XCARCITY Consortium Meeting

17th June 2024

Programme

09:00	**Site Visit Zuidas**
10:15	Travel to the **Venue** by Metro: *The Central Plaza of the Vervoerregio Amsterdam office*
11:00	**Inspirational speaker**
11:15	**Programme update**
12:00	*Lunch*
13:00	Digital Twin Presentations
13:15	****Market Place Use Case + Digital Twins**
14:15	**Feedback Session – Presentation of outcomes**
14:30	**Knowledge Transfer Quiz – Impact Plan**
15:00	**Speed Dating**
16:00	*Borrel*

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Inspirational Speaker:

Sacha Stolp, Director of Innovation, City of Amsterdam

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City of
Amsterdam

Climate change effects

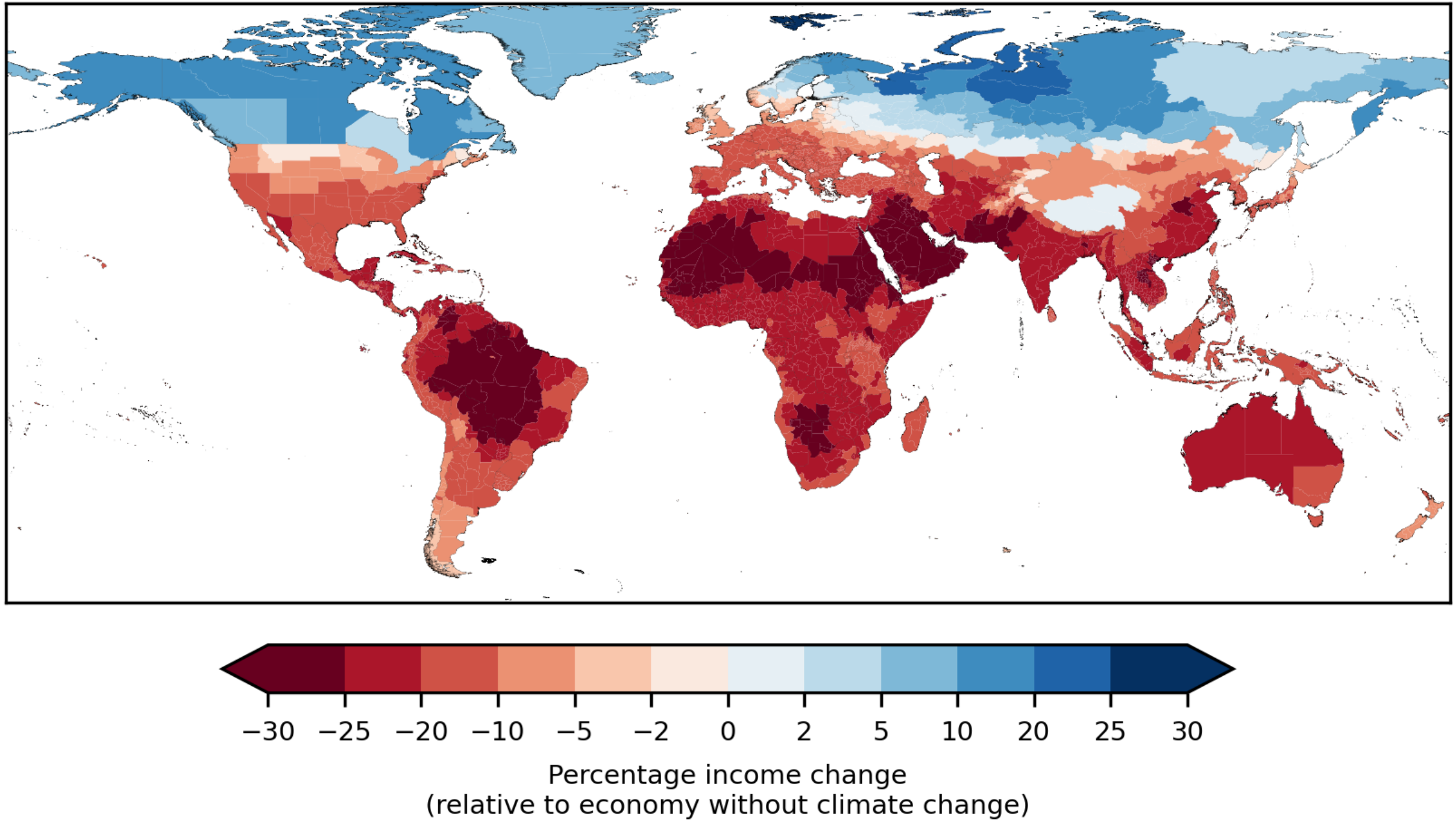
Sacha Stolp, department of engineering

May 30, 2024

World economy already committed to income reduction of 19 % due to climate change

- 38 trillion dollars in damages each year (PIK Potsdam Institute)

Even if CO_2 emissions were to be drastically cut down starting today, the world economy is already committed to an income reduction of 19 % until 2050 due to climate change,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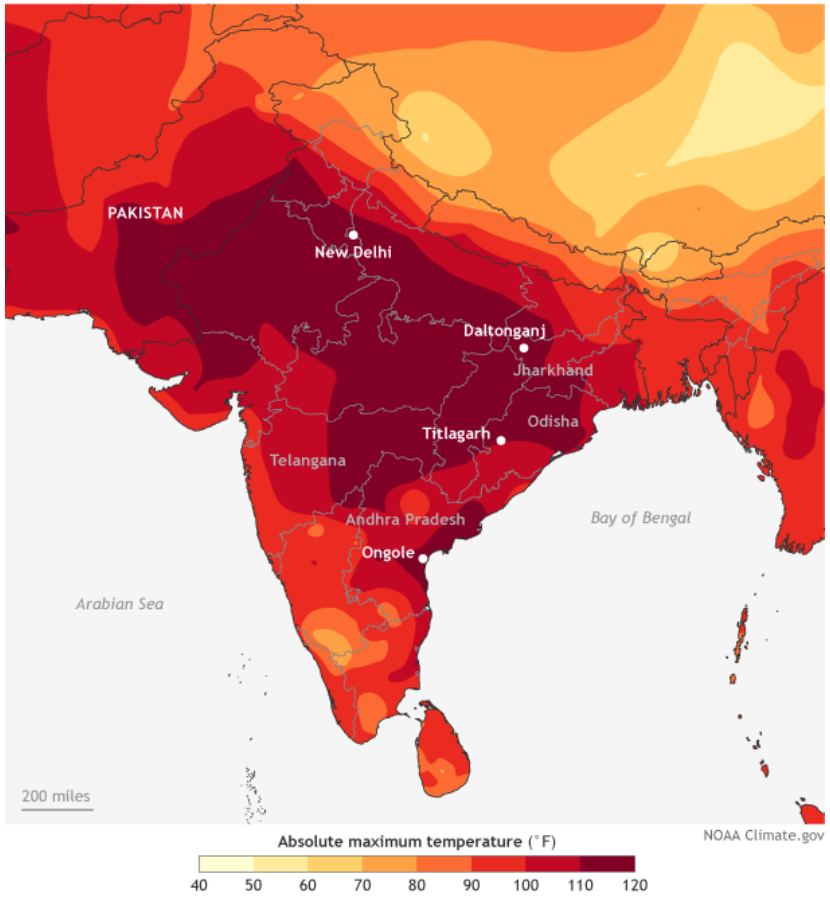
Percentage income change
(relative to economy without climate change)

Climate change this month

- Heat record of 52,3 degrees in India, also record in use of electricity due to use of airco's. Thousants of citizens died.
- 750.000 people in Brazil need to leave their home due to floading after rainfall;
- Outburst of Denge (illness) in SE Asia and S America;
- Floads in South Germany (at least 5 deaths, schools closed, no public transport possible, train stuck, 40.000 resque workers active, thousants of evacuees
- Netherlands wettest May ever;
- Finland record temperatures and heat stress in May 2024.

Heat wave (May 24–30, 2015)



Climate change affects Amsterdam and our country on all social themes such as:

Poverty reduction - Education - Economic affairs - Housing and public housing
Youth – Health - Finance - Real estate -
Food - Public order and safety - Public space and greenery - Traffic and transport
Land and development - Water

Just some social, financial and spacial effects of climate change

- **Health**: More cooling infrastructure is needed otherwise death due to heat stress
- **Safety**: more domestic violence, security services increase of material and manpower (fire, police, hospitals)
- **Falling real estate prices** affects unequally young homeowners
- New types of **migration** like wealthy residents moving out;
- **Damage and disruption** of infrastructure and mobility systems due to shortage of energy or extreme water
- **Shortage of water**, causing problems for infrastructure, industry, food and citizens
- **Damage to assets** like roads, parks, real estate and nature reserves due to landslides by extreme water and subsidence due to drought;
- **Equal opportunities**: vulnerable people living in vulnerable locations suffer more (globally, regionally and between neighborhoods), special attention needed for children, the elderly and financially weak residents.

Knowing that climate adaptation action can help to keep our citizens save, we need to.

- **Incorporating new risks in daily practise, investments** and financial models;
- **Calculate climate disaster in life span of all investments** for public and private actors including financial sector (banks, insurance), incoporation in local procurement and European tender procedures;
- Communicate open about stress due to climate change based on **local allocated consequense** of general risks and share **local best practise and solutions**;
- **Open converstation** about what we kind of damage and disaster we accept and which we want to prevent against all costs on European and local/ regional level as well;
- TALK in nature based **language**!
- Be aware that we now still have the money to invest in the good but **not very long anymore.** The costs of damage will simply have it's effect already

Programme Updates

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Purpose of today

- *Update on the programmes progress*
- *Connect Partners to the Use Case*
- *Bring Theory into Practice*
- *Involve partners in the programme from the ground up*

New people!

Andrea Carolina Dominguez Gamez

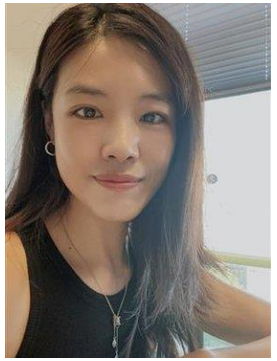
Crowd sourced delivery as a Integrated Smart Mobility Strategy.

WP2 PhD candidate

Dr. Jie Gao

Assistant Professor in multimodal transport network sustainability

WP6 Lead



Dr. Jingjun Li
Digital twin federation platform for studying the impacts of various mobility policy combinations towards cities without private vehicles

WP6 Postdoc

Reporting update

- NWO

Work Package updates

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	Questions	Who will be attending and can answer these questions?
WP 7	There are so many objectives/indicators that can be considered when designing a car-low area. How can we prioritize them and make decisions? Do you want to ask the partners anything?	Researcher: Azarakhsh WP Lead: Maaike/Arjan
WP 1	1. What is the impact of sensor locations on (multimodal) KPI prediction? 2. How can sensor networks be designed to help enable low-car areas? Do you want to ask the partners anything?	Researcher: Mohammad + Yuxing WP Lead: Marco
WP 2	1. What kind of business model is suitable to make a multi-modal service with crowdsourced delivery successful? 2. Which multimodal provider and partners from logistic side is most suitable? Which app can be provided to allow cyclist to give evaluation of the cycling path they just cycled?	Researcher: Andrea + Dennis WP Lead: Soora
WP 3	1. What kind of street profiles are possible in Zuidas (for different time frames) 2. How can positioning of hubs and allocation of space for shared mobility contribute to creating accessible car low areas? Do you want to ask the partners anything?	Researcher: Nourhan WP Lead: Shadi/Goncalo
WP 4	1. To what extent can the impacts of interventions needed to create car-low areas already be modelled with existing models in digital twins? And what extensions are you working on? Do you want to ask the partners anything?	Researcher: Jyotsna WP Lead: Erwin
WP 5	1.How can multi-modal traffic management influence user behaviors and affect the interests of stakeholders? Do you want to ask the partners anything?	Researcher: WP Lead: Geert
WP 6	1. What kind of scenario's of car ree policy combination would you like to test via the DT platforms 2. What would be the most important KPI for you to measure via the car free digital twin? Do you want to ask the partners anything?	Researcher: Jie Gao WP Lead: Jinjung

Consortium agreement amendment

- Accession of new party
  - Description of contribution by New Party
  - Unanimous agreement needed by Parties and by NWO
  - Project manager mandated to execute accession
  - Potential parties
    - Arcadis: withdrawn by Arcadis management
    - MyWheels; Argaleo; Deloitte: discussion on-going
- Objection to publication within ten (10) working days, instead of thirty (30)

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House Keeping Rules

- Governance
- Decision making
- Agreeing that ‘non-commercial research’ includes research in national and European grant projects
- Clause 1.2.4.changes

(i) Include at the end of 1.2.4:

> *If during a meeting a decision is taken by the User Committee, the Programme Manager will provide all Parties with minutes reflecting the relevant decisions.*

(ii) The option to veto when a decision is made during a meeting was missing, please include the following wording at the end of 1.2.4 (after the sentence above on minutes):

> *A Party which can show that its own work, time for performance, costs, liabilities, intellectual property rights or other legitimate interests would be severely affected by a decision of the General Assembly may exercise a veto with respect to the corresponding decision or relevant part of the decision.*

Communication Team

Carla Robb – TNO
Overall Co Ordination

Mathijs Stel – FMN
Social Media

Patricia van der Horst - Connekt
Newsletters

- Linkedin: XCARCITY: Overview | LinkedIn
- XCARCITY Website: xcarcity.nl
- Quarterly News letters

For any exciting news get hold of us: info@xcarcity.nl

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Co Operation

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Market Place Use case Digital twins

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Digital Twin Links

1. Urban Strategy
2. UMDT:
3. VR

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XCARCITY digital twins

NWO

TU Delft

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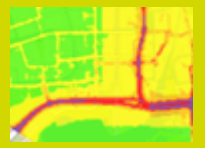
Proposition XCARCITY

Digital twin federation
Real-time management & Strategic planning





Model-based scenario development

Implementation of interventions

Real-life and virtual reality data

Monitoring and analyses

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Urban Mobility Digital Twin

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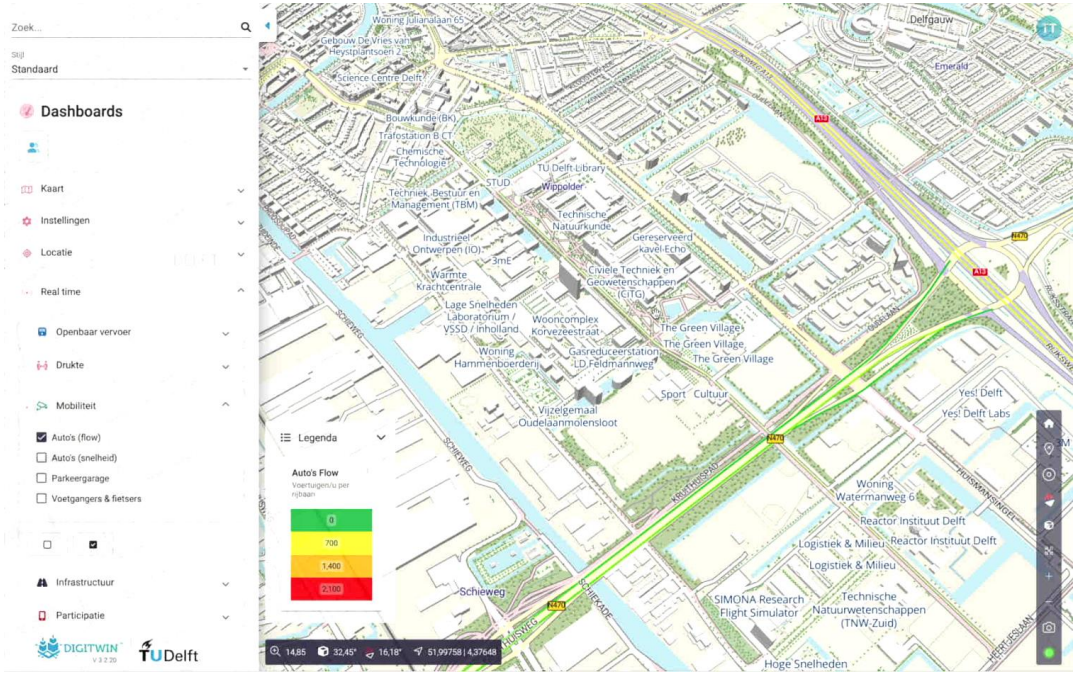
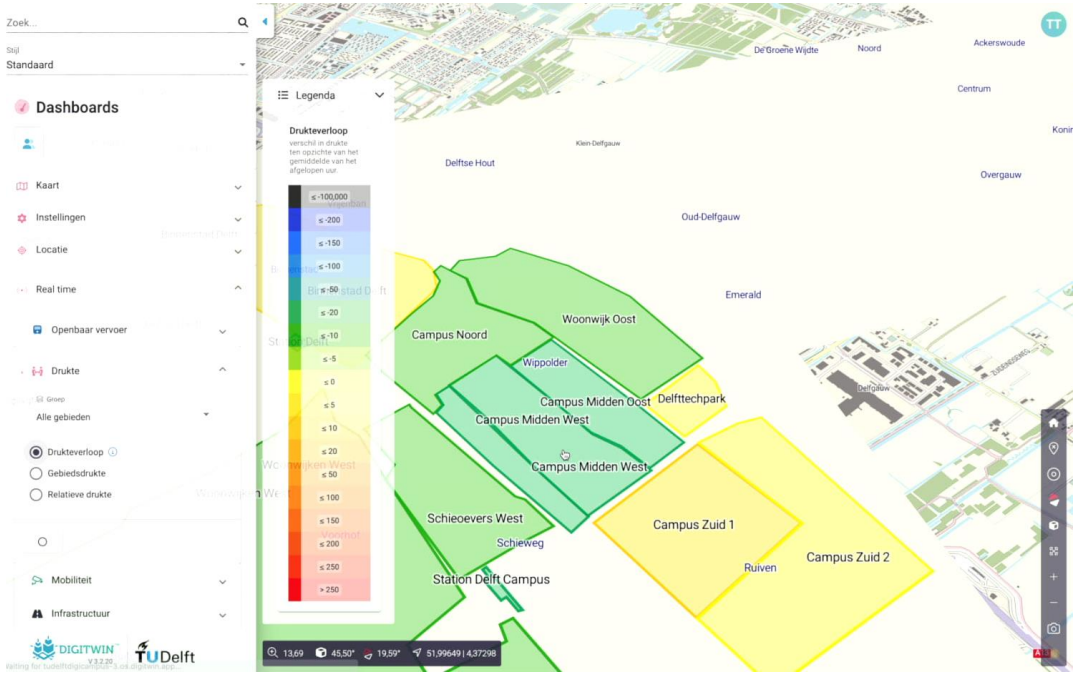
UMDT sensors and travel patterns



Video UMDT sensors



Video UMDT travel patterns

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UMDT

- https://365tno.sharepoint.com/:v:/r/teams/P060.50991/TeamDocuments/Team/Management/02-Meetings/External%20Meetings/Consortium%20Meetings/2024/CM%201%20-%20June/material/DT%20Videos/6%20OMdT%20sensoren.mov?csf=1&web=1&e=mM9c1k
- https://365tno.sharepoint.com/:v:/r/teams/P060.50991/TeamDocuments/Team/Management/02-Meetings/External%20Meetings/Consortium%20Meetings/2024/CM%201%20-%20June/material/DT%20Videos/7%20OMdt%20patronen.mov?csf=1&web=1&e=Y4HMYZ

Urban Strategy

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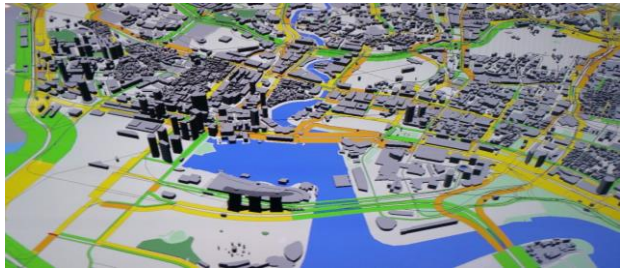
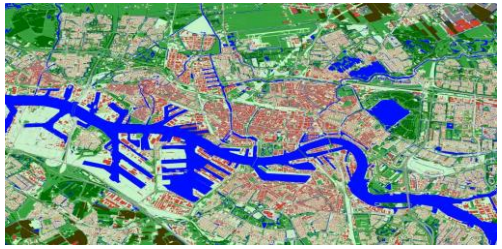
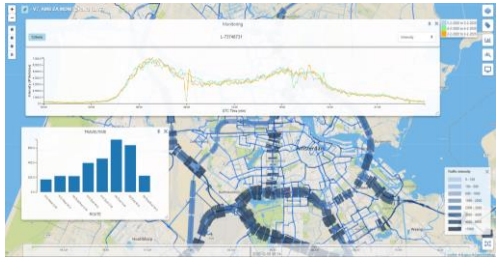
Digital Twins with Urban Strategy

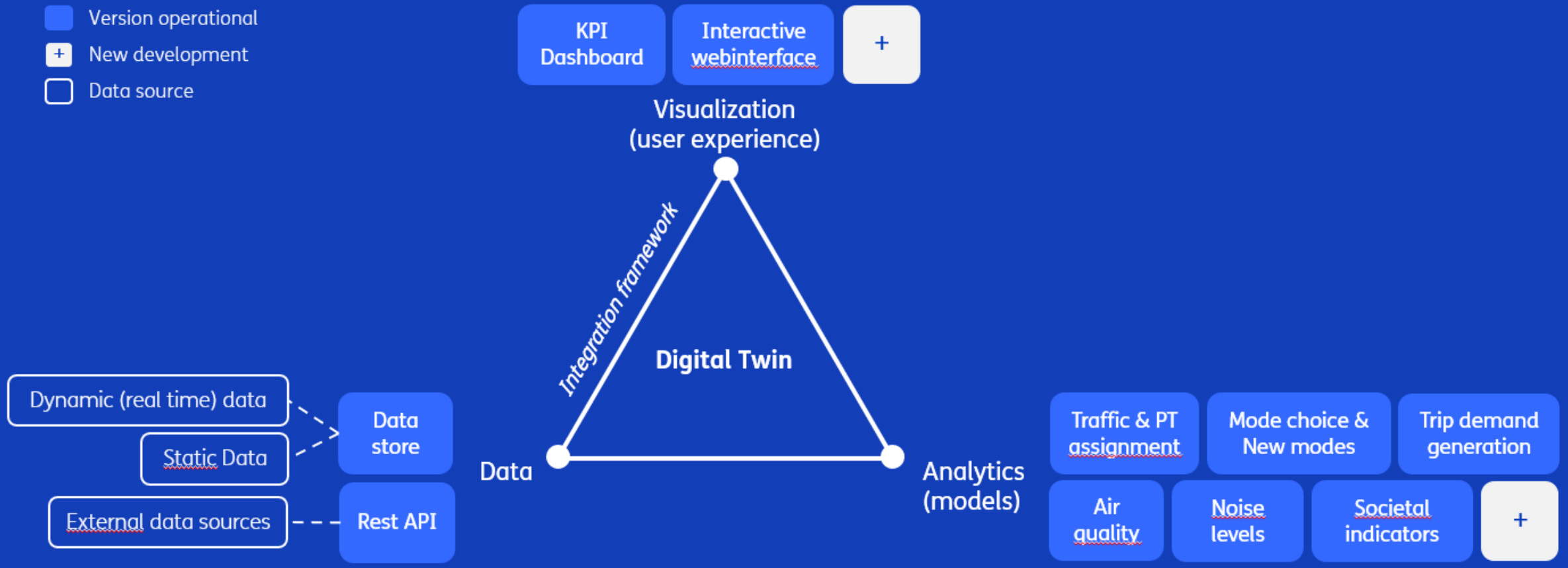
Making Complexity Manageable







Digital Twins: making complexity manageable



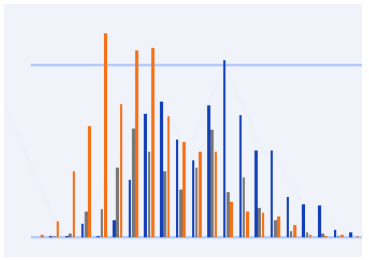
Walter Lohman, Hans Cornelissen, Jeroen Borst, Ralph Klerkx, Yashar Araghi, Erwin Walraven,
Building digital twins of cities using the Inter Model Broker framework, Future Generation Computer Systems, Volume 148, 2023, Pages 501-513, ISSN 0167-739X,
https://doi.org/10.1016/j.future.2023.06.024.

Urban Strategy simulation modules

Mobility Demand

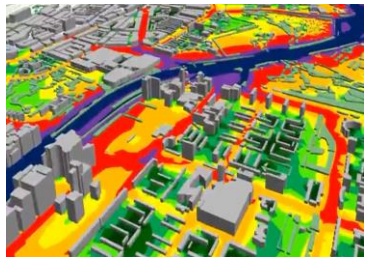
Multi-mode network allocation

Active transport cycling & walking

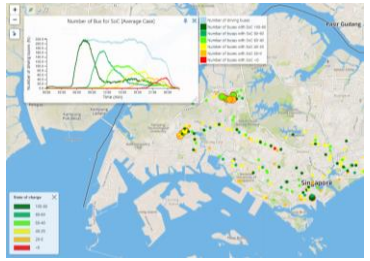


Distribution of accessibility

Air quality (road & Industry)

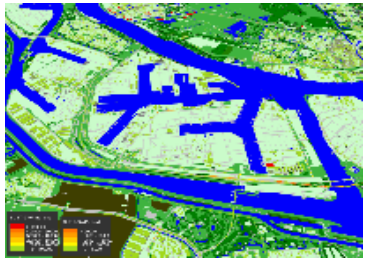


Noise (Road, Rail & Industry)



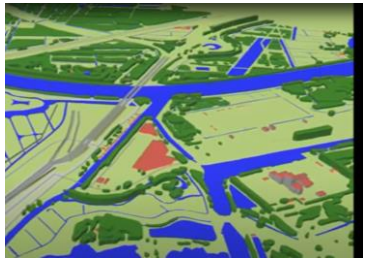
Electric fleet simulation

EV – power grid Interaction



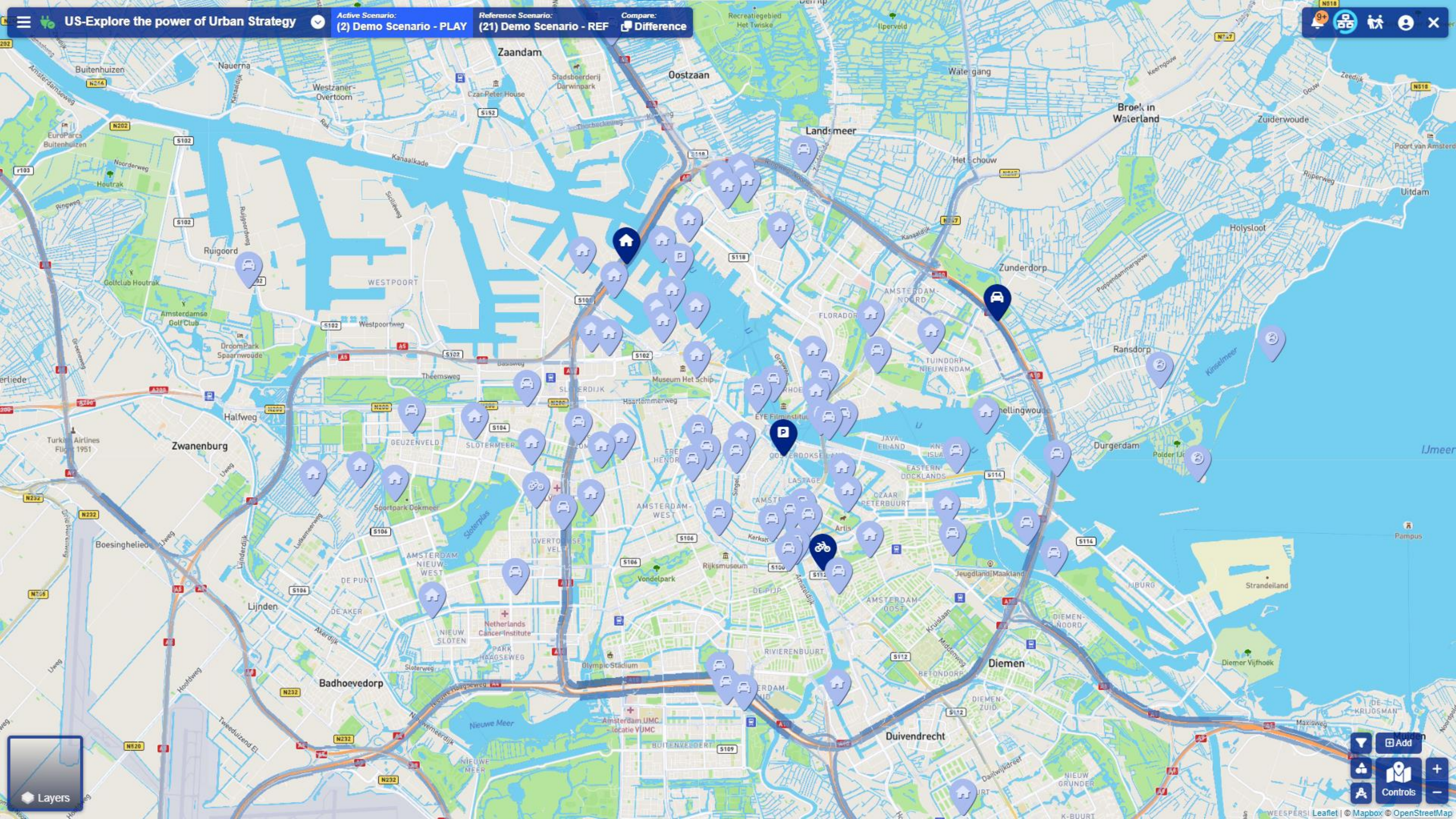
Greenhouse gas emissions

Infrastructure Resilience



Spatial impacts

Well-being indicators



US-Explore the power of Urban Strategy
Active Scenario:
(2) Demo Scenario - PLAY
Reference Scenario:
(21) Demo Scenario - REF
Compare:
Difference
9+
Layers
Add
Controls
Zaandam
Oostzaan
Landsmeer
Broek in Waterland
Zuiderwoude
Uitdam
Het Schouw
Zunderdorp
Holysloot
Ransdorp
Durgerdam
IJmeer
Pampus
Strandeiland
Buitenhuizen
Nauerna
Westzaner-Overtoom
Ruigoord
Westpoort
Halfweg
Zwanenburg
Boesingheliede
Lijnden
Badhoevedorp
Amsterdam-Noord
Floradorp
Tuindorp Nieuwendam
Java-eiland
Eastern Docklands
Czaar Peterbuurt
Amsterdam-West
Amsterdam Nieuw-West
Amsterdam-Oost
De Pijp
Rivierenbuurt
Vondelpark
Rijksmuseum
Olympic Stadium
Netherlands Cancer Institute
Amsterdam UMC - locatie VUMC
Nieuwe Meer
Diemen
Duivendrecht
Museum Het Schip
EYE Filminstituut
Slotermeer
Geuzenveld
Sportpark Ookmeer
Sloterplas
Overtoomse Veld
Nieuw Sloten
De Punt
De Aker
Jeugdland|Maakland
Diemer Vijfhoek
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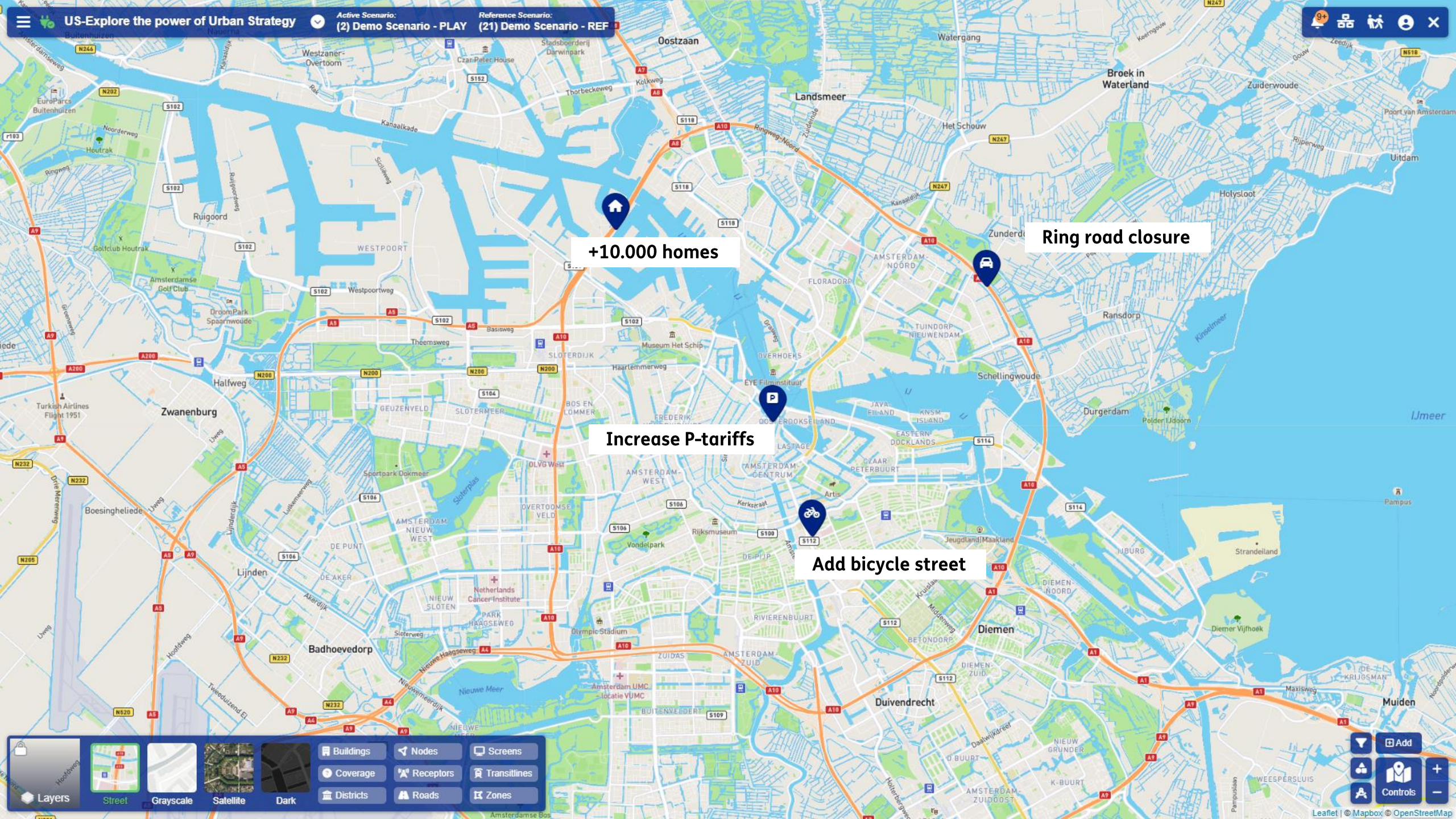
US-Explore the power of Urban Strategy
Active Scenario:
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+10.000 homes
Ring road closure
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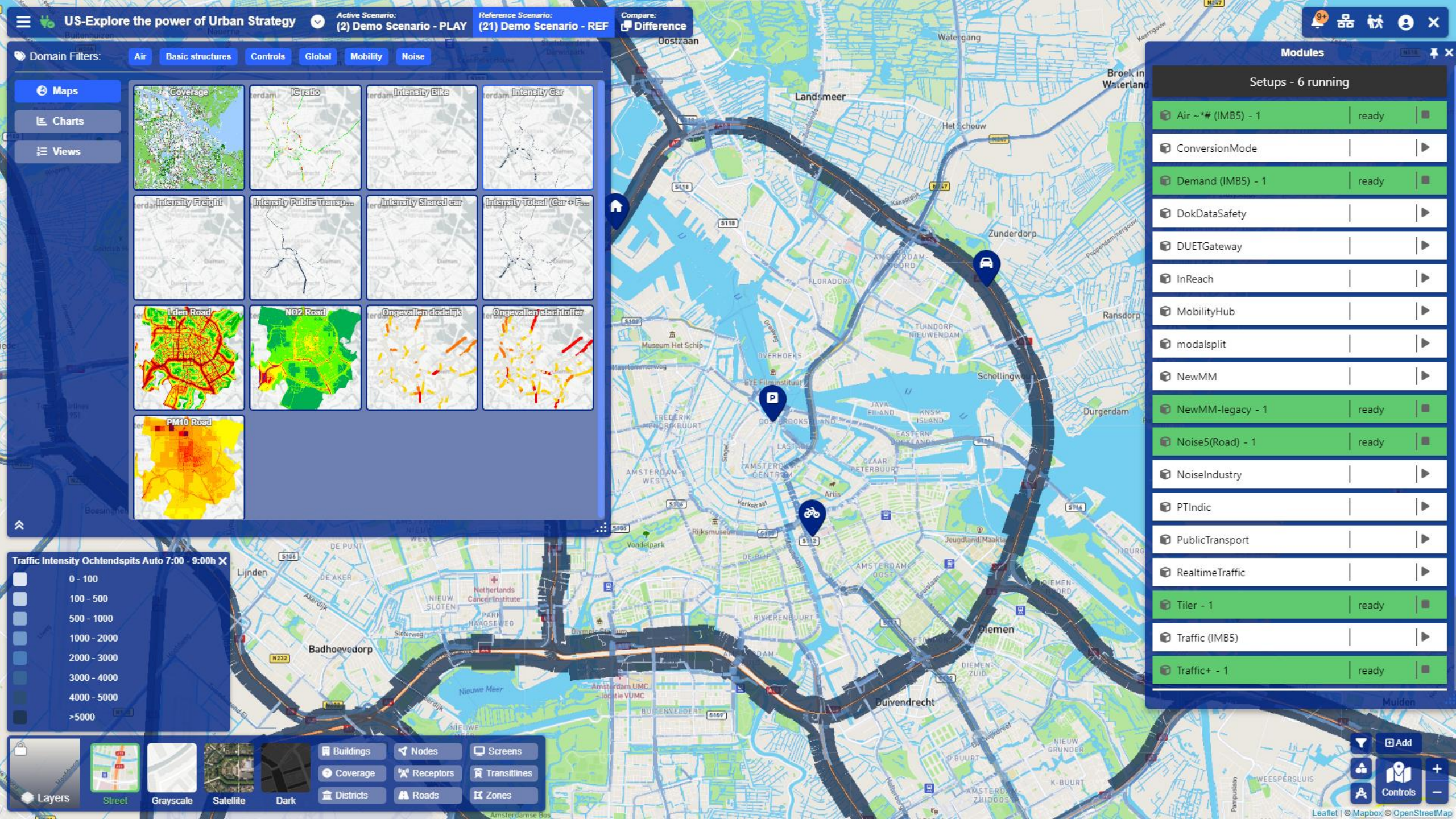
US-Explore the power of Urban Strategy
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ConversionMode
Demand (IMB5) - 1
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DokDataSafety
DUETGateway
InReach
MobilityHub
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Noise5(Road) - 1
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NoiseIndustry
PTIndic
PublicTransport
RealtimeTraffic
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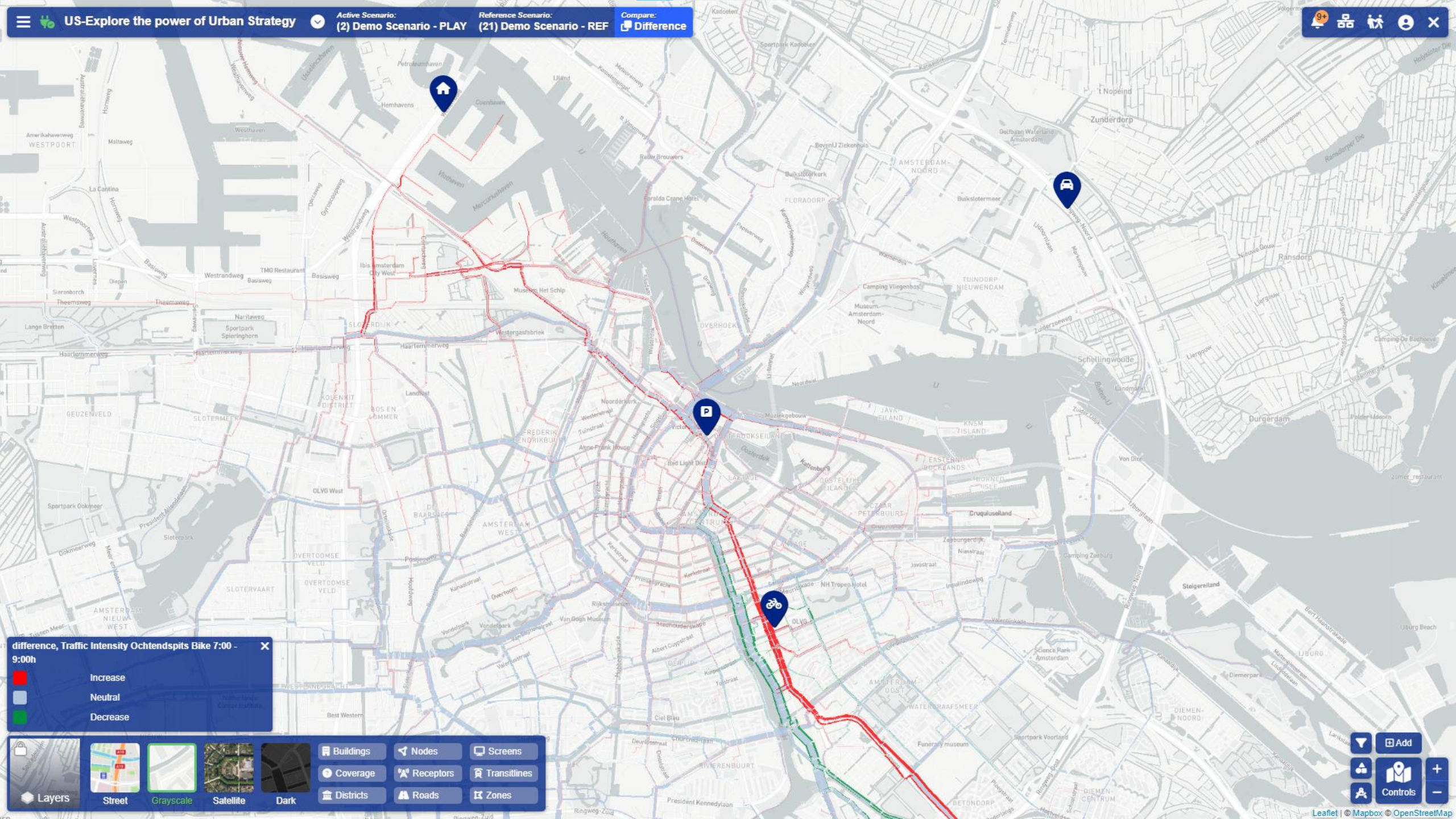
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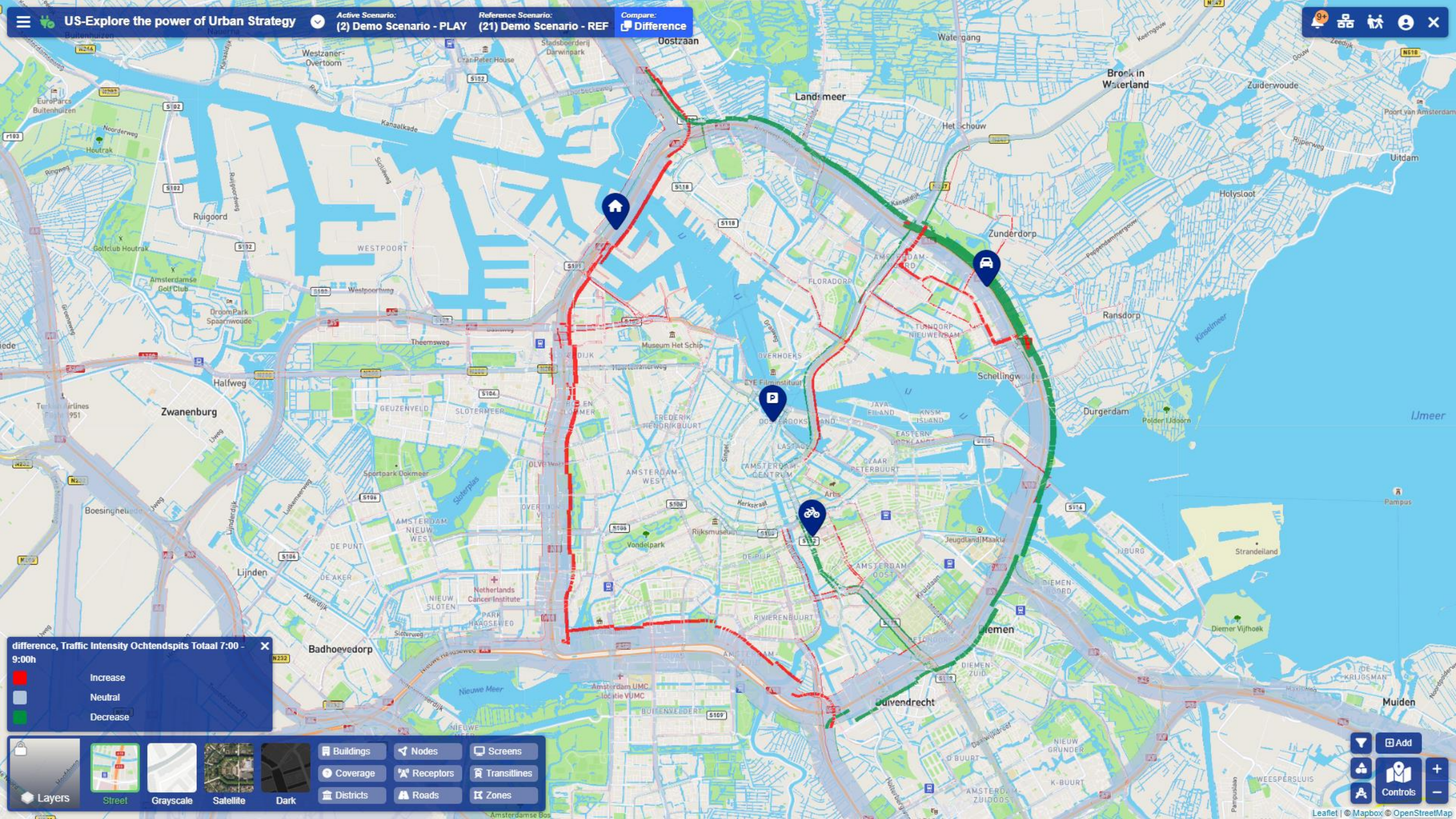
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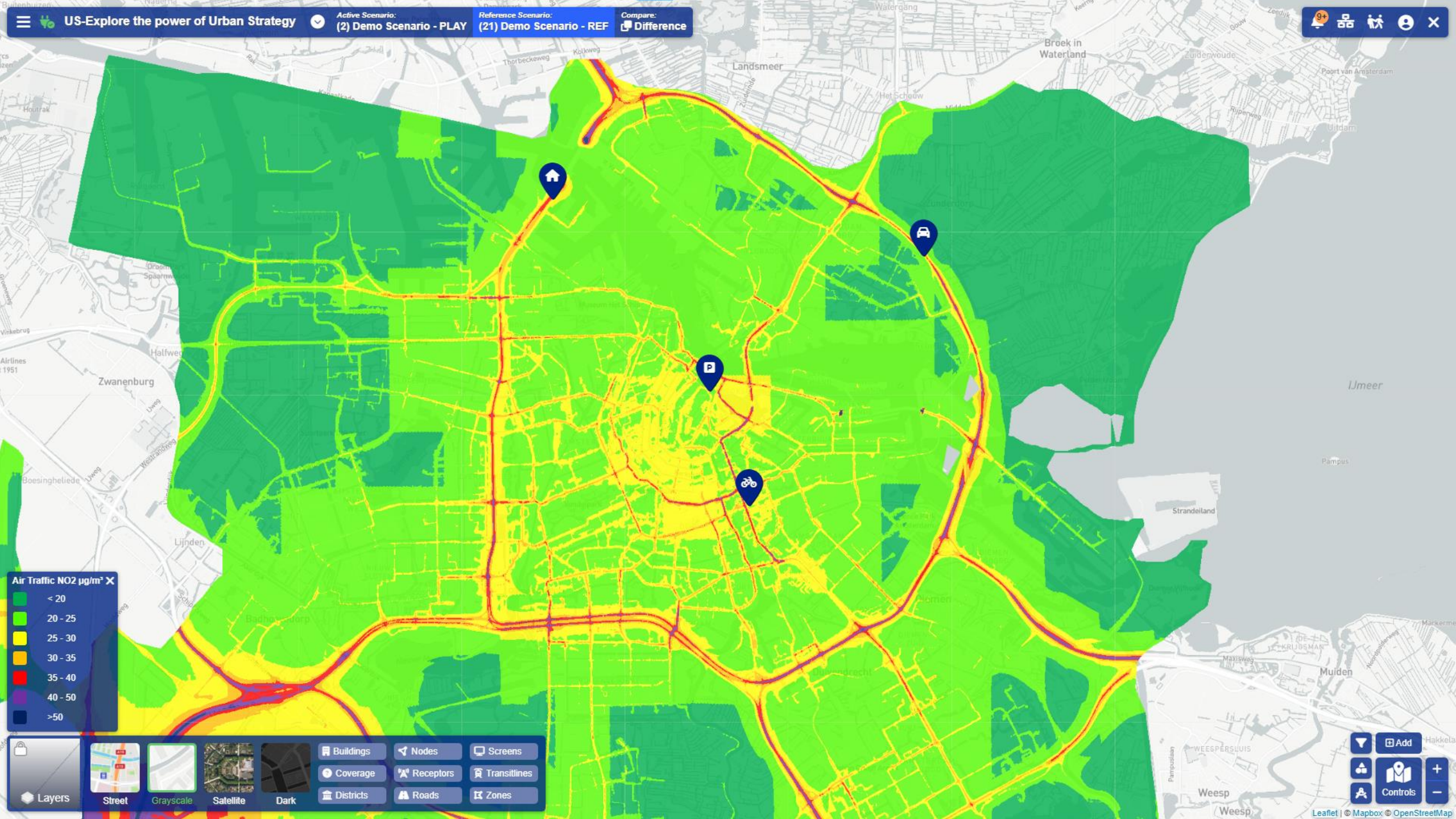
US-Explore the power of Urban Strategy
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Air Traffic NO2 µg/m³
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>50
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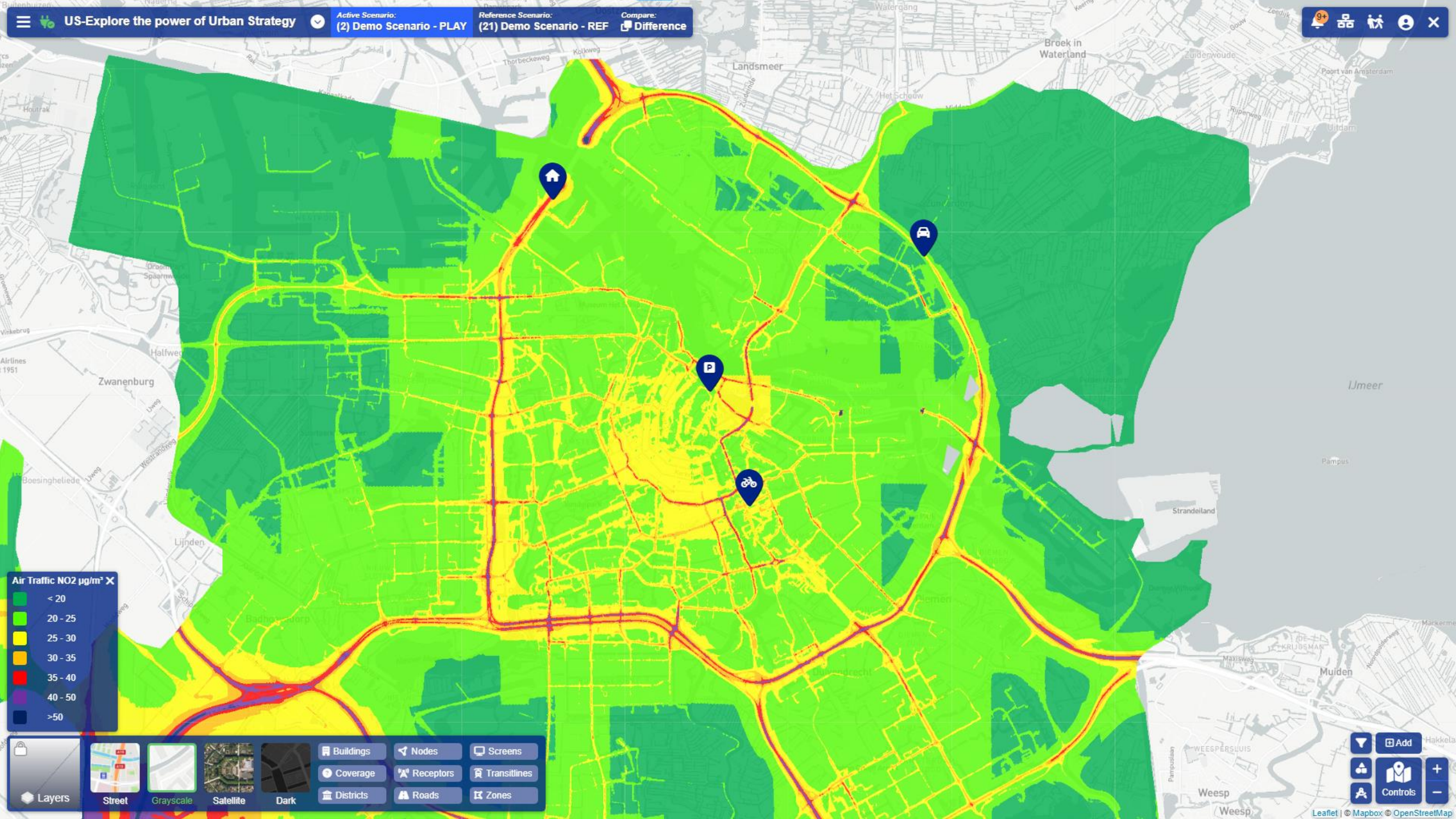
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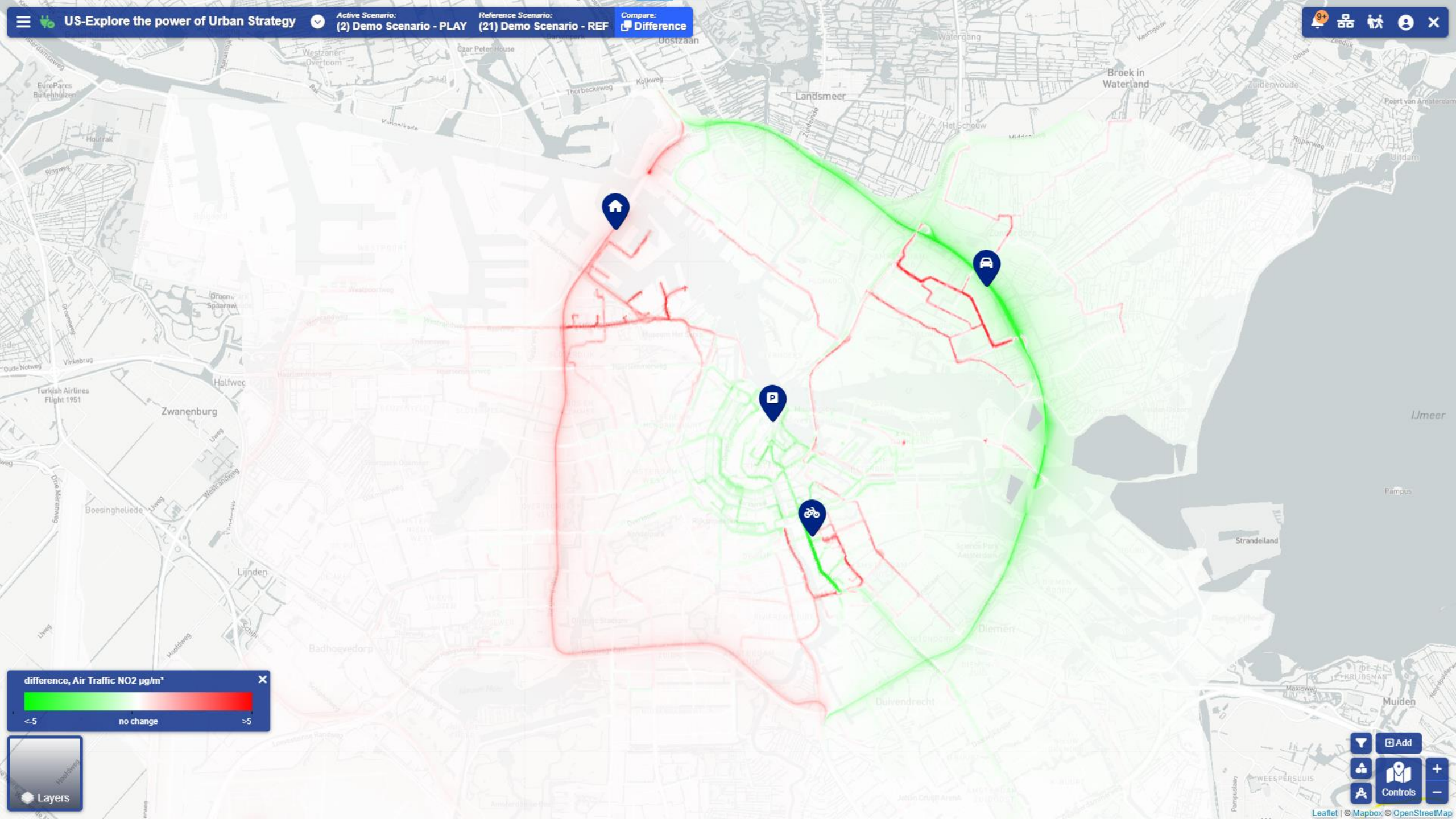
Landsmeer
Broek in Waterland
IJmeer
Strandeiland
Muiden
Weesp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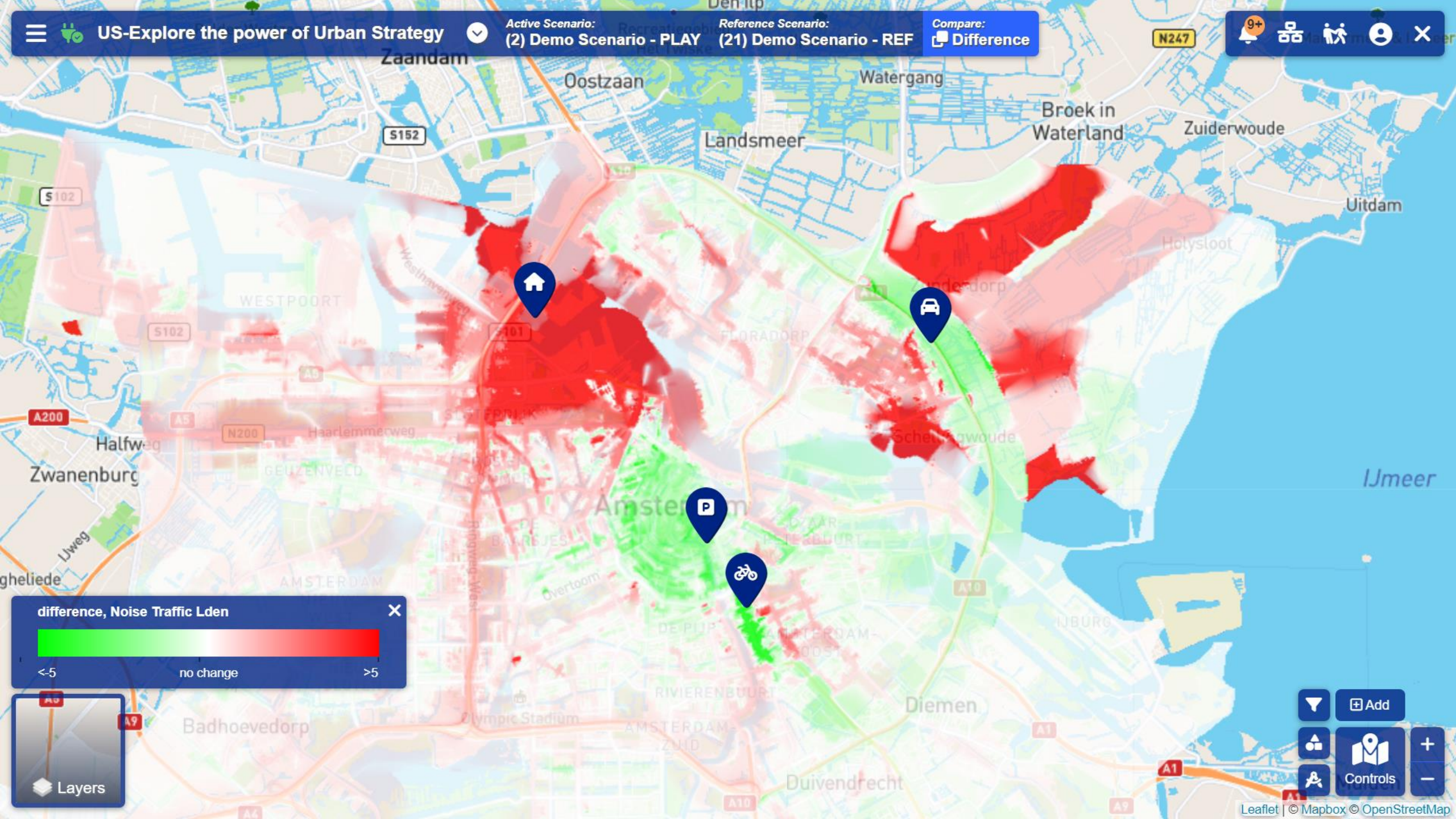
Landsmeer
Broek in Waterland
Zwanenburg
Lijnden
Boesingheliede
Badhoevedorp
Diemen
Duivendrecht
Muiden
IJmeer
Strandeiland
Pampus
Uitdam
Halfweg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Zuiderwoude
Landsmeer
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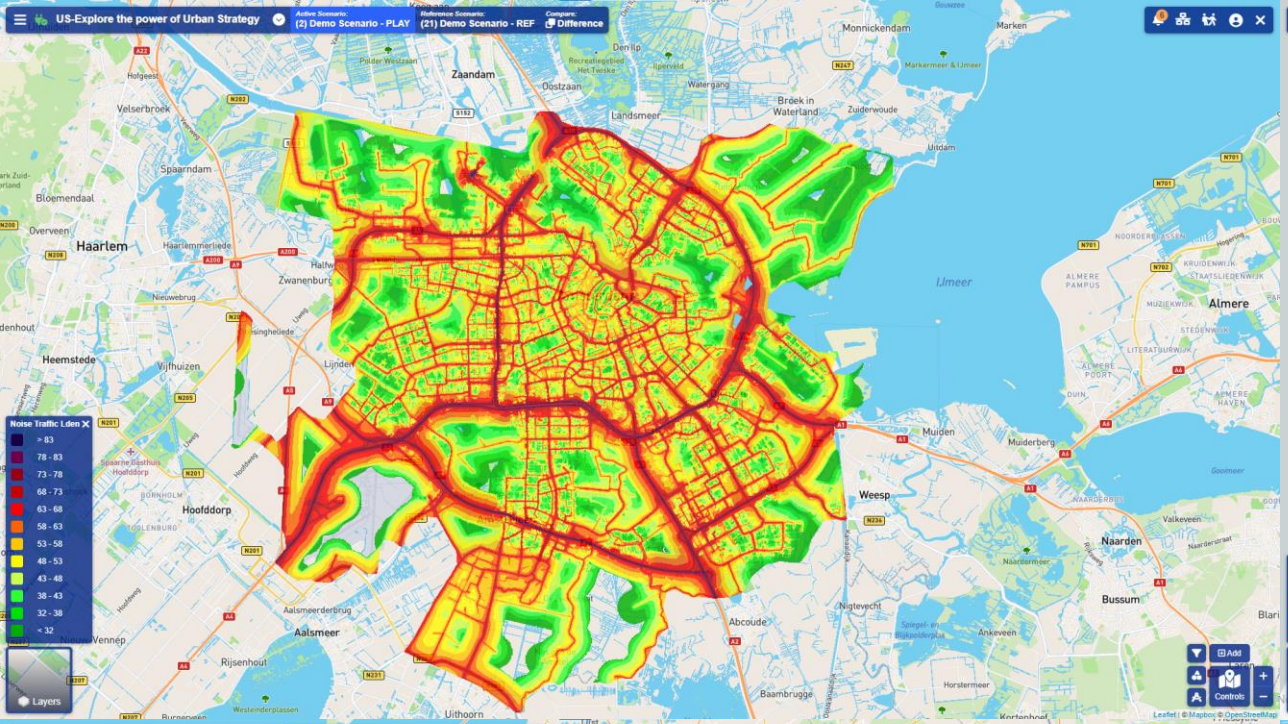
US-Explore the power of Urban Strategy
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73 - 78
68 - 73
63 - 68
58 - 63
53 - 58
48 - 53
43 - 48
38 - 43
32 - 38
< 32
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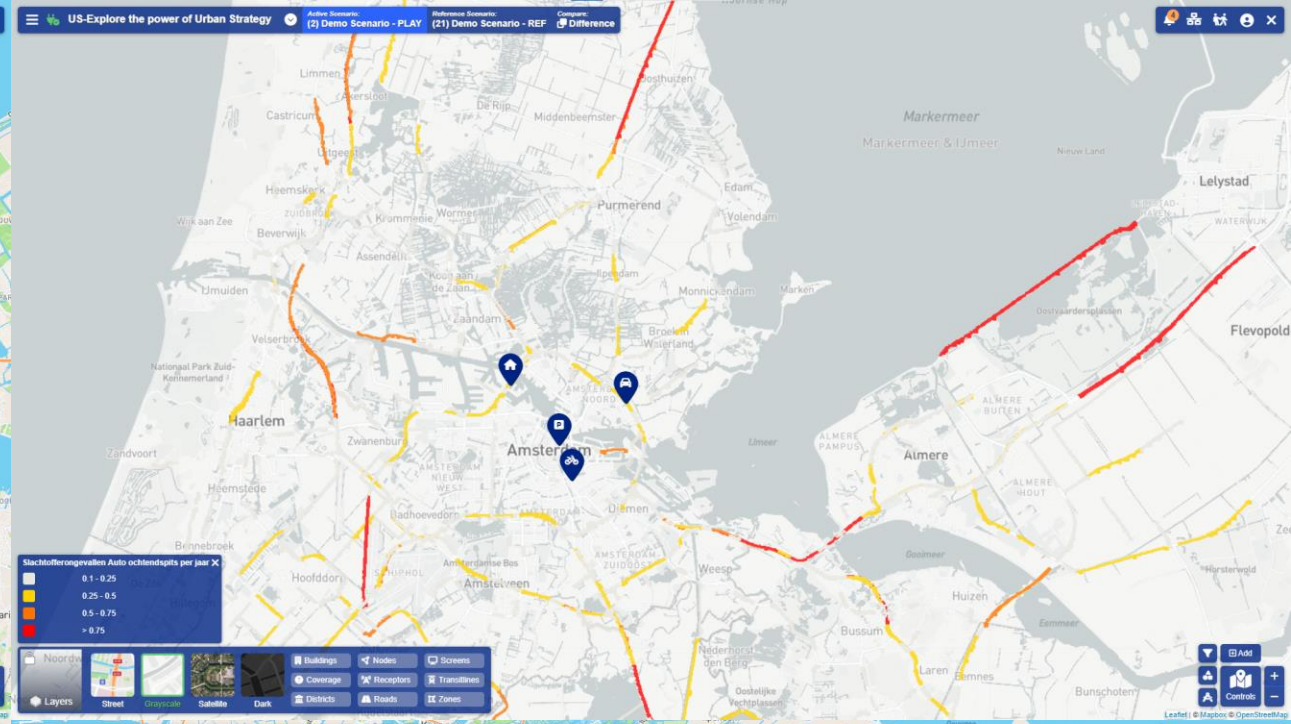
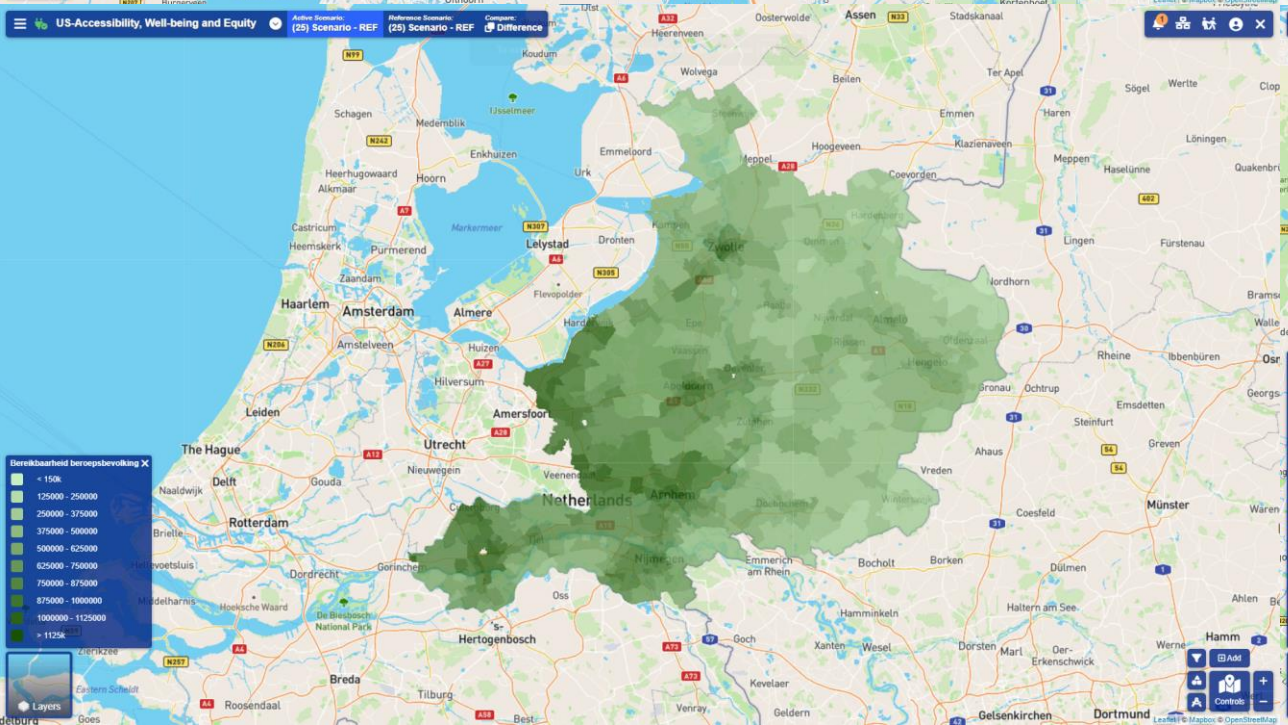
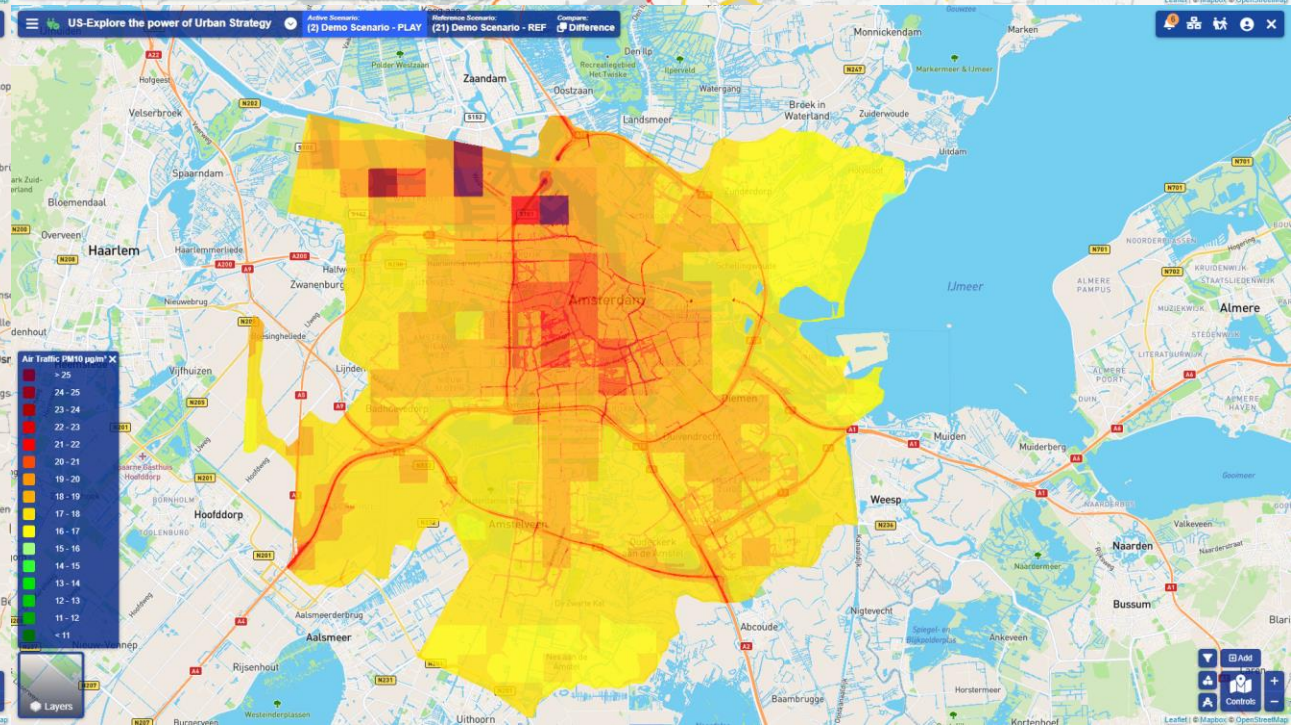
Controls
Leaflet | © Mapbox © OpenStreetMap


US-Explore the power of Urban Strategy
Active Scenario: (2) Demo Scenario - PLAY
Reference Scenario: (21) Demo Scenario - REF
Compare: Difference
Slachtofferongevallen Auto ochtendspits per jaar
0.1 - 0.25
0.25 - 0.5
0.5 - 0.75
> 0.75
Layers
Street
Grayscale
Satellite
Dark
Buildings
Nodes
Screens
Coverage
Receptors
Transitlines
Districts
Roads
Zones
Add
Controls
Leaflet | © Mapbox © OpenStreetMap


US-Accessibility, Well-being and Equity
Active Scenario: (25) Scenario - REF
Reference Scenario: (25) Scenario - REF
Compare: Difference
Bereikbaarheid beroepsbevolking
< 150k
125000 - 250000
250000 - 375000
375000 - 500000
500000 - 625000
625000 - 750000
750000 - 875000
875000 - 1000000
1000000 - 1125000
> 1125k
Layers
Add
Controls
Leaflet | © Mapbox © OpenStreetMap


US-Explore the power of Urban Strategy
Active Scenario: (2) Demo Scenario - PLAY
Reference Scenario: (21) Demo Scenario - REF
Compare: Difference
Air Traffic PM10 pg/m³
> 25
24 - 25
23 - 24
22 - 23
21 - 22
20 - 21
19 - 20
18 - 19
17 - 18
16 - 17
15 - 16
14 - 15
13 - 14
12 - 13
11 - 12
< 11
Layers
Add
Controls
Leaflet | © Mapbox © OpenStreetMap

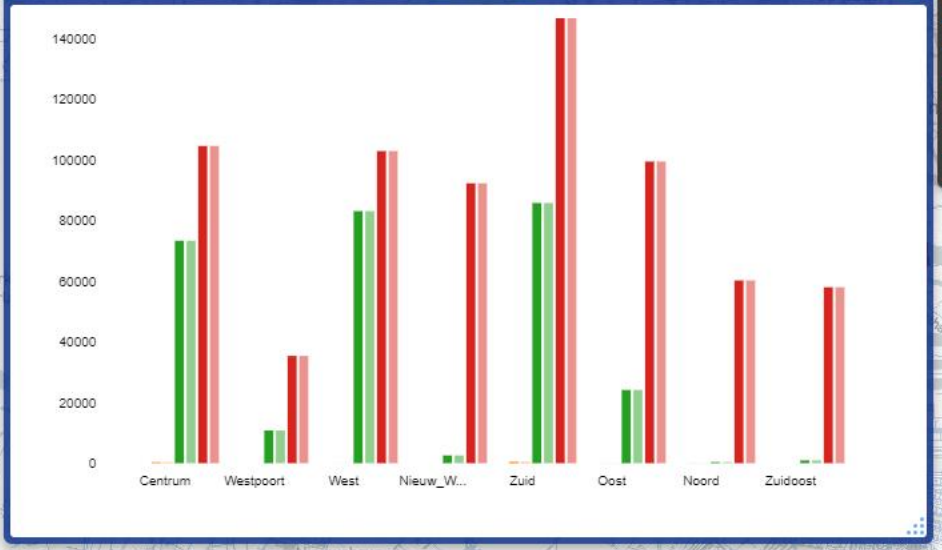
US-Explore the power of Urban Strategy

Active Scenario: (2) Demo Scenario - PLAY

Reference Scenario: (21) Demo Scenario - REF

Compare: Difference

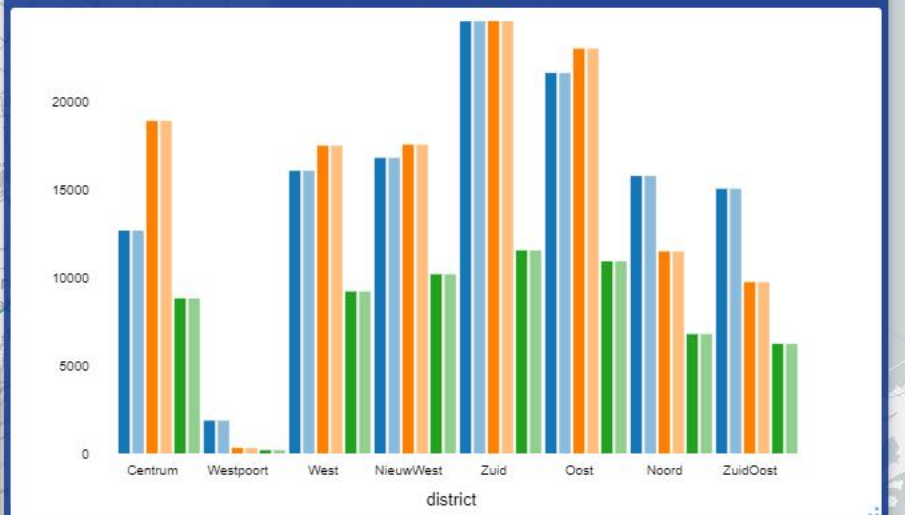
Air indicators



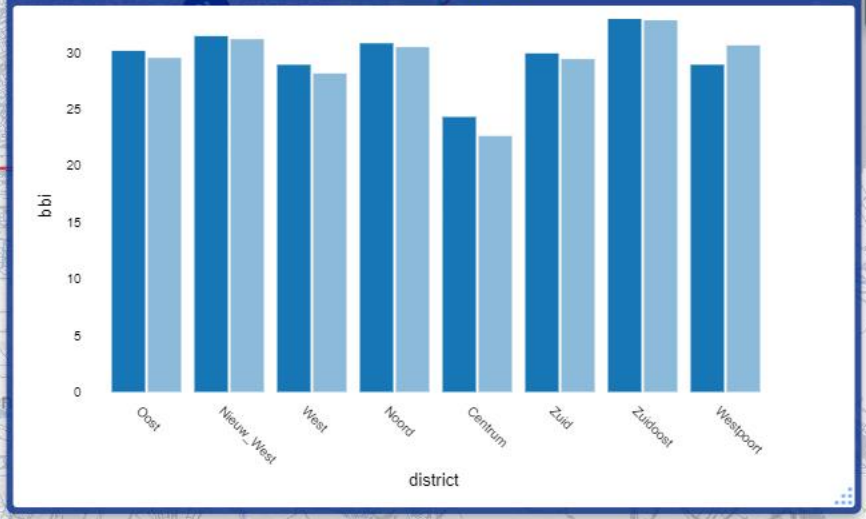
Inhabitants above EC threshold
Reference Inhabitants above EC threshold
Inhabitants above NO2 threshold
Reference Inhabitants above NO2 threshold
Inhabitants above PM10 threshold
Reference Inhabitants above PM10 threshold
Inhabitants above PM2.5 threshold
Reference Inhabitants above PM2.5 threshold

Auto
Reference Auto
Fiets
Reference Fiets
Openbaar vervoer
Reference Openbaar vervoer

Vervoerwijzekeuze per stadsdeel



Bereikbaarheid (BBI)



BBI
Reference BBI

difference, Traffic Ochtendspits 7:00 - 9:00h
Intensity/Capacity
Increase
Neutral
Decrease

Layers
Street
Grayscale
Satellite
Dark
Buildings
Nodes
Screens
Coverage
Receptors
Transitlines
Districts
Roads
Zones

Add
Controls

Market Use Cases

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Use Case Market Place

Table 1: Almere Pampus

3 urbanisation-scenarios (density and programme) defining who will live and work in this area.

Which aspects should we consider/to take into consideration regarding density and the impact on mobility?

Work Package Support:

- WP 4 Jyotsna
- WP 7: Azarakhsh
- WP 6: Jingjun

Table 2: Amsterdam Zuidas

Challenge 1: Support Zuidas in mobility transition

Challenge 2: New tooling to support decision making

Work Package Support:

- WP 2 Dennis + Andrea
- WP 3 Nourhan
- WP 1 Mohammad

Table 3: Rotterdam

When developing plans for car-poor areas, consideration should also be given to financing investment and operation

OR

Designing car-free areas should include designing a financial/financing structure for investment and operation (of car alternatives).

Work Package Support:

- WP 1 Yuxing (Real Time)
- WP 5 Dingshan

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Almere Pampus Use Case

3 urbanisation-scenarios (density and programme) defining who will live and work in this area.

Which aspects should we consider/take into consideration regarding density and the impact on mobility?

15.000 homes
16.000 workplaces

25.000 homes
16.000 workplaces

35.000 homes
16.000 workplaces

Amsterdam Zuidas Use Case

- **Challenge 1: Support Zuidas in mobility transition**
  - Traditionally business area with high car dependency and many (unused) parking garages
  - No change means no accessibility and no development
  - How to affect behavior/mindset (employers, employees, project developers) and keep area accessible and liveable
- **Challenge 2: New tooling to support decision making**
  - Zuidas relies on tools such as 2D mapping and traditional transport model (VMA)
  - Need for new visualization tools (3D) that support in spatial planning choices (how to divide space between staying and moving)
  - Special attention for walking (large pedestrian flows expected)
  - Use case design Parnassusweg

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Rotterdam Use Case

- **When developing plans for car-poor areas, consideration should also be given to financing investment and operation**

OR

- **Designing car-free areas should include designing a financial/financing structure for investment and operation (of car alternatives).**

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Knowledge Transfer quiz

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In order to learn about a city without private cars, I would like to know more about….

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Once I know that, my organization can….

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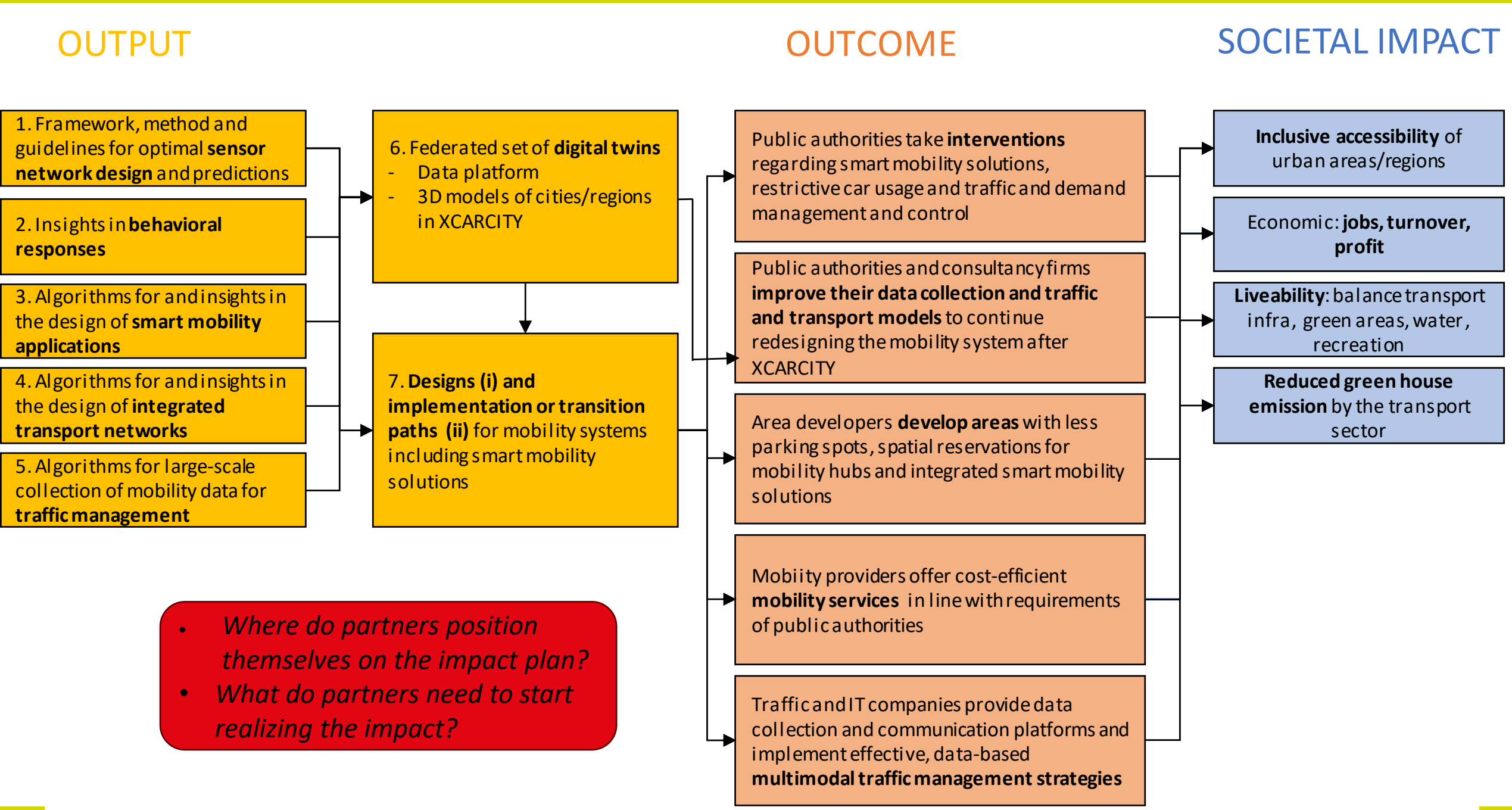
OUTPUT
OUTCOME
SOCIETAL IMPACT
1. Framework, method and guidelines for optimal **sensor network design** and predictions
2. Insights in **behavioral responses**
3. Algorithms for and insights in the design of **smart mobility applications**
4. Algorithms for and insights in the design of **integrated transport networks**
5. Algorithms for large-scale collection of mobility data for **traffic management**
6. Federated set of **digital twins**
- Data platform
- 3D models of cities/regions in XCARCITY
7. **Designs (i) and implementation or transition paths (ii)** for mobility systems including smart mobility solutions
Public authorities take **interventions** regarding smart mobility solutions, restrictive car usage and traffic and demand management and control
Public authorities and consultancy firms **improve their data collection and traffic and transport models** to continue redesigning the mobility system after XCARCITY
Area developers **develop areas** with less parking spots, spatial reservations for mobility hubs and integrated smart mobility solutions
Mobiity providers offer cost-efficient **mobility services** in line with requirements of public authorities
Traffic and IT companies provide data collection and communication platforms and implement effective, data-based **multimodal traffic management strategies**
Inclusive accessibility of urban areas/regions
Economic: **jobs, turnover, profit**
Liveability: balance transport infra, green areas, water, recreation
Reduced green house emission by the transport sector
- *Where do partners position themselves on the impact plan?*
- *What do partners need to start realizing the impact?*

Speed Dating

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Speed Dating:

8 tables + 5-6 people per table + 3 rounds (15 minutes each)

Lets really get to know one another!

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Close Out

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Follow Ups 2024

- Workpackage Meetings — Twice a year
- XCARCITY Design Session: — 17th October 2024
- Next Consortium Meeting: — December or January (TuDelft Deis Event)

Other Events:

- Urbanism Next: — 9-11 October (XCARCITY has 2 workshops)
- EU Mobility Week — 16th September (DT Showcase)

Menti meter

https://www.menti.com/algx8hhfxgo9

XCARCITY Consortium Meeting - 17 June 2024 - Mentimeter