Fault Traces:
Civilian Architectural Responses in the Syrian Civil War

by
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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

In the discourse of urban warfare, architecture normally has two roles: it is the object of destruction during fighting, and the object of reconstruction after conflict ends. There is little consideration for a third role of architecture: construction that happens in the heat of conflict. During the Battle of Aleppo (2012 – 2017) in Syria, combatants depended on the city to fight and in doing so radically transformed it. Combatants in Aleppo, like in most contemporary conflicts, created, targeted, and manipulated urban space for power. When the city transformed to both battlefield and weapon, its residents were at risk in their own homes and neighbourhoods. Contrary to our perception of civil society during crisis however, people in Aleppo were not just passive victims of war; they were active participants in shaping the city but for survival rather than power. I refer to this urban phenomenon as 'civilian architectural response,' where people must cope with violence by creating and changing the urban space around them. Their interventions in the city could be anything from building new structures, to altering existing ones, to creating new resource networks. Civilian architectural responses give necessary insight into the effects of war on civil society at the human scale, embody a new collective memory, and inform resilient visions of reconstruction.

What makes Aleppo and other conflict cities today different from earlier wars is the ability for outsiders to peer into the place of conflict as it happens. Thanks to the contemporary ubiquity of phone cameras and social media, people document almost every act of war and broadcast it to the world. In that footage is an opportunity to fill the gap between our understanding of architecture as a target of destruction, and architecture as a project of reconstruction.

In this thesis I investigate, document, and analyse civilian architectural responses in Aleppo during the Syrian Civil War. I consider each case from its materiality, to its urban environment, to its place in the conflict. I also outline a method based on forensics and crowd-sourced footage to conduct this analysis. I compose responses into three types: movement, civil space – where residents live – and infrastructure. Each section begins with a look at the violent, urban forces that threatened civil society followed by an account of the civilian architectural responses that resisted them.

Acknowledgments

I owe the foundational and defining time of this work to Jane Hutton in my first term of master's. I began with no idea how to do this work and she changed how I read, wrote, and researched in just a few short, but intense, months.

When I first began I reluctantly and spontaneously visited London (UK) for most of a week. Forensic Architecture (FA), where I had the privilege of working a couple of years earlier, had a big opening as part of their nomination to the Turner Prize. It was the perfect chance to speak to friends about which of my ideas could become something. Shourideh Molavi, Chris Woods, Samaneh Moafi, Nicolas Gourault and Eyal Weizman all generously took time speak to me and to listen to my scattered thoughts about architecture and war in Syria. Thanks to them I came back to Cambridge knowing exactly what to do. There is a lot to say about how FA affected me, but I will keep it specific to this thesis; I must also thank Xristina Varvia, Nicholas Masterton, and once again Eyal Weizman. Eyal has been both a gracious mentor and friend who is always generous with his support. I am particularly grateful he took time to read and critique my work as the external reader.

I must give the biggest thanks, of course, to my wonderful supervisor and dear friend Robert Jan van Pelt who was immediately attentive and supportive from the time I first asked to meet with him until the last day of defence. Robert Jan was always generous with his time and available when I needed him even in his crazy schedule. At the same time, he pushed and encouraged me to be confidently independent in my work. I always left his office calmer and reassured– kind of like a shrink. I will always appreciate that he edited and commented on work even outside the thesis, something he was not obliged to do. He taught me to write more freely and passionately and less like a '60-year-old bureaucrat.'

Maya Przybylski agreed to be my committee member even in her busies months and I am grateful for it. Maya immediately understood what I was trying to do and among countless valuable pieces of advice throughout the thesis, she uniquely helped me figure out how to actually do this research when I was lost in scope, flow charts, and wondering whether I should learn to code (no). Maya was always patient, grounding, and it still amazes me how clear and concise she is.

Early in my undergraduate education, when I was hungry to bring in my political interests into my studies, Adrian Blackwell was one of the first people that confirmed and showed me how architecture is, and must be, political in theory and practice. Adrian continued to fuel this interest of mine even as his teaching assistant five years later. I am thankful to him for reading my work and for his deeply thoughtful questions as the internal reader.

My interest in Aleppo's conflict urbanism began in a third year undergraduate design studio I took with John McMinn. John gave us the freedom to study and design in a place and context of our choice. I thank him for his early encouragement and questions.

Without the office staff of this school I am pretty sure the building would collapse. Thank you to Nicole Guenther, Donna Woolcott, Emily Stafford, Emily Anglin, and Barb Myltschenko for making my seven years at Waterloo as smooth as possible and for always being approachable and willing to help with a smile.

Thanks to all the friends that kept this small town a good time and those outside that checked in on me. To Nic for all the coffee and conversations on violence in the apartment of darkness. To Dio for being eager to listen to what I've been working on even across the world. And to Elly for her relentless support, positivity, and for always listening to my ramblings.

Thank you to my brother Sami and sister Sara for the jokes, curiosity, and encouragement. And of course, to my lovely parents, Buthaineh and Salim, for their endless support, motivation, wisdom, and love; I would be nothing without them.

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Preface

As I wrote this thesis the fate of millions of people in Idlib loomed heavy on the world. Although a ceasefire was technically in effect, the prospect and tension of a catastrophic assault was mounting for months. It finally erupted at the turn of 2019 and more than a million Syrians fled the country in just a few weeks. They left only to face what they have been facing for years: demonization, assault, rejection, and exploitation as political tokens.

As I finished writing the war entered its tenth year. I grew up with this war and watched it unfold from afar as it tormented the population. I often found it hard not to feel overwhelmed by helplessness to the point of paralyses. This thesis is in a way an attempt to resist that feeling; it comes from a need to make sense of the war even if in the slightest way and by whatever means I have to me.

While watching the suffering of any people is painful, Syria especially reminded me of my blessings as someone with family living there. While I am grateful for my life of security in Canada, I bring up Syrians displaced by violence for another reason: I acknowledge the cruel irony that my wellbeing here along with all other settlers is directly rooted in the displacement and suffering of Canada's indigenous people and continues to this day. I am grateful for their historical stewardship of this land. I acknowledge that where I wrote this thesis, between London and Cambridge, Ontario, Canada has a history that precedes us as settlers. London is the traditional territory of the Anishinaabeg, Haudenosaunee, Attawandaron (Neutral), and Wendat peoples. Cambridge and the University of Waterloo is situated on the Haldimand Tract, land that was promised to the Haudenosaunee of the Six Nations of the Grand River, and is within the territory of the Neutral, Anishinaabe, and Haudenosaunee peoples.

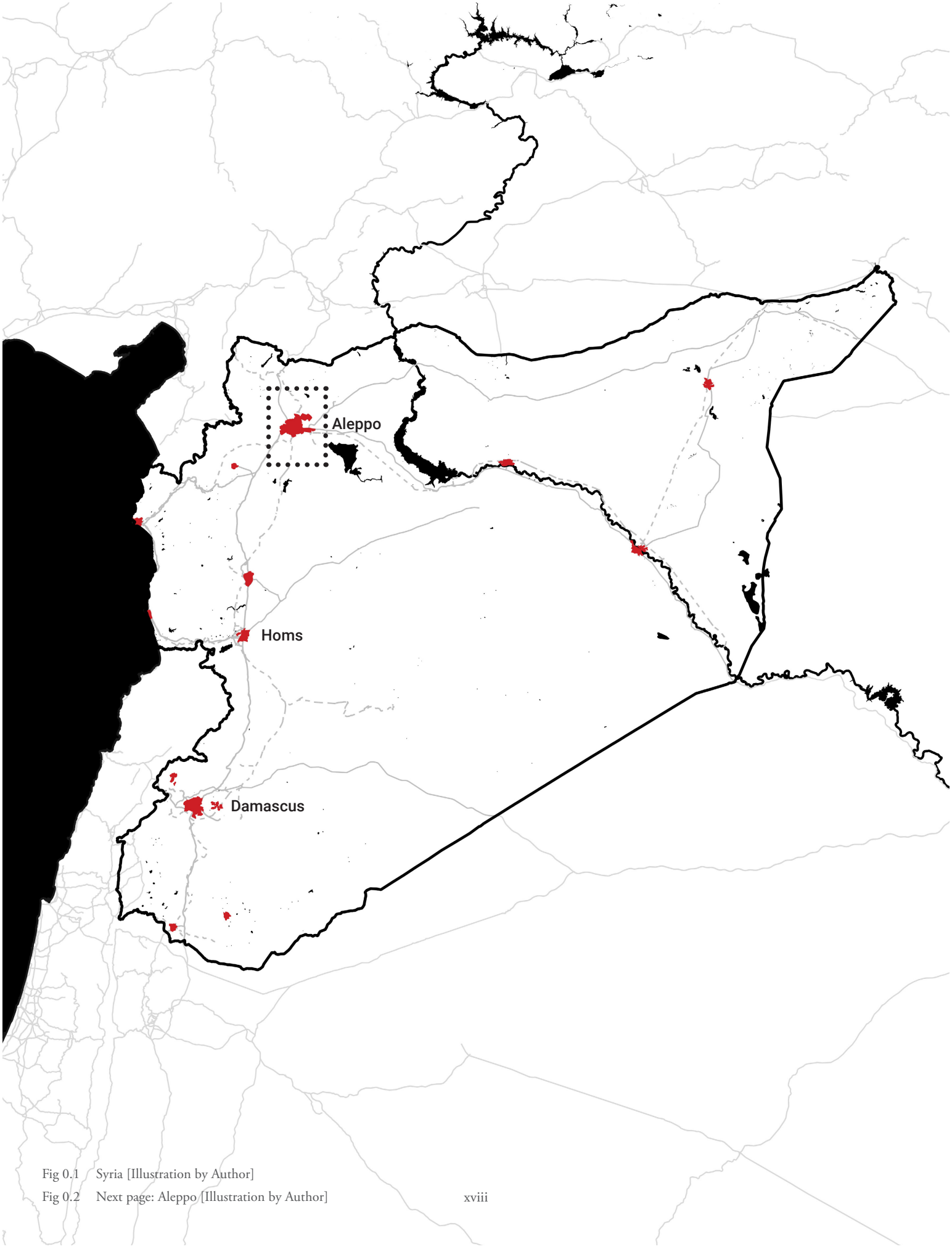


Fig 0.1 Syria [Illustration by Author]

Fig 0.2 Next page: Aleppo [Illustration by Author]


0
2 km

The town is old as eternity yet new as if it has never ceased to be. O city of wonder. It stays, but its kings depart. They perish but its ruin is not yet decreed.

As for the town, it is massively built and wonderfully disposed, and of rare beauty, with large markets arranged in long adjacent rows so that you pass from a row of shops of one craft into that of another until you have gone through all the urban industries. These markets are all roofed with wood, so that their occupants enjoy an ample shade, and all hold the gaze from their beauty, and halt in wonder those who are hurrying by.

Ibn Jubayr, describing Aleppo, Rihlah, 1185
Andalusian geographer

It is an excellent city without equal for the beauty of its location, the grace of its construction and the size and symmetry of its marketplaces

Ibn Battuta on Aleppo, 1348
Berber scholar and explorer



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Fig 0.6 Next page right: A man rushes a young girl away from a site of bombing [AMC. YouTube]


AMC
مركز حلب الإعلامي




AMC
مركز حلب الإعلامي

Introduction: Surviving the Conflict City

The war was never supposed to make it to Aleppo. Aleppians assumed their city was prosperous enough as the economic center of Syria – that enough people were content to stay quiet in the wave of protests and later violence that swept across the country.[1] Even with their hope, the war did come to their doorsteps and in more deadly force than anywhere in the country; a difficult claim to make in a nation so devastated by a war entering its tenth year as of this writing. Cities are inseparable from how war unfolds in their streets and in turn their very fabric has much to tell about the lives of their residents in crisis and how they cope.

When shots rang out in Salaheddine neighbourhood on a summer night in 2012, it was from within the city that the war's deadliest and longest battle began. There were firefights in the streets, alleys, and buildings of the neighbourhood along with artillery, mortar, and aerial shelling from afar. Salaheddine neighbourhood quickly became a highly contested place tugged back and forth between rebel and government control. The desperation to hold on to the neighbourhood throughout the long four years of battle meant that Salaheddine was continuously attacked and its residents were at constant risk.

In a matter of days, the fighting spread to other neighbourhoods in the city as rebels tried to overwhelm government forces and keep momentum of gaining ground. Government forces responded with a heavy counterattack that shook Aleppo's residents. "The sound of bombardment has been non-stop […] For the first time we feel Aleppo has turned into a battle zone," a resident told Reuters in June of 2012.[2]

Many of Aleppo's neighbourhoods changed hands multiple times throughout the battle, leaving them in ruins as a result. As fighting raged, residents fled to other neighbourhoods or to other cities all together while many others were trapped. With the rapid pace of the battle, the frontlines changed sporadically and without warning.

Salaheddine neighbourhood sits just west of the *Queiq* river that bisects city from north to south. Aleppo sits on a plateau surrounded by farmland that produces olives and famed pistachios. East of the river is Old Aleppo at the centre of the city. Its oldest parts were once surrounded by ancient walls, of which only gates remain. After the 12th century the

city grew outside of the walls into new neighbourhoods including the Christian quarters. Although no walls stand today, you can clearly distinguish the old and new city by a contrast of fabric. The old city is dense and made up of centuries old courtyard houses and meandering alleyways and streets. Its irregularity comes from its organic, need-based, growth. Puncturing the dense fabric are monuments spanning the empires that controlled it from Umayyad, Mamluk, to Ottoman among many more.

At the centre of the old city emerges a tall hill, on top of which the ancient citadel watches over the city as its most recognizable icon. A deep trench separates the citadel from the city, connected by a single bridge. Fighters restored its ancient function when they fought over its control and used it to watch the neighbourhoods below.

Old Aleppo suffered heavy damage in the battle, and as a UNESCO world heritage site, grabbed the attention of the world. The frontlines that divided control often cut in the middle of its dense fabric. Bombardment and firefights in the old city reduced many of people's most treasured heritage sites to ruin. The medieval market, an iconic centre of the city was burnt and riddled with bullets, and the thousand-year-old minaret of the Umayyad mosque, a cherished iconic monument, was also destroyed just months later. Many more great churches, mosques, and the al-Bandara synagogue also took heavy damage throughout the battle. The destruction of these places, the monuments of history that define the spirit of the place and its people, what urbanists refer to as the *genius loci,*[3] also means the disintegration of those people's identity and hope.[4]

At the end of the 19th century under Ottoman rule, the elites of Aleppo began to plan new suburbs influenced by European 'rational' planning and form. They slowly migrated out of the old city and to new villas and apartments.

The most influential period on Aleppo's urban form today is the French Occupation (1923-1946). Their presence coincided with a population boom that required expanding Aleppo, a task done according to French planning principles. They planned new neighbourhoods with boulevards and roundabouts throughout the city and the new dominant housing typology became the attached walk-up apartments like in Paris. Planning continued according to the same Western approach even after independence and later included modernist detached apartment towers as well. The population of Aleppo continued to grow rapidly into the 2000s largely because of rural to urban migration. The growth was so rapid that approximately half of Aleppo's pre-war population of 2.4 million lived in informal 'illegal' settlements often found on the outskirts of the city.[5]

Aleppo was always an important trade hub; it was an important stop for centuries on the Silk Road. Near the end of Ottoman rule, Aleppo was also an important stop in the short-lived Baghdad-Berlin Railway project of the early 1900s. Before the civil war, Aleppo was the largest city and the commercial centre of Syria. Aleppo's geo-political and trade importance made the fight for it especially vicious. At the start of battle Syria's embattled

president, Bashar al-Assad, himself declared that "the fate of our people and our nation, past, present and future, depends on this battle."[6] The Battle of Aleppo lasted a gruelling four years between 2012 and 2016 and resulted in one of the longest sieges in modern warfare, the destruction or damage of almost 36,000 buildings, and the death of more than 23,600 civilians. As a site of ongoing conflict, studying Aleppo is especially urgent to make sense of the war in Syria and the world at large today. The extreme violence Aleppo experienced, the length of battle, its size, and the role of the city in how combatants fought and civilians survived, makes it an important case of conflict urbanism and the role of improvised civilian urbanism in it.

The outbreak of the Battle of Aleppo exemplifies how conflict takes place in cities today: the clash turned into four-year battle was like spontaneous combustion. It began not as an advance by an invasive power into the city but sprung out from the fabric of the city itself.

After the rebels overwhelmed government forces and overtook Salaheddine neighbourhood and others, government forces launched multiple attempts through raids and shelling to wring the neighbourhood back to their control. They finally succeeded in August when rebels withdrew from most of the neighbourhood. When combatants win and lose a neighbourhood in urban warfare, however, violence does not end for residents; it only changes form.

Urban combatants tighten their grip on neighbourhoods and streets by positioning snipers on buildings overlooking important streets, instantly transforming residential blocks to outposts and watchtowers. This of course also means dangerously paralyzing any civilian movement as well.

"When a sniper sets up in a building, that's it, we could be stuck for weeks" a rebel told Reuters in 2012.[7] To continue fighting, combatants created new ways to move through the city. Hadeel al-Schalchi reported for Reuters in 2012 about a group of rebels that made paths in apartment buildings to stay out of government forces' sniper vision. "On our right are snipers and on our left snipers. So we will go *through* these buildings" they told her (emphasis added by author). [8] In her report, al-Schalchi describes how the fighters of the unit broke holes through multiple interior walls of residential buildings in the Saladin neighbourhood, the place where the battle first broke out that summer, to create more secure and discrete passages across the urban battlefield. They moved through bedrooms, hallways, and stairs from one apartment to another. She describes these places and their mundane objects as lives abandoned and moments frozen in time. Rebels used these rooms for shelter, as weapons depots, or food and water storage. Al-Schalchi followed the rebels through so many rooms, turns, holes, and levels that she felt disoriented, not knowing where they were or how many buildings they passed through. As they stood still at the end of the passage the only thing separating the rebels and the government soldiers was a single concrete wall.[9] Architecture here is both the medium that allows them to continue

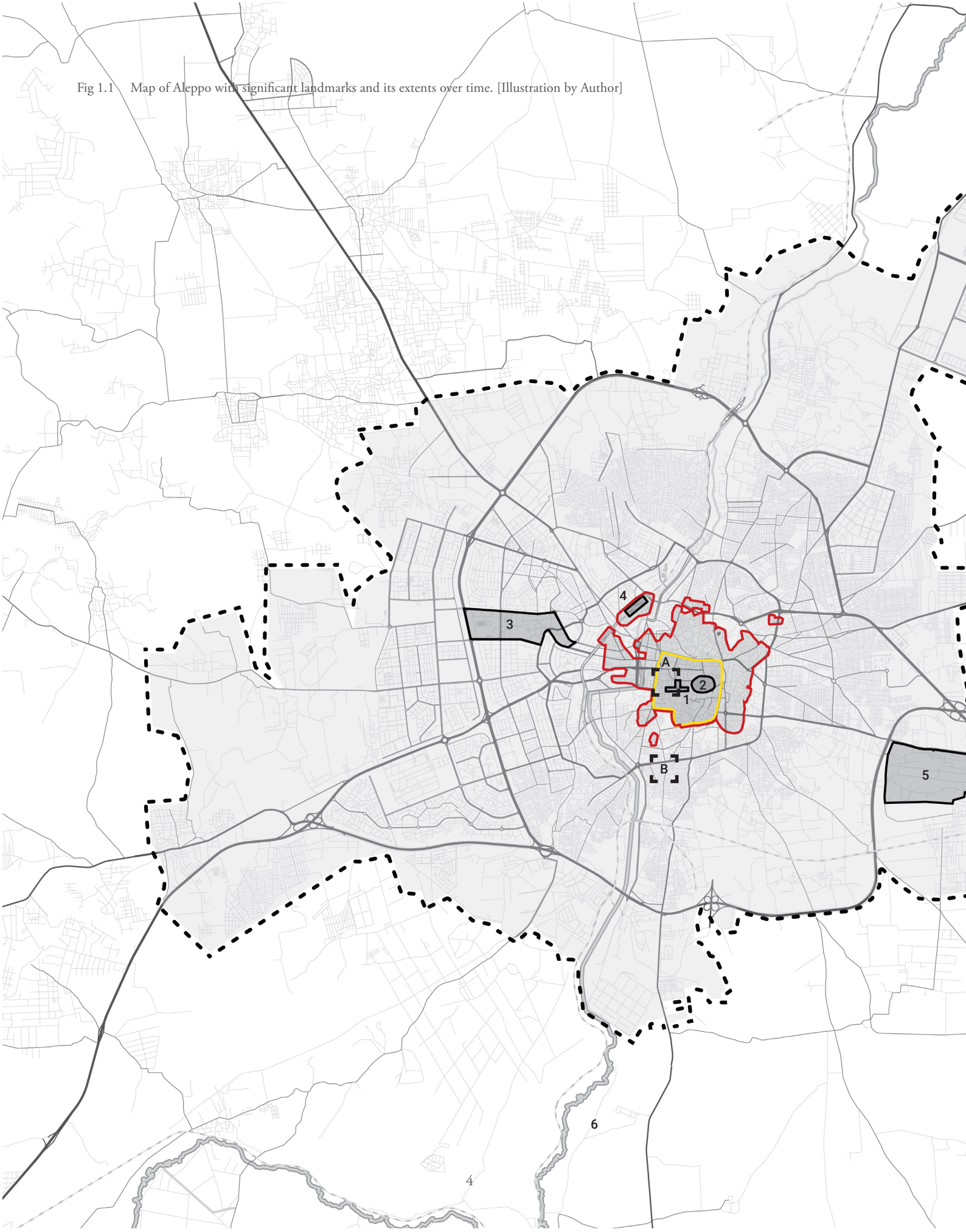


Fig 1.1 Map of Aleppo with significant landmarks and its extents over time. [Illustration by Author]

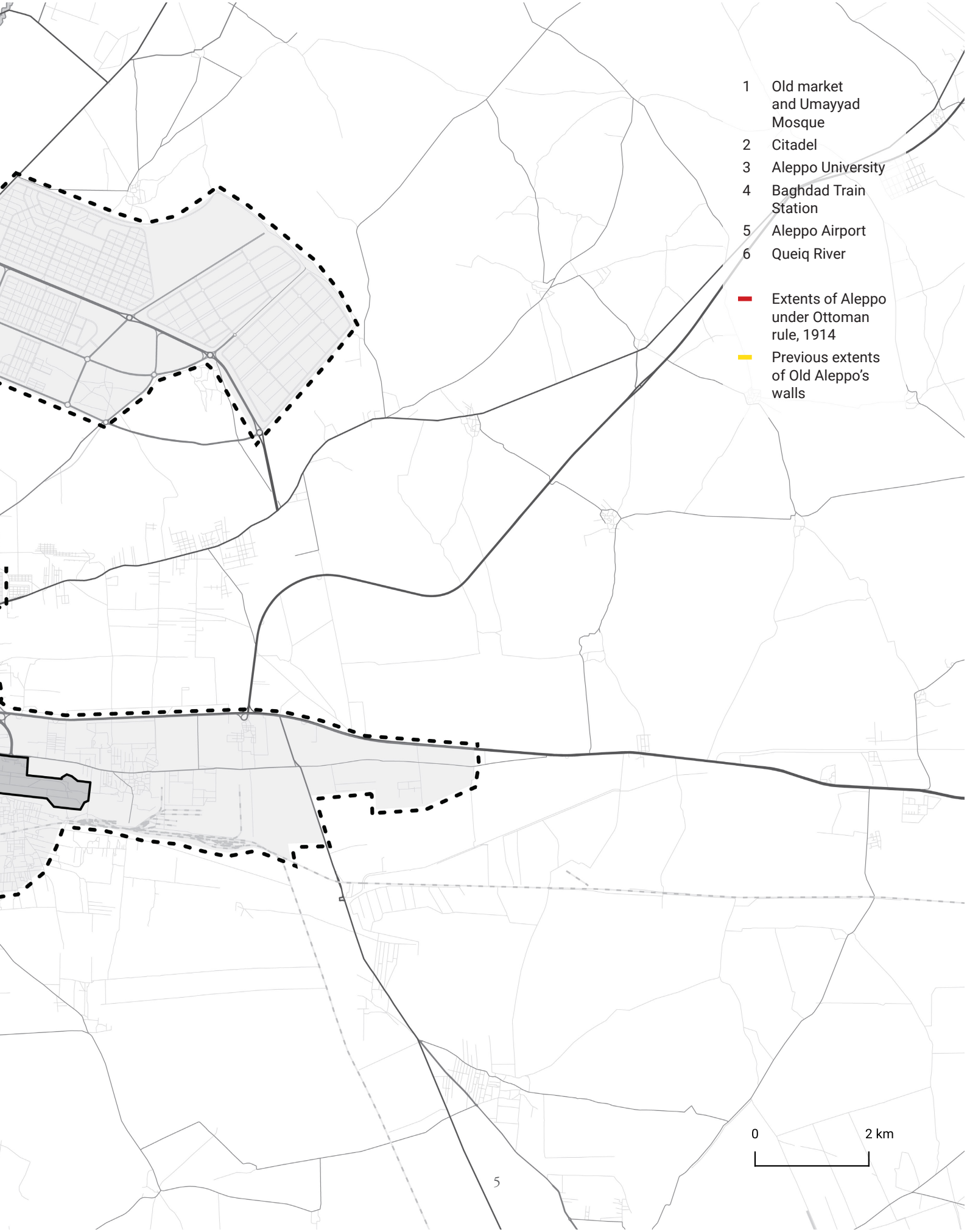

1 Old market and Umayyad Mosque
2 Citadel
3 Aleppo University
4 Baghdad Train Station
5 Aleppo Airport
6 Queiq River
Extents of Aleppo under Ottoman rule, 1914
Previous extents of Old Aleppo's walls
0
2 km



Fig 1.7 A. Old Aleppo, al-Aqabeh Neighbourhood
Above: July 3, 2010 ; Below: February 19, 2017 [Maxar via Google]



Fig 1.8 B. Modern Aleppo, Karm ad-Dada Neighbourhood
Above: July 31, 2010 ; Below: February 19, 2017 [Maxar via Google]





fight and the reason for their entrapment in the first place. This combat by means of architecture is one of many ways fighters weaponize the city.

What are civilian architectural responses?

Combatants depend on the city to fight their battles and in doing so radically transform it.[10] They create, target, and manipulate urban space for power and in doing so bring normal urban life to a halt. When the city transforms to both battlefield and weapon, its residents are at risk in their own homes and neighbourhoods. Contrary to our perception of civil society during crisis however, residents are not just passive victims of war, they are also active participants in shaping the conflict city but for survival rather than for power. I refer to this urban phenomenon as 'civilian architectural response,' where civil society must cope with the threats of war and crisis by creating and changing urban space. Their interventions in the city could be anything from building new structures, to altering existing ones, to forging new resource networks. Their reactions to violence make up an entire urban typology that we have previously overlooked in the discourse of conflict cities which gives necessary insight into the effects of war on civil society, recalls their collective memory, and informs resilient visions of reconstruction.

In geology, *fault traces* refer to the visible remnants of fractures on the earth's surface because of seismic activity. It also refers to the lines drawn on a map to record where faults, or cracks, appear. I adopt the term in this thesis because civilian architectural responses are physical remnants, or traces, of war's fractures on the city. The interventions are indicators for the presence of violence that begged a response. The second meaning of fault traces is also fitting because in the study I find and document by drawing and mapping each response I find.



Fig 1.9 Fault traces after an earthquake in Guatemala, 1976 [USGS, George Plafker]

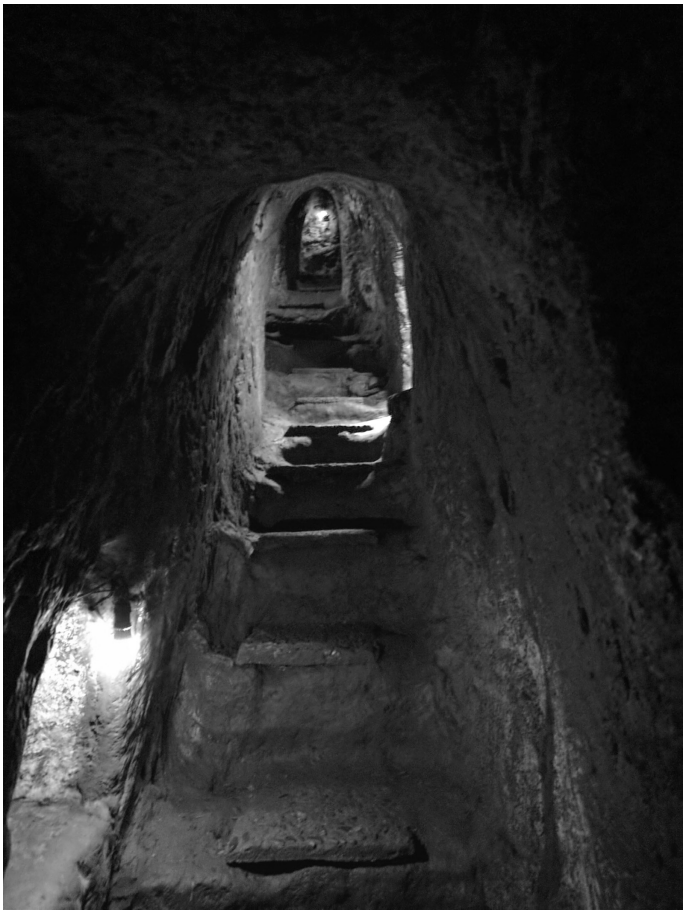


Fig 1.10 Vinh Moc Tunnels, Vinh Moc, Vietnam
[Paul Mannix. 2017. CC BY 2.0: https://bit.ly/1mhaR6e. Edited by Author]

The Vinh Moc tunnels in Vietnam are earlier and well known civilian architectural responses. The tunnels were a collective effort by residents in the village of Vinh Moc to dig an elaborate, multi-layered, network of deep, underground passages and rooms to shelter against US bombing during the Vietnam War. The war forced them to live there for years and establish a new underground society. The tunnels receive some attention because of their extensiveness but efforts like this one exist in all wars and hold equivalent social and political value even when made up often smaller, individual interventions like in Aleppo. I do not suggest that we should look at war simply to study novel forms of architecture and urbanism. Rather, civilian architectural responses hold political, spatial, and cultural value we have not yet seriously considered.

Architects of the immediate future

In the discourse on (urban) warfare, architecture normally occurs in two roles: it is the object of destruction during fighting, and the object of reconstruction after conflict ends. There is little consideration for a third role of architecture: construction that happens in the heat of conflict.

Since the establishment of standing armies in the seventeenth century, military engineers developed significant knowledge on creating trenches and other makeshift structures that provide almost instant protection to soldiers in the field. Armies were supposed to engage in battle outside of cities, and if warfare involved the city it was because it was under siege. In the Second World War, urban warfare became more common: during the Red Army's defence of Stalingrad (1942-43), the uprising of the Jews in the Warsaw Ghetto (1943), and the Warsaw Uprising under leadership of the Polish Home Army (1944), apartments, public buildings, factories, and warehouses were transformed into improvised fortresses as battle raged. These emergency construction activities were not documented then nor studied later. They escaped the interest of an earlier generation of historians and theorists because they not only produced little evidence like drawings, records of consultations, construction documents, and photos, but also because the long-term temporality of traditional architectural thinking was unable and unwilling to cope with the make-do character of construction amidst exploding shells and bombs.

Like the Battle of Stalingrad and the two battles in Warsaw, in The Battle of Aleppo (2012-2016) the urban fabric became central to fighting. Combatants repurposed and targeted civil space, reconfigured movement in the city, and exploited infrastructure to undermine one another. Civil space here means all space that belongs to and serves the local civilian population. For civilians in Aleppo, their movement could be halted, their buildings targeted, and resources cut without warning.

While all urban warfare inevitably means the weaponization of the built environment which then provokes civilian architectural responses, what makes Aleppo and other conflict cities today different from earlier wars is the ability for outsiders to peer into the place of conflict as it happens and see those ephemeral responses. Thanks to the contemporary ubiquity of phone cameras and social media, people document almost every act of war and broadcast it to the world. While the information available appears to be of little historical interest, in situations of conflict and severe human rights violations, those images and reports are an opportunity to fill the gap between our understanding of architecture as a target of destruction, and architecture as a project of reconstruction. Civilians who lived through the Battle of Aleppo and who during that conflict engaged in emergency construction with few resources and little time also created a mass of evidence on social media that we can readily harvest and interpret. Our extended visual reach into the

conflict landscape allows us to see the civilian architectural responses in real time that were previously invisible.

In this thesis I investigate, document, and analyse civilian architectural responses in the Battle of Aleppo during the Syrian Civil War. I examine the role of architecture as a tool in conflict: how people are threatened by it, and inversely, and more significantly here, how they use it to survive?

We assume that architecture as a practice comes to a halt during war because we predominately understand it as a commodity; we sell our time to design space that will be sold and bought for profit. But architecture is much more complex; its essence as the formation and shift of space and perception is ever present, even during war. Not only is it present, it is in a state of constant and rapid transformation. The architecture I refer to in here is not just a work of art designed by a professional–it is all space formed and changed by actions and reactions to violence.

I do not try to create an exhaustive catalogue of civilian architectural responses in Aleppo. Instead I use select cases of intervention to define the phenomenon and convey its political, urban, and cultural value.

I call on practitioners of city making like architects along with urban researchers to consider these seemingly banal structures and spatial actions as a source of insight for understanding what happens to cities during war and to find lessons for reconstruction. Non-governmental organizations (NGOs) that work in conflict zones like Syria to rehabilitate and provide shelter and essential resources can also use this research and approach in their evolving responses to humanitarian crises. Others reading this thesis will can gain an understanding of the conflict at the human scale by considering the spaces created and left behind by the victims of war.

I weave between the architectural moments in space and time to tell their stories of the battle. I rely on open source social media to find these unique responses and contextualize them in the city and conflict.

Why should we look at civilian architectural responses?

Civilian architectural responses give unique insight into civil society and the violence of war on the human scale, embody a new collective memory of trauma, and point to weaknesses in city design.

Voiceless testimony

As responses to violence and extreme urban conditions, civilian interventions are symptoms of urban warfare. This means that we cannot fully understand the cause and effect

of war if we do not consider the spaces civilians create, change, and occupy during it. Finding and analysing the urban behavior of civilians in conflict gives insight about the role of architecture in inflicting and resisting violence.

Critical writing on war often focuses on abstract political and military events but ignores their immediate effects on civil society.[11] When books on conflict consider individual civilians, they are often anecdotal, personal stories of hardship but rarely make up the core of a critical theory. Civilian architectural responses contrarily are a direct account of war's impact on people; they are voiceless testimonies that speak for the individuals that built them and a common condition of civil society in conflict. I adopt a human-centred approach to looking at war through the spaces people occupy; an approach I hope deters the influence of ego and ideology so typical in political writing. The interventions show us how people with limited agency exercised control over their fate not only by moving across space, but also by manufacturing and remanufacturing it.

New collective memory

As tangible traces of resistance, civilian architectural responses are vessels of collective memory; each artefact tells a unique story of their impromptu architects and what they were responding to. As the city is destroyed, transformed, and divided, people may begin to feel dispossessed and disconnected from places they called home their entire lives.[12] The disintegration of city in war also means the disintegration of identity and hope because places and objects define our collective memory.[13] Aldo Rossi, an architect and theorist, defines the city by the "collective memory of its people" and that similarly to individual memory, it is tied to the objects and places around them.[14] Collective memory then relates to object and place. Architectural critic Robert Bevan goes so far as to equate the destruction of collective memory embedded in architecture with killing people themselves because it is an erasure of the objects that define community.[15] We can find and reclaim collective memory in new objects, however. Together across the city, the architectural interventions of people compose a collective story of life under war unique to individuals but simultaneously resonate with all Aleppians and indeed with global struggles. To document civilian architectural response is to document the collective struggle it was born from. Civilian architectural responses are therefore the material manifestation of the collective memory of trauma and resilience. The documentation of these fleeting moments embodied in ephemeral objects is essential for preserving a comprehensive account of a unifying collective memory necessary for recovery and hope.

Lessons about the city

Civilian architectural responses show how the city and its residents behave under the immense pressure of war. The necessity to respond through architecture in crisis reveals inherent points of vulnerability in the urban fabric and urban systems. By listening to the crisis architecture of victims, we might learn urban lessons for more resilient and empowering reconstruction because indeed resilience comes from adapting to weakness. These lessons may apply to rebuilding Syrian cities and anywhere else we recognize the same vulnerable characteristics outside of crisis. This is especially important for cities of the developing world whose citizens may face that same violence themselves. We can inversely also use them to advocate against harmful proposals. I do not translate interventions into design lessons here but see it as a potential in future comprehensive studies of civilian architectural response to inform the reconstruction of war-torn cities in Syria and abroad. The growth of this study on a global scale can create a globalized discourse of learning from crisis so that we are not condemned to suffer under the same conditions repeatedly.

Violent Architecture

Urban space is militarized and continuously reshaped by appropriating, systematically targeting, and creating architecture for leverage. For Eyal Weizman, an architect and theorist, the city today is not just the backdrop of conflict but the 'very medium of warfare.'[16] The urbanization of warfare brings the weight of political crisis to the doorsteps of traditional city makers and civilians forced to take on that role. Considering architecture as persistent in chaos and as intrinsically tied to contemporary warfare and cultural production makes up an emerging field of research and theory today. Architects like Andrew Herscher, Wendy Pullan, and Eyal Weizman have all pioneered novel approaches to understanding the role of construction and destruction during battle, military occupation, and in culture.[17]

In his analysis of the Kosovo Conflict, Herscher demonstrates how the destruction of architecture was not merely a side effect of war but an essential and intentional process in the ethno-religious violence of the conflict; a way to manipulate demographics and identity.[18] Weizman traces the Israeli apparatus of occupation to simple architectural elements. He exposes how the separation wall, settlements, checkpoints, and other border elements constitute a flexible and 'elastic' occupation.[19] Pullan examines how contested cities are made up of explicit and implicit urban 'frontiers.'[20] She analyses how the architecture of housing and settlements in Jerusalem, a checkpoint along the German-Polish border towns of Guben/Gubin, and museums in Nicosia are implicit frontiers of contention and spatial extensions of conflict.[21]

These works are valuable precedents for considering violence through architecture. They successfully expose the strategic exploitation of the built environment by state powers to grip control. They collectively overlook however, the role of civilian agency to resist that very violence by the same means of architecture, cutting short any comprehensive account of conflict urbanism.

With regards to temporality and method, Herscher and Pullan's works are retrospective, analysing conflict after the event of violence. Herscher relies on interviews, field work, and archive material like photographs and documents to trace the targeting and role of architecture.[22] Weizman on the other hand analyses a long-standing current condition. His goal is to uncover those already existing mechanisms in plain sight. This thesis works in real time with the Syrian Civil War and looks for another type of architecture in conflict – one in the hands of Aleppo's residents. This work is urgent because of its potential to aid understanding of a contemporary conflict city and how we may move forward from it.

(Informal) 'Shelter City'

Architectural historian Koos Bosma analyses how the conflict cities in the Second World War led to building 'shelter cities,' secondary planes of state mandated shelters and bunkers.[23] The shelters were built either for single families or entire neighbourhoods. This plane is an alternative space where people lived a 'double life in a double city.' [24]

Shelter cities exist in the Syrian conflict city too, but people instead build them independently and informally as civilian architectural responses. Instead of a layer beneath the earth, they weave between the fabric of the formal city, both invisible and in plain



Fig 1.11 Air raid shelter in a London Underground station in London during WWII, 1940s

sight. The informal shelter city found in Aleppo and other civil conflict is fluid and sporadic, with no predictable or consistent form. It grows organically as the formal city disintegrates. Although the form of this alternative city is different in Syria today than Amsterdam in World War II our task in making sense of it is the same. To find Bosma's 'shelter city' and the informal shelter city made by citizens, we must conduct what he calls a 'full body scan of urban tissue.'[25]

Civilian architectural response is a different type of informal urbanism compared with conventional definitions. They work outside of regulation and professional practice but exist in and because of an emergency environment rather than economic structures. Even progressive urbanists like AbdouMaliq Simone, Kim Dovey, and Wiryono Raharjo that argue for the reconsideration of informal space and their urban and social value do not accommodate the immediate improvisation of civilian urbanism in crisis.[26] While informal urbanism typically refers to spaces made in the context of long forming socio-economic conditions, civilian architectural responses arise from immediate danger that is largely indiscriminate to demographics and class.

Monument to the Unknown Civilian

Hannah Arendt is a political theorist who thought of what defines us as unique humans in an equal society. For Arendt, we need both intentional action and expressive speech to 'insert ourselves in the human world.'[27] Arendt sees action and speech as inseparable to humanity because without speech, action loses its actor. Her concept of action is helpful to think of humanity's place in the civilian architectural responses of Aleppo; they in turn also challenge her rigid definition of action and speech.

For Arendt, action and speech together are what give us unique identities.[28] They make us individuals with personal experiences, and it is through those experiences that we connect to others. Arendt sees losing speech as also losing the human subject. This is where I disagree; because while losing speech does lose the actor's identity, it does not mean that the action is void of human character. Civilian architectural responses on their own have no explicit speech to go with them but their form speaks on behalf of their builders no longer able to speak for themselves. Civilian architectural responses in war are in fact the closest connection we have to the victims that built them. While we may not know the identities of them on a personal level, their stories, even as anonymous individuals, remain embedded in their architecture. The inanimate structures we read also become the ambassadors of the larger community that share common experiences; they represent the human condition of a place we would have otherwise seen as non-human from the outside.

Unlike Arendt's definition, I consider all architecture as simultaneously action and speech: it is an object because it is new space produced, and speech because it is a

manifestation of individual experience. Civilian architectural responses during conflict are also actions and speech but their speech is not, as Arendt associates with war, of propaganda and othering. They are not overtly ideological, but human stories of survival in their very material.[29]

Arendt sees the disconnect of action and speech in the erosion of 'human togetherness.'[30] Warfare is for her a prominent case where speech loses its power and thus leaves actions without actors. She deduces that we rely on artwork and monuments like the *Tomb of the Unknown Soldier*, which is built around the world to collectively commemorate lives lost in battle, because they begin to fill the gap of the individual we desperately yearn for. It stands as an idol that we can ascribe our grief where no human exists. Arendt sees the monuments for everyone "whom war had failed to make known and had robbed thereby, not of their achievement, but of their human dignity."[31] The idols of civilian architectural responses are all civilians attacked and coerced to submission by oppressors. They are born out of conditions experienced by many others and so collectively, by identifying and documenting them, we can establish them as 'monuments to the unknown civilian.'

In part two, I expand on the forensic and aesthetic theory and practice that informs finding and analysing civilian architectural responses. I begin by discussing the nature and properties of open source social media as the primary source of this work. I then establish the relationship of citizen-generated footage and the built environment through the work and theory of Forensic Architecture as a pioneering multi-disciplinary research agency that conducts investigations of architectural analysis for civil claims against state violence. My research relies on many of the same concepts and tools as Forensic Architecture but for different aims. Understanding forensic research requires contextualizing it in the discourse of aesthetics to bring new awareness to otherwise unknown phenomena.

In part three, I present the civilian architectural responses I found in Aleppo through open source media. I consider each case from its material, to its urban environment, to its place in the conflict. The interventions I discuss illustrate the importance of ad-hoc construction during urban conflict, while also articulating a vision of life after hostilities. Civilian architectural responses are simultaneously distinct individual interventions born out of unique socio-political circumstances, as well as an interconnected web of collective civilian efforts to cope with violence; I relate them to one another on the urban scale and context. I define the architectural behaviour of combatants in the city as urban 'fronts' and the civilian architectural responses that bypass and resist them as 'counterfronts.' I compose the fronts of urban violence and the counterfronts of civilian architectural responses into three types: movement, civil space, and infrastructure. Each section begins with a look at the violent fronts that effect civil society followed by an account of the civilian counterfronts that resist them.

Forensically 'Looking at' *The Pixelated Revolution* [32]

Syrians that live through the civil war are not silent victims. They scream to the world about their suffering. Armed with nothing but their phones, people document and broadcast their life under conflict. Users uploaded more than four million videos related to Syria on YouTube alone since the outbreak of war in 2011.[33] In an unspoken populist commitment, civilians constantly survey places after they are shelled and at times even record the bombs and mortars as they fall. They film entire shootouts and battles on their rooftops and balconies while at the mercy of imprecise fighting and deliberate civilian targeting. They risk and even give their lives in their commitment to broadcasting the violence they and their families endure. They also film on quiet days, giving tours of their neighbourhoods in the aftermath of destruction. The immense and unprecedented volume of citizen generated media during the war is telling of both the volume of violence and the pervasive capacity among a population of impromptu frontline reporters.

During the early months of what became the civil war in 2011, a resident of Karam al-Shami neighbourhood in Homs stood on his balcony carrying his phone and began filming what he could see in the streets. There are sounds of explosions and gunfire in the background. He rushes through announcing where he is, the date, and that his neighbourhood is under attack even without demonstrations. He has an obvious shortness of breath. His hands are shaky and do not stay on any one place, constantly moving up and down, left and right in the streets and buildings around him.

This video was the main subject of a performance lecture by Rabih Mroué titled *The Pixelated Revolution* where he narrates and reflects on what it means for people to document, in the heat of conflict, their own suffering.[34] Because people often do not have the luxury of time to choose and choreograph their footage when they record, Mroué considers the camera an extension of their bodies, 'an eye in their hand,' moving in the same spontaneity of fear. [35]

In the video, the cameraman continues to pan through the streets and nearby buildings in fast and sudden motions. He moves his hand to the bottom corner of the building across from him and captures a glimpse of an armed man lurking in the shadow. He continues

to show the rest of the street before fixing back onto the man. The man moves closer to the edge where he is out of the shadow of light but still in the shadow of resolution. The man notices him. They look at one another for a moment. The fighter lifts his rifle at the camera, and with no hesitation, shoots. The video goes blank.

Open-source testimony

The footage broadcast by Syrians during the war was a cry for help that fell almost entirely silent on a spectating world.[36] The smallest gesture to honour them would be to seriously look at what they left behind both physically and virtually to investigate places we cannot go, to make claims on their behalf, to document their experience, and ultimately to not allow their suffering be in forgotten and in vain.

The volume of footage today means that we have close access to almost every event of war. Organizations like WITNESS[37], Videre[38], and The Syrian Archive[39] recognize and cultivate culture of citizen documentation and its distribution. According to founder Sam Gregory, WITNESS' objective is to "empower people to use video to open the eyes of the world to human rights violations and to transform personal stories of abuse into powerful



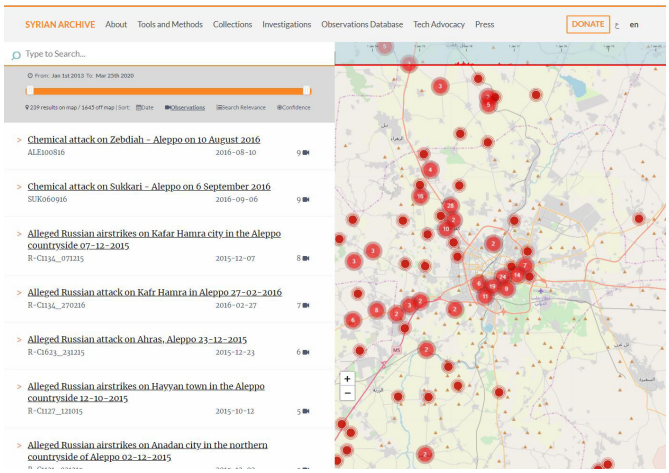


Fig 2.1 Right: Screenshot, The Syrian Archive [syrianarchive.org]

Fig 2.2 Left: Still from a now deleted YouTube video the moment before the pixelated soldier lifts his gun at the camera

tools for justice, promoting public engagement, and policy change."[40] They provide recording equipment to vulnerable people and train them how to document effectively, ethically, and safely.[41] WITNESS and Videre operate internationally and with direct contact and support of local groups in volatile places.[42] The Syrian Archive, on the other hand, is an open-source collective focused exclusively on covering footage from Syria during the civil war.[43] They collect, verify, and organize footage taken inside the country and carry out investigations into select cases of violence.[44] All mentioned organizations demonstrate a shift in human rights advocacy; they see civilian footage as evidence for crimes and violations. Their approaches to data collection and analysis contribute to a growing sector of human rights research using open-source media. Groups like Human Rights Watch and Amnesty International are increasingly reliant on citizen footage in conjunction with their conventional ground research to produce more effective and conclusive reports.

Journalists are yet another group that look to this media to conduct their investigations. This trend grew out of small citizen organizations like Bellingcat, a citizen journalist network that relies on open-source investigations.[45] When they produced findings that other large corporate news organizations could not, they quickly gained attention and those corporations, most notably The New York Times, adopted the open-source methodology and even created a specialized department they called 'Visual Investigations.'[46]

Open-source material used in contemporary human rights research seems like an open and vast archive ready to be scavenged at any time and by anyone, but the nature of this data is much more complex; if it were a true archive, the material would be organized and sorted for the researcher to access reliably. Open-source data is instead both incomprehensibly vast and unorganized; researchers must both search for evidence that may or may not exist using tools and methods that they must constantly reinvent and question. Archives are also supposed to keep their material fixed, safe, and permanent, but in the

open-source data could disappear at any time. It exists on the platforms of private social media corporations like Twitter, Facebook, and YouTube (Google) that have little interest in human rights research. To avoid public and state scrutiny of explicit content, they formulated machine learning algorithms to automatically remove content 'calculated' as explicit. By unleashing this violent program, they continuously destroy what could be valuable human rights evidence. [47] They remove entire channels of content that simply document the violent environment of conflict. In each removal is a human experience blanketly erased by their algorithms to protect other humans from seeing them. Some of this content may never reach others that can use it for new research, investigation, and understanding. Digital researchers are not dealing with an archive of documents but with an ephemeral glimpse into conflict zones that could disappear without warning or even awareness of existence.

Forensic Architecture

My perception of media's relation to architecture began in the work I did at Forensic Architecture, an agency based in London that conducts investigations through architectural and media analysis to uncover evidence of state violence and violations.[48] 'Forensics' is not typically associated with a civilian research agency – let alone with architecture. For most of us, forensics is associated with the state's scientific policing methods for detecting evidence on crime scenes and using it to prosecute citizens. Forensic Architecture, as a civilian group, purposely leans into this paradox. The practice and theory of Forensic Architecture is in fact rooted in challenging that dominant narrative of forensics as a tool of the state, questioning who has claim to that capacity, and by what means. [49] I refer here both to 'forensic architecture' as a concept as well as Forensic Architecture as the name of the research agency.

The centrality of architecture to make claims in forums did not originate with Forensic Architecture; earlier instances exist in historical and archival modes. At the turn of the century, a decade before Forensic Architecture was founded, David Irving sued Deborah Lipstadt and her publisher, Penguin Books, for libel when she labelled him a Holocaust denier in her book. To refute the libel case, Lipstadt's defence team had to also prove the legitimacy of claiming Irving told willful lies about the Holocaust. The necessity to establish the history of the holocaust as truth and his writings as falsehood effectively put the Holocaust itself on trial.[50] In this trial the ruins of the Auschwitz-Birkenau concentration camp quickly became a core medium to both make and dispute claims about the Holocaust.[51]

Deniers like Irving often looked to the architecture of the Holocaust, the concentration camps where it took place, to support their claims. They hope that by casting doubt on

something as tangible as architecture, particularly Auschwitz as the most prominent and best-preserved camp, they could credibly question the truth of the Holocaust itself.[52] Irving used this tactic to legitimize his position and by extension his claim to libel. Ironically for Irving, architectural evidence was a big reason he lost the case. The defence team hired architectural historian Robert Jan van Pelt as an expert witness to demonstrate to the court the forensic evidence for the Holocaust through Auschwitz's architecture. [53]

For van Pelt, Auschwitz was not a specimen to be studied a monolith, as was often the case in the discourse of concentration camps. He knew he had to show the judge the importance of considering the architecture of Auschwitz over the course of its history. Its changing form, purpose, and even construction make up the comprehensive understanding needed to give accurate accounts of the Holocaust.[54] Taking this historical position of 'reading' architecture already shows the fallacy many Holocaust denialists' claims about Auschwitz's documented original purpose contradicting its use as a death camp.

What many historians and especially negationists, as he calls them, mistakenly did was consider architecture's final form as flattened in time. Van Pelt's research in archives of Auschwitz, particularly his analysis of the original architectural drawings corroborated with satellite imagery and remaining documents gave a more nuanced and human account of life in the concentration camps for Jewish and non-Jewish prisoners, as well as the officers responsible for operating the extermination and labour camp.[55]

In court, van Pelt argued for the convergence of architectural evidence as the basis of defense against Irving. Arguing for architectural evidence in a legal forum makes this an earlier instance of forensic architecture as a civil practice. For van Pelt, architecture is about more than form and beauty; it also has cultural historical significance. He explains that 'a building that makes us shudder is likely to be more meaningful than a work that gives us joy.'[56]

Forensis

What Forensic Architecture breaks through in the role of architecture as evidence is using contemporary open-source media, including citizen generated footage and satellite imagery, and digital architectural modelling software for civil investigations where researchers would otherwise have no access. This skillset and resource allows inquiry into active conflict zones to push accountability almost as crimes are committed rather than retrospectively, as was the case in the Irving trial. The timeliness allowed is crucial because conflict urbanism is ephemeral and fragile. By the time we can enter the city we have no idea what remains as evidence and what was lost. Civilian architectural responses are especially delicate because they are usually ad-hoc interventions in an already ruined environment.

Forensic Architecture challenges state 'forensics' by returning to the Latin root of the

word, *forensis,* which means 'of the forum' or 'what is public'.[57] The Roman forum was an intense public space for economic, legal, and political discourse. For Eyal Weizman, the director of Forensic Architecture (as a group), and other pioneering theorists of forensic architecture (as a civil practice), returning to this root allows us to see what forensics in the dominant form loses from *forensis:* the public and the agency of civil society.[58] For Weizman, revisiting *forensis* allows us to return to its root, question its contemporary potential, and 'reorient' what forensics could mean as a civil practice. [59]

If forensics is a state practice that monitors civil society, Forensic Architecture works in reverse as a *counterforensic* practice that investigates the crimes of states.[60] While state forensics has exclusive and unobstructed investigatory access and means, civil groups of *counterforensics* adapt to their weaker capacity to investigate state crime. In turn they must continuously develop new methods of analysis in places they often cannot reach. This is where contemporary open-crowd-sourced media and the built environment become crucial for investigations into shadow zones, and especially warzones, where conventional media and civil access is impossible. These civilian methods are an unprecedented ability for the public to shed a light on otherwise unknown and uninvestigated violations in places outside public awareness.

I return to *forensis* once again to define another forensic course for civil society. This thesis takes part in what Weizman calls the 'forensic turn,' where the value of material sensibility has risen in research and investigations and expands its spectrum further.[61]

I rely on many of the same methods as Forensic Architecture to scan and analyse the urban environment, but with a different objective. Although state violence may be implicitly revealed in studying civilian architectural responses, the principle aim is not to establish a public inquiry of crime but instead a public inquiry into survival.

Because Forensic Architecture is concerned with state violence against civil society, they inevitably discount the agency of people subjected to that violence as helpless victims. In this perspective, architecture is exclusively a state mechanism to inflict violence onto civil society. This lens leaves a gap in forensic practices that this thesis fills: architecture also holds evidence of the actions, behavior, and resilience of civil society in response to their oppressors. Forensics here gives architecture a voice to speak for people about their struggle to survive in conditions of horror.

I am not saying that the forensics of this thesis ought to replace or combine with the practice of Forensic Architecture as an agency, but that there should be multiple practices of forensics. These practices should share and develop common tools for both holding states accountable for violations and looking at the spatial imprints and remnants of civil society during war.

An Unconscious Subject

The way Forensic Architecture works is of course much different to a state. They must rely on degraded means of investigation made up of less clear, less accessible, and less precise tools than those of the state. They often also cannot go and document sites themselves. For aerial imagery, they often cannot capture their own images and are limited in satellite imagery to what is publicly available at a legally degraded resolution to 31 cm per pixel – right at the size of the human body so that people and details are hidden.[62] State drones on the other hand have a resolution of a few centimeters per pixel.[63] Forensic researchers rely on a network of incomplete and imperfect fragments from photographs, videos, and satellite images, and open data to reconstruct events and spaces of violence. They look for a convergence in material for evidence of violations: how an event happened, by whom, and by what means. The convergence I seek in the same resources is the trace of architectural survival. Architecture in both applications is a fixed reference where we can compose images in space and in relation to one another, what Weizman calls the 'architectural image complex.'[64]

This thesis goes beyond reading discrepancies in cities before and after episodes of violence, it is instead sensitive to the architectural products of war. Civilian architectural responses are symptoms and indicators simply by virtue of existence. While forensic practice typically looks at banal space politicized by violence, civilian architectural responses are inherently political because they are reactionary products of that very violence and record those actuators in their very materiality. Architecture in this approach not only holds evidence of violations but also holds an implicit social and political context that unfolds around it. While Forensic Architecture looks to architecture to tell us about the crimes sensed by architecture, I look for what it tells us about life under war and the places they occur.

When a child fills a broken window or storefront with the rubble, they collect from the ruins scattered all around them in the streets, they make a new space of shelter. That change in architecture is not caused by the direct action of violence but by a response to its prevalence, its threat indirectly inspires an architectural intervention. This scavenged infill can tell us the story of this child's fight for survival by the material make up of its body.

Aesthetics

Literary theorist Terry Eagleton defines the origin of aesthetics as what our bodies sense – what traces or impressions are left on us.[65] Material aesthetics extends this sensory capacity to objects. Forensics recognizes and relies on the ability of unconscious objects to reflect unique experiences, what I consider the 'unconscious subject.' The practice can be even

public claim.[66] As objects present in and around human activity and particularly violence architecture is a sensor that absorbs and records trace of events on their bodies. [67] Civilian architecture is further both a sensor of violence and its resistance.

Forensic architecture has multiple layers of aesthetics. The first layer is the impression made on the viewer through an open-source exchange of media. In this sensibility, we can see urban environments *during* war first-hand testimony by the very people experiencing war by seeing what they see. We can tap into thousands of testimonies to gain a clearer picture of conflict cities. The second layer is the material aesthetics of the built environment that we can interrogate. The third aesthetic layer is presenting material back to a public forum: finding new relationships and evidence within architecture and media that had been there in the open all along and ascribing to it new meaning.

We cannot assume that everything 'sensible' is sensed. This is even more true when the subject is out of sight and out of reach like in the case of Syria and its urban condition. By seeking out and documenting civilian architectural, I am bringing these entities into sensory awareness. This entire thesis rests on the ability to see what was not seen before in plain sight.

For Jacques Rancière, a philosopher and cultural theorist, aesthetics is tied to politics in what he calls the 'distribution of the sensible.'[68] The distribution is about both the collective recognition of what belongs to the collective and what is exclusively individual. [69] Senses outside of this distribution are disruptions to society's aesthetic regime. For Rancière, politics depends on the sensory experience of society; aesthetics either reinforce or challenge the accepted sensory norm. [70] By this definition, forensics, as a practice of presenting new claims to the public, is therefore inherently a political act able to disrupt the distribution of the sensible.

Like the art Rancière discusses in *The Politics of Aesthetics,* civilian architectural responses pose a challenge to the aesthetic regime of the city. They act as sensible marks of change in the societal and urban order during conflict. Civilian architecture further shows where life remains and continues to resist; it is an act of physical and aesthetic resistance that leaves a mark on the urban landscape. These responses sit outside what we consider acceptable by operating in a different environment, regulated not by the politics of government but by the politics of survival.

On *Looking at War*: Understanding the relationship of violence and image

Depending on citizen generated images calls for a reflection on the aesthetics of social media and how to critically look at them. Philosopher and theorist Susan Sontag's 2002 essay *Looking at War: Photography's view of devastation and death* outlines a brief history of photography and analyses its role in capturing and conveying the horrors of war.

Through a chronological review of major works from the late 19th century up to the turn of the 21th century at the time of her writing, she seeks to understand the change in our perception of war with the emergence and evolution of war photography, which is invented with photography itself. Her essay is a critical inquiry into war photography from their authors to their effects on society. [71]

I consider the same questions here for citizen-generated footage and how open source media relates to her analysis of war photography. Do the same social and ethical concerns apply? What characteristics do they share and where do they differ? How does social media fit in the history of war photography and perception?

The pain of looking

Sontag tells of the power photography can have to shock a society that may otherwise be oblivious to the horrors of war, another source of disruption in Rancière's 'distribution of the sensible.'[72] She gives Ernst Friedrich's 1924 album *War Against War! (Krieg dem Kriege!)* as an example of 'shock therapy.' [73] Friedrich documented and displayed uncensored atrocities of the First World War, including disfigured soldiers, hanged civilians, and killed children. For Sontag, war images are shocking because the hurt us, because we empathize by instinct. Calling on Virginia Woolf, she reaffirms the power of empathy to unite us against violence.

Sontag acknowledges the psychological and emotional impact of this shock. She knows that these things devastate us and increasingly do so with the saturation of footage of war. She even says it requires 'stoicism' to be able to handle the repeated exposure to 'pictures that could make you cry.'[74] And she's right; you are left with mixed emotions of both sadness and anger, helplessness and passion.

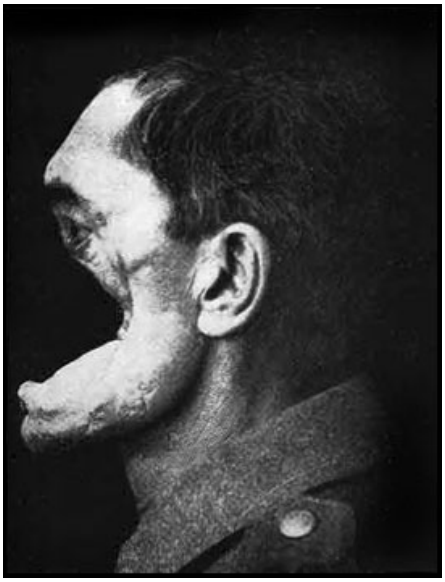


Fig 2.3 A portrait from Ernst Friedrich's *War Against War! (Krieg dem Kriege!)*, 1924

Alongside empathy, Sontag simultaneously understands that this shock is what has the power to lead change. She argues that when war is photographed and put on display it becomes more 'real' to us.[75] In Friedrich's work it is in the aftermath of war that we consider the horror of war. The images deter future conflict by creating a collective understanding that strips away the illusion of war's glory. In the Vietnam War, sometimes dubbed the first televised war, battle entered people's living rooms in daily broadcasts as soon as a day after they happened. The images of violence and particularly of their own countrymen committing atrocities against innocent civilians shifted public opinion against the war. As much as it pains us, Sontag argues people feel a need to see because there is a sense of urgency to act.[76] Managers at Google (YouTube's parent company) call the Syrian

Civil War 'the first YouTube conflict' because of its unprecedented volume of footage and reach.[77] Today the latency between events of war and our ability to view them has been virtually eliminated and the empathy shock Sontag describes becomes instant as well. Syrians send live testimonies of what is around them where we can see events as they happen with no editing, clipping or censoring by their authors. The image of war is now simultaneous to our lives.

In this work, the architectural analysis of war images seeks to mobilise not only society in understanding the civilian suffering but also to mobilise city makers to consider how our built environment behaves in conflict and use their expertise to translate architecture into relatable human experience.

Objectivity of the image

Objectivity is another question that Sontag considers in her essay that we must revisit for contemporary media. Is an image an honest account or is it always subjective? Does objectivity matter for war images? Sontag's own consideration of this issue is inconsistent. At times she frames photography as an objective and direct reflection of reality. Other times she frames photography as a rhetorical tool that is 'not real life.'[78] She also takes contradictory stances on the role of the photographer. Sometimes the photographer does not matter because the image is a direct translation of reality while other times, she discusses at length the intentions and dilemma of the photographer. [79] Whether it is intentional or not, she creates multiple paradoxical dimensions of photography throughout her essay.

In today's context of civilian generated footage, many earlier concerns about photography's objectivity are obsolete because of its volume and civilian authorship. Sontag questions the aestheticization of war images by professional photographers and artists that benefit from their images. Does this problem persist when the photographer is also the victim? We can hardly question the integrity of the photographer when we know they have little to gain personally.

Single images cannot tell the whole story as Sontag argues because they are vulnerable to subjectivity or worse, doctoring. With today's social media, however, we no longer need to rely on any single image or photographer. The recorder has a single perspective that no longer defines any one event because we can verify it in relation to other independently generated footage of the same event. The question of the authors ideology or bias is no longer relevant because we can engage with the material in relation to other images.

Contextualizing social media in the theory of photography reveals another distinction: the role of the photographer. In philosopher Walter Benjamin's essay, *The Work of Art in the Age of Mechanical Reproduction,* he analyses the shifting perception and societal role of artwork with the introduction of mechanical reproduction.[80] At the time of his writing however, photography was a deliberate and contemplative action afforded to few. Benjamin



Fig 2.4 Eugène Atget, Rue de Seine, 1924

describes to pioneering photographer Eugène Atget's photographs of empty Parisian streets as 'photographed […] like scenes of crime.' Benjamin considers these carefully crafted frames as evidence of historical events that 'acquire a hidden political significance."[81]

The citizens of war today that photograph and film the violence around them are too producing evidence of a crime although they don't capture it as 'artists' of 'professionals' carefully waiting for the perfect shot. The resident of Homs that filmed his own death as I mentioned in the beginning of this chapter, proves this to us with force. He alone can bring us to question when photography is art. If it is in relation to Atget, the distinction of artist is then about intent, about vision. Civilians on the other hand record events as they happen and in reaction to them. They have an impulse to film for the hope of justice. Civilians that capture destruction and violence do not do so 'for the explicit generation' of evidence as Benjamin describes Atget's work, they instead contribute to a cumulative volume of embedded evidence in their documentation. [82] In the photography of war, the images are still evidence of historical events but carry a very real and explicit political significance, rather than the 'hidden political significance' that Benjamin ascribes to the photography of Atget, in part because of authorship and partly because of the pace of events witnessed. [83] The scene of the crime in this thesis is not documented by an impartial professional as typical forensic crime scenes would have, they are rather captured by the victims of the crime themselves.

Finding civilian architectural responses

Given that the Syrian Civil War is an ongoing conflict, how can we question the presence and production of space and architecture in a place inaccessible to us?

While field research in Aleppo is impossible, smartphones and mobile networks create a large body of media that we can easily access, harvest, and analyse anywhere. Civilians document in overwhelming volumes of footage the events and environments of the war. Through their eyes we can see the rapidly changing urban environment as the conflict unfolds. The aim of each image and film shot by citizens is often to document violence both in action and effect. In the periphery of this media, however, is a second tier of information: the image of the built environment frozen in time. It is through this peripheral vision that we find civilian architectural responses.

Research groups like Forensic Architecture and SITU Studio, as well as academic labs like the Centre for Spatial Research at Columbia University recognize the important role architects should take in looking at conflict urbanism and create new modes of research to fulfill that task.

The overwhelming volume of citizen-generated media footage even in a single city like Aleppo presents a problem of ironically *too much* data to comprehend at once. This

requires creating methods to organize, prioritize, and view footage that leads to finding civilian architectural responses, which otherwise has no precedent method to follow.

I organize the research of this work according to official neighbourhood boundaries. I select the neighbourhoods to research and their order according to the amount of damage they sustained, which indicates the intensity of violence, and the amount of footage available, which gives a clearer image of the urban fabric. Research of the timeline of the battle and the spatial shift of front lines also informs these decisions because the neighbourhoods that intersect the front lines are often also places with extreme conditions and therefore may provoke more civilian architectural response. This method is not an exact formula for finding civilian architectural responses; I only begin here to outline a framework and proof of concept of the use of social media to find ephemeral civilian artefacts of survival.

The neighbourhood damage levels come from a neighbourhood building damage assessment based on satellite imagery analysis over the course of the battle by the United Nations Institute for Training and Research (UNITAR).[84] UNITAR regularly publishes release their assessments as Geographic Information System (GIS) files for researchers to use.

I estimate the volume of videos in each neighbourhood by referring to the work of Nadine Fattaleh, Michael James Storm, and Violet Whitney for the Conflict Urbanism Aleppo project at the Centre for Spatial Research (CSR) in Columbia University.[85] They aimed to address the chaos of navigating civilian generated footage in Syria by spatializing the YouTube videos of by three prominent activist media channels in Aleppo, Aleppo Media Centre (AMC), Halab News Network (HNN) and The Syrian Civil Defence (also known as The White Helmets). They mapped them according to their neighbourhoods by using the videos' tags and compiled them in an online interactive platform. While social media platforms like YouTube strip valuable metadata like location and time, civilian documentarians exhibit what Fattaleh, Storm, and Whitney call 'archival consciousness,' where they independently tag their locations and time in the titles and descriptions of their content.

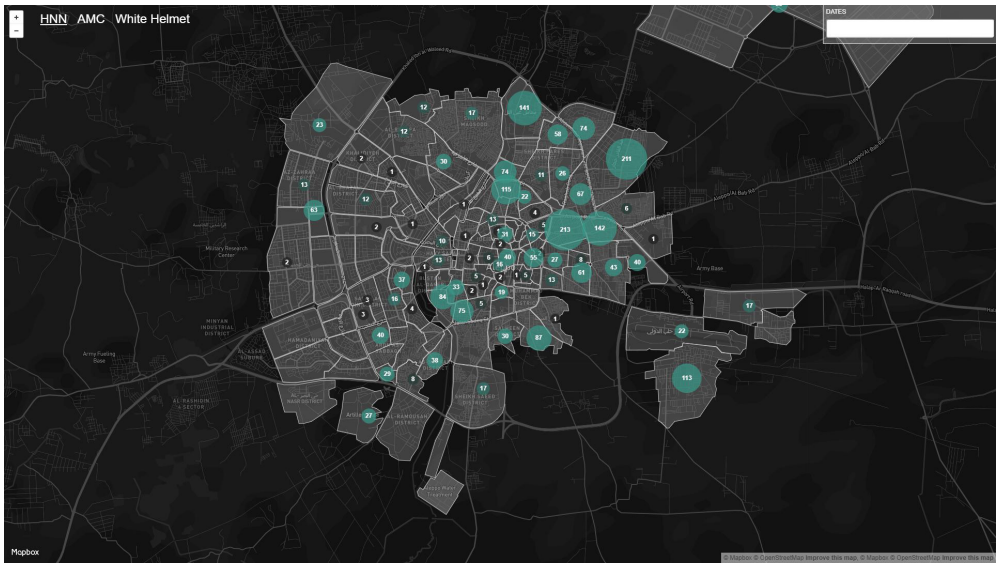
While three channels of course do not represent all uploads from Aleppo, they post videos sent to them by different people. I assume that the proportion of footage in each neighbourhood correlates to the volume uploaded by others in each neighbourhood as well. This media volume map, together with the map of neighbourhood damage and informed by the frontlines over time, help me create a shortlist of neighbourhoods in an intuitive order.

This research could apply to every neighbourhood of Aleppo but as a conceptual proof, I focused on Salaheddine, Bustan al-Qasr, Bab al-Maqam, Sakhour, and looked more briefly at Agyul, Sha'ar, As-Sukkari, al-Jalloum, and Karam ad-Dada. For each neighbourhood I first look at the videos tagged in the CSR platform. I also refer to the Syrian Archive, a digital platform that archives, geo-locates, and tags open source social media.

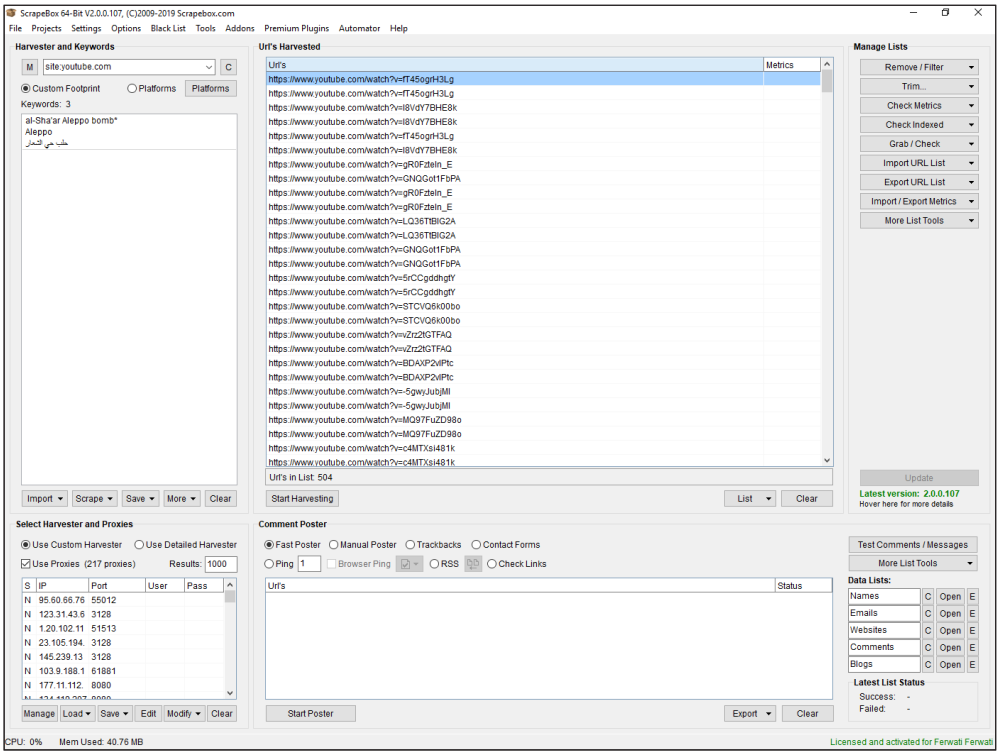
To find more footage, I use web scraping to collect footage from social media platforms. The primary platform of this thesis is YouTube and the primary web scraping application ScrapeBox. Scraping collects pages of data you specify from a site you choose using keywords. The product of scraping is plain text spreadsheets where each column is a data category specified; it effectively gives you data stripped from the user interface of webpages. I look through the links and when I notice a potential civilian architectural response, I try to pinpoint its exact location by cross referencing the disposition of buildings with satellite imagery and map them in GIS software. Searching by neighbourhood means I am already within its proximity. I use the location to collect as much footage of the potential civilian architectural response as possible by searching in isolation for that specific location. Multiple media sources and satellite images help to do three things: verify the civilian architectural response, locate the it in an urban and political context, and derive the approximate time of the intervention. Once I verify an intervention, I conduct an analysis of its materiality and form, then document it as a drawing informed by the found media. From this documented case we can then begin to ask what this intervention was responding to.

Fig 2.5 Top: Fattaleh, Nadine, Michael James Storm, Violet Whitney, and Laura Kurgan. "Conflict Urbanism: Aleppo; Spatializing the YouTube War." Columbia Centre for Spatial Research [c4sr.columbia.edu/conflict-urbanism-aleppo/spatializing-youtube.html.]

Fig 2.6 Bottom: Partial spreadsheet of neighbourhoods with columns for damage percentage and videos found on two YouTube for two channels, HNN and AMC



Name Arabic	Name	Zone	Percent	Videos HNN	Videos AMC	Total Videos
العقبة	al Aqabeh	Inner	65.6	2	5	7
تل الزرازير	Tal Az-Zarazi (Al-Ameria)	Inner	61.4			0
الفرافرة	Farafira	Inner	58.7	6	8	14
السكري	As-Sukkari	Inner	53.5	38	87	125
ارض الصباغ	Ard As-Sabbage	Inner	50.3	37	46	83
بستان القصر	Bustan al-Qaser	Inner	39.0	84	151	235
بستان باشا	Bostan Pasha	Inner	37.0	74	43	117
الكلاسة	al Kallasah	Inner	36.9	37	40	77
الانصاري المشهد / الزبدية	Al Ansari Mashad / az-Zebdiyeh	Inner	35.8	4	17	21
هنانو	Hanano	Outer	31.3	211	153	364
الجلوم	Al Jalloum	Inner	30.2	5	0	5
المرجة	Marjeh	Inner	29.1	87	46	133
باب المقام / المعادي	Bab Al-Maqam/ Maadi	Inner	28.5	5	15	20
صلاح الدين	Salahaddine	Inner	27.3	40	87	127
سيف الدولة	Sayf Al-Dawla	Inner	26.2	16	41	57
جورة العواد / كرم الميسر	Jouret Awwad / Karm al-Myassar	Inner	25.7	61	119	180
كرم القاطرجي	Karm Al Qaterji	Inner	23.4	27	158	185
سعد الأنصاري	Saad Al Ansari	Inner	21.6	37	88	125
الفردوس	Fardos	Inner	20.5	75	140	215
الشعار	Sha'ar	Inner	20.0	213	149	362
الحلوانية / طريق الباب	Tareeq al-Bab	Outer	19.7	142	184	326
كرم القصر	Karm al-Qasr	Inner	19.4			0
البياضة	Bayadah	Inner	17.0	40	29	69
قاضي عسكر	Qadi Askar	Inner	16.2	55	64	119
الصالحين	Salheen	Inner	16.0	30	35	65
القصيلة	Al Asileh	Inner	14.2	19	25	44
الصاخور	Sakhur	Inner	13.1	67	98	165
عين التينة / الهلك	Ayn at-Tal / Hellok	Outer	12.6	141	48	189
سليمان الحلبي	Sulayman al Halabi	Inner	12.5	22	36	58
الشيخ مقصود	Sheikh Maqsood	Outer	11.9	17	51	68
بعيدين	Ba'aiedin	Outer	6.7	58	12	70
الميدان	al Maydan	Inner	6.4	115	55	170

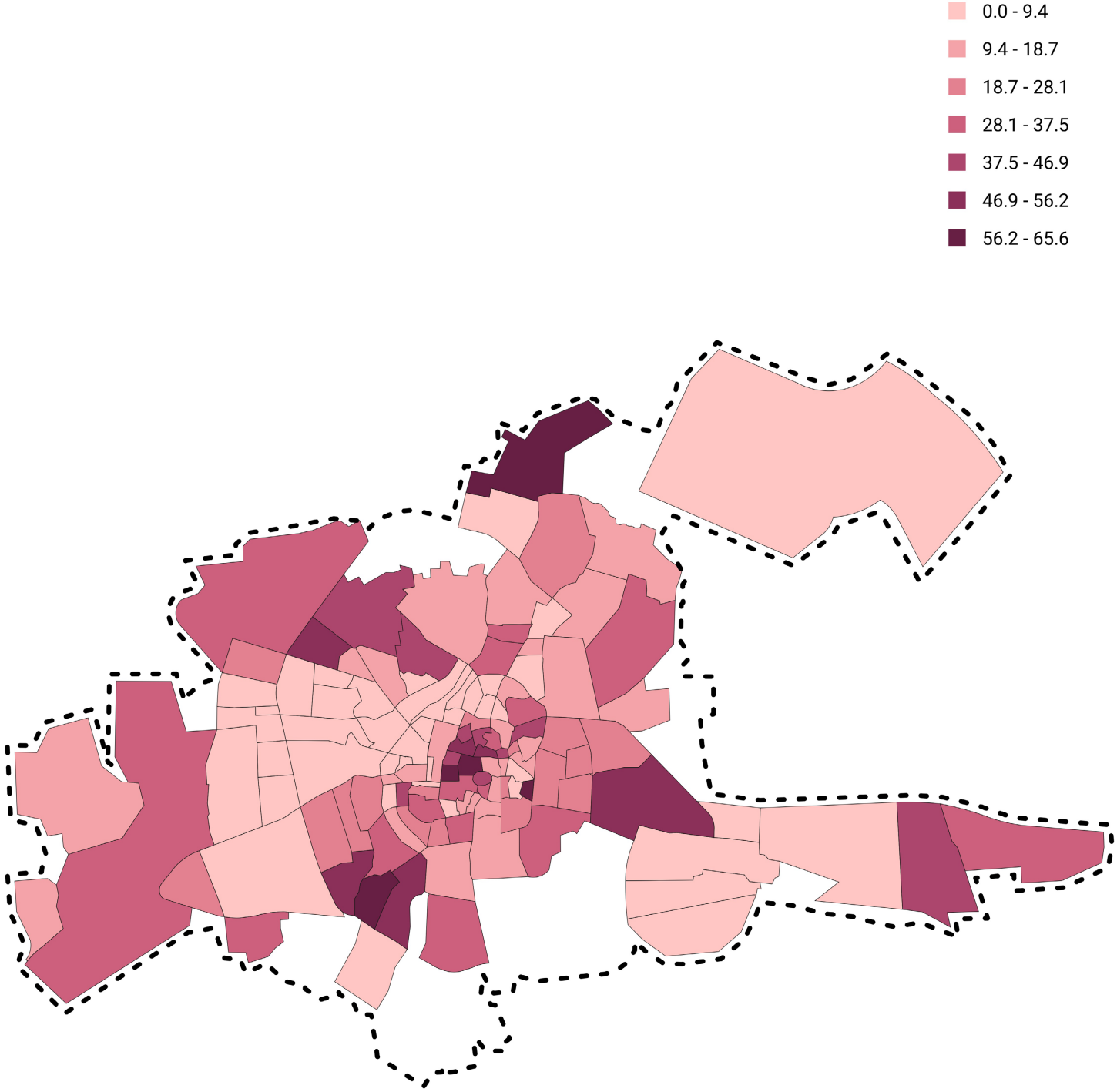


Title	Author	URL	Upload Date
جوامع حلب تستعيد دورها التعليمي بعد دمار معظم مدارس المدينة	قناة حلب اليوم | Halab Today TV	https://youtube.com/watch?v=jsa85rTSxXA	9/24/2016
مجازر حلب .. 200 غارة وبرميا تستخدم قنابل ارتجاجية.. 100 ضحية .الجمعة 23 أيلول 2016	زمان الوصل Zaman AlwsI	https://youtube.com/watch?v=XdndBzFBKew	9/23/2016
العراق | | تعرضت مراكز الدفاع المدني في حلب اليوم لعدة غارات بصواريخ شديدة الإنفجار	Buraq.Media .Foundation	https://youtube.com/watch?v=eWZTSwsrhBM	9/23/2016
مساعدات إنسانية روسية لسكان الأشرفية في حلب..بعد القصف	euronews (عربي)	https://youtube.com/watch?v=qJc8WfQBCes	9/23/2016
Scores killed as Syrian jets pound rebel-held Aleppo	Al Jazeera English	https://youtube.com/watch?v=eeq1Jp5kin2E	9/23/2016
توافد المدنيين إلى المشافي في حلب للتبرع بالدم 26-9-2016	مركز حلب الإعلامي AMC	https://youtube.com/watch?v=fffFzjxCgFg	9/26/2016
مصطفى محمد دخكول من حفلات حلب 2010	لورد الامل	https://youtube.com/watch?v=3JkMP-fa2V0	9/23/2016
Inside #Aleppo: the end of the ceasefire! انتهاء هدنة سوريا	اللهُم رضناكَ فالجنّه	https://youtube.com/watch?v=1J6WnX5Eys4	9/25/2016
آثار الدمار الذي خلفه القصف الجوي على حي التربب بحلب	Qasioun News Agency	https://youtube.com/watch?v=osKOVBNGeKw	9/25/2016
المطرب الحلبي محمد خيري موال رائع	قناة مصطفى وردة أبو ناصر الرسمية	https://youtube.com/watch?v=CfZXr1J59bQ	9/25/2016
#حلب_نيوز | إنقاذ سيدة من تحت أنقاض منزلها في حي الهلك جراء القصف الجوي بالصواريخ ليلة أمس	Halab News Network - شبكة حلب نيوز	https://youtube.com/watch?v=xkr24mmfUUI	9/26/2016
نداء الى جميع الفصائل العسكرية في سورية الى التوحد	Aleppo Free Magazine - مجلة حلب الحرة	https://youtube.com/watch?v=trC3pv1YZ7Y	9/25/2016
وكالة ثقة | | لحظة استهداف طائم وكالة ثقة أثناء تغطيتهم القصف في ريف حلب الغربي	وكالة ثقة	https://youtube.com/watch?v=VdzP22g1TJQ	9/24/2016
صلاح الدين 25-9-2016	الدفاع المدني السوري - حلب	https://youtube.com/watch?v=Wo-5zq8sgbA	9/25/2016
راب سوري البصمة العربية هي هبة حلب #حلب لن تباد	Sniperx official	https://youtube.com/watch?v=L99tvMyqZes	9/24/2016
قصف جوي على حلب واحيائها الشرقية ومجلس الامن يبحث الوضع	euronews (عربي)	https://youtube.com/watch?v=ZMXAMJEyJ6g	9/25/2016
Síria: Vitória militar de Assad na frente de Alepo	euronews (em português)	https://youtube.com/watch?v=goCHat8nugU	9/24/2016
حلب	محمود حصرية	https://youtube.com/watch?v=qaXzxVZdrd8	9/25/2016
Civil defence centres 'targeted' as Syrian army's Aleppo offensive intensifies	euronews (in English)	https://youtube.com/watch?v=APn1OwNZRrw	9/23/2016
ارتفاع حصيلة القصف الروسي على حي المرجة لـ 6 شهداء بعد انتشال جثث طفلين ووالدهما 23-9-2016 +18	مركز حلب الإعلامي AMC	https://youtube.com/watch?v=9CKg_waIRWg	9/23/2016
هذاء قصاب مديرة جمعية نساء في حلب	Enab Baladi	https://youtube.com/watch?v=Uk9TzIXDZdw	9/23/2016
حلب المرجة	ابوحفص الحلبي	https://youtube.com/watch?v=eBav5k_4jcw	9/25/2016
وصلة أكثر من رائعة لسيدي أبو أديب الحاج حسن حفار في حفل عقد زواج ابنه وخادمه عمر عام 2000	طارق مجددي - Tariq Mojaddedy	https://youtube.com/watch?v=VZjVNK3aCk4	9/23/2016
#حلب | | خروج محطة ضخ مياه باب التربب عن الخدمة بعد تعرضها لقصف جوي مؤخرا	الإدارة المحلية للخدمات	https://youtube.com/watch?v=RPzmpH7KUt4	9/25/2016
محمود علمان فيديو..انفجار أثناء بث مباشر لقناة أمريكية في حلب	زمان الوصل Zaman AlwsI	https://youtube.com/watch?v=74ift37gTaA	9/23/2016
جارد بلان | المتحدث باسم الخارجية الأمريكية | الموقف الأمريكي مما يحصل في حلب | 26/9/2016	قناة حلب اليوم | Halab Today TV	https://youtube.com/watch?v=t025UI7gXkg	9/26/2016
جيش النظام السوري يبدأ هجومه على أحياء حلب الشرقية	euronews (عربي)	https://youtube.com/watch?v=qktX68WC5Rs	9/23/2016
UN deadlock as Aleppo death count rises	Middle East Eye	https://youtube.com/watch?v=ULer3YdQRNk	9/26/2016
حلب حي باب التربب	Zakria Halab	https://youtube.com/watch?v=sXR8upu5-jo	9/25/2016
رفع الانقاض في مجزرة بقرية بشقاتين بريف حلب الغربي 18+	Jaafr M Deen 01	https://youtube.com/watch?v=UaI8yHyGkRQ	9/23/2016
شهيد جراء غارات جوية على بلدة بشقاتين في ريف حلب الغربي 23-9-2016 15	مركز حلب الإعلامي AMC	https://youtube.com/watch?v=thxWyBeINBI	9/23/2016
ستديو الآن 23-09-2016 | قصف عنيف على حلب بعد إعلان نظام الأسد بدء هجوم في المدينة	akhbaralaan	https://youtube.com/watch?v=vYW0uT_7-cQ	9/23/2016
حلب- حي الصالحين: أب يودع ابنه الشهيد (مؤلم)	Qasioun News Agency	https://youtube.com/watch?v=ZGKoxxVZ_HQ	9/23/2016
لواء التوحيد اطلال كرم الجبل	Noor Mahsoun	https://youtube.com/watch?v=h8cqkv5sadk	9/24/2016
حلب حديقة السبيل	Shadi E	https://youtube.com/watch?v=8s-_q4QR6Z0	9/26/2016
بأسلحة فتاكة.. روسيا تقصف ملاجئ المدنيين في حلب	AlHadath الحدث	https://youtube.com/watch?v=6O4hj-7aWsA	9/25/2016
حلب المرجة	ابوحفص الحلبي	https://youtube.com/watch?v=GC-rSeaqoH8	9/25/2016
شهيد و75 مصاب جراء قصف بالقنابل العنقودية على حي بستان القصر 24-9-2016 13 (+18)	مركز حلب الإعلامي AMC	https://youtube.com/watch?v=7_P3-td7-wY	9/24/2016
لواء الحق صد هجوم لعصابات الاسد على جبهة مشروع ال 1070 شقة في حلب#	الإعلامي امجد باكير	https://youtube.com/watch?v=0ezjPkksQ8I	9/26/2016
الهلال الاحمر الكردي يفتتح مشفى مجاني بمدينة عين العرب كوباني بريف حلب	SMART videos	https://youtube.com/watch?v=ul4ozjlBp9o	9/26/2016
حلب يا نبع من الأمم ، يمشي بيلادي - عبد الكريم حمدان	Sahin Ahmad	https://youtube.com/watch?v=-dR00IcKOjE	9/25/2016
What Is Aleppo?	Planet Belfast	https://youtube.com/watch?v=g0ecW5I1Vb8	9/26/2016
المؤلف والموسيقي الملحن توفيق أفندي الصباغ الحلبي وعزف نهاوند على كمنجته البديعة	محمد علي بحري	https://youtube.com/watch?v=a4gN_S1M8SI	9/24/2016
شاهد الجيش السوري يطلق هجوم كبير ويحرق الارض من تحت المسلحين في احياء حلب الشرقية	Ali alkattan	https://youtube.com/watch?v=9YJi6DI3ekcw	9/23/2016
كتائب الصفوة | | جانب من استعادة السيطرة على مخيم حندرات بعد اشتباكات عنيفة مع عصابات الأسد.	alsafwa brigade	https://youtube.com/watch?v=vj_e3DdbFAU	9/24/2016
لواء صقور الشمال | | استهداف تطقيم داعش بقرى دريكش وصندرة وبحورتا بريف حلب الشمالي بمدفع 23 وتحريرها	لواء صقور الشمال	https://youtube.com/watch?v=LH8ItQGnxUU	9/25/2016
محمد الحاج.. يوميات لاجئ سوري في ألمانيا	euronews (عربي)	https://youtube.com/watch?v=8XXCQfKlJWY	9/26/2016

Fig 2.7 Top: ScrapeBox V2

Fig 2.8 Bottom: Sample scraping output for YouTube with title, author, URL, and upload date.

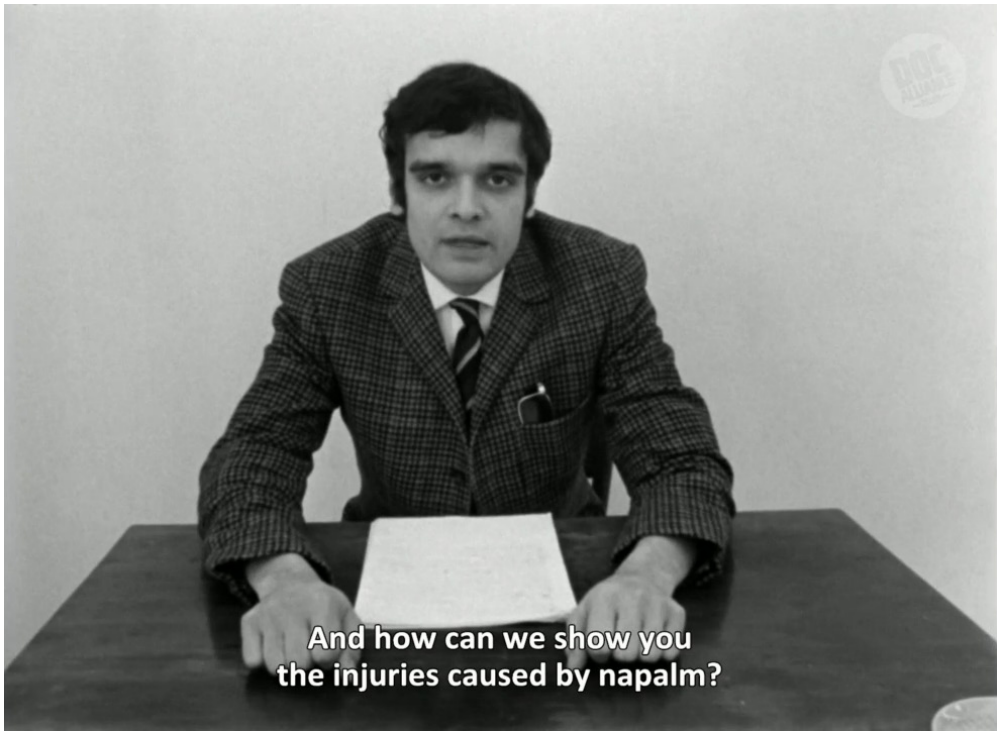
Fig 2.9 Next Page: Damage by neighbourhood by the end of battle [UNOSAT]


0.0 - 9.4
9.4 - 18.7
18.7 - 28.1
28.1 - 37.5
37.5 - 46.9
46.9 - 56.2
56.2 - 65.6

The following stills are from Harun Farocki's 1969 experimental documentary film *Nicht löschbares Feuer* (Inextinguishable Fire).[86] The film critiques the Vietnam War and particularly its hidden dependency on the everyday lives of American workers oblivious to the horrors their government inflicts with the product of their banal work. He also explores the role and character of images in the public's perception of war.

Fig 2.10 Harun Farocki, Nicht Löschbares Feuer (Inextinguishable Fire), Documentary, 1969.


How can we show you
napalm in action?


And how can we show you
the injuries caused by napalm?

He continues:

If we show you pictures of napalm victims, you'll close your eyes. First, you'll close your eyes to the pictures. Then you'll close them to the memory. Then you'll close your eyes to the facts. Then you'll close your eyes to the entire context. If we show you a person with napalm, we will hurt your feelings. If we hurt your feelings, you'll feel as if we'd tried napalm out on you, at your expense. We can give you only a hint of an idea of how napalm works.[87]

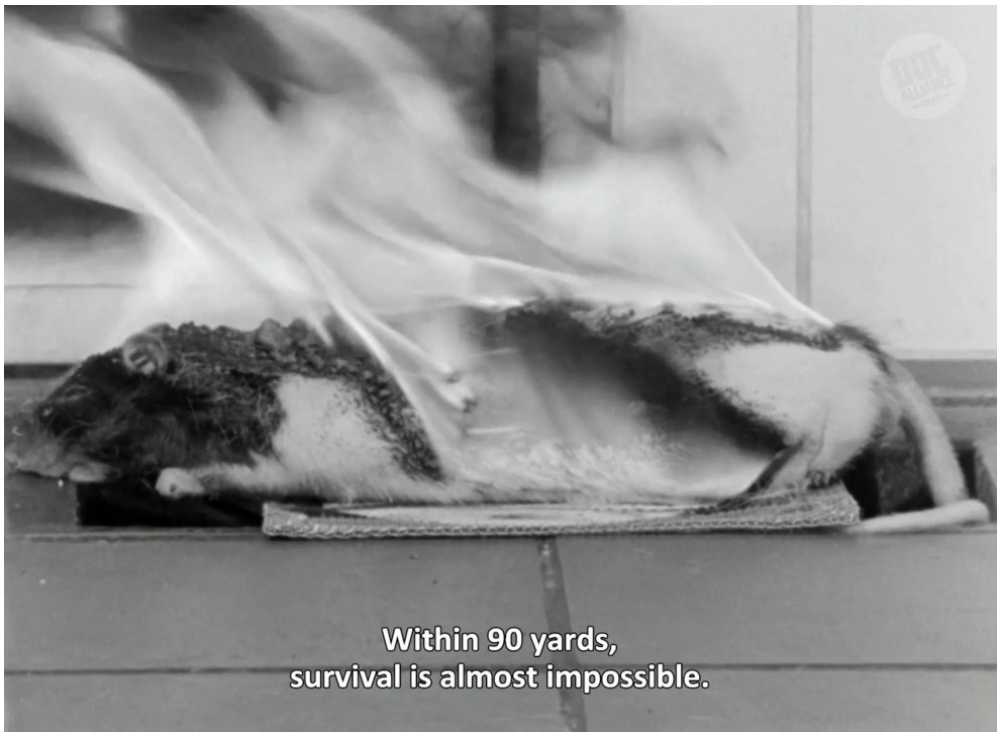

A cigarette
burns at 400 ¡C.


Napalm burns at 3,000 ¡C.

I thought of these questions when it came to Syria as well.

How can I show you the war in Syria? If I show you people ripped apart and crushed under their own homes, their places of refuge, would you keep reading?

Perhaps the architecture of victims gives you a hint of the horror; an architecture that embodies pain, desperation, and simultaneously a will to survive.


Within 90 yards,
survival is almost impossible.


It is almost
impossible to extinguish.

Civilian Architectural Responses in Aleppo

Bab Antakya street was quiet. The rubble and dust ripped from the homes and shops lining the street lay in the deserted streets where no one dare wander in the open. With the frontlines of the battle only a few streets away, a rebel sniper watched closely for any movement or signs of advance from government soldiers. The street separates the old city to its east and the modern city to its west. When the sniper claimed the street, residents around it were immediately trapped.

As fighting raged nearby, residents of the neighbourhood, desperate to move, decided to bypass the sniper's vision altogether. They carved out a new path through old courtyard houses by cutting a hole just big enough for a person in the stone wall between them, allowing all residents nearby to pass through freely.

Stories like this one exist throughout Aleppo and illustrate how combatants and civilians depend on the architecture of the city today to both fight and survive conflict. Combatants contend for control of the city through what I refer to as urban *fronts*. Beyond military confrontations, they use these fronts to gain leverage by manipulating the urban environment. Civilians take up architectural responses when they use the same urban tools as combatants in the face of violence. Civilian architectural responses thus make up a layer of what I refer to as civilian *counterfronts* rooted in the violence of war but aimed at survival rather than power.

For geographer James Anderson and sociologist Liam O'Dowd, boundaries of space both "shape and are shaped by what they contain."[88] Studying conflict urbanism requires understanding the mechanisms of control and bordering – the fronts – as well as the spatial behaviour of civilians within each territory – the counterfronts. Acts of violence through architecture and the civilian architectural responses for survival are always interconnect and their form is, as Anderson and O'Dowd put it, "mutually formative."[89]

As forces that define space and exercise agency, fronts and counterfronts are also practices of *territoriality* and *counterterritoriality.* Geographer Robert Sack defines territoriality as a "spatial strategy to affect, influence or control resources and people, by controlling area."[90] Territoriality in the fronts of urban warfare translates to combatants using and

targeting architecture and urban elements to gain, monitor and exercise power over urban space. Counterfronts are acts of counterterritoriality because they resist that control and oppression over civil society. Counterfronts and counterterritoriality use space to reclaim or establish new agency over the public's spaces and resources. Ironically, counterterritoriality in chaos is often the only opportunity for civilian agency over their cities and exists only with crisis.

The violent fronts and civilian counterfronts in urban warfare are layers on top of one another in a transforming conflict city. The layers of space make the conflict city a 'heterotopia,' which philosopher Michel Foucault defines as a cluster of diverse worlds contained within a single intense space.[91] The layers of heterotopia make up a complex system where they are sometimes abutting or overlapping, distinct or interlaced.

The fronts and counterfronts of conflict cities continuously redraw borders and constitute what political scientist Jacques Rupnik calls "time written in space." [92] Physical objects like civilian architectural responses that define those borders and tell of the behavior inside them are also products and tangible manifestations of events and time.

Fronts and Counterfronts

We associate 'fronts' with the clash of foes in battle but contested urban space today is fought over in more ways than just direct armed confrontation. The urban fronts of war are contests for space. The fronts of contemporary warfare are layered efforts by combatants to exploit the systems and architecture of the built environment to undermine the other. Fronts are often detrimental to civilians whose lives depend on the structures war destabilizes including halting movement, threating life by targeting civil space (the places people live), and exploiting infrastructure.

We often consider civilians as helpless victims of conflict to be offered our sympathies. While life under war is of course brutal, the role of civilians in war is much more complex. They are also active participants in changing the city to adapt and survive harsh circumstances. They take part through architectural responses that change the city's form, function, and system from the scale of architecture and up to the scale of the city. While fronts are made up of opposing forces fighting for power by exploiting the city and therefore threatening the lives of its citizens, 'counterfronts' are the civilian efforts to create alternative spaces and processes to resist that violence. They do not compete for political gain and take part in the clash of forces; their goal is instead survival.

Studies of conflict, especially when done by urbanists, rarely consider what we can gain by looking at the counter-fronts people engage in regularly. They instead tend to focus on the relationship of power, violence, and the city. While some studies of conflict cities like Belfast do call for the consideration of the effects of conflict on people, researchers often look at violence and derive its effects or look at the long-term effects on people in

post-conflict cities.[93] Looking directly at the spaces created and occupied by people *during* conflict resonates with the call to consider people but provides better insight into the immediate effects of war on their lives. Civilian architectural responses collectively make up civil counterfronts; they are the architectural aggregate of an urban phenomenon of active survival.

The following sections examine three fronts and their responsive civilian counterfronts in the Battle of Aleppo: movement, civil space, and infrastructure.

1 Movement; battlefronts, barricades, and sniper alleys

Front of violence; movement

The outbreak of Aleppo's four-year battle in 2012 halted all normal movement in the city. Residents carefully planned their timing and routes around the dangers of battle and weighed the risks of even leaving their homes. Their movement was radically restricted as both a side effect of fighting and deliberate disruptions. The result totally restructured the city's streets and neighbourhoods.

By the turn of the year the battle divided Aleppo between rebels and government forces, with rebels controlling most of the east and south of the city. The resulting landscape was an entangled swirl of territorial claim that was fluid and changing rapidly. Reinforcements from both sides were spilling in from different cities and neighbourhoods to defend themselves or push on new fronts. Combatants fought over the city street by street and building by building. The frontline neighbourhoods were highly contested and so the most dangerous for civilians. The battle could arrive to the doors of residents overnight, freezing all their movement out of fear of being caught in the crossfire. They could only wait and hope their homes are spared. Risking movement is not always a clear decision. people in contested neighbourhoods subject to shelling faced a dilemma: stay put and risk dying in your home or leave and risk dying in the streets.

Combatants restricted movement to secure their positions and control who enters and leaves their neighbourhoods. They intended to deter their foes but effectively also disrupt the movement of and put at risk all residents as well. Their strategies included creating barricades, checkpoints, and placing snipers to control and monitor movement.

Passage for residents was dangerous in their own neighbourhoods even when they were away from the frontlines. Rebel and government forces stopped movement altogether by placing snipers tasked with securing their streets. Like the story at the beginning of this section, in the process they also stop all civilian movement. This tactic is not unique to Syria. At the height of the Bosnian War in the 1990s, Sarajevo's 'sniper alley' transformed one of the busiest public streets to a desolate no-man's land.

Together, the battlefronts, the shelling campaigns, the sniper zones, the barricades, and the checkpoints create a series of overlapping inner borders that determined where people can and cannot move.

Fig 3.1 Sniper Alley, Sarajevo, Bosnia and Herzegovina, 1995
[Paalso. 1995. CC BY-SA 3.0: https://bit.ly/1kvyKWi. Edited by Author]


UN

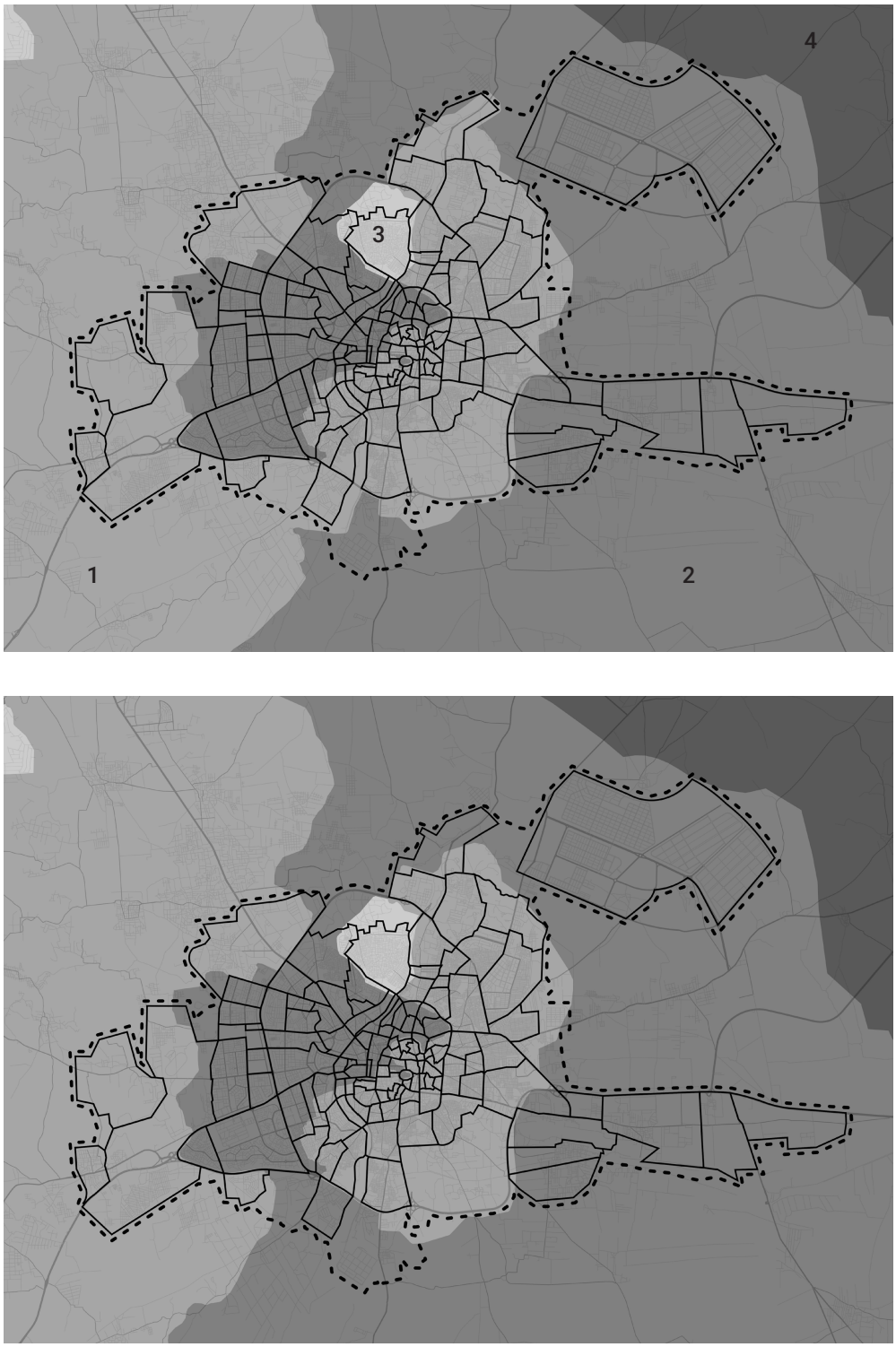


Fig 3.2 Above: Frontlines, September 01, 2016. 1. Rebels; 2. Government; 3. Kurdish fighters; 4. ISIS

Fig 3.3 Below: Frontlines, October 01, 2016.

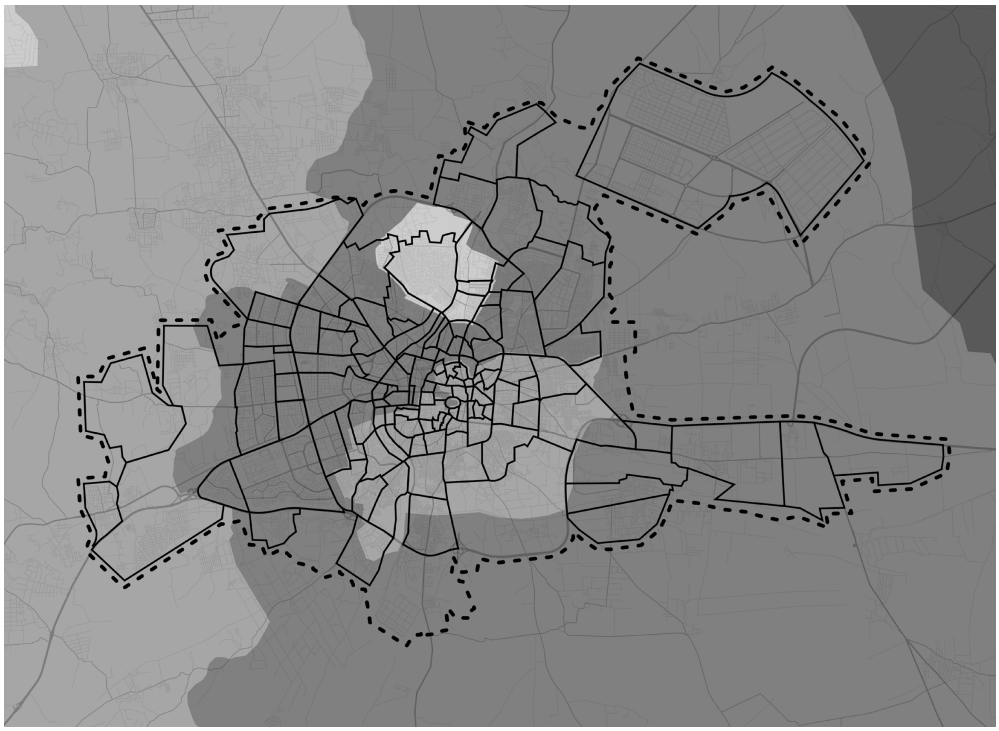
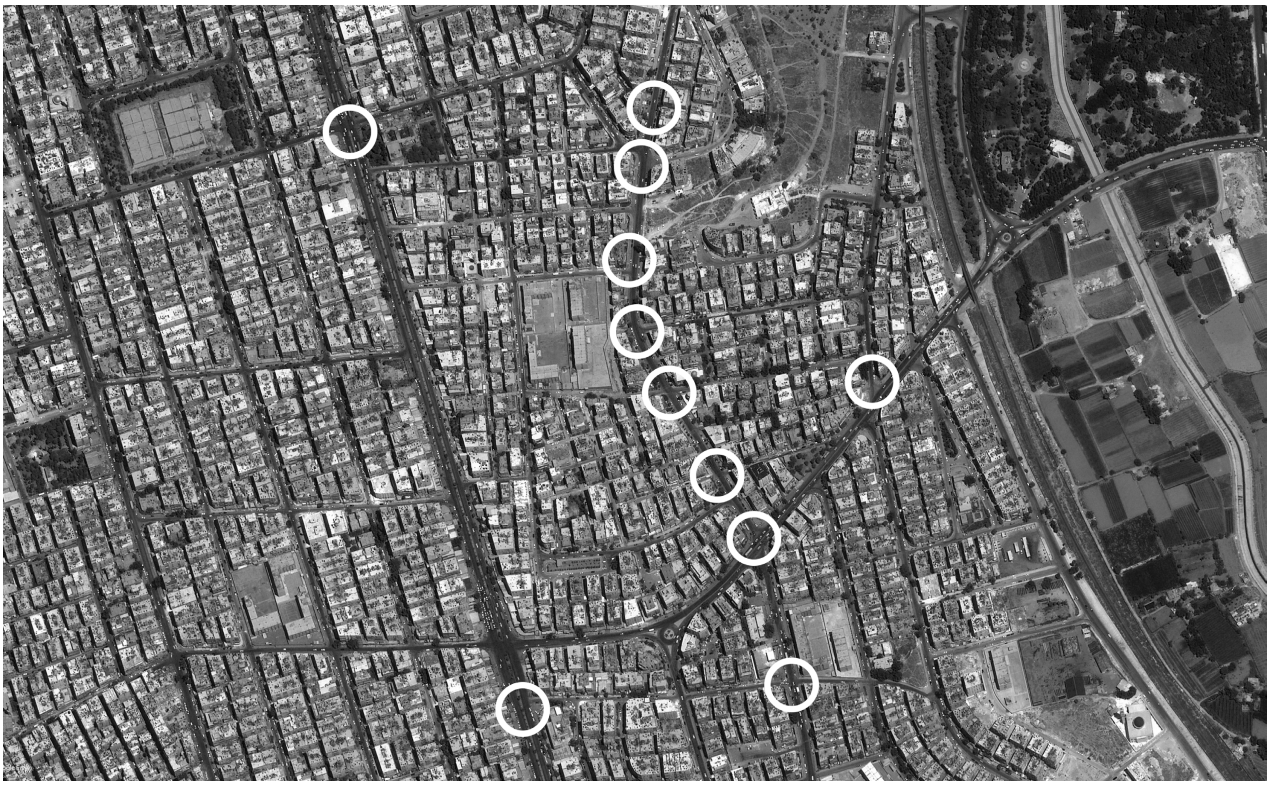
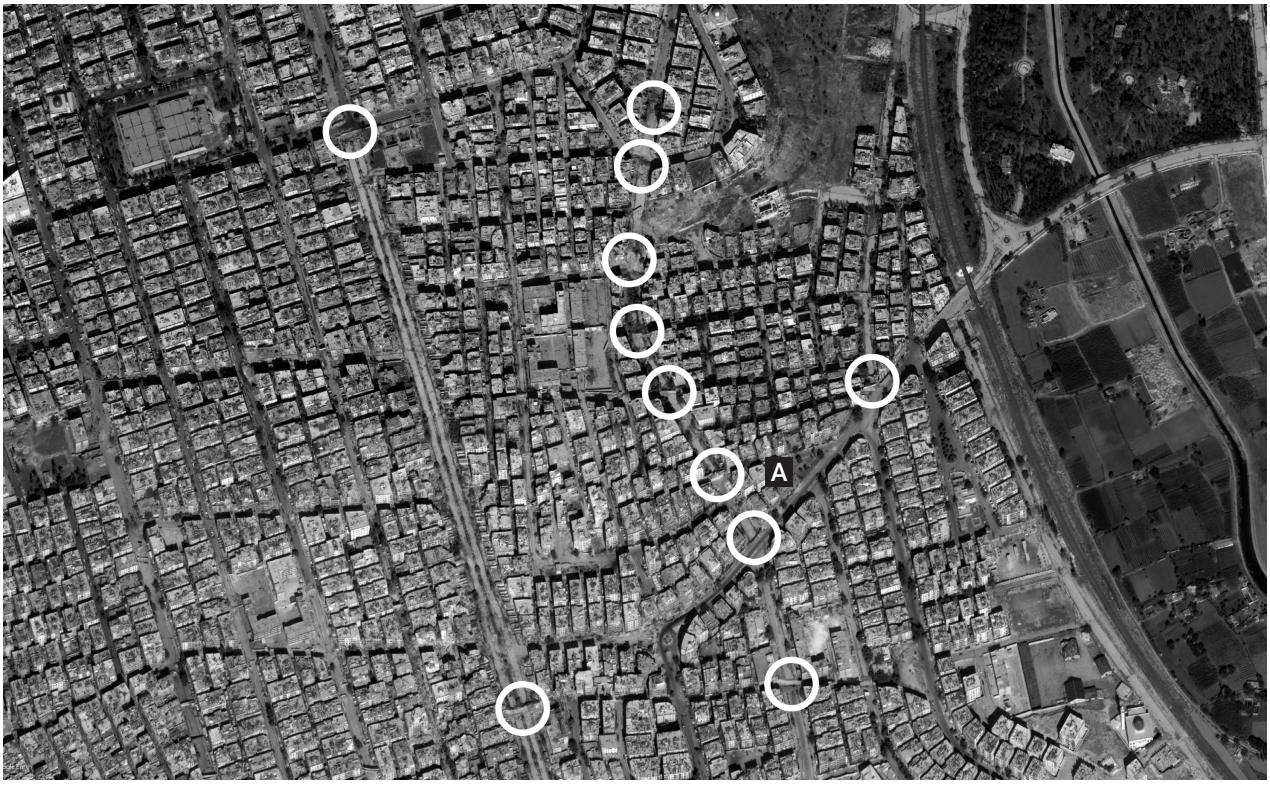




Fig 3.4 Above: Frontlines, November 30, 2016.

Fig 3.5 Below: Frontlines, December 22, 2016.




A



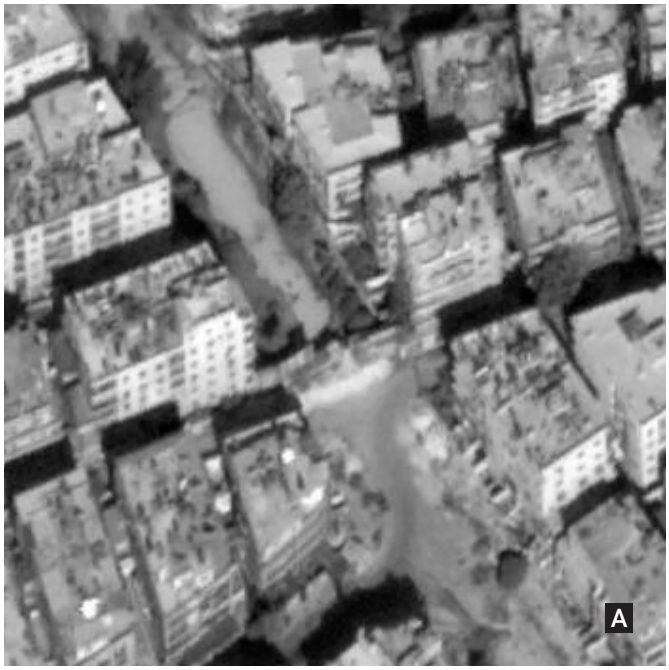


Fig 3.6 Barricades likely constructed by combatants between three neighbourhoods: Sayf al-Dawla, Saad al-Ansari, and al-Ansari Mashad
Top: Before the war, July 3, 2010 [Maxar via Google]
Bottom: During the war, October 18, 2016 [Maxar via Google]

Fig 3.7 Left: Close up of a barricade

Fig 3.8 Next page top: Location map of barricades [Illustration by Author]

Counterfront of survival; movement

The front of movement in the battle restricted civilians at every level from their homes, to their neighbourhoods, to their city. People had no choice but to intervene in their own homes and neighbourhoods to have any chance of navigating the conflict city.



In the presence of snipers, people built visual barriers like mounds of rubble, barrels, and even stitched bedsheets hung between buildings to protect against their line of site. United Nations High Commissioner for Human Rights (UNHCR) often supplies tarps for shelter, particularly for displaced people; even these tarps were used for visual barriers stitched together and hung between buildings.

Because these interventions exist only in few frames and with little other context, it is difficult to always know who placed every single barrier. While we should be careful of categorising all of them as civilian interventions, they are still worth considering as tactics the civilian population is capable of.

The snipers of Sarajevo forced residents to adapt by changing their entire relationship to the city. Archival footage shows people sprinting between street openings and crouching behind barriers in exposed areas while UN armoured trucks patrol around them and combatants ring out rounds far and near.

People reconsidered their relationship to the city and learned to navigate danger by collective cooperation and communication. They created home-made signage to warn each other of snipers when they painted *PAZI SNAJPER!* (Watch out, Sniper!) on paper, fabric, and walls in Sarajevo's streets.

Syrians made the same sign two decades later but this time in Arabic and in Aleppo as snipers dominated the streets. The still below is from a YouTube video uploaded by the Aleppo Media Centre (AMC). The entire video fixes on a sign strapped to a metal fence of a house and the street it stands before. The handwriting reads in Arabic: 'There is a sniper on this street.' The street beyond the corner he inches towards is completely empty, except for a black cat slowly crossing the street. The signs of Aleppo and Sarajevo are people looking out for their fellow citizens. They speak to one another indirectly through them and by organizing themselves for that task amidst chaos.



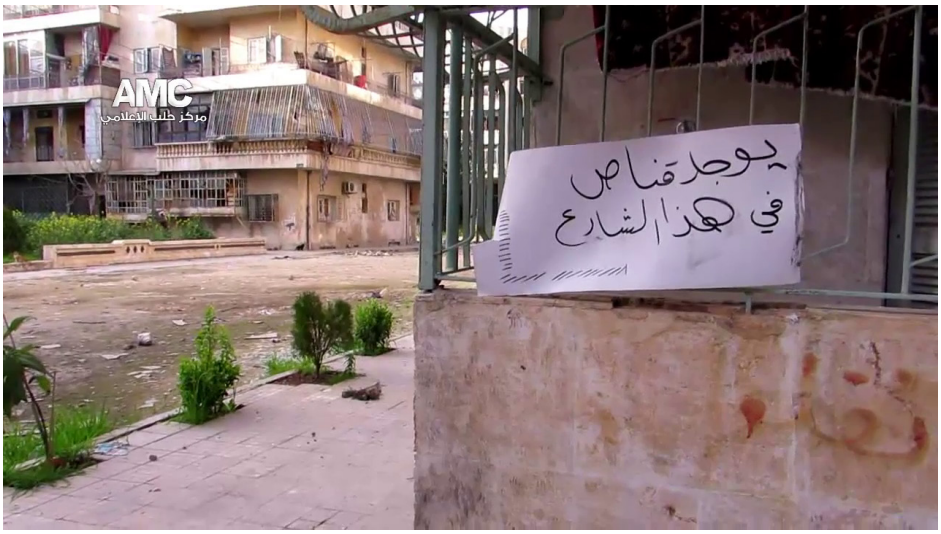




Fig 3.9 Previous: UNHCR tarps tied between buildings to block sniper vision [VICE on HBO]

Fig 3.10 Top: *Pazi Snajper* (Watch out, sniper), Sarajevo [Paalso. 1996. CC BY-SA 3.0: https://bit.ly/1kvyKWi]

Fig 3.11 Middle: "There is a sniper on this street" [AMC. YouTube video]

Fig 3.12 Bottom: Location map of sign, Bustan al-Qasr [Illustration by Author]

A domestic street

Civilians also create alternative paths of movement altogether, changing how they manoeuvre across urban space by physically reshaping it. This was the case of the story at the beginning of this chapter. In 2013, YouTube user Shams Alhorya (translating to 'freedom sun') uploaded a YouTube video titled

حلب: الجلوم: طريقة الانتقال من حي الجلوم إلى حي الكلاسة [94] [95]

Which translates to "Aleppo: al-Jalloum: The way to get from al-Jalloum neighbourhood to al-Kallaseh neighbourhood." The video begins with a shot down a narrow street that connects to a larger main street. That larger street is empty. The videographer points right to left.

"Here is al-Kallaseh street, right?"
"Yes. This is the street to Antakya Gate and Gamal [Abdel Nasser] Mosque" an older man behind him confirms.

Al-Jalloum neighbourhood, where they begin filming, is on the edge of Old Aleppo. The neighbourhoods of the old city like Al-Jalloum are divided from the adjacent modern neighbourhoods like al-Kallaseh by a wide road that borders the ancient city's courtyard houses and the modern fabric's apartment blocks.

"Right, Gamal Mosque. The important thing is that we can't pass because there is?" The videographer prompts his friend to complete the sentence.
"Of course, there is a sniper." The older man replies
"So how do we get to Gamal Mosque?" The videographer asks.
"We can go this way, no problem" the older man says.

The camera turns left towards an open door not more than ten meters away. It pans up and down to show the full building as they walk towards it. A man on his bicycle rings his bell and passes them as he leaves the building. Another man in a red shirt walks towards the open door, turning back to take a curious look at the camera.

"So, we are going to enter inside a house [to avoid the sniper] […] and on the other side will be Gamal Mosque " the videographer says as more people walk in and out of the house in front of them.

They enter and walk through a short dark corridor before quickly entering a bright courtyard. The house they enter is a traditional Aleppian courtyard house that could be

centuries old. It looks heavily damaged and abandoned. Debris of stone, tile, and dust cover the courtyard. On three sides windows and doors to the house's rooms face the courtyard and along the fourth wall a staircase leads to the second floor of rooms. In that same wall between the courtyard and another house, the neighbourhood's residents broke a hole to the other side. This is the architectural response. The hole measures about 70 by 160 centimetres, just enough for a person to pass through. The hole is imprecise and jagged. They pass through the aged beige, stone blocks that could be half a meter thick. They walk through a dark room on the other side until the reach a wooden gate of the other house. They make a left through the gate and exit onto an open back alley courtyard. They walk across the court and take a right into a short and dark covered alley. On the other end of the alley, the man in the red shirt from earlier is buying a pack of cigarettes from a street vendor with a spread of goods on a foldable wood-print laminated table. The camera pans to the left and zooms onto a building in the distance. "Gamal Mosque, here it is."

The presence of the snipers effectively privatizes a public street that is no longer accessible by its own residents. The residents, desperate to reclaim any freedom of movement, respond by collectively intervening in the architecture of houses and creating an alternative path. Their architectural response therefore turns the most private space, the domestic space, effectively into a public street.

In this passage we see the banality of war; it is there in their behaviour. They casually carry about their errands, holding shopping bags while slowly strolling with their friends and with so many residents. Their expressions are calm and indifferent; these passages are normal to them. For a moment you forget how bizarre the whole thing is; they walk through someone's home, during a vicious war, as only one street over a sniper patiently watches.

Documenting and drawing the passage

While watching this video, I sketched a plan of the spaces they passed through by their movement and the approximate scale of the spaces I could see. I searched the neighbourhood that they described and some of the landmarks mentioned to get an approximate satellite geo-location. I then carried out a forensic analysis cross-referencing my plan sketch, the urban elements of the video, and multiple dates of satellite imagery, to pinpoint the exact point of entry, path of movement, and point of exit. After finding the buildings that the videographer went through, I created an accurate *Nolli* style plan of the spaces in the passage and the context around them. The Nolli system demarcates what is public and what is private by drawing the private space as a solid poché and public space as open with an articulation of interior tectonics and thresholds. I then built a 3D model of the buildings using the video and satellite images, with special focus on the courtyard house where residents intervened.



Fig 3.13 Video stills from YouTube video showing the passage through a home to avoid sniper fire on a main street. [Shams Alhorya, YouTube video]













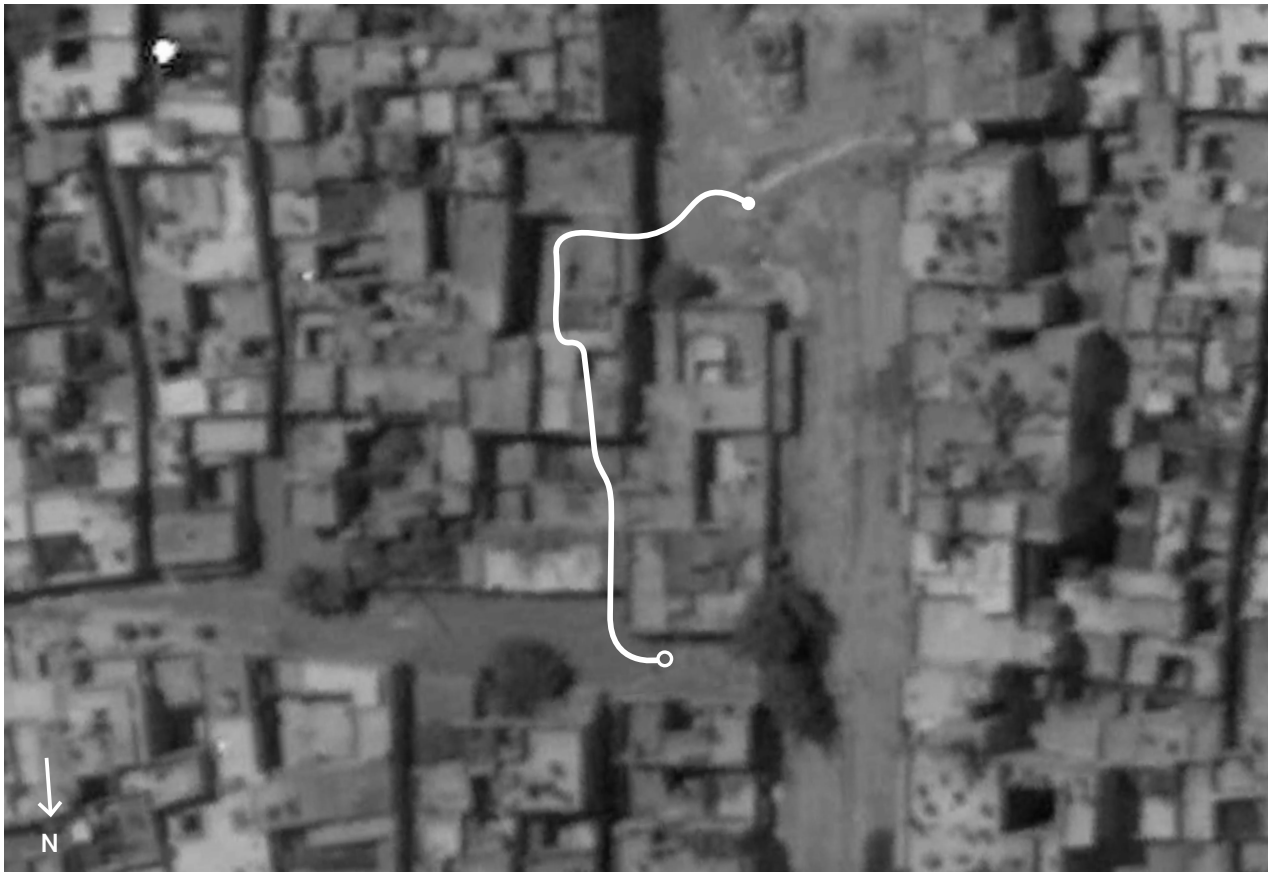


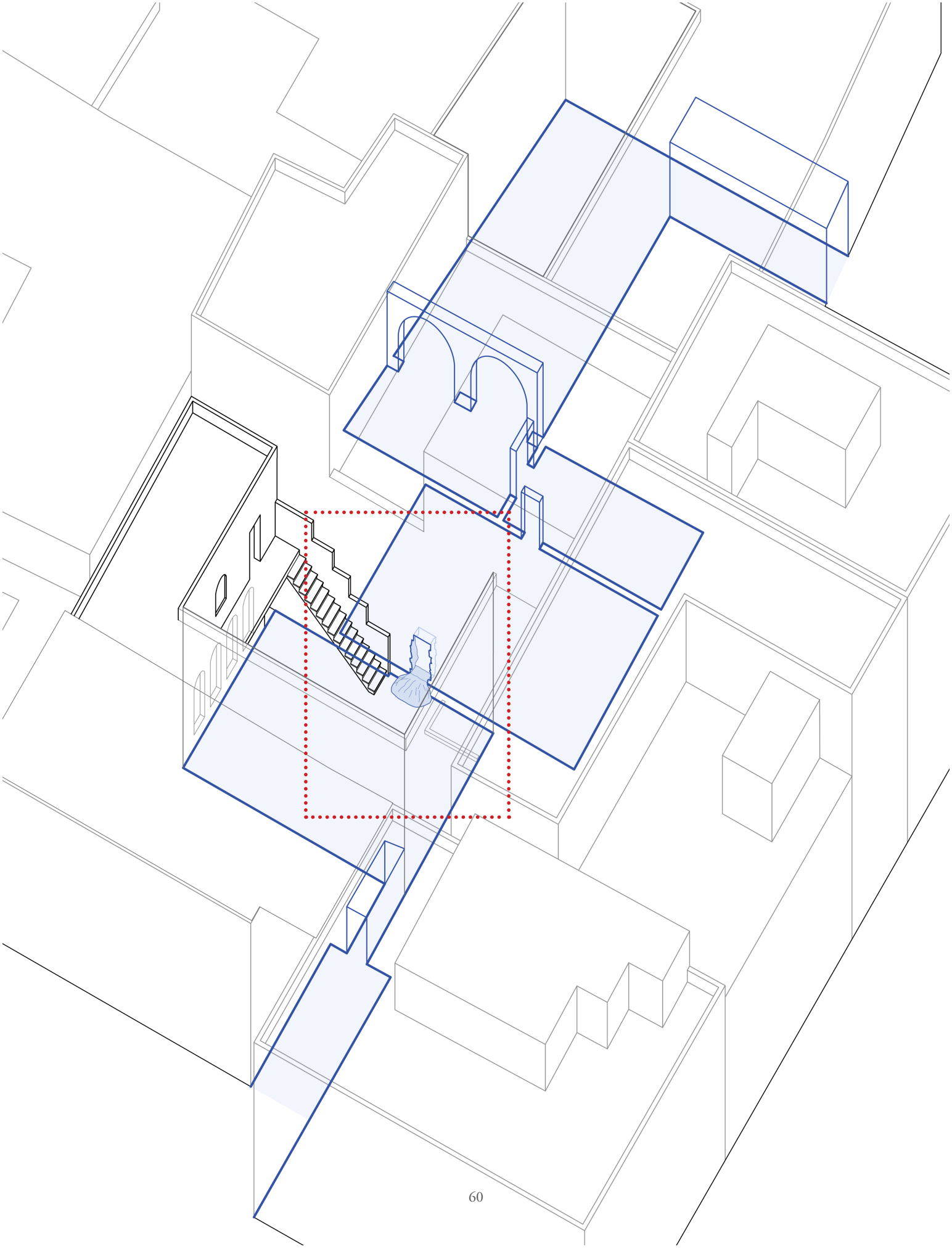


Fig 3.14 Top: Satellite image with the film bath traced, May 22, 2014 [Digital Globe via Google; Illustration by Author]

Fig 3.15 Left: Location map of intervention [Illustration by Author]

Fig 3.16 Next page: A 'Nolli' style plan showing inversion of the public and private [Illustration by Author]


sniper
field of
sight
N
5m



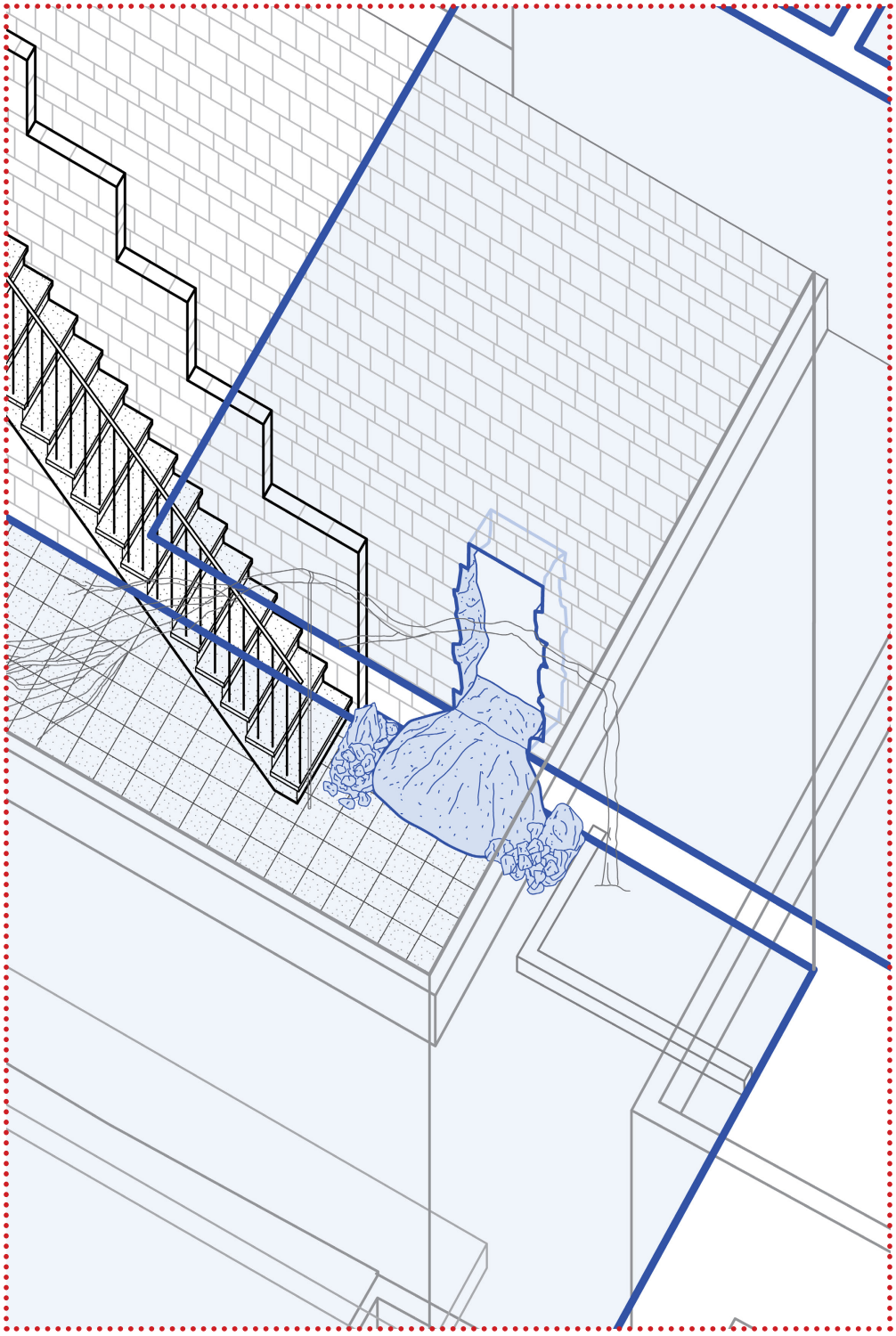


Fig 3.17 Previous page: Southeast axonometric analytical drawing of the civilian path and their intervention [Illustration by Author]

Fig 3.18 Detail of the intervention [Illustration by Author]

2 Civil Space; homes and hospitals

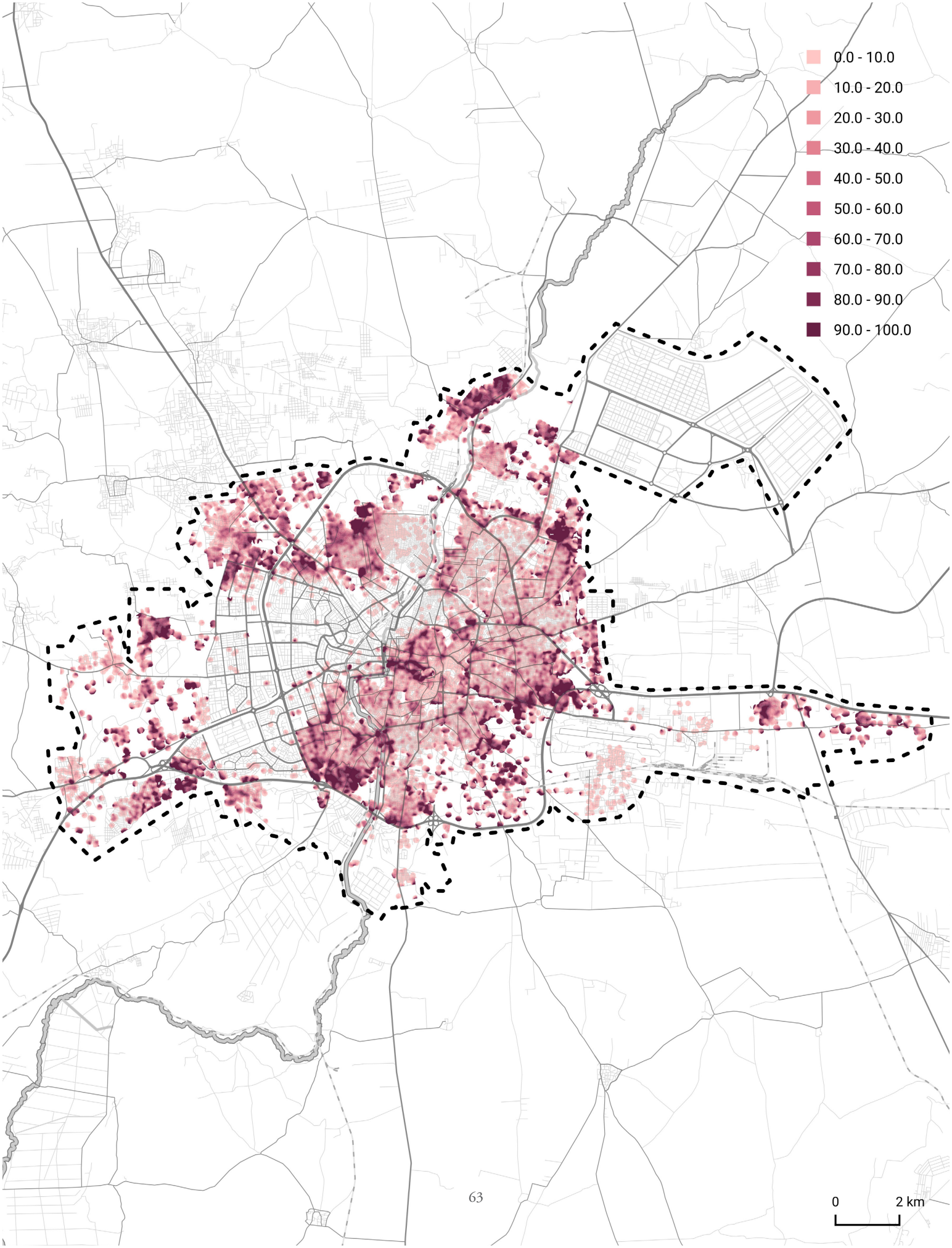
Front of violence; civil space

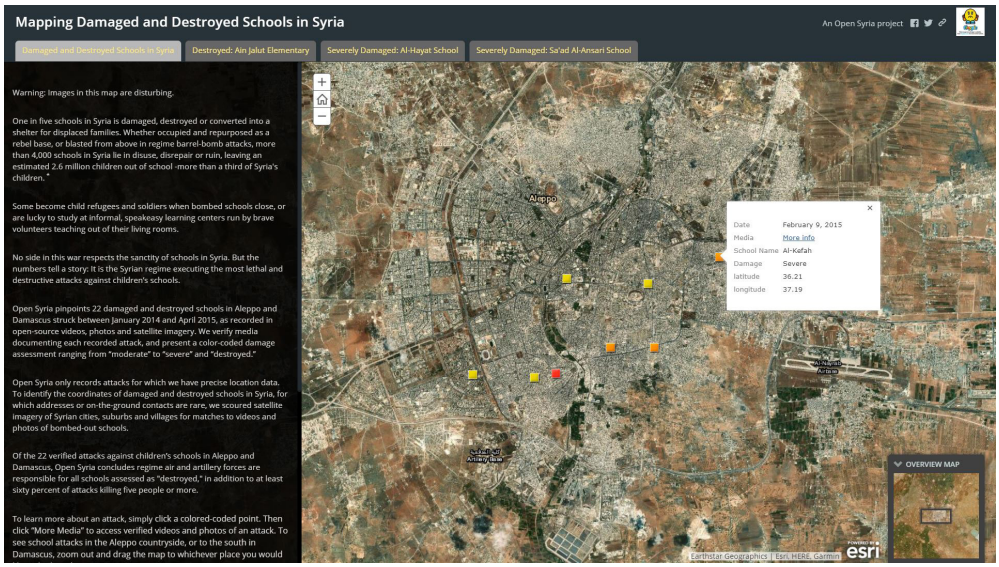
In the Battle of Aleppo, civili spaces – buildings where people lived, worked, and depended on for services – were under constant risk to deliberate or indiscriminate destruction. The continuous damage on the city created boundaries of habitability where people could and couldn't live. The state of architecture reflects a record of fear, pain, and loss for people. Maps of damage alone tell of the Aleppo's division and the reach of terror.

The front of civil space is the indiscriminate or deliberate targeting of civil space to kill or weaken the resiliency of the enemy. In Aleppo, this front caused the greatest destruction of the city and takes the form of indiscriminate brute force and the intentional targeting of architecture. Combatants used wide scale destruction to weaken their enemies and destroy their shelters. This strategy does the same to Aleppo's civilians, leaving them vulnerable to die in their own homes. As one resident told VICE, "Everyone is in danger, no one here is free of it."[96] The violence created borders between neighbourhoods stratified by danger. Aleppo's typical residential typology is the French walk-up apartment building with a density that made strikes on residential neighbourhoods especially deadly.

Combatants especially target service buildings like hospitals to destroy will and resilience. People in Aleppo had no safe spaces; killed even in buildings 'protected' under international law. Hurt civilians were rushed by what ambulances were available to the last remaining and overpopulated hospitals. While being treated in the halls, waiting rooms, and on the floors of hospitals, they could face another attack at any time. Of course, no one admits to targeting hospitals because it is a war crime. When accused of targeting hospitals combatants would simply deny any involvement.[97] Proof of targeting health care sites exists only in citizen footage from which forensic researchers could architecturally reconstruct the spaces and contextualize all footage and piece together those events. Fronts of civil space leave physical traces embedded on the urban skin of the city. Activists and non-governmental organizations (NGOs) collected this footage and created digital platforms for mapping the systematic targeting of hospitals and schools embedded with media evidence from the ground.[98]

Fig 3.19 Residential damage percentage [UNOSAT]


0.0 - 10.0
10.0 - 20.0
20.0 - 30.0
30.0 - 40.0
40.0 - 50.0
50.0 - 60.0
60.0 - 70.0
70.0 - 80.0
80.0 - 90.0
90.0 - 100.0
0
2 km



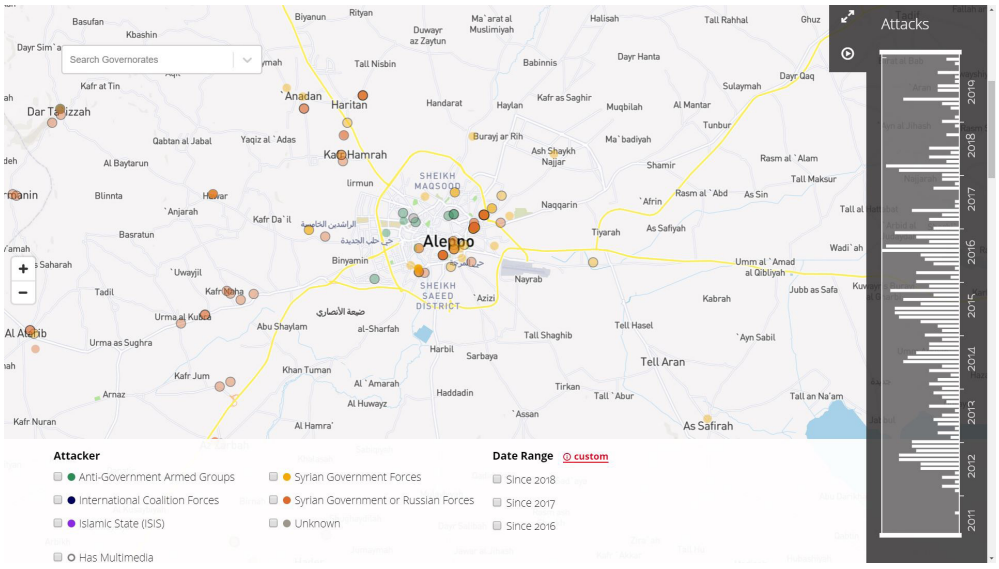


Fig 3.20 Top: Platform documenting attacks on health care in Syria by Physicians for Human Rights [syriamap.phr.org/#/en]

Fig 3.21 Bottom: "Mapping Damaged and Destroyed Schools in Syria" Platform [arcg.is/14H98m]

Fig 3.22 Next page: ICRC infill construction of unfinished skeleton buildings using simple wood framing and fabric. [ICRC, YouTube]

Counter-front of survival; civil space

The deliberate or careless destruction of the city in warfare today is an attack on the people that live there themselves. To kill the city and consequently the civilians in it, is therefore an act of urbicide.[99] This same term can be applied to understand the systematic destruction of Aleppo and the devastating impact it had on its residents, leaving hundreds of thousands displaced and tens of thousands killed by 2016.[100]

What can civilians do to survive when their city is subject to urbicide? While some may try to escape, many others who cannot residents adapt their homes to brace as much as possible the violence to come. They fill in their windows and doors with sandbags or concrete masonry unit (CMU) to protect from gunfire and blasts. Non-governmental organization (NGO) coordination platforms like Shelter Cluster[101] facilitate NGO efforts to distribute shelter repair kits for remedies to damaged homes as well as 'winterization' toolkits to seal and insulate their damaged or improvised shelters.[102] Throughout the city, people repair damaged structures and buildings when possible or build new shelters from scavenged materials and in leftover spaces of the city. Unfinished buildings are filled, sometimes with help from NGOs like the International Committee for the Red Cross (ICRC) and the Syrian Red Crescent.[103] People have also used the same distinct





blue UNHCR tarps to hang between the bare concrete columns of unfinished buildings. People displaced from their homes also created their own ad-hoc shelters. They squatted in abandoned homes, construction sites, or storefront. People scavenged rubble from ruins in the streets and buildings around them to build up a mosaic of irregular and broken stones and bricks with the little mortar they had. People retrofit storefronts because they are easier to escape from and more secure than damaged apartments above. In doing so, they domesticize the commercial space and create a new shelter type in place of the old and ruined fabric.

In the stills on the following page, a child uses a shovel to mix water and cement.[104] He repeatedly lifts it up and plops it down on a small patch of asphalt not covered in rubble until the mix is consistent and thick enough. He shovels it once more to put it in a rusty, yellow olive oil tin with the top cut off. He carries the tin over to a half-finished wall of rugged blocks. He puts some mortar on his trowel and stands on the oil tin to spread mortar on the highest block. The block is too high for him to see over, even when standing on the tin. Another younger child, possibly his brother, stands by his side watching. He lifts a broken, triangular, stone over his head, with his arms extended fully and places it on the mortar; it just barely fits. In the distance other storefronts are also visibly filled with rubble from the streets. Knowledge of navigating and creating new architecture is a collective knowledge in the growing counterfront. It is a skill learned by someone far too young to be responsible for his family's safety.











Fig 3.23 Left: Storefronts filled with rubble and stone
[حارث عبد الحق, YouTube; Illustration by Author]

Fig 3.24 Right: Boy mixes cement, collects it, applies onto a stone and places a jagged piece on top.
[Al Jazeera, Death of Aleppo]

Hospitals under fire

The United Nations reported as early as 2013 that attacks on hospitals were systematic and that health care became a weapon of war.[105] The most essential civilian buildings were therefore at the centre of the front of civil space. Hospital staff and civilians dedicated to continuing to serve the vulnerable community had to find new ways to continue working and resist the persistent violence. They sometimes fortified their buildings with rubble filled barrels or layers of sandbags. By the end of the battle, Aleppo's hospitals began to look like military barracks ready for imminent attack. Some hospitals even built facilities underground or in the side of mountains outside of city centres to protect their staff and patients.[106]

Sakhour Hospital in Sakhour neighbourhood, codenamed M10 during the battle for its safety, improvised a protection layer from bomb blasts by filling used oil barrels with any rubble they could scavenge. They stacked two filled barrels on top of one another to make a single wall unit and lined the outer walls of the small hospital's grounds with tens of them. The weighted barrels gave a buffer against blasts and stray bullets especially since they covered the porous metal fence that surrounded the hospital. I found these objects while researching the hospital because it was bombed directly and on multiple occasions.[107] Citizens and news outlets quickly reported on the incident and posted their footage. In their images, a deep crater voids what was once the entrance gate and wall. If the barrels were indeed built to protect the hospital, they could not protect it then. In the images of the aftermath, they are scattered around the mound of dirt where patients once moved through.











Fig 3.25 Previous page: Location map.
1. M10, Sakhour; 2. Hakeem, Sha'ar; 3. Quds, As-Sukkari

From top to bottom:

1 Aftermath of a strike on October 1, 2016. Rubble filled barrels line the perimeter of the hospital. [Al Jazeera Arabic, YouTube]

2 Aftermath of a strike on October 3, 2016 [Bellingcat]

3 Aftermath of a strike on October 3, 2016 [Bellingcat]

4 View from north of the hospital wall [SMART News]

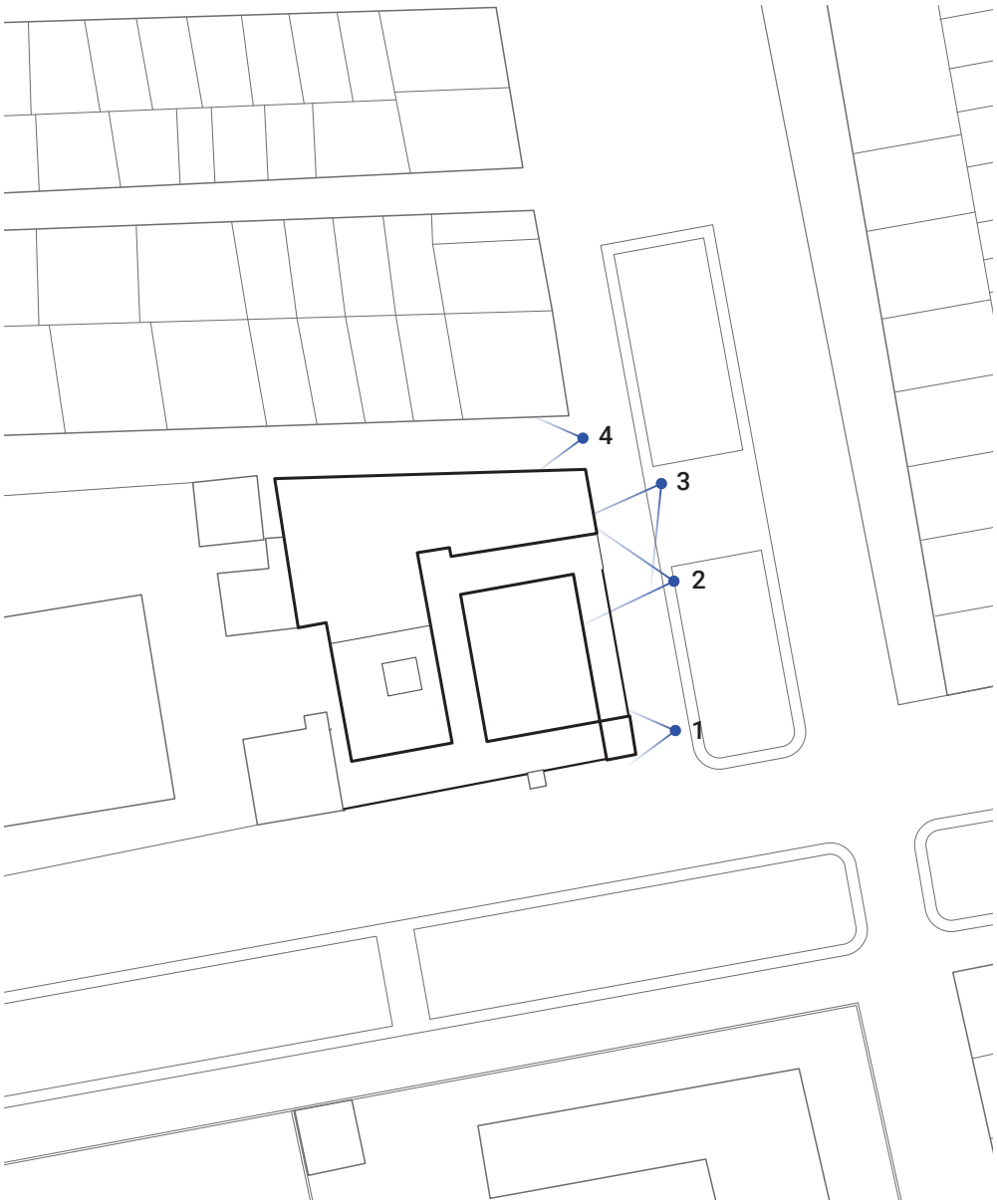
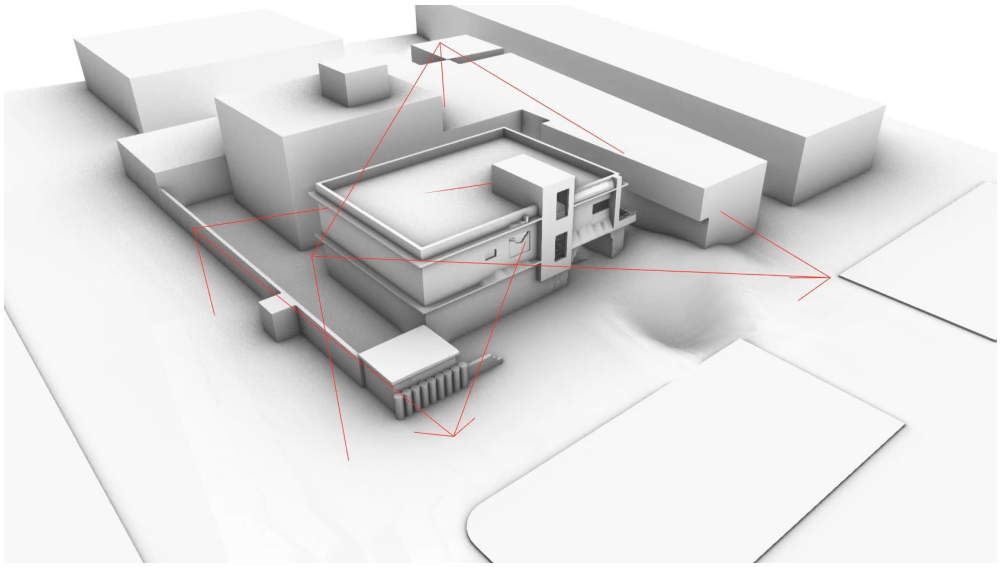
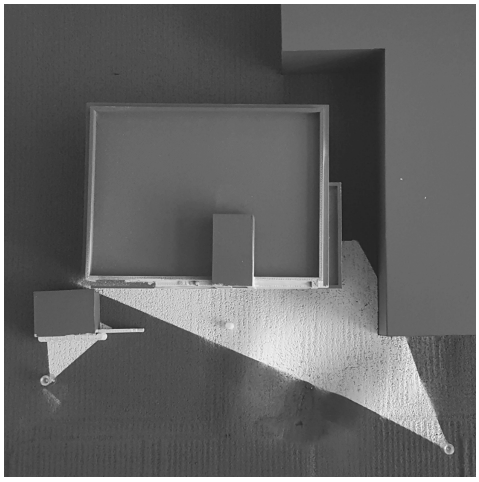


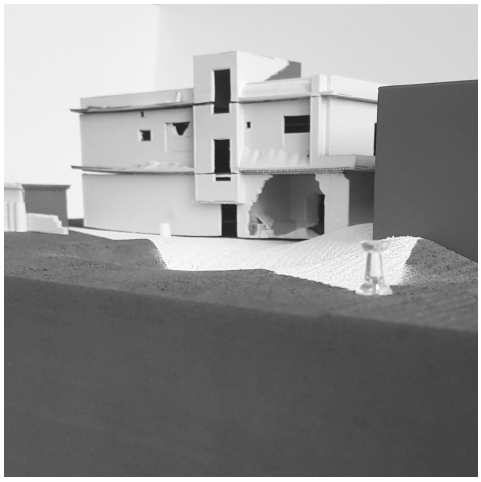
Fig 3.26 Top: Site plan of M10 hospital with media spatialized [Illustration by Author]

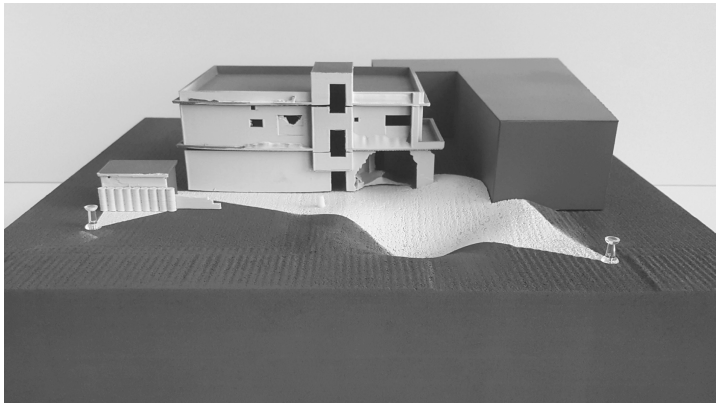
Fig 3.27 Next page top: 3D model of hospital constructed from media [Illustration by Author]

Fig 3.28 Next page bottom: 3D printed model diagramming the narrow vision of media where white is known and grey is unknown [Model by Author]









Hakeem hospital used sandbags to build a two-meter-tall secondary 'wall' around the children's hospital entrance that was otherwise exposed. They created a secondary threshold for securing movement in and out of the hospital and again to protect against the ricochets of fighting.

Quds Hospital used sandbags to transform the entire hospital's façade. They added a second, protective, skin to the first two levels of the building by constructing a CMU and concrete slab frame system that began from the ground and projected roughly 1.5 meters from the hospital's original cladding. The system consisted of tall CMU walls attached to the façade and protruded out perpendicularly. At both levels, a concrete slab joined the walls at the height of the interior floor slab and the next set of walls stacked on top of it. The open scaffold construction allowed builders to fill the depths of the frame with sandbags along the entire perimeter of the hospital and in multiple storeys. On the ground, a neatly stalked tunnel of sandbags stuck out beyond the new layer as a protected entrance.









1. Sandbags; 2. Concrete slab; 3. CMU column

Fig 3.29 Previous page: Hakeem hospital in Sha'ar [Reuters. Abdalrhman Ismail]

Fig 3.30 Previous page: Hakeem hospital in Sha'ar [Reuters. Abdalrhman Ismail]

Fig 3.31 Top: Quds hospital in as-Sukkari. [Reuters. Abdalrhman Ismail. Illustration by Author]

Fig 3.32 Bottom: Quds hospital in as-Sukkari [NOS. Sander van Hoorn. Illustration by Author]

In the case of Omar bin Abdul Aziz hospital (codenamed M2), their response was a carefully engineered wall. At the height of the battle in 2016 M2 was struck at least twelve times in six months according to the Syrian American Medical Society (SAMS) that was supporting it.[108] [109]The hospital stood in Bab al-Maqam neighbourhood, which was long held by rebels during the battle including during the gruelling siege of east Aleppo. The division of the city meant that access to healthcare was restricted by location and functionality. M2 was one of the last working hospitals with a valuable paediatric department until it was itself put out of service by the end of the year.

Despite continuous damage before the final blow, the hospital continued to work. At some point that year, they hired a local engineer tasked with protecting the hospital against incessant attacks. The engineer designed a protective wall around the hospital.[110] They built the wall of reinforced concrete columns regularly spaced along the perimeter of the hospital and CMU infilled between them, leaving a gap for entrances. A horizontal concrete beam sat between the first and second level with more CMU above. The CMU wall design includes PVC pipe sections sandwiched between the blocks and mortar. The pipe section holes perforating the wall allowed the force of blasts nearby to pass through them while still protecting the building from shrapnel and gunfire. Despite this effort, the hospital went out of service on many occasions. They originally intended for the wall to match the five-story height of the building but could only reach two levels before it was too dangerous to continue construction. The wall stood there incomplete and with steel rebar sticking out of its concrete posts. It was an architectural response to repeated attacks on vulnerable healthcare facilities in general and M2 hospital in particular. The existence of the wall as a designed and calculated engineered structure tells of how serious and persistent the danger to the community was. The wall is a testament to the importance and vulnerability of civil services and their abuse in conflict.



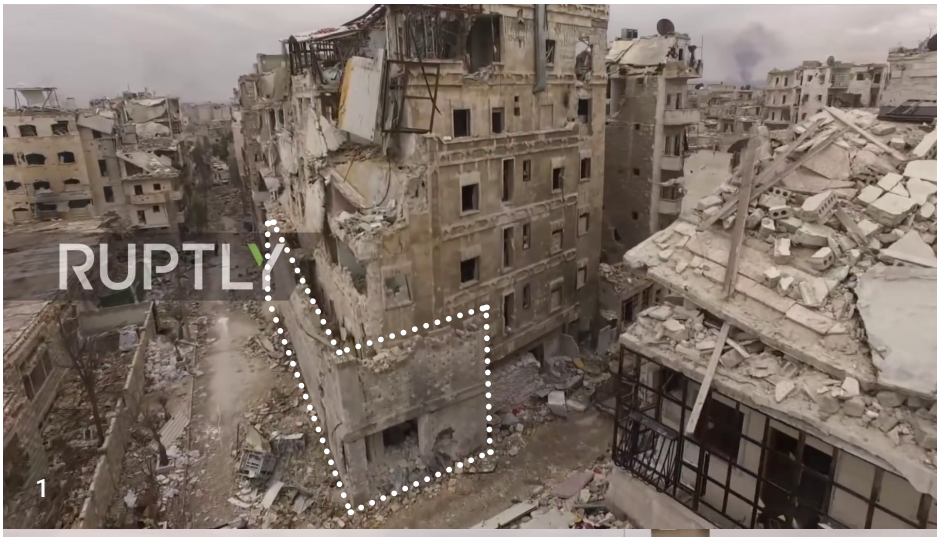




Fig 3.33 Left: Location map of M2 [Illustration by Author]

Fig 3.34 Top: M2 before the battle, July 3. 2010 [Maxar via Google]

Fig 3.35 Bottom: M2 after the battle, February 19, 2017 [Maxar via Google]


RUPTLY
1


RUPTLY
2


3







Fig 3.36 1, 2. Drone footage showing destruction after the battle [Ruptly. YouTube. Edited by Author]

Fig 3.37 3, 6. Protective wall under construction; close up of material [Date and author unknown. Sent to Forensic Architecture as part of their investigation]

Fig 3.38 4. M2 before the war [M2 Hospital, Facebook]

Fig 3.39 5. Sky News report [YouTube]

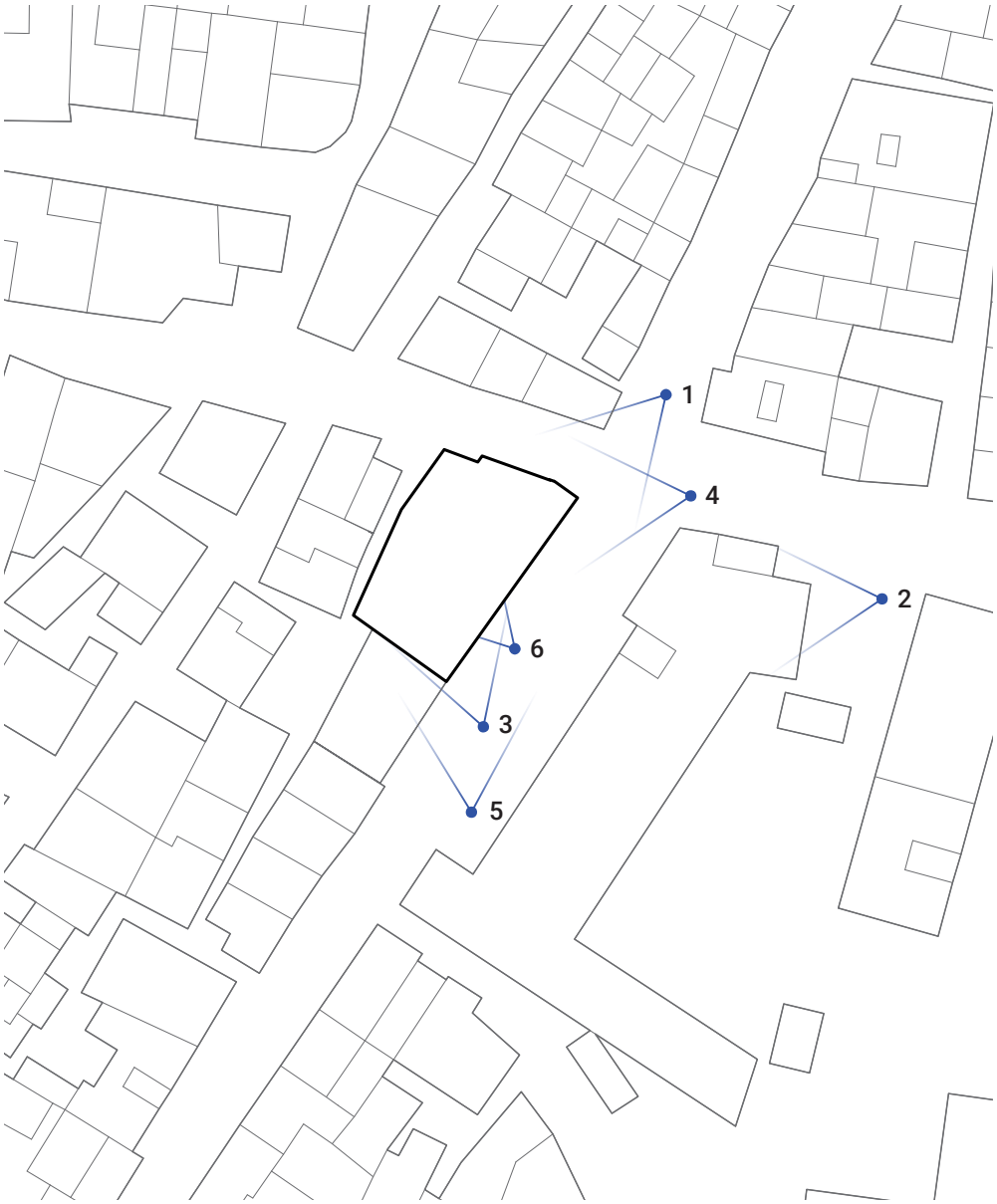


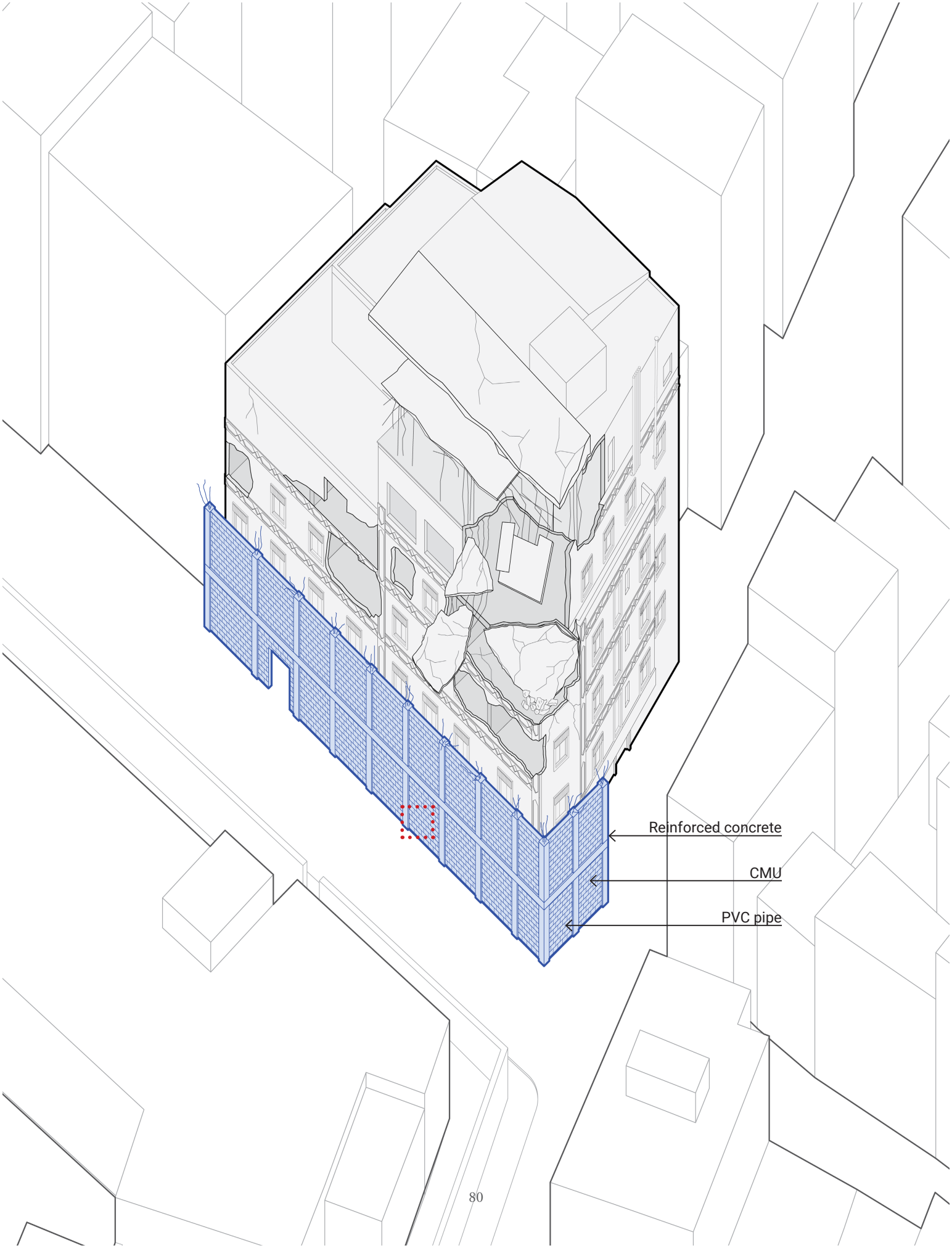
Fig 3.40 Top: Site plan of M2 hospital with media spatialized [Illustration by Author]

Fig 3.41 M2 rebuilt soon after the end of the battle in 2017 [Emma Beals. Twitter]

Some of the footage I used to analyse the wall itself came from drone footage broadcast by Russian state media outlet, Ruptly. Russia is ironically one of the actors accused of damaging that very hospital and others like it. While journalists like Muhammad Idrees Ahmad have warned of the intentional 'sensory overload' of drone footage, Others warn how sweeping aerial images exclusive to states can create a single inhuman image of a destroyed city.[111] Forensic analysis overcomes much of that concern because it spatializes media regardless of authorship. In Ruptly's drone footage I saw the hospital at a time and angle unique to that media. The footage holds absolute architectural information embedded in the content that seems at first like generic ruins.

Months after the Syrian government took back the rest of Aleppo in late 2016, images surfaced on social media of the same hospital repaired and rebuilt as new.[112] The buffer wall built by residents and hospital staff is gone and the hospital now stands clad in bright new stone while buildings around it are still in ruin. It was as if nothing had happened. The architecture of civilians is the first to be erased, for their destruction portrays the return to an order that takes the city out of the control of civilians and returns it to the state. The sudden disappearance of the wall demonstrates just how fragile civilian architectural responses are and reminds us why we must pay close attention to these fleeting architectural moments. With the removal of civilian counter-fronts, the role of architecture to cope with violence dissolves in the victor's order.




Reinforced concrete
CMU
PVC pipe

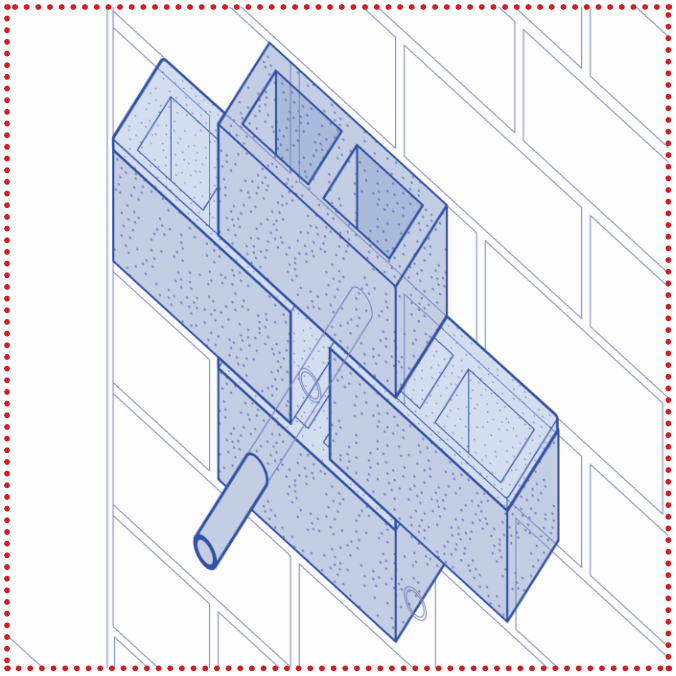


Fig 3.42 Previous page: Northeast axonometric drawing of M2 hospital and the improvised protective wall. The drawing shows its approximate state in late 2016 [Illustration by Author]

Fig 3.43 Above: Detail of the construction module [Illustration by Author]

Pop-up market

Commercial storefronts too damaged and vulnerable to continue working with business as usual were abandoned, destroyed or converted by people to shelters for them and their families. Along with the alternative spaces of civilian architectural responses and counter fronts were alternative spaces of economy born out of violence as well.

When fighting heavily damaged the ancient souk of Old Aleppo beyond use and halting tradition of millennia, along with the more contemporary commercial storefronts of the city, people responded by establishing pop-up improvised markets constructed by the same tools of shelter – salvaged metal posts, UNHCR tarps as roofs and a table were all they needed to create war-time souks. It is architecture made of simple available materials and designed to be lightweight and nimble – one that can contract and expand, appear and disappear with ease.

Crates of vegetable and fruit sat on tables and lined the rubble filled streets. Around these markets were ruined, crumbling buildings. Even during battle, the most basic needs stayed, and people found a way to preserve some normalcy. The impromptu markets speak to the persistence of fundamental human needs even in the most volatile places.

In Karm ad-Dada a long street of these pop-up markets appeared in early 2013 almost a year after the battle began. I found this significant market by satellite images because of their distinct white and blue tarps and later found them to be a typology of civilian architectural response throughout the city. The photo below is from Bustan al-Qasr neighbourhood.

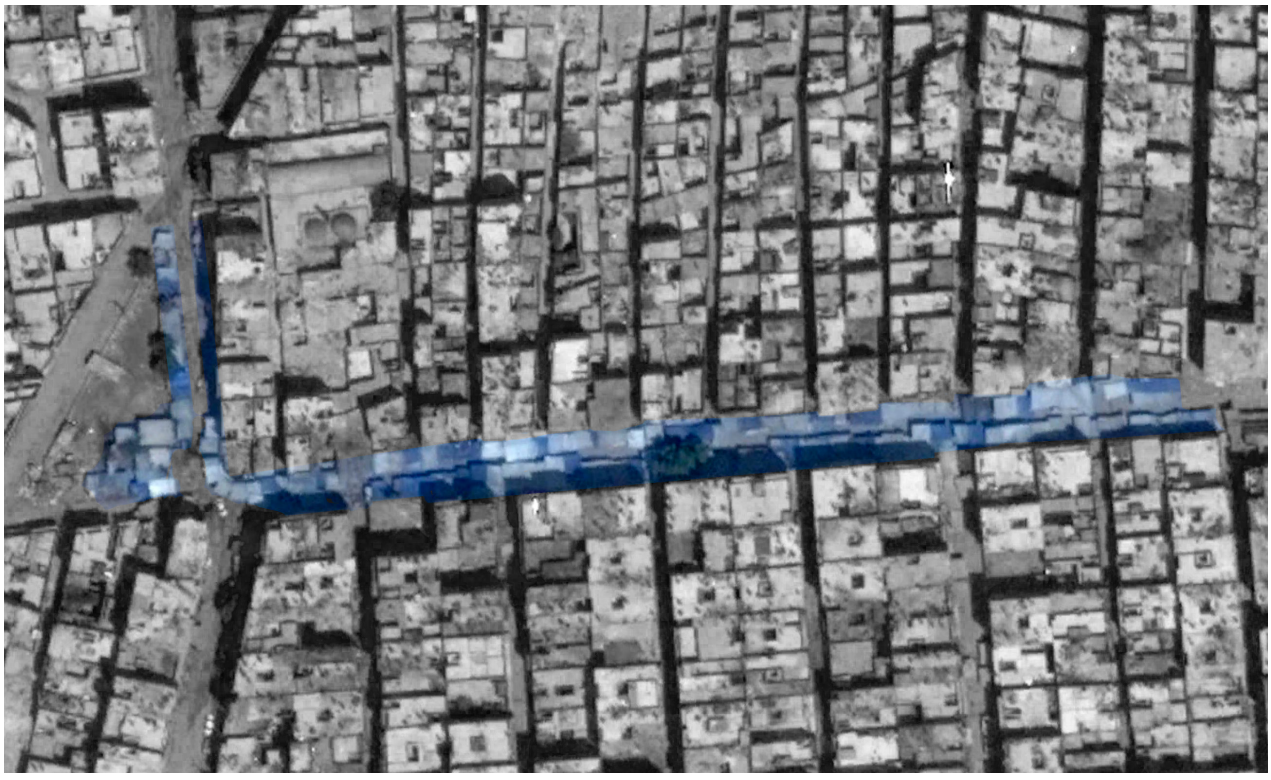
Fig 3.44 Below: Improvised market in Bustan al-Qasr [AMC. YouTube]

Fig 3.45 Next page top: Karm ad-Dada before the battle, June 2011 [Maxar via Google]

Fig 3.46 Next page bottom: Karm ad-Dada at the height of battle, June 2016. Notice the long line of blue tarps where a market likely is. [Maxar via Google; Illustration by Author]







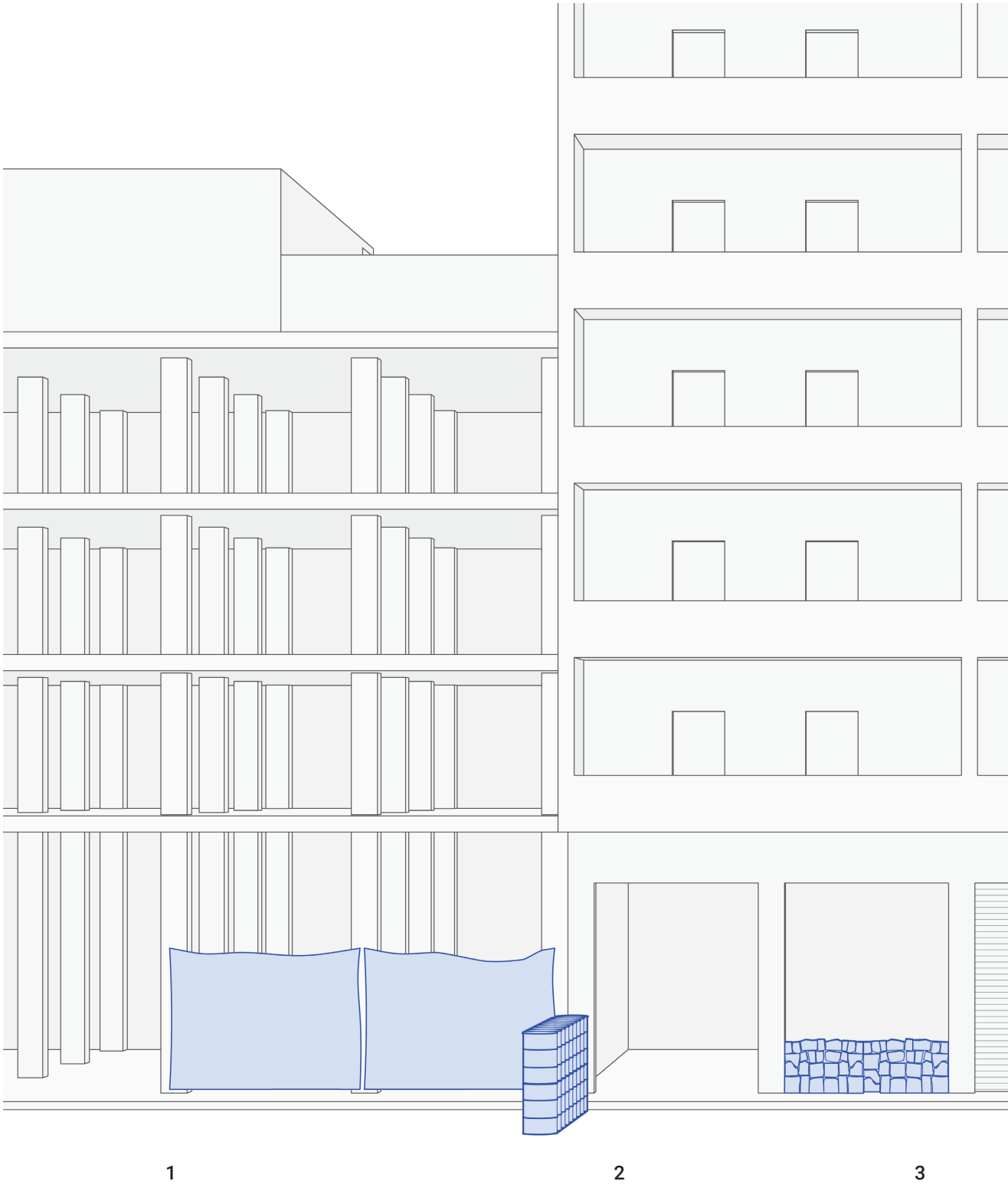


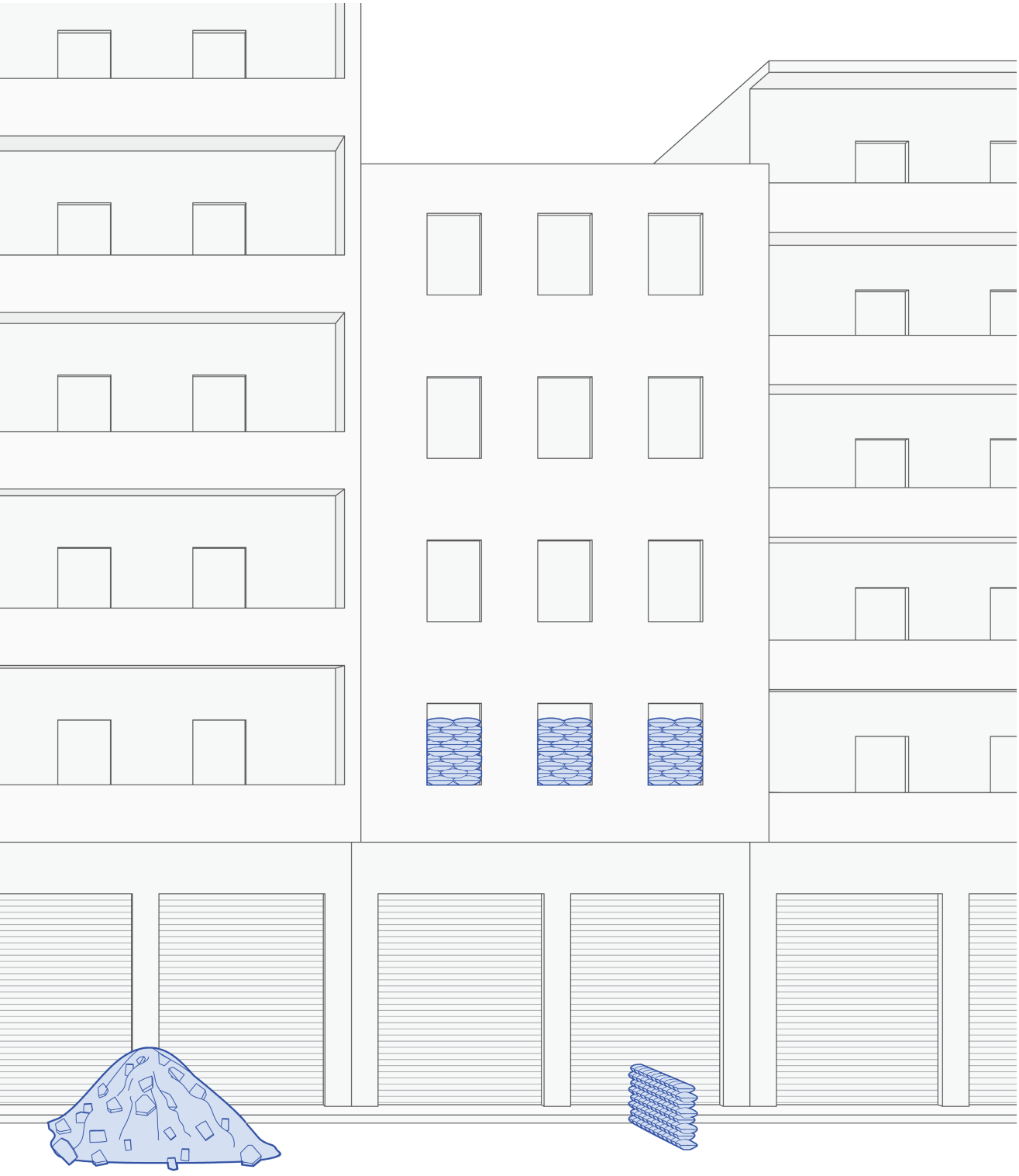
Fig 3.47 Diagram of urban interventions for movement and shelter [Illustration by Author]

1 Tarps; used to enclose unfinished or damaged structures

2 Barrels; filled with rubble and lined to create barrier

3 Rubble; assembled in a pile, used to infill or reinforce building openings

4 Sandbags; used to obstruct views on the street or reinforce building openings



4

3 Infrastructure; water and energy

Front of violence; infrastructure

The violence of urban war is not always explicitly physical. Combatants in Aleppo also undermined each other by controlling and targeting the infrastructure of the city. They cut off essential supplies and resources like water and electricity in opposing neighbourhoods. Civilians in Aleppo felt the effect of this front the most; outages were unexpected and often indefinite as far as they knew.

Infrastructure has the widest reach of all fronts because it has the power to affect residents of entire neighbourhoods or cities simultaneously and totally. The infrastructure front creates another set of implicit urban borders defined by access to resources. The methods of the infrastructure front include targeted destruction, sabotage, and siege. Combatants would retaliate against one another through infrastructure while further condemning the public to precarious lives.

Targeting water infrastructure was so systematic and pervasive that in 2015 the International Committee of the Red Cross (ICRC) declared that water, like healthcare two years earlier, was being used as a weapon of war in.[113] Water was an instrument of coercion by all sides;[114] they destroyed water pipes,[115] shut down water pumping stations that flowed into enemy territory, or sabotaged and damaged water towers and pumping stations altogether.[116] Their attacks in turn resulted in water insecurity for more than 2 million people, with some going weeks without clean drinking water during the siege of Eastern Aleppo.[117] The damage to the pipes and pumping stations also risked the rapid spread of waterborne diseases.[118]

What made matters worse for civilians is that the city depended almost entirely on a centralized station that pumped water from Lake Assad of the Euphrates River more than 70 kilometres away from its borders. Multiple groups struck this station as well which only further depressed the resident's access to water. The city's electricity grid was the same, relying on a single plant to power most of the city that was also damaged and fought over.[119] Power lines were also destroyed in bombing and shelling campaigns of the battle.

The centralization of both water and electrical infrastructure in Aleppo made them extremely desirable political elements because whoever controlled that infrastructure controlled most of the city by extension.

The battle of administration

The front of infrastructure is also a fight of administration. Combatants fought for administration simultaneously to armed battle. They recognized the importance of administration

alongside military victory because control depends in part on the perceived legitimacy of governance.

Political scientist Eqbal Ahmad reflects on the importance of administration and popular legitimacy in the Algerian War of Independence against France by the Algerian *Front de Libération Nationale* (FLN) in his essay 'How to Tell When the Rebels Have Won.'

> The Algerian revolution […] had actually been crushed militarily but had won politically when de Gaulle negotiated independence. By 1961, the guerrillas had been reduced to some 5,000 and their ability to engage the French at will had markedly declined. But France faced a sullen Algerian population that it had conquered but could not rule. The F.L.N. was defeated in the field, but it continued to outadminister and 'illegitimize' the French.[120]

The persistent civil and armed resistance against the French, and France's brutal response, led to what Ahmad saw as a necessary tipping point for revolt: the moral alienation from the ruler.[121]

The task of administration influences how actors in war behave spatially and what responsibilities they accept. Making sure essential food staples are available are at the top of this priority list and why soldiers take part in its distribution. The following stills show this administrative effort and more interestingly for this thesis, the architecture it takes place in.



Fig 3.48 Above and next page: Administrative office in Bustan al-Qasr for ration distribution [AMC. YouTube]



The video begins with a shot outside what looks to previously be a commercial storefront. Two handwritten signs are fastened to the metal gate which tells us of its improvised repurposing. The first reads from the top in blue:

The Free Syrian Army
Central Front Command
Ration Distribution Centre
Exclusive
Bustan al-Qasr and al-Kallaseh
The sign to the left reads:
Battalion of the Martyr Captain Nimr

The video cuts to the inside where an attendant at the storefront informs the reporter that they acquired 60 tons of rice from government held silos and that this impromptu office for ration distribution is handing out 1 kilogram of rice per person. They turn to show people standing outside waiting their turn behind the gate. The workers inside crowd around a desk checking identifications and papers. A folder and a pack of cigarettes with a lighter are the only other things on the table while divided bags of rice sit on the table behind them.

Understanding the importance of administration is a significant inverse reason for laying sieges, targeting supplies and sabotaging infrastructure. Fighters both deprive their enemies and push the population under their control to a point of desperation and discontent with their governors. They aim to strip away their will and ability to persevere and resist.

Counter-front of survival; infrastructure

Infrastructure is the most difficult for civilians to respond to because of the intervention scale required. Civilians that do engage typically respond to this front with the aid of local and international non-governmental organizations (NGOs).

In a documentary by VICE about Aleppo, while touring a devastated government held neighbourhood, the presenter points to a generator and says that 'they' (presumably the government) set it up temporarily.[122] A large web of countless, colourful wires are intertangled and lead from the generator to nearby buildings. Desperate civilians were impromptu electricians that wired their own shelters and homes themselves to deal with the power cuts or a complete lack of electricity.

The Community Wells

The ICRC is one of the NGOs that has worked to address the lack of power and the extreme water insecurity on across Aleppo. They anticipated the problem of water weaponization and civilian accessibility as early as 2013 when they launched, in partnership with the Syrian Arab Red Crescent (SARC; an affiliate of ICRC) and local community partners, an initiative to create alternative water networks in the city. In the process they found and restored 80 disused wells throughout the city.[123] They often connect wells to large, red water tanks from which the community could easily drink and fill their vessels. While civilians did not exclusively carry out these responses, the ICRC implemented them in partnership with local community leaders and their success depended



Fig 3.49 Temporary generator that residents have independently connected to. [VICE. YouTube]

on community coordination. Civilian involvement in their implementation along with their architectural and urban implications qualify these tanks and infrastructural efforts as Civilian Architectural Responses. They demarcated the points of water with a clear and consistent visual language of the red tanks. They place the tanks in existing community centres and visible streets. Their placement and look made the tanks urban nodes for collective resources and frequent gathering. The ICRC also created a GPS enabled interactive map so citizens could track the location of the water sources. One of those sites is a rehabilitated well at the Usama bin Zaid Mosque in Agyul neighbourhood, just north of the old city. The neighbourhood was a volatile borderland that teetered back and forth on the frontlines of battle.

By creating a secondary network, the wells and tanks acted to, even if temporarily, decentralize the infrastructure of an essential resource and therefore decreased the vulnerability and dependency on single militarized sources. The response made people more resilient and versatile as the network consisted of standalone point sources. Resiliency empowers people because they are closer to the freedom of making their own decisions about their spaces and lives. This response works as a democratization of infrastructure despite and simultaneously because of the violence civilians face. That extreme circumstance is the clearest urban design lesson: the vulnerability of centralization. The civilian response shows a popular will tendency towards self-governance and autonomy over the resources they rely on. It may serve as a lesson for the danger of continuing single centralization for Aleppo and other cities globally.

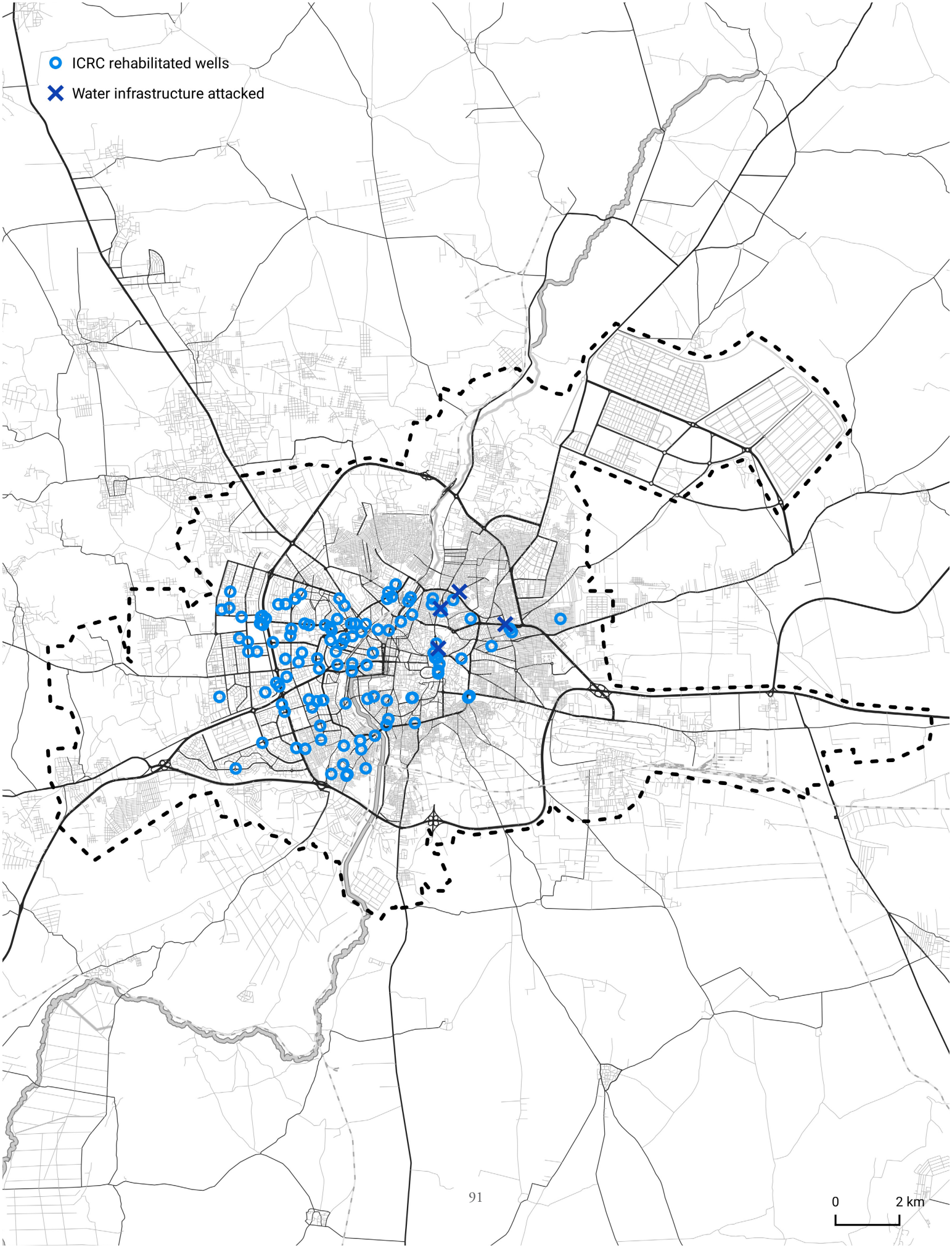
Fig 3.50 Left: People filling from a tank on a street [ICRC]

Fig 3.51 Right: Red water tanks installed to a revived well [ICRC]

Fig 3.52 Next page: Map of installed tanks and rehabilitated wells [ICRC] and attacks on water infrastructure [Chan, Danforth, del Valle, Kurgan]






ICRC rehabilitated wells
Water infrastructure attacked
0
2 km

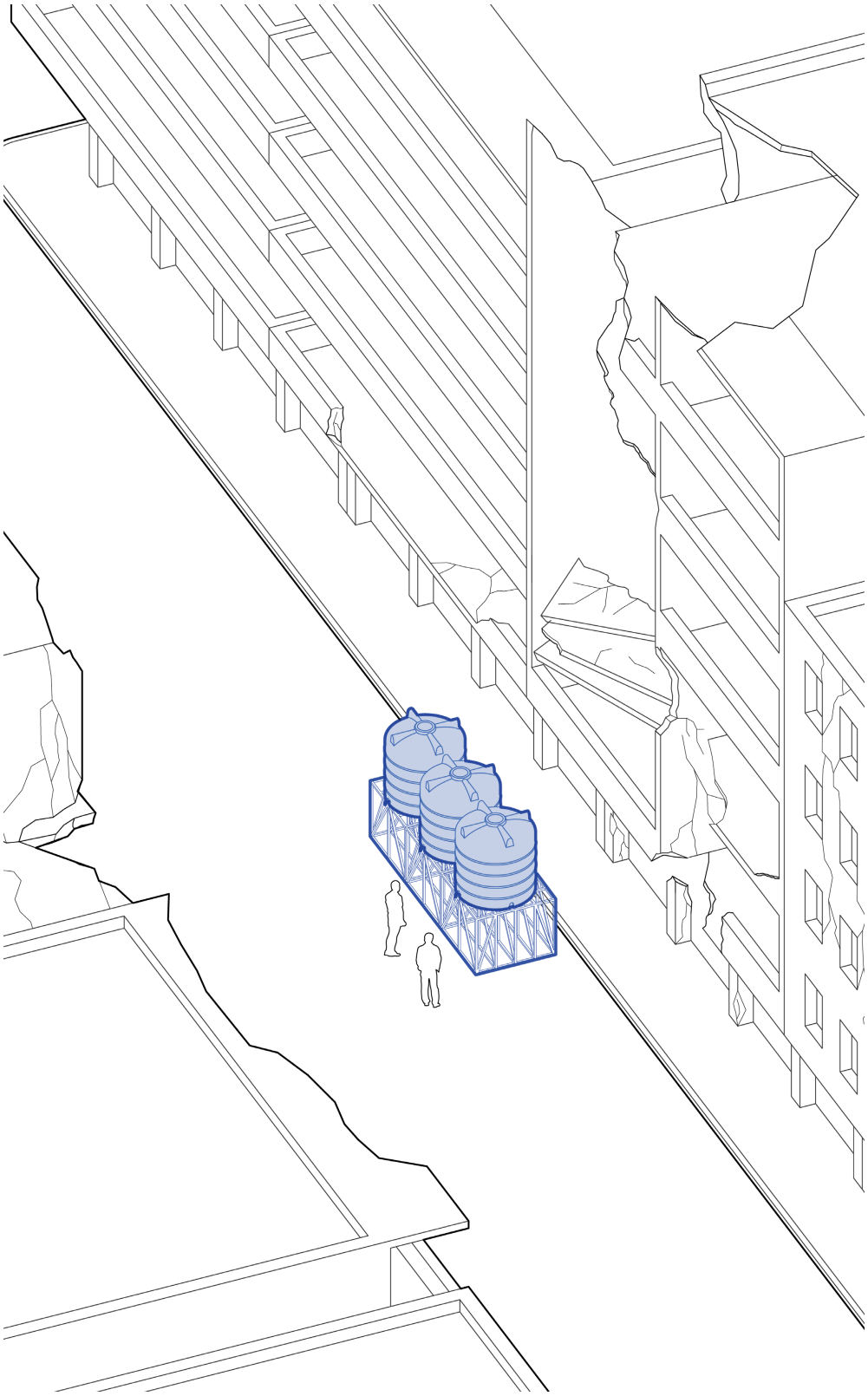
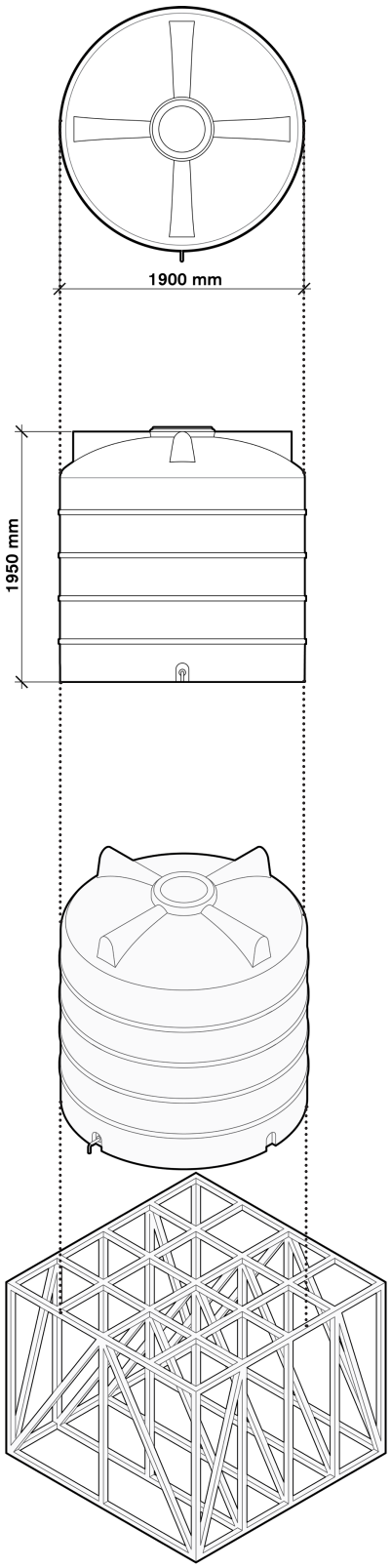
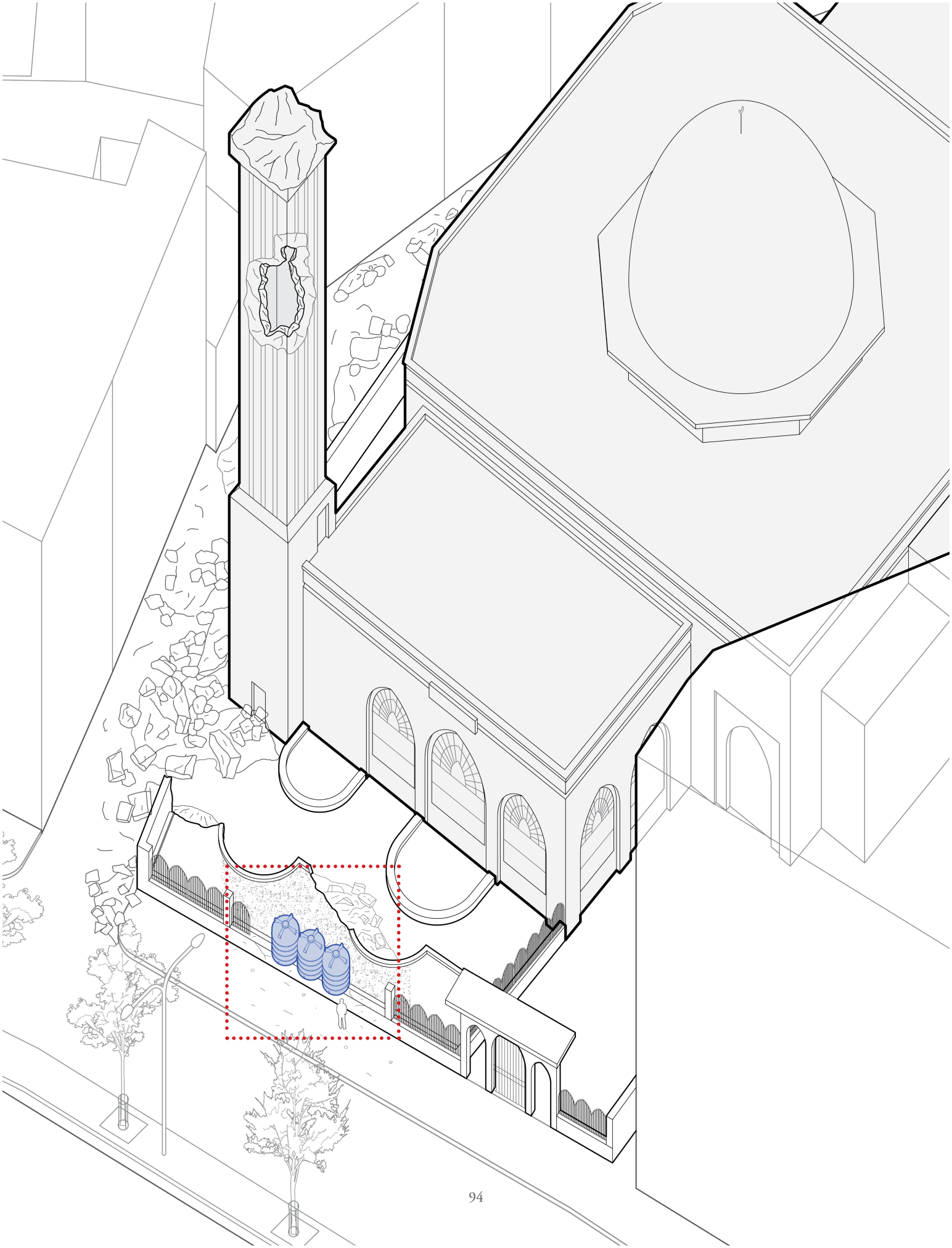


Fig 3.53 Left: Diagram of ICRC water tanks in a residential street. [Illustration by Author]

Fig 3.54 Right: Typical 5m³ plastic tank with steel frame support detail. [Illustration by Author]





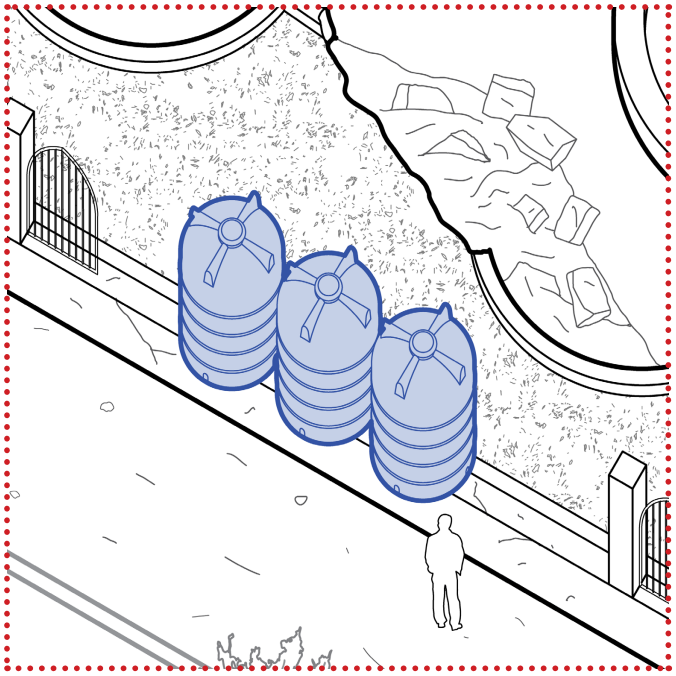




Fig 3.55 Left: Southwest axonometric drawing of Usama bin Zaid mosque and its added tanks by the ICRC [Illustration by Author]

Fig 3.56 Top: Detail of tanks [Illustration by Author]

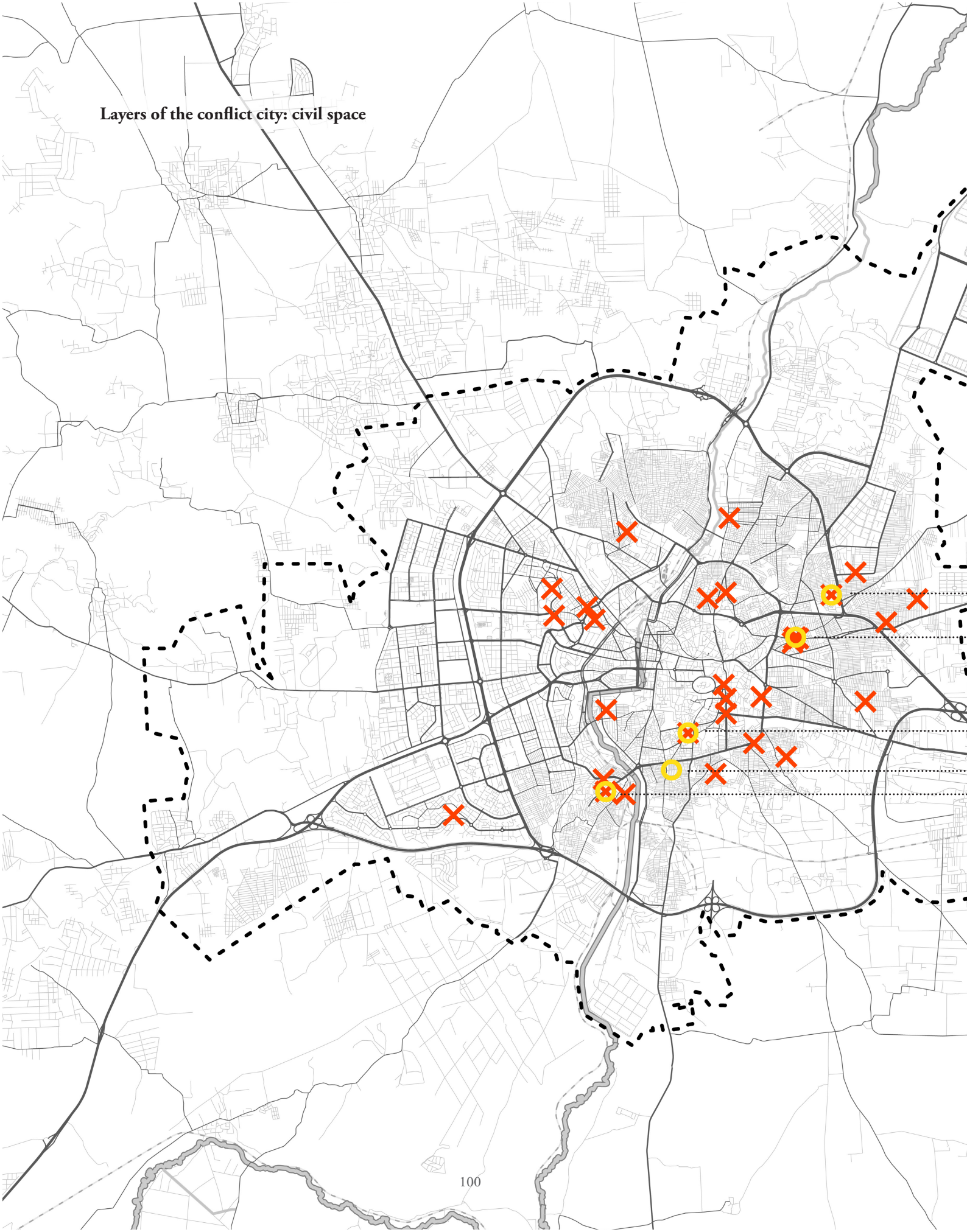
Fig 3.57 Bottom: Location map of Usama bin Zaid mosque [Illustration by Author]

Mapping the fronts and counterfronts of Aleppo

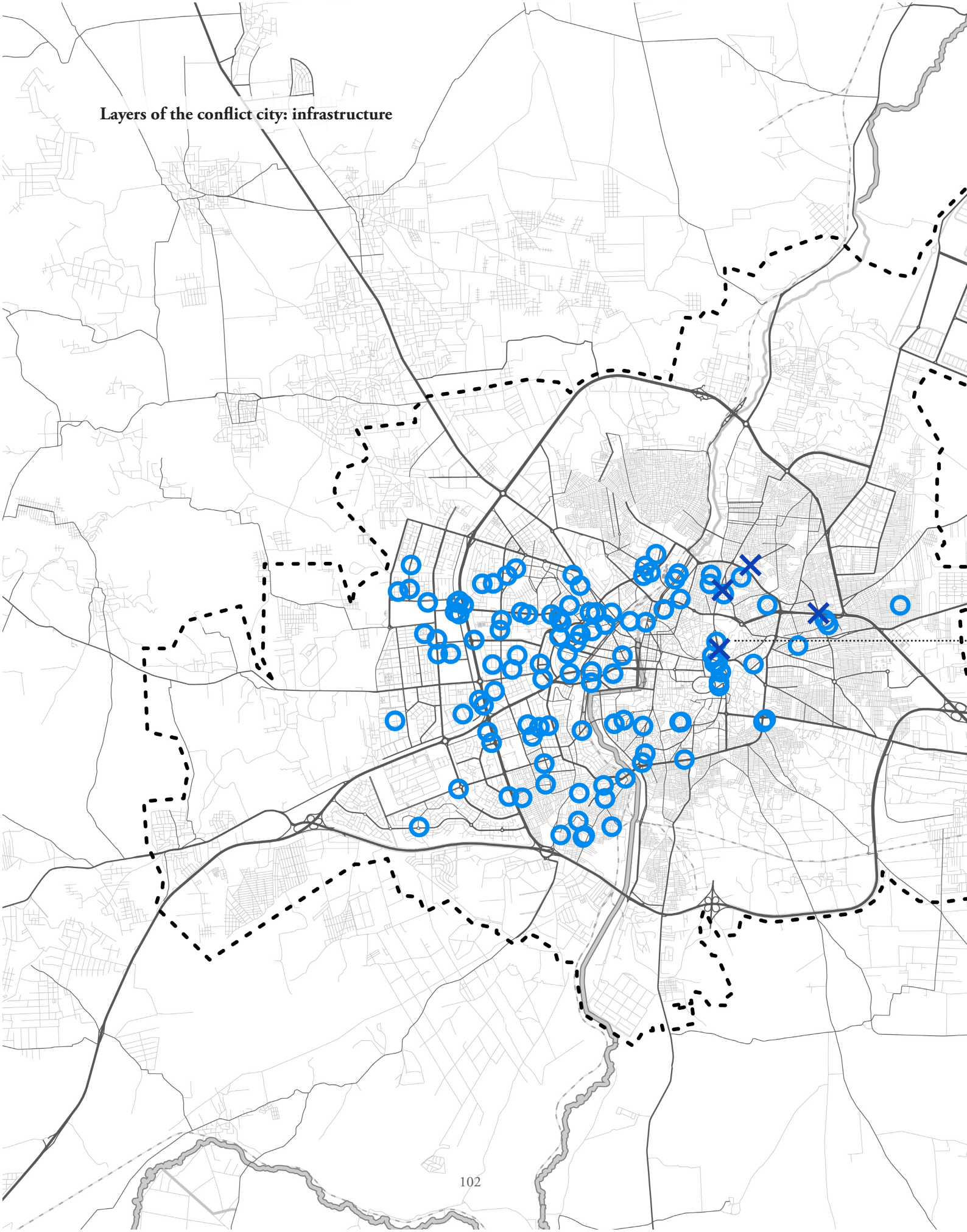
Layers of the conflict city: movement

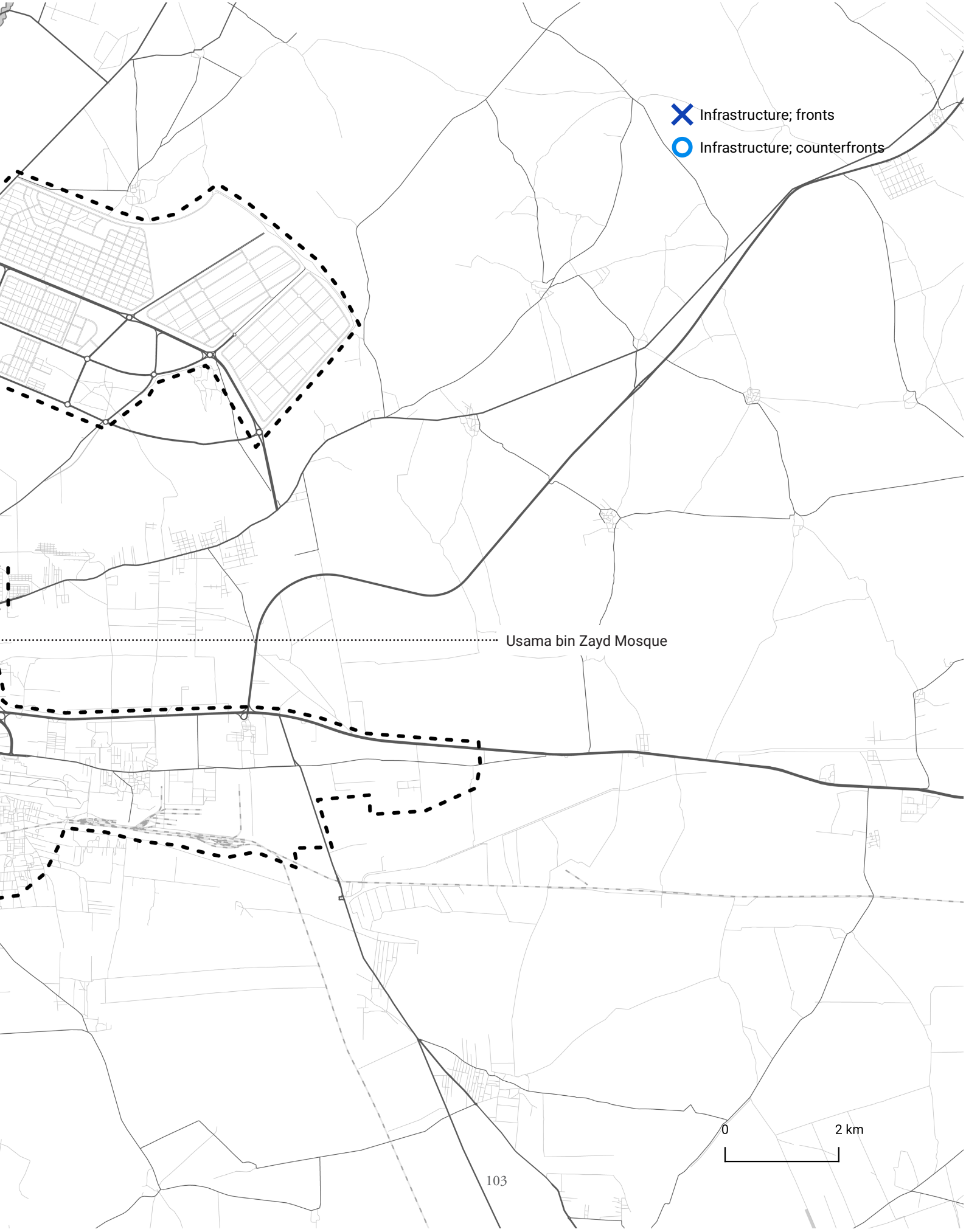


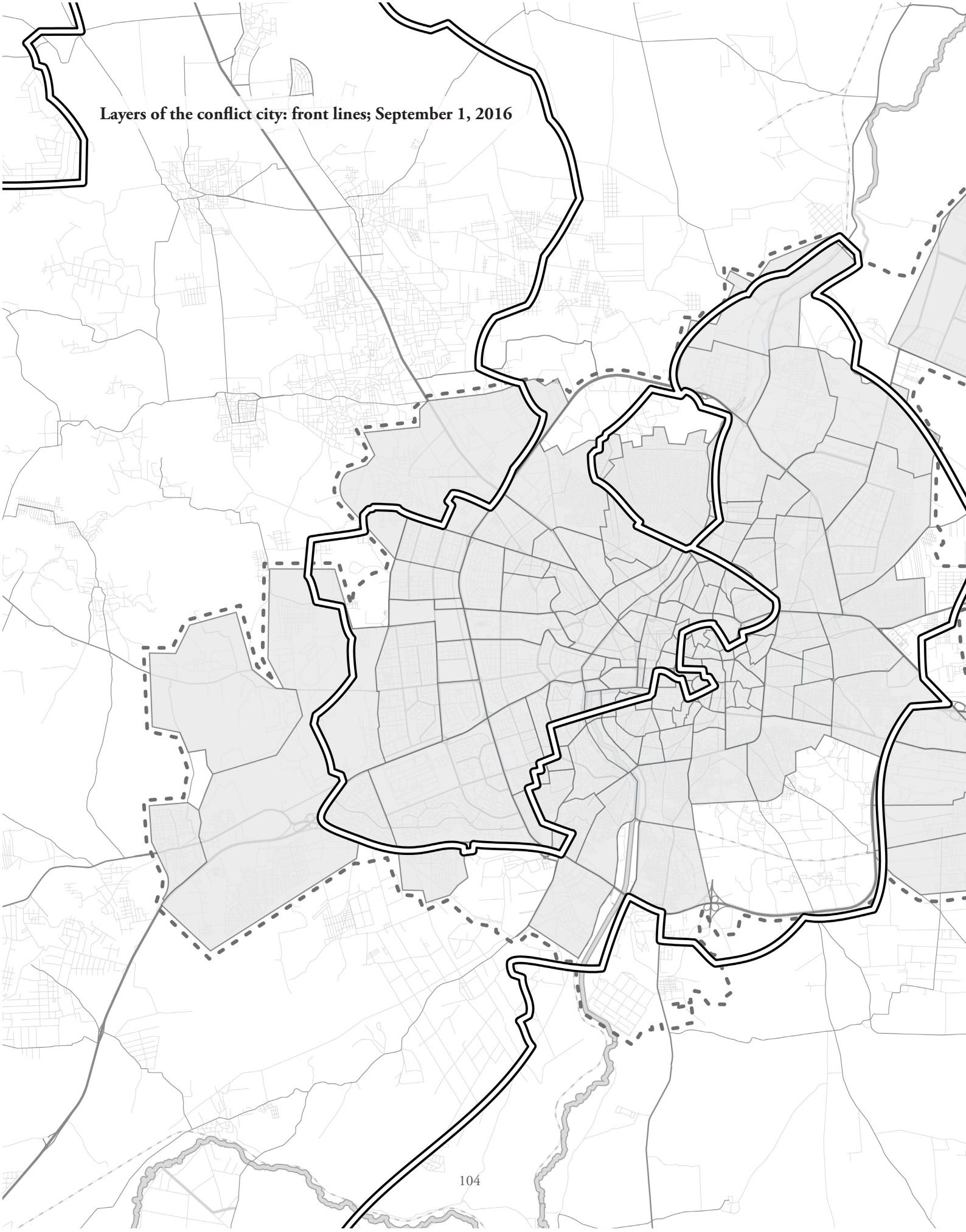

Movement; fronts
Movement; counterfronts
Sniper sign
A domestic street
Barricades
0
2 km




Civil space; fronts
Civil space; counterfronts
M10 hospital
Hakeem hospital
M2 hospital
Pop-up market
Al-Quds hospital
0
2 km

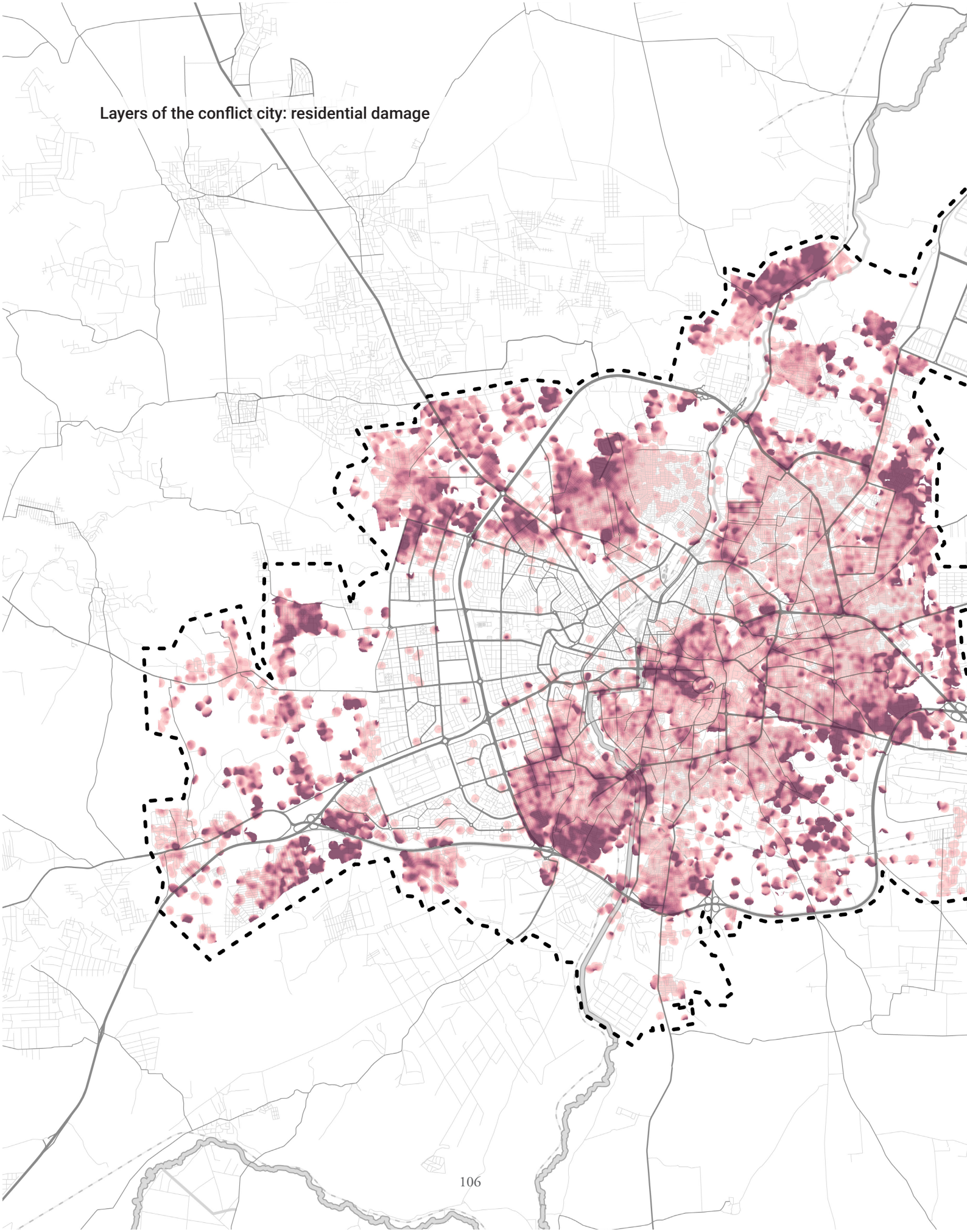



Infrastructure; fronts
Infrastructure; counterfronts
Usama bin Zayd Mosque
0
2 km

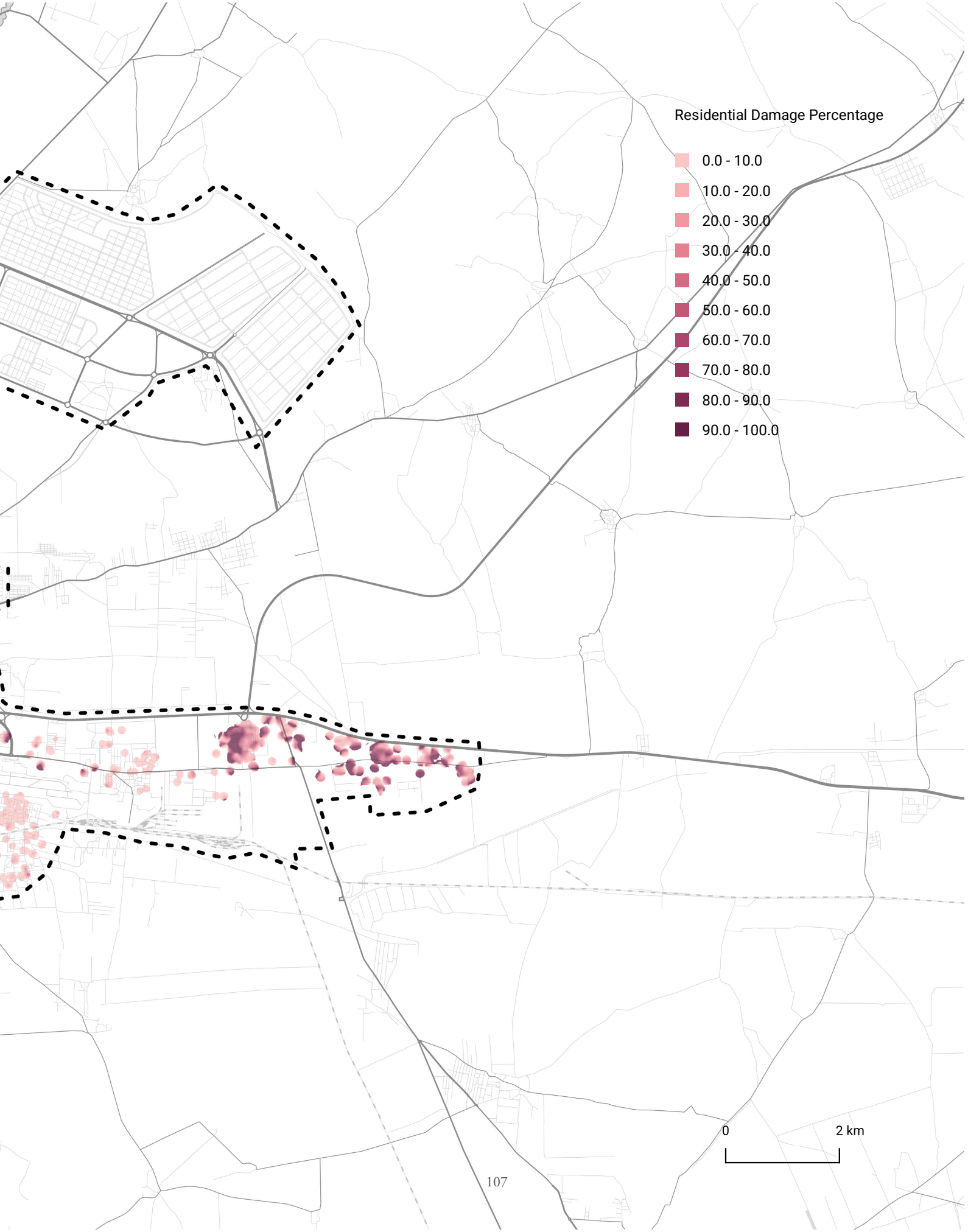


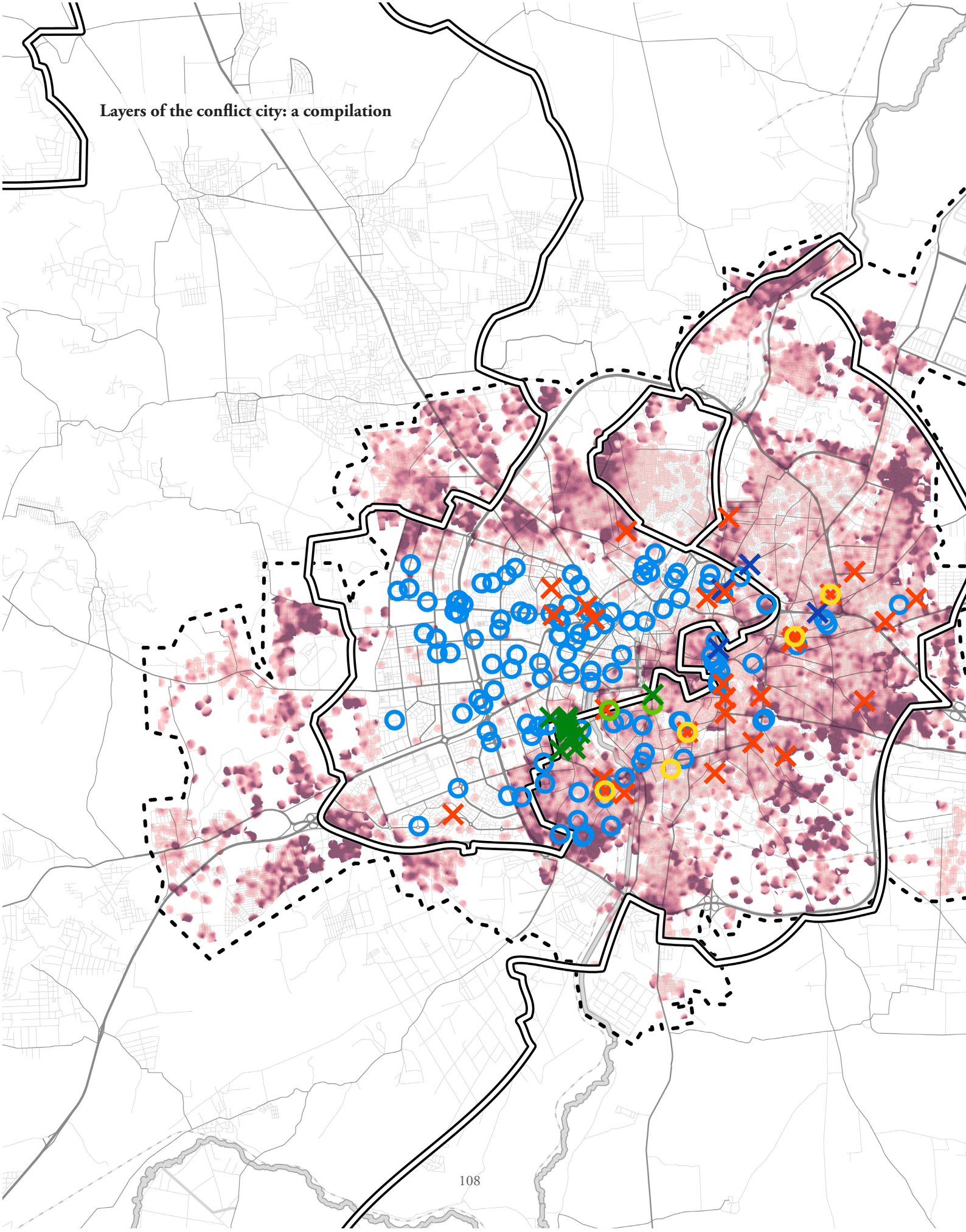
Layers of the conflict city: front lines; September 1, 2016

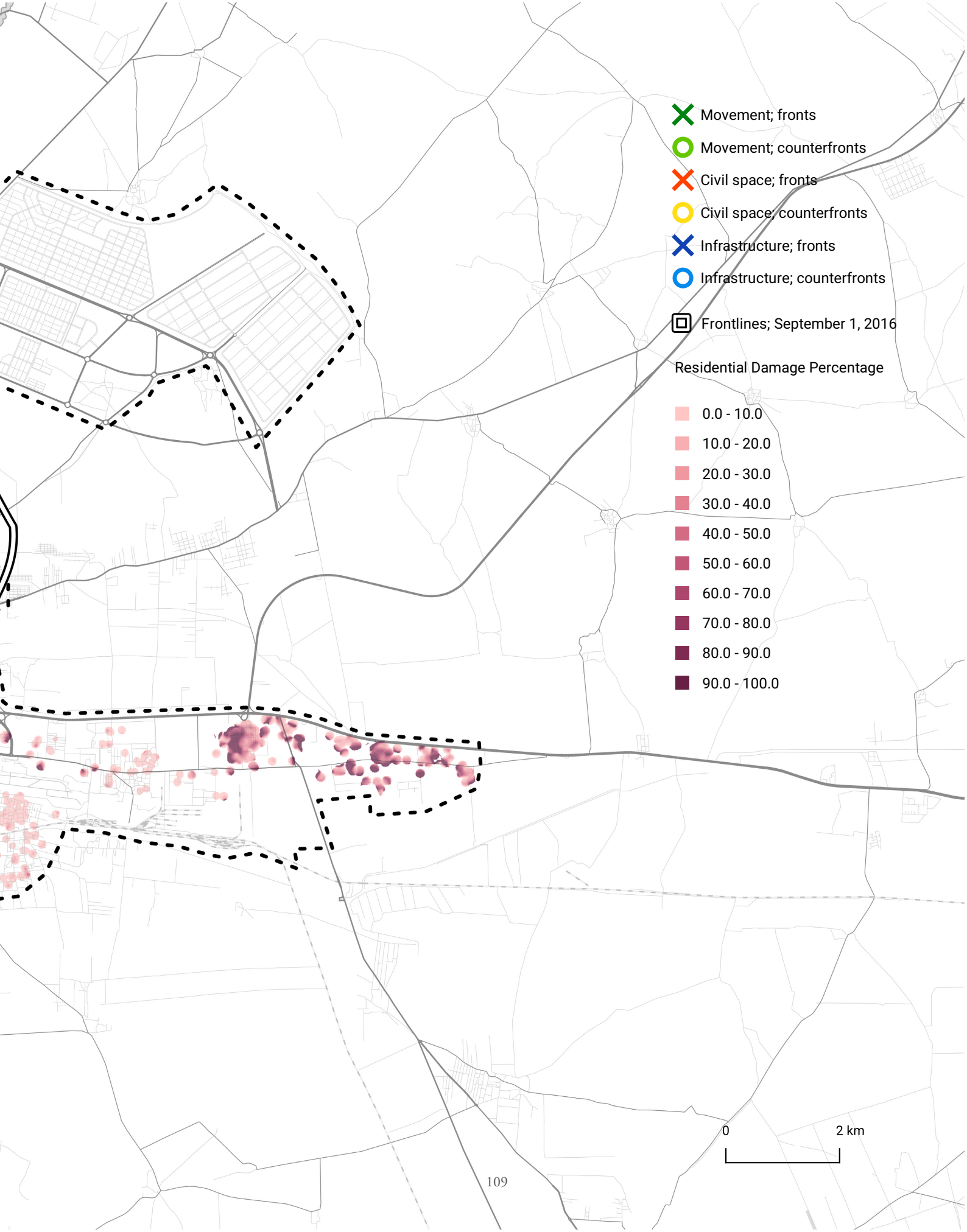

Frontlines; September 1, 2016
0
2 km



Layers of the conflict city: residential damage


Residential Damage Percentage
0.0 - 10.0
10.0 - 20.0
20.0 - 30.0
30.0 - 40.0
40.0 - 50.0
50.0 - 60.0
60.0 - 70.0
70.0 - 80.0
80.0 - 90.0
90.0 - 100.0
0
2 km


Layers of the conflict city: a compilation


Movement; fronts
Movement; counterfronts
Civil space; fronts
Civil space; counterfronts
Infrastructure; fronts
Infrastructure; counterfronts
Frontlines; September 1, 2016
Residential Damage Percentage
0.0 - 10.0
10.0 - 20.0
20.0 - 30.0
30.0 - 40.0
40.0 - 50.0
50.0 - 60.0
60.0 - 70.0
70.0 - 80.0
80.0 - 90.0
90.0 - 100.0
0
2 km

Conclusion

The war in Syria still rages on but the battle of Aleppo has been over for three years as of this writing. The Syrian government, the victors of the battle, have already called for rebuilding Aleppo. Architects are at the forefront of this effort and they will influence for whom the city serves and how it behaves in future violence. They can either impose blanket visions for reconstruction as if nothing happened or they could consider the persistence of architecture and its social relationship during war. They could study the role of architecture in conflict as aggressor and protector through civilian architectural responses and reconcile with the trauma of war.

By ignoring the architecture produced during war and the socio-political consequences revealed during it, city makers like architects become pawns in what journalist Naomi Klein calls *the Shock Doctrine*, a neoliberal strategy for taking advantage of crisis to push the privatization of the public sector and advertise those changes as recovery efforts.[122] Just neighbouring Syria in Lebanon, the neo-liberal shock doctrine dominated post-war reconstruction in Beirut starting in the 90s. A monopoly public-private partnership focused almost exclusively on the downtown commercial core and neglected the rest of the city's residents. Beirut's downtown became what anthropologist Najib Hourani calls an 'elite enclave' where luxury towers by the world's most beloved architects like Herzog & de Meuron continue to pop up all while the social problems that led to the war in the first place remain neglected.[123] Architect Esther Charlesworth points to the rise of 'apolitical architecture' as one of the principle reasons for the plan's failure.[124] Architects are tasked not only with rebuilding the urban fabric in post-war construction but also its social fabric through architecture. To build a place more equal and resilient than before, architects ought to understand the war that came before them on the level of individual experience.

Being aware of the shock doctrine in architecture and the political context of the urban environment as I argue does not of course mean that we will necessarily be able to stop systems of inequality and vulnerability but in recognizing it we could at least form a force against it. This is especially important in Syria as they consider adopting similar

models to Beirut.[125] Opposing urbanism that makes people vulnerable means we also need a counter proposal. A proposal that must be informed by the architecture of civilians during conflict. Any hope for a resilient future must consider this unique testimony, an architecture of survival by the most vulnerable. Reconstruction must look to this previously ignored civilian architecture of crisis because it can tell something new about war, its victims, and the city where it takes place. Reconstruction must be a continuation and a new response to these artefacts of survival rather than the typical blank slate approaches to urban design and architecture.

Each of the three responses I discuss hold individual and collective narratives. Individually they tell unique stories of their authors and what violence they respond to. When we piece them together, they collectively tell another story of pervasive resistance across Aleppo, and of collaboration in a unified struggle to survive. Our ability today to see conflict almost as it happens through social media means that we can expand this work in Aleppo and other conflict cities globally, it means we may learn from each other about surviving conflict and how to rebuild. Looking at civilian architectural responses is a study of conflict and architecture that begins at the human scale. Continuing this work has the potential to expand methods that can yield more comprehensive documentation of civilian architecture with promise in automated algorithms and machine learning to recognize them. This expansion will allow researchers to create new catalogues of responses vital to informing empowering reconstructions in the future. The limited reach of this study means that I cannot derive design lessons. I am confident nonetheless that these responses are a necessary part of that task.

Civilian architectural responses are of course not limited to Aleppo or Syria; applying this concept to conflict cities globally could mean a growing field of study and development where conflict cities can learn from one another both in surviving conflict and what to focus on in reconstruction. Other cities at peace, especially vulnerable places of the global south, could may also use these lessons to reconsider their own cities. Syrians during the already looked to learn from the experience of others who survived war. Syrians in Daraya connected to Bosnians through journalist Janine di Giovanni to speak about the brutal war they faced two decades earlier. They spoke about their fears and what they did to cope, sharing personal stories that offered the group in Daraya some new hope and lessons.[126]

The study of civilian architectural responses and their ability to inform us of the city's fragility is especially important in an age of climate change, event that seems distant from civil war but had been one of the many factors in Syria's Civil War. [127] In the years leading up to the war, Syria was facing the worst drought of its modern history, a drought tied to climate change. The drought ravaged Syria's agriculture sector which rippled into bitter economic decline, high unemployment, and a mass rural to urban exodus in search for work, with Aleppo being a major destination.[128] The climate refugees in Aleppo's informal

settlements would also become some of the most vulnerable during the war. As climate change continues to intensify under grim prospects of action, conflict will only become more frequent and intensive. Civilian architectural responses can help us learn from crisis instead of repeating themselves in isolation and address those elements that put people at risk. To neglect civilian architectural responses in studying the violence of Aleppo and in imaging a future after it, risks further perpetuating its people's vulnerability.

City makers cannot go on building in post-conflict cities without considering the artefacts of the people's suffering and memory. The architecture of conflict in the hands of its victims is a necessary for cultivating the missing empathy of the profession. With empathy towards those that suffer from war through architecture, architects may be humbled and reminded who they ought to be building for.

By looking at architecture made by people, tangible traces of their struggle for survival, we may also come closer to understanding the horror they experience. In the best case of looking at and documenting what victims leave behind, we can learn about where they live, their past, and their future; but at the very least, to document these artefacts is to remember who built them and eternalize their struggle.

Notes

Introduction: The City at War

1 Glass, *Syria Burning*. ; Charles glass interviewed residents in 2012 months before the battle began about their perception of the war where many did not think it would not reach their city because it was relatively stable and prosperous.

2 Evans and Oweis, "Syrian Forces Fight Rebels in Damascus, Residents Flee."

3 *Genius Loci* is latin term that originally meant the guardian spirit of a place in Roman religion and has recently come to mean the phenomenological spirit of place most pronouncedly in architectural theory of like Aldo Rossi's *The Architecture of the City* (1966) Christian Norberg-Schulz's *Genius Loci: Towards a Phenomenology of Architecture* (1979)

4 Boano, "'Violent Spaces.'"

5 Aleppo City Development Strategy, "Informal Settlements."

6 "Assad Praises Troops as Planes Pound Aleppo."

7 "In Aleppo, Syrian Rebels Bogged down in Sniper War."

8 "Syrian Rebels Carve Paths through Buildings to Avoid Snipers."

9 Ibid.

10 Graham, *Cities under Siege*.

11 Sorenson, *Syria in Ruins*; Yassin-Kassab and Al-Shami, *Burning Country*; Glass, *Syria Burning*.

12 Bevan, *The Destruction of Memory*.

13 Yates, *The Art of Memory*; Rossi, *The Architecture of the City*; Boano, "'Violent Spaces.'"

14 Rossi, *The Architecture of the City*.

15 Bevan, *The Destruction of Memory*.

16 Weizman, "Lethal Theory."

17 Weizman, *Hollow Land*; Herscher, *Violence Taking Place*; Pullan, "Frontier Urbanism."

18 Herscher, *Violence Taking Place*.

19 Weizman, *Hollow Land*, 5.

20 Pullan, "Frontier Urbanism."

21 Ibid.

22 Herscher, *Violence Taking Place*.

23 Bosma, *Shelter City*, 11.

24 Ibid.

25 Ibid.

26 Simone, *Improvised Lives*; Dovey and Raharjo, "Informal Urbanism in Yogyakarta."

27 Arendt, *The Human Condition*, 176.

28 Ibid., 179.

29 Ibid., 180.

30 Ibid.

31 Ibid., 181.

Forensically 'Looking at' The Pixelated Revolution

32 "Looking at" refers to Susan Sontag's "Looking at War: Photography's View of Devastation and Death."; The Pixelated Revolution refers to a performance lecture by Rabih Mroué.

33 Rosen and Rosen, "Erasing History."

34 Mroué, *The Pixelated Revolution*.

35 Ibid.

36 Weizman, *Forensic Architecture*, 99.

37 "WITNESS."

38 "Videre Est Credere | Charity Organisation for Human Rights Issues and Human Rights Abuse."

39 "Syrian Archive."

40 Gregory, "The Participatory Panopticon and Human Rights: WITNESS's Experience Supporting Video Advocacy and Future Possibilities," 520.

41 "About WITNESS - Video Production."

42 "Videre Est Credere | Charity Organisation for Human Rights Issues and Human Rights Abuse"; "About WITNESS - Video Production."

43 "Syrian Archive."

44 Ibid.

45 "Bellingcat."

46 "Visual Investigations™ at The New York Times."

47 Rosen and Rosen, "Erasing History."

48 "Forensic Architecture."

49 Weizman, "Introduction: Forensis," 9.

50 van Pelt, *The Case for Auschwitz*.

51 Ibid.

52 Ibid., 85.

53 van Pelt, *The Case for Auschwitz*.

54 Ibid., 90.

55 van Pelt, *The Case for Auschwitz*.

56 Ibid., 68.

57 Weizman, "Introduction: Forensis," 9.

58 Ibid.

59 Ibid.

60 Weizman, "Introduction: Forensis."

61 Weizman, *Forensic Architecture*, 78.

62 For more on this subject see Kurgan, *Close up at a Distance*.

63 Weizman, *Forensic Architecture*, 27.

64 Ibid., 100.

65 Eagleton, *The Ideology of the Aesthetic*.

66 Keenan et al., *Mengele's Skull*; cited in Weizman, *Forensic Architecture*, 94.

67 Weizman, *Forensic Architecture*, 53.

68 Rancière, *The Politics of Aesthetics: The Distribution of the Sensible*.

69 Ibid.

70 Ibid.

71 Sontag, "Looking at War: Photography's View of Devastation and Death."

72 Ibid.; Rancière, *The Politics of Aesthetics: The Distribution of the Sensible*.

73 Friedrich, *War Against War!*; Sontag, "Looking at War: Photography's View of Devastation and Death."

74 Sontag, "Looking at War: Photography's View of Devastation and Death."

75 Ibid.

76 Ibid.

77 Rosen and Rosen, "Erasing History."

78 Sontag, "Looking at War: Photography's View of Devastation and Death."

79 Ibid.

80 Benjamin, "The Work of Art in the Age of Mechanical Reproduction."

81 Ibid.

82 Ibid.

83 Ibid.

84 "Neighborhood Shelter Damage Percentages in Aleppo City."

85 Fattaleh et al., "Conflict Urbanism: Aleppo; Spatializing the YouTube War."

86 Farocki, *Nicht Löschbares Feuer (Inextinguishable Fire)*.

87 Ibid.

Civilian Architectural Responses in Aleppo

88 Anderson and O'Dowd, "Borders, Border Regions and Territoriality."

89 Ibid.

90 Sack, *Human Territoriality*, 1; cited in Anderson and O'Dowd, "Borders, Border Regions and Territoriality."

91 Foucault, "Of Other Spaces."

92 Rupnik, "Europe's New Frontiers: Remapping Europe"; cited in Anderson and O'Dowd, "Borders, Border Regions and Territoriality."

93 Leonard and McKnight, "Bringing down the Walls"; Morrow, Mackel, and FitzGerald, "Beyond the Shadow Space."

94 Transliteration: *"halab: al-jaloom: tareeqat al-intiqal min hay al-jaloom eela hay al-kallaseh"*

95 Shams Alhorya, حلب.

96 VICE, *This Is What Life Is Like Inside Assad's Syria*.

97 "Syria Hospitals 'Targeted by Attacks'"; "U.S. and Russia Both Deny Bombing Syrian Clinic."

98 Physicians for Human Rights, "A Map of Attacks on Health Care in Syria"; Syria Direct, "Mapping Damaged and Destroyed Schools in Syria."

99 Coward, *Urbicide*.

100 Templer and Shaar, "Urbicide or an Elegy for Aleppo."

101 Shelter Cluster is chaired by ICRC and UNHCR. During my research I spoke with researchers at both Shelter Cluster and UNHCR about their experiences in Aleppo and their roles on the ground.

102 Shelter Cluster, "Syria: NFI Winterization Support"; Shelter Cluster, "Syria: Shelter Monthly, Issue No.19."

103 International Committee of the Red Cross (ICRC), "Syria: Water as a weapon of war - long version"

104 Al Jazeera, *Death of Aleppo*.

105 Cumming-Bruce, "U.N. Reports Syria Uses Hospital Attacks as a 'Weapon of War.'"

106 "Even in a Bunker under a Mountain, Syrian Hospital Knocked out By..."

107 Czuperski et al., "Breaking Aleppo."

108 Ibid.

109 M2 was the subject of an investigation by Forensic Architecture in 2017 about these reports. (https://forensic-architecture.org/investigation/airstrikes-on-m2-hospital)

110 From conversation with a former nurse at M2 hospital

111 Ahmad, "RT and Syria"; Zekavat, "Aerial Imperialism."

112 Beals, Twitter Post

113 ICRC, "Syria: Water Used as Weapon of War."

114 Amanda Chan, Jason Danforth, and Nicolás del Valle (Researchers in Laura Kurgan's Centre for Spatial Research, Conflict Urbanism Project at Columbia University) have done a geospatial analysis and survey of these actions here: https://bit.ly/2whayRY

115 Associated Press, "Syria: Drinking Water Pipe Damaged in Aleppo."

116 "Bombing Leaves Aleppo 'without Water.'"

117 Serhan, "UN Calls for Cease-Fire as Aleppo's Taps Run Dry."

118 Staff and agencies, "Syria Bombings Leave 1.75 Million without Running Water in Aleppo."

119 "اشتباكات متواصلة بمحيط منطقة المحطة الحرارية وغارات تستهدف ريفي حلب الشمالي والغربي وتخلف جرحى."

120 Ahmad, "How to Tell When the Rebels Have Won."

121 Ibid.

122 VICE, *This Is What Life Is Like Inside Assad's Syria*.

Conclusion

123 "Syria: ICRC Works to Avoid Massive Water Crisis in Aleppo."

124 Klein, *The Shock Doctrine*.

125 Hourani, "From National Utopia to Elite Enclave: 'Economic Realities' and Resistance in the Reconstruction of Beirut," 158.

126 Charlesworth, *Architects without Frontiers*, 82.

127 Rollins, "In Downtown Beirut, Signs of the Coming Cost of Syria's Reconstruction Plans."

128 Thomson, *Syria's Secret Library*.

129 Gleick, "Water, Drought, Climate Change, and Conflict in Syria."

130 Ibid.

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