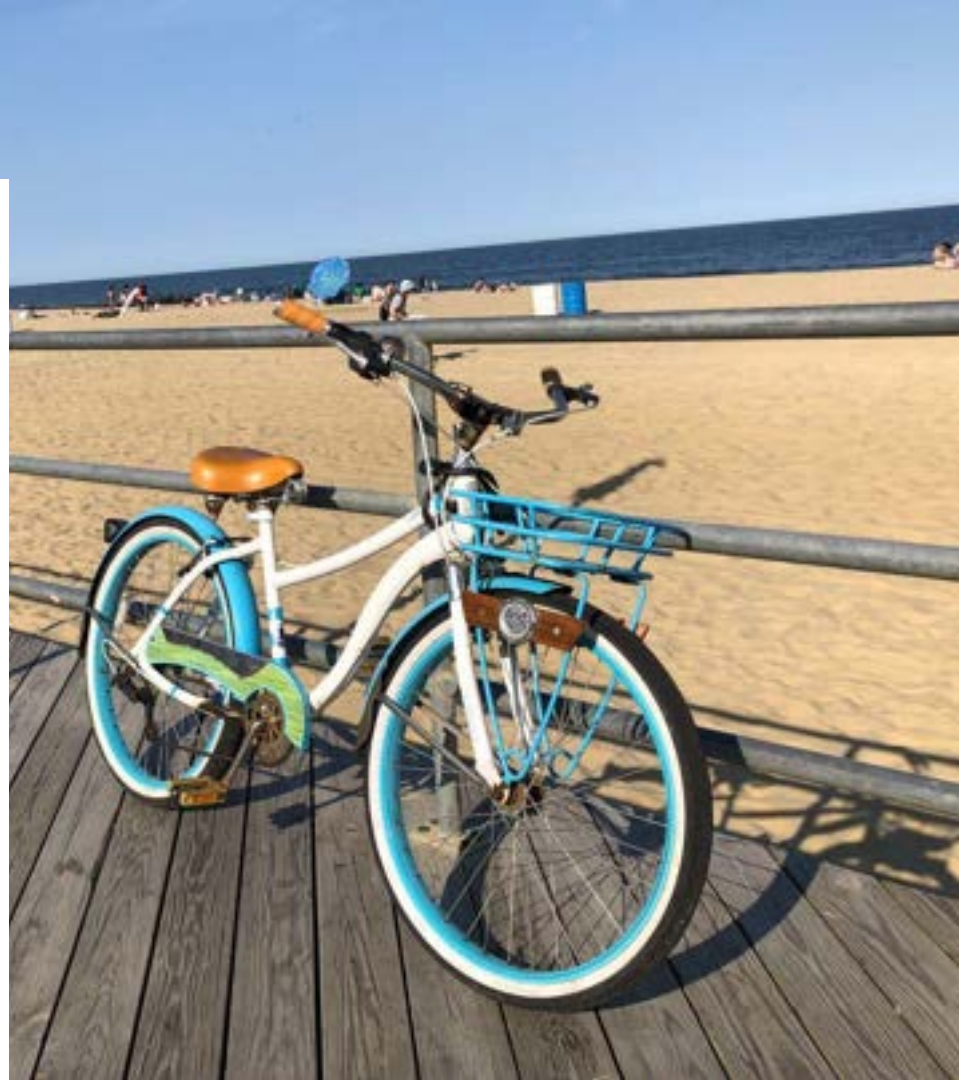
Pop-up Bike Lane

Asbury Park, New Jersey

May 2022



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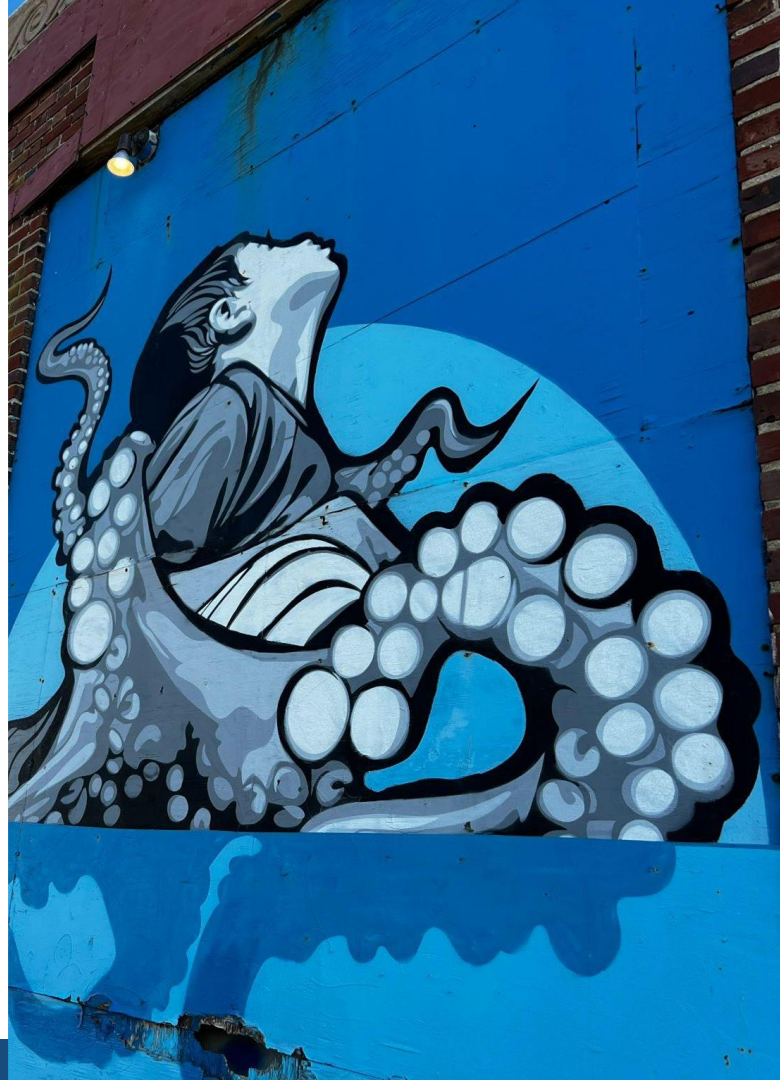
Edward J. Bloustein School of Planning and Public Policy

Acknowledgement

The Studio Team would like to thank

- City of Asbury Park
- James Bonanno & Mike Manzella
- Guest Lecturers
- Rutgers VTC Staff & NSF Research Team



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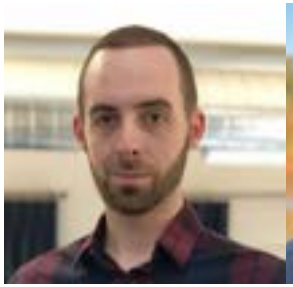

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Agenda of the Presentation

- Introduction
- Background
- Demonstration Project Process
- Bike Lane Launch
- Survey
- Lessons Learned
- Recommendations
- Technology and Evaluation

Introduction

Goal

To encourage micromobility use in Asbury Park by improving the user safety and comfort

Objectives

1. Design and **install** a safe **pop-up bike lane**
2. Obtain **public feedback**
3. Create **recommendations**

Methodology

- Explored micromobility infrastructure options
- Proposed bicycle and scooter lane design
- Developed a survey for feedback
- Contributed to research funded by the National Science Foundation (NSF)

Background

About Micromobility

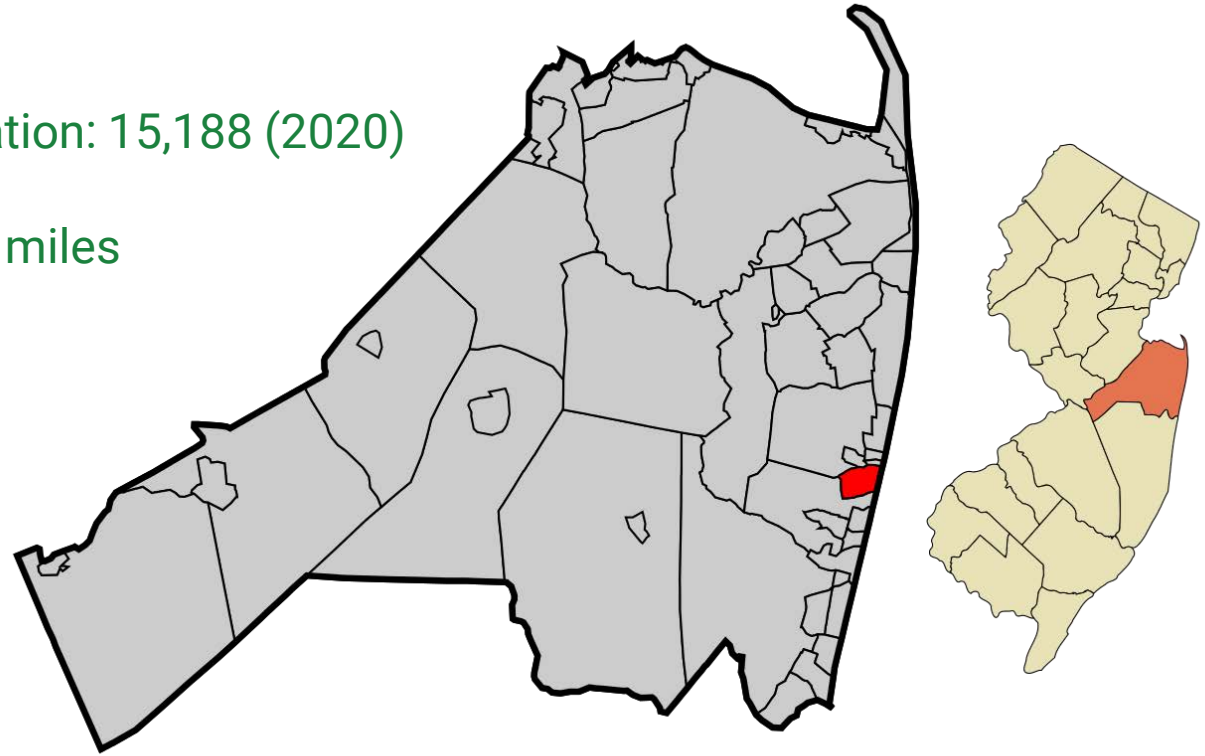
Small, low-speed, lightweight, human or electric powered transportation devices

- Fills in gaps in the transportation network
- Replaces short car trips
- Expands access for the low-income community

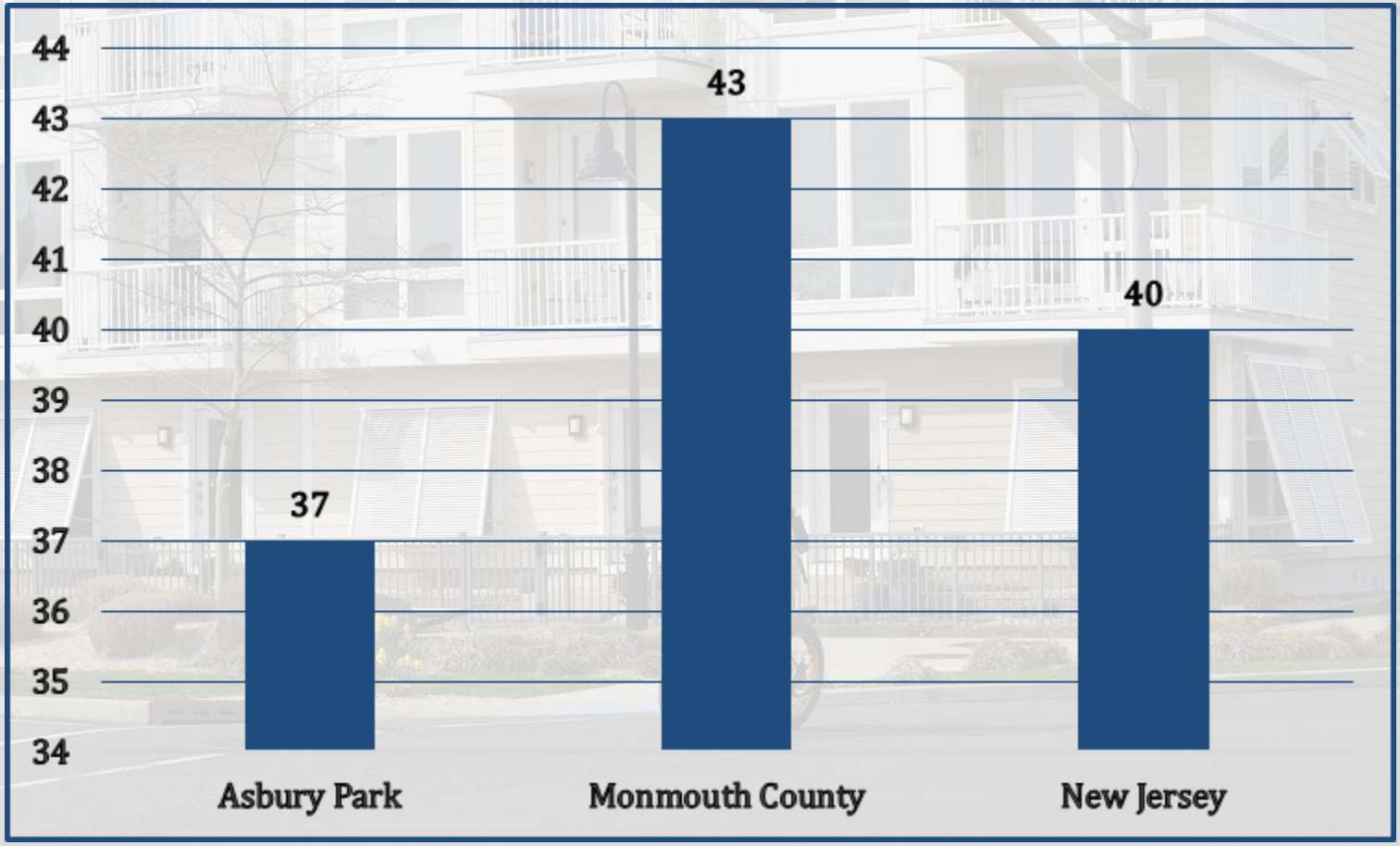
About Asbury Park

Total population: 15,188 (2020)

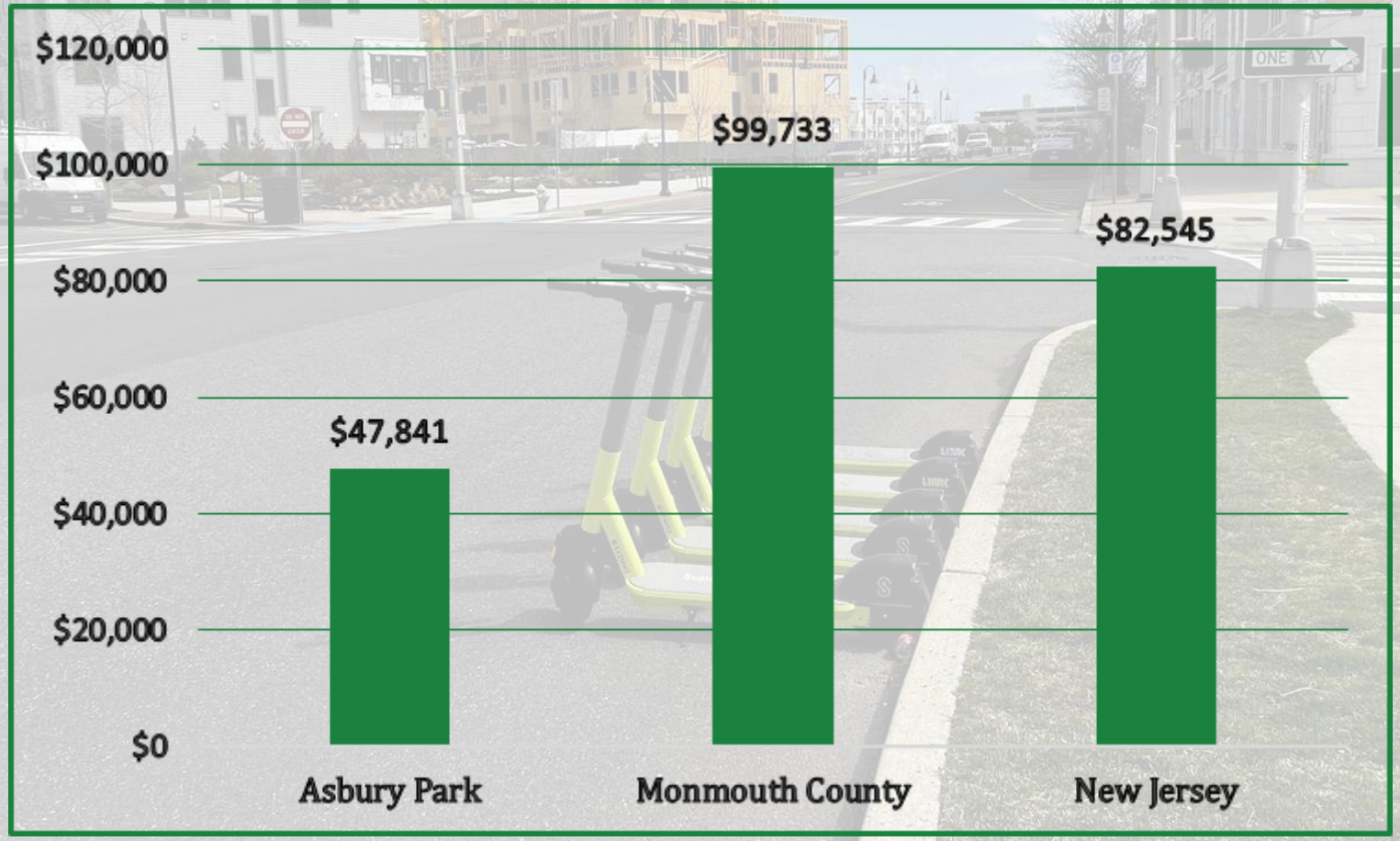
Size: 1.6 sq. miles



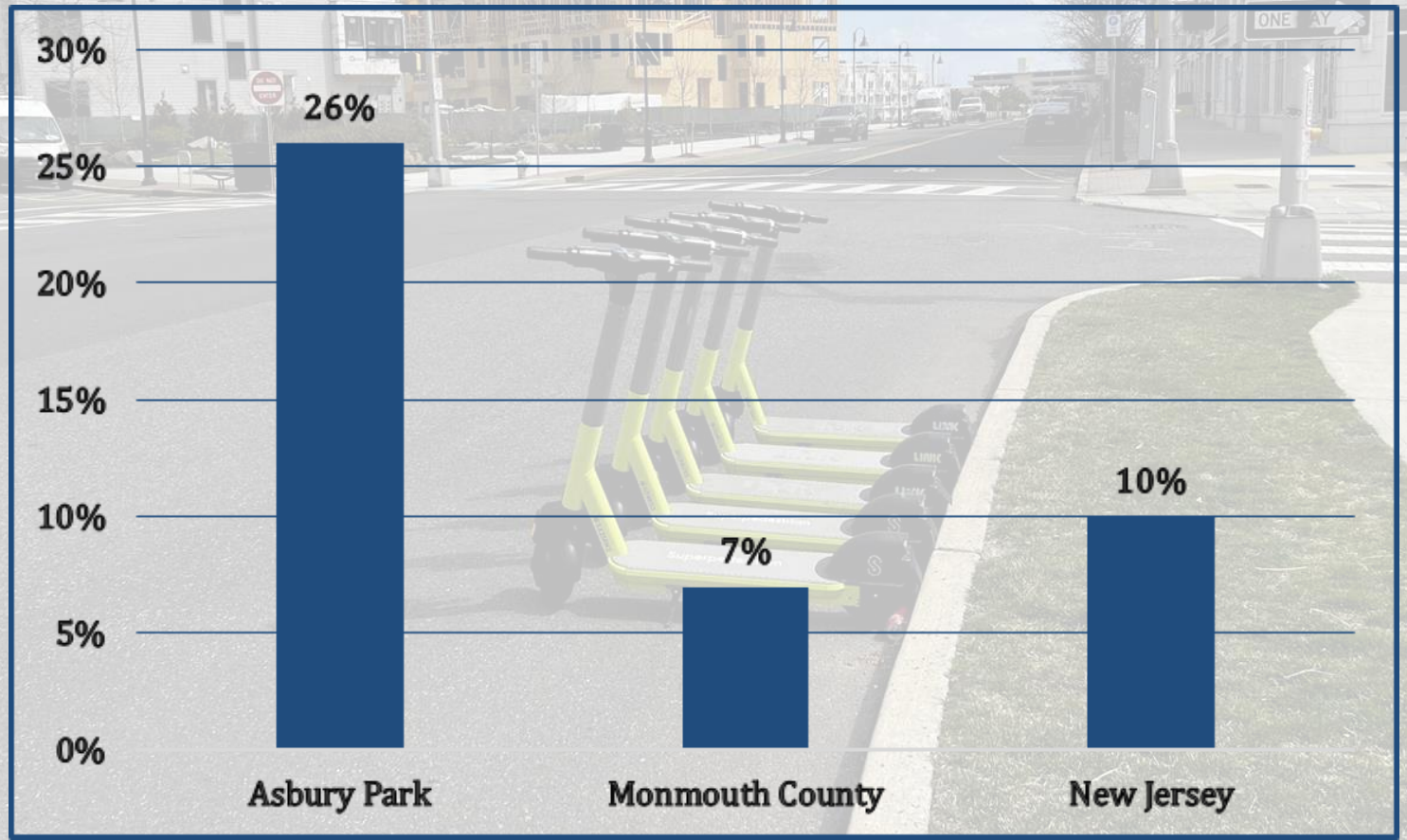
Demographics: 2019 Median age (years)



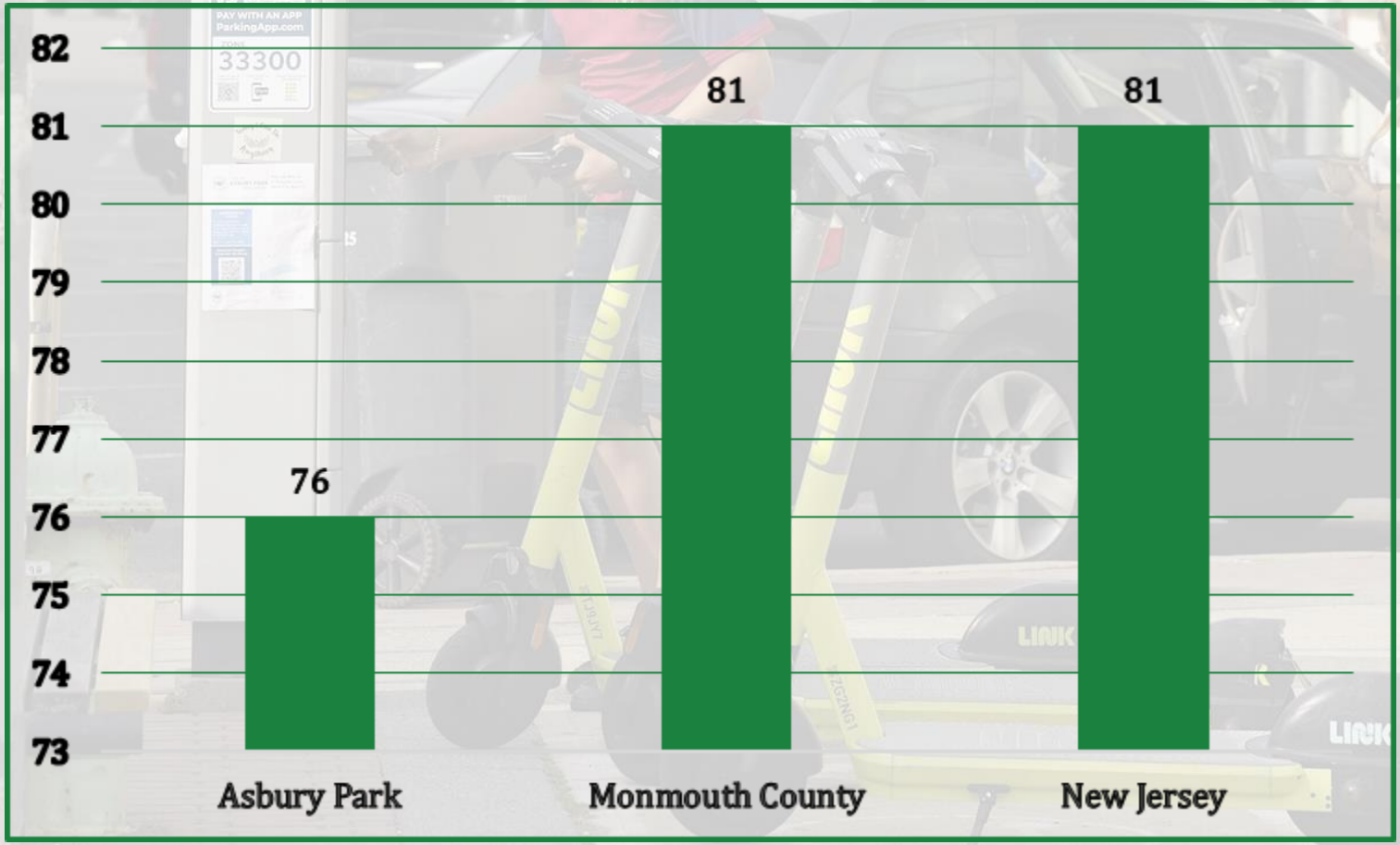
Demographics: 2019 median household income



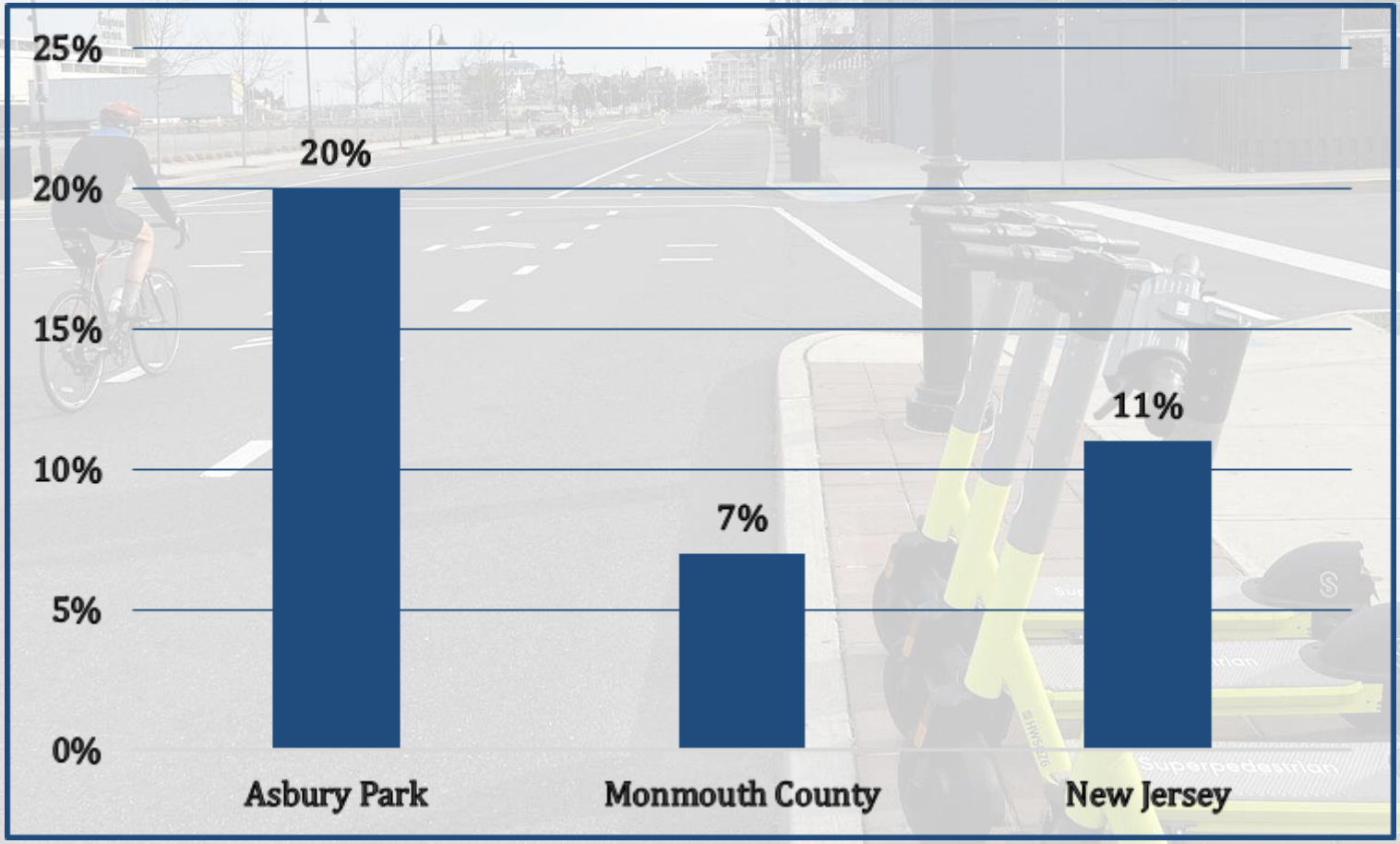
Demographics: Percentage of population living below the federal poverty line (2019)



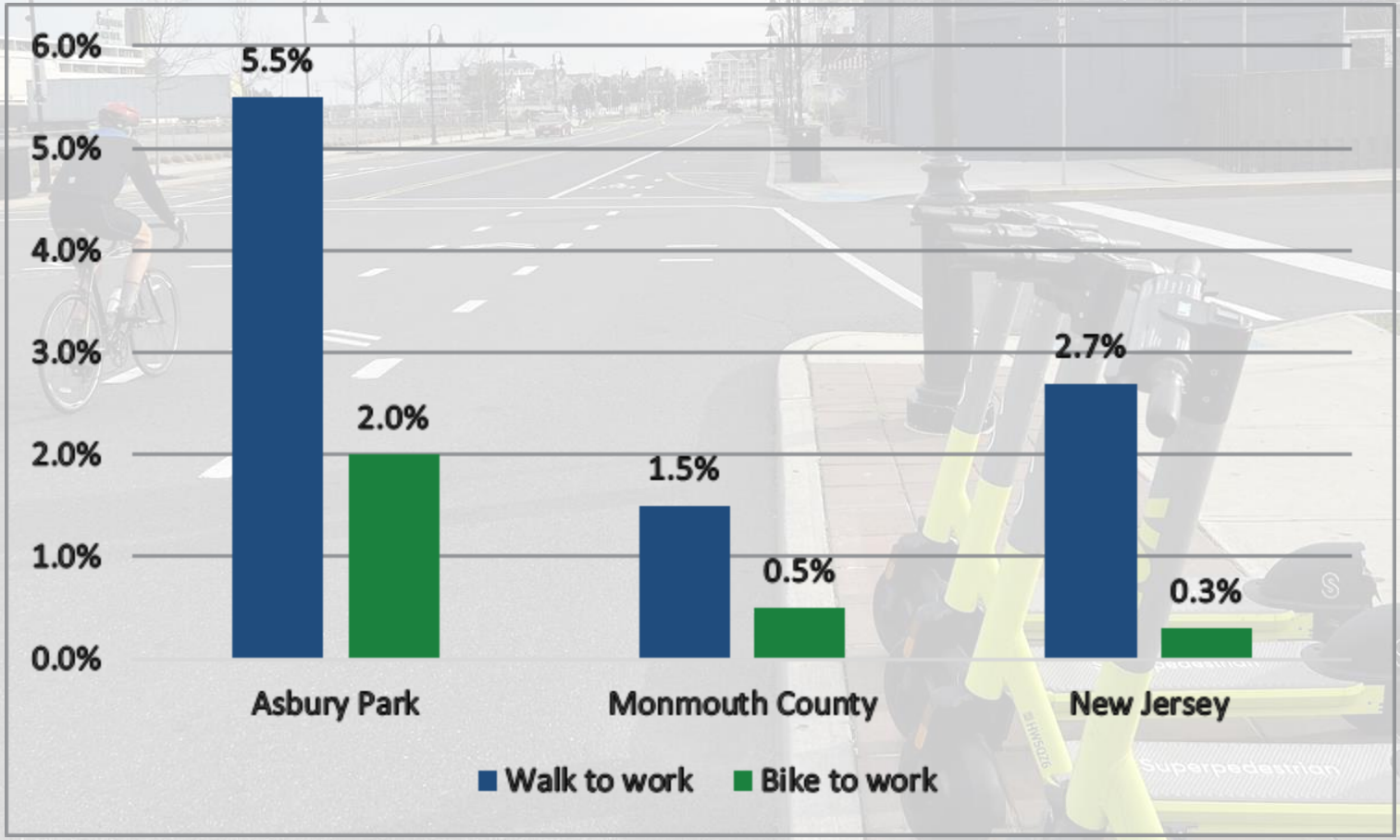
Demographics: 2019 Average life expectancy (years)



Percentage of households without access to a car (2019)



Percentage of population that walks or bikes to work (2019)



Local Micromobility Regulations

Local laws:

- 18+ years old
- No carrying parcels
- Both hands on handlebars
- Park in designated areas

Current Scooter Share: Superpedestrian

- Launched in May 2021
- 250 e-scooters and 50 geofenced parking corrals
- Discounts on rides and helmets for underserved communities

Asbury Park Bike Plan

- **Ocean Avenue -** Busy beachfront road
- **Kingsley Street -** High traffic volumes
- **Cookman Avenue -** Connectivity potential

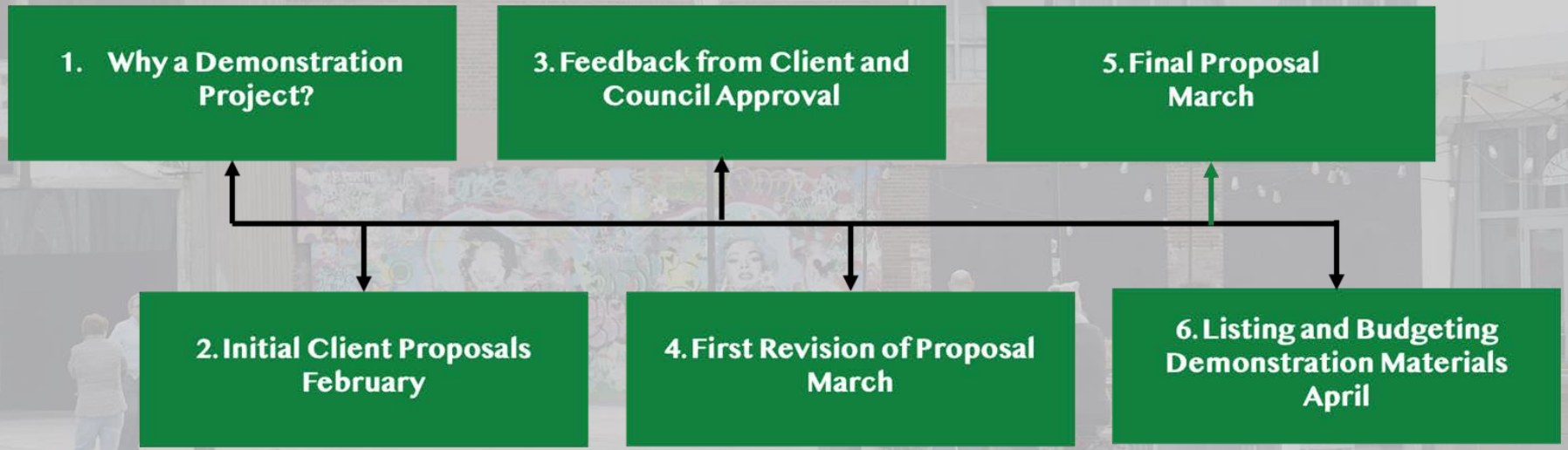
Process

Why do a Demonstration Project?

To see if it works…

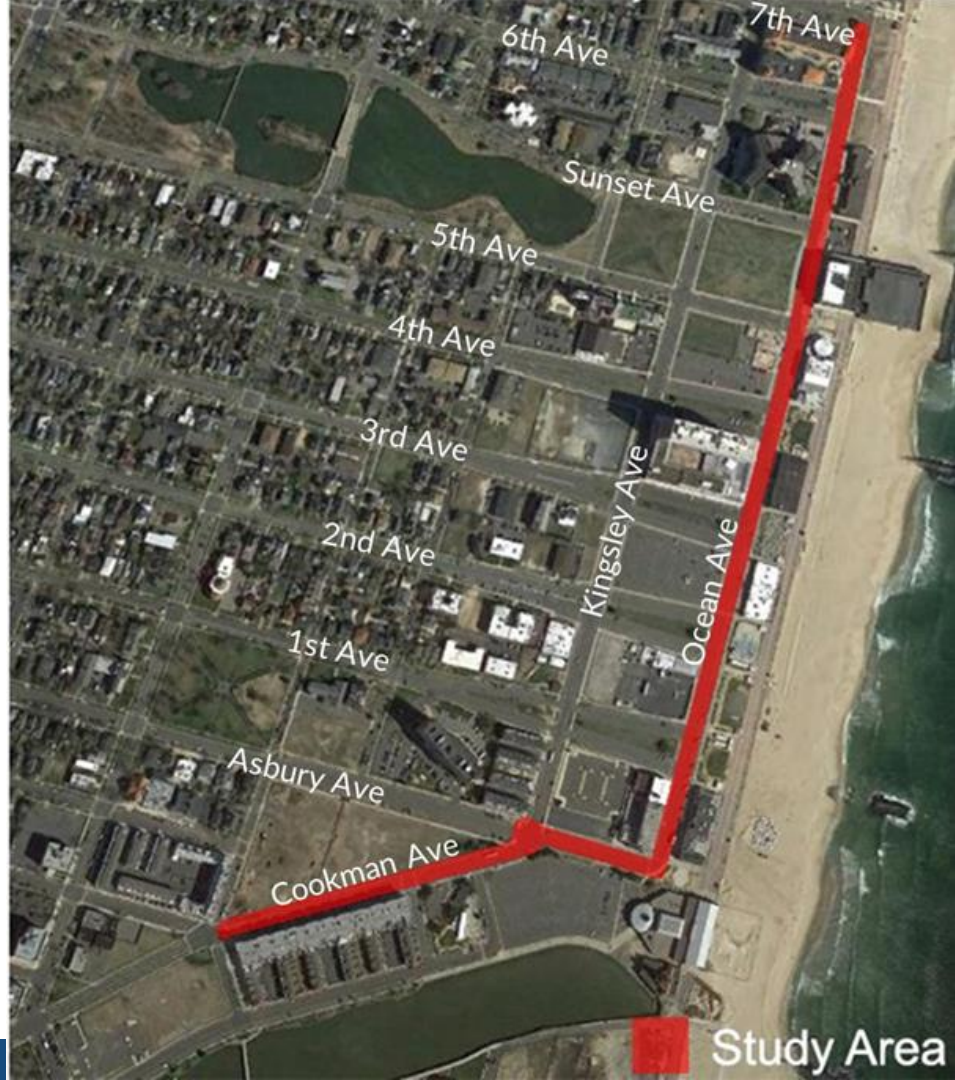
…and *to show how it can improve Asbury Park's streets and connectivity.*

Process Timeline



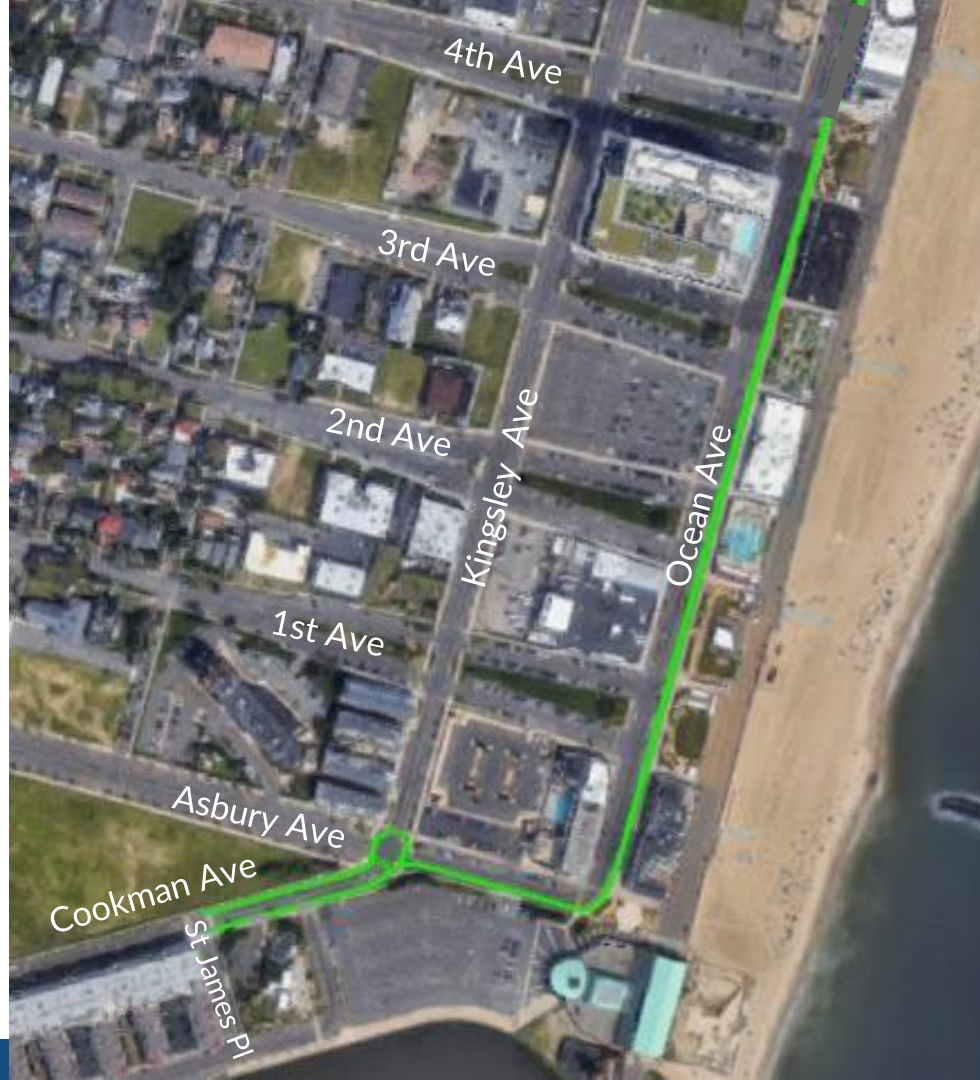
Initial Proposal for Bike Lane

- Cookman Ave
- Asbury Ave
- Ocean Ave (till 7th Ave)



First Revision of the Proposal

- Cookman Ave
- Asbury Ave
- Ocean Ave (till 4th Ave)



Final Demonstration Bike Lane Proposal

Cookman Ave and Asbury Ave

Initial Client Proposal- Ocean Ave

Bike lane with protected buffer was **provided between the angled parking lane and the sidewalk**

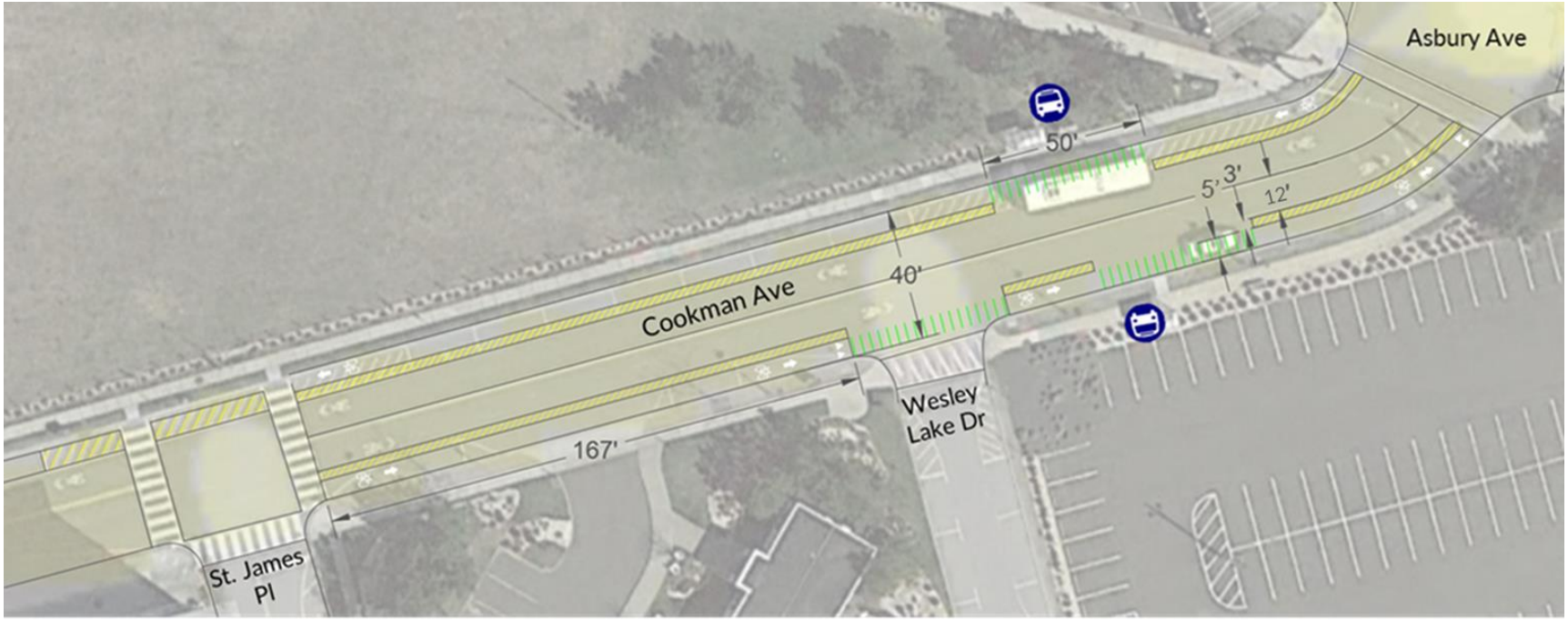
Sources: StreetMix

Cookman Ave. Demonstration Bike Lane Proposal

Bike lane with protected buffer provided on both sides

Sources: StreetMix

Design of Cookman Ave. Demonstration Bike Lane Proposal



Proposal for bike lane around bus stop

Bus stops on Cookman Ave

- Buses stop against the curb for ADA compliance
- Markings to inform bikers about the bus stop

Existing Site Condition of Intersection

Safety Concerns

- Larger turning radii
- Bike lanes connections

Final proposal for intersection

Cookman Ave and Asbury Ave Intersection

- Corner island to improve safety for bike lane
- Also separates motor vehicle and riders

Design of Intersection Proposal

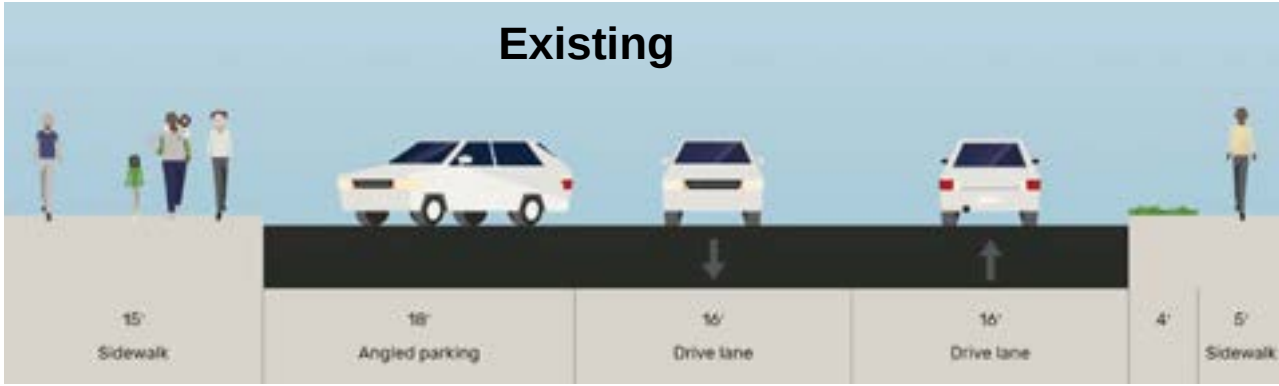
Protected corners

Alternative for intersection

Advantages

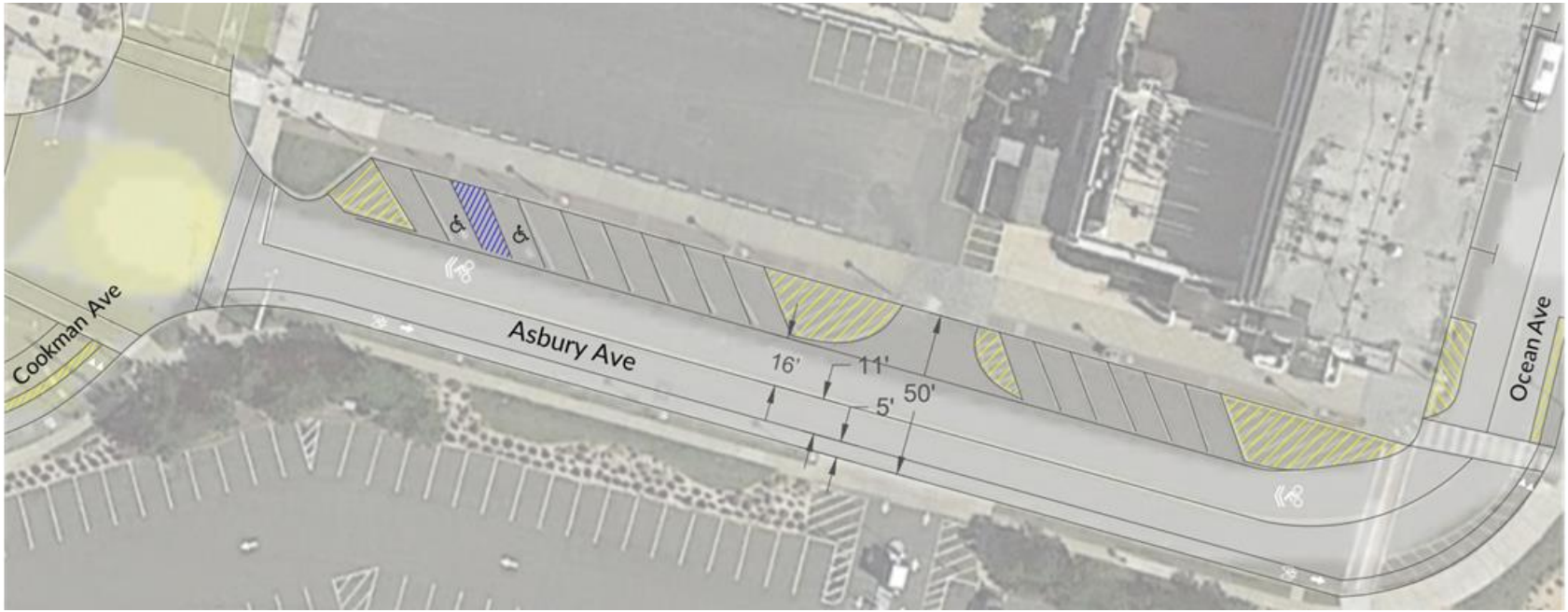
- Increased visibility
- Less resources

Asbury Ave. Demonstration Bike Lane Proposal



Sources: StreetMix

Design of Asbury Ave. Demonstration Bike Lane Proposal



Demonstration Material

Material borrowed:

- **Two field line striping machines**
- **Traffic cones**
- **Sidewalk chalk**
- **Measuring tape**
- **Corrugated plastic signs**

Materials purchased:

- **Bike lane stencil**
- **Temporary Chalk Spray**
  - **Green: 10 cans**
  - **Yellow: 3 cans**
  - **White: 10 cans**

The total cost of materials purchased: ***$212.58***

Bike Lane Launch

Installation Day

Planning the day’s work (left) and measuring out and marking where the bike and scooter lane would be striped (right)

Striping the bike and scooter lane

The field line stripers in action

Spray-chalking the bike stencil

Bike lane completed (left) and first cyclist to use it! (right).

Duration of Study

Team members getting feedbacks from cyclists & pedestrians

Survey

Survey Development

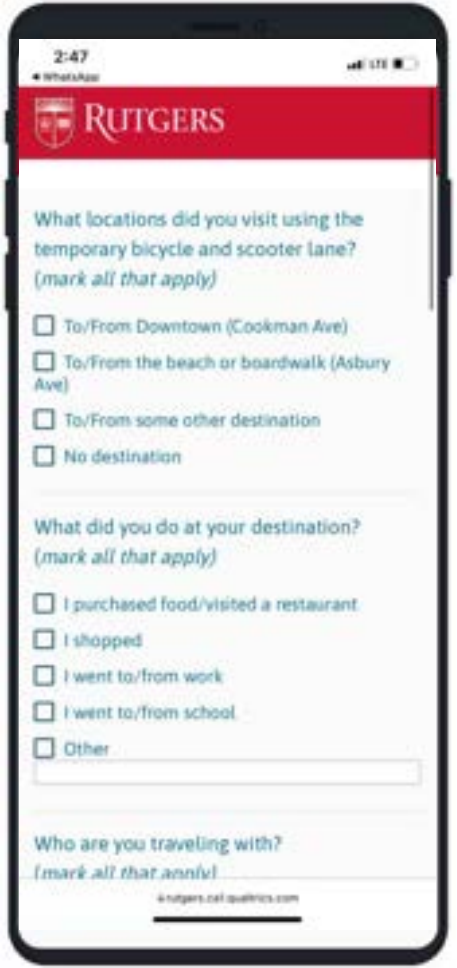
The Studio Team collaborated with professors and researchers to finalize survey questions.

It was important to create questions that captured key data without making the the survey too long.

Both **electronic** and **hard copy** versions were created and distributed.

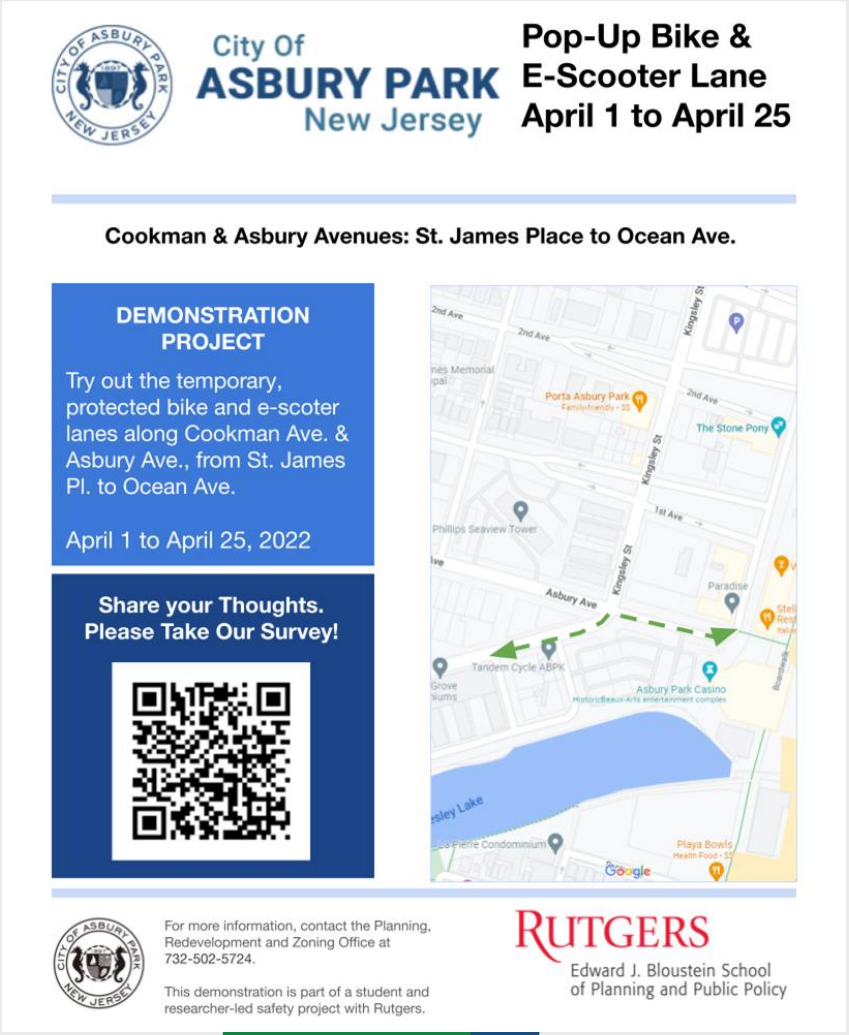
The survey was distributed through:

- **Email outreach to organizations**
- **Social media posts**
- **In person**



Community Outreach

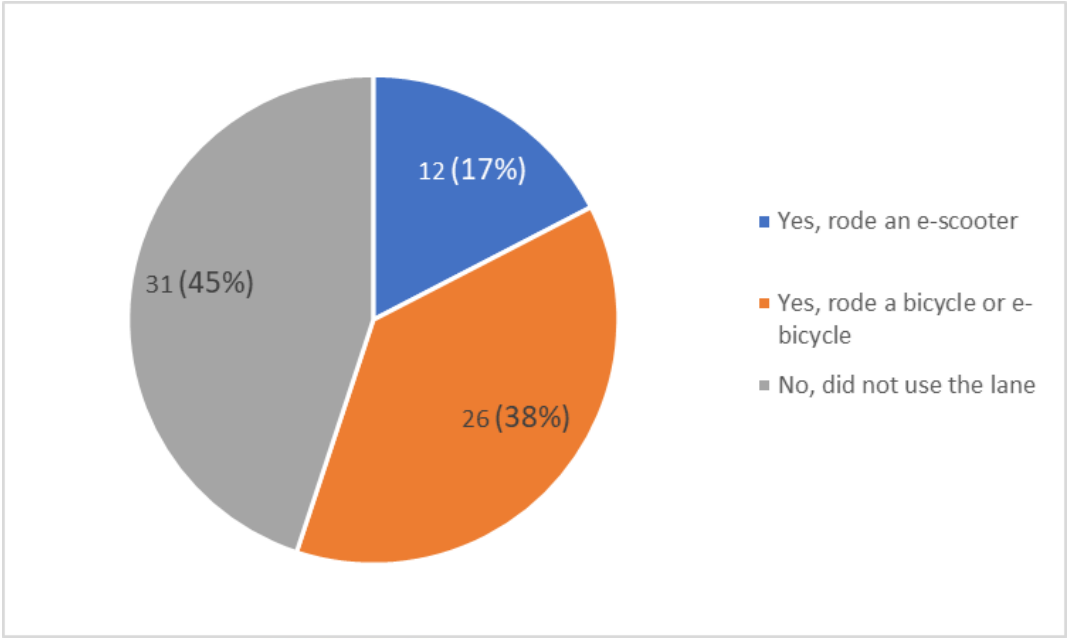
- Social media accounts affiliated with the city
- AP Complete Streets Coalition & EZ Ride
- City of Asbury Park's facebook, Instagram, twitter, and nextdoor accounts



Survey Results

- Mostly full-time residents
- Half men; half women
- 55% used pop-up lane

Question 1: Did you use the temporary bicycle & scooter lanes along Cookman and Asbury Avenues?

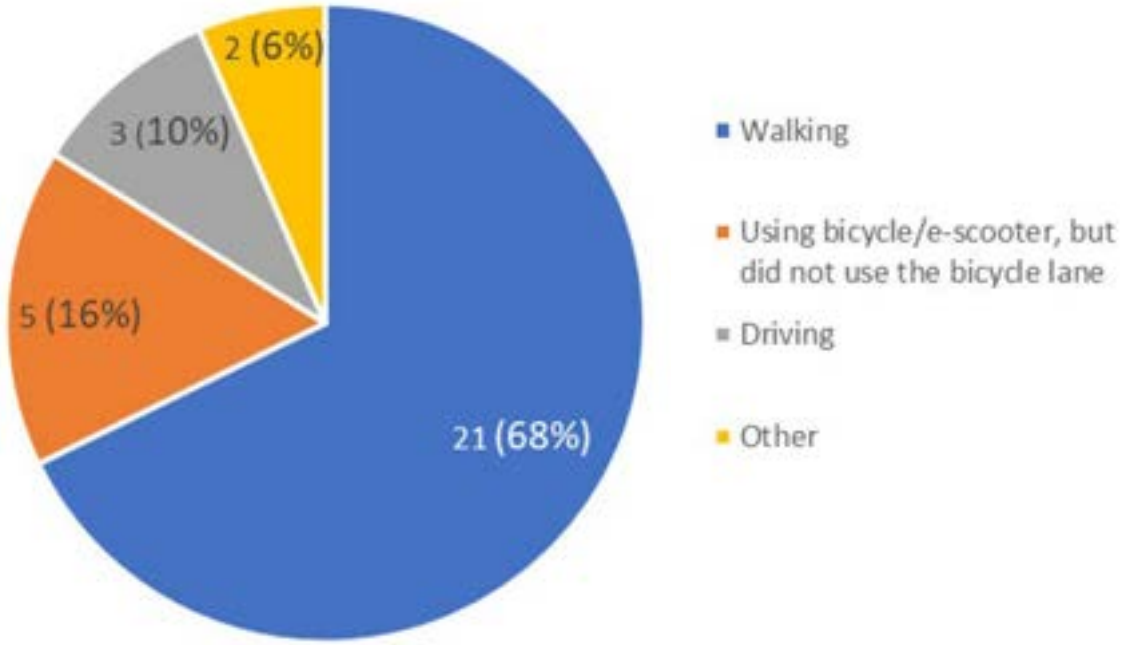


Total Respondents = 69

Survey Results

- Walking/biking very common
- Lower levels of driving
- 6% used “other” mode

Question 4a: How are you primarily getting around in Asbury Park?

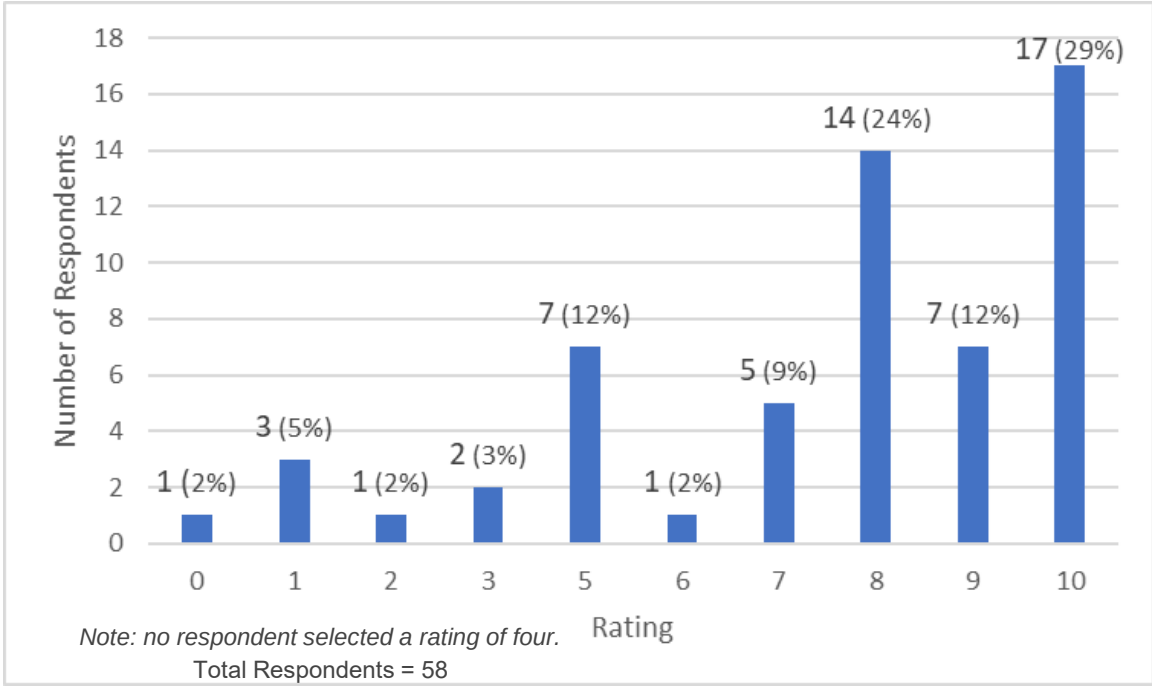


Total Respondents = 31

Survey Results

- Average safety rating of 7.5
- ~90% support making lane permanent
- Many riders felt threatened by vehicles

Question 8: Rate the safety of the bicycle and scooter lane on a scale from zero to ten.



Note: no respondent selected a rating of four.

Total Respondents = 58

Survey Results

Open Comments:

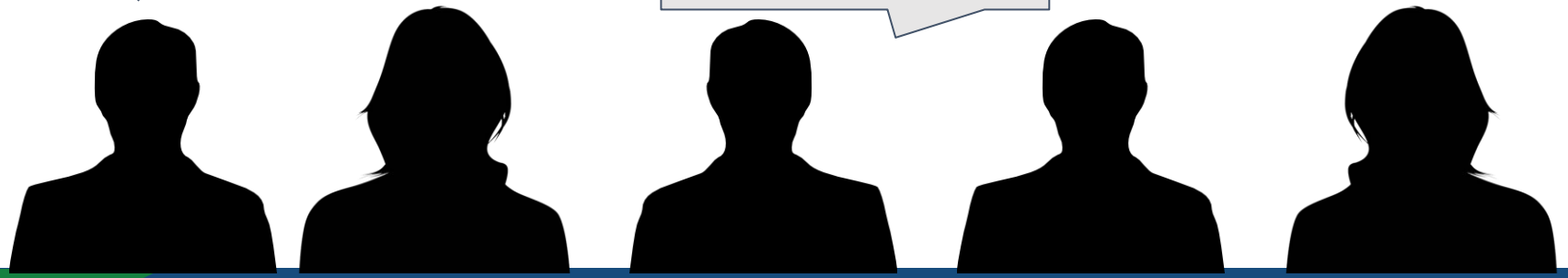
Thanks for putting in a bike lane. We need them!

With high tourism it has become increasingly more dangerous for bike riders. It is very important we have the bike lanes.

Thank you for doing this! We need more bike lanes and bike share in asbury park

A really good idea to enhance the safety of the community

Would love it if they were protected bike lanes. Paint them green, and permanent. If not protected, make them green lanes.



Survey Results

Open Comments:

Please keep the bike path. It keeps the pedestrians shopping and dining outdoors safe as well as the bicycle riders. It's yet another activity beach people love to enjoy that will give Asbury another leg up!

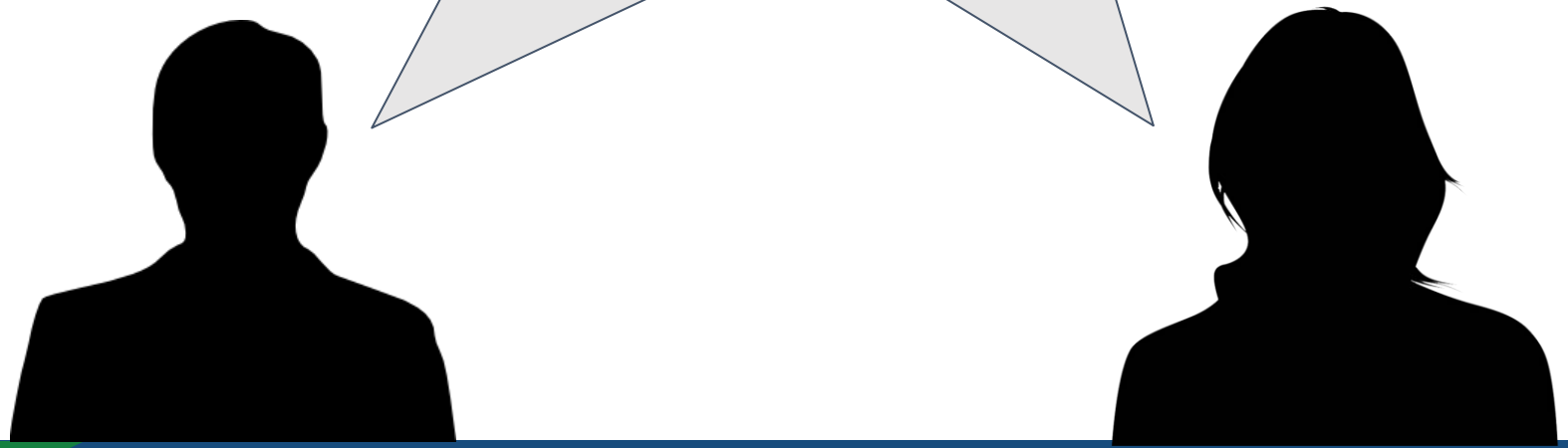
I feel these should be all over Asbury Park to make our city residents and visitors feel comfortable and confident to get around via bike.

Survey Results

Open Comments:

I would be concerned sharing a lane with people on e-scooters because they usually don't follow traffic rules (i.e. they ride on sidewalks or wrong way on one-way streets).

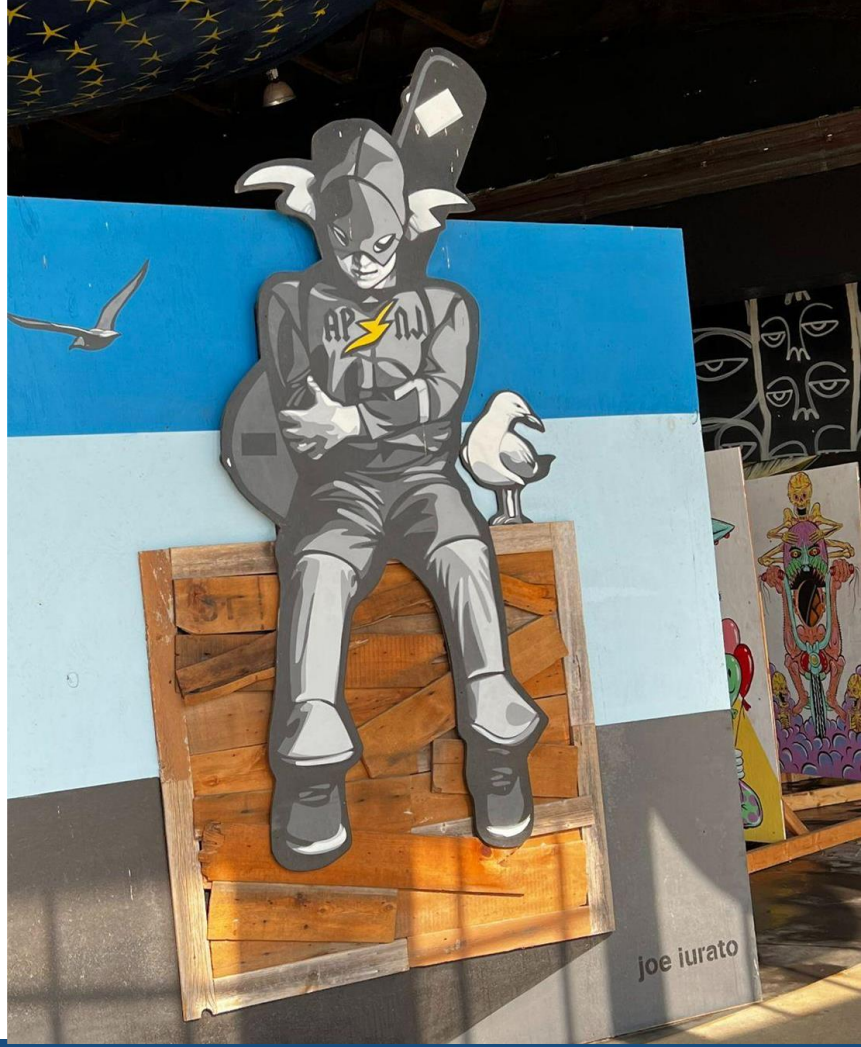
The bike lanes will create a major traffic jam on Cookman approaching Kingsley. The overflow of traffic will end up on residential streets…people ride in any askew direction and on sidewalks, so why inconvenience others with a bike lane that will go unused like all the others[?]



Lessons Learned

Lessons Learned

- Virtual simulation has major limitations
- Utility in urban planning is unclear
- “Smaller can be better” when installing pop-up lanes



Recommendations

Bike Lane Visibility

Issue-

- Riders use the road

Action-

- Painted Green Bike Lane
- Fill lane with abstract art
- Increase barrier visibility
- Increase sharrow size

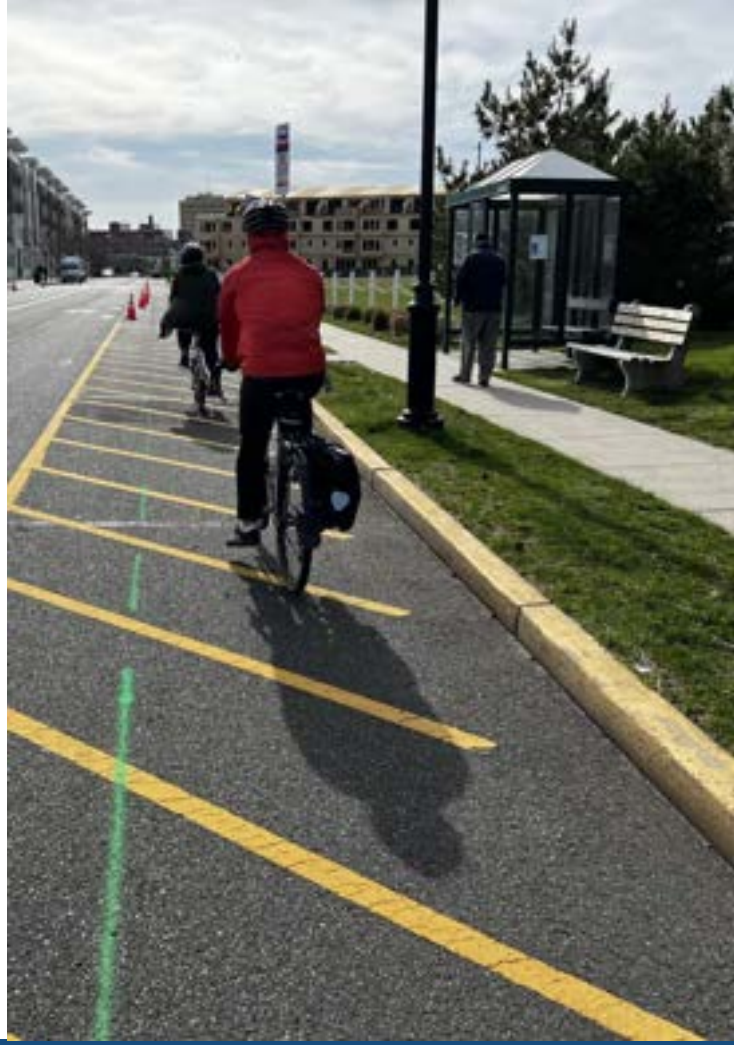
Cookman Ave. and Asbury Ave. Intersection

Issue-

- Right turn on red
- Traffic light visibility

Action-

- “NO RIGHT ON RED” signage
- Backplates with retroreflective borders



Cookman Ave. and Asbury Ave. Intersection – Barriers

Issue-

- Delineators need to be present

Action-

- Make delineators present
- Cars sweep through intersection

Left turn from Kingsley St. onto Asbury Ave.

Issue-

- Unsafe feeling through intersection

Action-

- Bike Boxes
- Pedestrian/Rider Scramble
- Leading pedestrian interval

Crosswalks

Issue-

- Crosswalks are of low visibility

Action-

- High visibility crosswalks at intersections
- R1-6 road sign 150 feet from crosswalks
- Enhanced lighting at crosswalks

Lack of Awareness

Issue-

- Knowledge of the Bike Lane

Action-

- More promotion

People without experience need education

Issue-

- Educating beginners

Action-

- Partner with EZ Ride and LINK

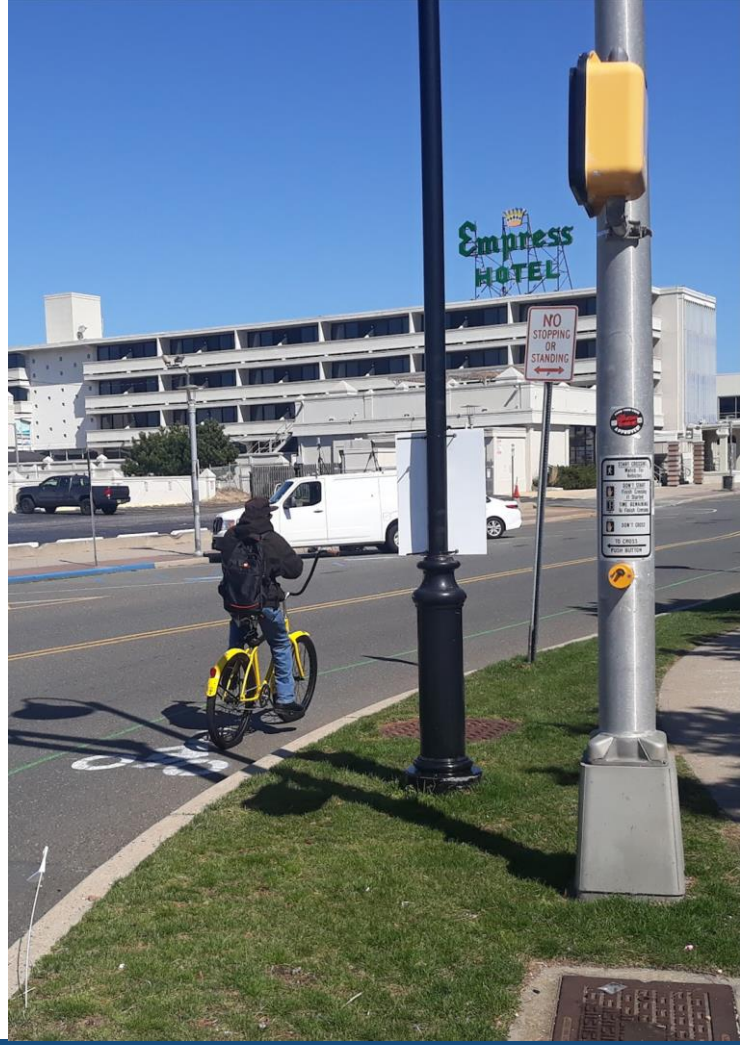
Programs to support roadway safety and equity

Issue-

- Vehicle/pedestrian road share

Action -

- Explore Vision Zero Action Plan
- Update Complete Streets Policy



Technology and Evaluation

Making Micromobility Smarter & Safer

- **Biometric Sensor Feedback**
  - Eye-tracking Glasses: Attention Sensors
  - Galvanic Skin Response: Stress Sensors
- **Computer Vision Technology**
  - Near-miss Detection

National Science Foundation
WHERE DISCOVERIES BEGIN

Award CNS-1951890

Eye-Tracking Software

User wears a light-weight eye-glass with built-in cameras that is attached to a recording device

↓

The cameras capture the users pupil dilation and determines the users focus

↓

Records the level of focus the user has on various objects (example: roads, vehicles, pedestrians etc.)

↓

Recordings are examined to obtain the results

Galvanic Skin Response

User wears a light-weight GSR sensor on the non-dominant hand to record stress level data

Sensor measures skin sweat gland activity

Records level of stress based on measured activities

Stress levels are synchronized with eye-tracking data to understand the impact of the perception of built environment objects on user stress levels

Example of output. Peak is where rider almost fell off their e-scooter:

Virtual Reality

User wears the virtual reality headset (HTC Vive)

User operates the stationed e-scooter (ie., controls acceleration and brakes)

Tests various features of the model (example: interaction with vehicles, pedestrians, irregular surfaces, various speeds etc.)

The model records and measures the user behavior with various features

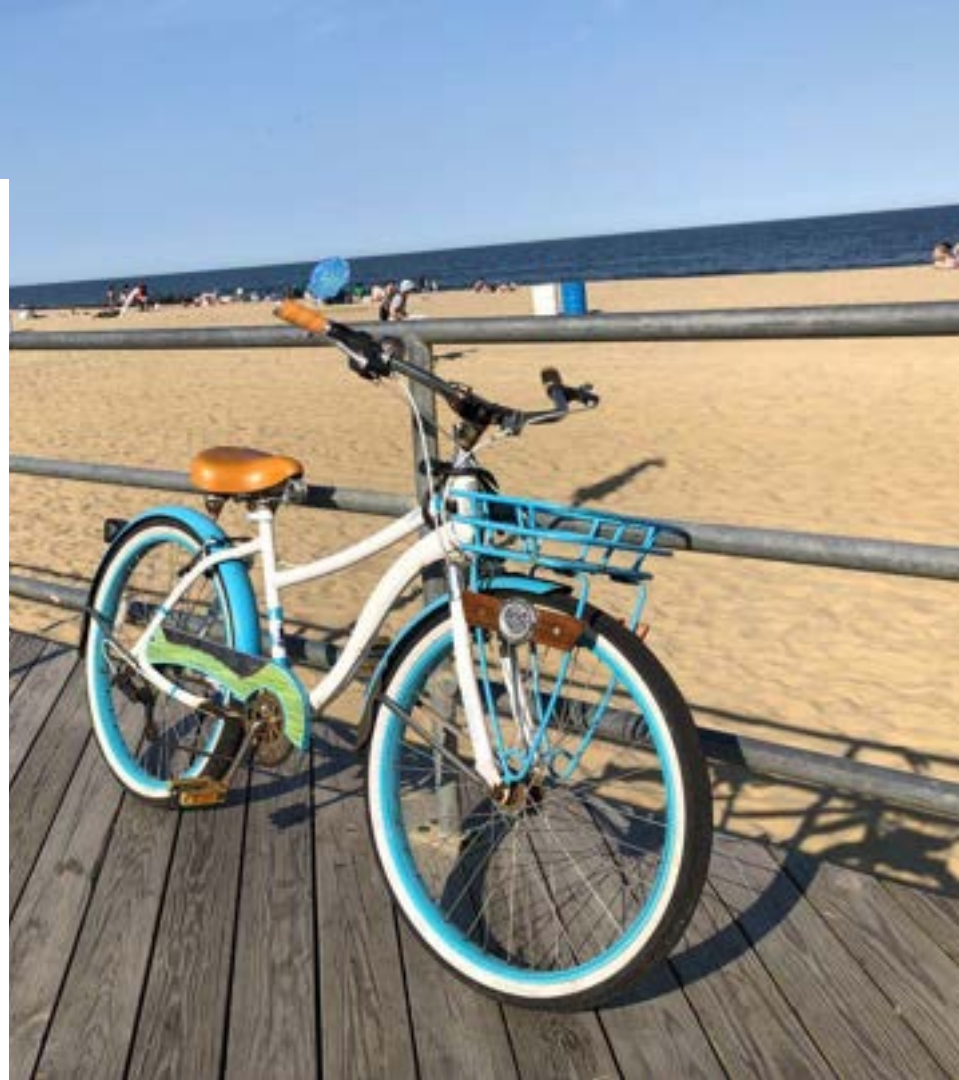
Thoughts on Technology

- Difficult to simulate driver habits and characteristics in a virtual environment.
- Beneficial for modeling potential changes in the built environment.
- Limited mobility of the 3D headset.
- Users may experience “digital-sickness.”
- Scope for advanced research to see possible implementation of VR technology in Urban Planning.

Pop-up Bike Lane

Asbury Park, New Jersey

Thank You!



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