DESIGN AND THE POLICE
Toward A Model of Citizen Intervention and Civic Imagination

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Submitted to the Program in Media Arts and Sciences,
School of Architecture and Planning,
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Abstract

The police are designed. Their tools, policies, and human services are all products of deliberation and choice, and therefore open to consideration and re-consideration in an era that has seen widespread abuse of power. This thesis takes up one element of the designed police system in the United States: its material culture—from vehicles, to uniforms and badges, to weapons. The physical tools and devices that the police force use are emblematic of explicit and implicit values. These values make certain conditions and encounters possible, and other scenarios impossible. What is behind these tools, and how might our culture see them anew? How might we re-imagine them in the civic act of designing a future?

Oversight, transparency, and accountability are a critical piece of the civic fabric. In order for law enforcement to reflect the needs and expectations of citizens, it is in part, our responsibility to interrogate the designs of the key institutions we rely on. But agency in the design space of the police has not been encouraged.

This thesis presents one example of how a dialogue around design is a form of productive civic activity and a check against state violence. In it, I offer a complementary set of tools for imagining possible futures of policing that reconsider scenarios for law enforcement, with a provisional freedom from its current form. Problematizing the physical designs of the police, it focuses on the values, priorities, and politics that are inevitably imbued in these objects.

This practice-led research draws from interviews with both citizens and law enforcement, design research, and participatory, critical making. It makes a case for citizen engagement and civic imagination in the proactive design of the police. This speculative design approach fosters understanding and agency, and suggests one way in which the design of the police could be a more inclusive and collaborative project.

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# Table of Contents

**Design and The Police**  
Abstract 1  

**The Origins of Design in Law Enforcement**  
The Scope of Physical Design 6  
Communications Design 7  
Organization Design 8  
Policy Design 8  
Robustness, Safety, and Testing 8  
Humanizing the Police 8  
Designing For The Police 9  

**The Origins of Professional Policing**  
Peel's Principles 10  
Early Law Enforcement in the United States 12  
Uniforms, Ergonomics, and the Aesthetic of Presence 13  
Early Innovations 14  
The Revolver Camera 14  
The Blazer Experiment 18  

**Contemporary Designs in Policing**  
The Dematerialization of Force 20  
Force As Infrastructure 27  
Strategic Architecture 27  
ShotSpotter and Force Multiplication 28  
Million Dollar Blocks 30  
The Contentious Design of the Police Station 31  
The Scaling of Force: City Orbits 33  
Dematerialized Resistance 34  

**Speculative Design, Futuring, and Social Change**  
Non-Fictional Efforts 37  
Police Review Boards 37  
Communities United for Police Reform 38  
Campaign Zero 39  
Media, Technology, and Design in Activism 40  
Mapping Police Violence 40
Conflict Kitchen
Backslash
3D Printing Provocations
Design Theory, Science Fiction, and the Power of World Building
Interrogative Design
Calm Technology
Civic Imagination
Edited Realities, Critical Memes, and Performative Satire
Futuring, Speculative Design, and Social Dreaming
Industrial Futures
Speculative Civic Design
United Micro Kingdoms
Design, Policy, and Aging
Extrapolation Factory - Fictional Emergencies
Design Fiction and Provocative Storytelling
Future Social Change
Historical Design Review
Sacrificial concepts
1. Water Bottles As Protest Support/Messaging
2. Police Identity At A Distance
3. Police Identity Cards
4. How Is My Policing?
5. A Platform To Contribute Your Voice
6. An Enabled Gun Holster
7. A Projected Space For Conversation
8. I Feel This Safe
9. Police to Citizens: Rights Training
10. Citizen Expectations for Police Conduct
Interviews
Selected Intercepts with Police
Communication as a Tool
Redirection in Intercepts
Selected Interviews with Citizens
John, Former Community Organizer, Resident of Brooklyn
Reactions to Sacrificial Concepts
Mary, Resident of Brooklyn
Reactions to the Sacrificial Concepts
Selected Law Enforcement Interviews
Lieutenant, Brooklyn Precinct
"Indifference towards people and the reality in which they live is actually the one and only cardinal sin in design."

-Dieter Rams

The Origins of Design in Law Enforcement
The material culture of policing has long been both functional and symbolic. A long-lasting example of this can be found at the very beginning of professional policing. The idea of formalized force was introduced to the U.K. in the Metropolitan Police Act 1829 in response to social unrest and rioting, and were seen by some as "repressive government-sponsored Continental forces designed to keep old ruling class governments in power". These new officers wore dark blue coats, in contrast to the aesthetic of the military "Red Coats". This choice was made necessary by the popular anxiety surrounding a new military force aimed at the population. Contemporary police uniforms in the U.K. and elsewhere are still blue to this day.

This detail is a perfect example of how entrenched design choices become in the context of the police. This is particularly true when they are effective. It is also a perfect example of how easily these choices can become embedded in a strict and mechanistic organization, where they remain unchallenged. To explore contemporary policing and suggest probable as well as possible futures, we need to start much earlier than today, as many contemporary designs of law enforcement are in place due to momentum. Rather than constant reassessment of efficacy and responsive fine-tuning, we see a poverty of innovation. The past, in this domain, is highly consequential.

Before we delve into the history of police design, it is important to describe what we will set aside in order to focus on the material culture of this profession.

The Scope of Physical Design

The nature of the policing profession is such that tools are critical to the execution of the job. These tools are conceived and crafted through a process of design. In an organization of this size and complexity, 'design' can mean many things. Examining design in the context of the police can be done through the lens of organization design, communication design, service  

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design, graphic design, and any number of others. This thesis focuses on the physical design of the police: the considerations, values, politics, aesthetics, and experience of tools that police use to do their many jobs. It takes an ethnographic approach to the material culture of policing, examining the ways in which these objects embody the values and priorities of the culture from which they emerge. Recognizing the complexity of these tools at work in an environment that contains human motivations and flaws, this work uses physical objects as one entry point into a design process that is inclusive of the communities they are at work in. As we will see, when one interrogates the physical tools of policing, the many values and assumptions that are at the center of debate today are revealed.

It is important to discuss the motivations for this focus over others, and make clear what is excluded or lightly touched upon and why. Below are a series of descriptions about what is not focused on explicitly.

Communications Design

Despite frequent conflation with graphic design, Communications Design is broad, encompassing many areas that are frequently considered in an integrated or at least overlapping way. In one definition, it is described as an approach to design in which "the totality of media and messages within a culture or organization are designed as a single integrated process rather than a series of discrete efforts"\(^3\). As such, communications design is easily tangled up with physicality in design. One example from law enforcement is the choice of the color yellow to indicate a non or semi-lethal weapon such as the Taser. There is also a potentially significant conversation to be had about how verbal communication is managed, inside and outside of law enforcement organizations. That said, approaching the police from a Communications Design standpoint would be a uniquely different (and potentially fruitful) endeavor that I will not undertake.

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Organization Design

While roles, responsibilities, and accountability will be questioned as part of the interrogation into physical culture, the organizational structure will not specifically be a focus. Again, it is important to have a conversation about accountability and transparency, communication and oversight. There are questions about how the police might function, and who is involved formally with law enforcement organizations (or whether the organization should be, for instance, subsumed back into communities) but we will not explicitly focus on it here.

Policy Design

Policy has huge implications in the context of policing and is one of the levers that citizens can use to affect change. For an organization with a culture and philosophy of militaristic adherence, policy and law design can mean a sea change in terms of what the purview of the police is and how they pursue the related tasks. This work focuses on developing an approach to civic imagination related to the police. It is one example of how citizens might become engaged in and own this type of design discourse. My hope is that the discussion of policy design will be a natural and inevitable extension of this.

Robustness, Safety, and Testing

Any tool that is designed for the police requires a level of reliability, accuracy, and durability that outstrips civilian tools. The risk to life and need for honesty in police work demand this level of scrutiny. The designs generated from this work will not attempt a level of resolution that would be required to consider mass-manufacture and deployment of the solutions.

Humanizing the Police

Many efforts are aimed at humanizing the police and making kids less afraid of them. Basketball games between police and youth are a common example. Humanizing is a controversial method to improving relationships between police and community, as it does not address bad actors and bad actions that are at the root of many tensions between communities.
and law enforcement. My efforts intentionally avoid these types of interventions, and focus instead on involving citizens in the definition and design of what the community sees as acceptable policing methods.

Designing For The Police

As has been learned repeatedly, improper use of artifacts designed with a particular use in mind is as common as leaning one’s elbow on a table. The stakes are much higher when it comes to the tools of law enforcement. I do not aspire to make or encourage more acceptable tools of oppression, but to explore how far design might go in mitigating violent behavior in the course of law enforcement and promoting moments of pause and consideration, as well as opportunities for empathy and understanding. One of the interesting questions is how far it is possible to change a design in the direction of rendering it humane before reaching the point where it loses its ability for control, a requirement for many contemporary policing tools. These tools of course assume as reasonable practice the way that law enforcement is accomplished, but it is important to point out that this work considers solutions, possibilities, and provocations that are designed with the benefit of the entire context involved. This includes citizens and criminals as well as police officers.

It is simply not possible to draw a clean line around concerns when it come to the design of the police. The above act as guidelines, focusing the objects of interrogation, and excluding practices that do not have the concerns of all involved in mind.
The Origins of Professional Policing

The connection between modern policing and colonial slave patrols is not dismissible. This writing will not attempt to explicate this connection, but it would be incomplete and irresponsible not to include an analysis of how we arrived at this state of policing without considering the forces at play during this period. Professional policing, however, was co-evolving in the U.S. and the U.K. The principles

Peel's Principles

London in the 1800's is a frequent point of departure for an analysis of the state of modern police as it was the first police force in a nation with representative government⁴. Many of the principles and strategies of modern professional policing were first codified here. The motivations and values behind material culture in modern policing are well documented thanks to the impact and infamy of one man. "Professional policing" generally traces back to the innovations and politics of Sir Robert Peel⁵. (Police in the U.K. today still have the nickname of "Bobbies".) His "Nine Principles of Policing" (whose authorship some researchers dispute⁶) details motivations for the ethical operation of the police.

Sir Robert Peel's Principles of Law Enforcement 1829

<table>
<thead>
<tr>
<th>Principle</th>
<th>Statement</th>
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| Principle 1 | "The basic mission for which police exist is to prevent crime and disorder as an alternative to the repression of crime and disorder by military force and severity of legal punishment."
| Principle 2 | "The ability of the police to perform their duties is dependent upon public approval of police existence, actions, behavior and the ability of the police to secure and maintain public respect."
| Principle 3 | "The police must secure the willing cooperation of the public in voluntary observance of |

Principle 4  "The degree of cooperation of the public that can be secured diminishes, proportionately, to the necessity for the use of physical force and compulsion in achieving police objectives."

Principle 5  "The police seek and preserve public favor, not by catering to public opinion, but by constantly demonstrating absolutely impartial service to the law, in complete independence of policy, and without regard to the justice or injustice of the substance of individual laws; by ready offering of individual service and friendship to all members of society without regard to their race or social standing, by ready exercise of courtesy and friendly good humor; and by ready offering of individual sacrifice in protecting and preserving life."

Principle 6  "The police should use physical force to the extent necessary to secure observance of the law or to restore order only when the exercise of persuasion, advice and warning is found to be insufficient to achieve police objectives; and police should use only the minimum degree of physical force which is necessary on any particular occasion for achieving a police objective."

Principle 7  "The police at all times should maintain a relationship with the public that gives reality to the historic tradition that the police are the public and the public are the police; the police are the only members of the public who are paid to give full-time attention to duties which are incumbent on every citizen in the intent of the community welfare."

Principle 8  "The police should always direct their actions toward their functions and never appear to usurp the powers of the judiciary by avenging individuals or the state, or authoritatively judging guilt or punishing the guilty."

Principle 9  "The test of police efficiency is the absence of crime and disorder, not the visible evidence of police action in dealing with them."

From "Sir Robert Peel's Principles of Law Enforcement 1829."

These principles have implications for the design of tools for policing. They describe when physical force should or shouldn't be used (Principles 4, 5, and 6). Principle 9 suggests reducing the visibility of the police to the degree possible. It is worth noting that these principles were outlined before professional policing as a project had been tested. At least at the outset of policing however, these principles positively shaped how policing was administered in the U.K. and who was an acceptable, responsible individual for the job. In his fascinating history of this period, Lyman points out that, "From its beginning, the force was administered according to the intent of its founder. The character and conduct of the police was vigilantly supervised. Between 1829 and 1831, eight thousand men had been enrolled, and over three thousand had been discharged for unfitness, incompetence, or drunkenness." These principles significantly


impacted the evolution and character of police in the United Kingdom. Meanwhile in the United States, a very different set of circumstances shaped the professional police force. In the U.K., there was public resistance to the idea of a police force. In the U.S., it was citizens themselves that picked up the tools of this role.

Early Law Enforcement in the United States

In the southern colonies of the United States, plantation owners paid poor whites to control and capture slaves. Known as patrollers (or "paddy rollers" by slaves), these empowered poor were set against enslaved blacks. It is no coincidence that the resulting tension between poor black and poor whites worked in favor of plantation owners, who feared a united uprising. This was the foundation for formalized control and policing in America, inextricably linked to class and commerce. Complaints that modern police prioritize protection of the private enterprise over human life are common. Images of police officers standing shoulder to shoulder in front of a store, bank, or other property of value today also reflect this history.

To make a material connection between the slavery and the tools of modern policing, one need only look at the restraints used. The iconic handcuffs used in modern policing today are hardly evolved from the device of identical purpose used on slave ships. Contemporary law enforcement design and practices are very much built on the brutal history of slavery.

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New York City has a colorful history as one of the first professional police departments in America. Its size, immigration, and inevitable crime in such a dense urban landscape made for an experiment early in the development of the country.

This was not only a primitive time in terms of urban infrastructure and social support. The police in New York were beholden to political powers of the day. Bribery was rampant. Officers paid for promotions. When a new politician came to power, it was common to swap out the entire force for those who would enforce the politician’s power. It has been suggested that police of this day were more 'political operatives' than servants of the public good. Equipment was primitive as well. The professional practice and tools used by the police force evolved and the public image of the police emerged.

Uniforms, Ergonomics, and the Aesthetic of Presence

In the U.K., professional policing saw the dawn of the police uniform, far earlier than that of the United States. The topic is expansive, but there were unique design decisions that are worth considering, as they implicate the police body as a non-trivial tool in law enforcement.

Early uniforms of the U.K. police force featured a top-hat reinforced with straw and wire and doubled as a step to climb or see over walls. This indicates the architecture and features of the urban environment that these early police worked in, and how it shaped the tools of the profession. The elevator had yet to be invented, and the landscape made features like these useful. The design of the uniform included high collars to protect against garroting (strangling by piano wire), a feature similar to the goal of the bullet-proof vest. These features show how the context and common crimes of an age dictate the equipment considered appropriate for the job. Comfort of the officer was an early and contentious issue that saw the evolution of new hats with venting, as well as different colored pants for different seasons (white in the summer, dark trousers in the winter). In fact the uniform, equipment and general ergonomic concerns are still a frequent complaint for police officers. The physical labor of the job, with an increased set of tools fastened to the belt increases the weight one needs to carry around. Gender is also a sometimes overlooked concern. Officers wear two belts, one for their pants and one for their

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equipment, and the time and physical maneuverability it takes to remove this equipment makes for a significantly more challenging bathroom experience for women.

The uniforms also solved problems related to recognition. Officers could quickly identify each other at the scene of a crime, crucial when operating as a team. It also marked the beginning of the aesthetics of presence. Uniforms deterred crimes because it made officers conspicuous. The police use this tactic in many of the tools and graphic designs deployed since. We will touch upon more of these when reviewing contemporary designs of the police, but it is important to note that this was an innovation in its day. It is also the most clear marker for the professionalization of the police.

Early Innovations

In the decades that followed, innovations in professional policing began to respond to the problematic ways policing had evolved. August Vollmer's innovations are a significant point in the evolution of policing. He is known as the "Father of Modern Law Enforcement" due to his research and many innovations not seen in the American policing context before. In the absence of current literature on the practice of law enforcement, Vollmer sourced research from Europe and reorganized the Berkeley police force, of which he was the first police chief. His work in the beginning of the 20th century saw the use of bicycles, motorcycles, and cars for mobility, a network of call boxes, and introduction of the polygraph among others. This law enforcement infrastructure, thought of as common today, was transformative. These mobile patrols, including radios in some vehicles, expanded the speed and range of the officers, profoundly expanding the ability to respond to crimes, and adding a very visible presence.

The Revolver Camera

Other innovations were ahead of their time. In the 1930's, a precursor to the body cam appeared in the form of a small motion camera attached to a Colt 38 pistol. It allowed an

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officer to "to take action pictures of any person at whom the revolver is aimed." It is not clear if the design motivation was that it be a deterrent or a device to capture evidence that might defend police actions. The advertisement states "The pictures thus obtained can be presented as evidence at court." but it seems fairly clear that, since the way to take a picture was to pull the trigger slightly that the design was not in the favor of the criminal. Despite the ambivalent design motivations, this indicates evidence of innovation and imagination applied to the domain of law enforcement during the very early days of professional policing. This was also happening at the same time that the study of criminal justice as an academic focus was taking hold, again thanks to Vollmer.

The Blazer Experiment

It is no surprise that the civil rights movement was a tumultuous time in the history of the police. It called out loyalties, abuses, and tactics that made it clear the police needed reform. The so-called Blazer Experiment\(^4\) was a notable project from this period. In Menlo Park, California, the police chief Victor Cizanckas deployed a number of significant changes to the police uniform. He swapped out the common police uniform for a blazer, slacks, and a shirt and tie. He traded the badge for a patch. The blazer hid the handcuffs and gun from sight. It is a fascinating experiment that marks one of the few points in police history where dramatic experimentation and divergence from the cultural norm was undertaken. One of the most challenging aspects of design for the police context is that it must contend with both the history and culture of the organization, as well as the real risks that come with the job.

Experimentation can disturb or jeopardize the safety of the officer, or that of the public. This makes designing for this context unique and challenging. We will encounter this again when looking at the development of the Taser, one of the most experimental tools introduced to police work since its inception. The reason the Blazer Experiment is interesting is that it challenged the idea that officers should look intimidating and powerful. This represented a challenge not just to the material culture of the police, but to the values that had drawn many to join the force in the first place. Many officers applied for transfer to different precincts, and though early evidence suggested significant improvements in community relations\(^5\), the findings were eventually challenged\(^6\) and ultimately precincts reverted the changes.

Design in the context of the police takes a multiplicity of factors into account. There are functional requirements, however many choices are made because they are compatible with a long history and entrenched culture. It is difficult to imagine single alternatives in this context, let alone explore a solution space, due to the degree of risk associated with changing. Additionally, those involved in innovating, recommending changes, and evaluating successes


and failures are almost exclusively members of the law enforcement community. Given these constraints and limited options, a possible way forward is the involvement of civilians in a mode of civic imagination and social dreaming.

Next, we will review key examples of contemporary design in law enforcement. We will confront the realities that this rigid and isolated design space has resulted in. With these histories as a foundation, we will then be able to start imagining a number of paths forward, based on values prioritized by those who are most impacted by the design choices.
"The road to hell is paved with good intentions."
-Karl Marx

Contemporary Designs in Policing
The past century has seen an unparalleled explosion in technological intervention, as much in the pursuit of protection as in the tightening of control. It has also seen the entirety of the U.S. civil rights movement. The institutes of law enforcement have evolved along with these and other trends, so much so, in fact, that an entire industry, an outgrowth of the Military Industrial Complex sometimes called the Police Industrial Complex, has come into being. As with any capitalist endeavor, this industry has evolved primarily along the lines dictated by profitability. In many ways, this drive for profit has amplified the propensities of law enforcement, its practices, and the course it was on during its first century as a formalized profession and structure. There is little money to be made building tools that challenge the entrenched cultural norms of how policing should be executed and so we have seen trends carried forward that are merely technologically enhanced versions of historical tactics. As such, design decisions are becoming more and more consequential as networked architectures, surveillance, and high-tech equipment become part of every-day law enforcement.

There are examples of a break from failed efforts though. Technologies and programs that take a humanitarian approach rather than a strict enforcement approach have seen successes. While these efforts can see pushback from the administrative levels of state and federal law enforcement, they have paved the way for change in policing that sees citizens and their safety as the ultimate priority, as many police department mission statements claim.

In order to project forward to the future, and having outlined the origins and innovations of early policing, we now need to take a critical look at the profession and organization as it stands today. Many designs for law enforcement are unevolved, many tools used out of calcified tradition and lack of innovation. But there are also signs of possibility and small shifts toward a model of law enforcement design, mainly originating from the communities that struggle with the effects of its current designs.

The Dematerialization of Force

At A Distance: Imaging as the first Dematerialized Tool Of Law Enforcement

The impact that imaging technology has had on the police cannot be understated. This impact is both in terms the network of image-based technologies that are now aiding and extending the gaze of the police, as well as the sousveillance that has been made possible by the personal video camera, cell phone, and YouTube. We will explore some of the interventions and implications of these tools.

Body Cams

Also referred to as "cop cams" and "On-officer recording systems", the most significant addition of technology to law enforcement in recent history is the body cam. They have been marketed and deployed as a response to police shootings and an alternative to incomplete records of events captured by civilian video that begin after an interaction has escalated. Despite the positive response from many, hoping that transparency and oversight will mean a more conservative use of force, there has been pushback from a number of organizations and communities who see body-worn cameras as unacceptable, or at least of questionable value.

There are not simple "for" and "against" camps in this argument. Many police officers are against required use of body cams because they feel it is too intrusive and too much of an oversight in a job that is already criticized and scrutinized. Many police departments are pushing forward with programs they hope will be a solution to public outrage generated from defensible use of force. Some groups, for instance the ACLU suggest that with the right

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policies in place, there are benefits both for citizens and law enforcement, and have created model policy\textsuperscript{21} pursuant of a proper implementation. In their words:

"Although we at the ACLU generally take a dim view of the proliferation of surveillance cameras in American life, police on-body cameras are different because of their potential to serve as a check against the abuse of power by police officers. Historically, there was no documentary evidence of most encounters between police officers and the public, and due to the volatile nature of those encounters, this often resulted in radically divergent accounts of incidents. Cameras have the potential to be a win-win, helping protect the public against police misconduct, and at the same time helping protect police against false accusations of abuse."

Legislation on this topic is so varied and contested that the Urban Institute has created a legislation tracker\textsuperscript{22} that breaks efforts down along metrics such as "requires two/all party consent", "restricts recordings where privacy is expected", and "restricts public access to footage", among others. Some reports, for instance on from Cambridge University, tout that complaints against officers drop precipitously\textsuperscript{23}, a very tempting headline to believe. Phrases such as “contagious accountability” describe the result that police behaved better even when they were part of the group not wearing the cameras. However, this was a very narrowly scoped study despite its year-long timeframe, and only looks at the immediate year after the cameras are introduced. This does not represent whether the effect wears off given more time, or how in time, the cameras may actually increase the use of force as one report from Cambridge University and RAND Europe found\textsuperscript{24}. This last study actually produced more confounding and complicated evidence, as well as suggesting potential advantageous use of the technology,

leading to its own form of escalation. "Structurally, it provides mechanisms to protect abusive police officers and not the public," said Joo-Hyun Kang, director for Communities United for Police Reform.²⁵

It is worth noting that footage, which appears unambiguous to most civilian viewers, often doesn’t convince police review boards or courts. The killing of Eric Garner looked like manslaughter to most, but the video evidence from a bystander, who filmed the pre-escalation as well as the conflict, failed to convince a Staten Island grand jury. Even if it seems unambiguous, video is always subject to interpretation. And this is in the most ideal of filming circumstances. Looking closer at the actual footage recorded by body cams can be extremely distorted and ambiguous, due to the fact that, in many cases, these cameras are affixed to loose clothing. It is easy for one individual to have a substantially different perception of the events than another, as the New York Times showed with their footage of two individuals dancing²⁶. One could be forgiven for assuming the footage is of an altercation.

Recording Evidence Is Just The Beginning

In practice, there have already been events that have cast doubt on the reliability of early versions including events such as cameras turning off when a police officer shoots someone, only to turn back on in the immediate aftermath.²⁷ In addition, officers frequently have access to the footage their body cam captured before writing their reports of the incident. This one example of how policy crafted around physical equipment dramatically changes how we think about their purpose and use. Instead of footage imagined to be in the hands of prosecutors or the public who these cameras are aimed at, the imagined use case is now an officer reviewing how an altercation looks on video before deciding how to describe the event. This allows for


advantageous contextualization of video evidence that is rarely made available to the defendant before it is used in a courtroom.

Aggregation, storage, and access are concerns too. On one hand, there is the difficulty of obtaining what some argue should be defensible open records requests. There is evidence of journalists and agencies charging exorbitant fees upwards of $18,000 for processing requests, creating a barrier to disclosure. On the other hand, the retention time of previously captured footage that remains disconcertingly accessible and integratable into other methods of surveillance varies widely. (In this writing, we will not digress into the sizeable analysis necessary to explore the myriad ways in which this stored footage could be transformed into a more abstract data representation, potentially skirting policies applying only to the retention of video footage.)

Referred to collectively as “intelligence surveillance”, the long-term gathering of data (either sensor or image-based) and the systems and algorithms that work either real-time or retroactively on what is captured, these technologies add up to systems that retain a detailed record of daily life even when no crime is being committed. For a contemporary example of how these technologies are being used, and the discretion with which they are deployed, we can look to the controversy surrounding the Boston Police Department’s use of facial recognition technology on nearly everyone who attended the concert “Boston Calling”.

Reported on in a three-part series by the Boston Dig entitled “Boston Trolling”, an investigation revealed a collaboration between the BPD and IBM to secretly use a new facial recognition system on attendees. The system was not limited to facial recognition, but analyzed “analyzes every passerby for height, clothing, and skin color.” The system was also designed to “analyze body and facial patterns, to gauge panic levels and crowd sentiment, and to scan social media.” These are all features that should be viewed not in isolation, which would be cause for concern alone, but in the context of potential (some might say inevitable) integration with other technologies, the most likely being body cams. The next technology to be integrated is artificial intelligence (in some definition of the term). Axon downplays the idea

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that they will be analyzing historically captured footage, dismissing the assembly of "a kind of meta-surveillance database"\(^{30}\) (which is strangely appropriate language for them to be using) but it is exactly this large-scale aggregation, storage, and analysis that would appear to be behind their recent offer to provide free body cams to any police department that wants them\(^{31}\). Speaking in Axon's Future of Policing report\(^{32}\) about the potential for augmented facial recognition, a senior data architect at Microsoft (the company that owns the servers Axon's Evidence.com storage system) provided the following vision in which officers receive alerts when "...an individual has a known criminal record, or propensity to violence. Even if [the suspect] has not yet adopted a threatening posture, it heightens the overall threshold of awareness." An investment in the deployment of this much free hardware is hard to see as anything but the "loss leader" strategy of giving away hardware in order to establish a brand and sell incremental products to the initial purchaser. The incremental product in this case is Axon's cloud storage (and analysis) system, built because most police departments do not have the skills or funds to manage the rapidly expanding footage that inevitably piles up once a deployment of body cams starts. It also puts them in the position of possessing a truly unheard of amount of evidence and private information. Their tagline reads: "Recording evidence is just the beginning."


A Los Angeles police officer wears an AXON body camera during the Immigrants Make America Great March, which protested actions taken by the Trump administration, on Feb. 18, 2017, in Los Angeles, California. Photo: David McNew/Getty Images

Futures in Body Cam Technology

There are already examples of innovations and augmentation of the initial body cam designs, in some cases actually creating a networked solution that knits together surveillance from multiple devices. This is a feature of the newest versions of Axon Tasers and body cams, where any nearby body cams will initiate recording upon unholstering of a weapon. The fact is that the presence of this technology comes with social implications, and to some degree, a new social contract and set of behavioral norms between citizens and law enforcement officers. It

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has yet to be seen if, for instance, multi-party consent for the recording of an interaction will be advertised or assumed. This is the social component of features that are advertised as abilities of the latest Axon cams, which allow the disabling of audio to accommodate this practice. It is unclear how this feature could be exercised when an officer’s weapon is drawn. The Department of Justice “Implementations and Lessons Learned” report only refers to this feature in situations where a victim’s account of an incident is being recorded. It is important to note that the inclusion of this type of language and capability has the potential to introduce practices that purchasers may not have considered. In this way, the design of these devices have the potential to craft how they are used and not used. Designed thoughtfully, it is possible that this could lead to the creation of norms that are beneficial both to officers and as well as the public. If features had not been included to support multi-party agreement, it is possible that this negotiation might never have occurred to officers and policy makers. While this was likely a strategic inclusion to accommodate (and thus be marketable in) states with requirements already in place, what proactive features might be added to these technologies to promote norms that favor citizens rights or de-escalation? The uneven, and potentially disruptive nature of this new tool’s use (and misuse) means that social metabolism of this tool may need to run its course further before we can see what pitfalls and benefits this new intervention ultimately holds.

In the meantime, more scrutiny and study is necessary to provide what some suggest as the worst case scenario: a distributed state sensing organ, attached and used opportunistically, and then piped into a massively cross-referenced, artificial intelligence-backed network of digital surveillance footage objects with the ability to identify individuals with high-accuracy facial recognition, track them through space, and link them to databases that describe them much more in depth than almost any citizen would be comfortable with. These technologies are already being used in isolation, and the integration of them is not a significant technical hurdle. We can see how one simple sensor device, distributed broadly and integrated at the point of storage can quickly implicate far more than simply the physical design of the tool.

would suggest, and make nuanced design decisions even more consequential than a single, isolated use case would ever suggest.

**Force As Infrastructure**

As both architecture and technology have advanced, they have been strategically leveraged and integrated with each other for both spatial control, cognitive control, and surveillance of communities. Whether it is the architecture of buildings and roads, distributed sensor arrays, or data reflecting the attributes of the built environment, force has been imbued in the fabric of the urban environment.

**Strategic Architecture**

In "Architecture As Crime Control"\(^3^7\), Neal Kumar Katyal states "Architectural solutions can prove more practical than the utopian ideas often considered when crime control gets interdisciplinary, e.g., better parenting and families and stronger law enforcement (from the political right), or more jobs and education (from the political left)." That said, the types of interventions he suggests could have a singular impact on crime are far more permanent than most other interventions, and poor social and spatial calculus has the potential to impact residents of those architectures for generations. This is without even taking into account that architectural construction and urban planning projects are almost exclusively the domain of entrenched power and those with significant financial resources. To trust that the principles and motivations behind architectural designs will be executed in an egalitarian manner is to ignore much of the history of the industrialized human history. And yet it would also be a mistake to consider any attempt to drive architectural designs toward more humanitarian goals a pointless one. Some alternative approaches have emerged that seek to respond to architectural and infrastructural patterns instead of encoding values in cement and stone. It is worth looking at a few contemporary projects to consider how these efforts are faring under current circumstances.

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ShotSpotter and Force Multiplication

The ShotSpotter system is a large-scale, indoor and outdoor gunfire detection network deploying audio-capture and analysis devices across city streets and buildings, feeding detection events back to law enforcement. The copy on ShotSpotter’s website clearly plays on the constrained resources most police departments contend with today, as well as promising the human augmentation these technologies frequently achieve.

"Most cities face reduced budgets; yet law enforcement is being tasked with greater responsibility. Communities expect police to prevent crime, not simply respond to it after the fact. ShotSpotter Flex has been called a "force multiplier", helping police departments use their existing resources more strategically, producing better results."  

Like many of these for-profit technology ventures, the system lacks any kind of citizen-facing features. Like many systems, it prioritizes the expanded awareness of law enforcement, and gives almost no thought to what information would be useful for citizens to know in a critical situation, such as a visual alert that there have been shots fired in the vicinity.

The ShotSpotter triangulation system (ShotSpotter.com), and mounted ShotSpotter devices (CBS Chicago).

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The system seems to have had some degree of success, not only in leading police to crime scenes they would have otherwise not found\textsuperscript{39}, but also characterizing gun-related crimes in terms of frequency\textsuperscript{40} and time of day\textsuperscript{41}, not to mention location.

There seems to be a faith in the side-effects of the system that may not be backed up. Resident Farren Mason is quoted as saying of the system "More people getting caught, more people will stop,"\textsuperscript{42} however there is no evidence that fear of being caught by a system like this will actually impact the motivations behind gun crime. Research suggests that neighborhoods with a high number of gunfire incidents frequently do not call the police\textsuperscript{43}. This points to a cultural pattern that impacts the reporting of crimes and complicates the assumptions that police make about their work in communities. Might ShotSpotter be able to provide a map of distrust in the police by comparing its data to the data received via the 911 system?

Beyond the effectiveness of the system, there also seems to be relatively little critical reporting on the implications of deploying hundreds of microphones throughout city streets, though as the images above show, it is possible that citizens may not even be aware that the microphones have been rolled out in their neighborhoods.

Million Dollar Blocks

One project that attempts to respond on an architectural, geographical level is the Million Dollar Blocks project by the Spatial Information Design Lab (now the Center for Spatial Research). Through the use of criminal justice system data, Laura Kurgan, Sara Williams, and their collaborators were able to determine which city blocks were home to significant numbers of incarcerated citizens, and which of these represented greater than a million dollars being spent on the incarceration of the individuals formerly living on these blocks. They say of the resulting maps:

"The maps suggest that the criminal justice system has become the predominant government institution in these communities and that public investment in this system has resulted in significant costs to other elements of our civic infrastructure — education, housing, health, and family. Prisons and jails form the distant exostructure of many American cities today." 44

Million Dollar Blocks, by Spatial Information Design Lab.

This unique approach addresses resource distribution and the origins of recidivism instead of approaching the issue of inner-city crime from a control philosophy. "Our project refocuses criminal justice information: we start from the inside of the city, rather than trying to leave it behind. Our approach is a spatial one because questions of residence and movement are at the unacknowledged heart of the criminal justice system today — where people live, where they go to prison, and where they return." Novel approaches such as these should be looked to for inspiration, as they take a systems-level approach to the built environment and crime prevention that differs significantly from attempted solutions that focus on the individual as criminal and the citizen as potential threat.

The Contentious Design of the Police Station

Police stations are the quintessential representation of force as architecture. The most recent and contentious example of competing priorities can be found in the station design created by Danish firm Bjarke Ingels Group (BIG). Part of the controversy around this station is a result of initial funds invested in two other architecture firms, which were discarded after delays caused by economic decline, but there are clearly different views about the design based on who you ask.

BIG Rendering of proposed 40th Precinct Station.

On one hand, the design by BIG, which has yet to be built, was given an Excellence In Design award\(^\text{46}\) by the NYC Public Design Commission (PDC). The firm describes the building as a distinct departure from the architectural motivations of past police station designs: "Rather than evoke the notion of fortification, the bricks of the 40th...Precinct Station reference the various police and community functions that the building serves,"\(^\text{47}\). The new design uniquely features a "community meeting room", which, while underdefined in terms of purpose (the firm describes it as designed to "encourage dialogue with the community while providing spaces for officers to reduce stress and promote physical activity"), is entirely lacking from other designs.

It is no surprise to find aspirant language in a design brief, but it can be contrasted by some language used in the press that takes a distinctly different tone. The NY Daily News describes the design as "a huge, intimidating, gunmetal-gray fortress consisting of a stack of concrete blocks that resemble something out of 'Robocop.'"\(^\text{48}\). This is quite the opposite of the picture painted by the description of the accepted design. Perhaps unsurprisingly, the architect whose designs were discarded in favor of the BIG design criticized the station that will be built in the coming years. "With what’s going on between the police and the community, they put forth something that looks like a bunker?" Gorlin said. "I think it’s a waste of money and time from every angle." It doesn't help that this precinct in the Bronx is one of the most poorly performing in terms of crime statistics. Investment in architecture like this, whose price tag can frequently seem shocking to civilians unacquainted with the costs of building outfits like these, can seem to be prioritized over actual investment in community improvement, especially when the renderings of the station glorify the aesthetic value. These battles will continue perhaps until some real utility and improvement can be attributed to it.


The Scaling of Force: City Orbits

Thanks to the Center for Investigative Reporting, trials of city-scale surveillance via aircraft have come to light. As far back as 2012, law enforcement organizations have experimented with technologies that capture everything happening over large geographic areas. The utility of this imaging is not limited to the time-frame during which it is captured. One reporter compared it to TV show recording devices, suggesting that "like TiVo, it permits them to rewind, so that they can look back and see what happened anywhere they weren't watching in real time." One of the most significant aspects of these trials is that they were intentionally hidden from the public being surveilled. L.A. County sheriff's Sgt. Doug Iketani said “A lot of people do have a problem with the eye in the sky, the Big Brother, so in order to mitigate any of those kinds of complaints, we basically kept it pretty hush-hush.” This baffling disdain for the public’s right to know seems to be backed up by a general opinion that citizens will eventually get used to whatever degree of intrusive surveillance is covertly put in place. Capt. John Romero of the Los Angeles Police Department's Real-Time Analysis and Critical Response Division seems all too willing to make over-generalized comparisons to entirely different forms of technology introduced in the past such as street lights: “People thought that this is the government trying to see what we’re doing at night, to spy on us,” Romero said. “And so over time, things shifted, and now if you try to take down street lights in Los Angeles or Boston or anywhere else, people will say no.” There does not appear to be repercussions for breaches of public trust such as this, and insouciant attitudes like this are common despite regular public outrage.

Dematerialized Resistance

Technology is not only being leveraged by law enforcement on the population. There are many examples of citizens and civil rights groups using technology for sousveillance, the activity of “looking up” at institutions of power. With the proliferation of cellphones with cameras (incidentally, many police officers are issued a department cell phone in addition to their personal phones) uploading videos of police activity to platforms like YouTube has become common. After it became clear that the legal recording of police officers in the course of duty met with resistance, and sometimes violence by the officers being filmed, the ACLU has created apps to record police conduct, with versions for many states. MIT’s Center for Civic Media has build an app called Promise Tracker that allows citizens to aggregate images and metadata about government activity. Additionally, organizations like CopWatch NYC, which we explore further in this work, have been using technology, identity, and organization to form a strong participatory network dedicated to holding police accountable.

Examples of citizens building sousveillance architecture are not limited to the United States. A platform named “I Paid A Bribe” has gained much attention for attempting to track and report bribery in Indian law enforcement and has recorded thousands of incidents. The Global Voices author Namita Singh contextualizes this anti-corruption effort with Robert Klitgaard’s formula “C=M+D-A. Corruption equals Monopoly plus Discretion minus Accountability.”

The main force toward change in what is considered acceptable law enforcement procedure has been the widespread sharing of, and access to video evidence. Without it, we would not have had Rodney King, Sandra Bland, Tamir Rice, Eric Garner. These have all sparked debate and led to engagement with activism and focus from the media. These deaths and consequent public outrage do not always lead to meaningful form and policy change, but they have built on each other as cultural and historical touch points that make it impossible to deny a toxic culture.
“That which exists may be transformed.
What is non-existent has boundless uses.”
-Lao-Tse

Speculative Design, Futuring, and Social Change
There is a constellation of efforts acting across design, art, science, video, literature, parody, and other fields that are attempting to change or contemplate the future. The modes in which they approach this challenge include attempting to predict the future and to suggesting alternatives to it. These projects may address the future head on in a way that implicates the current course, or provide contrasting realities that call out the absurdities of the current direction.

As the work of this thesis attempts to instigate social change using an oblique approach, it is worth considering other projects that attempt similar goals through unconventional means. Traditional tactics for social change such as activism and street protest, lobbying, policy change, and the like play vital parts in affecting social change and giving voice to underrepresented populations. This work, however, uses a combination of design research, art, participatory design, and sometimes satire to instigate change. What follows is an incomplete collection of projects that use one or more of these elements to shift perception in the present, in order to impact the future. This review of prior art provides an overview for considering alternative approaches in the future, as well as situating this work in a series of related efforts.

**Non-Fictional Efforts**

This review of efforts will not only focus on works that engage with issues related to law enforcement, but it will also call out a few that are active in engaging directly with the issue of police oversight and reform. These are efforts that contend with policing as it exists today, in contrast to efforts we will look at later, which suggest evolutions, new frames, and possible futures.

**Police Review Boards**

Some efforts work from within the system of policing and government. For instance, there is an extensive network of organizations around the country belonging to NACOLE: The National Association for Civilian Oversight of Law Enforcement\(^5^9\), which, as of October 31, 2015,

NACOLE has 188 members. The City of Cambridge, for instance, maintains the Police Review and Advisory Board\(^6\). It is composed of five Cambridge residents who help to review complaints made against the police. The board lists the following as its goals:

- Provide for citizen participation in reviewing Police Department policies, practices and procedures;
- Provide a prompt, impartial and fair investigation of complaints brought by individuals against members of the Cambridge Police Department; and
- Develop programs and strategies to promote positive police/community relations and to provide opportunities for productive discussions, improved understanding and innovative ways of resolving differences.

While citizen-based police review boards are growing more common\(^6\), these are primarily reactive organizations that act as triage and sometimes investigative boards when issues have already occurred, and a citizen or group of citizens have gone through the effort, process, and likely stress of submitting a formal complaint.

**Communities United for Police Reform**

In NYC, there are a number of organizations dedicated to pressing for change in policing practices. Communities United for Police Reform\(^6\) is an organization that promotes police reform and coordinates attention and resources to further related efforts. They are adjacent to efforts such as Cop Watch NYC\(^6\) (whose website was not responding at the time of writing). The larger effort, under the name WeCopWatch\(^6\) formalizes the observation and

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documentation of police activity, abusive practices, and education about rights related to police observation. They also have close connections with the Center for Constitutional Justice, an organization "dedicated to advancing and protecting the rights guaranteed by the U.S. Constitution and the Universal Declaration of Human Rights." CCR's work on discriminatory policing has had significant success in mitigating stop and frisk practices in NYC: "In a historic ruling on August 12, 2013, following a nine-week trial, a federal judge found the New York City Police Department liable for a pattern and practice of racial profiling and unconstitutional stops."

Campaign Zero

Established in response to incidents of police violence in the past decade, Campaign Zero looks more to the future, rather than focusing on reactionary responses to specific events. Growing out of an effort to bring a legislative agenda to the Black Lives Matter movement, their website outlines goals for a future without police violence such as ending broken windows policing and demilitarization. They explain their hopes and goals in the statement: "We can live in a world where the police don’t kill people by limiting police interventions, improving community interactions, and ensuring accountability."
Media, Technology, and Design in Activism

One of the most active spaces in the resistance to and reform of unfair police practices is media activism. This term encompasses a number of activist activities that leverage media, technology, and design to communicate to the public and rally supporters around causes and reactions to events and trends in abuse of power. Some of these leverage graphic design, some use data as evidence, and some engage communities via events that call attention to critical information while providing more positive activities for communities to gather at.

Mapping Police Violence

Prior to 2014, there was no comprehensive database of police killings to be referenced. In the midst of national outrage at a series of police killings and acquittals, a few organizers took
matters into their own hands and built Mapping Police Violence.\textsuperscript{68} Several months later The Guardian\textsuperscript{69} and The Washington Post\textsuperscript{70} built their own lists. "Data as activism" projects in the social change space spawned many data visualization projects in the same vein, such as the Pitch Interactive piece "Out Of Sight, Out Of Mind: A Visualization of Drone Strikes in Pakistan Since 2004."\textsuperscript{71}

Conflict Kitchen

Using the restaurant format as a medium—a long with community organizing and graphic design—Conflict Kitchen "only serves food from countries with which the United States is in conflict."\textsuperscript{72} Menus, food wrappers, and culinary selections are all arranged to convey awareness and connection about contexts of aggression. Education is woven into a convivial experience, leveraging a profoundly human and community-oriented activity. The thoughtful design, which considers many aspects of the dining experience, creates more impact than any of the individual elements themselves could accomplish.

Backslash

While more of an exercise in marketing design, Backslash is an NYU ITP thesis project that collects a series of gadget suggestions for the protest context. With the tagline "In protests of the future, how will the underground fight back?", Backslash takes a near-future sci-fi tone. The artists claim that all of the technologies dramatized in the project are real and functional, but clarify that their aim "was not to find a solution to these problems...instead, Backslash focuses on design to provoke thought and to spark debate."\textsuperscript{73}

\textsuperscript{73} "Backslash.cc." \url{http://www.backslash.cc/}. Accessed 30 Apr. 2017.
The project does call out, and makes consumable, important trends in militarized police technology—for example, the StingRay surveillance device and tactics like kettling ("confining protesters to a small space, often followed by beatings and other human rights abuses")—but it is also worth noting that it engages in the problematic practice of mocking up struggles with authority in a stylized manner. The project's creators are seemingly unaware of the way their work may be perceived by populations who are disproportionately impacted by police violence when they feature only white faces, in many cases wearing make-up and pretending to struggle with police.

3D Printing Provocations

In 2013, Defense Distributed released the files for the Liberator pistol, an open-source, 3D-printable, single-use handgun. Couched in language from the crypto-anarchistic community, the creators say about their motivations: "It's the futurism, it's expanding free spheres of action....because we believe in this kind of decentralized planning as an alternative to central planning." This project is as much provocation as it is fabrication project, and while its politics are much further to the right than many activist projects, it is no less an activist media project than any other considered here. It is unlikely this is the last we will see of activist projects coming out of the 3D printing community, as this printed key for opening handcuffs suggests.

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A 3D printed key made out of ABS plastic, strong enough to open handcuffs.

Design Theory, Science Fiction, and the Power of World Building

Frederik Pohl has perhaps the most instructive quote for why fiction can be a tool for exploring and potentially avoiding future pitfalls of technology. He stated: “A good science fiction story should be able to predict not the automobile but the traffic jam.” There are a number of artists, researchers, and academics actively exploring fiction’s potential to imagine, engage, and confront possible futures. Doris Sommer, in her talk “Cultural Agents All,” 8 points to artists and describes culture as an organism that reproduces, evolves, and creates change. She describes how art, broadly defined, can be a tool for innovative thinking that doesn’t succumb to the typical constraints of the day: “Without art, it is very hard to think outside of paradigms.”

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Interrogative Design

The website for the Interrogative Design Group describes its work as "combin[ing] art and technology into design while infusing it with emerging cultural issues that play critical roles in our society yet are given the least design attention." The group, born out of Krzysztof Wodiczko's practice, continued his approach of using media and architecture to create politically provocative works that raised up marginalized voices and brought into view struggles that remain unspoken. His work "Abraham Lincoln: War Veteran Projection" in New York's Union Square Park transformed an otherwise silent statue into a living work. Projections of veterans' faces spoke with their own voices about the stresses and traumas related to their time in combat. His "Homeless Vehicle Project" (1988-1989) arguably made more novel design suggestions for the plight of the city's homeless population than the city had. Interrogative design should actively and consciously probe:

"Design as a research proposal and implementation can be called interrogative when it takes a risk, explores, articulates, and responds to the questionable conditions of life in today's world, and does so in a questioning manner. Interrogative design questions the very world of needs of which it is born. It must respond with a double urgency to such a world. First, it should function as an emergency aid in the process of survival, resistance, and the healing of social, psychological, and physical wounds. Second, it needs to increase and sustain the high level of ethical alertness that creates, in the worlds of Benjamin, a state of emergency understood not as an exception but as an everyday ethical condition, an ongoing motivation for critical judgement toward the present and past to secure a vision for a better future."  

- Interrogative Design (1994)

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Calm Technology

Some instructive works fall outside of what is conventionally considered fiction, but describe principles that lead to better futures. Amber Case uses this approach in the book "Calm Technology." Her writing lays the groundwork for designers to imagine devices that live in a future where we are not subject to a barrage of anxiety-producing alerts and interruptions. One where a different set of values are prioritized. She suggests that "technology should amplify the best of technology and the best of humanity."\(^{85}\) While the book addresses desktop computers and mobile devices, the lessons generalize to any design where human interaction is the core function. It makes a clear case for careful design based on how best to guide human behavior.

Civic Imagination

In the past year, there have been a number of interesting links established between fiction and civic engagement. The Harry Potter Alliance is one of the organizations that has leveraged popular fiction to engage young people in real civic action. They have used the term "cultural acupuncture" to indicate the realigning of ideas and changing their flow through culture and society. Their goal is to shape how ideas about agency, action, and justice flow, from fandom into real-world action. Henry Jenkins has written about this under the title "civic imagination," describing it as "a conscious rhetorical strategy mapping fictional content worlds onto real-world concerns."\(^{86}\) Jenkins' work has taken on the form of his Civic Paths group\(^{87}\), which promotes and organizes participatory culture. In discussing the group's project "Imagine Us, 2040", Jenkins' states "The goal is to describe the kind of world we want to live in — an act of advocacy rather than simply critique."\(^{88}\) These efforts have a fair amount of overlap with what

author Walidah Imarisha calls Visionary Fiction: "...fantastical literature that helps us to understand existing power dynamics, and helps us imagine paths to creating more just futures." Imarisha's approach comes more from a reaction to many forms of fiction and fantasy, to "be able to differentiate from mainstream science fiction which so often just replicate[s] the power inequalities of this world and grafts them onto the future."

Much of the way law enforcement is portrayed in science fiction does not diverge greatly from the way it operates today. Robocop, Blade Runner, The Handmaid’s Tale, and 1984 are all more or less extensions or re-contextualizations of modern policing and not re-imaginings. This is perhaps because much of science fiction is dystopian in nature, something that Neal Stephenson has been pushing against in his Project Hieroglyph. The project advocates for positive visioning in sci-fi, recognizing that our fictions are frequently looked to when imagining and engineering the future. They argue that it is "Time for the SF writers to start pulling their weight and supplying big visions that make sense." Imagining a positive future of policing is far enough outside the orbit of ordinary science fiction as to be provocative and transgressive.

Edited Realities, Critical Memes, and Performative Satire

There are a series of more performative methods to consider. These can range in form from images to short videos to interactive device art. Tega Brain's "An Orbit (lunar)" demonstrates how interfaces and functionality can be subverted to renew our sense of defaults and assumptions in our technology. Mapping its reliability to the phase of the moon, forcing the user to adjust to new constraints in the diegesis presented. She calls this Eccentric Engineering:

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"developing atypical and parafunctional technologies as an artist". It is critical that artists make creative use of technology as a medium that filters so much of our everyday, and renders its effects visible to the uncritical eye. Brain's work leverages what Dunne & Raby call "user unfriendliness" to accomplish this conceptual break.

Sometimes it takes almost no context for a simple provocation to resonate. In "Antenna", Russian designer Dmitri Morozov (also known as ::vtol::) presents what is called by some a "tongue-in-cheek anti-brutality device". When his modified police baton is used to hit something (or someone) a text message is sent to the officer's mother with the text "Mom, I Hit A Man!!!". With a single sentence and a thoughtful repurposing of common technology, Morozov conveys a cascade of implications: the violence implicit in these tools, the seat of

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moral accountability, and maybe most significantly, the fact that we choose not to implement more reasonable checks on violent behavior through our tools. It is most effective because it is possible.

His comment “I’m not an activist, but I do think art could help...raise awareness through irony.” shows how varied the positions are that these works can come from. The proposition of change can come from anyone in society with a critical voice.

"Men In Grey: Making Surveillance Tangible" from the The Critical Engineering Working Group is a project that reveals assumptions about the safety of our communications technology, warning that "only when networked computer users are made to tangibly witness their vulnerabilities will they reach vital criticality, or a 'healthy paranoia'." This creates a visible organization around a series of threats that typically remain transparent to the majority of users, in a space that feels more like dramatization than fiction. Other works hijack existing organizations, distorting their expected perception to call out the absurd realities of them. The Yes Men do this with huge success in their Bhopal hoax, impersonating representatives from Dow Chemical, and purporting to accept full responsibility for the Bhopal chemical disaster.

Memes are playing a similar, albeit minimal version of this role, swapping dialog and context out to create a new story from images of real situations. Allowing rapid recontextualization, captioned memes are no less a form of cultural critique than the meticulously crafted activist graphic design. Outfitting images with commentary and imagined dialog, this format allows anyone to repurpose media with their own perspective, sarcastic or otherwise, on current events.

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Futuring, Speculative Design, and Social Dreaming

While future studies and a number of practices under the title of "futuring" have seen increasing popularity in recent years, researchers have been formalizing and practicing these techniques since the 1960's and 70's. They use of structured activities to predict future trends and describe visions of the future. In "Future Workshops: How to Create Desirable Futures", Robert Jungk and Norbert Mullert outline and advocate for socially engaged, citizen-focused futuring. Described as a response to both the failings of inclusive design and shallow attempts at involving the public in large-scale development, Jungk and Mullert's future workshops involved citizens in the process of describing the futures they wanted, where that opportunity is usually foreclosed: “By the time schemes involving construction, technology or economic policy changes come up for so called ‘consultation’ they will generally have completed a bureaucratic multi-stage procedure of requirement identification, formulation and selection of draft proposals, all the way to project definition.”

Industrial Futures

Concomitantly, organizations like the RAND Corporation were producing large-scale futuring outputs to guide corporations and governments in long term strategic planning. This has continued to present day, focusing on specific industries and sectors of the economy. In 2015, RAND published the results of a futuring exercise focused on policing in the United States entitled "Visions of Law Enforcement Technology in the Period 2024-2034: Report of the Law Enforcement Futuring Workshop." The participants of the workshop consisted of a "diverse group of law enforcement practitioners from municipal, state, and federal law enforcement organizations and representatives from academic institutions." 99 (This is the fairly common representation of who is invited into the design space of the police.) The results of these futuring exercises do not always match the political, social, or moral views of desirable futures. This is clear from the primary findings listed in the report:

1. The most desirable futures envisioned by workshop participants included ones in which society comes to terms with large amounts of formerly private data being widely available, and ones in which network-centric policing is widely used.

2. Desirable scenarios, but less desirable than the above, included ones in which law enforcement operations are increasingly militarized.

In no small way, the work of this thesis is seen as a counter to these types of reports, limited to private and governmental participation, and only representing and reinforcing perspectives that have been shaped by a long history of insular thinking and neglect of popular resistance to these approaches of law enforcement.

There are many other examples of futuring methodology used in government and community contexts. The European Union, for example, produced "Futurium" as a framework for participatory policy work in which they state, "Futurium is a small concrete attempt to respond to the growing demand for citizen participation in policy making. Its structured approach to

content co-creation and synthesis allows streamlining otherwise expensive traditional foresight processes. ¹⁰⁰

Institutional uses of futuring have a long history, but they reflect the institutions and rigid analytical approaches they are practiced in and are frequently grounded in trends that can be seen clearly and focus on likely outcomes to be promoted or avoided through strategic maneuvering. They are also centered around optimization and scale. One of their core principles is efficiency, or as the Futurium project named it, “streamlining”, finding convergence and agreement. They do not entertain dramatically different futures, or take on the full range of possible outcomes beyond the probable. This conservative efficiency precludes much of what might be desirable, but not probable. To look beyond these more mechanistic, formulaic efforts, we need to consider broader, potentially less efficient, but no less insightful ways of confronting futures that are based on people’s dreams and desires, and less on how likely those alternate futures are. This is where critical design, speculative design, and design fiction play a valuable societal role.

Speculative Civic Design

The entirety of contemporary work in Speculative Design is beyond the scope of this document, but several projects inspired this research, which will be detailed in this section. The examples presented here value a diversity of possible futures. It is this diversity of “allowed” futures that make the results generative, unconventional, and unique instead of converging on popular views and narratives.

In their book Speculative Design, Anthony Dunne and Fiona Raby coin the term “critical design” and outline the approach of speculative design, providing a diverse collection of works and and motivations. They describe this approach as particularly suited for problems that may be difficult to reach consensus on, or domains where it is difficult to imagine a different situation than the status quo: “This form of design thrives on imagination and aims to open up new perspectives on what are sometimes called *wicked problems*, to create spaces for

discussion and debate about alternative ways of being, and to inspire and encourage people’s imaginations to flow freely. Design speculations can act as a catalyst for collectively redefining our relationship to reality." The mode of design they advocate for does not suggest that the imagined reality needs to be realized, or that the designs are intended to be aspirational. Instead, the value of such a mode lies in its disruptive nature. Dunne and Raby suggest that, like other experiences in life, speculative designs provoke a shift in thinking: "Change can happen in a number of ways: propaganda, semiotic and subconscious communication, persuasion and argument, art, terrorism, social engineering, guilt, social pressure, changing lifestyles, legislation, punishment, taxation, and individual action. Design can be combined with any of these but it is the last one—individual action—that we value most. We believe that change starts with the individual and that the individual needs to be presented with many options to form an opinion." As we will see in this work, providing sacrificial concepts to participants takes on this purpose of a shift in thinking. Provoking individuals to think outside of their assumptions about the inevitable evolution from the current moment, and understanding how they navigate these uncharted waters is a research method in itself.

**United Micro Kingdoms**

Dunne and Raby have created one work in particular that investigates futures in which the state, citizen priorities, and material culture have taken dramatic turns. United Micro Kingdoms describes four concomitant futures, inhabiting a possible future of the U.K. The beauty of this work is that it allows parallel futures to live in the same space, while letting us explore each different set of circumstances: "Each county is an experimental zone, free to develop its own form of governance, economy and lifestyle."

This project covers much ground, but presents it in a format that is both digestible, and generative. It doesn’t overwhelm us with details about each future, but gives us waypoints from which to wander. The details of how each set of citizens arrived at their style of life is left for the viewer to construct. Physical models and renderings of the objects of everyday life allow us to inhabit these futures in ways that fiction would not otherwise, placing a part of the possible world in our own present.

Beyond the concepts and objects that make up this, and other works of speculative fiction, Dunne and Raby make it clear that conveying these worlds does not attempt to solve problems, but to disrupt what we think of as possible futures: “There are no solutions in these projects or even answers, just questions, thoughts, ideas, and possibilities, all expressed
through the language of design. They probe our beliefs and values, challenge our assumptions and encourage us to imagine how what we call nature could be different."\(^{102}\)

Design, Policy, and Aging

Lucy Kimbell, the author of "Applying Design Approaches to Policy Making: Discovering Policy Lab", spent a year in an academic fellowship embedded in Policy Lab, a specialist team based in the Cabinet Office of the UK government. She studied the impact of speculative design, among many other approaches, in the context of policy creation. In one use case, the design firm Strange Telemetry introduced "Speculative Critical Design" as a process by which to better understanding of an ageing population on society:

"Three workshops were run in which several bespoke visual artefacts were used to anchor discussion and debate. The workshops were centred around the themes of what work, services, and transport and mobility might be like in 2040. Several key themes emerged, including the need for community - and associated fear of isolation - and for the wider support and investment needed to address this. In discussions around what could be done to 'prepare', participants were clear on the difference between things which individuals could do (eg. Saving for retirement, keeping abreast of digital skills), and those challenges which required larger, systemic, interventions (eg. civic planning, large-scale skills training)."\(^{103}\)

While these workshops sometimes resulted in disagreements about possible futures, agency, and equality, even these disagreements are a valid output, as they identify areas where singular perception of the subject at hand are not broadly held. The workshops also revealed common concerns and insecurities about the future, not always addressed in human-centered design approaches used in institutional futuring exercises. For example:

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\(^{102}\) "Speculative Everything | The MIT Press."

\(^{103}\) "Future of ageing: speculative design workshops - GOV.UK." 6 Jul. 2015,
"Across the workshops, there was strength of feeling from participants about systems being designed without them (and requiring adaption to), rather than in consultation with them; and at cuts to services, especially healthcare."\textsuperscript{104} Here, it is important to note that speculative design does not solve the problem of inclusion. It is just as easy for speculative design projects to be as isolated as any other civic project. In cases where those impacted by the issues addressed, it behooves designers to engage in a process of participatory or co-design in order for the speculative design process to do real work as a democratic tool.

Extrapolation Factory - Fictional Emergencies

The New York City-based group Extrapolation Factory has engaged in a portfolio of diverse experiments and workshops using Speculative Design as an approach to potential future challenges. In their book "Extrapolation Factory Operator’s Manual", they detail the inspirations for their work. These inspirations are structural as well as embracing of uncertainty. Extrapolation Factory relies on the structural work of Jim Dator’s, which describes the four most popularly identified Western narrative arcs regarding the future: continued growth, systemic collapse, conservation (or discipline), and transformation. Contrasting this is an acceptance of uncertainty from another influence in their work, Arthur Koestler’s 1964 book "The Act of Creation". In this book, Koestler describes his concept of "bisociation", "the inherent multivalent...nature of the creative act."\textsuperscript{105} The Extrapolation Factory cites him as describing this as a "transitory state of unstable equilibrium where the balance of both emotion and thought is disturbed." The embrace of uncertainty lends a flexibility to Extrapolation Factory’s methods that allows them to contend with a diversity of possible futures.


In their collaboration with NYC Emergency Services "Alternative Unknowns"\textsuperscript{106}, The Extrapolation Factory applies these methods in the form of a participatory, role-playing event in which live actors participate to embody fictional crises, and the created context is used to explore details and possibilities that the crisis might give rise to. Direct interaction with citizens and the governmental organizations that serve them allows for a multiplicity of views and priorities to be co-located, providing details and opinions that would unlikely be uncovered in a survey or brainstorming session.

Design Fiction and Provocative Storytelling

Many fictional works in design appear isolated and self-contained, and frequently these are only effective in the world that they they fictionalize around the design. Some, however, are richer descriptions of that world, not in a didactic way, but in a way that couches the design in a story and a context that conveys an aesthetics of use. We see effective use of this in Sputniko!'s 2011 piece "Menstruation Machine (Takashi's Take)", where we are not merely presented with a device for men to simulate the pains and complications of menstruation, but see it in action in the everyday scenarios. Beyond just a description of use, details convey the cultural context and social implications of the design. This is particularly useful when part of the message is attempting to convey the motivations that may not be familiar to many who encounter it. Much of design's potential to do critical cultural work is based in its ability to reveal struggles and potential solutions or alternate evolutions.

Another example of compelling design fiction that makes a story and context real enough to respond to is Ai Hasegawa's "(Im)possible Baby." In this project, Hasegawa provides an example of how design fiction can help us struggle with questions before the implications are already a foregone conclusion. Through a series of renderings, she simulates the conception and birth of two daughters from a lesbian couple, and composite images of the children enjoying life with their mothers make this story world feel grounded and real. She describes the purpose of this project in the context of both science and society:

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\end{flushright}
"I believe that the role of ethics in technology is similar to that of a brake in a car. A car needs to be able to both accelerate and brake in order to safely arrive at its intended destination. In front of the iris in a Petri dish, I would like to stimulate a discussion about the ethics of babies with same-sex parents." 107

This project does not simply present us with a fantastical future or device, but creates a compelling mock-up of a scientific possibility that has implications on a personal as well as the societal scale. The issues and emotions it confronts are aspects that science is not equipped to address, but are just as significant as whether or not the science is possible. The diegetic world built around these possible characters allows us to respond, positively or negatively, and begin discourse before it would ever be possible to do so at such a resolution.

Future Social Change

These projects approach the future from different angles. What they all do, however, is attempt to confront social change, whether speculative or inevitable, and describe the complexities, motivations, and nuances of change in a way that brings otherwise nebulous realities into focus. In the next chapter, we will describe a research approach and mode of community engagement that takes these examples as a starting point, and leverages design research and discourse to grapple with social and political struggles around a contemporary and contentious subject. It will reflect on how social change, futuring, and speculative critical fictions can create space to imagine futures that we may want to attempt. These conversations are never easy, and when discussing the possible and not just the probable, arguments about the right approach can be endless. Providing "sacrificial designs" as a starting point for conversations about what futures are desirable, these fictions attempt to do real political and social work, escaping iterative, incremental change and escaping generations of design decisions.

“War is a monstrous failure of imagination.”
- Franz Kafka

Design and The Police: Citizens Exploring Futures
The design of the police has historically been the domain of those in power, crafting policies and encoding values, but excluded from this process are many people the force is sworn to protect. It is the contention of this work that communities provide the greatest insight into how policing should be designed, what tools are appropriate to accomplish the responsibilities of the job, and the how the nuances of an experience under a protective power can be conducive to cooperation and safety. Given an absence of civilian participation in the evolution of law enforcement, this research attempts a first step at opening up the design space of the police. Through a combination of interviews, design research, participatory design events, and sacrificial concepts, this work attempts to engage citizens in a process of exploring this design space. Encouraging education and agency on the part of citizens as well as the police are goals of this work. What follows is a description of the methods and experiences related to this effort, lessons learned, and a discussion of how we might all engage in creating the future of the police.

Historical Design Review

To begin this work, a review of historical precedent for design choices in the space of law enforcement was necessary to build an understanding of what is a contested design space. This space is at minimum, binary (i.e. law enforcement and citizens, primarily to the exclusion of the latter) and contains the results of decisions made very early on and adhered to for much of its history. Historical context, as discussed in Chapter 1, provided a foundation for interpreting trends, as well as the opinions and values of present day. The fact that this history is very different based on location is an important detail to reflect upon. This work focused primarily on the U.S., but in each culture, the power of the state reinforces particular cultural norms and values, as history of a culture is intrinsic to the history of its law enforcement.

The physical design of the police encodes this culture as well. The institutions, mechanics, and aesthetics of the prison system are entangled with the way police detain, interrogate, and transport who they define as criminals. When productively subverted, these parameters aid the design of objects that represent the possible futures of law enforcement.
A substantial review of the history of this space also helped develop relevant interview questions, forming a deeper context for which to build concepts and objects that allowed both police and citizens to participate in the evaluative and imaginative aspect of this design space.

Sacrificial concepts

Based on the preceding historical review of the law enforcement design space, as well as a categorization and expansion of design values developed during a researcher in residence program in the summer of 2016 at IDEO NY, a series of sacrificial concepts were chosen in order to create representations of possible designs. The purpose of these concept sketches was not to suggest what were thought to be the best solutions to a series of problems, but rather to serve as a starting point for conversations and interviews, where all involved could think critically about what designs such as these would mean if they were deployed. Any responses, positive or negative, would build around each concept in order to expand the understanding of the concept, as well as the reactions they would likely garner from both law enforcement and policed citizens. Areas of interest included, but were not limited to:

- degree of comfort or discomfort
- sense of appropriateness (or inappropriateness) of technology
- reaction to any adjustments in the existing power dynamics between police officers and civilians implied by each concept

These concepts (rendered by Selma Durand) were sketched in pencil and water-color, so as to indicate their tentative nature. If the concepts were rendered in a high resolution, it is likely that the interviewees would consider them inflexible and would not solicit adjacent versions. A goal of these design research interactions was to better understand how individuals react to having agency in this space. As such, the concepts and contextualization attempted to leave as much room for suggestion and argument as possible. It is worth mentioning here Ezio

108 IDEO. https://www.ideo.com/
Manzini's concept of hybrid realities—"a mix of reality and imagination". The danger, he notes, of this approach is creating a manipulative rhetorical instrument, and suggests that concepts be couched in a wider design scenario "seen as designed and built to make the conversation richer, more engaging, and more constructive (in other words, with less risk of ambiguity and misunderstanding)." It is in this spirit that the sacrificial concepts were conveyed. During interviews, the general purpose of the study was made clear (though not so much as to bias answers) and participants (both civilians living in New York City and Boston, as well as police officers working in these cities) were encouraged to ask questions, critique, and recommend alternatives to the concepts as presented. The concepts are presented below with brief descriptions of what they suggest.

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1. Water Bottles As Protest Support/Messaging

Conflict is at the heart of citizen/law enforcement interaction. It is the primary circumstance for the majority of encounters. The opposite of this interaction is support and care. This sacrificial concept is perhaps the simplest of any interventions in this work, and yet it still feels relatively distant from current realities. There are examples of fire departments having water on hand for dehydrated protesters, but police don't tend to take on a supportive role during protests, despite the fact that protesting is a guaranteed right of every citizen. It is in this contradiction where state power has a chilling effect on guaranteed rights that this intervention takes place. Police providing light tactical support to protestors creates a moment of interaction that isn't

founded in conflict. The physical object, like many tools of law enforcement (e.g. the cop car) provides an opportunity for contextual messaging. These bottles are suggested to have messages of support and a guarantee of aid from the police, regardless of politics. It is an opportunity for communication across a social barrier that is rarely crossed unless it is a coordinated effort to change perceptions of law enforcement like the police-youth basketball game112 or Operation Hoodsie113, the Boston Police Foundation’s ice-cream truck outreach.

Since this sacrificial design was created, there has been an outcry114 over a similar fictional intervention as seen in Pepsi’s advertisement featuring Kendall Jenner handing a police officer a Pepsi, and seemingly diffusing tensions between protesters and police. While this advertisement at least portrayed a dramatically oversimplified and naive picture of what the experience of bridging police and communities, and at worst borrowed imagery from the Black Lives Matter movement while ignoring the real danger and death that police violence causes, it suggests that citizens might reach out to police and expect a positive response. What this speculative intervention suggests is much different. It suggests that law enforcement, as a culture that has lost the respect and trust of the public it serves because of abuse of power, might gain something in strategic as well as cultural ground by attempting to add simple supportive responsibilities to a context that has typically been the stage for conflict instead of protection.

2. Police Identity At A Distance

Typical police badges are about 3 inches tall and difficult to read from a distance of more than 5 feet away. The badge is meant to act as an ID, allowing citizens to identify which officer was acting in their community, providing some level of accountability. However, if a citizen is trying to identify an officer, it is unlikely that the situation is a safe or comfortable one and approaching within 5 feet is rarely a reasonable choice. In addition, despite varying laws that sometimes compel an officer to identify themselves\(^{115}\), this is not a constitutional guarantee. This sacrificial concept suggests a sports jersey-like number identifying the badge number of the officer. With the filming of police on the rise, a highly visible form of identification would

allow the identities of police officers acting in a community to be recorded for future evidence of police actions.

3. Police Identity Cards

On the spectrum of officers identifying themselves, this sacrificial concept requires an individual to approach the officer in order to receive an identity card. On one hand, this creates a calling card that could be used to familiarize individuals with an officer who may be working in their community on a regular basis and allows youth a way to interact with a police officer and understand their role in the community. In a lighthearted way, it could be seen as a collectible similar to the baseball card that the format is based on. Secondarily, it could be an easy way for officers to convey their identity without having to wait for an inquiring citizen to write down their name and badge number.
4. How Is My Policing?

This is a relatively simple intervention adapted from the common "How's My Driving?" bumper stickers that provides a public prompt for people to assess behavior on the road. Its purpose is two-fold: 1) to act as a deterrent for unacceptable police behavior, knowing that citizens have a direct and obvious way to report such behavior, and 2) to solicit feedback from the community. It is common for a police force to have an internal affairs department through which one can submit a complaint about what is typically abbreviated as FADO: "(1) using unnecessary Force, (2) Abusing their authority, (3) speaking Discourteously, or (4) using Offensive language". The definition of such behavior is open to interpretation, and it is rare that police departments actively advertise and facilitate the method of complaint reporting. This concept suggests such a practice.

Arguments and discussions about what is and what is not appropriate police behavior, what actions deserve to be recognized as laudable, and what modifications should be made to the way police execute their responsibilities are rarely held in a structured, community-facing way. This sacrificial concept suggests a public digital soapbox that would allow citizens in a given neighborhood to speak publicly about the police and have their voices heard in a public forum as an alternative to being lost in a police complaint process. The soapbox invites the public to engage in an ongoing conversation about how they want to see police behave in their own community. While YouTube postings share feelings and encounters with the entire world, this geographically tethered intervention would allow a local community to host a conversation about what goes on in its own locale. It of course also ties a private citizen’s opinions on law
enforcement to their identity. Since these interventions are intended as a starting point for conversations, trade-offs such as these can be productive.

6. An Enabled Gun Holster

In the course of police interactions, there are a series of inflection points that accompany escalation. One of these is the officer's choice to unholster his or her weapon. This indicates both fear on the officer's part and a decision to enter into a scenario where deadly force may be necessary. This sacrificial concept takes advantage of the opportunity for subtle design intervention. Interventions in the course of law enforcement, even if they are intended as an experimental adjustment, cannot interfere with the officer's ability to do their job if they are to be considered acceptable by officers, and cannot put them in danger via distraction or complication. This concept augments an action already taken by the officer, using it as a hook
for recording of evidence. As a network-enabled device, the opening of the holster records the date and time of the action, and stores it for review by law enforcement administration and anyone with access to this data. This can be used as a statistic to evaluate the officer’s frequency of force contemplation, or as a data point in the collection of evidence that describes a use of force for review. Beyond the statistical and evidential reporting however, the intervention, which officers are aware of triggering, is intended as a nudge toward a more contemplative, intentional decisions when choosing to draw their weapon. Knowing that the action is the subject of reporting and possibly scrutiny, giving more weight to this otherwise inconsequential motor action, it is the hope that officers will be less likely to draw their weapon when the situation does not truly require it.

7. A Projected Space For Conversation
In many altercations with police, the situation escalates due to either the officer or the citizen feeling physically trapped and endangered. This frequently happens when "de-escalation tactics, which include slowing down, creating space, and using communication skills to diffuse potentially dangerous situations" are not used. This concept suggests the use of a "virtual space" delineated by a projected line. It creates a shared understanding of physical space and the parameters of interaction, without requiring the officer to be in close proximity to the citizen or to physically coerce them when the first request is communication. While innovations in police technology are possible in terms of reducing violence and escalation, there is a base level of control from which law enforcement derives its efficacy. This intervention is an attempt at "softening" that power and providing more "increments" in between initial engagement and physical force. It should be recognized, however, that this tool is still in the hands of the police. Is it possible that this device, left in the hands of a police force that already finds reasons to use force where it may not be warranted, might use "crossing the line" as an opportunity for an even more brutal and reactive response?

8. I Feel This Safe

There is a history of "selective distribution" of law enforcement that is reactive to both location and temporal distribution of crime statistics. The distribution, however, is historically a reaction to data and not to citizen sentiment about how safe they feel at any given time. This

sacrificial concept suggests an inversion of data collection methods, prompting citizens to register when they do or do not feel safe in their neighborhood. Prompted by citizens instead of police perception, this device would allow communities to decide when it is reasonable to request the aid of police without making a distinct yes or no decision to bring the police to the neighborhood. It is important to note that this type of device could be leveraged very differently depending on the history of policing in a particular community. There is evidence that depending on the demographics of a community, and the proximity to and time since recent excessive use force by the police, reporting of crimes can drop significantly. The case of the beating of Frank Jude attests to this. "What explains our finding is not some administrative glitch but the fact that police violence against an unarmed black man was registered in the collective memories of black Milwaukeeans as part of a larger pattern."

Would this device reflect that people feel safe because of, or despite, the presence of the police?

Police training (and retraining) is a common topic when discussing the reduction of unreasonable use of force, and "know your rights" training is a frequent activity in activist communities. However, no efforts engage the police in educating citizens about how they work, where lines are drawn in terms of triggering police activity, and what rights citizens have in a particular jurisdiction. This sacrificial concept suggests that officers train citizens on exactly how police operate, and how to avoid infringement of the law that is common in a particular locale. This doesn't have to be the police aiding citizens in getting away with crimes, but could act as an outreach opportunity to increase conversations between law enforcement and citizens and reduce misunderstandings on both sides that lead to escalation and disconnection between law enforcement and communities.
An intervention that works in the direction of citizens to police officers, this paper-based concept would list expectations for police conduct when officers are engaging with a citizen. It works both as a reminder to citizens about exactly what their rights are, and an indication to police officers that the citizen is aware of their rights in any interaction. It may also provide a vehicle for law enforcement officers to familiarize themselves with the expectations particular to a given locale, as patterns of over-policing and the habits of a particular police culture can be localized to particular parts of the country. It is left unspecified for the purposes of this design research, but it is important to contend with the questions of who authors this document and who distributes it.
Interviews

Not all of the interviews that were undertaken for this thesis will be reviewed here, but a selection of them point towards lessons that design research can provide to speculative design projects that solicit community involvement.

Selected Intercepts with Police

The first interviews pursued as part of this work were street intercepts (short, impromptu interviews), approaching police officers in uniform on duty and asking them a short set of questions. For this particular profession, there is a limited extent to which a street intercept conversation can last due to the nature of the job and the desire not to interfere in their business. As this work focuses on the physical design of the police, the intercepts focused on which tool police believe is most important for policing. Participants most commonly cited the radio in these encounters as it allows them to call for backup, an important component of the networked aspect of the police.

Communication as a Tool

The most surprising response, however, was ‘communication’. "Communication is the most important tool," one officer told me on a NYC subway car. "All of this stuff hurts," he said as he motioned to his belt holding a baton and a holstered gun. He indicated that communication had the power to de-escalate a situation and prevent the necessity of violence. The officer was speaking about verbal communication, not a physical tool, but this is a generalizable design value. There are many ways that communication plays a part in policing, from posture to bumper-stickers on police vehicles, to the way police departments communicate online. The tools of language and communication have the potential to change the circumstances that lead to the use of tools that inevitably escalate interactions.

Redirection in Intercepts

Another way that communication is used by police in on-the-street interactions is redirection to official sources of information. A number of officers I tried to ask questions of responded by citing official phone numbers, websites, and departments. This mandated redirection to a
centralized authority silences the individual voices of police officers in the public, dramatically reducing the amount of understanding that can be gained by the (mostly fictional) casual chat on the street. This behavior may be more common in large organized forces such as New York City where the majority of these intercepts were executed, but as a trend, it has a chilling effect that redirects citizens to a centralized channel that is less likely to be utilized because of its barrier to entry. It is possible that an adjustment in method might find ways to skirt the pressures that cause officers to refer questions to the larger apparatus. For deeper discussions however, one-on-one interviews provide a space much more conducive to nuanced answers.

Selected Interviews with Citizens

A series of citizen interviews were undertaken in order to better understand the diversity of contexts and cultures in which police operate, and how those contexts and cultures perceive the police differently. The primary purpose of these interviews is to position the preceding sacrificial concepts in a spectrum of perceived effectiveness, morality, and acceptability. Finally, the process allowed the interviewees to participate in the design and futuring process by giving them the space to suggest modifications or alternatives.

What follows is a selection of these interviews, first detailing each individual’s experience and perception of the police through a semi-structured interview. The work approaches these interviews in a design research mode, valuing a richer image of the design space and the priorities and values held by the interviewee (via tangents and anecdotes) over their responses to specific aspects of policing. The initial interview is conveyed in order to give context to subsequent responses about the sacrificial concepts each of them were presented with. Isolated responses to designed provocations can help refine why they are seen in a positive or negative (or more often, a complicated) light. However, pursuant of a practice-led design research approach, these interviews are juxtaposed here to provide a more complete understanding of the background that informs their reactions.
John, Former Community Organizer, Resident of Brooklyn

John has lived in Bedford-Stuyvesant for 5 years within the same 5 block radius. He works in the Administration for Child Services, focused on policy, planning, and measurement. He is 30 years old, with parents that are Jewish and Ethiopian. Having spent his childhood growing up in Jamaica Plain, Boston, he attended Boston Latin School. He considers himself an activist and cares about social justice issues. He loves hip-hop and loves to travel.

When he thinks about the police, John perceives an "authoritarian figure that's coming to stop you from doing something that's wrong," a perspective that he admits may be a result of his personal experiences. He has also had plenty of positive interactions as he’s gotten older and understands that police are people who live in neighborhoods just like him. This is not without conflict, however. To him, police are "people you run from or people that keep you safe...They are both an institution to fear and one to turn to in a time of need." This duality was commonly expressed in the interviews related to this work. Unsurprisingly, John feels that he gets extra attention from law enforcement as a result of the color of his skin.

When asked when he feels the most secure around police, John described feeling safe when he is in his professional clothing in his work space in downtown Manhattan: "When I first got a job working for the city, which meant I’d be wearing a button-down and slacks, my mother was exhaling out of relief." This seems to be a particular type of inflection point related to the threat many people perceive. It indicates scopes of safety, and conditions under which one can either relax, or be alert.

When he feels least secure around police is when he finds himself in communities of color that are predominantly low-income, more so than when he is in predominantly white communities, even though he stands out more there. In terms of his own appearance, and in contrast to the work clothes that set his mother’s mind at ease, he feels less secure when wearing weekend clothes: "in mesh shorts and a t-shirt...there’s nothing to distinguish me from people that they normally feel threatened by."

In terms of improving relationships with law enforcement, and mitigating some of the anxieties mentioned above, John believes that there need to be more intermediate roles between
community members and police: "Most of my thoughts around how to change relationships between police and communities of color...has little to do with what the police can actually do, and more with what we should ask other people to be doing." These other roles, for him, are disarmed, so as not to create the kind of tension that armed police create. John explains, "I don’t think that cops should be the ones to respond to small everyday situations. I think there’s probably another cadre of people who don’t have the option to escalate things to violence."

He has experienced this in action, when after seeing him try to break up a fight at a block party, the police identified him as someone who was a leader in the community. Later on that day, they approached him and suggested that he ask some kids further down the block to turn their music down, indicating that it would probably be better received coming from him. (This anecdote is particularly interesting because it suggests some degree of social engineering and problem solving on the part of police, in communities where they know they are being treated as adversaries.)

He thinks that opportunities for police to talk to young teenage men are productive. This is in contrast to how most police outreach programs are framed. Typically police youth outreach programs are described in terms of helping kids to not fear the police. What he suggests is the near opposite of this: that police should use these opportunities to understand the youth.

Tempering this a bit, he does suggest that "It is an opportunity to humanize both sides of the equation."

We spoke about the various types of cops one might encounter on the street, and he had a very interesting reaction to bicycle cops in particular: "Those are the guys you run from the most! Because they’re very mobile and they can pop up out of nowhere. A bike cop is synonymous with... those are the guys that chase you the most. And they’re probably the most fit." He also described a vague memory of something called the 'task force' that may have been a gang unit. "If you see them around, you know it’s a big deal, you just kind of [keep] your head down and vacate the area." Despite this strong distinction from regular beat cops, John didn’t remember much of how one would identify them. He has vague memories of a different uniform and maybe an insignia, but no clear image of their physical identity other than looking slightly different. This appeared to be an intuition that one would have only acquired by spending time on the street and knowing that there was a risk worth being aware of.
In thinking about the role of police today, John laments community-based connections that seem to have disappeared and been replaced with more police attention. Interactions like the one with the police at the block party, for him, harkens back to a time when everyone in a community would know each other; "In old school Brooklyn, you’d catch a beating from your neighbor before you got home." He described this as surveillance that happened as part of a community, and that now happens as surveillance by the police. He also lamented the type of interaction that can happen when gentrification brings people into a neighborhood, but not into a community. As he put it, "Don’t move to Brooklyn for the culture and then call 911 on the culture."

Reactions to Sacrificial Concepts

**Water Bottles As Protest Support/Messaging**

John’s response to this concept was positive. It made him think of Black Lives Matter protests where the approach was "Let’s make things more comfortable for protesters." He suggested that it would take away some of the animosity that the angriest protesters might have, stating "What better way to undermine that anger then by doing something kind." As far as the labeling and messaging on the bottles, he suggested that it might be received better if it wasn’t self-serving. He recommended advertising something not affiliated with the police, but for organizations they support and believe will help.

**How’s My Policing**

John didn’t see this concept as pragmatic or realistic. In his experience, cops don’t share their information when you ask, even if it they are supposed to. He did want there to be an option for both positive and negative comments. He said he would love being able to call and say "This cop did a great thing," or "This cop behaved in a way that I didn’t appreciate."

**Police Identity Cards**

When prompted for what might be on these cards, I suggested it might be information about who they are, or biographical information. John wasn’t sure it would be reasonable for a general solution, but perhaps for some. "This would work well for young teenagers," further
suggesting that the card might include "music that they like, or something kind of endearing, something that makes them seem like a person you can relate to."

Police to Citizens: Rights Training
John began by saying "I'm not like, offended by it, but...Most often cops are harassing people or being overly aggressive." The idea that police would teach citizens how to act was again undesirable. He emphasized,"The assumption here is that people need to better understand how to act themselves, rather than that cops need to change something about their behavior, and that's the side I'm more interested in."

Citizen Handout to the Police
When it came to the concept of citizens approaching the police with an artifact like this, it was clear that this didn't feel safe at all, and that John would prefer more significant, intentional interventions to this. "It would scare me to advise a young black teenager to do this," he said, "I think it would only provoke cops to dangerous behavior. I get that this is sort of design and trying to encourage different behaviors, but I think what would be most appealing to me would be setting up situations where people can kind of like, talk over regular human activities, rather than the sort of like, thinking that this card is going to be the jumping off point for a conversation. 'Cuz I don't know, it feels kind of, um, what's the word, like not artificial, but contrived. It's like, when is that gonna happen."

Share Your Voice
John thought this was a really good idea but worried about how the responses would be received, or if they'd be received at all, stating: "People don't often want to get negative feedback, and the cops would definitely [get negative feedback]."

Identity At A Distance
John's response to this intervention was very positive: "I think what this does is change the dynamic so that you don't even need to ask for the information. It's something that's readily available." He noted that the change in power dynamic did need to be carefully navigated, however. John noted: "I think it would be fair to ask the question 'Would this jeopardize the safety of the cops in some way?' 'Does making them more distinguishable threaten their safety
in some way?' I don't know. But I like the idea of being able to easily distinguish because I think that cops often obscure that on purpose."

**Enabled Gun Holster**

In terms of the reporting aspect of this intervention, John's response was positive in that it was a consequence the cop needed to be aware of. He stated, "It makes sense to me and I think... you know the holster part is something for the cop, it's like here's an extra action that you have to take and know that it's gonna be recorded. I like that." An indicator light that alerts people to the unholstering did not seem useful, however: "I find the light on its face helpful, but...I don't think the issue is that people don't know that the cop's gun is out....In media accounts it's like, people are doing what they're supposed to do and they're getting shot anyways so a light isn't going to signal something that they already know. But, I mean, you know, who knows how many situations I don't know about that that could have been helpful in." This awareness of the multiplicity of circumstances is an important aspect of speculative design because in law enforcement work, there are countless configurations.

**A Projected Space for Conversation**

John's initial reaction to the projected space for a detained individual was uncertain: "What is this trying to solve? Like, what is this in response to?" When I explained that it was intended to provide an area for a detainee to stand in without being physically coerced, he felt positive about the communication aspect of this concept, stating "There's less room for disagreement [about whether I'm doing what they told me to do] when there's clearly a space that's demarcated."

**I Feel This Safe**

John's response to this or any device that would send information to the police was simple: "I have concerns about surveillance." He emphatically suggested that if it were to be acceptable at all, it could not send the location of the individual to the police, suggesting a set of features that were foreclosed, and another acceptable set that did not rely on any action taken in direct response to an individual.
Mary, Resident of Brooklyn

Mary has lived in Brooklyn for 4 years (2 years in her current location). She has been a teacher exclusively in schools attended by people of color and currently teaches in Crown Heights, Brooklyn. She is educated, white, and very thoughtful when she speaks about race and community. The location of her apartment is fascinating from a cultural standpoint. It is triangulated by a Hasidic Jewish neighborhood, the Marcy Projects, and an area being rapidly gentrified by a predominantly white population.

She describes the neighborhood as “not that safe,” but says that it doesn’t feel that way. She paints a nuanced picture of what life is like there. She distinguishes the majority of the crimes there as “crimes of poverty.” The most recent example she remembers is the deli located in the floor below her, which was robbed by kids. She sees patrol cars occasionally, but doesn’t feel that the neighborhood is heavily policed. Foot patrols are slightly more common. She can also see the tensions in the neighborhood. “Go Home Racist Pigs” is spray-painted on the sidewalk near her apartment. When speaking about interactions with police on the street, she says surprisingly that their treatment of her makes her feel less safe. A police officer will walk by her and say things like "Get home safe!" and then pass a black woman and say nothing. This makes her feel like she is less a part of the neighborhood, when the police are only there to protect people “like her.” She describes the way the police interact around people of color the following way: “Blank face, on alert, scanning.”

Protests of recent killings at the hands of the police have been points of inflection in terms of tensions in her neighborhood. The police had a presence while protests were going on around her block and they lingered afterward. In a while, they left, and echoing John’s comment about his mother’s relief at his having to dress in a way that would indicate him as responsible to the police, she says, "The neighborhood collectively exhaled." Fear was more of a result of their presence than safety.
She remembers the most tense moment between the police and her community happening immediately after Philando Castille's death. Protests made their way through the city and into her neighborhood; when they arrived, the ratio of police officers to citizens was "nearly one-to-one." This was also in the immediate aftermath of the killing of several Dallas police officers. The organizers of the protest were aware of the tension that this was causing, and had the march stop for a moment of silence and solidarity, near where police officers had been shot in that neighborhood. They named the officers before continuing on, attempting to create a mutual respect. Despite this, "there was just an eyeroll response from the police." The march continued on and ended at the 79th Precinct police station, the precinct of the officer who shot Delron Small. Mary explained: "When we got there, it was like literally the entire precinct. Like, everyone who has ever worked for the 79th precinct was out, and they had put up those metal barricades right in front of the street and they were all lined up." The majority of the police were standing behind these barricades, except for the Chief, who came out in front of the barricades and spoke to one of the organizers. There were shouts to keep the protesters behind the line, but the organizers went out of their way to be as peaceful and courteous as possible. In this way, they acted as an interface between the crowds and the police. In the end, the Chief answered questions, invited people to come to the community board meetings, and stated that he did not have any authority in the Small case. In the end, the crowds dispersed without incident, but Mary states that "obviously the issues are bigger than this one Chief in charge of a precinct." This calls out a gap between on-the-streets, personal interaction and the larger system of policing. Protests have some impact and perhaps send a message locally, but many of the problems are abstract and seemingly wide-ranging.

This uncertainty of where the true problem lies perhaps indicates potential for tangible changes in the tools of policing. However, Mary points to a "toxic culture" as the source of much of the problem: "In New York, it's about controlling communities." The individuals being controlled in these communities however are not being controlled equally in her view. "I've broken a few laws in my day" she says, "but I've never felt like I was gonna get in trouble for them, and I never have."

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120 "Shooting of Philando Castile - Wikipedia." 
Reactions to the Sacrificial Concepts

Water Bottles As Protest Support/Messaging
Mary felt very good about this concept and indicated that goodwill was indicated by a gesture like this. "I would be more likely to not want to break the law at a protest [if police did this]," she stated. As far as the design of the bottles, she suggests that it could be used to convey information about the very activity they are doing: text reminding them of their first amendment right to protest.

Identity At A Distance
Mary appreciated this concept because it is "a tool that the citizens can have access to", contrasting it with other tools and technology that are only designed for the police to access, despite their being used on citizens. It works for her because "you don't even have to directly interact with the police officer in that situation."

How's My Policing
Mary said that typically, she wouldn't call numbers like this to report things, but she did note that she "once got cat-called from a police van." This was a situation in which she may have acted differently if she had access to reporting tools. She suggested that the telephone number might be better as an email, which she would be much more likely to use, highlighting how communication trends and infrastructure can dramatically include or exclude likely participation.

Police Identity Cards
In the case of business card-style concept for police, she was not comfortable with the physical proximity it would require for this to be effective: "I feel like the power dynamic between police and citizens is such that I personally wouldn't be comfortable asking for their card."

Police to Citizens: Rights Training
Like others I spoke to, Mary didn't feel particularly positive to the thought of police teaching citizens how they might change their behavior to avoid interactions and altercations with
officers. She stated that she wouldn’t react positively to, for instance, police handing out “How To Not Get Raped” pamphlets.

Citizen Expectations for Police Conduct
Mary viewed this concept positively because of the change in power dynamic that it represented: "I like this one because it feels empowering to the people who have the cards."

A Platform To Contribute Your Voice
Mary saw some potential value in this, but was worried about the curation that would be necessary to remove the inappropriate entries that would inevitably end up in a public system like this. She worried that a process like that would open the door to abuse by the individual responsible for making the decision of what was kept and what was removed, stating "There could be an element of censorship in this."

Enabled Gun Holster
Mary felt that, conceptually, the warning light aspect of this concept was positive. She liked that it would allow people to understand what was happening, and that the automatic reporting of the action could increase accountability. The threshold for an intervention like this to create positive change concerned her though, which might hold true for many well-intentioned interventions in this space. She said she thought that that for this to work, someone would have to get hurt before it had an impact, stating "I don’t personally believe in the strength of deterrence until someone faces a consequence."

A Projected Space for Conversation
Mary did not like the power dynamic framed by this concept. Her reaction was that the concept suggested: "'I’m going to control this space that you’re in’, and I don’t like that at all."

I Feel This Safe
"I think this would be cool as an app," Mary stated. She offered one caveat, however: "In order for me to use this at all...I would need to know that something good would happen as a result of the data being collected." She also noted that the result of interacting with this device would have to be something other than the police showing up to make it a reasonable intervention.
Selected Law Enforcement Interviews

Lieutenant, Brooklyn Precinct

The Lieutenant interviewed grew up on Long Island and wanted to be a detective when he was young, but didn’t actively pursue it when he got older. After undergrad, he tried going to law school but decided instead to become a police officer in New York. He describes himself as easy going and open-minded, but notes that is a relative term: "I mean 'open-minded', that’s subject to dispute, but I think I’m open-minded." After 13 years as part of the NYPD, he still recommends the profession:"A lot of cops like to bitch and moan. Personally I think we have pretty good jobs." He explains that he has a higher set of expectations for people who join the force than for civilians: "I think, as a cop, you’re held to a higher standard than other people. You know, you certainly have to behave better. Like it or not, you’re looked upon as a role model...I don’t really like it when cops curse, especially in front of little kids ‘cuz they’re supposed to be role models. And also, even your off-duty conduct, it’s going to be scrutinized. So in certain ways, you’re always a cop."

Beyond the expectations, the Lieutenant described the challenges of the job, both in terms of the occupation, and in terms of the impact it can have on one’s personal life—a line that comes across as significantly blurry in his descriptions. When I asked him about the best advice he had ever received about becoming a police officer, he described the warning someone had given him many years ago: "To have this job you have to have a thick skin, because you’ll be on the job and somebody will get in your face and curse at you. You know, you have to brush it off. You can’t take it personal because when you do that you start taking this job home with you, and you start letting it destroy your life." It is clear that he had seen evidence of lives being destroyed in this manner. Describing how the job can have an emotional impact, the Lieutenant described how this plays out sometimes: "You hear stories about cops that have had three divorces and stuff....You might yell at people, you might get cranky, you might drink a lot." The pressures of this job clearly impact everyone, to varying degrees. The pressures vary depending on what your role in the organization is, but from his description, these pressures are ever-present:"For me it’s the pressures from above. People have all these expectations of you. They expect you to know everything all the time. A lot of times when you’re a cop, things
happen that are beyond your control. People want results and sometimes there’s nothing you can do." Beyond pressures that clearly exist in the hierarchy of the police force, he hints that it is a job with a very public component, even when an officer is not interacting directly with the public: "I think there’s a lot of pressure to perform. You know, you don’t want to look incompetent. You don’t want to look like you can’t produce results, especially in front of your colleagues, you know? There’s a lot of peer pressure I think."

We spoke about the tools of the job and the pros and cons of each, and what his most important tool is. The Lieutenant explained, "I’ve never used my baton and I’ve never maced anyone. I used the taser twice as a supervisor. I guess if anything, [my most important tool] would be my radio, which is the piece of equipment I use the most. You would be surprised at the extent to which we use our cellphones now." Surprisingly, one of the Lieutenant’s most basic tools was the one that he steers away from using altogether, favoring a much more technically advanced option: "I don’t think I’d ever use my baton. I basically think it’s a lawsuit waiting to happen. The taser doesn’t leave any lasting injuries and I think it’s better tactically anyway. You know, if you hit someone in the leg with a baton, that’s one thing, but, let’s say for arguments sake there’s a scuffle and you need to hit him in the arm, and you end up hitting him in the head. You’re gonna have a problem."

Safety is obviously a concern in this job, but though citizens may think that there is a single set of expectations that apply to everyone, it seems the idea of what is reasonable to ensure the safety of the officer depends on the situation. The Lieutenant explained, "Sometimes you even have a safety concern, like you might be interviewing a guy whose 6’10" and weighs 280 pounds and you’re like ‘Look, nothing personal, but if anything happened you’d like, crush my head so I’m gonna cuff you just for a couple minutes just for safety reasons." He did not comment on what people’s reactions usually are to being handcuffed during a detention that had not escalated to an arrest.

When we spoke about the future of policing, the Lieutenant’s guess was that policing will involve more technology, and become more community-oriented, but is yet to be seen what the job will look like decades from now. He explained, "The future of policing is going to be dependant on what the needs of the city are." Some current trends in policing were discussed in the interview, all of which are contentious, but he noted that some changes happening in
policing might be for the better: "Truthfully, maybe some of the public scrutiny is for the better, because cops will behave better. Is there too much scrutiny? I mean, like I said, to me everything is something of a balancing act. I mean maybe it's good to at least be thinking, if I get in a wrestling match with this guy, everyone around here is going to pull out their cell phone. Maybe it's a good thing....Initially I was against body cameras, but the more I thought about it, the more I realized, for exactly that reason they can only benefit us, because we would have the entire recording, the parts that these people wouldn't post on YouTube, because they wanna show like, everything's bad with the cops. They're not gonna show the entire video."

Then the officer said something that could have easily come from an African American citizen talking about encounters with the police: "I think, I feel prejudged." He explained, "Like, a lot of people on the street are like, whatever the cops are doing, they're wrong, they shouldn't be doing it. I do feel that people feel empowered against us. You know, it's almost like they're automatically ready to resist you. Sometimes, not always."

Reactions to Sacrificial Concepts

Water Bottles As Protest Support/Messaging

This Lieutenant felt that the success of this intervention would be contingent on circumstances: "Maybe it would depend on the event. Let's say it's a rally to raise money for cancer, or a parade, but if they're protesting us..." It seemed as though the Lieutenant believed there was a limit for the types of activities police should engage in to increase positive interaction with citizens. He mentioned that he heard that police had been giving out Doritos at a celebration when Seattle legalized marijuana, dismissing it as silly.

Identity At A Distance

The Lieutenant hesitated when he was presented with this concept. "Any form of change..." he said, and trailed off. He then explained some of the realities of policing and how this might feel like giving up some sense of when they expect to hear about their actions. "I guess there could be good things and bad things, like, at this point you wouldn't have to worry about giving out your badge number because they would already have it, but then again maybe, like, if someone asks you for your badge number, at least you know what you have coming, instead of
coming in in the morning and saying 'Yeah, three people got your number off of your jersey last night. I guess that could go either way. I think this would make cops feel they're under more scrutiny, as opposed to being a good thing....I mean honestly I think I would have to wear that jersey before I could tell you if I like it or not. It might make cops more cognizant.'

This last comment points to the difficulties of designing for the profession of policing. Since every small change can be a political one, it is difficult to say whether or not it will be received well, let alone be effective in the way it is intended.

How's My Policing
The Lieutenant had a more negative reaction to this intervention than I anticipated, stating: "I don't think I would like it, I would deal with it. If we put that sign up, you think people are going to call with complaints, not compliments, right?" The fact that the police receive almost exclusively negative comments seemed to wear on him. "They should set up a board to take in compliments, don't you think that would be fair?" he ventured, "So I guess, maybe it's just the negative connotation."

Police Identity Cards
The Lieutenant saw this concept as a good idea in general, not from the perspective that it may have utility for citizens, but due to the psychological impact it may have on the police and how they see themselves professionally. "I associate a business card with a better mindset," he explained.

Police to Citizens: Rights Training
While this was described as a way to help citizens understand how to avoid altercations and breaking laws, the Lieutenant’s response to this concept seemed, more than any of his other responses, very much from the perspective of someone on the side of the law. He explained: "It might work. I think a lot of times, when people resist arrest, they need to understand that, whatever the case, if the police want to arrest you, they have to submit to the authority of the police. Now if you feel like you've been unlawfully arrested, as the saying goes, if you cannot afford an attorney, one will be provided for you. And, maybe some good would come out of that." This is a threshold between two domains of design. Police have a series of assumptions about what happens and what the impacts are on a person when they cross the threshold between the execution of their duty and the machinations and consequences of the legal
system. Police receive some training in this domain, but the Lieutenant's assumptions here seemed to reveal a very straightforward image of the procedural implications of police actions. There was no point at which this was more clear than when he described what the ideal outcome could have been from a recent case in NYC. "Like the Eric Garner situation. It's a tragedy. I mean, certainly it's a tragedy to lose someone, but he did resist arrest. Now, if he felt he was being unlawfully arrested he should have submitted to police, and then submitted a lawsuit later on. Maybe if you educate people, they won't resist arrest too much. Maybe that good will come out of this."

Citizen Expectations for Police Conduct
This concept was received with ambivalence. The Lieutenant seemed unimpressed: "It's interesting. It might be far fetched. Are you going to make 9 million handouts and hand them out to every single person?"

A Platform To Contribute Your Voice
In regard to this intervention, the Lieutenant didn't see the activity as pointless, but felt that the format would likely lead to more noise than signal. He explained: "Picture a lunatic at the podium that would go nuts." He suggested an organized event instead "You could have a park open one night and say let's get together and talk about how you feel about the police. Something like that might be interesting. Honestly I think constructive criticism could be a good thing, if this is the direction this is going to. You know, I don't think we should let citizens completely dictate police policy, but I think we should be guided by their concerns and their interests."

Enabled Gun Holster
The Lieutenant's concern about this concept was related to the indicator light alerting surrounding individuals that the gun had been unholstered. "I don't know if that would be tactically good. Like, a lot of times you wanna get the jump on people," he explained. More specifically, he described what he saw as a practical requirement in arrest situations: "For tactical reasons, a lot of times you don't tell people you're arresting them. You know, most of the times people submit to arrest, but the 1 in 15 or 1 in 20 times that someone's gonna fight you, you really wanna get the jump on them. You know it's not like, you're gonna stand five
feet away from someone and say 'Look I’m going to arrest you,' because they might turn
around and run or they might fight you."

When it came to the reporting aspect of the concept, he didn’t see this as problematic: "I
would have no problem with them putting a computer chip in the gun which would record or
even maybe send a signal to some radio tower or database every time you fired your weapon
or even when you unholstered it. That's something I would have no problem with. But the
lightbulb, like alerting people you’re pulling out your gun, I think I would definitely be against
that." Would the response be different if there was not only one augmentation that reported
data on police behavior, but many, creating a heavily instrumented officer? It is also interesting
that the line was drawn between more information being given to the law enforcement
apparatus and more information being indicated to the nearby citizens. The two aspects of this
design do have different implications, but this user priority is worth interrogating, if it is
something that applies more broadly to what officers would consider acceptable technology.
Future designs might use this propensity to counterbalance what might be perceived as
handing over too much control. At the very least, this reinforces the need to understand the
reaction of both citizens and officers to design interventions.

A Projected Space for Conversation
When it came to the soft power of a projected barrier, he didn’t seem to believe that it would
be effective when it was really needed: "I don't know if people would obey it....Like the people
who are gonna submit to authority, this wouldn't be necessary, and if they're not going to
submit to your authority, I don't know." In an interesting distinction, contrasted with his earlier
comments on handcuffing someone in order to have a safe conversation with them, the
Lieutenant indicated that it didn’t quite sit well with him: "Like, I even don’t know if I’d be
comfortable... to me it’s more like having a dog on a leash than giving a person a zone of
safety to stand in." It is clearly a complicated scenario to design for, and perhaps this is
because it straddles the lines between inquiry, detention, and arrest.

Captain, Cambridge, MA
The Captain started in the police force in 1984, and describes her work as trying to be a trusted
resource and breaking down barriers. We spoke at length about the impact a job in law
enforcement has on one's life. In particular, she indicated that the processing of what happens on the job is not something that is dealt with in a healthy way: "We have families to go home to at the end of the day. And the one thing that I know about law enforcement is that we see some pretty gruesome things, and we don't talk about it. We just suffer with it." This isolation seems to register on a broad societal level, as well as in personal social context. She explained, "Most cops, when they go to a party, they don't tell people what they do because all you hear is 'This f'in this...' you know. And it's like, don't paint us all with a broad brush."

When the conversation turned to the future of policing, she speculated, but admitted the only things that were obvious were in the fairly near future. She mentioned it would likely mean more tools, mentioning the Narcan overdose kits they would soon start carrying. Some thoughts were about tools, but others were aspirational: "You're gonna see more body cameras. I would certainly hope that you'll see more training." Beyond this, her hopes for the future were making officers' experience better. One thing she suggested would help this is less weight: "One of the largest problems that law enforcement are dealing with is that the fact that the gear that we carry weighs about 16 pounds on our waist every day. And we end up with a lot of officers that end up with back problems. Some of them are overweight. And that's another thing I'd love to see change is that there is like a 'fitness for duty'...I see some of these people, they work midnights they eat junk food, they're not getting regular sleep. I'd love to see that change."

Another area she saw for improvement was motor vehicle accidents, which she noted kill a significant number of officers each year. She suggested that some basic seat-belt automation might help, since officers are generally not required to wear them. "Some sort of automatic seat belt that automatically locks and retracts as soon as the car goes into park." She also cited the "Moth Effect" where drivers are drawn to the flashing lights of emergency vehicles. She imagined that LEDs or holograms might be used to ensure drivers were aware of the proximity of vehicles.

We spoke about the equipment officers carry with them, and what tools were the most useful. There were again ergonomics that made being a foot officer very unpleasant, especially for women. She explained: "Being a female, it's impossible to go to the bathroom with all that

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stuff." She described the two separate belts officers need to wear. One belt (called the “Sam Browne” belt, mostly intended to one’s pants up) is worn in addition to the "duty belt", which is clipped to the Sam Browne belt with "keeper clips". All of this made for a very cumbersome setup day after day.

Unlike the Lieutenant above, the Captain saw utility in the simpler weapons officers carry: "A baton is a good tool for an uncooperative person, as a compliance technique. Not as far as beating the ever-living crap out of somebody. If you’re lying on the ground and I say to you ‘uncross your legs’ and you won’t do it. So you stick the baton in there, and you just you catch them on the shinbone, and it hurts, but it’s not hurting them. Pain deserves attention."

Social Research and Critical Dreaming

A primary goal of the work described here was to engage the public more broadly in this research. This serves both as a way to understand what people want out of the future of law enforcement, as well as to provide an environment that cultivates agency. Two events, described below, experimented with ways in which the public could engage in futuring around this topic.

Fortune-Telling Through Abstract Objects

This experiment ran as part of an event at the Massachusetts Museum of Fine Art. For this event, I built abstract prototypes, and a story-building exercise to understand people’s assumptions and hopes about the current state of law enforcement.

Given that there are such strong politics associated with current law enforcement tools and technologies, eliminating details related to function can help explore societal hopes and dreams in an abstract way. Although abstract, the artifacts introduced in this experiment had provocative formal qualities and a design language that referenced military and tactical equipment.

Having participants intuit the purposes for these unspecified devices allowed for their imagination and assumptions about the future to drive the conversation—a kind of
fortune-telling of future technology through abstract devices. These conversations fed into further fictional development that will be subsequently used to engage citizens in this design space.

In order to structure participation and capture people’s thoughts, I constructed a storytelling exercise. Each participant was given a form and asked to choose a few parameters about their device and then tell a story, either through words or sketches, explaining briefly what it would be used for. Participants were asked to select an object and set it in a temporal context (10, 50, or 100 years in the future) and choose whether this device would be used by a 'good' or 'bad' cop. The themes ranged from thoughtful, to dystopic, to goofy (a positive sign that this exercise provided a convivial thought space in which to engage with a difficult topic. This space was described as a participatory storytelling activity that would be an input into further design work, but was not couched in the language of analysis.

78 stories were collected. Below are a selection of them that represent themes present in many, and a study of the values represented in them.

**Ideals of Increased Care**

A number of the participants described scenarios, typically in the near term, in which the police would take on a more humane role in one way or another. The example on the left describes a device that is "used to hold strong wire to help restrain people without hurting them." Prioritizing harm reduction, this describes a police force that attempts to limit violent interactions, while still suggesting detention as a necessary part of policing. The example on the left echoes this theme: "This is the police officer that also considers the health of suspect." While the second example starts from an abstract object that has an aesthetic that might suggest medical uses, this same object was chosen repeatedly by other participants and described with much more malicious purposes.
Scanning, Tracking, and Scoring

In these two examples, participants imagine futures where an advanced form of tracking citizens is part of policing. In the left example, the author goes so far as to describe a fictional policy—the "Quality Citizen Insurance Act 2117"—in which "Memory scan ensures citizens are held responsible for past offenses. Gives citizen 'rank' score. Becomes credit score." The valence of this story might be slightly ambiguous if not for the selection of "bad cop" for this entry. This distinction is not always clear, as the example on the right shows. The participant circled both "good cop" and "bad cop". After describing a device that "reads a person's barcode" allowing an officer to "instantly access a person's crime record" and add to it, they appended a line that applies to many modern technologies: "A good cop uses it, a bad cop abuses it."
Control, Compliance, and Manipulation

Many of the entries told stories of control. Perhaps the most frequent aspect of the fictional device was some form of brain scanning or manipulation of the citizen. The example on the left simply describes the device as "Controls the citizens of the world", and depicts an officer pointing it at a clearly "captured" individual. The example on the right again complicates the good cop vs. bad cop duality (adding "middle") and depicts a "truth detector" compelling the individual to describe "the real things I did."
Activity as Outlet

Perhaps just as interesting as the creative responses from participants in this activity are the ones that are simply statements—a choice not to engage in the structured activity, but used to render opinions or frustrations with the subject matter via the exercise. There was no entry as blunt as the one below, which simply states "Fuck assholes who want to commit murders."
describe your future object

choose a future timeframe where your object exists:

10 years 50 years 100 years

is this object for a good cop or a bad cop?

good cop bad cop

which object is your story about?

what is the story of your object?

FUCK YOU ASSHOLES WHO WANT TO COMMIT MURDERS.

Public Display and Conversation

The final outputs are a set of design fictions that will be hosted in a gallery in order to provide more significant community engagement and an opportunity for social dreaming. Further participatory opportunities will be positioned next to this next set of design fictions to broaden the participatory experiment, and understand what works and what doesn't when it comes to
citizens come together in a space in America, reserved for art, but used for a collaborative imagining of possible futures for such a contentious topic.

The format for this future work will be in the form of a fictional trade show for police technology, with vendors "selling" their products for the future of law enforcement. Crucially, interviews similar to the above responses to sacrificial concepts, reactions from the local community will be gathered and presented as a starting point for visitors in the form of "customer reviews". This synthesis of real responses in a fictional format hopes to preserves the fiction visitors will inhabit, while simultaneously ensuring that real voices, and not simply the one of the artist/designer will be represented.

Two such designs that will be featured are the Distant Identity Uniform, and the Intent Scanner. The former is an evolution of the earlier sacrificial design providing identity at a distance, with the added complexity that it features an identifier that can easily be linked to a database of information. Onlookers using their phones to record police activity can quickly ascertain the ID of the officer and look it up in a public database, but what information should be accessible to the public? Where is the line crossed that endangers the officer's life more than it empowers the citizen monitoring the police? Should the information include the name of the officer, their photograph, or statistics about their previous altercations with citizens? Or should it simply act as a handle to use in reporting incidents? These are the questions left to visitors.

Distant Identity Uniform: Barcodes for Identification
The Intent Scanner implies a further advancement in brain scanning technology and threat assessment, using the aesthetics of airport security. Tracing threads in dream reading\textsuperscript{122} and situation assessment\textsuperscript{123}, the scanner suggests a future in which boundaries of interrogation are pushed dramatically forward. The design confronts the viewer with the physical reality of what a system like this might look like, and provokes questions of how much each of us would give up in very personal privacy in order to ensure our safety.

\begin{center}
\textbf{CAN YOU AFFORD TO NOT KNOW WHAT THEY'RE THINKING?}
\end{center}

This work hopes to broaden the understanding of how design research might be used in speculative design to facilitate public conversations on post-contemporary issues and blur the boundaries of what civic and art spaces are understood to be. Perhaps if these efforts are successful on a larger scale, the agency to critique technologies of force will become more commonly accepted, and citizens can begin to engage to a greater degree with new technologies as they are posited as benefits for society. Perhaps this agency will lead to communities advocating for tools that put more control into civilian hands, while preserving a role in society that protects people when it is absolutely necessary.

Conclusion: Future Social Change

This thesis used a practice-led research approach to broaden the sphere of participation in the design space of the police, which largely excludes civilians, particularly from early stage design. Where there is human-centered design, it generally focuses on officers, and not the citizens with whom they interact and the communities they operate in. Using a collection of methods including design research, interviews, sacrificial objects, and speculative design, it has aimed to gather a body of knowledge that tests the appropriateness of these methods.

What the objects and conversations attempt is a mode of community engagement and civic imagination that takes these designed objects as a starting point for design participation and leverages design research and discourse to grapple with social and political struggle of law enforcement priorities. It reflects on how social change, futuring, and critical speculative fictions can combine to create space for imagining more or less desirable futures. These conversations are never easy and when discussing the possible and not just the probable, arguments about the right approach can be endless. Providing sacrificial designs as a starting point for conversations, these fictions attempt to do real political and social work, escaping iterative, incremental change that is forever trapped in the realities that have resulted from generations of design decisions.

This work describes a set of processes that create a convivial environment in which citizens can take part in the very sensitive and consequential process of designing for law enforcement. It promotes a stance that values communities, de-escalation, and communication balanced with the safety of those working in this space. The results of the included interviews show clear opportunity for progress in this dialog, and this progress has the potential to be encoded in tools that shift priorities toward humane treatment, and tools that more closely match community values.