

Bicycle Parking Allocation on Campus

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A. JAMES CLARK SCHOOL OF ENGINEERING

GOALS & OBJECTIVES

Goal #1:
Enhance parking locations for micro-mobility solutions to achieve better accessibility and equitable distribution of resources for the varying needs within the University of Maryland, College Park campus

Objectives

- Increase the number of parking spaces for high-traffic bicycle/micro-mobility parking zones on the University of Maryland, College Park's campus
- Increase satisfaction among students, faculty, and visitors regarding the aesthetic, ease of access, and availability of bicycle parking spots within parking zones

Goal #2:

Strengthen security and convenience of bicycle parking locations for students, faculty, and visitors

Objectives

- Increase real-time availability tracking and smart locking mechanisms through the conceptualization of a mobile app that introduces additional safety features
- Increase security by mitigating theft within parking zone infrastructures by at least 20%

BACKGROUND & INTRODUCTION

The University of Maryland, College Park has a large population of students who use **micro-mobility vehicles**. As a **sustainability focused** school that strives to reach the net zero goal, we must promote the usage of these micro-mobility vehicles. This project will aim to **improve parking accessibility** and **strengthen security** around these micro-mobility vehicles parking locations by collecting and analyzing data that we collect from observing each parking zone throughout different hours of the day.

The purpose of the project will be to **design a system in the micro-mobility parking zones** of our choosing that will fix any ongoing issues we find from observations and surveys. Problems will go as far as **enhancing the accessibility** of the parking zones, **equitable distribution of resources** for the varying needs within the University of Maryland, College Park campus, and **strengthening the security** at these chosen locations.

LOCATION SITE IMAGES

Glenn L. Martin Hall

South Campus Dining Hall

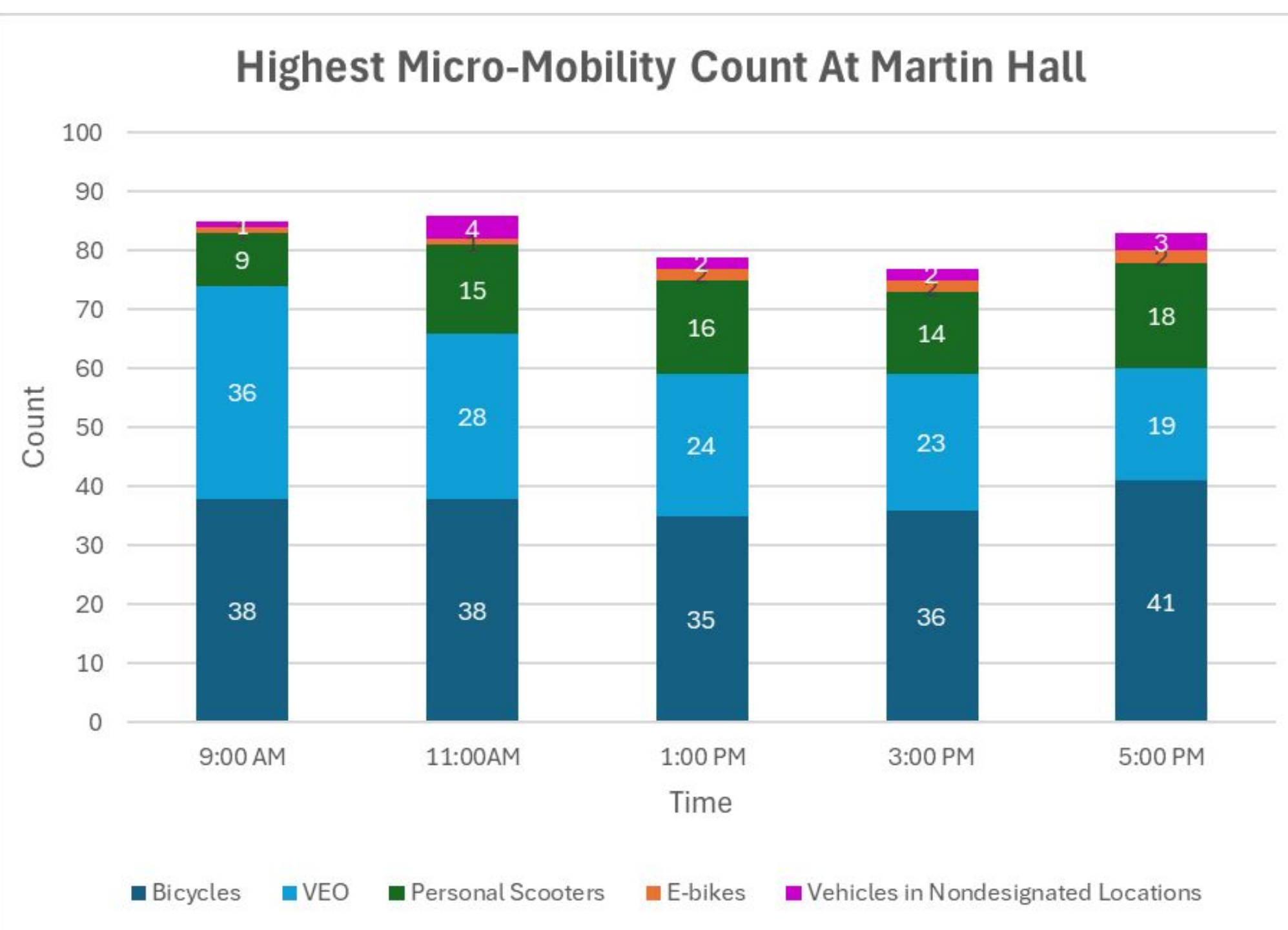
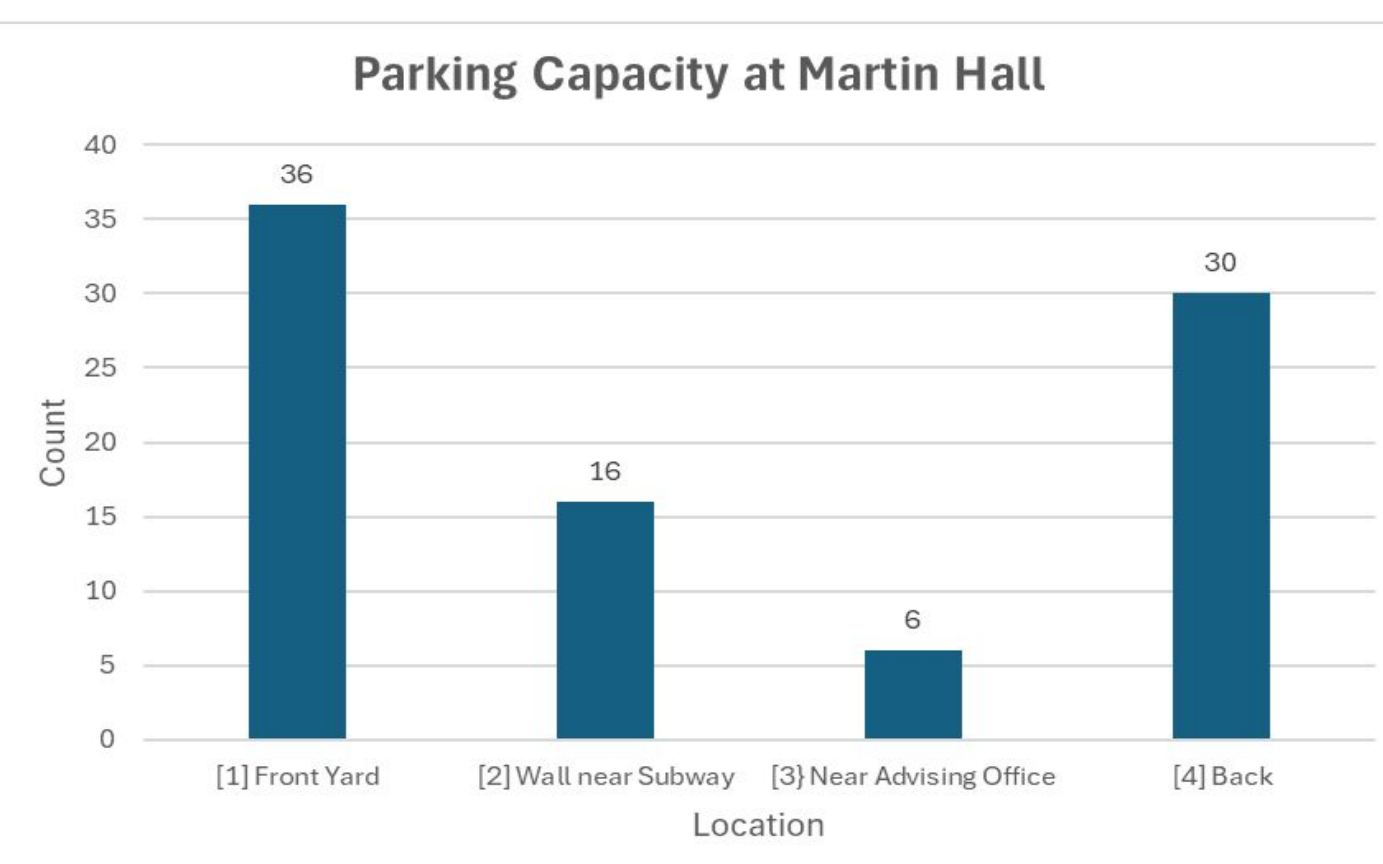
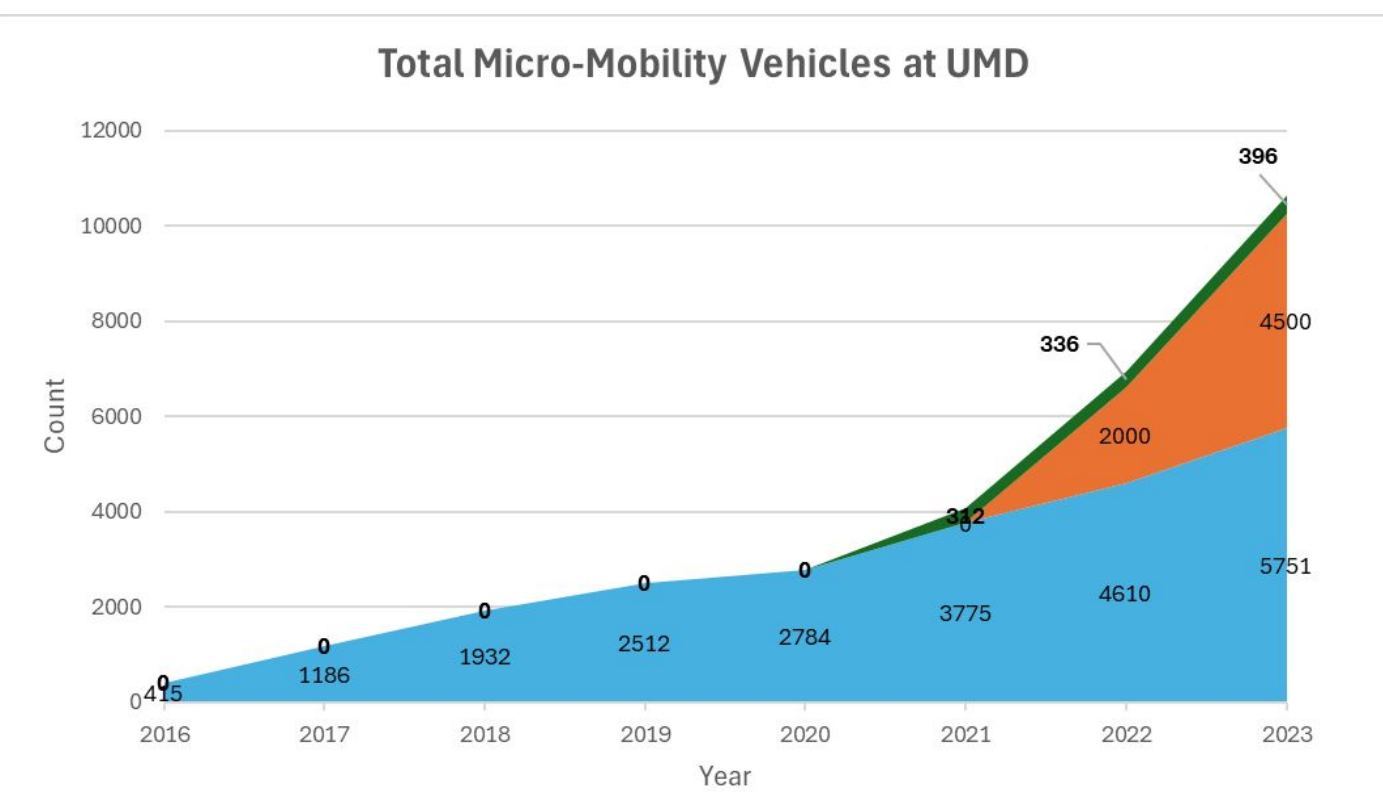


McKeldin Library

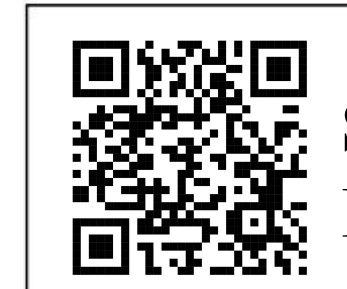
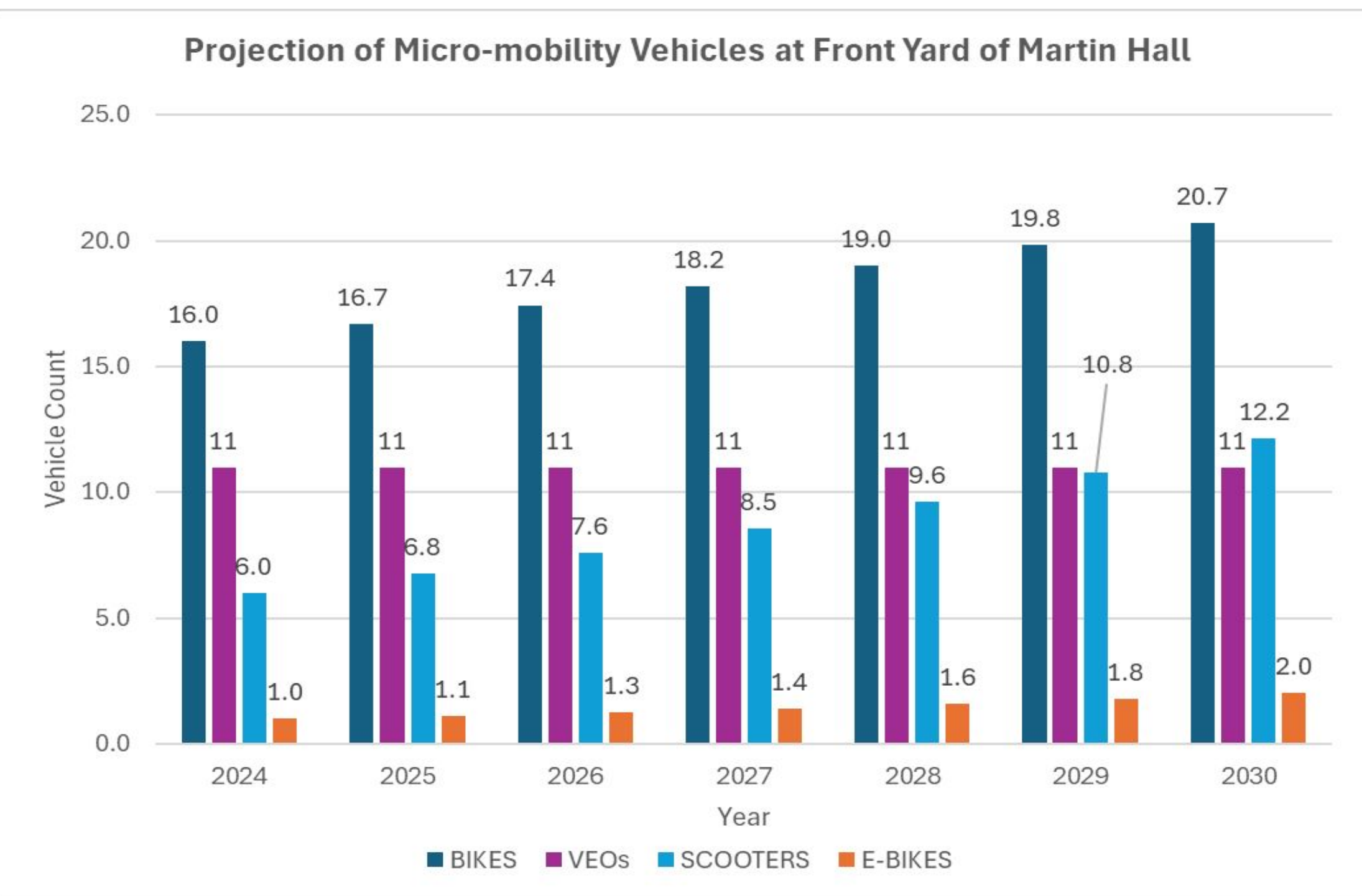
Geary F. Eppley Rec Center



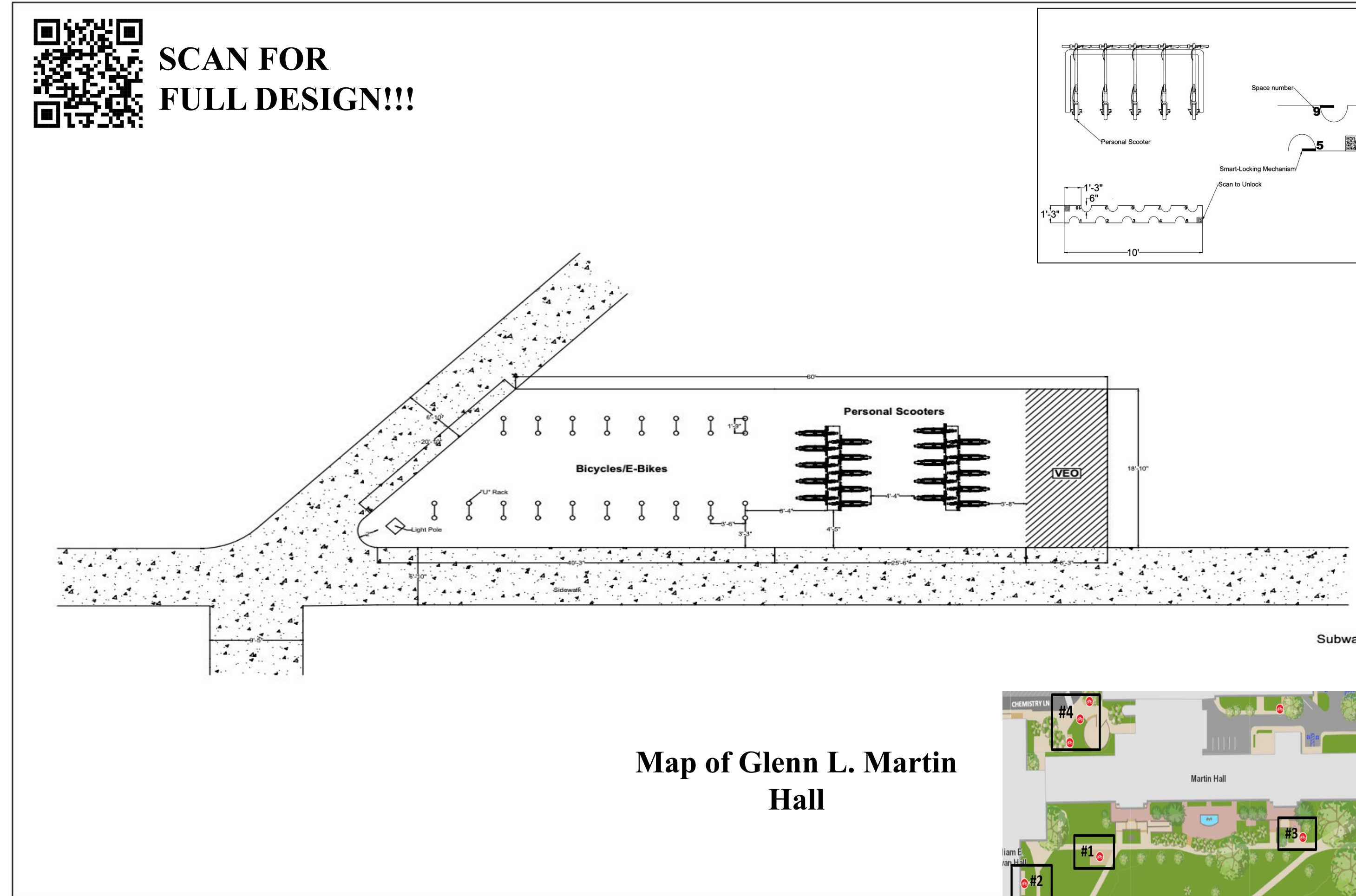
SUMMARY OF FINDINGS



COMPLETE COMPILATION OF DATA COLLECTED



SCAN FOR FULL DESIGN!!!



Date: 1 May 2024
 Designed By: Group C1-1
 Drawn By: Alexander Bejna
 Checked By: Dr. Niemeier

ENCE 467
 Capstone Project

Redesigned Parking
 Glenn L. Martin Hall

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02 of 03

EXAMPLE RACK DESIGN



CONCLUSIVE STATEMENTS

- Through our data collection we discovered a need for larger micro-mobility parking corrals that service a larger area. Our design attempted to reflect this need by creating more accessible spaces.
- Micro-mobility trends reflect a near exponential growth of micro-mobility usage that may plateau with the amount of parking available. This shows a need for revamping our parking system.
- Promoting usage of smart-locking mechanisms and purchase of standard u-locks will work to solve the theft problem of bicycles and create a safer space for micro-mobility users.
- After implementation of our ideas, a final survey could be sent out to assess any changes in satisfaction.