

Electrify Heartland Plan

Appendix B: Greater Kansas City Plug-in Readiness Strategy



Project title: Kansas – Missouri
Community Readiness for EV and EVSE

Funded by: US DOE DE-EE0005551

By: Metropolitan Energy Center
and Kansas City Regional Clean Cities Coalition

With: Black & Veatch





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CFDA Number 81.086



Electrify Heartland Plan

Electrify Heartland Project Abstract

Electrify Heartland is an electric vehicle planning project managed by Metropolitan Energy Center. It is a product of the Greater Kansas City Plug-In Readiness Initiative, co-chaired by Kansas City Regional Clean Cities Coalition. Our goal is to produce a regional plan to prepare public resources and secure the economic and environmental benefits of plug-in vehicles within targeted metro areas with estimated 2.7M population. The targeted metro areas include Kansas City, MO & KS; Jefferson City, MO, Wichita, KS; Salina, KS; Lawrence, KS; and Topeka, KS. (14 Counties: Cass, Clay, Cole, Douglas, Jackson, Johnson, Leavenworth, Miami, Platte, Ray, Saline, Sedgwick, Shawnee, Wyandotte).

Electrify Heartland Steering Committee

Team	Organization	Name
Charging Stations	Initiatives	Troy Carlson
Charging Stations	LilyPadEV	Larry Kinder
Charging Stations	Logios	Gustavo Collantes
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Government Policy	Black & Veatch	Bill Roush
Project Administration	Metropolitan Energy Center	Ruth Redenbaugh
Project Administration	Metropolitan Energy Center	Kelly Gilbert
Public Education	Nation Ranch Marketing, Inc.	Bill Patterson
Training	Kansas City Kansas Community College	Bob McGowan
Training	National Electrical Contractors Association	Jim Cianciolo
Utility Grid	Black & Veatch	Sam Scupham
Vehicle & Fleet	University of Missouri at Kansas City	Henry Marsh

Exhibit i-i. Electrify Heartland Steering Committee Members



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Appendix B: Greater Kansas City Plug-in Readiness Strategy

Synopsis

A strategic plan was developed by the Greater Kansas City Plug-in Readiness Task Force to explore all aspects of electric vehicles and economic benefits to the community. The strategy includes demographic maps, recommended action plan, and public response. The effort was aligned with Project Get Ready.

Section Author:

Kelly Gilbert, Metropolitan Energy Center; and Ron Achelpohl, Mid-America Regional Council (MARC); with the steering committee of the Greater Kansas City Plug-in Readiness Task Force:

Terry Akins, International Brotherhood of Electrical Workers (IBEW) Local 124

Troy Carlson, Initiatives, Inc.

Mark Dehner, KD Equities

Megan England, Roeland Park, KS

Bryan Fox, Kansas City Power & Light

Tim Gelvin, Johnson County Community College

Chris Gutierrez, Kansas City Area Development Council, KC SmartPort initiative

James Joerke, Johnson County, KS

Larry Kinder, LilyPad EV

Roland Maliwat, Kansas City Power & Light

Jerry Shechter, Kansas City, MO

Randy Winchester, Johnson County Community College



Greater Kansas City Plug-in Readiness Strategy

October 31, 2011

Submitted by the

Greater Kansas City Plug-in Readiness Initiative Steering Committee

Chaired by Mid-America Regional Council and Kansas City Regional Clean Cities Coalition

In partnership with Project Get Ready, a Rocky Mountain Institute program



Members of the Greater Kansas City Plug-in Readiness Initiative

The Greater Kansas City Plug-in Readiness Initiative, an ad hoc group of high-level stakeholders, played a guiding and consulting role in developing this strategy document. Each member of the task force agreed to participate in shaping this strategy without formally endorsing the recommendations.

Steering Committee

Ron Achelpohl, Mid-America Regional Council; *co-chair*

Kelly Gilbert, Metropolitan Energy Center and Kansas City Regional Clean Cities; *co-chair*

Terry Akins, IBEW Local 124

Troy Carlson, Initiatives, Inc.

Mark Dehner, KD Equities

Megan England, Roeland Park, Kan.

Bryan Fox, KCP&L

Tim Gelvin, Johnson County Community College

Chris Gutierrez, Kansas City Area Development Council and KC Smart Port

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Project Get Ready, Ben Holland
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American Public Works

Association, Andy Sauer

American Public Works

Association, Teresa Hon

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Black and Veatch, Marty Travers

BNIM, Bob Berkebile

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Kansas City KS BPU, Darrell

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Wagner

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Nissan, Brian Verprauskus

Olathe Ford, Debi Jones

Real Clear Consulting, Kim

Verhoeven

Roeland Park, John Carter

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Smith Electric Vehicles, Ryan

Taylor

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UMB Bank, Malenda Shahane

University of Missouri – Kansas

City, Dr. Caroline Davies

University of Missouri – Kansas

City, Robert Simmons

University of Missouri – Kansas City,

Henry Marsh

Wrap It Up, LLC, Brian Porembski

Wichita, Kan., Kay Johnson



Narrative

Purpose and Scope

The Greater Kansas City Plug-in Readiness Initiative covers the combined geographic area served by Mid-America Regional Council (MARC) and Kansas City Regional Clean Cities Coalition (Missouri counties of Cass, Clay, Jackson, Platte, and Ray; and Kansas counties of Johnson, Leavenworth, Miami, and Wyandotte). Interested municipalities and utilities in other counties in Kansas (Saline and Sedgwick), participated in reduced capacity. The Greater Kansas City area was chosen both because of its high population density and because MARC, as the area council of governments and transportation planning agency, has a high degree of relevant information and an existing committee structure useful for reaching the right offices within those counties.

The Kansas City Area Development Council several years ago began a concerted effort to attract and retain advanced energy technology manufacturers (Smith Electric Vehicles and wind turbine components), developers (Exergonics), and now service and training providers (Electrician Training Center). As the geographic center of the United States, it also has an important role in distribution of goods around the country. At the same time, the U.S. federal administration emphasized accelerated development of an electrified transportation system. These factors led to our choice to hold exploratory meetings to determine whether to pursue a comprehensive effort to ready the Kansas City metro for electrified transportation.

Methodology and Timeline

In September 2009, the Kansas City Regional Clean Cities Coalition hosted an electric vehicle symposium, which introduced the idea of a plug-in task force. In January 2010, the Coalition and Mid-America Regional Council held an exploratory meeting of electric vehicle stakeholders to determine public need and interest, and in March, MARC signed an MOU with Rocky Mountain Institute to join Project Get Ready to determine a plug-in strategy for Greater Kansas City in a joint effort with the Coalition. Project Get Ready is a program whose purpose is to collect the experiences of plug-in readiness efforts across the U.S., share best practices, and host technical education for members.

Using recommendations from Project Get Ready, the Greater Kansas City Plug-in Initiative met monthly to approve its general charter and then the charters of its six teams: Charging Infrastructure, Government Policy, Vehicle Availability, Fleet Demand, Retail Demand, and Incentives. In April 2010, it held a public meeting to increase participation in the teams and elect a steering committee to monitor the teams' activities and guide the task force. The teams met separately and reported to the steering committee. By November 2010, each team had completed its strategy work, and some had moved to the first implementation steps. At that time, the steering committee drafted its first strategy document.

After several rounds of revision, the strategy document was made available for public comment in March 2011, and in April 2011 a meeting held to discuss those comments. The final document is anticipated to be published in May 2011.

Barriers and Opportunities

All previous trials by manufacturers to demonstrate transportation electrification in recent decades has taken place on the U.S. coasts, where the population density is highest. Kansas City has never participated in such a demonstration, and this effort is therefore a new experience, with the exception of one study to demonstrate a single medium-duty plug-in hybrid between 2001 and 2004.

State government agencies in neither Kansas nor Missouri have addressed electrification in any meaningful way. Their perspective has been to wait until there is a demonstrated need for new regulation and legislation. However, most relevant agencies have expressed willingness to participate in meetings. City and county government are positively motivated to proactively meet electrification challenges but largely have not acted as yet.

The major utility in our geographic area, Kansas City Power & Light (KCP&L), is very much involved, especially through its Smart Grid demonstration project and its partnership with the coalition for installation of at least 10 electric vehicle supply equipment (EVSE).



Narrative

Current output

Two members in the task force have undertaken charging infrastructure projects in Greater Kansas City: 1) Metropolitan Energy Center's Midwest Region Alternative Fuels Project, administered by the coalition, and 2) KCP&L's Smart Grid project. Both projects are funded by the U.S. DoE under the Recovery Act. Each project includes installation of at least 10 electric vehicle charging stations. In addition, several individual installations have already occurred. Together, these installations comprise the Phase 1 charging installation.

The installations that have already occurred are seeing light use at this time; sales of consumer electric vehicles has not yet begun here.

The **Charging Infrastructure** team plans to use GIS maps (see Appendix I—EVSE Location Analysis) to produce recommendations for Phase 2 installations. The composite map combines regional demographic and traffic data and Nissan LEAF “hand-raiser” data.

The **Incentives** team has drafted a plan for the creation of an EV Business Coalition (see Appendix II), which businesses in the Greater Kansas City Chamber of Commerce Climate Protection Partnership and other area businesses may adopt.

The **Government Policy** team has compiled a list of best practices by other municipalities that are also working on plug-in readiness and are further along in the process than the Kansas City area.

The **Vehicle Availability** team has established contacts with each of the major EV manufacturers

and established a relationship with the Kansas City Electrician Training Center, which will begin offering the Electric Vehicle Infrastructure Training Program this fall.

The **Retail Demand** team, originally known as Consumer Outreach, has drafted an invitation to area business, civic and public leaders to participate in and endorse the task force's regional EV readiness strategy.

Future Recommendations

The task force consists almost entirely of volunteers from a diverse set of stakeholder groups, including charging infrastructure providers, electric utilities, vehicle manufacturers, area business leaders, municipalities, fleet managers, educators, planners and more. A strong leadership team and knowledgeable staff with time dedicated to this project was a must. With monetary resources, a dedicated project coordinator would have helped us to progress quicker.

The task force agreed to address all aspects of plug-in preparedness, in an effort to think about the problem holistically. It created a prioritized set of goals and identified the work necessary to accomplish them. Such a wide-ranging set of goals proved unwieldy for the limited resources available to tackle the work. The steering committee suggests to carefully match goals to available resources as the task force continues.

The goal is to develop agreed-upon definitions and standards in order to help avoid reinventing the wheel. To this end, the task force is making good use of definitions, practices, and lessons learned in other areas of the country.



Action Plan

Team	Objective	Strategy	Action	Actor	Metrics/ Outcome/ Output	Timeline
1. Charging Infrastructure	Develop strategies and a plan to create an organized charging infrastructure in the metro area that includes charging stations at home, at the workplace, in public places, and at fleet facilities.	Map and collect data from existing and planned (Phase 1- Demonstration) stations.	Create map of existing and planned stations	MARC	Map (see table, Appendix I-b)	Complete
			Develop methodology to collect usage pattern data where public charging stations are already installed. Include data from other cities as well as from Greater KC. Collect demographics data if possible?	Local stations: KCPL Other locales: Project Get Ready Demo-graphics: unknown	Hours idle; hours/minutes per charge; kWh per charge; etc; ratio of chargers to owners; demographic profile of EV owner	Began data collection Feb 2011
			Collect data from private stations	Voluntary opt-in by household	Same as above	Began data collection April 2011
		Determine ideal placement for Phase 2 stations.	Develop a methodology using demographics and traffic patterns to determine areas most likely to use charging stations	MEC/ MARC	Charts; GIS maps; etc (see Appendix 1-a)	Completed Oct 2010
			Create a map and narrative showing suggested areas for public charging infrastructure deployment.	Initiatives, Inc.	Map and description	Completed May 2011
2. Government Policy	Identify current best practices and develop strategies and governmental policies that can be adopted by cities, counties, and states to		Collect building codes in other areas that support and/or hinder charging infrastructure	Moot—fire codes already address	File repository	none
			Collect examples of streamlined inspection and	MARC, Roeland Park,	See Appendix III	May 2011



Action Plan

Team	Objective	Strategy	Action	Actor	Metrics/ Outcome/ Output	Timeline
	simplify deployment of charging infrastructure.		building permit processes adopted in other markets	Johnson County, IBEW		
			Collect building inspector training and policies adopted in other markets	MARC, Roeland Park, Johnson County, IBEW	See Appendix III	Completed May 2011
		Engage building codes and permitting officials in adapting best practices to our region.	Adapt the best practices for this market and create a proposed building code policy document and a proposed building code/inspection process	MARC, Roeland Park, Johnson County	1 building code policy recommendation document; 1 building code and inspection process recommendation document	June 2011
			Make findings available to all jurisdictions for recommended adoption	Plug-in Speakers Bureau	1–3 presentations, for policymakers, codes professionals, etc.	July 2011
	Develop a plan for pricing options (including during peak demand, and special EV charging rates)		Coordinate with the Missouri Public Service Commission and Kansas Corporation Commission to determine regulatory structure and approach.	KCP&L, Missouri PSC and Kansas CC, other utilities	Updated rates and tariffs	December 2011



Action Plan

Team	Objective	Strategy	Action	Actor	Metrics/ Outcome/ Output	Timeline
3. Incentives	Develop a strategic plan for a menu of incentives from government and private business to encourage consumer and fleet purchase of plug-in vehicles and infrastructure	Identify financial incentive opportunities for state and local government to assist in the adoption of EVs through the early adoption period	Assess current state and local incentives	Clean Cities and Gov't Policy team	See Appendix III	Completed October 2010
			Research existing incentive models to identify best-practices	Gov't Policy team	See Appendix III	Completed October 2010
		Identify initial (2-year commitment) for financial and non-financial incentive opportunities for regional businesses to assist in the promotion of EVs through an early adoption period	Research existing incentive models utilizing best-practices and develop new opportunities	Incentives team	See Appendix II	Completed October 2010
		Establish a coalition of Kansas City–area businesses committed to promoting early adoption of electric vehicles (EV) within our area.	Identify stakeholders and key influencers with the capacity to influence policy formulation (both public and private sectors)	Incentives team	See Appendix II	Completed October 2010
			Develop marketing, outreach and education programs	Clean Cities and EV Coalition	Program development, memorandum of understanding	June 2011
		Measurement of adoption inside and outside the KC area	Survey of EV Coalition participants; data from PGR	EV Coalition, Project Get Ready	Total # EVSEs; # public and private	December 2011



Action Plan

Team	Objective	Strategy	Action	Actor	Metrics/ Outcome/ Output	Timeline
4. Vehicle Availability	Determine conditions necessary for OEM deployment of plug-ins to Greater KC and to demonstrate KC has a vibrant advanced technology marketplace	Two-way OEM / Task Force Communication	Research and develop rapport with single point of contact at each major electric vehicle manufacturer	Clean Cities	Document (see Appendix IV, without contact information)	Completed Feb 2011
			Develop list of questions for vehicle manufacturers	All	1 portal or POC for maintaining questions	Mar 2011
			Create and maintain database/spreadsheets of questions and responses for vehicle manufacturers	Olathe Ford, Clean Cities	1 document	March to December 2011
5. Fleet Demand	Develop strategies and a plan to educate public and private fleet owners in developing business cases for deploying plug-in vehicles in their fleets where they fit operational requirements		Create education materials and campaigns directed to fleet decision makers.	Clean Cities	Presentations and marketing pieces	June 2011
			Collect soft orders from fleets		200 vehicles across 40 fleets (see Appendix IV for first 21 fleets)	Completed Sept 2011
6. Retail Demand	Create expanded involvement and awareness by the general public and private	Reach out to gain involvement and endorsement by other area groups such as chambers, KC	Write an invitation to area business, civic and public leaders to become involved in and endorse the regional EV	Task Force	1 letter written; 100 copies sent; 100 follow-up calls	February 2011



Action Plan

Team	Objective	Strategy	Action	Actor	Metrics/ Outcome/ Output	Timeline
	businesses of the importance of EVs	Area Development Council and other associations.	readiness strategy.			
		Create public education and marketing campaign with consumer information web site	Partner with higher education institutions for demonstrations		Program development	Feb–Dec 2011
			Collect resources for public and private agencies seeking funding sources, Federal and state tax credit information; vehicle availability information; safety and public policy information; GHG information; more	Clean Cities; vehicle manufacturers; area vehicle dealers	Web site	Feb–Dec 2011
		Provide information and outreach to the regional public	Hold combined educational event to showcase vehicles and charging equipment, view area maps, discuss model building codes, and more. Audiences: fleet groups, such as National Association of Fleet Admins and American Public Works Association; public policymakers; cities, counties, businesses	Clean Cities, MARC	1 event; recorded webinar and/or videos	July 2011



Steering Committee Contacts

Organization	Territory	Planning Role	Name	Phone	Email
Metropolitan Energy Center	Kansas City metro and state of Kansas	Co-chair of steering committee, KC Regional Clean Cities coordinator, lead for Vehicle Availability team	Kelly Gilbert	816-561-1625	kgilbert@kcenergy.org
Mid-America Regional Council (MARC)	MO counties Cass, Clay, Jackson, Platte, Ray; KS counties Johnson, Leavenworth, Miami and Wyandotte	Co-chair of steering committee, transportation planner at MARC, member of Government Policy team	Ron Achelpohl	816-701-8327	rona@marc.org
Kansas City Power & Light	Western Missouri and some Eastern Kansas	Member of steering committee, lead for Incentives team, smart grid project manager at KCP&L	Roland Maliwat	816-701-7868	Roland.maliwat@kcpl.com
Kansas City Power & Light	Western Missouri and some Eastern Kansas	Member of steering committee, lead for Fleet Demand team, KCP&L fleet operations	Bryan Fox	816-242-6466	Bryan.fox@kcpl.com
LilyPad EV	Kansas and Missouri (for Coulomb EVSE sales)	Steering committee; member of Charging Infrastructure and Incentives teams, EV owner since 1980s	Larry Kinder	816-210-9633	larry.kinder@lilypadev.com
Johnson County Community College	n/a	Steering committee; lead for Retail Demand team	Tim Gelvin	913-469-8500 x4219	tgelvin1@jccc.edu
International Brotherhood of Electrical Workers, Local 124	20 counties in Missouri and Kansas, centered on Kansas City, MO	Steering committee; training and jobs for electricians; lead for Charging Infrastructure team	Terry Akins or Troy Carlson	816-285-8312 or (for Troy) 913-859-9477	takins@ibewlocal124.org or troy@initiativesco.com
Kansas City Area Development Council	two-state, 18-county region of Greater Kansas City	Steering committee; president of KC Smartport initiative; instrumental in bringing Smith EV to KC	Chris Gutierrez	816-374-5680	Gutierrez@KCSmartPort.com
City of Kansas City Missouri	KC city limits	Steering committee; co-lead for Government Policy team; KC office of environmental quality	Jerry Shechter	816-513-3401	Gerald.Shechter@kcmo.org
City of Roeland Park Kansas	Roeland Park city limits	Steering Committee; co-lead for Government Policy team; city council	Megan England	913-722-2600	mengland@roelandpark.org
KD Equities	n/a	Member of steering committee, promulgating private business investment in EVSE	Mark Dehner	816-896-1020	dehnerm@aol.com



Origins

Residential Location of Likely EV Purchasers

Criteria	Dataset
Households with Higher income	Median household income by blockgroup
Households with Higher education	Population with bachelor's degree or higher by blockgroup
Older population: likely disposable income	Population 55 or older by blockgroup
Homeowners/Vehicles	Owner-occupied households with 2 or more vehicles by blockgroup
Leaf hand-raisers	Nissan Leaf hand-raiser data* by ZIP code

Criteria selection

Based on local trends and similar analyses made by other plug-in readiness groups around the country, Mid-America Regional Council chose to use the above criteria to identify concentrated areas of likely electric vehicle owners.

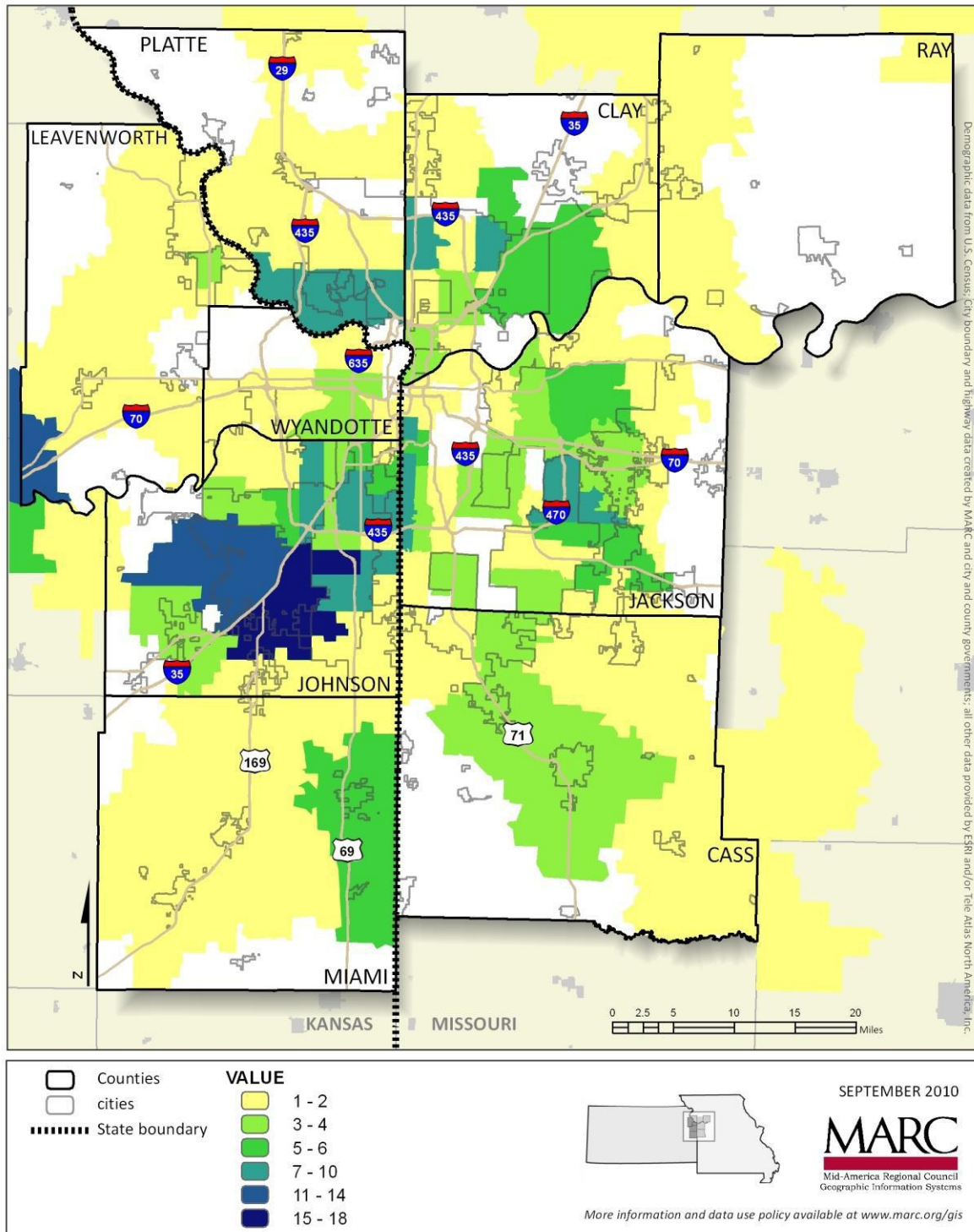
Origins Analysis Process

1. Data was collected from the above sources and converted to raster format
2. Three datasets (education/older/vehicles) were converted to densities by dividing by acres in each blockgroup. Without doing this, large blockgroups receive inflated scores.
3. All datasets were reclassified to a scale of –10 by decile.
4. All datasets were combined to make one suitability map, using the following weights:
 - Nissan Leaf hand-raisers (25)
 - Median household income (25)
 - Households with 2 or more vehicles (20)
 - Educational attainment (15)
 - Population 55 years old and older (15)

** Through their web site, Nissan asked interested consumers to put a \$99 deposit on their future Leaf electric car. People who did so were called “hand-raisers.” Nissan shared anonymous data with the task force in June 2010.*

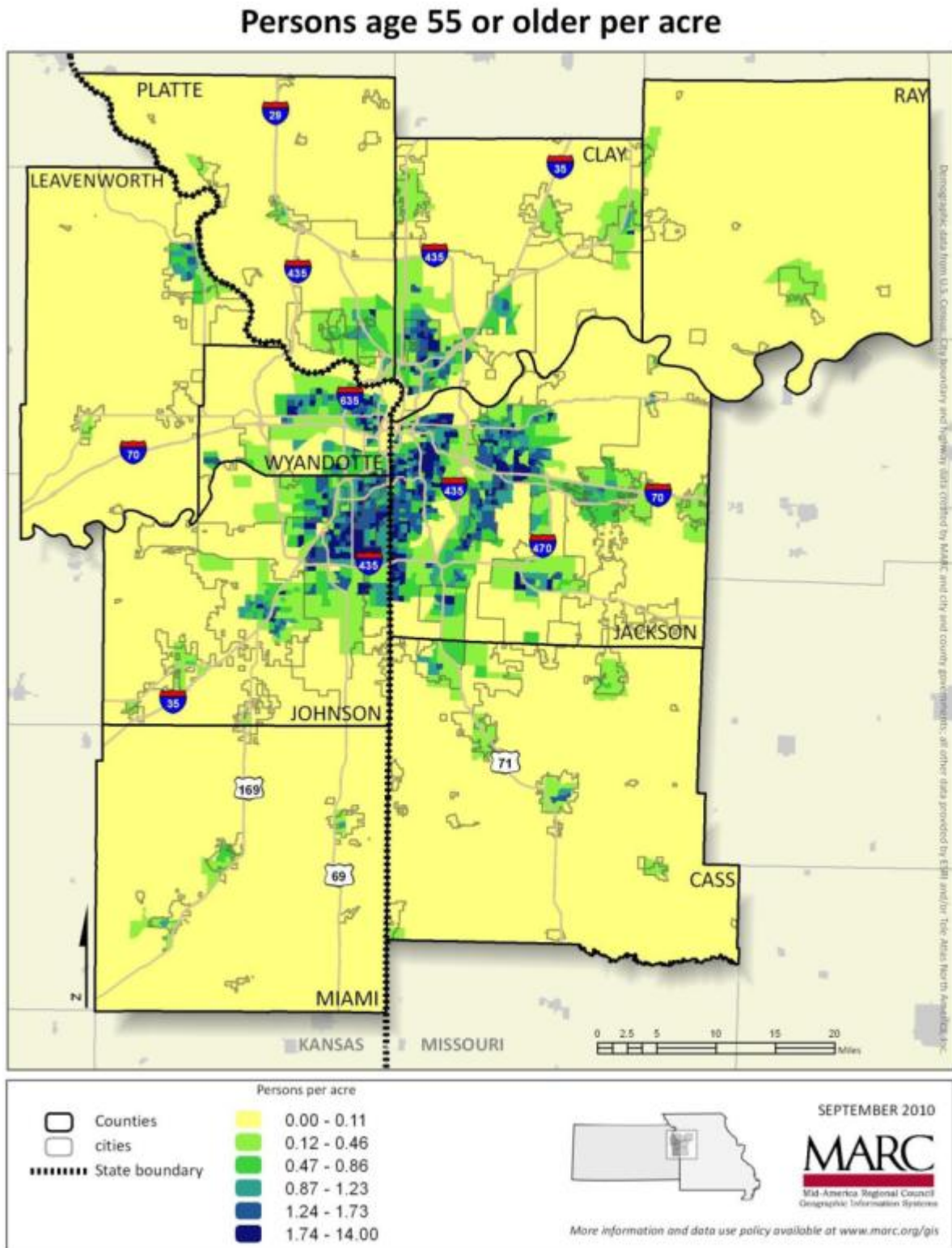


Nissan Leaf 'hand-raisers' by ZIP code



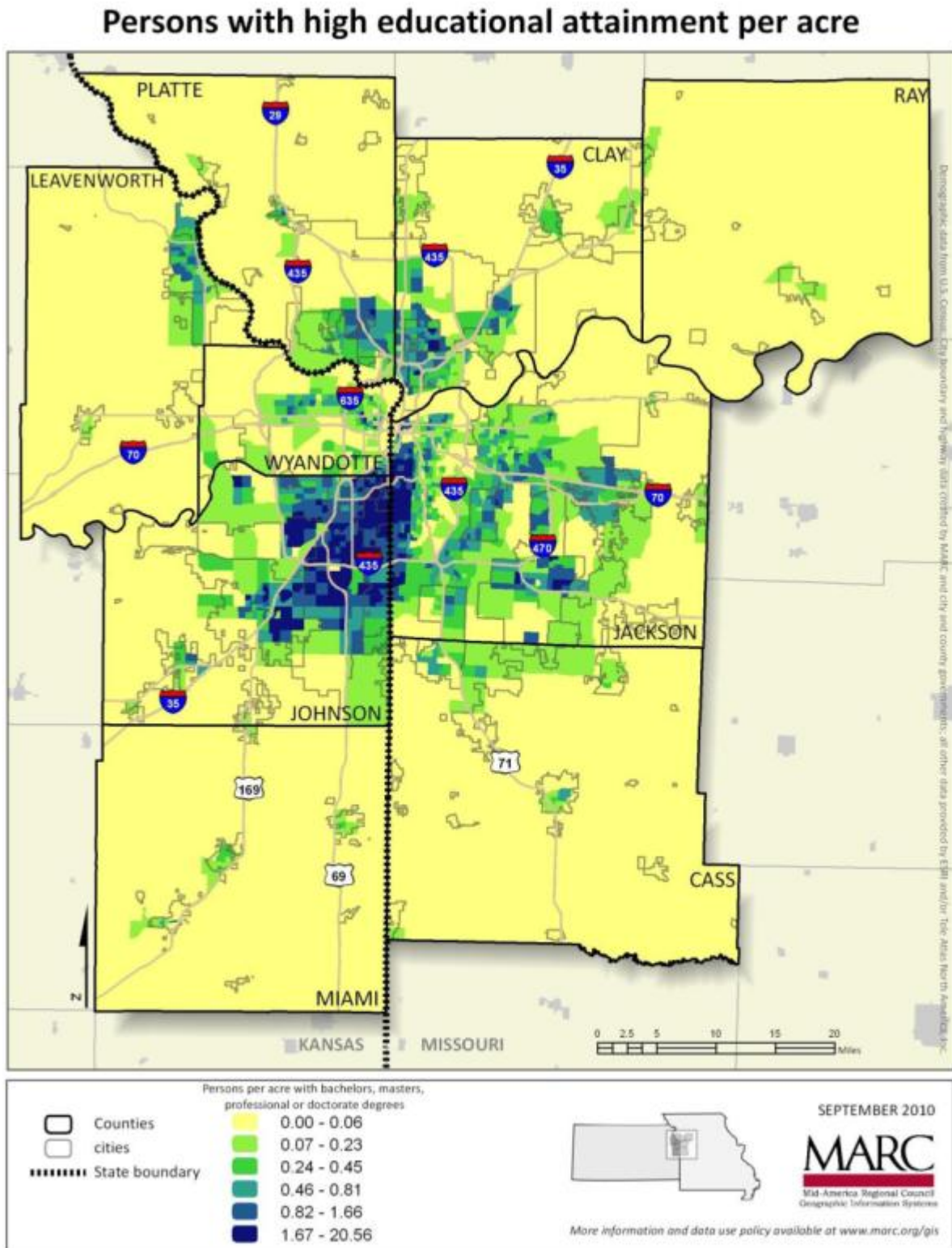


Appendix I-a: EV Drivers—Origins and Destinations, Maps A–K





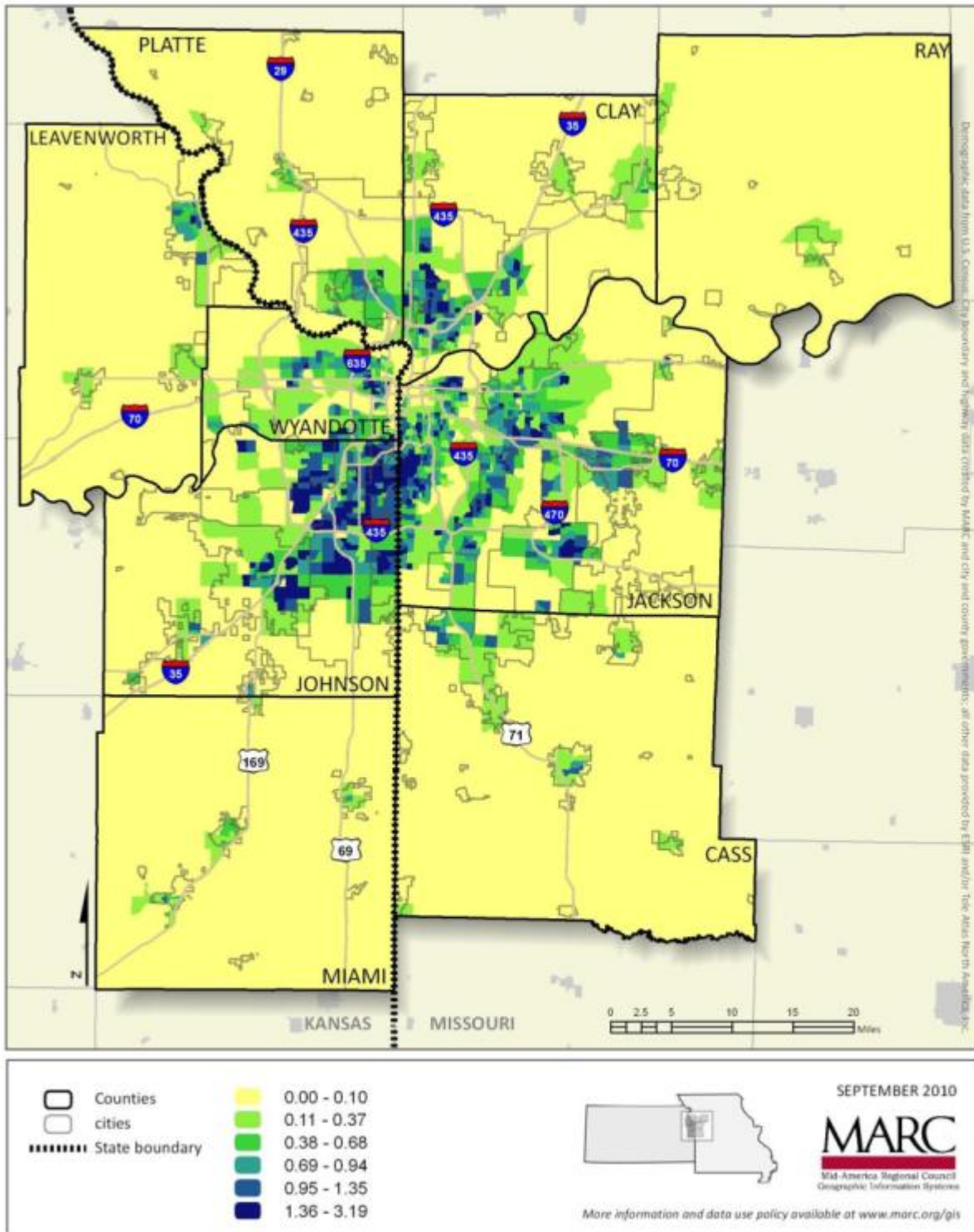
Appendix I-a: EV Drivers—Origins and Destinations, Maps A–K





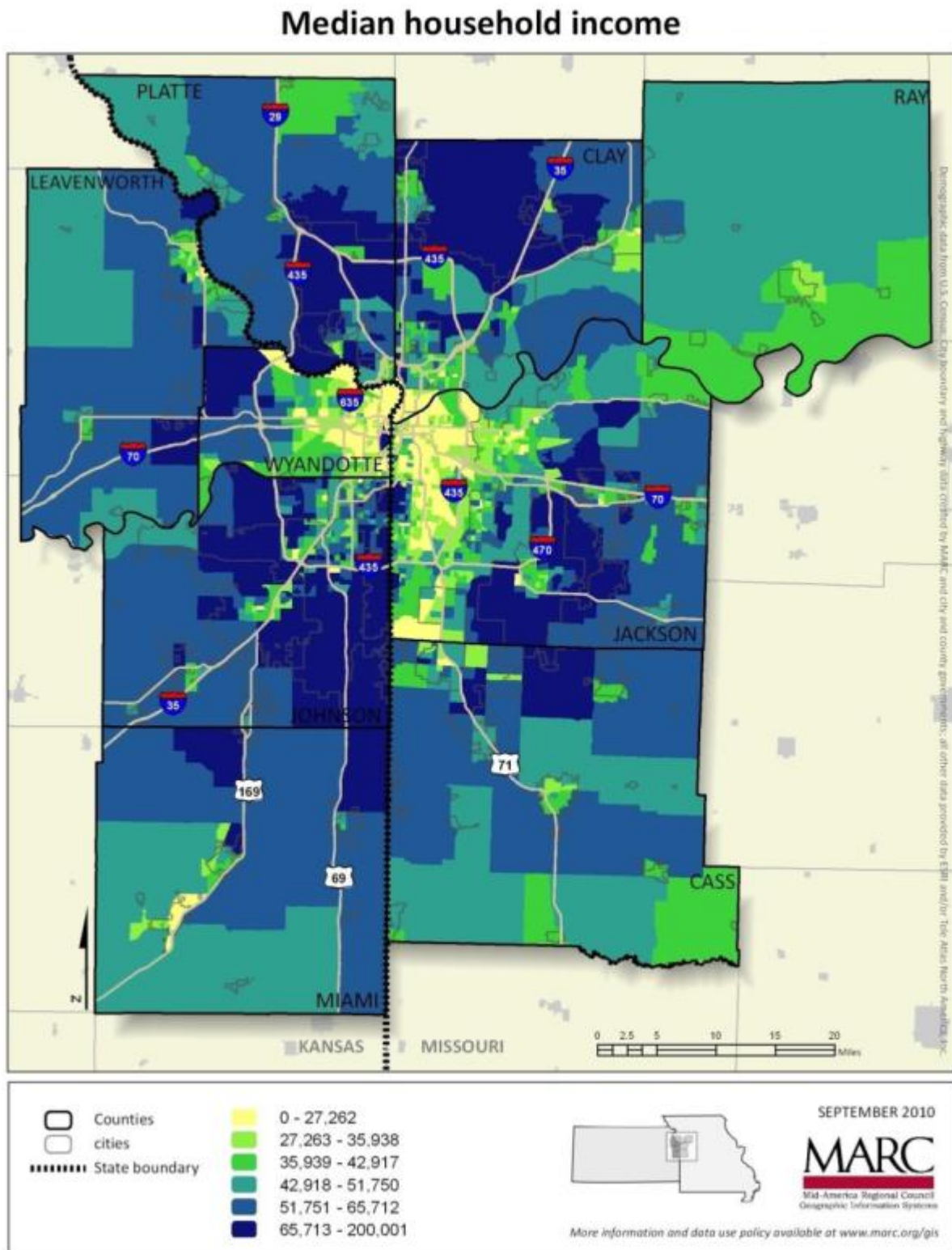
Appendix I-a: EV Drivers—Origins and Destinations, Maps A–K

Owner-occupied households with 2 or more vehicles per acre





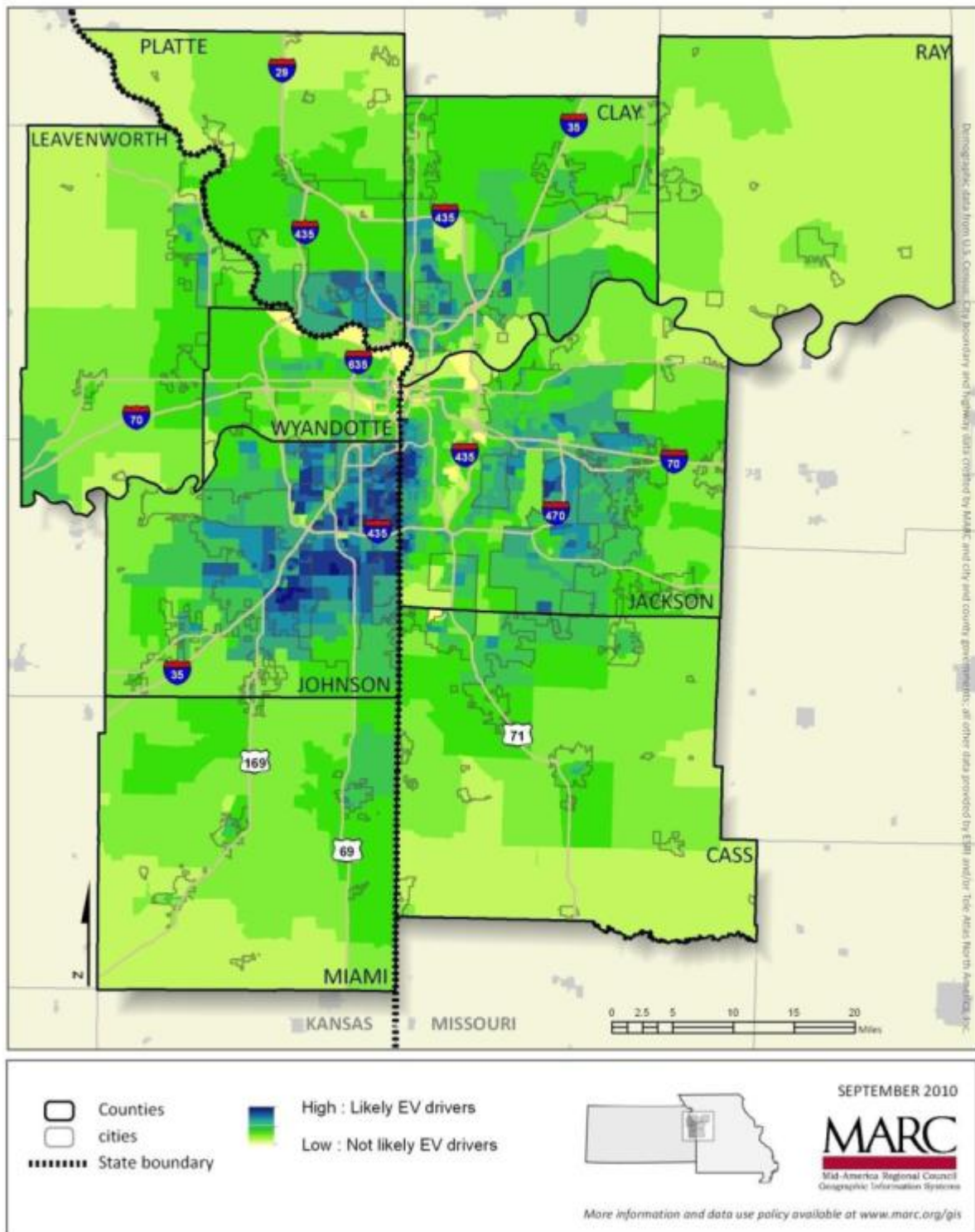
Appendix I-a: EV Drivers—Origins and Destinations, Maps A–K





Appendix I-a: EV Drivers—Origins and Destinations, Maps A–K

Electric vehicle driver residence analysis





Destinations

Destinations of Likely EV Purchasers

Criteria	Dataset
Concentration of high-paying jobs	2008 LEHD* employment by block by income level
Destinations of EV purchasers	LEHD OD 2008; Destinations of origin areas Travel demand survey data for origin area residents
Regional employment centers	Existing & planned major activity & employment centers
Special destinations	Subset of activity centers data

Criteria Selection

Based on local trends and similar analyses by plug-in readiness efforts around the country, Mid-America Regional Council chose to use the above criteria to identify concentrated destinations of likely electric vehicle owners, as identified in the Origins analysis. Employment centers and activity and entertainment centers were included to capture destinations of EV owner households not identified through the Origins analysis.

Definitions

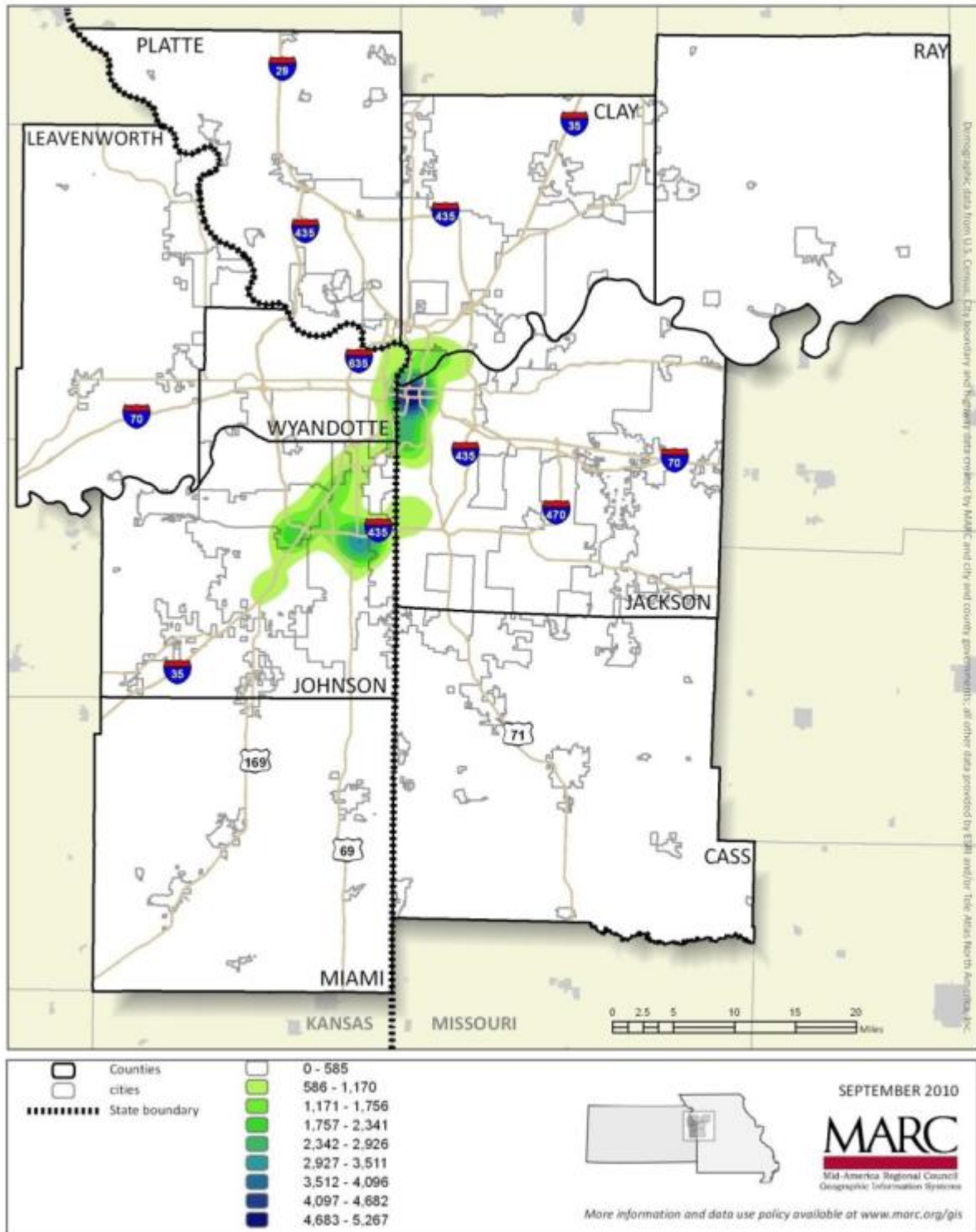
LEHD: Longitudinal Employer-Household Dynamics (LEHD) is an innovative program within the U.S. Census Bureau. It uses modern statistical and computing techniques to combine federal and state administrative data on employers and employees with core Census Bureau censuses and surveys while protecting the confidentiality of people and firms that provide the data.

LEHD OD: LEHD Origin area - Destination is the destinations of the households identified as being in an origin area in the Origins analysis.



Appendix I-a: EV Drivers—Origins and Destinations, Maps A–K

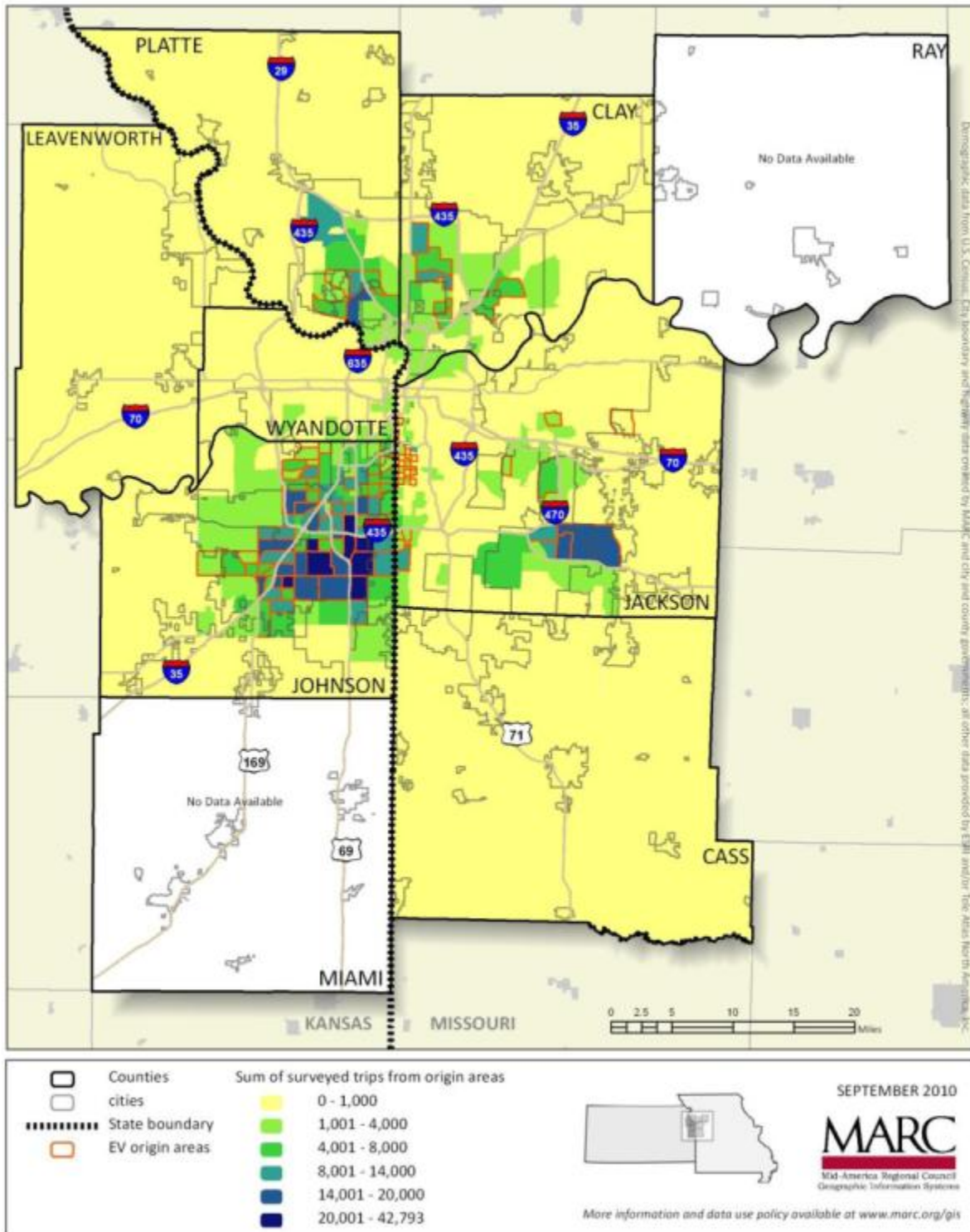
Density of workers earning over \$3333/month, by workplace





Appendix I-a: EV Drivers—Origins and Destinations, Maps A–K

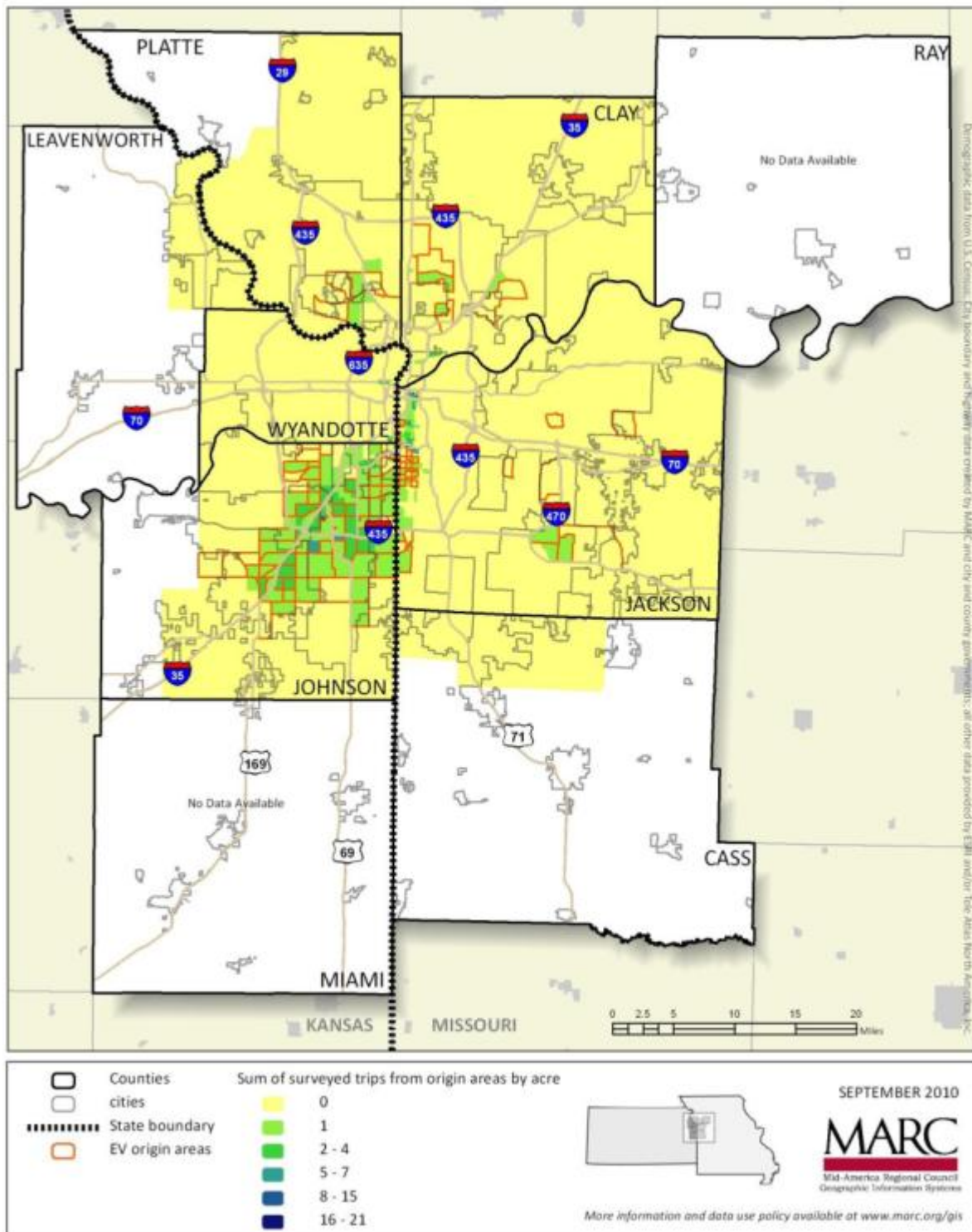
Destinations of EV drivers from EV origin areas





Appendix I-a: EV Drivers—Origins and Destinations, Maps A–K

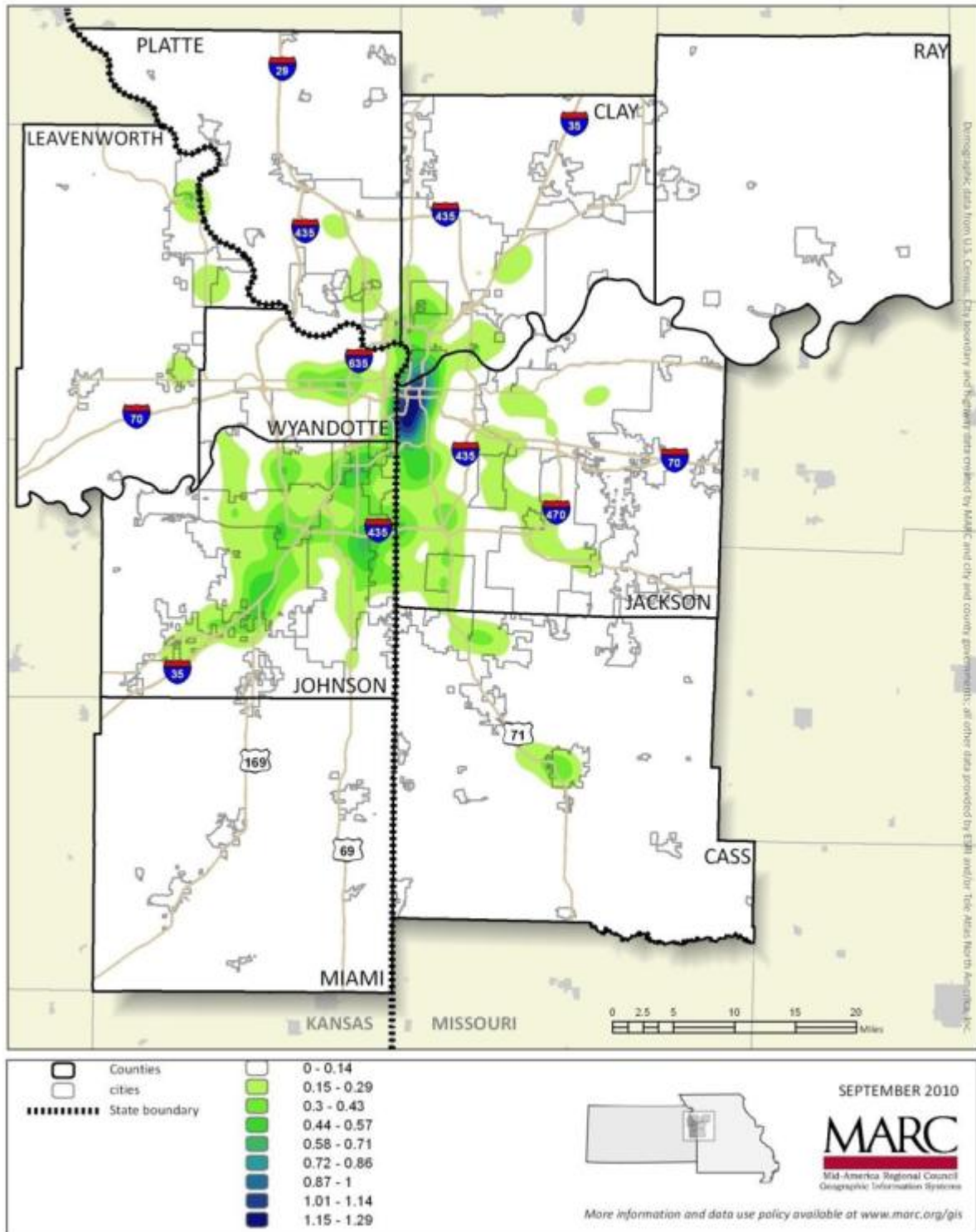
Destinations of EV drivers from EV origin areas, by acre





Appendix I-a: EV Drivers—Origins and Destinations, Maps A–K

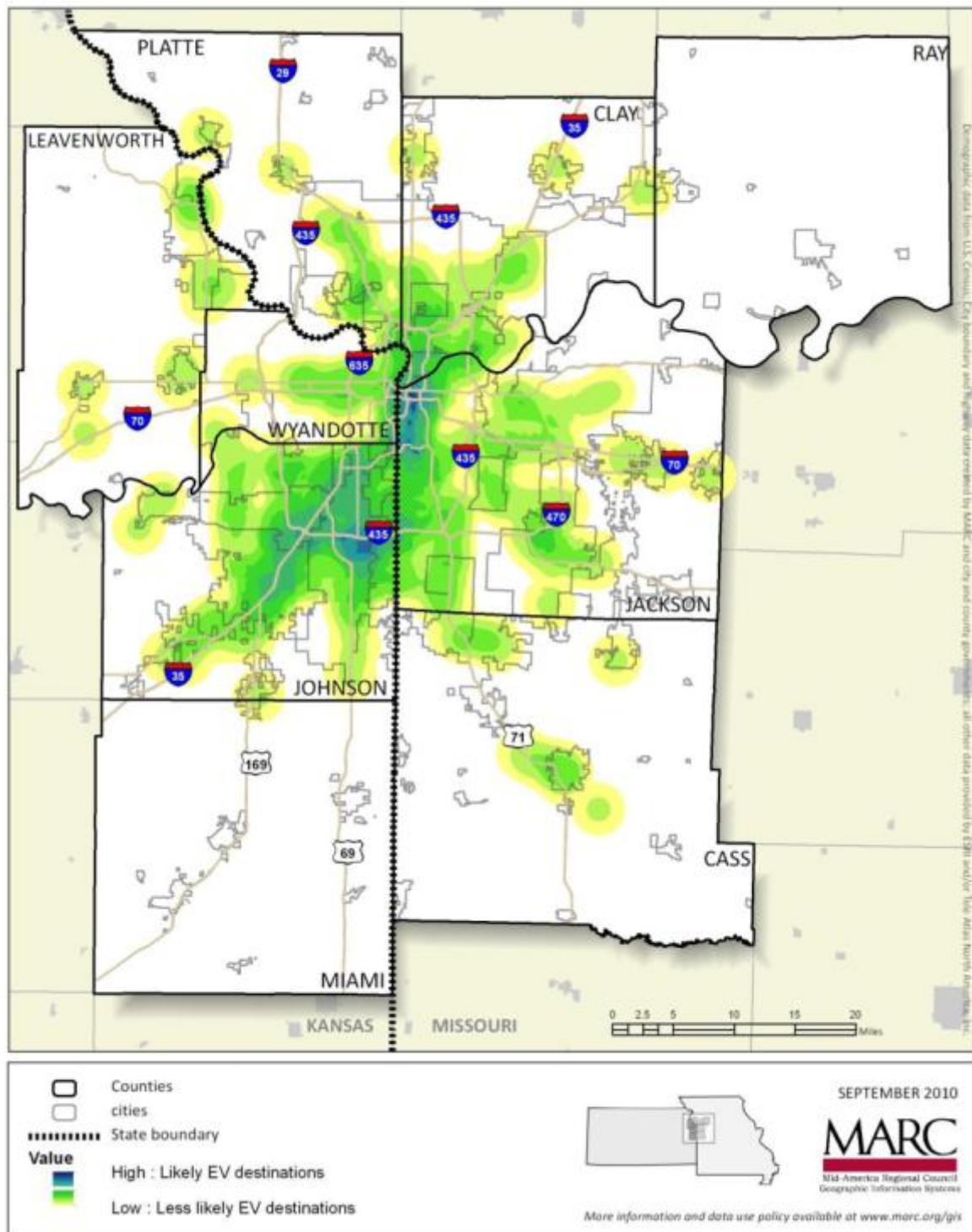
Density of existing and planned activity & employment centers





Appendix I-a: EV Drivers—Origins and Destinations, Maps A–K

Electric vehicle driver destination analysis





Appendix I-b: EVSE Locations

Public and Semi-public EVSE installed or planned as of Sept 2011

Charging Station Location	Address	Intersection	City	State
Black & Veatch	11401 Lamar Ave	Lamar and 115th St	Overland Park	KS
Johnson County Community College	12345 College Blvd	College Blvd and Quivira Rd	Overland Park	KS
Park Place	11551 Ash Street	Nall Ave and I-435	Leawood	KS
Commerce Bank	13441 State Line Rd	W 135th St and State Line Rd	Kansas City	MO
Harley Davidson	11401 Congress	North Congress Ave	Kansas City	MO
Union Station	30 W Pershing Rd	W Pershing and Main St.	Kansas City	MO
City of Lee's Summit	220 SE Green St	SE 2nd st and SE Green St	Lee's Summit	MO
Heartland Hospital	5352 Faraon St	Faraon St and N. Riverside Rd	Saint Joseph	MO
Posty Cards	1600 Olive St	Prospect and I-70	Kansas City	MO
Boulevard Brewing Co.	2501 Southwest Blvd.	Pennway and I-35	Kansas City	MO
Roeland Park City Hall	4600 W 51st St.	Roe Ave and I-35	Roeland Park	KS
Project Living Proof	917 Emanuel Cleaver II Blvd.	Troost Ave and Cleaver Blvd.	Kansas City	MO
University of Missouri - Kansas City	5115 Oak St.	51st and Oak St	Kansas City	MO
University of Kansas Center for Design Research	2544 Westbrooke Circle	Massachusetts St and I-70	Lawrence	KS
Kauffman Center for Performing Arts Garage	1601 Broadway	16th St and Broadway	Kansas City	MO



EV Business Coalition, Proposed

Purpose and Method

- Establish a coalition of Kansas City businesses that are committed to promoting the early adoption of electric vehicles (EV) within the metro area.
- Propose to the GKC Chamber Climate Protection Partnership and other business groups.
- Commitments required to sign on (see below).
- Benefits include recognition, reduced Scope 3 GHG emissions, increased employee satisfaction and retention.

Proposed Commitments

Coalition members would be expected to:

- Install at least one charging station at one of their KC-based facilities.
- Allow employees to charge their EVs free at this facility.
- Offer at least \$5K (in aggregate) in cash incentives for employees purchasing EVs.
- Actively promote EV availability to their local employee base.

In addition, they may choose to:

- Offer “energy passes” for free public charging.
- Adopt the MARC Smart Commute Program to ensure employees purchasing EVs record their impact on reducing KC GHG emissions.
- Offer discounted employee EV purchasing through corporate vehicle purchasing programs.
- Integrate EVs into company fleet.
- Offer preferred parking for employees who have purchased EVs.

Partnership Considerations

- Average cost for charging stations, installed: \$10,000-14,000.
- Solutions to charging without a station through a 120-volt outlet, using the vehicle’s supplied charging cord.
- Typical charging costs.
- Based on a typical workplace commute, average costs to charge a Nissan Leaf would equal \$1.75 per day.
- Discounted EV purchasing.
- Include employee EV discounts with corporate discounts offered through auto manufactures.
- Energy Passes.
- Prepaid credit cards can be used by various charging providers.
- RFID cards should be considered if available.
- EV Education.
- Provide accurate information to debunk the myths around the capabilities and availability of mass market EVs.
- Inform employees of programs and opportunities available through CPP coalition partnership.



Appendix III: Government Policy Best Practices

Building Code and Zoning Code Strategies, Policies, and Incentives

Current State Incentives and Policies

State of Missouri

- Alternative fuel infrastructure tax credit eligible for charging stations: 20% up to 20,000. Expires December 31, 2011.
- Defines a low-speed vehicle as a four-wheeled vehicle with a maximum speed of 25 miles per hour (mph) that is manufactured in compliance with safety standards specified in Title 49 of the [Code of Federal Regulations Missouri Revised Statutes](#) 304.029). Exclude 3-wheeled low-speed vehicles.

State of Kansas

- Current AFV and Alternative fuel refueling equipment definitions exclude gaseous fuels, except those produced from biomass, and do not address electricity. They specifically include technology that operates on a combustible liquid derived from grain starch, oil seed, animal fat, or other biomass, or produced from a biogas source.
- Low-speed vehicles may only travel on roadways with a posted speed limit of up to 40 miles per hour (mph). A low-speed vehicle is any four-wheeled electric vehicle whose top speed is at least 20 mph but not more than 25 mph and is manufactured in compliance federal standards for low-speed vehicles as referenced in Title 49 of the [Code of Federal Regulations](#), section 571.500. (Reference [Kansas Statutes](#) 8-1488; 8-15,101; 8-1701; and 8-2118). Excludes three-wheeled low-speed vehicles.

Current State of Municipal and Codes Policies

Local permitting offices have basic knowledge of charging infrastructure but have not seen a need to make preparations for potential rapid growth in demand. Currently, a permit for charging infrastructure is exactly the same as a permit for any installation of a 220-volt electric appliance and takes no time at all; however, this does not take into account special needs of utilities for electric infrastructure and data collection, or high consumer demand, which must be addressed. Below are collected best practices that will be used to create model policies for adoption or adaptation by individual municipalities. Education and training will take place through existing committee structure at Mid-America Regional Council.

Best Practices for State and Municipal Government Action

Planning & Zoning

- Require new or a percentage of new apartment and mixed-use construction to have a minimum Level 1 and Level 2 circuit installation.
- Establish streets, sidewalks, and public works standards and guidance documents for installation of EV infrastructure in the public right-of-way, public parking facilities, government fleet parking facilities, and on private properties where EV charging is deemed a priority.
- Implement zero-emissions parking zones.
- Require remodeled non-residential parking to install electrical conduit between the service panel and a percentage of parking spaces to make future installation less costly.
- Create design standards for public roads within subdivisions and frontage improvements that enable eventual implementation of EV infrastructure.
- Create design standards for public common areas like parks.



Appendix III: Government Policy Best Practices

- Require new or a percentage of new single-family and townhome construction to be EV-ready.
- Determine the ratio of parking spaces to be EV-ready in single-family dwellings, multifamily dwellings, mixed-use buildings and other uses, such as retail, hotel or office space.
- Offer a reduction in parking requirement to commercial or multi-family developments where parking spaces are converted to EV charging stations.
- Allow charging infrastructure to be exempt from site coverage requirements.
- Development regulation incentives such as bonuses to height, site coverage, floor area ratio, etc. for including EV parking
- Implement EV parking incentives such as free parking and/or less restrictive parking in municipal lots, garages, and on-street.
- Establish zoning regulations, vehicle and traffic regulations, public works standards, and guidance documents for EV infrastructure installations for use in private developments.
- Develop standard construction documents for the installation of EV infrastructure in the public-right-of-way, public parking facilities and government fleet parking facilities.
- Form county-wide or region-wide working groups whose focus is on all aspects of siting and installing EV infrastructure in an effective and efficient manner.
- Initiate a comprehensive mapping and information system identifying the location, hours of operation, and status of charging facilities.
- Coordinate the inclusion of EV infrastructure in any public infrastructure project that has been identified as a priority public charging station site. Use a set of standard construction plans and specifications, to the extent possible, to streamline installations and control installation costs.
- Post public charging-station locations on agency websites and use other forms of print and electronic media to inform the general public about the locations of charging stations.
- Relax covenants to allow outside storage of vehicles.
- Add charging stations to the allowable land-use list or accessory-use list.
- Require new residential construction to have basis premises wiring and panel capacity of EV charging units.
- Establish a required ratio of parking spaces to be EV-ready in multifamily dwellings and other uses such as retail, hotel, or office space.
- Require all public charging stations to have smart-charging capabilities, real-time communications, and data-collection capabilities to enable on-site and utility-level energy management.

Permitting

- Implement low-, flat- or no-fee permit rate structure.
- Provide reduced fees for permits for retrofitting existing residential buildings.
- Streamline permit processing (priority handling, fast turnaround, over-the-counter and or online permits, centralized coordination, permit czar, contractor-level or designated-rep sign offs) for EV infrastructure or retrofitting



Appendix III: Government Policy Best Practices

Incentives

- Establish state-level tax credits, rebates, licensing fee reductions and HOV-lane access for EVs
- Exempt EV's from urban congestion restrictions and fees such as tolling.
- Provide funds to subsidize the installation of charging stations
- Waive local taxes
- Tax abatement
- Sponsor battery warranty programs
- Add to climate action plan as strategy to reduce green house gas emissions

Policies

- Promote workplace charging infrastructure installations for employees and public uses.
- Add EV's to public fleet-purchasing programs.
- Require lifecycle cost estimates for public vehicle-purchasing programs.
- Create new staff position
- Lobby state to adopt model regulations for EV's
- Require EVSE-ready conduit to be specified for every new garage or parking lot permitted to be built.



Appendix IV: OEM Vehicle Availability

Manufacturer/Make	Models	Projected On-Sale Date	Dealerships
<i>Consumer</i>			
Chevrolet	Volt	November 2011	Blue Springs Chevrolet
			McCarthy Chevrolet
			Molle Chevrolet
Nissan	LEAF	November 2011	Keystone Nissan
			McCarthy Nissan
Ford	Focus EV	July 2012	Gary Crossley Ford
			Laird-Noller Ford
			Olathe Ford
Toyota	Plug-in Prius	July 2012	Legends Toyota
EMC2	All	April 2012	Don Kahan Motors
<i>Commercial</i>			
Azure Dynamics	Transit Connect EV	Now available	Olathe Ford
Smith Electric Vehicles	Newton	Now available	Manufacturer sales only
Smith Electric Vehicles	Shuttle Bus	June 2012	Manufacturer sales only
Navistar	E-Star		Diamond International
<i>Low-Speed Electric Vehicles</i>			
GEM	e2, e4, e6, eS, eL, and eL XD	Now available	Bob Hoss Dodge
	e2, e4, e6, eS, eL, and eL XD	Now available	Van Wall Equipment
Columbia	Mega, Summit, Eagle	Now available	Van Wall Equipment
	Mega, Summit, Eagle	Now available	Wiese
Tomberlin	E-merge, Anvil	Now available	M&M Golf Cars
Vantage	EVX1000, EVR1000, EVC1000, EVP1000	Now available	Van Wall Equipment



Appendix V: Target EV Fleets

Mandated fleets will be acquiring EVs whenever possible, due to administrative targets:

US Veterans Administration
US Military, Fort Leavenworth
US Military, Fort Riley
US General Services Administration
State of Kansas
State of Missouri
University of Missouri system
Kansas City Power & Light
Westar Energy

Private and municipal fleets will acquire EVs whenever funding and operations make sense, particularly electric service providers and fixed-route delivery fleets:

Lee's Summit R-7 School District, MO
City of Kansas City, Missouri
Kansas City Area Transportation Authority
Mark One Electric
Capital Electric
Staples, Inc.
Ink Cycle
AT&T
Community Blood Center
FedEx
UPS



COMMENTS ON DRAFT GREATER KANSAS CITY PLUG-IN READINESS STRATEGY

What comments do you have about strategies to help deploy electric vehicle infrastructure that are listed in Greater Kansas City Plug-in Readiness Strategy plan?

- The plug-in readiness report appears to provide a thorough and appropriate strategy. While much will depend on the participation and support of large businesses that includes the large government employers in the area, if this materializes, many employees will be encouraged to select electric models when then replace vehicles.
 - Proposed response: Acknowledge comment. No change to document needed.
- I see no mention of what kind of fuel is being used to generate the electricity needed to power such a large scale transformation...the proposition that cleaner air will automatically result ignores the increase in coal burning (both day and night) by area power plants (especially those west of kc) on our air quality.
 - Proposed response: Add brief summary about current fuels for electricity generation and status of base load vs. peak load to narrative (Information regarding local energy mix can be requested of Roland Maliwat, KCPL Sustainability Manager.). Balance this with mention of displacement of foreign oil (energy independence) VOC reductions (decrease in ground-level ozone) and statistics on reduced air pollutants even when the source is electricity produced from coal.
- What are the locations of the 10 local stations KCPL is installing? Where are existing public station? Is there a map of proposed public station dispersion around Metro? Has a charging station manufacturer been proposed, has KCPL determined a manufacturer of stations they prefer?
 - Proposed response: Add map of current locations to appendix and note proliferation of online and mobile applications to locate public charging stations to narrative.
- Policies and building codes should include the addition of solar or wind power systems to compensate for the increased demand for electricity or strong incentives offered to add these power systems.
 - Proposed response: Acknowledge comment. No change to document needed.
- I feel this is a worth while effort and that a key will be making charging stations readily available to overcome most fears about electric vehicles. It would be ideal to have charging available at gas stations, or at that level of availability.
 - Proposed response: Add map of current locations and note proliferation of online and mobile applications to locate public charging stations to narrative. Add to narrative a mention that DC fast-charging is in demo mode with no adopted standard as yet.
- I'm a retired KCPL engineer, who for several years was the company contact for wind and renewables generation. About 15 to 20 years ago, during one "information" session with our then CEO, I raised the question, "Has KCPL investigated the opportunities for working with the City of Kansas City, MO, to consider modifying the building codes, and make provisions for "right of ways" in public parking facilities for the installation of "support systems" that will permit an existing path for the installation of future technologies for various forms of transportation, such as the electric automobile? The response I got was, "we see no future for the electric vehicle in Kansas City". So much for visionary.



Appendix VI: Public Comments, March 7 – 31, 2011

- Proposed response: Acknowledge comment. No change to document needed.
- As part of the Front Street extension currently under construction on the Riverfront the Port Authority designed an electric vehicle charging station in the parking lot. Due to funding constraints at the time of bidding the charging station was dropped from the bid package. However, the conduit is being run for future installation. The Port Authority may have some funds available now to do the installation. Let us know if the Port Authority may be part of the solution.
 - Proposed response: Acknowledge comment. No change to document needed.
- Kansas City Kansas Community College Technical Center was just awarded accreditation for its electric car program. The only certified program in the state of Kansas. For more information, please contact Cliff Smith, 627-4122.
 - Proposed response: Add brief summary information about local training programs for PEV's to background narrative. Make a change to the strategy document under fleet demand for techs and under govt policy for 1st responders.
- Electric vehicle infrastructure should be promoted to the fullest extent possible. Electric infrastructure should be installed immediately.
 - Proposed response: Acknowledge comment. No change to document needed.
- Please see note that I am sending to Ron Achelpohl and Kelly Gilbert*.
 - Proposed response: Add to narrative mention of car-sharing programs to reduce VMT in urban or university settings.

What additional strategies should we consider that aren't included in the proposed plan?

- In all of the alternative fuel concepts, the biggest limitation is distribution. While new ideas for plug-ins will emerge, it would be best to focus on the primary concepts proposed in the strategy to have a good plug-in infrastructure implemented as soon as possible.
 - Proposed response: Acknowledge comment. No change to document needed.
- What is the impact on increased demand for coal burning power plants as a result of increased daytime electric use? Where is the concomitant development of solar and other renewable-generated electricity emphasized or demanded?
 - Proposed response: Add brief summary about current fuels for electricity generation and status of base load vs. peak load to narrative.
- Would a rate ceiling be appropriate or tied into market rates? Please add me to mailing list and inform me of any future meetings.
 - Proposed response: Acknowledge comment. No change to document needed.



Appendix VI: Public Comments, March 7 – 31, 2011

- I don't see any discussion on how to address the increased demand on the power grid as a result of widespread EV use. This is especially important since air quality is part of the rationale behind encouraging EV use as over half of electricity used in the US is coal generated.
 - Proposed response: Add brief summary about current fuels for electricity generation and status of base load vs. peak load to narrative.
- It appears the focus was on current car manufacturers for vehicle supply. It might be good to consider businesses that would convert existing vehicles to EV's. This might open the EV market to more people due to the cost being a lot lower than buying a new EV. Incentives should include conversions as well as new purchases.
 - Proposed response: Include conversion vehicles in definition of plug-in electric vehicles in narrative.
- I glanced through the plan, but did not see a specific effort to work with the City of Kansas City to make provisions in the building codes for multi-level parking garages and surface parking lots, where a "right of way" is established such that room is provided for the installation of "support equipment to provide energy to vehicles that can be electric, hydrogen, or any other form that is developed in the future. The intent is to provide an existing corridor for installation of conduit, pipes, or possible future technological developments, for the means of conveying a storeable energy source to vehicles, now and into the future."
 - Proposed response: add to govt policy best practices appendix the incorporation of electric charge-station – ready conduit in public parking structures.
- Expedite the process of designing and building electric vehicle infrastructure.
 - Proposed response: Acknowledge comment. No change to document needed.

*Thank you for the opportunity to comment on the Greater Kansas City Plug-In Readiness Strategy. My comments here are based largely on a note that I sent to a few task force members on November 29, 2010.

As we program public funds in the name of becoming a more sustainable community, we should strive to do things that are not just eligible, but also transformative.

I have followed national PEV/PHEV issues only casually. Contrary to the image conjured up by the term "mass-market plug-in electric vehicles," my impression is that their introduction will actually be fairly slow -- perhaps as few as about 50,000 in 2011 and in the low single digits (as a percent of total vehicle sales) for several years thereafter. Furthermore, my impression is that manufacturers are likely to concentrate availability in a few markets rather than making them available nationwide.

If I had a say in where they are marketed, I'd want them to go to regions that have the greatest air quality problems and the highest percent of renewable electric energy. By those measures, Kansas City wouldn't get many vehicles.

In Kelly Gilbert's presentation to TTPC in November, 2010, I got the impression that EVs are expected to replace conventional vehicles more or less at random based on individual and household



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decisions, with household income and “early adopter” inclinations being major determinants. Owners would presumably substitute them for one of their current vehicles with little or no change in travel habits. This expectation is consistent with the 100-mile design range of the all-electric Leaf, for example -- despite the fact that a shorter design range would decrease vehicle weight and price (due to smaller battery packs), while also delivering more passenger miles per unit of energy.

This assumption regarding substitution feeds the perceived need to provide re-charging stations for people who won't be able to complete their daily travels on a single charge.

[1] - From an energy-conserving and air quality perspective, we should prefer that EVs be adopted by households that already have relatively limited travel demand -- households for which the home recharging station will serve nearly all needs, with AAA or other emergency auto service filling in on those rare occasions when the EV is kept out too long and turns into a pumpkin.

I realize that we won't have a say about who buys EVs. However, that shouldn't prevent us from discussing preferences that are in the public interest and making those preferences known. We should want available public resources to support use of those EVs that do become available in this market by households that do relatively little driving, substituting electric (which in this region means coal and nuclear) powered miles for gasoline powered miles. It's the relative short trips in stop-and-go driving where EVs can outshine conventional vehicles and yield the greatest energy efficiency and air quality return on the dollars invested.

In fact, a public information campaign about the "best" kinds of motorists to become EV owners would be a useful component of the Plug-In Readiness Strategy, and would have the added benefit of raising awareness of the importance of limiting trip lengths in general.

The fact that we won't have a say about who buys EVs should also not prevent us from making public investment decisions that favor the kinds of EV use that we think will yield the greatest societal benefits. In fact, we should consider whether there should be any public role at all in providing for recharging stations. Perhaps the appropriate public emphasis should be on technical support for installation of home recharging facilities, perhaps through programs implemented by electric utilities.

[2] - It's natural to want Plug-In Readiness in the Green Impact Zone, even though the number of households that could afford an EV is pretty limited. Fortunately, the market for purchase of EVs ought to be significantly better in nearby Brookside and the other neighborhoods west of Troost, both because of higher incomes and the greater inclination to be “early adopters.” Thus, whatever public infrastructure might be provided for the Green Impact Zone will also serve the adjacent more affluent district.

[3] - One concept that I really like, in part because it borders on being transformative, is combining EVs and Plug-In Readiness with car-sharing, an arrangement that makes vehicles available to its members at an hourly rate. For willing households, NOT having car keys in the pocket can be a real incentive to make more conscious travel mode choices. The appeal of having a new EV available -- albeit perhaps not instantaneously -- could make car-sharing an attractive alternative to a second or third car for many households, as well as a viable alternative to car ownership for lower-income households that can take advantage of the relatively high level of transit service in the Green Impact Zone and other central city areas. In fact, it's even plausible that the Kansas City Area Transportation Authority could be an operating entity for car-sharing. (The ATA has managed a vanpool program involving some two dozen vehicles for a quarter century or more.) Car-sharing could be a transformative way of introducing EVs to the region. My impression is that car-sharing has been slow in catching on nationally. Maybe it needs just the kind of boost that EVs and a Plug-In Readiness program could provide.