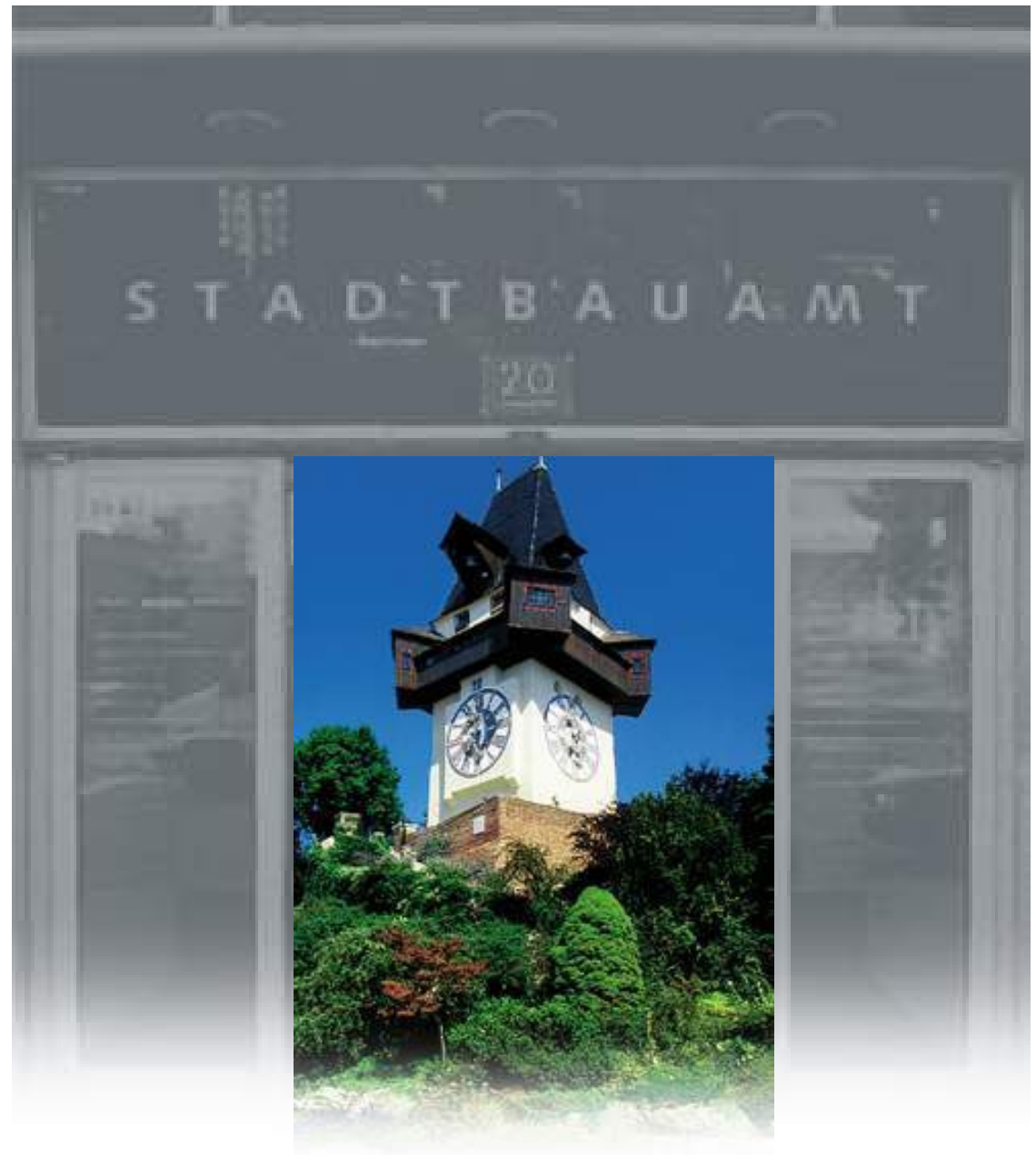


# ***Traffic Safety in Graz***



**Dipl.-Ing. Thomas FISCHER**

Reggio Emilia, 22. October 2010



# ***Traffic Safety in Graz***

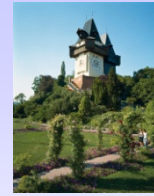


2

## ***Overview***

- **General data and statistics**
- **Planning principles**
- **Tempo 30/50 project**
- **Traffic Safety Activities**

# ***Traffic Safety in Graz***

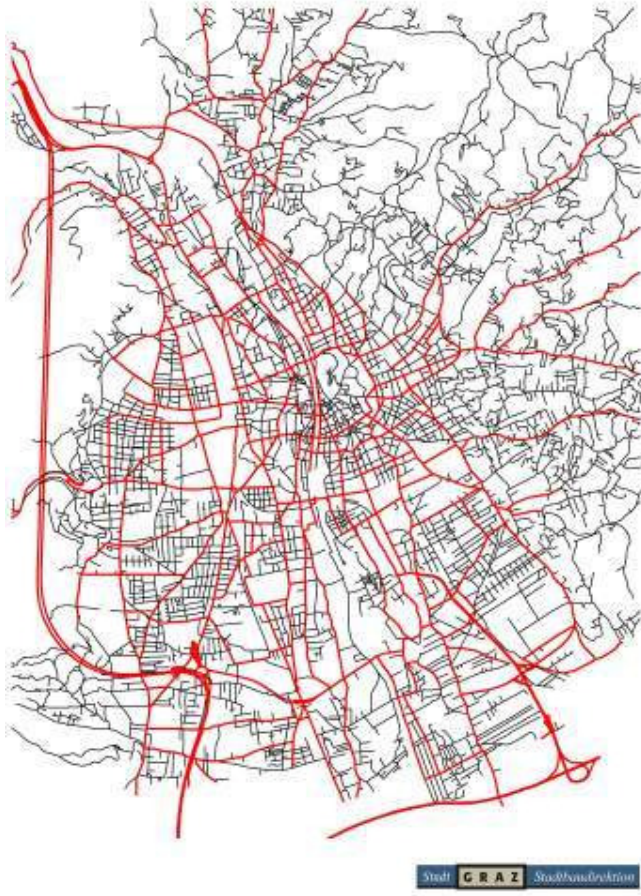


3

## ***City of Graz***

- **European Cultural Capital City 2003**
- **Area 127 km<sup>2</sup>**
- **~ 255.000 inhabitants** (1991: 238.000)
- **~ 121.000 jobs** (1991: 134.000)
- **District Graz–Umgebung (surroundings)**
  - 131.000 inhabitants (1991: 118.000)
  - 36.000 jobs (1991: 26.000)

# ***Traffic Safety in Graz***



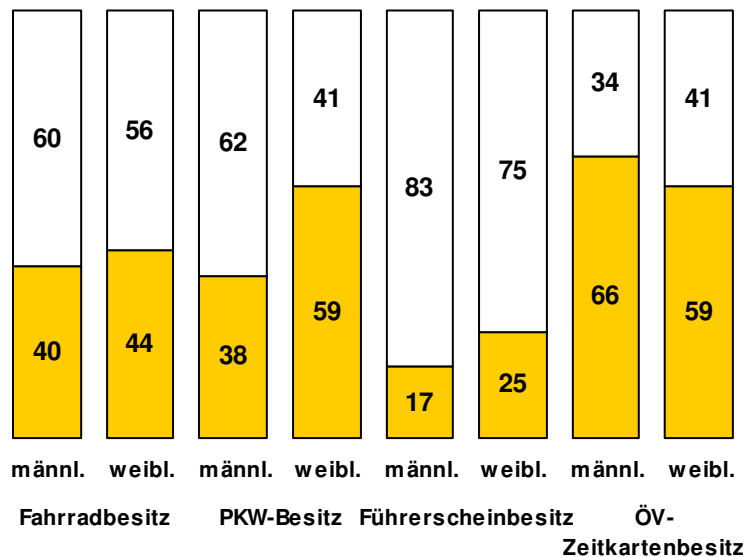
4

## ***Infrastructure***

- **Bicycle route network** ~ 116 km
- **Public transport network** ~ 392 km
  - Tram (6 lines) ~ 49 km
  - Bus (37 lines) ~ 343 km
- **Road network** ~ 996 km
  - Priority roads ~ 194 km
  - Roads without priority ~ 802 km

# Traffic Safety in Graz

Ownership of bikes, cars,  
driving-licenses and PT- tickets



5

## Mobility of the population

- On average every inhabitant makes **3.7 trips per day** (2004: 3,7)
- He/she covers **23,5 km on average** (2004: 23 km)
- And spends **83 minutes in traffic** (2004: 78 min.)
- **0.9 million trips are made every day in Graz** (2004: 1.1 mio.)

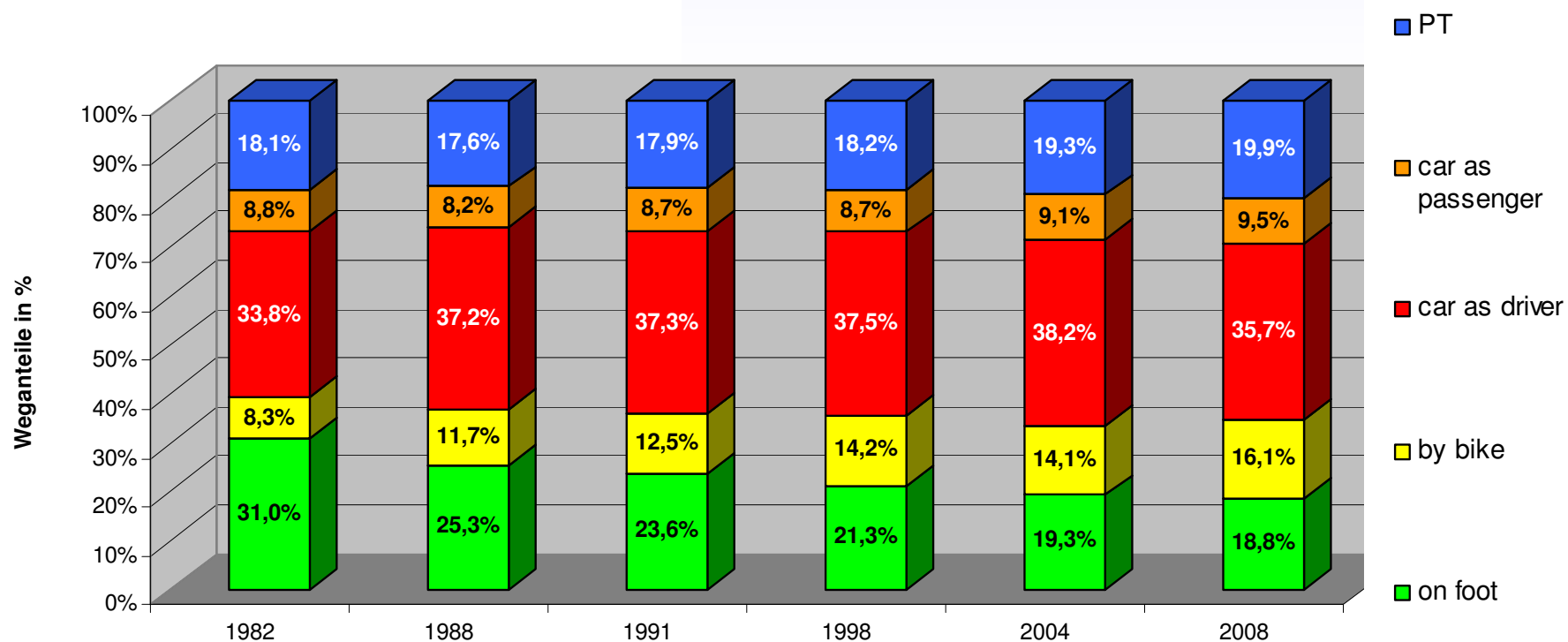
mobility survey 2008

# Traffic Safety in Graz



6

## Modal Split – mode choice



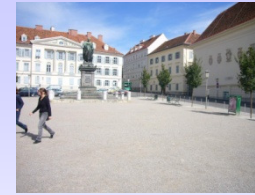
mobility survey 2008

Reggio Emilia, 22. October 2010

# Traffic Safety in Graz



Reggio Emilia, 22. October 2010

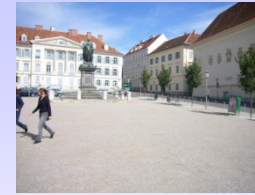


10

## Gentle Mobility – Ideas for the Future

- first strategies of environmental handling of transportation already in the early 70
- traffic concept 1992
  - 3 scenarios
    - extrapolation of the trend
    - car-friendly city
    - „Gentle Mobility“
- transport policy 2000  
„Gentle Mobility“

# Traffic Safety in Graz

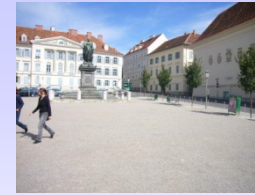


11

## Planning principles *Policy Guidelines*

- Graz – a city of **good accessibility**
- Graz – a city of **short distances**
- Graz – a city with **a balanced distribution of the means of transport**
- Graz – a city with **socially and environmentally compatible traffic**
- Graz – a city with **grass roots planning and public participation**

# Traffic Safety in Graz

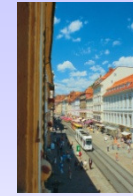


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## The idea of Gentle Mobility

- developed since 1980
- Gentle Mobility
  - forcing of the environmental group (pedestrians, bike, PT)
  - reduction of car use on a necessary level
  - speed reduction (Tempo 30/50)
  - on-road parking management

# Traffic Safety in Graz

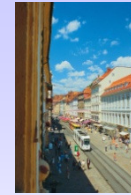


13

## Planning principles: **Gentle Mobility since 1980**

- **Priority for environmental friendly modes**
  - **Creation of a „green network“**
    - Permeability for foot and bike network
    - Direct connection to city centre and city quarter centres
  - **Making public transport more attractive**
    - User friendly stops
    - Modern vehicles
    - working reliability, securing connections, correct timetables
    - Extension and priority measures

# Traffic Safety in Graz

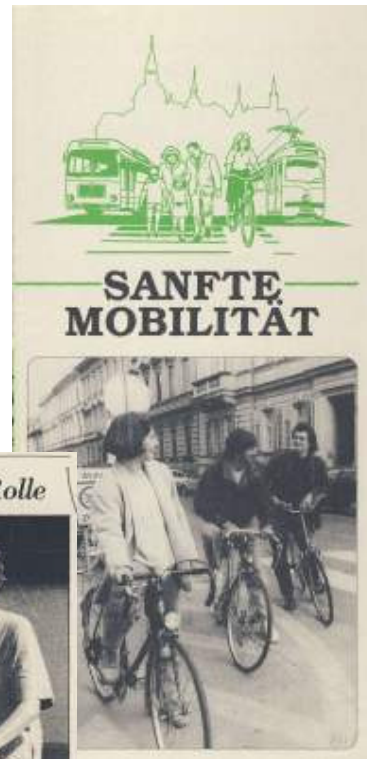


14

## Planning principles: **Gentle Mobility since 1980**

- **Keeping through traffic out of residential areas**
  - Closing gaps in the priority road network
  - Direct link-up of industrial and commercial areas with the priority road network
- **Parking management**
  - Park & Ride at the city edges and in the region
  - Different tariff zones
  - Extension of short term parking zones
  - Garages in residential areas
- **Speed reduction**
  - Tempo 30/50

# Traffic Safety in Graz



Mit einem europaweit einzigartigen Modellversuch wird heute, Dienstag, in Graz begonnen: Im gesamten Stadtgebiet gilt mit Ausnahme der Vorangstraßen Tempo 30. Die Politiker der Stadt versprechen den Bürgern auf Plakaten mehr Lebensqualität durch das neue Tempolimit. (Chronik)



15

## 7 Reasons for Tempo 30/50

- a request of inhabitants
- selective T 30/50 areas are less plausible, social unfair and expensive
- T 30/50 model is a coherent concept
  - easy to understand
  - plausible
  - fair
  - immediately active
  - economical
  - better for the cityscape

# Traffic Safety in Graz



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## 7 Reasons for Tempo 30/50

- permanent control necessary
- scientific concomitant checkup to optimise
- stop for special regulations in living areas
- road traffic regulation ask for traffic safety



# ***Traffic Safety in Graz***



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## ***Traffic calming in Graz***

- only 2 different speed limits in the city
- 194 km priority roads (50 km/h)
- 802 km roads without priority (30 km/h)
- 80 % of traffic on priority roads



# ***Traffic Safety in Graz***



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## ***Realisation***

- resolution in Mai 1992
- transformation of 1200 junctions
- information campaign
- measures (marking, sign-posting)
- start: 1. September 1992
- 1<sup>st</sup> city in Europe



# Traffic Safety in Graz



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## Strategy of Information

- **before the start:**
  - general motivation (road safety)
  - public assemblies and discussions
  - mobile information
  - Handbills, folders
  - media campaigns
- **after the start**
  - information about the results
  - media campaigns

# Traffic Safety in Graz

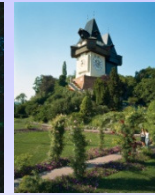


20

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# Traffic Safety in Graz



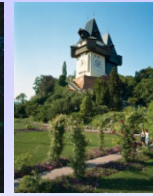
21



## Strategy of Information

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# ***Traffic Safety in Graz***

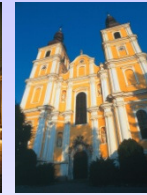


22

## ***Information on Road***

- Signs at the city edges
- multi lingual signs
- road markings
- banners
- info signs

# ***Traffic Safety in Graz***



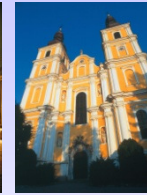
23

## ***Speed Controlling***



- **Co-operation with the police**
- **Results of 1997:**
  - 317.000 controls
  - 180.000 infringements
  - 145.000 punishments
  - 3.542 announcements by police
- **Private speed controlling since 2006**

# Traffic Safety in Graz



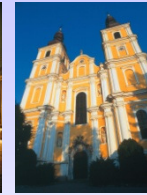
24

## Startup Costs (€)

- scientific consulting: 120.000
  - campaigns: 25.000
- **preparation: 145.000**
  
- campaign: 45.000
  - signposting: 100.000
  - marking: 95.000
- **introduction 240.000**
  
- **total costs: 385.000**



# ***Traffic Safety in Graz***

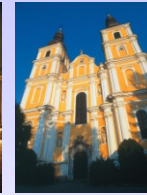


25

## ***Running Costs Per Year (€)***

- |                                  |                 |
|----------------------------------|-----------------|
| maintenance:                     | ~80.000         |
| campaigns:                       | ~30.000         |
| • <u>running costs per year:</u> | <u>~110.000</u> |

# Traffic Safety in Graz



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## Legal Background

- regulation by the mayor according to § 43 Abs. 1 und Abs. 2 StVO 1960 –  
„traffic safety“
- annulment by supreme court because of no legal background (§ 20 StVO) for regional speed limits (V123/94, V167/94, V168,94, V298/94)
- creation of this legal background with the 19. StVO-novella, BGBl. 518/1994



# ***Traffic Safety in Graz***



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## ***Effects - Results***

- speed level
- accidents
- air pollution
- traffic noise
- choice of route
- opinion of the inhabitants



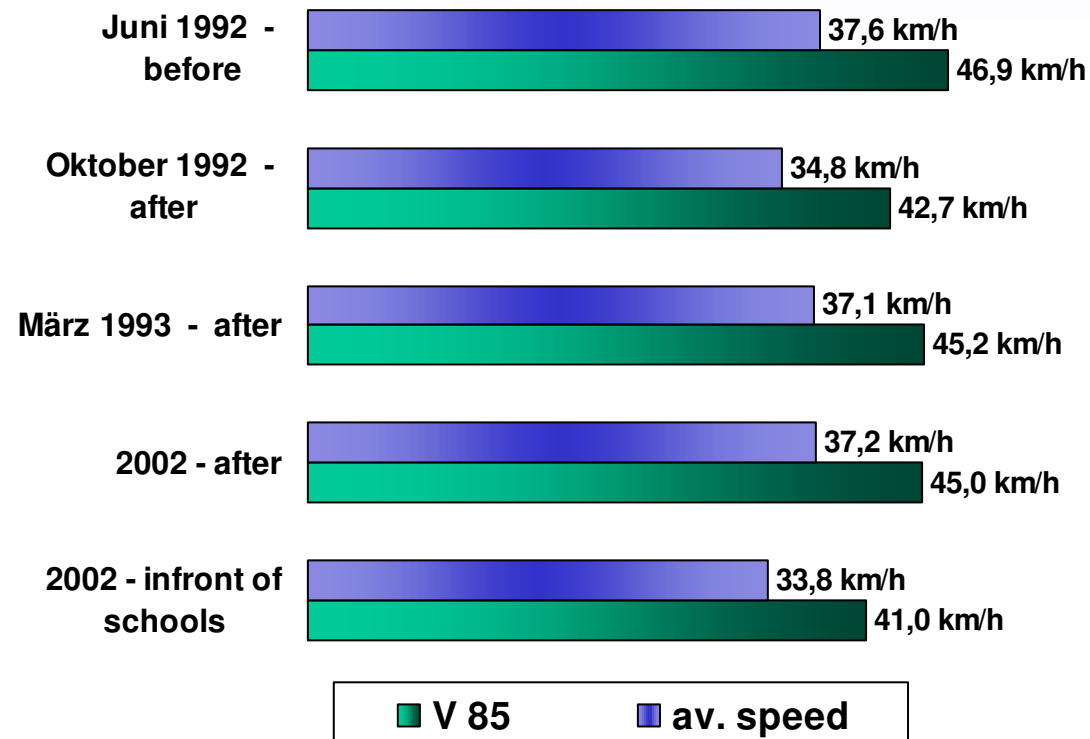
# Traffic Safety in Graz



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## Effects – Results

### Changing of Speed - level

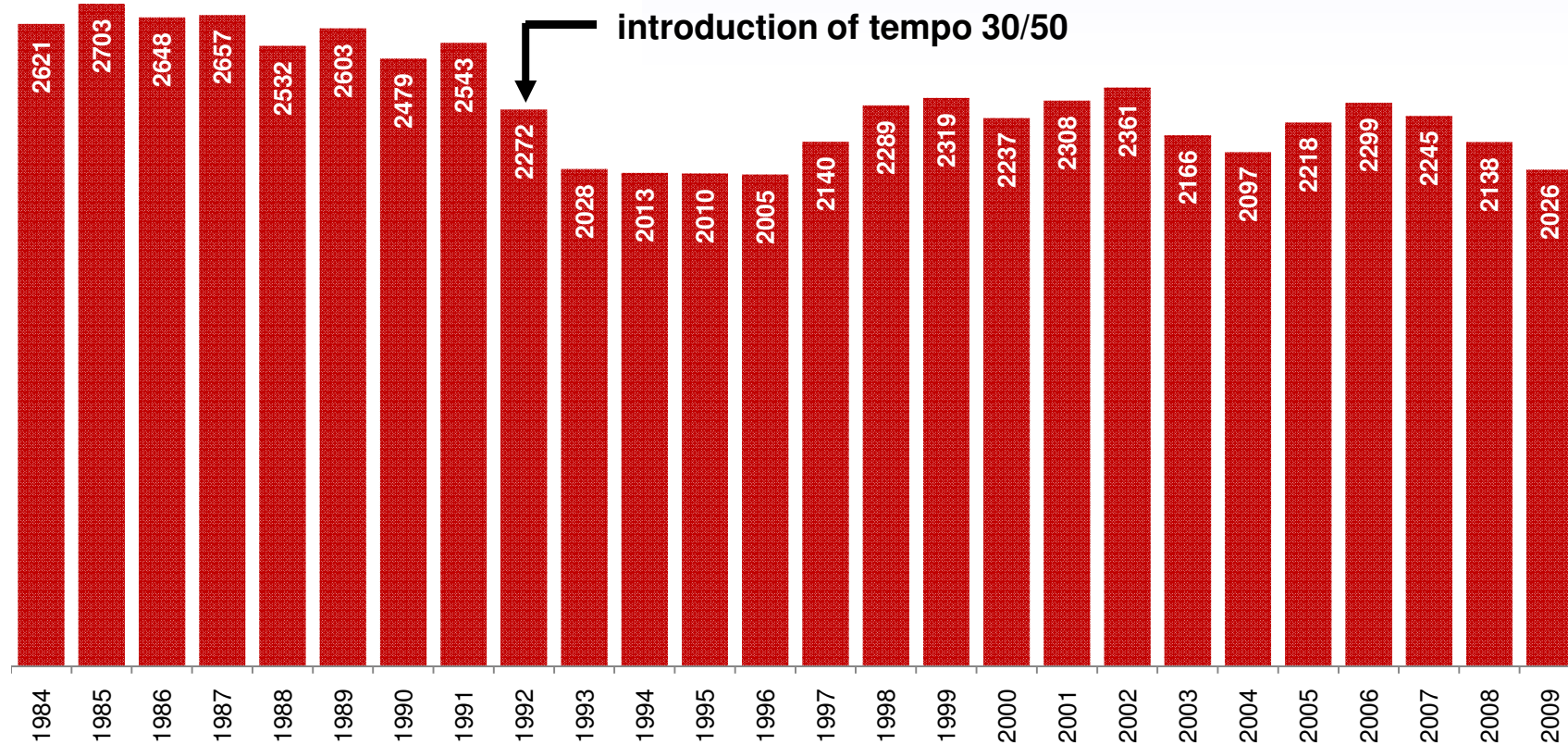


# Traffic Safety in Graz



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## Effects – Results Changing of Accidents



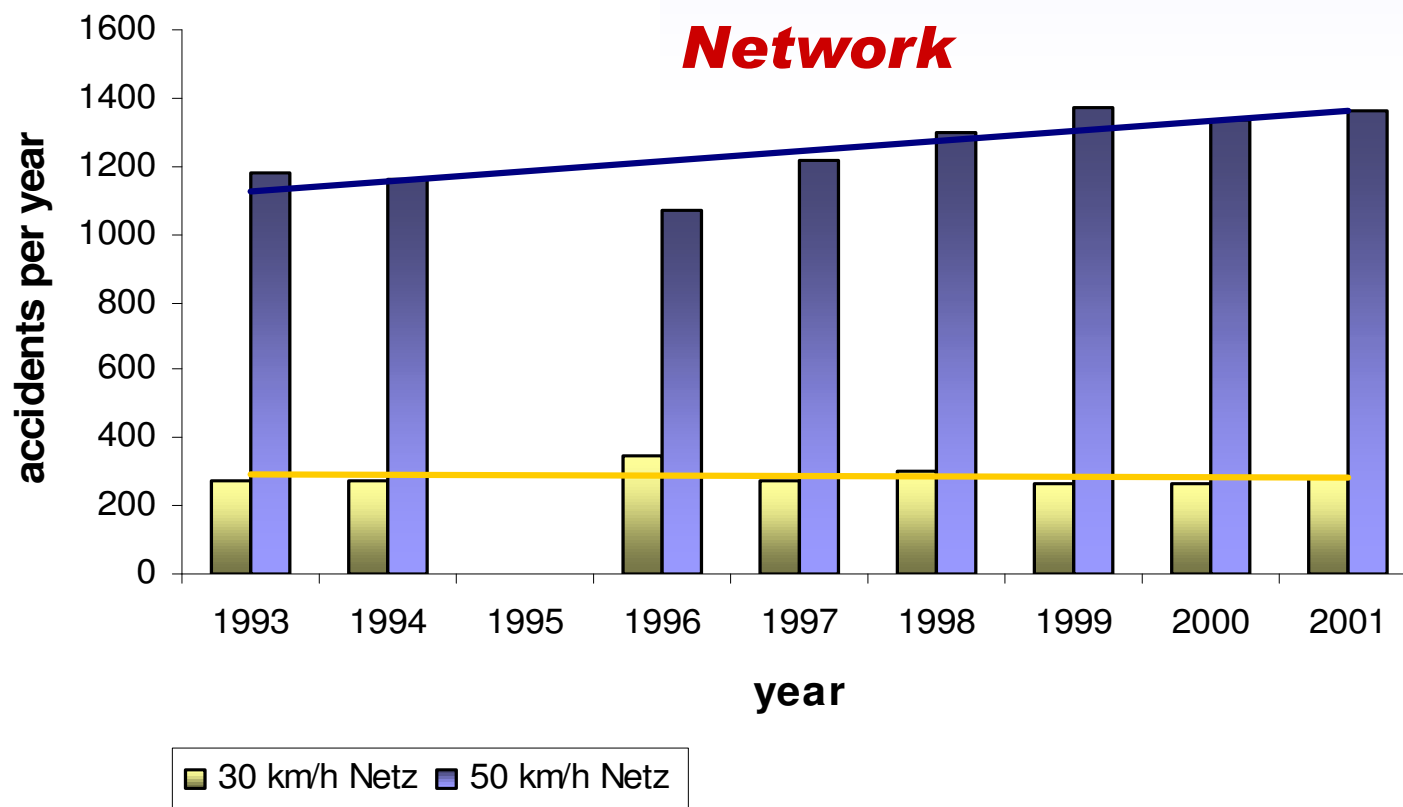
# Traffic Safety in Graz



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## Effects – Results

### Accidents in 30/50 km/h - Network

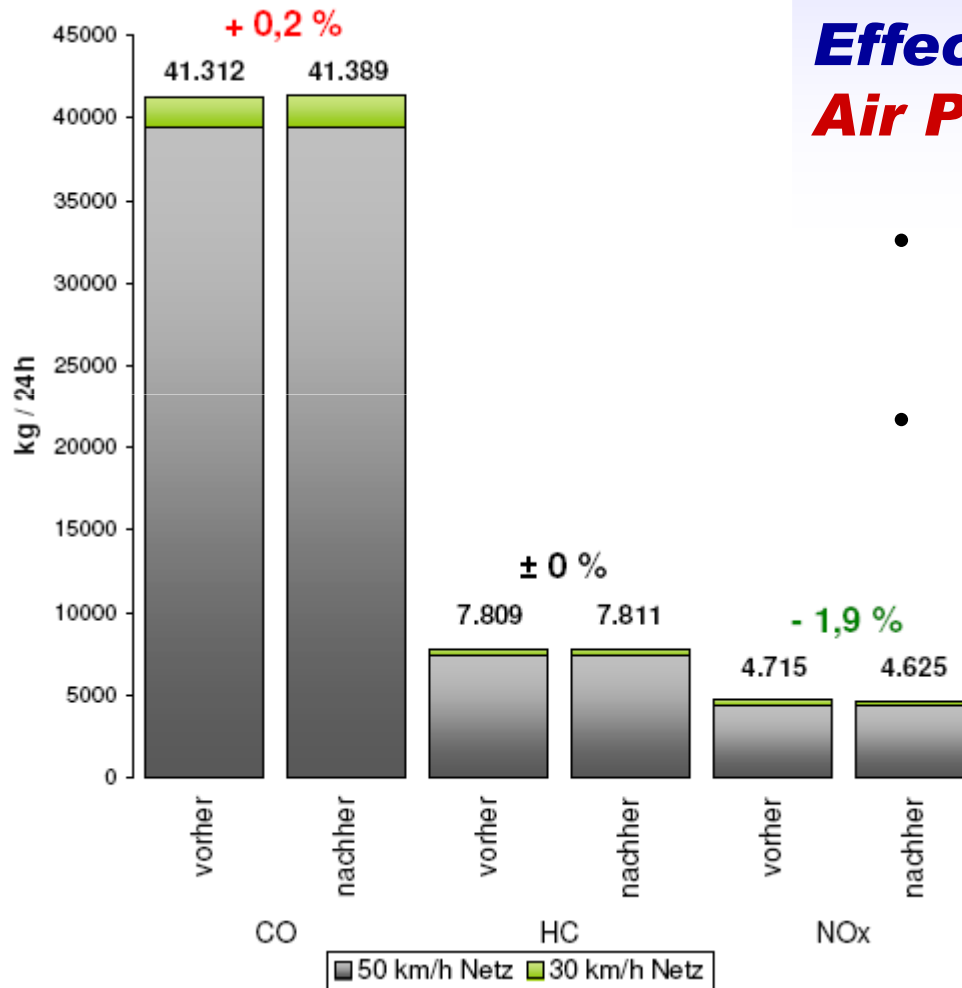


# Traffic Safety in Graz



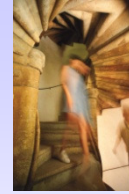
31

## Effects – Results Air Pollution



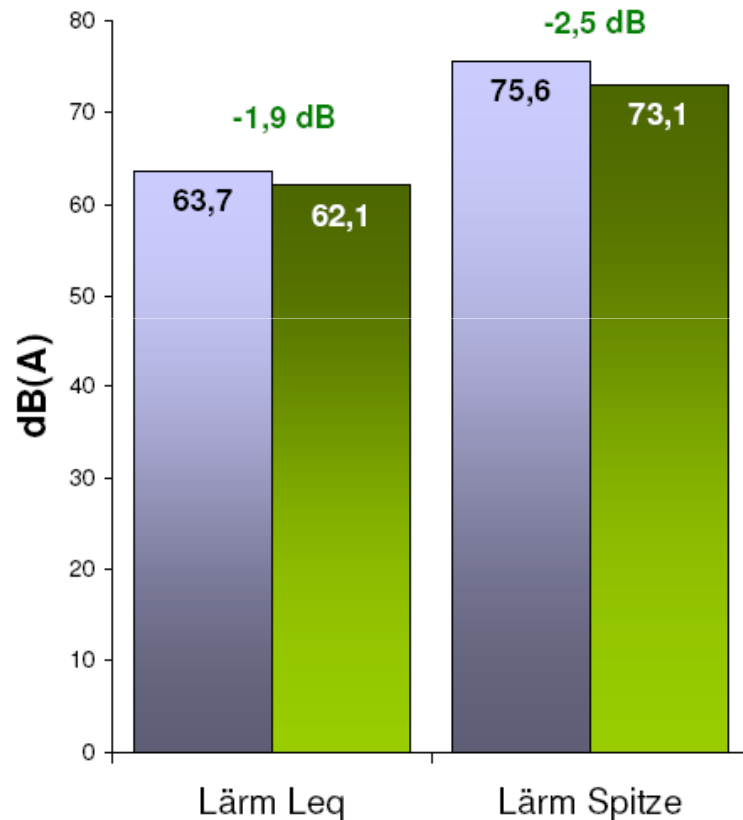
- biggest part of pollution from priority network
- only between 5% to 8% from 30 km/h network
- tends to decrease NO<sub>x</sub>
- no influence in fuel consumption

# Traffic Safety in Graz



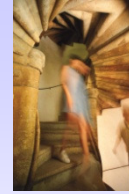
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## Effects – Results Traffic Noise



- **permanent sound level**  $L_{eq}$  decrease in Tempo 30 – network in average between 0,9 and 1,9 dB(A)
- reduction by **peak sound level** between 0,9 and 2,5 dB(A)

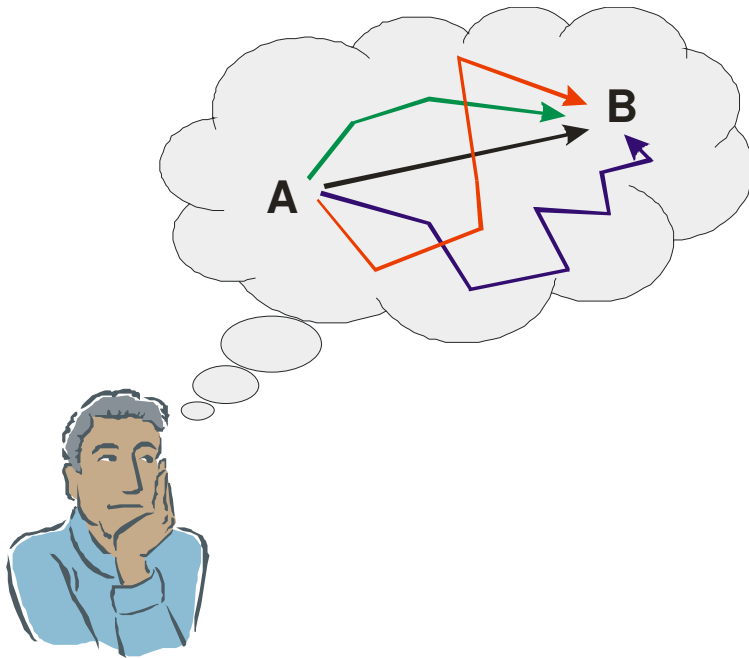
# Traffic Safety in Graz



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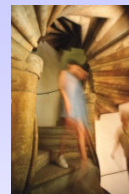
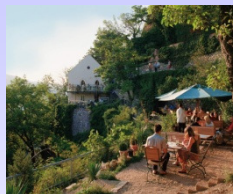
## Effects – Results Choice of Routes

- survey of traffic behaviour from over 10.000 households
- out of it 230 detailed interviews
- only 1,5% of the daily routes were changed
- increase of traffic performance about only 0,9%



*The expected traffic-jam didn't happen!*

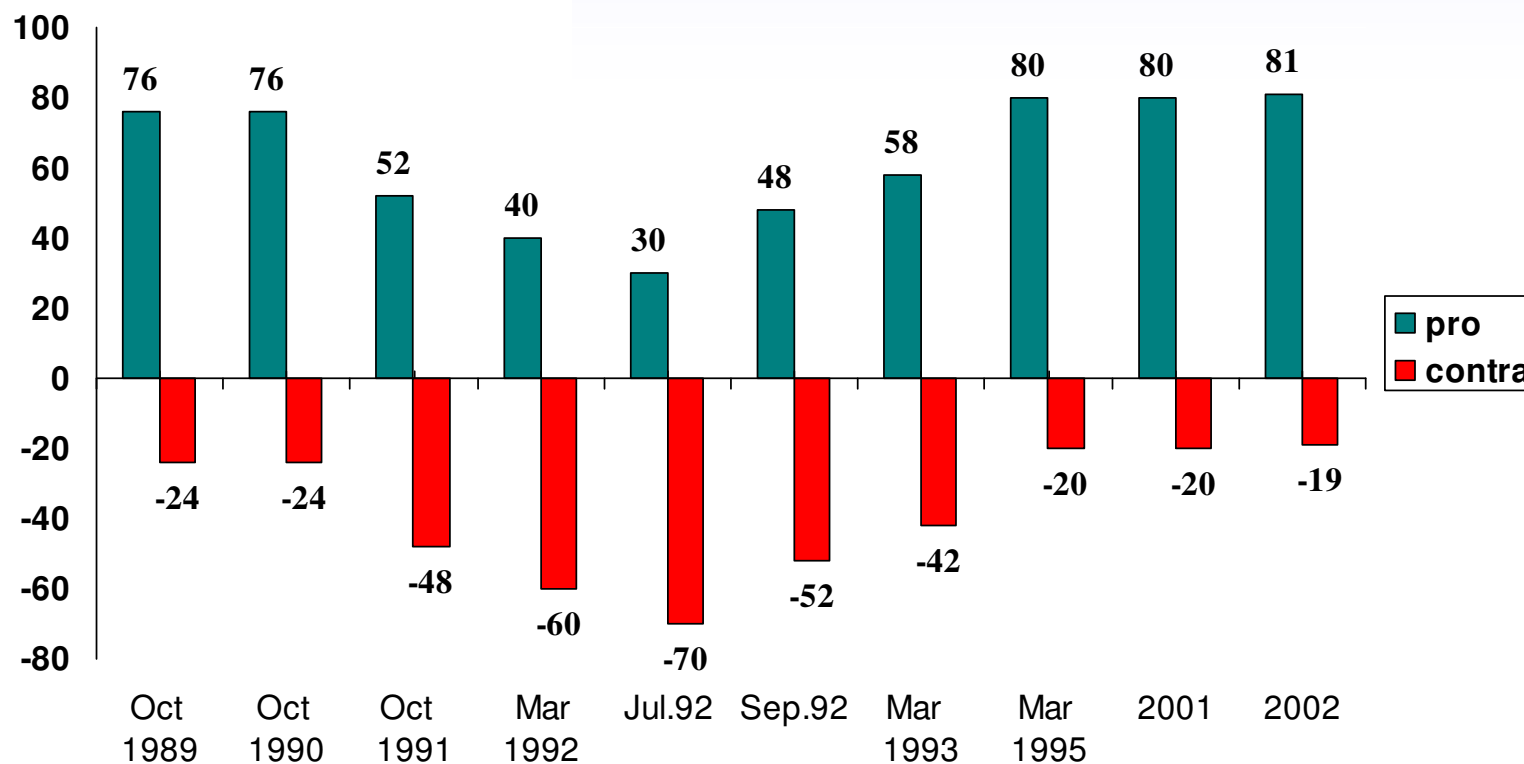
# Traffic Safety in Graz



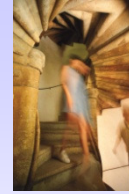
34

## Effects – Results

### Opinion of the Inhabitants



# ***Traffic Safety in Graz***

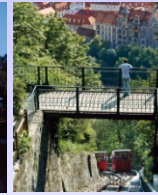


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## ***Campaigns***



# Traffic Safety in Graz



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## Campaigns

### Tempo 30/50 seit 1992 in Graz

Seit 1992 gilt auf 75% aller Grazer Straßen Tempo 30, auf dem übrigen Straßennetz Tempo 50. Durch die Einführung von Tempo 30 verringerte sich die Anzahl der Unfälle ebenso wie die Unfallschwere.

Mittlerweile hat sich bei den AutofahrerInnen aber wieder eine „Dart's ein bisschen mehr sein“-Mentalität eingeschlichen, was sich in den gestiegenen Unfallzahlen widerspiegelt. Deshalb soll das Bewusstsein der Autofahrer wieder auf die bestehenden Tempolimits 30/50 geschärft werden. Derzeit halten sich nur 28% der Autofahrer genau an Tempo 30. Noch weniger Disziplin herrscht auf den Straßen mit Tempo 50, was natürlich besonders bei Unfällen drastische Folgen hat.

Gemeinsam mit dem Kuvatorium für Verkehrssicherheit und der Grazer Polizei wird die Stadt Graz versuchen, die Vorteile von Tempo 30/50 wieder bewusster zu machen. Hauptpartner sind dabei die AutofahrerInnen, deren Verhalten die Verkehrskultur ganz entscheidend mitprägt. Sanfter Mobilität ist dabei das Stichwort: mobil sein, aber auf menschenverträgliche Art und Weise.

### Die Vorteile liegen auf der Straße

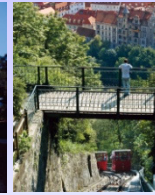
**Folgewirkung bei Einhaltung der Geschwindigkeitsvorgaben:**

- Weniger Unfälle
- Weniger schwer verletzte Personen (besonders Kinder, Senioren und Radfahrer)
- Weniger Abgase
- Mehr Toleranz unter den Verkehrsteilnehmern
- Mehr Sicherheit durch kürzeren Bremsweg  
= mehr als der doppelte Bremsweg bei Tempo 50 gegenüber Tempo 30

| Tempo (km/h) | Anhalteweg (Meter) |
|--------------|--------------------|
| 30           | 17                 |
| 37           | 23                 |
| 50           | 38                 |
| 57           | 47                 |



# Traffic Safety in Graz

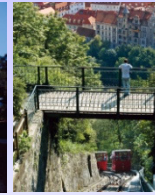


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## Campaigns



# ***Traffic Safety in Graz***



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## ***Results***



- reduction of speed level
- large raising of road safety
- no changes by air pollution
- no changes by choice of routes
- out of discussion by politicians and inhabitants
- public awareness and continuous control

# ***Traffic Safety in Graz***



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## ***Traffic Safety Activities***

- **workgroup “Traffic Safety”**
  - traffic administration
  - planning department (city and province)
  - police
  - traffic safety board
  - civil engineer
- **weekly meeting**
- **create traffic safety-concept**
- **design hard measures**

# ***Traffic Safety in Graz***

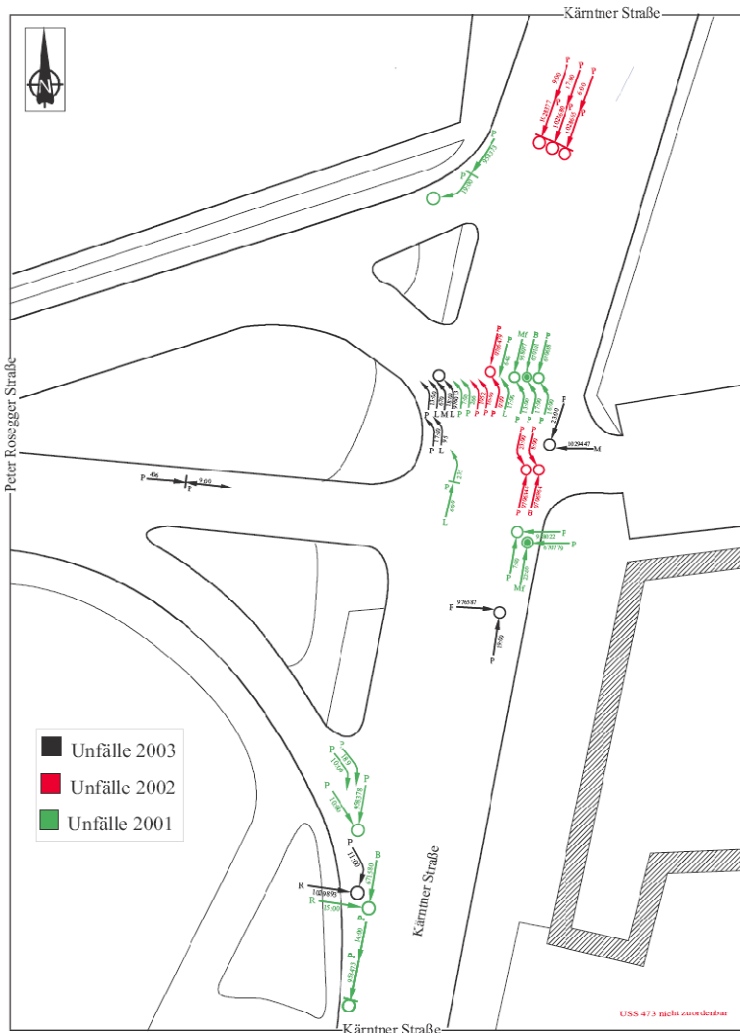


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## ***Traffic Safety Concept***

- **general traffic safety measures**
  - public awareness
  - bike training for kids
  - usage seatbelts
  - guidelines for hard measures
- **hard measures**
- **speed control**
- **red-light control**

# Traffic Safety in Graz



Reggio Emilia, 22. October 2010

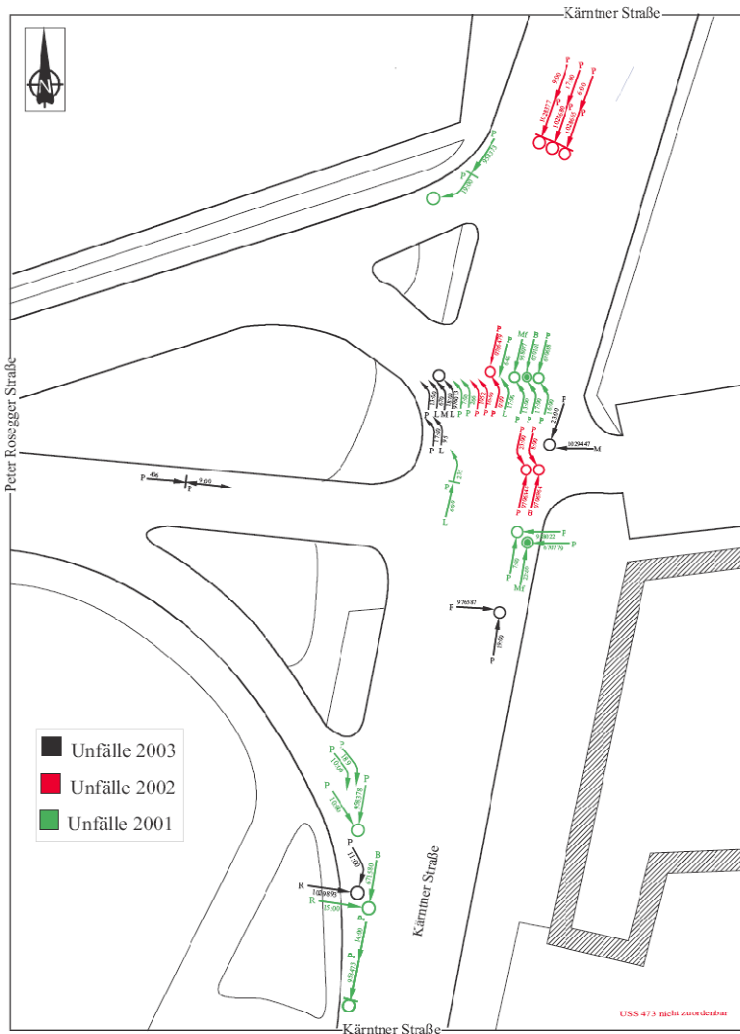


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## Accident Analysis

- accident database
- highlight the hotspots of accidents
- accident diagrams
- analysing accidents
- create traffic safety measures

# Traffic Safety in Graz



Reggio Emilia, 22. October 2010



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## Rebuilding Accident Spots

- about 40 accident-spots with more than 4 accidents per year
- rebuilding of 5 to 6 spots per year
- € 500.000,-- budget

# ***Traffic Safety in Graz***

## **Dipl.-Ing. Fischer Thomas**

City of Graz

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Development and Construction

Europaplatz 20

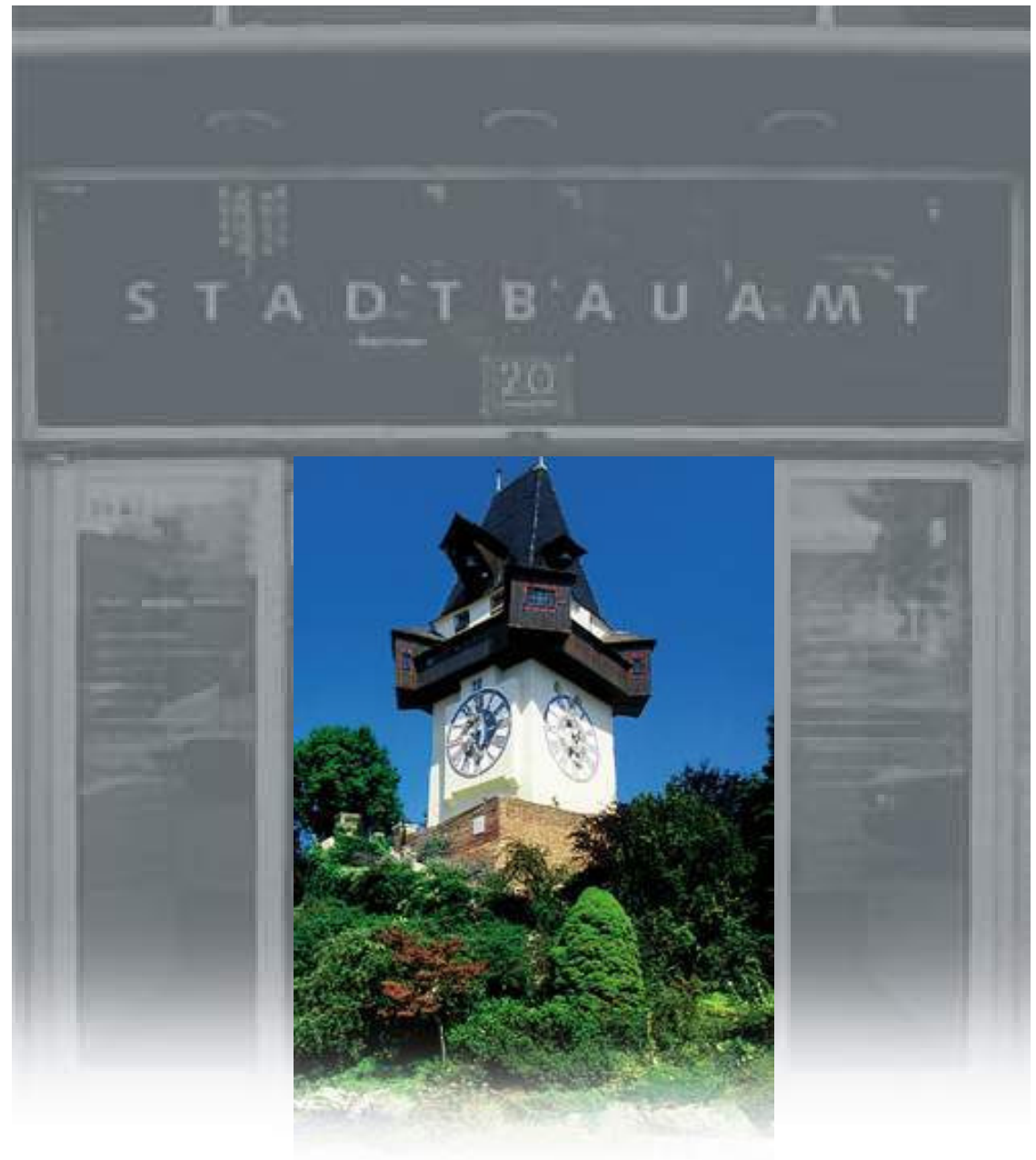
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Reggio Emilia, 22. October 2010

Stadt

**G R A Z**

Stadtbaudirektion