



# Requalification of roads in the urban areas in soft travel mode

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Road mobility projects in urban regions and their Impact on the environment

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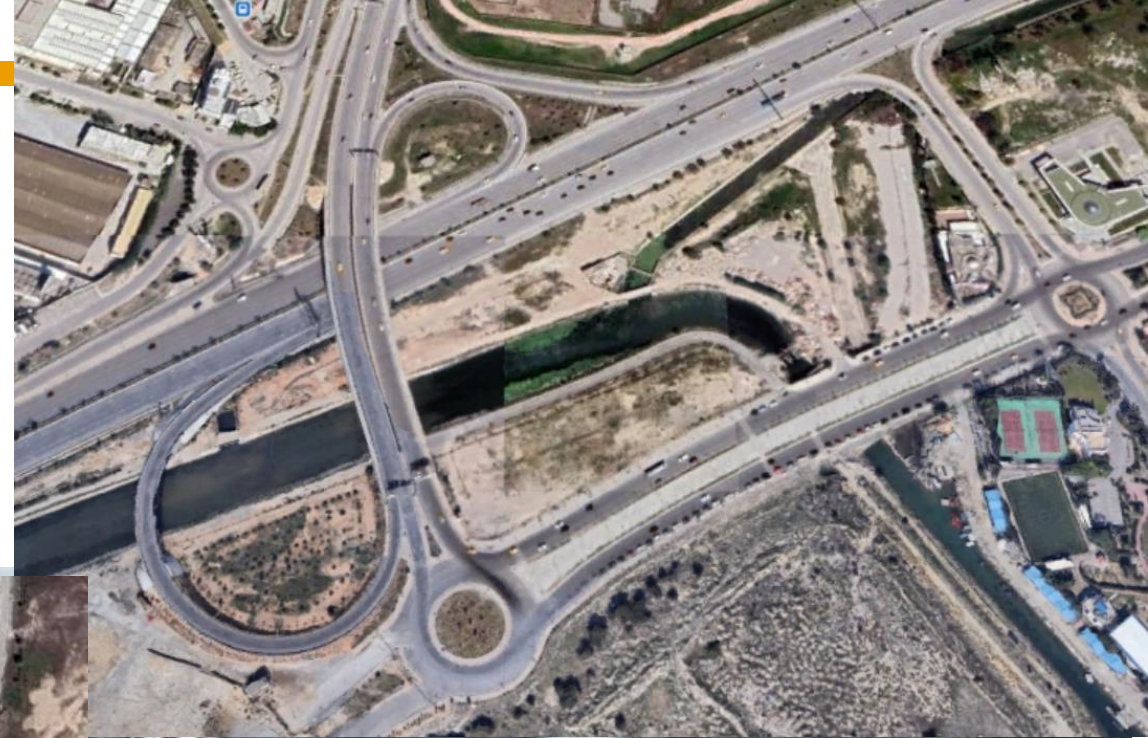






## General Context

- For the last two decades the ministry has built interchanges and wide roads in the cities in Tunisia





## General Context

# PRINCIPLES OF THE URBAN ROAD: A SPACE FOR ALL A USER-FRIENDLY PUBLIC SPACE

- The urban roadway is a public space
- Guarantee the cohabitation of the all users of this space
- Guarantee that the design is consistent with speed
- Learn to share the space
- Reduce carbon emissions → Improves the health of citizens





## Objectives of the study

By "the redesign of some urban roads in the capital in favor of vulnerable users" we have ambition:

- better sharing of public space.
- new concepts for a better socio-economic development,
- promoting **public transport** and soft modes
- control the parking,
- improve the citizen's **quality of life**      **—————→ Improves the health of citizens**
- safeguard the **environment**
- road safety for all users of the public space.



# The chosen axes

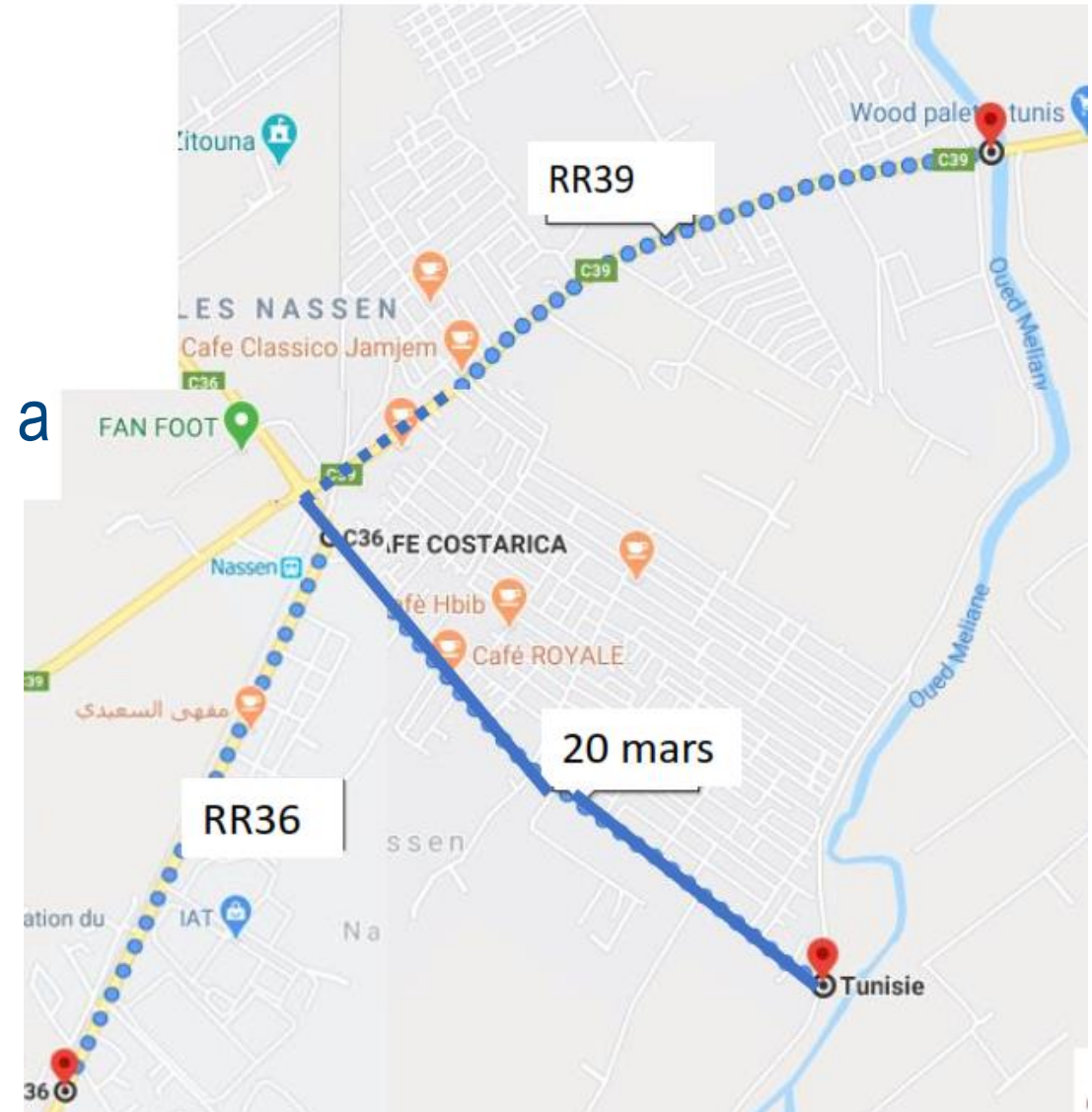
Municipality of Naassène :

A municipality in south of the capital Tunis

Recently created around three road axes and a railroad with a central station

Three sections have been chosen:

- Avenue 20 mars
- Road classified as RR36
- Road classified RR39








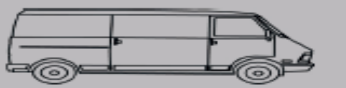







# Diagnosis

For each axis we have made a diagnosis:

- Environment of the road axis
- Traffic census and its typology
- Presence and frequency of bus lines
- Accidentology
- Current cross-section
- Condition of sidewalks
- Congestion of the right-of-way
- Condition of plantings
- Observation of the behavior of different users



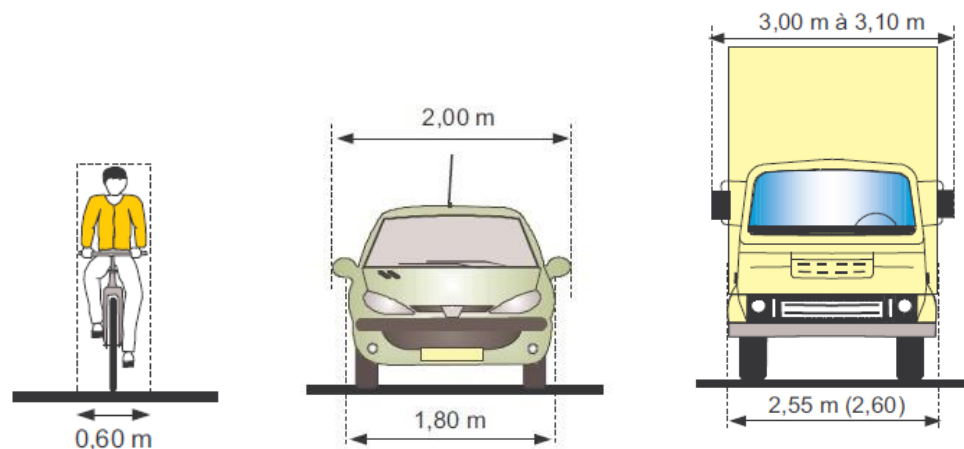
# Type of traffic

CATÉGORIES	DEFINITION	SILHOUETTES
A	<b>BICYCLETTE</b> avec ou sans moteur auxiliaire	
B	<b>MOTOCYCLES</b> , Scooters, Tricycles avec ou sans side car	
C	<b>VOITURES PARICULIAIRES</b> pour le transport de personnes, Berlines Commerciales, fourgonnettes, avec ou sans remorque (Roulotte)	
D	<b>CAMIONNETTES</b> dont la charge utile est inférieure à 1T500 (Type Isuzu, Estafette) et tracteur sans semi-remorque	
E	<b>CAMIONNETTES LEGERS</b> de charge utile comprise entre 1T500 et 3T500 (type OM)	
F1	<b>CAMIONS LOURDS SANS REMORQUE</b> de charge utile supérieure à 3T500 (Type : Berliet, Sicam)	
F2	<b>CAMIONS LOURDS AVEC REMORQUE OUOU TRACTEURS</b> avec SEMI-REMORQUE (Type : Tankers des T.p. et des Sociétés pétrolières, semi-remorque )	
G1	<b>TRANSPORTS EXCEPTIONNELS Portes-Chars</b> , camions avec deux remorques ou plus, tracteur avec semi-remorque plus remorque	
G2	<b>TRANSPORTS EXCEPTIONNELS Portes-Chars</b> , camions avec deux remorques ou plus, tracteur avec semi-remorque plus remorque	
H	<b>TRANSPORTS EXCEPTIONNELS Portes-Chars</b> , camions avec deux remorques ou plus, tracteur avec semi-remorque plus remorque	
I	<b>TRANSPORT EN COMMUN</b> (Cars des Sociétés Nationales ou Régionales de transports, cars de tourisme)	





## Vehicle templates and speeds



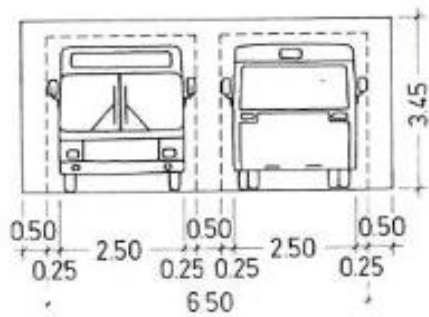
The following table specifies the useful widths according to the authorized speed for each of these means of travel :

Speed practiced	Maneuvering margin	Passing margin	Traffic LV		Traffic LV+HV	
			Width	Width	Width	Width
	(M)	©	LV	Lane	HV	Lane
in step	0,15	0,30	1,80	2,20	2,50	2,60
30 Km/h	0,20	0,50	1,80	2,35	2,50	2,95
45 Km/h	0,25	0,70	1,80	2,55	2,50	3,10
60 Km/h	0,30	0,90	1,80	2,65	2,50	3,25
90Km/h	0,40	1,20	1,80	3,00	2,50	3,50
110Km/h	0,50	1,50	1,80	3,30	2,50	3,75
130Km/h	0,60	1,80	1,80	3,50	2,50	4,00

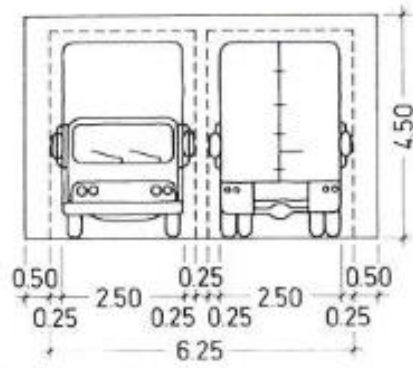


# Type of traffic

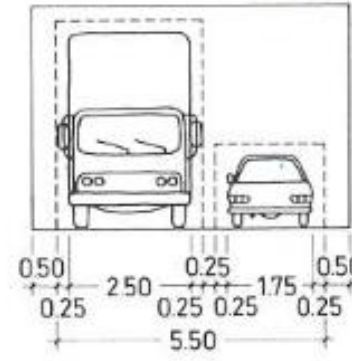
- Required crossing width for a speed of 50 km/h



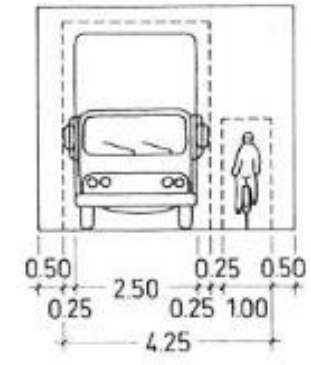
Bus/Bus



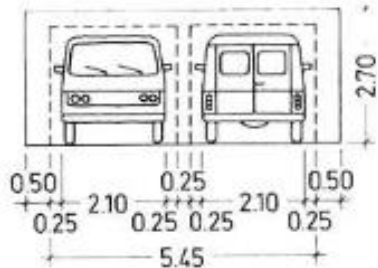
Lkw/Lkw



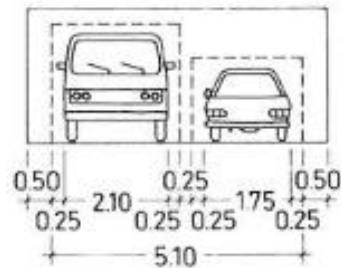
Lkw/Pkw



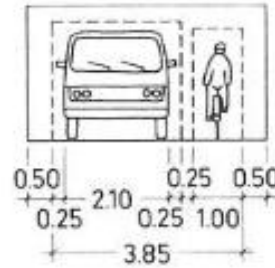
Lkw/Rad



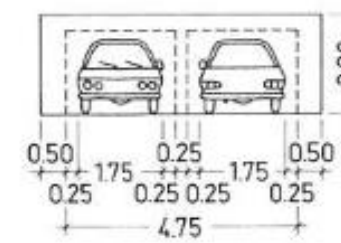
Lfw/Lfw



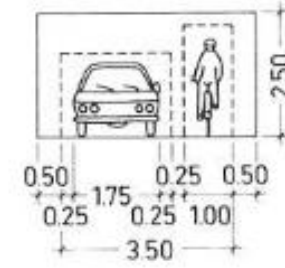
Lfw/Pkw



Lfw/Rad



Pkw/Pkw

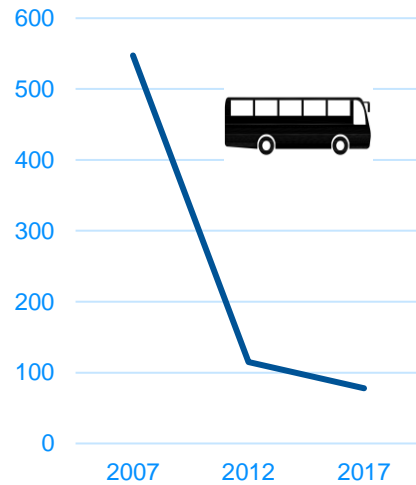


Pkw/Rad

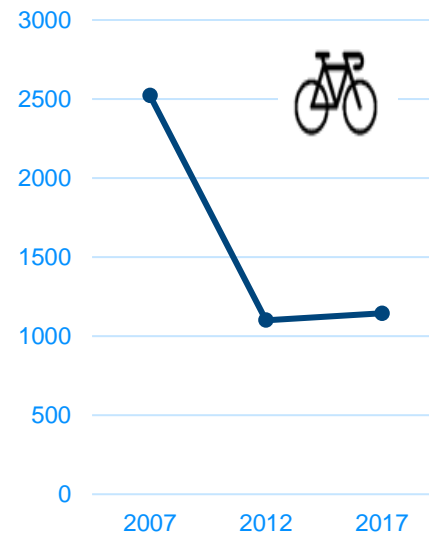


# Type of traffic

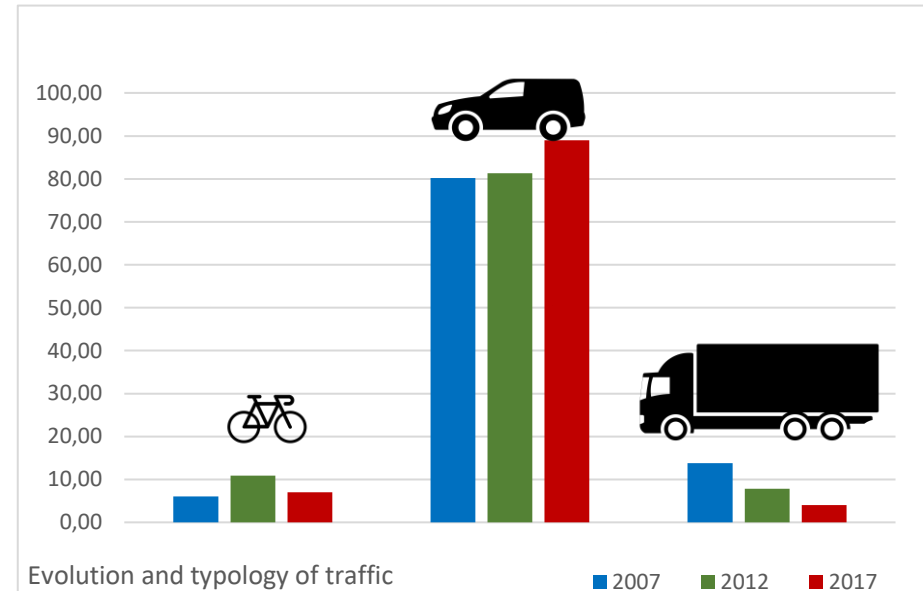
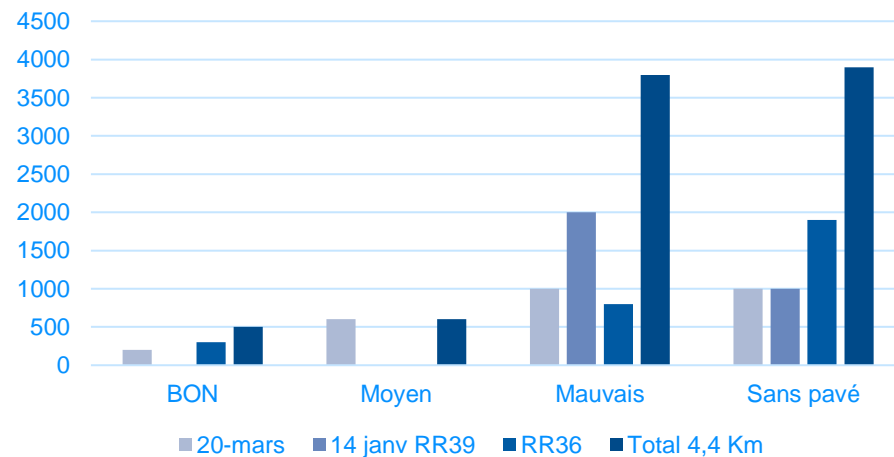
## Evolution of public transport



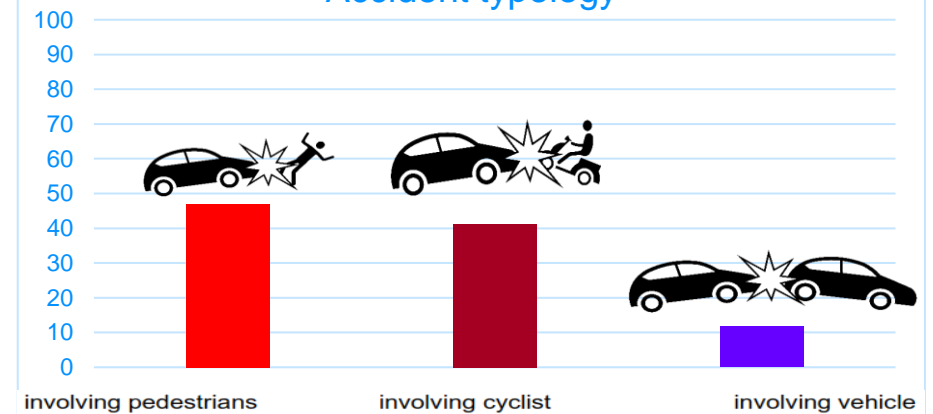
## Evolution of cyclists



## Sidewalk condition



## Accident typology







## General results

The analysis of the state of the site revealed several problems :

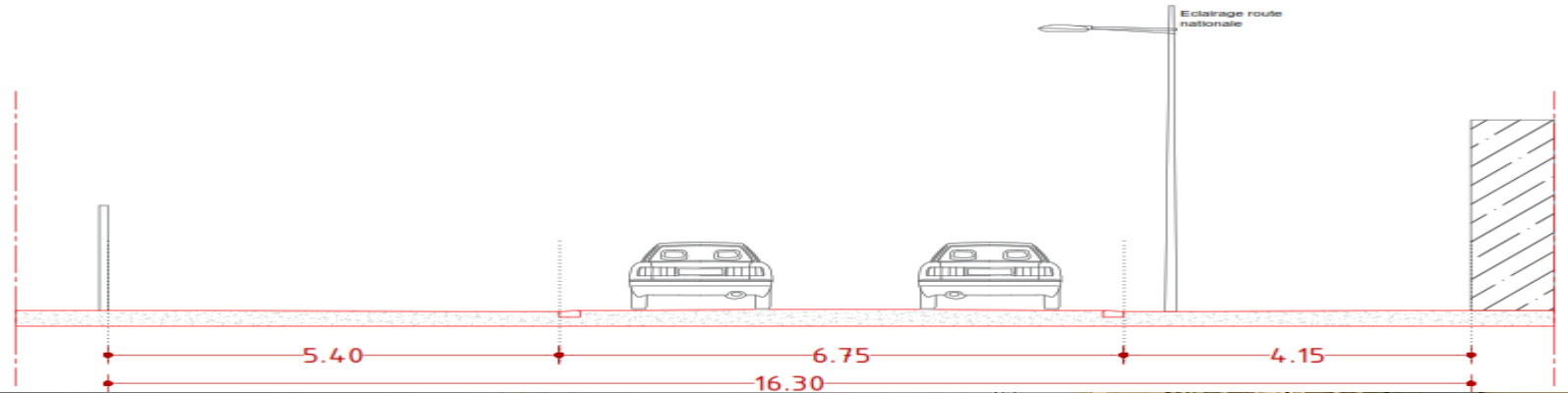
- Anarchic traffic of vehicles
- Parking problems
- Accessibility
- Organization of pedestrian flows
- High accident rate
- Lack of planting and urban furniture
- Etc.



# Proposed improvements

Avenue 20<sup>th</sup> March

Currently

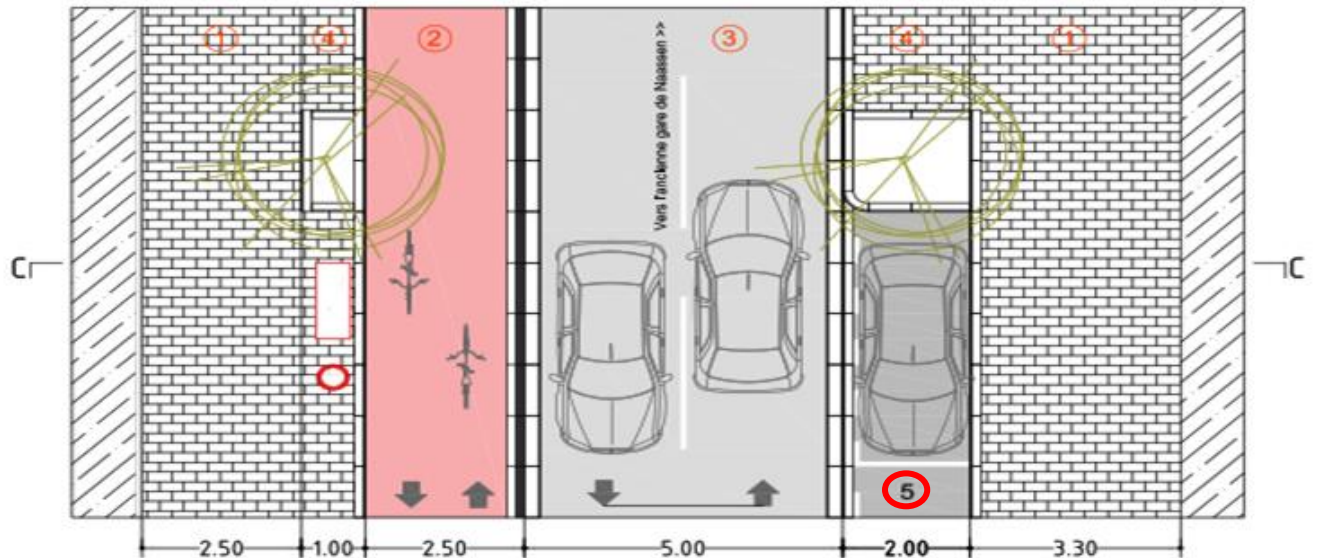
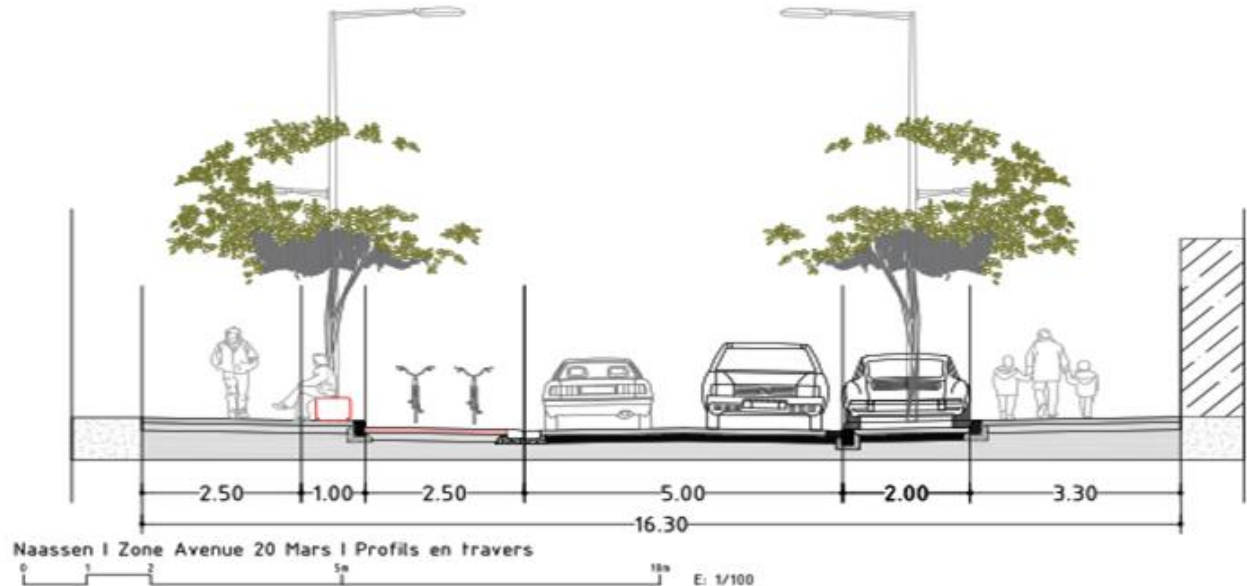




# Proposed improvements

## Avenue 20<sup>th</sup> March Design

- ① free pedestrian lane
- ② bike lane
- ③ pavement
- ④ technical band
- ⑤ parking



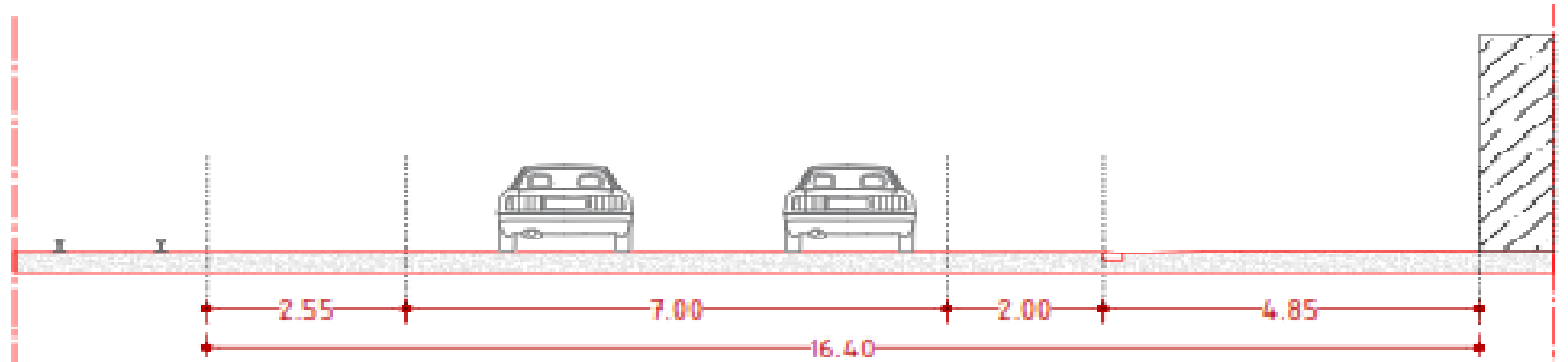




# Proposed improvements

Section RR36

Currently



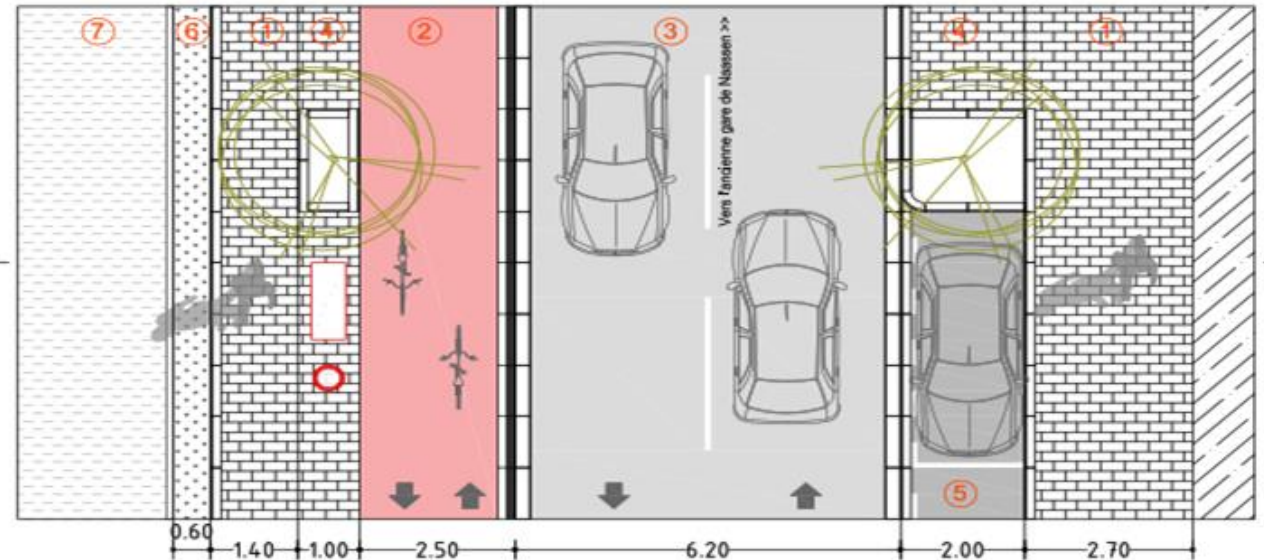
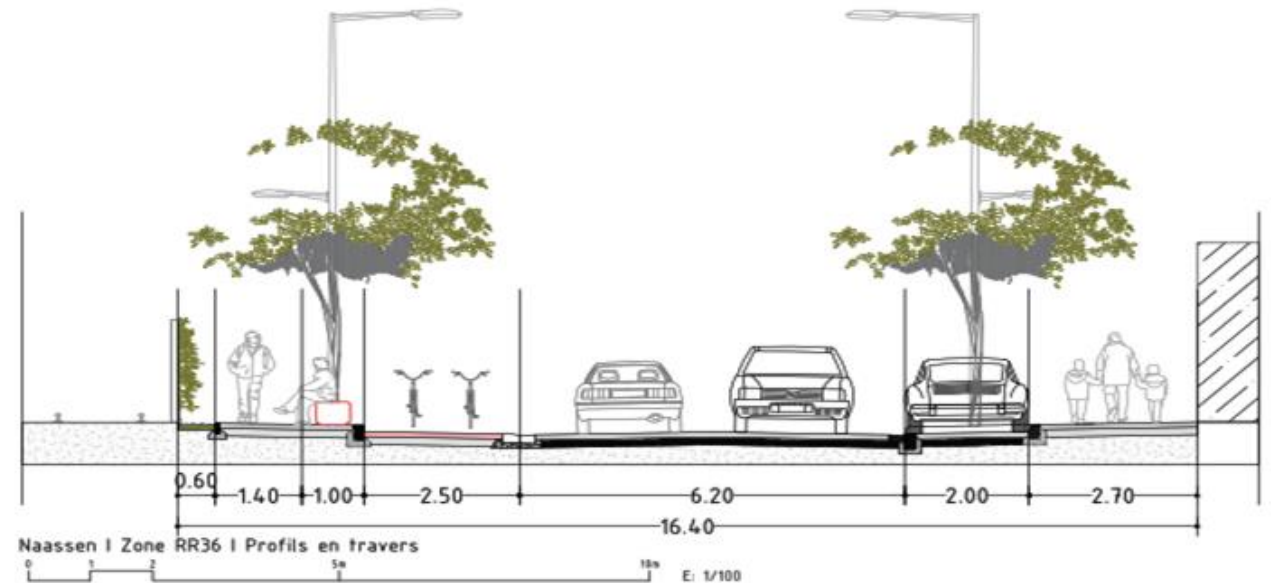


# Proposed improvements

## Section RR36

### Design

- ① free pedestrian lane
- ② bike lane
- ③ pavement
- ④ technical band
- ⑤ parking
- ⑥ planted band
- ⑦ railway

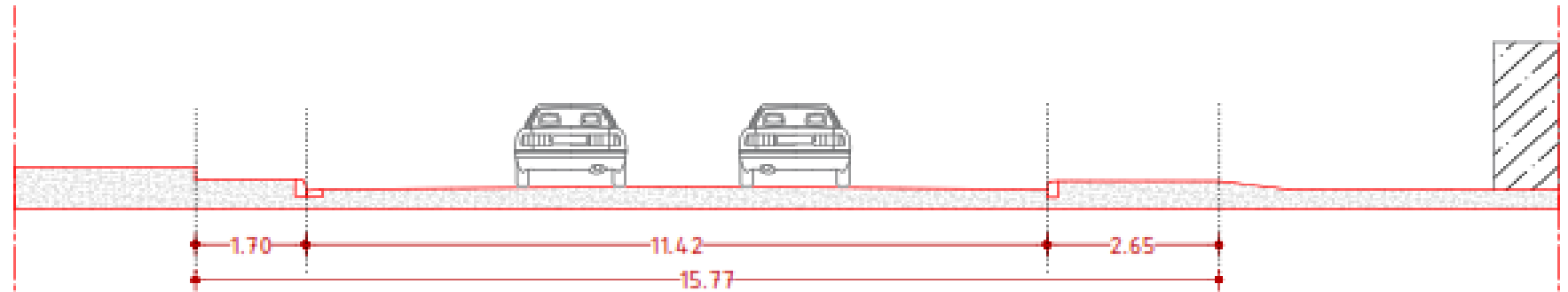




# Proposed improvements

Section RR39

Currently





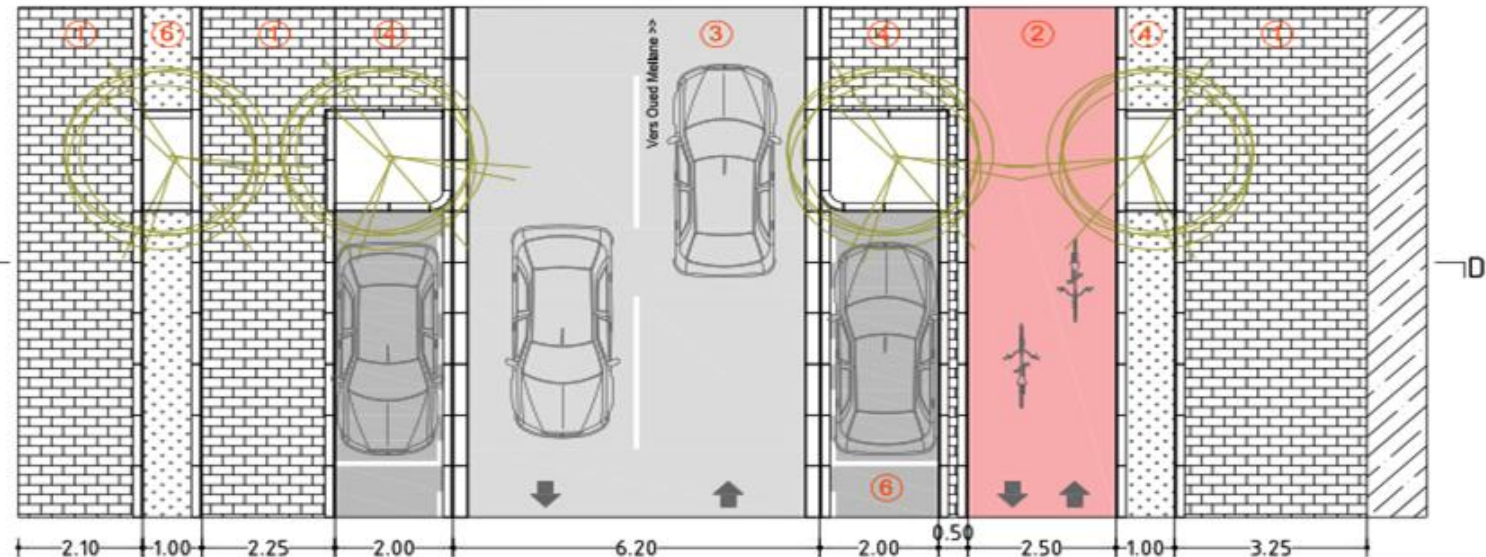
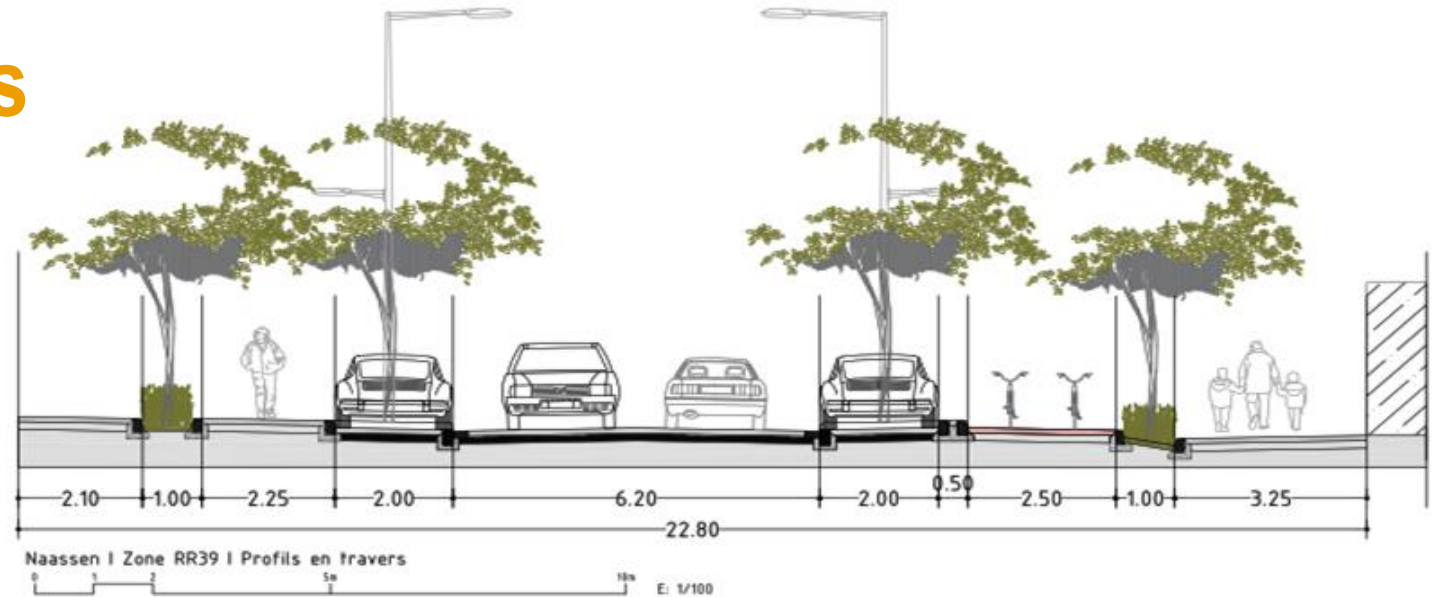


# Proposed improvements

## Section RR39

### Design

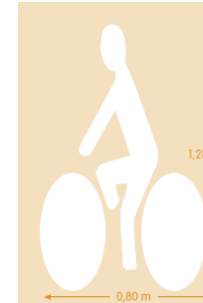
- ① free pedestrian lane
- ② bike lane
- ③ pavement
- ④ technical band
- ⑤ parking
- ⑥ planted band





# Design for vulnerable users

- Favoring clean modes of transport
- Ensuring the safety and serving the movement of people with reduced mobility
- Adopt bike lanes
- Opt for longitudinal parking
- Review the distribution of space
- Horizontal and vertical signage.



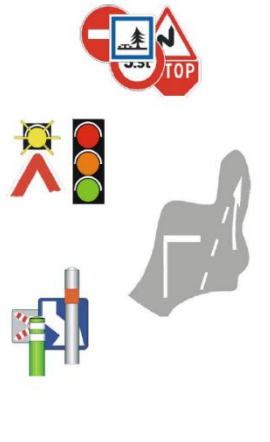
✓ Panneaux

✓ Feux

✓ Marquage des chaussées

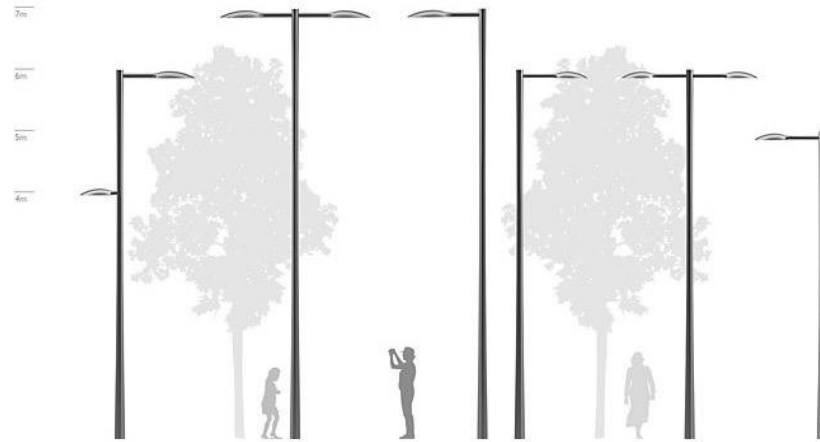
✓ Balisage

✓ Bornage





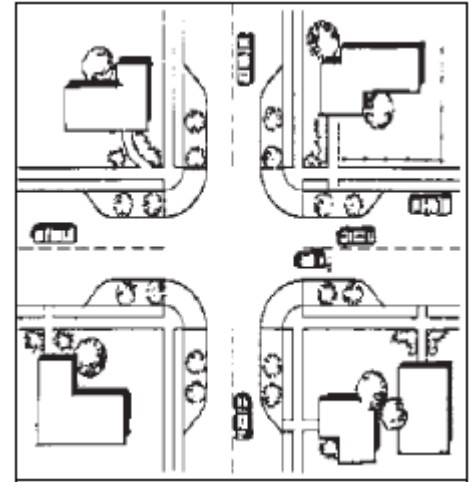
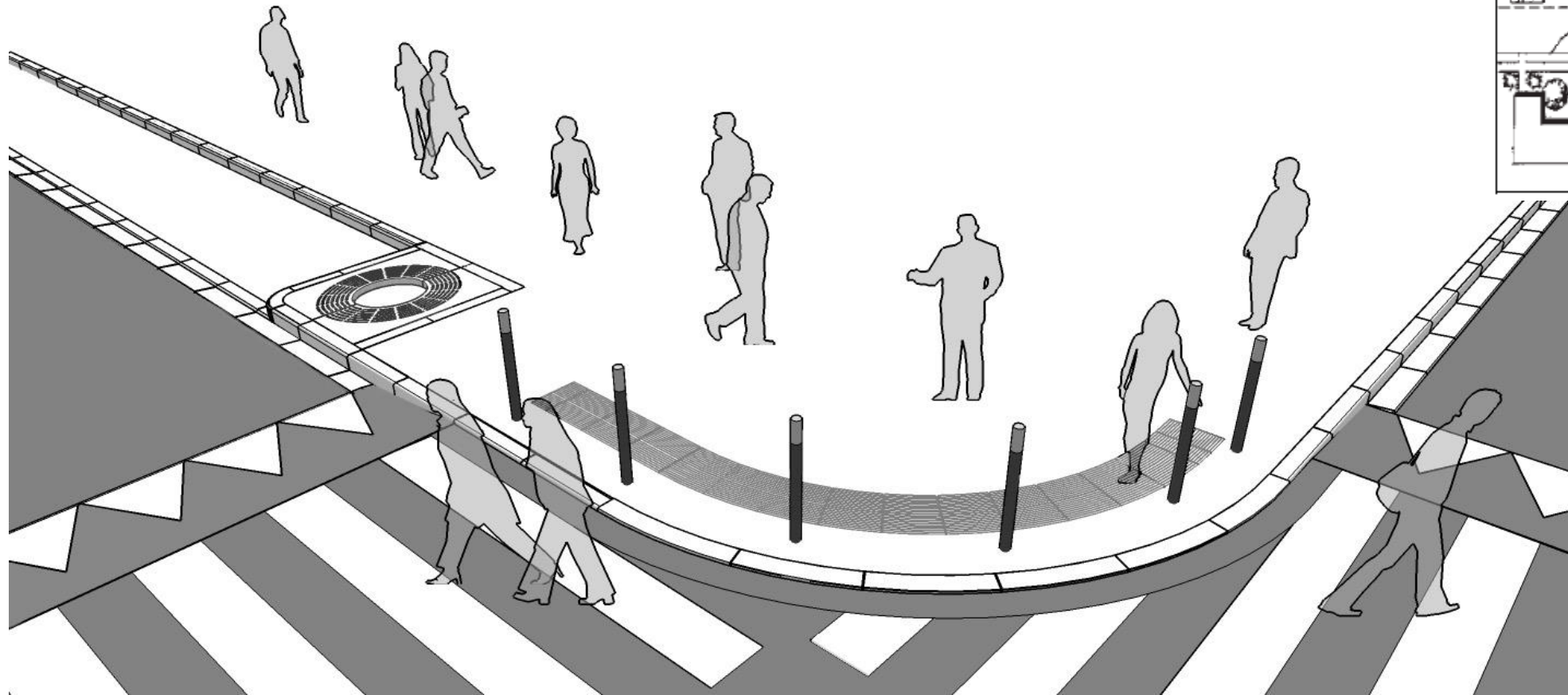
# Improvement of the living environment in urban areas





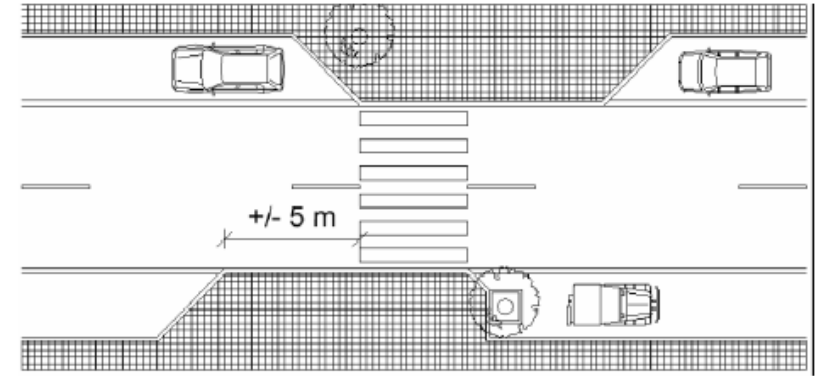
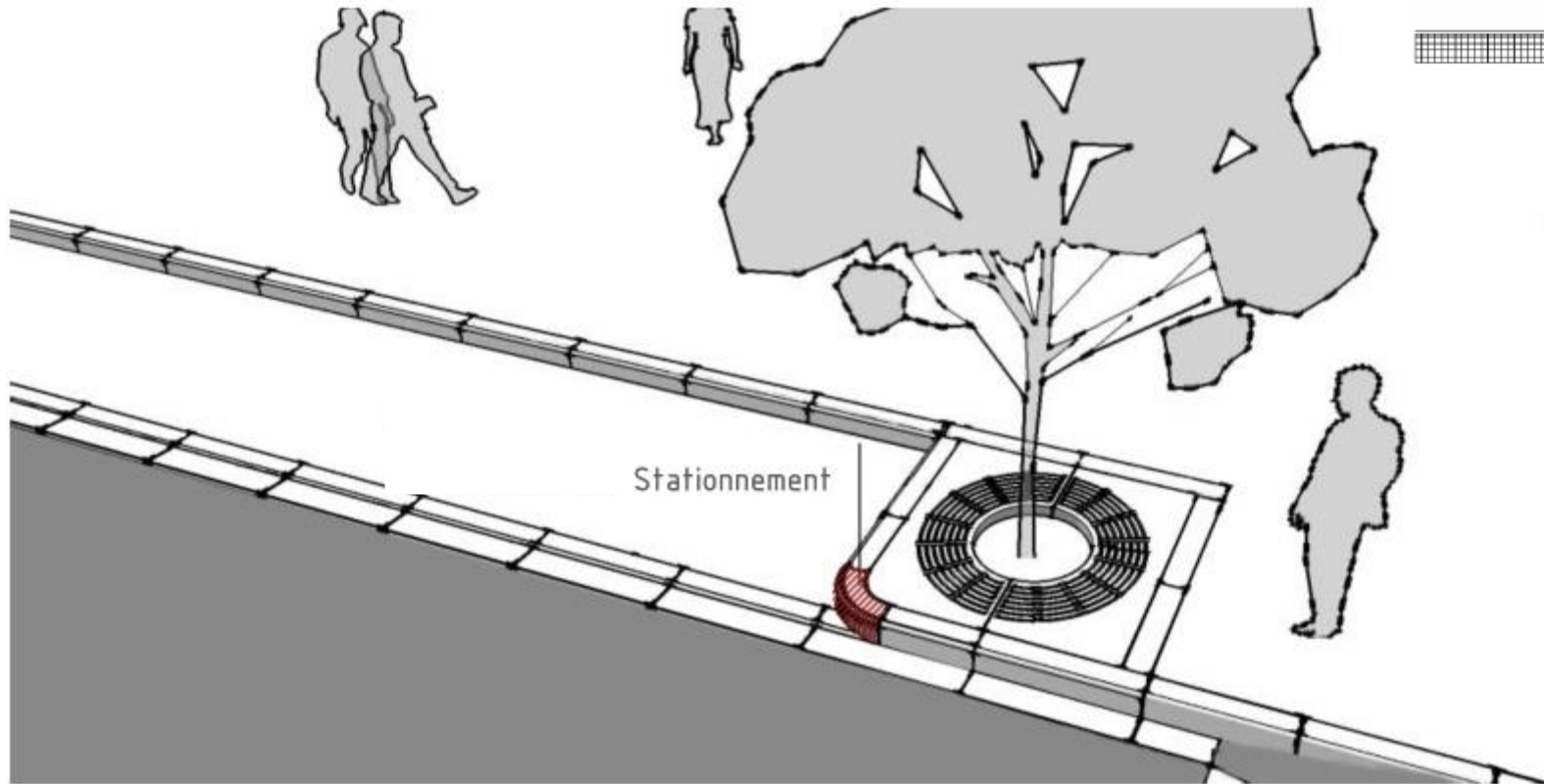


# SPEED REDUCTION DEVICES AT INTERSECTIONS



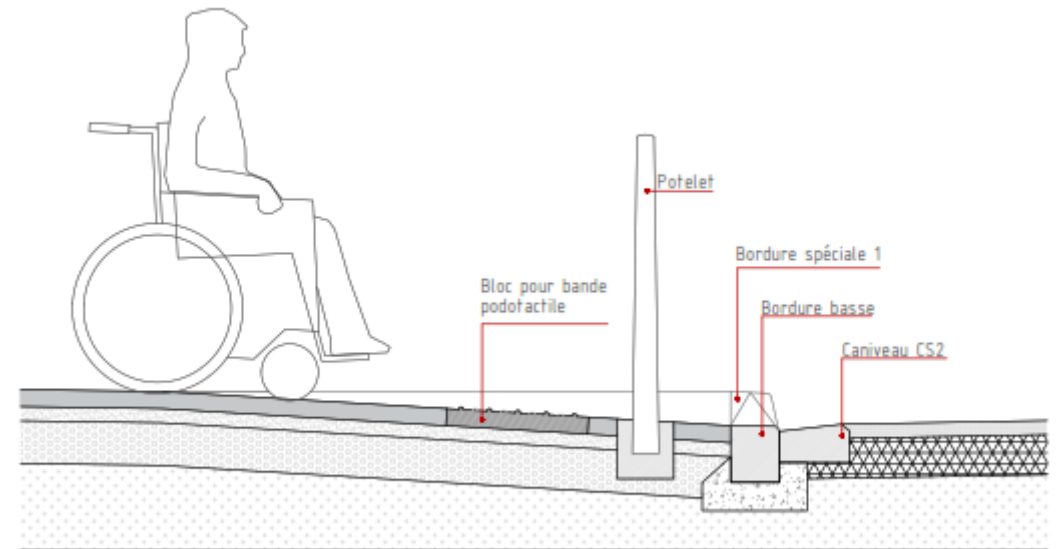
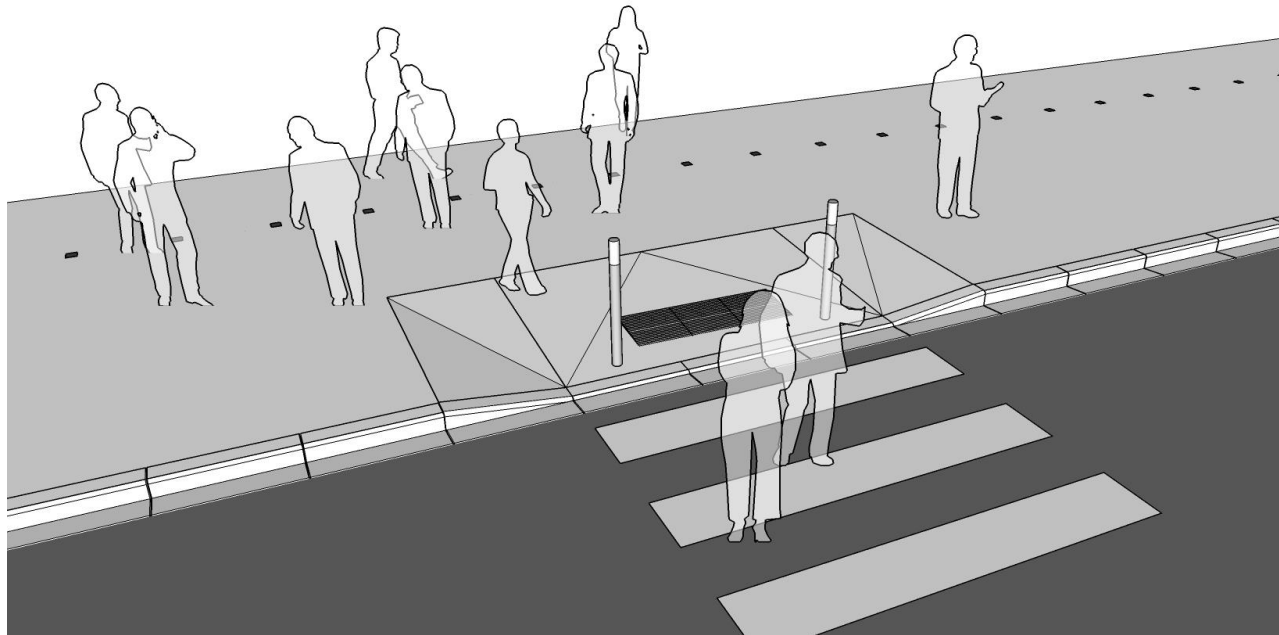


# Design of the parking and creation of a chicane for pedestrian crossing



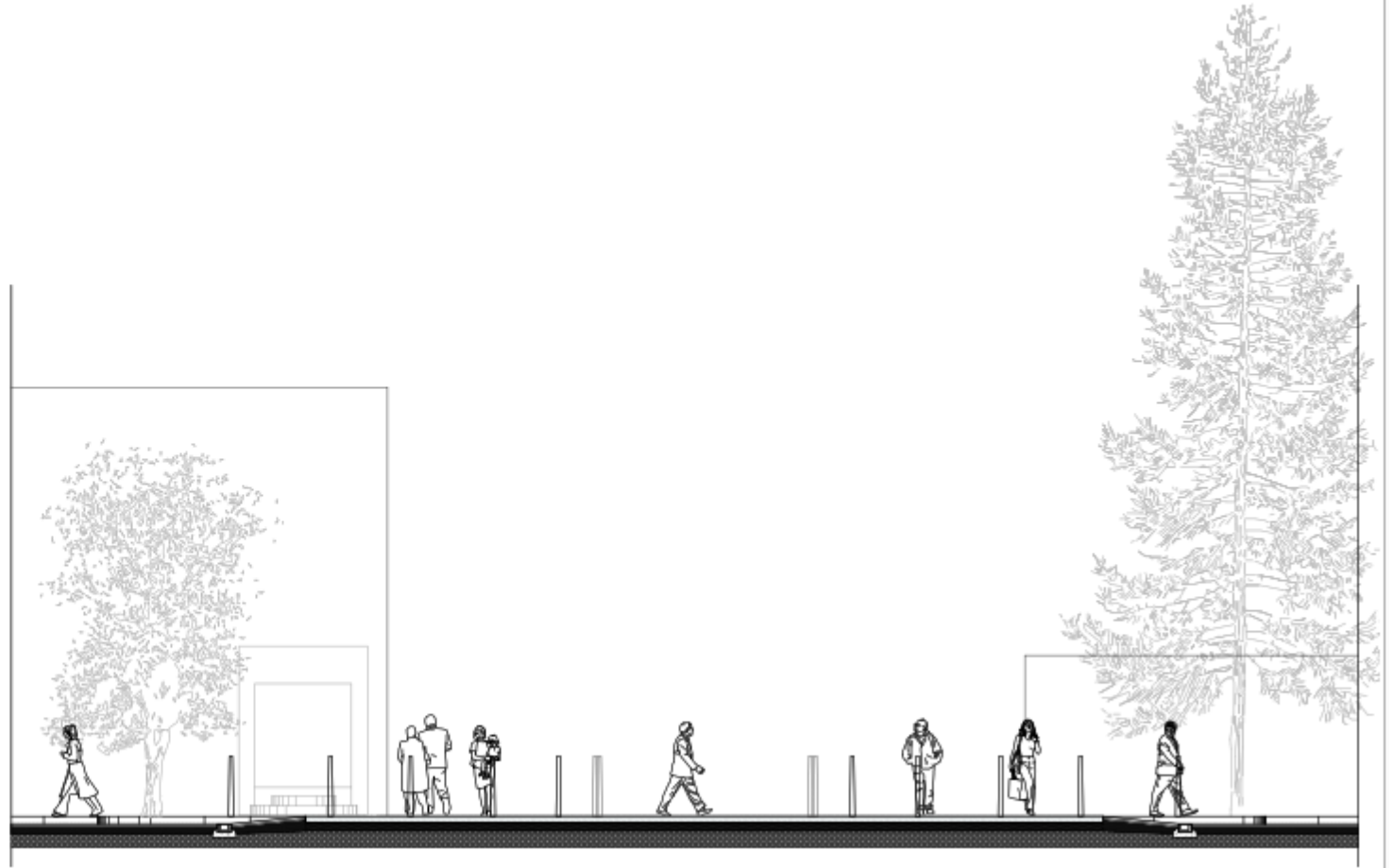
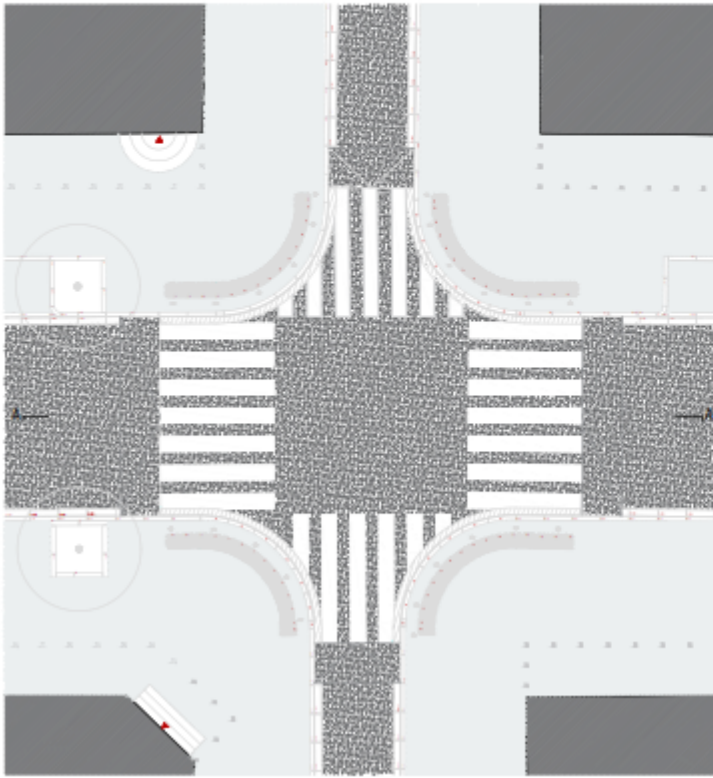


# Development of crossings for people with reduced mobility equipped with tactile strips





# Design of safe road crossings







# Benchmarking in Tunisia

## Urban and landscape design “La Perle du Lac” in Tunis





# Benchmarking in Tunisia

## Urban and landscape design “La Perle du Lac” in Tunis







## Conclusion

- Improves the living environment in urban areas
- Improves air quality in urban areas
- Calms traffic and reduces speed
- Increases road safety and saves lives
- Encourages soft travel mode
- Improves the health of citizens
- Reduce greenhouse gas emissions (transportation produces 20% worldwide)



# Thank you for your attention!



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