

Comprehensive traffic calming methodology and impacts: findings from a small municipality in Slovenia

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Problem

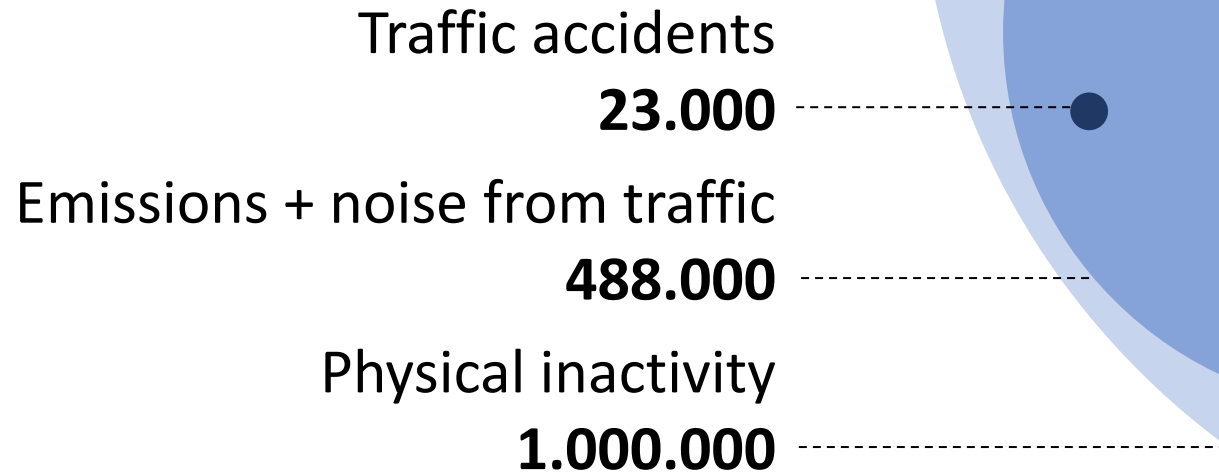
Increasingly negative impacts of motorised traffic.



Some reasons for change,
connected to traffic calming:

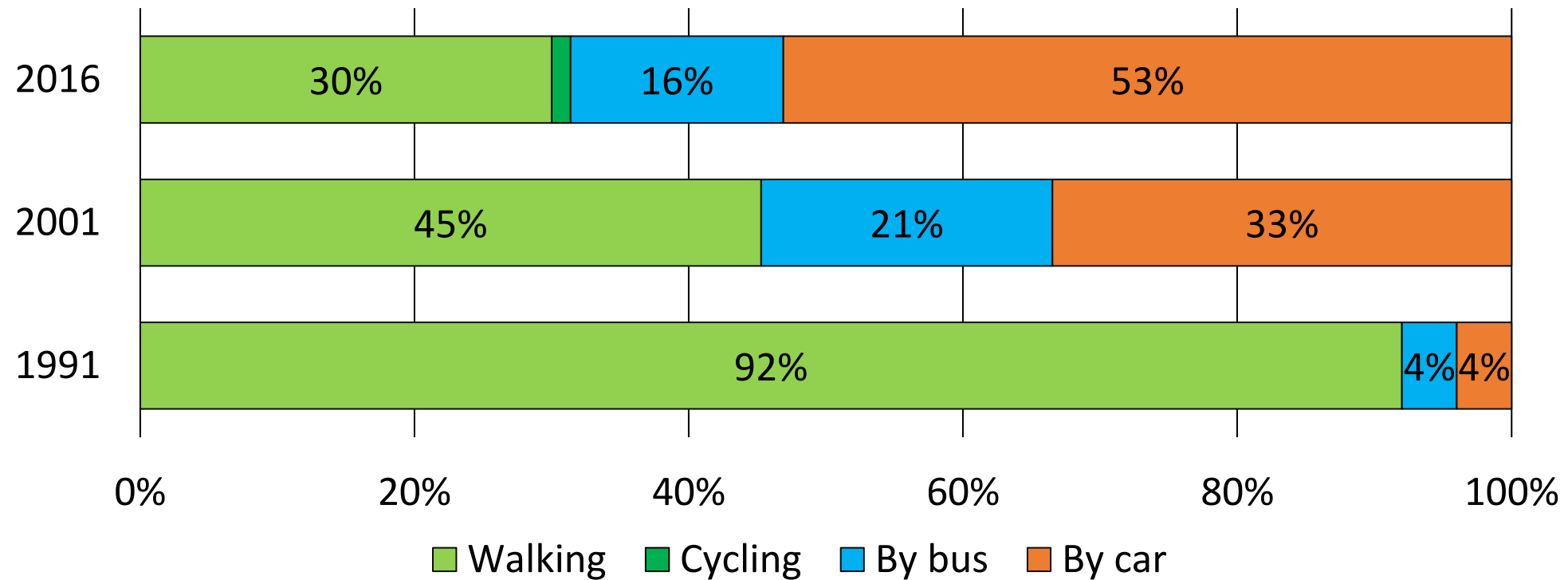
Deaths because of motorised traffic (Europe, annually)

More cars = less lives (and health).



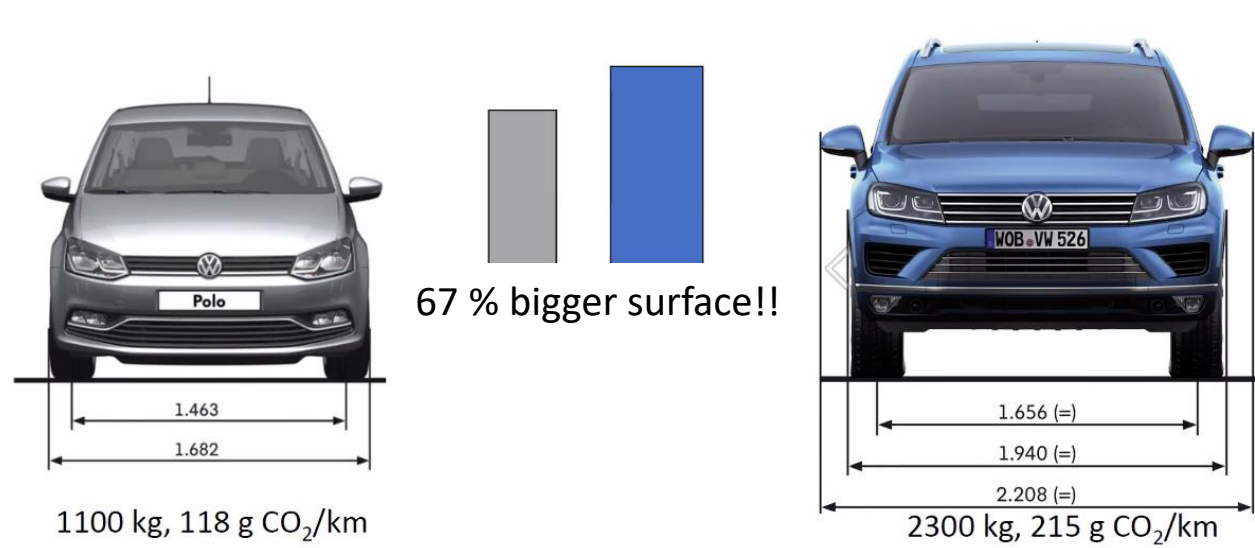
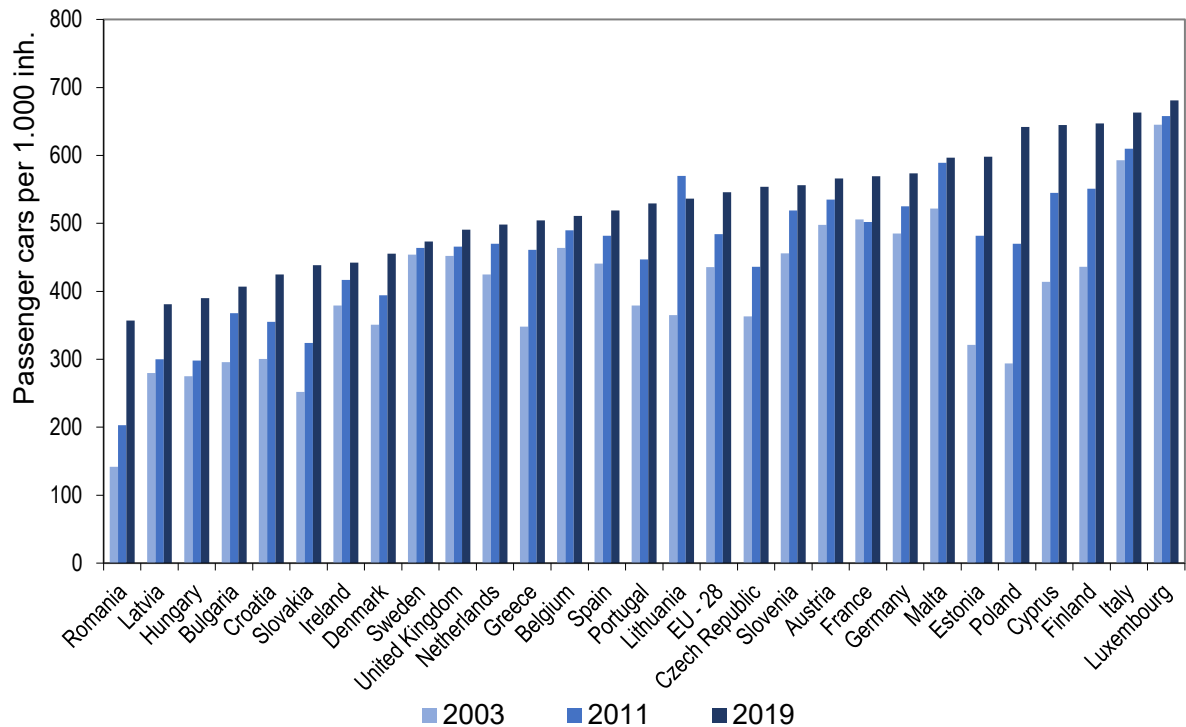
Travel habits of school children (Slovenia)

Better conditions for cars = less active and less independent children.

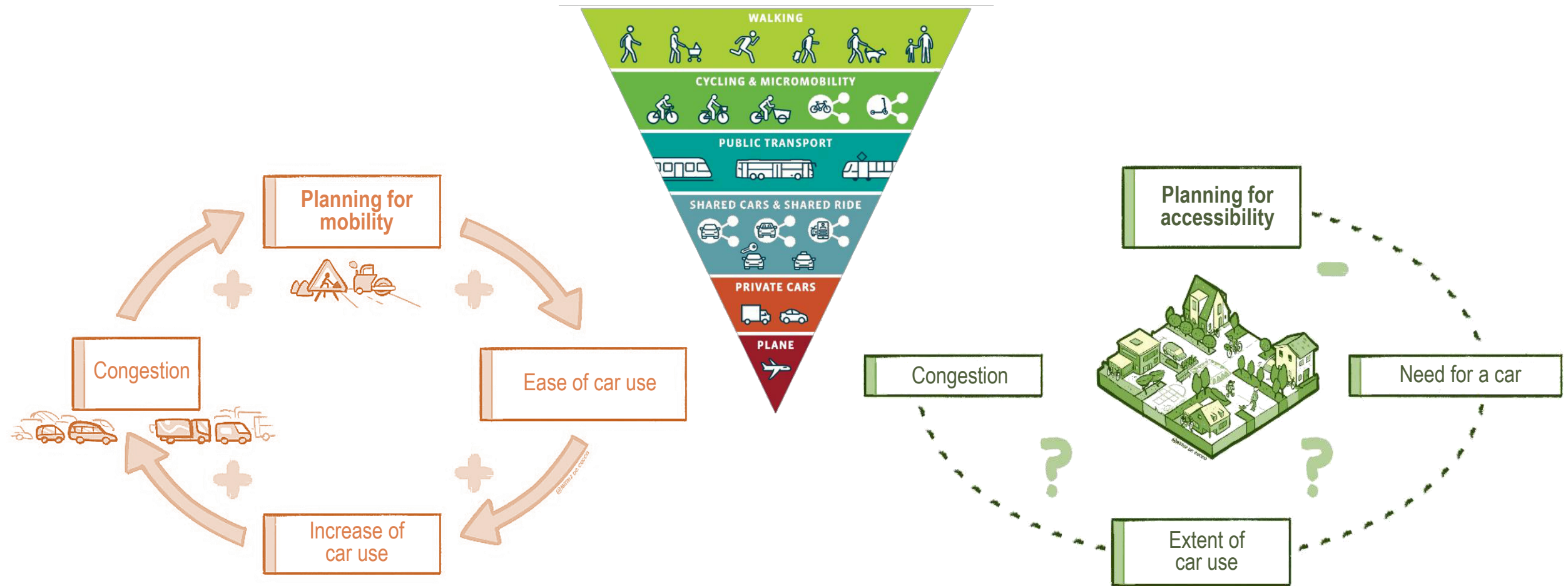


Motorisation

More space for cars = less space for people and public space.



Who are we planning for?



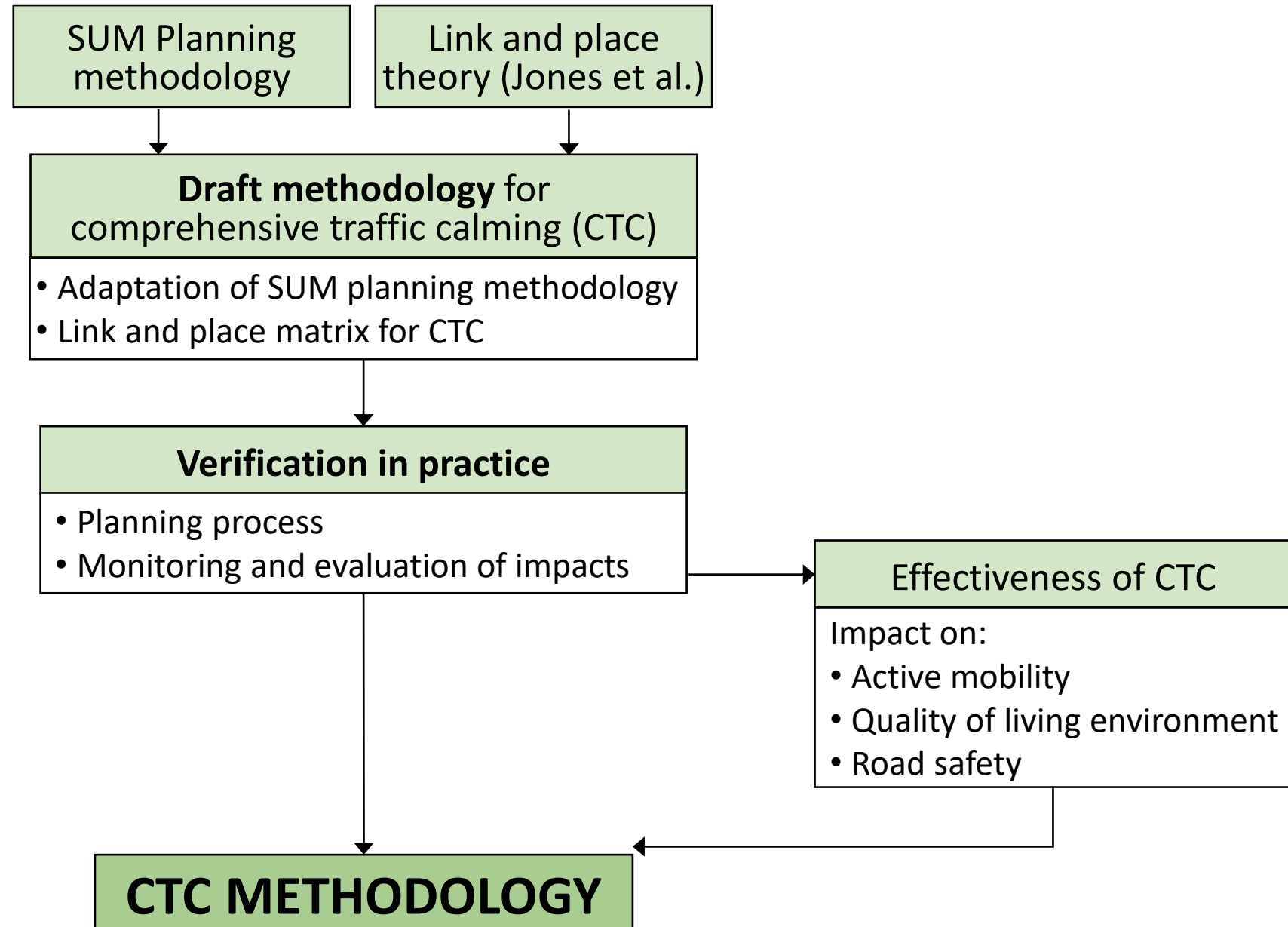
Research objectives

1. To place comprehensive traffic calming within the framework of SUM planning.
2. To monitor and confirm the impact of comprehensive traffic calming on travel behaviour change.
3. To develop a new planning and decision-making support system (methodology) for comprehensive traffic calming and test it in practice.

Approach

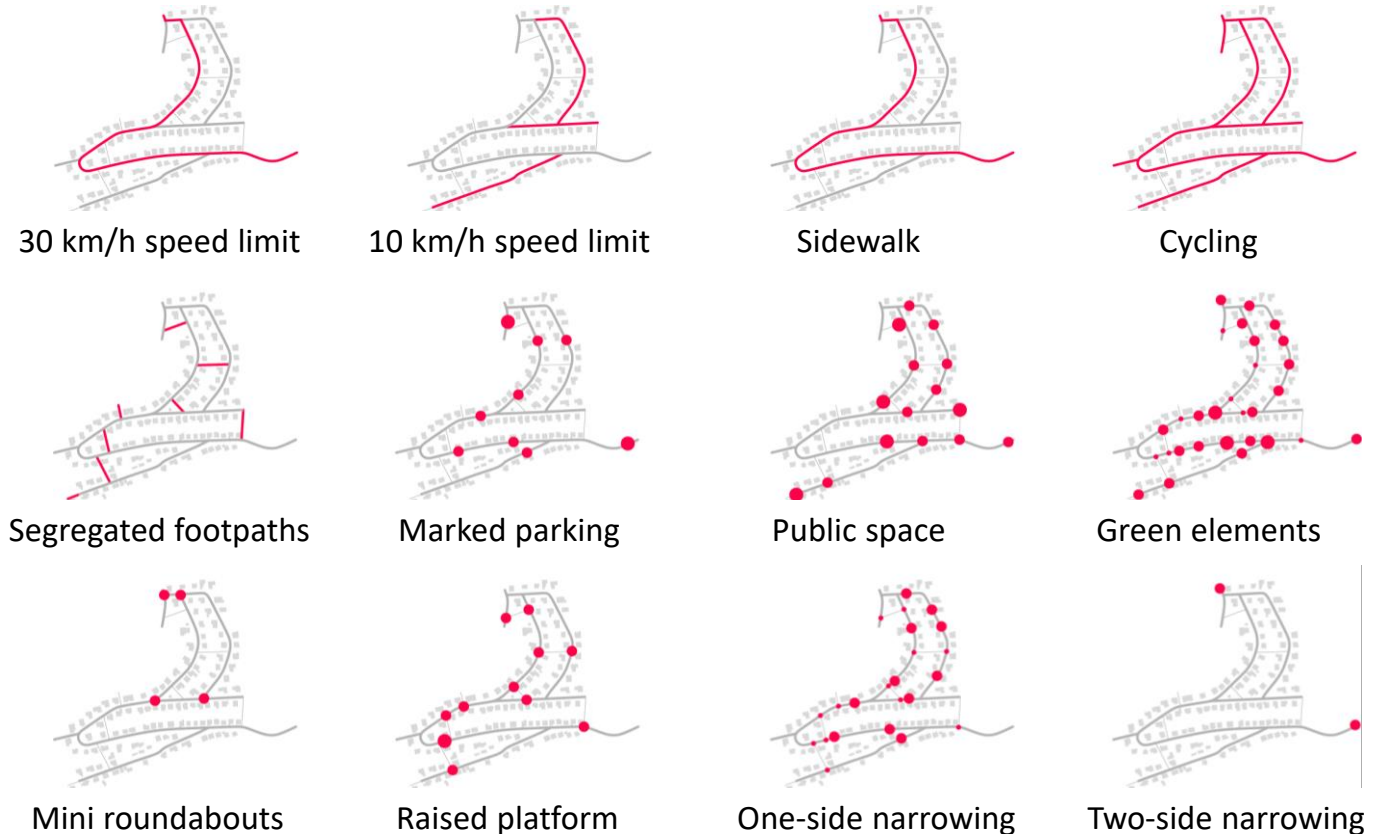
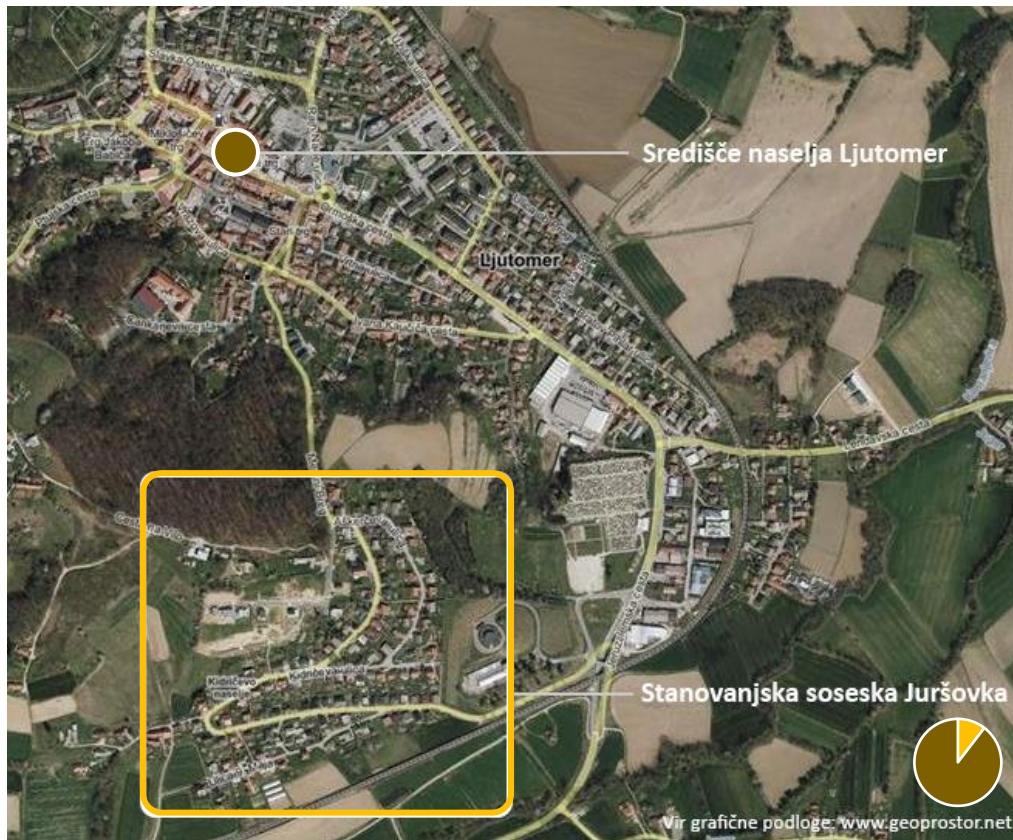


Methodology development process

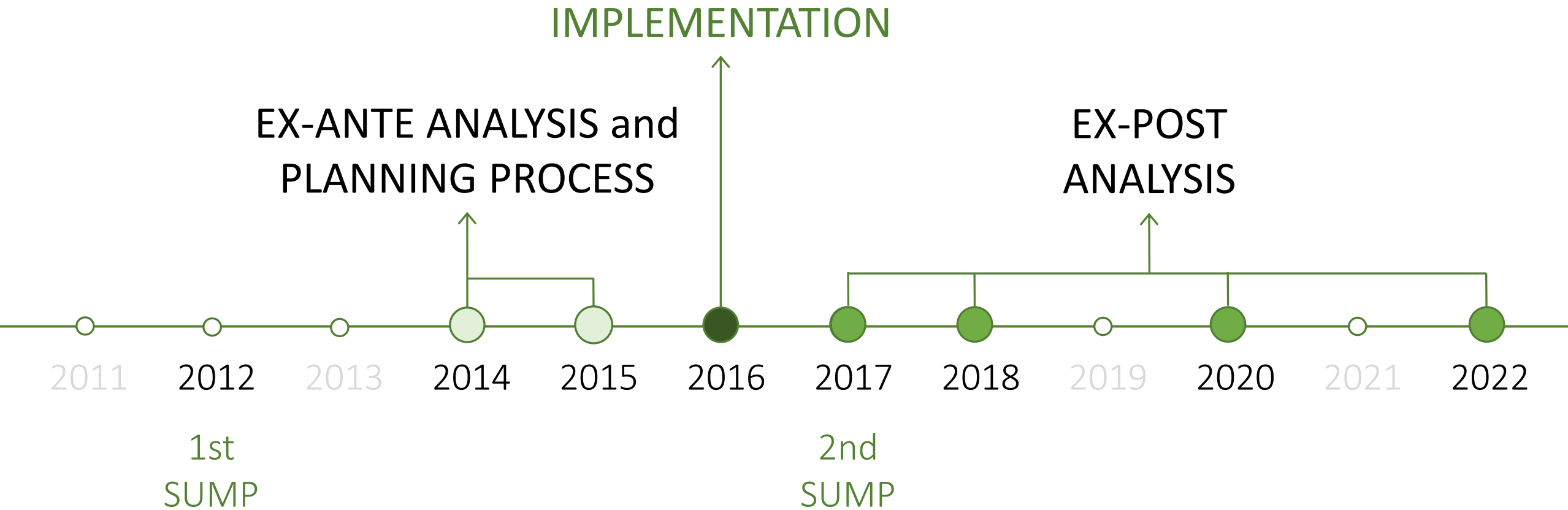


Location and measures

- Neighbourhood of 4 streets – one transit and three access streets
- 120 households / 350 inhabitants



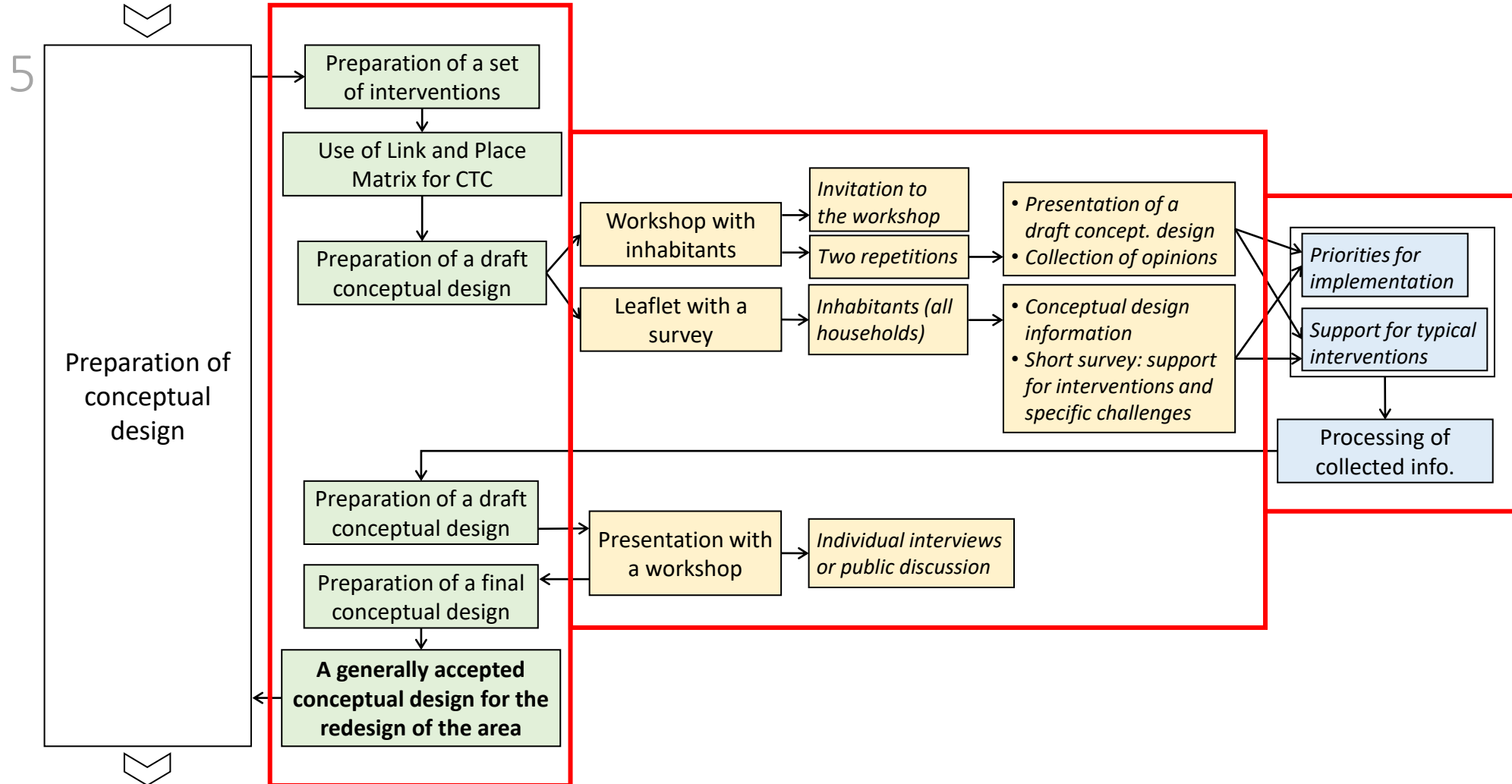
Timeline



Methodological process

CTC MEHTODOLOGY	SUMP METHODOLOGY
PROCESS STEPS	
1 Preparation for work	Preparation for work
2 Process outline	Process outline
3 Vision and objectives (from local SUMP)	Desired state outline (vision and objectives)
4 Status analysis (planning area)	Focused status analysis (priorities)
5 Preparation of conceptual design	Defining the course of action (strategic guidelines and measures)
6 Preparation and confirmation of detailed design	SUMP preparation and approval
7 Implementation and impacts	SUMP implementation
HORIZONTAL ACTIVITIES	
Public involvement	Public involvement
Monitoring and evaluation	Monitoring and evaluation

Example: Step 5



PROCESS STEPS



PLANNING ACTIVITIES



PUBLIC INVOLVEMENT



MONITORING AND EVALUATION

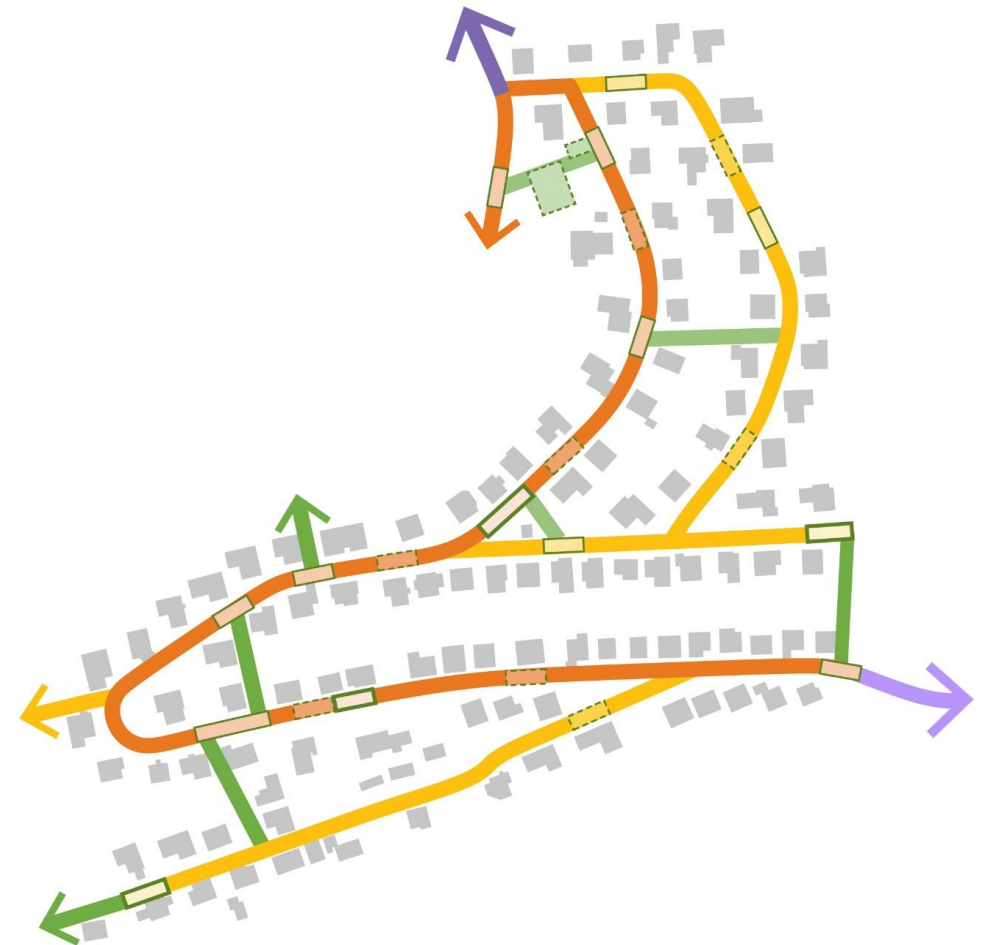
Activities

Methods

Link and place matrix for CTC

	P1 - Other OPS in CTA	P2 - Smaller OPS in CTA	P3 - Bigger OPS in CTA	P4 - Main OPS in CTA
	Place types (P) →			
L4 - Basic transport network (intra CTAs)	L4 / P1	L4 / P2	L4 / P3	L4 / P4
L3 - Transit street within a CTA	L3 / P1	L3 / P2	L3 / P3	L3 / P4
L2 - Main link for active mobility	L2 / P1	L2 / P2	L2 / P3	L2 / P4
L1 - Access street within a CTA	L1 / P1	L1 / P2	L1 / P3	L1 / P4

CTA = calmed traffic area OPS = open public space



Monitoring and evaluation

15 indicators (undemanding for monitoring)

Active mobility aspect (ind. 1-6)

1+2: Walking + cycling on daily routes

3: Using private car for daily routes

4: Perceived effectiveness of interventions

5+6: Perceived conditions for walking + cycling

Quality of living environment aspect (ind. 7-9)

7: Transformation (reallocation) of street space

8: Acceptance of interventions

9: Perceived quality of living environment

Traffic safety aspect (ind. 10-15)

10+11: Volume + speed of motorized traffic

12+13: Number + consequences of road accidents

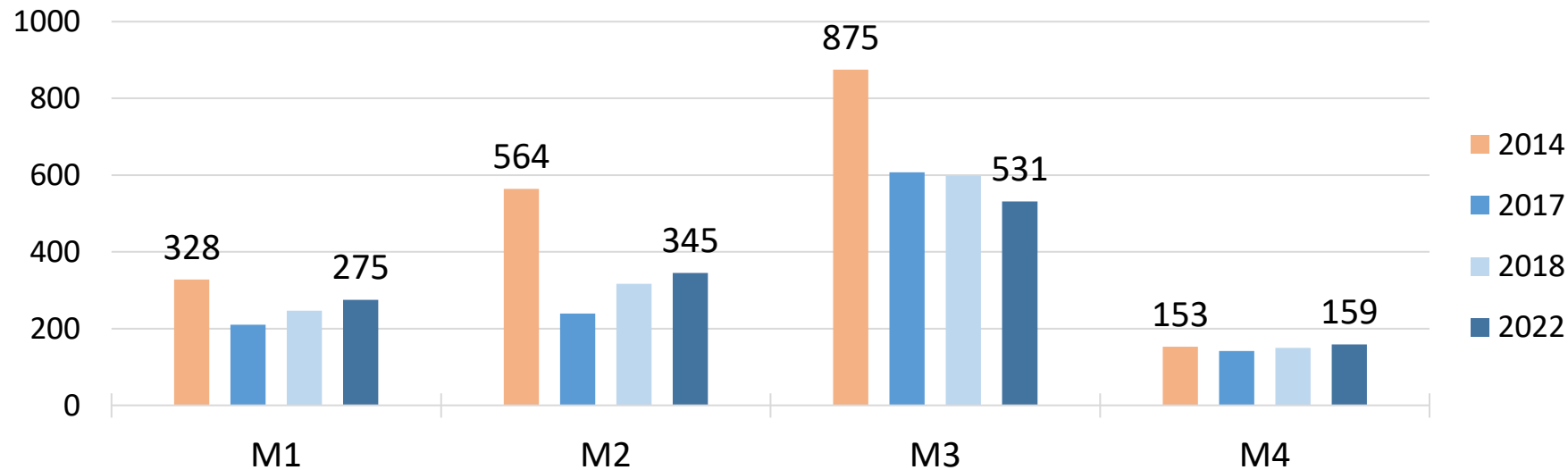
14+15: Perceived road safety for walking + cycling

4 methods for data gathering

- Survey questionnaire
- Traffic counts
- Documentation overview
- Review of public databases

Traffic safety – volume

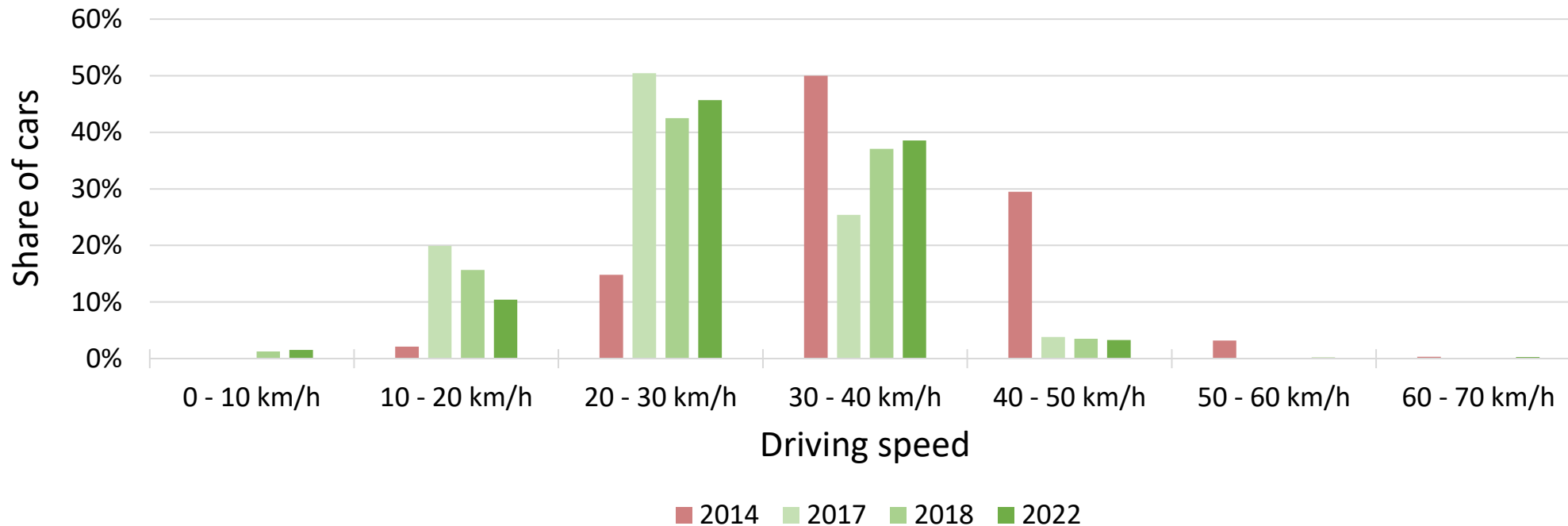
FOUR COUNTING LOCATIONS



- Overall, 35 % less cars in the neighbourhood.
- Peak hours reduced in average for 37 % (or 18 vehicles/h).

Traffic safety – speed

TRANSIT STREET (M2)



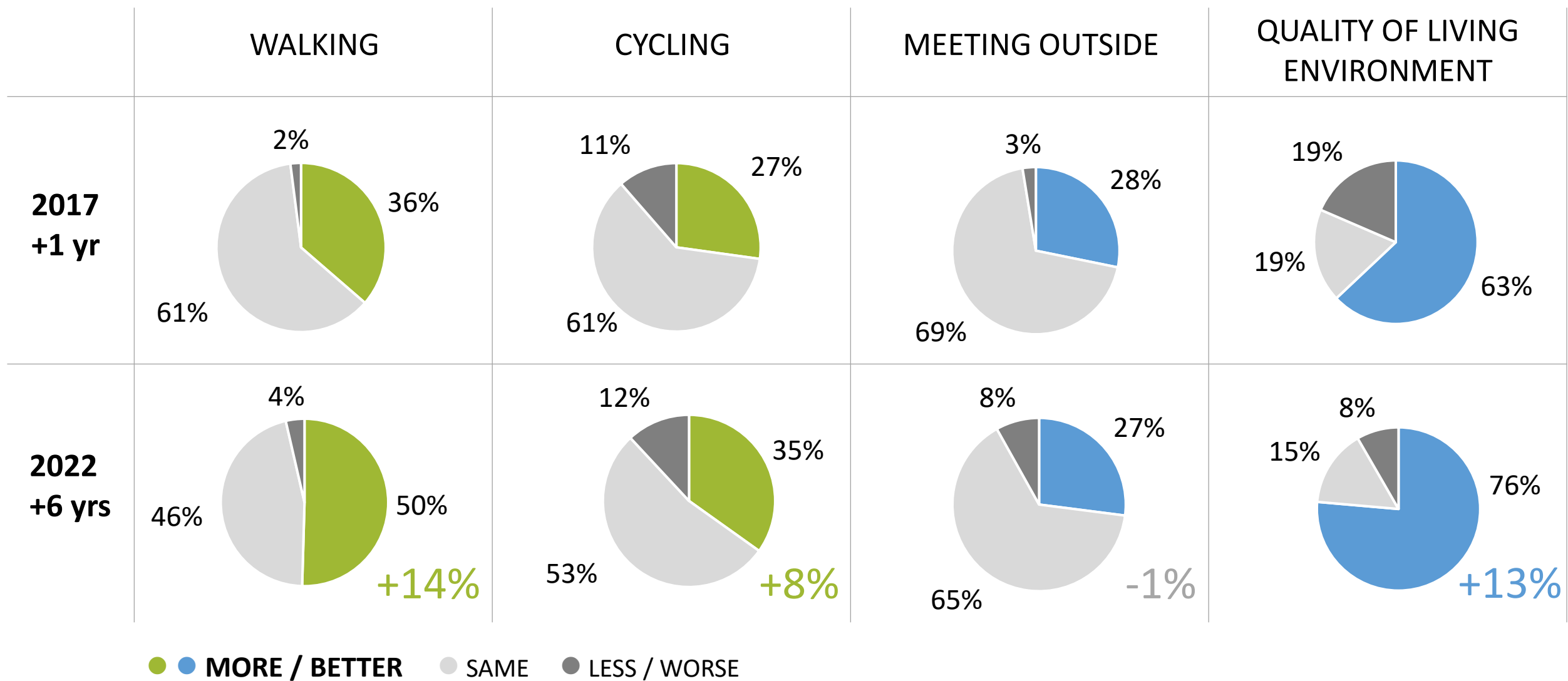
- Overall, around 50 % of cars no drive below 30 km/h (16 % before).
- Required speed has not yet been reached (enforcement!).

Perceived traffic safety for active mobility

	WALKING		CYCLING		
	Neigh.	Town	Neigh.	Town	
Overall average score	5,3	4,7	4,8	4,3	
Walking is relaxed	5,8	5,5	5,5	5,2	Cycling is relaxed
Walking is safe	5,4	5,0	5,2	4,4	Cycling is safe
Physical barriers on routes	5,6	4,7	4,9	4,5	Physical barriers on routes
Winter conditions	5,2	4,7	4,8	4,2	Winter conditions
Car speeds	4,2	3,7	4,2	3,6	Car speeds
Conflicts with drivers	5,6	4,7	5,0	4,3	Conflicts with drivers
Conflicts with cyclists	5,4	4,7	4,8	4,5	Conflicts with pedestrians
Tolerance towards pedestrians	5,1	4,3	4,8	4,1	Tolerance towards cyclists
			4,4	3,9	Parking for bicycles
			4,6	4,2	Safety from theft
			4,6	4,3	Cycling culture

- 6 Great conditions
- 5 Good conditions
- 4 Acceptable conditions
- 3 Poor conditions
- 2 Bad conditions
- 1 Very bad conditions

Active mobility use and quality of life



Perception of interventions

Best performing interventions that support active mobility:

- **SIDEWALK**
 - **SEGREGATED PATHWAYS**
 - **New areas for socializing and play**
 - **New plantings**
 - 10 kph speed limit on access streets
 - 30 kph speed limit on transit streets
 - Other interventions
- } Cycling on the street
- Worst performing intervention overall = mini roundabout

Conclusions

- **Comprehensive traffic calming (CTC)** → effective approach
 - One of key elements, effective measures and strategic guiding principles of SUM planning.
 - Has longterm impacts towards achieving set objectives (SUMP).
 - Significant behaviour change.
 - Contributes to integrated planning and design practices.
- **Diverse impact evaluation** → justification of more complex measures
 - Traditional analysis (speed, volume, accidents).
 - + Behaviour change, acceptance of measures, perceived conditions for active mobility.
- **CTC methodology** → SUMP approach works on a micro scale
 - Consolidation of SUMP framework, better overall quality of the pilot project
 - Link and Place matrix for CTC → emphasis on active mobility and public space.
 - Focus on participation activities → good response, positive attitude prevailed.
 - Focus on M&E activities → knowledge on effectiveness & acceptance of measures.



Thank you.

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