WHITEHORSE
Transportation Demand Management Plan

City of Whitehorse, YT

Submitted by Boulevard Transportation Group
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Whitehorse
THE WILDERNESS CITY

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1. Overview

With 15,000 new residents expected in the next 25 years, Whitehorse will face significant challenges if single-occupant vehicles ("SOV") continue to be the primary travel mode. Maintaining an automobile-oriented community will result in ...

... significant public investment in roads and parking facilities;

... continued private expenditure on vehicles, fuel, and maintenance;

... increasing greenhouse gas ("GHG") emissions;

... lost opportunities to improve health through active travel;

... dependency on others for transportation among young and old.

To combat this issue and encourage more sustainable travel habits, the City has developed the Transportation Demand Management (TDM) Plan. The TDM Plan is a continuation of a considerable body of work that has been developed over previous years that includes the Whitehorse Moves Initiative (2007), Integrated Community Sustainability Plan (2007), Strategic Sustainability Strategy (2008), Official Community Plan (2010), and Downtown Parking Management Plan (2011). Using the context established in previous plans, the TDM Plan identifies policies, programs and services to reduce SOV reliance and the negative impacts associated with automobile use, and facilitate increased walking, cycling and transit.

1.1 What is TDM?

Transportation Demand Management (TDM) provides a set of initiatives which are geared at improving the efficiency of the transportation network, encouraging alternatives to single-occupant vehicle travel and facilitating behavioural change. Policies, programs, services and products are used to influence why, when, how, and where people travel.

Environment Canada describes TDM as...

> ... the integrated approach to transportation planning that focuses on improving the efficiency of the existing transportation infrastructure and increasing the sustainability of the network through the management of transportation demand and modal integration.

Source: Environment Canada, Report on Canadian Alternative Transportation Programs, February 2005

1.2 Why TDM?

The benefits associated with TDM vary depending on the strategies employed and the context in which they are employed. Generally speaking, TDM facilitates increased travel via alternative travel modes, resulting in economic, social and environmental benefits. Successful TDM programs require foresight, commitment, and resource investment which are required before reaping the benefits of implementation. Benefits may be delayed in being realized due to several factors, but most importantly due to behaviour changes in society.

TDM benefits often include the following specific outcomes:

Social

- Increase the range of **travel options** available for all community demographics.
- Improve **community health** and physical activity levels by increasing walking and cycling.
- Reduce **traffic congestion** by decreasing amount of vehicles from the road.
- Reduce **collision risks** associated with automobile use and reduce societal costs of services such as policing and insurance.
- Support City **planning** and land use policies related to densification and mixed use.

Environmental

- Reduced air, water, and noise **pollution** related to automobiles.
- Improved **air quality.**
- Reduced **greenhouse gas emissions.**
- Improved **water quality**, reduced polluting emissions and fluid leaks, reduced need for paved surfaces.
- Supports strategic **land use planning** objectives, such as urban redevelopment, and reduced sprawl and habitat fragmentation.

Economic

- Minimize the **personal costs** of vehicle transportation through less expensive alternatives.
- Decrease **public investment** in infrastructure by building demand for travel that relies on cheaper infrastructure or utilizes existing system capacities.
- Support for **economic objectives**, such as increased productivity, employment, wealth, property values and tax revenues.
- Reduced road **maintenance costs** as active transportation infrastructure is more economical compared to vehicle infrastructure.
- Maintain a **vibrant downtown** full of streets, sidewalks, and people with aesthetically pleasing streetscapes that promote alternative travel modes.

1.3 **Why Must Travel Habits Change?**

With 15,000 new residents in the next 25 years[1], the City will face significant challenges if single-occupancy travel continues to be the primary travel mode.

Public Health

Automobile dependency encourages sedentary lifestyles and obesity. Lack of physical activity is considered a "conveyor belt" to cardiovascular disease, strokes, diabetes and various cancers. Replacing vehicle trips with "active" travel modes leads to healthier lives and reduces high costs on the public health care system.

91% Children/Youth

69% Adults

...do not meet recommended levels of daily physical activity[2]

Vehicle Costs

Whitehorse is home to approximately 54,000 vehicles[3]. An increase in vehicle ownership consistent with population increase will result in an additional 36,000 vehicles and approximately $3.85 billion spent on vehicle purchases, maintenance, insurance, and fuel over the next 25 years.

Estimated Annual Cost of Personal Travel, by mode[4]

Greenhouse Gas Emissions

An estimated 225,000 tonnes of carbon dioxide emissions resulted from on-road transportation in Whitehorse in 2011[5]. An increase in vehicle travel consistent with population increase will result in approximately 7.5 million tonnes of carbon dioxide emitted over the next 25 years.

7.5 million tonnes CO^2 over 25 years

Aging Population

More residents are aging and are choosing to retire in Whitehorse. Walking, transit and year-round accessibility are critical to ensure healthy lifestyles for seniors as their ability to drive decreases.

Traffic Congestion

Evidence shows that building roads is not a long-term solution to solving traffic congestion. An increasing population without a corresponding shift to walking, cycling, and public transit will increase the amount of time Whitehorse residents spend sitting in traffic.

Average commute duration in Whitehorse is...

13 minutes[6]

Downtown Parking

Downtown Whitehorse consists of an estimated 4,400 parking spaces, including both on-street parking and off-street spaces on private property[7]. An estimated 2,900 additional parking spaces will be required downtown to meet parking demand at a total cost of $40 million and requiring 140 acres of land.

Each new downtown parking space costs approximately...

$14,000

Walking/Cycling Infrastructure

Investments in walking and cycling infrastructure provide a greater return on investment than investments in vehicle infrastructure (roads, parking). In addition to being cheaper than road building, sidewalks, cycling facilities and trails boost local tourism, increase adjacent property values and expand the municipal tax base.

6¢

...estimated savings per km of driving shifted to walking or cycling[8]

[1] 2% annual growth rate based on "medium" projection in the OCP

[2] Colley RC, Garriguet D, Janssen I, Craig CL, Clarke J, Tremblay MS. Physical activity of Canadian adults: accelerometer results from 2007 to 2009 Canadian Health Measures Survey. Component of Statistics Canada Catalogue no. 82-003-X Health Reports. Ottawa: 2011.

[3] 2010 Stats Canada

[4] The Globe + Mail, The Real Cost of Car Ownership, September 02 2010

[5] Estimates from Yukon-wide calculations in Yukon Government Climate Change Secretariat, Yukon Greenhouse Gas Emissions, Mar 2013

[6] National Household Survey, 2011

[7] Based on estimates in the Downtown Parking Management Plan

[8] T. Litman, Quantifying the Benefits of Nonmotorized Transportation for Achieving Mobility Management Objectives, VTPI, 2004.

1.4 TDM Success Stories

TDM has been implemented in many different regions across Canada. Some of the initiatives are listed below with their relative results from each program. Benefits from these programs are seen in reduction of greenhouse gas emissions, financial savings and an increase in use of alternative travel modes.

TDM is often contemplated as a reaction to growth and prosperity. As cities grow and prosper, planners are faced with providing space to accommodate personal vehicles access to get to and through the downtown core; or providing public space for residents, stores and businesses. Those that are successful in balancing the transportation mix have a vibrant, alive downtown full of roads, traffic and parking lots and are engaged in downtown revitalization. TDM done correctly skips the downtown demise and revitalization cycle. It is also apparent that modal shift is achieved by conscious planning-not by chance.

Location	Program Name	Website	Initiatives	Results	Link to TDM Plan
Calgary, AB	WORKshift	http://www.workshiftcanada.com/calgary	Telecommuting	• 879 employees participated, resulting in a total of 63,100 trips avoided • Employees saved approximately $230,000 and 31,000 hours of personal time • 31,000 hours of personal time through avoiding the commute to work	Strategy 4
Edmonton, AB	LocalMotion	www.edmonton.ca/localmotion	Challenge Community Events	• Increased walking (28%), cycling (26%) and transit (25%) among challenge participants • Participants drove an estimated 400 km less per household during challenge • Traffic volumes at 6 intersections decreased 20-35% during challenge	Strategy 1
Toronto, ON	Smart Commute	http://www.smartcommutetoronto.ca/en/home	Ridematching Shuttle Programs Emergency Ride Home Alternative Work Schedules Incentives and Promotions Events	• Reductions of 75-million vehicle kilometres and 17,400 tonnes of GHG emissions from 2004 to 2007 • More than 7,000 registered participants in the “Carpool Zone”	Strategy 1, 4
Carrefour, Montreal	CarboPOINT Program		Discounted transit pass Competition program	• Employees avoided 79 tonnes of GHG emissions • Use of public transit increased from 18% to 37%	Strategy 1, 3
Metro Vancouver	TravelSmart	http://www.travelsmart.ca/	Employer Pass Program Ride-sharing Active transportation Parking management Guaranteed ride home Teleworking Park & Ride Individualized marketing	• Employees who joined the Employer pass program reduced their number of drive-alone trips by an average of 14% • Individualized marketing pilot program walking increased by 9%, public transportation increased by 12%, cycling increased by 33%. Driving alone trips dropped by 8%	Strategy 1, 2, 3, 4,5

1.5 Plan Development + Consultation

The TDM Plan was an initiative by the City of Whitehorse and prepared by Boulevard Transportation Group. The process was led by the City's Environmental Sustainability department with contributions from Engineering Services, Transit Services, Parks and Trails, and Operations staff.

A Task Force was created consisting of representatives from many of the City's largest employers to advise the project team, liaise within their organizations, and participate in implementation tasks. The Task Force included representatives from the following organizations:

- City of Whitehorse
- Whitehorse General Hospital
- Yukon Electric
- Chamber of Commerce
- Yukon Government's Public Service Commission, Highways + Public Works.

Engagement with these groups occurred by phone, email and in person and it provided the opportunity for community stakeholders to help shape the TDM Plan.

A project overview was available on the City's website for the duration of the project. Resident input was sought on two occasions at the Fireweed Market.

1.6 Plan Organization

Section 2, Transportation Baseline presents an understanding of demographics, land use, climate, and existing infrastructure and policies;

Section 3, TDM Framework describes the vision, mode split target, and objectives that provide the framework for the recommended strategies and actions of this plan;

Section 4, TDM Strategies identifies six strategic areas and proposed actions;

Section 5, Implementation outlines how to pursue the actions of this plan, as well as opportunities for the City to show leadership and collaboration; and

Appendices, provides a Transportation Baseline report, Active Transportation Network Improvement, a Site Planning for Sustainability Checklist, and a summary of the Fireweed Market.

Images of the TDM Plan displays at the Fireweed Market, July 2013

2. Transportation Baseline

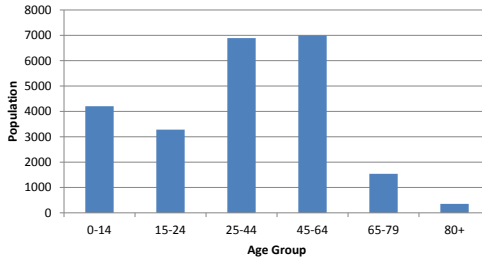
To develop strategies and actions to implement a TDM plan, an understanding of the City in terms of population, employment, land use, geography and transportation is important in developing strategies and actions that are catered directly towards Whitehorse. A brief description of each topic is discussed below, with a more detailed description in *Appendix A*.

2.1 Demographics

In 2011, the City of Whitehorse had a population of 23,276[9]. Population has grown 54% in the past 25 years, from 15,100 in 1986. In another 25 years (2036), it is expected that Whitehorse's population will increase 64%, to reach 38,186. This projection is slightly higher than Whitehorse's population growth over the past 25 years.

The median age in the City of Whitehorse in 2011 is 37, which is 3 years less than Canada's median age. Whitehorse has a high proportion of residents aged 25 to 54 relative to other northern communities which suggests that a large proportion of the population are of working age, and commuter population that may be targeted with TDM programs. As seen in the graph below, the majority of the population is in the 45-64 range; suggesting that there will be an increase in population in seniors in the next 10 years.

Whitehorse Population by Age Group, 2011



2.2 Land Use + Employment

The downtown, which is situated almost in the geographic centre of the municipality, acts as a nucleus due to its concentration of employment opportunities, retail and commerce. Downtown has approximately 15% of the City's resident population and over 50% of the employment population. While the majority of the population in the downtown core is predominantly located in Old Town neighbourhood, there is also a residential population located immediately north and south of the Downtown Commercial Core area.

Whitehorse consists of a number of outlying residential neighbourhoods - Arkell, Copper Ridge, Crestview, Granger, Hillcrest, Lobird, Logan, MacIntyre, Porter Creek, Riverdale, Takhini, Valleyview and a number of country residential areas. Most are low density neighbourhoods with primarily residential land uses that rely on the downtown for the majority of their employment and services.

Government is the main employment sector in the City. Approximately one quarter of the labour force is employed by the territorial government, first nations government, Government of Canada, and the municipal government. Other major employers include Northwestel, Yukon Electric, Yukon Hospital Corporation and Yukon Energy.

2.2.1 Future Growth Areas

The 2010 OCP indicates that 61% of future residential development will be located within the Urban Containment Boundary (UCB), a significant portion of which will be accommodated in Whistle Bend located northeast of downtown.

Whistle Bend is easily accessed by road from downtown and has an active transportation network connection. It has great potential in developing it to be a new and upcoming neighborhood complete with transit service, a town square featuring public parkland and numerous shops, schools, greenspace and paved and unpaved trails.

2.3 Topography

Whitehorse is located on the Yukon River corridor in the South Central Yukon. Within the City, Two Mile Hill, Mountainview Road, and Robert Service Way are three key corridors between downtown and residential neighbourhoods such as Copper Ridge and Porter Creek with significant grades that present a challenge to walking and cycling.

[9] 2011 Census Canada

2.4 Climate

Whitehorse has a northern climate with cold, dry winters and mild, temperate summers. Annual temperature averages are 14°C (max 25°C) in July and -20°C (min. -40°C) in January. Whitehorse has on average, 122 days with precipitation; equating to 145 cm of snow and 163 cm of rain accumulation.

Due to the location of Whitehorse at a high northern latitude it experiences fluctuating daylight hours over the year. The shortest day occurs in December and has approximately 5 hours and 30 minutes of daylight. The longest day occurs in July and has approximately 19 hours and 10 minutes of daylight.

2.5 Active Transportation

Existing active transportation routes in the City of Whitehorse consist of 150 km of motorized trails and 700 km of multi-use trails. This network is larger than in similar sized northern communities. The trail network in and to the downtown in Whitehorse is highly walkable, with links from the riverfront, through the main shopping streets to the base of the escarpment. There are several trails which link from the downtown core to neighbourhoods including the River Trail, Trans Canada Trail, the Escarpment Steps to Black Street Steps and Two Mile Hill.

Walking in Whitehorse varies by location. In areas that are close to downtown, walking takes approximately 30 minutes from places such as Riverdale, Takhini, Hillcrest and Valleyview. Other outlying neighbourhoods take longer including Copper Ridge, Porter Creek, and Crestview that can take over 1 hour, leaving these locations that people are unlikely to walk from. These areas would be a more acceptable route to cycle on which would take on average 30 minutes.

2.6 Public Transit

Public transit is planned and operated by the City. There are a total of 5 transit routes; buses run on a regular once-an-hour schedule Monday to Friday with a late night service until 10:20 p.m.

In 2012, there was a total ridership of 383,644 passengers. Whitehorse has seen an increase in ridership since 2009. The lowest months for ridership are in July and December.

2.7 Policy Context

Whitehorse has already been actively involved in improving their transportation network, and will continue to do so, particularly in implementing the TDM Plan. The diagram to the right outlines Whitehorse's commitment so far in implementing plans and policies which guide decision making towards supporting transportation demand management strategies.

Whitehorse Moves, 2004-2007
One of eight Transport Canada Showcase Projects; identifies measures that reduce greenhouse gases in the transportation sector, particularly changes in infrastructure; changing the way Whitehorse moves.

Integrated Community Sustainability Plan, 2007
Examines and recommends a new sustainable way to invest, build and manage infrastructure which meet the objectives of clean air, clean water and reduced greenhouse gas emissions. Transportation, particularly transit were key elements in this Plan.

Strategic Sustainability Plan, 2008
A strategy that creates a vision that will guide the City over the next 50 years in terms of the economy, the City's identity, and the environment.

Official Community Plan, 2010
Guide decisions in relation to development and conservation, through related policies and also outlines where future development should occur. The development of this Plan was structured on the Strategic Sustainability Plan.

Downtown Parking Management Plan, 2011
The plan contains recommendations that can be implemented by the City to ensure parking is managed effectively for residents, business owners, visitors and employees while also encouraging a more sustainable community. This Plan recommended to develop the TDM Plan.

TDM Plan, 2014
Provides mode share targets and actions to implement in order to achieve these targets. Actions are based on reducing the number of single occupant vehicles.

Summary of Relevant City Plans Completed To-Date

Summary of Challenges + Opportunities

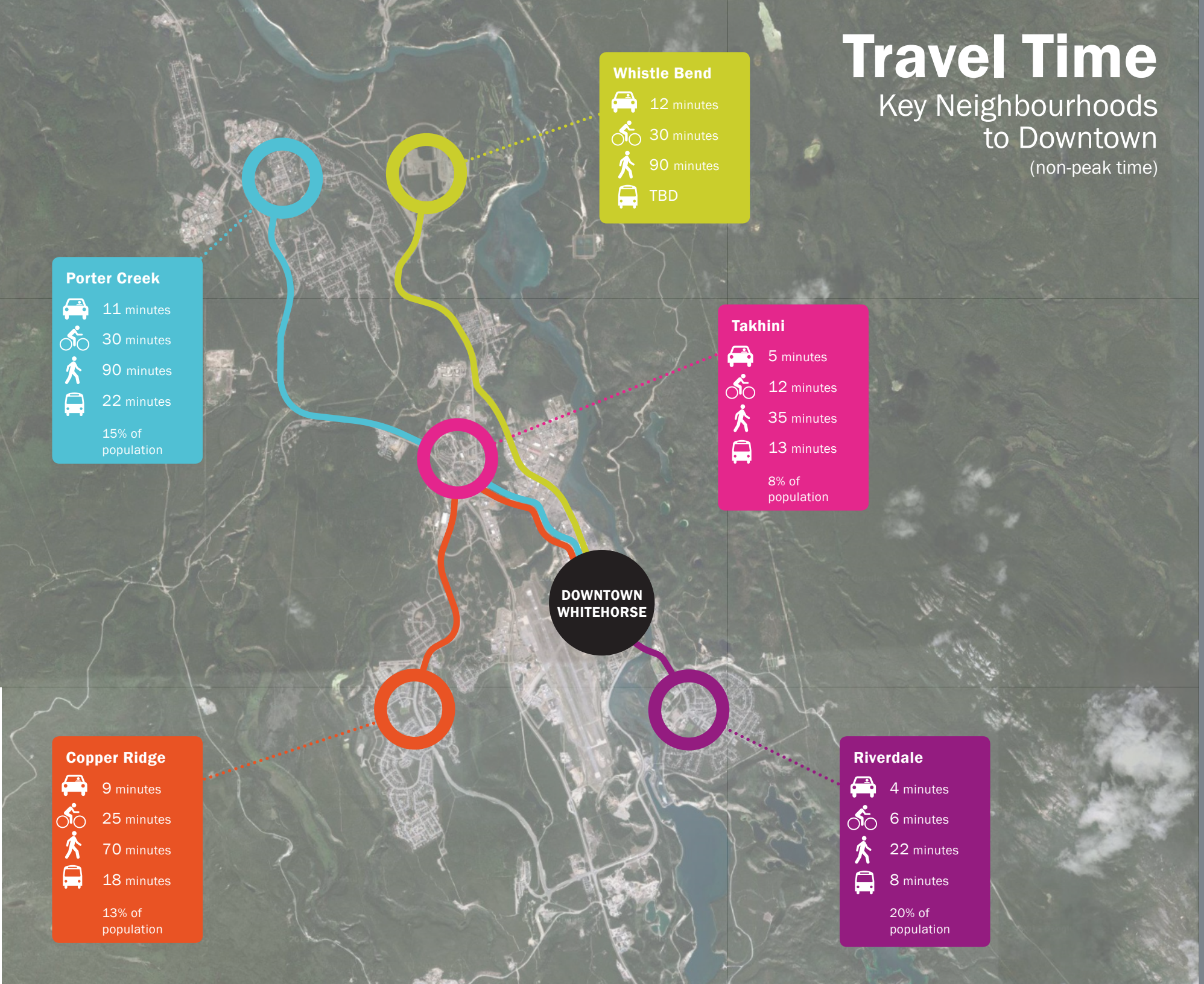
This table outlines challenges that the City of Whitehorse faces which can affect the successful implementation of TDM programs. Each challenge creates an opportunity to alternative transportation modes.

	Challenge	Opportunity
Climate	Cold winter weather limits residents willingness to walk or cycle and increases poor air quality due to idling.	Snow and climate is extremely dry and therefore is easy on bicycles. Cold winters make transit a good, cheap option.
Topography	Steep topography between downtown and the majority of residential neighborhoods make walking and cycling challenging.	Allows for multi-modal transportation.
Preference	Majority of residents are accustomed to driving.	Get residents used to other options, there are many to choose from. People prefer an active recreational lifestyle.
Downtown Concentration	Car use competes with the vitality of downtown. Downtown has a high concentration of employment and services where the majority of residents require access to on a daily basis.	Outlying neighbourhoods can be the target market for TDM as they are very dense; more people can be targeted.
Outlying Residential Areas	Low density residential areas are difficult to serve with transit and beyond reasonable walking and cycling distance for many.	These neighborhoods are fairly connected internally. Target trips during the day, such as walking to lunch.
Time/Convenience	Vehicles are seen as the most convenient travel options because they provide flexibility in routing and are not as impacted by external factors such as weather and schedules.	Majority of the population works in the downtown core-once residents get into a routine it will seem convenient.
Perception	There is a certain level of prestige associated with owning a vehicle, while alternative modes such as transit and walking are often seen as “second class” travel modes.	Fat bikes are now seen as a prestige item. Can also be seen as prestige in taking on a “green” lifestyle.
Work/Errand Requirements	Certain occupations rely on access to a vehicle (most notably trades people) or to drop-off/pick-up children.	Work with employers to develop programs and incentives for their employees-they can be influenced to use alternative modes if they had access to a quality transit or fleet vehicles to conduct work-related travel.

Travel Time

Key Neighbourhoods to Downtown

(non-peak time)



3. TDM Framework

The TDM framework provides an understanding of what the City is seeking to achieve through implementation of this Plan and includes a vision, modal share targets, and objectives.

3.1 Vision

The vision describes the type of community that Whitehorse is aiming to become. It is a depiction of Whitehorse in 2040 after the successful implementation of the TDM Plan.

*Whitehorse is a **highly mobile** community where people are accommodated on a **well-connected** and **maintained** street network; increasingly residents choose to **walk**, **bicycle**, use **transit**, and **carpool** because of the range of **safe**, **comfortable**, and **convenient** alternatives to vehicle travel.*

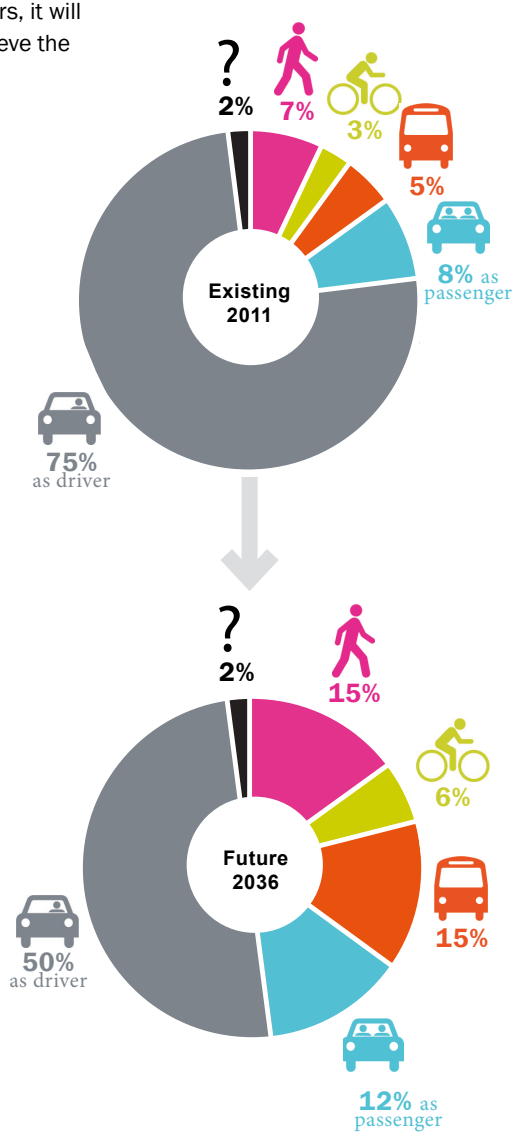
3.2 Mode Share Targets

The City's goal is to reduce the "get to work as driver" from the current 75% of trips to 50% of trips by 2036. This means, that as the population in Whitehorse grows, more people will get to work by carpooling, walking, cycling, and transit. As the population increases in the next 25 years, it will take an increasingly amount of residents to switch to alternative modes in order to achieve the mode share targets.

25-year Mode Share Targets

	2011	2016	2021	2026	2031	2036
Walk	7%	8%	10%	12%	14%	15%
Bicycle	3%	4%	4%	5%	5%	6%
Public Transit	5%	7%	9%	11%	13%	15%
Vehicle (passenger)	8%	9%	10%	10%	11%	12%
Vehicle (driver)	75%	70%	65%	60%	55%	50%

Mode Share refers to the percentage of person-trips made by one travel mode relative to the total number of person-trips made by all modes



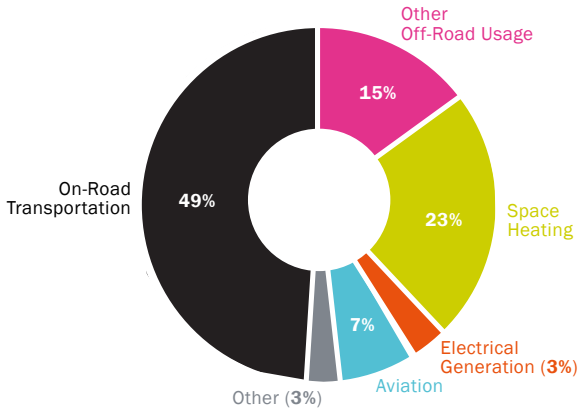
3.3 **Objectives**

The objectives described below will act as a guide to achieve the vision of this Plan and realize the City's 2036 mode share targets. The objectives lead to the six strategy areas of this Plan, as described in *Section 4*.

Objective no.1

Reduce GHG Emissions from the Transportation Sector

In 2001, transportation accounted for 50% of greenhouse gas emissions in Whitehorse, the largest emitting sector. Each private vehicle equates to 2,149 kg annual greenhouse gas emissions. Reducing the proportion of trips made by private automobile will decrease GHG emissions in the future.



Greenhouse Gas Emissions by Sector, Yukon Territory, 2010

Source: City of Whitehorse Local Action Plan to Reduce Greenhouse Gas Emissions for City Operations and the Community, 2004

Objective no.2

Improve Resident Health + Well-Being

2.5 hours of physical activity is recommended per week for adults to reap the benefits of a healthy/active lifestyle. Benefits of an active lifestyle include reduced stress, strengthening the heart and lungs, increased energy levels, maintaining and achieving a healthy body weight, and improving ones outlook on life. Due to lack of physical activity, obesity has been climbing steadily over the past 30 years.

69%
of Canadian adults
do not get the recommended level
of daily physical activity

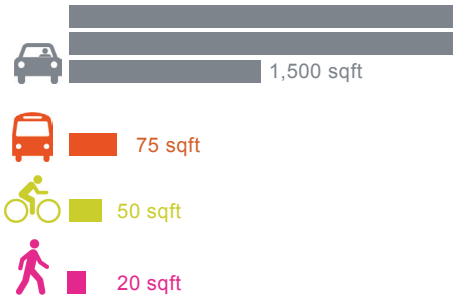
91%
of Canadian children
do not get the recommended level
of daily physical activity

Source: Colley RC, et al, Physical activity of Canadian adults: accelerometer results from 2007 to 2009 Canadian Health Measures Survey. 2011

Objective no.3

Enhance Access, Reduce Congestion

Congestion is a frustrating, time consuming aspect of travel that can be decreased by switching travel modes. Each trip completed by walking, cycling or transit not only eliminates congestion experienced by the individual, it reduces overall network congestion and lessens delay for other drivers.



Per Person Space Requirement When Travelling, by mode

Source: VTPI, Road Space Allocation

Objective no.4

Reduce Public Infrastructure Spending

Bicycle and pedestrian infrastructure is far less expensive to build and maintain than vehicle infrastructure. Sidewalks, cycling facilities and trails boost local tourism by providing new recreational opportunities, increase property values adjacent to trails and pedestrian-oriented streets, and expand the municipal tax base that can be used to build new infrastructure. Additionally, active travel modes have less maintenance costs and require less physical space per person.

4-lane road...

$5 million

Bike lane (with road widening)...

$150,000

Bike lane (no road widening)...

$20,000

Sidewalk or walking trail...

$100,000

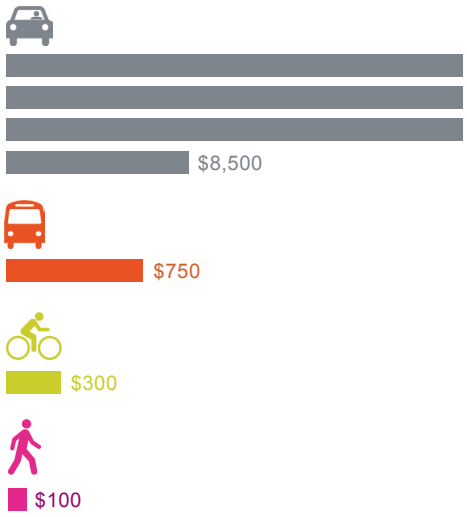
Typical Infrastructure Cost, per km

Source: City of Vaughan Capital Cost Estimates 2011-2021

Objective no.5

Provide Affordable, Convenient Travel Options

Owning and operating a vehicle is an expensive travel option that can be avoided if other alternatives are provided. The annual cost of owning and operating a vehicle is in the range of $8,500 per year*, which accounts for purchase, depreciation, maintenance, and fuel. In contrast, annual transit use is less than one-tenth the cost of vehicle use and both cycling and walking are considerably less expensive. Providing Whitehorse residents with access to high-quality walking, cycling, and transit options presents the opportunity to significantly reduce the financial costs of personal transportation.



Estimated Annual Cost of Personal Travel, by mode

Source: The Globe + Mail, The Real Cost of Car Ownership, September 02 2010

4. TDM Strategies

Six strategy areas are identified to guide TDM implementation. Each strategy is defined in more detail on the following pages and includes a series of recommended actions to achieve the objectives of this plan and the mode share targets.

Transportation demand management is best pursued comprehensively by combining several initiatives together. Many programs require both up-front and on-going effort to provide continual support and encouragement, and respond to future opportunities and changes in individual travel needs and preferences.

SIX TDM STRATEGY AREAS

1. Coordinate TDM Implementation + Promote Options
2. Improve Active Transportation Options
3. Improve Public Transit
4. Support Employees to Use Alternative Travel Modes
5. Maximize Existing Vehicle Infrastructure + Discourage Single-Occupant Vehicles
6. Encourage Supportive Land Use

TIMELINE

Actions have been identified as short- (2yrs), medium- (2-5yrs) and long-term (5+yrs). The implementation approach is discussed further in *Section* 5.4.

- **Short-term, 2 years**
- **Medium-term, 2-5 years**
- **Long-term, 5+ years**

Strategy no.1

Coordinate TDM Implementation + Promote Options

1

Transportation demand management is the careful application of policies, programs, and knowledge to encourage a shift in travel behaviour. These approaches cannot be passive; they involve deliberate attention to coordination, cooperation, and awareness to ensure they are applied to a broad audience.

The following actions are recommended to coordinate TDM delivery and expand awareness of travel options:

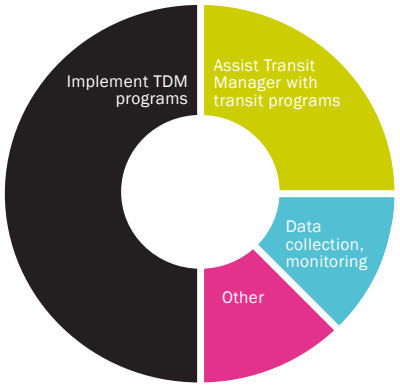
1. Hire a TDM Coordinator
2. Create a TDM Partnership
3. Create a "Travel Options" Website
4. Encourage Others to get involved
5. Create Special Events Travel Plans

Action 1.1

Hire a TDM Coordinator

A TDM Coordinator position should be established in the Environmental Sustainability department. The TDM Coordinator's responsibilities should be as follows:

- Oversee implementation of the TDM Plan;
- Lead the City's internal TDM efforts for employees, Chair the TDM Partnership (see Action 1.2), and deliver TDM promotional events (see Action 1.4);
- Assist the Transit Manager with transit-related TDM programs (see Action 3.8);
- Collaborate with employers and other organizations to implement TDM initiatives (see Strategy 4); and
- Coordinate TDM data collection and monitoring, as described in Section 5.



TDM Coordinator's Time Allocation

The cost of the TDM Coordinator position will be approximately $100,000 annually, including salary and benefits. One half of this position (part time equivalent) should be established in the short-term through reallocation of existing resources within the Environmental Sustainability Department. In the medium term, the position should be expanded to be full-time, with the additional resources funded through re-allocation of existing resources and new revenues. Potential sources include:

1. Downtown Parking. The City generates significant revenues from downtown on-street and monthly off-street parking ($1.1 million in 2010). A portion of parking revenues may fund the TDM position.
2. Transit Fares. The City has established cost recovery targets for the transit system. Revenues above the cost-recovery target should be re-invested into improving transit, including funding the TDM Coordinator and recognizing it's role in supporting the Transit Manager.

Action 1.2

Create a TDM Partnership

TDM is most effective if applied broadly. While the City is taking a leadership role in delivering TDM programs, a successful collaboration with employers, institutions, and community organizations is important to maximize the effectiveness of TDM.

A TDM Partnership should be created with the City's TDM Coordinator acting as Chair and with representatives from the City's largest employers - Government of Canada, Yukon Government (various departments), Whitehorse General Hospital, Yukon College, Yukon Energy, Whitehorse Chamber of Commerce (representing large employers), and RPAY. The partnership may expand as other employers express interest in being involved.

A preliminary charter and terms of reference should be developed that clarifies the purpose of the partnership, roles of partnership representatives, and desired outcomes. The partnership will have official meetings quarterly to discuss progress of the implementation of the TDM Plan. After each meeting, representatives will be assigned follow-up tasks.

Action 1.3

Create a "Travel Options" Website

A "travel options" website is a one-stop-shop for residents and visitors to access various transportation tools. It will contain maps, coordination tools, and calculators which allows participants to be actively involved in their transportation choices.

The City should allocate $25,000 to develop the website. The design and interface should be created by a web developer with support from the City's TDM Coordinator. Updates and on-going maintenance will be arranged by the TDM Coordinator. General improvements to corporate communications, social media exposure and increased web communications capacity are required for the travel options website to be successful.

What could a "travel options" website look like?

The following are examples of websites from other communities:

Metrolinx (Greater Toronto/Hamilton)
www.smartcommute.ca/en/home

Arlington, VA
www.commuterpage.com

Central Okanagan, BC
www.smarttrips.ca

Peterborough, ON
www.peterboroughmoves.com

The travel options website should contain the following items:

1. An updated version of the existing Commuter Map to include sidewalks, trails, cycling routes, transit routes and bus stop locations. Changes to routes in different seasons and weather information should be indicated.
2. A "travel cost calculator" that describes the cost of annual vehicle usage as compared to walking, cycling, and transit.
3. A trip finder that provides all the travel options from location to location.
4. A greenhouse gas emissions calculator that identifies the environmental impact of a resident's annual or lifetime vehicle usage.
5. A rideshare database that allows residents to enter planned trips into downtown and trips to/from neighbouring communities.
6. A work place travel plan template that provides instructions for employers looking to assist their employees in planning travel.
7. A section specific to tourists/visitors.
8. Links to further information on travel options in Whitehorse, including public transit, charter bus, taxi operators, airport schedules, and so on.
9. A database for employees to register for a Guaranteed Ride Home. (*Action 4.2*)
10. A section on reporting construction updates.

Action 1.4

Encourage Others to Get Involved

Promotion is a useful means to increase the exposure of sustainable travel options to Whitehorse residents. The City will work with stakeholders to host exciting events to educate about alternative transportation options and get more people walking, cycling and taking transit The City should allocate $100,000 a year towards promotional programs.

The following are some of the promotional events that could be delivered...

Develop Promotions that Specifically Target Walking, Cycling, Transit, or Carpooling

City meetings on Transit. A City meeting or CASM could be held on a bus to generate exposure to transit.

Cycling Skills Course. Offer a course combining classroom and on-road training to build cycling proficiency for both recreational and commuter cyclists. This should be targeted to major employers and local interest groups.

Transit Information Sessions. Can take place at the Canada Games Centre or neighbourhood meetings; held periodically throughout the year to keep residents up-to-date on transit changes and provide information to new residents.

Social Media. Use Twitter and Facebook to promote walking, cycling, transit and carpooling and alert commuters to route/service changes.

Individualized Marketing. Hold separate events for each neighbourhood to offer information to each interested individual on their travel options, and give suggestions to alternatives of using a vehicle. Tables can be set up around rooms which are attended by educated personnel and residents can approach a person and be given personalized information for their area.

Host "Try It" Events that Expose Residents to Unfamiliar Travel Options

Transit Week. Employers and businesses register in advance to receive discount bus passes and raffle tickets. May occur in the Fall.

Fare Discount Days. May be combined with other events when a single ticket is at a discounted rate, and pass holders may get into the event for free. Events may include special events, or ones that occur on a consistent basis.

Bike to Work Day/Week. A day or week where employees are encouraged to bicycle to work. The City provides information on cycling safety, etiquette and maintenance, and may provide prize incentives.

"Fat Tire" Bikes. Host an event to encourage "fat tire" bikes suitable for winter bike riding.

Example of a "fat tire" bike

Host Annual Events that Build Continuity

Winter Walk Day. Annual event where students and employees walk to school or work on February 6. Information is made available on safe walking in winter weather conditions.

Spring into Spring. Use non-motorized travel such as walk, jog, skip or bike for a week to promote daily physical activity, a healthier environment and safer streets. This should be promoted to schools, businesses and community groups.

Build Habits in Youth

Walking/Cycling School Groups. These "groups" establish friendships with other families in the neighbourhood and can help to reduce vehicle trips in peak school travel times. Coordination of these groups will be the responsibility of the schools in the City, although the TDM Coordinator may assist with initial set up and planning.

Cycling Education for Schools. Develop an information kit that teachers use to educate students on safe cycling routes and cycling etiquette. This can occur by cultivating the partnership between Education, Bylaw Services, and RPAY.

Action 1.5

Create Special Events Travel Plans

Concerts, sporting and community events occur throughout the year. Large events have potential to generate significant traffic and parking demand, which should be managed using travel plans. A special events travel plan program should be made available to assist event hosts to provide various travel options to event-goers. Plans should outline specific strategies to improve transportation options, manage transportation resources, communicate with the travelling public and address heavy traffic and parking demand. Transit programs should be promoted at all special events and city travel advisories. These programs and services take into account travel before, during and after the event.

Programs and/or services that can be implemented during a special event include:

Bicycle Valet. Provide a fenced area where bicycles are stored and supervised. Cyclists check their bikes with an attendant and receive a ticket to retrieve their bike, similar to a coat check. The valet should be located close to the venue entrance.

Increase Transit Service. Expand transit service to/from special events in anticipation of increases in demand. Funds needed for this to occur depends on the size of the event, but can vary from $5,000-$20,000.

Free/Discounted Transit. A one-time transit voucher may be included in the ticket price.

Carpool Parking. Provide preferential carpool parking spaces near the venue entrance. Arrangements can be made with private off-street parking to permit on-site carpool parking during an event.

Drop-off, Pick-up Zones. Provide designated drop-off and pick-up zones at the event or at a nearby location for people who are simply catching a ride.

Taxi Zones. Designate an area where taxis can come and pick-up event-goers. Staff should be at taxi zones to help coordinate taxi sharing for people who are going to proximate locations.

Social Media. Use social media to promote travel options such as transit discounts, parking cost/availability, and reiterate existing options (transit, cycling, taxi, etc).

Special Event Travel Plan
Rock the Shores, Colwood BC

Rock the Shores is a music festival in Greater Victoria, BC that attracts 10,000 people over two days. Anticipating transportation challenges, event organizers and the local municipality developed a plan to manage travel demand to/from the event, as follows:

- Bike valet service was provided and cyclists were offered priority entry through VIP gates
- Additional transit service was provided between the event venue and downtown
- A shuttle bus was offered to/from remote parking areas
- Drop-off and pick-up zones were identified
- Two priority parking areas were reserved for carpool vehicles
- Free parking areas were limited in the vicinity of the venue
- Event-goers were alerted to traffic congestion through the event website and social media, and information was provided on other travel options

Strategy no.2

Improve Active Transportation Options

2

Active transportation refers to travel by self-propelled means, typically walking, cycling, or winter activities including skiing. Facilitating active transportation not only achieve modal share targets, it provides for improved recreation opportunities and health and well-being.

The following actions are recommended to improve active transportation safety, reliability, convenience, and accessibility:

1. Develop a Trails + Active Transportation Plan
2. Improve Priority Routes between Neighbourhoods + Downtown
3. Review Maintenance Practices
4. Expand Bike Trip-End Facilities
5. Invest in Active Transportation Facilities
6. Engage Community Groups
7. Establish a Citizen Trail Maintenance Program

Action 2.1

Develop a Trails + Active Transportation Plan

An Active Transportation Plan ("AT Plan") should be incorporated into the upcoming Trail Plan Review and Revision; this consolidated Plan will outline the 25-year vision for active transportation in Whitehorse. The plan should focus on the active transportation network – sidewalks, trails, cycling routes, routes to/from bus stops, accessibility features – and may also re-iterate many of the programs and policies recommended in the TDM Plan. Priority routes should be identified that build on the City's existing facilities. Much of this work has been done by the City's Engineering, Planning, and Parks and Trails departments (see *Appendix B* for network improvements), but needs to be consolidated.

Budget for an AT Plan process is typically approximately $120,000, but may be less when coordinated with the Trail Plan review.

The Value of an Active Transportation Plan
Burns Lake, BC

The Village of Burns Lake prepared an Active Transportation Plan in 2009 that included a Village-wide sidewalk and trail network and emphasized the need to revitalize downtown along Highway 16. In 2012 the Village was able to coordinate the improvements with a highway resurfacing project planned by the Provincial Government, ultimately leading to external funding for the project that would have not otherwise been available without plans in-place.

In the short term, an appendix may be added to the Trail Plan to begin implementation of policies. The complete AT and Trail Plan will be developed in 2020.

Why Develop an AT Plan?

1. Inform all future City planning and design decisions.
2. Prioritize City investments in public active transportation infrastructure.
3. Coordinate active transportation investments with actions in other plans (parking, trails, TDM, transit).
4. Seek developer contributions and pursue external funding opportunities as they arise.

What Will the AT Plan Include?

- Future network maps that identify the 25-year sidewalk, cycling, and trail networks;
- Infrastructure design criteria for sidewalks, cycling routes, trails, signage, and lighting;
- Cost estimates for network improvements and funding options through land development and external grants;
- An implementation plan and timeline for network investments; and
- Opportunities for coordination with community groups and stakeholders.

Action 2.2 ◑

Improve Priority Routes between Neighbourhoods + Downtown

Priority proposed active transportation routes are identified between each Whitehorse neighbourhood and downtown. Routes may include sidewalks, trails, and cycling routes, and present links with public transit.

Routes below are proposed summer active transportation routes. Winter routes are similar except 4th Avenue will be replaced with 6th Avenue due to factors which affect snow plowing.

A draft inventory of active transportation network improvements are identified in *Appendix B*.

The following actions should be taken to improve and maintain the priority active transportation routes:

- Infrastructure investments are prioritized on these routes;
- Snow is plowed within 48 hours;
- Streets and sidewalks are swept once per month in the spring and fall; and
- Priority routes are promoted as key active transportation networks (signs, maps, etc).

Proposed Summer Active Transportation Routes

Neighbourhood	Routes to downtown	Distance to downtown (approx.)
Riverdale	Alsek Road, Lewes Boulevard, 4th Avenue	3 km
Takhini	Cassino Street, Range Road, Two Mile Hill, Chilkoot Way, 4th Avenue	4 km
Valleyview	Range Road, Two Mile Hill, 4th Avenue	4 km
Hillcrest	Park Lane Trail, Hamilton Boulevard, Two Mile Hill Road, 4th Avenue	6 km
Copper Ridge	Falcon Drive, Hamilton Boulevard, Two Mile Hill, 4th Avenue	8 km
Whistle Bend	Heiland Road, Mountain View Drive, Range Road, Two Mile Hill, 4th Avenue	9 km
Porter Creek	12 Avenue E, Mountain View Drive, Range Road, Two Mile Hill, 4th Avenue	9 km
Crestview	Alaska Highway, Wann Road, Mountain View Drive, Range Road, Two Mile Hill, 4th Avenue	12 km

Trails on Two Mile Hill (top) and Hamilton Blvd (bottom) are identified as important “priority active transportation routes”

Action 2.3

Review Maintenance Practices

Several City departments and NGO's work corroboratively to maintain the City's extensive network of trails, paths, roads and sidewalks. The City realized that the value attached to an improved active transportation network has increased and has since formed a dedicated Trails Team in 2013 made up of staff with specialized knowledge and experience. Maintenance is generally undertaken be operations, with assistance from the Klondike Snowmobile Association. Maintenance practices are outlined in the Snow and Ice Removal Policy and are reviewed annually by operations and passed by Council. This annual review mechanism provides the necessary tools to evaluate and alter the trails maintenance procedures and equipment needs to adapt to growth, changes in technology, winter conditions and best practices.

Paint Markings

Maintenance of Traffic Control systems is carried out in order to ensure control systems are in place to operate vehicular and pedestrian traffic safety and mobility. Traffic Control systems consist of traffic lights, traffic signs, street markings, parking meters and roundabouts. Paint markings is completed by Operations in conjunction with the Yukon Government.

The City of Whitehorse should include bike lanes and trail markings as a higher priority in their Transportation Maintenance Policy. Particularly those cycling and pedestrian ways that have the right-of-way when crossing with other transportation networks. Lines and markings should be in place by April each year once snow has melted, and streets have been swept.

Thermoplastic lines were used to designate school crossing walk ways and are being continually monitored to assess their effectiveness. Currently, the majority of road markings in Whitehorse are paint which can be worn away in 1 year from snow plowing.

Street Sweeping

Street and sidewalk sweeping is conducted in the Spring, Summer and Fall, as outlined in the Transportation Maintenance Policy. Sidewalks included in the Policy are those adjacent City properties/buildings. Sweeping is important as it provides safe, comfortable surfaces for walking and cycling.

The City should ensure proper enforcement of residential and commercial sweeping is taking place. Currently, a bob cat sweeper is used to sweep the paved trails; however sweeping of trails should be included as a higher priority in the Transportation Maintenance Policy.

Pothole Patching

Pothole patching is carried out on paved and BST roads either by hand placement of hot/cold asphalt mix to fill potholes or using a spray patch machine which fills the pothole with a mixture of liquid asphalt and granular material. Potholes are logged as they are reported by either City crews or public complaint and are then scheduled for repair. Potholes which are found on Active Transportation routes should be given priority for filling to make cycling/walking a safe means of travel. Operations can maximize efficiency by filling trail and road potholes at the same time.

Snow Clearing

The City provides snow clearing on sidewalks adjacent City property within 48 hours of snow fall, as per the Snow and Ice Control Policy. The City also provides snow plowing/blowing at bus stops within 48 hours of snow falling. Snow clearing/removal practices should not negatively impact walking and cycling routes.

The City should implement a winter active transportation maintenance program to provide residents with a safe, connected active transportation network in the winter months. Snow clearing practices will be included in the AT Plan. Residential and commercial snow clearing of their designated sidewalks should be properly enforced. Additional funds should be allocated for enforcement and increased snow removal. Maintenance program recommendations are as follows:

- Ensure that the snow removal policy is aligned so snow is not plowed onto walkways and bike routes;
- Routes identified in *Action 2.2* should be priority and plowed within 48 hours of snow fall;
- Purchase equipment appropriately sized and purposed to the task; and
- Keep transit stops accessible and free of ice and snow.

Action 2.4

Expand Bike Trip-End Facilities

The City currently provides long-term and short-term bicycle parking. Long-term bike lockers are available at the Canada Games Centre and locations in downtown - Second/Steele, Third/Steele, Third/Elliott, and Fourth/Main. Lockers are for day-use only on a first-come, first-served basis and cyclists are required to bring their own locks. Bike racks are located throughout Whitehorse. The Zoning Bylaw requires that most new developments considered commercial, multi family housing or institutional provide Class I and Class II.

The City should allocate $25,000 per year towards improving trip-end facilities.

Increase Trip-End Facilities at City Buildings

The quantity of bike parking should be increased at City buildings and parking lots. This will provide more facilities for City employees to participate in active transportation commuting. All new buildings should be equipped with shower and change facilities, as well as long term bicycle parking. All City buildings should be equipped with these facilities by 2020, and the City of Whitehorse will act as a leader to other employers in providing more options for their employees. It is recommended that the City draft a policy for the implementation of trip-end facilities at all City buildings. Current bike lockers are available for day use only; the City should allow overnight bicycle parking for all residents by 2016. Facilities should be designed with best practices, so that bikes are protected from inclement weather but not subject to thaw-freeze in the winter.

Bicycle parking should also be located at major transit stops including the downtown transit exchange and stops in Riverdale, Hillcrest, Copper Ridge, Takhini, Porter Creek and Whistle Bend.

Work with Employers to Provide Trip-End Facilities

The City should encourage employers to provide trip-end facilities as an added incentive to active transportation. Employers can partner with other nearby employers to share these types of facilities. The TDM Coordinator can match employers who are in close proximity with each other and initiate collaboration of the two (or more) to develop a management plan to share facilities, including costs, location, hours of accessibility and maintenance. The City may design and implement a TDM recognition program to acknowledge employers who implement TDM programs and measures.

Bike Parking in the Zoning Bylaw

The table to the right shows current short-term (Class II) and long-term (Class I) bicycle parking requirements in the City's Zoning Bylaw. Class I should be included in the table in the Zoning Bylaw and should explicitly outline a requirement for each specific land use, similar to Class II. Requirements may be increased in future to better provide for cyclist demand and in pursuit of the City's 6% 2036 cycling mode share target.

Bike Parking Requirements, City of Whitehorse Zoning Bylaw

Land Use		Required Supply (Class II)
Residential	Single detached, duplexes, townhouses	N/A
	Multiple Housing	1
	Living and Garden Suites	N/A
	Temporary Housing, B&B, Supportive Housing	N/A
	Housing for Senior Citizens	1
	Residential Care Homes	1
Commercial	Hotels	1
	Motels	1
	Offices, Health Services	1
	Business Support Services	1
	Retail (GFA < 1,000m2)	1
	Retail (GFA > 1,000m2)	2
	Manufacturing	1
	Gas Bars	N/A
	Eating, Drinking	1
Industrial	Vehicle, Heavy Equipment	N/A
Institutional	Senior Citizen Housing	1
	Funeral Services	N/A
	Schools, Colleges	6
Community, Recreational, Cultural	Child Care Centres	1
	Community Rec Centres, Convention and Sports Facilities	1
	Private Clubs	N/A
	Indoor Recreation	1
	Outdoor Recreation	1
	Libraries/Museums	1
	Religious Assemblies	1
Class I		
Multi-family Residential		1/dwelling unit
Office		1 / 300m ² GFA
Commercial		1/500m ² GFA

Action 2.5 ◑

Invest in Active Transportation Facilities

Investments in active transportation infrastructure is critical to improving the safety, enjoyability, and convenience of walking, cycling, and to a lesser extent transit use. Infrastructure investments should be prioritized across City departments and in coordination with community groups to maximize benefits. A list of priority network improvements is provided in *Appendix B*, although this list would be refined as part of a comprehensive Active Transportation Plan process (described in *Action 2.1*). The Parks and Trails department has an inventory of benches, signage, and bike racks. The City should build on this inventory and use it as a starting point to plan for new infrastructure. All main routes should be signed and completed in the short term, other trails should be improved in the medium term, and all new additions to the active transportation network will follow and meet designated standards. The City should use their funds currently allocated for infrastructure and invest more in active transportation. They should spend approximately $100,000 per year on improving overall active transportation infrastructure.

The following active transportation network items are identified:

Signs

Increase amount of signage particularly when trails connect with others, at the center of a neighbourhood or at a connection to transit. These signs can include:

- Trail name
- Distance to downtown
- Educational information about the physical environment
- Designate if it is an easy, moderate or difficult trail
- Identify the designated users allowed on the trail, and trail etiquette

The Trails Maintenance Policy outlines that trailhead signage and enroute signage be installed where appropriate for Type I, II, III trails, and interpretative signage be installed at established points of interest where appropriate for Type I, II trails. Current signage should be reviewed, and future signage will be installed that follow National Guidelines.

Lighting

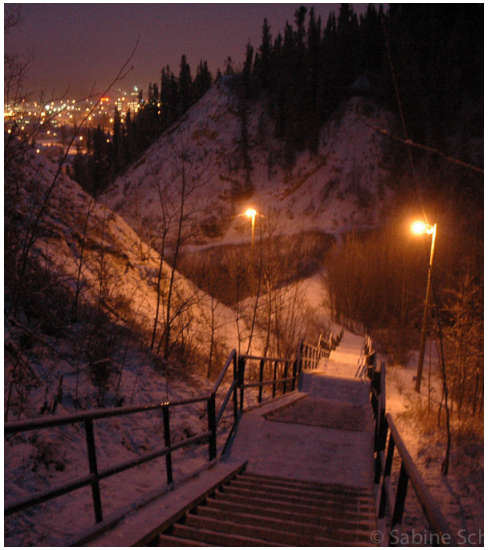
Increase lighting on each trail to improve the safety of the users. Priority should be given to those trails that are more likely to be used at night, particularly when people are getting off of work and are in walkable distance to their destination. More specifically, routes outlined in *Action 2.2* will be top priority. Lighting will be installed with a balance of limited light pollution, improved safety and energy conservation.

Benches

Increase the amount of benches to make trails and sidewalks a more comfortable, enjoyable environment for pedestrians and cyclists to sit down and take in their surroundings. The standards outlined in the Trail Plan should be used when planning for new benches.

Bike Parking

Increase the supply of bicycle parking. Focus long-term bike lock-ups in areas surrounding employment land uses and bike racks adjacent retail land uses. Consider simple covered bike storage to shield from rain and snow.



Previous investments in active transportation facilities include lighting on the Black Street stairs (top) and plantings and street furnishings on the Riverfront Trail (bottom)

The *ITE Promoting Sustainable Transportation through Site Design* can be used as a standard for best practices when planning for active transportation infrastructure.

Action 2.6

Engage Community Groups

Community groups have significant insight into issues facing their specific area of interest and represent a larger segment of the population concerned with similar issues. The City may expand the role and involvement of community interest groups in planning and designing public infrastructure. The amount of groups and committees in Whitehorse is a recognition to the importance of trails and mobility in the community. The TDM Coordinator should facilitate knowledge sharing, and assist in potential collaboration of these groups. Groups which may be involved are those with a specific mandate for walking, cycling and other related subjects.

These groups may be involved in the following ways to help assist in the implementation of the TDM Plan:

- Advisory role on the Active Transportation Plan (see *Action 2.1);*
- Consulted on trail design projects;
- Involvement in implementation of the Trail Plan;
- Outreach to residents regarding trail, cycling and other issues;
- Liaise with the City's TDM Coordinator (see *Action 1.1*).
- Consulted on cycling facility design projects;
- Consulted on pedestrian improvements;

Action 2.7

Establish a Citizen Trail Maintenance Program

Involving the community in trail maintenance offers the opportunity for community collaboration, cost savings, and outdoor activity. The City should establish a "Citizen Trail Maintenance Program" that is a voluntary agreement between the City and organizations, businesses, or individuals. Programs such as these allow citizens to feel empowered to communicate and take action regarding topics they are passionate about.

An example of a program that these groups could participate in include "Adopt-a-Trail Program"

Volunteer recruitment should be undertaken by the City's TDM Coordinator and a member of the City's Parks + Trail department should be the contact. Target groups may include:

- High schools;
- Service clubs;
- Youth and social organizations; and
- Large employers.

Some examples of duties include:

- Routine clean-up and maintenance;
- Report vandalism and hazardous litter to the City; and
- Communicate resident concerns and/or ideas for trail improvement.

Sample Adopt-a-Trail Programs:

- Barrie, ON
- Coquitlam, BC
- Hamilton, ON
- Niagara Falls, ON
- Oakville, ON
- Richmond, BC
- Squamish, BC

The Riverfront Trail is an example of a trail that the City should actively seek out an "adopt-a-trail" partner, as this route is important and particularly valuable to tourists in summer months

Strategy no.3

Improve Public Transit

3

Public transit presents a realistic alternative to private automobile travel because it provides accessible service for long and short commutes, is comfortable in inclement weather, and reduces wear and tear of starting a private vehicle in cold temperatures.

The following actions are recommended to improve public transit and enhance the transit customer experience:

1. Create a Long-Term Transit Plan
2. Continue to Expand Transit Pass Programs
3. Create a Formal Bus Stop Improvement Program
4. Improve the Downtown Transit Exchange
5. Improve Transit Service
6. Coordinate Transit Branding
7. Integrate the TDM Position into Transit

Action 3.1

Create a Long-Term Transit Plan

A long term transit plan will envision what Whitehorse's transit system will look like in 25 years and describe the services, infrastructure and investments needed to achieve that vision. It will enable the City to meet the needs of an increase in ridership in the future.

Why develop a long-term transit plan?

1. To inform all future City decisions related to transit.
2. Better prioritize City investments in public transit consistent with a long-term vision.
3. Provide better certainty in future transit service and routes to better coordinate with investments in TDM, active transportation, and land use planning.
4. Seek developer contributions and pursue external funding opportunities as they arise.
5. Develop ways to adequately use increased projected revenues.

The long-term transit plan should be developed with input from residents, community interest groups, and key transit market groups – schools, the College and major employers, etc. A thorough understanding of existing demographics, settlement patterns, and travel demand characteristics must be presented, as well as forecasted changes that will affect transit demand.

The Plan should include a clearly articulated vision and goals that provide a framework for the following:

- Potential route alterations, route expansion, or new routes;
- New service types, potentially higher-order services on key corridors or custom services in low-demand areas;
- Schedule expansion and/or growth in transit service hours;
- Bus stops and transit exchanges requirements;
- Emerging technologies and how they will be incorporated into the transit system; and
- An implementation Plan that presents costs, priorities, funding approaches, revenue and partnership opportunities.

The City should allocate $100,000 to develop this Plan.

What could a transit plan look like?

BC Transit is in the midst of preparing Transit Future Plans for all major systems in BC. These plans present a 25-year vision for transit in each community and an implementation plan to realize the networks, service hours, and infrastructure direction presented.

BC Transit's plans can be seen at - www.bctransit.com/transitfuture

Action 3.2

Continue to Expand Transit Pass Programs

In order to increase transit ridership, incentives are useful in attracting more riders. The most successful incentive is providing various types of transit passes targeted at different groups in the community. Whitehorse currently has transit pass discounts in their fees and charges bylaw, which are organized by type of group and amount of participants. The following programs could be considered to improve the type of current transit passes, and implement new innovative passes:

Employee Programs

The City of Whitehorse should improve their employee bus pass programs in order to increase ridership. The passes may be available for 6 months at a higher discount. The first month can be free as an added incentive. Transit passes should also be available to employees for business-related travel.

The large employers in Whitehorse should be targeted for this program as these groups stand to have the largest pool of riders, including Yukon Government, City of Whitehorse, Northwestel, Yukon Electric, and the Hospital. The TDM Coordinator may help to promote the use of transit passes to employees. This program is not well-used; however, it has the potential to gain more ridership in the future.

15

bus passes are sold each month to City employees

Resident Programs

The City should consider a transit pass program for new residential developments. This would entail bulk transit passes available to future residents at a discounted rate. Developers should be encouraged to pursue transit passes in their developments and consideration should be given to developer subsidies on transit passes for a fixed period of time as a "green" transportation initiative, perhaps in exchange for reduced parking supply. Consideration may also be given to a similar bulk pass program for existing multi-family buildings or single-family neighbourhoods.

Residential Transit Pass Program
Victoria, BC

BC Transit's "EcoPASS" program is available to all new multi-family residential developments in Greater Victoria. Under this program, each resident is entitled to an EcoPASS that grants unlimited transit use within the Victoria Regional Transit System. The developer pays the cash fare ($2.50) for each transit trip up to $85 monthly (cost of a monthly pass) for each EcoPASS holder. The developer is also responsible for administration and marketing costs of $15,000 in the first year and $10,000 in subsequent years. The length of the developer subsidy is in an agreement between the developer and BC Transit, but is typically two years.

Creative Fare Options

- Kids Ride Free. On Saturdays, an adult passenger can bring two children (12 and younger) on board for free. The program is available to parents and guardians who are 19 year or older with a valid fare.
- Expired Bus Pass Program. CGC and Takhini arena will accept an expired transit pass for a free visit to their facility. A box may be provided on the transit voucher that is "ticked off" if it has been used for the recreation centre. Transit promotes the program on board buses and recreation centres get new customers.
- Class Rides Free. Teachers may bring student groups on-board free of charge for field trips or other class outings up to twice a year. This may be offered through YTG Group Pass.
- Group Travel Rate. Discounted rate for people travelling in a group.
- Day Pass. Discounted rate for unlimited travel in one day.
- Shopping Discount. Customers may receive discounts at participating retailers with a monthly bus pass.

Action 3.3

Create a Formal Bus Stop Improvement Program

All bus stops must be planned to ensure that there are no safety risks for both transit patrons and transit operator, and that appropriate accessibility measures are provided to accommodate patrons of all ages and abilities. Adequate lighting that illuminates directly on waiting and surrounding areas is desired. Lighting requirements at bus stops should be no less than the lighting design requirements for the adjacent roadway. If installing bus shelters, they must be designed to be vandalism and graffiti resistant to decrease costs associated with re-building infrastructure. The City should provide safe, secure bike parking at major transit stops and stations. Valuing the people who ride public transit with proper provision of shelters and services is essential to increase ridership.

A comprehensive inventory of all bus stops should be conducted using the bus stop assessment tool. Each bus stop will be given an identification number and will be evaluated based on accessibility, sidewalk condition, level of passenger amenity, and lighting.

The City should commit to a $40,000 annual budget toward bus stop improvements from 2015 to 2019. A total allocation of $200,000 over five years will result in improvements at approximately 15 locations. Locations should be determined by conducting counts at all bus stops for 1 week at 4 different times in the year. Boardings will determine priority bus stop locations for investment. A hierarchy of improvements should be used when assessing bus stops which would be from simple improvements (installing a bench) to more comprehensive (transit exchange complete with a bench, shelter, bike rack, transit information) The City should work with Yukon College, businesses, and other potential partners to find cost effective and fun ways to share resources and ideas on new bus shelter design, creation, and installation.

At the end of the program, the City should re-evaluate to determine if it has met the objectives of supporting ridership increases and enhancing the customer experience. The City may choose to adjust funding levels based on the level of resident support.

The BC Transit *Infrastructure Design Guidelines* manual should be referenced when improving bus stops. The City may also consider creating additional guidelines to supplement the BC Transit document with consideration for local conditions.

9%
of Whitehorse bus stops have a shelter

Examples of good bus stop elements in Whitehorse, including a custom bench in Hillcrest, schedule at a stop in Porter Creek, and new shelter in Copper Ridge

Action 3.4

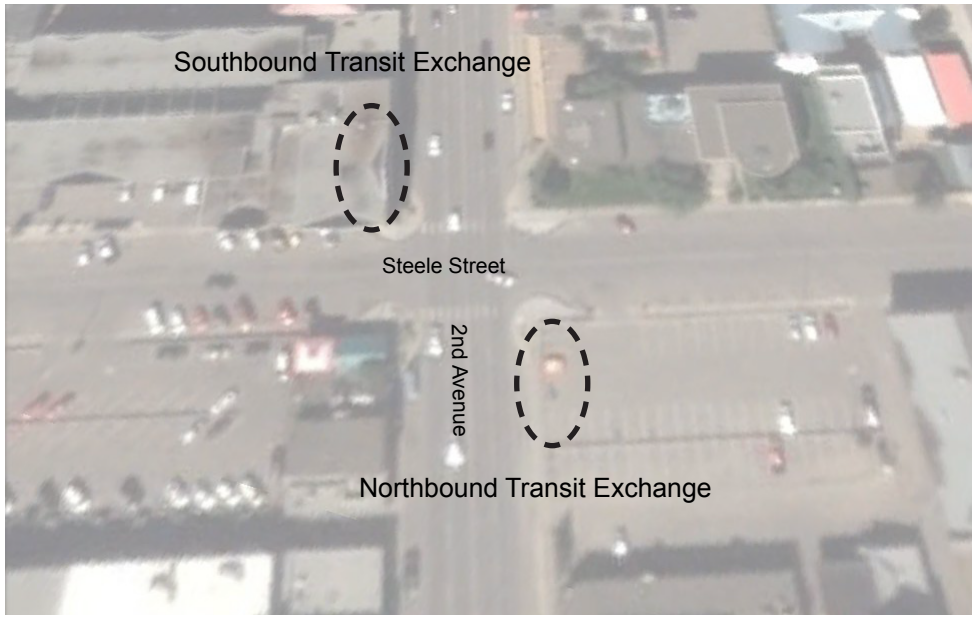
Improve the Downtown Transit Exchange

The image below outlines a potential location for a future downtown transit exchange. A downtown transit exchange will enable riders to have convenient access to all five routes at one centralized location. All future routes may converge at this location. Well-equipped transit exchanges will have shelters, benches, bicycle parking, waiting areas and transit information.

The current northbound downtown transit exchange is located on 2nd Avenue at Steele Street. It currently consists of two benches and a sign designating the location as a bus stop. This location should be improved in order to attract more riders. HandyBus parking is also being proposed at this location. It may be necessary to acquire space in the Steele Street parking lot to accommodate enhanced bus stop facilities. In doing this it can provide transit riders more space to wait for the bus, and the City can provide improved long term bicycle parking, short term bicycle parking, shelters, lighting, and transit scheduling information.

The southbound exchange may be located on the west side of 2nd Avenue. It may be necessary to remove on-street parking spaces which will provide adequate space to install a shelter, bicycle parking, benches, proper lighting, and transit information.

A detailed design would be required to confirm right-of-way / property allocation and final costs. Improvements are expected to be in the order of $100,000.



Action 3.5

Improve Transit Service

Understanding the current concerns and issues of transit service is essential in improving the system as a whole. Continual research on where and when people are going is important in changing routes and schedules. The following are options to improve the transit service.

HandyBus

Anecdotal evidence suggests that many HandyBus riders could ride the conventional system if they were supported. To facilitate this, a trip training program should be offered in partnership with accessibility organizations to reduce inappropriate use of the HandyBus system and allow the system to meet demand. This program will allow one-on-one consultation to discuss appropriate travel options to ensure individual needs are met.

Route/Schedule Changes

The City should implement a pilot study before finalizing any changes in the routing or schedules. Particular concentration should be paid to implementing more weekend service. However, changes in the routing and scheduling can be a long-term action as currently the system is adequate for the demands of the riders.

Transit Support for Special Events.

Certain transit stops can have unique names during special events (such as those identified in *Action 1.4*); businesses may also list which transit stop is closest to their store on the City's website to further promote transit as an easy and accessible alternative to driving, particularly during special events.

Winter Flagging Program

The City may explore a winter flagging and drop off system in between stops. Particular consideration will be given to country residential areas, and during off-peak times. Information about this program should be posted at major transit stops, in buses, and on the website.

Long Term Considerations

Long term transit alterations need to be recognized and be considered once these programs become necessary; particularly once population and therefore ridership increases substantially. These considerations with an estimated population threshold include:

- Bus only lanes. Lane restricted to buses on certain days and times, and generally used to speed up public transit that would be otherwise held up by traffic congestion. Population threshold- 75,000-100,000.
- Transit Priority Traffic Signals. When this traffic signal is activated, only transit buses may proceed through the intersection. This allows the bus to "jump" ahead of the regular traffic. Population threshold- 100,000-125,000.
- Queue Jumper Lanes. Provides preferences to buses at intersections. It is usually accompanied by a signal which provides a phase specifically for buses within the queue jump which get a "head start" over other queued vehicles. Population threshold- 100,000-125,000.
- Transit with Wi-Fi. Wi-Fi can be offered on buses or at bus stops. Population threshold - 35,000-50,000.
- Real Time Scheduling. Provides information about transit delays and arrival times which can be available on the internet, a smart phone app, or at major transit stops. Population threshold - 50,000.
- Interactive Map. A person can access this map online, and click on a transit stop and information will pop up regarding what routes go there, types of infrastructure (shelter, bench, bicycle rack), if it is accessible and other pertinent information. It can be an integrated platform across all modes-cycle routes, transit routes, walking times, topography, bicycle parking. Population threshold- 50,000.

Success Story: Improved Transit Software
Whitehorse, YT

Whitehorse obtained a Novus-DR, Trapeze demand response software solution which aided them in call taking and dispatching for the HandyBus service. It offers reporting functions to make it easier for the Transit Manager to produce performance and overview reports and follow up on client complaints. Before, Handy-Bus employees had to count ridership and other performance indicators by hand and then annually input those numbers into spreadsheets. Now, this is an automatic function. The software suggests alternative routes and makes it more possible to transport more clients, saving time and fuel costs.

Action 3.6 ◑

Coordinate Transit Branding

The purpose of branding Transit is to shape social and individual perceptions of transit as a convenient, efficient, safe and reliable service.

The City should secure a marketing firm to help create a brand for the Whitehorse Transit System. This branding program should produce:

- Name
- Logo
- Unique color combinations
- Graphics

These features should be created to best represent the City of Whitehorse and their values. They should be created to universally target all residents. To promote these branding features the following should be considered:

- Branding on vehicles
- Branding at transit exchange
- Branding at bus stops
- Branding on signage
- Promotional materials
- Advertising

Action 3.7 ◑

Integrate the TDM Position into Transit

The City's transit department consists of a Transit Manager and Dispatcher. These two positions have assigned duties and have limited time/resources to expand their responsibilities to take-on the additional actions identified in this Plan.

The City should hire a TDM Coordinator (see *Action 1.1*) and allocate some of their duties to transit. Revenues which are above the cost-recovery target should be reinvested in improving transit. The TDM Coordinator will manage the branding program (see *Action 3.6*) once completed by a consultant. The TDM Coordinator will also organize and administer transit promotional events which can coincide with active transportation promotional events.

Bus racks on buses have allowed for multi-modal trips where a bus rider takes the bus one direction and rides their bike the other. This is particularly appealing for cyclists unwilling to ride their bike up steep hills such as Two Mile Hill or Mountainview Drive.

Strategy no.4

Support Employees to Use Alternative Travel Modes

4

Employee travel planning includes both how employees commute to and from work, as well as employees on work-related travel. Commuters are a captive audience with relatively consistent travel behaviour that can be targeted en masse to influence change. As such, they are a critical TDM target audience.

The following actions are recommended to support employees to use alternative travel modes:

1. Explore Alternative Work Arrangements
2. Create a Guaranteed Ride Home Program
3. Make Alternative Modes More Attractive Than Driving to Work
4. Green the City's Vehicle Fleet
5. Offer a Fuel Efficient Driver Training Program

Action 4.1

Explore Alternative Work Arrangements

Perhaps the most impactful travel demand strategy is reducing or eliminating the need for physical travel altogether. This program may require changes in management practices that reduce the need to have employees physically together at one time, including more outcome-oriented management practices, and increase use of electronic communication to compensate for reduced face to face interaction.

The City should promote alternative work arrangements and provide support to any organization wishing to pursue them. Pilot programs can be conducted to assess whether these programs would be accepted by employees in the public and private sectors. Options are as follows:

Teleworking

Allows an employee to work outside their usual work place reducing their need to travel to the office. Teleworking can be promoted for occasional or full-time use depending on the needs of the employer and implications to the business.

Remote Access/Video Conferencing

Is used in place of in-person meetings reducing travel during the day for employees. Purchasing software/hardware and providing training/support for web-based meetings and conferences is necessary. Video conferencing can also reduce or eliminate off-site trips needed to conduct business.

Compressed Work Week

Employees work fewer but longer days to reduce the total number of vehicle trips and eliminate time spent commuting. A compressed work week involves nine days working an extra 45 minutes each day and the tenth day off.

Flexible Work Schedule

Employees are allowed some flexibility in their daily work schedules. This spreads out travel demand over time, but does not reduce overall demand. Instead of all employees working 8:00-4:00 pm, some employees may work 7:30-3:30 and others 9:00-5:00. This also allows for better timing for transit schedules which will reduce demand.

Action 4.2 ◑

Create a Guaranteed Ride Home Program

A guaranteed ride home program can be available to those employees who regularly use alternative transportation modes to get to work such as walking, cycling, transit, carpool or vanpool. In an event of an emergency the employer will provide the employee with a free means of getting home to attend to this emergency. This allows the employee to feel more confident in their alternative transportation choices, knowing that they can get to their destination quickly if necessary. An agreement with local taxi companies such as Yellow Cab will occur for the successful implementation of this program. A discount may be given to the larger employers who purchase vouchers in bulk. An important feature of this program will be liasing with Yellow Cab to allow bicycles to be brought in the taxi; in the case the employee cycled to work that day.

Interested City of Whitehorse employees can register on the travel options website and track when they use alternative transportation modes. Once registered, employees will then be e-mailed vouchers in the case that they need a ride home.

Employers in the City should be encouraged to provide this program to their employees. If an employer is interested, they can register on the travel options website and encourage their employees to register as well. As an incentive, employers who participate will be given 5 free vouchers which will be paid by the City, to use as a "trial period"; as this program is seldomly used those 5 vouchers may not even be used in 1 year. This program will be seen as a cheap, yet important program to implement.

Action 4.3 ◑

Make Alternative Modes More Attractive Than Driving to Work

Providing incentives to employees for participating in alternative transportation modes will increase the interests of targeted groups. The City should work with employers to provide employee travel incentives. These programs may include the following:

Employee Travel Allowance

A financial payment provided to employees instead of parking subsidies. Commuters can use this money to pay for parking or for another travel mode (transit pass, cycling equipment etc.)

Company Travel Reimbursement

Policies that reimburse bicycle or transit mileage for distance to and from business trips

Cash for Commuters

Rewards commuters who shift from single occupancy vehicles to alternative transportation modes. The program can give employees $3 for every day they use these options, up to $100 over a designated time frame such as 40 days.

Green Business Recognition Program

Joint initiative between the City and the Chamber of Commerce. This program will recognize businesses in Whitehorse who have implemented strategies to reduce single occupancy vehicle use and have adopted sustainable transportation alternatives. This can include creating a trip-end facility at their workplace to encourage employers to cycle or walk to work. Providing this facility enables employees to rely on alternative transportation modes and be ready to work for the day.

Other programs could include random prize days, or a monthly draw for a grand prize.

Action 4.4 ◑

Green the City's Vehicle Fleet

The vehicle fleet is used by employees who are employed by the City of Whitehorse. The City currently has 114 vehicles. The City should consider greening their vehicle fleet by exploring the use of alternative fuels, improving operations fleet standards, and purchasing new vehicle types and technologies.

The City should create a green fleet plan in collaboration with the Federation of Canadian Municipalities. The plan should outline two main goals including optimizing vehicle use and efficiency and increasing the use of alternative fuels and sustainable technologies.

The green fleet plan should include:

- A fleet and fuel management system that identifies and evaluates fuel usage, asset tracking, vehicle right-sizing and life cycle optimization;
- A preventative maintenance program that consists of scheduled inspection and follow up repairs to vehicles and equipment with the goal of decreasing on-road breakdowns and excessive downtime;
- Training and educational programs designed to keep technicians updated of new technologies and procedures and to educate drivers about fuel-efficient driving practices (See *Action 4.5*);
- Policies and procedures that encourage green practices;
- The use of hybrid vehicles such as diesel electric or gasoline-electric; and
- The use of alternative fuels such as biodiesel or ethanol.

The City should also encourage this program to major employers to implement.

Action 4.5 ◑

Offer a Fuel-Efficient Driving Program

Fuel efficient driving is a practice intended to improve fuel economy in automobiles. The City should provide a course in which they provide training to City employees and could be offered to larger businesses on ways to drive more fuel efficiently, to and from work and as well as at work.

The benefits of this initiative may include:

- Fuel savings of 20%-30%
- Greenhouse gas emission reductions
- Financial savings on gas and vehicle maintenance
- Safer for driver, passengers and other traffic

.

Strategy no.5

Maximize Existing Vehicle Infrastructure + Discourage Single-Occupant Vehicles

5

Congestion is a reality when driving in any municipality, but can be reduced by increased use in alternative travel options. The City will continue to accommodate vehicles, but prioritize opportunities for shared vehicle travel and more fuel efficient vehicles.

The following actions are recommended to maximize existing vehicle infrastructure and discourage single-occupant vehicle:

1. Manage Parking
2. Calm Traffic
3. Increase Congestion Thresholds
4. Pursue a Carshare Program
5. Implement Electric Vehicle Plug-Ins
6. Create a Priority Parking Program
7. Allocate a Portion of Gas Tax Funds to TDM

Action 5.1 ◑

Manage Parking

Parking management is an integral piece of TDM. No amount of incentives or promotion of alternative transportation options will result in positive change without the corresponding shift in parking management to manage supply, pricing, and convenience.

The *Downtown Parking Management Plan* was completed in 2011 and identifies management options for public on-street and off-street parking supplies in the downtown area. The City has made progress in implementing the recommendations of the Downtown Parking Management Plan.

The following recommendations are brought forward for consideration in the TDM Plan.

On-Street Parking

- Consult with Persons With Disabilities Advisory Committee on parking needs;
- Alter on-street parking restrictions to limit all-day parking on-street;
- Continue to implement the residential parking program to limit downtown spillover;
- Pursue 'first hour free' program for downtown customers;
- Promote the tourist parking pass;
- Identify 'priority' spaces for carpool, micro vehicles, and carshare vehicles;
- Acquire new hand-held parking enforcement technologies;
- Replace conventional parking meters with new 'pay-by-space' kiosks; and
- Develop a downtown parking map.

Off-Street Parking

- Identify options to increase long-term off-street parking supply;
- Discontinue monthly parking passes in favour of daily passes; and
- Offer reduced rates in future, peripheral off-street parking lots.

Policies + Regulations

- Use Parking Development Reserve Fund for sustainable transportation (see *Action 6.6*); and
- Favour parking supply variances on downtown residential proposals.

Action 5.2

Calm Traffic

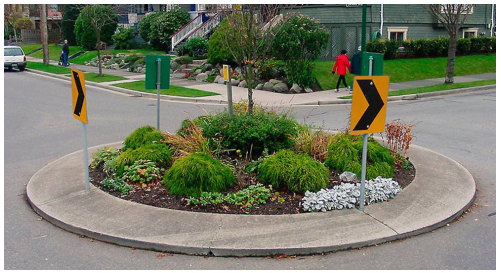
Traffic calming is the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behaviour, and improve conditions for non-motorized street users. Traffic calming is used on streets to retain their intended function by achieving one or more of the following objectives:

- Reduce vehicle travel speeds
- Reduce traffic volumes
- Discourage neighbourhood short-cutting
- Minimize conflicts between vehicles and other street users
- Generally improve the neighbourhood environment

The City should develop a Traffic Calming Policy that identifies applicable traffic calming devices, clarifies where traffic calming will and will not be installed, and creates a budget and/or process for pro-actively installing traffic calming in areas of need.

Summary of Traffic Calming Types + Common Devices

Device Type	Description	Common Devices
Obstructions	Features that obstruct vehicle movements. They discourage short-cutting (depending on the type/number of features), reduce conflicts, and enhance neighbourhoods. These devices can be restrictive to vehicle movements.	• Direct closure, full closure • Diverter • Right in/right out • Channelized intersection • Raised median
Vertical Deflections	Features that require a motorist to reduce speed due to surface variation. The primary benefit is reduced vehicle speeds, and secondary effects are decreased traffic volumes and conflicts, and enhanced walking corridors.	• Raised crosswalk • Raised intersection • Speed hump • Speed cushion • Textured crosswalk
Horizontal Deflections	Horizontal deflections require a motorist to alter their direction or choose a different route. They can be used to reduce short-cutting, reduce vehicle speeds, or conflicts.	• Chicane • Curb extension • Curb radius reduction • Raised median • Traffic circle
Signage	Signage features regulate traffic movements within a neighbourhood; however, signage has a limited impact on modifying behaviours.	• Maximum speed sign • Turn prohibition sign • Traffic calmed neighbourhood sign
Technology	Technologies are used as traffic calming to communicate a message to motorists about the intended use of a street.	• In-ground lighting • Radar message/speed reader sign



Common traffic calming devices include a traffic circle (left) and curb extensions (right)

Action 5.3

Increase Congestion Thresholds

Traffic operations are typically described in terms of levels of service ("LOS"), which describes the level delay experienced by motorists. Large urban centres (i.e. Vancouver) typically consider a LOS D or E acceptable because drivers have developed a tolerance for congestion, while smaller, rural communities typically use LOS C/D as acceptable because they are less tolerant of congestion.

The City should re-evaluate the LOS threshold used to assess intersection capacity. Accepting a higher level of congestion before intersection improvements are pursued will require less capital investment in road infrastructure and the potential to allocate resources to active transportation and public transit facilities.

Description of Intersection Levels of Service (LOS)

LOS	Average Control Delay (seconds/vehicle)	
	Unsignalized	Signalized
A	< 10	<10
B	11 - 15	11 - 20
C	16 - 25	21 - 35
D	26 - 35	36 - 55
E	36 - 50	56 - 80
F	> 51	> 81

Action 5.4

Pursue a Carshare Program

Car sharing involves individuals who purchase membership into a fleet of shared vehicles and pay a time- and distance-based fee each time they use a vehicle. The carshare organization is typically responsible for vehicle maintenance and fueling, leaving little of the responsibility to the individual. Car shares often operate as a cooperative, but may also function as a not-for-profit or for-profit enterprise.

Car sharing is becoming increasingly popular among individuals and households with lower car ownership. Below are some of the scenarios where access to a carshare vehicle is beneficial:

- Individuals without a vehicle conducting large shopping trips;
- Individuals without a vehicle taking weekend getaways;
- Single-vehicle households on days where both parents require a vehicle; and/or
- Individuals or households that require a passenger van or small truck for moving.

The City should assess the level of interest in a carshare service. As an example, a feasibility study was completed in Saskatoon developed a feasibility study for their Carshare Co-operative that may be used as reference during the pilot project.

The City can also explore the oppurtunity to implement a bikeshare program. The pilot program can be a combination of carshare and bikeshare, which may be popular given the growing interest in cycling. Any such system should include a supply of "fat tire" bikes to accommodate winter cycling.

Nelson Carshare Cooperative
Nelson, BC

The Nelson Carshare Cooperative was established in 2001, and is now known as the Kootenay CarShare Cooperative with over 200 members. Each member pays a $500 fee which goes towards maintenance and insurance, and must sign up for at least 6 months. There are additional monthly fees for each member which depends on usage. This program was successful due to the advertising and educating about alternative transportation options in the City. Partnerships were developed with non-profit organizations and small businesses to promote the program.

For more information visit www.carsharecoop.ca

Similar to a Carshare program, a Carpool program can be implemented in the City. A carpool match tool will be included on the travel options website, which can match those people with similar origin and destinations. This is also a good program to implement with employees.

Action 5.5

Implement Electric Vehicle Plug-ins

An electric vehicle charging program should not be a top priority in Whitehorse, but rather a long-term goal in providing more alternative transportation options for residents. Currently, burning diesel to produce electricity does not merit implementation of EV plug-ins. EV infrastructure should only be considered when there is sufficient, reliable green power available.

There are some concerns with electric vehicle plug-ins in northern communities. Cold batteries do not accept charging energy as easily as they do when warm, and therefore uses more energy. A portion of an all-electric vehicle must use some of its battery energy to power items such as the cabin heater, and defroster. An option is to plug into a block heater overnight which could keep the engine warm enough to start the next morning and will also increase the range. Vehicles can be charged though a conventional outlet.

Action 5.6

Create a Priority Parking Program

Priority parking spaces are parking spaces in the most sought-after locations that are reserved for vehicles exhibiting behaviours desired by the City. Preferential spaces may be considered for:

- Carpool, vanpool or carshare vehicles with a minimum number of passengers, often reserved up to a certain time after which time they revert to general parking.
- Micro vehicles measuring 4-meters or less.
- Electric vehicles and "green" vehicles meeting minimum emissions thresholds.

The City should pursue the priority parking policy recommendation of the Downtown Parking Management Plan. Priority spaces should be designated by signs in parking lots and consideration should be given to identifying spaces at public lots, particularly at busy locations such as the Canada Games Centre.

The TDM coordinator can create a toolkit for major employers and businesses to help communicate and implement priority parking, and will include the City's successes to date from their priority parking program. Particular concentration will be paid to organizations with parking lots which are at their maximum capacity daily. In time, the City may include priority parking as a requirement in Zoning.

Action 5.7

Allocate a Portion of Gas Tax Funds to TDM

Currently, a fuel tax is in-place in Whitehorse, administered by the Yukon Government. Funds are put into the Territory's Fuel Tax Reserve Fund and is distributed to local governments to fund projects that contribute to cleaner air, water and reducing greenhouse gas emissions. Eligible project categories include: Public Transit, Water, Wastewater, Solid Waste, Community Energy Systems, Active Transportation Infrastructure and Building System Improvement. It is recommended that the City allocate a portion of any funds they receive from the Gas Tax Fund towards implementing a TDM program. The fuel tax rate in the Yukon is significantly lower than other Provinces and Territories (see table).

Summary of Canadian Fuel Taxes, by Province/Territory

	Gasoline (cents/litre)	Diesel (cents/litre)
Yukon	6.2	7.2
Northwest Territories	10.7	9.1
Nunavut	6.4	9.1
Newfoundland + Labrador	16.5	16.5
Ontario	13	n/a
Quebec	18	19
Nova Scotia	15.5	15.4
Average	**12.3**	**12.72**

Strategy no.6

Encourage Supportive Land Use

6

A critical relationship exists between land use and transportation. Thoughtfully planned land use at the site and regional level enhances the attractiveness, convenience, and safety of alternative travel modes, while not compromising the vehicle travel efficiency. At the same time, providing high quality sustainable travel options can encourage those who work or live in the area to make sustainable travel choices. New investments in infrastructure and services must be strategically planned in conjunction with land use to minimize travel distances and expand the mixture of land uses located within close proximity.

The following actions are recommended to encourage land use patterns that support walking, cycling, and transit:

1. Regulate TDM
2. Establish an Unbundled Parking Policy
3. Create "Complete Streets"
4. Develop a Sustainable Transportation Checklist
5. Develop a TDM + LEED Credit Program
6. Authorize Use of Parking Development Reserve Fund for TDM Initiatives

Action 6.1 ◑

Regulate TDM

Rather than rely on developer contributions or negotiating TDM into future development, consideration should be given to altering development regulations to mandate TDM in new developments, as follows:

Bicycle Facilities

Bicycle trip-end facility requirements may be included in the Off-Street Parking section of the City's Zoning Bylaw that are complementary to bicycle parking and include lockers, change rooms, and showers. Several municipalities in Western Canada require trip-end facilities in their zoning bylaw. These requirements typically consists of shower and change rooms, although requirements are dependant on type of land use and size of development.

Electric Vehicles

Electric vehicle ("EV") charging infrastructure could be required in the Zoning Bylaw - the inclusion of EV charging infrastructure and/or the capacity for future electric vehicle infrastructure.

As an example, the City of Vancouver requires that 20% of a site's parking supply must have a receptacle for vehicle charging and that the electrical room must include enough space to accommodate any equipment necessary to provide charging for all residents in the future.

Reduced Parking Supply

Parking supply reductions may be granted where occupants are expected to exhibit lower parking demand than would otherwise be expected because of the presence of alternative travel options. A parking study conducted by a qualified professional should be prepared to justify the reduction. Reductions may be sought for the following conditions:

1. High rates of walking is expected because of proximity to downtown employment and shopping/services.
2. High rates of cycling is expected because of reasonable cycling distances to downtown and/or proximity to high quality cycling routes.
3. High rates of transit use is expected because of proximity to frequent transit routes with direct service to downtown and/or other significant destinations.
4. Additional TDM measures are proposed that are expected to result in lower parking demand than otherwise expected.

Action 6.2

Establish an Unbundled Parking Policy

Typically multi-family residential developments include at least one (1) parking space with the purchase of a unit. This provides little incentive for residents to use alternative travel modes and often results in excessive parking supply.

'Unbundled' parking is a multi-family residential unit being sold without a parking space and providing the option to purchase or rent a space. As an example, a multi-family residential unit that would have sold for $200,000 with a parking space is sold for $180,000 with the option to purchase a parking space for an additional $20,000. This can also be applicable to rental units.

The City should pursue the unbundled parking policy recommendation in the Downtown Parking Management Plan. This would encourage land developers to pursue unbundled parking in their developments. It will also give direction to the City to restrict public parking surrounding the site to limit spillover and mitigate any adverse effects on surrounding areas.

Action 6.3

Create "Complete Streets"

A "complete street" is designed for all ages, abilities, and modes of travel. On complete streets, safe and comfortable access for pedestrians, cyclists, transit users and the mobility-impaired is not an afterthought, but an integral planning feature. A complete streets policy ensures that transportation planners and engineers consistently design and operate the entire street network for all road users, not only motorists. The built environment is the ground work and structure that either facilitates or hinders mobility in the long term and effects health, businesses and the environment.

Complete Streets Policy

A "complete streets" policy should be developed that formalizes the City's intent to plan, design, operate and maintain streets so they are safe for all users of all ages and abilities. The policy will include facilities for pedestrians, cyclists, transit, and vehicles, only that each mode is considered and facilities are provided where appropriate. A few examples:

- High-quality, accessible bus stops will be provided as part of any new street or street improvement along an existing or future transit route.
- Sidewalks or appropriate pedestrian facilities should be provided as part of any new street or street improvement, or provide right-of-way width in case sidewalks are needed in future.
- On-road or roadside cycling facilities should be provided as part of any new street or street improvement, or provide extra width in case cycling facilities are necessary in future.

Complete Streets Guidelines

Complete streets design guidelines should be developed that give guidance to what a complete street will look like and how each travel mode is accommodated. This will help the City design and build both new and retrofit streets.

Reference:
Edmonton Complete Streets Guidelines

www.edmonton.ca/city_government/documents/RoadsTraffic/Edmonton-Complete-Streets-Guidelines_05062013.pdf

Complete Streets Pilot Project

Consideration should be given to a "complete streets" pilot project to demonstrate the value and importance of integrating complete streets principles into street planning and design. Candidate corridors include Ogilvie Street and 2nd Avenue, although both should be confirmed prior to proceeding.

Action 6.4

Develop a Sustainable Transportation Checklist

Effective site design enhances the attractiveness, convenience, and safety of walking, cycling and transit, while not compromising the efficiency of vehicle travel. Conversely, if a site is not designed to provide access for sustainable transportation modes, users could be significantly discouraged from its use—a preventable situation given the level of information currently available.

The body of knowledge around site design to encourage sustainable transportation is based on the Institute of Transportation Engineers ("ITE") Promoting Sustainable Transportation Through Site Design. A checklist entitled "Site Planning for Sustainable Transportation" has been created and included in *Appendix C* based on the detailed guidelines in the ITE guide and OCP policies. The City should use the checklist pro-actively with prospective land developers to communicate the elements that the City wishes to see in development relative to sustainable transportation. The City may use the checklist when assessing development proposals and as criteria against which Council may consider a development's merit.

The City may also use the checklist to form the basis for existing side audits and proposed ehancements, or as a monitoring/reward program.

Action 6.5

Develop a TDM + LEED Credit Program

Transportation and TDM measures provide an opportunity to gain points toward Leadership in Energy and Environmental Design (LEED) certification in new construction and neighbourhood development.

LEED Credit options in new construction include:

- Public Transportation Access (3, 6 credits)
- Bicycle Storage and Changing Rooms (1)
- Low-Emitting and Fuel-Efficient Vehicles (3)
- Parking Capacity (2)

LEED credit options in neighborhood development include:

- Locations with reduced automobile dependence (7)
- Bicycle network and storage (1)
- Reduced parking footprint (1)
- Street network (2)
- Transit facilities (1)
- Transportation demand management (2)

The LEED system also offers the opportunity for "Innovation in Design" credits for the provision of sustainable features unaccounted for in the basic credit options. Additional sustainable transportation and TDM measures are one method to obtain these credits. City Planning staff should work with developers seeking LEED accreditation to use some of the TDM actions in the TDM Plan to obtain innovation credits.

Action 6.6

Authorize Use of Parking Development Reserve Fund for TDM Initiatives

The City's Parking Development Reserve Fund provides funds to finance future land, building, and other parking-related capital costs. To-date, funds have been used on parking meters, asphalting / improving parking lots, feasibility studies, and temporary parkade facilities. The reserve fund is financed by parking meter revenues, revenue from City parkades, and development cash in-lieu monies.

Territorial legislation permits the City to accept cash in-lieu of parking spaces and states only that the City must define the conditions for withdrawl from the reserve fund. Accordingly, the City should alter the "Purpose, Criteria, Conditions for Use" portion of the Reserve Fund Bylaw to permit the use of funds for capital costs of projects related to parking or sustainable transportation modes. Applying reserve fund monies to sustainable transportation provisions will encourage walking, cycling, and transit, and decrease demand for parking facilities.

For more information on LEED certification visit the Canada Green Building Council website - www.cagbc.org

5. Implementation Plan

5.1 The City as a TDM Leader

The City of Whitehorse is both the municipal government and one of the larger employers in Whitehorse. Recognizing this dual role, the City will demonstrate leadership in the implementation of this Plan with the hope that demonstrated successes will encourage more wide-spread participation by other levels of government, community groups, employers, and residents. Among others, the City is committed to the following actions:

- Construct cycling trip-end facilities at all City buildings;
- Continue expanding bulk rate and discount transit pass programs to encourage transit ridership;
- Organize special events periodically throughout the year;
- Allow for alternative work arrangements;
- "Green" the City's vehicle fleet; and
- Continue managing downtown parking to ensure demand is met, but also encourage sustainable commuting and reduce parking and traffic demand.

Whitehorse residents were asked in a 2008 citizen survey what the role of the City should be regarding sustainability and **65%** indicated...

"Lead by Example"

5.2 A Collaborative Approach to TDM

A partnership for TDM will provide opportunities for the City and stakeholders to collaborate on implementation of the TDM Plan. The partnership will collaborate all resources together to ensure the consideration of the components of the TDM plan are occurring in a manner which would allow for maximum benefits.

This partnership will address these commitments, expand on them and create new ones.

Partnership opportunities include:

- Yukon Government, Climate Change Secretariat
- Yukon Government, Departments of Highways + Public Works
- Downtown employers
- Chamber of Commerce (representing employers)
- Land developers
- Yukon College
- Yukon Department of Education
- Yukon Energy
- Recreation and Parks Association of the Yukon
- Parking and TDM Task Force

5.3 **Five Big Steps**

The TDM Plan identifies a comprehensive set of actions to guide the City toward an improved multi-modal transportation system. While all action items are important in realizing this vision, the following are the "big ticket" items that are expected to yield the greatest benefit.

1. Coordinate TDM

A TDM Coordinator should be hired to carry out the recommendations of this plan, organize the City's own internal TDM efforts, and liaise with Whitehorse employers and residents. Efforts will be made to create a "partnership" with stakeholders to aid in TDM uptake and a website and promotional materials will be developed to ensure information is readily available.

2. Expand Public Transit

Public transit should be improved as an efficient, desirable alternative to vehicle travel. Service expansions should better meet resident needs with more frequent service and broader service coverage. Enhanced transit stops and an improved downtown exchange will improve the user experience, while expanded pass options will ensure transit is a more economical and desirable travel option for more residents.

3. Broaden Employee Travel Options

Commuters are a major target group for various TDM initiatives. In making alternative travel options more easily accessible to government employees as well as employees in the private sector will ensure TDM is being promoted throughout the City of Whitehorse. Having initiatives such as a Guaranteed Ride Home program, trip-end facilities, and alternative work arrangements can give employees the resources to make the decision to use alternative transportation.

4. Invest in Active Transportation

The City should increase its investment in walking and cycling facilities. A comprehensive network plan should be developed to identify and prioritize infrastructure investments and priority routes should be identified so that every Whitehorse resident is connected to downtown via high-quality sidewalks, bike lanes, and trails that are swept, maintained, and clear of snow.

5. Promote Future Sustainable Developments

All new developments should be encouraged to include sustainable practices in order for Whitehorse to be geared towards a sustainable future. Developers can include trip-end facilities, electric vehicle charging infrastructure, and parking supply reductions due to close proximity to amenities, bicycle routes and transit routes in their plans. Developers are also encouraged to use LEED certification to improve the integrity of their development.

5.4 Action Plan

The action plan summarizes all action items from *Section 4* of the plan and the timeframe for implementation, roles/responsibilities, resource requirements and expected impact on modal shift.

Timeframe

- Short-term, 2 years
- Medium-term, 2-5 years
- Long-term, 5+ years

Resources

- Significant resources
- Moderate resources
- No resources

Expected Impact - estimated resulting shift to sustainable modes

- High Impact
- Medium Impact
- Low Impact

Cost

- **$** $0-$100,000
- $$ $100,000-200,000
- $$$ $200,000 +

Action	Timeframe	Roles		Resources			Expected Impact	Estimated Cost
		Primary	Secondary	Capital	Staff	Study		
Strategy 1. COORDINATE TDM DELIVERY + EXPAND AWARENESS OF TRAVEL OPTIONS								
1.1 Hire a TDM Coordinator	Short-term	City- Sustainability		Low	Significant	Low	High	$
1.2 Create a TDM Partnership	Short-term	City- Sustainability	Employers, Stakeholders, Community Groups	Low	Significant	Low	High	$
1.3 Create a "Travel Options" Website	Short-term	City- Sustainability		Medium	Significant	Low	High	$
1.4 Encourage Others to Get Involved	Short-term	City-Sustainability	Community Groups, Employers, Residents, Businesses	Medium	Significant	Low	Medium	$
1.5 Create Special Events Travel Plans	Short-term	Event Organizers	City, Employers	Low	Medium	Medium	High	$
Strategy 2. IMPROVE ACTIVE TRANSPORTATION OPTIONS								
2.1 Develop a Trails + Active Transportation Plan	Medium-term	City-Planning	Community Groups, Stakeholders	Significant	Significant	Significant	High	$$
2.2 Improve Priority Routes between Neighbourhoods + Downtown	Medium-term	City-Planning, Engineering	Community Groups	Significant	Significant	Significant	High	$$
2.3 Review Maintenance Practices	Short-term	City-Planning		Medium	Significant	Significant	Medium	$
2.4 Expand Bike Trip-End Facilities	Medium-term	City-Planning	Employers	Significant	Medium	Medium	High	$$
2.5 Invest in Active Transportation Facilities	Medium-term	City- Planning, Engineering	Community Groups, Businesses	Significant	Medium	Medium	High	$$
2.6 Engage Community Groups	Short-term	City-Sustainability	Stakeholders, Businesses, Residents	Low	Medium	Low	Medium	$

Action	Timeframe	Roles		Resources			Expected Impact	Estimated Cost
		Primary	Secondary	Capital	Staff	Study		
2.7 Establish a Citizen Trail Maintenance Program	◑	City- Sustainability		◑	◑	◑	◑	$
Strategy 3. IMPROVE PUBLIC TRANSIT								
3.1 Create a Long-Term Transit Plan	◕	City-Transit	Stakeholders, Businesses	●	●	●	●	$$
3.2 Continue to Expand Transit Pass Programs	◑	City-Transit	Employers, Educational Institutes, Developers	◑	●	◑	●	$
3.3 Create a Formal Bus Stop Improvement Program	◕	City-Transit		●	◑	◑	◑	$$$
3.4 Improve the Downtown Transit Exchange	◕	City-Transit		●	◑	◑	◑	$$$
3.5 Improve Transit Service	◕	City-Transit	Stakeholders, Community Groups	◑	◑	◑	◑	$$$
3.6 Coordinate Transit Branding	◑	City-Transit		◑	●	◑	◑	$
3.7 Integrate the TDM Coordinator into Transit	◑	City-Transit		◑	●	○	◑	$
Strategy 4. SUPPORT EMPLOYEES TO USE ALTERNATIVE TRAVEL MODES								
4.1 Explore Alternative Work Arrangements	◔	Employers	City	◑	◑	◑	●	$
4.2 Create a Guaranteed Ride Home Program	◑	Employers	City	◑	◑	◑	◑	$
4.3 Make Alternative Modes More Attractive Than Driving to Work	◑	Employers	City	◑	◑	○	◑	$
4.4 Green the City's Vehicle Fleet	◑	City-Operations		●	◑	◑	○	$$
4.5 Offer a Fuel Efficient Driving Program	◑	City-Operations	Employers	◑	◑	◑	○	$

Action	Timeframe	Roles		Resources			Expected Impact	Estimated Cost
		Primary	Secondary	Capital	Staff	Study		
Strategy 5. MAXIMIZE EXISTING VEHICLE INFRASTRUCTURE + DISCOURAGE SINGLE-OCCUPANT VEHICLES								
5.1 Manage Parking	◑	City-Operations		●	●	◑	●	$
5.2 Calm Traffic	◕	City-Engineering		●	●	●	●	$$$
5.3 Increase Congestion Thresholds	◕	City-Engineering		◑	◑	◑	◑	$$
5.4 Pursue a Carshare Program	◕	City-Environmental Sustainability		◑	●	○	◑	$$
5.5 Implement Electric Vehicle Plug-Ins	◕	City-Planning	Employers, Businesses	●	◑	○	◑	$
5.6 Create a Priority Parking Program	◑	City-Operations, Bylaw	Businesses	●	◑	◑	◑	$
5.7 Allocate a Portion of Gas Tax Funds to TDM	◕	City-Environmental Sustainability		○	◑	◑	○	$
Strategy 6. ENCOURAGE SUPPORTIVE LAND USE								
6.1 Regulate TDM	◑	City-Planning		○	◑	◑	●	$
6.2 Establish an Unbundled Parking Policy	◑	City-Planning	Developers	○	◑	◑	◑	$
6.3 Create “Complete Streets”	◕	City-Planning and Engineering		●	●	●	●	$$$
6.4 Develop a Sustainable Transportation Checklist	◑	City-Engineering	Developers	○	◑	◑	◑	$
6.5 Develop a TDM + LEED Credit Program	◕	City	Developers	○	◑	◑	◑	$
6.6 Authorize Use of Parking Development Reserve Fund for TDM	◑	City-Finance		○	◑	◑	◑	$

5.5 Monitoring Plan

A monitoring plan is put in place to act as a guide in measuring the progress of actions laid out in this plan. It provides tools to do this as well as the time frame it must be done in order to accurately account for progress.

Measure	Time Frame	Indicator	Source	Relation to Actions					
				1	2	3	4	5	6
GENERAL									
Mode Share	Annual	Survey to residents	A survey will be sent out yearly to each household asking questions on their travel behavior.						
	Every 5 years	Canadian Census	Government of Canada						
Greenhouse Gas Emissions	Annual	Yukon Gov't GHG Emissions Report	Issued by Environment Canada						
LEED Credit Program	Every 2-3 years	Points	The LEED points system will act as a guide to developers to gain points for incentives and recognition.						
ACTIVE TRANSPORTATION									
Pedestrian / Cycling Facilities	Bi-annual	Screenline Counts	Conduct screenline counts at major trail, sidewalk, and bicycle network crossings to determine usage.						
Bicycle Use	Monthly for 1 week	Bicycle parking usage at public and private parking lots	Counts can be given to a different employee each month, an incentive can be given such as leaving early on Friday. Counts will take less than 5 minutes.						
End-of-trip Facilities	Annual	Surveys	Surveys will be distributed to each employer to assess their end-of-trip facilities and what they consist of.						

PUBLIC TRANSIT				
Transit Ridership	Daily	Passenger counts	Track ticket counts on buses with machine.	
	Monthly	Bus passes	Track amount of bus passes sold and assess the trend it follows.	
Transit Service Performance	Annual	Rides per Capita Cost per Ride Service Hours	Calculate using ridership statistics.	
Vehicle Use	Monthly for 1 week	Vehicle parking usage at public parking lots and employer parking lots	Counts can be given to a different employee each month, incentives can be given such as leave early on Friday. Counts will take less than 5 minutes. Can calculate parking demand rate for each employer.	
	Monthly	Parking permits issued	The amount of parking permits issued will be tracked to determine if there is a trend occurring.	
COMMUTING / EMPLOYER TDM				
Commuter Trip Length	Every 5 years	National Household Survey	Government of Canada	
	Annual	Travel Diary	Employers should distribute a format for a travel diary to each employee to track their length and mode of transportation.	
Guaranteed Ride Home	Annual	Surveys	Surveys will be distributed to each employer asking if they have a Guaranteed Ride Home program and what the uptake of it was.	
Carshare Program	Monthly	Number of participants	Assess number of participants graphically to see if there is a pattern.	

Glossary

The following terms are referred to throughout the TDM Plan. Definitions are provided below are adapted from Transport Canada's *Transportation Demand Management for Canadian Communities*.

Active and Safe Routes to School. Comprehensive, community based initiatives that encourage walking and cycling to school through education, training, promotion, safety improvements, and incentives.

Active Transportation. Self-propelled (non-motorized) transportation that relies on the use of human energy such as walking, cycling, inline skating and jogging.

Alternative Modes. Alternatives to travelling by single-occupant vehicle.

Bike Sharing. Programs that offer free or low-cost bike rentals, intended for short periods of use and a large number of daily users per bicycle. Public bike sharing initiatives are open to all users, while private bike sharing initiatives are restricted to employees or clients of a particular business or institution.

Carpool. An informal arrangement when two or more individuals share a single vehicle trip.

Carsharing. Services that offer short-term pay per-use car rentals, typically open to the public and sometimes also to businesses as a complement or replacement to corporate fleet ownership.

Complete Streets. An approach to roadway planning and design that emphasizes equal safety and convenience for all travel modes, giving specific consideration to pedestrians, cyclists, transit, and other alternative modes where conventional roadway design often excludes them.

Cycling Skills Course. Training for individuals about safe bicycle operation, addressing subjects such as riding in traffic, darkness and inclement weather, and roadside bike repair. The Canadian Cycling Association's CAN-BIKE program includes courses for children, learner adults, women, rural cyclists and urban commuters.

Employer Transit Pass. The sale of transit passes to commuters at their workplace, with the employer either acting as a reseller, or forwarding payroll deductions to the transit operator. Payroll-deduction transit pass programs typically demand a minimum one-year subscription.

End-of-trip Facilities. Bicycle parking, shower and change facilities in workplaces for use by cycling or walking commuters. Also called "trip-end" facilities.

Guaranteed Ride Home. A service offered by an employer or third party that helps non-driving commuters get home quickly and conveniently in case of family emergency, unexpected overtime or other unforeseen event. Transportation is typically by free or reimbursable taxi or car rental. Also known as guaranteed ride home (GRH).

Level of Service (LOS). An indicator of the quality of operating conditions that may be applied to cycling or walking facilities (to reflect connectivity, convenience and comfort), transit service (to reflect speed, reliability and frequency) or roadways (to reflect the ratio of vehicle demand to roadway capacity, and resultant delay).

Mixed Use. Settlement patterns where different land uses are arranged in close proximity.

Modal Share/Split. The percentage of person-trips made by one travel mode relative to the total number of person-trips made by all modes.

Multi-Modal. Refers to facilities or trips that incorporate more than one (1) mode of transportation.

Multi-Use Trail. Off-road facilities for travel by walking, cycling and other modes such as in-line skating, that serve both recreational and utilitarian travel needs.

Park-and-Ride. Parking used by motorists to park in order to access transit or carpool.

Peak Period. Period of high person-trip demand on weekday morning and afternoons, generally measures as 2 hours long in the morning and two and a half hours in afternoon.

Ridematching. Helping commuters find partners for carpooling, typically through Internet-based services.

Ridesharing. Shared use of a motor vehicle by two or more persons to make a trip, when they would otherwise travel separately.

Single-Occupant Vehicle (SOV). Any vehicle travelling with only one occupant.

Telework (Telecommuting). An arrangement allowing workers to reduce their commuting by performing some or all of their work away from their normal workplace.

Transit-Oriented Development (TOD). Form of development offering a land use density, mix and design that makes transit use attractive and efficient; typically involves mixed-use, pedestrian-friendly developments around rapid transit stations and corridors.

Transit Priority. Design measures to increase transit operating speeds and transit travel time reliability in mixed traffic, such as traffic signal priority or queue jumps.

Transportation Demand Management (TDM). The use of policies, programs, services and products to influence whether, why, when, where and how people travel. TDM measures help shape the economic and social factors behind personal travel decisions.

Trip Planning. Internet-based, phone-based or face-to-face help for individuals to plan optimal routes for trips, usually by transit but sometimes by cycling or walking.

Universal Transit Pass (U-Pass). Common initiative at post-secondary institutions, whereby all students or members of a sub-group (e.g. full-time undergraduates) pay a fee that gives them unlimited access to transit for the entire semester, school year or calendar year. U-Pass fees are typically much lower than the cost of buying regular passes or tickets, because the cost of transit fares is redistributed from a smaller group to a larger one.

Walking School Bus. An arrangement whereby a group of children walks to school with one or more adults, typically involving set meeting points, schedules and rotating volunteer schedules.

Workplace Travel Plan. A package of coordinated initiatives to encourage efficient and sustainable commuting among employees

Vanpool. Shared use of a van that is typically owned by a third party such as a non-profit organization, for-profit business or employer.

Resources

City Plans

Existing City planning documents were used to formulate an understanding of Whitehorse and ensure consistent planning directions. The following City documents are of reference.

- Downtown South Master Plan, 2011
- Downtown Parking Management Plan, 2011
- Official Community Plan, 2010
- Whitehorse Strategic Sustainability Plan, 2009
- Trail Plan, 2007
- Downtown Plan, 2007
- Whitehorse Moves (final report), Urban Transportation Showcase Project, 2007
- Integrated Community Sustainability Plan, 2007

TDM Plans from Elsewhere

TDM planning is a relatively new field, although a number of other Canadian communities have created TDM plans similar to this plan. Readers are encouraged to reference the following documents to learn about TDM programs in other Canadian communities.

- Halifax Regional Municipality, Transportation Demand Management (TDM) Functional Plan, 2011
- Capital Regional District (Greater Victoria), Transportation Demand Management (TDM) Toolkits, 2013
- City of Kitchener, Transportation Demand Management Plan, 2010
- Huron County ON, Transportation Demand Management Plan, 2011
- Ottawa, Transportation Demand Management Strategy, 2012
- Regional Municipality of Peel, Transportation Demand Management Study Report, 2004

TDM Best Practices

A variety of national TDM research documents and best practices have been prepared that inform the strategies and actions in this plan. Readers are encouraged to reference these documents for additional information.

- Association for Commuter Transportation of Canada, TDM Supportive Guidelines for Development Approvals, www.actcanada.com/en/Resources.aspx
- Association for Commuter Transportation of Canada, The Case for TDM in Canada: Transportation Demand Management Initiatives and Their Benefits, www.actcanada.com/en/Resources.aspx
- Fraser Basin Council, Transportation Demand Management: A Small and Mid-Size Communities Toolkit, www.fraserbasin.bc.ca/programs/tdm_toolkit.html
- Transport Canada, Transportation Demand Management for Canadian Communities: A Guide to Understanding, Planning and Delivering TDM Programs, www.tc.gc.ca/eng/programs/environment-urban-guidelines-practitioners-tdm-2735.htm
- Victoria Transport Policy Institute, Online TDM Encyclopedia, www.vtpi.org/tdm/index.php

Appendix A.
Transportation Baseline Summary Report

Transportation Baseline
SUMMARY REPORT

The community, people, natural setting, and existing infrastructure and programs must be understood in order to develop strategies and actions that will facilitate a shift to in travel choice.

Location + Geography

Topography

Whitehorse is located on the Yukon River corridor in the South Central Yukon. It is surrounded by mountainous topography, including Haeckel Hill, Mount McIntyre, Golden Horn, and Grey Mountain. Within the City, Two Mile Hill, Mountain View Road, and Robert Service Way are two key corridors between downtown and residential neighbourhoods such as Copper Ridge and Porter Creek with significant grades that present a challenge to walking and cycling.

Climate

Whitehorse has a northern continental climate with cold, dry winters and mild, temperate summers. Annual temperature averages are 20.5C in July and -22C in January. Despite its long winter and relatively cold climate, the City of Whitehorse has been described as one of the most comfortable climates in Canada. Whitehorse is the also the driest city in Canada based on annual precipitation. Generally, the cold winter temperatures make walk and cycling difficult over long distances. Snow accumulation in winter adds to cycling challenges and requires that the City assign significant resources to snow clearing on roads, sidewalks, and trails.

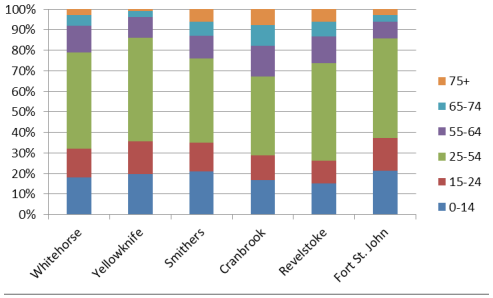
People + Employment

Demographics

Whitehorse's population was estimated at 23,323 in 2012 . The 2010 Official Community Plan (OCP) discusses three potential growth rates, high (3.5%) medium (2.0%) and low (0.5%) based on recent historical records. The population grew by 4% between 2006 and 2011; a conservative estimate would be around a 3% growth rate, or a population projection of 42,124 by 2032. The City represents approximately 76% of the total population of the Yukon.

Community trends in the short term show a slight increase in the transient population, but in general the transient population is decreasing. This is attributed to a permanent, more diverse employment base and retention of young people drawn to employment and/ or recreational opportunities. Currently 78% of the City's population has lived in Whitehorse for five (5) or more years, which is a slight decrease from 2006 data (83%). The median age in the City of Whitehorse in 2011 is 37, which is 3 years less than Canada as a whole. Whitehorse has a high proportion of residents aged 25 to 54 relative to other northern communities (Yellowknife, Fort St. John, Smithers) and communities leading in sustainable travel mode share (Cranbrook, Revelstoke). See *Below*. This suggests that residents are physically fit and capable of engaging in active travel (walking, cycling), but that there is a smaller proportion of the population that are seniors and will be reliant on public transit. It also suggests that a large proportion of the population are of working age, suggesting that there is a large commuter population that may targeted with TDM programs.

Population by Age Group among Peer Communities



Employment Trends

Whitehorse was first established in 1898, capitalizing on the Yukon River as a hub of goods, services, and transportation for the Klondike Gold Rush. Local industry has since diversified to include transportation, mining, government services, and tourism. Government-related employment is responsible for approximately a quarter of the labor force, and includes the territorial government, First Nation Governments, the Government of Canada and the Municipal Government. Other major employers include Northwestel, Yukon Electric (ATCO), Yukon Hospital Corp and Yukon Energy. The large proportion of residents employed by governments and/or working administrative positions in the downtown area provide a significant opportunity to develop TDM programs that target employees with a fixed schedule and a common destination.

Land Use + Settlement Patterns

Whitehorse is a large municipality, approximately 41,900 hectares, extending 30 kilometers north to south and 14 kilometers east to west. The existing pattern of settlement is somewhat spread out, with each enclave surrounded by natural open space. Although the settlement pattern is not contiguous, it generally follows the alignment of the Alaska Highway from the Cowley Creek neighborhood in the south to the MacPherson neighborhood in the north. The Downtown, which is situated almost in the geographic centre of the municipality, acts as a nucleus due to its concentration of employment opportunities, retail and commerce.

Downtown

The downtown area is where historic settlement occurred and has evolved in a compact urban form, with a mixture of residential, commercial, and civic land uses all within relative walking and cycling distance of one another. The downtown has approximately 15% of the City's resident population and over 50% of the employment population. Downtown residents are easily targeted with TDM programs as they have the highest quality transit available to them and are within walking and cycling distance of a large number of destinations. Population in the downtown core is predominantly located in Old Town neighborhood, and there is also a residential population located immediately north and south of the Downtown Commercial Core area.

Neighbourhoods

Whitehorse consists of a number of outlying residential neighborhoods - Porter Creek, Riverdale, Granger, Crestview, Arkell, Logan, Copper Ridge, Valleyview, Hillcrest, Lobird, Takhini, MacIntyre, and a number of country residential areas. Most are low density neighbourhoods with primarily residential land uses that rely on the downtown for the majority of their employment and services. Some neighbourhoods such as Riverdale, Hillcrest, Valleyview and Takhini are within walking distance of downtown, while most are well beyond reasonable walking distance and instead residents must be targeted with strategies to encourage cycling, transit, telecommuting and ridesharing. There are 14 public schools in Whitehorse offering from kindergarten to grade 12. Students who live in areas that do not have a high school or elementary school are then located to the closest school to their home. Transportation is provided by school bus, however, student transportation is being shifted to public transit.

Future Development

The 2010 OCP indicates that 61% of future residential development will be located within the Urban Containment Boundary (UCB), a significant portion of which will be accommodated in Whistle Bend located northeast of downtown.

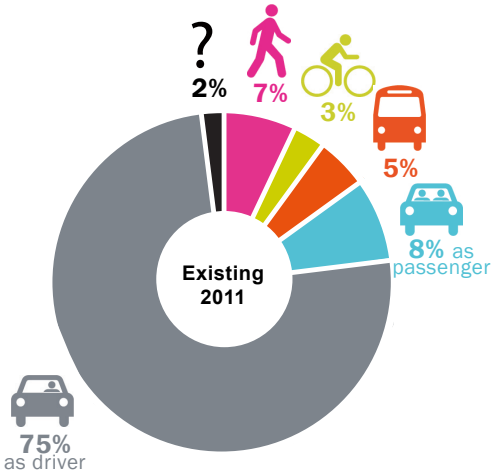
Whistle Bend is easily accessed by road from downtown and has an active transportation network connection. It has great potential in developing it to be a new and upcoming neighborhood complete with transit service, town square featuring public parkland and numerous shops, schools, greenspace and paved and unpaved trails.

The City is encouraging infill development in and around the downtown area. Concentration of development in areas within reasonable walking and cycling distance of downtown and adjacent to high-quality transit service will lessen their dependence on vehicles.

Travel Behaviour

The existing mode split for Whitehorse (2011 data) is shown below. The majority of Whitehorse residents (75%) drive to work with no passenger. This is marginally higher than the Yukon average (73 %) and the Canadian average (74%). 8% commute to work in a private vehicle as a passenger, 7% walk to work, 5% take public transit, and only 3% cycle to work.

2011 Whitehorse Mode Split for Trips to Work



The Whitehorse mode split has been compared to other northern communities and communities with strong alternative transportation shares. See table at right. Below are highlights from comparing mode share with peer communities:

- Vehicle as a driver has a mode share of 75%, which is similar to the average in peer communities
- Vehicle as a passenger had a mode share of 8%, which is similar to the average in peer communities
- Public transit has a mode share of 5%, 67% higher than the average in peer communities
- Walking has a mode share of 7%, 29% lower than the average in peer communities
- Cycling has a mode share of 3%, 50% lower than the average in peer communities
- Other has a mode share of 2%, on par with the average in peer communities

Summary of Trips to Work Mode Share in Peer Communities (%), based on 2011 National Household Survey

	Vehicle, driver	Vehicle, passenger	Public Transit	Walk	Bicycle	Other
Cranbrook, BC	78	8	1	11	1	2
Dawson Creek, BC	80	8	1	8	1	1
Fort McMurray, AB	62	8	22	5	0	2
Fort St. John, BC	81	8	0	9	1	1
Medicine Hat, AB	86	5	2	4	1	1
Moose Jaw, SK	83	6	1	8	1	1
Penticton, BC	74	6	1	12	4	3
Prince Albert, SK	83	6	2	6	1	3
Prince George, BC	83	7	3	4	1	2
Prince Rupert, BC	73	8	4	12	2	2
Quesnel, BC	80	7	2	9	1	1
Red Deer, AB	83	5	4	4	1	2
Revelstoke, BC	64	8	1	13	12	1
Smithers, BC	69	8	0	16	4	3
Terrace, BC	74	8	1	12	4	2
Vernon, BC	80	5	2	8	2	2
Whitehorse, YT	75	8	5	7	3	2
Williams Lake, BC	75	11	3	7	1	2
Yellowknife, NWT	53	11	1	24	3	8
Average	**76%**	**7%**	**3%**	**9%**	**2%**	**2%**

Existing Travel Options

Active Transportation

Sidewalk coverage is greatest in the downtown area. Some areas have been expanded to include sidewalks in excess of 2.0 m with landscaping and street furniture, to make it more aesthetically pleasing. These areas include Main Street and 1st Street.
The existing Whitehorse trail system is comprised of 150 km of motorized trails (ATV's etc) and 700 km of multi-use trails. This system is larger than those found in similar-sized northern municipalities. The trail network in and to the downtown core in Whitehorse is highly walkable, with links from the riverfront, through the main shopping streets to the base of the escarpment. There are several trails which link from the downtown core to neighbourhoods including the River Trail/Trans Canada Trail, Black Street stairs and Two Mile Hill.

Walking in the City of Whitehorse varies from location. In some areas which are close to downtown walking can take approximately 30 minutes from places such as Riverdale, Takhini, Hillcrest and Valleyview. Other outlying neighborhoods including Copper Ridge, Porter Creek, and Crestview can take between 1 hour 15 minutes to 2 hours and 15 minutes, leaving these locations unwalkable to downtown. These areas would be a more acceptable route to bicycle on.

Public Transit

Public transit is planned and operated by the City of Whitehorse. There are five transit routes and buses run on a regular once-an-hour schedule Monday to Friday from approximately 7:00 a.m-10:00 pm. On some routes, additional buses run during peak times on weekend mornings and afternoons. All but one route runs until 10:20 pm Monday-Friday.

As the City of Whitehorse runs the transit system without any other transportation agency, they have included bus discounts in the fees and charges bylaw.

The following transit pass programs are currently being offered in Whitehorse:

- The City of Whitehorse has a discounted bus pass program for their employees. To encourage employees and their family members to use public transit, the City reimburses 50% of the cost of a pass on the city-operated public transit system. 15 employee bus passes are sold per month.

- Yukon Education is offering free public transit passes for 2013-2014. Eligible students are those who live in Crestview, Porter Creek, and Hamilton corridor who attend F.H. Collins and Vanier Catholic Secondary. These students who receive a pass will no longer be eligible to travel on the regular school bus. As an added incentive, monthly prizes are awarded to participants.

- Yukon Education purchases bulk transit passes for students to ride public transit to/from school. The City offers transit to Yukon Education at a 25% discount off typical monthly pass rates. They determined this is cheaper than expanding the school bus service. The program was initially offered in 2011-2012 on a 2-month trial. It was offered again in 2012-2013 in response to heightened school bus demand and uptake was approximately 100 passes. This program is being offered again in 2013-2014.

- Yukon College will provide a discount on the standard $62.00 cost of a monthly adult pass for the school year. The College and Student Union will split the cost of covering the $15.50 per student, per month. The program will cost the College and Student Union $77,000 for an estimated 550 full time students.

- Through the Government of Canada, residents can claim the cost of monthly public transit passes or passes of a longer duration.

In 2012, there was a total ridership of 383,644 passengers. Whitehorse's transit ridership has been steadily increasing since 2009 The lowest months for ridership are July and August.

The City of Whitehorse was compared with similar peer communities including Dawson Creek, Fort St. John and Prince George. In comparison with peer communities, Whitehorse is above average for cost recovery and rides per capita. A high rides per capita and low cost per ride shows that currently the system is being quite efficient in that there are many people using the system in comparison to the population as a whole. See table below.

Summary of Transit System Performance in Peer Communities

Community	Population (2011)	Trips	Cost (millions)	Rides / Capita	Rides / Hour	Cost / Ride
Whitehorse	23,276	383,644	$3.1	16.5	19.0	$7.42
Dawson Creek	11,860	122,253	$1.3	10.3	17.2	$10.37
Fort St John	19,873	131,859	$1.9	6.6	11.8	$14.13
Prince George	71,974	2,183,533	$7.1	30.3	33.0	$3.25
Cranbrook	20,000	224,496	1.2	11.2	18.9	5.66
Penticton	35,000	429,666	2.3	12.3	19.0	5.44
Prince Rupert	14,000	329,587	1.1	23.5	33.3	3.43
Average	**27,997**	**543,576**	**2.6**	**15.8**	**21.7**	**7.10**

Policy Context

Whitehorse Moves, 2004-2007

This multi-year project implemented several TDM strategies and major infrastructure improvements as one of eight federally-funded Urban Transportation Showcase Projects. The showcase resulted in many long term improvements to sustainable transportation. The project identified barriers to, and opportunities for sustainable transportation in Whitehorse, which will inform further TDM planning.

TDM initiatives that were part of Whitehorse Moves included:

- Develop a commuter cycling map
- Design and promote programs that encourage transit, carpooling, bicycle use and trip planning portfolio to personalize commuting options
- Purchase and install new bus shelters as well as install more signage.
- Implement Carpool.ca (a web based carpooling software program), although this was later discontinued
- Purchase and promote a bicycle fleet for use within the downtown core
- Develop a social based marketing program for alternative transportation

Highlights from Whitehorse Moves

- 10% increase in the number of households that have at least one member of the household walk or cycle to downtown (2006)
- 400 trail users completed individual surveys. Cycling was estimated by the users to account for 43% of all their work related trips in the summer and dropped to 7% in the winter
- Commuters to downtown between April and October have increased their frequency of cycling and walking since the changes were implemented
- There was a decrease in 2006 in the percentage of households that use transit when compared to previous years, according to the citizen survey, but those who use transit were using it more often. In 2006, transit ridership increased about 16% when compared to 2004.
- A Greenhouse gas reduction of 78 tonnes of CO2 was achieved with increased transit use, while an estimated 12 tonnes of greenhouse gases were reduced within the City's Wheel to Work Whitehorse program.

Official Community Plan, 2010

The City of Whitehorse Official Community Plan, 2010, contains policies that promote compact development and reduce sprawl in order to encourage active transportation and transit use in neighborhoods and throughout the City. Some of the OCP policies related to TDM include:

Policy 12.1.1: Active transportation and pedestrian movement within the City shall be promoted through infrastructure development, where feasible. Examples include the development of sidewalks, bike lanes, trails and shared streets. Universal design shall be considered in the development of all transportation infrastructures.

Policy 12.1.2: An Active Transportation map for the entire City shall be created. Trail improvements shall be implemented as funds allow and in conjunction with implementation of the City's Trail Plan.

Policy 12.1.3: Active transportation links, including trails, pedestrian corridors, and bicycle lanes shall be integrated into subdivision or neighborhood level planning. Links to the City's active transportation network, where possible, shall be identified as part of any development proposal in order to create a more walkable community.

Policy 12.1.4: Consider the development and integration of continuous and safe cycling infrastructure into existing and proposed road improvements.

The OCP is supported by requirements in the newly amended zoning bylaw in regards to bicycle parking, maximum parking requirements, and other flexible parking options.

Downtown Parking Management Plan, 2011

The Whitehorse Downtown Parking Management Plan recommends managing the increased parking demand downtown by shifting travel modes, rather than strictly by increasing the parking supply. This plan recommends that TDM strategies be considered in the areas of:

- Walking improvements
- Cycling improvements
- Public transit improvements
- Car sharing services
- Ridesharing
- Commuter trip reduction
- Transportation coordination service
- TDM marketing programs (i.e. education and outreach)
- Smart growth policies (i.e. land use)

Growth Strategy

The City of Whitehorse Growth Strategy outlines current planning projects that work towards generating new housing opportunities, including Downtown South Master Plan Implementation, Whistle Bend and the Development Initiatives Policy. The Downtown South neighborhood is the area that rests north to south between Lambert Street and Robert Service Way, and east to west between 2nd Avenue and the escarpment. A master plan was created to identify the long term growth and development in the area.

Whistle Bend is envisioned as a neighborhood for 8,000 residents, complete with transit service, a town square featuring public parkland and numerous retail shops, three schools, plentiful green space and many kilometers of paved and unpaved trails. It is located within the urban containment boundary of the OCP and will be serviced with marginal transit.

The Development Initiatives Policy prioritizes developing incentives for private developers to create new housing forms, notably those that are missing from the market, and pursuing initiatives to promote the creation of rental housing, supportive housing and mixed use buildings.

Strategic Sustainability Plan, 2008

TDM strategies that are implemented all contribute to the following commitments from the Strategic Sustainability Plan:

- Promote sustainability education
- City to act as a leader in sustainability
- Provide accessible community infrastructure
- Improve air quality, which includes emissions standards for City buses and continue the anti-idling policy.
- Improve transportation, which includes increasing transit ridership, continue traffic calming, and increase pedestrian and bicycle transportation options
- Promote active living, which includes increasing use of the trail network, participating in and supporting active living initiatives and partnerships

Integrated Community Sustainability Plan (ICSP), 2007

The ICSP was developed to illustrate the current sustainable practices and policies adopted and provide actions on how to improve each one. The plan is a requirement of gas tax funding. These actions include:

- Establish and implement a pavement maintenance system
- Sidewalk additions and improvements
- Install bike racks and bike lockers in Downtown
- Implement the 2007 Trail Plan
- Improve trail connections
- Upgrade signage, paint and signals at specific crosswalk locations
- Review each bus stop
- Implement a new transit budget
- Develop a strong marketing campaign to sell the benefits of transit
- Provide transit incentives to increase ridership

Appendix B.
Active Transportation Network Improvements

Active Transportation Network Improvements

Active transportation network improvements are identified in the following table. Improvements are based on input from the City's Planning department, Engineering department, and Urban Cycling Coalition. Improvements are categorized as Downtown South, Downtown North, Riverdale, and Above the Escarpment.

Users

P = Pedestrians

C = Cyclists

M = Mobility devices (ie. wheelchair)

Source

Plan = Planning dept.

Eng = Engineering dept.

WUCC = Whitehorse Urban Cycling Coalition

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Location	Issues	Potential Solution	Users	Source
DOWNTOWN SOUTH				
2nd Avenue at Robert Service Way	Southbound bike lane conflicts with right turn onto Robert Service Way, northbound bike lane ends north of Robert Service Way, Robert Service Way bike lane is eliminated as eastbound cyclists enter the intersection	Consider cycling markings through intersection to demarcate cyclist path, consider road widening too as part of the planned Robert Campbell Bridge expansion	C	WUCC
4th Avenue at Robert Service Way	No bike lane at the entrance/exit to the roundabout, ambiguity on how cyclists are expected to use the roundabout, conflict between bike lane and on-street parking, doors opening		C	Eng, WUCC
5th Avenue at Robert Service Way	No opportunity for pedestrians or cyclists to cross Robert Service Way at 5th Avenue to connect with Millennium Trail (crossing is at 4th Avenue)		P, C	WUCC
Lowe Street to Riverfront trail	No direct pedestrian or cycling route from Lowe Street / 2nd Avenue intersection to the Riverfront Trail	Consider paved trail between Lowe Street and Riverfront Trail, through Rotary Park	P, C	WUCC
3rd Avenue at Hoge Street	No direct link from south end of 3rd Avenue to Robert Service Way	Create a multi-use link across the railway tracks and Robert Service Way to the Millenium Trail	P, C	WUCC
Riverfront Trail between Hawkins Street + Hanson Street	Two unnecessary railway track crossings in short succession	Consider re-routing trail along the waterfront (east side of tracks) to avoid crossing the tracks altogether	P, C, M	WUCC
Hanson Street/Hawkins Street at 6th Avenue	Poor access to paved trail from Hanson Street, paved trail ends and is gravel in southern end	Re-configure gates on either end of trail, extend paved trail south to Hawkins Street (in a straight manner)	P, C, M	WUCC
6th Avenue at Lambert Street	Rough curb ramp is a barrier to continuous travel from 6th to southbound bike lane	Repair sidewalk curb ramp to roadway	P, C, M	WUCC

Location	Issues	Potential Solution	Users	Source
DOWNTOWN NORTH				
Quartz Road at 2nd Avenue	Quartz Road southbound bike lane ends north of 2nd Avenue, challenging southbound left turn onto 2nd Avenue, vehicles parked in the bike lane		P, C	Plan, WUCC
4th Avenue at 2nd Avenue	No northbound bike lane through intersection, southbound bike lane sidewalk/ on-road transition is challenging, issues with snow piles and vehicles infringing on the bike lane	Consider redesign of 4th Avenue / 2nd Avenue intersection to better accommodate cyclists	C	Plan, WUCC
3rd Avenue at 2nd Avenue	No opportunities for pedestrian crossing	Consider safe pedestrian crossing options (limited sightlines on 2nd Avenue)	P	WUCC
4th Avenue at Ogilvie Street	4th Avenue bike lanes and vehicle lanes are narrow creating uncomfortable cycling conditions, conflict with southbound right turns at Ogilvie Street		C	Plan, WUCC
Ogilvie Street between 2nd Avenue + 4th Avenue	Wide vehicle lanes, no facilities for cyclists, no cyclist activation at 2nd Avenue signal	Opportunity to add cycling facility for connection between 4th Avenue and Riverfront Trail	C	Plan, WUCC
7th Avenue	Low traffic, direct route with potential to provide a parallel cycling route to 4th Avenue	Consider “neighbourhood bikeway” treatments to facilitate cyclists (traffic control, traffic calming), build trail through Pioneer Cemetary to link 7th Avenue to Main Street	C	WUCC
Black Street at 2nd Avenue	No cyclist activity at 2nd Avenue intersection		C	Plan, WUCC
Black Street stairs	Cyclists are coming out of the trees and down very fast posing a hazard to pedestrians and slow moving bikes approach	Improve sightlines at bottom of stairs, clear brush, install warning signs	P, C	WUCC
3rd Avenue	3rd Avenue is the low traffic, continuous alternate route to 2nd Avenue and 4th Avenue	Consider planning for 3rd Avenue as a multi-modal priority route, including separated cycling facilities, traffic calming, wide sidewalks, etc	P, C	WUCC
3rd Avenue from Black Street to Strickland Street	No pedestrian facilities provided on 3rd Avenue north of Strickland Street	Continue pedestrian improvements on 3rd Avenue north of Strickland Street	P	Plan, WUCC
Riverfront Trail	Conflict between pedestrians and cyclists, sharp corner and vehicles backing out at Kanoe People, gaps in rail crossings are too wide, uncleared snow in winter	Increase winter snow clearing, smooth pave at rail crossings, address Kanoe People corner	P, C, M	Plan, WUCC

Location	Issues	Potential Solution	Users	Source
RIVERDALE				
Robert Campbell Bridge	Cyclists may not use the sidewalk but there is insufficient space for vehicles and cyclists to share the travel lane comfortably, confusion over “cyclists must walk bikes on sidewalk” sign	Consider increased snow clearing on bridge and/or marking “sharrow” paint marking, include dedicated cycling facilities in bridge widening	C	WUCC
Lewes Boulevard northbound at Hospital Road	Cyclists must mount islands and cross multiple lanes of traffic	Provide through cycling route (on-road), consider realignment with bridge widening	C	Eng, WUCC
Lewes Boulevard, west side	Sidewalks north of Alsek Road are too narrow for three pedestrians side-by-side	Consider increasing sidewalk width or redesign as a multi-use trail (same as east side of the road)	P	Eng, WUCC
Lewes Boulevard at Alsek Road	Poor transition onto Lewes Blvd pathway, unnecessary southbound cyclist stop at intersection that slows cyclists	Consider option to separate southbound cyclists	C	Eng, WUCC
Lewes Boulevard northbound between Teslin Rd + Alsek Rd	On-street parking in the bike lane	Consider signs and/or separation to prevent vehicles parking in the bike lane	C	Eng, WUCC
Lewes Boulevard at Nisutlin Road roundabout	Northbound bike lane ends at the roundabout, conflict between southbound right turn lane and bike lane where bike lane ends	Consider sharrows through the roundabout and “bike lane ends” and “share the road” signs	C	Eng, WUCC
ABOVE THE ESCARPMENT				
Hamilton Boulevard	Stop signs at driveways slow cyclists along multi-use trail, tempt cyclists to disregard signs	Consider replacing stop signs with warning signs	C	Eng, WUCC
Airport Path	Not cleared in winter and icy in spring, some corners are tight / loose gravel dangerous to cyclists, no paved trail between airport path and Alaska Highway, lack of directional information for those unfamiliar with the trail	Consider clearing in winter, address issue corners, improve drainage, erect wayfinding signs leading to Black Street signs and downtown	P, C	Eng, WUCC
Alaska Highway from South access to Two Mile Hill	Paved shoulder ends at intersections proving challenging for cyclists	Consider a parallel trail, coordinate with YG Highways + Public Works on Alaska Hwy corridor project (2014)	C	Eng, WUCC
Two Mile Hill paved trail south of Range Road	Icy in spring from melt water	Improve drainage	P, C	WUCC

Location	Issues	Potential Solution	Users	Source
Hillcrest Drive (west end)	Narrow opening between locked gate and utility pole at west end of Hillcrest Drive connecting to off-road trail	Create a wider opening	P, C	WUCC
Normandy Road Trail	Trail crossings are difficult for drivers to see, particularly difficult with faster moving cyclists and where large number of vehicles parked on-street	Consider warning signs and/or crossing treatments to increase awareness of crossings	P, C	WUCC
Range Road north of Mountainview Drive	Narrow roadway uncomfortable for cyclists	Consider a roadside trail (possibly planned already?)	P, C	WUCC
Mountainview Drive / **Range Road** Intersection	Conflict between northbound cyclists climbing hill and right turn vehicles, lack of sidewalks and curb drops, bike lanes end at intersection	Consider design review of this intersection to better accommodate pedestrians and cyclists	P, C	Plan, Eng, WUCC
Copper Road near brewery	Motorists use bike lane as right turn lane to access driveways		P, C	WUCC
Two Mile Hill / **Range Road** intersection	Wide east side intersection crossing, difficult to access or exit the trail on the west/south side		P, C, M	Plan, WUCC
Two Mile Hill trail (north side) from 2nd Ave to Industrial Rd	Curbs are too high, poor cyclists visibility on adjacent trail, motorists block driveway crossings while waiting to turn	Consider signs and pavement marking treatments to raise trail visibility at crossing locations	P, C	WUCC
Two Mile Hill trail from Alaska Highway to CGC	Uncleared/unpacked snow forces pedestrians and cyclists onto the road, this is a key route for CGC events when parking at Takhini Arena is encouraged	Regular snow clearing in winter and prior to events (Remembrance Day, New Year's, Yukon Native Hockey)	C	WUCC
Two Mile Hill (north side) at Industrial Road	Requires three roadway crossings, very circuitous, requires mounting three islands	Remove merge/diverge lanes and islands, straighten cycle path alignment and smooth or cut-through islands	C	WUCC
Two Mile Hill (south side) to 7th Avenue	No connectivity from Two Mile Hill to 7th Avenue	Consider extending a multi-use trail from Two Mile Hill north end of 7th Avenue	P, C	WUCC
Chilkoot Way at Two Mile Hill	Difficulty southbound left turn for cyclists onto Chilkoot Way, uncomfortable connection between Two Mile Hill and Riverfront Trail	Consider providing cycling facilities to link with Riverfront Trail	C	WUCC

Appendix C.
Site Planning for Sustainable Transportation, Draft Checklist

CHECKLIST

Site Planning for Sustainable Transportation

The following highlights the key site design considerations for promoting sustainable transportation based on the Institute of Transportation Engineers *Promoting Sustainable Transportation Through Site Design* guidebook. City staff, land developers, professionals, and Council are encouraged to reference this checklist when planning, designing, and reviewing developments to ensure the City's objectives for sustainable transportation are addressed.

Land Use + Urban Form

- ☐ Site is located within the designated urban boundary
- ☐ Development is compact and orients major uses to transit streets
- ☐ Land use and density is compatible with planned uses, particularly if located in a designated node or corridor
- ☐ Highest-density land uses are located closest to activity nodes such as transit stops and intersections
- ☐ Land use densities are sufficient to support transit
- ☐ Proposed use adds to mix of land uses in area and does not result in large tracts of similar uses

Building Orientation

- ☐ Buildings are located close to the street, yet set back enough to permit pedestrian activities along street frontage
- ☐ Building entrances are located close to the street, with direct pedestrian access
- ☐ Where appropriate, restaurants and other pedestrian-oriented uses animate the street frontage
- ☐ Vehicle paths do not cross major building entrance points

Accessibility

- ☐ Accessible signals and special road detailing allow the safe progression of the visually impaired
- ☐ Pathways are kept reasonably level and ramps are provided wherever stairs are necessary

Street Network

- ☐ Adjacent street network provides for connectivity of transit, cycling, and pedestrian routes
- ☐ Block lengths are limited and mid-block crosswalks are provided where appropriate
- ☐ Internal streets and pathways match up with surrounding networks and ensure direct connections through the site for cyclists and pedestrians, while discouraging through vehicle travel
- ☐ Traffic calming principles are applied, where appropriate (proper site design will avoid the need to apply extensive traffic calming)
- ☐ Travel lanes are designed to accommodate vehicles and cyclists and to remind respective users of the other networks on the site
- ☐ Streets are designed to cross at right angles and mindful of necessary sightlines
- ☐ Appropriate measures are taken to ensure transit vehicles are accommodated on site, if required
- ☐ Appropriate traffic signals and compact geometry of intersections control speeds and allow for safe passage of cyclists

CHECKLIST

Site Planning for Sustainable Transportation

Public Transit

- ☐ Appropriate measures are taken to ensure transit vehicles are accommodated on site, if required
- ☐ On-site or adjacent transit stops are located close to the main entrances of activity generators
- ☐ Bus stops are properly illuminated, visible from a distance, and have amenities such as shelters and benches particularly at popular boarding locations or where a large volume of elderly or disabled riders board
- ☐ Shelters and rest areas are identifiable, accessible, placed appropriately and are comfortable
- ☐ Bus stops within 200m of the site are upgraded to include shelters, lighting, and accessible features
- ☐ Pathways between the site and bus stop are direct and safe

Pedestrian + Cycling Facilities

- ☐ Overall site design attempts to minimize conflict points between vehicles, pedestrians and cyclists
- ☐ Consideration has been given to personal security for pedestrians, cyclists, transit riders and carpool patrons
- ☐ Safe, continuous and clearly defined routes for pedestrians and cyclists are provided along desired lines to link with open spaces, parks, schools, commercial/service areas, and other public institutions
- ☐ Pedestrian routes are of sufficient width, provide separation from the roadway where possible, and include weather protection and lighting
- ☐ Amenities are provided that create an appealing environment including street furnishings, landscaping, and trees
- ☐ Properly signed crossings are provided wherever a path or sidewalk crosses a road and physical treatment of the pathway warns pedestrians of upcoming crossings

Bicycle Storage

- ☐ Safe and sheltered short-term bicycle parking is provided at each building entrance
- ☐ Weather-protected long-term bicycle parking is provided in a secure area
- ☐ Where appropriate, showers, changerooms, and storage for cycling gear is provided

Parking + Loading

- ☐ Parking supply meets the minimum requirement, but does not exceed it, and adjacent on-street parking has been considered
- ☐ Off-street parking is located away from the street, preferably behind buildings or underground
- ☐ Parking lots are kept small, include separation and/or landscaping, are designed to prevent speeding, and parking rows are perpendicular to buildings entrances and access routes, not parallel
- ☐ Vehicle access is separate from pedestrian access and vehicle and loading areas do not block pedestrian routes
- ☐ Preferential parking is provided for hybrid, carshares, carpools, or small vehicles in the most convenient areas
- ☐ Loading areas are located off the street and are screened from public view
- ☐ Passenger pick-up and drop-off areas are located to the side or rear of buildings, downstream from the entrance, but no more than 30 meters away from it

Appendix D.
Summary of Fireweed Market

FIREWEED MARKET SUMMARY

Part 1: **DOT-MOCRACY RESULTS**

The following summarizes the results of the “dot-mocracy” exercise where residents were asked to vote on each of the three questions posed.

Q1. Which of these travel modes, that you do not currently use, would you consider using to get to work?

	Total	Share
Walking	1	6%
Cycling	5	28%
Public Transit	6	33%
Carpooling	3	17%
Low emissions vehicles (ie. Electric vehicle, scooter, etc)	3	17%
	18	

Q2. Which of the following are available at your workplace?

	Total	Share
Secure bicycle storage (e.g lockers)	5	22%
A method to coordinate carpooling	3	13%
A flexible work schedule	6	26%
Bus stop(s) within 5 minutes walk	9	39%
	23	

Q3. In your opinion, how long is an acceptable commute time?

	Total	Share
0-5 minutes	0	0%
5-10 minutes	1	6%
10-20 minutes	7	41%
20-30 minutes	7	41%
30 minutes +	2	12%
	17	

Part 2: **STICKY NOTES**

The following summarizes feedback on three questions posed about barriers to active transportation, carpooling, and public transit.

Q1. What are the biggest barriers to **active transportation** in Whitehorse?

	Frequency
Poor weather	7
Routes do not allow access everywhere	6
Need rules and regulations in place	5
Safety concerns	3
Difficult for daily routines - errands, picking up kids, etc.	3
Physically unable	3
Time constraints	2

Q2. What are the biggest barriers to **carpooling** in Whitehorse?

	Frequency
Unable to run errands	5
Lack of privacy	2
Inconsistent work hours	2
Lack of organization, no way to coordinate	2
Inconvenient	2

Q3. What are the biggest barriers to using **public transit** in Whitehorse?

	Frequency
Schedule doesn’t meet needs	11
Other	7
Routes don’t meet needs	5
Inconvenient	5
Unable to run errands	4

Part 3: **OTHER COMMENTS**

- Doggie daycare: so people could walk their dogs on trails to work and keep dog at workplace during the day
- Electric bicycle (promote gas or electric bicycles to get people into cycling, as hills are a problem for some)
- Plan group rides from different neighbourhoods to show people the best routes.
- Bylaws prevent snowmobiling, etc.
- People not willing to change behaviour
- Not willing to change working days or hours for staff (which can improve service to public and productivity)
- Not willing to change event or service locations or event times to provide opportunities to consider options that are not cars
- Cheap gas, cheap or free parking on roadways or on private lots (like the City provides), no or minimal congestion, short travel times
- $7000 should separate out operational from capital with insurance which can be reduced but not eliminated Winter use from summer? What was fuel cost used?
- Parents driving kids to school avoiding school bus, transit and active transportation
- Lack of health promotion/education by YG Health, YG Education, schools, RPAY, Chamber, NGOs
- Lack of Education and information on opportunities and initiatives for what is available or possible to not use vehicles
- No park and ride areas for vehicles from outlying areas