

Town of Petawawa Pilot Container Market Development Guidelines



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1.0 INTRODUCTION

The Town of Petawawa Planning and Development Department have identified a need for low cost commercial retail space in the municipality to support small cottage industries and business start-ups. Presently, there is limited available leasable commercial retail space in the community and no traditional downtown core. The lack of built commercial space has resulted in many boutique businesses migrating to surrounding communities and an elevated number of businesses operating out of their homes. In order to accommodate reasonable commercial growth there has to be inventory of sufficient space and size, reasonable fit up costs and lease rates to transition and support business to migrate out of the home environment and into commercial space.

The Planning and Development Department is undertaking to research and develop a pilot program that would promote site development for commercial retail space using modified shipping containers. Shipping containers have been used in communities around the world as a lower cost, temporary measure to develop viable sites with traditional “bricks and mortar” buildings and serve as incubators for business start-ups. This pilot program additionally recognizes that shipping container developments done properly can be a catalysing tourism offering for the community providing valuable additional economic benefits.

The purpose of this guideline document is to provide information and guiding principles for any proposed shipping container development to be supported by Petawawa under this pilot program. This guideline will identify regulatory approvals, design principals and standards and any variances that a proposed container development would be required to satisfy to be eligible under the pilot program.

For the purposes of this guideline, Planning and Development have identified a municipal site that could serve as a model build under this pilot container market program. Options specific to this site will be outlined with reference to how the same application can be used elsewhere in the community.

1.1 CONTAINER DEVELOPMENTS

Shipping containers are used to move cargo around the world. They are generally universal in design and are built to withstand abuse while protecting the goods they carry. They have a limited life and are often left at a port or terminal when there is no product to fill them for a return journey. Over the last number of years people have repurposed shipping containers for many building applications. They have traditionally been used as storage containers and offices on construction sites but more recently they are being transformed into homes and commercial retail units identified as container markets.

Container markets are a collection of modified shipping containers for business use. These developments are often a blend of a farmer’s market and a traditional retail mall. The businesses are usually small in nature and serve a local need. However, more recently, they have become home to more traditional, national and international businesses that recognize the unique nature and opportunities within a shipping container development. These container markets embody the basic needs for a business start-up and provide an opportunity for unique business identity within a collective container market. This is achieved through design and marketing supports at minimal cost and reasonable risk to the businesses.

It should be noted that container markets are not simply a collection of shipping containers scattered on a site with window and door cut-outs. These developments are planned and designed to create a particular sense of place supporting and enhancing the businesses operating therein. The details and design are paramount considerations. The images below are examples of container markets from around the world and are representative of the pilot container market developments Petawawa would consider.



ReStart - Christchurch, N.Z.



Stacks - Toronto, ON.



Steelcraft Entertainment Complex, Bellflower, CA.



The POP-UP Store, Ireland, by MODS International



Starbucks, Seattle WA



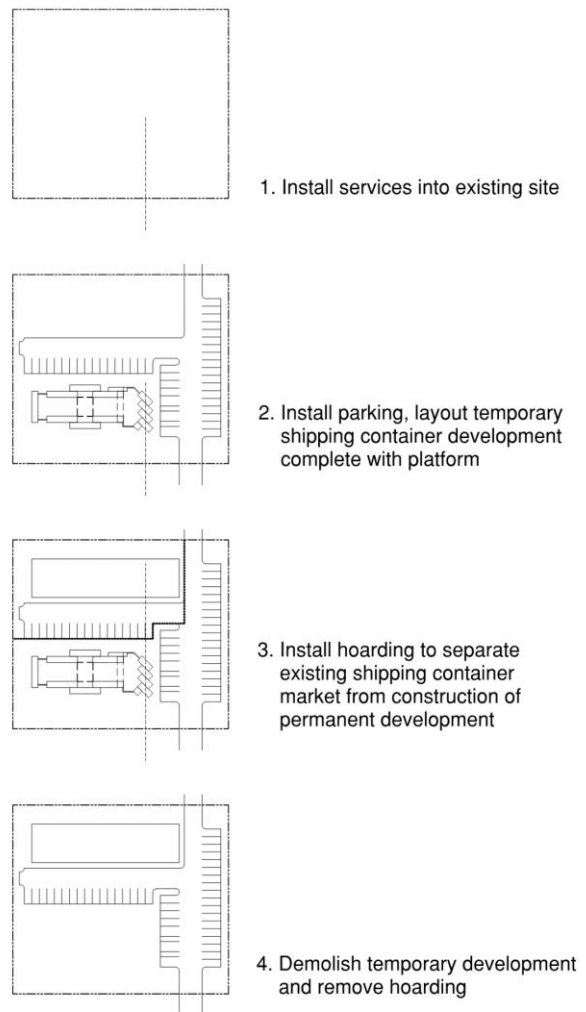
RiNo – 25th & Larimer, Denver, CO. By Ryan Diggins

1.2 SITE DEVELOPMENT

1.2.1 PHASED SITE DEVELOPMENT

The ultimate goal of the pilot shipping container market program is to support development of traditional commercial retail throughout Petawawa. The container market program is a tiered development opportunity with an initial five year and an optional three year grace period for eligible lands to be used for container markets. Considering the temporary and unique nature of the pilot container market program, phased and deferred costs will be considered to make the development attractive to land owners. The intent of the program is to prime the environment either to make the land attractive for sale or feasible for permanent brick and mortar development. Under the pilot period it is anticipated that businesses will outgrow the container space and need more commercial options. As part of this pilot program a site should be designed to accommodate the phased approach priming the land for traditional builds as the shipping container market phases out.

The adjacent diagram illustrates the phased approach.



1.3 SITE SERVICES

Site services must be provided within a container market development. These site services include, as a minimum, electrical service, storm water and sanitary systems as well as garbage storage and collection.

1.3.1 ELECTRICAL SERVICE

An appropriately sized electrical service will need to be provided to the site for distribution to each container. It is recommended that a licensed electrical engineer be engaged to design this system. Transformers may be required depending on the proposed businesses and the number of containers within the market development. A business decision to meter each business's electrical usage or roll it into the lease rates will be up to the project developer.

As illustrated in this guideline the electrical service must be in an enclosed space. It is recommended that this be in a permanent structure that can become part of the long term development or contained within a dedicated container designed and dedicated for this use.

Distribution from the incoming power will be provided to each container through weather tight conduit to an approved distribution panel within each container. The design of this distribution should be through a licensed professional and consider all electrical codes and the environmental conditions that present themselves as part of the container market development.

1.3.2 STORMWATER MANAGEMENT

A stormwater management plan will be required as part of a Site Plan Control Application. A stormwater management plan is prepared by a professional, licenced civil engineer. The storm water system controls the flow of rainwater from a site into the municipal storm system and prevents stormwater from leaving one site and entering another.

There are many ways to control stormwater on and from a site. The final design will be based on a number of factors, including the soil type on the property and the finishes on the surface of the site. For example a sandy site without any asphalt will retain and filter water better than a clay site with asphalt parking.

Development standards in Petawawa require that new parking areas be paved with asphalt and installed concrete curbs. With this requirement catch basins and buried piping, sometimes with a storage system, with flow restrictors connected to the municipal system are required. Within the context of a pilot container market program, however, consideration will be given for lands with hard compact surfaces, other than asphalt, and will support identified stormwater management plans that consider natural or built swales and vegetation to address this requirement. As long as the stormwater can be shown to remain on the lands and filter naturally into the soil. Ultimately, all such designs must be completed to meet the provincial standard, designed by a designated professional and satisfy the Municipal Engineer. It is important to remember that the stormwater management must work for the container market and when the lands are developed in more traditional ways with compliant systems and services.

1.3.3 SANITARY SERVICE

Sanitary systems must be provided on the site. The preferred solution will be to connect all grey and waste water through the municipal sanitary system. Under the pilot container market program there is an assumption that washroom facilities will not likely exist on the property and thus be provided in a container designed for this function. It is this one unit that will require the connection to the municipal system. Such systems are required to have appropriate separators for grease and other debris which can enter into the system. The design of this system must consider the long term, end phase development of the site. To reduce overall, long term cost associated with this location, design and sizing of the sanitary system should permit a permanent building to easily connect into the system.

The Environmental Protection Act of Ontario will not permit the use of a holding tank (Class 5 System) as an alternative solution to connection to the municipal sanitary system. Class 5 sanitary systems are permitted in very limited cases and the province will not approve applications where the intended use is for any new commercial, industrial, institutional, or residential installation.

For further information refer to the following: <https://www.ontario.ca/page/guideline-f-9-use-holding-tanks-sewage-systems>

Should the property proposed for a pilot container market not have municipal services along its frontage a septic bed will be permitted. It is recommended that the septic bed or similar organic and/or tertiary system be designed with end phase requirements or a means to expand the system to end phase requirements.

Portable, self-contained temporary washrooms stalls (Johnny-on-the-spot) will not be permitted as a viable sanitary solution under the pilot container market program.

1.3.4 GARBAGE SERVICE

A container market will generate garbage. The volume of garbage and its nature, wet versus dry, will vary depending on the number of containers and the nature of businesses. An enclosed garbage area must be provided that has a solid surface with appropriately sized bin(s) for the development. Garbage must be collected as required by municipal by-laws.

1.4 ARCHITECTURAL DESIGN PRINCIPALS

A container market development can be a delightful gathering place if planned and carefully designed. A goal of the pilot container market program is to create a unique commercial retail market place that is more than a collection of used metal boxes on a site. The following sections provide guidelines for design elements that must be considered or provided for any development under this program.

1.4.1 SHIPPING CONTAINER 101

There are over 30 million shipping containers in use worldwide most of which are universal in design. All shipping containers are 2.4m (8 feet) wide and come in a variety of lengths. They are typically 6.1m (20 feet) and 12.2m (40 feet) long. Other non-standard lengths include, 2.4m, 2.75m, 3.0m and 13.7m (8, 9, 10 and 45 feet). Most shipping containers are 2.4m (8 feet) tall but high cube shipping containers are 2.75m (9 feet) tall. There are also open top shipping containers, ideal for use if a passage way to a second storey is required for the design.

Since the popularity of using shipping containers, as a method of prefabricated building, many manufacturers sell them new and many offer containers customized to a user's end needs.

Shipping containers can also be purchased used. These containers may be slightly damaged, or simply there is no product to fill them and it makes more economic sense to sell them. The following outlines some basic knowledge needed for modifications to new or used shipping containers.

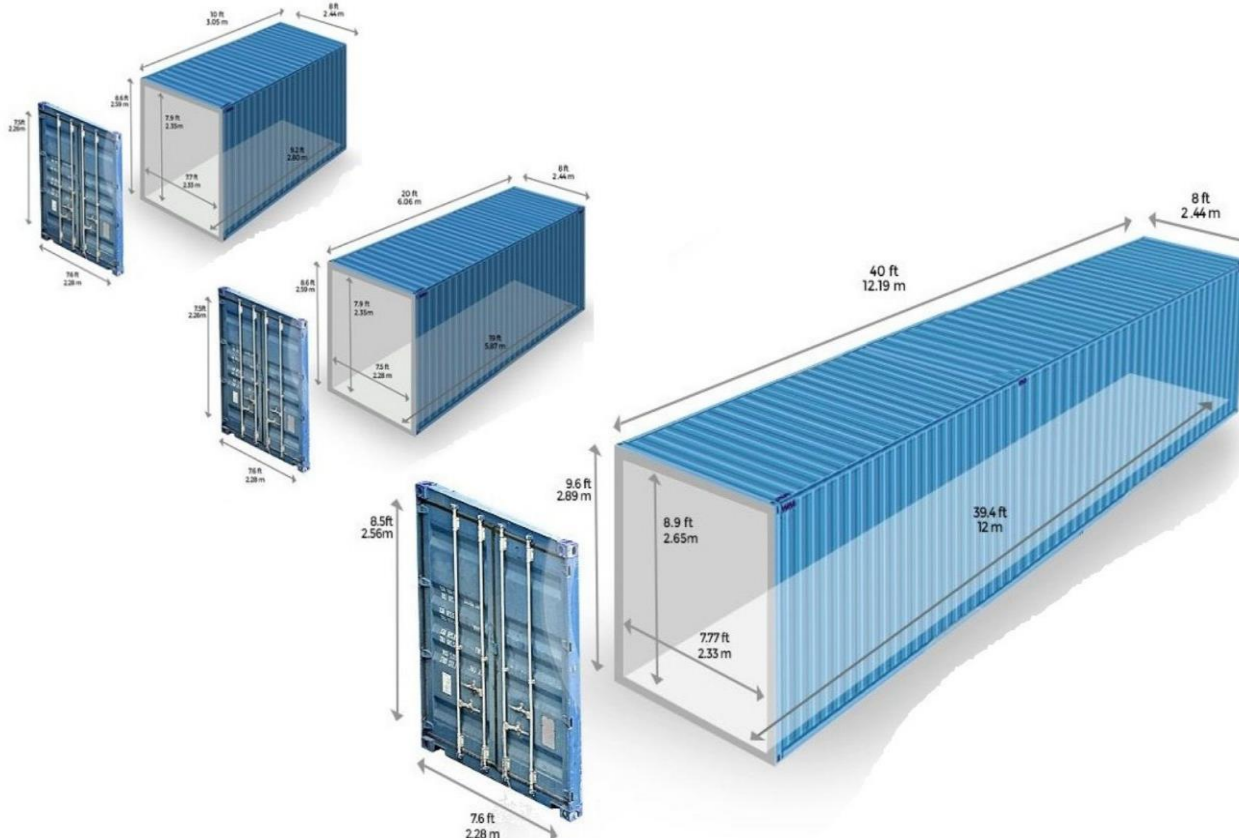
Shipping containers have a heavy steel frame along all its edges, and corrugated Corten steel walls. The corrugated shape of the relatively thin metal walls give them strength. Lifting points are provided at the corners and at fork-lift holes provided in the bottom rail. The lifting points and forklift openings are the only spots by which a shipping container can be lifted. The frame

is the structural element of a shipping container and under no circumstances should it be cut. All shipping containers will have a metal tag on their doors providing the loading capacity of the container. If a used shipping container is considered, ensure this tag is still attached to the container when purchased as it will provide important structural information about the container.

The roof of a shipping container also has a ribbed surface. However, it is not designed to carry much weight. The containers are generally constructed as a weather tight barrier and the roof will shed water, to some extent, with the intent that they are moving while acting as a shipping container.

Once used for a building and permanently leveled the long term performance of the roof must be considered and possibly modified with a water tight membrane or other water shedding roof system.

www.expertlogistics.com

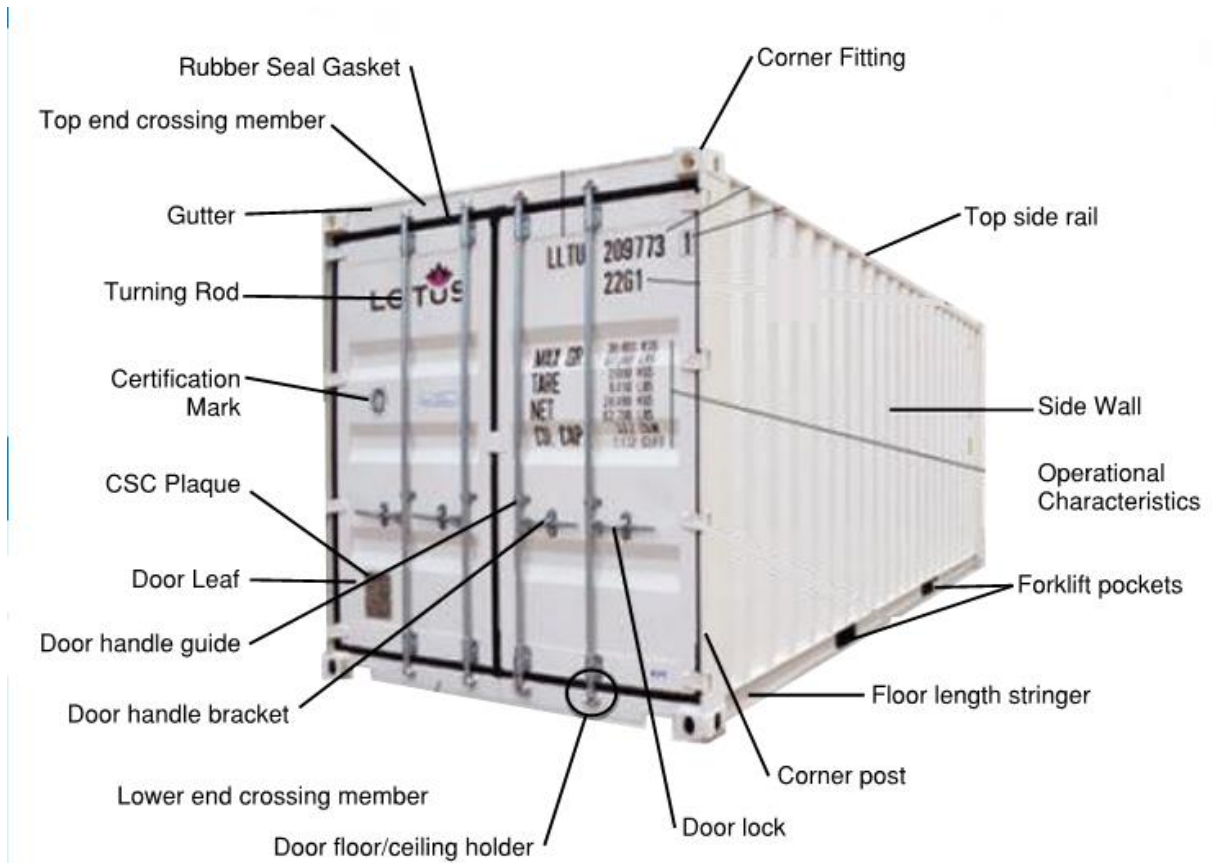


Openings for doors, windows, counters, electrical connections and ventilation can be cut into the walls and roof of a shipping container. There are limits to the unreinforced size of openings. Where openings are made for doors and windows a steel frame needs to be installed around the opening and welded into place. Where large portions of the corrugated wall is removed the container may require reinforcing. It must be remembered that when an opening is made in the wall of a shipping container the strength of the wall is reduced and the frame may flex depending on the roof loads, such as snow. This deflection must be accounted for when installing doors and windows to prevent possible jamming or window breakage.

Shipping containers generally can be stacked nine (9) units high, however they must be stacked on/or aligned with the corner posts. There are special connectors that are often used that fit into the corner posts. This joint is welded for permanent installations.

The floors of shipping containers include a layer of wood that is usually treated with insecticides and pesticides. Most often this wood is removed to prevent possible health problems when used in a permanent building application. The wood can be tested and covered with another flooring material that may suffice and be considered safe for use. If using new containers they can be ordered with non-treated wood.

The diagram below shows the basic components of a shipping container.



1.4.2 TOURISM AND THEMED DEVELOPMENTS

The pilot container market program can support tourism businesses that service the recreation industry. Providing easy access to complimentary services and products along recognized trails will enhance the use, animation of and destination potential for any such container market development. In Petawawa, a container market development adjacent to the Algonquin Trail, an all-season trail network travelled by hikers, cyclist, ATVers and snowmobilers would be a reasonable consideration. Similarly, a waterfront development could cater towards boaters and recreational waterfront activities providing fishing amenities or paddleboard rentals.

A container market development may become a tourist draw in and of itself. This can be achieved by diversity, quality and mix of vendors, the branding of the container market and the animated quality of place that is part of the development programming.

A series of smaller, themed container developments created in clustered areas can be unique tourism development opportunities.

1.4.3 SENSE OF PLACE – DEFINED SPACE

Container market developments have a number of design factors that lead to their success. They are unique in their appearance but have qualities of the best outdoor farmers markets and an enclosed retail mall. Like these two examples a container market requires the correct mix of shops, services and food vendors in a space that is or can be festive. The exception is a container market development that is geared solely towards personal service and office use.

Below are generalized areas of a design that should be addressed

PROXIMITY TO THE STREET

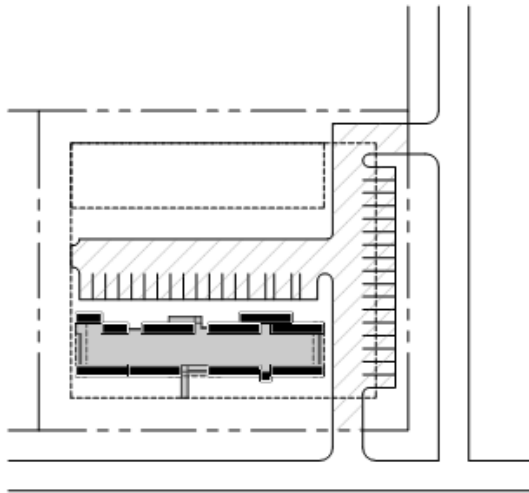
Shipping container developments should be located near the street with parking surrounding the development. Proximity to the street will give the container market visibility unlike a building pushed to the back of the site with parking in front. This visibility is important to overall success, particularly for the start-up nature of the units' tenants. Placement of the containers on the site should be porous; in that they provide sufficient space between containers.

This porousness, or access into the container means there is no front or back to the building. Spaces between the containers allow easy access to the businesses and eliminate the need for a singular large parking area in front of the development between the street and the building. Planning a development in this way, depending on the site, could permit the construction of a permanent structure in the future while the container development remains operational

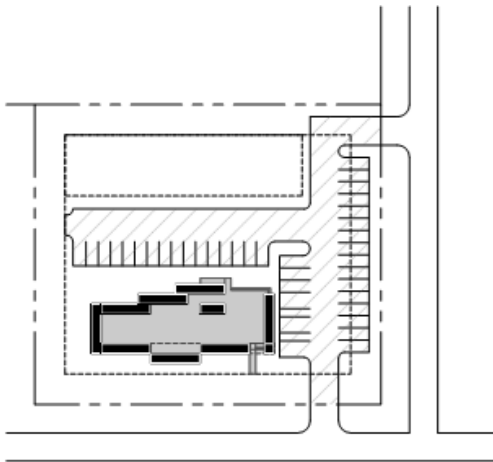
1.4.4. CONTAINER CONFIGURATIONS

There are many factors that will lead to a particular configuration of a container development that include the shape of the site, site access, parking and the desired atmosphere. There are many different ways to layout a container development some of which include:

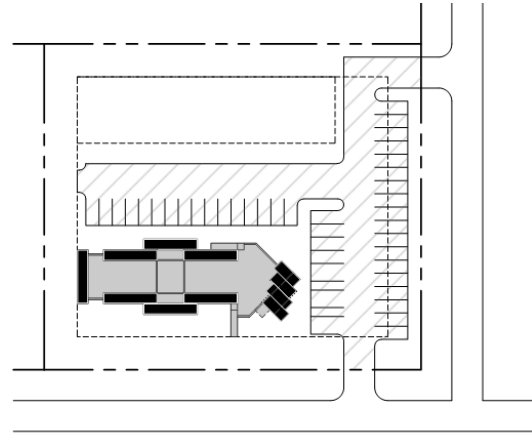
LINEAR



U-SHAPED / STAGGERED



RANDOM



Regardless of the configuration a sense of enclosure is required to create the market feel. This is achieved by the positioning of the containers and the space between them.

1.4.5 BUILDING SCALE AND FORM

A container market development provides the opportunity to play with building scale and form in unique and cost effective ways that would be cost prohibitive in typical construction. The most basic single level container development will be a low building form. To add variety of form some developments may add empty containers above the ground floor businesses or add a container that rests on its end acting as a tower to landmark the development. This will provide the scale compatible to traditional buildings and required by municipal by-laws. The second level containers can be used as signage, form entrance archways, provide shelter and define space. The second level container may double as seasonal storage space for the development. In special conditions it could serve as storage space for a particular tenant. It is not recommended to use the second level as occupied space as it would need to be publically accessible, which, depending on the occupancy may not be feasible and may be cost prohibitive.

The following Images are representative of the scale that can be achieved in Container markets and deemed desirable for the Petawawa Pilot Container Market.



Portland, MA, USA LOW SCALE SMALL DEVELOPMENT



Korea – Inhabitat.com
TRADITIONAL STREET SCALE PROVIDED THROUGH STORE FRONT GLAZING AND SECOND LEVEL CONTAINERS.



Germany
STREET SCALE PROVIDED THROUGH STORE FRONT GLAZING AND SECOND LEVEL CONTAINERS. VERTICAL CONTAINER LANDMARKS THE PROJECT. — ARCHDAILY.COM



Stackts, Toronto, DEVELOPMENT ENTRANCE DEFINED BY CREATING AN ARCH WITH A SECOND LEVEL CONTAINER.

1.4.6 ENCLOSURE

The best container market developments create their own space by creating enclosure. Like the container configuration there are many ways to achieve a sense of enclosure. When done well the enclosure and its finishes will set the tone for a place. It will define the scale of a place – small and intimate; large and overwhelming; utilitarian or luxurious.

Enclosure is formed by three things:

- Walls,
- Roofs and
- Floors/Paving

WALLS

The first level of enclosure can be set by the arrangement of all the containers. U-shaped configurations or configurations that create internal streets are particularly good methods to achieve this goal. If a development needs to be a linear arrangement it should be remembered that it only takes two walls of separate containers to create a sense of enclosure. The space between containers can serve many purposes. It can define and mark the entrance to the development, expand the interior space of a container, or it can be a seating area for a food vendor. A third wall or screen will better define a space and can be finished with similar materials and colours so that it is recognized as an extension to a particular tenant.



REstart – Christchurch, NZ
SECOND LEVEL CONTAINERS, THE GLAZING AND SOLID WALLS PLUS THE DISTANCE BETWEEN CONTAINERS CREATE A STREET SCALE SENSE OF ENCLOSURE

ROOF

Spanning a roof, a trellis, awning or netting of lights across the space between containers define a space and adds another layer of enclosure that will make it unique. The same elements can be used across the side of a container to enclose and define the upper plane a space associated with a particular tenant. The roof element can also be another shipping container as noted above.



REstart Christchurch, NZ

SAIL AWNINGS PROVIDE SHADE, COLOUR AND ACTS AS THE ROOF ELEMENT TO PROVIDE ENCLOSURE.

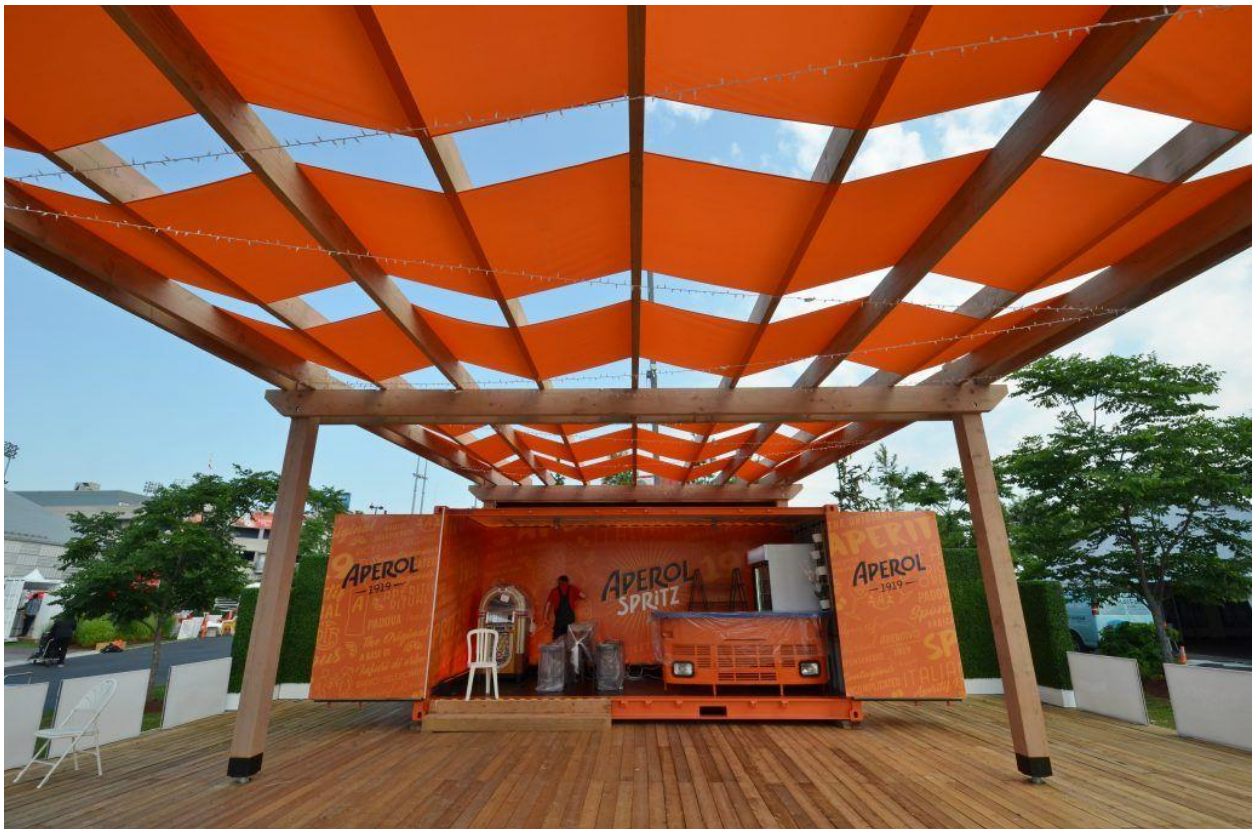


Photo source not available

A FUN AND COLOURFUL AWNING PROVIDES ENCLOSURE WITH THE SINGLE WALL OF THE SHIPPING CONTAINER AND THE COLUMNS OF THE WOOD STRUCTURE.



REstart –
Christchurch, NZ

AN
INDEPENDENT
CANOPY
STRUCTURE
ALIGNED WITH
A SHIPPING
CONTAINER
DEFINES A
SENSE OF
PLACE FOR A
PARTICULAR
TENANT
AND
PROVIDES
ENCLOSURE



Steelcraft –
Belflower, CA.

A
RETRACTABLE
SUN SCREEN
PROVIDES
ENCLOSURE
AND INTEREST
TO AN
OUTDOOR
SPACE



Steelcraft –
Belflower, CA.

LIGHT
STRINGS TO
DEFINE SENSE
OF
ENCLOSURE

FLOORS/PAVING

The limits of a container development can be defined by a common ground finish. The paving finish may be level with the surrounding area or raised, but a simple change in colour or material is a psychological space defining element. The raised floor, such as a boardwalk element, may be a response to providing a level

entrance to a container and solving barrier free requirements. If containers are partially sunk to address barrier free requirements paving stones, coloured asphalt or other paving materials can be used to link all the containers together and separate it from parking, much as a sidewalk does for traditional commercial streets.



Assiniboine Park, Winnipeg, MB

WASHROOM CONTAINERS ON A SIMPLE WOOD PLATFORM FOR BARRIER FREE ACCESS.





Photo source not available



Photo source not available

1.4.7 BUILDING MATERIAL AND COLOUR

Container market developments offer a unique opportunity to play with building material and colour. The corrugated metal that forms the walls of a shipping container along with the rails and corner posts is a distinct image and is recognized differently from buildings with metal siding. A simple coat of paint will provide a street presence unlike any other building. The most interesting container developments do not hide the nature of their structure.

Colour can be used to unify the development or as a means to create a unique identity. A monochromatic colour scheme is usually highlighted with accent materials in the form of signage, second level containers or roof elements. When multiple colours are used they are complimentary in nature and usually bright to evoke a festive environment.

Multiple colours on a single container usually do not work, unless it is part of a sign applied to the container.

The paving material that is used to define a development should be thought of as a surface to apply colour and it is a good place to provide a unifying element.



Photo source not available



Photo source not available



Photo source not available



Photo source not available

Containers can also be the substrate to fix other building materials to. This may hide the unique character of the container but provide opportunities to create a signature look for the businesses. Often a portion of a wall will be treated with a different material, such as wood. The other material will be installed in a utilitarian fashion but softens the, industrial nature of a container market development. The other material is sometimes used as a signage background or a racking system to display product on the outside of a container.

Whether covering a portion of a wall or the entire container, it is critical to select the appropriate material. As a rule of thumb, residential siding materials do not work well on containers because they lack that unique industrial aspect to them.

The pilot container market program requires that all containers be painted a single colour as a minimum standard. Signature enhancements, branding and identification

of vendors within the container market can be achieved through signage attached to the structure or by professional graphics or painting.

If used containers are to be deployed all rust should be removed, primed and painted and other visible dents or deformities to the container must be fixed or covered. When painting an old container the correct paint formula should be used to address the nature of corten steel.



presstelegram.com



Pinterest.com



apartmenttherapy.com

1.4.8 LIGHTING

There are three lighting aspects that need to be addressed in a container market development.

- Site Lighting
- Atmosphere Lighting
- Unit lighting

SITE LIGHTING

As a requirement of the site plan approval a minimum level of site lighting must be provided. This will help prevent falls in parking areas and is a basic element of Crime Prevention Through Environmental Design (CPTED).



Photo source not available

ATMOSPHERE LIGHTING

The lighting around and between containers is critical in creating the feeling or atmosphere for the development. This generally is a softer, less intense lighting. Accent lighting is a design element. Often food vendors will use coloured lights to define their space and the lighting and light fixtures are reminiscent of lighting that is associated with food type. For example a netting of lights over outdoor seating are often associated with a Mexican Cantina.



Steelcraft Brewery

UNIT LIGHTING

The lighting from within the unit is critical for retail tenants. At all times of the day a well-lit interior is a signal that a tenant is open for business. Most retail containers will have a large glazed areas. This is often the ends where the original container doors would be located or a large area of the side wall is removed. These glazed areas should face the street, or courtyard depending on the container configuration, as much as possible as part of the street presence and overall lighting strategy.

1.5 CONTAINER MODIFICATIONS

Containers may be purchased new or used through container manufacturers or distributors. They generally can last up to 20 years if properly maintained. All containers used as retail space will require modification. While modifications to containers appear to be simple in nature and similar to wood frame construction techniques, there is a unique skill set required to make the necessary changes to these units, including welding and structural engineering. Because of the unique nature of the container standardized approaches to the various modifications have been developed by companies that specialize in this type of work. This specialization, in the long run, could save money, avoid costly repairs, and result in a better container market development.

The basic modifications any container will require include:

- Insulation
- Door and Window Opening(s)
- Electrical Distribution
- Heating, Cooling and Ventilation

Many shipping container suppliers will offer a modification service on either new or used containers. They will modify containers to the specific use and provide a shopping list approach for the needed modification and its associated cost. They have the equipment, skills and resources to produce quality products at a rate most individuals can't achieve. As companies that have been through the process they can also provide insight into unforeseen site conditions that must be planned for.

Whether purchasing a modified container or planning to modify them with your own resources the following are considerations for the basic modifications noted above.

1.5.1 INSULATION

Insulation is required to moderate temperature throughout the year. Insulation can be applied to the interior surfaces or the exterior surfaces. The insulation should be applied to either the inside or the outside to avoid cold bridging through the steel structure. Uncontrolled cold bridging will lead to condensation and potential mould growth. An interior application of spray foam insulation is the most common method used.

Generally a stud wall framing system is installed on all interior surfaces to conceal the insulation and electrical wiring. To meet building code, the insulation will need to be a minimum thickness of 75mm (3 inches). The interior finishes are then fastened to the stud framing. The floor will also require insulation.

Interior insulation is less expensive than insulating the exterior. Exterior insulation systems require furring on both sides of the wall and require an exterior cladding on all surfaces, including the roof and floor. This is more expensive than painting the exterior.

Spray applied foam insulation should be used in all cases. This type of insulation fills all small areas around studs and minor openings that board or batt insulations cannot. It reduces the cold bridging and it also acts as a vapour barrier. The vapour barrier is critical in controlling condensation,

1.5.2 DOOR AND WINDOW OPENING (S)

Container doors do not function well as primary entry doors. When the container doors are retained in as a design feature, they are generally used as a means to expand the container space to the exterior. Cutting an opening in the wall of a container weakens it structurally, therefore, openings in any location other than the container door end must be reinforced with vertical steel members that span between the upper and lower rails of the container. A structural engineer will provide the necessary sizing of the structural member that is typically welded in place.

Generally speaking the most attractive openings span between the bottom and top rail.

This gives it the commercial feel, aligns with the industrial nature of the container look and visually opens up and expands the container. Aluminum store front glazing systems work well in a commercial shipping container design. A strong datum aligning with the door head is key and the extension of the opening to the floor line.

It is recommended that at least one opening of this nature be provided in each container.

The systems outlined above can use a sliding door or a fixed window in combination with a swing door to produce a clean image suitable for this type of project. Residential windows and doors cut into the side of the container do not provide the image appropriate to this type of development and should be avoided.



windowsreport.com



Photo source not available

A window opening for ventilation or a small exhaust fan should be provided in each container to provide fresh air. This conforms to the requirements of the Ontario Building Code.

Containers used for food vending would not require a full height opening. They generally do require a large opening that provides both a serving counter and a shelter above. Most companies that specialize in container modifications offer a hinged system that opens to the canopy and counter and closes to provide a secure counter.

A separate door is provided elsewhere on the container wall. Simple access doors may need to meet barrier free requirements with respect to width. These doors should

be an insulated hollow core door in an insulated steel frame, painted out to match the container siding.



Photo source not available



Coffs harbour jetty – container buildings Group Ltd.

1.5.3 ELECTRICAL DISTRIBUTION

All commercial containers will require electrical distribution for lighting and general electrical needs. If framing the interior walls for insulation the wiring is typically run within the framing with outlets provided around the perimeter of the container, likewise for ceiling or wall mounted light fixtures. A small electrical panel should be provided in each container for different circuits and to add a circuit if necessary. It is important to plan the electrical distribution for maximum flexibility so walls do not need to be opened up. If a truly industrial feel is desired, surface mounted electrical conduit and junction boxes will provide the ultimate personalized flexibility.

If data cabling is required it should be planned along with the electrical distribution.

1.5.4 HEATING VENTILATION AND AIR CONDITIONING (HVAC)

It is the intent of the pilot container markets be operational all year. As a minimum, heating and ventilation will be required as per the Ontario Building code. Air conditioning should be considered based on the nature of the building and the design of a particular container. If adequate cross ventilation cannot be provided it is recommended that air conditioning be installed. This will be more prominent if a container is subdivided into smaller tenant spaces.

Heating is typically provided my means of an electric baseboard system controlled by a thermostat. The number of heaters required is a factor of the number of openings and the volume of space required to heat. Heaters should be located near wall openings.

Ventilation can be provided by means of an operable window unit, door or an exhaust fan that also draws in exterior air. Air conditioning is typically provided by an electric wall mounted “split unit” air conditioner. There is an indoor and outdoor component to a split A/C system, typically attached on opposite sides of the same wall location and near the ceiling. The exterior condenser unit should be placed towards the back of a unit to keep it out of the retail sight lines.

2.0 REGULATORY APPROVALS

Any proposal submitted under the pilot container market program is required to meet all regulatory approvals that any other development within the Town would have to meet. All required planning applications must be applied for, granted and all costs associated with said applications are the responsibility of the applicant. An applicant is also required to enter into a development agreement with the Town to ensure that the approved container market plan is constructed as approved by Council.

There are several pieces of legislation that affect land use planning in the province of Ontario. In the case of the pilot container market program the main pieces of legislation are found within the Planning Act and the Building Code Act. The Planning Act established the responsibility of municipalities to regulate land use. It requires that an Official Plan is prepared and empowers zoning, site plan control and the subdivision of land. It also established the approval process for planning applications. The purpose of the Building Code Act is to ensure that buildings are constructed and that buildings are maintained, in a safe manner. Construction standards are contained in the Ontario Building Code, which is a regulation under the Act.

Outlined below are the three main regulatory approvals and processes that must be considered.

2.1 ZONING

The Town of Petawawa Official Plan provides a guide for the orderly growth and development of the municipality. It is the Zoning By-law that implements the policies of the Official Plan.

All development that takes place within the Town of Petawawa is required to comply with the Comprehensive Zoning By-law. This document controls the use of land within the community by defining the permitted uses on properties, setbacks for buildings and structures, what types of buildings are permitted and how they may be used. The Zoning By-law also regulates lot sizes, parking requirements and a host of other provisions as set out within the various zone designations.

The pilot container market program applies to lands located within the Commercial (C) Zone.

The zoning provisions for all properties within the Town of Petawawa may be found by reviewing the comprehensive Zoning By-law and associated maps identified as Schedules to the Zoning By-law at: <https://www.petawawa.ca/business/planning/the-zoning-by-law/>

In a situation whereby a specific zoning requirement cannot be met there may be an opportunity for relief to be sought from the Zoning By-law. Such an application is known as a minor variance and may be applied to a specific zoning provision. An application is submitted, along with the applicable fee and a public meeting is held where the Committee of Adjustment hears the application and provides a decision on that application. The minor variance must be considered minor in nature, the general intent and purpose of the both the Official plan and Zoning By-Law must be maintained and in the opinion of the Committee, the land, building or structure or use thereof must be desirable for the appropriate development or use of the land, building or structure.

2.1.1 COMMERCIAL ZONING REQUIREMENTS

Minimum Lot Area

Full service	185 m ²
Municipal water private sewer	2,000 m ²
Private services	2,000 m ²

Lot Frontage (min)	30 metres
Front Yard Setback (min)	7.5 metres
Side Yard Width (min)	3.0 metres
if abuts residential zone	6.0 metres required
Exterior Side Yard Width (min)	7.5 metres
Rear Yard Depth (min)	7.5 metres
if abuts residential zone	10.5 metres required
Lot Coverage	33%
Building Height (max)	10.5 metres

2.1.2 DEFINITIONS

OPEN STORAGE: means the storage of goods, merchandise or equipment in the open air and in unenclosed portions of buildings, which are open to air on the side.

As part of the site plan review it will be determined if open storage may be permitted within the container market. Such storage is to be accessory in nature and it will be imperative that this use does not detract from the sense of space and attractive qualities of the development.

The Town of Petawawa has amended the zoning by-law and introduced the following three new definitions that will apply to a container market.

CONTAINER MARKET: means a commercial establishment consisting of a minimum of five modified shipping containers and/or a combination of modified shipping containers, mobile refreshment vehicles and modular units planned and designed to create a particular sense of place supporting and enhancing the businesses operating therein.

MOBILE REFRESHMENT VEHICLE means any temporary or permanently stationed motor vehicle, trailer or structure where food and/or refreshments may be cooked, carried or offered for sale to the general public.

MODULAR UNIT means any boxed style modular structure constructed off-site, under controlled plant conditions and using compliant code materials and such unit is designed to be reused and repurposed multiple times and for the purpose of being transported to different sites.

2.1.3 PARKING AND LOADING

The number of parking spaces that must be provided on a site is dictated by use. The zoning by-law requires the following:

Use	Min. Parking Requirement
Office	1 space/29m ² (312ft ²) of GLFA
Eating	1 space/ 10m ² (107ft ²) of GLFA
Retail	1 space/ 28m ² (301ft ²) of GLFA
Services	1 space/ 28m ² (301ft ²) of GLFA

*GLFA – Gross Leasable Floor Area

In addition to the minimum number of parking spaces, the Zoning by-law dictates the minimum parking space dimensions along with the minimum number of barrier free parking spaces and their size.

Standard Parking Space	2.7m x 5.5m (9 x 18 feet)
Barrier Free Space	3.7m x 6.0m (12 x 20 feet)

Barrier Free spaces must be provided at a rate of 1 space per 20 standard spaces. A minimum of one space must be provided.

The most common shipping container size is 2.4m x 12.2m (8'x40') or 29.7m² (320 ft.²) Considering the tenants of a container market development are undeterminable it is recommended that three (3) parking spaces per container be provided, as this will meet the more restrictive and possible uses. If a development will be themed to a particular use that may increase the parking requirement, additional parking should be provided. The location of the parking areas must be a minimum of 1.0 metres from a street lot line or 3.0 meters if located adjacent to a residential zone.

Under the Zoning By-law there is a requirement for the provision of loading space for buildings or structures that are greater than 300 m², one loading per each 1500 m² of floor area or part thereof, above the 300 meter threshold. Although the individual containers may not be greater than 300 m² and hence require a loading space, there should be consideration as to how the unloading of goods or materials will occur on the site and assurances that the loading area does not negatively impact the overall flow and visual attractiveness of the development.

2.2 SITE PLAN CONTROL

Section 41 of the Planning Act permits a municipality to establish a site plan control area within the municipality. Pursuant to the Site Plan Control By-law 528/08 the entire Town of Petawawa is so designated. Site Plan Control is a tool used to ensure that a proposed development is properly planned, will meet Town policies, by-laws, engineering standards, and will have the necessary approvals in place prior to the start of construction. The purpose of the Site Plan Control Application (SPCA) is to ensure the provisions of the following features can be addressed:

- off-street parking and loading spaces,
- bicycle racks,
- walkways,
- lighting,
- buffering,
- landscaping,
- garbage storage,
- grading and drainage
- stormwater management facilities,
- servicing,
- exterior façade,
- market design considerations and
- signage.

An applicant will be required to submit a SPCA and receive Council approval as well as enter into a site development agreement prior to the issuance of a building permit for any container market development.

2.2.1 SITE PLAN APPLICATION REQUIREMENTS

Six copies of the site plan showing the proposed development must be submitted for review. The site plan must provide a key map and include the true dimensions on the plan along with the legal description of the property.

BUILDING AND/OR STRUCTURES

The location and dimension of all proposed containers and structures must be provided including the location of proposed septic systems and wells (if applicable), dimensions of all yards (ie. Setbacks from all buildings and structures from property lines); and the percentage lot coverage of buildings, concrete asphalt surfaces, landscaped areas, and gravel surfaced areas.

PARKING AND ACCESSIBILITY

The location of off-street parking and loading areas must be identified on the plan, including the dimensions of parking spaces, loading areas and setbacks of such areas from property lines; the width of driveways and aisles accessing parking stalls and loading areas; location of accessible parking space in proximity to the container market; the location of all accessibility ramps or grading; the location of signage/surface colouring of accessible parking spaces; and the location of curbing and proposed sidewalks and connecting pathways.

FIRE PROTECTION

The location of proposed fire routes, radii, construction material, grades and widths; the location of Town fire hydrants in proximity to the subject property and any proposed private hydrants; and the current test results of pressure/flow of hydrants.

LIGHTING AND LANDSCAPING

The location of lighting for pedestrian access around main entrance/exit, to and from parking areas and along paths; the location of proposed landscaped areas and existing tree cover; proposed new plant material (number, type and size); and the location of pedestrian walkways (landscaped). Additional information may be required if changes are proposed to street lighting.

OTHER REQUIREMENTS

The dimensions detailing entrance and exit locations to and from the site, the location of central storage and collection areas or other facilities for the storage of garbage and other waste or recyclable material and garbage truck access to route radii; the proposed final elevations and grades; the proposed connections to municipal services including propose sizes and grades, proposed connections to utility services, the stormwater management areas; the location of any proposed signs or fences; the location of existing and/or proposed drainage systems or watercourses. The detailing of any specific theme or unique characteristics of the proposed container market must be provided.

It is required that where any development is subject to Stormwater Management considerations, the applicant must submit the Stormwater Management Report to the Town's Engineer for review and approval. The placement of containers on hard compact surfaces such as crushed gravel, concrete or asphalt may be acceptable and will be reviewed.

2.3 BUILDING CODE

Any container over 9.3m² (100 ft.²) in area and used as an enclosure for any use is consider a building and must meet the requirements of the Ontario Building Code (OBC). This section of the guideline is not meant to be an exhaustive commentary on building code requirements as they pertain to a container market development. Each development will be unique and will require its own analysis and solutions to conform to the Building Code. It is recommended that a consultant with the proper qualifications be engaged to review any proposal from a code perspective.

Buildings in the OBC are classified by use and building footprint area. The uses envisioned for Petawawa's pilot container market program are Groups D - Commercial, E – Retail. The building area determines if the building will be reviewed under Part 3 - Large/Complex Buildings or Part 9 – Small Buildings. In general, Part 3 adds additional safety requirements to the building that will increase the cost. Part 9 buildings, with the uses noted above, cannot exceed a footprint area of 6,000 sq.ft.

2.3.1 BUILDING AREA

There are nuances in calculating the "building area" for a container development, that relate to the ways in which containers may be connected to each other. In general if two or more containers are connected, either by proximity (touching one another) or by a common roof the containers could be considered as one building with the aggregate footprint area. Conversely a container development where no unit is physically attached to another would be a number of singular buildings, on a site, of which the largest building would be the area of any particular container.

For a development to exceed the 6,000 sq.ft. building area it would require 19, 2.4 m x 12.2 m (8 ft x 40 ft) connected containers. It is unlikely any development in this pilot program will exceed 6,000 sq. ft. and therefore, the following points of discussion address major Building Code requirements for a Part 9 container market development.

2.3.2 SPATIAL SEPARATION

The Zoning By-laws prescribes a minimum distance that a building needs to be set back from a property line. The Building Code has spatial separation requirements that dictate the distance a building must be from a property line and from other buildings. The two requirements are independent from each other and both must be met. The Building Code spatial separation is to prevent the spread of fire between buildings and property.

OCC 9.10.14 provides a table to determine the building setback from a property line. The determining factors are the area of the wall and the area of openings that face the property line. Generally the greater the area of openings as a percentage of the wall area the further the building is required to be from the property line. When a building is close to a property line additional requirements with respect to the combustibility and a listed fire rating for the wall assembly must also be demonstrated. Sometimes both the fire rating and non-combustible aspect must be met.

At the time of preparation of this guideline there were no found tested fire rated wall assemblies for shipping container buildings. If a development must place containers close to property lines that would require a fire rating, an opinion from a qualified engineer may be acceptable to the authority having jurisdiction.

2.3.3 FIRE SEPARATION

If a single container is divided to provide space for more than one tenant a 1Hour rated fire separation between the spaces will be required. This is easily achieved with conventional framing and layers of Type 'X' drywall. Special "Fire Caulking" will be required at the top and bottom of the wall. If the floor assembly is a continuous wood floor it must be cut and the fire rated wall assembly must extend to the steel structure floor of the container.

If more than one container is joined to another container with separate tenants the common wall will require a fire rating. For the anticipated uses it is not foreseen that any fire separation rating will have to exceed 90 minutes. The OBC permits built up assemblies of standard building materials to be combined to meet this time limit. Refer to OBC SB-2 Section 2.3.

2.3.4 BARRIER FREE REQUIREMENTS

The barrier free requirements of the OBC are provide in Part 3 and Part 9 references the appropriate Part 3 sections. The Accessibility for Ontarians with Disabilities Act (AODA) is a law that addresses many accessibility issues but has a particular section for *DESIGN OF PUBLIC SPACES STANDARDS*. Refer to the following link: <https://www.ontario.ca/laws/regulation/r12413>

This standard within the AODA may impact the design of the exterior spaces of a container market development. The design of Public Spaces Standard within the AODA does not apply to small organizations (49 people or less), however, it is unclear if a development that attracts more than 49 people must meet the requirement. Regardless, for this type of development the requirements are not considered onerous and Petawawa would encourage that this requirement be met. If not the AODA requirement then the OBC requirements will be the standard.

The following link provides a guideline to Design of Public Spaces Standard that is part of the AODA.

<http://accessabilityadvantage.ca/wp-content/uploads/Design-of-Public-Spaces-Checklist1.pdf>

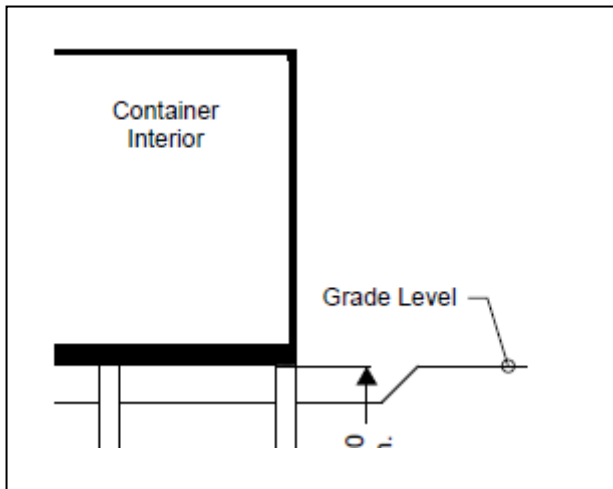
RAMPS

The detailed design of a Container Market will determine the need for ramps, however, most container market developments will require a ramp somewhere. The ramp may be up to a platform that connects all of the containers and provides a level entry between the platform and the container or from the ground level up to the container floor. They may also be needed to traverse grade changes that may occur in a site.

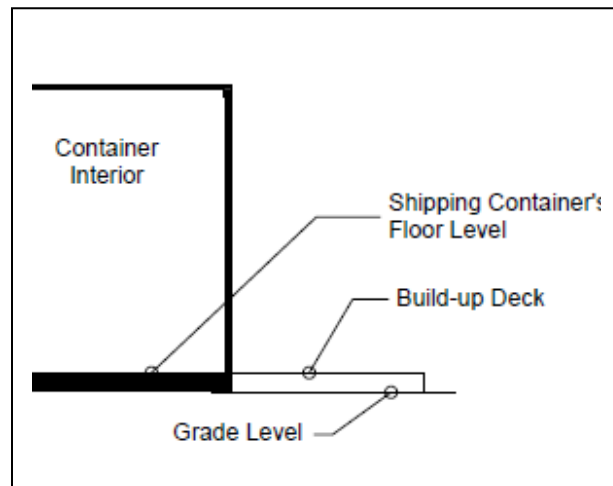
Considering all ramps will be on the exterior of the container they will need to meet the 1:15 maximum slope required by the AODA. The regulations will also specify other elements of a ramp that will include; guards, handrails, toe rails, ramp width and landing requirements.

Not all barrier free regulatory requirements are the same in all jurisdictions. Some jurisdictions may have no requirements and therefore images found on the web may not show ramps or any of the other particulars noted herein. It is the recommendation of this guideline to minimize the number of ramps. This is most easily accomplished by providing a platform that connects all the shipping containers and is level with the floor of the shipping container (See Dig.2.3.4.1.1)

This option would only require a minimum a single ramp up to the platform level. Alternatively, the container may be partially submerged into the ground to make the floor of the container flush with the surrounding surface. A small bridge like element will span the gap between the ground and the shipping container floor. (See Dig. Dig.2.3.4.1.2)



Dig.2.3.4.1.1 Container Floor Level with Grade



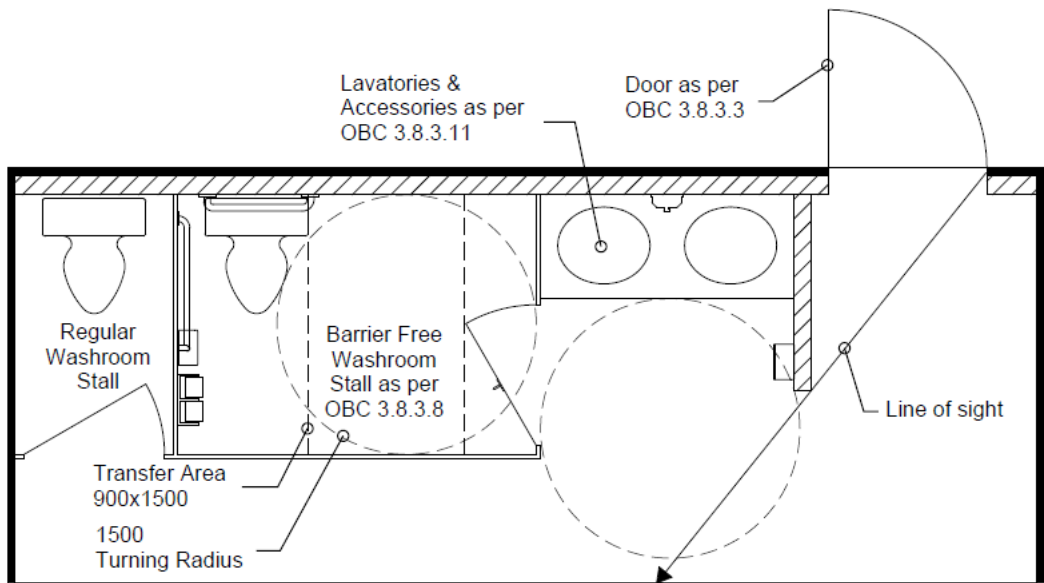
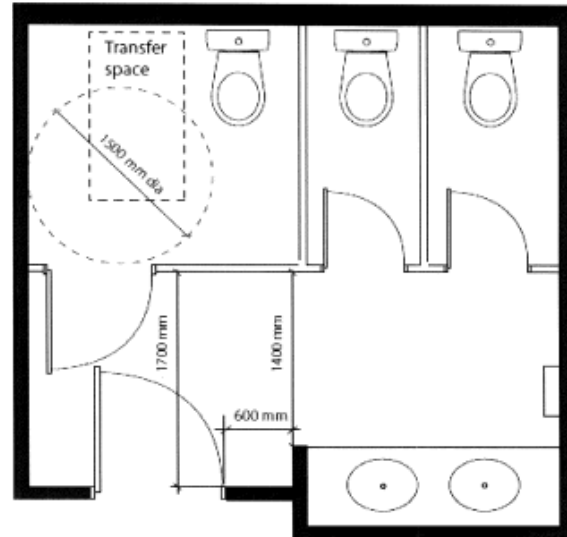
Dig.2.3.4.1.2 Platform level with Container Floor

WASHROOMS

Washrooms must be provided as part of a container market development. The requirements for washrooms and the number of fixtures (Toilets, urinals and sinks) is determined by the OBC. The number of fixtures is a factor of occupant load which is determined by building area and use. It is deemed impractical to provide a washroom in each container, although it is an option. For cost reasons, it is assumed, to be more feasible to provide a container dedicated to the washrooms needed for the entire container development.

Barrier free washroom stalls or barrier free washrooms must be provided along with a Universal Barrier free washroom. The OBC defines the difference between barrier free stalls and a Universal washroom and has provisions to combine and/or share barrier free washrooms between sexes. It is recommended that a consultant with the proper qualifications be engaged to interpret the barrier free and total washroom requirements needed for any proposed development.

The OBC has dimensional requirements for fixture and washroom accessories as per the diagram below. For a project less than 600m² (6,000 ft²) a single 6.1 m (20 ft.) trailer with two regular washrooms and one universal barrier free washroom will meet the OBC.



A single gender washroom layout with multiple fixtures. Fixtures cannot be visible from the door in a multiple fixture washrooms

DOORS

Businesses operating in a container may not require customers to enter the container; none-the-less at least one door for each business unit must meet barrier free requirements. The basic requirements for a barrier free door are its width and door hardware. A door must be a minimum of 33.5" (850mm) clear width. That is the width from the face of the door stop to the closest edge of the door leaf on the opposite side of the opening or, if a push bar is used on the door the face of the push bar when the door is in its open position. The door hardware must be mounted no higher than 35.5" (900mm) of the ground plane on either side of a door and it must be a lever type handle.

COUNTERS

Many container businesses serve food through a large opening with a counter. The counter or a portion of it must meet height limits with knee space underneath. Given that this will be an exterior development the counter heights must meet the requirements of the AODA.

The image below represents an example of a non-compliant AODA counter.

PUBLIC SEATING

Public seating for all physically challenged and fully mobile people must be provided in a pilot container market development for its success and to obtain required approvals. Most manufactured seating will offer barrier free options and designs that have seat height, seat depth and arm and back rest that aid in mobility. The AODA dictates that 20% of seating must be barrier free and for food vendors this is very important.



Photo source not provided

3.0 DEVELOPMENT CHECKLIST

ITEM	COMMENTS	Check
REGULATORY		
Review/Satisfy Zoning		
• Permitted Uses		
• Building Setbacks		
• Building Height		
• Garbage Enclosure		
• Required Parking		
Building Code Review		
• Washroom Fixtures Required		
• Fire Separations	Between and within shipping containers	
• Combustibility	For exterior finishes close to property lines	
• Fire Fighter Access and Route		
• Plumbing Requirements		
• HVAC Requirements		
• Structural/Seismic Req'mnts		
• Barrier Free Requirements		
• BF Washroom		
• Ramp Design		
• Doors widths & clearances		
• Counter heights		
• Seating		
Site Plan Control Application		
• Pre-consultation meeting with Town Planning Department		
• Stormwater Management Plan		
• Geo-technical Report		
• Legal Survey		
• Architectural Site Plan		
• Architectural Elevations		
• Site Lighting Plan		
• Other Studies as Per City		
NOTES		

DESIGN		
Site Planning & Phasing	Always consider future development	
Sanitary System Design	Locate so it is easily tied into for future development, consider slope from back of site to street.	
Electrical System Design		
Container Fit-up	Insulation, Doors, Glazing HVAC.	
New or used Container	Cost and condition.	
Foundation System	To be reviewed by structural engineer. Minimum 4-12" diameter concrete filled sono-tubes to a depth of 5'-0" below grade located at container corners.	
Landscaping	Seating, container planting within market area and leading to it and permanent landscaping elements on remainder of site.	
Seating	Mix of Barrier Free Seating with regular seating. Provide tables for food vendors.	
Enclosure Elements	Canopy(s), Awnings, String Lights, Second Level Containers	
Ground Plane	Raised Platform, Recessed Containers (no ramps) Uniform Paving Material	
Colour	Uniform Colour vs. Complementary colours.	
Signage	On or above container, Second Level	
Views from Street	Views into site. Glazing to see in and see out. Lighting to inform of open stores.	
NOTES		

4.0 PILOT CONTAINER MARKET DESIGN CONCEPT LAYOUTS

The Town of Petawawa has selected the site at the end of Norman Street adjacent to Petawawa Boulevard and the Algonquin Trail as a possible test site for the pilot container market development. On the following pages are images of how the three container configurations could work for this site. They acknowledge the design principles set forth by this guideline. Each concept is limited to nine (9) usable containers with a total leasable area less than 557m² (6,000ft.²) of building area.

The three concept layouts for the site are Random, Linear and U-shaped/Staggered as referenced in the pilot container market development guideline document. There is no one correct configuration and each concept offers a difference with respect to ease of construction, visual interest or unique design characteristics. Each option presented here includes a single unit that houses the washroom and electrical components needed for this pilot program. It is noted with an 'X' on the roof of the container. These options are provided for illustration purposes only. A more detailed design will be required in order to establish a Container Market within the Town of Petawawa.

All options include the following features:

- Internal "mall" for sense of enclosure
- Second level containers for signage
- A roof element
- A platform and defined paving area.

All of the features listed above must be provided and will need to be tailored to address actual site conditions and meet an established budget. The goal of the container market is to provide a community hub, a place where visitors can gather and enjoy a variety of shops, food and beverage vendors as well as open spaces that have potential for community programming and events.

PREFERRED CONCEPT: RANDOM CONFIGURATION

For the Town of Petawawa’s test site, it was determined that the Random Configuration was the preferred design layout. This option provides the greatest number of design opportunities within the development and it uniquely addresses the site orientation along the Algonquin Trail and the recognition that the development will eventually be located on a corner once the extension of Norman Street to Petawawa Boulevard is completed.

As with all proposed design options, the parking is provided in the back portion of the site where a potential future brick and mortar construction could be located. The utilities are brought into the site at a point that is close to the property line and that is easily extended for the future permanent building.

Access into the container market is clearly visible from both the parking lot and street frontages. Glazing is maximized from the street and upper containers are used to landmark the container market.

Site Plan



Aerial View to South



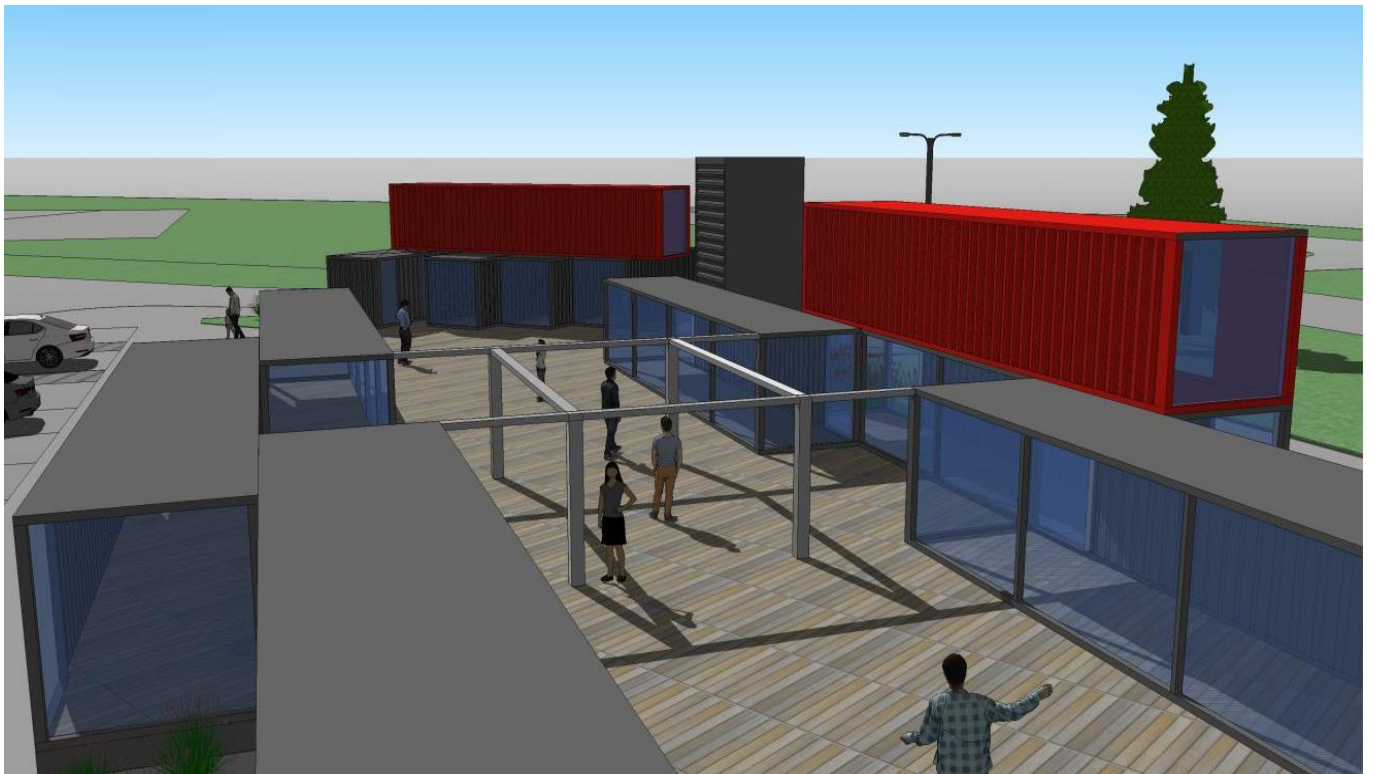
Aerial View Eastward into Container Market



Aerial View to North



Aerial View Northward into Container Market

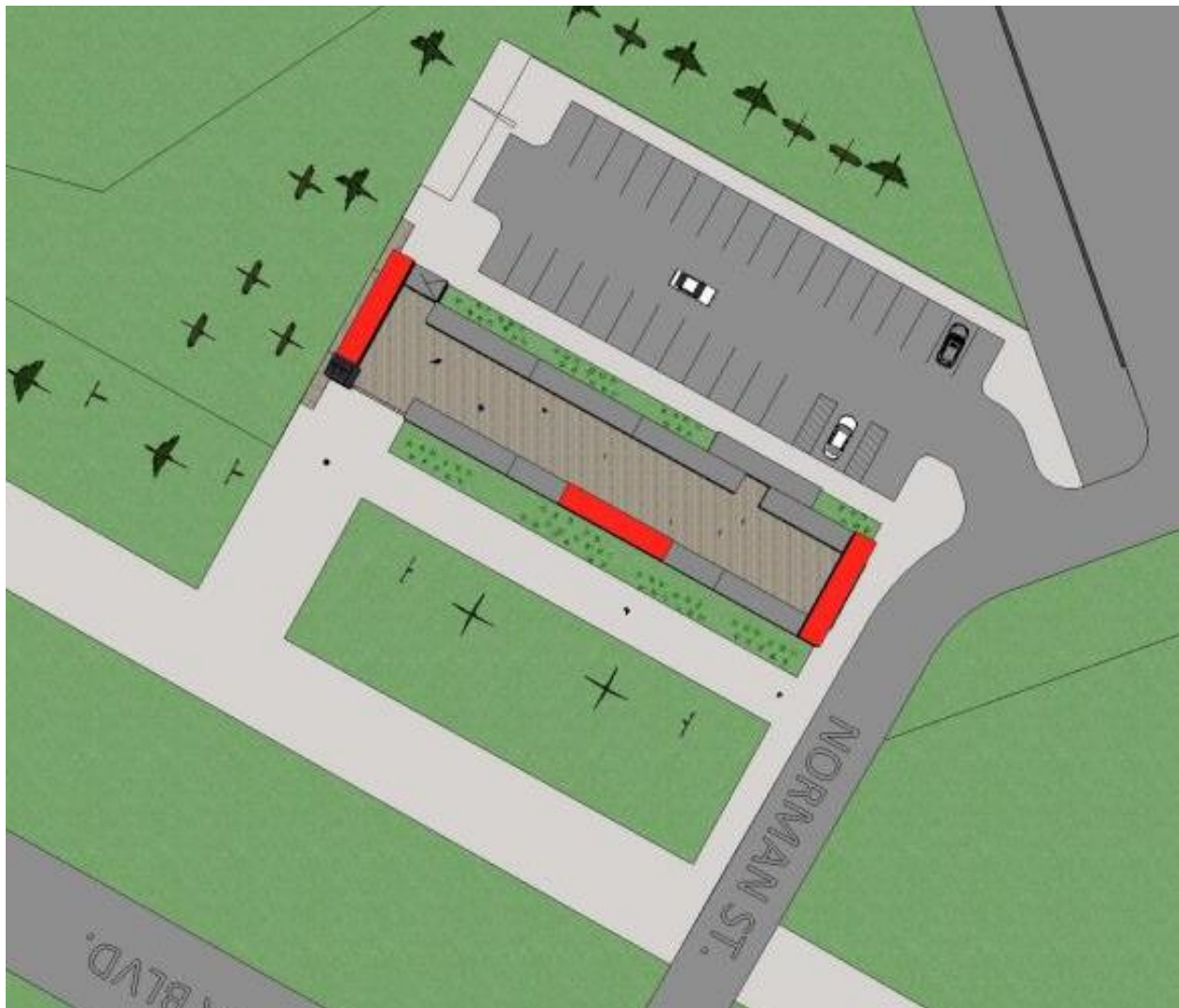


ALTERNATIVE CONCEPT ONE: LINEAR CONFIGURATION

The linear configuration is a simple arrangement where the containers are placed end to end. It creates an image similar to that of resting train cars, which would have existed in the station that was once located on the railway bed now occupied by the Algonquin Trail.

Second level containers are strategically located to act as signage and a marker for the container market. This is an efficient layout that purposely shows some of the limitations to this concept to generate economic efficiencies, such as limiting the number of openings into the market area. However, improvements to the shortcomings will lead to a design that becomes similar to the recommended option.

Site Plan



Aerial View Eastward



Aerial View Northward



Aerial View Eastward into Container Market

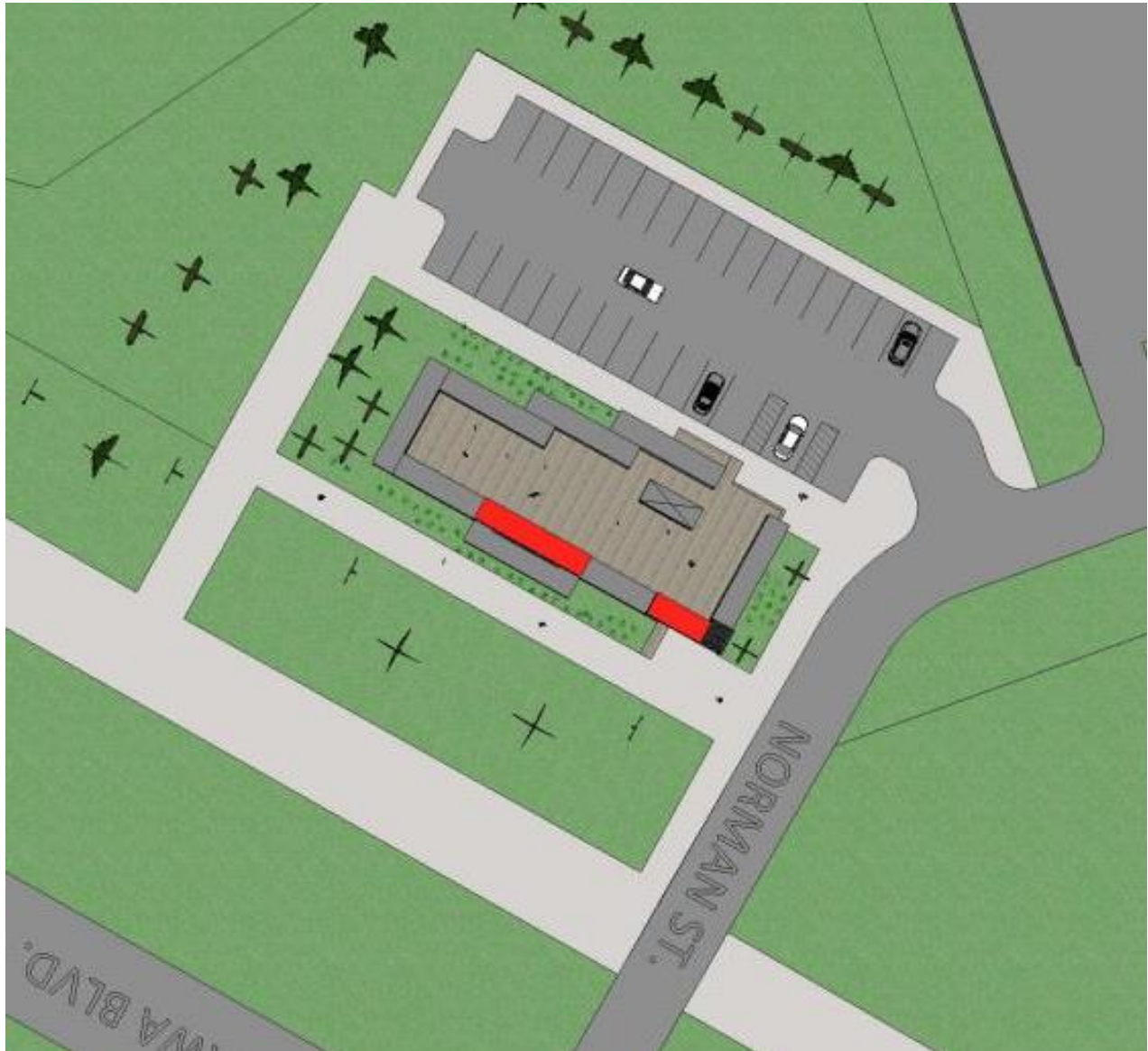


ALTERNATIVE CONCEPT TWO: U-SHAPED / STAGGERED CONFIGURATION

The U-shaped / Staggered configuration arranges containers in a U-shaped, open at one end, with the containers staggered on one side to accentuate the U-shape. The market becomes focused towards the narrow end, however at the wide end the ability to add freestanding containers that begin to create internal streets adds a level of interest and opportunities for discovery within the market.

Like the previous options, second level containers are strategically located to landmark and act as signage for the container market. Options for unique design features are abundant in this configuration.

Site Plan



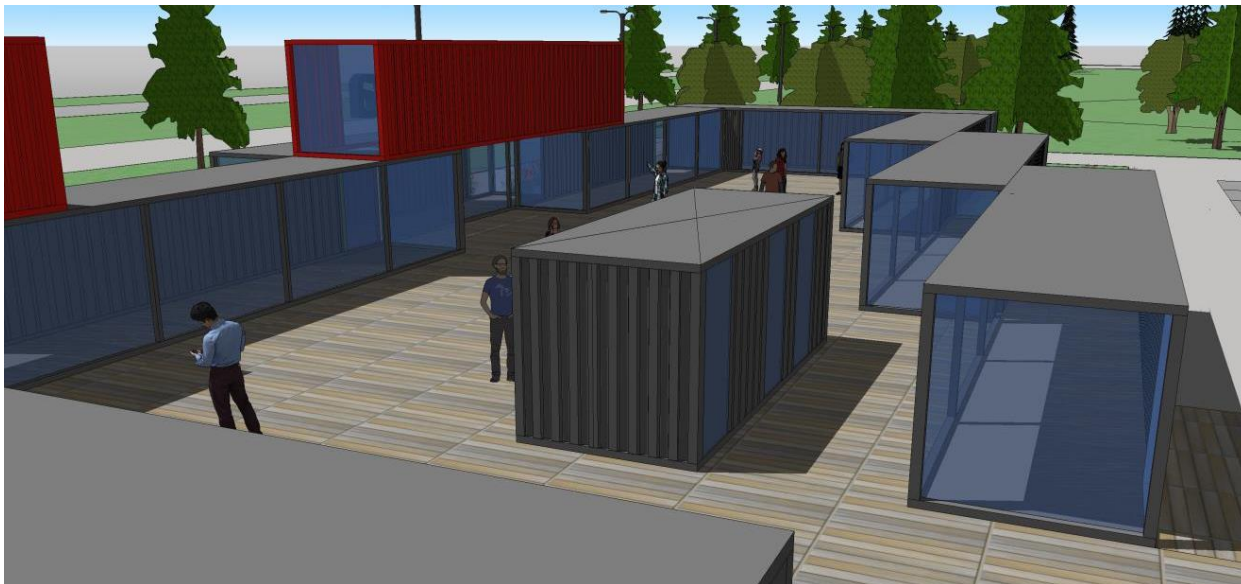
Aerial View Northward



Aerial View Westward



Aerial View Eastward into Container Market



5.0 BUSINESS CASE

The goal of the pilot container market project is to provide affordable and temporary commercial rental units to support local start-up businesses that either do not want or cannot afford larger more traditional commercial spaces.

It is understood that the development of a container market is a business endeavour. In order for an organization to undertake such a new venture an analysis of the expenses and potential revenue returns need to be evaluated. Below is a spread sheet of probable cost and revenue to start a basic container market.

This proforma is very general in nature and uses ballpark historical data for a number of construction expenses. The costing has been shown as capital costs, development costs and annual operating costs. Costs for container purchase and alterations is based on internet information. The Cost scenario provided is based on a 10 container market to closely reflect the test market design. It does not provide costs for upper level containers, containers that are used strictly in a decorative nature, roofing elements or site furniture. However a unit rate or one time cost can be added to the capital costs for these additional features. Given that this proforma is not developed from any detailed drawings or for a particular site the cost cannot be guaranteed for accuracy and are intended to show that the development of a basic container market can be viable.

The Revenue scenarios are based on a daily rental rate of an entire forty foot container. If a container is subdivided the rental rate would be prorated based on area. Various daily rental rates are shown for developments using different numbers of containers.

The 10 container market is highlighted to compare the revenues against the costs.

For consistency the payback scenario is based on a 10 unit market at a 15% profit rate. Profit is viewed as a cost to generate the total revenue required to make a container market a viable business venture. To determine the Daily rental rate and the minimum time needed for the container market break even, the value shown in the Required Annual Revenue column, is compared to the Adjusted Revenue column with an amount that exceeds the Required Annual Revenue amount. The Daily Rental Rate will also be influenced by what the market is willing to pay for a unit.

Assuming that the market will provide lower rental rates will then cause a longer breakeven time.

It must be noted that comparing a container market directly with commercial lease rates based on area will not result in comparable numbers. It must be remembered that the businesses that a container market attract do not want or need the minimum area a commercial lease would provide. Therefore, although the lease rate per square foot is greater in a container market the total cost remains less.

Container Market Costing

The container market costing is simply a sample checklist of potential expenses.

The capital costs will vary depending upon the overall design of the container market site. The type of hard surfaces provided for parking areas, the types of services to the development and whether or not foundations are required. It will be up to the individual developer to determine their vision for the container market site while meeting the Town pilot container market development guidelines.

Staff are committed to liaise with developers, review their concepts and work towards the establishment of a successful and cost effective development.

CONTAINER MARKET COSTS

CAPITAL COSTS			
Container Purchase (min. fit-up/modifications)	10	\$ 20,000.00	\$ 200,000.00
Washroom Container	1	\$ 50,000.00	\$ 50,000.00
Parking Lot	1	\$ 50,000.00	\$ 50,000.00
Sewer Service	1	\$ 50,000.00	\$ 50,000.00
Water Service	1	\$ 10,000.00	\$ 10,000.00
Electrical Service	1	\$ 10,000.00	\$ 10,000.00
Platform	1	\$ 50,000.00	\$ 50,000.00
Foundation Treatment	40	\$ 400.00	\$ 16,000.00
Electrical Distribution	10	\$ 500.00	\$ 5,000.00
Contingency	1	\$ 44,100.00	\$ 44,100.00
DEVELOPMENT COSTS			
Site Plan Control	1	\$ 20,000.00	\$ 20,000.00
Development Fees	1	\$ 1,600.00	\$ 1,600.00
Building Permit (\$1.11/ft. ²)	10	\$ 3,200.00	\$ 3,552.00
Consulting Fees	1	\$ 25,000.00	\$ 25,000.00
Contingency	1	\$ 5,015.20	\$ 5,015.20
Subtotal			\$ 540,267.20
Simple Amortized Cost			
3yr			\$ 180,089.07
4yr			\$ 135,066.80
5yr			\$ 108,053.44
6yr			\$ 90,044.53
ANNUAL OPERATING COSTS			
Interest	1	\$ 25,000.00	\$ 25,000.00
Snow removal services	1	\$ 5,000.00	\$ 5,000.00
Garbage removal	1	\$ 1,500.00	\$ 1,500.00
Insurance	1	\$ 5,000.00	\$ 5,000.00
Electricity	10	\$ 600.00	\$ 6,000.00
Miscellaneous repairs	1	\$ 5,000.00	\$ 5,000.00
Taxes	1	\$ 5,000.00	\$ 5,000.00
Subtotal			\$ 52,500.00
Total (Year 1 costs)			\$ 592,767.20

ANNUAL REVENUE SCENARIOS

(Daily Rate for 40 Foot Containers)

Rent/day/ container	Days/ Year	No. Containers	Gross Rev	Adjusted Revenue 80% Occupancy
\$55.00	365	5	\$ 100,375.00	\$ 80,300.00
\$55.00	365	10	\$ 200,750.00	\$ 160,600.00
\$55.00	365	15	\$ 301,125.00	\$ 240,900.00
\$55.00	365	18	\$ 361,350.00	\$ 289,080.00
\$65.00	365	5	\$ 118,625.00	\$ 94,900.00
\$65.00	365	10	\$ 237,250.00	\$ 189,800.00
\$65.00	365	15	\$ 355,875.00	\$ 284,700.00
\$65.00	365	18	\$ 427,050.00	\$ 341,640.00
\$75.00	365	5	\$ 136,875.00	\$ 109,500.00
\$75.00	365	10	\$ 273,750.00	\$ 219,000.00
\$75.00	365	15	\$ 410,625.00	\$ 328,500.00
\$75.00	365	18	\$ 492,750.00	\$ 394,200.00
\$90.00	365	5	\$ 164,250.00	\$ 131,400.00
\$90.00	365	10	\$ 328,500.00	\$ 262,800.00
\$90.00	365	15	\$ 492,750.00	\$ 394,200.00
\$90.00	365	18	\$ 591,300.00	\$ 473,040.00
\$100.00	365	5	\$ 182,500.00	\$ 146,000.00
\$100.00	365	10	\$ 365,000.00	\$ 292,000.00
\$100.00	365	15	\$ 547,500.00	\$ 438,000.00
\$100.00	365	18	\$ 657,000.00	\$ 525,600.00

PAYBACK SCENARIOS

Total Costs*		Profit (15%)	Required Annual Revenue	Min, Day Rate/ per container
3yr	\$ 687,267.20	\$ 790,357.28	\$ 263,452.43	\$100/day
4yr	\$ 736,267.20	\$ 846,707.28	\$ 211,676.82	\$75/day
5yr	\$ 785,267.20	\$ 903,057.28	\$ 180,611.46	\$65/day
6yr	\$ 834,267.20	\$ 959,407.28	\$ 159,901.21	\$55/day

* Capital Cost + Annual Operating Costs