

BEIRUT

— OPEN SPACE POST- DISASTER DAMAGE AND PRE-DISASTER CONDITION ASSESSMENT

SEPTEMBER 2020



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OPEN SPACE POST-DISASTER DAMAGE AND PRE-DISASTER CONDITION ASSESSMENT

On August 4th 2020, an explosion in one of the Beirut Port's hangars devastated the city's central and eastern neighborhoods. The incident shook an already vulnerable Lebanon to its core, and incurred unprecedented losses of lives and livelihoods. The value of physical damages is estimated to range between US\$ 3.8 and 4.6 billion, while economic losses have been assessed to range between US\$ 1.9 and 2.3 billion (World Bank, 2020).

Though the area stretching from Beirut's Central District to the eastern edges of Ashrafieh and Karantina was dealt the hardest blow in visible damages, the whole city suffered an intangible but remarkable pain in the aftermath of the incident.

DISCLAIMER

The report bases itself on a rapid, preliminary assessment survey conducted over a limited timespan of 2 weeks. The report is a quantitative and qualitative assessment based on direct human observations and explorations of the site.

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STUDY PURPOSE AND SITE SELECTION

The Lebanese military and the Higher Relief Commission, along with Beirut Municipality and several private consulting firms (including Dar), collectively undertook a physical damage assessment for the affected buildings. The Order of Engineers and Architects (OEA) also carried out another physical damage assessment for the buildings, an assessment that could not be developed jointly with that of the Higher Commission, because of disagreements over data sharing practices. Meanwhile, several INGOs, NGOs, and UN agencies are conducting their own sets of needs assessment and deploying their protocols to respond to protection, relief, shelter, and WASH needs, amongst others. As part of the immediate response, Dar identified the lack of data about public realm damage and tried to fill this gap by identifying the level of damage for 18 urban elements (furniture and material) found in the public realm.

Simultaneously, a pre-disaster condition assessment was conducted, highlighting the quality of the open spaces, in terms of functionality, attractiveness, purposefulness, and safety of use with the purpose of obtaining a better understanding of the pre-disaster quality of the public realm that will inform a “build back better” strategy.

The study area of the survey (about 216 hectares) is mainly concerned with the neighborhoods most affected by the blast (Gemmayzeh, Mar Mikhael, Karantina). These neighborhoods are characterized by their unique historic urban and social fabric and are rich with a mix of uses and a diversity of socio-demographic groups. The selected study area is outside of the limits of Beirut Central District under Solidere governance.

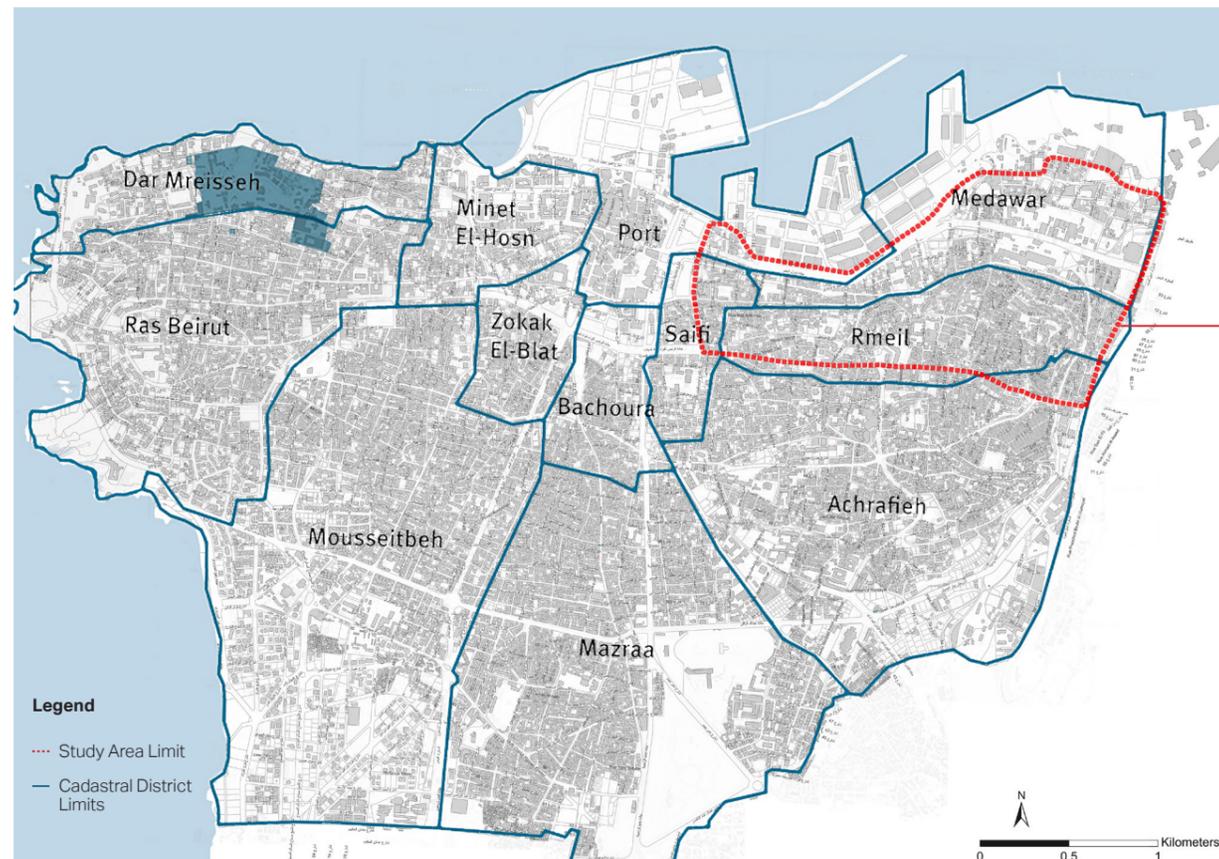


Figure Study Area

STUDY METHODOLOGY

The study area was divided into 10 zones (From A to J), following the cadastral district limits, then every stretch of street in each zone was given an ID number to which data were gathered and allocated.

Teams of two (each consisting of one urban designer and one landscape architect) collected data, which ensured an expert judgment on the open space damage from the blast and on the pre-disaster conditions of the public realm.

The types of open spaces surveyed were squares, streets, pedestrian alleyways, parks, public stairs, parking areas, vacant lots, and setbacks. The 18 assessed elements were amenities found in the public realm that aim to enhance walkability and provide safety, comfort, and legibility for users: pavements and curbs, vehicular roads/ asphalt, street lighting, traffic lighting, bollards, seating, bike racks, waste receptacles, signage and advertisement boards, barriers and fences, trees, tree grates, planters, on-street parking, public art and installations, water features, and public structures/shelter.

Post-disaster damage: Damage from the blast was classified into two categories: moderate damage which refers to “unsafe for use and needs repair,” and extensive damage which refers to “unusable element that cannot be repaired.” The team also collected information related to the quantities and areas of the elements damaged by the blast.

Pre-disaster condition assessment: Expanding on the survey’s findings, the pre-disaster conditions assessment is a qualitative evaluation of three urban configurations: streets and rights-of-way, public staircases, as well as public spaces and other open lots (vacant plots and parking areas). Interactions and actions taken by private agents and residents onto these spaces were also the subject of this assessment that was based on expert observations and knowledge of the area.

Tool: ArcGIS Collector, a mobile data collection app, was used on site, where field workers captured and edited accurate data that integrates seamlessly into ArcGIS, using web maps. ArcGIS Collector uses the device’s location service to identify the position of the field worker. Collector streamlines the workflows, using smart devices to capture data in the field and seamlessly return it to the office. ArcGIS Collector works even when disconnected from the internet. When connected, the data feeds directly into ArcGIS, and in disconnected environments, the data stays on the smart device and is synced as soon as connectivity is available.

This app allowed the field workers to avoid collecting field data on paper forms that must be returned to the office then translated into other systems, which ensured a faster process.

In addition, field workers documented details using photos.

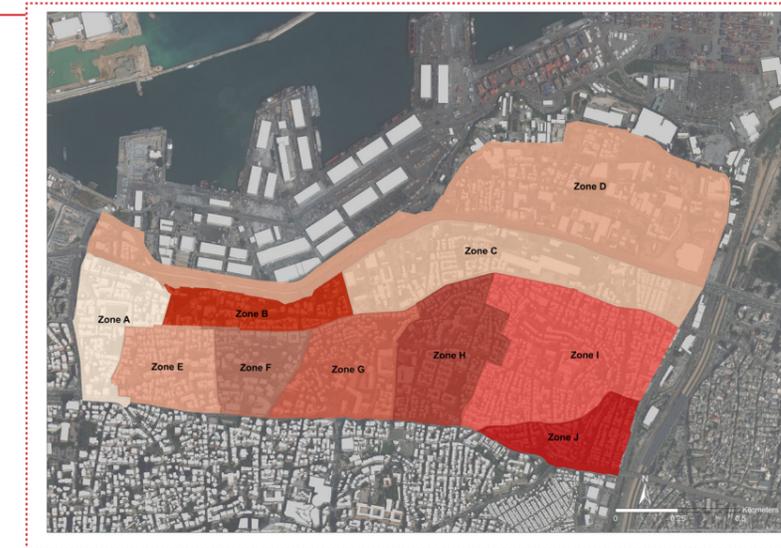


Figure Study Area Zones

1. POST-DISASTER DAMAGE ASSESSMENT



CUMULATIVE DAMAGE PER STREET

The legend represents the extent of damage in every street, ranging from the least damaged areas in light red, to the most damaged areas in darker red shades. Each number in the legend represents the weighted sum of damaged entries for the mapped street, where every moderate damage entry is given a factor of 1, and every extensive damage entry is given a weight of 2 (multiplied by 2): Total number of moderate damage entries per street *1 + total number of extensive damage entries per street *2 (represented in the

legend as ranges). This is done to produce a numerical representation of the total number of damaged elements and the extent of their damage and to visually represent the varying impact of the damage induced by the blast.

The streets most damaged by the blast are the ones located within a 700-m radius of the explosion site.

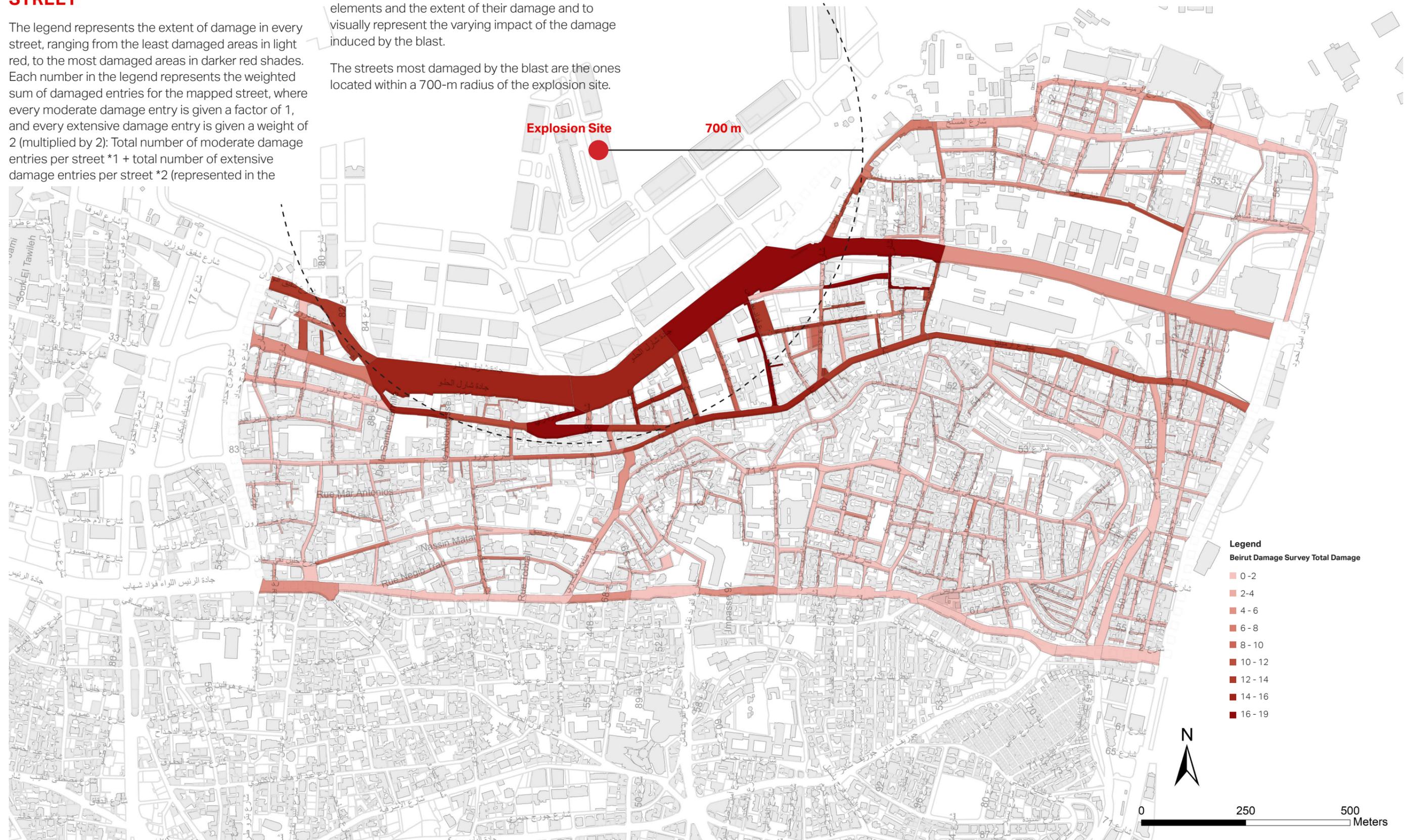


Figure 1.1. Heat Map Showing Level of Damage Per Area

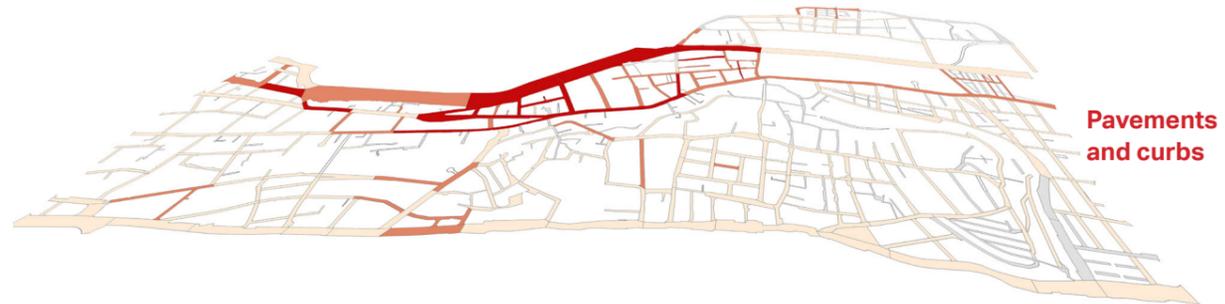
DAMAGE OF ELEMENTS IN THE STREETS OF THE STUDY AREA

As shown in the following maps, the most damaged streets are the ones facing the explosion site directly and the ones located within a 700-m radius, as they were exposed to high pressure from the blast that cracked and destabilized the foundations of various elements, consequently causing extensive damages. Such damage was clearly visible for the bollards, advertisement boards, signage, barriers/fences, and trees. Light poles mainly had their glass shattered.

Seating, water features, bike racks, waste receptacles, planters, and tree grates are originally very rare in the area, which highlights the need to enhance the furnishing of the public realm.

Traffic lighting is limited in this area, which is predominately composed of a narrow, organic residential street network with a limited number of intersections – features that characterize the historical neighborhoods.

Only streets were selected to be shown in the below maps since they are the most frequently occurring type of public space.



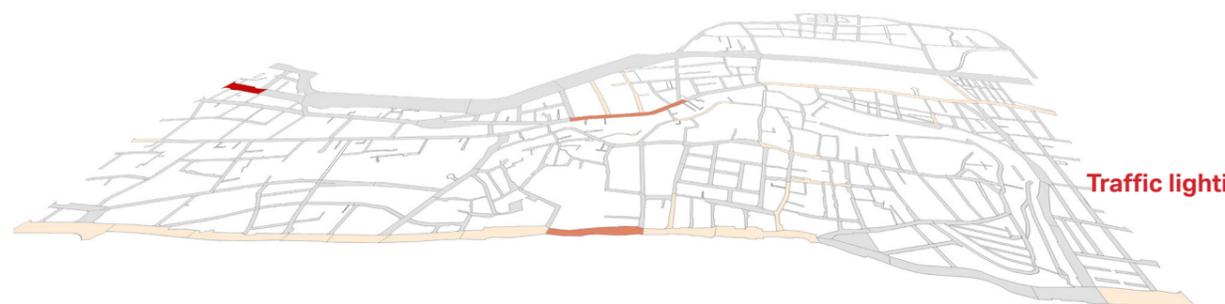
Pavements and curbs



Vehicular roads/asphalt



Street lighting



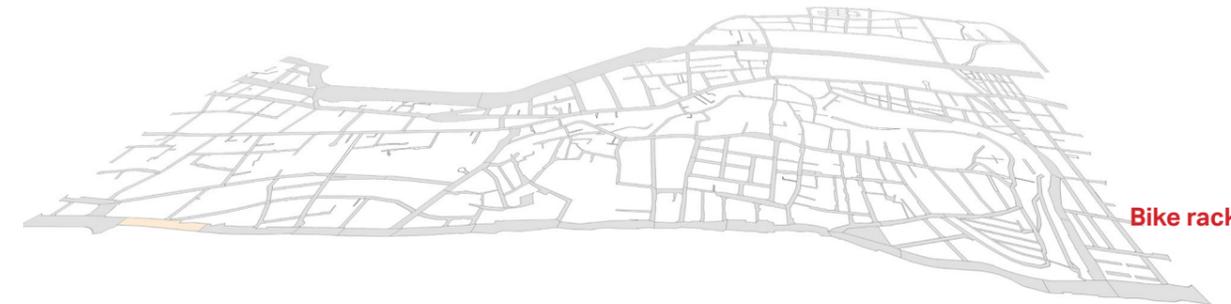
Traffic lighting



Bollards



Seating



Bike racks



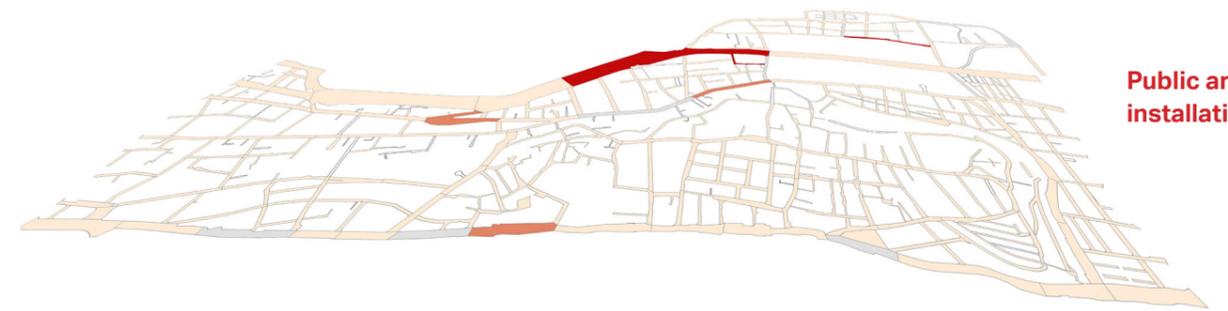
Trash and recycling receptacles



Signage and advertisement boards



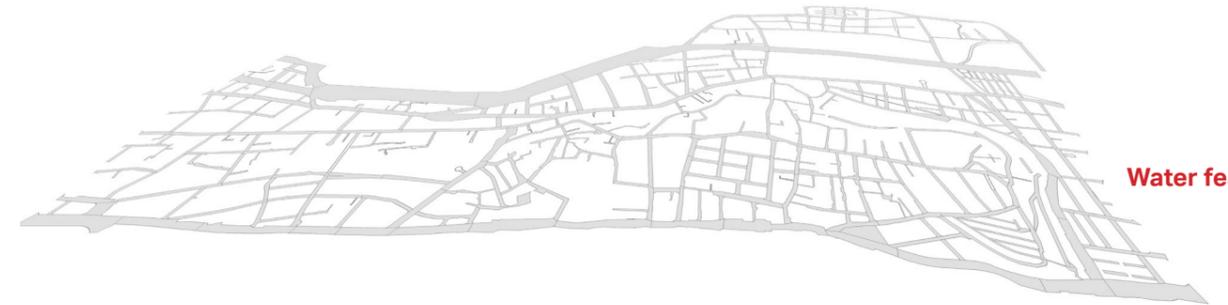
Barriers and fences



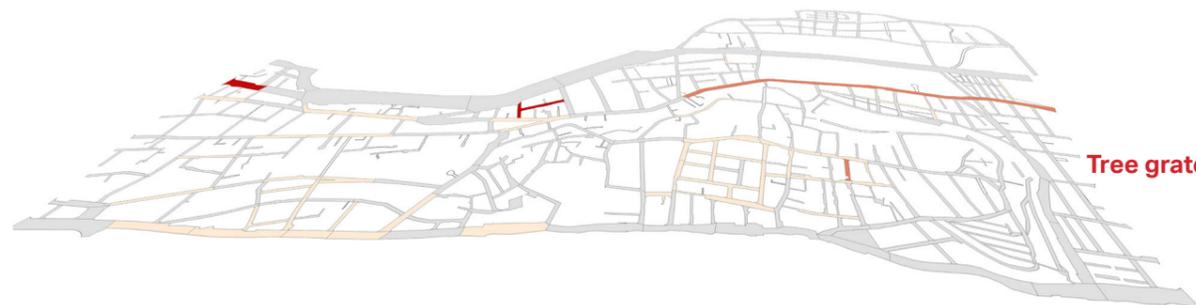
Public art and installations



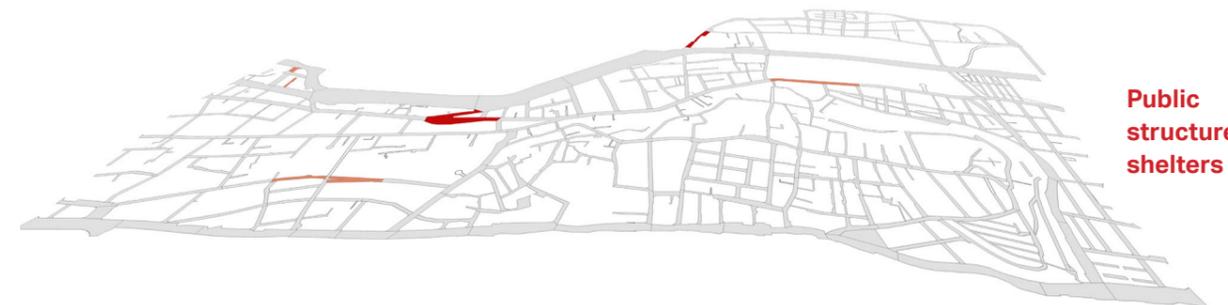
Trees



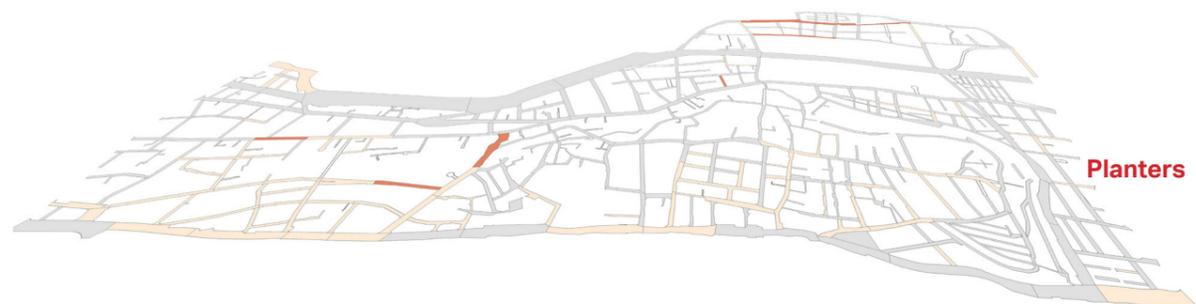
Water features



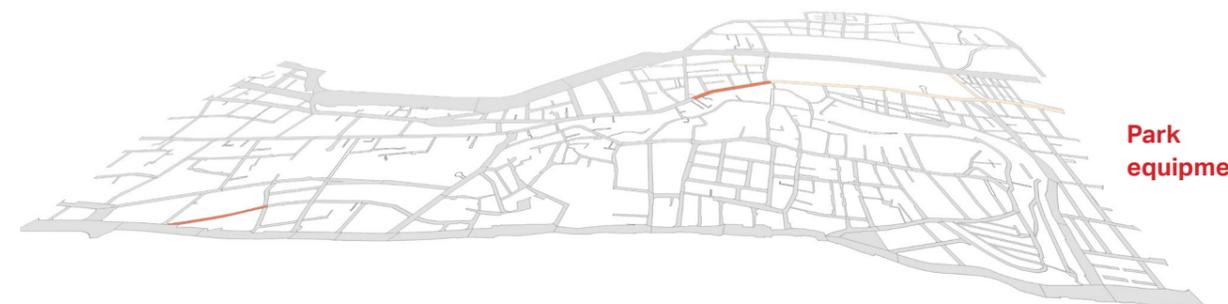
Tree grates



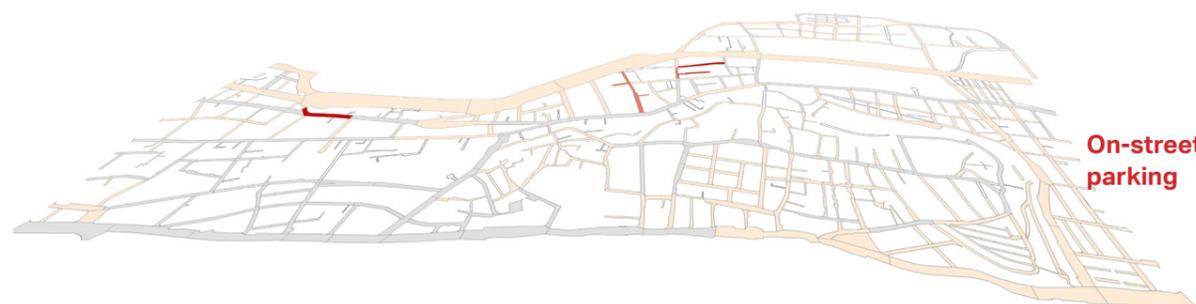
Public structures/shelters



Planters



Park equipment



On-street parking

Legend

No Damage Moderate Damage Extensive Damage Not Applicable

Type Of Surveyed Open Spaces	Number Of Surveyed Open Spaces
Park/Green Pocket	6
Parking Areas	39
Pedestrian Alleyway	21
Public Stairs	24
Setback	42
Square/Courtyard/Plaza	2
Street/Right of Way/Medians	332
Vacant Lots	39

QUANTITIES AND AREAS OF THE DAMAGED ELEMENTS PER ZONE

The below bar charts show the quantity of damaged elements, expressed in unit or meter linear or square meter, per level of damage (moderate and extensive) and per zone. The quantification of the damage allowed us to estimate the cost for repair and replacement.

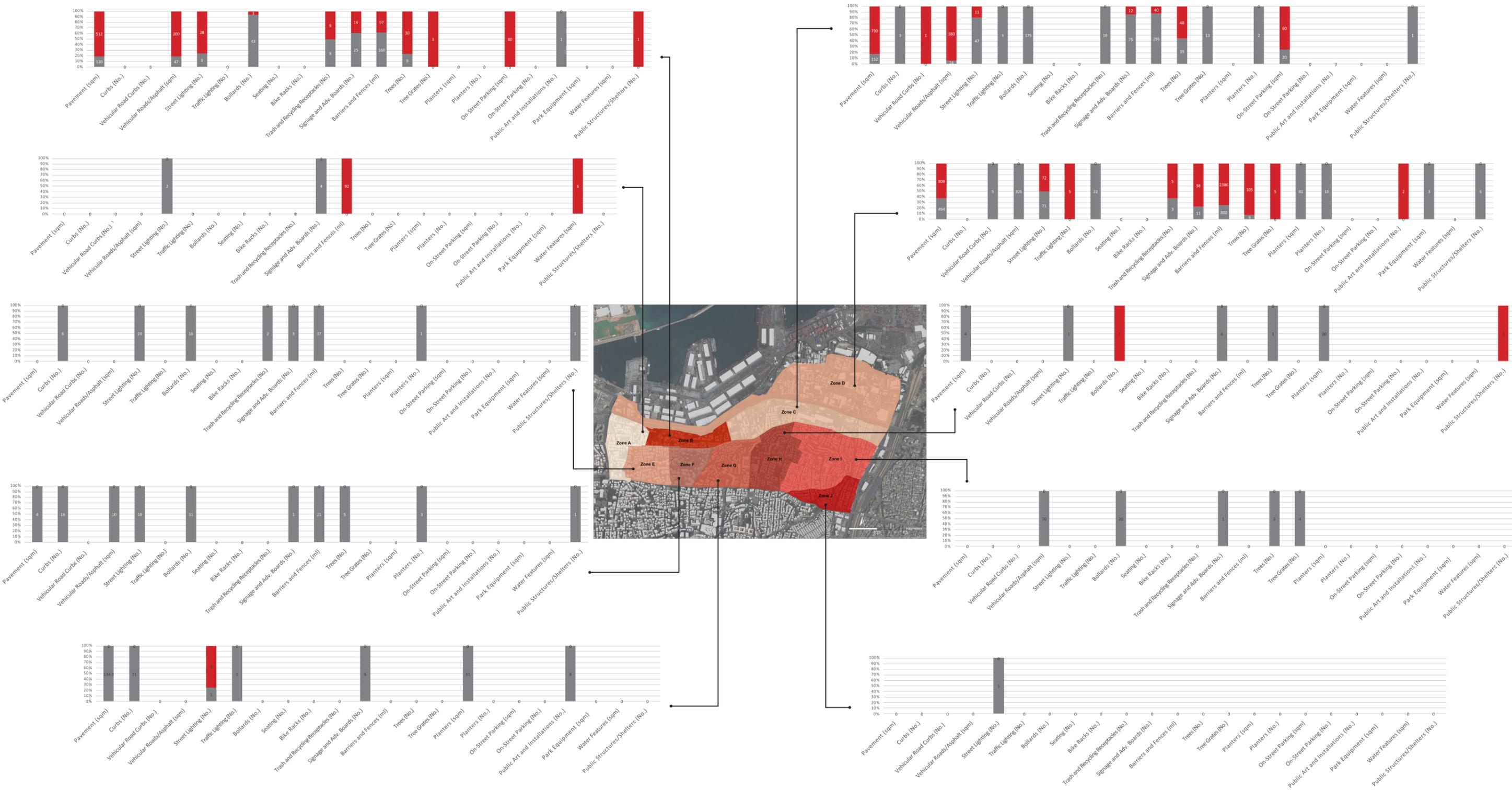


Figure 1.2. Level of Damage Per Element Per Zone

■ Extensive (Total Damage: Unusable and cannot be repaired) ■ Moderate Damage: Unsafe for use and needs repair
Value 0 refers to no damage or not applicable (doesn't exist)



Figure 1.3. Damaged Fence

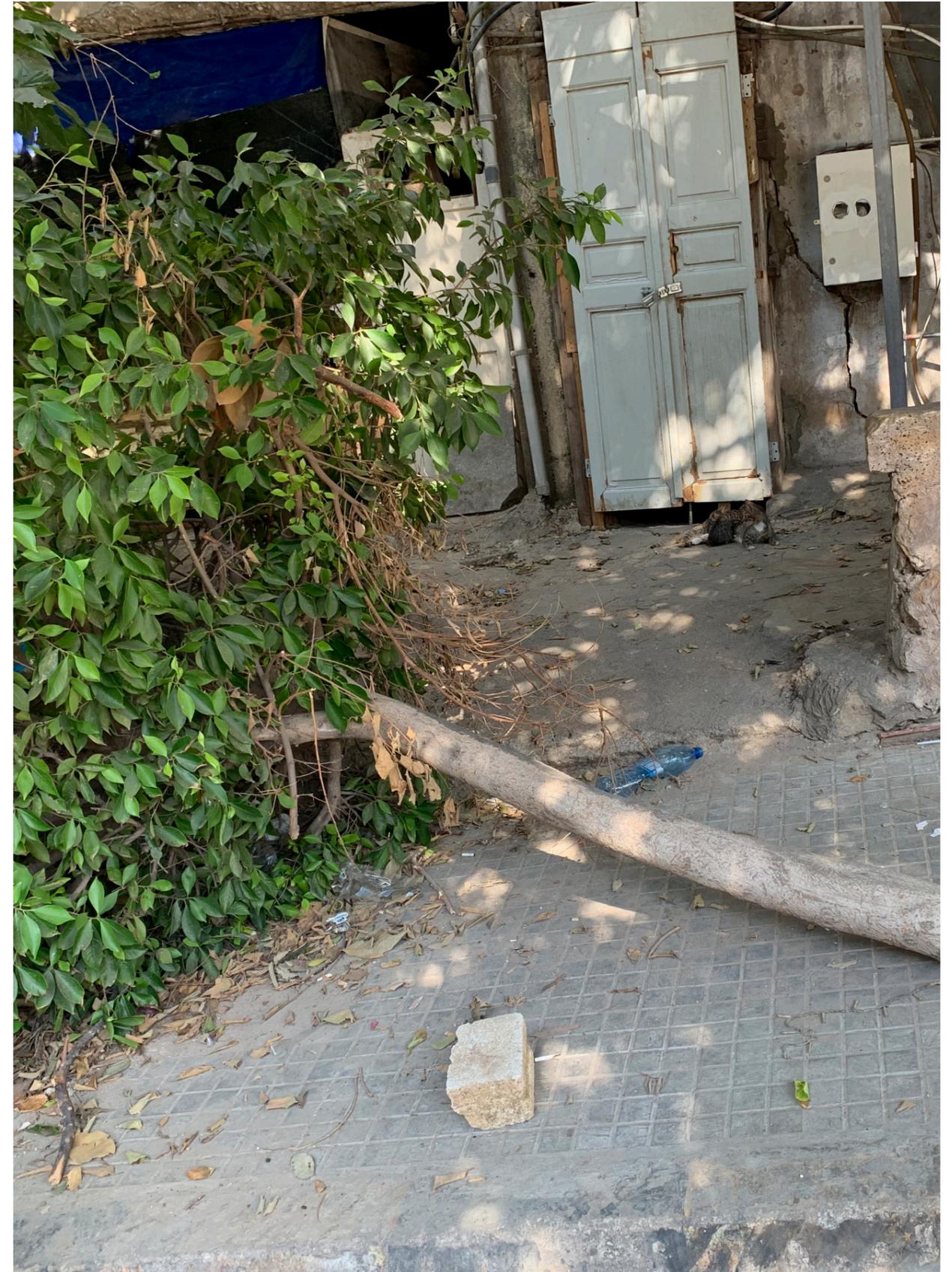


Figure 1.4. Damaged Tree



Figure 1.5. Tilted Fence of Électricité Du Liban

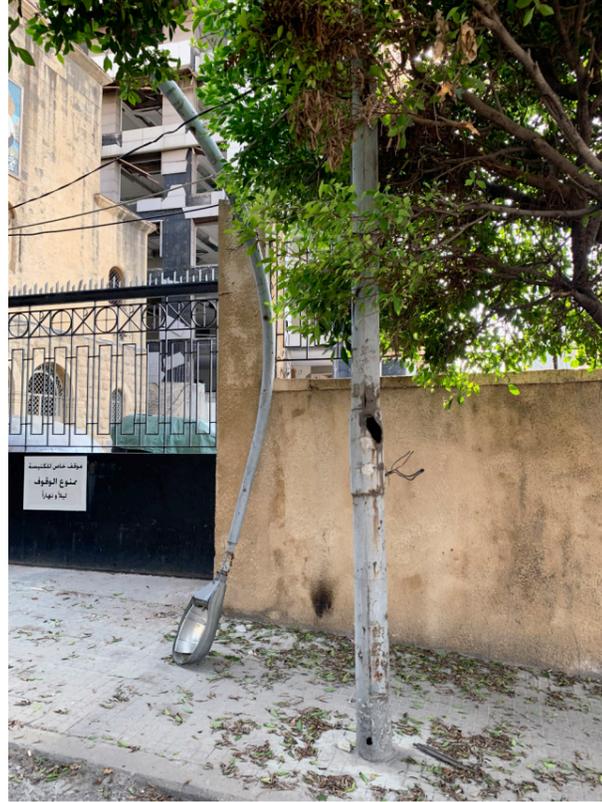


Figure 1.6. Broken Light Pole



Figure 1.8. Broken Glass of Phone Booth



Figure 1.9. Broken Traffic Light

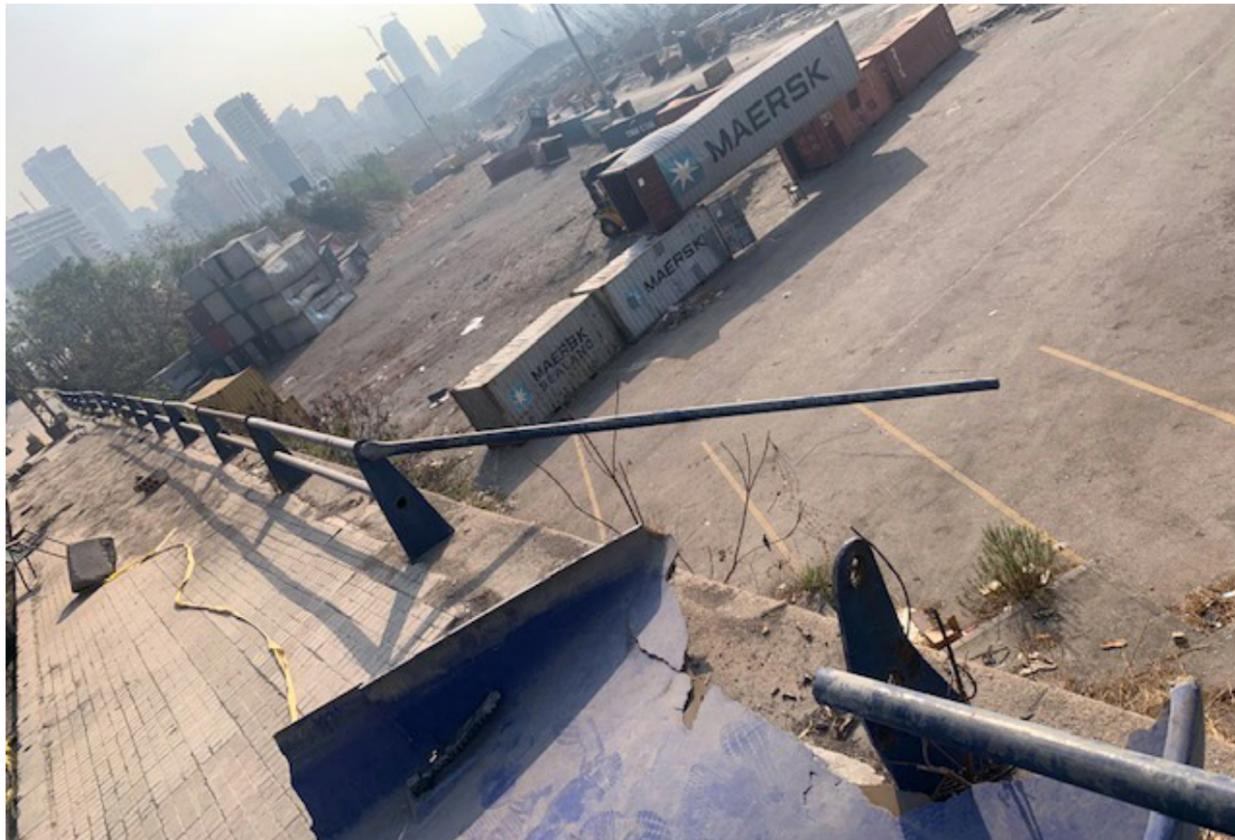


Figure 1.7. Destroyed Fence Adjacent to the Port



Figure 1.10. Demolition Waste Placed on Sidewalk Constitutes a Hazard for Pedestrians

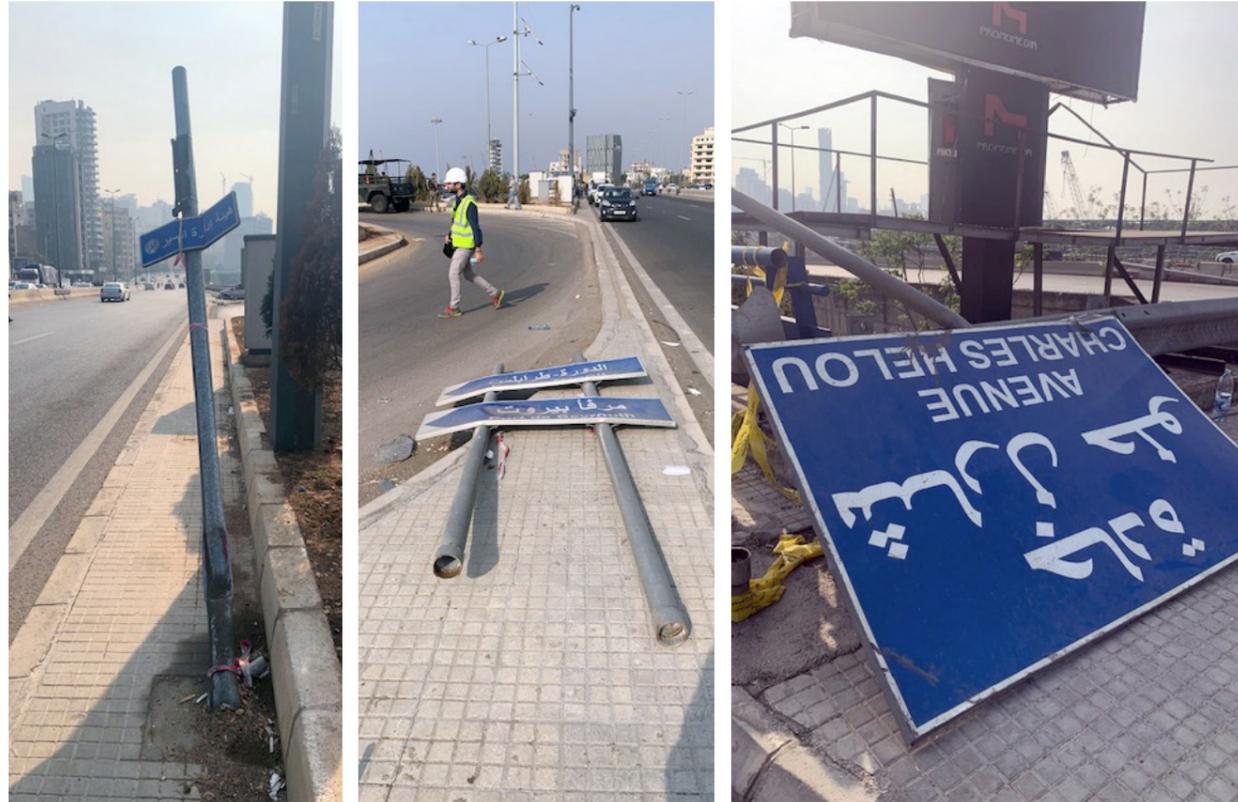


Figure 1.11. Destroyed Signage



Figure 1.12. Absence of Any Protection for Pedestrians During Reconstruction



Figure 1.13. Damaged Tree Bark



Figure 1.14. Destroyed Advertisement Board



Figure 1.15. Damaged Curbs and Pavers (1)



Figure 1.16. Damaged Curbs and Pavers (2)

2. PRE-DISASTER CONDITION ASSESSMENT



PRE-DISASTER CONDITION ASSESSMENT

A. IMPORTANCE AND ROLE OF OPEN SPACES IN THE CITY

The significance of any urban environment to its users and residents is found in more than just the sum of its developable lands and its architectural monuments. Negative spaces, understood to include intentionally unbuilt open areas like streets, atriums, setbacks, green spaces, and other public spaces, play a major role in the reinforcement and protection of a given city’s natural and socioeconomic ecologies.

The role of streets in particular can be compared to the function of veins in the human body: transporting people, goods and services through a variety of transportation modes to supply different nodes and in and outside of a designated area. Beirut in particular has had a long-standing prioritization of private vehicular transportation, which can be seen in the development of the city’s transportation infrastructure: narrow sidewalks with most of the right-of-way dedicated to car flow and on-street parking, street signs and bollards found in abundance instead of other furniture elements such as seating or planters or trees, etc. Following the war, which ended in the early 1990s, no efforts were dedicated to rebuilding and reinvigorating the rail network, and it remains inoperative to this day. Its rail lines were encroached upon by informal development and its train stations, including the Mar Mikhael train station, left to the elements.

Traditionally, public spaces and especially green spaces have been compared to lungs. Such a metaphor makes even more sense when one takes into consideration the functions that open spaces fulfill for both people and nature itself. They act as meditative spaces and zones of socialization and commerce, areas of protest and of leisure. In effect, they are platforms dedicated wholly to the social rights and psychological needs of a given community. Green spaces also filter the pollution caused by modern transport vehicles, decrease felt temperatures simply by providing shade, improve air quality, and lower the built density of a given neighborhood through their existence alone. Traditional Lebanese residences have always featured a semi-public area that is open to socialization. Orchards, the vaulted halls of open iwans, or atrium gardens at the center of residential clusters are examples of such semi-public areas, found in Gemmayzeh and Mar Mikhael. Though large public spaces were never a prominent feature in Beirut, a

number of smaller pockets from the Ottoman era, the Mandate period and the early decades following Independence, are the only testaments to much needed spaces of greenery and publicness in the city. Aside from these few pockets, there has been no real action taken in recent decades by larger agents, such as developers, landowners and the municipality, to expand on the public space network of the city. Vacant undeveloped lots and especially asphalted parking areas outnumber green spaces by a large margin.

The damage assessment of the city’s Northeastern quadrant found that the majority of damages to the public realm actually predated the Beirut Blast, and that while the need for reparation in regards to streetscapes and open spaces may be minimal compared to the physical damages to residences and buildings, there was not much in the way of public amenities to begin with.

B. EVALUATION OF THE QUALITY OF THE OPEN SPACES

This section will expand on the survey’s findings pertaining to the pre-disaster condition of the following three urban configurations: streets and rights-of-way, public staircases, and public spaces and other open lots (vacant plots and parking areas). Observations on the interactions and actions taken by private agents and residents onto these spaces will also be shared.

a. Streets

i. Walkability

Though the majority of the area’s streets documented little to no damage whatsoever, a few trends were observed regarding the preexisting condition of the road network:

- Aside from Gouraud Street, the material used predominantly for road surfaces was asphalt. In most cases, streets did not show signs of adequate drainage to compensate for the impermeability of such a material. Residents and users have shared their complaints over the stormwater runoff that has inconvenienced them in the rainy season over the past few years.
- Many of the streets did not even have sidewalks for pedestrian movement, and instead of using cobblestone or surface materials to differentiate shared vehicular-pedestrian spaces from the main network, these spaces were asphalted in their entirety.

- Sidewalks were encroached upon by private developers, creating cuts, drops and changes in materials/aesthetics for the sake of car passages into privately owned garages and parking spaces. In other cases, more than half of the sidewalk would be taken up by protective barriers for new developments that are underway (such as around the now demolished Brasserie du Levant).
- Sidewalks were also encroached upon by private businesses, such as restaurants, bars and cafes. These business owners would use the sidewalks as informal outdoor spaces for additional customer seating and service.
- Sidewalks were blocked in many cases by street elements such as light poles, cable poles, signage, park meters, and other infrastructure elements. This was especially inconvenient in the spaces where sidewalks were already too narrow.
- Sidewalks were encroached upon by private cars which would park on the pavement, creating additional informal parking spaces on the sidewalk itself.
- A large number of sidewalks in the area were recorded as being too narrow. Most of the streets gave priority to car movement and had enough space for both formal and informal parking at the cost of larger sidewalk widths.

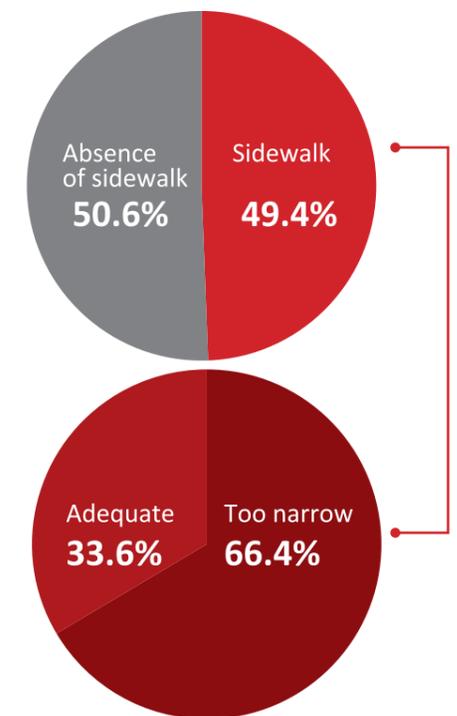
Statistical observations obtained from survey data:

- The survey identified 332 streets, rights of way and medians. Of those, 168 were noted as having “none applicable” for sidewalks, meaning that they had no sidewalk to mention or that the sidewalk had been completely removed, destroyed, or appropriated in some way before the blast (for example, by pouring concrete or asphalt atop the sidewalk, raising street level and completely prioritizing car flow in the process). That suggests that 50.6% of all streets in the area lack sidewalks.
- Of the remaining 164 stretches of road, 109 were identified as having sidewalks that were too narrow (on one side or both), lacking a sidewalk on one side or at certain segments, having been encroached upon by private agents (businesses, restaurants, developers), or being blocked by obstacles (such as light poles, bollards, signage posts, etc.) making pedestrian movement almost unfeasible. That suggests that 66.4% of the remaining 164 streets with pavement do not have adequate sidewalks for safe and comfortable pedestrian movement to begin with. When taken as a proportion of the total number of streets and rights of way, then 32.8% of

all streets, medians and rights of way do not have adequately designed and executed sidewalks.

The following measures would act as principal recommendations in tackling the current challenges of walkability in the area:

1. Widening sidewalks so as to completely discourage informal parking. If a road already has a width that can afford informal parking then that space should be reclaimed for pedestrian use. Lining the sidewalks with bollards, and preferably with planters and trees, would additionally discourage parking on the pavement itself.
2. Replacing asphalt on primary roads with permeable asphalt and on secondary and tertiary roads with permeable pavements or cobblestone. The permeable materials would tackle rainwater runoff and street flooding, while the use of pavers and cobblestone would designate shared spaces or pedestrian priority spaces. The use of such materials has also been known to discourage speeding.
3. Designing zebra crossings or crossing ramps especially for busier roads, so to minimize possible pedestrian and vehicular conflicts.



32.8% of all streets do not have adequately designed and executed sidewalks



Figure 2.1. Pavers Broken By Overgrowth of Trees And Lack of Maintenance



Figure 2.2. Additional Level of Concrete Above Pavers Creating a Hazard to Pedestrians



Figure 2.4. Sidewalk Used as Dump Site. Overgrowth of Trees at Perimeter Wall and Neglectfully Installed Pavement are Additional Signs of the Absence of Guidelines and Proper Planning for Safe, Walkable Sidewalks



Figure 2.6. Pedestrian Alleyways that have Potential for Enhancement (2)

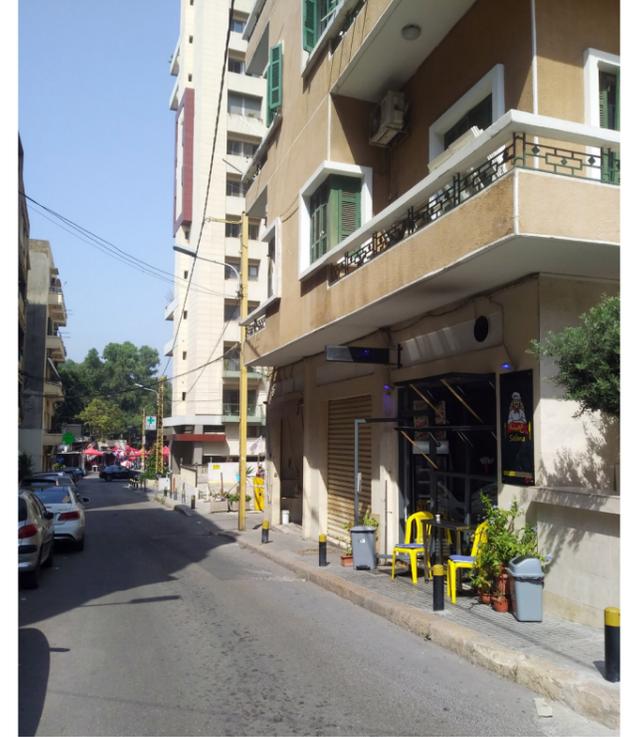


Figure 2.8. Restaurant Seating and Chairs Encroaching on the Already Narrow Sidewalk (2)

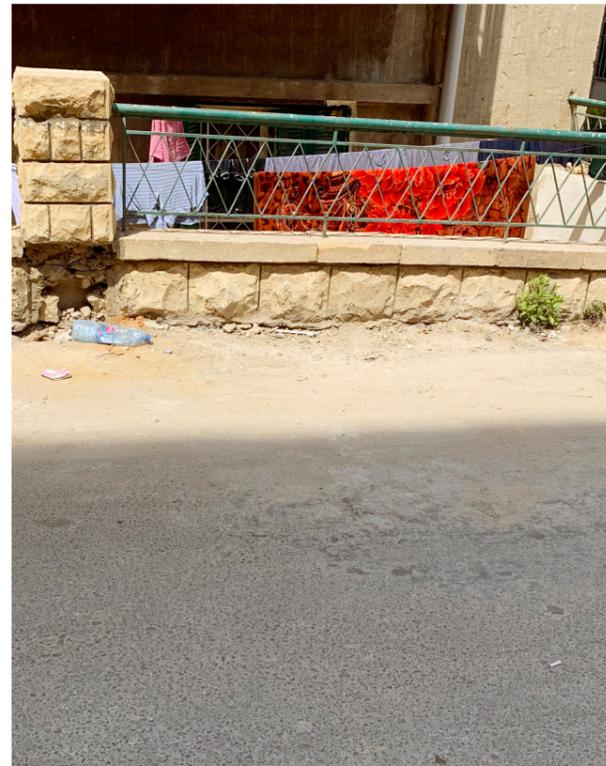


Figure 2.3. Total Absence of Sidewalks



Figure 2.5. Pedestrian Alleyways that Have Potential for Enhancement (1)



Figure 2.7. Restaurant Seating and Chairs Encroaching on the Already Narrow Sidewalk (1)

ii. On-street parking

Considering the country's significant dependence on private vehicles due to a practically absent public transportation program, it should come as no surprise that informal parking in Beirut is a recurring trend in urban social behavior. This has only increased in the years since Gemmayzeh and Mar Mikhael transformed into nightlife and cultural hubs. Most streets exhibited one form or another of informal parking, some more invasive than others. As stated earlier, it was observed in many cases that cars would directly park on the sidewalk so as to create an informal parking spot without blocking car flow through the street. Even in roads where formal on-street parking had been designated, if roads were wide enough, car owners would park informally on the other side of the street as well and simply pay at the park meter as though it applied to the whole road. Most streets either had informal parking on one side or both sides, but very few had no cars parked at all.

This pattern clearly showcases two issues in the city's transportation habits: a very high proportion of car ownership and especially car dependency as well as an inadequate provision of parking spots to suit the existing need.

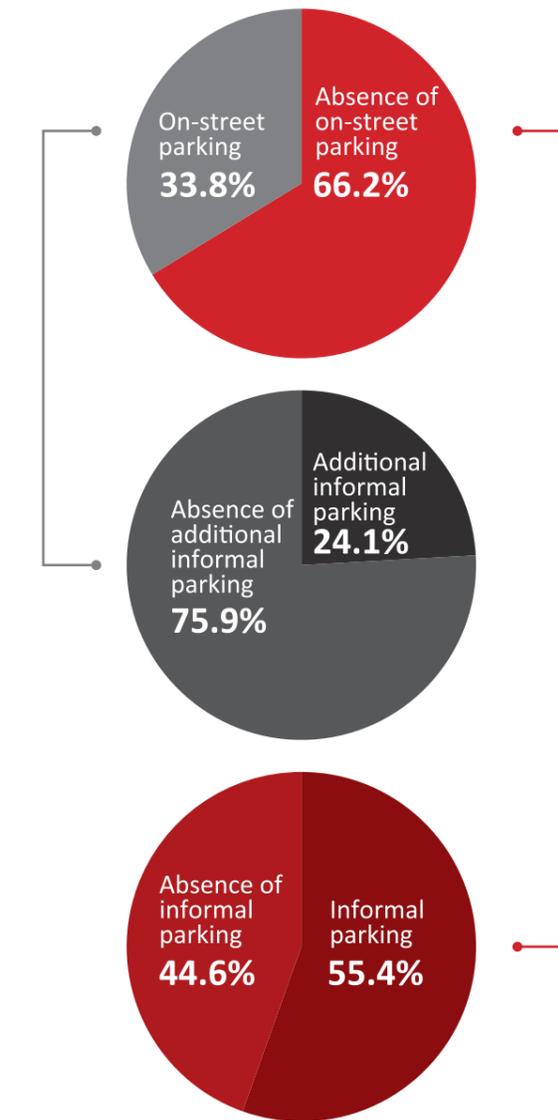
Statistical observations obtained from survey data:

- Of the 332 identified streets, medians and rights of way, 220 did not allocate on-street parking. Yet, of the streets that did not designate parking space, 122 were used for informal on-street parking. This suggests that 55.4% of roads without on-street parking are still used for such a purpose, even if it involves parking on the sidewalk itself and blocking pedestrian movement. That constitutes 36.7% of all roads in the area.
- The remaining 112 streets of the total identified streets (332) have on-street parking (33.8%). 27 out of the 112 streets are reported as having additional informally parked cars and vehicles.
- In total, 44.8% of all roads reported informal parking presence, whether they already had on-street allocation or not. This is indicative of the area's high car dependency and the low supply of on-street parking or other forms of vehicular parking in the area to meet that need. In addition to the fact that the right of way is predominantly allocated to car flow, both driver and pedestrian comfort are compromised: one because of the narrowness of certain roads and their inaccessibility due to informal parking, and the other due to their low prioritization in urban planning, which allows private vehicles to block their way on already narrow sidewalks.

The following recommendations are to be taken into consideration for the improvement of issues caused by on-street parking:

1. Development of a feasible and low-cost public transport system for the north eastern quadrant of Beirut, preferably connecting to other districts in the city as well. This can be done through:
 - a. Establishing a park-and-ride network that employs buses;
 - b. Creating exclusive rights-of-way for buses and emergency vehicles; and/or
 - c. Rerouting the private car network so as to liberate certain streets that are in turn used exclusively for pedestrian and bus movement.
2. Provision of parking nodes, perhaps multistory parking facilities (over-ground or underground) at key plots of land that are large enough for such a purpose, so as to provide a more suitable number of parking spots for residents and users. Such facilities can be refurbished and reclaimed as useful space for other functions and programs in the future if car ownership and dependency

decrease significantly.



44.8% of all streets reported informal parking presence



Figure 2.9. Informal Parking on Sidewalks

iii. Comfort, hygiene and inclusivity

The street furnishings that most dominated the streetscapes of the area were bollards, signage posts,

advertisement panels, and light poles. With that in mind, the majority of streets were not equipped with the infrastructure elements needed for a more comfortable and hygienic pedestrian experience, for both users and residents. Large bins and waste disposal units were clustered at distant points, and no smaller litter bins were installed in the majority of cases for easy waste collection. A large majority of streets did not have seating, and no bike racks were to be found anywhere but in one street, despite increased biking presence in the area from incoming youth (visiting and residing) and from lower income agents (migrant and local) who use bikes as their main means of transportation. Only seven public structures or shelters were found, and when this is combined with the lack of trees on many of the area's streets, it becomes evidence of low shading provision for pedestrians. Street lighting and cable poles presented an even greater hazard. Many of the light poles are electrically fed by exposed wires, and many of them are also used as make-shift support structures for residential wiring that connect to the main grid or to generators. Electric cables showed signs of the same hazards. In some cases, balconies and residential fences were used as bridges and supports for electric cables, and in many other instances, hanging wires were seen, and stories from residents of randomly electrified pedestrians were told.

When trees were present as streetscape elements, they were appreciated for the shade they provided, but it is to be noted that the tree pits in most instances were observed to be too small, and eventually when the tree reaches maturity, the sidewalk would be at risk of damage. This kind of damage from tree growth was already observed in the older streets of the area where trees were decades old.

The following steps are recommended to tackle the issues of hygiene, comfort, and inclusivity discussed above:

1. Explore the feasibility of moving all utilities, especially electrical, to underground culverts. If that is not feasible then the electric grid needs to be rearranged and organized in such a way that cables no longer crisscross across streets or come in direct contact with residents. Perhaps building walls and roofs could act as cable conduits, and cables can be encased in metal or concrete channels along such flat spaces.
2. Study the existing location of street bins following a walking distance evaluation (radius of 200m to 400m, which account for walking distances of 2-3 minutes and 5 minutes respectively) and

designate new locations where bins can be placed so that they are more easily accessed by users and residents.

3. Wherever possible, place smaller bins along streets so that passersby have access to waste disposal units. This would be especially useful in busier streets such as Gouraud, Pasteur, Armenia, and Geitawi.
4. Where possible, explore seating provision for pedestrians. Perhaps the walls of buildings can be used to suspend boards that can be folded down as benches. If sidewalks are wide enough, consider casting concrete benches, they could even be used to replace bollards as solid structures to combat informal street parking.
5. For streets that are also used for the existing bus network (most notably Charles El Helou and Charles Malek Avenues), construct large and comfortable bus stops that can act as collectors for bus users. They would also provide shade and seating, and become markers for buses to use instead of the current system that haphazardly picks up people at any point in the street.



Figure 2.10. Wasted Electrical Output for Street Lighting During the Day



Figure 2.11. Hazards from Electric Cables (1)



b. Steps

Of the few public spaces that exist in the city, public staircases have been a hallmark of Eastern Beirut's urban character. Some of the most popular steps that connect the Gemmayzeh and Mar Mikhael areas to Sursock and Geitawi, include Saint Nicholas Steps, Vendome Steps and Massad Stairs. These three staircases along with other wide public step structures have been appropriated as social spaces for decades by residents and now by newcomers taking advantage of the nightlife and artistic economies of contemporary Mar Mikhael and Gemmayzeh. The public staircases have also been at the center of a number of festivals in the past, such those organized by Ashrafieh 2020.

Smaller and narrower public steps, which typify the neighborhood of Geitawi in particular, function as car-free and quiet residential and commercial clusters, with many residents using the outdoor quality of the steps to socialize with their neighbors and many small restaurants and cafes using the steps as part of their charm. Many, but not all, public steps have trees and planters to add greenery and character, as well as bollards and light posts for safety and security. Strangely, very few have public art, though it has been known in the past that the stairs themselves as well as adjacent walls were used as canvases for artists and community-led beautification programs.

The following strategies can be considered cornerstones to the development and enhancement of the staircases:

1. Revisit the paving material used for the staircases. Some residents have shared their complaints of increased flooding since a number of public steps have been refurbished by the municipality using poured concrete and concrete sealing material.
2. Gain permits from the municipal authorities and permission from residents to repaint the walls of buildings and designate certain walls as art murals. Such programs can either involve local artists or the community itself as participants. This would not only enhance the public steps' appeal to visitors and residents but could also have a psycho-social function to aid with the post-blast trauma.
3. Provide bike racks at the ends of staircases so as to enhance their function as landmarks and nodes to cyclists and pedestrians. Planters and larger tree planters, where deemed possible, could also enhance the staircases' shading allowance and their vibrant character.

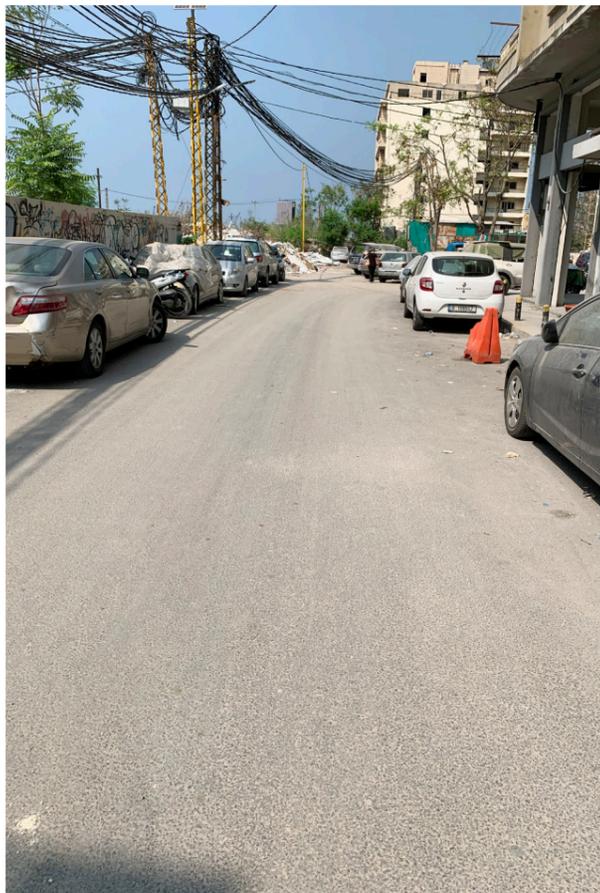


Figure 2.12. Hazards From Electric Cables (2)

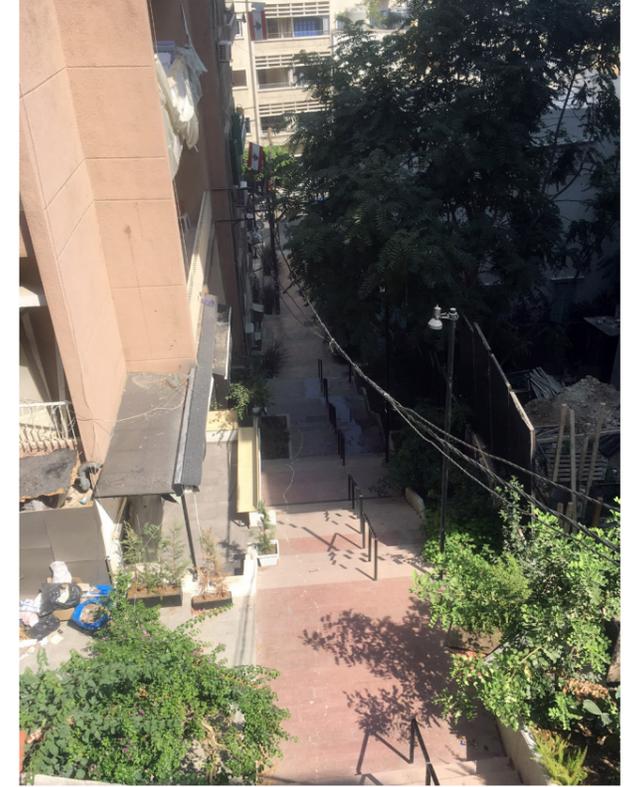


Figure 2.14. Historic, Charming Steps that can be Enhanced (2)

c. Gardens vs. vacant lots/parking lots

Setting aside the private gardens of the villas and older residences in the area, and the large plaza that surrounds the Electricite du Liban building, only three park spaces can be found in the whole of North Eastern Beirut: Jesuits Garden, William Hawi Garden, and Karantina Public Park. None of them suffered any major damages from the blast itself, though they were all previously in need of enhancement or repair in one way or another. Aside from those three spaces, very few green pockets dot the streetscape of the area, and they tend to be overwhelmed by the density of construction and the vehicular presence that surrounds them.

The ratio of vacant lots and parking areas to green spaces is overwhelming high in the area of study, almost 10 to 1 in fact according to the survey. The majority of these lots and parking areas are privately owned. Vacant lots have been appropriated in most cases as make-shift parking areas, but some interesting cases were found where they had been turned into social spaces and make-shift gardens/orchards. Many of them show signs of long-standing neglect and abandonment, having been reclaimed by wild vegetative growth that has not been tended to in years.



Figure 2.13. Historic, Charming Steps that can be Enhanced (1)

Statistical observations obtained from survey data:

- The area has a very low spatial allocation to public spaces as recreational areas. The whole of North East Beirut only has six areas that can be designated as parks or green pockets and two areas that can be recognized as plazas or squares for a total of eight areas.
- In terms of pedestrian-only circulation, however, North East Beirut has a high allocation of public staircases/steps and pedestrian alleyways. Both types of space are interesting for their traditional character and quiet nature, and they are primary examples of informally created social and recreational spaces (the steps in particular, take St. Nicholas Steps, the Vendome Steps, and the Massad Steps as key examples of this). That said, most of the pedestrian alleyways and public steps are primarily used as modes of pedestrian circulation and are in need of enhancement. In total, 21 pedestrian alleyways have been identified and 24 public steps have been documented, primary in the Geitawi and Sursock neighborhoods of North East Beirut.
- The ratio of public/pedestrian space in the area to the number of parking areas and vacant/unused lots is particularly disproportionate. 78 spaces have been identified as vacant lots or parking areas, 39 of each actually. It is important to note that many vacant lots are used informally as parking areas as well, though some have shown signs of public reclamation, being reconfigured into orchards, gardens, or seating areas. This is indicative of the potential that these vacant lots present for public use, and the general public's engagement with those spaces privately to tap into that potential.
- If public spaces are to combine the pedestrian alleyways, public steps and other public spaces (parks, green pockets, plazas and squares), then parking/vacant areas outnumber public spaces by almost 1.5 times, 1.5 parking areas/vacant lots for each public space.
- If public spaces are only to include parks, green pockets, plazas, and squares, then the ratio is even more overwhelming: there are 13 times as many vacant/parking areas as there are public spaces.
- If the ratio of public spaces (parks, green pockets, plazas and squares) to parking lots is to be taken alone, then there are 6.5 times as many parking lots as there are public spaces.
- It is important to note that Zone C of the study (Mar Mikhael) does not have any public spaces at all.

This is especially troubling considering that Zone C includes the train station area, which used to be a public service decades ago.

- Zones A (Saifi and the beginning of Gemmayzeh), D (Karantina and Charles el Helou), H (the area around Roum Hospital), and I (Geitawi), all have more vacant/parking areas than public areas of any sort (including pedestrian staircases and alleyways). Geitawi (Zone I) in particular has a high concentration of vacant/parking lots. The reasons for this could be a combination of the area's primarily residential value, the age of any of the houses, which were built before residential parking was included in construction regulation, and the high number of small vacant lots that have yet to be developed.
- Zones E and F (the area south of Gouraud Street and including Sursock) have no larger public areas or squares, but are riddled with pedestrian corridors and a few major public staircases

It is recommended that the following steps be taken to explore the re-appropriation of these empty parcels and parking lots as well as the enhancement of existing green spaces:

1. Repair pre-blast and post-blast damages to the existing parks of the area and explore potential enhancement needs through the provision of necessary furniture elements and the assessment of new planting and other potential enhancements such as artwork or programmatic initiatives, so as to quickly re-enliven these spaces.
2. Explore with land owners, the municipality, and local religious institutions (waqf land owners), the potential to convert a number of their lands or portions of their plots to green pockets, parks, or social spaces. Perhaps donation booths can be set up for such a purpose or agreements with municipal authorities on land tax incentives to encourage land owners.
3. Create a volunteer program for those interested in the maintenance and enhancement of new green pockets. These could be from the community itself, parishes of churches and users of local mosques, the municipality, or local scout groups and schools.

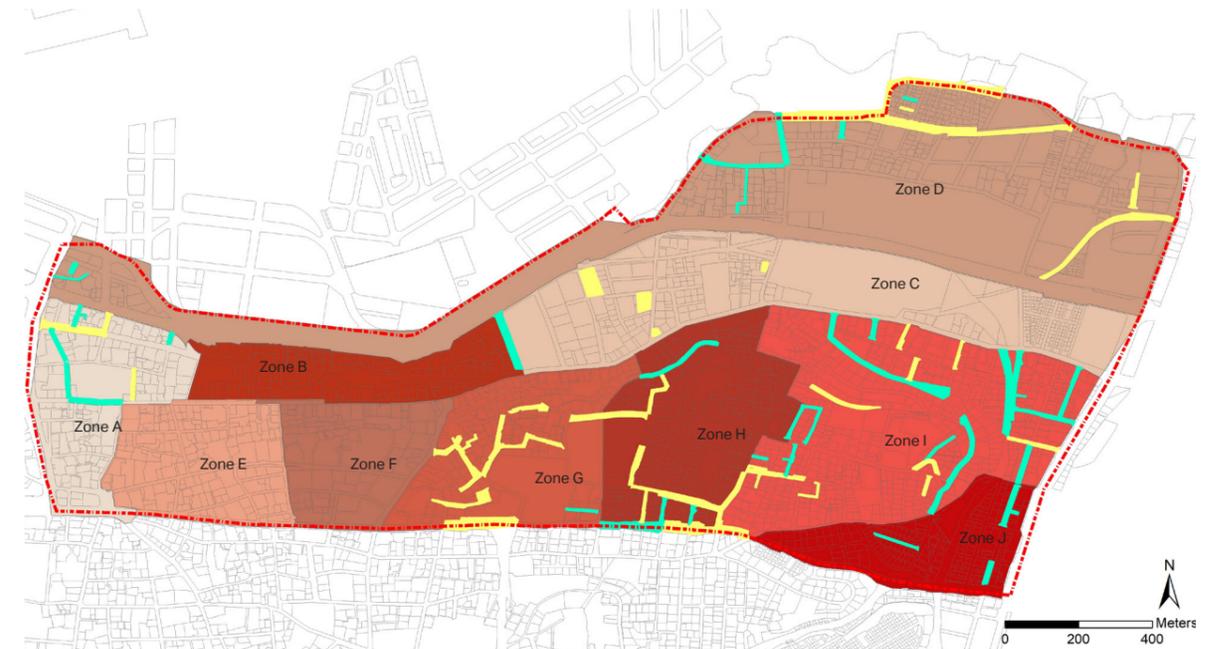


Figure 2.15. Street Stretches with Vacant and Parking Lots

- Street stretch with parking lots
- Street stretch with vacant lots

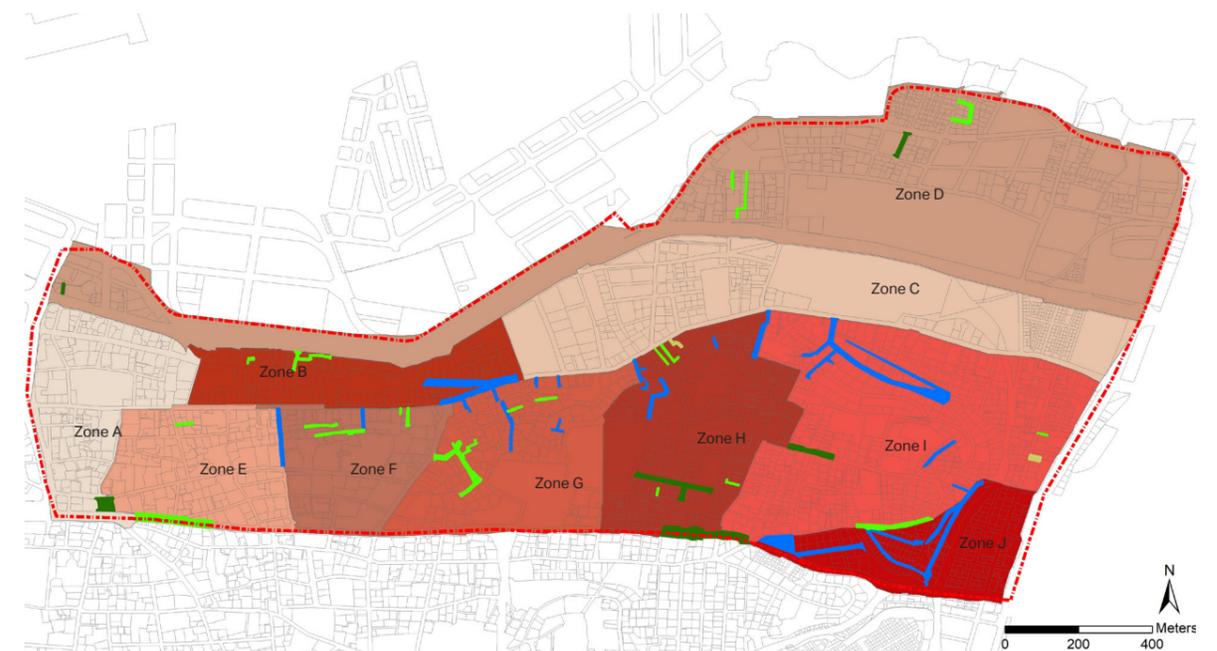


Figure 2.16. Street Stretches with Green Pockets, Public Steps and Pedestrian Alleyways

- Street stretch with green pocket
- Street stretch with public steps
- Street stretch with pedestrian alleyways
- Street stretch with square/courtyard/plaza

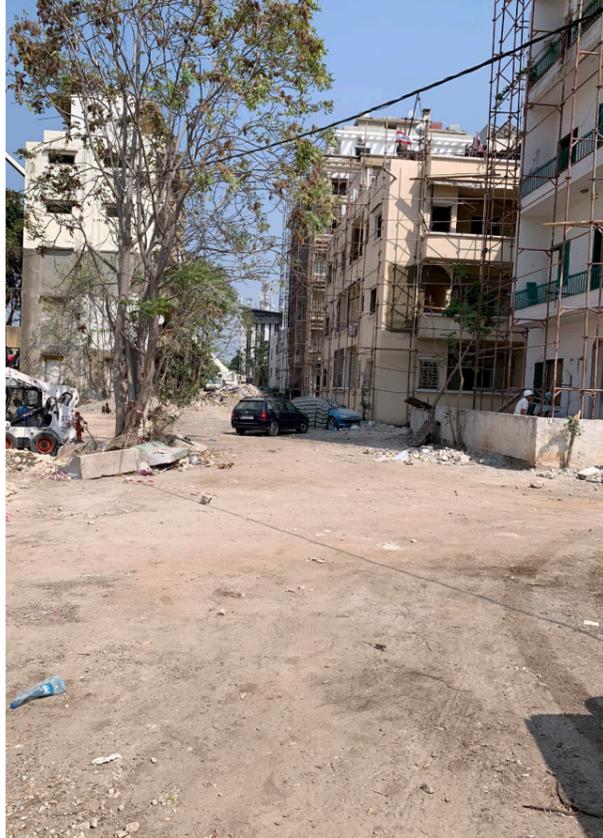


Figure 2.17. Neglected Open Spaces that can be Developed for Public Use or to Provide Necessary Services (1)

Figure 2.18. Neglected Open Spaces that can be Developed for Public Use or to Provide Necessary Services (2)



Figure 2.19. Neglected Open Spaces that can be Developed for Public Use or to Provide Necessary Services (3)

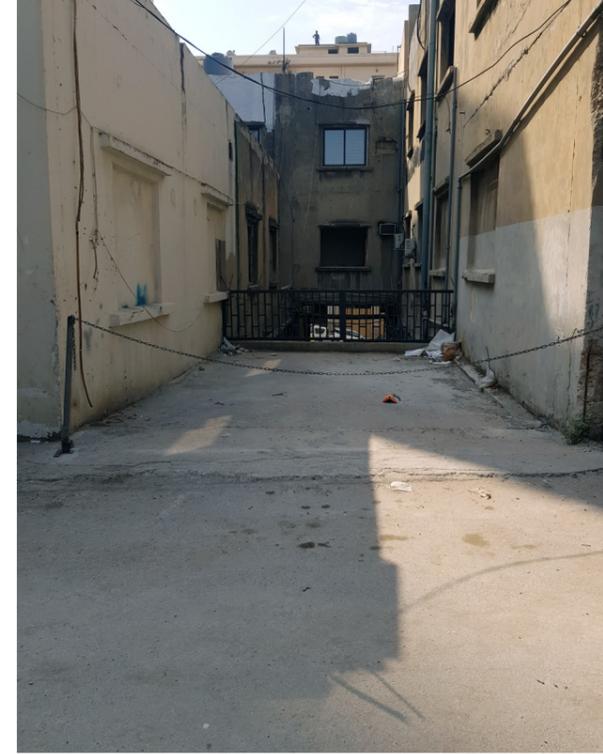


Figure 2.20. Neglected Open Spaces that can be Developed for Public Use or to Provide Necessary Services (4)

d. Private initiatives

It is very important to note that though the authorities in both the municipality of Beirut and the central government have given little priority to the development of pedestrianization programs, urban greening and comfort and social development initiatives, private agents from non-profits, creative agents and residents have all in some way acted upon the streetscapes and public spaces of the area for their benefit or that of their neighbors, the community as a whole, and even the city itself.

As mentioned previously, organizations like Ashrafieh 2020 have been holding pedestrian-only weekend festivals on Armenia Street for years now. Art collectives such as Collectif Kahraba have organized their own programs and festivals in the area, including one on the Vendome Staircase that included performances, exhibitions, lectures and other platforms.

Even some private business owners have built makeshift public seating arrangements for passersby, and placed planters and trees in pots on the edges of walls and streets to provide shade and greenery around their spaces for themselves and the public. Creative and artistic agents, like the now well-known street artist Yazan, have left their mark in the area through

various forms of street art. The many murals along Charles El Helou Highway and the stretch of Charles Malek Avenue connecting to the Ring Road are very popular examples of this.

Many of the residents place their own planters, trees and chairs outside onto the sidewalks, and both residents and business owners have been seen placing portable bins outside for public use. Therefore, in light of the fact that public authorities are not consistently providing the public amenities that are essential to hygiene, comfort, and security, local residents, business owners, and other stakeholders are making conscious efforts to provide such amenities themselves.

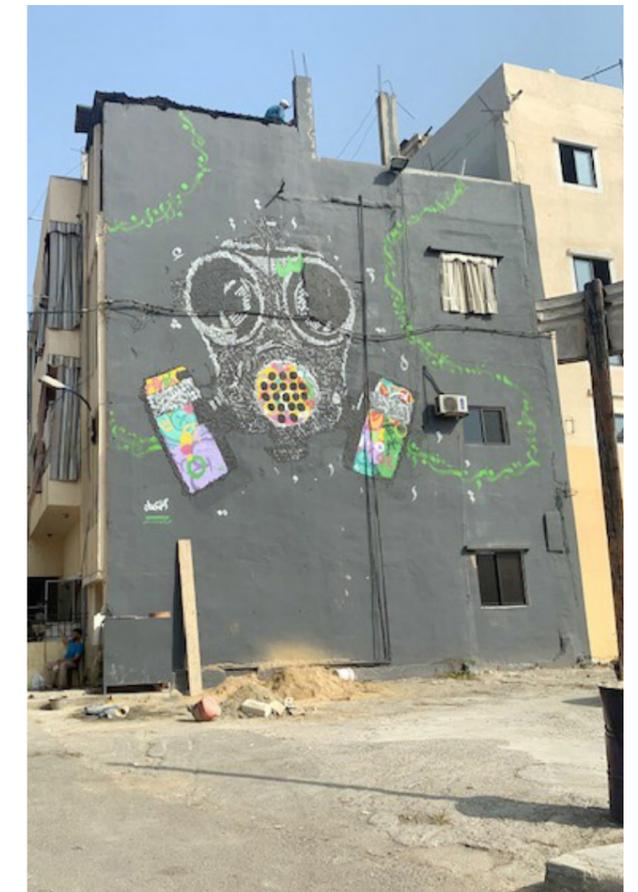


Figure 2.21. Public Art by Private Initiatives (1)

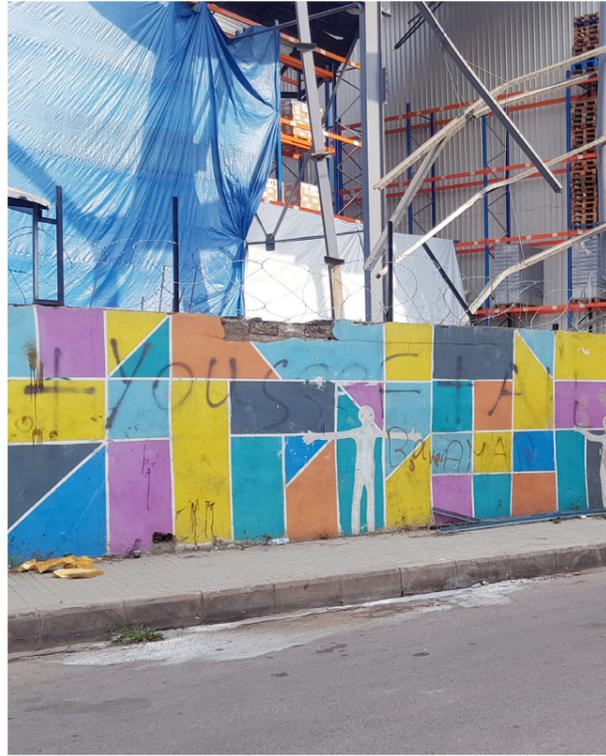


Figure 2.22. Public Art by Private Initiatives (2)



Figure 2.23. Enhancement of Pedestrian Alleyway By Private Initiative

Figure 2.24. Social Space By Private Initiative



3. Conclusion



CONCLUSION

The port blast shook an already vulnerable Lebanon to its core and incurred unprecedented losses of life and livelihood, buildings and infrastructure. In addition, the blast caused damages to public realm urban elements that should be fixed primarily to ensure user safety.

The true challenges that plague the area's public realm, its streets and open spaces, predate the Beirut Blast by decades. Many of the issues observed on site are rooted in a history of policies that prioritize private cars and the mega infrastructures that those same vehicles need. This can be seen in the proportion of the right-of-way of any given street dedicated to cars instead of to pedestrian mobility, and the number of vehicular street elements (park meters, traffic signage, and bollards) over those needed for pedestrian comfort and safety. Even plots of land become representative of this hierarchy, as the number of parking lots in the area outnumber the number of green and open spaces, which makes it all the more troubling that most streets are also used for informal parking, and many of the car owners go so far as to park on the sidewalks to create spots for their vehicles. This shows not only the high reliance of users on private vehicles, but also how that dependence negatively impacts the urban experiences of others.

There is a clear issue of untapped potential when it comes to existing public spaces and public staircases. The existing network of public spaces has been neglected for too long and is in major need of enhancement and repair, while the public staircases, though successfully activated by both residents and users, could have their provisions and aesthetics enhanced in ways small agents cannot provide alone. Vacant lots, which outnumber green spaces and parks, are another unexplored opportunity. They could be appropriated for more productive uses, like gardens, multistory parking to replace street parking, or community spaces.

Yet in spite of the overwhelming neglect the public realm has been subjugated to, there is opportunity to be found in the private and communal initiatives and gestures that have been taken by the greater public to enhance the area, from small planters on the sidewalks and benches on the street sides, to large murals and festivals dedicated to the enlivenment of the region. It is the actions of these stakeholders, who have chosen to interact positively with their space, that should be considered the core of the recommendations listed above and their engagement would prove more than vital when tackling the feasibility, nuances and perhaps amelioration of the strategies proposed here and any future tactics to be considered.

Way forward: This report is to be used as a preliminary assessment for future proposals, analyses and/or surveys but should not be taken as a lone source. A detailed assessment is recommended to obtain important qualitative data and to confirm/adapt the quantitative data.



4. APPENDICES



ANNEX 1: OPEN SPACE POST-DISASTER DAMAGE AND PRE-DISASTER CONDITION ASSESSMENT QUESTIONNAIRE

DEFINITIONS

Damage Assessment:

Damage assessment refers to the analysis of the total or partial destruction of physical assets in the aftermath of the Beirut blast to assess repair / replacement needs.

Damage level	Meaning
1 - No Damage	Usable and no need for any repair.
2 - Moderate Damage	Unsafe for use and needs repair.
3 - Extensive (Total) Damage	Unusable and cannot be repaired.

Condition Assessment:

Condition assessment refers to the analysis of the quality of physical assets prior to the blast in terms of functionality, attractiveness, purposefulness, or safety of use as applicable to have a better understanding of the pre-disaster situation of the open space.

	Meaning
1-Not applicable	Non-existent

IDENTIFICATION

Survey date:.....

Surveyor name:.....

Description of the space (specify important if traditional street, landmarks, etc.):.....

Ownership:

Public Private

Type of open space surveyed:

- Square / Courtyard / Plaza
- Street / Right of Way / Medians
- Pedestrian Alleyway
- Park / Green Pocket
- Public Stairs
- Parking Areas
- Vacant Lots
- Setback
- Other (specify)

OPEN SPACE DAMAGE (POST-DISASTER) AND CONDITION (PRE-DISASTER)

	Pavements and Curbs	Vehicular Roads/ Asphalt	Street Lighting	Traffic Lighting	Bollards
Post-disaster damage level					
No damage	<input type="checkbox"/>				
Moderate damage	<input type="checkbox"/>				
Extensive damage	<input type="checkbox"/>				
Not applicable	<input type="checkbox"/>				
Quantities of the damaged item					
Area (sqm)
Units
Comments					
Damage type/ consequences
Pre-disaster condition

	Seating	Bike racks	Trash and Recycling Receptacles	Signage and Advertisement Boards	Barriers and Fences
Post-disaster damage level					
No damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extensive damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quantities of the damaged item					
Area (sqm)
Units
Comments					
Damage type/ consequences
Pre-disaster condition

	Trees	Tree grates	Planters	On-street parking	Public art and installations
Post-disaster damage level					
No damage	<input type="checkbox"/>				
Moderate damage	<input type="checkbox"/>				
Extensive damage	<input type="checkbox"/>				
Not applicable	<input type="checkbox"/>				
Quantities of the damaged item					
Area (sqm)
Units
Comments					
Damage type/consequences
Pre-disaster condition

	Park equipment (specify)...	Water features	Public structures/shelters	Others (specify)...
Post-disaster damage level				
No damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extensive damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quantities of the damaged item				
Area (sqm)
Units
Comments				
Damage type/consequences
Pre-disaster condition

ANNEX 2: ARCGIS ONLINE WEB MAP

