

12th ATRANS ANNUAL CONFERENCE
(2019.8.23)

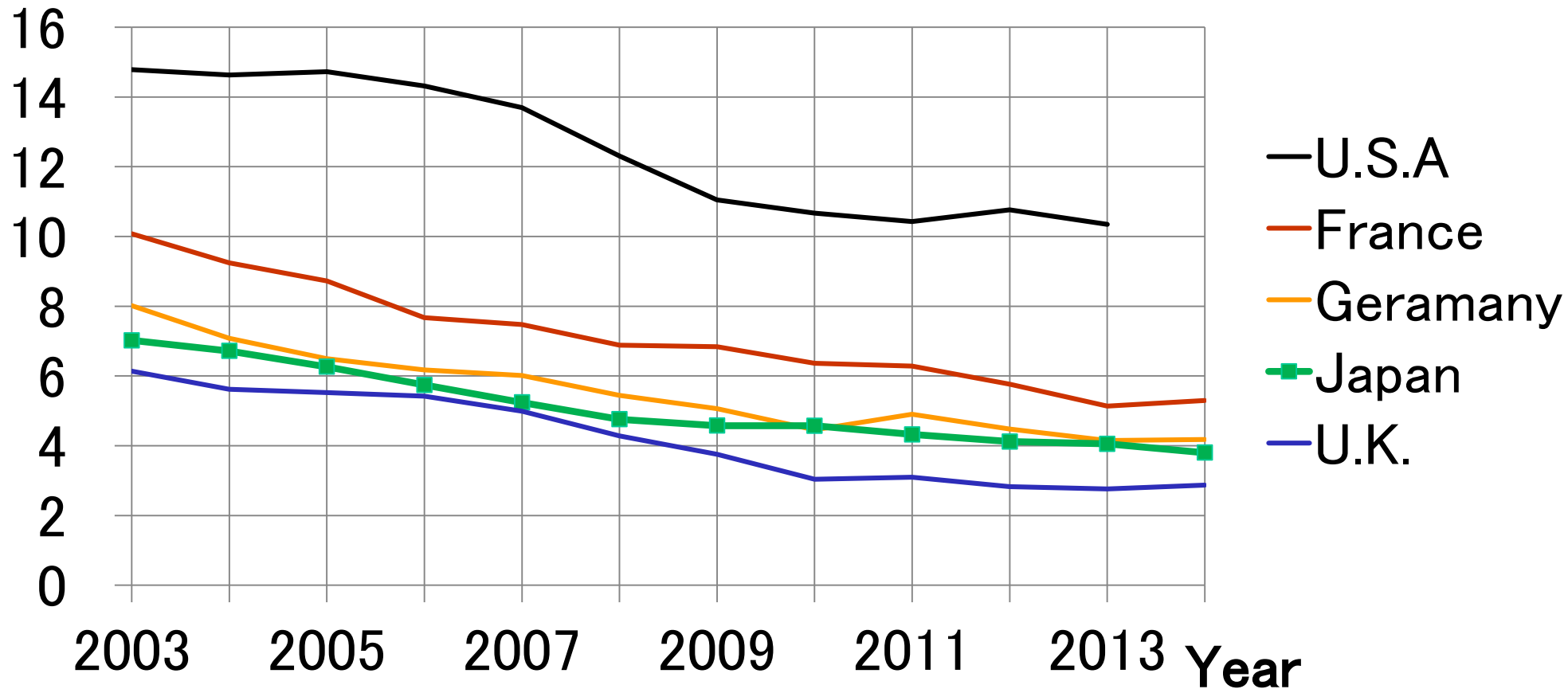
Accidents Data Collection: Case study in Japan

Satoru KOBAYAKAWA, Dr.

Professor

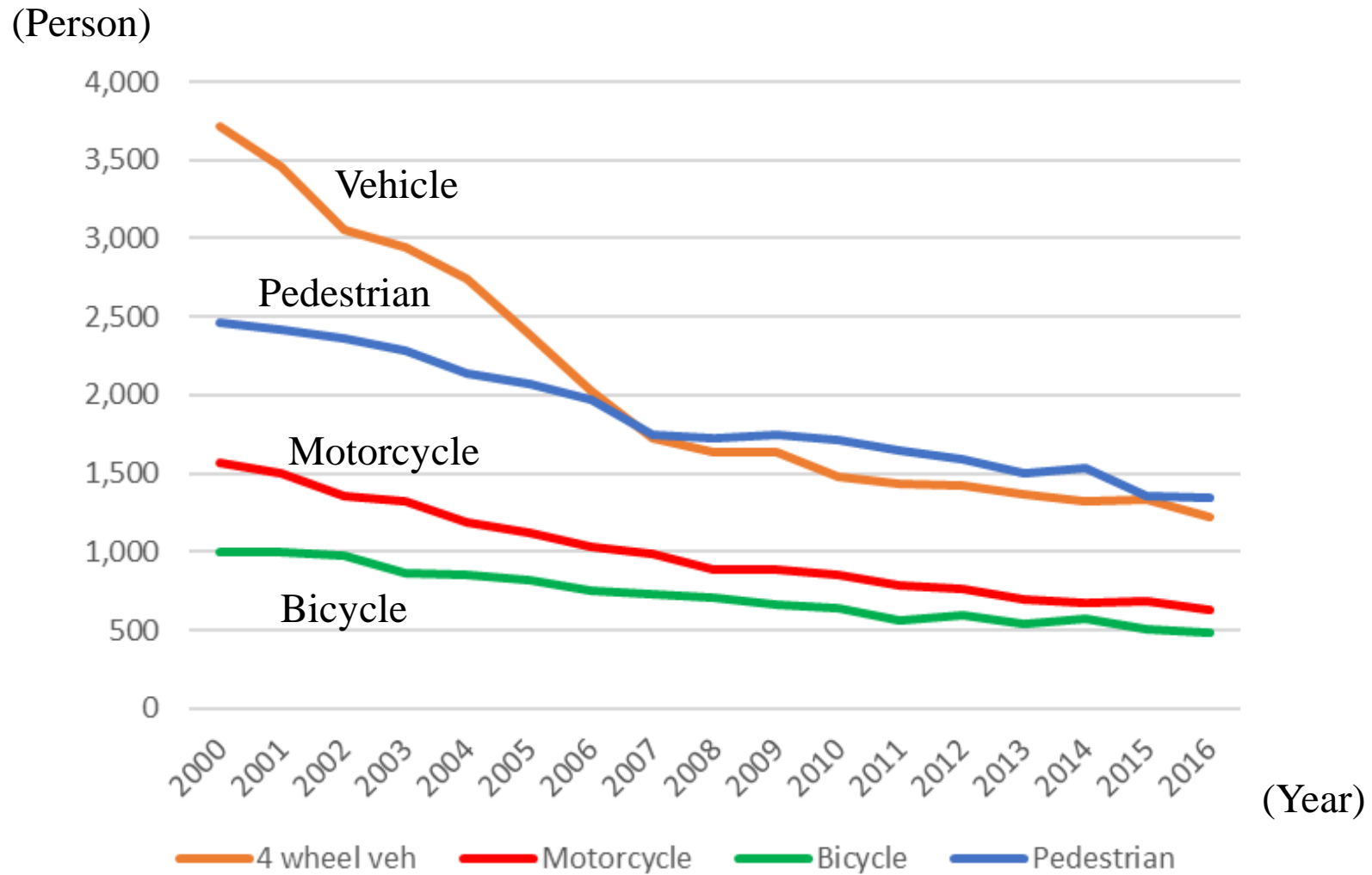
NIHON UNIVERSITY

Road traffic accident fatalities per 100,000 persons



Source: IRTAD

Number of Fatalities



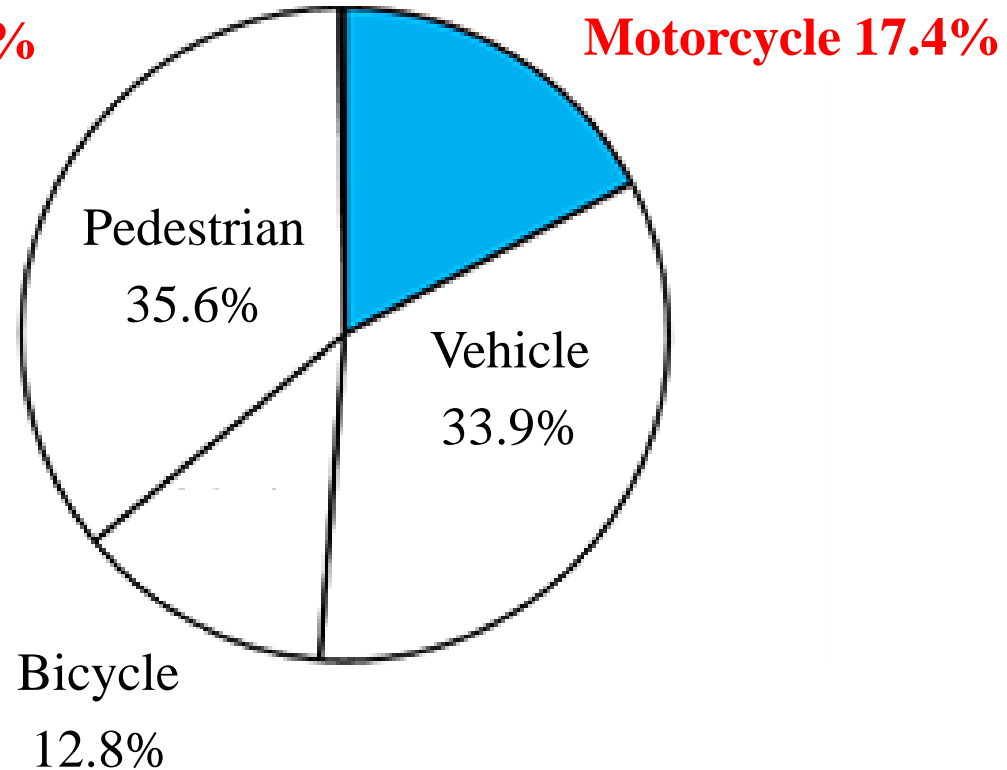
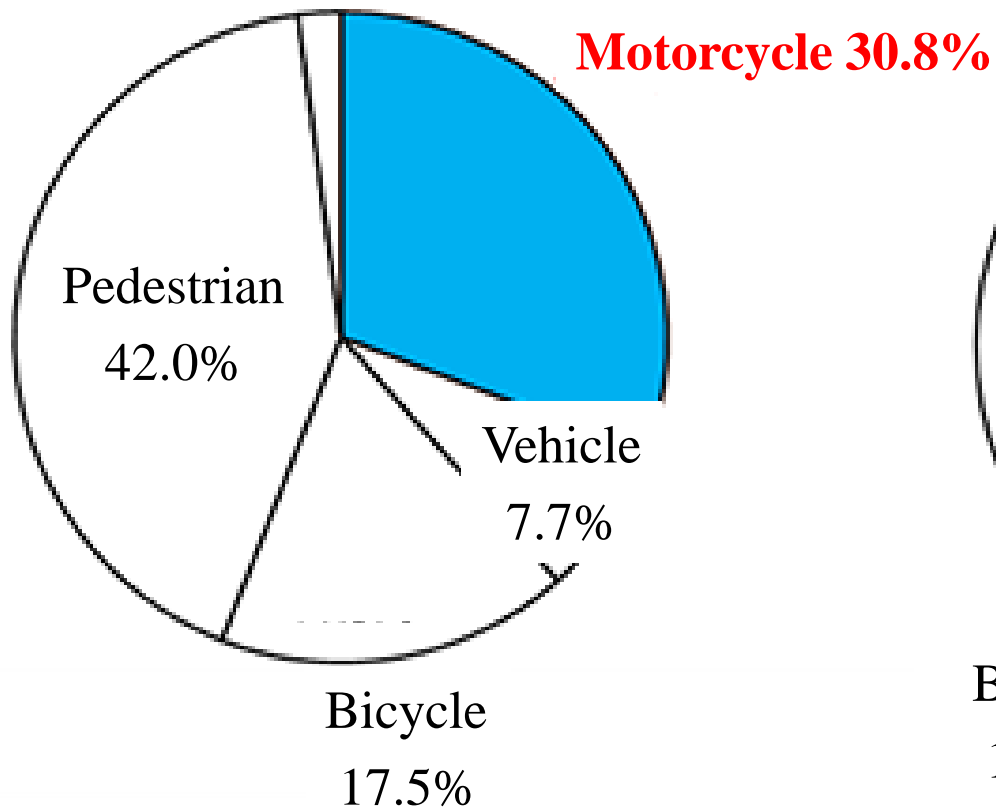
Ratio of Motorcycle Fatalities

< in Tokyo >

< in Japan >

Others 21.1%

Others 0.3%



Bicycle
17.5%

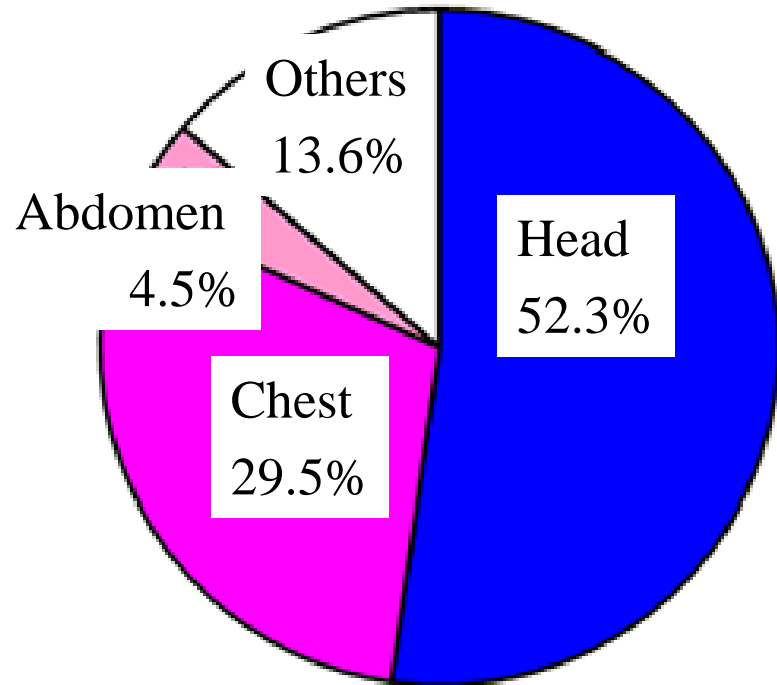
Bicycle
12.8%

N=143

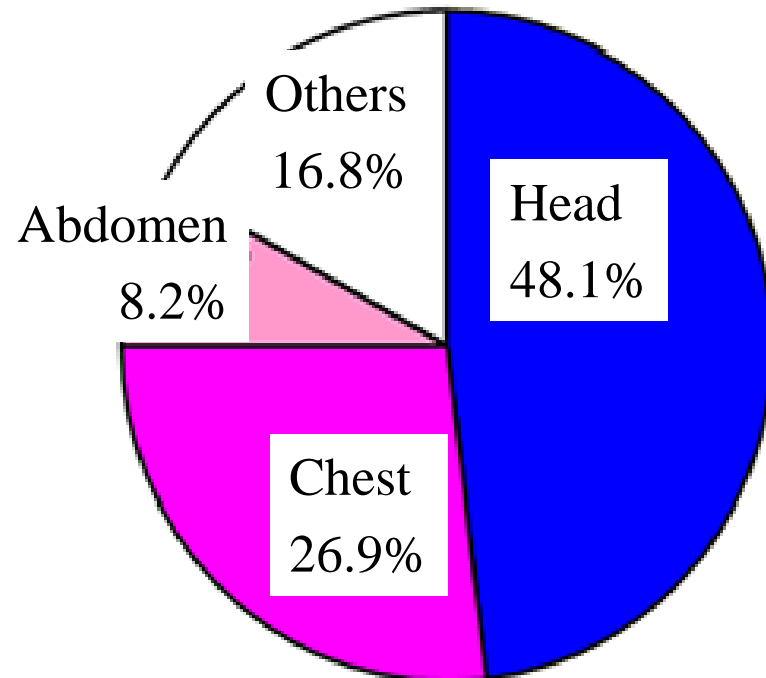
N=3532

Injury part of body

Tokyo (2018)



Tokyo (2014-2018)



We can say “Wearing a helmet is important”

Minimum set of Data

- Accident identification (a unique number-based system)
- Time (the date, hour, minute, day of week)
- Location (general info, route, network, GPS)
- Accident type (single veh., rear to head, veh and ped, wrong way, etc)
- Vehicles involved (number, type)
- Accident consequences (fatalities, injuries, material damage)

Features of Data set

- road description
- specific places/objects
- road alignment
- road surface
- road signing and marking
- roadside obstacles
- visibility conditions
- weather conditions
- traffic control
- position of accident
- main causes of accident

What are Hiyari experience reports?

- Given by **drivers, riders, and pedestrians**.
- **Subjective** reports of their experiences where
 - A car **nearly hit** another car.
 - A pedestrian was **nearly hit** by a car.
 - A bicycle rider is **sometimes scared** by heavy trucks.
 - A pedestrian is **sometimes chased** by bicycles.
 - Etc.

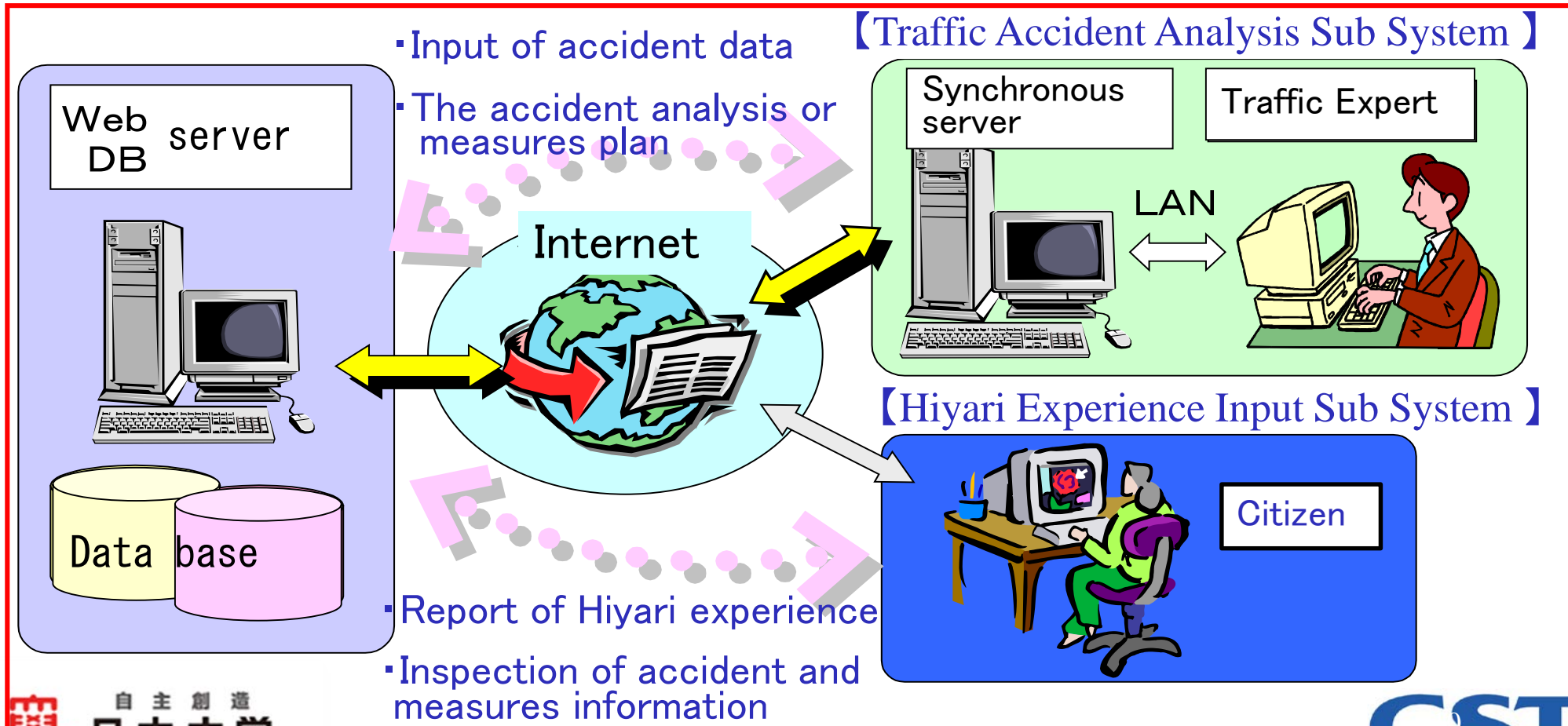
Implementation of TSMSS

- The study of Traffic Safety Measure Support System (TSMSS) has begun in 1997 supported by ITASS
- Between 2001 and 2004, social experiments were conducted in Chiba Prefecture Kamagaya city, Japan
- From 2005 till 2006, the system, with the financial aid of Land Policy Research Committee, applied the system to two cities (Shiroi and Ichikawa) in Chiba Prefecture.
- From 2008, TSMSS has applied to Other countries

Overview of the scheme

The scheme assists

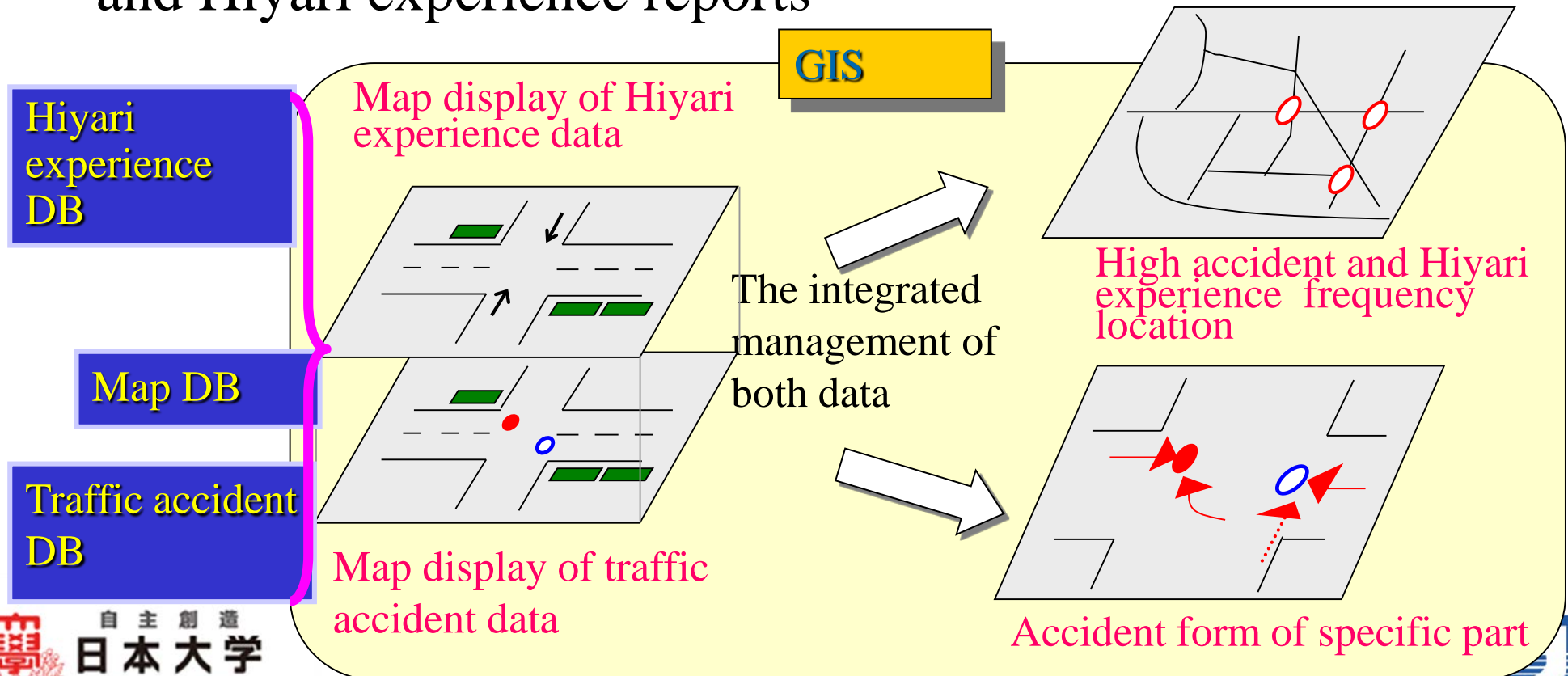
- to promote consciousness of citizens about traffic safety
- and to reach consensuses on implementing traffic safety measures.



Overview of the scheme

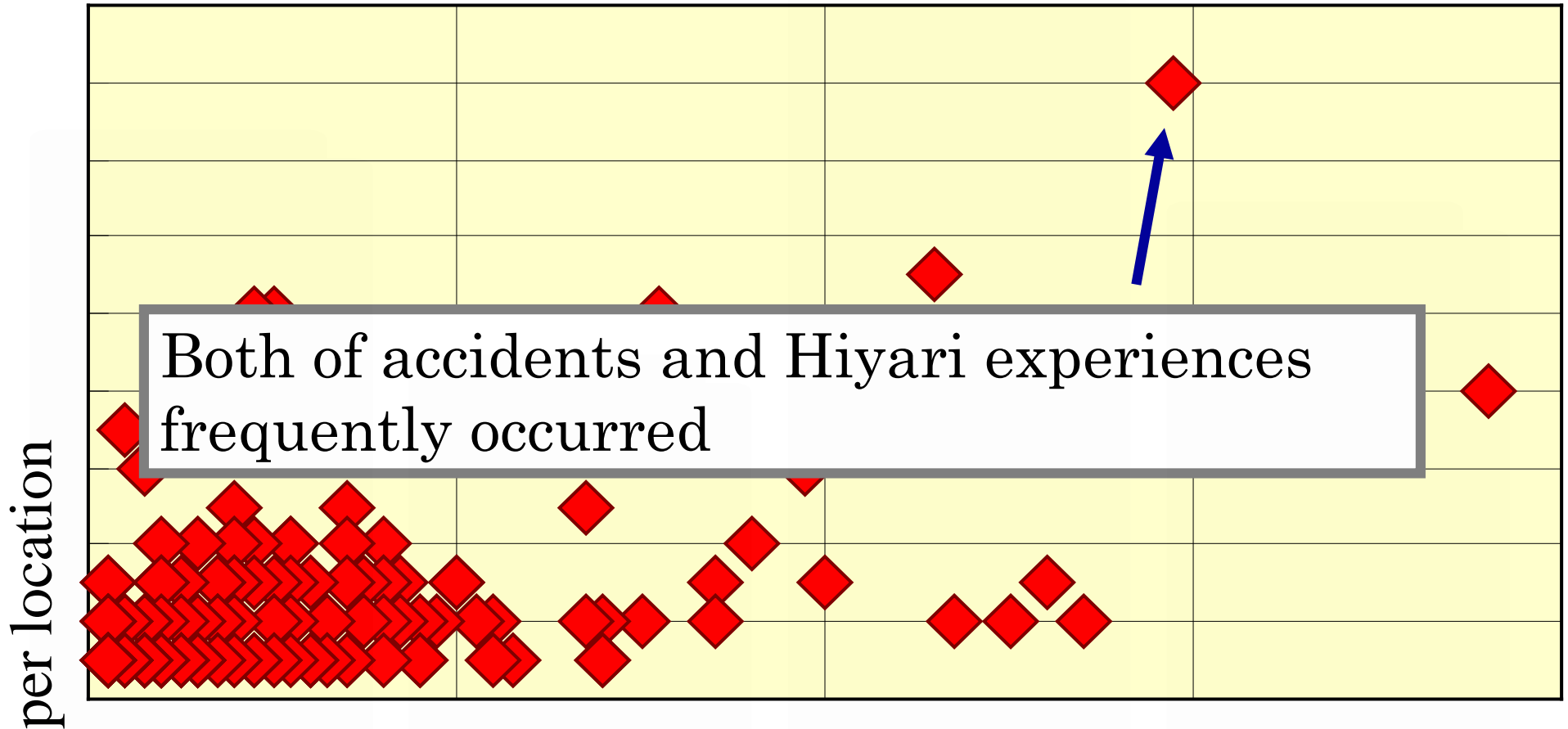
The scheme uses an ICT system with Web GIS and the Internet that integrately manage

- traffic accident data
- and Hiyari experience reports



An integrated analysis of accidents and Hiyari experiences

No. of Hiyari experience reports
per location



No. of accidents reports per location

Observation of road and traffic conditions on the site

Observing spot speeds

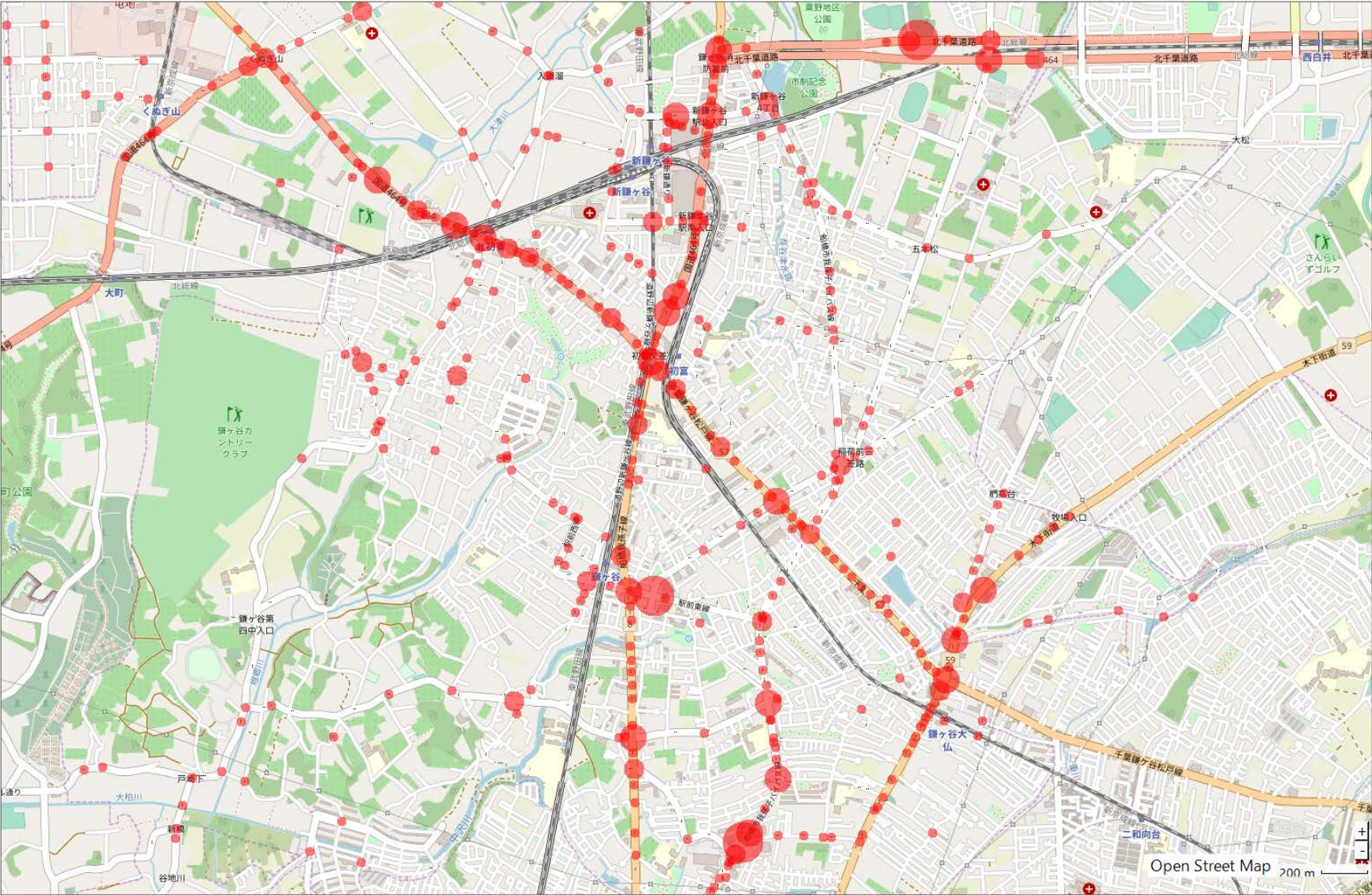


The taking charge engineer in the place

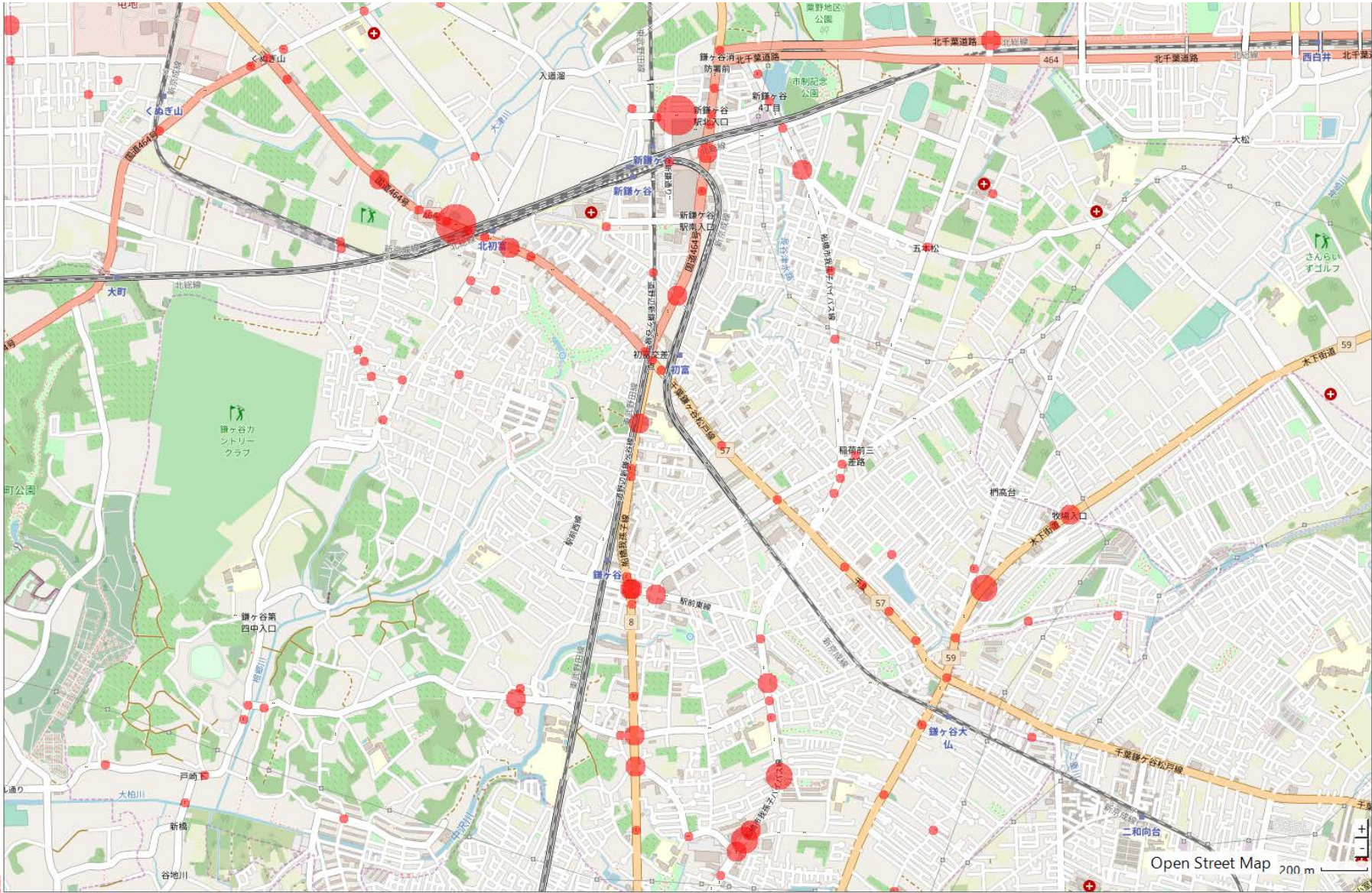
Study Team member

Staff in the place

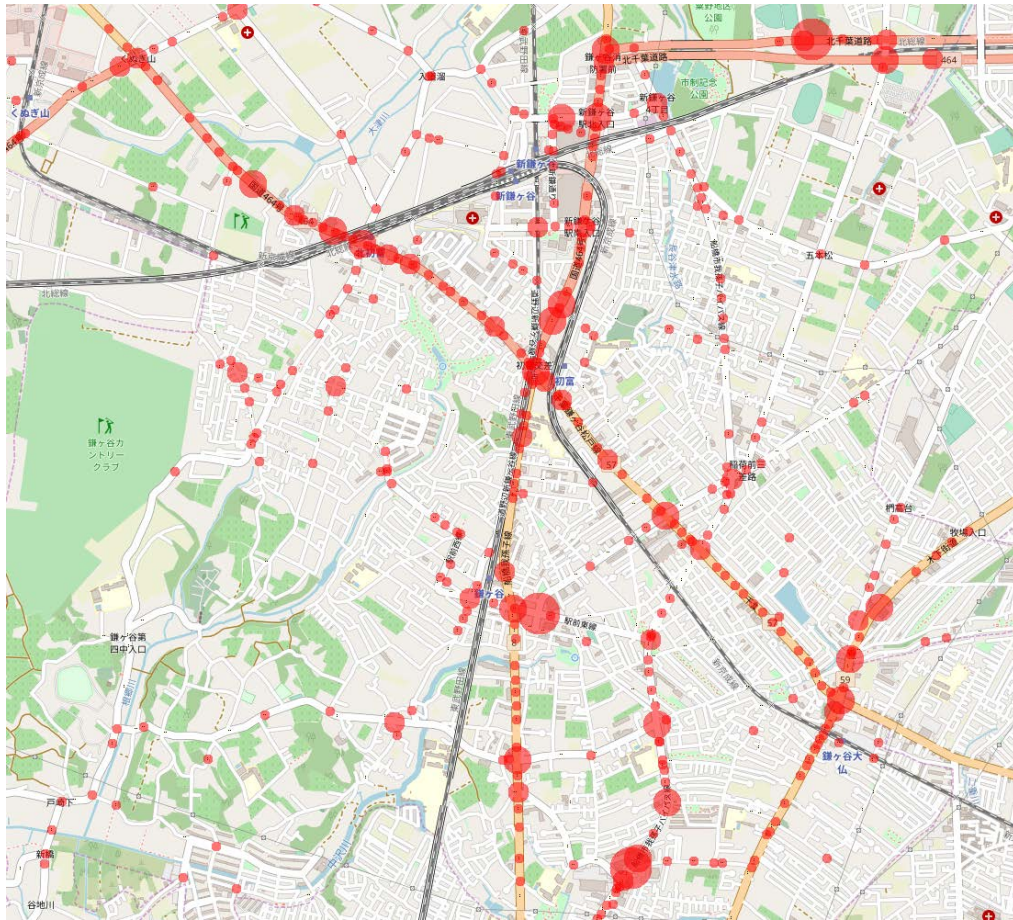
Traffic Accidents in Kamagaya city



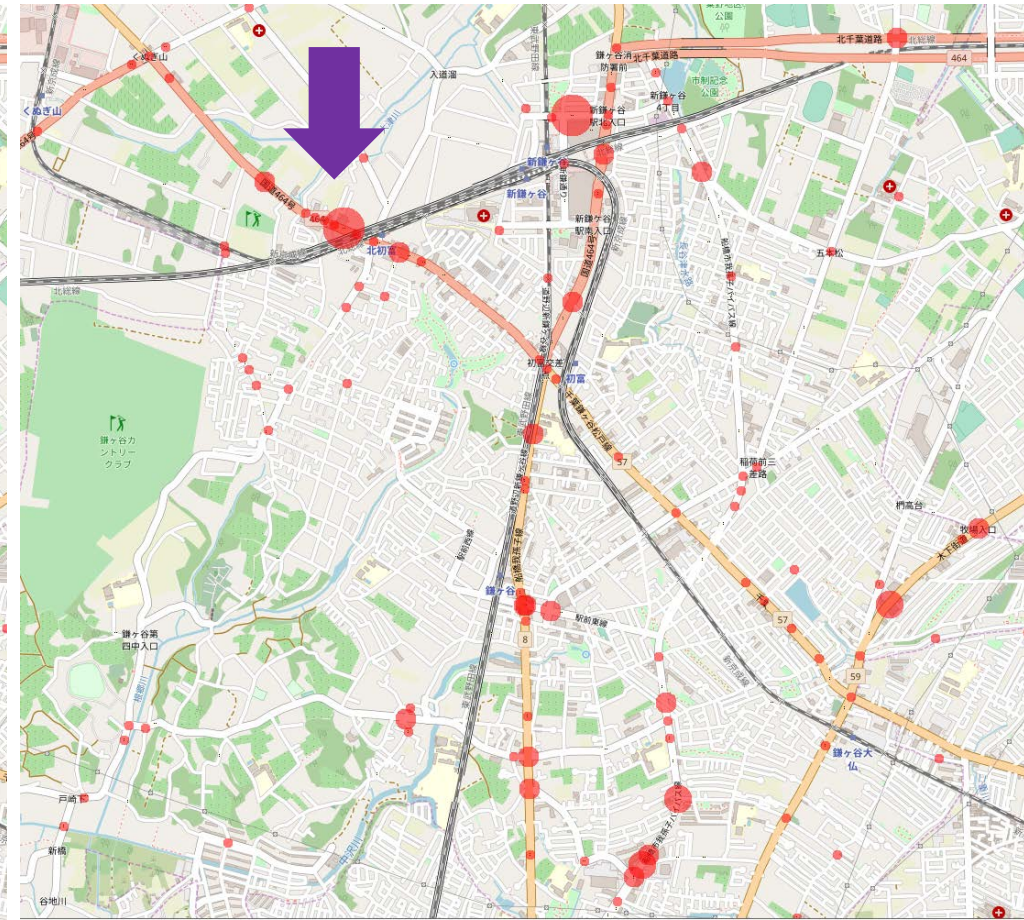
Traffic Accidents in Kamagaya city



Traffic Accidents in Kamagaya city

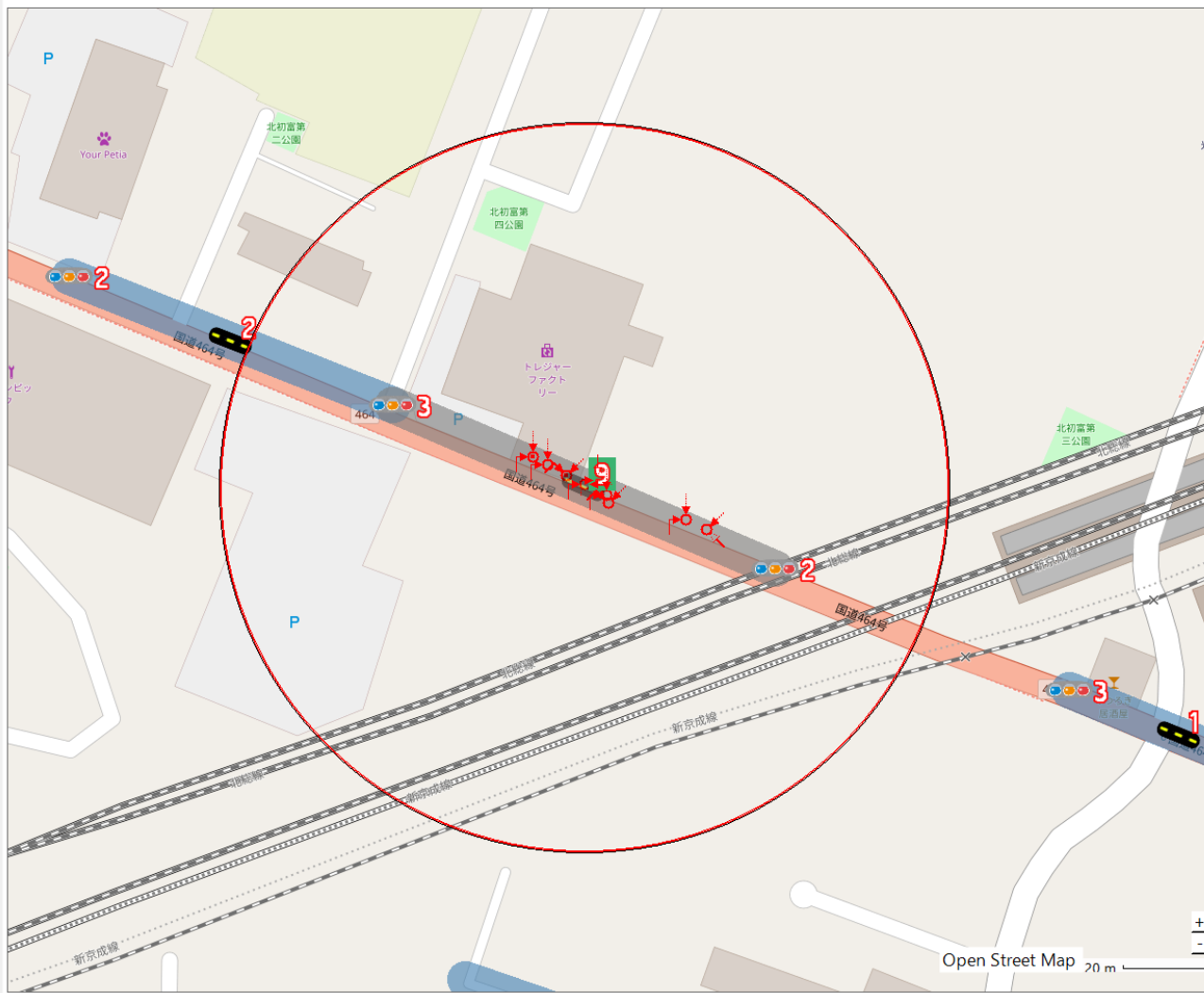


All Accidents (2008-2018)



Motorcycle Accidents
(2008-2018)

事故が786件見つかりました。

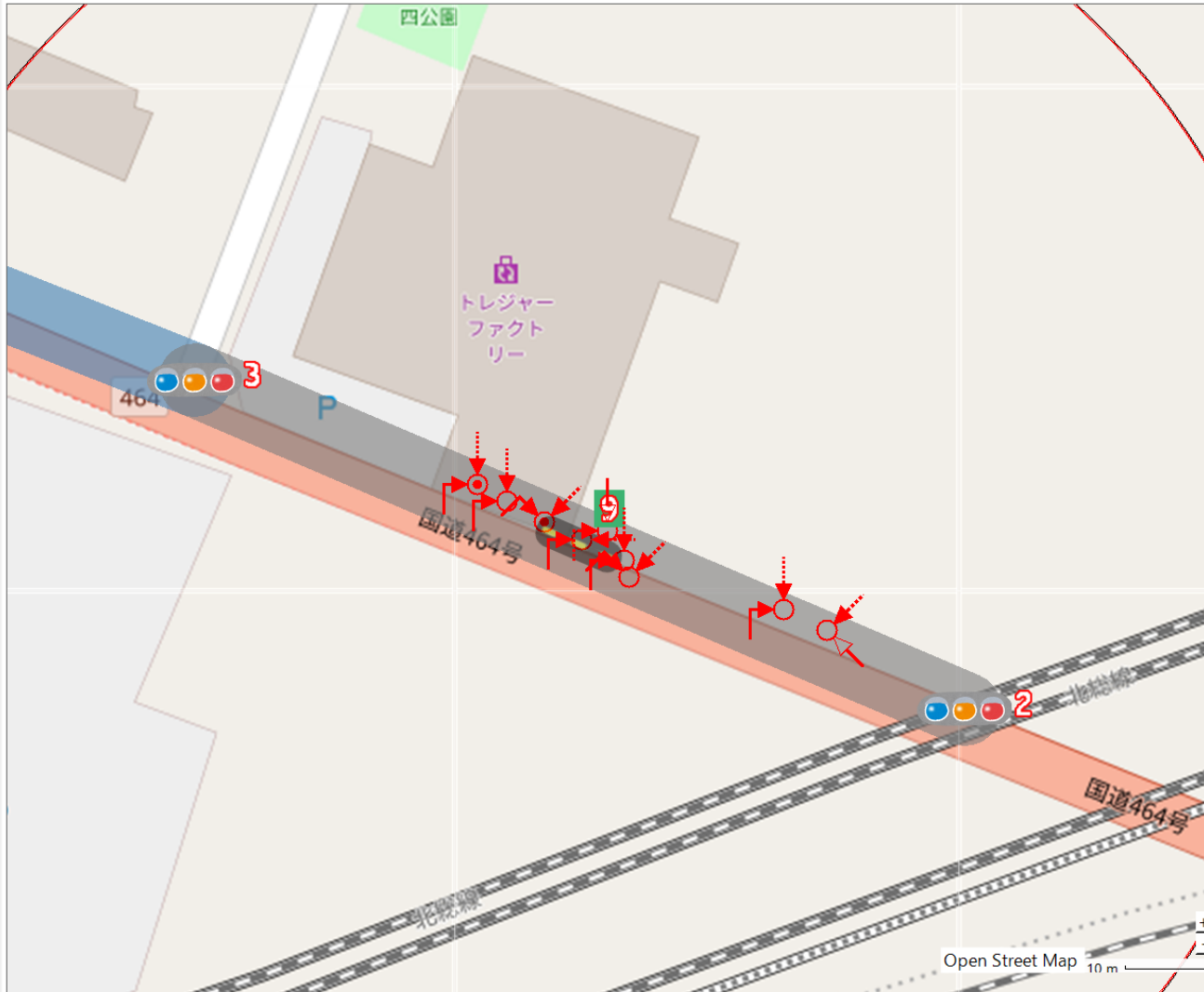


表示範囲:<全て>

ctrl押下→複数箇所選択、Ctll+A押下→全箇所選択

アイコン	名称	事故件	事故
	山口商店前～	9	x7 x1 x1
	1003755～1003764	9	x4 x1 x1 x1
	鎌ヶ谷 8 丁目	8	x3 x3 x2
	豆ヶ台	8	x3 x1 x1 x1
	東部小学校入	7	x5 x2
	井草バス停前～	7	x3 x1 x1 x1
	ちばコープ鎌ヶ谷	6	x2 x1 x1 x1
	中央1丁目	6	x1 x1 x1 x1

事故が786件見つかりました。

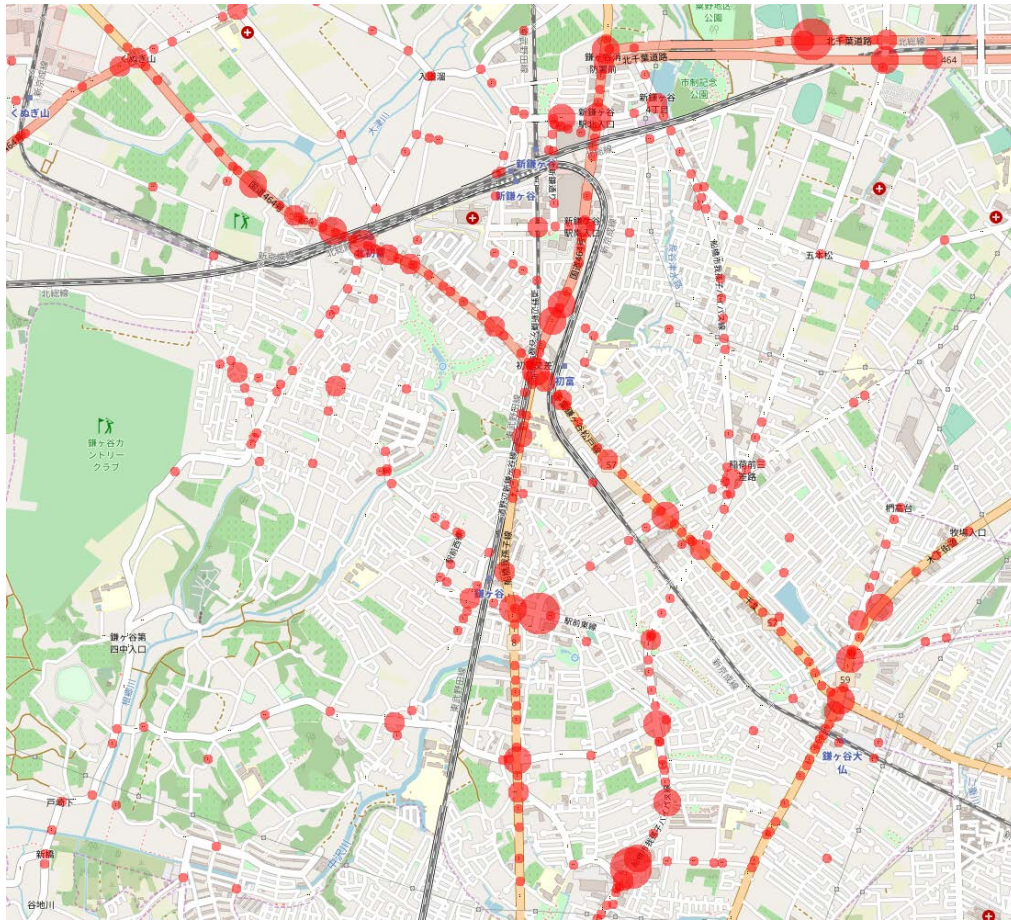


表示範囲:<全て>

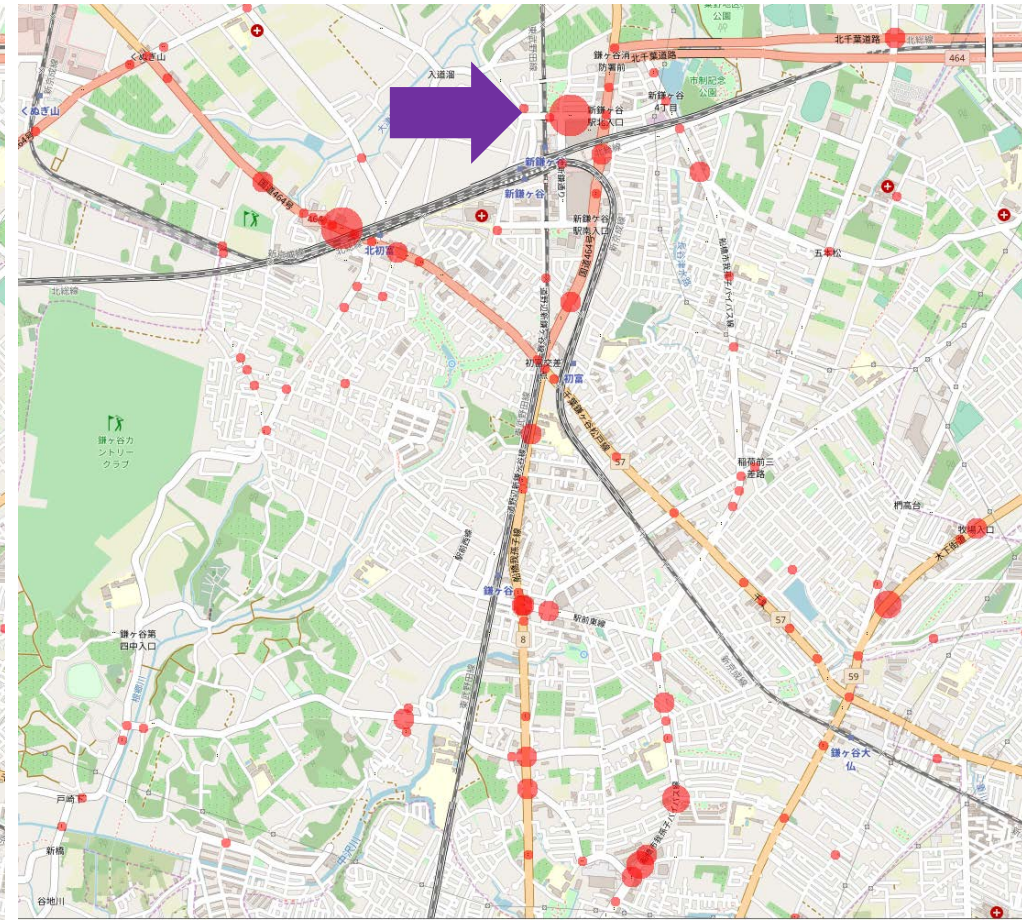
ctrl押下→複数箇所選択、Ctrl+A押下→全箇所選択

アイコン	名称	事故件	事故
	山口商店前～	9	x7 x1 x1
詳細を表示 事故グラフ表示			
	1003755～1003756	9	x4 x1 x1 x1
	鎌ヶ谷 8 丁目	8	x3 x3 x2
	豆ヶ台	8	x3 x1 x1 x1
	東部小学校入	7	x5 x2
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	ちばコープ鎌ヶ谷	6	x2 x1 x1 x1
	中央1丁目	6	

Traffic Accidents in Kamagaya city

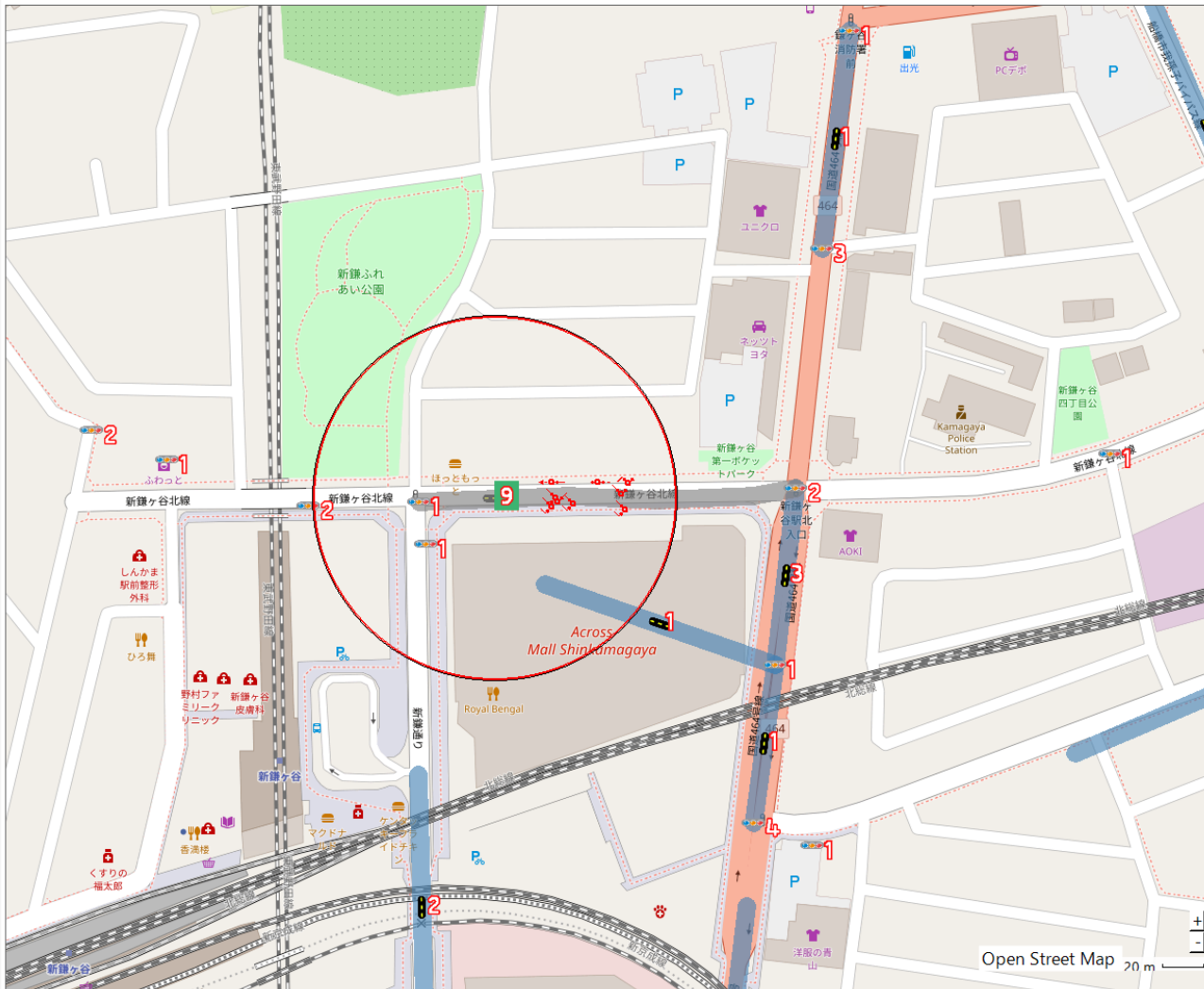


All Accidents (2008-2018)



Motorcycle Accidents
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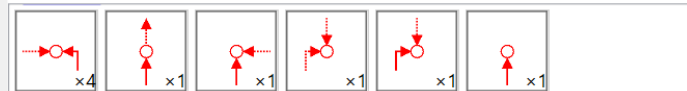


発生個所一覧

事故ヒヤリ一覧保存

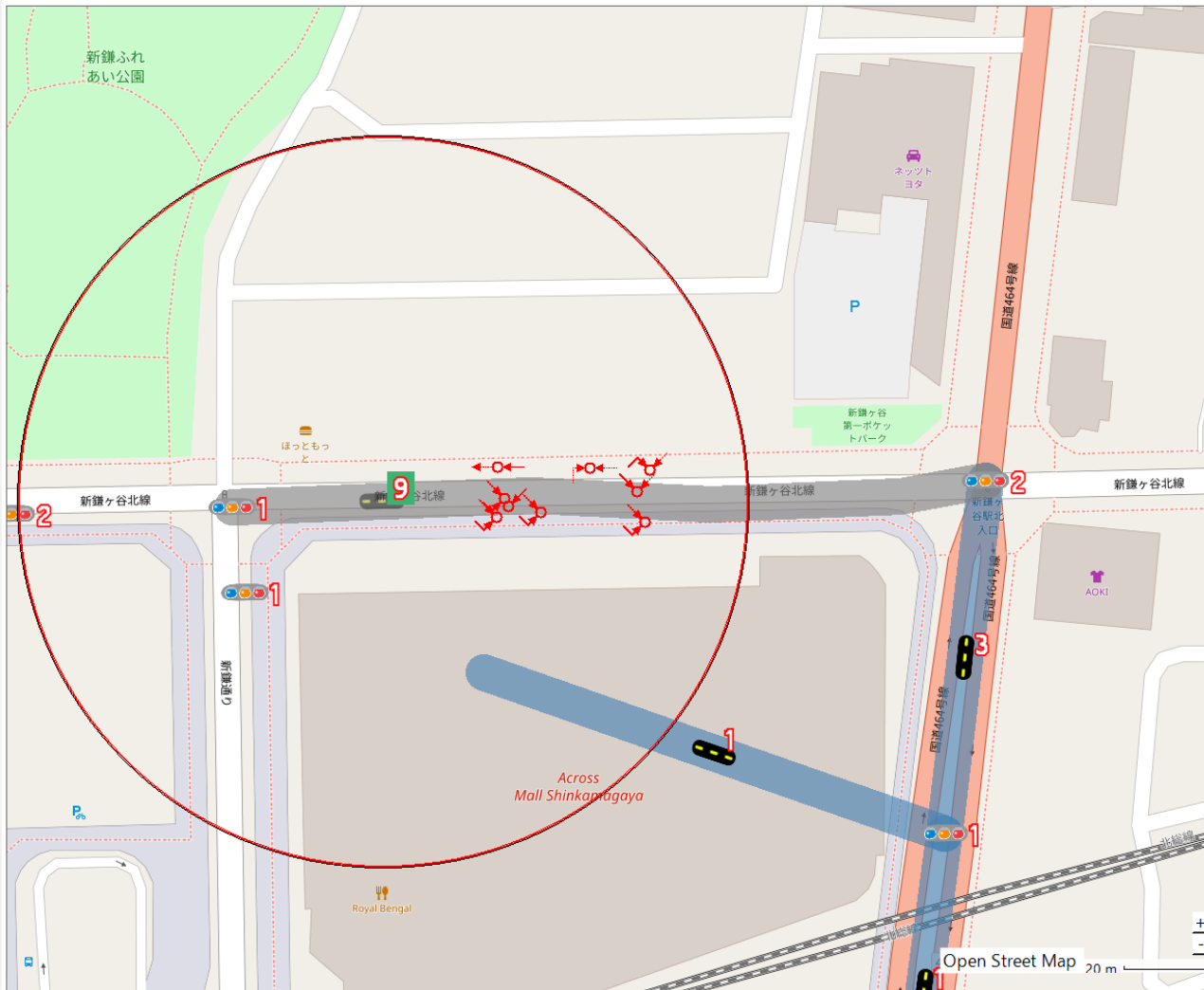
路線コード	10042	市道42号線
街路コード/名称	974	1003755~1003753
道路形状	0	一般交通の場所
地形	0	未選択
施設等コード	0	一般交通の場所
歩車道区分	0	未選択
歩道幅員コード	0	一般交通の場所
車道幅員コード	0	一般交通の場所

グラフ表示



発生日時	事故区分	事故内容	事故類型区分	昼夜区分
<input type="checkbox"/> 2009/03/12 00:00:00	人身事故	軽傷	車両相互：出合頭	
<input type="checkbox"/> 2009/06/10 00:00:00	人身事故	軽傷	車両相互：左折時	
<input type="checkbox"/> 2013/04/10 00:00:00	人身事故	軽傷	車両相互：右折直進	
<input type="checkbox"/> 2013/06/20 00:00:00	人身事故	軽傷	車両相互：左折時	
<input type="checkbox"/> 2014/01/22 12:00:00	人身事故	軽傷	車両相互：左折時	
<input type="checkbox"/> 2015/04/30 22:00:00	人身事故	軽傷	車両相互：追突：その他	
<input type="checkbox"/> 2015/12/29 12:00:00	人身事故	軽傷	車両相互：左折時	
<input type="checkbox"/> 2016/10/27 12:00:00	人身事故	軽傷	車両相互：左折時	
<input type="checkbox"/> 2016/12/21 12:00:00	人身事故	軽傷	車両相互：右折直進	

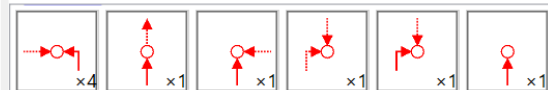
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発生個所一覧 事故ヒヤリ一覧保存

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道路形状	0	一般交通の場所
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施設等コード	0	一般交通の場所
歩車道区分	0	未選択
歩道幅員コード	0	一般交通の場所
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<input type="checkbox"/> 2013/04/10 00:00:00	人身事故	軽傷	車両相互：右折直進	
<input type="checkbox"/> 2013/06/20 00:00:00	人身事故	軽傷	車両相互：左折時	
<input type="checkbox"/> 2014/01/22 12:00:00	人身事故	軽傷	車両相互：左折時	
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Traffic Accidents Analysis

- Traffic accidents were occurred by coincident
- It is important to collect the traffic accident data
- It also need to store the data
- The hot spots were chosen
- Analyze the reason that cause the accident
- Consider the countermeasure of traffic accidents