

How to improve urban accessibility for the Deaf and Hard of hearing?

Sébastien FROMENT
Accessibility Project Manager, Cerema

11/06/2021



Hearing loss: how can accessibility be improved?

Decision-makers, technicians and all those involved in working to improve the accessibility of the living environment often find themselves at a disadvantage when attempting to take into account all the disabilities covered by the 2005 law. This series of factsheets is intended to help them understand the disability situations encountered by a wide range of users.

Article 2 of the French law of 11 February 2005 specifies that disability may be caused by deterioration "of one or more physical, sensory, mental, cognitive or psychological functions".

Among the sensory impairments, hearing loss and the difficulties it causes are still poorly understood by decision-makers and designers, who therefore find it difficult to take them into account in designing the mobility chain. However, there are many such impairments and many ways to improve the accessibility of the living environment for all those who have difficulty hearing or cannot hear.

The purpose of this factsheet is to present the essential aspects of what is known about this disability. It also addresses the technical or organisational recommendations to be implemented in the context of improving the travel chain, in order to eliminate or mitigate the difficulties encountered by the persons concerned.



Factsheet No. 5 - July 2020

Connaissances | Series

Publication release

Hearing loss? A very varied range of situations!

Hearing loss: population

- Between 11%-16% of the French population
- Very severe or total hearing loss population: 360,000 people
- Different categories of population
 - The « Hard of hearing » population
 - The deaf population

Degree of deafness

	Daily activities	Range
Normal		
Mild	Difficulty hearing low and distant speech	from 21 to 40 dB
Moderate	Difficulty hearing group conversation	from 41 to 70 dB
Severe	Speech can be perceived if very loud and close	from 71 to 90 dB
Very severe	Speech is not perceived. Only very loud noise	greater than 91 dB
Total	No perception	

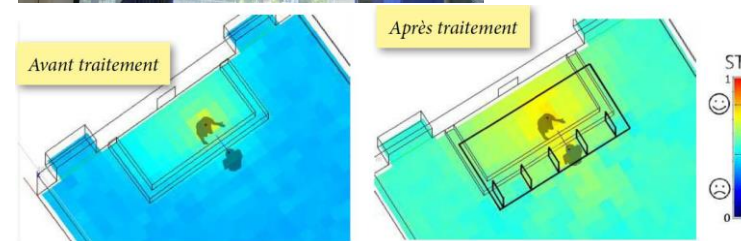
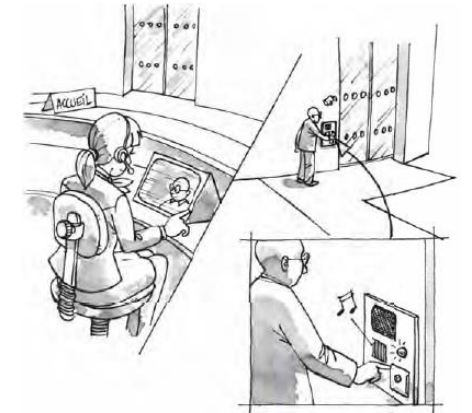
Difficulties encountered by people and solutions for city makers

Difficulties and solutions

Situations	
Discomfort	Oral communication is difficult
	Sound or visual environment is uncomfortable
Stress	Sound messages are inaudible
	Insecurity caused by other users
Danger	Failure to perceive alert messages

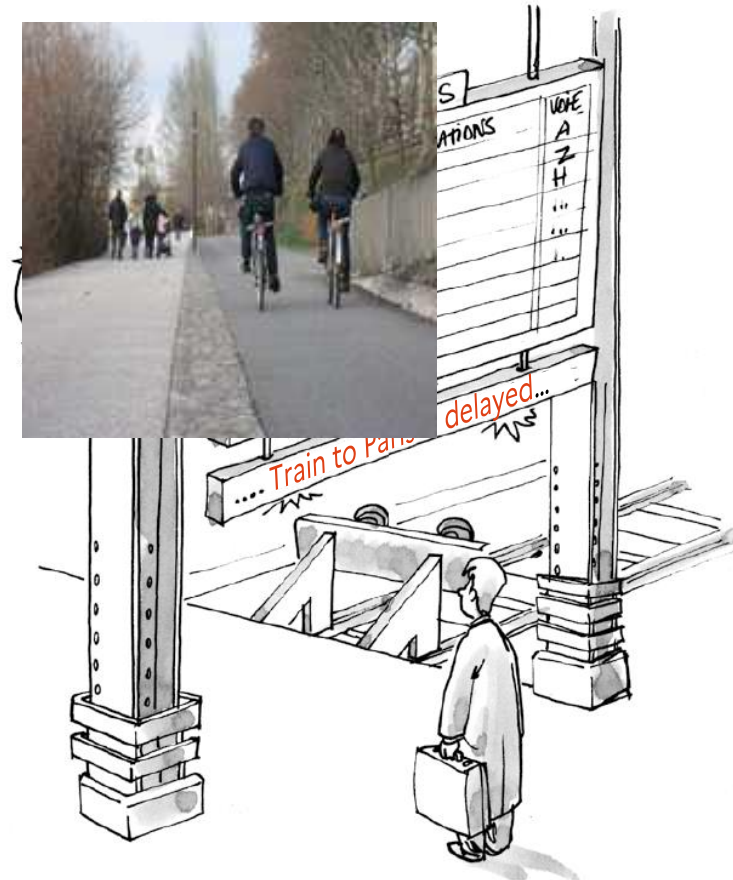
Discomfort

	Difficulties	Possible solutions
Oral communication is difficult	<ul style="list-style-type: none"> Understanding information given orally Being understood, especially when seeking help (including from reception staff) Entering a building equipped with an intercom system 	<ul style="list-style-type: none"> Training staff, particularly in public building reception services Providing technical aids such as induction loops, ensuring that staff are fully familiar with their settings and how they are to be used Duplicating the information given orally by a visual display
Sound or visual environment is uncomfortable	<ul style="list-style-type: none"> Concentrating Resisting tiredness Putting up with noisy spaces Determining where sounds are coming from Understanding complex spaces or their signage 	<ul style="list-style-type: none"> Sound quality of the premises, particularly in reception areas and at counters to make conversation easier Duplication of any audio information in visual form; Quality of visual indications (harmonized, legible, understandable); Quality of lighting to distinguish and identify places, access visual information and see the person one is talking to



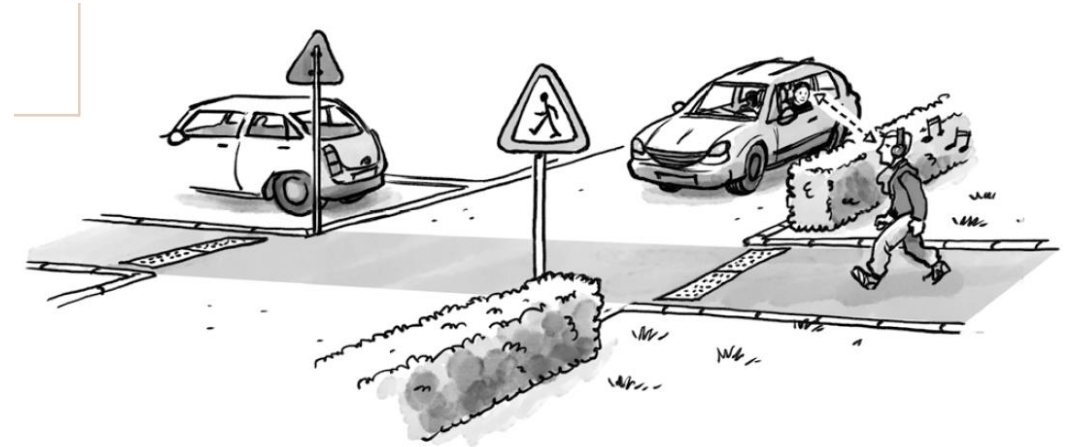
Stress

	Difficulties	Possible solutions
<p>Sound messages are inaudible</p>	<ul style="list-style-type: none"> ▪ Perceiving and understanding information without a visual message ▪ Obtaining information on unforeseen events and adapting to them ▪ Understanding what is happening in the event of an alert 	<ul style="list-style-type: none"> • Displaying the line and the direction, and visual announcements of stops in buses and trains • Real-time wait information at bus stops • Screens in stations giving information about times, platforms and even delays if there are any
<p>Insecurity caused by other users</p>	<ul style="list-style-type: none"> • Not being taken by surprise by another road user (bicycle, car, priority vehicle, etc.) outside the field of vision 	<ul style="list-style-type: none"> • Identifying pedestrian routes in shared spaces (separation between pedestrians and bicycles) and signage in conflict areas (crossings, intersections) • Signs and marking for reserved bus lanes running counter to the direction of car traffic • Signs and marking the intersection of pedestrian routes and tramways



Danger

	Difficulties	Possible solutions
<p>Failure to perceive alert messages</p>	<ul style="list-style-type: none"> ▪ Perceiving alert messages and alarms (evacuation, fire, incident alert) in public buildings in order to respond appropriately ▪ Perceiving warnings from other road users 	<ul style="list-style-type: none"> ▪ Devices (vibrating or light signals) to be associated with the standard general evacuation sound emitted by audible fire alarm devices installed in public buildings ▪ Mutual visibility in danger zones and limiting mask effects



Thank you

Sébastien FROMENT
sebastien.froment@cerema.fr

