



HERITAGE HEIGHTS TRANSPORTATION MASTER PLAN

City of Brampton, Ontario

September 2021 | DRAFT

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PREAMBLE



PREAMBLE

In a deviation from other plans, this plan places the human being at the centre of the transportation planning and decision-making process and not the automobile. This fundamental change affects the plan's street network, scale, and multimodal nature, as well as the land use placement, mix, density, and value. The plan recognizes the economic, environmental, health, equity, and quality-of-life shortfalls of conventional planning that has been pervasive throughout Brampton that is primarily concerned with motor vehicle throughput and, instead, employs practices that are proven to achieve better outcomes on all fronts. In other words, this plan diverges away from a suburban, low-density, dendritic street hierarchy-based plan and towards an urban, network-focused approach to transportation and human mobility. The transportation foci of the suburban model were high speeds, level of service for motorists, and the separation of land uses. The transportation foci of the urban model are place-making, quality-of-life, modal choice, convenience, equity, safety, comfort, proximity, and integration with land uses.

This plan has been considered, tested, and challenged with economic models, traffic models, and environmental models. This urban, network-based plan outperforms the suburban model in accommodation of growth, job creation, and quality of life metrics such as natural conservation and access to parks, schools, goods and services for people of all ages and abilities. This change in planning is timely considering the growing support for, and need to address, health and climate emergencies and simultaneously perform better economically. Furthermore, it is timely to prevent the damage that the proposed Highway 413 would have caused to Brampton and the other areas within the GTA along its route by perpetuating the suburban sprawl model.

TRANSPORTATION PARADIGMS

The ***Traditional Paradigm*** is based on people and characterizes human settlements and cities for thousands of years before about 1945. Operational considerations and infrastructure design are made at the human scale and prioritize a time-tested balance among proximity, access, exchange, identity, network, block size, walkability, transit, convenience, and connectedness.

The ***Conventional Paradigm***, conceived in the modern era (1910 to 1930) and made prominent after 1945, evaluates transportation system performance primarily on speed and ease of motor vehicle travel. Thus, automobile-oriented modelling, planning, and design became the default practice and contributed greatly to unprecedented land consumption, energy inefficiencies, homogenous land use patterns, automobile dependence, and health and environmental problems.

A. VALUES

A.1) TRADITIONAL VS. CONVENTIONAL

To better understand the values employed in the Heritage Heights Transportation Master Plan (hereinafter referred to as 'HHTMP'), it helps to explain the two transportation paradigms, the “traditional paradigm” and the “conventional paradigm,” each of which has its own underlying values.

The traditional paradigm came first, around the time people began living together in cities about 6,500 years ago. It revolves around the ideas of proximity, access, economic exchange, social exchange, identity, network, block size, walkability, convenience, connectedness, and human scale. About 400, 200, and 170 years ago, respectively, public transit, bicycles, and steel rail-based trolleys and trains, became an integral and compatible component of the traditional paradigm.

Walking & Trails
5,000,000 years ago

Cities & Streets
6,500 years ago

Horses
5,000 years ago

Transit & Wooden Rails
400 years ago

Bicycle
200 years ago

Trains & Iron Rails
170 years ago

Automobile
130 years ago

Modernist Transportation Values
85 years ago

History of Ground Transportation

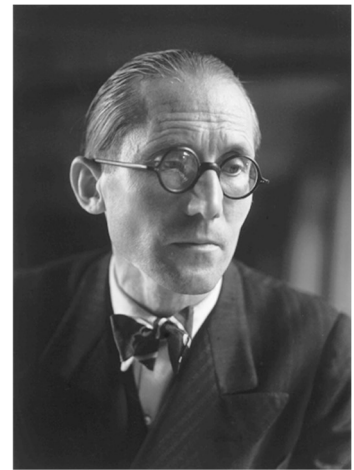
DON'T JAY WALK
WATCH YOUR STEP

Cities had grown and evolved and through thousands of years of trial and error to achieve a balance between access (e.g., streets, blocks, alleys, etc.), buildable area, and land use (e.g., buildings, parks, etc.) in an urban form. For over 6,000 years, cities operated at 6 to 12 kph because that is how fast people, or their horses, walked. Consequently, land use density, land use mix, housing, employment, services were balanced through years of supply and demand evolution. The “15 to 20-minute neighborhood,” which is something that the best cities currently aspire to achieve, was the norm in towns and cities for thousands of years, until after WWII. By necessity, prior to 1945, cities were planned and designed at a human scale and to achieve proximity. When trolleys and bicycles were invented, speeds of 30 kph were feasible and “trolley suburbs” emerged. Again, walkability and proximity were integral to city design because people still needed to walk between their homes and the trolley route. The trolley routes often became lined with shops and services due to their convenience. When heavy rail emerged,

longer distance trips between towns, cities, and stations (spaced at greater distances) became feasible. Again, the balance was still achieved because people still needed to access the train station on foot, by bike, or by a trolley. The stations became important focal points in communities.

Like most towns and cities that predate WWII, older places in the Greater Toronto Area (GTA) evolved using traditional values from their beginnings. From about 1820 to 1950, Brampton grew in a traditional manner. Evidence of this traditional development pattern can be seen in Downtown Brampton where a connected and fine-grained network of streets still exists. For 130 years, traditional values shaped the city and resulted in connected street networks, economic and social exchange born out of proximity, short trips, multi-modalism, train service, and walkability. In 1856, only three years after Brampton became a “village,” Brampton’s train station opened, which provided service to London and Toronto for Brampton’s population of about 750 people.

From about 1910 to 1930, the modernist movement occurred. The modernists developed new theories and practices for many aspects of life, including buildings, furniture, music, dance, streets, and city design. The car had been invented only a decade or two earlier, around 1903, and captured the imaginations of the modernists due to its speed and individual appeal. Without the benefit of thousands of years of evolution, and no testing through trial and error, the modernists developed theories, metrics, and new models for city/suburban development. With the help of various industries and corporations, who would profit by selling oil, cars, rubber, and tract homes, they (collectively known as Motordom) popularized their ideas through a promise of prosperity and a better way of living. In the late 1930s and 1940s, changes were being made to transportation, laws, and the roles of the streets. Simultaneously, brand new metrics and language were being invented to measure, discuss, and promote the success of motoring. And, of course, access-limited highways and interchanges were invented. The conventional paradigm dominated policies, programs, and public initiatives following WWII. Pro-automobile values, language, and practices were normalized and imbedded into the culture and transportation organizations. Trolley systems were purchased and dismantled, and car-ownership grew.



In 1924, Le Corbusier, an influential proponent of high-speed roads in cities, and automobile-based city planning and design, made his famous quote, “Cars, cars, fast, fast.”

Simultaneously, the modernists were proponents of specialization and expert direction. The idea was to separate city-making into distinct groups, such as land use planning, transportation planning, parks and recreation, etc. Departments of Highways were formed. Conventional metrics and language were honed into a new technical profession, known as traffic engineering. The profession’s foundational ideas were grounded in modern doctrine: increasing speeds for motor vehicles on streets, reducing motor vehicle congestion, and developing an automobile-friendly pattern of streets known as the “dendritic hierarchy’ of streets. The idea was replace the traditional grid

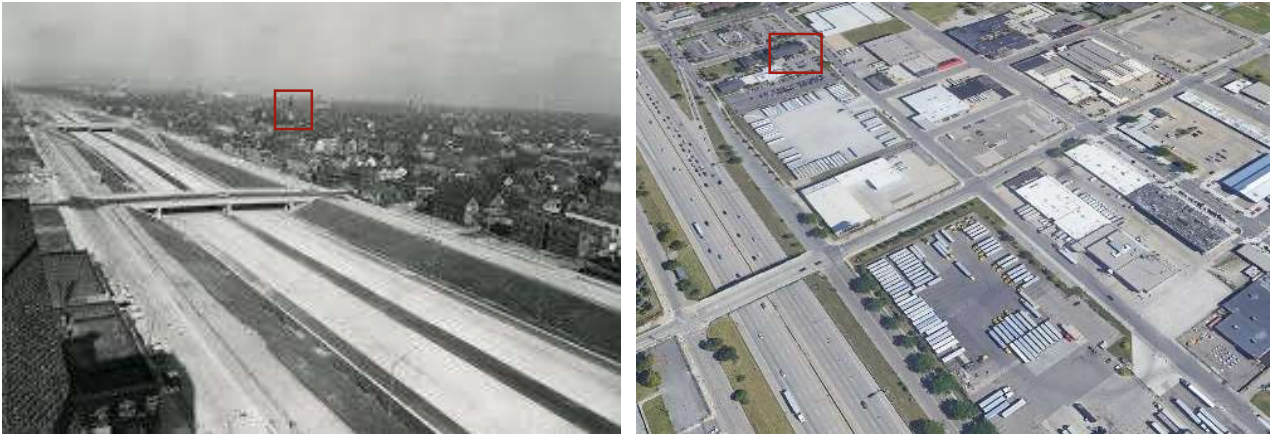
network with a pattern that was analogous to trees with highways being the trunk, the arterials being the big branches, the collectors being the smaller branches, and the local streets being the leaves. The traditional idea of the connected grid of streets was largely abandoned. These modern values and ideas, which were untested at the time, were assumed to be capable of “improving” life in cities and allowing people to overcome proximity so that they could live within automobile suburbs. The conventional metrics became levels-of-service for motorists, V/C ratios (motor vehicle volume divided by the motor vehicle-carrying capacity of the street), and travel time for motorists. For the first time in history, the biggest streets (i.e., the highways) in cities provided the least access. The consequences of the conventional practices were mostly unknown in the 1940s and 1950s but the conventional practices and policies dominated. Soon after highways were introduced to cities, however, problems occurred and promises of the modernists lost their sheen. There were famous opponents of highway building in cities, including people like Jane Jacobs and Lewis Mumford, but there was backlash against highway building in cities across North America which have persisted to this day. It is now widely recognized that highways caused and continue to cause serious and very expensive problems, including suburban sprawl, large death and injury tolls, inefficient consumption of land, large carbon footprints, poor public health outcomes, and motor vehicle dependency.

A.2) DESTROYING THE BALANCE AND RESTORING IT AGAIN

The highways and fast arterial streets that were built in cities threw the cities out of balance. The cities that embraced the new model/paradigm fared the worst. For example, Detroit, a very wealthy, prosperous, dynamic city before WWII, had a wonderful traditional network of streets and public transit. After WWII, city leaders embraced modernism and the Conventional Paradigm. The city tore out its trolley transit system, built highways, widened arterials, and damaged the connectivity of their traditional street network. Quality of life plunged and about two thirds of the population (i.e., 1.2 of 1.8 million people) abandoned Detroit for the suburbs. Detroit’s remaining population could not afford the upkeep of its infrastructure. The city declined steadily starting in the 1950s and filed for bankruptcy in 2013. Interestingly, over the last two decades, in an effort to restore the city, Detroit rediscovered its traditional roots and have been reconnecting the city’s streets and pathways, slowing streets down, building transit lines, building bike facilities, and preparing to remove Interstate 375 from its core. As a result, the city is healing itself, attracting population and investment. The same story is played out, and is playing out, to different degrees, in many cities across the continent.



The view of Hastings Street in Detroit in 1967. It was the economic and culture heart of the Black community (i.e., Motown). Note the church outlined by the rectangle. It is also in the next two images.



Views of the Hastings Street area immediately after I-375 was built, and today.

Cities were invented to bring people together (i.e., in proximity) for the purpose of supporting efficient and effective exchange (e.g., social exchange, economic exchange, the exchange of culture, ideas, goods, entertainment, security, labor, education, etc.). For millennia, the “transportation purpose” of cities was to minimize long-distance travel (i.e., reward short trips through proximity, or transit trips for longer journeys). In recent times, due to the ways that modernists accommodated the newly invented automobile, the opposite occurred. By building highways and fast arterials in cities, long trips were rewarded, from anywhere to anywhere, and short trips and transit trips were disadvantaged.

Proximity in cities did not matter for the first time in history, violating the fundamental purpose of cities. Walkability did not matter either. In addition to rewarding long trips, the highways and large arterials created barriers, noise, pollution, and parking needs. They changed goods distribution, employment, housing, and economic patterns. For example, automobile-oriented malls disadvantaged downtowns and Main Streets. Later, big box stores offered cheaper goods by externalizing their distribution costs onto others. It was in their interest to locate their buildings near highways and large arterials to minimize their distribution costs and externalize them onto society. People would drive long distances to shop there, via publicly funded streets. To save rent, employers located in the suburbs, away from effective transit, requiring their employees to drive to work. Developers could build enormous and highly profitable housing developments, on cheap land, far away from jobs and services. The residents would have to drive to most places needed on a routine basis (i.e., schools, doctor offices, grocery stores, entertainment venues, employment locations, etc.). Due to the sprawling distances and diluted services and job destinations, transit systems became stretched and less effective and, in some places, they were non-existent. Developers could develop wherever roads could be built, which was just about anywhere, and left the cost of building and maintaining those roads to the public. As intended by Motordom, the automobile became the common denominator, linking all aspects of life and creating large profits for the involved industries.

The profits and benefits of automobile dependence were not equitable. Value in was not created out of thin air. Value was extracted and exported from the cores and corridors to the suburbs. Public health and environmental quality declined along with the cities themselves. In Brampton, those costs – in monetary, health, and environmental currencies – are not affordable in the long term. Low-income populations spend large proportions of their household incomes on automobiles, gas, repairs, and insurance. Transit dependent populations (including children, older adults) are disadvantaged from many employment and educational opportunities due to lack of access.

The resulting suburbanization is an example of the phenomenon known as the “Tragedy of the Commons.” Investing in highways that enables everyone to drive high speeds over long distances induces sprawl, high injury and fatality rates, inequities, pollution, health issues, maintenance costs, quality of life problems, consumption of land, high carbon emissions and more.

Modernists were able to popularize high-speed, limited access highways because by asking simple questions such as, “Would you like to be able to get to work faster or slower? Would you like to be able to get to school faster or slower?” Naturally, the answer would be “faster” because that is rational and in one’s self-interest. When highways and fast arterials were new in cities, it was difficult to determine if the sum of many people doing the same thing would be harmful. Now, 70 years after the modernist movement took hold, we can compare the outcomes and overall social, economic, and cultural health of cities that invested in highways and high-speed arterials, and those that invested in multimodal transportation infrastructure, transit, and redevelopment in their cores. In sum, highways unbalance markets, decrease quality of life, and have very high maintenance costs over time. Knowing this, a more modern question should be, “Is more highway building in cities a good idea for society? ”

As an extreme example, Houston recently tried a herculean effort to beat congestion through road widening. They added about a dozen lanes to Interstate 10 to solve congestion and achieve higher speeds on the highway. Within a few years of implementation, the freeway was more congested than it was prior to the widening. The pattern is that highway widenings in cities create problems that, seemingly, only more highway widenings can solve. Unfortunately Houston followed the wrong model. The system in Houston, and other cities that employ conventional models, can never get into balance because their fundamentals are not correct. However, cities that are moving away from conventional models and are using traditional values are reinstating a balance within their transportation system and land use patterns.

In cities, where highways were removed, exchange increased and quality of life improved, despite the warnings of “carmageddon” by conventionalists (i.e., the Embarcadero in San Francisco, the Inner Loop in Rochester, the Park East Freeway in Milwaukee). After the Loma Prieto earthquake in 1989 damaged the Embarcadero beyond use, there were fears of gridlock on local streets. When this did not come to pass, the city invested in more transit and reconnecting neighborhoods. San Francisco is a better city without the highway. There is more vibrancy/trip-making than when the highway was present, just shorter trips and trips made by other modes. The city is better for people and the economy. The city is more attractive too.

Based on the positive track record, dozens more cities are looking to remove their highways. Increasingly prevalent are cities that are revisiting their arterial roads to make them more inclusive, slower, and safer. Cities around the world are using traditional values in pursuit of 15-minute and 20-minute communities, encouraging short trips, transit trips, and providing what people need routinely close at hand. The idea of replacing metrics related to motor vehicle speed (i.e., level of service and its surrogates) with vehicle-kilometres-travel (VKT) reduction are catching on. Note that these changes align with the transportation propose of cities (i.e., to reduce trip lengths to foster efficient and effective exchange). The result is increased mobility while reducing car-dependency and long trips and restoring the balance within cities.

The modernists’ untested theories have now been tested and the conventional practices did not result in high performing and healthy cities. It was monumental example of trial and error over the 6,500-year history of cities. Like Brampton, cities are increasingly determined to reverse or ameliorate the damage that was done.

In Brampton, a highway-oriented plan and associated transportation study for Heritage Heights was conducted in 2014. Conventional modelling was done by the MTO and, not surprisingly, the model concluded that massive traffic volumes would be generated and that a highway was necessary. In 2014, the planners interpreted the MTO’s traffic forecasts as a mandate to build Highway 413. MTO’s model clearly predicted that, if the highway (and the highway-related development) were built, then it would generate hundreds of thousands of long-distance, high-speed commutes by car. This would result in irreparable environmental damage and loss of economic opportunity to

Heritage Heights, inflict additional harm to the cities downstream, and have broader regional effects to air quality, public health, quality of economic development and public infrastructure costs. Interestingly, the forecasts and problems can only come true if Highway 413 is built. They are self-fulfilling prophecies.

Considering Brampton Council's declaration of health and climate emergencies, the correct interpretation of MTO's forecasts is: i) a dire warning to not build Highway 413; and ii) a strong case to not induce the litany of associated problems that will result from Highway 413. It is past time to question why taxpayers would spend billions of dollars on Highway 413 and, in return, get massive, self-inflicted, harm. The more ethical, rational, and courageous course of action is to change trajectories, spend less money and achieve healthier and more sustainable outcomes.

For decades, society has witnessed the negative patterns that accompany highway building in cities. Society has also witnessed what happens when other options, based on traditional values, are pursued, including: highway removals or stoppages, 15 and 20-minute neighborhoods, coordinated land use and transportation planning, investment in regional transit networks, etc. The result is vibrant places, thriving economies, and engaged communities. For example, consider past examples from the GTA of not building the highway. Would Toronto have been better off had the Spadina Expressway been continued past Eglinton Avenue? Would the Crosstown Expressway, Scarborough Expressway, or the Richview Expressway have helped the GTA? In 1971 Premier Bill Davis said, "Cities were built for people and not cars. If we are building a transportation system to serve the automobile, the Spadina Expressway would be a good place to start. But if we are building a transportation system to serve people, the Spadina Expressway is a good place to stop." It's surprising that 50 years later, we are still debating the same issue.

Considering case studies of similar cities, construction of Highway 413 would likely result in unsustainable development in the short term and ongoing economic, public health, and environmental harm. Instead, an integrated transportation and land use plan follows that rewards short trips and transit trips. It will result in more jobs, more efficient use of land, higher quality of life, increased equity, and a more sustaining environment.

A.3) MOBILITY

The HHTMP is cautious with the word "mobility" because the modernists cleverly twisted its meaning to support their interests. That is, "Mobility is the efficient movement of people and goods." The conventional interpretation of "mobility" emphasizes "movement" and "speed" and it doesn't question the quantity of movement (which they call "demand"), who is moving and who isn't moving, and the desirability of high speeds in cities. It translates to speeding up motorists and carrying motorists in greater numbers. "Mobility" is often used to sell people on highway projects because most people support the positive idea of increasing mobility. Because "mobility" is a good word, it sounds like good public policy. Obviously, increasing the populations' mobility is good public policy but that is not

synonymous with motorists driving faster, farther, and in greater numbers which is what highways and high-speed arterials induce.



“Mobility” is the populations’ capabilities and strategies to move in order to access what they need to live. Notice that “populations” is plural. There are many populations in Heritage Heights, Brampton, and the GTA: elderly people, children, people with disabilities, different income levels, pedestrians, cyclists, transit users, students, etc. All these populations have varying mobility needs. Their capabilities have to do with their: i) physical ability to walk, cycle, drive, etc.; and ii) the mode choices that they can afford and access privately or publicly. Their strategies have to do with adapting to changes within their built environment (e.g., changes to infrastructure, barriers, air quality, services, comfort, land use patterns, costs, etc.)

The proposed Highway 413 project affects different populations differently because it will affect the built environment and land use patterns. Highway 413 would ensure that Heritage Heights and everywhere else that it impacts will become relatively car dependent. It will result in barriers and large arterial roads to service the highway. Highway 413 will cause land uses to disperse over greater distances as a result of the highway’s rewarding longer and higher speed trips (i.e., sprawl). Consequently, the mobility of the non-motorist populations diminishes relative to that of the motorists.

Ironically, the mobility of the motorists will be lower too with the highway. Movement in Brampton, other cities, and throughout the GTA is purposeful. Mobility is about populations moving in order to access what they need (for entertainment, work, education, services cultural experiences, exercise, food, etc.) Typically, only about 20% of trips in cities have to do with going to work. About 80% have to do with everything else. By focusing on mobility, holistically, it is feasible to increase mobility while reducing traffic volumes, even with growing populations and growing economies. With good land use and transportation planning it is feasible for cities to increase mobility by mixing and/or densifying land uses and connecting trips ends effectively; this brings origins and destinations closer together and makes multimodal travel more feasible, which is exactly what the HHTMP proposes to do. In

Heritage Heights, people can still drive cars if they like. However, their car trips on average will be shorter and they will have healthy options to driving (i.e., higher mobility).

The Highway 413 project is conventionally oriented towards increasing levels-of-service and speeds for motorists, reducing “delays” for motorists, and other euphemisms for increasing speeds. The Highway 413 project does the opposite of rewarding proximity; it promotes long automobile trips and spreads out land uses, which aligns with increasingly obsolete mobility ideals.



SECTION ONE: INTRODUCTION



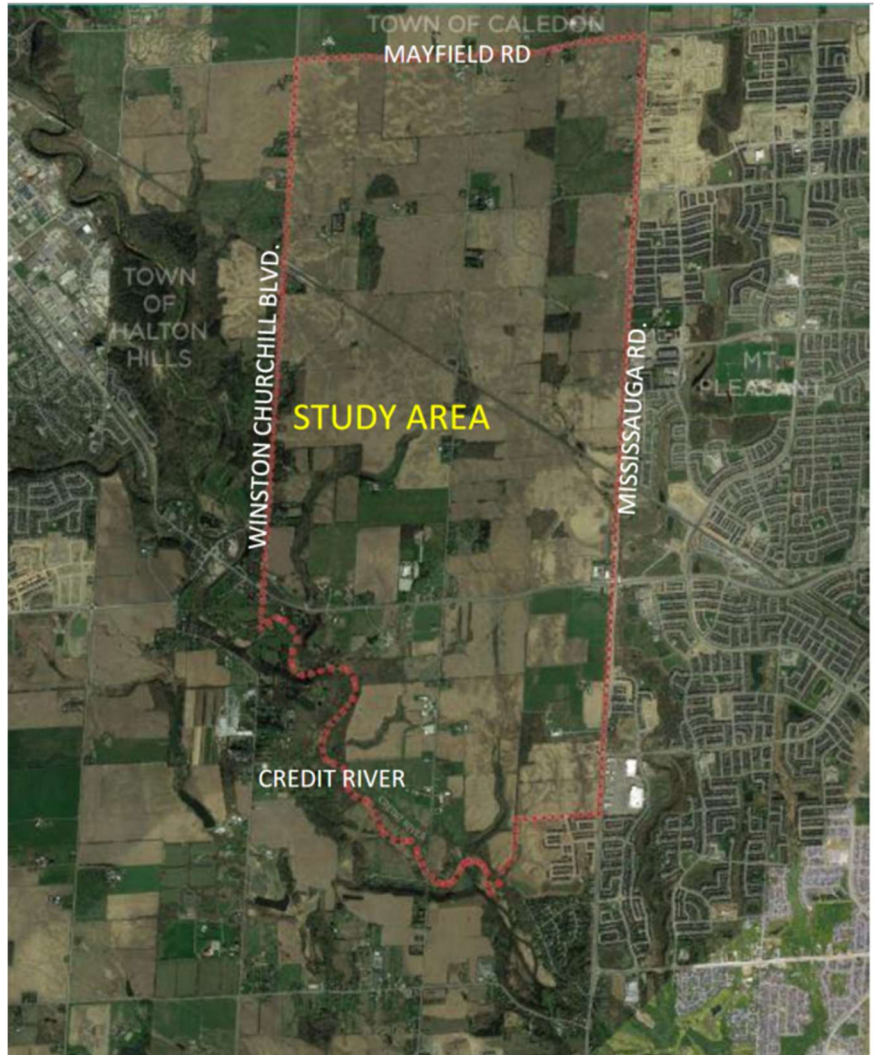
1.0 INTRODUCTION

1.1 PURPOSE

The purpose of the HHTMP is to provide transportation justification to the Heritage Heights Secondary Plan. The goal of which is to deliver a complete community that integrates land use planning, transportation planning, and economic development in a manner consistent with Brampton Council objectives to create a healthier and more sustainable community for future residents.

1.2 STUDY AREA

The Heritage Heights Community, (Secondary Plan Areas 52 Huttonville North & 53 Heritage Heights West), is Brampton’s largest remaining greenfield site. The community is located in northwest Brampton, bounded by Mayfield Road to the north, the Credit River valley to the south, Winston Churchill Boulevard to the west and Mississauga Road to the east, as is shown in the aerial to the right. This area is highlighted in the Brampton 2040 Vision (that was endorsed by Brampton City Council in May 2018), as the proposed location for a new town centre – a complete, full-service, mixed-use place with work and housing options.



1.3 BACKGROUND

In December 2009, Council authorized planning staff to initiate secondary planning for Secondary Plan Areas 52 & 53, collectively referred to as “Heritage Heights”. This effort resulted in the June 2014 Proposed Land Use Plan, which was approved “in-principle” by Council at the time for the purpose of moving forward with public consultation. This plan was predicated on the assumption of the GTA West Corridor being established as a Provincial 400 Series, Controlled Access Highway. Therefore, this plan will be referred to in this report as the “Highway Plan.”

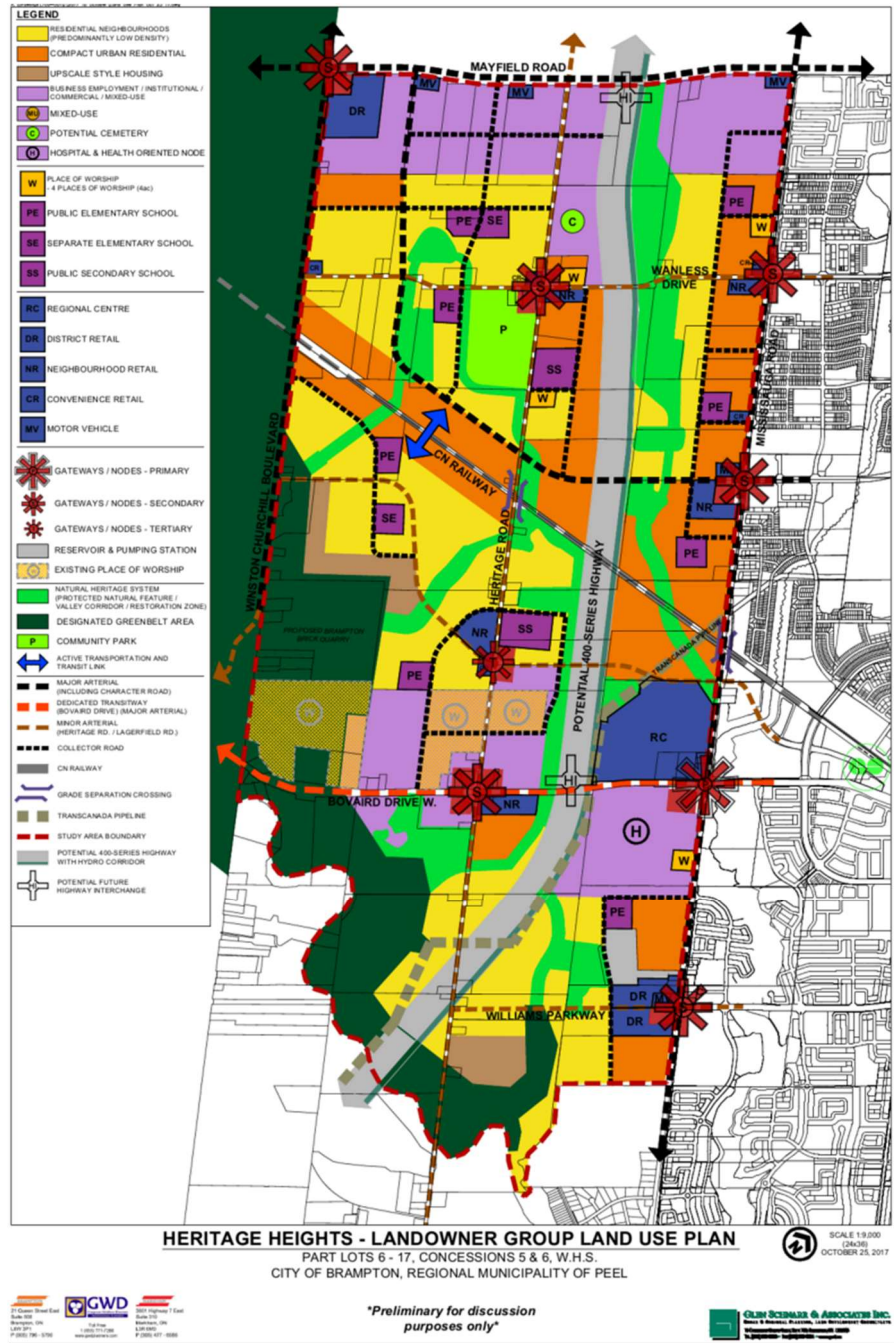
In April 2019, Council passed a subsequent resolution directing staff to revisit the 2014 Proposed Land Use Plan due to the uncertainty of many ongoing studies in the Heritage Heights Community and the need to engage all of the landowners within Secondary Plan Areas 52 & 53.

DEVELOPING THE PLAN

A multi-day Visioning Charrette to develop a new concept plan for Heritage Heights was held between November 26 and 29, 2019, at Cassie Campbell Community Centre in Brampton. Stakeholders, who took part in the charrette, included: landowners, City staff, Regional staff, School Boards, agencies, and the general public. The engagement process included workshops, open houses, and presentations designed to create feedback loops and deliver a vision for the lands effectively and in a timely manner.

The purpose of the Charrette was to develop a strong, community-supported, vision for Heritage Heights that implements the following actions contained in the Brampton 2040 Vision:

- Action 2.3: Create a Town Centre - for local work and leisure within the area;
- Action 3-2: Greenfield Neighbourhood Co-design Service - which calls for a collaborative approach to create new neighbourhoods on greenfield lands as models of comfortable, sustainable living; and
- Action 4-2: Complete Streets - which calls for designing new Brampton streets to be people-friendly and environmentally compatible places.



A key city-building principle that informed the work of participants at the November Charrette was the notion of 20-minute neighbourhoods and complete communities. Additionally, Brampton's Sustainable Community Development Guidelines reinforce the need for sustainable and walkable communities. The guidelines indicate that communities should be designed to enable residents to undertake the majority of their daily needs on foot – including accessing civic services and higher order transit. Building off this model, the 20-minute neighbourhood concept calls for the design of communities such that residents can undertake most of their daily needs within a 20-minute walk, (or a

walking distance of 1.5km) from where they live. Designing compact, mixed-use, communities is key to being able to deliver complete 20-minute neighborhoods.

A second Charrette was held in February of 2020 that brought together City staff, landowners, and other agencies to help shape the preliminary street and block pattern for the community. Key ideas that emerged during this charrette were the following:

- The replacement of the proposed 400-series controlled access highway (i.e., Highway 413) along the GTA West Transportation Corridor with an urban boulevard running north-south through Heritage Heights.
- Reorientation of value creation to the central spine of the plan – including the identification of a main street and three Major Transit Station Areas, versus the implausible scenarios to add value on the periphery of a car-oriented, highway-based plan;
- Leveraging the existing CN rail line to create a central focus for the plan around higher order transit; and
- The creation of a highly connected community where parks, schools, bike facilities, comfortable sidewalks, and higher order transit are located in close proximity to every household in the community.

The following Guiding Principles were created during the second charrette to guide future planning:

1. Heritage Heights should be walkable and provide opportunities for people to gather, recreate, work, and live;
2. Development should be compact with a focus on mixed-use and affordability;
3. Development should be green – sustainable and resilient;
4. Heritage Heights should leverage arts and culture to create a unique and authentic place that will express Brampton's diversity and attract investment;
5. Heritage Heights should respect and conserve the natural and cultural heritage of the area, creating a destination for local and regional visitors;
6. The community should be designed to create an environment that attracts investment and talent;
7. Physical, mental, and social wellbeing should be planned for and prioritized through the design of people-centric spaces that are safe and resilient for all ages; and
8. Open spaces should be integrated into the design of neighbourhoods to contribute positively to, and be sensitive to, existing ecological systems.

A final virtual Charrette (as a result of COVID-19), that brought together relevant stakeholders in June to July of 2020, resulted in the creation of the concept plan that was later unanimously endorsed by City Council in August of 2020.

1.4 THE CHALLENGES

The Heritage Heights Secondary Plan (HHSP) area is to be planned to accommodate approximately 124,000 people and 43,000 jobs within the 2051 planning horizon. The Provincial Growth Plan sets targets, requiring a minimum of 150 to 160 residents and jobs combined per hectare for areas served by Regional Mobility hubs, as well as light rail transit (LRT) or bus rapid transit (BRT). Outside of higher order transit areas, the current minimum Greenfield target is 50 residents and jobs combined per hectare. The HHSP far exceeds the provincial minimums, achieving 170 persons plus jobs per hectare. Accommodating this level of growth requires a superior approach, like the one embodied in the HHTMP, compared to conventional transportation and land use planning.

HEALTH AND CLIMATE EMERGENCIES

In December 2019, Brampton Council passed a resolution that recognized the unique and urgent needs of Brampton's health care system, including major funding gaps, long wait times, and hallway medicine. The resolution requested immediate action from all health care system providers. In January 2020, Brampton City Council unanimously passed a motion to declare a Health Care Emergency in Brampton. The plan for Heritage Heights

seeks to address these actions, not only by pursuing healthier design patterns, but also by proposing to locate a new hospital in Heritage Heights.

Community health is significantly impacted by the built environment, which consists of transportation systems, land use patterns, and urban design. Conventional suburban designs include low-density land uses, automobile dependence, and less than walkable streets, which contribute to:

- Poor health behaviors (primarily low levels of physical activity);
- Increased risks of obesity; and
- Increased chronic diseases, including cardiovascular disease, type 2 diabetes, asthma, and respiratory diseases.

On February 23, 2017, Regional Council adopted [Regional Official Plan Amendment \(ROPA\) 27](#). ROPA 27 includes policies related to health and the built environment, age-friendly planning, and technical and administrative updates.

In June 2019, Brampton Council declared a climate emergency and is committed to sustainable practices and the protection of the city's ecosystems and communities from climate change. Following the declaration, the City engaged with all relevant levels of government (Federal, Provincial, and Regional) as well as agencies, school boards, and other stakeholders on plans related to climate change adaptation and mitigation with the goal to implement recommendations for the City to achieve a climate change target of 80 per cent greenhouse gas reduction by 2050. Addressing the climate change emergency will require an urban and energy transition, which will result in several economic, social, and environmental benefits. The City of Brampton is developing various actions to establish Brampton as a climate leader and position it to realize the many benefits of proactively dealing with our climate emergency. The HHSP exemplifies the kind of approaches that are required to achieve the City's climate goals. Changing from an automobile-centric and highway-oriented plan to a plan that rewards short trips, walking trips, bike trips, and transit trips is a big step in the right direction. It's also a good model for the Province, Region, and other cities to support and follow.

HIGHWAY 413 OPPOSITION

In 2021, Mississauga City Council and Brampton City Council passed resolutions opposing Highway 413 through Heritage Heights. Council for the Town of Caledon supported calls for Federal intervention in the provincial Environmental Assessment Process for the highway. Peel Regional Council passed a resolution opposing any and all advanced construction associated with preparations for a GTA West Highway and Transmission Corridor, provided support for the request for a Federal Environmental Assessment, and declared opposition in principle to the construction of any transportation corridor traversing the Region of Peel. Regional Council also passed resolutions requesting that the provincial government and Regional staff study alternatives to a 400-series controlled access highway within the GTA West Transportation Corridor, such as the boulevard option proposed by Brampton. They further requested that provincial money budgeted for the GTA West Transportation Corridor be invested into regionally connected transit, active transportation, and other sustainable modes of transportation.

RESPECT FOR CONSTRAINTS

The HHTMP is respectful of what are presently and should continue to be constraints. For example, Winston Churchill Boulevard is a 2-lane heritage road and the boundary between the preserved lands to the west and Heritage Heights. The previous Highway Plan, showed four, four-lane, east-west, arterial roads connecting to Winston Churchill Boulevard, including: Mayfield Road, Wanless Drive, an unnamed road, and Bovaird Drive. There is no transportation reason for Wanless Drive and the unnamed road to be four lanes, each, at Winston Churchill Boulevard, unless the unstated intent is to eventually undermine the Winston Churchill Boulevard's heritage status and widen it beyond two lanes. Similarly, Bovaird Drive is shown as four lanes to the border of Brampton. Norval is an unincorporated village, that dates back to 1820, which is part of the Town of Halton Hills. It is located on the Credit River on other side of the Brampton border. Norval does not want a wider road for quality-of-life and scale

reasons. Consequently, the previous Highway Plan sets up Norval to fail as a place. The Heritage Heights plan recognizes this desirable constraint and proposed to respect it in perpetuity.

The HHTMP is purposefully a departure from the conventional model that presumes that it is a given that newly developed areas need to be automobile dominated and unconstrained. Interestingly, many of the best cities and places in the world are urban and are constrained and, consequently, they have developed and evolved without routine widenings and increasing car dependency. The HHTMP is purposefully imposing a design rigor and constraints on itself to primarily use a connected network of 2-lane streets and not use a dendritic hierarchy with multilane roads with fast design speeds. The reasons are simple; to maximize walkability, quality of life, comfort, safety, sustainability, and to create a human scale. Conventional models are willing to sacrifice those outcomes for motor vehicle dependency, high speeds, conformity to suburban expectations, and conformity to design practices like those still being used at the MTO. The conventional models may still be legal and normal in many places, but the world is changing towards sustainability and aligning its actions with its policies accordingly. So, in sum, the HHTMP has set itself a higher ethical bar.

1.5 THE ALTERNATIVES

A high-level screening was undertaken by the MTO to assess the broad range of infrastructure options that would be suitable in the GTA West Corridor, and the subsequent street network required to support it. The infrastructure that was assessed ranged from no highway (local network only) to a 400 Series Highway, to an Urban Boulevard or a hybrid approach between Highway and Boulevard. Various modal splits were assumed based on anticipated transit service depending on the type of infrastructure.

1.5.1 HIGHWAY 413

The MTO's Highway 413 plan and its environmental evaluation were based on the conventional transportation paradigm, which embraces values and metrics that prioritize automobile users, long-distance trips, sprawl, and high motor vehicle speeds. Brampton and an increasing number of nearby cities favor infrastructure, policies and programs based on the traditional transportation paradigm, which prioritizes human-scaled infrastructure, multiple modes, network, slower speeds, transit-oriented design, access, proximity, exchange, and relatively sustainable outcomes. A cursory glance at the news about climate change and community health indicates that the cities are on the right side of history and the MTO is not. There is a direct conflict between the proposed highway project and the values and priorities of Brampton. The highway would result in unnecessary and preventable negative costs and impacts to Brampton residents, the environment, and communities outside of Brampton.

The MTO's environmental assessment (EA) is only considering highway alternatives. There were some non-highway strawman options considered and rejected prior to the EA, but nothing competitive. Consequently, under a little scrutiny, the environmental assessment appears incomplete; not a single relatively sustainable option was considered. If the EA remains incomplete, it ought to be invalidated, redone, or altered significantly to include environmentally superior alternatives. It's not 1955 anymore and we know the consequences of building highways like the proposed 413. We've seen the benefits of not building highways in the GTA and in other cities. Consequently, it is implausible that a 400-series highway is the best alternative, environmentally. Furthermore, the criteria to establish the alternatives were flawed. Only a 400-series highway could meet the criteria, so the best alternative had to be a 400-series highway. Consequently, the process was gamed to result in a 400-series highway outcome. Clearly, this approach violates the intent of environmental assessments which ought to look at a spectrum of options and have objective criteria.

1.5.2 HERITAGE HEIGHTS BOULEVARD

1.5.2.1 Metrics

There are a variety of methods to measure the efficacy of the urban design of Heritage Heights in creating a vibrant and sustainable community. The following metrics should not be viewed individually, but as a collective to measure and track the success of the plan.

Land Consumption

Unlike the plan for Highway 413, the transportation network for Heritage Heights was integrated with the land use plan. As a result, half the land per capita can be developed compared to the suburban sprawl model. In other words, the sprawl model would need a land area equal to two Heritage Heights to accommodate the same number of people and jobs. In a comparison of the Highway Plan with the current HHSP conducted by Watson and Associates, it was demonstrated that the Highway Plan would yield approximately 60,000 population and 20,000 jobs. The HHSP, by comparison, yields approximately 124,000 population and 43,000 jobs. In efforts to support the goals of the Provincial Growth Plan, a more responsible approach to planning (such as is being put forth in the HHSP) is required and that is what the HHSP achieves. Some highlights of the comparison of the two plans are as follows:

- The HHSP envisions a much greater density of development/utilization of land than the Highway Plan, resulting in significantly higher population, housing, and employment yields at buildout;
- The HHSP provides a more balanced residential and non-residential development scenario than the Highway Plan. The activity rate (jobs to population ratio) for the HHSP is 35% compared to 30% for the Highway Plan; and
- With respect to overall density, the HHSP 169 people and jobs per hectare compared to 79 people and jobs per hectare for the Highway Plan.

	2020 Concept Plan		2014 Concept Plan	
	Land Area (ha)	% Share	Land Area (ha)	% Share
Residential	541	55%	428	43%
Mixed-Use	73	7%	-	0%
Non-Residential	174	18%	235	24%
Total Developable	787	80%	663	67%
Non-Developable	200	20%	324	33%
Total	987	100%	987	100%
Population				
		123,730		59,920
Housing				
		35,855		15,920
Employment				
		42,880		17,980
Activity Rate (jobs to population ratio)				
		35%		30%
Density (P + J per ha)				
		169		79

Source: Watson & Associates Economists Ltd.

Economic Development and Tax Base

The urban model supported by this HHTMP results in approximately double the value and tax revenues:

- The estimated annual property tax revenue in the HHSP at buildout is \$244.6 million, of which 77% is from residential sources and 23% from non-residential sources.
- This is compared to \$133.1 million in the Highway Plan, of which 74% is from residential development and 26% from non-residential development.

Compared to the Highway Plan, the HHSP is financially prudent because it establishes infrastructure and a transportation network that creates more opportunities for the development community, the City, and the future population of Heritage Heights, as indicated by the work by Watson and Associates.

2014 Concept Plan

Residential	Growth	Assessment Increase (\$)	Tax Class	Total Tax Rate	Property Tax Revenue (\$)
	Units				
Low Density	9,495	\$7,174,220,000	RT	0.95%	\$68,392,000
Compact Urban	3,825	\$1,996,907,000	RT	0.95%	\$19,037,000
Executive	325	\$358,058,000	RT	0.95%	\$3,413,000
High Density - Purpose-Built Apartments	800	\$232,883,000	NT	0.95%	\$2,220,000
High Density - Condominiums	1,475	\$536,076,000	RT	0.95%	\$5,110,000
Residential Total	15,920	\$10,298,144,000			\$98,173,000
Non-Residential		sq.m			
Commercial Population-Related	274,000	\$920,178,000	XT	1.98%	\$18,245,000
Employment Lands	147,000	\$174,627,000	JT	2.16%	\$3,766,000
Business Employment	132,000	\$344,592,000	YT	1.98%	\$6,833,000
Regional Shopping Centre	113,000	\$306,871,000	ZT	1.98%	\$6,085,000
Schools	65,000	\$98,522,000	E	0.00%	\$0
Non-Residential Total	731,000	\$1,844,790,000			\$34,928,000
2014 Concept Plan Total		\$12,142,934,000			\$133,101,000

Source: Watson & Associates Economists Ltd.

Note: Figures have been rounded. High-density residential growth is assumed to be 35% purpose-built and 65% condominium units.

2020 Concept Plan

Residential	Growth	Assessment Increase (\$)	Tax Class	Total Tax Rate	Property Tax Revenue (\$)
	Units				
Low Density	13,655	\$10,317,428,000	RT	0.95%	\$98,357,000
Medium Density	11,225	\$5,860,204,000	RT	0.95%	\$55,866,000
High Density - Purpose-Built Apartments	3,800	\$1,105,394,000	NT	0.95%	\$10,538,000
High-Density - Condominiums	7,000	\$2,545,088,000	RT	0.95%	\$24,262,000
Residential Total	35,680	\$19,828,114,000			\$189,023,000
Non-Residential		sq.m			
Commercial Population-Related (Mixed-Use M.T.S.A.s)	211,000	\$708,605,000	XT	1.98%	\$14,050,000
Institutional - Mixed-Use M.T.S.A.s	129,000	\$195,529,000	E	0.00%	\$0
Major Office/Office - Mixed-Use M.T.S.A.s	437,000	\$1,140,807,000	YT	1.98%	\$22,620,000
Wellness District	148,600	\$262,283,000			\$5,790,000
Hospital Component	133,700	\$212,379,000	E	0.00%	\$0
Commercial Component	14,900	\$49,905,000	XT	1.98%	\$5,790,000
Commercial Population-Related - Outside M.T.S.A.s	110,000	\$369,415,000	XT	1.98%	\$7,325,000
Institutional - Outside M.T.S.A.s	127,000	\$192,498,000	E	0.00%	\$0
Employment Lands	226,000	\$268,474,000	JT	2.16%	\$5,790,000
Non-Residential Total	1,388,600	\$3,137,610,000			\$55,574,000
2020 Concept Plan Total		\$22,965,724,000			\$244,597,000

Source: Watson & Associates Economists Ltd.

Note: Figures have been rounded. High-density residential growth is assumed to be 35% purpose-built and 65% condominium units. Wellness District hospital and commercial components estimated by Watson & Associates Economists Ltd.

Carbon Emissions and Energy Consumption

The HHSP was developed to shorten average trips lengths, make walking, cycling, and transit use pleasant, easy, and convenient. The street network was designed up front to result in complete streets, legibility, convenience, and comfort for active transportation (walking, cycling, and transit). Transportation is a major source of greenhouse gas emissions. The approach outlined above will further the City's objectives to decrease greenhouse gas emissions.

Vehicle Kilometres Travelled (VKT) Reduction

The street network and land use plan were crafted to result in short average trip lengths (to reward proximity and direct routing), high modal splits for active transportation, and vibrancy (i.e., position Heritage Heights core for a desirable concentration of human exchange that is perceived as vibrant). The plan is to have a highly connected, dense, and diverse mix of land uses such that Brampton's population and economy will grow while reducing its automobile dependency.

Health

In Heritage Heights, walking, cycling, and accessing transit will result in better health outcomes as a result of increased activity, less pollution, increased socialization and more connections with nature – as compared to a suburban sprawl development. Most residents will live within a ten-minute walk to a major transit station, three-minute walk to a park or nature trail and a five-minute walk to an elementary school. The street and trail networks were designed to make those walks legible, comfortable, engaging, convenient, and direct. The intent of the HHTMP is to make the entire area friendly for recreating, socializing, and commuting actively within the public realm. In this way, physical activity will be built into people's (of all ages) routines through a thoughtful plan.

The Peel Long Range Transportation Plan – Update 2012, indicates that widening existing roads and building new ones will be insufficient to meet future growth in travel “demand.” While it is anticipated that greater car-pooling will contribute to reduced automobile volumes, substantial increases in mode share for public transit and active transportation and shorter trips will be required to avoid a disfunction place and high levels of congestion. Efficient transit use requires denser, more connected, and more walkable communities, with trip-ends closer together. In other words, a responsible transportation approach requires a companion land use strategy – they work together to achieve desirable outcomes, as is being proposed for Heritage Heights.

1.5.2.2 CASE STUDIES

There are numerous examples from around the world that represent tangible examples of the approaches outlined in this HHTMP. As touched on earlier, the removal of the Embarcadero Freeway in San Francisco is a notable precedent. Following an earthquake in 1989 that resulted in the collapse of the highway numerous studies were conducted by transportation engineers that stressed the importance of rebuilding the Embarcadero Freeway. Without which, conventional engineers predicted San Francisco would choke on congestion. A decision was made not to build the highway, instead a boulevard was constructed in its place. The result was less auto-dependency, lower average daily traffic volumes (ADTs), and significant increases in economic development activity. San Francisco is doing much better without the highway. Interestingly, it also shed light on the legitimacy of conventional traffic demand forecast models to predict the ability of cities to reach a better balance in terms of transportation and land use, without highways. Cities such as Vancouver, Paris, and Copenhagen have also chosen more sustainable directions and are better cities as a result. The pattern is that these cities have achieved better balances between access, housing, jobs, transit, walkability, and all the ingredients that make wonderful cities with growing populations and economies. The pattern indicates that: i) adding highways or removing highways; and ii) becoming less automobile dependent or more automobile depended is a choice. Brampton is choosing the latter and recommends that other cities, the Region, and the Province do the same.

1.6 CORRIDOR PROTECTION POLICIES

Heritage Heights is subject to corridor protection policies in both the City's and Region's Official Plans. It should be noted that these policies are not explicit in requiring a 400 series limited access highway. Rather, the policies speak to a higher order piece of transportation infrastructure that could also be a boulevard, like the Heritage Heights Boulevard proposed in this HHTMP. For the purposes of MTO's EA, the area implicated by such policies was confirmed in September 2019 when MTO announced their Technically Preferred Route (“TPR”) for the GTA West Corridor. The TPR is subject to revision as MTO advances their technical work. Of significance is the province's


characterization of lands within the GTA West corridor as either: Focused Analysis Area (“FAA”) or Area of Reduced Interest (“ARI”). The FAA is a zone surrounding the TPR.

By confirming the TPR, lands impacted by the corridor have now been reduced and the expectation is that a further narrowing will occur with further study. The following explains the different impact that FAA versus ARI has on development:

- Focused Analysis Area Lands – These lands remain frozen pending completion of MTO’s work to identify the final alignment of the corridor. MTO will not permit any development that would constrain the selection of the final corridor alignment within the FAA.
- Area of Reduced Interest - Applications for development within this area can proceed through the municipal development process. All such applications will be reviewed by the Province, but it is anticipated that these applications will not be impacted by the transportation corridor. Following confirmation of the preferred route it is expected that the ARI will be lifted.



Again, all of this is fine because it allows for the Heritage Heights Boulevard to move forward. However, the boulevard will require less right-of-way, and is more flexible to avoid sensitive areas, due to the boulevard’s slower and safer design speed, when compared to the Highway 413 idea.



**SECTION TWO:
LAND USE AND URBAN
DESIGN**



2.0 LAND USE AND URBAN DESIGN

The best transportation solution is a good land use plan, which speaks to the transportation purpose of cities (i.e., reduce average trip lengths by providing what people need in close proximity). The HHTMP has been intentionally designed to minimize the need to travel long distances. Through compact and mixed-use development, oriented around higher order transit, Heritage Heights will maximize short trips on foot, on bicycle, by car, and by transit to add value to the community and increase social and economic exchange. Conversely, long haul trips by car that add to congestion and fuel sprawl will be discouraged in general but encouraged to become transit trips. Heritage Heights will exemplify how to bring together land use planning, transportation planning, and economic development to achieve a smarter and more sustainable community. It is anticipated that Heritage Heights will have some of the highest walking, cycling, and transit modal splits in the city as a direct result of the compact, connected, and mixed-use approach to land use, combined with a connected network of complete streets.

2.1 COMMUNITY DESIGN PRINCIPLES

Design goals and objectives are the functional and non-functional targets for the built form of Heritage Heights. These elements guide the design and decision-making process and provide a method to measure results.

Convenience

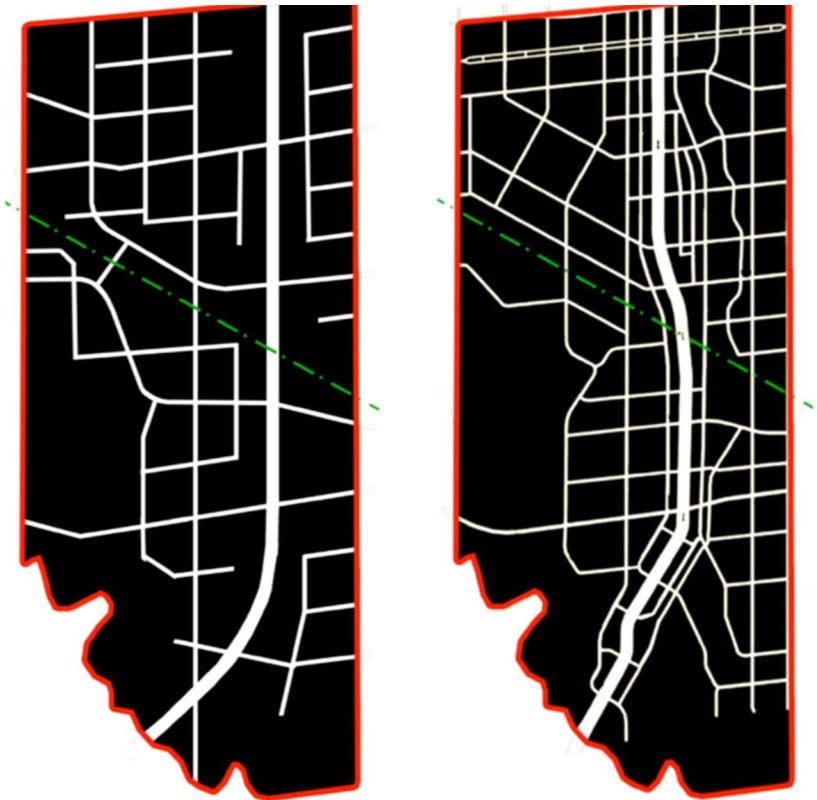
Heritage Heights will foster efficient and effective social and economic exchange by having what people routinely need and want nearby through the appropriate mix and density of land uses. The idea of “walk scores” is a measure, from zero to 100 that speaks to a typical mix of things that people need within a convenient walk. Heritage Heights will have a very high walk score.

Connectivity

Heritage Heights will have land uses, open spaces, streets, and people visually and physically linked together with multiple routing options via their street network, paths, trails, parks, intersections, crossings, and other connections to increase the utility for pedestrians, cyclists, and transit users. The streets will be places unto themselves. They will not be barriers that stifle connectivity like one would find with conventional suburban collector roads and arterial roads.

A north/south highway would sever connectivity within Heritage Heights, whereas a boulevard will maximize connectivity as is shown in the figure to the right.

The GTA West Corridor (left) divides Heritage Heights, limiting network connectivity and overall access. In contrast, a Boulevard provides for maximum connectivity, access, and safe multimodal connections throughout the community.



Accessibility

Accessibility means that the Heritage Heights' street network can be easily utilized by pedestrians, cyclists, and transit users. "Accessible" and "universally accessible" are highly related but not synonymous. There are many environments such as in Old Quebec City, some trails in Vancouver's Stanley Park, etc., that are completely accessible for average people with average physical capabilities but not accessible to people with disabilities. Many people with disabilities can only walk very short distances, cannot handle slopes or steps, require a wheelchair, have a heart condition, etc. However, a myriad of environments that able-bodied people find very accessible are not easily accessed by a person in a wheelchair. In Heritage Heights, the emphasis will be on universal accessibility. The idea is to make it as easy as feasible for people with disabilities to access and enjoy the public realm, be as independent as feasible, and find what they need close by. Example design directions include: i) curbless streets around schools, parks, and in the core, where transit, land mixes and services are most concentrated (this helps people with mobility disabilities, people pushing baby carriages, people pulling roller bags, etc.); ii) tactile guidance to help people with vision disabilities navigate the public realm; iii) reduced trips lengths which helps people who are unable to walk long distances; iv) legibility, so that young people or people with lower cognitive abilities can navigate more easily; and v) equity, so that people of all financial means can participate in the public realm. The sum of these design directions will result in a more inclusive and accessible public realm for everybody.

Comfort

Comfort begins with the person's feeling of personal safety and the person being at ease with his or her surroundings. The HHTMP acknowledges that the "feeling of safety" is as important as being "safe". "Safe" is the statistical condition towards the end of the scale of risk, in which nothing harmful can happen to a person. Safer environments are created by using best practices. However, the perceptions of safety, in various environments, vary greatly depending on the pedestrian's gender, dress and deportment, age, physical ability, time of day, mental acuity, etc. To be comfortable, it is necessary that an environment be perceived as safe and, in a perfect world, be safe. Comfort plays a major role in decision-making about walking, cycling, and taking transit. For example, "Is an employee comfortable walking to the bus stop and waiting at the bus stop? Is a parent comfortable with their eight-year-old daughter walking the three blocks to school? After a night class, is the arts student comfortable cycling across the core of Heritage Heights, along 200m of a trail, and down 350m of neighborhood streets to reach her apartment?" None of these people have statistics regarding their personal safety. So they do not know how safe they are. But they all will know exactly how safe they feel (i.e., how comfortable they are). The HHTMP was designed to maximize comfort and, thus, maximize the number of people who will choose active transportation along streets and trails that are designed to be as safe as feasible.

Comfort, within the public realm, is also increased significantly through "natural surveillance." It is a basic principle of good design and, more recently, recognized as a principle of Crime Prevention Through Environmental Design (CPTED). The sidewalks, bike lanes, trails, parks, open spaces, and nature corridors are designed to be public and be perceived as public. The open spaces, within Heritage Heights will be fronted streets, which will be overlooked by buildings so that these spaces are observed through windows, doors, and street activity. Buildings will not back onto streets or open spaces in Heritage Heights.

The other side of comfort has to do with physical comfort. Is there shade along the sidewalks, trails and bus stops for hot summer days? Are there wind tunnel effects? Are there shelters at the bus stops and shed-style awnings along the Main Street in case of rain?

Safety

Comfort and safety are highly related. Measures to increase comfort for the most vulnerable street users typically increase safety as well. A safe transportation environment means that people are secure from danger or harm. Perfect safety may not be achievable, but a deliberate pursuit of increased safety is achievable. Safety is increased

by using best planning and design practices. At the planning level, the HHTMP is incorporating best practices and it encourages best practices in subsequent design stages.

The most dangerous user of the public realm is the motorist. The largest risk factor for safety is motor vehicle speed. The entire community is designed to reduce the number of people who chose to drive cars, shorten their trip lengths, and ensure slower and safer speeds. Less car use reduces the populations' exposure to risk. Plus, the streets will be designed for slow and safe speeds, which reduces risk. Reduced exposure and risk will result in safer and more comfortable streets for everybody. To that end, the conventional 85th percentile speed practice for setting speed limits will not be used in Heritage Heights. That practice only considers the motorists' perspective. It ignores perspectives of people walking, cycling, using transit, residing, socializing, recreating, or conducting business on, along or across the streets. If motorists habitually exceed the desired speeds, then measures will be taken to correct the motorists' speeding behaviors, not increase the speed limits.

Engagement

The HHTMP will result in a transportation environment that provides sustained appeal or interest to pedestrian, cyclists, transit users, and motorists. Engaging environments are most important for pedestrians because it is the slowest and most basic mode. Furthermore, cyclists, transit users, and motorists often start and end their trips on foot. Engagement encourages people to willingly walk and cycle farther, resulting in a myriad of benefits ranging from larger catchment areas for transit, to reduced chauffeuring children to school, to better health outcomes.

Nicely scaled and uninterrupted (by driveways) sidewalks will exist along retail streets, through neighbourhoods, through parks, along trails and in the core. All contexts, within Heritage Heights, will provide engaging environments and be appealing and of interest to the pedestrian. The level of complexity will range from low, in naturally beautiful areas, to high, along the main street. Visual interest will be provided by trees, nicely designed homes, shop windows, building facades, landscaping, public art, views, attractive awnings, interpretive markers, nicely designed streets, and active spaces such as outdoor dining areas, playgrounds, and seating areas.

Equity

The HHTMP strives to provide a transportation environment that results in fair or equal utility for all pedestrians, cyclists, and transit users regardless of their age, physical ability or mental capacity, such that they can participate as fully as feasible in Heritage Heights. This is in stark contrast to the previous TMP which was designed so that motorists would dominate the public realm, resulting in inequities caused by barriers, discomfort, indirect routing, excessive speeds, age differences, ability differences, and differences in income.

Accessibility and equity are related. Advances in design techniques, designers' sensitivities, design guidelines, and accessibility laws have greatly increased accessibility for people who had previously and routinely been excluded. Examples include shared spaces, curbsless streets, complete streets, traffic calmed streets, road diets, etc. There are also advances in tactile surfaces to help people with visual impairments comfortably navigate previously unnavigable streets, plazas, and transit stations.

The inequities in conventional transportation practices in cities run far deeper than the differences of accommodation of people with differing abilities or financial means. The far larger inequity is rooted in "normal practice" which has evolved to give low priority and importance on active transport and short trips and give high priority and importance to motorists' speed and long/less sustainable trips (i.e., often referred to a "regional" trips). This conventional bias results in: i) a myriad of problems ranging from sprawl, to poor safety outcomes, to excessive energy consumption; and ii) a planning and funding emphasis on rewarding regional trips over short trips and active trips. This bias is routinely expressed in most aspects of conventional practice, ranging from the conventional "functional classification of streets," to design speeds, to performance metrics, to intersection spacing requirements, etc.

The deep-seated inequities began with the modernist movement are currently due to:

- i) lack of awareness by the involved professionals, agencies, levels of government, and the public;
- ii) the involved professions' placing and high priority on motor vehicle speed and level of service;
- iii) lobby groups and powerful industries who profit from conventional practices, pressing for pro-automobile or pro-truck-oriented streets and development;
- iv) out-of-date and out-of-touch funding practices, particularly at the provincial level;
- v) incomplete and out-of-date design manuals, standard practices and measures of effectiveness, particularly for arterial and collector streets; vi) automobile-focused computer modeling and forecasting;
- vii) a misunderstanding of the idea of "mobility" by conventional transportation practitioners;
- viii) the disconnect between the people and agencies responsible for streets and the people responsible for other aspects of city-making; and
- ix) implicit bias against low-income, non-motorists, and vulnerable populations.

Such anti-walkability, cycling, and transit tradeoffs are routinely considered normal and reasonable by conventional practitioners, as was the case with the Highway 413 proposal and the previous TMP. Fortunately, attitudes have changed in Brampton and are changing elsewhere. The HHTMP's intent is to: i) raise the bar on walkability, safety, and equity as high as feasible; and ii) be a good example for the rest of Brampton, other cities, the Region of Peel, and the Province of Ontario.

Legibility

The HHTMP helps to ensure that people find Heritage Heights understandable, intuitively navigable, and have the ability to easily become and stay oriented through its basic layout, landmarks, and design. In other words, people of average intelligence should be able to develop a cognitive map of the area fairly quickly and then stay oriented.

Wayfinding is not the same as legibility. Wayfinding involves signs, markings, maps, navigation devices, etc. Wayfinding supplements the inherent legibility of a place. Wayfinding can ameliorate poor legibility but is not synonymous with legibility. Because the HHTMP has built in a high degree of legibility, Heritage Heights will likely need minimal wayfinding.

2.2 TRANSIT-ORIENTED DEVELOPMENT

Three Major Transit Station Areas (MTSAs) have been planned for Heritage Heights as follows:

- 1) Proposed Heritage Heights GO Station - located at the confluence of the CN Rail line and Heritage Heights Boulevard;
- 2) Higher order transit station - located at the intersection of Wanless Drive and Heritage Heights Boulevard; and
- 3) Higher order transit station - located at the intersection of Bovaird Drive and Heritage Heights Boulevard.

Transit-Oriented Development (TOD) typically encourages mixed-use development adjacent to a defined public transit corridor or within a node or station area, with a focus on pedestrian access to transit services and local amenities. The objectives of TOD are as follows:

- Mixed-use, transit-supportive land use with a range of housing choices;
- Increase density around transit terminals;
- Create safe, accessible, pedestrian-oriented design;
- Make each community distinctive and attractive with a sense of place;
- Encouragement of transit use, without excluding the automobile;
- Comprehensive Transportation Demand Management; and
- Ensure that community benefits are reflective of needs.

The whole of Heritage Heights is a TOD. It goes well beyond typical TODs that often involve retrofit conventional situations. From the inception of the street network in Heritage Heights to the organization of the land uses, this TOD has left few stones unturned to maximize transit use.

2.3 TRANSIT-SUPPORTIVE LAND USES

Transit-supportive land uses contribute to increased use of transit and generally more efficient and effective places for social and economic exchange. Land uses in the vicinity of the proposed Heritage Heights GO station should include the following considerations:

- High employment and residential densities;
- Encourage transportation services outside of peak hours and services for opposite direction to the peak flows (i.e., attract reverse flow travel on GO rail and AcceleRide);
- Encourage extended hours of activity;
- Encourage pedestrian users with attractive and direct pedestrian connections;
- A “park once” environment; and
- Pick-up and drop-off zones.

Examples of appropriate land uses could include:

- Medium to high-density mixed-use development;
- Employment centres with office and commercial components;
- Post-secondary educational opportunities and institutional uses such as a hospital;
- At-grade commercial and street retail;
- Personal service uses; and
- Medical and childcare centres.

Transit-supportive land uses should also be located in areas that have been designated as transit corridors and include the following considerations:

- Mixed-use development;
- Convenient access to transit stops; and
- Pedestrian scale development and a comfortable/safe pedestrian realm.

In the remainder of transit-supportive corridors, it is important to encourage transit-supportive land uses, such as:

- Medium to high-density mixed-use development;
- Office and commercial development; and
- At-grade commercial, including street retail.

Uses that are not supportive of enhanced transit use should be avoided, such as the following:

- Gas stations;
- Car lots;
- Big box retail or other commercial uses with large surface parking lots;
- Auto-sales;
- Drive-through services;
- Storage businesses, and
- Low-density residential.

It is also highly beneficial to support and encourage design measures that enhance the streetscape for pedestrians and contribute to traffic calming.



SECTION THREE: STREET NETWORK



3.0 STREET NETWORK

3.1 GRID OF CONTINUOUS AND CONNECTED STREETS

The street network in the HHSP is intended to reflect the principles of continuity and connectivity of streets. A network of streets, with direct connections to existing streets, provides an efficient way for future residents and workers in Heritage Heights and adjacent existing communities to travel between neighbourhoods, whether by automobile, transit, walking, or cycling. Multiple and continuous street connections in Heritage Heights will encourage direct travel and reduce the reliance and pressure placed on individual intersections. This achieves the benefit of better operations, behaviours, and comfort at intersections for all modes and shorter

A “road” generally describes any **throughway** in a rural setting that connects two points.

“Streets,” **are public spaces, in urban settings, that have buildings on one or both sides** and a compatible travel way down the middle.

travel distances. By dispersing traffic throughout the street network, the traffic volumes on the majority of the framework streets in Heritage Heights (i.e., not the local streets) will be lower than in conventional communities, creating opportunities for more human scaled, inclusive, and attractive street design. As a consequence, the proposed HHSP creates the ability to employ narrower streets, on-street parking, and other supportive design measures that would not exist in conventional places. The continuous and connected street network in the Heritage Heights Secondary Plan also supports an effective and efficient transit system in Heritage Heights. The grid of complete streets is a key element of the transit plan, allowing transit agencies to effectively and efficiently operate within Heritage Heights and optimize their routing due to multiple routing options.

3.2 STREET ELEMENTS AND DESIGN PRINCIPLES

It is anticipated that the HHSP can accommodate automobiles, transit vehicles, pedestrians, and cyclists by providing an efficient and effective network of streets with cross-sections and design measures that enhance the experience for all users. The network will promote direct travel and multiple routing options, resulting in redundancy and resilience.

Design standards that result in inclusive and comfortable streets will be used in the Heritage Heights Secondary Plan area and should satisfy objectives related to:

- Being respectful of the natural heritage system (areas of environmental significance) and other open spaces;
- encouraging vibrancy in the high density areas;
- supporting the land uses that address the streets; and
- providing a continuous and connected grid of street in Heritage Heights.

Cross-sections proposed for implementation in the HHSP area reflect the planning, physical, and environmental context within which streets are located, as well as the intended functions of the street. In some instances, proposed streets will support higher density development with wider sidewalks and retail zones to encourage high levels of activity. In other instances, the streets will reflect the presence of the natural heritage system in Heritage Heights. In all instances, the proposed network and street cross-sections will respect the desired balance of multimodal access, support for the land uses, environmental stewardship, comfort and safety, emergency services, mobility for various populations within Heritage Heights, and connectivity with the city’s existing transportation system and that of Brampton’s neighbours.

Attached to the HHTMP, as Appendix 1, is a key map and corresponding sections for all framework streets in Heritage Heights. The following sections of the HHTMP will break down the typical components contained within the sections.

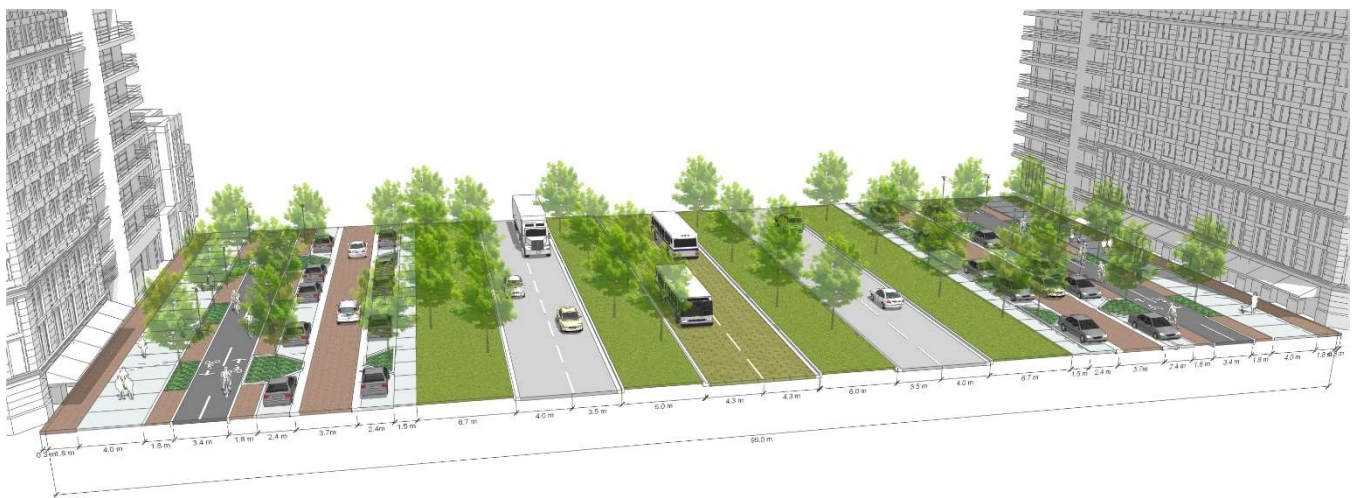
Where possible, attempts have been made to conform to the Region of Peel’s Access Control By-Law with respect to intersection spacing. The Region’s Access Control By-Law is fundamentally a conventional, suburban, By-Law, designed to maximize fast, motor-vehicle, travel through communities on Regional Roads. The traditional, urban, principles that the HHSP is founded upon conflicts with the Access Control By-Law because the By-Law is suburban and is designed for unsustainable outcomes that are not desired in Heritage Heights. The streets in Heritage Heights are intended to result in safer, slower, and more inclusive streets than those contemplated in the By-Law. Furthermore, the desired street network in heritage Heights will be highly connected with multiple routing options to maximize access to people for goods, employment, recreation, social contact, services, etc. The sum will be a place that promotes vision zero and 20-minute neighborhoods. When faced with situations where it was not possible to meet the Region’s intersection spacing standards, the HHSP will seek support for its urban design because it will deliver a better community.

3.3 HERITAGE HEIGHTS BOULEVARD

A key organizing element of the HHSP is the north-south Heritage Heights Boulevard. Key characteristics are as follows:

- Higher Order Transit (HOT) in the middle along a transit spine;
- A great address for businesses, services, institutions, and homes;
- Where density, exchange, and value creation are at their highest;
- Located within the alignment of the GTA West Corridor;
- Mixed-use development and active at-grade uses facing the frontage lanes; and
- Ability to be phased with development and needs.

The boulevard is the seam that connects the east and west sides of Heritage Heights. It attracts people and exchange. The boulevard is the polar opposite of Highway 413 which would devalue the area, repel people and exchange, be a horrible address, consume double the land, and be transit unsupportive.



The boulevard is known as a “clockwise boulevard’ and it has four basic parts:

i) Edges: Each edge is comprised of a retail zone (1.8m), walk zone (4.0m), and buffer/furniture/tree zone (1.8m) which totals 6.6m wide. Then, there is the 3.4m wide, two-way bike facility.

ii) Clockwise Frontage Lane: the frontage lane is a 3.7m wide, one way, brick lane, flanked on both sides by valley gutters and on-street, parallel parking. The valley gutters are the lowest parts of the frontage lanes and edges. Each frontage lane has a furniture/tree-zone/step-strip on the building side to prevent the “dooring” of cyclists and

to allow people the space to get into and out of their cars. On the mainline side, the frontage lane has a narrow sidewalk, for access to and from the passenger side of the parked cars, and then a wide landscape buffer. The landscape buffer provides separation between the frontage lane and the nearest mainline lanes. Note that the frontage lanes flow in the opposite direction as the nearest mainline lanes. The width of the landscape buffer (6.7m) plus the width of the narrow sidewalk (1.5m) and adjacent on-street parking (2.4m) allows enough space (10.6m) for a motorist to turn right from the nearest mainline lane onto a side street and then right again onto the frontage lane (effectively making a U-turn). Similarly, when a motorist leaves the frontage lane to head back towards the boulevard they turn right to leave the frontage lane. Also, note that if a motorist crosses the mainline lanes on a side street and wishes to access the frontage lane, then they turn right onto the frontage lane. Consequently, the vast majority of the turns onto and off of the frontage lanes are right turns, hence the name “clockwise frontage lanes.”

The operational benefit to clockwise frontage lanes is they can be controlled simply by a stop sign on the exit end of the frontage lanes. Thus, the only signals needed on the boulevard are for the mainline lanes. This keeps the signal design and phasing simple which is an advantage over conventional multilane boulevards. Conventional multilane boulevards have the frontage lanes flowing in the same direction as the nearest mainline lanes. That requires an additional set of traffic signals at each frontage lane which complicates phasing and lowers the car-carrying capacity of the boulevard. The advantage of the clockwise operations is so significant, the boulevard type is called a “clockwise boulevard.”

The clockwise frontage lanes are not intended for anything else but access to the block that they serve. Travel between blocks by motorists can be allowed across low volume side streets but is not encouraged across busy side streets. However, travel between blocks is encouraged for pedestrians and cyclists via raised crossings and refuges.

The environment along the frontage lanes and edges is barrier free/curbless. The idea is to make access easier for people who use wheelchairs, people with other mobility impairments, and people pushing baby strollers. It also makes the area easier to maintain in the summer and in the winter. The only vertical curbs are around the tree planters on both sides of the frontage lanes; they help stop motorists from driving over and damaging the ground cover.

iii) Mainline Lanes: Four mainline lanes are proposed, two in each direction. Right turn lanes are prohibited but left turn lanes are allowed.

This assumes that the GTA West will be a 4-lane 80km/h highway north of Heritage Heights through the rural parts of Caledon. The desire is that the ideas of sustainability are employed beyond Brampton such that, in rural areas, the GTA West be a 4-lane 80km/h highway and, within towns and cities (i.e., urban places), the highway transitions to 50km/h boulevards. It would be desirable to put in place the planning regulations to avoid suburban planning along the length of the GTA West and keep places either rural or urban.

iv) Transit Lanes: There are two transit lanes, one in each direction, that run down the centre of the boulevard. They are flanked by 6.0m landscape zones. At intersections, the landscape zones serve three functions; a pedestrian refuge on both sides, a space for transit platform on the far side of the intersection, and space for a left turn lane on the nearside of the intersection.

Other notes:

Like all A-Streets in Heritage Heights, driveways and right turn lanes are prohibited anywhere along the boulevard. Lengths of the parking rows can become designated as pick-up/drop-off zones, loading zones for short-wheelbase, short-duration, deliveries by vans, UPS trucks, and similar vehicles. Deliveries by longer trucks will need to use loading zones/facilities in B-spaces. Transmission facilities are not shown in the cross section but, if they are built, then they ought to be below grade or on very high mast poles within the central landscaped area adjacent to the transit lanes.

3.3.1 Jurisdiction

At the time of writing of the HHTMP there was great uncertainty pertaining to the future of the GTA West and particularly Highway 413. The highway was previously shuttered by the past provincial government and the opposition towards the proposed highway is mounting by the day. Given this uncertainty, a starting place for jurisdictional assumption is with the province owning and maintaining (with the potential for a City or Regional maintenance agreement) the central portion of the Heritage Heights Boulevard. This includes the transit lanes, the mainline lanes, and the landscape buffers on the sides of the transit lanes. Frontage lanes, bicycle lanes, parallel parking, sidewalks, the landscaped buffer outside of the mainline lanes, etc., would not be part of the provincially owned GTA West. They will be either City or privately owned and maintained.

Should the GTA West project be shuttered once again, it is recommended that the central portion of Heritage Heights Boulevard being a Regional Road as it will connect Brampton to Caledon and Vaughan. The frontage lanes would similarly maintain being either City or privately owned and maintained. In other words, from the back of the vertical curb next to the general-purpose lanes to the similar back-of-curb of the other side's general-purpose lanes, which is approximately 35.9m. The landscaped buffer and the frontage lane area (from the back-of-curb to the right-of-way) on both sides of the boulevard (approximately 29.55m on each side) would similarly be maintained by the City or in private ownership.

3.3.2 Alignment

The alignment of the Heritage Heights Boulevard has purposely followed the GTA West alignment; however, given the boulevard's slower design and operating speeds (50km/h, versus 100km/h posted and 120km/h design speed of the 400 series highway) and smaller right-of-way, there is more flexibility for it to bend around sensitive areas, as needed.

3.3.3 Financing

At the time of writing the HHTMP, it was assumed that the central portion of the Heritage Heights Boulevard will be paid for by the Province of Ontario. Should the GTA West be shuttered once again and there is no funding available from the province, then, as a Regional Road, it is assumed that Regional Development Charges would be applied. A Regional Development Charges By-Law for a north/south transportation facility has been in place for a few years and there are already funds being collected to go towards construction of this facility. This would be no different than any other Regional Road that has been financed and constructed within the Region. The frontage lanes and edges would be financed by either the City or private developers and be phased with development.

3.4 FUNCTIONAL STREET NETWORK

3.4.1 Foundational Elements -- The Boulevard & Rail Line

Heritage Heights is bisected in an east-west direction by a commuter rail line that connects to downtown Toronto and Waterloo and myriad of places in between. The rail's central location combined with the anticipated population and mix of non-residential and employment uses in Heritage Heights, create a strong business case for the addition of a new GO Station as the railway crosses Heritage Heights. Fortunately, the proposed location of the station exceeds the minimum GO Station spacing requirements. Access to commuter rail has additional benefits to the environment, quality of life, equity, and regional access.

An alignment was developed for the proposed GTA West that bisects Heritage Heights in a north-south direction. If the GTA West were to become Highway 413, then it would result in a variety of negative consequences related to sustainability, car dependency, and health and public costs over time. However, if the GTA West becomes a boulevard, then it will facilitate effective, sustainable and community-oriented transport, and result in a significant concentration of transit-oriented development.

Heritage Heights is six kilometres long (north-south) and 2.75 kilometres wide (east-west). So a north-south boulevard, with a transitway running down the middle, will create a conveniently located, transit-oriented, central spine for the development of Heritage Heights and access to the GO Station. The transitway would co-locate a station with the GO Station to facilitate transfers. The idea of a boulevard was selected over other street types because it is urban, civically impressive/attractive, multimodal (across and along) and provides great addresses/edges/access for businesses, institutions, and homes.

There is flexibility for Caledon to extend the transitway and a parallel road along the GTA West alignment to connect to a future series of relatively independent places, towns and cities, or whatever Caledon decides is their desired development future. The transitway would accommodate the long-haul trips and further strengthen the business case for the GO Station in Heritage Heights.

It should be noted that the proposed boulevard contrasts starkly with the 2014 Plan for Heritage Heights. The central feature of the 2014 Plan was Highway 413, which would be a noisy and polluting barrier. It would repel people, lower value, diminish quality of life, and be anti-transit; while the HHTMP's boulevard will be a seam and will attract people, increase value, raise quality of life, and is pro-transit. Furthermore, there was no centrally located GO Station included in the 2014 Plan; the idea, in 2014, was for people to use the station, located 1.0 kilometres east of Mississauga Road along Bovaird Drive. In the 2014 Plan, the land use foci were around two highway interchanges, while with the HHTMP, the focus will be around the three transit stations and along the boulevard.

3.4.2 Street Types

There are two types of streets in Heritage Heights: "framework streets" and "non-framework streets." Framework streets: i) connect places and districts; and ii) serve as the primary emergency vehicle routes. On framework streets, the motor vehicle speeds are "self-enforced" via their cross-sections, to which emergency response times are generally indifferent. Examples of cross-section measures include street trees, narrow lanes, one-lane in each direction, valley gutters between parking rows and the general-purpose lanes, and textured paving. Non-framework streets are all the other streets in the street network which provide access to houses, businesses, offices, and parks, and are rarely used by emergency vehicles except for local calls. Most streets in Heritage Heights will be non-framework streets. The motor vehicle speeds on non-framework streets are also controlled by their cross-sections which may be augmented by "periodic traffic calming measures" such as speed humps, cushions, mini-traffic circles, pinch points, and other periodic measures.

3.4.3 Framework Street Network

As mentioned earlier, the HHTMP is employing a connected network of two-lane, framework streets as opposed to a dendritic hierarchy of four and six-lane roads. The reasons can be summed up as Heritage Heights being urban, more valuable, and comfortably multimodal, compared to the previous suburban sprawl models. The arrangement of the framework streets was purposefully crafted to provide direct routing and parallel network. Typically, a grid iron pattern of streets is desirable. However, with large environmental features to the west and south and smaller features peppering the site, a modified approach was required. Furthermore, the network was adjusted to maximize access to the boulevard and transit stations. Please note that, where streets already had names or aligned with streets with names, those names were used. The new streets were assigned names for communication purposes. A tennis theme for the street names was used for fun.

Because of the shape of the site, the existing built environment to the east, and the large environmental features, the site currently has access to 10 existing east-west streets on its east side. Two of them extend past Winston Churchill Boulevard- Mayfield Road and Bovaird Drive. Six additional east-west streets are planned to complete the east-west portion of the urban grid of framework streets within the site.

The site has three existing north-south streets (i.e., Winston Churchill Boulevard, Heritage Road and Mississauga Road) and effectively a fourth since its alignment is more or less determined for Heritage Heights Boulevard along the GTA West route. All four extend past the site to the north and to the south. However, new east-west network

connections to Winston Churchill Boulevard are only feasible in the northern half of the site due to the environmental features on the southern half of the site. At the northern end of the site, six new north-south streets are planned to complete the north-south portion of the urban grid of framework streets. However, moving south, not all of the north-south streets can extend to the southern end of the site, again, due to the environmental features.

To maximize the connectivity and utility of the network, given the environmental constraints, selected east-west streets and selected north-south streets were connected and made one. For example, Williams Parkway, an east-west street, enters Heritage Heights and then turns north and extends all the way to Mayfield Road (and maybe beyond depending on what Caledon decides). There was no benefit of continuing Williams Parkway on an east-west trajectory and end it at the environmental features. Similar strategies were used for Doubles Drive and Wanless Drive.

Heritage Heights Boulevard will have eight lanes; two dedicated transit lanes down the centre, two clockwise frontage lanes and four general purpose lanes. The other two streets within Heritage Heights that will be more than two lanes are Bovaird Drive, (which will have four through lanes between Mississauga Road and Heritage Road) and Heritage Road, (which will have four through lanes south of Bovaird Drive).

The alignment/orientation and spacing of the east-west framework streets are designed to create direct relationships that increase value to the whole of Heritage Heights, such as aligning the framework streets for legible and convenient access to the transit stations and to the concentration and mix of land uses around the stations and along Heritage Heights Boulevard. The framework streets are also aligned and designed to create legible, pleasant and direct walks, bike rides, and transit experiences. The framework streets intentionally bracket parks and connected open spaces to maximize the access and enjoyment of the open spaces to people and benefit the identity of Heritage Heights. Having streets between the open spaces and private property ensure that the public open spaces look and feel public and add value to the whole community. The idea is to avoid developing land such that the public spaces are behind back yards or immediately adjacent to other back-of-house spaces.

The pipeline easement will be treated like open space and lined with streets wherever feasible. This is important for the aforementioned reasons and because a 7.0m access easement is required on both sides of the pipeline easement. However, the need is occasional access and not 7.0m of otherwise unused space. The bicycle facilities and sidewalks, adjacent to the pipeline easements are sufficient to meet that access need and, where they are intended for such access, they will be designed to be strong enough to support the pipeline companies' trucks, effectively saving 7m of land, on each side of the pipeline easement, for other purposes.

Please note that some of the names and alignments of the framework streets may change as more information is obtained about the environmental features and pipeline facilities.

3.4.4 Rail Crossings

Four rail crossings are planned within Heritage Heights as follows:

- Two at-grade crossings - one at Serve Street and another at Tennis Street
- Two grade-separated crossings are planned that include:
 - a regular grade crossing at Heritage Road; and
 - another very wide, transit-oriented, crossing that involves air rights above the rail line from Doubles Drive to Williams Parkway.

3.4.5 Transit Stations

The highest order transit station is at the junction of the Boulevard and the rail corridor. Two other major transit stations are planned along Heritage Heights Boulevard, one near Wanless Drive, and one near Bovaird Drive. These three transit stations are central to the highest density and mix of land uses in Heritage Heights. They will

also be the most accessible sites in Heritage Heights through the arrangement of the framework streets, trails, separated bike lanes, sidewalks, and of course, transit.

The northern and southern transit stations are at grade. The main transit station will have two levels. The GO Train platforms are at ground level and the transit terminal, for the GO Train and bus services, are on Level 2. The length of the GO Station extends from Doubles Drive to Williams Parkway within the air rights above the rail line. The bus and train terminal and other development within the air rights would be accessible from Doubles Drive, the Boulevard and Williams Parkway. The outcome will be a highly accessible train and bus terminal that is integral to the highest density and mix of development in Heritage Heights, including the Health Campus.

3.4.6 City of Brampton Transit Services

The Greater Toronto Area (GTA) has extensive transit service connecting 6.5 million people among 25 municipalities. The City of Brampton, with a population over 600,000, is considered a primary economic centre and is one of the fastest-growing cities in North America. Public transit operators serving Brampton include GO Transit and Brampton Transit. Brampton Transit provides local service throughout the city. GO Transit connects to Toronto to the east, and Kitchener to the west. Heritage Heights is located directly on GO Transit's Kitchener Line. One kilometre to the east of Mississauga Road is the nearest Go Station, called the Mt. Pleasant GO Station.

Heritage Heights is designed to connect to the existing local and regional transit network and promote transit use, along with other active modes, over motor vehicle use. The residential densities and mix of uses will position those who live and work in Heritage Heights to meet their daily and weekly needs within the community via walking, cycling, transit, and short motor vehicle trips. The proximity of Heritage Heights to urban centres and access to transit create an opportunity for both Heritage Heights and the City of Brampton to compete in both national and international markets for investment, economic development, and cultural amenities. As the last, large, contiguous, developable area within the City of Brampton, Heritage Heights is also the logical location for the City to plan for growth in a deliberately sustainable manner that prioritizes quality of life.

3.4.7 Proposed GO Station – The Kitchener Line

The design principles of Heritage Heights are based first upon the natural environment, and second upon the Kitchener Line. GO Transit's Kitchener Line was first constructed in 1974 as the Georgetown Line, then was extended to Guelph in 1990 and to Kitchener in 2011. It traverses Heritage Heights from east to west, stretching 102 kilometres from Union Station in Toronto to Kitchener. Many of the most vibrant, sustainable, and urban communities are located along the line. Heritage Heights is designed to be what is known as transit-oriented development (TOD), which has the following benefits:

- reduce dependence on driving and the need to own a motor vehicle, providing individuals and families more flexibility with their household income;
- stimulates the local economy by attracting investment;
- provides better access to jobs;
- provides better access to essential services such as healthcare and education;
- results in lower automobile parking rates which lowers the consumption of land and makes housing, office, and other types of development more affordable; and
- results in comparatively lower carbon emissions per capita.

While Heritage Heights is designed around multiple active modes of transportation, a key investment will be in the addition of a new station along the Kitchener Line in Heritage Heights. This will dramatically reduce automobile trips generated by the population within Heritage Heights and, by extension around the GTA, while also providing regional access to healthcare, jobs, and cultural amenities located in Heritage Heights.

3.4.8 Bus Rapid Transit

Bus Rapid Transit (BRT) is a high-quality bus transit service delivering fast, comfortable, and cost-effective transport. It does this through the provision of dedicated lanes, high profile stations, off-board fare collection, and fast and frequent service. BRT contains features similar to a light rail system and is more reliable than local bus services. Its defining features allow BRT to have predictable headways and higher average speeds, compared to regular bus services that are susceptible to being hampered by heavy motor vehicle traffic and time needed for queuing to pay on board.

Heritage Heights will be designed to accommodate and promote high quality BRT within the community and appropriately connect to the broader regional network. Presently, dedicated lanes will run down the centre of Heritage Heights Boulevard. However, the proposed rights-of-way for any other framework street may be widened, within Heritage Heights, for the addition of dedicated transit lanes, based on subsequent discussions with transit providers. The most likely candidates for dedicated transit lanes would be on framework streets that will connect to the three higher-order transit stations to high-ridership corridors and adjacent communities, such as Bovaird Drive, Mississauga Road, Wanless Drive, Mayfield Road, and Heritage Road.

3.4.9 Local Bus Service

Local bus service is an important complement to rail and BRT. It is anticipated that Brampton Transit will extend existing east/west local bus service to Heritage Heights. Route alignments, headways and stops will be negotiated based on demand, rate of growth, development and connectivity as the street network is built out.

3.4.10 Framework Street Design

There are two types of framework streets, A-frontage streets, and B-frontage streets. All but a few of the framework streets are A-frontage streets. The designation of an “A-frontage street” requires that the fronts of buildings shall address the streets and the buildings have engaging façades. There are no driveways permitted on A-frontage streets, except for hospital emergency driveways and fire station driveways. The result will be activity, natural surveillance and high quality, uninterrupted, and comfortable environments for pedestrians, cyclists, and transit users. It also creates a pleasant experience for motorists who drive along the streets or use the on-street parking.

The few B-frontage framework streets in the plan are limited to those that are parallel to and adjacent to the Boulevard. Back-of-house services are provided via alleys/lanes, B-frontage streets, or non-framework streets. B-frontage streets can be used for access to parking structures and major truck docks, which would otherwise overwhelm an alley/lane. The B-frontage streets may or may not be addressed by buildings and may have driveways. However, buildings that are located along B-frontage streets, will address the street. Off-street parking and drive aisles are prohibited between any building and any street within Heritage Heights.

The framework streets will be tree-lined and complete streets. The vast majority will have separated bike lanes and sidewalks on both sides of the street. For framework streets that parallel open spaces for long distances, there will be a two-way bicycle facility on the open space side. For other situations, there will be one-way, separated, bike lanes, one each side of the street. Single left turn lanes are permitted on framework streets, but right turn lanes are prohibited throughout Heritage Heights.

A healthy tree canopy and comfortably wide sidewalks and bike lanes are requirements on framework streets. The minimum sidewalk width is 2.5m, bike lane width is 2.4m, and furniture zone/tree zone is a minimum of 2.5m. For more detailed guidance, please see the cross-section requirements in Appendix 1.

3.4.11 Orientation of Non-Framework Streets

There is more flexibility for the design of non-framework streets compared to the design of framework streets. However, it is required that the narrow dimensions of the blocks, created by the non-framework streets, be oriented

in accordance with subsequent guidance from the City. The intent is to create direct and legible access to, and relationships with, the open spaces, trails, parks, and Heritage Heights Boulevard. Open spaces, parks, and school properties, not adjacent to other open spaces or fronted by a framework street, shall be fronted by a non-framework street. Again, the intent is to keep the open space public and appear public.

3.4.12 Freight & Goods Movement

Every framework street will be designed to accommodate delivery vehicles, school busses, transit busses, and fire engines. Preliminarily, it is anticipated that designated truck routes would be limited to Mayfield Road, Sandalwood Parkway (east of Doubles Drive), Heritage Heights Boulevard (south of Volley Way), Williams Parkway, and Doubles Drive (north of Bovaird Drive).

The priority within the HHSP is to create complete streets that contribute positively to the place-quality of Heritage Heights. Where conflicts between the quality of the space and a desire to move trucks fast occurs, the quality of the space will prevail.





SECTION FOUR: DESIGN GUIDELINES



4.0 DESIGN GUIDELINES

4.1 FRAMEWORK STREETS

Most framework streets are A-frontage Streets. Unless otherwise specified, in this section, “street” means A-frontage street.

Street Trees

Both sides of all the streets will be lined with shade trees (e.g., a variety of species of trees that will eventually grow large enough to canopy over the sidewalks, bike lanes, on-street parking and the general-purpose lanes). Trees are located within the landscape strip/furniture zone (back of curb) and within bulbouts (midblock and at the ends of parking rows).

The street tree spacing should be 15m or less.

The underground utilities will be designed to not interfere with the landscape strip/furniture zone, street trees, and street trees in bulbouts.

Sidewalks

All streets will have sidewalks on both sides. Sidewalks will be 2.5m wide except within about 400m of the transit stations, between the transit stations, and along the Boulevard, where they will 4.0m wide.

Separated Bike Lanes and Shared Use Trails

All streets have separated bike facilities (one-way on each side of the street). Exceptions include Heritage Heights Boulevard where there are two-way bike facilities on each side of the Boulevard and streets that are located next to long stretches of open space, where a two-way bike facility may be used on the open space side.

A detectable delineator strip of no less than 0.6m is required between the sidewalk and the bike facility.

The sidewalk, delineator strip, bike facility and the edge of the landscape strip/furniture zone are flush.

Sidewalks are built with the outer edge along the right-of-way line. The exceptions are along Heritage Heights Boulevard and the Main Street where the retail zone is built along the right-of-way line and the sidewalk is next to the retail zone.

Separated bike facilities with sidewalks and/or shared use trails will be built within and along the natural lands and their connections. Separated bike facilities with sidewalks will typically connect to similar facilities. Shared use trails will be used in larger natural areas. Either way, these facilities will be coordinated with the stewards of the natural lands and their connections.

Curbs, Drainage, and On-Street Parking

All streets have 15cm tall curbs, except along the access lanes of Heritage Heights Boulevard and along part of Fann Drive (the Main Street) and around the town square, where the curbs are flush. Flush curbs can also be considered around parks and schools.

Streets with swale drainage or rain gardens will also have vertical curbs and the water will enter the drainage features via flumes.

All vertical curbs have a 45cm gutter pan next to them, except where next to on-street parking, where there will be no gutter pan (due to the valley gutter on the other side of the parking row). The paving, within the parking row, will slope away from the vertical curb towards a 60 cm-wide valley gutter, located between the parking row and the

general-purpose lane. Note that, 15cm of the width of the valley gutter is considered part of the width of the parking stall and the other 45cm is considered part of the width of the general-purpose lane.

Vertical curbs are prohibited where open spaces, intended for wildlife corridors, exist on both sides of the street.

On-street parking is prohibited on the side of any street that is adjacent to open space. "On-street parking" includes, pick-up drop-off zones, taxi zones and short-term loading zones.

Splash pads will not exceed 0.6m wide and will be employed as infrequently as feasible.

Bus Stops

Bus stops will be placed on the far side of intersections.

Bus bays are discouraged, except at timed stops.

General Purpose Lanes and Turn Lanes

All streets are two-way.

On two-lane streets, the design speed, operating speed, and posted speed limit will be 40km/h or less.

On four-lanes streets, the design speed, operating speed, and posted speed limit will be 50km/h or less.

Right turn lanes are prohibited.

Single left turn lanes are permitted.

Scale

Streetlights shall not exceed 5m tall.

All streets are capped at one travel lane in each direction. Exceptions include:

- a) Heritage Heights Boulevard (four general purpose lanes, two transit lanes, and two clockwise frontage lanes);
- b) Mississauga Road;
- c) Mayfield Road;
- d) Bovaird Drive (four lanes east of Heritage Road); and
- e) Heritage Road (four lanes south of Bovaird Drive).

Pedestal traffic signals will be used at all signalized intersections, except on streets of four or more lanes where cantilevered signal arms are permitted.

Lane Widths

Lane widths are 3.5m wide, including the gutter pan or 45cm of the valley gutter, resulting in a consistent width of 3.05m wide strip of asphalt, concrete, or other paving material that is used for the remainder of the lane. Left turn lane widths are 3.0m wide.

Driveways

Driveways are prohibited. The exceptions are for the emergency vehicle driveways at fire stations and at the access to hospital emergency room entrances.

For any existing driveways, the sidewalk and bike lane will cross the driveway without changing level and using the same materials and patterns as the rest of the sidewalk and bike lane. Note that the sidewalk and bike lane will be

built stronger to handle motor vehicles crossings. Any elevation difference between the bike lane and the street will be addressed using an appropriately sloped concrete apron.

Alleys

Alleys will be aligned to be parallel with the A-frontage streets.

If a block is surrounded by A-frontage streets, then the alley runs parallel with the long dimension of the block.

4.2 B-FRONTAGE STREETS

Driveways are permitted on B-frontage streets


Access for off-street parking, garages, services, loading and other B-activities are provided via B-frontage streets or alleys.

Form

Where a non-residential building entrance is close to a sidewalk, the finished floor elevation is the same elevation as the edge of the sidewalk.

The closest build-to-line is 30cm from the edge of the right-of-way.

No off-street parking or drive aisle may be located: i) along any side or in the front of any building that fronts a A-frontage street; or ii) in the front of any building that fronts a B-frontage street. Drive aisles but no off-street parking may be located on one or both sides of a building that fronts a B-frontage street. If two adjacent buildings, on a B-frontage street, desire drive aisles between the buildings, then they will share the same drive aisle. If Site A develops before the adjacent Site B and desires a driveway on the side of the adjacent property, then Site A will provide the drive aisle in a manner that Site B can reasonably use when Site B develops. In all cases, a cross-access agreement will be employed for the use and upkeep of the drive aisle.



SECTION FIVE: STREET NETWORK ASSESSMENT



5.0 MODELING FOR SUCCESS

The City of Brampton uses the GTA-wide traffic demand forecast model, which was calibrated to match local conditions. The street network for Heritage Heights was added to the model along with appropriate street attributes (e.g., lane capacities and speeds). Normal trip generation rates were applied to the land uses that were planned for each of the 11 traffic analysis zones, representing Heritage Heights. The results were adjusted to reflect likely modal splits and internal rates of capture. The model then assigned the automobile trips to the street network, for the year 2041, and estimated: i) the peak hour traffic volumes, and ii) the volume to capacity (v/c) ratios. The model's lane capacity assumptions are shown below, followed by the model's results for peak hour traffic volumes and v/c ratios.

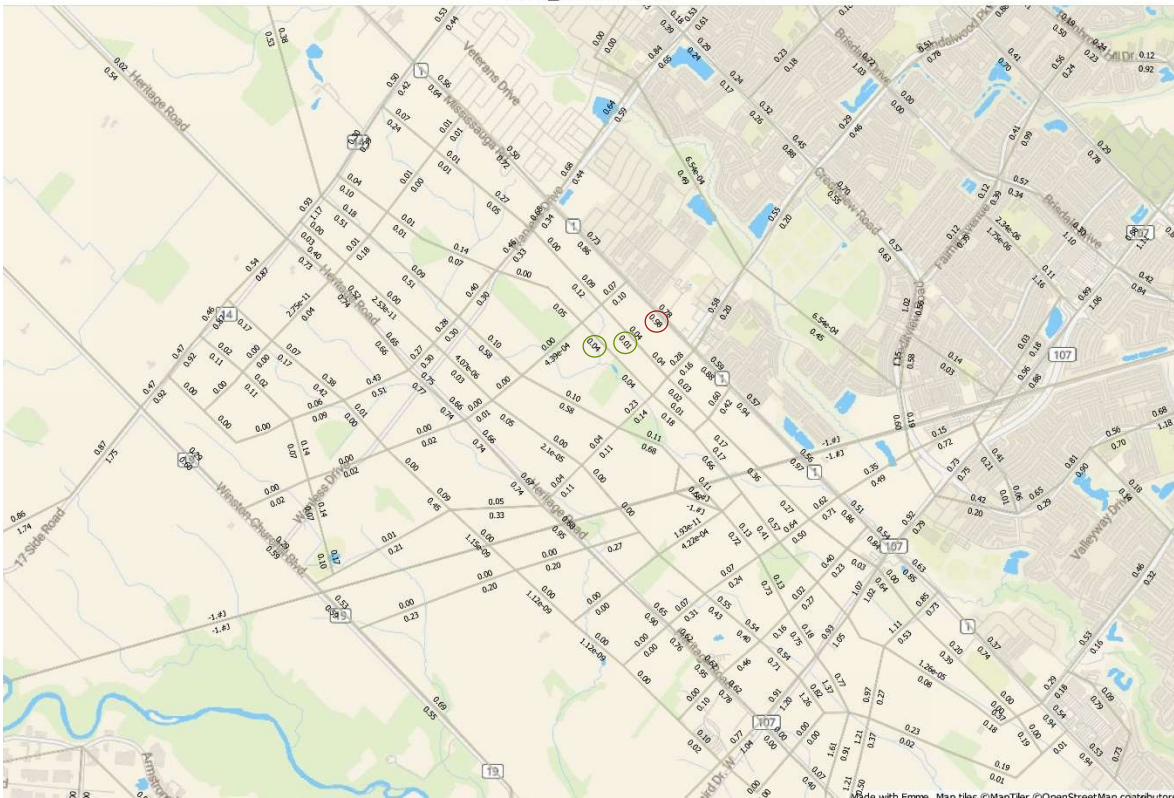
2041_Network



2041_Peak Hour Auto Volume



2041_Peak Hour VC

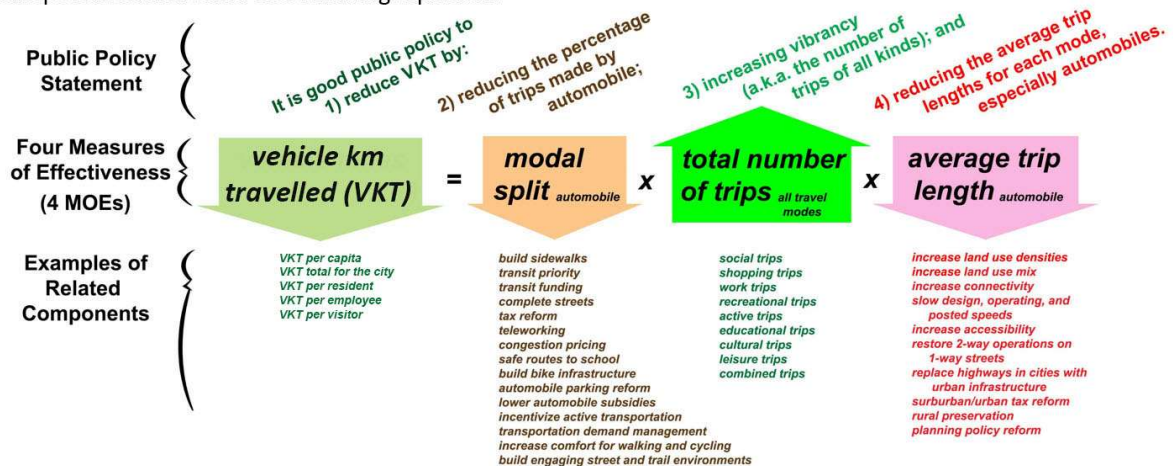


The GTA traffic demand forecast model demonstrated a few of its shortcomings when it was used to model Heritage Heights' urban street network due to the network's many routing choices. The model's results would have appeared more realistic had the model had the capability to add more centroids and smaller analysis zones. As a result, the model was unable to assign trips to some of the streets and assigned too many trips to other streets. Obviously, that would not happen in the real world. However, by applying some common sense, the model results were good, despite the fact the traffic volumes pertained to theoretical peak hour, 20 years into the future. The model's output predicted either: i) reasonable v/c ratios during the peak hour in 2041; or ii) v/c ratios that would be reasonable had the model been able to assign trips to all of the available streets. In sum, the network performed well from the model's perspective.

The model did show some high v/c ratios for some of the sparse regional network of streets, outside of, and adjacent to, Heritage Heights. For example, Mississauga Road had a v/c ratio of 0.98 along one link (circled in red on the diagram, above). However, the two streets that parallel Mississauga Road had v/c ratios of 0.01 and 0.04 (circled in green). In other words, in the model's world, Mississauga Road was full, and the two parallel streets were empty. Because Mississauga Road was faster and unconstrained in the model, it was assigned the vast majority of the trips, while the available parallel streets were empty. In the real world, in 2041, Mississauga Road would be constrained, and motorists would use all three streets. Consequently, the v/c ratio on Mississauga Road would be lower and the v/c ratios for the two parallel streets would be higher.

Traffic demand forecast models are just one type of model. Real cities, on the other hand, provide real world models that can be followed. Model cities, such as Copenhagen, Paris, and Vancouver apply strategies that allow them to grow their populations, grow their economies, enhance their qualities of life, while keeping their vehicle-kilometres-travelled (VKT) down. They use many of the components that are listed in the universal planning equation, below, that shows the relationships between land use and transportation that need to occur to have a positive effect on correcting and reversing automobile dependency/use (i.e., reducing VKT). These model cities do not subscribe to conventional thinking.

Universal Transportation and Land Use Planning Equation:



In the real world model, the number of trips is the metric for vibrancy for transportation purposes. The basic idea for this sustainable policy direction is to plan and design the city so that the number of trips/vibrancy can rise (i.e., have a growing economy) while simultaneously lowering average trip lengths and lowering the modal split for motoring. If the combination of the modal split and average trip lengths lower at a great rate than the growth in trip-making, then VKT lowers. The City of Brampton is employing most of the components from this equation in its planning and design of Heritage Heights. Consequently, Heritage Heights aligns well with real, successful, city

models. So, by following real world models, the City is confident that Heritage Heights is well positioned to function and operate better and more sustainably in the future, compared with suburban models, or by following the results of a conventional traffic demand forecast model.

Contrasting the conventional traffic demand forecast model and the real-world models is relevant to Brampton, Peel Region, and the Province of Ontario at this point in history. When Brampton, Mississauga, Vaughan, other nearby cities were mostly greenfields, the conventional model seemed to make sense. However, in the emerging age of climate emergencies, health emergencies, and land use intensification (i.e., Brampton, for example, needs to accommodate 300,000-400,000 more people), the conventional computer model isn't going to deliver what is needed. Trying to widen one's way out of congestion is more likely to do harm, as is evident with the math. Even with a modest 1% annual growth rate in traffic volumes, the results are unsustainable in the long run. Over only one century, a 1% growth rate results in 2.7 times the current traffic volumes. Mississauga Road, for example, would need to be 10 or 12 lanes wide, which would be ridiculous. Highway 413 would be enormous. The question is, "Which generation is going to draw the line on conventional transportation thinking and make the tough, sustainable, choices?" The City of Brampton is taking on that duty now and encourages the Region, other municipalities, and the Province to also look to real-world models of cities that have succeeded in replanning and redesigning themselves to be less automobile dependent.

Heritage Heights is planned and designed to be resilient; it will make transit, walking, cycling, and short trips easy and housing/jobs balancing feasible. Potential increases in congestion on routes between Brampton and Mississauga or Toronto would make transit, working locally, or other sustainable choices increasingly appealing to most Heritage Heights' residents and employees, compared to sitting in cars on congested regional roads. Furthermore, it is not desirable that, in 2041, that the regional roads be widened in an attempt to stay ahead of congestion. Brampton's sustainability goals include reducing its carbon emissions by 80% by 2050. That won't happen if the Region were to undermine Brampton's goals and environmental stewardship by encouraging more automobile use via road widenings. It's simply not a sustainable strategy.

The traffic demand forecast model showed that some regional roads will have a v/c ratios over 1.0 in 20 years. Besides being impossible, since streets cannot carry more traffic than their capacity, the results have to do with the fact that the model was unconstrained. In the real world, in 2041, the sparse regional network will be constrained. Plus, long before the v/c ratios reach those levels, people, markets, and employers within Heritage Heights will make changes, like what happens in real cities. Those changes will be the opposite of the changes that began following WWII when streets were widened and sped up and highways were built in the attempt to make cities unconstrained (i.e., when cities were thrown out of balance). In other words, Heritage Heights will operate as a balanced place.

Interestingly, what is really in dispute here is, which model to follow? Which model is best suited for the challenging times? Which model delivers better cities: conventional traffic demand forecast models or real city models? The obvious difference between the two models can be found in the titles; one model is theoretical and is specifically about advancing "traffic demands" and the other is about advancing better cities. The answer is real city models because they've done it; they have succeeded.

Two remedies for v/c ratios over 1.0 on regional roads to satisfy the computer model are: i) lower the density in Heritage Heights until the volume is less than the capacity; or ii) widen the regional road so that the capacity is greater than the volume. Lowering the density would require more land to be consumed and infrastructure to be built to accommodate the same number of people, which would spread the place out, reduce exchange, and increase automobile dependency. Widening the regional road would make the place more car-oriented, create a bigger barrier, and create problems downstream. Neither option is desirable. However, giving people modal choices, employment choices, increased convenience, 20-minute neighborhoods, etc., like in real cities, allows the place to reach an equilibrium/balance akin that the balance that had occurred in towns and cities for over six millennium around the world prior to WWII.

It's time to respect the Litmus Test for Stainable City Planning, "Does the change reward the short trip and/or the transit trip?" By "change," the litmus test means changes to land use, transportation, taxation, public awareness, etc. If the answer is "yes," then the change is likely a good idea and if it is "no," then the change is likely a bad idea. The litmus test is a simplified version of the Universal Transportation and Land Use Planning Equation. The litmus test is handy when decision makers are confronted with complexity and experts are pulling them in opposite directions. The Litmus Test is the traditional counter to the modernists' question, "Would you rather be able to drive faster rather than slower?" that was mentioned when discussing bad public policy. Again, there is merit in following what real cities have done to increase their vibrancy, reduce their carbon footprints, reduce their car-dependency, as opposed to relying on traffic modelers and their conventional traffic demand forecasts model.



SECTION SIX: TRANSIT STRATEGY



6.0 TRANSIT STRATEGY

Transit is a most crucial component of the transportation strategy for the HHSP. As we are all experiencing, travel by private automobile is becoming increasingly time consuming, problematic for community health, environmentally damaging, and unpredictable with the combination of automobile dependence and increasing traffic congestion. Congestion on area roadways constrains the ability of people and goods to move easily, affecting the economic attractiveness of Brampton and the quality of life of its residents and workers. The City's and the Region's current reliance on roads and highways is not sustainable and the transportation strategy for Heritage Heights aims to reduce the City's and Region's current problem of automobile dependency.

Instead of solving for congestion, cities must solve for mobility. A smarter strategy is to promote a balanced transportation network and land use pattern that can work effectively for goods distribution while increasing mobility for the city's populations, and to support a vital economy. To maximize efficient and effective exchange, the transportation infrastructure and organization of land uses must support choices: choices of route, choice of trip-purposes, choice of modes, and choices of time of day, while being increasingly equitable and sustainable.

6.1 Benefits of Transit

Transit is a valuable complement to walking, cycling, and driving: pedestrians can hop on transit to save time and effort, cyclists can park their bikes at the transit stop or the GO station or even bring them on board, and long-distance commuters can ride transit to work. Many people rely on a range of travel options and will make different choices depending on trip purpose and length, weather, family needs, or other factors. The key to a sustainable future is to: i) use all the levers within the Universal Equation to help people increasingly make sustainable choices; and ii) stop undermining sustainability, consuming land, spending exorbitant public funds on road widenings and highways in cities.

Transit is an important tool in the City's and Region's struggle against automobile dependency, long car trips, and environmental degradation – the struggle to keep the communities livable, healthy, affordable, and vibrant. As North West Brampton grows, it will change considerably one way or another. With a transit, network, and smart land use focus, as with the Heritage Heights plan, the City and Region will reshape positively. Without a transit focus, like with the Highway 413 idea, the City and Region will reshape negatively and become increasingly car-dependent and sprawling. The quest for wider roads will dominate the conversation for another generation until enough time has passed, when it is clear that the Highway 413-based plan was a bad idea. The trouble is that there is an environmental emergency now and the Province, Region, and City (i.e., society) does not have the money nor the environmental luxury to build another highway a hope for a different outcome. The time to change for the better is now.

Transit in Heritage Heights Community will include short trips within the community as well as long trips between Heritage Heights, the rest of Brampton, and other parts of the GTA. In this context, the Canada Transportation Act Review Panel highlighted transit's ability to reduce or constrain the need for large arterials and highways, with their associated infrastructure costs, congestion, and environmental impact. By reducing the need for more and wider roads is just one way that transit can help maintain the quality of life and affordability in the Heritage Heights. Transit can also:

- improve travelers' mode choices;
- keep urban areas economically healthy;
- improve air quality and health;
- reduce greenhouse gas emissions; and
- improve business access to the labour force.

6.2 TRANSIT FRAMEWORK

Transit services proposed for Heritage Heights will operate most successfully by integrating with existing and planned higher order transit services in the rest of Brampton and the Greater Toronto Area. The proposed transit

facilities and services in Heritage Heights will connect to, and be supportive of, the city-wide and GTA-wide network of Regional and local transit services.

There has been extensive area-wide consideration and review of transit in Peel Region and throughout the GTA. Plus, there are a variety of past and ongoing transit studies and initiatives that are relevant to the development of the transit strategy for Heritage Heights. These studies provide the framework for the transit strategy and are highlighted in the remainder of this section.

6.2.1 EXISTING TRANSIT IN THE AREA

BRAMPTON TRANSIT

There is no local transit service operating in the Study Area.

GO TRANSIT

The Mount Pleasant GO station is on the Kitchener-Toronto Commuter Rail line. A new regional transportation hub is being proposed as part of the Secondary Plan.

6.3 HERITAGE HEIGHTS TRANSIT SERVICE HIERARCHY

As already identified, transit is being promoted as an integral part of the transportation and land use plans for Heritage Heights. The transit network and hierarchy of services, in the Heritage Heights transit strategy, relate directly to the land use designations and street network in the City's proposed Framework Concept. The hierarchy of transit services that comprise the transit strategy for Heritage Heights are expected to serve planned development and operate effectively and efficiently due to; i) the continuous and connected street network in Heritage Heights; and ii) the transit-supportive land uses around the stations, along Heritage Heights Boulevard, and in the adjacent neighbourhoods.

The proposed transit system in Heritage Heights fits within a clear hierarchy that is beginning to emerge throughout the GTA; corridor services and community services. Transit services in Heritage Heights are also designed to provide corridor services—both primary and secondary—and community services. Corridor services establish the major grid of services throughout the City, connecting neighbourhoods, major destinations, and nodes and corridors, including those in Heritage Heights. The community services operate within neighbourhoods to provide direct connections to neighbourhood destinations, adjacent neighbourhoods, and the corridor services. These basic principles will be used to:

- Develop a transit network design concept for Heritage Heights based on the street network and land use plan;
- Assess preliminary operational requirements for a transit terminal facility at the Heritage Heights GO Station and the two BRT stations;
- Assess the routing adjustments needed in north-west Brampton, considering operational requirements at downstream stations/terminals (Mount Pleasant GO/Mount Pleasant Village); and
- Identify any challenges regarding coverage gaps and service delivery for future discussions.

6.3.1 Approach:

- The intent is to extend the existing services (primarily east-west base grid routes) from Mount Pleasant to Heritage Heights, as appropriate;
- Develop new services for Heritage Heights and Mount Pleasant, and restructure existing routes in Mount Pleasant and ensure consistency with Brampton Transit's overarching best practices of:
 - A grid-based network of primary corridor routes, providing regional and inter-regional travel, supplemented by a family of local service options focused on neighbourhoods and feeding higher order transit;

- Maximizing the utility of the transit resources and simultaneously match service levels to the demand for services, consistent with Transit’s approved Service Standards;
- Balance route coverage and service frequencies through the higher density areas, minimizing route duplication, and minimize inefficient circuitous routings (note: the connected street network in Heritage Heights makes achieving these goals much easier compared to with a suburban, dendritic hierarchy of roads);
- Assess the effects of three scenarios:
 - Option 1 – a full terminal at the Heritage Heights GO Station;
 - Option 2 – a hybrid option – service the GO Station on-street, with a smaller transit terminal adjacent to the station (i.e., on the medical campus lands); and
 - Option 3 – do nothing – assess impact of no Heritage Heights GO Station on the requirements at other stations and travel patterns.

6.3.2 Existing Service Realignment:

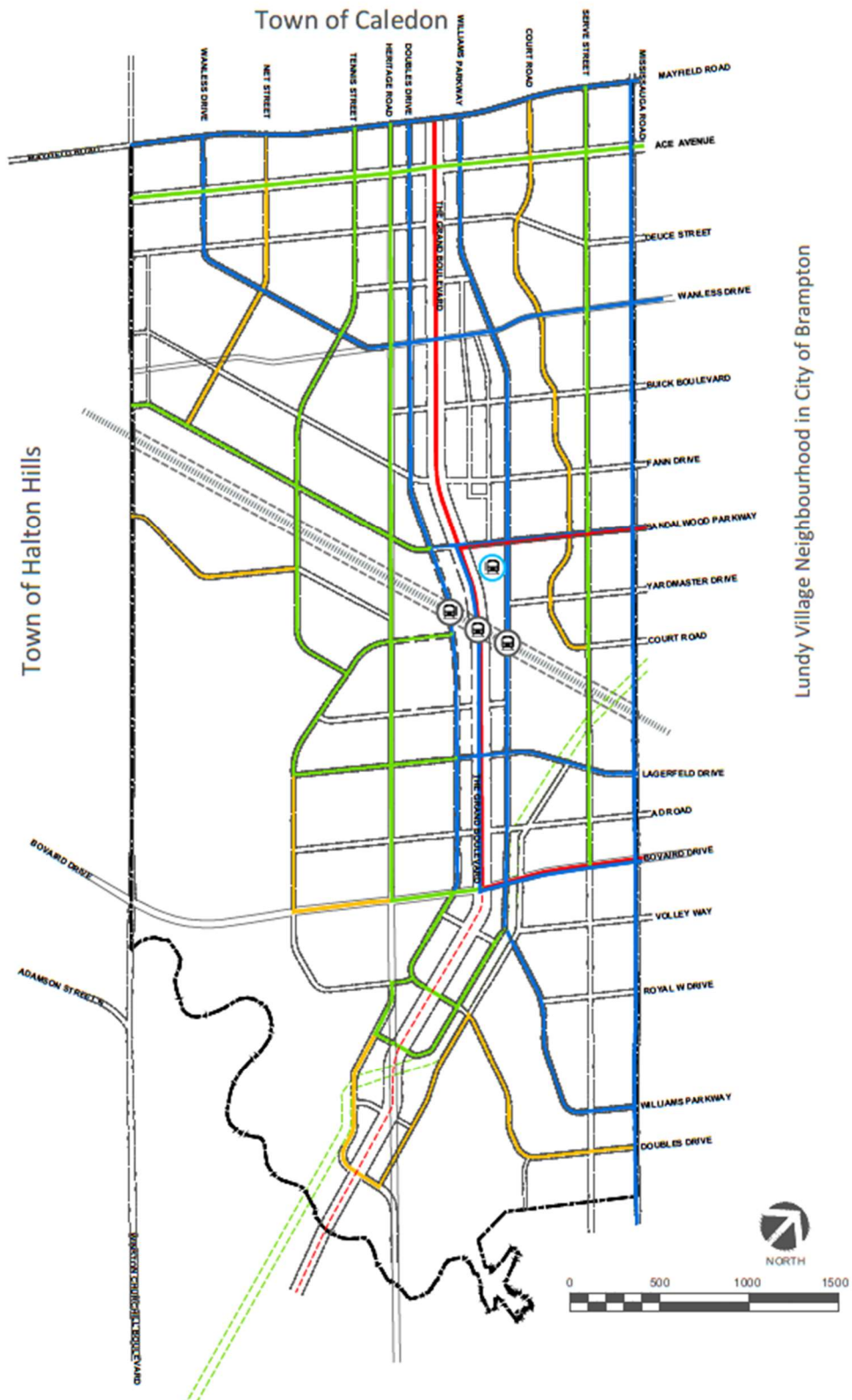
- Extend & realign Route 23 SANDALWOOD from MPV to HHGO via Urban Boulevard
- Extend & Re-align 505 Züm BOVAIRD to HHGO via Urban Boulevard
- Extend & Realign 5 Bovaird to HHGO via Lagerfeld Drive/Urban Boulevard
- Extend & Re-align Route 29 Williams to HHGO via Williams Pkwy extension
- Extend & Re-align Route 28 WANLESS to Mayfield & Wanless industrial area

6.3.3 Potential Future New Services:

- Sandalwood Züm (to HHGO via Urban Boulevard)
- Doubles Drive major local service (south limits to employment lands)
- Heritage Road Local Routes (to HHGO via Doubles Drive)
- Net Street Local Route (to HHGO via Doubles Drive)
- Serve Street Local Route (to HHGO via Yardmaster/Williams Parkway)
- Sandalwood West Local Route (to HHGO via Urban Boulevard)
- Tennis Street North Local Route (to HHGO via Doubles Drive)
- Tennis Street South Local/Train Meet/ASDM (to HHGO via Williams Parkway)
- Court Road Local/Train Meet/ASDM (to HHGO via Williams Parkway)
- Forehand Road Local/Train Meet/ASDM (to HHGO via Williams Parkway)
- Heritage Heights South Local/Train Meet/ASDM (to HHGO via Doubles Drive)
- North Industrial route (scenario 3 to connect employment lands to Urban Blvd)
- Mississauga Road Base Grid Route
 - A Branch (to MPMGO via Lagerfeld)
 - B Branch (to HHGO & Hospital Campus via Urban Blvd)
- Mississauga Road Züm
 - Option 1 – via Mississauga Road/Bovaird to HHGO via Urban Blvd
 - Option 2- via Urban Boulevard between NW Mississauga and HHGO

6.3.3 Identified Opportunities:

- Connecting to the GO station via Doubles Drive, Urban Boulevard and Williams Parkway will minimize the land requirements needed for a conventional terminal facility, which is highly desirable in the core area of Heritage Heights.
- East of Heritage Road, most of the route extensions are logical extensions of existing/future planned services.
- The route extensions and realignments free up operational capacity at Mount Pleasant GO Station to expand existing and add new services anchored at Mount Pleasant GO/Mount Pleasant Village.
- Some of the routes could utilize the street network to loop (i.e. a loop via Doubles Drive/Williams Parkway) to reduce the required footprint of a stand-alone terminal (this is considered in the “Hybrid Option”).
- Similarly, the location of a stand alone terminal (north and/or south of the GO Station) could positively affect the required footprint, depending on the operational requirements. For the purposes of this assessment the “hybrid terminal” was assumed to be incorporated into the hospital lands to the north.

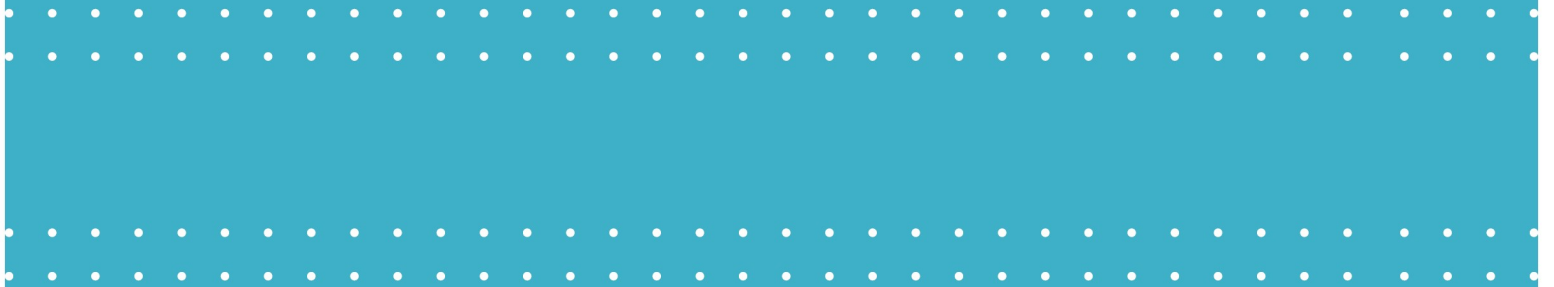


LEGEND

- Secondary Plan Area
- Existing Street Network
- Proposed Street Network
- Proposed Green Trail Easement
- Existing Rail Line
- Local Service Route (15'-30' Peak Frequency)
- Züm BRT Route
- Base Grid Route (5'-15' Peak Frequency)
- Limited Service Route / On Demand / ASDM (frequency based on Demand)
- T Transit / GO Train Links
- T Potential Transit Terminal location



SECTION SEVEN: TRANSPORTATION DEMAND MANAGEMENT



7.0 TDM OPPORTUNITIES

Transportation Demand Management (TDM) is an important complementary strategy to the complete streets, land use, and transit components of the Heritage Heights Transportation Strategy. The objective of TDM is to create cooperation between transportation system suppliers and users that results in higher system efficiency, modifies modal choices and travel behaviour, and reduces need for wider streets and automobile use. In short, it is intended to reduce single-occupant vehicle (SOV) use, particularly during the morning and evening peak periods. This is achieved by building community partnerships, providing viable travel choices, dispersing trip start times to non-peak periods, or reducing need for long distant travel. Building partnerships within the community and beyond, identifying needs and resources, and implementing solutions are the core elements of any TDM policies and programs. TDM tools include enhancements to the provision and accessibility of active modes including walking, cycling, transit, incentives for non-SOV travel, and implementation of community-wide and employer-based automobile-trip-reduction programs. TDM strategies can comprise far reaching efforts to support and enhance active travel modes, innovative transportation system management, provision of employer-based trip-reduction programs, land use planning strategies, parking management, and telecommuting strategies. TDM strategies can be divided into primary TDM strategies and complementary strategies. These strategies are briefly highlighted in this section.

7.1 TDM STRATEGIES

7.1.1 Primary TDM Strategies

REDUCE THE NEED FOR TRAVEL

Decreasing the need to travel can be achieved by implementing telework, webcasting, hoteling or Car Sharing.

Shared-use vehicle programs were first introduced in Europe and, since the late 1990s, have been gaining popularity in North America. The idea is to provide member-restricted access to a vehicle on an as needed basis. The cost of using the service is limited to payment for hourly vehicle use, plus a monthly membership fee. Currently, there are two car-share companies operating in Toronto, one of them is providing its service to over 1,000 members.

MANAGE PARKING

Fully subsidized (a.k.a. free) and plentiful parking has been an inequitable feature of employment districts in suburban areas of the GTA for decades, yet the supply of fully subsidized parking is directly related to mode of travel. Parking management, as a TDM measure, involves controlling the supply and cost of parking spaces. The main objective is to limit number of parking spaces available to induce SOV users to shift to active modes or increase vehicle occupancy.

Common forms of parking management include: parking pricing, implementation of shared parking, general reduction in parking supply, parking cash-out, provision of preferential parking for desired travel modes such as carpools or vanpools, hosting of car-share access points, and providing transit passes to employees.

Rigorous parking management measures and parking pricing are powerful deterrents to SOV travel. However, such measures have to be implemented in conjunction with other travel management measures and travel choices to avoid uncontrolled spillover effects such as increased on-street parking.

Lowering or eliminating parking minimums in the vicinity of transit services is important.

INCREASE AUTO OCCUPANCY

These programs include promotion and support for carpooling and vanpooling. Carpooling and/or ride sharing is the second most popular mode of travel (based on 2001 TTS auto passenger trips). Support for carpooling and vanpooling is provided by allowing employees access to ride-matching software or an on-line meeting place and by modifying corporate policies regulating overtime and alternative work hours. Vanpooling requires the employer to provide a fleet of vans, ensure maintenance scheduling, and cover the cost of additional insurance.

DISPERSE PEAK HOUR TRAVEL

Programs that focus on shifting temporal travel demand include alternative work hours and compressed workweek schedules. These programs are applicable for both short and long-distance commutes.

7.1.2 Complementary Strategies

EDUCATION AND PROMOTION

Programs include preparation and distribution of informative material about travel options available to Brampton's residents or employees. This aspect of TDM involves the preparation of marketing programs, as well as positive incentives to reward TDM leaders and innovators.

TRANSIT

Transit-supportive programs are one of the core elements of any TDM agenda and have been proven to be highly effective and cost-efficient. TDM transit programs include fully or partially subsidized transit passes; payroll-based distribution of transit passes; provision of employer-based shuttle bus systems or development of flexible subscription bus services; and providing up-to-date travel information at bus stops.

WALKING AND CYCLING

Walking, as a travel mode, is applicable to short distance trips only. High-density nodal developments will stimulate walking by providing a pedestrian-friendly environment as part of the streetscape and neighbourhood design. This is important for access transit routes in the neighborhoods and within 800m of the three major transit stations. Cycling is a greatly underutilized mode of travel. This form of travel is very popular in Europe and Asia and can be applied to a variety of trip purposes including daily work, school, minor shopping trips, social and recreations trips, and accessing transit. Propagation of cycling in Brampton will require provision of a continuous network of bicycle lanes/paths; bicycle racks located in prominent spots at the entrances to employment buildings, institutions, shopping centres, schools and at transit stops; bike racks on transit vehicles; shower facilities and change rooms in large office buildings. Every home in Heritage Heights is within a five-minute bike ride of a major transit station.

LAND USE PLANNING

In general, mixed-use, high-density developments are supportive to TDM. In Heritage Heights the density is highest near the three major transit stations.

TRAFFIC MANAGEMENT SYSTEMS (TMS)

Elements of TMS such as bus-priority lanes, queue-jump lanes and bus pre-emption devices, create efficient intersection operations and provide signal priority for transit vehicles. These initiatives are supportive of TDM measures.

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

ITS increases operational efficiency and access to real-time traffic conditions information

7.2 POTENTIAL TDM POLICY INITIATIVES IN HERITAGE HEIGHTS

Potential TDM policy initiatives are identified in this section as part of a "made in Brampton" TDM strategy for Heritage Heights. Working in cooperation with the Smart Commute Association, Region of Peel, and local groups, initiatives for possible consideration by the City include, but are not limited to:

- Work with the Region and GTA partners to facilitate the GTA Smart Commute initiative.
- Develop strong partnerships with the business community, school boards, the Region of Peel, neighbouring municipalities, and transit authorities to secure buy-in and funding sources for community-based TDM programs.
- Support employer-based trip reduction programs.
- Support carpooling, vanpooling and carsharing.

- Manage parking supply to encourage higher vehicle occupancy.
- Encourage and implement traffic management systems to maximize the person-carrying capacity of the street network.
- Undertake extensive marketing, education ,and promotion, including conducting market analyses related to creating transportation management associations in the new employment areas.
- Ensure that shelters and location-specific transit information is provided at all transit stops.
- Review and modify site design guidelines and the site plan approval process to require that proponents of development specifically adopt TDM initiatives, such as supportive parking management strategies.
- Review and modify the City's traffic impact study requirements and site plan guidelines to include requirements for cycling lanes, secure bicycle parking, safe and continuous pedestrian walkways and transit areas, so that they are present and prominently positioned in all new developments, whether residential, employment, retail, or institutional.
- Create legal and financial mechanisms to support, encourage, and recognize successful trip-reduction efforts undertaken by the development industry, residential, office, industrial and retail site owners/operators, and community groups.



SECTION EIGHT: ACTIVE TRANSPORTATION



8.0 ACTIVE TRANSPORTATION

Like in many TMPs, active transportation has its own section in this TMP. However, active transportation in Heritage Heights is not a separate thing or an after-thought. Every transportation choice and land use choice in Heritage Heights was designed to prioritize active transportation. So, this topic has been covered directly or indirectly in every section prior to this one.

In sum, active transportation was prioritized, starting with the land use plan. Most residents will live within a ten-minute walk to a major transit station, three-minute walk to a park or nature trail, and a five-minute walk to an elementary school. The framework streets were designed as complete streets and in a connected network to provide multiple routing options and to make walking, cycling, and accessing transit comfortable and convenient. The framework streets' network of bike and pedestrian facilities were augmented by trails along the connected open spaces. Comfortably sized and tree-lined sidewalks were included on both sides of the streets. The network was structured to make travel to and from the major transit stations, schools, parks, hospital, and the Boulevard as legible, engaging, and convenient as feasible. As a result of its structure, Heritage Heights was designed to be friendly for recreating, socializing, and commuting actively within the public realm. Active lifestyles for people of all ages will be routine due to the thoughtful plan. In Heritage Heights, walking, cycling, and accessing transit will result in better health outcomes as a result of increased activity, less pollution, increased socialization, and more connections with nature – as compared to a conventional, suburban sprawl, development. Living in a balanced 20-minute community will be the norm.

APPENDIX 1

FRAMEWORK STREET CROSS-SECTIONS

APPENDIX 1: FRAMEWORK STREET SECTIONS

Basic Six Sections

Framework streets in Heritage Heights are comprised of a kit of parts that are assembled for each street section depending on its context. Figure A1 shows the most basic section; it is for locations farther than 400m from a major transit station and with open space fronting on both sides of the street. It is comprised of:

- a 2.5m sidewalk on both sides;
- a 2.4m one-way bike lane on both sides, with an adjacent 0.6m textured/detectable delineator strip;
- a minimum of a 2.5m furniture zone/landscape strip, which includes a 0.15m curb;
- a 3.5m outer general-purpose lane, that is comprised of 3.05m of asphalt and 0.45m of a concrete gutter; and
- where desired, a 3.0m left-turn lane.

Notes:

- All pavement markings are included within the above dimensions.
- Where there is not a left turn lane, the 3.0m is used to increase the widths of the furniture zones by 1.5m on each side. Where desired by the City, the 3.0m can be divided up and used to increase the width of one or both the sidewalks, delineator strips, or furniture zones.
- The right-of-way is 26.0m.



Figure A1: Basic Section with open space on both sides

Where there are buildings proposed to front one side of the street, then a row of parking is added on the building side of the street, as is shown in Figure A2.

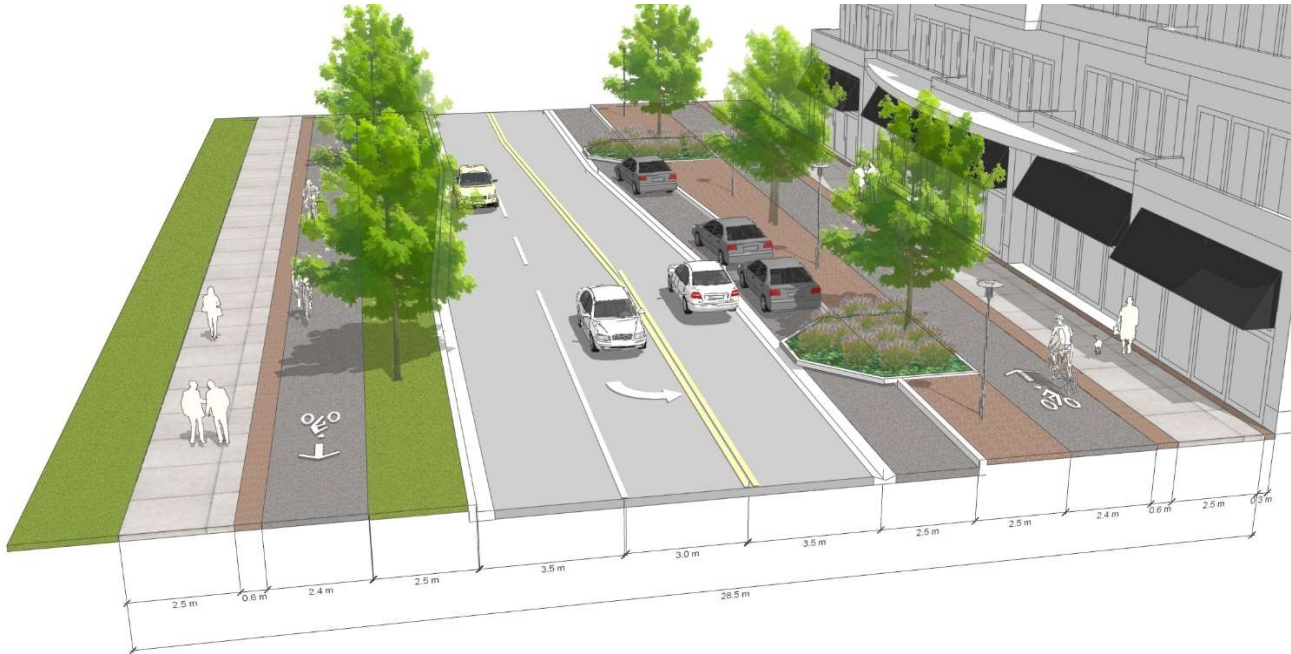


Figure A2: Basic Section with Buildings Proposed on One Side

The section is the same as the Basic Section, except that it is comprised of:

- the 3.5m outer lane, nearest the buildings and:
 - a) next to the bulbouts, that is comprised of 3.05m of asphalt and 0.45m of a concrete gutter; and
 - b) next to the on-street parking, that is comprised of 3.05m of asphalt and 0.45m of valley gutter; and
- a 2.5m on-street parking space, that is comprised of 2.35m of paving material that contrasts with the asphalt (e.g., permeable asphalt, concrete, permeable concrete, concrete paving stones, brick, etc.) and a 0.15m of the valley gutter.

Notes:

- The valley gutter is 0.6m wide and the curb and gutter next to the general-purpose lane is 0.6m wide. The front of the gutter aligns with the front of the valley gutter. The back of the valley gutter aligns with the back of the vertical curb of the curb and gutter.
- The curb and gutter details make a nice line down the edge of the general-purpose lane and combined with a contrasting material in the parking row and street trees in the bulbouts, creates a desirable optical narrowing of the street, which is aesthetically pleasing and helps keeps motorists' speeds down.
- If rain gardens are desired, then a flume can be added to each bulbout to allow water to flow from the gutter and into the bulbout. However, make sure that the bulbout is large enough to provide room for the street tree without drowning the tree. Where buildings are proposed to front both sides of the street, then a row of parking is added to each side of the street, as is shown in Figure A3.
- The right-of-way is 28.5m (i.e., it increased by 2.5m over the Basic Section due to the on-street parking). Where buildings proposed on both sides of the street, then a row of parking is provided on both sides of the streets, as is shown in Figure A3.

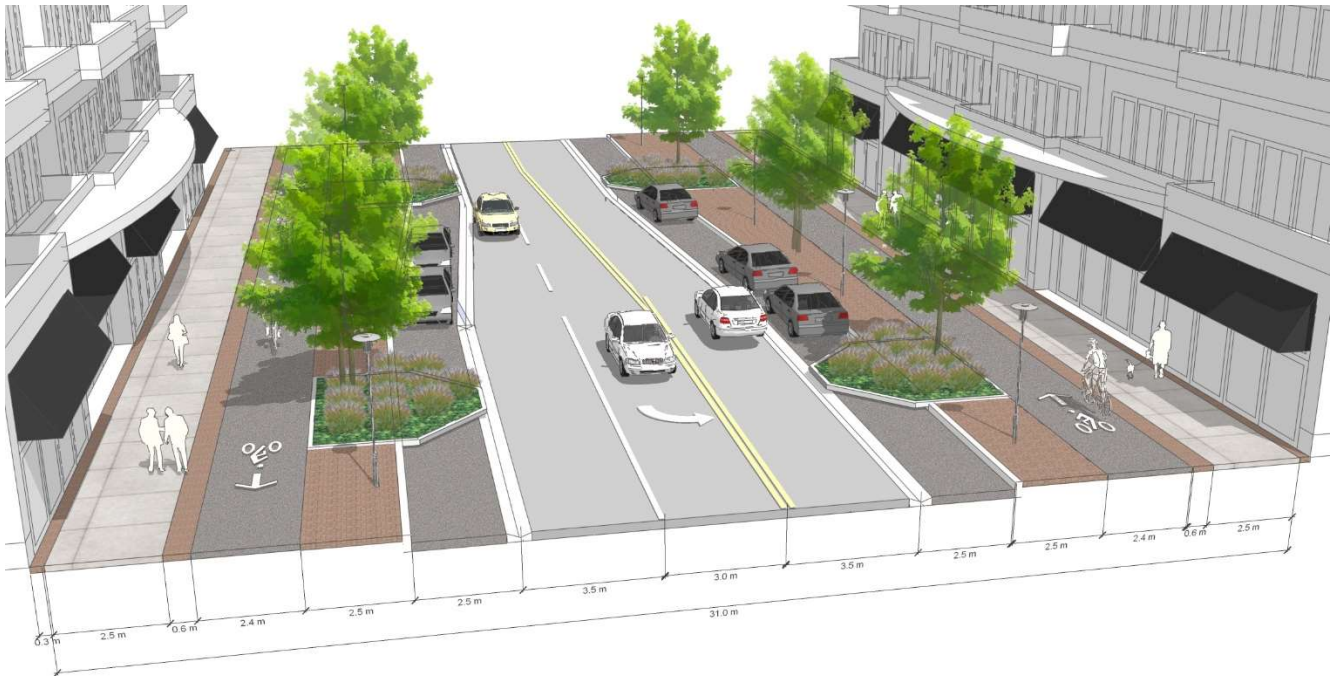


Figure A3: Basic Section with Buildings Proposed on Both Sides

The section is the same as the Basic Section, except:

- there is parking on both sides of the street; and
- the right-of-way increases by 5.0m to 31.0m.

Notes:

- Every bulbout, throughout Heritage Heights, in this section and in all other sections, at the ends of parking rows and in midblock locations have a shade tree located in it.
- Where there is no parking along a street, the furniture zone is softscape. Where there is on-street parking, the furniture zone is paved in concrete pavers.

Let's call the land area within 400m, as the cross flies, of any one of the three major transit stations a "400m zone." Any street, within a 400m zone or between two 400m zones, has the same section as the street with the same context, that is beyond a 400m zone and not between two 400m zones, except that the sidewalk widths increase from 2.5m to 4.0m. Consequently, the right-of-way would increase by 3.0m. For example, the three previously described sections would change from 26.0m, 28.5m, and 31.0m to 29.0m, 31.5m, and 34.0m, respectively. To illustrate the change, the cross-section with buildings on both sides, Figure 3A, becomes the section shown in Figure 4A. Note that the right-of-way increased by 3.0m.

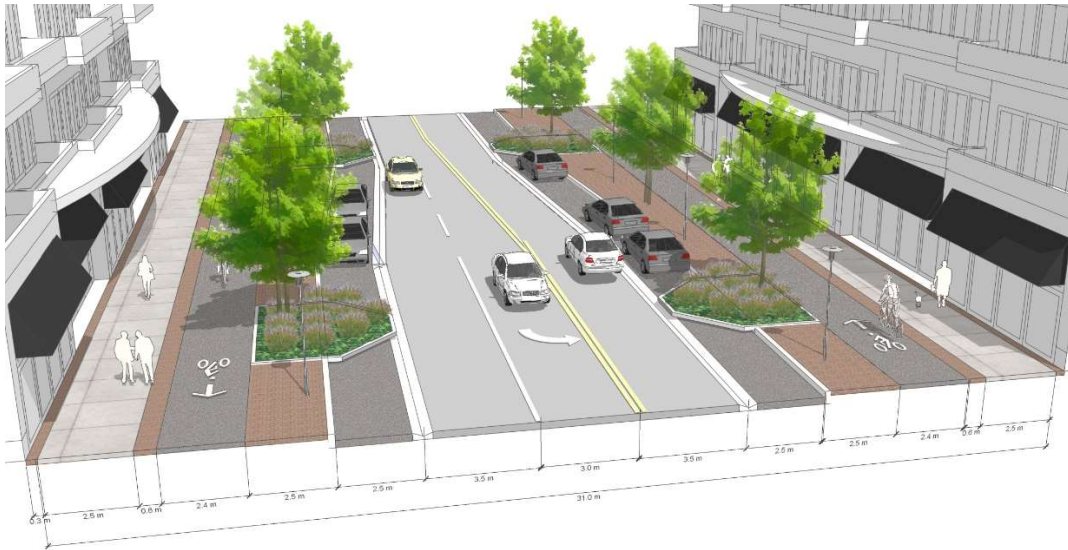


Figure A3 (repeated for comparison purposes): Basic Section with Buildings Proposed on Both Sides



Figure A4: Basic Section with Buildings Proposed on Both Sides with a 400m Zone or between two 400m Zones

Heritage Heights Boulevard

The previously described six sections pertain to most of the streets in Heritage Heights. However, there are a few exceptions. The biggest exception is Heritage Heights Boulevard, shown in Figure A5.

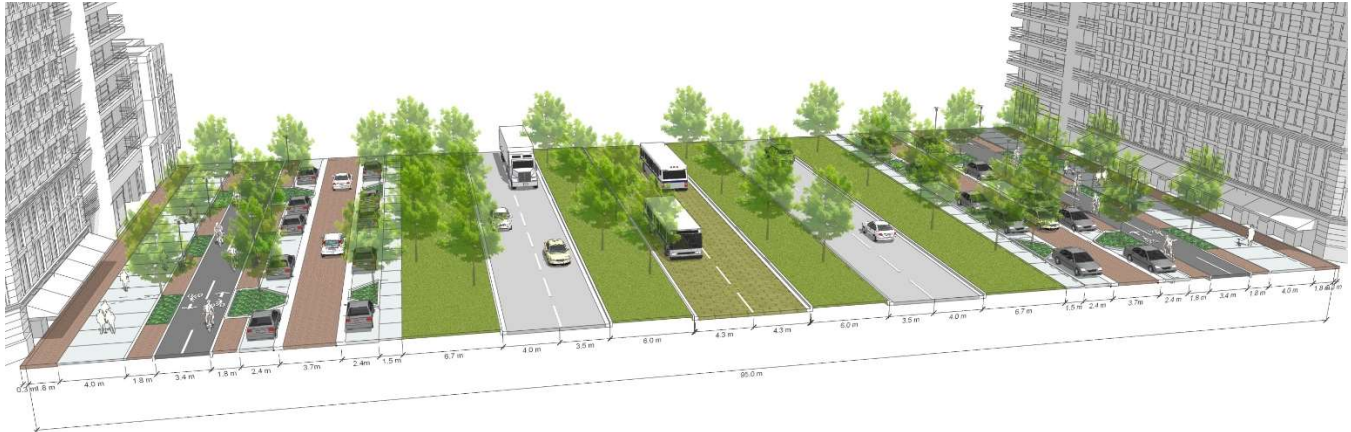


Figure A5: Heritage Heights Boulevard

The Boulevard is comprised of two frontage lane zones and the main line zone. Each frontage lane zone is comprised of:

- A 1.8m retail zone in which the adjacent occupant can express themselves (e.g., dining area, produce sales, clothing displays, art displays, etc.);
- A 4.0m sidewalk;
- a 1.8m furniture zone/landscape zone;
- a 3.4m asphalt, 2-way, bicycle facility;
- a 1.8m step strip/landscape zone;
- a 3.7m, brick, frontage lane with valley gutters, midblock bulbouts, and 2.4m parallel parking on both sides;
- a 1.5m sidewalk; and
- a 6.7m landscape buffer.

The main line zone is comprised of:

- two 4.3m transit lanes;
- two 6.0m medians; and
- two 3.5m general purpose lanes which includes the 0.45m gutter; and
- two 4.0m general purpose lanes which includes the 0.45m gutter.

Notes:

- Where a building fronts a street, in any section in Heritage Heights, its built-to-line cannot be any closer than 0.3m from the right-of-way line. This allows for the edge of the retail zone or the sidewalk, nearest the building, to have a clean line. This accounts for small changes and imperfections in the facades of the buildings. The space between the clean line and the building will be filled with concrete.
- Sidewalks in any section in Heritage Heights will be finished in brushed concrete and include no specialty pavers.

- The 1.8m retail zone is shown as a different material but shall be paved in concrete and be delineated with an expansion joint in the sidewalk.
- The frontage zones are flush to allow easy access for people using wheelchairs, pushing baby carriages, etc.
- Any flush street environment in Heritage Heights will have tactile guidance to help people with vision disabilities. These design details will be covered outside of the HHTMP.
- The 6.7m landscape buffer provides adequate radii for delivery vehicles with short wheelbases (i.e., UPS trucks, etc.) and ambulances to turn right from the main line and then right onto the frontage lane without encroaching into other lanes. The frontage lanes do not have driveways into loading areas nor are they intended for major deliveries. However, it is likely that some light deliveries, pick-up drop-off activities, etc. will occur on the frontage lanes. Larger deliveries will need to occur from B-Streets, alleys, services courts, etc.
- The 6.0m medians allow for transit stops on the far side of intersections, 3.0m left turn lanes on the nearside of intersections, pedestrian refuges on both sides of the intersections, and street trees along their entire lengths.
- Underground utilities will be arranged to not interfere with the rooting areas of the street trees.
- Should major hydro lines need to share the right-of-way of the Boulevard, they will ideally be placed underground, or on very tall poles along the transitway such that the wires are high enough to be well out of the tree line and the view of people using the boulevard.
- At the three major transit stations, the right-of-way increases by 20m to 115m. The additional 20m is added to the transit facilities to provide enough room for the bus operations. The design details for the transit facilities will be provided outside of the HHTMP.

Ace Avenue

Ace Avenue employs the same section as described in Figure A2 on both sides of the Avenue (i.e., two 2-way streets) except that, in the centre, there is a 30m-wide open space/linear park, that includes a 2.5m landscape strip and a 2.5m sidewalk each side. The right of way is 65.0m.

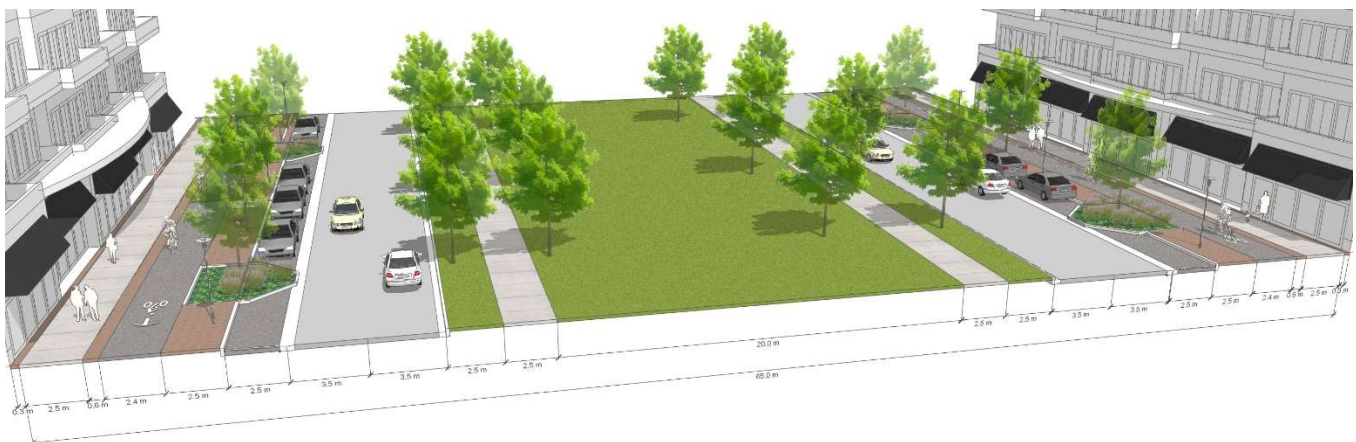


Figure A6: Ace Avenue

Main Street

Main Street is part of Fann Drive, between Williams Parkway and the Boulevard. It has the same section as in Figure A4, except that the street:

- uses general purpose lanes that are paved with bricks;
 - the street is flush;
 - the street does not include the ability or 3.0m space to have left turn lanes (i.e., turn lanes are prohibited in the Main Street area); and
 - the street has a 1.8m retail zone on each side.
- The right-of-way is 34.6m.



Figure A7: Main Street

Sections Around the Main Street Square

The street sections, on the three sides of the square with no bike lanes (i.e., not along Fann Drive), employ the same section as Main Street but:

- without the 2.4m bike lanes and 0.6m delineator strip; and
- without the 1.8m retail strip on the open space side of the street.

The right-of-way is 26.8m.



Figure A8: Sections Around the Main Street Square

Around Other Open Spaces

Note that the section in Figure A8 this is the only section so far, that has on-street parking or any space for motor vehicles to stop on the open space side of a street. Anywhere else, throughout Heritage Heights, on-street parking or related activity, along an open space, is prohibited, with two exceptions:

Exception 1) There are situations in which off-street parking might be desirable within an open space, such as within a large park for visitors or at on school sites for staff and visitors. In these cases, the off-street parking is more consumptive of land than on-street parking along the adjacent streets. This is because an off-street parking lot needs circulation aisles and a driveway to access the side street (recall that driveways are prohibited on A-frontage framework streets, which is especially important for near large parks and schools due to the high numbers of vulnerable street users on the bike facilities and sidewalks). On-street parking does not require a driveway or circulation aisles. The following requirements apply for this exception:

- i) The parking spaces will be paved with a contrasting material compared to the asphalt in the general-purpose lanes, use Heritage Heights' normal parking dimensions, employ valley gutters along the edge of the general-purpose lanes, and use Heritage Heights' regular spacing for street trees and mid-block bulbouts with trees.

ii) The additional right-of-way needed to provide on-street parking will come out of the large park or school property, but the large park or school will still effectively have more useable land, due to the land savings resulting from less or no land consumed for driveways and circulation aisles.

iii) The additional on-street parking supply can be applied to the large park's or school's parking requirements.

iv) The large park or school has no claim over the use of the additional on-street parking spaces. They will remain public parking spaces, controlled by the City, that are available to anyone.

Exception 2) There are no layby facilities or bus pull-outs for transit vehicles in Heritage Heights except at timed bus stops and at the three major transit stations. Great lengths have been taken to make it an easy choice to walk, cycle, and take City transit to school. However, there still may be a need for some school bussing. For those cases, an exception can be made on a framework street for a school bus pick-up and drop-off facility with the following requirements:

i) The school can demonstrate that a school bus pick-up and drop-off facility is infeasible on an adjacent side street. This is a high bar considering that streets are required on all sides of schools and parks, with the possible exceptions of: a) when a school and a park are next to each other; or b) are next to an environmental area.

ii) The school provides a credible estimate for the maximum number of busses that will be present during dismissal times and demonstrate that the facility can handle that number;

iii) The pick-up and drop-off facility employs a 3.0m-wide layby lane for the busses, a 5.0m-wide furniture zone/step strip/waiting area, a 3.0m-wide bike facility, two 1.0m delineator strips (one on each side of the bike facility), and a 4.0m-wide sidewalk (that extends at least 40m past the ends of the pick-up and drop-off facility, to the nearest intersection, or the end of the school property, whichever is closer).

iv) The street-tree spacing within the facility is half the regular street tree spacing for Heritage Heights, and uses tree-grates for greater functionality, shade, and attractiveness.

v) Bulbouts will be employed at the ends of the layby if the facility is near an intersection.

vi) The facilities will not be used for parent pick-up and drop-off and the school will enforce that requirement.

vii) The additional right-of way needed to provide pick-up and drop-off facilities will come out of the school property.

Bovaird Drive and Heritage Road

All streets within Heritage Heights are capped at one travel lane in each direction except for Mississauga Road and Mayfield Road, which are on the edge of Heritage Heights and for which this TMP is not developing sections, and:

- i) Heritage Heights Boulevard, which has been discussed earlier;
- ii) the part of Bovaird Drive, east of Heritage Road, which is capped at four through lanes; and
- iii) the part of Heritage Road, south of Bovaird Drive, which is capped at four through lanes.

The basic section, for the parts of Bovaird Drive and Heritage Road, that are four lanes, with open space on both sides, are shown in Figure A9. The right-of-way is 36.0m wide.

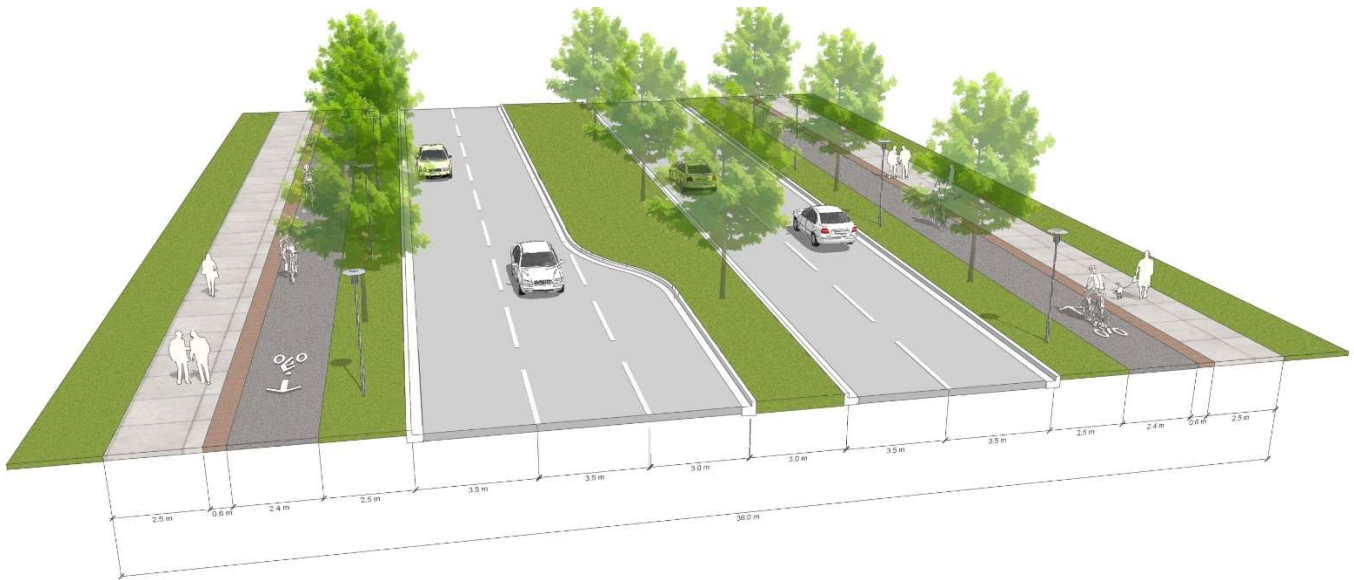


Figure A9: Basic Four-Lane Section

The basic four-lane section has the same basic components as the two-lane sections, except that it has a centre median that provides space for a left turn lane, where desired, shade trees along the length of the median, pedestrian refuges at every crossing, and an additional through lane in each direction.

Like with the previous sections, the sidewalk widths increase to 4.0m within or between the 400m zones, which increases the right-of-way width to 42.0m. Where on-street parking is added on one side or two sides of the street, wherever buildings front one side or two sides of the street, the right-of-way widths increase by 2.5m and 5.0m, respectively, to 38.5m and 41.0m outside of the 400m zones, and to 44.5m and 47.0m within the 400m zones.

Please note that the City may alter these or other cross-sections, at their discretion in subsequent drafts of the HHTMP. The reason that is being mentioned here is that consideration is being given to either: i) eliminating the median for these four-lane sections, altogether; or ii) widening the median to provide the space to add two higher order transit lanes in the long term. If the latter is chosen, then the street trees will not be required along the median.

B-Frontage Streets

Most of the framework streets are A-frontage streets along which driveways are prohibited. However, exceptions are made for the framework streets that are located parallel to and adjacent to the Boulevard. These are called B-frontage streets. Driveways are allowed on the B-frontage streets, primarily to help access parking garages and service areas for the largest buildings in Heritage Heights, that will line the Boulevard.

Because the edges of the B-frontage streets will be interrupted with driveways, there will be no separated bicycle facilities along these streets. The basic section is shown in Figure A10 and has a right of way of 29.5m



Figure A10: Basic Section for B-Frontage Streets

The basic section has 4.0m sidewalks because the majority of the B-frontage streets are within the 400m zones. Outside of the 400m zones, the widths of the sidewalks can be reduced to 2.5m, with a corresponding 3.0m reduction in the right-of-way widths. Except in the few places where open space exists, 2.75m on-street parking will be provided. The parking spaces are a little wider than regular on-street parking because: i) large-than-average vehicles will likely park along these streets; and ii) some of the on-street parking spaces may be permitted to be combined into loading zones for light and medium loading purposes (i.e., loading applications that do not require power assisted machines, such as forklifts). Where open space does front a B-frontage street on one side or two sides, the right of way can be narrowed according by 2.75m or 5.5m, respectively.

Notice that the through lanes are 3.75m wide (including the gutter) and the left turn lane is 3.5m wide due to the larger proportion of truck access intended for these streets. Furthermore, notice that the width of the travel way, from face-of-curb to face-of-curb, remains at constant 11.0m, regardless if there are left turn lanes or not, to provide additional maneuvering room to access the driveways.

Besides the aforementioned changes, B-frontage streets use the same design vocabulary as the A-frontage streets, in terms of street trees, furniture zones, bulbouts, contrasting paving within the parking rows, etc.

Streets Next to Long Lengths of Open Space

Typically, it is best to have one-way bike facilities on both sides of the street but, occasionally, it makes sense to use a 2-way, separated, bicycle facility on the open space side of the street. Selecting sections with 2-way separated bike facilities will be considered, by the City, at subsequent planning phases, when there will be more information about intersection control (e.g., traffic signals, all-way stops, stops on two approaches, roundabouts, etc.) In these circumstances, the 2-way, separated, bicycle facility will be 3.4m wide, as depicted in the example, shown in Figure A11.



Figure A11: Example of a 2-Way, Separated, Bicycle Facility

Remote Framework Streets

There are a few framework streets that are the furthest from the transit stations, will be lightly travelled by motorists, and not needed for the separated bike facility network. These streets will have a right-of-way of 22m and may have on-street parking on one or both sides, depending on the presence of open space or buildings. The right-of-way will remain 22m, regardless of the presence of on-street parking. See Figures A12 and A13.



Figure A12: Remote Street without On-Street Parking



Figure A13: Remote Street with On-Street Parking on Two Sides

Sections Next to Pipeline Easements

Anything developed next to a pipeline easement is required to provide a 7.0m access easement between the pipeline easement and whatever is developed. The access easement is to allow pipeline-related maintenance vehicles and personnel to access the pipeline easement for repairs, maintenance, etc. Normally, the access easement is just a strip of grass. However, for streets next to the pipeline easement, there is the ability to alter the design of the section to include all or part of the 7.0m easement within the right-of-way. On the edge of the right-of-way, next to the pipeline easement, it is feasible to reinforce the separated bike facilities, delineator strip, sidewalk, and turf (as needed) to provide a 7.0m access for the pipe-line easement.



Figure A14



Figure A15

In Figure A14, the 4.0m sidewalk, 0.6m delineator strip, and 2.4m bicycle facility total 7.0m in width. Consequently, the entire 7.0m access easement can be provided within the right-of-way. However, in Figure A15, the sum is 1.5m short of the needed 7.0m. So, the choices are: i) use the 5.5m total of the sidewalk, delineator strip, and bike facilities and add a 1.5m easement of reinforced turf between the right-of-way and the pipeline easement; or ii) widen the right-of-way by 1.5m and widen the sidewalk by 1.5m. The latter option makes the most sense. Similar choices will need to be made at other locations along the pipeline easement.

Sections Across Rail Tracks

There two rail-crossings next to Heritage Heights (i.e., at Mississauga Road and at Winston Churchill Boulevard). There are four rail-crossings proposed within Heritage Heights:

- i) an at-grade crossing at Serve Street;
- ii) an at-grade crossing at Heritage Road;
- iii) a grade-separated crossing at Tennis Street; and
- iv) a grade separated crossing the involving the two-level Go Station/BRT Station that includes air rights for buildings, the BRT station in the widened median along Heritage Height Boulevard above the centre of the GO Rail platform, and Williams Parkway above the east end of the platform, and Doubles Drive, above the west end of the platform.

For the first three crossings, as the streets approach the rail crossing, regardless if at-grade or grade separated, the sections at the crossing will be the same as the section on either side of the crossing, except that parts of the section will be eliminated to make the crossing as narrow as practical. The parts that will be eliminated include the on-street parking and the furniture zones (and effectively the width of the left turn lane). For the fourth crossing, the crossing will not be noticeable on the second level and the sections will continue as they would normally, but with the small exception that the street trees won't be planted in the furniture zones, landscape buffers, and medians above the GO platform.

Sections Key and Map



Figure A16

A map, similar to Figure A16, will be provided in a subsequent iteration of the HHTMP. It will indicate the sections for the framework streets, right-of-way widths, and alignments, throughout Heritage Heights. Like Figure A16, the map will show the A-frontage streets (i.e., the streets with the white-coloured fill) and the B-frontage streets (the streets with the black-coloured fill). The map will have a key and a labelling convention to make the map easy to read. Due to environmental needs and pipeline crossing requirements, several changes to the map are required and are in progress. The sections, described in Appendix 1, are not affected. However, where they are used on the map will change slightly due to changes in the adjacencies of open space and buildings, due to the altered street network. The changes will also affect some of the block structure, a few of the street alignments, and a few of the street names. The land use strategy will also remain unchanged and the original intent of the street network will be preserved. For example, the changes to the map will still have continuous, north-south, streets to serve the neighbourhoods to the west and the neighbourhoods to the east.

Specifically, on the east side of Heritage Heights, the pipeline crossing requirements, near the rail line and near Volley Way, make the alignment of Court Road infeasible, near the rail line, and the alignment of Williams Parkway infeasible, near Volley Way. Consequently, altering the network, to the east, was necessary. In the current work to update the map, care is being taken to: i) respect the pipeline crossing requirements; ii) ensure a continuous (i.e., confluence-free), north-south street to serve the eastern neighborhoods of Heritage Heights; and iii) provide a supportive structure parallel to the Boulevard. Due to the ripple effect, some changes to the west are necessary as well. In sum, the three of most important changes to the overall network will include: i) Double Drive's alignment will change to cross Heritage Road and then serve as the north-south street in the western neighborhoods; ii) Williams Parkway's alignment will change to become the north-south street to support the eastern neighborhoods; and iii) north of Sandalwood Parkway, the environmental space requirements require that a slightly different block structure be used in the vicinity of the Boulevard as well as some minor changes to the Main Street and medical campus blocks.