

Transportation Convergence

The future of transportation, energy and technologies

Global Trends and Transportation

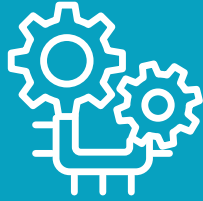
Climate Change



Climate Change

- ❑ Change in energy consumption toward renewables
- ❑ Decarbonization of transportation assets and supply chains
- ❑ Focus on coastal resilience and longevity of low elevation assets
- ❑ Privately led development and financing
- ❑ Food security

Technology Development



Technology Development

- ❑ Automated design (and construction)
- ❑ Change in business models from ownership to “As A Service”
- ❑ Influx of data creates opportunity for more informed decisions
- ❑ Proliferation of smart cities
- ❑ Private led creation of new modes (eVTOL)

Demographic & Social Change



Demographic/Social Change

- ❑ Clients focus on holistic projects to include equity, access, environment
- ❑ Evolution in the way people work and travel patterns
- ❑ Aging of society driving labor shortages, healthcare needs and mobility solutions

Economic Shift



Economic Shift

- ❑ COVID pandemic disruption of supply chain and inflation create uncertainty in future supply chain
- ❑ Movement toward localized from globalized economy creates reevaluation of goods transport
- ❑ Geopolitical uncertainty

New Urbanization



New Urbanization

- ❑ Increased demands on infrastructure spur megaprojects, the need for flexible procurement models and private capital
- ❑ Focus on resilience, equity and human scale infrastructure escalates
- ❑ Lower investment in rural areas contributes to digital divide
- ❑ Housing inequality



ESG Embedded

Trend is accelerated, particularly around climate-related and social equity factors, with a focus on mobility for all.



Power Generation

New forms of energy development like off-shore wind and solar infrastructure are reshaping transportation's role in clean power generation



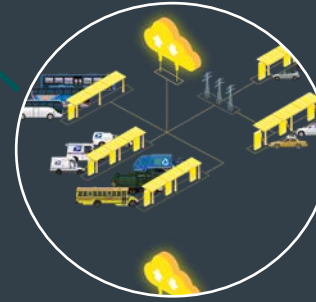
Digital Transformation

Digital transformation to provide better outcomes for smarter network and electrification planning, asset construction, innovative transportation alternatives, and optimized performance, safety, and sustainability.



Emerging Transport/Mobility Technologies

Emerging technologies such as advanced air mobility, new forms of transport like shared mobility options, ways to pay for transportation are bringing new customer experiences.



Transportation Electrification

A critical plank to decarbonization, electrification is transforming how transportation is designed and delivered.



Automation

Seeing a rise in broader adoption of automated services as sectors such as roadways, goods movement, aviation, mobility services look to capitalize on the safety, mobility and efficiency gains that result from automation.



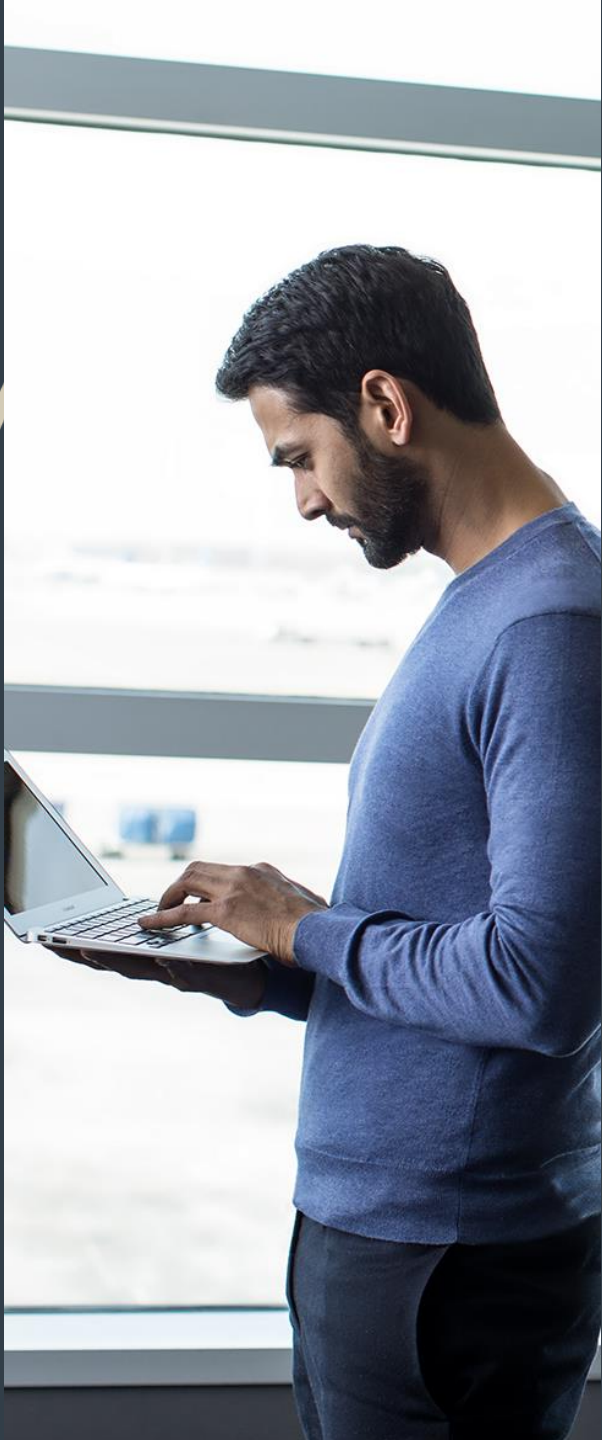
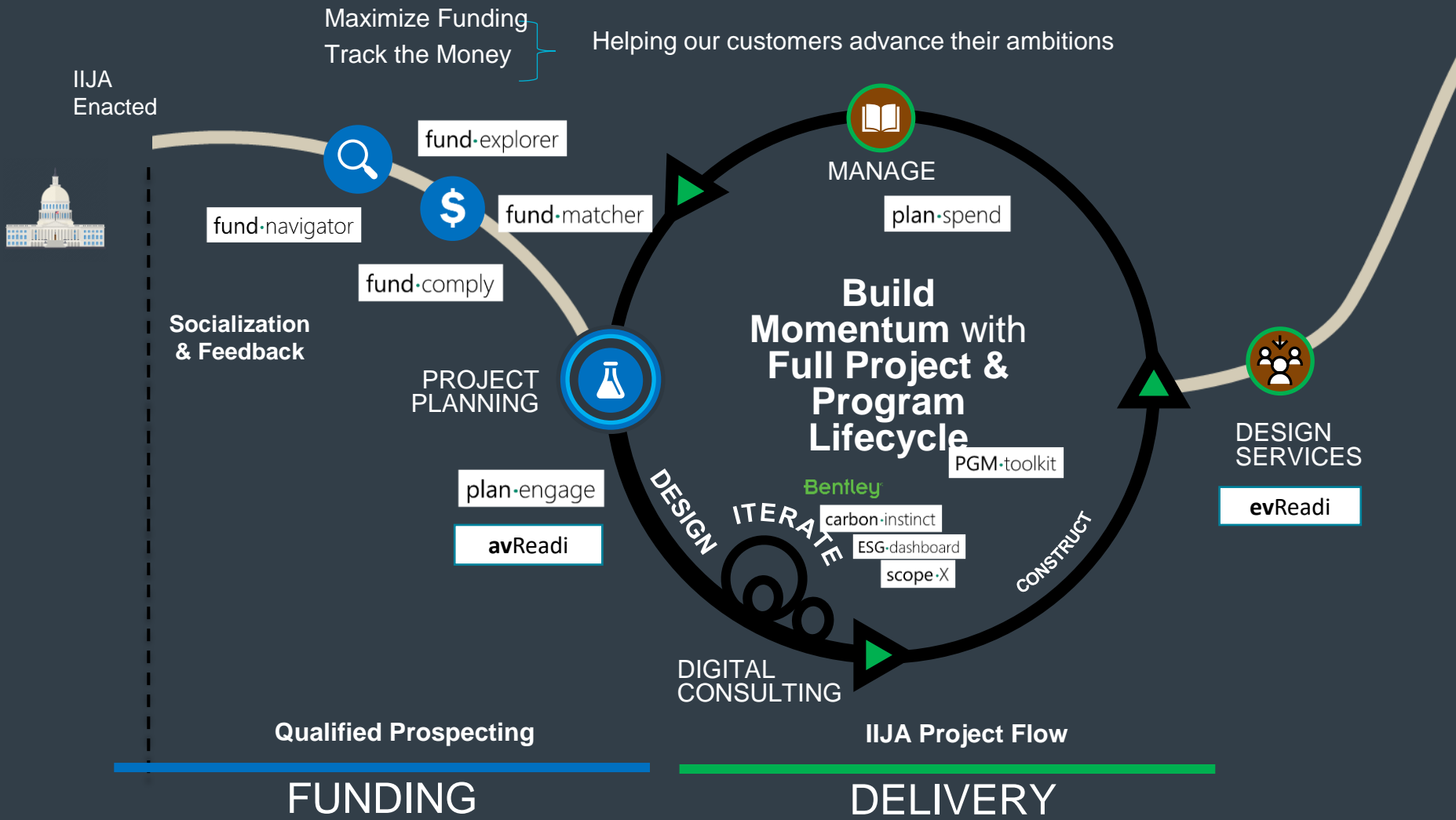
Partnerships

Progressive partnerships are extending public funds and sharing risk.



TEXT: 303-514-4913

AECOM | Digital Collaboration



The background is an aerial photograph of a city, featuring a prominent green dome on the left and a tall clock tower on the right. A semi-transparent white circle is centered over the image, containing the text. A thick yellow arc is positioned around the circle, starting from the top and curving around the right side.

AECOM

IIJA Grant Funding Digital Strategy and Tools

IIJA Fund Navigator Suite of Tools

Fund Explorer

White House Guidebook
data and other public
data

Ongoing NOFO
tracking

CEQ Justice40
dataset

Fund Matcher

Project
data

BOT scores and
Eligibility filters

InSite Justice40 Scores

Add-on Services

InSite

Custom geospatial

PlanEngage

Public engagement

PlanSpend

Capital planning

**Grants and
Advisory SME**

Fund Comply

Automated compliance
reporting

*UNDER
DEVELOPMENT*



Fund Navigator Tools

- Home
- Fund Navigator Input
- Programs
- Client Profiles
- Project Profiles
- Recent
- Subprogram NOFO

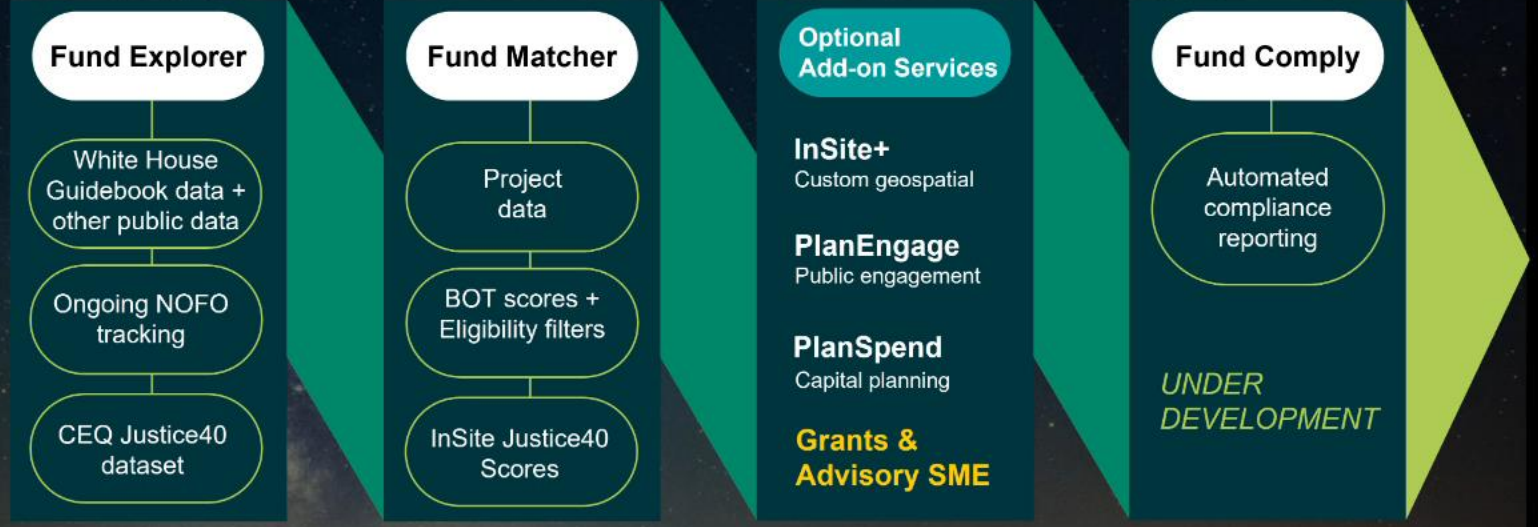
Client
City and County of Denver



Fund Navigator

Click the top-line buttons at right to navigate to different modules.
To view more information about the nationwide preliminary Justice40 data and criteria, click the button below.

Justice40 Map



Transportation Electrification

Advances in technology are driving AECOM's latest campaign

Transportation Electrification

- The use of electricity for all or part of vehicles that are mobile sources of air pollution and greenhouse gases, as well as related programs
- Strategic infrastructure investments are necessary to support forecast increases in EV adoption
- Widespread electrification represents an opportunity to alleviate existing inequities within communities

**With proper planning and modeling,
transportation electrification be transformative.**



A Changing Market

Advancements in vehicle technologies have created a market where growth is imminent

- EV battery costs have dropped over 80 percent per kilowatt hour, creating a more accessible market of not only light duty vehicles, but also medium duty, heavy duty, and transit vehicles.
- New charging technologies have also been developed that can provide immense amounts of energy to charge batteries in just minutes.
- Emerging technologies are advancing that promote how renewable energy, transportation electrification, and distributed energy resources can all be harnessed to reinvent how we manage energy.



Additional Market Drivers

The push for transportation electrification is happening now

- Cities want the benefits EVs can bring to help them meet sustainability and air quality goals, improve the health of their communities, and even potentially reduce the life cycle cost of their own fleets.
- Utilities recognize that EV adoption is the pathway to grid modernization, as transportation is set to become their biggest customer.
- Transportation agencies are trying to develop best practices for planning and design of infrastructure required to support new vehicles.
- States and regulatory agencies are passing mandates and proposals to support those efforts.



National Expertise

AECOM's experience supporting a broad range of transportation electrification across the nation



Electrification Planning and Modeling Offerings

Electrification provides opportunities to develop unique offerings with increased impact.

1 Identifying Prioritized Market Needs

- Risk and asset ownership
- Operational efficiency over multiple facilities
- Resilience
- Modeling and planning charging infrastructure needs

2 Developing New Offerings and Strategies

- Alternative delivery models for charging infrastructure
- Digital platforms for electrification modeling and mgmt.
- Partnerships on joint asset delivery

3 Investing, Testing and Jointly Developing Offerings

- Strategic Pilots with Cities
- Collaborative roll-out of offerings
- [Partnerships with technology vendors](#) who need subject matter expertise



Electrification Offerings



Electrification Modeling & Back Office Management Tool

Description

- Web-based tool to model the penetration of electrification based on publicly available city-specific data
- Ability to leverage model to plan capital improvements and master plan fleet electrification needs based on City priorities



Charging-as-a-Service Delivery

Description

- Alternative delivery model for fleet charging infrastructure
- AECOM is owner's trusted advisor to manage charging infrastructure planning, design, and operations optimization



Smart Charging Application

Description

- AI/ML web-based platform for management of charging based on factors including tariffs, operations, and infrastructure and energy availability



Deep Dive – City of Roseville

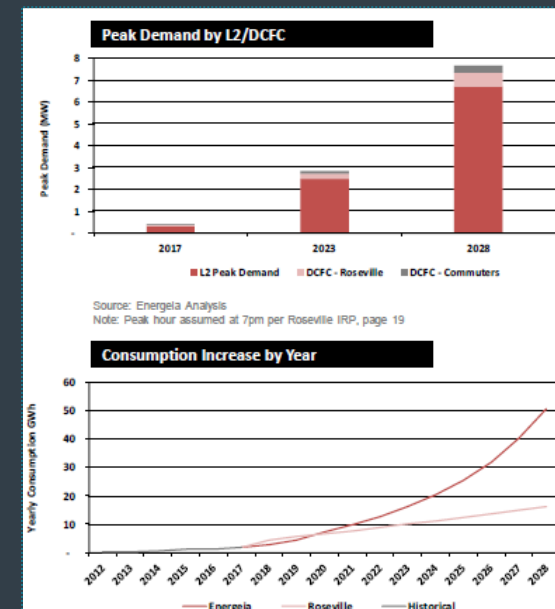
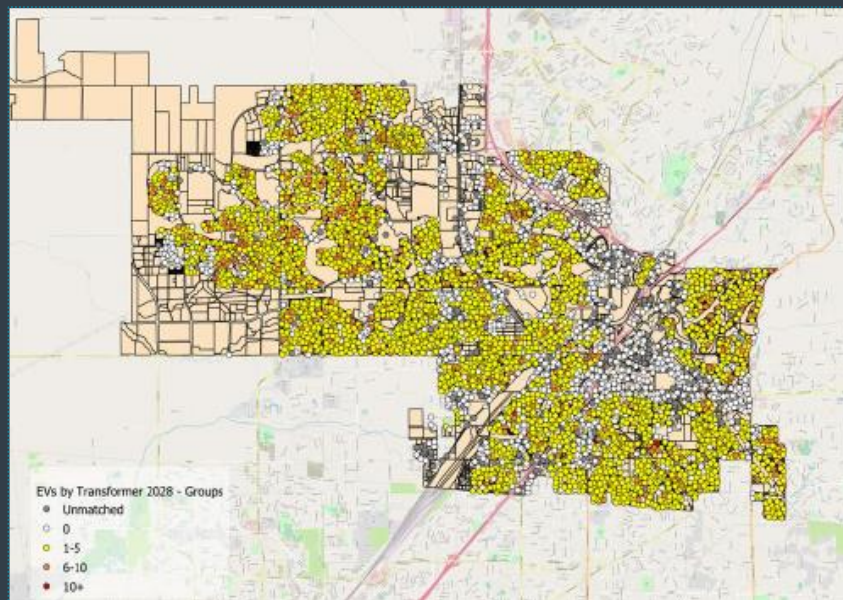
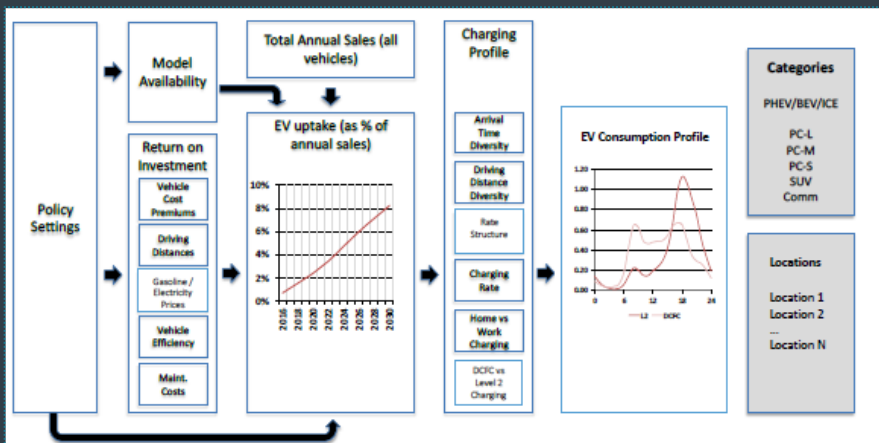


Goal and Objectives:

- Define EV growth anticipated in Roseville
- Forecast need for City EV charging infrastructure needs
- Evaluate impacts on the Roseville Utility Grid
- Strategies to manage PEV Impacts



City of Roseville Methodology



Uptake Forecasting System

- More defined forecast modeling based on policy, total vehicle sales, charging profile, and location
- Spatial distribution drivers such as single-family homes, education, PV adoption

Spatial Forecasting of EV Adoption

- Identification of EV “hot spots,” e.g. low commercial services, high education, high PV adoption
- Heat map showing EVs by transformers forecasted by 2028

Estimating System Peak and Utilization

- Forecasted peak demand impacts
- Forecast of annual consumption increase



City of Roseville Results

PEV Impacts

- PEV adoption is anticipated higher than current forecasts, more relatable to California Target
- City energy infrastructure is suitably equipped for anticipated 2030 adoption
- Infrastructure updates and changes will be needed for the future, and location specific to the city can be identified with “hot spots” in adoption

Strategies to Manage Impacts of PEV Adoption

- V2G technology and DR can significantly mitigate the impact of PEV adoption, a pilot with city owned vehicles was recommended
- PEVs could become a significant new form of DER for Roseville
- Rate design can be a strong mitigation to encourage off-peak charging
- Particular attention on DCFC and minimizing impacts with customer is a priority



Deep Dive – Fresno Council of Governments EV Readiness Plan

Objectives

- Inventory and assess current conditions
- Extensive stakeholder and public engagement
- Identify charging network gaps into the future
- Recommend specific sites to integrate into larger charging networks

Unique Attributes

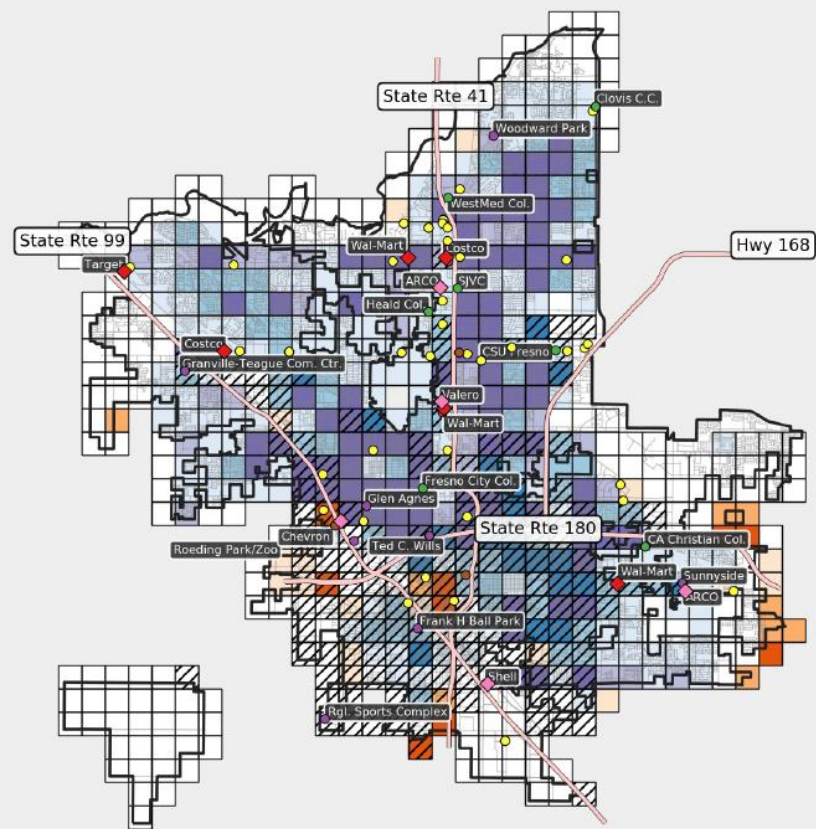
- Many residents face great obstacles to EV adoption
- Access to public transit is limited
- Environmental impacts and equity are primary concerns



Deep Dive – FCOG EV Readiness Plan

2025 Infrastructure Targets

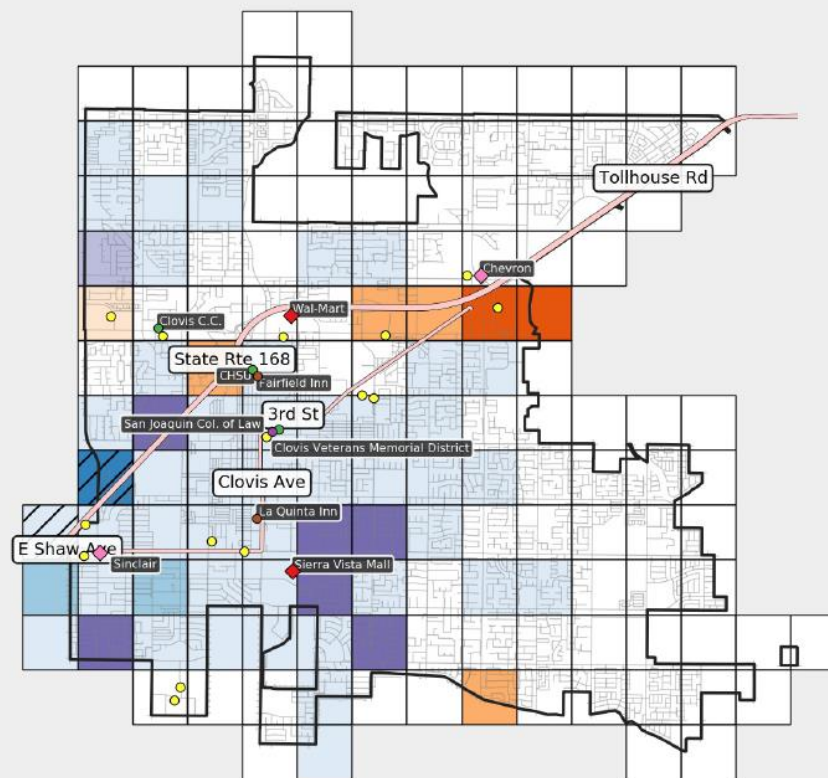
Fresno



Charger Type	Target
Residential L2	533
Commercial L2	299
College L2	54
Retail DCFC	3
Gas DCFC	2

- Key**
- City Boundary
 - Major Roads
 - Streets
 - 0
 - Commercial - 1
 - Commercial - 2
 - Commercial - 3+
 - Mixed - 2
 - Mixed - 3+
 - Residential - 1
 - Residential - 2
 - Residential - 3+
 - Retail DCFC
 - Gas Station DCFC
 - Hotel/Motel L2
 - Community L2
 - College L2
 - Existing/Planned
 - EJ/VC Area

Clovis



Charger Type	Target
Residential L2	87
Commercial L2	49
College L2	9
Retail DCFC	1
Gas DCFC	1

- Key**
- City Boundary
 - Major Roads
 - Streets
 - 0
 - Commercial - 1
 - Commercial - 2
 - Commercial - 3+
 - Mixed - 2
 - Mixed - 3+
 - Residential - 1
 - Residential - 2
 - Residential - 3+
 - Retail DCFC
 - Gas Station DCFC
 - Hotel/Motel L2
 - Community L2
 - College L2
 - Existing/Planned
 - EJ/VC Area



Deep Dive – FCOG EV Readiness Plan

Ensuring equitable access to e-mobility benefits

- The table maps the roles that e-mobility can play in the delivery of key benefits to key disadvantaged segments

Disadvantaged segments can receive these benefits to these disadvantaged segments via:

- Enablement of listed benefits
- Solutions tailored to address disadvantages
- Equitable targeting and prioritization of activities

Transportation electrification can deliver an equitable share of e-mobility benefits to socio-economically disadvantaged regions

eMobility Benefits

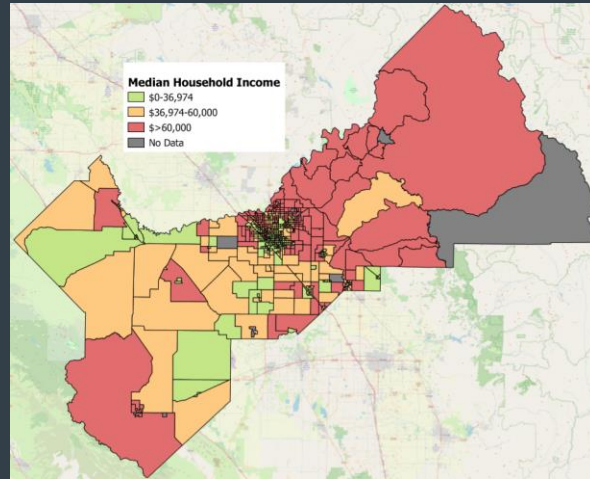
Socio-Economic Disadvantages	Local Transportation Electrification	Transportation Cost Reduction	Multilingual Electrification Education	Electrification Service Training	Increased Transportation Accessibility
Air Quality Health issues/Pollution	•				
Low Income		•			•
Linguistic Isolation			•		
Employment				•	
Aged/Special Needs					•



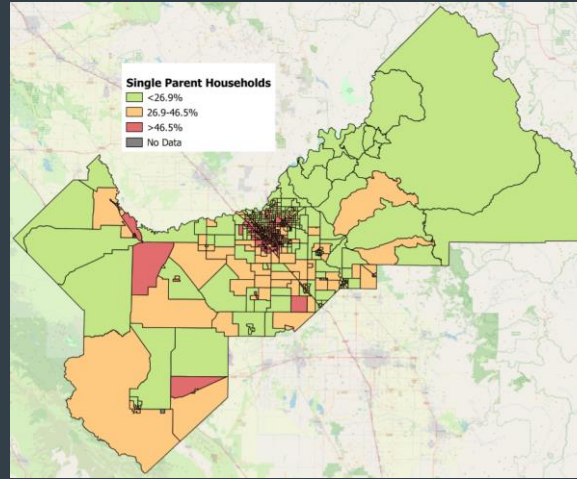
Deep Dive – FCOG EV Readiness Plan

Socioeconomic Indicators

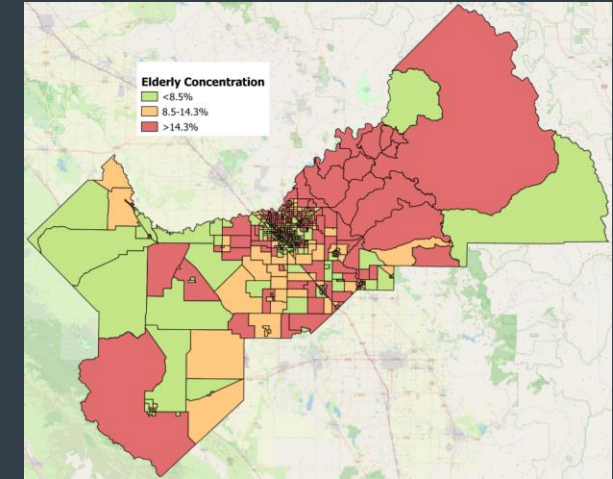
Household Income



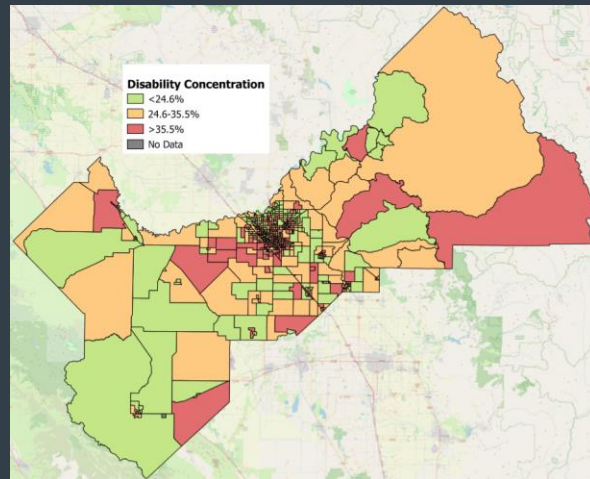
Single Parent Households



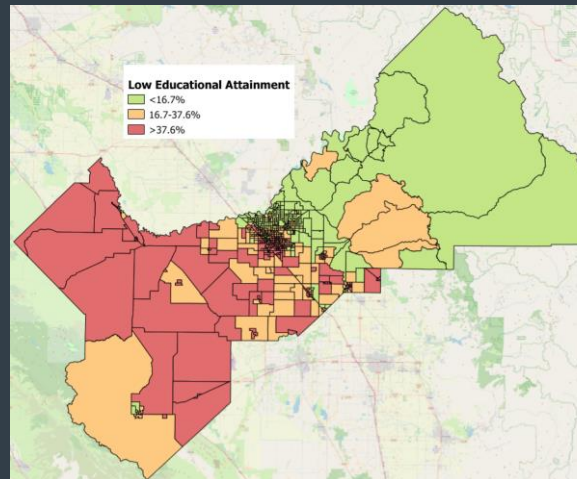
Elderly Concentration



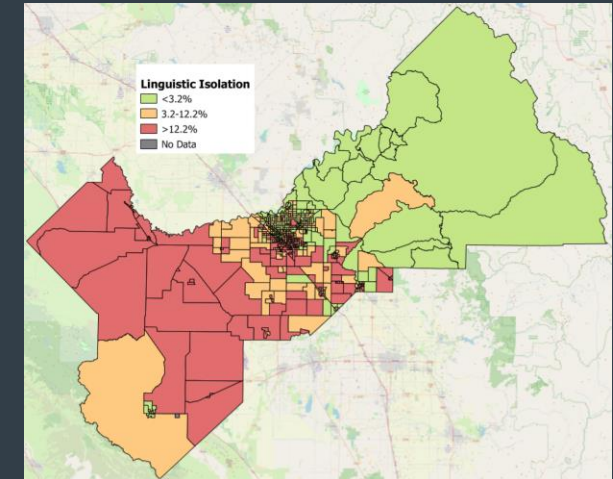
Disability Concentration



Low Education Attainment

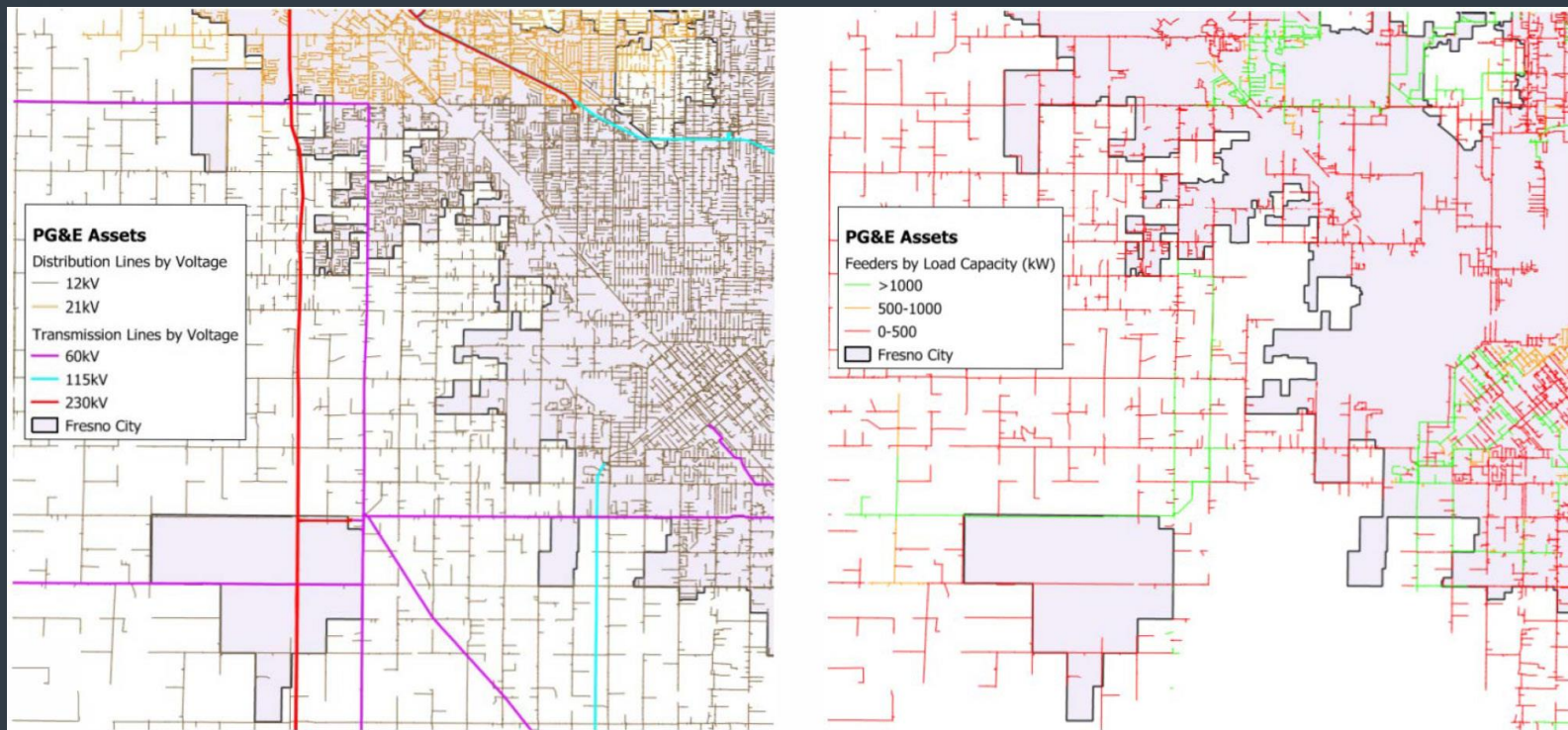


Linguistic Isolation





Deep Dive – Fresno



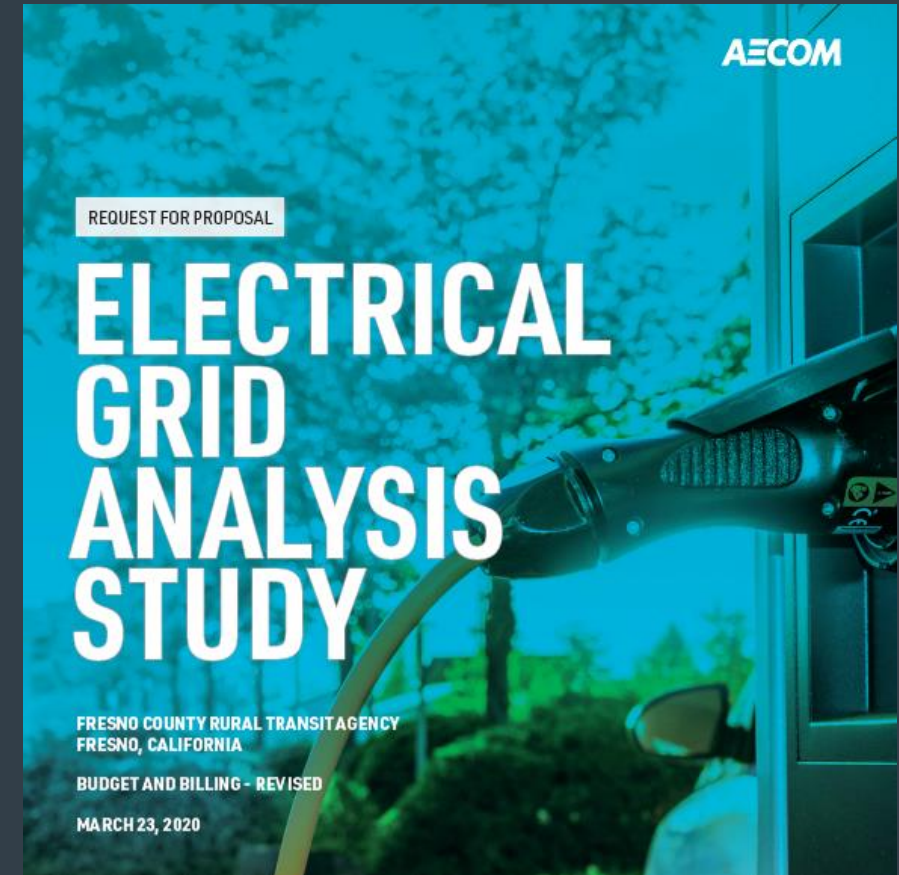
Spatial Allocation



Deep Dive – Fresno County Rural Transit Agency

Goal and Objectives

- Identify and create partnerships
- Conduct public outreach and community workshops
- Assess grid capacity and identify areas with existing deficiencies
- Assess grid capacity and identify areas that can support EV infrastructure
- Model customer, load and DER growth
- Identify grid capacity needed to support EV growth
- Determine approximate capital costs for upgrades to substandard segments of the grid





FCRTA Methodology

Identify Existing Conditions

- Develop Research Plan
- Meet with SMEs and Stakeholders
- Collect and analyze key data sets

Analyze Grid Impacts

- Forecast customer, load, and DER growth
- Forecast natural gas decommissioning
- Forecast thermal overloads
- Forecast asset retirements
- Forecast power quality issues

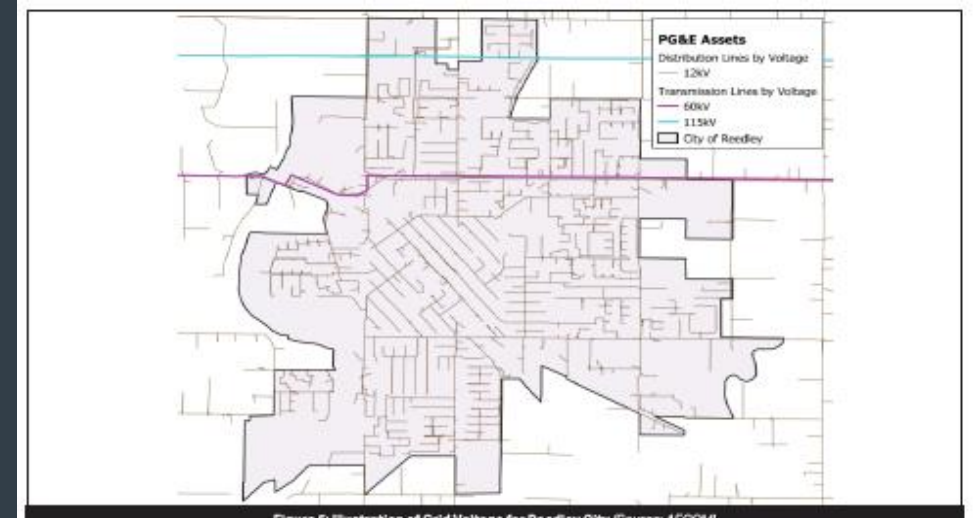


Figure 8: Illustration of Grid Voltage for Reedley City (Source: AECOM)

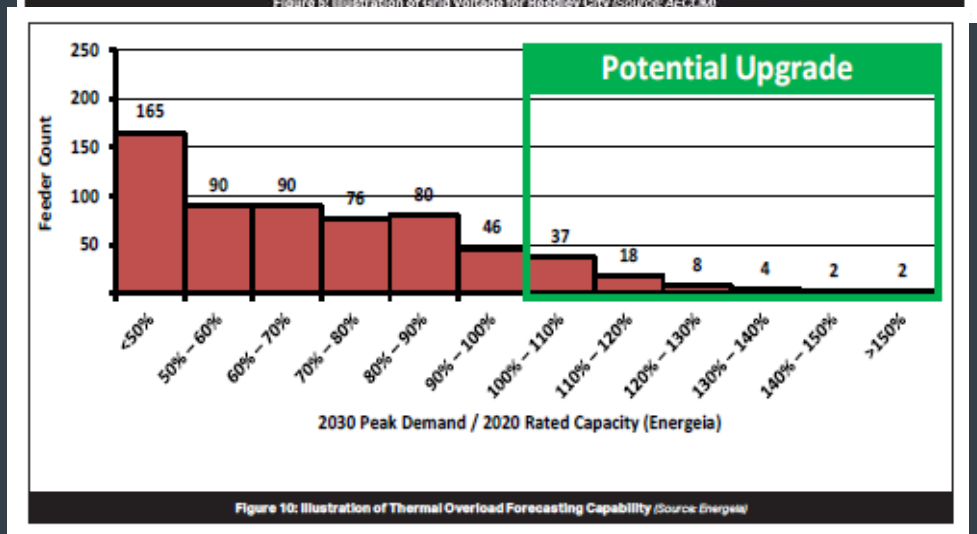
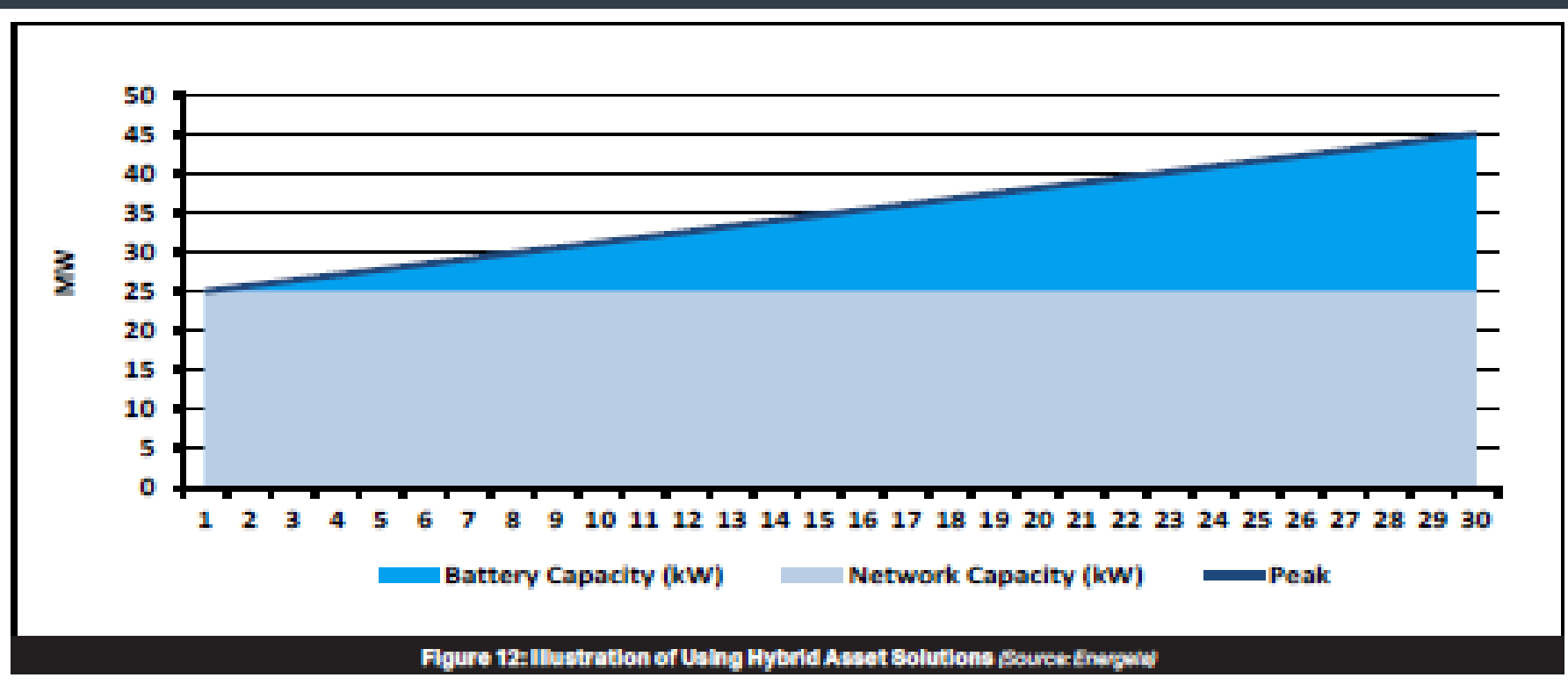


Figure 10: Illustration of Thermal Overload Forecasting Capability (Source: Energia)

FCRTA Methodology

Holistic Approach to Address Constraints

- Perform options analysis
- Develop cost estimate for potential upgrades
- Conventional Solutions





What We Have Learned

The potential impacts to utility infrastructure from widespread electrification are significant

- Multifamily dwellings, commercial centers, and public infrastructure (bus depots, airports, marine ports, intermodal transfer facilities, etc.) represent the largest impacts
- Planning and coordination is needed now with an understanding of where new loads will occur

Effective charger siting requires a deep understanding of current and future land usage patterns, infrastructure capacity and improvements, traffic patterns, and policy goals

Electrification efforts can support other localized policy objectives, goals, and requirements



And How AECOM Has Responded

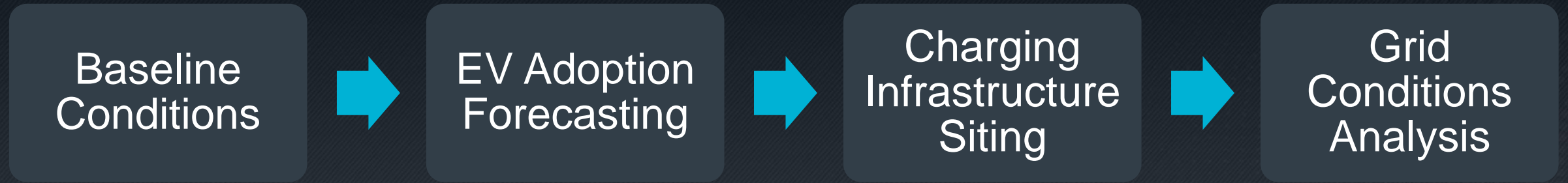
We are integrating all our lessons learned into a sophisticated electrification planning tool for utilities, cities, planning agencies, private entities, and non-profits.

- Over 25 location specific data layers from income to truck routes
- Ability to input propriety data (i.e., utility transformers) into the modeling tool
- Proprietary algorithms utilize all data sets to inform decision-making
- We are integrating all lessons learned into a sophisticated electrification planning tool for utilities, cities, planning agencies, private entities, and non-profits

Our approach is not just to map the current, relevant data sets but to analyze the combined data sets and predict future needs

evRedi Electrification Modeling Tool

Developed to support transportation electrification related efforts for utilities and other clients as they understand impacts of increased electrification on their systems



Reflects client electrification priorities

- Early EV Adopters
- Existing EV Network
- Mobility Access
- Land Use
- Equity

Forecast areas of EV adoption

- Economic vehicle and energy cost analysis
- Technical advancement
- Model availability + accessibility
- Regulatory mandates

Combine forecast outputs

- Modeled need for public charging
- Land use analysis
- Site prioritization
- Recommendations for charging technology, capacity, and quantity

Articulate grid impact from electrification

- Load growth forecasting and profiles
- Medium and heavy-duty vehicle considerations
- Future grid deficiencies
- Necessary system upgrades

Reset to Default Weights

Module 1

Early EV Adopters

This module provides an overview of indicators associated with early EV adoption. This will determine where EV adoption is likely to occur and require an EV charging network.

Module Weight in Total



Importance of each Module 1 component:

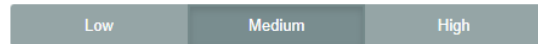
Median Household Income



Environmental Concern



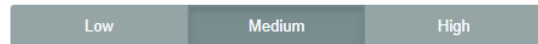
Car Ownership



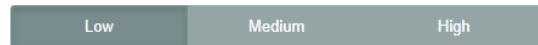
Higher Education Attainment



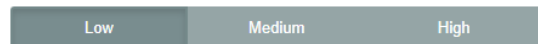
Existing EV Ownership



Community Solar Projects



Urban Area



Residential Solar Projects



Module 2

EV Charging Network

This module provides an overview of inequities within traditional public mobility as well as the existing EV charger network in order to identify gaps in the charging network and opportunities for EV charging to improve mobility access.

Module Weight in Total

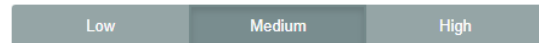


Importance of each Module 2 component:

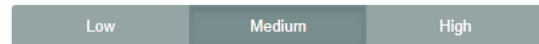
Existing L2 Charging Infrastructure



Existing DCFC Infrastructure



Average Annual Daily Traffic

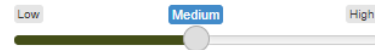


Module 3

Land Use & Built Environment

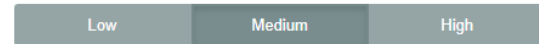
This module provides an overview of existing land use and opportunities where land use can be used leveraged to support EV infrastructure and increase EV adoption.

Module Weight in Total

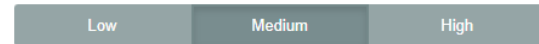


Importance of each Module 3 component:

Multi-family Housing



Population Density



Module 4

Equity

This module provides an overview of socio-economic community disparities that can aid in targeted EV infrastructure investment to enhance equity among vulnerable populations.

Module Weight in Total



Importance of each Module 4 component:

Unemployment



Social Vulnerability



Pollution Exposure



Asthma Indicators



Housing Burden

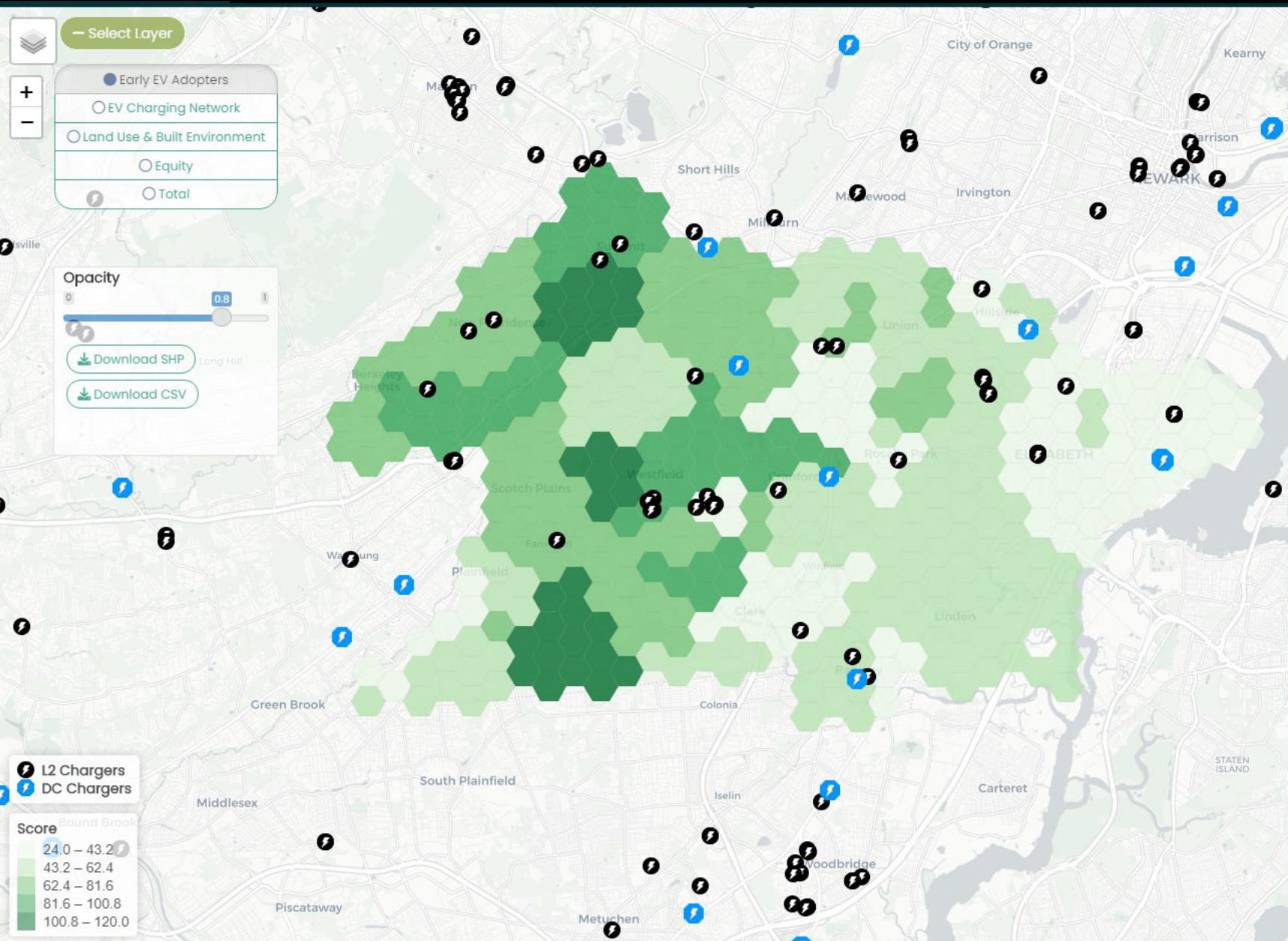


Metro Accessibility



Public Transportation Accessibility





Select Layer

- Early EV Adopters
- EV Charging Network
- Land Use & Built Environment
- Equity
- Total

Opacity

0.8

[Download SHP](#)

[Download CSV](#)

L2 Chargers

DC Chargers

Score

- 24.0 - 43.2
- 43.2 - 62.4
- 62.4 - 81.6
- 81.6 - 100.8
- 100.8 - 120.0

MODULE WEIGHTS

EARLY EV ADOPTERS

This module provides an overview of indicators associated with early EV adoption. This will determine where EV adoption is likely to occur and require an EV charging network.

Module Weight in Total

Low Medium High

Importance of each Module 1 component:

Median Household Income

Low	Medium	High
-----	--------	------

Environmental Concern

Low	Medium	High
-----	--------	------

Car Ownership

Low	Medium	High
-----	--------	------

Higher Education Attainment

Low	Medium	High
-----	--------	------

Existing EV Ownership

Low	Medium	High
-----	--------	------

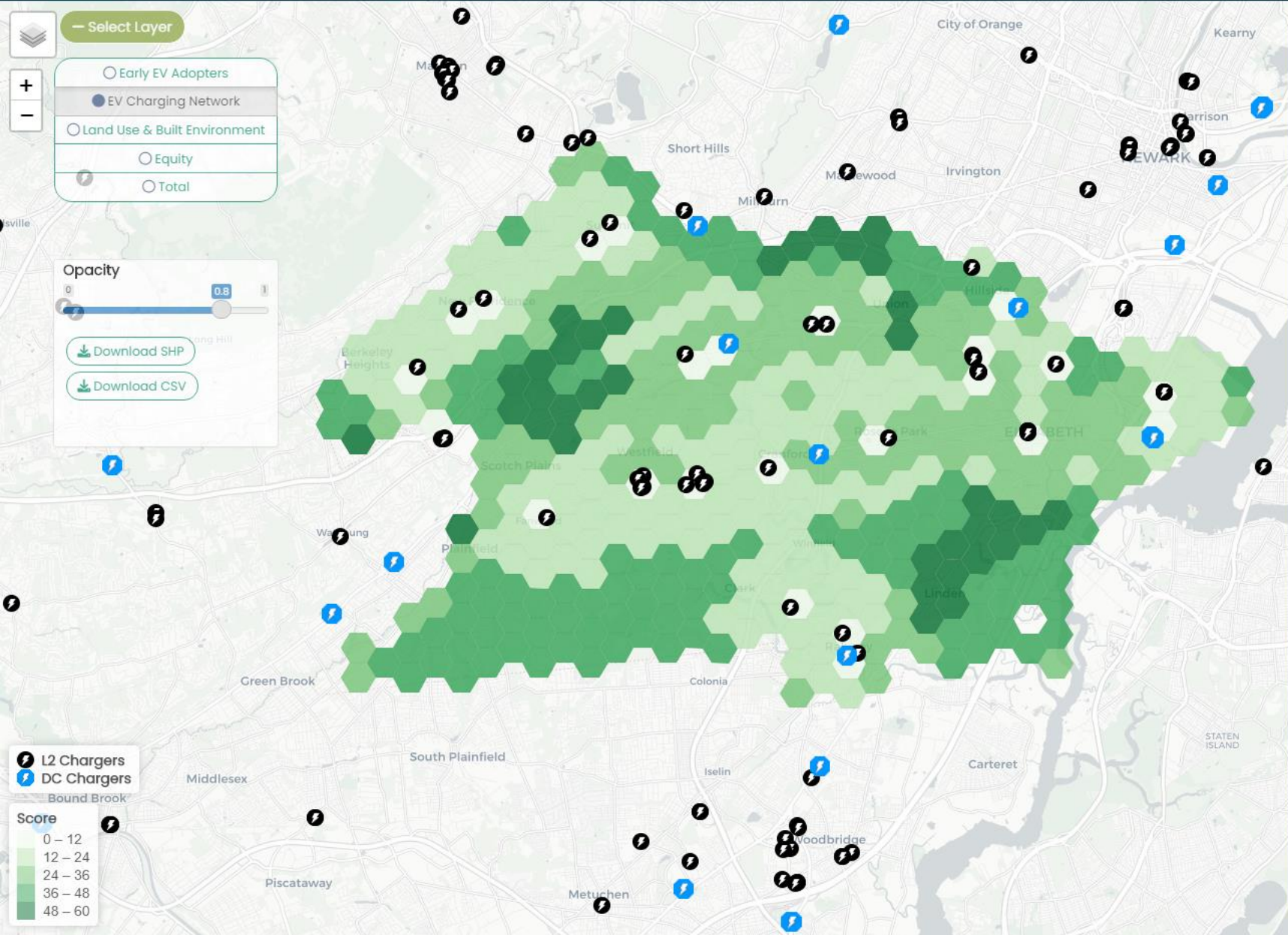
Urban Area

Low	Medium	High
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EV CHARGING NETWORK

LAND USE & BUILT ENVIRONMENT

EQUITY



Select Layer

- Early EV Adopters
- EV Charging Network
- Land Use & Built Environment
- Equity
- Total

Opacity

0.8

[Download SHP](#)

[Download CSV](#)

L2 Chargers

DC Chargers

Score

- 0 - 12
- 12 - 24
- 24 - 36
- 36 - 48
- 48 - 60

MODULE WEIGHTS

EARLY EV ADOPTERS

EV CHARGING NETWORK

This module provides an overview of inequities within traditional public mobility as well as the existing EV charger network in order to identify gaps in the charging network and opportunities for EV charging to improve mobility access.

Module Weight in Total

Low Medium High

Importance of each Module 2 component:

Existing L2 Charging Infrastructure

Low Medium High

Existing DCFC Infrastructure

Low Medium High

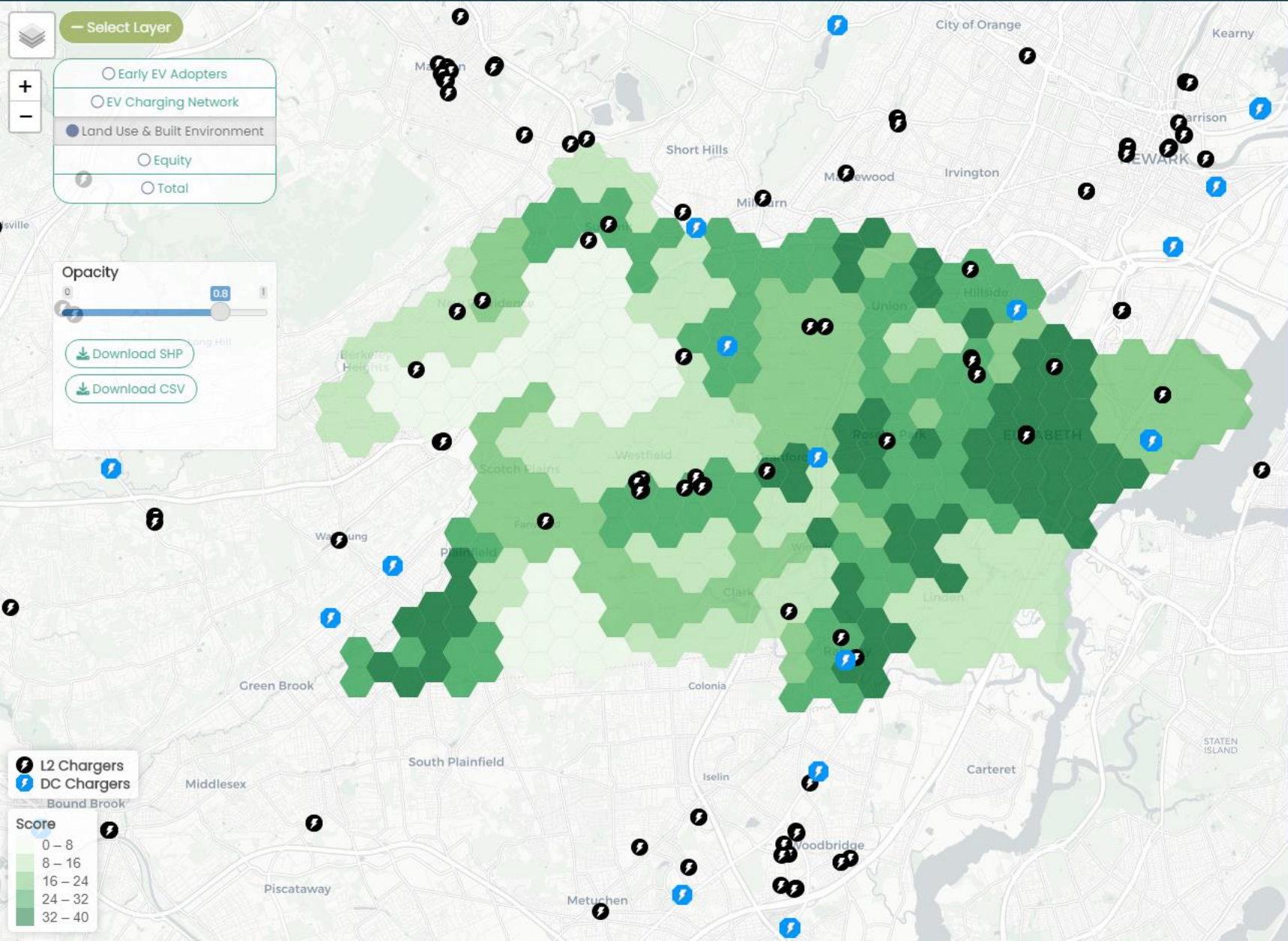
Average Annual Daily Traffic

Low Medium High

LAND USE & BUILT ENVIRONMENT

EQUITY

[Reset to Default Weights](#)



Select Layer

- Early EV Adopters
- EV Charging Network
- Land Use & Built Environment
- Equity
- Total

Opacity

0 1

[Download SHP](#)

[Download CSV](#)

L2 Chargers (black lightning bolt icon)

DC Chargers (blue lightning bolt icon)

Score

- 0 - 8
- 8 - 16
- 16 - 24
- 24 - 32
- 32 - 40

MODULE WEIGHTS

EARLY EV ADOPTERS

EV CHARGING NETWORK

LAND USE & BUILT ENVIRONMENT

This module provides an overview of existing land use and opportunities where land use can be used leveraged to support EV infrastructure and increase EV adoption.

Module Weight in Total

Low Medium High

Importance of each Module 3 component:

Multi-family Housing

Low	Medium	High
-----	--------	------

Zoning

Low	Medium	High
-----	--------	------

High Visit Locations

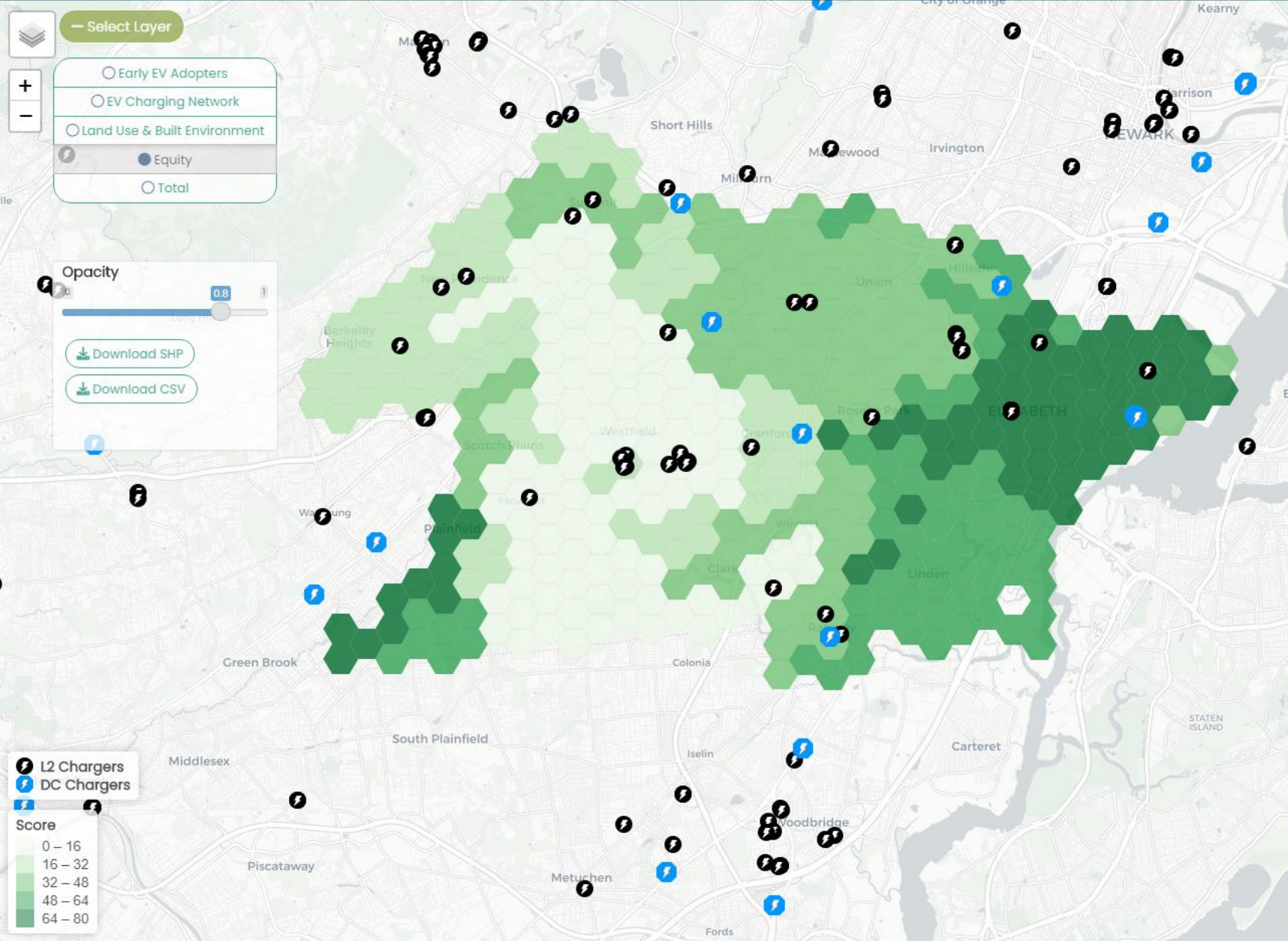
Low	Medium	High
-----	--------	------

Population Density

Low	Medium	High
-----	--------	------

EQUITY

[Reset to Default Weights](#)



Select Layer

- Early EV Adopters
- EV Charging Network
- Land Use & Built Environment
- Equity
- Total

Opacity

0.8

Download SHP

Download CSV

L2 Chargers

DC Chargers

Score

- 0 - 16
- 16 - 32
- 32 - 48
- 48 - 64
- 64 - 80

MODULE WEIGHTS

EARLY EV ADOPTERS

EV CHARGING NETWORK

LAND USE & BUILT ENVIRONMENT

EQUITY

This module provides an overview of socio-economic community disparities that can aid in targeted EV infrastructure investment to enhance equity among vulnerable populations.

Module Weight in Total

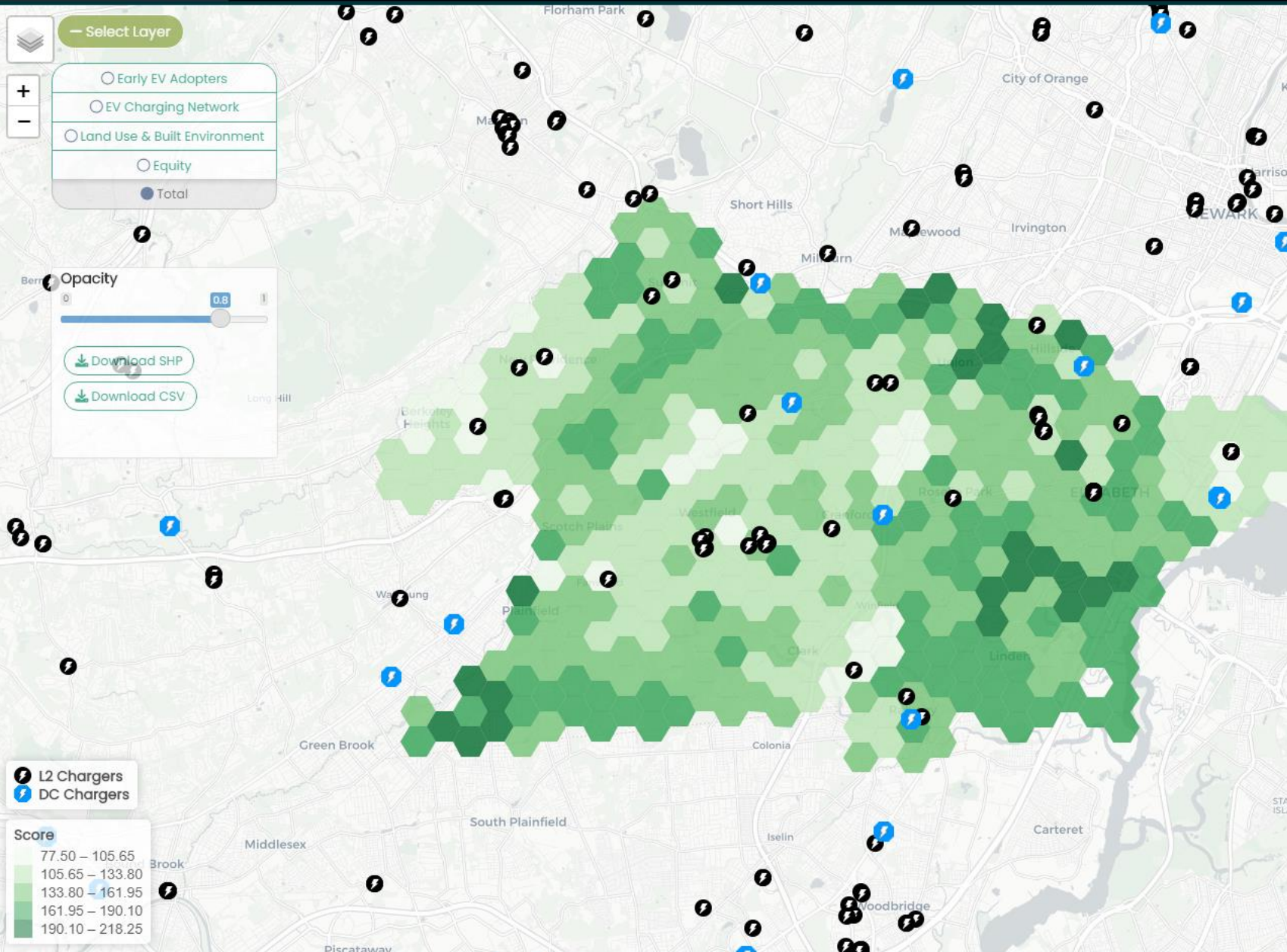
Low Medium High

Importance of each Module 2 component:

Equity

Low
Medium
High

[Reset to Default Weights](#)



Select Layer



- Early EV Adopters
- EV Charging Network
- Land Use & Built Environment
- Equity
- Total

Opacity



Download SHP

Download CSV

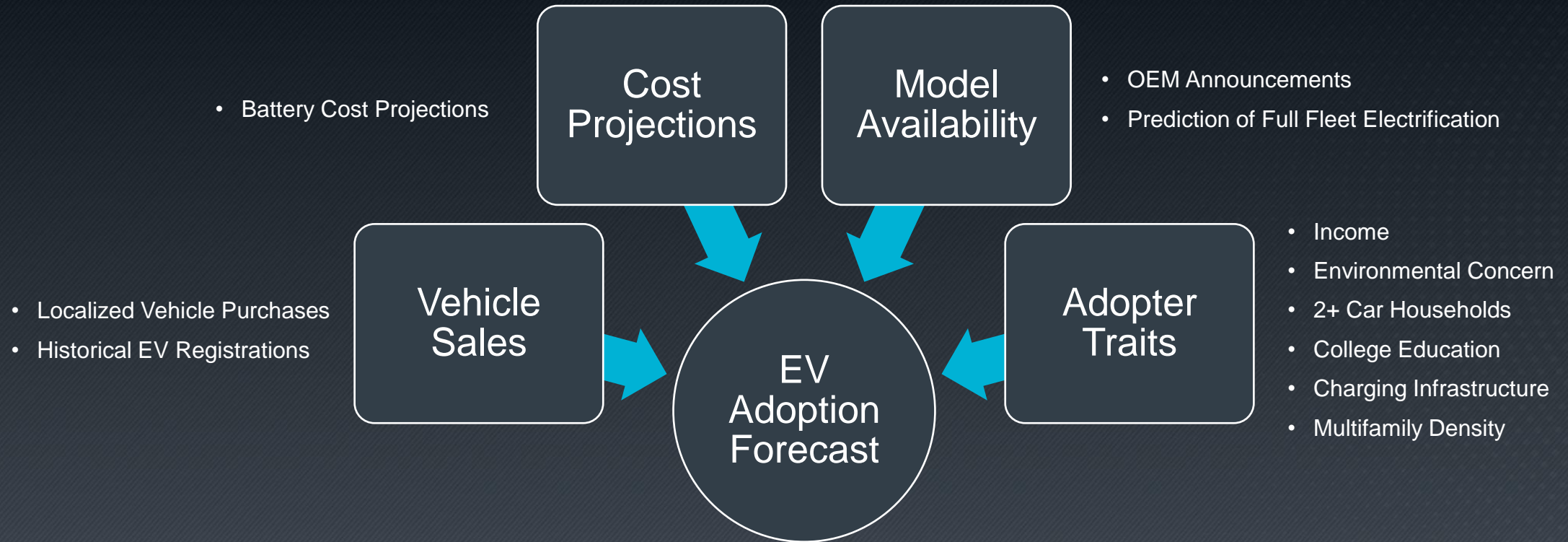
- L2 Chargers
- DC Chargers

Score

77.50 - 105.65
105.65 - 133.80
133.80 - 161.95
161.95 - 190.10
190.10 - 218.25

V2

Builds upon V1 by projecting electric vehicle adoption throughout the coming years. The V2 model utilizes localized data and technology trends to perform the analysis.

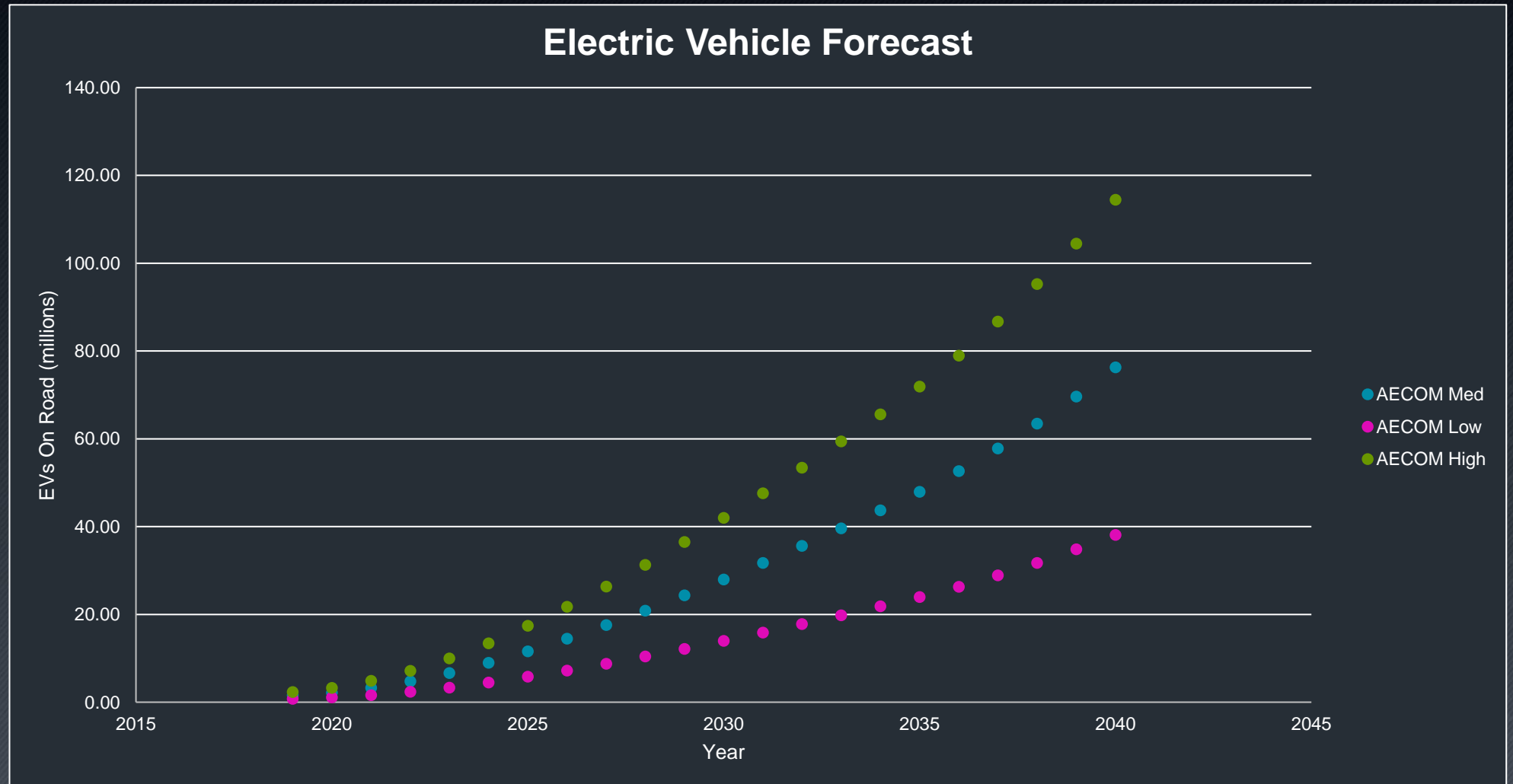


V2

Developed AECOM EV Adoption Forecast.

Features

- Three growth scenarios: low; medium; high

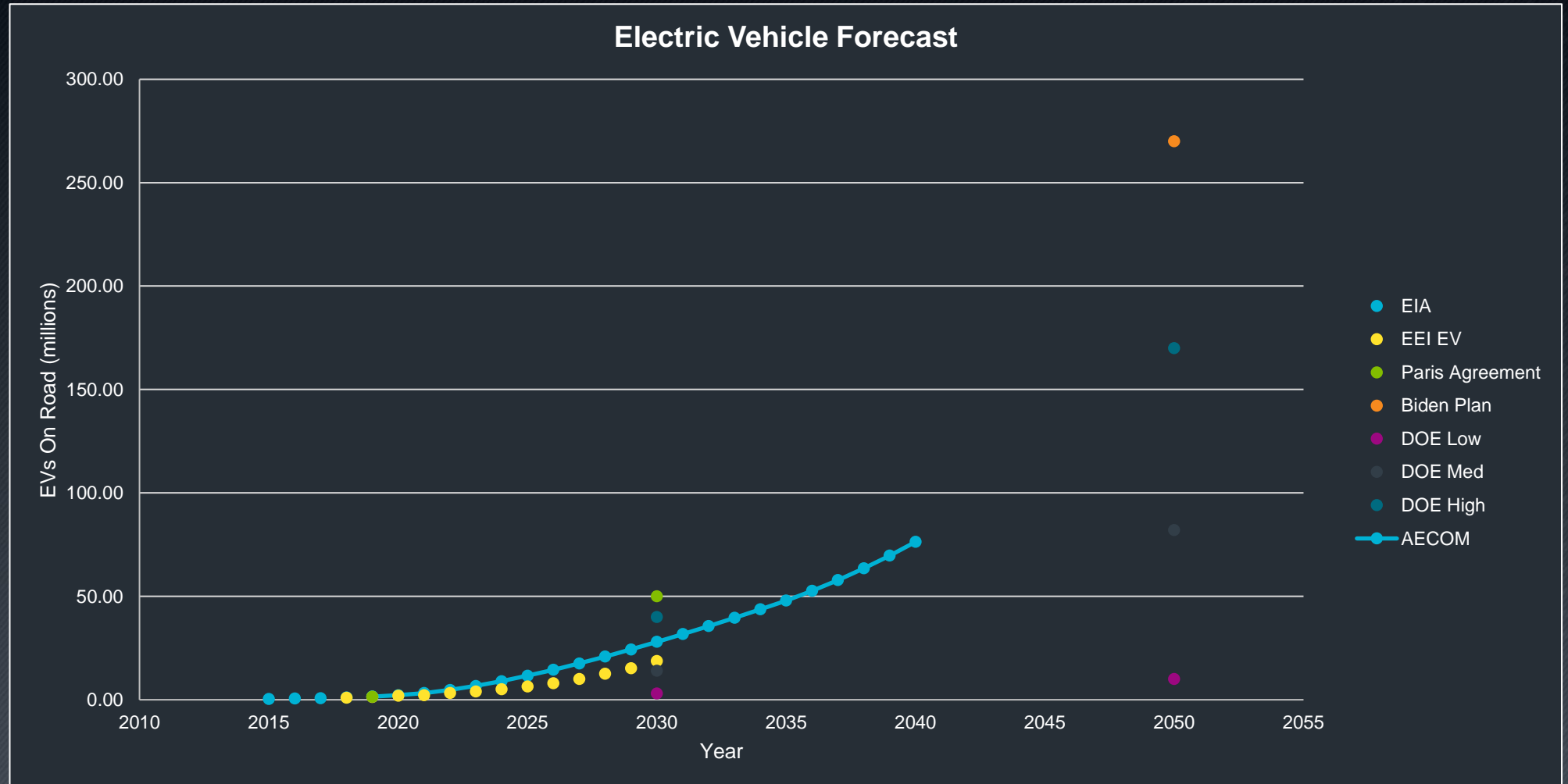


V2

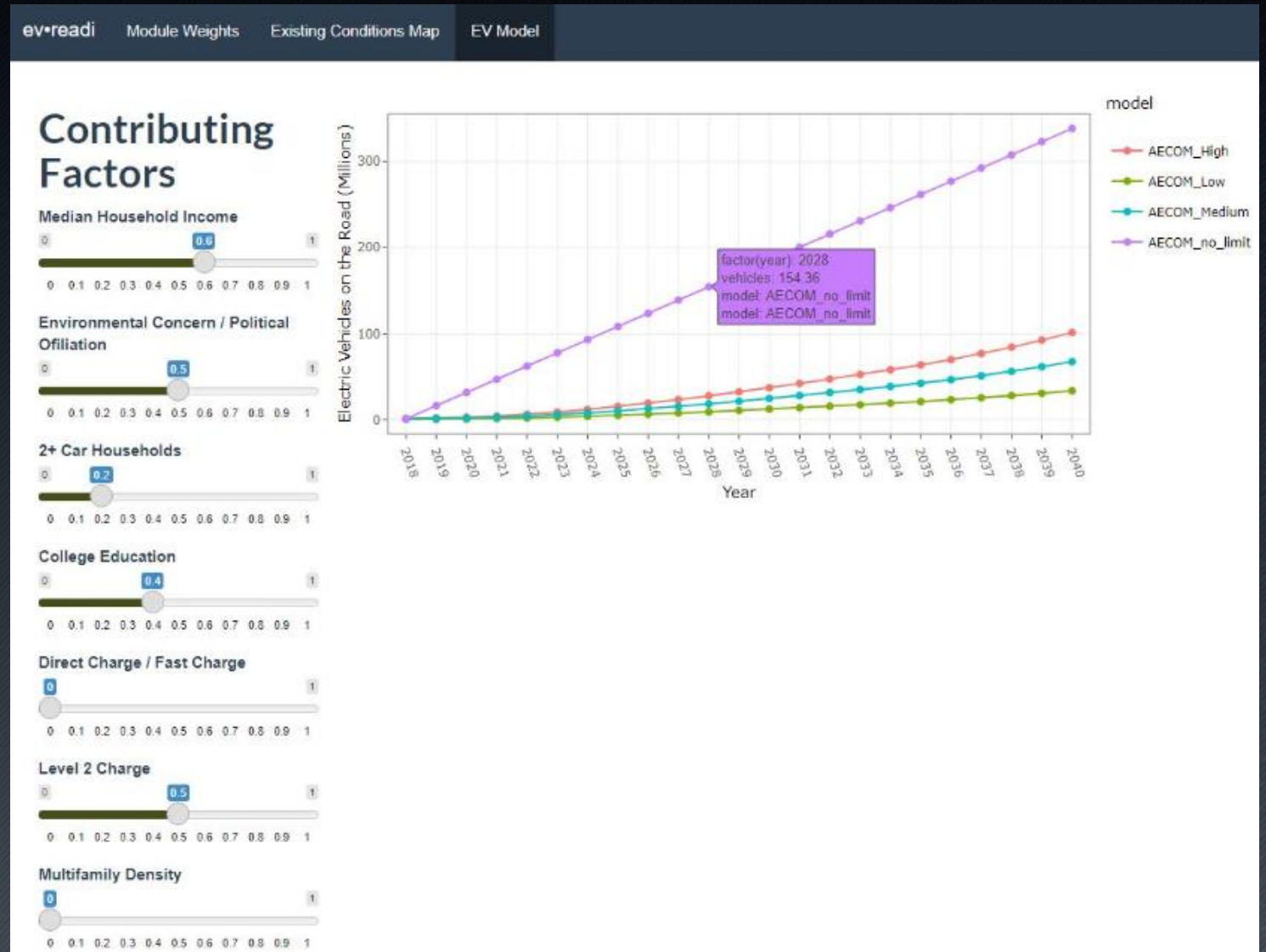
Performed an analysis of the United States vehicle fleet to compare results alongside other projections.

Results

- AECOM predicts ~28M EVs on the road in 2030
- Low and high bounds are estimated at 14M and 42M EVs in 2030
- This model can be replicated for any client to illustrate localized results



EV-Readi V2: EV Forecasting





Conclusions

- Transportation electrification is a rapidly emerging area with potential to transform communities by joining transportation and energy disciplines
- AECOM is developing national expertise in transportation electrification planning and modeling capabilities
- Planning and modeling must account for local priorities, future growth scenarios, and system needs



plan • engage

Better communication, improved outcomes.

What is PlanEngage?

AECOM's inventive new way to prepare and present a report.

AECOM's PlanEngage offers greater accessibility and transparency for project stakeholders, including members of the public, to engage with an EIS, document, or report.



Online

Complex project information and data on a shared online platform.



Interactive

Easily view the data or information that matters to you most.



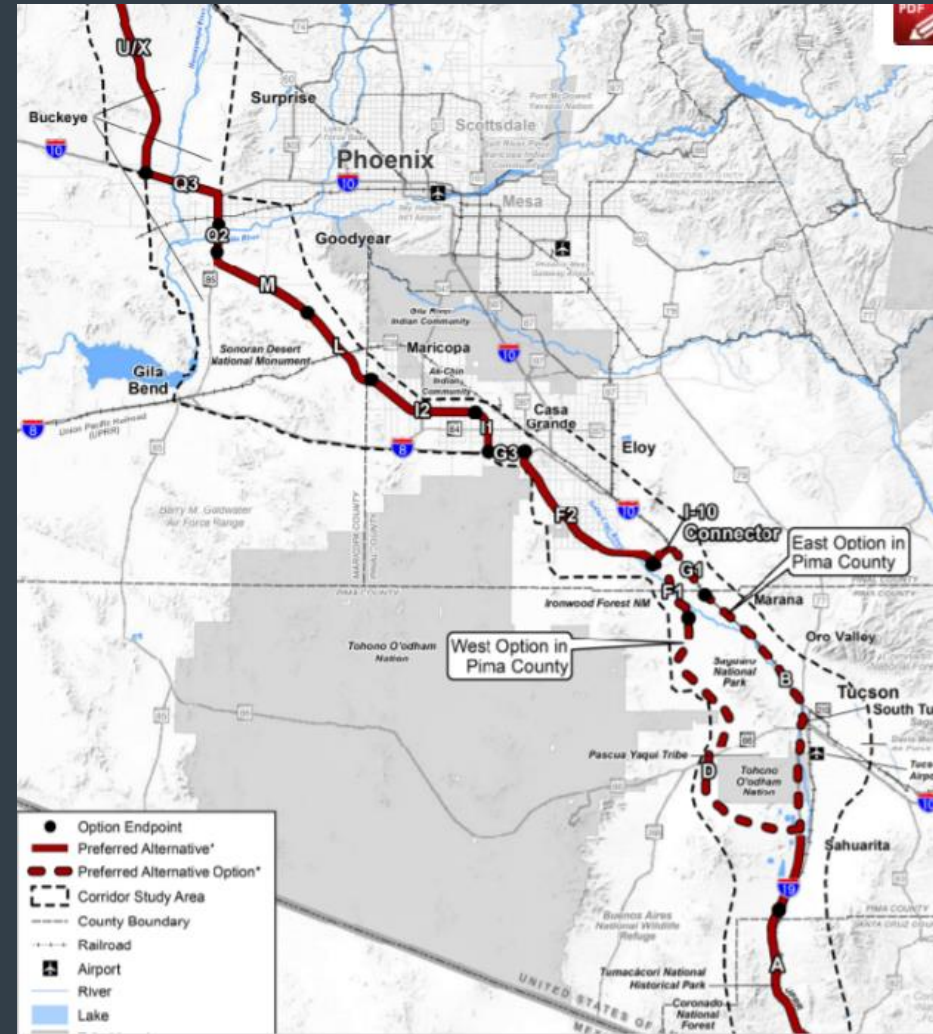
Visual

Engaging content to tell your project's story.



Compare this Traditional PDF Document Format

- [Cover, Abstract, Table of Contents, Acronyms and Abbreviations](#)
- [Executive Summary](#)
- [Introduction and Reader's Guide](#)
- [Chapter 1 Purpose and Need](#)
- [Chapter 2 Alternatives Considered in Draft Tier 1 EIS](#)
- [Chapter 3 Affected Environment and Environmental Consequences](#)
 - [Section 3.3 Land Use and Section 6\(f\)](#)
 - [Section 3.4 Recreation](#)
 - [Section 3.5 Community Resources Title VI and Environmental Justice](#)
 - [Section 3.6 Economic Impacts](#)
 - [Section 3.7 Archaeological, Historical, Architectural, and Cultural Resources](#)
 - [Section 3.8 Noise](#)
 - [Section 3.9 Visual and Aesthetics](#)
 - [Section 3.10 Air Quality](#)
 - [Section 3.11 Hazardous Materials](#)
 - [Section 3.12 Geology Soils and Prime and Unique Farmlands](#)
 - [Section 3.13 Water Resources](#)
 - [Section 3.14 Biological Resources](#)
 - [Section 3.15 Temporary Construction-related Impacts](#)
 - [Section 3.16 Irreversible and Irretrievable Commitment of Resources](#)



Click [here](#) to view this page

With this Engaging Interactive Playground

☰
? ⚙️

I-11 Final Tier 1 Environmental Impact Statement

- 6.1 Summary of Recommended Alternative in the Draft Tier 1 EIS
- 6.2 No Build Alternative
- 6.3 Input on the Recommended Alternative
- 6.4 Rationale for the Preferred Alternative
- 6.5 Comparison of End-to-End Recommended and Preferred Alternatives
- 6.6 Capital

6.5.1 Summary of Alignment Differences between the Recommended and Preferred Alternatives

The Preferred Alternative is different than the Recommended Alternative in the following areas, as shown on Figure 6-1:

- The Preferred Alternative carries forward both the west option in Pima County (Recommended or Green Alternative) and the east option in Pima County (Orange Alternative), allowing ADOT to make a more informed decision after completing detailed environmental and engineering studies in Tier 2.
- The Preferred Alternative connects to I-10 at Park Link Drive north of Marana rather than Tortolita Boulevard, which is responsive to feedback from the Town of Marana.
- The Preferred Alternative incorporates a refinement in southern Pinal County to minimize impacts to the Santa Cruz River, in response to comments from USACE.
- The Preferred Alternative follows Montgomery Road north of I-8, which is consistent with adopted plans and local agency feedback.
- The Preferred Alternative uses SR 85 and I-10 in the Buckeye area, eliminating new crossings of the Gila River and Hassayampa River and minimizing impacts to critical riparian habitat and federally protected species.
- The Preferred Alternative was shifted slightly west near US 93 in Yavapai County to minimize impacts to residences, floodplains, wildlife linkages, and Sonoran Desert tortoise habitat.

Click [here](#) to view this page

Visualize Projects with Zoomable Maps and Slider Bars

AECOM PlanEngage US
Complete Published I-11 Project 🔍 🔗 EDIT ⚙️

Welcome to PlanEngage

Demos

- I-11 Project Section 3.14 Biological Resources (AZ)
- Bay Area Transit Recovery Dashboard, a collaborative effort with AECOM and Seamless Bay Area (CA)
- Project Update for the 200 South Corridor Study (UT)
- State Route 37 Resilient Corridor Program (CA)
- Changes Over Time

- 508 Compliance
- Before and After
- Video
- 3D Views

Integrating other Survey Platforms


Map Feedback - Leave a Comment for Us!

Feedback Dashboard

Project Update for the 200 South Corridor Study (UT)

Concept 2, the Side-Running Transit Concept was Selected for Final Design

200 South Today



Rendering of 200 South in 2023



Conceptual Rendering by AECOM of the Selected 200 South Concept

Concept 2 includes a curbside-running BAT lane which is a transit lane that cannot generally be used by cars, but drivers can use them when making right turns at business driveways and intersections. This concept will accommodate car traffic in one lane per direction and allow the buses to maneuver around each other by using the inside travel lanes to pass as needed. The concept will be incorporated between 400 West and 700 East. From 700 East to 900 East, buses and cars will share the same single lane in each direction, matching what exists in this section of the corridor today. The Side-Running Concept is best suited to handle the amount of bus activity, and importantly, the types of bus routes on 200 South. This concept has several components important for the mobility of all modes on this corridor:

- Allows for multiple buses at each stop
- Buses can pass each other when necessary
- Maintains ability to turn onto/from 200 South at driveways and intersections (both cars and buses)

Based on typical street capacity, only one lane in each direction is needed unless volumes exceed 15,000 vehicles per day. Traffic volumes are not reaching this threshold in any section.

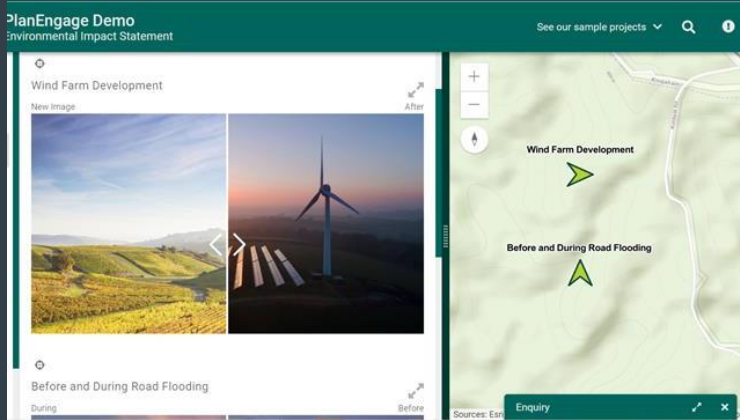
Mixed Traffic Lanes with Frequent Buses
1,000-2,800 People/Hour

200 South has more single occupancy vehicle capacity than needed.

AECOM

PROVIDE FEEDBACK

PlanEngage Benefits: Engaging, Transparent and Accessible



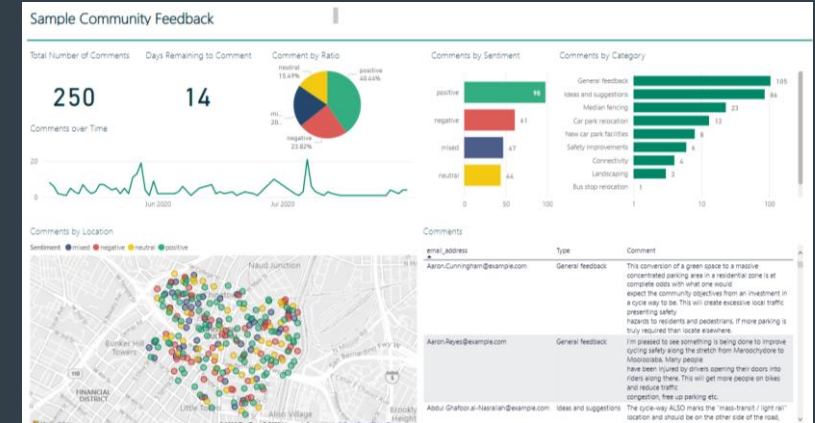
Enhances understanding

- Entire legal document is interactive
- Readers interact with text, maps, videos, and visuals
- Maps can move with text
- Can print to PDF



Reaches more people

- Lowers barrier of entry
- Broader diversity of comments
- Available on mobile phone with simple cell service
- Easily translatable to other languages
- Fully 508 compliant (read-out loud capability)



Fosters better feedback

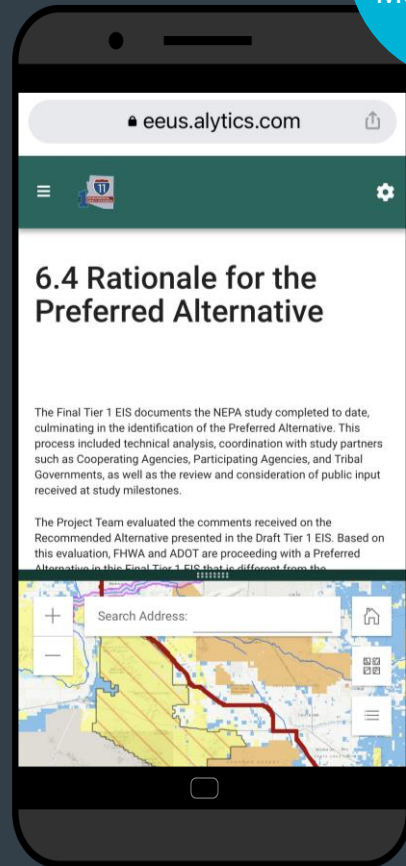
- Ability to comment while reading text or viewing a map
- Comments can be targeted to specific geographic area, reducing ambiguity
- All comments in one place with dashboards for analysis

More Equitable Engagement

Scan the QR code below to easily use PlanEngage without a computer.



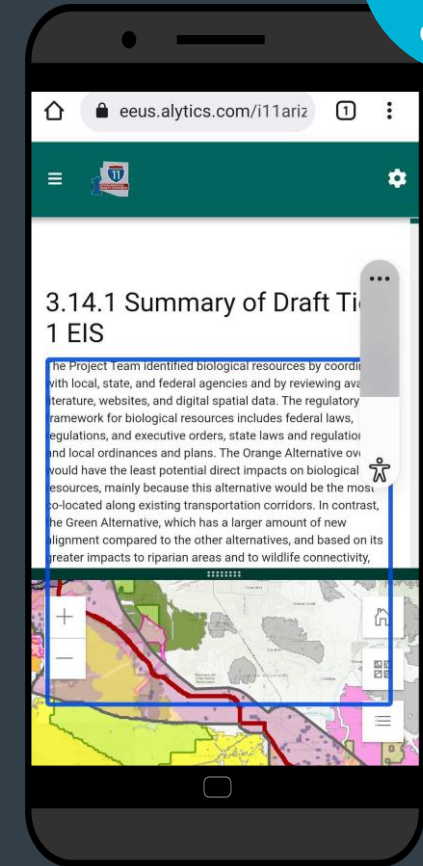
Mobile phone friendly



Easy to Translate



Read out Loud



Read Out Loud Capability

The screenshot shows a web browser window displaying a document titled "I-11 Final Tier 1 Environmental Impact Statement". The document is open to the section "3.14 Biological Resources". A "Read Aloud" extension is active, displaying a text overlay on the right side of the page. The text in the overlay reads: "3.14.1 Summary of Draft Tier 1 EIS. The Project Team identified biological resources by coordinating with local, state, and federal agencies and by reviewing available literature, websites, and digital spatial data. The regulatory framework for biological resources includes federal laws, regulations, and executive orders, state laws and regulations, and local ordinances and plans. The Orange Alternative overall would have the least potential direct impacts on biological resources, mainly because this alternative would be the most co-located along existing transportation corridors. In contrast, the Green Alternative, which has a larger amount of new alignment compared to the other alternatives, and based on its greater impacts to riparian areas and to wildlife connectivity, would cause the most deleterious impacts to biotic communities, Important Bird Areas, Species of Economic and Recreational Importance, and special status species, compared to the other alternatives. The Green Alternative also would have the greatest potential to increase the spread of invasive species compared to the other alternatives. The biological resources that were investigated are described in the following sections, along with a summary comparison of the alternatives." The extension also includes playback controls (play/pause, stop, next) and a volume control icon. A blue callout box points to the extension with the text: "A Google Chrome extension like Read Aloud can help visually impaired users hear the content hosted in this digital platform." The browser's address bar shows the URL "eesus.lytics.com/11arizona-tier1eis/study/314-Biological-Resources". The browser's taskbar shows several open applications, including "Sac Assessor Parcel...", "AECOM UK PlanEng...", "Whiteboard", "Transit Explorer 2022", "AECOM PlanEngag...", and "TO17 FLM App".

A Google Chrome extension like [Google Translate](#) can allow non-English speakers to quickly see content in their preferred language.

3.14 Recursos Biológicos

3.14.1 Resumen del Borrador del EIS de Nivel 1

El equipo del proyecto identificó los recursos biológicos mediante la coordinación con las agencias locales, estatales y federales y mediante la revisión de la literatura, los sitios web y los datos espaciales digitales disponibles. El marco regulatorio para los recursos biológicos incluye leyes, reglamentos y órdenes ejecutivas federales, leyes y reglamentos estatales y ordenanzas y planes locales. La Alternativa Naranja en general tendría los menores impactos directos potenciales sobre los recursos biológicos, principalmente porque esta alternativa sería la más coubicada a lo largo de los corredores de transporte existentes. En contraste, la Alternativa Verde, que tiene una mayor cantidad de nueva alineación en comparación con las otras alternativas, y en base a sus mayores impactos en las áreas ribereñas y en la conectividad de la vida silvestre, causaría los impactos más nocivos para las comunidades bióticas, las Áreas Importantes para las Aves, Especies de Importancia Económica y Recreativa, y especies de estatus especial, en comparación con las otras alternativas. La Alternativa Verde también tendría el mayor potencial para aumentar la propagación de especies invasoras en comparación con las otras alternativas. Los recursos biológicos que se investigaron se describen en las siguientes secciones, junto con una comparación resumida de las alternativas.

3.14.1.1 Comunidades bióticas

La Alternativa Púrpura, seguida de la Alternativa Verde, impactaría la mayor superficie de comunidades bióticas en general. La huella general de la Alternativa Naranja y, en menor medida, la de la Alternativa Púrpura, se reduciría en comparación con la Alternativa Verde porque estas dos alternativas estarían parcialmente ubicadas a lo largo de las rutas de transporte existentes.

La Alternativa Verde tendría el mayor impacto potencial en el hábitat ribereño en general porque es paralela al río Santa Cruz en mayor medida que las otras alternativas. Sin embargo, aunque la Alternativa Púrpura tendría un área de superficie más pequeña de impactos en el hábitat ribereño en general que la Alternativa Verde, podría tener el mayor impacto en las áreas ribereñas perennes debido al nuevo cruce del río Gila. La Alternativa Naranja tendría el menor impacto potencial en el hábitat ribereño.

La Alternativa Púrpura tendría el mayor impacto potencial en las Áreas Importantes para las Aves porque introduce un nuevo cruce del río Gila y luego es paralelo al río. La Alternativa Naranja tendría el menor impacto potencial en las Áreas Importantes para las Aves, ya que cruza el río Gila a lo largo de la alineación existente de la SR 85.

Todas las Alternativas de Construcción del Corredor resultarían en la pérdida de un hábitat potencial y afectarían el movimiento de especies en las cercanías del Corredor I-11. Las Alternativas Verde y Púrpura tendrían el mayor potencial para impactar Especies de Importancia Económica y Recreativa. La Alternativa Naranja tendría el menor impacto potencial directo en el hábitat de las Especies de Importancia Económica y Recreativa porque esta alternativa sería la más coubicada a lo largo de los corredores de transporte existentes. La Alternativa Naranja probablemente tendría el menor impacto (el menor aumento en la mortalidad de la vida silvestre).

Las Alternativas Púrpura y Verde generarían una mayor amenaza de especies nocivas e invasoras que se propagarían e impactarían a

Comment as you Read

I-11 Project Section 3.14 Biological Resources (AZ)

As you scroll through the sections below, rest on each new section and the map on the right will change to show different viewpoints and layers to explain what is happening in the text.

3.14.5 Preferred Alternative

Overall, the Preferred Alternative, with either option (west option in Pima County or east option in Pima County), is co-located with existing transportation routes to a greater extent than the Recommended Alternative, and the Preferred Alternative with west option is less co-located with existing routes than the Preferred Alternative with east option.

3.14.5.1 Biotic Communities

The Preferred Alternative, with either option, would impact a smaller surface area of Semidesert Grassland and Arizona Upland Sonoran Desertscrub than the Recommended Alternative. The Recommended Alternative would impact approximately 8 percent more acres of Lower Colorado River Desertscrub than the Preferred Alternative with east option and would have similar impacts compared to the Preferred Alternative with west option in Pima County. The Recommended and Preferred Alternatives would have identical impacts on Mohave Desertscrub.

The Preferred Alternative with east option in Pima County would have the smallest potential impact to riparian habitat, including perennial riparian areas, compared to the Recommended Alternative, which would have greater potential impacts because it parallels the Santa Cruz River and the Gila River to a greater extent than the Preferred Alternative. The Preferred Alternative with east option would also have the lowest potential impacts to Important Bird Areas compared to the Recommended Alternative. For both the Recommended and Preferred Alternatives, the actual impacts to riparian habitat would be much less than the impacts analyzed here for the 2,000-foot-wide corridor because the final 400-foot corridor would be designed to avoid riparian habitat wherever possible.

Given that the Preferred Alternative, especially the Preferred Alternative with east option, would be co-located along existing transportation corridors to a greater extent than the Recommended Alternative, it would have the least potential direct impact on habitat for Species of Economic and Recreational Importance, and likely would cause a smaller increase in wildlife mortality.

Feedback

Category

- I have an idea
- I would like to provide some project feedback
- I have a question
- New Category

Description *

First Name (Optional) Last Name (Optional)

Contact Email (Optional)
cecily.canning@aecom.com

Postcode (Optional)

File Uploads (Optional)
+ CHOOSE FILES Accepted formats: .jpg, .jpeg, .png, .docx, .xlsx, .pdf

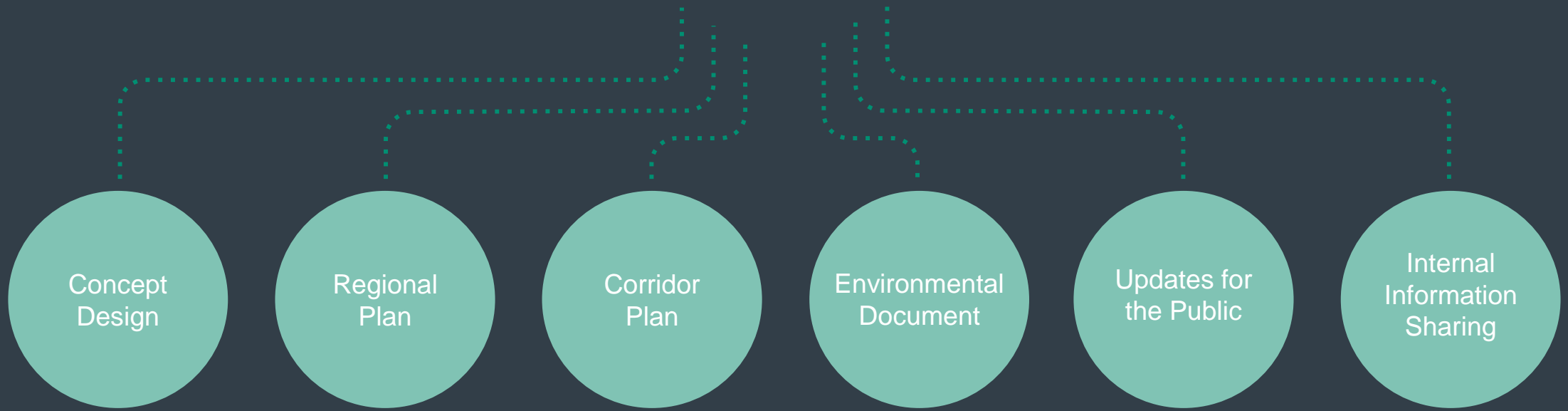
Note: Uploaded images will be accessible to the public.

By submitting this form, I acknowledge that the information provided will be processed for the purpose of feedback.

DISCARD SUBMIT

Where does PlanEngage Fit?

plan·engage



Streamlining NEPA Document Production & Review



Entire team can contribute to report content development

- Creating content is easy, no web developer needed
- All text and map content in one place, and automatically updated
- Reduces version control issues/anxiety and errors
- Permission access controlled sections to control ownership



Agencies log-in to one place, streamlining submittal & review process

- Interactive maps with adjacent text reviews
- Immediate access to data and information
- Easier to navigate with all technical sections in one place
- Increased understanding of project, benefits, impacts
- Securely locked online location with access permissions



Engaging the community more equitably within the same platform

- One online tool for broadly sharing data, information, and engaging the community
- A well-organized digital resource that can translate and offer other accessibility improvements allows teams to more easily reach people

Intuitive Reviewing and Commenting Capability

The screenshot displays the PlanEngage web interface for an Environmental Impact Statement. The browser address bar shows the URL <https://eeus.alytics.com/>. The page header includes the PlanEngage logo, the title "PlanEngage Demo Environmental Impact Statement", and navigation options like "See our sample projects", a search icon, and an "EDIT" button.

The left sidebar contains a navigation menu with categories such as "Home", "Project Pages", "Verified Views", and "Virtual Consultation Room". The "Project Pages" section is expanded, showing options like "Interactive Mapping", "Changes Over Time", "Map Slider", "Data Analysis", and "Project Monitoring".

The main content area is titled "Project Monitoring" and features a dark green banner stating "This document has been reviewed and may require changes" with a "FINALISE REVIEW WORKFLOW" button. Below this, a notification bar indicates the document was last modified by cecily.canning@aecom.com at 08:18 17/02/22.

The "Improved Progress Management" section shows a rich text editor with a toolbar containing options for Paragraph, Bold, Italic, Underline, and other formatting tools. The text in the editor reads: "The PlanEngage platform allows you to use the 360 degree images being collected from your project over time and share those with your key project stakeholders. These may be collected over time to record changes in an environment or could monitor construction throughout a project. Add a section in here." The text "These may be collected over time to record changes in an environment or could monitor construction throughout a project." is highlighted in pink, and "Add a section in here." is highlighted in green.

Two comment threads are visible on the right side of the text editor. The first comment, dated 02-17-2022 08:18AM, asks "Can we please change this word?". The second comment, dated 02-17-2022 08:17AM, suggests a replacement: "Replace: 'These may be collected over time to record changes in an environment or could monitor construction throughout a project.' with '...".

At the bottom of the page, there is a 360-degree image viewer showing a scene titled "Kalihi (b) - Scen...". The viewer includes a map inset on the left and a toolbar on the right with options for "Scene" and "Measure".

Review Workflow Management and Customizable Permissions

☰ Review Workflow						
Title	Status	Workflow Last Modified By	Workflow	Start Review	Audit History	
Home	Edit		☰	▶	🔄	
Potential Impacts Summary	Edit	john.smith9@aecom.com	☰	▶	🔄	
Climate Risk Assessment	Edit	Jeremy.caeh@gdot.gov.us	☰	▶	🔄	
Dashboard	Edit		☰	▶	🔄	
Background Information	Edit		☰	▶	🔄	
Great Barrier Reef	Edit		☰	▶	🔄	
Kakadu National Park	Edit	paula_jackson@jacobs.com	☰	▶	🔄	
Fraser Island	Edit		☰	▶	🔄	

Client Feedback

“The Interactive EIS was a first for ADOT and the State of Arizona, and it was a huge accomplishment for the I-11 study team.

The success of the Interactive EIS and the number of views that it has received has clearly demonstrated its value to ADOT and the necessity to implement this kind of interactive tool for other studies.”

Steven Olmsted

ADOT Program Delivery Manager



Check it out Yourself!

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Or explore on your phone using this QR code

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COMPONENT

- **INFRASTRUCTURE**
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 - Personal Air Vehicles
 - Cargo Air Vehicles
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 - Last-mile Delivery Vehicles



END USER

- Ride Sharing Companies
- Scheduled Operators
- E-commerce Companies
- Hospitals & Medical Agencies
- Private Operators



UNMANNED PLATFORM SYSTEM

- Aerostructures
- Avionics
- Electrical Systems
- Propulsion Systems
- Cabin Interiors
- Software



RANGE

- Intercity
- Intracity



PLATFORM ARCHITECTURE

- Rotary Wing
- Fixed-wing Hybrid



PLATFORM OPERATION

- Piloted
- Autonomous
 - Remotely/Optionally Piloted
 - Fully Autonomous

Over 300 companies pursuing



**Toyota, JetBlue, REEF
Technology Signature**
1 Pilot, 4 Passengers
150 mile range



**United Therapeutics, UPS, US
Airforce**
Amazon Climate Pledge Fund
1 Pilot, 4 Passengers
150 mile range



Boeing, Kitty Hawk Co.
Autonomous
2 passenger/ cargo
25 mile range



**Honeywell, Ferrovial,
Lufthansa**
Future cargo
1 Pilot, 6 Passengers
200 mile range



United Airlines

1 Pilot, 4 Passengers
60 mile range



DG Fluyzeugbau
Heavy Lift Drones
1 Pilot, 4 Passengers
60 mile range

Understanding of the AAM industry and business model

High volume operations

Start up operations – financials are tight

Ability to scale to create a network will be critical

Branded infrastructure to be deployed across multiple markets

Modular, adaptable designs that can grow as market matures

Vertiports at grade or on existing structures

Passenger experience – simplicity, reduction of boundaries

Power infrastructure is critical

Multiple EOM's are being required by landowners

Airspace concerns at airport locations


Sustainability and Net Zero infrastructure

Modular and site scalable Vertiports


Cost of infrastructure is a hurdle

Timeline to begin planning infrastructure is now

AECOM's approach to this market




**SITE
IDENTIFICATION &
ASSESSMENT**



**ARCHITECTURE &
ENGINEERING
DESIGN**



**AVIATION
PLANNING &
DESIGN**



**AAM
ADVOCACY &
POLICY**

eVTOLer

This app compares travel times and costs using eVTOL and ridesharing modes

[Get Started](#)



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