Improving Community Resilience in Hounslow

An Interactive Qualifying Project Report submitted to the faculty of Worcester Polytechnic Institute in partial fulfilment of the requirements for the Degrees of Bachelor of Science and Bachelor of Arts

Submitted by:

Miguel Goulart de Almeida

Shelby McQueston

Ahsan Aadil Nizam Shaikh

Submitted to:

Project Advisors:

Joel J. Brattin

Lauren Mathews

Project Liaison:

Fiona Hodge

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Abstract

The London Borough of Hounslow currently has a Community Risk Register (CRR) that is confusing and unappealing to the average citizen. The purpose of this project was to update the CRR and create promotional tools for the Hounslow Resilience Forum (HRF) to use. To do this, we assessed various CRRs across the country and revised the Hounslow Multi-Agency CRR to reflect the best practices of those we analysed. We also created a new community resilience document to educate and inform Hounslow residents about the risks they are most likely to face. Finally, we created a communication plan for the HRF to use to increase awareness about the new community resilience document and emergency preparedness.

Executive Summary

The London Borough of Hounslow is located in West London and has a population of over 250,000 (London Borough of Hounslow, 2011). Like every nation and region in the world, Hounslow faces potential emergencies from a variety of risks. According to the Hounslow Multi-Agency Community Risk Register (CRR), the borough is most susceptible to risks such as fluvial floods, disease outbreaks (especially influenza pandemics), loss of utilities, and local failure of the electricity network (Contingency Planning Unit, 2015).

In 2004, the Civil Contingencies Act (CCA) received Royal Assent from the national government. Parliament created the Act to improve the country's ability to respond to emergencies in the 21st century. One of the requirements of the Act is for local authorities to create and publish documents assessing risks in their localities. This document is the CRR.

The purpose of a CRR is to communicate to two distinct audiences, authorities and community members. However, because of the differences in knowledge, it can be hard to reach effectively both these audiences using a single document. Hounslow currently has a document that reaches an audience that has background on risk, but does not communicate to the community. Therefore, this project's goal was to fix the technical and outreach problems with the current Hounslow Multi-Agency CRR with the intent of improving community resilience. To achieve the project goal, we completed three objectives:

1. Determine which elements we should modify in the borough's multi-agency CRR, and edit the document accordingly.
2. Create a new community resilience document for awareness and warning.
3. Create a communication plan for the Hounslow Resilience Forum to use in combination with the new public document.

Background

The purpose of risk planning is to reduce the impacts of an emergency. Officials measure the effectiveness of risk planning in the amount of damage prevented, number of casualties avoided, and the reduction of recovery time (Schultz, 2008). The Civil Contingencies Act improved the government's ability to respond to emergencies in the 21st century. The CCA requires the creation and publication of risk assessment documents.

One risk assessment document in the UK is the National Risk Register (NRR) of Civil Emergencies. The NRR guides the creation of CRRs and provides a local framework for local plans, and it mandates the creation of local resilience fora. The Hounslow Resilience Forum

(HRF) is responsible for the creation and maintenance of the Hounslow CRR. The Hounslow CRR details the possible risks for the community, identifies the lead agencies in charge should these events occur, and describes the plans that have been put in place. However, it does not provide details or plans regarding malicious events, as the CRR is a public document, and this information is confidential. The Hounslow CRR also lacks information for community members to create their own emergency preparedness plans.

Resilience fora devise CRRs based on the NRR framework. However, these entities can make mistakes. Mark Leigh, of the Emergency Planning College, has done work regarding UK CRRs. He identifies mistakes made in these CRRs. Many of these mistakes seem insignificant to a community member with limited knowledge about CRRs, but can be very important to emergency planning and response teams.

One of the objectives of a CRR is to increase public awareness. To accomplish that it is necessary to understand how to communicate risk. The communication process needs to be a two-way process, leading to better decision-making because all parties involved are better informed (Cabinet Office, 2011). The community will know how to prepare themselves and the authorities will know what public perceptions of risk are. It is important to understand the different human dynamics in the community. The way different people form perceptions of risk, how personal beliefs can affect the perception of risk, socio-economic factors that contribute to different responses to risk, and how public trust in the authorities affects accepting advice are all important factors to consider.

To communicate effectively, it is not only necessary to consider the content of the community documents, but also the design. If a document has correct information, but unappealing design, it is unlikely that community members will read that document, negating the purpose of the document. However, excessive design features used inappropriately can cause distractions, making people miss the message entirely.

Methodology

To accomplish objective 1, we reviewed other CRRs from local resilience fora across England and incorporated their best features into the new, edited version of the Hounslow Multi-Agency CRR. We did this preliminary assessment to decrease the number of CRRs we had to analyse closely afterwards in the secondary assessment. It also highlighted best practices across the country. The analysis consisted of running the CRRs through a checklist composed of “yes” and “no” answers, which we created based on Leigh’s (2013) recommendations and design aspects. We converted “yes” and “no” answers to numerical

values of one and zero respectively. After summing all the answers numerically, we chose the best scoring CRRs. After, we put the best scoring CRRs through Leigh's assessment tool. This tool rates the CRRs on a scale of zero to 34. Each question in the tool is worth 2 possible points as they can be answered as "yes" (2 points), "to some extent" (1 point), or "no" (zero points). We also put Hounslow's CRR through the same assessment tool in order to determine its relative position against other CRRs, and to determine which elements were missing from it. The assessment of Hounslow's CRR allowed us to change incorrect sections, and add missing sections. We also included several images and a map to make the document more visually appealing and easier to use for the Hounslow Resilience Forum.

To complete objective 2, we interviewed Mark Leigh, of the Emergency Planning College. We asked questions regarding the design of CRRs, and most important aspects to include when creating one. After our interview, we started a preliminary design of the community resilience document, following the borough's branding guidelines. We determined the document should have an introduction, a list of top risks, a map containing the location of risks and infrastructure, explanations for all top risks, and a contact section. We based this determination on the analysis of other resilience fora's CRRs. These other official CRRs were informative to our community resilience documents, which we intended to be fundamentally different from the official Hounslow Multi-Agency CRR. The top risks we explored on the document were the highest rated risks according to the Hounslow Multi-Agency CRR, and risks selected by our liaisons. Finally, we edited the document according to recommendations of our liaisons, advisors, and members of the community.

To achieve our final objective, we interviewed experts from the National Health Service England (London), Public Health England, the London Resilience Forum, and community members of Hounslow. We conducted these interviews to determine what experts and residents thought to be the best ways of communicating the information contained in the community resilience document. After our interviews, we brainstormed different communication ideas, and discussed their validity with our liaisons and advisors. After our interviews and discussions, we created a communication plan for the HRF to use in combination with the new community resilience document.

Results & Recommendations

For objective 1, we analysed 39 CRRs using the preliminary assessment checklist. The top nine CRRs were, in order from lowest score to highest score, Northumbria, Durham & Darlington, Merseyside, Cumbria, Derby & Derbyshire, Humber, Gloucestershire, Greater

Manchester, and Nottingham & Nottinghamshire. We then rated these CRRs using Leigh's assessment tool. The average was 18 points of a total of 34. Rating the CRRs gave us strategies for how to correct missing or incorrect information in Hounslow's CRR. We also scored Hounslow's current Multi-Agency CRR. It scored 18 points. Based on this assessment, we changed several features of the CRR.

To complement the new Hounslow Multi-Agency CRR, we created a community resilience document. The goal of this document is to educate the public on what to do in case of an emergency, and what the consequences might be of a poor personal preparedness. We also provided further contact information in the document, if people desire to know more about emergency preparedness.

Finally, we created a communication plan to ensure community awareness of our Community Resilience document. We divided the plan into two major categories. The first part of our communication plan was education. We developed an outline for a workshop for schools around Hounslow. The workshop has activities that target students and parents. We focused these activities on educating the community regarding emergencies in Hounslow, what to do in case they happen, and how the location of homes affects susceptibility to different risks. The other part of our communication plan was promotion. We developed plans to create refrigerator magnets containing important contact information, banners publicizing the community resilience document, a display case in the Hounslow Civic Centre to advertise our document, and an article for *Hounslow Matters* magazine providing details on risk.

Overall, we make three main recommendations. First, we recommend that the Hounslow Resilience Forum replace their current CRR with the new Hounslow multi-agency CRR. Our updated version provides more information for community members and is easier to understand for people with no exposure to risk communication and the HRF should therefore use it. Our second recommendation is that the HRF publish our community resilience document. This document was specifically made to be "public-friendly" and is easier to read with less technical jargon. It also includes information for community members to use during an emergency. Publishing this document would assist in make the Hounslow community better prepared for several risks. Our final recommendation was that the HRF use our communication plan to promote risk awareness and our community resilience document. By going into Hounslow primary schools and using a variety of promotional materials, both in print and online, the HRF can make sure that a more of the population knows about risk, which will decrease causalities and impact during a civil emergency.

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1. Introduction

People perceive risks in different ways. Although risk perception is largely based on fact, it can be subjective, and everyone judges the attributes and the severity of a risk differently. The way a person perceives a risk might not necessarily be in line with the actual characteristics and the mathematical probability of that risk. One reason why perceived risk might differ greatly from the actual risk is the lack of experience one has with that particular risk (Sjöberg, 2000). People who are familiar with a specific risk might have a more realistic perception about that risk as compared to people who have never had any experience with it (Sjöberg, 2000). Another vital aspect of risk perception is "risk denial," which is derived from "unrealistic optimism." People in "risk denial" tend to think a potential hazard is more likely to affect others, and that they themselves are subject to a lesser degree of risk (Sjöberg, 2000).

Like every nation in the world, the United Kingdom, and more specifically its capital of London, faces potential emergencies from a variety of risks. Approximately a quarter of a million people in the United Kingdom died in the large outbreak of pandemic influenza in 1918-19 (Taubenberger et al, 2005). Today, in a "reasonable worst case scenario" of influenza pandemic, one of London's boroughs, Hounslow, could lose up to 2.5% of its population (Contingency Planning Unit, 2015). In addition to this, one-sixth of the 96,000 properties in the borough are vulnerable to flooding from a one in 1000-year event (London Borough of Hounslow, 2014).

The London Borough of Hounslow, located in West London, is one of the thirty-two boroughs that constitute Greater London and has over 250,000 residents (London Borough of Hounslow). About half the population is Caucasian and slightly over 75% has English as a first language. Other languages spoken in the borough are South Asian, as the borough is home to many migrant communities (London Borough of Hounslow, 2011). Hounslow has the third-largest Indian British population in London, including over 19.7% its residents, according to the 2011 census (London Borough of Hounslow, 2011).

In order to combat risks, the United Kingdom's government implemented the Civil Contingencies Act (CCA) in 2004, to improve emergency response (Cabinet Office, 2015). The CCA defines what an emergency is, and divides emergency responders into two categories. Category 1 responders are the first responders in an emergency, emergency response teams. Category 2 responders cooperate with Category 1 responders, for example, transport and utility companies. This division allows the creation of distinct emergency

response plans for both category responders. The CCA also requires governments to create risk registers and identify specialized responders in the geographical area. Locally, the Hounslow Resilience Forum (HRF) is responsible for planning for multi-agency emergency. The HRF is also responsible for creating the Community Risk Register (CRR) for the borough. As the chair and secretariat of the Resilience Forum, the Contingency Planning Unit (CPU) is responsible for maintaining the CRR and updating it periodically. The CRR is a public document that addresses the local risks that the borough faces. One of the problems with emergency response is the lack of communication among national government agencies and local government agencies with the community, regarding emergency preparedness and risks (National Research Council, 1989).

The problem in Hounslow is that although they have a CRR, community members do not know it exists and therefore cannot use it. Even if they know the document exists, the HRF designed the document for an audience that has previous knowledge about risk and risk assessment procedures, making it extremely confusing for community members.

The goal of this project was fix the technical and outreach problems with the current Hounslow multi-agency CRR with the intent of improving community resilience. The team determined which elements to modify in Hounslow's version of the CRR, created two risk assessment documents, and devised a communication plan for the HRF to use.

2. Background

The purpose of risk planning is to improve outcomes in the aftermath of an emergency. Officials can measure the success of the risk planning in the amount of damage prevented, number of casualties avoided, and the degree to which recovery time is reduced (Schultz, 2008). It is important to note that officials cannot always prevent damage or casualties, but may have more control over recovery time, reducing the overall impact to the community. Risk planning, including risk communication, is key in letting a community know the different hazards to which it is vulnerable, and the degree to which it is susceptible to that particular risk. One part of risk planning involves educating the public on how to respond in case of an event. If a society is well aware of how to react when it is exposed to a certain risk, it can alleviate the consequences that might follow. Therefore, this chapter presents information on the origins and versions of CRRs, the methodology used to create CRRs, and effective strategies for using CRRs as communication tools for risk response.

2.1. The Civil Contingencies Act

The Civil Contingencies Act (CCA) received Royal Assent on 18 November 2004 (Alexander, 2004). Its creation improved the UK government's ability to respond to emergencies in the 21st century. This improved ability comes from better planning for local emergencies and better communication between agencies, local areas, and the central government. The CCA defines an emergency as "an event or situation which threatens serious damage to human welfare…the environment… [or] to the security of the United Kingdom" (Alexander, 2004).

Two major parts form this act. The first part regards civil protection at a local level. It places local responders into two categories. Category 1 responders focus on assessing local risks, and develop and maintain a CRR, while Category 2 responders focus on providing additional information to Category 1 responders regarding transportation, utilities, government, and strategic health authorities. They also create and maintain emergency plans for their specific organizational area. The second part of the CCA deals with only the most serious emergencies that require immediate attention. This part of the law allows central government authorities to make temporary provisions in the law for the most serious emergencies. It is an instrument of last resort and officials rarely use it.

2.2. National Risk Register of Civil Emergencies

In compliance with the CCA, the Cabinet Office began publishing the National Risk Register (NRR) of Civil Emergencies in 2008 (Cabinet Office, 2013). The government published the updated version of the NRR on 27 March 2015, improving previous editions. The NRR is extremely clear in both its objectives for the British government and the community, and includes dozens of resources (Cabinet Office, 2015). The NRR has three distinct sections: types of civil emergencies, summaries of risks, and methodology.

Figure 1: An example of the types of additional resources the NRR provides to its readers

It first begins with defining an emergency using the same definition as the CCA. It then describes the risks with the highest priorities - pandemic influenza, catastrophic terrorist attacks, coastal flooding, and widespread electricity failure - before moving to discuss new risks recently added to the risk register such as poor air quality. Sidebars like the one in Figure 1 include references to additional resources and links for the community to utilize should individuals want more information regarding these risks.

When discussing the possible risks in section two, the NRR describes the risk along with any relevant background, including previous incidents in the UK, consequences of the risk, and the government's plan for handling the incident. For instance, under poor air quality, the NRR examines problems with the ozone layer, volcanic ashes and gases, and severe weather, and includes historical examples such as the 2010 eruption of the Eyjafjallajökull volcano in Iceland, which resulted in an ash cloud covering much of Europe for almost a week. The NRR details plans the government has been working on including infrastructure, scientific studies, and updated technology. However, the NRR does not reveal the government's plan regarding the emergency, simply that there is a plan in place and the government is doing more research to ensure the safety of community members.

The final section in the NRR describes the methodology used to assess risk. Government experts in different departments identify risks and put them into the NRA, which is a confidential government document, not accessible to the public, due to its details about

war and terrorism. These officials estimate likelihoods from 0.005% to 50%. They determine impact by analysing a number of factors: number of fatalities, illnesses, and injuries, level of social disruption, economic harm, and psychological harm. Officials use the NRA data to determine which risks they can safely disclose to the public without endangering national security. The final paragraphs of the NRR disclose that the document is meant to guide the creation of CRRs and provide a framework for local plans. The NRR also mandates the creation of local resilience fora, comprised of Category 1 responders and supported by Category 2 responders, to provide insight in creating the CRRs.

2.3. Hounslow's Community Risk Register

The CCA requires the creation of the National Risk Assessment (NRA) and the subsequent NRR before it requires every council to make CRRs. Accordingly, each borough in London must create a risk register and identify a variety of specialized responders in the geographical area. After the UK government performs the (NRA), it gives each local council the potential risks determined and charges them with creating a CRR (Cabinet Office, 2013). The CRR is the local, public version of the NRA that allows community members to learn about the possible risks that may affect their area within the next five years. However, although a CRR is available to the public, it is usually not written with the community as its audience. Officials update most CRRs annually to ensure the most up to date information is available to the community.

The Hounslow CRR is very similar to its national counterpart in that it details the possible risks for the community, identifies the officials in charge should these events occur, and describes the plans that have been put in place (Contingency Planning Unit, 2015). It does not provide details or plans about any malicious events such as terrorism or war, as it is a public document. However, this information exists in confidential files should it be needed. Just like the NRR, Hounslow's CRR identifies how government officials from the Hounslow Contingency Planning Unit (CPU) estimate likelihood and impacts of various events.

The Hounslow CRR lacks information for community members to use to create their own emergency preparedness plans. Below, Figure 2 shows what an entry in the Hounslow CRR looks like. The first column, risk reference, is the code given to each risk so readers can easily refer to it on both the risk matrix and within the document. The hazard sub-category column gives the name of the risk, while the next column, outcome description, gives more information on the risk. The Resilience Forum assigns risk ratings, along with both the impact and likelihood scores, and a primary responsible responder. Unlike the NRR, it does

not offer any additional references or resources to community members who wish to learn more, and instead of a clear response plan, it only provides a list of laws that would reduce the probability of the event occurring.

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls in Place
H 5	Fire or explosion at an onshore fuel pipeline	**Outcome Description** Up to 1km around site causing up to 100 fatalities and up to 500 casualties. Potential environmental contamination and impact, affecting air, land, water, animal welfare, agriculture and waste management. May require remediation and/or decontamination. **Variation & Further Information** A release point close to a populated (i.e. urban/residential) area. Impact on environment including persistent/widespread impact on air quality.	1 (Low)	3 (Moderate)	Medium	London Fire Brigade (LFB)	Requisitioned Land and War Works Act 1948 The Land Powers (Defence) Act 1958 Shell-Mex and BP (London Airport Pipeline) Act 1959 Esso Petroleum Company Act 1961 Pipelines Act 1962 Pipeline Safety Regulations 1996 Control of Major Accident Hazards (COMAH) Regulations 1999 Emergency Services specialist resources

Figure 2: A sample of the risks listed in the Hounslow CRR including the risk reference name, hazard sub-category, further information, likelihood and impact scores, risk rating, responsible parties, and government controls in place to prevent and prepare the community for an impending emergency, taken from the Hounslow Community Risk Register, Contingency Planning Unit, 2015.

2.4. Methodology for Creating CRRs

Mark Leigh of the Emergency Planning College, based in York, England, has done work regarding many of the UK's CRRs. He cites obvious mistakes that many resilience fora are making when they compile and develop their required materials (Leigh, 2013). Many of these mistakes are small issues that may seem insignificant to a community member with limited knowledge about CRRs, but there are also several important features missing from CRRs across the country. Leigh (2013) also identifies the two main parts of a CRR. These are the esoteric, where priorities like training and planning are identified, and the exoteric, where the "warning and informing" information for the public is located. The esoteric training section helps communities identify what they need to do to create a plan for preparedness. The exoteric section is the section that communicates to the public what the risks are, how likely they are, and what to do in an emergency.

One of the main errors in the risk registers evaluated by Leigh (2013) was calling a disaster a "worst-case scenario" rather than a "reasonable worst-case scenario." A "worst-case scenario" refers to the worst situation imaginable, while a "reasonable worst-case scenario" refers to a situation that could possibly happen within the district. In a reasonable worst-case scenario, local factors account for the mathematical probability of risk. The usage of incorrect nomenclature prepares community members for a different situation than the one that may realistically occur and could increase panic within the community. Inconsistencies in nomenclature also plague the risk matrix included in almost every CRR. The risk matrix is a tool risk experts use almost universally to determine risk ratings based on an event's likelihood and impact. For several years, the terms for likelihood have been Low, Medium-Low, Medium, Medium-High, and High. However, there are still CRRs using the outdated terms of Negligible, Rare, Unlikely, Possible, and Probable. The national government updated these incorrect terms due to their ambiguity. Updated risk registers, like the Hounslow CRR, include an appendix with the definitions of each new term to minimize possible misconceptions regarding what each term means (Contingency Planning Unit, 2015). These new terms not only help prepare the community for events that may realistically take place, but also educate the population on how to respond better to emergencies.

Another main problem that Leigh (2013) identified in several risk registers is the incorrect way in which some communities make use of or draw information from their risk matrix. Most of the risk matrices included in CRRs appear as Table 1 does. To use the risk matrix, one first identifies the likelihood of an event, and then cross-references it with its given impact score. These two numbers then give a risk rating on the matrix: Low, Medium, High, or Very High. For example, the risk in Figure 2 from the Hounslow CRR, "fire or explosion of an offshore fuel pipeline," has a likelihood score of 1 (Low) and an impact score of 3 (Moderate) (Contingency Planning Unit, 2015). Using the risk matrix, its risk rating is Medium.

Usage of this risk matrix gives unique risk ratings for different events but community members can misinterpret it easily. For instance, an event with a likelihood of 4 (Medium-High) and an impact of 2 (Minor) does not have the same risk rating as an event with a likelihood of 2 (Medium-Low) and an impact of 4 (Significant) even though the user applies the same numbers. The first case would have a risk rating of "medium" while the second would have a rating of "High." In the example from the Hounslow CRR, misuse of the risk matrix would give an incorrect risk rating of low rather than the medium rating the risk deserves. Although it seems like a straightforward process, several governing agencies have

published CRRs that are structured in a way that makes user error more likely, according to Leigh (2015).

Relative Impact	**Catastrophic (5)**	**High**	**Very High**	**Very High**	**Very High**	**Very High**
	Significant (4)	**Medium**	**High**	**Very High**	**Very High**	**Very High**
	Moderate (3)	**Medium**	**Medium**	**High**	**High**	**High**
	Minor (2)	**Low**	**Medium**	**Medium**	**Medium**	**Medium**
	Limited (1)	**Low**	**Low**	**Low**	**Low**	**Low**
		Low (1)	**Medium Low (2)**	**Medium (3)**	**Medium High (4)**	**High (5)**
		Relative Likelihood				

Basic outline taken from: National Risk Register of Civil Emergencies, 2015 and Hounslow Community Risk Register, 2015.

Table 1: An example of the classic risk matrix used in several CRRs

2.5. Risks

As per the Hounslow Multi-Agency CRR of May 2015, the main risks to which the borough is most vulnerable are fluvial floods, disease outbreaks (influenza pandemics), loss of utilities, and local failure of the electricity network (Contingency Planning Unit, 2015). Not only are the consequences of each one of these risks detrimental, but also the probability

of one occurring in the borough is "very high" according to the risk matrix. Hounslow is susceptible to other hazards as well, such as dam failures, serious constraints on fuel supply at petrol stations, local road accidents, and marine pollution, but these risks are either too unlikely to occur or are not catastrophic in nature (London Borough of Hounslow, 2016).

2.5.1. Flooding

One of the major hazards that Hounslow faces is fluvial flooding. Fluvial flooding has a likelihood score of 3 and an impact score of 4 on the borough's risk matrix (table 1), giving it a "Very High" risk rating. The Hounslow Resilience Forum defines fluvial flooding as an event of persistent heavy rainfall over a period of two weeks that results in damage to up to a thousand properties and involves the evacuation of up to five thousand people (Contingency Planning Unit, 2016). One of the several controls that are in place for an event like this is the Flood and Water Management Act of 2010. According to the Hounslow Flood Risk Management Strategy of November 2014, a strategy under the Flood and Water Management Act of 2010, one-sixth of the 96,000 properties in the borough are vulnerable to flooding from a one in 1000-year event (London Borough of Hounslow, 2014). The borough of Hounslow is located on the Middlesex bank of the river Thames, which is the chief cause of floods in the borough that is home to more than 250,000 people (London Borough of Hounslow, 2011). Even though the possibility of tidal flooding from the Thames is quite low because of the surge barriers in place, the possible impact of any such occurrence is high, which is why it poses a major threat to the wellbeing of the residents of Hounslow. The damage to the borough as a result of fluvial flooding can affect the economy to a great extent. This is why the risk register implies that not only should officials monitor it on a frequent basis, but also that they should devise policies and regulations to alleviate this threat (Contingency Planning Unit, 2015).

2.5.2. Influenza Pandemics

The borough of Hounslow faces another risk with a similar risk rating to fluvial flooding: influenza pandemics. Approximately a quarter of a million people in the United Kingdom died in 1918-19 when the world saw one of its largest outbreaks of pandemic influenza (London Borough of Hounslow, n.d.). Medical patients, pregnant women, and elderly people are at a higher risk of catching influenza, but since the virus is easily transferrable, it can affect anyone. A worst-case scenario could see up to fifty percent of the population contracting the disease, bringing productivity down drastically (Contingency

Planning Unit, 2015). Authorities still need to conduct extensive research in order to eliminate the threats posed by an influenza pandemic to the London Borough of Hounslow, which could lose up to 2.5% of its population to the disease in a "reasonable worst-case scenario" (Contingency Planning Unit, 2015).

2.6. Communicating the Risk

Currently, there is little information regarding the best way to communicate risk with the community. A major factor to consider is that this communication needs to be a two-way process – not only do the authorities need to inform the population regarding risk, but also community members need to know how to report potential risk to authorities and also need to know how to seek additional information (Cabinet Office, 2011). There are several reasons that effective communication with the community is critical. Firstly, preventing panic and eliciting an appropriate response from community members is one of the goals in all communities. Communicating concerns to the responsible authorities allows the authorities to take action before a concern transforms into a crisis (Cabinet Office, 2011). Furthermore, having an open conversation between the authorities and the community allows the communication of different views and experiences, which leads to better decision-making. There is not always agreement in the implementation of risk management policies, as there may be disagreements and misunderstandings between authorities and community members. Involving the public in conversations increases the probability of reaching a consensus (Cabinet Office, 2011).

Creating a CRR that is effective in communicating risk with the general public requires that it takes how people react to risk into consideration. How people react to risk has the same level of importance as understanding risk itself since the main objective is to protect the population (Cabinet Office, 2011). The differences in assumptions and values are responsible for the different interpretations of risk by individuals in the community. It is important to understand the different beliefs and points that the diverse population of Hounslow represents. (London Borough of Hounslow, 2011). The way people react to risk can be divided into five major categories: "vicarious rehearsal," "denial," "stigmatization," "fear and avoidance," and "withdrawal" (Oak Ridge Institute for Science and Education, 2001). Vicarious rehearsal means that the further away, by distance or relationship, people are from a risk, the less they exercise reasonable reactions. These reactions are a problem because a certain geographical area may contain specific risks, but people might not act upon the risk because of its distance. Denial is one other way people respond to risk. Denial can

happen for several reasons, including confusion or mistrust in the communicating source. Some communities may stigmatize victims of local emergencies, and refuse services. Fear also prevents people from responding to risks, since an easy response to fear is avoidance, or pretending some risk does not exist. People might also be able to accept that a risk is real, but feel that the threat is so great that they assume the situation is hopeless (Oak Ridge Institute for Science and Education, 2001).

Hazard (1)	Prediction/forecast (2)	Warning integration (3)
Flood	Some improvement	Not much improvement
Hurricane	Major improvements	Major improvements
Tornado	Some improvement	Not much improvement
Drought	Not much improvement	Not much improvement
Fire	Not much improvement	Not much improvement
Avalanche	Not much improvement	Not much improvement
Earthquake	Not much improvement	Major improvements
Volcano	Some improvement	Not much improvement
Tsunami	Not much improvement	Not much improvement
Landslide	Some improvement	Not much improvement
Nuclear power	Major improvements	Major improvements
Hazardous materials/chemicals	Major improvements	Not much improvement

Table 2: Improvements in prediction, forecast, and warning integration (Sorensen, 2000.

An important factor in being successfully prepared for an emergency is having trust in the authorities. This trust allows the community to focus on the message, rather than disregarding it based upon their negative feelings towards the source (Frewer, 2004). One way to start building such trust is having the public involved in the discussion about emergency planning (Cabinet Office, 2011). Authorities' mistakes can also affect the population's trust negatively. Table 2 shows how prediction and warning integration has improved for certain hazards. Warning integration corresponds to the incorporation of certain hazards in the warning systems. In the past, while prediction of hazards like drought, fire, avalanche, earthquake, and tsunami has improved, systems for warning members of the public about such hazards have not seen similar improvements. However, prediction of hazards like flood, landslide, and hazardous materials has seen improvement, even if the warning integration has not. The importance of forecasting and warning integration relates to public trust in the authorities. If authorities forecast and warn of an impending emergency that does not occur, people are less likely to believe the authorities in the future.

Another important factor in being successfully prepared for an emergency is to understand how people form judgment regarding risks. One major factor corresponds to ethical and value judgments (Cabinet Office, 2011). Depending on personal beliefs, people in the community respond, and accept risks differently. Socio-economic factors also play an important roll in how well people respond to risk.

Different countries' emergency response agencies have explored various communication strategies. In the United States of America, the most common means of mass communication used in emergencies are sirens, tone alert, telephone, and print media (Sorensen, 2000). Figure 3 relates the time to disseminate an alert versus the percentage of the population that receives such an alert. This study is over twenty-five years old, but the lesson learnt is timeless. Targeted ways to reach the community are more effective than unspecialized. For example, by using a telephone to warn the community directly, authorities can convey information about emergencies to a large section of the population in a short period of time. In contrast, untargeted means, like printed media that contain information regarding topics other than emergency response are less efficient at reaching the community. The downsides of targeted means are that not all the population has access to them, and that they are more expensive than untargeted means. The emergency response teams should prefer targeted means when trying to inform the community regarding risk, but a combination of both will provide greater access to risk information.

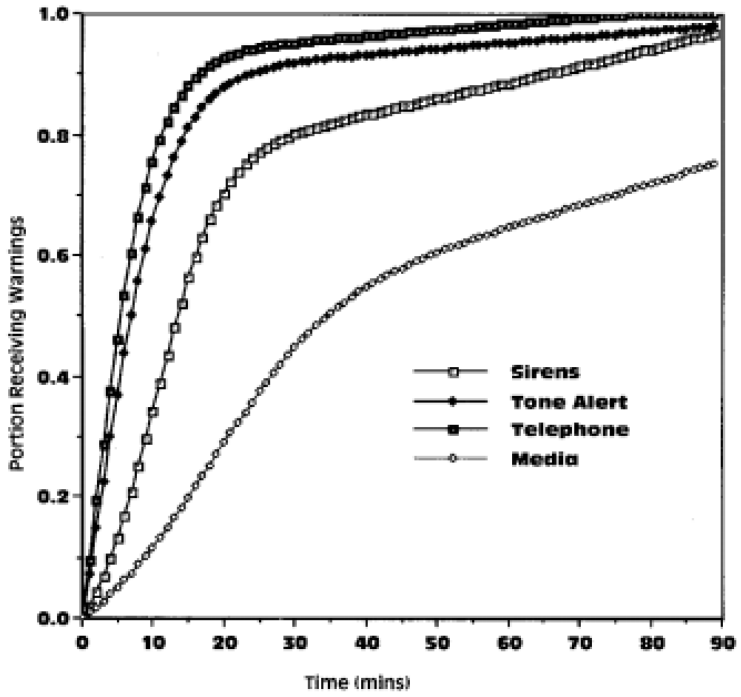

Figure 3: Average dissemination time for warning Systems (Rogers et al, 1988)

One way that authorities can communicate with the population is through social media. Officials have previously used social media for communicating with the population during a crisis, for example in the November 2015 Paris attacks (Merchant et al, 2011). Social media is a widely used source of communication in the world; the Office of National Statistics suggests that in 2015, about 61% of the UK population has a social media profile (Prescott, 2015). These means of communication allow people to know the location of emergency services, and can also allow authorities to publish information regarding emergency preparedness (Merchant et al, 2011). It is fundamental to understand that the population might be reluctant to believe certain pieces of information transmitted via social media, since the information posted does not have to be verified, or even truthful (Merchant,

et al, 2011). One other aspect of social media that is necessary to understand is usage. Despite the high percentage of people with a social media profile, the hours a day of usage, and the percentage of active users is low (Fleischmann, 2015). This is a problem because the communication of emergencies should be instantaneous.

2.7. Design for Communication

To communicate effectively, officials must actively consider the design of their work as well as the content. Design is a natural part of communication that creators often overlook (Aakhus, 2007). If a document or brochure has correct information but is unappealing to the eye, it is unlikely that community members will read it or retain any information they do read. However, adding too many design features is a distraction that will cause readers to miss the message entirely (Narayanan & Hegarty, 2002). Similarly, if a document or brochure is appealing to the eye but has technically complex information, it is likely people will tend to give up on reading it. This is the fine line that authorities must consider when designing documents for public education.

When preparing the content for any document, it is imperative that the content is relevant to the target population, is clear on what the communication is about, and is straightforward about what the reader should do. In addition to this, one should also ensure that the language used in the document is not too complicated, and is rather plain and makes the text easy for people to follow (Waller, 2011).

Designing visuals for communication is older than of written languages (Lankow et al, 2012). Scientists have determined that people retain information more accurately and in a greater volume when they can visualize it. When attempting to spread awareness about important issues, an image, or posters and brochures containing images, will be more effective at communicating the main objectives to the average person than a block of text. This is because remembering facts is closely related to the comprehension of the material (Narayanan & Hegarty, 2002). Incorporating emotion is another effective means to communicate, as people are more likely to respond to something to which they have an emotional connection (Gregory, 2006). Appealing to emotion is especially useful when attempting to communicate to audiences who have no previous knowledge of a subject or interest in the subject, which makes appealing to emotion a good method for risk communication. However, officials must be careful to remain objective and calm when creating communication materials to avoid upsetting the community and creating unnecessary

panic. Creating several drafts of each potential communication tool is necessary as each design is a hypothesis and creators must test each one (Aakhus, 2007).

Infographics are an especially effective way to communicate complicated data and information to people who cannot understand charts or be bothered to read them (Lankow et al, 2012). The *Oxford English Dictionary* defines an infographic as "a visual image such as a chart or diagram used to represent information or data in an easily understandable form" ("Infographic," 2003). Infographics became popular in the late 1930s and have continued to grow in popularity as a way to convey information. Infographics can make boring information seem exciting and innovative through the use of good visualization. The introduction of appealing colours and words in various fonts and sizes is more appealing to the brain than the standard format of blocks of text. When confronted with an emergency, people will be less likely to remember important information they glanced over in a booklet, but a graphic may come back to them when they need it most (Lankow et al, 2012).

To create a document that contains good data visualization, four main aspect need to be taken into account (figure 4). These aspects are the information itself, the story we are trying to convey, the goal, and the visual form. Respectively, this is data, the concept, function, and metaphor. One must combine all of these factors to create a document with successful visualization.

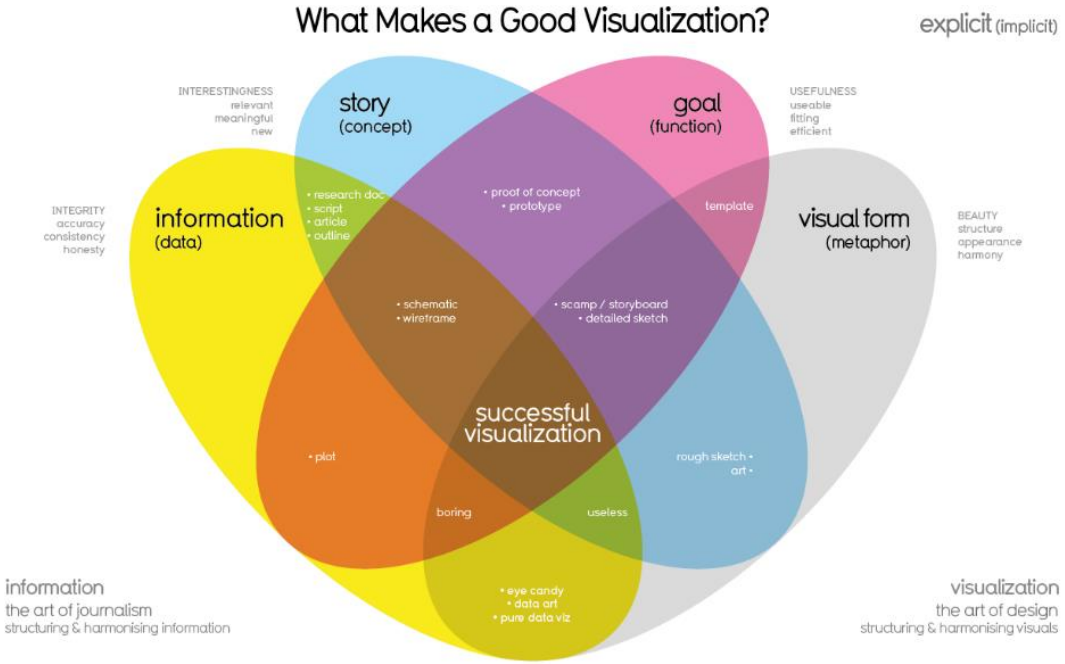

Figure 4: The necessary aspects of good data visualization.

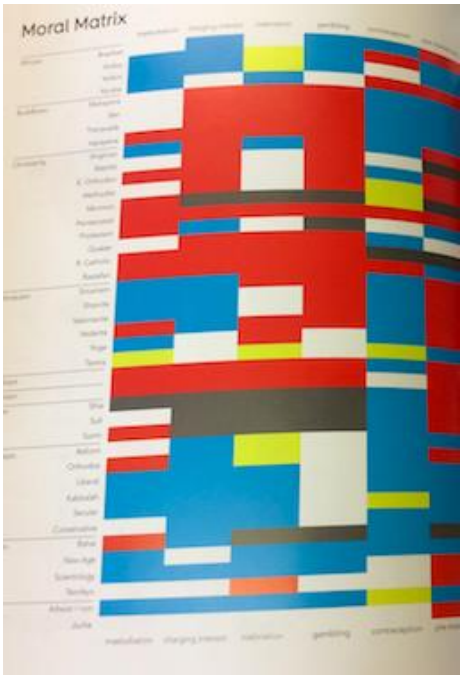

Figure 5: The Moral Matrix, a good example of poor data visualization (McCandless, 2014).

One powerful example of poor data visualisation is the table regarding religious beliefs (Figure 5) (McCandless, 2014). This table shows what practices different religions accept, reject, or are neutral about. The presentation of information should be simplified, allowing the reader to interpret data easily. When looking at Figure 5, it is easy to get confused. There is too much information for viewers to process easily, and the ineffective use of colours adds to the confusion. Considering that the information presented is based on yes or no answers, there are other simpler ways to display such information.

3. Methodology

The goal of this project was to fix the technical and outreach problems with the current Hounslow multi-agency CRR with the intent of improving community resilience. In order to fulfil this goal, the team created several objectives listed below:

1. Determine which elements the Hounslow team should modify in the borough's multi-agency CRR and edit the document accordingly.
2. Create a new community resilience document for awareness and warning.
3. Create a communication plan for the Hounslow Resilience Forum to use with the new public document.

This chapter will discuss the methods we used to achieve each objective, beginning with a comparative analysis of local resilience fora's CRRs. Then we interviewed different experts to determine what the Hounslow Resilience Forum (HRF) wanted in a new CRR and what would engage readers most effectively. Finally, we used the examples of other CRRs and expert opinions to edit the current technical Hounslow CRR and create a new "public-friendly" CRR.

3.1. Determine which elements we should modify in the borough's multi-agency CRR and edit the document accordingly.

In order to create a version of the Hounslow CRR that is both up-to-date and more effective at communicating risk, it was necessary to review other local resilience fora's CRRs and to incorporate their best features into the new, edited version of Hounslow's CRR. We were not able to simply apply Leigh's principles without creating new ways to present information. Although Hounslow already has a published CRR, as required by the Civil Contingencies Act (CCA), it may be too technical for the community to use effectively. To improve upon its version, the Hounslow Resilience Forum (HRF) began research on other resilience fora's CRRs. We continued this research and critically analysed and compared other CRRs from local resilience fora across England.

Table 3: The checklist we used to analyse CRRs

Correct Terminology		**Yes**	**No**	**Description**
	Appropriate language used for likelihood, impact, and risk rating			Officials changed these descriptions for the levels of likelihood, impact, and risk rating several years ago and these changes should be reflected accordingly in recently updated CRRs.
	"Reasonable worst case scenario"			This term replaced the outdated term of "worst case scenario" a few years ago and this should be appropriately revised in all CRRs.
Updated Risks				
	Severe volcanic activity			Officials added this risk several years ago and should be included in updated CRRs.
	Severe space weather			Officials added this risk several years ago and should be included in updated CRRs.
The Matrix				
	Cell 2-2: medium risk rating			Officials changed the risk matrix several years ago and CRRs should have the updated matrix with the appropriate rating in cell 2:2.
	Risk rating assigned correctly using matrix			Risk ratings should be assigned using the matrix, not by multiplying the impact and likelihood scores together.
Explanation	**Includes:**			
	Methodology description			CRRs should include some description about how the document was compiled.
	Definition of impact and likelihood			Impact and likelihood should be defined within the CRR.
	Definition of risk ratings			Risk ratings (Low-Very High) should be defined within the CRR.
	Discrepancies			Any risks that have not been included should have an explanation as to why.
	What to do in case of emergency			A CRR should have a section dedicated to telling community members what to do during an emergency.
	Differences between threat and risk/hazard			The CRR should tell a reader the difference between a risk and a hazard, along with which ones the CRR covers (risks, not threats).
	Definition of emergency			A CRR should contain the definition of an emergency.
Design		**Scale 1 -10**		
	Colourful/visually appealing			The use of colour may enhance the message of a CRR.
	Easy to read - limited amount of text			Limited amounts of text and careful design may enhance the message of a CRR.
	Images			The use of images may enhance the message of a CRR.
		Yes	**No**	
	Uses limited technical jargon			A CRR should use terms that are "public-friendly" and limit technical language.
	Is short - <20 pages			A CRR should be a reasonable length.
Other	**Includes:**			
	Preamble			A CRR should contain a preamble or introduction to inform readers why the document was created.
	Introduction of resilience fora			A CRR should introduce the idea of a Resilience Forum and credit them with authorship.
	Date of last update			A CRR should contain the last revision date so readers can know when the risks were last reviewed and ensure they are up to date.
	Top risks			A CRR may choose to include all risks or only the top risks that will plague the area.
	Notes			

The first task required to complete this objective was to analyse the CRRs from across the nation to determine best practices and eliminate CRRs that were below average. Our liaison, Miss Fiona Hodge provided us with a list of 39 County Resilience Fora from across England, all of which we chose to analyse. After determining which CRRs to read and analyse, we created a list (Table 3) of criteria based on Leigh's (2013) recommendations (see section 2.5 for more information) and design aspects. In addition to Leigh's recommendations, we also carried out a comparative analysis with the other CRRs to identify "best practices" in CRR content and format. Furthermore, this analysis also allowed us to determine whether Hounslow's current approach to publishing CRRs was common among Resilience Fora, or if Hounslow had a unique approach. Miss Hodge at the CPU highly recommended using Leigh's work as a resource for more information on CRRs and the correct methodology to follow.

To create this list of criteria, we read through Leigh's (2013) paper and added everything he mentioned to the necessary list of criteria. We also used a handout from a class, led by Leigh, that Miss Hodge attended (Appendix A), and the recommendations of the CPU members. This checklist does not include all the qualifications of a good CRR, although it does include several items that are characteristic of a well-developed CRR. Ideally, a CRR should have a yes checkmark in every row and higher numbers in the three design categories. After creating this checklist, we applied it to 39 CRRs from Resilience Fora across the country (Appendix B). To choose the "best" CRRs for secondary scoring, we converted all "yes" answers on the checklist to be one point, all "no" answers to be zero points, and all "N/A" to be zero points. For the questions that required answers on a scale of 1-10, we awarded the total number of points, divided by 10. For example, if a CRR earned a six, a seven, and a five, on the three scaled questions, it would earn 0.6 points, 0.7 points, and 0.5 points for those questions. We then tallied the scores out of 22 points and determined every score above 14 to be a top score. Fourteen was chosen as the benchmark for a top score because there were less than ten CRRs that scored above 14 points, making a manageable number of CRRs to score.

We used Leigh's assessment tool (Appendix A), to score the top nine CRRs (Cumbria, Derby & Derbyshire, Durham & Darlington, Gloucestershire, Greater Manchester, Humber, Merseyside, Northumbria, Nottingham & Nottinghamshire), and Hounslow's CRR. The tool comprises 17 questions, which can be answered by "yes," "to some extent," or "no." Each of those answers is equivalent to two points, one point, or zero points, respectively, and the maximum score is 34 points. We performed two assessments because it would be

inefficient to test every CRR in the country with Leigh's assessment tool as it is time consuming and extremely thorough. Initially, we planned to only score the CRRs using the checklist we had made. However, once we finished analysing the 39 CRRs using our checklist, we discovered the assessment tool. Instead of reassessing all 39 CRRs, it was logical to take only the top CRRs and assess them with Leigh's tool. Although our checklist was more superficial than Leigh's assessment tool and could not provide the necessary detail we needed to make a clear decision, it was useful to decrease the number of thorough assessments we needed to perform.

We used this lengthy assessment process to determine what parts of other CRRs we could incorporate into our new CRR. This allowed us to improve the Hounslow CRR in an effective way, as we did not have to invent new material or new ways to present this material. We used the CRRs we evaluated as model to create the edit for Hounslow's CRR. Once we identified an error in Hounslow's CRR, we used the other CRRs to find a strategy to fix the problem. If we could use multiple strategies, we used a combination of strategies to make the changes that made the most sense logically.

3.2. Create a new community resilience document for awareness and warning

To create the community resilience document we followed several steps. We began by interviewing Mark Leigh, of the Emergency Planning College. We asked him about his research in designing CRRs and what he thought were the most important features to include when creating one. Following our interview, we began drafting our community resilience document on paper. We thought carefully about what risk information to include and how to present it in the most effective way. We considered using text, images, tables, and charts. We also thought about how to balance text and images. We used the borough council's guidelines on design and branding to decide which colours to use for our cover page and headers. Finally, we considered the best way to discuss risks without inciting panic or instilling fear in our readers.

We determined that we should include four top risks by consulting with the risk matrix and Miss Hodge. We created an eight-page document, complete with an introduction, four top risks, and important contact information. For the top risks, we created a page for each of the four risks (flooding, fire, utility loss, and pandemic flu) that contained information about what the risk is, how community members can prepare, what the consequences of the risk are, and how the borough is preparing. Each page also contained images and colours with a limited amount of text. Although each page contained important

information, we tried to limit the amount of text and technical language we used to ensure that community members would read and understand what we presented. We then edited our document according to the recommendations of Miss Hodge, Mr. Palmer, and our advisors.

Following the creation of our community resilience document, we conducted several interviews with community members who work at the Hounslow Civic Centre. Our interviews with Rosaline Harris, Billy Regan, and Andrea Tidy provided us with community feedback on our community resilience document and allowed us to make changes.

3.3. Create a communication plan for the Hounslow Resilience Forum to use with the new public document

To create the communication plan for the Hounslow Resilience Forum to use with the new community resilience document, we first interviewed experts in risk. We interviewed Peter Davison of Public Health England and Steve Waspe of the National Health Service England (London), as well as Matt Hogan, of the London Resilience Forum. We also interviewed Rosaline Harris, and Andrea Tidy, residents of Hounslow who work at the Hounslow Civic Centre. We chose to interview these people to determine what experts and residents wanted out of a new community resilience document and the best way to communicate community resilience. The questions we asked our interviewees are available in Appendix C. Miss Hodge helped us arrange these interviews by contacting her colleagues in the Hounslow Resilience Forum and within the Hounslow Civic Centre. Of the many people we contacted, only seven responded, and therefore, we were able to only conduct seven interviews.

After our interviews, we then brainstormed different communication ideas as a team, and discussed them with Miss Hodge and Mr. Palmer. We also became more observant of our surroundings to determine how other people were advertising to the community.

Matthew Hogan, during his interview, suggested that we examine the London Curriculum and find a pilot programme for teaching emergency awareness and preparedness at schools. The programme consists of activities related to major emergencies. We used this programme as a model to draft a programme that can be used for outreach in Hounslow. We focused on floods, since it is one of the top risks in Hounslow. One activity related to floods consists of students identifying their house on a map, and assessing if it is in the flood zone.

According to Mark Leigh, the County of Essex has been doing work related to education outreaches. We researched what Essex has developed, and came across more activities related to emergencies. These activities consisted of choice making games, colouring books, books, videos, and jigsaw puzzles.

Taking this information into consideration, we developed a communication plan that incorporates the best of both the London and Essex programmes.

4. Results & Discussion

4.1. The Hounslow Multi-Agency CRR

For the preliminary assessment of CRRs, we used the checklist we created earlier in our project to assess the 39 local resilience fora CRRs in England. Below in Table 4 is an example of our assessment of one of the 39 CRRs, which scored 11.7 out of 22 possible points.

Table 4: Our preliminary assessment checklist filled out with the Avon & Somerset CRR.

Correct Terminology		**Yes**	**No**	**Description**
	Appropriate language used for likelihood, impact, and risk rating	**X**		Officials changed these descriptions for the levels of likelihood, impact, and risk rating several years ago and these changes should be reflected accordingly in recently updated CRRs.
	"Reasonable worst case scenario"	**X**		This term replaced the outdated term of "worst case scenario" a few years ago and this should be appropriately revised in all CRRs.
Updated Risks				
	Severe Volcanic Activity		**X**	This risk was added several years ago and should be included in updated CRRs.
	Severe Space Weather		**X**	This risk was added several years ago and should be included in updated CRRs.
The Matrix				
	Cell 2-2: medium risk rating	**X**		The risk matrix changed several years ago and CRRs should have the updated matrix with the appropriate rating in cell 2:2.
	Risk rating assigned correctly using matrix	**X**		Risk ratings should be assigned using the matrix, not by multiplying the impact and likelihood scores together.
Explanation	**Includes:**			
	Methodology Description	**X**		CRRs should include some description about how the document was compiled.
	Definition of Impact and Likelihood	**X**		Impact and likelihood should be defined within the CRR.
	Definition of Risk Ratings	**X**		Risk ratings (Low-Very High) should be defined within the CRR.
	Discrepancies		**X**	Any risks that have not been included should have an explanation as to why.
	What to do in case of emergency		**X**	A CRR should have a section dedicated to telling community members what to do during an emergency.
	Differences between threat and risk/hazard	**X**		The CRR should tell a reader the difference between a risk and a hazard, along with which ones the CRR covers (risks, not threats).

	Definition of Emergency		**X**	A CRR should contain the definition of an emergency.
Design		**Scale 1 -10**		
	Colourful/Visually Appealing	**3**		The use of colour may enhance the message of a CRR.
	Easy to read - limited amount of text	**4**		Limited amounts of text and careful design may enhance the message of a CRR.
	Images	**0**		The use of images may enhance the message of a CRR.
		Yes	**No**	
	Uses limited technical jargon		**X**	A CRR should use terms that are "public-friendly" and limit technical language.
	Is short - <20 pages		**X**	A CRR should be a reasonable length.
Other	**Includes:**			
	Preamble	**X**		A CRR should contain a preamble or introduction to inform readers why the document was created.
	Introduction of Resilience Fora	**X**		A CRR should introduce the idea of a Resilience Forum and credit them with authorship.
	Date of Last Update	**X**		A CRR should contain the last revision date so readers can know when the risks were last reviewed and ensure they are up to date.
	Top risks		**X**	A CRR may choose to include all risks or only the top risks that will plague the area.
	Notes	Too focussed on tables		

We assessed all 39 CRRs listed in Appendix B using the checklist above, which we filled out for the Avon & Somerset County CRR. All other results are listed in Appendix D. We set each "yes" response as 1 point, each "no" response, and each "N/A" as no value. For the scaling questions, we took the score given and divided by ten, making the maximum score 22 points (Appendix E). If a CRR contained no colour, but was visually appealing, it received a score of 5. Conversely, if a CRR was colourful, but not visually appealing, we assigned a score of 5 as well. When deciding whether a CRR was visually appealing, we used our best judgment, making the scoring subjective. Reflecting on this methodology choice, we acknowledge that there is a better way to perform the subjective analysis. After assessing all the CRRs and converting answers to the point system, we discovered a large range among scores. The Nottingham & Nottinghamshire CRR had the highest score of 18.47, while the Devon & Cornwall CRR scored only 3.6 points. The 39 CRRs scored had a range of 14.8 points, with an average score of 10.38 points. There was a standard deviation of 4.55 points. The criterion for which the largest number of CRRs scored a "yes," (38 out of 39) excluding the criteria that required a ranking from 1-10, was the correct risk rating for cell 2:2 on the

risk matrix. The criterion for which the largest number of CRRs scored a "no," (34 out of 39) excluding the criteria that required a ranking from 1-10, was whether the CRR mentioned any discrepancies in risk ratings. The range of scores made it critical that we took the top scores and excluded the bottom scores for our secondary assessment so we could see the best practices.

To continue with the secondary assessment, we chose the top CRRs as those that scored above 14 points on the preliminary assessment. For the secondary assessment, we used the top seven CRRs from the preliminary assessment as well as Hounslow's CRR. The assessment tool Mark Leigh provided us was very straightforward to use. It consisted of 17 questions, which could be answered using "yes," "to some extent," or "no." We awarded each "yes" two points, each "to some extent" one point, and each "no" zero points.

Table 5: The results of our secondary assessment of the top CRRs

CRR	**Score (out of 34)**
Cumbria	25
Derby & Derbyshire	21
Durham & Darlington	9
Gloucestershire	10
Greater Manchester	23
Hounslow	18
Humber	16
Merseyside	17
Northumbria	17
Nottingham & Nottinghamshire	24

Out of all the CRRs (table 5) we scored using Mark Leigh's assessment tool (Appendix A), Cumbria scored the highest with 25 out of 34. Durham & Darlington earned the lowest score with 9 out of 34. The ten CRRs scored had a range of twelve points and an average score of 18 points. The standard deviation among scores was 5.48 points. None of the CRRs answered "yes" or "to some extent" for questions 17 or five, meaning that there were no scored CRRs that included "a statement of intent to engage with the public" nor any that included "discussion of the limitations of risk assessment and risk management."

Furthermore, every CRR scored in the secondary assessment answered "yes" to question nine, which asked, "Does it provide information about local risk control measures that are in place?" The full raw data scores for each CRR for each question is available in Appendix D.

The assessments provided us with the necessary information to update Hounslow's multi-agency CRR. We learned what the current best practices were across the country and what elements (colour, images, and less text) we should try to include in our updated version. Furthermore, the assessments, although long and tedious, provided us with material to put in our CRR without having to reinvent the wheel. These assessments were an important step in creating the new multi-agency CRR and without them, we would have struggled in ways to improve the CRR.

To create the updated version of the technical multi-agency CRR, we used the information we gathered from the secondary assessment of the CRR. Hounslow's score of 18 of out 34 showed us that there were many things that could be improved in the document. There were nine different questions that the Hounslow CRR scored less than the maximum two points on. We decided the assessment step was necessary so we could identify "good" parts of other CRRs and then incorporate those parts into our CRR. We started by changing the colours on the risk register to make it look more appealing to the eye. We also redefined the stated purpose of the CRR in the document and it now reads, "The purpose of the Hounslow public CRR is to educate people about the risks that could occur where they live, so they can think about what they are able to do to be better prepared for emergencies." In addition to these, we also included the local history of emergencies for risks they were available for, incorporated reasons for withholding certain information into the document, provided the community reasons for possible limitations of risk assessment, and specified contact details at the end of the document for the readers to get in touch with the CPU on the topic of risk assessment.

Figure 6a: An excerpt of the current version of Hounslow's CRR. We changed the design of the document, as shown in figures 6a and 6b. Both figure 6a and figure 6b show the same risk, H 17 Storms & Gales, but there are several differences between the two as we not only changed the colour scheme, but we also included a local history of the risk in Hounslow. We changed the colour scheme to green and purple to reflect that the Hounslow multi-agency CRR was a product of the borough, as those are the borough's marketing colours used on all official documents.

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information	Likelihood	Impact	Lead Responsibility	Controls in Place
			Risk Rating			
H 17	Storms & Gales	**Outcome Description** Storm force winds affecting most of the South East England region for at least 6 hours. Over 55mph winds, gusts of up to 84mph. Up to 5 fatalities and 50 casualties. Short term disruption to infrastructure including power, transport networks, homes and businesses.	3 (Medium)	3 (Moderate)	Local Authority	Regular inspections of trees and highways for maintenance Met Office National Severe Weather Warning Service Met Office Hazard Manager Service Responder specialist resources
			High			

Figure 6b: An excerpt of the updated version of Hounslow's CRR.

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Lead Responsibility	Controls in Place
			Risk Rating			
H 17	Storms & Gales	**Outcome Description** Storm force winds affecting most of the South East England region for at least 6 hours. Over 55mph winds, gusts of up to 84mph. Up to 5 fatalities and 50 casualties. Short term disruption to infrastructure including power, transport networks, homes and businesses. **Past Events** 28th October 2013: During the storms of the night of the 27/10/2013 a tree fell down on a number of properties on Bath Road and resulted in damage to a gas main which caused an explosion early in the morning of the 28/10/13. There were 2 confirmed fatalities and three other hospitalisations including head injuries and burns. The affected road was cordoned off which resulted in all homes within the cordon being evacuated.	3 (Medium)	3 (Moderate)	Local Authority	Regular inspections of trees and highways for maintenance Met Office National Severe Weather Warning Service Met Office Hazard Manager Service Responder specialist resources
			High			

We made several changes to the design of the multi-agency CRR. First, we changed the colour scheme from blue to purple in order to reflect the borough council's preferred colour scheme used in all official documents. We also ensured that the colours used in the CRR were consistent throughout the document. In the old CRR, the colours for the likelihood, impact, and risk ratings were inconsistent, changing from grey to green and pink to red.

Table 6: The new colour scheme of the Hounslow Multi-Agency CRR.

Likelihood and impact	1	2	3	4	5
Risk rating	Low	Medium	High	Very High	

Table 6 shows the new colour scheme we used in the updated version of the CRR. We also made the following changes to the Hounslow multi-agency CRR (Appendix R) following the questions listed on Leigh's Assessment Tool (Appendix A):

- Question 1: We changed the introduction to include that the purpose of the document is to keep the community safe rather than say that the document is a by-product of the Civil Contingencies Act 2004. (page 8 of the updated Hounslow multi-agency CRR)
- Question 5: We added a section discussing the limitations of risk assessment and how risks are constantly changing (page 10)
- Question 6: We attempted to make the design more "user-friendly" (Leigh 2013).
- Question 8: We added the local history of emergencies in Hounslow for each risk (page 18)
- Question 10: We provided more information about control measures that the HRF is planning (page 18).
- Question 11: We added a section about why some details are withheld due to security and community safety (page 5).

All of these changes are highlighted in yellow in the full technical version of the Hounslow multi-agency CRR, available in Appendix R. Although not radical, these changes did improve the score of the Hounslow CRR using Leigh's assessment tool to a 31 out of 34, much higher than its previous score of 18. We were not able to improve upon question 16 (Are public views about risk in the CRR area actively solicited?) or question 10 (Does [the CRR] provide information about local risk control measures that are planned or under development?). However, by answering the questions that were previously unanswered in the secondary assessment, we were able to improve the multi-agency CRR. By making simple changes in colour and layout, as well as adding a few sentences about public awareness and risk history, we improved the Hounslow CRR to make it a more "public-friendly" and usable document for both residents and the HRF.

4.2. The Community Resilience Document

To create the new community resilience document, we first interviewed Mark Leigh, of the Emergency Planning College. He provided several recommendations about risk registers including that they should be "public-friendly," contain localized risks, and include an assessment. According to Mr. Leigh, "public-friendly" risk registers should be easy for the common member of the community to read, should be focused on the information the public needs to understand, and should be visually appealing.

We then began drafting our community resilience document. After consulting with Miss Hodge, we determined that the document should discuss four risks: influenza pandemic, flooding, fire, and loss of utilities. Using the information in the technical version, we wrote sections about what community members can do, what the consequences of risk are, what the council can do, and what the possible impacts of the risk are.

We reduced the complexity of technical information because we reasoned that it is not important for the community to understand the technicalities of the responses to different emergencies. It is important for the community to know what to do in case an emergency occurs, and to know what are the consequences of a poor response. The colour scheme used through the entire document is part of the Hounslow's Civic Centre design recommendations. We have picked two contrasting and vivid colours from the palette to make the document appealing to the public. As for important graphics in the document, there is a map of Hounslow containing major infrastructure and risks locations. We decided to use a map because it allows the public to localize the risks in relation to other locations in the borough. The community members can locate their houses and determine which risks are more applicable to them.

We had two interviews with local community members. We presented the interviewees with a copy of the latest community resilience document and asked them to provide feedback page by page. This feedback allowed us to change the document to match the needs of the public. We then made changes to the map and the order of information presentation to satisfy the community members

Figure 7: Example page of Community Resilience Document

Figure 7 shows an example page of the Community Resilience Document. The full size document is available in Appendix Q. The pages containing risk information are the most important sections of the document, because it is where we advise the community members of what to do in case of each specific emergency, and what the consequences of the emergency may be. We decided to divide the subsections of this page into colourful boxes. We did this to achieve the goal of making the document appealing and keeping the public focused on the information residents need at a certain time. We tried to increase the number of images used and reduce the amount text in each box, by using graphics to communicate statistics and ideas of what to pack for an emergency evacuation. We want to make sure the community members know exactly what to do, and at the same time keep the information simple without losing content. As such, we included more text than images for each page. We kept the information simple, focused on what behaviours we want to change, and made sure to acknowledge the potential of risks without causing fear in the population.

After drafting the document we conducted interviews with community members to determine whether they liked the document and what could be improved. Rosaline Harris, a Hounslow resident and Civic Centre employee, suggested many changes to the first draft of our community resilience document. She suggested that instead of relying too heavily on text, we simplify the pages and include links for more information if people wanted it. Her

rationale was that if people read the document, they only want to learn the bare minimum and if they are interested in learning more, we could provide them with the necessary resources.

We also interviewed Billy Regan and Andrea Tidy, both residents of Hounslow. Together, they offered few suggestions including adding information about not using lifts during fires and a potential colour change. The information we gained from these interviews allowed us to make our document more "public-friendly." The entirety of the new community resilience document is available in Appendix Q.

4.3. Communication Plan

To create our communication plan, we began with interviews with local experts in risk communication to learn the best way to spread awareness and elicit a behavioural change in community members. Table 6 contains a list of all interviews we conducted. The transcripts of those interviews are available in Appendices F-L. Through our interviews we learned that a communication plan is unequivocally necessary for a risk register to be effective in teaching the community about public resilience. Both Davison and Waspe suggested going into schools to teach children about risk. They noted that although our intentions were good, simply creating a document would not be enough to change the behaviours of community members. Waspe pointed out that in order to make a big difference, we had to create a long-lasting plan rather than a short-term plan.

Harris gave us information on how she would like to receive risk education. She believes writing in *Hounslow Matters* will make more people aware of the document and refrigerator magnets are a good idea.

Hogan gave us information on where to find previously made communication tools. As a member of the London Resilience Forum, he had experience in communicating risk to the public and was eager to share. He suggested using maps to help people find if their homes are in flood plains and fun activities to determine what risks community members perceive as most substantial. His informative interview gave us inspiration for our own educational programme.

Table 6: The list of interviews we conducted.

Name	Title	Affiliation	Date
Steve Waspe	North West London EPRR Manager	NHS England (London)	31 March 2016
Peter Davison	Emergency Preparedness Manager	Public Health England Office for London	01 April 2016
Mark Leigh	Director of the Faculty of Civil Protection and Crisis Management	Emergency Planning College	04 April 2016
Rosaline Harris	Early Intervention Service Support Officer	Hounslow Resident	13 April 2016
Matthew Hogan	Resilience Officer	London Resilience Team	15 April 2016
Andrea Tidy	Caretaking and Concierge Manager	Hounslow Resident	26 April 2016
Billy Regan	Social Worker	Hounslow Resident	26 April 2016

From our interviews we learned that we needed to go into schools around the borough to teach Key Stage 1-2 students about risks. After our interviews, we began brainstorming ideas for the communication plan and discussed our ideas with our sponsor, Miss Hodge. We also began observing how other organisations advertise their services to the community to develop ideas. We looked at ads from non-profits, government agencies, and companies to determine the best way to advertise and gain ideas. We looked at local advertising because Hounslow residents are accustomed to receiving information in certain ways, and using existing advertisements gave us a starting point for us to create our own advertisements.

Our communication plan contains two main domains: education of Key Stage 1-2 children and promotion of the community resilience document. We decided that the education of Key Stage 1-2 students (ages 5-11) would be most beneficial because of the way these students learn. We learned that starting the conversation about risk early on in childhood creates a generation of people who are more prepared to face emergencies (personal communication from Matthew Hogan, 2016).

One of the focuses of our communication plan is to use the national education system. Communicating risk preparedness via schools gives us the possibility of interacting directly with students and parents. Educating from a young age promotes a culture of risk preparedness guaranteeing that the generations of tomorrow are better prepared to respond to emergencies. By integrating the parents and grandparents, we can also promote risk preparedness in the generations of today, improving the way they respond to risks.

As we have previously discussed, communication needs to be a two-way process. However, since this initiative is one of the first of its kind in the borough, we believe the

Hounslow Resilience Forum (HRF) will have to take the first steps towards educating the population. The next steps are for the HRF to open communication lines between the community and the authorities, allowing for better understanding of the perception of risk from the community.

In order to accomplish our objective of educating the community, and encouraging better preparedness for this and future generations, we have developed a pilot programme. This programme takes the form of a workshop. The programme's main focus is bringing teachers, students, and parents together to get involved in different educational activities. Ideally, the programme would take place during the school day as part of the school curriculum. Parents would be invited and encouraged to attend. However, we understand that this is not realistically possible and foresee this programme only involving students who can pass information to their parents, and teachers, who can provide the HRF with feedback.

To start the workshop, there will be a risk assessment activity (Appendix M) based on an activity the London Resilience Forum implemented at a public risk meeting. The activity begins with a list of risks Hounslow may face, in no particular order. Participants will then circle the risk they believe to be most consequential in the community. This activity will determine what public perceptions of top risks are and then activity leaders can then tailor the programme towards whichever risks need the most attention.

After the risk assessment activity, the teachers will give a quick presentation (Appendix N) on risk planning and preparedness. We based the presentation on the community resilience document created previously. The presentation will start by distinguishing what civil emergencies could possibly occur in Hounslow. This presentation may either support earlier perceptions of risk, or change the perceptions the community showed in the start of the workshop when participants did the first activity. After the presentation, teachers will explain the top risks in the borough, and provide some information regarding consequences, and what to do in case an emergency occurs.

Following the presentation, teachers will provide fun activities for the students. We suggest the teachers use activities they can obtain from the County of Essex or from the London Curriculum. These activities can take the form of computer or tablet games, colouring books, jigsaw puzzles, and story books regarding risk preparedness. The County of Essex has previously used similar activities to engage students. Examples of similar activities are at the following website: http://www.whatif-guidance.org/. The goal of these activities is to keep the students concentrated on the subject, while having fun. As these activities are occurring, teachers will guide parents and grandparents to computers, where they will

identify their houses on a map. This map will include details of where the risks exist in the borough. This is important to know, because it makes the community focus on the risks they may face in the future.

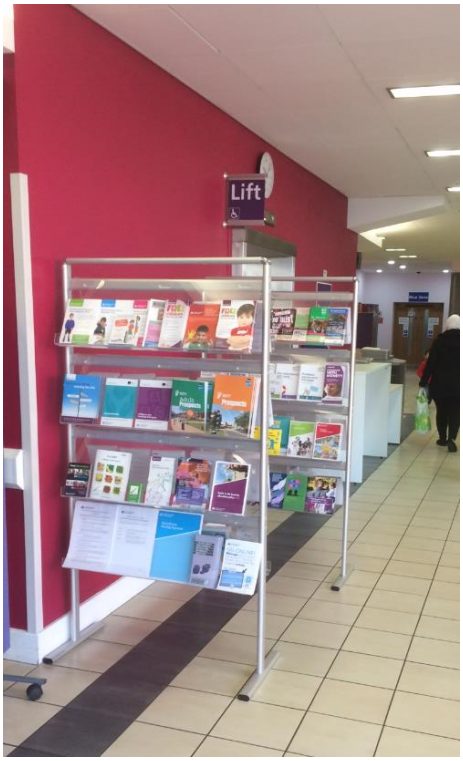

Figure 8: The lobby of the Civic Centre where we recommend the HRF provide copies of the community resilience document.

Finally, attendees will answer a quick questionnaire to assess the workshop's effectiveness (Appendix O). Since this is a pilot programme, it is important to understand what factors were and were not educational or helpful to the community. Teachers will provide students with a copy of the resilience document to take home for their parents. The purpose of the questionnaire is to provide feedback regarding the programme. We believe it is important for teachers and the Hounslow Resilience Forum to assess how well the programme is working. Depending on the feedback, teachers and the HRF can change the programme, by adding or removing activities, and providing different explanations for risks depending on the understanding of the audience.

For the promotion of the community resilience document, we brainstormed several different ideas. Many different types of people visit the Hounslow Civic Centre daily. In addition to employees, many residents visit to complete business with the council. The ground floor lobby is almost always full, usually with people waiting in line to pay their taxes, talk to social workers, or file paperwork. These employees and visitors are therefore our intended audience for several of our promotional ideas. Copies of the community resilience document will be available in the Hounslow Civic Centre with various other documents near the main entrance (figure 8). In addition to having copies of the document available, there will be a banner in the lobby of the Civic Centre (figure 9) giving more information about the documents and risks in Hounslow. We decided a banner would be a worthy addition to our communication plan because of a banner (figure 10) that caught our attention one day walking in to work. Although it describes online borough tax management, it was appealing and eye-catching. We thought if a banner on tax information could catch our attention, it might be a good way to teach visitors and employees about risk.

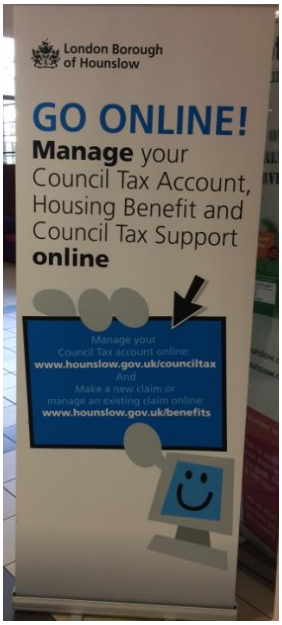

Figure 9: The banner that caught our attention.

We also wrote an article to be published in the borough's magazine, *Hounslow Matters* (figure 11), which is distributed for free every six months. This magazine covers topics related to the borough including the council, parks, and activities, and the editor has expressed an interest in publishing our article in an upcoming issue. It is available both online on the borough council's website and in print, as it is delivered to every resident in the borough. The article, which is titled, "What to Do in an Emergency," describes the new community resilience document as well as more information about how to access it. Furthermore, it will detail several easy things community members can do to prepare for an emergency. The article is available in Appendix P.

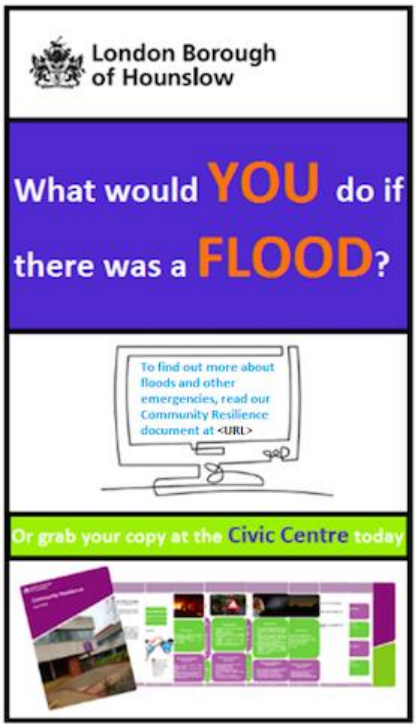

Figure 10: Our proposed banner design.

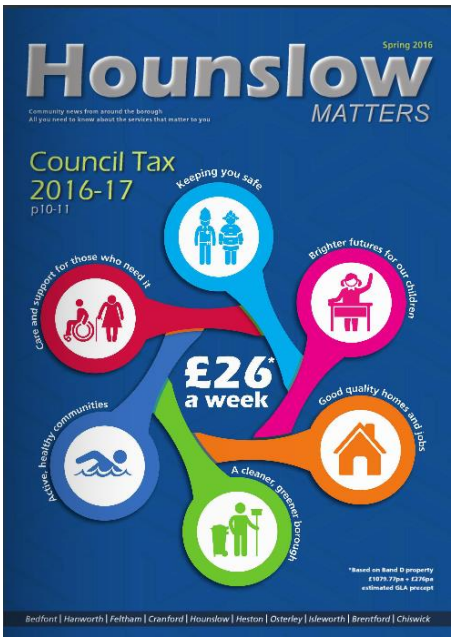

Figure 11: The cover of the spring 2016 issue of *Hounslow Matters*.

Social media is a good way to transmit information to masses. In 2015, about 59% of the U.K. population had active social media accounts (Fleischmann, 2015). Besides this, authorities have used social media before in emergency situations. During the Paris terror attacks, people were able to use Facebook to inform their families and friends that they were not affected by the attacks. This allowed emergency means of communication, like emergency telephone lines, to not get disrupted by overuse. While the article should be effective at reaching members of the community who read periodicals like *Hounslow Matters*, many other members of the community may prefer other communication platforms, such as social media. We plan to advertise the community resilience document through social media. The borough has a Facebook page "London Borough of Hounslow," full of information for the community. The borough also has a Twitter handle, @LBofHounslow, run by the communication team, who makes posts multiple times per day. The borough uses its Twitter handle to provide information for residents. Residents can also ask quick questions and receive answers in a timely fashion.

Figure 12: The display window at the entrance of the Civic Centre.

There is also a display window in the front entrance of the Civic Centre (figure 12), which is available to rent for any department in the council. We propose the HRF create a plan for various decorations for the window in order to spread awareness about the community resilience document. The intended audience would be anyone who visits the Hounslow Civic Centre. People who notice the display and are intrigued by its content are likely to want more information and will continue into the lobby to find the available pamphlets and banner.

Our final promotional idea is to create a refrigerator magnet with emergency phone numbers on it and space for community members to add their own important phone numbers. Figure 13 shows what these magnets will look like.

Figure 13: The fridge magnet we will distribute to the community.

The magnets will be available to all community members via *Hounslow Matters*. We will attach magnets to the back cover of the magazine for easy distribution to community members. Our proposed audience is all homeowners. These magnets would be beneficial for during emergencies when homeowners need a quick reference or when power goes out and homeowners need to know who to call.

5. Conclusion & Recommendations

The purpose of this project was to update Hounslow's CRR and create resources and strategies that should result in a more educated population in Hounslow. By updating the Hounslow Multi-Agency CRR, creating the new community resilience document, and creating a communication plan, we helped the Hounslow Resilience Forum begin the necessary changes to make residents aware and prepared for emergencies. However, our work only created the tools for communication and in order for the HRF to change community perceptions of risk and preparedness, they must continue to work on education and outreach efforts. By making the following changes, we believe the HRF can make a positive impact by reducing unpreparedness in the community.

We first recommend that the HRF replace their current CRR with the new Hounslow multi-agency CRR (Appendix R) we created. The HRF should publish this multi-agency CRR on the borough website, although we primarily intended this version for HRF usage and less for community usage. We make this recommendation because the new Hounslow multi-agency CRR is more "public-friendly" than the current version as it uses colour more carefully. Furthermore, it uses similar branding to most other Hounslow council documents. We improved this document to the specifications of Mark Leigh's assessment tool (Appendix A) and we presume it does a better job of communicating risk to the public, while still maintaining its role as a HRF risk assessment document.

We also recommend the HRF publish our community resilience document (appendix Q) in addition to the new Hounslow multi-agency CRR. We make this recommendation because the community resilience document allows community members to read and learn about risks without having to read the entirety of the multi-agency CRR, which is over 60 pages long. It also teaches community members about the top risks that they are susceptible to in Hounslow and how to prepare their families for them. This preparation can make a world of difference when emergencies occur. This document is intended to educate the community on what the repercussions of the top risks are and what the borough council is doing to prepare the borough for them. Finally, the community resilience document gives guidance on how people can learn more about risks and how to prepare for them via links to websites for the fire brigade, police, and NHS.

Another recommendation is that the HRF use the communication plan we created to help promote the community resilience document and teach the community, especially children, about risk. As we have already created the plan, all the HRF has to do is implement

it. This will make community members more aware about the risks in Hounslow, the community resilience document, and the HRF. It is likely that the implementation of this plan will not only educate community members, but also decrease the impacts of top risks in Hounslow, as more people will be adequately prepared for civil emergencies.

Furthermore, we recommend that the HRF run several tests to determine the effectiveness of our deliverables. They should field test our new community resilience document to determine if it accurately informs community members about possible risks and their corresponding reactions. They should also pilot test our educational programme to determine its effectiveness in educating families about risks and emergency preparedness. Pilot testing could involve establishing a relationship with at least one Hounslow school, organizing the pilot, and evaluating the programme. We suggest the evaluation come from both focus groups and interviews of participants and teachers.

We also recommend expanding outreach that we began through our article in *Hounslow Matters.* The HRF can continue to expand outreach efforts by creating a specific section in the magazine dedicated to the Hounslow Resilience Forum so that they can publish various pieces of emergency information and preparedness throughout the year. Also, we propose that the HRF utilize the borough's social media and perhaps create their own accounts. By posting regularly, they can increase their number of followers and reach more people. Furthermore, they may choose to use advertising on Facebook to reach Hounslow residents. By following these recommendations, we believe the Hounslow Resilience Forum can promote a culture of awareness and preparedness that will aid its residents.

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7. Appendix A: Leigh's Assessment Tool

This is the assessment tool (Leigh, 2013) we used to perform the secondary assessment of CRRs. We learned about this tool after our sponsor Miss Fiona Hodge recommended it. It contains 17 questions that can be answered using "yes," "to some extent," or "no." Each answer is then turned into a numerical value (2, 1 or 0) respectively and the total score is tallied. The maximum score is 34 points.

Mark Leigh Emergency Planning College

Annex to

Emergency Planning College

Occasional Paper

New Series

Number 1

COMMUNITY RISK REGISTERS

Assessment Tool

The aim of this exercise is to carry out a documentary analysis of community risk registers, assessing them against a set of criteria which are generally accepted as indicators of good practice in public risk communication.

There is a template below for recording the scores you allocate.

Objective 1

Establish the extent to which the purpose of the register, the manner of its creation and reason for its publication are explained to the public in clear and non-technical English.

Questions

1. Is it a stated purpose of the CRR to give members of the public a balanced understanding of the risks they face, in order to make them better able to respond to an emergency and reduce its impact on the community?
2. Is it made clear, down to the level of participating organisations, who was responsible for the CRR's production, how it was produced and how it is maintained.
3. Are the underlying concepts of risk, likelihood and impact explained clearly and without technical language?
4. Are the underlying concepts of controls, risk treatment and lead agencies explained clearly and without technical language?
5. Is there any discussion of the limitations of risk assessment and risk management – especially in respect of issue such uncertainty, professional judgement, scientific evidence and environmental change?
6. Does the design and presentation of the document suggest a deliberate attempt to make it "user-friendly" for a lay readership?

Objective 2

Determine the extent to which each register is explicitly contextualised, giving a clear and informed sense of its relevance to the local community.

Questions

7. Is the CRR locally contextualised throughout, so that readers should be able to grasp easily its relevance and applicability to themselves and the local community?
8. Does it provide information about the local history of emergencies?
9. Does it provide information about local risk control measures that are in place?
10. Does it provide information about local risk control measures that are planned or under development?
11. Are the reasons for withholding information, including the locations of hazardous sites, explained and justified?

Objective 3

Establish the extent to which the registers are linked to other forms of local resilience and risk communications that the public may be exposed to.

Questions

12. Does the CRR make reference made to other forms of communication about emergency preparedness that the public are likely to receive?
13. Does it give reference to other forms of emergency preparedness information that are available to those who wish to learn more?

Objective 4

Assess the extent to which the public are given the opportunity to engage in the process, through feedback and consultation mechanisms.

Questions

14. Are the public given a point of contact to use if they want to ask questions about the purpose or content of the CRR?
15. Is that point of contact accessible by means other than letter?
16. Are public views about risks in the CRR area actively solicited?
17. Is there a statement of intent to engage with the public on the assessment of risks in their area at any time in the future?

Each question will be answered with a response of “no,” “to some extent” or “yes.” These responses are given numerical values of 0, 1 or 2 respectively. The survey form requires a short, supporting statement where a score of 1 is given, but no statement is required to support an unequivocal score of 0 or 2.

Objective	Scores for Each Question	Comments
1	1	
	2	
	3	
	4	
	5	
	6	
		Total for Objective 1 (out of 12)
2	7	
	8	
	9	
	10	
	11	
		Total for Objective 2 (out of 10)
3	12	
	13	
		Total for Objective 3 (out of 4)
4	14	
	15	
	16	
	17	
		Total for Objective 3 (out of 8)
		Grand Total (out of 34)

8. Appendix B: List of Local Resilience Fora in England

Northwest: Cheshire, Cumbria, Greater Manchester, Lancashire, Merseyside

Northeast: Cleveland, Durham & Darlington, Northumbria

Yorkshire and Humber: Humber, North Yorkshire, South Yorkshire, West Yorkshire

West Midlands: Staffordshire, Warwickshire, West Mercia, West Midlands

East Midlands: Derby & Derbyshire, Leicestershire, Lincolnshire, Northamptonshire, Nottingham and Nottinghamshire

East of England: Bedfordshire & Luton, Cambridgeshire & Peterborough, Essex, Hertfordshire, Norfolk, Suffolk

South West: Avon & Somerset, Bournemouth, Dorset & Poole, Devon, Cornwall & Isles of Scilly, Gloucestershire, Wiltshire & Swindon

South East: Hampshire & Isle of Wight, Kent, Surrey, Sussex, Thames Valley

London: London

9. Appendix C: Interview Protocol and Questions

Interview Protocol

Project: Creating a New Risk Register for Hounslow

Date _____

Time _____

Location _____

Interviewee _____

Interviewer_____

Notes to interviewee:

Thank you for your participation. We believe your input will be valuable in helping create a new Risk Register for the London Borough of Hounslow.

Do we have your permission to record this interview? Do we have your permission to use your name for future reference?

Approximate length of interview: 30 minutes, three major topics.

Objectives of project:

1. Determine which elements the Hounslow team should modify in the borough's current CRR.
2. Create two risk assessment documents, a multi-agency CRR for resilience planning, and a community resilience document for awareness and warning.
3. Create a communication plan for the Hounslow Resilience Forum to use with the new public document.

Questions for Rosaline Harris, Andrea Tidy, and Billy Regan:

Introductory Questions:

1. Are you familiar with the Hounslow Community Risk Register?
2. Have you read it within the past year?
3. What would make you more likely to read it more frequently?

Questions about the CRR:

1. Are there any parts you find confusing?
2. Do you have any suggestions for improving it?
3. Do you think adding more images and colours would make it better?

Community Questions:

1. What part of Hounslow do you live in?
2. Do you think your neighbours know about the Hounslow Community Risk Register?
3. Has there ever been a civil emergency in your area? A fire, flood, or loss of utilities?
4. How did you respond? How did your neighbours respond?
5. Do you wish you were more prepared in case of emergency?
6. How have you learned about emergency preparedness in the past?
7. How would you like to learn more about emergency preparedness? The radio, a news broadcast, a magazine article?

Questions for Matthew Hogan:

1. Are there features that every CRR should include?
2. Are there certain things that we should not include in the public version?
3. Are there any parts of the CRR you think people find confusing?
4. Does the design of a CRR play an important part in effectively communicating risk to the community?
5. When you update the London Risk Register, do you incorporate design and communication aspects?
6. What strategies do you think we should employ in order to inform the community of civil emergencies?
7. What is the best way to promote a Community Risk Register?

10. Appendix D: Primary Assessment Raw Data Results

These are the results of our primary assessment after the answers had been changed into numerical values.

Criteria	Avon	Bedfo	Bourn	Camb	Chesh	Clevel	Cumb	Derby	Devon	Durha	Essex	Glouc	Great	Hamp	Hertfo	Humb	Kent	Lanca	Leices	Lincol
1	1		0	0			1	1		1		1	1	0	1	1		1	1	0
2	1		0	1			1	1		1	1	1	1	0	1	1		1	1	0
3	1	0	0					1		1		1	0	0	0	0		0	0	0
4	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0		0	0	0
5	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1		1	1	0
6	1						1	1		1		1	1			1		1	1	
7	1			0	1		1	1		1	0	1	1			1		1	1	
8	1	0	0	0	0	1	1	1	0	1	0	1	1	1	0	1		0	1	1
9	1	0	0	0	0	0	1	0	0	1	1	1	1	1	0	1		1	1	1
10	1	1	0	1	1	1	0	1	1	1	1	1	1							
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
12	0	1	0	0	0	1	1	0	0	0	0	0	1	1	0	1		0	0	1
13	1	0	0	0	0	0	0	1	0	1	0	1	1	1	0	0		0	1	1
14	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	1		0	1	1
15	0.3	0.4	0.1	0.3	0.1	0.9	0.8	0.3	0.1	0.6	0.2	0.1	0.9	1	0.1	0.6		0.4	0.3	1
16	0.4	0.5	0.8	0.5	0.3	0.8	0.6	0.6	0.5	0.4	0.7	0.2	0.8	0.8	0.1	0.4		0.1	0.2	0.8
17	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1		1	1	1
18	0		1	1	0	1	0	1	1	0	1	1	0	0	1	1		0	0	0
19	0	0.3	0.3	0	0	0.7	0.5	0	0	0.3	0	0	0.5	0.8	0	0.4		0.2	0.1	0.7
20	1	1	1	0	0	1	1	1	0	1	0	1	1	1	0	1		0	1	1
21	1	0	0	0	0	1	1	0	0	1	0	1	1	1	0	1		0	1	1
22	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1		1	1	1
23	0	1	1	1	0	1	1	0	0	0	0	0	1	0	0	0		0	0	1
Total	13.7	6.2	6.2	6.8	4.4	11.4	14.9	14.9	3.6	14.3	8.9	16.3	17.2	11.6	5.2	15.4	0	8.7	13.6	12.5

EXEMPT

Londo	Merse	Norfol	North	North	North	Nottin	South	Staffo	Suffol	Surrey	Susse	Tham	Warw	West	West	West	Wiltsh
1	1	1	1	1	1	1		0	1	1		1	1	1	0	1	1
1	1	1	1	1	1	1		0	1	1		1	1	1	1	1	0
1	1		0		1	0		1	0	0			1	0	0	0	0
0	1	0	0	1	1	1		1	1	0	1	0	1	0		1	0
1	1	0	0	1	1	1		1	1	1	1	1	0	0		1	0
1	1	1	1		1	1			1	1		1	1	1		1	0
1	1	1	1		1	1		1	1	1	1	1	1	1		1	1
1	1	0	1	0	1	1		0	0	0	1	0	1	0	0	0	0
1	1	0	1	0	1	1		0	1	1	0	1	1	0	0	0	1
								0	0	1	0	1	1	0	0	0	1
0	0	0	0	0	0	1		0	1	1	0	1	1	0	0	0	0
0	0	0	0	0	0	1		1	0	0	1	0	0	0	1	0	0
0	1	0	1	0	1	1		0	0	1	1	1	1	0	1	0	1
0	0	0	0	0	0	1		0	0	0	1	0	0	0	0	0	0
0.3	0.3	0.2	0.4	0.2	0.3	0.6		0.1	0.3	0.4	0.8	0.3	0.4	0.5	0.9	0.2	0.3
0.2	0.3	0.5	0.6	0.5	0.5	0.5		0.1	0.5	0.3	0.8	0.4	0.4	0.3	0.8	0.7	0.3
1	1	1	1	1	0	1		0	0	0	1	0	0	0	1	0	0
0	0	1	1	1	0	0		0	1	1	0	0	0	1	0		0
0.2	0.2	0.4	0.4	0.2	0.5	0.3		0	0	0	0.8	0	0	0	0.7	0	0
1	1	0	1	0	1	1		0	0	1	0	1	1	0	1	0	1
1	1	0	0	0	1	1		0	0	0	0	0	0	0	1	0	0
1	1	1	1	1	1	1		0	1	1	0	1	1	1	1	1	1
0	0	1	0	0	0	1		0	0	0	1	0	0	0	1	0	0
12.7	14.8	9.1	12.4	7.9	14.3	18.4	0	5.2	10.8	12.7	11.4	11.7	13.8	6.8	10.4	7.9	7.6

EXEMPT

11. Appendix E: Secondary Assessment Raw Data Results

This appendix contains the raw data for the secondary assessment of the top nine CRRs and Hounslow's CRR. The questions are based off of Mark Leigh's Assessment Tool (Appendix A).

Question	Cumbria	Derby	Durham	Gloucester	Manchester	Hounslow	Humber	Merseyside	Northumbria	Nottingham
1	2	2	1	2	2	0	1	1	0	2
2	2	2	0	0	2	2	1	2	2	2
3	1	1	1	1	2	2	0	1	2	2
4	2	2	0	1	2	2	1	1	1	2
5	0	0	0	0	0	0	0	0	0	0
6	2	2	1	1	2	1	2	0	1	1
7	2	1	1	1	2	2	1	1	1	2
8	2	2	0	0	2	0	0	0	0	0
9	2	2	2	2	2	2	0	2	2	2
10	2	1	0	0	1	1	0	1	2	2
11	0	0	1	2	0	0	2	2	1	1
12	2	1	0	0	0	0	2	1	0	2
13	2	2	1	0	2	2	2	1	1	2
14	2	2	1	0	2	2	2	2	2	2
15	2	1	0	0	2	2	2	2	2	2
16	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0
Total	**25**	**21**	**9**	**10**	**23**	**18**	**16**	**17**	**17**	**24**

12. Appendix F: Steve Waspe Interview Transcript

We interviewed Steve Waspe because he is risk expert. The transcript of the interview can be found below. We conducted this interview on 31 March 2016. This interview helped us complete objective 3.

Steve Waspe Interview Transcript
31.03.16 10:00 am

Date: 31 March 2016
Location: Hounslow Civic Centre, Emergency Control Centre
Attendees: Steve Waspe, Shelby McQueston, Miguel Almeida, Ahsan Shaikh

Shelby McQueston (SM): Would you mind if we recorded you?

Steve Waspe (SW): So, the NHS in the UK, um, is generally speaking, healthcare that is free of a point of contact. So whilst there is an insurance scheme called National Insurance, that's a government tax in effect, that funds a whole bunch of stuff. But when you present to your GP or to your [unintelligible] or any other healthcare facility, generally speaking, the care you get is free. You don't pay for it, you don't need private insurance or anything like that. Okay? So, in order to manage that, you've got the Department of Health, and they are at the government level, and they are purse string holders and they set policy and all the rest of it. And the operational management of the health service as a whole in England sits with an organisation intriguingly entitled NHS England. Alright, snappy. I work for them. So I work for the London region.

SM: Okay

SW: And my ____ within London region is northwest London. So, the eight boroughs that make up northwest London. And I am head of emergency preparedness, resilience and response, EPRR, which is something you'll hear quite a lot. Um, and I ___ between the two, and our job fundamentally is to ensure that um, NHS bodies, such as hospitals, and I'll talk about those in a minute cause they're varying sorts of NHS Trust, uh, conform to the Civil Contingencies Act, 2004, which I'm sure you've come across. The um NHS, EPRR framework document, which is available on the website, free of charge, uh in November 2015, which, basically tells people how to do emergency planning within Trusts. And there's a document called the Core Standard. And they are a set of standards that each hospital or

each Trust is assessed against annually, to measure their level of compliancy, in terms of emergency preparedness. And a ____ of that, is the risk management process. There are several types of NHS Trusts. So a trust in its simplest form is an autonomous, body. Alright? It receives money, commissioners, so there's a group ----- called commissioners, and they buy services on behalf of the population. And technically, they can buy healthcare from whomever they like. But generally if tends to be fairly local. Um, so you've got the acute trust, so that's the big general hospitals and such, most of whom have got emergency departments, you've got community health trusts, so they're the folks who are out and about delivering primary care, so GP's, for example, or district nursing services, um, so that could be podiatry, -----, um, dialysis, or whatever. Then you've got mental health trusts who by their very name deliver mental health services, either in hospitals or in the community. They also manage high security units like Broadmoor(?) and medium security units as well, which you've got not far away from here. Um, and then you've got ambulance trusts, so Bill, the guy I was talking to is a member of that service, so there's an ambulance trust, and then there's one or two other trusts which deal with specialist services, so for example, Royal Brompton(?) in Hairfield(?), which is a northwest London trust, primarily focused on dealing with cardiology so it's a cardiac centre. So what happens there is that a patient presents with a very very complex cardiac ____ and they get referred to a specialist trust. [unintelligible] and similarly with cancer. That's it in its simplest form. It gets a bit more complex because some ordinary trusts deliver specialized services and some mental health trusts deliver ____ services and visa versa. Essentially, if you look at it in those terms, that's how it works. If you go on to the Kings fund website, there's a really good video, lasts about seven minutes. You might have to watch it three or four times to get the gist, but it will give you an understanding on how health care works in the UK, England in particular. Because it's a multi-layered organisation, which has broader components like the NHS England, and all these little individual organisations that function with delivering health care. But in any event of a major incident, it is NHS England's role, it is my role, it is to ensure that all of those separate groups come together, and deliver a coherent and unified response, which is what we will be doing next week during the doctors' strike.

SM: The doctors are striking?

SW: Yes, all the doctors, three days. So emergency care from 8 o'clock on the 6th of April to 8 o'clock on the 8th of April, and then on the 26th and the 27th of April between 8 o'clock and 5 o'clock, there is a full withdrawal of cover by the junior doctors. It's rate, and it's possible,

so we are heavily planning for that at the minute. Um, yeah, health care is very very complicated in this country, but ultimately the end result is in the vast majority of cases you turn up somewhere saying you don't want to be treated, you will be treated, which makes it really really expensive and complicated. In terms of emergency preparedness, um, we are Category I responders, which is why I come to groups like this. I come here to 1) as a responder, and 2) as a representative of the NHS in this particular area. And similarly when I go to the borough resilience forum, I go as a Category I responder in my own right, and ---- They all attend, we work within the borough. I take responsibility to represent the NHS --- which is basically a group that represents six or seven borough resilience forums. And then my boss, my ultimate boss, sits on the London wide resilience forum. And we also have a representative on the London ___ resilience group for risk. So, they set the risks for London based on the London risk register, and then it comes down to the boroughs, and the boroughs look at risks in the context of the borough specific assessments. Now the NHS has started its own health focused risk register. So for London, we have a London wide risk register, which we are pushing down to through two mechanisms – health resilience partnership structure, which there are four – one for whole of London, and then there are three main partnerships that are purely health. They work in a similar way to these partnerships, but they are just literally health attendees and focus on health issues and strategies for emergency preparedness. And then each of the areas has its own emergency-planning networks, a group of emergency planners from all over the NHS --- which is eleven or twelve. And I also coach a group of --- sort of private providers. So they are hospitals services, health services, that's where your insurance bit comes in. But from an emergency planning point of view, they're poorly represented – underrepresented, not poorly represented. Um, so we're trying to get them together as a group to try the same thing as we do with our own trust networks and borough managing risks, and understanding the integration between ---- so that's where we are. So, in a nutshell, that's the environment in which I work and how I get involved in emergency planning at a local level. It is very complex. I have just explained to you forty years' history in about five minutes. If you start going through this as part of your general work over here, you want to come and visit us and talk to us about health service, in particular, and how it responds and how it functions. We are more than happy to talk for hours and hours.

SM: Excellent! I think that video will be very beneficial too! I am also quite intrigued about the health risk register. Are those available online?

SW: No, they are not. The reason they are not available publicly is because we are still developing the matrix, so we've got the core risk register, done, that's been agreed. Now, we're doing is developing a front-end dashboard, so you could look at each individual risk, start to put it into context of the area where you work, and look at not only the top end risks, but what our assessment is of the --- so we've got residual risk in there as well, so that will then be used to inform the strategy of what we've been doing, what the priorities for health are. --- but it also likes to look at things like organizational re-structure, lots of services, finances, bits of normal risk assessment which are, which we need to respond to, and try to contextualise it within the boundaries --- can be slightly different. We might let you have copies of one of the drafts.

SM: That would be excellent! Is that supposed to be like a public friendly document?

SW: Uh, no. One other things that we have realised is that risk assessments when they are read by the public get misunderstood --- public document for the National Risk Assessment, so basically it says, you know, the chances of you dying from swine fever are pretty low, but chances of a cyber attack are pretty high. It doesn't go into the background detail, it doesn't go into the --- process, all it does is it says we recognise these are risks to a particular area and we are putting plans in place, and that's all the public needs to know. Public don't need to know is the detail across likelihood and impact, so yeah, social impact, economic impact, and what we are actually doing about it. We got things in place to do things about it.

SM: Oh, okay. So it is more of a planning document.

SW: If you look at the public National Risk Register, it is very very high level. But that starts to take you into the mitigation factors, and well, in fairness, most of the risk registers --- I am sure you have seen the London wide one, and I am sure you have seen this one, if you look another borough's one, you'll see there are similarities, and ours follows that trend, but we've gone slightly off it. But once its agreed --- it's nearly there, but we've only got some things left to do. Alright. Marvellous.

Miguel Almeida (MA): We are just going to go really quickly over what we are doing right now. So, the main goal of our project, we are trying to create a new CRR for Hounslow, an updated version of it. We are going to do this via three main objectives. We are going to start by reviewing what we have right now, determining what is correct, what is less correct. We are going to create an effective communication plan for the CRR, and then divide the CRR into two documents: have a technical internal version, and have a public-friendly version.

Most of what we are going to ask you is related to this and you can help us focus our attention on the topics we need to cover.

SM: You have covered some of our questions already, which is actually quite good!

MA: So there was one here that I was particularly interested in, to what extent is the design of the public document important in determining how the community receives the information?

SW: Yeah, um, it's about, I think the key bit for me is making the public aware of what the risks are, but personalise it to them. We all know the risk of a cyber attack is increasing on a day-by-day basis --- because what they need is their computer, and they wouldn't necessarily grasp the context of some hacker sitting in some other country, it could suddenly take out their home computer. But if you look at it in terms of electricity supply, your basic needs in life, then that's got greater resilience. Um, so it's about looking at the individual risks, and determining which of them are the most pertinent to the public. So if you got risk information on ---, which is on couple of our risk registers, actually from a public point of view: not interested. But if you say your house is likely to flood, um, and you may not get insurance, and these are the measures you need to take to mitigate that risk, then it actually means more to them because it is a threat to their person. Um, so it's very much about looking at your risk register, the population's demographics, try to strike a balance between the two. You want to tell them they need to certain range of measures to give themselves a certain degree of responsibility. Um, risk register, it has the potential to give the audience the impression that the council recognises that as a risk so they are going to deal with it, and then when it happens, and the council says it's not for them to deal with since it's private property, and then you ask them that they identified the risk, they told you, they should do something about it. Probably the best analogy to think about would be water supply. So, the water company owns the pipe, and will put water through your property, but there is a point where the boundary line ends, so the responsibility of that water supply is yours as the household. So if your water pipe bursts inside that boundary, and you have not taken any measures to mitigate against that, then actually you are at fault, it's your responsibility. This is why a risk register can revolve around social responsibility, the public facing one. ---but also, to respond to particular types of incidents. There are various documents floating around different boroughs that give basic advice to the public as to what they should do in any emergency. But it's simple things like if somebody has been evacuated out of their house because of any reason, you have to make sure you've got money, you've got medication, you've got all that you

need, so grab those and not the CD collection, but it's about creating that social responsibility that your public facing document should cover, your risk awareness document. You have got those that are risk aware, who would things on a minimum data set, but would not prevent the risk from stopping them from doing their job. Certain emergency services --- in terms of response. So, your average fireman will not go into a building unless it is safe, like when he knows he has got this, he has got this, he has got this this this. So, there's a risk awareness and a ---

SM: Where do you think the NHS falls on that?

SW: Um, where, the problem with the NHS is that there are a significant number of risks that would not appear on an emergency preparedness risk register, so, if you start to look at clinical risks around incorrect prescribing, the should-never happen events, there's a tight process that sits around that which is very tightly regulated. So, in terms of mitigation, you've got, you know, documentation, printing, theatre procedures so everybody has to stand around --- we are dealing with issues, we've done this this this, have we done this, have we done that, so you actually do a complete checklist before you put the knife into the patient. So that's the mitigation to the risk, marking an era, a surgical procedure --- so from that point of view, yeah, very much so. You are asked on a yearly basis, the --- commission, they come in and review the processes, so there is this process. And you will get penalised if you do not demonstrate how you have addressed these issues. In terms of emergency preparedness, um, we are probably in the middle because we can operate in an environment whereby its multi agencies, so the risk management if you like, make a decision. So, we contribute towards risk work rates, we look at specifics, and then we take that back. Oh, okay, so the flood risk in a borough is low, what's your flood risk in a hospital in the bottom left corner of the borough next to the river? What are you doing about it? You can't just sit there inside saying that the borough risk register says it, so you will just sit there. Actually, it's not a very high likelihood for you, an individual organisation, this is another issue that we need to address. We've got this --- which is why we are developing this plan…health risk register, health service risk register. We are trying to focus attention.

Ahsan Shaikh (AS): Great! I have a question to ask. Do you believe that Hounslow can have two versions of the CRR – a public one, and then a technical one?

SW: Um, I think you need to be very very careful about creating additional versions because what tends to happen is the, if we you've got ten different versions flying around, they might

not get updated in sequence. I think that…but the core risk register remains as the core risk register. What it does is that it generates additional documentation that is appropriate to the audience. So, in effect, you've got, I don't know, thirty risks identified on your risk register. Out of them, maybe only ten apply to one specific group. So, you present those ten to the group in a way that makes them go, "Oh, we need to do something about this." That's the tricky bit because if you present a risk register to a bunch of folks, if you start putting 'red' risks in there they might take a notice, and this goes back to what I said before about public perception. So, uh, what I also don't --- your core risk register has to be a single document, it has to have your risk assessment, your mitigation, and your residual risk. It is your residual risk that in some respects is more important because that's what you take to your seniors and ask them if that is an acceptable risk for them to live with, and if they say yes, that's fine. If they say no, then you've got to get back and start again, put in some more mitigation. That's exactly what we did for the Olympics. When we made the risk register there, we reported the residual risk. That's where the --- came in to say, "No, we can't accept this." But out of that came a public risk awareness document rather than a risk register. So, yeah, um, there's going to be risk with travelling in the Underground, so make sure you leave early, make sure you've got your ticket. don't carry big bags, have lots of water. So, it generated a lot of advice and responsibility on the part of the public, we told them what to do, now it was up to them to do anything about it. So, that's how I would suggest the public facing document needs to go rather than a very lengthy document, so make it more into a public information type thing.

MA/SM: So, what features do you think our public facing CRR should have?

SW: The public facing one, um, they are all about public reassurance, so it's got to be written in such a way that you don't scar the public to a point where they lock the door and run away. Um, but you've got to make sure they understand the context, I think this is something that people tend to miss some of the time, is that actually what experience has shown me is that when we identify a risk, and we walk in and tell people this is a risk, we scare them. Because we don't put it into context. And I am a great believer in if you are discussing risk and mitigation, there has to be some context in it. If you don't establish that context in terms of the public, their perception, then actually they either won't react or they would overreact. So, come the day you want them to evacuate, um, or you want to give them some instructions on how to deal with these risks, it's going to impact their life. They'll either not want to take the measures because they perceive the risk out of context. For example, what's the risk of a food shortage? You might not be able to milk, but you don't have to think beyond that. It's a

slightly odd example, but you need to tell them what to do in preparation, as opposed to, "There's no water, so you all go to Tescos and clear the shelves." You are actually making the situation worse because now nobody's got water. Um, you've also damaged the environment by driving 50 miles in your car, which has polluted the area. There's petrol crisis as well – a slightly similar subject. You are limited to two gallons at the pump, for example. --- last fuel strike, and people were wasting two gallons of fuel to go and get another two gallons of fuel. So, instead of saying that you are allowed two gallons from your local station, don't travel unless you actually have to. You had people going from petrol station to petrol station, it is about putting into context the risk, that again refers to the social responsibility aspect we talked about earlier. And if it says don't use your car, then don't use your car. Um, so that's what I'd kinda like to see in a public-facing document, um, it's the personal impact on that particular member of the public, it's about telling them this is what they need to do, and equally emphasise on what they don't need to do because that has a bigger impact than they might envisage. Um, don't use the car to go to work, get on the train.

SM: Sounds like common sense..

SW: It is common sense, but we need to breed common sense back into people, because society has changed so much everything is readily available. I had a power cut in my area last year, and we were out of power for forty-eight hours, and it took twenty-four hours for the power company to start bringing generators in, and I had quite stiff discussions with members of my family that why we weren't eligible for a generator. We don't need it because we have alternatives. We can go out to eat, we can cook on a BBQ, but we can still survive. We could all take showers at work or we could take showers at university, just get up half an hour early. And it's that kind of practical, pragmatic view that you need to instil in public, as opposed to, "…oh, the council's going to do this do that." Policemen don't come and put a lock on your door. They advise you to put a lock. It's that simplistic view sometimes that a lot of these things miss, and they are written by risk managers, no disrespect. They've got their own jargon, their own structures, way of explaining things.

MA: We really think one of the biggest challenges is reaching the public, and getting their attention.

SW: Yeah, and this is where we need to, again, this kinda to me demonstrates the levels of integration that we need for emergency planning generally, around making sure that if we've got a message we go to the professional and communicators and ask them, "How do we get

this message across?" as opposed to coming out with a document – I don't understand this --- it doesn't quite deal with the equality issues, and again, your public facing risk document, part of your analysis should be is it going to people who are vulnerable, is it going to people who have learning disabilities, you and I around this table can have a very intellectual discussion about risk, emergency planning, but you can't talk to somebody who is learning impaired, they're not gonna have the attention span to have that kind of discussion, so your message has to be short and concise, and this is what you need to do, and then the cultural issues as well. I mean this borough, in particular, is a multi cultural society, and everyone's perception of risk is based on their person, their culture, their understanding, it actually makes it really difficult to write a single document for all --- your communications right, so you can appeal to a wide range of public. What I really really hate seeing in a document is their classic phrase "…and there's more information available on our website." People in their nineties can just about use a computer, but they use it for very very specific things. What they don't do is sit about and read stuff because they can't read very well.

MA: A lot of people can't even access the Internet.

SW: Yeah, yeah, that's right. So it's taking all the peripheral things into account when you're preparing your final document. Quality impact analysis, that you'd need to do.

AS: So, talking about how most people in the borough itself don't have access to the Internet or are too old to use the Internet, what in your opinion would be the best way to promote our CRR?

SW: Yeah, you know, what you've got is, if you own a standard demographic understanding of the area, then you can create a campaign to target the groups that you need to target in a way which is appropriate to them. So, if you wanted to go into all the borough's schools, you can go in there with a pre-determined lesson which can be delivered by the teacher or by somebody else, that actually says to a five year old that this is risk, they are very visual and very hands on, they wants things to play with, videos and all, but then you go into the older generation, they don't have time for that, they want a really simple and straightforward lesson, a lot of them don't have the attention span, the delivery is going to be different. Then there's that tech savvy group in the middle that would sit there accessing websites, doing all sorts of things that they do day to day. So, target your message to the group that you're trying to target. You know, I am reasonably tech savvy, but I don't have a lot of time to play around with apps, I don't like apps, genuinely speaking, and from a teaching point of view, I like to

be very hands on, very visual, I like to see things, I like to have things explained to me. So, probably one of the things you might want to consider in terms of your target, is when you are talking to your communications specialists, also start talking to your educationalists, start talking to them about how they would deliver. If you know --- basic education, um, courses or, you know, teaching courses or whatever, the key is this, um, I can't remember the phrase at the top of my head, but basically it's about identifying how you teach the same subject to lots of different people who've got lots of different needs. Um, if you look up --- educational website, you'll find stuff on how you change your method of delivery, even though the core message is the same, what we need to do, what you need to do, address in terms of how you get your message across to the public. It might be leaflets, it might be phone calls, it might be going into places and explaining stuff, it might be, um, a few years ago we dished out lots of --- for people to put onto their fridges, and they had important contact messages. ----- it's a really really simplistic process, that's just going around and talking to people as opposed to just dropping it through the door and there's an expectation that they'll read it and they'll abide by it. Alright, so, it costs a bit more to do it in a more targeted way. What's your end goal? If you end goal is you are increasing social responsibility by taking actions to mitigate risks which are pertinent to an individual, then you have got to do it the right way.

AS: If I am not wrong, you did mention that the NHS has its own health focused risk register? Does the NHS itself have any specific strategies for communicating it to the required audience?

SW: What we tend to do is the two, sort of, common periods of high risk to health: summer and winter. So, we have something called the heat wave plan. The heat wave is a risk in the risk register, and part of the mitigation to that risk is there is national heat wave plan, and at certain levels, certain things have to happen. One of them is a massive campaign to educate the public on drinking lots of water, some --- real kind of health advice, which is our mitigation for the risk. Similarly, in the winter, the peak flu season, there is a --- getting your flu check, which is free. We target particular groups within the population, people over 65, pregnant women; I can't remember what the other ones were. Um, so, then you talk about some of the Ebola risk and some of those other health risks, we have a targeted campaign, getting public the message. Go back years when --- first came into prominence, massive health campaign to raise awareness of the issue and what you needed to do to become socially responsible to prevent that disease from being transmitted. A lot of our risk mitigation is around public messaging, and targeting vulnerable groups, making sure that it's

not just, you don't just have to go to the doctor to get your flu jab, for example, so if you go around some of the big grocery stores, they got their own pharmacy, and will get you jabbed while you're doing your shopping, and then that's again how we tried to get the numbers up. You can go and get your voucher, and then you can walk in, give him the voucher, and get your free flu jab. So, there are targeted advertised campaigns to mitigate those kinds of risks. Um, similarly, when these big disasters do strike, um, we start talking about flooding, for example, Public Health England, who are responsible for public health in its broadest sense, they will start putting targeted messages out there about drinking lots of water, boiling water. There was a --- outbreak somewhere, and then there was another case where water was tasting a bit strange, um, so Public Health England, the Water Authority, NHS England worked together to get the public message out there, to say, you know, don't drink the water, boil it etc. If you start finding symptoms, please don't go to the hospital, phone your GP, phone 911, which is the non-emergency service, and they will give you further advice and guidance. They'll get back to you by putting algorithms on their call-taking system, which gives specific advice and guidance to people who present with symptoms, which may be the result of water contamination, which is where the risk starts.

AS: That was very helpful! Thank you so much!

13. Appendix G: Peter Davison Interview Transcript

We interviewed Peter Davison, a Public Health England employee, who is a member of the Hounslow Resilience Forum. We interviewed Mr. Davison because he is risk expert. The transcript of the interview can be found below. We conducted this interview on 01 April 2016. This interview helped us complete objective 3.

Peter Davison Interview Transcript
01.04.16 10:30am

Date: 01 April 2016
Location: Hounslow Civic Centre, Emergency Control Centre
Attendees: Peter Davison, Shelby McQueston, Miguel Almeida, Ahsan Shaikh

Miguel Almeida (MA): Okay, so I'm just going to go over what we're doing really quickly. So, the main goal of our project here is to create a new version of the Hounslow CRR. We're focusing on creating a public document to talk about the CRR itself. We're going to do that through three objectives. Um, we're gonna, sorry, we're going to um, analyse the current one and try to see what's right or wrong with it, what we should add or delete from it. We're going to come up with a communication plan to advertise the CRR and then we're going to create the two versions, the technical one, and the public one.

Ahsan Shaikh (AS): So we want to start the interview asking, uh, what factors do you personally think we should consider when determining, uh, to create an updated version of the CRR. What factors do we need to take into consideration, um to come up with updated versions?

Peter Davison (PD): Uh, I think it's, what the end goal is for community risk register. So, what you want to achieve out of the community risk register. So, if it's an increased awareness of risk in the community, or whether it's a tool that you're going to use to drive change in people's behaviour. So I think that determines what kind of document it is or what kind of um, process you use for kind of delivering that information. So, I, I think that kind of a really good starting point before you kind of go down the road of making changes or…

Shelby McQueston (SM): So, I think right now it's being geared towards uh, more towards making people change their uh, actions around risk, rather than informing, if that makes any sense.

AS: Like the way they respond to emergencies.

PD: Yeah, yeah, yeah, yeah,

AS: Um, do you think there are any parts of with the CRR or CRRs in general that you find or think the public might find confusing?

PD: Yeah, I think a lot of boroughs use the same community risk register and, and, that they use for professional partners that they do as promoting out to the community. I think the problem with that is, it ticks the boxes and says yes, we've produced a community risk register, and yes, we've put it out there but, actually, what does it achieve? Uh, does it drive change with people's behaviour? Uh, probably not, cause it's so technical. Um, so I think that that's a problem with the majority I think of the ones in London that have been produced. There's some examples of like Brent, they've done one which is slightly different so, um, they focus in on sort of a few different um, risks, ah, and, and then they they've given them a lot more information and then actions that people can take to reduce their vulnerability to them. So, in that way they've tailored it to kind of do more of what they want it to with it, to try and make change. But then, I don't think even they have a, a plan of how they then use that document, within a programme of kind of communication with the public. So, that's another one that's just put out there and's got nothing behind it that kind of delivers

SM: So it's not enough to just make the document

PD: No

SM: You have to actively work with it in the community

PD: That was a good paraphrase there

AS: So uh, do you believe the design, plays a really important part in getting the message across and if yes, uh, what recommendations do you have for the design of our updates version of the CRR? What design aspects, like infographics, or diagrams, or anything that you think, uh, we could employ for our updated version of the CRR?

PD: Uh, yeah, so I think infographics are an, um, good way of um getting across uh information. Erm, but I think it's got to be coupled with how you um, push change, behavioural change. Um, and I mean that is the really tough bit about it. So you could have a CRR that's really fantastic but then if the program behind it, that kind of delivers those messages is just as important you know, then what goes into that kind of document so, it's almost like whether you go the CRR is um gives you the kind of the program that you're

gonna follow and the, uh gives you kind of your main topic areas and what you want to achieve and then it's broken down into individual bits and that's the delivery bit. [**Unintelligible**] So whether that's linked to the time of year, so when there's cold weather or a heat wave, you know, but using things that are in kind of peoples interests anyway to help push that message. So, I think that's…uh…

SM: That makes sense

PD: So I potentially answered that?

SM: Yes, how would you suggest in delivering those like, kind of information?

PD: That's a good question. Um, I think it's worth talking to um, bits of the organisation that um probably do this more often with things. So, public health will do it wit public health messaging and um it's worth seeing how they kind of deliver those. I always thought that its better if the public have an interest or its something that's going on anyway and then you look at what…what overall change you want out of the whole program and what bot that little segment actually adds to the overall kind of message. So, with a lot of the risks, if you want to, say your aim is to reduce peoples vulnerability to it, a lot of those actions are the same or very similar throughout, so, um, its normally social isolation, its an increasing vulnerability factor, well if you break that down, then actually you can tackle that throughout your whole program, and have that as one of your over-arching check ---- you know, being more socially inclusive, etc. So, yeah, that's just my train of thought.

AS: So, what methods do you actually think the CPU, uh, should employ, or we should recommend to the CPU in order to promote this document to the public? Because right now it's only an online version, and most people in the borough don't have access to the Internet, or most people in any other borough won't have access to the Internet either. Um, so we are just trying to come up with a communication plan of promoting it with the borough. Do you have any recommendations on the different methods we can use to do that?

PD: So, um, one of the things I thought that works quite well is to look at some of the different end-points were the council has contacts with people already, and to see which ones of them fit within, so whether that are pamphlets that are in, kind of, the Civic Centre that people can pick up and then pick in a relevant topic in the CRR that, uh, will be very engaging with those people, and they can find out further information about it, refer the CRR from that kind of pamphlet. You can do it that way to try and drive, kind of, awareness to people to seek out that information.

AS: You said pamphlets at the Civic Centre. What about people who don't actually visit the Civic Centre? Because if that's the only way we're promoting the document, we'll have to expect everyone to visit the Civic Centre.

PD: No, for that, uh, I really think this works with, like, a multi kind of delivery method for it, so you look at where the council has interactions with most of the public, and you see what outlets the council has already that you can utilise, whether that is people going into people's homes, um, because they have some kind of social care, or whether it's people visiting the Civic Centre, or whether it's people going into the religious centres that the local authority owns. These are going to be your avenues that are going to be the most open to you for delivering that message with little expenditure on actually commercial campaigns or anything else. It's also worth looking to see what's already being pushed out there. I mean if you and look at…there's a lot of information downstairs already. There are already a couple of banners downstairs about information that you can go and get, so, uh, there is one for social care, there is one for the one new campaign, there is another one down there, so try to get your message down there, or how you tie it to some of those things.

SM: It will definitively be worth going down there.

AS: Um, also, as Miguel mentioned earlier in this interview that we are planning to have two different versions of the CRR. Almost every other borough, including Hounslow, as of now, has just one version – one public version. We are planning to have one public and one technical version of the CRR. What are your views on that? Is that a good way that we can go about updating it?

PD: Yes. I think that is a progressive way of doing it. Probably a lot of other boroughs would like to do it, but the time element of doing it, and then the work behind that all of is just not the public facing one, it shouldn't just be a document that goes onto the website, it needs to have some kind of program behind it, and so definitely spilt the technical and the public facing one. The public doesn't need to know about risk scoring, how it is done. The --- office already have a problem with, um, communicating risk on things that people see every day, so something is --- we look at. Also, you want to make it relevant to them, so some of the stuff we, that is written in the risk registers, is not.

AS: Do you believe two versions are going to require more time to maintain? Do you think it is worth it, time-wise and effort-wise, to have two versions? I mean, I just got your answer, but..

PD: Yes. But that is the problem with it, in that it requires the time to do it, and I think a lot of boroughs because they are able to put the CRR out there, it's an easy way of, kind of, utilising their time, so you just do one, and you put it out there, and then you have done that element of it, and you have got that bit you need to work on. Um, I think it almost needs to be seen as a habit in front of work stream, I mean you have got your technical risk register; the community risk register that you promote is set for an entity, given the appropriate time to deliver, but is the more challenging part.

MA: I mean, even us, we were confused when we first read the technical version.

PD: Yeah, yeah, and you see a lot, some boroughs, it is worse than, I mean, Hounslow's. It's, I think, one of the best. Um, and then there are ones that are more complicated. Kensington and Chelsea, its risk registers is very different from anyone else's, so they only have one, but theirs is, it is more of a description of risks, and a lot less than…they have gone kind of halfway between a technical and a proper kind of community facing risk register. It kind of sits in the middle.

MA: We have also seen some places where they don't even put in a document. It is just a website with different hyperlinks to different things, like this is what you should do, this is how you prepare, these are the risks, and it becomes very confusing navigating through so many pages. Nothing is concentrated.

SM: Do you work exclusively in Hounslow, or throughout other boroughs as well?

PD: No, I work for the London Office of Public Health. So, although, I cover London as a whole, I specifically cover the northwest, the rrf boroughs, plus two others.

SM: Oh, okay.

PD: Just the way we do it. And actually, a couple more. So yeah, I cover a large part of Hounslow itself. It normally means you get to see quite a few ways of doing it. But I don't think any of the other boroughs, I have seen, have gone as far down this road of what to actually do with it and what change do we want to drive within.

SM: So we are a little bit ahead of the game here.

PD: I think so, which means you will make the first mistakes with it, but, say, it is an important element of what we should be doing, but it is a difficult one.

AS: Have you seen in Hounslow, or in any other boroughs, if the religious beliefs or the cultural practices of a community have been interfering in the way they have been responding

to emergencies, like if they have been associating floods with, quoting Miguel's words here, God's wrath? Do you think it affects the way they respond to emergencies, in general?

PD: I haven't seen it. To be honest, it is more of a social and economic issue that I have seen that impacts some people's responses to emergencies. I used to work in another London borough, which I will remain nameless of, and we saw a big difference in, um, the public's response when it happened in an area of higher deprivation to one where there was, kind of, more social mobility. The response was quite a bit different, so it's our, the council's duty to take care of the local population. There was a greater burden placed on responding agencies where there was, kind of, more affluence, more social mobility, but they intended to take care of them themselves. That is what I have seen, rather than religious aspects.

SM: So, you think it is wise to tailor that new public facing document to the people who are less likely to respond, people in those deprived areas rather than more affluent areas?

PD: I think it is my understanding that they probably don't, why they are less able to respond, or have resource to take care of themselves in emergencies, I mean with the religion aspect there is a lot of work that goes into drawing the religious community into the response that they understand why responders have to do things in a certain way, and but also the other way --- can make sure that their procedures aren't, kind of, detrimental to people's religious beliefs, which is very important to get people on side for actually, you know, supporting ---

MA: Just a quick thing that I saw that I really want to cover, so you communities that have, in the risk register, very high probability of catastrophe or emergency happening, but it never happens. Do you think people will be less susceptible to that, or to prepare for that, because it never happened, even though there is a high likelihood of happening?

PD: Um, yeah. I think there is a thing for, it's part of an issue with communicating risk, and how we do that, and the environmental agency of --- how they communicate risk to the public. And --- changing their flood warning system, so it was more, kind of, they were better able to use it to create change in what people were doing. So they learned the lesson that people would adjust the way they talked about. Risk, I think is part of the, um, so you need to pick things that they experience or they know could happen, you build on those, severe weather does happen, so, you know, these things that will happen more regularly than the ones that are higher up on the risk register, and it is possibly easy to use those ones that are more likely, but lower impact, to, kind of, actually drive the chain that you want to work with than the higher impact ones. Because you can use snow to get people to, you know, to have a

couple of boxes of water in their houses; you can't use pandemic influenza to get people to stuff a few boxes of water in their houses. So, it's that bit. You use more of what that does happen. I mean, I think it's people's perception of risk and what they are willing to, what risk appetite they have for different things.

AS: Do you think the community here actually knows that the borough has a CRR?

PD: I don't think they do. Any borough you go to will have, probably, a low kind of awareness of the CRR, but then I think coming back to it, do you want, what is the goal out of the Community Risk Register, is it that they know about the document, or is it that they know they have changed their behaviour and are more resilient.

AS: We are focusing on both aspects. We need to update it to have a better version, but we also are focusing on the communication aspects because as you just mentioned most people here in the borough don't know that they have a CRR. We are trying to focus on the fact that they should know that they have a CRR and how they should respond to emergencies. Um, do you think this has a lot to do with communication, the fact that there is a gap in communication between the CPU and the community which is why they don't know that they have a CRR for the borough?

PD: I think it's if you tell them they have a CRR, what are they getting out of that fact? So, I mean, some of the good ---- of seeing boroughs promoting a Community Risk Register is through schools, and doing workshops with classes at schools, because you know children go back and tell their parents. So, I mean that's one of the ways of, kind of, getting people to maybe look at the document online, you know, or giving them access to it through some kind of school campaign.

MA: Going down mostly the same road, is it your opinion that the CRRs are actually important in preventing emergencies from getting worse or are they just a tool mostly for the identities to use because as you said most people might not know, most people might not even care because what you want them to be prepared. Is it that important publicly or is it more important internally?

PD: It's really important that, um, for professional partners that there is a risk register, and so that the borough planning is tailored for those, um, kind of high risks. I think it's something that's potentially missing around, um, kind of higher likelihood, lower impact things that particularly aren't given the attention that they deserve because of the, um, low likelihood, high impact stuff, but they happen within boroughs. The thing that Hounslow has done a lot

with some of their work on identifying hazardous sites that store lots of junk that catch fire, and that happens often, so it's, kind of, whether you actually use it to focus on that borough's specific aspects and that you have more impact on doing things with. Getting back to when I worked in a borough, there was more about settling cylinder fires because --- and we would regularly have a fire, which causes a lot of problems. So, I think in that respect it'd be better if we focus on things like that than some that are, kind of, the higher stuff.

AS: I think we have answers to all our questions.

SM: Thank you very much for your time!

AS: That was really helpful!

14. Appendix H: Mark Leigh Interview Transcript

We interviewed Mark Leigh, an expert on CRRs and risk. The transcript of the interview can be found below. This interview helped us complete objective 2 of our project.

Mark Leigh Interview Transcript
04.04.16 11:30am

Date: 04 April 2016
Location: Hounslow Civic Centre, Emergency Control Centre
Attendees: Mark Leigh (via phone), Shelby McQueston, Miguel Almeida, Ahsan Shaikh

Shelby McQueston (SM): Miguel is gonna start by going over what our project goal and some of our objectives are before we get started in this interview.

Mark Leigh (ML): How long are you anticipating to take?

SM: Probably about a half an hour

Miguel Almeida (MA): So, what we are trying to do is create two different versions, well a technical internal version of the CRR and then a public version to go with that CRR. We are attempting to do this by analyzing what exists right now, then revising and creating a public version and then creating the communication plan to advertise the public version and to raise awareness in the community.

ML: Right, this is a community disaster risk register, is it?

SM and MA: Yes!

ML: And is this for Hounslow?

SM: Correct.

ML: And it is a county level register, is it? Which county is it subordinate to?
SM: It is part of the London resilience forum.

ML: Oh, right. Ok, thank you. That's fine. Ok.

Ahsan Shaikh (AS): Our first question about our project should be what factors should we take in consideration when determining what to add or delete from the current version of the CRR?

ML: Based on the ones that I've seen, that is the county level ones: England, Whales, and Scotland, I think it is quite important that you specify where ever it's safe to do so, the location of site specific risks.

SM: Ok.

ML: This is almost never done. And in some counties if you are talking about some vulnerable site, it's fairly meaningless for the population of a larger county, unless you tell them where it is.

AS: Right.

ML: My second suggestion is that you encourage maximum use of the identification of existent risk controls. Again, this is something that is very rarely done and answers the so what questions which is: so you told me these risks exist, hopefully where they exist as well, but what are you doing about it?

SM: Ok.

AS: Right.

ML: So if you think laterally about what constitutes a risk control, for example, that can be anything from people's capability, their experience, the training, the existing plans, the protocols, doctors adjoin working, all of those things, effectively a risk control. And that should be included. There is only a hand full of risks that registers nationally that do that, one I can recommend you have a look at is probably Kent. But that could be a useful thing that is more widespread. I think thirdly, actually a critical thing, is to promote awareness that the register has two distinct functions, which are in terms of language, need to be dealt with separately. The first function drives planning and capability development, choices about priorities, in other words. But the second function is the public facing one, which is about informing and warning the public about the risks and consequences of emergencies. If it is not written in a public communication style language, it won't be read, so it won't support the warning and informing statuary duty.

SM: We have actually gotten to the point in our project where we decided to create two separate documents, a planning risk register, and also a public facing document more about warning and informing.

ML: I think that is a very good policy, but what you need to be aware of is that some, ahm, resilience forums have gone too far in the direction of warning and informing, and they have

to include in enough detail in their register to satisfy the obligation to publish assessments, if you see what I mean. So, there has to be two.

SM: Yep.

ML: Or, well realistically there has to be two, or if it there is one it has to be the public facing version, with sufficient detail to inform the internal debate.

SM: Ok, that makes a lot of sense.

AS: Right, thank you. My next question, our next question would be do you believe there are parts of the CRR that people in general find confusing?

ML: Sorry, could you repeat that?

AS: Sure, do you believe that are any parts of the CRR that people in general find confusing?

ML: Sure, I think any of the technical language, in fact. Most things to do with the classification of risks, on the scale of 1 to 5 where impacts are measured.

AS: Great.

ML: Virtually all of the quantitative data, most of the language describing the risks, as well. When it's cut and paste from the local risk management guidance. And I say all that, because that is meant for the internal language. So you are probably aware of this, the central government produces a risk assessment guidance, and they are risk specialists writing for other risk specialists, and the risk specialists on the receiving end normally cut and paste in to their risk register. And the language is an advert subject matter.

AS: Do you still want us to include descriptions of risks in our public friendly version? In a much less technical language, or do you want to discard the risk description in general?

ML: It goes back to having one or two risk registers, bear in mind the critical thing is both have to be published. If your public facing, very general, non technical language register, or publication doesn't include the actual facts of the assessment, then you are probably meeting a warning and informing duty, but failing to meet the assessment, the publication of assessment duty. So, if you have a public facing…if the risk detail isn't in the public facing one, then you are going to have to publish the technical one anyway. Do you see what I mean?

TEAM: Yes.

ML: So, if you are going to have a public one, which is non technical, very descriptive, but then doesn't go into the technical detail of the assessment, then you still have to publish your technical one, and therefore it is still in the public domain, so some thought has to still be given to what people will make of it, by change they might tumble across it on the net, or more actively if they are more actively involved or interested in this, they might find it with a particular activist lead motivation for finding it. I think it goes back to bearing in mind those two separate duties, the two functions: inward looking, and outward looking. And the two functions which are warning and informing, and the publication of assessments. The point I am getting at it is, I'd let you describe the risk given its likelihood, and its impact value, and devaluation relative to other risks. I can't be called a risk assessment.

SM: Would it be wise to instead of having the risk matrix like the chart with the high, medium, low, very high instead of doing that like have a graph that is publish in the national risk register, as more of a public friendly kind of matrix?

ML: Yeah, I think you probably could, because you're then in the middle ground. Ultimately I think the fundamental purpose of the assessment is not mainly to give the technical detail the scoring system that has been allocated to if, if you'd like, I think it is more to tell the public where it is relative to other risks. So, if you use like the NRR does, a very deconstructed matrix showing generic groups of risks, that makes the need to have an assessment because it is like saying where things are relative to each other.

SM: Ok.

AS: Great. Moving to our next question about communication, what are in your opinion the best ways to promote a CRR, what strategies do you think the CPU needs to employ in order to inform the community on civil emergencies?

ML: That is a good question. I think in my training course on the subject, which we have done here in the college, I basically teach the fact that there is a guide, a two-pole model of public risk communication. And basically at one end I have the, expert lead, where experts correct the gap in public understanding. It is a very expert lead, a very didactic, corrective way of communicating. The other end, the polar opposite, it is what we call the public inclusion policy, that presupposes that you are recognizing that there isn't one single absolute truth. We are dealing with risk here, so in a sense the expert evaluation and assessment of a risk is only one person's take on it, and different people have different views. They are

equally valid, because from their standpoint it is a perfectly legitimate conclusion, even if it differs from the expert. Does that make sense?

TEAM: Yes.

ML: It is much more easy to say what is wrong with those communication strategies, than what is right, if you like it. You know the expert approach is much more common. So it is about establishing that perspective, and when you do that… You can score your public version using a tool I created, to determine the extent it is a social inclusion document, opposed to a social exclusion document. I published that as one of our own college papers, it is number one, occasional paper number one.

SM: I am not sure we read that one, but we definitely read a couple of other ones.

AS: Right, do you know of any resilience fora that have comprehensive strategies for communicating risk to the community? And if yes what parts of their CRR do you think are responsible for making communication so effective?

ML: The first, I have yet to come across one that does that in any of the UK community risk registers. It seems, at least in my experience, a job regarded less than you do. You produce a register and then you publish it somewhere. There is no consistency about where it is, it is all on the web, and they all publish the CRR itself, but there is no consistency in which website to use. That should be specified, where it lives, it should be located in the central government website as well as published by the local. Category 1 responders are required to publish it, but it should be made available by the central government. It (Central Government) should also track when they are being updated, changed, and in what ways. This does not happen, there is an assumption that every time the local risk management guidances is being produced, which at the moment is a two year interval, which leads to each LRF making checks and revisions. I do not think that actually happens. We don't see much of strategized communication. We don't see many updates, or revisions. What was the second part of the question?

AS: We wanted to know if you know of any CRRs are effective communicating risks, and what parts made them effective in communicating risk?

ML: Yea, I will give you two cases. The first one is Darlington, because it is the only risk register that actually says where the site-based hazards exist. People living can assess the extent that is close enough to their neighborhood. The second one, look at Lincolnshire, because they take a very redacted public communication line. Very light on technical detail, but heavy on user friendly, graphic based simple dos and don'ts on risk information.

SM: We have gone over that one before.

ML: That's good. The third one I would say is Kent, because it is good on the risk controls. What are you doing about it? Listed than described, but it is there. The last time I did a survey on these things, which was about a year ago, something like 40% of risk registers, tried to explain what we have in place to deal with these risks. The rest didn't even go there at all. The ones that did went over it in a very superficial sort of way. And there is much more than can be said, cause ultimately it is a description of the capability you have to protect people from the consequences of those risks. So it is the natural things that any person would ask.

SM: Do you think design has any consequences on how well people will understand those risks? Or, using the register.

ML: I think if it's presented in the right way, and the right language, and going back to your earlier question, if it is designed by a communication professional, it would be very interesting to people, providing it has the kind of granularity that tells you if that risk is either equally spread across the county, or a part of that county is to be affected by it. If people have the kind of means to make that deduction from what they are told, I think it is a fairly meaningful document. It should say the consequences of risks, in terms of how it might affect them. Again I think that you make people interested in reading it. Too much of the risk description material describes the impacts of the risks in fairly macro terms. Not surprisingly, because it is a nationally produced document designed for technical audience. So you need to think about that. One of the impediments to that, and this is something I think the UK resilience professionals have to learn about is there is a lot of cynicism about the public's appetite for this knowledge, and their ability to understand it. It is quite wide spread in the professional community. One reason that cynicism persists is because there is an insufficient level of training that the people build for CRRs. To understand the risks you are talking about in the community risk register requires a fairly sophisticated understanding of people, societies, groups, how they perceive, react to risk. I don't think that's understood with sufficient nuance and appreciation of its complexity by most of the people doing it.

AS: In 11 weeks of working on this project, we have found out that the majority of the community does not know what a CRR is. Would you recommend any physical means of communicating risk to the community?

ML: It should be part of civic education in general, that's an absolute given. Essex has done a lot of work on that, on kids educated programs. You tell the children and they tell their parents. It should happen. County councils don't afford to distribute copies, but they have to say it is out there.

SM: Ok.

AS: Right.

SM: That's pretty much all the questions we had for you, so thank you very much for your time.

15. Appendix I: Rosaline Harris Interview Transcript

We interviewed Rosaline Harris, a Hounslow resident, who works in the Hounslow Civic Centre, about her knowledge of emergencies in the borough. The transcript of the interview can be found below. This interview helped us complete objectives 2 and 3 of our project.

Rosaline Harris Interview Transcript
13.04.16 11:30am

Date:	13 April 2016
Location:	Hounslow Civic Centre, 1st floor mezzanine
Attendees:	Rosaline Harris, Shelby McQueston, Miguel Almeida, Ahsan Shaikh

Shelby McQueston (SM): In that case, this is going to be very short. [In reference to the fact that Rosaline hasn't seen the Hounslow CRR.] So I'm sorry to waste your time, but,

Rosaline Harris (RH): That's okay.

SM: Thanks. Um, so you haven't seen the risk register before?

RH: No

SM: Okay, well we do have a copy for you, if you want to take a quick glance at that.

RH: I've never seen it before

SM: Okay

RH: Is it supposed to be available to staff?

SM: It's supposed to be available to everyone in the borough. It's public, it's on the website, of course you have to go and search for it, but, that's what we're trying to change. We're trying to make a more public friendly version that is easily accessible.

RH: Yeah, cause this is not public friendly.

Miguel Almeida (MA): I don't know if you want to show this, its an incomplete work but…

SM: Not public-friendly at all, it's full of confusing tables, things like that.

RH: Yeah, I can, I can uh get it, but that's because I work for the council.

SM: Mhm

RH: If I was just, not working for the council, [unintelligible] what does this, what does this tell me?

SM: Yup, lots of confusing jargon. In that case, um, just a quick question, why do you think, well, never mind, that was a, do you think anyone you know is, knows about the risk register? Anyone in your community?

RH: No

SM: Okay. Um, so we were coming up with a new draft of this document, to hopefully cut it back down and just include some of the top risks that Hounslow is susceptible to. Um, and we have a quick draft, that's very incomplete, but if you wouldn't mind taking a look at it and seeing if you like this one a little bit better.

RH: Oh, definitely. It's a lot lighter for a start.

SM: Oh, yup

RH: It's clear. It's perfect.

SM: Perfect? That's, wow, thank you.

RH: Well. I mean it's not finished but

SM: Obviously, but definitely easier to read than the other one?

RH: Yeah because like the one we had, the houses that exploded in the Bath Road.

SM: Mhm

RH: Last year, I actually thought, if that was my house or my neighbour's house, apart from calling 999, what would the council do about it? Its only when it was on the website, the internal website, that is said what Hounslow what response that they you know provided emergency accommodations and the rest of it. But I do remember thinking, when it happened, what does Hounslow do? What would I do?

SM: So you'd be interested in learning more about being resilient and more prepared for these kinds of emergencies

RH: Yeah, absolutely

[unintelligible]

MA: So house fires, are going to be in that final version too

RH: That's **[unintelligible]** this (current doc) to this (new doc) and especially if you had it one click, on the front page

SM: Mhm, definitely

RH: You'd get more people looking at it

SM: Okay

Ahsan Shaikh (AS): Would you say you have any recommendations uh for this small document in order to make it even better? Do you have any recommendations for that?

SM: We understand it's very incomplete at this moment.

RH: Uh, get rid of that front picture, especially since its all changing and all that. I take it it's not going to say Public Document on it?

SM + MA: No

RH: Its gonna say what it is. It's a bit if I was reading this as a member of the public, I don't want to know the purpose of the Hounslow public CRR is to educate people blah blah blah. I just want to know what this is. The risk is uh what to do in the event of dot, dot, dot, dot

SM: Okay.

RH: Or how you can help. Or who to contact. That's what I'd want to know. Uh, fire, police stations, a bit toy town, the graphics. You're saying it's not finished but it's a bit insulting.

SM: Understandable

RH: Uh, And there are only three risks. Only three?

AS: Yeah, these are the top risks, its gonna also include fire

[unintelligible]

MA: because if you include all of them, it's gonna be the size of the other one you have beneath it.

RH: Okay so maybe instead of calling it top risks, because I'm think well what are the others? I'm panicking because they're not here. But if you just put risks or just what they are, the risk of flooding. DO you see what I mean? Because I wasn't to know what the rest are.

AS: Because then we can refer to the document to consult the other version

RH: Yeah, if people want to go into it further, cause there are some people that are really into that kind of stuff and some of them just want the headlines.

SM: Yup

RH: Yeah, telling me to keep healthy for influenza is not helpful.

SM: Okay

RH: I know you've got the public health agenda and all the rest of it but we're talking about people that just want to know what to do. And the first one of keeping healthy, yeah I try, but what do I do if I've got influenza. Like the second one that says, identify an influenza friend, is brilliant.

SM: Okay

RH: Because some people may live alone, may not have family so that would be a useful thing to know…keep personal stocks of over the counter. See that [the keep healthy section] could go under there where it says about NHS. Um, I would put, what are we doing in Hounslow second,

SM: Okay

RH: Consequences next, and then the risk impacts. Because its interesting but its.

SM: Not as important

RH: Yeah, in my opinion. It's just my opinion. Loos of utilities is not completed. Um, I think you should follow the same thing

AS: Yes

RH: Okay, the Hounslow Resilience Forum produces the Hounslow Community Risk Register, who cares? I'm more interested in weblinks and more information and contacts. This bit [the HRF produces… can do down at the bottom]

SM: Okay

RH: And I'm sure you can use the back page for something useful.

SM: Yes

MA: We're also going to put another page with um just a blank list of contacts that you might have to put it there so you have it with you like the school, the fire station, the police station, gas supplier, electric supplier

RH: Perfect, that would be good. And Hounslow emergency contact details because I actually don't have these.

SM: Okay

RH: And I've lived in the borough for 28 years

SM: Okay, that's very important then.

RH: So, apart from knowing to call 999, that's it, that's all I know. So if you produce something, I don't know if you know in the borough, they send out these little cards about the recycling, the rubbish collection, so a card, you could put it on the back of that or a card like that that people could put on their fridge.

MA: Yeah we're thinking about refridge magnets

RH: Yeah, that would be a good idea

SM: Excellent

RH: So people will know, and if English is not the first language, you just you know, proper policemen's number, do you know what I mean? **[unintelligible]** because most people have got mobile phones so they can call.

SM: Do you two have any other questions for her?

AS: Yes, as a resident of the borough, how would you want to receive information about the risk register? How would you receive this document, the public one? It will be electronically published, but we believe

RH: A leaflet, cause when Hounslow sent out leaflets before, like a tri-fold leaflet, people do take notice, I find, they look at it. It could be in the local paper, you could have it out at the front desk, in all the offices, so that.

SM: Would you be likely to read about it if there was an article in *Hounslow Matters*

RH: Yeah, I read *Hounslow Matters*.

SM: Okay

RH: Most people do

SM: Excellent, anything else? Thank you very much, that was extremely helpful.

RH: You're welcome

SM: Thank you

RH: I look forward to seeing the new version.

16. Appendix J: Matthew Hogan Interview Transcript

Our fifth interview was with Matthew Hogan of the London Resilience Forum. We interviewed Mr. Hogan because he is an expert at communicating risk with the public and may have ideas to help our team. We conducted this interview on 15 April 2016. This interview helped us complete objective 3.

Matthew Hogan Interview Transcript

15.04.16 10:30 am

Date: 15 April 2016

Location: Hounslow Civic Centre, Emergency Control Centre

Attendees: Matthew Hogan, Shelby McQueston, Miguel Almeida, Ahsan Shaikh

Shelby McQueston (SM): First, first of all, can you explain a little bit about what you do in the London Resilience Forum?

Matthew Hogan (MH): Who am I? Why am I here? Why am I speaking to you? Yeah, of course. Um, so, I guess for the benefit of your recording, I'm Matthew Hogan. London Resilience Officer with the London Resilience Team. Uh, it was a team that was established informally in 1998 to prepare for the millennium bug and then formally established in 2002, really on the back of 9/11 to make sure that London had got plans in place for essentially the same things happening here.

Ahsan Shaikh (AS): Right

MH: Um, it started life as a government office function, so it was central government and over time, it sort of devolved to the Mayor's Office. So, in the same way that in the States you've got offices of emergency management, essentially that's what we are. We coordinate emergency planning and response activity. Mostly across the public sector, but also linking in with some private sector organisations. Essentially they're defined by the Civil Contingencies Act as Category 1 and Category 2 organisations. We coordinate their activity. We haven't actually got any power. So we can't tell anybody to do anything. It's a sort of influence of direction, show people the benefits of working together, in the planning phase so the response hopefully goes a little bit smoother. Um, in terms of my specific role within the team, uh, I'm the lead on risk assessment, which is probably why you've invited me but I also lead on some

of the capability areas so, um, pandemic flu, flooding, essentially some of the top risks are in my area as well. What else do you need in terms of background?

SM: That was perfect.

AS: That was very good.

SM: Very helpful. Um, so are you, I'm assuming you're part of the team that puts together the London Community Risk Register?

MH: Yeah, so, um, there's a group called the London Risk Advisory. It's predominately as I said, those category 1 organisations, so emergency service, local authorities, NHS, u m come together and I think it's four times a year, come together and discuss what are the risks in London, assess them in terms of impact and likelihood and then produce the London Risk Register. Um, that's required under the Civil Contingencies Act, so it's a statutory duty of all the organisations to contribute to that. In term of my role, I'm the sort of Secretariat of that, so I do essentially all the work, and everyone else takes the credit.

SM: That's good for us; it means you have a lot of information. Um, just a quick question, did you ah, you know the Prezi that London has for their Risk Register?

MH: Yeah

SM: Did you create that too?

MH: Yeah

SM: I'm in love with that Prezi. I think it's fantastic and it was the first thing I found out about risks.

MH: Excellent

Miguel Almeida (MA): Yeah for the past 12 weeks, we've been hearing her talk about it.

laughter

SM: It does such a good job of explaining everything!

MH: So, I guess we might, come onto this later on, but, the duty within the act is for category 1 organisations to assess risk and then to communicate risk to the public. Um, what most organisations have done in the past, it just put the risk register online and go there it is if you want to have a look. We've communicated because it's available.

AS: Right

MH: Actually, because we're part of the Mayor's Office, there approach is a lot more engaging, with Londoners. So, they wanted to go a bit further than, "the document's there." And have essentially some sort of narrative to explain, this is what you're looking at. So, that was where the Prezi came from was a sort of mayoral direction that, it's not good enough to just put the document there, we need to explain and inform people about why we've done that.

SM: That's pretty much what we're trying to do with our new document.

AS: Are there any other methods that the Resilience Forum in London has employed to communicate with the public?

MH: So, we've um, in terms of communicating with the public in sort of its broadest sense, um, there's a group again, of similar agencies particularly sort of press offices, within those organisations that um, I guess tries to make sure that there's a coherent message coming out, rather than, the partnership itself is about 170 different organisations, so you could have 170 different versions of the same thing. So this group's there to try and, essentially sort of come up with a common message. Any push that out. Both in the sort of planning phase, but also, more importantly in [unintelligible]. But we did do, February last year, we held an event at city hall. So again, the mayor's office wanted us to be bit more engaging about not just the risk side, but what we're doing to respond to some of those risks as well. So we held an event at city hall, which we called Talk Resilience and invited sort of community groups to say you know, you've been exposed to flooding or power cuts, or large fires, how was it for you, did you feel you were getting the support you needed from the organisations involved. And one of the things we did at that was to essentially crowd-source a risk register. Which I'll see if I've got. So, it's not scientific at all, but invited, I think it was about 80 or so people came along, and said, here's just a list of hazards, risks, just put a dot next to the one you think is the most important. And, you know, methodologically, it wasn't the most sound approach but just to give us a sort of indication and make it a bit more engaging. [unintelligible] And about 60% of that correlates with our assessment of risk as well, so people have put flooding, pandemic flu and terrorism at the top of thee list. Other things like volcanic eruption further down the bottom.

AS: Right.

MH: Um, I guess what that sort of showed, is that we're doing a reasonable job of communicating risk. But there is about 40% of that where people either overestimated or

underestimated the risk. And so that's the identified areas that we can start focusing on. So we don't need to tell people that flooding's a top risk anymore, they understand that. But we can start to explain some of those other risks in a bit more detail.

AS: Right. That's a very good way to engage the public and you know, bring the public's ideas.

MH: Yeah, I mean, it was, it uh, had its roots in um, some work that San Francisco did. They did a lot of work on a project called SF72 and working with the local community, working with local businesses to sort of say, what do you think the risks are and then sort of adjust their strategy based on that. So we do sort of keep our eye on what's happening elsewhere, to sort of gain from everybody's expertise.

AS: Right.

SM: That might be worth looking a little more into. So, based upon um, what we've been looking at, we're basically creating two different risk registers. Well, one's a risk register, one's more of a public awareness document.

MH: Okay.

SM: Um, but do you think there's some things that are in the risk register that shouldn't be included in the this public document? Um, technical things?

MH: Um, I guess technically speaking, yes. Particularly when you're looking at some of the malicious risks, so terrorism, particularly. Um, there are some elements around that are, the responders need to know a little bit more than the general public does. But broadly, I think our approach is let's just try and be as open as possible. You know, for, for a long time, I think until 2012, we didn't include threats in the London risk register.

SM: Mhm

MH: Because there was all this sort of sensitivity around we can't talk about terrorism, it's a national thing, tis led from central government. We can't talk about it. But to me, that then made our document look really odd. You know, we've got significant experience of terrorism in London, so for people logging on and looking at that document, going we haven't included terrorism, so how do we know the rest of its nay good? So I think we need to be as open as possible, is the sort of base point that we start with. There's obviously some things, I don't know if you've seen the report from the Emergency Planning College, about risk registers?

SM: Which one?

MH: The one that's particularly about identifying particular locations.

SM + AS: Mhm

SM: We actually talked to Mr. Leigh a couple of, last week,

MH: Brilliant. I think that's again, a good thing to do. If that information's out there, why not include it? So we were looking at some of the flooding response work. We did this whole assessment of what infrastructures at risk, all that sort of stuff. So, what's in the flood zone. And there were hundreds of schools and electricity substations and whatever. And we drew up this list and the police go, oh, you can't share that. Well, why not? People could do that work themselves. Those flood layers are our there. They could get a map or drive around London and see what physically there and do that themselves. We're not actually going any further than what's publically available anyway. So, I think there are some limitations, buts sometimes people use that as a bit of a barrier where it shouldn't be.

SM: Mhm. Okay.

MA: Do you want to take a look at what we've done so far?

MH: Yeah, sure.

MA: Give some comments.

SM: We had some printing issues. Clearly, our cover page kind of died.

MH: So this is the public-facing one, is it?

MA: Yes.

MH: And what was your um, I guess, what was objective when you were doing it?

SM: Um, well we had the current risk register and they were finding that a lot of people just weren't reading it, a lot of people didn't know it existed. It's about 70 pages, and nobody really wants to read it, so we wanted to keep it short and just include top risks, that people really need to know about, and what they needed to do in case of those risks. Things like that.

MA: [unintelligible]

SM: She actually works here, so.

MA: There's actually lot missing. Nice images that aren't there. We're still completing [**unintelligible**]

MH: No, no that's fine. So, I mean I've just had a quick scan over it, I think the, you've sort of got in there where to find further information. Perhaps you could expand that a little bit more, within these individual risk that you've identified. So, there's a lot on the London Fire Brigade website on preparing your house for fires, that sort of thing.

SM: Okay

MH: Again, advice from the environmental agency on what to do in case of flood.

SM: Mhm.

MH: So I guess put links into more relevant stuff.

AS: Right.

MH: What we're um, trying to do is ah, a lot more sign posting.

SM: Mhm.

MH: So, the website that we've got, London Prepared, um, has been around for about 10 years, and people have slowly been going, oh let's put this on the website, let's put this on the website and it got to this like ridiculous sized website, that nobody was looking at really, because information's all over the place. What we've done know, is really scaled it back. We've gone, all that information is actually on the police website, or on the environment agency website or an NHS website, so we just point people on where they need to go.

AS: Right.

MH: So I think that's what you're trying to achieve here, is actually you've raised the awareness, now go and find out some more about it.

SM: Mhm, exactly

AS: We have just identified the top risks that the borough is susceptible to, so if people want to know more about the other risks, we also have a link to the actual technical version, which is available to both the CPU and the public.

MH: Yeah.

SM: Do you have any suggestions on ways to either promote it or make more people aware of it?

MH: Um, sorry, I've got distracted a bit.

SM: No problem.

MH: Um, I think that's [the map] really good. Again that's what we were talking about isn't it? Where all those locations are. And you've got the zone on there as well to say there's a police station in the flood zone, it's interesting to do that. I know, that um, previous placement students that have come over have done, essentially tried to map some of these risks. I don't know if you've had a look at any of that.

[**Unintelligible**]

MH: That was really interesting to see sort of flight paths into Heathrow, the sort of exclusion zones around COMAH sites, and that sort of thing. There's probably a lot more that collectively the public sector could do on mapping sort of combined risks. At the minute, we talk about risks sort of separately, which is understandable, but actually you're not going to have a fluvial flooding event is going to result in disruption to utilities. So you then need to start layer up the complexity of those different things as well.

SM: Mhm.

MH: Um, in terms of how to promote it, um, I think what you need is ah, perhaps a bit of a stronger call to action. So, what do you want people to do with the information? It's fairly easy to get people to read things, but what you actually want is some behaviour changes with that. Um, and try to be a bit clearer about that and use that to influence how you promote it. So, um, you could focus particularly on schools or something and really just nail that. That's a really good way to do things because then they take that information home and share it with their parents and that sort of thing. It sort of spreads out organically. And you don't have to do too much of that hard sell. So, I think maybe it's working with the education team within the authority to say can we do a little project with schools on flooding.

AS: Does London have a partnership like that with schools to promote?

MH: We've got a pilot started in 2014, September 2014. Uh, it's called the London Curriculum. And essentially is was all the policy areas within City Hall, so not just resilience, but housing, health, and environment, all went away and said if we're using this school network, what do we want kids to know about? And came up with some resources. And its not a you must use these resources, it's a these resources are available if you want to use it so. We came up with some stuff, so if the schools doing a project on flooding then as well as teaching them about the sort of mechanics of flooding and what happens in Bangladesh, which is typically the example that they use, actually here's some information already on the risk in London with some maps and some diagrams. You know, Can you find your own

house it the flood plain? And that sort of thing. So that, if they want to, they can bring that a bit closer to home and say what does that mean for you? It's a pilot project at the minute, I think it's running in about 20 schools, um, I haven't had any feedback on how its been received, but I think its definitely a good option to sort of engage people.

AS: Is there anyway we can look at what are the contents of that project.

MH: I think if you Google or go through the London.gov website, you'll be able to find the London Curriculum there. And as I said its lots of resources it's not just flooding it all sorts of different things.

AS: Great

End of interview

17. Appendix K: Billy Regan Interview

We interviewed Mr. Regan because he is a community member with limited knowledge of risk and may have ideas to help our team and improve our document. We conducted this interview on 15 April 2016. This interview helped us complete objective 2.

Billy Regan Interview Transcript

26.04.16 11:30 am

Date: 26 April 2016

Location: Hounslow Civic Centre, Emergency Control Centre

Attendees: Billy Regan, Shelby McQueston, Miguel Almeida, Ahsan Shaikh

Shelby McQueston (SM): There we go, okay. Um, so just to start off, have you ever heard of the Hounslow Community Risk Register?

Billy Regan (BR): I have not.

SM: Okay, cool. That gets rid of all those questions.

BR: Is that correct?

SM: You're not the only one who's said that so.

Miguel Almeida (MA): It's this really big document with risk assessments

BR: Wow, look at that.

SM: Um, so, our project has been to come up with a new way to present this information towards uh, public, the public, so residents of Hounslow. So we can up with this document and we're hoping you could take a look at it.

BR: That looks slimmer.

SM: Much slimmer, yes.

BR: I'm glad I'm not reading that one.

SM: If you could just take a quick look at it, over some suggestions or anything you have to say about it.

BR: Okay, maybe the council could get a new building, because that looks ugly. Isn't that a depressing site?

SM: We've been trying to find a better picture.

BR: There must be, the park maybe? I'm not sure where you'd go for a picture. Maybe the town centre. Okay, major emergency we hope that doesn't happen. This all looks good.

BR: Fluvial?

SM: Fluvial is like relating to rivers.

Miguel Almeida (MA): Yes and on the next draft, it will probably say River Flooding.

SM: We weren't familiar with the term either.

silence while BR examines at document

BR: This is nice, lovely picture of someone coughing is it.

SM: We could find a better picture for that.

BR: I don't know, it hits home

BR: Identify a flu friend I presume that doesn't mean going a finding someone who has the flu to befriend. Cause that'd be counterintuitive to stop the spread of influenza wouldn't it.

BR: This is good. I thought it was a lousy photo but it sums up the loss of utilities perfectly.

BR: That's pretty reasonable. Is that all the risks?

MA: No, these are the top risks. That's why there's more information if you want to read about the,

SM: The ones people really need to know about.

SM: Do you have any suggestions on something you'd like to see in there or something that doesn't make sense?

BR: No to be honest, it all makes sense. I guess because I'm reading it with the help of you guys, I know the context it's in. Um, I don't know whether the introduction feels a bit short and suddenly we're jumping into there are all these dangerous things and I haven't really taken in the introduction. I'm left with thinking oh my goodness I've been handing this and its all doom and gloom. Why do I need to know this? I suppose what I would do is go back

and read the introduction to understand cause I've kind of just skipped the introduction and just looked at the nice pictures and then read about the different risks.

reads introduction

BR: I mean that does, the introduction does encapsulate it, but I was sort of left with the feeling at the end of it oh my God, why do I need to know all of this?

SM: Okay

BR: So I don't know how you'd make that more implicit. I mean that concise and it is implicit. And yeah I suppose anyone right minded would do the same thing as me, read it, get scared and go back and see that its alright okay its just in case of emergencies.

SM: Well we might consider adding a conclusion

BR: Yeah a conclusion might be good so I don't have to go back and sort of like this is just in case of emergencies changes are it won't happen but better to be prepared than not.

SM: Yeah.

BR: I can never understand maps of Hounslow because its such a weird shape borough. Maps look odd.

SM: Any other comments on it?

BR: I think its quite good really.

SM: Awesome, thank you

BR: It looks smart, it's not too long, I has expecting to get bored before the end of it and I turned over and I was on the last two pages and I thought good.

MA: that was one of the main goals of it, to keep people focused.

BR: Yeah, I think they way its laid out is really good. The boxes are particularly good. It lays it out really well. I think it's great.

SM: Thank you very much!

18. Appendix L: Andrea Tidy Interview Transcript

We interviewed Ms. Tidy because she is a community member with limited knowledge of risk and may have ideas to help our team and improve our document. We conducted this interview on 15 April 2016. This interview helped us complete objective 2.

Billy Regan Interview Transcript

26.04.16 13:00

Date: 26 April 2016

Location: Hounslow Civic Centre, Emergency Control Centre

Attendees: Andrea Tidy, Shelby McQueston, Miguel Almeida, Ahsan Shaikh

Shelby McQueston (SM): To start off, have you ever heard of the community risk register?

Andrea Tidy (AT): I have heard of it, yes.

SM: Excellent!

SM: So, you are familiar with this (original) version of it? Have you ever read through it?

AT: I kind of skimmed through it, yes. I haven't read it in dept. I have to say some of the risks I didn't even think of.

SM: Definitely.

AT: It is quite interesting.

SM: But we are developing a new public document to make people more aware of the risks Hounslow faces. We created a much smaller document that we would like you to take a look at. Just give us some feedback on thinks you think we should improve upon, things you wish were there.

AT: Much easier to read. There is one thing I don't know if you can add, but the people living in flats, we recently implemented something that's called Section 41 that basically gives us the power to remove things from communal areas. The reason we do that is to keep them free for the fire brigade. So you've got what you need to do, maybe this is not the place, maybe somewhere separate on fire prevention perhaps.

AT: Turn off taps.

Miguel Almeida (MA): It's on the new version. We have just finished a new version of the document.

AT: We just have so many floods cause by people leaving the taps on when water has been turned off.

MA: And the gas lines as well.

AT: The gas lines as well. Do not use lifts, in the fire.

AT: That's a very good idea, so that people have that in one place (contact information page).

MA: Exactly.

AT: I think it is really good (document in general), it is concise, it is to the point. Doesn't tell the reader any more than they need to know. Does not scare them. I like the visuals, they are quite good.

SM: Any other comments?

AT: No, I think it is well put together.

SM/MA: Excellent, thank you very much.

19. Appendix M: Risk Assessment Activity

To complete this activity, we will ask participant to circle the emergency or emergencies they believe will cause the most harm to them or the borough. It will take place during the educational programme at school. It will provide teachers with guidance on what emergencies they should cover during the following presentation.

Risk Assessment Activity

Please circle the emergencies you believe to be the most significant in the borough.

Drought

Explosion at a high-pressure natural gas pipeline

Influenza Type Disease

Railway Accident

Flooding

Maritime Pollution

Loss of Utilities

Aviation Accident

Storms and Gales

20. Appendix N: Risk Presentation

This is the presentation we propose that students show to their students. Modifications are expected as each teacher has an individual teaching style and we are not experts in communicating risk to children.

Top Risks

Fires

What do you need to do?

- Alert everyone in the house.
- Have an escape route planned. Plan for secondary escape routes, in the case the main one is obstructed.
- Do not delay your escape to look for valuables.
- If there is smoke, crawl on the floor.
- Close any doors, or windows you can, to slow the spread of the fire.
- Once out and safe, call 999.
- Do not go back inside to save valuables or people, inform the rescue teams of people left inside. They will be able to find them quicker.

Fluvial Flooding

- **What do you need to do?**

- Find out if your property is within the flood risk area by logging on to the Environment Agency website or calling Floodline on 0845 988 1188.
- Plan where you will go if you have to evacuate and how you will get there.
- Identify neighbours who may need assistance or who may be able to provide assistance to you, in case of evacuation.
- Prepare an emergency grab bag with bottled water and non- perishable food, warm waterproof clothing and blankets, a torch with spare batteries, a wind-up or batter radio, first aid kit and prescription medication, baby food and baby care items, copies of your insurance documents and important contact numbers.
- Where possible, move irreplaceable items to upper floors during times of flood risk.

Influenza Pandemics

- **What do you need to do?**

- Keep healthy – a healthy lifestyle will be a great defence against flu and other illnesses.
- Identify a flu friend – somebody who would collect your medication, food and other supplies allowing you to be isolated from the Public.
- Keep personal stocks of "over the counter" cold and flu medication to help relieve your symptoms.
- Know the arrangements for your child's school.
- Look out for and observe advice and guidance from the NHS.

Loss of Utilities

- **What do you need to do?**

- Unplug all electrical equipment.
- Turn off light switches.
- Do not use any candles or any type of flame for lighting.

21. Appendix O: Questionnaire

This is the question that we suggest teachers use after their class on risk. It will provide information on what teachers can do to improve the class, as well as information for the Hounslow Resilience Forum to determine what community members are learning about. It may be modified to reflect the teacher's style and presentation.

Attendees Questionnaire

1. On a scale of 0 to 10, how helpful do you believe the Emergency Preparedness Workshop was? _____

2. Please rate all the activities on a scale of 0 to 10 for their educational value. 0 being not educative, and 10 being very educative.
    a. Risk Assessment Activity _____
    b. Presentation _____
    c. Risk Localization Activity _____

3. What other activities do you believe would be helpful to communicate risk preparedness?

_____

4. What other information do you believe would be helpful regarding risk preparedness that has not been covered in the workshop?

_____

5. Other suggestions

_____

_____

_____

_____

22. Appendix P: *Hounslow Matters* Article

What to Do in an Emergency

Would you know what to do when an emergency happens around you?

We can't predict the future, but that does not mean we can't prepare for what might happen. Being prepared can mean the difference between a home and homelessness, or even life and death. Thankfully, little things you do now can make all the difference when you need it most.

If you find yourself involved in an emergency always call 999 immediately to inform the relevant emergency services. If you are anywhere in the EU you can also call 112 from a mobile telephone which will connect you to the relevant country's emergency services. For non-emergency matters you can call 101 for police assistance or 111 for health matters. If you need to inform the Council of an emergency, call 020 8583 2222.

There are many simple ways to better prepare yourself for emergencies:

- Know the number for your electric, gas, and water providers so you have them to hand during a utility failure.
- Make an emergency plan. Know where to go if you need to evacuate and who can help you and your family.
- Install smoke detectors and test them on a regular basis. Make sure everyone knows how to evacuate the house in case of fire.
- Prepare a "grab bag". Consider including batteries, a flashlight, bottled water, a battery-powered radio, a first-aid kid, extra sets of keys, and personal hygiene items.
- Educate yourself on risks in your area. Find out what you can do to help mitigate the impacts.

The Council has created a new document entitled "Community Resilience," to help you learn about the risks that you are most likely to face here in Hounslow. The document is available online on the Council website and in print at Hounslow Civic Centre. Familiarise yourself with this document so you know what you can do to keep you and your family safe.

For more information, contact us at contingency.planning@hounslow.gov.uk or Contingency Planning Unit, Civic Centre, Lampton Road, Hounslow TW3 4DN

23. Appendix R: Community Resilience Document

London Borough of Hounslow

Community Resilience

April 2016

Introduction

The purpose of the Hounslow Community Resilience document is to educate people about the risks that could occur where they live, so they can think about what they are able to do to be better prepared for emergencies.

The document starts with a list of risks that Hounslow is most susceptible to. In the same page, there is a map of the borough including flood zones, specific risks, and available infrastructure. Each next page corresponds to a specific risk. These pages start with a short description of the risk, followed by 4 boxes. The boxes explain what to do in case an emergency occurs, the consequences and impacts that emergency will create, and what is being done in Hounslow to assist the population.

Who we are

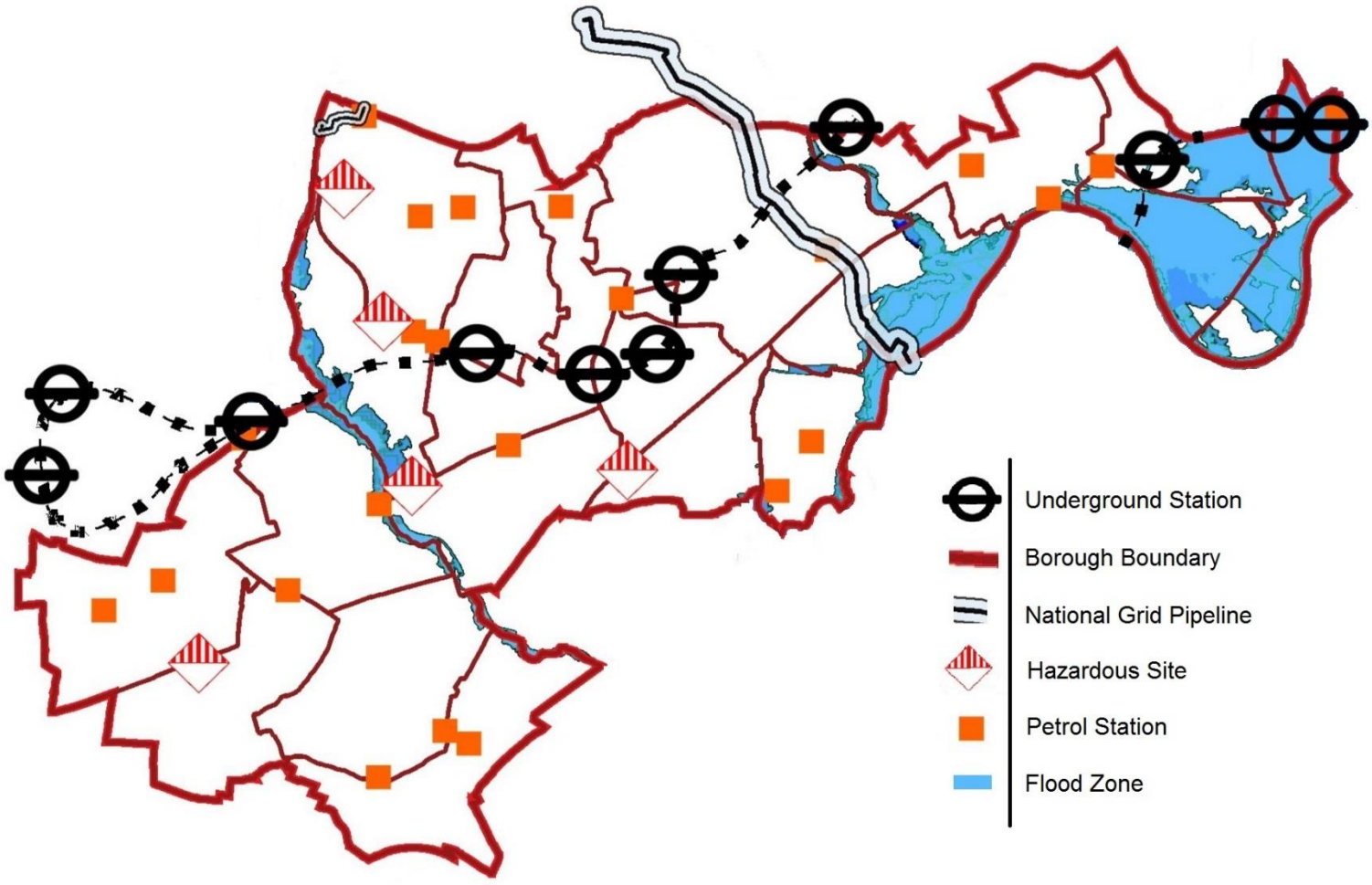
The London Borough of Hounslow Resilience Forum carries out work to ensure that the Borough is prepared to deal with an emergency that might affect large numbers of people. The team works with other multi-agency organisations to ensure that plans and processes align cross-agency.

The Hounslow team also works with other Local Authorities across London and feeds into the wider London arrangements.

Risks

- Fires
- Fluvial Flooding
- Influenza Type Disease (Pandemic)
- Loss of Utilities

Map of Risk and Infrastructure



Fires

It is important to be vigilant and to act responsibly to protect you and those around you from the risk of fire.
Always remember, if fire breaks out:
GET OUT, STAY OUT and CALL 999 – don't try and fight a fire yourself.

What do you need to do?

- Alert everyone in the property.
- Have an escape route planned. Plan for secondary escape routes, in the case the main one is obstructed.
- Do not delay your escape to look for valuables.
- If there is smoke, crawl on the floor.
- Close any doors, or windows you can, to slow the spread of the fire.
- Once out and safe, call 999.
- Do not go back inside to save valuables or people, inform the rescue teams of people left inside. They will be able to find them quicker.
- Do not use the lift.

Risk Impacts

- Loss of property.
- Air, soil, and water contamination.

Consequences

- Explosions would cause primarily burns, crush, cuts and bruise-type injuries.
- Smoke may cause respiratory injuries.

What are we doing in Hounslow?

- Control of Major Accident Hazards (COMAH) 1999 – authorities detail the procedures that will take place if an incident were to happen.
- Building design and fire protection systems to prevent or limit the spread of fire.
- Hounslow Hazardous Sites Working Group – Hounslow Resilience Forum members work to identify potential hazardous sites in the Borough which have the potential to be a fire safety hazard.

Fluvial Flooding

Fluvial flooding is caused by an increase in river levels either due to extensive rain or due to the effects of upstream rivers and the tide from the English Channel.

What do you need to do?

- Find out if your property is within the flood risk area by logging on to the Environment Agency (EA) website or calling Floodline on 0845 988 1188.
- Plan where you will go if you have to evacuate and how you will get there.
- Identify neighbours who may need assistance or who may be able to provide assistance to you, in case of evacuation.
- Prepare an emergency grab bag with bottled water and non- perishable food, warm waterproof clothing and blankets, a torch with spare batteries, a wind-up or battery radio, first aid kit and prescription medication, baby food and baby care items, copies of your insurance documents and important contact numbers.
- Where possible, move irreplaceable items to upper floors during times of flood risk.

Consequences

- Disruption to utilities, electricity and water supplies.
- Evacuation of residents.
- Short, medium and long-term accommodation of those whose homes are flooded.
- Long-term psychological and health impacts.
- Long-term restoration and recovery issues for homes and businesses.

Risk Impacts

- Risk to life (people and animals).
- Damage to property, businesses, agricultural land, roads, structures and infrastructure.
- Pollution and contamination of local environments.
- Long-term damage to tourism, businesses and agriculture.

What are we doing in Hounslow?

- EA Flood Warnings – the EA publishes flood warnings to notify the public about any potential flooding.
- Met Office National Severe Weather Warning Service – this warning service publishes alerts for a range of severe weather.
- Preparedness – most HRF agencies will receive relevant weather updates. If they are aware that a severe weather event is likely to happen, they will put certain resources in place.

Influenza Type Disease

A flu (influenza) pandemic is possible when a new type of influenza virus emerges and almost all the population are potentially susceptible. This differs greatly from seasonal flu as few, if any, people will have immunity against the virus allowing it to spread more easily and cause more serious

What do you need to do?

- Identify a flu friend – somebody who would collect your medication, food and other supplies allowing you to be isolated from the Public.
- Keep personal stocks of "over the counter" cold and flu medication to help relieve your symptoms.
- Know the arrangements for your child's school.
- Look out for and observe advice and guidance from the NHS.

Consequences

- Vulnerable people exposed to lower levels of care.
- Longer and more frequent disruptions to essential utilities.
- Reduced levels of emergency services cover.
- Disruptions to businesses and organisations through staff shortages and supply chain interruptions.
- Impacts on the national and local economy.

Risk Impacts

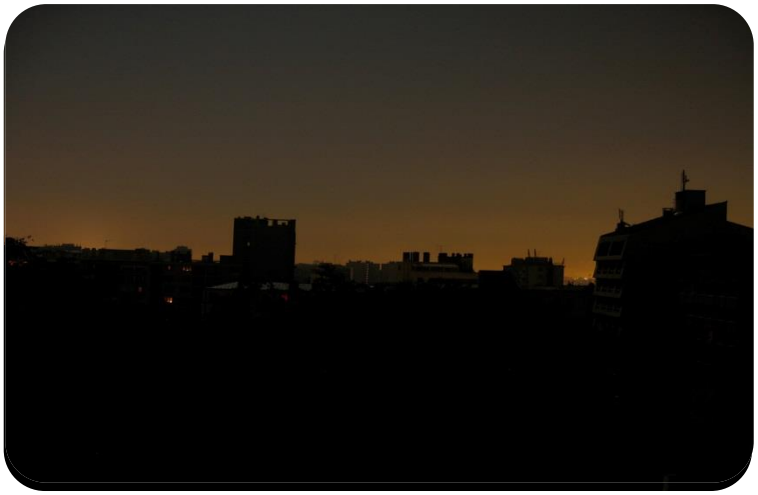
- Many millions of people around the world will become infected causing global disruption and a potential humanitarian crisis.
- Up to half the UK population may become infected and between 50,000 and 750,000 additional deaths may have occurred by the end of a pandemic.
- Health care and local authority social care systems become overloaded.
- Normal life is likely to face wide disruption, particularly due to staff shortages affecting the provision of essential services, including production and transport of goods.

What are we doing in Hounslow?

- The Hounslow Resilience Forum has a Pandemic Influenza plan detailing the roles and responsibilities of agencies during a pan-flu event.
- Health agencies have communications procedures in place to ensure they would be able to get relevant Public Health information pushed out through the right channels to help educate people during a pandemic.
- All agencies have Business Continuity Plans in place to outline what they would do in the event of a reduction of staffing levels.

Loss of Utilities

This hazard involves the smaller scale loss of utilities including gas, water and electricity for a period of more than 24 hours. With aging infrastructure, utility failure is becoming more common across London. Incidents can range from small power cuts, which inconvenience a small amount of people to large failures, which affect thousands of people.



What do you need to do?

- Unplug all electrical equipment.
- Turn off light switches.
- Do not use any candles or any type of flame for lighting.
- Shut off the gas.
- Shut off water outlets.
- Have a torch, and bottled water available at home.

Risk Impacts

- Production at companies halted.
- Potential loss of life support machines.
- Failure of telecommunication networks and water supply systems.
- Shutdown of rail transport.
- Civil unrest.

Consequences

- Loss of revenue.
- People in the affected areas unable to establish communication links with the outside world.
- People in the affected areas unable to travel to other places.

What are we doing in Hounslow?

- The London Resilience Forum has produced a Water Supply Disruption Plan.
- Work has been recently ongoing between Local Authorities in London and utility suppliers to ensure that there is adequate collaboration between local authorities and suppliers during utility incidents.
- Many utility companies offer Priority Services for those particular vulnerabilities – this means that certain customers can receive extra assistance during utility failure incidents.

More Information

In addition to the Community Resilience document, the Hounslow Resilience Forum produces the Hounslow Multi-Agency Community Risk Register, which is the complete risk assessment document for the London Borough of Hounslow. For further information please follow the contact details bellow.

Web links and further information

This document is a guide based on the Hounslow CRR. To see the entirety of the Hounslow CRR, please follow the link below.

http://www.hounslow.gov.uk/resilience_forum

Contact us:

For any enquiries regarding risks, or any aspects of the work of Hounslow's Resilience Forum please contact us on

Contingency.planning@hounslow.gov.uk

020 8583 5111

Emergency Directory

Please use this page to enter important contact information to quickly access in case of an emergency.

Electricity distributor

Gas supplier

Water provider

Telephone line provider

Schools

Pharmacies

GP

Other useful contacts

London Borough of Hounslow
Civic Centre, Lampton Road
Hounslow TW3 4DN.
Telephone: 020 8583 2180

Email: communications@hounslow.gov.uk.

www.hounslow.gov.uk

Corporate Communications January 2010

24. Appendix Q: Updated Hounslow Multi-Agency Community Risk Register

London Borough of Hounslow

Hounslow Multi-Agency CRR

April 2016

Document History

Review Date	Version	Summary of Changes	Amended By
September 2011	Draft 0.1	Creation of the Draft v0.1 of the Hounslow Multi Agency Community Risk Register	Twm Palmer (CPU)
March 2013	Draft 0.3	Environment Agency and British Red Cross Amendments	Ben Axelsen (CPU)
April 2013	Draft 0.4	Final review of risk (impact and likelihood) ratings based on Hounslow Resilience Forum suggestions and comments. For agreement of the Hounslow Resilience Forum, sign off 11/04/2013	Twm Palmer (CPU)
April 2013	1.0	Final version signed off by the Hounslow Resilience Forum	Ben Axelsen (CPU)
August 2013	1.1	Review of Risk Numbers and Colours. Amendments from ToR and COMAH site update	
April 2016	2.0	Colours, stated purpose of the CRR, limitations of risk assessment, design, local history of emergencies, withholding information, other forms of communication, public involvement, contact details	Fiona Hodge (CPU), Miguel Almeida, Ahsan Shaikh, Shelby McQueston (WPI)

Amendments

Version	Details of the Amendment	Page No	Amended By	Date
Draft 0.1	Creation of the Draft v0.1 of the Hounslow Multi-Agency Community Risk Register	All	Twm Palmer (CPU)	September 2011
Draft 0.2	Addition of provisional likelihood, impact and risk ratings	9-27	Twm Palmer (CPU)	March 2012
Draft 0.3	Recommended changes from the Environment Agency and Red Cross	15-36	Ben Axelsen (CPU)	March 2013
Draft 0.4	Final review of risk (impact and likelihood) ratings based on Hounslow Resilience Forum suggestions and comments	All	Twm Palmer (CPU)	April 2013
1.0	Likelihood scoring scale updated	12	Ben Axelsen (CPU)	April 2013
1.1	Risk Numbers, Risk Colours, ToR update & COMAH sites	All	Ben Axelsen	August 2013
1.2	Reformatting	All	Fiona Hodge	March 2014
1.3	Alignment to National Risk IDs	All	Fiona Hodge	July 2014
1.4	Amendments made to risk ratings following Sept 14 RAWG meeting	All	Fiona Hodge	November 2014
1.5	Amendments made to risk ratings following December 14 RAWG meeting	All	Fiona Hodge	February 2015
1.6	Amendments made to risk ratings following March 15 RAWG meeting	All	Fiona Hodge	May 2015
1.7	Amendments made to risk ratings following June 15 RAWG meeting	All	Fiona Hodge	August 2015
1.8	Amendments made following LFB Risk Assessment meeting	All	Fiona Hodge	December 2015
2.0	Colours, stated purpose of the CRR, limitations of risk assessment, design, local history of emergencies, withholding information, other forms of communication, public involvement, contact details	All	Fiona Hodge	April 2016

Distribution List

Organisation	No of Copies
Draft circulated to the Hounslow Resilience Forum	
Published and available on the London Borough of Hounslow website	
Published on ResilienceDirect	

Document Security Markings

This document is OFFICIAL, meaning that this document does not contain any SENSITIVE material in accordance with the principles outlined in the Government's "Protective Marking System."

This document can be distributed through unsecure means electronically and physically.

Notes

The Hounslow Risk Register is collectively owned and maintained by Category 1 and 2 Responders within the London Borough of Hounslow, as defined by the groups Terms of Reference.

Exclusion Notes

The main text section of this Hounslow Multi-Agency Community Risk Register only covers and talks about non-malicious events (i.e. hazards occurring in the borough and the emergencies that the borough is susceptible to) rather than threats (i.e. terrorist incidents)*

**This does not mean that the Hounslow Resilience Forum does not cover these and related threats/risks within its risk assessment work, but given the sensitivity of the information, specific details about these will not be made available in the public version of the risk register as a matter of Local and National Security.*

Hounslow Resilience Forum Representatives

Category I Responders

- The London Borough of Hounslow Contingency Planning Unit (CPU)
- Metropolitan Police Service (MPS)
- London Fire Brigade (LFB)
- London Ambulance Service (LAS)
- NHS England
- Public Health England (PHE)
- West London Mental Health Trust (WLMHT)
- West Middlesex University Hospital (WMUH)
- Hounslow and Richmond Community Healthcare (HRCH)
- Environment Agency (EA)

Category II Responders

- Utility Companies: Electricity, Gas, Water and Sewerage
- NHS Clinical Commissioning Groups
- Public Communications providers (fixed and mobile)
- Transport for London (TfL)
- Network Rail
- Train Operating Companies
- Highways Agency
- BAA Heathrow
- Port of London Authority
- Health and Safety Executive (HSE)

Existing Non-Category I or II Hounslow Resilience Forum Representatives

- London Resilience Team
- British Army
- Royal Air Force (RAF)
- Voluntary Sector
- Faith Community Representatives
- Others

Secretariat

- The London Borough of Hounslow Contingency Planning Unit, Chair of the Hounslow Resilience Forum

Introduction

Hounslow's Community Risk Register (CRR), divided into a Community Resilience document and a Multi-Agency CRR, provides information on the various emergencies that could happen in Hounslow. Together with an assessment of how likely they are to happen and the impacts if they do.

The purpose of the Hounslow public CRR is to educate people about the risks that could occur where they live, so they can think about what they are able to do to be better prepared for emergencies.

National Risk Register

The National Risk Register was first published in 2008 and provides updated information on the types of civil emergencies people in the UK could face over the next five years. The latest edition was published in 2015.

London Risk Register

The London Risk Register is used by the London Resilience Partnership to help to prioritise resilience activities towards higher rated risks. It looks at nationally recognised risks and how these translate into the risk faced by London. The latest edition of the London Risk Register was published in 2014.

West London Local Resilience Forum Community Risk Register

The risk assessment work now undertaken by the London Resilience Partnership used to be undertaken by London Sub Regional Resilience Forums – Central London, North Central London, North East London, South East London, South West London and West London Resilience Forums.

Hounslow Resilience Forum

The Hounslow Resilience Forum (HRF) is a partnership, made up of organisations that have a responsibility, under the Civil Contingencies Act, 2004, to prepare for and respond to major incidents in Hounslow. The Forum includes the emergency services, local authorities, the Environment Agency, and health agencies along with voluntary agencies. Under the Civil Contingencies Act (2004) every local resilience forum of the United Kingdom is required to establish a resilience forum.

Hounslow Community Risk Register

The Hounslow Community Risk Register is divided into two different versions: a technical, Multi-Agency CRR for the Hounslow Resilience Forum, and a Community Resilience document for the community. Members of the community who wish to know more about the Community Risk Register can gain access to the Multi-Agency CRR on www.hounslow.gov.uk/resilience_fourm

- ### Multi-Agency CRR
  This document looks at all the risks identified in the London Risk Register and how these translate into the risk faced by the London Borough of Hounslow. In addition, it provides an assessment of the likelihood and impact of these scenarios for the London Borough of Hounslow.

- ### Community Resilience
  This document looks at the top risks faced by the London Borough of Hounslow, and has suggestions on what members of the community should do in case of an emergency.

The risks included in the two versions of the Hounslow Community Risk Register represent ‘reasonable worst case scenarios’ and their inclusion in the register does not mean that they are going to happen, or that if they did do that they would be as serious as the descriptions included here. ‘Reasonable worst case scenarios’ are nationally developed and informed by historical and scientific data, modelling, trend surveillance and professional expert judgement.

Risk assessment and risk management, however, are mostly subjective. This means that the exposure or non-exposure of the committee working to assess risks plays a crucial role in determining how the CRR would eventually look like, i.e. how the public will be informed of emergencies.

Furthermore, in this modern era of environmental changes, Hounslow might be vulnerable to a few additional environmental risks that have not been included in this risk register solely because there is no information available on these risks as of yet.

Risks are assessed by the Hounslow Resilience Forum Risk Assessment Working Group (RAWG). The RAWG meets quarterly to assess local risks and this information is used to provide local consistent planning assumptions, prioritise work programmes, training, exercising and plan updates and inform both HRF partners and the public of local risks.

Contextualisation Statement

The London Borough of Hounslow is part of the West London Sub Regional Resilience Forum area which also comprises of the London Boroughs of Brent, Ealing, Hammersmith & Fulham, Harrow and Hillingdon.

Overview

The London Borough of Hounslow is an outer London Borough which is bordered by the London Boroughs of Hillingdon, Ealing, Hammersmith & Fulham and Richmond and also Surrey to the South West. The Borough covers approximately 37km^2 and stretches from the boundary with Heathrow Airport in the West to Chiswick in the East. The total population of Hounslow is approximately 253,957 as of the 2011 census.

Transport

The London Borough of Hounslow has both excellent and major transport routes. The A4 and the M4 run through the Borough and the area has a total of eight underground stations and seven mainline railway stations. There is also Heathrow International Airport bordering the Borough which means Hounslow forms part of London's international gateway.

Social Factors

Between 2001 and 2011 the population of Hounslow increased by 17.6%. This was the fifth highest rate of growth within England and Wales. The London Borough of Hounslow has an increased number of working aged adults and a lower than average elderly population.

Hounslow is a culturally diverse community with almost half of the population coming from ethnic minority communities. Hounslow also boasts a total of 140 spoken languages.

Economic Factors

The Borough contains several major shopping areas (i.e. Hounslow, Chiswick, Feltham), along with leisure facilities, business and light industrial premises and Brentford Football Club.

The Brentford golden mile provides the location for both national and international HQ's including Sky TV and GlaxoSmithKline.

Industry and Environment

Hounslow has one top tier COMAH site within the Borough:

- Esso West London Oil Terminal

There are also two top tier COMAH sites in neighbouring Borough Hillingdon which have to be considered when planning for Hounslow:

- Heathrow Hydrant Operating Company (HHOpCo)
- Lufthansa Technik Landing Gear Services

Weather and Flooding

The London Borough of Hounslow enjoys similar weather conditions to the rest of the London region (i.e. a slight urban warming/sheltered factor compared with the South East) with no known local variations. The impact of severe weather tends to make itself felt on the transport network where, due to density of use, local peaks, or other difficulties (of snow, for example) can lead to “gridlock” on the roads given the high density factors noted in the Transport section.

There are three main rivers within the Borough; the River Thames which is tidal along its length and the Rivers Crane and Brent which flow into the Thames along with the Grand Union Canal.

There is also one reservoir within the Borough which falls under the Reservoirs Act, 1975:

- Osterley Middle Lake, Osterley Park

Other reservoirs outside the Borough could also have an effect on the Borough:

- Queen Mary Reservoir, Sunbury-On-Thames
- Staines Reservoir, Staines-Upon-Thames

Human Disease

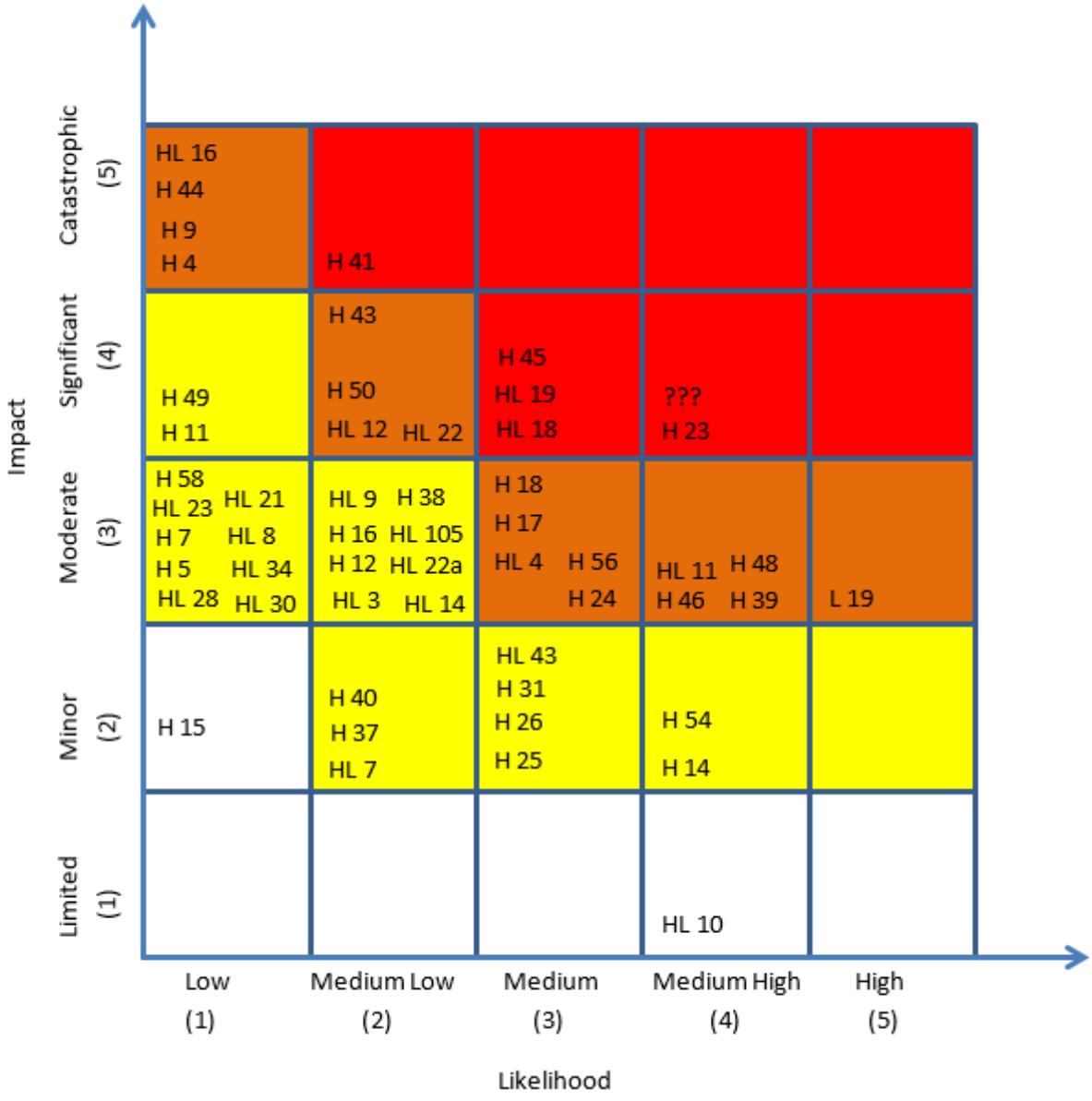
Special factors which have to be taken into account for not only Hounslow but for West London as a whole with regard to human disease are mainly around Heathrow's role as 'Gateway to Britain' for most people from far-flung locations historically associated with pandemics.

Public Protest, Industrial Action, Community Cohesion, International Events

The potential for industrial action within the London Borough of Hounslow, along with the rest of London, is high and in recent month's industrial action from both the Rail, Maritime and Transport (RMT) Union and the Fire Brigade has been staged.

The history of public protest in the London Borough of Hounslow has tended to be relatively small-scale with larger protests almost invariably taking place in Central London.

Hounslow Risk Matrix



Descriptions of the individual risks mentioned on the risk matrix above can be found on the next two pages.

Risk Summary Table

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HL 8	Fire, flooding, stranding or collision involving a passenger vessel in or close to UK waters or on inland waterways, leading to the ship's evacuation	30
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HL 30	Localised explosion at a natural gas main	21
HL 28	Localised fire or explosion at the fuel distribution site or tank storage of flammable and/or toxic liquids	19
H 12	Biological substance release from facility where pathogens are handled deliberately (e.g. pathogen release from contaminated laboratory)	23
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H 14	Major contamination incident with widespread implications for the food chain	26
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Borough Risk Register

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
INDUSTRIAL ACCIDENTS AND ENVIRONMENTAL POLLUTION							
HL 7	Industrial explosions and major fires	**Outcome Description** Up to 1km around site, causing up to 10 serious injuries and up to 10 casualties. Explosions would cause primarily burn, crush, cuts and bruise-type injuries. Potential environmental contamination and impact, affecting air, land, water, animal welfare, agriculture and waste management. May require remediation and/or decontamination. **Variation & Further Information** Evenly distribution across the Borough **Past Events** 16th December 2013: A large residential fire occurred in a block of flats as a result of a lit tea-light being left unattended in the house of a vulnerable person. This resulted in one fatality and the evacuation of 25 residents to a Rest Centre. On the same day, a large 6-pump fire broke out in Goddard's Furniture shop on the second floor. Thirty-five fire-fighters were deployed to the scene and the fire was brought under control.	2 (Medium Low)	2 (Minor)	Medium	London Fire Brigade (LFB)	Control of Major Accident Hazards (COMAH) Regulations 1999 Regulatory Reform (Fire Safety) Order 2005 Building design and fire protection systems to prevent or limit the spread of fire Emergency Services and other responder specialist resources

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
H 4	Fire or explosion at a fuel distribution site or site storing flammable and/or toxic liquids under atmospheric pressure	**Outcome Description** Up to 3km around site causing up to 150 fatalities and 2000 casualties. Potential short-term disruption to air transport fuel supply. Excessive demand on core health services and social care. Closure of roads in locality. Potential environmental contamination and impact, affecting air, land, water, animal welfare, agriculture and waste management. May require remediation and/or decontamination.	1 (Low)	5 (Catastrophic)	High	London Fire Brigade (LFB)	Control of Major Accident Hazards (COMAH) Regulations 1999 The Dangerous Substances and Explosive Atmosphere Regulations 2002 Petroleum Regulations Regulatory Reform (Fire Safety) Order 2005 Site Operators on-site contingency plans Emergency Services specialist resources
HL 28	Localised fire or explosion at the fuel distribution site or tank storage of flammable and/or toxic liquids	**Outcome Description** Up to 1km around the site, causing up to 15 fatalities and 200 casualties. Potential environmental contamination and impact, affecting air, land, water, animal welfare, agriculture and waste management. May require remediation and/or decontamination. **Variation & Further Information** Impact on environment, including widespread impact on air quality	1 (Low)	3 (Moderate)	Medium	London Fire Brigade (LFB)	Control of Major Accident Hazards (COMAH) Regulations 1999 The Dangerous Substances and Explosive Atmosphere Regulations 2002 Petroleum Regulations

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
							Regulatory Reform (Fire Safety) Order 2005 Site Operators on-site contingency plans Emergency Services specialist resources
H 5	Fire or explosion at an onshore fuel pipeline	**Outcome Description** Up to 1km around site causing up to 100 fatalities and up to 500 casualties. Potential environmental contamination and impact, affecting air, land, water, animal welfare, agriculture and waste management. May require remediation and/or decontamination. **Variation & Further Information** A release point close to a populated (i.e. urban/residential) area. Impact on environment including persistent/widespread impact on air quality.	1 (Low)	3 (Moderate)	Medium	London Fire Brigade (LFB)	Requisitioned Land and War Works Act 1948 The Land Powers (Defence) Act 1958 Shell-Mex and BP (London Airport Pipeline) Act 1959 Esso Petroleum Company Act 1961 Pipelines Act 1962 Pipeline Safety Regulations 1996 Control of Major Accident Hazards (COMAH) Regulations 1999

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
							Emergency Services specialist resources
H 7	Explosion at a high pressure natural gas pipeline	**Outcome Description** Local to site, causing up to 200 fatalities and up to 200 casualties. Potential environmental contamination and impact, affecting air, land, water, animal welfare, agriculture and waste management. May require remediation and/or decontamination. **Variation & Further Information** Risk based on the release point proximity to populated (i.e. urban) area. Impact on environment, including persistent/widespread impact on air quality.	1 (Low)	3 (Moderate)	Medium	London Fire Brigade (LFB)	Pipeline Safety Regulations 1996 Regulatory and industry measures including provision of maps for evacuation Emergency services and other responder specialist equipment
HL 30	Localised explosion at a natural gas main	**Outcome Description** Local to site, causing up to 200 fatalities and up to 200 casualties. Potential environmental contamination and impact, affecting air, land, water, animal welfare, agriculture and waste management. May require remediation and/or decontamination. **Variation & Further Information** Risk based on the release point proximity to populated (i.e. urban) area. Impact on environment, including persistent/widespread impact on air quality. **Past Events** 28th October 2013: The explosion on Bath Road was a large gas explosion causing the destruction of 5 terraced houses, two fatalities and the evacuation of around 45 people. The explosion was caused as a result	1 (Low)	3 (Moderate)	Medium	London Fire Brigade (LFB)	Pipeline Safety Regulations 1996 Regulatory and industry measures including provision of maps for evacuation Emergency services and other responder specialist equipment

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
		of a tree that was felled during the St. Jude's Storm on the evening of the 27/10/2013 rupturing a gas pipe beneath a residence.					
H 9	Large toxic chemical release	**Outcome Description** Up to 3km from the site of toxic chemical release causing up to 50 fatalities and up to 2000 casualties. Potential environmental contamination and impact, affecting air, land, water, animal welfare, agriculture and waste management. May require remediation and/or decontamination. Excessive demands on local healthcare in short and long term. Risk to water supplies and contamination of land. **Variation & Further Information** E.g. chlorine release or large industrial complex or bulk storage of chemicals near to a populated area (i.e. urban) area.	1 (Low)	5 (Catastrophic)	High	London Fire Brigade (LFB)	Control of Major Accident Hazards (COMAH) Regulations 1999 Regulatory Reform (Fire Safety) Order 2005 Emergency Services and other responder specialist equipment London Resilience Partnership Plans
HL 3	Localised industrial accident involving small toxic release	**Outcome Description** Up to 1km from site causing up to 10 fatalities and up to 100 casualties. Potential environmental contamination and impact, affecting air, land, water, animal welfare, agriculture and waste management. May require remediation and/or decontamination. **Variation & Further Information** Possible clustering of sites in industrial areas **Past Events** 24th August 2013: Spillage of 200 litres of a powerful disinfectant (30% Sodium Hydroxide) took place in the yard of the Dairy Crest Ltd facility. The London Fire Brigade subsequently informed LBH BECC that no	2 (Medium Low)	3 (Moderate)	Medium	London Fire Brigade (LFB)	Control of Major Accident Hazards Regulations 2005 (COMAH) Regulatory Reform (Fire Safety) Order 2005 London Resilience Partnership Plans

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
		council assistance was necessary.					
H 11	Accidental release of radioactive material from incorrectly handled or disposed of sources	**Outcome Description** Up to 5 fatalities and up to 100 contaminated persons requiring medical monitoring. Many worried well may present in hospitals. Radiation concentration near source, potentially over kilometres. Potential environmental contamination and impact, affecting air, land, water, animal welfare, agriculture and waste management. May require remediation and/or decontamination. **Variation & Further Information** Assume radioactive material is a medical source from radiotherapy equipment.	1 (Low)	4 (Significant)	Medium	Environment Agency	Radioactive Substances Act 1993 High Activity Sealed Source Regulations 2005 Arrangements for safe handling and disposal of radioactive sources Radiation detectors at high risk sites Environment Agency inspections of all major sources Emergency Services specialist resources London Resilience Partnership Plans
H 12	Biological substance release from facility where pathogens are	**Outcome Description** Up to 10 fatalities and serious injuries or off-site impact causing up to 1,000 casualties. Potential environmental contamination and impact, affecting air, land, water, animal welfare, agriculture and waste management.	2 (Medium Low)	3 (Moderate)		Health	Animal Health Act 1981 Specified Animal Pathogens Order 1998

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood / Impact / Risk Rating	Lead Responsibility	Controls In Place
	handled deliberately (e.g. pathogen release from contaminated laboratory)	May require remediation and/or decontamination. **Variation & Further Information** Assume release in urban area. E.g. SARS.	Medium		Health & Safety at Work etc. Act 1974 Control of Substances Hazardous to Health Regulations 2000 Management of Health & Safety at Work Regulations 1999 Reporting of Injuries, Diseases and Dangerous Occurrences Regulations Carriage of Dangerous Goods (classification, packaging and labelling) Regulations Genetically Modified Organisms (Contained Use) Regulations 2000 Regulation, audit and enforcement of legislation by HSE London Resilience Partnership Plans

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
H 46	Biological substance release during an unrelated work activity/industrial process. (e.g. Legionella)	**Outcome Description** Up to 10 fatalities and serious injuries or off-site impact causing up to 1,000 hospital admittances. **Variation & Further Information** Specifically related to Legionella release from industrial process. Inadvertent Legionella contaminant of wet cooling systems such as cooling towers and evaporate condensers, air conditioning systems, humidifier and other industrial air scrubbers.	4 (Medium High)	3 (Moderate)	High	Health	Health & Safety at Work Act etc 1974 Control of Substances Hazardous to Health Regulations 2000 Management of Health & Safety at Work Regulations 1999 Reporting of Injuries Diseases and Dangerous Occurrences Regulations HSE Approved Code of Practice and Guidance 2001 (not fully complied with) HSE and Local Authority inspections of cooling towers (not uniform) London Resilience Partnership Plans

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
H 14	Major contamination incident with widespread implications for the food chain, arising from; i) Industrial accident; ii) Contamination of animal feed; iii) Incidents arising from production process.	**Outcome Description** Food production / marketing implications depending on scale and area affected. Potential direct animal and consumer health effects. Consumer confidence affected leading to lost markets, or panic buying. **Variation & Further Information** E.g. Dioxin animal feed contamination, resulting in contaminated animals and products.	3 (Medium)	2 (Minor)	Medium	Local Authority	EC Directives and Regulations Regulation (EC) 852/2004 Regulation (EC) 853/2004 Regulation (EC) 854/2004 Food Safety Act 1990 Imports monitored Local Authority Environmental Health Sampling Public Health England monitoring and surveillance Food Standards Agency plans
H 15	Maritime Pollution (e.g. affecting tidal River	**Outcome Description** Release of 100,000 tonnes of crude oil into sea polluting coastal and tidal areas. Potential environmental contamination and impact, affecting air, land, water,	1 (Low)	2 (Minor)		Maritime & Coastguard Agency	Dangerous Substances in Harbour Areas Regulations 1987

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood / Impact / Risk Rating	Lead Responsibility	Controls In Place
	Thames)	animal welfare, agriculture and waste management. May require remediation and/or decontamination. **Variation & Further Information** E.g. Oil super tanker sinks in Thames Estuary, with strong north-easterly winds and tide flowing up the Thames estuary.	Low		Merchant Shipping (Oil Pollution Preparedness, Response and Cooperation Convention) Regulations 1998 Port State Control checks coordinated in European waters All vessels navigating on the tidal Thames required PLA licence PLA Vessel Traffic Service National Contingency Plan for Marine Pollution from Shipping and Offshore Installations (2000) Oil Spill Contingency Plan Guidelines for Ports, Harbours & Oil Handling Facilities Specialist equipment for response

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
HL 4	Major Pollution of controlled waters	**Outcome Description** Pollution incident impacting upon controlled waters (e.g. chemical spillage, untreated sewage). Affecting water quality, major aquatic damage and serious damage to human health. Potential environmental contamination and impact, affecting air, land, water, animal welfare, agriculture and waste management. May require remediation and/or decontamination.	4 (Medium High)	3 (Moderate)	High	Environment Agency	Environment Act 1995 Water Resources Act 1991 Environmental Protection Act 1990 Pollution Prevention and Control Act 1999 Control of Major Accident Hazards Regulations 1999 The Environmental Permitting Regulations (England and Wales) 2010 Groundwater Regulations 1998 Anti-Pollution Works Regulations 1999 Inspections and compliance monitoring undertaken by appropriate regulatory body 24 hour incident

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
							hotline and response system Pollution control equipment and resources
H 58	Forest or grassland fire	**Outcome Description** Forest or grassland fire resulting in up to 50 hectares being affected. Evacuation of up to 100 residential homes required. Up to 5 fatalities and 20 casualties. Potential environmental impact affecting air.	1 (Low)	3 (Moderate)	Medium	London Fire Brigade (LFB)	London Fire Brigade borough specific rural strategies Specialist firefighting equipment and resources
HL 43	Plant Disease	**Outcome Description** Major outbreak of plant disease. Damage to native plants & ecosystems, or agricultural/horticultural crops (with knock on effects to rural economy should diseases become widespread within the tree population). Any significant loss of tree cover would have negative consequences on air pollution, urban heat island effects and surface water flooding.	3 (Medium)	2 (Minor)	Medium		Plant Health (England) Order 2005 Prohibitions and certification schemes for plant imports
TRANSPORT ACCIDENTS							
HL 34	Fire, flooding or collision involving a passenger vessel in UK inland waterways, leading to the ships full/partial evacuation at sea	**Outcome Description** Up to 50 fatalities and up to 100 casualties **Variation & Further Information** Risk based on an accident to a smaller passenger vessel on the River Thames	1 (Low)	3 (Moderate)	Medium	Maritime & Coastguard Agency	Port of London Act 1968 (as amended) General Directions for Navigating in the Port of London 2009 Port of London River Bylaws 1978

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
							Port State Control checks coordinated in European waters Compulsory PLA pilotage for visiting cruise ships PLA Vessels Traffic Management System and coordination with Thames Barrier Navigation Centre Provision of life saving equipment on river banks and specialist response resources
HL 8	Fire, flooding, stranding or collision involving a passenger vessel in or close to UK waters or on inland waterways, leading to the ship's evacuation.	**Outcome Description** Up to 50 fatalities and up to 100 casualties **Variation and Further Information** The risk is based on an accident to a smaller passenger vessel on the UK coast or inland waterways.	1 (Low)	3 (Moderate)	Medium	Maritime & Coastguard Agency	Port of London Act 1968 (as amended) General Directions for Navigating in the Port of London 2009 Port of London River Bylaws 1978 Port State Control checks coordinated in European waters Compulsory PLA

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
							pilotage for visiting cruise ships PLA Vessels Traffic Management System and coordination with Thames Barrier Navigation Centre Provision of life saving equipment on river banks and specialist response resources
H 16	Aviation accident over a semi-urban area	**Outcome Description** Loss of up to two aircraft and passengers, with debris over a semi-urban area. Potential environmental impact affecting waste management (i.e. excessive waste producing during incident, some of which may be hazardous). May require remediation and/or decontamination. **Variation & Further Information** Collision of 2 commercial airliners – death of all passengers and crew (600 fatalities), to 50 fatalities and 300 casualties on the ground. No significant damage to key infrastructure.	2 (Medium Low)	3 (Moderate)	Medium	London Fire Brigade (LFB)	Stringent controls on aircraft entering UK airspace including the mandatory use of Aircraft Collision Avoidance system on heavy aircraft UK flight separation rules CAA Maintenance and Flight Safety Standards Airline maintenance regimes London Resilience Partnership Plans

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
HL 9	Aviation accident	**Outcome Description** Aviation accident causing up to 50 fatalities and up to 250 casualties. Potential environmental impact affecting waste management (i.e. excessive waste producing during incident, some of which may be hazardous). May require remediation and/or decontamination. **Variation & Further Information** Accident involving 1 commercial airliner, probably upon take-off or landing.	2 (Medium Low)	3 (Moderate)	Medium	London Fire Brigade (LFB)	Stringent controls on aircraft entering UK airspace including the mandatory use of Aircraft Collision Avoidance system on heavy aircraft UK flight separation rules CAA Maintenance and Flight Safety Standards Airline maintenance regimes London Resilience Partnership Plans
HL 10	Local accident on motorways and major trunk roads	**Outcome Description** Multiple vehicle incident causing up to 10 fatalities and up to 20 casualties (internal injuries, fractures, possible burns). Subsequent closure of lanes and carriageways causing major disruption. Potential environmental contamination and impact, affecting air, land, water, animal welfare, agriculture and waste management. May require remediation and/or decontamination.	4 (Medium High)	1 (Limited)	Low	Metropolitan Police Service (MPS)	Road Traffic Act 1988 Road Vehicle (Construction and Use) Regulations 1986 Traffic Management Act 2004 VOSA patrols to enforce legislation London Resilience Partnership Plans

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
HL 11	Railway Accident	**Outcome Description** Up to 30 fatalities and up to 100 casualties. Fractures and internal injuries (burns less likely). Possible loss of freight, major disruption to rail lines, possible closure of tunnels. Potential environmental contamination and impact, affecting air, land, water, animal welfare, agriculture and waste management. May require remediation and/or decontamination.	4 (Medium High)	3 (Moderate)	High	British Transport Police (BTP)	Railway and Transport Safety Act 2003 Railways (Access and Management) Regulations 2005 Railways (Accident Investigation and Reporting) Regulations 2005 Railways (Licensing of Railway Undertakings) Regulations 2005 Railways Act 2005 and 1993 The Railways Safety Levy Regulations 2006 Transport Act 2000 Health & Safety at Work etc. Act 1974 The Railway (Safety Case) Regulations 2000 Improved Inspection regimes to detect track defects

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
							Train Protection Warning Systems ATOC Guidance and Directives Specialist Emergency Services and other responder resources
HL 12	Localised accident involving transport of hazardous chemicals	**Outcome Description** Up to 50 fatalities and up to 500 casualties. Direct (fractures, internal injury and burns) and indirect (chemical contamination over a wider area) effects depending on the substance characteristics, quantity and location. E.g. Chlorine **Variation & Further Information** Density of hazardous chemical infrastructure may affect likelihood.	2 (Medium Low)	4 (Significant)	High	London Fire Brigade (LFB)	Carriage of Dangerous Goods by Rail Regulations 1996 Packaging, Labelling and Carriage of Radioactive Material by Rail Regulations 2002 Radioactive Material (Road Transport) Regulations 2002 Air Navigation (Dangerous Goods) Regulations 1994 Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1990 Specialist Emergency

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
							Services and other responder equipment and resources
HL 14	Local (road) accident involving transport of fuel/explosives	**Outcome Description** Up to 30 fatalities and 20 casualties within the vicinity of accident/explosion. Area would require a 1km radius exclusion zone depending on substances involved. Potential released of 30 tonnes of liquid into the environment and watercourses (including the use of high qualities of fire foam). Roads closed and access routes blocked. Emergency services access limited, or impossible.	2 (Medium Low)	3 (Moderate)	Medium	London Fire Brigade (LFB)	Carriage of Dangerous Goods by Rail Regulations 1996 Packaging, Labelling and Carriage of Radioactive Material by Rail Regulations 2002 Radioactive Material (Road Transport) Regulations 2002 Air Navigation (Dangerous Goods) Regulations 1994 Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1990 Specialist Emergency Services and other responder equipment and resources
SEVERE WEATHER							

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
H 17	Storms & Gales	**Outcome Description** Storm force winds affecting most of the South East England region for at least 6 hours. Over 55mph winds, gusts of up to 84mph. Up to 5 fatalities and 50 casualties. Short term disruption to infrastructure including power, transport networks, homes and businesses. **Past Events** 28th October 2013: During the storms of the night of the 27/10/2013 a tree fell down outside a property on Bath Road and resulted in damage to a gas main which caused an explosion early in the morning of the 28/10/13. There were 2 confirmed fatalities and three other hospitalisations including head injuries and burns. The affected road was cordoned off which resulted in all homes within the cordon been evacuated.	3 (Medium)	3 (Moderate)	High	Local Authority	Regular inspections of trees and highways for maintenance Met Office National Severe Weather Warning Service Met Office Hazard Manager Service Responder specialist resources
H 18	Low temperatures and heavy snow	**Outcome Description** Snow fall covering Borough for 3 days, with a depth in excess of 10cm and a daily mean temperature of -3°C. Risk of excess deaths, mainly amongst elderly and vulnerable. Disruption to transport networks, businesses, schools, power and water supply. Weather related incidents.	3 (Medium)	3 (Moderate)	High	Local Authority	Highways Act 1980, Railways and Transport Act 2003 Governments 'Snow Code' Specific plans for traffic management Coordination of gritting and salt stocks Met Office National Severe Weather Warning Service

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
							Responder specialist services
H 48	Heat Wave	**Outcome Description** Daily maximum temperatures in excess of 32°C and minimum temperatures in excess of 18°C for at least 5 consecutive days. Excess deaths through this period, mainly amongst elderly. Potential disruption to power supply and transport infrastructure.	4 (Medium High)	3 (Moderate)	High	Health	Health & Safety at Work etc. Act 1974 Public Health Act Heatwave Plan for England London Resilience Partnership Plans Climate Change Strategy for London Heat-Health Watch
HL 16	Local Coastal / Tidal Flooding	**Outcome Description** Sea surge, high / spring tides, gale force winds, heavy rainfall, some defences overtopped. Flooding of 1000 properties for up to 14 days. Up to 1 fatality and 20 casualties. Up to 2,000 evacuees with some requiring temporary accommodation for an extended period. Widespread disruption and damage to infrastructure, debris, transport issues, contaminated water supplies and pollutants.	1 (Low)	5 (Catastrophic)	High	Environment Agency	Flood & Water Management Act 2010 Land Drainage Act 1991 Water Resources Act 1991 EA Flood Warning Direct Service

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Lead Responsibility	Controls In Place
			Risk Rating			
						Met Office National Severe Weather Warning Service EA inspection of flood defences London Resilience Partnership Plans
HL 18	Local / Urban flooding fluvial or surface run-off	**Outcome Description** Flash flooding and rapidly rising river levels across entire region threaten large urban towns. Localised flooding of 1,000 to 10,000 properties for 2-7 days. Up to 15 fatalities and 150 casualties. Up to 15,000 people evacuated. Up to 500 people stranded over a large area and in need of rescue. Road and rail links impassable for up to 5 days. Sediment contamination of water supplies. Loss of essential services (gas, electricity, water & telecoms) to 20,000 homes for up to 14 days. Up to 1,000 people needing assistance with sheltering for up to 12 months. Sewage treatment works flooded.	3 (Medium)	4 (Significant)	Environment Agency/Local Authority	Flood & Water Management Act 2010 Land Drainage Act 1991 Water Resources Act 1991 EA Flood Warning Direct Service

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
		Up to 50 properties destroyed and many more uninhabitable. Localised economic damage and 6-18 months recovery time required. 6-18 months recovery before business as usual conditions are restored. **Past Events** 29th January 2014: Floods in Feltham. The incident required the deployment of a LALO from the BECC alongside representatives from the Hounslow Highways Drainage team to pump water away, however this was unsuccessful. Thames Water was then contacted and the cause of the flooding was found to be hydraulic overload and the water was then pumped directly into the river.			Very High		Met Office National Severe Weather Warning Service EA Inspection of flood defences London Resilience Partnership Plans
HL 19	Flooding: Local Fluvial Flooding	**Outcome Description** Sustained period of heavy rainfall extending over 2 weeks (e.g. snow melt), resulting in steadily rising river levels over a region. Localised flooding of 100-1000 properties for 2-6 days. 5 fatalities, 50 casualties. Up to 5,000 people evacuated, up to 200 people stranded needing rescue. 250 people requiring shelter for up to 12 months. **Past Events** 6th November 2013: This event of river flooding resulted in the submersion of two parked cars along Chiswick Road South.	3 (Medium)	4 (Significant)	Very High	Environment Agency	Flood & Water Management Act 2010 Land Drainage Act 1991 Water Resources Act 1991 EA Flood Warning Direct Service

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
					High		Met Office National Severe Weather Warning Service EA Inspection of flood defences London Resilience Partnership Plans
L 19	Significant, local non fluvial flooding – surface water, groundwater or burst water main	**Outcome Description** A rapid increase in volume of water in a localised area due to either; heavy rainfall, groundwater emergence or a burst water main which overwhelms to local drainage or river system, collect in low lying areas resulting in flooding of property or infrastructure.	5 (High)	3 (Moderate)	High		Flood and Water Management Act 2012 Land Drainage Act 1991 Water Resources Act 1991 Environment Agency Floodline and public warnings Met Office, National Severe Weather Warning Service Flood Guidance Statements
H 50	Drought	**Outcome Description** Periodic water supply interruptions for a time affecting businesses. Emergency drought orders in place	2 (Medium Low)	4 (Significant)		Environment Agency	Water Resources Act 1991

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
		authorising rota cuts in supply.			High		Flood & Water Management Act 2010 Progressive restraints on consumption to preserve supply for critical services Storage reservoirs
SEVERE SPACE WEATHER							
H 56	Severe Space Weather	**Outcome Description** Disruption to two coastal electrical substations serving approximately 100,000 customers each for two or more months. Consumers would experience a loss of supply for up to half of this period, and rota disconnections may be used during the following four weeks. Disruption to satellite services for several days including interruptions and degradations to GPS, potentially resulting in casualties and fatalities. Up to 2 weeks disruption to aviation (including increased error rates in flight control and air traffic systems) and temporary loss of wireless systems including mobile phones and internet. Increase in error rate in ground based unprotected digital control systems which are ubiquitous in modern technology, for the duration of the storm.	3 (Medium)	3 (Moderate)	High		Electricity Industry monitoring and analysis of GIC Space Weather is assessed as part of the Daily Hazards Assessment National Grid design standards and response arrangements Alternative positioning, navigation and timing signal systems Forecasting through Met Office Space Weather Operations Centre
VOLCANIC HAZARDS							

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
H 54	Disruption to aviation as a consequence of volcanic ash	**Outcome Description** Volcanic ash incursions for up to 25 days resulting in sporadic and temporary closures of significant parts of UK airspace for up to a total of 15 days during a 3 month eruption period. The entire UK mainland and potentially other parts of Europe could be affected for up to 10 of these days. A single period of closure within the 3 month eruptive episode may last for up to 12 consecutive days, depending on meteorological conditions.	4 (Medium High)	2 (Minor)	Medium		Met Office Volcanic Ash Advisory Centre forecasting CAA Volcanic Ash Safety Regime Airline Response Plans
STRUCTURAL							
HL 21	Land Movement (i.e. caused by tremors or landslides)	**Outcome Description** Roads and access routes impassable for a time. Emergency access into/out of large populated areas difficult or impossible, severe congestion over a wider geographical area. Potential environmental impact affecting waste management (i.e. excessive waste producing during incident, some of which may be hazardous). May require remediation and/or decontamination.	1 (Low)	3 (Moderate)	Medium	London Fire Brigade (LFB)	Land Use planning restrictions Building Control regulations enforced by Local Authorities Construction, renovation, maintenance and demolition standards
HL 22	Building Collapse	**Outcome Description** Collapse of a low-rise building (or part). Potential for a number of trapped and missing persons. Local access routes affected due to road closures. Up to 5 fatalities and 20 casualties. Potential environmental impact affecting waste management (i.e. excessive waste producing during incident, some of which may be hazardous). May require remediation and/or	2 (Medium Low)	4 (Significant)		Local Authority	Building Control regulations enforced by Local Authorities Construction, renovation, maintenance and demolition standards

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
		decontamination. **Variation and Further information** Depends on age, size and construction of building, and occupancy rates. **Past Events** 15th July 2014: A partial structural collapse, occurred at around 16:30hrs when demolition works which were taking place at Hounslow House on London Road, Hounslow, and caused part of a wall to collapse in an uncontrolled manner. The incident resulted in a large plume of dust engulfing the road and part of the hoarding around the site fell onto the footpath.			High		and enforcement Emergency Services and other responders specialist resources London Resilience Partnership Plans
HL 22a	Large Building Collapse	**Outcome Description** Collapse of a large building (e.g. high rise block). Up to 100 fatalities and 350 casualties. Potential for number of trapped and missing persons. Severe congestion. Potential environmental impact affecting waste management (i.e. excessive waste producing during incident, some of which may be hazardous). May require remediation and/or decontamination.	2 (Medium Low)	3 (Moderate)	Medium	Local Authority	Building Control regulations enforced by Local Authorities Construction, renovation, maintenance and demolition standards and enforcement Emergency Services and other responders specialist resources London Resilience Partnership Plans

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
HL 23	Bridge Collapse	**Outcome Description** Roads, access routes and transport infrastructure affected. Severe congestion for a length of time. Emergency access affected. Potential for a number of persons to be trapped or missing. Potential environmental impact affecting waste management (i.e. excessive waste producing during incident, some of which may be hazardous). May require remediation and/or decontamination.	1 (Low)	3 (Moderate)	Medium	Local Authority	Building Control regulations enforced by Local Authorities Highways Act Regular Inspections Height and weight restrictions and signs reduce the likelihood of an incident London Resilience Partnership Plans
H 44	Major Reservoir Dam Failure/Collapse	**Outcome Description** Collapse without warning resulting in almost instantaneous flooding. Significant movements of debris (including vehicles) and sediment. Complete destruction of residential and commercial properties (up to 500). 1,000's of properties potentially flooded, and sever damage to infrastructure and communication routes. Up to 50 missing persons and people stranded. Hazardous recovery conditions. Water supply lost to homes and businesses. Up to 200 people requiring temporary accommodation for 2-18 months. Potential environmental impact affecting waste management (i.e. excessive waste producing during incident, some of which may be hazardous). May require remediation and/or decontamination.	1 (Low)	5 (Catastrophic)	High	Local Authority	Reservoirs Act 1975 Water Act 2003 Regular statutory inspections Met Office National Severe Weather Warning Service London Resilience Partnership Plans

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
HL 105	Complex Built Environments	**Outcome Description** Major incident affecting a large building complex / built environment. Incidents have the potential to trigger a complex chain of events that lead to serious consequences for the public.	2 (Medium Low)	3 (Moderate)	Medium	Local Authority	Health & Safety at Work etc. Act 1974 Management of Health & Safety at Work Regulations 1999 Fire and Rescue Services Act 2004 & guidance pursuant to the Regulatory Reform (Fire Safety) Order 2005 Safety at Sports Grounds Act 1975 and Fire Safety and Safety of Places of Sport Act 1987 Local building safety systems and practices Safety Advisory Groups in place at major sports grounds London Resilience Partnership Plans

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
HUMAN HEALTH							
H 23	Influenza Type Disease (Pandemic)	**Outcome Description** Pandemic occurring in one or more 'waves', possible weeks or months apart with each wave lasting 15 weeks. Up to half the population affected in a worst case scenario. High numbers of cases overwhelming Health and other critical services, and adversely effecting businesses and economy. **Variation & Further Information** Pandemic planning worse case clinical attack rate of up to 50% spread over 1 or more waves resulting in fatalities of 2.5%	4 (Medium High)	4 (Significant)	Very High	Public Health England (PHE)	NHS Vaccination Programme (seasonal and provision for pandemic specific) Capacity planning in NHS trusts Comprehensive surveillance systems London Resilience Partnership Plans
H 24	Emerging Infectious Disease	**Outcome Description** Based on SARS outbreak - resulting in 100 fatalities and up to 2000 casualties	3 (Medium)	3 (Moderate)	High	Public Health England (PHE)	NHS Vaccination Programme (seasonal and provision for pandemic specific) Capacity planning in NHS trusts Comprehensive surveillance systems London Resilience Partnership Plans
ANIMAL HEALTH							

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
H 25	Non-zoonotic notifiable animal diseases e.g. foot and mouth disease (FMD), classical swine fever, Blue Tongue and Newcastle Bird Disease	**Outcome Description** Most serious disease in the category is FMD, which drives the impact assessments. Assessments based on the cull and disposal of 4 million animals across the country over 900 infected premises.	3 (Medium)	2 (Minor)	Medium	Local Authority	Animal Health Act 1981 Animal Health Act 2002 Other secondary legislation and EU directives National disease control strategies
H 26	Zoonotic Notifiable animal diseases (e.g. Highly pathogenic Avian Influenza (HPAI), rabies and West Nile Virus)	**Outcome Description** The most significant disease in this category is the highly pathogenic avian influenza (HPAI), largely a disease of birds.	3 (Medium)	2 (Minor)	Medium	Local Authority	Animal Health Act 1981 Animal Health Act 2002 Other secondary legislation and EU directives National disease control strategies
INDUSTRIAL ACTION							
H 31	Significant or perceived significant constraint on fuel supply at filling stations	**Outcome Description** Filling stations, depending on their locations, would start to run dry between 24-48 hours. Panic buying would exacerbate the situation. Replenishment of sites would take between 3-10 days depending on location much would depend on whether drivers from other	3 (Medium)	2 (Minor)		Metropolitan Police Service	Legal requirements re: conduct of industrial disputes. Stocks of contingency fuel to varying degrees

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
		companies judged that they were able to maintain safe operations in the presence of picket lines or protests, and the extent of the supply of fuel from other locations.			Medium		National Emergency Plan for Fuel London Resilience Partnership Plans
INTERNATIONAL EVENTS							
H 37	International security incident resulting in influx of British Nationals who are not normally resident in the UK	**Outcome Description** Up to 10,000 British nationals not normally resident in the UK, returning to UK within a 4-6 weeks period following conventional war, widespread civil unrest or sustained terrorism campaign against British or other Western Nationals. That there would be an influx from Heathrow which would mean agencies/organisations would need to help provide welfare support accommodation and social services for them under their duty of care.	2 (Medium Low)	2 (Minor)	Medium	Local Authority	-
INDUSTRIAL TECHNICAL FAILURE							
H 38	Technical Failure of critical upstream oil/gas facility, gas import pipeline terminal,	**Outcome Description** Catastrophic incident destroying all parts of a critical upstream facility. Causing an impact on fuel supply.	2 (Medium Low)	3 (Moderate)		London Fire Brigade (LFB)	National Emergency Plan for Fuel National Blackstart Plan

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
	or Liquefied Natural Gas (LNG) import reception facility, leading to disruption in upstream oil and gas production		Medium				London Resilience Partnership Plans
H 39	Failure of Water Infrastructure or accidental contamination (non-toxic)	**Outcome Description** Loss of or non-availability of drinking water supply for up to 50,000 people, for more than 24 hours - 3 days, affecting industry, domestic, commercial piped water sources. Water companies required to provide 10 litres per person, per day. Potentially critical infrastructure; hospitals, schools and businesses affected where they do not maintain separate supply.	4 (Medium High)	3 (Moderate)	High	London Fire Brigade (LFB)	Water Industry Act 1991 Security and Emergency Measures Direction 1998 Water companies mutual aid arrangements in place London Resilience Partnership Plans
H 40	No notice loss of significant telecommunications infrastructure in a localised fire, flood or gas	**Outcome Description** Loss of service for up to 100,000 people for up to 72 hours. Possible building damage to a large urban telecoms facility.	2 (Medium Low)	2 (Minor)		Metropolitan Police Service (MPS)	Civil Contingencies Act 2004 Telephone provider demand and network capacity management

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
	incident		Medium				strategies National Emergency Alert for Telecoms London Resilience Partnership Plans
H 41	Technical Failure of National Electricity Network (Blackstart)	**Outcome Description** Total blackout for up to 3-5 days due to loss of the national grid. Damage (e.g. storms) resulting in potential loss of life support machines, civil unrest, no alarms, street lighting, gas heating, rail transport, water supply and loss of mobile telecoms. Sites affected without backup generators.	2 (Medium Low)	5 (Catastrophic)	Very High	London Fire Brigade (LFB)	Testing and maintenance regime National emergency plans London Resilience Partnership Plans
H 45	Technical failure of regional electricity network	**Outcome Description** Total shutdown of the electricity supply over an entire region, in the working week lasting 24 hours	3 (Medium)	4 (Significant)	Very High	London Fire Brigade (LFB)	Testing and maintenance regime National emergency plans Mutual aid resources available London Resilience Partnership Plans
H 43	Telecommunications infrastructure - Human error	**Outcome Description** Widespread loss of telecommunications (including public land lines and mobile networks) at a regional level, lasting for up to 5 days	2 (Medium Low)	4 (Significant)		London Fire Brigade (LFB)	Civil Contingencies Act 2004 Telephone provider demand and network

Risk Ref.	Hazard Sub-Category	Outcome Description/Variation and Further Information/Past Events	Likelihood	Impact	Risk Rating	Lead Responsibility	Controls In Place
					High		capacity management strategies National Emergency Alert for Telecoms London Resilience Partnership Plans
H 49	Loss of drinking water supplies due to a major incident affecting infrastructure	**Outcome Description** Loss or non-availability of drinking water piped supply for 24 hours, lasting up to 2 weeks.	1 (Low)	4 (Significant)	Medium	Local Authority	Water Industry Act 1991 Security and Emergency Measures Direction 1998 Water companies mutual aid arrangements in place London Resilience Partnership Plans
???	Loss of utilities	**Outcome Description** Smaller scale loss of utilities (gas, water, electricity) for >24 hours at a site containing vulnerable persons. **Past Events** 1st April 2013: A gas and electricity disruption occurred at Heston House, an older people's residential care home, for over 48 hours during a cold weather snap leaving residents without heating, hot water or catering facilities. The incident occurred during a Severe Winter Weather Level 2 warning by the Met Office	4 (Medium High)	4 (Significant)	Very High	Local Authority	

Risks Not Applicable and Removed

The risks below are those which are included in the London Risk Register but which are considered by the Hounslow Resilience Forum to be 'not applicable' to the London Borough of Hounslow at the current time. As risk assessment is a dynamic process the status of these risks is re-assessed on a regular basis.

ID	Risk Sub-Category
HL 17	Local coastal/tidal flooding (in one region)
H 55	Severe effusive (gas rich) volcanic eruption overseas
HL 37	Release of significant quantities of hazardous materials as a result of a major shipping accident
HL 42	Loss of cover due to industrial action by workers providing a service critical to the preservation of life
H 30	Emergency services: loss of emergency fire and rescue cover because of industrial action
H 35	Industrial action by key rail or London Underground workers
H 33	Unofficial strike action by prison officers
H 19	Flooding: Major Coastal and Tidal Flooding
H 21	Flooding: Severe Inland Flooding

Appendix 1 – Understanding the Risk Register

The following column headers can be found within the Borough Risk Register.

Risk Identifier

Hazards are subdivided into 'H', 'HL' and 'L'.

i. '**H**' risks are those hazards which will require a national as well as a local response and are identical to those in the National Risk Assessment (NRA). These risks are planned for by the Government, while local responders will need to be aware of the national arrangements and integrate accordingly.

ii. '**HL**' risks give a commonly recognised local picture of the national 'H' risk (if this is judged to be wholly unrepresentative of the local manifestation of the risk for example where a 'H' is not applicable to an LRF then the 'HL' may be appropriate due to the magnitude of the event or relevance). HL risks are also those which would prove a significant challenge to LRFs, but are unlikely to prompt a national response and are therefore not included in the NRA.

iii. '**L**' risks are those risks with unique consequences that are very specific to a particular LRF, and are therefore not covered by the generic descriptions and consequences of 'H' or 'HL' risks. While some other LRFs already include these types of risks in their assessment, the recognition of these LRF-specific local risks, together with guidance on formulating risk outcome descriptions, will allow, if included, greater freedom to identify and assess the risks within Hounslow. The HRF may also wish to take into account longer-term risks.

iv. If new 'HL' and 'L' risks are identified, the HRF will highlight these to CCS, via DCLG RED Advisors/Devolved Administration, for consideration in LRAG, and with neighbouring LRFs so they can consider the relevance of the risk in their respective assessments.

Risk Category

This indicates the type of hazard in question (e.g. industrial accident, severe weather, public protests), and so set the context for the outcome description.

Outcome Description

This is based upon the principle of a “reasonable worst case scenario”, which can be defined as a ‘*challenging yet plausible manifestation of the risk*’. It describes the likely immediate consequences or significance of the event, such as the facilities that might have been affected, the numbers of facilities that might have been destroyed, the number of fatalities and casualties, or extent of contamination. It is this information which enables the subsequent local or national impact assessment.

However, where a national NRA ‘H’ risk outcome description is judged to be wholly unrepresentative of the risk at the local level or the risk is not of a sufficient magnitude to warrant an NRA risk, ‘HL’ risks describe a local “reasonable worst case scenario”.

Variation and Further Information

This provides, where possible, further information on the risk and the historical evidence and assumptions made when formulating the risk outcome description. For example, variation and further information on H33, the risk of an unofficial strike by prison officers, gives details about the proportion of officers expected to strike, historical evidence on how much notice would need to be given, and the types of prison that would likely be affected.

Likelihood Score and Rationale

These columns state the risk likelihood score, the agency that undertook the assessment and the evidence base that underpins the likelihood score.

Appendix 2 – Impact and Likelihood Scoring Scales

Impact Scoring Scales – Qualitative Measures*[1]

Level	Descriptor	Categories of Impact	Description of Impact
1	Limited	Health	• Limited number of injuries or impact on health
		Social	• Limited number of persons displaced and insignificant personal support required • Limited disruption to community services, including transport services and infrastructure
		Economic	• Limited impact on local economy
		Environment	• Limited Impact on environment
2	Minor	Health	• Small number of people affected, no fatalities, and a small number of minor injuries with first aid treatment
		Social	• Minor damage to properties • Minor displacement of a small number of people <24 hours and minor personal support required • Minor localised disruption to community services or infrastructure <24 hours
		Economic	• Negligible impact on local economy and cost easily absorbed
		Environment	• Minor impact on environment with short-term or long-term effects
3	Moderate	Health	• Sufficient number of fatalities with some casualties requiring hospitalisation and medical treatment and activation of MAJAX, the automated intelligent alert notification system, procedures in one or more hospitals
		Social	• Damage that is confined to a specific location, or to a number of locations, but requires additional resources • Localised displacement of >100 people for 1-3days
		Economic	• Limited impact on local economy with some short-term loss of production, with possible additional clean-up costs
		Environment	• Limited impact on environment with short-term or long-term effects

4	Significant	Health	• Significant number of people in affected area impacted with multiple fatalities, multiple serious or extensive injuries, significant hospitalisation and activation of MAJAX procedures across a number of hospitals
		Social	• Significant damage that requires support for local responders with external resources • 100 to 500 people in danger and displaced for longer than 1 week. Local responders require external resources to deliver personal support • Significant impact on and possible breakdown of some local community services
		Economic	• Significant impact on local economy with medium-term loss of production • Significant extra clean-up and recovery costs
		Environment	• Significant impact on environment with medium to long-term effects
5	Catastrophic	Health	• Very large numbers of people in affected area(s) impacted with significant numbers of fatalities, large number of people requiring hospitalisation with serious injuries with longer-term effects
		Social	• Extensive damage to properties and built environment in affected area requiring major demolition • General and widespread displacement of more than 500 people for prolonged duration and extensive personal support required • Serious damage to infrastructure causing significant disruption to, or loss of, key services for prolonged period. Community unable to function without significant support
		Economic	• Serious impact on local and regional economy with some long-term, potentially permanent, loss of production with some structural change • Extensive clean-up and recovery costs
		Environment	• Serious long-term impact on environment and/or permanent damage

*Note *1:*

Levels 1 and 2 on the impact scale are likely to fall below the threshold for an emergency. Therefore there may be no statutory requirement to plan for events that score 1 or 2 on the impact scale.

Explanation of Categories of Impact*2

Category	Explanation
Health	Encompassing direct health impacts (numbers of people affected, fatalities, injuries, human illness or injury, health damage) and indirect health impacts that arise because of strain on the health service
Social	Encompassing the social consequences of an event, including availability of social welfare provision; disruption of facilities for transport; damage to property; disruption of a supply of money, food, water, energy or fuel; disruption of an electronic or other system of communication; homelessness, evacuation and avoidance behaviour; and public disorder due to anger, fear, and/or lack of trust in the authorities
Economic	Encompassing the net economic cost, including both direct (eg loss of goods, buildings, infrastructure) and indirect (eg loss of business, increased demand for public services) costs
Environment	Encompassing contamination or pollution of land, water or air with harmful biological/chemical/radioactive matter or oil, flooding, or disruption or destruction of plant or animal life

*Note *2:*

This is based on the model likelihood and impact scoring scales published in Annex 4D of 'Emergency Preparedness', HM Government, 2005.

Likelihood Scoring Scale

Level	Descriptor	Likelihood Over 5 Years	Likelihood Over 5 Years
1	Negligible	>0.005%	> 1 in 20,000 chance
2	Rare	>0.05%	> 1 in 2,000 chance
3	Unlikely	>0.5%	> 1 in 200 chance
4	Possible	>5%	> 1 in 20 chance
5	Probable	>50%	>1 in 2 chance

Appendix 3 – Definitions of Nationally Approved Risk Ratings*[3]

Definitions of Nationally Approved Risk Ratings	
Very High (VH) Risk	These are classed as primary or critical risks requiring immediate attention. They may have a high or low likelihood of occurrence, but their potential consequences are such that they must be treated as a high priority. This may mean that strategies should be developed to reduce or eliminate the risks, but also that mitigation in the form of (multi-agency) planning, exercising and training for these hazards should be put in place and the risk monitored on a regular frequency. Consideration should be given to planning being specific to the risk rather than generic.
High (H) Risk	These risks are classed as significant. They may have a high or low likelihood of occurrence, but their potential consequences are sufficiently serious to warrant appropriate consideration after those risks classed as 'very high'. Consideration should be given to the development of strategies to reduce or eliminate the risks, but also that mitigation in the form of at least (multi-agency) generic planning, exercising and training should be put in place and monitored on a regular frequency.
Medium (M) Risk	These risks are less significant, but may cause upset and inconvenience in the short term. These risks should be monitored to ensure that they are being appropriately managed and consideration given to their being managed under generic emergency planning arrangements.
Low (L) Risk	These risks are both unlikely to occur and not significant in their impact. They should be managed using normal or generic planning arrangements and require minimal monitoring and control unless subsequent risk assessments show a substantial change, prompting a move to another risk category.

*Note *[3]:*

This is based on the model risk rating matrix published in Annex 4F of 'Emergency Preparedness' (HM Government, 2005).

Further Information

In addition to this version of the risk register, the Contingency Planning Unit (CPU) also publishes a much shorter version that looks at the top risks faced by the London Borough of Hounslow, and has suggestions on what members of the community should do in case of an emergency. Community members can get access to printed copies of that version at the Civic Centre.

The Hounslow Resilience Forum is also looking into conducting workshops in schools to educate children about the purpose and benefits of a risk register. To find out more about this, please use the details given in the following section to contact us.

Questions?

If you have any concerns or questions about the risk register in general, or wish to engage with the Contingency Planning Unit (CPU) on the assessment of risks in the borough, the CPU can be reached via email, phone, and mail at:

Email: contingency.planning@hounslow.gov.uk

Phone number: 020 8583 5111

Address: Emergency Control Centre,

Civic Centre,

Lampton Road,

Hounslow, TW3 4DN

London Borough of Hounslow
Civic Centre, Lampton Road
Hounslow TW3 4DN.
Telephone: 020 8583 2180

Email: communications@hounslow.gov.uk.

www.hounslow.gov.uk