

# *Training session for Emilia-Romagna Municipalities*

*Bologna, 27<sup>th</sup> October 2010*

## **Designing and setting up loading and unloading areas**

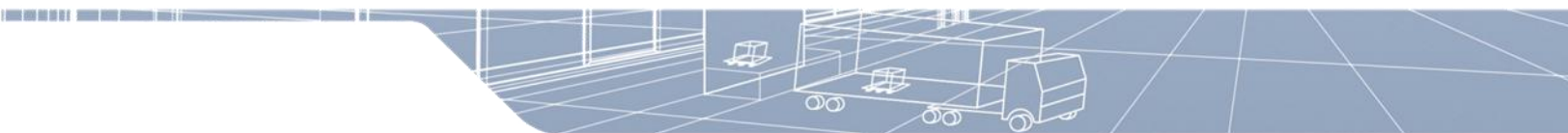


*Jean-Baptiste Thébaud*  
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# Agenda

- Deliveries in urban areas
  - What are we talking about ?
- Designing a delivery space
  - How should a delivery space look like ?
- Quantifying the needs
  - How many delivery spaces should I create ?

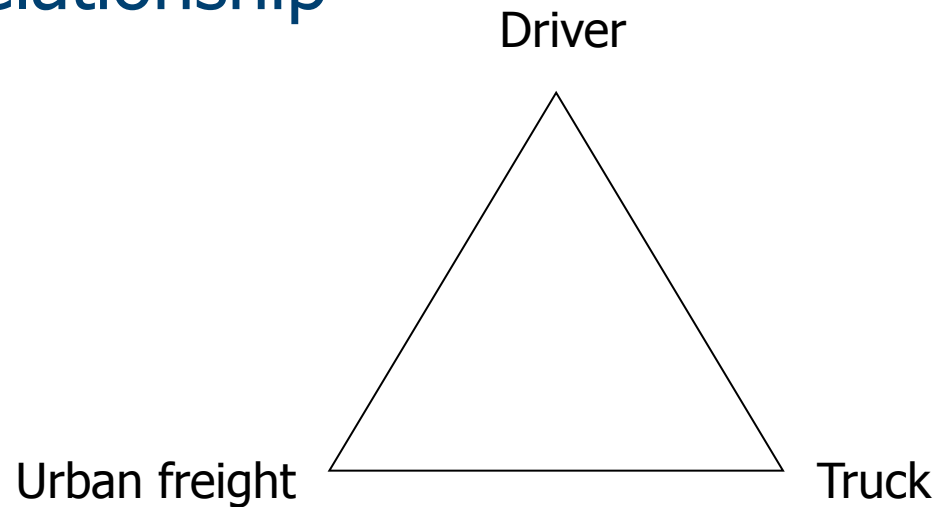


# Deliveries in urban areas

What are we talking about ?

# Deliveries in urban areas

- A triangle relationship



- Each item has its own constraints
- The urban context as a common one

# The driver

- A 10h-per-day job, including :
  - Logistic operations on platforms
  - Driving
  - An amount of up to 150 deliveries, with individual demands on time or handling of freight
- Narrow streets, bus or bicycle lanes, users in a hurry ... make driving and delivering a real challenge
- **Time, a major key in the planning of a day**

# The driver

- Driving, parking, handling must be as fast as possible !
- A good delivery space will be :
  - Easy to use
  - Quick to use
  - Well located (near delivery point, but also on the driver's route)
- ... and free

# Urban freight

- Various sizes and weights
- Several types of packaging, associated with several handling equipments
- The more heavy and bulky the freight is, the more ergonomic the place to park and the path to the delivery point should be

# Urban freight

## ■ Pallets



Handling equipment :  
pallet-truck

# Urban freight

## ■ Rolls



Use of the lift gate

# Urban freight

## ■ Drums



Use of the lift gate

# Urban freight

## ■ Parcels



Handling equipment :  
cart

# Urban freight

## ■ Parcels



Handling equipment :  
2-wheeled trolley

# Urban freight

## ■ Parcels



Handling equipment :  
nothing but hands !

# Urban freight

- When handling freight, the behaviour and specific needs of a driver are close to those of disabled persons
- Conception of delivery spaces, but also pavements, sidewalks etc... should take that point into account

# The vehicle

- Various types and sizes, depending on the types and sizes of freight
- Some specific logistic with adapted means



# The vehicle

- Light trucks



# The vehicle

## ■ Middle-size trucks

12 t truck



7.5 t truck



# The vehicle

- Heavy trucks

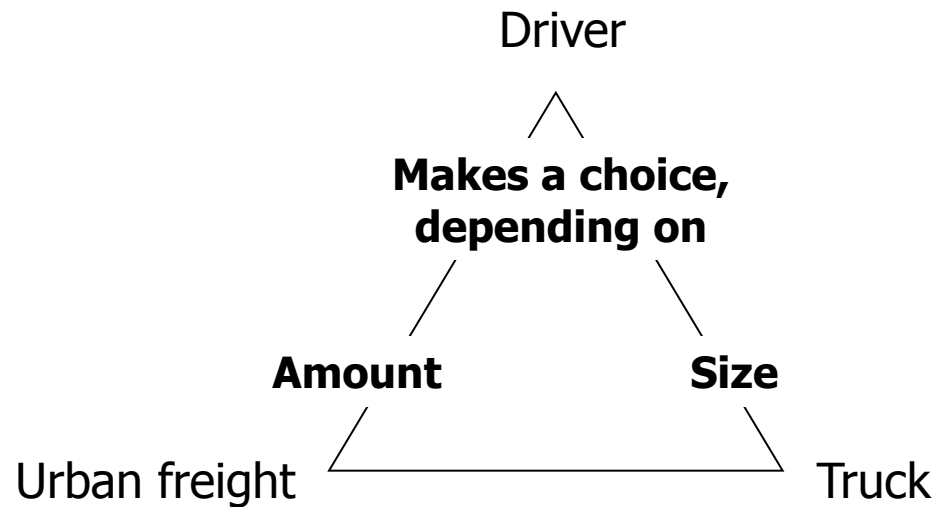


# The vehicle

- The usual size of a urban freight vehicle is around 12 m long
- Sizing of delivery spaces should be based on that length

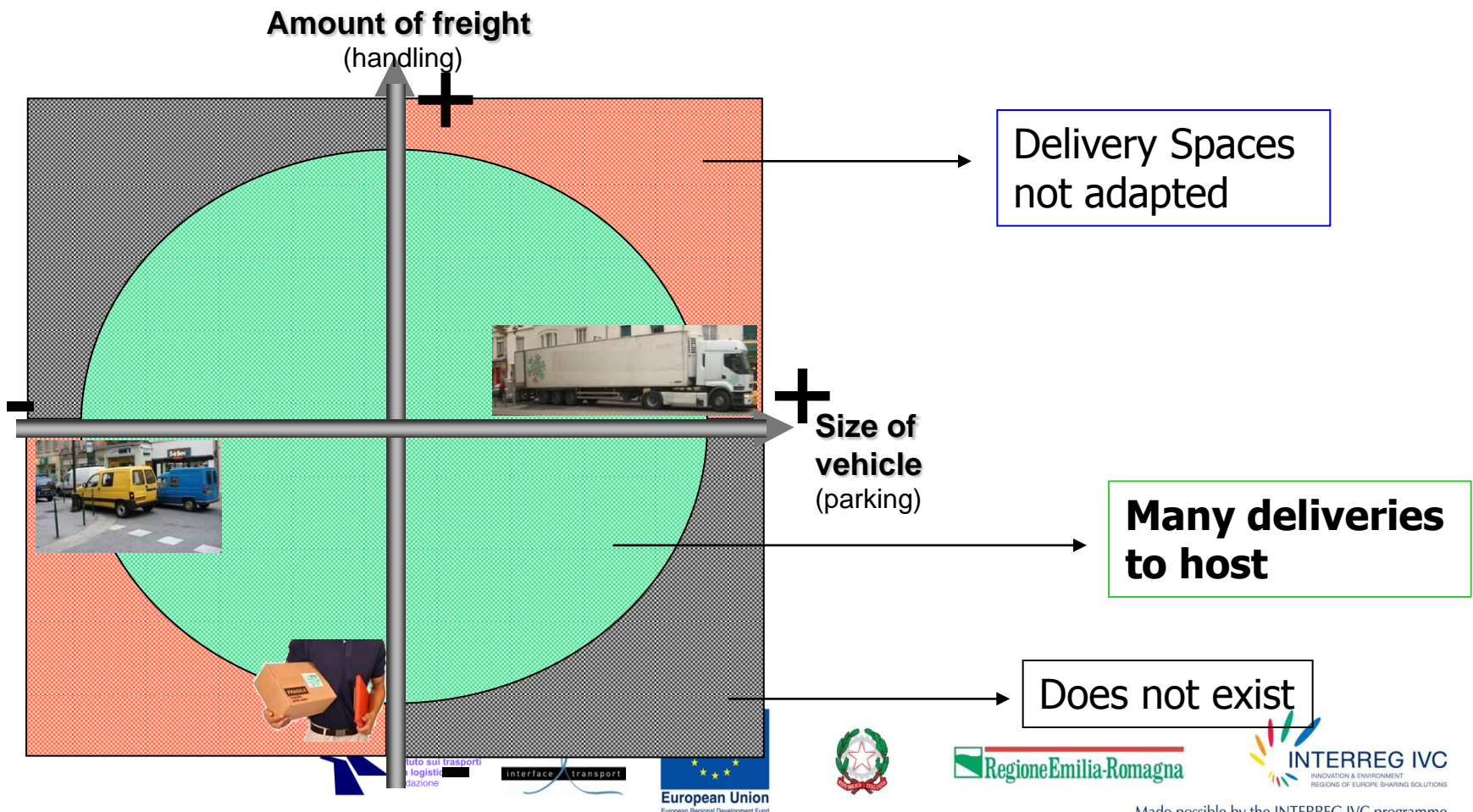
# Delivery spaces

- The triangle defines a way of stopping to deliver goods



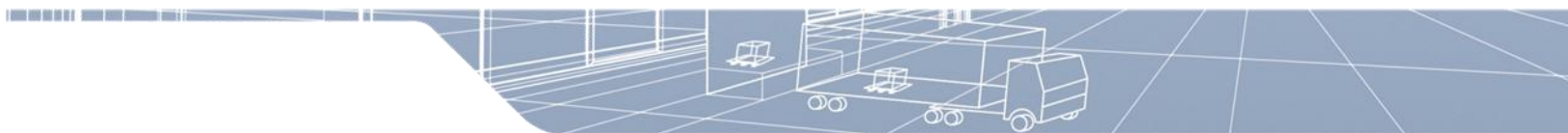
# Delivery spaces

- Delivery spaces are not a universal tool !



# Regulation

- The efficiency and the correct use of delivery spaces depends highly on local regulations
  - Can they be dedicated to fleet operators ?
  - Is double lane forbidden ?
  - How strong is enforcement ?
  - ...
- Rules must be adapted to local context
- Local regulations may change !



# Designing a delivery space

How should a delivery space look like ?

# A crucial question



- An inadequate design will make the delivery space useless
- (so will an inappropriate enforcement !)

# Length

- The delivery space should be long enough to host a middle-size truck, its lift gate, a pallet truck ... and the driver handling freight !
- **Advocated length : 15 meters**

# Width

- Most urban trucks are wider than private cars
- Delivery spaces should thus be wider than parking spaces
- **Advocated width : 2,50 m**



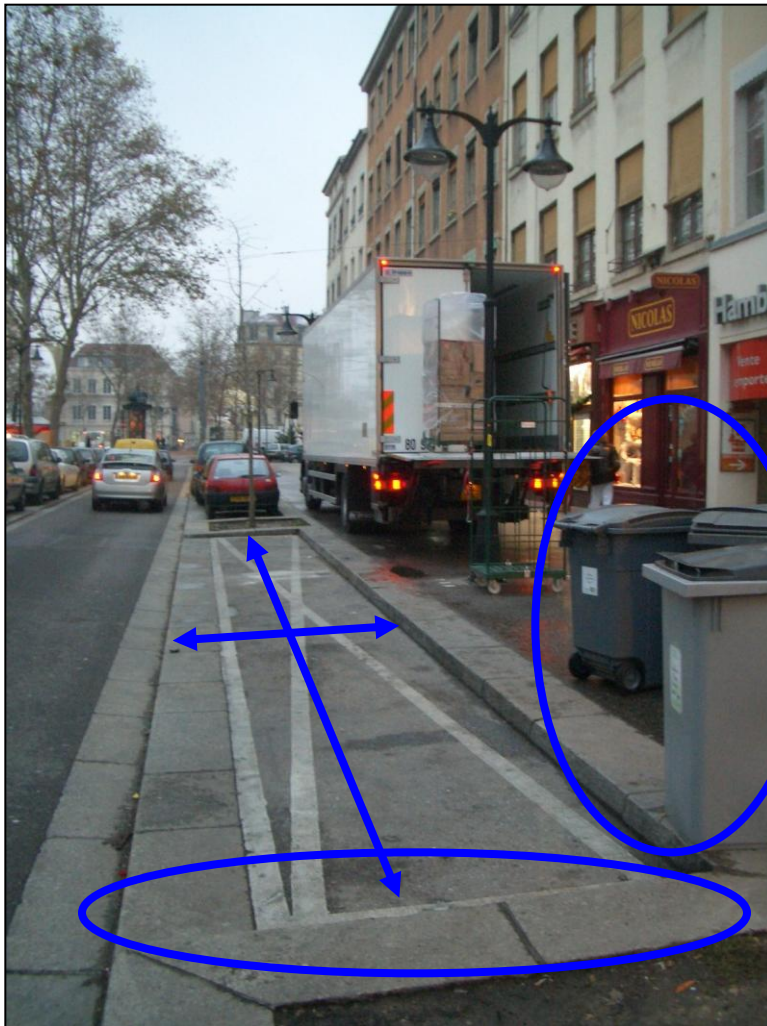
# Kerbs

- The easy use of handling equipments will make the delivery space more functional
- **Advocated configuration : close to a lowered kerb**
- It can be found next to pedestrian crossings, private accesses ...

# Sidewalks

- The driver has to stride sidewalks with bulky handling equipment
- **Advocated configuration : allowing an 1,40-m-wide path to all activities to be served**

# A crucial question !

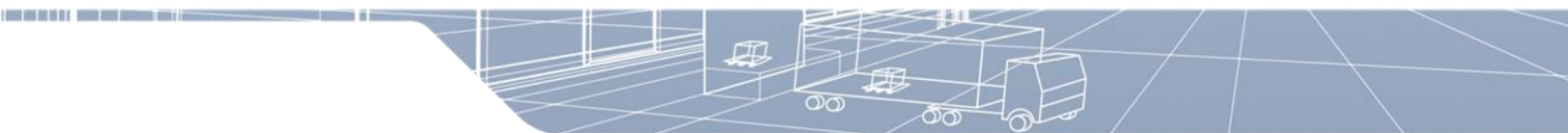


- Not wide enough
- Not long enough
- No possible climbing of the kerb
- Obstacles on the sidewalk

# Aspect

- Depends mainly on national / local regulations !
- French delivery spaces are meant to be yellow, with « LIVRAISON » written along them, and possibly a vertical sign

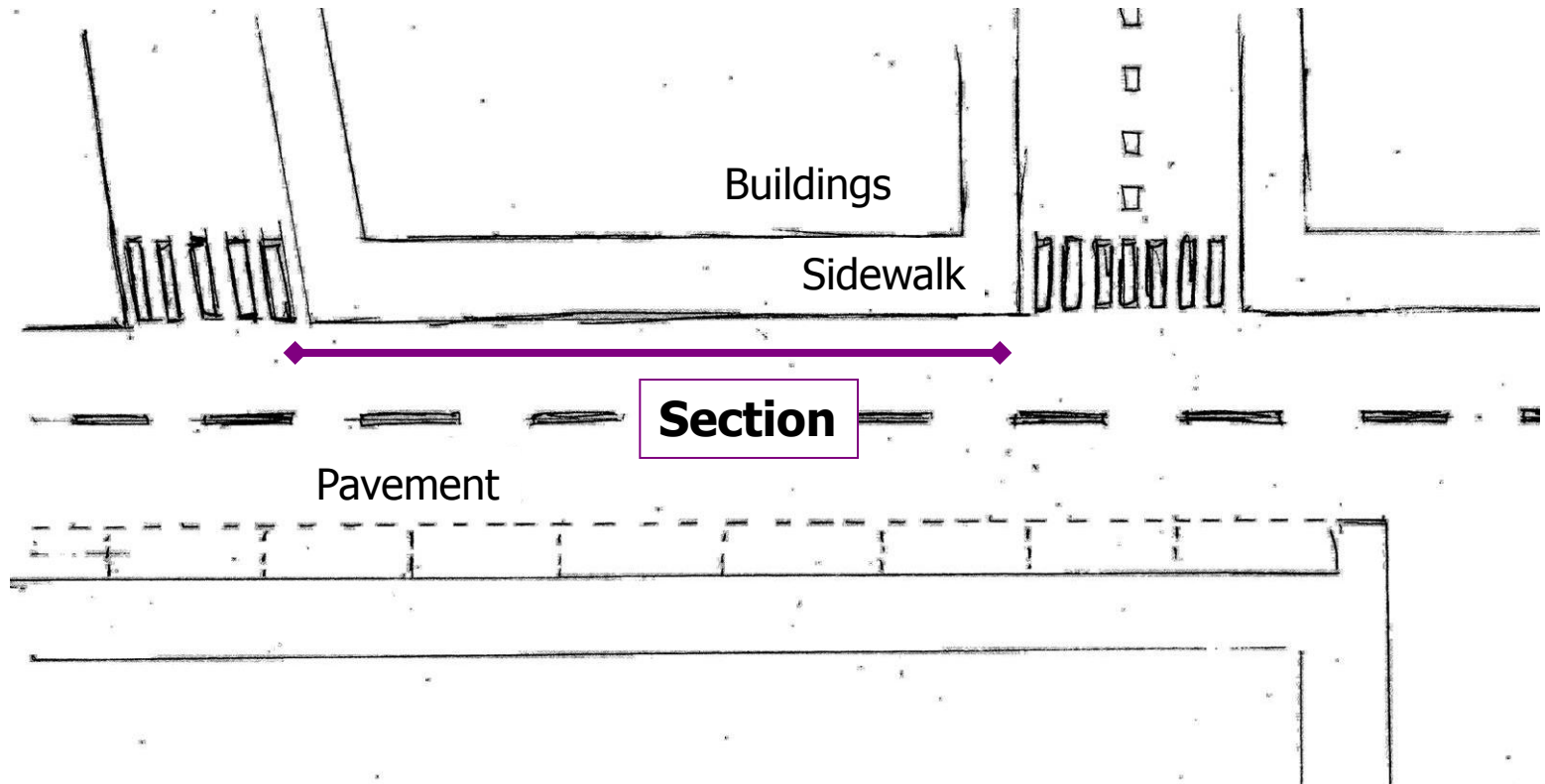




# Quantifying the needs

How many delivery spaces should I create ?

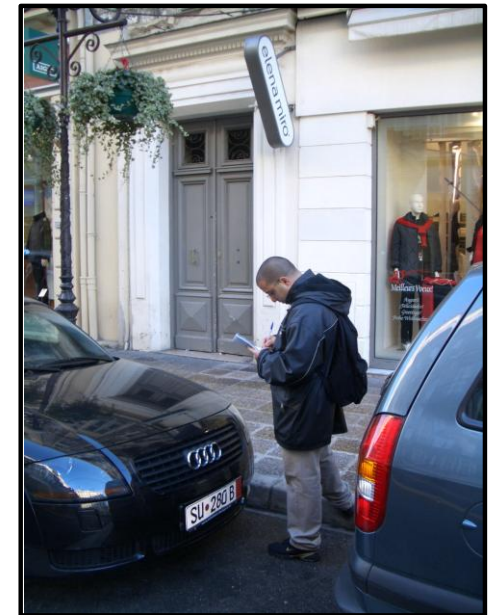
# A matter of area



- A calculation should be made for each section

# A matter of activity

- The number of delivery spaces needed depends highly on the nature of activities to be delivered
- Unless a very precise and on-date file exists, the best way to determine how many spaces are needed in a place is ... to go there



# A matter of activities

- Every shop, store, urban industry receives a number of deliveries which is directly linked to its nature
- Once the different activities are identified, a simple calculation allows to quantify a number of delivery spaces
- A method based on **14 categories** covering all types of activities

# A matter of activity

	Type of activities	Remarks
1	Cafés, hotels, restaurants	
2	Bakeries, pâtisseries	
3	Butcher's shops, delicatessen	
4	General grocery store	category 10 if SA > 400 m <sup>2</sup>
5	Clothes retail shops	category 10 if SA > 400 m <sup>2</sup>
6	Bookshops, stationer's shop	category 10 if SA > 400 m <sup>2</sup>
7	Pharmacies	should not be included in the calculation
8	Other retail businesses	category 10 if SA > 400 m <sup>2</sup>
9	Furniture stores	not related to their size
10	Large stores (superficy > 400 m <sup>2</sup> )	special case
11	Wholesalers	
12	Bank branches	should not be included in the calculation
13	Tertiary sector, mobile tradesmen and craftsmen	
14	Small-scale manufacturers and small businesses	

## Specific cases

- Every time it is unclear what the shop is, the investigator should ask, or figure out which category best fits
- Some exceptions to be noted
  - Delivery spaces will never meet the needs of pharmacies (very short and numerous)
  - Banks should be considered as service sectors – cash deliveries not included
  - Any shop with a private space dedicated to deliveries will not be taken into account

## Specific cases – big stores

- As soon as the sales floor exceeds 400 m<sup>2</sup>, it is considered a big store
- The biggest stores must be ranked cat. 10, whatever their nature
- For such stores, public authorities should discuss the possibility of creating a private space, instead of affording a delivery space dedicated to them

# The number of delivery spaces

- A theoretical approach, based on the activities surveyed
- A calculation based on a number of deliveries per week for each type

# The number of delivery spaces

	Type of activity	Coeff.
1	Cafés, hotels, restaurants	6,25
2	Bakeries, pâtisseries	8,07
3	Butcher's shops, delicatessen	10,50
4	General grocery store	9,53
5	Clothes retail shops	3,23
6	Bookshops, stationer's shop	13,80
8	Other retail businesses	7,53
9	Furniture stores	7,50
10	Large stores (SA > 400 m²)	83,94
11	Wholesalers	21,67
13	Tertiary sector, mobile tradesmen and craftsmen	2,43
14	Small-scale manufacturers and small businesses	7,81

4, 5, 6, 8 Must be converted in cat. 10 if sales floor over 400 m²  
 10 Any store with a sales floor over 400 m²

# The calculation rule

1. All deliveries for a given section should be mounted up
2. The overall should be divided by 90
3. The result is the theoretical number of delivery spaces

# Rounding off the results

- The theoretical number is a real number ( $\neq$  integer)
- The final number of delivery spaces will depend on :
  - Surrounding urban constraints
  - How easy it is to create a space
  - What is feasible on next and previous sections

# Locating the spaces

- Two main parameters should help determining the precise location of the delivery spaces :
  - Make the driving and handling of freight as easy as possible
  - The more deliveries a shop receives, the closer the space should be

# Locating the spaces

- The driving and handling are easier when :
  - At the beginning of a section (no driving back)
  - Close to any spot where a pallet truck can access the sidewalk (lowered kerbs ...)
  
- A balance to find between :
  - Where most deliveries occur
  - Where the use of the space is the easiest
  - What is technically feasible !

# Thank you



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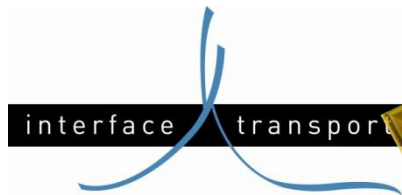
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**PRACTICE**



istituto sui trasporti  
e la logistica  
fondazione

# Are these del. sp. correctly designed ?

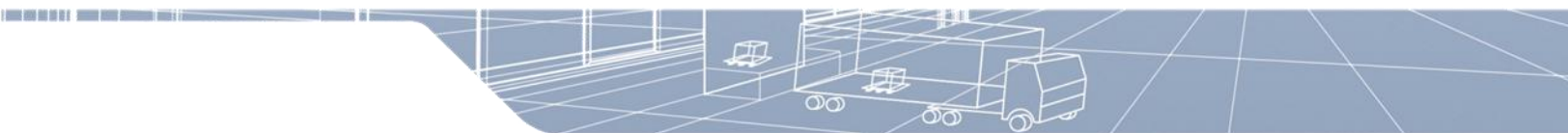
- Length
- Width
- Kerbs
- Sidewalks

















8









12





14



# Inventory grid

[illegible]

# Inventory grid

Section end (street) :			
Total			
Theoretical number of Delivery Spaces ( = Total / 90 )			

# Activity grid

	Type of activity	Coeff.
1	Cafés, hotels, restaurants	6,25
2	Bakeries, pastry shops	8,07
3	Butcher shops	10,50
4	Groceries	9,53
5	Retail stores (clothing)	3,23
6	Book stores, paper houses	13,80
8	Retail stores (others)	7,53
9	Furniture stores	7,50
10	Chain stores (superficy > 400 m <sup>2</sup> )	83,94
11	Wholesale dealers	21,67
13	Service sectors, administrations	2,43
14	Craft industry	7,81

4, 5, 6, 8 Must be converted in cat. 10 if sales floor over 400 m<sup>2</sup>

10 Any store with a sales floor over 400 m<sup>2</sup>

# Thank you



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