Electric Mobility Plan

STATEMENT

There is a need to prepare our infrastructure to support the impending proliferation of electric-powered transportation modes, which currently include electric personal and fleet vehicles, bicycles, and scooters.

CONTRIBUTING FACTORS

National attention to alternative fuel vehicles (AFVs) has grown dramatically in recent years, largely because of their potential health, environmental and economic benefits. Efforts to encourage the increased use of Alternative Fuel Vehicles (AFVs), in particular electric vehicles, are taking place at the national, state, and local level. There are proven benefits to investing in the efficiency of use of electric powered transportation modes as well as to promoting and to developing a plan for their use. Communities can play an important role in the expansion of alternative fuel vehicle usage by ensure zoning and parking regulations do not impede the market but rather facilitate its growth. Where are the charging station currently and where can they be added in the future?

Also, the growth of electric bicycle and scooter share programs from companies like Bird, Jump or Lime expand, the need for an Electric Mobility Planning has never been more urgent. New York City home to one of the nation's largest bicycle programs, but is our infrastructure and awareness level of commuters ready for the expansion of use. More specifically, is the city ready for expansion of dockless electric bicycle and scooter share operations as well as an increased in shared charging stations for personal vehicles, or even inductive charging options? On one hand, the introduction of electric bicycle and scooter sharing is a positive development because it helps broaden the appeal of shared active transportation programs and can lead to an increase in active transportation mode share, reducing congestion and helping justify investments in bicycle lanes. On the other hand, many residents and business owners are not adequately consulted before these expansions occur, and there may be minimal time allotted to consider the trade-offs that come with the introduction of a new form of transportation. Unfortunately, without proper planning and the development of accurate inventory of electric infrastructure assets and a management program, the city's congested streets and sidewalks may not be able to absorb the influx of dockless bicycles and scooters, leading to increased conflicts between pedestrians and motorists.

CHALLENGE

There is a need to grapple with how to accommodate the transition to an electric fleet of vehicles. This issue manifests itself with questions regarding which types of vehicles should be prioritized, how to manage charging and maintenance, how to raise situational awareness about the infrastructure and how to measure the positive impacts of such a transition.

An Electric Mobility Plan need to do the following:

- Identify the e-mobility modes that best fit the diverse needs of residents of all five boroughs;

- Identify a current inventory snapshot and the gaps in infrastructure that must close to accommodate e-mobility, including existing and potential personal vehicle charging stations;

- Identify best practices for establishing a micro-grid to power the electric vehicles, scooters, and bicycles;

- Determine whether it is necessary to phase-in or pilot various e-mobility options;

- Develop a management plan for dockless shared active transportation programs, including electric scooters and bicycles;

- Develop an equity benchmark to ensure that this new technology is available to traditionally-marginalized populations.
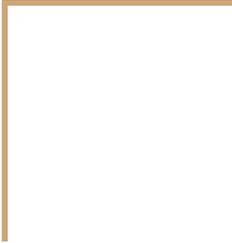
AABE Hackathon

Innovative Solutions for Today's Energy Challenges

6 steps in Human Centered Design Process

- Identify
- Immerse
- Reframe
- Ideate
- Build
- Test
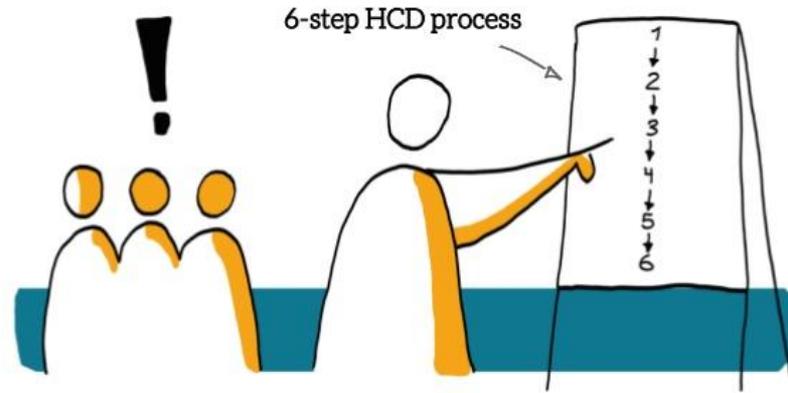
Identify

Goal: Defining the targeted problem space you will tackle.

Outputs: 4-5 broad questions that define the problem spaces to research.

Key Questions:

- What are the facts, assumptions, and problem space you can identify about the larger problem?
- What local organizations and mentors can you work with to help tackle this challenge?
- What are 2-3 initial How Can We's that will help focus research in your problem spaces?

Immerse

Goal: Empathize with end-users (stakeholders) and uncover insights to deeply understand your problem spaces.

Outputs: Empathetic stories of stakeholders. 2-3 key insights along with visual representation.

Key Questions:

- What are interesting facts, stories, themes and existing solutions from your secondary research that you are excited to explore further?
- Who are stakeholders within your problem spaces? Organizations? Places?
- What are 2-3 key insights along with visuals to explain those insights?

Reframe

Goal: Define the change you want to make in the world and what your solutions needs to accomplish to get there.

Outputs: 3-4 Design Goals defining desired solutions qualities.

Key Questions:

- Based off of your teams research and insights, what qualities does your solution need for it to be effective? (These are your Design Goals)
- What end results will indicate that future solutions impact your users' lives? (These are your measures of success)

Ideate

Goal: Generate a variety of ways that make change and explore many alternative solutions.

Outputs: List of 10+ different ideas. 2-4 well-considered concepts..

Key Questions:

- What are some of your wildest ideas? Safest ideas? Easy to implement ideas? Difficult to implement ideas?
- What are themes or categories that your different ideas begin to explore?
- Based on alignment with your design goals and measures of success, what 2-4 concepts are you going to build?

Build

Goal: Make a variety of tangible prototypes to communicate your ideas.

Outputs: At least 2 built prototypes of every concept you're moving forward with for user testing and feedback. A list of important questions to learn about each concept..

Key Questions:

- What are at least 2 different ways you are prototyping each concept?
- What are the simplest ways that you can prototype your concepts to quickly get user feedback?
- What are the important questions you have about each of your concepts that you need to learn as you build your prototypes?

Test

Goal: Get feedback to uncover insights and develop next steps to improve a solution.

Outputs: 4-5 user/expert quotes about your solution. 2-3 insights to inform next steps.

Key Questions:

- How are you ensuring that your tests will help you answer the important questions you have for each concept?
- What quotes and stories from users and experts stood out to you during testing?
- What insights from testing are directing further research and ideation?