Hamilton

TRANSIT ORIENTED DEVELOPMENT GUIDELINES

CITY OF HAMILTON

BACKGROUND PAPER ON TRANSIT ORIENTED DEVELOPMENT

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1.0 Introduction

Transit Oriented Development (TOD) guidelines have been developed for the City of Hamilton. These guidelines have been prepared in two separate volumes. This background paper is Volume 1 of a two volume document and discusses the principles of Transit Oriented Development (TOD). Common practices/ elements of TOD are detailed, as well as a summary of the challenges and opportunities associated with implementing TOD. Finally, this paper presents a set of implementation tools and strategies to facilitate the application of TOD in Hamilton.

The accompanying guidelines form Volume 2 and present a visual representation of TOD principles and how they may be implemented in Hamilton. Real sites have been used as examples of what a full build-out of TOD may look like. However, while full build-out of sample site is shown for illustrative purposes, actual implementation of TOD will occur incrementally and over time. TOD guidelines from many jurisdictions were reviewed and referenced in the development of TOD guidelines for Hamilton.

1.1 What is Transit Oriented Development?

As municipalities concentrate efforts on increasing transit ridership, the connection between land uses, built form, and transit is gaining attention. Research and practical experience from jurisdictions across North America highlight the positive impact transit supportive land uses can have in facilitating transit access, thereby incorporating transit into the urban fabric. Integrating transit and land use facilitates increase connectivity and encourage overall transit ridership bringing many potential benefits, such as reduced traffic congestion.

While several strategies for incorporating transit and land use exist, a common method employed by several jurisdictions is Transit Oriented Development (TOD). Although there is no one definitive definition of TOD, it is generally accepted that the core components of TOD include "compact, mixed use development near transit facilities with high-quality walking environments[1]". Another key component that sets TOD apart from traditional/regular development is an increased emphasis on denser mixed use areas with a high degree of activity[2].

The application of TOD may vary across different jurisdictions but should always include the core components of compact, mixed use, highly pedestrianized areas with connections to transit. Civic and public spaces are also key components of TOD areas. TOD should not simply be an assembly of buildings around a transit node. It is important that TOD contribute to creating a community by enhancing a neighbourhood, thereby creating an environment which allows people to drive less and offers them the choice to take transit[3].

TOD is an overall approach to development. Simply locating near transit does not make an area oriented towards transit. Areas which are simply located adjacent to transit without adhering to TOD principles are know as Transit Adjacent Development (TAD)[4]. Unlike TOD areas, TAD areas do not integrate land uses and transit facilities well. Merely locating beside a transit line does not promote vitality or a pleasant walking area. Land uses have to interact with the transit and provided direct access to and from station areas. For example, Figure 1 highlights the differences between Transit Oriented Development and Transit Adjacent Development.

1.1 What is Transit Oriented Development? (Continued)

Figure 1: Example of Transit Oriented Development vs. Transit Adjacent Development

TOD: compact, dense, and walkable
(Ontario Growth Secretariat, Ministry of Energy and Infrastructure)

TAD: not pedestrian friendly, limited connectivity

In the TOD example above, people can step out from their place of business and have direct access to the transit stop. In the TAD example people must cross a parking lot in an unpleasant pedestrian environment to access the transit station.

The components of TOD are not new; several areas built prior to World War II were built with elements supportive of TOD. These include a range of residential densities, building layouts, and pre-existing transportation options[5]. It is only during the post WWII era where a car dominant culture emerged encouraging development which was less transit supportive. The movement to encourage transit supportive land use is to provide more balanced transportation choices so that travel by transit or active transportation (e.g. walking, cycling, etc.) can be as viable as driving.

1.2 Function of TOD Guidelines

Several municipalities have chosen to encourage TOD as a means of promoting development which is more transit supportive, and to support larger transit investments such as rapid transit. To communicate the goals and principles of TOD, municipalities often create TOD guidelines which serve to illustrate what and how development should proceed to encourage a better integration of land use and transportation. While policies and regulation already exist in Official Plans and Zoning By-laws, TOD guidelines serve as a user friendly guide showing the components that should be part of developments and redevelopments. Guidelines are a useful tool to implement exiting policy.

The accompanying TOD guidelines (Volume 2) will complement existing City land use policies and programs. In addition to the Urban Hamilton Official Plan, comprehensive secondary planning and node and corridor studies will need to be completed for some of the node and corridor areas identified in the Official Plan. The accompanying TOD guidelines (Volume 2) will serve as a reference and guideline document to help inform future secondary plans, and the design of future location of transit station areas. For areas outside of new secondary plans, these TOD guidelines can also aid in the review of development applications to ensure transit supportive land uses are applied consistently across the City.

1.3 Why Implement TOD Policies/Guidelines?

Municipalities across North America are adopting TOD guidelines as a means of encouraging better development in their communities and enhancing the liveability and quality of life for their residents. Because of the wide range in forms of TOD, even traditionally car-dominant cities have moved to implement TOD guidelines.

To attract appropriate forms of development and increased transit ridership, supportive policies and zoning must be in place[6]. Good TOD will likely not happen without proper planning thus, TOD guidelines can serve as tool to guide implementation of existing policy in a transit specific context[7]. The presence of guidelines ensures that the appropriate questions are asked and the development of new policies is based on proper principles.

Financial Opportunities

New transit services and stations are often constructed ahead of the market[8]. TOD guidelines can help facilitate and send a signal to the market about the kinds of development that are appropriate for creating a transit supportive environment. Furthermore, as municipalities invest in transit systems, especially higher order systems, it is important that the municipality leverage the benefits of such systems due the high cost of new transit services. Such benefits can include increased property values or more efficient delivery of transit service. Ensuring appropriate land use near transit can help ensure that new and existing transit lines will be well used and that the full potential benefits are realized. TOD focusses transit supportive land uses around transit stations to best capitalize on public investment[9].

Also important are quality of life and liveability considerations. What is best financially, is not always the best use for a neighbourhood, Thus, a balanced and fair approach must be taken for TOD implementation. Guidelines can provide the balance needed in informing development and policy decisions[10].

1.3 Why Implement TOD Policies/Guidelines? (Continued)

Demographics

There is a growing demand for people wishing to have the option to walk more and drive less[11]. There is also an increasing interest from various segments of the population to live closer to the centre of the city. For example, in Portland Oregon, TOD areas are attracting older adults who want to live in walkable accessible areas in close proximity to many amenities[12]. TOD guidelines encourage additional housing and walkable areas which can satisfy both of these demands. TOD has also been a key component in several American cities for stabilizing growth or even leading to population increases in areas near rapid transit[13]. Maintaining or enhancing several of the neighbourhoods near proposed new transit routes in Hamilton is supported by new policy and zoning directions. TOD will help achieve these goals.

Demographic shifts are also leading to a change in demand for a wider variety in housing forms. It is anticipated that growing elderly/senior age cohorts and trends towards smaller household sizes will drive the demand for smaller housing units and make the achievement of higher densities possible. Encouraging TOD can help accommodate a growing market for a more urban style housing product in mixed use, walkable areas in close proximity to transit[14]. Ultimately, TOD is about providing option, and choices, TOD guidelines can help provide further direction and encourage compatible development.

1.4 Goals of TOD

The goals associated with TOD are often similar to the city wide goals and direction many cities would like to achieve. Hamilton, like many other cities, details its goals though a city-wide strategic plan. Key goals include growing the economy and creating healthy communities. Similarly, the goals and principles of the Urban Hamilton Official Plan include creating compact complete communities and the integration of land use and transportation. The Urban Official Plan further details targets for greenfield density as well as residential intensification. The general principles and goals of TOD are consistent with what the City of Hamilton would like to achieve and offers tools and strategies to help achieve them.

The most common and prominent goals of TOD include:

- Increase overall transit use (make transit more attractive);
- Promoting mixed use environments;
- Encourage increased density and compact urban form;
- Creating vibrant, attractive and “complete communities[i]”;
- Encouraging a mix of incomes[15] ;
- Strengthen property values; and,
- Increasing non automobile modes of transportation.

[i] The Provincial Places to Grow Plan defines compete communities as “A land use pattern that encourages efficient use of land, walkable neighbourhoods, mixed land uses, proximity to transit and reduced need for infrastructure. Compact urban form can include detached and semi-detached houses on small lots as well as townhouses and walk-up apartments, multi-story commercial developments and apartments for office above retail.

Ultimately an important goal of transit oriented development is to create places that function differently from traditional development. TOD projects should capitalize on interactions that result from integrating land use and transit[16]. Eventually such integration can result in reduced auto dependency, which in turn leads to other benefits.

1.5 Benefits of TOD

There are several reasons why a municipality would want to develop TOD guidelines and encourage TOD in a city. One of the primary benefits of TOD is the potential to increase walkable communities and better access to other non-automobile modes of transportation (this can also help alleviate some traffic congestion)[17]. Other primary benefits include:

- The potential to revitalize neighbourhoods;
- Improving the quality of urban design;
- Adding a potential increase in value to those who own land and businesses near transit stops;
- Increased variety of housing choice; and,
- Increased supply of affordable housing (by providing a variety of tenure types).

These potential benefits are a result of bringing together enough people to create a 'critical mass' and demand for transit. It is also important to note that many of the people who live in TOD areas are not transit dependent[18]. Increasingly, people are choosing to live in transit supportive areas so that they can walk and meet most of their daily needs without the daily use of automobiles. The compact nature of TOD allows for amenity rich areas. The same compact urban form helps make transit more attractive and viable. People are drawn to these areas because of the convenient access and high level of services offered in one convenient place.

Studies have shown that locations near transit can increase property values, demand rent premiums, and can create an increased potential for development opportunities[19]. Furthermore, compact development can contribute to better overall quality of life, less automobile dependency, and promote pedestrian oriented areas[20]. Fewer cars and more people walking will have direct environmental and health benefits. However, TOD will not replace automobiles (nor is that the goal) as they will still be necessary for some activities. TOD areas with a concentration of amenities do, however, provide more choice and variety for neighbourhoods.

While there is often fear of compact urban form, many of the perceived attributes of density can be addressed through good quality design and good planning. Proper siting of uses, appropriate scale, and compatibility can mitigate many of the concerns people have of higher density or compact design. Such mitigation factors are further discussed in Section 7.0, Implementation of TOD Guidelines.

1.6 Application of TOD in Hamilton

TOD can be applied in Hamilton to support new transit infrastructure investments or to support existing transit. In conjunction with existing policy, TOD guidelines add additional direction for reviewing development applications and will inform future secondary planning projects. TOD guidelines will be a flexible reference document rather than a regulatory document.

New investments in transit infrastructure (such as rapid transit) will be costly, thus the City should not allow development that does not support transit whether in scale, design, or function. TOD guidelines can be the tool used to ensure a consistent application of policy and ensure development proposed near transit facilitates encourages, rather than discourages, transit use. TOD guidelines can also ensure the scale of development is consistent with the level of transit service provided or proposed in the future.

Volume 2 of the TOD guidelines shows illustrations of how the principles of TOD may appear in practice. Sample sites were chosen to provide examples of how TOD may look in Hamilton. However, TOD implementation will occur incrementally and at times sporadically. Benefits may only be realized in pockets or very localized areas rather than region wide[21]. Timing of development is dependent on market conditions and may be tied to timing of transit upgrades. While this document (Volume 1 and 2) displays full build-out of potential TOD areas, it will take many years to achieve full TOD potential.

2.0 EXISTING POLICY FRAMEWORK

TOD guidelines are an extension of the direction in existing policy rather than a replacement. While policy and regulations are more prescriptive (what must be done), guidelines offer more flexibility. In addition to common practices and other research related to TOD, the TOD guidelines are also based on direction from the existing policy framework. Detailed below are some of the policies and concepts which informed the development of the TOD guidelines.

2.1 Provincial Directions

2.1.1 Growth Plan for the Greater Golden Horseshoe (2006)

The Growth Plan for the Greater Golden Horseshoe is the Province of Ontario's long range plan for growth in the Greater Golden Horseshoe area. The Plan establishes high-level policy on transportation, infrastructure, land use planning, urban form, housing, natural heritage, and resource protection in the interest of promoting economic prosperity for Ontario's future. The Growth Plan does not have specific TOD policies, but calls for a greater integration between land use and transportation. For example transportation is a key component of facilitating the anticipated growth in the GTHA and can be used to accommodate the higher densities and more compact urban form which is required throughout the Growth Plan. The Growth Plan also requires that, by 2015, 40% of new residential development is to occur within the built-up area. TOD can be used as a tool to both encourage intensification as well as a guide to direct intensification projects (i.e. provide direction on what components should be included in intensification projects). TOD is thus an appropriate means to implement Growth Plan requirements for various areas throughout the City.

2.1.2 Provincial Policy Statement (2005)

The Provincial Policy Statement (PPS) provides policy direction in land use planning that is of provincial interest. Transportation related policies in the PPS (Section 1.6.5) require municipalities to provide a transportation system, using existing and planned infrastructure, that is safe, efficient, and has high connectivity. Further policies state that transportation should be a consideration at all stages of the planning process. Furthermore, the PPS states that the land use pattern, density, and mix of uses should be appropriate to allow for transportation mode choice and to facilitate public transit. Thus, TOD principles are consistent with the transportation policies outlined in the PPS.[22]

2.1.3 Metrolinx

In 2008, Metrolinx released the "The Big Move", a Regional Transportation Plan (RTP) for the Greater Toronto and Hamilton area (GTHA). Increasing transit and access to transit is a primary focus of the (RTP). The plan outlines priority areas for future and existing transit. The RTP identified new rapid transit lines for Hamilton running east-west and north-south in the City, coinciding with the corridors identified in Hamilton's new Urban Official Plan. The Big Move was directed in part by several 'green papers' highlighting best practices in various aspects of transportation planning. One of these papers focused on the integration between land use and transit. To facilitate development of transit in GTHA the Big Move highlights the need to integrate transportation and land use. Further more, the Plan itself conforms to and implements many provincial land use related policy documents such as the Provincial Policy Statement 2005 and the Growth Plan for the Greater Golden Horseshoe.

2.2 Municipal Directions

2.2.1 Vision 2020

The implementation of TOD guidelines is consistent with Vision 2020's theme of "Changing Our Mode of Transportation". This theme identified two transportation related goals:

1. To develop an integrated sustainable transportation system for people, goods and services, which is environmentally friendly, affordable, efficient, convenient, safe, and accessible.
2. To encourage a shift in personal lifestyle and behaviour towards transportation choices that enhance personal health and fitness, save money, and have the lowest environmental cost.

Developing TOD areas helps meet these goals by providing opportunities for people to choose alternative modes of transportation. TOD offers more sustainable choices in housing and facilitates healthier lifestyles by providing walkable neighbourhoods and reducing air pollution from cars.

2.2.2 Corporate Strategic Plan

Encouraging the development of TOD is consistent with the City's Corporate Strategic Plan. The Corporate Strategic Plan focusses on 'Growing our Economy'. TOD addresses that focus area by encouraging areas of the City to be more attractive to investors and helping to achieve the growth targets of GRIDS and the Provincial Growth Plan.

TOD also contributes to the 'Healthy Community' focus area by increasing the activity of City residents through the creation of pedestrian focused areas. TOD also directly contributes to increasing the "alternative transportation" usage by promoting transit and active transportation.

2.2.3 Urban Hamilton Official Plan & Growth Related Integrated Development Strategy (GRIDS)

Policies of the Urban Hamilton Official Plan encourage development around transit and land use and transportation planning integration. The various sections and policies that address transportation and transit are further detailed in Appendix A.

In general, the future urban structure described in the Urban Hamilton Official Plan refines the nodes and corridors identified in GRIDS, the City's growth management strategy. The urban structure policies outline the relationship between a more compact urban form and transit within the urban nodes and corridors structure of the City. Density ranges are provided which support TOD and transit use in general. The densities and heights identified in the Official Plan will be refined during various secondary planning processes though the minimums are transit supportive.

In addition to the node and corridor areas, the Urban Hamilton Official Plan also provides policy direction for all land uses where TOD principles could apply. Furthermore, the urban design policies (Section B.3.3) are also consistent with many TOD principles such as:

- Creating pleasant pedestrian environments;
- Bringing buildings up to the street front; and,
- Encouraging parking to locate at the rear of buildings.

While the design policies apply across the City, the TOD guidelines build on the Official Plan policies and provide a transit focused context of design to identified TOD areas (See section 4.0). The transportation policies of the Official Plan are also consistent with the TOD guidelines promoting transit, active transportation, and greater integration of land use and transportation infrastructure. The TOD guidelines take direction from various parts of the Official Plan and details what is required for TOD in a user friendly format. Thus the TOD guidelines can help implement some of the direction detailed in the Official Plan and GRIDS relating to the integration of transit and land use planning.

In conjunction with the Official Plan, TOD guidelines and can help inform the final decision on heights, density, and design. Such final decisions are often made in Secondary Plans which provide more detailed and specific policy on land use and other matters for a defined geographic area. While the TOD guidelines are generally consistent the Official Plan policies, future amendments can be implemented, if necessary , to achieve the heights, density, and design required for TOD. A further analysis of implementation is discussed in Section 7.0.

2.2.4 Transportation Master Plan

The Transportation Master Plan (TMP)(2007) outlines the overall vision and implementation plan for all modes of transportation over the next 25 years. The Plan emphasises a better integration of land use and transportation planning, consistent with TOD principles. The implementation of TOD would improve access to transit and provide more transportation options by making areas in the City more wakable and bikable.

2.2.5 Zoning

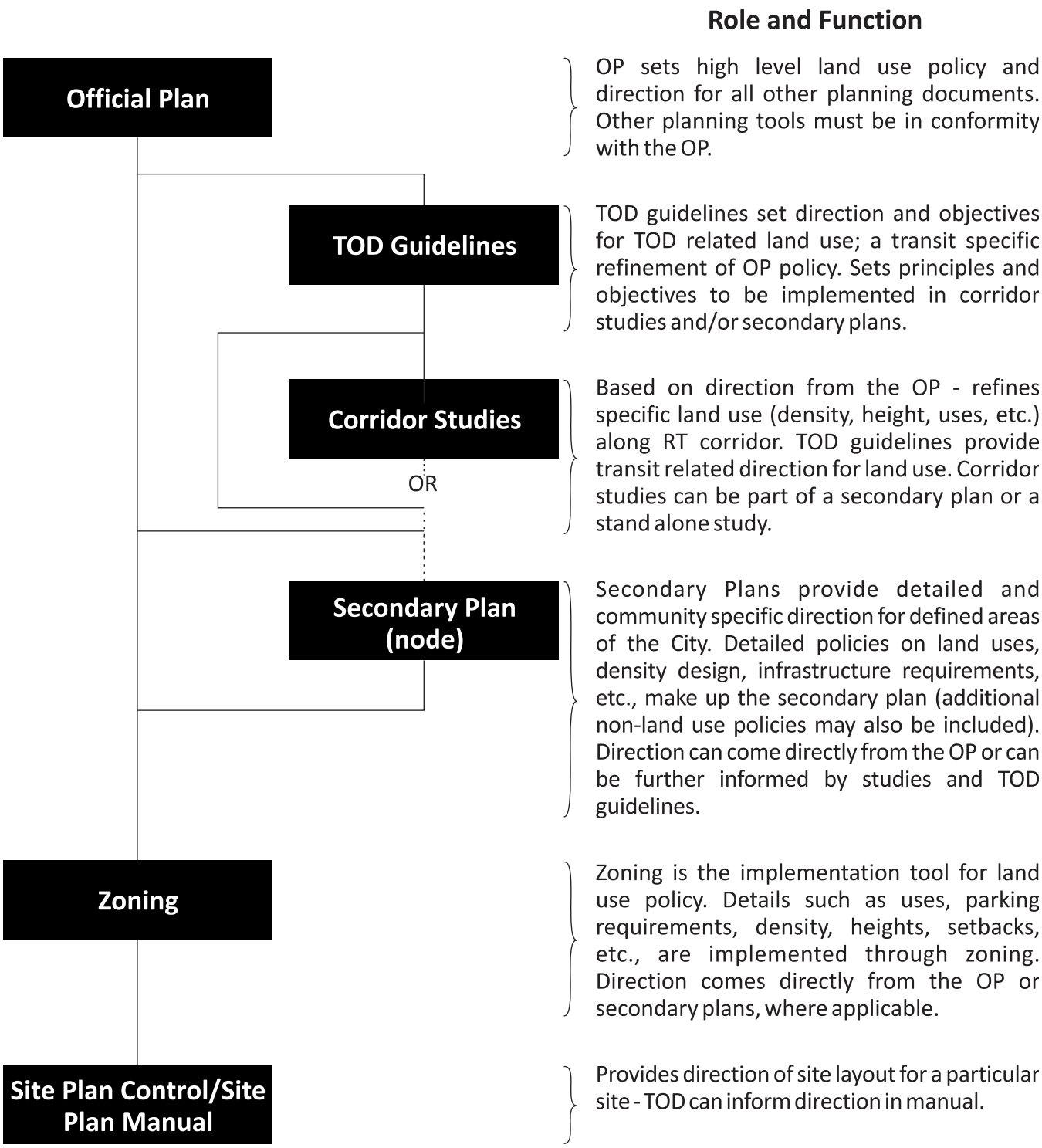
Zoning will be among the most effective means of implementing TOD. As the new Zoning By-law is being completed, it will take direction from the new policies of the Urban Hamilton Official Plan as well as implementing transit supportive regulations. Zoning is very important as it serves as the “on-the-ground“ application of the City’s policies.

2.2.6 Site Plan Guidelines

The Site Plan Guidelines are used to ensure that sites are developed in a consistent and appropriate manner across the City. The Site Plan Guidelines address a wide spectrum of issues including site design issues involving pedestrian and traffic movement and access issues. The guidelines also contain provisions for design elements which make a site more attractive and contribute to place making such as public art. The Site Plan Guidelines address and provide direction on several topics including site context, site design, building design, and areas of special character. The guidelines are thorough and address various aspects of site design from pedestrian access and circulation, to the placement of parking and building design. Figure 2 further details the relationship between TOD guidelines with other City land use policy documents.

2.0 EXISTING POLICY FRAMEWORK

Figure 2: Role and Function of Different Planning Documents/Tools



2.3 Other Strategies and Studies

Various other strategies, studies, and implementation activities provided further direction to the TOD Guidelines.

2.3.1 Rapid Transit Planning

The City is engaged in planning for higher order rapid transit service along key corridors in the City. Several studies have been completed or are underway as part of this rapid transit initiative. The need to integrate land use direction with transportation planning is a common element of several of the rapid transit background studies. For example, the Rapid Transit Feasibility Study (May 2008) indicates that the success of the transit system not only depends on the transit services, but on the policies that support it such as those governing land use planning[23].

Other rapid transit studies completed for the City have found that there are several social and environmental benefits to increasing transit use and creating pedestrian-centric environments. TOD is a viable and proven method of creating such environments which contribute to the benefits of reduced urban sprawl and promoting compact attractive environments.

2.3.2 Other Strategies

In addition to the Transportation Master Plan, the City is also involved in several Transportation Demand Management (TDM) initiatives. TDM can be used to shift transportation demand from automobiles to other forms of transportation. Initiatives that encourage more walking or carpooling reduce the demand on automobile traffic. TOD can be a component of TDM by promoting environments where transportation options are realistic, thus reducing the demand for automobile based travel. Programs and initiativs such as TDM, in conjunction with the comprehensive Zoning By-law and TOD Guidelines, will work together to create the physical built form aspects that encourage non-automobile based travel. Having the proper built-form and land uses allows programs such as “Smart Commute” and other TDM programs to work more effectively.

3.0 TOD PRINCIPLES

At times, TOD can take on various forms depending on location and site context. It can become difficult to differentiate between a transit oriented development and a conventional development. Therefore, all TOD areas should be developed according to a common set of principles to ensure consistency in the application of the core elements of TOD[24]. As long as new TOD developments are based on the core principles, minor modification and context specific changes can still be made when developing TOD areas[25].

Success in TOD can also be subjective. While some view mixed uses as a measure of success, others may view an increase in transit use to be a better measure[26]. Adherence to TOD principles can be the ultimate test to determine if a particular development or new policy is supporting transit and improving the living environment. While TOD will not solve all issues in the City, higher densities coupled with a transit focus will allow users easier transit access and better connections to walking and cycling, thus providing greater choice and flexibility[27].

A set of TOD principles forming the foundation of the TOD Guidelines has been developed. The principles are based on research, best practices, and applications in other municipalities. The principles are framed to be applicable in Hamilton's context. Based on best practices, a set of ten principles is presented for Hamilton as the basis of the TOD Guidelines. The ten TOD principles are:

1. **Promote Place Making - Creating a Sense of Place**
    - TOD areas should be memorable and of a human scale
    - Focus on promoting liveability, quality, and uniqueness of each space
2. **Ensure A Mix of Uses/Appropriate Land Uses**
    - Mixed uses, but not necessary in the same building
    - Appropriate range of uses fitting for each particular spot
    - Get the "bones" right - plan for long term and multiple uses
3. **Address Parking Management**
    - Control how much and location of parking
    - Ensure appropriate balance
4. **Focus on Urban Design**
    - Orientation of buildings
    - Manage look, feel, and scale
    - Ensure high quality and attractive design
5. **Create Pedestrian Environments**
    - Related to urban design (improve connectivity)
    - Ensure accessibility and mobility for all
    - Easily walkable, safe, and attractive streets

6. **Require Density and Compact Urban Form**
    - Ensure sufficient density to make transit viable
    - Compact form improves walkability (related to pedestrian movement)
    - Density and compact form improves efficiency (services, infrastructure, etc.)
7. **Respect Market Considerations**
    - Plans should be ambitious but feasible
    - TOD areas should promote value recapture (utilize increased land value)
    - Promote private sector 'buy-in' and investment
8. **Take a Comprehensive Approach to Planning**
    - TOD plans, and areas should be aligned with greater regional goals
    - Contribute to greater connectivity
    - Local TOD areas layered to create a larger system linked to greater planning objectives and transportation plans
9. **Plan for Transit and Promote Connections (for all modes)**
    - TOD principles should be applied in station areas and corridor planning
    - Transit is the key driver in TOD planning and should be addressed and accommodated in all aspects of TOD planning/design
    - TOD areas should make connections to other modes where appropriate and improve connectivity to the larger City-region
10. **Promote Partnerships and Innovative Implementation**
    - Partnerships leverage different groups (private, public, community) strengths
    - Promote community/investor "buy in"
    - Ensure sensitivity/compatibility with surrounding uses

By ensuring that new developments adhere to the above principles, the City can be sure that TOD areas will be meeting the goals of TOD. The principles promote liveable and attractive environments. TOD areas that follow the principles allow the best opportunities for people to easily access work near transit in amenity rich areas.

4.0 HIERARCHY AND DEFINING TOD AREAS

Generally, TOD can be applied across the entire urban area of Hamilton where transit service is offered (or planned in the future). However, there are specific areas where TOD principles are most appropriate and have the greatest impact. Typically, targeted TOD areas are located in an influence area comprised of an approximate 5-10 minute walk of transit stations/stops and corridors[28]. Targeted TOD areas are further defined based on a hierarchy of TOD of differing scales relating to nature and function of the given area. These different TOD areas or TOD typologies have slightly different standards in order to implement TOD according to function. TOD typologies typically range from dense highly mixed land uses of a Downtown, to the transit focused but low level of transit service of suburban or greenfield areas[29].

An example of these types of TOD areas based on a hierarchy system are summarized below in Table 1.

Table 1: Five Classifications of TOD Areas Applicable to Hamilton[30]

Type of TOD	Description/Characteristics
Urban Downtown	• Civic, cultural, and employment centre • Primary transfer point • Greatest variety of uses • Many transit routes
Urban Neighbourhood	• Historic neighbourhood, surrounding the downtown - (e.g. the neighbourhood TOD's along the B-line) • Moderate to high density housing and shopping along a central road, schools and parks intergraded along the way - affordability, convenience, and vitally of more urban (Downtown) areas (i.e. a transit corridor) • Well connected block system (well connected local streets) • Several transit routes
Suburban Town Centres (suburban nodes)	• Significant employment, shopping and connections to nearby suburban areas • In proximity to subdivisions people can still take transit
Suburban Neighbourhood	• Intensification around the stop but in proximity to more single family detached dwellings • Neighbourhood or community retail • Access comes from fewer larger roads (collector and arterial road systems that provide the majority of access in and out of neighbourhood) • Two or more transit routes
Neighbourhood Transit Zone	• Typically a local transit stop - limited retail

4.0 HIERARCHY AND DEFINING TOD AREAS

The TOD typology areas are generally consistent with the hierarchy of nodes, corridors, and neighbourhood areas detailed in the Urban Hamilton Official Plan, forming the urban structure as described in Section 2.2.3.

Generally, TOD areas across the City of Hamilton can be classified into four main types of TOD areas - Urban Areas, Suburban Areas, Greenfield Areas, and Other. These four categories are further subdivided into more specific TOD areas with slight differences between them in scale and function. Table 2 (below) details the types of TOD areas and their general characteristics and function.

Table 2: TOD Typologies Applicable for Hamilton

	TOD Typology	General Characteristics
Urban Areas	Urban Node Areas: Downtown, Sub-Regional Node, Community Nodes*	• Node areas around corridor • Employment and residential functions as well as civic uses varying by scale of a node • Different levels of services for different types of nodes
	Urban Corridor Area	• Area with development potential along RT corridor
Suburban Areas	Suburban Primary Corridor Area	• Mixed use area but may be constrained by poor pedestrian connections
	Suburban Arterial Road Area	• Good potential area for greyfield intensification • Potential to facilitate bus travel
Greenfield Areas	Greenfield Node	• Undeveloped area identified as a community node • New areas to be built around transit • Will evolve over time to have the same characteristics and similar functions as an urban node*
	Greenfield Neighbourhood	• A node in the neighbourhood context incorporating - residential and local scale commercial supported by local transit
Other	Major Activity Centre e.g. Universities, Colleges, Hospitals, etc.	• High level of institutional uses, with significant transit ridership

Urban Areas

The 'Urban Areas' include some of the urban corridors and nodes identified in the Urban Official Plan as "Primary Corridors", "Downtown", "Sub-Regional Nodes", and "Community Nodes". See Appendix B for a map of the Urban Structure and associated urban structure components. These areas overlap in many cases with the proposed rapid transit route known as the B-line and part of the A-line. Some of the proposed rapid transit corridors included in this classification are King Street and Queenston Road along the B-Line and parts of James Street in the lower city along the A-Line. The B-line primary corridor will have the highest order transit in the City and should be the focus for the largest scale TOD. Nodes, such as Eastgate, will be among the highest order transit stations (as a multi-modal location) and will

likely attract the most development outside the downtown. Along the corridor, various station areas may also be potential development/redevelopment sites, although some station areas may not have a high demand for new development.

Community Nodes include traditional downtowns of former municipalities as well as areas that are currently made up of primarily community scale retail uses and a greenfield area, still to be planned. It is the intent that these non-traditional and future community nodes transform over time to contain a full range of services and functions found in the traditional community nodes. Thus the principles for urban nodes must be applied to these non-traditional and greenfield nodes. Although the Community Nodes may not be directly connected to higher order rapid transit, it is essential that TOD principles be applied at the appropriate scale to ensure these nodes develop to support local transit and achieve their planned function in the urban structure.

Suburban Areas

The 'Suburban Areas' grouping includes areas along the proposed A-line rapid transit route along Upper James Street which are more suburban compared to the lower city. Non-rapid transit routes such as those along Upper Ottawa or parts of Mohawk Road are also grouped into this type of TOD area. The design of the suburban TOD will be similar to those of the urban TOD but at a lesser scale. The long term goal is to use TOD principles to bring suburban rapid transit corridors up to a similar scale and level of transit use as presently exists in the lower city rapid transit corridor. Suburban area transit corridors can benefit from TOD at key locations such as where two main transit routes intersect.

Greenfields

'Greenfield Areas' such as new nodes or new undeveloped areas have the opportunities of being planned, designed, and developed according to TOD principles from the start. Applying TOD principles early in the planning and development of greenfield areas may help transit service and use become established sooner. With TOD principles applied, new greenfield areas can develop around transit, thus transit service is more feasible as the population and density needed to support transit becomes established over time. Greenfield areas include new neighbourhoods, including the planned greenfield Community Node. The greenfield Community Node will have the benefits of being planned according to TOD principles. Those principles will be applied to create a Node larger in scale than the greenfield neighbourhood areas.

Other Areas

The final category where TOD may be applied is in special nodes and includes areas called "Major Activity Centres" in the Urban Hamilton Official Plan. Major activity centres have many potential transit riders due to the presence of health centres, colleges, and universities, thus TOD principles should be applied in these areas at a scale similar to other urban or suburban nodes. Each activity area is unique and will need to apply TOD principles according to their specific function and needs. Other important areas in the City which can benefit from the application of TOD principles include the West Harbour and airport areas. These activity areas are very unique. Specific TOD principles can be applied as these areas evolve. Similarly, other areas of the city may become prominent activity areas where TOD will be desirable.

5.0 COMPONENTS OF TOD

The TOD principles and typologies are the key components of the TOD guidelines which can be applied at varying scales throughout the City of hamilton

5.1 Design Considerations

A key component of successful TOD is good design and integration between transit and urban form within the surrounding community. Generally, design, as it relates to TOD, involves integrating form and function to increase the viability and vitality of development near transit[31]. What will set one TOD area apart from another, are elements that create a sense of place. While good design should be applied to all developments, design for TOD (transit specific context) should pay particular attention to considerations of scale, sense of place, balance, and public realm areas including pedestrian facilities, street design, and buildings[32].

5.1.1 Scale and Context

TOD areas can vary widely from a Downtown transit hub, to a bus stop along an arterial street. While these two stops may share some common elements such as transit shelters and transit information, the design, scale, and function of the surrounding land uses are quite different. Thus, the goal of the TOD Guidelines is to address the diversity of situations and varying scales while still allowing sufficient flexibility in design[33].

The constant components across the various scales of TOD are the ten principles identified in Section 3.0. For example, while increased density (compared to the surrounding area) will be a feature in all TOD areas, the required density in a suburban transit area would be less than that in a primary node where two corridors intersect. Design can be used as a tool to implement and rationalize the principles within an appropriate scale so that there is the appropriate amount of parking, density, and variety of uses for each TOD typology.

5.1.2 Creating a Sense of Place

TOD areas should strike the right balance between common elements and unique features. There should be enough common elements and land uses between TODs so that people can easily identify the areas as a TOD area. Common elements can include similar transit shelters, bicycle and pedestrian amenities, walkable pleasant streets, and a mixture of uses. With the common elements in place, there can be variation within individual designs. This variation creates a ‘sense of place’. A sense of place is not limited to the rapid transit stops themselves. The entire look and feel of the surrounding development further contributes to the sense of place. Ultimately, transit stops are the gateway into the surrounding community. Thus passengers should easily understand where they are when they leave the transit vehicle.

Civic uses and public/open spaces are another key element of creating a sense of place. Civic and public spaces are shared by all and often have easily identifiable features or landmarks. Civic and public/open spaces share the elements of being accessible to the public and can provide important amenities to the surrounding communities. Because these areas are open to all, there may be a sense of ownership and are often the locations where diverse groups gather and form connections. Such locations are frequently where public art is predominately located. Transit often becomes the backdrop in civic and public space areas such as at larger transit terminals or public squares with nearby transit stops.

5.1.3 Balance

Good design in TOD areas is all about creating balance, whether it is a balance between uses, balance between transportation modes, or balance in scale. For example, people can be more comfortable with higher density uses and higher lot coverage as long as the buildings remain "human scale" and not too large[34]. The densities required to achieve TOD, can often be met with medium rise buildings, thus there is a balance between the scale and the density required for TOD.

There is also a need to strike a balance between being overly prescriptive with regulations and allowing appropriate levels of flexibility and market-led decisions. Policies and regulations should outline the main parameters and key requirements while allowing for creativity and flexibility[35]. Striking the correct balance ensures key requirements are in place without encouraging uniformity in design.

5.1.4 Pedestrian Facilities

When planning for transit and transit supportive areas, an important consideration is that all transit users start and end each trip as pedestrians. By planning and designing efficient/useable pedestrian connections and facilities, transit access and use can be enhanced. There are additional advantages to encouraging pedestrian facilities, such as improving the visual appeal of an area, street-level amenities and other structural and façade elements that encourage pedestrian interaction[36]. Having attractive pedestrian friendly amenities can increase the appeal of an area and contribute to promoting a sense of vibrancy and life to an area. This vibrancy and street activity also creates a feeling of safety and security.

Pedestrian features are an important common element regardless of scale of the TOD area. Several components go into designing good pedestrian areas. Table 3 outlines several of the features that improve the pedestrian realm and thus improve access to transit[ii].

[ii] Note: not all features will necessarily be implemented in TOD areas. Pedestrian realm features listed here are to provide options. Specific features may be implemented in TOD areas where feasible and appropriate.

Table 3: Key Pedestrian Realm Features[37]

Pedestrian Design Feature	Benefit
High frequency of crosswalks	• Allows more access and ease of movement • Improves safety as pedestrians can cross at controlled areas rather than crossing mid street
Four-way pedestrian crossing at intersections (scramble intersection)	• Gives priority to pedestrians by allowing pedestrians to cross intersections in any direction even diagonally • A more efficient means to allow pedestrians to cross busy streets
Different paving material at crosswalks	• Clear markings at crossing areas for pedestrians, improves safety (note: crossing should be a protected crossing[iii]) • Contributes to attractiveness of the area • Urban Braille (where applicable)
Wide sidewalks	• Allows freedom to move and promotes street activity
Shade trees	• Increases attractiveness of an area, also provides shade from elements
Street furniture	• Provides for resting area or place to wait for transit • Can also contribute to place making
Attractive building façade	• Creates a more pleasant walking environment • Windows on commercial buildings allow opportunities to draw street traffic into the store
Space transit stops at optimal walking distance for pedestrians	• The closer the transit stop is to the destination, the more likely people will use it • Optimal walking distance is 400m to access work and 400-800m for residential areas

The features detailed above not only make TOD areas more attractive and accessible, they also contribute to improving the liveability of the surrounding community. Opportunities for increased walking have both societal benefits (decreased emissions from vehicles) to personal benefits (increased physical activity). Overall, increasing walkability of an area is among the most simple yet biggest payoff features of TOD.

[iii] special paving treatments should only be used at controlled pedestrian crossings

5.1.5 Streets/Public Areas

While pedestrian areas consist mainly of sidewalks along streets and buildings, streets and public areas encompass all public spaces in TOD areas. Implementing good design in streets and public areas is an excellent opportunity to create unique spaces and improve the overall visual appeal of TOD areas. All the principles of good TOD design can be manifested in streets and public areas.

Important design features which contribute to good TOD design and meet the ten principles of TOD include safe areas, accessibility, and high quality of design. Features which contribute to streets and public areas are further detailed in Table 4.

Table 4: Key Public Realm Features[38]

Street/Public Area Feature	Benefit
Good lighting	• Essential for public safely and encouraging longer hours of activity
Landmarks and public art	• Contribute to creating a sense of place and creating an identity • Useful in way-finding, especially for visitors or new riders unfamiliar with the area or transit network
Promote civic spaces in mixed use	• Creates a public connection area within communities
Promote easy access from public areas to private spaces	• Promotes integration of uses and facilitates pedestrian movement
Avoid blank walls	• Enhances pedestrian walking environment and promotes visual interest and safety
Where possible, create smaller blocks	• Allows for better connectivity and more opportunity for pedestrian access

Creating viable and inviting streets and public spaces promote pedestrian connections by creating compact blocks, pleasant walkways, and comfortable, well-marked, and continuous street-front experiences. The appeal of the pedestrian environment strengthens the sense of place and can support retail spending. People generally like to spend their time and money in attractive areas. Unique and/or attractive business areas encourage people to linger longer and may result in more retail activity.

5.1.6 Buildings

The manner in which buildings interact with the street and pedestrian realm can contribute greatly to the success of a TOD area. In keeping with the ten principles of TOD, buildings can play a role by adhering to design standards. Several of the same guidelines already detailed within the City's Site Plan Guidelines are also applicable to TOD areas. Some common considerations for buildings typically include:

- Buildings oriented to the street (entrances and windows) with minimal setback
- Corner buildings are important - have a "build to" line rather than a setback for more uniformity
- Promote "place making elements" (unique signs, public art, landmark buildings, etc.)
- Provide ground floor windows and attractive building façades
- Minimize parking in front of buildings

Other good design features include ensuring there is a minimum ratio (40%-70%) of windows and doors to the overall building wall[39]. A minimum amount of openings promotes a more pleasant walking environment and more attractive buildings. Buildings should also be designed to accommodate a range of uses over time; this will also encourage a variety of building and design solutions[40].

Guidelines should provide broad direction on building design such as ensuring buildings relate appropriately to the street and fit in context with the surrounding buildings. The focus should be on overall good building design rather than particular details.

5.1.7 Other Design Considerations

Several other design aspects must also be taken into consideration in TOD. For example, in the older urbanized areas of the City, there are several heritage buildings and landscapes to be managed. New developments and redevelopments should consider local context and heritage features and work with them rather than against. In fact, incorporating heritage features can be an asset to some TOD projects, providing a unique sense of place, and often a more attractive product. Even when building along new transit lines, the intent is not to replace all existing buildings and build on an empty site. Rather, TOD can be incorporated in existing built landscapes and incorporate heritage features into the overall design and appeal of the area. Preservation of existing heritage buildings is an important consideration for TOD.

While all the aforementioned aspects of design would make for an ideal TOD area, in reality, it is not always possible to incorporate all features of design. Often, site constraints or other obstacles prevent a completely ideal development. When unable to provide all design elements, development of TOD should focus on amenity-rich varied areas with weather protection and safe design[41]. 'Amenity-rich' may include several service retail/personal services and in some cases civic uses. Such uses form the bare minimum needed to make TOD areas viable. As long as there are sufficient densities, good transit connections, and attractive amenities, people will still want to live, work, and travel to those areas.

5.2 Uses and Location

In addition to design, the uses within TOD are what can help differentiate these developments from other types of development. The uses permitted in TOD can encourage or discourage the use of transit. Therefore, it is important to get the correct mix and balance of uses. The mixture of land uses available in TOD areas not only can contribute to increasing transit ridership, but can also help create vibrant and attractive places with enhanced liveability.

Typically, uses associated with TOD include mixed use, affordable housing, civic uses, and stand alone residential and commercial uses[42]. Many other uses can also make up a TOD area. The make-up of uses, and how those uses interact and integrate with transit is what makes TOD an important component of successful transit, and differentiates one TOD area from others.

Activities should be balanced between daytime activities (e.g. office, daycare, some retail) and evening activities (e.g. restaurants, coffee shops, residential areas)[43]. A balance of day and evening activities will support all day transit use and even two-way transit service at sustainable and reliable levels. A high level of transit service is vital to maintaining transit as a viable option for people's transportation choice.

5.2.1 Mixed Use

A mixture of uses is the core element and key theme of TOD and enhances the liveability of an area. Ensuring a mix of uses meets most of the ten TOD principles either directly or indirectly. Mixed use ensures constant activity and increases the vitality of an area.

The Urban Hamilton Official Plan defines mixed use development as:

> **"a development or area made up of mixed land uses either in the same building or in separate buildings. The mix of land uses may include commercial, industrial or institutional uses but must contain residential units."**

Mixed use spreads out the transit demand to include both origins of trips (homes) and destinations (employment, retail, office, landmarks, etc.)[44]. The important consideration for mixed use is to get the implementation right. For the purposes of TOD, "mixed use" does not need to be applied to every single individual building[45]. The mixture of uses should be viewed corridor or node-wide and not at the parcel level[46]. Essentially this means it is perfectly acceptable and often advantageous to have a series of TOD stations of different uses. There are opportunities for specialized TOD areas such as station areas where the predominant use is residential, followed by predominately commercial/industrial uses at another. Mixed-use and TOD can be analogous to a "string of pearls" where each TOD area can be specialized, thus the entire corridor becomes a mixed use corridor[47].

Furthermore, studies in the United States have found that developers are often more comfortable with horizontal mixed use rather than vertical mixed use. This simply means that each building does not always have to have multiple uses as this often leads to more complexity in the development[48]. Stand alone and single-purpose buildings are acceptable as a collection of individual uses inherently makes mixed use.

In addition to mixed use, certain uses are more advantageous in particular areas. For example, personal service uses such as banks, daycare, professional businesses, and retail establishments are preferably located nearest the station or stop area[49]. Thus allowing people to "hop-on" and "hop-off" the transit area.

For accessing transit from their homes, a general rule of thumb is approximately a 5 min walk or approximately 400m[50]. For accessing employment, people will tend to walk a littler further and for accessing special events (sporting, concert venues) they may be able to acceptable an even greater distance given it is a special or one-time event plus the ability to avoid paying for parking or sitting in traffic after the event. Thus uses should be placed in a hierarchy with those that benefit the most from being close to transit nearer the station or stop area.

TOD areas outside of a main corridor or crossing into more neighbourhood type areas should concentrate on providing uses such as grocery stores, drug stores, banking, personal services, daycare and retail[51]. These uses are part of the daily needs of a neighbourhood area but can also benefit from having good access to transit. For example, people can get to and from work on transit and stop off at the bank or grocery store on the way home. The benefit of these neighbourhood scale uses near transit is convenience - allowing people to take transit rather than drive.

5.2.2 Immediate Station Area

The area where TOD guidelines have the greatest impact is in the immediate station areas of future potential rapid transit. Immediate station areas include the closest 100 - 200 metres to a transit station or stop. However, TOD impacts can be beneficial up to 400 - 500 metres. In the immediate station area, particular considerations should be made for parking which should not be directly next to the station or stop station. The land near stations would be best used for mixed use or commercial uses. An exception may be park-and-ride areas, but even in these locations, parking should not be overly dominant. Passenger drop-off zones may also be appropriate though they are generally found at major inter-modal stations or end points rather than at neighbourhood transit stations. For areas along rapid transit routes with existing or planned auto related uses (gas stations, car washes, etc.), proper design can be utilized to ensure pedestrian movement and access to transit is maintained and enhanced.

Overall, development in the immediate station areas should ensure that the design of the station is of a high quality and reflects the character of the surrounding communities. The goal is to have the most convenient, transit supportive, and densest uses in the closest proximity to the station areas as possible. As gateways into the community, TOD in station areas should facilitate passenger travel and not discourage it[52].

5.2.3 Other Land Uses

While mixed use and transit focussed uses form the ideal TOD land use, it is recognized that in certain areas, due to exiting urban form, non-transit oriented uses may be permitted. Hamilton is an older city with great diversity in land uses. In some areas where transit is in operation or proposed, the dominate land use may be more auto-oriented rather than transit oriented. A balanced city requires a variety of uses, thus, the intent of TOD Guidelines is not to exclude uses already permitted, but to inform the planning for a transition away from auto-oriented uses over time. The Official Plan, Secondary Plans, and the comprehensive Zoning By-law direct permitted land uses. Where transit is present in proximity to auto-oriented land uses, TOD principles and design can be used as a mitigation tool. Auto-oriented uses can be permitted, but the design should not impair walkability and transit access. Good design practices should be used to improve pedestrian and transit movement.

5.3 Parking

Managing parking is among the most important aspects for creating successful TOD areas and requires balance. Too little parking can undermine the viability of a development, while providing too much can work against promoting high levels of transit use. Generally, parking is oversupplied and under priced, especially near transit served areas[53]. Thus the closer to transit, and the higher level of transit offered, the less parking should be supplied.

TOD allows opportunities to reduce parking requirements which supports transit and encourages people to make other choices in modes of transportation other than the automobile. Furthermore, reducing the amount of parking can allow additional and greater uses of land, especially as land values rise[54]. Generally, TOD offers significant opportunities to reduce the number of parking spaces below conventional parking requirements for retail, office, and residential land uses[55]. However, there is a need to also balance the impact on neighbourhoods as removing too much parking may cause spill over of parking onto residential streets.

Residential Parking

Using TOD can facilitate reduced parking requirements due to the type of units and households attracted to such areas. A variety of households from singles, young couples, and retried persons, are most often attracted to TOD. These types of households do not demand as much parking based on their housing preferences and thus can benefit from reduced parking supply[56]. In residential developments, the price of parking is often tied into the cost of the unit. By removing the price of a parking space from the cost of a unit, people will see the true cost of that parking space and make a decision if they still want to purchase. Removing the price of parking from the unit will also help to make the cost of the residential unit more affordable[57]. Furthermore, tying parking with the unit inadvertently encourages people to drive since they will automatically own a parking space once they own their unit[58].

Parking Reduction Strategies

Strategies exist for reducing the amount of parking required in new developments including:

- Shared parking facilities;
- Offering transit passes with new homes and businesses;
- Transportation Demand Management measures;
- Requiring higher rates for parking;
- Providing for carpool parking, car sharing programs;
- Parking management (restricted parking hours); and,
- Unbundling the cost of parking from the cost of housing.

Alternative methods for providing parking, such as shared spaces, often works best when land uses have significantly different peak parking characteristics[59]. Furthermore, overall parking management may not be best implemented through a single approach, but management should be tailored to each particular and unique circumstance. A mix and match approach to various parking strategies may allow for flexibility to find creative solution at the site plan level.

Parking Supply

Several challenges remain in restricting parking or reducing parking standards. For redevelopments or existing uses, applying some of the above mentioned alternative parking strategies is less feasible than in newer developments. Market conditions need to be factored into decisions on parking provisions. In a market such as Hamilton, parking reductions can only go so far if carried out by the public sector. There must be private sector buy-in for reduced parking requirements as well as a market rise in the price of parking. The price of parking will likely only rise along with land values as artificially raising prices (i.e. raising municipal prices) will transfer parking to the private sector. Ultimately there may be equilibrium where the price of land causes the price of parking to rise as well. Until then, there may be some growing pains where parking pricing is higher in municipally owned lots than in private lots.

The City can play a role by restricting the amount of new parking supply. Eventually the market pricing for parking will reflect the rising land prices. At the same time, demand for parking will be reduced as transit service to the area is improved and utilized. Parking restriction and/or requirements can also be used to leverage other uses beneficial for TOD such as bicycle parking[60]. For example the amount of parking required can be reduced based on the number of bicycles spaces or facilities provided. The description of TOD typologies outlines typical parking rates for various land uses (see Volume 2).

To strike the right balance of parking, the amount allowed should be tied to the scale and function of the given TOD area. For example, a park-and-ride facility may be appropriate in a suburban or end point TOD, but not necessary in an urban corridor area[61]. On-street parking may be appropriate in certain areas but should come with restrictions such as strict time limits[62]. Overall, reducing the over-supply of parking is intended to avoid large expanses of parking lots which can be detrimental to walkability, pedestrian environments, and the viability of transit[63].

5.4 Densities

5.4.1 Why is Density Important in TOD?

TOD area densities will ultimately determine the viability of the area and whether TOD will be successful. In order to maintain vitality, a "critical mass" of density[iv] is required to make the development work and attract more amenities and services[64]. Density also supports the clustering of buildings which promotes pedestrian activity. Conversely, if densities are too low, transit can not be supported. Thus sufficient density is needed to bring people together, to help local businesses by attracting sufficient potential customers, and to provide potential transit ridership. Some of the most successful and attractive places in urban areas are those with sufficient densities to support amenity rich, walkable streets and where transit has enough people to use the service.

The density of a project is often among the most contentious issue, likely due to the misconception that density must result in tall buildings, increased automobile traffic, and parking. In reality, higher transit-supportive densities can be achieved while maintaining buildings of human scale and mitigating traffic impacts by increasing foot traffic. This can be accomplished through good design and following clear TOD principles[65]. For example, higher lot coverage but shorter buildings can have the same density as taller buildings on smaller footprints[66]. Figure 3 shows that it is possible for mid-rise buildings to achieve higher densities than taller buildings.

Figure 3: Example of Achieving Higher Density in Lower Story Buildings

24 Mountain Avenue South
Height: 7 storeys
Density: 167 units per hectare

1 Hamilton Street South
Height: 10 storeys
Density: 117 units per hectare

[iv] The level of density required will be dependant on the scale of the TOD. Densities are determined by the Official Plan, Secondary Plans, and/or Zoning By-law.

5.4.2 Where and How Much Density Should be Applied to TOD

Applying transit supportive densities does not necessarily mean high density is uniformly applied across the entire area. Typically in TOD areas, the highest density is applied closest to the transit station[67]. Lower density uses can be applied to areas adjacent to single family or lower density neighbourhoods further away from the transit station or stop. Encouraging appropriate levels of density is important to allow the most number of people and employees to access fast, frequent, and reliable transit. The higher the level of transit (e.g. LRT vs. Bus) the more density should be encouraged to locate around the transit stations and in larger node areas. Furthermore, density should not be applied uniformly in all TOD areas. TOD areas such as those in node and corridor areas (where rapid transit is present) will be made up of a mixture of high, medium and possibly even higher level low-density uses. Commercial density and lot coverage will also vary based on the scale of the TOD area.

When applying densities to TOD areas, the target should be an overall transit and amenity supportive density for the entire area rather than a target on a per site basis[68]. For example, a typical transit supportive density for an urban transit node is approximately 150 people and jobs per hectare[69]. This figure should be applied to an entire area rather than to any one given use. Some buildings will have higher or lower densities throughout the TOD area. As long as the overall density for the TOD area remains near 150 people and jobs per hectare, than transit service levels and other amenities should be maintained. Site level density is directed by the Official Plan and implemented by residential, commercial, or mixed use zoning.

Knowing where density should be applied, it is also important to know how much density is required. Most TOD guidelines do not specifically identify density requirements for TOD. Rather, most municipal guidelines describe how and where densities should be applied to TOD but leave the actual density figures to their respective Official Plans and Zoning By-laws.

The Urban Hamilton Official Plan provides direction on densities for various land uses. The densities of residential areas, for example, are sufficient to be transit supportive and encourage the clustering of amenities. Table 5 details the required minimum densities for residential areas as outlined in the Urban Hamilton Official Plan.

Table 5: Minimum Residential Densities as Detailed in the Urban Hamilton Official Plan

Scale of Residential use	Density
Low Density Residential	Up to 60 units per hectare
Medium Density Residential	60-100 units per hectare
High Density Residential	100-200 units per hectare

5.4.2 Where and How Much Density Should be Applied to TOD (Continued)

TOD areas will have a mixture of different scales of residential uses. The densities in the Official Plan are consistent with the densities required for various forms of TOD. The commercial density is also an important factor. The density of commercial areas is usually determined by the ratio of lot coverage by the building. Furthermore, the urban structure policies detail the scale for node and corridor areas. For example, urban nodes should have an overall density of 100 - 150 people and jobs per hectare, which is sufficient for mixed use node areas and is transit supportive. Future secondary plans and zoning will also refine the broad direction in the Official Plan and apply TOD supportive densities to residential and commercial areas. The Official Plan policies are already consistent with TOD required densities. The TOD Guidelines can simply inform future secondary plans and zoning by suggesting minimum residential and commercial densities which are consistent with the Official Plan. Any densities detailed in the Hamilton TOD Guidelines should be read as a minimum for overall density and not applied on a site by site basis.

5.5 Zoning

The zoning within designated TOD areas is very important to the overall success of TOD. The zoning regulations are what will ultimately permit or not permit the uses, densities, and broad design features that will allow TOD to be viable. In fact, while financial incentives are often used to encourage TOD, simply allowing appropriate uses and regulations though zoning may do more to encourage TOD than giving cash incentives[70].

Some jurisdictions have created specific TOD zoning while others have simply ensured that the zoning applied to identify TOD areas is consistent with the principles and design features discussed previously[71]. For example, Washington DC has created a special mixed-use/transit-supportive zone that grants special use permits to any of the following services that are sited near transit stops: banks, professional businesses, retail stores, offices, and child-care centres[72]. Alternatively, zoning in TOD areas simply has to allow compatible uses and sufficient densities to make transit viable. Whichever approach is taken, the ultimate goal is to ensure zoning in TOD areas is consistent with TOD principles and design ideals. Hamilton currently does not have TOD specific zoning. However, a new comprehensive zoning by-law is being created which is generally consistent with the principles of TOD, allowing TOD supportive land uses and densities.

6.0 IMPLEMENTING TOD IN HAMILTON

A strengths, weaknesses, opportunities, and constraints (SWOC) analysis assesses the overall potential of TOD to become an attractive development option for development throughout the City and at representative TOD sites. Strengths include existing aspects that can facilitate TOD development, while opportunities highlight the potential a given area may have. Conversely, weaknesses highlight exiting barriers that need to be overcome before development can capitalize on the opportunities. Constraints include larger factors which may prevent the success of a TOD if not addressed.

This method of analysis allows both the strengths and weaknesses of the site to be compared against the opportunities and challenges in order to maximize the overall TOD potential of the representative sites while minimizing problems.

6.1 Overall Citywide SWOC

The general concept of implementing TOD brings with it overall strengths, weaknesses, opportunities and constraints. Common elements such as supportive policies (a strength) and overall high automobile use (a constraint) apply to all types of TOD regardless of the scale. Table 6, highlights some of the City-wide considerations that exist highlighting the potential for TOD as well as the limitations for all types of TOD areas.

Table 6: Summary of Overall Strengths, Weaknesses, Opportunities and Constraints to implementing TOD in the City of Hamilton

Strengths	Weaknesses
· Urban Structure supportive of transit (grid network, etc.) · City was originally transit supportive - a long standing history in lower City of TOD · Scale of Urban Neighbourhoods · Supportive polices already exist (new OP, pending secondary plans, etc.) · Potential for new investment in transit (new rapid transit being built in Hamilton, e.g. LRT)	· Traditionally, supply has outweighed demand for multiple unit buildings and intensification overall · Existing densities in some locations are lower than what is required for TOD · Personal automobile is still the preferred mode of transportation in the City · Parking considerations · Market (i.e. economic viability)
Opportunities	**Constraints**
· Many redevelopment opportunities along primary corridors · Changing demographics may result in a shift in demand for TOD related housing and built forms · Minimum densities required through legislation and increased focus on intensification	· Redevelopment subject to market conditions - some areas have traditionally had weaker retail and housing markets · Little experience in developing TOD forms within the City · Potential for greater risk in TOD projects compared to 'traditional' developments · Historically low transit ridership

6.2 SWOC Analysis by Typology

Given the scale, function, and existing built form of each TOD typology area, there are several differences in the strengths, weakness, opportunities, and constraints when developing TOD. A SWOC analysis is further provided below for each TOD typology area. For illustrative purposes, representative example sites were chosen based on the four types of TOD typology areas. The following is a description and analysis of the strengths, weakness, opportunities, and constraints of the representative sites. The analysis of the SWOC can be applied to similar sites under the TOD typology categories.

Typology Area: "Urban Rapid Transit Area" (Urban Corridor and Urban Sub Regional Node)
Sample representative area: Intersection of Main St. and Ottawa St. and the Eastgate Node

Urban Rapid Transit areas such as urban nodes and urban corridors have several advantages, making these types of areas attractive for TOD and the priority areas for implementing TOD principles. Urban areas such as those in the lower city where rapid transit will likely first be implemented, have strengths such as historic development already oriented towards the street front, and existing high frequency bus service. From a policy perspective, several of the urban areas of the lower city are designated for TOD supportive mixed use and higher density. Furthermore, infill development is directed through policy for urban areas which promotes clustering of uses and density supportive of TOD. Also, as high frequency bus service already exists, residents and businesses have already become accustomed to using transit. Utilizing TOD would simply facilitate an already proven demand rather than creating one.

Several opportunities exist as well. Urban areas, such as those along proposed rapid transit corridors and nodes in Hamilton, have land prices which may be attractive to new development in light of investments in rapid transit. Furthermore, an increased focus on intensification in this area already exists, and due to the mix of historic and new development, there are good opportunities for real place making. Regarding parking issues, opportunities exist at some sites such as Eastgate for shared parking areas including park-and-ride opportunities.

Conversely, there are weakness and constraints that may need to be overcome for successful TOD development to take hold. Given that the rapid transit corridor areas are among the oldest parts in the City, several of the lots are small and narrow and held by a variety of land owners. In order to make some projects more feasible, land assembly may need to be completed.

One of the main constraints includes market demand. While rapid transit investment may be a powerful catalyst for new urban development, it can not create demand for housing and retail space in of itself. The demand must first be present. Rapid transit investments play the role of facilitating and directing the demand toward the rapid transit corridor.

Typology Area: "Suburban Area" (Suburban Primary Corridor, Suburban Arterial Road Area)
Sample representative area: Upper James St. and the intersection of Mohawk Rd. and Upper Ottawa St.
Implementing TOD in more suburban areas, including rapid transit and non-rapid transit lines, has its own set of strengths, weakness, opportunities, and constraints. In suburban areas, the density and spacing of buildings is less than in the older, more urbanized areas. While initially this can make transit more difficult, it does provide potential for infill and intensification opportunities. Through development in vacant or at underutilized properties, a more compact urban form consistent with TOD principles can be developed. Furthermore, in many locations along suburban bus or future rapid transit routes, lot sizes are large and deep enough to allow for creative and easier developments - a further strength for potential TOD redevelopment. Also, similar to the urban corridor areas, policies are supportive of intensification along rapid transit lines and arterial roads.

Other opportunities exist for suburban rapid transit corridor areas such as Upper James Street to connect suburban neighbourhood areas to the rapid transit network and the Downtown though the use of connecting bus lines. In non-rapid transit areas, TOD principles have the potential to improve transit services and access to crossing routes by placing people and business near key transit hubs.

Some of the weakness of transit and TOD in suburban areas include the current infrequent service of transit. Furthermore, many suburban corridors are not built with a pedestrian first design. However, by improving on the strengths and opportunities, these same weaknesses can be overcome. Constraints to redevelopment along suburban corridors and arterial roads hinge on expansion of transit as well as larger market forces. For the proposed rapid transit routes, demand may not pick up until rapid transit and the mode of transit (BRT vs. LRT) is confirmed. The balance between development and transit ridership is one of the key constraints. It is a matter of what comes first, improved transit service or new development; ideally they would be implemented together.

Typology Area: "Greenfield Areas" (Greenfield Node, Greenfield Non-Node Area)
Sample representative areas: Elfrida Node and the South Waterdown Area
Implementing TOD in greenfield areas has its own challenges, but there are many overlooked advantages and opportunities to implementing TOD in greenfield areas. The primary strength for greenfield TOD is due to the undeveloped nature of greenfields which allows for greater flexibility in design and layout. New greenfields built according to TOD principles, can be designed in a more ideal manner than trying to incorporate or work around existing uses and buildings when implementing transit and TOD. A great opportunity exists by having transit available within new communities from the beginning. The level of transit ridership can rise and grow within a community rather than implementing transit in an established area that is not accustomed to using transit.

The weakness and constraints are similar to some suburban areas where the population may not be available at first to support transit at acceptable levels. However, planning for transit expansion in the future means that transit can move in as soon as a critical mass of development and density is reached.

6.2 SWOC Analysis by Typology (Continued)

Typology Area: Major Activity Centre

Sample representative area: McMaster University

The final type of TOD area includes major activity centres such as areas around McMaster University or Mohawk College's main campus. While these areas may function similar to those along primary corridors or nodes, there is the added element of a high degree of institutional uses. This added feature presents additional strengths and opportunities as well as weakness and constraints.

One of the main strengths of these major activity centres is the potential large number of transit riders. The students, faculty, staff, and visitors coming to and from these institutions are a potential large draw for transit. Major activity centres are also key destination points to anchor a transit line or serve as a hub and connection point. These strengths translate into opportunities both for growth as well as for attracting new development. The presence of transit can be even more attractive for such developments especially when access is facilitated by good transit oriented development and design.

Some of the weakness and constraints are similar to those in urban corridors and nodes including lot sizes and ownership issues. Also, the need for providing transit will need to be balanced against the demand for short term parking and deliveries for the larger institutional uses such as hospitals and schools. Major activity centres have the added constraint that they are already highly built-up. There are fewer infill opportunities and redevelopment may need to take place on existing buildings. Also, transit ridership may already be high in theses areas thus there is less of an opportunity to further grow transit use.

Overall, while challenges and weakness exist, knowing what they are upfront will help in finding solutions to overcome these obstacles, by converting challenges into advantages that will help create and sustain better functioning TOD areas.

7.0 IMPLEMENTATION OF TOD GUIDELINES

Using TOD Guidelines can be an effective way to encourage transit supportive development to help implement the policies of the Official Plan and facilitate new investments in transit. There are several strategies available to make TOD Guidelines an effective tool to encourage transit and ensure overall success. TOD guidelines should be used as a reference tool to help guide future land use decisions and during the review of development applications when near transit. Overall, TOD guidelines are intended to be used as a tool to help implement City policy. Thus the guidelines can be used to:

- Provide direction in the development of future secondary plans;
- Provide direction on planning around transit stations;
- Serve as a tool to review development applications located near key transit areas to ensure some principles of TOD are addressed;
- Incorporate TOD principles when updating policy and zoning;
- Guide implementation of new transit infrastructure including rapid transit;
- Guide to design or retrofit streets and other public spaces to be more pedestrian, bicycle, and transit friendly; and,
- Serve as an education tool to educate the public and industry about the benefits of TOD.

TOD can lead to land value premiums around transit, but the payoffs are not always automatic or immediate[73]. In fact, full build-out of TOD areas should be a long term goal, with benefits occurring over time. It will be important for the City to become a champion of TOD in order to leverage any investments in transit accordingly[74]. Ultimately it will be market forces that decide how successful TOD will be (Principle 7), which is why change will not be immediate[75]. TOD will occur incrementally and, at times, sporadically depending on market conditions. Even within TOD station areas, development will likely occur in phases and with one or a few properties at a time. The overall goal is to achieve TOD principles at transit station areas of various scales over the planning period of Official Plan and Transportation Master Plan, approximately 20 - 30 years. To encourage short term progress, strategies could focus on smaller projects which are more likely to be implemented, rather than larger projects[76]. A strategy of 'quick wins' may also help get more stakeholder "buy-in" of TOD and demonstrate its effectiveness.

The first step to creating TOD is clearly outlining where TOD should be applied and at what scale. Clearly outlying where TOD applies will ensure consistency and a common set of standards for the different TOD typologies[77]. In the case of Hamilton, a series of TOD hierarchy as described in Section 4.0, details the various areas where different scales of TOD may be applicable. Official Plan policy has provided the broad urban structure and policy to direct the locations for TOD. In addition to the urban structure policies, rapid transit planning will further define specific locations for TOD development through the establishment of station locations.

7.0 IMPLEMENTATION OF TOD GUIDELINES

7.1 Tools for Implementation

There are several tools available, which already exist, that can complement and help implement TOD Development.

City as an Active Partner

The City may have a role to play in participating in projects that can be early examples of TOD. Participating in TOD projects is consistent with Principle 10, Promoting Public/Private Partnerships. Another common capacity in which municipalities may have a role is in land assembly and property acquisition[78]. As is the case with Hamilton, often times the land fabric in older areas are made up of small lots with various ownerships, thus making redevelopment a more complex proposition. If a municipality would like to see change in a particular area such as in the immediate vicinity of a transit station, there may be a role to play by assembling the land and either developing according to TOD directly or partnering with the private sector in a joint venture.

Site Plan Guidelines (existing tool)

In addition to Hamilton's Site Plan Guidelines, TOD Guidelines can be used as another tool at the site plan level. For areas where TOD would be most applicable, TOD guidelines could be used in conjunction with the site plan guidelines to ensure developments facilitate transit use and access.

Zoning (existing tool)

An additional more common and efficient tool to implement TOD is through zoning. As discussed above, zoning can either be specifically designed for TOD (i.e. a TOD Zone), or simply TOD supportive by allowing/requiring TOD friendly uses and regulations[79]. For example, many municipalities allow bonuses for a greater Floor Area Ratio (FAR) for tradeoffs such as structured parking rather than surface parking. Other zoning tools include parking strategies such as reduced parking requirements, or parking maximums along with requirements for specific TOD related infrastructure such as bicycle parking facilities and pedestrian amenities. Provisions for affordable housing are also common in many US cities as tradeoffs for density bonus[80]. The justification for all the above strategies is the presence of higher levels of transit service or higher order types of transit.

Policy and Zoning Review

While overall, the Official Plan and the Zoning By-Law are consistent with TOD principles, in some situations, the existing policy and/or zoning in place may need some modification. As policy and zoning is reviewed due to regular updates, special studies, or secondary plans, the policies and zoning should be amended to be consist with TOD principles.

Tax and Fee Policy

Apart from directly developing areas and zoning, municipalities have other policy tools available to them. One example is Tax Increment Financing (TIF) which is a mechanism that allows the public sector to "capture" growth in property tax (or sometimes sales tax) resulting from new development and increasing property values[81]. Another fee/tax based tool is a special Developer/Impact Fee which is a fee assessed on new development within a jurisdiction as a means to defray the cost[82]. A fee structure should not be put in place which detracts from development that the City is trying to attract.

7.0 IMPLEMENTATION OF TOD GUIDELINES

Station Area Plans

The TOD guidelines can be directly applied when developing detailed station areas plans for the immediate station areas. Most likely these station area plans will be an outcome of rapid transit planning. The ten principles of TOD should be used to guide the look, feel, and function of the station areas. As gateways for the transit system, transit station areas should follow the TOD principles as closely as possible to serve as the model of TOD.

Parking Strategy

While parking can be managed on a site-by-site basis, there is a need for a more comprehensive parking strategy (either City-wide or in select corridors). An overall parking strategy can review parking needs in the context of TOD as well as the supply and demand issues forecasted in light of potential expansions of transit. Parking strategies should include potential mitigation approaches, pricing considerations, impact on revenue, and supply and demand issues. Parking is important in all forms of transit, transportation, and land use planning. Thus, a comprehensive strategy would be beneficial in properly managing parking and striking the right balance in supply.

Secondary Planning/Corridor Studies

Future secondary plans or secondary plan review should be consistent with the TOD guidelines in placing transit as a core value and key focus areas. Secondary planning offers unique opportunities to provide detailed planning policy and zoning which can directly affect access to transit. By following the TOD guidelines and adhering to the ten principles, secondary plans can ensure that land uses are sited in the appropriate areas with proper densities and scale (to achieve TOD/transit ridership goals). While direction for secondary plans comes from the Official Plan among other areas, TOD guidelines can further inform secondary planning to increase the prominence of transit in the given community.

Whatever the tool employed, municipalities have a role in encouraging and often actively participating in the implementing of TOD. Especially when TOD is new to a community, there may be a public sector role in taking the lead or partnering with other groups to initiate some projects to highlight the benefits and mitigate any of the potential initial risks. Overall, TOD guidelines can serve as an education tool to inform what transit supportive developments look like, as well as how TOD areas should function. The implementation of TOD areas will be accomplished though the participation of the public, and private sectors and the community combined.

7.2 Remaining TOD Barriers

While there are several benefits to developing TOD, there are also barriers which must be overcome to turn policy guidelines into implementation. One of the primary barriers to developing TOD areas is risk. The risks in TODs are similar to those of other infill developments - fear of density by the community, financial constraints, coordinating actors, etc[83]. The City's role may be to streamline the review and approval of projects that fit. Pre-zoning and allowing TOD compatible uses will aid in streamlining the processes as will providing a TOD guideline document to provide direction[84].

Other barriers exist which the municipality should be aware of. These barriers include:

- Local neighbours' fears that new developments such as TOD will harm the character of their neighbourhood or depress property values;
- Perceptions that TOD entails higher risks and costs;
- The failure of existing land-use patterns to support TOD;
- A lack of a market for TOD;
- Difficulties of financing;
- Poor transit design; and,
- An unsupportive regulatory framework[85].

The best way to mitigate these fears is to show visual examples of new developments and how they interact with existing uses and buildings. Even better than visual representation, is actual projects. Showcasing some early projects as demonstration practices can be the best tool in mitigating fears. The use of guidelines is also helpful in articulating what TOD should and can look like and how to manage existing buildings and uses. Finally, the adoption of a set of principles is to always have a reference and a common set of practices to fall back on.

7.3 Transit Oriented Development Guidelines

This paper forms Volume 1 of the TOD Guidelines which includes background and justification of TOD in Hamilton. The accompanying guideline document (Volume 2) details more specific direction for design, scale and implementation strategies for various types of TOD areas described in this discussion paper. The ten principles identified in Section 3.0 are detailed along with more specific guidelines providing direction on the components of TOD.

The accompanying TOD guidelines provide examples of the ten TOD principles though photos and diagrams from other jurisdictions. Also, the guidelines provide sample potential TOD areas from Hamilton with sketches to illustrate what TOD can look like at various TOD typology areas.

The TOD Guidelines include a description of what is TOD and how and why TOD should be implemented in Hamilton. This outline is followed by the ten TOD principles with additional detail on how the ten principles should be applied, followed by a description of the TOD typologies in Hamilton. More specific detail on design, function, and application is provided for each TOD typology area (urban corridor, greenfield area, etc.). The final component of the TOD Guidelines is a description of implementation strategies to make TOD a reality in Hamilton.

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APPENDIX A

Transit Policies and the Urban Hamilton Official Plan

Policies that are supportive of the implementation of rapid transit are detailed throughout new Urban Official Plan. Transit supportive policies are an important component of the new Official Plan and serve as a tool in the overall goal of community improvement and intensification.

The following Urban Hamilton Official Plan policies directly and indirectly address Rapid Transit and/or are supportive of rapid transit development:

Chapter A - Introduction

The introduction of the Plan clearly identifies that the Plan supports transit as a component of the development of the urban area. Both the underlying principles of the new Plan and the direction guiding the new Plan both promote transit and transit supportive policies. As stated in the Plan:

- **1.4 Principles of the Official Plan**
  - "balanced transportation networks that offer choice so people can walk, cycle, take transit, or drive, and recognize the importance of goods movement to our local economy;
  - compact and healthy urban communities that provide opportunities to live, work, play, and learn;"
- **2 .1 Vision 2020 (and the nine directions to guide development decisions).**
  - Development of RT would meet three of the nine directions including direction 1 ("encourage compatible mixed use…") direction 4 ("design neighbourhoods for access to community life") direction 6 ("expand transportation options") and Direction 7 ("maximise the use of existing buildings infrastructure…") – direction 7 met by encouraging intensification.

Chapter B - Communities

Transit and transit-supportive policies are referenced directly and indirectly in several locations within Chapter B, indicating the important role transit can and will have in shaping the community.

B.2.0 Defining our Communities

Transit in general and rapid transit specifically will be an important component of achieving the City's intensification goals. As further detailed below, higher order or rapid transit is envisioned for the urban corridors and nodes, which are among the areas in the City where intensification is to be directed. As stated in the Plan:

- **B.2.4.1.2 General Residential Intensification Policies -** "*Residential intensification directed to nodes and corridors…*" Residential intensification will promote transit use and allow for redevelopment opportunities.
  - **B.2.4.1.4** *Residential intensification developments shall be evaluated based on the following criteria:*

    …e) infrastructure and transportation criteria"

If the City is promoting greater intensification, than transit, especially rapid transit will need to be available both to provide riders and to provide options to new employees and residents along the corridors.

- **2.4.7 Facilitating Residential Intensification** *"The City shall consider the creation of new, or expansion of existing programs including public transit to encourage and/or facilitate residential intensification"*

Higher order transit is an effective means of encouraging and promoting good intensification and redevelopment opportunities.

B.3.0 Quality of Life and Complete Communities

One of the overall goals of the new OP is to create "complete communities" of which transit plays a key component. The Plan states:

- **B.3.0** *"…Complete communities provide convenient access to a mix of jobs, local services and shops, a full range of housing and community facilities such as schools, recreation facilities, open space, health care facilities, cultural facilities, and more.* ***Complete communities enable residents to meet most of their daily needs within a short distance from their homes, facilitating ease of access and use of public transit and active modes of transportation.****"*

3.3 Urban Design Policies

Urban design policies are a key component to the new urban Official Plan and have a direct role in promoting transit and rapid transit. The Plan states:

- **3.3 Urban Design Policies** *"…The intent of this Plan is to create compact and interconnected, pedestrian-oriented, and transit-supportive communities within which all people can attain a high quality of life."*
- **3.3.1.4 Urban Design Goals -** *"Create communities that are transit supportive, and promote active transportation"*
- **3.3.2.5** *"Places that are safe, accessible, connected and easy to navigate shall be created by using the following design applications, where appropriate:*
  - d) ***integrating conveniently located public transit*** *and cycling infrastructure with existing and new development;*
- **3.3.2.9** *"Urban design plays a significant role in the physical and mental health of our citizens. Community health and well-being shall be enhanced and supported through the following actions, where appropriate:*
  - c) *encouraging development of* ***complete and compact communities*** *or neighbourhoods that* ***contain a variety of land uses, transportation****, recreational, and open space uses; and,…"*

APPENDIX A

Chapter C.4.0 - Integrated Transportation Network

The new Urban Official Plan contains an expanded transportation section of which transit, and specifically rapid transit, is predominantly detailed. Various subsections of the transportation section are detailed below:

- **Preamble -** *"The function of the integrated transportation network and overarching objective of the Official Plan is to safely and efficiently move people and goods seamlessly and effectively, and serve as an economic enabler. …The transportation network and land uses are mutually inclusive; land uses are connected and accessible through the transportation network. Equally, transportation is made more efficient when complemented by appropriate locations and densities for various land uses."*

4.1 Policy Goals

- **4.2.1 -** *Recognize the relationship of transportation and land use planning in connecting communities, land uses and activities and the role of the integrated transportation network in creating complete communities and improving overall quality of life.*
- **4.1.5 -** *Work in cooperation with other levels of government and government agencies to further develop inter-regional travel plans including expansion of GO Transit in the Hamilton area, proposals for rapid transit within the City and other inter-regional transit and highway, marine, and airport initiatives.*
- **4.1.6 -** *Provide a convenient, fast, frequent and affordable public transportation service that features adequate carrying capacity and serves all residents and businesses.*

C.4.2 Integrated Transportation Network Policies

General transportation policies stress the importance of transit in shaping the community and highlight that transit is a basic component of the urban structure of the City. The Plan states:

- **4.2.2 -** *Transportation infrastructure shall be designed and implemented to support the growth objectives and urban structure as described in Section E.2.0 - Urban Structure.*
- **4.2.5 -** *Public transit shall be an integral component of planning for new development and redevelopment of residential uses and all new commercial, employment, institutional and mixed use centres within the urban areas of the City…*

4.4 Public Transit Network

Rapid transit will increasingly become a key component of the City's overall transit network. The Plan states:

- **Preamble -** *Public transit entities under municipal jurisdiction include conventional, specialized and rapid transit networks. Inter-regional networks are under the jurisdiction of provincial/federal authorities.*
- **4.4.2 -** *Transit service levels shall be increased incrementally, in conjunction with other policies to improve the viability of transit, with a goal of increasing annual transit ridership per capita. Service level increases shall be primarily directed to:*

a) *urban nodes and urban corridors as identified on Schedule E - Urban Structure;*

b) *areas developed according to transit orientated development principles; etc*

An entire sub-section of the public transit policies is focused on the development of rapid transit in the City.

- **4.4.8 -** *The City shall evaluate the potential to establish rapid transit within the Primary and Secondary Corridors identified on Schedule E - Urban Structure, and the proposed corridors identified as Potential Rapid Transit Lines on Appendix B - Major Transportation Facilities and Routes.*
- **4.4.9 -** *Rapid transit may operate on its own right-of-way, as a separate system or in shared corridors, where possible, to ensure that it is not delayed in general traffic. The rapid transit network shall consist of an interconnecting network of existing and planned rights-of-way along corridors in which a rapid transit facility may be located.*
- **4.4.9.1 -** *Rapid transit may be developed in a staged manner whereby various transit-priority measures may be implemented to improve the quality of transit service in terms of speed and reliability as an interim stage in the long-term development of a full rapid transit network.*
- **4.4.10 -** *The City may require park-and-ride facilities to enhance accessibility to rapid transit services at selected stations and other appropriate sites outside of the Downtown Urban Growth Centre. In this regard, the City shall encourage the proponents of major developments at existing or planned rapid transit stations to provide sufficient land for park-and-ride facilities, for which the City may enter into agreements for purchase, lease, and operation or shared use.*
- **4.4.11 -** *Rapid transit services shall be integrated with other transportation modes and with the conventional, specialized and inter-regional transit networks where feasible.*
- **4.4.12 -** *Prior to the construction and in conjunction with implementation of rapid transit in Hamilton, corridor studies shall be undertaken and shall consider the following:*

  a) compatible and transit supportive land uses along the selected corridor;

  b) urban design considerations;

  c) accessibility concerns;

  d) redevelopment impacts;

  e) environmental and social/community impacts; and,

  f) potential impacts and connections to other modes.

C.4.7 Rail Network

- **4.7.1.1 -** *The City shall encourage …**potential light rail transit corridors** where feasible to increase the connectivity between modes.*

APPENDIX A

Chapter E - Urban Systems and Designations

Chapter E contains the urban structure policies which serve as the basis for all urban area land use designations. Rapid transit plays a prominent role in these policies given rapid transit's function in linking nodes, employment areas and activity centres together.

2.1 Urban Structure

Urban nodes detailed in the Urban Official Plan are generally intended to be linked via urban corridors with higher order transit (rapid transit). The plan states:

- **2.1 Urban Structure Principles**
  - *c) Nodes and corridors are connected to each other and are internally served by various modes of transportation, including higher order transit.*
  - *e) Nodes and corridors evolve with higher residential densities and mixed use developments to achieve their planned functions and support transit.*

2.3 Urban Nodes

- **Preamble:** *Urban Nodes are intended to provide for a broad range and mix of uses in an area of higher density and activity than surrounding Neighbourhoods. Most Urban Nodes will have access to higher order transit and will exhibit a wide variety of land uses and densities designed and oriented to support and facilitate transit and active transportation.*
- **2.3.1.8 -** *The Downtown Urban Growth Centre shall function as a major transit hub for the City with a GO rail station and higher order transit systems extending out from the Centre.*
- **2.3.2.2 -** *Sub-Regional Service Nodes shall provide a range of uses that allow for access to housing, jobs, services, and recreation in close proximity to each other and may be accessible by higher order transit.*
- **2.3.3.6 -** *Community Nodes shall be linked to the higher order transit system through connecting conventional transit or by rapid transit, where possible. Where possible, the City shall direct local routes through the Community Nodes.*

2.4 Urban Corridors

Similar to urban nodes detailed above, the Urban Official Plan envisions corridors eventually containing higher order transit (rapid transit). The Plan states:

- **2.4.3 -** Urban Corridors shall be the location for a range of higher density land uses along the corridor, including mixed uses where feasible, supported by higher order transit on the Primary Corridors.
- **2.4.8 -** *Primary Corridors shall be served by the higher order of transit service. Secondary Corridors may be served by a higher order transit service.*

Further policies outline the types of development permitted in the corridors which are also transit supportive.

2.5 Major Activity Centres

- **2.5.4 -** Major Activity Centres shall be linked by Primary Urban Corridors to other Urban Nodes including the Downtown and shall be served by the higher order transit service in recognition of the high ridership rates by students and employees.

Section F - Implementation

The urban Official Plan details that further direction and implementation of transit related initiatives will be through the Transportation Master Plan. The Plan states:

- **F.3.1.8.5** *The Transportation Master Plan shall be the primary tool to implement operational based transportation policies including:*
  - c) undertaking significant improvements to the public transit network to address changes in travel demand occurring from increased densities along nodes corridors.

APPENDIX A

Chapter G - Glossary

Complete Communities: Complete communities meet people's needs for daily living throughout an entire lifetime by providing convenient access to an appropriate mix of jobs, local services, a full range of housing, and community infrastructure including affordable housing, schools, recreation and open space for their residents. Convenient access to public transportation and options for safe, non-motorized travel is also provided (Growth Plan, 2006).

Higher Order Transit/Rapid Transit: Transit that generally operates in its own dedicated right-of-way, outside of mixed traffic where possible, and therefore can achieve a speed and frequency of service greater than conventional transit. Higher order transit can include heavy rail (such as subways), light rail transit (such as streetcars), and buses in dedicated rights-of-way and is typically referred to as rapid transit (Growth Plan, 2006).

Light Rail Transit (LRT): means a lightweight rail car rapid transit service operating on fixed rails in the right-of-way, usually at street-level, is typically propelled by overhead electrical wires, and offers a frequent, fast, reliable, comfortable and high quality service that is sustainable. Light rail transit (LRT) excludes heavy rail.

Rapid Transit: Transit service separated partially or completely from general vehicular traffic and therefore able to maintain higher levels of speed, reliability and vehicle productivity than can be achieved by transit vehicles operating in mixed traffic. Rapid transit can include light rail transit and/or bus rapid transit (adapted from Metrolinx, 2008).

Transit: Includes public buses, streetcars, subways, and commuter light rail lines. In this document transit also encompasses public trains; ferries; buses (including intercity buses) operated by private companies and available to the public; Board of Education transportation systems; private company/institutional vans made available to employees, customers, or residents; taxis; and related pedestrian activities, as well as specialized transit services.

Transit-Supportive: Makes transit viable and improves the quality of the experience of using transit. When used in reference to development, it often refers to compact, mixed-use development that has a high level of employment and residential densities to support frequent transit service. When used in reference to urban design, it often refers to design principles that make development more accessible for transit users, such as roads laid out in a grid network rather than a discontinuous network; pedestrian-friendly built environment along roads to encourage walking to transit; reduced setbacks and placing parking at the sides/rear of buildings; and improved access between arterial roads and interior blocks in residential areas (Growth Plan, 2006).

Transportation Corridor: A transportation corridor includes any or all of the following:

a) major roads, arterial roads, and highways for moving people and goods;

b) rail lines/railways for moving people and goods;

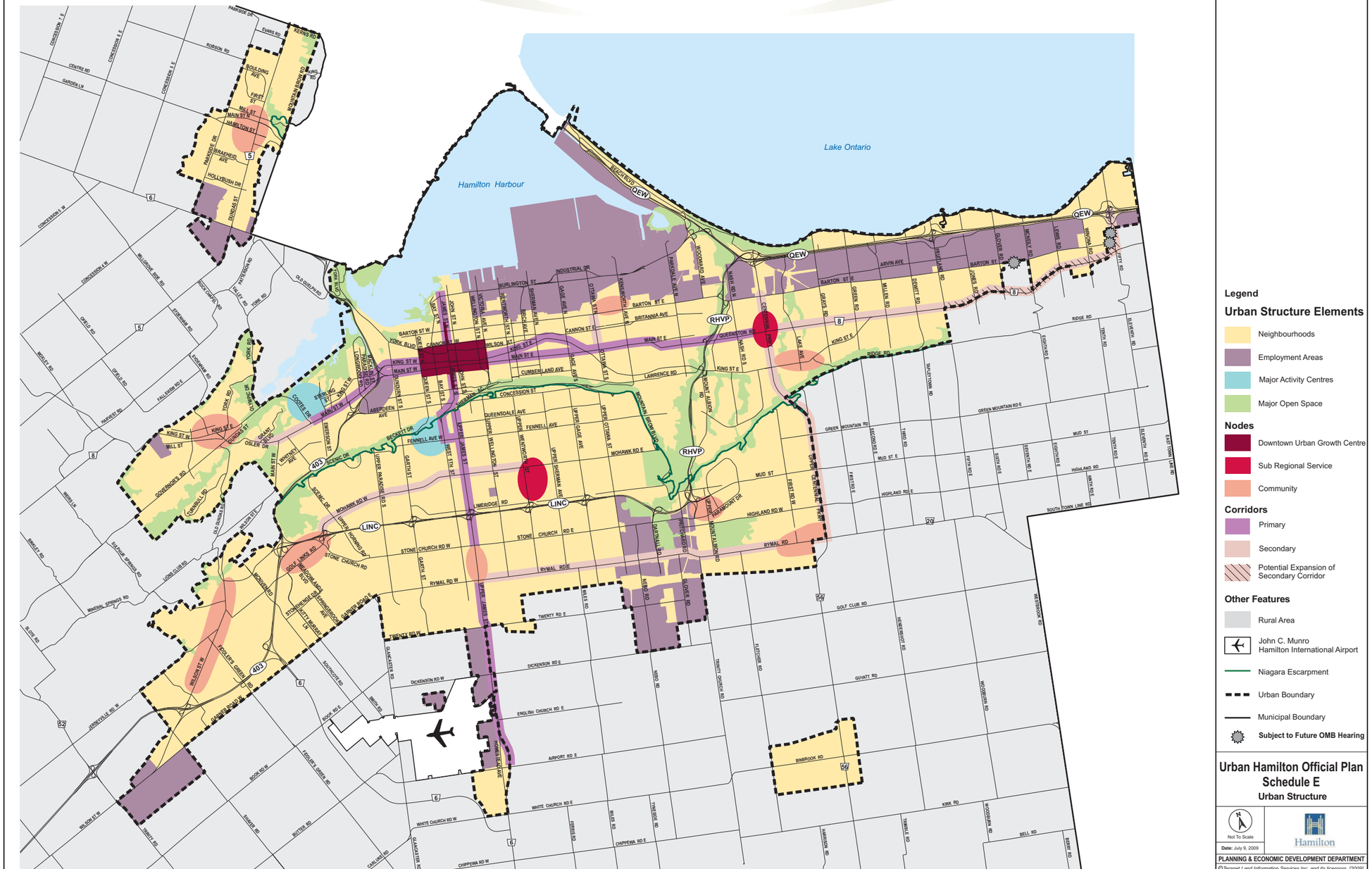
c) transit rights-of-way/transitways including buses and light rail for moving people. (Growth Plan, 2006)

Schedules and Appendices

In addition to the policies of the Urban Official Plan, Schedule E and Appendix B further provide direction for rapid transit.

- Schedule E - Urban Structure. This schedule shows the location of the urban corridors where rapid transit will be implemented and where they connect to urban nodes etc.
- Appendix B - Major Transportation Facilities and Routes. This map shows the proposed rapid transit lines (B.L.A.S.T) and other transit related facilities. Major rapid transit stations will be added to the map when a rapid transit line gets implemented.

APPENDIX B


Lake Ontario
Hamilton Harbour
QEW
RHVP
LINC
403
Legend
Urban Structure Elements
Neighbourhoods
Employment Areas
Major Activity Centres
Major Open Space
Nodes
Downtown Urban Growth Centre
Sub Regional Service
Community
Corridors
Primary
Secondary
Potential Expansion of Secondary Corridor
Other Features
Rural Area
John C. Munro Hamilton International Airport
Niagara Escarpment
Urban Boundary
Municipal Boundary
Subject to Future OMB Hearing
Urban Hamilton Official Plan Schedule E
Urban Structure
Not To Scale
Date: July 9, 2009
Hamilton
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