

Digital Signage Strategic Guidance

Edmonton

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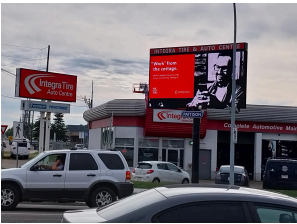
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APPENDIX 1 Digital Signage Impact Mitigation Matrix

APPENDIX 2 Digital Sign Facing Residential Unit

A **Digital Sign** is an outdoor sign which can be a freestanding or attached to a wall whose purpose is to display messages, images, or video on a digital screen that can be controlled remotely.



1.0 PURPOSE

The purpose of this strategic guidance document is to provide direction for the use and management of digital signs on titled land and the road right-of-way in Edmonton. This document defines the main principles and areas of impact, provides strategic guidance on how to address the impacts within titled properties and in the road right-of-way, and how digital signage may be used for community benefits. This document will be used to inform future updates of the City bylaws that regulate digital signage and also to support decision-making in situations not explicitly referenced in the bylaws. As this document contains high-level principles and considerations, it should be read in conjunction with the relevant bylaws pertaining to digital signage, which include the full set of digital sign regulations.

The digital signage strategic guidance provides rationale for the management of digital signs by City administration, facility managers, businesses and community organizations owning digital signs, in order to:

- Achieve public and economic benefits; and
- Avoid or mitigate the undue impact of digital signage on *safe mobility, human health and wellbeing, environmental protection* and *the attractive city image and urban design*.

2.0 DIGITAL SIGNAGE PRINCIPLES

2.1 Background

With the advancement of digital technology over the past few decades, digital signage emerged as a viable alternative to traditional static signs. Digital signs display electronically-controlled images, video or multimedia content for information sharing or advertising.

Digital signs have both commercial and non-commercial applications. Often digital signs are preferred to the static signs because of their versatility and ease of changing the displayed information, thus allowing for more efficient commercial advertising as well as easily updated community-oriented information.

The screen LED lights are a powerful light source which makes digital signs much more visible than traditional static signs. A digital sign can emit excessive light which can have a number of impacts which need to be addressed to ensure a safe and healthy environment for city residents as well as for the natural environment.

At present, digital signs have a relatively high upfront cost. With the advancement of digital technology, it can be expected that the cost of digital equipment will drop and digital signs will become more affordable and more broadly adopted. This Strategic Guidance will enable the City of Edmonton to continue to be supportive of innovation and the application of digital technology and digital signage for commercial and public benefits.

The City of Edmonton regulates digital signage through the following ways:

- On titled properties through Zoning Bylaw 20001.
- On road right-of-way through Traffic Bylaw 5590 and Regulation of Work and Equipment Installation on City Lands Bylaw 12846.
- Through other City bylaws, regulations and guidelines, as may be required.

2.2 Principles For The Use of Digital Signage

The City of Edmonton has identified guiding principles to inform updates to or to create new regulations for digital signage. These principles guide decision-making in areas where impacts should be mitigated, and how digital signage should be utilized to foster public and economic benefits, including opportunities for future usage. Any updates to the various bylaws, regulations and guidelines regulating digital signs should consider these principles.

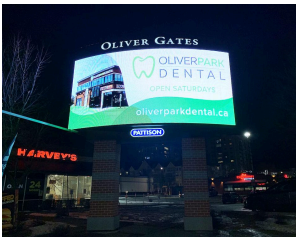
2.2.1 Supporting the Local Economy

The City of Edmonton supports the use of digital signage by businesses to attract customers, to in turn support the local economy.

2.2.2 Digital Signage for Community Benefit

The City of Edmonton is committed to exploring opportunities for using digital signage for community benefits, which include but are not limited to:

- Digital signage at community leagues, schools, not-for-profit social, cultural, spiritual and sports organizations and other public institutions to display facility-related and community information.
- Digital signage at City facilities to display facility and City-related information, and in some cases to generate revenue (e.g. at ETS facilities).
- Other applications of digital media, such as public art, wayfinding, heritage interpretation and interactive multimedia installations.



Digital sign at night



Sign clutter may affect the city image

2.2.3. Mitigating the Impacts of Digital Signage

The City of Edmonton regulates digital signage in order to mitigate the following impact areas:

- **Safe Mobility** - Digital signage may impact the safety of the city's mobility system by creating distraction for all road users, glare or confusion with other road signals, and may increase drivers' sensory workload.
- **Human Health and Wellbeing** - Prolonged exposure to artificial light after dark may be harmful to *human health and wellbeing* as it affects people's circadian rhythm at night. The artificial light from digital signage may also trigger adverse reactions to people with medical conditions that include higher sensitivity to light, such as autism, attention deficit and hyperactivity disorder, epilepsy and others. The impact on *human health and wellbeing* is of particular concern when digital signage is placed in proximity to residential dwellings.
- **Environmental Protection** - The environmental impacts from digital signage include light pollution (for example, glare, light trespass, sky-glow), energy conservation, climate change considerations, and endangering the health and habitats of wildlife, birds and plants, of particular concern for digital signage in proximity to parks and natural areas.

- **Attractive City Image and Urban Design** - Digital signage proliferation, visual clutter and design aesthetics have an impact on the perceived image and urban character of the city. The form, scale, and brightness of signs, are among the many factors that affect people's perception of the public realm. Particular consideration needs to be given to situations where the lighting of buildings and streetscapes contributes to a unique nighttime ambiance.

3.0 MANAGING THE IMPACT OF DIGITAL SIGNAGE

The impacts of digital signage are managed through a number of considerations, both general in nature and specific to land use, location and application (Ref. Appendix 1).

3.1. General Digital Signage Considerations

The following guidance should be applied to all digital signs within titled properties or public road right-of-way (except for the traffic control devices):

- **Digital sign siting** - Digital signage location and orientation should be carefully selected in order to:
 - Minimize light trespass or any other visual obstruction or disturbance (nuisance) onto adjacent properties.
 - Ensure adequate separation between digital signs and from other signs in order to avoid visual clutter and information overload. The separation of freestanding signs is particularly significant given the increased visibility of these signs.
 - Avoid or minimize the impact on their surroundings (roadways, residential buildings and parks and open spaces, Ref. Section 3.2.2).
 - The siting of digital signs is relevant to *all major impacts* of digital signs.
- **Digital sign height and size** - The size and height of a digital sign should be limited in order to reduce driver distraction and impacts on residents, the environment, and the overall image of the city. The size and height of the sign should be developed in consideration of the



Freestanding (ground) digital sign



Wall digital sign

anticipated messaging (including font size), the desired audience (e.g. pedestrians vs. vehicles), safety (e.g. road speed, proper horizontal and vertical clearance and no obstruction of other road signals) and the existing context (e.g. the character/scale of the surrounding development). The height and size parameters have a bearing on all major *impacts* of digital signage.

- **Image dwell time** - A static image or message should be displayed for a minimum duration to allow the intended audience to read the sign, thus reducing potential distraction, particularly for drivers. This parameter is relevant to *safe mobility*.
- **Image transition rate** - Instantaneous or minimal transition between images is necessary to reduce driver distraction and contribute to *safe mobility*.
- The **luminance** of digital signs should:
 - Be limited to reduce glare, sky-glow and snow-glow, thus contributing to *safe mobility*, pedestrian comfort (including to individuals with vision problems), and *environmental protection*.
 - Be limited to reduce energy consumption and light pollution, contributing to *environmental protection*.
 - Not adversely impact the night-time character of the surrounding area (Refer to Section 2.2.3).
 - Be variable to follow the ambient light conditions which may fluctuate.
- **Sign design** should:
 - Be visually attractive and match the design, character and scale of surrounding urban development, or integrated with building architecture (e.g., wall sign), relevant to *City image and urban design*.
 - Use high-quality, durable materials.
 - Be located in a way that limits opportunities for vandalism (e.g. placed out of reach of pedestrians, behind a landscaped buffer or in highly visible locations).
 - Where digital and not-digital copies are integrated on the same sign structure, ensure a cohesive, integrated design to



Integrated digital and non-digital sign



On-premises digital sign well integrated in the building facade

- improve communication efficiency, sign aesthetics and cost savings.
 - Be maintained in good condition and displaying updated information.
- **Sign turn-off at night** - Digital signs in proximity to sensitive land uses (e.g. residential, parks and natural open areas) should be turned off at night to protect the *residents' health and wellbeing*, the *environment*, and to conserve energy (Refer to Section 3.2.2 for more details).
- **Displayed media** - Digital signs display still images or video/animation (referred to as minor and major digital signs in the Zoning Bylaw, respectively). Animated media is considered more distracting than still images, in particular for *safe mobility*.
- **Type of advertising** - Digital signs can advertise businesses located on the same site (on-premises advertising) or businesses unrelated to the site (off-premises advertising). While the visual impact of the two types of advertising is the same, the type of advertising makes a difference with regard to the expected audience and how the sign fits within the urban context of the area. This parameter may have relevance to *safe mobility* and *City image and urban design*.
- **Readability and accessibility** - Considerations should be given to ensure that information is readable and accessible to everyone, including to individuals with vision disability. Using condensed messages and larger font sizes are some of the strategies that could be considered, but bright, contrasting images (e.g., on white background) may also create glare and affect *safe mobility*, which should be avoided.

3.2 Considerations for Digital Signage within Titled Land

This strategic guidance refers to land use-specific and location-specific considerations related to digital signage within titled properties (e.g., not on public roadways).

3.2.1 Land Use-Specific Considerations for Digital Signage

The digital signage parameters regulated through the land use zone regulations include permitted digital sign uses, type of advertising, maximum height and area, and other zone-specific requirements.

In addition to the general considerations for all signs (Ref. Section 3.1), there are specific considerations that should be applied to digital signs depending on the land use zone they are located in.

- In **commercial and industrial land use zones** - both major and minor digital signs with both on-premise and off-premise advertising is usually appropriate. Because of the commercial activities in these areas and the general lack of human and environmental impact (i.e., absence of residential and natural areas) these areas can accommodate the greatest numbers of digital signs and the largest sizes of digital copy.
- In **neighbourhood mixed use** and **neighbourhood commercial zones** - in order to limit the amount of signage and its impact on the residents living in these areas, only on-premises advertising is appropriate. The height and size of digital signage must reflect the smaller scale and pedestrian character of these areas. Consideration should be given to the sign siting and orientation (Ref. Section 3.2.2.2) to minimize impacts on *human health and wellbeing*.
- In **civic services and parks zones that accommodate community facilities** - digital signage can have an important community benefit, relaying vital community and facility information.
 - For community centres, schools, parks and similar facilities, only minor digital signs with on-premise advertising should be considered.
 - For community centres and schools, consideration should be given to the siting of digital signs, particularly when located in residential neighbourhoods, to maintain neighbourhood character and scale, and to minimize the impact on *human health and wellbeing*.

- For parks, digital signs are only appropriate if associated with a facility that serves the residents (e.g., schools, community centres, libraries). In these cases, digital sign siting and orientation need to be considered in order to minimize the impact on the environment (See Section 3.2.2.2).
- In **residential zones** - digital signage is not appropriate as it creates unnecessary light pollution and nuisance to the residents and has a possible impact on *human health and wellbeing*.
- In the **river valley, natural areas and agricultural zones** - because preserving and protecting the ecological integrity of these areas is a priority, digital signage is generally not appropriate as it creates unnecessary light pollution and can adversely impact plant, wildlife and bird habitats. Publicly accessible City facilities located within the river valley (e.g., Kinsmen CRC) may use digital signage as an exception, provided appropriate mitigation measures are taken (Refer to Section 3.2.2.3 and Section 3.4)

3.2.2 Location-Specific Considerations for Digital Signage

In addition to the general and land use-specific considerations (Ref. Sections 3.1 and 3.2.1), there are a number of location-specific considerations that need to be taken into account when proposing the use of digital signage. This includes how digital signs impact their immediate surroundings (e.g. roadways, residential buildings, parks and natural areas), regardless of the land use zone where the sign is located. In these situations, establishing a digital sign viewshed and frontal impact area (Ref. Appendix 2, Figure 1) can be a useful complement to the context analysis necessary to evaluate the potential impacts of digital signage within the specific circumstances of the built environment and reflective of all the land uses that are impacted by the signage.

3.2.2.1 Locations adjacent to roadways and intersections

- The siting and orientation of digital signs must not interfere with other road signs or traffic signals, lead to confusion or increase driver's cognitive workload, or in any other way contribute to unsafe driving conditions.

- For these locations, a context analysis should be undertaken to evaluate how a proposed digital sign (and its siting and orientation) interacts with other signs and traffic signals, or whether it interferes with sightlines at key decision-making locations, and to identify measures to be taken to address the impact on *safe mobility*.

3.2.2.2 Locations adjacent to residential development

- The siting and orientation of digital signs should eliminate the risk of light trespass/exposure and possible nuisance to the residents living near the sign.
- For these locations, a context analysis should be undertaken to evaluate how a proposed digital sign (and its siting and orientation) impacts any surrounding residential dwellings. There are areas where the impact from the signage would be intolerable, and more distant areas from where the sign can be seen but impact can be tolerated. To address the impact on *human health and wellbeing*, the following measures should be taken:
 - In locations where the impact of the digital sign would be intolerable (e.g. within the sign frontal impact area, illustrated in Appendix 2, Figure 1) digital signs should be prohibited from directly facing residential dwellings (Refer to Appendix 2, Figure 2) .
 - In locations where the digital sign can be seen from a residential dwelling within a certain distance but the impact is tolerable (i.e. within the sign viewshed but outside of the frontal impact area, refer to Appendix 2, Figure 1), the following mitigation measures should be taken:
 - Reducing the maximum sign area.
 - Turning off the digital sign at night (eg. between 10pm and 6am).
 - Increasing the dwell time of the displayed images, to reduce the blinking effect.

3.2.2.3 Locations adjacent to parks, open spaces and natural areas

- The siting and orientation of digital signs should minimize the risk of light exposure on parks and designated natural areas near the sign.

- For these locations, a context analysis should be undertaken to evaluate how a proposed digital sign (and its siting and orientation) impacts these natural areas, and identify measures to be taken to address the impact on *environmental protection*, such as:
 - Digital signs located in immediate proximity and directly facing parks or designated natural areas (i.e. within the digital signage viewshed, Ref. Appendix 2, Figure 1) should be turned off at night (e.g., between 10pm and 6am).

3.2.2.4 Special digital sign areas

- It may be appropriate to establish special digital sign areas in the city that either encourage or restrict the use of digital signage. For example:
 - a) Special Sign Areas **encouraging** digital signage, to attract and entertain visitors:
 - at unique commercial and entertainment public areas (e.g. The Arena Entertainment District, West Edmonton Mall).
 - at festivals or live performance venues.
 - b) Special Sign Areas **restricting** digital signage, to preserve the urban character and experience at:
 - Formal civic plazas (e.g. the civic precinct at City Hall).
 - Areas with established heritage character (e.g. heritage streets or areas).
 - Pedestrian-oriented main streets and areas (e.g. limiting traffic-oriented signage).
 - City parks and open spaces (e.g. River Valley and the ravine system).
 - City gateways - as commercial digital signage may undermine a welcoming arrival experience.
- The creation of special digital sign areas is an opportunity that could be explored as the city develops. These special areas may be enacted with *area-specific* signage regulations or special land use zone regulations.



Encouraging digital signage



Restricting digital signage

3.3 Considerations for Digital Signs within the Road Right-Of-Way

This strategic guidance applies to the following types of digital signs within the road right-of-way, including:

- Signs for traffic control and public information (safety messaging and relevant road information).
- Privately owned signs with commercial advertising or community information.

3.3.1 Digital Signs for Traffic Control And Safety Messaging

Traffic control devices are temporary (mobile) or permanent. The appropriate use of digital signs for traffic control and safety allows for controlling and diverting traffic, identifying current and anticipated roadway conditions, regulating access to specific lanes or the entire roadway, displaying safety messages applicable to road users, or for emergency messaging to the public such as Amber Alerts.



Road digital sign for traffic control



Road digital sign for safety messages

The placement and orientation of traffic control devices, including digital signs, is based on the [Manual of Temporary Traffic Control](#), the [Manual of Uniform Traffic Control Devices for Canada](#) by Transportation Association of Canada, and in consideration of the following principles:

- **Safe mobility** - sign placement should not create unsafe conditions within the road right-of-way. The safety of all road users is the highest priority on our roads.
- **Message efficiency** - sign and message size, placement and orientation should ensure good visibility and allow sufficient distance / time for drivers to read and comprehend the relevant messages in order to take appropriate action.
- **Reducing the impact on near-by residential developments** - where feasible, the following mitigating measures should be considered:
 - Blinking and running lights (e.g. running arrows) can only be used if required for *safe mobility*.

- The orientation of the digital road signs should avoid directly facing residential developments alongside the road, but face the traffic flow.
- **Reducing the impact on the environment** - including considerations such as:
 - Minimizing light pollution.
 - Sign brightness to be adjusted to the ambient light and reduced after sunset.
 - Where feasible, avoid directly facing natural open areas but face the traffic flow.
 - Reducing energy consumption.
 - Using alternative energy sources (e.g., solar), where feasible.



Digital signage within the road right-of-way (City of Mississauga)



Community league digital sign within the right-of-way

3.3.2 Digital Signs with third party advertising or community information

Digital signs with commercial advertising within the road right-of-way (including on infrastructure such as road overpasses and bridges) are not desirable as they carry additional risks associated with *safe mobility*, sign proliferation, and City reputation (e.g. commercial messages on municipal infrastructure may be perceived as being endorsed by the City).

There may be limited situations where digital signs with community-related messages in the right-of-way may be appropriate provided the following considerations are addressed:

- Benefits to the local community or the public at large.
- No potential implications to the City of Edmonton reputation.
- The digital signage impacts have been addressed (Refer to Section 2.2.3).
- Alignment with the *general* signage considerations (Refer to Section 3.1), and the signage requirements of the adjacent land use zones.
- The *locational context* has been evaluated to determine how each proposed sign position and orientation may affect the sign's surroundings (e.g. road signals, residential dwellings, parks) (Refer to Section 3.2.2).
- Technical feasibility (e.g. power supply) and maintenance.

3.4 Considerations for Digital Signage at City and Community-Oriented Facilities

Besides commercial application, digital signage is often used for non-commercial purposes such as sharing information about facilities or programs that serve the local community and the public at large. These applications include City of Edmonton and other community-oriented facilities, as well as Edmonton Transit Service (ETS) stations.

As digital signs at these facilities and locations are often located in proximity to residential neighbourhoods, parks and designated natural areas, proposed sign location and orientation need to be analysed in order to ensure that any adverse impact on its surroundings (e.g. *safe mobility*, exposure to residential dwellings and natural areas) is minimized.

In addition to the general consideration and the guidance for digital signs on titled land (Ref. Section 3.2), the following guidance should be applied to digital signs at City of Edmonton facilities.

3.4.1 Digital Signs at City of Edmonton Facilities

3.4.1.1 Digital signs at publicly-accessible City of Edmonton facilities (e.g. recreation centres, libraries, eco-stations, etc.) other than ETS (see Section 3.4.2) are used to display information that is relevant to the facility users, including:

- Facility-related information about programs, schedules, working hours etc.
- Current information relevant to the general public, such as the current time, weather updates, public health or safety alerts.
- Community-related information approved by the City of Edmonton, such as City programs and initiatives, festivals and others.

3.4.1.2 Digital signs at City facilities may display on-premises advertising which is limited to:

- Displaying the corporate names and logograms of facility event/program sponsors.



Digital signs at city facilities

- Advertising the businesses that are renting space and operate within the facility.

3.4.1.3 Third party off-premises advertising is discouraged at City facilities except when subject to explicit agreement approved by the City Manager (e.g. naming rights agreements and others).

3.4.1.4 In order to reduce sign proliferation, digital signage on undeveloped City-owned land is discouraged.

3.4.1.5 City facilities may develop internal guidelines to ensure that facility information and community-oriented messages are well integrated, consistent and efficiently managed.

3.4.2 Digital Signs at Edmonton Transit Services (ETS) Facilities

3.4.2.1 Digital signs at ETS facilities (e.g. transit centres, LRT stations, bus stops, and other transit-oriented facilities accessible to the public) are used to convey both non-commercial information and commercial advertising relevant to passengers and residents.

3.4.2.2 Non-commercial information that is relevant to the passengers includes:

- Facility and service related information including, but not limited to, time schedules, routes, service updates, wayfinding, safety messages, alerts, and others.
- Current information relevant to the general public, such as weather updates, public health or safety alerts.
- Community-related information approved by the City of Edmonton, such as City programs and initiatives, festivals, etc.

3.4.2.3 Third-party commercial advertising is managed based on shared cost/profit agreements with marketing/advertising vendors.

3.4.2.4 ETS may develop internal guidelines to ensure that transit information, community-oriented messages, and where applicable,



Digital signage at LRT station

third-party advertising are well integrated, consistent and efficiently managed.

3.4.3 Digital Signs at Community-Oriented Facilities

3.3.1 Digital signs at non-for-profit community facilities (e.g. schools, community leagues, other cultural, religious, sports or performance venues), or public facilities by other jurisdictions are used:

- to primarily display facility-related information.
- to display messages relevant to the local community.
- where applicable, to acknowledge sponsors or identify businesses operating within the facility.

3.3.2 Digital signs at public facilities by other jurisdictions (i.e. federal or provincial facilities such as museums, performance and music facilities, administrative buildings, provincial parks) are recommended to:

- Prioritize the public and community benefits to the commercial benefits of using digital signage.
- Consider the sign regulations of the closest land use zones equivalent to their use.
- Mitigate the impacts of digital signage (Refer to Section 2.2.3).

3.5 Other Applications of Digital Signs

3.5.1 Digital Signs with non-commercial information

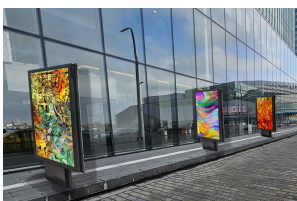
3.5.1.1 There is opportunity for digital media to be used for displaying non-commercial information relevant to city residents and visitors - examples include public art, commemorative and heritage interpretation, wayfinding or other information-sharing applications. These areas of application on digital displays are only beginning to be explored in Edmonton. Digital signage technology is highly suited for high visibility locations, making the city's public space more accessible and welcoming to residents and visitors alike, provided their impacts (as described in Section 2.2.3) are suitably mitigated.



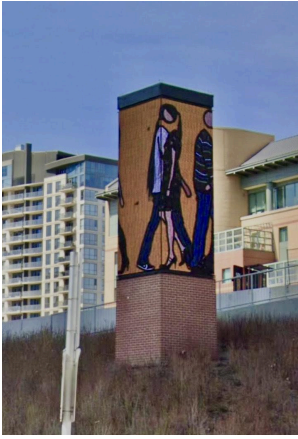
Digital sign at a school



Digital sign at a church



Public art displays



Public art digital installation in Calgary

3.5.1.2 In addition to the general, land-use and location-specific considerations described in this document, other considerations for this type of digital displays include:

- User-centered approach must be applied for the digital sign design and placement - for example, the display size, font size and copy design need to take into account the intended audience and the distance users will see the information (e.g. from the perspective of pedestrians, cyclists, drivers).
- Risk of vandalism - signs should be designed/located in a way as to reduce the risk of vandalism.

4.0 DIGITAL SIGN CONTENT (DIGITAL COPY)

4.1 Canadian Code of Advertising Standards

Advertising and signage manufacturing organizations in Canada must conform to Federal, Provincial and Municipal laws, regulations, bylaws, and need to adhere to the [Canadian Code of Advertising Standards](#).

4.2 Digital Signs at City Facilities and Other Public Facilities

4.2.1 The City of Edmonton may impose certain restrictions on the messages displayed at City facilities, other public institutions or public space, following these principles:

- City of Edmonton facilities and public places are safe, accessible and inclusive to all ages, genders and cultural backgrounds, and the digital sign messages should reflect these aspirations. The City reserves the right to not display any advertising which the City deems may be offensive to the moral standards of the community, be discriminatory or advocate violence, hate or terrorism.
- No advertising of tobacco or vaping products is permitted within City facilities or City-owned land.
- No advertising is permitted that the City reasonably determines would discourage the use of a City facility or that would promote a good, service or activity that is detrimental to the business interests of the City.

- Political advertising must indicate the originator and owner of the advertising to avoid giving the impression that the City is supporting a given party or candidate.

4.2.2 City facilities (except ETS) manage digital sign content with assistance from City of Edmonton Creative Services.

4.2.3 ETS facilities manage digital sign content in collaboration with external sign vendors according to their agreements.

4.2.4 The messages displayed at schools or other children-friendly facilities (e.g. swimming pools, arenas, libraries, facilities providing art and recreation programs and summer camps), should be family-friendly (no adult-themed, liquor, tobacco or vaping products advertisements).

5.0 DEFINITIONS

Digital Copy - means the information displayed on a digital sign - Refer to the Zoning Bylaw for the full definition.

Digital Sign - For the purpose of this document, it means an outdoor sign which can be a freestanding or attached to a wall or structure, whose purpose is to display messages, images, or video on a digital screen that can be controlled remotely. Projected media is also considered a digital sign. For the purpose of this document, a digital sign may include both digital copy and non-digital (e.g. static) sign elements.

Note: The detailed definitions of all digital sign types and uses (e.g. major/minor digital sign, ground/wall sign, digital signs with on-premise/off-premise advertising) are provided in the Zoning Bylaw.

Digital Sign Viewshed - refers to the area from where the sign is visible. The digital sign viewshed is defined by 70° horizontal angles from each vertical edge of the sign, and is limited to a certain distance (Refer to Appendix 2, Figure 1).

Dwell Time - Image dwell time means the duration of time a still image is displayed on a digital sign before switching to another image.

ETS - Edmonton Transit Service, owned and operated by the City of Edmonton.

Facing (a residential use) - refers to a situation where the light from the digital sign falls at 45 to 90 degrees to the building facade surface. This concept is illustrated in Appendix 2, Figure 2.

Facing (an open space) - refers to a situation where the light within the digital sign viewshed (Ref. Appendix 2, Figure 1) falls upon an open space, except where the digital sign is separated from the open space by a roadway.

Light Pollution - Any adverse effect of electric light including but not limited to: glare, light trespass, sky-glow, energy waste, compromised safety and security, and impacts on the nocturnal environment (Reference: Light Efficient Community Policy [study](#) - posted on the City of Edmonton website).

Natural areas (designated) - refers to natural areas that are recognized through zoning and other city plans (eg. The City Plan, Zoning Bylaw, Urban Forest Management Plan and others).

Permitted Digital Sign Uses - Refers to a range of digital sign typology in terms of installation form (ground or wall signs), type of media (animation vs. still images) and type of advertising (on-premises vs. off-premises), which are regulated in the Zoning Bylaw.

Titled Land - refers to privately or publicly owned properties for which a certificate of title is issued, including municipal, provincial and federally owned land and facilities.

Road ROW - Means Road Right-Of-Way, and includes all public roads, parkland and any other areas outside the privately or publicly owned titled properties.

Zoning Bylaw - means Zoning bylaw 20001 that came into effect on January 1, 2024.

6.0 REFERENCES

1. Digital Signage Principles (Section 2) - Public Engagement in 2023 validated the major principles and impact areas of digital signage (Section 2.2) and also provided feedback about the use of digital signage at community facilities. Reference: [Digital Signage Survey Results - Public Engagement Summary April 2023](#)
2. Digital Signage Considerations (Section 3) - A jurisdictional scan of the digital signage regulations of 5 Canadian Municipalities (Calgary, Mississauga, Ottawa, Toronto, Winnipeg, Vancouver) and recommended regulatory requirements for Edmonton. Reference: [Development of Digital Signage Regulatory Requirements report. Martin Rendl, 2023](#)
3. Re. Digital Sign Viewshed (Appendix 2 Figure 1) - The parameters of the digital sign viewshed (also called view angle) are based on analysis of the digital signage regulations from other cities (e.g. Ottawa) and the conducted online research, including the following websites:
 - a. What is a good viewing angle? DOIT VISION ([website](#))
 - b. What is the viewing angle of SMD LEDs and DIP LEDs? LED SOLUTION ([website](#))
 - c. How Sign Viewing Angle Effects Sign Readability, Mark Hachey, Holiday Signs ([website](#))

Appendix 1 - Digital Signage Impact Mitigation Matrix

	Impact Areas			
	Safe Mobility	Human Health & Wellbeing	Environmental Protection	City Image & Urban Design
1.0 General digital sign parameters				
Luminance	■	■	■	■
Image dwell time	■	■		
Image transition rate	■			
Separation b/n digital signs / other signs	■			■
Displayed media (images vs. video)	■			■
Type of advertising (on-premises/off-premises)				■
Sign turnoff at night		■	■	■
2.0 Land use-specific considerations				
Permitted digital sign types and uses	■	■	■	■
Maximum sign size (height, width, copy area)	■	■	■	■
Other considerations (sign location, orientation, setback, lot size, etc.)	■	■	■	■
3.0 Location-specific considerations				
Mitigating the impact on <i>safe mobility</i> (eg. interference with traffic signals and road signs)	■			
Mitigating the impact on the surrounding residential dwellings		■		
Mitigating the impact on the surrounding parks and designated natural areas			■	
Managing the impact on the <i>attractive city image and urban design</i>				■

Legend: ■ The impact can be addressed by regulating the relevant parameters

Appendix 2: Digital Signage Viewshed

The Digital Signage Viewshed refers to the area from where the sign can be seen. The Frontal Impact Area is the area immediately in front of the sign where, if there were residential dwellings facing the sign, the impact to the occupants would be intolerable. Refer to Section 3.2.2 for more details.

The Digital Signage Viewshed is a tool that can be used in the analysis of the locational context of a proposed digital sign in order to select a location and orientation that minimizes the impact of digital signage on the residents living in proximity to the proposed sign or the impact on parks and designated natural areas that may be lit by the sign.

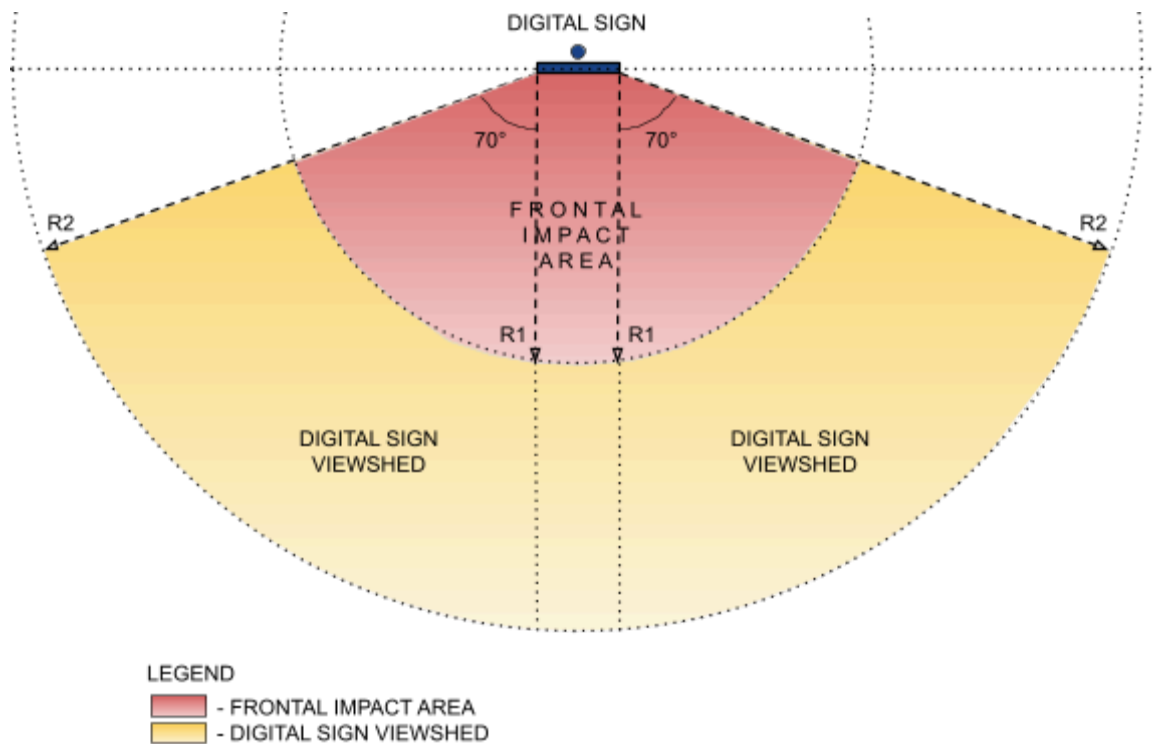


Figure 1. Digital Sign Viewshed and Frontal Impact Area (Illustrative plan view)

The Digital Sign Viewshed is defined by 70° horizontal angles on each vertical edge of the sign, limited to radius R2.

The Frontal Impact Area is defined by 70° horizontal angles on each vertical edge of the sign, limited to radius R1.

Note: The digital sign viewshed and frontal impact area radiuses (R1 and R2) should be defined in the Zoning Bylaw.

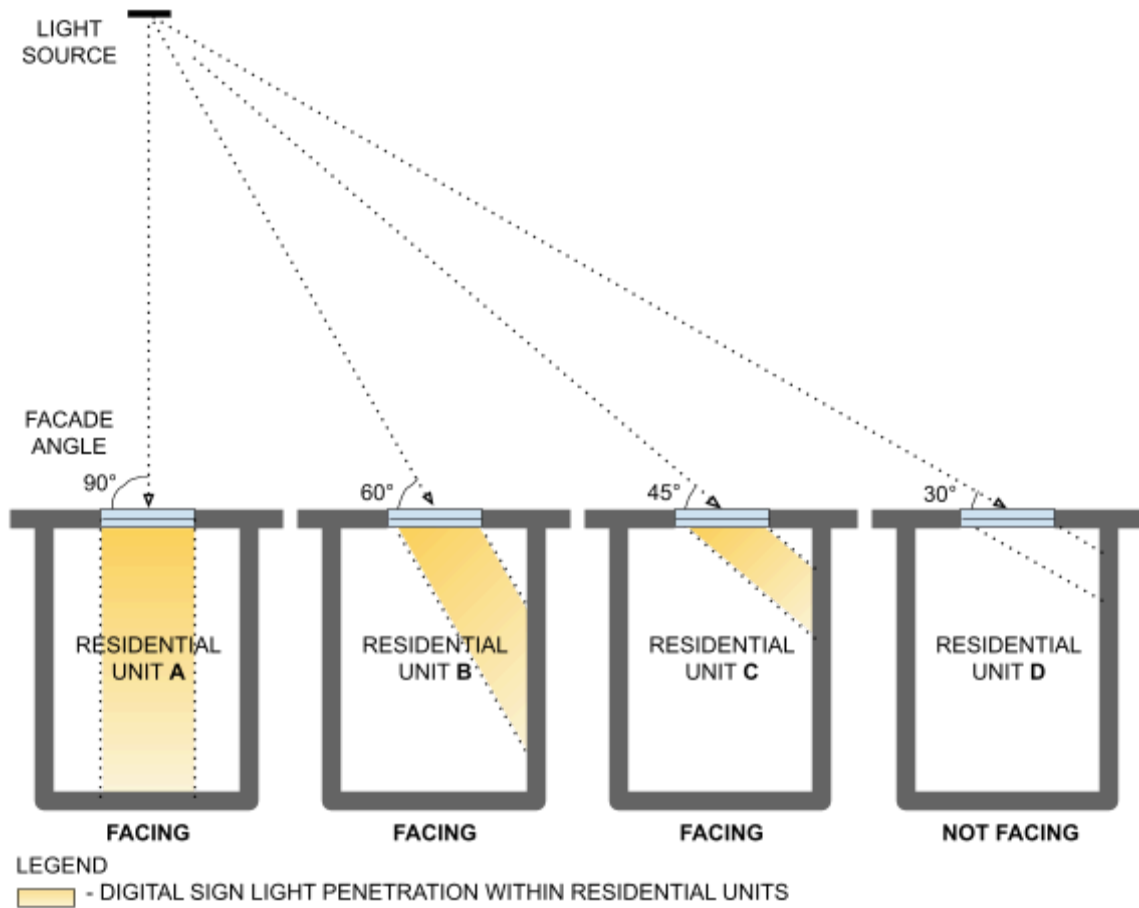


Figure 2. Digital Sign Facing Residential Units (Illustrative plan view)

The digital sign light penetration into residential units (A), (B) and (C) is significant and therefore the proposed digital sign is considered to be facing the respective residential unit.

The digital sign light penetration into residential unit (D) is comparatively less significant and therefore the proposed digital sign is considered to be not facing the respective residential unit.