"MESSAGING IN COLOR"
Next Generation Full-Color, High-Definition
Digital Signage for Mass Transit

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Public transit ridership is growing at an ever-increasing pace. However, with the emergence of rideshare companies, carpool, travel restrictions, and the use of mobile phone apps for real-time information, agencies are doing everything they can to hold on to ridership. One way your agency can accomplish this is by providing passengers with an enhanced travel experience when arriving at a commuter train, subway and light rail stations, intermodal hubs, BRT, and off-grid transit shelter bus stops.

To reach that goal, passengers require real-time information and two-way communication through station signage and mobile app communication. It needs to be clear and concise real-time messaging. It is imperative in order to reduce travel anxiety, and minimize unpleasant travel experiences while trying to reach their destination. It will also enhance the agency's image to the public.

To assist agencies with next generation passenger information initiatives, TransitVUE® is introducing *"Messaging in Color".* We are bringing high-definition digital signage once reserved only for large arenas and stadiums to your stations, intermodal hubs, and even off-grid transit shelter bus stops. We do this by offering the most advanced, yet affordable, P1 and P3 full-color, high-definition displays available to the mass transit market. They are not limited to just traditional platform signs, but a variety of digital signage needs and information kiosks.

We offer variations no one else can, including touch screen, integrated audio and security cameras for added passenger safety. The results are proven to reduce passenger travel confusion trying to catch a bus or train, undo stress, an added feeling of safety and security, and ultimately improving their overall travel experience.

Your agency can improve overall customer satisfaction through the use of high-definition full-color LED signage by improving passengers travel experiences through displaying pleasant color graphics, agency promotion videos and positive emotions.

*Color is a fundamental element of our biological and cultural experiences of the world through human sensory abilities of color recognition and emotion, environmental design, and of art. Although whether or not our experience of color is shaped more by biology or culture is the subject of debate, research into its psychological and physiological impact continues to grow. Today, color is defined according to hue, value, and chroma. It's known to align with human visual responses to color. Color conveys many different messages. Color has greater ability to increase interest and comprehension.*

For mass transit customers, they typically form positive mental associations with their daily travel with agencies are displaying information in full-color. The new generation travelers have refined tastes, are advanced users of technology and appreciate information that is informative and easy to view at a glance. Full-color messaging enables this, along with more branding opportunities to showcase your agency. It is the same approach an agency uses for their website, mobile app and social media accounts.

Transit agencies which invest in full-color imaging are perceived as progressive, which attracts a new group of ridership. Agencies set expectations of themselves with *state-of-the-art* technology. It lends credence to claiming to have next generation passenger information capability, proving your agency intend to be provide technology customers have come to expect in everyday life. Products that meet competitive agency expectations.

Excerpt from Influence of Color by Jeelan Bilal-Gore

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COLORED LED TECHNOLOGY 101
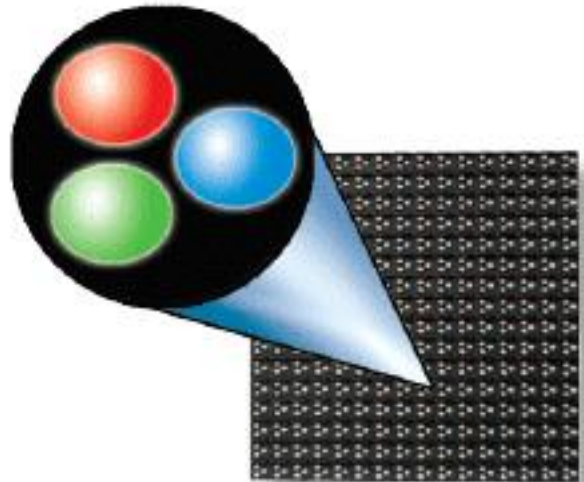
PIXEL

An individually controllable tiny element of an electronic display system is a pixel. At various brightness levels, this pixel can be turned on or off. Every sign has a different number of pixels and the higher the member of pixels, the better the resolution of the image. One pixel can consist either of one LED or several LEDs of the same color or of multiple colors. A good quality display will consist of three LEDs per pixel and the colors would most often be red, green, and blue.

PITCH

Pixels are placed at a certain distance from each other. This distance is referred to as the pitch. The basic choice for public transit displays should be from 8mm - 1.5mm. To present a high-quality image within a short distance, there should ideally be lesser distance between pixels. By selecting the correct pitch, your agency will have a suitable resolution for your full color display, and you will also be able to save on unnecessary costs. If viewers are at a closer distance, tighter pixels (such as micro LED) are more suitable.

MATRIX

Matrix is expressed in multiples and it indicates how many pixels are linked to your sign based on its height and width. For instance, if you see a matrix of 64 x 128, this means that your sign has 64 pixels in height and 128 pixels in width. This gives you an idea of how big your sign will physically look. Furthermore, the matrix can give you an idea of how much text will fit in your sign in terms of number or lines and the number of characters within each line.

RESOLUTION

A resolution is the measurement of the amount of information that can be seen on a screen based on how many pixels are used within the area. Resolution is an important factor when stating the quality of an image.

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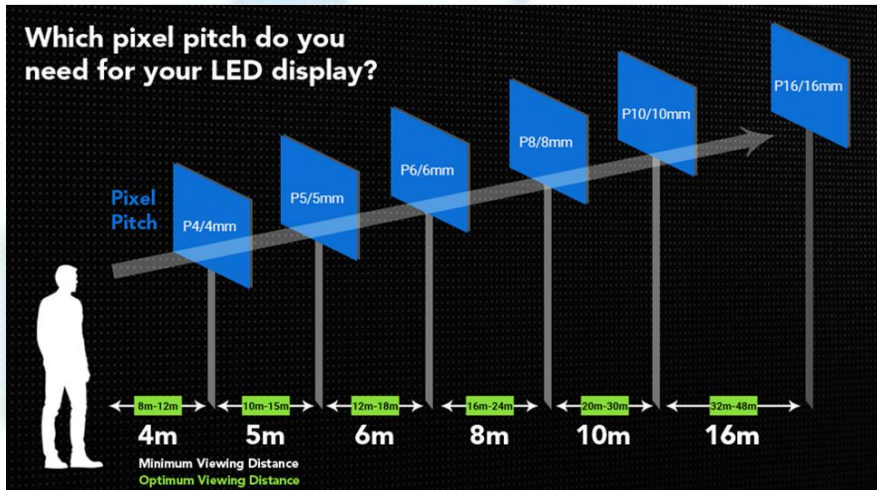
The LED modules, size and spacing is fixed and will not change as the viewing distance changes. However, the clarity of the content will change based on the LED module type and size being used. To better understand this concept and the difference between 8mm, 4mm and 3mm pixel pitch, the following formulas are used:

8mm = 64 or 1/1   4mm = 16 or 64/16   3mm = 9 or 64/9

The lower the number, the greater amount of information per pixel. In other words, if 8mm is the baseline pixel pitch, 4mm is 4 times better quality than 8mm. 3mm is 8 times better quality than 8mm and 2 times better quality than 4mm. The lower number pixel pitch produces a better Contrast Ratio, Brightness and Resolution, the 3 key factors when choosing the right LED sign.

While higher pixel density delivers improved visual quality, it is not the ideal option for every situation. Additional pixel density is intended to maximize clarity for closer and further viewing distances. A smaller pixel pitch universally provides greater resolution but is more expensive. Materials and production costs are higher for smaller pixel pitch since more LED clusters are required to create a higher pixel density.

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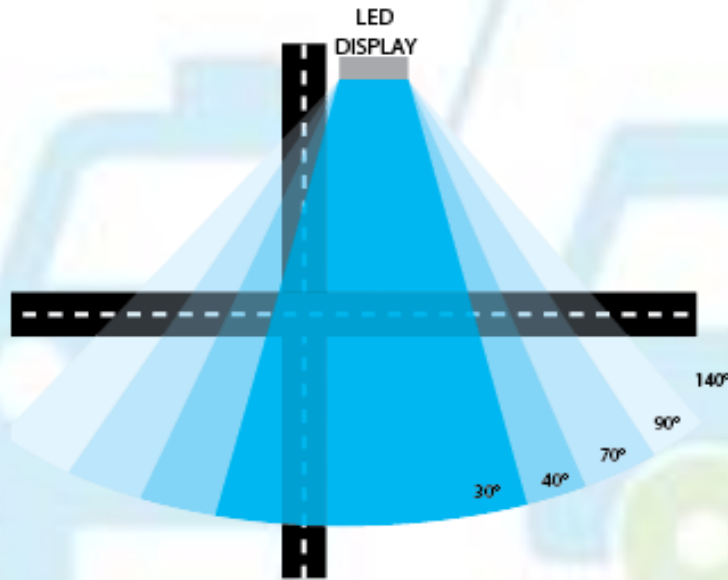
The full-color LED display viewing angle refers to the angle at which the user can clearly observe all content on the screen from different directions. The viewing angle can also be understood as the maximum or minimum angle at which the screen can be seen clearly. And the viewing angle is a reference value. The viewing angle of the LED full-color display includes two indicators: horizontal and vertical.

For full-color LED mass transit displays, the technical parameters are described as follows (viewing angle: 140 ° / 140 °); that is, the maximum viewing angle is 140 °, and the maximum viewing angle of horizontal and vertical is 140 °, exceeding 140° . After that (120 ° / 120 ° for example) , the viewing effect is poor or there are blind spots.

The horizontal viewing angle indicates that the vertical normal of the full-color LED display (that is, the vertical imaginary line in the middle of the LED display) shall prevail. It can still be seen normally at a position perpendicular to the left or right of normal. When displaying content, this angle range is the horizontal viewing angle of the display screen. If the horizontal normal is the same, the viewing angle above and below is called the vertical viewing angle. When the viewing angle is increased, the contrast of the displayed content seen at this position will decrease, and when the angle is increased to a certain degree and the contrast is reduced to 10: 1, this angle is the maximum viewing angle of the full-color LED display.

Full-color signs should be specifically designed for mass transit use in any condition, including indoor, outdoor, direct sunlight, and extreme operating temperatures. The signs should be ruggedized so they can be used on a station platform, concourse, mezzanine, intermodal hub, or remote bus transit shelter.

The signs need to be able to be placed on a pole or directly mounted to the transit shelter canopy. Full color signs can also be located at the station entrance/exit, mezzanine, concourse, or even replace a paper route map.

Full color digital signage should not be limited. The displays should have the capability of including:

- Media controller that supports HD content;
- Internal audio amplifier with adjustable volume;
- All weather outdoor rated speakers;
- Security cameras;
- Real-time sign health monitoring;
- DVI, HDMI & Ethernet interfaces; and
- Field replaceable LED modules and power supplies

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COMMUNICATING IN VIVID COLOR
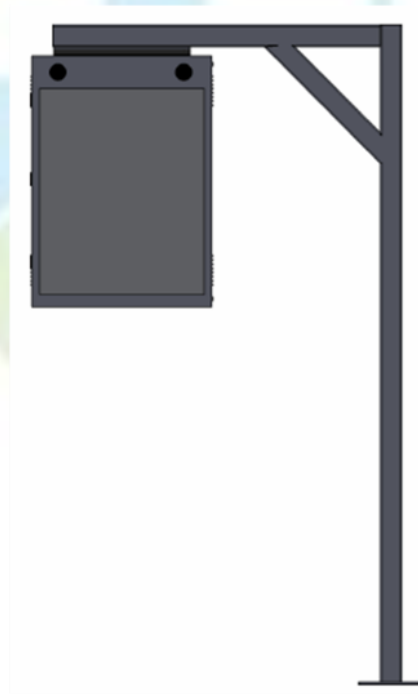
Text with symbols, high resolution graphics, and videos play a large part in communicating to the public. Creating immediate visual recognition can easily convey directions and service delays, reducing congestion and aiding bilingual, as well as hearing and visually impaired passengers. When display space is limited, symbols impart direction and information quickly without question.

When direction-based test is combined with a high-resolution symbols and graphics showing where to go and what should be done, passengers have greater comprehension and a faster response time. This ensures, helping cognitive reasoning associated with color pictures and text, achieving faster comprehension of information at glance.

Easily understood and effective, advisory messages, such as emergency alerts, threat level warnings, inclement weather alerts or safety information can clearly and safely understood. Passengers are now taken care of quickly and efficiently in a uniform method.

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WAYFIND SIMPLIFIED

Having the ability to put information on digital displays in high-definition quality is critical in helping passengers figure out where they are, where they are going and how to get to their destination quickly and safely. Customers feel much more confident they won't get lost, or inconveniently delayed when wayfinding is simplified by full color messaging. By showing colored delineation of designated routes, maps, graphics, and videos, riders are assured they are heading to the right direction and will make all connections to get them to their final destination. Full color messaging also allows for finding key points of interests and how to use your agency's system. Color signage make all the difference in the world by reducing confusion, stress, anxiety and allowing for an enhanced commuting and travel experience.

Keep riders informed with real-time information no matter where a transit stop is located. Add integrated audio and security cameras for added passenger safety.

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Full-color transit displays provide the best means possible to depict color coded mass transit line/route, destination, and arrival time to passengers. Larger, full-color message signs can incorporate a schedule, time, date & temperature, service messages and much more.
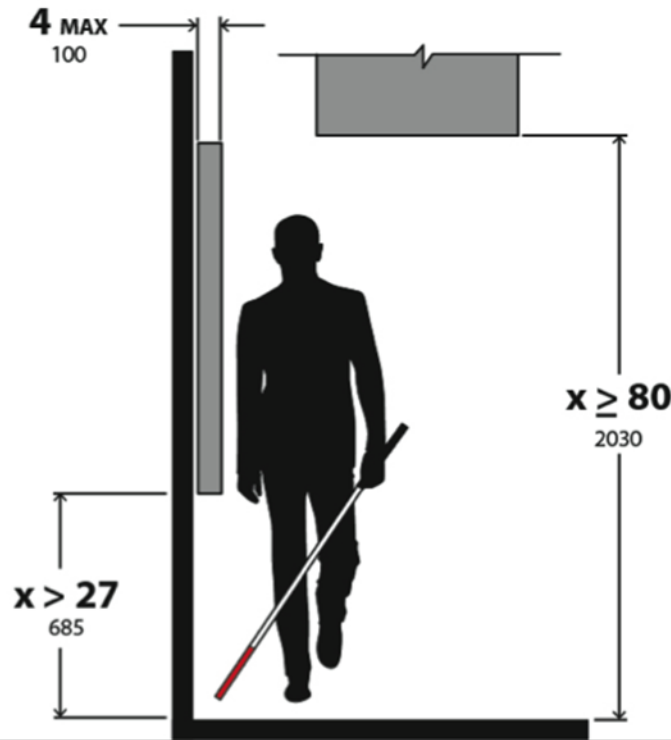
Passengers can clearly see which line to take and travel information associated with it. When passengers are informed and provided commuting useful comminuting information, they show loyalty, which translates into increased ridership and revenue for agencies.


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4 MAX
X > 27

Under Section 703.2.3, all important text on signage must be sans serif with no italics or overly bold lettering. However, if an agency desires to add a logo containing a decorative font, this is acceptable. To achieve compliance, a larger font is required on all ADA signage. However, it is important to highlight that the size of the font should be between 5/8" and 3" or greater.

Although installation is not required, agencies need to consider the ADA compliance for sign installation. Digital sign enclosures must be 27 inches - 80 inches from the flour (ground). Consider the actual flooring material (concrete for example) when determining the right height – the regulations measure from the highest point of the flooring material. The ground space around the screen needs to be a minimum of 30 inches by 48 inches.

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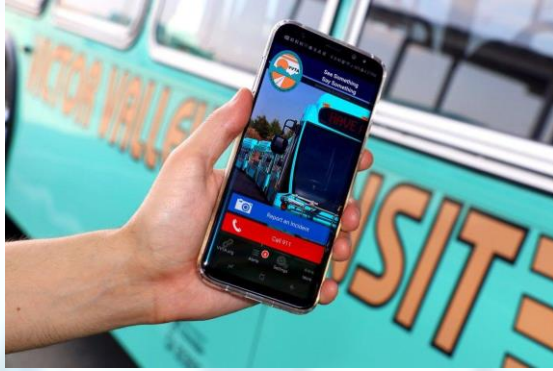
Boost revenue and enhance customer experience at the same time with promoting your agency using full color LED signs. When agency logos are paired with information riders find desirable, such as ridership specials, new ticking programs or agency updates, passengers feel in charge of their ridership experience. Not only does this boost branding opportunities and generate customer awareness, but revenue generation also increases with passenger participation in promotional programs.

Agencies want to look their best and operate efficiently. Next generation full color signage with integrated 2-way customer interaction technology, shows a desire to provide top notch services for years to come with future-proof technologies. Riders feel a sense of comfort and safety knowing that the information available on their mobile application, agency web site, at a station, transit stop or intermodal hub immolates each other seamlessly. This shows passengers that their agency is taking the initiative to invest in a next generation passenger experience for the long term.

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CONCLUSION

Messaging in Color is clearly effective in providing passengers with immediate, relevant and actionable information, resulting in lower travel stress, anxiety and an improved perception of your agency.

Messaging in Color .....
- ➤ Enhances passengers travel experience and expectations;
- ➤ Increases operational efficiency;
- ➤ Show cases technology as a convenience for Riders;
- ➤ Makes information dissemination easier to read;
- ➤ Keeps passengers safe, confident, and secure; and
- ➤ Brings in additional revenue for your agency.

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