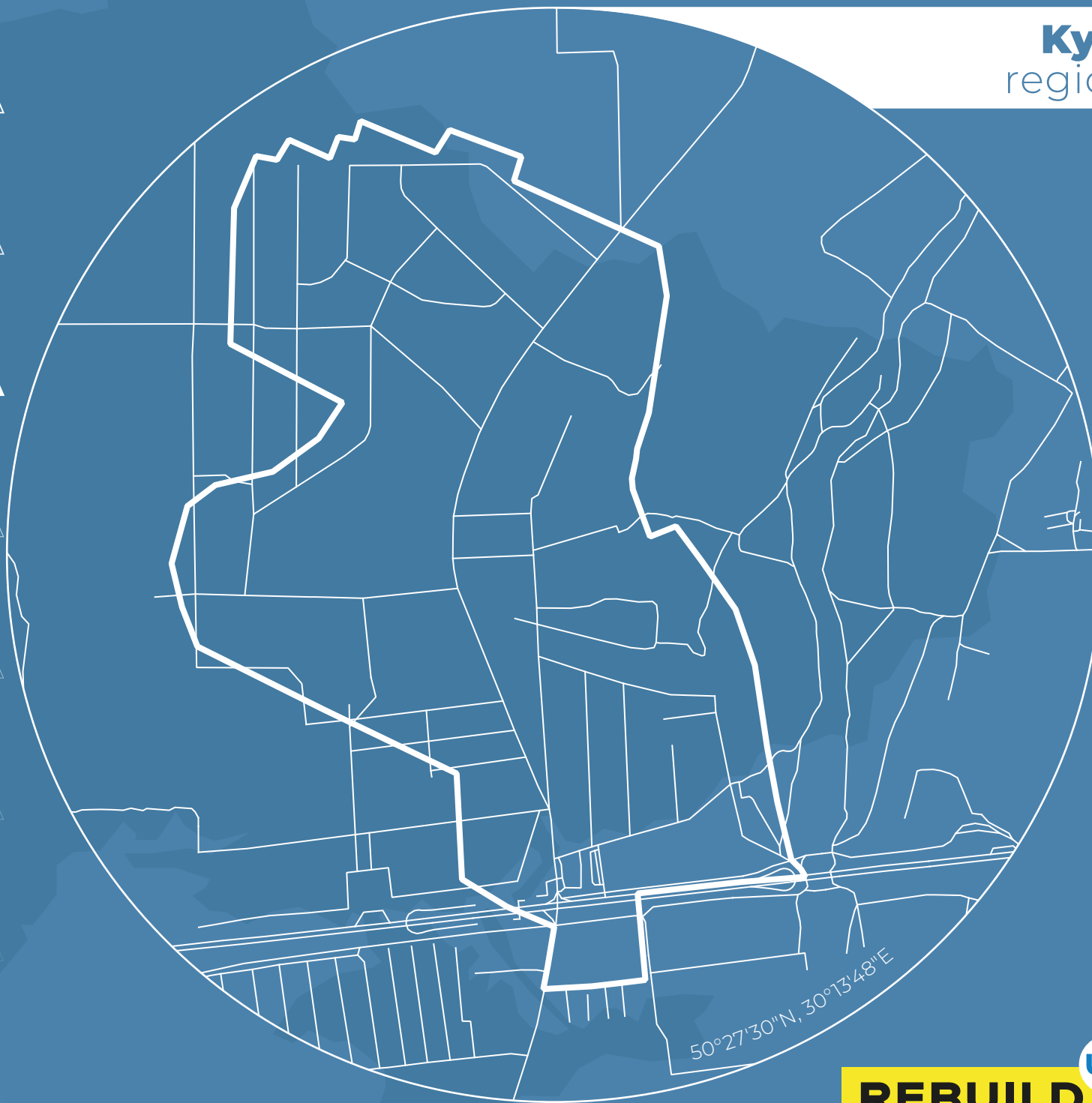


STOYANKA
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STOYANKA

**DIGITIZATION
OF DESTROYED
INFRASTRUCTURE**

Kyiv
region



REBUILD **UA**

ABOUT THE PROJECT

Background

The Russian aggression has caused a large amount of damage and destruction in almost all regions of Ukraine — housing and infrastructure have been destroyed, and industrial facilities and local businesses shut down.

The speed and efficiency of the country's recovery processes directly depend on a competent assessment of the damage, correct budgeting and a step-by-step plan for reconstruction. A transparent assessment of damages will justify the need for funding as well as simplify the process of raising funds for recovery.

About the project

The RebuildUA project aims to digitize, analyze and demonstrate to the world the destruction of Ukraine's infrastructure. The geography of the project covers all regions of the country affected by military aggression.

The results will be made public, communicated to communities, public authorities and specialized recovery funds.

Project founders:

Drone survey and digitization of geospatial information:



Land analysis and interaction with communities:



The initiative is being financially and technically supported by the United Nations Development Programme in Ukraine.

Methodology

1. Drone photography and orthophoto creation

The use of drones allows the project team to collect detailed data on the destruction: to fly at low altitudes, and shoot buildings at different angles and from all sides. For localities where drone shooting is not possible, we use high-resolution satellite images.

2. Collection of photos and videos

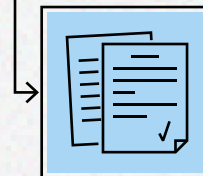
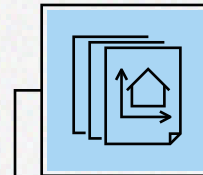
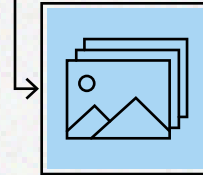
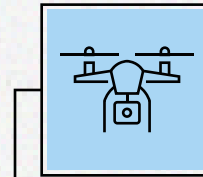
To ensure completeness of the input data, the project team captures photos and videos, as well as collects additional information from verified sources.

3. Destruction detection and data processing

Based on orthophotos, GIS specialists digitize all buildings, identify destroyed objects, classify building types, and determine levels of destruction.

4. Publication of analytical reports

Designers and content managers present the complete information in public infographic reports.



Find out more at the project website:



rebuildua.net

ABOUT THE LOCALITY


The village of Stoyanka, Buchansky district, lies just along the famous Kyiv-Zhytomyr highway russian invaders chose to move to the capital of Ukraine. Russian military equipment mutilated everything within its reach, and the village was almost wiped off the face of the earth.

Completely burned, shrapnel-torn civilian cars, a blown-up bridge, dozens of destroyed residential and industrial buildings, craters from rocket attacks on the fields — all these consequences of the "russian peace" still can be observed in the village.

The RebuildUA team visited the settlement and analyzed the damage caused by occupiers.



 rebuildua.net

 [/rebuildua.net](https://www.facebook.com/rebuildua.net)

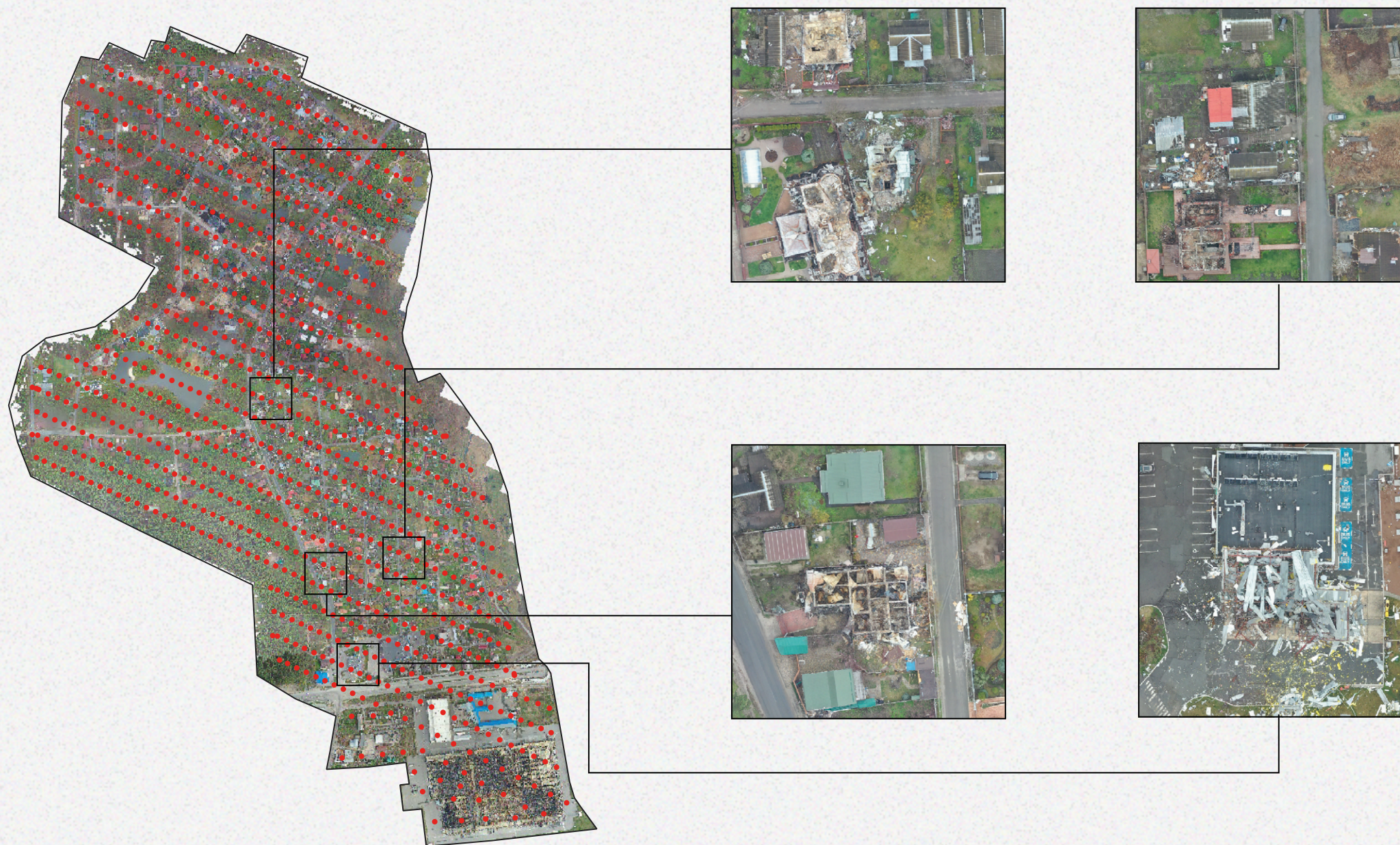


Region **Kyiv**
 District **Buchanskyi**
 Community **Bilogorodska**

 Area
0.613 km²

 Population
405 people

DIGITIZATION PROCESS



4 flight missions

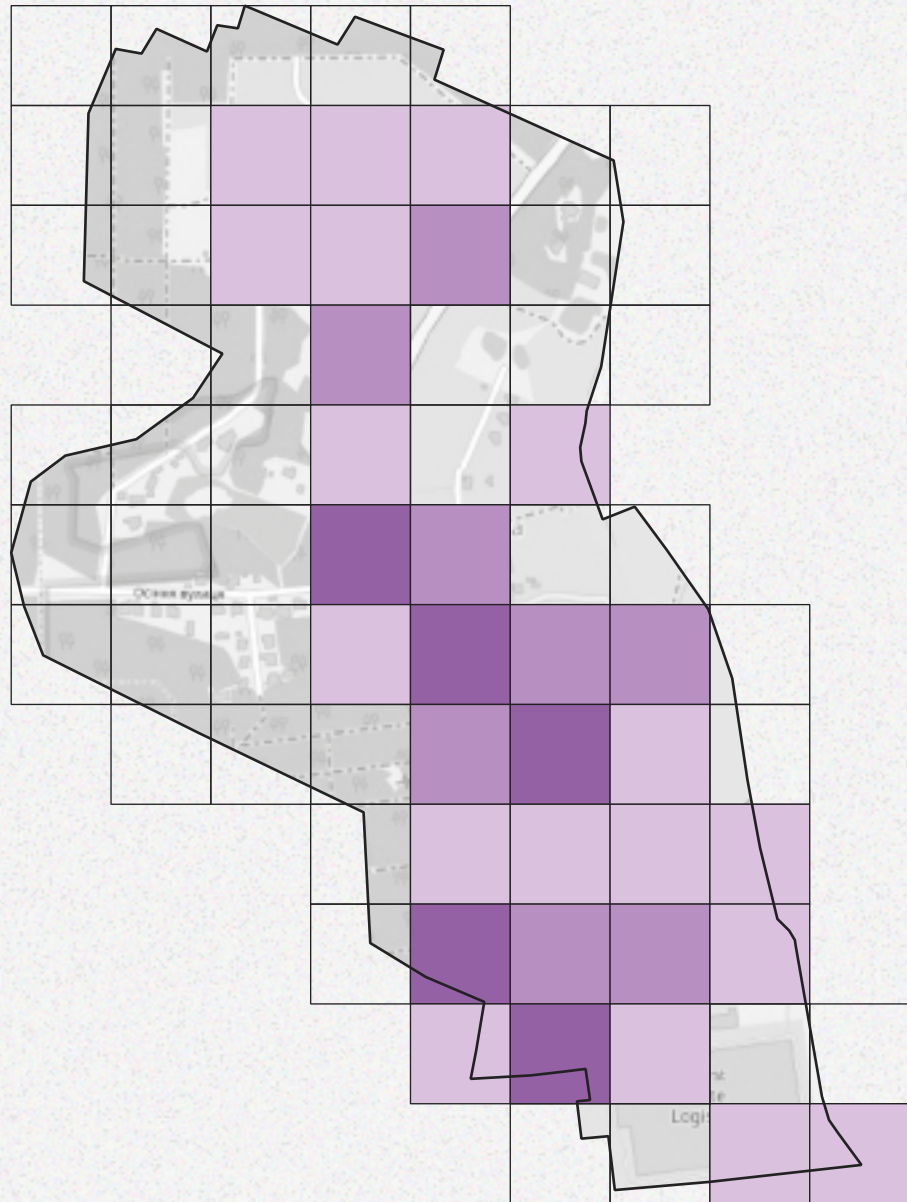
880 pictures for orthophoto

50 hours of data processing

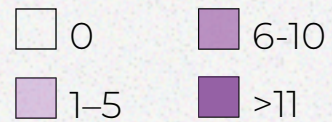
7 Gigabytes of data

— border of the locality
..... trajectory of drone shooting

THERMAL MAP OF DESTRUCTION



Number of destroyed buildings



10 buildings

Destruction of the largest streets

13%



41 / 323 Dachna

9%



17 / 198 Lisna

25%



38 / 154 21st km of Zhytomyr highway

17%



18 / 109 Melioratoriv

6%



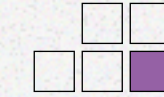
6 / 108 Sosnova

23%



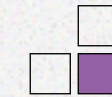
22 / 97 Irpinska

27%



13 / 49 Kyivska

41%



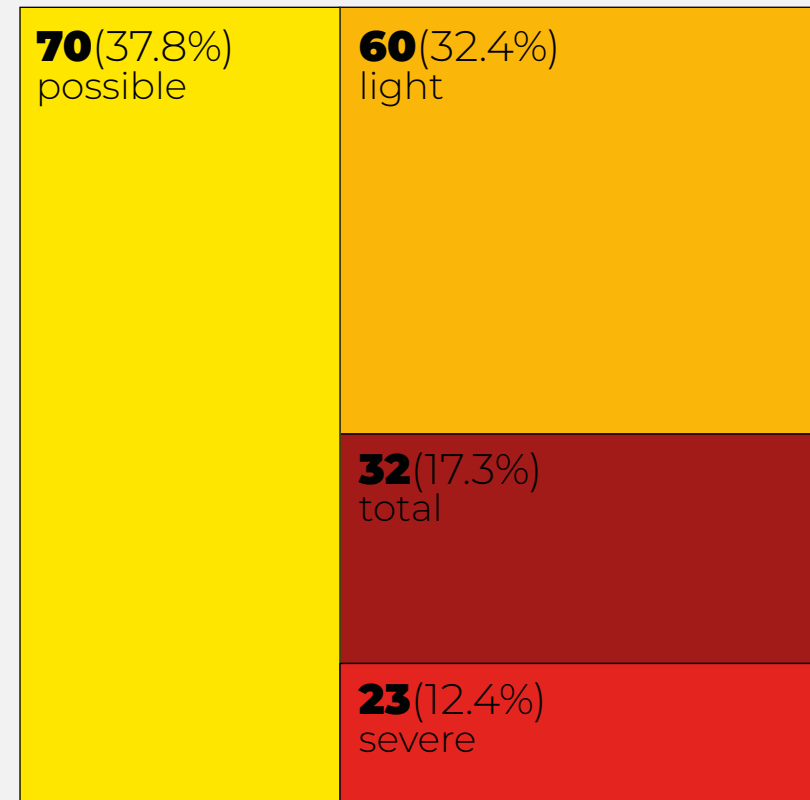
11 / 27 Poliova

LEVELS OF DESTRUCTION

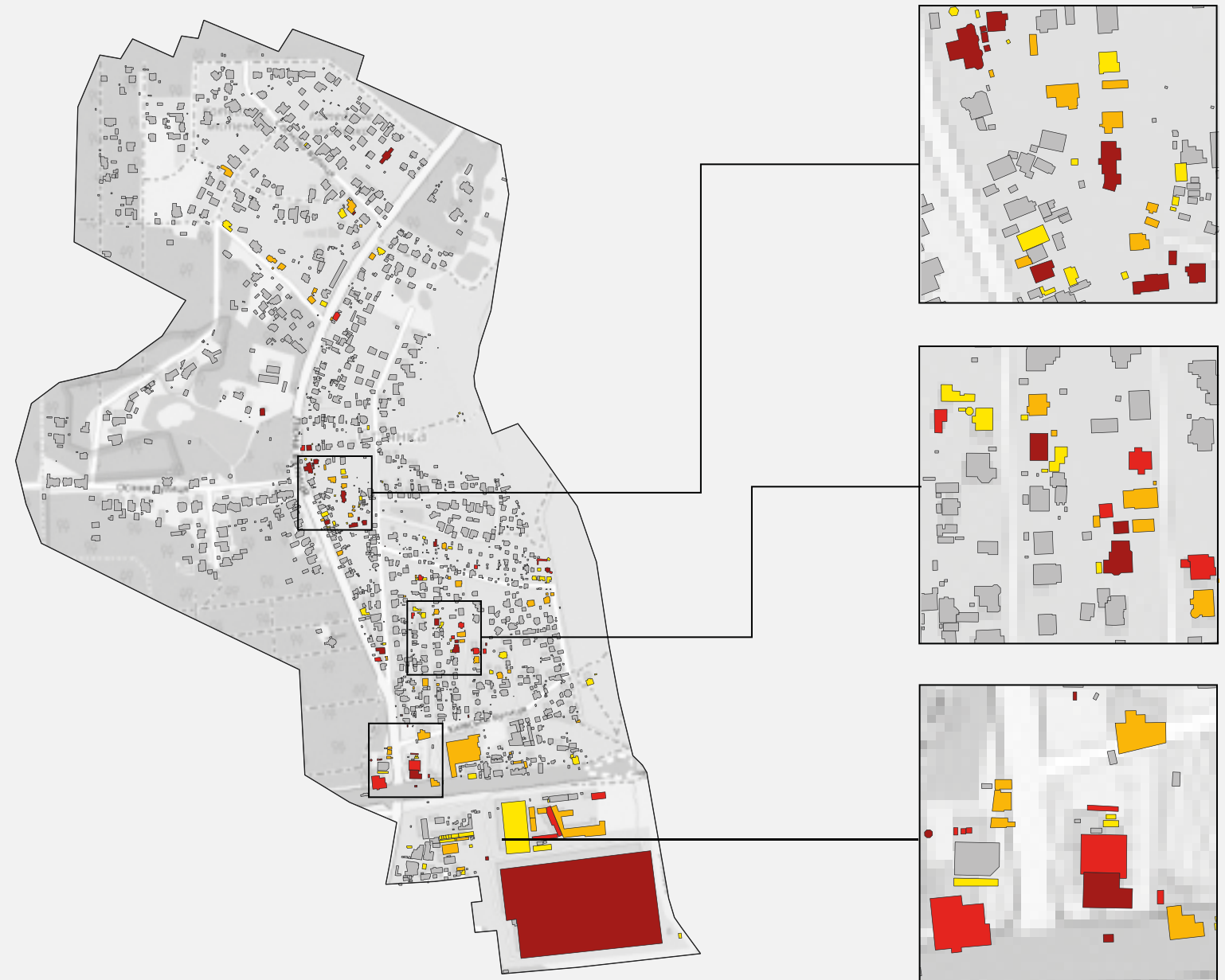
Buildings destroyed:

185 / 1,630

Level of destruction, number of buildings



- total destruction
- severe destruction
- light destruction
- possible destruction
- no destruction



TYPES OF DESTROYED OBJECTS

Residential buildings & outbuildings

146 / 1 492

Industrial buildings & construction

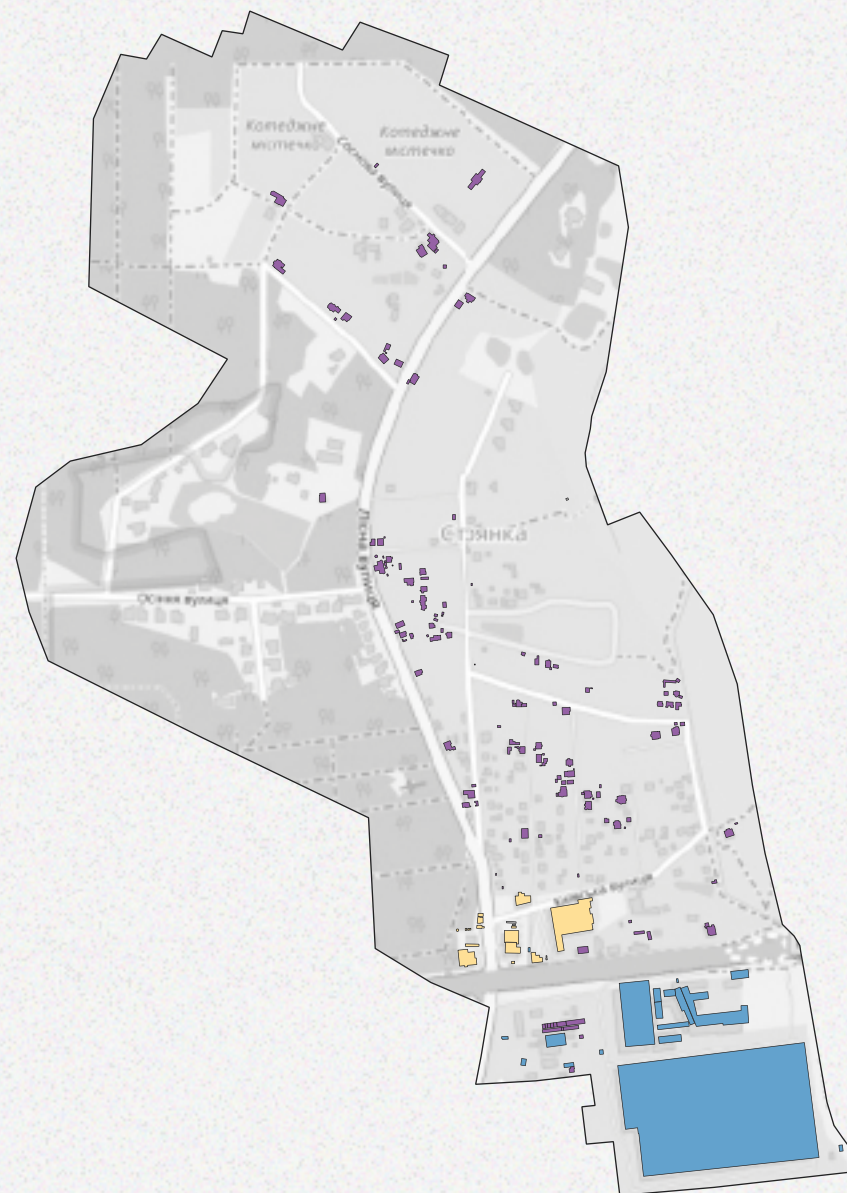
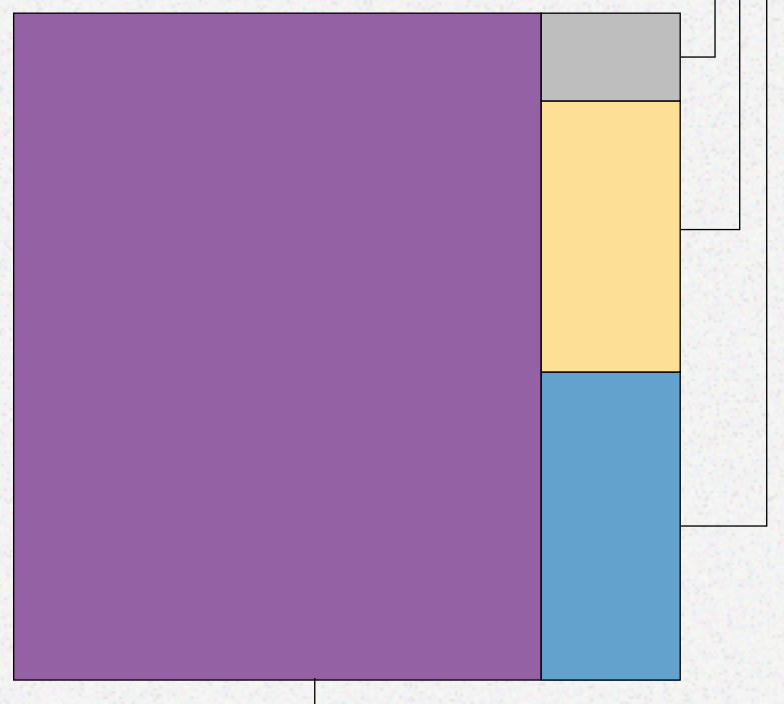
18 / 92

Social infrastructure

16 / 33

Other infrastructure

5 / 12



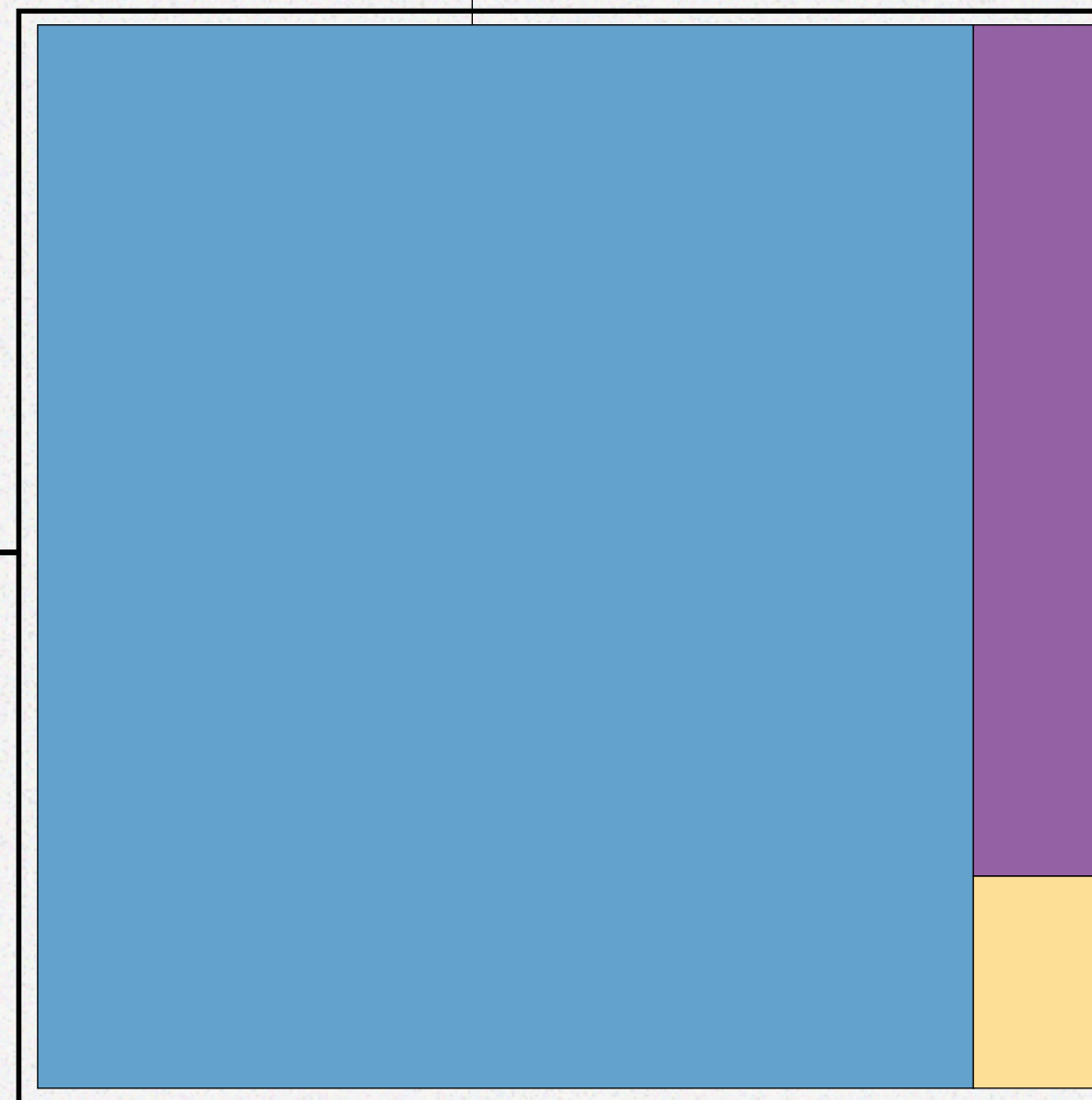
- Residential buildings & outbuildings
- Industrial buildings & construction
- Social infrastructure
- Other infrastructure

ASSESSMENT OF DAMAGES

Damages by types of buildings

Total damages

\$77.5 million



\$68.20 million

Industrial infrastructure
& construction

\$7.38 million

Residential buildings
& outbuildings

\$1.92 million

Social infrastructure

SCALE OF DESTRUCTION

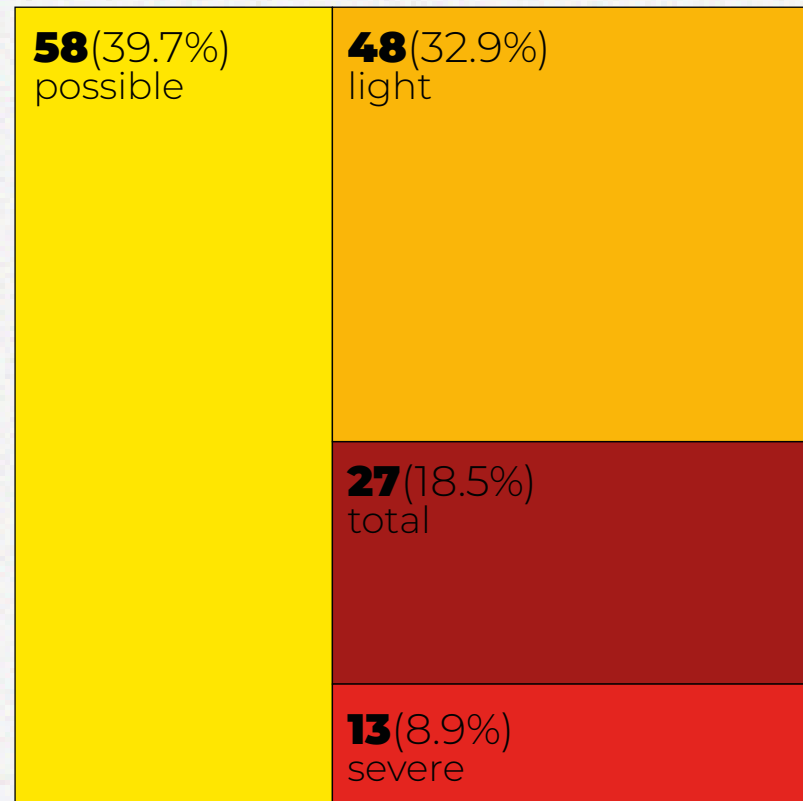


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UA

SCALE OF DESTRUCTION

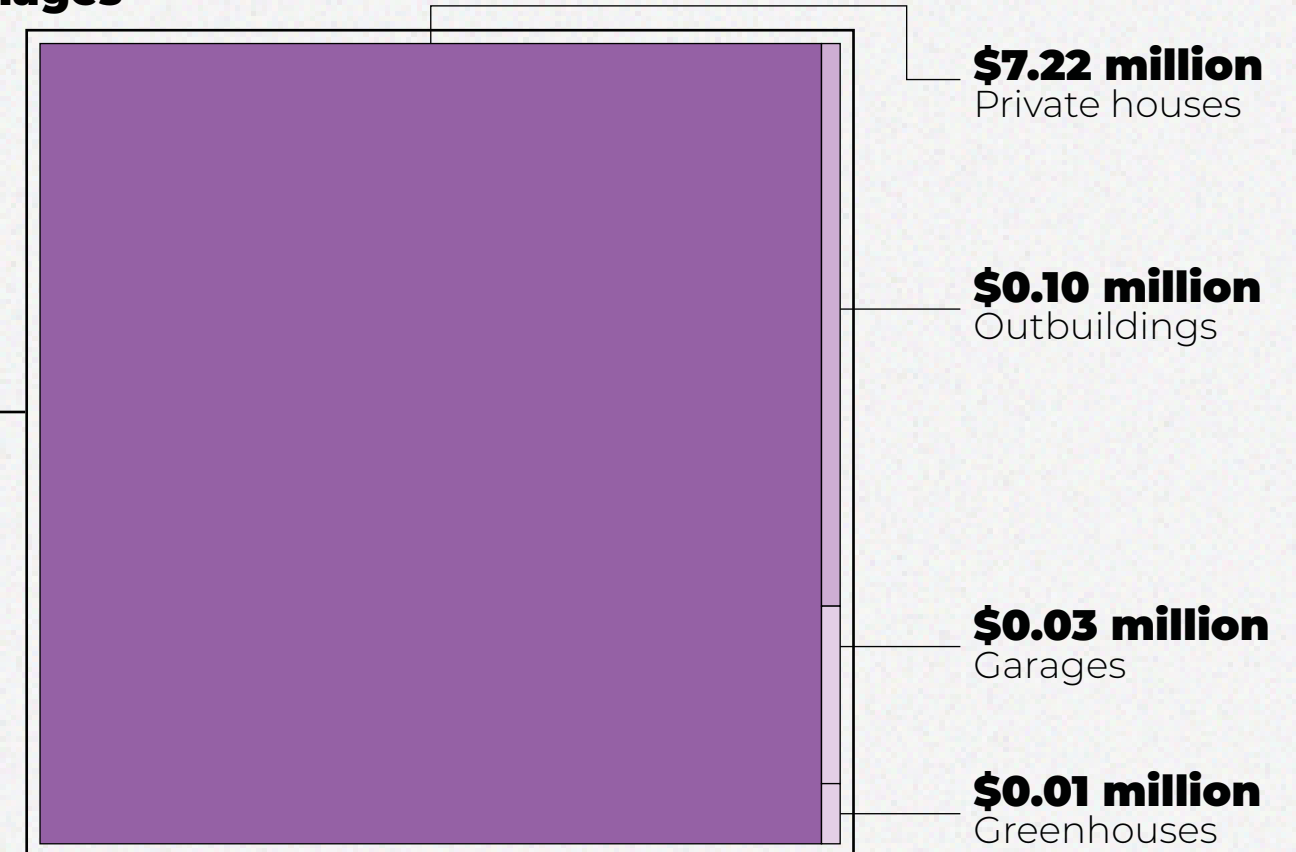
Level of destruction



Assessment of damages

Total damages

\$7.4 million



APARTMENT BUILDINGS

Apartment building




The area of destruction and the number of residents who suffered damage

4.3 ths m² 

140 people 

no destruction

possible

 0.5 ths m²

 16 people

Total area of damage

0.5 ths m²

Number of residents affected

16

PRIVATE HOUSES & TOWNHOUSES

Private house




The area of destruction and the number of residents who suffered damage


189.0 ths m² 

1,116 people 

no destruction

light

 **8.2 ths m²**


 **48 people**

total

 **6.4 ths m²**

 **38 people**

possible

 **5.4 ths m²**

 **32 people**

сильне

1.8 ths m² 

11 people 

Total area of damage

21.8 ths m²

Number of residents affected

128

OUTBUILDINGS

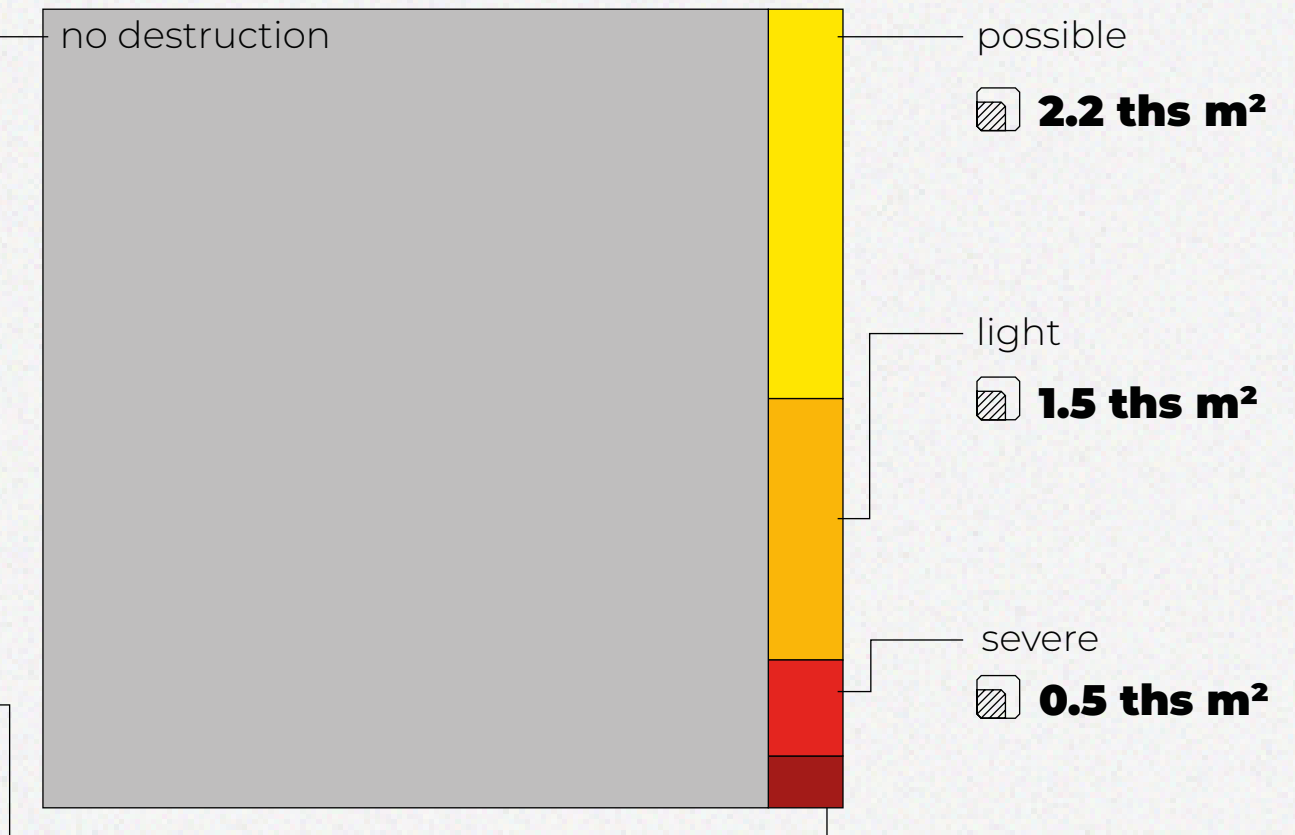


Area of destruction

44.7 ths m²

total
0.3 ths m²

no destruction

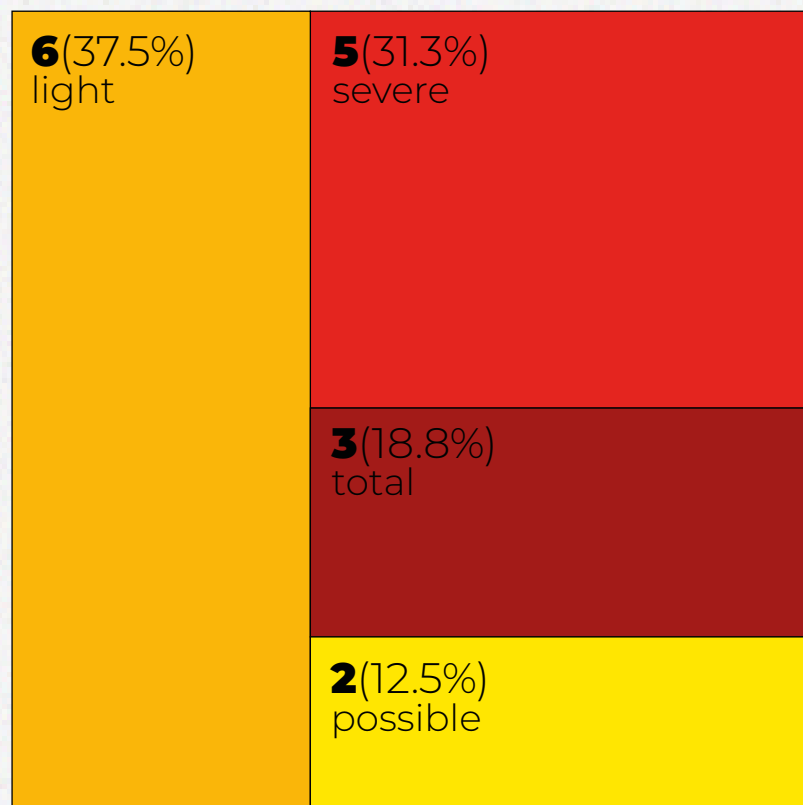


Total area of damage

4.6 ths m²

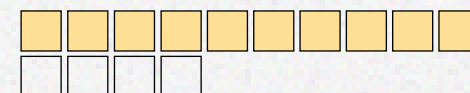
SCALE OF DESTRUCTION

Level of destruction



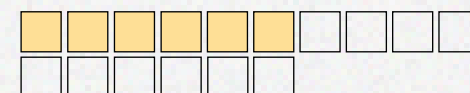
Number of destroyed buildings

Trade & commerce



10 / 14

Buildings of general purpose

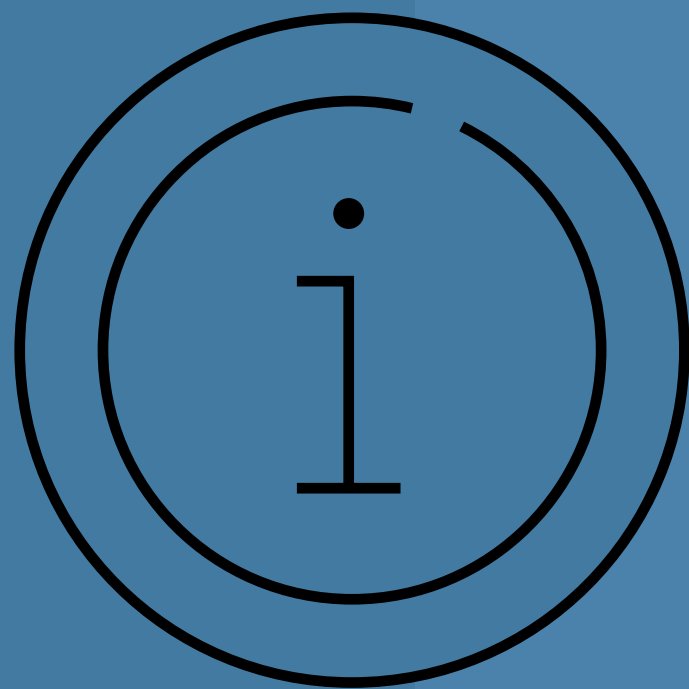


6 / 16

Supermarket



METHODOLOGIES & ADDITIONAL INFORMATION



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UA

HOW WE DETERMINE LEVELS OF DESTRUCTION

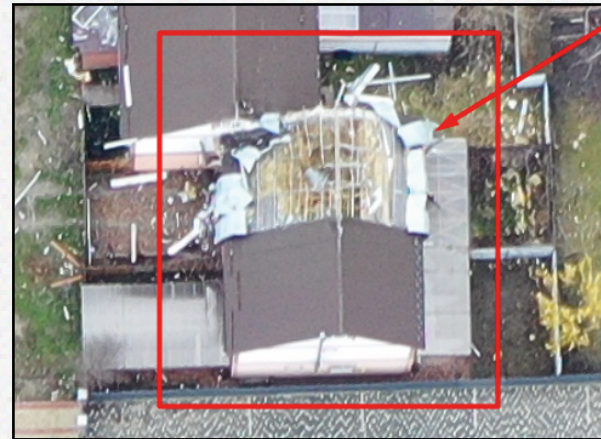
Total destruction



Appointed when the original structure of the building is no longer detectable restoration is impossible, namely:

- the building is completely or significantly destroyed (> 50%);
- only part of the building collapsed to the foundation.

Severe destruction



Implies significant visible damage to the building and its structure, which includes:

- collapse of part of the roof;
- serious destruction and damage to the walls.

Light destruction



Implies minor partial damage to the building and its structure:

- minor damage to the roof,
- collapse of chimneys,
- damage to facade, decorative and removable elements,
- a large amount of debris.

Possible destruction



Intended for buildings that are difficult to interpret due to lower image quality (for example, shadow or poor resolution due to high angle of shooting).

Visual signs may include be small amounts of debris, gravel or sand around the building.

1. Assumptions

The following fractions were used for calculations:

100%

of the replacement cost of total destruction

50%

of the replacement cost of severe destruction

10%

of the replacement cost of light destruction

0%

of the replacement cost of possible destruction

2. Value determination



Large objects

The assessment of large objects, in particular enterprises, is calculated individually on the basis of financial statements and other public sources regarding value information.



Medium objects

Medium facilities, in particular, social infrastructure, trade objects, and services (health, education and culture, shops, hotels, restaurants, etc.) are calculated on the basis of average cost data, taking into account the type of area (urban/rural).

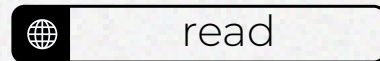


Small objects

Small objects, which include residential buildings, outbuildings and garages, are calculated based on the average footage (taking into account the area and type of area) and the cost per square meter (nominal cost + cost of redecoration repairs + cost of dismantling).

STOYANKA THROUGH THE EYES OF BEHOLDERS

Craters from rockets, destroyed residential buildings and roads: what does Stoyanka look like, liberated from the occupiers



Zhytomyr is cut off from Kyiv. A bridge on the highway was blown up near Stoyanka



Russian occupiers destroyed the village of Stoyanka



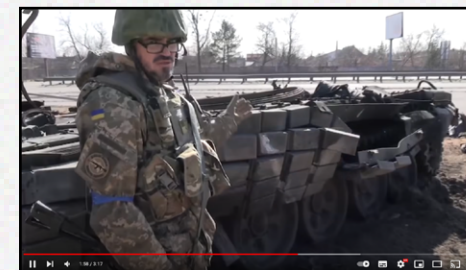
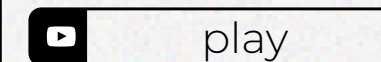
The traffic of trucks was resumed near the village of Stoyanka in Kyiv region



Stoyanka, Kyiv region. Russian-Ukrainian war. Here comes the «russian peace»



Life after the «russian peace» — how Stoyanka is recovering after the destruction



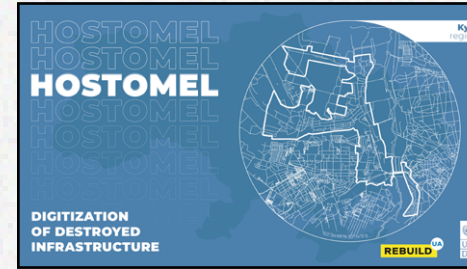
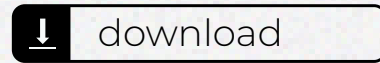
A Russian tank near Stoyanka was blown up by local security forces



PREVIOUS REPORTS



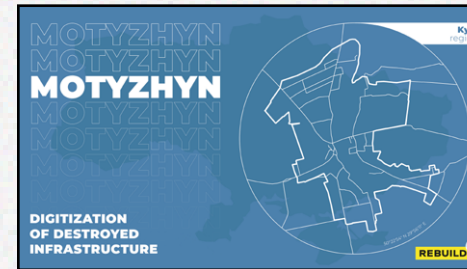
Moshchun,
Buchanskyi district,
Kyiv region



Hostomel,
Buchanskyi district,
Kyiv region



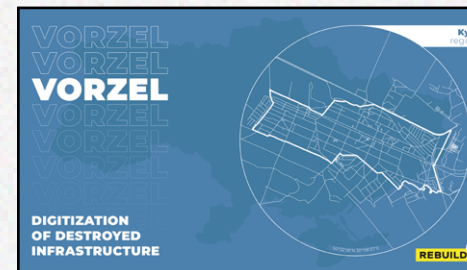
Horenka,
Buchanskyi district,
Kyiv region



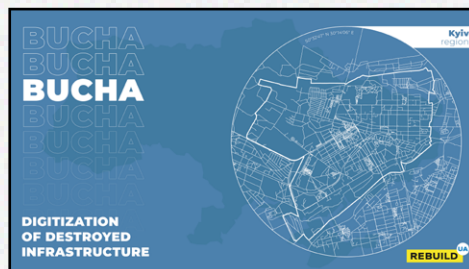
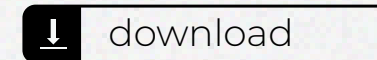
Motyzhyn,
Buchanskyi district,
Kyiv region



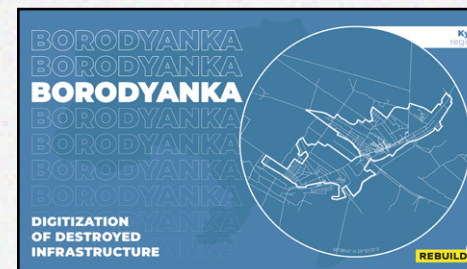
Irpin,
Buchanskyi district,
Kyiv region



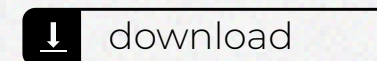
Vorzel,
Buchanskyi district,
Kyiv region



Bucha,
Buchanskyi district,
Kyiv region



Borodyanka,
Buchanskyi district,
Kyiv region



REBUILD



rebuildua.net

Partners:

Assessment of losses and damages, budgeting:



Financial and technical support



Shooting of settlements



Digitization of geospatial information:



Visual style and content:



Support in cooperation with public authorities:



Cooperation & analysis of community economy, Vkursi Hromada:



Creation of an online map of destroyed new buildings



Supported by:

