Cerema

Centre d'études et d'expertise sur les risques, l'environnement, la mobilité et l'aménagement

STRMTG

Service Technique des Remontées Mécaniques et des Transports Guidés

www.strmtg.developpement-durable.gouv.fr

Cyclists' risks around a tram line

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UTF Meeting, 9th November 2017

Context

- More and more cyclists

- A safety issue:
  - 87 collisions with cyclists in 2016
  - 55 % of collisions cyclists/tram involve casualties (above 10 years)
  - 7 cyclists dead since 2003

- How to take into account cyclists in the tramway projects?

Study “Interactions vélo/tram”

(*Cerema) available in French:*

http://www.territoires-ville.cerema.fr/circulation-des-cyclistes-sur-les-plate-formes-a1422.html

- Goal:

  To better know the using of the tracks by the cyclists and to understand their behaviour

- Results:

  Main reasons for the cyclists to use the tracks are:

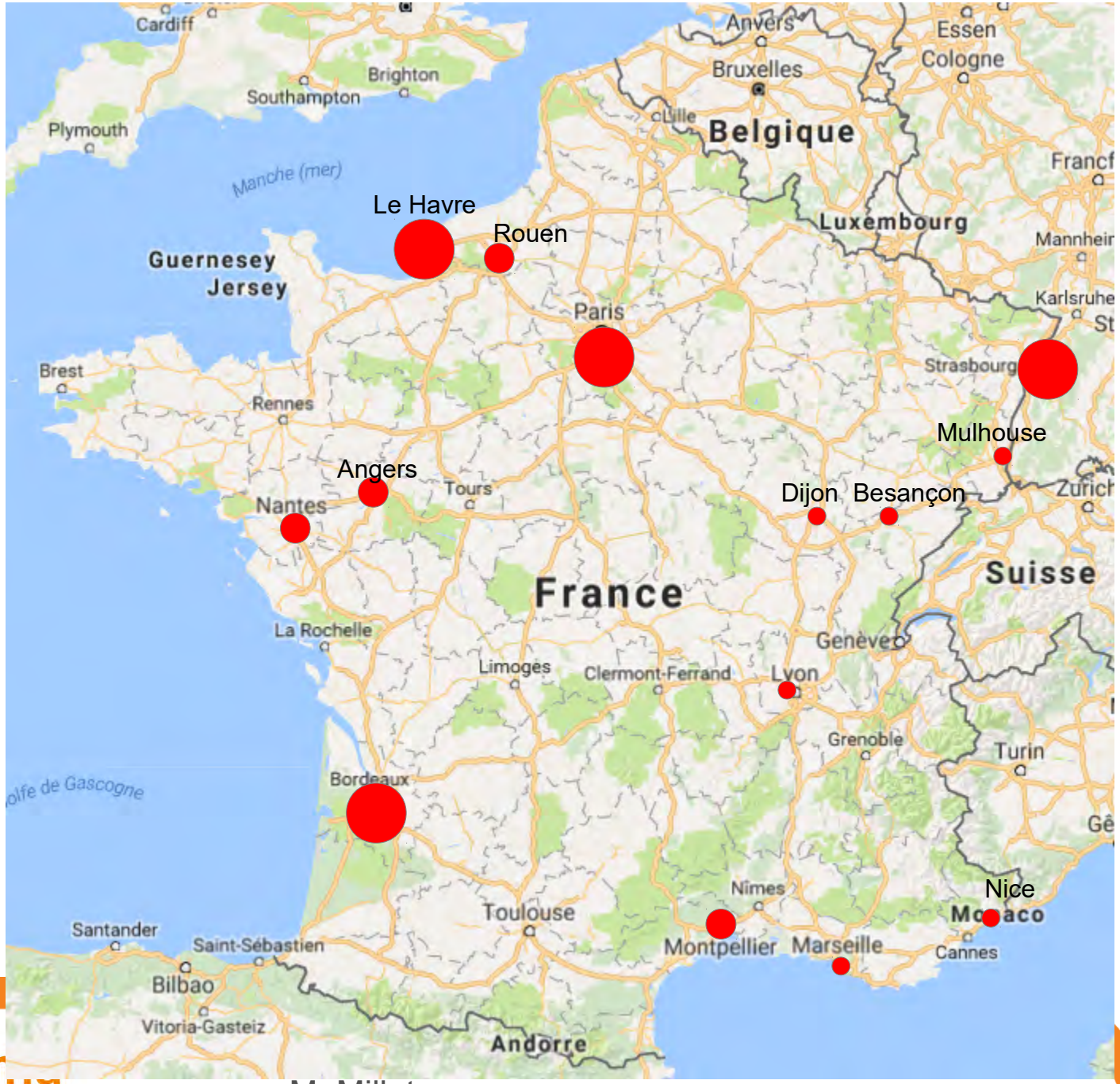
  - 1/ They feel more safely on tracks than on streets
  - 2/ There is no cycle path on the streets
  - 3/ The route is more direct

The stapes of the current study

- 1/ Collect French examples of cycle routes around tram lines
- 2/ Identify configurations
- 3/ Analyse the hazards and the safety objectives
- 4/ Propose measures and examples of good practices
- 5/ Write recommandations

French examples of cycle routes around tram lines

- We collected 152 examples on 14 networks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Toulouse
Montpellier
Marseille
Cannes
Monaco
Santander
Saint-Sébastien
Bilbao
Vitoria-Gasteiz
Zurich
Karlsruhe

French examples of cycle routes around tram lines

- We collected 152 examples on 14 networks
- 72 % concerned cycle paths on 50km/h streets / 22 % of streets with traffic calming / 6 % without car circulation
- The same repartition for axial and lateral tram lines

Configurations studied

- Tram lines without car circulation
  - Dedicated area for the tramway with cycle paths alongst the tram lines
  - Pedestrian area


Angers


Bordeaux

Configurations studied

- Tram lines shared with car

Bordeaux

Configurations studied

- Tram lines separated from the road lanes:
  - Streets limited to 50 km/h
  - Streets with traffic calming


Montpellier


Bordeaux

Configurations studied

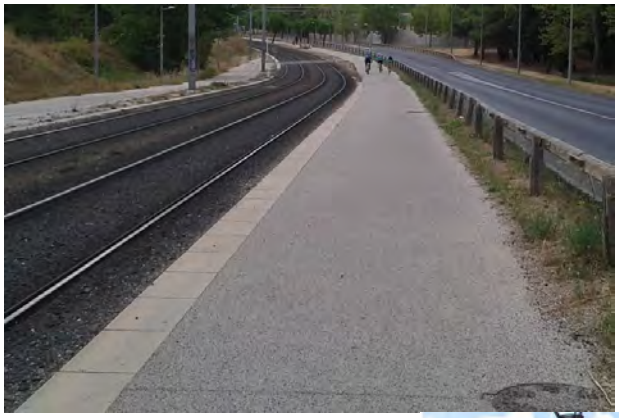
- Tram lines without car circulation
- Tram lines shared with car
- Tram lines separated from the road lanes

- For each one, we distinguish
  - running section,
  - junction,
  - station,
  - isolated crossing,
  - beginning and exit of the cycle route

Cyclists' risks in running section

- Cyclist circulating along the tram and crossing (or intruding) suddenly front of the tram

Objectives:
- Strengthen the perception of the tram lines
- Prevent cyclists crossing out of the dedicated crossings
- Assure the respect of the cycle paths by other users (pedestrians, two-wheelers, cars…)
- Avoid obstacles on cycle paths
- Avoid opening door of parked car near the cycle path



- Cyclist circulating on the tram lines in stead of the street or the cycle path

Objectives:

- In dedicated area and 50km/h streets, improve the attractivity of cycle paths

- In traffic calming area:
  - ensure the respect of speed limit by motorised drivers
  - assure the two ways for cyclists even if the streets are one-way

- In traffic calming area, motorised drivers overtake the cyclist by using the track when a tram is approaching

Objective:
- Limit the intrusion of cars on tracks to overtake a cyclist

- In shared area between tram and vehicles, cyclist falling on track when a tram or a vehicle is approaching

Objectives:
- Aware cyclists on the presence of the rails
- If the traffic flow is high, create a cycle path

- In shared area between tram and vehicles,
  - cyclist caught up with a tram ?
  - motorised vehicle losing control and hitting cyclist?

Cyclists' risks in junction

- Cyclist circulates along the tram lines, wants to cross the junction straight-ahead and is hit by an other vehicle

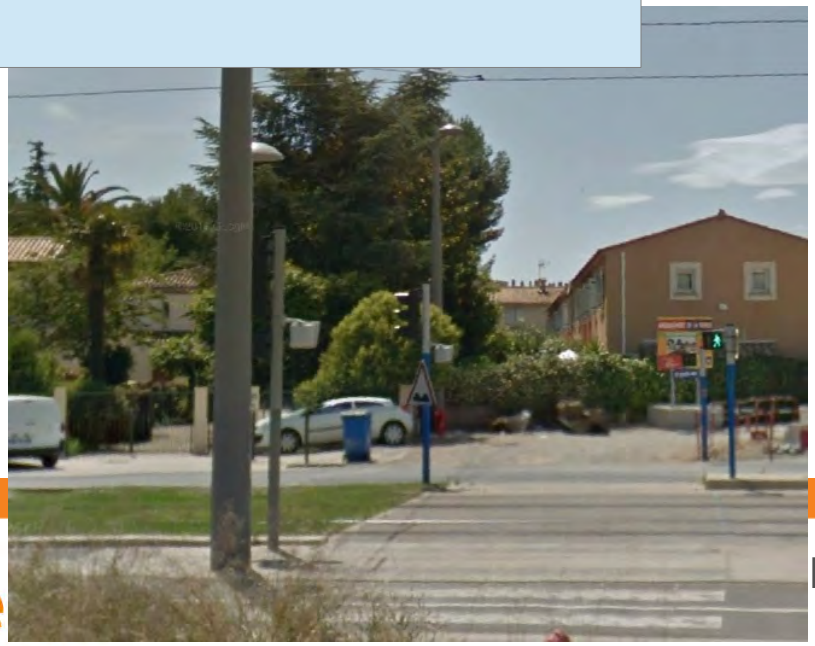
Objectives:
- Ensure the continuity of the cycle route in the junction
- Ensure the coherence of traffic lights for all road users, in particular for cyclists

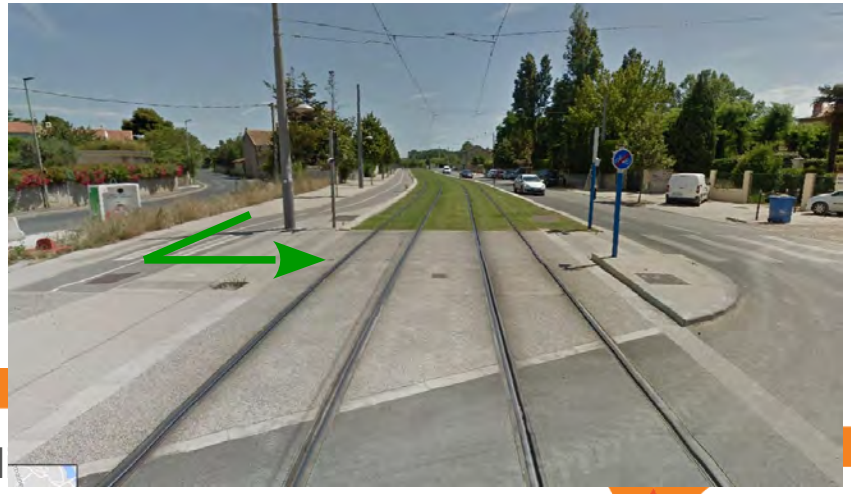
- Cyclist circulates along the tram lines, wants to turn at the junction ans is hit by a tram

Objectives:
- Aware cyclist of the tram approaching
- Ensure the coherence and the perception of the traffic signs for cyclists

- Cyclist circulates along the tram lines, wants to turn at the junction by using the pedestrian crossing

Objectives:
- Aware cyclist of the tram approaching
- Ensure the coherence of traffic signs for cyclists
- Improve mutual visibility





Cyclists' risks in station

- Cyclist circulating on the tracks to avoid the station and get hit by a tram coming behind

Objective:
- Ensure the continuity of cycle routes (preferably behind the station)

- Cyclist circulating along the tram lines and hitting a pedestrian joining or leaving the station

Objectives:
- Ensure enough place for pedestrians and cyclists around the station
- Improve the perception of cycle paths for every road users
- Define pedestrian crossings in relation with cycle paths

- Cyclist using the platform to cross the station and hitting a pedestrian

Objectives:
- Ensure the continuity of cycle routes (preferably behind the station)
- Avoid the circulation of cyclists on the platform

- In shared area, cyclist hitting the “nose” of the platform and falling on the track

Objective:
- Improve the perception of the nose of the platform

- In shared area, cyclist overtaking the tram stopped in station and falling on the separator

Objective:
- Improve the perception of the separator

Cyclists' risks in isolated crossing

- Cyclist crossing suddenly when a tram arrives behind him

Objectives:
- Improve the perception of tramway arrival
- Improve the mutual visibility between cyclists and tram drivers

- Pedestrian using the cycle path such as refuge in the crossing

Objective:
- Avoid pedestrian stop on cycle path

Cyclists' risks in beginning and exit of cycle paths

- Cyclist circulating on track at the end of the cycle route

Objective:
- Ensure the continuity of cycle route

- In dedicated area, cyclist getting hit by a motorised vehicle circulating on cycle path

Objective:
- Avoid intrusion of motorised vehicles on cycle path

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