HASSELT PILOT

Urban Edge

Pilot construction and next steps

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PILOT OBJECTIVE

Pilot Requirements

LOCATION

Hasselt, Limburg, Flanders

Data scope; but replicable throughout Belgium

TARGET USERS

Real State Market

Architects, urban planners, real estate developers, and municipalities

MVP FORMAT

Map-based decision support

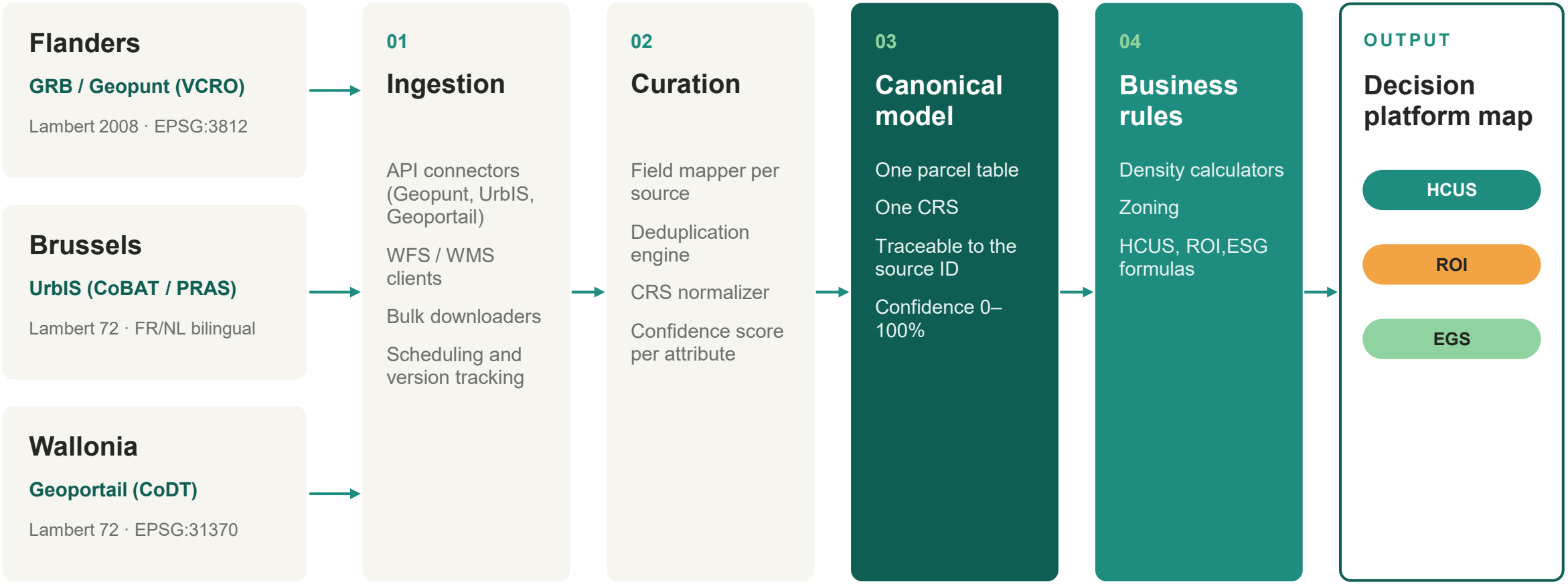
Multiple scores decision - Intuitive, non-technical UX

MVP USER FLOW



TARGET ARCHITECTURE

Pilot architecture
Future canonical model for all three Belgian regions



DATA USED

Seven layers feed the canonical data model

1 Parcel boundaries

Defines the plots evaluated

Geopunt / GRB (Adpf)

2 Zoning

What is legally allowed

DSI Vlaanderen · gewestplan

3 Existing buildings

Current use and capacity

Geopunt / GRB

4 Density / height limits

Densification potential

CadGIS

5 Street network

Walkability and Mobility Input

GRB + OpenStreetMap

6 Green space

Environmental Input

ANB + OSM

7 Demographics

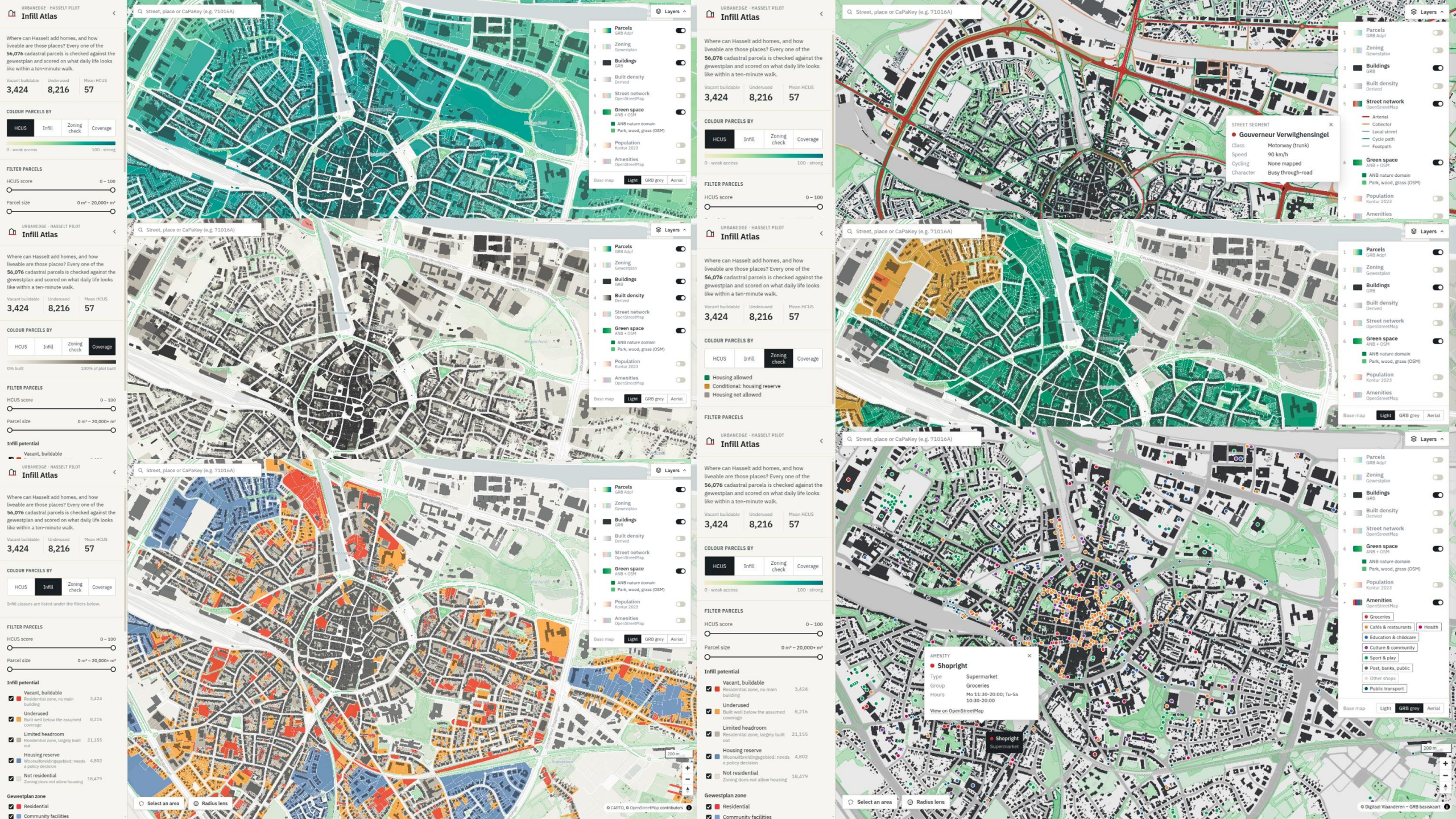
Socio-economic Input

Statbel · Provincies in Cijfers · Kontur 2023

Also in the Atlas

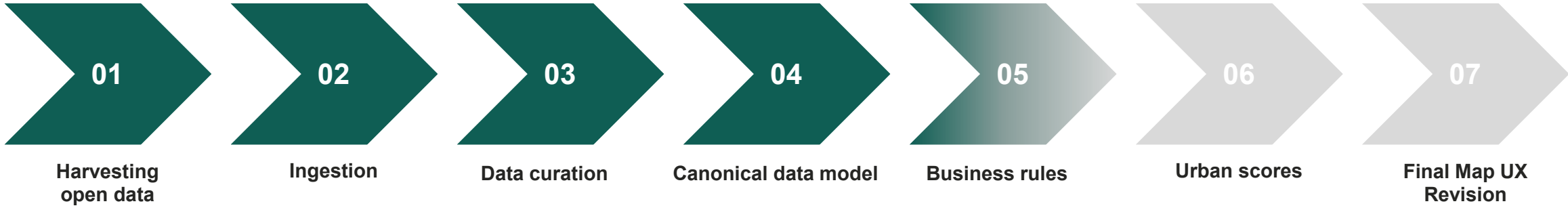
Amenities (OSM), built density (derived),

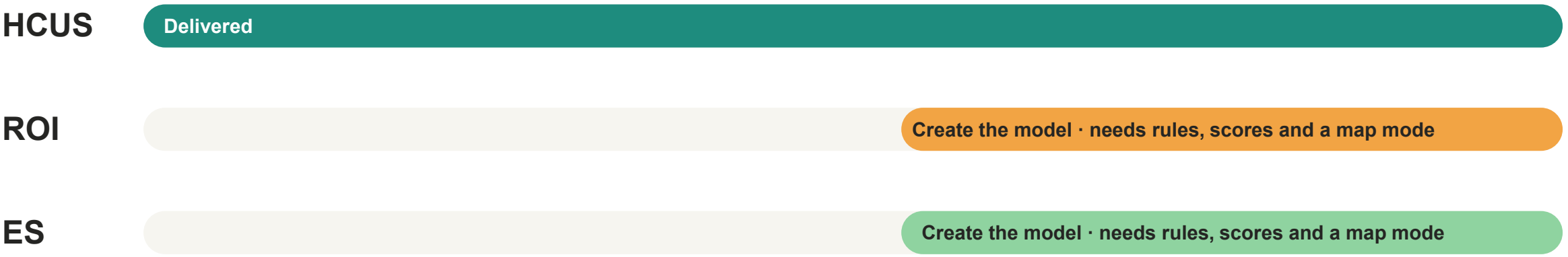
grey, light and aerial base maps


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Infill Atlas
Where can Hasselt add homes, and how liveable are those places? Every one of the 56,076 cadastral parcels is checked against the gewestplan and scored on what daily life looks like within a ten-minute walk.
Vacant buildable 3,424
Underused 8,216
Mean HCUS 57
COLOUR PARCELS BY
HCUS
Infill
Zoning check
Coverage
0 · weak access
100 · strong
FILTER PARCELS
HCUS score 0 – 100
Parcel size 0 m² – 20,000+ m²
Infill potential
Vacant, buildable
Residential zone, no main building
3,424
Underused
Built well below the assumed coverage
8,216
Limited headroom
Residential zone, largely built out
21,155
Housing reserve
Woonuitbreidingsgebied: needs a policy decision
4,802
Not residential
Zoning does not allow housing
18,479
Gewestplan zone
Residential
Community facilities
Infill classes are listed under the filters below.
Housing allowed
Conditional: housing reserve
Housing not allowed
Street, place or CaPaKey (e.g. 71016A)
Layers
Parcels
GRB Adpf
Zoning
Gewestplan
Buildings
GRB
Built density
Derived
Street network
OpenStreetMap
Green space
ANB + OSM
ANB nature domain
Park, wood, grass (OSM)
Population
Kontur 2023
Amenities
OpenStreetMap
Base map
Light
GRB grey
Aerial
STREET SEGMENT
Gouverneur Verwilghensingel
Class Motorway (trunk)
Speed 90 km/h
Cycling None mapped
Character Busy through-road
Arterial
Collector
Local street
Cycle path
Footpath
AMENITY
Shopright
Type Supermarket
Group Groceries
Hours Mo 11:30-20:00; Tu-Sa 10:30-20:00
View on OpenStreetMap
Groceries
Cafés & restaurants
Health
Education & childcare
Culture & community
Sport & play
Post, banks, public
Other shops
Public transport
Select an area
Radius lens
200 m
© CARTO, © OpenStreetMap contributors
© Digitaal Vlaanderen – GRB basiskaart

HOW IT IS BUILT

Pilot Steps





WHAT THE ATLAS DOES

Eight functions

01

Colour parcels by

Color categorization and density-based filters

02

Filter parcels

HCUS score 0–100 and parcel size 0 to 20,000+ m²

03

Classes

Toggle vacant, underused, limited headroom, reserve, not residential

04

Zoning check

Housing allowed, conditional (reserve) or not allowed, per gewestplan

05

Layers & base maps

8 layers (parcels to amenities); light, GRB grey and aerial

06

Search

Street, place or parcel ID

07

Select an area

Draw a zone and summarise the parcels inside it

08

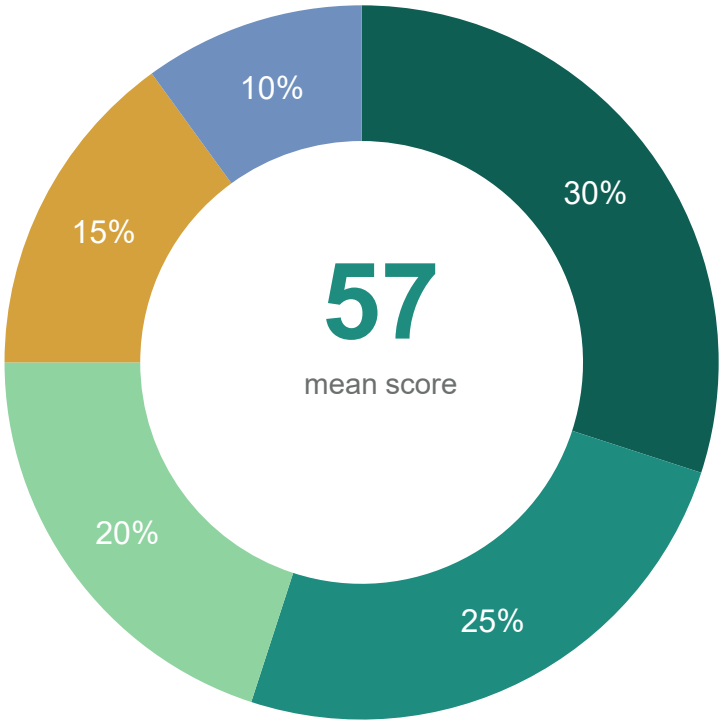
Radius lens

Walk-radius and nearest services

INDEX 1 · DELIVERED

HCUS: Human-Centered Urban Score

How well a place supports daily life on foot, scored 0–100.



Walkability **30%**

Intersection density, pedestrian-friendly street share, land-use mix (entropy of 6 POI groups)

Amenities **25%**

Distance to supermarket, school, doctor, pharmacy (400 / 800 / 1,200 m) plus other services in 800 m

Parks **20%**

Distance to entrances of public parks ≥ 0.5 ha; bonus for parks ≥ 5 ha

Shopping **15%**

Shop density (kernel 800 m) and distance to the retail core

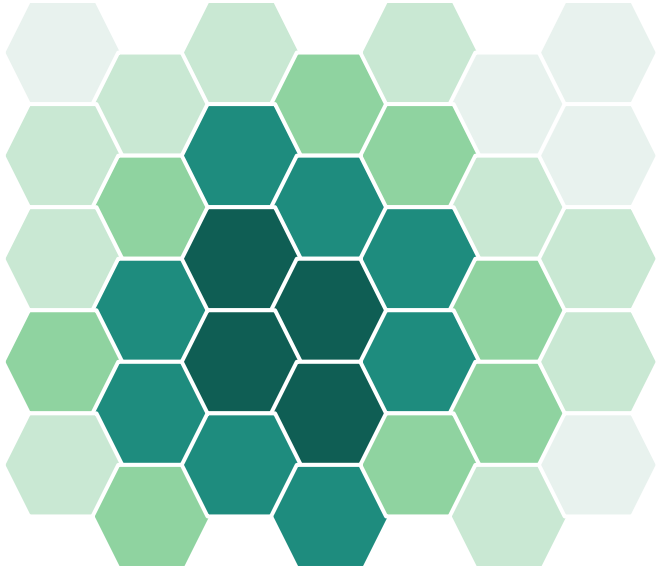
Transit **10%**

Bus stop within 400 / 800 m; bonus within 800 m of the rail station

FROM ONE INDEX TO THREE

ROI and ESG join HCUS on one shared hexagon grid

HCUS	Human-Centered Urban Score	Delivered
ROI	Return on Investment	Next · method drafted
ESG	Environmental Sustainability	Next · method drafted
ROS	Risk-Opportunity Scoring	Future phase
FVS	Future Value Sustainability	Future phase



120 m
hexagon (60 m side)

~0.94 ha
per cell, never clipped

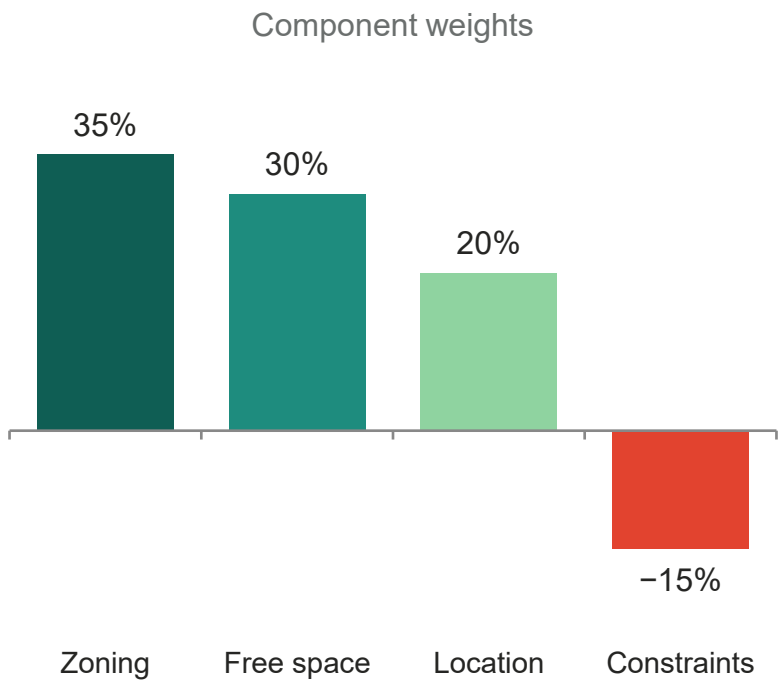
~10,900
cells over ~102 km²

0–100
score, 5 quantile classes

ROI: Return on Investment Index

Development return potential of each cell, 0–100. Location stands in for market value.

$$ROI = \max(0,\ 0.35 \cdot Zone + 0.30 \cdot Free + 0.20 \cdot Loc - 0.15 \cdot Constr) \times 100$$



Zoning 35%

Area-weighted zoning score per cell: mixed-use 1.0 … industrial 0.2, nature/agriculture 0

Free space 30%

Buildable land not sealed (pieces ≥ 200 m²) + densification headroom from GSI or FAR

Location 20%

0.6 × HCUS + 0.4 × proximity to the retail core, replacing price data

Constraints −15%

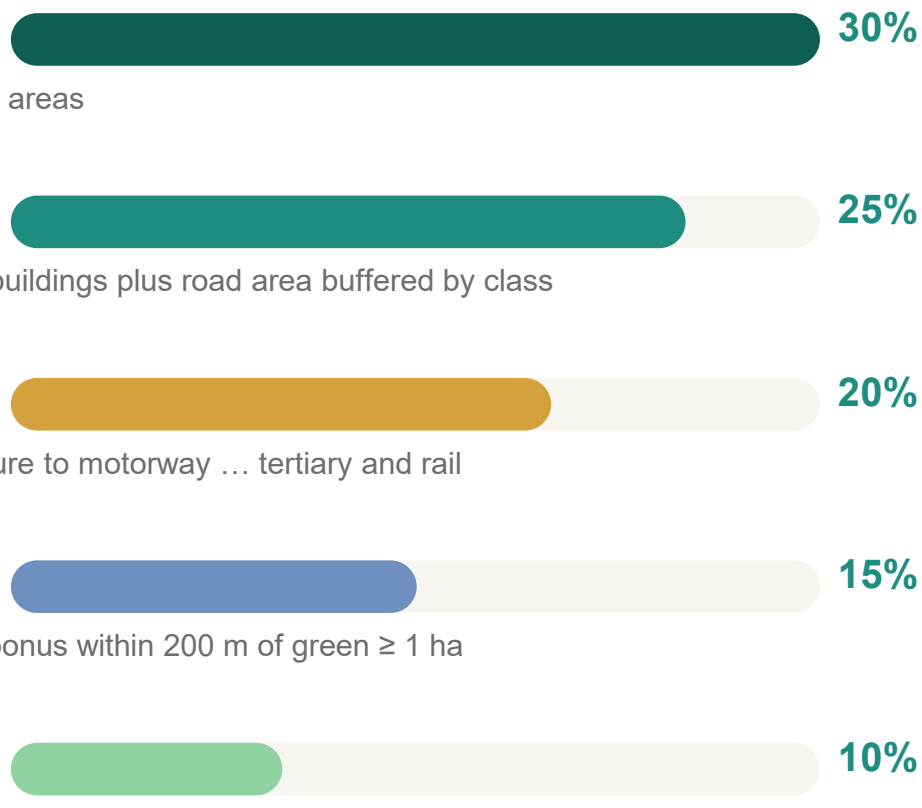
Green land in buildable zones (Bouwshift), major-road exposure, industrial neighbours

Exclusion rule: a cell with only nature, agriculture or forest zoning gets ROI = 0.

INDEX 3 · TO BUILD

ES: Environmental Sustainability Index

Environmental quality and resilience of each cell, 0–100. Traffic stands in for noise and air.



Green cover 30%

Share of the cell covered by green areas

Sealing 25%

Inverted share of sealed surface: buildings plus road area buffered by class

Traffic exposure 20%

Inverted, distance-decayed exposure to motorway … tertiary and rail

Cooling 15%

Heat risk (sealed − green) plus a bonus within 200 m of green ≥ 1 ha

Biodiversity 10%

Green type (forest 1.0 … lawn 0.1), largest patch, connectivity in 500 m

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Thank you

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