

# Sacramento Transportation Infrastructure Risk Assessment

January 2026

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# Introduction

The SacAdapt planning effort will develop prioritized adaptation strategies, which may include capital projects, operational changes, maintenance improvements, policy changes, and other types of interventions. The Risk Assessment deliverable serves to prioritize parts of the transportation system for adaptation strategy development.

The Risk Assessment is performed at a systems scale, meaning that it looks across a broad set of assets to inform which have higher risks from a given climate-related hazard (i.e., flooding, extreme heat). The Risk Assessment prioritizes assets based on both the likelihood of being affected by hazards and consequences to the transportation system, including the people who use it.

The systems-scale risk assessment was shaped by the following considerations:

- The analysis focuses on asset-hazard combinations that present an opportunity for the City or SacRT to directly manage these risks.
- The analysis does not attempt to differentiate between assets when risk is very similar.
- The analysis avoids duplicating recently completed or ongoing efforts.

The systems-scale risk assessment was not completed for asset-hazard combinations where potential projects have already been identified or for asset-hazard combinations where general strategies (e.g., using more resilient materials or design specifications) can be developed without going through asset-by-asset prioritization.

# Methodology

## Overview

The system-scale risk assessment analyzes and prioritizes different types of transportation assets based on their likelihood of experiencing climate hazards and the consequences to the transportation system when these hazards occur.

Different asset classes are assessed separately. The following list summarizes the basic process for each asset type:

1. Develop a set of metrics for the asset related to their relative importance to the overall transportation system and the consequences when disrupted.
2. Place metrics on a common scale (ranging from 0-10).
3. Weight metrics based on their relative importance.

4. Sum weighted and scaled metrics together to create a consequence score (ranging from 0-10, with 10 being the highest consequence score).
5. Create consequence scores based on combination of consequence metrics (e.g., 0-10 score). The consequence scores are one output of the analysis.
6. Combine consequence scores with likelihood metrics to inform prioritization. This process is handled differently for extreme heat and flooding. Those approaches are described in more detail later in this section.

It is important to understand that this indicator-based risk assessment produces scores that can be used for comparison of risk between different assets in relative terms; however, the scores are not representative of an absolute value of risk. Scaling and weighting enables the comparison of consequence scores between assets within an asset class, but comparisons cannot always be made across asset classes given the metrics used to evaluate each asset class differ.

## Asset Classes Included

The asset-hazard combinations identified in the vulnerability assessment are advanced either directly to general adaptation strategies or through the risk assessment. Table 1 lists each of these asset-hazard combinations, potential next steps, and whether or not each is included in the risk assessment. It incorporates input from TAC members.

*Table 1: Major Asset-Hazard Combinations and Whether they are included in Risk Assessment*

| Hazard | Damage & Asset Type                                      | Strategy Identification Pathways   | Next Steps  |
|--------|--|--|---|
| Heat   | Outdoor Traveler Comfort and Health: Bus Stops           | <ul style="list-style-type: none"> <li>• General adaptation strategies</li> <li>• Risk assessment</li> </ul> | <ul style="list-style-type: none"> <li>• Risk assessment may identify priority assets where strategies might be needed.</li> <li>• SacRT has current grant-funded project on heat resilient bus shelters for selected stops with existing concrete pads. This and other efforts will inform general adaptation strategies.</li> </ul> |
| Heat   | Outdoor Traveler Comfort and Health: Light Rail Stations | <ul style="list-style-type: none"> <li>• General adaptation strategies</li> <li>• Risk assessment</li> </ul> | <ul style="list-style-type: none"> <li>• Risk assessment may identify priority assets where strategies might be needed.</li> </ul>  |

| Hazard | Damage & Asset Type  | Strategy Identification Pathways  | Next Steps   |
|--------|--|---|--|
| Heat   | Outdoor Traveler Comfort and Health: Active Transportation | <ul style="list-style-type: none"> <li>General adaptation strategies</li> </ul> | <ul style="list-style-type: none"> <li>City’s Tree Opportunity Analysis (2024) serves as systems scale risk assessment, identifying gaps in tree canopy over active transportation facilities.</li> <li>Cool pavements and de-paving should also be considered as general adaptation strategies. Possible recommendations to improve outdoor traveler comfort and health (in the context of heat mitigation).</li> </ul> |
| Heat   | Outdoor Workers Health                                     | <ul style="list-style-type: none"> <li>General adaptation strategies</li> </ul> | <ul style="list-style-type: none"> <li>General adaptation strategies are likely to be policy recommendations and not location specific.</li> </ul>   |
| Heat   | Pavement, Traffic Detection                                | <ul style="list-style-type: none"> <li>General adaptation strategies</li> </ul> | <ul style="list-style-type: none"> <li>Pavement treatments (e.g., different binder grade specifications) that mitigate degradation from heat stress may be explored in the general adaptation strategies.</li> </ul>   |
| Heat   | Signage, Striping  | <ul style="list-style-type: none"> <li>General adaptation strategies</li> </ul> | <ul style="list-style-type: none"> <li>General strategies can include information on better maintaining signs and striping affected by heat.</li> </ul>  |
| Heat   | SacRT Light Rail Tracks                                    | <ul style="list-style-type: none"> <li>General adaptation strategies</li> </ul> | <ul style="list-style-type: none"> <li>Recommendations likely to be operational. Additional adaptation implementation guidance may be considered.</li> </ul>   |
| Heat   | SacRT Power Distribution System                            | <ul style="list-style-type: none"> <li>General adaptation strategies</li> </ul> | <ul style="list-style-type: none"> <li>Heat management for light rail substations will be assessed through adaptation implementation guidance to inform general strategies.</li> </ul>   |
| Heat   | SacRT Overhead Catenary System (OCS)                       | <ul style="list-style-type: none"> <li>General adaptation strategies</li> </ul> | <ul style="list-style-type: none"> <li>Recommendations likely to be operational. Additional adaptation implementation guidance may be considered.</li> </ul>   |
| Heat   | SacRT Compressed Natural Gas (CNG) Plant                   | <ul style="list-style-type: none"> <li>General adaptation strategies</li> </ul> | <ul style="list-style-type: none"> <li>Heat resilience for CNG infrastructure will be assessed through adaptation implementation guidance to inform general strategies.</li> </ul>   |

| Hazard | Damage & Asset Type   | Strategy Identification Pathways   | Next Steps  |
|--------|---|--|---|
| Heat   | Transit Facility HVAC Systems                                       | <ul style="list-style-type: none"> <li>General adaptation strategies</li> </ul>                          | <ul style="list-style-type: none"> <li>Of transit facilities, project-specific analysis would be most helpful at 29th St., though likely moving out of this facility in next 10 years or so. Lower priority for project-specific analysis given the plans to leave the facility.</li> </ul> |
| Wind   | Crossing Gate Arms and other SacRT Infrastructure                   | <ul style="list-style-type: none"> <li>General adaptation strategies</li> </ul>                          | <ul style="list-style-type: none"> <li>Recommendations likely to be operational. Maintenance staff already understand differential impacts to gates, as summarized in the Vulnerability Assessment.</li> </ul>  |
| Wind   | Traffic Signals, Streetlights, Trees, and Other City Infrastructure | <ul style="list-style-type: none"> <li>General adaptation strategies</li> </ul>                          | <ul style="list-style-type: none"> <li>Recommendations likely to be policy and maintenance related (e.g., updating street/traffic infrastructure to current standards and managing trees according to current standards).</li> </ul>  |
| Flood  | Levee Failure   | <ul style="list-style-type: none"> <li>General adaptation strategies</li> </ul>                          | <ul style="list-style-type: none"> <li>Leverage recent DPW assessment on floodgate improvements for recommendations (beyond what's already covered by Floodgate Modernization and Resilience Project).</li> <li>SacAdapt project scope does not include assessment of levees.</li> </ul>    |
| Flood  | Roadways  | <ul style="list-style-type: none"> <li>General adaptation strategies</li> <li>Risk assessment</li> </ul> | <ul style="list-style-type: none"> <li>Perform risk analysis to help prioritize among assets.</li> <li>Additional adaptation implementation guidance may be considered for permeable pavers or pavement.</li> </ul>   |
| Flood  | Bikeways  | <ul style="list-style-type: none"> <li>General adaptation strategies</li> <li>Risk assessment</li> </ul> | <ul style="list-style-type: none"> <li>Perform risk analysis to help prioritize among assets.</li> </ul>  |
| Flood  | Railways  | <ul style="list-style-type: none"> <li>General adaptation strategies</li> </ul>                          | <ul style="list-style-type: none"> <li>Recommendations likely to be maintenance related or specific to bridges. Additional adaptation implementation guidance may be considered.</li> </ul>   |

| Hazard | Damage & Asset Type            | Strategy Identification Pathways   | Next Steps  |
|--------|--------------------------------|--|---|
| Flood  | Pump Stations and Drainage     | <ul style="list-style-type: none"> <li>• General adaptation strategies</li> </ul>                            | <ul style="list-style-type: none"> <li>• DOU Local Hazard Mitigation Plan, Comprehensive Flood Management Plan, Repetitive Loss Analysis, and drainage master plans have priority locations and recommendations for stormwater drainage improvements (including pump stations, culverts, etc.).</li> <li>• Will likely include maintenance recommendations regarding culvert and storm drain cleaning. May use risk assessment prioritization among roads to inform where maintenance should be prioritized.</li> </ul> |
| Flood  | Traffic Signals                | <ul style="list-style-type: none"> <li>• General adaptation strategies</li> <li>• Risk assessment</li> </ul> | <ul style="list-style-type: none"> <li>• Can use risk assessment to prioritize signals upgrades.</li> <li>• General interest in managing traffic/signal infrastructure in an emergency response and recovery situation.</li> </ul>  |
| Flood  | Underground Infrastructure     | <ul style="list-style-type: none"> <li>• General adaptation strategies</li> </ul>                            | <ul style="list-style-type: none"> <li>• Limited ability to use existing data to conduct system level analysis to understand where risks are. May be some operational or maintenance recommendations.</li> </ul>  |
| Flood  | Transit Facilities             | <ul style="list-style-type: none"> <li>• General adaptation strategies</li> </ul>                            | <ul style="list-style-type: none"> <li>• For SacRT transit facility improvements, consider overlapping risks through the Zero Emission Bus (ZEB) subtask and general adaptation strategies.</li> <li>• For Sacramento Valley Station, discuss if analysis is needed.</li> </ul>   |
| Flood  | ZEB Charging Stations          | <ul style="list-style-type: none"> <li>• Advance to ZEB subtask analysis</li> </ul>                          | <ul style="list-style-type: none"> <li>• For ZEB charging stations, leverage VA and ZEB analysis.</li> </ul>  |
| Flood  | Transit Emergency Preparedness | <ul style="list-style-type: none"> <li>• General adaptation strategies</li> </ul>                            | <ul style="list-style-type: none"> <li>• Recommendations likely to be operational, not location specific.</li> </ul>  |
| Flood  | Bridges                        | <ul style="list-style-type: none"> <li>• General adaptation strategies</li> </ul>                            | <ul style="list-style-type: none"> <li>• Recommendations likely to be policy and funding related (e.g., more funding for bicycle bridge inspections and mid-level bridge improvements).</li> <li>• Consider case study for potential project-level analysis.</li> </ul>   |

| Hazard   | Damage & Asset Type        | Strategy Identification Pathways  | Next Steps   |
|----------|----------------------------|---|--|
| Wildfire | Smoke Impacts to Travelers | <ul style="list-style-type: none"> <li>General adaptation strategies</li> </ul> | <ul style="list-style-type: none"> <li>Recommendations likely to be operational.</li> <li>Not feasible to manage on a location specific basis.</li> </ul>                                      |
| Multiple | Power Grid Failure         | <ul style="list-style-type: none"> <li>General adaptation strategies</li> </ul> | <ul style="list-style-type: none"> <li>Limited ability to manage. Coordination with SMUD is critical.</li> <li>Highlight importance of DOU analysis on pump station prioritization.</li> </ul> |

### Units of Analysis

The individual assets were the units of analysis that were used.

Bus stops and light rail stations were used directly from SacRT GIS datasets.

Both major roadways and bikeways units of analysis were created by taking the City GIS data and performing further selection and segmentation for purposes of this analysis. For roadways, the dataset was filtered to include only streets functionally classified as arterials or collectors. These features were then dissolved by their names and segmented into intersection-to-intersection units. For bikeways, all existing routes in the City’s bikeway dataset were included. Like the roadway network, the bikeways were also segmented into intersection-to-intersection units. The segmentation of both these datasets by intersection-to-intersection segments is more logical for metrics such as detour time or length and enables easier comparison between assets.

The traffic signals were used directly from City GIS data. Components of these assets were further analyzed, although these additional analyses leverage incomplete datasets and are used to support future analysis. These components were cabinets, controllers, detection devices, network devices, and hardware. Only components at or near their End of Life (EOL) were assessed. For these traffic signal components, one or more condition-related metrics were combined to create an EOL indicator score ranging from 0 to 10 (with 10 corresponding with highest need for replacement).

### Asset-Hazard Combinations

The asset-hazard combinations used in the risk assessment are depicted by check marks in Table 2

Table 2: Asset-Hazard Combinations in the Risk Assessment

| Asset Class                | Flooding | Extreme Heat |
|----------------------------|----------|--------------|
| <b>Major Roadways</b>      | ✓        |              |
| <b>Bikeways</b>            | ✓        |              |
| <b>Bus Stops</b>           |          | ✓            |
| <b>Light Rail Stations</b> |          | ✓            |
| <b>Traffic Signals</b>     | ✓        | ✓            |
| <i>Cabinets</i>            | ✓        |              |
| <i>Controllers</i>         | ✓        |              |
| <i>Detection Devices</i>   |          | ✓            |
| <i>Hardware</i>            | ✓        |              |

## Consequence Metrics

This section gives a brief overview of the different types of consequence metrics used for each asset class. Generally, each asset class has four categories of consequence metrics: usage, redundancy, critical facility access, and equity. This is the case for major roadways, bikeways, bus stops, and light rail stations. Traffic signals are a special case; this special case is discussed in more detail in the Traffic Signals portion of the Asset Results section below.

The four consequence metric categories are introduced in this section. For some of these types, metrics vary heavily by asset class. In those cases, the specific metrics are discussed in each asset class's portion of the Asset Results section. For others, the metrics are the same or very similar across asset classes. In those cases, the metrics are discussed here for sake of brevity.

### Usage

One aspect of consequence is the level of usage of a particular asset. Assets with higher levels of usage tend to have greater consequences to the system when damaged or disrupted. The usage metrics vary widely by the asset class, from traffic volume to ridership to level of stress. Therefore, these metrics are discussed in each asset class's portion of the Asset Results section.

### Redundancy

Redundancy is also an important aspect of consequence. Assets with low redundancy tend to affect the system more when they are damaged or disrupted. The redundancy metrics also vary widely by asset class so are described in each asset class's portion of the Asset Results section.

### Critical Facility Access

Ensuring reliable access to critical facilities is essential for maintaining life-safety services, supporting emergency response, and sustaining day-to-day community functioning. Critical facilities can include a wide range of definitions; for the purposes of SacAdapt, critical facilities were considered in two categories aligned with the transportation networks that serve them: (1) roadway-dependent critical facilities and (2) bikeway/public transit-dependent critical facilities. Maintaining uninterrupted connectivity to these facilities is central to community resilience.

### *Major Roadway Critical Facilities*

These facilities rely primarily on the roadway network for emergency vehicle response, continuous operations, or distribution of essential services. Any disruption of access (e.g., flooding, road closures, debris blockage, structural failures) can directly impact life safety, utilities, and public health. These include hospitals, fire and police stations, utility sites (water, wastewater, electric), transit depots, and flood control assets. These facilities require dependable roadway access for emergency response crews, utility operators, and incident management.

Table 3 shows the categories for access to critical facilities by roadways and the scoring contributing to consequence scores. This metric reflects how reliant a facility is on a specific roadway. If a disrupted road is the only or primary route to a critical facility, the consequence score will be high because the loss of access could impede emergency response, service delivery, or utility operations.

*Table 3: Access to Critical Facilities Categories and Scores for Roadways*

| <b>Category</b>               | <b>Description</b>  | <b>Score</b> |
|-------------------------------|---|--------------|
| <b>Exclusive Access</b>       | Only route to the facility or its neighborhood; includes one-way-in/out cases                                     | 10           |
| <b>Primary Access</b>         | Provides direct access to the facility but has a local street network serving the facility at other access points | 8            |
| <b>Multiple Access Points</b> | Two or more major roads directly connect to facility  | 6            |
| <b>Local Access</b>           | Access road to a neighborhood or local road network; Does not provide direct access to facility                   | 4            |
| <b>No Access</b>              | No access to critical facilities  | 0            |

### *Bikeway and Transit Critical Facilities*

This category includes facilities that serve community members who depend on non-automobile travel, including anyone who walks, bicycles, or takes public transportation. Maintaining access to public and active transportation is essential to ensuring equity, transportation resilience, and the continuity of social and community functions. Facilities in this category include schools, community centers, libraries, evacuation shelters, and transit hubs.

Table 4 defines the categories and scores used to measure how close a bikeway, bus stop, or light rail station is to a critical facility. Bikeways or transit stops that are located closer to a critical facility are considered more critical for facility access, resulting in higher consequence scores.

*Table 4: Access to Critical Facilities Categories and Scores for Bikeways and Transit Assets*

| Category      | Score |
|---------------|-------|
| Within ¼ mile | 10    |
| Within ½ mile | 5     |
| Within ¾ mile | 2     |
| Over ¾ mile   | 0     |

### Equity: CalEnviroScreen Score

CalEnviroScreen percentiles represent how a census tract ranks relative to others in California in terms of environmental pollution burden and population vulnerability, with higher percentiles indicating greater cumulative impacts. Disruptions in these high-percentile areas are more likely to affect already overburdened communities. The maximum CalEnviroScreen score was taken for linear assets (roadways and bikeways).

### Hazard Likelihood

#### Flooding

For flooding, likelihood was assessed using FEMA floodplain data.

For traffic signals and bikeways, likelihood was categorized into the following tiers:

- Tier 1 (highest likelihood): Located in or crosses through 100-year floodplain
- Tier 2: Located in or crosses through shallow 100-year floodplain
- Tier 3: Located in or crosses through 100-year floodplain but protected by a levee or a 500-year floodplain

For major roadways, the following likelihood tiers were used:

- Tier 1 (highest likelihood): At least one of the following is true:

- Segment crosses through 100-year floodplain one or more times and no bridge appears to be present for at least one of those crossings
- Segment contains one or more underpasses
- Tier 2: Segment crosses through shallow 100-year floodplain one or more times and no bridge appears to be present for at least one of those crossings
- Tier 3: At least one of the following is true:
  - Segment crosses through 100-year floodplain but protected by a levee or a 500-year floodplain
  - Segment contains a bridge over water

For flooding, likelihood tiers can be combined with consequence scores by first sorting by likelihood tier (highest to lowest) and then by consequence score (largest to smallest). The results section of this assessment focuses on assets in the highest tier of flood likelihood. For roadways and bikeways, it can also be helpful to sort high-likelihood assets by length of overlap with the 100-year floodplain.

## Extreme Heat

For extreme heat, daytime Urban Heat Island (UHI) intensity data from NASA in 2020, measured in degrees Fahrenheit, was used to quantify relative likelihood of impacts. Generally, transit stops and light rail stations in areas with more intense UHI were assumed to be higher priorities for extreme heat risk.

UHI intensity at bus stops and light rail stations was normalized from 0 to 10, with 10 corresponding to the highest intensity among the assets. UHI data was only available for the City of Sacramento. Assets outside of the city have no UHI scores leading to null heat risk scores.

A heat risk score was also created by multiplying together consequence scores by the scaled UHI score. Higher scores are associated with higher extreme heat risks.

# Asset Results

This section documents the results of the asset risk analysis and is organized by asset type. Each subsection includes, where applicable, maps, a brief narrative summary, the associated consequence metrics and scores, and a list of the highest-priority assets. For brevity, each list shows up to 50 total assets.

## Major Roadways

### Consequence Metrics

Major roads are defined as City-owned collectors or arterial roadways. Table 5 shows the metrics, scales and weights used for calculating consequence scores for major roads. The metrics were weighed equally. The following subsections describe the metrics in more detail.

*Table 5: Consequence Score Metric Weights for Major Roads*

| Metric                             | Scale  | Weight |
|------------------------------------|--|--------|
| <b>Average Daily Traffic (ADT)</b> | Logged value of existing counts.<br>Then, Min-Max scaling from 0 to 10.  | 25%    |
| <b>Incremental Detour Time</b>     | No data or Detour <= 1 minute: 1<br>Values > 1 minute and <= 10 minutes: Remain as is<br>Values > 10 minutes: 10 | 25%    |
| <b>Nearby Critical Facilities</b>  | Exclusive Access: 10<br>Primary Access: 8<br>Multiple Access Points: 6<br>Local Access: 4<br>No Access: 0        | 25%    |
| <b>CalEnviroScreen Score</b>       | All scores divided by 10   | 25%    |

#### *Average Daily Traffic*

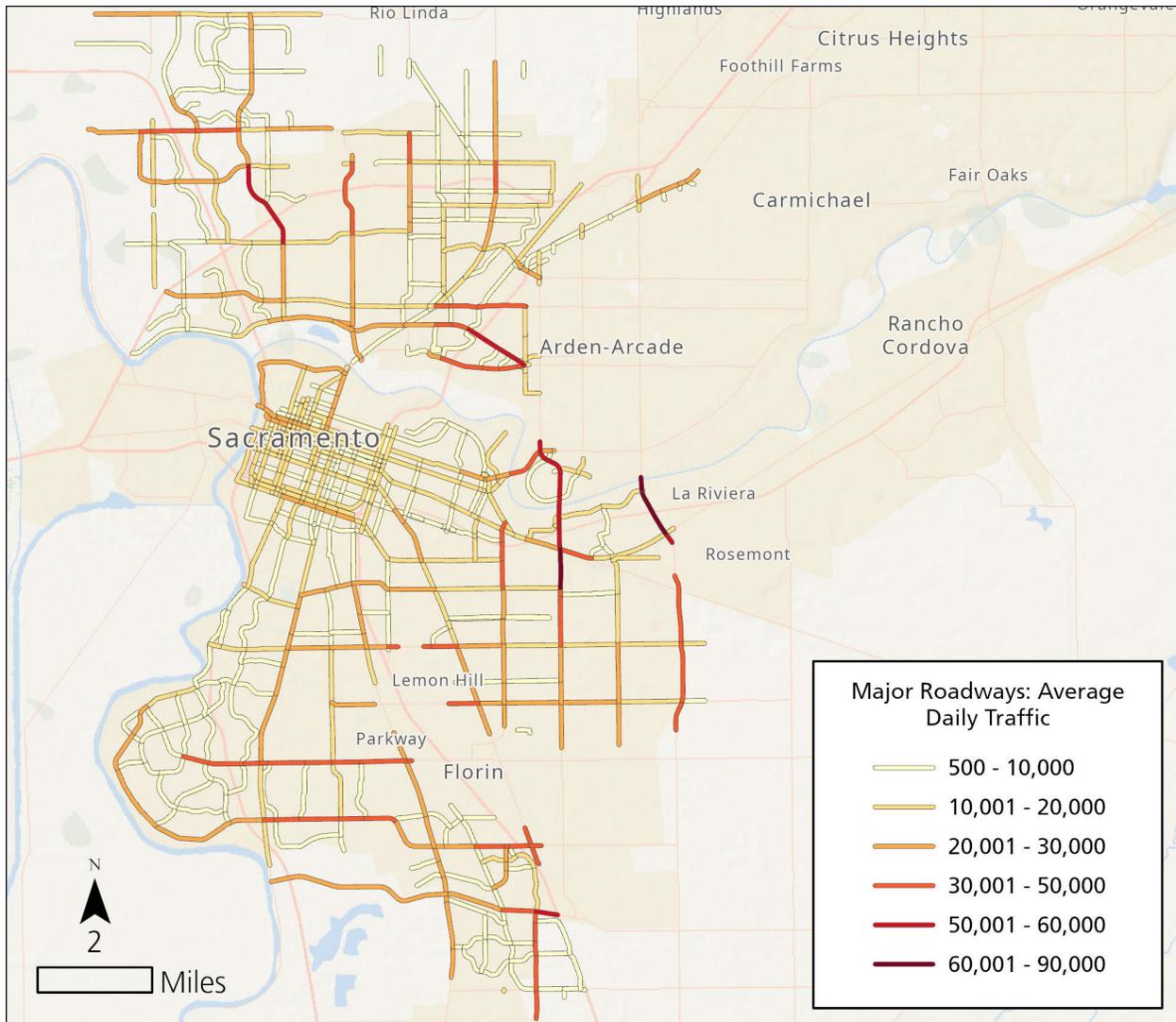
Average Daily Traffic (ADT) is a measure of the average number of vehicles that travel along a given roadway each day. It quantifies how frequently a roadway is used and thus its importance to a transportation network. All else being equal, roads with higher ADTs tend to have a greater societal and economic impact if disrupted during a hazard when compared with roads with lower ADTs.

ADT data for arterial and collector roads were provided by the City of Sacramento based on 2019 counts. The counts were provided in an Excel sheet for road segments by road names

and intersection. To apply this data to the segmented roadway network in GIS, intersections were geolocated using a locator tool, and ADT values were manually assigned to the corresponding road segments based on their spatial relationship to the identified intersections. For segments without ADT, values were gap-filled using a tiered approach. If a segment was located between two others with ADT values, the average of those values was used. If only one adjacent segment had an ADT value, that value was applied, assuming comparable traffic volume. When no suitable adjacent data were available, the 10th percentile ADT for the corresponding functional classification was used (it was assumed that segments without counts were likely to have lower ADT values).

In the original dataset, most ADT values were below 30,000, with a small number of outliers exceeding 60,000 daily users. To prepare the data for analysis, ADT values were log-transformed and then scaled using the minimum and maximum of the logged values. This approach reduced the influence of extreme values while preserving the relative differences across the dataset, allowing for more meaningful comparison.

Map 1 shows the distribution of ADT across the City of Sacramento. Segments with the highest ADT are arterials that serve as access points to highways. These include Watt Ave./South Watt Ave., Howe Ave./Power Inn Rd., and Arden Way in the eastern part of the City; Truxel Rd. in Natomas; and Cosumnes River Blvd. in the south. The gridded downtown area generally has lower ADT values, likely due to the redundancy of the street network in the area, as well as a higher density that allows for higher mode shares for active transportation and transit.



Map 1: Unscaled Average Daily Traffic (ADT) values for major roadways

### Incremental Detour Time

Incremental detour time measures the amount of additional time required for a typical detour around a roadway segment if it becomes inaccessible.

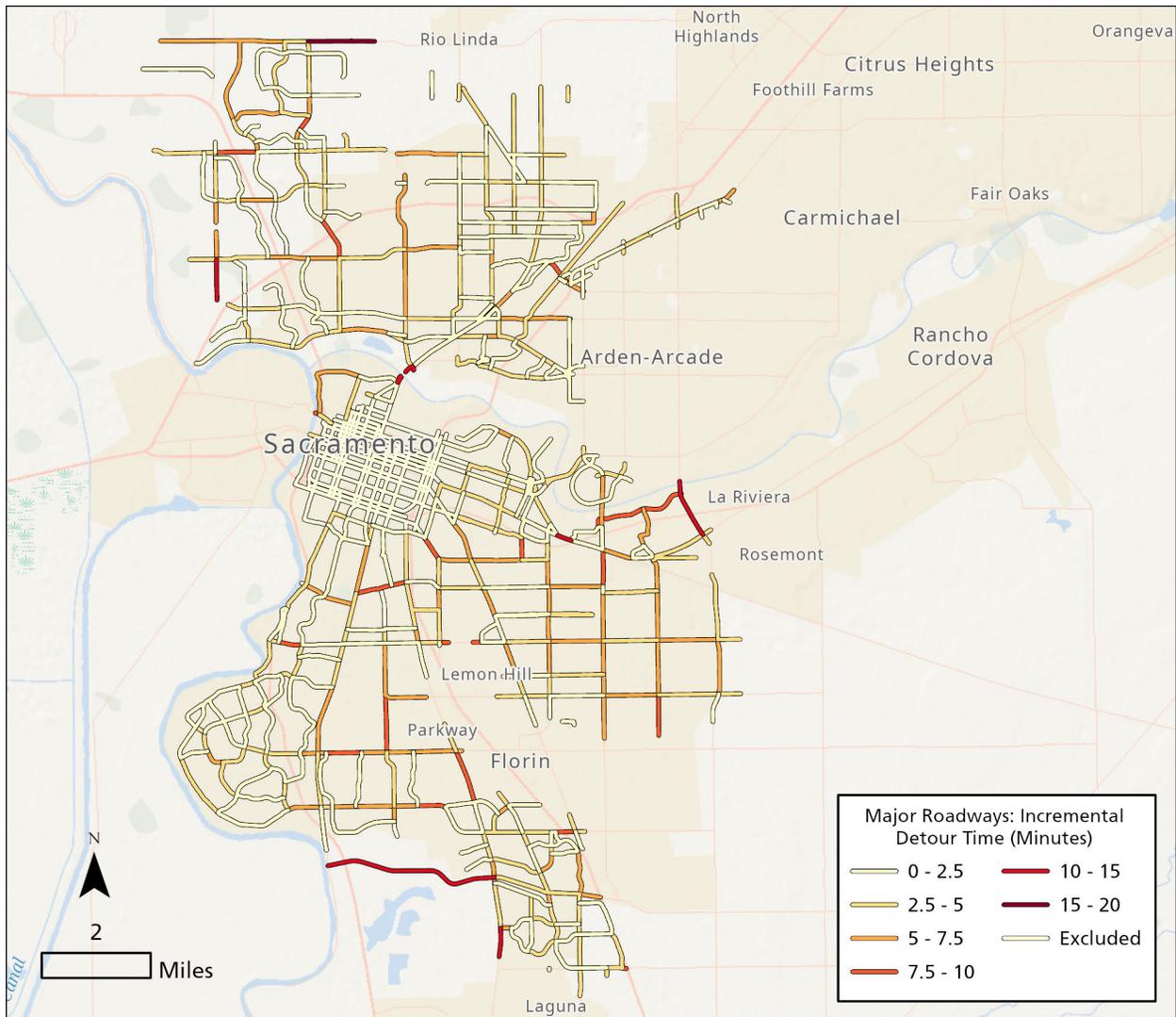
Incremental detour times were estimated by mapping each major roadway segment in Google Maps to identify typical travel time by car in minutes. All measurements used weekday 8am conditions to reflect peak travel patterns. The fastest feasible detour route was then identified using nearby arterials, collectors, or highways that a driver would likely choose if their primary route were inaccessible. In instances where a reroute was not possible or unreasonably long, the detour followed local streets outside the major roads. For 352 road segments in the densely gridded downtown Sacramento area, very short detours were assumed rather than measured in Google Maps due to the high redundancy of the network.

To quantify the incremental detour time, the original travel time was subtracted from the delayed travel time. All roadways that had no incremental detour time, a negative incremental detour time, or an incremental detour time of 1 minute were assigned a score of 1. Roadways with incremental detour times that exceed 10 minutes were given a score of 10. Roadways with incremental detour times between 1 and 10 minutes remained as is (e.g., a road with a 4-minute detour received a 4).

Most segments have relatively short detour times, falling under five minutes. Only a small portion of the network, fewer than 50 segments, have detour times exceeding eight minutes. These longer detour segments may reflect areas with limited connectivity, physical barriers such as rivers or freeways, or a lack of parallel routes, and could represent potential vulnerabilities in the transportation network during closures or emergencies.

Map 2 shows the distribution of incremental detour times across the City of Sacramento. Segments with the highest detour times are predominately located in more suburban or agricultural areas where alternative travel routes via major roadways are limited. For example, the Elkhorn Boulevard segment on the northern edge of the City with the longest detour time is almost two miles away from the next major roadway that could be used as a potential reroute. A similar example is a portion of Cosumnes River Boulevard at the southern edge of the City with a relatively sparse roadway network.

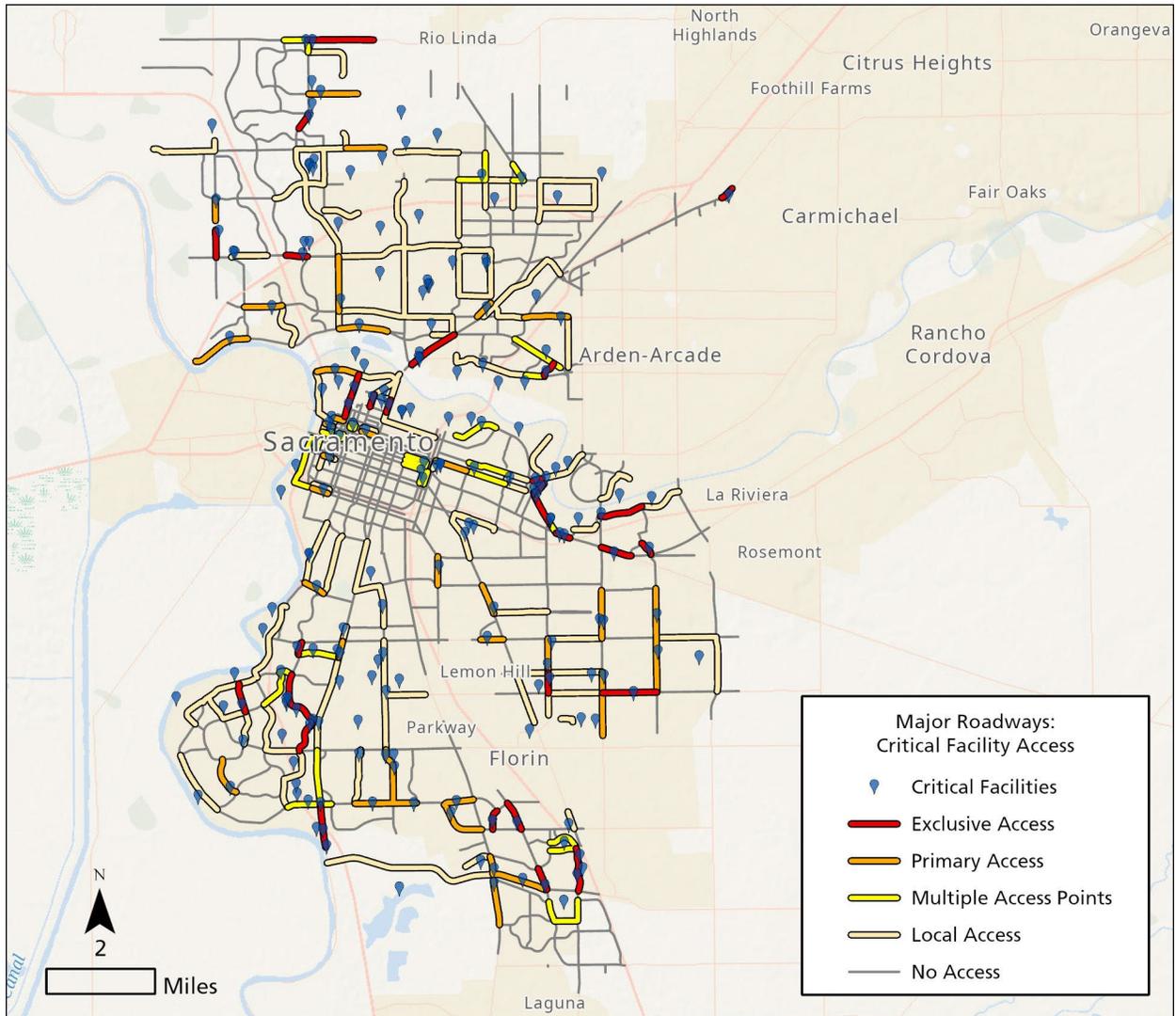
An important exception to this is the high detour times associated with three of Sacramento’s bridges: Watt Avenue, N 16<sup>th</sup> Street leading to N Highway 160, and I Street leading to the I Street Bridge. Few other options exist for travelers to cross the American or Sacramento River, and for those that do, a high detour time is required to access them.



Map 2: Incremental detour time for major roadways in minutes

### Nearby Critical Facilities

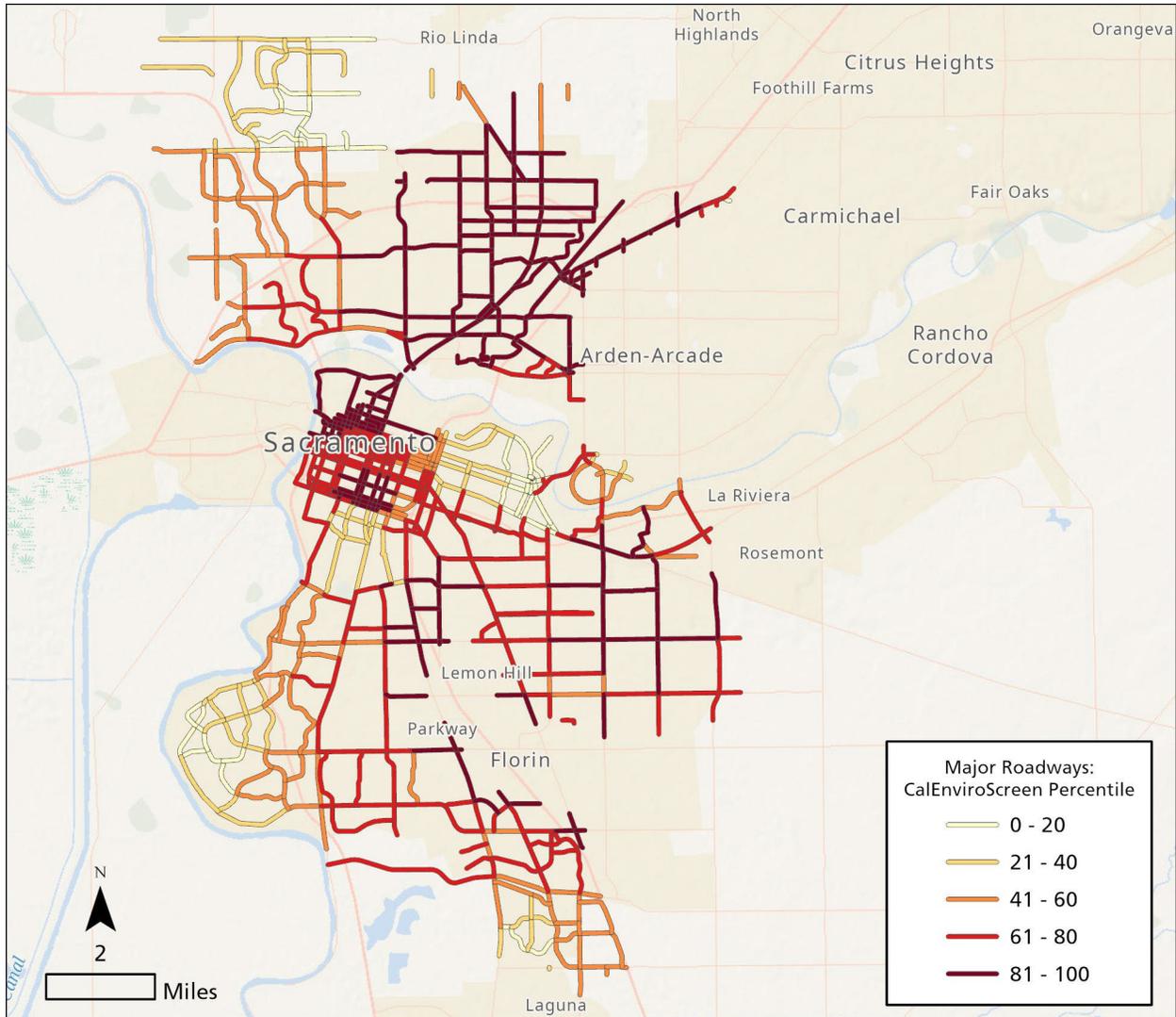
Map 3 illustrates which roadway segments provide access to critical facilities. While downtown Sacramento benefits from a dense grid that offers multiple alternative routes to most critical facilities, several surrounding neighborhoods rely on only a more limited set of key corridors to reach these facilities.



### CalEnviroScreen Score

A large portion of roadways have high CalEnviroScreen scores. A little under 50% of segments have CalEnviroScreen scores of 75 or higher, the State's threshold for disadvantaged community status.

Map 4 has the distribution of CalEnviroScreen percentiles mapped for these segments. Segments with scores of 75 or higher are mostly found in Downtown, the River District, North Sacramento, Southeastern Sacramento, South Oak Park, and Parkway.



Map 4: CalEnviroScreen percentiles for major roads

## Consequence Scores

The highest scoring segments consistently serve as exclusive or primary access routes to critical facilities, experience higher ADT, are in areas with elevated CalEnviroScreen scores, and have longer incremental detours. The following segments, listed from highest to lowest consequence score, are considered the most critical. Key drivers contributing to their high scores are also noted:

- **Folsom Boulevard (between Power Inn Rd and Jackson Rd)** High ADT (38,544), Exclusive critical facility access, 6.5-minute incremental detour time, and CalEnviroScreen percentile of 91.3.
- **Folsom Boulevard (between Elvas Ave and State University Dr)** Exclusive critical facility access, long incremental detour time (11 mins).
- **Watt Ave (between Folsom Blvd and La Riviera Dr)** Very high ADT (84,384), long incremental detour time (12.5 mins).
- **Jibboom Street (between I Street and N 7<sup>th</sup> Street)** Moderate ADT (26,432) and CalEnviroScreen percentile of 98.8.
- **El Camino Ave (between Auburn Blvd and Ethan Way)** Moderate ADT (32,946), primary critical facility access, and CalEnviroScreen percentile of 93.0.
- **Power Inn (between Fruitridge Rd and Belvedere Ave)** Moderate ADT (37,908), moderate incremental detour time (5.5 mins), and CalEnviroScreen percentile of 91.3.
- **Auburn Boulevard (between South Ave and Arcade Blvd)** High ADT (21,160), moderate detour time (4.5 min), CalEnviroScreen percentile of 92.3, primary access to critical facilities.
- **Truxel Rd (between San Juan Rd and Gateway Park Blvd)** High ADT (58,072), long incremental detour time (9 mins).
- **Power Inn Rd (between 14<sup>th</sup> Ave and Folsom Blvd)** High ADT (62,511), long detour time (10 min), CalEnviroScreen percentile of 91.3.
- **12<sup>th</sup> (between Richards Blvd and State Highway 160 Bridge)** Long detour time (9 min), CalEnviroScreen percentile of 98.8.
- **San Juan (between Azevedo Dr and E Commerce Way)** Incremental detour time of 7 mins, exclusive critical facility access.
- **Elder Creek (between Power Inn Rd and Florin Perkins Rd)** Moderate ADT (27,088), exclusive critical facility access, incremental detour time 5.5 mins) CalEnviroScreen percentile of 70.5.

Consequence scores listed from highest to lowest for the top 50 segments can be found in Table 6.

Table 6: Top 50 consequence scores for major roads

| Number | Asset (WSPID) | Road Name   | Cross Street 1          | Cross Street 2   | AADT   | Incremental Detour Time (minutes) | Critical Facility Access | CES percentile | Consequence Score |
|--------|---------------|-------------|-------------------------|------------------|--------|-----------------------------------|--------------------------|----------------|-------------------|
| 1      | 237           | Folsom      | Power Inn               | Notre Dame Dr    | 38,544 | 6.5                               | Exclusive Access         | 9.1            | 7.7               |
| 2      | 249           | Folsom      | 69 <sup>th</sup> /Elvas | State University | 19,365 | 11                                | Exclusive Access         | 7.8            | 7.4               |
| 3      | 359           | Watt        | Folsom                  | La Riviera       | 84,384 | 12.5                              | No Access                | 7.8            | 6.9               |
| 4      | 0056          | Jibboom     | C                       | Richards         | 26,432 | 8                                 | Local Access             | 9.9            | 6.7               |
| 5      | 800           | El Camino   | Evergreen               | Harvard          | 32,946 | 5.5                               | Primary Access           | 9.3            | 6.7               |
| 6      | 206           | Power Inn   | Fruitridge              | Belvedere        | 37,908 | 5.5                               | Primary Access           | 9.1            | 6.7               |
| 7      | 910           | Auburn      | Winding                 | Kitty            | 21,160 | 7                                 | Exclusive Access         | 6.3            | 6.6               |
| 8      | 885           | Truxel      | Gateway                 | San Juan         | 58,072 | 9                                 | Local Access             | 6.2            | 6.6               |
| 9      | 236           | Power Inn   | Folsom                  | 14th             | 62,511 | 10                                | No Access                | 9.1            | 6.5               |
| 10     | 738           | 12th        | Richards                | Northgate        | 15,299 | 11                                | Local Access             | 9.9            | 6.5               |
| 11     | 855           | San Juan    | E Commerce              | Azevedo          | 12,707 | 7                                 | Exclusive Access         | 6.6            | 6.4               |
| 12     | 133           | Elder Creek | Power Inn               | Florin Perkins   | 27,088 | 5.5                               | Exclusive Access         | 7.0            | 6.4               |
| 13     | 132           | Power Inn   | Elder Creek             | Lorin            | 29,621 | 5.5                               | Primary Access           | 8.0            | 6.4               |
| 14     | 0037          | H           | Camellia                | Campus Commons   | 41,226 | 12                                | Local Access             | 6.5            | 6.4               |
| 15     | 0038          | Fair Oaks   | Campus Commons          | Howe             | 41,226 | 10                                | Local Access             | 6.5            | 6.4               |

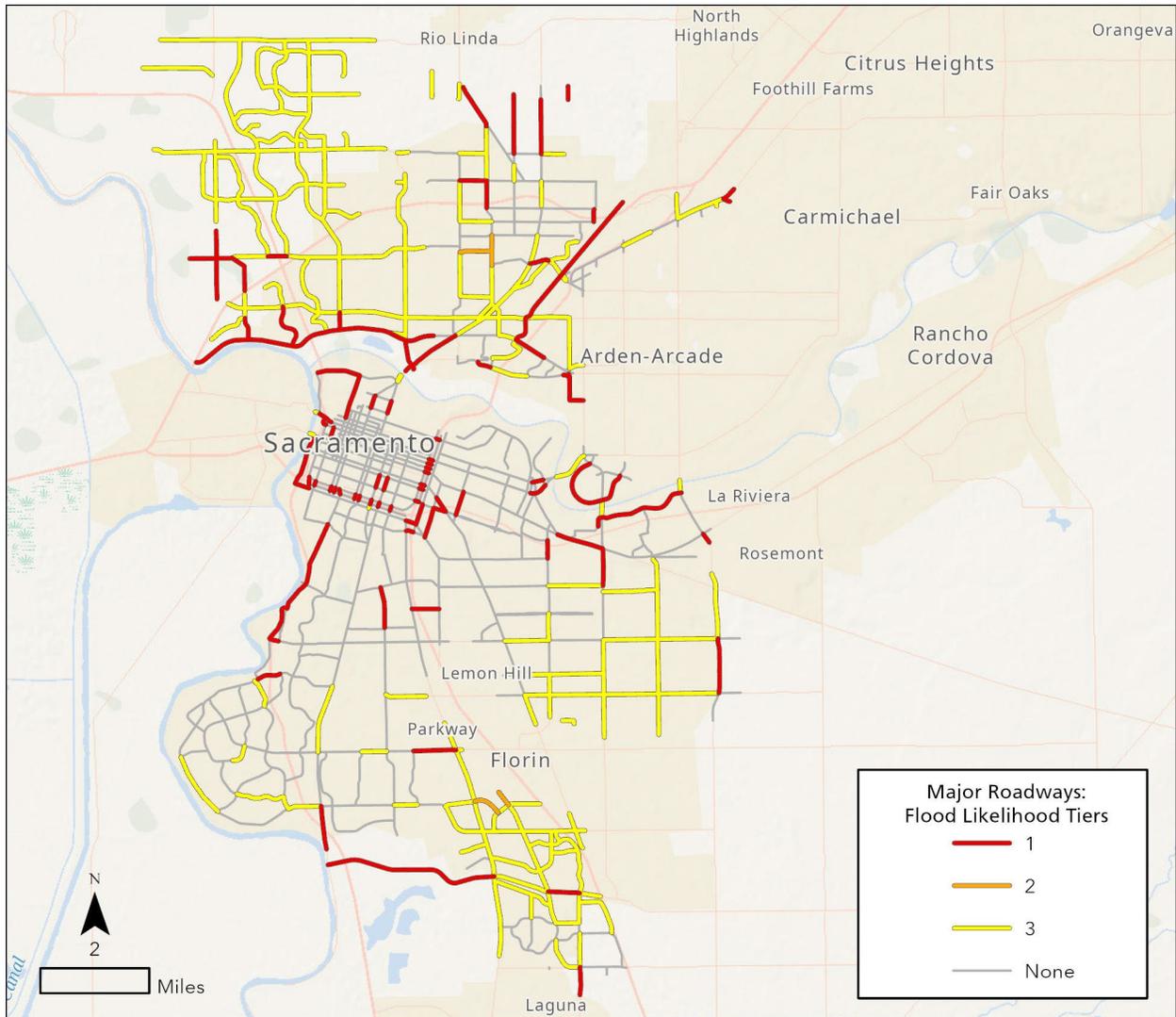
| Number | Asset (WSPID) | Road Name                            | Cross Street 1 | Cross Street 2            | AADT   | Incremental Detour Time (minutes) | Critical Facility Access | CES percentile | Consequence Score |
|--------|---------------|--------------------------------------|----------------|---------------------------|--------|-----------------------------------|--------------------------|----------------|-------------------|
| 16     | 0082          | Del Paso                             | Northgate      | Pell                      | 16,244 | 5                                 | Local Access             | 9.4            | 6.4               |
| 17     | 71            | Meadowview                           | 21st           | 24th                      | 31,108 | 6                                 | Primary Access           | 7.4            | 6.3               |
| 18     | 75            | Meadowview                           | 24th           | 29th                      | 31,108 | 6                                 | Primary Access           | 7.4            | 6.3               |
| 19     | 736           | 7th                                  | G St           | Richards                  | 10,095 | 4.5                               | Exclusive Access         | 9.9            | 6.3               |
| 20     | 173           | 65th Street                          | Fruitridge     | Lemon Hill                | 22,622 | 6.5                               | Primary Access           | 7.8            | 6.3               |
| 21     | 766           | Arden                                | Blumenfeld     | Heritage                  | 54,546 | 4                                 | Multiple Access Points   | 9.3            | 6.3               |
| 22     | 313           | La Riviera                           | Howe           | Occidental                | 18,052 | 8                                 | Exclusive Access         | 5.2            | 6.3               |
| 23     | 418           | Watt (bridge over La Riviera)        | La Riviera     | American River Bike Trail | 84,384 | 12.5                              | No Access                | 5.2            | 6.3               |
| 24     | 968           | Natomas                              | N Bend         | N Park                    | 27,718 | 10                                | Exclusive Access         | 2.0            | 6.2               |
| 25     | 177           | Florin Perkins                       | Fruitridge     | Elder Creek               | 20,583 | 5.5                               | Primary Access           | 9.1            | 6.2               |
| 26     | 0065          | San Juan (bridge over Natomas Ditch) | Northgate Blvd | Western Ave               | 13,760 | 5                                 | Local Access             | 8.5            | 6.1               |
| 27     | 42            | Bruceville                           | Wyndham        | Cosumnes                  | 19,630 | 5.5                               | Exclusive Access         | 6.9            | 6.1               |
| 28     | 153           | Power Inn                            | Lemon Hill     | Elder Creek               | 29,621 | 6.5                               | Primary Access           | 5.8            | 6.1               |
| 29     | 0039          | Broadway                             | Front          | 3rd                       | 10,285 | 5                                 | Multiple Access Points   | 6.9            | 6.0               |

| Number | Asset (WSPID) | Road Name      | Cross Street 1 | Cross Street 2  | AADT   | Incremental Detour Time (minutes) | Critical Facility Access | CES percentile | Consequence Score |
|--------|---------------|----------------|----------------|-----------------|--------|-----------------------------------|--------------------------|----------------|-------------------|
| 30     | 726           | 16th           | N B            | C               | 24,175 | In downtown                       | Exclusive Access         | 9.9            | 6.0               |
| 31     | 59            | Mack           | Alta Valley    | Stockton        | 38,136 | 9.5                               | No Access                | 9.3            | 5.9               |
| 32     | 208           | Florin Perkins | Belvedere      | Fruitridge      | 11,297 | 5.5                               | Primary Access           | 9.1            | 5.9               |
| 33     | 37            | Franklin       | Valley Hi      | Cosumnes        | 27,950 | 6.5                               | Primary Access           | 6.1            | 5.9               |
| 34     | 209           | Sutterville    | Freeport       | 24th            | 27,246 | 10                                | Local Access             | 6.6            | 5.9               |
| 35     | 990           | Elkhorn        | Natomas        | E Levee         | 17,935 | 13                                | Exclusive Access         | 1.4            | 5.9               |
| 36     | 0077          | Raley          | Doolittle St   | Bell Ave        | 33,804 | 6                                 | Local Access             | 9.4            | 5.9               |
| 37     | 36            | Cosumnes River | Freeport       | Franklin        | 22,868 | 10.5                              | Local Access             | 6.4            | 5.8               |
| 38     | 149           | 65th Street    | Lemon Hill     | Elder Creek     | 22,622 | 4.5                               | Exclusive Access         | 5.8            | 5.8               |
| 39     | 917           | Northgate      | N Market       | San Juan        | 32,742 | 7                                 | Local Access             | 8.3            | 5.8               |
| 40     | 211           | Stockton       | 14th           | 21st            | 19,570 | 6                                 | Primary Access           | 7.1            | 5.8               |
| 41     | 841           | Arcade         | Roseville Rd   | Del Paso Blvd   | 18,241 | 8                                 | Local Access             | 9.1            | 5.8               |
| 42     | 0083          | Main           | Norwood Ave    | Main Ave Bridge | 16,244 | 9                                 | Local Access             | 8.0            | 5.8               |
| 43     | 35            | Center         | Valley Hi      | Cosumnes River  | 6,590  | 5                                 | Exclusive Access         | 6.9            | 5.7               |
| 44     | 0040          | Front          | Broadway       | Neasham Cir     | 10,285 | 3                                 | Multiple Access Points   | 6.9            | 5.7               |
| 45     | 727           | 12th           | N B            | C               | 19,549 | In downtown                       | Exclusive Access         | 9.9            | 5.7               |

| Number | Asset (WSPID) | Road Name    | Cross Street 1 | Cross Street 2                  | AADT   | Incremental Detour Time (minutes) | Critical Facility Access | CES percentile | Consequence Score |
|--------|---------------|--------------|----------------|---------------------------------|--------|-----------------------------------|--------------------------|----------------|-------------------|
| 46     | 875           | El Centro    | Radio          | San Juan                        | 13,346 | 5.5                               | Exclusive Access         | 5.4            | 5.7               |
| 47     | 799           | El Camino    | Evergreen      | Harvard/<br>Auburn<br>underpass | 32,946 | 5.5                               | Local Access             | 9.4            | 5.7               |
| 48     | 130           | 47th         | 24th           | City<br>boundary                | 23,856 | 6.5                               | Local Access             | 9.3            | 5.7               |
| 49     | 0066          | Silver Eagle | Western        | Norwood                         | 13,760 | 5                                 | Local Access             | 8.5            | 5.6               |
| 50     | 760           | Arden        | Heritage       | Challenge                       | 54,546 | 4                                 | Multiple Access Points   | 6.5            | 5.6               |

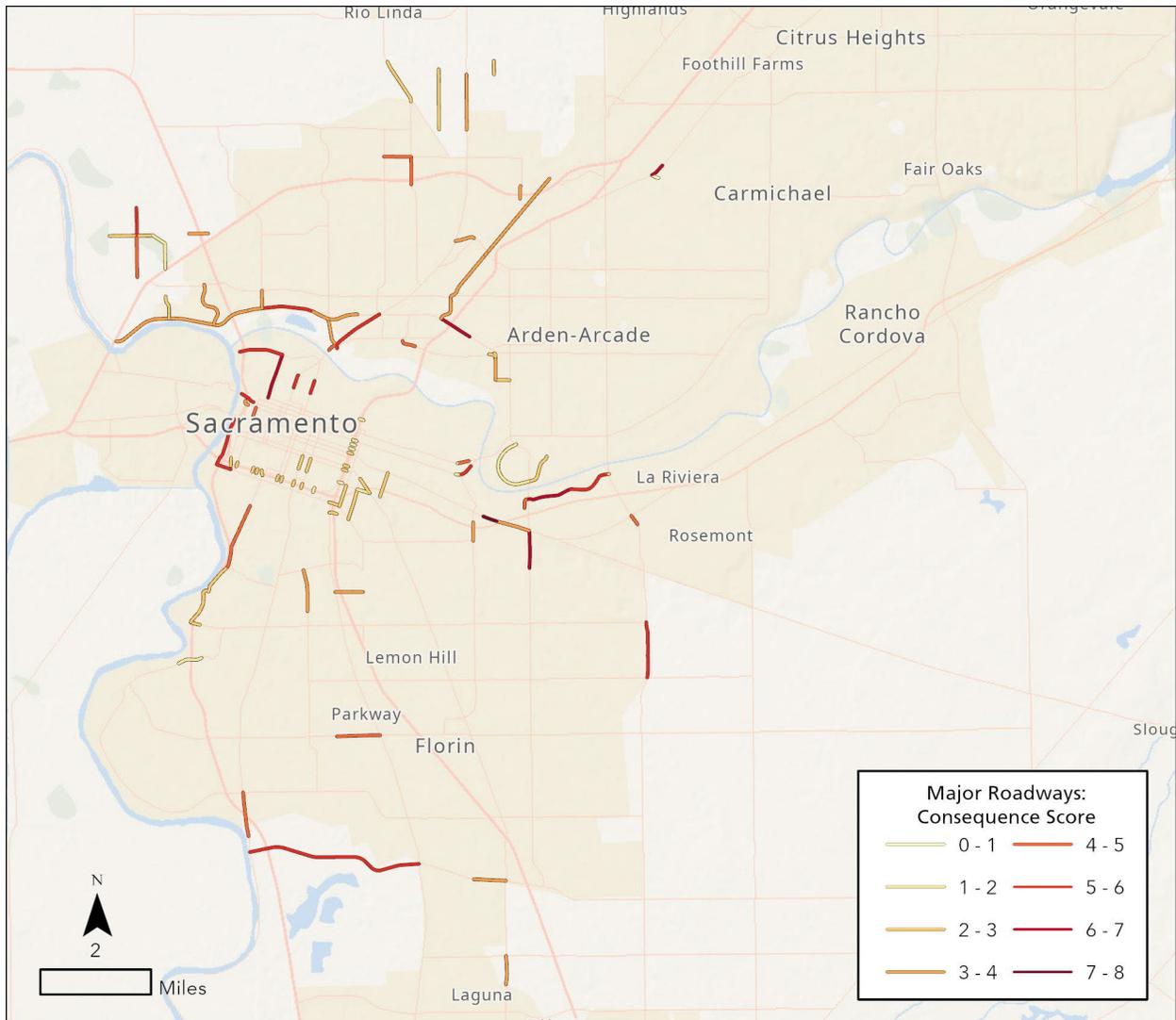
## Likelihood and Risk

Map 5 shows the tiered flood-likelihood categories for major roadways across the city, highlighting which segments face the greatest exposure. 104 roadway segments are classified in the highest flood-likelihood tier. Many of these segments are located near the American or Sacramento Rivers or smaller tributaries such as Cosumnes River and Arcade Creek. There are also many shorter segments with underpasses, often under highways; these are often low points that collect water and may drain poorly.



Map 5: Flood likelihood tiers for major roadways

Map 6 shows the consequence scores for the roadways in the highest flood likelihood tier (Tier 1). Other roadways are grayed out. Table 7 list these same assets with higher consequence scores listed first. Roadways with high consequence and high flood exposure include Folsom Blvd., Auburn Blvd., Power Inn Rd., 7th St., and Arden Way. Many of these roads are located along the American River Parkway, where flooding is influenced by the American River, or are underpasses in downtown Sacramento along Capital City Freeway and US-50.



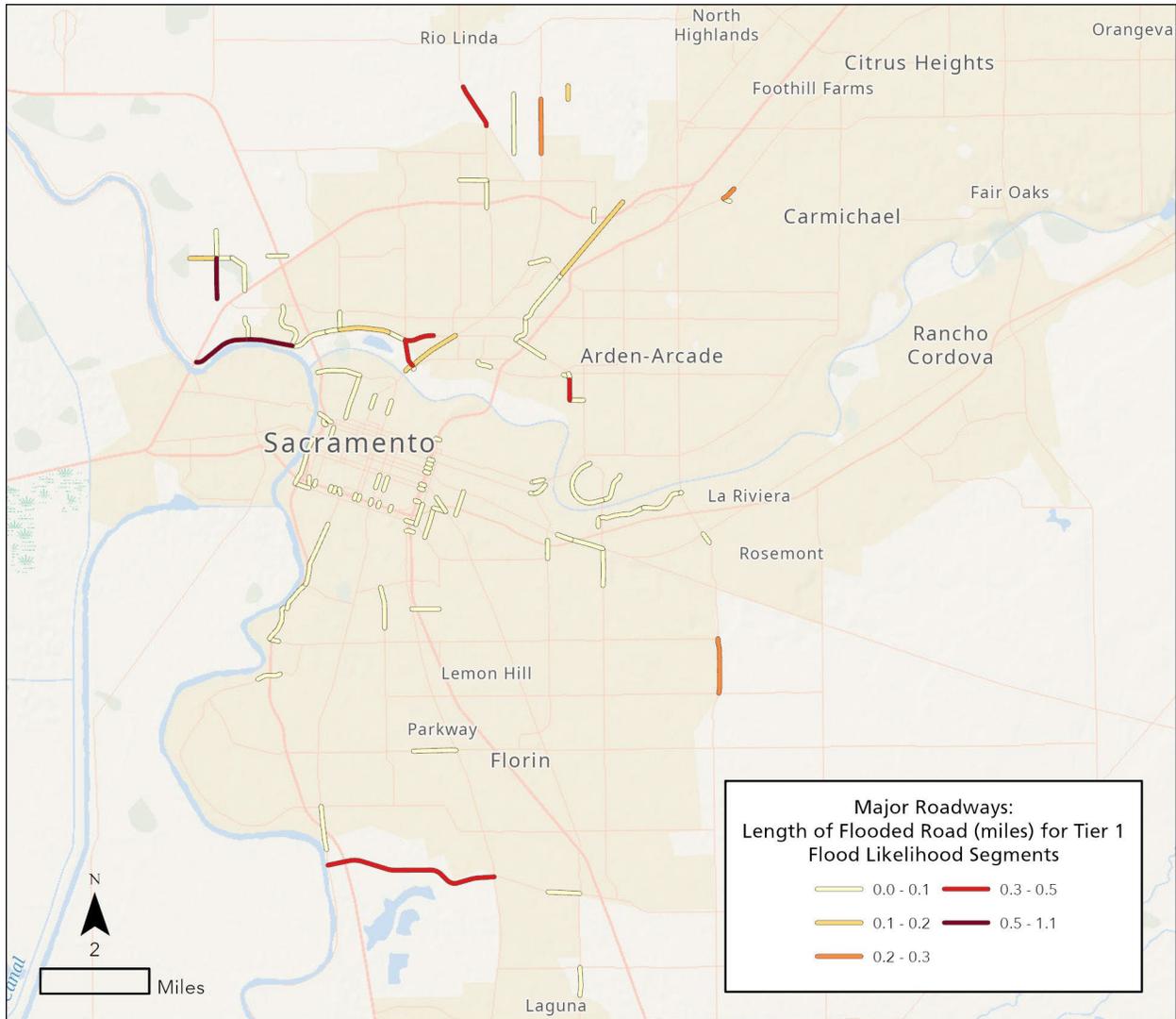
Map 6: Consequence scores of major roads segments in highest flood likelihood tier

Table 7: Major road segments in highest flood likelihood tier by descending consequence score

| Number | Asset (WSPID) | Road Name      | Cross Street 1                         | Cross Street 2                                      | Consequence Score |
|--------|---------------|----------------|--|---|-------------------|
| 1      | 249           | Folsom         | Elvas Ave                              | State University Dr E                               | 7.4               |
| 2      | 910           | Auburn         | Winding Wy                             | Kitty Ln  | 6.6               |
| 3      | 236           | Power Inn      | Folsom Blvd                            | 14th Ave  | 6.5               |
| 4      | 736           | 7th            | G St                                   | Richards Blvd                                       | 6.3               |
| 5      | 766           | Arden          | Harvard St                             | Heritage Ln   | 6.3               |
| 6      | 313           | La Riviera     | La Riviera Dr Underpass under Howe Ave | Occidental Dr                                       | 6.3               |
| 7      | 0039          | Broadway       | Front St                               | 3rd St  | 6.0               |
| 8      | 726           | 16th           | N B St                                 | C St  | 6.0               |
| 9      | 36            | Cosumnes River | Franklin Blvd                          | Freeport Blvd                                       | 5.8               |
| 10     | 0040          | Front          | Broadway                               | Neasham Cir   | 5.7               |
| 11     | 727           | 12th           | C St                                   | N B St  | 5.7               |
| 12     | 875           | El Centro      | Radio Rd                               | San Juan Rd   | 5.7               |
| 13     | 754           | Northgate      | Del Paso Blvd                          | State Highway Underpass near Union Pacific Railroad | 5.6               |
| 14     | 0057          | Richards       | N 7th St                               | Jibboom St  | 5.5               |
| 15     | 783           | Garden         | Truxel Rd                              | Garden Hwy On-Ramp                                  | 5.4               |
| 16     | 397           | J              | J St Underpass under Elvas Ave         | Carlson Dr  | 5.4               |
| 17     | 181           | Watt           | Fruitridge Rd                          | Elder Creek Rd                                      | 5.4               |
| 18     | 769           | Del Paso       | Northgate Blvd                         | Canterbury Rd                                       | 5.3               |
| 19     | 358           | La Riviera     | Occidental Rd                          | La Riviera Dr Underpass under S Watt Ave            | 5.3               |
| 20     | 709           | I Street       | Jibboom St                             | Sacramento Valley Station                           | 5.1               |
| 21     | 107           | Florin         | Indian Ln                              | Florin Rd   | 5.0               |
| 22     | 758           | Exposition     | Leisure Ln                             | Tribute Rd  | 4.8               |
| 23     | 753           | Del Paso       | Northgate Blvd                         | State Highway 160                                   | 4.8               |
| 24     | 926           | Bell           | Norwood Ave                            | Rio Linda Blvd                                      | 4.7               |
| 25     | 276           | Riverside      | Sutterville Rd                         | Vallejo Wy  | 4.5               |
| 26     | 290           | La Riviera     | College Town Dr                        | La Riviera Dr Underpass under Howe Ave              | 4.4               |
| 27     | 669           | 5th            | J St                                   | L St  | 4.4               |
| 28     | 251           | Watt           | Folsom Blvd                            | Manlove Rd  | 4.3               |

| Number | Asset (WSPID) | Road Name              | Cross Street 1         | Cross Street 2                              | Consequence Score |
|--------|---------------|------------------------|------------------------|---|-------------------|
| 29     | 847           | El Centro              | San Juan Rd            | W El Camino Ave                             | 4.3               |
| 30     | 67            | Freeport               | Pocket Rd              | Bill Conlin Youth Sports Complex            | 4.2               |
| 31     | 923           | Rio Linda              | Bell Ave               | North Ave                                   | 4.1               |
| 32     | 419           | H                      | Elvas Ave              | Carlson Dr                                  | 4.1               |
| 33     | 767           | Garden                 | Orchard Ln             | Garden Hwy Underpass under State Highway 80 | 3.9               |
| 34     | 801           | Truxel                 | W El Camino Ave        | Garden Hwy                                  | 3.9               |
| 35     | 0002          | Arden Garden Connector | Northgate Blvd         | Colfax St                                   | 3.8               |
| 36     | 30            | Cosumnes River         | Center Pkwy            | Bruceville Rd                               | 3.8               |
| 37     | 764           | Northgate              | Arden Garden Connector | Del Paso Blvd                               | 3.7               |
| 38     | 779           | Arden Garden Connector | Northgate Blvd         | Garden Hwy On-Ramp                          | 3.6               |
| 39     | 242           | 65th                   | Broadway               | S St  | 3.6               |
| 40     | 854           | San Juan               | Duckhorn Dr            | E Commerce Wy                               | 3.6               |
| 41     | 899           | Roseville              | Arcade Blvd            | Longview Dr                                 | 3.6               |
| 42     | 781           | Garden                 | Gateway Oaks Dr        | Natomas Park Dr                             | 3.5               |
| 43     | 0055          | Ethan                  | Exposition Blvd        | Hurley Wy                                   | 3.5               |
| 44     | 243           | Folsom                 | Power Inn Rd           | State University Dr E                       | 3.4               |
| 45     | 696           | J                      | 3rd St                 | J St Ramp Near St                           | 3.4               |
| 46     | 3             | Bruceville             | Sheldon Rd             | Big Horn Blvd                               | 3.3               |
| 47     | 825           | Auburn                 | Marconi Cir            | Auburn Blvd Underpass under El Camino Ave   | 3.3               |
| 48     | 785           | Harvard                | Arden Wy               | Auburn Blvd Underpass under El Camino Ave   | 3.3               |
| 49     | 0001          | Folsom                 | Ascot Ave              | Main Ave                                    | 3.3               |
| 50     | 830           | Auburn                 | Marconi Cir            | Auburn Blvd Underpass under Marconi Ave     | 3.3               |

Map 7 and Table 8 show the segments in the highest likelihood tier organized by length of the segment crossing the 100-year floodplain. Most of the affected road segments have less than a quarter mile of inundation. The road with the longest exposed portion is Garden Highway. Other segments with exposed portions over a quarter mile include segments of El Centro Road, Northgate Boulevard, Rio Linda Boulevard, Ethan Way, Cosumnes River Boulevard, Arden Way, and South Watt Avenue.



Map 7: Length exposed (in miles) for major roads segments in highest flood likelihood tier

Table 8: Major road segments in highest flood likelihood tier by length in feet

| Number | Asset (WSPID) | Road Name              | Cross Street 1         | Cross Street 2                              | Total Length Flooded 100-Year Event (ft) | Consequence Score |
|--------|---------------|------------------------|------------------------|---|--|-------------------|
| 1      | 767           | Garden                 | Orchard Ln             | Garden Hwy Underpass under State Highway 80 | 1.1                                      | 3.9               |
| 2      | 768           | Garden                 | Gateway Oaks Dr        | Orchard Ln                                  | 0.8                                      | 3.1               |
| 3      | 847           | El Centro              | San Juan Rd            | W El Camino Ave                             | 0.8                                      | 4.3               |
| 4      | 764           | Northgate              | Arden Garden Connector | Del Paso Blvd                               | 0.5                                      | 3.7               |
| 5      | 0055          | Ethan                  | Exposition Blvd        | Hurley Wy                                   | 0.5                                      | 3.5               |
| 6      | 974           | Rio Linda              | Claire Ave             | Crystal Rd                                  | 0.5                                      | 2.4               |
| 7      | 0002          | Arden Garden Connector | Northgate Blvd         | Colfax St                                   | 0.4                                      | 3.8               |
| 8      | 36            | Cosumnes River         | Franklin Blvd          | Freeport Blvd                               | 0.4                                      | 5.8               |
| 9      | 0001          | Raley                  | Ascot Ave              | Main Ave                                    | 0.3                                      | 3.3               |
| 10     | 181           | Watt                   | Fruitridge Rd          | Elder Creek Rd                              | 0.3                                      | 5.4               |

## Bikeways

### Consequence Metrics

Table 9 shows the metrics, scales and weights used for calculating consequence scores for bikeways. Bikeway classification and redundancy were weighed twice as much as the other metrics due to their relative importance.

Table 9: Consequence score metric weights for bikeways

| Metric                            | Scale  | Weight |
|-----------------------------------|--|--------|
| <b>Level of Stress</b>            | BLTS 1: 10<br>BLTS 2: 7<br>BLTS 3: 4<br>BLTS 4: 1  | 40%    |
| <b>Redundancy</b>                 | Longest detour: 10<br>Long detour, High Stress: 7.5<br>Long detour, Low Stress: 5<br>Short detour, High stress: 2.5<br>Short detour, Low stress: 0 | 20%    |
| <b>Nearby Critical Facilities</b> | “Primary”: 10<br>“Alternate”: 5<br>None: 0   | 20%    |
| <b>CalEnviroScreen Score</b>      | All scores divided by 10   | 20%    |

#### *Level of Traffic Stress*

The Level of Traffic Stress (BLTS) was used as a proxy metric for calculating the number of people who use a given bikeway segment. The BLTS metric provides a standardized way to assess how comfortable and safe different bikeway segments are for riders of varying ages and abilities. BLTS reflects the amount of stress a typical bicyclist experiences when interacting with motor vehicles, based on factors such as traffic speed, traffic volume, number of lanes, and the type and quality of bicycle infrastructure.

It was assumed that bicycle facilities with a lower BLTS would have a higher ridership than facilities with a higher BLTS. As a result, it was assumed that, if a bicycle facility with a low BLTS failed, it would have a relatively greater impact on people bicycling as compared to a similar facility with a high BLTS.

Table 10 categorizes the BLTS scores and assigns corresponding scores for the metric. For this assessment, BLTS values are derived from the Neighborhood Connections dataset from the City of Sacramento.

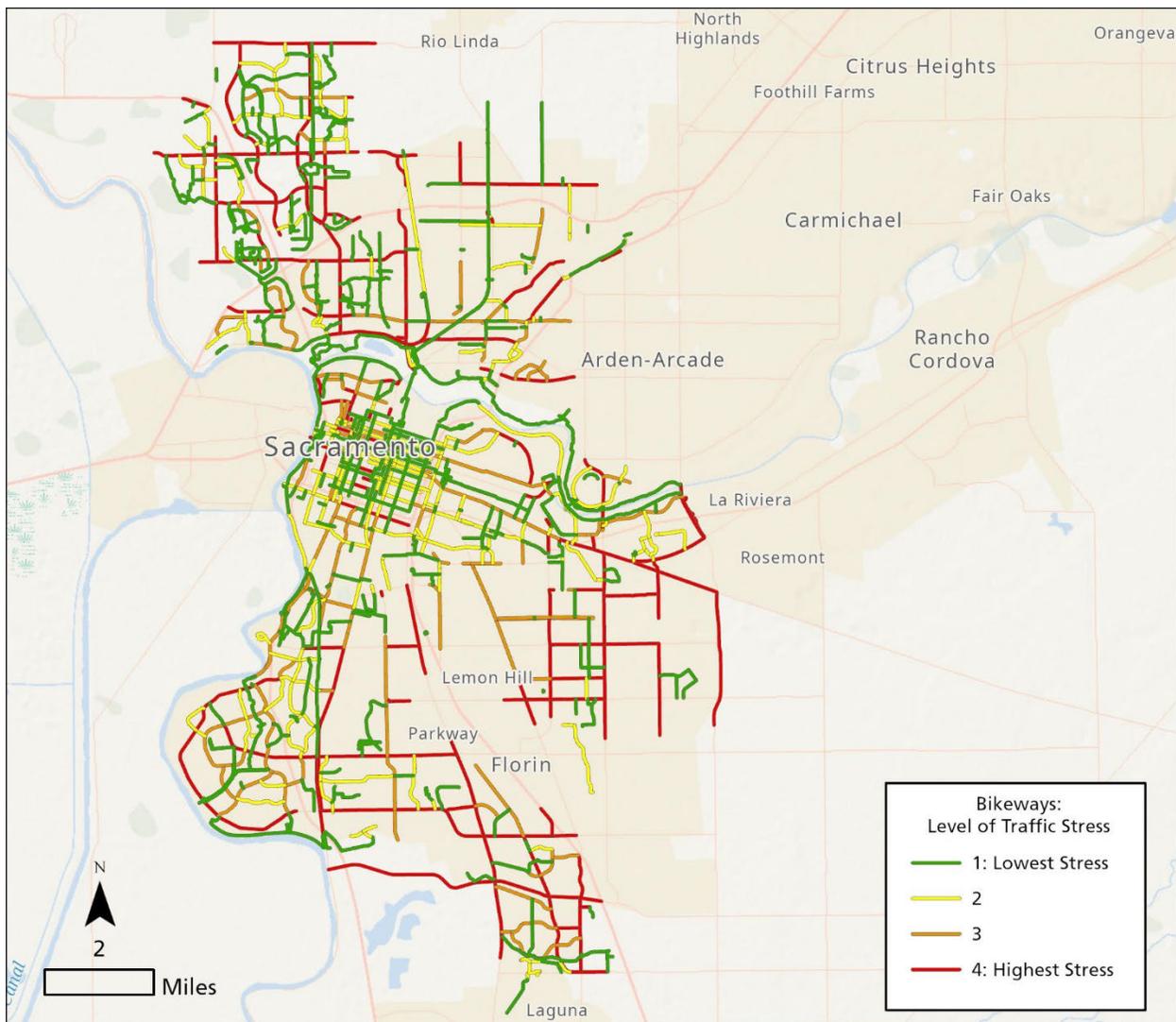
Table 10: BLTS Categories and Scores for Bikeway Consequence Scores

| Category      | Description   | Score |
|---------------|---|-------|
| <b>BLTS 1</b> | Roadways where bicyclists of all ages and abilities would feel comfortable riding. These roadways are generally characterized by low volumes, low speeds, no more than two travel lanes, and traffic control measures at intersections. These roadways may have bicycle facilities; separated shared-use paths for bicycles also fall into this category. | 10    |
| <b>BLTS 2</b> | Slightly less comfortable roadways, where most adults would feel comfortable riding.  | 7     |
| <b>BLTS 3</b> | Moderately uncomfortable roadways, where most experienced bicyclists would feel comfortable riding  | 4     |
| <b>BLTS 4</b> | High-stress roadways where only strong and fearless bicyclists would feel comfortable riding. These roadways are generally characterized by high volumes, high speeds, several travel lanes, and complex transitions approaching and crossing intersections.  | 1     |

Map 8 illustrates the BLTS across the city’s bikeway network. Many lower-stress segments appear in Downtown and Midtown Sacramento, where a denser street grid, slower vehicle speeds, and a higher concentration of dedicated bicycle facilities create more comfortable riding conditions. Other lower-stress segments include dedicated paths or lanes or lower-volume roads in other parts of the city.

In contrast, higher-stress bikeways are more prevalent in outlying neighborhoods, including portions of North Sacramento, South Sacramento, and Southeastern Sacramento. These segments often occur along higher-speed arterials or locations with limited bicycle infrastructure. Several of these high-stress corridors appear where major roadways intersect with fewer alternative routes, making them especially impactful on mobility for people who rely on bicycling as a primary travel mode. Some of the longest segments in the high-stress category include Cosumnes River Blvd, S Watt Ave, Pocket Rd, Del Paso Blvd, and Freeport Blvd.

To note, this SacAdapt planning effort is not suggesting that bicycle facilities with a high BLTS are of lower priority. The Streets for People Active Transportation Plan is the City’s bicycle and pedestrian plan that identifies needed bicycle and pedestrian facility upgrades, including both new facilities and improvements to reduce the level of traffic stress for facilities that are currently high stress.



Map 8: Bikeway Level of Traffic Stress

### Redundancy

A redundant bikeway network ensures that riders can still reach key destinations using comfortable, continuous routes even when portions of the system are compromised. In contrast, low-redundancy areas force riders onto high-stress corridors or create gaps that reduce overall connectivity.

Table 11 categorized how difficult it is for cyclists to navigate around a disrupted bikeway segment and assigns a corresponding consequence score. The categories account for two factors that directly influence rider impacts:

1. Detour Length – how far a bicyclist must travel on a typical detour to bypass a disruption on the segment of interest. A maximum score of 10 was given to any

detour over 1.5 miles, which approximates a 10-minute detour for a person riding a bicycle at 10 miles per hour.

2. Detour Quality (BLTS Level) – whether the alternate route is high-stress or low-stress.

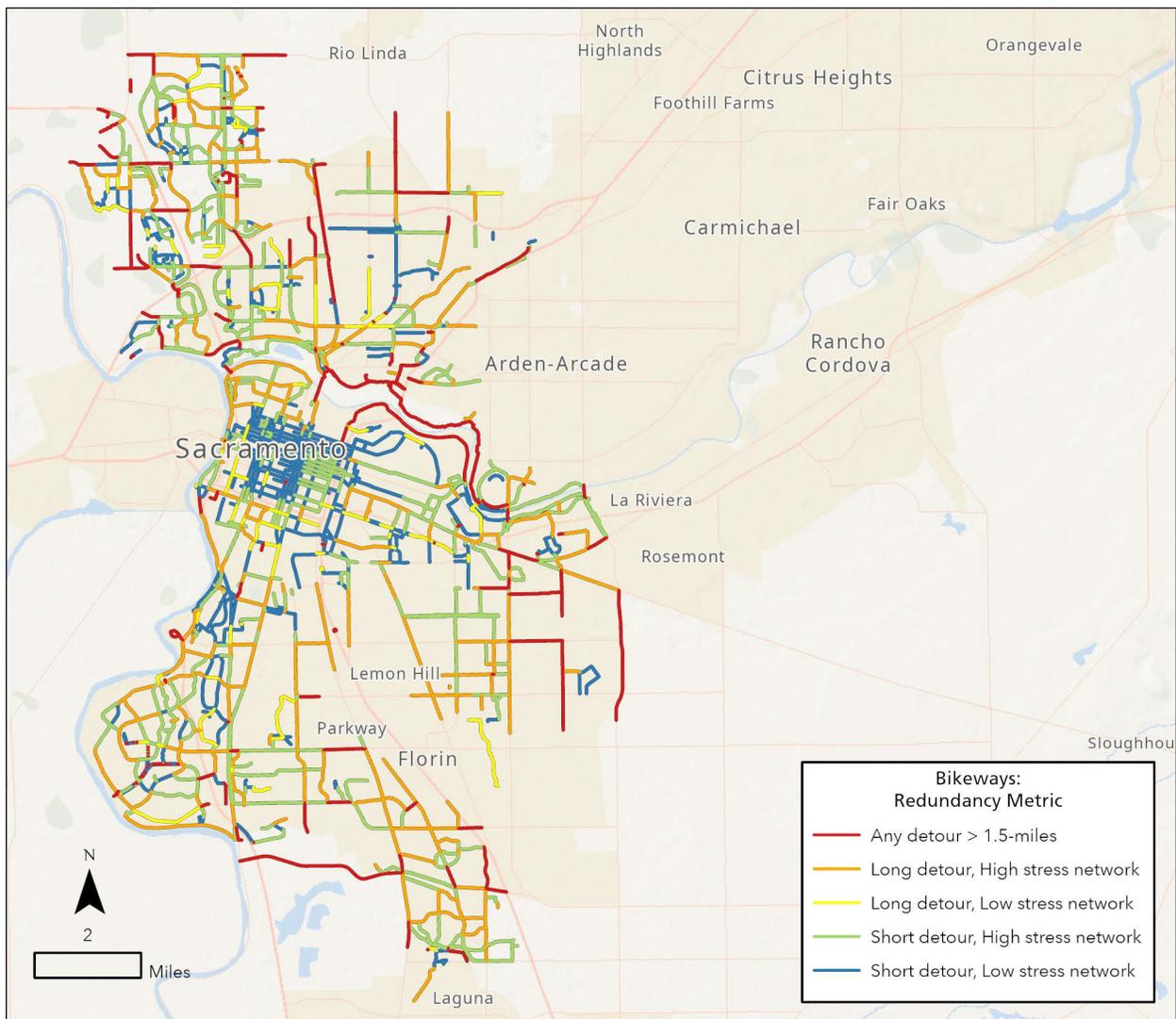
Together, these dimensions quantify how severe the consequences are for people biking when a segment becomes impassable.

*Table 11: Bikeway Redundancy Metric Categories and Scoring*

| Category                         | Description  | Score |
|----------------------------------|--|-------|
| <b>Longest Detour</b>            | Any detour > 1.5-miles   | 10    |
| <b>Long detour, High Stress</b>  | Detour length is between 0.5 and 1.5-miles, and detour goes on a high stress network (BLTS = 3 or 4) | 7.5   |
| <b>Long Detour, Low Stress</b>   | Detour length is between 0.5 and 1.5-miles, and detour goes on a low stress network (BLTS = 1 or 2)  | 5     |
| <b>Short Detour, High Stress</b> | Detour length is <0.5 and detour goes on a high stress network (BLTS = 3 or 4)                       | 2.5   |
| <b>Short Detour, Low Stress</b>  | Detour length is <0.5 and detour goes on a low stress network (BLTS = 1 or 2)                        | 0     |

Map 9 illustrates that across the city, redundancy varies significantly. Downtown Sacramento benefits from a denser street grid, providing multiple parallel, lower-stress route options that help maintain safe bicycle access even when individual segments are disrupted.

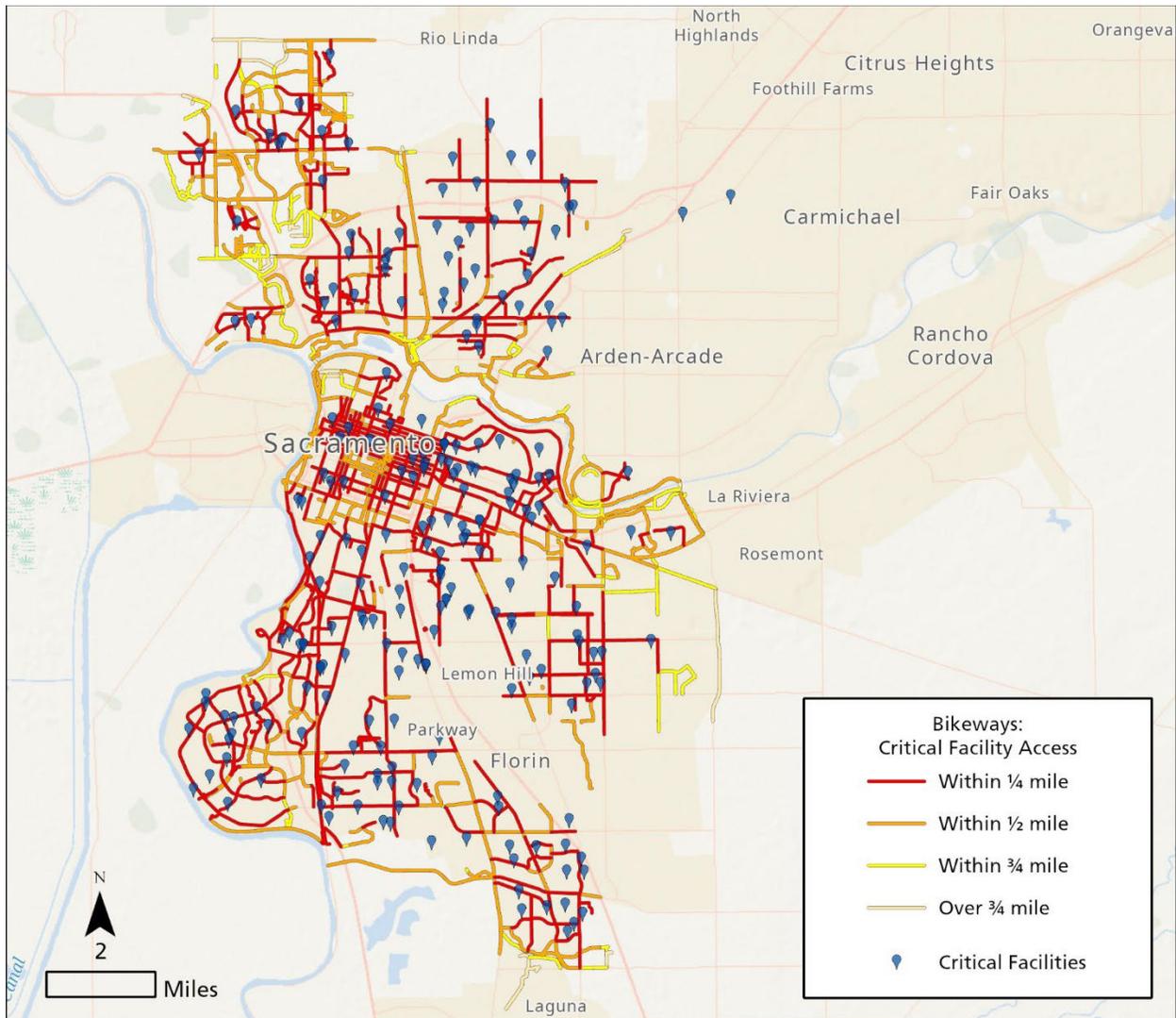
In many peripheral neighborhoods, however, the bikeway network becomes more linear and reliant on a limited number of key corridors. These areas often contain higher concentrations of BLTS 3 and 4 segments, meaning that alternative routes, when they exist, tend to be higher-stress and less comfortable for most riders. Examples of segments with low redundancy include long portions of the bikeways on both sides of the American River, the Consumnes River Blvd. bicycle facility, and the bicycle path on the levee east of Steelhead Creek.



Map 9: Bikeway Redundancy

### Nearby Critical Facilities

Map 10 categorizes proximity of bikeway segments to critical facilities: within ¼ mile, within ½ mile, within ¾ mile, or over ¾ mile. Most bikeway segments are within a ¼ mile or ½ miles of a critical facility. A significant portion of the bikeway network in Downtown Sacramento falls within ¼ mile of critical facilities, reflecting the concentration of essential services and the dense street grid that supports multimodal access. Many bikeway segments in South Sacramento, North Sacramento, and the Natomas Basin fall within the ½-mile to ¾-mile ranges.

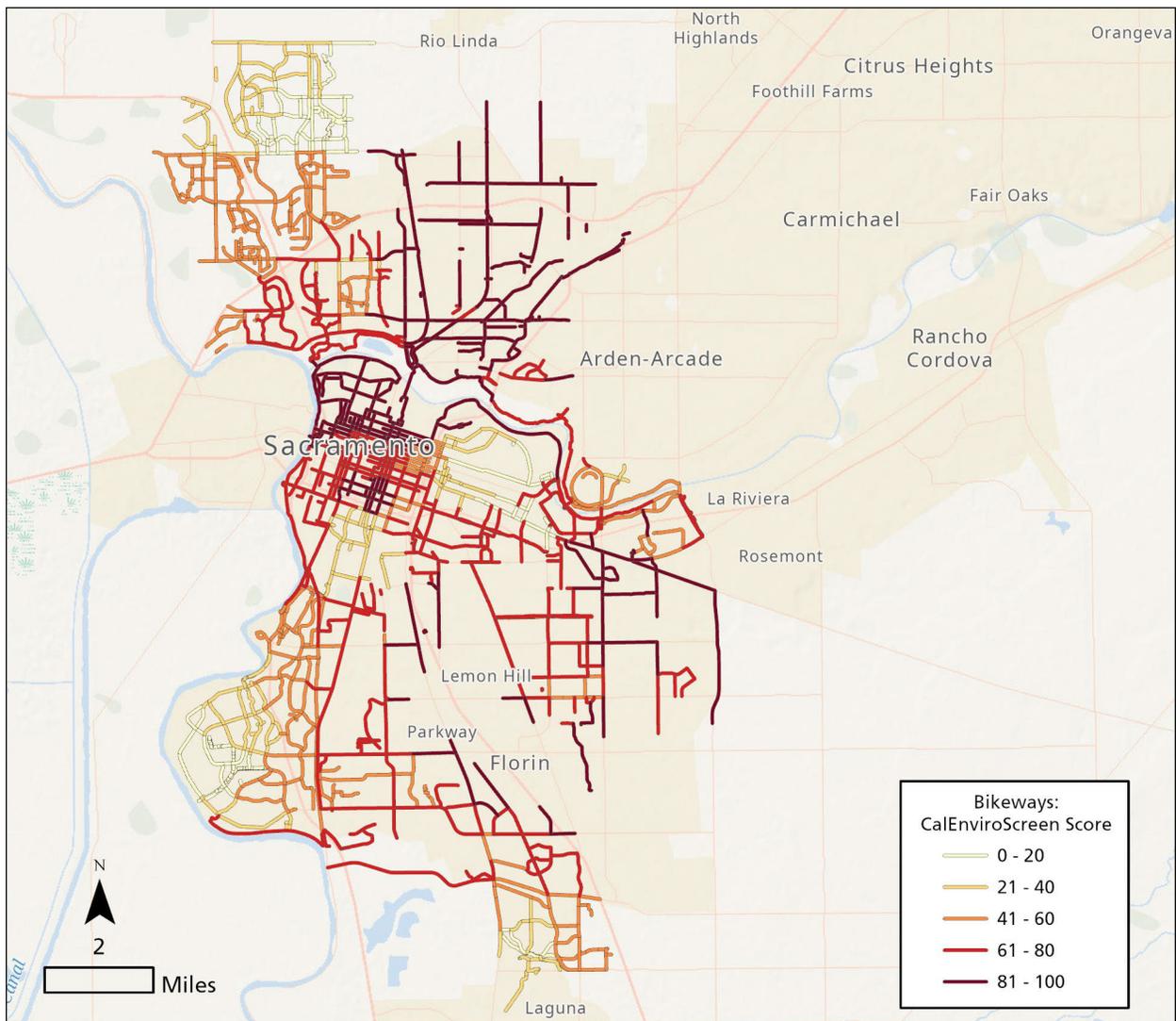


Map 10: Bikeway Critical Facility Access

### CalEnviroScreen

A significant portion of bikeway segments pass through communities facing higher cumulative environmental burdens and meeting the 75<sup>th</sup> percentile criterion for being designated by the State as disadvantaged.

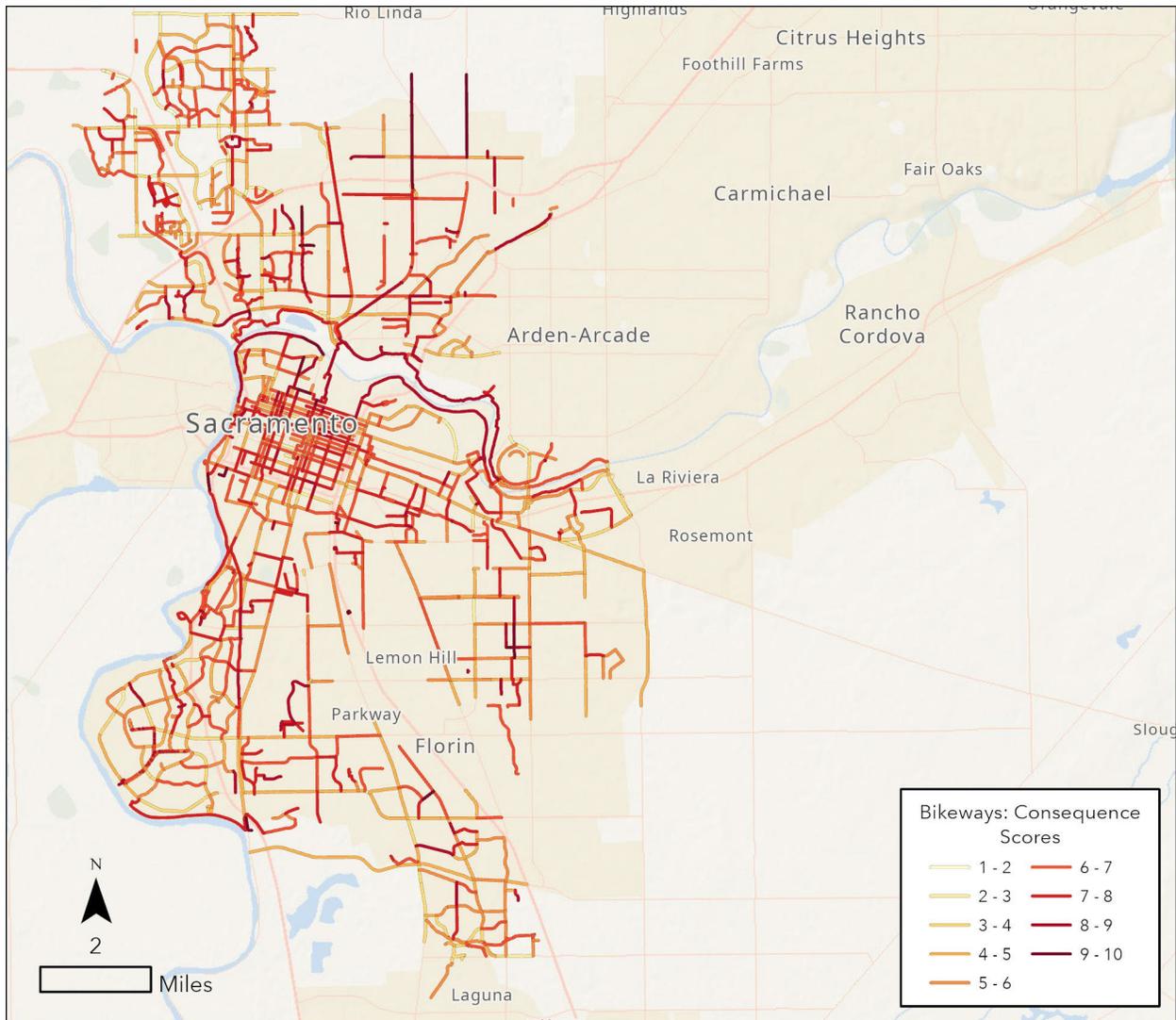
Map 11 shows high-scoring corridors concentrated in areas such as North Sacramento, South Sacramento, the River District, and portions of Oak Park, where bikeways pass through neighborhoods experiencing elevated environmental burdens and socioeconomic disadvantages.



Map 11: CalEnviroScreen percentiles for bikeways

## Consequence Scores

Map 12 shows the consequence scores for bikeway segments. Some of the main areas of high-consequence bikeway segments include along the American and Sacramento Rivers and in low-redundancy portion of the network, including in North Sacramento. Bikeways with long segments of high consequence scores include Sacramento Northern Bike Trail, American River Bike Trail, Two Rivers Bike Trail, Raley Blvd., and Garden Highway Bike Trail.



Map 12: Consequence scores for bikeways

Table 12 summarizes the 50 highest-scoring bikeways. A total of 1,787 bikeway segments were analyzed. The top scorers and their key drivers contributing to their high scores are listed here:

- **Sacramento Northern Bike Trail (between Bell Ave and over Rio Linda Creek)** Low stress (BLTS 1), Longest detour >1.5-miles, Within ¼ mile of critical facility, and CalEnviroScreen percentile of 84.1.
- **99 Pedestrian Overcrossing (POC) At 27th Ave (between 27th Ave and 34th St)** Low stress (BLTS 1), Longest detour >1.5-miles, Within ¼ mile of critical facility, and CalEnviroScreen percentile of 80.6.
- **Ramp Way (between Front St and Miller Park Marina)** Low stress (BLTS 1), Longest detour >1.5-miles, Within ¼ mile of critical facility, and CalEnviroScreen percentile of 78.9.
- **3rd St (between Log Pond Ln and Broadway)** Low stress (BLTS 1), Longest detour >1.5-miles, Within ¼ mile of critical facility, and CalEnviroScreen percentile of 78.9.
- **Tangerine Ave (between Brookfield Dr and Center Parkway)** Low stress (BLTS 1), Longest detour >1.5-miles, Within ¼ mile of critical facility, and CalEnviroScreen percentile of 74.5
- **Freeport Shores Bike Trail (between Sacramento Water Tower and Bill Conlin Youth Sports Complex)** Low stress (BLTS 1), Longest detour >1.5-miles, Within ¼ mile of critical facility, and CalEnviroScreen percentile of 73.8

Table 12: Top 50 consequence scores for bikeways

| Number | Asset (WSPID) | Asset Name                     | Cross Street 1 | Cross Street 2          | BLTS | Redundancy Based Detour | Critical Facility Access | CES percentile | Consequence Score |
|--------|---------------|--------------------------------|----------------|-------------------------|------|-------------------------|--------------------------|----------------|-------------------|
| 1      | 1737          | Sacramento Northern Bike Trail | Bell Ave       | Outside City Boundaries | 1    | Longest Detour          | Within ¼ mile            | 84.1           | 9.7               |
| 2      | 451           | 99 POC At 27th Ave             | 27th Ave       | 34th St                 | 1    | Longest Detour          | Within ¼ mile            | 80.6           | 9.6               |
| 3      | 804           | Ramp Way                       | Front St       | Miller Park Marina      | 1    | Longest Detour          | Within ¼ mile            | 78.9           | 9.6               |
| 4      | 1821          | 3 <sup>rd</sup> St             | Log Pond Ln    | Broadway                | 1    | Longest Detour          | Within ¼ mile            | 78.9           | 9.6               |
| 5      | 115           | Tangerine Ave                  | Brookfield Dr  | Center Parkway          | 1    | Longest Detour          | Within ¼ mile            | 74.5           | 9.5               |

| Number | Asset (WSPID) | Asset Name                     | Cross Street 1         | Cross Street 2                   | BTLS | Redundancy Based Detour  | Critical Facility Access | CES percentile | Consequence Score |
|--------|---------------|--------------------------------|------------------------|----------------------------------|------|--------------------------|--------------------------|----------------|-------------------|
| 6      | 91            | Freeport Shores Bike Trail     | Sacramento Water Tower | Bill Conlin Youth Sports Complex | 1    | Longest Detour           | Within ¼ mile            | 73.8           | 9.5               |
| 7      | 1239          | Dos Rios St                    | Richards Blvd          | N B St                           | 1    | Long detour, High Stress | Within ¼ mile            | 98.8           | 9.5               |
| 8      | 1278          | Two Rivers Bike Trail          | N 10th St              | State Highway 160                | 1    | Long detour, High Stress | Within ¼ mile            | 98.8           | 9.5               |
| 9      | 605           | 4th Ave                        | 32nd St                | 4th Ave Dead End                 | 1    | Longest Detour           | Within ¼ mile            | 72.0           | 9.4               |
| 10     | 1731          | Raley Blvd                     | Ascot Ave              | Bell Ave                         | 1    | Long detour, High Stress | Within ¼ mile            | 94.1           | 9.4               |
| 11     | 1807          | Ninos Park Bike Trail          | San Juan Rd            | Waterway North of Rio Norte Wy   | 1    | Longest Detour           | Within ¼ mile            | 62.5           | 9.2               |
| 12     | 1592          | Sacramento Northern Bike Trail | Bell Ave               | Rose St cul-de-sac               | 1    | Long detour, High Stress | Within ¼ mile            | 85.2           | 9.2               |
| 13     | 1177          | 18th St                        | D                      | E                                | 1    | Long detour, High Stress | Within ¼ mile            | 80.4           | 9.1               |
| 14     | 1211          | C St                           | 13th St                | 16th St                          | 1    | Long detour, High Stress | Within ¼ mile            | 80.4           | 9.1               |
| 15     | 1321          | Unnamed Rd                     | Garden Hwy             | Natomas Park Underpass           | 1    | Long detour, High Stress | Within ¼ mile            | 79.7           | 9.1               |
| 16     | 1440          | Edmonton Dr                    | Westward Wy            | Northstead Dr                    | 1    | Long detour, High Stress | Within ¼ mile            | 79.7           | 9.1               |
| 17     | 401           | 38th Ave                       | Wallace Ave            | Wilkinson St                     | 1    | Long detour, High Stress | Within ¼ mile            | 78.2           | 9.1               |
| 18     | 402           | Wilkinson St                   | 38th Ave               | Lemon Hill Ave                   | 1    | Long detour, High Stress | Within ¼ mile            | 78.2           | 9.1               |
| 19     | 434           | Wilkinson St                   | Fruitridge Rd          | 38th Ave                         | 1    | Long detour, High Stress | Within ¼ mile            | 78.2           | 9.1               |
| 20     | 1172          | 28th St                        | McKinley Village Wy    | E St                             | 1    | Longest Detour           | Within ½ mile            | 98.8           | 9.0               |

| Number | Asset (WSPID) | Asset Name                     | Cross Street 1                      | Cross Street 2                      | BTLS | Redundancy Based Detour  | Critical Facility Access | CES percentile | Consequence Score |
|--------|---------------|--------------------------------|-------------------------------------|-------------------------------------|------|--------------------------|--------------------------|----------------|-------------------|
| 21     | 1271          | Sacramento Northern Bike Trail | Dreher St                           | Jedediah Smith Memorial Trail       | 1    | Longest Detour           | Within ½ mile            | 98.8           | 9.0               |
| 22     | 1216          | Sutter Landing Park Bikeway    | 28th St                             | Dead End near American River        | 1    | Longest Detour           | Within ½ mile            | 98.8           | 9.0               |
| 23     | 348           | Cougar Dr                      | Eldercreek Rd                       | Hometown Wy                         | 1    | Long detour, High Stress | Within ¼ mile            | 70.6           | 8.9               |
| 24     | 1331          | Jackrabbit Trail               | River Plaza Dr                      | Bridge near Orchard Park Skate Park | 1    | Long detour, High Stress | Within ¼ mile            | 69.8           | 8.9               |
| 25     | 1372          | Jackrabbit Trail               | Bridge near Orchard Park Skate Park | W El Camino Ave                     | 1    | Long detour, High Stress | Within ¼ mile            | 69.8           | 8.9               |
| 26     | 82            | Center Pkwy                    | Bamford Dr                          | Center Parkway Ln                   | 1    | Long detour, High Stress | Within ¼ mile            | 69.5           | 8.9               |
| 27     | 149           | Alma Vista Way                 | Branwood Wy                         | Pocket Rd                           | 1    | Longest Detour           | Within ¼ mile            | 44.3           | 8.9               |
| 28     | 1618          | River Birch Park Trail         | Terracina Dr                        | East Drainage Canal                 | 1    | Longest Detour           | Within ¼ mile            | 44.1           | 8.9               |
| 29     | 1270          | American River Bike Trail      | State Highway 160 Underpass         | Capital City Fwy Underpass          | 1    | Longest Detour           | Within ½ mile            | 93.5           | 8.9               |
| 30     | 1328          | Dixieanne Ave                  | Union Pacific Railroad              | Harvard St                          | 1    | Longest Detour           | Within ½ mile            | 93.0           | 8.9               |
| 31     | 293           | Chorley Park                   | 20th St                             | 56th Ave                            | 1    | Long detour, High Stress | Within ¼ mile            | 66.8           | 8.8               |
| 32     | 580           | Maryknoll Ct                   | Maryknoll Cul-de-sac                | Notre Dame Dr                       | 1    | Longest Detour           | Within ½ mile            | 91.3           | 8.8               |

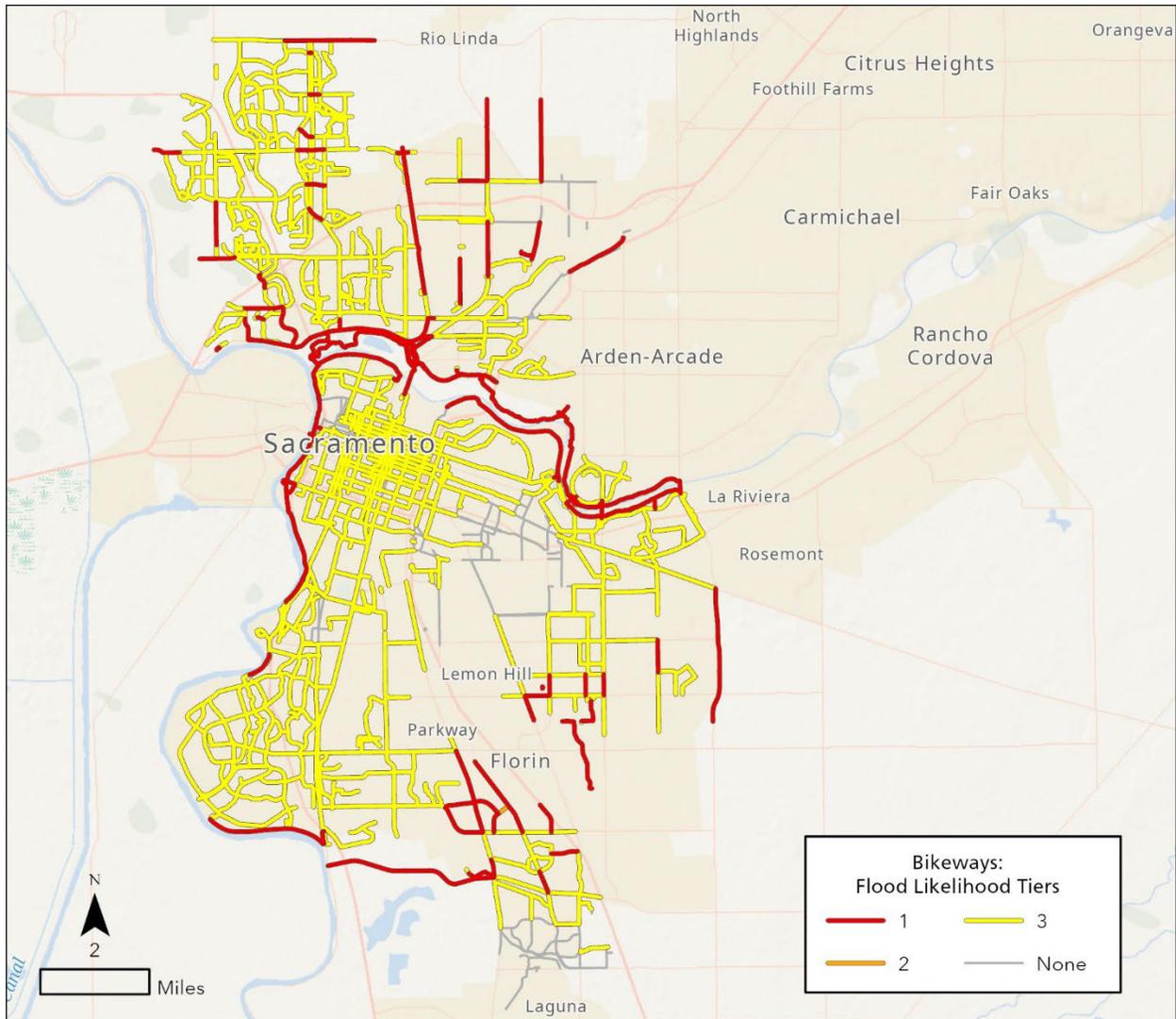
| Number | Asset (WSPID) | Asset Name                     | Cross Street 1                       | Cross Street 2  | BTLS | Redundancy Based Detour  | Critical Facility Access | CES percentile | Consequence Score |
|--------|---------------|--------------------------------|--------------------------------------|---|------|--------------------------|--------------------------|----------------|-------------------|
| 33     | 483           | 23rd St                        | 20th Ave                             | 22nd Ave  | 1    | Long detour, High Stress | Within ¼ mile            | 66.2           | 8.8               |
| 34     | 1397          | Bannon Creek Dr                | Crossmill Wy                         | Azevedo Dr  | 1    | Long detour, High Stress | Within ¼ mile            | 65.8           | 8.8               |
| 35     | 1806          | Two Rivers Bike Trail          | H St                                 | Dead End Near American River and Union Pacific Railroad | 2    | Longest Detour           | Within ¼ mile            | 98.8           | 8.8               |
| 36     | 877           | 18 <sup>th</sup> ST/R ST       | R St                                 | Dead End Near Quill Alley and Light Rail Tracks         | 1    | Longest Detour           | Within ½ mile            | 88.6           | 8.8               |
| 37     | 918           | 13th St                        | Quill Aly                            | T St  | 1    | Long detour, High Stress | Within ¼ mile            | 88.6           | 8.8               |
| 38     | 608           | 17th St                        | Vallejo Wy                           | McClatchy School Park                                   | 1    | Longest Detour           | Within ¼ mile            | 32.0           | 8.6               |
| 39     | 710           | 24th St                        | Broadway                             | Capital City Fwy E Underpass                            | 1    | Long detour, High Stress | Within ¼ mile            | 56.5           | 8.6               |
| 40     | 754           | 24th St                        | Capitol City Fwy E Underpass         | V St  | 1    | Long detour, High Stress | Within ¼ mile            | 56.5           | 8.6               |
| 41     | 860           | University Ave                 | University Ave off American River Dr | University Ave cul-de-sac                               | 1    | Longest Detour           | Within ¼ mile            | 30.6           | 8.6               |
| 42     | 1803          | Off Katanis Way                | Cotton Ln                            | Kastanis Wy   | 1    | Long detour, High Stress | Within ¼ mile            | 55.4           | 8.6               |
| 43     | 1361          | Sacramento Northern Bike Trail | Traction Ave                         | Junction of Sacramento Northern Bike                    | 1    | Longest Detour           | Within ½ mile            | 79.8           | 8.6               |

| Number | Asset (WSPID) | Asset Name                     | Cross Street 1                             | Cross Street 2   | BTLS | Redundancy Based Detour  | Critical Facility Access | CES percentile | Consequence Score |
|--------|---------------|--------------------------------|--|--|------|--------------------------|--------------------------|----------------|-------------------|
|        |               |                                |  | Trail and Altos Ave Near Leitch Ave  |      |                          |                          |                |                   |
| 44     | 1379          | Sacramento Northern Bike Trail | Intersection of Altos Ave and Hawthorne St | Junction of Sacramento Northern Bike Trail and Altos Ave Near Lampasas Ave | 1    | Long detour, High Stress | Within ¼ mile            | 79.8           | 8.6               |
| 45     | 1380          | Sacramento Northern Bike Trail | Triangle Park                              | Junction of Sacramento Northern Bike Trail and Altos Ave Near Lampasas Ave | 1    | Longest Detour           | Within ½ mile            | 79.8           | 8.6               |
| 46     | 1381          | Sacramento Northern Bike Trail | Altos Ave                                  | Junction of Sacramento Northern Bike Trail and Triangle Park               | 1    | Longest Detour           | Within ½ mile            | 79.8           | 8.6               |
| 47     | 1408          | Sacramento Northern Bike Trail | Altos Ave                                  | Junction of Sacramento Northern Bike Trail Adjacent to Rio Linda Blvd      | 1    | Longest Detour           | Within ½ mile            | 79.8           | 8.6               |
| 48     | 1320          | Garden Highway Bike Trail      | Gateway Oaks Dr                            | Natomas Park Dr  | 1    | Longest Detour           | Within ½ mile            | 79.7           | 8.6               |

| Number | Asset (WSPID) | Asset Name         | Cross Street 1  | Cross Street 2 | BTLS | Redundancy Based Detour  | Critical Facility Access | CES percentile | Consequence Score |
|--------|---------------|--------------------|-----------------|----------------|------|--------------------------|--------------------------|----------------|-------------------|
| 49     | 1829          | Unnamed Rd         | Natomas Park Dr | Discovery Park | 1    | Longest Detour           | Within ½ mile            | 79.7           | 8.6               |
| 50     | 455           | Del Rio Bike Trail | Normandy Ln     | Fruitridge Rd  | 1    | Long detour, High Stress | Within ¼ mile            | 78.9           | 8.6               |

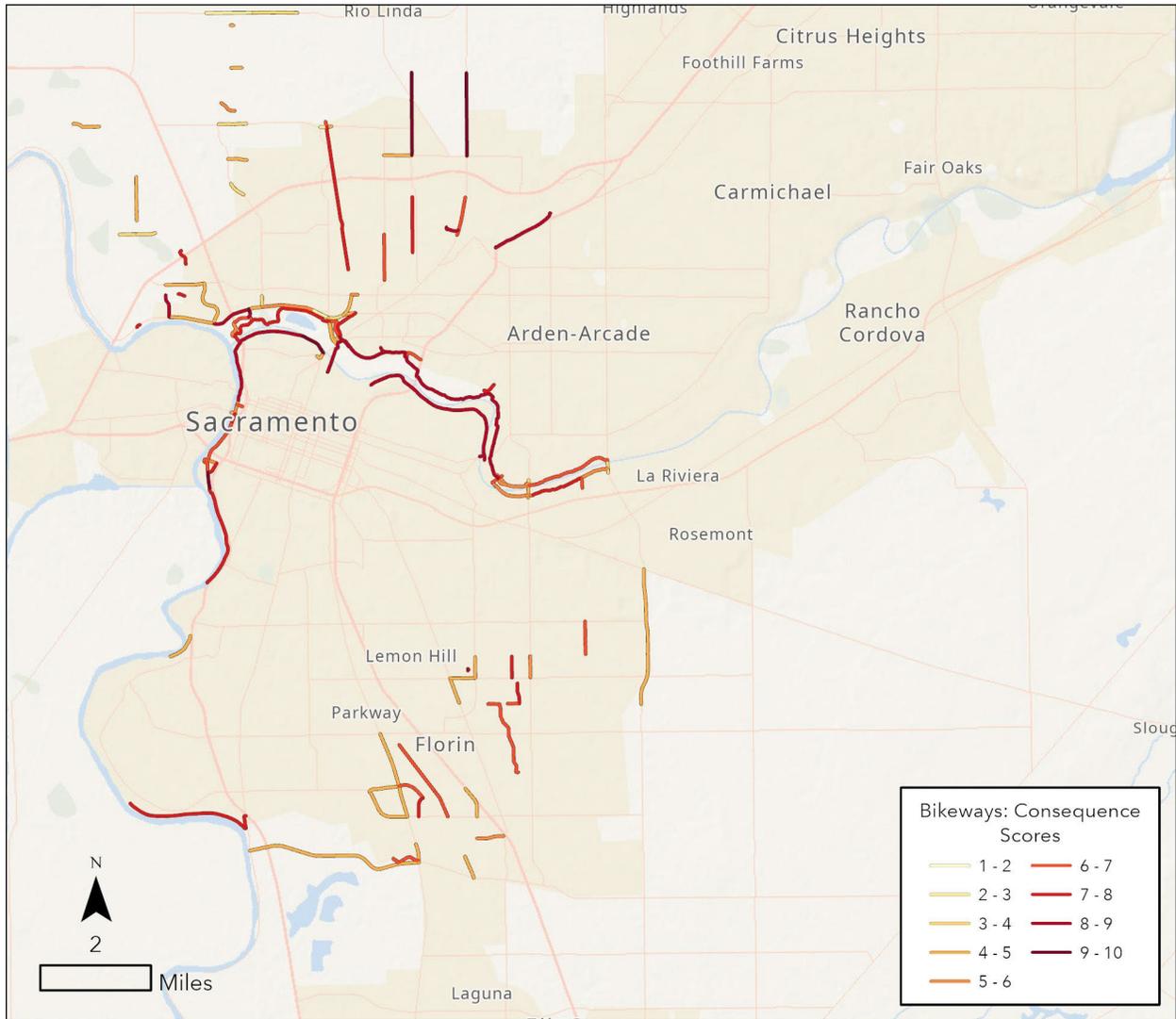
## Likelihood and Risk

Map 13 shows bike segments by flood likelihood tier. Most bikeways in Sacramento are located outside the 100-year floodplain or are protected by levees. 140 of almost 1,800 segments cross through the 100-year floodplain. High-consequence and high-exposure bikeway segments include routes along the Sacramento River such as the American River Bike Trail and Two Rivers Bike Trail; Raley Blvd; Sacramento Northern Bike Trail; and Garden Highway Bike Trail.



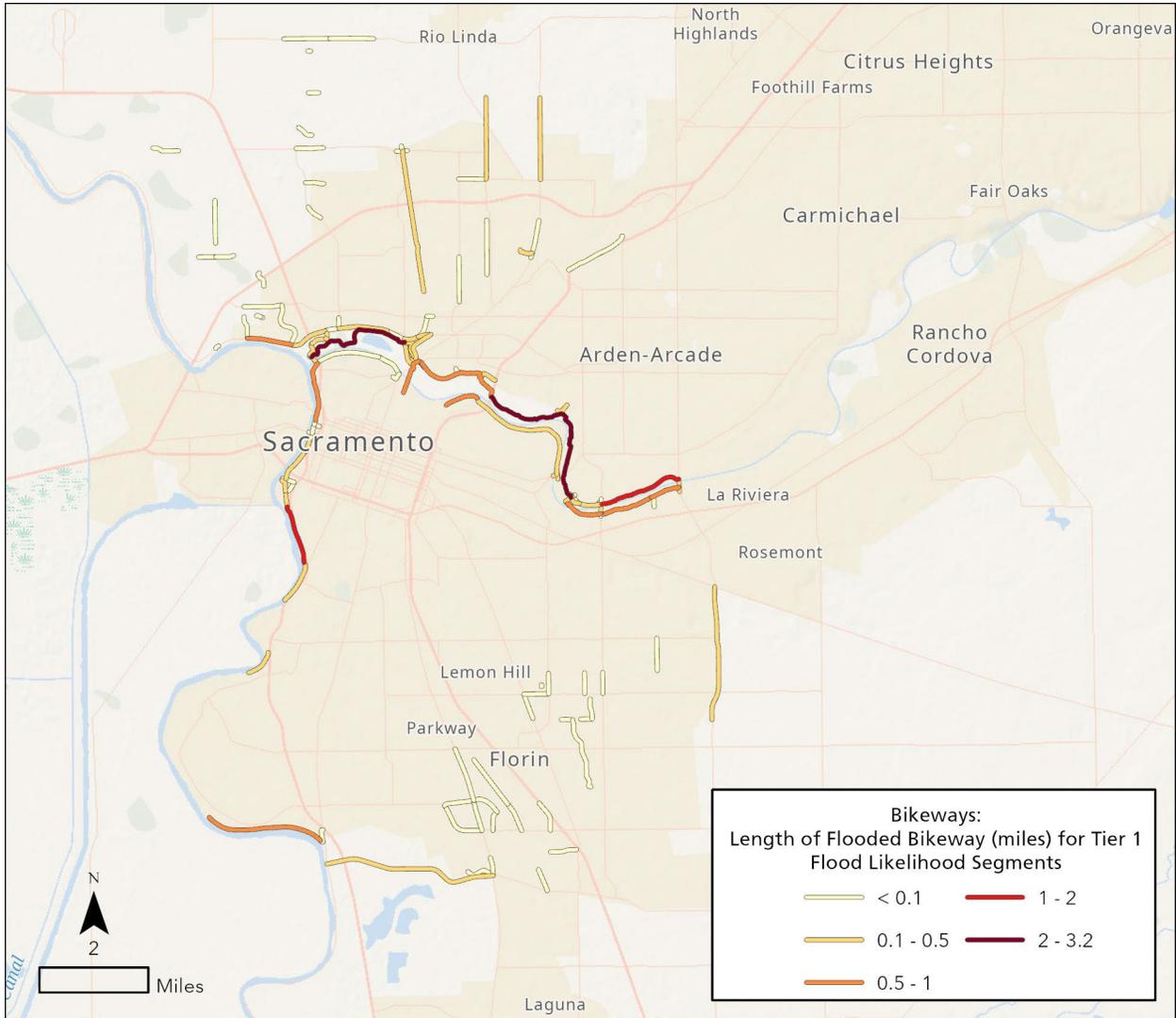
Map 13: Flood likelihood tiers for bikeways

Map 14 shows consequence scores for bikeways located within the 100-year floodplain.



Map 14: Consequence scores of bikeways within highest flood likelihood tier

Map 15 shows bikeway segments crossing the 100-year floodplain by length of exposure. Long portions of the following bikeways are exposed to the 100-year flood: American River Bike Trail, Sacramento River Bikeway, and Jedediah Smith National Recreation Trail.



Map 15: Length of flooded miles for bikeways within the highest flood likelihood tier

## Bus Stops

### Consequence Metrics

Table 13 shows the metrics, scales, and weights used for calculating consequence scores for bus stops. All metrics were given an even weight.

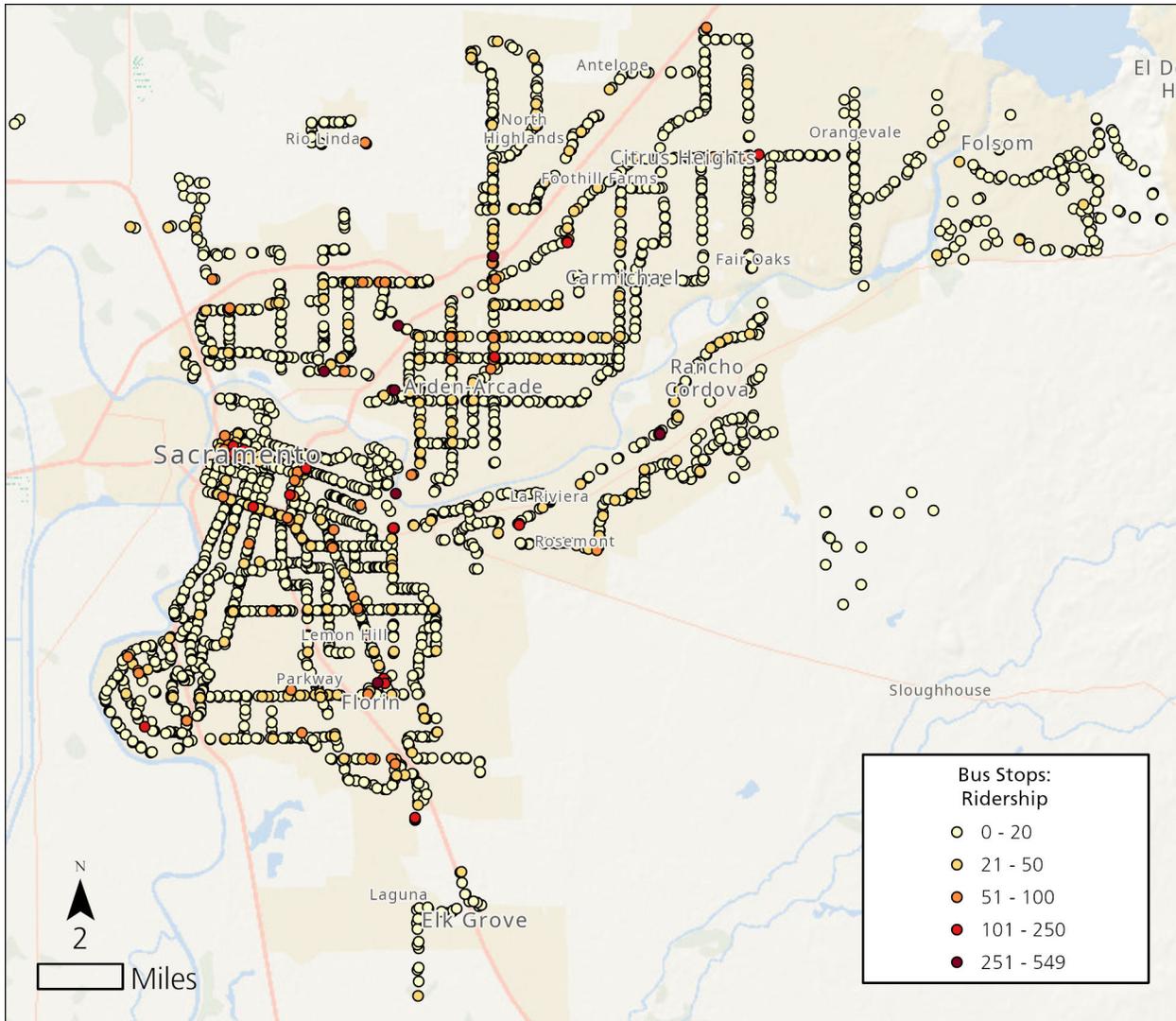
Table 13: Consequence score metric weights for bus stops

| Metric                            | Scale   | Weight |
|-----------------------------------|---|--------|
| <b>Ridership</b>                  | Average daily boardings normalized from 0 (lowest) to 10 (highest)          | 25%    |
| <b>Proximity to Closest Stop</b>  | Within ¼ mile: 0<br>Within ½ mile: 2<br>Within ¾ mile: 5<br>Over ¾ mile: 10 | 25%    |
| <b>Nearby Critical Facilities</b> | Within ¼ mile: 0<br>Within ½ mile: 2<br>Within ¾ mile: 5<br>Over ¾ mile: 10 | 25%    |
| <b>CalEnviroScreen Score</b>      | All scores divided by 10  | 25%    |

#### *Ridership*

Ridership is a key metric for evaluating the importance of individual bus stops within the bus stop network. Average daily ridership data for bus stops was provided by SacRT. The data reflects the average daily boardings at each stop on a typical weekday in January 2025. Ridership is heavily skewed with many stops serving few riders each day and a small number of stops experiencing high volumes.

Map 16 shows these ridership numbers for each bus stop. The stops Carlson Dr & State University Drive North and Arden Way & Del Paso Blvd LRT have the highest ridership values. Carlson Dr & State University Drive North is in the center of California State University, Sacramento (CSUS). Arden Way & Del Paso Blvd is a major hub for connecting buses, serving busy areas like Arden Fair Mall. Other high ridership stops include Marconi-Arcade LRT, Arden Fair Mall & Terminal, 65<sup>th</sup> St & Sky Parkway, Mather LRS & Bay 2, and Watt Ave & I-80 LRT.



Map 16: Bus Stop Ridership

### *Proximity to Closest Stop*

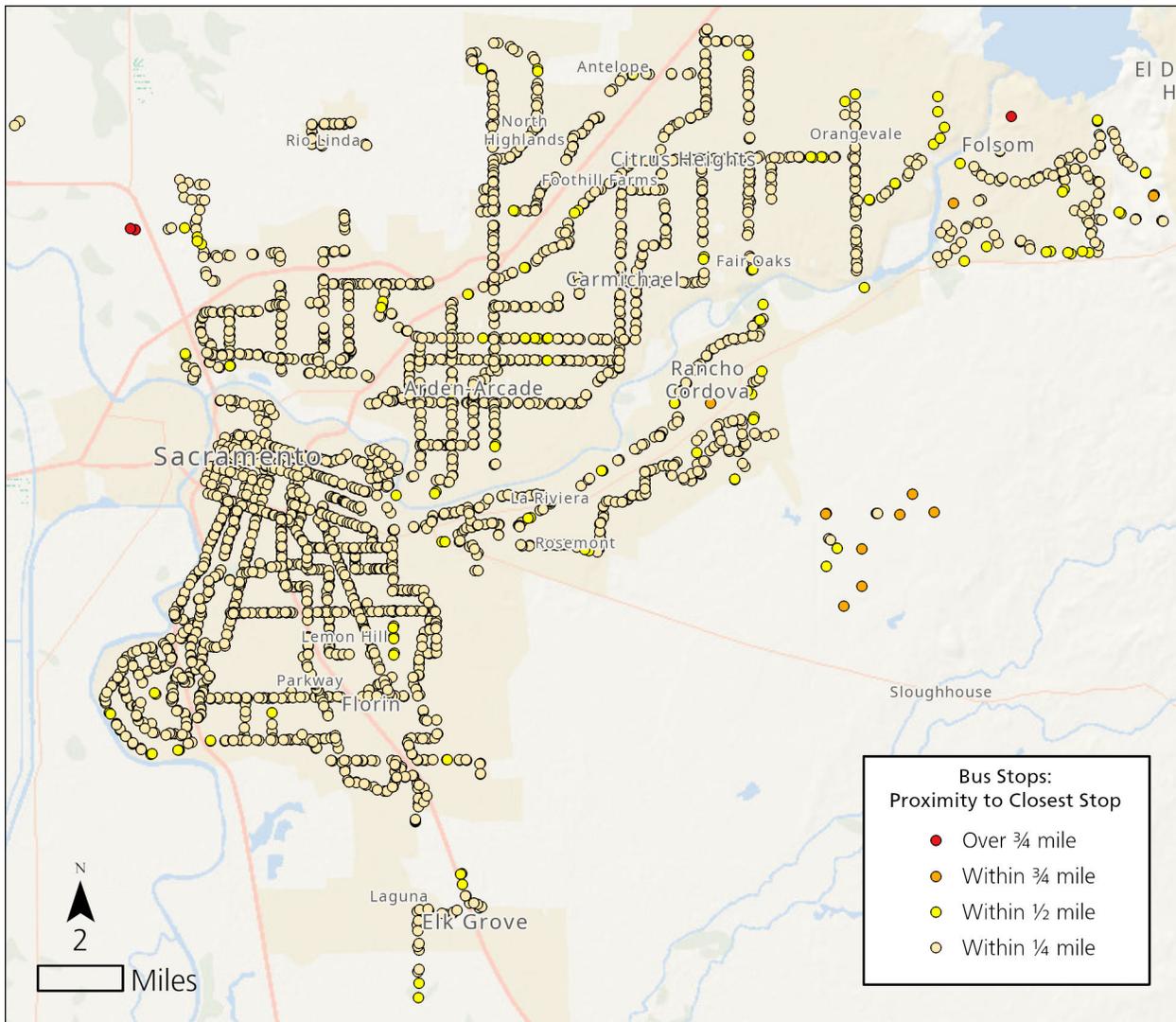
This metric evaluates how far riders must travel to reach the next closest active bus stop if their primary stop becomes inaccessible. This does not include the paired stop across the street serving the opposite direction; instead, it reflects how far a rider must walk to reach an alternate stop that still provides service in their intended direction of travel.

Stops with greater distances to the next closest active bus stop receive higher consequence scores because a disruption at that location requires riders to travel farther to continue their trip. Table 14 categorizes the distance to the next active stop and scores it for the consequence score.

Table 14: Proximity to Next Closest Active Stop Categories and Score

| Category      | Score |
|---------------|-------|
| Over ¾ mile   | 10    |
| Within ¾ mile | 5     |
| Within ½ mile | 2     |
| Within ¼ mile | 0     |

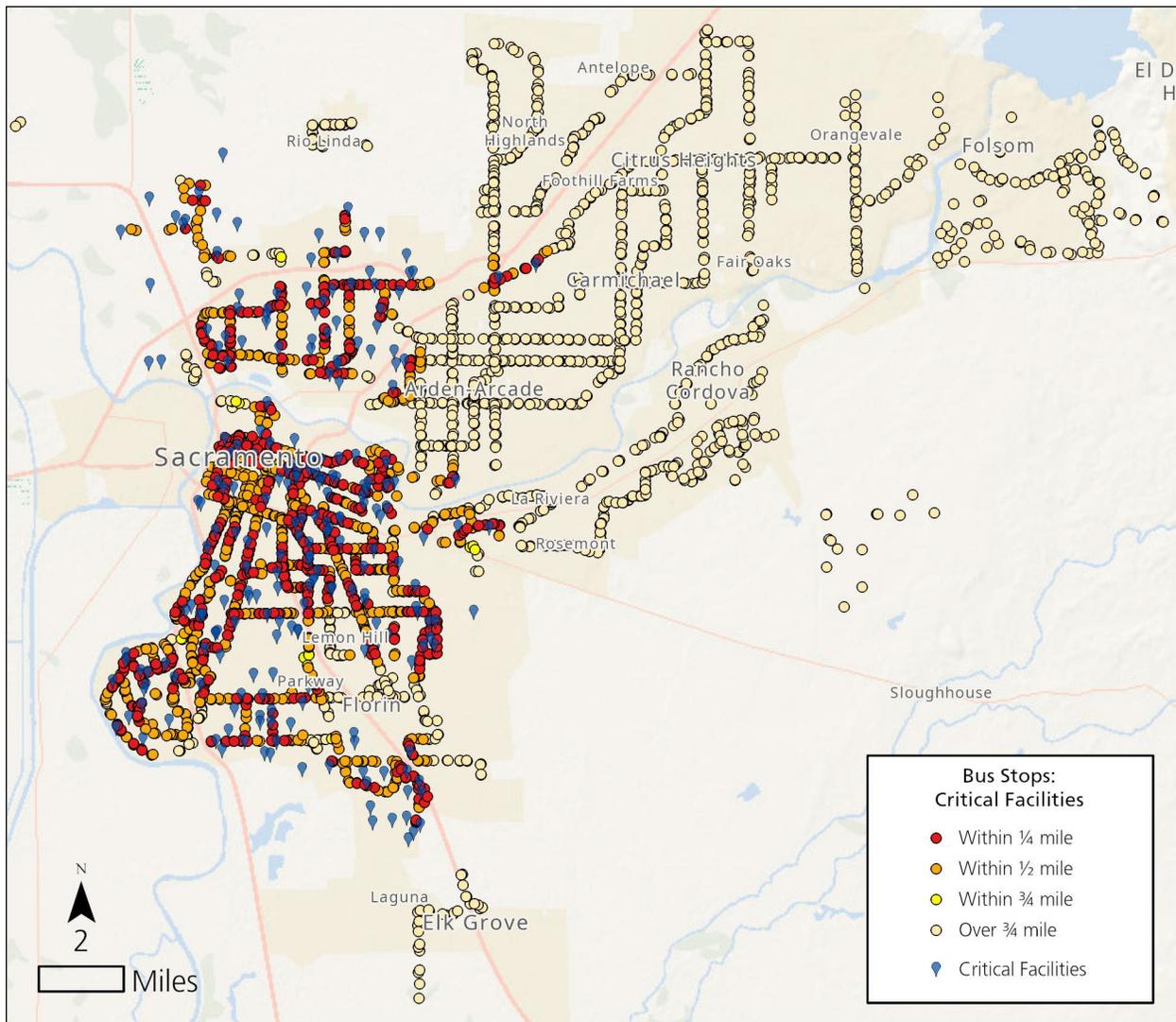
Map 17 shows how far each bus stop is from the next closest active stop serving the same direction, highlighting where disruptions would create the greatest access challenges for riders. The large majority of stops are within ¼ mile of another active stop. Only 16 of over 2,700 stops have proximities of over ½ mile. Only two unique stop pairings have proximities over ¾ mile: Del Paso Rd & El Centro Rd and CA State Prison & Folsom Prison Rd.



Map 17: Proximity to Next Closest Active Bus Stop

### Nearby Critical Facilities

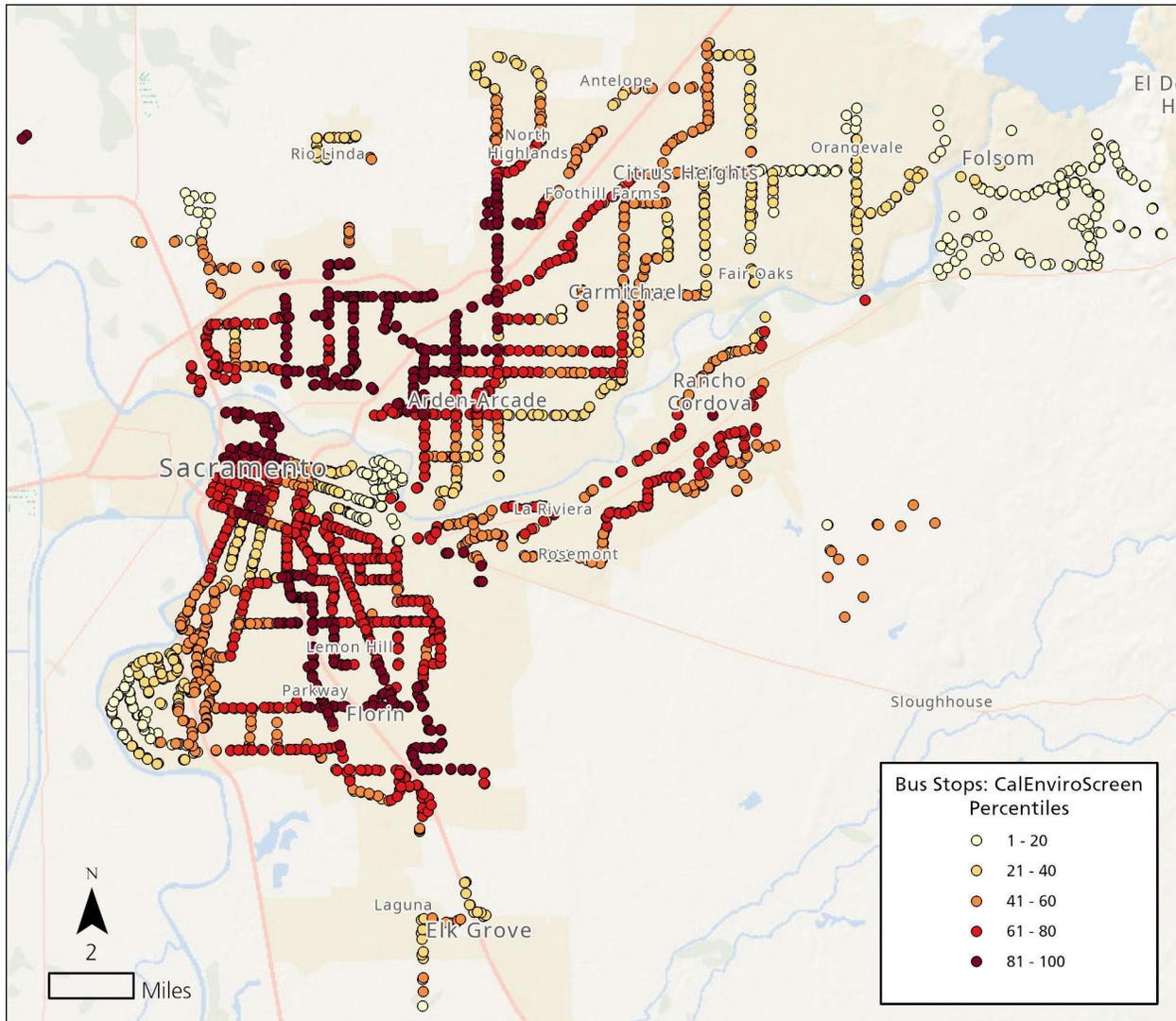
Map 18 shows the proximity of bus stops to critical facilities, highlighting where transit access plays an important role in connecting community members to essential services. A high concentration of stops within ¼ mile of critical facilities appears in central Sacramento, reflecting the dense clustering of hospitals, schools, community centers, libraries, and emergency shelters in the urban core. Note that critical facilities were only evaluated for the City of Sacramento, so many stops outside the City were categorized as over ¾ mile from critical facilities. However, some of these stops may be near other critical facilities that were not included in this analysis.



Map 18: Bus Stop Critical Facility Access

### CalEnviroScreen Score

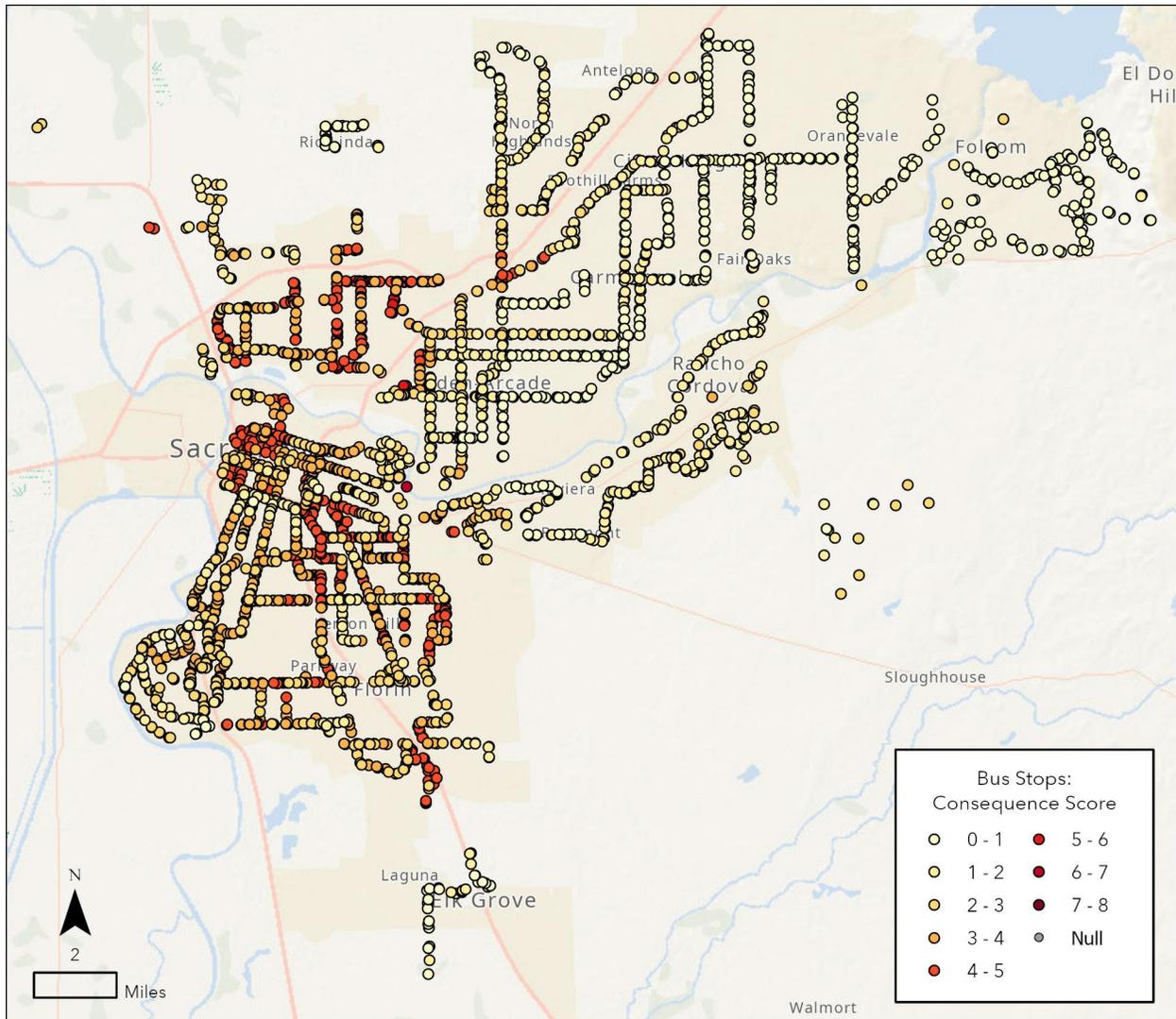
Map 19 shows which bus stops are within census tracts with the highest CalEnviroScreen percentiles. The highest scoring bus stops tend to be in Downtown and surrounding neighborhoods, North Sacramento, McClellan Park, Southeastern Sacramento, South Oak Park, Parkway, Lemon Hill, and Florin.



Map 19: CalEnviroScreen percentiles for bus stops

## Consequence Scores

Map 20 displays the spatial distribution of consequence scores across the city. Stops with higher consequence scores tend to serve more riders, have fewer nearby alternatives, provide access to essential destinations, and be in more disadvantaged communities. The stops with the highest scores include Arden Way & Del Paso Blvd. light rail connection, Arden Fair Mall Terminal, Carlson Dr. & State University Dr., 7<sup>th</sup> St. and J St., J St. and 6<sup>th</sup> St., and Arden Way & Heritage Lane.



Map 20: Consequence scores for bus stops

Table 15 lists the 50 highest-scoring bus stops by consequence score. Among the 1,582 bus stops analyzed, 3 have consequence scores above 6, indicating their critical role in the transit network. These top-scoring stops are characterized by high daily ridership, close access to critical facilities, and location in communities with elevated CalEnviroScreen scores.

- **ARDEN WAY & DEL PASO BLVD LRT (Stop ID: 9807)** High daily ridership (482), within ¼ mile of a critical facility, CalEnviroScreen percentile of 93.5
- **ARDEN FAIR MALL TERMINAL (Stop ID: 1099)** High daily ridership (343), within ¼ mile of a critical facility, CalEnviroScreen percentile of 93.0.
- **CARLSON DR & STATE UNIVERSITY DRIVE NORTH (Stop ID: 275)** High daily ridership (549), within ¼ mile of a critical facility, CalEnviroScreen percentile of 77.5
- **7TH ST & J ST (Stop ID: 223)** Moderate ridership (86), within ¼ mile of a critical facility, CalEnviroScreen percentile of 95.5
- **J ST & 6TH ST (Stop ID: 414)** Moderate ridership (92), within ¼ mile of a critical facility, CalEnviroScreen percentile of 95.6.
- **L ST & 5TH ST (Stop ID: 5252)** Moderate ridership (182), provide access to critical facilities, CalEnviroScreen percentile of 95.6
- **ARDEN WAY & HERITAGE LN (Stop ID: 1164)** High daily ridership (121), within ¼ mile of a critical facility, CalEnviroScreen percentile of 93.0.

Table 15: Top 50 consequence scores for bus stops

| Number | Stop ID | Stop Name                                      | Daily Ridership | Access to Critical Facilities | Proximity to Closest Stop | CES percentile | Consequence Score |
|--------|---------|--|-----------------|-------------------------------|---------------------------|----------------|-------------------|
| 1      | 9807    | Arden Way & Del Paso Blvd LRT (Eb)             | 482             | Within ¼ mile                 | Within ¼ mile             | 93.5           | 7.1               |
| 2      | 1099    | Arden Fair Mall Terminal (Nb)                  | 343             | Within ¼ mile                 | Within ¼ mile             | 93.0           | 6.3               |
| 3      | 275     | Carlson Dr & State University Drive North (Eb) | 549             | Within ½ mile                 | Within ½ mile             | 77.5           | 6.2               |
| 4      | 223     | 7th St & J St (Sb)                             | 86              | Within ¼ mile                 | Within ¼ mile             | 95.5           | 5.4               |
| 5      | 414     | J St & 6th St (Eb)                             | 92              | Within ¼ mile                 | Within ¼ mile             | 95.5           | 5.4               |
| 6      | 1164    | Arden Way & Heritage Ln (Wb)                   | 121             | Within ¼ mile                 | Within ¼ mile             | 93.0           | 5.3               |

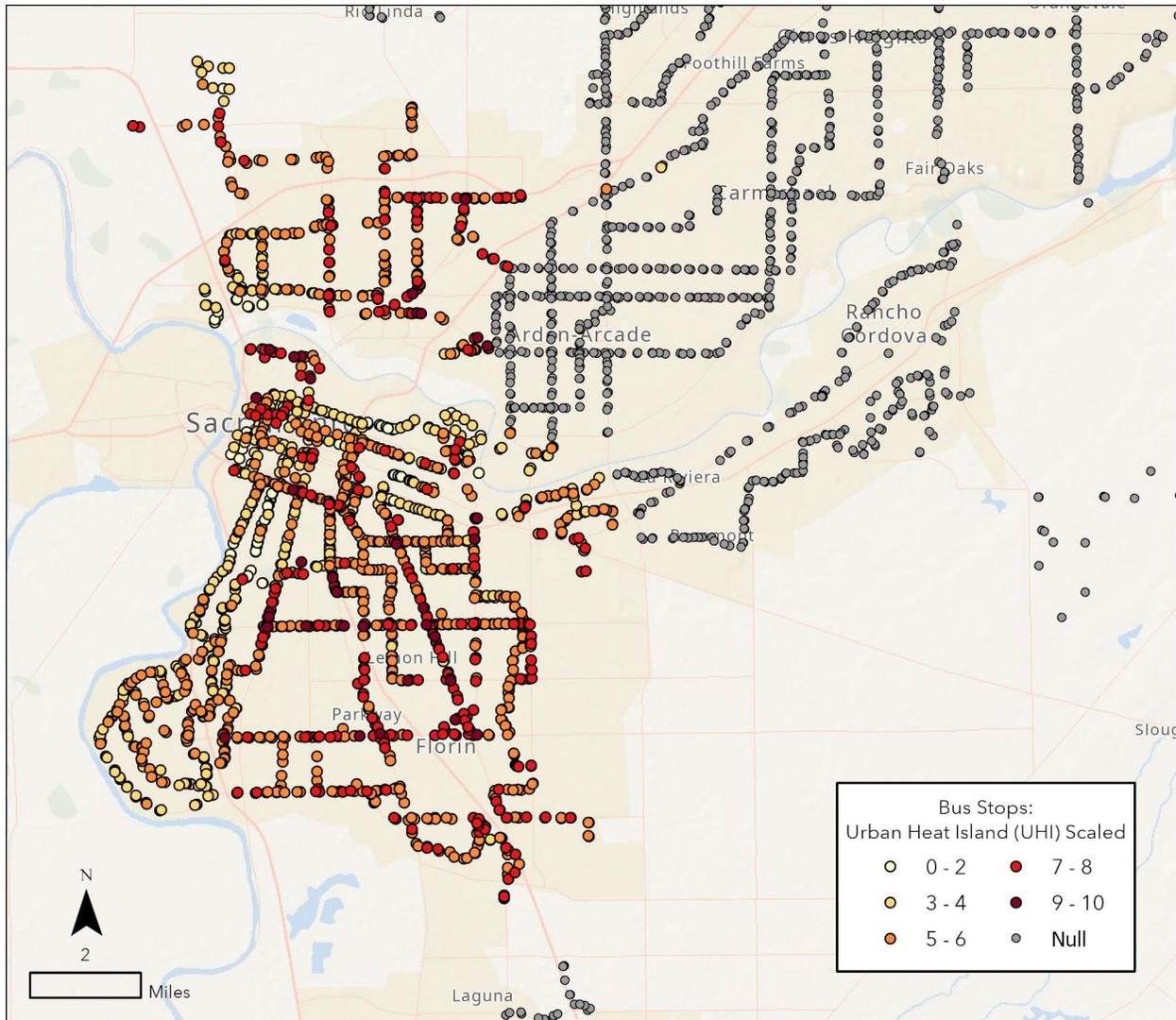
|           |      |   |     |               |               |      |     |
|-----------|------|---|-----|---------------|---------------|------|-----|
| <b>7</b>  | 560  | Marysville Blvd & Los Robles Blvd 1 (Nb) <sup>1</sup> | 7   | Within ¼ mile | Within ½ mile | 88.9 | 5.2 |
| <b>8</b>  | 561  | Marysville Blvd & Los Robles Blvd 2 (Nb) <sup>1</sup> | 7   | Within ¼ mile | Within ½ mile | 88.9 | 5.2 |
| <b>9</b>  | 282  | Amtrak Depot (Wb)                                     | 69  | Within ¼ mile | Within ¼ mile | 98.8 | 5.2 |
| <b>10</b> | 222  | 7th St & H St (Sb)                                    | 39  | Within ¼ mile | Within ¼ mile | 95.5 | 5.1 |
| <b>11</b> | 413  | J St & 4th St (Eb)                                    | 40  | Within ¼ mile | Within ¼ mile | 95.5 | 5.1 |
| <b>12</b> | 5252 | L St & 5th St (Wb)                                    | 79  | Within ¼ mile | Within ¼ mile | 95.5 | 5.1 |
| <b>13</b> | 284  | Del Paso Blvd & Hawthorne (Sb)                        | 38  | Within ¼ mile | Within ¼ mile | 93.5 | 5.1 |
| <b>14</b> | 545  | Del Paso Blvd & Winnipeg St (Nb)                      | 29  | Within ¼ mile | Within ¼ mile | 93.5 | 5.1 |
| <b>15</b> | 547  | Del Paso Blvd & El Camino Ave (Nb)                    | 40  | Within ¼ mile | Within ¼ mile | 93.5 | 5.1 |
| <b>16</b> | 2370 | Florin Rd & Luther Dr (Eb)                            | 34  | Within ¼ mile | Within ¼ mile | 93.3 | 5.1 |
| <b>17</b> | 2375 | Stockton Blvd & Elsie Ave (Nb)                        | 29  | Within ¼ mile | Within ¼ mile | 92.5 | 5.1 |
| <b>18</b> | 1518 | Auburn Blvd & Watt Ave (Wb)                           | 33  | Within ¼ mile | Within ¼ mile | 92.3 | 5.1 |
| <b>19</b> | 583  | Marysville Blvd & Los Robles Blvd (Sb)                | 4   | Within ¼ mile | Within ½ mile | 81.0 | 5.0 |
| <b>20</b> | 584  | Marysville Blvd & Los Robles Blvd (Sb)                | 4   | Within ¼ mile | Within ½ mile | 81.0 | 5.0 |
| <b>21</b> | 221  | 7th St & G St (Sb)                                    | 13  | Within ¼ mile | Within ¼ mile | 98.8 | 5.0 |
| <b>22</b> | 536  | Richards Blvd & Dos Rios St (Eb)                      | 0   | Within ¼ mile | Within ¼ mile | 98.8 | 5.0 |
| <b>23</b> | 603  | Richards Blvd & Dos Rios St (Wb)                      | 0   | Within ¼ mile | Within ¼ mile | 98.8 | 5.0 |
| <b>24</b> | 5328 | Richards Blvd & Louise St (Eb)                        | 3   | Within ¼ mile | Within ¼ mile | 98.8 | 5.0 |
| <b>25</b> | 537  | Sunbeam Ave & Richards Blvd (Sb)                      | 3   | Within ¼ mile | Within ¼ mile | 98.8 | 5.0 |
| <b>26</b> | 418  | J St & 11th St (Eb)                                   | 109 | Within ¼ mile | Within ¼ mile | 78.3 | 5.0 |
| <b>27</b> | 415  | J St & 8th St (Eb)                                    | 125 | Within ¼ mile | Within ¼ mile | 78.3 | 5.0 |
| <b>28</b> | 528  | L St & 9th St (Wb)                                    | 123 | Within ¼ mile | Within ¼ mile | 78.3 | 5.0 |
| <b>29</b> | 3135 | 65th St & Lemon Hill Ave (Nb)                         | 19  | Within ¼ mile | Within ½ mile | 78.2 | 5.0 |
| <b>30</b> | 1335 | Del Paso Rd & El Centro Rd (Eb)                       | 18  | Within ½ mile | Within ½ mile | 48.0 | 5.0 |
| <b>31</b> | 1609 | 65th St & Lemon Hill Ave (Sb)                         | 7   | Within ¼ mile | Within ½ mile | 76.0 | 4.9 |
| <b>32</b> | 1608 | 65th St & McMahan Dr (Sb)                             | 3   | Within ¼ mile | Within ½ mile | 76.0 | 4.9 |
| <b>33</b> | 116  | 3rd St & K St (Nb)                                    | 9   | Within ¼ mile | Within ¼ mile | 95.5 | 4.9 |
| <b>34</b> | 281  | 5th St & I St (Nb)                                    | 3   | Within ¼ mile | Within ¼ mile | 95.5 | 4.9 |
| <b>35</b> | 531  | L St & 4th St (Wb)                                    | 26  | Within ¼ mile | Within ¼ mile | 95.5 | 4.9 |
| <b>36</b> | 577  | Grand Ave & Dayton St (Wb)                            | 25  | Within ¼ mile | Within ¼ mile | 94.1 | 4.9 |

<sup>1</sup> These stop locations are so close together that it was assumed if one stop was inaccessible, the other stop would similarly be inaccessible. As a result, these stops were not considered as part of the proximity to the closest stop calculation. A similar logic was used for all other occurrences of those co-located bus stops.

|    |      |                                    |    |               |               |      |     |
|----|------|------------------------------------|----|---------------|---------------|------|-----|
| 37 | 842  | Grand Ave & Jasmine St (Eb)        | 1  | Within ¼ mile | Within ¼ mile | 94.1 | 4.9 |
| 38 | 580  | Grand Ave & Jasmine St (Wb)        | 17 | Within ¼ mile | Within ¼ mile | 94.1 | 4.9 |
| 39 | 843  | Grand Ave & Mahogany St (Eb)       | 4  | Within ¼ mile | Within ¼ mile | 94.1 | 4.9 |
| 40 | 579  | Grand Ave & Mahogany St (Wb)       | 11 | Within ¼ mile | Within ¼ mile | 94.1 | 4.9 |
| 41 | 839  | Grand Ave & Dry Creek Rd (Eb)      | 37 | Within ¼ mile | Within ¼ mile | 84.1 | 4.9 |
| 42 | 840  | Grand Ave & Elm St (Eb)            | 54 | Within ¼ mile | Within ¼ mile | 84.1 | 4.9 |
| 43 | 850  | Grand Ave & Elm St (Wb)            | 76 | Within ¼ mile | Within ¼ mile | 84.1 | 4.9 |
| 44 | 1167 | Arden Way & Beaumont St (Wb)       | 3  | Within ¼ mile | Within ¼ mile | 93.5 | 4.8 |
| 45 | 1168 | Arden Way & Cantalier St (Wb)      | 2  | Within ¼ mile | Within ¼ mile | 93.5 | 4.8 |
| 46 | 1402 | Colfax St & El Camino Ave (Sb)     | 1  | Within ¼ mile | Within ¼ mile | 93.5 | 4.8 |
| 47 | 596  | Del Paso Blvd & Winnipeg St (Sb)   | 1  | Within ¼ mile | Within ¼ mile | 93.5 | 4.8 |
| 48 | 595  | Del Paso Blvd & El Camino Ave (Sb) | 4  | Within ¼ mile | Within ¼ mile | 93.5 | 4.8 |
| 49 | 1401 | El Camino Ave & Edgewater Rd (Wb)  | 2  | Within ¼ mile | Within ¼ mile | 93.5 | 4.8 |
| 50 | 684  | Grove Ave & El Monte Ave (Nb)      | 13 | Within ¼ mile | Within ¼ mile | 93.5 | 4.8 |

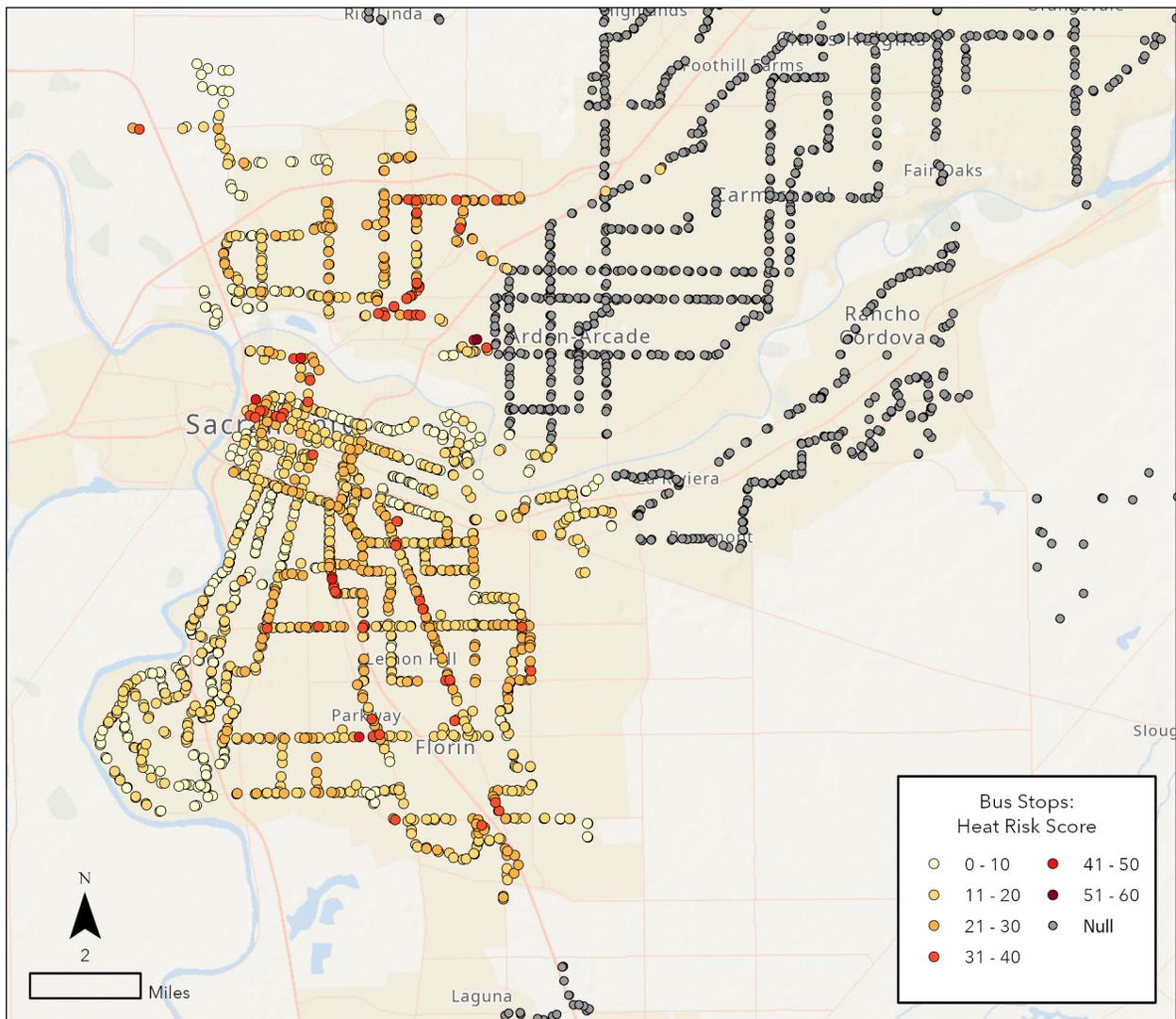
## Likelihood and Risk

Map 21 shows the bus stops by UHI intensity scaled from 0 to 10. This metric highlights locations where riders are most at risk during extreme heat events due to both environmental exposure and the consequence of the stop. There are clusters of high UHI stops in the Downtown area, as well as in Southeastern Sacramento (particularly along Stockton Boulevard) and in North Sacramento. Stops outside the City boundary have null values because the UHI dataset used only covered the City of Sacramento.



Map 21: Scaled Urban Heat Island effect for bus stops

Map 22 shows heat risks scores, which are the product of the scaled UHI scores and consequence scores. Table 16 lists the 50 highest-scoring bus stops by heat risk score. Bus stops with the highest heat risk scores include Arden Fair Mall & Terminal, Richards Blvd. & Dos Rios St., Florin Rd. & Luther Dr., Amtrak & Depot, Franklin Blvd. & 16<sup>th</sup>, and Arden Way & Heritage Lane. Many of the stops with elevated heat risk are concentrated in the downtown area and along major corridors such as Del Paso Blvd., Stockton Blvd., and Franklin Blvd. These high-risk stops can be prioritized for adaptation measures such as shade structures, cooling elements, and improved passenger amenities to reduce heat exposure and enhance user comfort.



Map 22: Heat risk scores for bus stops

Table 16: Bus stops by descending heat risk score

| Number | Stop ID | Stop Name                             | UHI Scaled | Consequence Score | Heat Risk Score |
|--------|---------|---------------------------------------|------------|-------------------|-----------------|
| 1      | 1099    | Arden Fair Mall Terminal (Nb)         | 9.1        | 6.3               | 57.8            |
| 2      | 603     | Richards Blvd & Dos Rios St (Wb)      | 10.0       | 5.0               | 49.7            |
| 3      | 2370    | Florin Rd & Luther Dr (Eb)            | 8.9        | 5.1               | 45.3            |
| 4      | 282     | Amtrak Depot (Wb)                     | 8.4        | 5.2               | 43.7            |
| 5      | 2579    | Franklin Blvd & 16th Ave (Sb)         | 9.4        | 4.5               | 42.3            |
| 6      | 1164    | Arden Way & Heritage Ln (Wb)          | 7.8        | 5.3               | 41.7            |
| 7      | 2587    | M L King Jr Blvd & Fruitridge Rd (Sb) | 8.7        | 4.6               | 39.8            |
| 8      | 2618    | Franklin Blvd & 16th Ave (Nb)         | 8.7        | 4.5               | 39.1            |
| 9      | 3722    | Broadway & Stockton Blvd (Eb)         | 8.6        | 4.5               | 39.0            |
| 10     | 601     | 21st Ave & Franklin Blvd (Wb)         | 8.6        | 4.5               | 38.7            |
| 11     | 9807    | Arden Way & Del Paso Blvd LRT(Eb)     | 5.4        | 7.1               | 38.4            |
| 12     | 418     | J St & 11th St (Eb)                   | 7.7        | 5.0               | 38.0            |
| 13     | 548     | Del Paso Blvd & El Camino Ave (Nb)    | 8.4        | 4.5               | 38.0            |
| 14     | 414     | J St & 6th St (Eb)                    | 6.9        | 5.4               | 37.5            |
| 15     | 684     | Grove Ave & El Monte Ave (Nb)         | 7.7        | 4.8               | 37.4            |
| 16     | 5252    | L St & 5th St (Wb)                    | 7.3        | 5.1               | 37.4            |
| 17     | 1839    | Stockton Blvd & Broadway (Sb)         | 8.6        | 4.3               | 37.1            |
| 18     | 6107    | Fruitridge Rd & Fruitridge LRT (Wb)   | 7.7        | 4.8               | 36.7            |
| 19     | 545     | Del Paso Blvd & Winnipeg St (Nb)      | 7.2        | 5.1               | 36.6            |
| 20     | 531     | L St & 4th St (Wb)                    | 7.5        | 4.9               | 36.6            |
| 21     | 604     | Richards Blvd & North 10th St (Wb)    | 9.8        | 3.7               | 36.6            |
| 22     | 596     | Del Paso Blvd & Winnipeg St (Sb)      | 7.5        | 4.8               | 36.3            |
| 23     | 961     | Rio Linda Blvd & Lampasas Ave (Nb)    | 8.0        | 4.5               | 36.2            |
| 24     | 223     | 7th St & J St (Sb)                    | 6.7        | 5.4               | 36.0            |
| 25     | 8042    | 79th St & 32nd Ave (Nb)               | 8.0        | 4.5               | 35.6            |
| 26     | 284     | Del Paso Blvd & Hawthorne (Sb)        | 7.0        | 5.1               | 35.6            |
| 27     | 1894    | Stockton Blvd & Lawrence Dr (Nb)      | 9.0        | 3.9               | 35.5            |
| 28     | 2375    | Stockton Blvd & Elsie Ave (Nb)        | 6.9        | 5.1               | 34.9            |
| 29     | 867     | Lampasas Ave & Rio Linda Blvd (Sb)    | 7.6        | 4.5               | 34.3            |
| 30     | 1849    | Stockton Blvd & Lawrence Dr (Sb)      | 8.0        | 4.3               | 34.3            |
| 31     | 1136    | I St & 12th St (Wb)                   | 7.6        | 4.5               | 34.0            |
| 32     | 547     | Del Paso Blvd & El Camino Ave (Nb)    | 6.6        | 5.1               | 33.8            |
| 33     | 840     | Grand Ave & Elm St (Eb)               | 7.0        | 4.9               | 33.7            |
| 34     | 850     | Grand Ave & Elm St (Wb)               | 7.0        | 4.9               | 33.7            |
| 35     | 968     | Rio Linda Blvd & South Ave (Nb)       | 7.3        | 4.6               | 33.7            |
| 36     | 1068    | 16th St & E St (Nb)                   | 7.5        | 4.5               | 33.7            |
| 37     | 2409    | Stockton Blvd & Massie Ct 1 (Sb)      | 7.0        | 4.8               | 33.7            |
| 38     | 2282    | Fruitridge Rd & Freeport Blvd (Eb)    | 9.0        | 3.7               | 33.5            |

| Number | Stop ID | Stop Name                                | UHI Scaled | Consequence Score | Heat Risk Score |
|--------|---------|--|------------|-------------------|-----------------|
| 39     | 855     | Grand Ave & Altos Ave (Wb)               | 7.2        | 4.6               | 33.3            |
| 40     | 560     | Marysville Blvd & Los Robles Blvd 1 (Nb) | 6.4        | 5.2               | 33.3            |
| 41     | 594     | Del Paso Blvd & El Camino Ave (Sb)       | 7.3        | 4.5               | 33.0            |
| 42     | 1887    | Stockton Blvd & Eldercreek Rd (Nb)       | 7.4        | 4.4               | 32.6            |
| 43     | 593     | Del Paso Blvd & Lampasas Ave (Sb)        | 7.2        | 4.5               | 32.5            |
| 44     | 3131    | 65th St & Sky Pkwy (Eb)                  | 9.5        | 3.4               | 32.4            |
| 45     | 859     | Rio Linda Blvd & Grand Ave (Sb)          | 7.0        | 4.6               | 32.4            |
| 46     | 2597    | Franklin Blvd & Florin Rd (Nb)           | 8.4        | 3.8               | 32.2            |
| 47     | 595     | Del Paso Blvd & El Camino Ave (Sb)       | 6.6        | 4.8               | 32.2            |
| 48     | 4094    | Alta Valley Way & Mack Rd (Sb)           | 7.6        | 4.2               | 32.1            |
| 49     | 5260    | North B St & Ahern St (Wb)               | 8.6        | 3.7               | 32.0            |
| 50     | 417     | J St & 10th St (Eb)                      | 6.8        | 4.7               | 32.0            |

## Light Rail Stations

### Consequence Metrics

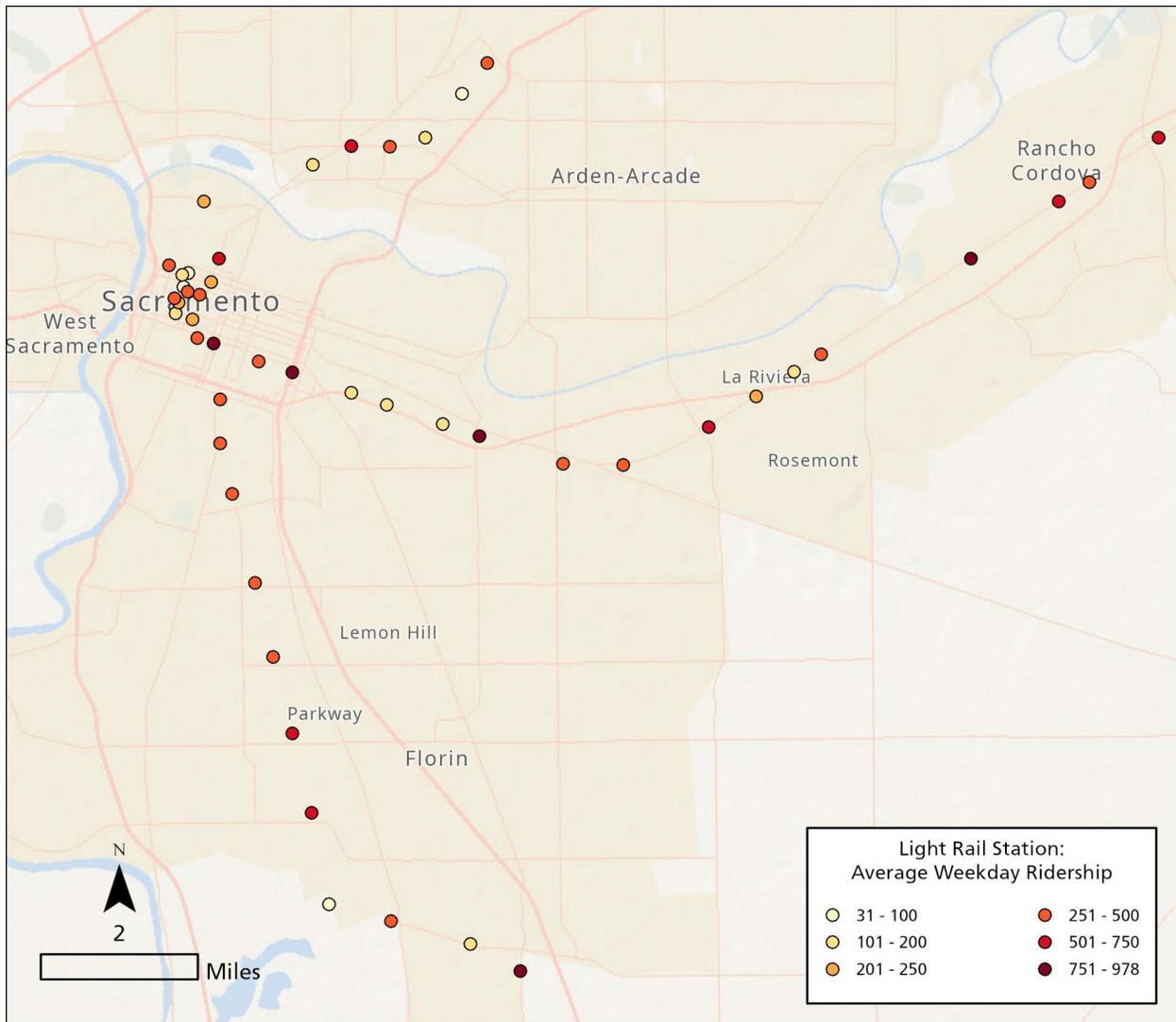
Table 17 shows the metrics, scales and weights used for calculating consequence scores for light rail stations. All metrics were given an even weight.

Table 17: Consequence score metric weights for light rail stations

| Metric  | Scale  | Weight |
|---|--|--------|
| <b>Ridership</b>                              | Average boardings normalized from 0 (lowest) to 10 (highest)                 | 25%    |
| <b>Typical Bus Bridge Time Around Station</b> | Values > 1 minute and <= 10 minutes: Remain as is<br>Values > 10 minutes: 10 | 25%    |
| <b>Nearby Critical Facilities</b>             | Within ¼ mile: 0<br>Within ½ mile: 2<br>Within ¾ mile: 5<br>Over ¾ mile: 10  | 25%    |
| <b>CalEnviroScreen Score</b>                  | All percentiles divided by 10  | 25%    |

#### *Ridership*

Average daily ridership data for light rail stations was provided by SacRT for January 2024 to September 2024. The dataset summed the average number of riders boarding at a given stop and was joined to the GIS data by a unique ID. Stops with zero ridership during the dataset period (e.g., stops that were closed due to construction work) were assigned the median value of the dataset. Map 23 shows the spatial distribution of daily ridership. The highest ridership stations are 16<sup>th</sup> St, 29<sup>th</sup> St, Mather Field/Mills, Watt/I-80, University/65<sup>th</sup> St, and Cosumnes River College (CRC).



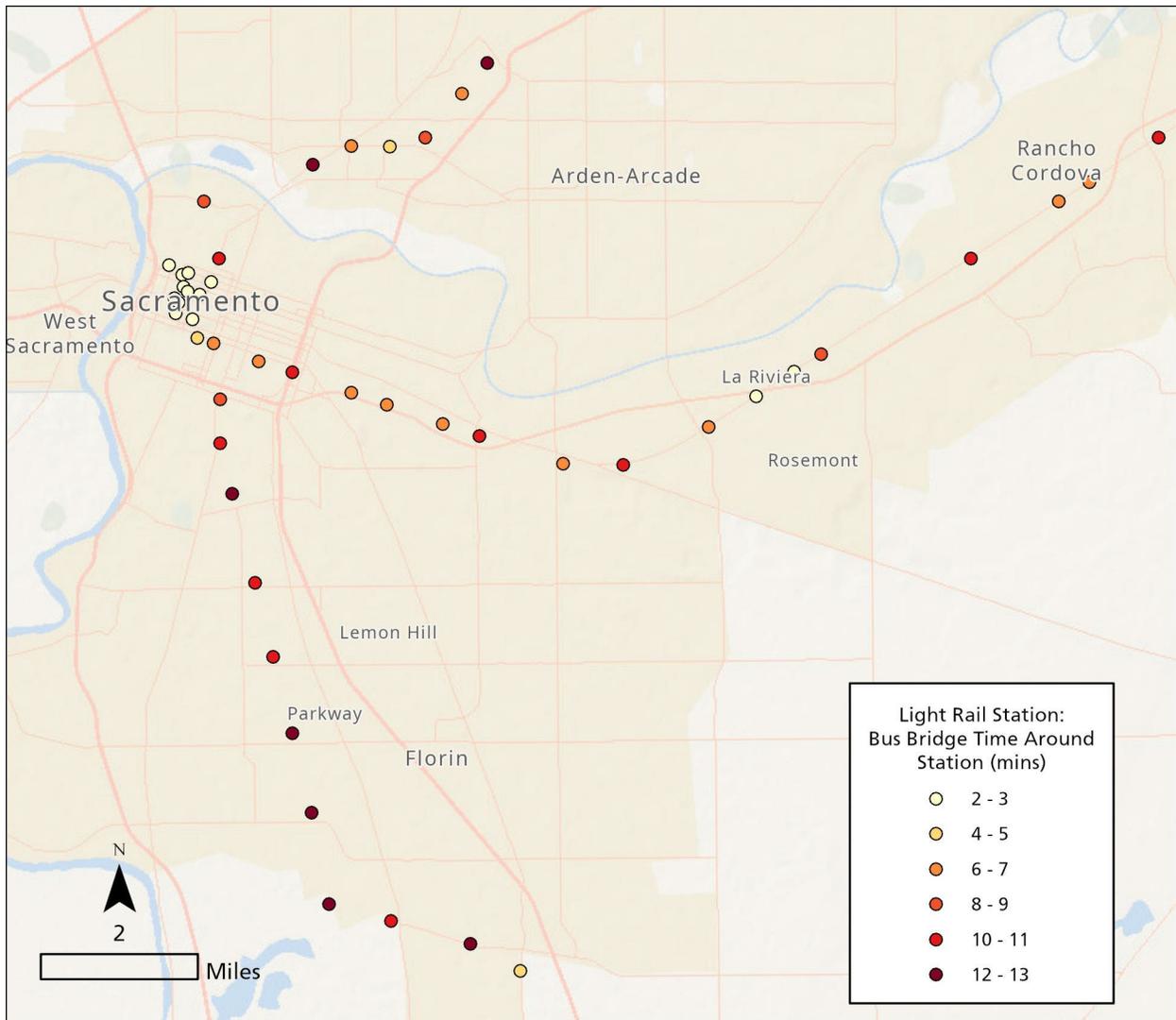
Map 23: Light Rail Station Ridership

### Typical Bus Bridge Time Around Station

Typical bus bridge time represents the estimated number of minutes required for a replacement bus service to travel around a light rail station segment if train operations are disrupted. This metric captures how quickly SacRT can maintain continuity of service during an outage and how severely a station closure may affect riders. Stations with longer bus bridge times create greater travel delays for passengers.

Map 24 shows the spatial distribution of bus bridge times across the light rail system. Shorter bus bridge times are primarily found in and around Downtown Sacramento, where the street grid is dense and offers multiple parallel routes.

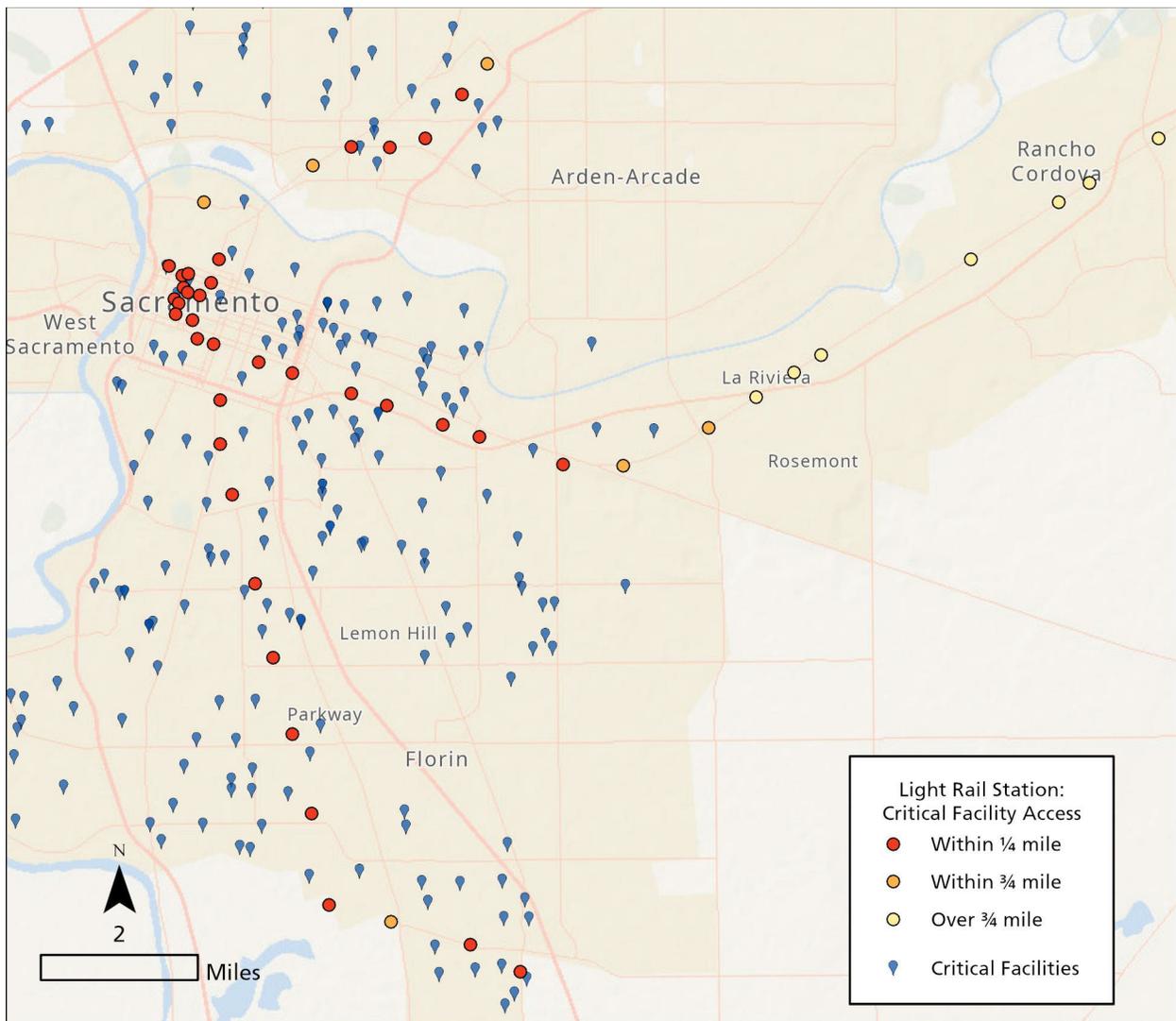
In contrast, longer bus bridge times occur on stations along the Blue and Gold Lines outside of the Downtown core, particularly in South Sacramento, Florin, and portions of Rancho Cordova. These stations pose higher operational challenges during service disruptions, as buses must travel longer distances or navigate limited detour options.



Map 24: Light Rail Stations Bus Bridge Time Around Station

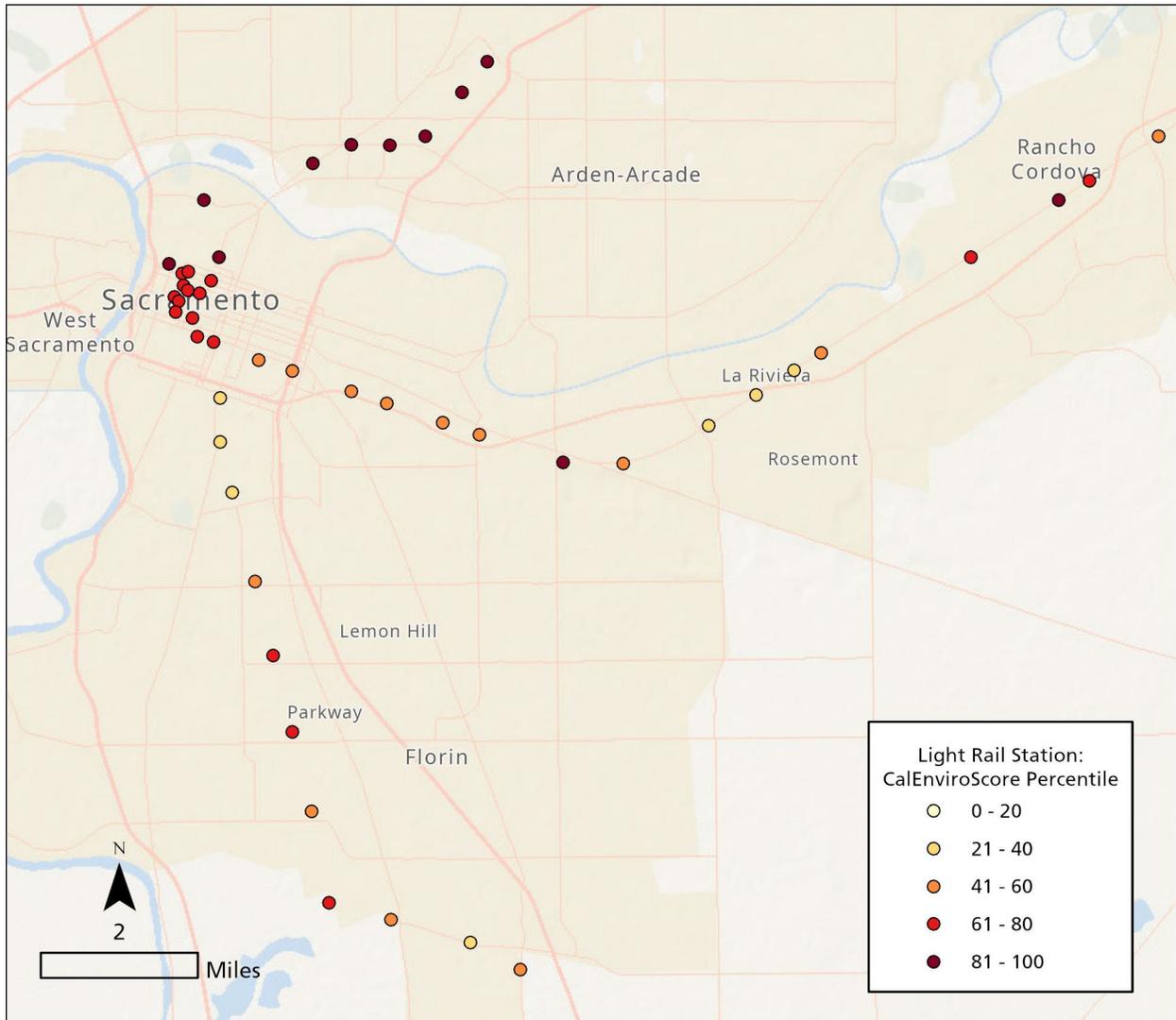
### Nearby Critical Facilities

Access to critical facilities is an important metric for understanding the community consequences of disruptions at light rail stations. Map 25 shows each light rail station categorized by its proximity to the nearest critical facility. The large majority of stations within the City of Sacramento are within ¼ mile of a critical facility. Note that critical facilities were only evaluated for the City of Sacramento, so many stations outside the City were categorized as over ¾ mile from critical facilities. However, some of these stations may be near other critical facilities that were not included in this analysis.



### CalEnviroScreen Score

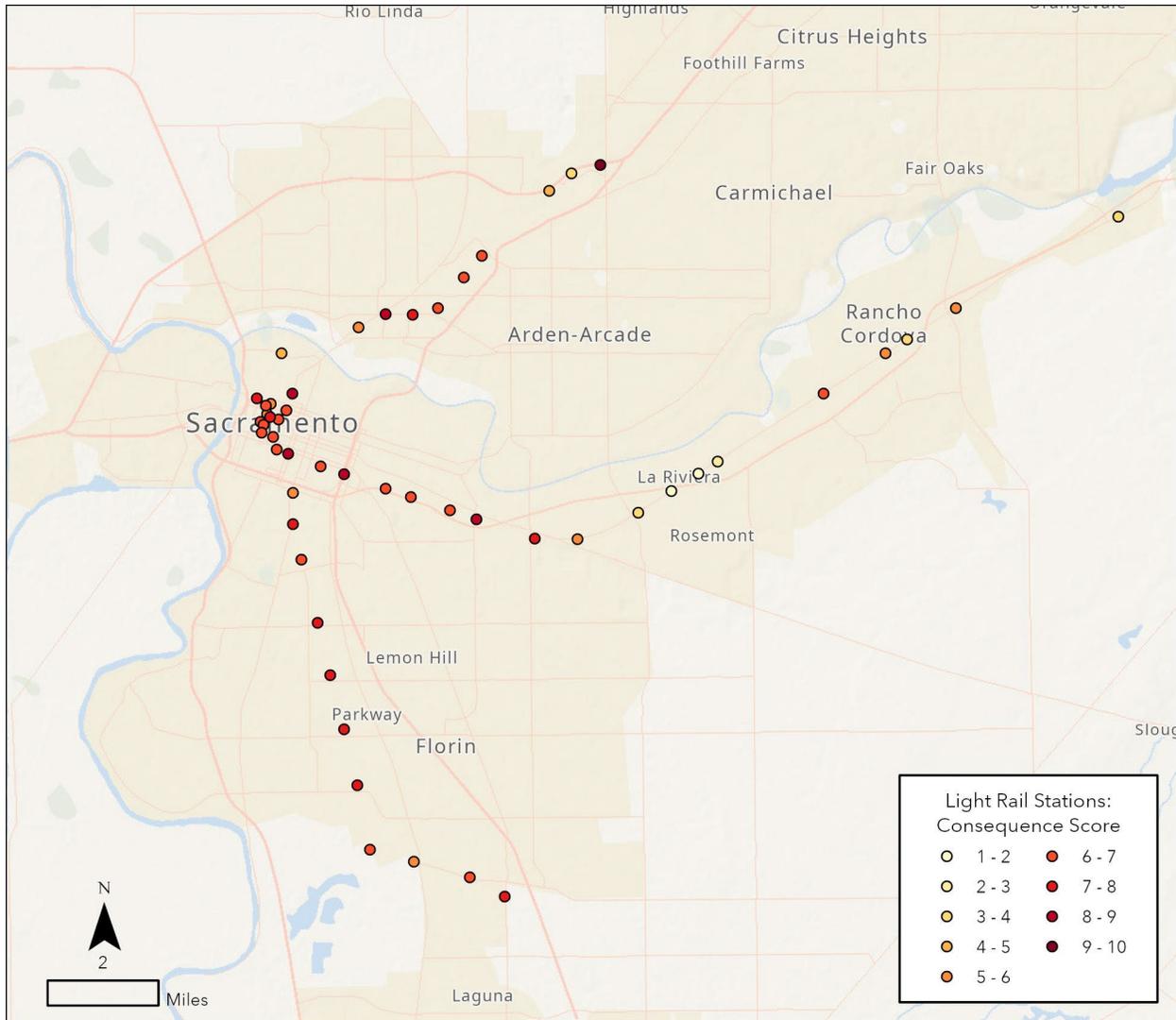
Map 26 shows the CalEnviroScreen percentiles for light rail stations across the network. Of the highest scoring stations, most are located in the Downtown area or along the Blue Line in North Sacramento, with Power Inn, Mather Field/Mills, and Zinfandel being the exceptions.



Map 26: CalEnviroScreen Percentiles for Light Rail Stations

## Consequence Scores

Map 27 illustrates the distribution of consequence scores across the light rail system, with higher scoring stations concentrated around major destinations and key transfer points. Stations with higher scores tend to serve large numbers of riders, have longer travel times between stations, provide access to critical facilities, and be located in more disadvantaged communities. The highest consequence score stations are Watt/I-80, University/65<sup>th</sup> St., 29<sup>th</sup> St., 16<sup>th</sup> St., Alkali Flat/La Valentina, and Arden/Del Paso.



Map 27: Consequence scores for light rail stations

Table 18 lists the light rail stations in descending consequence score order. 7 stations have a consequence score of 8 or greater including:

- **Watt/I-80 Station** High ridership (860), long bus bridge time around station (11 mins), within ¼ mile of a critical facility, and CalEnviroScreen percentile of 92.3
- **University/65th Street Station** High ridership (858), long bus bridge time around station (10 mins), within ¼ mile of a critical facility.
- **29th Street Station** High ridership (905), long bus bridge time around station (10 mins), within ¼ mile of a critical facility.
- **16th Street Station** Very high ridership (978), moderate bus bridge time around station (6 mins), within ¼ mile of a critical facility.
- **Alkali Flat/La Valentina Station** High ridership (557), long bus bridge time around station (11 mins), within ¼ mile of a critical facility, and CalEnviroScreen percentile of 80.4.
- **Arden/Del Paso Station** High ridership (610), moderate bus bridge time around station (6 mins), within ¼ mile of a critical facility, and CalEnviroScreen percentile of 93.5.
- **Florin Station** Moderate ridership (569), long bus bridge time around station (12 mins), within ¼ mile of a critical facility.

Table 18: Top 50 consequence scores for light rail stations

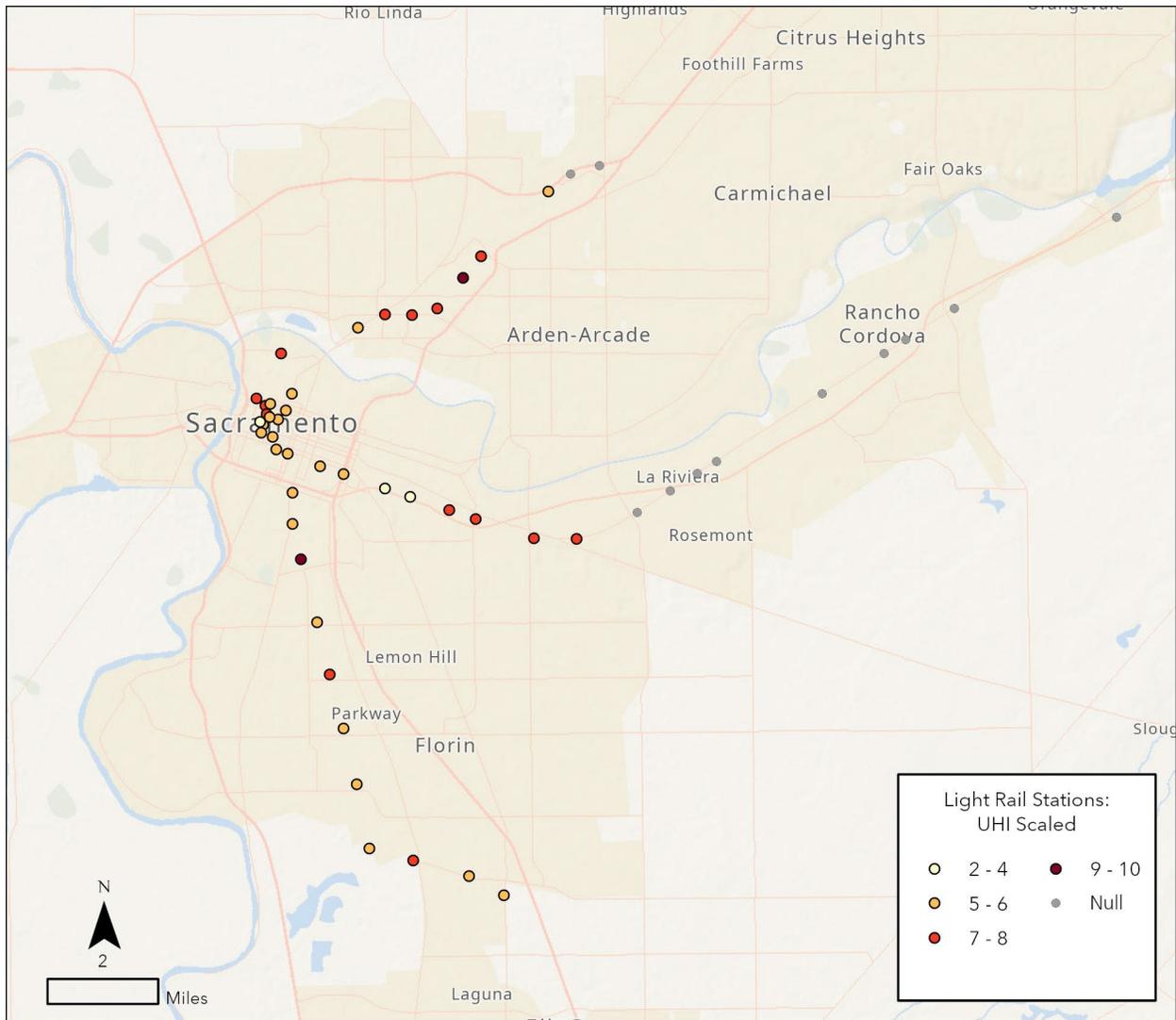
| Number | Stop Name                      | Ridership | Typical Bus Bridge Time Around Station (mins) | Access to Critical Facilities | CES Percentile | Consequence Score |
|--------|--------------------------------|-----------|---|-------------------------------|----------------|-------------------|
| 1      | Watt/I-80 Station              | 860       | 11  | Within ¼ mile                 | 92.3           | 9.5               |
| 2      | University/65th Street Station | 858       | 10  | Within ¼ mile                 | 41.1           | 8.9               |
| 3      | 29th Street Station            | 905       | 10  | Within ¼ mile                 | 59.5           | 8.9               |
| 4      | 16th Street Station            | 978       | 6   | Within ¼ mile                 | 60.6           | 8.5               |
| 5      | Alkali Flat/La Valentina Sta   | 557       | 11  | Within ¼ mile                 | 80.4           | 8.4               |
| 6      | Arden/Del Paso Station         | 610       | 6   | Within ¼ mile                 | 93.5           | 8.4               |
| 7      | Florin Station                 | 569       | 12  | Within ¼ mile                 | 61.8           | 8.0               |

|    |                                |     |    |               |      |     |
|----|--------------------------------|-----|----|---------------|------|-----|
| 8  | Meadowview Station             | 505 | 13 | Within ¼ mile | 57.1 | 7.7 |
| 9  | CRC Station                    | 809 | 4  | Within ¼ mile | 55.4 | 7.7 |
| 10 | Power Inn Station              | 360 | 6  | Within ¼ mile | 91.3 | 7.5 |
| 11 | Sacramento Valley Station      | 347 | 2  | Within ¼ mile | 98.8 | 7.4 |
| 12 | Royal Oaks Station             | 298 | 5  | Within ¼ mile | 93.5 | 7.3 |
| 13 | Fruitridge Station             | 416 | 10 | Within ¼ mile | 48.8 | 7.3 |
| 14 | 47th Avenue Station            | 286 | 10 | Within ¼ mile | 61.8 | 7.3 |
| 15 | 4th Ave/Wayne Hultgren Station | 491 | 10 | Within ¼ mile | 32.0 | 7.1 |
| 16 | St Rose Of Lima Park Station   | 429 | 2  | Within ¼ mile | 78.3 | 7.1 |
| 17 | Swanston Station               | 139 | 8  | Within ¼ mile | 93.5 | 6.9 |
| 18 | City College Station           | 444 | 12 | Within ¼ mile | 32.0 | 6.9 |
| 19 | 7th & Capitol Station          | 363 | 2  | Within ¼ mile | 78.3 | 6.9 |
| 20 | Cathedral Square Station       | 363 | 2  | Within ¼ mile | 78.3 | 6.9 |
| 21 | Mather Field/Mills Station     | 901 | 11 | No Access     | 76.8 | 6.7 |
| 22 | Morrison Creek Station         | 53  | 12 | Within ¼ mile | 61.3 | 6.7 |
| 23 | 12th & I Station               | 222 | 2  | Within ¼ mile | 78.3 | 6.5 |
| 24 | 23rd Street Station            | 271 | 7  | Within ¼ mile | 59.5 | 6.5 |
| 25 | 8th & Capitol Station          | 214 | 2  | Within ¼ mile | 78.3 | 6.5 |
| 26 | Employee Platform Station      | 84  | 6  | Within ¼ mile | 88.9 | 6.4 |
| 27 | Marconi/Arcade Station         | 453 | 12 | Within ¾ mile | 88.9 | 6.4 |
| 28 | Archives Plaza Station         | 206 | 2  | Within ¼ mile | 78.3 | 6.2 |
| 29 | 7th & I/County Center Station  | 197 | 2  | Within ¼ mile | 78.3 | 6.2 |
| 30 | 39th Street Station            | 177 | 7  | Within ¼ mile | 48.1 | 6.2 |
| 31 | 59th Street Station            | 168 | 7  | Within ¼ mile | 41.1 | 6.2 |
| 32 | 13th Street Station            | 255 | 5  | Within ¼ mile | 60.6 | 6.2 |
| 33 | 48th Street Station            | 147 | 7  | Within ¼ mile | 41.1 | 6.1 |
| 34 | Center Parkway Station         | 182 | 12 | Within ¼ mile | 25.4 | 6.1 |
| 35 | 8th & O Station                | 128 | 2  | Within ¼ mile | 78.3 | 6.0 |
| 36 | 8th & K Station                | 78  | 2  | Within ¼ mile | 78.3 | 5.9 |
| 37 | 8th & H Station                | 41  | 2  | Within ¼ mile | 78.3 | 5.8 |
| 38 | Broadway Station               | 421 | 8  | Within ¼ mile | 28.8 | 5.8 |
| 39 | Globe Avenue Station           | 145 | 13 | Within ¾ mile | 93.5 | 5.7 |
| 40 | College Greens Station         | 425 | 10 | Within ¾ mile | 48.7 | 5.3 |
| 41 | Zinfandel Station              | 610 | 6  | No Access     | 91.8 | 5.1 |
| 42 | Sunrise Station                | 525 | 10 | No Access     | 49.9 | 5.1 |

|    |                             |     |    |               |      |     |
|----|-----------------------------|-----|----|---------------|------|-----|
| 43 | Franklin Station            | 275 | 11 | Within ¼ mile | 53.8 | 5.0 |
| 44 | Township 9 Station          | 201 | 8  | Within ¼ mile | 98.8 | 4.7 |
| 45 | Roseville Road Station      | 213 | 8  | No Access     | 92.3 | 4.1 |
| 46 | Hazel Station               | 95  | 10 | No Access     | 49.9 | 4.0 |
| 47 | Watt/Manlove Station        | 570 | 6  | Within ¼ mile | 35.7 | 3.9 |
| 48 | Cordova Town Center Station | 311 | 6  | No Access     | 74.6 | 3.7 |
| 49 | Watt/I-80 West Station      | 31  | 3  | No Access     | 92.3 | 3.1 |
| 50 | Iron Point Station          | 518 | 8  | No Access     | 17.7 | 2.8 |
| 51 | Glenn Station               | 305 | 6  | No Access     | 17.7 | 2.0 |
| 52 | Historic Folsom Station     | 305 | 2  | No Access     | 26.2 | 1.9 |
| 53 | Starfire Station            | 204 | 3  | No Access     | 35.7 | 1.9 |
| 54 | Tiber Station               | 185 | 3  | No Access     | 21.2 | 1.5 |

## Likelihood and Risk

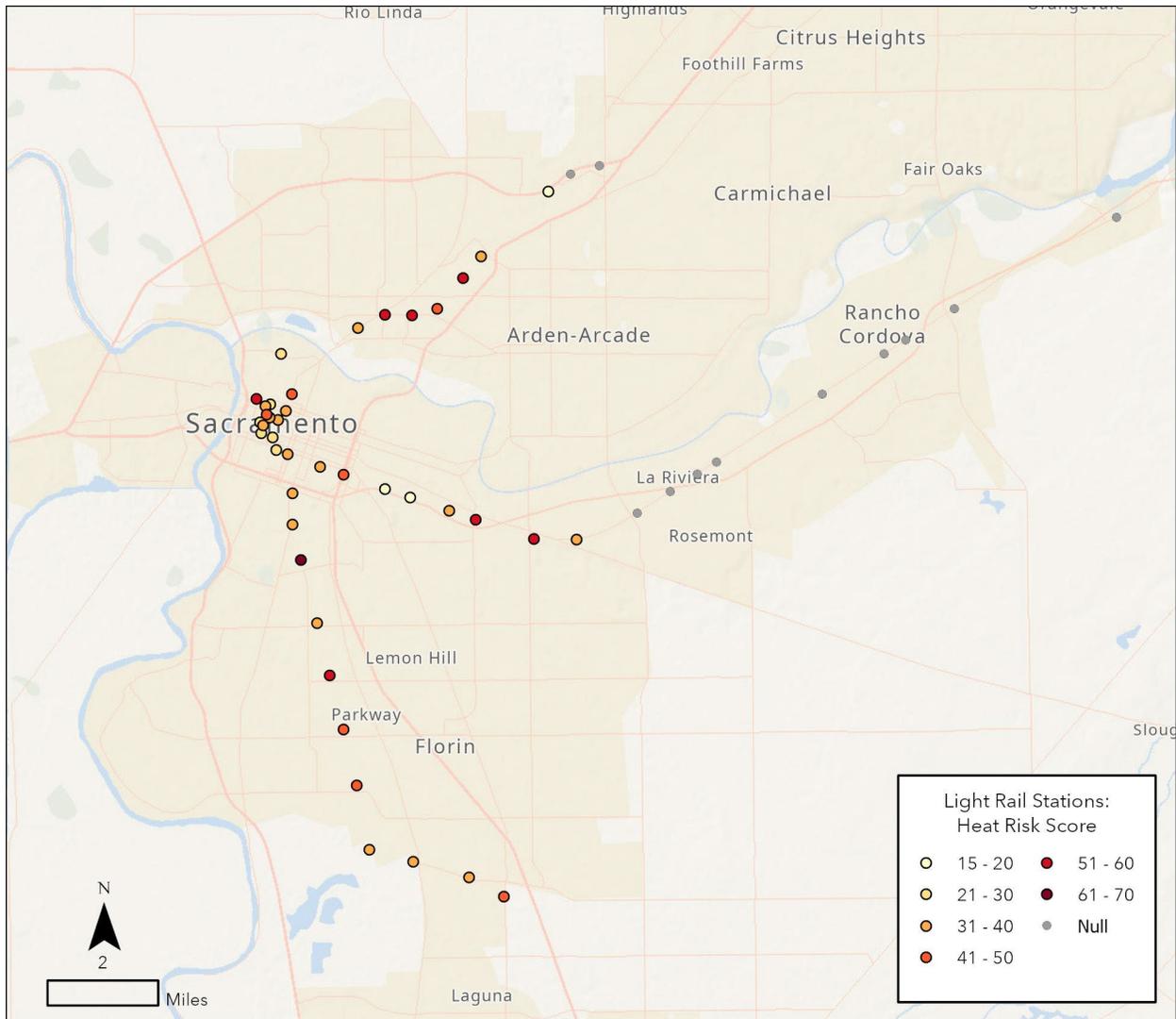
Map 28 shows scaled UHI intensities for light rail stations. City College Station has the highest UHI value in the network. The downtown area contains a cluster of stations with elevated UHI values, reflecting the densely built environment. The UHI data used in this analysis covered the City of Sacramento, so stations outside the city boundary are shown as nulls on the map.



Map 28: Scaled Urban Heat Island scores for light rail stations within Sacramento

Map 29 shows heat risk scores – the product of scaled UHI intensity and consequence score – for light rail stations. The highest-scoring light rail stations by heat risk are listed in Table 19. The rest of the stations fall outside the boundaries of the UHI data and therefore do not have heat risk scores.

The stations with the highest heat risk scores include City College, Watt/I-80, University/65<sup>th</sup> St., and Royal Oaks. These stations all have relatively high UHI indexes and consequence scores.



Map 29: Heat risk score for light rail stations within Sacramento

Table 19: Light rail stations by descending heat risk scores

| Number | Stop Name                      | UHI Scaled | Consequence Score | Heat Risk Score |
|--------|--------------------------------|------------|-------------------|-----------------|
| 1      | City College Station           | 8.9        | 6.9               | 61.9            |
| 2      | University/65th Street Station | 6.6        | 8.9               | 59.2            |
| 3      | Royal Oaks Station             | 7.9        | 7.3               | 57.8            |
| 4      | Employee Platform Station      | 8.7        | 6.4               | 56.0            |
| 5      | Sacramento Valley Station      | 7.1        | 7.4               | 52.3            |
| 6      | Power Inn Station              | 7.0        | 7.5               | 52.0            |
| 7      | Arden/Del Paso Station         | 6.1        | 8.4               | 51.1            |
| 8      | 47th Avenue Station            | 6.9        | 7.3               | 50.4            |
| 9      | Florin Station                 | 5.8        | 8.0               | 46.0            |
| 10     | 29th Street Station            | 5.1        | 8.9               | 45.4            |
| 11     | Meadowview Station             | 5.8        | 7.7               | 44.8            |
| 12     | CRC Station                    | 5.8        | 7.7               | 44.5            |
| 13     | 8th & K Station                | 7.5        | 5.9               | 44.2            |
| 14     | Alkali Flat/La Valentina Sta   | 5.1        | 8.4               | 42.8            |
| 15     | Swanston Station               | 6.1        | 6.9               | 42.0            |
| 16     | Fruitridge Station             | 5.4        | 7.3               | 39.7            |
| 17     | 4th Ave/Wayne Hultgren Station | 5.6        | 7.1               | 39.2            |
| 18     | 7th & I/County Center Station  | 6.3        | 6.2               | 39.2            |
| 19     | Marconi/Arcade Station         | 6.1        | 6.4               | 39.0            |
| 20     | 23rd Street Station            | 5.9        | 6.5               | 38.6            |
| 21     | Cathedral Square Station       | 5.6        | 6.9               | 38.3            |
| 22     | 59th Street Station            | 6.1        | 6.2               | 37.6            |
| 23     | 16th Street Station            | 4.3        | 8.5               | 36.6            |
| 24     | St Rose Of Lima Park Station   | 4.9        | 7.1               | 34.6            |
| 25     | College Greens Station         | 6.4        | 5.3               | 34.1            |
| 26     | Globe Avenue Station           | 5.9        | 5.7               | 33.8            |
| 27     | 8th & Capitol Station          | 5.2        | 6.5               | 33.7            |
| 28     | Morrison Creek Station         | 5.0        | 6.7               | 33.6            |
| 29     | Center Parkway Station         | 5.5        | 6.1               | 33.4            |
| 30     | 12th & I Station               | 5.0        | 6.5               | 32.8            |
| 31     | Franklin Station               | 6.1        | 5.0               | 30.9            |
| 32     | Broadway Station               | 5.3        | 5.8               | 30.8            |
| 33     | Archives Plaza Station         | 4.8        | 6.2               | 29.8            |
| 34     | Township 9 Station             | 6.1        | 4.7               | 29.0            |
| 35     | 8th & O Station                | 4.5        | 6.0               | 27.0            |
| 36     | 7th & Capitol Station          | 3.7        | 6.9               | 25.5            |
| 37     | 13th Street Station            | 4.1        | 6.2               | 25.2            |
| 38     | 8th & H Station                | 4.2        | 5.8               | 24.3            |
| 39     | 48th Street Station            | 3.2        | 6.1               | 19.6            |
| 40     | Roseville Road Station         | 4.4        | 4.1               | 18.2            |
| 41     | 39th Street Station            | 2.4        | 6.2               | 14.7            |

## Traffic Signals

### Consequence Metrics

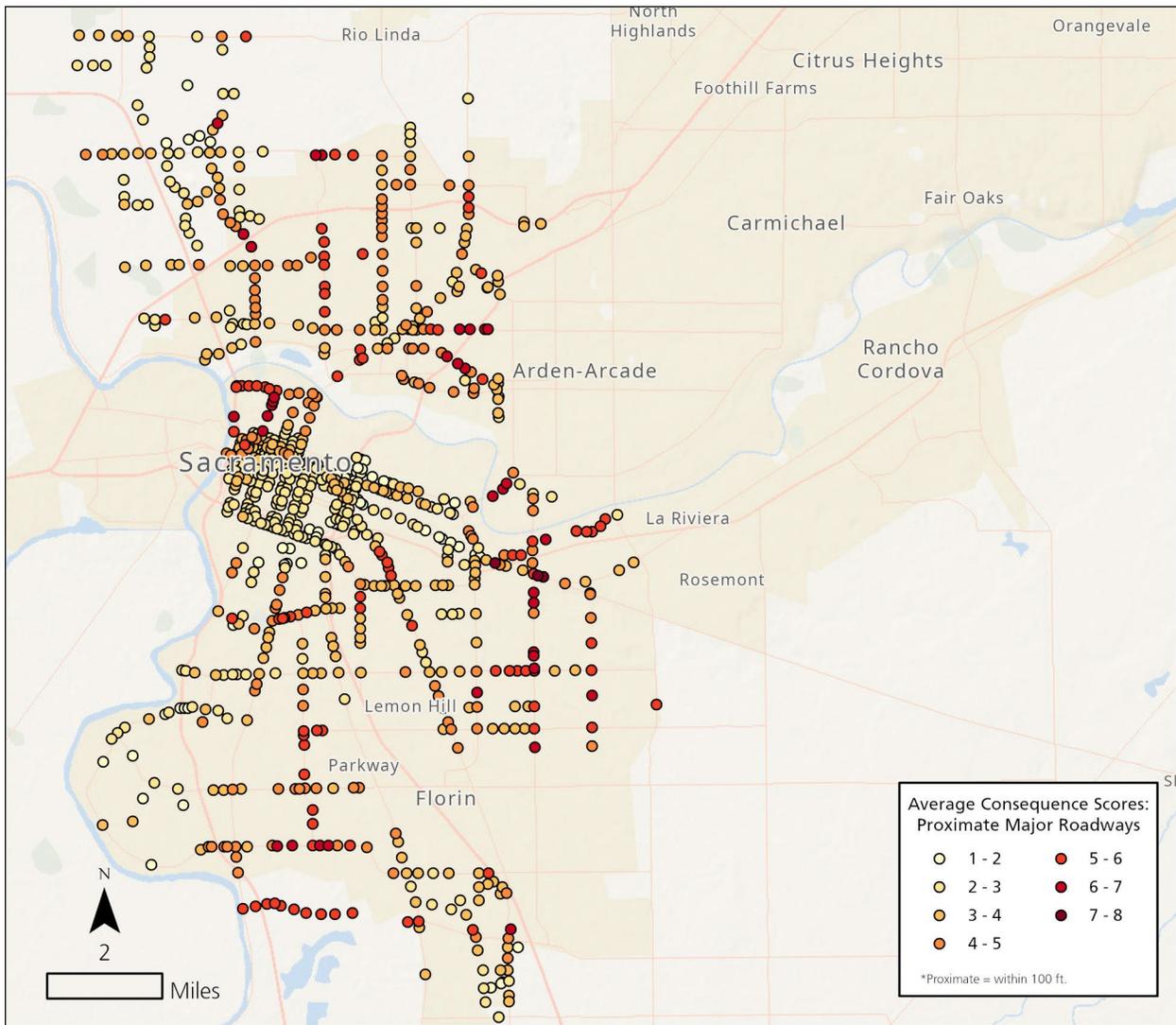
Table 20 shows the metrics, scales, and weights used for calculating consequence scores for light rail stations. Traffic signals inherit most of their consequence scores from the roads at their intersections, with smaller portions coming from the count of roads at the intersection, and whether they serve as light rail signals.

*Table 20: Consequence score metric weights for traffic signals*

| Metric   | Scale   | Weight |
|--|---|--------|
| <b>Average Consequence Score of Nearby Major Roads</b> | Average consequence score from segmented arterials and collectors within 100 ft.  | 50%    |
| <b>Count of Nearby Roads</b>                           | Count of highways, arterials, collectors, and ramps within 100 ft.<br>5+ nearby segments: 10<br>4 nearby segments: 8<br>3 nearby segments: 6<br>2 nearby segments: 4<br>1 nearby segment: 2<br>0 nearby segments: 0 | 25%    |
| <b>Rail or On/Off Ramp Signal</b>                      | “Yes”: 10<br>“No”: 0  | 25%    |

### Average Consequence Score from Major Roadways

The average consequence score of major roadway segments located within 100 feet of each traffic signal was assigned to the corresponding signal. If no nearby segment data were available, the signal received a score of 0 for this metric. By using the consequence scores of nearby arterial and collector segments, we can better understand the potential impact of signal disruption within the broader transportation network. Signals located along high-consequence roads, like those serving critical facilities, high traffic volumes, or vulnerable communities are more essential to maintaining network performance and access. Map 30 shows the spatial distribution of these signals.

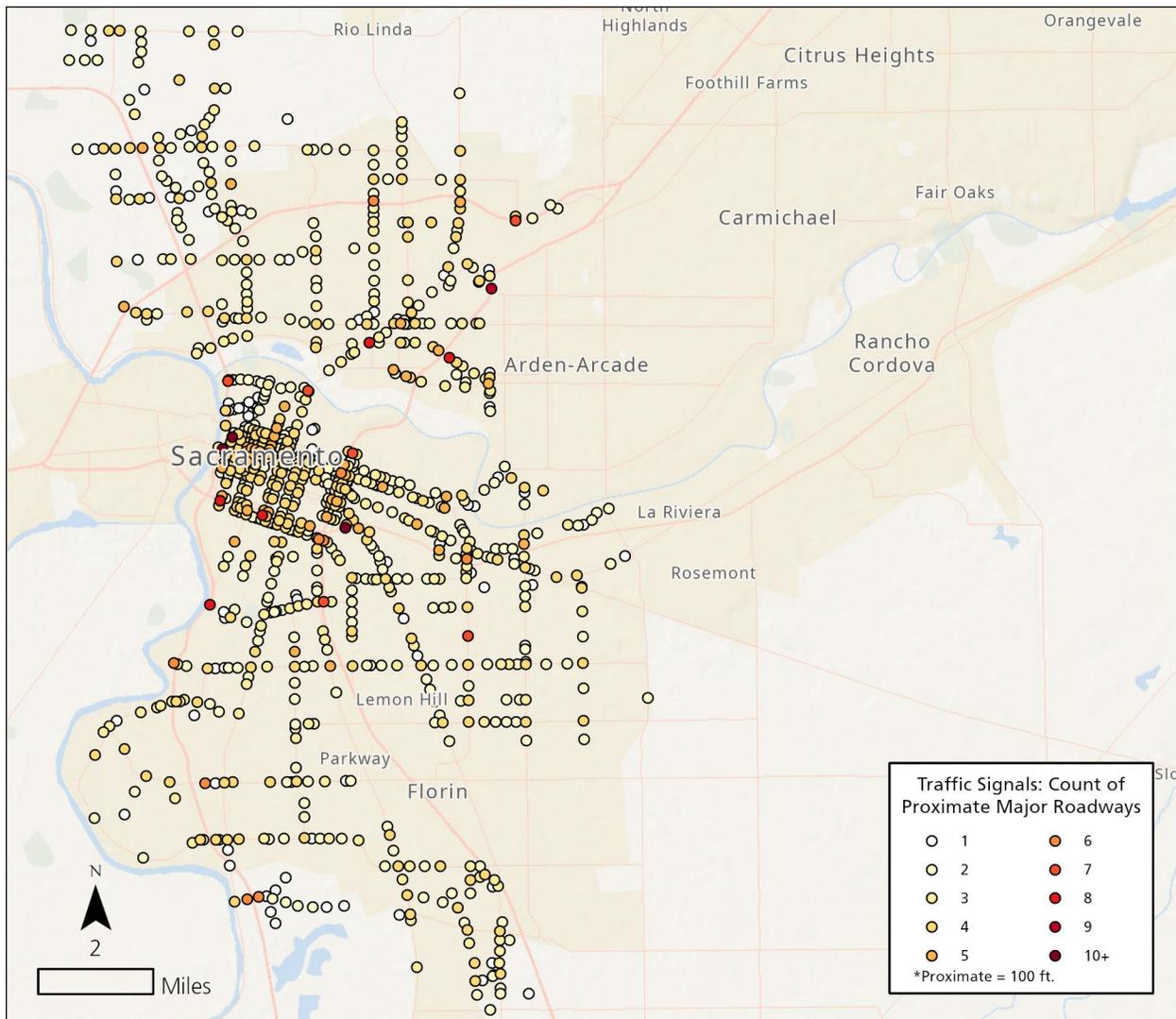


Map 30: Traffic signals by average consequence score from major roadways within 100 ft.

### Count of arterials, collectors, ramps, and highways

The number of arterial, collector, ramp, and highway roadway segments located within 100 feet was counted for each signal (see Map 31). Signals with higher counts serve larger portions of the transportation network and may have greater impacts on system performance if disrupted. To align this metric with others in the analysis, the following scoring scale was applied to the counts:

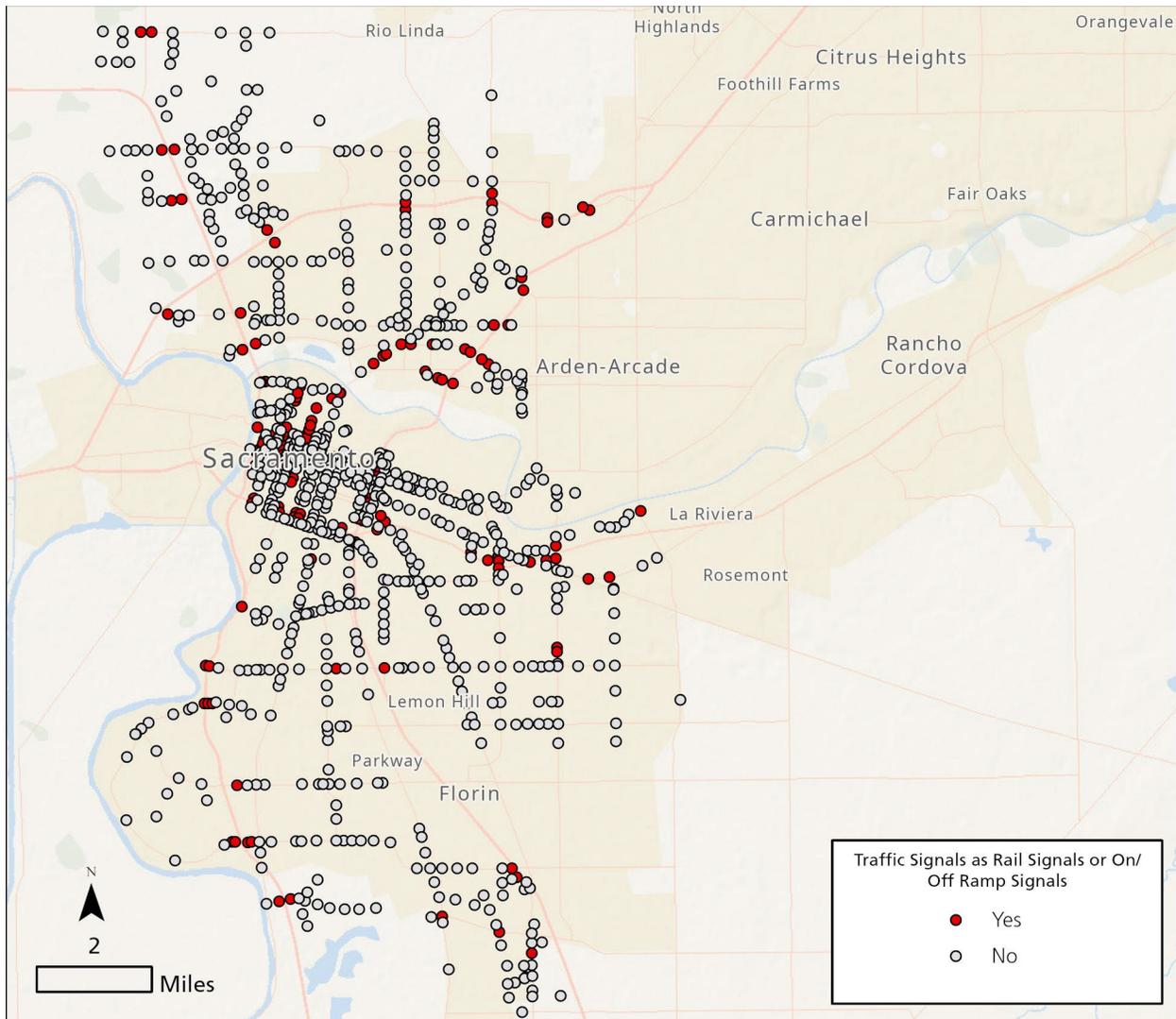
- Traffic signals with a count of 0 received a score of 0
- Traffic signals with a count of 1 received a score of 2.5
- Traffic signals with a count of 2 received a score of 5
- Traffic signals with a count of 3 received a score of 7.5
- Traffic signals with a count of 4 or more received a score of 10



Map 31: Traffic signals by count of major roads within 100ft of each traffic signal

### Rail or Ramp Signal

Rail and ramp signals represent specialized traffic control devices that manage high-priority or high-risk movements, making them uniquely important within the signalized network. These devices regulate vehicle flow at railroad crossings, light-rail interfaces, and freeway on-ramps, where failures can create disproportionate safety and operational impacts. Map 32 shows where these key traffic signals are.



Map 32: Traffic signals that serve as rail signals or on/off ramp signals

### Condition Scoring

In addition to the general traffic signals asset class, the following sub-asset traffic signal components were analyzed:

- Cabinets

- Controllers
- Detection devices
- Hardware

While each of these sub-assets inherits their consequence scores from the traffic signals asset class, a subset of traffic signal sub-assets that are considered near or at “End of Life” (EOL) were analyzed based on metrics about their condition.

### Cabinet EOL Indicator

The Cabinet EOL indicator was based on one metric, shown in Table 21.

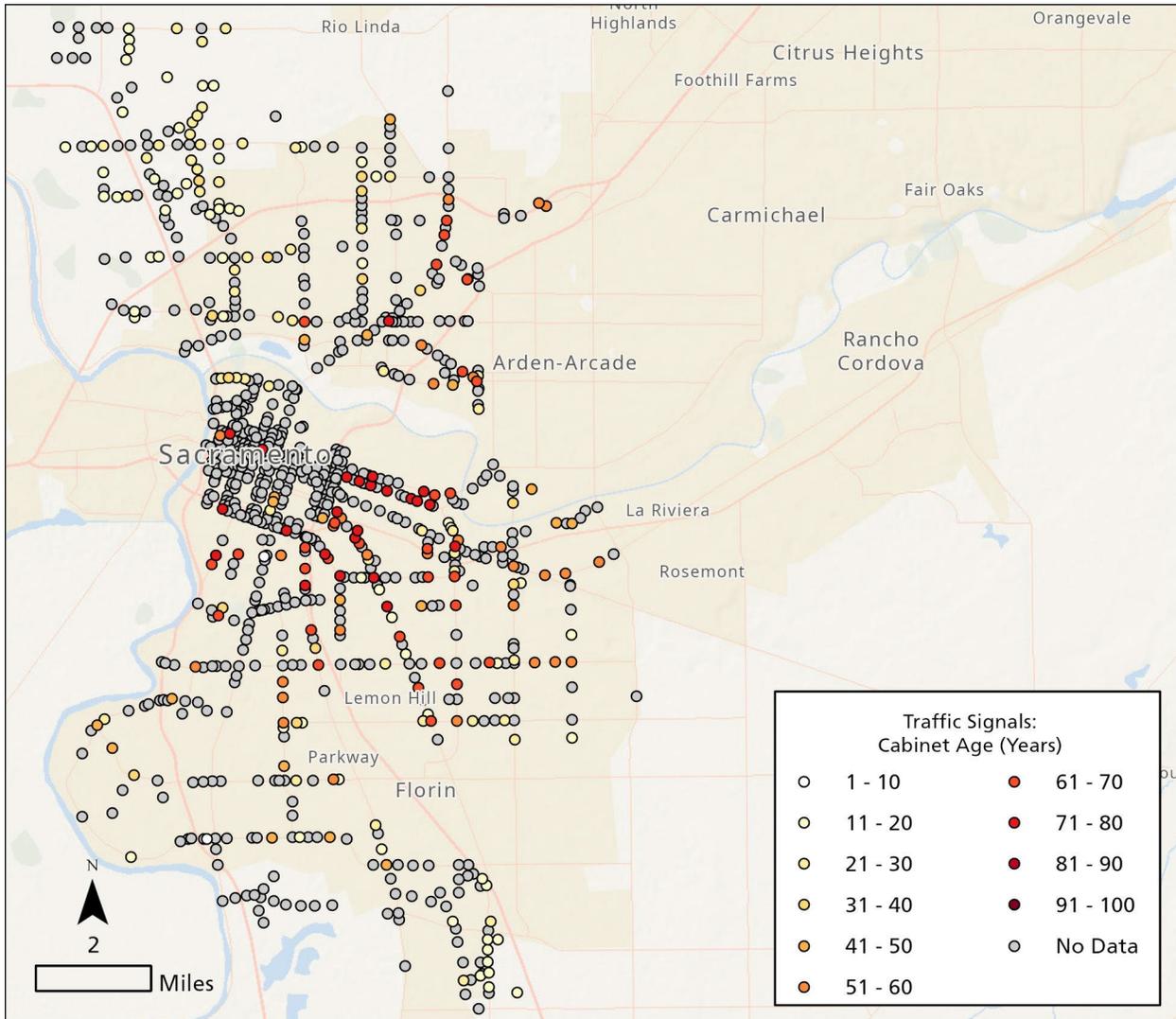
*Table 21: EOL metric for traffic signal cabinets*

| Metric                | Scale                        | Weight |
|-----------------------|------------------------------|--------|
| <b>Age of Cabinet</b> | Min-Max scaling from 0 to 10 | 100%   |

#### *Age of Cabinet*

Older cabinets are higher priority than newer cabinets. The age of each cabinet was calculated based on its approximate activation date. This age was then normalized from 0 to 10. Most EOL traffic signal cabinets are between 15 and 25 years old.

Map 33 shows the oldest traffic signals along J Street and Stockton Boulevard to the east of downtown. “No Data” refers to cabinets that are not considered EOL.



Map 33: Traffic signals by age of cabinet

Controller EOL Indicator

The Controller EOL indicator utilized the following metric, shown in Table 22

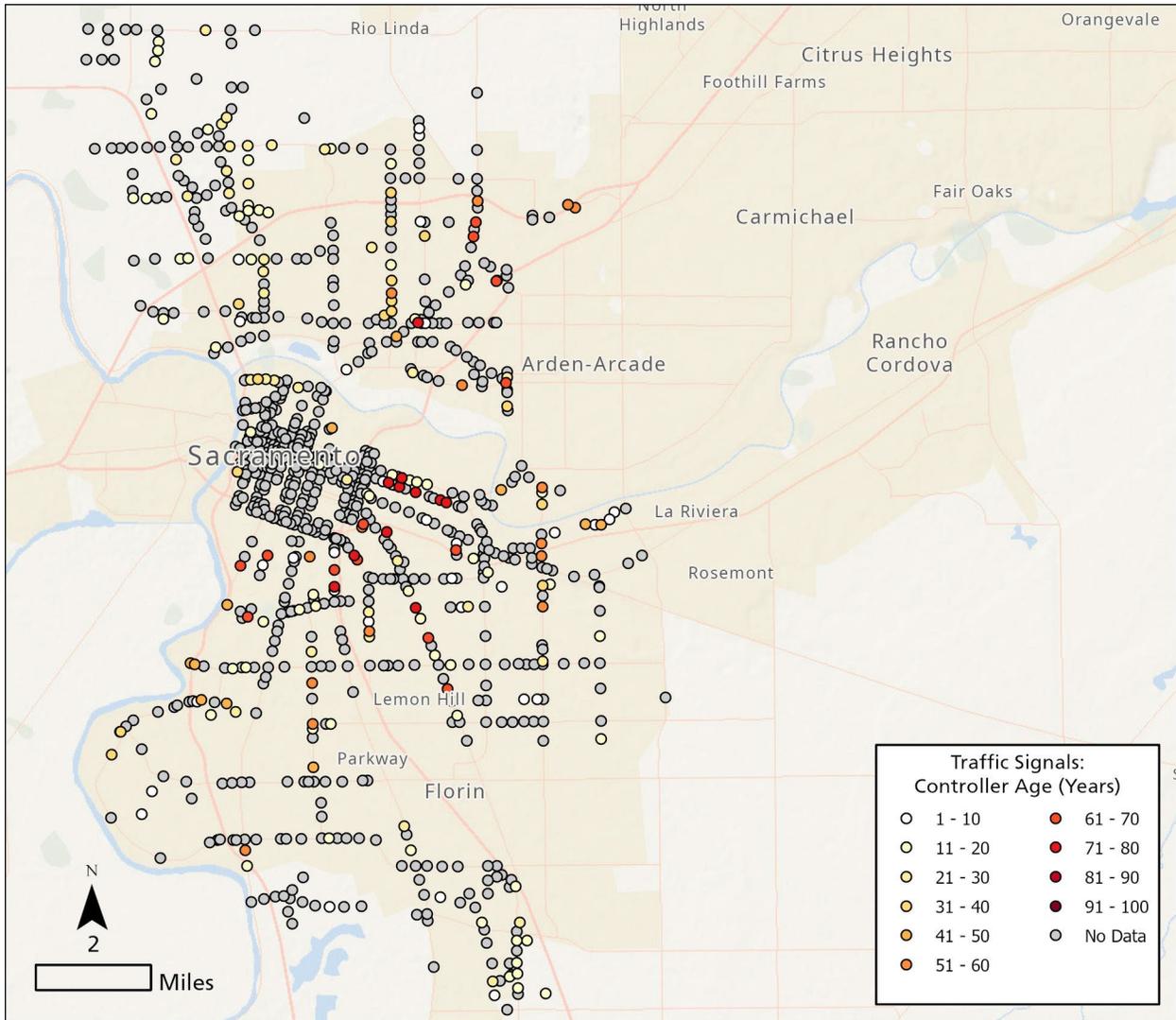
Table 22: EOL metric for traffic signal controllers

| Metric            | Scale                        | Weight |
|-------------------|------------------------------|--------|
| Age of Controller | Min-Max scaling from 0 to 10 | 100%   |

*Age of Controller*

Similarly to the age of cabinets, the age of each traffic signal controller was based on the activation date. The values were then normalized from 0 to 10. Most controllers are under 20 years. The oldest controllers have ages of around 70 years.

Map 34 shows the spatial distribution of EOL traffic signal controller ages across Sacramento.



Map 34: Traffic signals by controller age

## Detection Device EOL Indicator

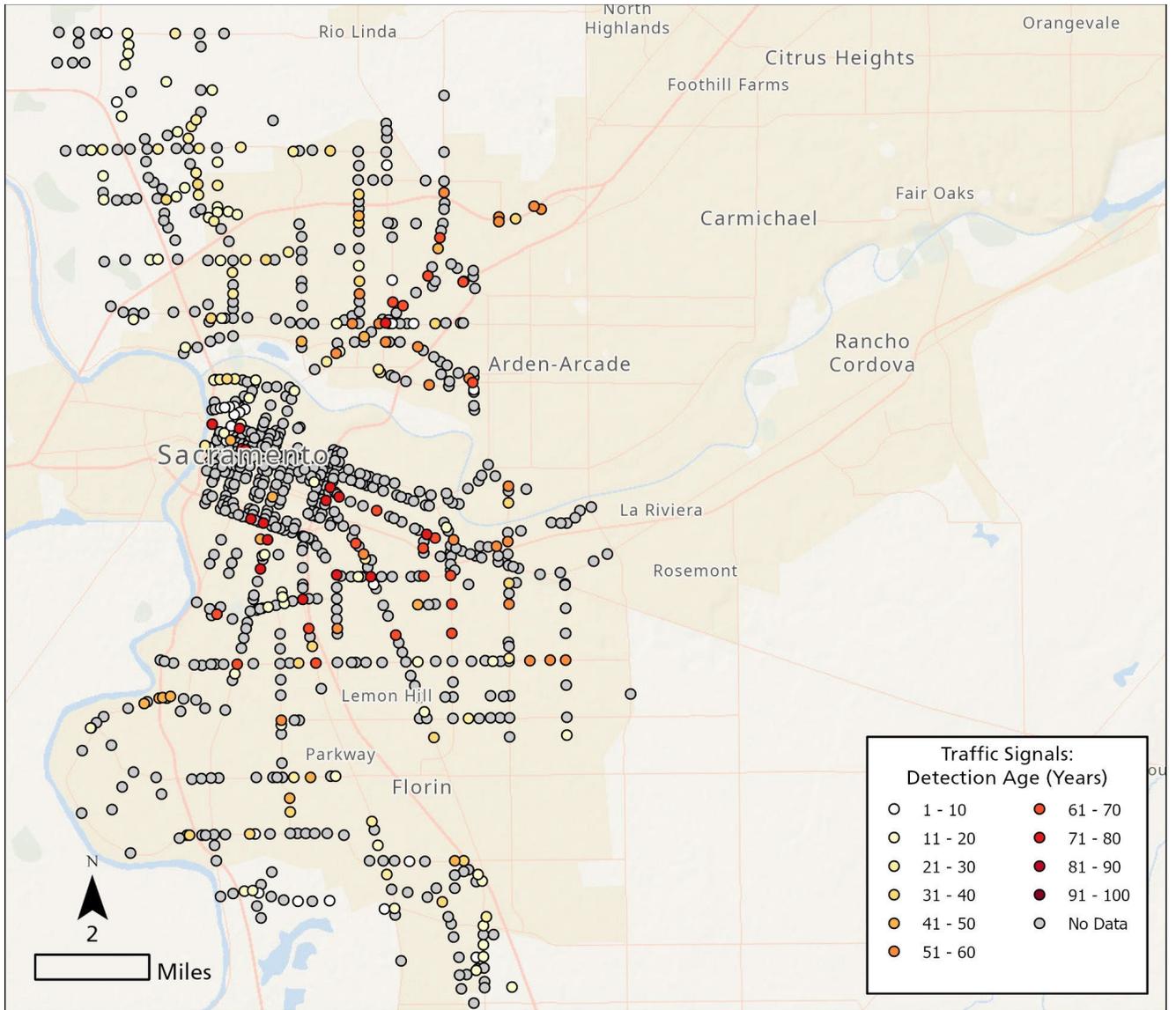
The Detection Device EOL indicator utilized two metrics, shown in Table 23.

*Table 23: EOL metrics for traffic signal detection devices*

| Metric                    | Scale                                     | Weight |
|---------------------------|---|--------|
| <b>Age of Controller</b>  | Min-Max scaling from 0 to 10              | 50%    |
| <b>Loops in Detection</b> | 1 or More Loops: 10<br>0 Loops or Null: 0 | 50%    |

### *Age of Detection Device*

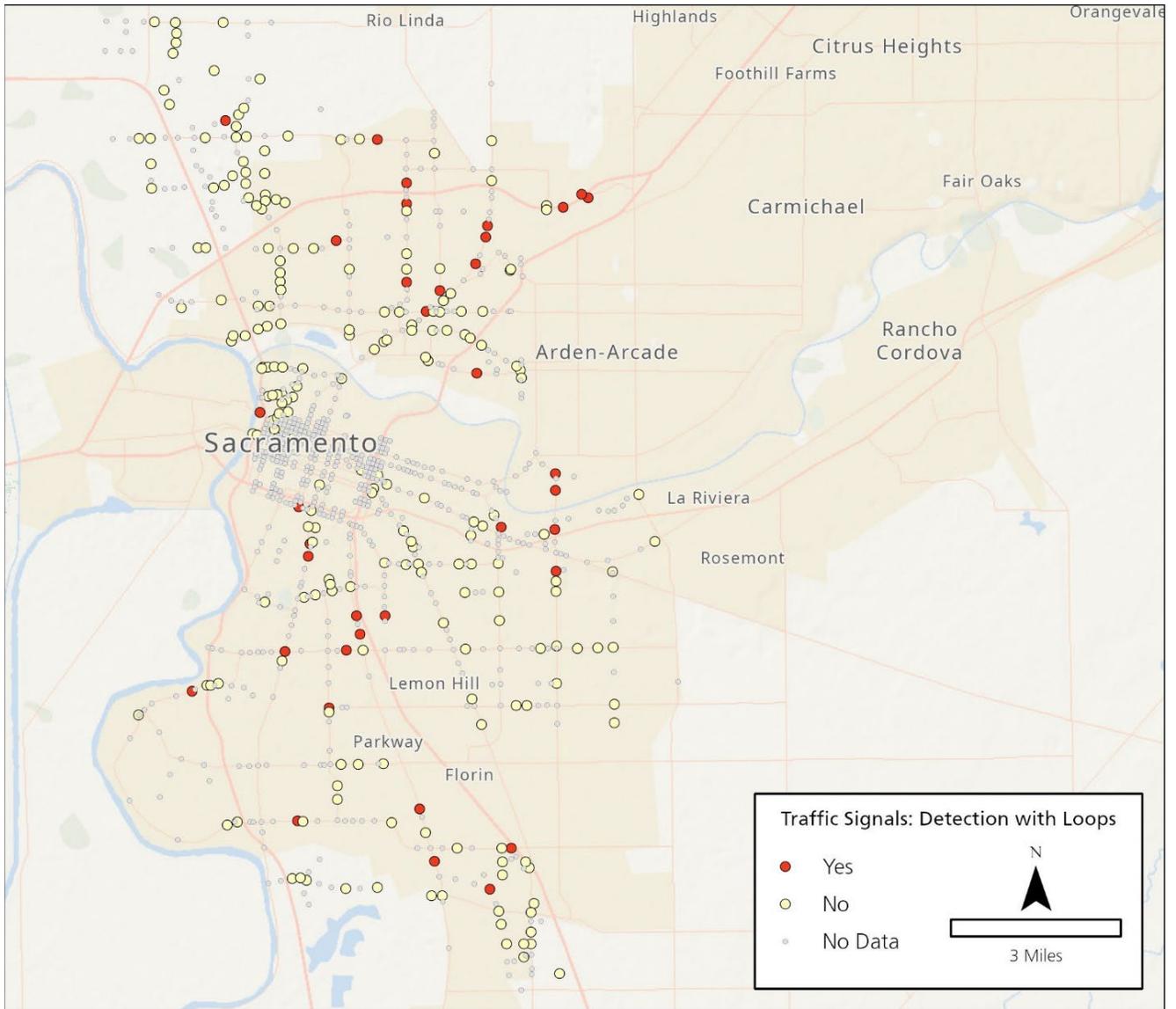
The age of each EOL traffic signal detection device was calculated based on the general activation date, and then normalized from 0 to 10. The results are found in Map 35.



Map 35: Traffic signals by signal detection device age

### Loops in Detection Type Stop Bars

All EOL traffic signals with loop detection devices (i.e., traffic sensors embedded into the pavement of intersections) received a scaled value of 10. This is because loops are more susceptible to pavement deformations in high heat. If no loop was present or data was unavailable, the traffic signal instead received a score of 0. The results of this are shown in Map 36.



Map 36: Traffic signals with loop detection devices

## Hardware EOL Indicator

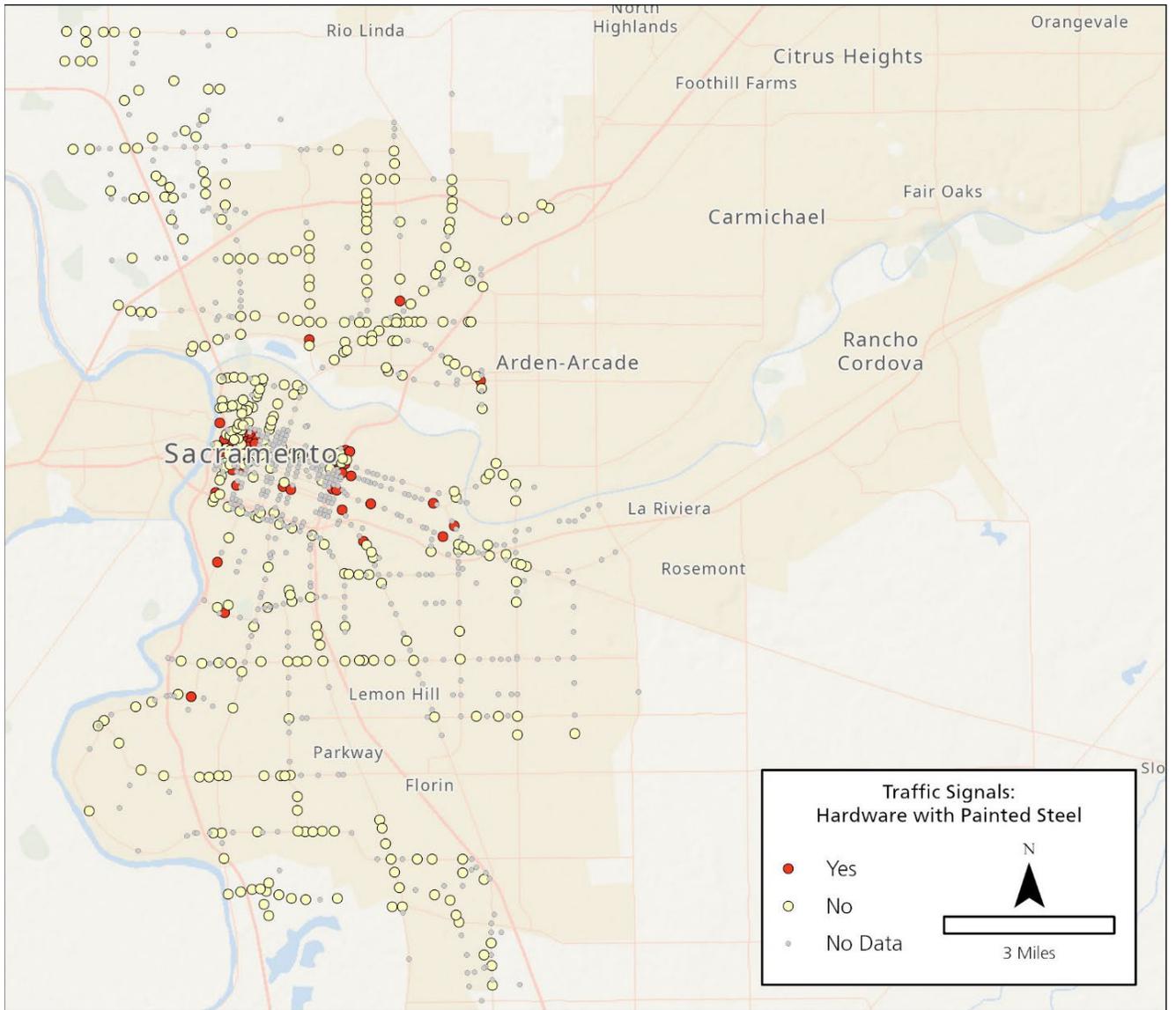
The Hardware EOL indicator utilized one metric shown in Table 24.

Table 24: EOL metric for traffic signal hardware devices

| Metric               | Scale   | Weight |
|----------------------|---|--------|
| <b>Painted Steel</b> | Devices Use Painted Steel: 10<br>Devices Use No Painted Steel:<br>0 | 100%   |

### *Hardware Devices with Painted Steel*

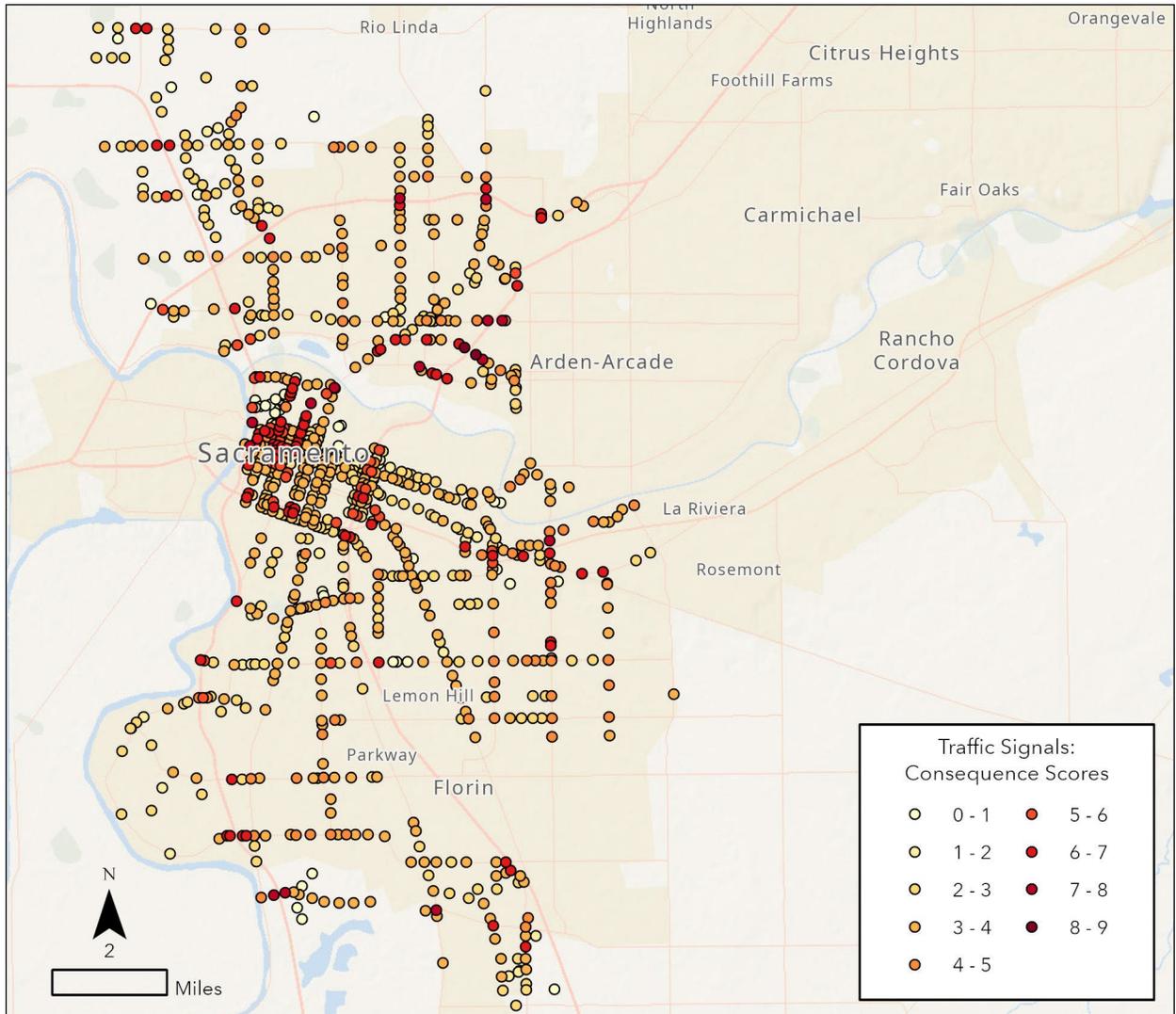
Traffic signal hardware with painted steel is prone to peeling, thus exposing the hardware to potential corrosion and increasing its chances of failure. If traffic signals contained hardware devices with painted signal poles, it was given a score of 10. If no painted steel was present the signal instead received a score of 0. Only 50 EOL traffic signals have their hardware devices painted with steel found on Map 37.



Map 37: Traffic signals with painted steel hardware

## Consequence Scores

Map 38 spatially displays the consequence scores for traffic signals. The signals with the highest consequence scores are along light rail lines. The nine highest consequence traffic signals are in or near Downtown, along Arden Way, and along or near Cosumnes River Boulevard.



Map 38: Consequence scores for traffic signals

The top 50 traffic signals can be found in descending order of consequence scores in Table 25.

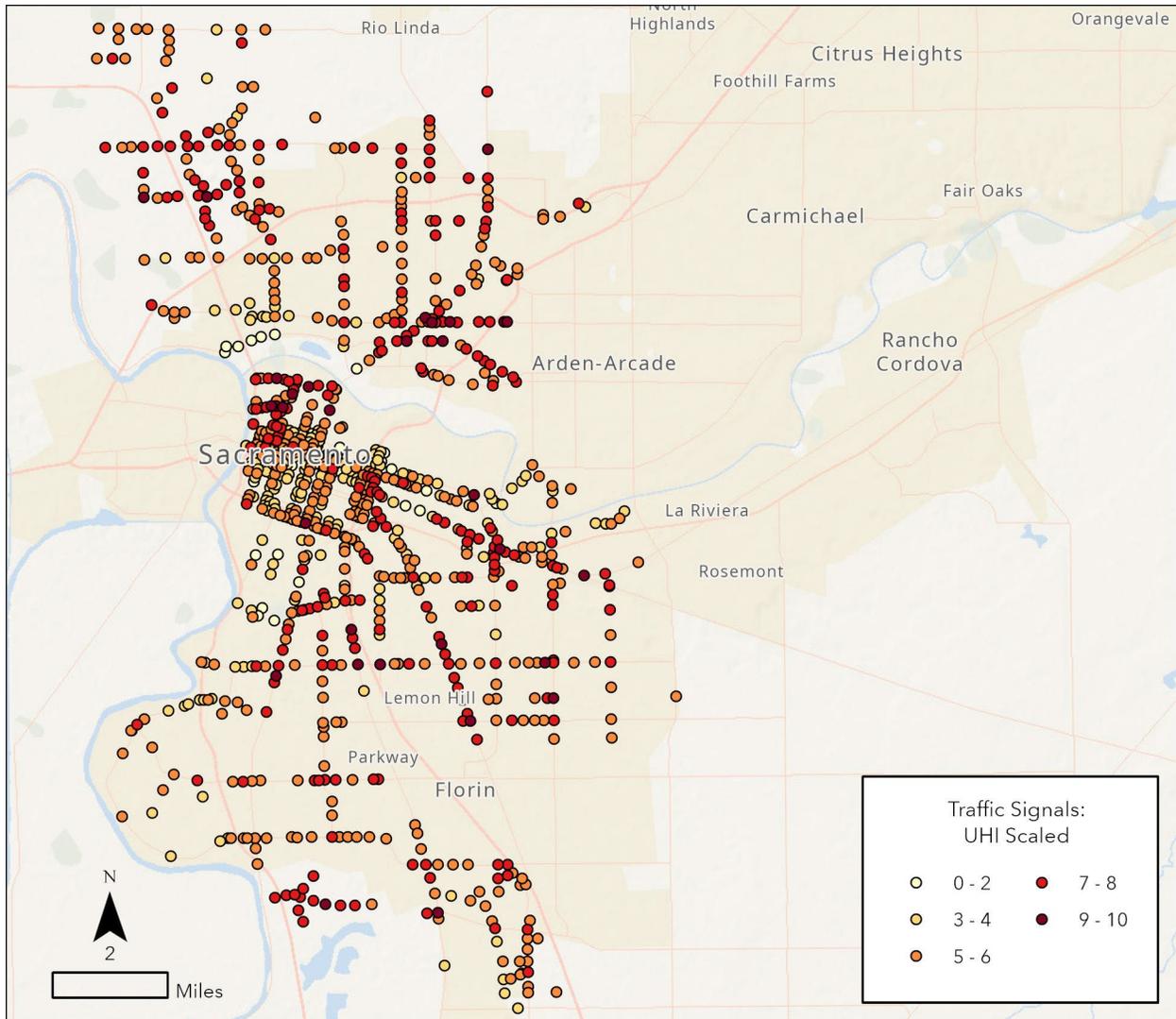
Table 25: Top 50 consequence scores for traffic signals

| Number | Asset (WSPID) | Location                                   | Avg Consequence from nearby major roads | Count of nearby major roads | Is Rail or On/Off Ramp Signal | Consequence Score |
|--------|---------------|--|---|-----------------------------|-------------------------------|-------------------|
| 1      | 443           | Arden Wy & Bus-80 EB                       | 6.3                                     | 8                           | Yes                           | 8.2               |
| 2      | 442           | Arden Wy & Bus-80 WB                       | 6.3                                     | 5                           | Yes                           | 8.2               |
| 3      | 333           | Raley Bl & I-80 E/B                        | 5.9                                     | 5                           | Yes                           | 7.9               |
| 4      | 822           | Cosumnes River Bl & 5 NB off Ramp          | 5.8                                     | 6                           | Yes                           | 7.9               |
| 5      | 821           | Cosumnes River Bl & 5 SB off Ramp          | 5.8                                     | 6                           | Yes                           | 7.9               |
| 6      | 642           | Arden Way And Sears Driveway               | 6.3                                     | 4                           | Yes                           | 7.7               |
| 7      | 745           | Richard Blvd & N 12th ST / N 16th ST       | 4.8                                     | 7                           | Yes                           | 7.4               |
| 8      | 290           | 12th Street & North 16th Street            | 4.8                                     | 7                           | Yes                           | 7.4               |
| 9      | 437           | El Camino Av & Bus-80 WB                   | 6.7                                     | 3                           | Yes                           | 7.4               |
| 10     | 436           | El Camino Av & Bus-80 EB                   | 6.7                                     | 3                           | Yes                           | 7.4               |
| 11     | 123           | Jibboom St & I St Bridge                   | 5.7                                     | 4                           | Yes                           | 7.3               |
| 12     | 600           | Exposition & Leisure Ln                    | 4.4                                     | 5                           | Yes                           | 7.2               |
| 13     | 570           | Norwood & I-80 Westbound                   | 4.4                                     | 6                           | Yes                           | 7.2               |
| 14     | 40            | 12th St & North B St                       | 4.3                                     | 5                           | Yes                           | 7.2               |
| 15     | 603           | Franklin Bl & Cosumnes River Bl            | 5.2                                     | 4                           | Yes                           | 7.1               |
| 16     | 838           | Riverfront Reconnection - Capital & 2nd ST | 4.1                                     | 11                          | Yes                           | 7.1               |
| 17     | 270           | Howe Av & College Town / US-50             | 4.0                                     | 5                           | Yes                           | 7.0               |
| 18     | 595           | Exposition & Tribute                       | 4.0                                     | 5                           | Yes                           | 7.0               |
| 19     | 800           | I-5 NB & Del Paso Rd                       | 3.9                                     | 5                           | Yes                           | 6.9               |
| 20     | 168           | 3rd St & J St                              | 3.9                                     | 10                          | Yes                           | 6.9               |
| 21     | 272           | Del Paso Bl & Arden/Grove/Cante            | 3.9                                     | 8                           | Yes                           | 6.9               |
| 22     | 652           | Pocket Rd & I-5 N/B                        | 4.9                                     | 4                           | Yes                           | 6.9               |
| 23     | 540           | Pocket Rd & I-5 E. Side Beacon             | 4.9                                     | 4                           | Yes                           | 6.9               |
| 24     | 334           | Raley Bl & I-80 W/B                        | 5.9                                     | 3                           | Yes                           | 6.9               |
| 25     | 373           | Florin Rd & South Land Park Dr             | 3.8                                     | 6                           | Yes                           | 6.9               |
| 26     | 615           | Exposition Bl & I-80 West Side             | 4.8                                     | 4                           | Yes                           | 6.9               |
| 27     | 384           | Sutterville Rd & I-5 East Side             | 3.7                                     | 8                           | Yes                           | 6.9               |
| 28     | N/A           | Power Inn Queue Cutters                    | 6.7                                     | 2                           | Yes                           | 6.8               |

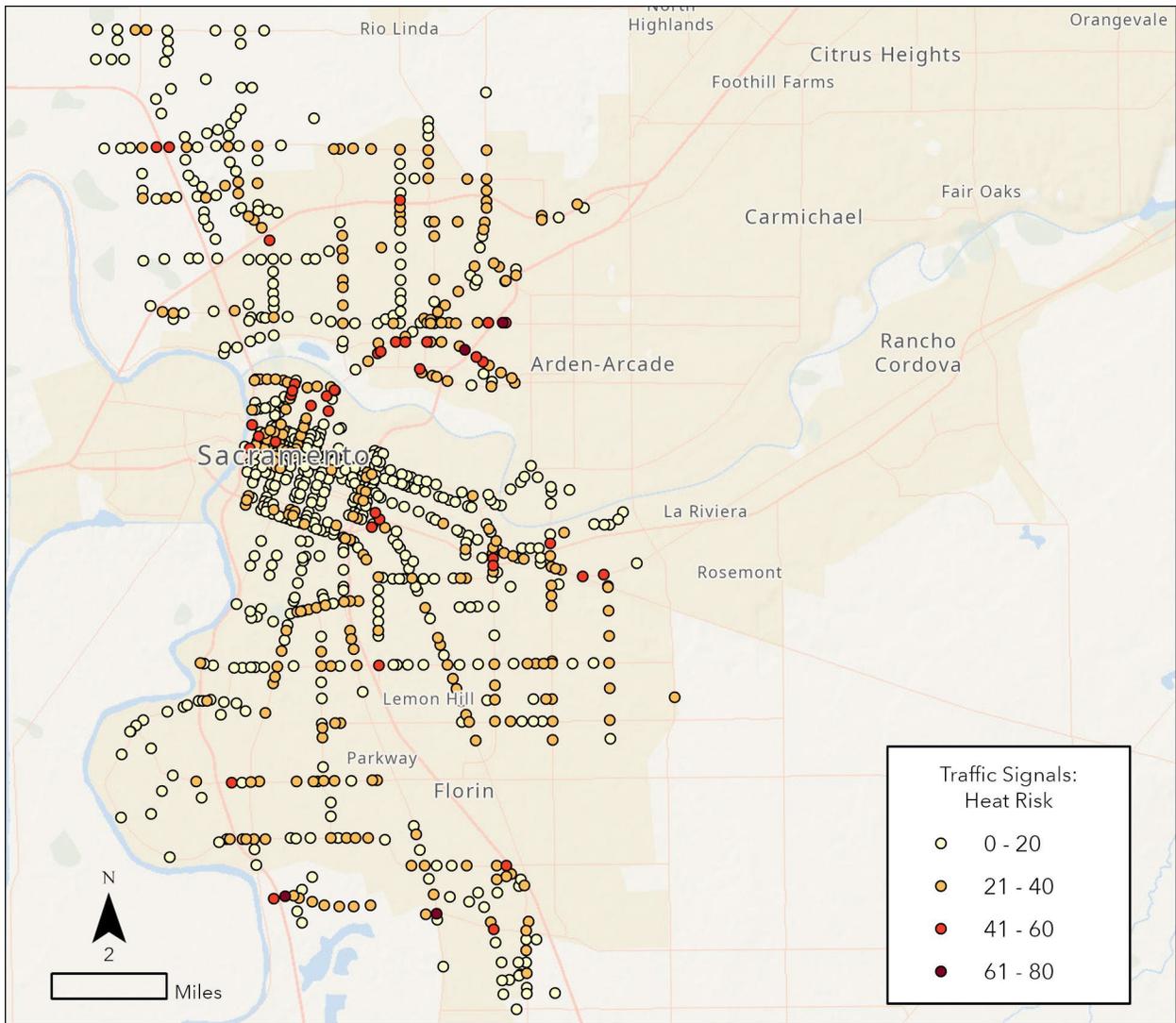
| Number | Asset (WSPID) | Location                              | Avg Consequence from nearby major roads | Count of nearby major roads | Is Rail or On/Off Ramp Signal | Consequence Score |
|--------|---------------|---------------------------------------|---|-----------------------------|-------------------------------|-------------------|
| 29     | 364           | Folsom Bl & Jackson/Notre Dame        | 4.6                                     | 4                           | Yes                           | 6.8               |
| 30     | 606           | Truxel & I-80 N Side                  | 6.6                                     | 2                           | Yes                           | 6.8               |
| 31     | 607           | Truxel & I-80 S Side                  | 6.6                                     | 2                           | Yes                           | 6.8               |
| 32     | 812           | 4th ST & I ST                         | 4.5                                     | 4                           | Yes                           | 6.8               |
| 33     | 566           | Cosumnes River Bl & Center Park       | 4.5                                     | 4                           | Yes                           | 6.8               |
| 34     | 44            | 12th St & I St                        | 3.5                                     | 5                           | Yes                           | 6.7               |
| 35     | 455           | Richards Bl & North 7th St            | 5.4                                     | 3                           | Yes                           | 6.7               |
| 36     | 265           | Marconi Av & Bus-80 /Connie           | 3.4                                     | 9                           | Yes                           | 6.7               |
| 37     | 279           | Arden Wy & Royal Oaks/Beaumont        | 4.4                                     | 4                           | Yes                           | 6.7               |
| 38     | 714           | N 7th Street & N B Street             | 6.3                                     | 2                           | Yes                           | 6.7               |
| 39     | 806           | 7th ST & F ST                         | 6.3                                     | 2                           | Yes                           | 6.7               |
| 40     | 976           | North 7th St & North C St             | 6.3                                     | 2                           | Yes                           | 6.7               |
| 41     | 977           | North 7th St & Bannon St              | 6.3                                     | 2                           | Yes                           | 6.7               |
| 42     | 271           | Del Paso Bl & Barstow/Baxter          | 5.3                                     | 3                           | Yes                           | 6.7               |
| 43     | 807           | Colfax St / Southgate & Del Paso Blvd | 5.3                                     | 3                           | Yes                           | 6.7               |
| 44     | 11            | 7th St & L St                         | 3.3                                     | 5                           | Yes                           | 6.7               |
| 45     | 363           | Arden Wy & Harvard/Blumenfeld D       | 4.3                                     | 4                           | Yes                           | 6.6               |
| 46     | 348           | 65th St & US-50 W/B /S St             | 3.2                                     | 6                           | Yes                           | 6.6               |
| 47     | 43            | 12th St & H St                        | 3.1                                     | 5                           | Yes                           | 6.6               |
| 48     | 332           | Winters St & I-80 /Grand              | 3.1                                     | 7                           | Yes                           | 6.6               |
| 49     | 663           | Bruceville & HWY 99 S/B Offramp       | 4.0                                     | 4                           | Yes                           | 6.5               |
| 50     | 253           | 59th St & S St/US-50 Ramp             | 3.0                                     | 5                           | Yes                           | 6.5               |

## Likelihood and Risk

A heat risk score was created by multiplying together consequence scores by the scaled UHI score. Higher scores are associated with higher extreme heat risks. Scaled UHI can be found in Map 39, and heat risk scores can be found in Map 40. Traffic signals with the highest heat risk are concentrated just north of Downtown and in North Sacramento, with notable clusters in South Oak Park, Parkway, and Southeastern Sacramento.



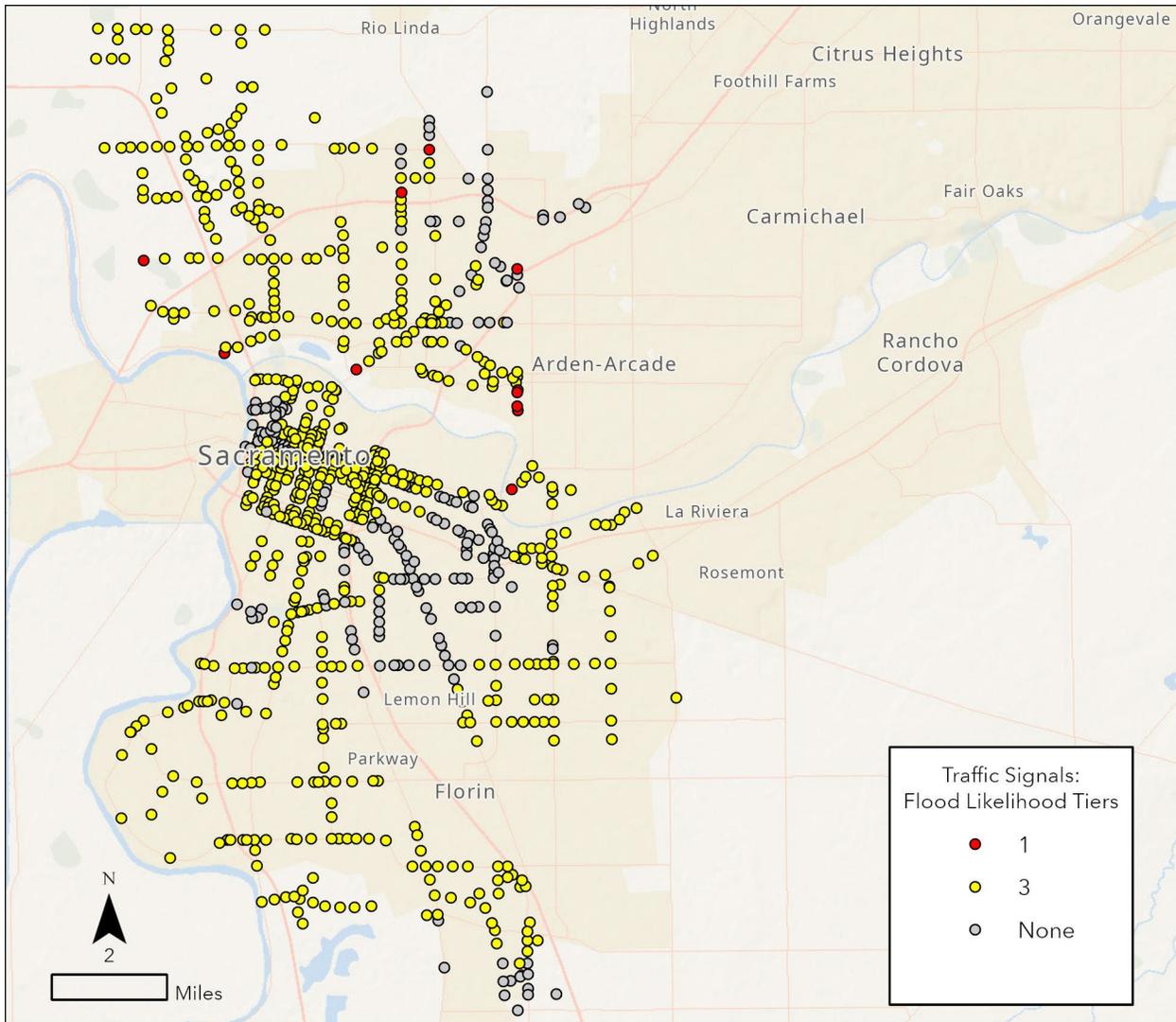
Map 39: Scaled UHI for traffic signals



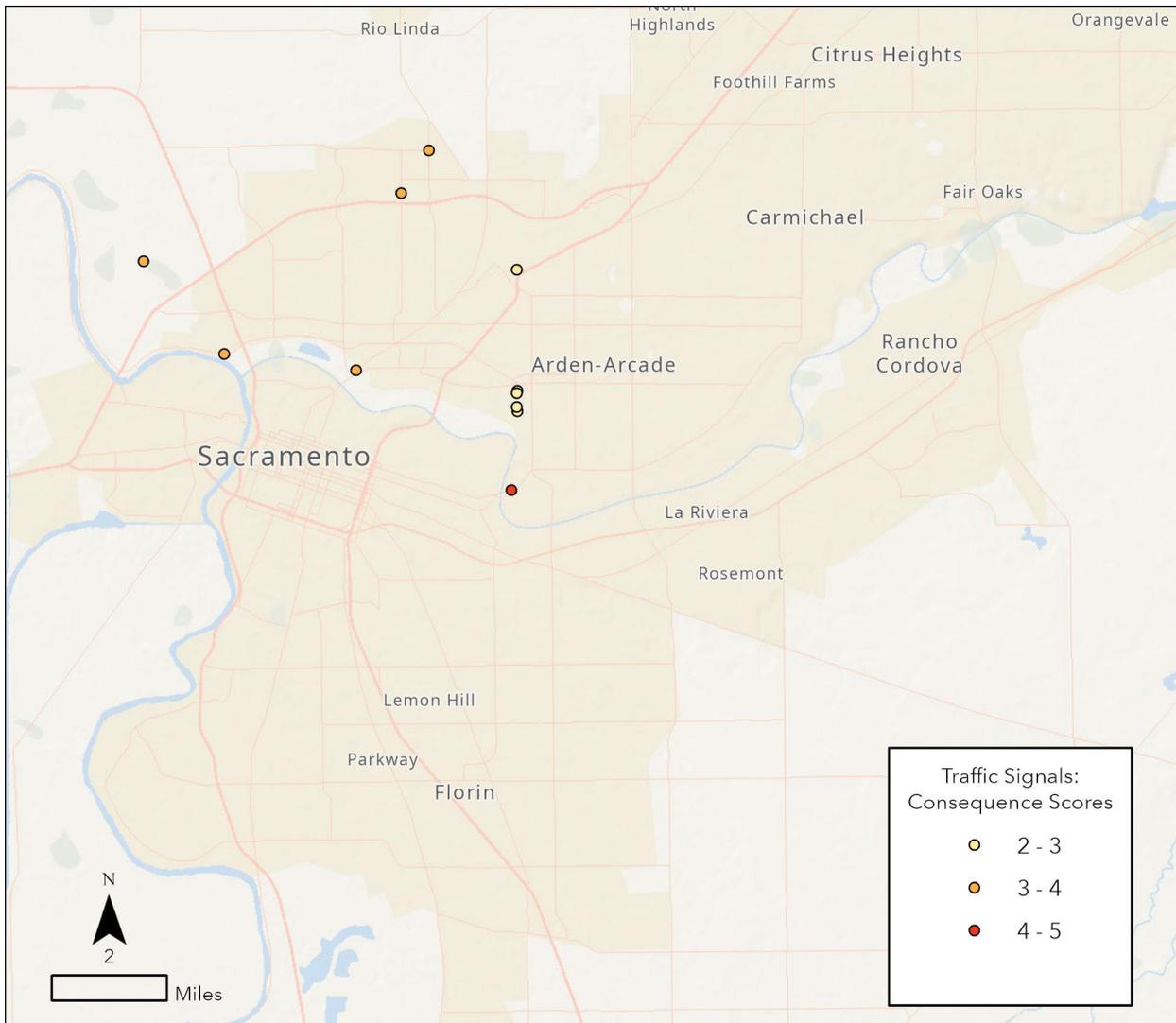
Map 40: Heat risk scores for traffic signals

Map 41 shows traffic signals by flood likelihood tier. Most traffic signals are within a 100-year zone protected by a levee or the 500-year floodplain. Only 11 traffic signals are within the 100-year floodplain, and none are within the 100-year zone with shallow flooding.

The consequence scores of the traffic signals within the 100-year floodplain are in Map 42. All the signals fall north of the American River, with several in the American River floodplain. Their consequence scores are moderate, falling between 3 and 5.



Map 41: Flood likelihood tiers for traffic signals



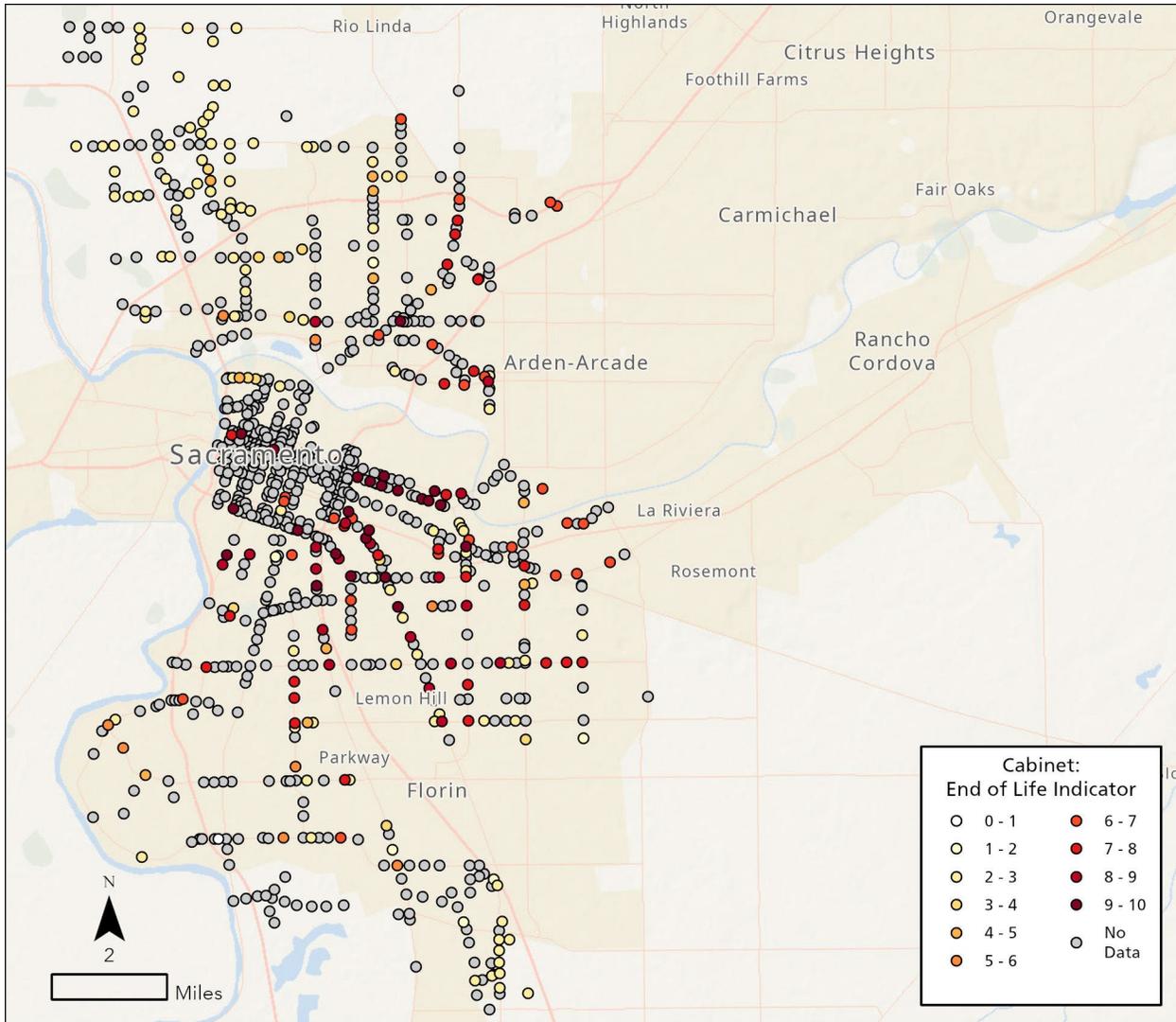
Map 42: Consequence scores for traffic signals within highest flood likelihood tier

### Traffic Signal Cabinets

#### Consequence and Condition

Most EOL scores for traffic signal cabinets fall within the 2 to 3 score bucket for the EOL indicator. There are several older cabinets in the 6 to 10 score range. Map 43 shows traffic signals cabinets spatially, with many older signals along key arterials east and south of the Downtown core, including roads like Broadway, Stockton, and J St.

Table 26 lists cabinets by its descending EOL indicator.



Map 43: EOL indicator for EOL traffic signal cabinets

Table 26: Descending EOL Indicator score for traffic signal cabinets

| Number | Asset (WSPID) | Location                      | EOL Indicator |
|--------|---------------|-------------------------------|---------------|
| 1      | TS_327        | 9th St & Broadway/Muir        | 10.0          |
| 2      | TS_290        | Broadway & Stockton Bl        | 10.0          |
| 3      | TS_581        | Del Paso Bl & El Camino Bl    | 10.0          |
| 4      | TS_294        | 39th St & Stockton/Miller     | 10.0          |
| 5      | TS_303        | 34th St & Broadway            | 10.0          |
| 6      | TS_486        | 34th St & Stockton Bl         | 9.6           |
| 7      | TS_307        | Broadway & Martin Luther King | 9.6           |
| 8      | TS_396        | Riverside Bl & Marion         | 9.6           |
| 9      | TS_308        | 8th Ave & Franklin Blvd       | 9.6           |
| 10     | TS_291        | 14th Ave & Stockton Blvd      | 9.5           |
| 11     | TS_299        | 39th St & T St                | 9.4           |
| 12     | TS_473        | 39th St & J St                | 9.2           |

| Number | Asset (WSPID) | Location                        | EOL Indicator |
|--------|---------------|---------------------------------|---------------|
| 13     | TS_347        | 24th St & Broadway              | 9.2           |
| 14     | TS_488        | 39th St & H St                  | 9.2           |
| 15     | TS_501        | 53rd St & H St                  | 9.2           |
| 16     | TS_688        | 5th St & I St                   | 9.1           |
| 17     | TS_539        | 65th St & Folsom Blvd           | 9.1           |
| 18     | TS_491        | 33rd St & J St                  | 9.1           |
| 19     | TS_492        | 36th St J St                    | 9.1           |
| 20     | TS_692        | 13th St & J St                  | 9.1           |
| 21     | TS_496        | 51st St & J St                  | 9.1           |
| 22     | TS_494        | 43rd St & J St                  | 9.1           |
| 23     | TS_497        | Rodeo & J St                    | 9.1           |
| 24     | TS_498        | 55th St & J St                  | 9.1           |
| 25     | TS_304        | 35th St & Broadway              | 9.0           |
| 26     | TS_400        | South Land Park Dr & Vallejo Wy | 9.0           |
| 27     | TS_297        | Stockton Bl & Colonial          | 9.0           |
| 28     | TS_283        | Stockton & Elder Creek/47th Ave | 8.6           |
| 29     | TS_317        | Franklin Bl & Fruitridge Rd     | 8.6           |
| 30     | TS_268        | Stockton Bl & Lemon Hill Ave    | 8.6           |
| 31     | TS_318        | 21st Ave & Franklin Blvd        | 8.6           |
| 32     | TS_267        | Stockton Bl & McMahon           | 8.6           |
| 33     | TS_397        | Riverside & 7th/8th Ave         | 8.5           |
| 34     | TS_503        | Carlson & H St/Hickok           | 8.5           |
| 35     | TS_426        | Arden Wy & Ethan/Exposition     | 8.5           |
| 36     | TS_269        | Fruitridge Rd & Lowell/Wallace  | 8.5           |
| 37     | TS_245        | 59th St & Broadway              | 8.3           |
| 38     | TS_300        | 34th St & T St                  | 8.3           |
| 39     | TS_271        | 62nd St & Fruitridge Rd         | 8.3           |
| 40     | TS_620        | El Camino Av & Northgate Bl     | 8.2           |
| 41     | TS_315        | 21st Ave & Stockton/Perry       | 8.1           |
| 42     | TS_246        | 65th St & 14th Ave              | 8.1           |
| 43     | TS_309        | 2nd Ave & Franklin Blvd         | 8.1           |
| 44     | TS_310        | 5th Ave & Franklin Blvd         | 8.1           |
| 45     | TS_547        | Marysville Bl & Grand Ave       | 7.9           |
| 46     | TS_274        | 65TH ST & Mc Mahon Dr.          | 7.9           |
| 47     | TS_562        | Marysville Bl & South Ave       | 7.8           |
| 48     | TS_561        | Marysville Bl & Arcade          | 7.8           |
| 49     | TS_398        | Sutterville Rd & Land Park/Del  | 7.8           |
| 50     | TS_565        | Marconi Circle S & Auburn Bl    | 7.8           |

### Likelihood and Risk

EOL traffic signal cabinets located within the 100-year floodplain are listed in Table 27. Only 2 out of the 11 traffic signals located in the 100-year floodplain have EOL cabinets.

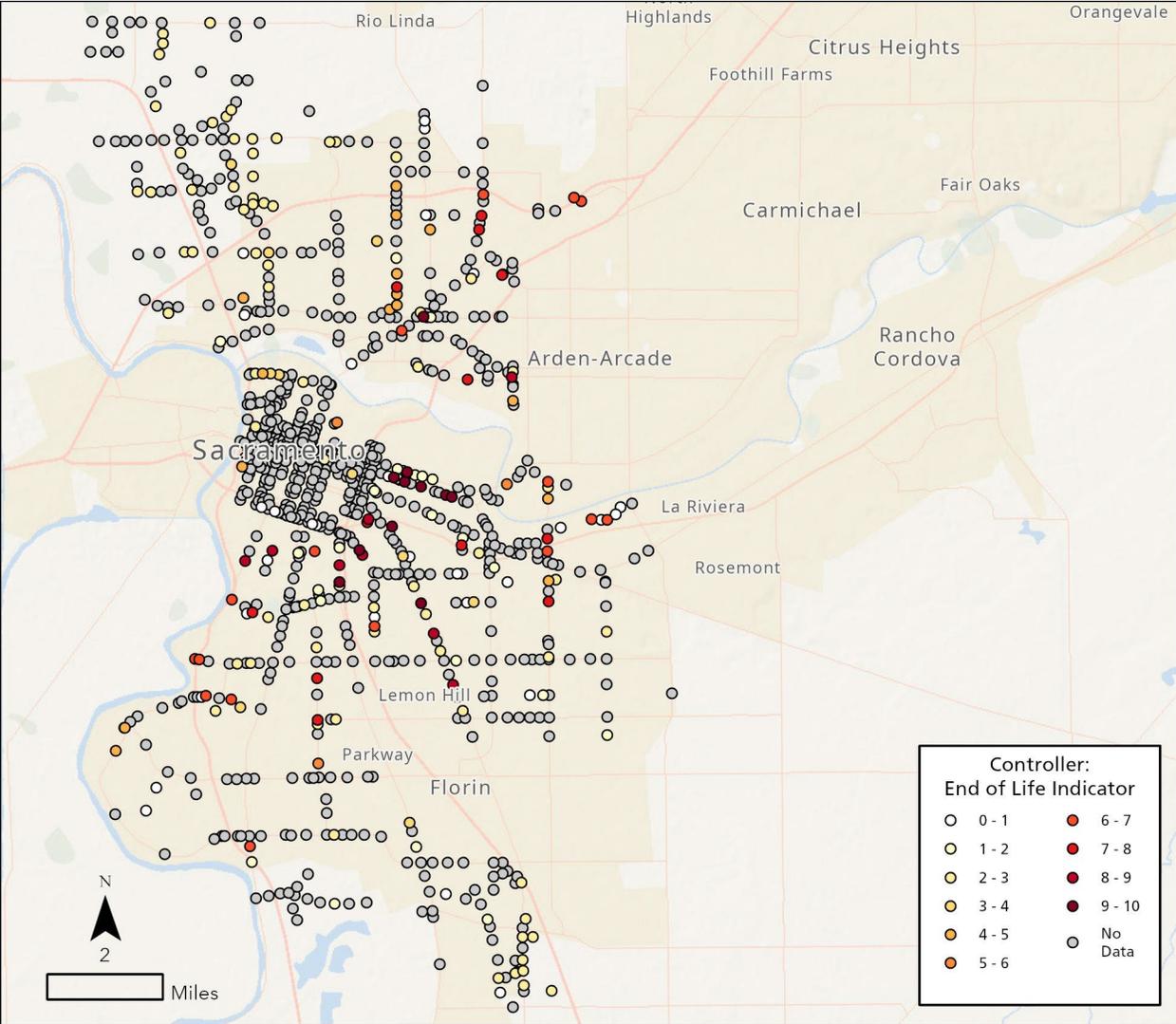
Table 27: EOL traffic signals in highest flood likelihood tier by descending consequence score

| Number | Asset (WSPID) | Location         | EOL Indicator | Consequence Score |
|--------|---------------|------------------|---------------|-------------------|
| 1      | TS_575        | Norwood & Jessie | 4.2           | 4.1               |

*Traffic Signal Controllers*

**Consequence and Condition**

Most EOL scores for traffic signal controllers fall between 0 to 3, with about 45 ranging from 6 to 10, shown in Map 44. Table 28 shows the top 50 EOL indicator scores for EOL controllers.



Map 44: EOL scores for traffic signal controllers

Table 28: Descending EOL age or condition score for traffic signal controllers.

| Number | Asset (WSPID) | Location                               | EOL Indicator |
|--------|---------------|--|---------------|
| 1      | TS_303        | 34th St & Broadway                     | 10.0          |
| 2      | TS_581        | Del Paso Bl & El Camino Bl             | 10.0          |
| 3      | TS_308        | 8th Ave & Franklin Blvd                | 9.6           |
| 4      | TS_291        | 14th Ave & Stockton Blvd               | 9.5           |
| 5      | TS_299        | 39th St & T St                         | 9.4           |
| 6      | TS_473        | 39th St & J St                         | 9.2           |
| 7      | TS_488        | 39th St & H St                         | 9.2           |
| 8      | TS_492        | 36th St J St                           | 9.1           |
| 9      | TS_494        | 43rd St & J St                         | 9.1           |
| 10     | TS_496        | 51st St & J St                         | 9.1           |
| 11     | TS_497        | Rodeo & J St                           | 9.1           |
| 12     | TS_304        | 35th St & Broadway                     | 9.0           |
| 13     | TS_400        | South Land Park Dr & Vallejo Wy        | 9.0           |
| 14     | TS_267        | Stockton Bl & McMahan                  | 8.6           |
| 15     | TS_397        | Riverside & 7th/8th Ave                | 8.5           |
| 16     | TS_426        | Arden Wy & Ethan/Exposition            | 8.5           |
| 17     | TS_300        | 34th St & T St                         | 8.3           |
| 18     | TS_310        | 5th Ave & Franklin Blvd                | 8.1           |
| 19     | TS_315        | 21st Ave & Stockton/Perry              | 8.1           |
| 20     | TS_547        | Marysville Bl & Grand Ave              | 7.9           |
| 21     | TS_248        | 59th St & S St/US-50 Ramp              | 7.8           |
| 22     | TS_398        | Sutterville Rd & Land Park/Del         | 7.8           |
| 23     | TS_562        | Marysville Bl & South Ave              | 7.8           |
| 24     | TS_565        | Marconi Circle S & Auburn Bl           | 7.8           |
| 25     | TS_320        | 24th St & Fernandez                    | 7.6           |
| 26     | TS_323        | 24th St & 47th Ave                     | 7.4           |
| 27     | TS_425        | Exposition Bl & Heritage               | 7.3           |
| 28     | TS_576        | Norwood Av & Las Palmas                | 7.3           |
| 29     | TS_301        | 34th St & US-50 Offramp                | 7.2           |
| 30     | TS_250        | 14th Ave & Power Inn Rd                | 7.1           |
| 31     | TS_538        | Howe Av & College Town / US-50         | 7.1           |
| 32     | TS_33         | Longview Dr & I-80 EB                  | 6.9           |
| 33     | TS_34         | Longview Dr & I-80 WB                  | 6.9           |
| 34     | TS_322        | 21st Ave & Martin Luther King          | 6.9           |
| 35     | TS_450        | Howe Av & American River Dr            | 6.9           |
| 36     | TS_550        | Raley Bl & I-80 E/B                    | 6.9           |
| 37     | TS_253        | Howe Av & US-50 E/B                    | 6.8           |
| 38     | TS_211        | Freeport Blvd & South of Meadowview Rd | 6.7           |
| 39     | TS_313        | 24th St & 4th Ave                      | 6.7           |
| 40     | TS_399        | Sutterville Rd & I-5 East Side         | 6.4           |
| 41     | TS_411        | Seamas & I-5 Sb W Side                 | 6.4           |
| 42     | TS_412        | Seamas & I-5 Nb E Side                 | 6.4           |
| 43     | TS_241        | La Riviera Dr & Glenbrook Park         | 6.2           |
| 44     | TS_597        | Del Paso Bl & Oxford                   | 6.2           |
| 45     | TS_242        | La Riviera Dr & Occidental             | 6.0           |
| 46     | TS_415        | 43rd Ave & Gloria Dr                   | 6.0           |
| 47     | TS_416        | 43rd Ave & Holstein                    | 6.0           |
| 48     | TS_24         | 24th St & 57th Ave                     | 5.8           |

| Number | Asset (WSPID) | Location                        | EOL Indicator |
|--------|---------------|---------------------------------|---------------|
| 49     | TS_523        | Fair Oaks Bl & E Of American Ri | 5.8           |
| 50     | TS_449        | 20th St & SP Railroad North     | 5.6           |

### Likelihood and Risk

EOL controllers located within the 100-year floodplain are listed in Table 29. Of the 11 total traffic signals in this flood zone, only 4 have EOL controllers. For each of the four controllers, consequence scores and EOL indicators are relatively low or moderate.

Table 29: EOL traffic signal controllers in highest flood likelihood tier by descending consequence score

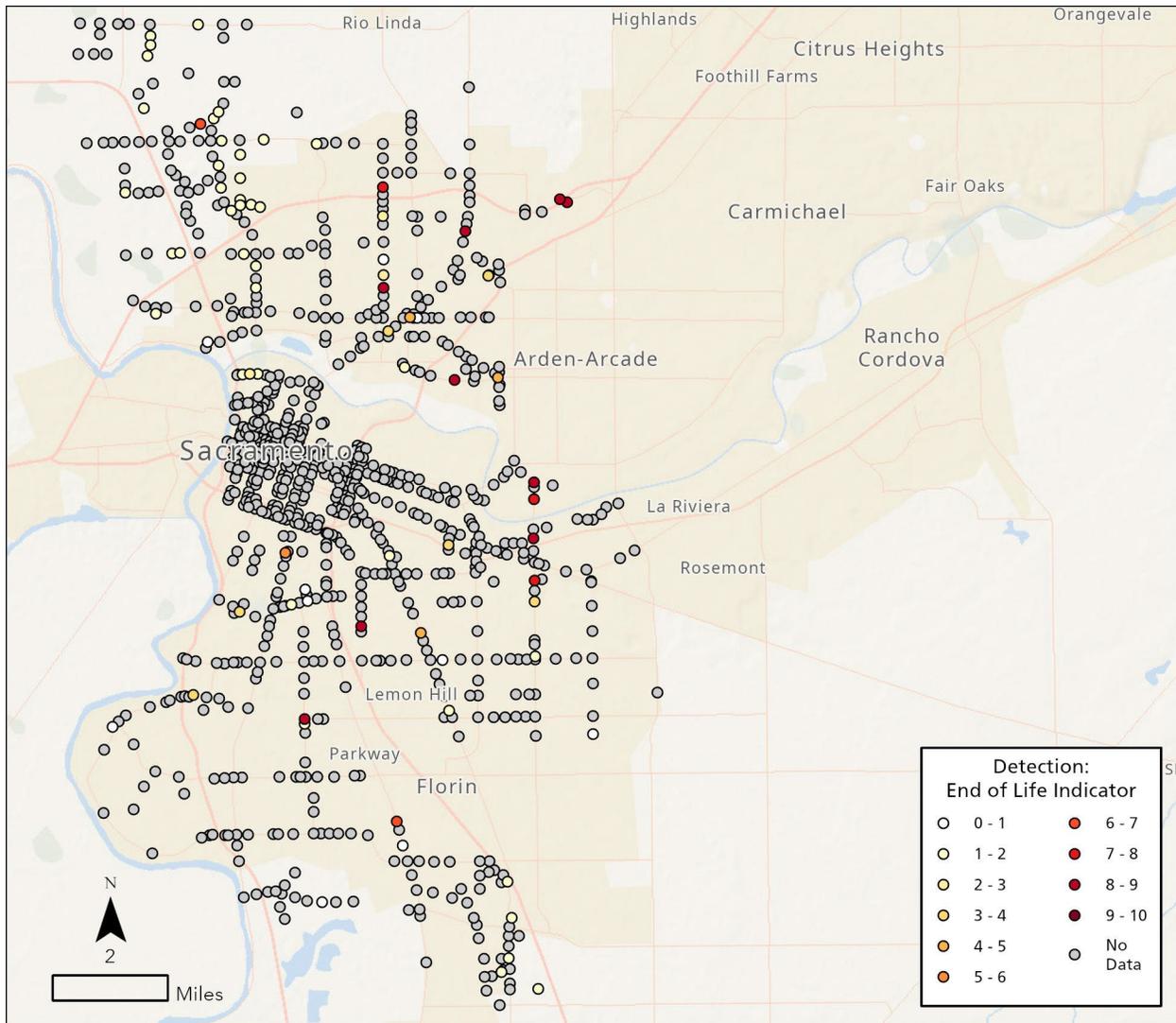
| Number | Asset (WSPID) | Location                                  | EOL Indicator | Consequence Score |
|--------|---------------|---|---------------|-------------------|
| 1      | 434           | Fair Oaks Bl & E Of American Ri           | 5.8           | 4.2               |
| 2      | 920           | Del Paso Blvd & American River Bike Trail | 0.6           | 3.7               |
| 3      | 576           | Norwood & Jessie                          | 4.2           | 3.2               |
| 4      | 548           | Ethan Way & North of Hurley Way           | 5.0           | 2.2               |

### Traffic Signal Detection

#### Consequence and Condition

Detection services EOL indicators are based on two factors: the age of the detection device and whether it utilizes loop detection technology. Most detection devices have EOL scores between 1 and 2. Nine devices fall into the 8 to 9 range.

Map 45 shows this data spatially. Table 30 lists the 50 highest EOL indicator detection devices.



Map 45: EOL indicator for detection devices

Table 30: Descending EOL scores for traffic signal detection devices

| Number | Asset (WSPID) | Location                       | EOL Condition Score |
|--------|---------------|--------------------------------|---------------------|
| 1      | TS_562        | Marysville Bl & South Ave      | 8.9                 |
| 2      | TS_323        | 24th St & 47th Ave             | 8.7                 |
| 3      | TS_576        | Norwood Av & Las Palmas        | 8.7                 |
| 4      | TS_425        | Exposition Bl & Heritage       | 8.7                 |
| 5      | TS_538        | Howe Av & College Town / US-50 | 8.5                 |
| 6      | TS_322        | 21st Ave & Martin Luther King  | 8.5                 |
| 7      | TS_34         | Longview Dr & I-80 WB          | 8.5                 |
| 8      | TS_450        | Howe Av & American River Dr    | 8.5                 |
| 9      | TS_33         | Longview Dr & I-80 EB          | 8.5                 |
| 10     | TS_452        | Howe Av & Swarthmore           | 7.4                 |
| 11     | TS_263        | Power Inn & Cucamonga          | 7.1                 |

| Number | Asset (WSPID) | Location  | EOL Condition Score |
|--------|---------------|---|---------------------|
| 12     | TS_575        | Norwood & Jessie                                  | 7.1                 |
| 13     | TS_138        | Franklin Bl & Caselli Cir                         | 6.7                 |
| 14     | TS_157        | New Market Dr & High School Access                | 6.3                 |
| 15     | TS_827        | Freeport Bl & 4th Ave                             | 5.6                 |
| 16     | TS_581        | Del Paso Bl & El Camino Bl                        | 5.0                 |
| 17     | TS_426        | Arden Wy & Ethan/Exposition                       | 4.2                 |
| 18     | TS_315        | 21st Ave & Stockton/Perry                         | 4.0                 |
| 19     | TS_565        | Marconi Circle S & Auburn Bl                      | 3.9                 |
| 20     | TS_248        | 59th St & S St/US-50 Ramp                         | 3.9                 |
| 21     | TS_398        | Sutterville Rd & Land Park/Del                    | 3.9                 |
| 22     | TS_250        | 14th Ave & Power Inn Rd                           | 3.5                 |
| 23     | TS_597        | Del Paso Bl & Oxford                              | 3.1                 |
| 24     | TS_415        | 43rd Ave & Gloria Dr                              | 3.0                 |
| 25     | TS_629        | Richards & North 3rd                              | 2.4                 |
| 26     | TS_577        | Norwood Av & Lindly                               | 2.3                 |
| 27     | TS_571        | Norwood & Grand                                   | 2.2                 |
| 28     | TS_636        | Richard Blvd & Sequoia Pacific                    | 1.8                 |
| 29     | TS_139        | 2nd Ave & Stockton Blvd                           | 1.7                 |
| 30     | TS_152        | Truxel Rd & Arena Commons Dr                      | 1.6                 |
| 31     | TS_140        | Exposition Blvd & Expo Pkwy                       | 1.5                 |
| 32     | TS_131        | Power Inn Rd & Light Rail Drwy                    | 1.5                 |
| 33     | TS_183        | Truxel Rd & Teralba Way/Mill Oak Way              | 1.5                 |
| 34     | TS_184        | Truxel & Pebblestone                              | 1.5                 |
| 35     | TS_181        | Natomas Blvd & Parkway Plaza Apts                 | 1.5                 |
| 36     | TS_151        | Truxel Rd & Prosper Rd                            | 1.4                 |
| 37     | TS_177        | Del Paso Rd & Blackrock Dr                        | 1.4                 |
| 38     | TS_173        | Northgate Blvd & Main /Del Paso Rd                | 1.4                 |
| 39     | TS_153        | Del Paso Rd & Park Place South Entry/Centerpointe | 1.4                 |
| 40     | TS_163        | Arena Blvd/N Market Blvd & Gateway Park Blvd      | 1.3                 |
| 41     | TS_116        | Bruceville & Timberlake                           | 1.3                 |
| 42     | TS_190        | Richards & Bercut                                 | 1.3                 |
| 43     | TS_168        | Natomas Blvd & North Bend Dr                      | 1.3                 |
| 44     | TS_166        | Elkhorn Blvd & Northborough Dr                    | 1.3                 |
| 45     | TS_112        | Bruceville & Wyndham                              | 1.3                 |
| 46     | TS_85         | Arena & El Central Rd                             | 1.2                 |
| 47     | TS_6          | N Freeway Blvd. & Promenade Circle West           | 1.2                 |
| 48     | TS_87         | Gateway Park & N Freeway                          | 1.2                 |
| 49     | TS_90         | Bruceville Rd & Calvine Rd                        | 1.2                 |
| 50     | TS_86         | N Freeway & Promenade Circle East                 | 1.2                 |

### Likelihood and Risk

Table 31 shows EOL detection devices sorted by heat risk. Most of the higher heat risk EOL detection devices have relatively low EOL indicator scores. A few exceptions where both heat risk and EOL scores are relatively high are Howe Av & College Town / US-50, 21st Ave & Martin Luther King, and Power Inn & Cucamonga.

Table 31: EOL indicator, heat risk, and scaled UHI for traffic signals with signal detection

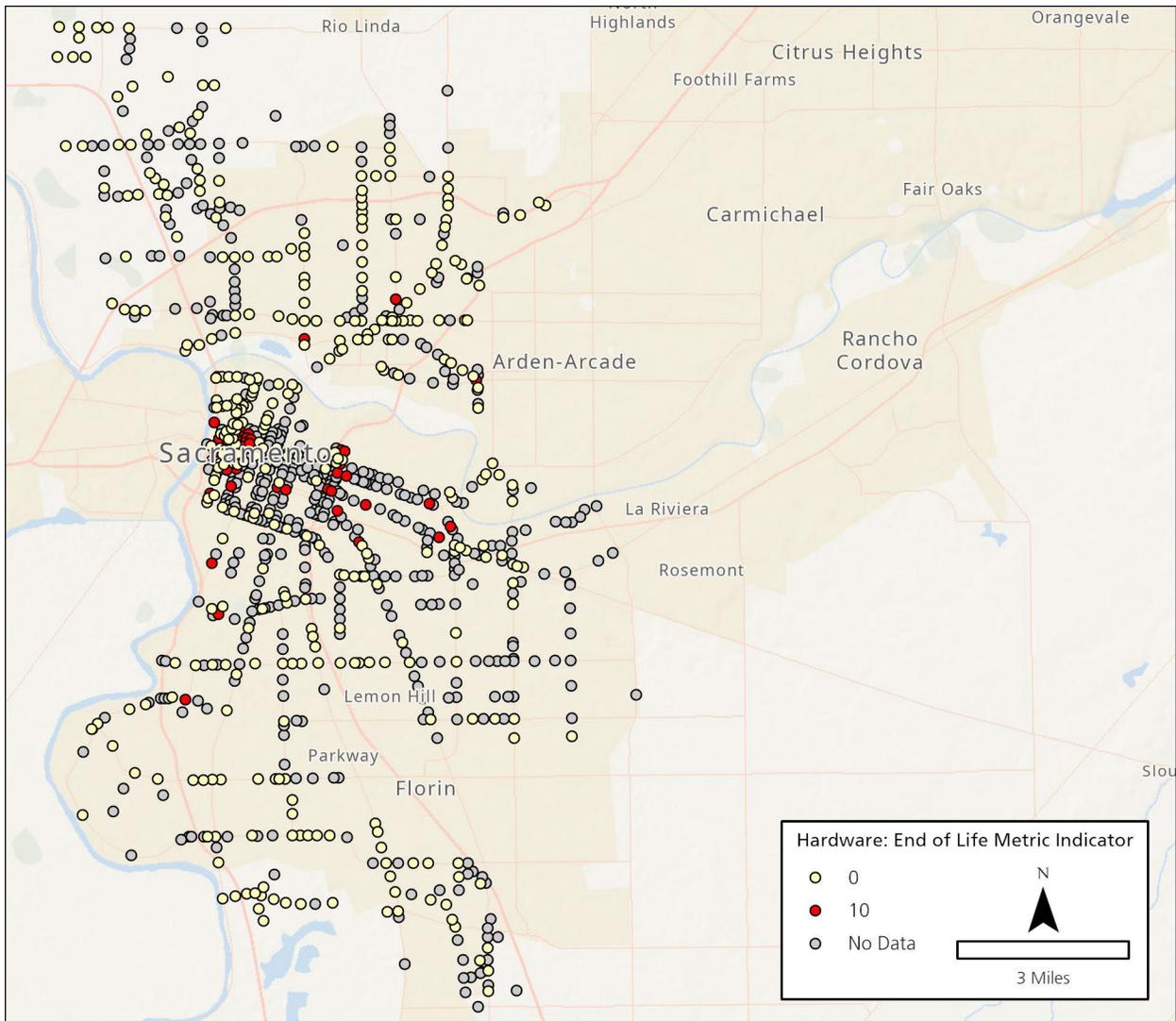
| Number | Asset (WSPID) | Location                                     | Heat Risk | UHI Scaled | Consequence Score | EOL Indicator Score |
|--------|---------------|--|-----------|------------|-------------------|---------------------|
| 1      | 270           | Howe Av & College Town / US-50               | 48.2      | 6.9        | 7.0               | 8.5                 |
| 2      | 633           | Richards & Bercut                            | 36.7      | 5.9        | 6.2               | 1.3                 |
| 3      | 198           | Arden Wy & Ethan/Exposition                  | 32.3      | 8.0        | 4.1               | 4.2                 |
| 4      | 614           | Richard Blvd & Sequoia Pacific               | 31.3      | 8.4        | 3.7               | 1.8                 |
| 5      | 276           | Del Paso Bl & El Camino Bl                   | 31.2      | 7.5        | 4.2               | 5.0                 |
| 6      | 522           | Richards & North 3rd                         | 29.5      | 7.9        | 3.7               | 2.4                 |
| 7      | 752           | 23rd Street & Sutterville Rd                 | 29.5      | 7.5        | 4.0               | 1.2                 |
| 8      | 827           | 24th Street & Cosumnes River Blvd            | 29.1      | 7.4        | 3.9               | 0.6                 |
| 9      | 219           | 21st Ave & Stockton/Perry                    | 28.3      | 7.3        | 3.9               | 4.0                 |
| 10     | 741           | Arena & El Central Rd                        | 28.3      | 8.0        | 3.5               | 1.2                 |
| 11     | 679           | Northgate Blvd & Main /Del Paso Rd           | 26.3      | 5.6        | 4.7               | 1.4                 |
| 12     | 325           | 14th Ave & Power Inn Rd                      | 25.6      | 6.6        | 3.9               | 3.5                 |
| 13     | 562           | Power Inn & Cucamonga                        | 25.2      | 5.9        | 4.3               | 7.1                 |
| 14     | 702           | Arena Blvd/N Market Blvd & Gateway Park Blvd | 25.1      | 6.5        | 3.9               | 1.3                 |
| 15     | 264           | Marconi Circle S & Auburn Bl                 | 25.0      | 7.0        | 3.6               | 3.9                 |
| 16     | 680           | Truxel Rd & Prosper Rd                       | 24.6      | 7.5        | 3.3               | 1.4                 |
| 17     | 610           | Exposition Blvd & Expo Pkwy                  | 24.5      | 7.2        | 3.4               | 1.5                 |
| 18     | 693           | Bruceville & Timberlake                      | 24.1      | 5.9        | 4.1               | 1.3                 |
| 19     | 253           | 59th St & S St/US-50 Ramp                    | 23.3      | 3.6        | 6.5               | 3.9                 |
| 20     | 335           | 21st Ave & Martin Luther King                | 23.2      | 6.4        | 3.6               | 8.5                 |
| 21     | 648           | Power Inn Rd & Light Rail Drwy               | 23.2      | 6.1        | 3.8               | 1.5                 |
| 22     | 402           | Del Paso Bl & Oxford                         | 21.9      | 7.5        | 2.9               | 3.1                 |
| 23     | 544           | Norwood & Grand                              | 21.8      | 6.2        | 3.5               | 2.2                 |
| 24     | 782           | Stockton Blvd & Dias                         | 21.5      | 6.2        | 3.5               | 1.1                 |
| 25     | 330           | Longview Dr & I-80 WB                        | 21.4      | 6.1        | 3.5               | 8.5                 |
| 26     | 753           | Truxel Rd & N Market Place N Entrance        | 21.1      | 5.6        | 3.8               | 1.2                 |
| 27     | 777           | 24th Street & Hogan Drive/48th Ave.          | 21.0      | 5.9        | 3.6               | 1.1                 |
| 28     | 831           | Sutterville Rd & Crocker Dr                  | 20.6      | 5.0        | 4.1               | 0.7                 |
| 29     | 706           | Bruceville & Wyndham                         | 20.4      | 5.4        | 3.8               | 1.3                 |
| 30     | 783           | East Commerce & North Park                   | 19.7      | 7.3        | 2.7               | 1.1                 |
| 31     | 278           | Norwood Av & Las Palmas                      | 19.5      | 6.2        | 3.1               | 8.7                 |
| 32     | 815           | El Camino Ave & Boxwood ST                   | 19.4      | 7.0        | 2.8               | 0.6                 |
| 33     | 188           | Exposition Bl & Heritage                     | 19.2      | 5.5        | 3.5               | 8.7                 |

|    |     |   |      |     |     |     |
|----|-----|---|------|-----|-----|-----|
| 34 | 673 | Del Paso Rd & Blackrock Dr                        | 18.6 | 6.4 | 2.9 | 1.4 |
| 35 | 262 | Marysville Bl & South Ave                         | 18.6 | 5.0 | 3.7 | 8.9 |
| 36 | 294 | 24th St & 47th Ave                                | 18.5 | 5.2 | 3.6 | 8.7 |
| 37 | 735 | Bruceville Rd & Calvine Rd                        | 18.2 | 5.3 | 3.4 | 1.2 |
| 38 | 576 | Norwood & Jessie                                  | 18.2 | 5.7 | 3.2 | 7.1 |
| 39 | 653 | Truxel Rd & Teralba Way/Mill Oak Way              | 17.5 | 5.2 | 3.3 | 1.5 |
| 40 | 632 | Franklin Bl & Caselli Cir                         | 17.5 | 5.2 | 3.4 | 6.7 |
| 41 | 629 | 2nd Ave & Stockton Blvd                           | 17.2 | 4.8 | 3.6 | 1.7 |
| 42 | 738 | Gateway Park & N Freeway                          | 16.9 | 6.3 | 2.7 | 1.2 |
| 43 | 537 | Norwood Av & Lindly                               | 16.7 | 5.3 | 3.1 | 2.3 |
| 44 | 754 | San Juan Rd & Duckhorn Dr/Tolliver                | 16.7 | 5.5 | 3.0 | 1.2 |
| 45 | 630 | Truxel Rd & Arena Commons Dr                      | 16.2 | 5.6 | 2.9 | 1.6 |
| 46 | 809 | Florin Perkins Rd & Morrison Creek Dr             | 16.2 | 5.0 | 3.3 | 0.9 |
| 47 | 756 | San Juan Rd & Buchman Cr./Myna                    | 15.9 | 5.5 | 2.9 | 1.2 |
| 48 | 651 | Truxel & Pebblestone                              | 15.0 | 4.5 | 3.3 | 1.5 |
| 49 | 677 | Del Paso Rd & Park Place South Entry/Centerpointe | 14.7 | 5.3 | 2.8 | 1.4 |
| 50 | 768 | Gateway Park Blvd.& Terracina Dr.                 | 14.4 | 5.5 | 2.6 | 1.2 |

### *Traffic Signal Hardware*

#### Consequence and Condition

There are 52 signals that are painted steel and therefore receive an EOL indicator score of 10 (see Map 46, and Table 32). Most are in or near the Downtown area.



Map 46: EOL indicator for traffic signals with painted steel hardware

Table 32: Descending EOL for traffic signals with painted steel hardware

| Number | Asset (WSPID) | Location   | EOL Condition Score |
|--------|---------------|--|---------------------|
| 1      | TS_643        | 7th St & H St                                    | 10                  |
| 2      | TS_426        | Arden Wy & Ethan/Exposition                      | 10                  |
| 3      | TS_491        | 33rd St & J St                                   | 10                  |
| 4      | TS_498        | 55th St & J St                                   | 10                  |
| 5      | TS_398        | Sutterville Rd & Land Park/Del                   | 10                  |
| 6      | TS_105        | Elvas Ave & ST Francis HS DRWY SO.(320' N 62 ST) | 10                  |
| 7      | TS_645        | 7th St & J St                                    | 10                  |
| 8      | TS_540        | 60th St & Folsom Bl                              | 10                  |
| 9      | TS_656        | 9th St & K St                                    | 10                  |
| 10     | TS_651        | 8th St & K St                                    | 10                  |
| 11     | TS_652        | 8th St & L St                                    | 10                  |
| 12     | TS_647        | 7th St & L St                                    | 10                  |

| Number | Asset (WSPID) | Location                        | EOL Condition Score |
|--------|---------------|---------------------------------|---------------------|
| 13     | TS_649        | 8th St & I St                   | 10                  |
| 14     | TS_474        | 39th St & Folsom Blvd           | 10                  |
| 15     | TS_486        | 34th St & Stockton Bl           | 10                  |
| 16     | TS_700        | Jibboom St & I St Bridge        | 10                  |
| 17     | TS_644        | 7th St & I St                   | 10                  |
| 18     | TS_695        | 5th St & L St                   | 10                  |
| 19     | TS_511        | Alhambra Bl & N St              | 10                  |
| 20     | TS_721        | 4th St & L St                   | 10                  |
| 21     | TS_481        | 21st St & Q St                  | 10                  |
| 22     | TS_453        | 19th St & Q St                  | 10                  |
| 23     | TS_622        | Northgate Bl & Garden/Jefferson | 10                  |
| 24     | TS_467        | 30th St & N St                  | 10                  |
| 25     | TS_655        | 9th St & J St                   | 10                  |
| 26     | TS_326        | 9th St & P St                   | 10                  |
| 27     | TS_410        | 43rd Ave & South Land Park Dr   | 10                  |
| 28     | TS_715        | 3rd St & L St                   | 10                  |
| 29     | TS_297        | Stockton Bl & Colonial          | 10                  |
| 30     | TS_558        | Rio Linda Bl & Eleanor          | 10                  |
| 31     | TS_650        | 8th St & J St                   | 10                  |
| 32     | TS_397        | Riverside & 7th/8th Ave         | 10                  |
| 33     | TS_477        | Alhambra Bl & J St              | 10                  |
| 34     | TS_657        | 9th St & L St                   | 10                  |
| 35     | TS_638        | 3rd St & Capitol Mall           | 10                  |
| 36     | TS_648        | 7th St & Capitol Mall           | 10                  |
| 37     | TS_359        | 5th St & W St                   | 10                  |
| 38     | TS_653        | 9th St & H St                   | 10                  |
| 39     | TS_661        | 10th St & J St                  | 10                  |
| 40     | TS_328        | 9th St & T St                   | 10                  |
| 41     | TS_739        | 7th St & Q St                   | 10                  |
| 42     | TS_459        | 29th St & H St                  | 10                  |
| 43     | TS_722        | 3rd St & K St                   | 10                  |
| 44     | TS_444        | 30th St & F St                  | 10                  |
| 45     | TS_475        | Alhambra Bl & H St              | 10                  |
| 46     | TS_443        | 30th St & E St                  | 10                  |
| 47     | TS_659        | 9th St & N St                   | 10                  |
| 48     | TS_716        | 3rd St & N St                   | 10                  |
| 49     | TS_440        | 29th St & G St                  | 10                  |
| 50     | TS_660        | 10th St & I St                  | 10                  |
| 51     | TS_722        | 3rd St & K St                   | 10                  |
| 52     | TS_739        | 7th St & Q St                   | 10                  |

### Likelihood and Risk

None of the EOL hardware traffic signals are located within the 100-year floodplain.