Mount Joy GO Station
Green Parking and Site Development Study

Sweeny Sterling Finlayson &Co Architects Inc.

June 1, 2010

Principles of Green Parking Lots

A low hedge and shade trees enhance the public sidewalk and parking lot edge

Tree Count

Refer to the Town of Markham's Trees for Tomorrow Street-scape Manual. Plant at least one tree for 5 car spaces, and ensure that car spaces are no further than 30 m from a tree. Trees may be planted in clusters to increase tree planting in and around parking lots.

A decorative wall, fencing and shade trees screen views into the parking lot

Plant Tree Canopy

Provide a landscaped area at least 3m in width between sur-face parking and all property lines. Trees should be planted in this area to provide a continuous deciduous tree canopy

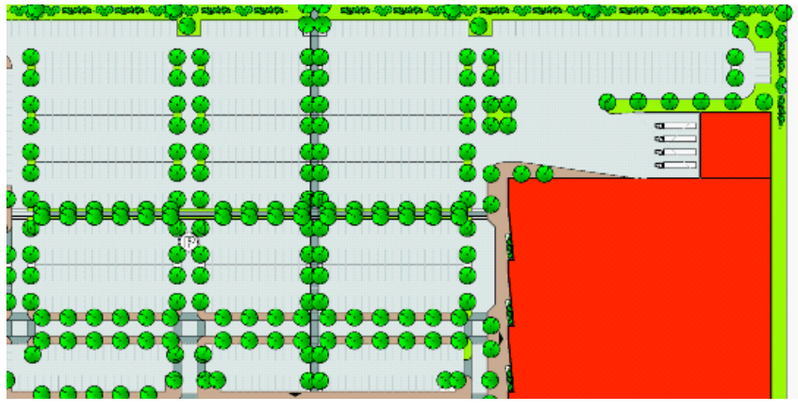
Landscape Screen

Edge treatments along streets and other public spaces should visually screen parked vehicles, but not completely obstruct views into or out of the parking lot edge.

‘Sudestada’ River Coast Park - Buenos Aires - Claudio Vekstein

Site Grading

Create a green parking lot that integrates green space grade surfaces to separate pedestrian areas and parking. Grading within parking lots will create relief with native vegetation for the large parking lot.



Clear pedestrian route through parking

Walkway between Bioswale in parking lot, Portland

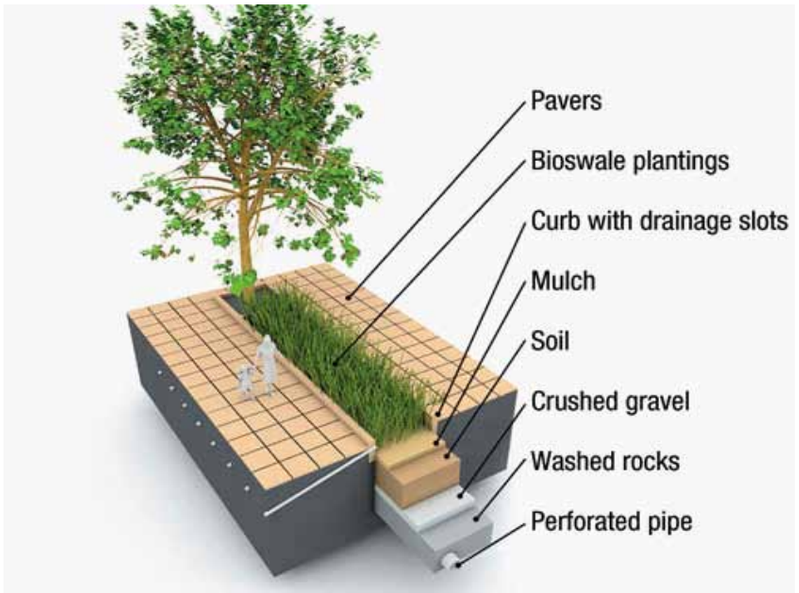
Bioswale in parking lot, Portland

Continuous Pedestrian Routes

Continuous pedestrian routes through the parking area should be defined through differentiated paving materials for both safety and barrier free accessibility. This will define safe routes for pedestrians to cross the parking lot.

Bioswales

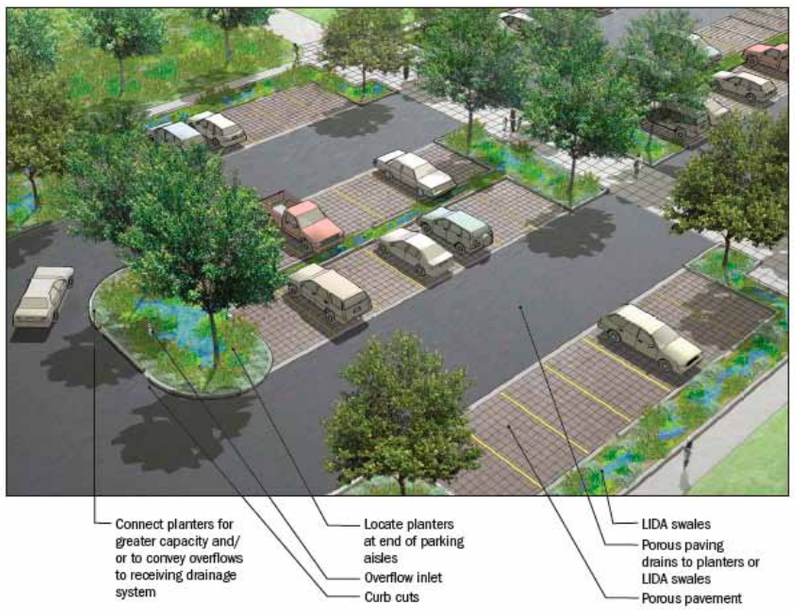
To mitigate heat build up and reduce stormwater flows the park lot should be subdivided by a combination of landscaped islands of a minimum width of 3 m and permeable pedestrian paving to define parking courts of not greater than 60 spaces.



Sustainable parking lot drainage

Permeable Paving

Parking areas should incorporate permeable paving materials wherever possible. 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.



Low impact parking lot

High Quality Paving

High quality pedestrian paving should minimize the impact of asphalt heat on the parking lot and create a more comfortable and attractive environment for pedestrians within parking areas.

Safe functional and attractive parking lot

Comfort

Parking areas that are safe, functional, attractive and comfortable that reduce environmental and visual impact should be encouraged.

National Wildlife refuge Tualatin River

Paved Surfaces

Paved surfaces should be constructed of maximum amount of pervious material, such as turfstone or gravel surfaces. New paved surfaces should minimize the amount of impervious surface by utilizing materials such as porous concrete, single sized aggregate, and/or porous/reinforced turf.

Porous paving examples

open joint pavers

porous asphalt

pervious concrete

turf grid

Bioswale, IBM, Markham

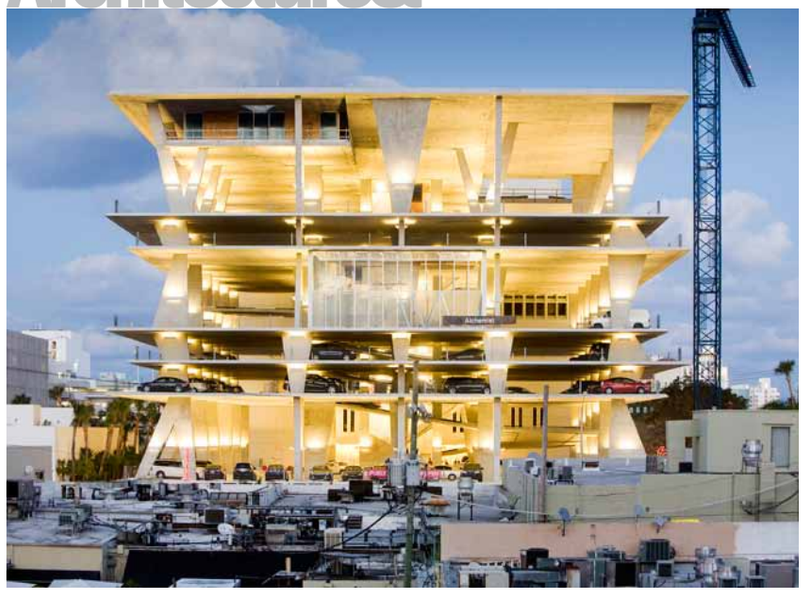
Native Species

Landscaping along road frontages should use native plantings that are drought as well as salt tolerant.

Storm Water Management

The implementation of storm water management and filtration techniques such as bioswales, retention gardens, green roofs and pervious paving is encouraged, as are edge condition strategies for release of water near existing watersheds.

Green Roof on a Factory, Glarus Valley Switzerland



Structured Parking, Miami Florida

Structured Parking Design

Provide attractive surface parking that contributes to visibility of the parking lot. Create parking spots that are lit with natural daylight open and safe.

Pedestrian level luminaires

Luminaires should prevent light pollution

Solar powered lighting parking lot, Arizona

Illumination

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

Energy Efficient Lighting

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 parking areas abut residential uses or natural areas. Light standards shall include pedestrian level pole heights adjacent to walkways, in parking areas and other pedestrian zones.

Solar Powered Lighting

Provide lighting for parking lots with solar powered lighting where possible.

Sheltered bicycle storage.

Bicycle Parking

Bicycle racks and/or secure bicycle storage areas should be provided at building entrances. Bicycle parking/racks should be connected to primary bicycle trail routes with surfaces appropriate for cycling.

Public Art in private parking lot, Etobicoke

Other Site Elements

Explore opportunities for public art examples might include enhancement to the street edge, screening, a marker of the entrance or exit, or a focal point sculpture.

Prairie Wind, Saskatoon

Gathering, Toronto

Nansen Park - Olso, Norway by Bjørbekk & Lindheim

Storm Water Retention Ponds

Design storm water retension ponds as an opportunity for public space. Make the space safe open and accessible. Provide boardwalks and other treatments to safeguard the edge.

James Clarkson Environmental Discovery Center, White Lake - MSI Design

Dell Headquarters Solar Grove

Kyocera Solar Grove

Photovoltaic Shading

Provide maximum coverage of photovoltaic shading to reduce the heat island effect of asphalt. Photovoltaics should provide electricity for the GO station and possibly provide back to the grid.

Hiefer Corporation Green Parking Lot

High Emissivity Surfaces

Cover the maximum surface area with light coloured high emissivity surfaces instead of dark coloured grey asphalt. Integrate these materials for wayfinding.

Husky Corporate Campus, Bolton

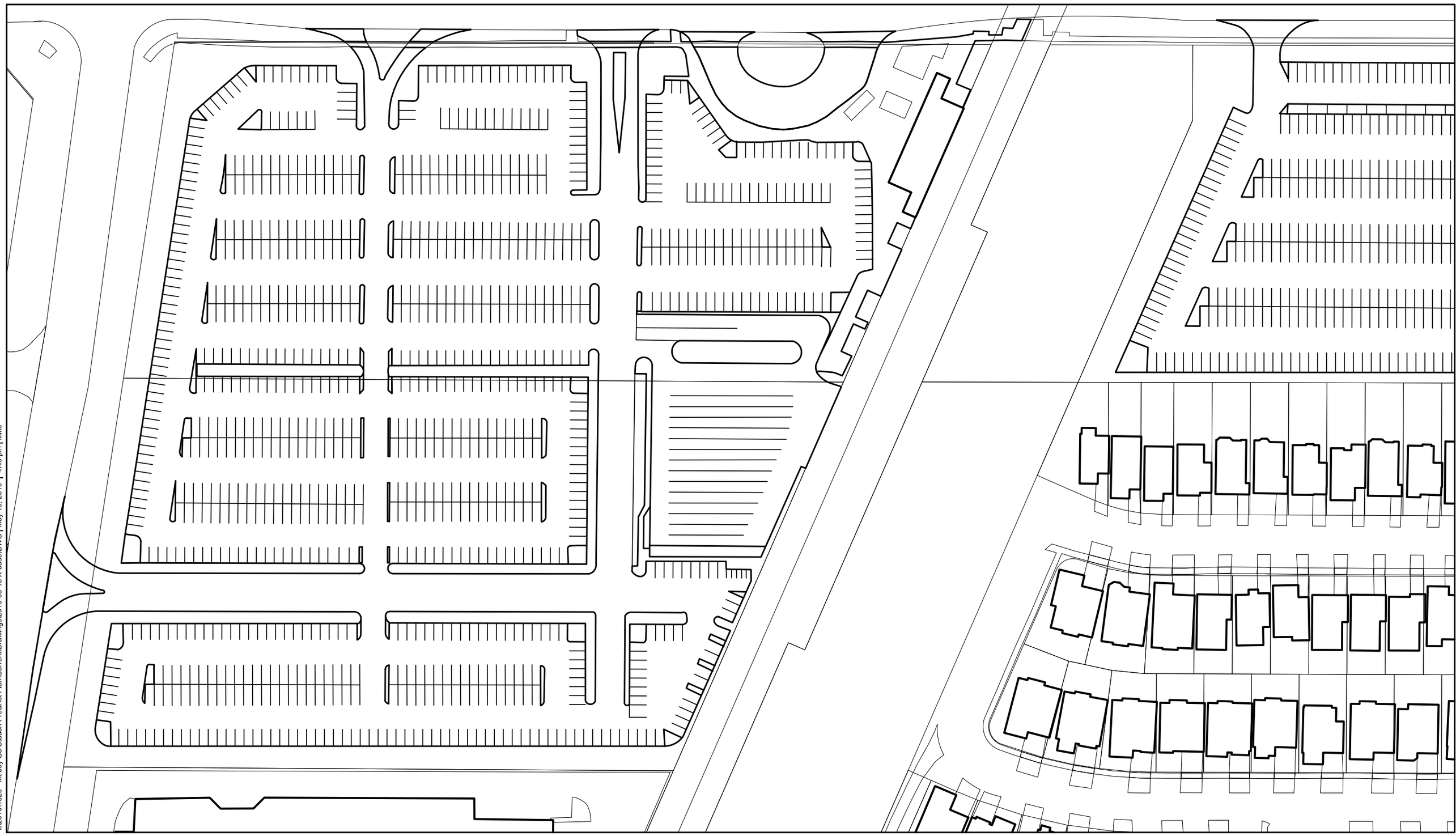
Covered Walkways

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.

Walkways to Parking

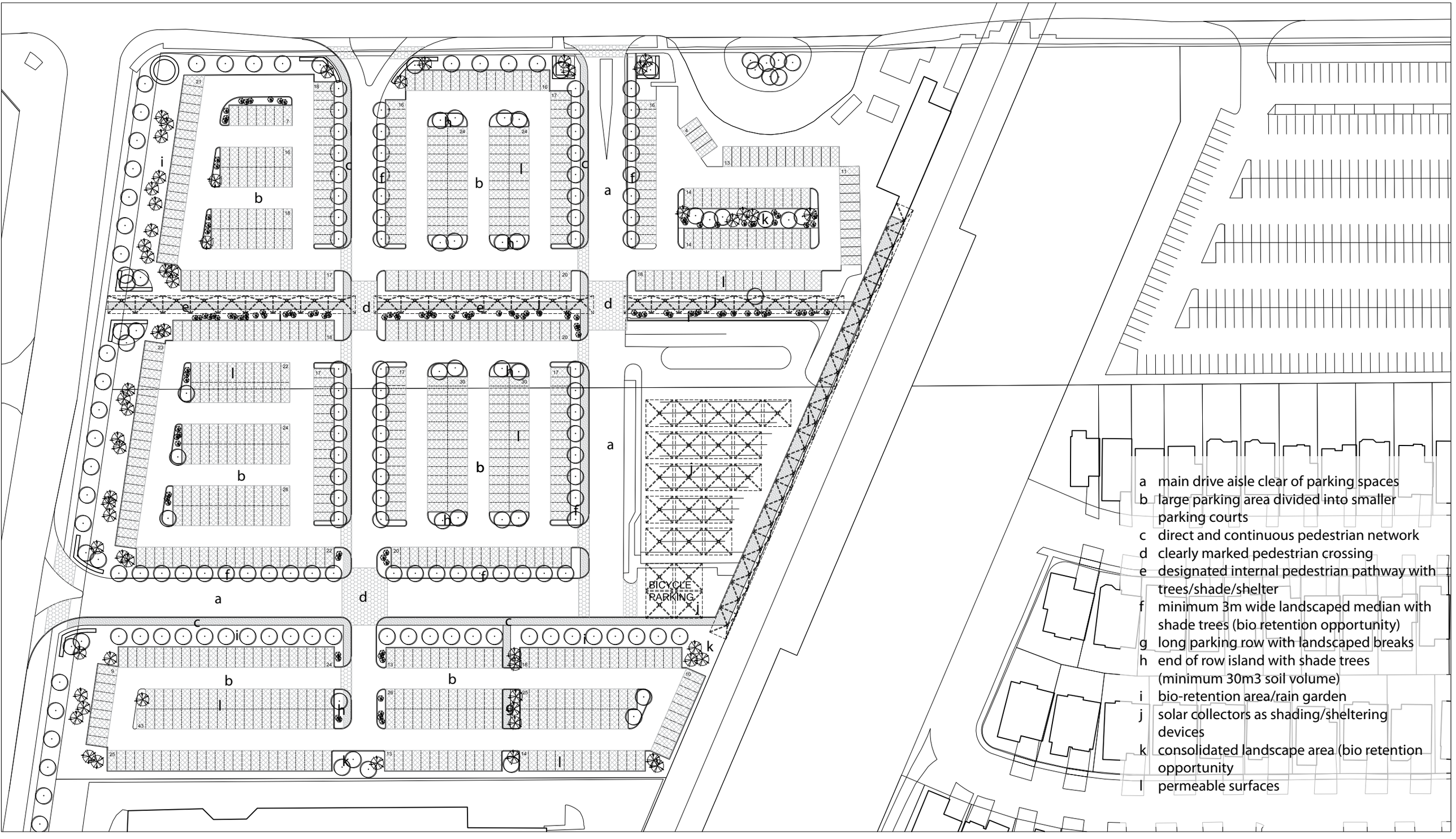
Walkways need to be provided between all buildings and their associated parking lots with a minimum width of 1.5 metres.

Site Plan Comparison



Mount Joy GO Station – Existing Site Plan

984 parking spots



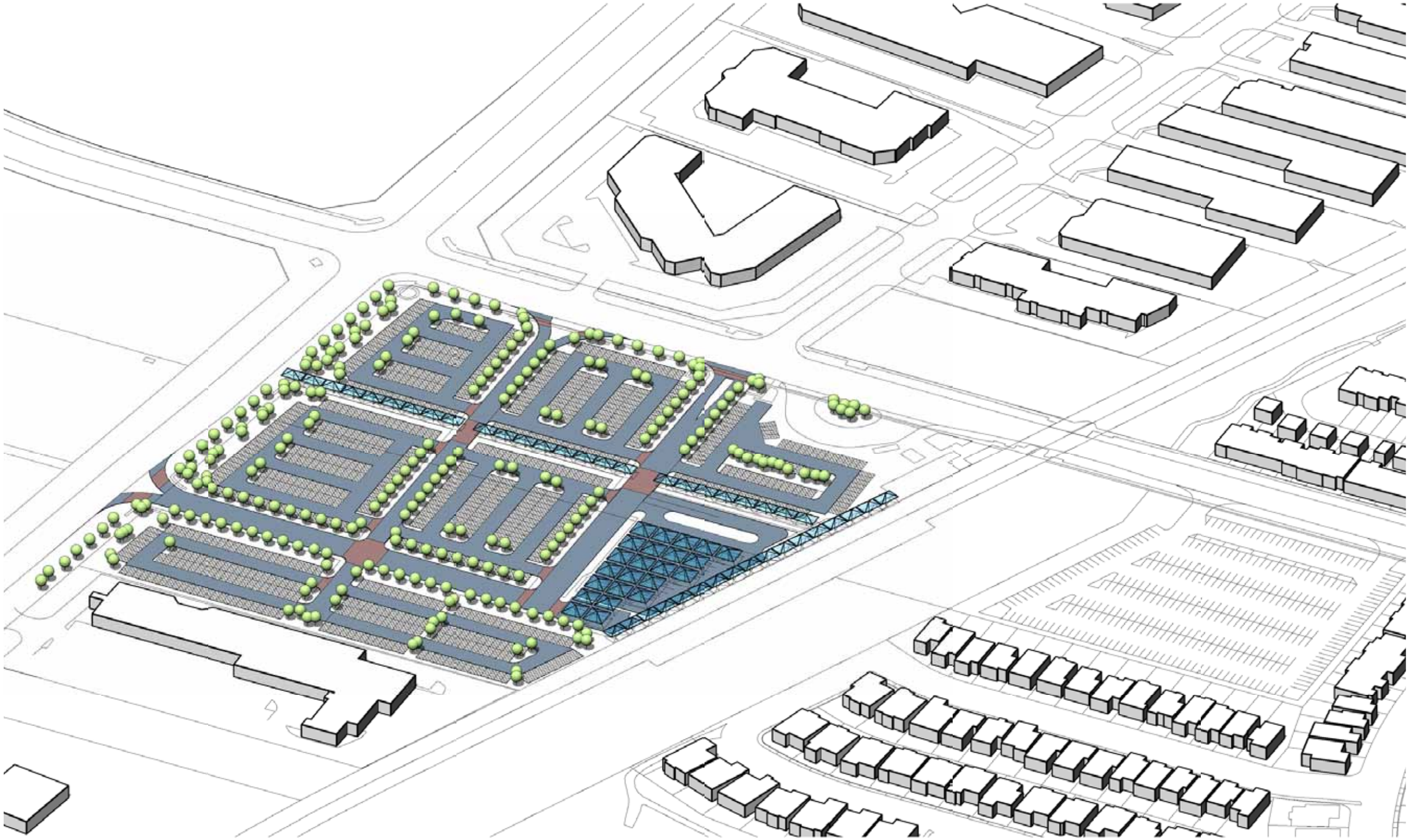
Mount Joy GO Station Green Parking Lot – Proposed Site Plan

788 parking spots

Green Parking Lot Design

Mount Joy GO Station Green Parking Lot – Site Plan

788 parking spots



Mount Joy GO Station Green Parking Lot – Axonometric

788 parking spots

Development Scenario

Separate GO Station Structured Parking and Mixed Use Precinct

Stage 1 - Green parking lot

Stage 2 - Add structured parking lots so the site can accomodate development

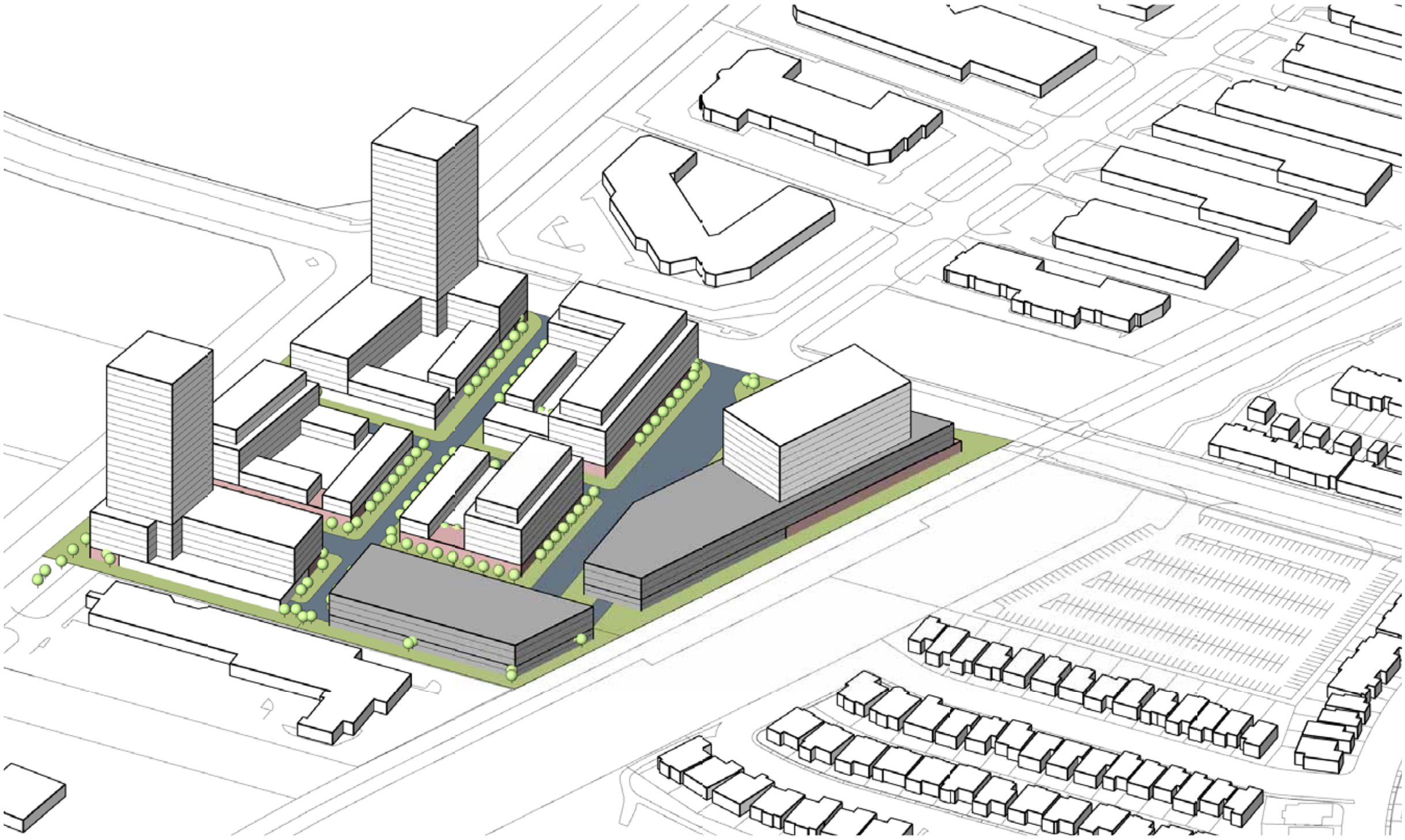
Mount Joy GO Station Development Scenario – Stages 1 & 2

Stage 3 - Build a structured parking lot with office building and promote development of the parcels fronting Highway 48 and Bur Oak Avenue

Stage 4 - Full build out of surface parking lots into mixed use development

Mount Joy GO Station Development Scenario – Stages 3 & 4

Mount Joy GO Station Development Scenario – Site Plan



Mount Joy GO Station Development Scenario – Axonometric