

DECISION/DIRECTION NOTE

Title: Mode Share Targets

Date Prepared: November 4, 2020

Report To: Committee of the Whole

Councillor and Role: Councillor Sandy Hickman, Transportation & Regulatory Services

Ward: N/A

Decision/Direction Required:

A decision is required on whether to set a sustainable mode share target at this time and, if so, what that target should be.

Discussion – Background and Current Status:

1. What are mode share targets?

Mode shares describe the proportion of people using different modes of travel. A mode of travel can be any way of getting around and are commonly grouped into:

- Vehicle driver, vehicle passenger
- Public Transit (Bus, Light Rail, etc, if available)
- Walking, Cycling
- Other (Taxi, motorcycle, etc)

Mode share targets are an expression of municipal policy priorities. By setting a target for how each mode will serve the overall transportation mix in a community it is implied that other capital and operational decisions will follow these targets.

As cities grow, they often see a transition to modes like walking, biking, and public transit. This is driven by factors such as increased congestion, increased cost for parking, and increased density bringing more daily activities within reach.

In St. John's the projected population growth rates are relatively low. As such any change in mode shares that Council would like to target will require a concerted effort. Without purposeful intervention a shift in mode shares is unlikely to occur.

Sustainable Modes

Walking, cycling, and transit are considered *sustainable modes*. These modes are often grouped together for simplicity and to compensate for seasonal shifts between people who walk or bike in the warmer months and use transit in the colder months.

Sustainable modes are important as a group because together they represent the most efficient ways for people to travel in their city. The per capita emissions, infrastructure costs, and out of pocket expenses are all lowest for this group of travel modes.

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Sustainable modes are also important for equity & public health:

- Personal spending on transportation is disproportionately high among low and moderate-income families.
- The combined housing and transportation costs a family bears is often used as an indicator of affordability.
- Newfoundland and Labrador has a rapidly aging population and high obesity rates.
- Only 15% of the Canadian population meet physical activity guidelines. Physical and mental health are both improved by physical activity

Sustainable modes contribute to improved climate outcomes:

- Transportation (personal & industrial) consumes approximately 41% of the energy use (gasoline and diesel) and emits 59% of the community's GHGs.¹
- In order to reach a GHG reduction target in line with global targets we may need to reach (as a community) a reduction in gasoline emissions of about 20-30% by 2030

Transportation Demand Management (TDM)

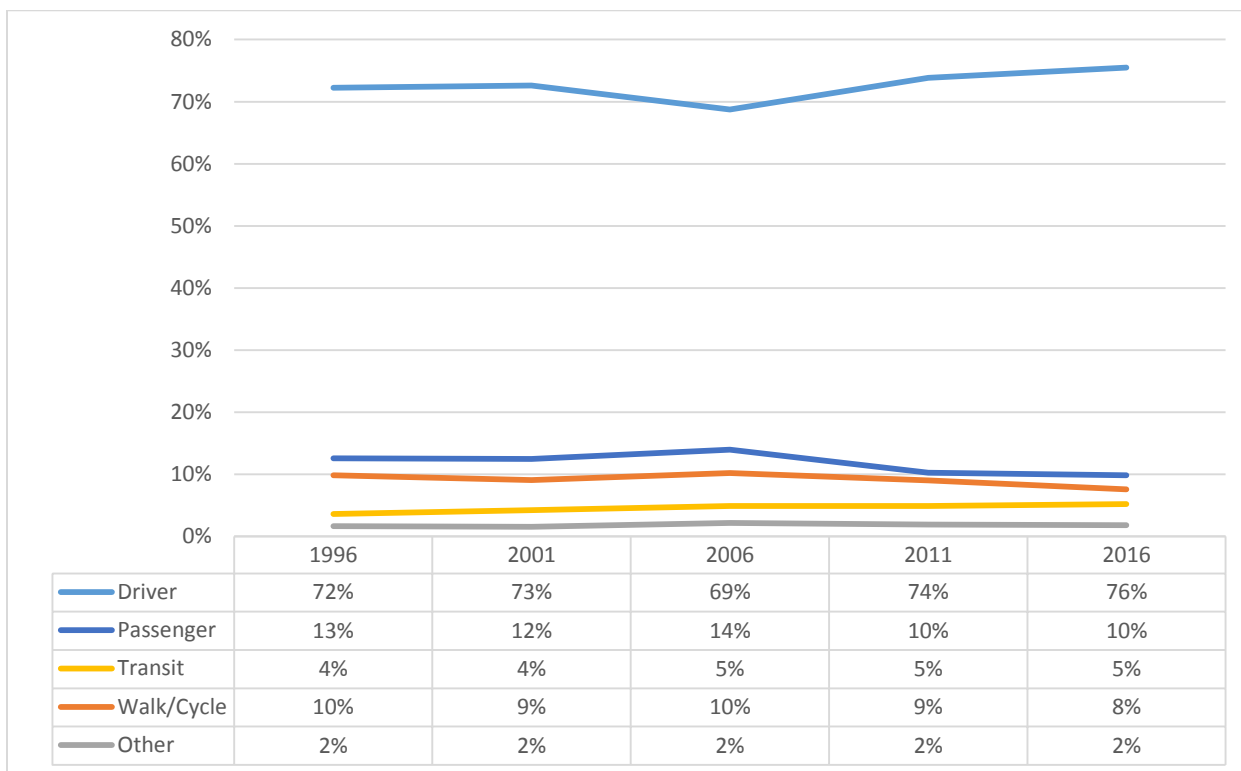
Some activities that normally require a person to travel can be done without leaving the home. Telework/remote work and online shopping are examples of these. Carpooling allows more than one person to make their trip without each using their own vehicle. These strategies, among others, are known as Transportation Demand Management (TDM) and aim to reduce the number of private vehicles using our streets, especially at peak times such as the morning and afternoon commute periods.

TDM is important for sustainability just as sustainable modes are. TDM measures are accounted for separately from mode share when discussing travel trends and policies. As such, while closely related, TDM strategies will not be discussed in this note.

2. Existing Trends

Historical trends of commuter travel in St. John's can be tracked using journey-to-work data from 1996-2006 & 2016 censuses and the 2011 National Household Survey (NHS). This data does not provide a full picture of how people in the city are moving but it is a reliable indicator of trends over time. The chart on the next page shows City of St John's commuter mode share over two decades.

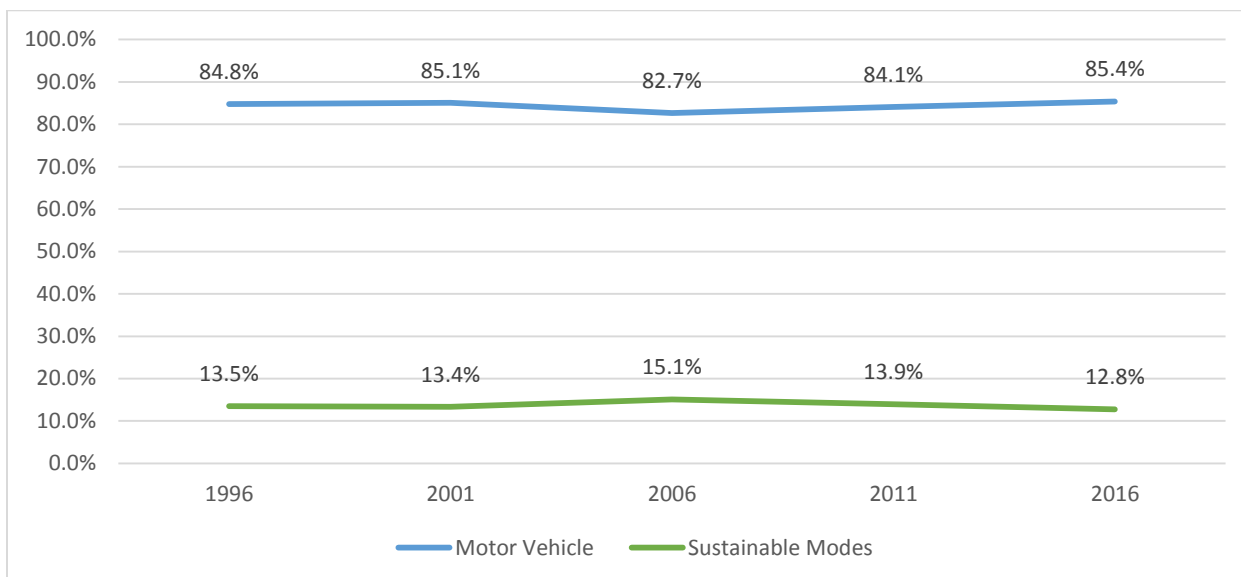
¹ City of St John's Energy and Greenhouse Gas Inventory (2018)



Citywide 59% of people in the city travel less than 5 km to get to work.² 10% of residents live less than 1 km from work. Of that 10% completing a less than 1km commute, more than half of (58%) use a car, truck, or van to get to work. These short commutes present an opportunity for more sustainable trips.

Summarizing the chart above into motor vehicle-based modes and sustainable modes produces the trends shown on the next page for the City of St. John's.

² 2016 Census Tables <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/dt-td/Rp-eng.cfm?TABID=2&LANG=E&A=R&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=1001519&GL=-1&GID=1257401&GK=3&GRP=1&O=D&PID=111334&PRID=10&PTYPE=109445&S=0&SHOWALL=0&SUB=0&Temporal=2017&THEME=125&VID=0&VNAMEE=&VNAMEF=&D1=0&D2=0&D3=0&D4=0&D5=0&D6=0>

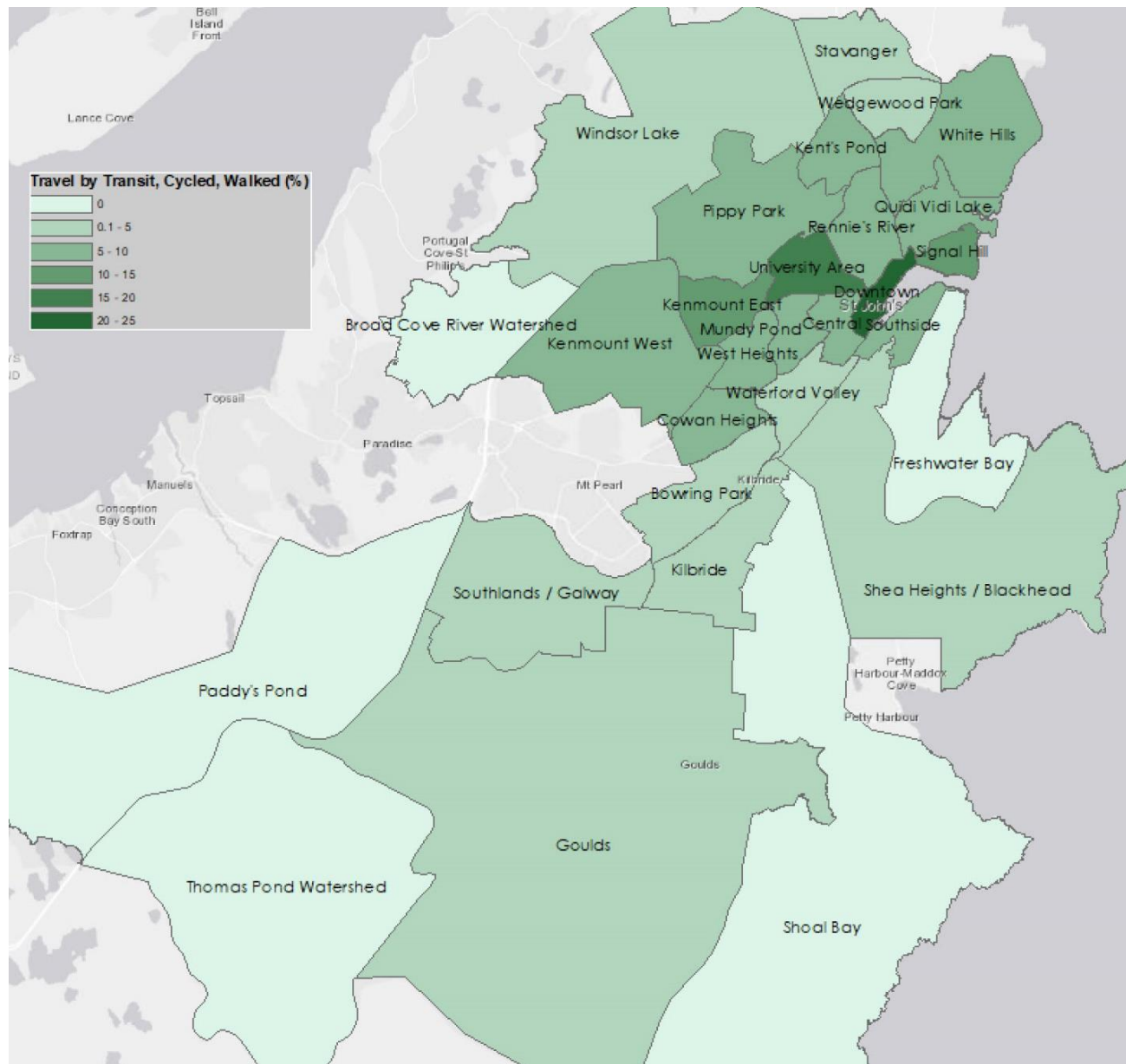


Although citywide sustainable mode share is around 13%, the map on the next page shows that some areas already have a much higher sustainable mode share than others. The median mode share for all neighbourhoods is only 5.9%³ while the downtown neighbourhood has over 20% sustainable commuter mode share.⁴

³ 50% of residents live in a neighbourhood with a sustainable mode share of $\leq 5.9\%$

⁴ Sustainable transportation journey-to-work, Census 2016:

<https://censusmapper.ca/maps/983?index=3#13/47.5667/-52.7331>



On the next page a table showing the sustainable mode share breakdown by neighbourhood is provided.

The city's intensification areas are shown in the map attached to this briefing note. These areas are located near transit service and are mostly in neighbourhoods with higher than median sustainable mode shares.

Neighbourhood	Mode			Sustainable Modes (total)
	Public Transit	Walk	Bicycle	
Bowring Park	2.1%	1.4%	0.5%	4.0%
Broad Cove River Watershed	0.0%	0.0%	0.0%	0.0%
Central	3.5%	6.1%	0.0%	9.6%
Cowan Heights	3.7%	2.1%	0.2%	5.9%
Downtown	4.5%	15.3%	0.4%	20.3%
Freshwater Bay	0.0%	0.0%	0.0%	0.0%
Goulds	1.0%	1.0%	0.2%	2.2%
Kenmount East	5.9%	5.5%	0.3%	11.7%
Kenmount West	5.0%	3.2%	0.0%	8.2%
Kent's Pond	3.3%	4.1%	0.2%	7.6%
Kilbride	2.1%	0.4%	0.1%	2.6%
Mundy Pond	2.6%	5.7%	0.0%	8.2%
Paddy's Pond	0.0%	0.0%	0.0%	0.0%
Pippy Park	5.6%	2.5%	0.7%	8.7%
Quidi Vidi Lake	2.2%	4.6%	0.5%	7.4%
Rennie's River	2.6%	6.8%	0.6%	10.0%
Shea Heights / Blackhead	2.3%	1.2%	0.0%	3.6%
Shoal Bay	0.0%	0.0%	0.0%	0.0%
Signal Hill	2.0%	9.3%	0.3%	11.6%
Southlands / Galway	0.1%	0.3%	0.3%	0.6%
Southside	3.4%	2.8%	0.0%	6.2%
Stavanger	1.1%	1.6%	0.0%	2.8%
Thomas Pond Watershed	0.0%	0.0%	0.0%	0.0%
University Area	6.5%	10.1%	0.2%	16.8%
Waterford Valley	2.2%	2.3%	0.2%	4.7%
Wedgewood Park	1.1%	1.0%	0.1%	2.2%
West Heights	2.5%	3.2%	0.3%	5.9%
White Hills	3.7%	2.6%	0.2%	6.6%
Windsor Lake	1.5%	1.1%	0.1%	2.7%

In the mode share table above, we can see two important trends:

1. Walking mode share is widely variable. In Southlands/Galway it is only 0.3% while in Downtown it is 15.3%. Walking mode share is heavily dependant on the built environment. Destinations that are close together and pedestrian routes that are dense and connected are key factors enabling residents to choose walking as a viable mode for their daily lives.
2. Over 2/3 of the population lives in neighbourhoods with a transit mode share of between 2% and 5%. This is reflective of the current transit system which serves as broad an area as possible but has limited capacity. Increasing the ability of the

transit system to serve an area through higher frequency and longer service hours is key to differentiating transit service and allowing people to choose transit as a good option for their travel.

3. Related Considerations

Population density & land use

While direct investment in sustainable modes can shift the choice that residents make about how to travel the form of the City is vitally important. Mixed use development and designs that are accessible and at a human scale can have a significant impact on the costs of transportation and the viability of choosing sustainable modes.

From 2006 to 2016 the population of St. John's has grown by over 8%. The 2014 KPMG "As Is" report on winter maintenance indicates the road network has grown by 21% from 547 to 662 kms over 10 years. (The biggest growth area being residential roads – 340 to 438 kms. As such, there are fewer residents per km of road on average.)⁵

A more compact land use pattern contributes to several benefits such as:⁶

- Reducing the capital and operating costs of providing public infrastructure and services such as roads, utility lines, garbage collection, emergency services and school transport.
- Improving overall people's ability to reach desired goods and services and interact with one another.
- Reducing transportation costs, including the per capita costs to consumers to own and operate vehicles, road costs, collisions, and pollution emissions.

Public Investment

Investment over time in different modes is often used as a tangible measure of how important each is within the set of investments that the City makes. Jurisdictions may choose to compare a stated mode target against the proportion of funding that mode receives. For example, if public transit is targeted to carry 10% of trips within the City then this approach would seek to have 10% of transportation related operating budgets being spent on public transit.

To make this type of measurement all operating and capital costs associated with transportation would need to be catalogued and assigned to one or more modes. Historically, records that differentiate maintenance and capital costs between the users of that infrastructure have not been kept. In future, one approach to monitoring mode

⁵ [The City of St. John's Review of Winter Maintenance Services "As Is" Report, June 24, 2014](#)

⁶ Victoria Public Transit Institute (T. Litman). *Smart Growth Savings: What We Know About Public Infrastructure and Service Cost Savings, And How They are Misrepresented By Critics*. April 2013.

priority within the City's policies would be to develop the systems needed to allocate costs by mode.

4. How to set mode share targets

Establishing a transportation vision and mode share targets typically happen early in the process of developing a transportation master plan (TMP). Public engagement, historical trends, current travel behaviour and alignment with city plans and policies help inform the development of mode share targets. When mode share targets are established as part of the TMP, the adopted targets are accompanied by a strategy to achieve them.

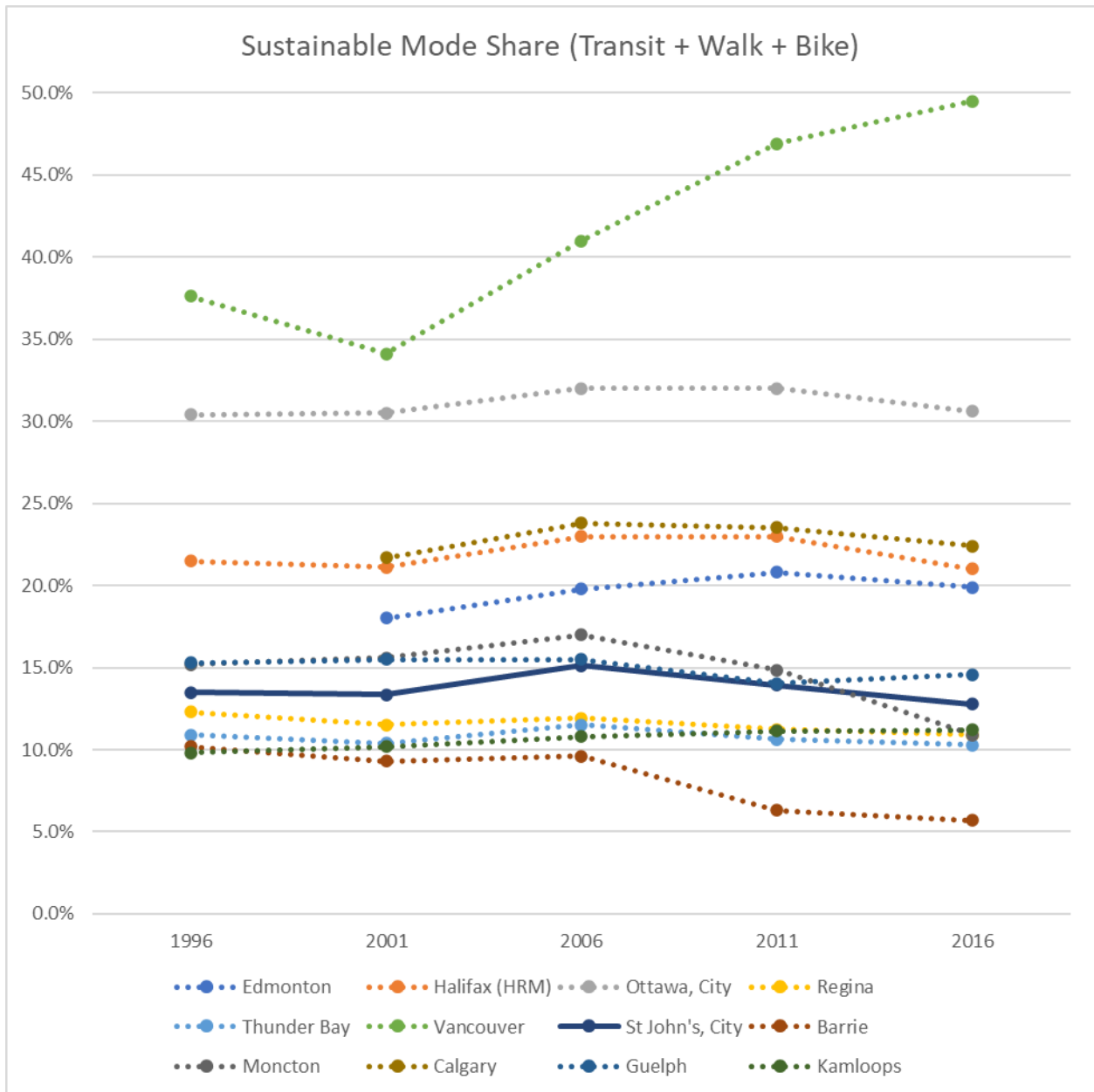
In advance of developing a Transportation Master Plan, the City and the Province are working together to undertake a Household Travel Survey. Unfortunately, the COVID-19 pandemic has further delayed this work and it is uncertain as to when "typical" behaviour will resume, and we are able to collect representative data.

Data from a Household Travel Survey portrays a more accurate picture of current travel behaviour than census data. Data collected from the Household Travel Survey will enable the creation of a discrete choice model which include population demographics and helps to understand why people choose their current modes. This enables better projections and more accurate evaluation of options.

Achieving an increase in sustainable mode share targets requires providing people with realistic and convenient travel choices. In our current transportation system, it can be extremely challenging to reach essential destinations without driving, particularly in the winter months. The choices available also vary by neighbourhood with some areas better suited to sustainable modes than others.

Comparing municipalities

The following chart shows sustainable mode share for comparable small and mid-sized cities along with select larger cities. This is based on the same Journey to Work data discussed above.



As is evident above, comparable municipalities have experienced relatively little change in overall sustainable mode share over the last 20 plus years. Three large municipalities have been included in the chart above. It is important to note that these are not considered comparable from the perspective of mode share percentages. They have entirely different land use patterns and transportation infrastructure.

Ottawa and Calgary are included in this chart to show that even large municipalities with significant investments in transit and active mode infrastructure are struggling to make significant gains.

The stand-out is Vancouver where, in addition to investment in sustainable modes there have been significant changes made that make travel by personal vehicle less

convenient for many. For example, vehicle capacity on bridges in/out of Vancouver has been reduced and parking rates in the downtown can exceed \$10/hour.

Many small and mid-sized cities don't have mode share targets or transportation master plans. The following table compares a mix of peer municipalities from the Transit Service Review and other municipalities who have publicly available mode share targets. To compare among this group, the annual percentage growth in sustainable mode share is calculated. This can be conceptualized similarly to an interest rate with compound growth.

Municipality	Annual % Growth in Sustainable Mode Share	Benchmark		Target	
		Year	Sustainable Modeshare	Year	Sustainable Modeshare
Calgary (range: low)	0.66%	2005	23%	2069	35%
Moncton (Tricommunity)	2.24%	2013	7%	2041	13%
Kingston	1.21%	2008	19%	2034	26%
Ottawa	0.85%	2011	35%	2031	41%
Calgary (range: high)	1.05%	2005	23%	2069	45%
Halifax (HRM)	1.50%	2011	22%	2031	30%
Thunder Bay	3.20%	2016	10%	2038	20%
Vancouver	1.88%	2008	40%	2020	50%

Timeframe

Typically, the time frame for a mode share target is long term. As can be seen in the table above, targets are set by these municipalities anywhere from 12 years to 64 years after the benchmark date. Most are between 20 years and 30 years which is typical for the industry.

The most impactful changes a City can make – land use patterns and major infrastructure – take a long time to implement and subsequently influence the people's decision making. Some changes, like public transit funding, can be impactful on shorter time frames but also often rely on key infrastructure to work well. (For example, a new terminal may be necessary to make service enhancements feasible.)

The City of St. John's has a convenient benchmark year of 2016 (the most recent census year). Possible horizon years for the purpose of setting a mode share target could be:

- 2030 – matches projection scenario from City of St. John's Energy and GHG Corporate Inventory.
- 2031 – matches 5-year census cycle
- 2040 or 2041 – approximately 20 years from now, 2041 matches census cycle

- 2050 or 2051 – approximately 30 years from now, 2050 matches projection scenario from City of St. John's Energy and GHG Corporate Inventory, 2051 matches census cycle

In consideration of the range of annual percentage growth identified above the table below shows what very low, low, medium, and high scenarios would be for these timelines.

St. John's	Annual % Growth in Sustainable Mode Share	2016 (Base)	2030 (Target)	2040 (Target)	2050 (Target)
very low	0.5%	12.8%	13.7%	14.4%	15.1%
low	1.0%	12.8%	14.7%	16.2%	17.9%
medium	1.5%	12.8%	15.7%	18.3%	21.2%
high	2.0%	12.8%	16.9%	20.6%	25.1%

Options to set a mode share target

A sustainable mode share target can be developed in a variety of different ways. The method which is most appropriate for the City to pursue is a matter of policy priorities. Some typical approaches are:

- Assume that no major changes in mode share trends will be realized and estimate a target that fits the historic trend (Business as Usual)
- Adopt a target (or range of targets) based on comparable municipalities
- Conduct a public engagement process. This can include a discussion on the relative merits and costs of different targets and the implications of how they might be achieved
- Develop models based on population growth, local geography, costs, and other factors to determine how conditions may change over time.
- Use an overarching process to bring these different approaches together by creating investment scenarios based on public feedback, peer comparisons, or policy directions. These scenarios could then be tested using a model to determine what is achievable with what effort.

It is also possible to iterate through different approaches, repeating some steps and using them to inform further work.

In addition to selecting how a mode share target should be developed it is also important to consider the type of target that will result.

- A single target for the City could be defined. This is the simplest type of target and is readily compared to census or other data sources.
- A sustainable mode share target that is broken out into specific targets for transit, walking, and cycling would refine an area wide target. This type of target could be used to inform resource allocations among different sustainable modes.

- Journey to work data, on which the mode shares discussed above are based, represent what could be called “commute trips”. There are many other types of trips that are made including shopping, recreation, services, education, etc. Understanding how all trips are made within the City provides a more complete picture of mobility. Mode shares can be similarly targeted to drive different policy objectives. For example, a different plan would be used to target education trips than shopping trips. This level of detail is not common as part of a high-level goal.
- Geography-specific targets could be used. Areas that are difficult to serve by specific modes could be given lower targets while areas that have higher potential are given higher targets and increased resources. While this may seem to disproportionately benefit some neighbourhoods over others the true effect is much more nuanced. For example, when residents of a central neighbourhood choose sustainable modes then those who need to drive in from more distant neighbourhoods benefit from less congestion and parking demand.

5. How to reach targets and increase sustainable mode share

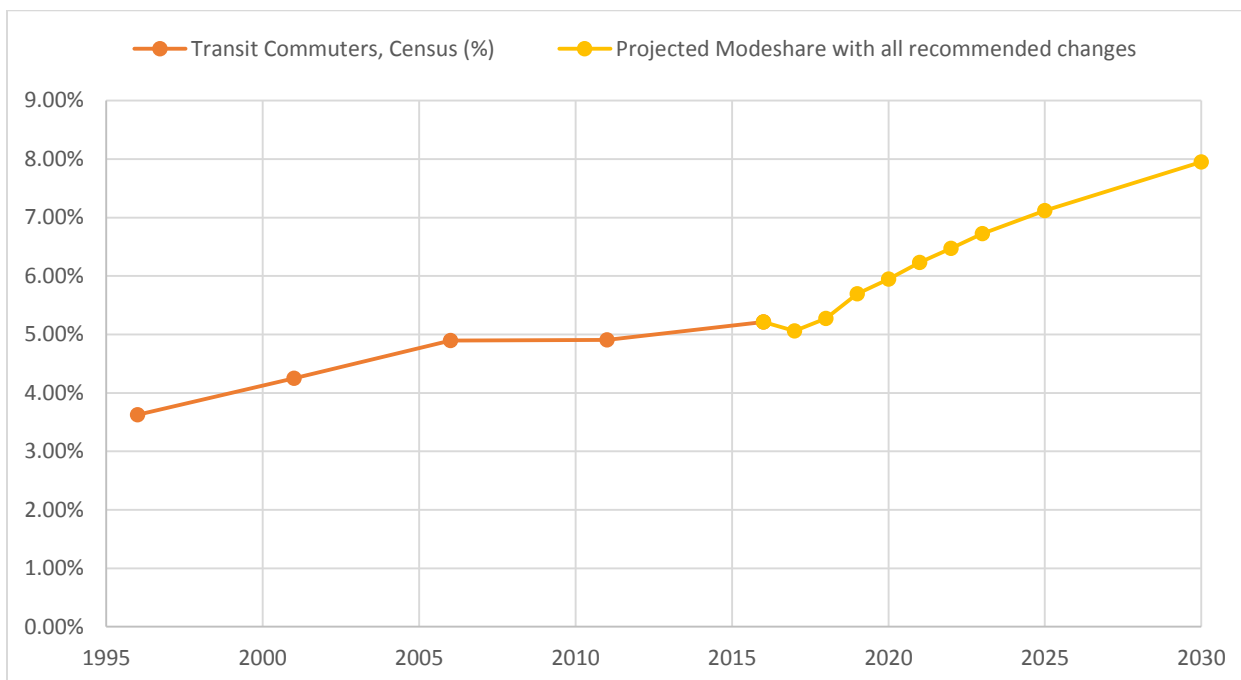
Several policies and documents contribute to increases in sustainable mode share over the long term:

- Envision and the development regulations have tools to encourage development patterns that are more supportive of sustainable modes.
- A future Transportation Master Plan will develop strategies for increasing the City’s sustainable mode share along with other mobility related investments.
- The 2019 Bike St. John’s Master Plan outlines actions to increase cycling.
- The 2019 Transit Service Review Final Report outlines a plan to increase transit ridership.

Some of the most effective and fastest ways to boost sustainable mode share in the short term are to:

1. Increase transit frequency and service hours, and
2. Infill missing sidewalk segments and increase sidewalk snow clearing level of service. (This supports both walking and transit mode share.)

The following chart shows the projected transit mode share increase from implementing the recommended Strategic Directions in the Phasing Plan of the 2019 Transit Service Review Final Report. The growth forecasts are considered conservative. By implementing all the recommended actions, the city could meet a 16% sustainable mode share target by 2030 (8% transit + 8% walk/bike).



The full set of recommendations from the 2019 Transit Service Review Final Report has not yet been implemented. As such, the growth projected in the chart above should not be expected by the 2030 horizon as shown.

The year-round viability of sidewalk use is a critical factor for sustainable mode shares. 2020 has seen a lot of discussion on sidewalk snow clearing. From the perspective of increasing sustainable mode share it is important that policy and budget decisions related to snow clearing are reflective of the priorities the City has for mobility by all modes.

6. Conclusions

Typically, a mode share target would be informed by public engagement and baseline data with a basis in long range forecasting and discrete choice modelling and tested against alternative policy and infrastructure scenarios. This is a very cumbersome process and collecting the necessary data has been delayed multiple times over recent years.

An opportunity exists to make an informed policy driven decision on whether, and to what extent, St. John's should prioritize mobility by sustainable modes. If Council were to take this approach, then a reasonable target could be based on the jurisdictional comparison above and projections from the 2019 Transit Service Review.

Adopting a target now would also help inform policy changes and investment decisions in advance of a completed Transportation Master Plan.

In the table on page 11 of this briefing note the “medium” target of 1.5% annualized growth puts the sustainable mode share at 15.7% for 2030. This is an increment from 12.8% in 2016, or (approximately) a 3% shift in the next 10 years. The Transit Service Review found that a 3% shift in that timeframe would be feasible with transit investment alone. While that level of investment required has not yet been allocated, a combination of transit spending and active mode spending could reasonably combine to achieve this scale of change. As such, reasonable targets could be a 16% sustainable mode share for 2030 or a 22% sustainable mode share for 2050.

Key Considerations/Implications:

1. Budget/Financial Implications:

Sustainable mode share can not be increased meaningfully without significant investment. Staff resources, operating budget and capital expenditure are all factors. That said, no specific funding requests are identified in this briefing note.

2. Partners or Other Stakeholders:

n/a

3. Alignment with Strategic Directions/Adopted Plans:

Sustainable mode share is an integral part of the strategic direction “A City that Moves”. This direction is described as follows with emphasis added on mode share related language:

Changing demographics mean the way people move around the city is shifting. Our transportation network needs to provide all people and businesses access to options for travelling where they want to go. By focusing on safety and balance this direction attempts to make a safer transportation network for everyone, regardless of their mode of travel.

4. Legal or Policy Implications:

Any commitment to a meaningful increase in sustainable mode share requires that policy changes be considered in other areas, particularly in how the City is built and how it is maintained.

5. Privacy Implications:

n/a

6. Engagement and Communications Considerations:

n/a

7. Human Resource Implications:

n/a

8. Procurement Implications:

n/a

9. Information Technology Implications:

n/a

10. Other Implications:

n/a

Recommendation:

That Council consider adopting a sustainable mode share target. If adopted and implemented through policy changes and investment an achievable target would be 16% by 2030 or 22% by 2050.

Prepared by: Marianne Alacoque, Transportation System Engineer
Approved by: Garrett Donaher, Manager - Transportation Engineering

Report Approval Details

Document Title:	Mode Share Targets.docx
Attachments:	- Intensification Areas May 16 2019.pdf
Final Approval Date:	Nov 5, 2020

This report and all of its attachments were approved and signed as outlined below:

Scott Winsor - Nov 5, 2020 - 1:01 PM

Jason Sinyard - Nov 5, 2020 - 2:12 PM