



Palacký University
Olomouc

Pedestrian Crossings Near Schools

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1. Background

My presentation is about **layout of the traffic infrastructure** in the vicinity of pedestrian crossings near schools, and its influence on:

drivers' and pedestrians' behaviour
and

pedestrians' feeling of safety and comfort.

Work in progress.



2. Study design

Involving pre-/post-testing, the study is divided into several stages.

1. **Phase 1: involves data collection prior to adjustments to the infrastructure (summer/autumn 2016).**
2. **Phase 2: approx. 2 months after temporary adjustments (less costly, less complex ones: adjustments referred to in this presentation), winter 2016/spring 2017.**
3. **Phase 3: will be conducted after the completion of more extensive infrastructure adjustments (expected to take place in 2018).**



3. Site description

- Road section in the city center of Prague running past a school (attended by children aged 6-15).
- The key spot is a pedestrian crossing outside the school. The section under study covers ca. 150 metres before the crossing (to the west) and ca. 50 metres after the crossing (to the east).
- The road descends at a gradient of ca. 10% from the west to the east.
- There is a tram and bus service in the section.
- The speed limit is 40 km/h in both directions.



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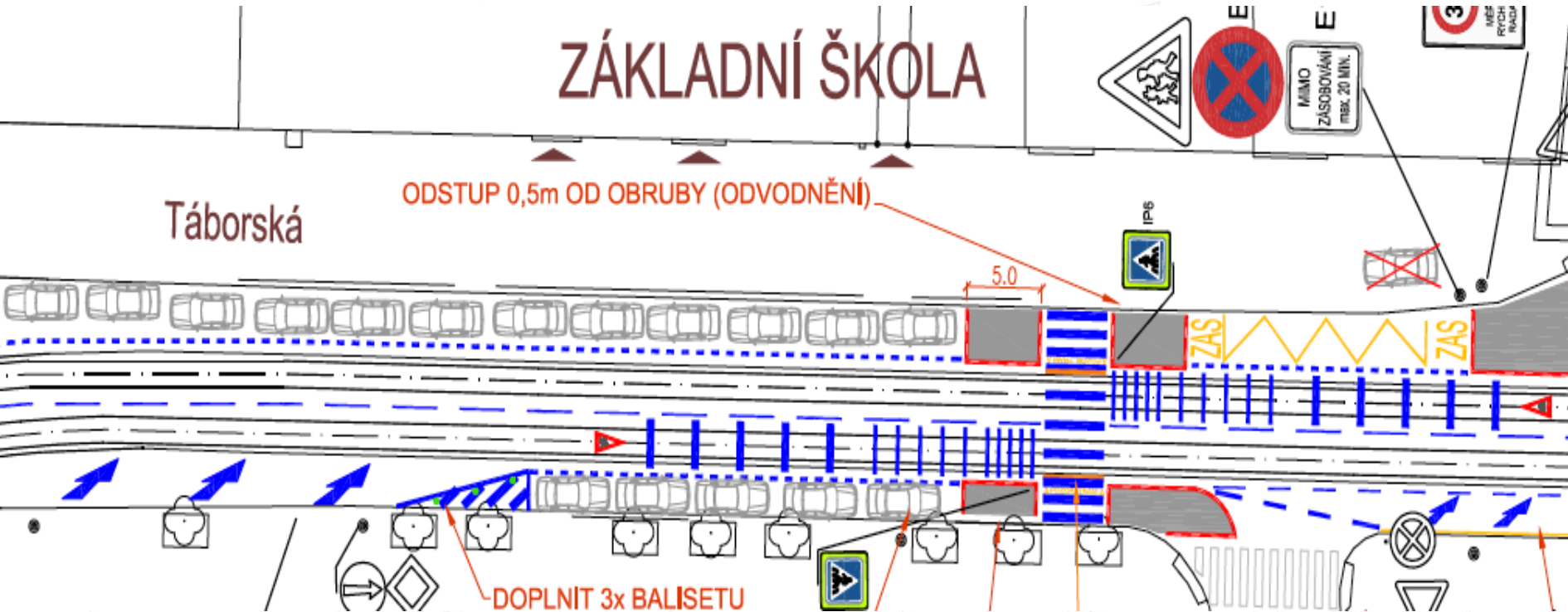




3. Site description

During the morning rush hour, the **traffic police assist** in controlling the traffic around the main crossing outside the school to ensure that pedestrians have the immediate right of way.

But in the afternoon, on the way home, the children have to manage on their own.



Temporary infrastructure adjustments

- narrowing the carriageway, cars driving on tram tracks
- widening the area around the crossing (visibility)
- reducing the length of the crossing
- variable speed limit (30 or 40 km/h, depending on the school timetable)
- section speed measurement and feedback for drivers



4. Research questions

1. Will the comfort of pedestrians (especially children) who are crossing increase?

(shorter waiting time, lower traffic density, better subjective feeling of safety, crossing the road using the marked crossing)

2. Will pedestrians' safety increase?

(lower speed of passing cars, more drivers giving way to pedestrians, lower rate of conflict situations)

3. Will the preferred modes of transport change?

(children walking or using a bicycle or scooter to go to school on their own without being accompanied/driven in a car)



5. Methods

The following methods were used to collect and assess data:

1. Interviews and questionnaires administered to children (during school hours)
2. Direct on site observation of drivers' and pedestrians' behaviour
3. On-site interviews with pedestrians (adults) and drivers (driving children to the school)
4. Speed measurement



6. Sample

- Observation and measurement took place on two days (Thursday and Friday), in the morning, from 07:00 to 08:15, and in the afternoon, from 12:00 to 15:00.
- Only the **afternoon observation data** can be used for analysis (considering the effect of the police in the morning), i.e. a total of **six hours of observation**.
- The total number of situations observed (afternoon): **N = 370**
- One observation = one pedestrian or group of pedestrians crossing the street at the study site, in both directions.



6. Sample (only afternoon, 2 day, 6 hours)

Age	Frequencies
6-10 years	<u>59</u>
11-18 years	<u>24</u>
19-65 years	269
66+ years	18
N	370

→ **83
children**

Gender	Frequencies
Female	173
Male	197
N	370



7. 1. Results: questionnaires administered to children in schools

Questionnaires distributed/returned: **321/214**, *67% response rate (not all questions answered in all questionnaires)*

List of “dangerous” locations in the vicinity of the Táborská school

- 1. Crossing outside the school – area – 96x (our spot)**
2. Sezimova/Táborská crossing – 68x
3. Crossing in the Petr Rezek street area – 34x



8. 1. Results: questionnaires administered to children in schools (N = 214)

Crossing outside the school (our spot) was marked (N=96) as **the most dangerous** place near school.

The majority of the children find their route to school rather safe (2/3 of the children), while 1/3 rate it as unsafe.

Nevertheless, **70% of the children provided negative responses** to the question about whether they were **happy with the traffic infrastructure near the school.**

Most common reasons for being not happy:

- Not safe to go to or from school
- Not a good pavement for a scooter or bike
- Cars parking outside designated areas



How do children get to school and what would their preferred mode of transport be if they had a choice?

The majority of the children are **happy** with the way in which they get to school: the school is **not far away** from their homes and they can just walk.

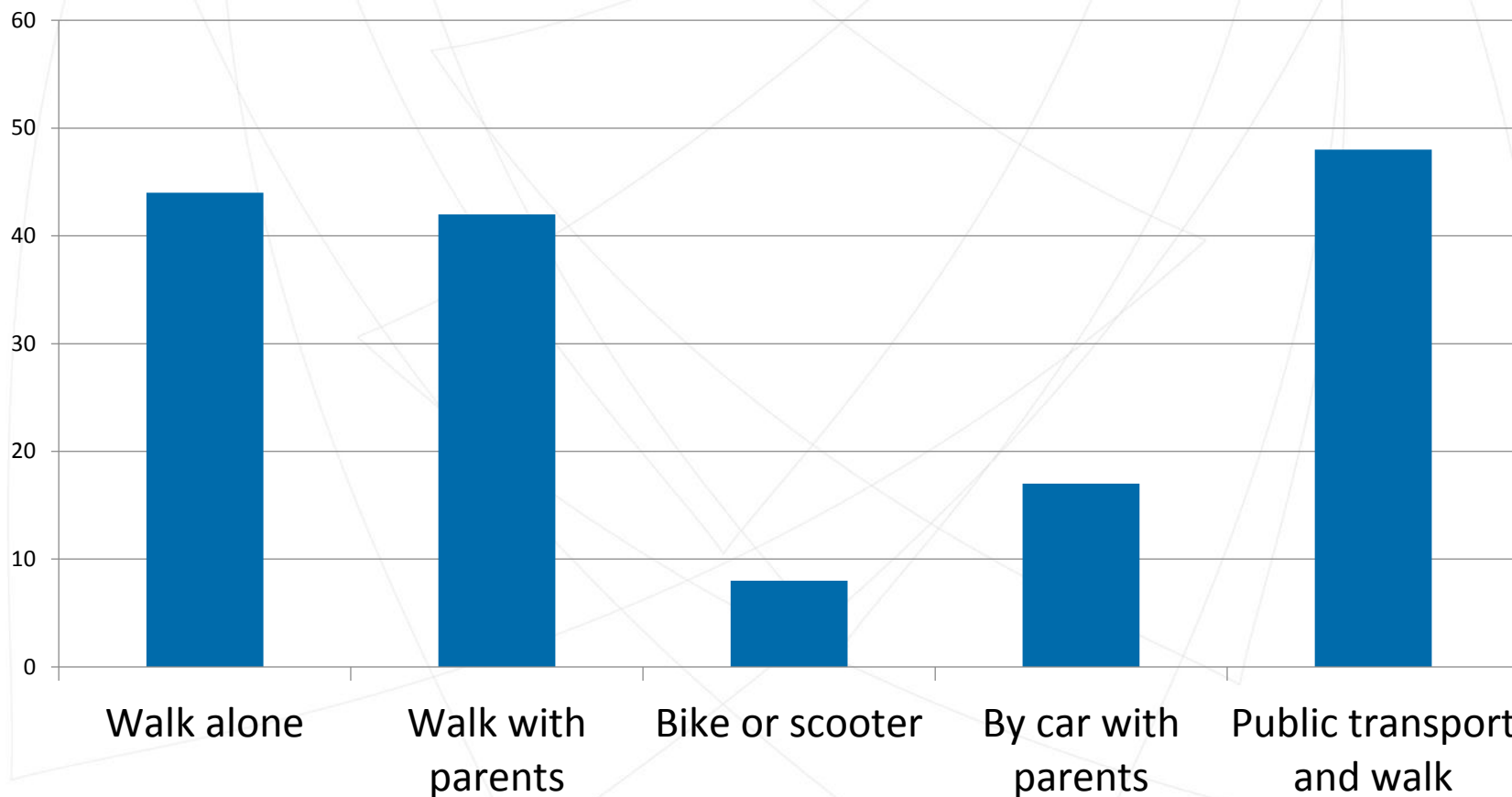
A number of the kids use **public transport** to travel to school. Only a small number of the students ride a **scooter** or **bicycle** to school, even though for **many more children** it would be a preferred mode of transport.

Other **preferred ways** of getting to school included going **by car with their parents** (or their schoolmates).



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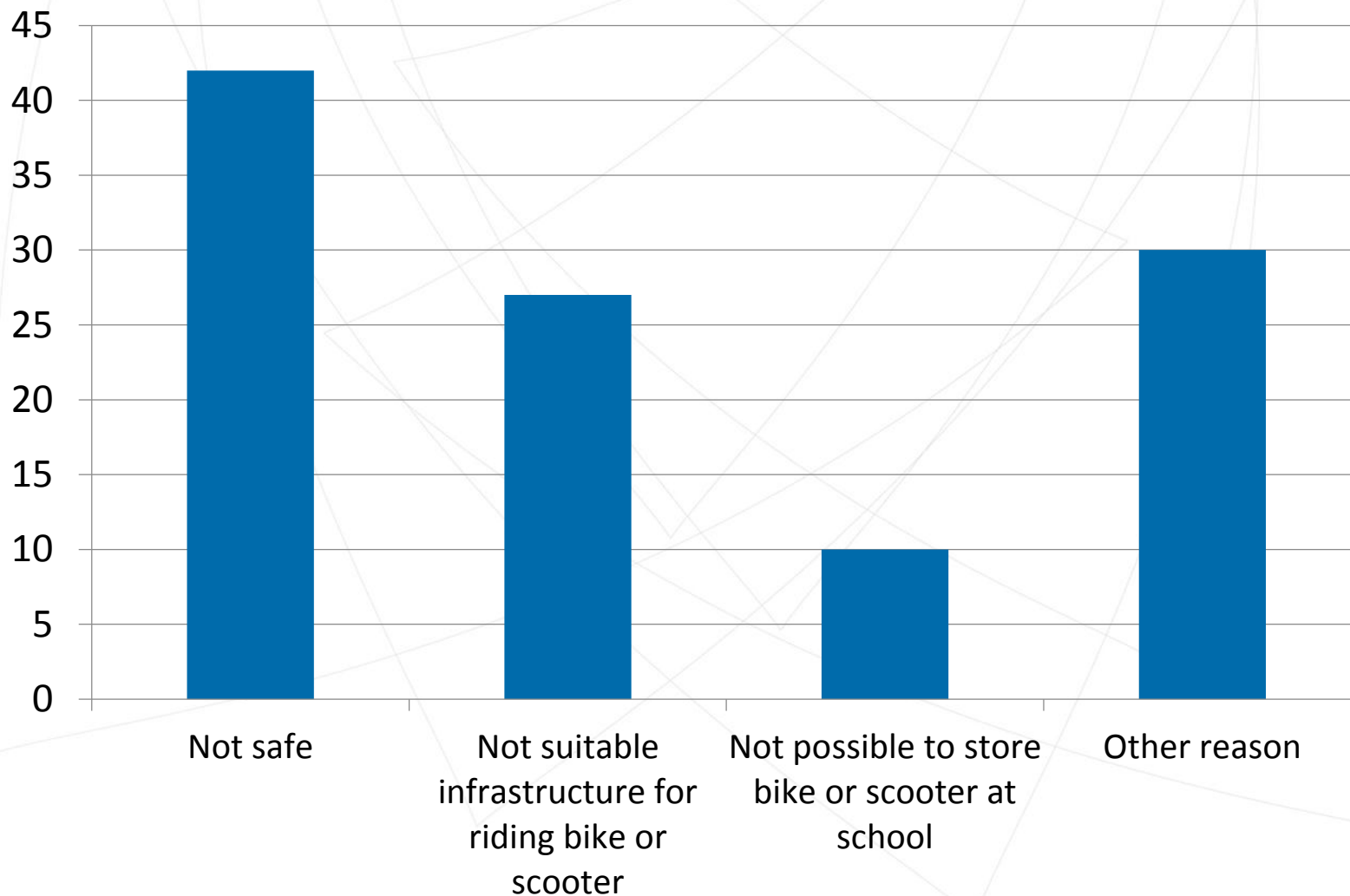
How do you travel to school?





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Why not "wished for" mode





7. 2. Results: direct on site observation

Car and pedestrian densities (per hour):

Time	Cars, both directions	Pedestrians, both directions
Morning – 07:30-08:30	667	109
Afternoon – 13:00-14:00	638	125

Pedestrians crossing on the crossing or **outside** the crossing (only afternoon, 6 hours of observation):

Crossing pattern	Frequencies
On the crossing	340 total/261 adults/79 children
Outside the crossing	30 total/27 adults/3 children
N	370



7. 2. Results: direct on site observation

Speed (limit 40 km/h)

Km/h	N	Mean	Minimum	Maximum	SD
Morning	1079	<u>28.36</u>	8	57	8.15
Afternoon	2599	<u>20.92</u>	8	50	5.22

Speed measured 2 metres before the edge of the crossing.



7. 2. Results: direct on site observation

Parents driving their children to school

Time	No. of cars driving children to/from school
Morning – 07:30-08:30	15 cars
Afternoon – 12:00-15:00	5 cars

Total number of children attending the school: 610 kids



7. 3. Results: pedestrians' comfort and subjective safety (observation and interview)

Waiting time

Waiting time (data for 12.00-15.00 times only)	Frequencies
No waiting (no car approaching)	161
Less than 5 seconds	<u>184</u>
5 to 20 seconds	25
More than 20 seconds	0
N	370



Drivers yielding to pedestrians

Yielding	202	<u>84.5%</u>
Not yielding	37*	<u>15.5%</u>

* in five cases (2%) not yielding to the child

Drivers yielding	Frequencies
Yes, slow down	113
Yes, stand still	89
No	37
No car approaching situation	131
N	370



9. Summary

- Approximately 1/3 of the children who were interviewed do not feel safe when going to or from the school.
- More or less 2/3 of the children are not happy with the traffic infrastructure near the school. Main reasons: pavement not good for scooters or bikes or cars parking outside the designated areas.
- The majority of the children walk to school or use public transport. If possible, they would prefer to use a scooter or bicycle to get to the school, or go in their parents' car.
- The speed of the cars before the crossing tends to be rather low; about 85% of the drivers yield to pedestrians. In most cases waiting time to cross the road is up to 5 seconds.
- Within a one-hour observation period in the morning before the school starts, 15 parents brought their children to school by car.



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