



# HOD – THE DUTCH STYLE TOD?

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# What is HOD?

*H.....* **Oriented Development:**

**a. Health**

**b. Happiness**

**c. Hybrid**

# What is HOD?

***H.....* Oriented Development**

**a. Health – *saúde* - *salud***

**b. Happiness – *felicidade* -  
*felicidad***

**c. Hybrid – *híbrido* - *híbrido***

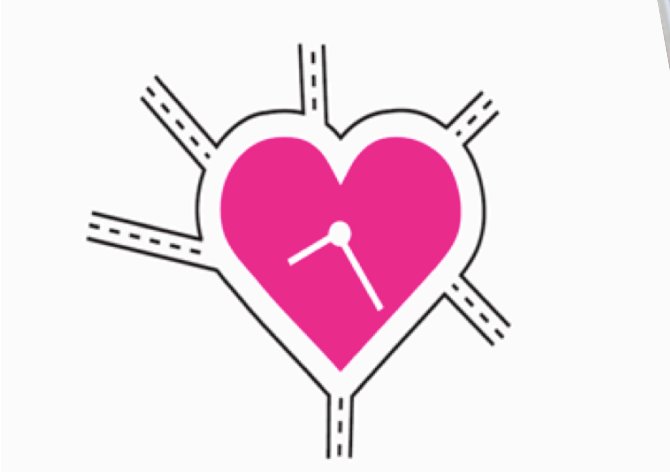
# The urban planning concept of HOD



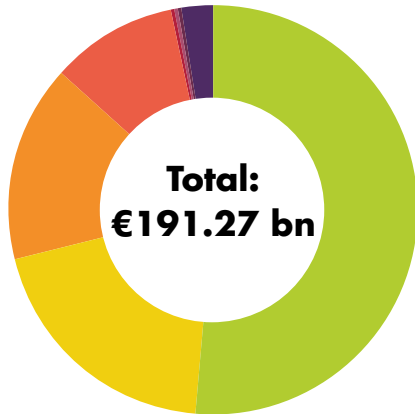
**Health**

***Saúde***

***Salud***



## HEALTH BENEFITS OF CYCLING (BILLION EUROS)



- Longer lives: € 97,00
- Healthier lives: € 39,00
- Improved mental health: € 30,00
- Improved kids health versus sedentary life styles: € 20,00
- Reduced fatalities: € 0,38
- Reduced serious injuries: € 0,33
- Reduced light injuries: € 0,06
- Reduced absenteeism: € 4,50





**Happiness**

***Felicidade***

***Felicidad***



“Happiness” by Leo Bormans





**Hybrid**

***Híbrido***

***Híbrido***



Choose radically in rural areas



Car

Choose radically in urban areas: bike & train



PT



Bike



Car  
50 kmh, 1 occupant



Car  
parked



Tram  
50 occupants



Pedestrian  
walking



Pedestrian  
standing still



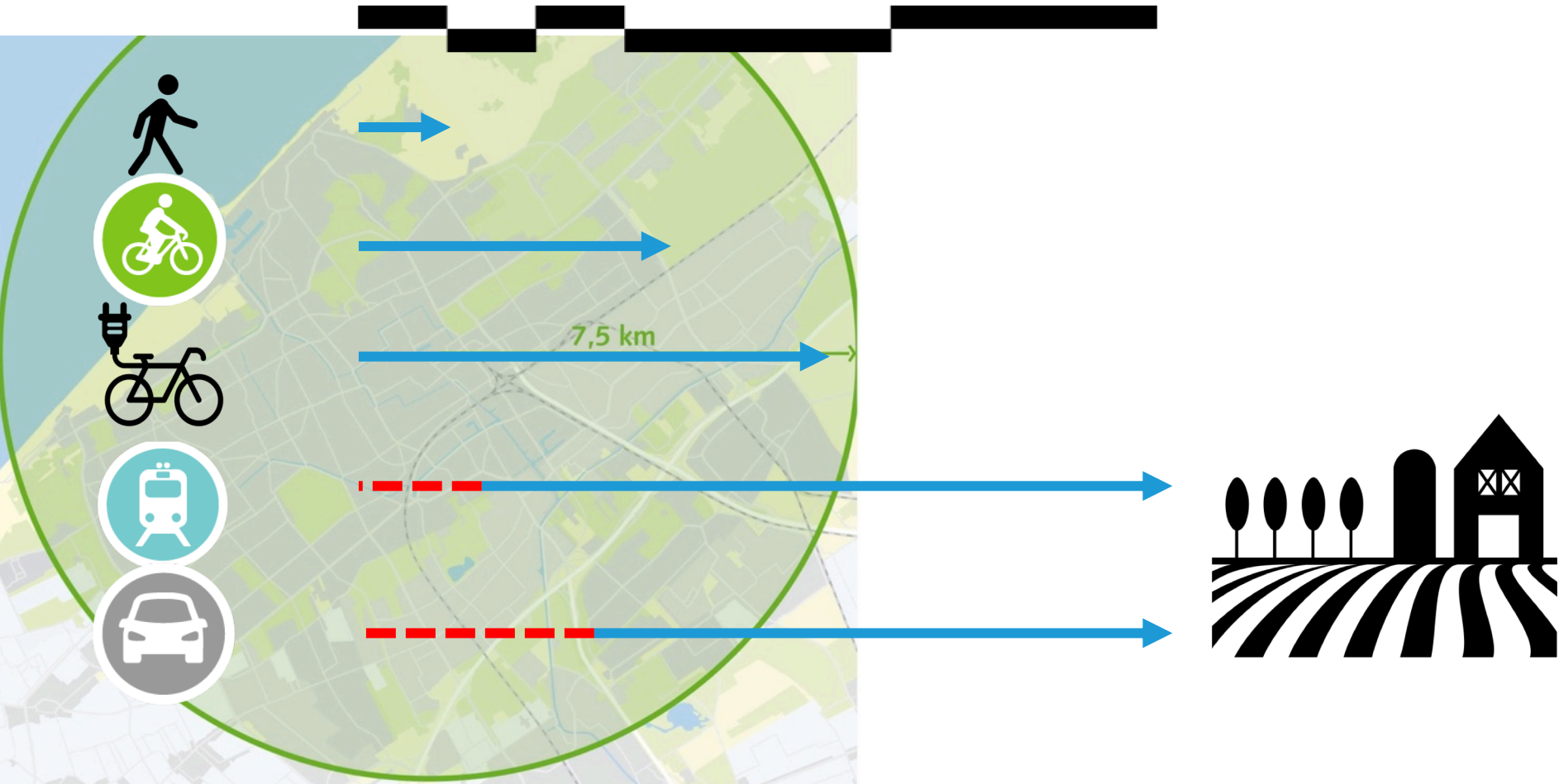
Cyclist  
15 kmh



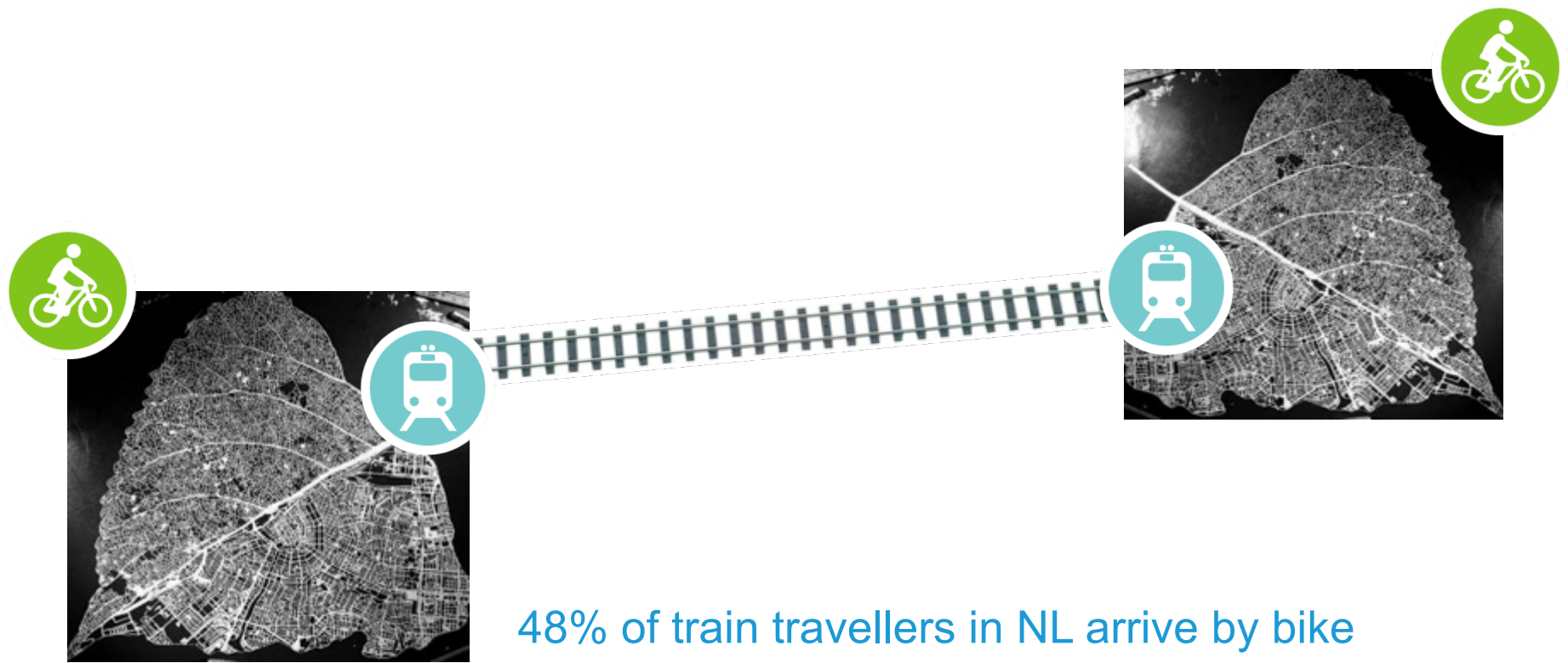
Bicycle  
parked





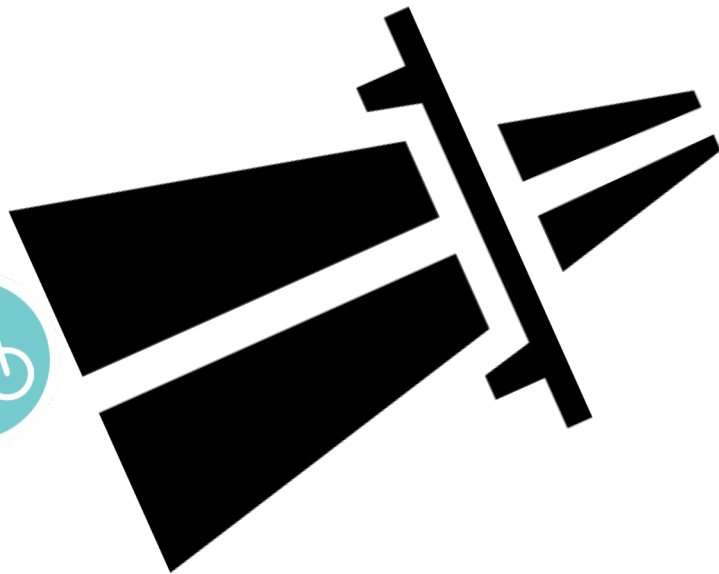


# Hybrid bike-train system



48% of train travellers in NL arrive by bike

# Hybrid bike-car system

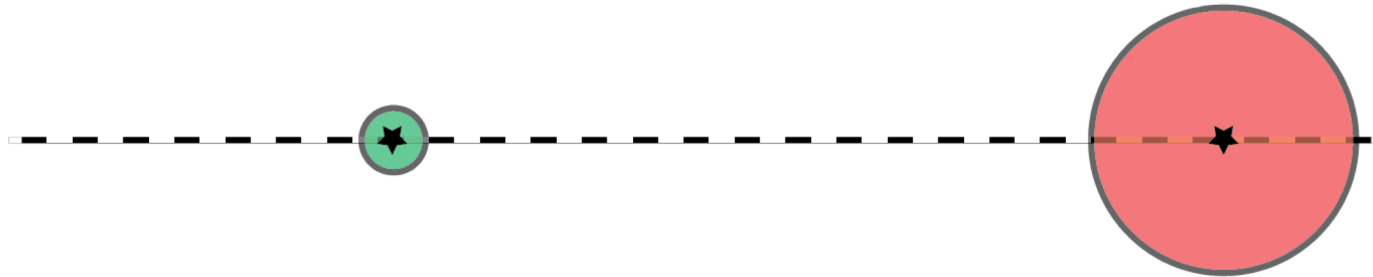


# Catchment area TOD vs HOD



- 500 – 700 meter
- < 10 minutes walking
- Catchment area 79 ha.

- 2 - 3 kilometer
- < 10 minutes cycling
- Catchment area 1256 ha.



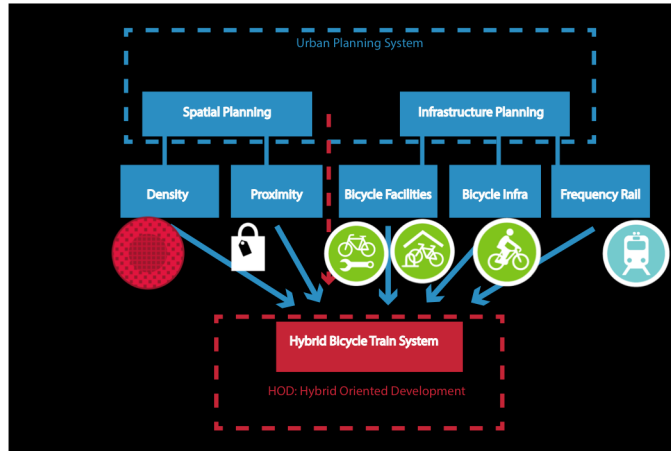
TOD



HOD



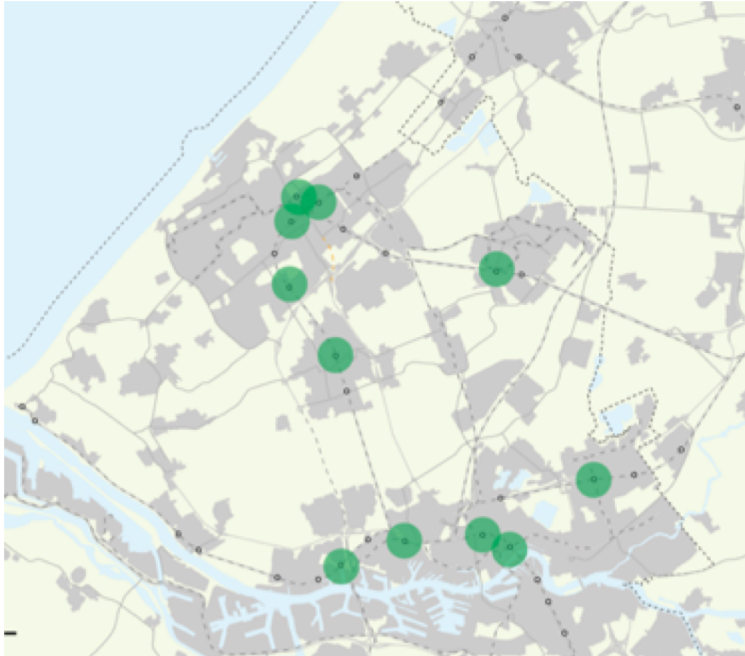
Hybrid bike-train  
Oriented  
Development



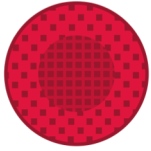


**Network Bicycle**

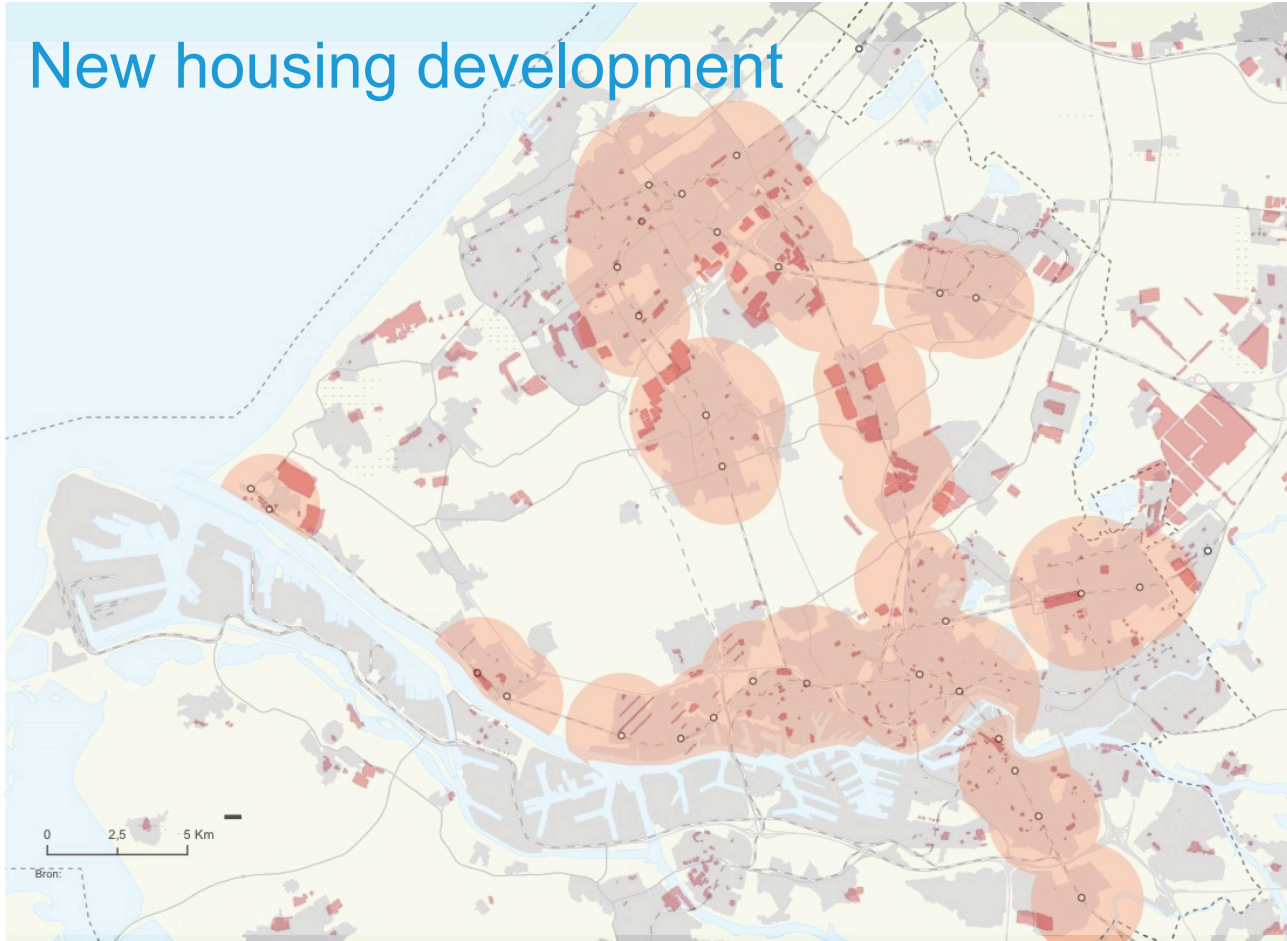
# Reach of TOD concept vs. HOD concept in MRDH

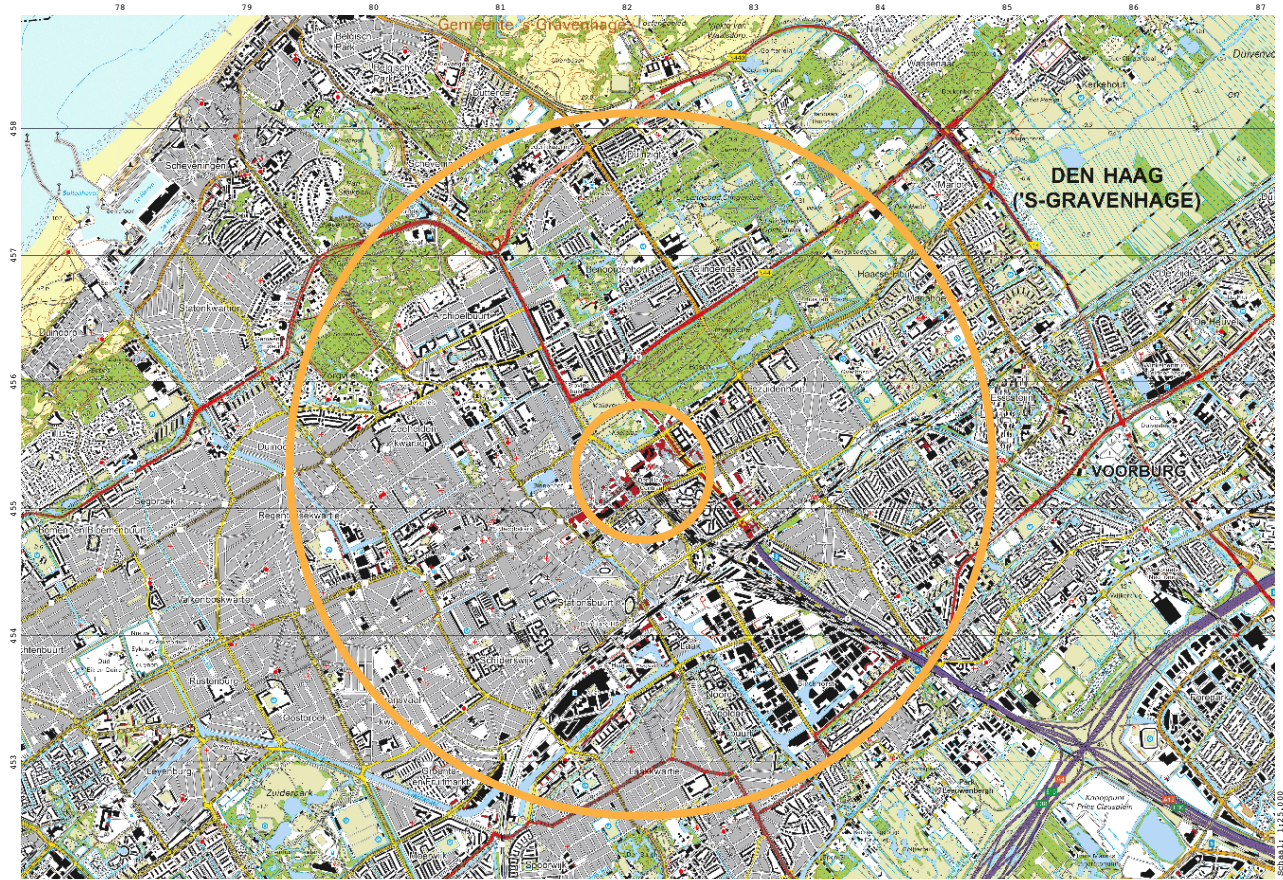
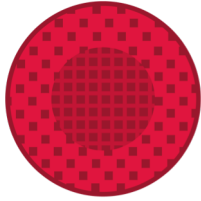


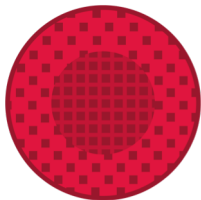




# New housing development







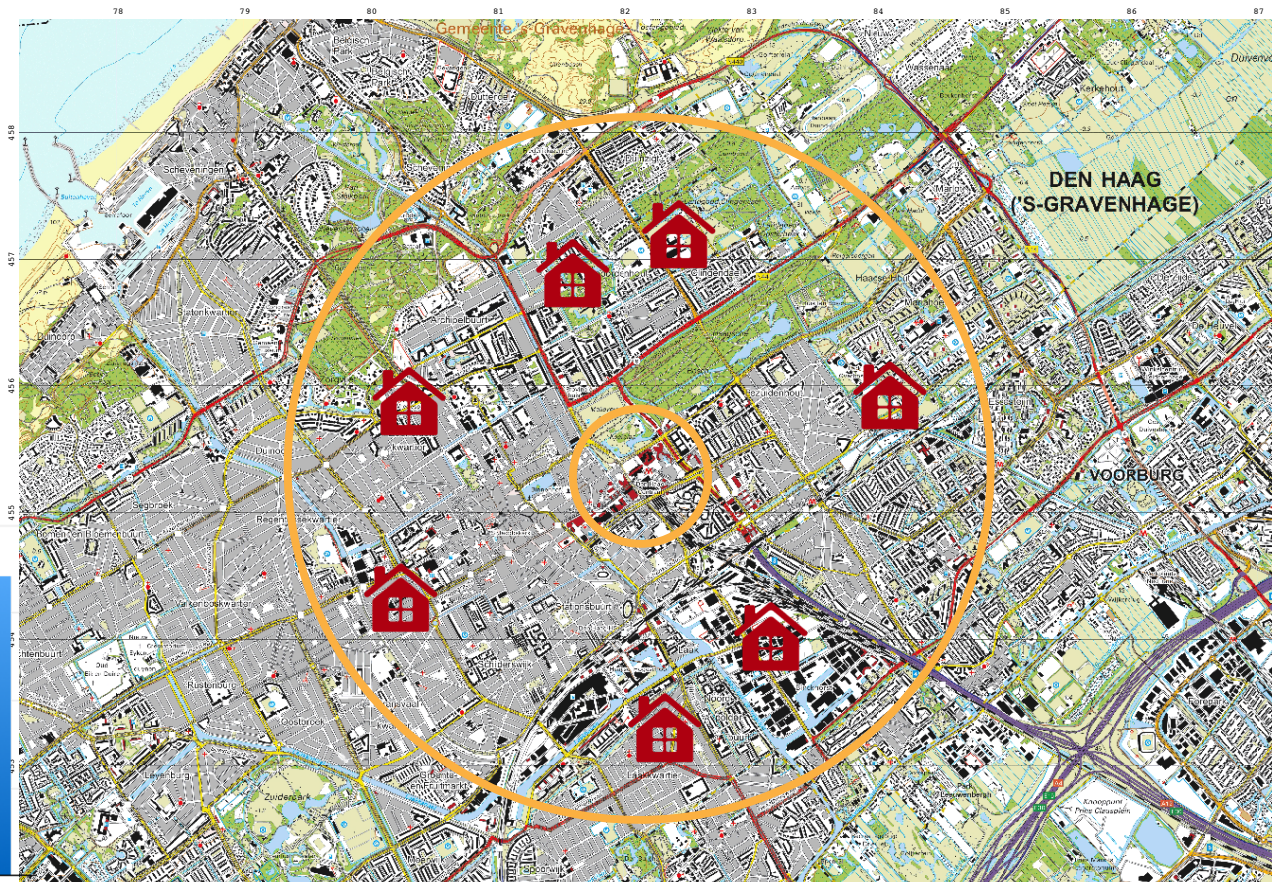
■ Average housing density (#houses/ha)



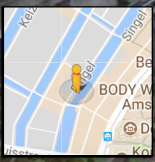
TS Den Haag centraal walking distance



TS Den Haag centraal cycling distance



Singel  
Amsterdam, North Holland  
Google, Inc.  
Street View - Sep 2017



Google

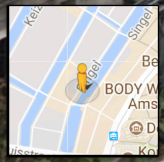


Singel

Amsterdam, North Holland

Google, Inc.

Street View - Sep 2017



Singel

Amsterdam, North Holland

Google, Inc.

Street View - Sep 2017

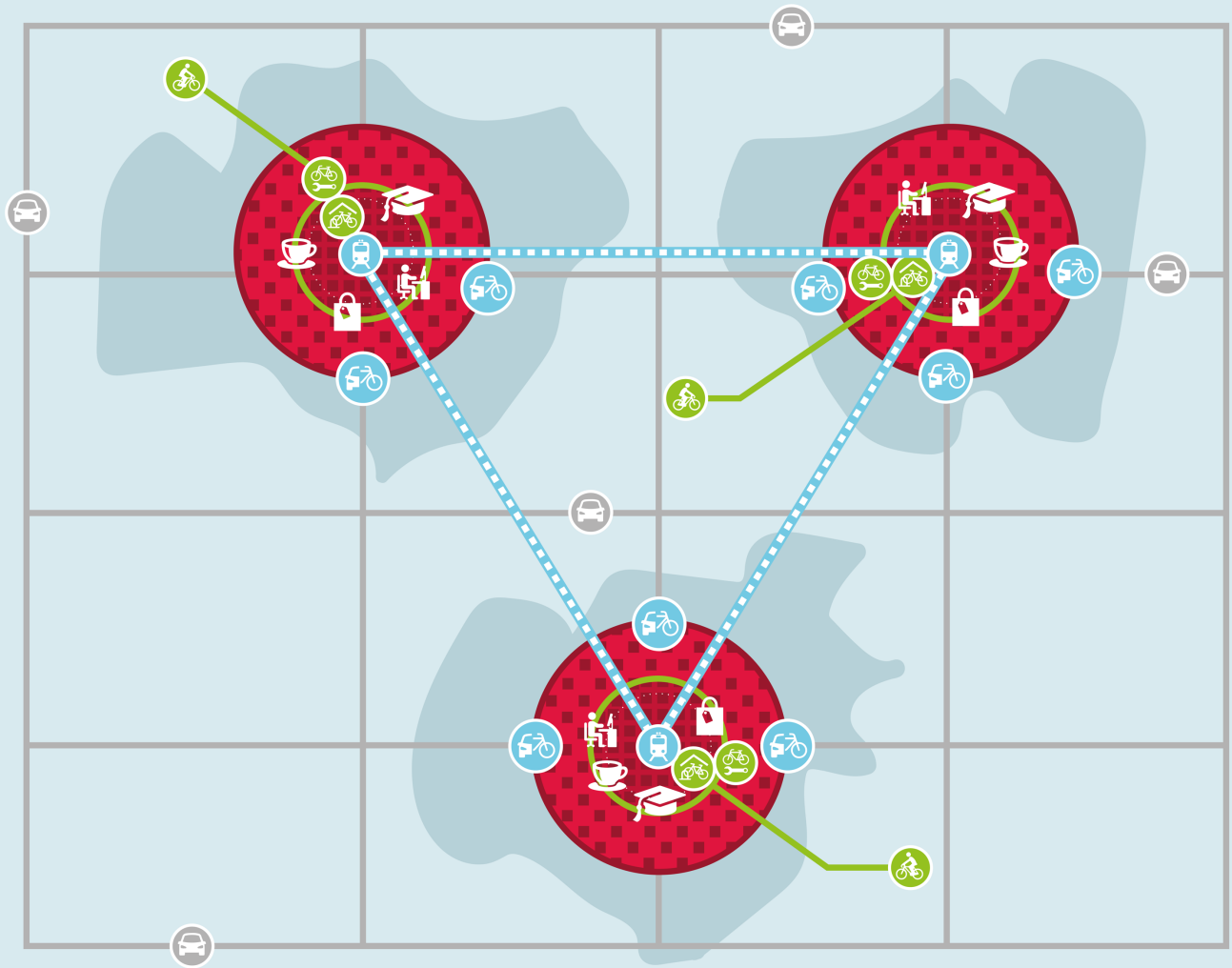


**H<sup>3</sup>OD:**

**Health +**

**Happiness +**

**Hybrid Oriented Development**





# Obrigado – Gracias - Thanks!

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