment complexes that provided data were within the North End—Riverview and Morgan. As no data was available for the years before C3 commenced, reported incidents were incomplete. While no direct conclusion concerning C3 can be made from an incomplete data set, it is notable that the number of incidents reported per housing unit per month is five times greater for Springfield than the North End. Furthermore, examining the percentage of C3 directly affected incidents out of all incident types reveals that C3 directly affected calls in the North End accounted for a greater percentage of total incidents than those in Springfield (Fig. A5). Two possibilities may explain the fact that the North End has fewer reported incidents as well as an increase percentage of C3 directly affected incidents. Either North End residents

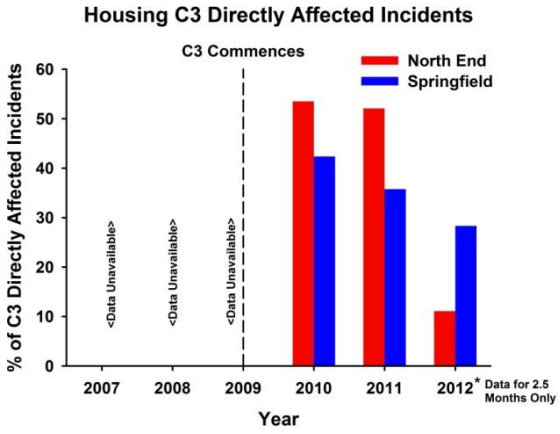

Figure A5. Number of C3 directly affected incidents as a percentage of total incidents.

are apathetic toward less serious crime or C3 directly affected incidents comprise a greater portion of the crime. In reality, a combination of the two possibly occurs in the North End.

D. Education

We reasoned that if C3 was having an effect on the academic performance of students living in the area, an improvement in the Massaschusetts Comprehensive Assessment System (MCAS) scores of North End residents relative to the scores of non-residents may be apparent. The data request to the Springfield Public School system yielded databases for all student IDs paired with home addresses and MCAS results (per student ID), for the 2007 - 2011 academic years (34). The original data files contained over 13,500,000 data points and the first step was to determine which students in the district lived in the North End neighborhood. This data was extracted from a text file that had all student IDs in the district and their home addresses listed for each of the 5 years (2007 - 2011). Analyzing the data revealed that roughly 2,000 students lived in the North End. For each year and each school, averaged scores of all North End students and the non-resident students for each MCAS category: English, Math, and Science was assessed. To simplify visualization, Math and Science scores were averaged into the same column (Fig. A6, A7).

In Brightwood Elementary School, the North End residents performed slightly better than those not from the North End. The scores of the two student subgroups seemed to trend in the same direction: decreasing from 2006 - 2007 to 2008 - 2009 and increasing starting in 2009 - 2010. At Chestnut Middle School, North End students performed slightly below the level of non-North End students, with the exception of the 2009 - 2010 year, when North End residents slightly outperformed the others. Thus, there did not seem to be any significant trends in the data that would

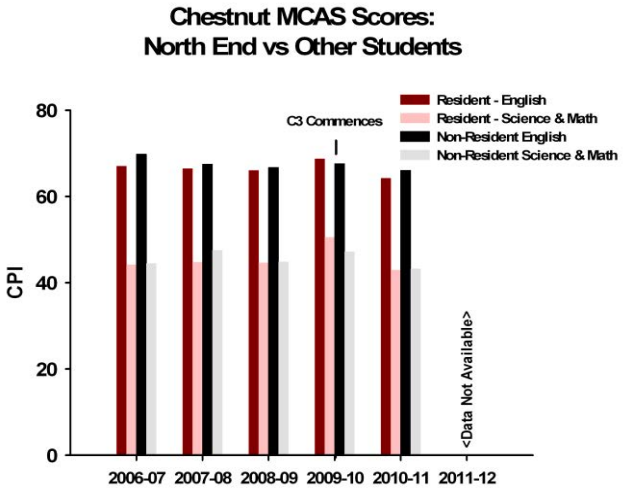

Figure A6. Chestnut MS MCAS Performance: North End Residents vs. Non-Residents. Red and dark red represent North End resident English and science/math scores (respectively). Black and grey represent the English and Science/Math scores for North End non-residents.

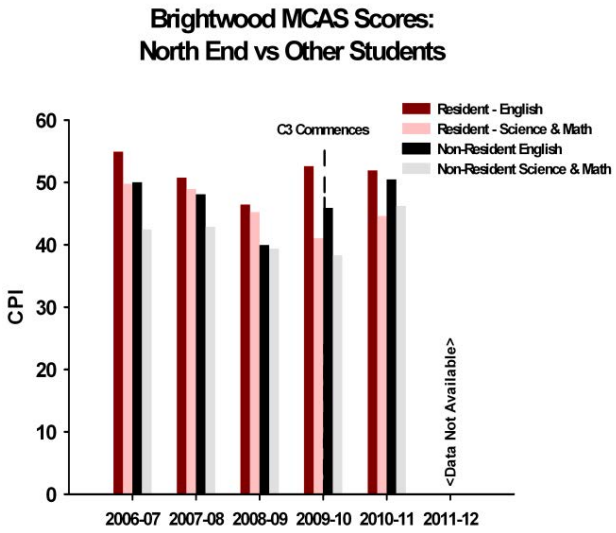

Figure A7. Brightwood Elementary MCAS Performance: North End Residents vs. Non-Residents. Red and dark red represent North End resident English and science/math scores (respectively). Black and grey represent the English and Science/Math scores for North End non-residents.

suggest that C3 has had any particular effect on MCAS scores at this time.

E. INTSUMs

The Massachusetts State Police Special Projects Team provided their operational Intelligence Summary (INTSUM) to facilitate crime analysis (2). The data's narrative format and separation across multiple Word documents did not lend itself to easy analysis. INTSUMs were individually read to

determine which types of information were consistently reported across the documents, and an Excel database with these same categories as columns was created. Putting the information into a spreadsheet provided for the capability to identify trends across disparate INTSUMs and to sort intelligence items by date, type, and location. The Pivot Table feature of Excel was especially helpful, as one could quickly access specific crimes, such as the total number of 94c reports (drug-related crimes) or activities at a specific location.

After removing duplicate entries, the data was represented geo-spatially. Using a web service called BatchGeo, data was uploaded in an abridged table including only the location, date, and type of each intelligence item. The resulting plots (Fig A8, A9) revealed that 101 Lowell St. apartment complex comprised 25% of all crime intelligence gathered by the MSP Special Projects Team. The crime density of 101 Lowell revealed the importance of examining housing reports and connections to gang activity.

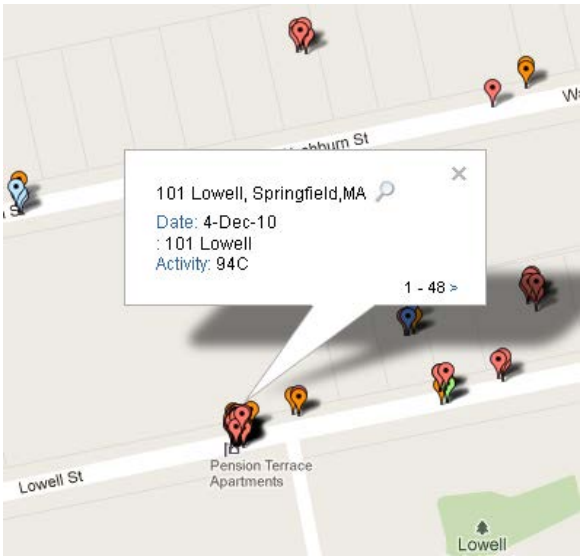

Figure A8. Close-up of mapped INTSUM entry. Highlighted above is the dialog box that appears when one of the pins is clicked. 101 Lowell apartment complex is highlighted.

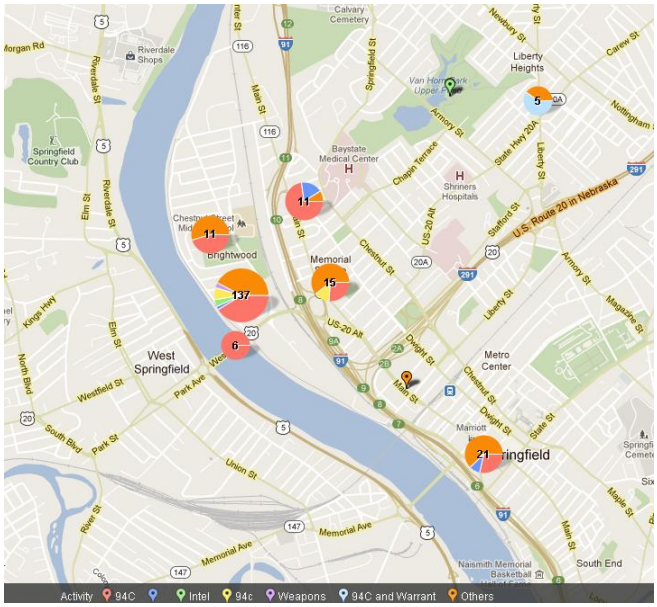

Figure A9. Output of INTSUM data on a map for the North End.