

# How Digital Signage is Elevating the Public Transit Experience for Passengers and Operators

Recent advances in large-format, digital signage and display technologies offer excellent tools to help shape public transit hub information environments. Well-designed display systems with high-quality imaging deliver a safer and more pleasant experience for travelers, and innovative network technologies provide a better experience for the transportation facility manager.



# ■ Executive Summary

Airports, train stations, bus terminals — transportation hubs are alive with an often-overwhelming array of sights and sounds. Arrival/departure announcements, gate information, safety and security alerts and directions, paging, music, advertising — all on top of the constant drone of a nearly endless procession of travelers and commuters moving from Point A to Point B. If not adequately planned and managed, these environments can become stressful, distracting and even dangerous for travelers and passengers if information cannot be clearly communicated.

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We often forget that public transportation consists of a wide variety of modes, including Buses, Light rail, Subways, Commuter trains, Streetcars and Trolleys, Cable Cars, Van pool services, Ferries and water taxis, Monorails and tramways, and Paratransit services for senior citizens and people with disabilities. The impact of the US transit system on individuals, communities and the economy is huge.

According to the American Public Transportation Association, US commuters and travelers took 9.9 billion trips on public

transportation in 2019 — with passengers boarding US public transportation more than 34 million times each weekday.

That's a lot of people exposed to a lot of information with many AV systems competing for their attention. And now as we begin to move past a year of pandemic restrictions, we will undoubtedly see a significant year-over-year increase in travel for the foreseeable future. What can be done to make travel better, safer, and more comfortable while ensuring that information is clearly communicated?





## ■ A Clear Vision

Providing comprehensive display messaging at multifaceted transportation facilities is a daunting task. In an environment where optimum digital messaging, reliability, and intelligibility are critical, networked AV and high-quality, flexible display technologies provide the real-time control necessary to meet the rigorous and evolving requirements of large public spaces. LG's Direct View LED (DVLED) displays and supporting technologies deliver significant benefits to public transit applications.

LG displays offer the image brightness, clarity, and wide-viewing-angle legibility to help keep travels informed, safe and even entertained. Briefly stated, LG Direct View LED displays offer:

- Exceptional image quality and legibility
- Brilliant video and text reproduction for travel updates, wayfinding information, and safety protocols
- Dynamic, flexible content management for adapting messaging as frequently as needed
- Networked content to change/update all location displays at one time
- Remote content to change/update all displays regionally at one time
- Very efficient, cost-effective, and green, with no consumable materials or trash as with printed signage
- No lifts or ladders needed to change sign content

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## ■ Introduction / Summary

Public Transit and Transportation hub managers are faced with the daunting task of deploying signage and display systems that help bring clarity to the confusion — not add to it. And in emergencies, signage and video quality is a serious safety factor. To deliver the best travel experience possible, transportation hubs need very clear, reliable, and flexible digital signage and display systems based on technologies that can cut through the clutter, capture attention and deliver highly intelligible, actionable, and pleasing information to the public.

Fortunately, with recent advances in large-format, digital signage, and display technology, today's AV professionals, systems engineers, architects, designers, and consultants who serve the transportation professional — have a range of tools available to help shape hub information environments. Well-designed display systems with high-quality imaging deliver a better experience for travelers, and innovative network technologies provide a better experience for the transportation manager.

Think of all the sights and sounds that bombard travelers and commuters as they walk through a large transportation hub. Marketing and advertising messaging, safety and security information, directional signage, train or bus postings — it's an avalanche of content for the senses at every step. Transportation management needs to cut through the clutter, capture traveler attention, and deliver highly intelligible, actionable, and often critical information across a widespread, quickly moving public.



# ■ About Direct View LED Signage

LG's indoor and outdoor Direct View LED Signage solutions are designed to cut through the visual noise and create engaging viewing experiences. DVLED provides vivid colors and is perfect for a wide range of high-traffic applications. LG has created a single display solution system, pre-configured with all the components necessary for full operation, including indoor and outdoor operation options with fixed resolutions ranging from Full HD up to 8K Ultra HD. The LG DVLED Ultimate Business Display system currently offers 25 size configurations ranging from 81 inches to as large as 49 feet, and with aspect ratios in both 16:9 and 32:9 ultra-stretch formats.

Each pre-configured display includes all necessary components and an LG intelligent controller to help make system integration easy, fast, and efficient. The entire system ships in custom-designed, wheeled, ATA flight cases, so everything arrives securely with no need for forklifts or pallet jacks to bring the display inside and throughout the facility. The DVLED selection includes:

## Indoor Direct View LED Signage

A full line-up of DVLED displays for indoor use. Users can select the right pixel pitch and brightness for their application, with the ability to curve the Direct View LED indoor displays.

## Outdoor Direct View LED Signage

For use as parking information signage, dynamic directionals, wayfinding, and more, LG outdoor displays are available in a wide range of sizes, resolutions, and configurations. Outdoor DVLED displays from LG are certified to perform in harsh environments, where dust and moisture are concerns. Rugged, high-performance, outdoor display and signage systems deliver the color and brightness needed to capture attention and deliver content outdoors – even in direct sunlight.

The LG XE4F-M series, for example, is a family of mount-ready displays offering powerful brightness of 4,000 nits, IPS technology that allows the screen to be viewed at virtually any angle, and a slim and robust design that protects it from harsh outdoor conditions. For larger applications, LG offers the LBS Stadium Series Large Format DVLED Signage, with a brightness of 6,000 nits (customizable up to 8,500 nits), and outstanding visibility – perfect for entrances, main lobbies, large nature-light atriums, outdoor terraces and other busy traveler decision points.

## Transparent Color LED Film

The new LG Transparent Color LED Film technology can transform virtually any glass or window surface into digital signage. This easy-to-use self-adhesive film can be used on glass displays, glass walls, railings, and virtually any other indoor environment.





## ■ Benefits of DVLED Signage

Direct View LED is a flat-panel display technology involving the use of light-emitting diodes (LEDs). Thousands of tiny LEDs are mounted directly on a panel in a Direct View LED display, and no liquid crystal or polarized glass is used. Instead of serving as a backlight (as with LCD displays), the LEDs in Direct View LED displays produce images themselves.

Each LED is essentially a tiny light bulb that emits colored light when a particular voltage is applied. Clusters of red, green, and blue LEDs are grouped on the panel, creating the full-color pixels needed to produce an image.

Direct View LED displays feature incredible contrast ratios, vibrant colors, and brightness levels several times that of LCD displays. Direct View LED displays can also be made in virtually any size, including very large sizes of 100 feet or more, making them the perfect choice for outdoor spaces, such as sports arenas.

Direct View LED panels have no bezels, so they can be tiled together to form a seamless video wall. LED displays are also extremely bright, reliable, energy-efficient, and have the best color accuracy and refresh rates of any display type available today. These qualities make Direct View LED an excellent choice for large-scale digital signage and other applications that demand high-impact visuals.

# ■ Connected for Success

LG Direct View LED (DVLED) is a fully-managed digital video and notification system that dovetails with a facility's IT LAN to provide operators an effective interface for managing complex, rapidly-changing travel information, including wayfinding information, boarding details, and safety protocols in the unlikely event of emergencies. This powerful, integrated system helps minimize traveler stress and ensures a positive travel experience.

And just as important as image quality and usability, these mission-critical display systems are engineered to be absolutely reliable day in and day out. DVLED incorporates a robust set of reliability features to ensure continuous dependability.

Beyond the transportation hub, the DVLED system is perfect for serving the needs of surrounding, high-traffic environments such as hotels, retail and restaurant complexes, and a whole host of other facility applications.

## Pre-configured displays include:

- An LG intelligent controller
- Components needed to simplify system operations and installation
- The LG webOS™ platform
- 3-year LG TotalCare Health Check, 3-year LG ConnectedCare System Surveillance, and 3-year limited manufacturer warranty support
- Displays arrive in custom-designed, wheeled ATA flight cases to simplify delivery and transportation, so there's no need for forklifts or pallet jacks
- A range of mounting brackets are available and sold separately



# ■ The LG webOS Platform

As a total transportation display solutions provider, LG offers a wide range of durable and reliable commercial displays and software platforms for easy integration and remote management.

Optimized for commercial applications, LG's webOS platform is an all-in-one hardware and software system built upon the popularity of the webOS smart TV platform for consumer televisions. webOS brings a new level of integrated benefits to facilities deploying digital signage displays. The webOS platform allows systems integrators to

download content and develop customized applications that fit their exact needs and update them simply and quickly. LG's digital signage displays feature a high-performance system-on-a-chip (SoC), which works with LG's webOS platform to lower the cost of ownership by eliminating the need for PCs or external media players.

With webOS, LG's Smart Platform Signage can be updated simply and quickly via a smartphone or tablet. WiFi connectivity eliminates the need for a wired connection or costly network infrastructure.

The LG webOS Signage Solution Stack is built upon web-based standards, including HTML 5, JavaScript, and CSS. The webOS platform provides tools for easy remote control and visibility into the display resources. webOS platform supports connection to external devices and sensors for interactive application, all while providing robust features for protection against outside access, file integrity, and network security.





# ■ Digital Signage in Action

LG's DVLED signage fits into applications ranging from wayfinding to computer labs – with full software and technical support available. Key public transit placement locations include:



## Outdoor (Parking Lot and Entrance)

Outdoor digital signage can assist and guide passengers the moment they arrive. Because the signage will be competing with direct sunlight and the elements, displays must be rated for outdoor use and feature high brightness with remote management capability for content updates via the network. LG's 55- and 75-inch high brightness displays are IP-56 rated to withstand temperature extremes and humidity while fending off damage from dust, dirt, and other airborne particulates.

## Check-in Counters

Displaying travel updates and general information at the check-in counters will help passenger foot traffic flow smoothly. Look for displays rated for 24/7 operation with automatic screen fault detection that sends email alerts in case of screen failure. Additional features should include image-sticking minimization to prevent image retention; and PC-less content management.

## Security Checkpoints

Placing a display near the security check and showing illustrations and animations to remind people to empty their pockets will help eliminate communication barriers and speed the screening process.



## Concourse

Highly visible displays with general information, flight/transit updates, wayfinding, and local business advertising can significantly reduce passenger stress and afford them more time to spend at shops. Consider unique digital signage that will fit in spaces conventional displays cannot, like the LG 86-inch Ultra Stretch display or 88-inch Ultra Stretch display with touch screen overlay. Additionally, the outstanding large-format 98-inch interactive UHD display attracts attention effortlessly and can be very helpful to passengers and curious shoppers in a rush. Today, many transportation hub advertisers also use large Direct View LED screens to deliver impressive, eye-catching experiences with text, imagery, and video.

## Commercial Areas

For shops and food courts, LG offers a wide range of displays from 22-inches to 98-inches. Look for displays specified for 16-24-hour / 7-day operation, with webOS software, beacon technology, embedded PCs, and energy-efficient operation. These displays offer a high return on investment with a low total cost of ownership. Vendors can display special promotions to people in their store using beacons and nearfield communication (NFC) technologies. Digital menu boards will allow restaurants to automatically change menus during the day via software for daypart scheduling.

## Platform/Gate Hold

Combining other messaging with the travel information data in the gate hold areas can enable cross-optimization. Display public announcements, special offers for the coffee bar, a sale at one of the shops, or alert notifications in case of emergency.

## Digital “Landmarks”

For creating a one-of-a-kind public transit experience, nothing compares to revolutionary LG OLED commercial displays. Also impressive are LG’s massive video walls in uniquely shaped configurations. With brilliantly colored dynamic graphics, stunning scenes, destination weather, and breaking news, entire families can be kept pleasantly occupied, thereby reducing perceived wait time.

## Wayfinding

From simple maps to interactive touch screens with compatible apps for off-loading directions, wayfinding solutions are as straightforward or complex as needed. And with touchscreen and mobile integration through apps on webOS, interactive and indoor mapping has never been easier.

## Scheduling

LG webOS supports real-time data integration so users can create real-time flight information schedules, weather reports, and even IPTV or web pages. Connect with documents and data sources like Excel, SAP, and MS Exchange to share real-time developments and information.

## Boarding Areas

News, sports, popular TV programs, or other compelling content can be displayed in boarding areas to relax travelers and help pass the time as they wait to board their bus or train.

## Digital Bulletin Boards

Save paper and ink with energy-efficient digital displays that can be updated in real-time with customized content. With remote management, staff can quickly make changes and update all screens from a central location.

## Advertising

Earn funds through branded advertising and promotions. Transportation hubs across the country already earn revenue dollars by accepting advertisements from major businesses and local sight-seeing destinations to promote and incent travelers.

## Command and Control Centers

Airport and public transit command centers monitor various visual data for security, people, traffic flow, and weather. Advanced video walls can display multiple sources, including real-time video, graphics, and data feeds, allowing personnel to make accurate and sometimes mission-critical decisions.



# ■ Dedicated to Continued Advances

In early 2021, LG Business Solutions launched two new indoor Direct View LED display series, the Versatile LSCA and the Ultra Slim LSCB. Both series offer flexible, high-performing, and easy-to-install options ideal for indoor environments such as office lobbies, shopping malls, hotels, stadiums, and transit hubs.

“Our new Versatile and Ultra Slim displays mark an important expansion of LG’s already robust DVLED offerings, and their introduction is very timely as various indoor venues prepare to engage stakeholders in dramatic ways, post- COVID,” said Dan Smith, vice president, business development, LG Business Solutions USA. “Installers and end-users will find these models offer incredible versatility, easy installation, and minimal maintenance, all with exceptional display performance sure to captivate viewers.”

Both the LSCA and LSCB ship with LG’s new CVCA controller and webOS Signage platform. This will deliver advanced viewing options from multiple inputs and simplified system control. LG’s webOS Signage smart platform features a Quad-Core System-on-Chip design that can execute several tasks to provide smooth content playback from baseband-connected high-resolution video

sources, the built-in media player, or the built-in video streaming decoder. The controller also has 3.6GB of storage for applications and content and a TV-style remote control with an intuitive user interface that puts system and image control in the palm of your hand.

The Versatile LSCA Series is designed for fixed installation and provides users with a DVLED option ideal for larger public installations and with a viewing distance of 15 feet or more – such as transit hubs, stadiums, and other larger venues – thanks to pixel pitch models of 2.97mm or 3.91mm with a capability of 1,000 nits of brightness. Offered in both 1:1 (500 mm square) and 2:1 (500mm x 1000mm rectangle) cabinet options, the square and rectangle cabinets can be mixed and matched for greater customization.

The Ultra Slim LSCB Series – ideal for close-up viewing such as shopping malls, board rooms, and hotel lobbies and designed specifically to be flexible for rentals and staging – features three DVLED models with pixel pitches of 1.56mm, 1.88mm and 2.50mm. The display combines an incredibly low-profile and lightweight design with an edge thickness of 37.5mm, making it ideal for spaces where space is a

concern. Each model also has an optional add-on 90-degree corner design feature that minimizes discontinuity of content displayed around corners – creating a nearly seamless display connection at wall corners.

“LG understands the value it can bring resellers and end-users when working from the consulting stage through to the installation of hardware,” Smith emphasized. “LG has built a dynamic DVLED team that aims to be a partner for our clients, supporting them as needed every step of the way, from providing expert insights into best practices to efficient troubleshooting should any issues arise post-installation.”





## ■ Conclusion

LG Digital Signage and Display solutions are optimized for the transportation market to effectively deliver content and information across an entire facility.

Advanced displays blend art and technology, reproducing stunning images that blend harmoniously with their environment. When public transit facilities require large displays with extreme brightness and legibility that can be easily programmed with customized messaging and updated in real-time, Direct View LED displays are a perfect choice.

### Key LG advantages include:

- Superior Display Quality
- Practical, Intuitive Design
- Reliability
- Low Total Cost of Operation
- Depth of Product Range
- Advanced Technologies
- Innovative Software
- Industry-Leading Service and Support

By using digital signage for general information, wayfinding, alerts, and advertising in key locations, transportation hubs can elevate their brand image and provide experiences that create real value. Not only will arriving and departing passengers find their way around more easily, but they will also be more apt to spend extra time in the terminals patronizing vendors and visually engaging in the digital environments.