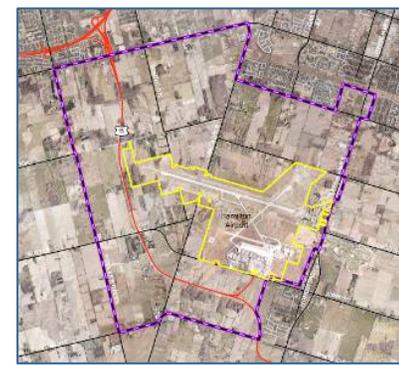


City of Hamilton Airport Employment Growth District

Urban Design Guidelines
August 2010



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1.0 Introduction

1.1 Purpose of Urban Design Guidelines (UDG)

The Urban Design Guidelines are an integral component to the Hamilton Airport Employment Growth District (AEGD) Secondary Plan. They should be read in conjunction with the Secondary Plan and Zoning by Law and used as a framework to fulfill its development goals and design principles. The guidelines describe the expectations and requirements for future development applications and are written to convey the potential for flexible and innovative development.

The objectives of the study are expressed in the Hamilton Airport Employment Growth District Secondary Plan, which calls for specific urban design guidance for development in accordance with the policies of the Secondary Plan (Section 8.13).

The Airport Employment Growth District is envisioned to be a place of employment which is developed with a high degree of urban design. The elements of urban design are intended to work together to create development that reduces its negative impact and optimizes its positive impact, in the physical context of an urban form and built form that can be characterized as a high quality place and space.

1.2 Structure of the Guidelines

The guidelines are structured under the following major sections:

- 1 Introduction
- 2 Site Planning Guidelines
- 3 Built Form Guidelines
- 4 Open Space Guidelines
- 5 Design Guidelines for Specific Designations

1.3 Who Should Use these Guidelines

The guidelines will be utilized by municipal staff and in conjunction with other planning policy documents as a tool to evaluate individual developments. Applicants will be required to demonstrate that the design principles of these guidelines and other components of this study have been fulfilled.

1.4 Implementation of the Guidelines

The Urban Design Guidelines are intended to be used in combination with the Hamilton Airport Employment Growth District Eco-Industrial Design Guidelines. Both Guidelines have been prepared following the Eco-Industrial and Urban Design Principles outlined in the Hamilton Airport Employment Growth District Secondary Plan, Section 8.13. Section 8.13.1 states the basis of the EIG:

Eco-Industrial Design Guidelines and Urban Design Guidelines for the Airport Employment Growth District shall be prepared and adopted by Council that

provide specific guidance for development in accordance with the eco-industrial and urban design policies of this Secondary Plan.

Development Review and Approvals Process

The Hamilton Airport Employment Growth District Secondary Plan is intended to provide guidance for development applications, to ensure that the lands are developed in a comprehensive and integrated manner over time.

Development in the AEGD is guided by the AEGD Secondary Plan and Zoning by-Law, the Transportation, Storm Water and Water/Wastewater Master Plans, the Eco-Industrial Design Guidelines and these Urban Design Guidelines. According to Sections 8.14.1 8.14.2 and 8.15.5 of the Secondary Plan, the Urban Design Guidelines will be part of the Plan of Subdivision or Site Plan approval process for the Airport Employment Growth District, as follows:

8.14 Energy and Environmental Assessment Report

8.14.1 Notwithstanding Section F.3.2.9 of Volume 1, the sustainability of development shall be evaluated at the time of development approval for a Plan of Subdivision or Site Plan and an Energy and Environmental Assessment Report demonstrating how the development meets or exceeds the sustainability provisions of the Eco-industrial Design Guidelines and Urban Design Guidelines shall be required prior to development approval.

8.14.2 The degree to which a development meets or exceeds the sustainability provisions of the Eco-industrial Design Guidelines and Urban Design Guidelines as described by the Energy and Environmental Assessment Report may be used as a basis by the City to prioritize development applications, including the assignment of servicing allocation and the issuance of draft plan approval under the Planning Act.

Complete Application Requirements

8.15.3 Notwithstanding the complete application requirements of Section F.1.19 of the Urban Hamilton Official Plan, an Energy and Environmental Assessment Report shall be required as other information and materials required to deem Planning Act applications for draft plan of subdivision and site plan complete.

A new zoning by-law is being written to reflect ensuing Secondary Plan and the proposed urban design policies of these guidelines. The customary approval process of submission for Draft Plan of Subdivision, Site Plan Approval and Building Permit that must conform to that new by-law will apply.

Draft Plan of Subdivision

Applications for Draft Plans of Subdivision within the Secondary Plan may put forward alternative configurations, provided that the overall intent of the Secondary Plan and guidelines is fulfilled. Applicants requesting approval for Draft Plan of Subdivision will be

evaluated in this context and will be required to demonstrate how the Draft Plan of Subdivision meets the zoning by-law, implements the Urban Design Guidelines and Eco-Industrial Design Guidelines and targets, applicable at the Draft Plan of Subdivision scale.

Site Plan Review

Applicants for Site Plan Approval will be subject to review of these guidelines and sustainable design measures, in addition to meeting the City of Hamilton's municipal planning, construction and engineering requirements. To assist staff and expedite the review process, applicants will be required to provide a description of how the site development implements the objectives of the Urban Design Guidelines and targets at the various levels of site planning, building and landscaping measures.

Building Permit

In addition to building permit application requirements by the City of Hamilton and the Ontario Building Code, applications will be reviewed for confirmation that built form, sustainable design and landscaping will be executed in conformance with the Site Plan Approval.

Urban Design Guidelines

2.0 Site Planning Guidelines

2.1 Relationship to Natural Edges

Guideline 01: Building Setbacks

Building setbacks shall be included for development adjacent to the natural edges under the jurisdiction of the Niagara Peninsula Conservation Authority, Hamilton Conservation Authority, and/or Grand River Conservation Authority: setbacks may vary, depending on the type and stability of the adjacent area or slope.

Guideline 02: Location of Outdoor Uses

The location of outdoor uses and facilities, as well as employee recreation facilities, is encouraged to be in proximity to the visual and physical amenity of natural areas.

Guideline 03: Natural Features

Protect and improve existing natural features while improving connectivity between those features and new development through the use of green roof and walls, street trees and greenway connections at the ground level.

Guideline 04: Planting

Planting, such as trees, woody shrubs, ground covers, grasses, and perennials, should be of a native species, suitable for the habitat, and where appropriate drought resistant plant materials can be used. Plantings should be placed in a relatively dense arrangement to reduce maintenance requirements, and the need for fertilizer and irrigation.

Guideline 05: Native Species

A diverse selection of native trees and shrubs with seasonal changes of colours in foliage should be used to stimulate the senses and heighten the awareness



Figure 1: Toyota Castle College Training Centre. Nottingham



Figure 2: IBM Rouge River



Figure 3: IBM service road screening

of the environment.

Guideline 06: Built Form/Open Space Relationship

Outdoor landscaped spaces should freely mix with the built environment to support the quality of the environment for staff and wildlife. Effective landscaping should be used to shield buildings and open spaces from seasonal weather, and provide increased habitat for wildlife.

Guideline 07: Consistent Materials

Whenever appropriate, connections between the exterior and interior spaces shall be strengthened through the use of common materials and plantings. Landscape treatments in the public realm should be complimented with similar treatment in private developments.

Guideline 08: Trail System

Development should be integrated and/or connected to the train system, which should accommodate a wide range of functions including providing a continuous and safe pedestrian and cycle route. Trail development standards shall comply with the City of Hamilton’s Recreational Master Plan.

Guideline 09: Sustainable Stormwater Management

Development shall implement stormwater management and filtration techniques such as bio-swales, retention gardens, green roofs and pervious paving, as are edge condition strategies for release of water near existing watersheds, according to the Airport Employment Growth District Stormwater Master Plan.



Figure 4: Pedestrian amenity microclimate



Figure 5: Green Roof on a Factory, Glarus Valley Switzerland

2.2 Road Design

Guideline 01: Location of Local Roads through Natural Heritage Systems

The location of local roads through natural heritage systems should only be considered where no other access is possible.

Guideline 02: Width of Local Roads through Natural Heritage Systems

The width of local roads through natural heritage systems should be minimized.

Guideline 03: Materials of Local Roads through Natural Heritage Systems

Road surfaces through natural heritage systems should be constructed of a pervious material, such as turfstone or gravel surfaces.

Guideline 04: Road Surfaces

New road surfaces should minimize the amount of impervious surface by utilizing materials such as porous concrete, single sized aggregate, and/or porous/reinforced turf.

Guideline 05: Stormwater Runoff

Stormwater runoff along local roads should be managed as per the Airport Employment Growth District Stormwater Master Plan, the Secondary Plan policies and the Eco-Industrial Design Guidelines.

Guideline 06: Road Orientation

New roads should be oriented along an east-west axis to maximize north-south day lighting for buildings.

Guideline 07: Entry Features

Anchors should be provided at the ends of roads to define entry and exit look and feel; landscape treatments should be intensified at key intersections.

Guideline 08: Native Plantings

Landscaping along road frontages should use native plantings that are



Figure 6: National Wildlife Refuge Tualatin River



Figure 7: Bioswale, IMB, Markham

drought as well as salt tolerant.

Guideline 09: Green Infrastructure

An allowance should be provided within the road right-of-way for a gray water reuse system or other “green pipe” infrastructure. It is estimated that reserving a width of “green” space of approximately 5 metres in the ROW would be sufficient for future use. This area should be clear of underground infrastructure and/or utilities. It is not accounted for within the road right-of-way but should be once a suitable location and/or corridor is established.

In addition, a width of approximately 3 meters should be reserved on each side of the right-of-way for stormwater management. The area has been accounted for in the road right-of-way and should be clear of underground infrastructure and/or utilities. Refer to Section 4.0 for information on the cross-sections (Figures 57-60).

2.3 Site Access and Driveways

Guideline 01: Local Street Access

Access to development lots from local streets is encouraged whenever possible.

Guideline 02: Minimize Driveways

Minimizing driveways by creating joint access driveways to serve two adjacent development lots is encouraged.

Guideline 03: Corner Lots

Site access for corner lots should be located away from the street intersection.

Guideline 04: Pedestrian Links to Transit Stops

Ensure that pedestrian links to nearest transit stops are well-defined and barrier-free

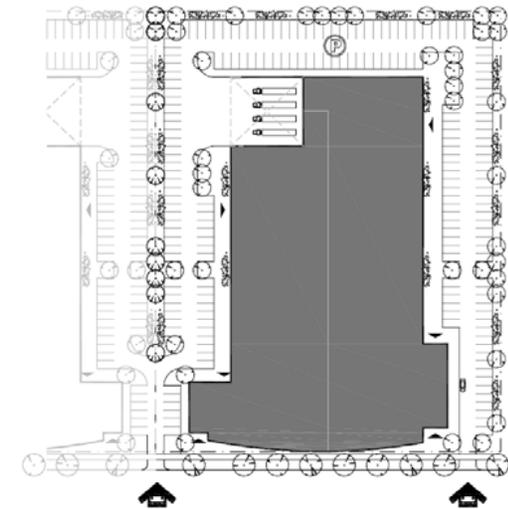


Figure 8: Shared Driveway

2.4 Recommended Building Setbacks

Guideline 01: Building Setbacks

Building setbacks to provide separation from adjacent land uses and to create a consistent street wall and pedestrian areas including consistent street frontages and built-to lines is encouraged.

Guideline 02: Setbacks for Landscape Screening

Building setbacks to ensure: landscaped screening of loading and service areas and landscape buffers at the extent of sites, is encouraged.

Guideline 03: Street Edge

The City encourages building placement close to the street edge as the dominant and consistent element in a business park. (Section 6.1 City of Hamilton Site Plan Guidelines Manual)

Guideline 04: Office Components

The office component of the building should be located closer to the street than the plant or warehouse component to be visible from the street and break up a long building mass. (Section 6.1 City of Hamilton Site Plan Guidelines Manual)

Guideline 05: Minimum Setbacks and Build-to Lines

Minimum Setbacks: As specified by the Zoning By-Law

Minimum build-to lines for front façade:

Office Front Yard: 0m - 3m

Warehouse/Plant Front Yard: 6 - 9m

Guideline 06: Continuous Landscape Area

A minimum continuous landscaped area between warehouse/plant façades and the street line along the frontage is recommended.



Figure 9: Birchwood Park Business Park, Warrington UK

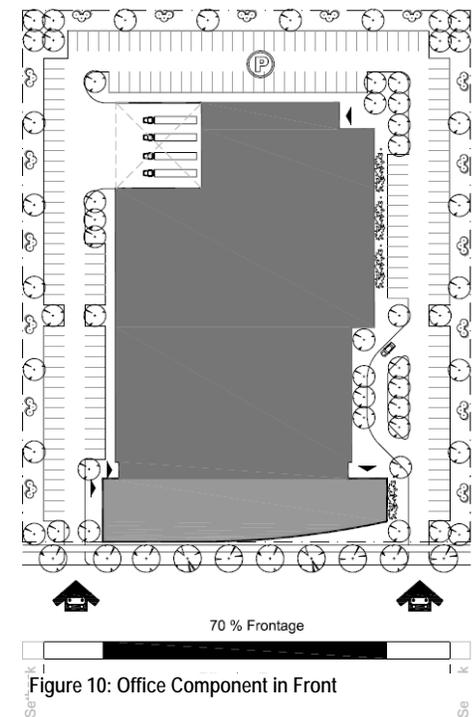


Figure 10: Office Component in Front

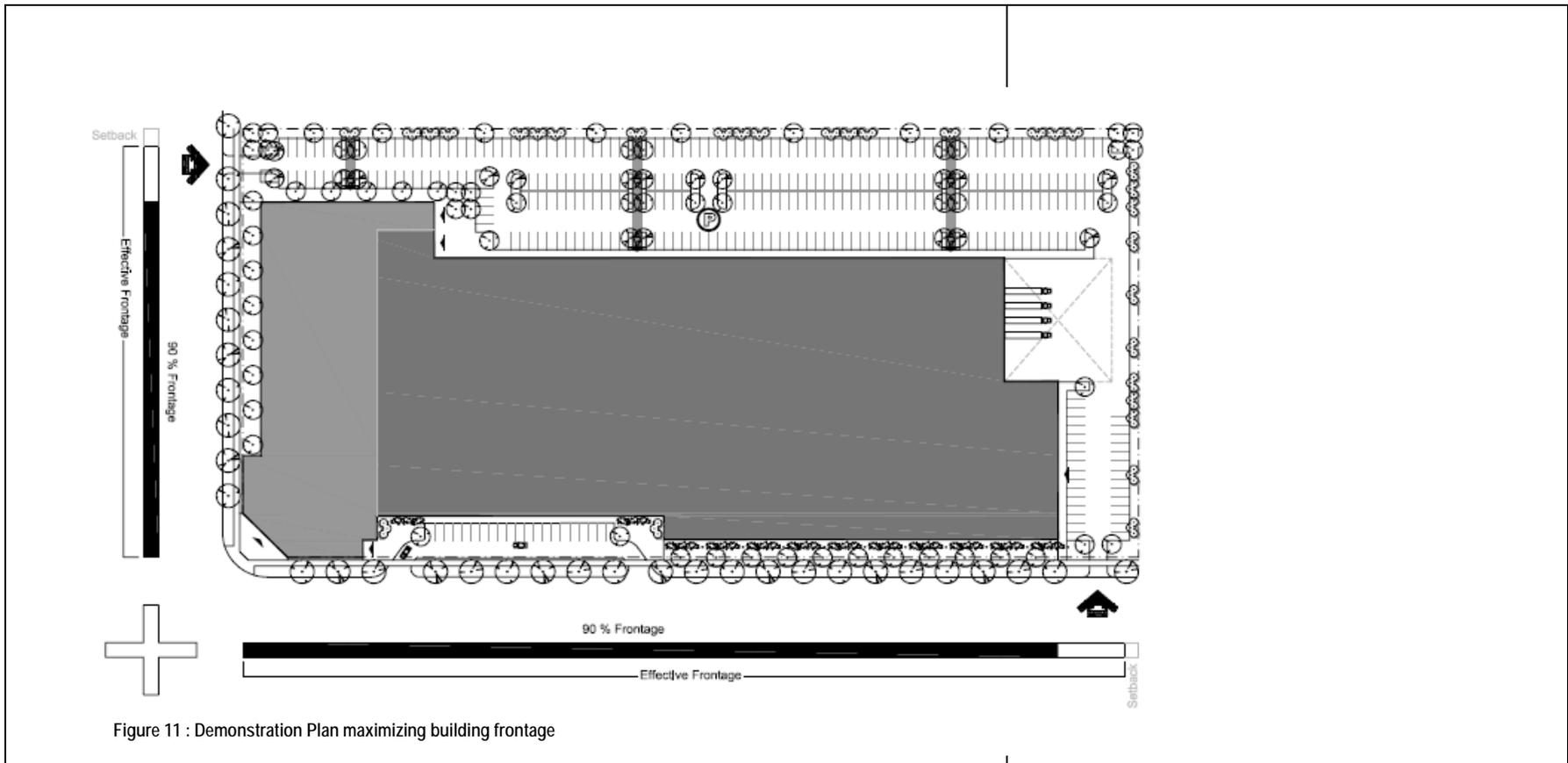


Figure 11 : Demonstration Plan maximizing building frontage

2.5 Vehicular Parking Areas

Guideline 01: Safety and Comfort

Parking areas should be developed as safe, functional, attractive and comfortable areas as well as developed to reduce their environmental and visual impact.

Guideline 02: Paving Materials

A high quality of pedestrian paving materials should be used to minimize the impact of asphalt paving on development and create a more comfortable and attractive environment for pedestrians within parking areas.

Guideline 03: Parking Structures

Parking structures developed to a high standard of architectural, lighting, and landscape design is encouraged. Any structured parking shall be located at the rear of buildings and screened from view from arterial roads. Where structures face a non-arterial road the form and façades of above grade parking structures shall be fully developed to a high standard of architectural design compatible with the building design. Lighting and landscape design shall be integrated with adjacent buildings.



Figure 12: Safe, Functional and Attractive Parking Lot



Figure 13: Low Impact Parking Lot



Figure 14: Santa Monica Civic Center Parking Structure

Guideline 04: Visitor and Barrier-free Parking

Visitor parking, barrier-free parking, and drop off areas should be located near the building entrance.

Guideline 05: Landscape Screening

A landscaped strip should be provided between the street and parking in order to screen the view.

Guideline 06: Barrier Free Routes

Pedestrian connections to parking areas shall be barrier-free.

Guideline 07: Continuous Pedestrian Routes

Continuous pedestrian routes through parking areas shall be defined through differentiated paving materials for both safety and barrier free accessibility.

Guideline 08: Landscape Islands

To mitigate heat build up and reduce stormwater flows, employee and visitor parking areas shall be subdivided by a combination of landscaped islands of a minimum width of 3 m and permeable pedestrian paving path to define parking courts of not greater than 60 spaces.

Guideline 09: Permeable Paving Materials

Parking areas should incorporate permeable paving materials wherever feasible. For example, utilizing turfstone at parking spaces and asphalt paving at driving aisles provides both ground water infiltration and a level surface for driving and snow clearance. Development should include a Maintenance program for the permeable paving areas.

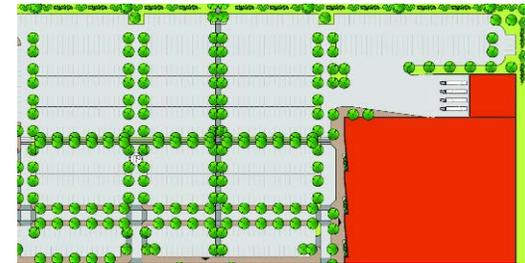


Figure 15: Clear pedestrian routes through parking



Figure 16: Bioswale in Parking Lot, Portland

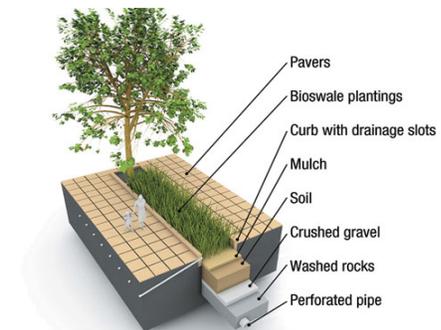


Figure 17: Sustainable Parking Lot Drainage

2.6 Storage, Service and Loading Areas

Guideline 01: Location

The appropriate placement and screening of storage, service and loading areas is encouraged.

Guideline 02: Waste Storage Areas

Waste storage areas should be located inside buildings, wherever possible. Storage of waste in accessory buildings is permitted, provided that the appearance of these structures is complementary to the level of quality of materials of the main buildings.

Guideline 03: Screening

Outdoor storage, service and loading areas should not be visible from the street and adjacent residential properties. With the exception of outside storage areas, when it is not possible to locate loading facilities and service areas on a non-street side of the building, loading docks and doors should not dominate the building frontage and should be screened from all adjoining public rights-of-way. Loading and service facilities should be offset from driveway openings.

Guideline 04: Building Siting

Building design, siting, landscaping and planting or fencing should be utilized to screen views to storage, service and loading areas.

Guideline 05: Loading Bays

Loading bays should be screened by extension wall or landscape/fencing features.

Guideline 06: Screening Design

Screening should be compatible with the building design and materials. No enclosure should be made of any form of chain link fencing. Screen walls should have a minimum height of 1.8 metres. Stored materials may not be

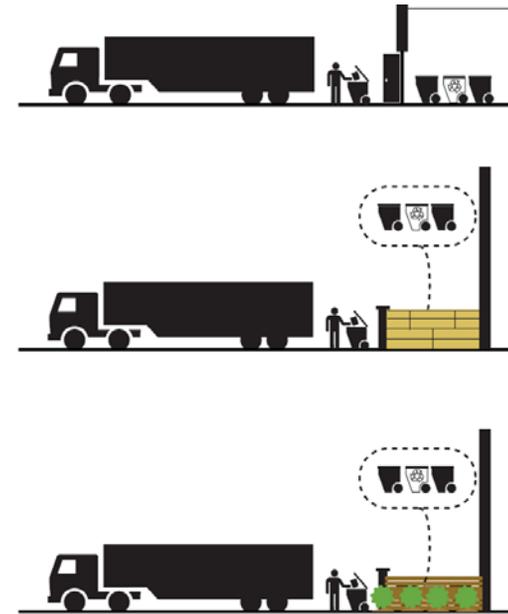


Figure 18: Storage should be indoors or screened



Figure 19: HVC Barneveld, Rotterdam

stacked or be visible above the enclosure height.

Guideline 07: Size of Waste Enclosures

Waste enclosures should enclose an area designed to accommodate the peak needs of varied potential industrial users of the building.

Guideline 08: Screening of Utility Equipment

Utility equipment, hydro transformers, and switching boxes should not be visible from the public street and shall be incorporated into the design of the building and site landscape.

Guideline 09: Service Area Paving

Service and refuse areas should be paved with an impervious surface of asphalt or concrete.



Figure 20: Chilexpress - Santiago Chile

2.7 Site Lighting and Safety

Guideline 01: Illumination Levels

The appropriate illumination of all pedestrian and parking areas to promote safety, security and comfort without over-illumination is encouraged

Guideline 02: Spill-over

Architectural lighting to emphasize built form and landscape elements is encouraged especially along highway frontages, but should not create spill-over of light to adjoining properties.

Guideline 03: Energy Efficient

Energy efficient street lights and pedestrian lights are encouraged. Design provisions and devices to prevent spill over of light to adjoining properties are required, particularly where development areas abut residential uses or natural areas.

Guideline 04: Pedestrian Level Lighting

Light standards shall include pedestrian level pole heights adjacent to walkways, in parking areas and other pedestrian zones.

Guideline 06: Defensible Space

Landscaping shall not impede eye-level views across the parking lot or toward the building entrance.

Guideline 07: Noise Attenuation

Noise attenuation measures should be incorporated where necessary to ensure that adjacent properties, especially residential properties and natural areas, are not disrupted by activity on site.



Figure21: Pedestrian lighting built into benches.



Figure 22: Pedestrian level luminaires.



Figure 23: Luminaires should prevent light pollution

2.8 Pedestrian and Cyclist Movement

Guideline 01: Site Planning

Site planning should provide for ease and continuity of pedestrian movement and a high-quality, barrier-free pedestrian environment.

Guideline 02: Route Hierarchy

A hierarchy of sidewalks, multi-use paths, and in road cycle lanes should be provided to offer an alternative mode of travel for commuters and recreational users. The design of cycling bikeways shall be guided by the City of Hamilton Design Guidelines for Bikeways.

Guideline 03: Encourage Cycling

Street design should facilitate cyclist movement by reducing barriers to the ease, comfort, and safety of cycling. Curb cuts should be provided at bicycle route connections to the street.

Guideline 04: Distinct Routes

Distinctive paving patterns and materials are required at highly visible areas, entrance areas and major routes between parking, transit stop and building entrance to promote pedestrian safety and assist in site orientation.

Guideline 05: Differentiated Routes

Differentiated path surfaces and pavement markings (lane markings, lines, etc.) should distinguish areas for cyclists and pedestrians on multi-use paths.

Guideline 06: Differentiated Crossings

Pedestrian connections at all major intersections shall be defined with differentiated paving materials and appropriate curb cuts. These surfaces should be permeable wherever possible to improve groundwater filtration.

Guideline 07: Bicycle Parking

Bicycle racks and/or secure bicycle storage areas should be provided at



Figure 24: Cambourne Business Park, Cambridge UK



Figure 25: No.1 Nottingham Science Park



Figure 26: Sheltered bicycle storage.

building entrances. Bicycle parking/racks should be connected to primary bicycle trail routes with surfaces appropriate for cycling.

Guideline 08: Connected Routes

Multi-use paths should connect the site to the residential areas outside the employment district as well as any natural areas, parks, and general open spaces.

Guideline 09: Covered Walkways

Any parking facilities that are more than 400 metres (5-minute walk) away from the destination building need to have a covered walkway connecting the parking facility to the building.

Guideline 10: Walkways to Parking

Walkways need to be provided between all buildings and their associated parking lots with a minimum width of 1.5 metres.

Guideline 11: Pedestrian Lighting

Pedestrian level lighting needs to be provided along all walkways and sidewalks for safe pedestrian circulation at night.

Guideline 12: Street Furniture

Street furniture such as benches and lighting should be present along pedestrian routes.

Guideline 13: Waiting Areas

Waiting areas, such as at building entrances, should provide shade, be wind protected and have street furniture.

Guideline 14: Landscape Design

Landscape design should give form, visual structure to street edges and pathways to humanize the scale and sightlines of development.



Figure 27: Husky Corporate Campus, Bolton



Figure 28: Illinois Technology Campus

3.0 Built Form Guidelines

3.1 Sustainable Building Design

Guideline 01: Sustainable Design Measures

Building design is encouraged to incorporate sustainable design measures including but not limited to Leadership in Energy and Environmental Design (LEED™).

Guideline 02: Visible Articulation of Sustainable Design

Buildings that incorporate sustainable design measures will be encouraged to have orientation, massing, material selection and landscaping as a visible articulation of their sustainable design.

Guideline 03: Eco-Industrial Design

Sustainable building design should conform to the Eco-Industrial Design Guidelines for the AEGD.

Guideline 04: Energy Efficiency

Buildings should be energy efficient. Minimize energy demand in designing buildings with passive and active solar harvesting techniques, day-lighting strategies.

Guideline 05: Thermal Efficiency

Buildings should be thermally efficient. The thermal efficiency of the building envelope and fenestration is a key consideration, as are properly sized and efficient HVAC systems.

Guideline 06: Innovative Technologies

Innovation is encouraged through the design and implementation of alternative energy sources where appropriate; ground source heat pumps (geothermal), energy recovery ventilators, photovoltaic power generation,

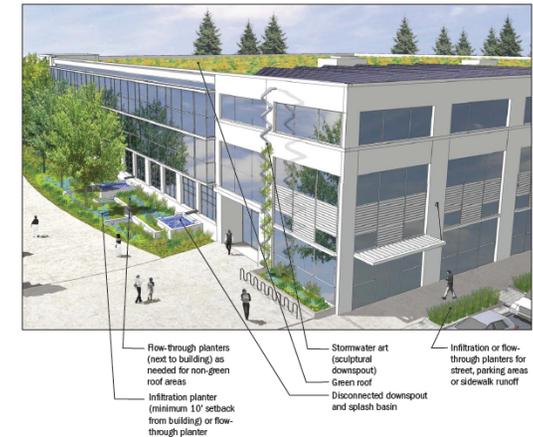


Figure 29: Sustainable Building Design



Figure 30: Lindholmen Science Park, Gothenburg, Sweden

solar hot water systems etc.

Guideline 07: Vegetated Surfaces

Building design should reduce the heat island effect. Facilities should implement green roofs, planted walls and terraces to reinforce the visual connection to the surrounding landscape, provide habitat for wildlife and encourage storm water run-off diversion and capture for irrigation.

Guideline 08: Light Pollution

Buildings should reduce exterior light pollution where appropriate (without deficiencies in safety provisions).

Guideline 09: Reduce Waste

Building design should reduce solid waste. Make access to recycling facilities for building inhabitants easy.

Guideline 10: Water Management

Building design should reduce potable water consumption. Buildings should be designed with water efficient fixtures and seek to implement strategies for metering, rainwater reuse (irrigation, sanitary flushing) where appropriate.



Figure 31: BP Business Park. Sunburv UK

3.2 Building Orientation

Guideline 01: Building Orientation

Buildings are encouraged to have an orientation that provides street definition, pedestrian realm definition, and helps manage cooling and heating loads.

Guideline 02: Street Frontage

Buildings should primarily front on the street to create a consistent street wall and define the pedestrian realm. All elevations facing roadways shall be designed with sensitivity to the high level of visibility.

Guideline 03: Maximize East-West Frontage

Buildings should be designed to maximize east-west frontage to take advantage of passive solar heat and daylight.

Guideline 04: Office and Entrance Components

Office and entrance elements should be oriented towards municipal roadways and intersections.



Figure 32: Frito-Lay Offices, Henrietta, New York



Figure 33: Sonoma Mountain Village

3.3 Building Height & Massing

Guideline 01: Building Mass and Transition

Buildings are encouraged to have a height and massing that supports the efficient use of land and appropriate transitions to adjacent land uses outside the Airport Employment Growth District. Building heights shall comply with the Hamilton Airport Zoning (Height) Regulations established by Transport Canada.

Guideline 02: Street Frontage

Consistent building heights along street frontages are preferred to create a streetscape with a sense of enclosure and urban edge.

Guideline 03: Office Components

Office components of buildings are encouraged to be at least two storeys along street frontages, when possible.

Guideline 04: Views toward Natural Heritage Areas

Building orientation and heights should preserve views into the Natural Heritage Areas, where possible.

Guideline 05: Building Heights along Highways

Building heights along highways are encouraged to be higher to ensure a strong visible presence of development. Building heights shall comply with the Hamilton Airport Zoning (Height) Regulations established by Transport Canada.



Figure 34: BP Business Park, Sunbury UK



Figure 35: Vacheron Constantin corporate headquarters and factory - Geneva, Switzerland

3.4 Building Design

Architectural Articulation

Guideline 01: Building Entrances

Buildings are encouraged to have the entrance or office space appropriately oriented towards municipal streets and intersections. Building entrances should be oriented toward transit stations and bus stops for convenient access to the buildings by public transit passengers.

Guideline 02: Architectural Features

Buildings are encouraged to have façades with significant architectural features.

Guideline 03: Architectural Articulation

Buildings are encouraged to have architectural articulation in form and materials. Large blank wall surfaces along street frontages are discouraged.

Guideline 04: Accessibility

Building entrance(s) is located and designed to be accessible to all people.

Guideline 05: Pedestrian Interest

Adjacent to major areas of pedestrian activity, the building design and materials should create attractive and comfortable environments. The use of higher quality and attractive materials, visual connections to the ground floor through glazing, arcades or canopies is encouraged.



Figure 36: Bus Center RATP in Thiais, France



Figure 37: Alder Business Centre Langley BC



Figure 38: Chilexpress - Santiago Chile

Guideline 06: Emphasize Entrances

Architectural design should emphasize entrance areas through a change in building form, increased height, and / or a change in materials from the main building component. Entrances of appropriate size which are easily identifiable should be provided at each main building access point. Building entrances should be defined by entrance canopies, awnings and other architectural elements. Separate building access points for different uses are encouraged.

Guideline 07: Visibly Sustainable

Where possible, sustainable design strategies that affect the architectural expression of the building should be employed on façades visible from municipal streets such as operable windows or a solar panel wall.

Guideline 08: Diversity of Massing

Buildings elevations and composition should promote a balance between solid walls, windows, and wall glazing to support green building design strategies, future flexibility and function.

Guideline 09: Vertical Programming

Building programming should consider the vertical stacking of industrial functions.

Guideline 10: Roof Shape

A variety of roof shapes should be considered to avoid the monotony of flat roofs.

Guideline 11: Vegitated Surfaces

Green roofs and green walls should be encouraged to assist with energy savings, stormwater management and natural habitat enhancement.



Figure 39: Cambourne Business



Figure 40: Newmarket Operations Centre, Newmarket



Figure 41: Green Roofs

Fenestration

Guideline 12: Fenestration

Buildings are encouraged to have an appropriate location and amount of fenestration, with operable windows also encouraged.

Guideline 13: Street Frontage

The amount of glazing should be maximized at street frontages and intersections.

Guideline 14: Minimum Fenestration: Arterial Roads

Office components of buildings with façades fronting on arterial roads shall be fenestrated for a minimum of 25% of the area of that façade, where appropriate.

Guideline 15: Minimum Fenestration: Local Roads

Along other municipal street frontages, a minimum of 20% of the frontage façade of the office component of the building shall be fenestrated, where appropriate.

Guideline 16: Fenestration of Active Uses

Buildings or building components with an active, street-related use, such as an entrance or accessory retail area should have a minimum of 60% glazing, to create an attractive public realm at street-related façades.

Guideline 17: Operable Windows

To reduce dependency on air conditioned spaces and to promote healthy working environments, inclusion of operable windows at areas with a high employee activity is strongly encouraged.

Building Materials

Guideline 18: Building Materials



Figure 42: Aberdeen Business Park, Scotland



Figure 43: Cambridge Science Park - Cambridge, England

Buildings are encouraged to incorporate materials that have a high life cycle and aesthetic quality that optimize technical performance while enriching the aesthetic of the building exterior.

Guideline 19: Non-reflective Surfaces

Building design should avoid the use of dark, non-reflective surfaces for roofs, parking areas and walkways as they contribute to heat island effect. Building materials should be light-coloured, with reflective surfaces or emissive materials that can reduce heat island effect.

Guideline 20: Modern and Sustainable Building Materials

The use of building materials that express modern and sustainable building technology is encouraged. Artificial application of historical building styles to modern construction methods and building uses is discouraged. The appearance of building materials should be true to their nature and should not mimic other materials. The use of building materials that convey their sustainable design attributes is encouraged, particularly at the most visible locations.

Guideline 21: Limited Material Palette

A limited range of building materials is encouraged in favour of achieving a unified building image.

Guideline 22: Wrap Front Façade Materials

Materials used for the front façade should be carried around the building or at a minimum to the side building façades.

Structured Parking

Guideline 23: Structured Parking

Where applicable, above grade built parking solutions are to be screened yet allow enough free air movement around all sides of the parking levels to avoid the need for mechanical ventilation. At the same time, the screen will help to reduce the visibility of lighting and cars.



Figure 44: Cambourne Business Park, Cambridge UK



Figure 45: Transferium Barneveld Noord, Netherlands

3.5 *Integration with Built Heritage*

Guideline 01: Set Back with Built Heritage

The façades of new buildings are encouraged to be set back to match existing heritage buildings to ensure they are visible from the public realm.

Guideline 02: Sensitive to Context

New buildings are encouraged to be sensitive to adjacent and nearby heritage buildings; however, the application of historical building styles to modern development is discouraged.

3.6 *Rooftop and Mechanical Requirements*

Guideline 01: Screen Rooftop Mechanical Systems

Buildings are encouraged to screen rooftop and mechanical systems with the building's architecture.

Guideline 02: Screening Material

Screening should be durable and designed as an integral component to the building façade design.

Guideline 03: Integrate Exposed Mechanical Systems

Where mechanical systems, such as ducting and pipes are required to be located on the building exterior, their appearance should be complementary to and integrated with the building's architecture.

Guideline 04: Sustainable Rooftop Materials

Selection of rooftop materials are required to meet the minimum sustainable design guidelines for reduction of heat islands, water flow control and other criteria. Planted roofs are encouraged for both their environmental and aesthetic value.



Figure 46: FAI research and development center - Krems, Austria

3.7 Architectural Lighting and Light Pollution Management

Guideline 01: Accent Lighting

Buildings are encouraged to incorporate exterior accent lighting with external luminaries that are compatible with the building design.

Guideline 02: Accentuated Building Entrances

Building entrances should be accentuated through exterior lighting to provide a safe and attractive pedestrian environment and create a distinctive image from the streetscape. Flashing or neon lighting will not be permitted.

Guideline 03: Architectural Integration

Where luminaries are attached to building façades, their method of fastening and appearance should be compatible with the building design.

Guideline 04: Avoid Light Spillover

Accent illumination, whether attached to the building or projected, must be designed to prevent uplight and glare and avoid light spillover onto adjacent properties.



Figure 47: Birchwood Park Business Park, Warrington UK



Figure 48: Office Building Maastricht Airport, Netherlands



Figure 49: Derco Centre, Chile

3.8 Signage

Guideline 01 : Sign By-Law

Signage shall be implemented following the City of Hamilton's Sign By-Law. Where a provision of this Guidelines conflicts with a provision of the City's Sign by-law the provision in the Sign By-Law shall prevail.

Guideline 02: Energy Efficient Signage

Signage for sites and buildings is encouraged to incorporate energy-reduction technology such as block letters that do not require daytime illumination and the use of photocells and timers.

Guideline 03: Clear and Legible Signage

Well-designed and legible signage that is compatible with the building and site furniture is encouraged.

Guideline 04: Integrated Signage

Signage for multiple occupant buildings is encouraged to be an integral component of the building façade.

Guideline 05: Free Standing Signage

Well-designed monument or free-standing signage, where deemed to be appropriate, is encouraged.

Guideline 06: Typeface and Colour

Signage with clear, well-sized typefaces, distinctive colour, and proper lighting to ensure easy way-finding for visitors and staff, is encouraged.

Guideline 07: Visibility

Signage identifying each building clearly visible from a distance is encouraged.



Figure 50: Maag Recycling - Winterthur - Switzerland



Figure 51: Biotechnology Campus - Thousand Oaks, CA



Figure 52: Commercial Building, Westland Netherlands

Guideline 08: Materials

Signage designed and fabricated to be durable and with appropriate specifications for exterior and interior use, for example resist colour fade, delamination as a result of proximity to heat or UV light sources, is encouraged.

Guideline 09: Architectural Style

All signs pertaining to the same building or development shall be of the same style or of complimentary styles.

Guideline 10: Rooftop Signage

Rooftop signs are not permitted; however, signage mounted on building façades is. Maximum signage area is recommended at 15% of the building façade.

Guideline 11: Service Entrance Signage

Service entrances are encouraged to be identified with signs to discourage the use of main entrances for deliveries.



Figure 53: Milton Park - Abingdon UK

4.0 Open Space Guidelines

4.1 Landscape Requirements at Road Frontages, Gateways and Transit Hubs

Guideline 01: Landscape Requirements at Road Frontages

High standards for high quality, continuous landscaping at road frontages throughout the main road network are encouraged. Refer to Section 2.1 - Guidelines 04 & 05; and Section 2.2 – Guidelines 07 & 08. In addition, refer to the AEGD Transportation Master Plan for information on the proposed cross sections (Figures 57 to 60 below). The stormwater facilities shown in the roadway cross-sections are for conceptual reference only. Refer to the AEGD Stormwater Mater Plan for the recommendations.

Guideline 02: Landscaped Boulevard

Municipal roadways shall include a landscaped strip of 3.0m. wide on each side.

Guideline 03: Gateway Location

Gateways should be provided at entrances and exits to and throughout the development, with a clear hierarchy distinguishing major gateways from minor gateways.

Guideline 04: Gateway Themes

Gateways throughout the industrial park should have common themes or design elements.

Guideline 05: Gateway Elements

Design elements for gateways may include but are not limited to: signage, native planting (drought/salt tolerant), and other decorative elements (sculpture, fountains, decorative walls etc.) that are reflective of the character of the City of Hamilton. Elements will vary depending on the classification of



Figure 54: Meadowvale Business Park, Mississauga



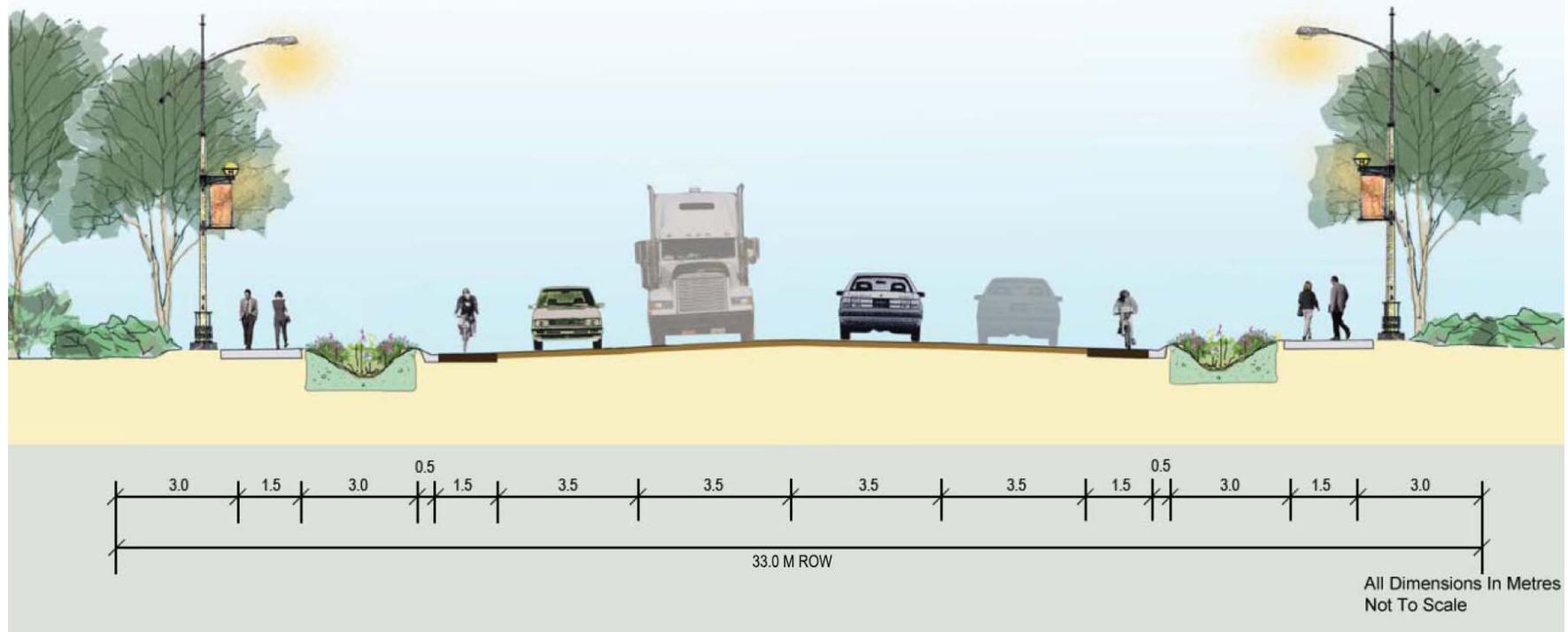
Figure 55: Gateway – Groves Business Park, Michigan



Figure 56: Entrance Gateway, Burlington

the gateway.

Proposed 4-Lane Collector Roadway



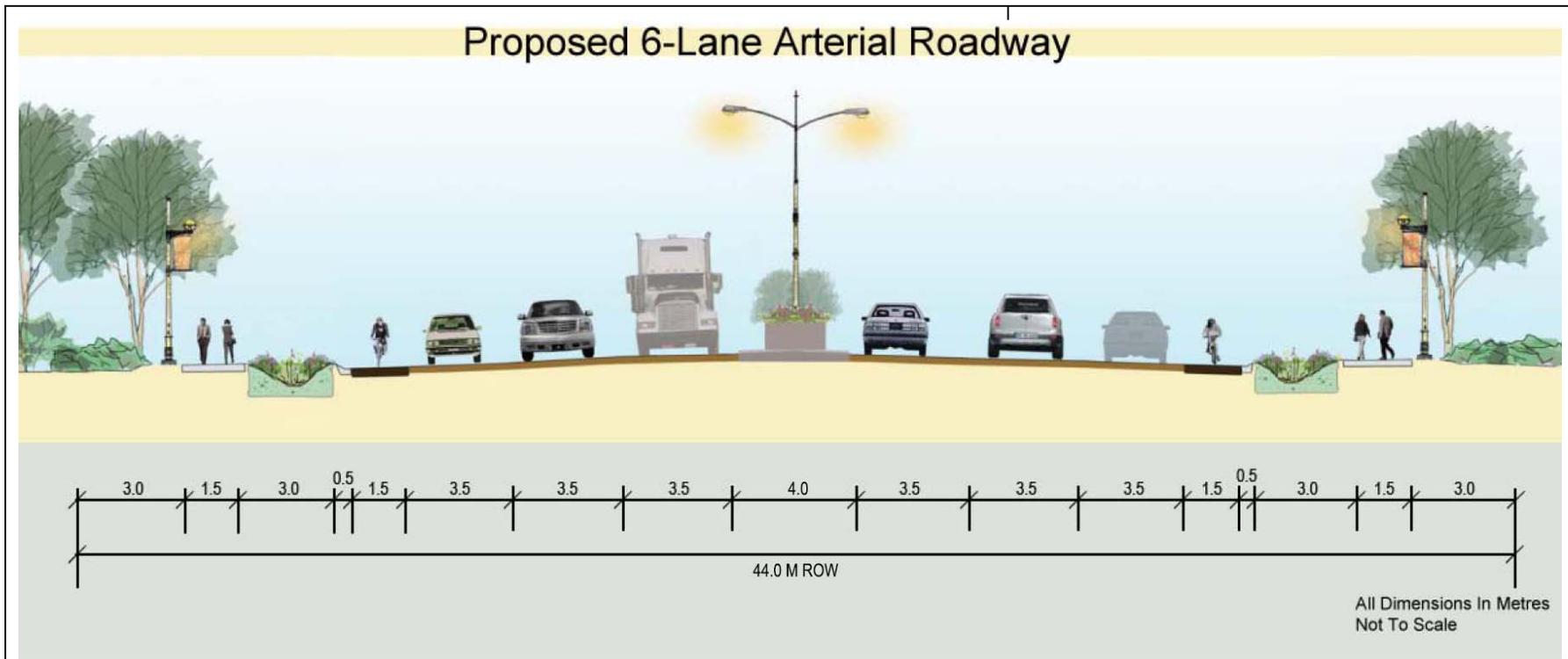
NOTE: ROW conveyance portion may include such LID features as grass swales, dry-swales or bio-swales, subsurface Exfiltration pipes or combinations thereof. Additional storage can be included through subsurface gravel or pre-manufactured storage areas, infiltration through amended or engineered soils or other such techniques as outlined in the SWMP.

Figure 57: Proposed Conceptual 4-Lane Collector Roadway



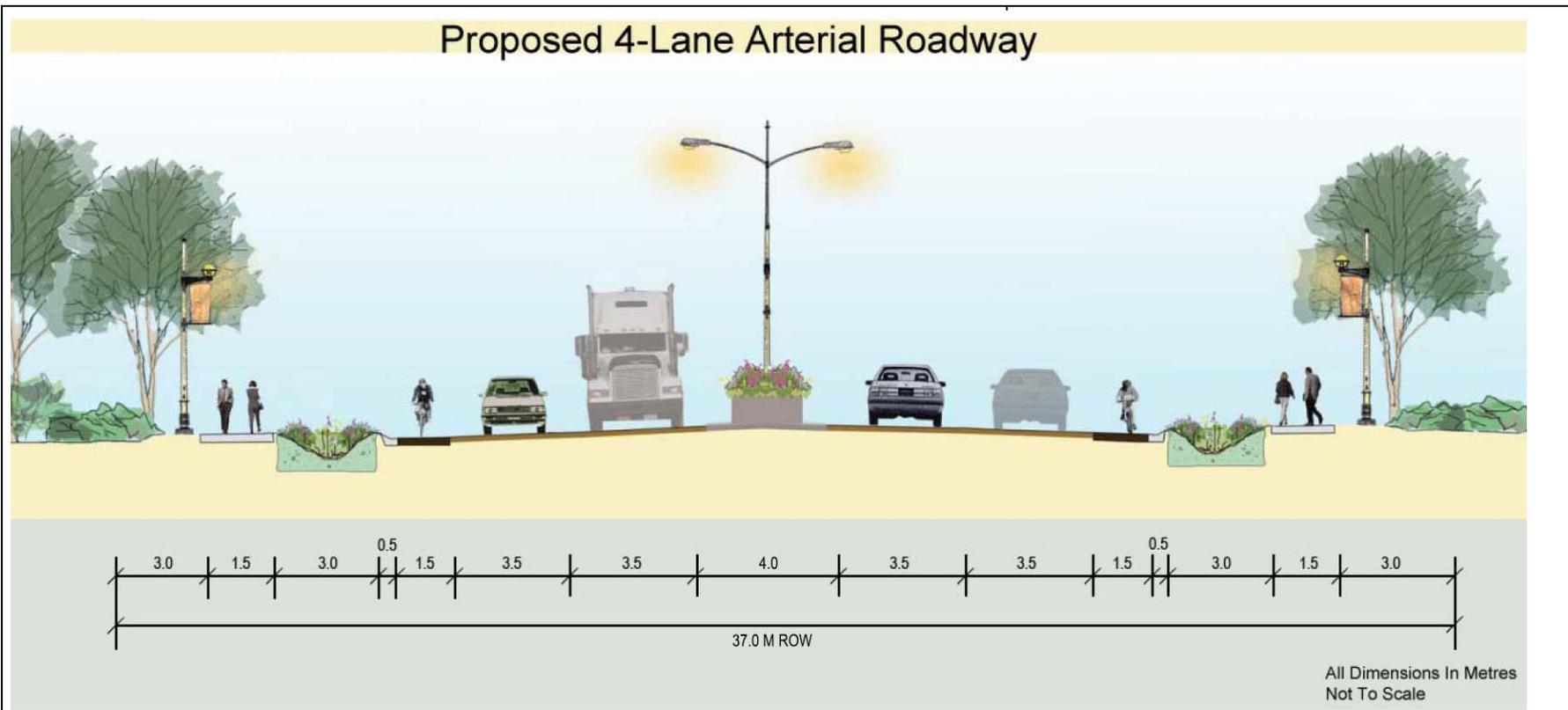
NOTE: ROW conveyance portion may include such LID features as grass swales, dry-swales or bio-swales, subsurface Exfiltration pipes or combinations thereof. Additional storage can be included through subsurface gravel or pre-manufactured storage areas, infiltration through amended or engineered soils or other such techniques as outlined in the SWMP.

Figure 58: Proposed Conceptual 2-Lane Collector Roadway



NOTE: ROW conveyance portion may include such LID features as grass swales, dry-swales or bio-swales, subsurface Exfiltration pipes or combinations thereof. Additional storage can be included through subsurface gravel or pre-manufactured storage areas, infiltration through amended or engineered soils or other such techniques as outlined in the SWMP.

Figure 59: Proposed Conceptual 6-Lane Arterial Roadway



NOTE: ROW conveyance portion may include such LID features as grass swales, dry-swales or bio-swales, subsurface Exfiltration pipes or combinations thereof. Additional storage can be included through subsurface gravel or pre-manufactured storage areas, infiltration through amended or engineered soils or other such techniques as outlined in the SWMP.

Figure 60: Proposed Conceptual 4-Lane Arterial Roadway

Guideline 06: Transit Stops

When convenient, the development within Employment Supportive Centres should provide an enhanced transit stop. Landscape design should give form, visual structure to the transit stop and pathways to humanize the scale and sightlines of development. Street furniture such as benches and lighting should be present at these transit stops.

Guideline 07: Public Art

Landscape elements should include public art, especially at gateways and areas with high pedestrian usage.

4.2 Landscape Quality

Guideline 01: Landscape Quality

Landscape elements should have distinctive, high-quality thematic to create a unifying visual quality or identity to each land use type. Main building façades, landscape buffers and public street frontages should be landscaped using high standards for planting density, quality and variety, meeting or exceeding the City of Hamilton Tree Policies and other applicable policies and guidelines.

Guideline 02: Ecology Support

Landscaping should support ecology through the design of naturalized groves of trees (deciduous and evergreen) and areas incorporating low maintenance native plant species (woody shrubs, ground covers, grasses, and perennials). Refer to Section 2.1 Guidelines 04, 05, 06 and 09.

Guideline 03: Comfort and Amenity

Landscapes should provide comfort and amenity space by using vegetation for the purpose of creating shelter and microclimates.

4.3 Paved Surface Materials

Guideline 01: Paved Surface Materials

High-quality and varying paving materials should be used where this is suitable, in particular for pedestrian paths and for permeable surfaces to support groundwater recharge. Refer to Section 2.2 – Guidelines 03 & 04; Section 2.5 – Guideline 02 & 09; and, Section 2.6 - Guideline 09.

4.4 Landscape Buffers

Guideline 01: Landscape Buffers

Landscape buffers that address the interface and edges and provide



Figure 61: IBM, Markham, Access Road



Figure 62: Cambourne Business Park, Cambridge UK

naturalized buffers between developed areas of the site, streets, and adjacent natural features are encouraged.

4.5 Outdoor Amenity Space

Guideline 01: Outdoor Amenity Space

Development should provide access to appropriately sized outdoor amenity areas for employees as well as visitors. Outdoor amenity areas should be attractive, comfortable, have adequate seating, and, where logical, be connected to a pathway system. Outdoor amenity space within the public realm and on private development should be designed according to Section 2.1 Guidelines 02, 03, 04, 05, 06 & 07.

Guideline 02: Pedestrian Connections to Outdoor Amenities

Pedestrian connections to outdoor amenities should be barrier free and clearly marked with pedestrian scaled lighting that defines the route and amenity area.

4.6 Pedestrian, Bicycle, and Trail Connections

Guideline 01: Pedestrian and Bicycle Connections

The design of pedestrian, bicycle, and trail connections in the study area should offer an alternative mode of travel for commuters and recreational users through a hierarchy of sidewalks, multi-use paths, and on road cycling lanes. Refer to Section 2.1 – Guideline 08 and Section 2.8 – Guidelines 01 to 06 & 08 of this document and to the Airport Employment Growth District Transportation Master Plan.

Guideline 02: Trail Connections

Development should provide a trail system with major trailheads located in open space areas with road frontage, or integrated with commuter parking lots. Refer to the AEGD Transportation Master Plan.



Figure 63 Astra Zenica



Figure 64: Pedestrian area, Astra Zenica, Mississauga

5.0 Design Guidelines for Specific Designations

5.1 Prestige Business

Buildings within the Prestige Business lands should have a high quality urban design standards and sustainable development standards. Areas designated for prestige employment are intended for the highest order development with a strong and distinctive corporate identity and an image of environmental responsibility.

Guideline 01: Minimum Standards

Buildings should achieve the minimum standards for urban design described in section 4.

Guideline 02: Sustainable Design

Buildings should achieve a high level of sustainable design. LEED™ certification or other green building certification is encouraged. Sustainable design measures should be clearly visible in these developments.

Guideline 03: Materials

High-quality exterior cladding materials, such as glass, steel, metal paneling and masonry, must be used on the façades of buildings fronting primary streets. Pre-cast paneling and exterior insulated finishing systems will not be permitted on façades facing primary streets.

Guideline 04: Glazing

For office components, a minimum of 60% of façade surface area facing arterial and collector roads is encouraged to be glazed.

Guideline 05: Minimum Frontage

Buildings should occupy a minimum 70% of the total lot frontage along public



Figure 65: Kellogg's, Mississauga, ON



Figure 66: Citi Data Center - Frankfurt

streets.

Guideline 06: Building

Taller building heights (5-6 storeys) are recommended at prominent intersections to permit the development of higher order uses, when feasible. Building heights shall comply with the Hamilton Airport Zoning (Height) Regulations established by Transport Canada.

Guideline 07: Landscape Area

50% of the linear lot frontage should be landscaped. A double alee of street trees should follow the sidewalk.

Guideline 08: Outdoor Storage

Outside storage of goods is not permitted in the Prestige Business areas. All storage of goods is required to be within main building structures.

Guideline 09: Natural Features

Businesses in Prestige Business Park areas will integrate the natural sensitive features into their landscaping including landscaping and buffering to minimize impacts on adjoining areas.

Guideline 10: Fencing

No fences should be placed on the lot line adjacent to arterial or collector roads.

Guideline 11: Architectural Detail

A high level of architectural form and detailing of buildings is encouraged to promote the image of prestige development. Significant building features, such as office components, major areas of glazing, canopies, cornices, and other distinguishing, yet integrated architectural elements are encouraged.



Figure 67: Omron, Oakville, ON (LEED Certified)



Figure 68: Ericson, Mississauga, ON

Guideline 12: Transitions Between Prestige and Residential Areas

The transition area applies to Prestige Business lands along the north edge of the Secondary Plan area which abut residential development. The goal of the transition area is to encourage employment development that effectively integrates with nearby residential uses, by minimizing and/or mitigating potential impacts and specific urban design. The following guidelines apply to development in the transition areas and supersede any conflicting policies in the underlying land use designation: Transition areas should provide consistent urban design standards for each side of the roadways. The Ministry of Environment D-6 Series Guidelines for land use compatibility between industrial facilities and sensitive land uses will also provide additional direction for the transition areas.

Guideline 12.1: Building Height

Industrial areas facing residential areas should be low rise (max. 3-4 storeys) and compatible in mass and form to the residential built form. Building heights shall comply with the Hamilton Airport Zoning (Height) Regulations established by Transport Canada.

Guideline 12.2: Landscape Area

A minimum of 15% of the site area must be landscaped.
60% of the linear lot frontage should be landscaped.

Guideline 12.3: Outdoor Storage and Service Areas

Outdoor storage, salvage yards and other uses which are incompatible with the Prestige Business Park designation are prohibited. Loading and service areas should not be visible from residential areas and should be screened using landscaping features, compatible fencing and/or building features.

Guideline 12.4: Local Road Buffer

When possible a local road should be used as a buffer between the Transition Residential Zone lands and adjacent Residential lands.

Guideline 12.5: Additional Landscape Buffer

An additional 3.0m landscape buffer is recommended to create a generously screened zone for a multi-use trail.

Guideline 12.6: Parking, Loading and Servicing

Parking, loading and servicing is required to be located to the sides and rear of the development sites, to ensure that the impact on the residential areas is minimized.



Figure 69: Examples of Transition Zones Adjacent to Residential Developments in Garner Road (Illustrative)



Figure 70: Examples of Transition Zones Adjacent to Residential Developments in Twenty Road (illustrative)

5.2 Light Industrial

Controlled outdoor storage is permitted within Light Industrial lands area and should respect the urban design guidelines described in section 4 and below. The goal is to maintain a relatively high development standard particularly in terms of landscaping and site organization. However, building design standards are not as proscribed as in the prestige business park area.

Guideline 01: Minimum Standards

Buildings should achieve the minimum standards for urban design described in section 4.

Guideline 02: Sustainable Design

Buildings should achieve a high level of sustainable design. LEED™ certification or other green building certification is encouraged. Sustainable design measures should be clearly visible in these developments.

Guideline 03: Materials

High-quality exterior cladding materials such as glass, steel, metal paneling and masonry must be employed on buildings façades fronting streets. Pre-cast paneling and exterior insulated finishing systems will not be permitted on façades facing streets.

Guideline 04: Glazing

For the office component of the building, a minimum of 25% of façade surface area facing collector roads is encouraged to be glazed.

Guideline 05: Minimum Frontage

Buildings should occupy a minimum 50% of the total lot frontage along public streets.

Guideline 06: Building Height

Single storey buildings are permitted but two or more storey building



Figure 71: Alcon, Mississauga, ON

components are encouraged along collector roads. Building heights shall comply with the Hamilton Airport Zoning (Height) Regulations established by Transport Canada.

Guideline 07: Outdoor Storage

Outdoor storage is permitted, provided it is associated with the specific industrial operation proposed for the building. Outdoor storage, service and loading areas should be located in the rear and/or interior side yard. All outdoor storage areas shall be screened by landscape features, compatible fencing and/or building features. Outdoor storage of goods shall not cause interference with airport operations.

5.3 Airside Industrial

Airside Industrial is planned for employment uses that need to be adjacent to the John C. Munro Hamilton International Airport.

Guideline 01: Minimum Standards

Buildings should achieve the minimum standards for urban design described in section 4.

Guideline 02: Sustainable Design

Buildings should achieve a high level of sustainable design. LEED™ certification or other green building certification is encouraged. Sustainable design measures should be clearly visible in these developments.

Guideline 03: Materials

High-quality exterior cladding materials such as glass, steel, metal paneling and masonry must be employed on buildings façades fronting streets. Pre-cast paneling and exterior insulated finishing systems will not be permitted on façades facing streets.



Figure 72: Screened Loading - Canton, GA



Figure 73: Alcon, Mississauga, ON - use of landscaping to screen logistic area

Guideline 04: Glazing

For the office component of the building, a minimum of 50% of façade surface area facing collector streets is encouraged to be glazed.

Guideline 05: Minimum Frontage

Buildings should occupy a minimum 60% of the total lot frontage along public streets.

Guideline 06: Building Height

Single storey buildings are permitted but two storey building components are encouraged along major streets. Building heights shall comply with the Hamilton Airport Zoning (Height) Regulations established by Transport Canada.

Guideline 07: Landscape Area

A minimum of 10% of the site area must be landscaped.

Guideline 08: Outdoor Storage

The Airside Industrial designation permits outdoor storage as long is demonstrated that does not cause interference with airport operations. Outdoor storage should be associated with the specific industrial operation proposed for the building. Outdoor storage, service and loading areas must be located in the rear and/or interior side yard. All outdoor storage areas shall be screened by landscape features, compatible fencing and/or building features.

5.4 Airport-Related Business

Airport-Related Business is planned for employment uses that benefit from proximity to the airport or provide services to travellers.

Guideline 01: Minimum Standards

Buildings should achieve the minimum standards for urban design described in section 4.



Figure 74: Milton Park - Abingdon UK



Figure 75: Screened Outdoor Storage, Mississauga

Guideline 02: Sustainable Design

Buildings should achieve a high level of sustainable design. LEED™ certification or other green building certification is encouraged. Sustainable design measures should be clearly visible in these developments.

Guideline 03: Materials

Building materials recommended for new construction include brick, stone and wood frame. Materials such as aluminum, steel and metal panels may be used provided they are used within an appropriate context.

Guideline 04: Glazing

For the office component of the building, a minimum of 50% of façade surface area facing collector streets is encouraged to be glazed.

Guideline 05: Minimum Frontage

Buildings should occupy a minimum 60% of the total lot frontage along public streets.

Guideline 06: Building Height

Single storey buildings are permitted but two or more storey building components are encouraged along major streets. Building heights shall comply with the Hamilton Airport Zoning (Height) Regulations established by Transport Canada.

Guideline 07: Landscape Area

50% of the linear lot frontage should be landscaped.

Guideline 08: Outdoor Storage

Outside storage of goods is not permitted. All storage of goods is required to be within main building structures.



Figure 76: Hamilton Airport Entrance



Figure 77: Solent Business Park.

5.5 Employment Supportive Centres

Employment Supportive Centres are planned for a limited range of amenity uses that serve the employees of the Airport Employment Growth District.

Guideline 01: Minimum Standards

Buildings should achieve the minimum standards for urban design described in section 4.

Guideline 02: Sustainable Design

Buildings should achieve a high level of sustainable design. LEED™ certification or other green building certification is encouraged. Sustainable design measures should be clearly visible in these developments.

Guideline 03: Materials

Building materials recommended for new construction include brick, stone and wood frame. Materials such as aluminum, steel and metal panels may be used provided they are used within an appropriate context.

Guideline 04: Glazing

A minimum of 70% of façade surface area facing primary streets should be glazed. Pedestrian entrances and at-grade glazing is required at street frontages.

Guideline 05: Minimum Frontage

Buildings should occupy a minimum 70% of the total lot frontage along public streets.

Guideline 06: Building Height

Where feasible, buildings should be a minimum of three storeys and taller building heights (5-6 storeys) are recommended at prominent intersections to permit the development of higher order uses. Mixed use buildings are encouraged. Building heights shall comply with the Hamilton Airport Zoning



Figure 78: Birchwood Park Business Park, Warrington UK

(Height) Regulations established by Transport Canada.

Guideline 07: Landscape Area

50% of the linear lot frontage should be landscaped.

Guideline 08: Outdoor Storage

Outside storage of goods is not permitted. All storage of goods is required to be within main building structures.

Guideline 09: Signage and Lighting

Signage and lighting of commercial uses will be limited to entrances only, to preserve the employment focus of the area.

Guideline 10: Pedestrian Accessibility

Commercial sites should be accessible to pedestrians from all adjacent developments.

Guideline 11: At-Grade Retail

At-grade retail uses including shops and restaurants are encouraged to support an active streetscape.

Guideline 12: Transitional Building Zones

Transitional building zones including uses such as cafés, retail, offices, gym, services and restaurants etc. should be incorporated to help connect public activity with the building, street and open spaces.