FROM BUSES TO BIKES

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Abstract

Traffic congestion is a major problem in cities. It hurts mobility in cities which have economic, social, and even environmental consequences (idling cars in traffic emit greenhouse gases that contribute to climate change). City centers suffer from a lack of walkability, which affects the quality of life and safety of the city's residents. Additionally, many existing public transportation solutions in cities negatively affect socioeconomic and racial equality, and promote gentrification. Our plan incentivizes the use of bikes, walking, and a public bus system by increasing greenspace and walkable areas. We also plan to implement a bikeshare service that allows residents to get around in the city centers and decreases the negative impacts of traffic in ways that are effective and equitable for all.

The Problem

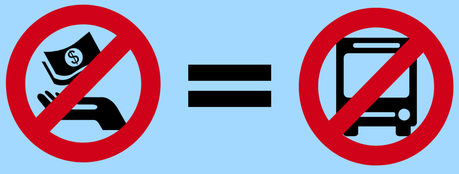
Congestion & Urban Sprawl cause…

- Environmental damage
- Economic leakage

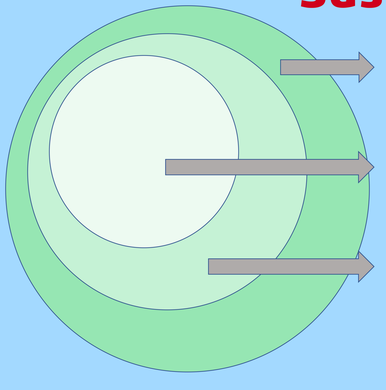
In Addition, Public transportation is underfunded and often disregarded even though lower income residents have difficulty accessing public transportation.

Influx of **high-income residents** into urban centers causes…

- Underused public transportation
- Increased gas emissions
- Increased traffic congestion



Sustainability



Social Justice

- Provides equal and fair access to transportation and to urban centers
- Improves public health

Economic

- Creates stable and reliable economy
- Affects housing prices

Environmental

- Decreases consumption of fuels/production of emissions via private vehicles

Our Plan

Data Collection & Analysis

Pre-Implementation

- What areas to make walkable
- Size & shape of walkable areas
- Location & spread of bikes
- Locations & spread of buses

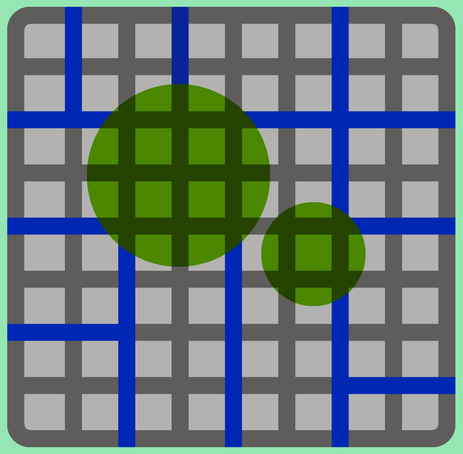
Post-Implementation

- Managing each bus
  - Requires many inputs
- Managing bike location
- Learn traffic patterns

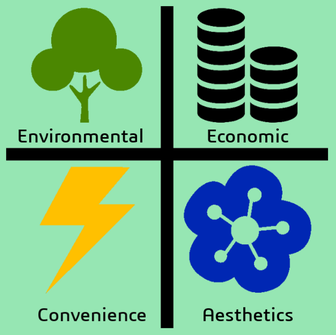
Analysis Methods

Clustering

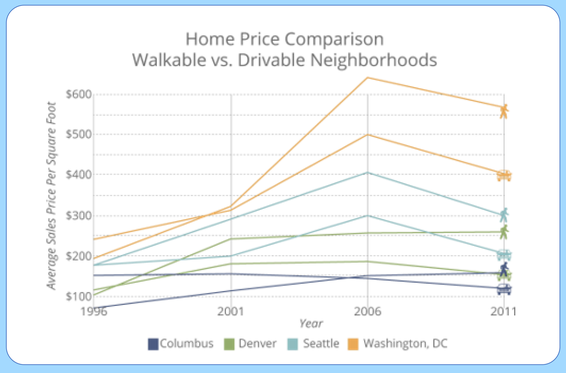
Reinforced Learning



Incentives



Analysis



Next Steps

- Physical implementation & detailed cost analysis
- Identification of cities with adequate market and budget
- Compliance with transportation laws
- Plan proposals for government policy
- Survey areas for interest in public transportation
- Explore challenges of urban planning

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