



Lesson 1 Lesson Use Basics

Topic 1.8: Connected Communities

Here, we explore how transportation shapes communities and what it takes to make a connected community.

Note: This document is intended to be a Companion Guide that complements the online topic. If there is a discrepancy between this document and the online topic, refer to the online topic.

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What is Transportation?

Transportation is the movement of people, animals, and goods from one location to another. Transportation includes non-motorized active transportation activities, as well as motorized transportation. How we move about our communities is a key component of how our communities function.

Click the blue boxes to learn about different forms of transportation.

Active Transportation

Active transportation is people-powered and includes walking, cycling, rollerblading, skateboarding, e-bikes, e-scooters, and motorized wheelchairs.

Public Transportation

Public transportation generally moves a number of people at the same time and includes buses and ferries, trams and streetcars, subways, and high-speed rail.

Vehicular Transportation

Vehicular transportation is generally motorized and includes cars, trucks, and motorcycles.

How Does Transportation Shape Communities?

Municipal decisions about land use and neighbourhood design impact the types of transportation systems possible and how they connect together. Once transportation infrastructure like roads, trails and sidewalks is built, these networks impact where and how people can move around and their experience of the community. Compact communities that are designed with multiple modes of transportation in mind have many benefits.

Click the blue boxes to explore compact and sprawl communities.

Compact

Pattern: Residential uses clustered near goods and services and mixed uses

Encourages: Active transportation and public transit

Discourages: Personal vehicle use

Benefits: Efficient use of land, frequent transit service, lower residential unit cost, and reduced greenhouse gas (GHG) emissions.

Costs: May require additional investment in urban design and amenities, including public open spaces.

Sprawl

Compact: Extensive residential or single use areas disconnected from goods and services

Pattern: Personal vehicle use

Encourages: Active transportation, frequent public transportation routes and runs

Discourages: Larger private spaces, land costs often lower

Benefits: Larger private spaces, land costs often lower

Costs: Longer commutes, more paved land, greater transportation-related emissions and costs, and higher infrastructure costs.

How are Connected Communities Formed?

Transportation connections between different parts of a community affect how usable each mode of transportation is. The modes of transportation that a community invests in and prioritizes are the ones that typically get used the most.

Click the blue boxes to explore about connected communities.

Canadian Norms

In many Canadian communities, road infrastructure prioritizing individual vehicle use is the norm. People tend to default to the most efficient or convenient system.

Considerations

Infrastructure initiatives include:

- Route time & efficiency
- Health & safety
- Transportation choice variety and connectivity
- Accessibility and equity
- Public and private affordability
- Sustainable land use
- Climate impacts
- Housing

Connected Communities

Connected communities provide a variety of transportation options for residents and visitors to access all areas of a community.

Who Manages Transportation Networks?

All transportation systems are supported through public spending, including the traditional road system. The cost of those systems are typically born by the level of government responsible for their maintenance, usually through property taxes and user fees, and in the case of provincial governments, other revenue sources.

Click the blue boxes to explore transportation system management.

Cooperation

Intergovernmental cooperation is crucial for maintaining transportation infrastructure like highways, roads and trails and systems such as public transportation that cross jurisdictional boundaries. Local decisions on development can also impact regional or provincial systems such as highways.

Shared Responsibilities

Where there are shared responsibilities, coordination is required regarding operations and maintenance, connections of new neighbourhoods to existing roads, and cost-sharing.

In PEI, the provincial government owns and manages almost all public roads except in a few limited circumstances, such as in the cities.

Ownership and Maintenance

Ownership and maintenance responsibilities of transportation systems (from roads and bridges to sidewalks and trails to public transit) can take different forms:

- Municipal ownership of entire local transportation system
- Shared responsibility between different levels of government (i.e., municipal and provincial)
- Provincial ownership of roads, with municipal sidewalks and active transportation systems

Shaping Communities with Public Transportation

Public transportation is a form of travel that enables more people to travel together along designated routes.¹ Public transit complements active transportation and supports increased public fitness and health,² the reduction of greenhouse gas emissions, more affordable options to get around and reduced traffic congestion.

Click the blue boxes to learn about ways to ensure the success of public transportation.

Planning

Directing development to existing neighbourhoods, communities and regional centres can make it easier to add routes and more frequent runs. Thinking about new development and

long term public transportation plans together is important. It is easier (and cheaper) to integrate multiple forms of transportation at the community planning and design stage, including at the neighbourhood level, than trying to add more options down the road.

Critical Mass and Density

The population size and density of a community influences how easy it is to integrate and sustain transit systems with the number and frequency of routes that make the system attractive and convenient to use.

Rural and small town transit is not impossible, but systems are much more sustainable when designed around areas where there are enough users to support multiple runs a day. Creative system design becomes important.

Public Investment

Without sufficient investment and budget prioritization, public transportation systems may not function well enough to attract users or meet their needs.

Why is Investing in Public Transit so Important?

While public transportation systems are subsidized (supported through taxes), the cost is often minimal when compared with the public subsidization associated with private vehicles, including road construction, maintenance, and ploughing.

Click the blue boxes for details on the importance of investing in public transit.

Advantages of Investing in Public Transit

Shared Benefits

"Public transit services have three features that justify public support and underpricing: they help achieve social equity objectives, they experience scale economies, and they can reduce various external costs including traffic congestion, accident risk and pollution emissions."²

Affordability

"In Canada, it typically costs between \$6,000 and \$13,000 per year to own and operate a car. Public transit is a more affordable option. Households can save, on average, \$10,000 per year by using public transit. An efficient public transit system improves access to jobs, schools, essential services and recreational opportunities for people of all ages and circumstances at a lower cost."³

Shaping Communities with Active Transportation

The built environment and active transportation system design are important elements in encouraging people to switch from personal vehicle use to other forms, and one way to do this is to bring different uses closer together.

How can the built environment and the design of the active transportation system attract users?

Click the blue boxes to discover how design and connectivity can attract users.⁴

Design

The user experience will affect a transportation system's success. Sidewalks, paths, and trails that are comfortable and easy to use will draw people, while unpleasant experiences or systems that don't feel safe are less likely to be used.

Connectivity

People are more likely to use active transportation systems when they are complete and convenient, without complicated detours or challenges in navigating, such as sidewalks and trails that end suddenly or are interrupted.

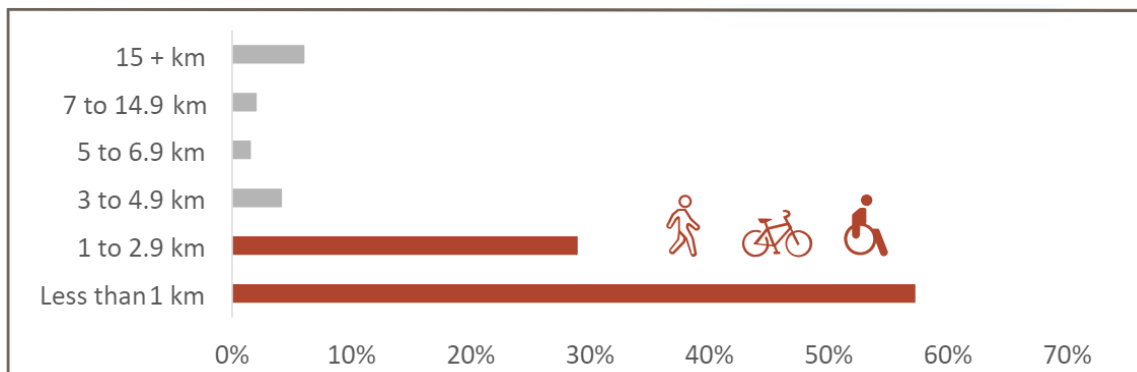
Public and Active Transportation in PEI

In PEI, the main form of public transportation is the bus system. Routes and schedules differ dramatically depending on location and time of year.

In PEI more than 85% of residents who use active transportation work within three kilometers of their home. To encourage people to switch to active transportation, it **is** important to think about why people who live further away from their work are more likely to drive.

Click the blue box to view the link between active transportation use and distance from work.

Active Transportation in PEI



Distance travelled by to work by active transportation.⁴

Click to enlarge.

Stratford Spotlight

Stratford’s transportation system is primarily made up of a typical suburban road system, with sidewalks in some areas and a private transit system funded by the three capital area municipalities of Charlottetown, Stratford, and Cornwall. The sidewalks and trails are owned by the Town, but the rest of the road system is owned by the Province of Prince Edward Island.



The map of the Town’s trail system. [Click to enlarge.](#)

Did you know?

Work is currently underway on updates to Stratford’s Active Transportation Master Plan and the Town has mapped its existing trail system.

Transportation Considerations: Time and Efficiency

Often the goal of transportation is to move people and goods as quickly and as safely as possible. However, sometimes the goal is to slow vehicles down, such as to increase safety near schools or encourage people to stop and explore a space such as a downtown.

The more barriers there are to using a system, the less likely they are to be used. So, if transit and active transportation systems don’t fit seamlessly into the greater transportation system, getting into that car becomes the default.

Click the blue box to explore factors that influence choices around transportation

Considerations

Connectivity: Where are different uses located and how far away are they?

Options: What transportation systems are available?

Accessibility: How easy, efficient, comfortable and affordable are the different systems to use?

Transportation Considerations: Health and Safety

The ability to integrate activity into daily routines is an important aspect of public health and the reduction of chronic diseases. System design and maintenance are important to ensuring user comfort and enjoyability of the space, and their physical safety. This, in turn, makes active transportation and public transportation an attractive option for ongoing active lifestyles.

Click the blue boxes to learn about health and safety considerations.

Community Design

Community and neighbourhood design affects the travelling experience, influencing people's choice of mode of transportation. Mixed uses and compact communities make it easier to walk or cycle around.

System Design and Maintenance

If transportation systems feel safe, both in terms of the environment and the quality of the system, particularly for walking, cycling and transit, people are more likely to use them.

Did you know?

Topic 1.6 covers Building Healthy Communities.

Transportation Considerations: Personal Affordability

Transportation options and land uses have big impacts on affordability, equity, and accessibility. How does transportation and community design affect affordability on a personal level?

Click to blue boxes to explore how planning influences personal affordability.

Location

The cost of different systems for each individual or household is affected by the design of the system and the community – the more affordable housing is often located further from the core of a community and is often located further from services and employment, making those who can least afford it more dependent on a personal vehicle if good transit or other options do not exist.

Separation of Uses

The distance between uses can impact the choice of mode of transportation and affect the cost of travelling around, particularly for those dependent on or choosing to use transit or active transportation.

Public Transportation Options

Where public transportation does not provide routes or times or accessibility options that match work schedules, it can be ineffective in helping households get to school and work or to access services, increasing the reliance on more costly personal vehicles.

Transportation Considerations: Public Affordability

The further apart different land uses are, the more expensive a system can be to build and maintain when calculated on a per person basis. The cost of any transportation system is influenced by the level of usage and density or distance. What is the link between transportation and community design and public affordability?

Click the blue boxes to explore how planning influences public affordability.

Ridership and Transit-Oriented Design

Having larger groups of transit users closer together can make transportation systems more sustainable, with enough riders to justify more routes or more frequent trips. One key way to ensure this is to locate uses closer together and focus on compact communities with the density to support transit.

Infrastructure Costs

The per person cost of infrastructure such as a sidewalk differs depending on the number of people accessing it. If the municipality is seeking to provide services to as many people as possible, it costs less to provide sidewalks for people located closer together than it does to supply them to the same number of people spread further apart. The per household or per user costs of transportation systems are lowered in compact or transit-oriented communities.

Transportation Considerations: Accessibility and Equity

Not all Canadians have adequate access to transportation, and racialized people, Indigenous people, low-income people, and people with disabilities tend to be disproportionately affected. Providing dignified, affordable, safe, and accessible transportation options is an important part of providing transportation options for all.⁵

Click the blue boxes for potential questions to consider.

Accessibility Considerations

- Have the safety needs of all population groups been considered?
- Do users need to switch modes to get to their destination and how easy is it to do so?
- Do all parts of the community receive the appropriate levels of service?
- Are there low-barrier options for those who are mobility-impaired?.
- How close can people get to their destination?

Transportation Considerations: Climate and Housing

Just as transportation connects communities spatially, it also bridges topics like housing, climate change, technological innovation and equity.

Click the blue boxes to explore the connections between climate and housing.⁴

Housing

The relationship between location and type of housing and transportation systems has a direct impact on public health, affordability, environmental sustainability, and protection of resource lands.

Innovation

Electric vehicles, automated vehicles, e-bikes, and e-scooters are just some examples of how technology is changing the way we get around.

Our planning and infrastructure design will need to take changing technology into account as things change.

Emissions

Transportation is one of the key contributors to greenhouse gas emissions. Reducing travel time and distance through compact development, and offering safe, affordable and lower-emission options can help.

Climate Adaptation

Climate impacts such as flooding, sea level rise and erosion, and extreme weather events are increasingly impacting the quality and lifespan of transportation infrastructure and the ability to reach people and places during emergencies.

Did you know?

Although all forms of transport requires energy to be burned, self transport is the cleanest.⁴

Grams of carbon emitted per one kilometer of travel:

- Sports Utility Vehicle: 400
- Car: 310
- Walking or Cycling: 0

Glossary

Active Transportation: Any self-propelled human form of transportation such as walking, running and cycling. (Government of PEI)

Public Transportation: Public transportation is a form of travel offered locally that enables more people to travel together along designated routes and can include everything from buses to rail, ferries, and more.

Transit Oriented Design: Transit-oriented communities are places that, by their design, allow people to drive less and walk, cycle, and take transit more.⁶

Knowledge Check #1

Select the values of a connected transportation system. Select all that apply.

- a) Can reduce infrastructure costs and free up public funds for new or enhanced services.
- b) Can increase time for texting and watching videos.
- c) Can improve connectivity, reduce congestion and create a more inviting and appealing built environment.
- d) Can have many co-benefits including supporting equity and diversity, climate action, and healthy active living.

Correct Answer(s): a, c, and d. The values of a connected transportation system are numerous. However, values do NOT include increasing time for texting and watching videos.

References

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