

STARS Project

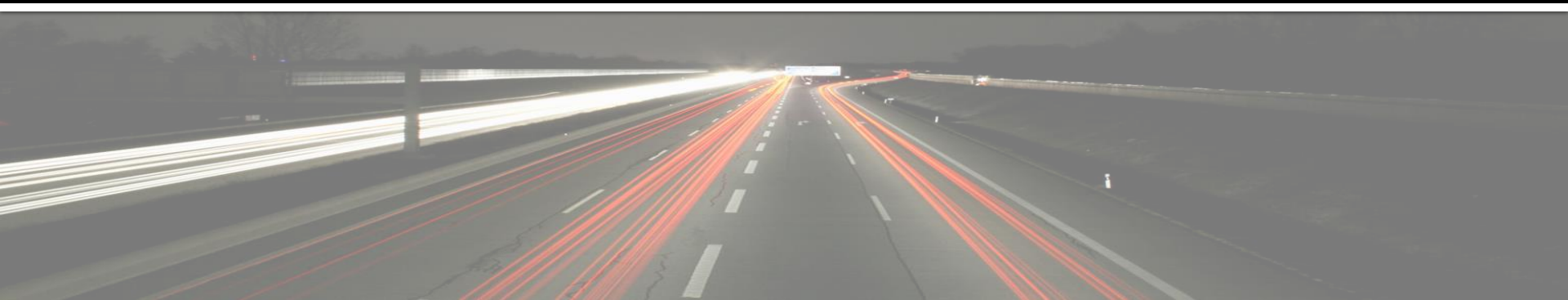
Gabelsbergerstraße Unsafe Street Crossing

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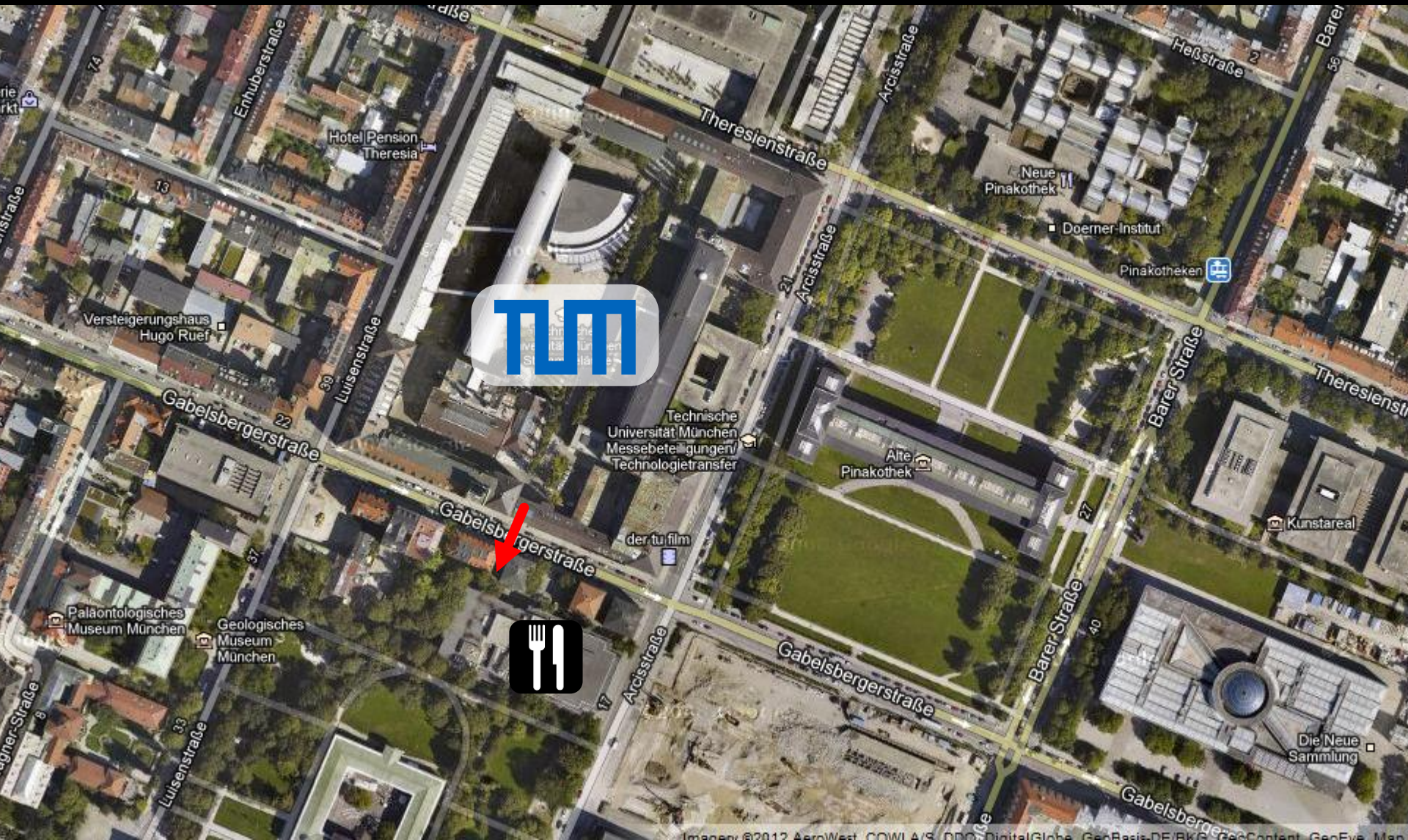
Technische Universität München



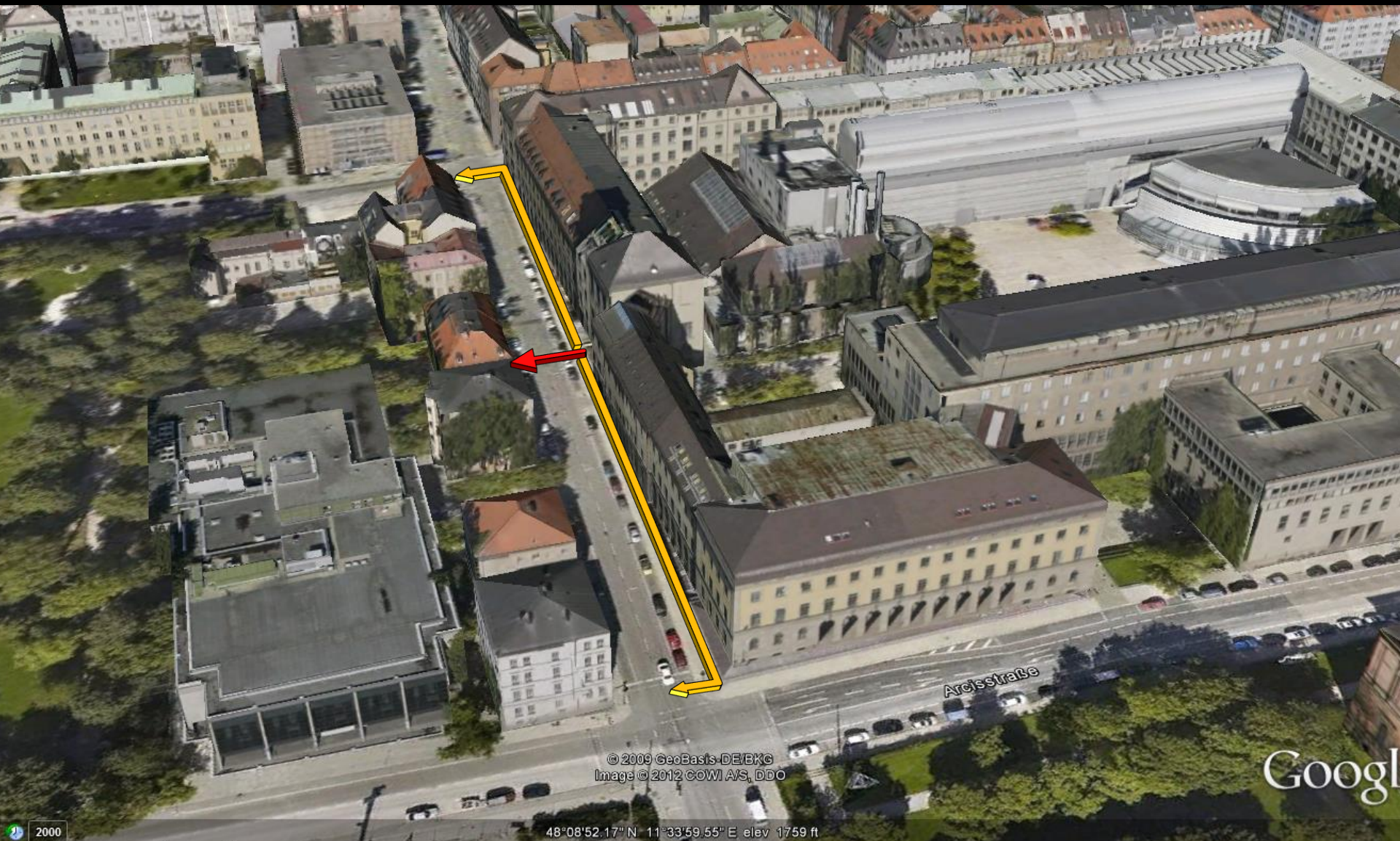
■ Project Context

- Anecdotal evidence, personal experience and site visits reveal that pedestrians feel unsafe while crossing Gabelsbergerstraße between the main Campus of Technische Universität München (TUM) and its Canteen

Project Site



Project Site



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Image © 2012 CoWi AVS, DDO

Google

48°08'52.17" N 11°33'59.55" E elev 1759 ft

Project Site

Problem:

Unsignalized crossing from campus to canteen



Project Site



Lack of signals

Limited line-of-sight



Project Site



Heavy pedestrian volumes

Preliminary Research

■ Survey

- A survey was performed which revealed that 95 out of 204 individual survey participants felt unsafe or very unsafe crossing, particularly during the peak lunch hour.

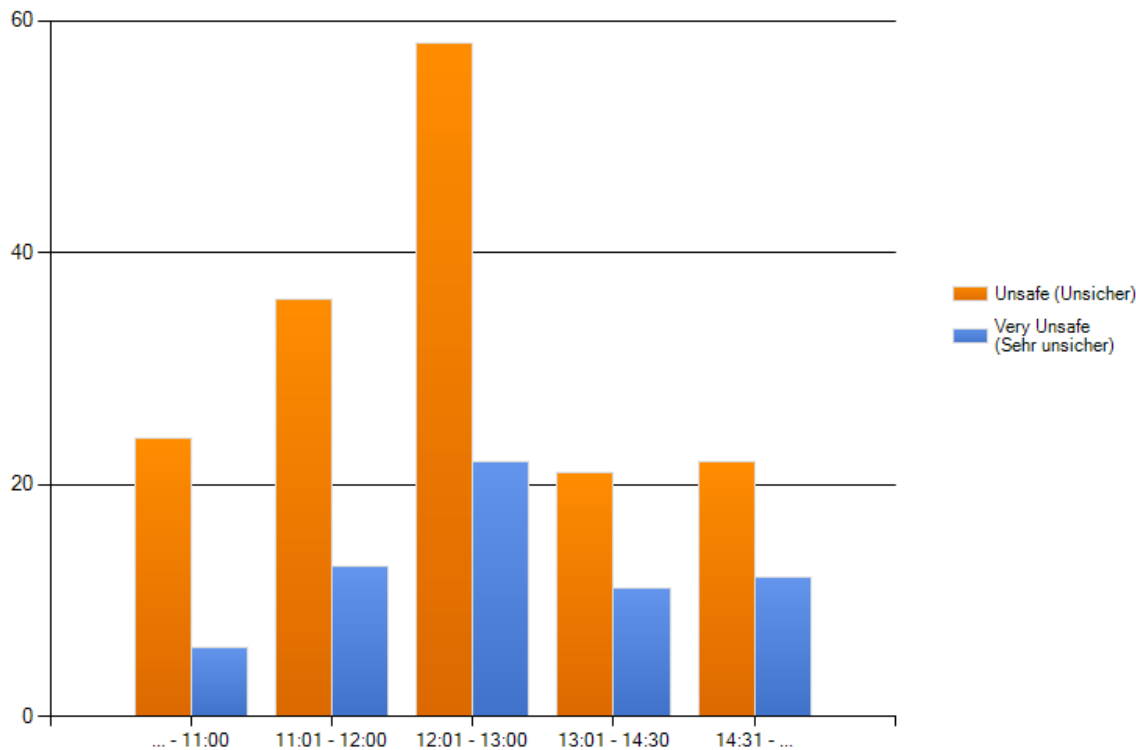
The image displays several screenshots of the STARS ETSC survey form. The questions and options are as follows:

- 1. On a typical semester day, how often do you cross above in order to go between the main TUM (Do please specify the crossing, we will describe the appropriate Stelle um Zwickeln TUM Camp geht?)**
 - Never but sometimes (Niemals aber manchmal am Tag)
 - Two times per day (Zweimal am Tag)
 - Once per day (Einmal am Tag)
 - Never (Nie)
 - Other (please specify), Anders (bitte angeben Sie welche):
- 2. On a weekly basis, how many times do you cross Gabelbergstraße at the point above in order to go between the main TUM Campus and the Mensa area? (Wie oft überqueren Sie pro Woche die Gabelbergstraße an der oben abgebildeten Stelle aus zwickeln TUM Campus und Mensa hin und her zu gehen?)**
 - 1 or less (once or twice)
 - 3 - 10
 - 11 - 15
 - 16 - 20
 - 21 or more (over many)
- 3. At what time do you usually cross Gabelbergstraße at the point shown above? (Zu welcher Zeit überqueren Sie zu der Regel die Gabelbergstraße an der oben abgebildeten Stelle? Mehrfachnennungen sind möglich.)**
 - ... 11:00
 - 11:01 - 12:00
 - 12:01 - 12:30
 - 12:31 - 14:00
 - 14:31 ...
- 4. How safe do you feel while crossing? (Wie sicher fühlen Sie sich bei dem Überqueren?)**
 - Very safe (sehr sicher)
 - Safe (sicher)
 - Neutral (neutral)
 - Unsafe (unsicher)
 - Very unsafe (sehr unsicher)
 - Other (please specify), Anders (bitte angeben Sie welche):
- 5. What is your relationship to TUM? (Was zu welcher Organisation gehören Sie an der?)**
 - Student (Student)
 - Alumni (Alumnus)
 - Faculty (Lehrkraft)
 - Staff (Mitarbeiter oder Angestellter)
 - Other (please specify), Anders (bitte angeben Sie welche):
- 6. Which category below includes your age? (Zu welcher Altersgruppe gehören Sie?)**
 - 18 or younger (junge Leute)
 - 19 - 20
 - 21 - 30
 - 31 - 40
 - 41 - 50
 - 51 - 60
 - 61 or older (over 60)
- 7. What is your gender? (Welcher Geschlecht sind Sie?)**
 - Male (männlich)
 - Female (weiblich)
- 8. How many times were you involved in an unsafe crossing at the point shown above? (Wie oft waren Sie schon einmal einem Unfall ausgesetzt, wenn an der oben abgebildeten Stelle der Gabelberg?)**
 - 0 - 10
 - 11 - 20
 - 21 or more
- 9. If you would you provide a brief description of us (Wenn ja, können Sie den Verlauf bitte kurz schildern)**
 -
- 10. Any additional comments/questions/suggestions (Comments, Fragen, Vorschläge, Anregungen?)**
 -

Preliminary Research

■ Survey Main Results

At what time do you usually cross Gabelsbergerstraße at the point shown above?
Multiple answers are possible. (Zu welcher Zeit übergehen Sie zu der Regel die
Gabelsbergerstraße a der oben abgebildeten Stelle? Mehrfachnennungen sind
möglich.)



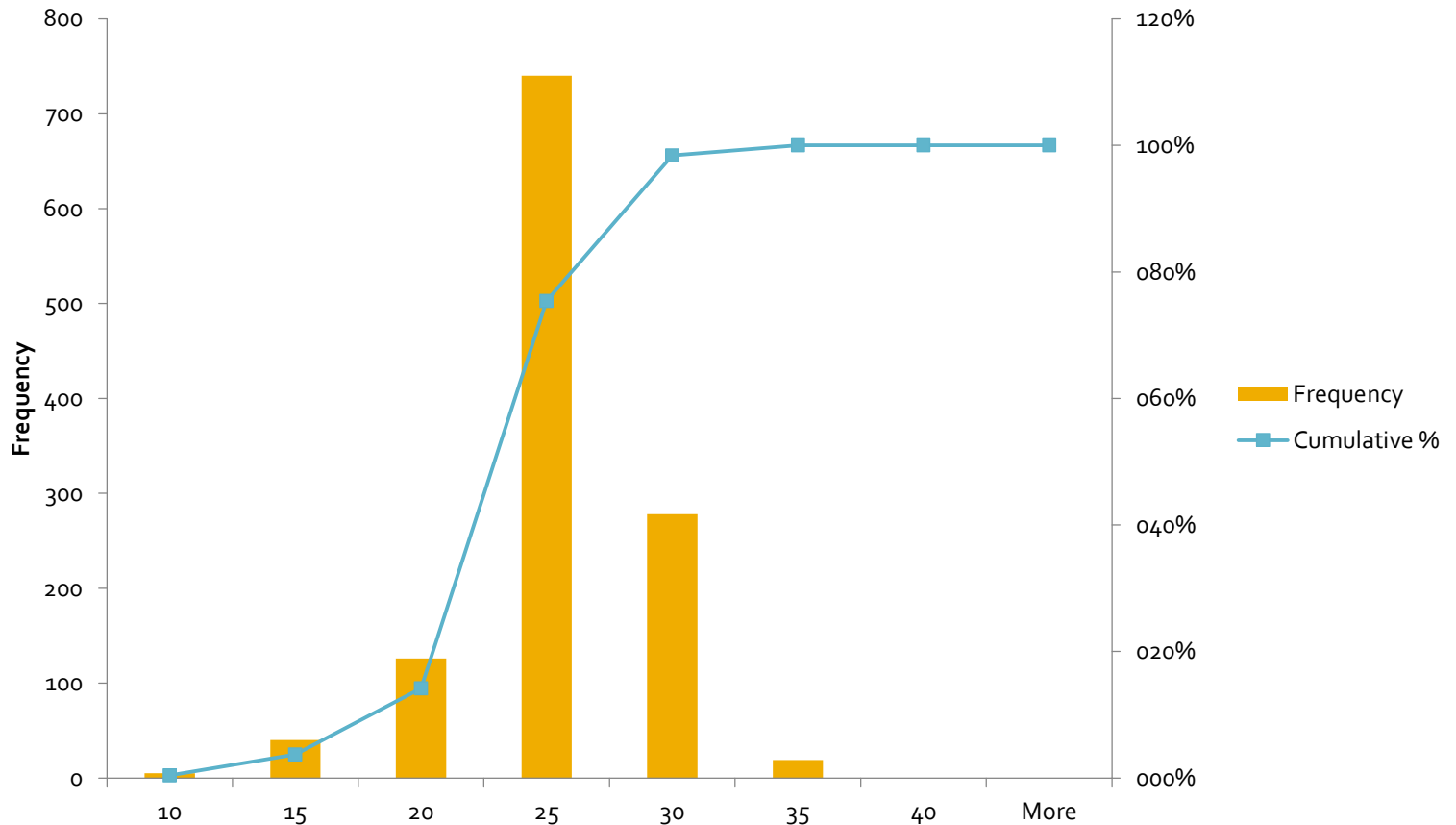
Preliminary Research

Preliminary Speed Measurements



Preliminary Research

Preliminary Measurements Results Histogram



Preliminary Research

■ Results

- Four main problems in the project area were identified:
 - Perceived pedestrian danger
 - Lack of information for drivers regarding pedestrians traversing at an unsignalized crossing between two signalized intersections
 - Limited line-of-sight due to parked cars
 - Potentially unsuitable traffic speed

Initial Idea

Goal:

Direct attention of drivers to pedestrians

Potential Solution(s):

- Horizontal markings (e.g. zebra stripes)
- Reorganize parking around crossing
- Pedestrian detection signals (e.g. flashing)



Initial Idea



Parking spot elimination
to increase line-of-sight



Project Work

- **Difficulties**

- Language barrier and strict German laws
- Making appointments to contact the right people

- **Solution**

- Enlist aid from TUM's Chair of Traffic Engineering and Control to obtain a contact point at the City's Department of Traffic

Project Result

- **New Signage**

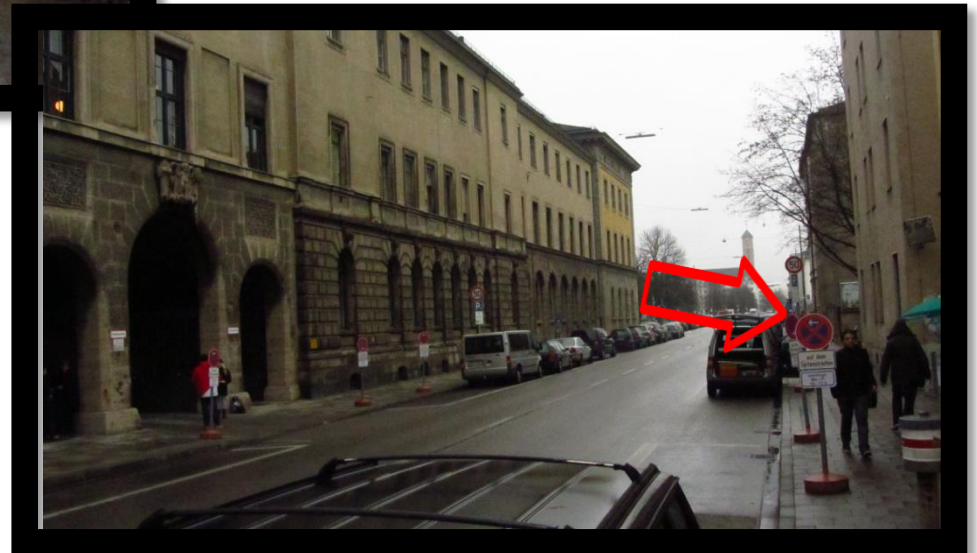
- In cooperation with Mr. Robert Neuner and the City of Munich, temporary equipment and signage were installed at the project site after many discussions, multiple meetings, and different proposals.

Project Result



New signage redirects drivers' attention to pedestrians crossing

Ahead of the crossing and at the actual crossing



Project Result



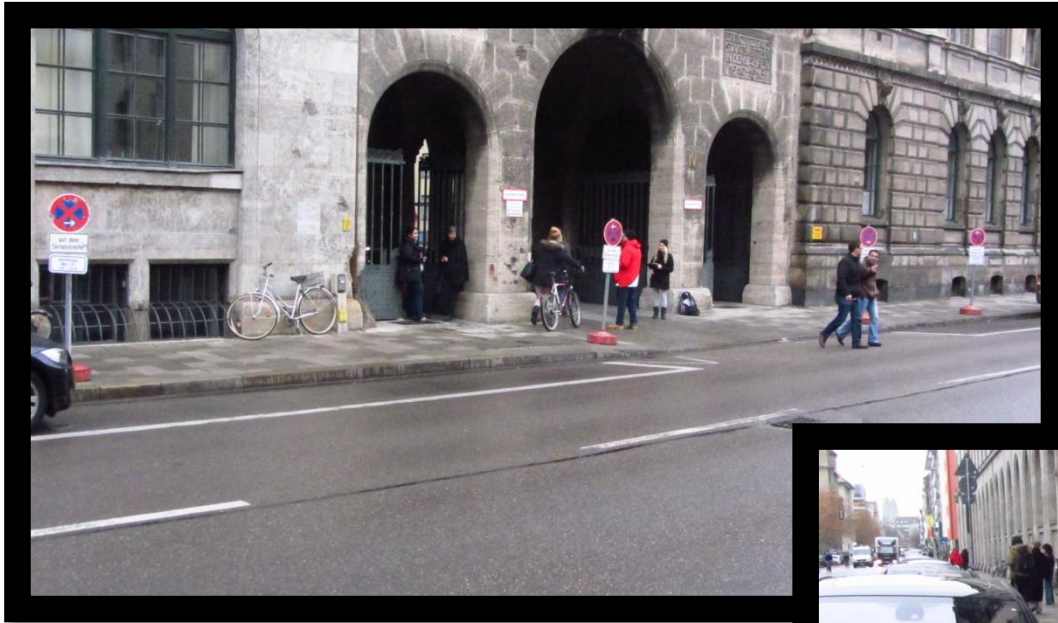
New signage
reduces speed limit
from 50 to 30 km/hr
Monday to Friday
during peak lunch
traffic (10-12h)

Project Result



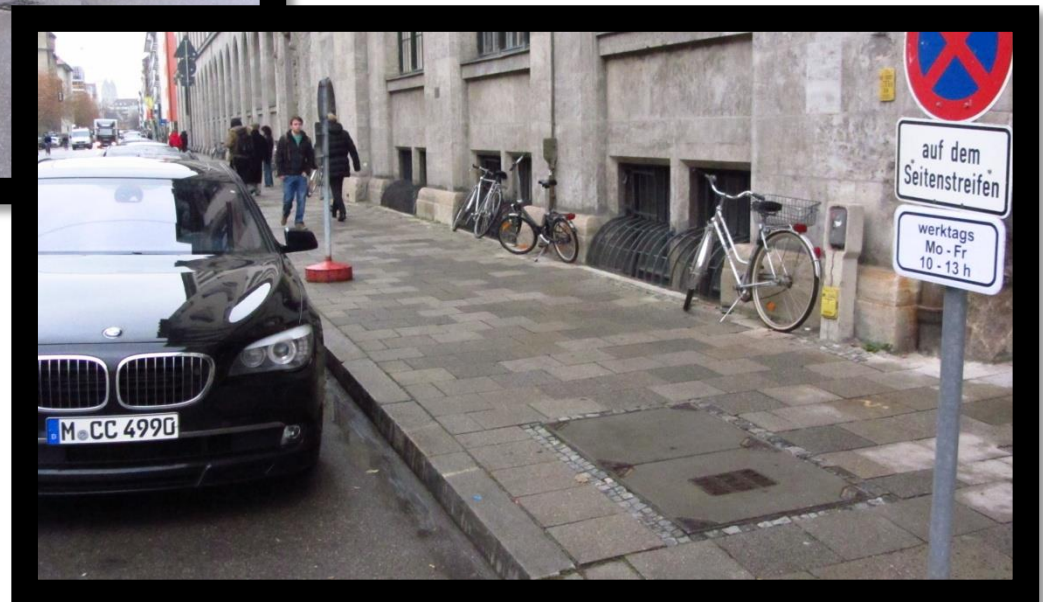
New signage eliminates 4 parking spots Monday to Friday during peak lunch traffic (10-13h)

Project Result



thereby increasing
line-of-sight

New signage
eliminates parking
near pedestrian
crossing



Project Result



Project Result

- **Speed Measurements 2 Days After Implementation**

Allowed Speed Limit	50 km/hr
New Reduced Speed Limit (during peak lunch hours)	30 km/hr
Avg. Speed Measured 230 Meters Before Project Crossing*	~ 48 km/hr
Avg. Speed Measured At Project Crossing**	~ 41 km/hr
Total Avg. Speed Reduction	~ 7 km/hr



**15%
Decrease!!!**

*52 vehicles, **90 vehicles

Project Result

- **Speed Measurements 3 Weeks After Implementation**

Allowed Speed Limit	50 km/hr
New Reduced Speed Limit (during peak lunch hours)	30 km/hr
Avg. Speed Measured 230 Meters Before Project Crossing*	~ 49 km/hr
Avg. Speed Measured At Project Crossing*	~ 26 km/hr
Total Avg. Speed Reduction	~ 23 km/hr



**47%
Decrease!!!**

*100 vehicles

Project Result

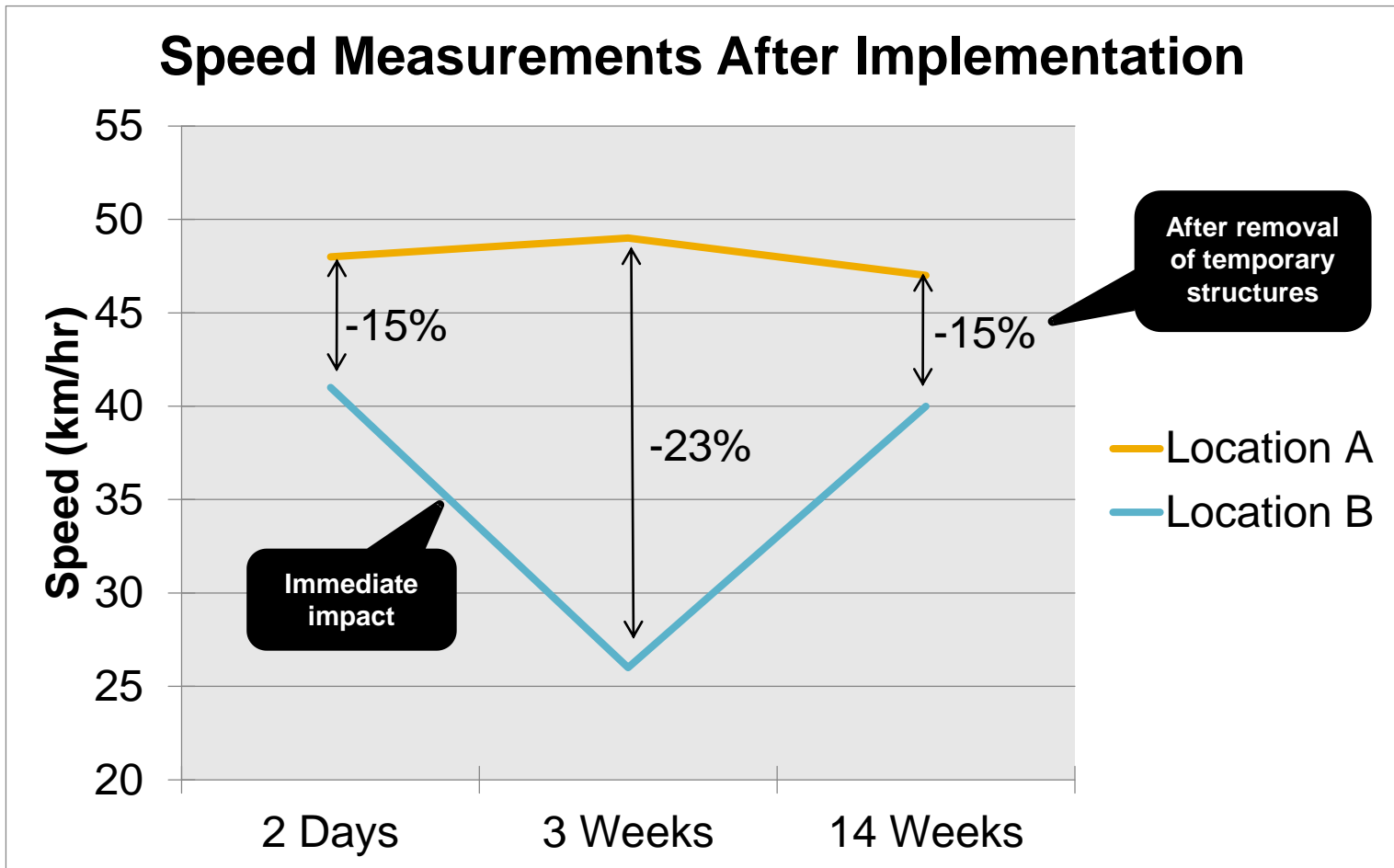
- **Speed Measurements 14 Weeks After Implementation**

Allowed Speed Limit	50 km/hr
New Reduced Speed Limit (during peak lunch hours)	30 km/hr
Avg. Speed Measured 230 Meters Before Project Crossing*	~ 47 km/hr
Avg. Speed Measured At Project Crossing*	~ 40 km/hr
Total Avg. Speed Reduction	~ 7 km/hr



*90 vehicles

Project Result



Next Steps

- Report detailing results as well as speed measurements has been delivered to the City's Department of Traffic and City Planning
- Two important results:
 - It is possible to improve traffic safety by simply installing street signs and not changing street infrastructure
 - The temporary signage and equipment installed reduced speed and improved safety thus potentially warranting a more permanent solution
- City will conduct an in-depth traffic flow analysis to determine the next steps

Lessons Learned

- Be creative
- Find a partner, not a sponsor
- Find a way to cooperate
- Barter
- Be persistent

