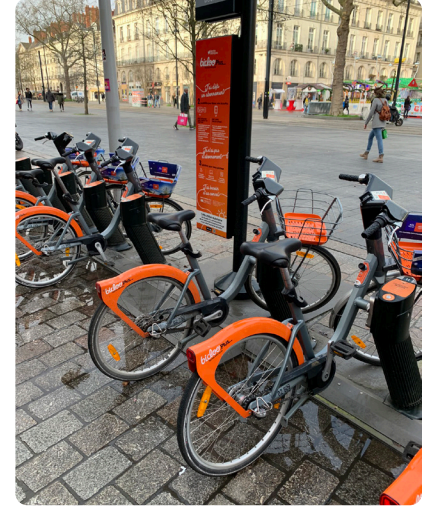


## 4 STAP Design Concepts

### SUSTAINABILITY

Sustainability is at the forefront of OUTFRONT/Decaux programs. The partners have long focused on environmental concerns, including reducing their carbon emissions, utilizing recyclable products and seeking solutions that would reduce the impacts program had on the environment. Our technological innovations have been geared toward a variety of sustainable solutions from beginning the large-scale bike share mobility movement to recycling rainwater. JCDecaux invented a new generation of bus shelters, *Filtreo*, which uses nature to improve air quality and provide cooling. Many out-of-home companies are committed to sustainable practices and that is important – but OUTFRONT/Decaux affiliates go beyond that... to invent infrastructure that actually focuses on improving our environment while concurrently providing services to bus riders.



### OTHER AMENITIES

Our program can incorporate a variety of elements expanding services for Angelenos. OUTFRONT/Decaux operates street furniture programs throughout North America and the partners of OUTFRONT/Decaux have a portfolio of thousands of street furniture programs across the US and in more than 70 countries. Candidly, there is no company with more experience or ability to provide any street furniture amenity that the City may desire than this joint venture. In the programs operated within the purview of these companies, there is no streetscape element that we have not provided to an authority and we would welcome working with the City of Los Angeles to structure a program that provides the services and amenities that Angelenos desire and deserve.

## SMART CITY SOLUTIONS

LA's vision to become a fully digital and connected city is well on its way. Under the leadership of the City's Information Technology Agency, LA is using data and installing Internet of Things (IoT) to improve the lives of residents, businesses, and visitors and the STAP program can be a key platform to install additional technology at the service of Angelenos, without imposing on privacy. From sensors to neutral hosting to platform touchpoints which support applications such as autonomous vehicles, OUTFRONT/Decaux infrastructure can support smart city solutions in many ways .

## WAYFINDING & CITY INFO

### DIRECTIONAL SIGN

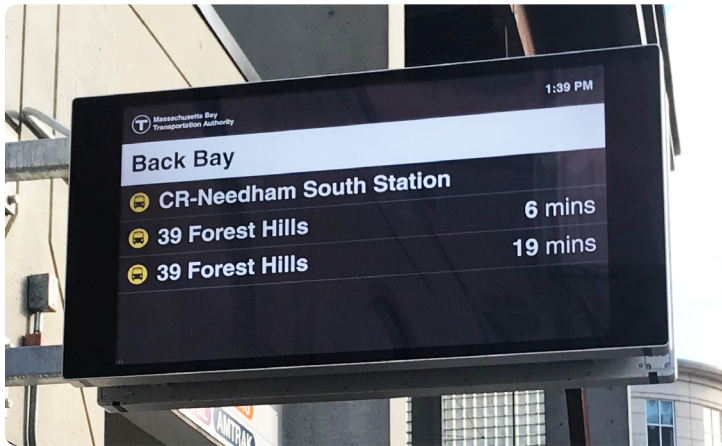


Providing the bus rider information at the point of transit including details about bus routes, wayfinding and area events is an important amenity for transit riders.



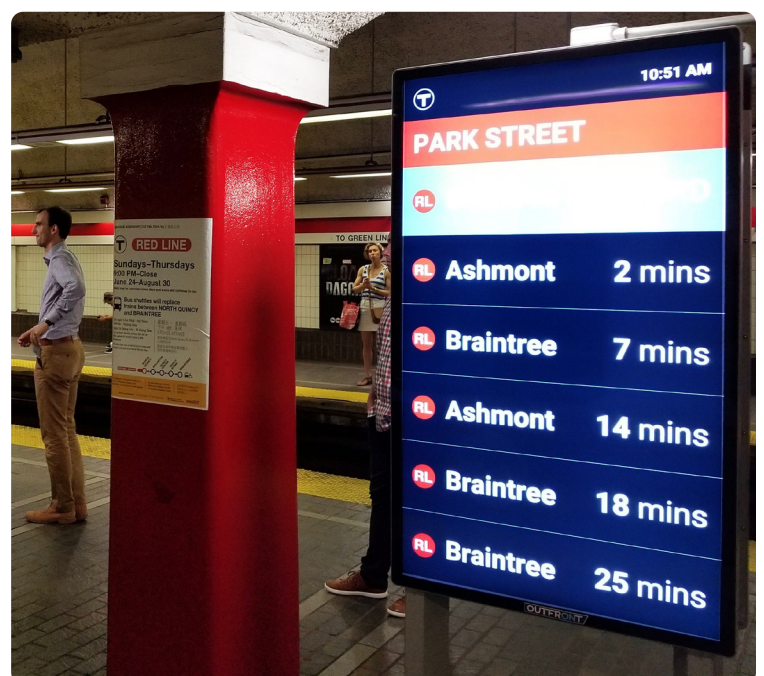
### INTERACTIVE INFORMATION





## REAL TIME BUS ARRIVAL

Transit information can be provided in many ways.



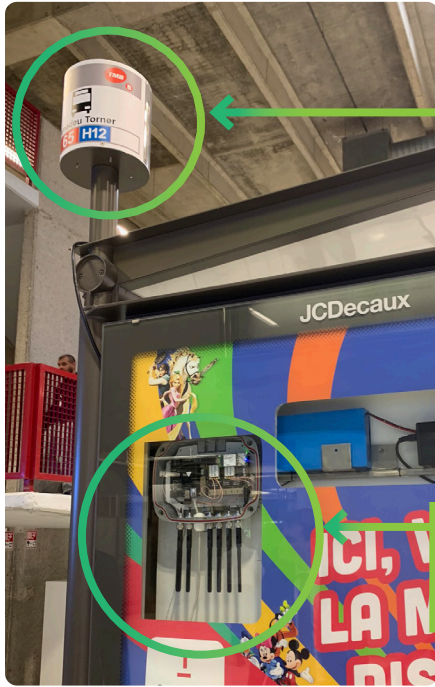
## CHARGING STATIONS

Transit riders are always on the go and can enjoy a boost of power while waiting for their transport.



## CONNECTIVITY

We all know that connectivity is essential for cities and particularly for cities focused on developing their “smart city” applications such as Los Angeles. We recognize that connectivity is critical to the innovation of streetscapes and the provision of new services to urbanites. OUTFRONT/Decaux partners have installed small cell networks in programs around the world and we would welcome partnering with the City to advance 5G or other technology in LA. Our bus shelters can be neutral hosting infrastructure and are designed with vacant internal space to permit the installation of small cells enabling improved coverage and performance.



**CONNECTIVITY TECHNOLOGY IMBEDDED IN INFRASTRUCTURE**



### CUTTING-EDGE TECHNOLOGY OPTIONS

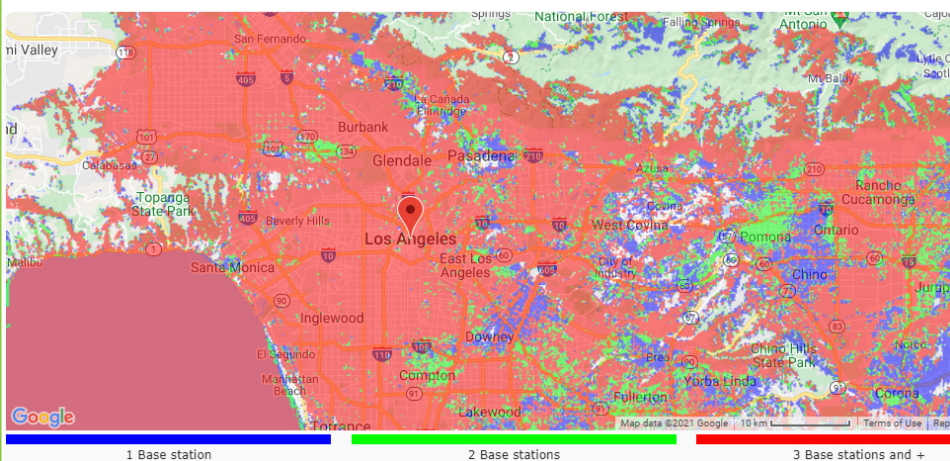
The partners of OUTFRONT/Decaux can support many *Internet of Things (IoT)* use cases, including smart parking, air quality sensors for city of LA through a private CBRs (Citizen Broadband Radio Services) data networks. This shared infrastructure network can be extended further to Mobile Virtual Network Operations, extending network coverage to meet FCC compliance. This partnership includes *Intel* and *TechMahindra*, a global leader in managing large scale network operations. The *Microsoft Urban Innovations* team is another partner of ours for *IoT* programs in street furniture.

**An April 2020 survey of families who reside in Watts, South LA and Boyle Heights noted that 16% did not have internet access.**

*Partnership for LA Schools*

## SENSORS

OUTFRONT/Decaux partners are two OOH companies who are leading the way in the deployment of sensors in the service of data collection for their partners. Los Angeles is already implementing smart city technology reaching out across borders to engage, share and learn from other cities through the Smart Cities Consortium and Mayor Garcetti's discussions with other local elected.



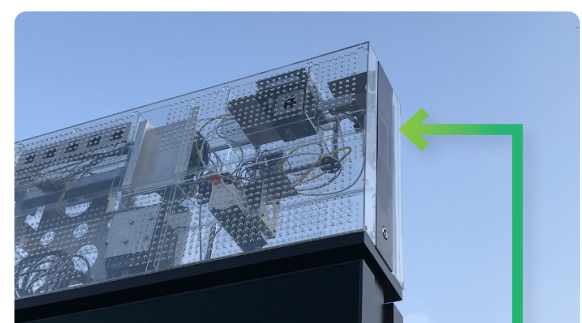
**STAP INVENTORY CAN BE INTEGRATED ACROSS THE LA MARKET ON OUTFRONT PARTNER'S SENSOR NETWORK OR THE CITY COULD INTEGRATE SENSORS DIFFERENTLY (MAP ABOVE)**

LA already uses sensors to detect traffic congestion, pollution and water wastage as well as earthquake and storms. In partnership with the City's Information Technology Agency, the STAP platform can embed sensors informing about public transit issues and environmental experience such as air quality – key information that can inform the City when making policy decisions on transportation or even healthcare and can be another tool for LA in reaching ambitious goals set out in the Green New Deal.

As the City is aware, environmental consequences of transportation and urban planning decisions are borne by a greater proportion by low-income communities. Air quality sensors installed at street level in bus shelters, for

example, can help the City determine where pollution is worst, which

gases are in each neighborhood's emissions, and what are the times of the day when these issues are most elevated. We can also install technology to measure heat volumes throughout the day. Sensors can also make quantitative information available so that the City would know what portion of the population is being exposed to heat islands and street level emissions and when. And there are just some examples of the way sensors may be included in this platform to assist LA in addressing environmental inequity in its City, alleviating these impacts and working to provide community-driven health justice.



**SENSOR TECHNOLOGY WHICH WILL BE ENCASED IN INFRASTRUCTURE**

# SOLAR PANELS

OUTFRONT/Decaux plans to install solar panels in more than 1,500 bus shelters



OUTFRONT/DECAUX PARTNERS HAVE USED SOLAR ENERGY IN PROGRAMS AROUND THE GLOBE



PANELS INSTALLED ON SHELTER WITH PHOTOVOLTAIC CELLS TO CREATE SOLAR-POWER ENERGY



# EMERGENCY SUPPORT PANELS

Urban panels, also known as City Information Panels, which can provide WiFi, USB charging points and details about the city or area such as wayfinding or events or retail in the area, can also be equipped to aid in emergency situations with direct links to emergency services such as 911 buttons or even defibrillators. Our partners have installed such panels in Japan, Austria and the UK.



# LANDSCAPING

To accompany the green goals of Los Angeles, designs specific to certain neighborhoods can be included in the installation of the program which will expand the footprint of the urban forest. Certain bus shelter locations that are currently heat islands can be made into parklets with landscaping – trees, grass and shrubbery –, contributing to cooling and public health and planting the “right tree in the right place”.



**GREEN ROOFS, ALSO CALLED “LIVING ROOFS”, CAN BE INTEGRATED INTO THE INVENTORY TO RELY UPON THE NATURAL FUNCTIONS OF PLANTS TO FILTER WATER & TREAT AIR**



## LOS ANGELES

**“increasing tree canopy in areas of the greatest need by at least 50% by 2028 to grow a more equitable urban forest...”**

*LA’s Green New Deal: Sustainable City Plan*

**“One of the first cities to make social equity the cornerstone of its tree strategy.”**

*Ian Leahy  
American Forests*



**AN URBAN GARDEN MAY ALSO BE AN ELEMENT THAT THE CITY COULD CONSIDER**



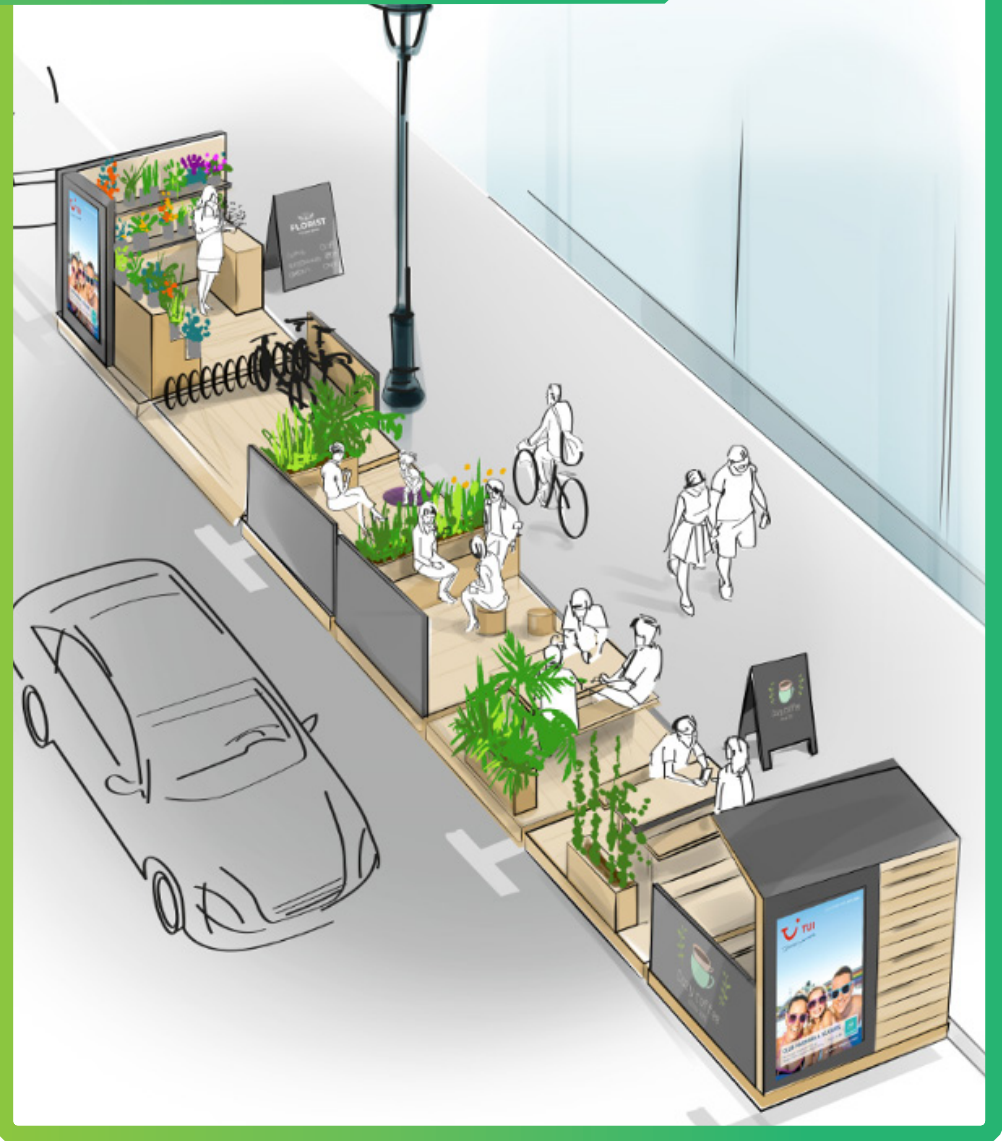
# PLACEMAKING

The installation of certain elements can be designed to encourage new community spaces – even on a temporary basis, to encourage use during a season and an extended event period.



'PARKLET' CAN BE DESIGNED WITH CONNECTIVITY, A PUBLIC COMFORT STATION & ALSO A VENDING KIOSK

The OUTFRONT/Decaux program integrates the consumer experience with technology to drive meaningful outcomes.



## HAND SANITIZER

Working quickly with its government partners in various jurisdictions, hand sanitizer units were deployed in and around bus shelters.



## BIKE SHARE SYSTEMS

Providing reliable and well-maintained bike share systems integrated into the streetscape can successfully expand sustainable public transit options and provide cost-effective commuting for users.



## CLOCKS

Digital clocks providing time, weather and city messaging are an innovative way to provide gracefully-designed services integrated into the streetscape and community.



## DRONES

Bus shelters roofs can be designed as landing pods for air-based delivery services.

