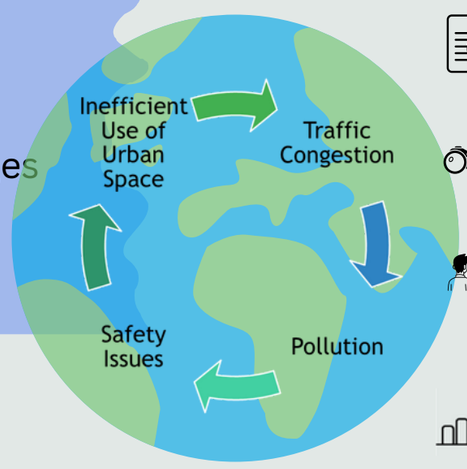
How can the Loading and Unloading Zones for Heavy-duty Trucks and Delivery Vans in Rotterdam be Optimized to Reduce Traffic Congestion, Improve Road Safety, and Lower Environmental Impact?

- Public infrastructure improvements are essential to support efficient, sustainable freight logistics in Rotterdam
- Rotterdam is a key logistics Hub
- Current loading and unloading zones struggle with infrastructure challenges
- Freight emissions challenge Rotterdam's 2030 sustainability goals
- Inefficient zones lead to safety risks and higher logistics costs



Methodology

Desk Research
Reviewed literature, policies, and case studies on urban logistics to understand best practices.

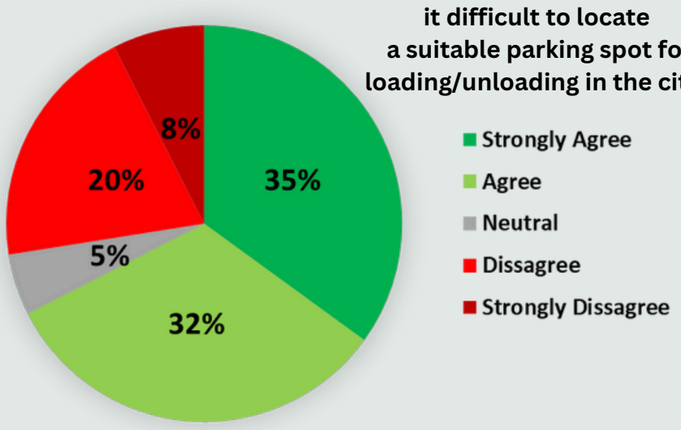
Field Observations
Observed driver behaviors and traffic disruption patterns.

Interviews
Conducted interviews with drivers to gather insights on challenges and solutions.

Data Analysis
Analyzed collected data to identify issues, informing our development of recommendations.

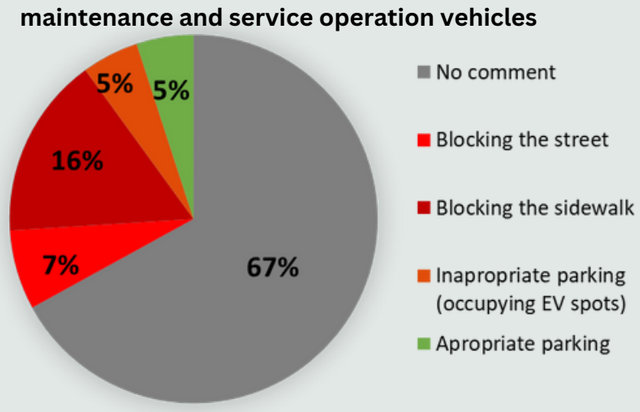
Findings and analysis

Statement: I frequently find it difficult to locate a suitable parking spot for loading/unloading in the city.



Out of 184 respondents, 97 reported difficulties in finding suitable parking spaces for loading and unloading in Rotterdam, underscoring an urgent need to adapt or improve the current infrastructures visibility or/and availability.

Observations of facilities, supplies, maintenance and service operation vehicles



The observed facilities, supply, maintenance, and service operation vehicles show a significant lack of compliance with and utilization of existing suitable infrastructure, with 28 out of the 100 vehicles either not using or misusing Rotterdam's logistical infrastructure.

Improvement points

LZ and CVP
- There should be distinction between the different parking zones, because they are used by different size vehicles, different purposes and different time spam.

Visual Management
- Parking should be clearly visible and easily discoverable by drivers, without having to slow down or having to circle around looking for a spot.

EV Stations
- The EV parking spots can be used by commercial vehicles during the day as additional parking capacity because the residents using them are away and spots stay empty.

Enforcment
- Municipality should enforce regulations, so that rules are followed, and drivers can use appropriately the provided parking areas.

Recommendations

Step-by-step and cost analysis would be provided in implementation plan in final report.

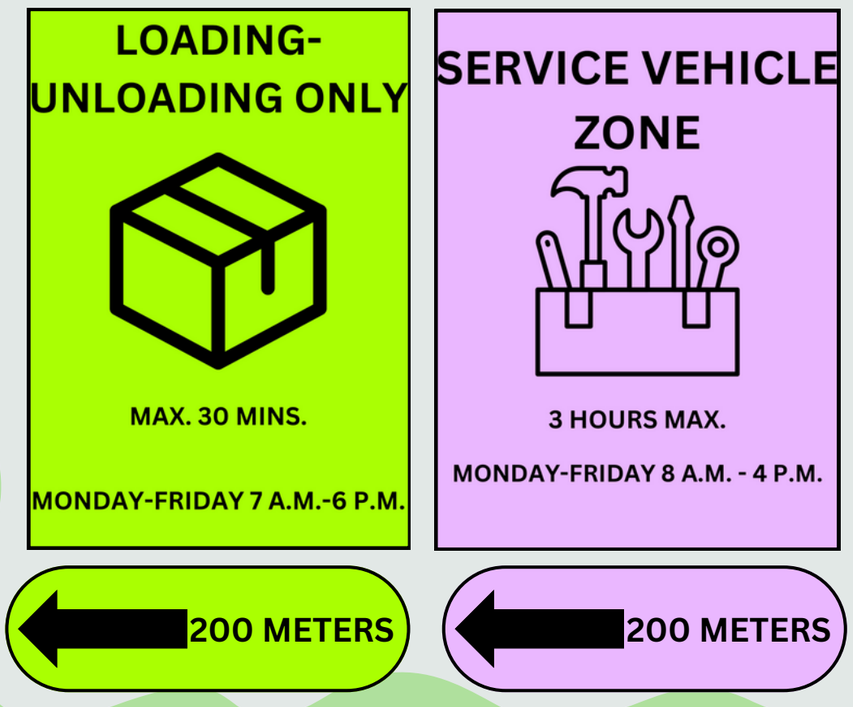
Short term recommendations

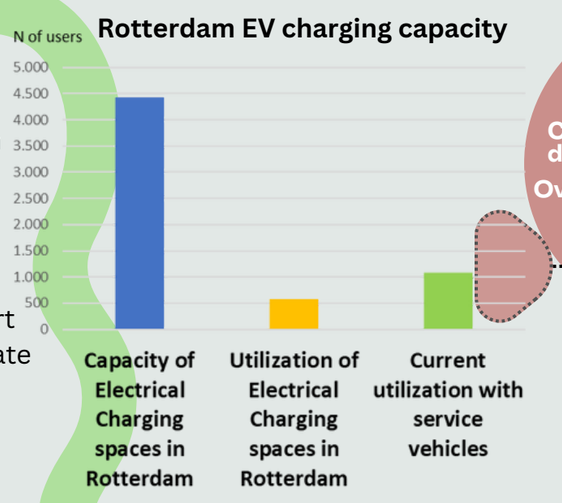
Zones
- Establish regulations distinguishing Un/Loading Zones (LZ) for short deliveries (up to 30 minutes) with existing bay sizes to accommodate various vehicles, and Commercial Vehicle Parking (CVP) for longer stays (up to 2 hours) with standard parking dimensions suited for small vans.

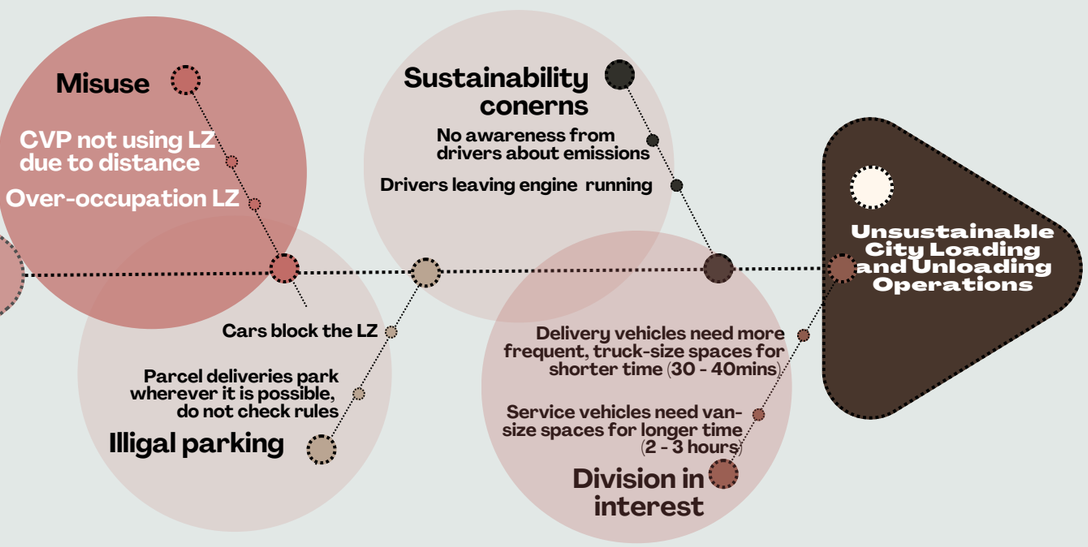
Visual Management
- Paint LZ and CVP zones in bright lime green and purple, respectively, for high visibility and clear differentiation from traffic colors. Add a painted "bulge" extending from each bay into the road to make the zones easily recognizable to CV drivers. Install two types of signs: one near intersections to indicate bay location and another at each bay detailing usage rules, allowed stay duration, and availability hours.

Send out training and newsletter
- After implementing the new system, provide training and information on the parking zone changes and their impact on the environment, traffic, and drivers. Send an email with written details and a short summary video for easy visual understanding, and include a survey to gather feedback on the changes.

Electric vehicles infrastructure
- The EV charging bays are underutilised, so these can be used as short-term solution to introduce the CVP. This would lead to increasing the capacity of CVPs, while initiating indirectly switching to Electric Vehicles.





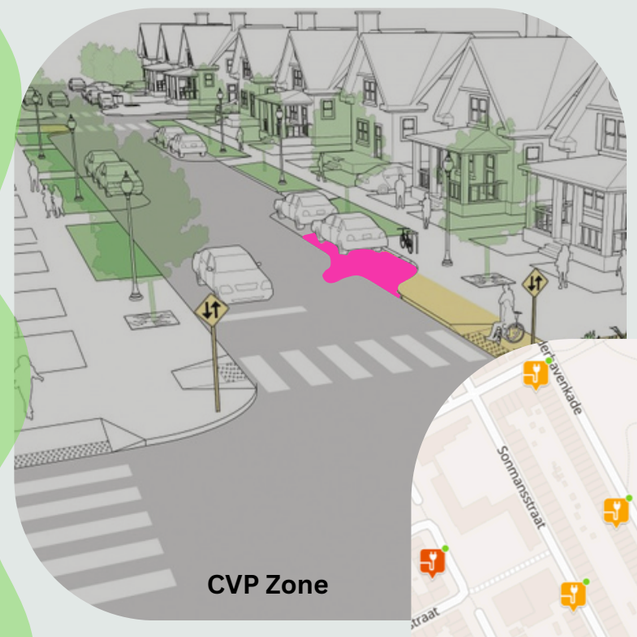


Long term recommendations

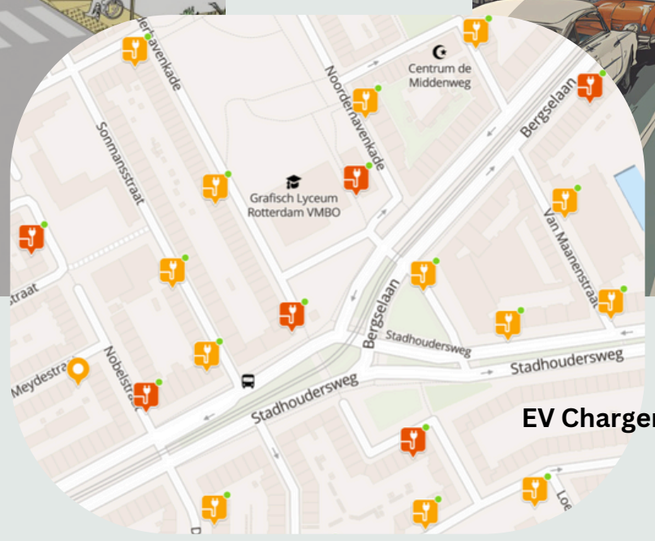
Digital CVP / LZ map
- Create a digital map, which tracks avalibality of LZ and CVP parking bays, so drivers can plan better their routes and avoid congestions on roads.
- **Sensors**

Build in parking sensors for the parking zones to track avaliablity of parking bays online and track KPIs.
- **Limitations**

RVV 1990 Regulation has estbalished the national standart on road marking, which might be difficult to overrule. However, the regulation has been accepted 34 years ago, when the traffic and city logistics needs were different.


CVP Zone


CVP Zone



EV Chargers in Rotterdam Noord

Impact

CVP
- Less parking violations due to higher parking capacity
- Reduced search time reducing emissions
- Improved accessibility to facilities

Visual Management
- Easier identification of parking zones
- Higher compliance reducing misuse

EV stations infrastructure
- Incentivizes transition to electric fleet
  - Improves air quality
- Increased utilization of EV parking
- Increased capacity for CVP

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