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# From Camps to Communities

## Post-Conflict Shelter in Gaza

The war in Gaza has displaced 90 percent of the population, damaged most of Gaza's buildings and critical infrastructure, destroyed existing communities, and left extensive rubble and explosive hazards. Even after the war is concluded, the scope and magnitude of destruction mean that large portions of Gaza's displaced population will not be able to return to their homes in the near term; most will likely need to live in an interim setting for an extended period during reconstruction. For some, this may mean a decade or more. Providing the required shelter will require a variety of improvised, temporary, and long-term solutions to housing and community rebuilding.

Unfortunately, warfare and conflict around the world provide ample examples of how temporary shelter approaches, such as tent camps, provide a poor quality of life—squalid conditions; poor health and education outcomes; idleness; lack of livelihoods and, therefore, low self-reliance; lack of public safety; and environments ripe for the incubation of radicalization (Sude, Stebbins, and Weilant, 2015). In many post-conflict settings, shelter meant to be temporary (such as camps) remained permanently, which concentrated populations in inappropriate places, isolated from their communities and from essential infrastructure. Better solutions are needed for Gaza's displaced civilians.

In this report, we integrate lessons learned from other post-conflict and post-disaster recoveries around the world, analysis of the destruction and landscape in Gaza, and urban planning methods to propose new approaches for providing interim shelter and rebuilding communities. Recognizing that reconstruction will be a long-term, multidecade process, we propose a multifaceted approach to meet immediate shelter needs in ways that lay the foundation for good urban planning in the future, restore some sense of community, enable people to live in decent conditions while reconstruction is ongoing, and achieve effective reconstruction so that Gazans can thrive and go home.

We begin by describing the levels of destruction and displacement that drive the need for interim and long-term housing solutions in Gaza. We highlight lessons learned about conditions to avoid from other post-conflict and post-disaster rebuilding situations. Next, we propose principles for providing interim housing in neighborhoods and camps in Gaza and offer options for shelter. We then offer a step-by-step approach to implementing two of these options, drawing on an approach called *incremental urbanism*. Finally, we lay out an approach to quantifying how many people could be accommodated in these options and to determining where they could be accommodated. We provide maps to illustrate the concepts. This research was completed in 2024.

## KEY FINDINGS

■ The Israel-Hamas war damaged or destroyed 70 percent of Gaza's housing stock and much of its critical infrastructure and displaced 90 percent of its population of 2.2 million people. Most of the 42 million tons of rubble are from destroyed housing. Reconstruction will take decades, with costs greater than $50 billion.

■ Hundreds of thousands of Gazans will need interim shelter for a decade or longer while their homes are being rebuilt or repaired. In multiple previous post-conflict cases, recovery has been slower than expected. Temporary displacement camps created as interim shelters often become permanent environments that provide poor quality of life, as illustrated by camps built in Gaza in 1948.

■ This report lays out options for post-conflict shelter that might avoid some of these pitfalls. The goals of interim shelter should include reducing the risks of long-term encampment, setting the stage for reconstruction, reestablishing communities, and developing sensible urban and suburban footprints.

■ For the purposes of this report, we describe four principal options for post-conflict shelter:

  – Option 1: Sheltering Gazans outside Gaza

  – Option 2: Urban redevelopment (Option 2a: Raze and rebuild; Option 2b: Incremental urbanism)

  – Option 3: Camps (Option 3a: Informal tented settlements; Option 3b: Conventional United Nations camps; Option 3c: Future-oriented camps)

  – Option 4: New neighborhoods on undeveloped land.

■ In neighborhoods and camps that meet certain criteria, we propose an approach called *incremental urbanism*. We propose six steps to implementing this concept, blending living in buildings, tents, and caravans with access to community hubs that offer sanitation, utilities, food, and services, all while reconstruction is underway.

■ We describe the six steps in applying incremental urbanism approaches as part of the urban redevelopment model (Option 2b) and as part of the future-oriented camps model (Option 3c). We provide maps to illustrate both approaches. A concrete plan for applying this concept in Gaza would need to be developed post-conflict when the relevant data could be gathered.

■ We also provide an approach to determining repopulation locations and housing types drawing on these options, illustrating how the approach could be applied in a notional default scenario and a future-oriented scenario.

### Abbreviations

| | |
|---|---|
| FEMA | Federal Emergency Management Agency |
| IDP | internally displaced person |
| PCBS | Palestinian Central Bureau of Statistics |
| UN | United Nations |
| UNHCR | United Nations High Commissioner for Refugees |
| UNOSAT | United Nations Satellite Centre |
| UNRWA | United Nations Relief and Works Agency for Palestine Refugees in the Near East |

## Approach and Limitations

This report builds on analyses in two other RAND reports: *Pathways to a Durable Israeli-Palestinian Peace* (Ries et al., 2025) and *A Spatial Vision for Palestine: A Long-Term Plan That Can Begin Now* (Culbertson et al., forthcoming). We build on the literature review, data analysis, and interviews conducted for those two reports, and we also conducted additional literature and data analysis. The literature that we considered includes damage assessments of Gaza, displacement camp history and assessments, urban development in disaster and international development settings, and comparable reconstruction cases. We drew on Geographic Information System

data from OpenStreetMap, data on Gaza's road network from the Palestinian Authority, and data from the United Nations Satellite Centre's (UNOSAT's) Gaza damage assessments to delineate blocks and calculate the density of damage points per block. We drew our neighborhood recovery maps, tracing existing damage on top of satellite imagery, based on our own design studies.

The research team attended workshops hosted by the United States Institute for Peace and the Portland Trust in Arlington, Virginia, in December 2024, where the team discussed the ideas in this report in small participant groups that included Palestinians from Gaza and the West Bank, multilateral officials, diplomats, and private-sector stakeholders. The research team incorporated feedback from the workshop into the report.

This report has several limitations. It relies on satellite data that have not been verified building by building on the ground. Data have changed rapidly because of the ongoing nature of the war. Various data sources are inconsistent. And development of a full plan should include more stakeholder engagement, which we were not able to achieve for this report. Much more work would be needed to fully develop the concepts offered here, and there may be associated risks that we have not fully accounted for.

Even with these limitations, we view the approach as a contribution toward articulating an evidence-based approach to post-conflict shelter in Gaza. Because there are so many unknowns, we are not prescriptive about how and where rebuilding should take place. Rather, we offer a set of criteria and a methodology for where and how to rebuild that are flexible and can be refined as more is known.

## Levels of Displacement and Housing Destruction

The war's toll on Gaza's population and infrastructure is extensive: 46,000 deaths and more than 100,000 casualties have been reported, and at least 10,000 Gazans are missing under the rubble. More than half of the dead are women and children (United Nations Office for the Coordination of Humanitarian Affairs—Occupied Palestinian Territory, 2024;

Euro-Med Human Rights Monitor, 2024). More than 80 percent of commercial buildings have been damaged or destroyed. Approximately 65 percent of Gaza's road network has been damaged (ReliefWeb, 2024).

The United Nations (UN) estimated that as of July 2024, 1.9 million individuals, or 90 percent of the population, have been displaced (United Nations Relief and Works Agency for Palestine Refugees in the Near East [UNRWA], 2024a). Many Gazans have been displaced multiple times, as Israel issued evacuation orders requiring Palestinians to move from one area to another as the focus of the military campaign shifted.

> **Percentage of Gaza's 2.2 million population displaced from their homes:**
>
> **90 percent**

Reconstruction will be costly, and housing composes the major share of the costs. In April 2024, the World Bank and the UN estimated that as of January 2024, recovery in Gaza would cost $18.5 billion (World Bank, 2024). Housing accounted for about 72 percent of the costs, public services and utilities 19 percent, and commercial and industrial buildings 9 percent (World Bank, 2024). A later UN estimate of reconstruction costs in May 2024 put the reconstruction cost at $50 billion (Besheer, 2024). Because the war continued after those estimates were made, actual costs will be higher.

> **Housing as estimated percentage of reconstruction costs:**
>
> **72 percent**

There are 42 million tons of rubble in Gaza, most of it from destroyed housing (Hodali et al., 2024). As of June 2024, Israel had dropped an estimated 70,000 tons of bombs on Gaza, surpassing what was dropped on Dresden, Hamburg, and London combined in World War II (Çallı, 2024). The UN notes that this level of destruction of housing is unprecedented since that global conflict (Lederer, 2024). The UN

estimates that it could take 100 trucks 15 years to clear the rubble (United Nations Palestine, 2024; Burke, 2024). This estimate is conservative because it is based on the situation in May 2024. Removing rubble will be further complicated by unexploded ordnance (likely more than 6,000–9,000 pieces); dangerous contaminants, including asbestos; and human remains (Hodali et al., 2024). Vast areas (600–1,200 acres) will be needed as staging zones to deal with the rubble and the unexploded ordnance (United Nations Environment Programme, 2024), competing with space needed for tent or caravan camps.

> **Rubble:**
>
> **Most of the 42 million tons of rubble comes from destroyed housing**

The majority of housing in Gaza is damaged or destroyed. The Palestinian Central Bureau of Statistics (PCBS) reported 87,000 completely destroyed housing units and 297,000 partially damaged housing units as of September 2024 (PCBS, 2024b). A May 2024 UN report listed 370,000 damaged housing units; of those, 79,000 were completely destroyed (United Nations Economic and Social Commission for Western Asia and United Nations Development Programme, 2024). In September 2024, UNOSAT estimated 227,591 damaged housing units (UNOSAT, 2024b).

> **Number of housing units damaged or destroyed:**
>
> **Completely destroyed: 79,000–87,000**
>
> **Damaged or destroyed: 227,600–370,000**

That means that roughly half of Gaza's housing units may be severely damaged or destroyed. Although there are estimates of the numbers of housing units that are damaged or destroyed, the data about the total number of housing units (the denominator) are both inconsistent and out of date. The PCBS reported a total of 291,000 total housing units in the Gaza Strip in 2022 (PCBS, 2023), but

estimates of damaged and destroyed housing from both PCBS and the UN are higher than the 2022 total housing figure. A World Bank damage assessment in March 2024 found that 62 percent of all homes were damaged or destroyed, with 76 percent of those (47 percent of all total housing) completely destroyed (World Bank, European Union, and United Nations, 2024). A September 2024 UNOSAT satellite-based damage assessment found a total of 163,778 structures in Gaza (UNOSAT, 2024b). Of these, 52,564 were destroyed and 18,913 were severely damaged, or 44 percent of all structures severely damaged or destroyed. There were 56,710 moderately damaged structures and 35,591 possibly damaged structures, or 66 percent of all structures possibly or moderately damaged.

> **Percentage of housing units destroyed or damaged:**
>
> **44 percent–66 percent**

If we assume that the proportion of severely damaged and destroyed housing is the same as the proportion of severely damaged and destroyed buildings, and we also assume that housing with these levels of destruction is uninhabitable, the UNOSAT proportions mean that 44 percent of housing units are uninhabitable. This would leave some portion of the remaining 56 percent as habitable. This may be an overcount: UNOSAT notes that it has not validated damage levels in the field and that some damage may not be captured in the satellite imagery. Using the March 2024 World Bank estimate, if half of housing were completely destroyed and more time has passed since that estimate, then probably less than half of housing would be habitable.

> **Percentage of housing units habitable:**
>
> **Less than 50 percent**

Given these estimates, how many people would have a home and community to return to? Gaza has an estimated population of about 2.2 million,

90 percent of whom are currently displaced. If at least half of the housing stock is not habitable, then at least 1.1 million people will need interim shelter arrangements.

> **Number of people who need interim shelter arrangements:**
>
> **At least 1.1 million**

## The Need for Interim Housing During Lengthy Reconstruction

A challenge in recovery efforts, whether after conflicts or natural disasters, is the mismatch between overly optimistic timelines for reconstruction and their actuality. Similarly, despite hopes for rapid reconstruction, rebuilding Gaza will take decades. This has profound implications for how housing and other systems in general should be set up to help Palestinians now. Planners should create realistic reconstruction time frames and provide an environment in which civilian shelter meets a minimum standard in the interim.

The UN estimates that, at the pace of Gaza's housing reconstruction after the 2014 and 2021 military incursions (992 housing units per year), it would take 80 years to rebuild 79,000 completely destroyed homes in Gaza (United Nations Economic and Social Commission for Western Asia and United Nations Development Programme, 2024). This does not include rehabilitation of the 290,000 damaged homes. Even if housing reconstruction could proceed at five times that pace, it would still take 15 years, until 2040, to complete. This means that a large number of Gazans will need to live in interim housing for at least 15 years.

> **Time to rebuild destroyed housing at previous rates of reconstruction in Gaza:**
>
> **80 years**

These time frames are sobering, but they are not unique to Gaza. Such factors as ongoing conflict, low international trust in local leadership, lack of funding, limited workforce capacity, and bureaucratic delays all contribute to slow paces in post-conflict and post-disaster rebuilding. The challenges facing Gaza's reconstruction timelines bear similarities to those in other war-torn or disaster-struck areas.

- **Ukraine:** Because of the length of the war, significant reconstruction for the estimated $411 billion in damages (World Bank, 2023) caused by Russia's invasion has not begun (Shatz et al., 2023). And parts of Ukraine that experienced fighting in the 2014 war with Russia are still partly depopulated and not fully rebuilt.
- **Mosul, Iraq:** The battle against the Islamic State in Iraq and Syria left 138,000 buildings destroyed, with an estimated $88 billion required for reconstruction. Despite Iraq's oil and financial resources, seven years later, recovery remains slow, hindered by political gridlock, corruption, militias, and insecurity. Five years after the war, 100,000 people were still living in camps (Al-Oraibi, 2022).
- **Syria:** Syria's civil war (2011–2024) resulted in significant destruction. War losses were estimated at $226 billion in 2016, and 2023's earthquake added $5.1 billion (Mroue and Chehayeb, 2023). Ongoing instability and uncertainty over Syria's leadership prevents significant international investment in reconstruction efforts.
- **U.S. hurricane-hit communities:** In the United States, where there is ample funding, disaster recovery still takes a long time. The Federal Emergency Management Agency (FEMA) obligated $32.2 billion to Puerto Rico and the Virgin Islands after 2017's Hurricanes Irma and Maria, but only $7.7 billion had been spent by 2022 because of complex bureaucratic processes, insufficient territorial government capacity to manage billions of dollars of capital reconstruction projects, workforce shortages, and conflicting requirements from funding agencies (U.S. Government Accountability Office, 2022). It took 15 years to spend out most recovery funding from FEMA after Hurricane Katrina (Culbertson, Nuñez-Neto, et al., 2020).

Expectations about time frames for rebuilding Gaza should be realistic in recognition of the unique challenges hindering investment and rebuilding.

- It will take time to restore safety and security, which is a prerequisite for long-term rebuilding: Hamas may not be fully defeated, and Israel has publicly stated its intentions to conduct incursions in the coming years (Jones, Peled, and Lieber, 2024).
- Israel's dual-use restrictions on importing construction materials have slowed recovery; new approaches will be needed that address both Israel's security concerns and Gaza's need for materials to rebuild (Office of the Quartet, undated).
- Financing will be constrained: The Gazan and West Bank Palestinian economies have been severely weakened by the war, and donors may be reluctant to spend because of uncertainties about ongoing or future violence that may destroy investments. The United Arab Emirates indicated that it will not contribute to reconstruction without a clear pathway to the creation of a future Palestinian state, and Saudi Arabia indicated that it will not recognize Israel without a pathway to a Palestinian state ("UAE Says It Will Not Back Post-War Gaza Plans Without Palestinian State," 2024; "Saudi Arabia Will Not Recognise Israel Without Palestinian State, Says Crown Prince," 2024).
- Money will be hard to spend wisely and efficiently, given common barriers in other recoveries, such as concerns about accountability in funding, recovery management capacity (Culbertson, Bordeaux, et al., 2020), and construction workforce shortages (Culbertson, Nuñez-Neto, et al., 2020).

## The Risks of Long-Term Camps

Those who build camps for displaced civilians also often underestimate how long civilians will live in them. A prevailing but flawed assumption is that temporary camps will suffice as shelter for a short period, followed by quick conflict resolution, recovery, and return home. This assumption inevitably creates poor-quality living conditions that fail to meet the long-term needs of civilians who might occupy camps for decades.

The UN describes camps as facilities designed to offer immediate protection and essential services—food, water, shelter, medical care—to those displaced by war or violence (USA for UNHCR, undated). Camps are built under the assumption that they will be temporary; the Sphere Minimum Standards for Camp Management (a set of minimum humanitarian standards for camps to meet, relied on by the UN) state, "Residence in a camp or any temporary collective site is not a durable solution. Rather, it is always a temporary response to a situation of displacement" (Camp Management Standards Working Group, 2021).

Yet global experience shows that temporary displacement camps often become permanent. The Zaatari camp in Jordan, established in 2012 in a desert site, shelters some 80,000 Syrian refugees, making it one of Jordan's largest cities (Carlisle, 2022). Zaatari's tents are being slowly replaced with caravans, in recognition of the site's permanence and the insufficiency of living in tents as a long-term solution. The Dadaab refugee camp in Kenya, established in 1991, is today home to 385,000 people (United Nations High Commissioner for Refugees [UNHCR], 2024b).

Decades after their initial displacement in 1948 and 1967, one-third of the 5.9 million registered Palestinian refugees still live in 58 camps in Gaza, the West Bank, Jordan, Lebanon, and Syria (International Crisis Group, 2023). Prior to October 7, 2023, some 66 percent of Gaza's population were already

Global experience shows that temporary displacement camps often become permanent.

registered refugees from the 1948 and 1967 conflicts (PCBS, 2024a). Some, but not all of them, lived in eight refugee camps in Gaza: Jabalia (the largest), Khan Yunis, Rafah, Al-Shati, Nuseirat, Bureij, Maghazi, and Deir al-Balah (UNRWA, 2023).

Acknowledging the risks that camps pose globally, in 2009 and 2012 UNHCR updated its policies to recommend against accommodating people in camps because of the problems that come with "long-term encampment" (Morand et al., 2012; UNHCR, 2014). Instead, UNHCR recommends enabling displaced people to integrate into apartments and other housing in urban areas. However, in Gaza there will be constraints on available housing. The *UNHCR Policy on Alternatives to Camps* states the following:

> While camps are an important tool for UNHCR, they nevertheless represent a compromise that limit the rights and freedoms of refugees and too often remain after the emergency phase and the essential reasons for their existence have passed. UNHCR's experience has been that camps can have significant nega-

tive impacts over the longer term for all concerned. Living in camps can engender dependency and weaken the ability of refugees to manage their own lives, which perpetuates the trauma of displacement and creates barriers to solutions, whatever form they take. (UNHCR, 2014, p. 4)

The Jabalia refugee camp, located east of Gaza City, is another example of a refugee camp lasting well beyond its planned duration. That camp highlights the consequences of poor layout and lack of foresight and planning. Founded in 1948 by the UN for Palestinians displaced by the war, Jabalia was initially conceived as an orderly array of semi-temporary structures (Figure 1).

Over time, Jabalia's inhabitants built structures on their tent sites, leaving a road and block structure that was designed for rows of tents in a temporary camp, not meant for the needs of inhabitants of a town. Jabalia became Gaza's largest refugee camp, with 100,000 inhabitants. Its unplanned densification was a spontaneous expression of demographic, cul-

FIGURE 1

Palestinian Refugee Boys in Front of Gaza's Jabalia Refugee Camp



SOURCE: Pictorial Parade/Archive Photos via Getty Images.

tural, and climate-driven adaptations of people living in a gridded camp on the sand (Aburamadan, 2022; Saleh, 2021).

As shown over two periods in the same scale in Figure 2, lacking a longer-term plan for accommodating population growth, Jabalia became a dense and congested urban space with narrow pathways, a lack of open public spaces, compromised safety, difficult emergency access, and poor sanitary conditions. In the workshop discussions described in the "Approach and Limitations" section, Gazans pointed out that the roads in Jabalia and other Gazan refugee camps had been too narrow before the war to allow entry of ambulances and fire trucks. Notable as a source of the first intifada, viewed by Israel as a "Hamas stronghold," and with an extensive underground tunnel network (Rosenberg, 2023; Berg, 2024), most of the Jabalia camp has been destroyed by Israeli bombing during the Israel-Hamas war (Abu Toha, 2024; Gritten, 2024).
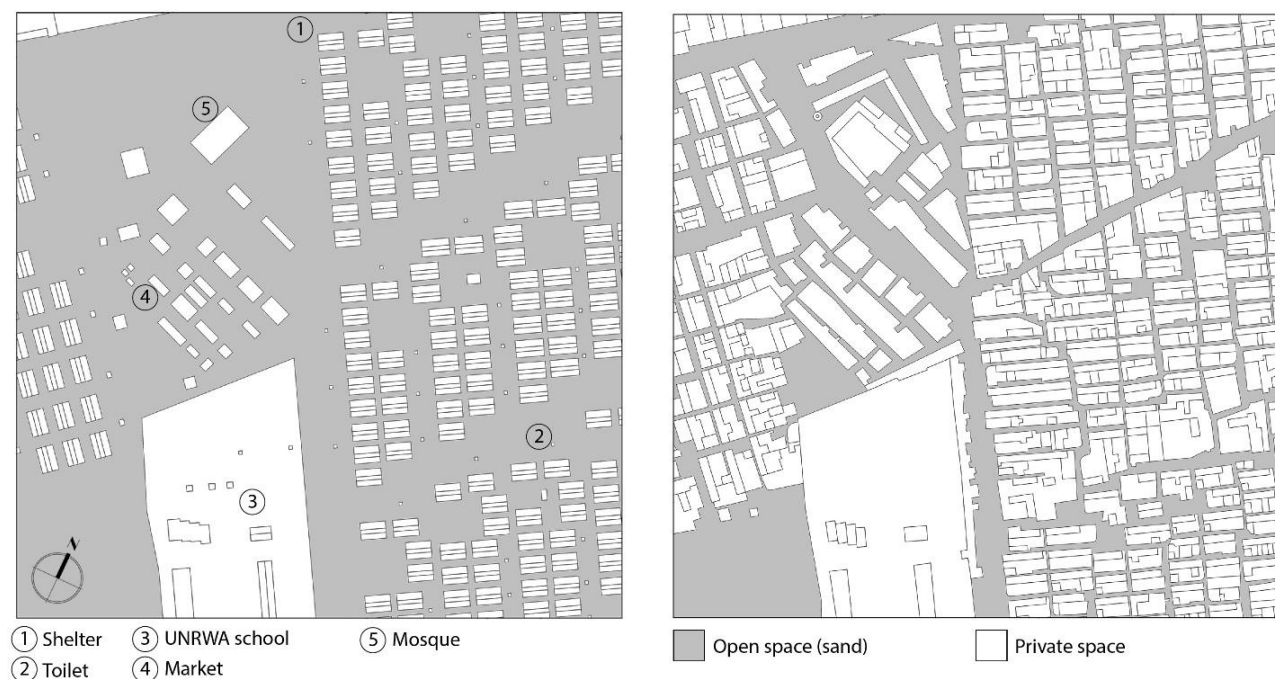
Like Jabalia, some of Gaza's other camps were established with layouts appropriate to temporary camps, growing from initial camp footprints into poorly laid-out cities. As UNRWA described it (UNRWA, undated):

> Over the years, these camps have transformed from temporary "tent cities" into hyper-congested masses of multi-story buildings with narrow alleys, characterized by high concentrations of poverty and extreme overcrowding. The camps are considered to be among the densest urban environments in the world, but because camp structures were built for temporary use, over the decades the buildings have become overcrowded, critically substandard and in many cases life-threatening.

The camps also have some of the highest levels of war destruction. For example, in addition to the destruction of Jabalia, 80 percent of the buildings in Khan Yunis are completely destroyed, and most of the rest are uninhabitable (Baba and Estrin, 2024). Rebuilding after the war in the same lot and block structure may not be appropriate, which provides an opportunity to rebuild with a more appropriately designed urban layout.

FIGURE 2

Uncontrolled Densification in the Jabalia Refugee Camp, 1956 (left) and 1968 (right)



① Shelter  ③ UNRWA school  ⑤ Mosque
② Toilet  ④ Market

☐ Open space (sand)  ☐ Private space

SOURCE: Saleh, 2021, p. 80, processed from aerial images at the Palestinian Land Authority archive in Gaza. Used with author permission.

Broad experience illustrates that tent camps pose significant challenges. However, given the scale of destruction in Gaza, tent camps are also inevitable, and their risks should be mitigated.

## Principles for Sheltering Gaza's Displaced Population

It is in this context that we propose interim housing options for Gazans. Many Gazans (perhaps half of the population, or 1.1 million) will need to live *for an extended period* in communities that are set up now *as emergency housing*. In addition to shelter, Gazans need access to utilities, public services, and economic life. How can a variety of interim living conditions be developed that both minimize reliance on tent camps and mitigate risks when tent camps are necessary? Housing Gaza's displaced citizens will require a multifaceted approach, accommodating both those who can return to their homes and those who cannot.

We propose a set of principles that all options for interim housing in Gaza should aim to achieve.

**Meet the needs of communities.** A central imperative is to support communities, which provide the fabric of society. Communities offer safety and friendship; promote commerce and economic development; enable essential social services, such as health and education; support arts and culture; enable local engagement and political mechanisms; and provide public safety and security. To the extent possible, people should be brought together who were from the same areas or neighborhoods before the war—that is, interim housing should attempt to keep together those who were previously members of the same community. We envision these communities as the core of rebuilding a vibrant society in Gaza.

**Ensure that interim approaches support long-term needs.** Given that global experience has found that emergency shelter and tent camps endure for years, emergency approaches, such as camps, should be set up to provide an appropriate foundation for future urban planning. Interim housing should meet basic standards of decency, privacy, and community. The risks of camps (such as poor layout, lack of utilities, poor quality of life, and inability to provide security and emergency services) should be mitigated

when the camps are first planned and established. The goal should be to give people the shelter they need now while providing it in a way that establishes communities and allows for purposeful expansion toward future appropriate mixed-use development with attractive and walkable public realms. Planning interim housing with the future in mind will preempt haphazard and inefficient rebuilding.

**Choose locations for different types of interim shelter strategically.** The shelter options that we propose should be spread throughout Gaza to show commitment to rebuilding all of Gaza's cities and communities. In addition, sites for the various shelter options proposed here should be selected deliberately, based on their characteristics, plans for desired urban density, and long-term expectations for land use. Sites should also be established to enable emergency management and security.

**Develop appropriate governance structures for rebuilding housing, and engage Gazans in planning.** There are many other needs to be met simultaneously with addressing housing, which will require leadership and coordination. These include, for example, working through legal frameworks related to land ownership and permissions, permitting, coordination with international donors, and coordination with security forces. In our workshop discussions, Gazans expressed concern that rebuilding would not sufficiently take into account the views of the community. The Palestinians understand that rebuilding will be a huge international undertaking. But they were apprehensive about potentially being marginalized from the decisionmaking process about what to build and where. A governance entity that institutionalizes Palestinian decisionmaking in the rebuilding will be essential.

Earlier RAND work on nation-building has shown that it is essential to involve local citizens in the decisionmaking and management processes (Jones et al., 2006). In Gaza, it is important to have a leadership structure that delegates decisionmaking and authorities for implementation related to housing across Gaza. Ideally, the new governance structure for Gaza will be agreed on by key stakeholders, international organizations, and donors. Within that structure, we suggest positions to oversee reconstruction of communities—one for north Gaza, one for

middle Gaza, and one for southern Gaza. Delegated management oversight can manage community reconstruction in a rational and efficient way when differences on resource allocation arise.

**When appropriate, apply incremental urbanism.** We propose the use of a concept called *incremental urbanism* (urbanNext, undated; SIGUS: Special Interest Group in Urban Settlement, undated). Incremental urbanism is the scaling up of a more established method called incremental housing, which emerged as a response to rebuilding after disasters and to critical housing shortages created by rapid urban population growth. The underlying concept of incremental urbanism is that small "starter cores" and "starter shells" (e.g., a few initial buildings, or ground levels of buildings that can be built upward) are constructed. These provide a minimum structural frame, and, over time, residents repair their housing or expand the structures and communities according to their own evolving needs. To the extent possible, the existing network of streets and blocks, familiar to the residents, is used to organize these evolving neighborhoods. An underlying premise is that citizens, with a minimum of professional guidance, are given the freedom to build according to their own changing needs. Development between sites can be uncoordinated, which results in an animated urban landscape. This approach also has the advantage of not necessarily needing planning by a central authority, such as a government or large construction firm; rather, rebuilding can emerge from many individual homeowners.

**Aim for vertical expansion.** Horizontal expansion alone will not achieve the densities required to accommodate growing populations of Gazans returning in significant numbers to their cities. Vertical expansion increases population density efficiently. In some cases, urban cores will need very tall buildings with dedicated construction sites, built by large construction firms. In cases of midrise buildings, Gazans can inhabit lower floors while construction on upper floors is ongoing. Vertical expansion approaches for midrise buildings are apparent across the Middle East: It is common to see residential structures where the steel reinforcement for future columns is visible above a finished second or third floor in anticipation of future additional floors. There are several successful recent precedents for multistory higher-density incremental neighborhoods that have expanded vertically, with floors added over time, such as in Egypt (the New 6th of October City [Arab Republic of Egypt: Presidency, undated]) and Beirut, Lebanon (the Mkales Project [Take, 1974]). Vertical expansion also mirrors a common Palestinian family structure, with families staying together in the same building while expanding through births or marriage.

**Build community hubs to meet the needs of everyone in a community**—those living in buildings and those living in tents or caravans. These hubs would provide administrative services; temporary water, bathing, and sanitation facilities; utility access; schools; medical facilities; food facilities, market space; and religious facilities. The hubs can be located in open land, such as spaces that were previously parks, town squares, intersections, or farmland, so that most people have one hub within walking distance. Hubs can evolve over time, with temporary services phased out as permanent facilities are repaired and rebuilt. When hubs are no longer needed, the space can return to its prewar purpose. Some hubs can remain as central hubs for new permanent communities.

**Develop interim approaches to address constraints on utilities.** It may be some time before all neighborhoods have access to functional utilities. Community hubs can provide centralized utilities and services (e.g., networked water, sewage, electricity, bathing facilities, cooking facilities, communications, health care, and education) that residents can walk to. Individual buildings can employ makeshift solutions, such as electricity generators, and building approaches should recognize that most buildings will be unconnected to networks for some time. For example, dependence on elevators or other electric equipment, such as air conditioning, should be avoided until a robust adequate power network is established. Because Gaza's waste networks (both solid waste and wastewater) have been devastated, solutions will be needed to avoid sanitation crises, with the goal of reestablishing supra-local solutions as quickly as possible (sewage networks, treatment plants, waste-to-energy sites, etc.).

# Sustainable neighborhoods depend on their cultural and civic sites—places of worship, schools, health facilities, public spaces.

**Prioritize primary urban corridors.** There needs to be some hierarchy through which important corridors are clearly organized and become shared spaces for the citizens. These streets, based on history and consultation with local populations, should be identified, and the developments along them should be managed with design guidelines that control, for example, compatible heights and offsets between adjacent structures; uniformity of setbacks from the street; and ground floor activities, such as retail and services.

**Restore sites of cultural and civic significance.** Sustainable neighborhoods depend on their cultural and civic sites—places of worship, schools, health facilities, public spaces. These form the foundation of a city's civic life and should provide the necessary services within walking distance, especially considering the heavily damaged state of transportation infrastructure.

**Facilitate relocation of people back to their homes.** When buildings reach some minimum standard, people can move out of the tents and gradually repopulate the buildings. As built homes become accessible, people should be able to reintegrate into their communities at various stages of reconstruction. Individuals who will initially stay in camps should be steered toward camps near the areas they originally came from. In this way, communities are kept together. Once housing in an urban area is habitable, people can leave the camps and migrate back to their homes along the planned corridors; some people may choose to stay in the camp locations as those locations become permanent neighborhoods. Ideally, some camps are only short distances away from people's former communities.

**Enable efficient import of construction materials.** New procedures for importing construction materials will be essential for reconstruction. A critical barrier to rebuilding housing at scale after the 2014 and 2021 Israeli military incursions into Gaza was the Israeli limitation on importing construction materials viewed as dual use, particularly concrete and timber; only 992 housing units per year on average were rebuilt (Barakat and Masri, 2017). Concrete and timber continued to be restricted during the fighting (Transitional Shelter Assistance—Technical Working Group-Gaza, 2024). Yet these approaches to managing dual-use risks failed to prevent the use of concrete and timber in the building of Hamas's tunnels and also severely hampered civilian reconstruction. Both goals are important to address. Per the UN estimates above, reconstruction at this pace of destroyed housing would take 80 years (Ikiz, 2024). As the Office of the Quartet assessed:

> The dual-use lists and the procedures by which they are put into practice create numerous complications that delay import times and raise costs for Palestinian importers. A fundamental review of the dual-use goods lists and procedures is needed. Israel has legitimate security concerns, and Palestine has legitimate economic needs. (Office of the Quartet, undated)

**Blend international and Palestinian workforces and expertise** to accomplish housing reconstruction at this scale. Gazans should be employed for reconstruction when they have relevant skills. Where skills need to be acquired to expand postwar services at scale, local Palestinians should be trained. However, construction at this scale exceeds Palestinian capacity, as it would the capacity of almost any nation in the region and beyond. This is not a matter of capacity in terms of professional expertise in design, engineering, and construction, which the Palestinians have in abundance. It is a matter of the size of the workforce and access to the kinds of equipment and financing needed for a rebuilding effort of this magnitude.

# Options for Sheltering Gazans

Having described principles that all options for interim housing in Gaza should aim to meet, we consider four options for a planning process. Our bottom-line conclusion is that the scale of the housing needs is so large that some combination of all of these options, even the suboptimal ones, will be needed:

- Option 1: Sheltering Gazans outside Gaza
- Option 2: Urban redevelopment (Option 2a: Raze and rebuild; Option 2b: Incremental urbanism)
- Option 3: Camps (Option 3a: Informal tented settlements; Option 3b: Conventional UN camps; Option 3c: Future-oriented camps)
- Option 4: New neighborhoods on undeveloped land.

## Option 1: Sheltering Gazans Outside Gaza

As levels of destruction in Gaza approach uninhabitability, some have proposed moving Gazans out of Gaza (Lilieholm, Schwartz, and Regan, 2025; Krever et al., 2024; Shpigel and Associated Press, 2024).

Indeed, some Gazans have already chosen to leave for other countries. As of June 2024, 115,000 Gazans (some 5 percent of the population) had crossed the border to Egypt (Parker, Tugnoli, and Balousha, 2024). Others might choose to leave if they have an option to do so.

At the same time, moving Gazans out of Gaza during fighting or reconstruction carries multiple risks (Culbertson, 2023). A RAND study found that once people flee their country as refugees, on average, only 30 percent will have returned a decade after a conflict's end (Constant et al., 2021). Moving Gazans out of Gaza for reconstruction would very likely lead to a permanent displacement. In addition, Egypt and Jordan view moving large numbers of Gazans out of Gaza as potentially destabilizing to the wider Middle East (Magdy, 2025; Marks, 2025). Earlier in the war, Israel reportedly asked Egypt to allow refugee camps for the Gazans in the Sinai (Teibel, 2023); Egypt denied the request.

## Option 2: Urban Redevelopment

Urban redevelopment, while costly and time consuming, represents a commitment to restoring Gazan civic life and prosperity to an improved condition that can endure. Urban redevelopment enables participation by the Palestinians and will build on the already existing sense of place and community. Because of their density, cities are by their nature environmentally sustainable and transit-oriented. Perhaps most importantly, cities are the cultural centers of Palestinian identity and sense of community.

Urban redevelopment can happen by completely razing and rebuilding a neighborhood (Option 2a) or having people live in a neighborhood while incrementally making repairs and undertaking small-scale rebuilding (Option 2b). Both can happen in dense *urban cores* and on *city edges*, which will have different densities and can accommodate different numbers of people.

### Option 2a: Raze and Rebuild

Some neighborhoods may require complete razing, redesign, and rebuilding. These are called *brownfield* sites—that is, redevelopment of sites that had been previously developed.

Even for those with habitable homes, a neighborhood itself may not be safe. Large numbers of destroyed buildings, high levels of unexploded ordnance, precarious buildings in danger of collapse, or unstable foundations from fighting in underground tunnels all could warrant the complete demolition and rebuilding of a neighborhood. Some destroyed neighborhoods had such poor urban planning to begin with (such as the refugee camps) that they should not be rebuilt on their original urban footprint. Some refugee camps (such as Jabalia and Khan Yunis) have high levels of destruction and an underlying layout not appropriate to quality of life in growing cities.

No population should be living in these sites until they are cleared and buildings are ready. Habitation could get in the way of reconstruction needs, such as rubble removal or rehabilitation of utilities. Debris and hazard removal might take place at area-wide scales (not plot by plot) to make useful progress; even if some relatively sound buildings are partially habitable, occupying them could complicate and

delay area-wide hazard debris removal and expose inhabitants to additional risks.

During rebuilding, Palestinian leadership may emphasize vertical growth through tall buildings and more wide-open spaces. In these cases, it could be both faster and more desirable to rebuild to an appropriate urban design with tall buildings, large construction projects, and high density to accommodate existing and future populations and to restore vibrant urban life. To revitalize the cores of the major cities, midrise buildings (between six and ten stories) and high-rise towers (11 stories and higher) will be needed.

## Option 2b: Incremental Urbanism

Elsewhere, however, neighborhoods may be infilled and rehabilitated over time while applying the incremental urbanism strategies described above. This approach puts a premium on organizing reconstruction in a manner that reestablishes former communities. It heavily relies on the central concept of incremental urbanism, in which people live in a neighborhood while repairing it, rebuilding, and building taller.

In this approach, people can live in one of multiple circumstances, with community hubs located in central areas to provide basic services to people in all of these various situations:

- **In their own homes.** Those whose homes are habitable can live in them while repairs are underway. Even without access to electricity, running water, and plumbing, many individuals may prefer to live in their homes with shared community utilities rather than in tent camps.
- **With other families.** Some can move in with family or friends whose homes are habitable.
- **In small-scale new construction.** Applying the principles of incremental housing, once a ground floor of a building is repaired and habitable or is newly built, families can move in while upper floors are being built.
- **In other buildings.** Some may continue to shelter in UNRWA facilities, schools, or houses of worship. In February 2024, more than one million people were living in UNRWA buildings as shelters (Norwegian Refugee Council, 2024).

- **In tents or caravans blended into neighborhoods.** For those whose homes are uninhabitable, we propose tent or caravan camps that are blended into the urban fabric, in residents' original neighborhoods. Within neighborhoods, tent or caravan camps for residents with destroyed homes would be placed in open areas.

From a media review and our workshop discussions with Palestinians, we understand that these approaches are already underway, with Gazans living in damaged homes and buildings, living with relatives, acquiring microloans for repairs, and placing tents near original homes that are destroyed.

Incremental urbanism may be possible in some neighborhoods and infeasible in others because of safety concerns or high levels of destruction. Additional data and analysis would be required to estimate locations and available space for these approaches, as well as the number of people who could be accommodated. Neighborhoods that meet the following conditions may be appropriate candidates:

- The neighborhood does not require complete razing, redesign, and rebuilding.
- Using an incremental urbanism approach in the neighborhood does not complicate or delay area-wide hazard and debris efforts or create additional risks to inhabitants.
- The neighborhood has at least some blocks or buildings with minimal or moderate damage (although there may be some individual destroyed buildings).
- The neighborhood has open space where tents, caravans, and community services can be established.
- The neighborhood is accessible, with rubble removed from main arteries.
- Explosive hazards have been mitigated in main arteries and in buildings in use.
- Basic building integrity inspections have been completed to ensure that an occupied building will not collapse, and underground foundation inspections have been completed to ensure that fighting in underground tunnels has not heightened the risk of foundation collapse.

But incremental urbanism will be extraordinarily difficult. Clearing away rubble, securing unstable buildings, and removing unexploded ordnance will be costly and time consuming and will pose significant logistical challenges. Tunnels that are now destroyed might have made foundations unstable. A complex and time-consuming assessment is required to determine the extent to which existing buildings and infrastructure can be reused. The assessment process itself will take years to complete. This solution is material-intensive; therefore, as with other permanent construction models, it raises the highest challenges related to dual-use restrictions on construction materials. Because of the scale of reconstruction, international planning and construction resources will be needed. In addition, the success of the incremental process depends on effective ongoing management—which will require civic infrastructure that does not now exist. And there are technical limits to building in this way beyond four to five stories.

## Option 3: Camps

Given the extensive housing and neighborhood destruction in Gaza, a significant number of people will have to be housed in tents in the immediate term. A large number of those without homes—whether all (1.1 million), one-half (about 500,000), one-quarter (about 250,000), or one-tenth (about 100,000)—will need camp shelter for an extended period of multiple years. Camps are the fastest and the least expensive mode of accommodation and are a familiar default model for aid agencies across the globe.

As camps are established in Gaza, it will be crucial to plan them for both short- and medium-term living—or better as the longer-term foundation of new permanent neighborhoods—to avoid the worst pitfalls of camps historically. Generations of experience demonstrate how inhumane and unworkable tent cities are if they are allowed to persist for more than the very short term. Because they are not laid out for the long term, the infrastructure is inadequate or poorly designed to meet the needs of a permanent community.

We envision three types of tent camps used in Gaza; the third type is a new model that we offer to

mitigate some of the risks of typical camps. All three of these camp models may be needed to some extent in Gaza.

### Option 3a: Informal Tented Settlements

These are unplanned camps established by displaced people on their own (Alsheikhali et al., 2017). While these are viewed as suboptimal, many Gazans will wish to place their tents near their former homes or communities. In September 2024, there were 700,000 people living in informal makeshift shelters (such as tents) in Mawasi, a beach area designated for humanitarian purposes (UNRWA, 2024b).

### Option 3b: Conventional UN Camps

These are camps that are designed to typical camp standards, such as those in the Sphere Minimum Standards for Camp Management (Camp Management Standards Working Group, 2021), and that are established and operated by the UN in multiple settings. Although we have described the long-term risks of these camps, they also have the benefit of being fast to set up, familiar to the aid community, and able to accommodate a dense population of displaced people in a small space. According to UN standards, camps can be set up with a density of 20,000 people per square kilometer (UNHCR, 2024a).

### Option 3c: Future-Oriented Camps

We propose a new model for the layout of camps, drawing on the principles of incremental urbanism. In this model, the camp is established with the layout of a new long-term neighborhood with proper urban planning, and the camp incrementally transitions into a long-term well-designed community. Altogether new neighborhoods, initially set up as camps, can be built at the edges of cities and villages in open land where there is less damage, with larger plots that are often associated with agricultural sales. People who lived in urban areas near the new camps would ideally be given priority to live in these new camps.

These new tent camps can be organized around the extension of the existing and adjacent street and block networks, accommodating social and economic networks and culture. Then, as has happened organically with other Palestinian camps and in camps

Planners should design camps so that their layout can form the basis of a long-term neighborhood, with a sensible urban layout and a lot and block structure in which buildings will gradually replace tents.

around the world, residents can gradually construct buildings on their tent or caravan site. Planners should therefore design camps so that their layout can form the basis of a long-term neighborhood, with a sensible urban layout and a lot and block structure in which buildings will gradually replace tents. These camps can avoid the design pitfalls of Gaza's previous camps, which had roads that were too narrow for a modern city, lacked light, and had poor landscaping and insufficient utilities. Because they are established with the structure of an urban neighborhood, these tent camps will accommodate lower density than a standard camp; we estimate 12,500 people per square kilometer.

Key to the concept is that while people are living in camps, housing in the urban areas from which they came is being repaired so that they can transition to their old homes or neighborhoods where and when that is possible. Some people may choose to stay in the new camp locations and become the core of this new well-planned community.

There have been some recent, innovative designs for fast, temporary housing in Ukraine, for example, that draw on good practices from around the world (Balbek Bureau, undated). These designs use modular, prefabricated small buildings, with a pleasantly designed outdoor space, to offer shelter for thousands of people per site.

Conditions for suitable sites include the following:

- Camps should be placed in urban peripheral areas, adjacent to cities, where cities might grow eventually anyway, placing camps so that they are extensions of more established neighborhoods.

- Legal and financial agreements with the land-owners will be necessary.
- The aid community managing the camps can help residents transition from tents to improved buildings over time, such as caravans or prefabricated buildings.
- Space should be reserved for roads, blocks, town centers, and utilities that support quality of life in a town.
- Provision of water and sanitation must be feasible.

The incremental approach in a camp has the advantage of being flexible. It can be quick to initiate and include local participation. It has some of the same advantages of building new neighborhoods on largely cleared sites: There is less time and cost required to assess existing conditions, and altogether new infrastructure can be efficient to build. These locations can accommodate large numbers of tents in the immediate term while being laid out in a way that enables the sites to evolve into real communities in the intermediate and longer terms.

But there are disadvantages: There will be dual-use restrictions, and long-term management infrastructure will be needed. While there will be an existing sense of place in these locations, creating a new community is always challenging.

## Option 4: New Neighborhoods on Undeveloped Land

In some less urban locations, where large plots of land are available (approximately 150 dunam, equivalent to 37 acres), new permanent and residential buildings can be built with the amenities and services needed

to create completely new neighborhoods. Building on undeveloped land requires all new infrastructure. These areas are called *greenfield* sites: Because they are built on undeveloped land, they are open to new designs and layouts. This can be easier to do than accommodating partially or completely destroyed infrastructure and buildings. This new construction may involve large construction companies.

There is growing experience, including in the Middle East, with building new neighborhoods quickly and cost-effectively. In Gaza itself, Hamad City (although largely destroyed during the Israel-Hamas war) can be considered a successful precedent, where 3,000 apartments in 53 six-story apartment buildings were built in just over three years, with funding from the government of Qatar. However, this development had multiple challenges: Housing units often did not go to those most in need, going instead to those who could afford them; Hamas inserted itself in allocating resources; and some neighborhood services, such as health clinics, police, and groceries, were lacking. There were also delays with accessing construction materials because of the dual-use restrictions.

Building new neighborhoods is material-intensive, and so, as with other permanent construction models, it raises coordination concerns related to dual-use restrictions. The new neighborhoods can contribute to sprawl if they are not near existing concentrations of population and activity. Experience across the globe suggests how difficult it is to create successful complete communities out of whole cloth if they are disconnected from existing neighborhoods and there is no prior sense of place for the inhabitants.

## Camps to Communities: The Steps

The principles of incremental urbanism could guide implementation of several of the planning options we have defined. In the next two sections, we describe and illustrate six steps in applying incremental urbanism approaches as part of the urban redevelopment model (Option 2b) and as part of the future-oriented camps model (Option 3c). The six steps are as follows:
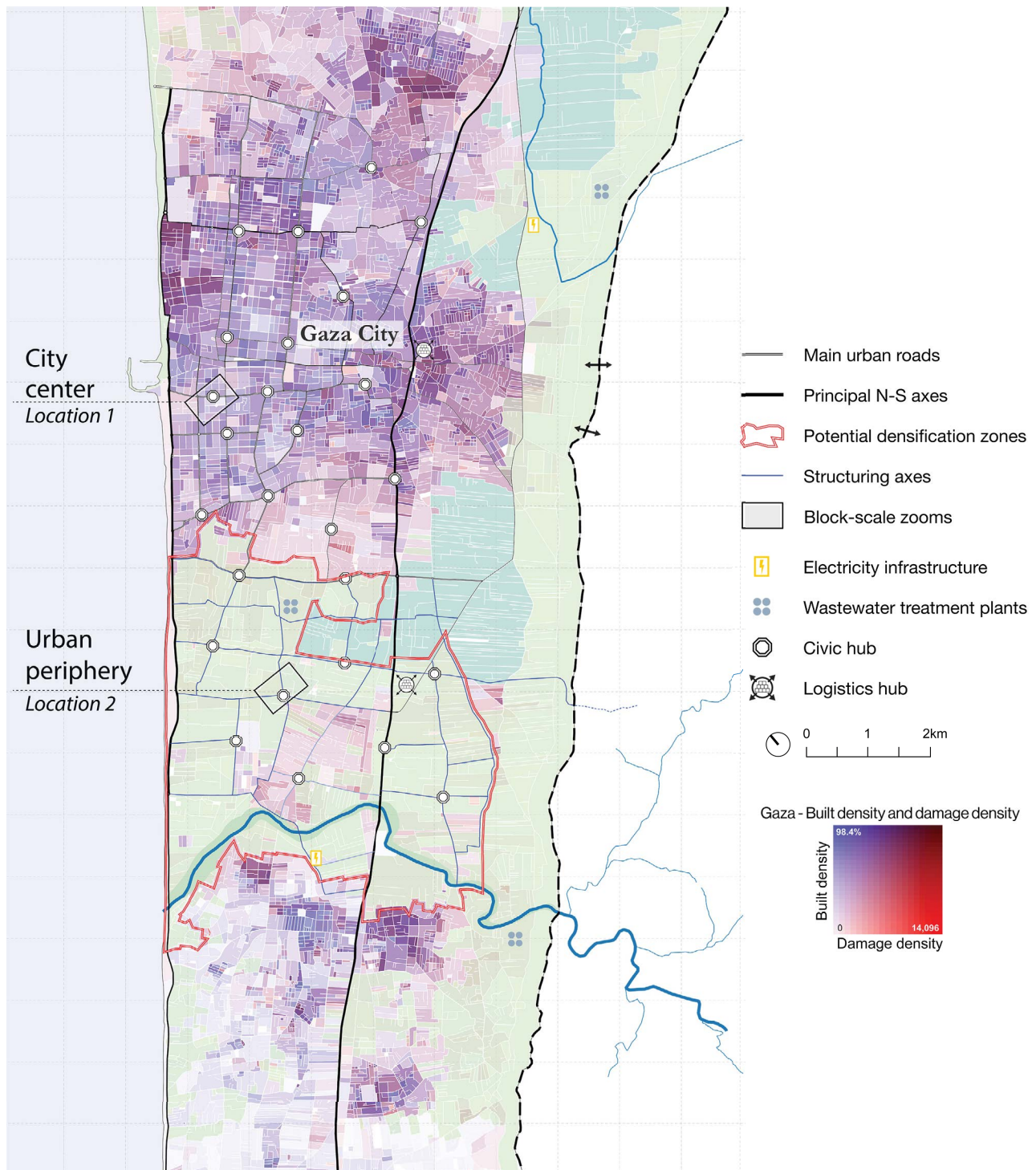
- Step 1: Site selection
- Step 2: Assessment of war damage
- Step 3: Land use planning
- Step 4: Short-term settlement and establishment of community hubs
- Step 5: Medium-term rebuilding
- Step 6: Long-term rebuilding.

If we zoom in on the north of the Gaza Strip (Figure 3), we can see the range of space types, with varying degrees of damage. Purple illustrates built density, and pink and red illustrate damage density. The highest amounts of both built and damage density are shown in burgundy (purple and red blended). Green indicates undeveloped rural areas. Within Gaza City, there is substantial destruction from the war amid dense housing and commercial developments. Some destruction is apparent on a block level and in clusters of blocks; however, individual destroyed buildings and blocks that have localized damage are also common (see the City Center location designated on the map). In this urban area, we have selected a location to illustrate incremental urbanism as part of urban development (Option 2b, detailed in the next section).

South of Gaza City, land is predominantly composed of sparsely populated agricultural plots and some larger institutions (a hospital and a university, for example). According to satellite imagery, almost all structures here, including most major institutions, have been destroyed or rendered unusable. In this more rural setting, we have selected a location to illustrate use of incremental urbanism in future-oriented camps (Option 3c, detailed in the section after the next).

Both the urban and the rural sites connect to key arterial roads, facilitating infrastructural and humanitarian access in the short term while ensuring that the city and its growth trajectory are appropriately connected and sustainable in the long term. Both locations offer different opportunities and approaches to reestablishing the essential structure of communities.

FIGURE 3
# Space Types in Northern Gaza



## Legend

Main urban roads

Principal N-S axes

Potential densification zones

Structuring axes

Block-scale zooms

Electricity infrastructure

Wastewater treatment plants

Civic hub

Logistics hub

0    1    2km

### Gaza - Built density and damage density

98.4%

Built density

0    14,096

Damage density

**City center**
*Location 1*

**Urban periphery**
*Location 2*

Gaza City

# Illustrated Steps for the Incremental Urbanism Model (Option 2b)

## Step 1: Site Selection

For site selection for incremental urbanism, it is best to choose places at the centers or edges of cities and villages where there are concentrations of still habitable or repairable buildings. As a result, new infill construction will restore the former complete neighborhood. Site selection will prioritize places where there was already a significant open space, repairs can be made more quickly, increased density comports with long-range plans, and the fewest security issues are raised. For our example, shown in Figure 4, we chose an area in Gaza City with significant, but not total, destruction and population displacement. Before the war, this location had a lively urban fabric, comprising a large open space, as well as commerce, housing, and other public functions. It already had significant open space that could be used for a community hub and tent layouts. Additional open space has been created by the destruction of the built fabric. We assume that most utility networks are inoperative or severely damaged and that road access is impeded because of rubble accumulation and destroyed infrastructure.

## Step 2: Assessment of War Damage

The next step is to assess war damage. In Figure 5, we show the situation before and during the war. The substantial war damage is visible throughout the zone. Roads and blocks have been damaged or razed, and utilities are likely out of commission. UNOSAT categorizes damaged buildings into types: moder-
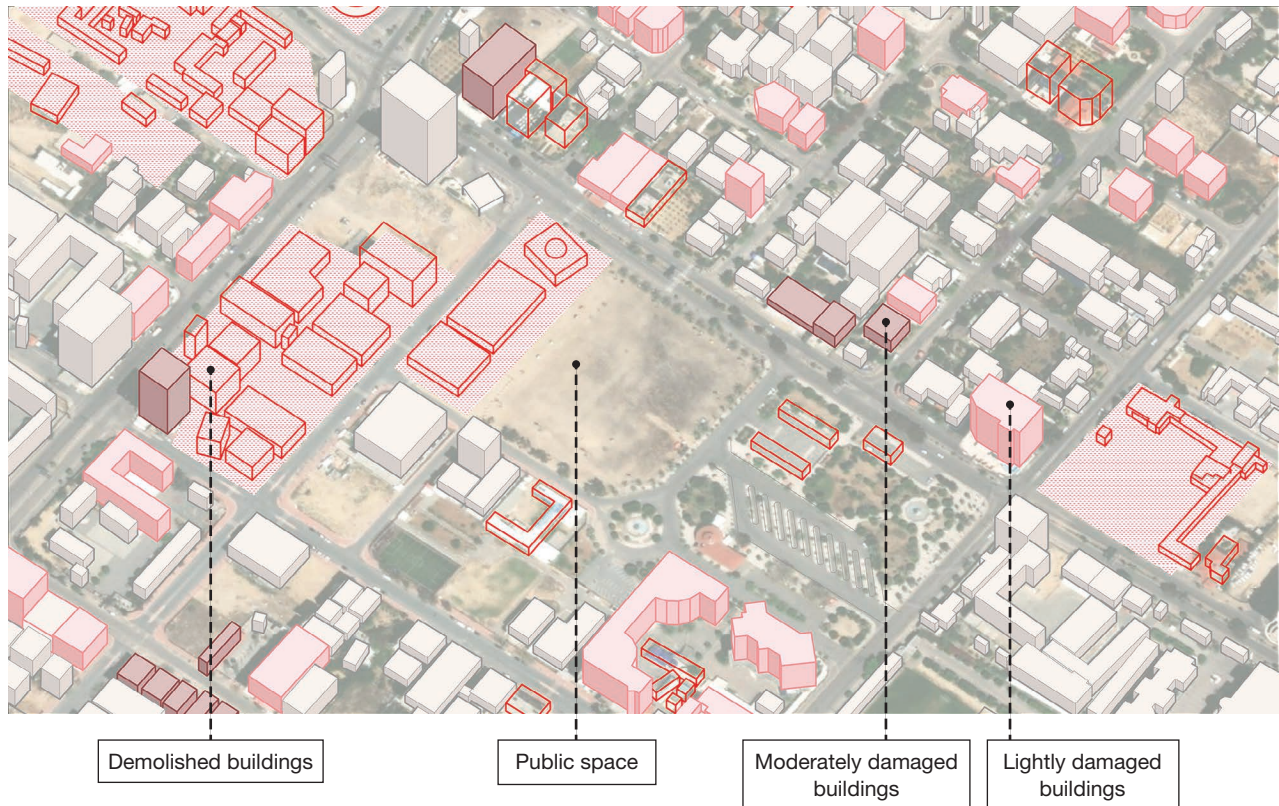
FIGURE 4

Incremental Urbanism Step 1: Site Selection



Main axes    Public green space

FIGURE 5
## Incremental Urbanism Step 2: Assessment of War Damage



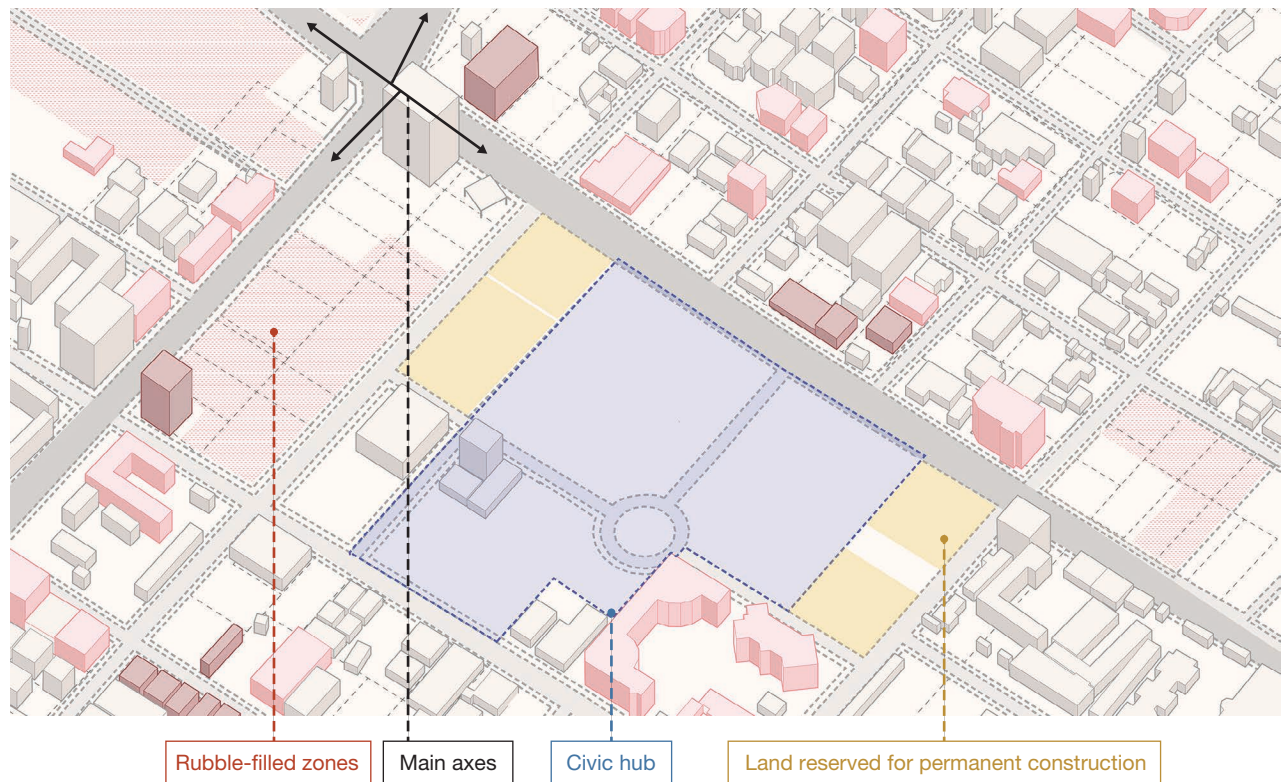| Demolished buildings | Public space | Moderately damaged buildings | Lightly damaged buildings |

SOURCE: Photo from Google Earth; visual overlay by ORG Permanent Modernity.

ately damaged, severely damaged, and destroyed. Buildings without visible damage are shown in white; moderately damaged buildings are in light pink; severely damaged buildings are in dark pink; and destroyed buildings are outlined in red. In addition to this satellite analysis, safety levels of various structures and roads would need to be assessed at the field level. Optimally, the assessment phase would be quick so that residents can start to move back into their communities, but in some cases in other postwar settings, the field assessment has taken years. Areas with severely damaged or destroyed buildings will take the longest to rehabilitate because of large amounts of rubble and unexploded ordnance.

## Step 3: Land Use Planning

The third step, shown in Figure 6, is land use planning, drawing on community involvement. Areas of rubble and other wartime debris, marked in red, would be walled off pending a thorough cleanup of debris and unexploded ordnance. Land marked in purple would be used for temporary construction of community hubs and tent or caravan configurations. Tents or caravans would be blended into cleared existing city blocks, with schools, administrative facilities, and the other services concentrated in emergency community hubs located at strategic intersections. Yellow areas indicate ongoing construction of permanent structures, such as housing and buildings for public services. At this stage, roads

FIGURE 6
## Incremental Urbanism Step 3: Land Use Planning



Rubble-filled zones | Main axes | Civic hub | Land reserved for permanent construction

SOURCE: Image production by ORG Permanent Modernity.

are cleared and utility lines are planned. We note that even as cities change in terms of building types and densities over the centuries, the street and block network is typically persistent and represents the incremental development of a city over time (Rossi, 1984; Lynch, 1984). Therefore, we aim to maintain the general block structure, respecting the cultural

and economic forces that shaped the urban footprint in the first place.

### Step 4: Short-Term Settlement and Establishment of Community Hubs

The next step involves implementing the planned interim community, as shown in Figure 7. While

We aim to maintain the general block structure, respecting the cultural and economic forces that shaped the urban footprint in the first place.

FIGURE 7
## Incremental Urbanism Step 4: Short-Term Settlement and Establishment of Community Hubs



Inhabited buildings

Construction of permanent public services

Health

Community kitchen

School

Mosque

Administration

Water and energy

Sanitation

Marketplace

Tents or caravans

SOURCE: Image production by ORG Permanent Modernity.

repairs are ongoing, people would move back into buildings that have a level of damage at a defined, acceptable level of risk. A central community hub would meet the urgent needs of the displaced local population. The hub includes all public services necessary to support the populations still occupying their existing residences or residing in tents while their residences are being restored or rebuilt. Space is reserved for the construction of permanent facilities that will ultimately replace some temporary services in the hub. While underground utilities are being planned and built, storage tanks provide water and

gas, and generators provide electricity. Small stalls near the roadside host a market. Food provision, schools, clinics, and religious facilities are in tents.

## Step 5: Medium-Term Rebuilding

In the medium term (two to five years), urban planning considerations will become increasingly important to ensure a sense of community and quality of life, as well as to optimize infrastructure operation and efficient land use. Construction proceeds at pace, and some people are able to leave their tents or cara-
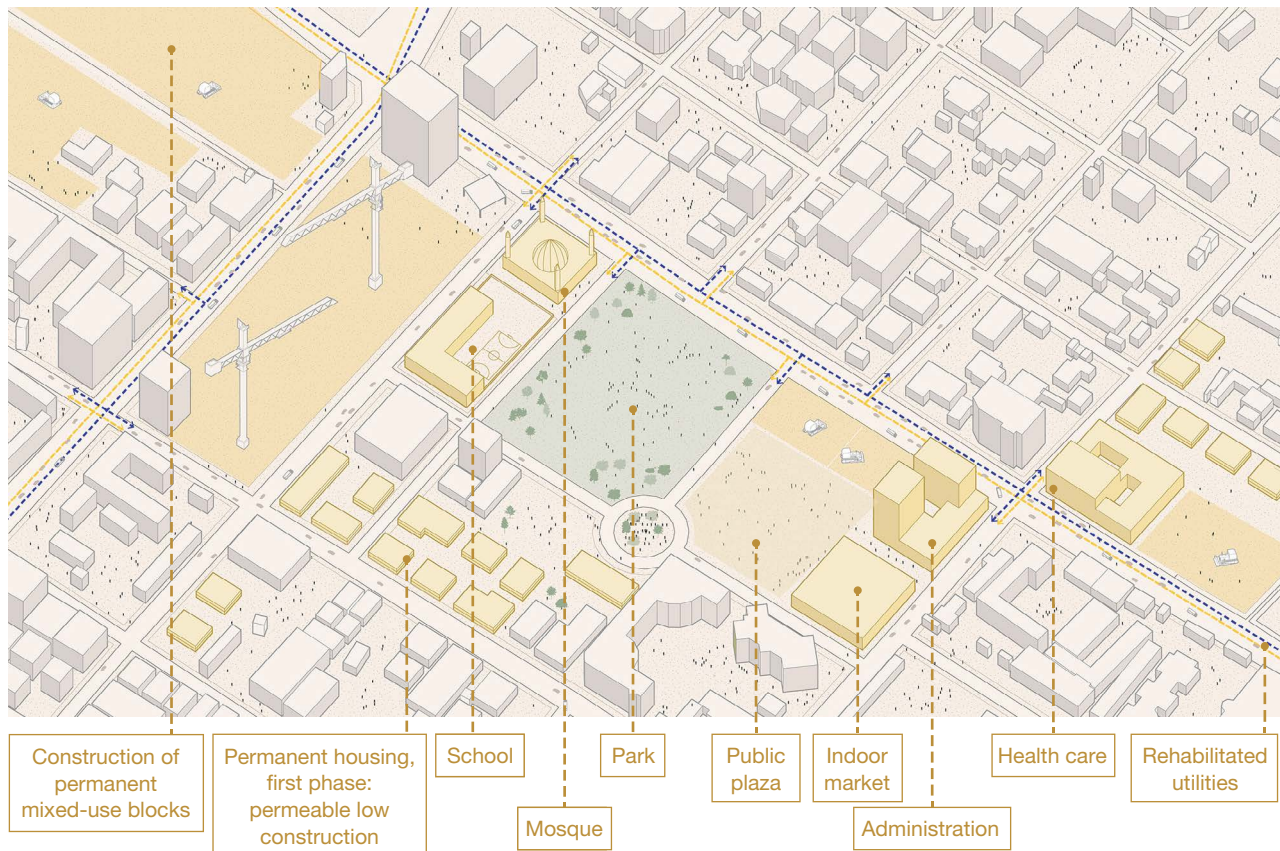
vans to move into the repaired or newly built buildings. Some single-story buildings have grown into multistory buildings, perhaps with some construction still underway to add additional stories. Roads are cleared and paved, and underground and aboveground utilities are reestablished. Basic utilities have been restored. Municipal infrastructure networks (including energy, water, sanitation, and paved roads) are reestablished and underground (as appropriate), followed by the dismantling of temporary off-grid hubs and the strategic development of these cleared lands for both private and public use. Plots that have been cleared more quickly can be densified with rapidly built low-rise blocks, which can be extended vertically in the future. With hubs dismantled, public space can again function as an assembly ground and park. See Figure 8.

## Step 6: Long-Term Rebuilding

Over the longer term, once all rubble and explosive hazards are cleared, the last pockets of development can be achieved, as shown in Figure 9. Construction densifies and continues along the main axes with taller buildings and large-scale public institutions. Vertical expansion accommodates the built density required by the growing community. In newly constructed blocks, open courtyards, new public squares, and public passageways ensure a pleasant urban experience. These ensure permeability for pedestrians and for the wind coming from the sea. Landscaping softens the cityscape and provides shade, leisure, and resiliency from such environmental challenges as floods and the heat-island effect. By this point, all interim encampments and temporary community hubs have been removed, and all services are situated in permanent structures.
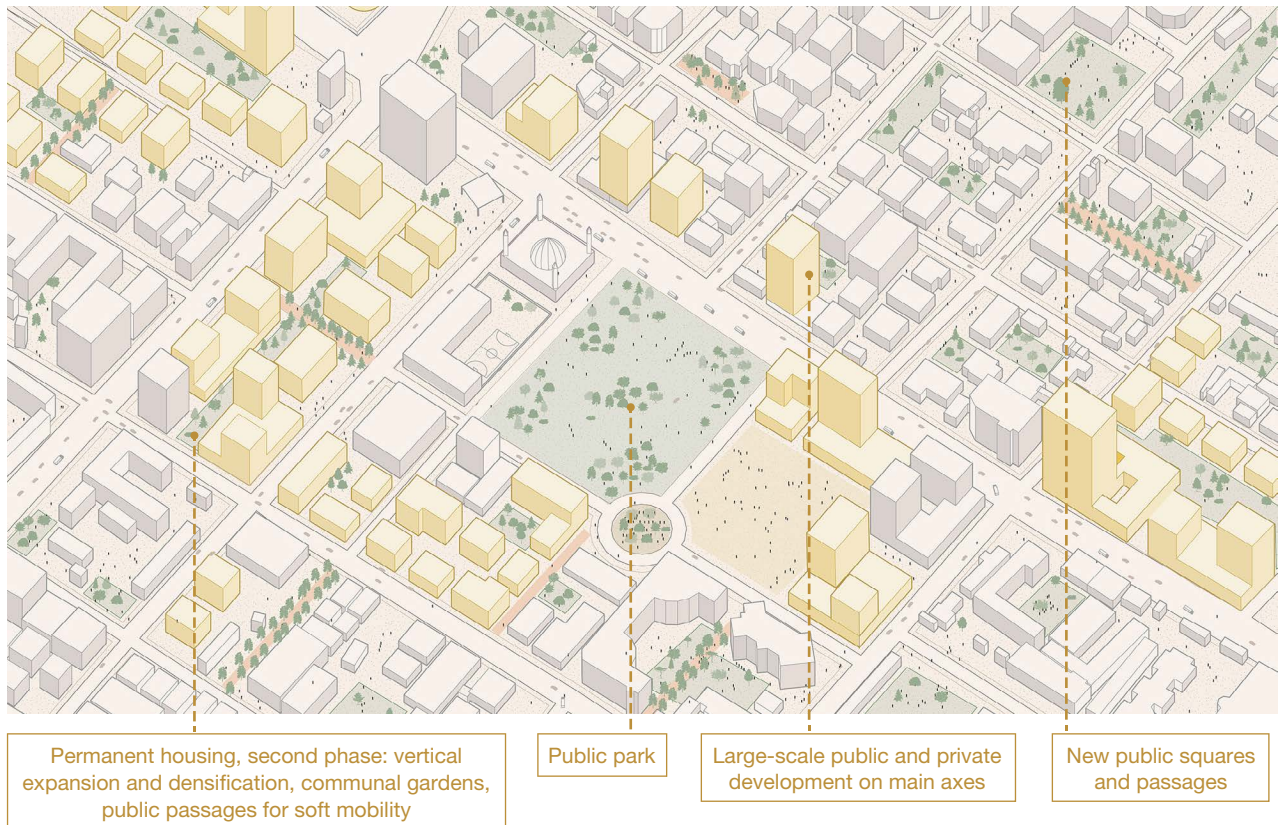
FIGURE 8
## Incremental Urbanism Step 5: Medium-Term Rebuilding



Construction of permanent mixed-use blocks | Permanent housing, first phase: permeable low construction | School | Mosque | Park | Public plaza | Indoor market | Administration | Health care | Rehabilitated utilities

SOURCE: Image production by ORG Permanent Modernity.

FIGURE 9
Incremental Urbanism Step 6: Long-Term Rebuilding



Permanent housing, second phase: vertical expansion and densification, communal gardens, public passages for soft mobility

Public park

Large-scale public and private development on main axes

New public squares and passages

SOURCE: Image production by ORG Permanent Modernity.

Vertical expansion accommodates the built density required by the growing community. In newly constructed blocks, open courtyards, new public squares, and public passageways ensure a pleasant urban experience.

## Illustrated Steps for the Future-Oriented Camps Model (Option 3c)

### Step 1: Site Selection

Site selection for future-oriented camps should identify areas that were more sparsely developed before the war, where the logistical issues of clearing sites and bringing in new materials for any mode of housing are less challenging. These should be places where new density in the long term makes sense from the perspective of both sustainability and security. Opportunities to build new camps and altogether new neighborhoods will be at the edges of cities and villages where there is less damage, in large plots. The same incremental urbanism principles that we propose for the urban rehabilitation could be incorporated into these larger camps.

Our second case study, shown in Figure 10, is a typical urban peripheral location south of Gaza City, where land was mostly agricultural before the war and population density was low. The only large-scale facility located here was the Turkish Palestinian Friendship Hospital (used during the war as an Israeli military base), near which was also located a small amusement park. The surrounding lands are candidates for shelter for a large number of displaced people, in an area that would have likely undergone urban development and densification in the long run regardless of the war. Ideally, the people who are located here would be from nearby Gaza City so that they can return to their former homes when that is possible. These vacant areas can accommodate traditional tent camps, while being close to an urban area that will be rebuilt.

FIGURE 10
Future-Oriented Camps Step 1: Site Selection



Industrial and agricultural buildings    Main axes    Turkish-Palestinian Friendship Hospital

SOURCE: Photo from Google Earth; visual overlay by ORG Permanent Modernity.
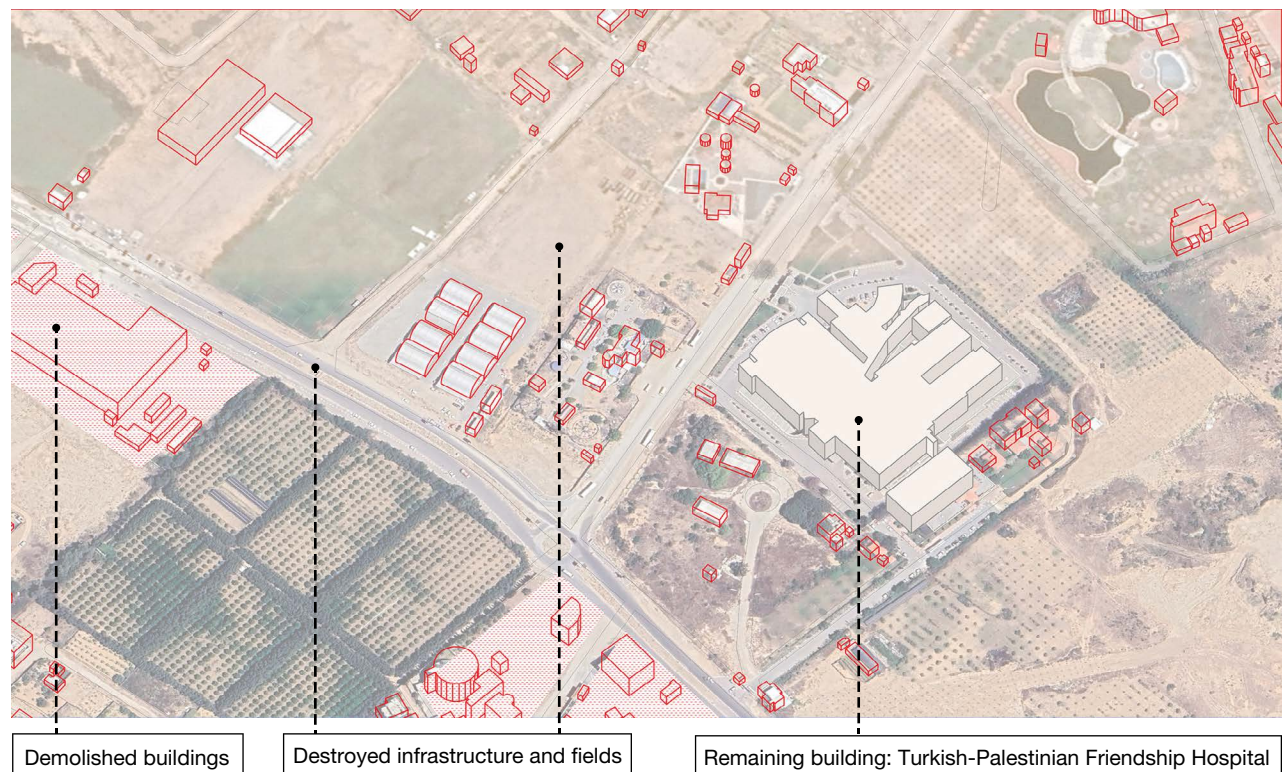
## Step 2: Assessment of War Damage

Following Israeli military operations, this area (shown in Figure 11) has been completely razed, with new axes plowed through. The only surviving building is the hospital (in white), around which most roads are now dirt. Differences between fields and roads are barely visible, and crops have been decimated by vehicle passage. Completely destroyed buildings are outlined in red. War damage assessment will have many of the same dimensions as the assessment described in the incremental urbanism example—building and infrastructure status, unexploded ordnance, etc.—but with a reduced scope because of the openness of the land.

## Step 3: Land Use Planning

Land use planning (shown in Figure 12) will be future oriented, enabling a rational lot and block structure, so that as tent camps and other temporary structures transition over time to longer-term structures, the general foundation for a well-planned urban neighborhood will already have been established. New infrastructure and the main transportation corridors and streets will be planned strategically—for instance, for easy access to tertiary medical facilities or local markets. These new neighborhoods can be organized around the extension of the existing and adjacent street and block networks, accommodating social and economic networks and culture. Areas of rubble and other wartime debris, marked in pink, would be walled off pending a thorough cleanup of debris and unexploded ordnance.
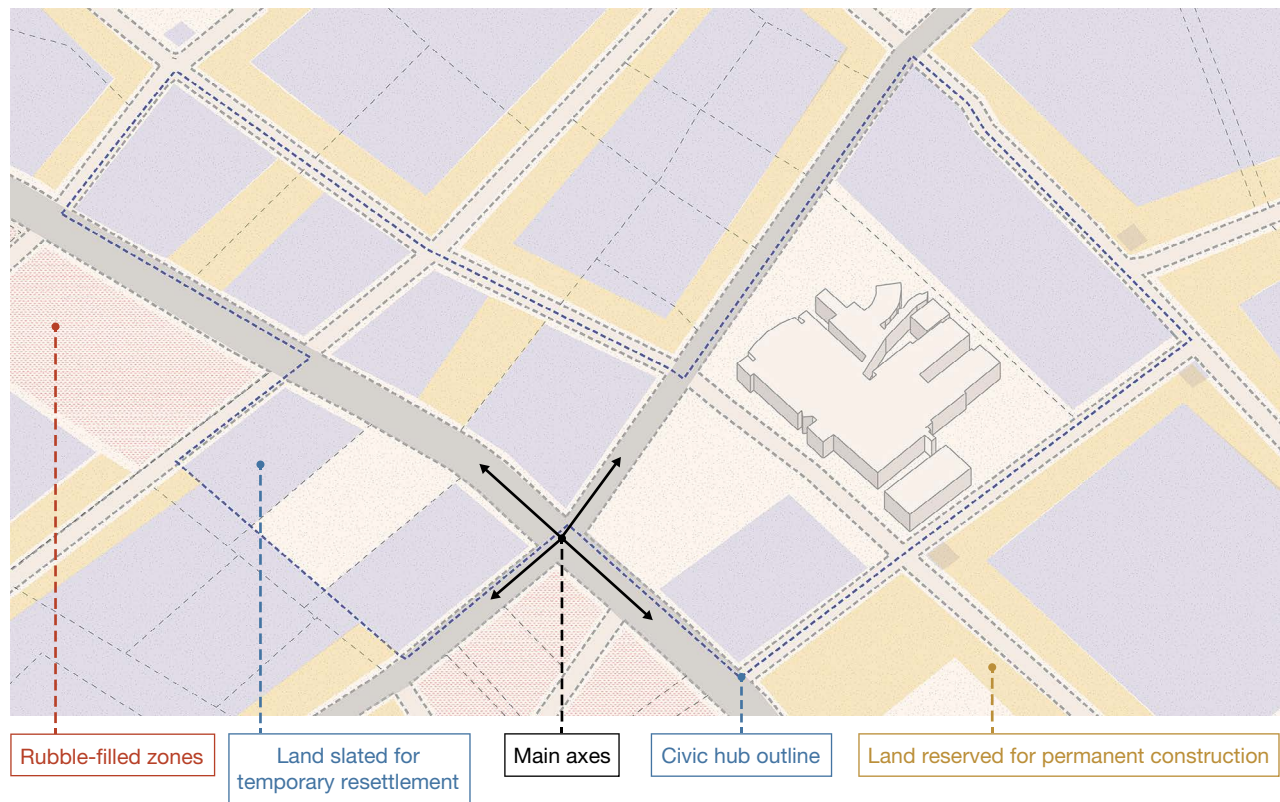
FIGURE 11
## Future-Oriented Camps Step 2: Assessment of War Damage



Demolished buildings | Destroyed infrastructure and fields | Remaining building: Turkish-Palestinian Friendship Hospital

SOURCE: Photo from Google Earth; visual overlay by ORG Permanent Modernity.

FIGURE 12
## Future-Oriented Camps Step 3: Land Use Planning



| Rubble-filled zones | Land slated for temporary resettlement | Main axes | Civic hub outline | Land reserved for permanent construction |

SOURCE: Image production by ORG Permanent Modernity.

Land marked in purple will be used for temporary construction of community hubs and tent or caravan configurations. Yellow areas indicate ongoing construction of permanent structures, such as housing and buildings for public services. These areas are reserved for midrise buildings on the periphery. We

note that we start with a larger block structure to preserve space for the tents in the interior. Then, once buildings are built, the people can move out of tents into the buildings, with blocks subdivided and new roads introduced into them.

We note that we start with a larger block structure to preserve space for the tents in the interior. Then, once buildings are built, the people can move out of tents into the buildings, with blocks subdivided and new roads introduced into them.

## Step 4: Short-Term Settlement and Establishment of Community Hubs

In Figure 13, temporary dwellings in tents or other structures are laid out inside the superblocks (purple). A buffer zone (yellow) is maintained in the block periphery to reserve space for construction of future permanent structures. A community hub containing all services necessary for the camp is installed in the center of the zone, and space is also reserved for permanent structures into which some public services will eventually move. Temporary utilities are provided above ground, with tanks and generators. Temporary public services and amenities (schools, clinics, markets, and religious facilities) are provided in tents. Main road axes are cleared.

## Step 5: Medium-Term Rebuilding

In the medium term, in Figure 14, utilities and roads have been built, and temporary provisions for water, sanitation, and energy are removed. Some people have built homes where their tents once were, and some tents have transitioned to caravans. Built housing has started to replace temporary dwellings, and construction of the most affected zones is now underway. Reconstruction takes longer than desired, but Gazans are living in decency and dignity in their
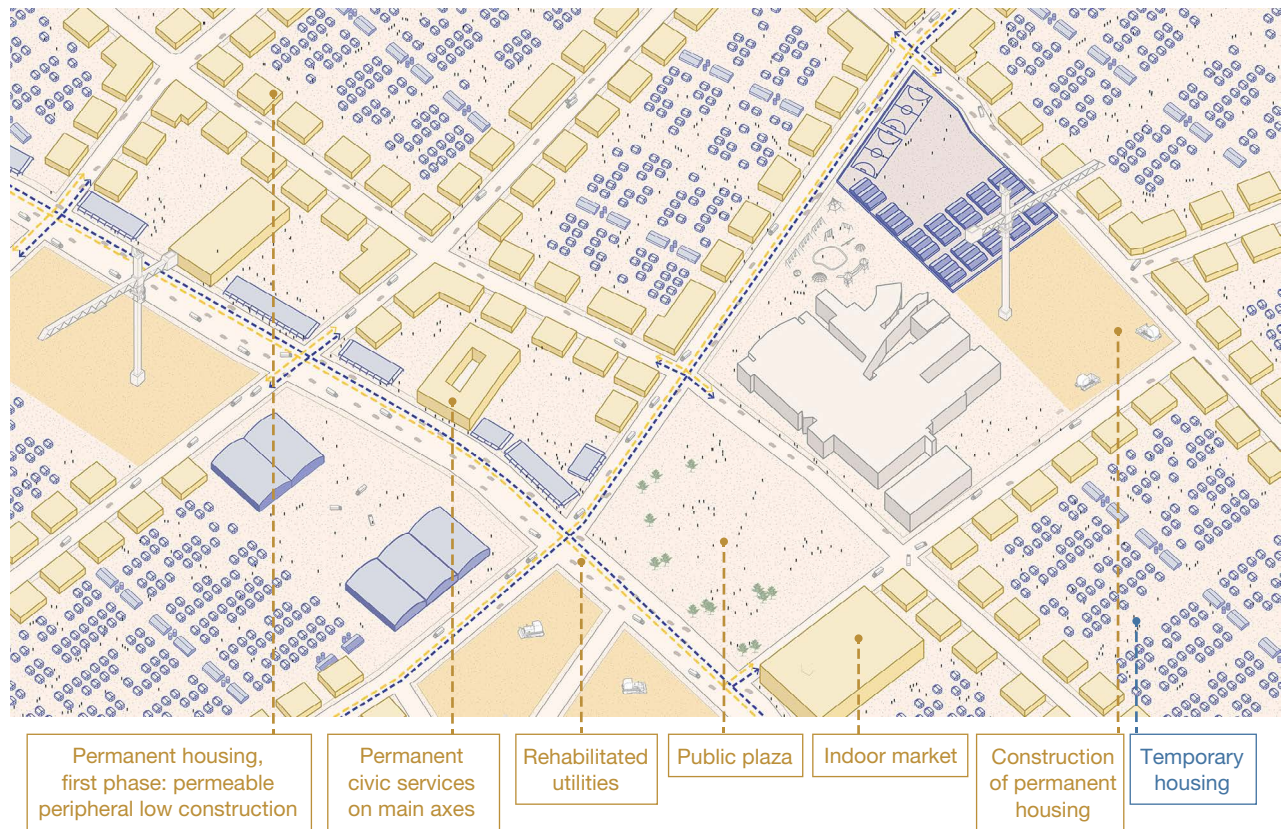
FIGURE 13

Future-Oriented Camps Step 4: Short-Term Settlement and Establishment of Community Hubs



Logistics | Mosque | Water and energy | Community kitchen | Administration | Marketplace | Buffer in block periphery for permanent housing | School | Health and sanitation | Temporary housing | Tents or caravans

SOURCE: Image production by ORG Permanent Modernity.

FIGURE 14
## Future-Oriented Camps Step 5: Medium-Term Rebuilding



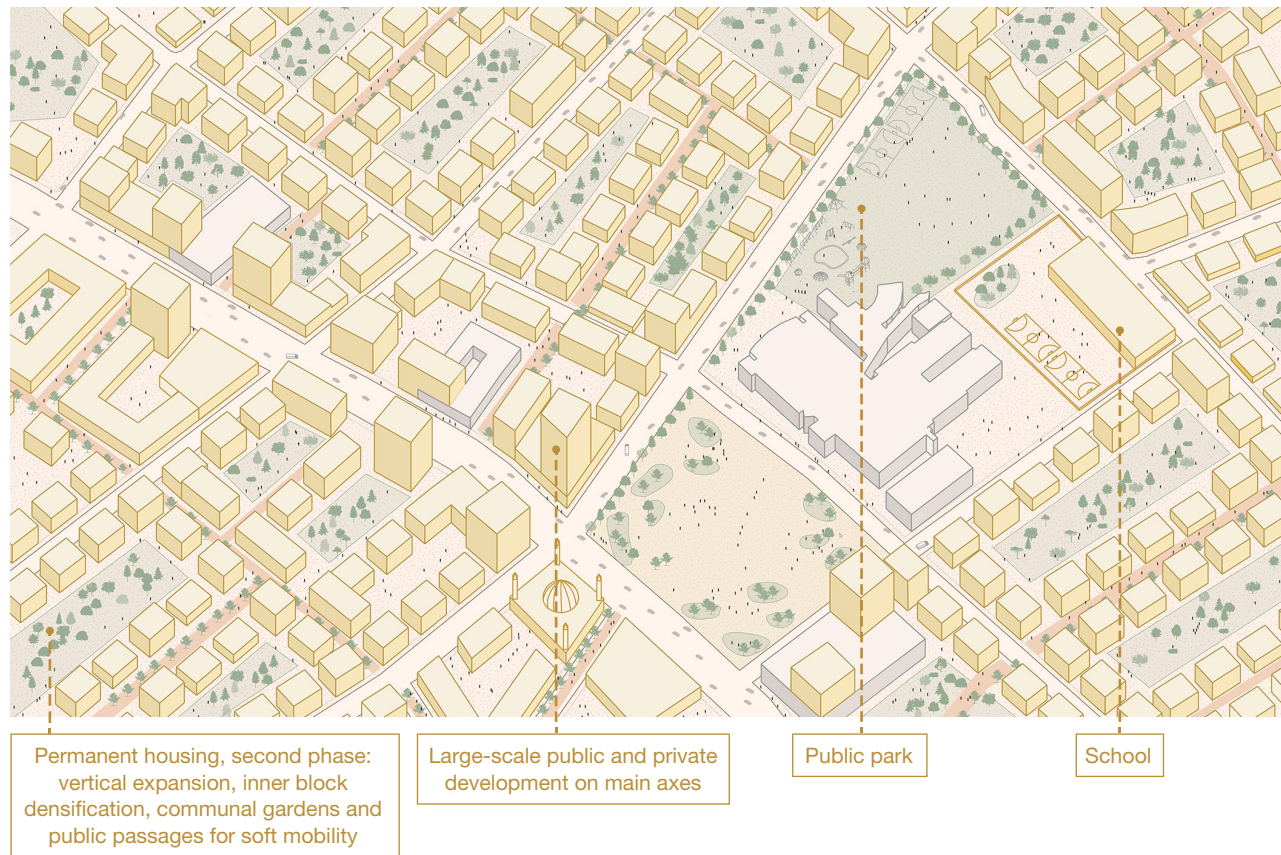| Permanent housing, first phase: permeable peripheral low construction | Permanent civic services on main axes | Rehabilitated utilities | Public plaza | Indoor market | Construction of permanent housing | Temporary housing |

SOURCE: Image production by ORG Permanent Modernity.

interim housing. Some residents have left, moving into newly built buildings, most of them one-story structures designed to accommodate additional stories in the longer term. Municipal infrastructure networks (including energy, water, sanitation, and paved roads) have been reestablished, followed by the dismantling of temporary off-grid hubs and the strategic development of these cleared lands for both private and public use. The large blocks are then divided, with new roads dividing them. More of the land initially reserved as logistics hubs is reclaimed for other purposes as those functions move into permanent facilities. This frees space for open public space or permanent structures for public services.

## Step 6: Long-Term Rebuilding

Over the longer term, construction is further densified, with mid-rise and high-rise buildings, commercial buildings, public squares, and wide roads (see Figure 15). Families continue to enlarge their living spaces and add stories. Open passages, green space, and courtyards allow wind from the sea. By this point, all tents, caravans, and temporary community hubs have been removed, and all services are situated in permanent structures. Freed-up centers of urban blocks can now also be densified with mid-rise and high-rise buildings.

FIGURE 15
Future-Oriented Camps Step 6: Long-Term Rebuilding



Permanent housing, second phase: vertical expansion, inner block densification, communal gardens and public passages for soft mobility

Large-scale public and private development on main axes

Public park

School

SOURCE: Image production by ORG Permanent Modernity.

## Using These Options to Plan Gaza's Recovery

Planning housing during Gaza's recovery will be a massive, expensive, complex, and time-consuming endeavor. Given the unique characteristics of communities and the scale of the need, we anticipate that planning approaches will need to draw on all of the options described here, even those less optimal. We hope that this report provides insights about how to use the options and suggests feasible ways to mitigate some of the worst risks. It is essential to understand how the choices made in the immediate term may shape the future in the long term.

Displaced Gazans will be housed in many ways—from tents in the immediate term to high-rise downtown apartment buildings in the longer term. Each of these modes has its own set of advantages and disadvantages in terms of complexity, cost, timing, social conditions, overall risk, and efficiency. In the short and medium terms, all of these modes of accommodation—and others—will be in play:

- Some people will leave Gaza, temporarily or permanently.
- Some people can live in their habitable homes or share homes with family or friends.
- Some people will live in buildings built for other purposes, such as schools.
- Some people will live in informal tented settlements in locations of their choosing, likely near their former homes or near relatives.
- Some standard dense tent camps, preferably for those needing the most temporary shelter, will be needed. We have laid out in this report why these should be limited.

- Some future-oriented camps may be established that set up new neighborhoods.
- Some neighborhoods will be razed entirely and rebuilt with new neighborhood layouts and high-rise apartment buildings.
- Some rural areas will host entirely newly built communities.

These options will need to be used to different extents, in different proportions, and as appropriate according to local circumstances. Where can these options be applied?

As we close this report, we offer an experiment in planning. We consider the challenge of housing 1.1 million people whose homes may be uninhabitable. We emphasize that this discussion is notional, meant to be illustrative about approaches to planning—not actual planning for particular locations. This is because, as discussed earlier, data and circumstances on the ground are uncertain and still evolving. We do not know with certainty how many will need homes, how long reconstruction will take, or what proportions of buildings and neighborhoods are uninhabitable. We lack the data to estimate with confidence the proportions of people who may need each type of solution. We do not know how many and which neighborhoods require razing and redesign and which ones can rebuild in their former footprint. We do not know how many Gazan families with homes will host a family without a home or how many can remain living in other facilities as shelters. We do not know how many Gazans might choose to leave.

Despite these unknowns, we propose an approach to using these options to plan post-conflict shelter in Gaza. Our approach is necessarily built on a foundation of many assumptions that will no doubt change as more information is available and political solutions evolve. But it is a useful way to structure the discussion.

We describe a simplified scenario-based approach to the challenge of housing 1.1 million displaced Gazans. We offer two scenarios—a default scenario and a future-oriented scenario. We assign different population capacities (in terms of people per square kilometer) to each of these housing types. We then suggest alternative ways of distributing these housing types across the Gaza Strip to accommodate 1.1 million people in the short, medium, and long terms. This enables us to visualize on maps how much land needs to be redeveloped under different distribution scenarios over different time frames.

Beyond the question of *how* to grow—that is, what modes of housing will be used in different phases of reconstruction—is the question of *where* to grow. In these scenarios, the "where to grow" question is answered in a highly speculative manner because information is so incomplete and the overall situation now and going forward is so uncertain. Both triage criteria and smart growth principles will need to be considered:

- Where are there concentrations of habitable buildings so that new infill construction will restore the former complete neighborhood, with the incremental approach?
- Where is the infrastructure the least damaged or even intact?
- Where are the logistical issues of clearing sites and bringing in new materials for any mode of housing less challenging?
- Where will development have the least negative impact on such ecological resources as wadis (river valleys) and prime agricultural land?

Beyond the question of *how* to grow—that is, what modes of housing will be used in different phases of reconstruction—is the question of *where* to grow.

- Where are locations that are least sensitive to Palestinian and Israeli security concerns?
- Where is there sufficient land in an appropriate location for new neighborhoods, either built as new construction or built as future-oriented camps?
- Where can future redevelopment reinforce density in existing cities and villages?
- Where can development be served by existing and planned transit improvements?
- How can property ownership questions be resolved?

To start, we consider where the built density and damage density is in Gaza. The left panel of Figure 16 overlays the density of damage locations per block (as of September 6, 2024; UNOSAT, 2024a) onto the built density per block, using prewar data from Open-StreetMap (Humanitarian Data Exchange, 2024). This makes it possible to identify concentrations of both buildings and damage, as well as areas that have been relatively less damaged that can be potential sites for resettling displaced populations. Built density is purple. Damage density is light red. And areas with high levels of both built and damage density are burgundy.

The right panel of Figure 16 identifies low built-density areas within the Gaza Strip, mostly agricultural, that could serve as potential land reserves for either new construction or tent or caravan camps, as well as land reserves for anticipated urban expansion driven by natural population growth. We assume that some land types (open fields) would more easily serve as relocation targets than others, while orchards, greenhouse-occupied lands, and high-value agricultural areas would be preserved for longer-term agricultural use. The areas outlined in red in the right panel of Figure 16 designate areas that may be appropriate for rapid resettlement; they encompass land that fits the above-described criteria across the Gaza Strip and could accommodate urban resettlement and new camp development in four of Gaza's five governorates (Gaza, Deir al-Balah, Khan Yunis, and Rafah). Site selection for these areas is dependent on validating conditions at the field level, which was not feasible for this report.

Next, we illustrate the two scenarios. In reality, rehousing the population of Gaza will likely have elements of both scenarios and will change over time. We assign different population densities on a 0.5-square-kilometer basis to each of the eight housing options—from tents to new urban infill development. We then suggest alternative ways of distributing these housing types across the Gaza Strip to accommodate 1.1 million people in the short, medium, and long terms. This enables us to visualize the two alternative futures on a series of diagrammatic maps. In these maps, the 0.5-square-kilometer "tiles" represent different types of shelter and the population those housing types can accommodate. The camps—informal, conventional, and future oriented—are represented in the yellow and tan tiles. The more urban conditions are represented in the red and purple tiles. An open square represents an urban location to be redeveloped over time. The green tiles represent altogether new neighborhoods.

The first scenario (which we call the *default* scenario) is a cautionary example of overreliance on conventional camps, leading to long-term sprawl and poor-quality urban development. The second scenario (which we call the *future-oriented* scenario) draws strategically on these multiple housing approaches and aims to prioritize return to cities.
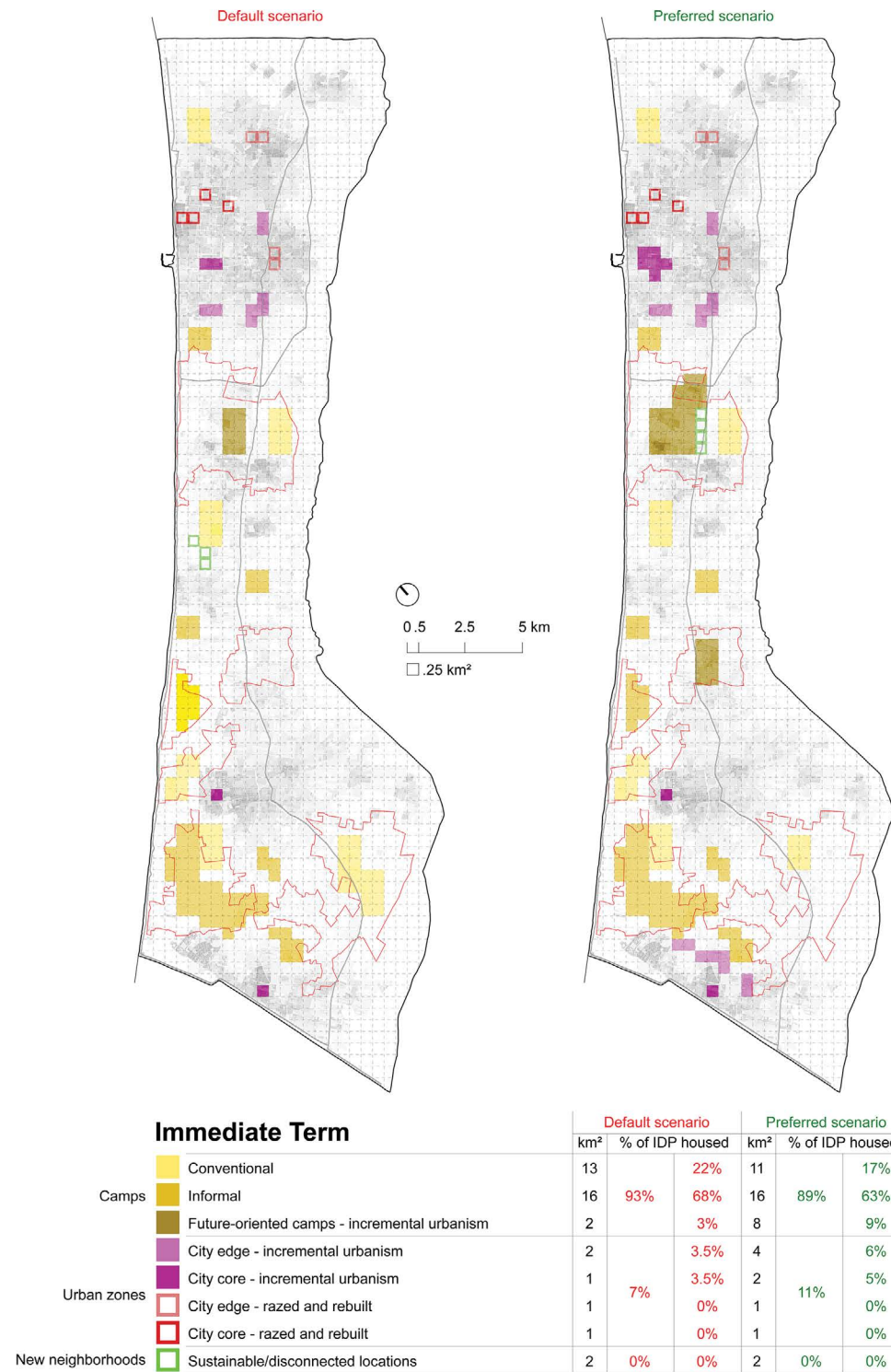
Figure 17 contrasts the default and future-oriented scenarios in the immediate term. In the default scenario, the challenges of postwar rebuilding described above are met by relying on a suite of solutions that are understandably formed by a legitimate sense of urgency and trauma—a triage approach that defaults to whatever is familiar, fast, and inexpensive. Because rebuilding existing damaged cities, villages, and neighborhoods is so difficult and time consuming, the default solution is one that relies heavily on large displacement camps, both informal camps and camps planned according to conventional UN practices. The camps are located not according to a future-looking strategy but wherever large swaths of land are immediately available.

FIGURE 16
# Damage, Built Density, and Land Use Analysis

**Governorates:**

North Gaza
2023 population: 444,412

Gaza
2023 population: 749,100

Deir al Balah
2023 population: 319,208

Khan Yunis
2023 population: 438,557

Rafah
2023 population: 275,267

Total population: 2,226,544

Gaza City

Gaza - Built density and damage density

98.4%

Built density

0

14,096

Damage density

Gaza - Rural land use

Agricultural

Barren/dunes

Incomplete developments

Greenhouses/orchards

High potential for
resettlement/urban expansion

0    2.5    5 km

SOURCES: Built density: block footprint/residential built footprint from OpenStreetMap data (Humanitarian Data Exchange, 2024). Damage density: damage points/km² from UNOSAT data, September 2024 (UNOSAT, 2024b). 2023 governorate population: projection based on 2017 PCBS data from Brinkhoff, 2023. Image production by ORG Permanent Modernity.

FIGURE 17
# Two Housing Scenarios in the Immediate Term



| Immediate Term | | | Default scenario | | | Preferred scenario | | |
|---|---|---|---|---|---|---|---|---|
| | | | km² | % of IDP housed | | km² | % of IDP housed | |
| Camps | | Conventional | 13 | | 22% | 11 | | 17% |
| | | Informal | 16 | 93% | 68% | 16 | 89% | 63% |
| | | Future-oriented camps - incremental urbanism | 2 | | 3% | 8 | | 9% |
| Urban zones | | City edge - incremental urbanism | 2 | | 3.5% | 4 | | 6% |
| | | City core - incremental urbanism | 1 | 7% | 3.5% | 2 | 11% | 5% |
| | | City edge - razed and rebuilt | 1 | | 0% | 1 | | 0% |
| | | City core - razed and rebuilt | 1 | | 0% | 1 | | 0% |
| New neighborhoods | | Sustainable/disconnected locations | 2 | 0% | 0% | 2 | 0% | 0% |

SOURCE: Image production by ORG Permanent Modernity.

NOTE: IDP = internally displaced persons.

In the future-oriented scenario, rebuilding after the war—from the earliest stages of recovery—is approached as an exercise in long-term city planning. Although, in the immediate term, tent camps will be needed because of the challenges of rubble removal, infrastructure repair, and disposal of unexploded ordnance, there is a deeper commitment to rebuilding the existing cities and villages. In this scenario, the tent camps at the periphery of urban areas and the rebuildable neighborhoods in the city and village centers are planned in ways that anticipate densification, much of it accomplished by the Gazans themselves. Locations are chosen based not on what is fastest and least expensive but where future development builds toward a sustainable and long-term comprehensive plan.

In both scenarios, in the immediate term, tent cities of all kinds spring up across Gaza. The difference is that in the future-oriented scenario, about four times as much land is devoted to future-oriented camps—places that are set up to become neighborhoods in the intermediate and long terms, as described in detail above. Even in the immediate term, these future-oriented camps house about 9 percent of the displaced population. Another difference is that about twice as much land is devoted to salvageable neighborhoods in the cores and edges of the cities—locations where incremental urbanism strategies can be employed. In the immediate term, this land houses about 11 percent of the population, compared with 7 percent in the default scenario.

The big differences emerge in the intermediate and long terms, as shown in Figure 18. In the default scenario, almost half of the population is still in informal or conventional camps, largely in the south, and is scattered about in places that do not reinforce existing urban centers. Only a marginal effort has been made to rebuild the cores of the major cities. Some completely new neighborhoods are built (green tiles), but they are in places that are disconnected from future transportation corridors. This scenario is much more land-consuming, competing with land that is needed for agriculture and ecological systems.

In the preferred (future-oriented) scenario, in the long term, no one is living in camps anymore. Almost half of the population is in neighborhoods that evolved out of the incremental densification of what were the future-oriented camps. Twice as many people as in the default scenario are living in urban cores, at the edges of cities, or in sustainable neighborhoods. The same number of people are accommodated on less land. More people are living in existing urban areas, the places that are essential to rebuilding Gazan civic life.
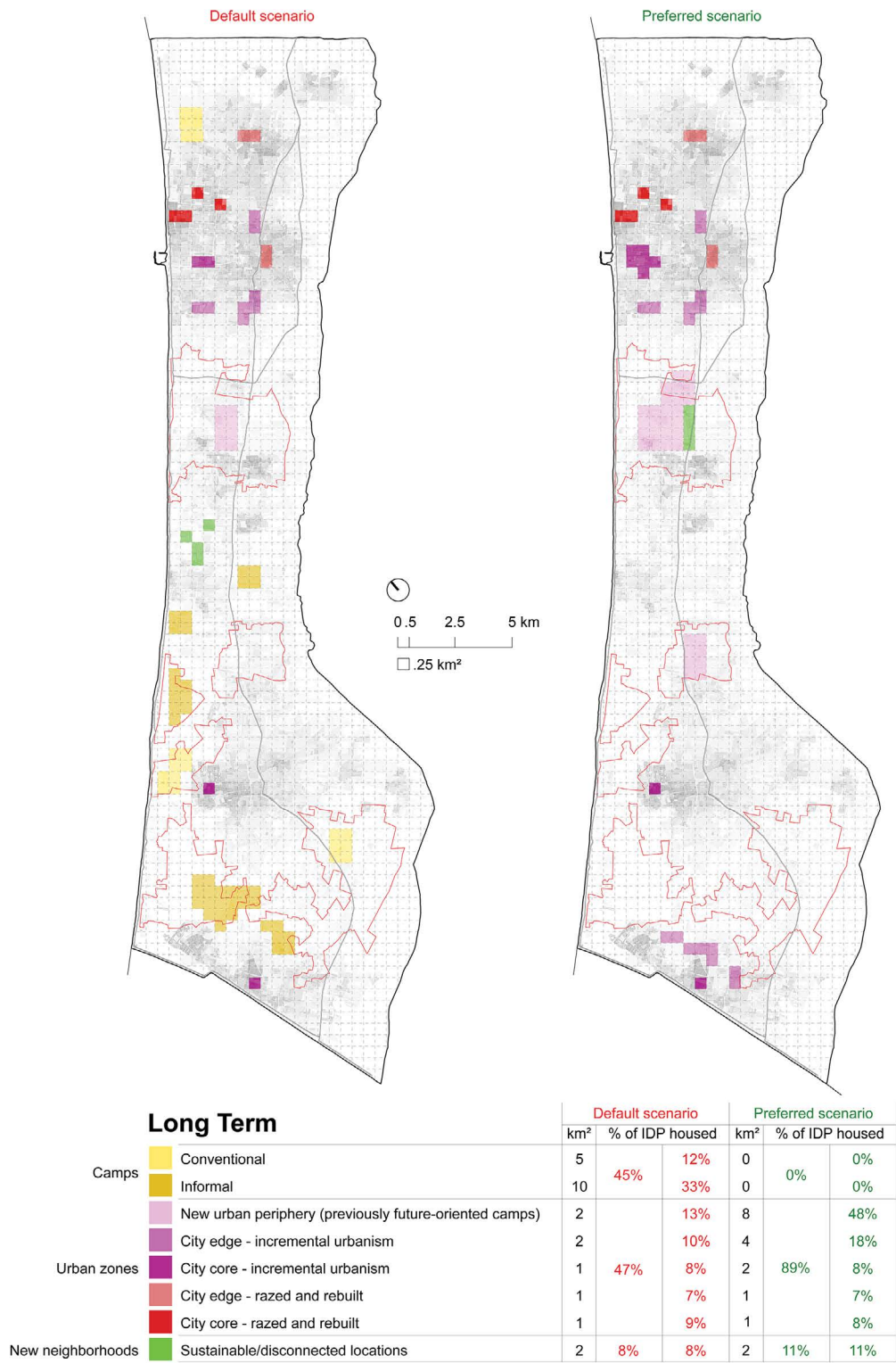
There would be 25 percent less land consumption for the preferred scenario (18 square kilometers versus 24 square kilometers) and 25 percent more people living in the urban centers (540,000 versus 420,000). The population housed in incremental urban development would be double that of the default scenario (1,180,000 versus 580,000).

## Looking Ahead

We have described a process intended to provide post-conflict shelter needed by displaced Gazans while avoiding some of the many pitfalls of traditional tent camps. We have offered a vision of how sound urban planning principles can be integrated into lessons learned from other displacement situations and reconstruction efforts and suggested how vibrant communities can be reestablished and new ones nurtured.

It would not be easy to design, fund, implement, or evaluate such an approach. But this approach has two enormous advantages: It would signal to the Gazans that the world is taking their condition extremely seriously, and it could point the way to a more viable and civilized approach to an inhumane situation of living amid destruction.

FIGURE 18
## Two Housing Scenarios in the Long Term



Default scenario · Preferred scenario

| Long Term | | Default scenario | | Preferred scenario | |
|---|---|---|---|---|---|
| | | km² | % of IDP housed | km² | % of IDP housed |
| **Camps** Conventional | | 5 | 12% | 0 | 0% |
| Informal | | 10 | 45% 33% | 0 | 0% 0% |
| **Urban zones** New urban periphery (previously future-oriented camps) | | 2 | 13% | 8 | 48% |
| City edge - incremental urbanism | | 2 | 10% | 4 | 18% |
| City core - incremental urbanism | | 1 | 47% 8% | 2 | 89% 8% |
| City edge - razed and rebuilt | | 1 | 7% | 1 | 7% |
| City core - razed and rebuilt | | 1 | 9% | 1 | 8% |
| **New neighborhoods** Sustainable/disconnected locations | | 2 | 8% 8% | 2 | 11% 11% |

SOURCE: Image production by ORG Permanent Modernity.

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# Acknowledgments

## About This Report

The vast majority of civilians in Gaza have been displaced from their homes, and most housing has been damaged or destroyed during the war between Israel and Hamas that began with Hamas's attack on October 7, 2023. The scale of the displacement calls for a comprehensive, multifaceted approach to sheltering Gaza's civilians once reconstruction and recovery begin. We offer a new way to plan post-conflict civilian shelter in Gaza, blending a new approach to camps, an urban planning technique called *incremental urbanism*, and new construction.

This report builds on two recent RAND reports: *Pathways to a Durable Israeli-Palestinian Peace* (Ries et al., 2025) and *A Spatial Vision for Palestine: A Long-Term Plan That Can Begin Now* (Culbertson et al., forthcoming). It is also undertaken in the context of earlier RAND research on the challenges of Israeli-Palestinian peace, including *Building a Successful Palestinian State* (RAND Palestinian State Study Team, 2007); *The Arc: A Formal Structure for a Palestinian State* (Suisman et al., 2005); *The Costs of the Israeli-Palestinian Conflict* (Anthony et al., 2015); and *Alternatives in the Israeli-Palestinian Conflict* (Egel et al., 2021).

This work should be of interest to humanitarian and recovery stakeholders working on Gaza, Palestinian policymakers in the West Bank and Gaza, policymakers in Israel, multilaterals, donor governments, and the wider international community.

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