intensity in density

part 1: research large scale

part 2: research medium scale

part 3: research small scale

course: public realm graduation studio
tutor: Nicola Marzot
date: 29-10-2010

Sietse Belt
Gwendolyn Huisman
Robbert van de Straat
intensity in density

intense city
dense city
mapping several parameters related to the topic of density in different scales of the city. Inspired by Richard Rogers, Anne Power and Richard Burdett.

> the result of layering this data will give an artificial impression of the real city life.
Large scale - Rotterdam districts

*Rotterdam - districts*
Statistics
Graduation studio public realm

demography - age

<table>
<thead>
<tr>
<th>districts rotterdam</th>
<th>% &gt;65 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>average</td>
<td>14%</td>
</tr>
<tr>
<td>delfshaven</td>
<td>8%</td>
</tr>
<tr>
<td>noord</td>
<td>10%</td>
</tr>
<tr>
<td>stadscentrum</td>
<td>11%</td>
</tr>
<tr>
<td>haven/industriegebied</td>
<td>11%</td>
</tr>
<tr>
<td>feijenoord</td>
<td>12%</td>
</tr>
<tr>
<td>kralingen-crooswijk</td>
<td>13%</td>
</tr>
<tr>
<td>charlois</td>
<td>14%</td>
</tr>
<tr>
<td>pernis</td>
<td>16%</td>
</tr>
<tr>
<td>overschie</td>
<td>17%</td>
</tr>
<tr>
<td>hillegersberg-schiebroek</td>
<td>18%</td>
</tr>
<tr>
<td>hoogvliet</td>
<td>19%</td>
</tr>
<tr>
<td>ijsselmonde</td>
<td>19%</td>
</tr>
<tr>
<td>prins alexander</td>
<td>20%</td>
</tr>
<tr>
<td>hoek van holland</td>
<td>20%</td>
</tr>
</tbody>
</table>
msc 3 large scale - age diagrams

graduation studio public realm
demography - ethnicity

districts rotterdam % cape verdeans
average 3%
hoek van holland 0%
pernis 0%
hilligersberg-schiebroek 1%
prins alexander 1%
hoogvliet 1%
ijsemonde 1%
feijenoord 2%
charlois 2%
haven/industriegebied 2%
kralingen-crooswijk 2%
overschie 2%
oord 3%
stadscrum 3%
defshaven 8%
msc 3 large scale - ethnicity antilleans

demography - ethnicity

districts rotterdam % antilleans
average 3%
hoek van holland 0%
hillegersberg-schiebroek 1%
prins alexander 2%
oord 2%
stadcentrum 2%
kralingen-crooswijk 2%
pernis 2%
overschie 2%
delfshaven 3%
feijenoord 4%
hoogvliet 6%
ijsselmonde 6%
charlois 7%
demography - ethnicity

districts rotterdam | % surinamese
-------------------|-------------------
average            | 9%                
hoek van holland   | 1%                
penis              | 2%                
hilligersberg-schiebroek | 3%          
haven/industriegebied | 4%           
overschel          | 7%                
noord              | 8%                
stadcentrum        | 8%                
prins alexander   | 8%                
hoogvliet          | 8%                
kralingen-crooswijk | 8%       
ijsselmonde        | 10%               
feijenoord         | 11%               
charlois           | 11%               
defshaven          | 12%               

large scale - ethnicity surinamese
Unknown
demography - low income

districts rotterdam

- average: 51%
- hoek van holland: 33%
- hilligersberg-schiebroek: 38%
- pennis: 39%
- prins alexander: 41%
- stadscentrum: 43%
- hoogvliet: 45%
- noord: 49%
- kralingen-crooswijk: 52%
- overschie: 53%
- ijsselmonde: 53%
- charlois: 61%
- feijenoord: 63%
- delfshaven-pennis: 63%

large scale - low income
demography - middle income

<table>
<thead>
<tr>
<th>districts rotterdam</th>
<th>% middle income</th>
</tr>
</thead>
<tbody>
<tr>
<td>average</td>
<td>34%</td>
</tr>
<tr>
<td>defshaven</td>
<td>28%</td>
</tr>
<tr>
<td>feijenoord</td>
<td>28%</td>
</tr>
<tr>
<td>kralingen-crooswijk</td>
<td>29%</td>
</tr>
<tr>
<td>stadscentrum</td>
<td>31%</td>
</tr>
<tr>
<td>charlois</td>
<td>31%</td>
</tr>
<tr>
<td>hilligersberg-schiebroek</td>
<td>34%</td>
</tr>
<tr>
<td>overschie</td>
<td>34%</td>
</tr>
<tr>
<td>noord</td>
<td>36%</td>
</tr>
<tr>
<td>ijsselmonde</td>
<td>36%</td>
</tr>
<tr>
<td>prins alexander</td>
<td>39%</td>
</tr>
<tr>
<td>hoogvliet</td>
<td>42%</td>
</tr>
<tr>
<td>hoek van holland</td>
<td>46%</td>
</tr>
<tr>
<td>pernis</td>
<td>46%</td>
</tr>
</tbody>
</table>
demography - high income

districts rotterdam

average: 15%
charlois: 7%
feijenoord: 9%
defshaven: 10%
lijselmonde: 10%
overschie: 13%
hoogvliet: 13%
pernis: 15%
noord: 15%
kralingen-crooswijk: 19%
prins alexander: 20%
hoek van holland: 21%
stadscennum: 26%
hilligersberg-schiebroek: 29%
Graduation studio public realm

MSC 3 - Large scale - Income diagrams

Stadioncentrum
- Low income: 26%
- Middle income: 41%
- High income: 33%

Prins Alexander
- Low income: 20%
- Middle income: 41%
- High income: 39%

Pernis
- Low income: 15%
- Middle income: 39%
- High income: 46%

Overschie
- Low income: 13%
- Middle income: 51%
- High income: 36%

Noord
- Low income: 15%
- Middle income: 49%
- High income: 36%

Kralingen-Crooswijk
- Low income: 19%
- Middle income: 30%
- High income: 52%

IJsselmonde
- Low income: 10%
- Middle income: 53%
- High income: 37%

Hoogvliet
- Low income: 13%
- Middle income: 45%
- High income: 42%

Hoek van Holland
- Low income: 21%
- Middle income: 33%
- High income: 46%

Hillegersberg-Schiebroek
- Low income: 29%
- Middle income: 34%
- High income: 37%

Haven / Industrieproef
- Low income: 9%
- Middle income: 28%
- High income: 63%

Feyenoord
- Low income: 10%
- Middle income: 28%
- High income: 63%

Delfshaven
- Low income: 7%
- Middle income: 31%
- High income: 61%

Charlois
- Low income: 61%
- Middle income: 63%
- High income: 28%
large scale - elections Leefbaar Rotterdam

graduation studio public realm

politics - elections town council

districts rotterdam % Leefbaar Rotterdam
average 29%
delfshaven 15%
noord 18%
stadscentrum 22%
kralingen-crooswijk 24%
feijenoord 26%
hilligersberg-schiebroek 27%
charlois 32%
overschie 35%
hoek van holland 36%
prins alexander 36%
hoogvliet 40%
ljsselmonde 40%
pernis 45%
politics - elections town counsel

<table>
<thead>
<tr>
<th>districts</th>
<th>Rotterdam Average</th>
<th>D66</th>
</tr>
</thead>
<tbody>
<tr>
<td>pernis</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>ijsselmonde</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>hoek van holland</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>charlois</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>hoogvliet</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>feijenoord</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>overschie</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>prins alexander</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>delfshaven</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>krailingen-crooswijk</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>hilligersberg-schiebroek</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>noord</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>stadscentrum</td>
<td>16%</td>
<td></td>
</tr>
</tbody>
</table>
district conclusions
basic parameters: amount of households (black), ethnicity (amount of Dutch people, magenta), safety (yellow)
variables: low income, middle income, high income (cyan)

you can see that the darker (brown) an area is, the more intense it is according to the four densities. we chose these densities because it should give a rough impression of the socioeconomic status of the different areas within the city.

conclusion: the first combination (with the low income) is present in the north east wing of Rotterdam; the second combination (with the middle income) is present throughout Rotterdam, which some exceptions (centre en kralingen); the third combination (with the high income) is present in the north east wing of Rotterdam.

the comparison of these parameters shows that most adjacent areas show the same intensity, excluding from the city centre because of the current lack of many households (this will change in the future).

it also shows that the north east wing of Rotterdam contains both the low and high income class, which we didn’t expect to be present within 1 area.
conclusions - research demography and politics

This method shows how each city districts scores per researched theme. This way we get a clear view of degree of the score (is it average? Is it far below/above the average?).

For example, Charlois: Most people in Charlois are 20-34 years old, the largest group is authochtonous, of the group of Antilleans in Rotterdam most Antilleans live in Charlois, the income of the residents of Charlois is low, there are many households, it’s an unsafe district, and most residents vote PvdA.

Note: This method shows the ranking (in percentage) and not the actual number/amount! So for Charlois it doesn’t say that there are more Surinamese than Turks, but that Charlois houses the highest percentage of the group Surinamese of Rotterdam.
demography politics

age ethnicity income households safety

elections town council 2010

pvda levenbaar rotterdam
vvd

0-19 20-34 35-64 >65

low middle high

natives antilleans cape verdeans suriname turks moroccans

safe

average far above average far below average

haven/industrie

demography politics

age ethnicity income households safety

elections town council 2010

pvda levenbaar rotterdam
vvd

0-19 20-34 35-64 >65

low middle high

natives antilleans cape verdeans suriname turks moroccans

safe

average far above average far below average

haven/industrie
demography politics

income age ethnicity households safety

pvda leefbaar rotterdam vvd d66

0-19 20-34 35-64 >65

low middle high

natives antilleans cape verdeans suriname turks moroccans

safe amount

elections town council 2010

average far above average far below average

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conclusions - research demography and politics
conclusions - research demography and politics

MSC 3: large scale - demography + politics

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Kralingen-Crooswijk

Noord

demography

Politics

Elections town council 2010

Kralingen-Crooswijk

Noord

demography

Politics

Elections town council 2010

Graduation studio public realm
conclusions - research demography and politics

demography

- age
- ethnicity
- income
- households
- safety

politics

- elections town council 2010
- pvd
- leefbaar rotterdam
- vvd
- d66

- average
- far above average
- far below average
conclusions - research demography and politics

To get an overall impression of the several researched themes for the city of Rotterdam, we've created a method which shows which city district has the highest percentage per theme. This way we have a clear (quick) view of who lives where, which political party is present where etc., and if there is a connection between the several themes.

For example Delfshaven: mostly young residents, who belong to 3 of the 5 biggest authochtonous groups, they have a low income and vote for PvdA.

Note: this method gives a rough impression of the real scenario for each district, since we've only taken the district who has the highest rate into account per theme. The second highest, third etc., doesn't show in this method.

### Overview of the Districts in Rotterdam

<table>
<thead>
<tr>
<th>District</th>
<th>MSc 3</th>
<th>Large Scale - District Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlois</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delfshaven</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feijenoord</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haven/Industrie</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hillegersberg-Schiebroek</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hoek van Holland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hoogvliet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kralingen-Crooswijk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IJsselmonde</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noord</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overschie</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pernis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prins Alexander</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stadscentrum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Demography

<table>
<thead>
<tr>
<th>Age</th>
<th>Ethnicity</th>
<th>Income</th>
<th>Households</th>
<th>Safety</th>
<th>Elections Havencauwall 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-19</td>
<td>Low</td>
<td>High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-34</td>
<td>Middle</td>
<td>Medium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-64</td>
<td>High</td>
<td>Low</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: This table outlines some basic demographic statistics for each district, including age, ethnicity, income, household size, and safety level, as well as election results for Havencauwall 2010.
islands in the city
graduation studio public realm

msc 3

large scale - business

B1 business
B2 general industry
large scale - housing + hotels

C1 mixed-use residential
C2 hotels
C3 dwelling houses
intensity in density
intense city
dense city
P1 presentation booklet - medium scale

msc 3 fall   Public Realm
tutor:       Nicola Marzot
date:        29-10-2010

Sietse Belt
Gwen Huisman
Robbert van de Straat

summary

analysing real district borders versus administrative district borders.
Inspired by Peter Eisenman’s ‘in between space’.

> results in actual borders/islands within the city.

content

statistics

station key projects

experiencing borders

Jane Jacobs parameters

congestion = density + intensity
statistics
demography - age

districts stadscentrum % 35-64
average 37.5%
dijkzigt 17.6%
kop van zuid 34.7%
stadsdriehoek 35.9%
nieuwe werk 37.6%
cool 37.9%
oude westen 40.3%
c.s-kwartier 47.4%
demography - age

<table>
<thead>
<tr>
<th>districts stadscentrum</th>
<th>% 65</th>
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</thead>
<tbody>
<tr>
<td>average</td>
<td>11.1%</td>
</tr>
<tr>
<td>kop van zuid</td>
<td>3.0%</td>
</tr>
<tr>
<td>c.s.-kwartier</td>
<td>6.5%</td>
</tr>
<tr>
<td>dijlkijt</td>
<td>8.1%</td>
</tr>
<tr>
<td>nieuwe werk</td>
<td>9.6%</td>
</tr>
<tr>
<td>oude westeren</td>
<td>10.5%</td>
</tr>
<tr>
<td>stadsdriehoek</td>
<td>11.6%</td>
</tr>
<tr>
<td>cool</td>
<td>15.3%</td>
</tr>
</tbody>
</table>
demography - ethnicity

<table>
<thead>
<tr>
<th>districts</th>
<th>percentage</th>
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</thead>
<tbody>
<tr>
<td>stadskern</td>
<td>48%</td>
</tr>
<tr>
<td>oude westen</td>
<td>27%</td>
</tr>
<tr>
<td>c.s.-kwartier</td>
<td>40%</td>
</tr>
<tr>
<td>kop van zuid</td>
<td>47%</td>
</tr>
<tr>
<td>dijktstraat</td>
<td>49%</td>
</tr>
<tr>
<td>cool</td>
<td>51%</td>
</tr>
<tr>
<td>stadsdriehoek</td>
<td>61%</td>
</tr>
<tr>
<td>nieuwe werk</td>
<td>64%</td>
</tr>
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</table>
demography - ethnicity

districts

<table>
<thead>
<tr>
<th>stadscentrum</th>
<th>% moroccans</th>
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<tbody>
<tr>
<td>average</td>
<td>6%</td>
</tr>
<tr>
<td>c.s.-kwartier</td>
<td>?</td>
</tr>
<tr>
<td>nieuwe werk</td>
<td>1%</td>
</tr>
<tr>
<td>kop van zuid</td>
<td>1%</td>
</tr>
<tr>
<td>dijkigt</td>
<td>1%</td>
</tr>
<tr>
<td>stadsdriehoek</td>
<td>2%</td>
</tr>
<tr>
<td>cool</td>
<td>6%</td>
</tr>
<tr>
<td>oude westen</td>
<td>14%</td>
</tr>
</tbody>
</table>
demography - ethnicity

districts stadscentrum | % surinamese
----------------------|--------
average               | 8%

nieuwe werk            | 2%
c.s.-kwartier         | 4%
stadskerken            | 4%
kop van zuid          | 5%
dijkzigt               | 8%
cool                   | 8%
cuude westen           | 15%
demography - middle income

<table>
<thead>
<tr>
<th>districts</th>
<th>stadscentrum</th>
<th>% mid income</th>
</tr>
</thead>
<tbody>
<tr>
<td>average</td>
<td>31%</td>
<td></td>
</tr>
<tr>
<td>nieuwe werk</td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>oude westen</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>c.s-kwartier</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>cool</td>
<td>34%</td>
<td></td>
</tr>
<tr>
<td>stadsdriehoek</td>
<td>35%</td>
<td></td>
</tr>
<tr>
<td>dijkzigt</td>
<td>36%</td>
<td></td>
</tr>
<tr>
<td>kop van zuid</td>
<td>39%</td>
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</tr>
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</table>
Graduation studio public realm

demography - high income

<table>
<thead>
<tr>
<th>districts</th>
<th>stadscentrum</th>
<th>% high income</th>
</tr>
</thead>
<tbody>
<tr>
<td>average</td>
<td></td>
<td>26%</td>
</tr>
<tr>
<td>dijkzigt</td>
<td>X%</td>
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</tr>
<tr>
<td>oude westen</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>cool</td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>stadsdriehoek</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>c.s-kwartier</td>
<td>42%</td>
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</tr>
<tr>
<td>kop van zuid</td>
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<tr>
<td>nieuwe werk</td>
<td>59%</td>
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</table>
demography - households

districts stadscentrum - households

<table>
<thead>
<tr>
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<th>households</th>
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<tbody>
<tr>
<td>total</td>
<td>19,950</td>
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<tr>
<td>dijkzigt</td>
<td>543</td>
</tr>
<tr>
<td>kop van zuid</td>
<td>700</td>
</tr>
<tr>
<td>c.a-kwartier</td>
<td>721</td>
</tr>
<tr>
<td>nieuwe werk</td>
<td>952</td>
</tr>
<tr>
<td>cool</td>
<td>2,725</td>
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<tr>
<td>oude westen</td>
<td>5,293</td>
</tr>
<tr>
<td>stadsdriehoek</td>
<td>9,016</td>
</tr>
</tbody>
</table>
politics - elections town council

district stadscentrum  % Leeuwarden Rotterdam
average  21.5%
c.s-kwartier  ?
dijkzigt  ?
oude westen  12.4%
nieuwe werk  17.6%
cool  20.3%
kop van zuid  25.4%
stadsdriehoek  26.5%
politics - elections town counsel

<table>
<thead>
<tr>
<th>district stadscentrum</th>
<th>% D66</th>
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<tbody>
<tr>
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<td>15.7%</td>
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<td>?</td>
</tr>
<tr>
<td>dijkzigt</td>
<td>?</td>
</tr>
<tr>
<td>oude westen</td>
<td>11.6%</td>
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<tr>
<td>kop van zuid</td>
<td>15.7%</td>
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<tr>
<td>stadsdriehoek</td>
<td>15.8%</td>
</tr>
<tr>
<td>cool</td>
<td>19.2%</td>
</tr>
<tr>
<td>nieuwe werk</td>
<td>24.7%</td>
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</tbody>
</table>
Graduation studio public realm

MSC 3: Medium scale - elections diagrams

- **Cool**
  - PVDA: 24.3%
  - Leefbaar Rotterdam: 20.3%
  - VVD: 13.3%
  - D66: 19.2%
  - Other: 13.1%

- **CS-Kwartier**
  - Unknown

- **Dijkzigt**
  - Unknown

- **Kop van Zuid**
  - PVDA: 27.8%
  - Leefbaar Rotterdam: 22.5%
  - VVD: 15.7%
  - D66: 25.4%
  - Other: 4.6%

- **Oude westen**
  - PVDA: 44.9%
  - Leefbaar Rotterdam: 11.6%
  - VVD: 12.4%
  - D66: 9.3%
  - Other: 5.3%

- **Stadsdriehoek**
  - PVDA: 18.9%
  - Leefbaar Rotterdam: 19.4%
  - VVD: 15.8%
  - D66: 26.5%
  - Other: 12.4%

- **Nieuwe werk**
  - PVDA: 20.1%
  - Leefbaar Rotterdam: 17.4%
  - VVD: 24.7%
  - D66: 17.6%
  - Other: 17.2%
MSC 3 medium scale - type/amount churches

demography - churches

district city centre - churches

different churches in city of Rotterdam.
data density

nieuwe werk is...
- 79% residential satisfaction
- 12% drug nuisance
- 59% high income
- 22% low income
- 0% unemployment
- 163.792 euros for a house

oude westen is...
- 64% low income
- 11% high income
- 61% residential satisfaction
- 3% unemployment
- 396.450 euros for a house

rotterdam is...
- 65% residential satisfaction
- 15% drug nuisance
- 15% high income
- 51% low income
- 5% unemployment
- 396.450 euros for a house

parameters
- income
- house price
- safety
- employment
- residential satisfaction
- drug nuisance
### Demography

- **Age**: 0-19, 20-34, 35-64, >65
- **Ethnicity**: Natives, Antilleans, Cape Verdeans, Moroccans, Turks, Suriname
- **Income**: Low, Middle, High
- **Households**: Safe, High
- **House Price**: High
- **Employment**: High
- **Residential Satisfaction**: High
- **Drug Nuisance**: High

### Area
- **Oude Westen**: Safe city, 132,293 euros for a house, 61% residential satisfaction, 12% drug nuisance, 3% unemployment, 79% problem area, 6% low income, 59% high income
- **Nieuwe Werk**: High satisfaction, 396,450 euros for a house, 37% drug nuisance, 0% unemployment, 79% residential satisfaction, 12% drug nuisance

### Parameters
- **Rotterdam**: 65% residential satisfaction, 15% drug nuisance, 15% high income, 51% low income, 132,293 euros for a house
- **Oude Westen**: 64% low income, 11% high income, 37% drug nuisance, 3% unemployment, 132,293 euros for a house

### Data Density
- **Nieuwe Werk**: 79% residential satisfaction, 59% high income, 12% drug nuisance, 5% unemployment, 64% low income, 11% high income, 37% drug nuisance, 3% unemployment, 132,293 euros for a house
- **Rotterdam**: 65% residential satisfaction, 15% drug nuisance, 15% high income, 51% low income, 132,293 euros for a house

### Conclusions
- Graduation studio public realm
- MSc 3 medium scale
Graduation Studio Public Realm

**Parameters**

<table>
<thead>
<tr>
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<th>Elections</th>
<th>Safety</th>
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<td>Mischief</td>
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</tbody>
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**Income**

- **Stadsdriehoek:** 1,225
- **Cool:** 2,775
- **C.S. Kwartier:** 673
- **Kop van Zuid:** 346
- **Nieuwe Werk:** 485
- **Dijkzigt:** 567
- **Oude Westen:** 1,079
- **Total:** 8,935

**Ethnicities**

- **Surinamers:** 15
- **Antillians:** 3
- **K Cape Verdians:** 7
- **Moroccans:** 15
- **Turks:** 14
- **Others:** 27

**Elections**

- **PVDA:** -
- **Leefbaar Rotterdam:** -
- **CDA:** -
- **D66:** -
- **C.S. Kwartier:** -
- **Kop van Zuid:** -
- **Stadsdriehoek:** -
- **Cool:** -
- **Nieuwe Werk:** -
- **Dijkzigt:** -

**Safety**

- **Aantal aangiften criminaliteit (aantal aangiften):**
  - **Stadsdriehoek:** 3,225
  - **Oude Westen:** 1,079
  - **Cool:** 2,775
  - **C.S. Kwartier:** 673
  - **Kop van Zuid:** 346
  - **Nieuwe Werk:** 485
  - **Dijkzigt:** 567
  - **Total:** 8,935
  - **Stadsdriehoek:** 594
  - **Oude Westen:** 2,395
  - **Cool:** 4,093
  - **C.S. Kwartier:** 1,451
  - **Kop van Zuid:** 217
  - **Nieuwe Werk:** 86
  - **Dijkzigt:** 59
  - **Total:** 17,532

---

**Households**

- **Total number of households:** 29,952
station key projects
Central District Rotterdam (CDR) is the new name of the new station area. The possibilities of mobility, space, the central location and the mix of local and multinational businesses will for a sparkling city portal.

**International Mobility Knot**
With the arrival of the HSL, Rotterdam will be the first station (of five in NL) who's connecting to this important traffic-artery. The other four stations are: Amsterdam-Zuid/WTC, The Hague Central, Utrecht Central, Arnhem and Breda. CDR will be the new portal for almost 75 million travellers/year, with connections to Rotterdam Airport and Randstad Rail.

**Glocal = Global and Local**
Glocal is a combination of two recent developments: global and local. The first one means that of globalizing, visible in the mondial networks of renowned multinationals with there headquarters in the CDR. The second one is about the variation and exclusivity who can be found in the local rooted company activities. Because of this there will be an environment where really big and very small businesses can find eachother. On urban level you can see these activities in hotel and catering industry, shopping- and exhibition space.
this is Rotterdam
Rotterdam. The second biggest city of NL (residents), the biggest port city of Europe, and the third port city of the world. There live more than 580,000 people, with more than 172 nationalities. With more than the half of the inhabitants in the age of 20-54 yrs; Rotterdam is a young and active city.

this does Rotterdam
Besides the harbor activities, Rotterdam is known about more javelin points in bussiness activities. The banking- and insurance line are well represented with offices of big international and national players. Beside the medical world is expressively present in big and specialized hospitals. Also the creative industry gets a lot of space in Rotterdam. In the field of architecture, design and music, Rotterdam is a preambule in NL and Europe.

more than working
Rotterdam has a sparkling cultural life. In the area around the ‘Museumpark’ and the ‘Witte de Withstraat’, on walking distance of CDR, are 30 museums, galleries and studios established. There are a lot of theaters, theatre companionships and music stages. Rotterdam is a perfect city for evenements as the summercarnaval and the internationally known International Filmfestival of Rotterdam (IFFR).
homepage of Rotterdam
In internet terms you could call CDR the ‘portal’ or ‘homepage’ of the city. Besides what it offers itself, the area is an attractive movement space for its direct surroundings. Like museums and galleries, film stages, theater and music, but as well the shops, restaurants and hotels of the city centre.

businesscard for visitors and house chamber for Rotterdammers.
CDR: a live territory with dynamic characteristics. Where visitors and inhabitants are everyday surprised by expositions, actions, temporarily attractions, livesize projection screens and a multicultural offer of trendsetting shops and places of entertainment.

centre of Europe
CDR is a top location for national and international offices and business activities. With a harbor, an airport and a HSL-train station this function will be reinforced. The space is there! In square and cubic meters, as well in the heads of the people who live and work there. And so the city will become the venue of Europe.

nice establishment - and working climate.
Investments in exterior space and (underground) infrastructure will take care for an attractive international establishment-climate. The area in front of the station becomes a pedestrian boulevard, the traffic and its parking goes partially underground. This are important boundary conditions for the further development of the area.
Major station projects

Eight large transport stations

In order to offer travellers at large international stations a higher standard, they are currently being developed with a number of players on to modernize eight large stations and their immediate environs: Amsterdam Central, Amsterdam-Zuidas (south line), Arnhem, Breda, The Hague Central, Rotterdam Central, Utrecht Central and Delft.

The final result is ambitious - except for the exception of station buildings that all meet the demands of modern travellers.

Useful and necessary

Passenger travel by rail has increased at an average annual rate of three percent in recent years. This growth will continue into the foreseeable future. Many stations in the Netherlands, a large number of which were built shortly after the Second World War, lack the capacity to handle this growth. The old tunnels and walkways will be too narrow, the platforms too short, the station halls too small. Moreover, 21st century travellers will expect much more in terms of user-friendliness, comfort and image.

Developments have accelerated by the construction of the HSL-South, the Dutch section of the European network of high-speed lines. This network provides a high quality alternative to car and air travel. From 2008, high-speed trains will transport passengers quickly, safely and comfortably from Amsterdam to Antwerp, Brussels and Paris via Rotterdam. The top speed will reach 300 kilometers per hour. The current Amsterdam - Utrecht - Arnhem - Cologne - Frankfurt track is also being converted. In the future this ensures a faster, more convenient way of travel.

Ambition

The new, modern stations - also known as public transport terminals - function as the heartbeat of the public transportation system in these cities. This is where travellers can easily select the most suitable mode of transport: train, light rail, tram, bus, taxi or ferry. All types of public transport in the city connect at the station. The stations are therefore more than just effective transfer points. If all the parties involved succeed in creating a high quality and attractive PT terminal in the city centre, people will visit it with pleasure. To travel, work, live, shop and use the accommodation.

The major stations are all in very favourable locations, in or near the different city centres. In many cases the stations even form the link between the historic city centre and the dynamic surroundings of the track. This is where we increasingly find crowd pullers such as large offices, educational institutions, cultural facilities and recreational attractions. In many cases the new stations are the driving force behind a range of urban development projects such as housing, work, shopping and recreation.

A master plan for the station environments is under development in a great many municipalities. The station itself is always a core element as a striking and architecturally dominant building. This is why internationally renowned architects were invited to create exceptional, future-oriented designs for these major station projects. Despite having similar points of departure they succeeded in giving each station a completely unique identity.

Point of attention in all designs were a logical and uncluttered layout and the application of modern information resources that provide travellers with the assistance that they require. Contemporary designs also incorporate qualitative aspects such as light, space, pleasant climate, agreeable acoustics and the use of high quality and durable materials.

Amsterdam Central

Amsterdam Central is undergoing a radical transformation in order to be able to meet modern demands. The modernised, spacious and uncluttered station halls and pedestrian tunnels will be fitted with every convenience.

But this station is and will remain an exceptional national monument. This is why the authentic qualities of the original 19th century design by the architect Cuypers, are being restored to their former glory simultaneously with the modern additions to the layout. All OV (public transport) functions connect at Amsterdam Central station - train, metro, bus, tram, ferry and bicycle. The arrival of the high-speed train and the construction of the North/South line - a new metro line - will contribute to the great increase in the number of travellers. The western pedestrian tunnel has been significantly widened and now has shops and other facilities for modern travellers. On the city side the station square is being converted into an area for pedestrians and trams. A new, dynamic bus station for city and regional buses and with a direct link to the railway will be constructed on the Utrecht side. Lifts and escalators will take bus passengers directly to a new station hall on the banks of the IJ.

A gigantic glass skyscraper will cover the bus station, the station hall and the exterior area adjacent to the U. Pedestrians will be able to enjoy the view here or from one of the new squares by the waterside. Cars will pass the station on the Utrecht side in a tunnel running from east to west.

Furthermore, all these changes will create a new ‘visual connection’ between the city and the U. In 2013 Amsterdam Central will be a modern public transport terminal housed in a famous monument.

Amsterdams eeuwige Stations, Amsterdam - Building commission 2007 - Completed 2010 • Expected number of public transport passengers (all forms of public transport at this location on an average working day in 2020) 300,000

Arnhem

Every day a large number of travellers pass through a spacious, uncluttered and safe station area around the new Arnhem public transport terminal. People boarding the high-speed train to and from Germany, domestic trains, trolley buses, buses or taxis, or people who are continuing their journey by car, by bicycle or on foot.

Light, space and comfort characterize the new public transport terminal designed by architect Ben van Berkel, who also designed the Erasmus Bridge in Rotterdam. The design for Arnhem uses the natural differences in height in the vicinity of the station. The various transport networks and facilities are cleverly connected with as few level crossings as possible.

The exceptional curves in the design are not only wonderfully appropriate for the rolling urban landscape of Arnhem. They also enclose a pleasant place to be where everyone can find their way easily. The West regional bus station, the East trolley bus station and the four railway platforms are easy to reach through the central hall. A separate railway platform has been reserved for the high-speed trains and from Germany.

The car park under Arnhem station has space for 1000 cars. There is also a subterranean bicycle storage facility with sufficient capacity for 5000 bicycles.
Breda

Breda is strategically located between the Dutch Randstad and the Belgian Ruit - Antwerp, Mechelen and Ghent. This helps to make this Brabant city an excellent place to establish business operations. During the next two decades a completely new city district will be created around the station, adjacent to the city centre - ‘Via Breda’. The new station building will determine the look of this new district.

A direct shuttle link with the high-speed line, made possible by the construction of an extra track and a third platform, connects Breda to the European high-speed line network.

The design of the station has a special image. Travel, residential accommodation and shops are all integrated into a single building. And all modes of transport - train, bus, taxi, car and bicycle - are housed under one roof. Cars can be parked on that roof.

The Breda public transport hub has a clear layout and is easy to reach by a wide pedestrian tunnel. This tunnel also creates a link between the city districts on either side of the tracks.

The new Breda station includes shops, offices and apartments. A new hotel will be built directly adjacent to it. Attractive squares, boulevards and water features will be created at the front and back of the station. And Breda municipal council will be constructing four completely new residential districts alongside the railway zone.

Delft

ProRail is building a subterranean station and a tunnel in Delft as part of a completely modernised railway zone. In the future, trains will leave this station and immediately enter a 2,300 metre long tunnel under the city.

The current double-track viaduct is a bottleneck for trains on the Amsterdam - Rotterdam route. The rail tunnel is temporarily double track, but is being prepared for the laying of four tracks. In addition, the rail tunnel will considerably improve the local living conditions. This is because the trains on the busy Amsterdam - Rotterdam route cause a great deal of disruption to the vicinity. The existing, long railway viaduct that intersects the heart of Delft and carries approximately 350 trains per day has been a thorn in the side of the municipal council for many years.

The new city office will be built above the subterranean station. And much more space will be created above the tunnel. Space for 1,500 houses, 50,000 m² of offices and a new city park. Moreover, the fact that the train goes underground creates a spatial link between the city districts on either side of the current viaduct. Delft municipal council has expressed the ambition to develop the railway zone into a high quality urban district.

In 2007, a selection was made from the designs presented by the various architects. An interim design was worked out during the course of 2007. The existing, historic station building will be designated as a centre for restaurants and catering establishments.

The transparent design means that the different modes of public transport (train, light rail, tram and bus) are always clearly visible. The design has four entrances of equal value: on the Koningin Julianaplein, the Rijnstraat, the Anna van Buerenplein and the covered bus platform. The station is easily accessible and easy to secure with large electric sliding doors.

Shops and other commercial functions erode the new station, without detracting from the clarity and transfer options. The hall will contain three commercial areas with shapes similar to that of a polished crystal.
Rotterdam Central

From the south, Rotterdam is the first Dutch stop on the HSL-South route. This means that Rotterdam Central is at the heart of Europe, in a manner of speaking - 20 minutes from Schiphol and no more than two and a half hours from Paris.

The international image of the new station - with approximately 320,000 public transport passengers per day in 2025 - is very appropriate for the urban development ambitions of this international port city. A team of architects has designed a building that is characterised by light, space and clarity.

The extremely spacious central hall has a metropolitan image. Asymmetrical, stainless steel roofs supported by a steel and wood construction merge into a glass wall. The spatial effect is extraordinary, partially due to the exceptional view of the trains from the hall.

The front and rear of the station are connected by a pedestrian tunnel that is no less than 30 metres wide. There are shops on both sides. The open ceiling of the tunnel allows travellers to see the platforms. Stairs, escalators and lifts take passengers to their point of departure or arrival. A footbridge over the tracks provides extra transfer options.

Rotterdam Central also offers an effective connection with the regional RandstadRail (light rail) network. Finally, the area surrounding the station is being redeveloped with offices, houses, shops and many other facilities, including various car parks.

On the city side the station square will replace the former connection between the station and Hoog Catharijne.

The station will be given a spacious, light hall with an undulating roof construction that connects all bus, train and tram platforms. The south side of the hall will have a single, long glass wall with a view of the tracks. Utrecht Central intends to implement an energy-neutral construction.

The platforms for the train, bus and tram are located underneath the station hall. The taxi stands, kiss-and-ride places and the car parks are directly accessible from the new squares at the front and rear of the station.

The station will be surrounded by covered bicycle racks for 22,000 bicycles, of which 9,000 will be in a special bicycle building. Utrecht currently has only 7,500 storage places, mainly on the street.

Within the framework of the livability in this densely populated urban area, all infrastructure (ring road A10 south, trains and railway tracks) is brought underground. On top of the tunnels are houses, offices and other supplies built. By bringing the infrastructure underground, a better connection between the neighbour districts arises. Moreover the underground infrastructure ensure less noise nuisance and a better social climate.

The completion is planned for 2030. As from 2010, among other things, the construction starts of a completely new OV-terminal for all forms of public transportations: high-speed train (HST), train, metro, tram and bus. The construction of the new, underground train terminal starts in 2014, when the tunnels for the trafficways are finished. In numbers of travellers Amsterdam Zuidas becomes the fifth train station of the Netherlands.
experiencing borders
research of the city center’s administrative borders
to investigate whether or not the administrative borders (orange lines) of the city center of Rotterdam are the real experienced borders of daily life, we followed the red route through the city center.
for every area we researched the administrative borders on the topics of coherence (functions, use, morphology) and influence of the infrastructure.

administrative borders versus experienced borders
the administrative borders (orange line) conflict on several points with the borders that the city user experience (hatched areas) in the city center of Rotterdam.
the administrative border of the node 5,7 and 8 is not the experienced border according to our research: the infrastructure (roads Westzeedijk-Vasteland-Erasmusbrug) forms a very clear section between the adjacent areas; the morphology of this node is in contradiction with the lowrise older buildings in the area of Nieuwe Werk, but future plans of this area show highrise which corresponds with this building block.
the administrative border of number 11 also doesn’t accrue like a real border in daily life. the administrative border around the stadscentrum is situated here, because of the former city canals (until 1570). but this border is not up to date anymore in actual city life: although the infrastructure (Coolsingel) is a very busy road, the morphology of the opposite buildings, the functions and use is the same. the areas of Cool and the Stadsdrieok are the real city center, the feel and work as if they are one area;
the east part of the Stadsdrieok occurs like a separate area: especially the function and use is different from the west part (mostly dwellings, a few shops and less streets). the infrastructure (Mauritsweg) also feels like a clear and harsh division between the opposite sides.

the administrative border of the node between C.S. district and Stadsdrieok also doesn’t work like this in real life: the building block on the top part of the Stadsdrieok is separated from that district by the infrastructure of Pompeinburg; also the morphology of the buildings (highrise) and the functions (educational, offices) occur to be more in place in the district of C.S.
although this is an administrative border, the actual border isn’t clear: the function, use and morphology are coherent, the infrastructural border is secondary.

this administrative border functions as a real border: the functions, use and morphology are not coherent and the infrastructure divides the area.

although this is an administrative border, the actual border isn’t clear: the function, use and morphology are coherent, the infrastructural border is secondary.

this administrative border also functions as a real border: the functions, use and morphology are not coherent and the infrastructure divides the area.

this administrative border functions as a really clear border: the infrastructure divides the area from the opposite side.
although this is an administrative border, the actual border isn't clear: the function, use and morphology are coherent, the infrastructural border is secondary.

because of the height and the morphology difference the border seems to feel natural, but from administrative point of view it's strange the border is not at the water. Use and function are similar.

both sides of the Coolsingel show huge similarities, there is quiet a diversity in functions and you experience both side of Coolsingel as a whole so this border is more a historical one.

a difference in height on both the plints already suggests a border, it feels also as a border because of the distance between the blocks. In function, use as well as morphology it feels as a strong border.

due the water and the distance between the sides the administrative act like a real border, but when this distance would have been reduced, you would have experienced it as one entity.
Jane Jacobs parameters
Possible parameters

- Safety
- Vivicity
- Typology
- Slow-traffic
- Green spaces
- Water
- Furniture
- Social control
- Playgrounds
- Public functions

Small scale - possible parameters
demography - business activity

districts stadscentrum - business activity

oude westen
small local businesses

nieuwew werk
exclusive restaurants and lawyer offices

cool
big chainstores
design of the street

districts stadscentrum
oude westen, cool, nieuwe werk

streets which have places to stay, to play and watch other people anonymously, should have the ability to facilitate social interaction.

wide pedestrian streets
places to stay and play
Camera mapping

Oude westen

Cool

Nieuwe werk
safety - eyes on the street

districts stadscentrum
oude westen, cool, nieuwe werk

streets which are in the focus point of the buildings, should be safe areas. the blind spots are the unsafer areas.

eyes on the street blind spots
congestion = density + intensity
msc 3 medium scale - collage oude westen

graduation studio public realm
from neighborhood to city: the basic ingredients of social life - Andrew Wright for the Urban Task Force
from neighborhood to city: the basic ingredients of social life - Andrew Wright for the Urban Task Force
from neighborhood to city: the basic ingredients of social life - Andrew Wright for the Urban Task Force
Graduation studio public realm

From neighborhood to city: The basic ingredients of social life - Andrew Wright for the Urban Task Force
From neighborhood to city: the basic ingredients of social life - Andrew Wright for the Urban Task Force.
Intensities of use for 1ste Middellandstraat / Kruiskade and 's-Gravendijkwal on weekdays and weekends.

Active / Passive functions for 1ste Middellandstraat / Kruiskade and 's-Gravendijkwal.

Core vs. Edge.
intensity of use - Lijnbaan - a weekday

intensity of use - Weena - a weekday

intensity of use - Lijnbaan - weekend

intensity of use - Weena - weekend

active / passive functions - Lijnbaan - by day

active / passive functions - Weena - by day

active / passive functions - Lijnbaan - by night

active / passive functions - Weena - by night

core

edge

VS
Active / passive functions - Scheepstimmermanslaan / Veerkade - by day

active / passive functions - Parklaan - by day

active / passive functions - Scheepstimmermanslaan / Veerkade - by night

active / passive functions - Parklaan - by night

intensity of use - Scheepstimmermanslaan - a weekday

intensity of use - Parklaan - a weekday

intensity of use - Scheepstimmermanslaan - weekend

intensity of use - Parklaan - weekend

VS

core

edge
Sietse Belt
Gwen Huisman
Robbert van de Straat

summary

mapping parameters for a social life in three areas in the city centre.
Inspired by Jane Jacobs and Andrew Wright.

> results in varying parameters for public life and defining the relation between space, time, complexity and scale within the three areas and our design location.

new projects

SpaceMate

islands in the city

measuring densities

congestion = density + intensity
new projects
**Coolsingeltoren**

BVO: 26.000m²  
Height: 145m  

Program:  
- dwellings;  
- office;  
- shops;  
- parking

The project

The current financial situation puts the project currently on hold. The tower of Christian de Portzamparc on the former Luxor-location will be 'cut' into three pieces, the lower and upper part contains offices and the middle part will contain dwellings. In the plint there will be commercial activity. There will also be a theatre, parking and catering industry. The tower will densify a relatively small plot.

**Calypso**

BVO: 47.200m²  
Height: 71m

Program:  
- dwellings;  
- offices;  
- shops;  
- parking

The project

This design of Alsop Architects on the former Holiday Inn hotel location will have 407 appartments and 500 parkings. The plint will be commercial. Next to the Calypso there will be the new Pauluskerk. The building will not be very dense due to the quiet large appartments combined with a pretty large building plot.

**B-Tower**

This project of OMA in Rotterdam, this cube will become a new central place to meet which due to its location could work very well. The existing ABN tower will be demolished. There will be entrances to the Coolsingel, the Beurstraverse and to the Binnenwegplein, the main entrance will be on the Koopgoot-side.

**Linea Nova**

BVO: +/- 30.500m²  
Height: 70,5m

Program:  
- dwellings;  
- shops;  
- parking

The project

On top of van der Broek en Bakema’s warehouse Ter Meulen, Van Tilburg + Partners designed a 70m high tower which literally is put on the existing foundation. The building of van der Broek and Bakema will be brought back to its original state. Remarkable is the collective garden on 40m height. This project is a good example of intensive space use in the existing urban fabric.

**Koopkubus**

BVO: -  
Height: 70m

Program:  
- dwellings;  
- shops;  
- offices;  
- catering industry

The project

Again a project of OMA in Rotterdam, this cube will become a new central place to meet which due to its location could work very well. The existing ABN tower will be demolished. There will be entrances to the Coolsingel, the Beurstraverse and to the Binnenwegplein, the main entrance will be on the Koopgoot-side.
The spatial logistics of urban density

Recent changes in urban design and planning practice (e.g., large scale projects, very long time spans, privatization, an unpredictable future, and increasingly complex programs) require strategies that enable planners, politicians and the public to regain influence on relevant aspects of the quality of the urban environment. At the same time, such a strategy must leave designers and developers enough flexibility and freedom to realize a plan.

The most widely used method of determining density remains the number of homes/hectare. However density not only concerns the number of homes in a particular area, but also the size of the homes and the number of amenities, companies and offices.

The Spacemate method uses four variables to describe a developed area, namely the Floor Space Index (FSI), Ground Space Index (GSI), Open Space Ratio (OSR) and Layers (L).

These four variables express the intensity, the compactness, the pressure on non-built space and the building height of an area respectively.

The Spacemate diagram allows the four variables to be assessed simultaneously.

The FSI on the y-axis gives an indication of the built intensity of an area and the GSI on the x-axis reflects its compactness. The OSR and L are gradients that fan out across the diagram. Combining these four variables gives every project a unique ‘spatial fingerprint’.

**Floor Space Index (FSI)**
The FSI expresses the built intensity of an area; indicates the gross floor area with regard to land area.

\[ FSI = \frac{\text{gross floor area}}{\text{plan area}} \]

**Ground Space Index (GSI)**
The GSI expresses the compactness of an area; the relationship between built and non-built space.

\[ GSI = \frac{\text{built area}}{\text{plan area}} \]

**Open Space Ratio (OSR)**
The OSR expresses the openness of an area and the pressure on the non-built space; a amount of non-built space at ground level per m² of floor area.

\[ OSR = \frac{(\text{plan area} - \text{built area})}{\text{gross floor area}} \]

**Layers (L)**
L expresses the average number of floors in an area; average building height in an area.

\[ L = \frac{\text{gross floor area}}{\text{built area}} \]
The spatial logistics of urban density
typologies
Grouping the different residential areas with Spacemat, clusters appear that display similarities in terms of spatial structure. The interaction between the variables appears to be more significant than their absolute values.

land development
The 80 residential areas that have been investigated in the Netherlands appear in the diagram in clearly defined clusters of land development typologies. These typologies can therefore be described in terms of FSI, GSI, OSR and L.

Urbanization
Urbanization is determined to a large extent by the pressure on non-built space, the OSR. Accordingly, new clusters can be distinguished in the diagram, ranging in degree of urbanization from rural to highly urbanized.

Non-built space
Using the land development typologies and the degree of urbanization, the diagram can reflect differences in non-built space. In this case we are concerned with the non-built space that is directly related to the buildings.
Historical perspective

The early days of the Second World War eroded the majority of Rotterdam’s 19th Century heritage, providing Rotterdam with a ‘clean slate’ from which to develop a modern city. Rotterdam is searching far and wide for new initiatives and new self-confidence as a modern, multicultural European city. The city has to find itself a new position, out of the shadow of the port that dominated the development of the city since the Second World War. The society of the future is an urban society - this is clearly evident throughout the world. It is important, therefore, that the city (and the open space surrounding it) be a good place to live, work and relax.

Global and Local Context

Contemporary cities are part of increasingly interwoven and interconnected urban regions. Economy, culture and social relationships are no longer restricted to the boundaries of the traditional city. The range of options regarding locations where people and businesses carry out their activities is becoming increasingly large, varied and international. Rotterdam is addressing these questions and adapting to the new reality.

Housing

Rotterdam’s aim is to substantially increase the number of people living in the city centre. Currently, the city centre has some 28,000 inhabitants. Given market developments and the city’s aspirations for increasing building density, this number could be increased by approximately 12,000 over the next decade. Rotterdam Centraal will play an important role in facilitating this increase by the construction of some 1,000 dwellings.

Urban leisure and entertainment

Leisure, arts and entertainment have become dominant functions of city centres. Not only in their classic forms such as cafes, restaurants, cinemas and museums, but also as elements of other developments. Shopping centres for example can be transformed into entertainment centres with leisure and recreation functions. The city centre of Rotterdam is the main domain for recreation, leisure, culture and shopping in the urban region of Rotterdam.
GSI, FSI values out of bounds
A new spatial strategy for London has set out new aspirations for increasing density and accessibility.

According to this strategy, an increase in density results in positive economic growth, and environmental and social advantages.

Density is also seen as a tool for increasing the level and quality of street activity.

Also at this time (1944), the margins of the city were defined within the green belt. Lower densities were encouraged to open up urban space for public and civic amenities.

Density is a mode of measurement that carries various associations of value. In the early twenty century, the majority of people in inner London areas lived in overcrowded tenements; increasing density had strong associations with overcrowding and the social problems associated with it.

Over time, in order to deal with housing demand in London, values have changed from the desire for low density settlement patterns associated with the Garden City concept towards present policies that encourage high-density housing. It is now widely agreed that high density is neither positive nor negative in itself. Although certain negative connotations remain, accommodating London’s growing population is seen as an imperative and high density is accepted as a method for achieving urban growth sustainably, as well as providing benefits such as urban diversity, energy saving, more facilities, and a sense of urban identity. The notion of high density in planning policies in London can be tracked over three major periods corresponding to the Garden City ideal, the Abercrombie plan, and the GLA’s present London Plan.

In particular, to argue that a more densely populated area will also be more socially sustainable, the link is often made between density and the level of interaction among people: the denser the development, the more interactions there are and the more potential there is for community construction. We can conclude from this that higher densities and social mix have become two major tools to achieve wider policy objectives like sustainability or cohesiveness.

The Urban Task Force Report (UTF 2005), addresses the question of how to provide homes for almost 4 million additional households in England, promoting a ‘well designed, compact and connected city, supporting a diverse range of uses, where people live, work and enjoy leisure time.’ To achieve this, four main tools are highlighted, these are:

— Excellence of design
— Social well-being
— Environmental sustainability
— Accessibility

One exemplary area currently undergoing major transformation in the London Borough of Southwark is Bankside. Examining this site allows us to question the relation between the density proposals and street activity in order to enquire if this current model of densification really helps to promote intensity of activity in the public realm.

According to UK planning guidance, this should result in a vigorous and lively place to reside, as the ‘By design’ (DETR 2000) document states; ‘A mix of uses may be appropriate at a variety of scales: within a village, town or city: within a neighbourhood or a street; or even in a particular building.’

This massive scale of zoning has led to precisely the opposite of the aspirations set out in By Design. Moreover the plot size negatively impacts on the community in three main ways: Firstly, the biggest plots form a barrier across the site from west to east, clearly blocking accessibility from north to south of the site. Secondly, this size of block also negatively impacts the area by allowing mega-structure developments which are difficult to adapt over time. Thirdly, the pedestrian flow occurs primarily on the riverside, mainly from west to east, leaving the rest of the street area in the vicinity almost unused.

In order to avoid the potential disadvantages of high densities (such as overcrowding, residential dissatisfaction, environmental blight, etc), local authorities will only grant planning permission for building above the official density limits very cautiously.

The Great Suffolk Street case suggests that successful high density housing should fit well with its surroundings; make a clear distinction between private and public spaces; include good security, lighting and landscaping; and provide adequate transport access. Higher residential densities may also be easier to achieve in areas that have supported high (residential, commercial or industrial) densities in the past. The primary challenge remains to link building density with design quality.

The main aim in promoting higher densities is to achieve a compact city to accommodate a growing population.

Apart from setting a maximum density for development, one of the tasks for government to achieve its high-density housing strategy is to promote the positive value of high-density living.
islands in the city
density
islands in the city

Urban Functions
The location covers diverse public functions of Rotterdam. This makes the area a destination for all citizens and visitors.

The area is facilitated with a convenient network of public transport. The Central Station is currently in transformation to become a stop for the high-speed train between Amsterdam and Paris. In the coming years the number of daily passengers is predicted to triple...

The area suffers a segregation of function mainly due to the Lijnbaan use. The two-story buildings of the Lijnbaan are exclusively allied to commercial program and only accessible for pedestrians.

This mono-functionality causes deserted streets after opening hours. The ensemble creates a physical and functional barrier between the east and the west part of the center.

The low residential density reinforces the lack of urban vitality. The image of the place is rather the one of a sub-urban shopping center than the one of an attractive city center.
Density
Islands in the City

Urban Morphology
The Center stretches over an area of 4 km². The river Nieuwe Maas divides the city into a northern and a southern part.

The central area of the city is mainly established at the north river bank. The location is characterized by a modern image and shows only little reminiscence of a classical European city. The morphology suggests a strong north-south orientation. With a population of 30,000 inhabitants, the residential density of the center is low (75 inhabitants/ha; 200 workers/ha).

The highest distribution of population can be found in the Oude Westen with 9605 residents and in the Laurenskwartier with 12,430 inhabitants.

Public Domain
The port city is facilitated with a convenient car traffic infrastructure. As a result many roads of 4-6 lanes cut through the inner city.

Till today motorized traffic has always priority, affecting the convenience of pedestrians and cyclists as well as the air quality.

The pollution is by far the highest in the whole Netherlands. The Weena is, with its value of 72 μg/m³ per day, announced to be the “dirtiest street of the Netherlands” (de Volkskrant, Weena vieste straat van Nederland, February 9th 2007).

The pedestrian zone of the Lijnbaan is only allied to commercial program available between opening hours (9:00-18:00). This creates a large physical barrier within the area. Accessibility to public spaces like squares and markets or landscape elements like water or green is weakly integrated in the overall framework.

City Centre
The word “centre” indicates the punctual character of the territory; a hart, a middle, ... This quality asks for certain compactness and the synergy of elements.

Usually the centre is a location, which developed over a long range of time filtering centre relevant structures and functions shaping the urban fabric almost like a natural process.

In Rotterdam the center is mainly a product of planning and design of the last 70 years. The location is characterized by a modern image and shows just little reminiscences of a classical European city. Many rules of post-war transformation have reduced the complexity and the connectivity in the center. Over the years additions in the urban structure proofed to be mismatches. Many segregated places can be described as areas where nothing happens because nothing happens. The low density reinforces the lack of urban vitality in the public space. These aspects resulted into a constant transformation of the urban structure rather than a coherent city form. The image of the place is rather the one of a sub-urban shopping center than the one of an attractive city center.
measuring densities
measuring density
working definitions for density

overview
Density is a controversial term. Increased density is feared by those who imagine ugly buildings, over-shadowed open space, parking problems, and irresponsible resi-
dents. It is promoted by those who value urban streetscapes, efficient infrastructure supply, walkable neighborhoods, and increased hous-
ing options.

key points
• Density is a number of units–people, dwellings, trees, square feet of building—in a given land area.
• Density varies greatly depending on the base land area used in the density calculation. The parcel or site density is almost always higher than the neighborhood density, because at a neighborhood scale much land is included in the base land area cal-
culation that does not have houses.
• Population density depends on both dwelling unit density and household size. Given a certain dwelling unit density, the population density will be lower with small households such as empty nesters than with large families with several children.
• Intensity of building development is measured with several physical indicators related to how much built area there is on the site. Most measure building bulk and are quite crude. More important issues of design quality are much more difficult to quantify.

terminology
The different kinds of density are: site, block, net residential, net neighbor-
hood, gross neighborhood, city and metropolitan density. These different density definitions lead to very different dwelling units (DUs) per acre (p/a):

- Site 10 DUs p/a
- Block 8 DUs p/a
- Net residential 10 DUs p/a
- Net neighborhood 6 DUs p/a
- Gross neighborhood 5 DUs p/a
- City 4 DUs p/a
- Metropolitan 3 DUs p/a

While people often talk about low, medium, and high densities there are no agreed upon standards for what constitutes high, medium, and low densities.

Often people confuse density with building type and assume, for exam-
ple, that detached houses are lower density than attached housing types. While this is generally true it is not always the case. A high-rise tower with large units set on a park-like site may be lower density than a set of detached houses on small lots.

Perceived density is not highly related to actual density but is pro-
foundly affected by landscaping, aesthetics, noise, and building type. Often, when people say an area is dense, they base this assessment on a perception that a development is ugly, has little vegetation, and has caused parking problems for neigh-
bors, rather than a count of the actual number of units per acre. Design can make an enormous difference to perceived density.

Finally, some people associate higher densities with social and econom-
ic characteristics such as renter and low-income households, and high crime neighborhoods. They may misperceive densities because of this, underestimating the densities of more affluent areas with larger numbers of owners.

Many of these density measures are simple to calculate but some are quite difficult and need a large team of workers.

references
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Density and Intensity Measure Summary

* Relatively difficult to calculate due to exclusions
** Easily calculated from field observations and measurements from aerial photos supplemented with web-accessible census data
*** Easily calculated using GIS parcel level database, including assessors data and/or census data and TIGER line files

1. Parcel Density***
2. Block Density**
3. Part Block Density (parcel approximation)**
5. Net Neighborhood Residential Building Type Density***
6. Net Neighborhood Density*
7. Gross Neighborhood Density**
8. City Density***
9. Metropolitan Density (MD)***
10. Residential Density at City or Metropolitan Scale***
11. Floor Area Ratio***
12. Building Site Coverage***
13. Building Block Coverage**
14. Impervious Surface Parcel Coverage***
15. Impervious Surface Block Coverage**
16. Building Height**
17. Front Parcel Setback***
18. Front Curb Setback**
19. Side to side distance***
20. Back to back distance***

Other measures
There are a number of other potential measures of density, and even more of perceived density. For exam-
ple, the proportion of detached or single family homes in relation to other housing types will affect the perception of density, even though this proportion is calculated on a base of housing units and not land areas. Similarly, measures of crowding are typically based on people per room. These points are meant to provide a starting place for examining measures of density and building intensity from their physical base and to clearly distinguish these from separate but related measures of housing mix, crowding, or social and economic characteristics.

source: Design Center for American Urban Landscape (DCAUL), University of Minnesota
Thru the neighborhood there is a big infrastructural barrier namely de 's Gravendijkwal (a sunken north-south connection towards the Maastunnel. An important line is the West Kruislaan/Middellandstraat/Vierambachtsstraat/Mathenesserweg, both in east-western direction. These streets are main shopping streets in Rotterdam west. This area has relatively a lot of shops. The many narrow streets and placement of street furniture have often narrow sidewalks as result, likewise in the shopping streets. The rectangular closed building block with three or four levels is the dominant building typology.

Rotterdam Cool is locked between the CS-quarter, Waterstad, Oude westen and the Scheepvaartkwartier. It has a mishmash of buildings, functions and people. The outside spaces are widely varied as her buildings and inhabitants. The most important line is the Lijnbaan in north-south direction and is the main shopping street of the city. Cool is a village within the city, partly authentic with pre-war buildings. Clearly visible is the transition to post-war architecture, marked by the Rotterdam Blitz (aerial bombardement of Rotterdam 1940’s). In Cool-north the highrise tower is the dominant building typology, in Cool-south this is more similar to the Oude westen.

Nieuwe Werk is a neighborhood at the banks of the Nieuwe Maas and is locked, from the north, between the Westzeedijk and the Vasteland, in the east by the entry to the Erasmus bridge, in the south by the Nieuwe maas and in the west by the connection with the Maastunnel. The Veerhaven and the Parklaan with its monumental buildings, from 1900, form the centre of this neighborhood. It is a protected, listed area and belongs to the top 20 of wealthy neighborhoods in the Netherlands. The area counts 16 lawyer-offices. At the end of the 20th century new developments took place and exclusive restaurants established themselves in this district.
congestion = density + intensity
Based on: From Neighborhood to City: The Basic Ingredients of Social Life - Andrew Wright for the Urban Task Force
from neighborhood to city: the basic ingredients of social life - Andrew Wright for the Urban Task Force
graduation studio public realm

Active use  Passive use

Intensity of use - project location - a weekday

Intensity of use - project location - weekend

Active / passive functions - project location - by day

Active / passive functions - project location - by night

Aert van Nesstraat

Intensity of use - project location - a weekday

Intensity of use - project location - weekend

Aert van Nesstraat

Active use  Passive use