# Introduction

Introduce questions this thesis seeks to address:

* Who should pay for EV charging infrastructure to minimize inequities in access associated with electric vehicles?
  + Who are EV owners and what limitations exist for EV ownership today?
  + Where are EV charging stations and what limitations exist for access to charging today?
  + Where are free, publicly accessible charging stations and what does their location mean for who is able to access them?
  + Who is bearing the cost of EV charging infrastructure development and what are the implications of these cost burdens for EV ownership and charging access?

# Part 1. The Climate Crisis and the History of Mobility

## Chapter 1: Car Culture: A History of Discrimination and Inaccessibility

## Chapter 2: Climate Crisis and the Need for Electrification

# Part 2. Electric Vehicles and Charging Infrastructure

## Chapter 3: Electric Vehicles in 2020

* 1. EVs on the market
  2. Cost of production and price for consumers
  3. Ownership projections for the future
  4. Barriers to EV ownership

## Chapter 4: Electric Vehicle Charging

* 1. charging levels
  2. charging location (at home vs. public stations)
  3. stations: publicly accessible vs. privately accessible
  4. free vs. pay for

## Chapter 5: EV Owners

* 1. Who are EV owners today? Include lit review specific to this question
  2. Methodology for household level regression model
  3. Results: what sociodemographic characteristics predict the likelihood that a car owner owns and electric vehicle?

## Chapter 6: EV Charging Station Location

* 1. Where are EV charging stations? Include details about specific stations/case study?/discussion of state and local policies that encourage and incentivize station development
  2. Methodology for neighborhood level regression
  3. Results: what sociodemographic characteristics predict the likelihood that a neighborhood has an electric vehicle charging station?

## Chapter 7: Free, Publicly Accessible EV Charging Stations

* 1. Methodology (station level regression)
  2. Results: what sociodemographic characteristics predict the likelihood that a neighborhood has an electric vehicle charging station?

# Part 3. Financing Passenger Ground Transportation Infrastructure

## Chapter 8: Costs

* 1. real estate:
     1. discussion of how land has been acquired for construction of these
     2. who owns the land that public transit and roads occupy
  2. capital costs:
  3. operational costs

## Chapter 9: Financing Tools

* 1. Bonds (public or private), fees, taxes, grants, equity (private vs. public), corporate revenue, lines of credit, commercial papers

## Chapter 10: Financiers

* 1. Local government
  2. State government
  3. Federal government
  4. Private entities
  5. Other (including utilities)

## Chapter 11: Access, Equity implications

* 1. Roads & Bridges: Toll roads
  2. Public Transit: Fair free transit
  3. Micro mobility: User fees and public vs. private investment

# Part 4. Financing Electric Transportation Infrastructure

## Chapter 12: Ownership Structure for EV charging stations today

* 1. Real Estate (location): who are the common land owners for these charging stations and what is the financial benefit to them to install the stations on their property?
  2. Capital Costs
  3. Operational Costs

## Chapter 13: Financing Structure for EV charging stations today

* 1. private investment
  2. federal investment
  3. state investment
  4. local investment

# Part 5. Conclusion: The Future of Mobility

## Chapter 14: Financing a Equitable, Decarbonized Future

* 1. What financial tools, through which entities (public, private) should be used to pay each cost (real estate, capital costs, operational costs) associated with future EV charging station development?