

FLOWELL

by



IMPROVING THE WAY WE SHARE PUBLIC SPACE





A GROWING NEED TO IMPROVE THE WAY WE SHARE PUBLIC SPACE

As cities continue to expand, new forms of mobility emerge. But it is sometimes difficult for existing public spaces to accommodate them, and allow for peaceful cohabitation.

MORE CITY DWELLERS AND NEW FORMS OF MOBILITY

In France, more than three-quarters of inhabitants, i.e. nearly 50 million people*, live in or near an urban area. And the numbers keep growing. In cities, forms of mobility perceived as more practical are expanding. For example, according to the Ademe, biking is faster than using a car for urban journeys of less than 5 km. As a corollary, we have observed a lower use of cars in large cities.

FREE UP PUBLIC SPACE

With the growing number of different forms of mobility, public space is becoming saturated. Bringing buses, bicycles, cars, pedestrians and other modes of transport together in a limited space is a real issue. Nowadays, large-scale urban planning projects include more multifunctional, easily adaptable public spaces.

However, for existing public spaces, the issue is still the same. How to redesign space to accommodate more uses, without having to rethink and rebuild it completely?

*Sources: Insee and the Center of Social Observation

“We have designed our cities around cars for a century but the constraints of space, public health and the fight against global warming have now forced us to seek new mobility solutions

As new ideas become more mainstream, we are witnessing an incredible proliferation of new ways to get around in the future. By experimenting and by asking people what they think about these new types of transport, we will be in a position to respond to the mobility challenge.”

ANDRÉ SANTINI, FORMER MINISTER, MAYOR OF ISSY-LES-MOULINEAUX AND VICE PRESIDENT OF THE GREATER PARIS AREA

“Our city’s growth is accompanied by a demand for increasing mobility, whereas the different modes of travel are saturated in rush hour.”

MICHÈLE FRICHEMENT, MOBILITY PROJECT MANAGER FOR THE CITY OF LYON

“The challenge is to promote mobility services that respond to user needs both during rush hour and during off-peak hours as well. The question is to know how to use intelligence on roads, rails, multimodal transit. How can we use smart time-specific distribution to find new uses for infrastructure?”

ANTOINE DU SOUICH, DEPUTY STRATEGY AND INNOVATION DIRECTOR, EPA PARIS SACLAY

FLOWELL, A COLAS INNOVATION PROMOTING A GREATER DIVERSITY OF USES

To meet the growing needs for a better sharing of public spaces, Colas has created Flowell, a new mobility guiding solution.

A SOLUTION TO BETTER ORGANIZE PUBLIC SPACE

Flowell can visually structure city streets and urban, peri-urban and country roads, using integrated, dynamic, luminous signaling. The goal is to respond to new ways that people use roads to accommodate every type of mobility.

→ Roads shift from being a simple passageway to being a shared space, where everyone has a place.

A COLAS INNOVATION

Flowell stems from design process led by Colas teams. It thus benefits from the technological expertise of a leader in transport infrastructure.

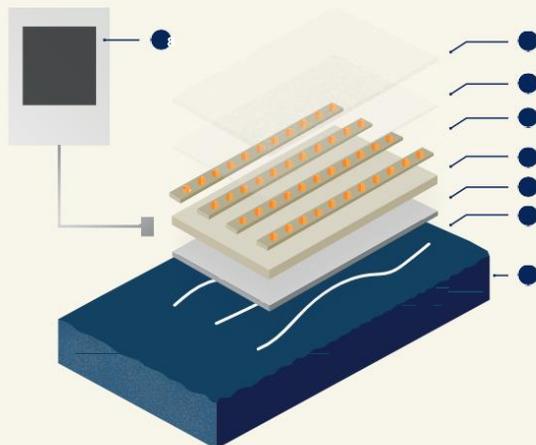
The solution is based on multi-layer slabs with encapsulated LEDs, which are hooked up to the electrical network.

The slabs are also connected to control terminals.

Bonded on the pavement, the surfacing still provides the same skid-resistance and grip as a conventional wearing course.

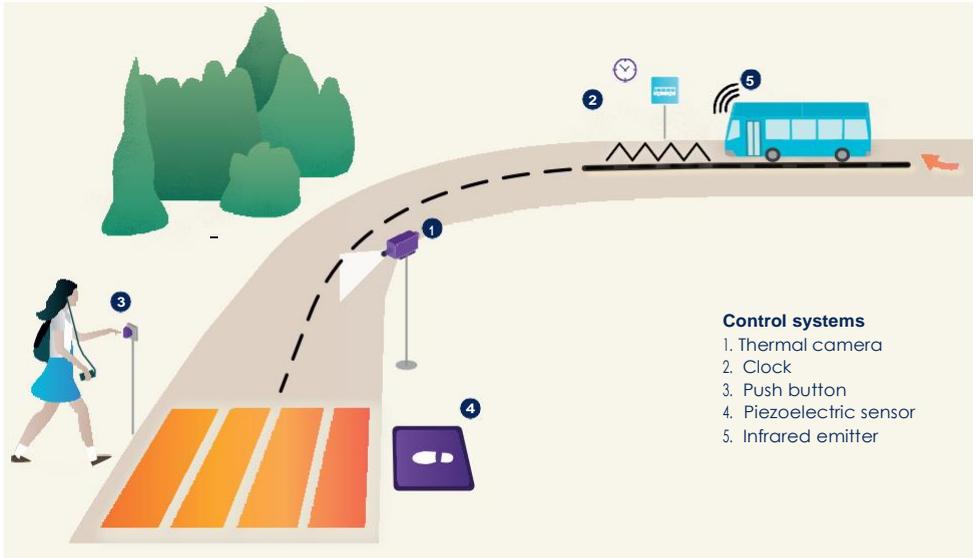
Flowell is designed to last, and can be modulated:

- it can withstand thermal expansion and vehicle loads;
- size and brightness can be tailor-made to suit every situation



Composition of the slab

1. Translucent resin + glass grains
2. Translucent mechanical protection
3. LED ribbons
4. LED support
5. Mechanical protection
6. Glue
7. Substrate
8. Control terminal



Following the initial laboratory tests performed jointly by teams at the Colas Campus for Science and Techniques and CEA Tech*, Flowell is now entering an experimental phase in real life conditions.

The FabLab at CEA Tech is building the first trial sections.

ADAPTING TO EVERY NEED

The Flowell solution can include a range of control options, depending on the operator's specific needs: sensor activation, time programming, thermal cameras, etc.

The LEDs can be turned on to follow the movement of users, providing a dynamic and interactive road management system.

➔ **Flowell is a scalable, modular solution that adapts to the user needs, and can be managed directly by local officials**

PRIORITY USES OF FLOWELL: IMPROVE MOBILITY FLOWS AND SAFETY IN SENSITIVE ZONES

Flowell is very flexible, and can be used to adapt roadways in real time to the needs of users.

It helps to make for smoother traffic on existing traffic lanes by giving priority to certain vehicles during specific time periods.

For example, the transition from a solid line to a dotted line, with the appropriate signage, may allow:

- to open up a lane normally reserved for priority vehicles to general traffic
- temporarily assign the road to one or more priority vehicles or a category of users.

Flowell also makes pedestrian crossings safer, and lighting up the white zebra stripes improves visibility. In the same manner, bus stop markings can light up as the vehicle pulls in, which makes them more visible for all users.

*Technology research unit at CEA (French Atomic Energy and Alternative Energy Commission)

The main uses of Flowell: how to manage mobility flows and improve safety in hazardous zones



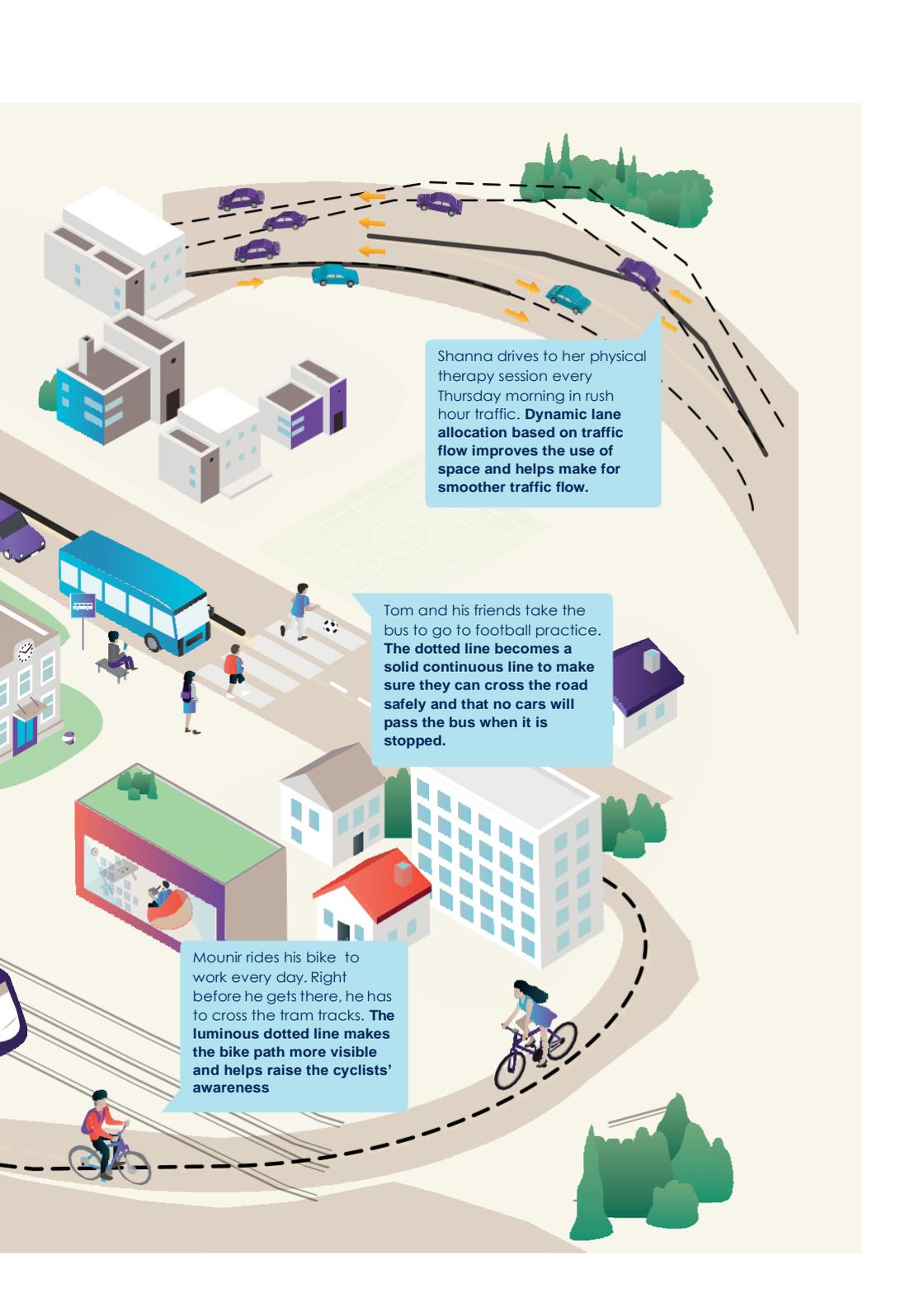
Jack and Ann are waiting for the bus to go to the movies. The zebra markings light up to warn drivers as the bus pulls in, making the bus stop safer.



Michel delivers produce to the day care center every week. During delivery hours, the road marking lights up to inform users that the parking spot is for delivery only.



When Laëtitia drops her children off at day care every morning, she parks her car at the Park and Ride lot. As the pedestrian crossing lights up, it attracts the drivers' attention and makes crossing the street safer.



Shanna drives to her physical therapy session every Thursday morning in rush hour traffic. **Dynamic lane allocation based on traffic flow improves the use of space and helps make for smoother traffic flow.**

Tom and his friends take the bus to go to football practice. **The dotted line becomes a solid continuous line to make sure they can cross the road safely and that no cars will pass the bus when it is stopped.**

Mounir rides his bike to work every day. Right before he gets there, he has to cross the tram tracks. **The luminous dotted line makes the bike path more visible and helps raise the cyclists' awareness**

ADVANTAGES FOR USERS

Flowell redefines the relationship between users and infrastructure by providing more comfort, improved safety and better accessibility.

PUBLIC SPACE MORE ACCESSIBLE

The first advantage that Flowell provides is making public space more accessible. By structuring space, it favors multimodal mobility and makes it easier to get around town.

Users can move around with greater ease and access different existing modes of transport.

➔ With shorter travel times during rush hour and optimized car and public transit routes, Flowell is a solution that changes cities.

MAKING MOBILITY MORE COMFORTABLE

The other benefit of Flowell is comfort. Users can now enjoy a visible, welcoming route. Coupled with light sensors, the solution adjusts to light intensity day and night, ensuring softer, visible lighting.

Users also benefit from a new mode of signaling, with a better integration into public space, thus creating dynamic and interactive mobility.

➔ Integrated and activated on demand, the Flowell solution makes for more effective urban planning.

IMPROVING SAFETY

Flowell is synonymous with safe public space.

The signal is visible to all users and makes the road safer for the most exposed users: pedestrians and cyclists. It also protects the most vulnerable people in public space: children and the elderly.

➔ More visibility means less stress and more serenity on streets and roadways.

ADVANTAGES FOR COMMUNITIES

Flowell brings tailor-made responses to urban issues by dynamically managing space to ensure optimized use of infrastructures.

IMPROVE PUBLIC SPACE MANAGEMENT

For communities, Flowell is primarily a structuring solution for public space that increases the potential use of existing infrastructure.

Using Flowell makes the most of the streets and roads to:

- allow for greater mobility;
- welcome new forms of mobility, without putting them in competition with those already in use

→ An easy to use, modular solution serving the cities of tomorrow.

SAVE TIME AND RESOURCES

Flowell is flexible and simple to integrate. It is installed on existing roads and requires light cabling work, thus limiting long, inconvenient construction projects.

In rural areas, it offers an alternative to the widening of traffic lanes, which preserves farm land.

Because it allows communities to make better use of infrastructures, it is a pledge of value for money.

→ With Flowell, Colas also provides its vision, support and expertise in innovative, intelligent solutions, serving more functional and serene public space.



SHARE THE FLOWELL EXPERIENCE

Flowell is now in a partner-based trial with public and private stakeholders who want to work with Colas to build an efficient response to the mobility challenges of tomorrow.

Together, let's invent a more welcoming shared space

➔ For further information:
contact@flowellbycolas.com

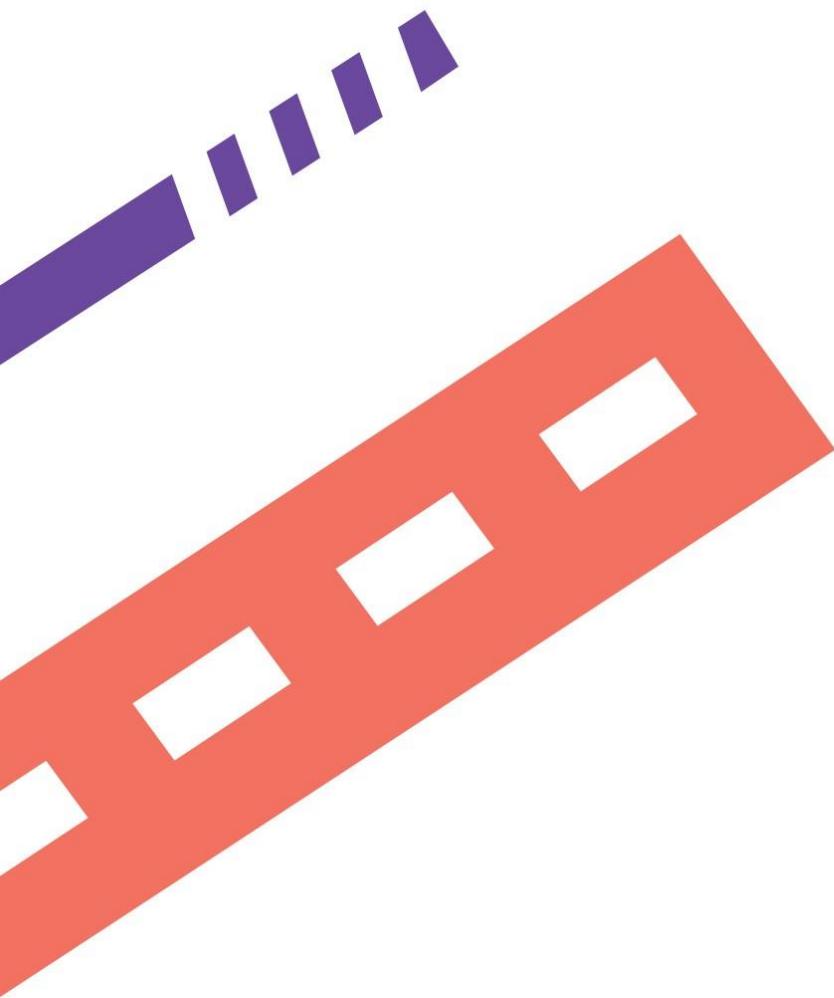
The Colas Group

Colas is a world leader in the construction and maintenance of transport infrastructure, aiming to meet the challenges of mobility, urban development and environmental protection. The Group performs projects via 800 construction business units and 2,000 material production units in more than 50 countries on five continents. Its international technical network boasts 2,000 research experts, engineers and technicians, who work in close synergy with operatives in the field. The network's flagship is its Campus for Science and Techniques, the road industry's premier worldwide private research and development center located near Paris, France, along with some 50 regional laboratories and 100 engineering design offices worldwide.



WE OPEN THE WAY





FLOWELL by  **COLAS**

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