



## DRAFT **PARKING DESIGN GUIDELINES**



City of Vaughan Policy Planning Department



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## 1.0 Introduction

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Given the extensive area devoted to parking, its design can have a profound impact on the City's environment, both visually and functionally and on broader policy objectives of environmental sustainability. The primary objectives of parking design standards include:

- Support New Official Plan key drivers of Vaughan's transformation – city building and sustainability;
- Mitigate and reduce the urban heat island effect;
- Integrate with the existing or planned urban context;
- Enhance/maintain green spaces;
- Improve public realm safety, appearance, comfort, and connectivity;
- Manage and reduce storm water run-off; and
- Conserve, re-use and recycle materials.

There is no universally ideal solution to designing parking. Rather, the issue often requires careful site-by-site consideration that links with the City's broader urban design strategies. This document should be used in conjunction with the contextually-based approach the City has taken to parking standards and the specific policies articulated within the amended Parking By-laws that establish specific locational criteria and dimensional standards.

Specific standards apply to the following areas: High-Order Transit Hubs (Vaughan Metropolitan Centre, Steeles Corridor - Jane to Keele, Rutherford and Jane.); Historic Places (Woodbridge, Thornhill, Maple and Kleinburg-Nashville Heritage Conservation Districts); Community-

Scale Intensification Areas (Regional Corridors: Yonge Street, Avenue 7, Major Mackenzie Drive, Rutherford Road, Jane Street; District Centres: Carrville, Vellore; Urban Centres: Centre Street Corridor); and Other Areas (Rest of City including Local Centres, Employment Areas, Suburban Residential Areas);

The Design Guidelines serve as a tool for planners and designers to implement the regulations and achieve the objectives at the site plan level.



2.0 Location and Layout

- Locate surface parking, garages, and carports behind or beside primary building frontages or facades;
- Parking spaces and drive aisles are not permitted between the front face of a building and the street edge except in 'Other' areas outside 'High-Order Transit Hubs,' 'Historic Places, and 'Community-Scale Intensification Areas'; (See Fig. 2);
- The number of vehicle access points to a site should be limited to only those necessary. In order to minimize the number of interruptions to the street and conflicts with pedestrians shared driveways are encouraged. Re-activate rear laneways where they have become dormant;
- Provide access to surface, structured or underground parking from secondary streets and laneways where possible;
- Large surface parking lots should be split into smaller parking modules to reduce the size and visual impact of expansive parking areas (See Fig. 1, 2 & 3);
- Limit parking row length to a maximum of 60 metres (20-23 spaces) by introducing landscaped breaks such as islands with landscaping;
- Configure and locate parking spaces in order to consolidate larger areas of soft landscaping and opportunities for bio-swales and on-site stormwater management (See Fig. 1 and Stormwater Management Section);
- In order to provide for a safer and more generous pedestrian realm, more landscaping and reduce the length of pedestrian crossings, minimize dimensions of drive aisles, access mouths, stacking lanes or turning radii;

- Orient car parking spaces to minimize the number of traffic aisles that pedestrians must cross. Generally, parking aisles should be perpendicular to major destinations;



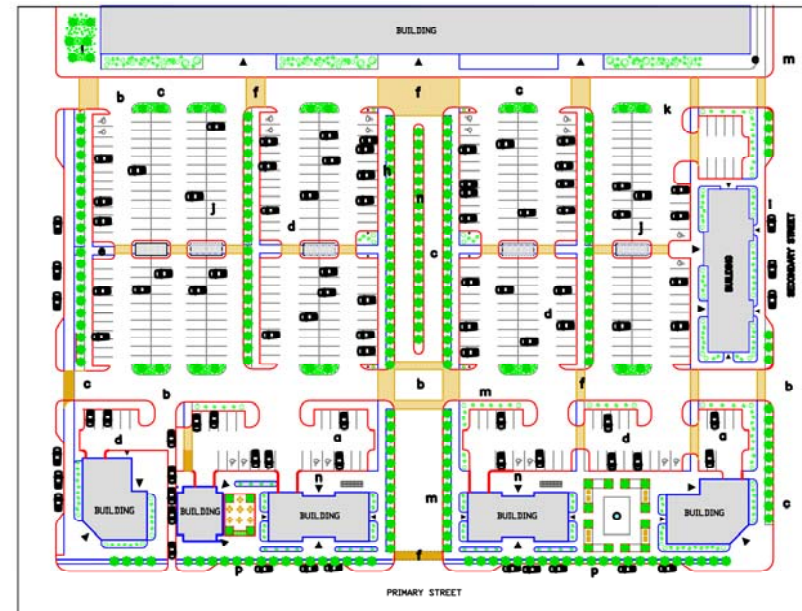
- To reduce potential conflicts between vehicles and pedestrians, parking along major drive aisles and street access driveways should be avoided;
- Snow storage areas for surface lots should be located away from public streets and other areas where sight lines distance, continuous landscape screening and streetscape quality are a priority. Overflow parking or bio-retention areas, where provided, are preferred locations for snow storage;

- Combine circulation routes requiring wider widths and turning radii (i.e., fire lanes, service areas) with major drive aisles;
- Provide continuous circulation throughout the site. Avoid dead end driveways and turnaround spaces to the extent possible;

- Locate and provide accessible parking spaces in accordance with applicable accessibility by-laws. Reduce width of handicapped parking stalls by grouping them together and thereby also maximize land area for soft landscaping; and
- Projects with multiple phases require the submission of phasing plans that identify all current and future parking lot requirements. Parking lots should be built incrementally to match building phases and areas not required for parking are to be soft landscaped.

Figure 2 – Legend

- a. parking concealed behind street-fronting buildings and landscaped open space
- b. parking access driveway shared between multiple destinations
- c. direct and continuous pedestrian network
- d. internal pedestrian pathway with shade trees
- e. min. 3m wide landscaped median with shade trees (bio-retention opportunity)
- f. min. 3m wide landscaped area with shade trees and screening plantings
- g. end of row island with shade trees (min. 30 m3 of soil volume)
- h. consolidated landscape
- i. coordinated lighting scheme
- j. bio-retention area/rain garden
- k. permeable surface
- l. layby parking

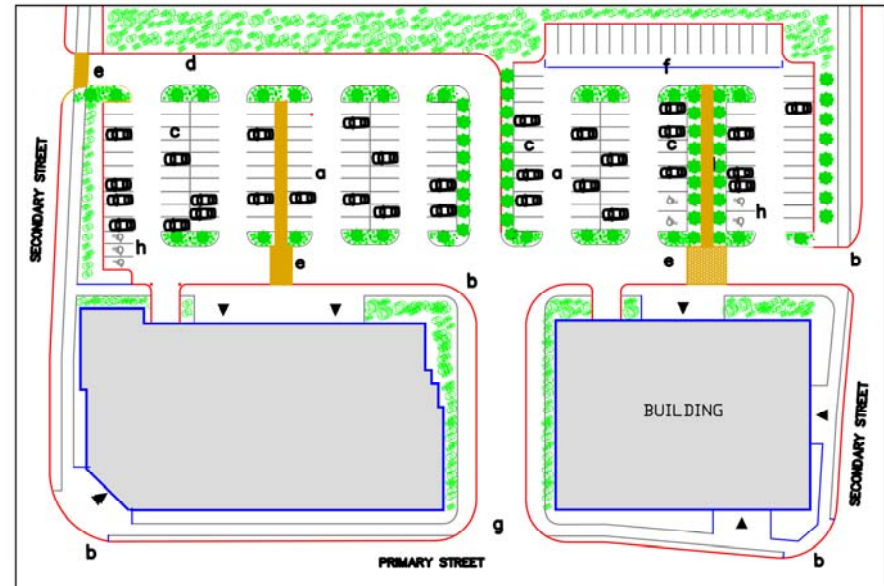


SOURCE: City of Toronto Design Guidelines for 'Greening' Surface Parking Lots, 2007

Figure 2 – “Greening” surface parking

Figure 3 – Legend

- a. parking aisles oriented perpendicular to major destinations to minimize the number of traffic aisles pedestrians must cross
- b. combine circulation routes requiring wider widths (i.e. fire lanes, service areas) and turning radii with major drive aisles
- c. main drive aisle clear of parking spaces
- d. greater parking area divided into parking courts
- e. clearly marked pedestrian crossings
- f. parking row (max. 20-23 continuous spaces) with landscaped breaks
- g. minimize number of vehicular access points to site to avoid interruptions to street and pedestrian/vehicle conflicts
- h. Reduce width of disabled parking stalls by grouping them together



Conceptual parking lot layout  
SOURCE: City of Toronto Design Guidelines for 'Greening' Surface Parking Lots, 2007

Figure 3 – Parking lots split into smaller modules



### 3.0 Pedestrian Access & Circulation

- Provide a safe, interconnected pedestrian network within and adjacent to parking lots to connect building entrances, parking spaces, public sidewalks, transit stops and other pedestrian destinations (See Fig. 4, 7 & 10);
- Provide at least one direct pedestrian route between the public sidewalk and every main building entrance that is uninterrupted by surface parking and driveways;
- Pathways should be distinctly paved and barrier-free, well-lit with pedestrian-scaled lighting and include benches, bike rings, and trash receptacles at nodal points, as determined at site plan design stage. (See Fig. 6, 7);



Figure 4 – Safe, interconnected pedestrian pathways

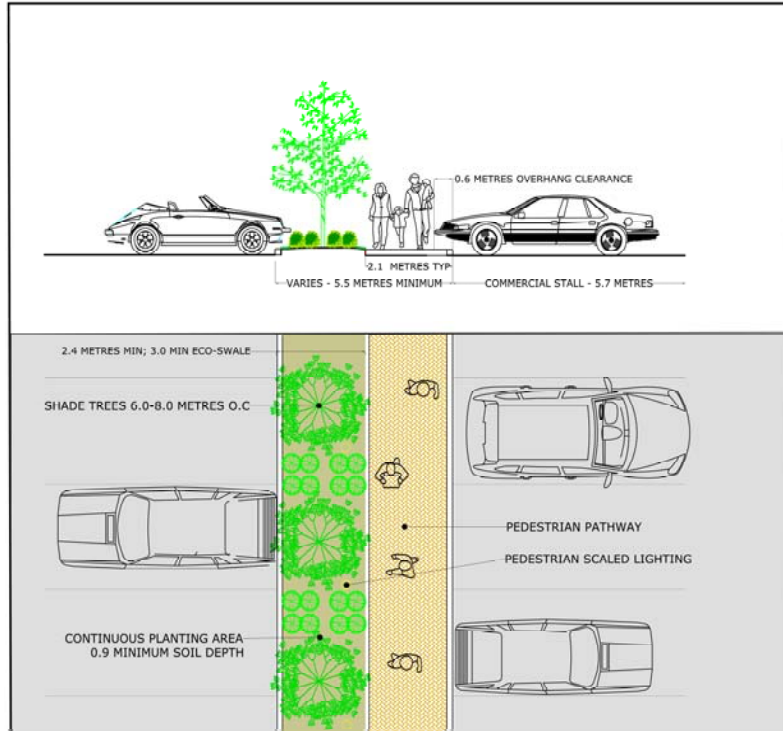
- Main pedestrian routes should be reinforced with landscaping, low walls, fences and entry features, where appropriate (See Fig. 5);
- The width and configuration of pedestrian routes should consider anticipated pedestrian traffic flow and the spatial requirements for accessories such as shopping carts, strollers, bicycles and mobility aids;
- Where pedestrian routes cross street access driveways and other major drive aisles, crossings are to be distinctly paved and marked with unobstructed sight lines for both pedestrians and vehicles (See Fig. 6, 7, 8).



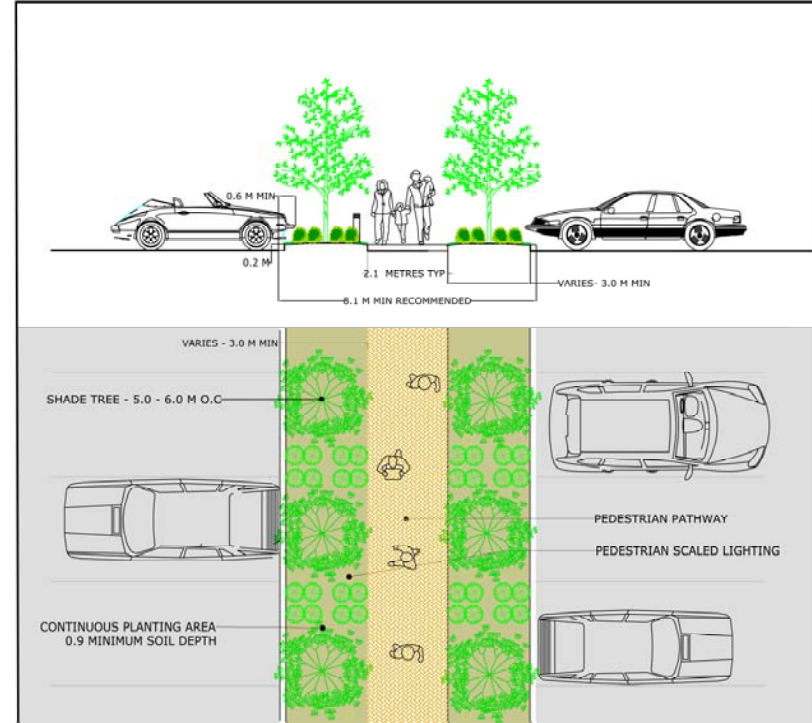
Figure 5 – Pedestrian areas reinforced by landscaping

- Main internal pedestrian routes should be enhanced with 3.0 metre wide landscape areas on one or both sides, where feasible. Deciduous tree canopy should be complimented with low understory plantings ensure an eye-level window to promote safety through natural surveillance;
- Orient car parking spaces to minimize the number of traffic aisles that pedestrians must cross. Generally, parking aisles should be perpendicular to major destinations;

- Select trees, shrubs and other vegetation abutting pedestrian areas free of thorns, tolerant of urban conditions and drought. The Urban Design Section should be consulted for appropriate selections;
- Shade trees or shade structures should be provided along one or both sides of a pedestrian pathway (See Fig. 6, 7, 8, 9);



**Figure 6 – Design concept for pedestrian pathway with one row of trees**



**Figure 7- Design concept for pedestrian pathway with double row of shade trees**



- Provide elevated crossings with rolled curbs, chicanes and bump outs at major internal intersections to calm vehicular traffic and promote pedestrian safety. Crosswalks should be elevated to the level of the connecting pedestrian walkway (See Fig. 6, 7);
- Weather protection should be provided at main building entrances, close to transit stops and in places of pedestrian amenities; and
- Ensure bicycle storage areas do not conflict with pedestrian circulation.

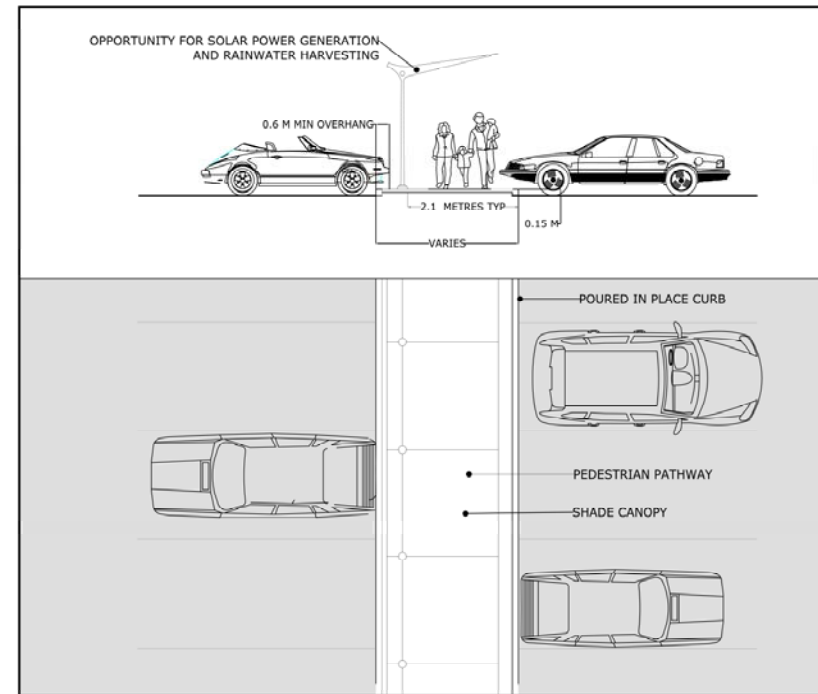
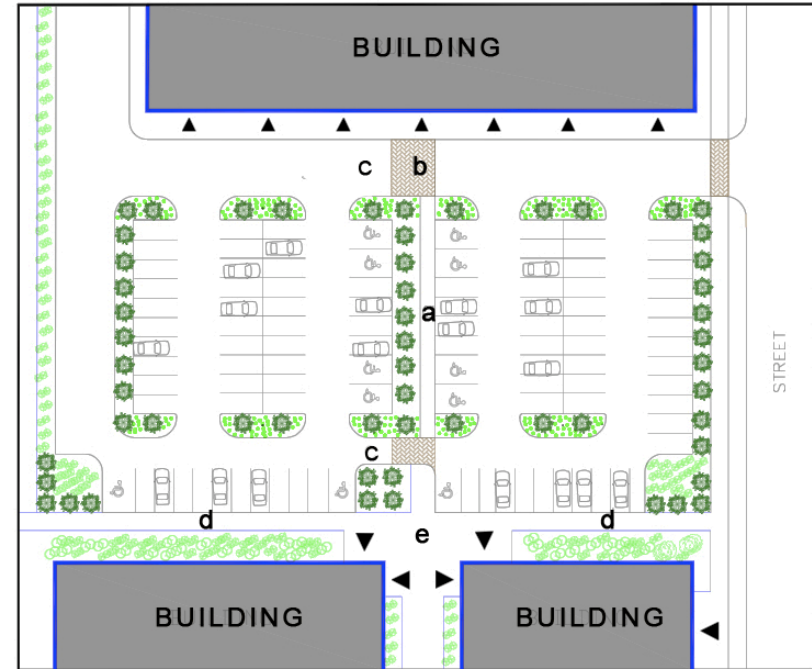


Figure 8, 9- Design concept for pedestrian pathway with energy-generating shade structure

Figure 10 – Legend

- a) direct, safe and continuous pedestrian walkway buffered with landscaping linking major destinations
- b) clearly marked pedestrian crossings
- c) end of row island with shade trees
- d) main pedestrian routes should be reinforced with urban tolerant landscaping
- e) integrate main pedestrian routes with main building entrances creating pedestrian nodes and meeting places



SOURCE: City of Toronto Design Guidelines for 'Greening' Surface Parking Lots, 2007

Figure 10 – Safe, clearly marked pedestrian pathways link key destinations

### Barrier-Free Access

- Ramps and related elements should be simple in their design and be visually integrated with the overall building design and site plan. They should not resemble a design after-thought;
- Curb cuts should be located immediately adjacent to disabled parking spaces;
- Locate handicapped spaces in clusters to reduce the required widths and thereby minimize paved surface and maximize landscaping; and
- Handicapped ramps should have an 8 percent slope.



**Figure 11 – Well-marked pedestrian crossings**

4 4.0 Landscaping

- Distribute landscaping throughout the site to soften and screen parking lot edges, reinforce circulation routes, create a pleasant pedestrian realm and maximize shade and storm water benefits;
- Parking lots should be screened from surrounding public streets, sidewalks, parks, and other public properties using berms, walls, fences, plants, planters or similar means. Note that screening should not obstruct sightlines into and out of the parking area, as per the City of Vaughan Crime Prevention Through Environmental Design (CPTED), thus improving safety by creating opportunities for informal public surveillance (See Fig. 12);



Figure 12– Well-screened, but not obstructed

- Whenever structures such as walls or fences are used to create a screen, plants should be located on the side visible from the surrounding streets, sidewalks, parks or other public properties to soften their appearance. Retaining walls particularly along street frontages should be terraced and landscaped to reduce their impact. (See Fig. 13);
- Retain and protect existing mature vegetation, natural slopes, and soils and integrate them into the overall parking design plan, where feasible;
- Incorporate a variety of deciduous and coniferous trees and shrubs for year-round interest, texture, shape and seasonal colour;

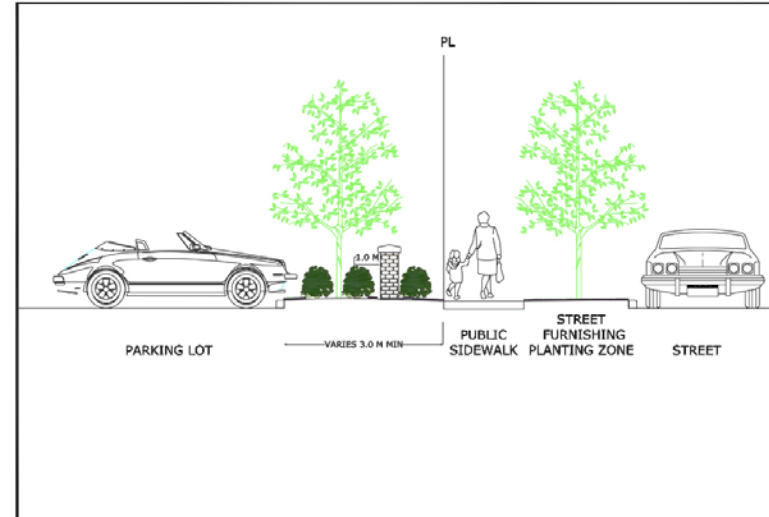


Figure 13 – Well-screened parking area with soft and hard landscape elements



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- A monoculture of tree plantings should be avoided. The Urban Design Section of Development Planning should be consulted for preferred tree planting ratios and for any current bans in effect applicable to certain tree geni as well as minimum tree sizes and spacing;
- Use drought-tolerant/salt-tolerant perennials, shrubs and trees hardy to Vaughan's environmental conditions. The Urban Design Section of the Development Planning Department should be consulted for suitable plantings. Where sites abut regional rights-of-way, the Region of York's 'Road Design Guidelines' (York Region Street Tree List) should be consulted (See Fig. 14);
- A ratio of one tree per five parking spaces is required for aesthetics and to reduce heat island effects;



Figure 14– Drought-tolerant plantings

- Trees should be planted at least 1.5 m from curbs, sidewalks, driveways and other hard surfaces to buffer from stress caused by salt, snow piling, vehicle overhang and compacted soils (See Fig. 15);
- Include landscaped end islands at either end of parking rows and at either side of shopping cart corrals, which include at least 2 high-branching deciduous shade tree (See Fig. 15);

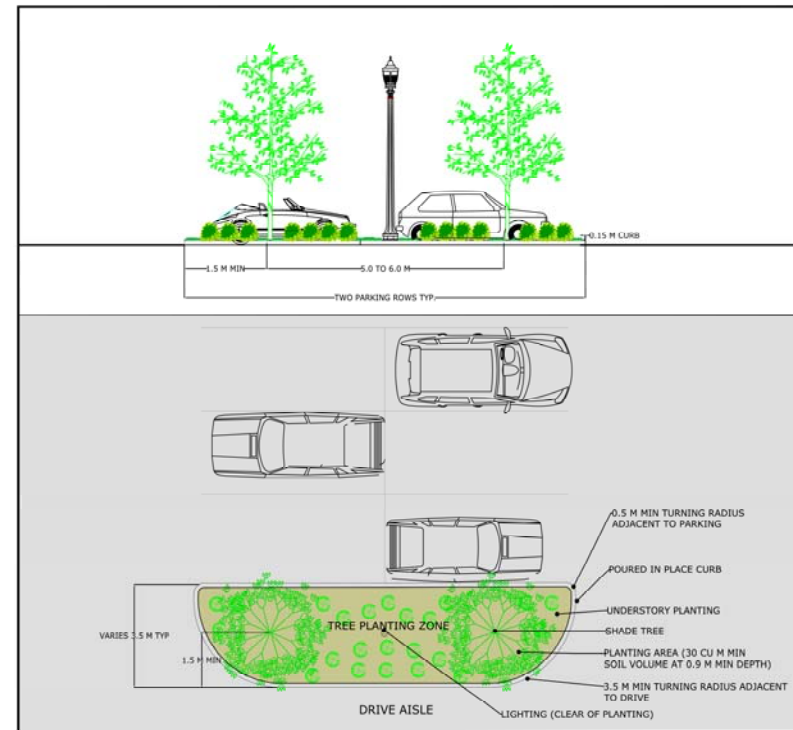


Figure 15– End-of-row island with trees and plantings

4 Landscaping

- Trees should be planted in at least 30 cubic metres (at 0.9 m depth) of good quality soil;
- Provide continuous landscaped medians every 3 (or fewer) banks of parking, where possible. A "bank" of parking consists of 2 parking rows and a drive aisle.
- Medians should have a landscaped area at least 3 m in width, where possible (See Fig. 16 & 17)
- Slope surfaces to direct storm water toward landscaping, eco-swales bio-retention areas or other water collection areas, as identified on the site with suitable pollution-tolerant planting; and
- Where possible, collect rain water from rooftops and other surfaces in cisterns for plant irrigation.

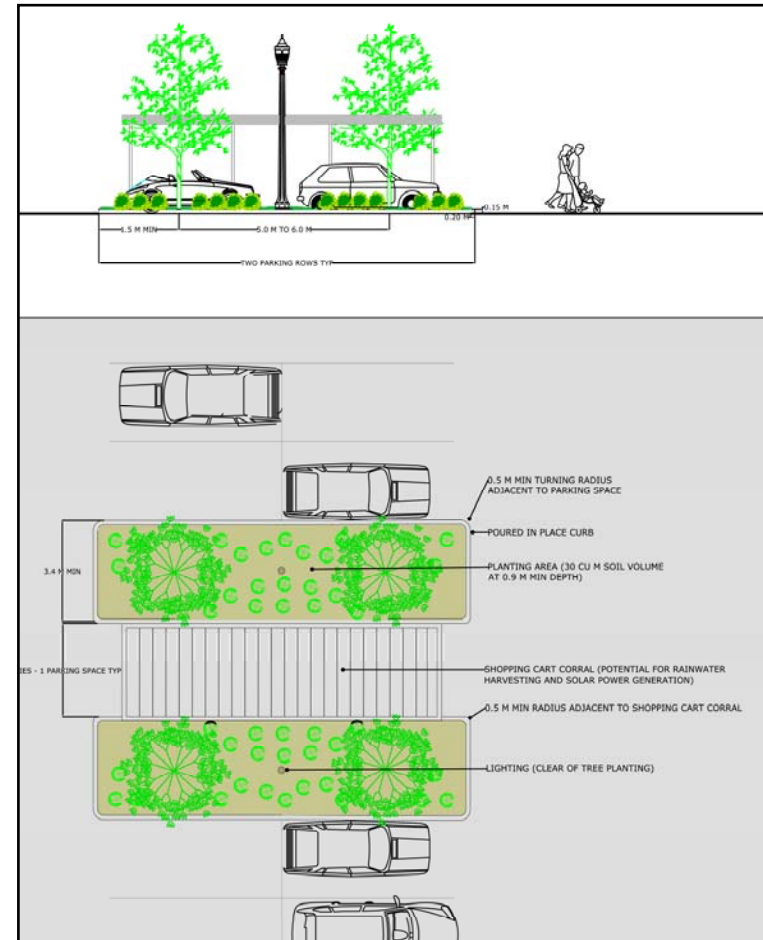


Figure 16– Parking corral with landscaping

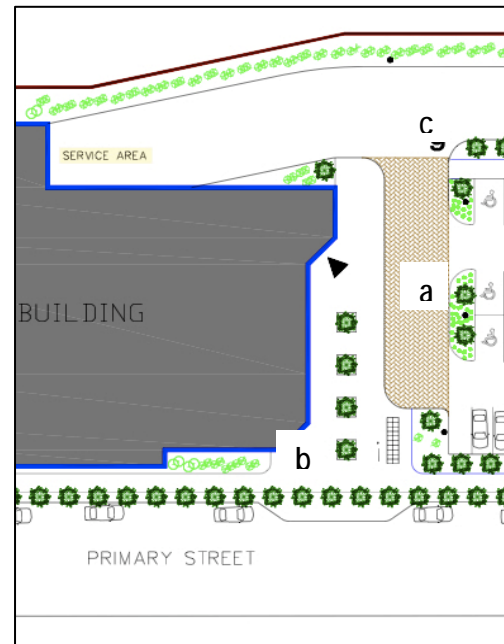
### 5.0 Bicycle Circulation, Access & Storage

- Provide sheltered bicycle parking in visible, clearly illuminated locations near building entrances and pedestrian walkways where the principle of natural surveillance can be employed consistent with the City of Vaughan's Crime Prevention Through Environmental Design (CPTED) policy (See Fig. 18);
- Bicycle storage locations should be sited in such a way as to minimize conflicts with pedestrians ( See Fig. 19);
- Bicycle pathways should be distinctly paved in asphalt to differentiate them from pedestrian walkways;

- Install curb cut ramp adjacent to any bicycle parking area;
- Bicycle racks should be made out of a durable and strong material and be permanently anchored to the ground;
- Incorporate way-finding signage as appropriate; and
- Provide at least 1m clearance between parked bicycles and adjacent walls, poles, landscaping, street furniture, drive aisles and pedestrian clear ways and at least 1.5 m clearance from vehicle parking spaces.



**Figure 19 – Relationship of bike racks to building**



**LEGEND Fig 19:**  
a) marked pedestrian crossing  
b) direct and connected pedestrian route  
c) median

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6.0 Vehicular Parking, Access & Circulation

- Parking areas should be screened and integrated into the streetscape and architectural fabric of the City ( See Fig. 20);
- Enhance street access driveways, internal vehicle routes and pedestrian passages with curbed landscape planting areas, shade tree planting, street furniture and lighting;
- Main internal driveways or circulation routes are to be designed and treated as streets in anticipation of future infill development;
- The length of parking rows should be limited to 60 m (20-23 contiguous spaces) to create breaks for landscaping, including shade trees (See Fig. 2);
- Provide continuous circulation throughout the site. Avoid dead end driveways and turn around spaces where possible; and
- Ensure unobstructed vehicular and pedestrian sight lines and provide clearly marked crossings at all intersections between vehicle routes and pedestrian pathways. Intersection points should be distinctly paved with a different pedestrian-scaled material and raised for traffic calming effect at major nodes, where possible.

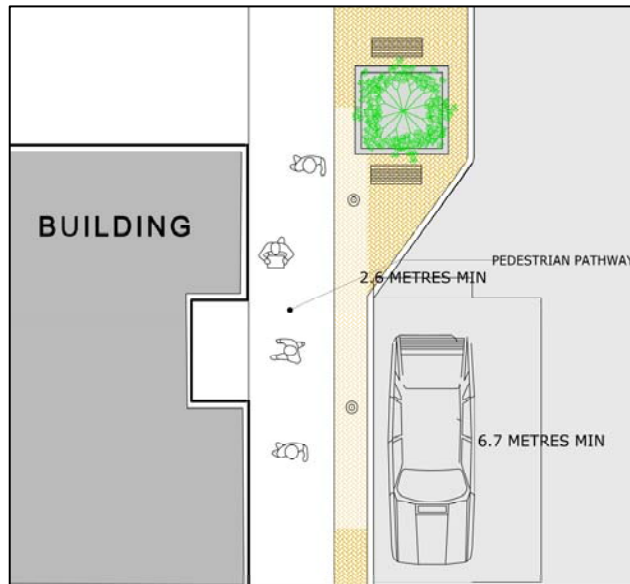


Figure 20 – Parking integrated with street fabric of city



**Layby Parking**

- Where feasible, layby parking should be provided to support street related retail and other land uses and for a traffic calming effect;
- Segments of 3-5 layby spaces should be separated with planted bump-outs or chicanes, especially where no other street tree planting is provided ( See Fig. 21);
- Street trees within chicanes or bump outs are to be located in raised, curbed planters with a minimum of 30 cubic metres of good soil; and
- Street furnishings and street trees should be located a minimum of 1 metre away from layby parking to accommodate opening doors.



**Figure 21 – Bump-out diagram**



**Figure 22 – Layby as a traffic-calming measure**

**7** 7.0 Stormwater Management

- Parking lots and structures should be designed to avoid erosion damage to grading and surrounding landscaping;
- Reduce the extent of impermeable surfaces to promote ground water recharge and reduce erosion (See Fig. 23);
- Parking lots should incorporate methods for stormwater management utilizing low impact development (LID) techniques. These include: bio-retention cells located on islands or around the lot perimeter, breached curb drainage inlets(or curb cuts ) to collect runoff, installing bio-retention cells in the medians between rows of parking spaces as well as the installation of cisterns that store roof runoff for irrigation purposes ( See Fig. 24);

- Manage rainwater and snow melt on-site with designs and state of the art technology that encourage infiltration, evapo-transpiration and water re-use;
- Where installed, bio-retention areas should be appropriately designed, sized, planted and located to filter, store and/or convey stormwater flows from surrounding hard surface areas ( See Fig. 25); and



- ← **Turf layer**
- ← **Cell structure**
- ← **Granular Filter**
- ← **Granular Drainage Material**

**Figure 23- Permeable parking surface cutaway**



**Figure 24 – “Green” parking lot supported by root cell structure**

- Ensure overland flow routes and stormwater inlets are clear of debris and snow piling.



Figure 25- Bioretention cells in parking islands

- Consider the following bio-retention area design features (See Fig. 28, 29, 30):
  - Select plant species that are tolerant of flooding, drought, salt and pollution;
  - Provide a planting medium composed of good quality soil with a minimum depth of 0.6 metres (0.9 metres where trees are planted)
  - Plant trees above grade from ponding areas;
  - Ensure surface water is fully drained within 48 hours or less;
  - Use poured in place curbs with cuts for water inlets; and
  - Include a perforated sub drain, check dams and overflow catch basins as required to manage excess water.

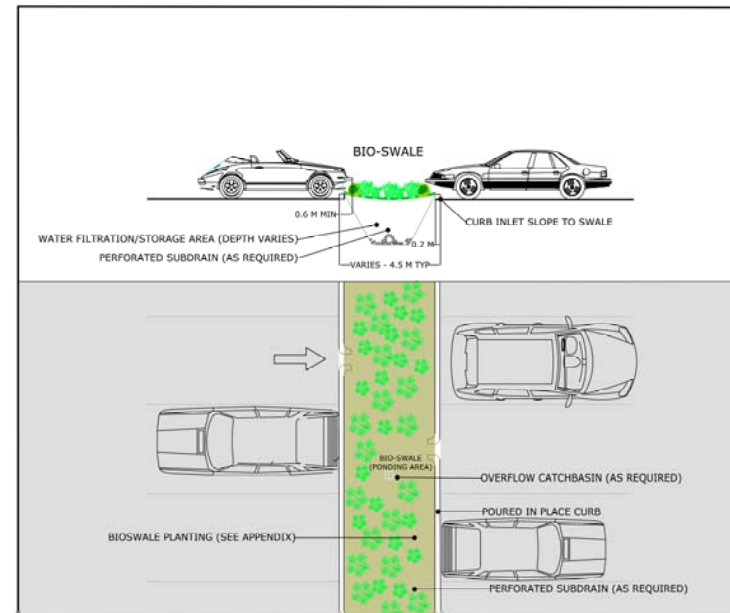


Figure 26- Design concept for bioswale without trees



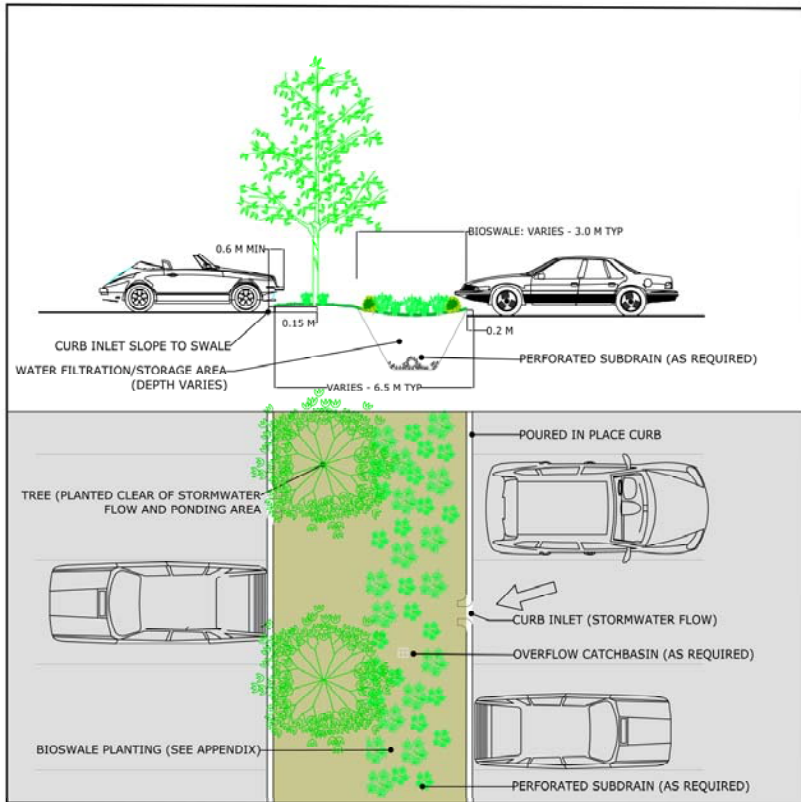


Figure 27- Design concept for bioswale with trees



8 8.0 Lighting

Lighting

- Lighting should be designed to be aesthetically integrated with the architecture, landscape and streetscape lighting should be designed to ensure that loading and servicing areas do not create potential hiding places or blind spots;
- Install lighting that is appropriately scaled to its purpose, i.e. avoid “over lighting”;
- Direct light downward and inward and avoid light overspill on adjacent properties;
- Use energy-efficient fixtures and bulbs;
- Incorporate opportunities for off-grid power generation, e.g. solar; and
- Provide pedestrian-scaled lighting, such as bollards or smaller scale pole fixtures along pedestrian routes.



**Figure 28- Effective and aesthetically pleasing lighting solutions**

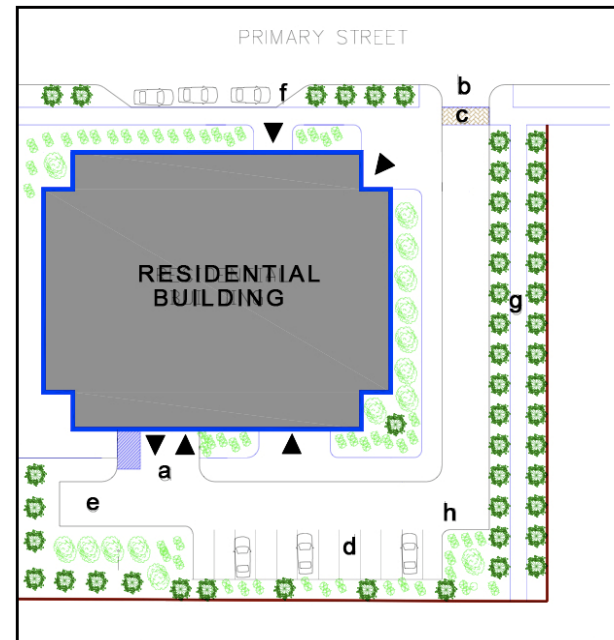
9.0 Servicing

- Loading and unloading facilities should take place on site and not on public right-of-way (See Fig. 29);
- Loading and trash collection areas should be combined to efficiently utilize space;
- Garbage is to be stored within the building;



Figure 29 - Integrated servicing

- Loading, outdoor storage and trash collection is encouraged from back lanes where provided; and
- Loading areas should be screened from entrances, streetscapes and other sensitive areas (See Fig. 30).



- LEGEND:**
- a) underground access
  - b) access drive
  - c) paved crosswalk
  - d) minimal surface parking
  - e) truck turnaround
  - f) layby for guests
  - g) landscaped walkway
  - h) landscape screening

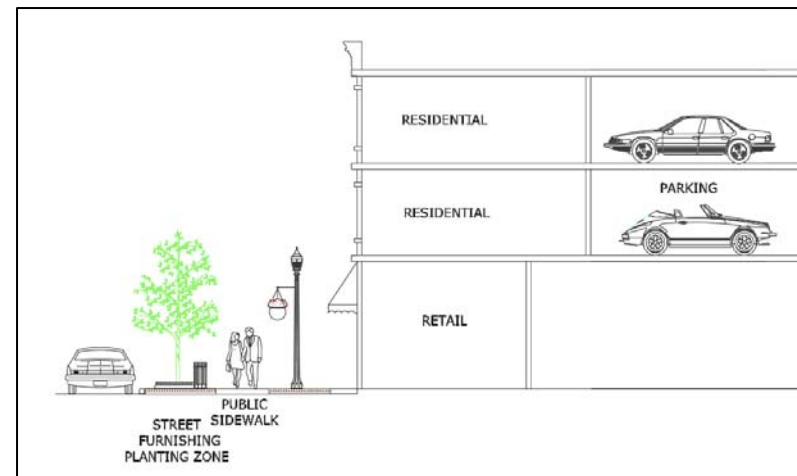
Figure 30: Design concept of residential servicing entrances

### 10.0 Structured Parking

- Where structured parking abuts a street, the visual impact of the structured parking shall be minimized by treating the façade like an occupied building expressing an architectural vocabulary and material expression compatible with adjacent facades to create a harmonious cityscape and street wall;
- When located in a Primary Intensification Corridor, Primary Centre or the Metropolitan Centre active uses at the grade level street frontage are required retail ( See Fig. 31,32)
- Pedestrian entrances to a parking structure should be identified through pronounced massing, increased detail, material change or signage;
- Structured parking garage access is to be located at the rear of buildings so as not to detract from streetscaping and pedestrian safety and comfort;
- The layout of a parking garage should take into account and be integrated with existing traffic circulation patterns;
- Access ramps should be as short and steep as Ontario Building Code regulation will allow, and no more than 12 m long with a minimum 15% grade. Ramps should be located within the building;
- Venting for parking structures should be integrated into the hard surface areas with minimum impact on the pedestrian amenity or landscaped areas. Vents should not be located in, or directed towards, pedestrian areas.
- Landscaped screening should be incorporated into the design of the parking structure where feasible. A minimum 2 metre wide landscape strip is on all sides of a parking deck structure (See Fig. 33); and
- Flat floors are encouraged on outer tiers of above grade garages since they facilitate conversion to other uses in the future (See Fig. 31).



Figure 31, 32 – Parking structures enhanced by retail uses and design



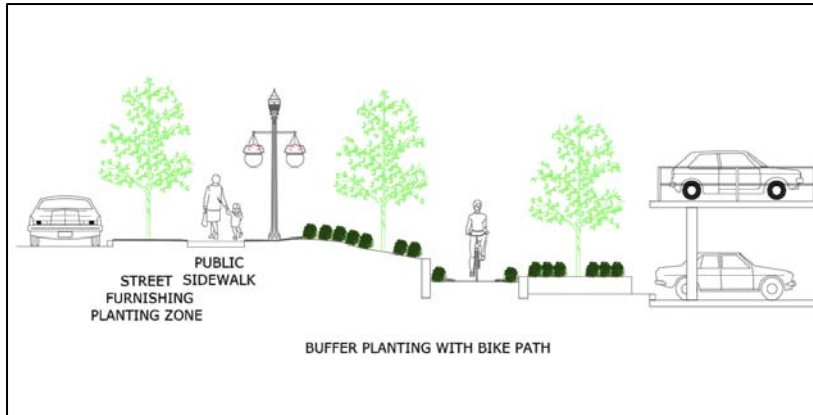


Figure 33 – Parking structures visually enhanced with landscaping



Figure 34– Parking structure as part of urban fabric