

Building Community Resilience in Hounslow Using Community Engagement

An Interactive Qualifying Project Report
submitted to the Faculty of the
WORCESTER POLYTECHNIC INSTITUTE
in partial fulfillment of the requirements for the
degree of Bachelor of Science

by
Sizhuo Li
Daniel Millard
Leif Sahyun
Jacob Tomkinson

Date: 23 May 2018

Report Submitted to:

Twam Palmer
London Borough of Hounslow Contingency Planning Unit

Professors James Hanlan and Gbetonmasse Somasse
Worcester Polytechnic Institute

This report represents work of WPI undergraduate students submitted to the faculty as evidence of a degree requirement. WPI routinely publishes these reports on its web site without editorial or peer review. For more information about the projects program at WPI, see <http://www.wpi.edu/Academics/Projects>.

Abstract

In response to disasters, people often wish to help victims in any way possible. While this display of human empathy is heartwarming, but if not coordinated, it can cause problems in emergency response. The goal of this project was to improve community engagement and the use of voluntary contributions in the London Borough of Hounslow before, during, and after an emergency. Towards this goal, the project team interviewed established experts in disaster response, local government officers, and representatives of local businesses, faith groups, and voluntary groups. Using information from these interviews, the team developed a set of recommendations for our sponsor, the Contingency Planning Unit of the London Borough of Hounslow, to improve community engagement and volunteer management.

Acknowledgements

Our project would not have been possible without the help and support of many amazing organizations and individuals before and during our time working in Hounslow. As such we would like to thank the following individuals for their contributions to our project, for without them we would not have been able to write this report and develop our recommendations.

First, we would like to thank our sponsor, the London Borough of Hounslow Contingency Planning Unit, and our liaison, Twm Palmer, Head of Contingency Planning and Resilience. We would not have been able to accomplish this project without his help and hospitality, which made for a fantastic and unforgettable experience. We would also like to thank his colleagues in the Contingency Planning Unit, Tim Arnold in particular, for making us feel welcome and for making time to help us with the unit's internal documents.

Interviews were a crucial portion of this project and we are grateful to everyone we contacted for their help. We would like to thank professors David Alexander, Thomas Drabek, David McEntire, and Jose Holguín-Veras as well as consultant Claire Rubin for answering our questions about their expertise in disaster management. Their help was critical in our work to determine best practices. We would also like to thank Faith Officer Dave Turtle of the Metropolitan Police, Aine Hayes of the Hounslow Community Partnerships Unit, and the members of the Hounslow Prevent Team including the leader of the team, Joan Conlon. These individuals helped us determine the current practices for community engagement in Hounslow. We would also like to thank Satvinder Singh Dadihla, Michael Green, Richard Frank, Stephen Fry, Prem Sondhi, Bessie White, Robert Johnson and Bridgitte Fauxbert. With their help, we were able to outline the needs and capabilities of local stakeholders.

Finally, we would like to thank our advisors, professors Gbetonmasse Somasse and James Hanlan. We would also like to thank Dominic Golding, our professor for ID2050, a preparatory class for our work outside of the United States, during which we conducted our literature review. These individuals contributed much time and effort to keep us on track with our project and ensured that we were prepared for our research overseas in a professional setting.

Executive Summary

This research was conducted at the request of the London Borough of Hounslow's Contingency Planning Unit (CPU) with the goal of improving the management of voluntary contributions, including materials and time, and improving community engagement before, during, and after an emergency. After providing a literature review, this report details results from interviews with established experts in the field of disaster research, local authorities within the borough, and local stakeholders in Hounslow. Along with the results of these interviews, this report summarizes what was found to be the best current practices of volunteer management and community engagement and concludes with a set of recommendations for the Contingency Planning Unit.

The Phenomenon of Convergence in Disasters

When people are in need, particularly after a large disaster, an occurrence known as convergence takes place. This phenomenon stems from the human desire to help those in need and is defined by Fritz (1957) as the “informal, spontaneous movement of people, messages, and supplies towards the disaster area.” While an impressive manifestation of human empathy, convergence can also create disorganization and chaos when authorities are not prepared for a massive outpouring of support. This support was seen in the image below (Figure 1) in which thousands of people showed up on the site of the Grenfell Tower Fire, resulting in a chaotic environment.



Figure 1: Personnel Convergence at the Grenfell Tower Fire (France-Presse, 2017)

Convergence is divided into informational, material, and personnel convergence (see Table 1). In order to manage convergence as a whole, an emergency planner must manage each type of convergence. In particular, personnel convergence with untrained volunteers can cause chaos and an emergency planner should be able to manage the different types of volunteers that could appear during an emergency, including established volunteer groups and individual spontaneous volunteers. In order to manage established volunteer groups, Buckle, Marsh, and Smale (2003) suggest emergency planners invite established groups to “Recovery Committee” meetings. In order to manage individual volunteers, Whittaker, McLennan, and Handmer (2015) suggest that government agencies should establish a problem-solving structure for handling volunteers rather than trying to handle them via a top-down system.

Table 1: Types of Convergence

Informational Convergence	The influx of communications, both public and private, related to a disaster
Material Convergence	The accumulation of material goods donated to disaster response
Personnel Convergence	The spontaneous movement of volunteers to a disaster site

Motivation and Methodology

Because of the difficulties involved with managing volunteers in an emergency, the Contingency Planning Unit asked us to develop a set of recommendations that will help them prepare to address these issues in Hounslow. In addition to these recommendations, this project also produced a database of groups in the community that would provide volunteers and donations in an emergency in order to improve coordination between the CPU and established groups.

The goal of this project was to improve community engagement and management of voluntary contributions before, during, and after an emergency in Hounslow. In order to achieve this goal, we accomplished three intermediate objectives:

1. Identify best practices in volunteer management and community engagement;
2. Evaluate how local authorities in Hounslow and other government agencies in and around London currently engage with the community, businesses, volunteers, and faith groups in the event of emergencies;

3. Assess the needs and capabilities of local stakeholders in handling volunteers, materials, and other donations during emergencies.

For each of our objectives, we identified and interviewed key individuals, then determined common themes in their responses. In order to assess best practices for community engagement, we interviewed academic experts around the globe. In order to evaluate local authorities, we interviewed key local officers. Finally, in order to assess the needs and capabilities of local stakeholders, we interviewed leaders in the community.

Best Practices

In our interviews with experts in the field of emergency management, we identified five common themes within best practices for community engagement (see Figure 2). According to Professor David McEntire, in order to maximize collaboration, authorities should communicate and network with the voluntary sector before an emergency. Established communication can also be used to improve coordination during an improvised response, such as the evacuation of Manhattan during 9/11. Training and certifying volunteers can also improve coordination between volunteers and local authorities. According to Professor Thomas Drabek, the scope and type of convergence can only be determined after an emergency, but emergency managers should plan for it to occur. Finally, the media plays an important and perhaps crucial role in convergence. Thus, planning how emergency management will interact with the media can help manage convergence and improve community engagement.

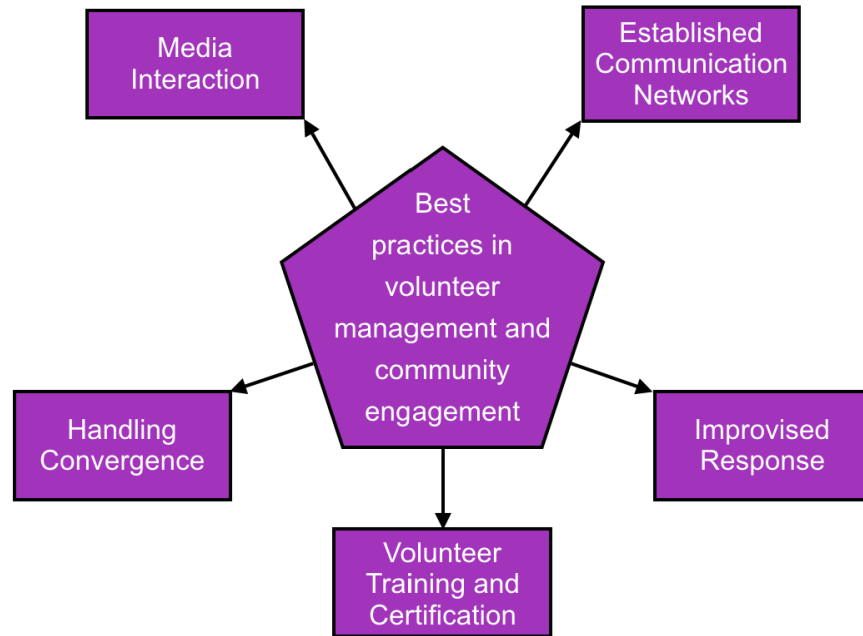


Figure 2: Best practices in volunteer management and community engagement from expert interviews

Current Practices

Current practices for community engagement and management of voluntary contributions include direct two-way communication through informal contacts, communication via committees and social media, and empowering the community through training. The Metropolitan Police use informal contacts to engage with the community as well as a widely followed Twitter account and both the police and the Community Partnerships Unit rely on various forums in Hounslow to engage with the community. Both the police and Community Partnerships Unit empower the community by providing training in important skills to community members. In the case of emergency response and recovery volunteers, training them would improve both their abilities and coordination. The current practices of both the police and the Community Partnerships Unit agreed with what the literature review and academic interviews revealed to be the best practices for community engagement.

Needs and Capabilities of Local Stakeholders

The needs and capabilities of local stakeholders were largely consistent between the different groups. Most of the groups we interviewed were adamant about helping in emergencies, and many needed similar things from the CPU to be able to do so. These groups expressed a need for organization and guidance from the CPU, the development of a relationship, and finally scenario training. As for the capabilities of the stakeholders, every group offered different resources, but there were three main resources offered: volunteers, space, and donations. Some groups offered other capabilities; for example, the Gurdwara Sri Guru Singh Sabha offered to set up a collection for monetary donations and offered to coordinate volunteers.

Taking into account the best practices, current practices, and needs and capabilities of local stakeholders, the project team compiled a set of recommendations for the Hounslow Contingency Planning Unit to improve community engagement and management of voluntary contributions (see Figure 3).

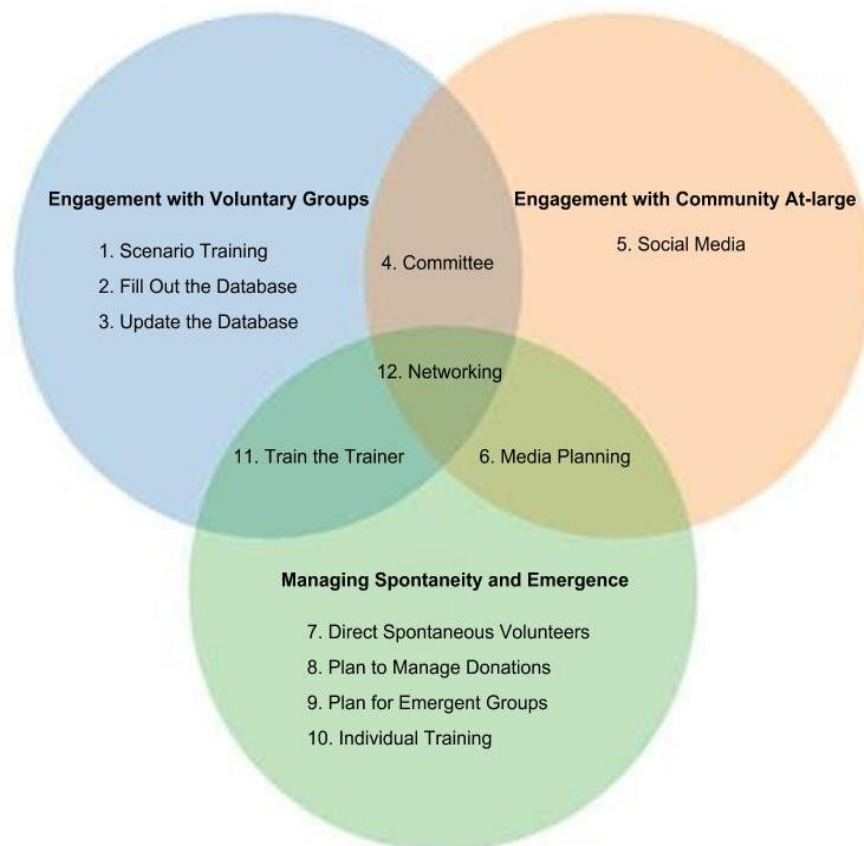


Figure 3: Recommendations

Authorship

Sizhuo Li, Daniel Millard, Leif Sahyun and Jacob Tomkinson all contributed to the research and writing of this report. The team took a very collaborative approach, with each team member taking time to add to and edit every section for grammar, content, and flow.

Section	Primary Author	Primary Editor
1 Introduction	All	All
2.1 Convergence	Daniel Millard	Leif Sahyun
2.2 Use of Volunteers	Leif Sahyun	Sizhuo Li
2.3 Grenfell Tower Fire	Sizhuo Li and Jacob Tomkinson	All
2.4 Background Conclusion	Daniel Millard	Leif Sahyun
3.1 Objective 1	Sizhuo Li	Jacob Tomkinson
3.2 Objective 2	Leif Sahyun	Daniel Millard
3.3 Objective 3	Jacob Tomkinson	Daniel Millard
3.4 Deliverables	Daniel Millard	Leif Sahyun
4.1 Best Practices	Daniel Millard	All
4.2 Current Practices	Leif Sahyun	All
4.3 Needs and Capabilities of Stakeholders	Sizhuo Li and Jacob Tomkinson	All
5.1-5.13 Recommendations	Jacob Tomkinson	All

Table of Contents

Abstract	i
Acknowledgements	ii
Executive Summary	iii
The Phenomenon of Convergence in Disasters	iii
Motivation and Methodology	iv
Best Practices	v
Current Practices	vi
Needs and Capabilities of Local Stakeholders	vii
Authorship	viii
Table of Contents	ix
List of Figures	xii
List of Tables	xiii
I. Introduction	1
II. Background	3
2.1 Convergence	3
2.2 Use of Different Types of Volunteers	5
2.2.1 Established Volunteer Groups	5
2.2.2 Expanding and Extending Volunteer Groups	6
2.2.3 Emergent Volunteer Groups	7
2.2.4 Spontaneous Volunteers	8
2.3 The Grenfell Tower Fire	9
2.4 Background Conclusion	11
III. Methods	12
3.1 Objective 1: Identify best practices in volunteer management and community engagement	12
3.2 Objective 2: Evaluate how local authorities in Hounslow and other government agencies in and around London currently engage with the community, businesses, volunteers, and faith groups in the event of emergencies	13
3.3 Objective 3: Assess the needs and capabilities of local stakeholders in handling volunteers, materials, and other donations during emergencies	14
3.4 Deliverables	16
IV. Findings	17
	ix

4.1 Best practices in volunteer management and community engagement	17
4.1.1 Established Communication Networks	18
4.1.2 Improvised Response	19
4.1.3 Volunteer Training and Certification	20
4.1.4 Handling Convergence	21
4.1.5 Media Interaction	23
4.2 Current practices for engagement with the community, businesses, volunteers, and faith groups	24
4.2.1 Current Practices for Community Engagement in Other Government Groups	24
4.2.2 Evaluation of Community Engagement at the Hounslow CPU	27
4.3 Needs and capabilities of local stakeholders in handling volunteers, materials, and other donations during emergencies	28
4.3.1 Needs of Stakeholders	28
4.3.2 Capabilities of Stakeholders	30
4.3.3 Structure and Purpose of the Database	33
V. Recommendations	35
5.1 Involve volunteer groups in scenario training	36
5.2 Fill out the database	37
5.3 Periodically update the database to ensure information is accurate	37
5.4 Form a local emergency planning committee	37
5.5 Form a social media group/page	37
5.6 Plan with the media	38
5.7 Direct spontaneous volunteers	38
5.8 Plan for screening and management of donations	39
5.9 Plan for emergent groups	39
5.10 Open up individual volunteer training to the public	39
5.11 Train the trainer	39
5.12 Networking	40
5.13 Conclusions	40
VI. References	42
Appendix A: The Borough of Hounslow and the Contingency Planning Unit	46
Appendix B: Timeline of Project Tasks	50
Appendix C: Expert Interviews	51
Appendix D: Government Organization Interviews	53

Appendix E: Stakeholder Interviews	56
Appendix F: Experts Interviewed	58
Appendix G: Government Officers Interviewed	59
Appendix H: Stakeholders Interviewed	60
Appendix I: Database Structure	61

List of Figures

Figure 1: Personnel Convergence at the Grenfell Tower Fire (France-Presse, 2017).....	iii
Figure 2: Best practices in volunteer management and community engagement from expert interviews.....	vi
Figure 3: Recommendations	vii
Figure 4: Recommendations	2
Figure 5: Best practices in volunteer management and community engagement from expert interviews.....	17
Figure 7: Volunteer effectiveness chart from speaking with Twm Palmer	26
Figure 6: Train the Trainer Model	26
Figure 8: Recommendations	35
Figure 9: Location of Hounslow within Greater London (London Boroughs (December 2015) Map, 2016; edited)	46
Figure 10: Budget of the London Borough of Hounslow (Council Tax Leaflet 18-19, 2018)	47
Figure 11: Resilience Forum Structure (London Borough of Hounslow Contingency Planning Unit, 2015)	48
Figure 12: Timeline of Project Tasks	50

List of Tables

Table 1: Types of Convergence	iv
Table 2: Four types of volunteer groups (Quarantelli, 1994).....	5
Table 3: Six types of spontaneous volunteers (Corporation for National and Community Service, 2015)	9
Table 4: Recommendations - Committee and Networking.....	18
Table 5: Recommendations - Individual Training and Scenario Training	20
Table 6: Recommendations - Plan to Manage Donations, Direct Spontaneous Volunteers, and Plan for Emergent Groups	21
Table 7: Recommendations - Media Planning and Social Media	23
Table 8: Recommendations - Networking, Committee, Social Media, Train the Trainer, and Individual Training	24
Table 9: Recommendations - Networking and Scenario Training	29
Table 10: Needs of local stakeholders	30
Table 11: Capabilities of local stakeholders	33
Table 12: Recommendations - Fill Out Database and Update Database.....	33
Table 13: Complete list of recommendations	36
Table 14: List of Experts Interviewed	58
Table 15: List of Government Officers Interviewed	59
Table 16: List of Stakeholders Interviewed.....	60
Table 17: Database Structure - Organization Information.....	61
Table 18: Database Structure - Contact Details	61
Table 19: Database Structure - Resources	62

I. Introduction

After an emergency, volunteers are almost guaranteed to gather at the scene with their numbers perhaps even reaching into the thousands after large disasters. For example, in the 2010-11 floods in Queensland, Australia, over 100,000 people attempted to volunteer through Volunteering Queensland (Barraket, Keast, Newton, Walters, & James, 2013). In addition to volunteer labor, people also donate money and supplies. After Hurricane Harvey in 2017, the American Red Cross helped distribute over 4.5 million meals and 1.6 million relief items (American Red Cross, 2017). Unfortunately, although these volunteers and supplies are helpful when managed properly, the magnitude of the support can overwhelm managing organizations. Unsolicited donations and volunteers can inundate response organizations to the point where volunteers interfere with the access and efficiency of trained emergency response personnel, and inappropriate donations consume valuable organization time for their management or disposal (Whittaker, McLennan, & Handmer, 2015).

On June 14, 2017, a massive fire broke out at the Grenfell Tower in the London borough of Kensington and Chelsea that took over 24 hours to put out, claimed over seventy-two lives, and left over three hundred residents homeless. The response to this disaster was incredible: more than 10,000 people volunteered. Unfortunately, the number of volunteers and the amount of material and monetary donations swamped the capabilities of local volunteer organizations and emergency agencies. Given the difficulties the borough of Kensington and Chelsea faced, many boroughs, including Hounslow, are reexamining how they might better manage spontaneous volunteers and donations of money and materials in major emergencies.

While the Contingency Planning Unit (CPU) of the London Borough of Hounslow (see Appendix A) has already created protocols for how to respond to specific types of emergencies, the Grenfell Tower Fire incident raised concern about how effective these protocols may be in managing the enormous numbers of spontaneous volunteers and donations likely in a major emergency. The goal of this project is to evaluate the borough's current protocols with the help of the CPU and propose possible ways to improve or revise those protocols. In our efforts toward this goal, our team first gathered information on volunteer management from published sources and reviewed the current protocols and practices put in place by the CPU. We then proceeded to interview local officers, experts in emergency response, and local stakeholders, including

volunteer groups, to collect their opinions on the current practices both inside and outside of Hounslow, what resources stakeholders need and what they can offer, and what new protocols might need to be put in place. We identified stakeholders in Hounslow to interview both through our own research and through recommendations from our sponsor. While conducting these interviews, we assessed the borough's current protocols. Finally, after our assessment of the protocols, we created a set of recommendations to the CPU for improving community engagement and we created a database of voluntary groups with resources available in an emergency.

Our recommendations were divided into categories concerning engagement with established groups, engagement with the community at-large, and management of spontaneous and emergent behavior (see Figure 4).

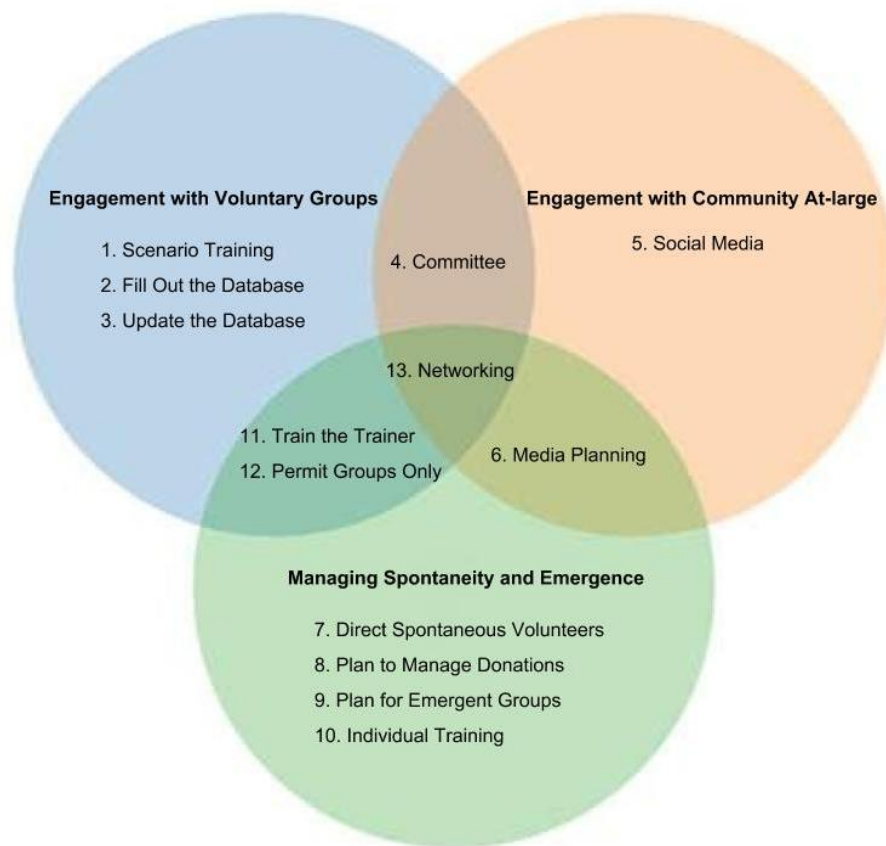


Figure 4: Recommendations

II. Background

In this section, we first look at the phenomenon of convergence and its effects. Then, we explore the different types of volunteers and how best to manage them, referencing previous research. We study the Grenfell Tower disaster and note the management of volunteers and material donations there. Finally, we relate these topics to our project.

2.1 Convergence

When people are in need, particularly after a disaster of considerable proportions, an occurrence known as convergence takes place. This phenomenon stems from the human desire to help those in need and is defined by Fritz (1957) as the “informal, spontaneous movement of people, messages, and supplies towards the disaster area.” While an impressive manifestation of human empathy, convergence can also create disorganization and chaos when authorities are not prepared for a massive outpouring of support.

The informal, spontaneous volunteers who respond to emergencies often learn about the incident through the media, which may overplay such events. Many individuals simply show up to the site of the emergency and try to help by donating either their time or resources. For both small and large emergencies, the appearance of large numbers of people and large amounts of material goods can overwhelm the authorities in charge, who may not have anticipated so many volunteers and donations. As a result, time and money could be wasted trying to incorporate unexpected volunteers and disposing of donated materials that exceed what is necessary, especially clothes, food, and other goods (Auf der Heide, 2003).

The professional literature distinguishes between material and personnel convergence. Material convergence consists of material goods donated or lent to the disaster response and includes items ranging from food goods and medical supplies, which may be expired, to clothing and paper goods. Such items can be critical or useless in a disaster relief effort, depending on the type of emergency (Holguín-Veras, Jaller, Van Wassenhove, Wachtendorf, 2012). Clear communication from the authorities and relief groups to those wishing to donate is essential to ensure that victims receive the types of goods they need, to reduce the amount of wasted donations and time, and to conserve the resources required to manage donations (Auf der Heide, 2003). According to Holguín-Veras et al. (2012), the primary cause of material convergence is

that individuals will send supplies readily available to them with the mentality that “anything and everything could be of use.” This can lead to an unwieldy supply of low priority and nonpriority materials while much needed high priority materials may still be scarce.

Material convergence is closely tied to personnel convergence which consists of spontaneous volunteers appearing at a disaster site and stems from individuals wishing to help those in need and reduce the dangers of hazardous situations. According to Martel, Montgomery, Neatherlin, and Wako (2014), people will always take action when informed of a danger, even if not given direction by authorities. Undirected volunteers can cripple the ability of authorities and trained responders to provide relief and aid and can unintentionally make the volunteers an obstacle and potentially a liability. While the physical presence of the volunteers, and their modes of transportation such as automobile, may impede the ability of trained responders to work, their needs and activities can also place logistic stress on the area. After all, volunteers require resources themselves, which increases the demand for lodging, food, toiletries, electricity, and cell phone service. The increased demand for electricity and phone service can strain the local service capacities, possibly limiting online communication and the use of electrical appliances and further impeding the local responders and authorities (Cone, 2003).

Personnel convergence also relates to the impact of the media on public perception of the situation. The media can present an incomplete or distorted report of the situation at the site of the emergency. For example, the media may report on only select groups, such as schools, that were affected by a particular disaster, which results in overwhelming amounts of school-related donations. With skewed media coverage, people can easily overlook the aid required by other groups (Wenchuan, 2008). According to Holguín-Veras et al. (2012), one possible method to control material convergence relates to the media as well. The media is a powerful communication channel, and by carefully informing the media and the public before mass coverage of an emergency, potential volunteers can receive a more accurate representation of the situation. If implemented successfully, such an effort encourages the donation of more appropriate materials and discourages unneeded gifts. With proper management and use of the media, personnel convergence becomes more successful as volunteers can be organized efficiently and address the appropriate issues.

2.2 Use of Different Types of Volunteers

Volunteers will inevitably converge at the site of an emergency, but how can an emergency management agency effectively use the different types of volunteers that show up? According to the Disaster Research Center typology, which is based on observation and assessment of volunteer groups in many different disasters, there are four types of volunteer groups: established, expanding, extending, and emergent (Quarantelli, 1994). Established groups exist before an emergency and use protocols they have in place during the emergency to perform tasks related to their organizational identity. Take the Red Cross as an example: they have health care experts who can help once an emergency occurs. Expanding and extending volunteer groups exist before an emergency but change either their organizational structure or the tasks and roles of their personnel during an emergency (see Table 2). Emergent groups do not exist before an emergency; they form during an emergency to handle tasks and roles other groups do not fulfill.

Table 2: Four types of volunteer groups (Quarantelli, 1994)

		Structure	
		Old	New
Tasks & Roles	Old	Type I: Established	Type II: Expanding
	New	Type III: Extending	Type IV: Emergent

2.2.1 Established Volunteer Groups

The way emergency management agencies interact with established groups is necessarily different from how they interact with individual volunteers or emergent groups because established volunteer groups have defined organizations, roles, and hierarchies that enable them to interact with emergency response agencies. Additionally, emergency management agencies can include established groups in emergency plans and planning activities prior to the emergency.

The key factor in managing established groups is communication. Several approaches exist to communicate with established groups. Drabek and McEntire (2003) note the command and control management models that dominate in emergency planning and response and tend to

favor top-down communications. Buckle, Marsh, and Smale (2003) emphasize that management agencies need a bidirectional model of communication in order to remain aware of the needs of the community. The communication need not be formal. For example, Weick, Sutcliffe, and Obstfeld (2008) recommend a wide informal communication network for emergency management, based on high reliability organizations.

Buckle, Marsh, and Smale (2003) give specific recommendations to improve communication with established groups. The authors suggest emergency management agencies organize training and certification for established groups and invite them to “Recovery Committee” meetings. The government agencies such as the CPU should recognize the training and certification to legitimize the volunteer organizations and understand their value. The training should be visible, paid for, and up to date in relevant technical areas. The recovery meetings should convene at least twice per year and should include workshops. Emergency management agencies and established groups should also hold regular meetings to spread information and should test emergency communication channels regularly (Buckle, Marsh, and Smale, 2003).

2.2.2 Expanding and Extending Volunteer Groups

Expanding and extending volunteer groups exist prior to an emergency but change their structure or role to adapt to a particular unique emergency situation (Quarantelli, 1994). Expanding groups are volunteer organizations that exist prior to an emergency but take on a new structure to handle the emergency. Whittaker, McLennan, and Handmer (2015) list the Salvation Army as an example of an expanding group. The Salvation Army is structured to provide food and clothing to those in need when there is no emergency, but traditionally provides disaster relief as well. During an emergency, the Salvation Army expands its structure to include additional active volunteers and to provide relief to victims. Extending groups are organizations that exist prior to an emergency that do not traditionally engage in emergency response but take on additional roles during the emergency. These include local businesses with a stake in the emergency as well as sporting clubs and social organizations active in the community (Whittaker et al, 2015).

Expanding and extending groups typically seek to work with established groups and authorities, which facilitates emergency management (Whittaker et al, 2015). Since these groups

exist prior to an emergency, the emergency management agency could possibly identify, in advance of an emergency, those local organizations with potential to become expanding or extending groups. Once identified, emergency management agencies could include these groups in emergency planning activities and treat them similarly to established groups with additional flexibility to account for potential changes in structure or role.

2.2.3 Emergent Volunteer Groups

Prior research has firmly established that, after an emergency, new volunteer groups will inevitably appear (Stallings and Quarantelli, 1985). These emergent volunteer groups fill perceived gaps in official emergency response and recovery. Officials find it more difficult to interact with emergent volunteer groups than with established, expanding, or extending groups for two reasons. First, there is no established dialogue between officials and emergent groups. Second, this type of group usually has a flat organizational structure with little to no structured leadership or management (Stallings and Quarantelli, 1985). Drabek and McEntire (2003) observe that the top-down command and control systems that are most common among both official emergency response organizations and established voluntary groups are not optimal for engaging with emergent groups.

In addition to changing their structure to accommodate emergent groups, emergency management agencies can take steps to improve communication in spite of the initial absence of dialogue. Whittaker, McLennan, and Handmer (2015) suggest that emergency management agencies follow the example of the Amstelland Safety Region (ASR) in the Netherlands and ask emergency responders to identify ‘natural leaders’ within emergent groups as soon as possible in an evolving emergency. Emergency responders should provide the ‘natural leaders’ with information about the emergency and include them in planning meetings (Whittaker et al, 2015). Legitimizing volunteer activities is a powerful tool that officials can use to increase beneficial volunteerism. Whittaker, McLennan, and Handmer (2015) describe how the ASR expects officials to legitimate volunteer activities, providing the volunteer groups with extra access, information, and identifiable clothing or insignias. Stallings and Quarantelli (1985) also mention that recognizing and legitimizing emergent volunteer organizations will increase the lifespan and utility of those organizations.

Emergent groups usually disintegrate after they complete their tasks in an emergency (Stallings and Quarantelli, 1985). Occasionally, these groups will grow into permanent organizations either to perform the same tasks they performed during the emergency but on a larger scale, to seek aid for recovering after the emergency, or to seek legal or political action against those thought to be responsible for the emergency. Consequently, officials are often wary of emergent groups, fearing such groups will blame the authorities for their handling of emergency response and recovery efforts, which may damage the reputation of the authorities whether or not they were at fault. Stallings and Quarantelli (1985) emphasize the importance of keeping the public, particularly emergent volunteer groups, informed. They observe that, when authorities refuse to communicate with emergent groups, which are usually benign, even beneficial, the lack of communication can create an atmosphere of distrust that causes the once benign group to turn against the authorities and seek sometimes inappropriate post-emergency action.

2.2.4 Spontaneous Volunteers

During an emergency, government agencies and non-profit organizations need volunteers to aid disaster victims, rebuild communities, educate the public, and prepare for future emergencies. Ideally, volunteers would affiliate with established volunteer organizations before a disaster and be able to fill needed roles as necessary. Affiliation brings many advantages to volunteers, including training and the ability to fill vital roles quickly and effectively when needed. Ideal volunteers in emergency management systems are flexible, self-sufficient, aware of risks, and willing to follow instructions from local emergency management experts. However, not all volunteers affiliate with a volunteer group. As opposed to the groups described above, spontaneous volunteers are individuals who seek to help on impulse and who are unaffiliated with a group at the time of an emergency (McLennan, Molloy, & Handmer, 2016). Spontaneous volunteers may seek to join an established group, form an emergent group, or act alone. Researchers have categorized spontaneous volunteers into six different types, as described in Table 3.

Table 3: Six types of spontaneous volunteers (Corporation for National and Community Service, 2015)

Helpers	People who have come to help victims or responders in some way
Returnees	People who lived in the disaster-impacted area but were evacuated
The Anxious	People from outside the impacted area who are attempting to obtain information about family and friends
The Curious	People who are motivated primarily to view the destruction left in the wake of the disaster
Supporters	People who gather to display flags and banners encouraging and expressing gratitude to emergency workers
Exploiters	People who try to use the disaster for personal gain or profit

Whittaker et al. (2015) suggest that, since spontaneous volunteers often appear at the scene of an emergency, but do not do so reliably, emergency management agencies have difficulty planning for them. Spontaneous volunteers are particularly averse to the typical command and control structure mentioned earlier because it assumes that untrained citizens are inept and that ad hoc volunteering is counterproductive. That is why government agencies should establish a problem-solving structure for handling volunteers rather than a top-down system. Since volunteers are highly likely to converge on an emergency, it is possible to set up a protocol for adding isolated volunteers to a larger volunteer system. For example, the ASR has a set protocol for absorbing spontaneous volunteers in the event of an emergency.

2.3 The Grenfell Tower Fire

The Grenfell Tower Fire in the Royal Borough of Kensington and Chelsea (RBKC) was a significant recent emergency. Several boroughs including Hounslow, responded with mutual aid to this fire that left seventy-two people dead and more than three hundred homeless (Rawlinson, 2017). Hounslow's CPU wants to learn from the mistakes and problems that occurred during the fire to help improve community resilience and emergency response. Here, we will identify failures in management of convergence and volunteers after the Grenfell Tower Fire and relate them to previously discussed research.

The Grenfell Tower Fire was a major disaster for the city of London. Not only was the fire ablaze for over twenty-four hours, but there were seventy-two fatalities and hundreds of

people who lost their homes. This disaster merited emergency response from multiple surrounding boroughs. Despite the large number of responders, many people, including Theresa May, the Prime Minister of the United Kingdom, openly expressed immense dissatisfaction with how the Kensington and Chelsea Council handled the emergency response (Sanderson, 2017). A volunteer at the fire complained about the disorganization, saying he was shocked not to see any visible council officials (Bowcott, 2017). People expect leaders to be visible in a crisis, to provide clear direction, show support for victims, and communicate with and coordinate between themselves and other groups (Boin and Hart, 2003).

The efforts of volunteers after the fire were chaotic and overwhelming, especially at first. After a few weeks, the volunteer groups became much more organized. Unfortunately, this has largely been criticized as too much time to get organized and that time and effort could have been used more efficiently. For example, a group of general practitioners (GPs) set up makeshift health desks and were coordinated by London Central & West Unscheduled Care Collaborative (LCWUCC). This GPs group called themselves the "Grenfell Medics". The Grenfell Medics began to cooperate with the British Red Cross, the Grenfell Muslim Response Unit, and government agencies such as the RBKC Council, but only after the Grenfell Medics had become organized themselves. This is a problem because the informal structure of emergent groups often baffles other organizations who try to communicate and work with them (Stallings and Quarantelli, 1985). After a couple of weeks, the Grenfell Medics moved their services to a community center facility called The Curve. This facility provided victims with shelter, food, and clothing, and granted psychological and counseling services to those who needed it. The volunteers working at The Curve focused on enabling the victims to become self-sufficient again (Zulueta, 2018). This example illustrates that emergency response agencies, volunteer organizations, and other stakeholders need to try to anticipate and plan for some of the problems associated with the formation of these emergent groups and help them to establish themselves more quickly so that they can function efficiently and helpfully in the event of an emergency.

Material donations also arrived in abundance at the site of the Grenfell Tower Fire. The volunteer organizations and faith groups working on the disaster relief received more donations than they were able to manage efficiently as well as the wrong types of donations (Williams, 2018). Holguín-Veras et al. (2012) mentioned that the problem with donations converging at an emergency site is that they are often unnecessary and create havoc for those who respond. There

were also a lot of perishable goods, like food, that had to be organized and distributed. These goods require additional management resources because, as Kendra and Wachtendorf (2001) point out, unsupervised donations of perishable food can pose health risks.

In addition to donations, the RBKC and the local volunteer center both received an overwhelming number of individuals who wanted to offer help. The RBKC and volunteer center did not acknowledge these offers of help which annoyed volunteers and likely decreased their effectiveness and willingness to volunteer. It is important to acknowledge volunteers and grant them legitimacy as it allows them to assist and can increase their ease of identifiability to victims (Whittaker, McLennan, and Handmer, 2015). Granting accreditation and legitimacy increases volunteer motivation and extends the lifespan of volunteer groups (Stallings and Quarantelli, 1985). The issues observed in managing convergence and volunteers surrounding the Grenfell Tower Fire not only damaged efficiency in helping with the fire, but also public trust in the RBKC. Due to the Council's handling of the crisis and lack of acknowledgement of volunteers, demonstrators tried to storm the Council offices in protest (Bowcott, 2017). This is an instance of Stallings and Quarantelli's (1985) observation that while most emergent groups usually avoid political associations, if they feel they are being snubbed they will take political action.

2.4 Background Conclusion

The Grenfell Tower Fire had a significant influence on this project as it motivated emergency planning agencies around England to improve plans to handle both convergence and volunteers. The Grenfell Tower Fire highlighted the need to focus on planning for the management of volunteers and donations in the event of an emergency, which is the topic of this project. The issues of convergence and volunteers played an important role in the Grenfell incident. The magnitude of volunteer efforts proved difficult to manage, which allowed chaos to ensue. The disaster area saw material, informational, and personnel convergence, all of which came in overwhelming quantities, promoting chaos. The issues of over-saturated volunteer efforts as well as other forms of convergence are topics we looked to investigate through interviews with emergency experts, local authorities, and local stakeholders. These issues are prominent and important in emergency response as the responsible organizations often become overwhelmed. Through this project we have developed a set of recommendations for the CPU that will help address the issues of convergence facing Hounslow.

III. Methods

The project goal was to improve community engagement and management of voluntary contributions before, during, and after an emergency in Hounslow. We defined three intermediate objectives, listed below, that build toward this goal and we completed tasks within these objectives according to the timeline in Appendix B.

- Objective 1: Identify best practices in volunteer management and community engagement
- Objective 2: Evaluate how local authorities in Hounslow and other government agencies in and around London currently engage with the community, businesses, volunteers, and faith groups in the event of emergencies
- Objective 3: Assess the needs and capabilities of local stakeholders in handling volunteers, materials, and other donations during emergencies.

3.1 Objective 1: Identify best practices in volunteer management and community engagement

Identifying best practices in volunteer management and community engagement informed our final recommendations. We built on the best practices presented in the background section by conducting interviews with experts in the field of disaster response.

In order to identify experts to interview, we sifted through citations in the literature and asked our interviewees to refer us to additional relevant experts. Since the experts identified were scattered across the globe, we interviewed the majority of them by Skype, and one in person. We used the script in Appendix C to interview experts. We asked open-ended questions specific to the interviewee's expertise.

Since the interviewees were experts in a variety of fields, primarily emergency management, we received a variety of suggestions about volunteer management and community engagement. To begin each interview, we inquired about interviewee's previous research, naming an article or paper they wrote that we had read if possible. We also asked interviewees about handling convergence, especially convergence of material donations. Finally, we asked interviewees about the best mechanisms to improve coordination and cooperation between a variety of government agencies and volunteer groups. The script changed over the course of our

interviews in order to focus on important topics identified in our initial interviews. A full list of the experts we interviewed can be found in Appendix F.

3.2 Objective 2: Evaluate how local authorities in Hounslow and other government agencies in and around London currently engage with the community, businesses, volunteers, and faith groups in the event of emergencies

In order to recommend improvements to the Hounslow CPU, we first examined how the unit and related government agencies currently engage with the community before, during, and after emergencies. By examining other government agencies in and around Hounslow, we learned what others are doing well. By examining the CPU, we were able to compare its practices with those of the other government agencies and with best practices from background research.

To begin, we reviewed internal documents detailing Hounslow's emergency response protocols, such as the Major Emergency Plan. We used the written protocols to assess how the borough would engage with the community in the event of an emergency. In addition, we interviewed local officers including Tim Arnold, a member of the CPU staff, about how the borough would engage with the community in an emergency. For these interviews, we used the script in Appendix D. Between our examination of protocols and interviews with local officers, we gained a clear understanding of current community engagement in the borough. Specifically, we examined what groups the CPU engages with and how it does so, how the CPU manages spontaneous volunteers, and how the CPU communicates with the community and with other organizations.

We also examined other government agencies in Hounslow. We interviewed other units within the local authority and emergency response services, such as the Metropolitan Police. Our interviews were designed to discover how volunteers and convergence are planned for and responded to as well as how government agencies engage with the community before an emergency. In these interviews, we covered the same topics as the Hounslow CPU interviews using the script in Appendix D. We identified additional important emergency planning and

response groups by referral from previous interviewees. A full list of our interviewees from government organizations can be found in Appendix G.

We followed similar protocols for all our interviews in Hounslow. First, we developed a semi-structured interview script in consultation with our sponsor and advisors. Then, we identified interview subjects according to our objectives and made contact with them by email and telephone. We conducted semi-structured interviews with a primary interviewer and a scribe present. The scribe was responsible for recording interviewee responses on paper and digitally with the help of a recording device. As much as possible, we conducted these interviews in-person at a location convenient for the interviewee. At the start of each interview we recited the preamble from the interview scripts in the appendices, in which we describe the purpose of our interviews, explain the interviewee's right not to answer questions and their right to review quotations, and we asked for their consent to quote and record them.

After collecting notes from our interviews, we identified common responses to our scripted questions, and we collected additional notes on possible CPU improvement from pursuing unscripted interview paths. We used the most common responses as the basis for our conclusions, and we quoted important unscripted dialogue that reinforces those conclusions.

3.3 Objective 3: Assess the needs and capabilities of local stakeholders in handling volunteers, materials, and other donations during emergencies

We determined the needs and capabilities of the stakeholders in Hounslow in order to make recommendations to the Hounslow CPU on how to improve community engagement, communication, and the use of volunteers in emergencies. We wanted to see what the stakeholders in the area are willing to provide to the community in an emergency and what communication they require from the CPU. To do this we first identified who the primary stakeholders of concern to the Hounslow CPU are by consulting our sponsor and by reviewing the Community Partnerships Unit's list of voluntary groups. We identified the types of groups that typically volunteer in events such as the Grenfell Tower Fire by reading reports of these events and matching them with equivalent groups in Hounslow. We identified three major categories of relevant non-government stakeholders in Hounslow: businesses, local community

and volunteer groups, and faith groups. Among these major categories, we identified, through our sponsor, background research, and the Community Partnerships Unit's list of voluntary groups, several major stakeholders for initial interviews. These stakeholders included the Hounslow Chamber of Commerce, Volunteering Hounslow, and Hounslow Friends of Faith. We used snowball sampling to find more interviewees. A full list of our interviewees toward this objective can be found in Appendix H.

The local stakeholders in Hounslow are diverse and may offer a variety of forms of aid in a disaster. We examined what local businesses and other stakeholders, such as volunteer and faith groups in Hounslow, can contribute in the event of a disaster. We also examined how volunteer efforts and the coordination and management of volunteers, materials, and donations can be more closely integrated into Hounslow's emergency planning and response. This is expected to help avoid some of the problems encountered in the Grenfell Tower Fire. We examined available voluntary contributions in Hounslow through interviews with local stakeholders. We interviewed business groups, such as the Hounslow Chamber of Commerce, volunteer groups, such as Volunteering Hounslow, and faith groups, such as Hounslow Friends of Faith. There are many more volunteer groups in Hounslow like EACH Counseling and Support which are listed on the London Borough of Hounslow website under "Online Directory of voluntary organizations". We went through the online directory with our sponsor to prioritize which groups to interview as there are over 550 listings.

For these interviews, we used the script in Appendix E and the same general interview approach described in Objective 2. Through these interviews, we were able to gain a sense of the needs and capabilities of local stakeholders. First, with the information from these interviews, we created a database containing what the community can supply for the London Borough of Hounslow to access in the event of an emergency. We were also able to develop a set of recommendations for the CPU to pursue based on our work. Through our interviews we determined who has worked with the CPU in the past and how they felt the collaboration went. We also enquired about how people felt about the use of volunteers and donations in emergencies, and if they had any suggestions based on their own emergency protocols. Finally, we wanted to know if the groups we interviewed had any services or assets they are willing to provide in emergencies.

3.4 Deliverables

The main deliverables of this project are a database of local stakeholders that could assist the CPU in an emergency and a set of recommendations on how the CPU can continue to improve community engagement. The database lists voluntary and community groups in the area along with their contact information and the assets they could provide in an emergency. Our recommendations are aimed at improving engagement with voluntary groups, engagement with the community at-large, and management of spontaneous and emergent behaviour.

The stakeholders listed in the database include businesses, faith groups, volunteer groups, and community groups that are willing to help in the event of an emergency. It outlines what assets these groups are willing to offer, including volunteers, shelter, food, and clothes and it is aimed at helping the authorities better understand what is available in terms of voluntary aid from the community. To ensure a wide variety of assets and a good breadth of samples, we prioritized interviewing groups from each category of stakeholder. Unfortunately, we simply did not have enough time to interview every stakeholder in Hounslow. By interviewing groups from each category, we sought to lay a solid groundwork for a database for the CPU to further flesh out and continue to update in the future.

Along with the database, our team's set of recommendations for the CPU is oriented towards helping the CPU build relationships with existing voluntary groups, handle the emergence of new groups, and improve community engagement generally. Through our recommendations for improving engagement with established groups, engagement with the community at-large, and management of spontaneous and emergent behaviour, the CPU can improve community engagement and community resilience in Hounslow.

IV. Findings

4.1 Best practices in volunteer management and community engagement

We assessed the best practices in volunteer management and community engagement through interviews with established experts in the field of emergency management and response. Throughout this process, we found that many of our interviewees tended to be in agreement with the general good will and potential that volunteers may have in working to recover from an emergency. Many of our expert interviewees also shared similar conclusions on how to manage the convergence of materials, volunteers, and information with many emphasizing the need for communication and networking before a disaster. The major themes that our interviewees brought up are shown below in Figure 5.

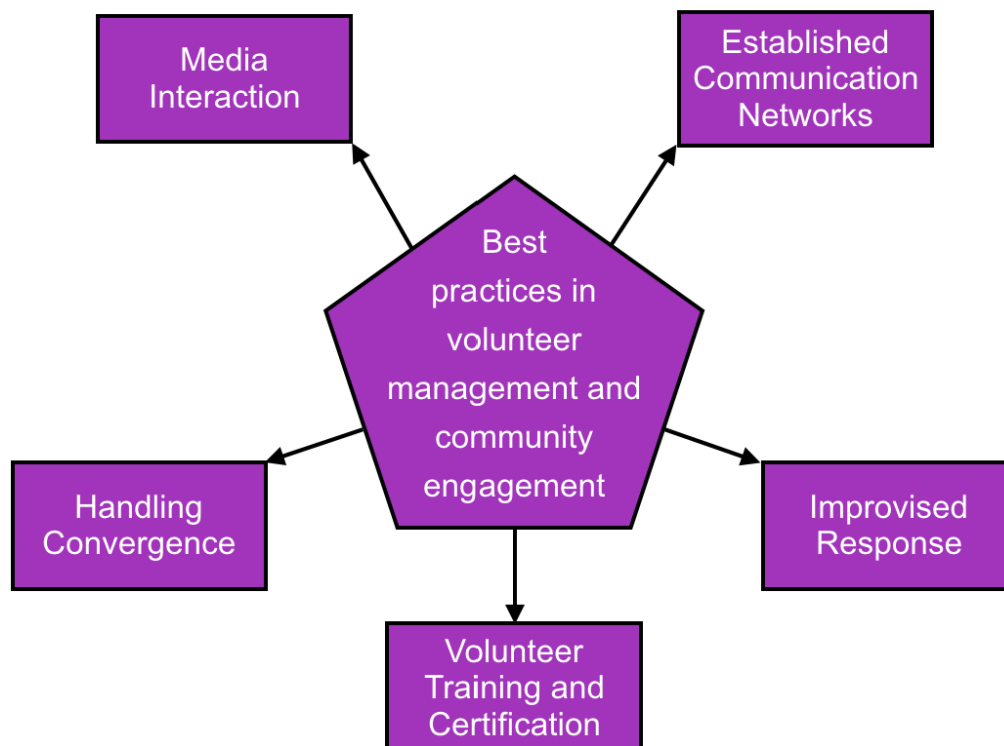


Figure 5: Best practices in volunteer management and community engagement from expert interviews

4.1.1 Established Communication Networks

In our interviews with experts, a common theme was the need for organization before an emergency in order to effectively incorporate volunteers in an emergency response. In our interview with David McEntire, Dean of Public Health and Services at Utah Valley University and co-author of “Emergent phenomena and the sociology of disaster: lessons, trends and opportunities from the research literature,” he mentioned that one approach to emergency response is to discourage spontaneous and emergent volunteers because such untrained volunteers run the risk of becoming liabilities. However, he also noted that people will likely volunteer anyway and that when viewed from a sociological perspective, such volunteers are an important resource in disaster response. This need for organization and prior communication between local authorities is reflected in the recommendations our team presents in Table 4.

Table 4: Recommendations - Committee and Networking

Recommendations	
Committee	The CPU should establish an emergency planning committee that includes community leaders
Networking	The CPU should make attempts to establish informal connections with community leaders

During our interview with Professor McEntire, he said that in order to maximize collaboration, the authorities should communicate and network with the voluntary sector before an emergency. He said the authorities must run practice drills with the volunteer groups often in order to be able to produce an organized, efficient, and flexible response. He further mentioned that an effective way of establishing a strong relationship with the voluntary sector is to create a local emergency planning committee made up of representatives from the major voluntary organizations in the area (see Table 4). These organizations will know the needs of the community and bring in more people, allowing further engagement with the community. As the community involvement grows, the response plans and strategies it produces will become more detailed and effective.

The need for extensive communication and networking before a disaster was also corroborated by Thomas Drabek, Professor Emeritus from the University of Denver and coauthor of “Emergent phenomena and the sociology of disaster: lessons, trends and opportunities from the research literature.” During our interview with Professor Drabek, he

emphasized the need to facilitate coordination between groups and the need to build social relationships and networks before a disaster as well as the importance of a decentralized structure when incorporating volunteers. With the theme of incorporating the public sector, Professor Drabek stated that, in the United States, a successful emergency manager has a good sense of what groups are present in the community and can predict what types of groups will participate in emergency response. Such an emergency manager promptly verifies the specifics of an event while it is taking place and doesn't just stop with government aid but is also able to further the response using a network created with the volunteer sector before the emergency. Networking allows the emergency manager to include voluntary organizations in the response in a more coordinated fashion rather than spending resources to prevent spontaneous volunteers from participating.

4.1.2 Improvised Response

During our interview with Professor McEntire, he brought up two main types of responses: planned responses and improvised responses. Ideally, communication and networking before an emergency facilitates the planning of emergency response covering a wide variety of situations, allowing for an efficient, coordinated response regardless of the emergency. However, when a disaster strikes that surprises emergency planners, and for which no preconceived plan is available, an improvised response may be necessary. For an improvised response to be effective, however, the authorities responding to the situation must be familiar with the organizations present in the area and must have established communication channels with them, which highlights again the need for communication and networking between authorities and the voluntary and community sector before an emergency. Such a response may be described as an educated improvised response. To illustrate this point, Professor McEntire, Professor Drabek, and Ms. Claire Rubin, President of the emergency management consulting firm Claire B. Rubin & Associates, LLC, all gave the example of the mass evacuation of Manhattan on 9/11 nicknamed 'American Dunkirk'. Over half a million people were evacuated from the island primarily by civilian watercraft. This response to the terrorist attack in 2001 is widely viewed as an incredibly successful improvised response, and Professor McEntire told us its success was due to the communication between the authorities and the volunteer and private sectors during the event itself.

4.1.3 Volunteer Training and Certification

Many of our interviewees agreed on the massive potential present in the spontaneous efforts of volunteers, there did however surface a small rift between answers concerning the way in which people should be allowed to volunteer. While a portion of those interviewed saw any help that arrived as better than no help at all, others pressed the need to require volunteers to be trained and certified before being allowed to participate in a response. This point of view is reflected in our recommendations mentioned in Table 5, including recommendations for the local authority to open emergency volunteer training to the public and to invite community and volunteer groups to participate in its training drills.

Table 5: Recommendations - Individual Training and Scenario Training

Recommendations	
Individual Training	The CPU should train volunteers who are not council employees through its current training program for council volunteers
Scenario Training	The CPU should involve voluntary and community groups in its scenario training drills

While it is difficult to incorporate the public sector in situations involving government secrets, there have been efforts made to train and accredit volunteers in emergency response, and we recommend the CPU adopts the training procedures in Table 5. One effort to train volunteers that Ms. Rubin pointed us to is the Community Emergency Response Team (CERT) in the United States. CERT is sponsored by the Federal Emergency Management Agency (FEMA) and works to train volunteer citizens in various skills including search and rescue and CERT clears volunteers to respond in emergencies that would require a background check. CERT shows the possibility of government trained volunteers effectively aiding in emergency management, though again organization and training before an emergency are critical.

In our interview with David Alexander, Professor of Risk and Disaster Reduction at University College London, he introduced us to the Italian emergency response volunteer system, in which volunteers are trained by their voluntary organizations and registered with the government. The volunteer organizations in Italy have been around for hundreds of years and volunteering is a significant part of their culture, with these groups often holding community events to maintain a strong presence in the community. The Italians take immense pride in their

volunteer organizations. Once an emergency occurs, these well-organized volunteer organizations activate immediately. As soon as their firemen declare a disaster site to be safe, volunteers are everywhere. The voluntary sector in Italy largely handles emergency response themselves and they are effective and efficient. Volunteer groups and individual volunteers are also protected in emergency response. For example: there is a law in Italy which protects volunteers from being fired if they respond to an emergency during work. Besides that, there is a registration system implemented in Italy that is essential for organizing volunteers quickly. All citizens need to provide their address and other basic information to the government, as with any other identification system. The importance of this system is that it also identifies if people who live in the disaster area are elderly, disabled or otherwise vulnerable. If an emergency occurs, the system will allow the government to determine if there is anyone living in the area when the emergency has happened and who needs the most help evacuating. The government and the volunteer organizations then collaborate to rescue those who live in the area, especially those who are vulnerable.

4.1.4 Handling Convergence

Convergence of information, materials, and volunteers can overwhelm authorities and cause chaos. In our interviews with experts, we found several methods for handling convergence of volunteers and donations that could be included in the CPU's plans. These are summarized in Table 6.

Table 6: Recommendations - Plan to Manage Donations, Direct Spontaneous Volunteers, and Plan for Emergent Groups

Recommendations	
Plan to Manage Donations	The CPU should plan to divide donation management between different people by donation type
Direct Spontaneous Volunteers	The CPU should plan to direct individual spontaneous volunteers to established voluntary organizations in an emergency
Plan for Emergent Groups	The CPU should plan on emergent groups forming and determine what type of groups will likely form early in an emergency

In our interview with Professor Holguín-Veras, he referred us to literature he had published including the article “Material convergence: Important and understudied disaster phenomenon,” which we reference in the background section of this paper. In this article he and his coauthors outline a variety of policy suggestions for preventing and managing material convergence. While such recommendations for preventing convergence are considered in other sections, their proposals for managing material convergence largely corroborate Professor Drabek’s recommendations in that they involve assigning people to manage donated goods. In the article, Professor Holguín-Veras and his team propose that it is necessary to prescreen donated materials to prevent the needless handling and storage of unneeded materials and expedite the transport of other materials based on how critical they are to the affected area. To make such a system more efficient he and his team further propose that volunteer groups could be accredited to sift through donated materials themselves and thus be able to bypass inspection from authorities.

In our interview with Professor Alexander, when speaking to the nature of the volunteer response present in Italy, he mentioned that the convergence of spontaneous volunteers is not generally an issue, since much of the population is involved in community organizations that are in communication with the government. This indicates that established volunteer groups are generally efficient in the management of volunteers, perhaps more so than the local authority who may not have the same level of interaction with the community. Based on Professor Alexander’s information on convergence in Italy and based on the issues with convergence of individual spontaneous volunteers, we recommend the CPU directs spontaneous volunteers to established groups (see Table 6). In Australia, the EV Crew model was used to effectively organize thousands of volunteers in a similar way by directing them to established groups through Volunteering Queensland (McLennan, Molloy, and Handmer, 2016).

Professor Drabek emphasized that emergency managers should plan on emergent groups forming during and after an emergency because their formation is essentially guaranteed. Based on this and our background research, we recommend that the CPU plans for emergent groups (see Table 6). Claire Rubin told us that emergent groups could be predicted early in an emergency by identifying what will be needed based on the type of emergency and what is available in the area. For example, after the Boston Marathon incident, medical personnel were needed, and because there are many medical professionals in the Boston area, a number of them

volunteered to help after the emergency. Professor McEntire also told us that emergent groups could be predicted based on the demographics of the area and based on what needs are not being met after an emergency. Towards this he gave the example of service organizations, such as faith groups, likely having an impact on volunteering and added that, if no official responders are initially present, ordinary people will likely take on emergent roles to help others. This was seen in the Boston Marathon incident where many medical professionals were among the crowd and acted as first responders.

4.1.5 Media Interaction

Along with engaging with the community and volunteer sectors before an emergency, communication with the media is also important given the tremendous capabilities of news reporters and social media sites to relay information. Because the media's representation of an emergency can have an impact on public support, the CPU should implement the recommendations mentioned in Table 7.

Table 7: Recommendations - Media Planning and Social Media

Recommendations	
Media Planning	The CPU should make plans with important media correspondents in the area to establish a source of accurate information in an emergency
Social Media	The CPU should use social media to disseminate accurate emergency information and request voluntary assistance from the community

At the end of our interview with Professor Alexander he also spoke about how government officials should communicate with media, particularly social media. He stated that, according to initial studies, social media is more likely to be self-correcting. Most false information will be objected to and proved incorrect by people who know the truth of the situation. However, government agencies still need ensure they use social media effectively to prevent false information from spreading. The government needs to be transparent and honest both with the media and on social media sites.

4.2 Current practices for engagement with the community, businesses, volunteers, and faith groups

In order to identify the current practices conducted by the local authorities in Hounslow, our team interviewed members of our sponsor's unit, the CPU, as well as members of other units and other government agencies that we identified with our sponsor. These interviews largely focused on the methods used by each group for community engagement and the value of each method as well as on the capabilities of the CPU in the immediate response to a disaster.

4.2.1 Current Practices for Community Engagement in Other Government Groups

We interviewed representatives of a number of government groups outside the Hounslow CPU, detailed in Appendix G. From these interviews we learned the current practices for community engagement, which include direct two-way communication through informal contacts, communication via committees and social media, and empowering the community through training. Based on current community engagement practices, we propose the recommendations referenced in Table 8.

Table 8: Recommendations - Networking, Committee, Social Media, Train the Trainer, and Individual Training

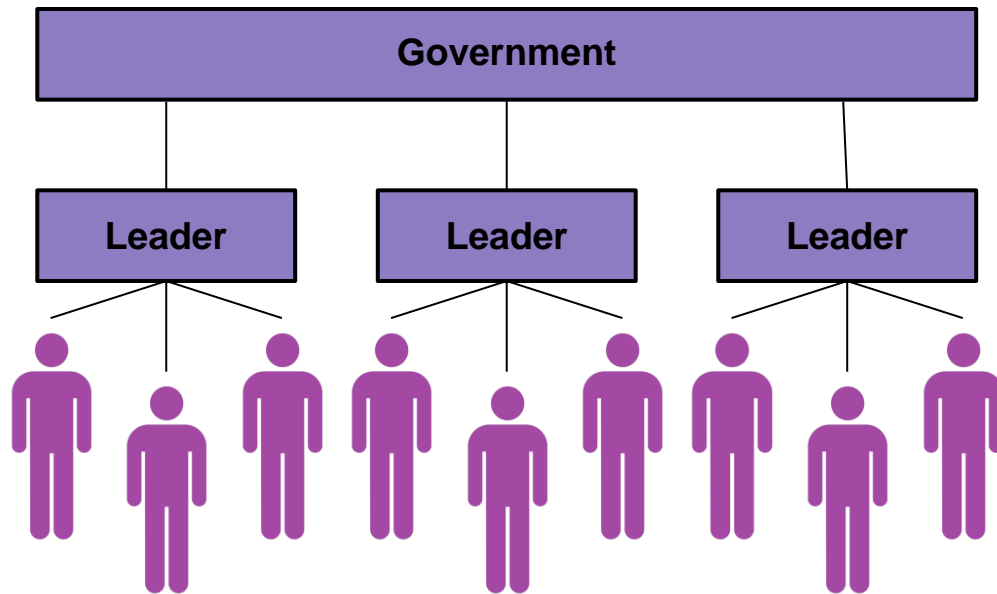
Recommendations	
Networking	The CPU should make attempts to establish informal connections with community leaders
Committee	The CPU should establish an emergency planning committee that includes community leaders
Social Media	The CPU should use social media to disseminate accurate emergency information and request voluntary assistance from the community
Train the Trainer	The CPU should train community leaders to train volunteers in emergency response and recovery
Individual Training	The CPU should train volunteers who are not council employees through its current training program for council volunteers

Two-way communication is important for community engagement because it allows the community to voice their concerns to emergency planners and it allows the government to advise the community about what to do in an emergency. Two-way communication can be

accomplished through direct, informal communication between individuals in different groups or through forums and meetings. For example, Community and Faith Officer Dave Turtle of the Metropolitan Police told us one way the police engage with faith groups is through informal connections between faith leaders and himself. Joan Conlon, head of the Prevent team in the Community Partnerships Unit, told us one way that her unit engages with the community is through meetings of the Hounslow Community Network, a network with 353 member organizations that holds meetings once a month.

The government groups we interviewed used multiple communication channels to improve community engagement. In addition to informal connections, the police also rely on Twitter to inform the community, and they engage with the community through forums such as the Faith Leaders Forum. The Prevent Team avoids top-down communication techniques like informing the community and prefers to advise groups on a case-by-case basis.

In addition to informing, advising, and engaging the community, government groups also empower the community by training and educating community members in skills relevant to the government group. For example, the police train citizens for the Community Speedwatch scheme, while the Prevent team trains people to develop critical thinking skills and to recognize propaganda. Joan Conlon recommended the ‘train the trainer’ model used by the Prevent team for training people in the community. In this model, shown in Figure 6, a regulating organization, such as the borough government, schedules training sessions for community leaders in which those leaders are taught how to train others in useful skills such as those used in emergency response.



Empowered Community Members

Figure 7: Train the Trainer Model

Another form of training is simply opening up individual training to the public. Providing training to people who are not involved with a volunteer group is another way for people to access education about emergency response. In Figure 7 the numbers represent the general effectiveness of a volunteer: 1 being not effective, 2 being somewhat effective and 3 being very effective. Training can educate the community, and if the community is well educated, the general effectiveness of available volunteers will improve, thus improving emergency response as a whole.

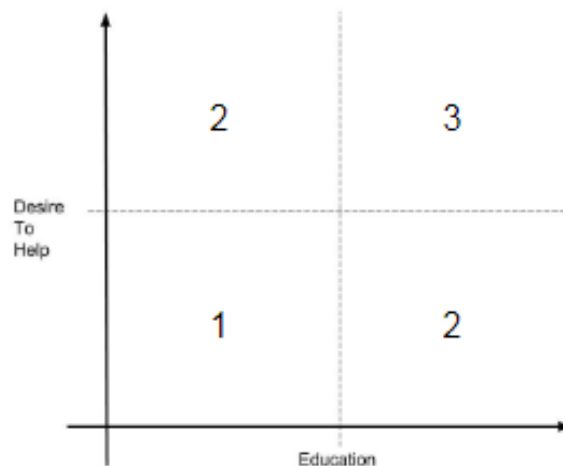


Figure 6: Volunteer effectiveness chart from speaking with Twm Palmer

One deliverable of this project is a database of voluntary groups in the area that could provide resources in an emergency. The police do not maintain a database of voluntary groups, preferring informal connections, but the Community Partnerships Unit does maintain a database of 648 active voluntary groups in Hounslow. The Community Partnerships Unit's database records contact information for each group along with a short description of each group.

4.2.2 Evaluation of Community Engagement at the Hounslow CPU

We interviewed Tim Arnold, Contingency Planning Officer of the Hounslow CPU, to review the CPU's current practices for community engagement. The CPU has a mutual aid agreement with the Red Cross but does not otherwise interact with voluntary organizations in the borough; that being said, it does have contact with various voluntary organizations through the Community Partnerships Unit. Compared to the Metropolitan Police, the CPU has fewer and less direct connections with the community. The CPU periodically sends out mass emails and pamphlets to the citizens of the borough that detail what to do in an emergency but such methods are not as effective as the two-way communication channels used by the Metropolitan Police. This is because the channels utilized by the Police allow the community to inform authorities about potential threats, so members of the community can not only receive information, but are also able to send information to the Police. This aligns with Professor Drabek's comment that emergency managers need a group of community leaders who can identify and discuss the vulnerabilities of the community.

In addition to interviewing members of the local government, we also visited the emergency storage area of the CPU. There we observed provisions of clothes, sleeping bags, and other miscellaneous supplies for initial emergency response per the Minimum Standards for London. Our revision of the internal documents from the CPU revealed that the Borough of Hounslow has bedding for 200 people and clothing for approximately 100 people as well as spaces spread throughout the borough for shelter that are able to accommodate victims for the first 72 hours after an emergency. There are 11 'Fusion' centers which have an average capacity of 256 people and 8 'HRA' centers which have an average capacity of 60 people, with all of these facilities being owned by the Borough Council and available as shelter once an emergency occurs. We did notice, however, problems associated with perishable goods. The CPU has stored food and other supplies, but not only do these need to be constantly kept up to date, but the

supply of food the CPU keeps in their emergency storage is minimal. This supply is only meant to provide for the first 72 hours of an emergency response as the CPU assumes that they can acquire supplies from the community afterwards. Given the capabilities of the CPU however, we found that the area of transportation in particular appeared to be lacking. The CPU does have access to the borough authority's vehicles, however this supply is undependable as these vehicles are shared between other groups and are not guaranteed to always be available.

4.3 Needs and capabilities of local stakeholders in handling volunteers, materials, and other donations during emergencies

In order to assess the abilities of the community in providing aid to emergency response and to learn what these groups expect from the local authority of Hounslow in return, our team identified key groups in the borough that may prove to be among the most valuable for producing such aid and interviewed representatives from each group. Our interviews with these groups were very insightful in terms of discovering what they want from the CPU concerning leadership and guidance as well as what assets they may be willing to offer and under what circumstances. The desires held by these groups were kept in mind while formulating our recommendations for the CPU and their responses as to what they may be willing to offer in the event of an emergency were stored in a database presented to our sponsor at the end of our project.

4.3.1 Needs of Stakeholders

Through our interviews, we found that many of the groups in Hounslow want certain commitments from the CPU in order to be included in a response effort. One of the most important of which is, the need for the CPU to build and maintain personal relationships with these groups, with such interactions largely based on two-way communication. Along with this informal communication, the groups of the borough are looking for direction from the CPU in matters involving emergency planning and response. Based on the needs of these groups as well as other stakeholders, we recommend the CPU establishes relationships with community leaders and includes community groups in scenario training (Table 9).

Table 9: Recommendations - Networking and Scenario Training

Recommendations	
Networking	The CPU should make attempts to establish informal connections with community leaders
Scenario Training	The CPU should involve voluntary and community groups in its scenario training drills

In accord with the desires of faith groups, many businesses in the area are also happy to provide aid. In our interview with Stephen Fry, of the Hounslow Chamber of Commerce, he talked of the businesses represented by the Chamber of Commerce and his ability to facilitate communication between them and the local authorities, with whom he said he had a good relationship with, though he is not familiar with the CPU specifically. He also mentioned that social media platforms such as Twitter and LinkedIn in communication as well as phone calls have proved to be effective contact methods. During this interview it was noted that as with the faith groups, the Chamber would be looking to the local authority for leadership in emergency planning and response, though the Chamber would like to be involved.

For secular voluntary groups, we interviewed Robert Johnson and Bridgitte Fauxbert of the Hounslow Rotary club. In this interview, they did not highlight many needs from the CPU, however they did mention that it would be valuable for the CPU to work on their publicity. In fact, before our interview with them both Robert and Bridgitte were unaware that the CPU existed. They mentioned that if the CPU were to increase community awareness of themselves, it could be valuable simply because more members of the community would know about the CPU.

Using what was learned from these interviews with stakeholders, the project team identified the needs of the local stakeholders within Hounslow and summarized them in Table 10, shown below. These needs were also taken into account when formulating the recommendations shown in Table 9.

Table 10: Needs of local stakeholders

Needs	
Guidance	The vast majority of community groups are willing to help and participate during emergencies, they simply need guidance from the CPU on how to go about doing so.
Two-Way Communication	Most community groups want the CPU to develop a relationship and maintain a dialogue with them.
Scenario Training	For the community groups that wish to be part of emergency response, most of them indicated that they wish to partake in scenario training to better prepare themselves for real emergencies.

4.3.2 Capabilities of Stakeholders

The various stakeholder groups in Hounslow are more than willing to assist if an emergency occurs. They can provide all the resources the CPU is looking for: space, volunteers, food, and vehicles. Each group has different resources to offer, however, so we recommend the CPU records the different resources of community stakeholders in a database described in Appendix I.

We interviewed Reverend Richard Frank, the vicar of All Souls Church and Area Dean. All Souls is a Church of England parish in the Kensington Episcopal Area of the Diocese of London. The CPU has not cooperated with the church before, but the church is willing to work with the government to offer help when an emergency occurs.

One of the strengths of All Souls Church is that they have a strong contingency network within the Church of England. They have conducted emergency training and exercises and they have a good relationship with the local community. However, they are not emergency response professionals. The vicar wants to have more information on how to respond and direct people in an emergency and he is looking forward to being involved in the Hounslow Resilience Forum. All Souls Church is able to provide both transportation and food, which were identified previously as items the CPU could use in an emergency. Churches have food banks, and they may be able to assist in managing spontaneous material donations. Large churches can provide vehicles as well. People are welcome to come to the churches for help. According to the vicar, after an emergency they will "open the church doors, turn on the lights, and play light music no

matter the time of day." Many of the clergy are able to provide emotional support to those affected by an emergency. All Souls Church can provide a place for people to gather and take care of each other after an emergency.

Because of the strong network within the Church of England, Reverend Frank told us that the CPU only needs to call him to get help from all available volunteers from Anglican churches in the area. Calling the churches for assistance could relieve pressure from the CPU when an emergency occurs. Within the parish, churches typically have space and volunteers. Churches have good relationships with various other groups and companies in the borough. For example, All Souls Church worked with Tesco in the past to provide food to the homeless, and Tesco has expressed willingness to cooperate in the future.

The Gurdwara Sri Guru Singh Sabha also was very capable and willing to help in emergency situations; however, what they may be able to provide varies depending on who in their community decides to volunteer. The Gurdwara is definitely capable of providing one of the four main supplies needed by the CPU: food. They also are likely to provide volunteers and space. They mentioned that they possess the capability to collect monetary donations, house the homeless, disseminate information and coordinate volunteers.

Similar to the Anglican churches of the area, the Hounslow Chamber of Commerce is very well networked with a database of around 18,000 businesses in the borough with whom the Chamber has regular contact. While the database cannot be shared with the local authority for legal reasons, Stephen Fry of the Chamber expressed a willingness to facilitate communication between the groups it represents and the CPU and would like to be included in emergency planning. Stephen Fry also expressed a desire to improve their already positive relations with the local authorities. He mentioned that the chamber of commerce has not had any previous contact with the CPU but is very willing to build that relationship. Mr. Fry is also willing to participate in the proposed local emergency planning committee. He would be an important addition to the committee due to his many contacts and relationships with businesses in the borough. With so many businesses engaged through the Chamber of Commerce, once the relationship is fully formed, the assets available to the CPU will increase significantly. Stephen Fry indicated that setting this up will take planning so it will be necessary for the CPU to meet with the Hounslow Chamber of Commerce directly.

In our interview with Michael Green of Groundwork London, he mentioned that Volunteering Hounslow, which is affiliated with Groundwork London, is capable of providing volunteers during emergencies. When we interviewed Aine Hayes of the Community Partnerships Unit she told us the unit commissions Volunteering Hounslow to produce trained volunteers whenever they are needed. She also told us that the majority of volunteer groups within Hounslow are relatively small, with many of them not having their own offices and only consisting of part-time volunteer members, with this she added that it is important to communicate with the community to determine what the volunteer sector can provide and what support they require from the authorities. It was then further noted that along with Volunteering Hounslow, the borough does help fund, through the Community Partnerships Unit, groups wishing to hold community events and also sends out newsletters to the volunteer sector on a regular basis.

In our interview with The Hounslow Rotary Club, Robert and Bridgitte mentioned a few things that could be of value to the CPU. First, they stated that they would be willing to be part of a local emergency planning committee. The two also mentioned that they would be able to facilitate communication and spread information within their rotary club network which has a total of five clubs in the Borough of Hounslow. Finally, Robert and Bridgitte mentioned that The Hounslow Rotary Club and possibly other rotary clubs in the area would be able to organize and lead emergent volunteers.

The capabilities of groups within the borough willing to provide aid that were encountered during the time of this project are outlined in Table 11, shown below. The capabilities of these groups illustrate their potential importance in emergency response and that incorporating them into emergency response would prove to be valuable.

Table 11: Capabilities of local stakeholders

Capabilities	
Volunteers	Most community groups are able to provide trained and organized volunteers.
Space	Some community groups are able to provide space and shelter for displaced people and storage of goods.
Donations	Different community groups are able to provide different goods. From monetary donations to food, these groups are willing to donate what they can in emergency situations.

It should be noted that all of the potential contributions of the stakeholders are voluntary and they should not be assumed to be available at all times. Many groups were very willing to help and expressed a desire to be a part of emergency response, however situations vary and nothing can be guaranteed.

4.3.3 Structure and Purpose of the Database

Using the information gathered, our team compiled a database of the structure detailed in Appendix I to catalog the organizations throughout Hounslow that are interested in providing voluntary aid in the case of an emergency. The database contains information regarding organizations' approximate size, contact information for their representatives, and what assets they would be willing to offer in an emergency. The database is designed to facilitate communication between the CPU and the organizations listed in the database, and it is designed to aid coordination of voluntary contributions. Our recommendations for building and maintaining the database are outlined in Table 12.

Table 12: Recommendations - Fill Out Database and Update Database

Recommendations	
Fill Out Database	The CPU should fill out the database with information on key community and voluntary groups
Update Database	The CPU should regularly update the database to ensure all the information is recent and valid

The database is intended for members of the CPU to reference in order to organize the contact information of organizations it has previously contacted, but the database is not meant to replace communication or to be used only when a disaster occurs. As shown previously, regular two-way communication is critical to maintaining positive relationships with voluntary groups. Therefore, we recommend the CPU designate a member of its team to build and maintain relationships with the representatives of each group detailed in the database. This member should be in regular contact with each representative in order to ensure effective communication between the CPU and organizations in the case of an emergency.

Since direct, personal communication is important in creating positive connections with members of the community, the database currently only lists groups that the project team spoke with directly. Because the database does not currently contain a comprehensive list of the approximately 650 voluntary organizations in Hounslow, the Contingency Planning Unit can add other groups to the database over time. Not all voluntary groups in Hounslow will be willing to contribute in an emergency, however, and because direct communication is important, the Contingency Planning Unit should only add organizations to the database that the unit has spoken to directly about providing resources in an emergency. In order to speak with more representatives of organizations and add those organizations to the database, the CPU should endeavor to network with the community.

V. Recommendations

Improving engagement with established voluntary groups in Hounslow will help reduce chaos in the aftermath of a disaster and improve community resilience. By improving relationships and building rapport with established groups, a coordinated response to an emergency is more likely. Additionally, this project's findings from experts and from government officers in Hounslow suggest that engagement with the community at-large through media and forums will help the CPU stay informed about potential hazards in Hounslow. Finally, this project investigated how to manage spontaneous and emergent behavior. Our recommendations on these three topics are shown in Figure 8 and Table 13.

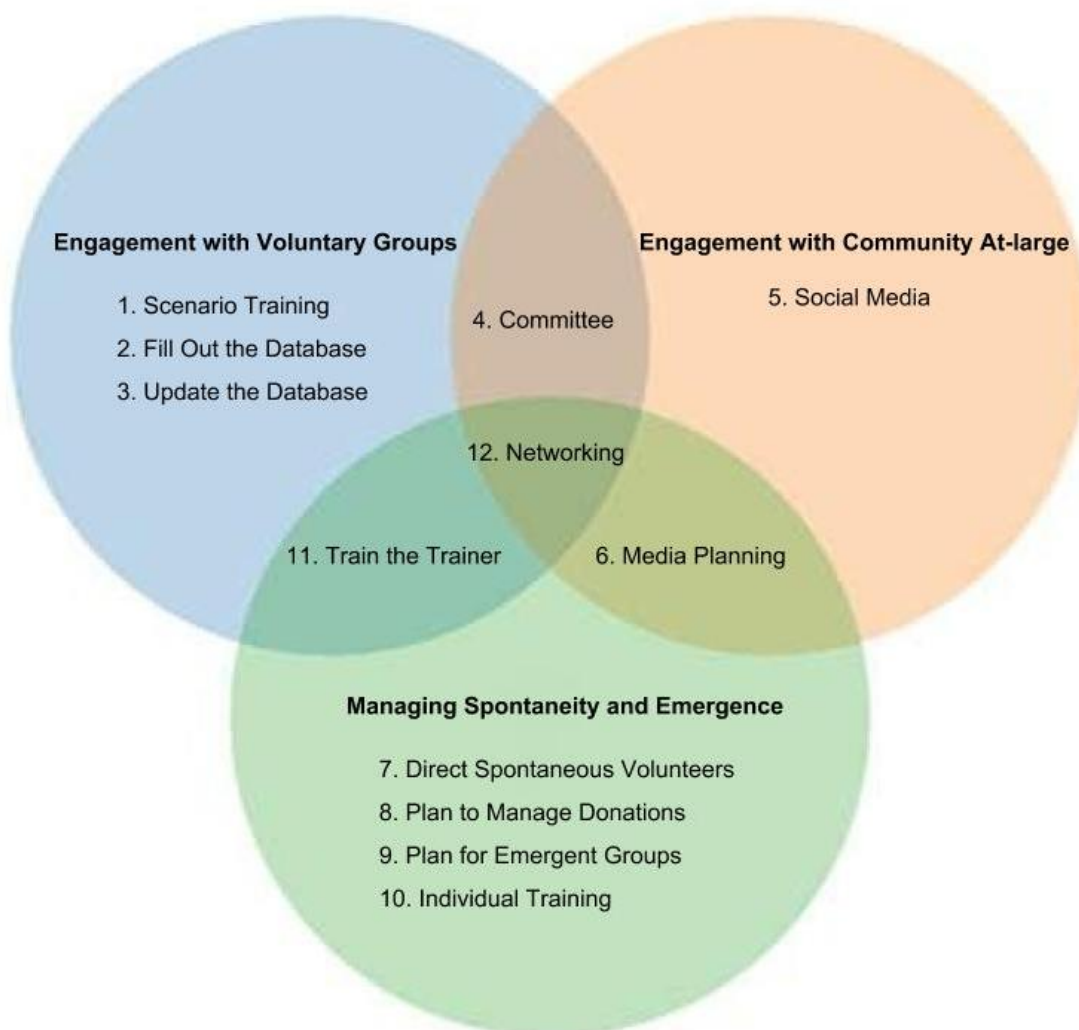


Figure 8: Recommendations

Table 13: Complete list of recommendations

Recommendations	
1. Scenario Training	The CPU should involve voluntary and community groups in its scenario training drills
2. Fill Out Database	The CPU should fill out the database with information on key community and voluntary groups
3. Update Database	The CPU should regularly update the database to ensure all the information is recent and valid
4. Form a Committee	The CPU should establish an emergency planning committee that includes community leaders
5. Social Media	The CPU should use social media to disseminate accurate emergency information and request voluntary assistance from the community
6. Media Planning	The CPU should make plans with important media correspondents in the area to establish a source of accurate information in an emergency
7. Direct Spontaneous Volunteers	The CPU should plan to direct individual spontaneous volunteers to established voluntary organizations in an emergency
8. Plan to Manage Donations	The CPU should plan to divide donation management between different people by donation type
9. Plan for Emergent Groups	The CPU should plan on emergent groups forming and determine what type of groups will likely form early in an emergency
10. Individual Training	The CPU should train volunteers who are not council employees through its current training program for council volunteers
11. Train the Trainer	The CPU should train community leaders to train volunteers in emergency response and recovery
12. Networking	The CPU should make attempts to establish informal connections with community leaders

5.1 Involve volunteer groups in scenario training

The CPU already conducts scenario training for its shelter plan with borough volunteers and associated staff approximately once every three years. The CPU should invite volunteer groups to participate in the existing training to improve efficiency and intercommunication.

5.2 Fill out the database

For this project, the authors created a database that contains information about resources specific to each community group. The authors contacted key groups and made 6 entries into the database. The CPU should continue to reach out to as many groups and businesses as possible in order to create a comprehensive database. The CPU should try to contact and build relationships with a variety of groups that are capable of offering different assets. We have developed a short list of groups for the CPU to contact in the near future and delivered it to our sponsor.

5.3 Periodically update the database to ensure information is accurate

Once the database is filled out with a variety of groups, the CPU should update each entry every 6 months to ensure that the entries are accurate. Updating the database should be the responsibility of one individual in the CPU.

5.4 Form a local emergency planning committee

The CPU should form a local emergency planning committee. The committee will meet about planning and organizing disaster response. This committee would initially include representatives of major voluntary, community, and faith groups in the area such as Hounslow Friends of Faith as well as emergency services, such as the Police Department. As the committee meets, members will identify what community groups are not represented in the committee. Committee members will then invite new people to join to address what the committee lacks. As the committee grows, the planning will become more complete. Such a committee could be formed as a subcommittee of the Hounslow Resilience Forum, which addresses emergency planning, or as a subcommittee of the Hounslow Community Network, which helps the borough engage with community groups.

5.5 Form a social media group/page

The CPU should create a social media group. The social media group can act as a group chat for an emergency planning committee and as a page for accurate information distribution.

The CPU should also actively try to get valuable members of the community to follow their page, particularly the Police who have 1.2 million Twitter followers, in order to increase the number of people who will receive the distributed information.

5.6 Plan with the media

The CPU should plan with the media before emergencies occur. The plan should consist of where the media can get information from the CPU, how often they will be addressed and by whom they will be addressed. When briefing the media during an emergency, the CPU should make sure to communicate what types of donations are needed and the number of volunteers that are needed and the CPU should encourage monetary donations. When addressing the media, the CPU should share all available information so that the information the media broadcasts is as accurate as possible and so that trust is maintained. The CPU should make a particular effort not to hide information from the public. The CPU should assign one of their members to the role of interacting with the media. This person should be skilled in communicating, and should keep in regular contact with media sources during non-emergency situations.

5.7 Direct spontaneous volunteers

The CPU should develop an emergency response plan for how they wish to deal with spontaneous volunteers. This plan should put volunteer groups in charge of directing spontaneous volunteers. Advise spontaneous volunteers to talk to volunteer organizations and make willing volunteer organizations responsible for addressing spontaneous volunteers. Additionally, in the case of a hazardous disaster area, the CPU and other emergency services should make sure the disaster area is safe before allowing uncertified spontaneous volunteers in. The CPU should never prevent a volunteer from assisting unless the disaster site is unsafe, instead the CPU should refer untrained spontaneous volunteers to an established volunteer organization. This plan can be communicated through the committee and can be practiced in scenario training.

5.8 Plan for screening and management of donations

The CPU should develop a screening plan for dealing with unneeded supplies. If these supplies are not dealt with, they are not only useless but they will get in the way. Part of this plan should be to communicate with the media to discourage people from sending unneeded supplies in the first place. The CPU should develop a plan for managing food as it is one of the most common donations. Part of this plan should detail how the CPU will check for and dispose of spoiled food. For the remaining donations that have been deemed safe, the CPU should develop a plan for proper distribution of these goods. Availability and preparation of vehicles will be important for this plan.

5.9 Plan for emergent groups

When an emergency occurs, the CPU should determine the likely groups that may emerge based on the unmet needs specific to the emergency. Emergent groups should be contacted and certified by the CPU as soon as possible.

5.10 Open up individual volunteer training to the public

The CPU should open up individual training that is currently available to council volunteers to members of the community. The training should be well advertised, accessible, and the frequency should be based on demand. The CPU should consider implementing a certification system for trained volunteers. When a volunteer is certified, the CPU should record any special skills a volunteer may possess such as CPR certification as well as the volunteer's contact information, and the CPU should offer the certified volunteer enhanced access to areas they wish to assist at.

5.11 Train the trainer

The CPU should use the train the trainer model to empower volunteers through volunteer and community groups. The CPU should train the leaders of these groups who can then train the members of their organization for emergency response and recovery volunteering. If training sessions for community leaders have a low turnout, it is best to contact organizations and plan to

go to their locations. This will ensure the organization does not forget or avoid attending the training session. The CPU should consider a certification system here similar to the one described in recommendation 10.

5.12 Networking

The CPU should constantly be networking with groups and community leaders in the borough as well as outside of the borough. Anyone the CPU encounters that may be able to provide an asset in an emergency should be engaged with and potentially added to the database. The CPU should develop informal relationships with community leaders. Specifically, direct relationships between a member of the CPU and members of voluntary and community organizations. The CPU should consider holding community events periodically to improve the CPU's relationship with the community, increase the number of informal connections the CPU has in the community, and build social capital. The CPU should develop a plan to increase their publicity and the public's knowledge of what they do as many people are unaware of their existence. A social media page could benefit from this publicity and could also be an avenue to increase public knowledge of the CPU.

5.13 Conclusion

Managing convergence is an essential component of emergency management, with effective donation and volunteer management critical to maximizing the efficiency of an emergency response. The scope of this project entailed working with the Hounslow Contingency Planning Unit to determine what the unit could do to improve community engagement before, during, and after an emergency in order to facilitate donation and volunteer management.

To begin, the project team conducted interviews with established experts in disaster research to determine the best practices in volunteer management and community engagement. This was followed by interviews with government officials to understand the current practices in Hounslow. Afterwards prominent community, volunteer, faith, and business groups operating within Hounslow were identified and interviewed to assess their capabilities to help in a disaster response if they were interested in doing so and to learn what they were looking for from the local authority regarding leadership, training, and communication. Through this project it was

revealed that many of the groups present within the borough are more than willing to provide aid and are looking to the local authority for leadership, guidance, and training. These interviews also provided insight regarding the best practices for volunteer management and community engagement, which ultimately manifested in the produced set of recommendations.

The findings of this project outline the importance of networking between local authorities and community groups before, during, and after an emergency and are based on themes encountered from a variety of sources. Beginning with case studies in the literature review and expert interviews, to the current practices by the local authorities in Hounslow, and finishing with the reported needs of the stakeholders of the borough themselves, the research detailed in this report presents the need for communication again and again. These recommendations are specific to Hounslow but are built on principles for best practice. The findings presented in this report, based on best practices, that volunteer training and direct, two-way communication with community leader are important, can therefore be applied to emergency planning outside of Hounslow.

VI. References

- Auf der Heide, E. (2003). Convergence behavior in disasters. *Annals of emergency medicine*, 41(4), 463-466.
- Baynes, C. (2017, June 18). Emergency taskforce takes over Grenfell Tower relief operation as fury at 'chaotic' Kensington Council rages on. *The Independent*. Retrieved March 25, 2018, from <https://www.independent.co.uk/news/uk/home-news/emergency-taskforce-takes-over-grenfell-tower-relief-criticism-chaotic-kensington-council-a7796266.html>
- BBC News. (19 July 2017). *London fire: What happened at Grenfell Tower?* BBC News. Retrieved from: <http://www.bbc.com/news/uk-england-london-40272168>
- Bowcott, O. (2017, June 17). Grenfell Tower fire: army of volunteers join relief effort. <https://www.theguardian.com/uk-news/2017/jun/17/grenfell-tower-fire-food-donations-kensington-chelsea-relief>
- Buckle, P., Marsh, G., & Smale, S. (2003, December). The Development of Community Capacity as Applying to Disaster Management Capability [Emergency Management Australia Research Project]. Retrieved April 2, 2018, from https://www.researchgate.net/profile/Graham_Marsh3/publication/277297829_The_Development_of_Community_Capacity_as_Applying_to_Disaster_Management_Capability/links/55add0208ae98e661a44310.pdf
- Civil Contingencies Act (2004).
- Cone, D. C., Weir, S. D., & Bogucki, S. (2003). Convergent volunteerism. *Annals of Emergency Medicine*, 41(4), 457-462.
- Corporation for National and Community Service. (2015). Managing Spontaneous Volunteers in Times of Disaster. Retrieved March 27, 2018, from https://www.nationalservice.gov/sites/default/files/resource/hon-cncc-msvtd_participant_materials.pdf
- Drabek, T. E., & McEntire, D. A. (2003). Emergent phenomena and the sociology of disaster: lessons, trends and opportunities from the research literature. *Disaster Prevention and Management: An International Journal*, 12(2), 97-112.

Eyre, A. (2010). Disaster Funds. -

[http://disasteraction.org.uk/publications/Disaster Funds Lessons and Guidance on the Management and Distribution of Disaster Funds.pdf](http://disasteraction.org.uk/publications/Disaster_Funds_Lessons_and_Guidance_on_the_Management_and_Distribution_of_Disaster_Funds.pdf)

France-Presse, A. (2017, June 14). 'I Have Seen People Jump': London Fire Survivors Share Night Of Horror. Retrieved from <https://www.ndtv.com/world-news/london-fire-people-have-been-burned-i-saw-it-night-of-horror-in-london-1712100>

Fritz CE, Mathewson JH. (1957). Convergence Behavior in Disasters: A Problem in Social Control. Washington, DC: National Academy of Sciences, National Research Council

Fry, A. (2016). Hounslow Council Helps Small Local Businesses to Thrive! Hounslow Chamber. Retrieved from: <http://www.hounslowchamber.org.uk/6214>

Hindu, The. (2017, November 16). *Grenfell Tower fire final death toll is 71, say London Police*. Retrieved March 14, 2018 from: <http://www.thehindu.com/news/international/grenfell-tower-fire-london-police-put-final-death-toll-at-71/article20483657.ece>

Holguín-Veras, J., Jaller, M., Van Wassenhove, L. N., Pérez, N., & Wachtendorf, T. (2012). Material convergence: Important and understudied disaster phenomenon. *Natural Hazards Review*, 15(1), 1-12.

Hounslow Friends of Faith. (2014, May 29). *Role of Faith in Emergency Planning*. Retrieved March 14, 2018 from: <http://www.hounslowfriendsoffaith.org/2014/05/role-of-faith-in-emergency-planning/>

Kendra, J. M., & Wachtendorf, T. (2003). Elements of resilience after the world trade center disaster: reconstituting New York City's Emergency Operations Centre. *Disasters*, 27(1), 37-53.

Local Government Association. (2011). Basic facts about Hounslow by Ward. Local Government Association. Retrieved from: <http://reports.esd.org.uk/reports/14?pa=E09000018%3AAdministrativeWard>

London Borough of Hounslow (2017, January 16). *About The Council*. Retrieved March 14, 2018, from https://www.hounslow.gov.uk/info/20111/about_the_council/1317/about_the_council/2

London Borough of Hounslow (2015). *Constitution*[PDF]. Retrieved March 25, 2018, from <https://www.hounslow.gov.uk/downloads/file/197/constitution>

- London Borough of Hounslow (2018). *Council Tax Leaflet 18-19*[PDF]. Retrieved from:
https://www.hounslow.gov.uk/downloads/file/656/council_tax_booklet_20182019
- London Borough of Hounslow (2018). *Emergencies*. Retrieved March 14, 2018 from:
https://www.hounslow.gov.uk/info/20056/community_safety/1528/emergencies/8
- London Borough of Hounslow (2018). *Role of a Councillor*. Retrieved March 25, 2018, from
https://www.hounslow.gov.uk/info/20043/elections_and_voting/1369/local_elections_2018/8
- London Borough of Hounslow Contingency Planning Unit (2015). Terms of Reference for the Hounslow Resilience Forum[PDF]. Retrieved from:
<https://hounslow.app.box.com/s/hn0q9ygxq08lfyqnl0k1canf02xset20>
- MacAskill, E. (2017, June 18). Council sidelined in Grenfell Tower response as leader refuses to quit. *The Guardian*. Retrieved March 25, 2018, from <https://www.theguardian.com/uk-news/2017/jun/18/council-leader-nick-paget-brown-grenfell-tower-response>
- Martel, L., Montgomery, J., Neatherlin, J., Wako D. (2014). Informal Convergence at Major Emergency Incidents in Kenya. *Ann Emerg Dispatch Response*, 2(2), 4-8. Retrieved 4/18/2018 from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5510235/#R1>
- McLennan, B., Molloy, J., & Handmer, J. (2016). Centralised coordination of spontaneous emergency volunteers: the EV CREW model. *Australian Journal of Emergency Management*, The, 31(1), 24.
- Office for National Statistics. (2017, February 1). Standard Area Measurements (2016) for Administrative Areas in the United Kingdom. Retrieved March 15, 2018, from
<https://ons.maps.arcgis.com/home/item.html?id=a79de233ad254a6d9f76298e666abb2b>
- Office for National Statistics. (2016, October 28). London Boroughs (December 2015) Map in London. Retrieved March 15, 2018, from
<https://ons.maps.arcgis.com/home/item.html?id=50d6b5be5396463eb1160a2d38bca562>
- Office for National Statistics. (2017, June 22). Population Estimates for UK, England and Wales, Scotland and Northern Ireland (Mid-2016). Retrieved March 15, 2018, from
<https://ons.maps.arcgis.com/home/item.html?id=50d6b5be5396463eb1160a2d38bca562>
- Quarantelli, E. L. (1994). Emergent behaviors and groups in the crisis time periods of disasters.

- Rawlinson, K., Dodd, V., & Sherwood, H. (2017, November 16). Grenfell Tower final death toll: Police say 71 lives lost as result of fire. Retrieved from <https://www.theguardian.com/uk-news/2017/nov/16/grenfell-tower-final-death-toll-police-say-71-people-died-in-fire>
- Sanderson, H., & Cornish, C. (2017, June 17). Theresa May admits Grenfell fire response ‘not good enough’. Retrieved March 27, 2018, from <https://www.ft.com/content/9034d46e-534d-11e7-9fed-c19e2700005f>
- Stallings, R. A., & Quarantelli, E. L. (1985). Emergent citizen groups and emergency management. *Public administration review*, 45, 93-100.
- Wachtendorf, T., & Kendra, J. M. (2001). Rebel food... renegade supplies: Convergence after the World Trade Center attack.
- Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2008). Organizing for high reliability: Processes of collective mindfulness. *Crisis management*, 3(1), 31-66.
- Wenchuan Earthquake Reconnaissance Team. (2008). Learning from earthquakes: The Wenchuan, Sichuan Province, China, earthquake of May 12, 2008, Earthquake Engineering Research Institute Geotechnical Extreme Events Reconnaissance (EERI-GEER), Oakland, CA. Retrieved from: https://www.eeri.org/site/images/eeri_newsletter/2008_pdf/Wenchuan_China_Recon_Rpt.pdf
- Whittaker, J., McLennan, B., & Handmer, J. (2015). A review of informal volunteerism in emergencies and disasters: Definition, opportunities and challenges. *International journal of disaster risk reduction*, 13, 358-368.
- Williams, G. (2018, January 04). Grenfell Tower and the contribution of volunteers. Retrieved March 27, 2018, from <https://volunteeringmatters.org.uk/grenfell-tower-contribution-volunteers/>

Appendix A: The Borough of Hounslow and the Contingency Planning Unit

The London Borough of Hounslow is in West London and borders the Thames River (See Figure 9). The London Government Act of 1963 created Hounslow from three smaller local authorities: Brentford and Chiswick, Heston and Isleworth, and Feltham. Although Hounslow is one of the outer boroughs of London, the number of businesses keeps growing. From 2009 to 2014, the number of enterprises in Hounslow increased 20%. In the same period, Hounslow also had the highest growth of micro-businesses in West London boroughs. The borough covers an area of 55.98 km² and has a population of 271,100 people (*Standard Area Measurements*, 2017; *Population Estimates*). Hounslow is a diverse community: 53.3% of the borough's population is White, 34.4% is Asian, and 11.6% is Black.

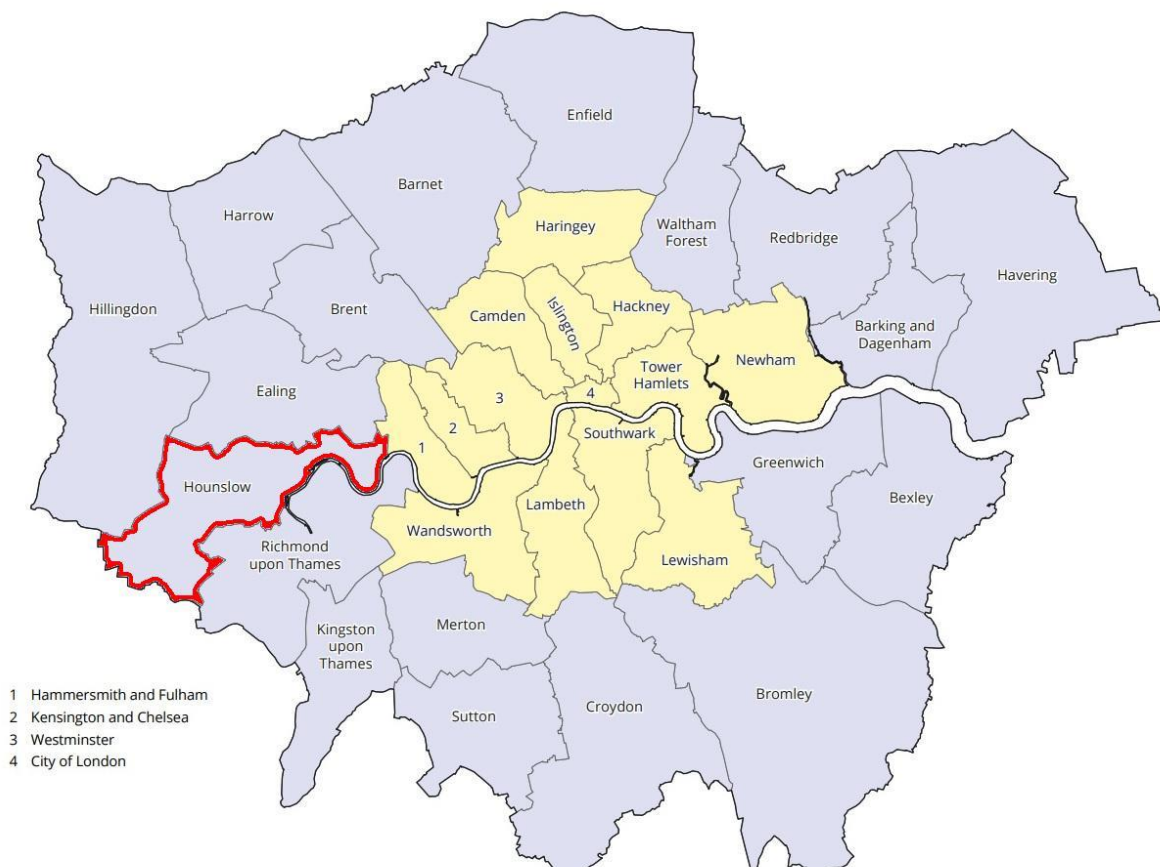


Figure 9: Location of Hounslow within Greater London (London Boroughs (December 2015) Map, 2016; edited)

The Hounslow Borough Council is the governing body of the London Borough of Hounslow and it is made up of 49 councillors from the Labour party and 11 councillors from the Conservative party (*About The Council*, 2017). The people of Hounslow elect councillors for four year terms from each of Hounslow's 20 wards. The role of the Council is to be a community leader as well as a provider of services (*About The Council*, 2017). The councillors determine the direction Council policy should take but do not directly manage services (*Role of a Councillor*, 2018). That task falls to Council officers, employees of the Council who handle the day-to-day duties of the Council (*Constitution*, 2015).

Local business rates, fees and rents, a tax on borough residents, and grants from central government fund the council and its officers (See Figure 10). The council divides its spending on services into three departments: Chief Executive and Corporate Resources, Children's and Adults' Services, and Regeneration, Economic Development and Environment (REDE). In the 2018-19 budget, the council divided £637.1m as follows: £221.6m to Chief Executive

Resources, £323.7m to Children's and Adults' Services, and £91.9m to REDE (*Council Tax Leaflet 18-19*, 2018). Community safety expenditures, such as funds for the emergency planning unit, come out of the £91.9m REDE budget (*Council Tax Leaflet 18-19*, 2018).

Hounslow is susceptible to many types of emergencies, most of which also threaten the whole city of London. Of these emergencies, London is particularly vulnerable to flooding and fires. To help mitigate damage from emergencies across the UK, the British Parliament passed the Civil Contingencies Act(CCA) in 2004. The CCA requires central, regional, and local government agencies to prepare for potential emergencies. This act led to the creation of contingency planning units including the Hounslow Contingency Planning Unit (CPU). The unit's duties under the act include assessing the likelihood of potential emergencies and maintaining plans to prevent, reduce, control, or mitigate those emergencies (Civil Contingencies Act, 2004).

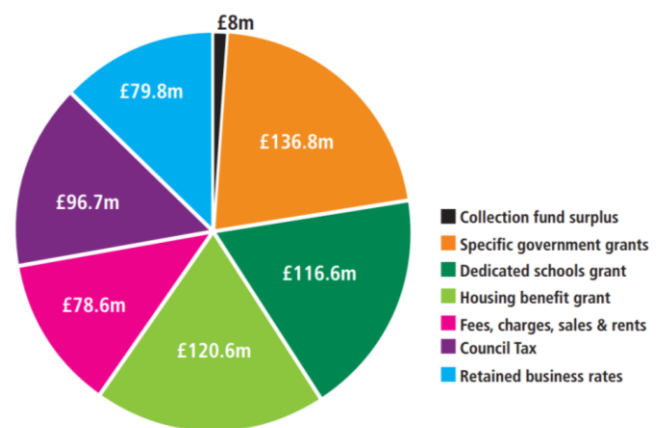


Figure 10: Budget of the London Borough of Hounslow (*Council Tax Leaflet 18-19*, 2018)

The CPU provides works with public and private entities including volunteers and charity organizations to provide aid to the people of Hounslow (*Emergencies*, 2018). The CPU uses the Hounslow Resilience Forum to facilitate communication and planning with other CCA responders as well as partner organizations and businesses. The core members of the forum include the CPU, police, fire brigade, National Health Service, and British Red Cross among others. The forum meets quarterly to provide updates on plans and incidents and participate in training and exercises (London Borough of Hounslow Contingency Planning Unit, 2015). The Hounslow Resilience Forum interacts with the London and regional forums to facilitate communication in the case of large-scale emergencies (See Figure 11).

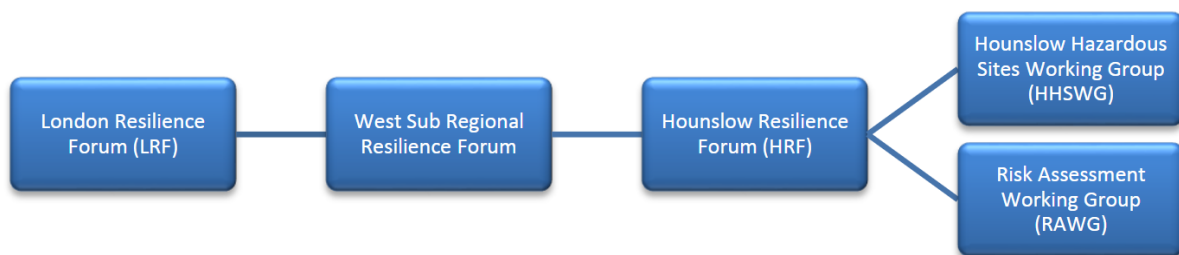


Figure 11: Resilience Forum Structure (London Borough of Hounslow Contingency Planning Unit, 2015)

One of the responsibilities of the CPU is coordinating the efforts of emergency services, local authorities, and volunteers in case of a situation that poses a great threat to the borough in order to maximize the efficiency of the available help (Hounslow Friends of Faith, 2014). The Grenfell Tower fire in the borough of Kensington and Chelsea was one such emergency that tested the abilities of the CPU. In June of 2017, the Grenfell Tower fire claimed 71 lives and left many more homeless and physically or mentally scarred (The Hindu, 2017). More than half a year since the fire, the CPU is still working to provide support and guidance to the victims of the fire and attempting to find housing and medical care for those who need it.

Initially reported in North Kensington at 12:54 AM the Grenfell Tower fire was not under control until over twenty-four hours later, at 1:14 AM the next day, after over 240 firefighters responded to the fire and rescued 65 people (BBC, 2017). However, multiple equipment failures involving low water pressure and radio issues as well as the absence of certain equipment hindered the rescue process, leading to criticisms of inadequacies on the part of the government (BBC, 2017). In the days after the fire, councillors from other boroughs commented that while emergency responders, volunteers, and the local community responded well, there was no

planning or strategic presence from the Kensington and Chelsea Council (KCC) (MacAskill, 2017). The KCC was also criticized for failing to communicate with survivors and with people who wanted to help (Baynes; MacAskill, 2017).

After Prime Minister Theresa May declared that the KCC's response to the Grenfell Tower fire had not been adequate, the government drafted a special task force to take over the response from the KCC (Baynes, 2017). This task force included emergency management staff from other boroughs, NHS workers, and British Red Cross volunteers as well as emergency responders (Baynes, 2017). Tragedies such as the Grenfell Tower fire highlight the need for effective emergency planning, cooperation between authorities, and communication with the community and with volunteers. In light of the fire, the Hounslow CPU would like our team to explore how to improve the way they engage with the community before, during, and after an emergency.

Appendix B: Timeline of Project Tasks

Task	Week 1					Week 2					Week 3					Week 4					Week 5					Week 6					Week 7					
	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	
Objective 1																																				
Set up expert interviews																																				
Interview experts																																				
Objective 2																																				
Review internal documents																																				
Set up interviews with government officers																																				
Interview government officers																																				
Objective 3																																				
Set up interviews with stakeholders																																				
Interview stakeholders																																				
Organize and analyze interview notes																																				
Write report and recommendations																																				

Figure 12: Timeline of Project Tasks

Appendix C: Expert Interviews

Preamble

Hello, I am (name). I am part of a team of Worcester Polytechnic Institute students exploring how to improve community engagement in Hounslow, London before, during, and after an emergency. We are interviewing academic experts in the field of emergency planning globally and would like to interview you to gather information about best practices for community and volunteer engagement in emergency planning. This interview is voluntary and you may refuse to answer any questions you wish and stop the interview at any time. Can we take notes and record this interview? Do you mind if we quote any portion of this interview in our report? If you prefer, we can keep your identity confidential. We will send you any quotes for review before finalizing them in our report.

Interview:

1. [Name the research when asking this question if possible] Can you tell us a bit about any research you have done related to [List only relevant topics:] community engagement, community resilience, volunteer management, or donation management?
2. What can established volunteer groups and emergency response agencies do before an emergency to improve the use of volunteers and donations during an emergency?
3. What mechanisms would you recommend for improving coordination and cooperation between established volunteer groups and emergency response agencies?
 - a. Why those mechanisms?
 - b. What mechanisms can improve coordination between established groups and emergency response agencies with emergent volunteer groups? Why?
 - c. What mechanisms can be used for spontaneous volunteers? Why?
4. Is it possible to anticipate what sort of emergent volunteer groups might form during an emergency?
 - a. Could this be used to improve cooperation with the anticipated emergent groups or to make plans involving those groups?

- b. How reliable are such predictions and what drawbacks may exist when they are incorrect? / Have predictions been made and used in emergency response before and if so, how effective were they?
- 5. How can volunteer groups and emergency services better handle problems associated with the convergence of volunteers following a disaster?
 - a. how can they be organized so their skills can be used?
 - b. how to keep volunteers from getting in the way or becoming a liability
- 6. Planned response vs. educated improvised response (evacuation of Manhattan during 9/11).

What kind of principles underlie why each approach may be more effective than the other in a given disaster? What case studies show this?

- 7. Many of the suggestions for the previous topics and questions may be specific to a given situation. What principles or guidelines can be drawn from them to provide a broader, more applicable policy or framework for convergence and volunteer management in emergency response?
- 8. (*If relevant) Informational convergence also plays a role in the chaos that follows the start of a disaster and largely has to do with media coverage of the event. Such media coverage could be a powerful tool in communicating information, but unfortunately also has the potential to inaccurately represent the affected communities and what they need, resulting in personnel and material convergence.
 - a. How often is this a substantial problem?
 - b. How may the authorities and response groups interact with the media to communicate an accurate message about the situation and what is needed to avoid convergence?
- 9. Do you know of any specific emergencies / case studies where community engagement or resilience were particularly well or poorly handled?
- 10. Can you recommend any documents or research about managing volunteers and community engagement before, during, and after an emergency?
- 11. Is there anyone you would recommend we contact to find out more about managing volunteers?
- 12. Do you mind if we contact you again in the future?

Appendix D: Government Organization Interviews

Preamble

Hello, I am (name). I am part of a team of Worcester Polytechnic Institute students exploring how to improve community engagement in Hounslow before, during, and after an emergency. We would like to interview you to see how your organization uses community engagement in relation to emergencies and how your organization interacts with volunteers. This interview is voluntary and you may refuse to answer any questions you wish and stop the interview at any time. Can we take notes and record this interview? Do you mind if we quote any portion of this interview in our report? If you prefer, we can keep your identity confidential. We will send you any quotes for review before finalizing them in our report.

Role:

1. What is your organization's role/Does your organization have a role in emergency planning?
 - a. If none: How do you coordinate with emergency planning authorities?
2. What is your organization's role/Does your organization have a role in community engagement?

Community Resilience:

1. One step for improving community resilience, from online cabinet office guidance, is informing, engaging, and empowering the community. What has your organisation done in each of these categories?

For reference:

Informing - dissemination of information about emergencies and emergency plans

Engaging - two-way communication with the community and communication networks with community organizations or leaders

Empowering - ensuring the community is able to access all available resources + improving coordination between holders of resources within community

2. What else has your organisation done to improve community resilience?

3. For emergency planning agencies: Are any of your responder resilience structures open to the public? (information in the public domain, simple volunteer facing schemes, two-way communication, etc)

Volunteers:

3. Do individual spontaneous volunteers contact your organization?

If yes:

- a. How many?
- b. How do you manage these volunteers?
- c. Can you think of a situation where your organisation would be overwhelmed by the number of volunteers?

If no:

- d. How do you plan around untrained spontaneous volunteers acting on their own?

Donations:

4. Would your organisation manage any material donations in an emergency?

If yes:

- a. How would your organization use material donations in an emergency?
- b. Is there a maximum amount of donations your organization could handle?
 - i. Can you think of a situation where your organisation would be overwhelmed by donations?

Groups:

5. Do you have lists of established community and volunteer organizations in place?

If yes:

- a. Could you tell us the approximate size of these lists?
- b. We are creating a database of community groups that could help in an emergency in Hounslow. Could you tell us what type of information you find helpful to record about community and volunteer organisations in your lists?
- c. Could you tell us any major organisations we should contact that could assist us in building this database?

If no:

- d. Do you have ties with any voluntary organizations that would help in an emergency?

Communication:

6. Does your communication with volunteer and community groups typically involve your organization instructing the groups, the groups informing your organization of their needs, both, or other?
7. What channels does your organization currently use to communicate with volunteer and community groups involved in emergency response?

For each channel:

- a. Why this channel?
- b. What groups do you communicate with on this channel?
- c. How is this channel used before an emergency?
- d. How is this channel used during an emergency?
- e. How is this channel used after an emergency?

If not answered above:

- f. Do you typically communicate by direct channels with leaders or by mass communication with everyone in the community?
- g. How do you communicate and engage with the community at large?

Concluding Questions:

8. What can you tell us about best practice for community engagement?
9. Can you provide any examples of emergencies where volunteer and donation management or community engagement were particularly relevant?
10. Is there another person in your organization we should talk to find out more about how your organization engages with the community and with volunteers?
11. Is there another government organization that you think effectively engages with the community and with volunteers?
 - a. Do you know someone we could contact there?

Appendix E: Stakeholder Interviews

Preamble

Hello, I am (name). I am part of a team of Worcester Polytechnic Institute students exploring how to improve community engagement in Hounslow before, during, and after an emergency. We would like to interview you to explore how the borough and the Contingency Planning Unit can better engage with your organization and with the community at large. This interview is voluntary and you may refuse to answer any questions you wish and stop the interview at any time. Can we take notes and record this interview? Do you mind if we quote any portion of this interview in our report? If you prefer, we can keep your identity confidential. We will send you any quotes for review before finalizing them in our report.

1. Have you interacted with the Contingency Planning Unit (CPU) in the past?
 - a. If so, under what circumstances did you interact with the CPU?
 - b. What was the reason for the interaction?
 - c. How efficient was communication between the CPU and yourself as well as any other parties that may have been involved?
 - d. Were you satisfied with your interaction with the CPU?
 - i. (If no above) What issues arose?
 - e. Overall, how would you describe your experience with the CPU?
 - i. Is there anything in particular that you liked or disliked?
 - ii. Is there anything you would like to see changed?
 - iii. What could the CPU have done better? What did they do well?
2. How can the CPU more effectively engage with your group before an emergency?
 - a. Would your organisation like to be included in emergency planning meetings held by the CPU?
 - b. Would your organisation like to be included in emergency exercises run by the CPU?
 - c. Do you think members of your organisation would want training and certification from the CPU for volunteering during and after emergencies?

- d. Are there other ways the CPU could more effectively engage with your group before an emergency?
- 3. How should emergency control contact your group during an emergency to inform you of the situation or request assistance?
 - a. Where would you look first for information on a developing emergency?
 - b. What method of communication would be best for emergency control to use to communicate with your group during an emergency (phone, email, etc.)?
- 4. Would your group be willing to assist during or after an emergency by providing volunteers, donations, space, or other assets?
 - a. If you want to assist, what assets can you offer?
 - b. How long would you be willing to supply this asset?
 - c. Do you know of other groups that may be providing similar assets?
 - d. In an emergency, emergency management and services are often overwhelmed by the number of volunteers and donations contributed. If emergency control asked your group to **not** assist in an emergency, would you be willing to?
 - e. If you have previously assisted in an emergency, could your assets be used more efficiently?
- 5. Are there are other groups or emergency services that your group would like to work with during or after an emergency that would improve your group's function?
 - a. How could these groups assist you?
- 6. Do you have any opinions on how volunteers or donations could be more effectively used?
- 7. Do you have any emergency protocols within your organisation you would be willing to describe to us?
- 8. Could you provide any examples of emergencies where you believe management of volunteers or donations was done particularly well or particularly poorly?
- 9. Do you know of other groups/businesses we could contact?

Appendix F: Experts Interviewed

Table 14: List of Experts Interviewed

Name	Date	Organization	Expertise
David McEntire	15/5/2018	Utah Valley University	Professor of Emergency Planning
Jose Holguín-Veras	15/5/2018	Rensselaer Polytechnic Institute	Material Convergence Researcher
Claire Rubin	17/5/2018	Claire B. Rubin & Associates, LLC	Disaster Management Consultant
Thomas Drabek	24/5/2018	University of Denver	Professor Focused on Group and Organizational Responses to Disaster
David Alexander	01/6/2018	University College London	Professor of Risk and Disaster Reduction

Appendix G: Government Officers Interviewed

Table 15: List of Government Officers Interviewed

Name	Date	Organization	Job Title
Timothy Arnold	15/5/2018	Hounslow CPU	Contingency Planning Officer
Dave Turtle	23/5/2018	Metropolitan Police	Community and Faith Officer
Joan Conlon	6/6/2018	Hounslow Community Partnerships Unit	Community Inclusion and Participation Manager
Aine Hayes	6/19/2018	Hounslow Community Partnerships Unit	Third Sector Partnerships Manager

Appendix H: Stakeholders Interviewed

Table 16: List of Stakeholders Interviewed

Organization	Date	Name	Category
All Souls Church	29/5/2018	Richard Frank	Faith
Hounslow Friends of Faith	30/5/2018	Bessie White	Faith
Laxmi Narayan Mandir	4/6/2018	Prem Sondhi	Faith
Hounslow Chamber of Commerce	6/13/2018	Stephen Fry	Business
Groundwork London	6/14/2018	Michael Green	Voluntary Group
Gurdwara Sri Guru Singh Sabha	6/15/2018	Satvinder Singh Dadihla	Faith
Hounslow Rotary Club	6/18/2018	Robert Johnson and Bridgitte Fauxbert	Voluntary Group

Appendix I: Database Structure

Along with our recommendations to the Hounslow CPU on improving community engagement, another deliverable of this project was a database of voluntary groups willing to assist in an emergency. For each organization, the database contains general information about the organization, contact details for a specific representative of the organization, and details about the resources the organization is willing to provide in an emergency. The resource information fields focus on the four resources we identified as particularly important to the CPU after reviewing the Emergency Shelter Plan. The fields are shown as they would appear in the database in Tables 17, 18, and 19. The “Sample Organization” is a dummy organization to show how the information would appear.

Table 17: Database Structure - Organization Information

Organisation Information					
Organisation Name	Address	Category	Size (approximate number of members)	Validated	Organisation Notes
Sample Organization	Lampton Road, London TW3 4DN	Voluntary	1	19/6/2018	A sample organization

Table 18: Database Structure - Contact Details

Contact Details			
Contact Name	Email	Phone	Contact Preference
John Smith	johnsmith@gmail.com	0 00000 00000	email

Table 19: Database Structure - Resources

Resources								
Volunteers		Space		Vehicles		Food		Other
Offered	Notes	Offered	Notes	Offered	Notes	Offered	Notes	Notes
Yes	1 volunteer only	No		No		No		Jump rope donations offered

The information recorded in each field is detailed below.

- Organization Information

- Organization Name

- Address

This is the street address of the organization.

- Category

In this report, we identified three categories of stakeholders that we interviewed: business groups, faith groups, and voluntary and community groups. This field is one of those categories.

- Size

This is the approximate number of members the organization has

- Validated

Because it is important to update the database regularly, we record the last time the CPU contacted the organization to refresh their database entry here. Format is day/month/year for easy use by the CPU.

- Other notes

This field contains notes about the organization as a whole.

- Contact Details

These contact details record information for a specific representative of the organization to encourage building personal connections between community leaders and the CPU.

- Contact Name

- Email

- Phone Number

- Contact Preference

Whether the organization representative prefers email or phone contact

- Resources

The resource fields below record whether or not an organization is willing to offer each asset and also have the potential to record additional information about each asset. The ‘offered’ field will be ‘yes’ or ‘no’ based on whether the organization is willing to assist in an emergency. The ‘notes’ field can contain any kind of additional notes or limitations; for example, the Laxmi Narayan Hindu Mandir is willing to offer space to the CPU, but only during the day.

- Volunteers

- Offered
 - Notes

- Space

Space where the CPU could set up an emergency shelter.

- Offered
 - Notes

- Vehicles

The CPU may need to move large numbers of people or things in an emergency. This field records whether the organization is willing to transport people or items for the CPU by automobile, truck, or similar.

- Offered
 - Notes

- Food

- Offered
 - Notes

- Other

Organizations in Hounslow may offer other assets not listed above. This field allows the CPU to record any kind of other resource an organization is willing to provide.