

GROWTH AREA MOBILITY ANALYSIS

Mobility Vision and Scope

Comprehensive planning presents a generational opportunity to create new neighbourhoods that showcase sustainable approaches to urban design, mobility, and land use planning. The real changes that development can bring to the area are significant opportunities to improve connectivity and shift from the car-focused design to a more sustainable, active, and transit-oriented network.

Mobility Vision

The development must be planned and designed as a **Complete and Transit-Oriented Community** – one that prioritizes sustainable transportation modes (walking/rolling, cycling, and transit) as the primary choices for residents, visitors, shoppers, and employees; one that connects to existing and future sustainable transportation networks; eliminates existing barriers to movement by sustainable modes, connects to surrounding neighbourhoods and the region; and one that provides the things needed for daily life.

The way people move to, from, and through the neighbourhood needs to be considered at three levels: *Internal, Adjacent, and Regional*.

Within the neighbourhood the **quality, continuity, connectivity, and scale for walking/rolling, cycling, and transit must be prioritized**. The internal network should be designed with shorter block lengths for walking/rolling and cycling via plazas, parks, car-free streets, pathways, etc. The quality, connectivity, continuity, and scale of the network must make it *always available for all ages and abilities*. Efficient servicing of the neighbourhood is also an important consideration.



INTERNAL

The connections to and from the adjacent neighbourhoods should be improved to address existing barriers and **integrate the new neighbourhood in its surroundings** – recognizing the two-way relationship between the existing residents and supporting land uses (schools, shopping, jobs, etc.) that already exist and those in the new neighbourhood.



ADJACENT

As a regionally significant concentration of population, jobs, and land uses, the **regional connections for people moving to, from, and through the area need to be considered**. HRM is continuously planning, designing, and building regional networks that prioritize transit, walking, and cycling. The development must connect, complete, and augment these ongoing efforts.



REGIONAL

And moreover, the new neighbourhood must be planned, designed, and constructed as a complete community that **supports and furthers the goals, ideals, and actions of HRM's various plans and policies**, such as the Regional Plan, Centre Plan, HalifACT 2050, Integrated Mobility Plan, and Rapid Transit Strategy among others.

Scope

Given the above vision for mobility, the scope of the transportation analysis should include the following elements in a final report. HRM staff are available for regular check-in meetings to answer questions, discuss and agree on project direction and refine the neighbourhood's design throughout the process.

Neighbourhood Concept

A preliminary concept plan has likely already been provided to planning staff showing the proposed mix of land uses, residential densities, new internal mobility network, and connections to the existing street network. The goal of prioritizing sustainable transportation modes is supported through strategic land use planning and conceptual design in keeping with planning policies and HRM's environmental and mobility objectives.

1. Clearly articulate the vision and principles for design of the neighbourhood and how these align with HRM's social, environmental, and mobility priorities.
2. Identify unique characteristics of the existing area that will be capitalized upon, as well as new elements that the development will bring to the area.

Existing and Planned Conditions Review

The first task will be to review the land use and transportation conditions in the area to provide a picture of what the area looks like today. Additionally, there will be a need to review HRM's current plans and policies and any recent studies that concern the development and immediate vicinity to understand how HRM has already been planning for the future in the area. This will provide the foundational information to guide the project and analysis.

Document the current and planned conditions for mobility and land use within and surrounding the development including:

- Context of the development within the municipality
- Define the study area for detailed analysis
- Opportunities and challenges
- Mapping of topology, natural barriers, etc.
- Existing and planned transportation infrastructure for all modes
- Existing and planned transit service and stops
- Existing and planned land uses and densities
 - Identify key supporting land uses inside and within a 15-minute walk of the development
 - Retail, Commercial, Health Services, Education, Public Service Facilities, Parks and Greenspace, childcare, spiritual care, etc.
 - Identify land uses that are missing in the area and would be needed to create a complete community
- Review of previous studies completed in the area
- Review of pertinent HRM plans and policies for direction related to the development of the area. Discuss with HRM staff which plans and policies are pertinent to the development, but

these may include: Regional Plan, Centre Plan, Integrated Mobility Plan, HalifACT 2050, Rapid Transit Strategy, and Active Transportation Priorities Plan

Undertake baseline quantitative and qualitative review of existing transportation operations in the area. Discuss the appropriate study area for inclusion in this analysis with HRM staff. Technical work should:

- Identify gaps in connectivity, continuity, and quality of active transportation infrastructure
- Review historical collision data to identify road safety issues in the study area
- Include a multimodal operational analysis of adjacent streets using Vissim microsimulation (supported by Synchro / Vistro, as necessary)
- Include a [Multimodal Level of Service](#) (MMLOS) analysis for boundary streets and any internal streets that will remain in service after redevelopment

HRM will provide available existing conditions data and plans as necessary. HRM's [Open Data portal](#) is also an important source of information. The developer must examine existing data sources to identify any gaps and expect to fill gaps with data collection to support proper analysis of existing conditions.

Travel Demand Forecasting

Development of a new neighbourhood of this scale will naturally create significantly modified travel patterns for residents in the region, the existing local area, and in the new neighbourhood. The provision of new housing, jobs, shopping, parks, and mobility connections from, to, and through the area will redefine the character of the area and the needs related to transportation infrastructure.

Assess the future demands for travel at a regional scale to understand how this neighbourhood will fit into the region and connect to the future multimodal transportation network.

Work with HRM's Transportation Planning department to assess the future travel demand in the area via the municipality's regional travel demand forecasting model for an appropriate future build out horizon year. This analysis should focus on the number of *person trips* (not solely driving trips) moving to, from, and around the development to assess the scale of demand, given the proposed land use mix and density of population and jobs.

This assessment will give direction on the scale and type of transit service, transportation infrastructure, and transportation demand management initiatives that may be required to accommodate the development. It will also serve to characterize the changes in travel patterns that will result from the additional 'gravity' of the new development – how it affects people's daily movement in response to new jobs, homes, services, and amenities in the region.

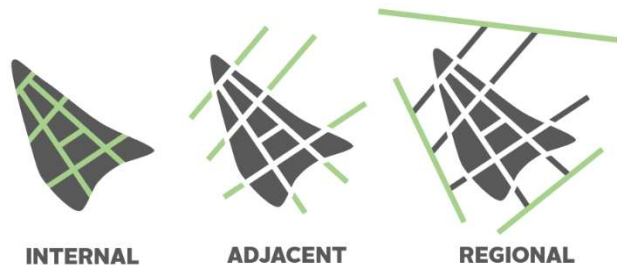
This work should provide the following:

- Quantification of the person-level travel demand to, from, and around the new development
 - Stratify into distance-based categories showing trips within a 15-minute walking distance, 15-minute cycling distance, and beyond to demonstrate the potential for walking, cycling, and vehicular modes

- Establish the existing, expected, and required mode share for sustainable modes based on the forecasted demands and understanding of local operations
- Identification of conceptual changes to the multimodal transportation network needed to achieve the desired mode share
- Initial list of Travel Demand Management (TDM) methods to change the time, route, mode, and/or need for travel

Transportation Analysis

The elements of the mobility design for the neighbourhood can be considered discretely to break down the analysis and focus on specific components, but there will naturally be feedback between these areas in reviewing and revising the design as the analysis proceeds.



The intent is for the developer/landowner to produce detailed analyses of the Internal and Adjacent areas to produce a workable multimodal network to accommodate the mobility needs of the development. The Regional analysis will produce high level information and recommendations for HRM related to system-level network improvements required to move people to and from the development.

The developer/landowner should document and discuss with HRM staff throughout the analysis, but particularly at the completion of each stage of the analysis.

For the Internal Transportation Analysis:

- Establish the internal network of streets, parks, plazas, sidewalks, cycling infrastructure, transit service and stops/stations to create an internal mobility network according to the vision and principles for the development
- Discuss approach to curbside activity, parking, and other servicing functions (waste management, loading, etc.)
- Perform [Multimodal Level of Service \(MMLOS\)](#) *segment* analysis for the internal street network according to HRM's guidelines (ignoring vehicle operations)
- Revise and review the design to meet MMLOS targets. Discuss challenges where the design does not meet the targets and work with HRM staff to overcome the challenges

For the Adjacent Transportation Analysis:

- Map the connections to existing neighbourhoods through existing and future multimodal infrastructure
- Identify and address barriers to movement by sustainable modes to/from adjacent neighbourhoods
- Multimodal operational analysis of adjacent streets using Vissim microsimulation (supported by Synchro / Vistro, as necessary)
- Perform [Multimodal Level of Service \(MMLOS\)](#) analysis for the adjacent street network according to HRM's guidelines for segments and intersections

- Revisit assumptions, mode share, land uses, densities, etc. as necessary to create a viable multimodal transportation network in the study area vicinity to serve the new development, existing demands, etc. and that meets the vision and principles for the development
- Document and discuss operational and MMLoS results, challenges, and solutions to connecting to the adjacent neighbourhoods
- Provide recommendations and cost estimates for infrastructure and transit service improvements

For the Regional Transportation Analysis:

- Quantify and map demand that will be arriving from outside / leaving the Internal/Adjacent study area following previous analysis steps
- Provide high level recommendations to planned walking/rolling, cycling, transit networks and service to accommodate future demand at a system level
- Identify opportunities / challenges related to accommodating additional regional movement given current plans and recommendations

Final Report

Compile the findings of the various analyses into a final report. This report should:

- Describe the vision, process, design considerations, opportunities, challenges, etc. and how the design of the neighbourhood has been undertaken to create a complete community.
- Document all data sources, analyses, and findings
- Provide recommendations on infrastructure, service, and other changes required to accommodate the development and improve mobility options in the area.
- Discuss phasing of the development and the recommended infrastructure
- Provide cost estimates, options for cost-sharing, and responsibilities between HRM and the developer for discussion
- Provide final digital working files, as appropriate, to allow for review by HRM staff – spreadsheets, transportation modelling files, GIS layers, etc.

References

- Institute for Transportation and Development Policy: <https://www.itdp.org/library/standards-and-guides/tod3-o/what-is-tod/>
- TransLink Transit-Oriented Communities Framework: <https://www.translink.ca/plans-and-projects/strategies-plans-and-guidelines/transit-oriented-communities>
- Vancouver Olympic Village: <https://vancouver.ca/home-property-development/olympic-village.aspx>
- Transit Oriented Design Institute: <http://www.tod.org/>
- VTPI – TDM Encyclopedia: <https://www.vtpi.org/tdm/tdm12.htm>

The 6 Ds

There are six key attributes (the "6 Ds") that contribute to high levels of transit demand and productive transit service: destinations, distance, design, density, diversity, and demand management.

To be most effective, all "6 Ds" are planned and implemented together at multiple levels of geography, including the regional, corridor, neighbourhood and site scales.

Destinations: Coordinate land use and transportation

When land use and transportation are well coordinated, transit can provide fast, direct, and cost-effective access to more destinations for more people. At the neighbourhood scale, transit-oriented communities locate most new development along reasonably direct corridors so that most destinations are 'on the way' to other destinations. At the regional scale, they locate the highest densities of development and the most important destinations at the intersection of several frequent transit corridors.

Distance: Create a Well-Connected Street Network

A well-connected street network shortens travel distances, making it possible for people to quickly and conveniently walk or cycle to places they want to go, or to easily connect with transit on the way to their destination.

Design: Create Places for People

Transit-oriented communities are carefully designed with the needs of people in mind. People of all ages and abilities should be able to access and enjoy a comfortable, safe, delightful, and inviting public realm.

Diversity: Concentrate and Intensify Activities Near Frequent Transit

Transit-oriented communities concentrate most growth and development within a short walk of frequent transit stops and stations. A higher density of homes, jobs, and other activities creates a market for transit, allowing frequent service to operate more efficiently.

Diversity: Encourage a Mix of Uses

A vibrant mix of land uses helps create complete, walkable neighbourhoods around transit stations and stops, and supports a transit system that is well-utilized throughout the day.

Demand Management: Discourage Unnecessary Driving

Transit-oriented communities use demand management strategies to discourage unnecessary driving and promote walking, cycling, and transit. Demand management provides incentives for travelers to shift auto trips to other modes by increasing travel options, setting appropriate prices for parking or road usage, providing information and marketing, and allocating more road space to transit, cycling, or pedestrian uses.

WALK

DEVELOPING NEIGHBORHOODS THAT PROMOTE WALKING

- OBJECTIVE A.** The pedestrian realm is safe, complete, and accessible to all.
OBJECTIVE B. The pedestrian realm is active and vibrant.
OBJECTIVE C. The pedestrian realm is temperate and comfortable.

CYCLE

PRIORITIZE NONMOTORIZED TRANSPORT NETWORKS

- OBJECTIVE A.** The cycling network is safe and complete.
OBJECTIVE B. Cycle parking and storage is ample and secure.

CONNECT

CREATE DENSE NETWORKS OF STREETS AND PATHS

- OBJECTIVE A.** Walking and cycling routes are short, direct, and varied.
OBJECTIVE B. Walking and cycling routes are shorter than motor vehicle routes.

TRANSIT

LOCATE DEVELOPMENT NEAR HIGH-QUALITY PUBLIC TRANSPORT

- OBJECTIVE A.** High-quality transit is accessible by foot. (TOD Requirement)

MIX

PLAN FOR MIXED USES, INCOME, AND DEMOGRAPHICS

- OBJECTIVE A.** Opportunities and services are within a short walking distance of where people live and work, and the public space is activated over extended hours.
OBJECTIVE B. Diverse demographics and income ranges are included among local residents.

DENSIFY

OPTIMIZE DENSITY AND MATCH TRANSIT CAPACITY

- OBJECTIVE A.** High residential and job densities support high-quality transit, local services, and public space activity.

COMPACT

CREATE REGIONS WITH SHORT TRANSIT COMMUTES

- OBJECTIVE A.** The development is in, or next to, an existing urban area.
OBJECTIVE B. Traveling through the city is convenient.

SHIFT

INCREASE MOBILITY BY REGULATING PARKING AND ROAD USE

- OBJECTIVE A.** The land occupied by motor vehicle is minimized.