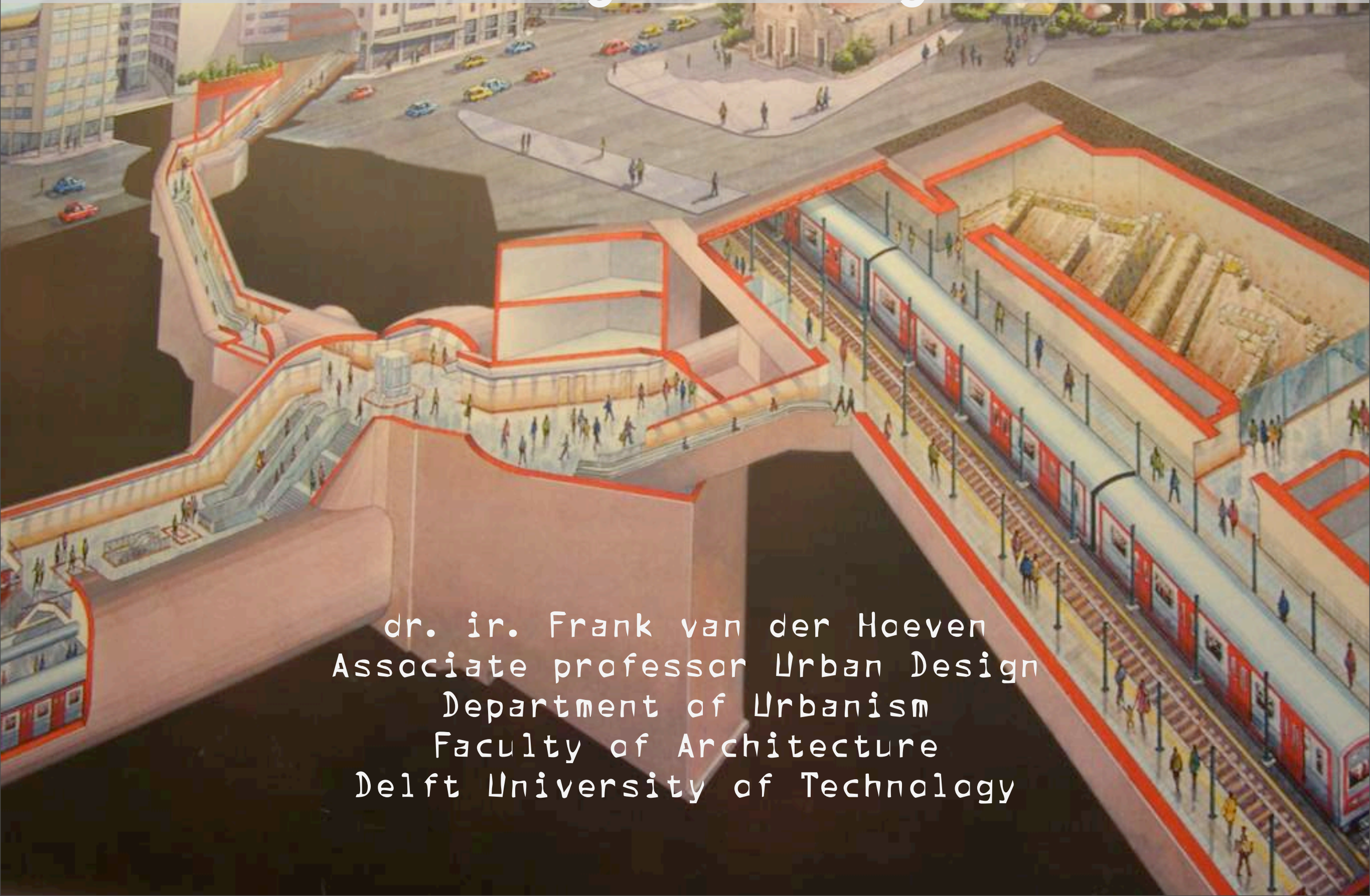


# 'meervoudig ruimtegebruik'



dr. ir. Frank van der Hoeven  
Associate professor Urban Design  
Department of Urbanism  
Faculty of Architecture  
Delft University of Technology



# PhD research



## RingRing

the use of underground space,  
multifunctional and intensive land-use  
and the Rotterdam Ring and Amsterdam Ring

editor Nova Terra magazine



# NovaTerra

KWARTAALUITGAVE OVER MEERVOUDIG RUIMTEGEBRUIK / JAARGANG 2 / NUMMER 4 / DECEMBER 2002

**2 GEZONDHEIDSPARK DORDRECHT**

**7 AFSCHEID IN MEERVOUD**

**14 DRIJVENDE KASSEN KOMEN ERAAN**

**17 INTEGRALE GEBIEDSONTWIKKELING VAN PARIJSE STATIONS**

**21 KRITISCHE HOOGBOUW**

**25 HONG KONG EN SINGAPORE: BACK TO THE FUTURE**

**30 INTENSIEF RUIMTEGEBRUIK LANGS HONG KONG'S AIRPORT EXPRESS**

**34 SINGAPORE HIGH-RISE WITH TRADITIONAL QUALITIES**

# a few words about 'MVR'

Dutch professionals translate it as  
"multifunctional and intensive land-use (MILU)"

---

in US or UK English you would refer to:

- \* mixed-use development
- \* smart growth
- \* transit-oriented development (TOD)
- \* transport development areas (TDA's)



# but what does it actually mean?

basically it is about a sustainable approach to  
how we as planners deal with space, both in  
quantity and in quality

---

so you shouldn't be surprised  
when people speak about:

zorgvuldig, inventief, intensief, dubbel, optimaal  
of innovatief ruimtegebruik

more or less it means the same

# 'official' definition of MILU

- \* intensifying
- \* combining different land-uses
- \* using the third dimension: height and depth
  - \* using the fourth dimension: time



# how architects see MILU



Dutch pavilion EXPO2000 by MVRDV

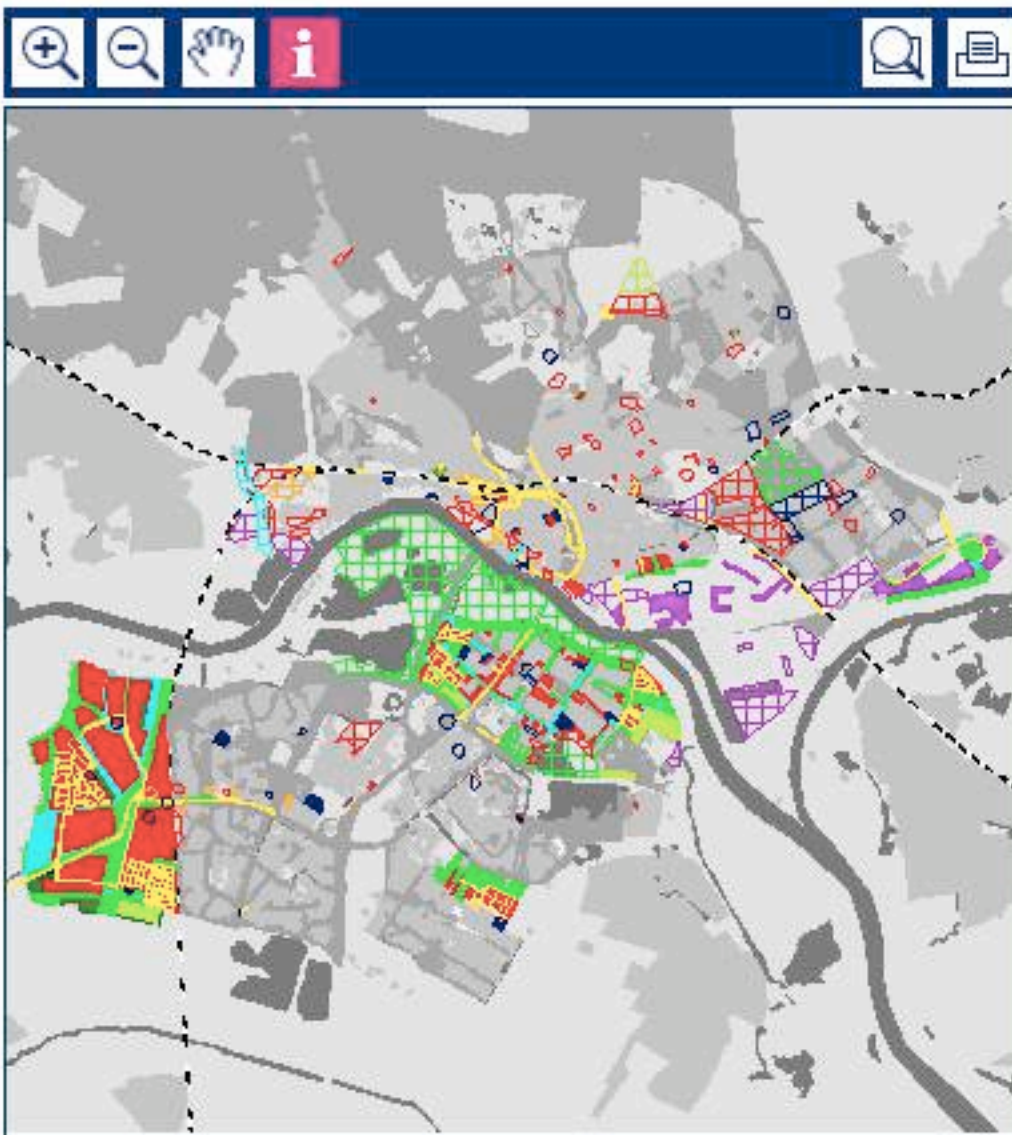
# first, a little exposé about space

'space' according to the MILU-concept  
is where we can allocate housing, agriculture,  
water, recreation, traffic or other functions



Zoek straat

Klik eerst op T en dan in de kaart voor het opvragen van informatie



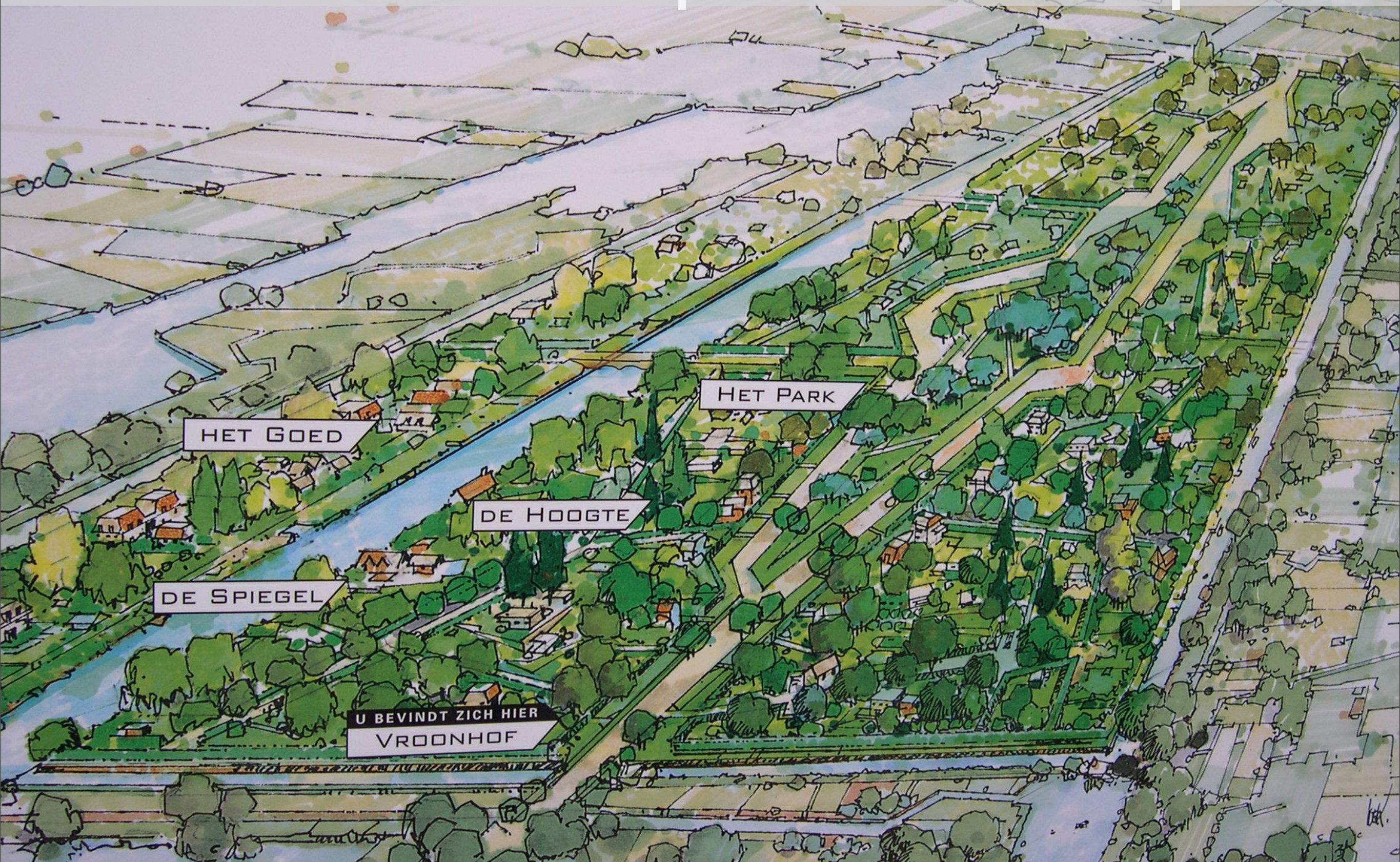
Legenda  
Nieuwe Kaart Arnhem

- wonen
- bedrijventerrein
- kantoren
- groen
- bos
- recreatie
- voorzieningen
- parkeren
- water
- hoofdweg
- ontsluitingsweg
- overige wegen
- spoorlijn
- spoorlijn
- wonen indicatief
- bedrijven indicatief
- kantoren indicatief
- groen indicatief
- recreatie indicatief
- voorzieningen indicatief
- parkeren indicatief
- water indicatief
- fietspad indicatief
- detailwegen

help  
reageer  
sluit venster



first, a little exposé about space



What is it with Dutch people and their space?



druk, druk, druk



Holland is a crowded place in the eye of the Dutch



# low lands



Holland is a flat country, you can see far...



the next city is always close



we've got a lot of small towns close to each other



sensible people



everyone wants to have its own place



quantity of space isn't the problem



possible location for the A2 Maastricht



it is about the quality of space



A10 Amsterdam



# civil engineers felt it first

## er is meer onder de zon dan asfalt en beton!

### geen doorsnijding Midden-Delfland

Het waardevolle gebied Midden-Delfland mag niet worden doorsneden door een snelweg. Dit zou een te grote aanslag zijn op deze laatste open ruimte tussen de Rotterdamse en de Haagse regio.

### hoe meer wegen, hoe meer files


De aanleg van meer wegen leidt tot meer autoverkeer en tot nieuwe opstoppen. Een duurzame bereikbaarheid wordt bereikt door een verbetering van de trein verbindingen, het opzetten van een light-railnetwerk en de aanleg van goede fietsvoorzieningen.

### weg van het bedrijfsleven?

Het bedrijfsleven geeft geen cadeautjes; de investeringen zullen moeten worden terugbetaald door de gebruikers. Men zal streven naar meer inkomsten en dit zal het moeilijker maken om iets aan de groei van het autoverkeer te doen.

# M i d d e n - D e l f l a n d

# S N E L W E G ? ?

Deze poster is een onderdeel van een campagne tegen de aanleg van de A4 door Midden-Delfland.  
Meer informatie is te vinden op website: [www.dsdelft.nl/-milieu/](http://www.dsdelft.nl/-milieu/). Sluit je bij deze campagne aan  
en neem contact op via telefoonnummer 015-2610048 of via email: [milieu@dsdelft.nl](mailto:milieu@dsdelft.nl). ontwerp:  druk: Druk Tan Heck

## not welcome anymore



no place to go but down



Betuweroute, HST



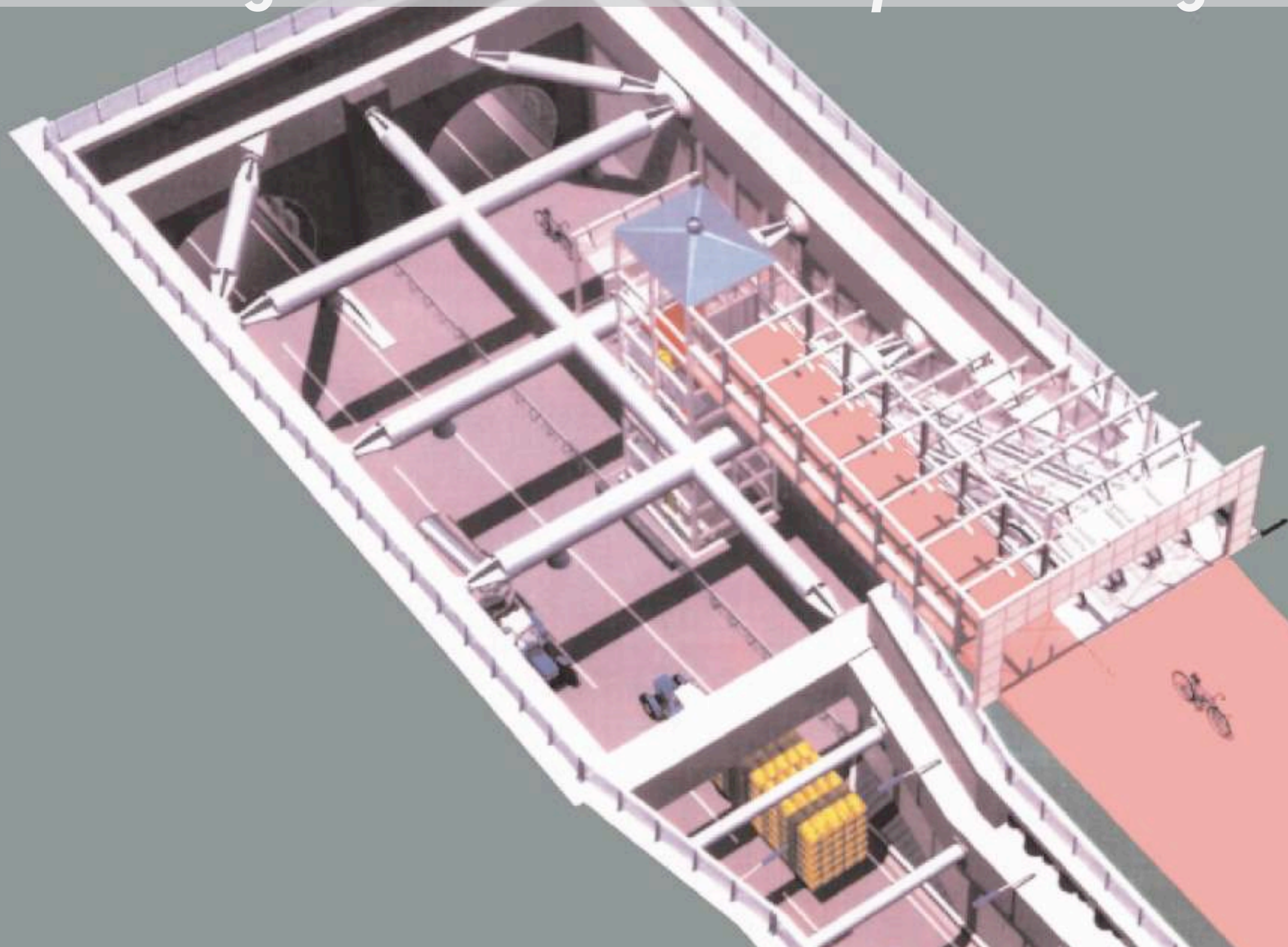
# use of underground space



as a first step towards MILU



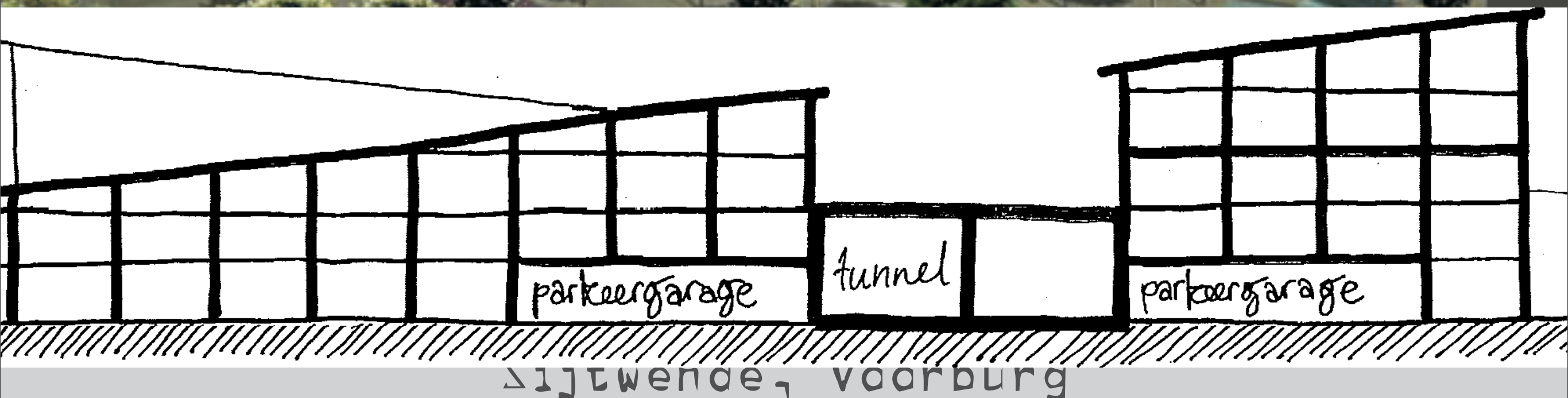
betting all the money on high tech



Boring tunnels



but sometimes low tech did the job





lets start in the nineties



changing perceptions in spatial planning



# mid nineties were special

Three driving forces determine 'MILU' and the use of underground space during the '90s:

- \* booming economy

- \* advances in civil engineering

- \* political consensus between left and right:  
'Paars' or 'Poldermodel'



# visions

Ministers and top policy makers went to  
Hong Kong, Singapore, Japan

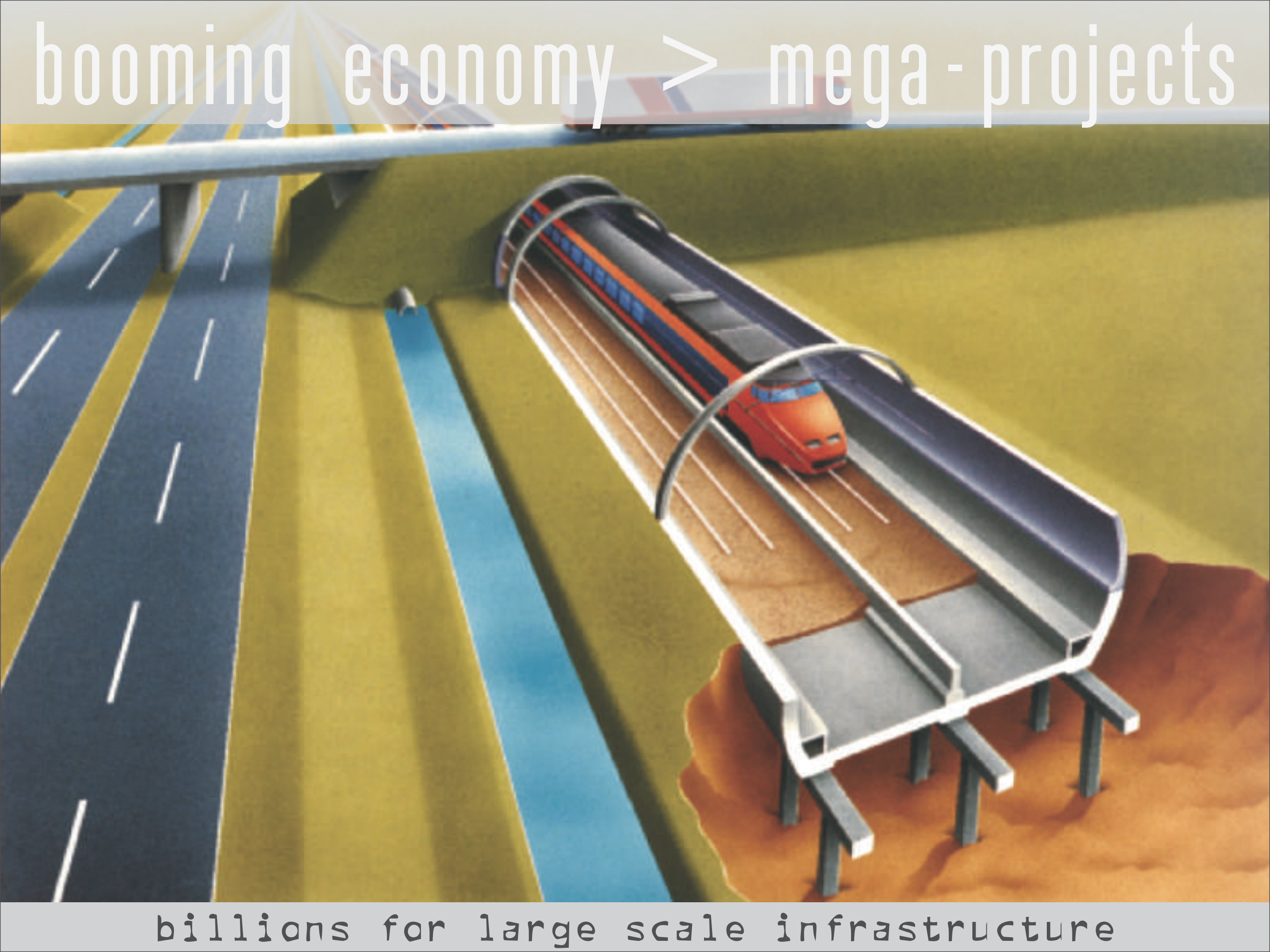
and came back with stories of

- \* airports at sea
- \* high speed trains
- \* large underground tunnels
- \* 250m high-rises

the sky was the limit

'ruimtegebrek - ruimte maken'



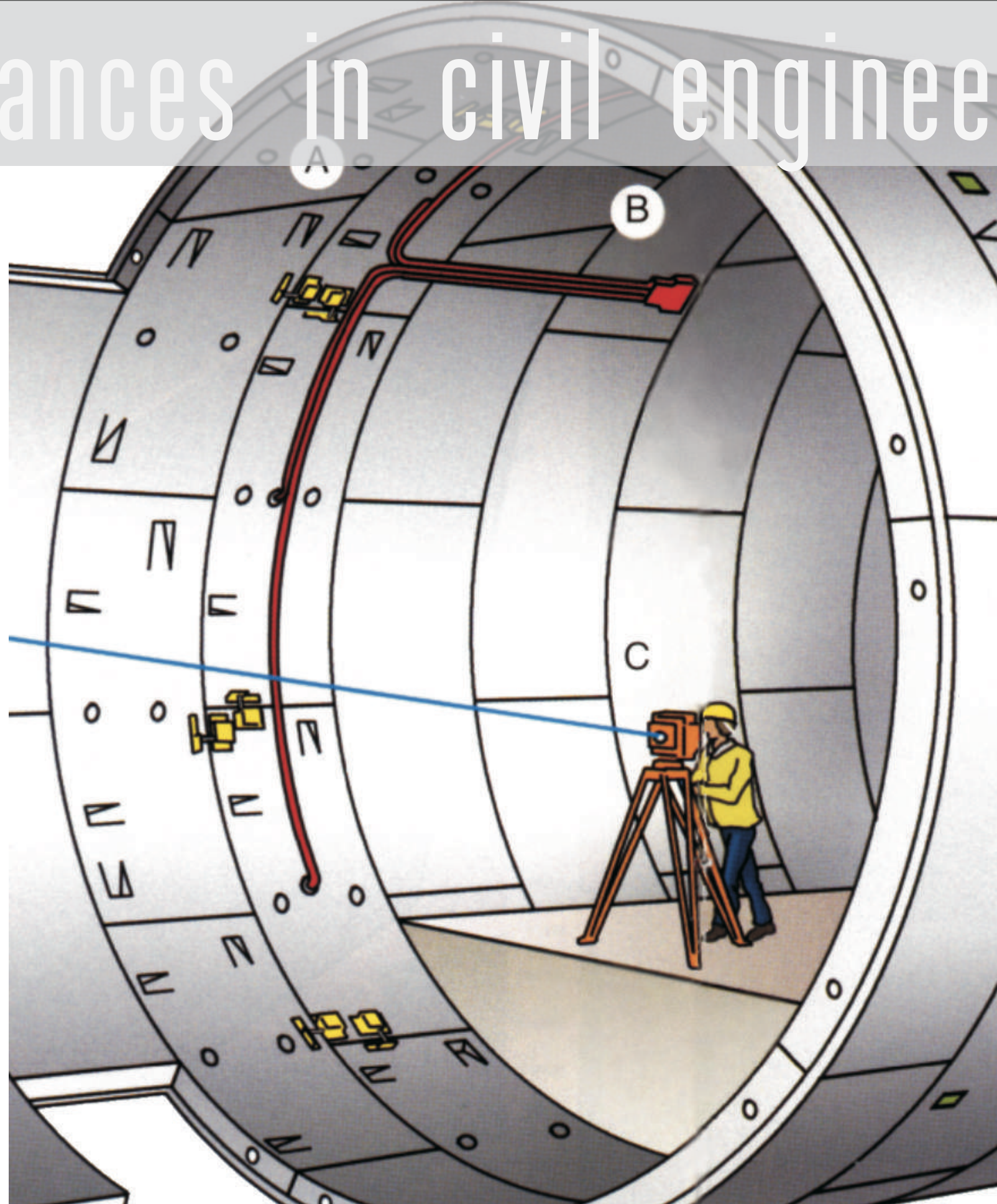


booming economy > mega-projects

billions for large scale infrastructure



# advances in civil engineering



technique would solve our societal problems



# 'Paars' or 'dubbeldoelstelling'



economy and environment can go hand in hand



# 'dubbeldoelstelling'



achieving opposite objectives at the same time



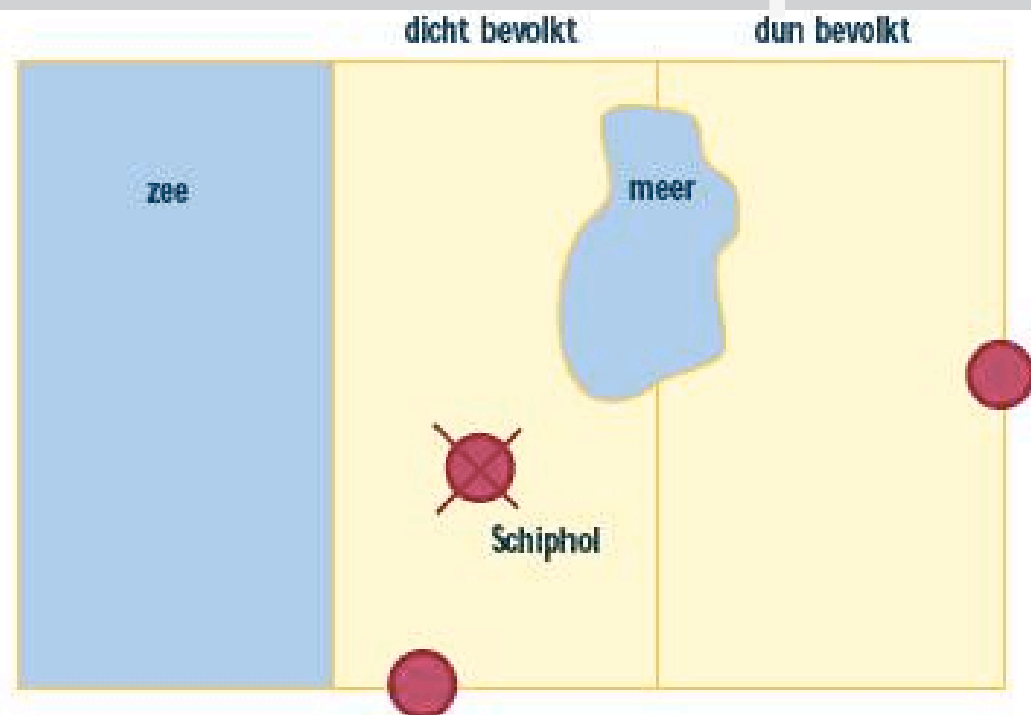
resulting in new spatial projects



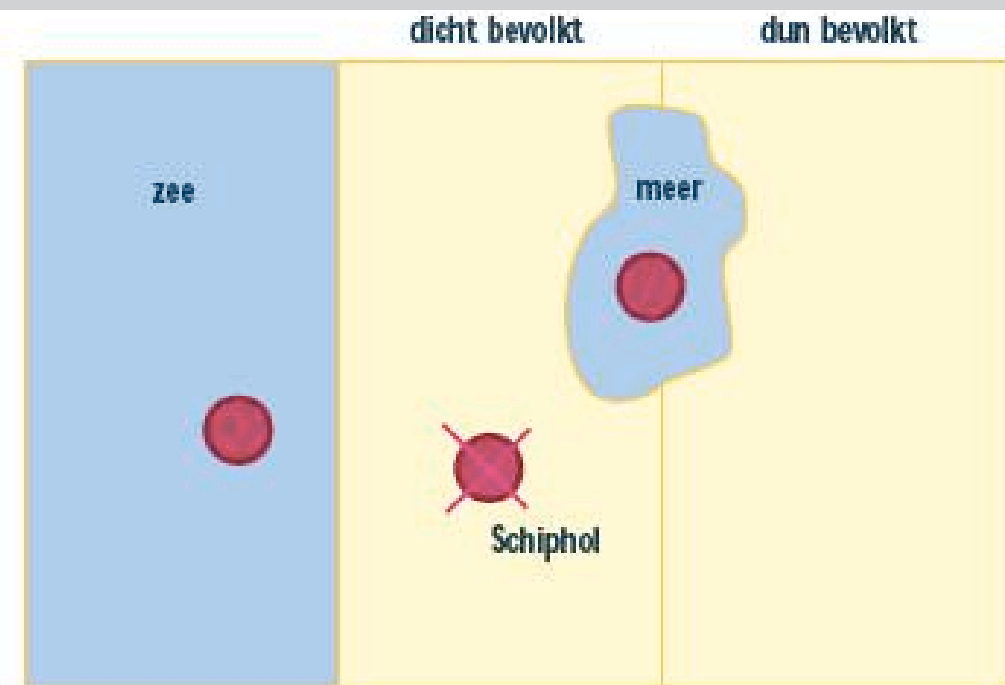
in architecture, urbanism, infrastructure



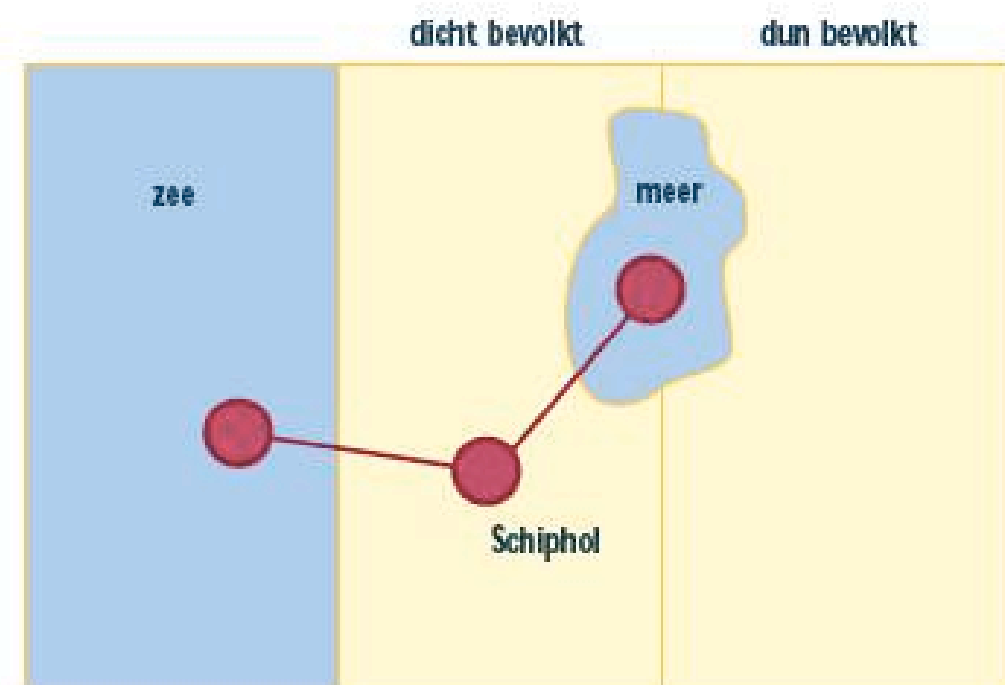
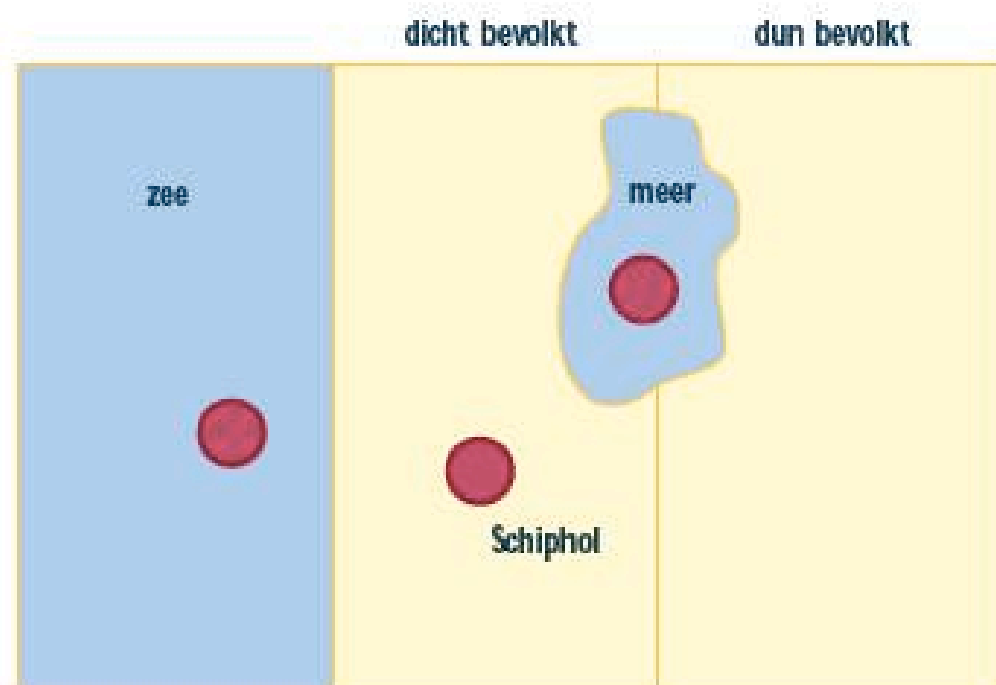
# airports at sea



Nieuwe nationale luchthaven in plaats van Schiphol in grensgebied



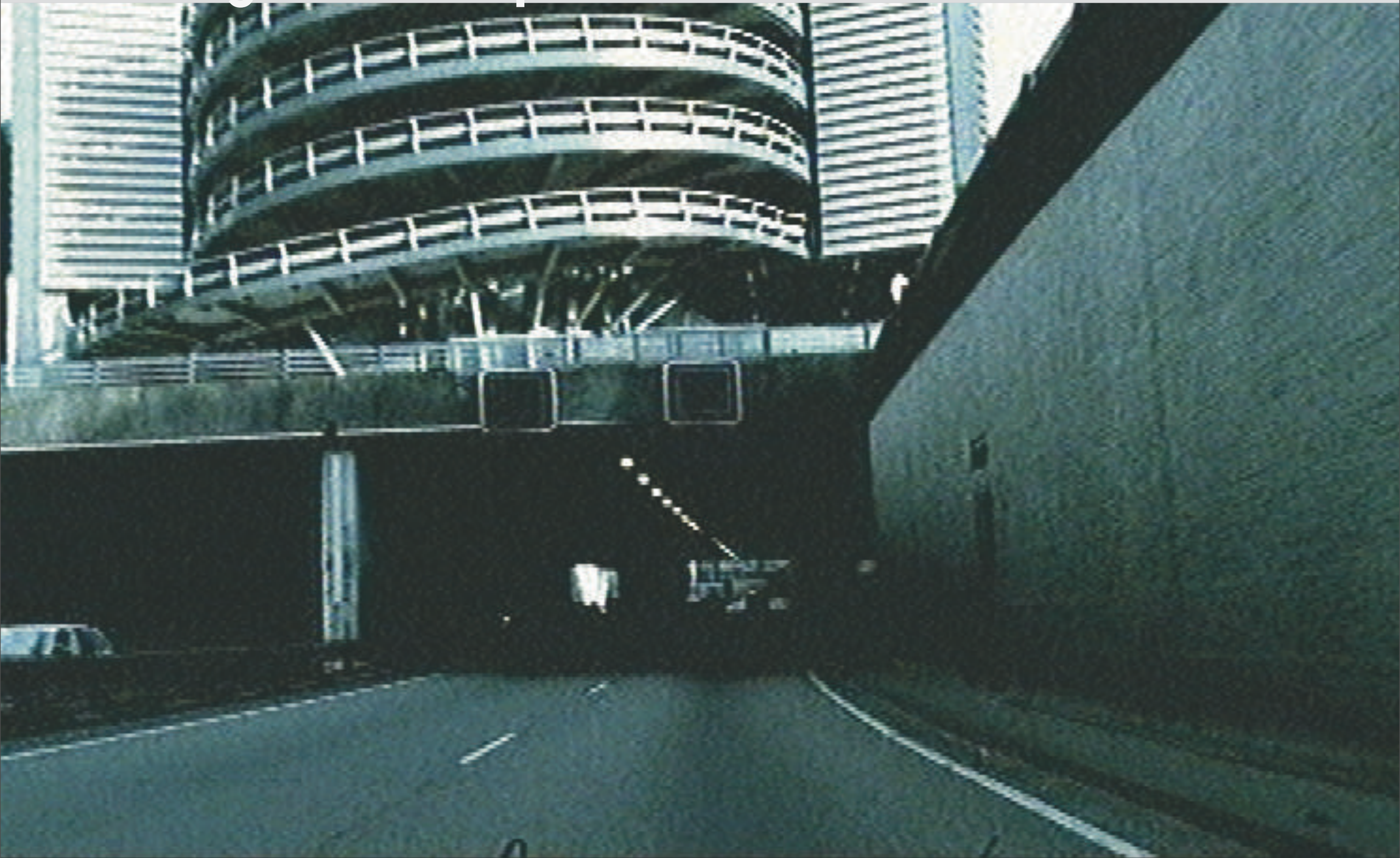
Nieuwe nationale luchthaven in plaats van Schiphol in meer of zee



from Schiphol to Flyland



using the space of infrastructure



during the nineties quite a 'hype'



high-rise



Rotterdam Parkhaven



# high speed trains



TGV to Paris



# key projects



Rotterdam Centraal by Alsop



# then, reality kicked in

- \* MIT '99

- \* dot com bubble burst

- \* 11 september

- \* 'leefbaar'

- \* economic recession

- \* building fraud

- \* budget overrun HSL Zuid, Betuweroute



# NL had to scale back its ambitions



Team **CS**

Rotterdam Centraal



# characteristics of 'MILU'

- \* combining what couldn't be combined

  - \* complex

  - \* expensive

  - \* many parties involved

  - \* slow process

  - \* and... a lot of redundancy







# Zuidas, Amsterdam



current development



# Zuidas, Amsterdam

- the making a new international centre

the expectation: development can pay for the  
underground infrastructure

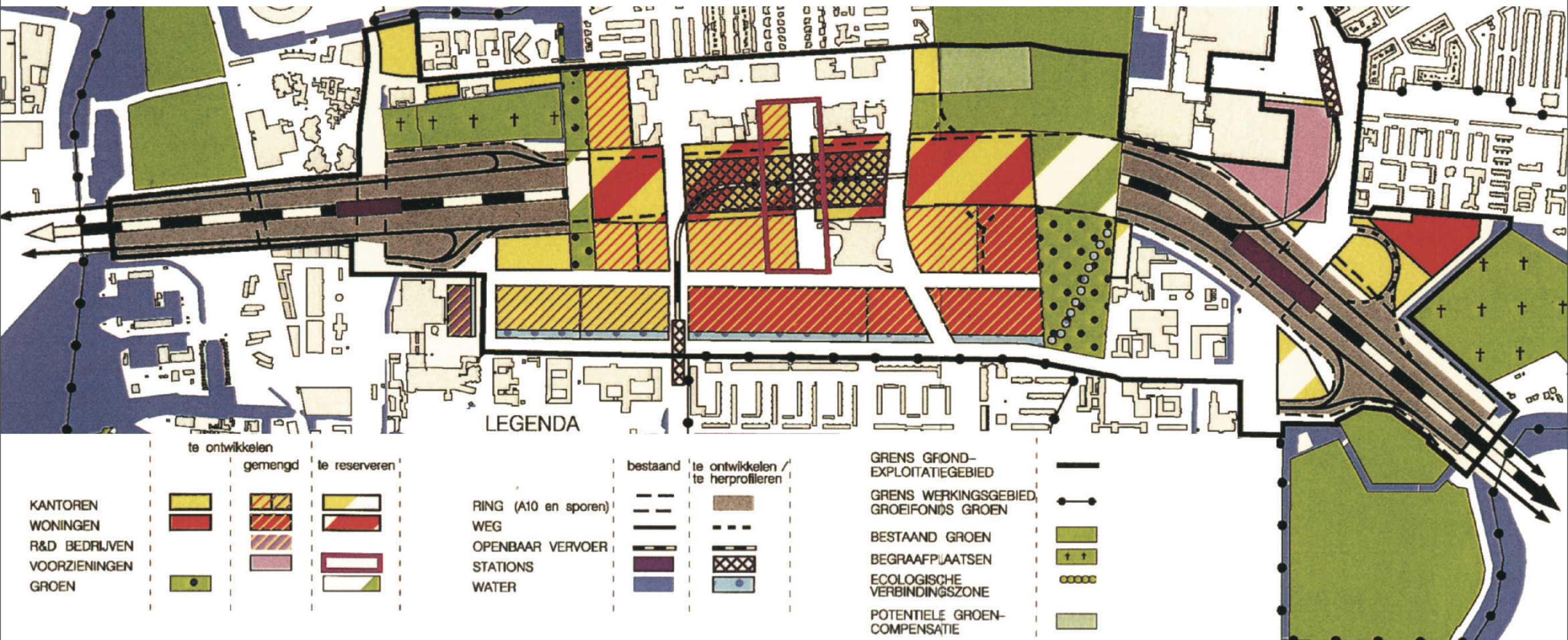
in 2000 it became clear it couldn't

since then the city became dependant on the state  
and the process became much more complicated

task:

- \* increase income by increasing density
- \* make the tunnel less expensive

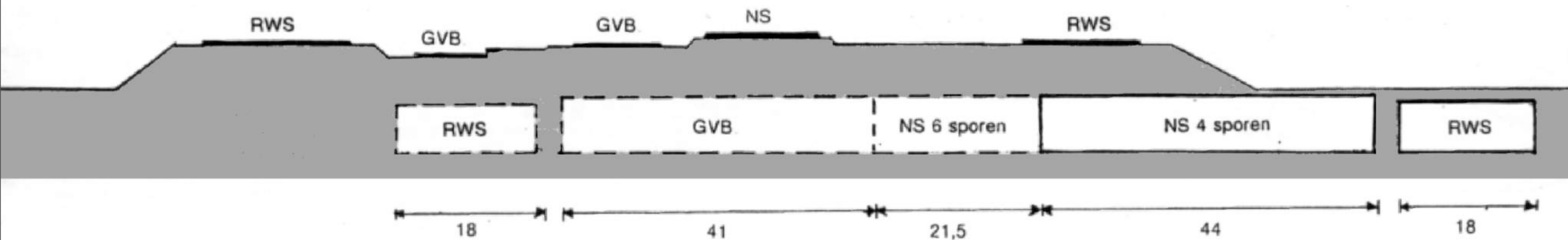
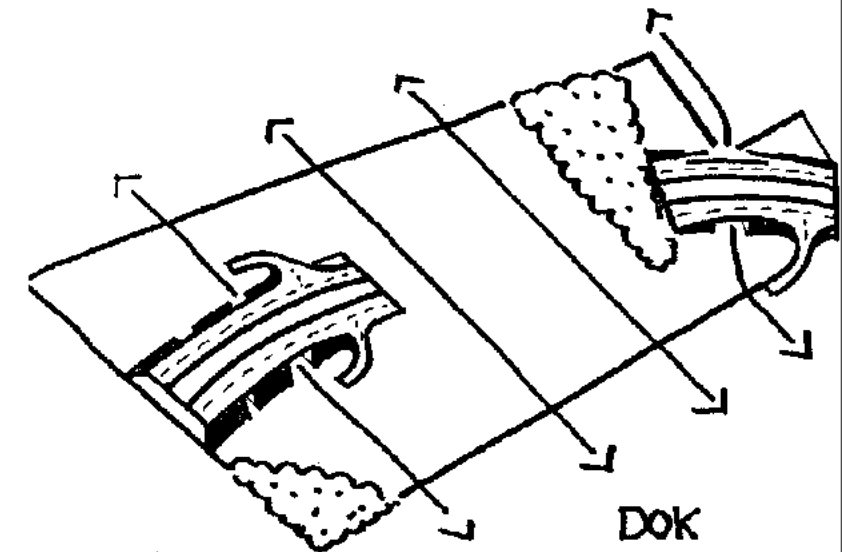
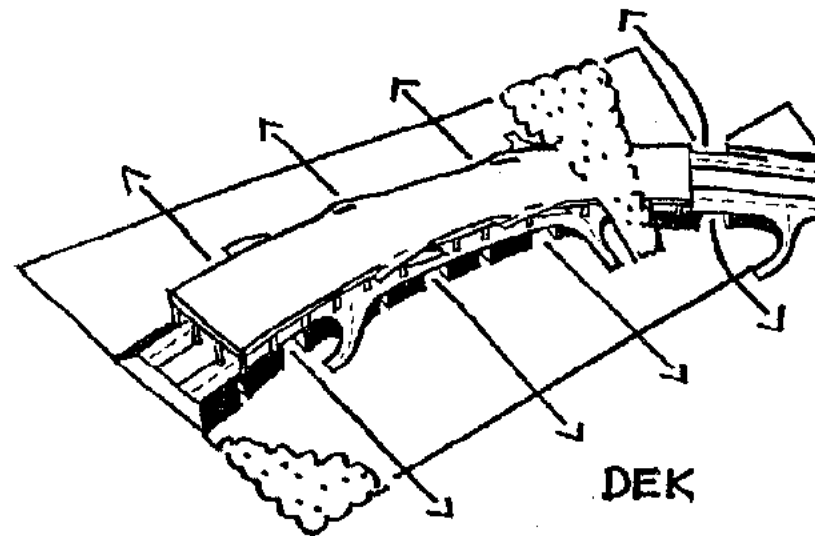
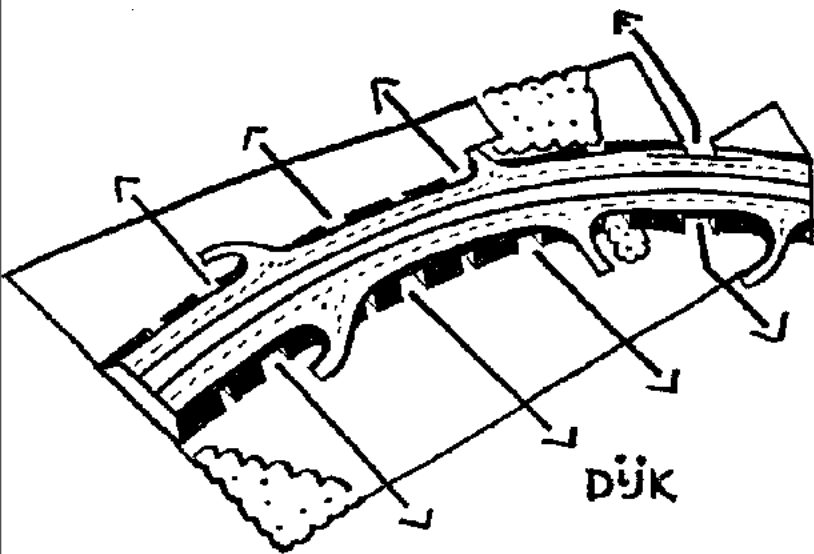




# Masterplan 1998 based upon the Dok-model



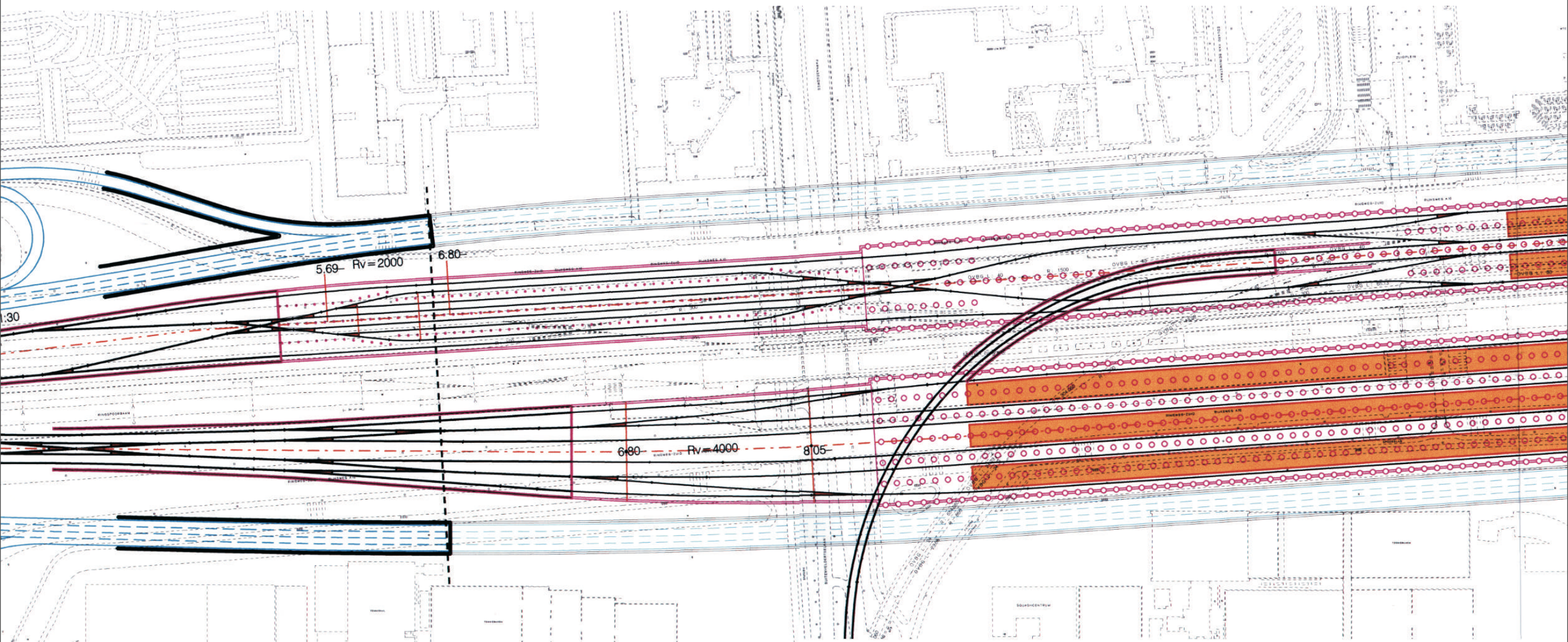
# Zuidas, Amsterdam



dijk dek dok: simple choice - complicated question



# Zuidas, Amsterdam



complexity of the project was severely misjudged

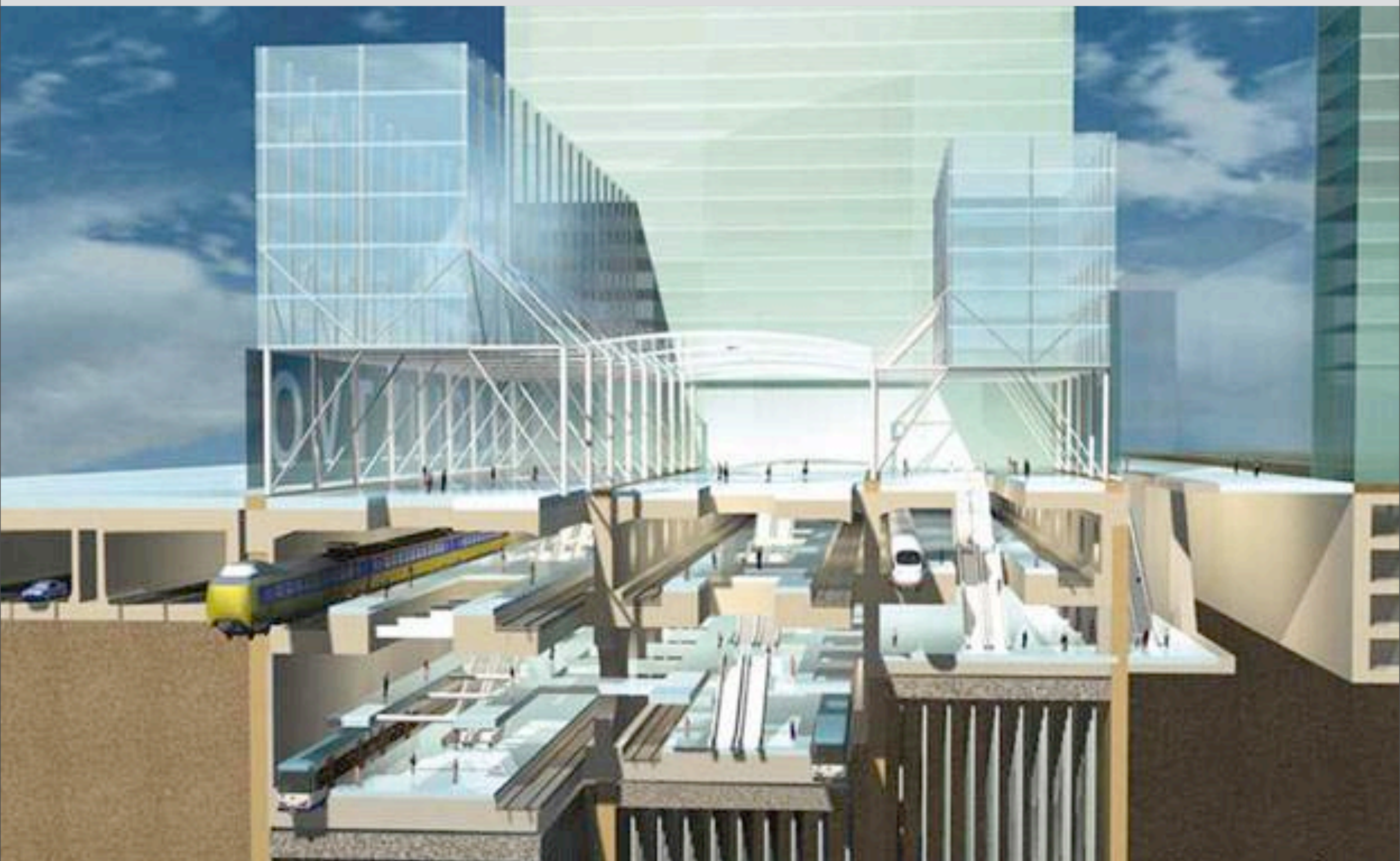


The architectural floor plan shows a two-story building with a central corridor and two main rooms. The left room is 205.60m wide and 28.67m deep. The right room is 204.84m wide and 28.94m deep. The central corridor is 20.00m wide. The plan shows various dimensions, including room widths (65.80m, 62.20m), corridor widths (21.60m, 12.00m), and room depths (24.25m, 3.50m). The plan also shows the location of the entrance, staircase, and elevator.

design Zuidas tunnel 2004



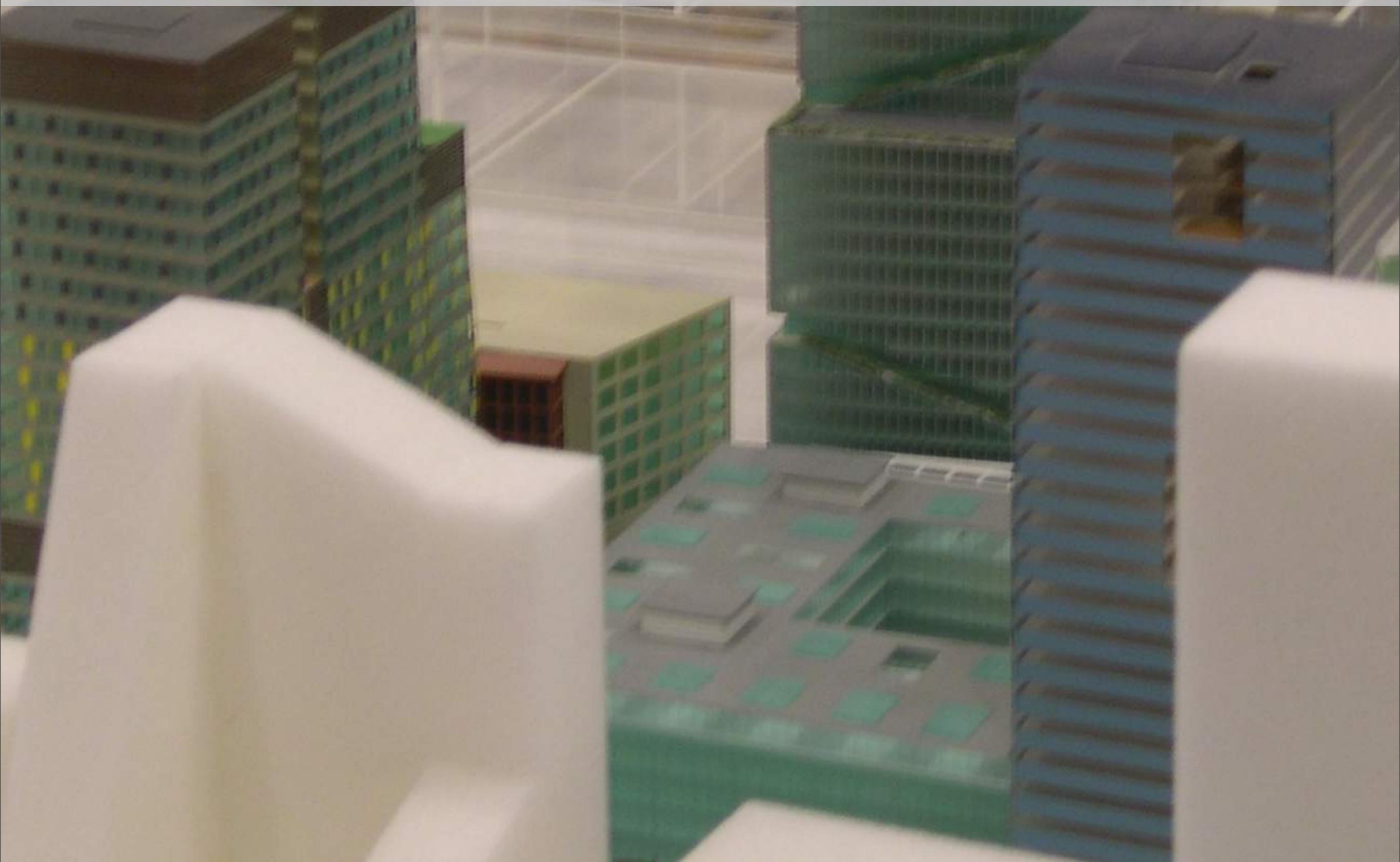
# Zuidas, Amsterdam



dak-model by Holland Railconsult



# Zuidas, Amsterdam



expecting to built 2 million sq meter



# Donau - City

A22 Donau-uferautobahn, Vienna





# Donau - City



Donau-City seen from the other river bank



# Marshallhof



Marshallhof seen from the other river bank



# Marshallhof

600 housing units and a multiplex cinema





# Marshallhof



tunnel entrance local road



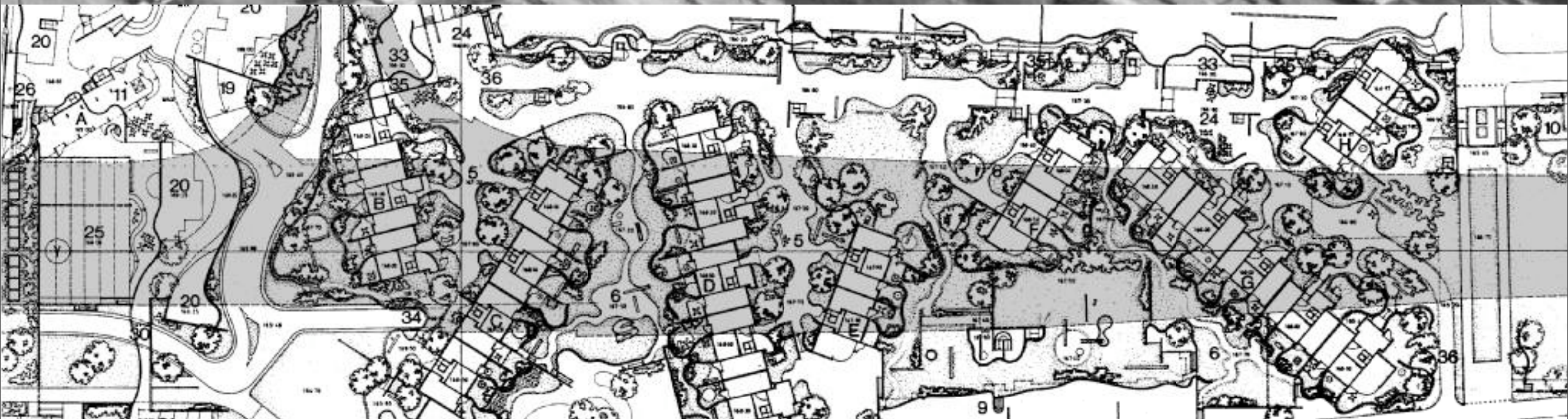
# A22 Donau - uferautobahn

six lane highway with parallel roads





# MILU above the highway



supporting structure



# Donau - City

New centre 500.000 square metre near UNO-city





# Donau - City



Donau-City Straße during construction



# Artificial underworld



where we find the entrance to the parkings



# 'Pedestrian world'



trees growing on top with roots in the hollow deck



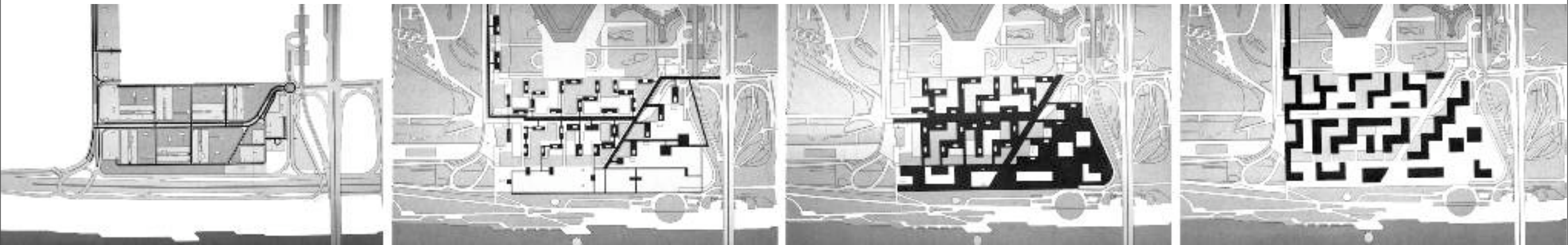
# 'Pedestrian world'



trees growing in the patio's



# Multilevel City



rather sixties



