

Excellent Cities

Mobility Hubs in the Bay Area: A Cycling Policy with Lessons from the Netherlands



Derek Taylor/Richard ter Avest

Goudappel Coffeng



Content

- Goudappel Coffeng & Excellent Cities
- Setting the scene: Transportation in the Netherlands
- The Dutch Integrated Mobility Network
- City Level Case Study: the city of Utrecht, in the Randstad area NL
- Regional Level Case Study: Lessons from The Randstad for the Bay Area USA
- Q+A

Los Angeles, Thinkbike Workshop 2011

5 -> 3 car-lanes, realized within 3 months





‘Our mission is to use proven Dutch solutions on mobility to create sustainable, accessible, and livable cities worldwide’



The Netherlands



Dutch Credentials in Mobility Planning



- One of the world's most cost-efficient (public)transport systems
- The worlds' highest use of cycling
- The worlds' transport-safest country
- Balanced modal share in most major cities
 - ~30% car, ~30% public transit, ~30% bike, ~10% walk or other
- Fully integrated international, regional, and local transit networks:
one card for transportation for the whole country!



Elements of The Dutch Integrated Mobility Network



1. Hierarchy of Nodes (Mobility Hubs)

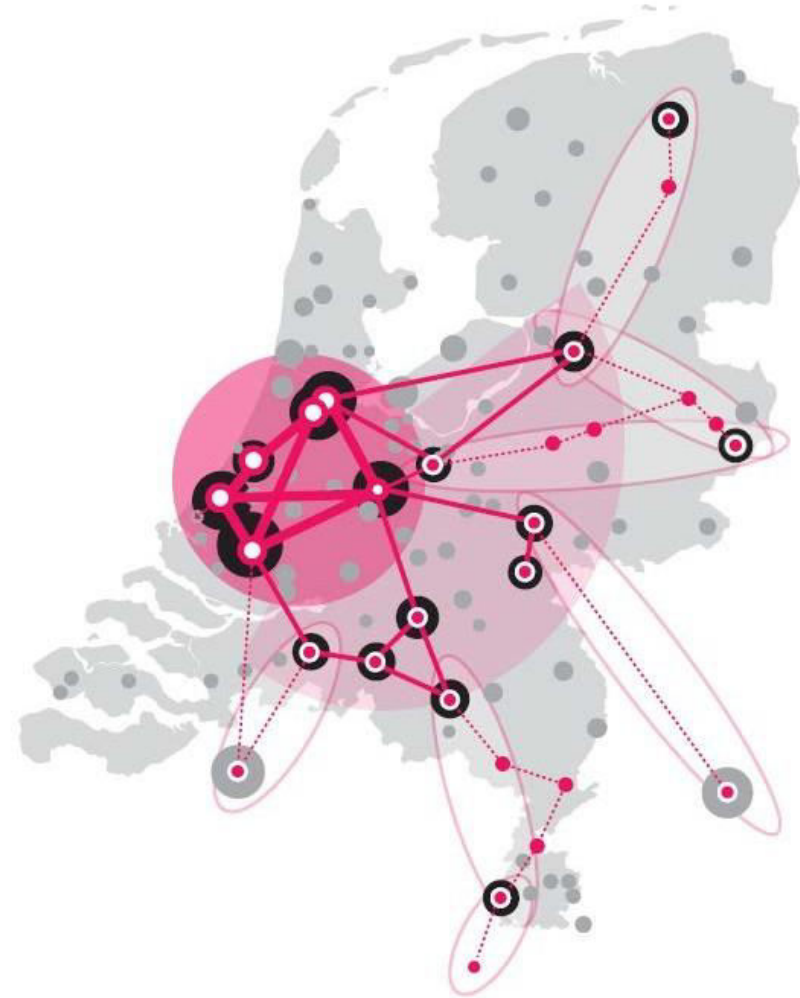
2. Four Strategies of Connectivity



1. Hierarchy of Nodes (Mobility Hubs)



- International Nodes
 - High-speed trains
- Interregional Nodes
 - Intercity trains
- Metropolitan Nodes
 - Metro, lightrail, commuter rail
- Local Nodes
 - Trams, buses, cycling





Node Classifications

Transit Nodes in Randstad	Catchment Zone	Travel Distance	Operational Speed	Frequency
International	3 miles	50-100 miles	60 - 90 MPH	1-2x / hr
Regional	2 miles	20-50 miles	50 MPH	2-4x / hr
Metropolitan	1 miles	1-20 miles	15-25 MPH	4-8x / hr
Local	<1 miles	0-1 mile	10-15 MPH	On demand 1-4x / hr

2. Four Strategies for Connectivity



1. **Connection between the Node and Development (land use)**
 - *How does the planning organization **prioritize** and **develop** nodes?*
2. **Connection between Nodes (regional)**
 - *How does the **region** access the nodes?*
3. **Connection to the Node (local)**
 - *How does the **city** access the node?*
4. **Connection within the Node (as a destination)**
 - *How does the **individual experience** the node?*





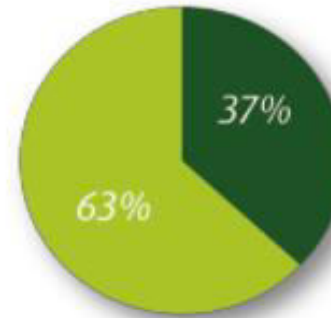
CAR V/S **NON-CAR** COMMUTE



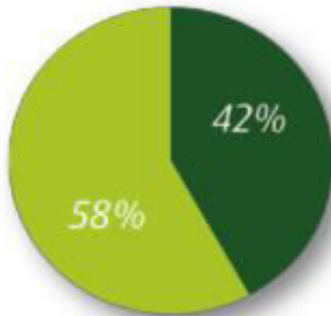
Amsterdam



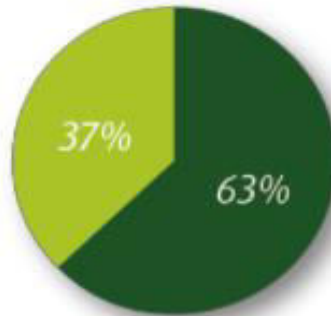
Utrecht



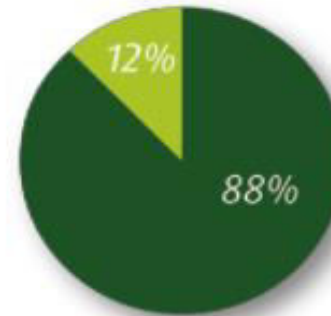
Rotterdam



San Francisco



Oakland



San Jose





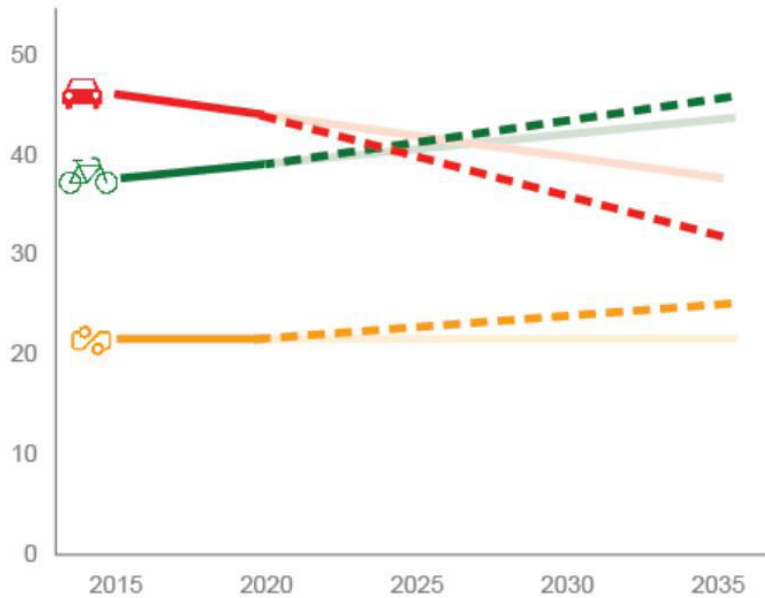
The case of Utrecht



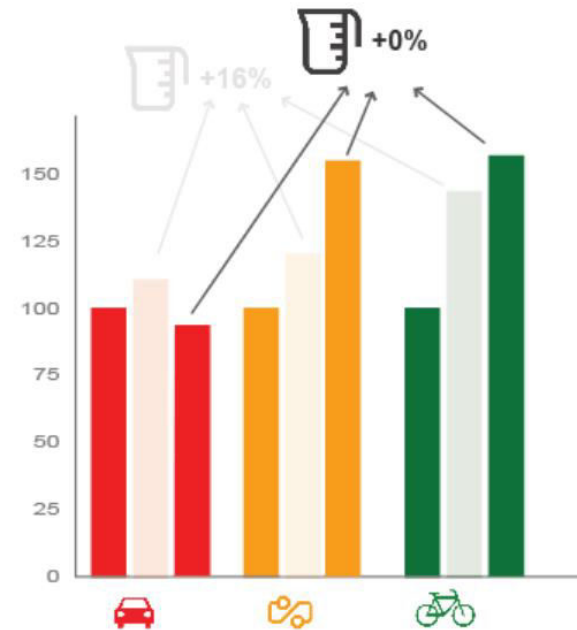
Utrecht: city ambitions



- Ambition sustainable urban mobility plan: change modal split
- Strong urban growth → growth in transportation demand (car, transit and bicycle)
- Usage of space all mobility modes together: +16% until 2035
- Modal shift --> no extra space needed for mobility



X  =
29% city growth
2015-2035





The principles

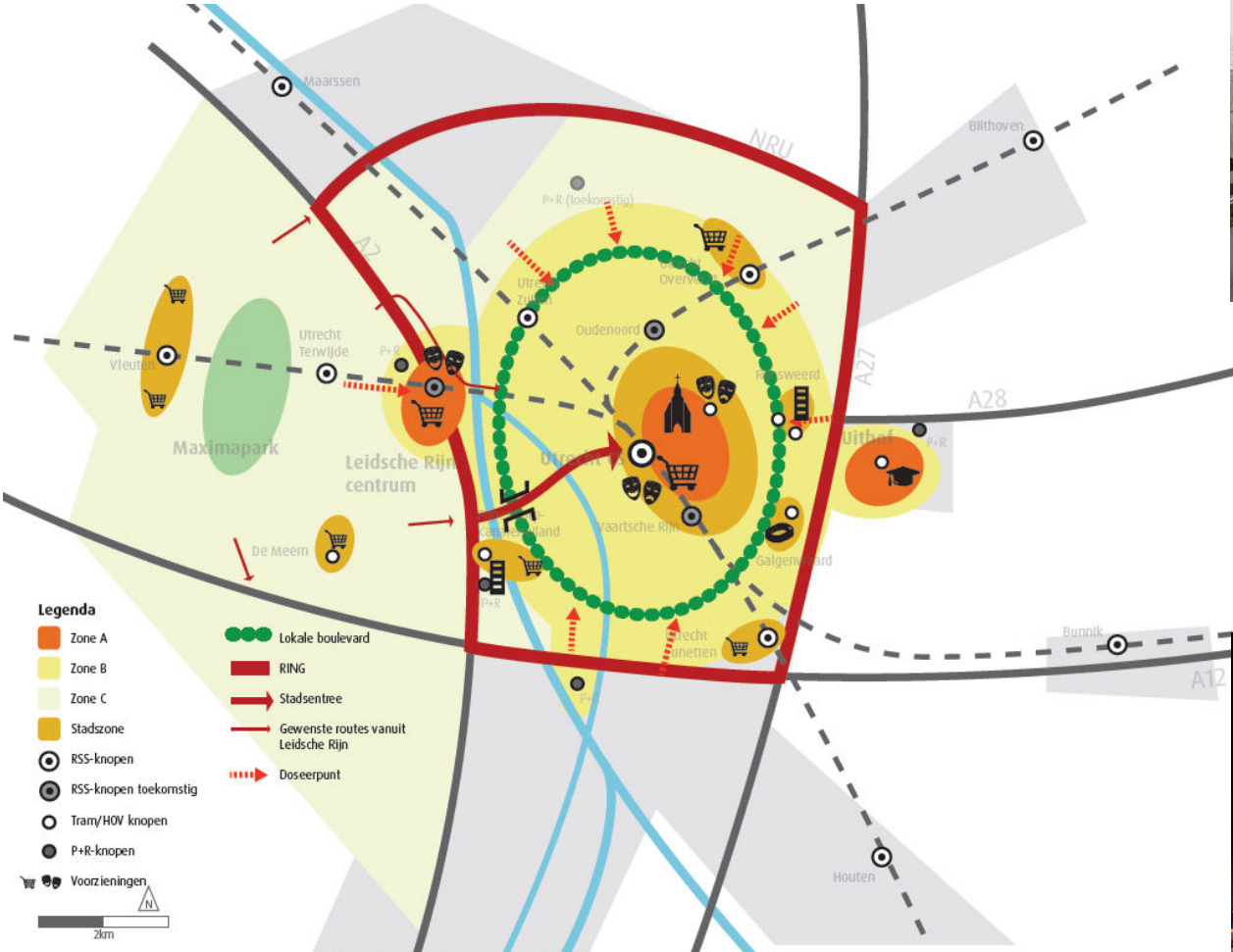
- 1. Re-organize car networks to create space for other modes
- 2. Location determines choice of mobility (ABC mobility zones)
- 3. Cycling as a primary choice
- 4. Dynamic centers at mobility hubs

Connection
to the Node
(Local)

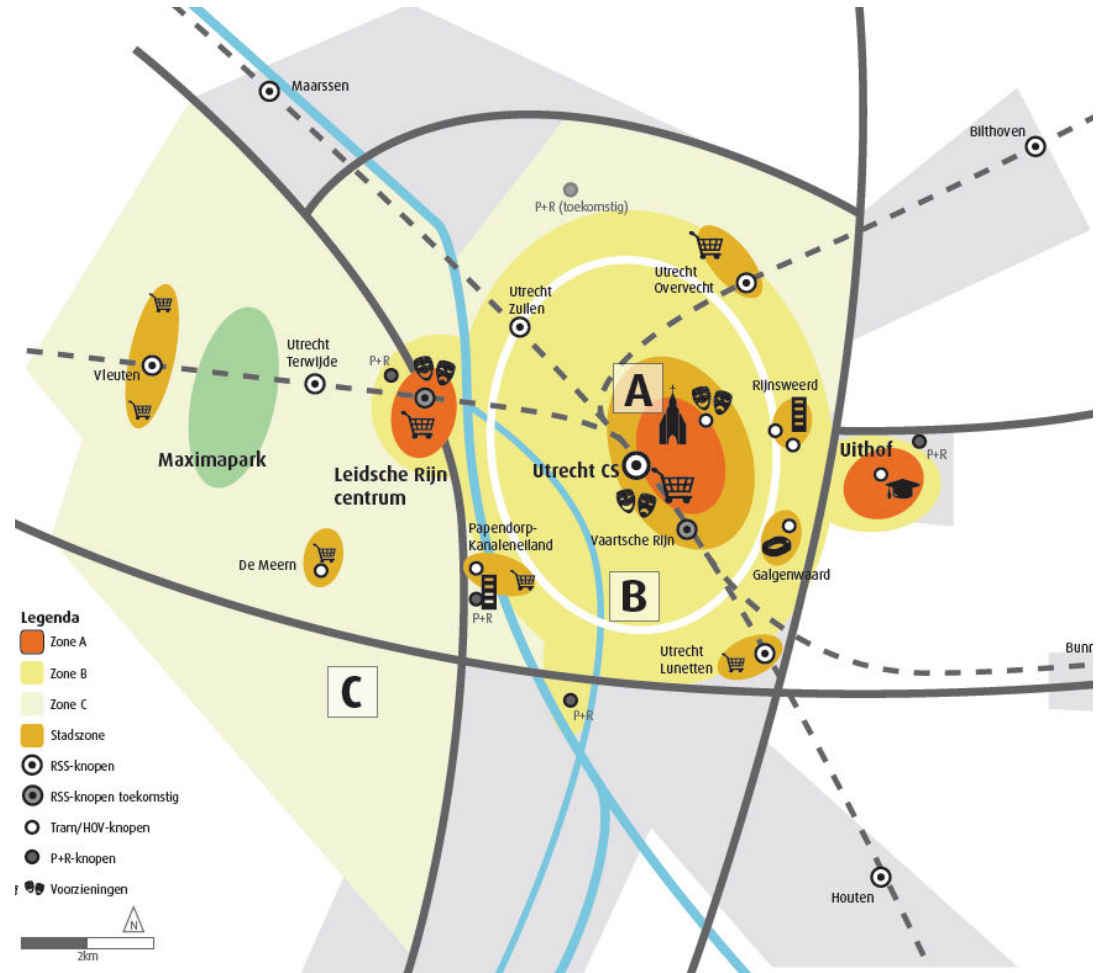
Connection
Within the
Node



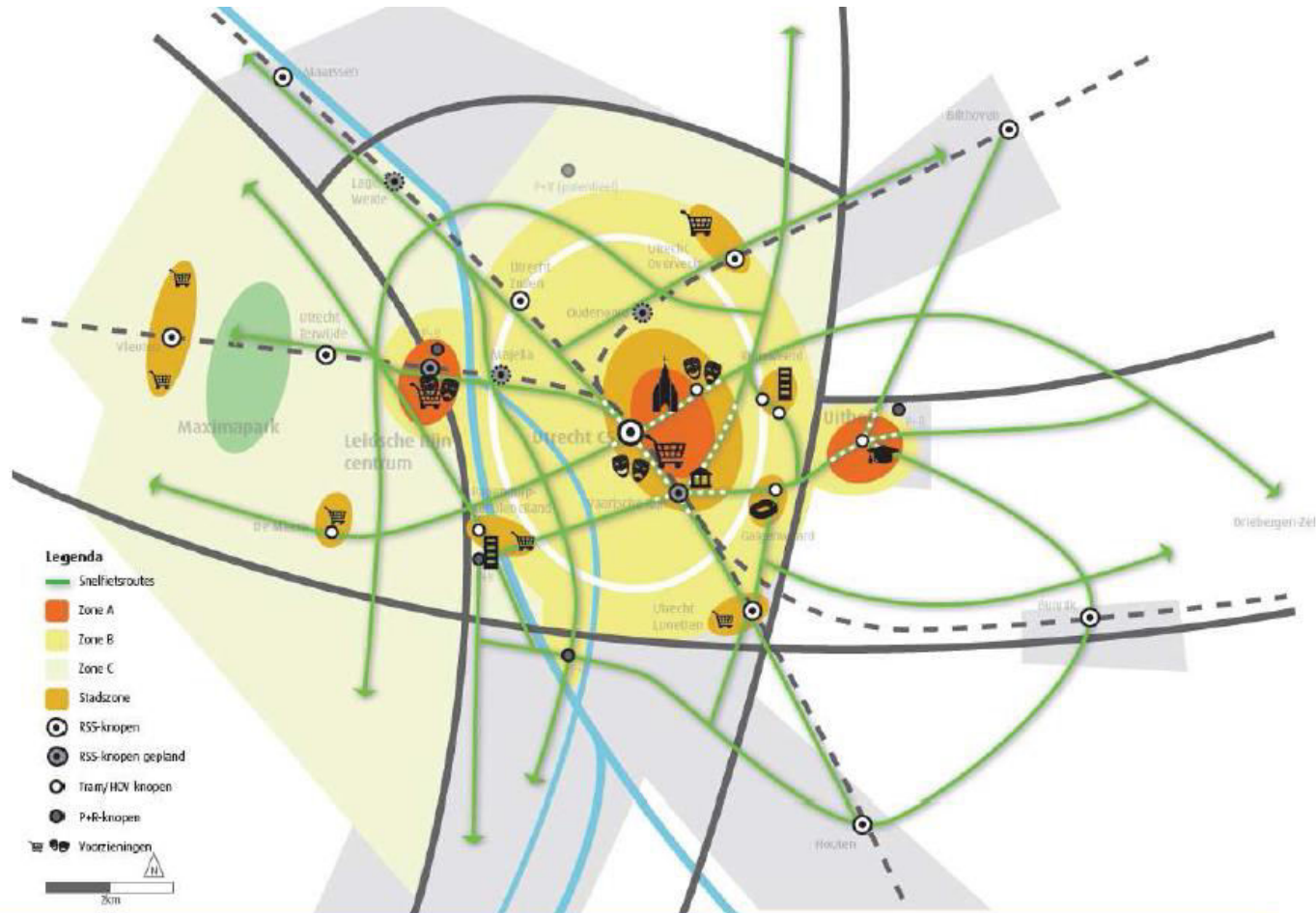
1. Re-organize car networks to create space for other modes



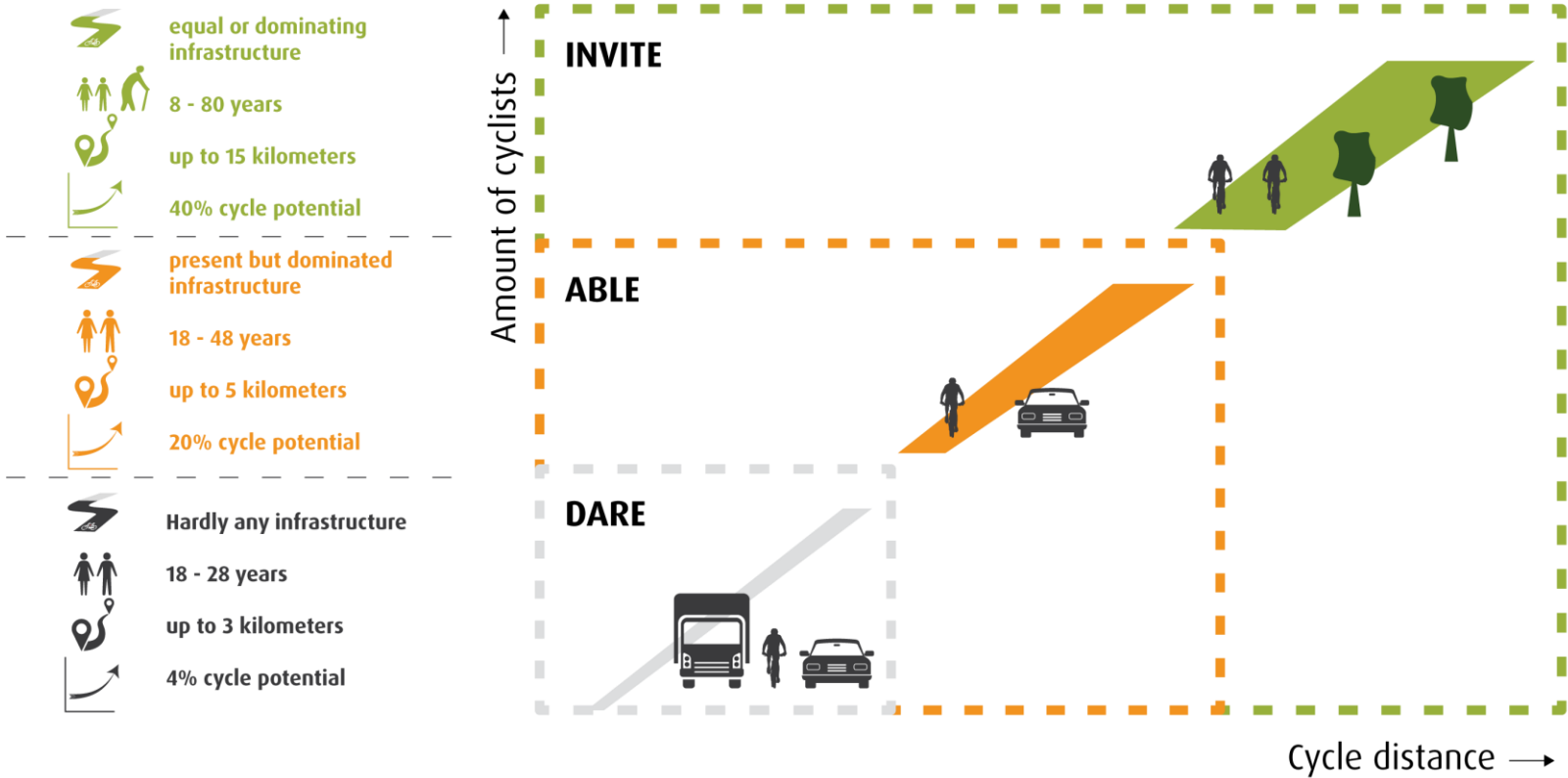
2. Mobility zones developed by the city



3. Cycling as primary choice



What kind of city do you want?



4. Dynamic centers at mobility hubs



4. Dynamic centers at mobility hubs



4. Dynamic centers at mobility hubs






Central station Arnhem



Central station in Rotterdam

Measurable public goals of Mobility Plan Utrecht: Accessibility of economic hotspots



			
Binnenstad	+ 4%	+20%	+27%
Utrecht Centraal	+10%	+11%	+32%
Uithof	+18%	+40%	+42%
Rijnsweerd	gelijk	+26%	+20%
Leidsche Rijn Centrum	+ 6%	+53%	+177%
Lage Weide	+21%	+27%	+75%
Papendorp	+13%	+18%	+46%
Overvecht	+10%	+23%	+26%

Change in number of people that can reach economic areas in Utrecht in a fixed traveltime, in the present situation and with the measures in the mobility plan. Software = Omnitrans



Lessons From the Randstad: Sustainable Mobility in the Bay Area

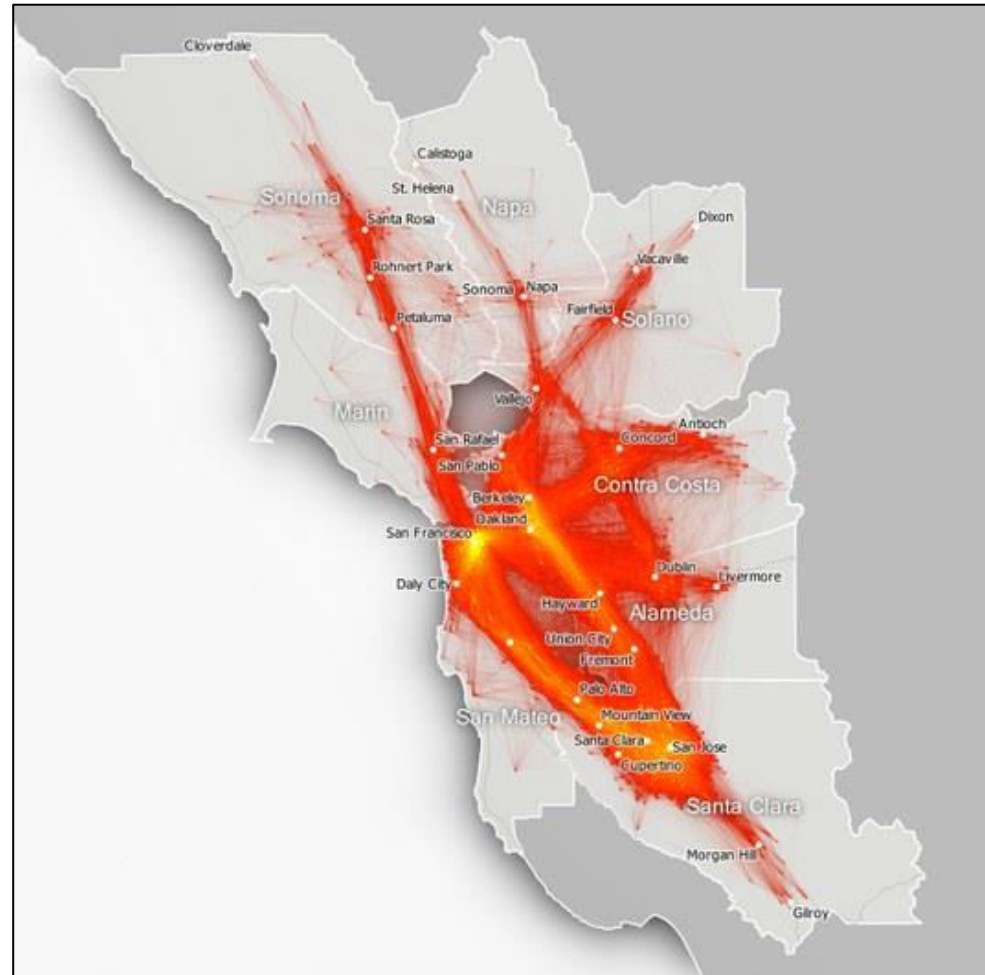


The San Francisco Bay Area



- Home to **7.7 million people**
9.6 million expected by 2040
- **5th Largest GDP in the US**
38% increase in jobs by 2040
- **33%** of population work in a different county than where they live

An interconnected, growing, economic region...



Commute patterns in the Bay Area

...facing massive challenges in transportation



Modal Split

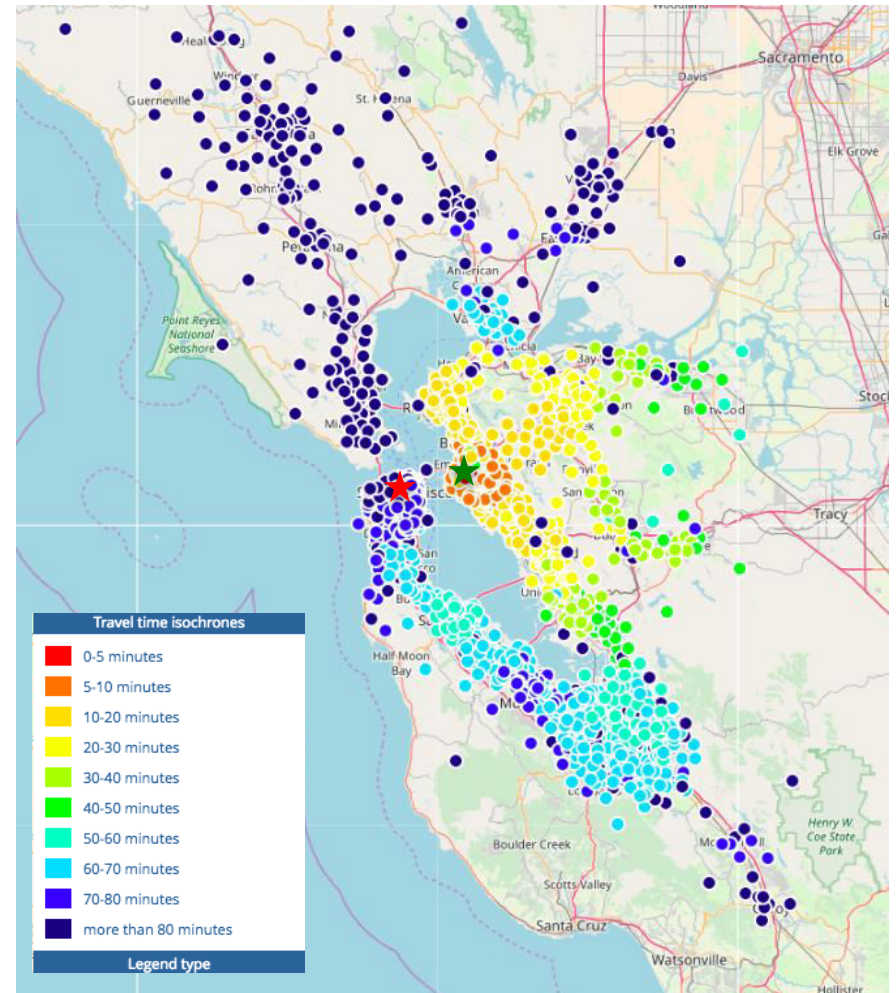
- **75%** of people drive to work

Congestion growing rapidly

- up **80%** since 2010

High travel times for AM Peak commutes

Analyze-tool: MOVE Meter



Isochrones from Oakland (green star) to SF (red star) from the MOVE Meter show a 60+ commute in the AM Peak

Randstad Sets the Standard for Regional Connectivity

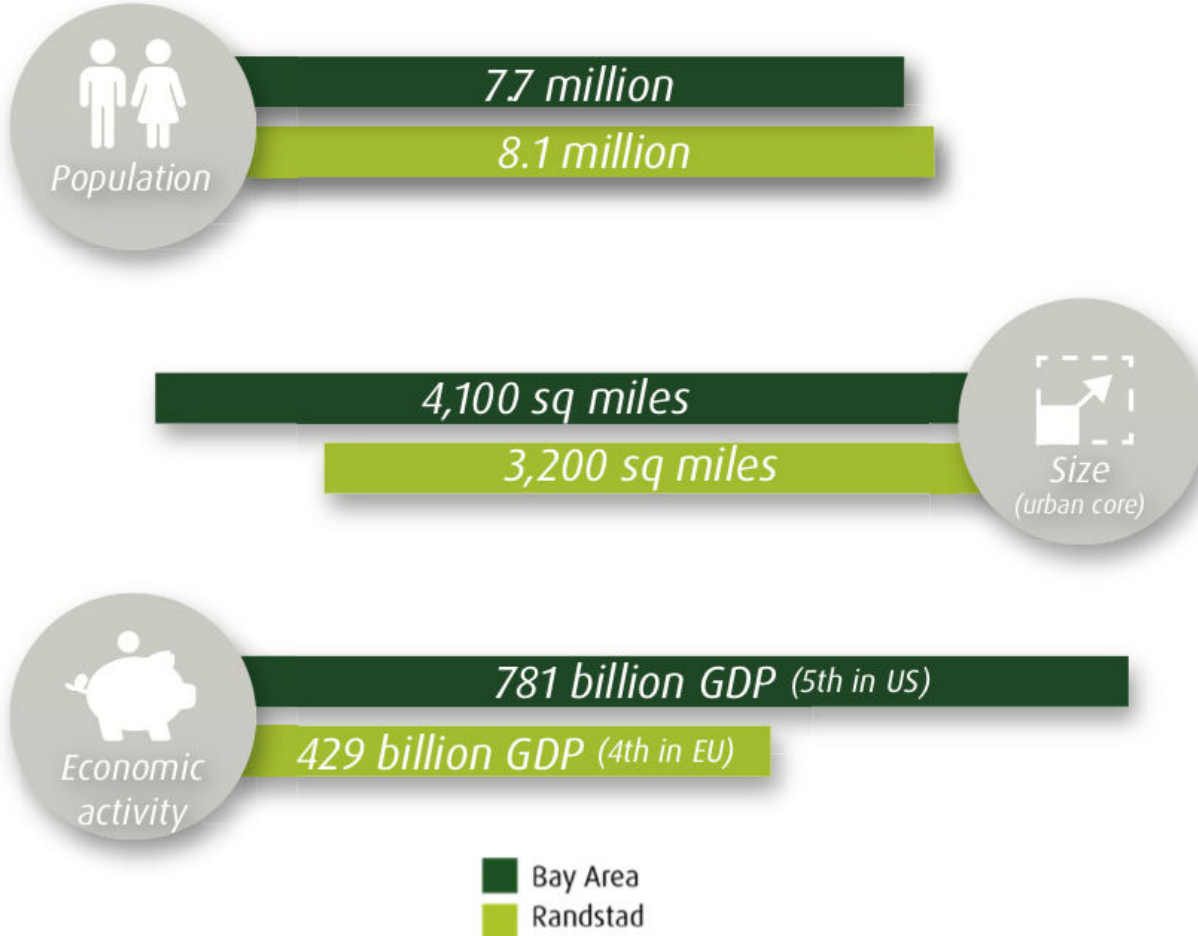


- Economic Region comprised of area around and between the four largest cities in the Netherlands
 - Amsterdam, Utrecht, Rotterdam, and The Hague





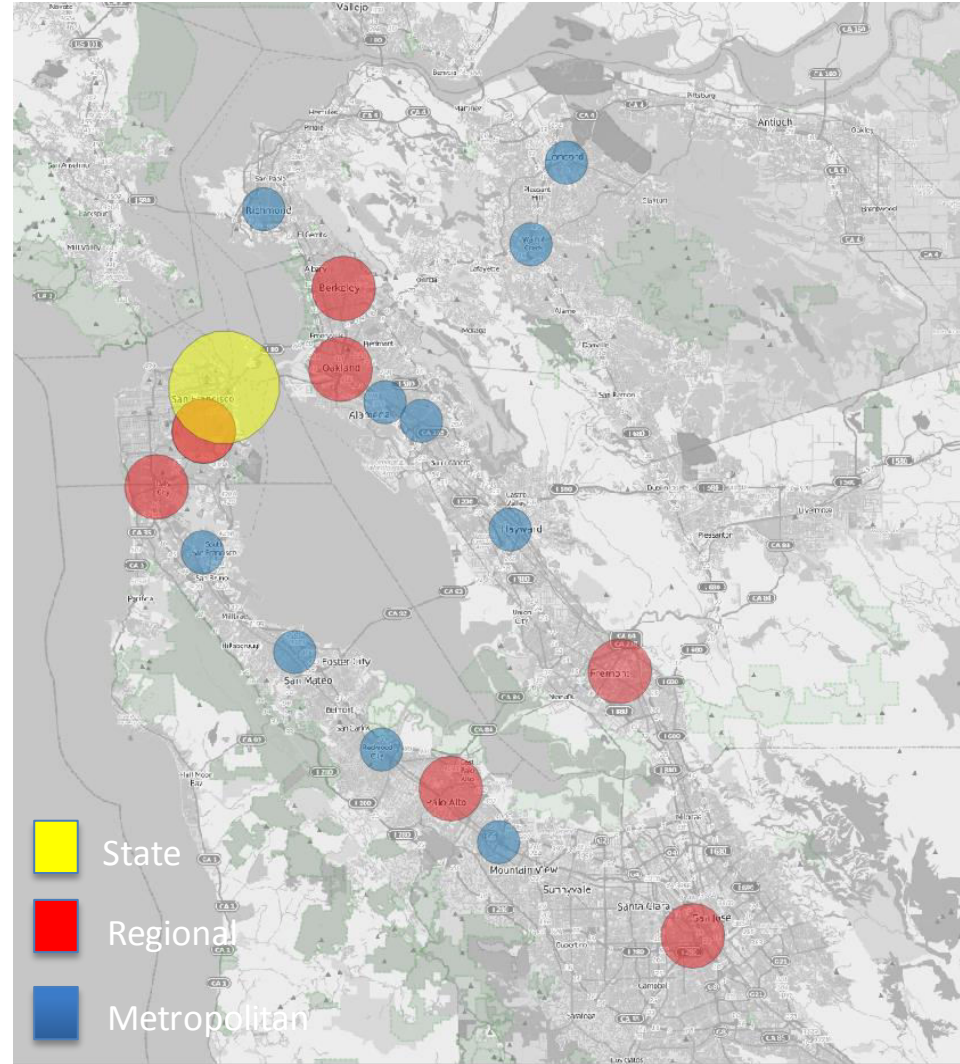
SIMILARITIES IN REGIONS



Mobility Hub Current Data



- Density of Employment
 - Transit Hubs and their catchment zones make up only **5% of the land** but have **51% of jobs**
- Car Commuters
 - Although living close to transit stations **69% commute by car**
- Goal:
 - 30% of commuters by car in all hub zones
 - By investing in stations (3 levels) and bike-networks



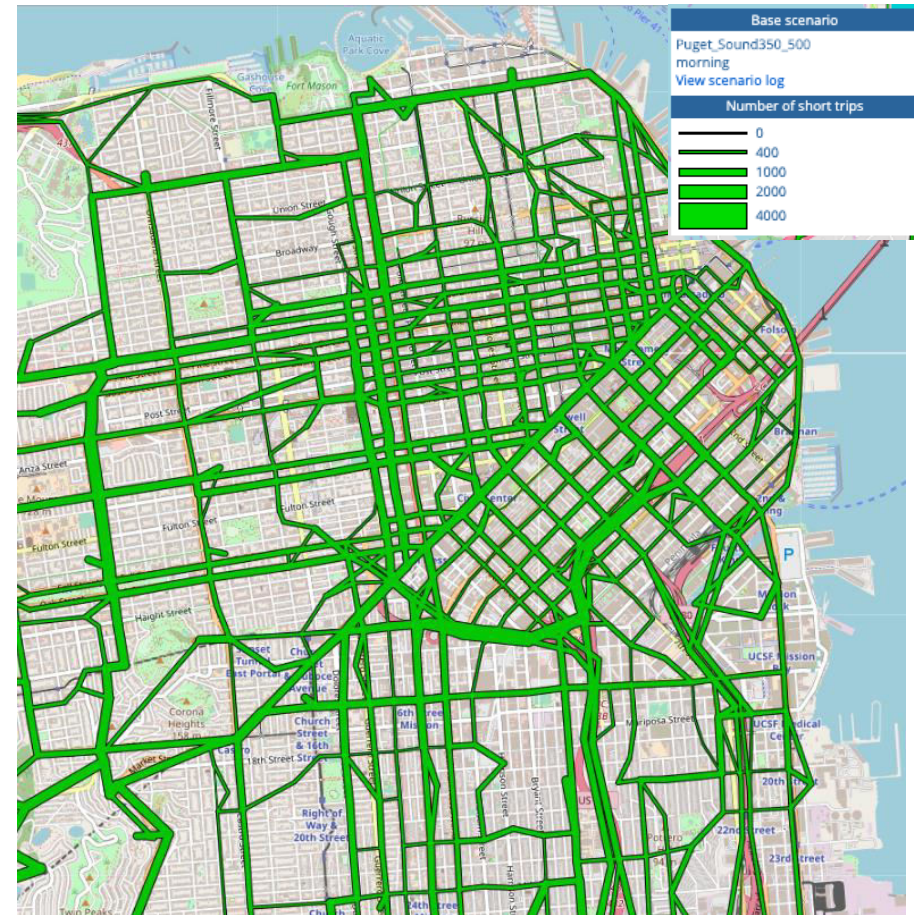
Connection within the nodes (local) : Improve first and last mile connections in the catchment zones of hubs



Goal:

- For trips under 1 mile:
50% of auto trips reduced
- For trips 1-2 miles: 30% of
current auto trips reduced

*How can ABC mobility zones
reorganize the car network and
reduce short trips within
catchment zones?*



MoveMeter showing short trips (under 3km) within the catchment zone of the San Francisco Mobility Hub in AM Peak

Annual Results of Achieving 30% Auto-Commuters in Bay Area Hubs



Annual Benefits

- **560 million** less miles travelled by Car
- **100 million** less car trips
- **225,000** metric tons CO2 reduced
- *Regional Non-Auto Mode Shift: 15%*



In Summary



- Mobility planning in the Netherlands is integrated system of land use and transportation planning
- Emphasis on all modes of transit! Get from A to B in most efficient way: transit, bike, car
- The hierarchy of nodes (mobility hubs) and four levels of connectivity have led to a successful local, regional, and international transit system
- These strategies can be utilized in the American context to help inform future decisions on Reshaping cities



Thank you!

Questions and Contact Info

Contact details

- Derek Taylor
- dtaylor@goudappel.nl
- [916-882-1707](tel:916-882-1707)



Contact details

- Richard ter Avest
- rtavest@goudappel.nl
- [+31-6-51197683](tel:+31-6-51197683)

