UTK Electric Vehicle Charging Station Implementation Plan

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Logistical Analysis Overview

Motivation: Our motivation is to help UT encourage positive environmental change by incentivizing EV use/green transport.

Cost Analysis (Slide 3)

- Analyze costs of options and placements to develop options

Power Availability (Slide 4)

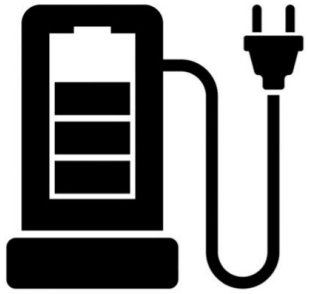
- Optimize possible placement and charger options by analyzing available power

Charger Placement (Slides 7-8)

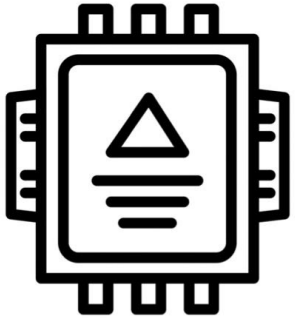
- Finalizing placement using other factors

Cost Analysis

- Questions:
  - Do we need to install new power infrastructure?
  - How much technology do we need/want and can we afford it?
- Considerations:
  - Price of Charging Station
  - Price of installation
  - Existing power infrastructure
- Source File from D.O.E



Level 2 Chargers
4-20 kW Capacity
$200-2500
One Option:
Clippercreek HCS-40R
7.2kW 240V
$3,000 for two



Breaker
$75-150
11th Street Garage Uses
1 Breaker Per Station

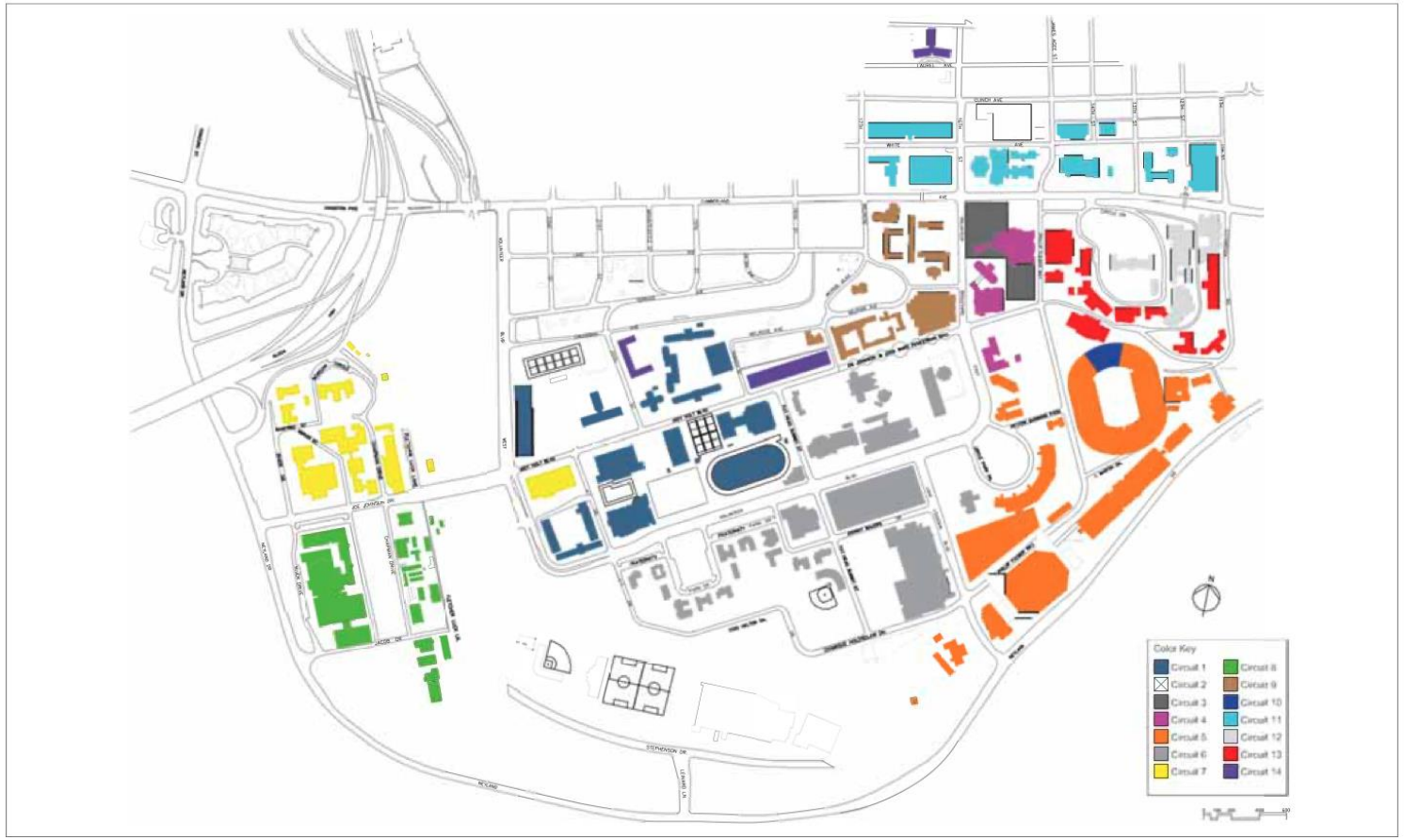
Avg. Cost of Installation
$3,000 in 2015
Highest % of Total Cost

Power Availability

- Prioritize networks with lower power consumption
- Most Level 2 chargers have fairly low power demand
- 4 chargers use similar max power as Tesla Lab in Min Kao

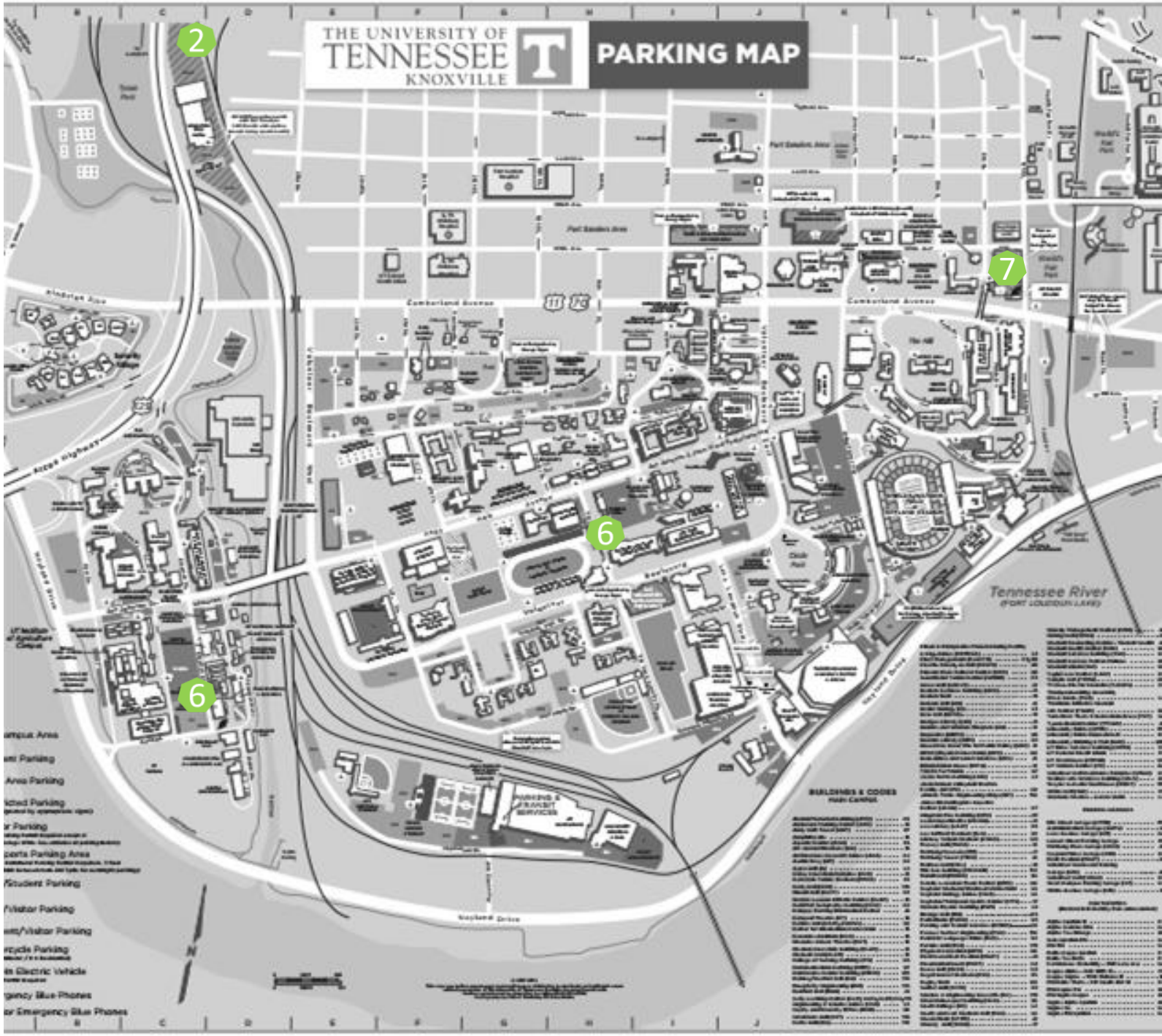
Electrical Distribution

Existing Electrical Circuit Map



Current Situation

- 21 EV charging stations across Main and Ag campus
- 8 faculty only chargers
- 13 student chargers
- 6 student chargers are on agriculture campus
- Likely <75 electric capable vehicles on campus



- current spots

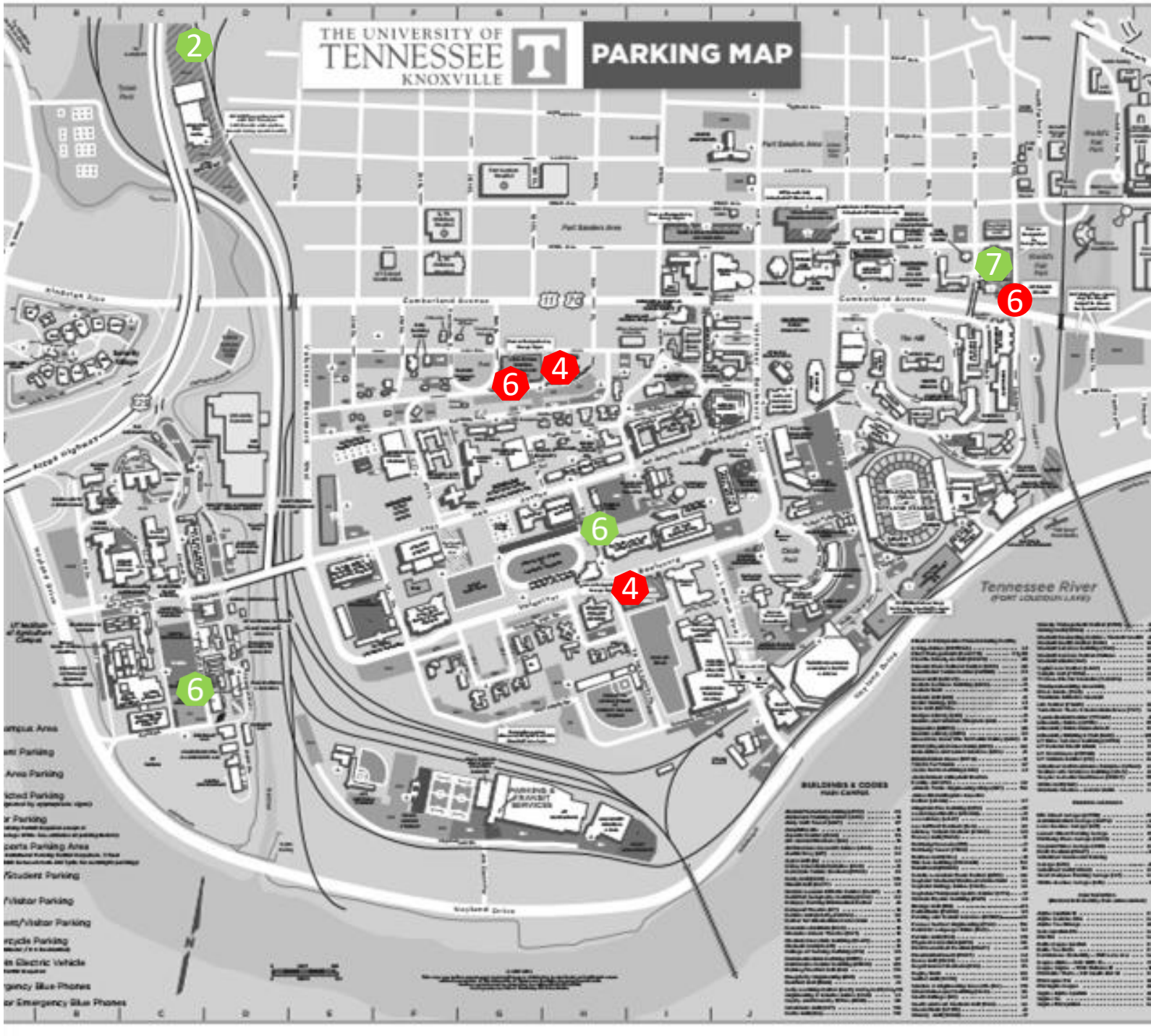
Action Plan

- Our plan is to add EV chargers in phases to meet demand
  - Phase 1- Based on the assumption that EV demand will double +100 more cars on campus: we will need approx. 20 chargers.
  - Phase 2- Electric vehicles double again, approx. 200 or more added and we will add another 40+ EV chargers around campus.

Phase 1 (+100 cars)

- 4 in Stokely Garage
  - Central location
  - Near student housing
  - Tours go through Stokely
  - Athletic dorms
- 6 in Min Kao Garage
  - Existing chargers are using solar power heavily
  - Additional chargers allow for more electric cars to park here
- 4 in Terrace Avenue Garage
  - A mix of commuter and staff parking spots
- 6 in Lake Avenue Garage
  - Heavily populated area
  - Lacks chargers in vicinity

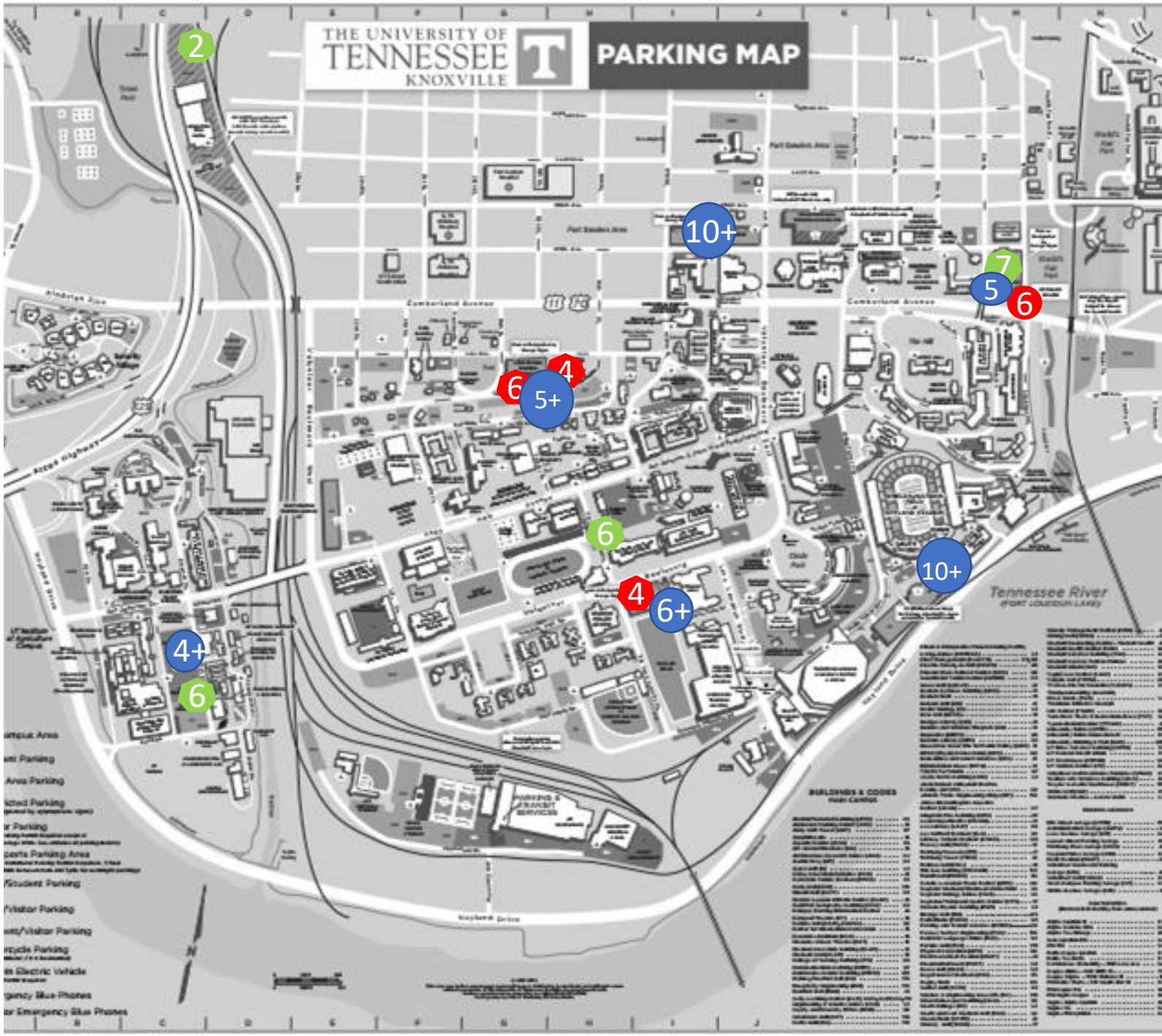
- current spots (19)
- Phase 1 (+20)



Phase 2 (+200 cars)

- Add 40+ more chargers, exponentially growth
- 10+ in White Avenue Garage
  - Easy for commuters and staff
  - Little to no chargers in that area
- 4+ added to Ag campus
  - Where demand will be higher
- 6+ at Stokely
  - Central area for more chargers
- 5+ for Lake and Terrace Avenue
- 5+ added to Min Kao
- 10+ for G10 Garage
  - Near engineering college
  - Convenient to Neyland stadium

- current spots (19)
- Phase 1 (+20)
- Phase 2 (+40)



Additional Ideas

Alternative Green Transportation

- Electric skateboards/scooters
  - Good price point for students and already being used
  - Special parking passes for people with electric scooters

Parking and Transit Recommendations

- Add a section to Rider app to show where there are open chargers across campus
- Create a committee to analyze how many additional chargers are needed each year

Conclusion