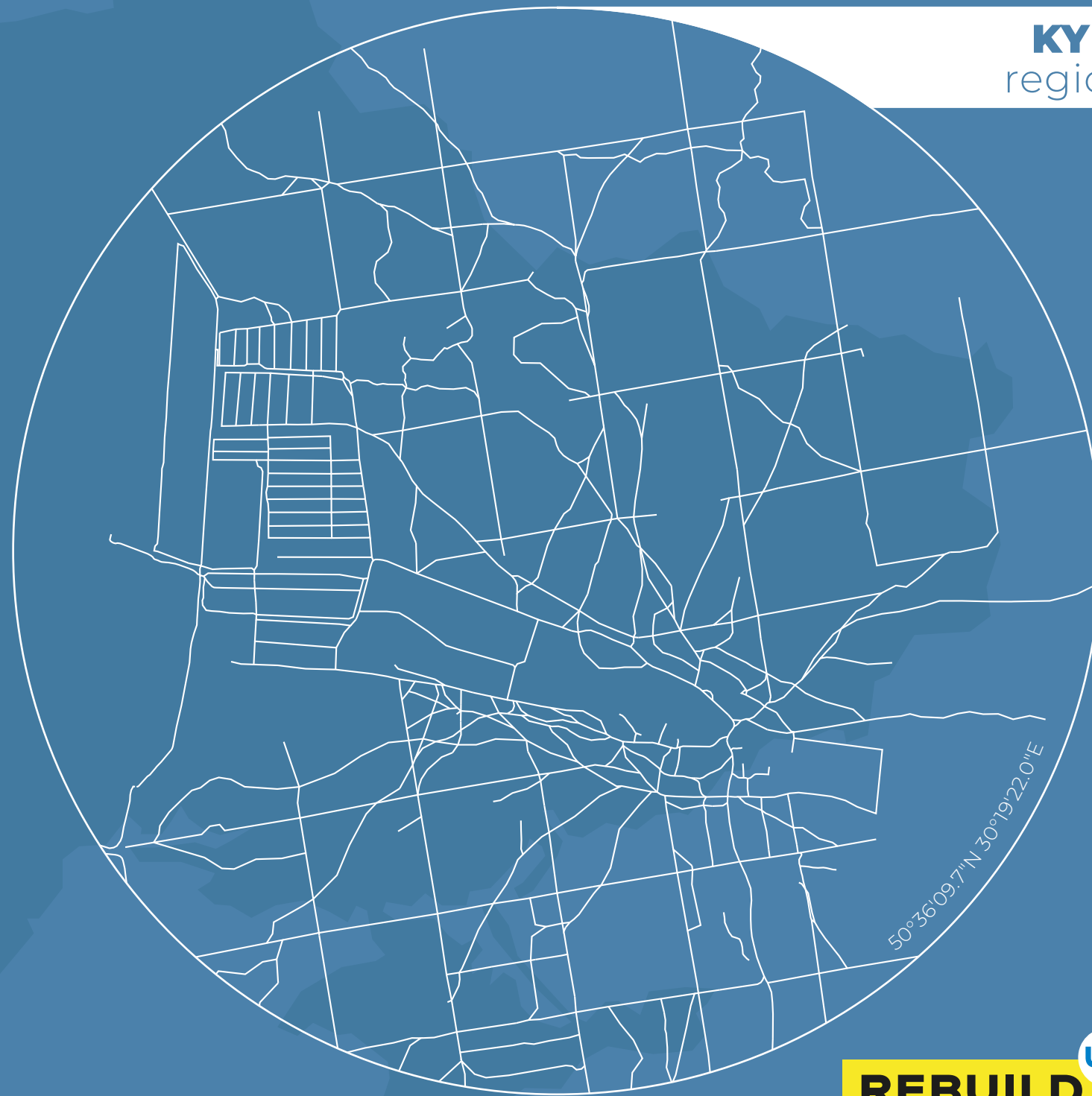


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**DIGITIZATION
OF DESTROYED
INFRASTRUCTURE**

KYIV
region



REBUILD



ABOUT THE PROJECT

Background

The military actions of Russia and Belarus cause numerous damages and destruction in almost all regions of Ukraine — housing and infrastructure are being destroyed, 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 losses 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:



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

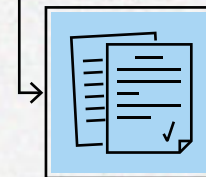
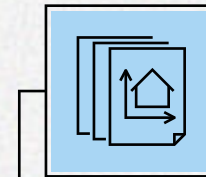
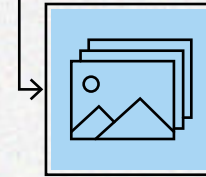
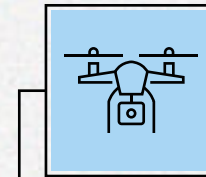
To ensure completeness of the input data, the project team captures photos and videos, as well as collects additional information from verified sources.

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

LOCALITY

The project team started its journey to places destroyed by Russian military actions in Kyiv region, the heart of Ukraine.

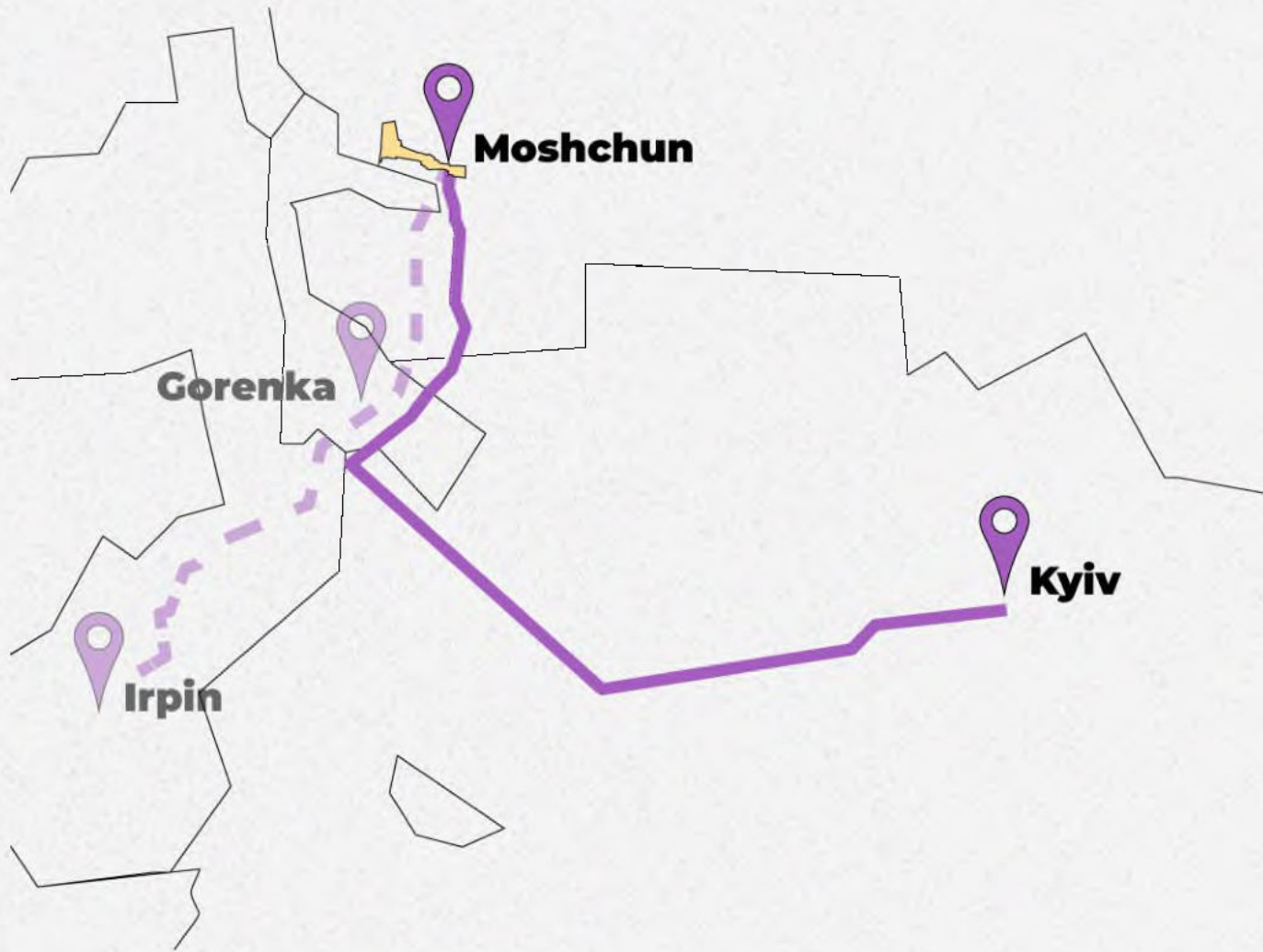
One of the first villages on the way out of Kyiv is the small village of Moshchun in Bucha district. The picturesque village with cozy private estates has become a place of fierce battles for Kyiv — almost three-quarters of all its buildings were destroyed.

We dedicate our first report to Moshchun and its heroic defense. Keep track of our next destinations on the map and in the project news.



 rebuildua.net

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



Region
District
Community

Kyiv
Buchanskyi
Hostomelska



Survey area
268 hectares



Population
794 people

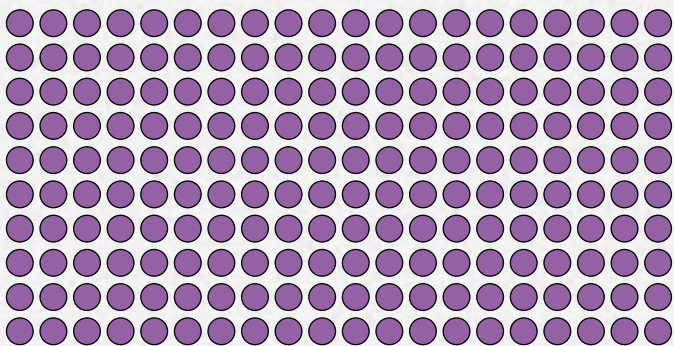
DIGITIZATION PROCESS



LEVEL OF BOMBING

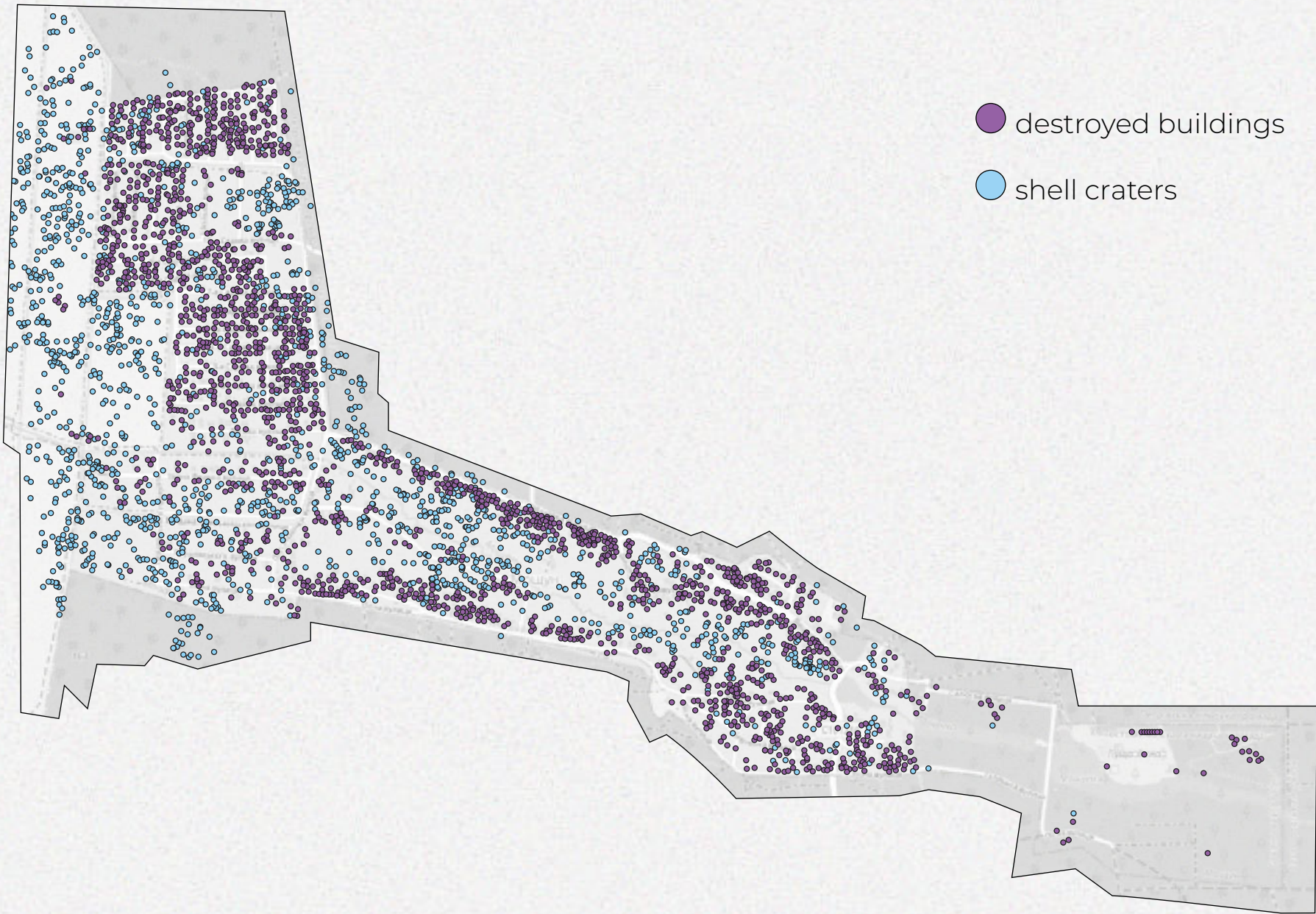
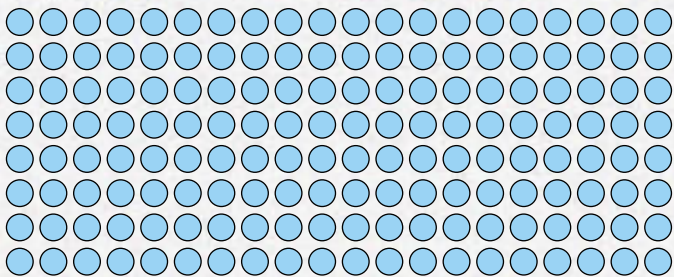
2 000

destroyed buildings

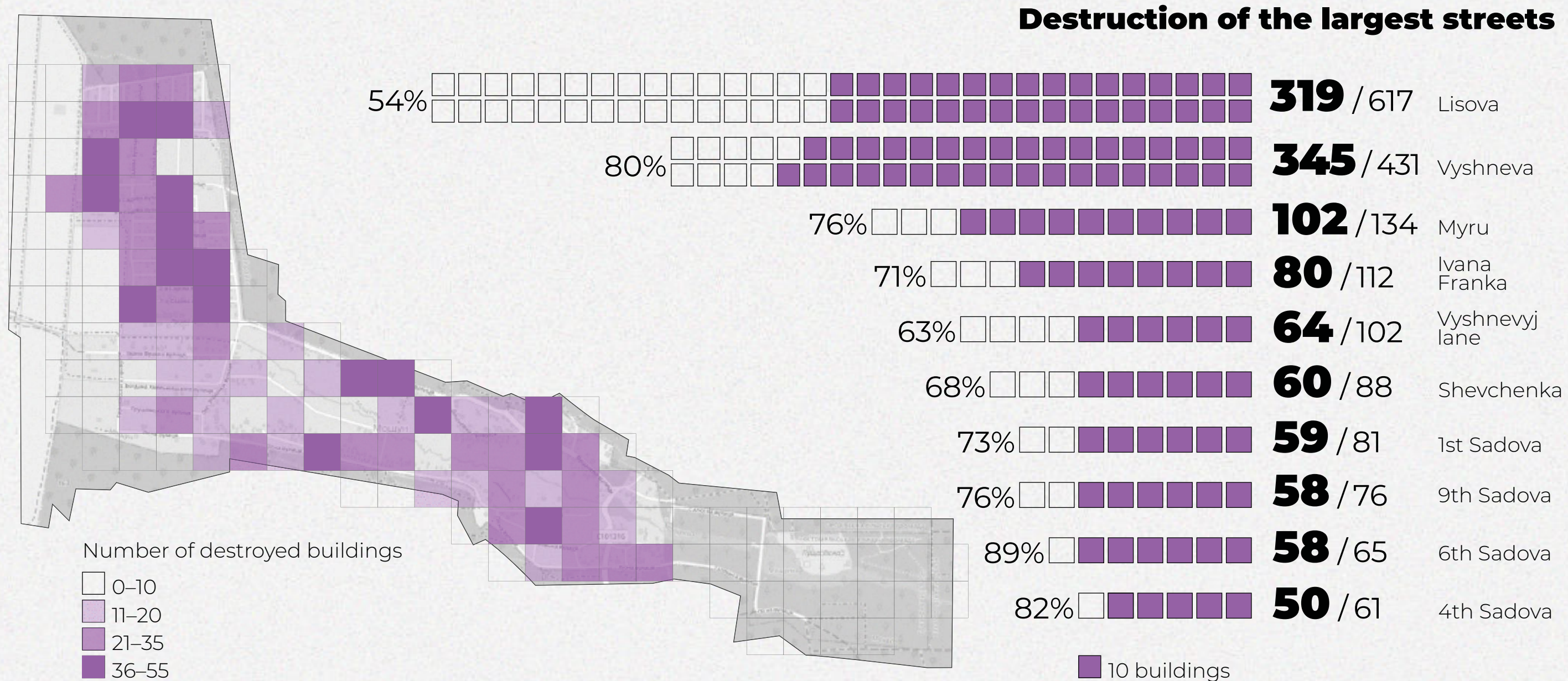


1 597

shell craters



THERMAL MAP OF DESTRUCTION



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.

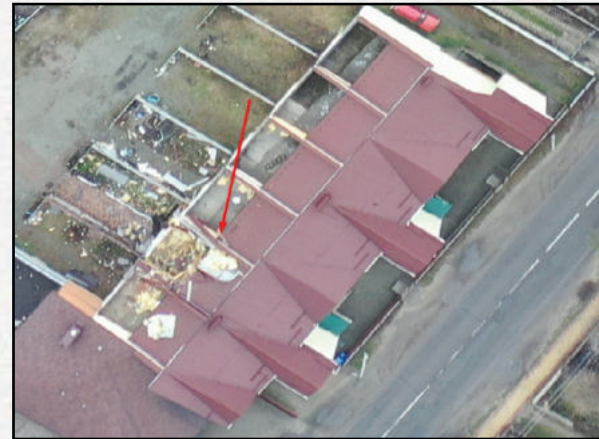
Severe destruction



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



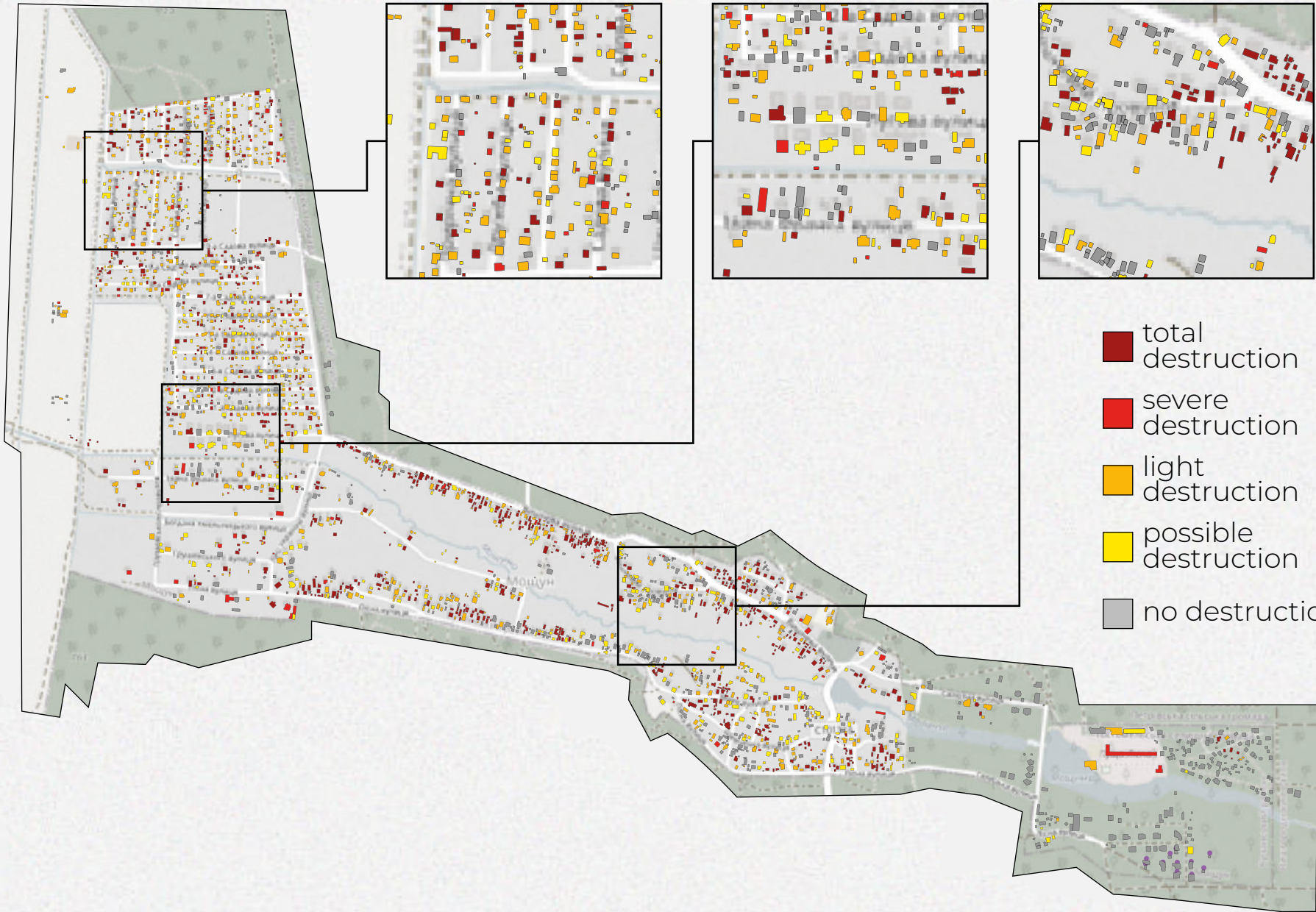
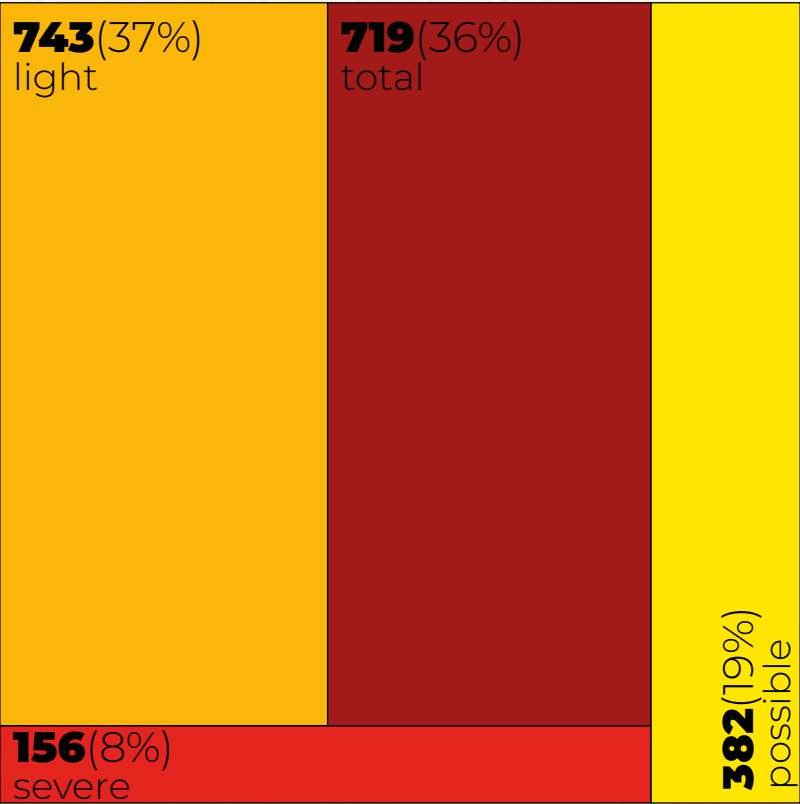
Intended for buildings that are difficult to interpret due to lower image quality (for example, shadow or poor resolution due to high angle of shooting).

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

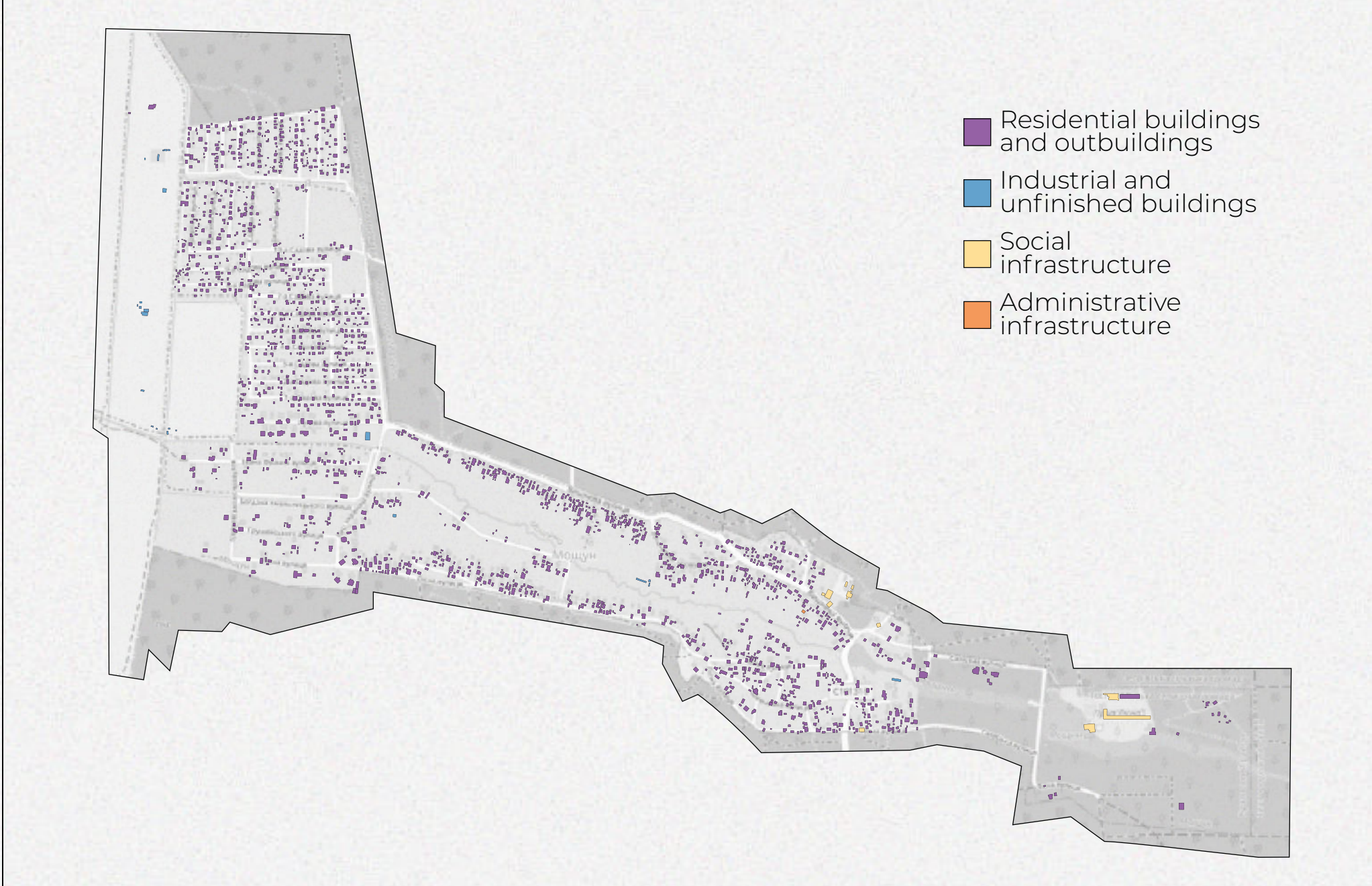
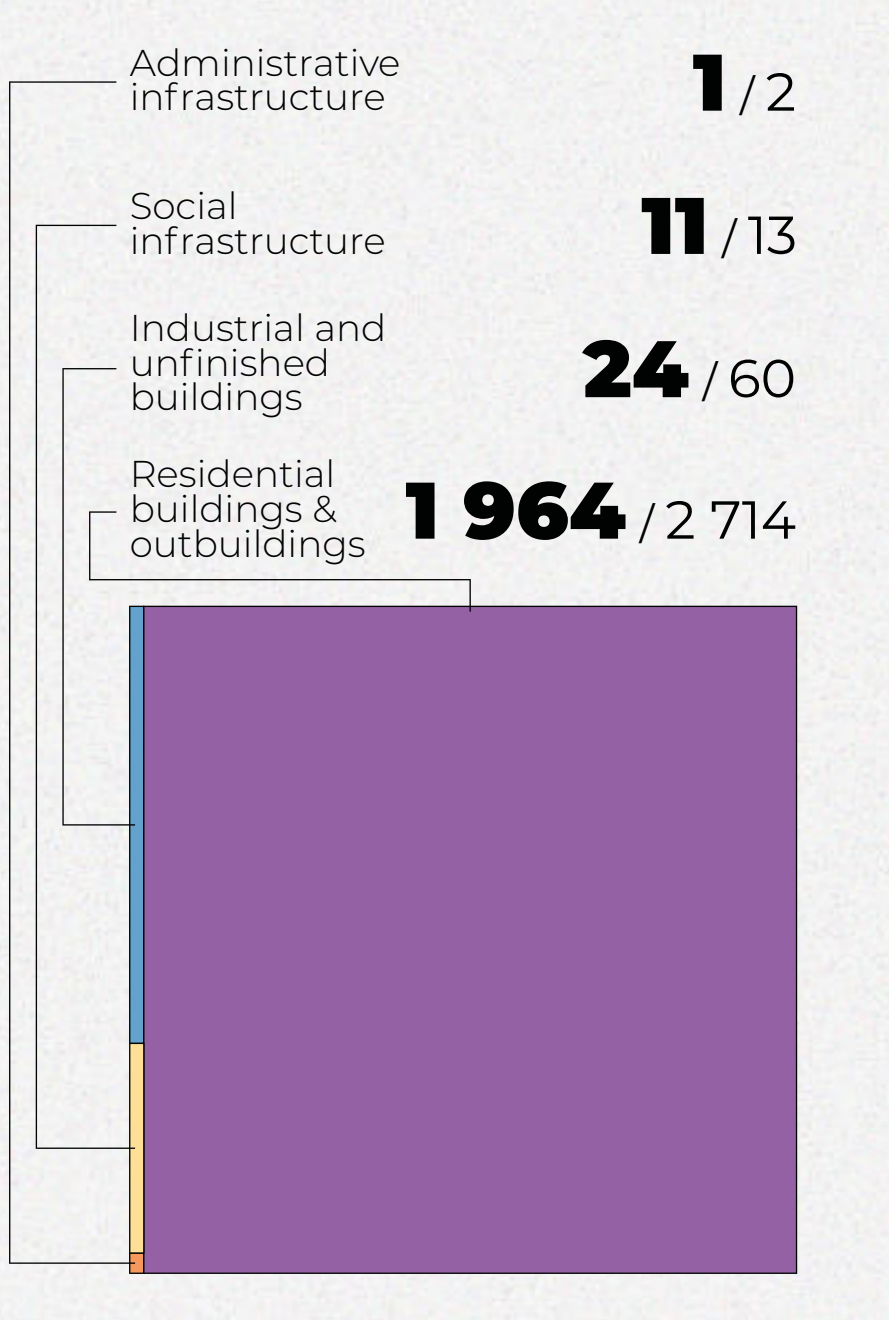
LEVELS OF DESTRUCTION

Buildings destroyed:
2 000 out of 2 789

Level of destruction, number of buildings



TYPES OF DESTROYED OBJECTS




SCALE OF DESTRUCTION

Social infrastructure

Hotels & restaurants
 **3** / 5

Educational facilities
 **3** / 3

Shops
 **3** / 3

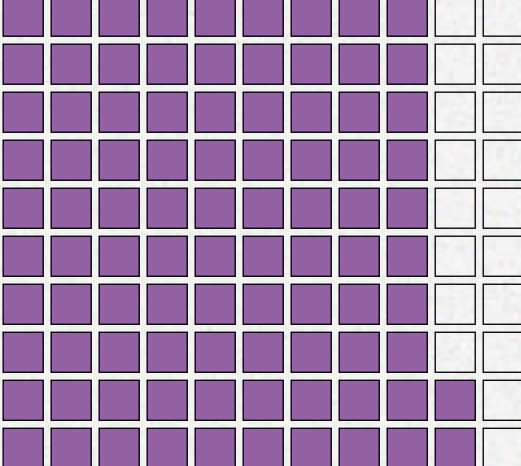
Cultural institutions
 **1** / 1

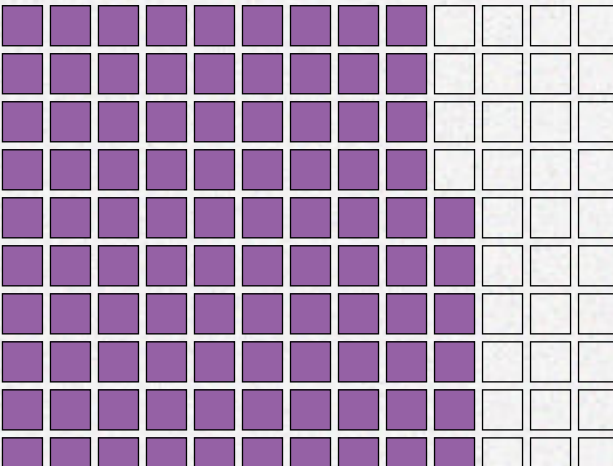
Churches
 **1** / 1

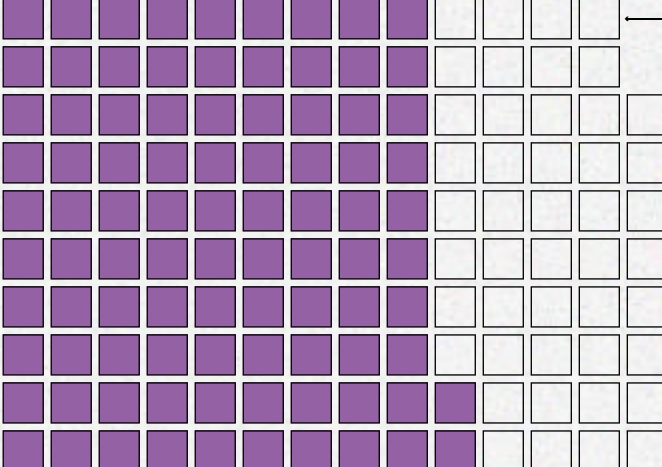
Administrative infrastructure

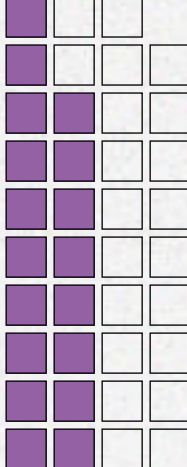
 **1** / 2

Residential buildings

Private houses
 **921** / 1160

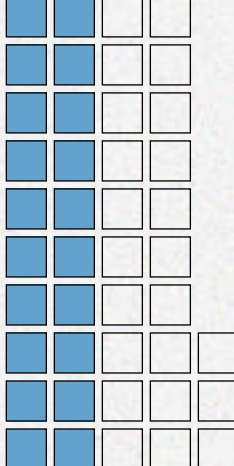
Garages
 **96** / 130

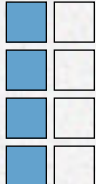
Outbuildings
 **921** / 1377

Greenhouses
 **18** / 39

Townhouses
 **8** / 8

Industrial infrastructure

Industrial buildings
 **20** / 43

Unfinished buildings
 **4** / 17

ASSESSMENT OF LOSSES

Social infrastructure

■ \$10 ths

Hotels & restaurants



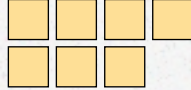
\$36.22
ths

Educational facilities



\$7.26
ths

Shops



\$72.37
ths

Cultural institutions



\$36.29
ths

Churches



\$14.52
ths

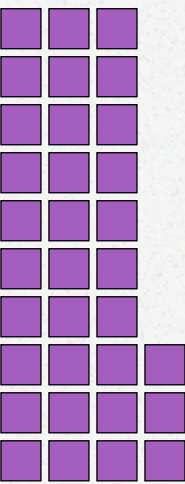
Administrative infrastructure



\$3.63
ths

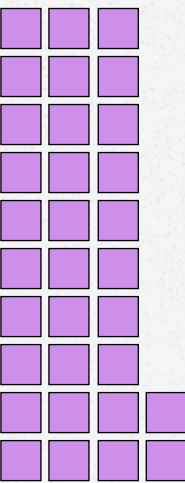
Residential buildings

Private houses



\$32.62
mln

Outbuildings



\$3.24
mln

■ \$1 mln ■ \$100 ths ■ \$1 ths

Garages



\$474.51
ths

Greenhouses



\$9.23
ths

Industrial infrastructure

■ \$100 ths

Industrial buildings



\$718.62
ths

Unfinished buildings

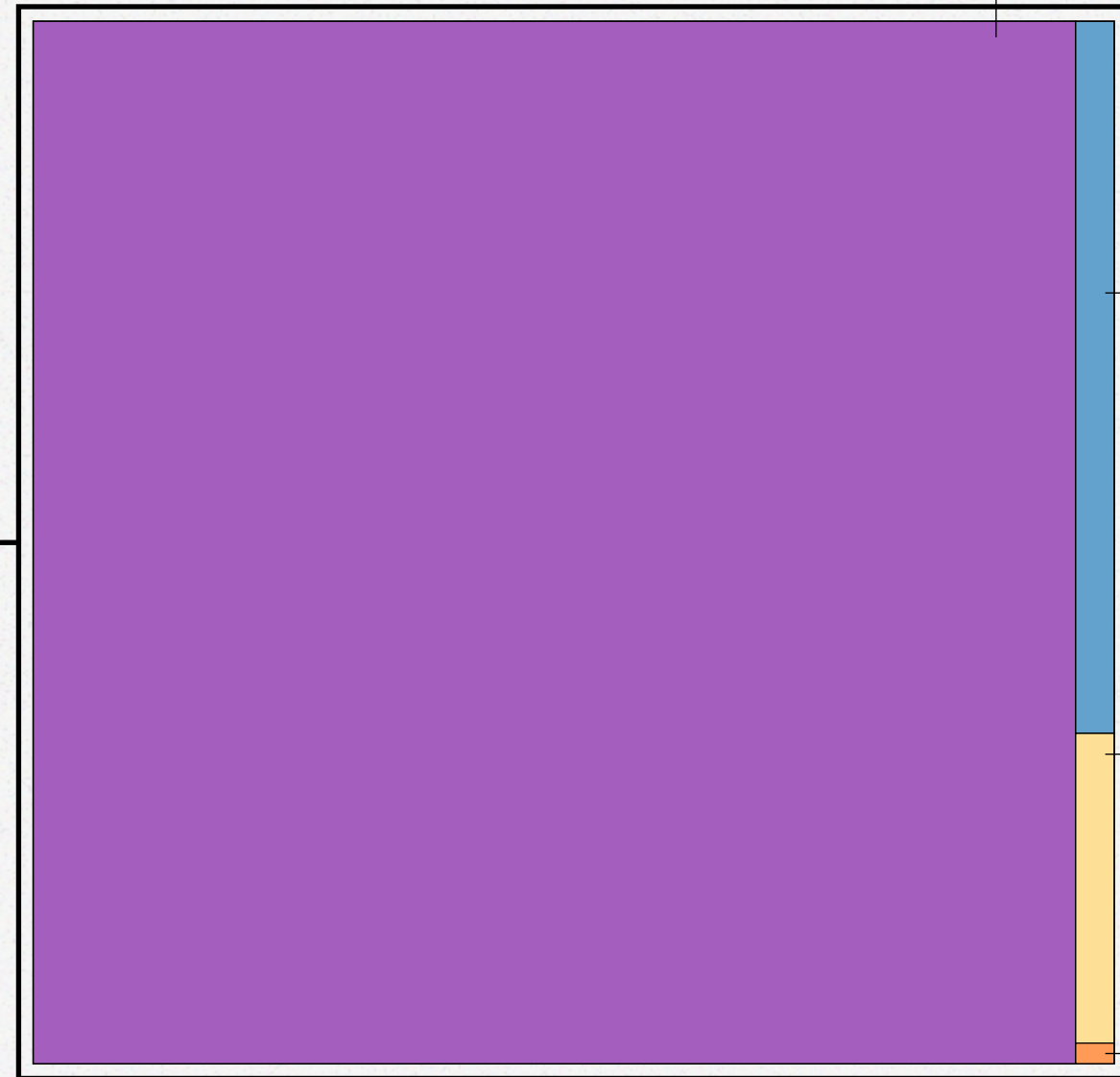


\$116.14
ths

ASSESSMENT OF LOSSES

Losses by types of buildings

Total losses
\$37.34 mln
(1.1 bln UAH)



Residential and outbuildings

\$36.34 mln

Industrial infrastructure and unfinished buildings

\$834.76 ths

Social infrastructure

\$166.65 ths

Administrative infrastructure

\$3.63 ths

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%

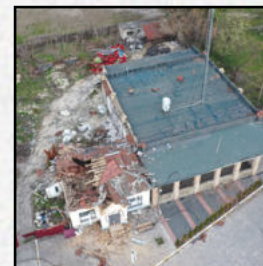
of the replacement
cost of possible
destruction

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

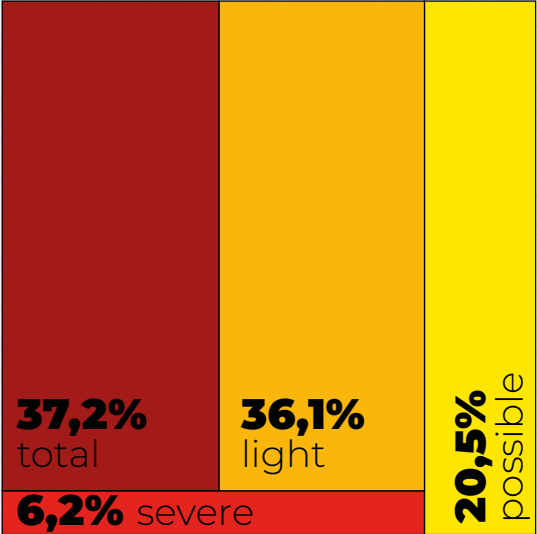
Medium facilities, in particular, social infrastructure, trade objects, and services (health, education and culture, shops, hotels, restaurants, etc.) are calculated on the basis of average cost data, taking into account the type of area (urban/rural).



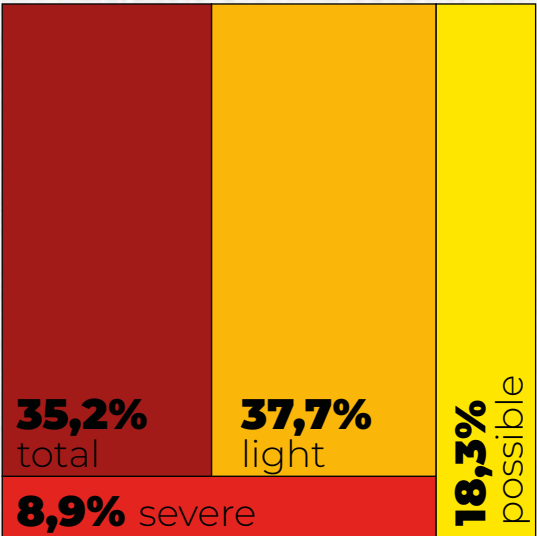
Small objects

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).

SCALE OF DESTRUCTION



Level of
destruction
of residential
buildings
(houses,
townhouses)



Level of
destruction
of outbuildings
(outbuildings,
garages,
greenhouses)



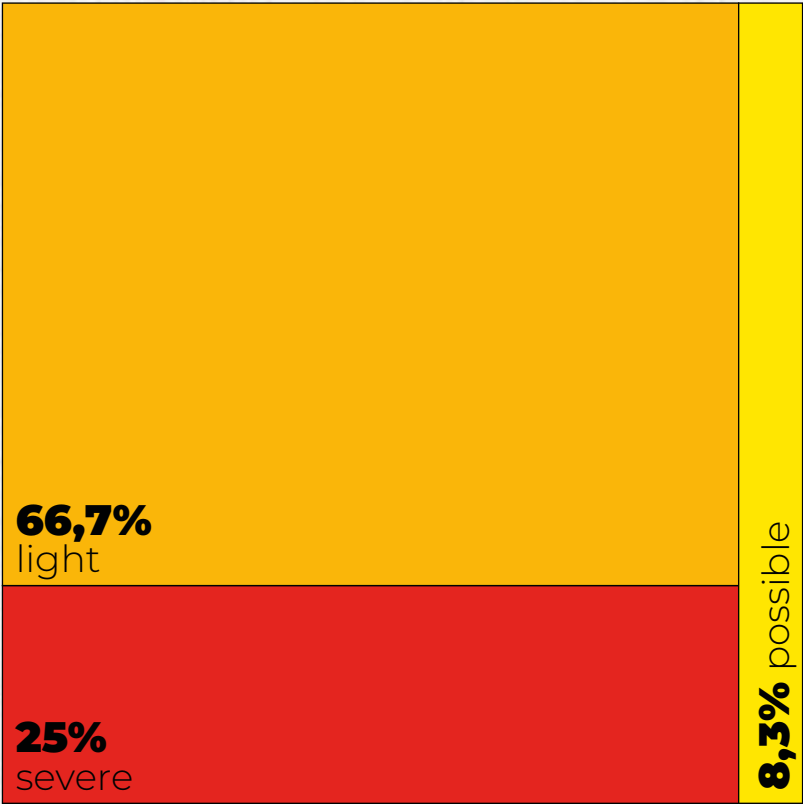
Private house



Private sector

SCALE OF DESTRUCTION

Level of destruction



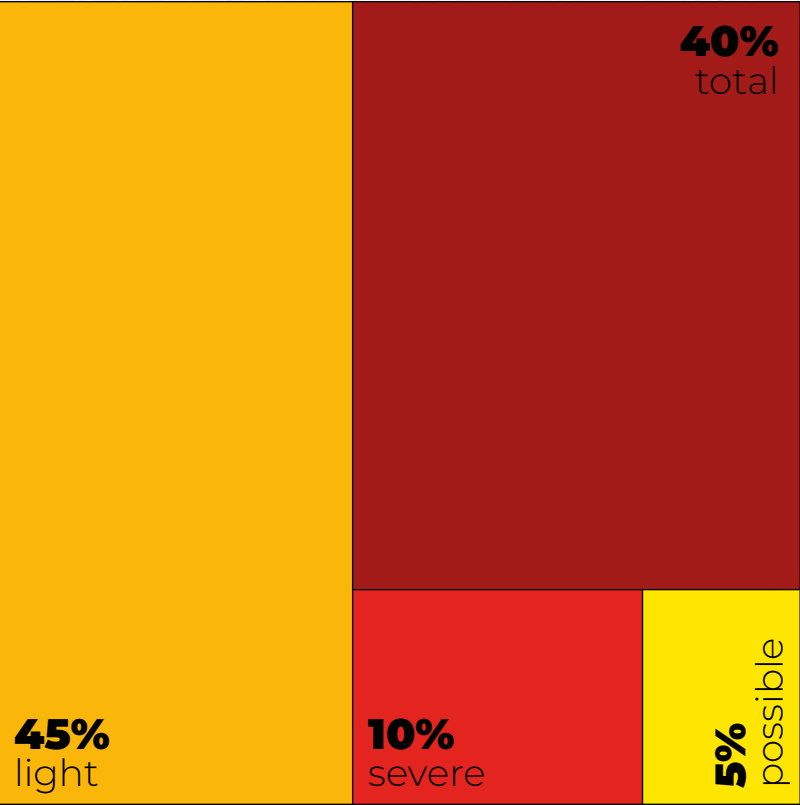
Church of Ioann Khrestytel



Grocery store

SCALE OF DESTRUCTION

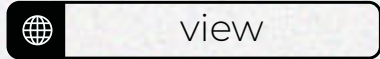
Level of destruction of industrial buildings



Sawmill

MOSHCHUN THROUGH THE EYES OF BEHOLDERS

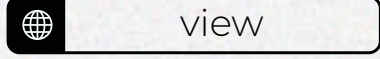
In bloodied front-line town, Ukrainian forces push Russians back



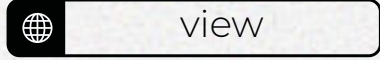
Aerial Shots Show Extent Of Destruction In Moshchun, Near Kyiv



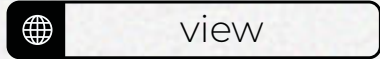
Footage shows the destruction in Ukraine's Moshchun village



Where should I put oilcloth? Report from Moshchun village ruined by russians



Mines and booby traps: Risky return home for Ukrainians



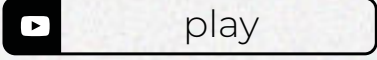
Russian forces devastated village of Moshchun destroyed as they advanced on Kyiv



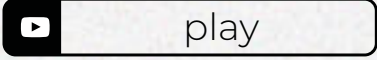
Anadolu Agency captures footage of destruction in Ukraine's Moshchun village



War in Ukraine / The tragedy of the village of Moshchun

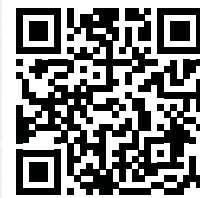


Drone footage shows devastated village of Moshchun on outskirts of Kyiv



REBUILDUA

The RebuildUA project aims to analyze and visualize the destroyed infrastructure of Ukraine, make this information public and share the results with communities, public authorities and specialized foundations.



rebuildua.net

Partners:

Visual style
and content:

TOP
LEAD

Assessment of losses
and damage, budgeting:

KSE | Kyiv
School of
Economics

Digitization of
geospatial information:

Урбанина

Support in cooperation
with public authorities:



Supported by:

