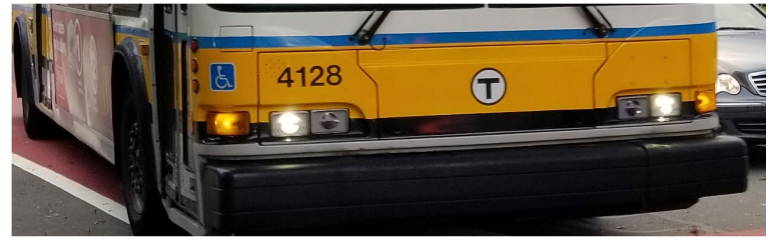
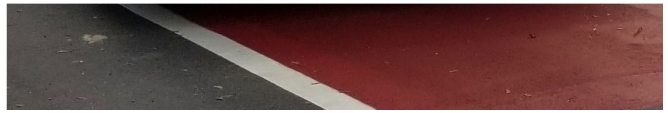
City of Cambridge

Net Zero Transportation Plan: Advisory Group Meeting #4

Wednesday, May 31, 2023





Welcome!

Meeting purpose:

- ✓Continue getting to know each other and agreeing how to work together
- ✓Talk about transportation planning, emissions, and strategies to reduce transportation emissions
- ✓Start discussing policies that could reduce transportation emissions

Check-in question: Who do you help or who helps you get where you need to go?

Agenda

I. What are the basics of transportation planning?

II. How do we measure emissions from transportation?

III. What strategies could we use to reduce transportation emissions?

IV. What are examples of current Cambridge policies that reduce transportation emissions?

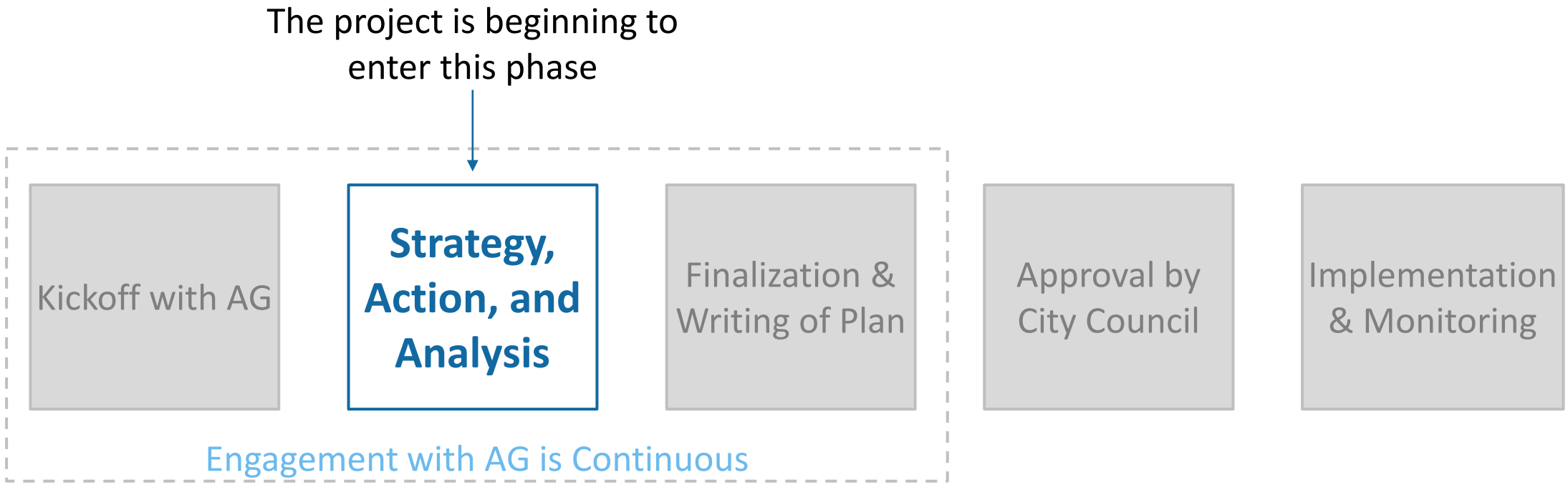
What are some things to keep in mind?

1. Improve mobility for Cambridge residents

2. Emissions must be zero by 2050 or sooner

3. Policies need to match City priorities

What are some things to keep in mind?



What are the basics of transportation planning?

Definitions

Mobility – the ability to move around easily and safely

Mode – different ways people get around (ex., drive, bike, bus, train, walk, etc.)

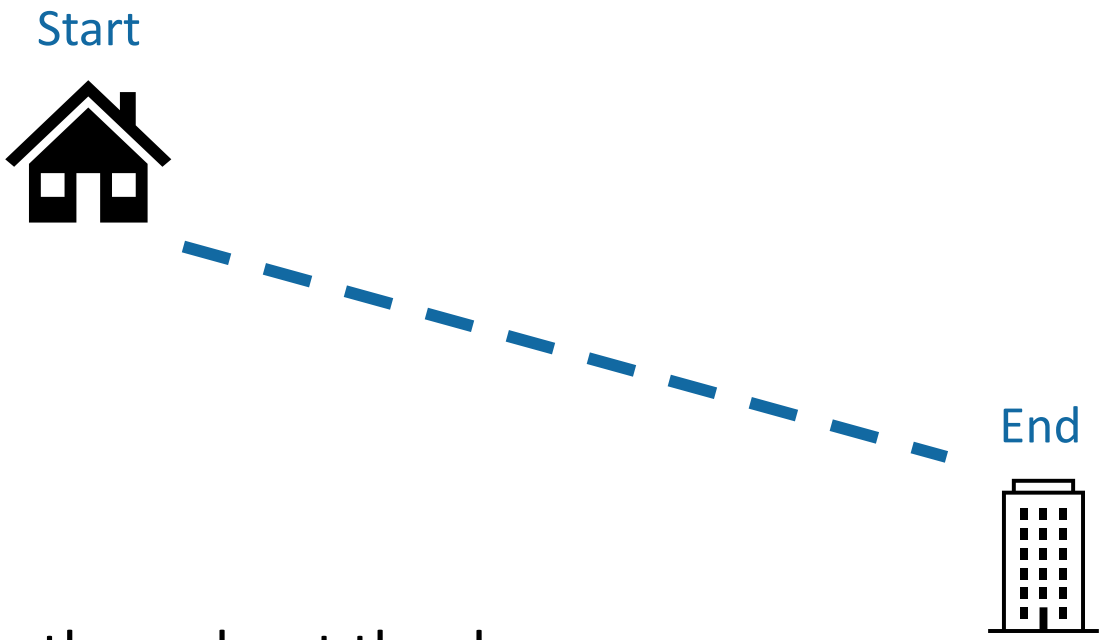
Mode shift – when people switch their *typical* mode of transportation from one mode to another (ex., from car to bike, or from walk to scooter, etc.)

Person trip – when a *person* moves from one location to another, using any *mode*

Vehicle trip – when a *car or truck* moves from one location to another, no matter how many passengers it has (ex. a car with 3 people in it is 1 vehicle trip)

Emissions – gases that cause climate change, typically released from gasoline powered vehicles

What are some trips you take? How often?



Takeaways:

- There are many trips throughout the day
- Trips add up when you look at everybody in Cambridge
- Every trip has a mode and travel time

Why do people use different modes?

People's travel modes are impacted by many things including their identity, experience, and trip circumstances. Some examples are:

Identity & Life Experience:

- Race
- Ethnicity
- Religion
- Country of origin
- Comfort with English
- Gender
- Age
- Disability
- Past experiences
- Social pressure
- Equipment-carrying needs
- Pregnancy
- # Children and ages
- Body size
- Income
- Housing status
- Bike parking available at home

Trip Circumstances:

- Trip type / purpose
- Cost
- Reliability of mode
- Start point / end point
- Length of stay
- How many stops along the way
- Transportation modes used
- Time of travel
- Availability of car/bike parking
- Personal safety
- Traffic safety

What are some reasons you might use different modes?

Mode use is important because it affects…

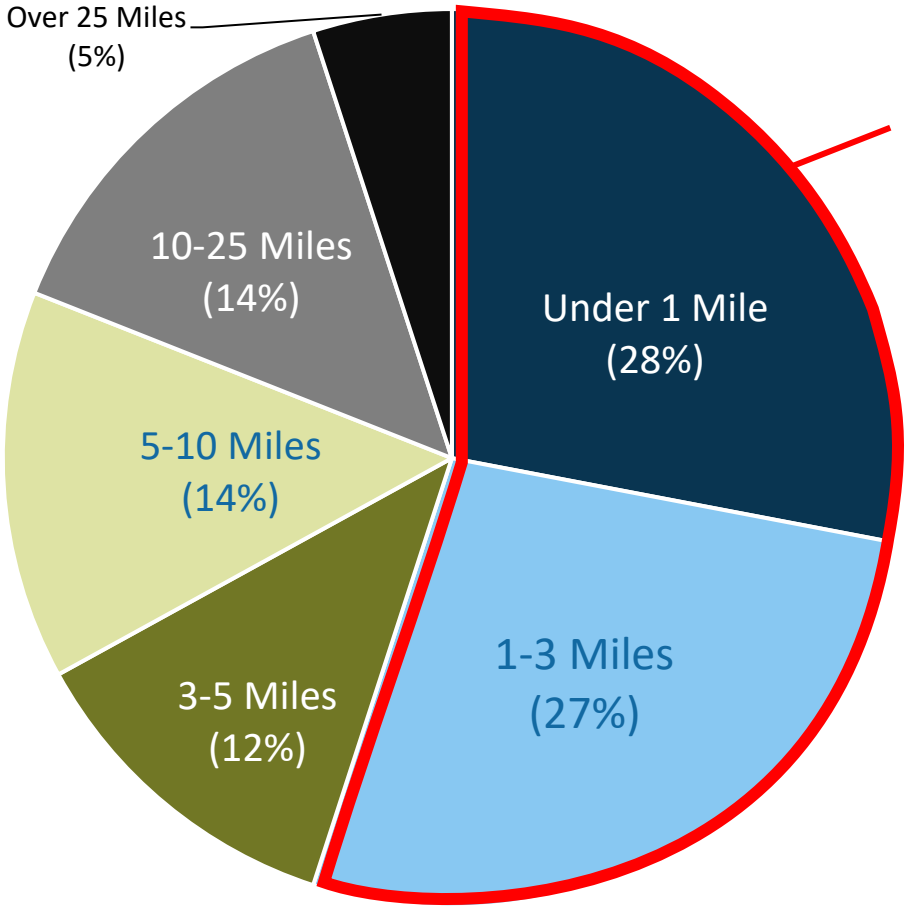
Travel Time

Emissions

Roadway Space

Most trips distances are very short

Trip Distance, Middlesex County, 2023



55% of trips are 3 miles or less

Because **more than half** of trips are 3 miles or less, it might be possible to shift some trips more sustainable modes

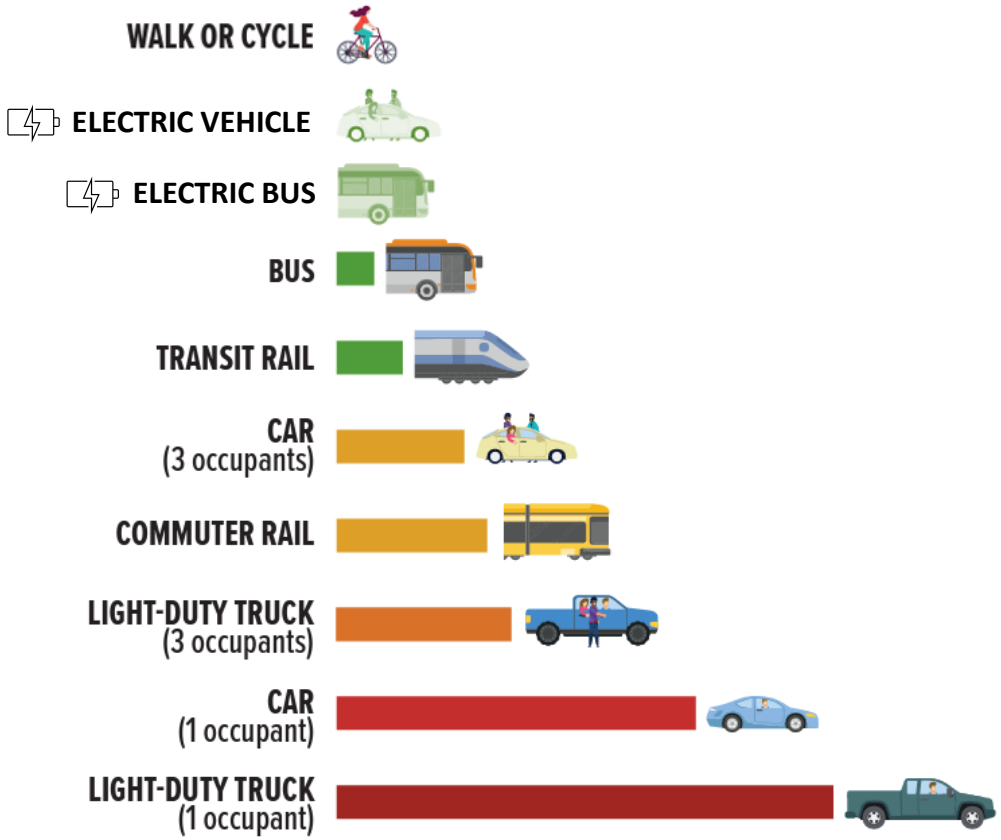
How much time does it take to travel 3 miles in Cambridge?

Well, it all depends…

Mode	No Traffic (Unrealistic)	Cambridge Traffic	Cambridge Traffic + Bus Lanes
Wheelchair	90 minutes		
Walk	60 minutes		
Bike	30 minutes		
Train	10 minutes		
Bus	18-20 minutes	30-40 mins	15-20 mins
Car	7 minutes	30-40 mins	30-40 mins

You can travel 3 miles in less than 30 minutes by most modes

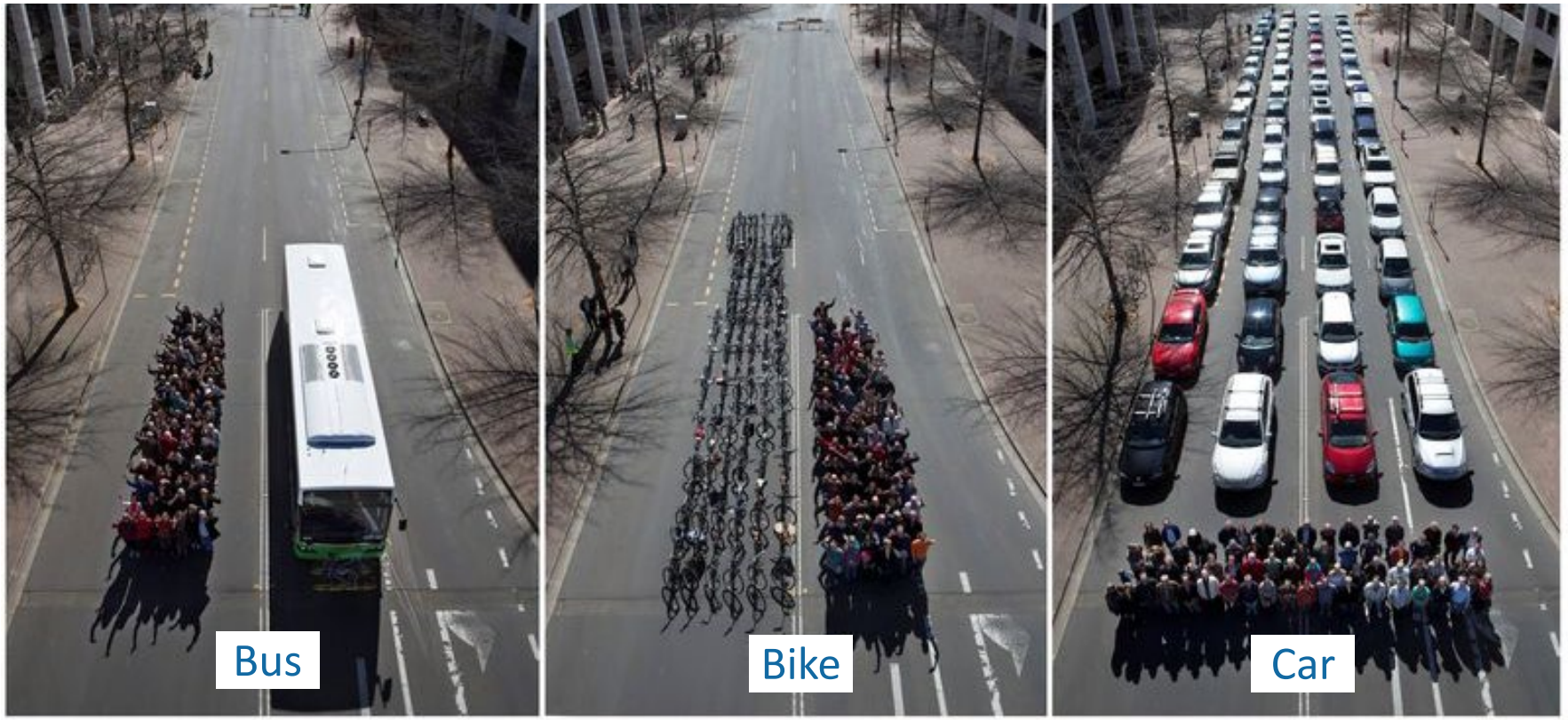
Some modes create fewer emissions per person



Walking, biking, electric vehicles, and transit are the most sustainable modes of transportation.

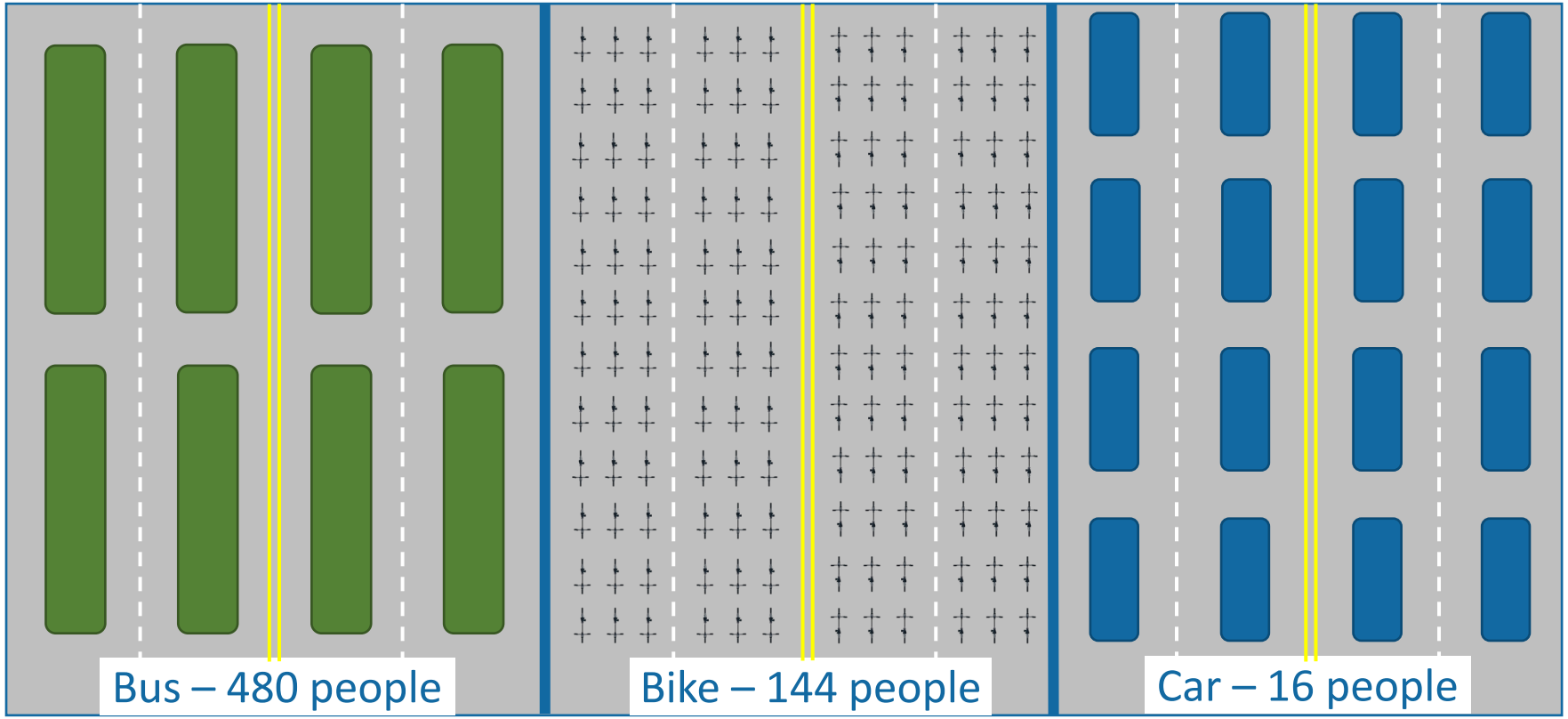
More people in a vehicle = fewer emissions *per person*

Space required to transport 60 people

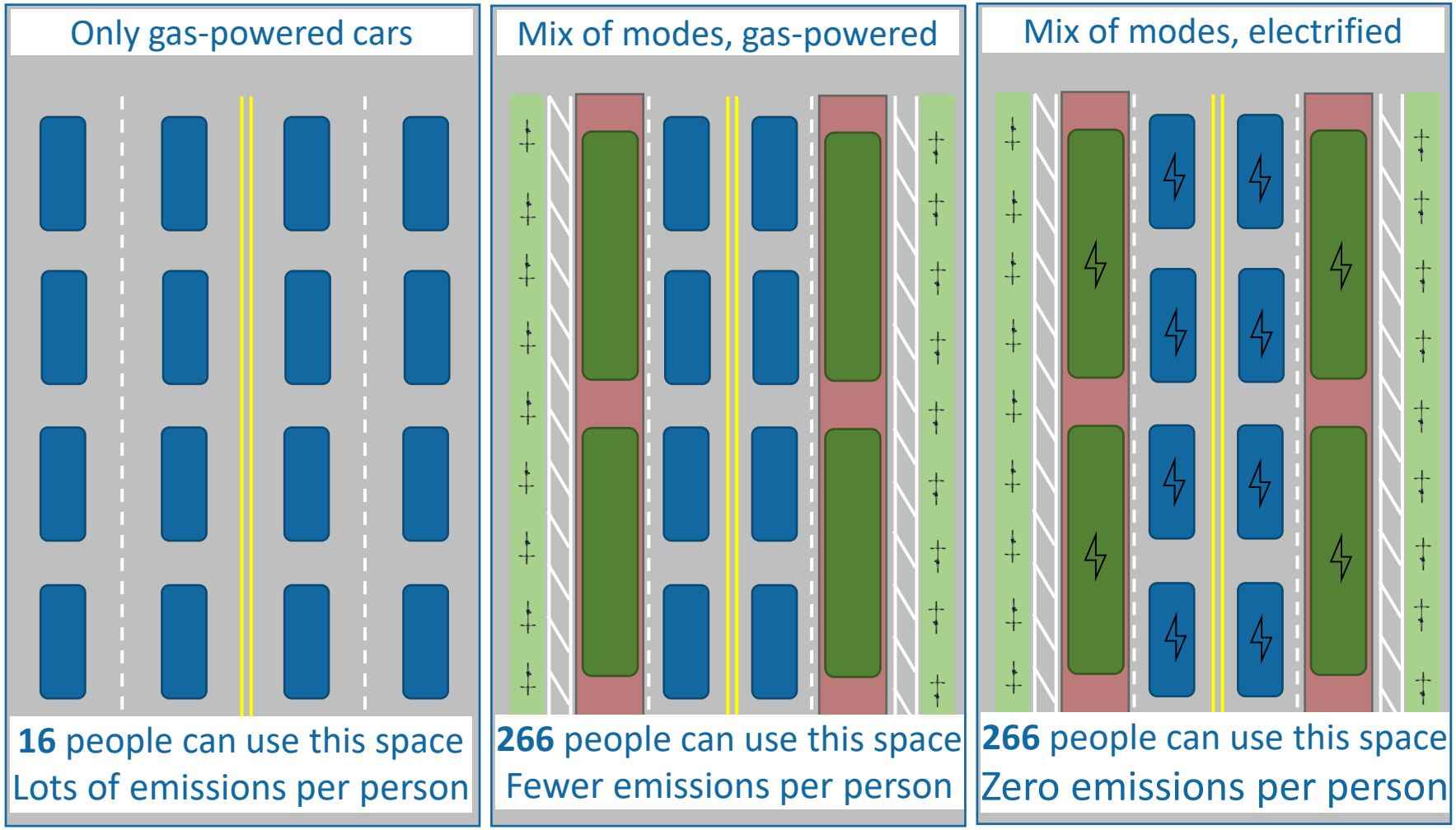


Source: https://humantransit.org/2012/09/the-photo-that-explains-almost-everything.html

The modes people take impact how others can use public space



Let’s put this all together



A mix of modes means **more** people have **access** to good mobility, with **fewer emissions**.

Transportation Basics Summary

- Trips are good because they connect people to their families, their jobs, and their lives.
- People use a mode for every trip.
- The modes people take impact how others can use public space, and how many emissions are released.
- Most trips are short, and some people might be able to take different modes for some trips.

What questions and thoughts do you have?

How do we measure transportation emissions?

Definitions

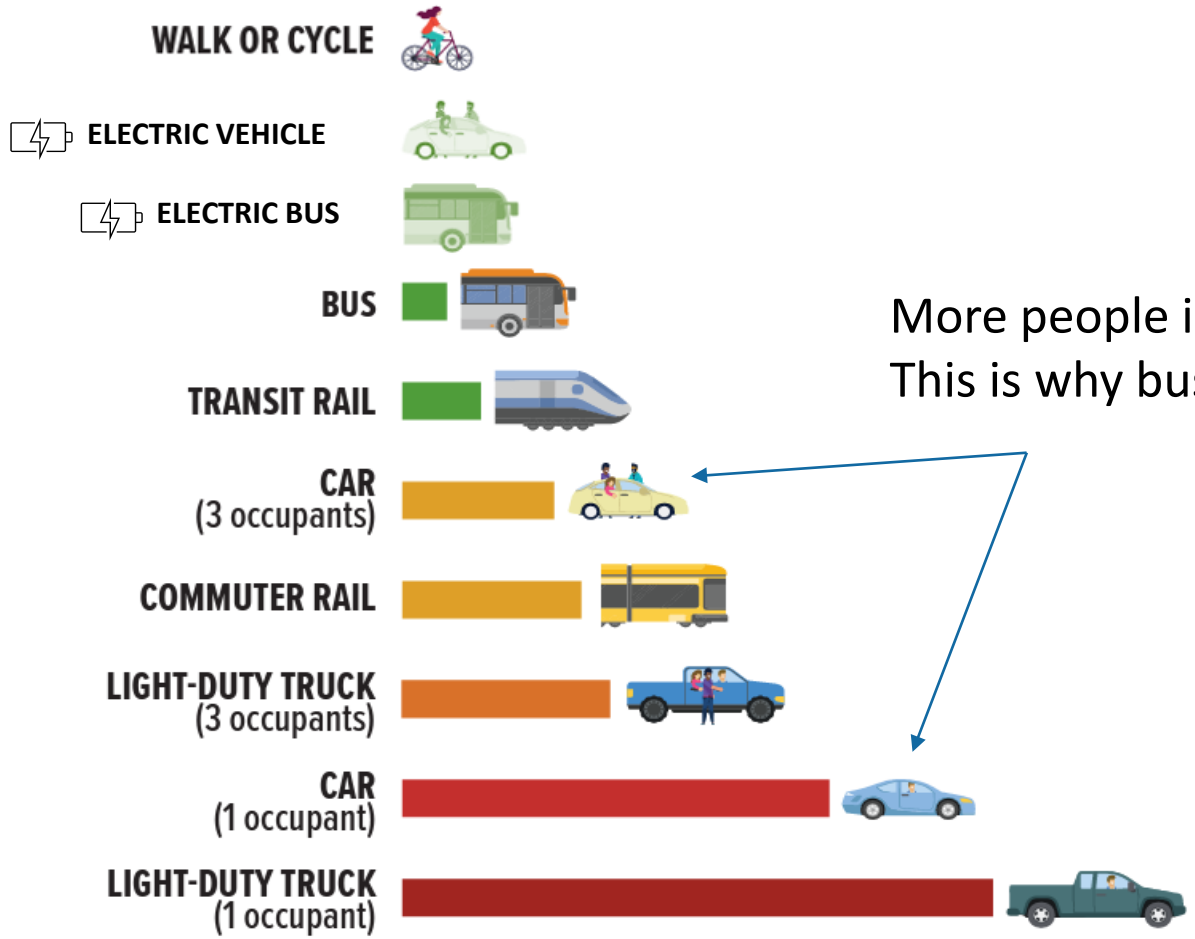
ICE – internal combustion engine, or a typical gas-powered vehicle

EV – electric vehicle

GHG – greenhouse gas (climate pollution)

Metric Ton CO_2e – one metric ton of carbon-dioxide equivalents, the standard unit for emissions calculations (a metric ton is 2,200 pounds)

Transportation emissions by mode



More people in a vehicle makes it more efficient.
This is why buses and trains are so sustainable…
and carpooling!

How do we calculate emissions?

= **Distance Traveled** (miles) X **Fuel Efficiency** (gallons per mile) X **Climate Impact** (GHGs per gallon)

Gas Car		100 miles	0.04 gallons per mile *(or 25 mpg)*	22 lb GHGs per gallon	→	88 lbs GHGs
EV		100 miles	0.24 kWh per mile	0.63 lb GHGs per kWh	→	15 lbs GHGs
Bike		100 miles	60 calories/mile	0 GHGs per mile	→	0 lbs GHGs

Interactive emissions tool

[Tool was demonstrated in-person on May 31st, 2023]

Emissions Summary

- 94% of Cambridge transportation emissions come from privately owned gas-powered vehicles on the road
- Making it safe and possible for people to take other modes is one of the best way to reduce transportation emissions
- The more people in a vehicle, the more sustainable the trip is
- Electric vehicles, buses, bikes, walking, and trains release the fewest or no emissions

What questions and thoughts do you have?

How could we reduce transportation emissions?

Key Terms

Strategy – broad concepts or approach to achieve project desired outcomes

Action – specific policy focused on implementation of a strategy, often with a time component and measurable outcome

SOV – single occupancy vehicle, meaning a car that carries one person to a destination (ex. a person driving their private car alone, or an Uber driver taking one person somewhere)

Land use – how public and private land is used (typically in zoning), which impacts the distance and travel time between different destinations

Policy – an agreement for how things are done, based on City goals

Reducing transportation emissions

EMISSIONS = (miles) **Distance Traveled** X (miles per gallon) **Fuel Efficiency** X (GHGs per gallon) **Climate Impact**

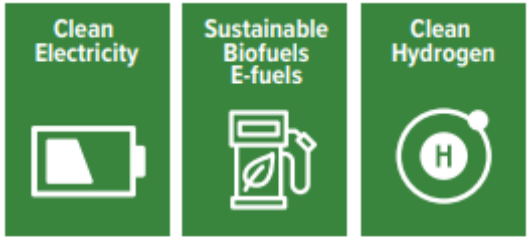
1 Increase Convenience & Safety

Improve Community Design and Land-use Planning

2 Improve Efficiency

Increase Options to Travel More Efficiently

3 Transition to Clean Options

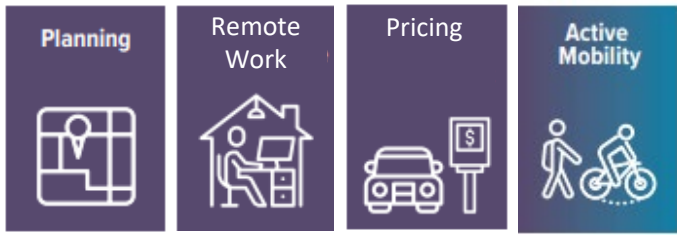


Transition to Zero Emission Vehicles and Fuels

To reduce transportation emissions, Cambridge can…

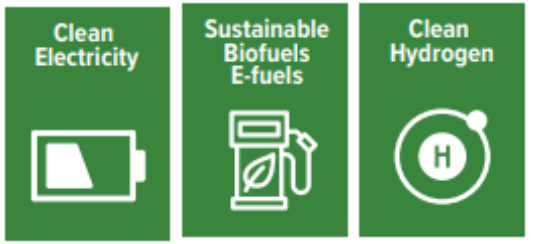
Make a decision on | Guide or sway others on | Do nothing about

1 Increase Convenience & Safety



2 Improve Efficiency

3 Transition to Clean Options



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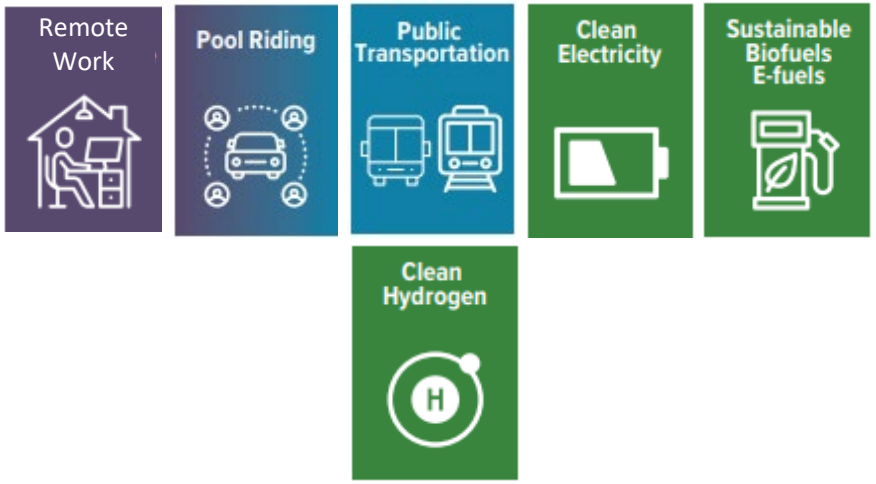


Do nothing about

Local

- Housing density
- EV chargers
- Local roads

Regional

- Blue Bike network
- MBTA

State/National

- Vehicle efficiency
- Grid electrification

Examples of strategies and actions

To…	*(Strategy)* Cambridge can…	*(Action)* By…
…reduce travel times	Make places in Cambridge more convenient	Adjusting how land is used to encourage different uses to be built near each other and public transit
…encourage mode shift	Improve zero emission options	Creating bus-only lanes and bike lanes to make it safer and more efficient to travel by bus and bike
…reduce climate impact	Support electrification	Requiring electric vehicle charging in all new developments

What are some strategies and actions you can think of?

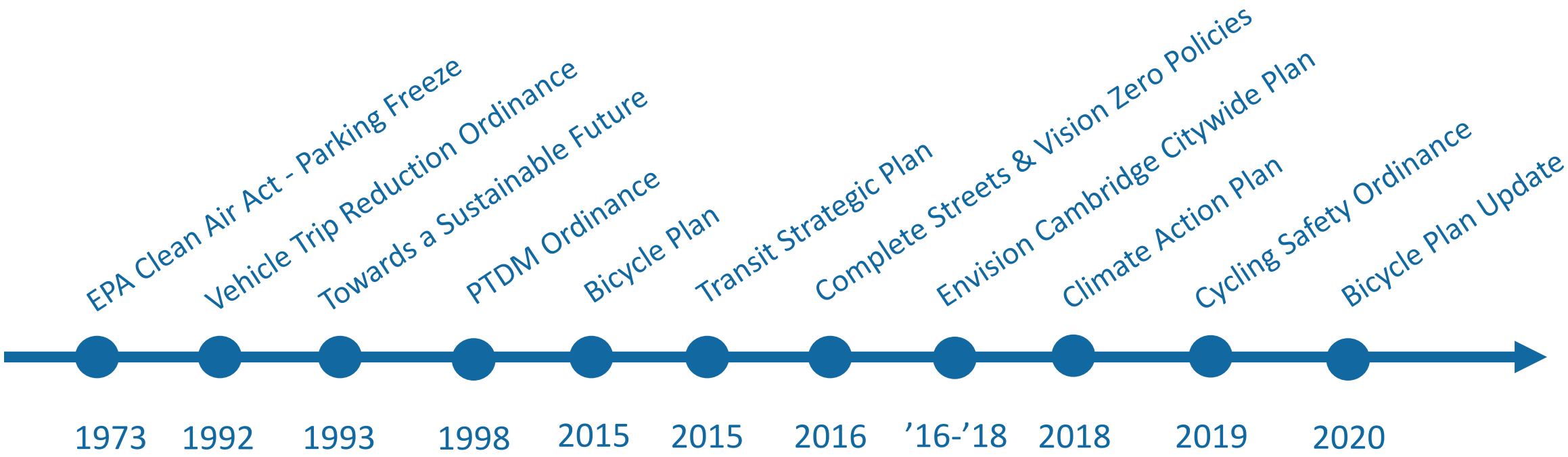
Strategies Summary

- There are some things Cambridge has control over, some things Cambridge can influence, and some things Cambridge cannot do anything about
- Travel time, fuel efficiency, and climate impact are the three main causes of emissions
- Strategies are used to accomplish specific goals
- Actions are used to implement strategies
- Mode shift, electrification, and changes to the way we use land in Cambridge, are the main strategies Cambridge currently has to eliminate transportation emissions

What questions and thoughts do you have?

What are examples of Cambridge policies that reduce transportation emissions?

Cambridge Transportation Policies and Plans



to increase sustainable mobility,
and reduce traffic congestion, and fight climate change

Parking and Transportation Demand Management (PTDM) Ordinance

When: 1998

Purpose: To reduce traffic and greenhouse gas emissions by promoting walking, bicycling, public transportation, and other sustainable modes

What it does: Some non-residential properties are required to…

- limit the percent of drive-alone trips coming to their site
- provide programs to make it easier and cheaper to take a sustainable mode (like giving employees free T passes)
- do an annual survey and report how they're doing
- **Effect**: SOV rate in PTDM properties was reduced from 54% in 2004 to 35% in 2019

Source: https://www.cambridgema.gov/CDD/Transportation/fordevelopers/ptdm

Questions and Discussion

- What questions do you have about what we shared?
- What else should we be considering about how the City has reduced emissions and could do so in the future?
- What other comments do you want to share?

Wrap-Up, Public Comment, & Next Steps

Planning upcoming conversations

- Future topics that will be discussed with the AG:
  - How can we assess whether the NZTP process makes planning more equitable?
  - How should we engage other community members as part of this process? How should we invite their input?
  - How can communities beyond Cambridge learn from the NZTP process?

- ***What other topics would you like to discuss?***

Public comment

- Public comments are welcome
  - Share thoughts in Zoom Q&A or verbally
  - To comment verbally, **raise your virtual "hand"** (or actual hand if in person)
  - Please limit your comments to **2 minutes** (we may reduce this time if the queue fills up)
- Please keep all comments…
  - **Relevant to the topics discussed today**
  - **Respectful**
  - **Focused on issues (not individuals)**

Next steps

- ✓We'll share follow-up materials and a draft meeting summary
- ✓Next meeting: **Wednesday, June 28 @ 8:45 AM (join for breakfast!)**
- ✓Others?

Check out question

- ***What is one thing you learned today?***

Thank You