UBC sustainability

Assessment of UBC's Sustainability Performance:

Transportation

Jacob Earley, Ian Lin, and Carlos Teran Rhor

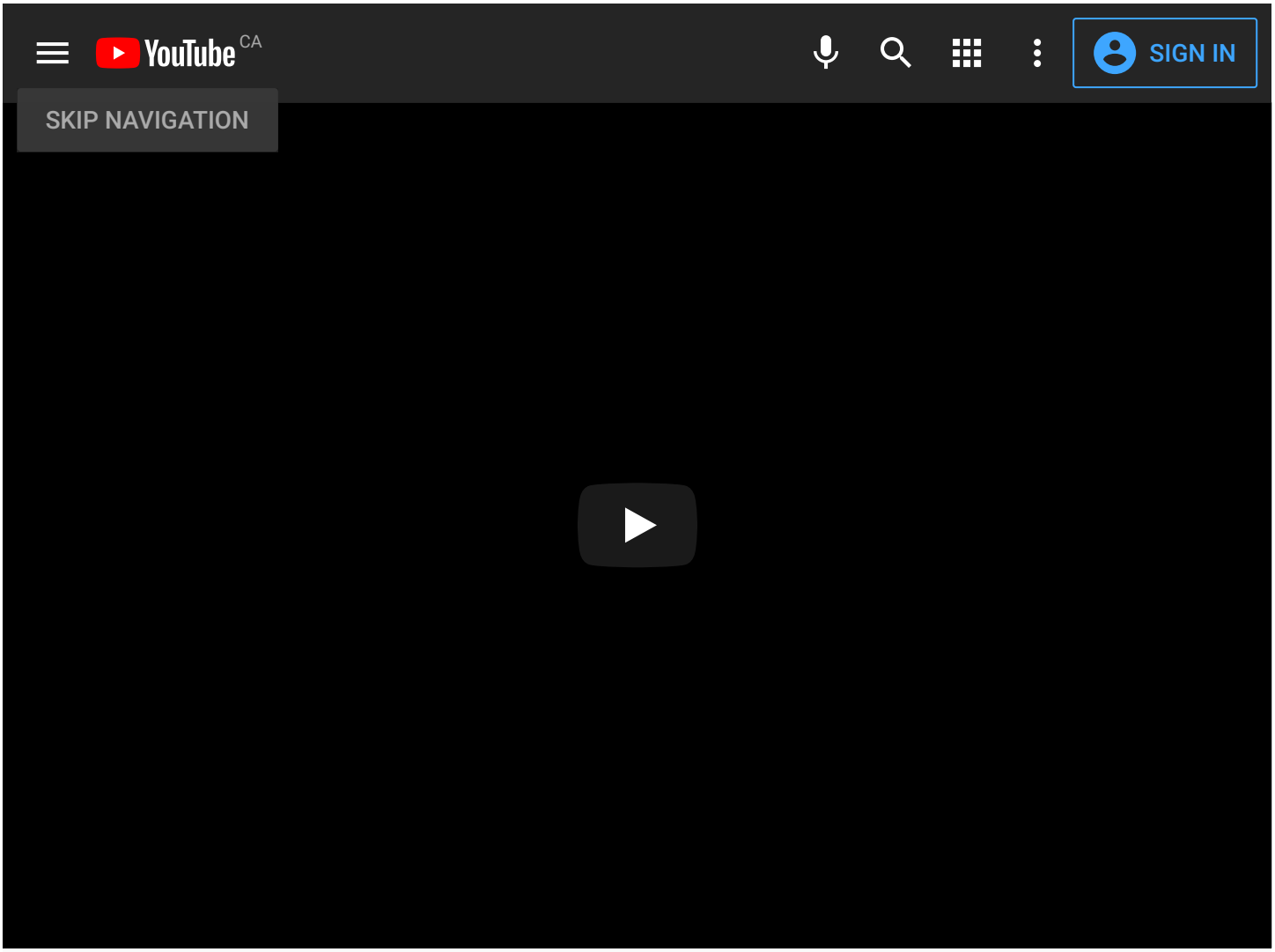
University of British Columbia

POLI 328Y / SOCI 433D: Sustainability Beyond Buzzwords

Dr. Emily Huddart Kennedy

February 27, 2021

https://youtu.be/D8yOFQjKf4U



UBC Transportation

Unlisted

2 views • Mar 3, 2021

LIKE DISLIKE SHARE SAVE ...

Divija Madhani
5 subscribers

SUBSCRIBE

Assessment of UBC's Sustainability Performance: Transportation

UBC TRANSPORTATION

Jacob Earley, Carlos Teran, Ian Lin

Presentation outline

1. Planned Projects
2. Definitions
3. Key Issues
4. Recommendations

Land Acknowledgement

We would like to acknowledge that UBC’s Vancouver Point Grey campus is situated on the traditional, ancestral, unceded territory of the Musqueam people. We would also like to acknowledge that you are joining us today from many places, near and far, and acknowledge the traditional owners and caretakers of those lands

UN SDG

ENERGY

Ensure access to affordable, reliable, sustainable and modern energy for all

COMMUNITY

Safeguarding cities and communities by taking sustainability, resilience and accessability into account

INNOVATE

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

UBC Transportation Plan

TARGET 1

By 2040, at least 2/3 of transport to and from UBC via walking, cycling or transit, while maintaining 50% of those trips on public transit.

TARGET 2

Reduce SOV to and from UBC by 20%, and reduce SOV/person by 30% using 1997 as a baseline.

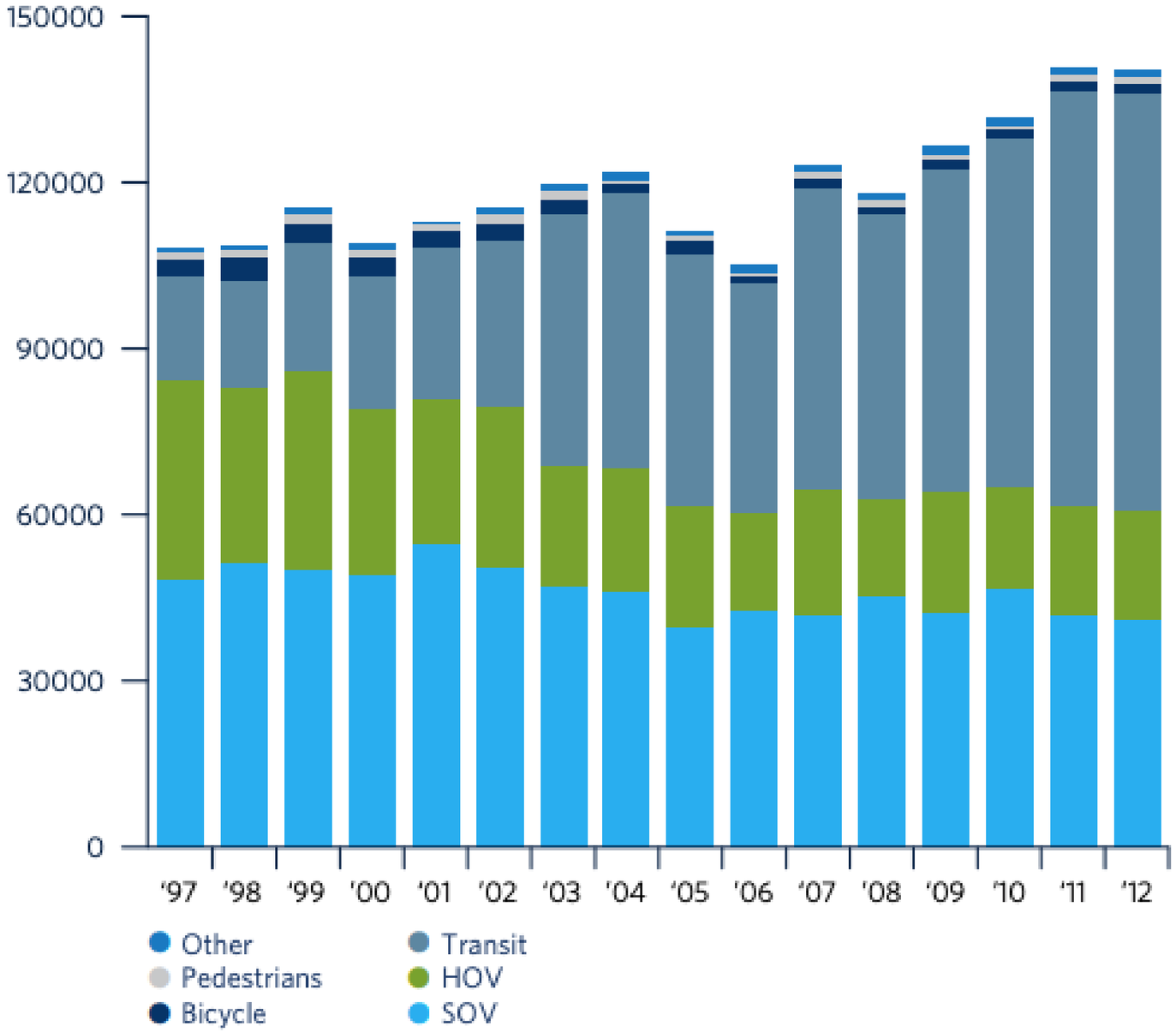
TARGET 3

Maintain private (SOV, carpooling) automobile traffic at or less than 1997 levels.

Up 3% from 1997

Carpooling/vanpools have **dropped** 57% from 1997

DATA OVER THE YEARS



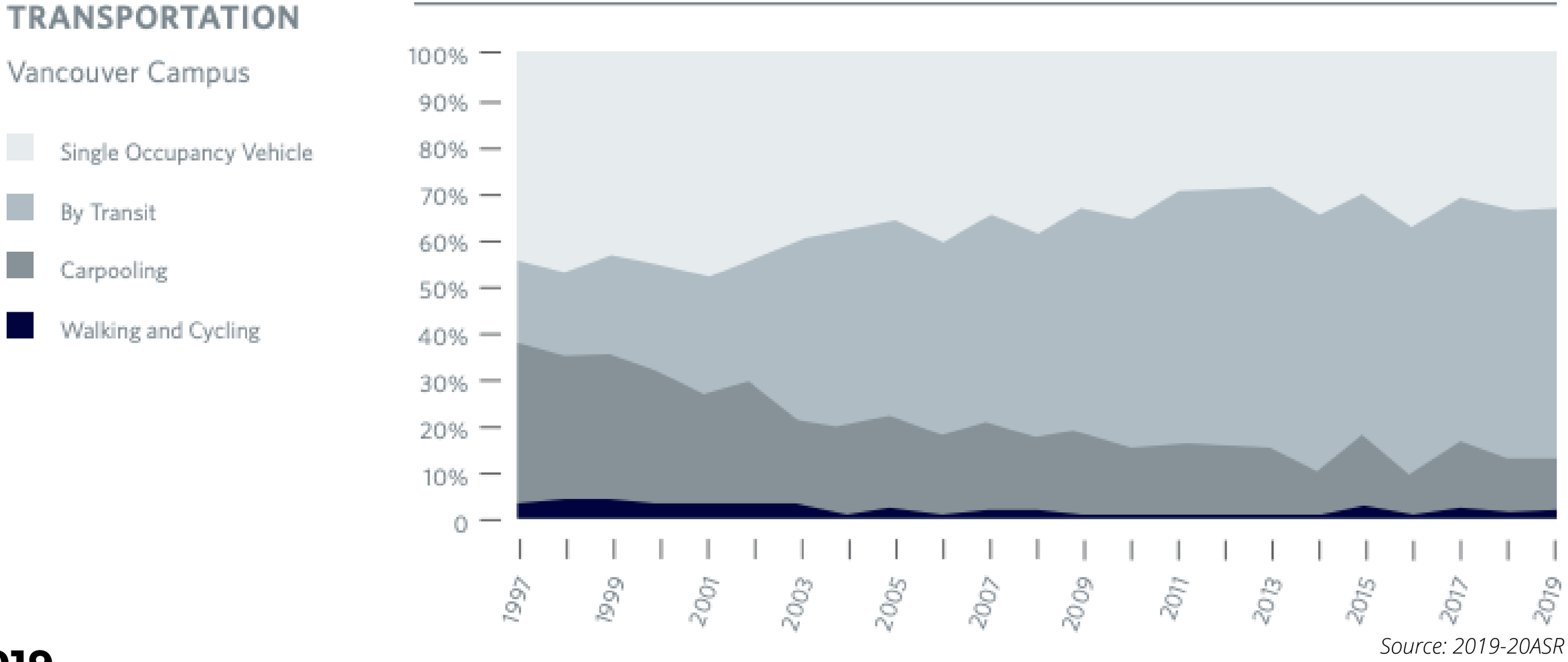
Source: UBC Fall 2012 Transportation Status Report

2012:

- 70,000 UBC DAILY POPULATION GROWTH
- 150,000 DAILY COMMUTES TOTAL

TRANSPORTATION

Vancouver Campus



Source: 2019-20ASR

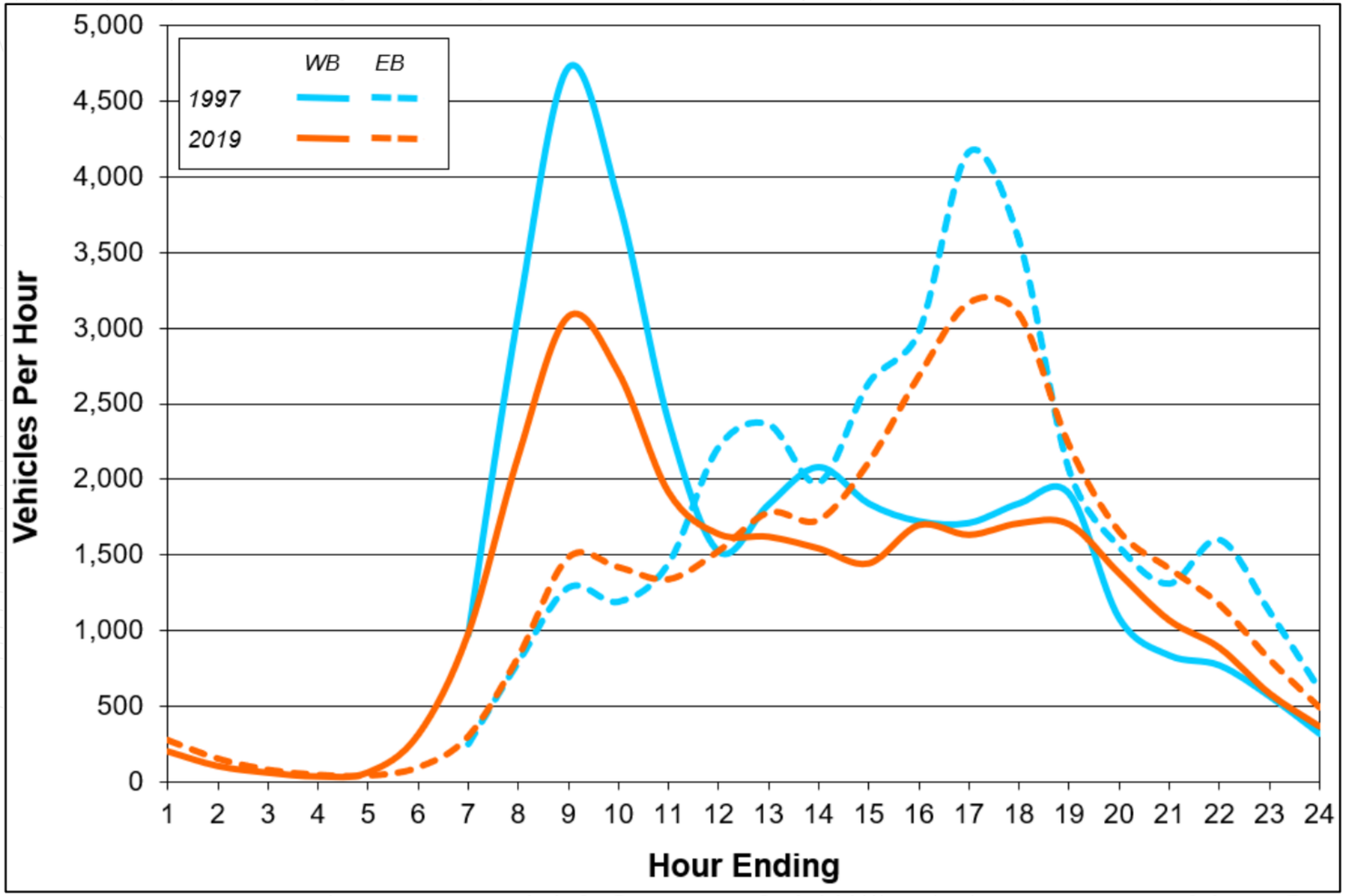
2019

80,220 TRIPS TO FROM CAMPUS PER PERSON BY PUBLIC TRANSIT ONLY. A 322% INCREASE FROM 1997

1997-2019

VEHICLES PER HOUR HAVE DECREASED AROUND 30% REFLECTED FROM PUBLIC TRANSIT

BUT PEAK HOUR TIMES IN THE MORNING FROM 6 AM-11 AM REMAIN UNCHANGED



Source: Transportation Report 2019

Current Measures

INITIATIVES

UBC Sustainability
UBC Campus +Community Planning
Partnership Translink
Clean Energy Research Center

HYDROGEN REFUELING CENTER

Dr. Walter Mérida, head of CERC:
“Beyond the research activities, the testbed will link a few narratives —technology, the built environment, people, etc...It will provide a space to gather, engage and think deeply about the way we want to live”.

Issues

"This puts significant strain on the public transit system and creates overcrowding and poor service/experience to riders, which could push people to less desirable"

GROWTH

BC is projected to grow from 5.1 million today to up to 6.6 million by 2038. UBC student population estimated to grow by 13,000 by 2041.

16th Avenue where there has been an increase of 30% traffic. This is attributed to the population growth in Wesbrook Village and congestion on alternative routes.

EXISTING INFRASTRUCUTRE

Difficult to build new large scale infrastructure,
UBC 2014 Transporation Plan's lack of "campus road space"

ENGAGEMENT

Public perception and understanding of sustainability need more engagement to build **social infrastructure.**
Make sustainability more accessible to everyone.

Idea

Carlos' Magic School Bus

Sustainable hydrogen fuel cell buses for local university commuters

Key features

LOCAL ROUTES

Carlos' Magic School Bus will first pilot run one route that will run from 16th Ave and Macdonald Rd to UBC during peak hour times in the morning from 7 am-10 am.

HYDROGEN-FUELED

In combination with UBC's hydrogen fueling stations, we are pioneering sustainable commuting through renewable energy innovations.

LOCALLY-MADE

Partnerships with Burnaby-based fuel cell bus manufacturers to source vehicles to lower business emissions and support local businesses. Facilitation with UBC Students.

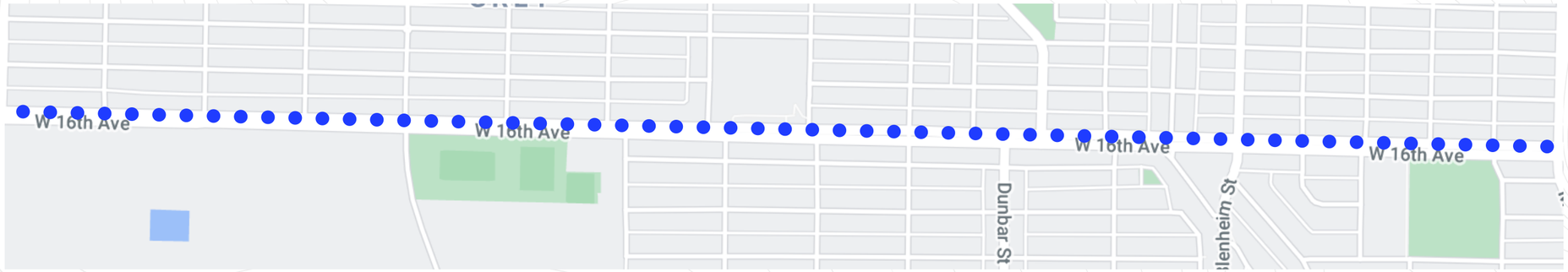
How it works

LOCAL ROUTES

We define our target routes for local commuters by analyzing high traffic routes in local areas during peak time hours. First, we'll be piloting our R1 route that runs on 16th ave and Macdonald Rd.

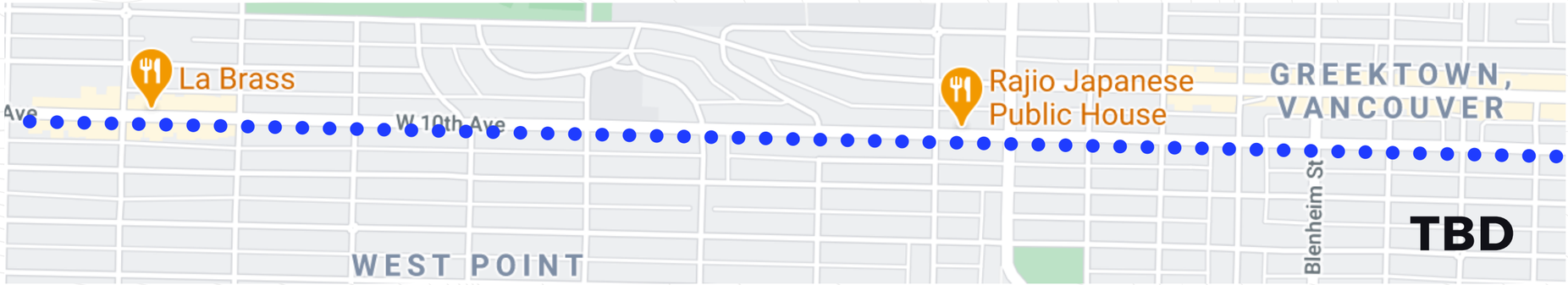
R1

West 16th Ave
+ Macdonald Rd



R2

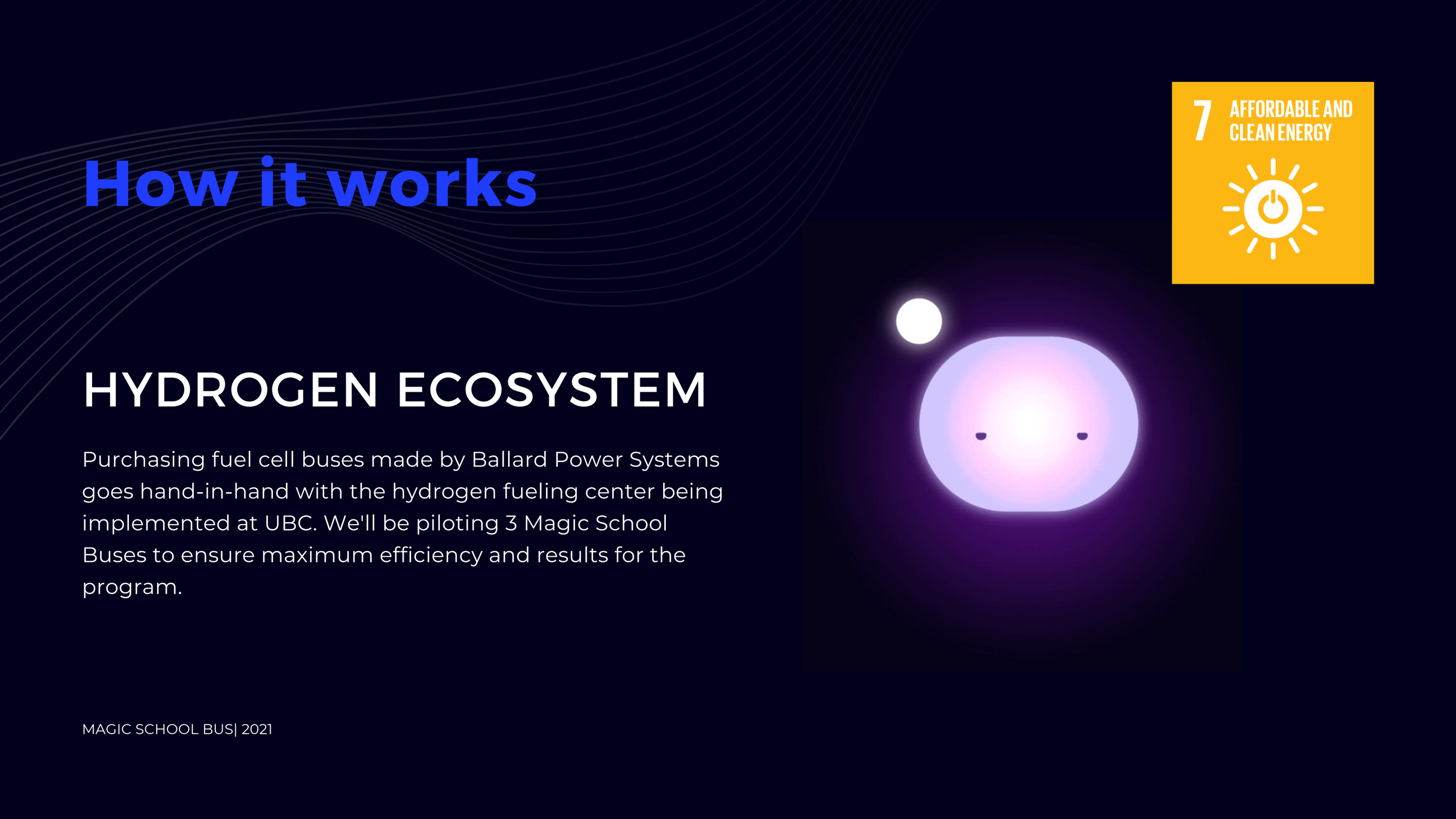
West 10th Ave
+ Macdonlad Rd



R3

West 4th Ave
+ Point Grey Rd

How it works



HYDROGEN ECOSYSTEM

Purchasing fuel cell buses made by Ballard Power Systems goes hand-in-hand with the hydrogen fueling center being implemented at UBC. We'll be piloting 3 Magic School Buses to ensure maximum efficiency and results for the program.

Circular Economy

Once UBC's hydrogen fueling station is implemented the whole process of creating fuel to charging will be done at the university creating a circular hydrogen ecosystem.

Challenges

ENVIRONMENT, HEALTH AND SAFETY POLICIES

How do we ensure both passengers, drivers, and operators of the Magic Schoolbus follow provincial and federal regulations?

HIGH COST

Purchasing hydrogen-powered electric buses is incredibly expensive and will require large fundings to subsidize the high financial entry barrier.

CREATING MORE TRAFFIC

By adding injecting the Magic School Bus into peak-time traffic may worsen the traffic jams due to an increase in total vehicle count.

ADDRESSING CHALLENGES

TRANSLINK PARTNERSHIPS

By partnering with Translink to operate and manage these buses will allow UBC to adopt proper EHS regulations for the school bus.

ENVIRONMENTAL COST

Traditional fossil fuel vehicles create larger environmental degradation throughout the life-cycle of sourcing oil. What we hope investors can see is that the environmental cost outweighs the financial cost.

UBC SKYTRAIN 2030 COORDINATION

The Magic School Bus pilot will be done in coordination with the UBC Skytrain 2030 to alleviate total vehicle count while getting to the university's local commuters.

Thank You

Sources

UBC Vancouver Transportation Status Report Fall 2019 (Fall 2019, pp. 1-42, Rep.). (2019). UBC Campus + Community Planning. https://planning.ubc.ca/sites/default/files/2020-05/UBC2019-TransportationStatusReport-Mar5-2020_0.pdf

THE 17 GOALS | sustainable development. (n.d.). Retrieved February 27, 2021, from https://sdgs.un.org/goals

ANNUAL SUSTAINABILITY REPORT (2019-2020, pp. 30-39, ANNUAL SUSTAINABILITY REPORT). (n.d.). University of British Columbia. https://www.sustain.ubc.ca/sites/default/files/2019-20ASR_201019_0.pdf

Hydrogen fueling station. (n.d.). Retrieved February 27, 2021, from https://planning.ubc.ca/hydrogen-fueling-station

Chan, K. (2020, January 11). Urbanized. Retrieved February 27, 2021, from https://dailyhive.com/vancouver/ubc-okaganan-campus-plan-expansion-2040

Klinenberg, Eric, Malcolm Araos, and Liz Koslov. 2020. "Sociology and the Climate Crisis." Annual Review of Sociology 46 (July): 6.1-6.21.