Algonquins of Ontario

TAGGART GROUP OF COMPANIES

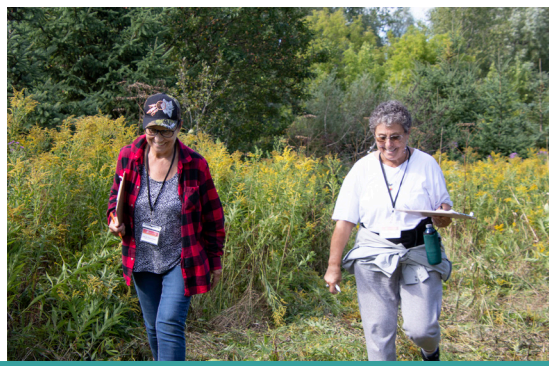
CAIVAN COMMUNITIES

TEWIN

Existing Conditions and Preliminary Opportunities Report

June 2023

Revised December 2024



Content

Executive Summary

Urban Strategies Inc. was retained by the Algonquins of Ontario (AOO), Taggart Investments and Caivan, who are major landowners within the Study Area, to coordinate the advancement of an integrated Secondary Plan and Municipal Class Environmental Assessment (EA) process that will facilitate the planning, design and development of Tewin. This Existing Conditions and Preliminary Opportunities Report provides an overview of the Study Area context and planning framework; social, economic, and environmental conditions in and around the Study Area; and the preliminary opportunities that may shape the planning and urban design framework for the future Tewin community.

Tewin Overview and Project Goals

Tewin is planned to be a community of approximately 45,000 people and thousands of jobs. It will be more compact and dense than existing suburbs in Ottawa, with new urban areas integrated alongside valuable natural areas. Tewin will be an inclusive and welcoming community, anchored in Algonquin wisdom and placekeeping principles. The community will have a meaningful mix of land uses and support active mobility, to achieve a complete, future-ready community. The development of new housing at Tewin responds to municipal and provincial housing requirements, to help meet the housing demands of a growing and increasingly urban population.

The Tewin Project Team and City of Ottawa have committed to exploring appropriate options and alternative standards to enable Tewin to become a model of best practices in sustainable and inclusive community design in the North American context.

Tewin is being advanced through an integrated Secondary Plan and Municipal Class EA process. Given the scale of the Study Area and project, this integrated approach will facilitate the planning process by bringing together various technical and community planning considerations and promoting a coordinated community engagement process.

This Existing Conditions and Preliminary Opportunities Report and accompanying appendices will be used as a baseline for advancing the Tewin planning process and more detailed technical studies.

Provincial Policy Framework Overview

The development of Tewin is regulated and informed by the provincial planning framework as established by the Planning Act, Environmental Assessment Act, and Provincial Policy Statement. The development of Tewin will be aligned with matters of provincial interest, conforming to all statutory requirements established under the provincial framework.

Official Plan Overview

Ottawa's new Official Plan is a key policy document that identifies the Study Area as the location for a new community, and establishes the policy basis for advancing a community design plan and secondary plan for the Study Area.

The new Official Plan establishes five key policy objectives - the 5 Big Moves - to guide the city's strategic directions. The development of Tewin is a prime opportunity to implement the Five Big Moves.

The Official Plan applies the Future Neighbourhood Overlay to the Study Area, which is intended to support the formation of a new complete community. The Future Neighbourhood Overlay can be lifted, and the underlying land use designations amended, through a secondary planning and community design process. Technical study and other requirements for the development of Tewin are contained in Annex 10 of the Official Plan, and will be relied on as the basis for the Tewin planning process.

Other Key Documents and Studies

This Report and accompanying technical studies should be read together, as they provide a comprehensive picture of the existing Study Area conditions. In addition to this planning and land use summary report, the following additional reports have also been prepared as part of the existing conditions review:

- Natural Heritage
- Mobility Network
- Soils and Geology
- Watercourses and Hazard Lands
- Hydrogeology and Surface Water
- Archaeological Study

01 Introduction

Urban Strategies Inc. was retained on behalf of the Algonquins of Ontario (AOO), Taggart Investments and Caivan, who are major landowners within the Study Area, to coordinate the advancement of an integrated Secondary Plan and Municipal Class Environmental Assessment (EA) process that will facilitate the planning, design and development of Tewin. The project will also identify a servicing infrastructure and stormwater management strategy to be implemented through subsequent phases of development applications. A map of the Study Area is shown below as **Figure 1**.

This Existing Conditions and Preliminary Opportunities Report is part of a comprehensive set of existing conditions and preliminary opportunities reports that have been prepared as part of Phase 1 of the Tewin study process. These reports are intended to establish an understanding of the existing physical, social and ecological conditions that characterize the Study Area. Where appropriate, these reports also identify preliminary opportunities to help guide the next phase of the master planning process.

The Study Area represents the lands that have been added to the City's urban boundary through the approval of the official plan.

This report was originally prepared in June 2023, and was updated in April 2024 to address comments received from City and agency staff.

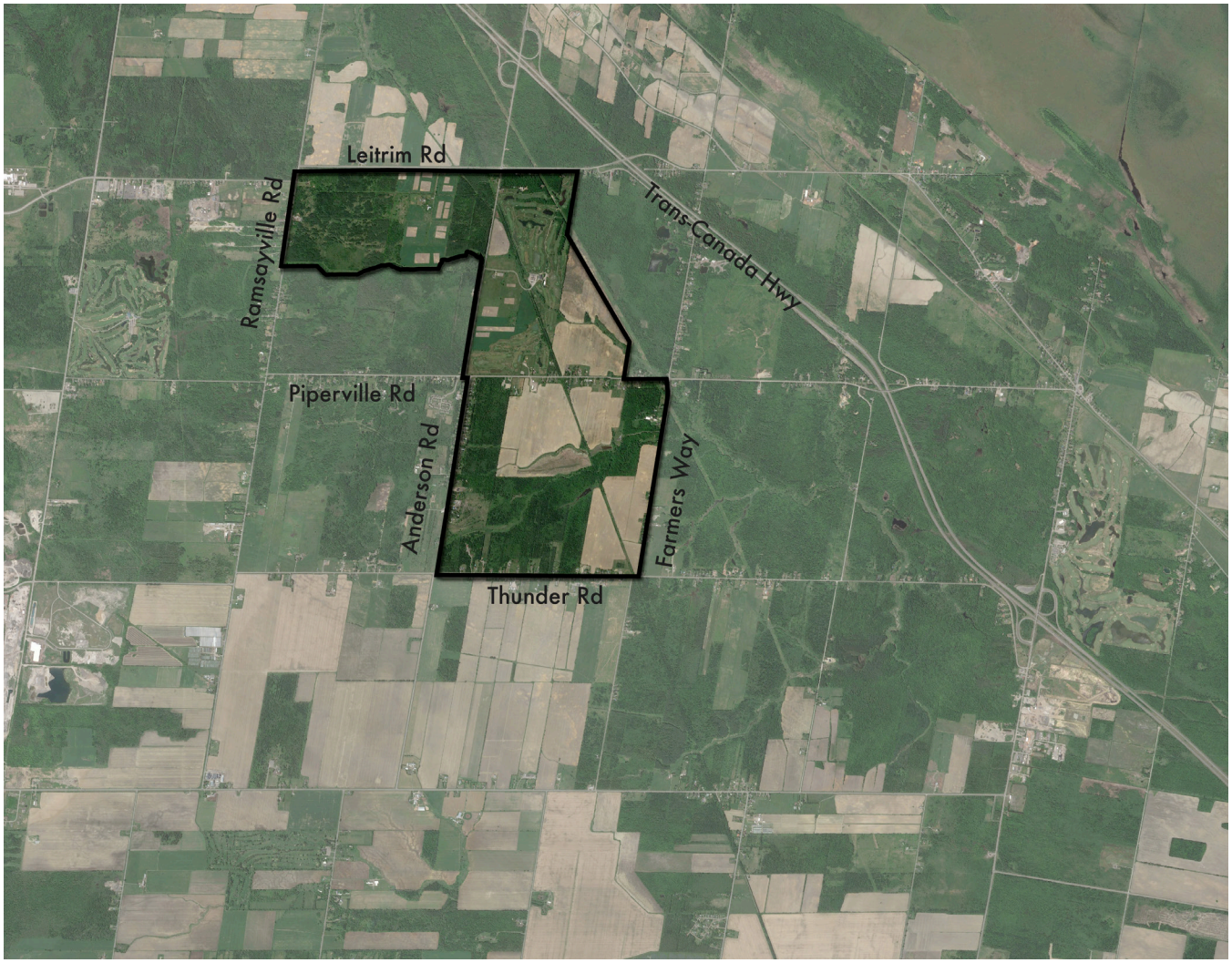


Figure 1. *Map showing the extent of the Study Area*

1.1 Integrated Secondary Plan & Municipal Class EA Process

The ambition and scale of Tewin requires ongoing internal and external consultation. The purpose of the integrated Secondary Plan and Municipal Class EA process is to consolidate the various technical and community planning elements of the project to promote coordinated community engagement through streamlined and aligned decision making. This format will ensure critical partners, consultants and stakeholders are brought together at major milestones to identify and track challenges and opportunities through the development process.

The integrated Secondary Plan and Municipal Class EA process will include a public consultation strategy and technical study review timeline that achieves the requirements of the Secondary Plan and Municipal Class EA concurrently. The two statutory Municipal Class EA meetings will be timed to align with the development of the community objectives, framework, preferred plans, and the draft secondary plan. Additional public and targeted consultations will be planned to complement the statutory consultation requirements. The development of the One Planet Action Plan (OPAP) will occur in parallel, with the final OPAP available at the time of final secondary plan Council approval. One Planet Living endorsement will follow Council approval of the secondary plan.

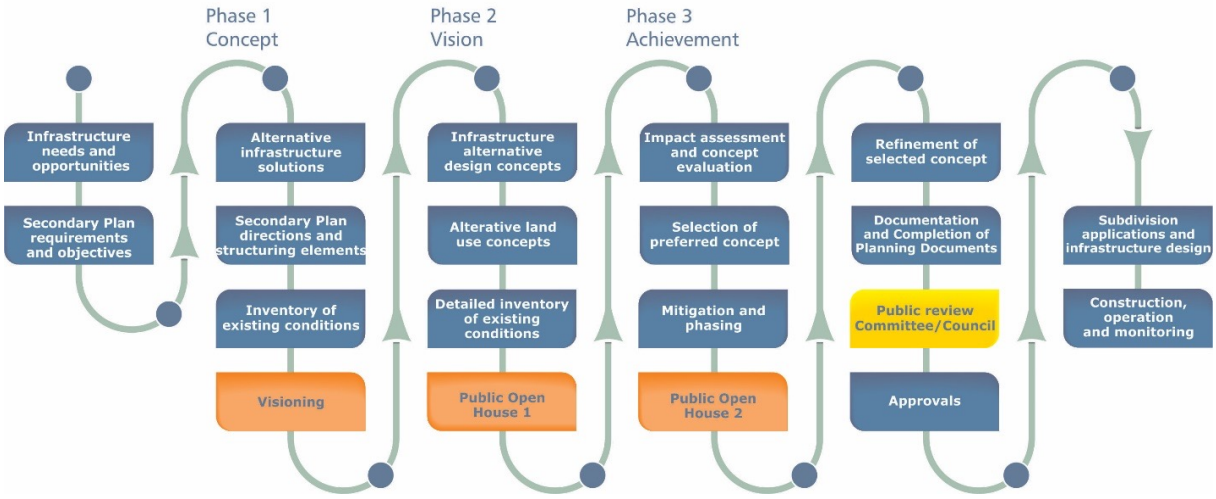


Figure 2. *Illustrative flow chart summarizing the Integrated Secondary Plan and Municipal Class Environmental Assessment Process*

1.2 Purpose

The purpose of this Report is to establish the baseline conditions to inform the development of an appropriate urban structure for the Tewin Community. This baseline information will be used to identify opportunities and strategic considerations that will inform the Tewin community design process going forward, as well as frame the preparation of the more detailed technical studies.

The urban structure will be implemented through a community design plan (CDP), Official Plan amendment (OPA), and a secondary plan. Transportation and municipal services will be developed to support this new community. Development will be on a phased basis through successive draft plan and/or site plan applications.

The design of the urban structure for the new community will depend on a variety of factors, including natural features and hazard lands; environmentally significant features; appropriate relationships to existing land uses; the existing road network; planned mobility connections; optimal community, commercial and retail use locations; critical population mass; and economic feasibility. Development at Tewin will explore new approaches to planning, design and development, including alternative strategies and solutions that can successfully implement the key community objectives.

1.3 Study Area & Property Information

The Study Area is in southeast Ottawa on the southern side of the Greenbelt near the Highway 417 and Highway 27 interchange. The Study Area was identified through preliminary analysis undertaken by the City of Ottawa to be the preferred location for the new community to be known as Tewin. The Study Area encompasses approximately 890 hectares, as shown in Figure 3. This area avoids the large, Natural Heritage System Core Area to the east of the Study Area, is in closest proximity to the existing urban areas, and includes lands that are in closest proximity to future water and sanitary outlets and services.

Generally, existing land uses within the Study Area include open space, recreation, limited agriculture, rural residential and natural features. A significant portion of the Study Area is owned by the development partners – the AOO, Taggart Investments and Caivan. There are no lands designated Agricultural Resource Area within the Study Area.

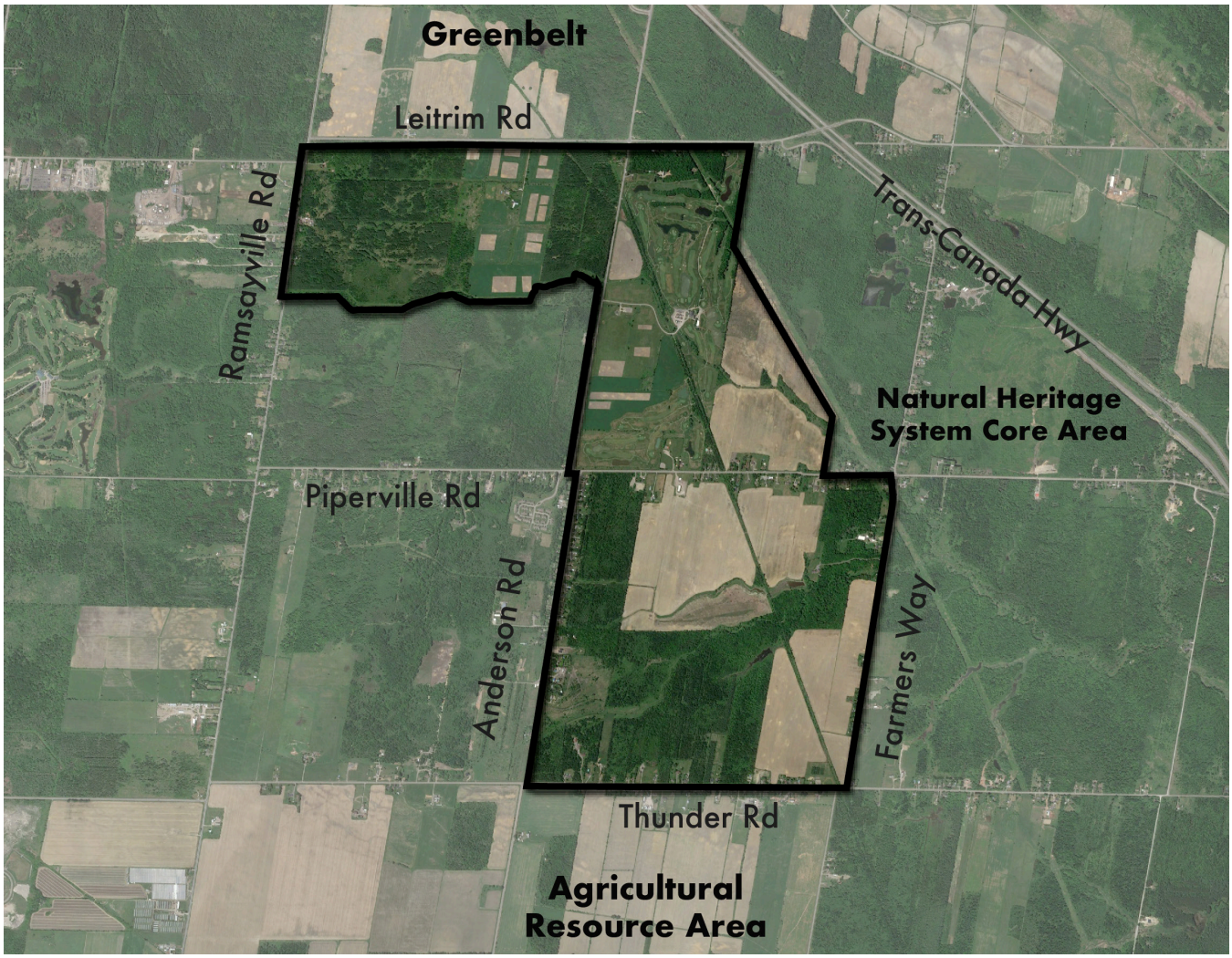


Figure 3. *Map showing the Study Area and associated natural features within the area*

1.4 Tewin Overview and Preliminary Community Vision

Tewin is planned to be a community of approximately 45,000 people and thousands of jobs. It will be more compact and dense than existing suburbs in Ottawa, with new urban areas integrated alongside valuable natural areas. Tewin will be an inclusive community, anchored in Algonquin wisdom and placekeeping principles, and welcoming to all. The community will have a meaningful mix of land uses and support active mobility, to achieve a complete, future-ready community. The Tewin Project Team and City of Ottawa have committed to exploring appropriate options, alternatives and standards to enable Tewin to become a model of best practices in sustainable and inclusive community design in the North American context.

The integrated Secondary Plan and Municipal Class EA process will bring together various technical and community planning considerations.

The key objectives for Tewin are to create a community that is:

- Anchored in Algonquin wisdom, principles and placekeeping;
- A benchmark for community design, demonstrating achievement of the 5 Big Moves identified in the Ottawa Official Plan;
- Mobility-oriented and supportive, promoting a broad range of active forms of movement, where personal vehicles are optional;
- Characterized by a meaningful mix of housing, community amenities, jobs and services in order to achieve a complete, future-ready community;
- Designed to protect and integrate alongside valuable natural areas and agricultural lands; and
- Affordable, inclusive, healthy, welcoming and accessible to all.

Figure 4. *Illustrative graphic depicting key components of the Tewin vision*

1.5 Tewin Intent: A Forward-Thinking Framework

Development at Tewin will explore new approaches to planning, design and development, finding successful options and alternatives to implement the key community objectives, in some cases likely going beyond what current development standards would allow for. The Tewin Project Team and the City of Ottawa have articulated these in the "Tewin Intent" which sets out the following:

1. Bold and Innovative Thinking

Tewin is about creating a new kind of community, a future-focused model for smart, healthy and sustainable development. It will be a people-centred place that seeks to create the conditions for well-being. We will be open to bold ideas, innovative approaches, creative solutions, efficient use of land and resources, emerging technologies, smart city infrastructure that advances the City's goals and objectives, and other future-forward ideas and opportunities that will enable Tewin to reach its full potential.

2. Integrating Algonquin Values and Principles

Algonquin principles, values and teachings will guide the planning, consultation, design and development process for Tewin. The integration of Algonquin principles and design intentions will ensure the community is nature-based and sensitive to Mother Earth while creating capacity-building and economic development opportunities for the Algonquin people.

3. Sustainability and Resilience

Tewin will be a model community that will position Ottawa as a leader in integrated sustainable design with the goal of being a resilient and holistic community. Tewin will be guided by the One Planet Living framework and Algonquin values of respect for the earth. The Community Design Plan will respond to the City's High Performance Development Standard, Climate Change Master Plan, and will result in a Community Energy Plan. A Community Energy Plan and performance-based sustainability metrics that address climate mitigation and adaptation and the other categories of the High Performance Development Standards will be established from the start and monitored over time.

4. Systems-Based Environmental Planning

Tewin's organization and functions will be designed to respect nature and integrate natural features and landscapes into its form, character, and spirit. To that end, we are committed to pursuing a systems-based approach to natural heritage protection, environmental management, and water management in a way that is inclusive and integrated and encourages stewardship and a positive relationship with the natural world. Natural features are regarded as opportunities rather than constraints, will be woven into the fabric of the community, and will be central to its design and character.

5. Alternative Design Solutions

Designing a community of the future requires progressive and forward-thinking infrastructure solutions. We are committed to being solutions-oriented and will consider alternative design and engineering standards that prioritize natural systems, pedestrians, cyclists and transit users and efficiently use available land and resources.

Surface water management strategies that achieve quality, conveyance and storage objectives will be based on the fundamentals of natural cycles, green/soft infrastructure, and multi-use opportunities that complement the human realm. Infrastructure design will consider the needs of those involved in the construction, operation and maintenance of municipal services to find opportunities to efficiently service the community and showcase sustainable practices while meeting the community's needs.

A framework for assessing alternative design standards will be established to consider and review alternatives against existing standards within the context of goals and objectives for the City and Tewin.

6. Cost-Effectiveness and Efficiency

Tewin will demonstrate best practices in efficient and compact development. As a dense, mixed-use community of scale, Tewin will achieve a critical mass of people and jobs to support new infrastructure investments. We are committed to exploring opportunities to optimize the community's efficiency through a range of strategies including prioritizing space-efficient modes of transportation, use of technology, green infrastructure, innovative construction practices, shared-use agreements, and mixed-use forms of development that will promote the efficient use and optimization of land; housing affordability; and support the long-term financial viability of the community and city resources.

7. Integrated Planning Process

We are committed to advancing Tewin through a comprehensive and integrated planning and environmental assessment process where possible or applicable. The process will bring together various planning, environmental, transportation, urban design, infrastructure, economic, financial, social and technical considerations. The process will be underpinned by engagement with the Algonquin people, other stakeholders, and the public.

8. Collaboration and Problem Solving

The Tewin Project Team and City of Ottawa Project Team are committed to working collaboratively together to move Tewin forward in an expedited way. We will plan with a spirit of collaboration and joint problem-solving to ensure that the development of Tewin meets the best interests of the City of Ottawa and the Algonquins of Ontario.

9. Communication and Transparency

The Tewin Project Team and the City of Ottawa Project Team commit to open and transparent communication throughout the project. This will require proactively sharing information between the groups as decisions are made and ensuring relevant communication materials are distributed in a timely manner.

The Tewin Project Team and the City of Ottawa Project Team will ensure that all parties, including City Council, residents, and other stakeholders, are provided with pertinent details. Effective information sharing will ensure the project achieves outcomes that are, to the greatest extent possible, known by all involved.

1.6 Existing Conditions Technical Reports

A range of specialized consultants have been studying the physical environment of the Study Area to support community design, servicing strategies and the future development of Tewin. This data has been collected and reported on in a set of Existing Conditions and Opportunities Reports, of which this document is one. The full suite of reports includes the following:

- **Tewin Existing Conditions and Preliminary Opportunities Report** dated September 2024 and prepared by Urban Strategies
- **Fluvial Geomorphology Study - Tewin Lands: Existing Conditions Summary Report - Bear Brook and Ramsay Creek Watersheds** dated October 2024 and prepared by GEO Morphix Ltd.
- **Tewin Lands: Existing Conditions Hydrogeological Study** dated September 2024 and prepared by Dillon Consulting
- **Existing Conditions - Geotechnical: Tewin Lands** dated September 2024 and prepared by Paterson Group
- **Tewin Lands: Natural Heritage Preliminary Existing Conditions Report** dated April 2024 and prepared by Kilgour and Associates
- **Tewin Lands: Cumulative Hydrologic Impact Assessment** dated April 2024 and prepared by J.F. Sabourin and Associates
- **Tewin Lands - Existing Conditions Water Budget Analysis** dated October 2024 and prepared by J.F. Sabourin and Associates
- **Tewin Lands: 2021-22 Field Monitoring Report** dated April 2024 and prepared by J.F. Sabourin and Associates
- **Tewin Mobility Existing Conditions** dated May 2024 and prepared by CGH Transportation
- **Stage 1 Archaeological Assessment** dated July 2023 and prepared by WSP Canada Inc.

1.7 Framework for Identifying Preliminary Opportunities

Given the unique scale, vision and project goals for Tewin, as well as the shared commitment to exploring new ways of advancing the community design process as expressed in the Tewin Intent, the Phase 1 reports for Tewin include a discussion of potential opportunities to be explored in subsequent stages of the integrated Secondary Plan and Municipal Class EA process. The identification of preliminary constraints and opportunities, as well as a preliminary community structure, is required in Phase 1 of the integrated Secondary Plan and Municipal Class EA process as per specific Terms of Reference that were established for each of the Tewin planning, environmental and transportation studies.

The opportunities introduced within these reports are based on a series of key policy directions and strategic considerations, including:

- **Ottawa's new Official Plan**, which promotes the creation of complete, transit-supportive communities;
- **Algonquin values and principles**, underscored by respect for nature, integration of water, and planning the natural environment to achieve long-term vitality over many generations;
- **The Tewin Intent**, which promotes innovative thinking and alternative, performance-based solutions;
- **One Planet Living**, a holistic framework for achieving environmental resiliency, sustainable development, and reduced carbon emissions;
- **Provincial policy direction** focused on supporting housing development and facilitating growth, in order to address the province's housing supply challenges; and,
- **An integrated, systems-based approach** to planning at Tewin that brings together diverse planning, environmental, technical and economic considerations.

02 Planning & Land Use Framework

2.1 Planning Act

The *Planning Act, R.S.O. 1990, c.P.13* provides the basis for consideration of matters of provincial interest in provincial and municipal planning decisions. The *Act* mandates all decisions to be consistent with the Provincial Policy Statement and to conform/not conflict with provincial plans.

Under Section 2 of the Act, local planning authorities shall have regard to matters of provincial interest, which in the case of the development of Tewin include:

- protection of ecological systems including natural areas, features and functions;
- conservation and management of natural resources;
- the adequate provision and efficient use of infrastructure and municipal services;
- the orderly development of safe and healthy communities;
- the adequate provision of a full range of housing, including affordable housing, and employment opportunities;
- the appropriate location of growth and development and the promotion of development that is designed to be sustainable, to support public transit and to be oriented to pedestrians;
- the promotion of built form that is well-designed, encourages a sense of place, and provides high-quality public spaces;
- the mitigation of greenhouse gas emissions and adaptation to a changing climate;
- the supply, efficient use and conservation of energy and water; and,
- the protection of public health and safety.

2.2 Environmental Assessment Act

The *Environmental Assessment Act, R.S.O. 1990, c.E.18* sets out the responsibilities and procedures for undertaking Environmental Assessments for new infrastructure developments impacting the interests of the Provincial Government and sovereignty of the First Nations. The intent of the *Act* is to guide sustainable developments by promoting high quality environmental assessments, to integrate environmental factors into planning and decision-making processes, and facilitate public participation in the environmental assessment of projects where the provincial government is involved.

The Tewin project is being advanced through an integrated Secondary Plan and Municipal Class EA process. The Environmental Assessment requirements for all infrastructure projects will be completed through the Secondary Plan process and integrated with the Official Plan Amendment which will implement the Secondary Plan for Tewin. The integration of the EA process with the Planning Act approvals process will support a streamlined review and approval framework.

2.3 Provincial Policy Statement

The Provincial Policy Statement, 2020 (PPS) was issued under Section 3 of the Planning Act and came into effect May 1, 2020. The PPS provides policy direction for all land use and planning activities in the province of Ontario and acts as the foundation with which all planning decisions in the province must be consistent. Key policy directions in the PPS provide for sustainable patterns of development with consideration for the protection of the public interest, health and safety, and the quality of the natural environment.

The PPS anticipates and regulates the growth of new communities through policies in Section 1.1.3 - Settlement Areas. This Section states, among other requirements, that settlement area boundary expansions are to occur at the time of a comprehensive review (1.1.3.8); and new development taking place in designated growth areas should have a compact form, mix of uses and densities that allow for the efficient use of land, infrastructure and public service facilities (1.1.3.6).

Additional directions for land use patterns within settlement areas are identified in the PPS, and include (among others): the efficient use of infrastructure, public services, land and resources; supporting active and public transportation; and minimize negative impacts to air quality and climate change.

The Official Plan (OP), and the Tewin-specific Official Plan Amendment and secondary plan that will implement the new community, are required to be consistent with the PPS. The Ministerial approval of the new OP indicates that the plan for urban growth at Tewin, as well as the associated OP policies which establish a vision for Tewin as a complete community, are consistent with the PPS.

Draft Provincial Planning Statement, 2024

The Province of Ontario has released a draft Provincial Planning Statement (PPS), which would replace the 2020 Provincial Policy Statement (PPS 2020) and incorporate certain elements of A Place to Grow: Growth Plan for Greater Golden Horseshoe, 2020. The most recent draft was released in April 2024.

The draft PPS is under review and not yet in force. All planning decisions made in Ontario must be consistent with the PPS that is in effect on the day of the decision. While the Growth Plan does not apply to the City of Ottawa, any provisions from it that are included in the final version of the draft PPS will be applicable. The new PPS will likely be in effect when the secondary plan for Tewin is adopted. As the new PPS is in draft form, the PPS 2020 remains in effect for now.

The draft PPS proposes fundamental changes to the municipal planning framework, and introduces the concept of strategic growth areas and major transit station areas province-wide. Updated natural heritage policies and associated definitions are also included in the draft PPS.

Draft and final versions of the proposed PPS will be reviewed as the Tewin planning process continues, to ensure the project is consistent with the provincial planning framework at the time of approval.

2.4 Ottawa Official Plan

The City of Ottawa Official Plan came into effect on November 4th, 2022, following approval by the Ministry of Municipal Affairs and Housing. The Official Plan represents the City's visions and objectives for urban growth until the year 2046 and delineates the objectives and policies to implement them.

Section 2 of the Official Plan identifies five key objectives – known as the Big Moves - to guide the city's strategic directions.

1. **Growth**: Prioritize the intensification of built-up urban areas over greenfield developments, to mitigate the effects of growth on land consumption.
2. **Mobility**: Promote sustainable means of transportation such as walking, cycling, transit, or carpooling, as supporting active transportation is crucial to creating a healthier and more equitable city.
3. **Urban Design:** Implement sophisticated urban design elements into the community designs to create more inclusive and vibrant neighbourhoods, which also reflect and integrate the City's economic, racial and gender diversity.
4. **Resiliency**: Ensure that growth remains environmentally sustainable by embedding environmental, climate and health resiliency and energy into the City's planning framework.
5. **Economy**: Support employment growth and other forms of economic development in Ottawa by embedding economic development into the City's planning framework.

Section 3 – Growth Management Framework - outlines the projected growth in the City and the framework to manage this growth. Section 3.1 identifies urban areas and villages as the focus of growth and development, with 93 per cent of all household growth targets being accommodated within Built-Up Urban Areas and Urban Greenfield Areas. Growth within the built-up areas will be located near transit hubs to support the development of complete neighbourhoods. The residential density targets prescribed to various growth areas and transects in the City will ensure that projected growth creates a critical mass of residents and workers to support the viability of rapid transit.

Section 4 – City Wide Policies - describes the set of broad-scale policies that are designed to promote sustainable and attractive growth. The safety and accessibility of pedestrians and users of other active modes of transportation will be prioritized in Urban Areas and Villages. Active transportation will be further supported by the concentration of growth in urban areas towards transit hubs and corridors, which will foster the development of complete communities. Housing affordability will be supported through the provision of a diverse range of housing types, which will enable greater flexibility in housing options. To make efficient use of existing and planned infrastructure networks, new developments in the City are required to conform to approved servicing plans, which will help to mitigate the impacts of development.

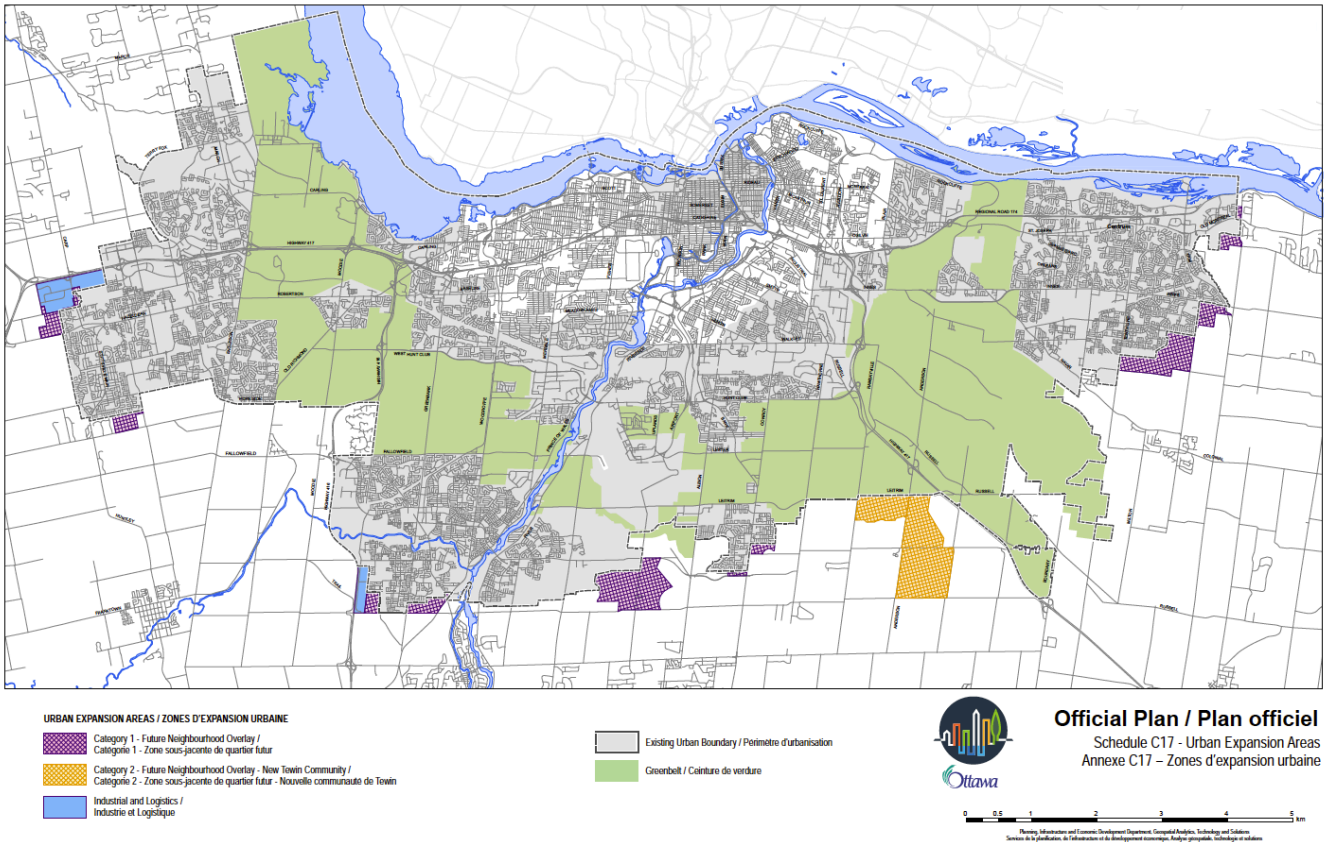


Figure 5. *Schedule C17 of the new Ottawa Official Plan illustrating the urban expansion lands, including the Study Area*

Section 5 – Transects – categorizes the lands within the City's boundaries into six transects, which are concentric policy areas with varying levels of existing and planned urban density.

Policy 5.4.4.1 provides direction for new development in the Suburban Transect. Criteria include, among others, the layout of blocks and streets; active transportation linkages; mixed-use hubs and nodes; well-integrated and green corridors; and a focus on walkability and connectivity. It is also recognized in this Section that Tewin will be structured on a fine-grained, fully-connected street network that reflects Algonquin placekeeping and design principles.

Net residential densities in the Suburban Transect will strive to approach the densities of the Inner Urban Transect over time, with a minimum planned density of 36 units per net hectare, and permitting increases to density through intensification and accessory dwelling units (5.4.4.2).

The Tewin area is identified as Category 2 lands on Schedule C17 of the Official Plan, and is contained within the Future Neighbourhood Overlay. This Overlay is intended to guide the development activities occurring within these areas to support the formation of complete neighbourhoods.

The Official Plan requires that the Future Neighbourhood Overlay be removed prior to draft or final approvals within the affected area. Removal of the overlay can only occur through an Official Plan Amendment, including a secondary plan and associated studies, once the policies of Section 5.6.2.1 have been satisfied. The policies require, among others, Council approval of a community design plan including related studies as identified in Section 12; an approved funding source and/or legal funding mechanism for the provision of municipal water, sanitation and stormwater services; and the provision of, or secured funding for, transit service within 1.9 kilometre of the center of the proposed subdivision; and confirmation of road capacity to accommodate forecast growth.

Section 5.6.2.1.9 specifies that all parcels that form part of a larger contiguous expansion area must proceed through the same community design plan process and cannot proceed independently of the larger area.

It is also recognized that despite the preliminary location for Tewin being shown on Schedule C17, the exact boundary will be adjusted and/or finalized through the approval of the community design plan and applicable studies. The Tewin community will consist of a net developable area of 445.35 hectares, with no net increases in the developable area permitted as result of adjustments to the boundary (5.6.2.1.11).

A Tewin-specific Annex is included in the new Official Plan (Annex 10 – Tewin Community Design Planning Process and Studies, the "**Tewin Annex**"), which recognizes the iterative manner through which the elements of the project will progress, allowing for the community design process to respond to and inform the broader studies the City will undertake for lands including and beyond Tewin.

The Tewin Annex outlines the specific requirements to permit development at Tewin as part of the integrated Secondary Plan and Municipal Class EA process. The Tewin Annex identifies a series of technical reports including, among others, a Natural Heritage Inventory; Geotechnical and Hydrotechnical Studies; Constraints and Considerations Mapping; Bear Brook Surface Water Drainage Evaluation and Watershed Study supporting technical studies; Transportation Network Study; IMP supporting studies; and other municipal supporting studies. The Tewin Annex also lists considerations for the design context, and identifies technical agency consultation requirements. The final plans required by the Tewin Annex are the community design plan containing an Environmental Management Plan (EMP), Community Energy Plan (CEP), Master Servicing Plan, and Tewin Community Transportation Plan (TCTP); financial implementation plan; and a secondary plan. A financial / funding strategy is also required, based on the notion that "Tewin pays for Tewin".

2.5 Ottawa Zoning By-law

Most of the lands encompassing the Tewin area are currently zoned as Rural Countryside (RU) and Parks and Open Space (O1).

The RU zone is intended to accommodate agricultural, forestry, country residential lots created by severance, and other land uses typical within Ottawa's countryside. Permitted uses in the RU zone specifically include detached dwellings, limited commercial uses, and a variety of rural and agriculture-related uses.

The O1 zone accommodates low scale and low intensity uses, such as parks, urban agriculture, environmental preserves, and farmers' markets.

The City of Ottawa is developing a new comprehensive Zoning By-law for approval by the Council in 2025. The By-law will implement the policies and directions in the new Official Plan approved in November 2022. Section 5.6.2 of the new Official Plan applies the Future Neighbourhood Overlay to the Tewin Community, which will guide development in the area to create walkable, complete neighbourhoods served by high-quality transit.

As part of the Tewin planning process, an updated Zoning By-law will be prepared to allow for the development of a complete community at Tewin, in keeping with the Official Plan directions.

2.6 Relevant Projects & Studies

a) Infrastructure Master Plan

The Infrastructure Master Plan (IMP) is intended to align municipal capital and operating investments with planned growth identified through the Official Plan. The purpose of the IMP is to facilitate the development of efficient, vibrant, healthy and complete neighbourhoods across the City. The goals of the IMP are in line with the broader goals of the OP and City as a whole. The IMP describes how efficient servicing occurs when projected growth is timed with right-size services, ensuring infrastructure capacity is built just before it is needed. Efficient service delivery minimizes wasted capital resources, protecting economic sustainability of the City. To help achieve this goal, the IMP combines all relevant aspects of various infrastructure plans and strategies into one reference document. The outcome of the IMP is a roadmap of infrastructure projects to be planned for and implemented, with priority assigned based on the risk/return of each project. Funding is then allocated accordingly.

Preparation of the updated IMP is currently underway. With the Study Area having been identified in the Official Plan as a new growth area, integration with the IMP is an important part of the Tewin Master Plan process. The integrated Secondary Plan and Municipal Class EA process for Tewin will help ensure that appropriate infrastructure capacity is delivered at the right time and in the optimal locations to support future development at Tewin. Additional details to inform the IMP update will be provided as the integrated Tewin Secondary Plan and Municipal Class EA process advances.

b) Transportation Master Plan

The Transportation Master Plan (TMP) is the City's core framework document for planning, developing and operating the city's mobility networks over a 20-year period. The TMP is aligned with the Official Plan and other municipal plans as it seeks to implement complete streets, transit-oriented development, and sustainable travel mode shares with an overall focus on affordability and fiscal prudence. The TMP identifies key projects, facilities and services to support the growth envisioned in the Official Plan. Critical to the development of the TMP is the demographic analysis used to inform and update the Official Plan, along with projected land uses, densities, user behaviour, and other trends in mobility. The TMP is a proactive document, with stated goals and objectives that align with those found in other planning documents, including the Official Plan.

The TMP that will implement the new Official Plan is now under development, with completion anticipated in 2025. The integrated Tewin Secondary Plan and Municipal Class EA process will form an input into the City TMP, with the urban structure, land use pattern and density modeling established in the secondary plan resulting from an iterative design process, with transit/mobility as a core consideration. Transportation services and investments in Tewin will support complete communities, where people can choose to live car-free or car-light lifestyles. The ideal location and form of these services will be determined as the planning process for Tewin advances though successive phases.

c) Parks and Recreation Facilities Master Plan

The Parks and Recreation Facilities Master Plan was approved by Ottawa City Council on October 13, 2021. The Master Plan was prepared in conjunction with the preparation of the new Official Plan, providing more specific recommendations relating to the delivery of municipal parks and recreation facilities. The Master Plan includes an inventory of all current municipal parks and recreation facilities, and provides per capita provision target levels for the amount of new parkland and number of recreation facilities needed to meet future growth. The Master Plan sets a city-wide parkland provision rate of 2.0 hectares per 1,000 residents, which is in part based on the maximum amount of land that can be acquired through the Planning Act.

The Master Plan was the basis for reviewing the City's Parkland Dedication By-law. The updated Parkland Dedication By-law (2022-280) was enacted by City Council on August 31, 2022 and establishes parkland dedication rates that were consistent with the version of the Planning Act that was in force at that time. The current parkland dedication rates under By-law 2022-280 are 2% of land for commercial uses, 5% for residential uses, and the application of an alternative rate of 1 hectare per 300 units for higher-density residential uses, up to a maximum of 25% of the gross land area.

It is important to note that the Parks and Recreation Master Plan and the updated Parkland Dedication By-law were prepared prior to recent Planning Act changes coming into effect. Most notably, the legislative changes introduced through Bill 23 have reduced the alternative parkland dedication rates to 1 hectare per 600 units, with the maximum alternative parkland rate capped at 15% of the gross land area.

d) Greenbelt Master Plan

The National Capital Commission's Greenbelt Master Plan (GMP) is a planning document that provides policy guidance for land use, programming, and landscape character for the long-term maintenance and use of the Greenbelt. It applies to all federally owned Greenbelt lands, and it is also intended, though not required, to apply to municipally and privately owned land within the Greenbelt.

The GMP takes a holistic, integrated approach to land use planning, recognizing that the Greenbelt is defined by its relationships and proximity to adjacent uses, and that decisions within and outside the Greenbelt affect its integrity and interests. The GMP sets policies for protecting ecologically significant habitats, connecting systems of natural lands, supporting farming, recreation and cultural uses, and operating facilities within its jurisdiction.

While the Study Area does not encompass any Greenbelt lands, the GMP will be an important consideration to ensure the development at Tewin enhances the desired use and protection of the Greenbelt and contributes to its continued ecological, economic, and social functions.

National Capital Act

On the federally owned Greenbelt lands, the NCC has approval authority, a role set out in the National Capital Act. This process is known as federal land use, design and transaction approval, or FLUDTA.

In consideration of the proximity of the Tewin lands to the NCC owned and managed Greenbelt lands, the potential for natural heritage area connections, and potential for works to support linear infrastructure, the following plans shall be consulted and considered in the evaluation of any proposed works through the NCC lands:

1. The Greenbelt Master Plan
2. The NCC Forest Strategy
3. Capital Pathway Strategic Plan
4. Sustainable Development Strategy
5. Plan for Canada's Capital

In addition, any works on the NCC lands must ensure compliance with Section 82 of the federal Impact Assessment Act (IAA) which determines that the carrying out of the project is not likely to cause significant adverse environmental effects.

e) Building Better & Smarter Suburbs

The Building Better & Smarter Suburbs Action Plan was approved by the City's Planning Committee in March of 2015. The document provides strategic directions and action plans for the development of new suburban communities in the City of Ottawa.

In keeping with the City's long-term commitment to minimize urban sprawl, the population growth occurring beyond the Greenbelt is expected to be concentrated into compact communities, where the higher level of density will be accommodated by an increase in dwelling types and high-quality public transit. The BBSS plan provides directions to ensure the increase in suburban density is accompanied by good subdivision design that promotes complete, walkable communities with diverse housing options, and access to safe and reliable transportation options.

The plan recommends that new communities provide facilities and services to accommodate the needs of all people, regardless of their age, gender, or abilities. Variety in housing types in new suburban communities will ensure that a diverse population has adequate options to meet their housing needs. The plan states that new neighbourhoods should feature attractive public realms and built environments that incorporate high quality design to create a sense of place and community. Integration of appropriate street layouts that provide direct routes for pedestrians and cyclists to improve access to transit and other community amenities are recommended. The BBSS recommends efficient and appropriately designed streetscapes that improve quality of life, with a focus on a fine grain block network, connectivity, and space for street trees, LIDs and a mix of travel modes and activities. The BBSS also recognizes the need to re-examine space requirements in the rights-of-way and consider opportunities for new efficiencies.

The principles and strategic policy directions provided in the BBSS will act as key considerations into the Tewin Master Plan process and will be used as an indicator of aspirational design. While not all recommendations of the BBSS will apply to Tewin, the design of Tewin's neighbourhoods will be reviewed to ensure consistency with the goals and outcomes envisioned by the study.

f) Ottawa Sustainability Strategies

Climate Change Master Plan

The City of Ottawa's Climate Change Master Plan was released in 2020, and provides strategies outlining how the City will mitigate and adapt to climate change over the next three decades. Included in the Climate Change Master Plan are the City's ambitious greenhouse gas (GHG) emissions reduction targets, which are based on the targets declared by the Intergovernmental Panel on Climate Change (IPCC) in 2018. In alignment with these figures, the City has committed to the targets of 43% reduction by 2025, 65% reduction by 2030, 96% reduction by 2040, and 100% reduction by 2050.

City-wide emissions targets include those emissions from both existing and new communities. New developments will have to pursue lower emission building strategies to lower collective emissions. By the time Tewin breaks ground, the City aims to have at least a 43% reduction GHG emissions.

By pursuing net-zero emissions as part of its One Planet Living endorsement, Tewin will be contributing to Ottawa's commitment of reaching net-zero emissions by 2050 and position the community as a leader in sustainable development.

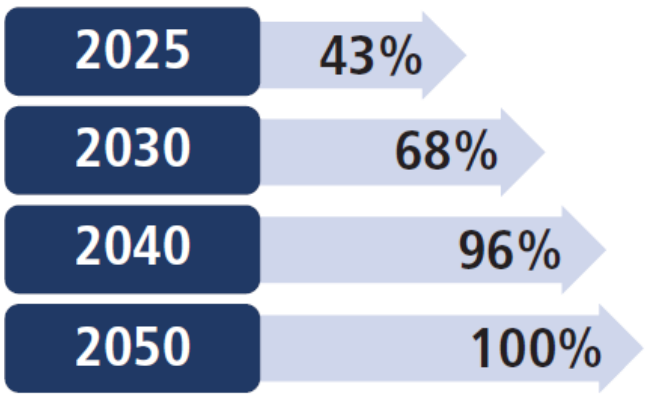


Figure 6. *The Climate Change Master Plan establishes a target of 100% reduction in greenhouse gas emissions by 2050*

Ottawa's Energy Revolution

Energy Evolution is one of the main priorities of Ottawa's Climate Change Master Plan and represents a framework for reducing city-wide greenhouse gas emissions to zero by 2050. The framework models GHG emission trends and identifies several actions as a means to meeting net-zero emissions. These actions involve substituting the use of fossil fuels in transportation and heating systems with electricity; adding waste heat utilization and renewable natural gas production; and increasing renewable energy generation and storage. Opportunities to reduce greenhouse gas emissions and integrate renewable energy into the Tewin Community will be considered through the planning and design process.

High Performance Building Development Standards

The High Performance Development Standard (HPDS) was approved by Ottawa's City Council on April 13, 2022. The standards were developed as part of a new Official Plan in order to identify and implement the City's goals relating to sustainable and resilient building design. The HPDS covers a holistic range of sustainability principles such as energy efficiency, air quality, electric vehicle parking, and tree planting requirements.

The HPDS consists of voluntary and mandatory performance requirements for new building projects in the city. Three tiers of performance distinguish voluntary and mandatory requirements, whereby tier one requirements are mandatory and tiers two and three consist of more ambitious voluntary performance requirements. Over time, tier 1 performance requirements will become more ambitious leading to greater reductions in emissions from development and more resilient design.

Using the authority set out under the Planning Act, the City will phase in minimum performance measures for new developments that require site plan or plan of subdivision approval. The standards applicable to applications for draft plan of subdivision approval will consist of three Tier 1 metrics: a Community Energy Plan

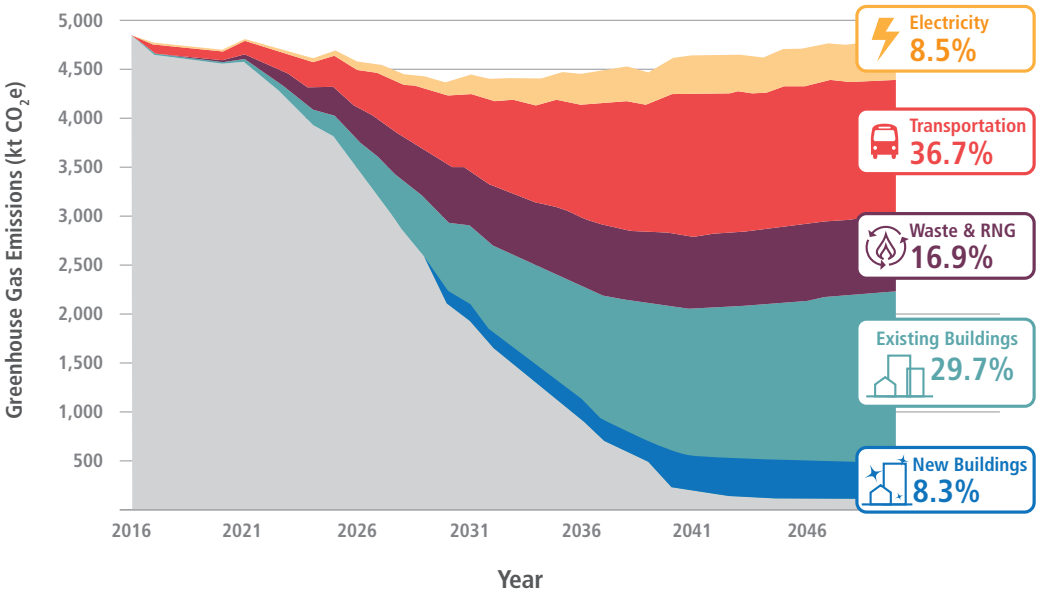


Figure 7. *Chart from the Energy Evolution report showing the total projected community-wide GHG emission reductions required to achieve 100% reduction scenario by 2050*

(CEP), tree requirements, and planting requirements. Over the phased build-out of Tewin, the HPDS will continue to establish higher standards of sustainable design that must be achieved. Tewin, which is being planned as a One Planet Living community, will be proactively addressing the higher performance tiers in the One Planet Living Action Plan (OPAP).

The Community Energy Plan that will be prepared for Tewin should identify pathways and set objectives and targets for energy and greenhouse emissions in support of resilient design at the community scale. This ensures that the community is planned and future-proofed with the infrastructure and systems necessary to achieve net zero emissions by 2050. Tewin's Zero Carbon strategy should consider the specific requirements set out in the HPDS.

Climate Resiliency Strategy (Underway)

Undertaking a climate vulnerability assessment and developing a Climate Resiliency Strategy is one of the main priorities identified in the Climate Change Master Plan. The Climate Resiliency Strategy will outline how the City will adapt to a changing climate and build resilience.

To date, the City has completed climate projections and a climate vulnerability risk assessment. The assessment identified climate risks which will impact health and safety, infrastructure, the natural environment, and the economy. Some of the key risks include increased building cooling demands, increased winter freeze-thaw damage to infrastructure, and flood damage to infrastructure.

In the next phase of work, the City will work to identify strategies and action to mitigate risks and build resilience. Climate risks described by the City should be considered at the start of planning so that the Tewin Community is resilient to environmental changes caused by a changing climate.

03 Overview Of Existing Conditions

3.1 Site Context

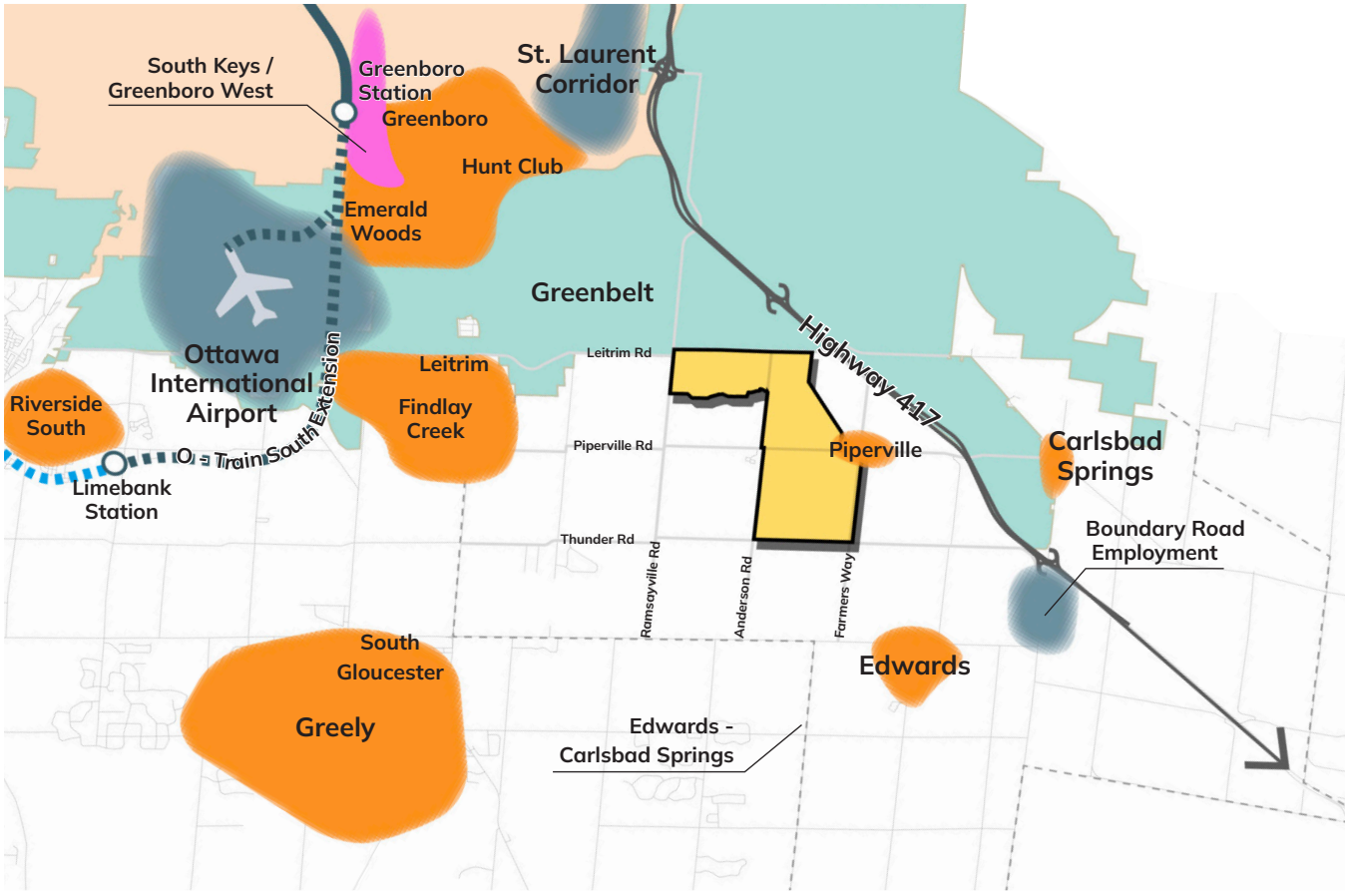
The site is located in southeast Ottawa, adjacent to the Greenbelt and west of Highway 417. The lands were identified in the 1970s as a potential fourth growth area outside of the Greenbelt, in addition to Kanata, Barrhaven and Orleans. The planned development of these lands will complete the "missing" fourth community outside of Ottawa's Greenbelt.

The Ottawa Neighbourhood Study (ONS) identifies the site as being within a larger area known as Edwards - Carlsbad Springs. This larger area not only includes the Tewin Study Area, but also includes a number of existing communities and villages, including Edwards to the south, Piperville to the east, and Carlsbad Springs further east beyond the 417.

Approximately four kilometres west of the Tewin Study Area is the Leitrim community, as well as the newer, growing community of Findlay Creek. Significant lands within this area have been identified as a future urban growth area in the new Official Plan. South of Findlay Creek are the communities of South Gloucester and Greely. North of the Greenbelt are the established neighbourhoods of Hunt Club and Greenboro.

The site is surrounded by a number of existing and emerging employment areas, including the airport to the northwest, the St. Laurent corridor to the north, and the Boundary Road employment area to the east which includes a recently constructed Amazon logistics facility.

The map below illustrates the broader site and area context. Through the Tewin study process, opportunities to connect to these surrounding neighbourhoods, employment areas and major destinations will be considered, including the potential for transit connections where appropriate.



3.2 Land Uses

Overview of Existing Land Uses

Much of the lands within the Study Area are undeveloped today, although there are clusters of residential properties, businesses and services located primarily along the main arterial corridors. Many of these existing residential and commercial uses are associated with the Piperville community. The remainder of the lands are predominantly characterized by forests, agricultural fields, natural lands, a golf course, and other open spaces.

Along Anderson Road and Piperville Road are a number of residential properties, small businesses and estate lots. The scale and configuration of these properties vary, with shallower, more consistent, residential properties along Anderson Road, and larger more varied properties along Piperville Road. A series of larger residential lots are also oriented along Thunder Road at the south edge of the Study Area.

East of Anderson Road along the north side of Piperville Road is Ludger Landry Park. The park includes a baseball diamond, soccer field, volleyball court, several play areas and horseshoe pits, as well as a covered seating area for community events. North of the park is a large golf course known as the Anderson Links Golf and Country Club.

Two right-of-way corridors exist within the Study Area, both running in a diagonal direction, as shown in the figure on the following page. A decommissioned rail corridor traverses through the middle of the site, while a hydro corridor is located along the eastern edge of the Study Area.

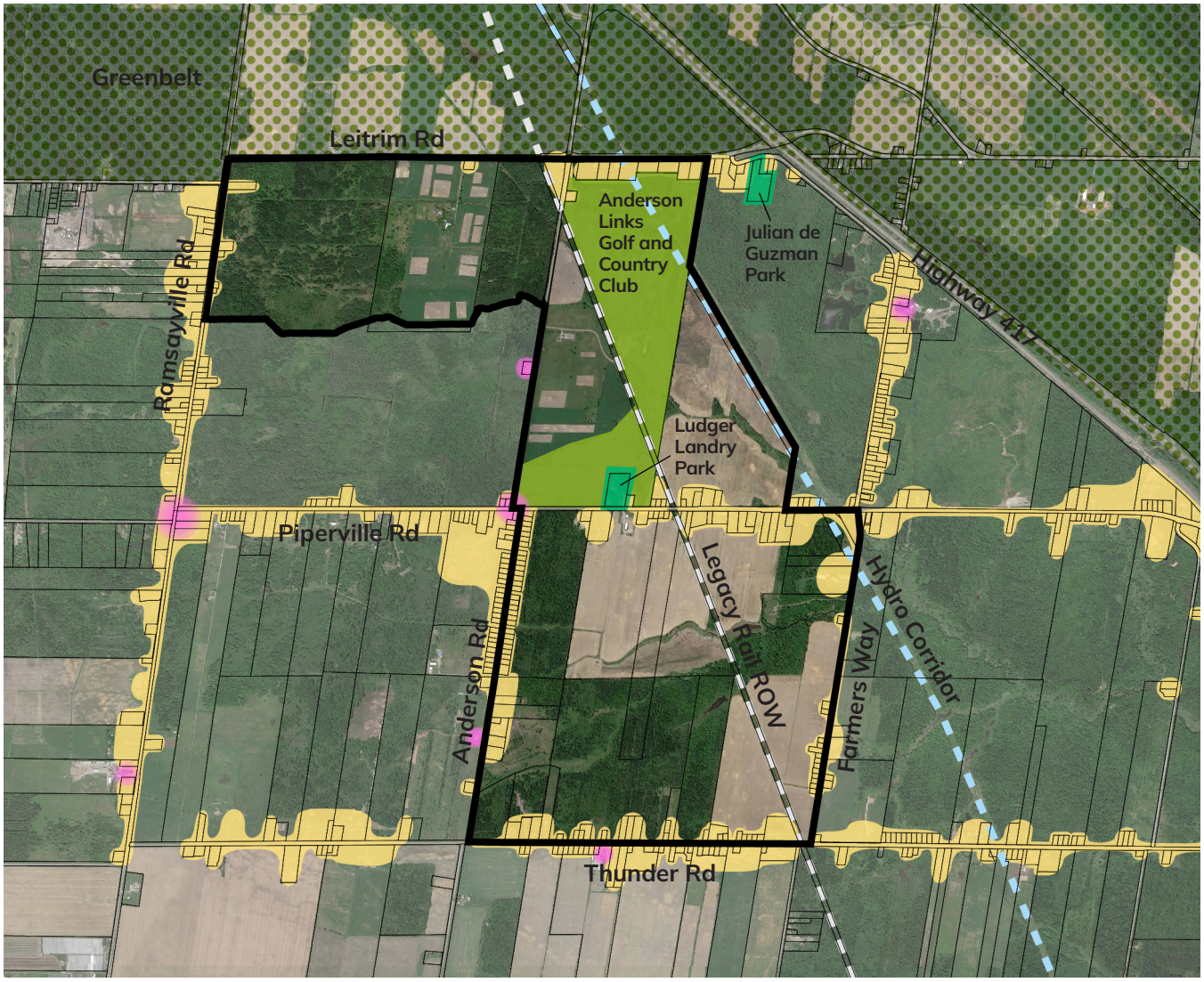
Land Use Policy Context

The Study Area is identified on Schedule C17 - Urban Expansion Areas with the Future Neighbourhood Overlay (as shown in Figure 5). This Overlay signifies that Tewin is an appropriate location for future community development, subject to the policies and requirements of the Official Plan.

The policies in Section 5.6.2.1 of the Official Plan state that an amendment to the Official Plan is required to remove the Future Neighbourhood Overlay and establish other urban designations, where applicable, consistent with the designations of the parent Official Plan. Until the Future Neighbourhood Overlay is lifted, the underlying designation is Neighbourhood.

Existing buildings and land uses within the Study Area are consistent with the Neighbourhood designation, with the area containing lower-density residential uses, low-rise buildings, small-scale commercial or business uses, parks, recreational uses, and other open spaces.

It is anticipated that through the secondary planning process, urban designations will be identified for the Study Area. The future designations will reflect the urban function of the lands within Tewin, and may include designations such as Hubs, Corridors, Neighbourhoods, Industrial and Logistics, Mixed Industrial or Special Districts.



Residential

Commercial

Park

Golf and Country Club

3.3 Natural Heritage & Landscape Features

Natural Heritage Policy Framework

As shown on Schedule C11-1 – Natural Heritage System (East), portions of the Study Area are identified within the Natural Heritage Features Overlay (see Figure 8). This overlay consists of natural heritage features identified in Subsection 4.8.1, Policy 3, which can reasonably be mapped and displayed at the resolution of the Official Plan schedules. Subsection 4.8.1(3) identifies the following natural heritage features, as defined in Ottawa's Environmental Impact Study Guidelines:

- **a)** Significant wetlands;
- **b)** Habitat for endangered and threatened species;
- **c)** Significant woodlands;
- **d)** Significant valleylands
- **e)** Significant wildlife habitat;
- **f)** Areas of Natural and Scientific Interest;
- **g)** Urban Natural Features;
- **h)** Natural Environment Areas;
- **i)** Natural linkage features and corridors;
- **j)** Groundwater features;
- **k)** Surface water features, including fish habitat; and
- **l)** Landform features.

The areas identified with the Natural Heritage Features Overlay have been studied as part of this development process. The composition and definition of these areas are described in subsequent sections of this Report.

To the east of the Study Area, there is a portion of land with the Natural Heritage System Core Area Overlay. Section 5.6.4.1(1) of the Official Plan notes that in this overlay,

> "Development or site alteration shall maintain or enhance the integrity, biodiversity and ecosystem services of the areas; not compromise the potential for long-term enhancement and restoration of the ecological integrity, biodiversity and ecosystem services of the area".

A portion of the area corresponding with the Natural Heritage System Core Area is proposed to be included in the Natural Land Trust, and will be planned for ecologically compatible uses in accordance with the policies of the Plan.

Summary of Existing Conditions

This report, prepared by Kilgour & Associates, documents existing natural heritage conditions within the Tewin Study Area based on desktop reviews, previous ecological work performed, and field studies undertaken in 2022. This report includes records of provincially and federally protected species at risk (SAR) and describes the potential presence of SAR and their habitats, fish and fish habitats, and areas of ecological value that may interact with the future development of Tewin.

The Tewin Lands are characterized primarily by forested areas, agricultural fields, areas of wetland cover, and a golf course, with some rural residential and commercial properties around the periphery. The area falls within the Bear Brook and Ramsay Creek subwatersheds and contains numerous unevaluated wetlands, municipal drains, and areas of floodplain.

The report finds a total of 38 distinct Ecological Land Classification (ELC) units within the Tewin Study Area. Twenty-five of these ELC units are terrestrial and thirteen are wetland classifications. A wetland assessment was completed in 2023 by the City of Ottawa identified Provincially Significant Wetlands east of the Tewin lands between the Study Area and Highway 417.

Seven tree species were noted as having cultural significance to the Algonquin peoples including: Eastern White Cedar, White Birch, Sugar Maple, Trembling Aspen, American Basswood, White Spruce, and Tamarack. The first five of these tree species were documented as widespread species in at least one ecosite within the Study Area.

The current existing tree canopy across the Tewin Lands is estimated to be 31.9%. While forested areas across most of the Tewin Study Area generally consist of younger regrown plantations on former agricultural areas, 10 features ranging in size from 0.83 ha to 10.35 ha were found to be more than 60 years old, meeting the Official Plan definition of Significant Woodland. The two largest of these features are 8.9 ha and 10.3 ha in area. The other eight older forests are generally small – between 0.8 and 4.4 ha in area.

A total of 67 bird species were detected. The most commonly observed species include: American Crow, American Goldfinch, American Robin, Black-capped Chickadee, Cedar Waxwing, Common Yellowthroat, Ovenbird, Song Sparrow, Veery, White-throated Sparrow, and Yellow Warbler. No Eastern Whip-poor-wills or Common Nighthawks were detected during night surveys, but six listed species at risk (SAR) birds were detected during morning surveys.

Water quality and fish data indicate that drainage features in the Study Area are generally of degraded quality (reflecting local land uses), but of sufficient quality to support the full life cycle of fish species. Fish community assessments conducted in 2022, and previously by South Nation Conservation Authority, found no invasive fish species nor fish species that are currently listed under the Endangered Species Act or the Species at Risk Act.

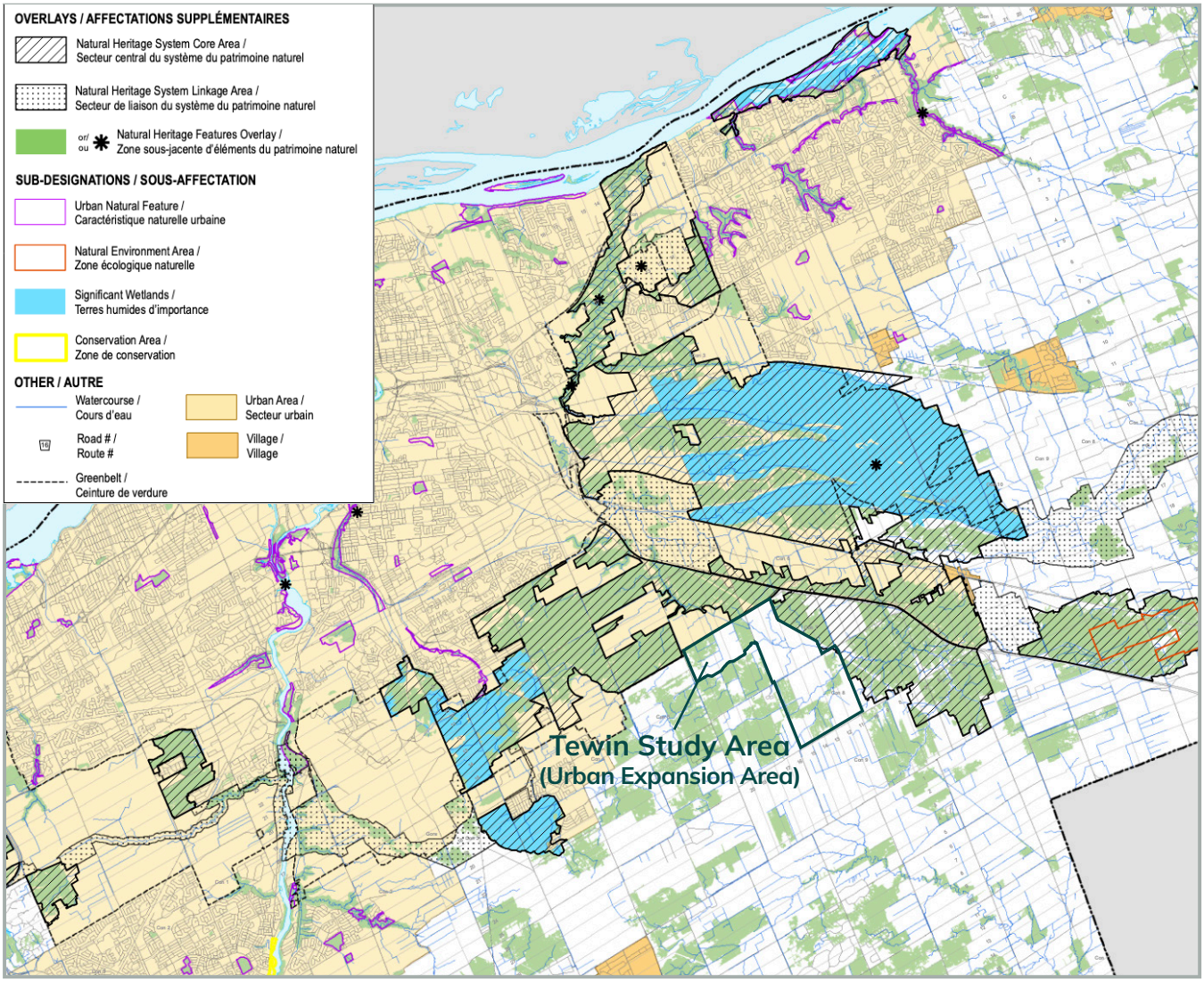


Figure 8. *Schedule C11-C identifies the core natural system areas and illustrates the natural heritage features overlay*

Summary of Preliminary Natural Heritage Opportunities

The significant scale of Tewin allows for the implementation of a systems-based approach to environmental and open space planning. Potential opportunities may be guided by Algonquin values and principles, including respect for the earth, celebrating water as the source of life, integrating with nature, and achieving long-term ecological health over many generations. Potential opportunities to inform the community design process are described below:

Woodlands and Tree Canopy: The community design plan for Tewin will prioritize the protection of the limited but substantive mature wooded areas, within a connected corridor that builds in succession planning, establishes long term canopy protection, and integrates complimentary recreational, transportation and servicing elements. The planting of urban trees within the developed area, along with restoration planting in other natural areas, can be an important part of the community design. This approach creates a sustainable, robust, natural system and supports the efficient use of land and integration with the community.

Wetlands: Many of the wetland areas within the Tewin lands are disturbed, featuring extensive networks of linear, agricultural ditching. Municipal policies recognize the need to ensure the continuation of their ecosystem services but do not otherwise require the preservation of wetlands in their current configuration. Rather, the suite of functions performed by on-site wetlands, including water quantity and quality mitigation, habitat and infiltration opportunities shall be enhanced and expanded through the use of nature-based solutions to stormwater management, green corridor system strategies, and enhancement opportunities in the adjacent conservation lands.

The integration of wetlands into the overall stormwater management system for the new community can retain the headwater functionality of the lands, per local and provincial policies, but be more holistically integrated within a broader green corridor network. Combined, these approaches align with the AOO values of maintaining associations between community, nature, and water.

Watercourses: The linearized nature of the smaller water channels across the Study Area is a product of the historical alteration of the landscape to support farming, and does not appear to be reflective of the natural channels that once occurred there. At Tewin, there is an opportunity to use historic, pre-settlement watercourse mapping as a reference in establishing the presence of water networks throughout the community. Existing and realigned watercourses at Tewin can be located within green corridors that will form the backbone of a natural system through the community. In addition, Algonquin consultation has emphasized the celebration of water and the weaving of it through the community. There is therefore an emerging expectation that water will be integral to the green corridor system, supporting passive recreational opportunities and bringing water in proximity to areas of development.

Species at Risk: Species at risk that currently live, or may live, on the lands include several species of birds, bats, and trees. For some at-risk species, provincial permitting processes would allow for the species to be accommodated within the green corridors of the new Tewin community and in neighbouring forested areas, ensuring their continued presence in the region. In addition, lands to the east of the Study Area which are owned by the Algonquins of Ontario are intended to be set aside as conservation lands for wetland and other habitat opportunities.

3.4 Mobility

CGH Transportation and TraffMobility Engineering have prepared a series of studies and technical memorandums relating to mobility, including:

- Tewin Mobility Existing Conditions Report
- Southeast Ottawa Transportation Network Study (SEOTNS)
- Technical Memo: Ottawa's Suburban Context
- Technical Memo: Right-of-Way Protection and Corridors

The Existing Conditions Report describes the significant changes in mobility which have taken place and which will continue into the future. These key drivers include changing travel patterns resulting from the pandemic; the collision of transportation and technology; and the evolving climate change and mobility policy context. These key considerations will underpin the development of Tewin and will guide decisions relating to mobility.

The mobility vision outlined in the report is premised on providing mobility choice which enables the lifestyle needs of the future Tewin community. This will involve flexibility, innovation and collaboration, as well as a strategy to scale up the delivery of transit and mobility infrastructure over time as the community grows. Key building blocks of the mobility vision include the creation of a walkable 15-minute community; the provision of smart, convenient transit that is connected to other modes of travel; the provision of cycling infrastructure; and other strategies which can support "car-light" or "car-free" living.

The Southeast Ottawa Transportation Network Study has been prepared to help inform decision-making at Tewin. The SEOTNS is intended to determine the regional transportation needs of the broader area, and to guide the eventual development of an overall transportation solution for Tewin at the regional and community scale. The study acknowledges that Tewin will incorporate new mobility concepts and strategies which can address the community's mobility needs and promote mobility choice.

3.5 Archaeology

Golder Associates (now WSP), was retained to conduct a Stage 1 archaeological assessment in support of the Tewin project. The Stage 1 archaeological assessment determined that the Study Area contains archaeological potential for Indigenous and historical Euro-Canadian archaeological resources due to several factors, including the presence of numerous water sources, distinctive landforms (dunes), areas of early historical Euro-Canadian settlement, and historical transportation routes. However, there are no registered archaeological sites known within 1 km of the Study Area.

Background research indicates the existing watercourses of Ramsay Creek and Bear Brook which pass through the Study Area were likely altered during the 19th century as Euro-Canadians deforested and drained the land for agriculture. The urban expansion boundary is located near the headwaters of Ramsay Creek. As headwaters are significant to the Algonquin peoples, there is additional potential for Indigenous archaeological resources within this area.

A visual inspection of the Study Area was conducted on July 7, 2022. Portions of the Study Area were identified as disturbed by modern road construction, ditching, and other developments. Large portions of the Study Area consist of woodlot or agricultural field and retain archaeological potential.

The report recommends that a Stage 2 archaeological assessment be conducted in the future and prior to development for all areas which have been identified as having archaeological potential.

3.6 Geotechnical Study

Paterson Group completed a geotechnical investigation to evaluate the geotechnical conditions throughout the Study Area. The field program was carried out between March and December 2022, with a total of 98 boreholes advanced up to a depth of 58 metres below the surface. The fieldwork found that the subsurface profile generally consists primarily of silty clay that is covered by a relatively thin layer of weathered clay or sand.

The report concludes that the proposed community development is feasible from a geotechnical perspective. The soil conditions encountered throughout the Study Area are considered to be the same as soils seen in other developed communities in the Ottawa Region. The report notes that the City of Ottawa's Geotechnical Investigation and Reporting Guidelines for Development Applications document is based on the same soils which characterize the Tewin Study Area.

Paterson concludes that the design and construction methodologies that would be undertaken at Tewin would be considered conventional and in accordance with the methodologies set out and completed throughout the City of Ottawa.

Within the Tewin Study Area, natural hazards such as floodplains and unstable slopes shall be accommodated within the natural watercourse and natural corridors.

Supplemental geotechnical investigations will be conducted in the future once more detailed development plans have been finalized.

To help guide future planning and development at Tewin, the report identifies a series of design and construction considerations, including the following:

- Due to the presence of the silty clay deposit throughout the Study Area, a permissible grade raise restriction is anticipated for the proposed grading.
- Infiltration is anticipated to be controllable using conventional open sump techniques.
- Due to the presence of clay soils, tree planting setbacks from building foundations are expected to be required in accordance with City policies. For example, a 4.5 metre setback from foundations may apply to support small to medium-sized trees. The planting of large trees may require a larger setback or they could be planted within parks or other open spaces.
- Many of the slopes within the Study Area are in close proximity to active watercourses, where toe erosion is considered to be a major factor impacting slope stability. The slopes reviewed as part of the slope stability analysis found that all slopes were stable from a geotechnical perspective, although some signs of active erosion were observed. A Limit of Hazard has been established by Paterson Group to guide future development (Appendix 2 - Dwg. PG5827-4 to 8).
- Due to the relatively low permeability and saturated nature of the majority of the soils located throughout the study area, infiltration-based LID measures are not expected to be generally adequate from a hydrogeological perspective. However, an evaluation of the effectiveness of LID measures is required once the development plans are further advanced.

3.7 Fluvial Geomorphology

A Fluvial Geomorphology Study has been completed by GEO Morphix. The report synthesizes all geomorphological observations collected to date for the tributaries of Bear Brook and Ramsay Creek within the Tewin Study Area. The report includes a detailed desktop review of available geology, topography, and drainage area characteristics, watercourse reach delineation, rapid and detailed geomorphological assessments, as well as a preliminary erosion hazard assessment in support of constraint delineation. The information provided by the fieldwork informed an erosion hazard assessment and crossing assessment for several watercourses within the Tewin Study Area and adjacent lands. The field information will continue to inform additional planning aspects relating to fluvial geomorphology, such as erosion thresholds for long-term erosion mitigation.

GEO Morphix also conducted a desktop-based geomorphological assessment along Bear Brook, downstream from the Tewin Study Area. The desktop analysis was intended to document existing conditions and the extent of potential future concerns along the Bear Brook main channel as areas within its headwaters undergo land use changes. The report identifies potential areas of concerns downstream that may be identified by other stakeholders, in order to facilitate future development in the upstream areas.

Based on the findings from this assessment, the report concludes that there are many potential opportunities to improve existing channel conditions through future mitigation and enhancement activities. Opportunities generally relate to improving long-term channel stability, water quality, and overall stream health, as many watercourses within the Study Area are evidently degraded and negatively impacted by prior modification.

Potential opportunities relating to fluvial geomorphology within and downstream of the Tewin lands include the following:

- Localized erosion mitigation and stabilization works within existing channels to address existing erosion issues;
- Potential realignment of certain watercourse features following natural channel design to accommodate potential development activities;
- Enhancements to existing channel corridors to help reconnect watercourse features with the surrounding floodplain, and subsequently improve floodplain conditions;
- Development and field-validation of erosion thresholds at erosion-sensitive watercourse reaches, and the application of continuous hydrological and long-term erosion models to determine appropriate erosion mitigation criteria for stormwater management facilities; and,
- Improvements to water quality and stream health through stormwater management design, including local landscape restoration plans.

3.8 Hydrogeology

Dillon Consulting Limited (Dillon) has prepared a Hydrogeological Study as part of Phase 1 of the Tewin study process. The information contained in their report will be used to identify opportunities and strategic considerations to inform the Tewin community design process. Going forward, the report will also frame the preparation of additional site-specific technical studies and recommendation reports.

Overall, the hydrogeology of the development area is dominated by low permeability silty clay soils. The report finds that there is no significant deep movement of groundwater due to a thick layer of very low permeability grey clay. The shallow groundwater flow system is dominated by horizontal movement towards surface water features. Development will alter the shallow groundwater flow system including the potential realignment of Ramsay Creek. It is anticipated that there will be a decrease in the water table associated with these features which may increase the feasibility of low impact development (LID) approaches. These preliminary opportunities may help inform the next phase of the integrated secondary planning and EA process and can be used to frame community design options and technical solutions.

3.9 Cumulative Hydrologic Impact Assessment

J.F. Sabourin and Associates Inc (JFSA) was retained to conduct a cumulative Hydrologic Impact Assessment. The general purpose of this cumulative hydrologic impact assessment study is to assess the impact of development on the proposed Tewin Lands. The study also considers whether the proposed stormwater management control measures will have adverse downstream impacts on the Bear Brook and Tributaries watershed in terms of peak flow increases along its watercourses compared to the existing conditions.

The report identifies an opportunity to design stormwater management control measures for Tewin in a way that would avoid downstream impacts on the Bear Brook and Tributaries watershed in terms of peak flow increases along its watercourses. Furthermore, there is the potential that the same stormwater management control measures that are being considered for the future Tewin Lands can be used for the East Urban Community, South Orleans Urban Expansion and Leitrim - East of Bank Street Urban Expansion Area developments, without increasing peak flows along the Bear Brook River and its tributaries within the study area with respect to the existing conditions.

3.10 Hydrological Field Monitoring

JFSA has been commissioned to conduct intermittent field investigations and continuous flow monitoring throughout the Tewin Study Area. The objective of these monitoring activities is to gain an understanding of how watercourses in the region respond to different environmental conditions and to establish the relationship between flows and water levels at key locations within and outside of the Study Area. The majority of the Study Area drains into Bear Brook, which outlets to the South Nation River and eventually into the Ottawa River. As part of the field monitoring program, JFSA has completed surface water monitoring, precipitation monitoring and infiltration testing for the Study Area for 2021 and 2022. The report summarizes the data obtained during the 2021 and 2022 monitoring programs.

The monitoring data obtained has been instrumental in determining the pre-development water budget for the site, as summarized in JFSA's Water Budget Analysis report. However, some minor refinements are proposed to the monitoring plan moving forward to further increase the reliability of the data. It is recommended that 2023 monitoring continue as planned with some additional monitoring points to be implemented. It is anticipated that a more robust understanding of the hydrology and hydraulics of the Study Area will be gained from the data obtained from the ongoing monitoring program.

3.11 Water Budget Analysis

The Tewin Lands Water Budget Analysis was prepared by JFSA and presents a detailed analysis of the existing conditions water budget for the Study Area. The assessment is based on historical flow and precipitation data, as well as recent field monitoring data collected from the site. The intention is to establish a comprehensive understanding of the hydrologic water cycle for the site.

The analysis finds that runoff coefficients varied throughout the year due to factors such as land cover, soil conditions, precipitation patterns, and vegetation growth, with monthly runoff coefficients showing higher values in late spring and early summer, lower values in mid-summer, and an increase again in late summer and early fall. The findings from this analysis provide valuable insights that will inform future water budget considerations for the development of the Tewin community.

04 PRELIMINARY OPPORTUNITIES

Based on the information provided in this report, the strategic planning and community design objectives for Tewin, and the commitment to exploring bold and innovative strategies for Tewin, the following section identifies a series of preliminary opportunities. These preliminary opportunities can help inform the next phase of the integrated Secondary Plan and Municipal Class EA process and can be used to frame community design options and technical solutions.

4.1 Summary of Preliminary Opportunities

The following section identifies a series of preliminary opportunities that have been identified based on the information provided in this report and related Existing Conditions and Opportunities Reports prepared by other consultants.

The ideas presented below also consider the strategic planning and community design objectives for Tewin, as well as the commitment to exploring bold and innovative strategies. These preliminary opportunities may help to inform the next phase of the integrated Secondary Plan and Municipal Class EA process, and can be used to frame community design options, technical solutions and community engagement.

The preliminary opportunities for Tewin can be categorized into four main themes:

1. Natural System and Open Space Network
2. Mobility
3. Land Use and Development
4. Sustainability and Zero Carbon Energy

An overview of the preliminary opportunities and early ideas relating to these four themes is provided below. This section also includes preliminary schematic drawings which begin to illustrate how these opportunities could begin to inform the overall community structure for Tewin.

Natural System and Open Space Network

Based on the extent and characteristics of the natural heritage system within the Study Area, there are opportunities for integrating nature as a prominent feature of the community. The significant scale of Tewin allows for the implementation of a systems-based approach to environmental and open space planning. Potential opportunities will be guided by Algonquin values and principles, including respect for the earth, celebrating water as the source of life, integrating with nature, and achieving long-term ecological health over many generations.

Opportunities to more meaningfully integrate nature and green spaces into the community will be considered through the planning and design process. At Tewin, there is the potential to treat natural features as opportunities rather than constraints, allowing natural landscapes and water features to inform the design and character of the community. By allowing residents to easily access nature, Tewin can support human connection to the natural environment and its ecological systems, and promote stewardship and respect for the land.

New parks, trails and recreational spaces can be closely integrated with the natural heritage system and designed to co-exist with natural spaces. At Tewin, there is the potential to create a cohesive system of green spaces that brings more residents closer to a variety of parks, passive open spaces, landscaped settings, recreational areas, and other open spaces. The intentional integration of water and natural features into the community could also allow for the creation of an interconnected trail network that supports recreational activity, promotes community health, and facilitates movement throughout the community and to surrounding green spaces. The co-location of parks and natural lands can optimize the use of land, improve the quality of the natural environment, and enhance access to open spaces.

With these opportunities in mind, there is the potential to establish a robust, interconnected network of natural features and open spaces that extend throughout the Study Area, as illustrated in the figure below. The green space network at Tewin could protect and enhance important environmental and cultural features, but also integrate parks, passive open spaces and recreational facilities, and weave together a network of streets, trailways, and linkages and rainwater infrastructure. Development could occur alongside natural spaces and features, with residents invited to be part of the natural system, which could help encourage stewardship and connection.

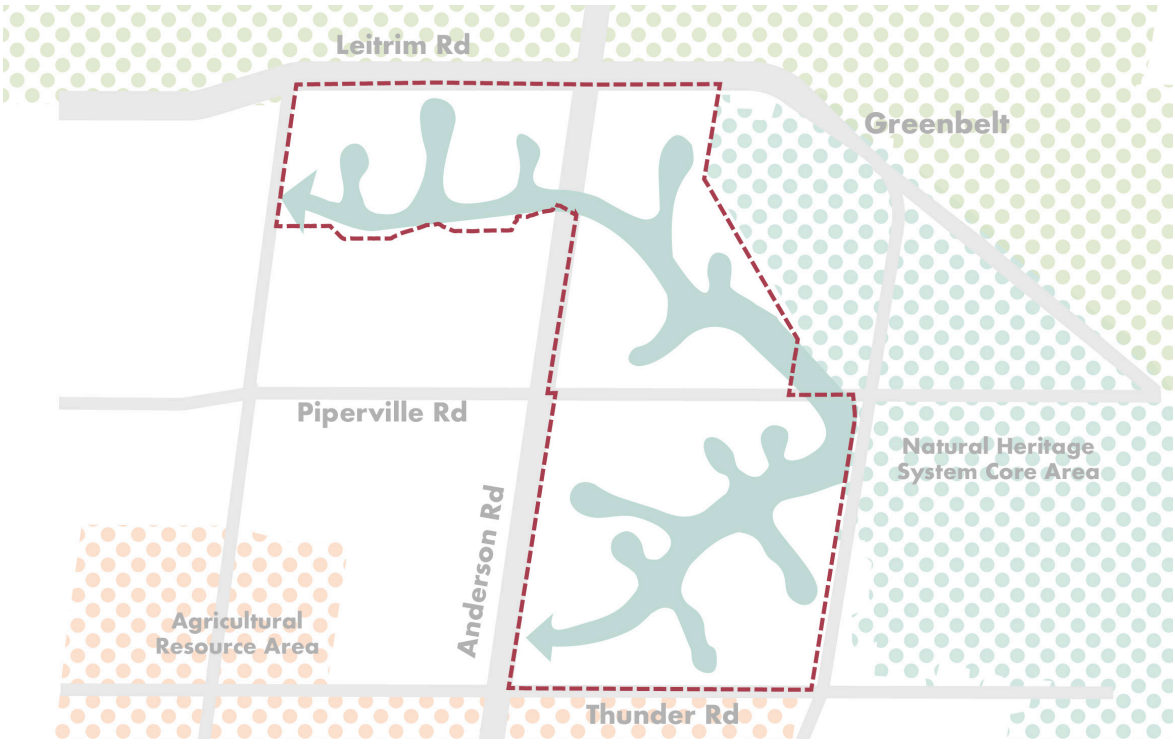


Figure 9. *A systems-based approach to environmental and open space planning can define the character of Tewin.*

Mobility

The scale of the Study Area and its relatively undeveloped state presents a rare opportunity to create a vibrant, transit-supportive, mixed-use community at Tewin. This is a foundational tenet of the Tewin vision. The provision of a high-quality mobility network, with transit at its core, will support mobility choice and allow residents to easily access their daily needs within the community or throughout the city. An emphasis on transit, walking, cycling and other active modes is consistent with Ottawa's new Official Plan, which seeks to promote sustainable mobility and increase transit modal shares.

As a new community being planned at scale and from the ground up, Tewin provides an opportunity to achieve a strong integration of land use and transit. Tewin has the potential to become a complete, transit-oriented community, as envisioned in Ottawa's new Official Plan, which brings people into close proximity to schools, grocery stores, workplaces, businesses, libraries, community facilities, parks, natural spaces, cultural venues, community health facilities, and other amenities that are anticipated to be developed at Tewin.

There is an opportunity and a need to create a robust and interconnected transportation network at Tewin which supports access throughout the community and links to the broader city transportation network. A key objective is to ensure that as many residents as possible are within close proximity to transit to promote transit use and reduce the dependence on single-occupant vehicles over the long term.

The conceptual diagram below illustrates a potential primary street network at Tewin. A primary north-south spine could link through the community from Leitrim Road to Thunder Road, with new east-west connections linking from Ramsayville Road and Anderson Road towards the eastern edge of the community. These new corridors could create a spine for transit and development, and be located to connect directly to higher-density nodes at Tewin.

The preliminary location of the corridors responds to the preliminary green space network, generally avoiding conflicts with natural hazards or major watercourses, and instead orienting these major streets in areas that can support more substantive development. The general corridor locations illustrated below also respond to the constraints presented by the existing arterial corridors, which are limited in terms of their potential to be expanded to accommodate transit infrastructure and the transportation needs of the Tewin community. The internalization of the primary Tewin street network not only brings more residents closer to transit, but it also avoids impacting existing properties and businesses along the adjacent road network.

Another opportunity for Tewin is to consider leveraging technology to create a smarter, more efficient mobility network. Given the paradigm shift that is taking place with respect to transportation and mobility, there is a need to consider the role of technology and contemporary modes of mobility, including shared transportation, newer modes of delivery, on-demand transit, and other mobility models which meet diverse lifestyle needs.

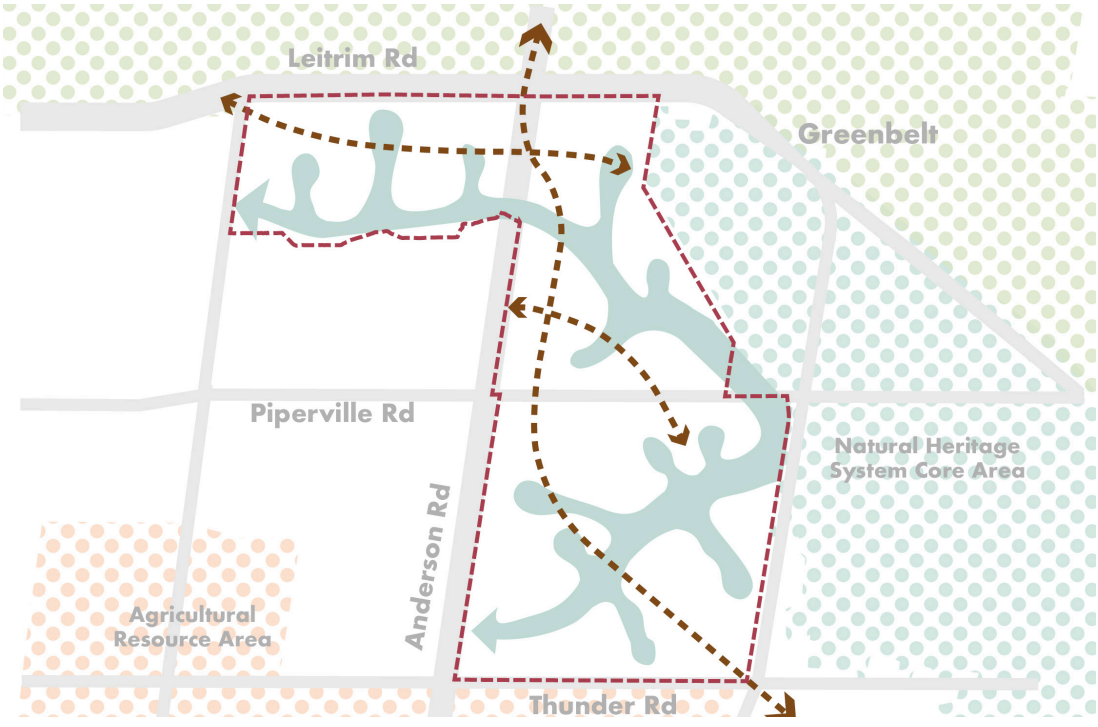


Figure 10. *The primary street network at Tewin can create a spine for transit and development.*

Land Use and Development

Taking cues from the green space network and potential transit corridors, the general locations for development begin to emerge.

A foundational objective for Tewin is to create a compact, walkable and vibrant community that offers a range of housing options as well as a mix of uses, amenities and open spaces. The integration of land use and transit is a key planning, urban design and policy imperative, with higher-density nodes envisioned to be created around future transit stations within the community. Development outside of these nodes should be more dense than other suburban communities outside Ottawa's Greenbelt, to support the viability of transit and to optimize the delivery of new housing.

Development at Tewin is anticipated to be carefully integrated with the green space network, bringing residents in close proximity to nature while ensuring the protection of important natural features. The conceptual drawing below illustrates the areas outside of the green space network which have the potential to support development of new residential, commercial, retail, employment, and community uses.

There is an opportunity to create vibrant transit-oriented nodes at key locations within Tewin. These areas have the potential to bring together transit stations, major corridors, community infrastructure, green spaces, and higher-density mixed-use development. Conceptual locations for these nodes are shown in the diagram below. These are preliminary locations, with the final location of the community nodes ultimately being determined through the community planning and design process.

Given the significant scale of Tewin and the desire to support efficient development patterns, there is the potential to establish a flexible planning framework that offers the ability to deliver a wide range of housing forms to meet diverse housing needs. The community design process will explore options for delivering new housing at Tewin, with consideration given to how the community plan can establish a framework for facilitating a range of building forms and various densities, including higher densities near transit.

The Tewin study process should also consider how to create an appropriate relationship between the Tewin community and existing neighbouring properties and communities. This includes exploring ways for the new community to integrate alongside established homes and commercial properties within the Study Area and within the immediate vicinity, and considering the potential benefits and impacts on neighbouring residents and businesses owners.

Further consideration should be given to co-locating community facilities such as schools, parks, recreation facilities and other community amenities to optimize land use efficiencies and support the creation of dynamic activity nodes linked to the green space network.

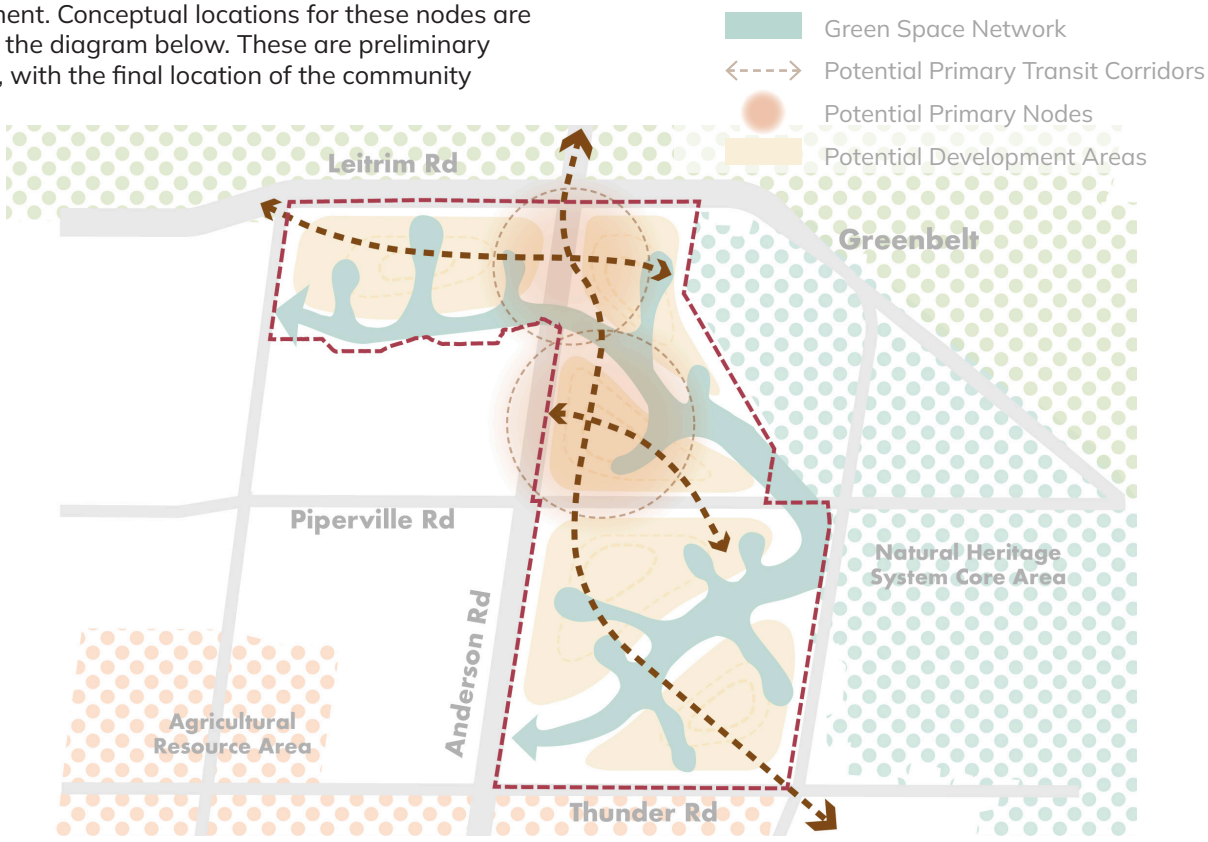


Figure 11. *There is an opportunity to create vibrant transit-oriented development nodes at Tewin*

Sustainability and Zero Carbon Energy

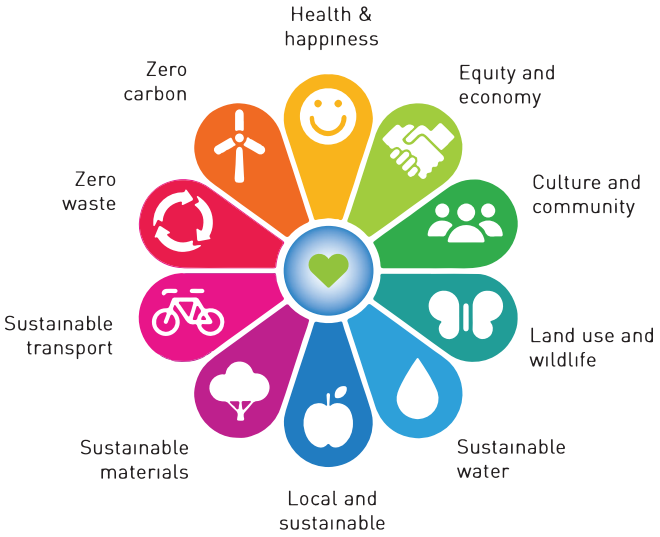
As described earlier in this report, the City of Ottawa has made bold commitments to transition Ottawa into a clean, renewable, and resilient city by 2050. The City's Climate Change Master Plan represents a framework for this transition and outlines the City's ambitious greenhouse gas reduction targets of 100% by 2050, relative to 2012 levels. In addition, the City's Energy Evolution Strategy defines community-wide initiatives and policies to transform Ottawa into a city powered by renewable energy, including a target of ensuring that all new buildings are near net zero emissions-ready by 2030.

As a new community that is being comprehensively planned, Tewin has the potential to demonstrate best practices in sustainable community design, and contribute proactively to the City's greenhouse gas reduction goals. An essential tenet of the Tewin vision is that the community will be guided by the One Planet Living framework and Algonquin values of respect for the earth. The preliminary sustainability vision strives for Tewin to be a sustainable and inclusive community, focused on celebrating water and nature, and anchored in Indigenous values and wisdom.

The One Planet Living framework is a holistic framework for achieving environmental resiliency, sustainable development, and reduced carbon emissions. For Tewin, the framework will be used to integrate together the City of Ottawa's Big Moves, Algonquin values, economic viability, and input from various groups including environmental, employment and local residents. One Planet Living will be used as a common language to weave all these opportunities and priorities into one coherent and accessible narrative.

Using the One Planet Living framework as a guide, Tewin will be able to achieve the City's sustainability and decarbonization goals. The framework will act as a baseline measure to ensure Tewin is developed in a manner that aligns with local, national and international best practices in sustainable and inclusive development. The integration of a One Planet Living lens into the community planning and design process will reveal opportunities for efficient and sustainable design; layering and co-locating of land uses and urban functions; and the implementation of revised standards and new technologies.

As part of the One Planet Living endorsement process, a One Planet Living Action Plan will be developed. The Action Plan will define sustainability commitments for various phases of the project, including during community design, site and building design, construction, and at the community life stage. Specific goals and targets will be identified under each of the 10 One Planet Living principles.



A preliminary set of performance targets for the community design phase of the project is being developed as part of the preparation of the draft One Planet Living Action Plan (OPAP). The preliminary targets will address a range of considerations, including the One Planet Living requirement for net-zero carbon energy, proximity to parks and open spaces, access to nature, tree canopy targets, provision of transit and active mobility infrastructure, and proximity to community amenities.

Many One Planet Living requirements align with City of Ottawa sustainable development aspirations and requirements, including the transition to a low-carbon future through community energy plans, and building-related carbon emission reductions through the High Performance Development Standard (HPDS).

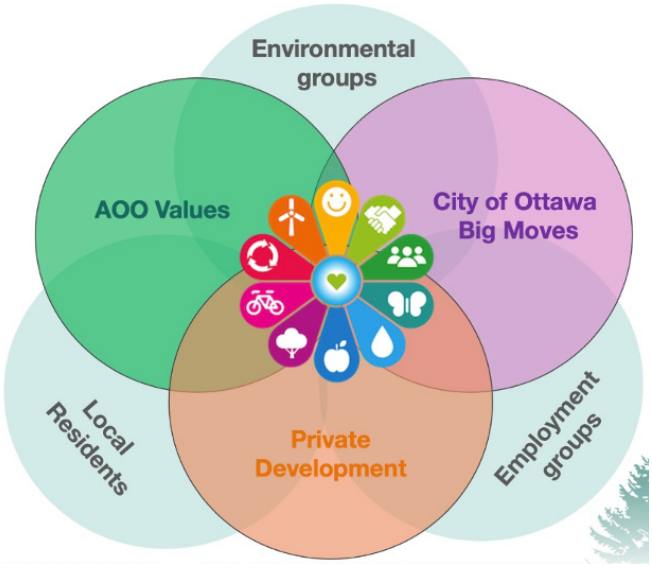
Ottawa's new Official Plan integrates healthy community-building as a priority for development within the city. At Tewin, there is an opportunity to plan and design the community in a way that improves the overall health of future residents. This could be achieved in a number of ways, including through an emphasis on transit and active mobility, reductions in greenhouse gases, protection of the natural environment, the provision of a range of housing, and the creation of walkable, complete neighbourhoods.

The creation of a Community Energy Plan (CEP) is also a key component of the Tewin secondary planning process. The CEP will help ensure that Tewin is equipped with the infrastructure necessary to move toward zero emissions, and to enable solutions that are only available if planned at a community scale. Tewin has identified preliminary energy targets which will be used to explore the potential of district energy and for scenario testing.

All Tewin buildings are targeting net zero carbon with a greenhouse gas intensity (GHGI) of 0 $kgCO2e/m^2$ for all building types. Additional targets include a total energy use intensity (TEUI) of <39 kWh/m^2 for single detached homes, and a thermal energy demand intensity (TEDI) of <15 kWh/m^2 for all building types.

The CEP process will include a Joint Working Group with local utilities, conservation authorities, district energy providers, and low-emission technology providers to consider infrastructure issues like fuel switching, energy storage, electric vehicles and microgrids. Scenario forecasting as part of the CEP will help Tewin design and plan the community to reach net zero.

The CEP will adhere to the City's Terms of Reference and will identify proposed energy use and carbon emission targets, testing of various scenarios, and a discussion of implementation measures and recommended strategies.



Algonquins of Ontario

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COMMUNITIES