Improving Evaluation Metrics for Buildings-Related Transportation Policies at the Local Level

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ABSTRACT

A comprehensive approach to transportation energy efficiency at either the federal, state, or local level must include a combination of policies that target both vehicle fuel efficiency and the overall efficiency of the transportation system, including its interrelationship with land use policies. The *2013 City Energy Efficiency Scorecard* evaluates local transportation efficiency actions through a comprehensive scoring methodology that attempts to rate a city's progress on a number of different vehicle and system efficiency policy metrics. However, while the inaugural report made a thorough attempt to capture the various facets of a sound transportation policy approach, there is still plenty of opportunity for improvement to the methodology, particularly with regard to the location efficiency, mode shift, and efficient vehicle policy categories.

This paper will assess if the current methodology for the *2013 City Energy Efficiency Scorecard* uses the right metrics to evaluate a given city's progress on energy efficiency in the transportation sector, in addition to determining whether or not our weighting of the different policy categories is consistent with the potential energy savings associated with those respective categories.

Introduction

A comprehensive approach to transportation energy efficiency at either the federal, state, or local level must include a combination of policies that target both vehicle fuel efficiency and the overall efficiency of the transportation system, including its interrelationship with land use policies. Transportation energy use accounts for approximately 28% of overall energy use in the United States (Davis, Diegel, and Boundy 2013). Similarly, transportation accounts for between 25% and 38% of energy use in most cities in industrialized countries (UN 2008). While the federal government and states have made big strides in recent years toward achieving significant energy savings in the transportation sector, local governments play a critical role when it comes to maximizing this sector's energy efficiency potential. Municipalities and other job centers can have significant influence over commuting behavior and choices in addition to shaping land use.

In general, transportation efficiency policies at the local level must respond to the changing landscape of transportation energy use and must address both the efficiency of vehicles and the efficiency of the transportation system as a whole. Americans have seen drastically fluctuating gasoline prices over the last five years, leading many to look toward more efficient and advanced technology vehicles to serve as a buffer against high costs during peak price periods. Cities that provide tax incentives for the purchase of efficient vehicles while also investing in appropriate charging infrastructure for the new wave of plug-in hybrid and battery electric vehicles can make the prospect of buying an advanced technology vehicle much more feasible for their residents. Likewise, cities play an important role in driving and responding to changes in Americans' travel behavior. Public transit ridership is currently at the highest levels

since 1956 (APTA 2014), and more and more people are choosing to bike or walk, particularly in large cities (Alliance for Biking and Walking 2014). To accommodate the growing demand for alternatives to driving, local governments must take the lead in providing residents with transportation infrastructure and services and creating communities that support safe automobile-independent ways of getting around.

The *2013 City Energy Efficiency Scorecard* (Mackres et al. 2013) compiles information on and compares local transportation efficiency actions through a comprehensive scoring methodology that evaluates cities' progress on a number of different vehicle and system efficiency policy metrics. However, while the inaugural City Scorecard sought to capture the various facets of a sound transportation policy approach, there is still plenty of opportunity for improvement to our methodology. This is particularly the case for three key policy areas:

- Location efficiency
- Mode shift
- Efficient vehicles

This paper will evaluate our current scoring methodology for transportation by comparing our location efficiency and mode shift policy metrics against analyses of energy savings potentials found in *Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions* (ULI 2009), an assessment of policies to reduce vehicle miles traveled in the long term. For efficient vehicles, we draw on policy guidance from the State of California as part of the Zero-Emission Vehicle (ZEV) program and from Georgetown University's Transportation and Climate Initiative. This comparison will allow us to assess if the current methodology for the City Scorecard uses the appropriate metrics to evaluate a given city's progress on energy efficiency in the transportation sector, in addition to determining whether or not our weighting of the different policy categories is consistent with the potential energy savings associated with those respective categories.

ACEEE's City Scorecard Transportation Methodology

The *2013 City Energy Efficiency Scorecard* scored cities based on a variety of transportation policies that have substantial energy savings potential. These categories are:

- Location efficiency policies
- Mode shift strategies
- Public transit policies
- Efficient vehicle policies
- Freight transportation policies

Metrics selected for the transportation scoring are, in most cases, policies that city policymakers can influence in the short term. Importantly, transportation policies at the city level are often most effective when they interact with or build on policies at the national, state, and regional levels. State policies and programs can help significantly when it comes to creating compact communities or providing funding for the expansion of transit systems. Regional policies and agencies such as metropolitan planning organizations are important to the

transportation planning and implementation process, bringing to the table both funding and analytical expertise. Table 1 highlights all policies scored within each subcategory and their associated point allocations.

Table 1. Transportation scoring metrics in ACEEE's City Scorecard

Category	Policy	Point Allocation	Percentage of Total Points
Location Efficiency	1. Smart growth zoning	2	
	2. Maximum parking requirements	2	
	3. Complete streets policy	2	
	4. Location efficiency incentives and disclosure policies	2	
	Subtotal	**8**	**28.5%**
Mode Shift	1. Integration of land use and transportation planning	4	
	2. Demand management programs	2	
	3. Car sharing programs	1	
	4. Bike sharing programs	1	
	Subtotal	**8**	**28.5%**
Public Transit	1. Transportation funding distribution	4	
	2. Transit connectivity and service	2	
	Subtotal	**6**	**21%**
Efficient Vehicles	1. Efficient vehicle purchase incentives	1	
	2. Incentives for vehicle charging infrastructure	0.5	
	3. Anti-idling policies	0.5	
	4. Transportation partnerships	1	
	Subtotal	**3**	**11%**
Freight	1. Presence of intermodal freight facilities	3	**11%**
	TOTAL	**28**	**100%**

We allocated 16 of the overall 28 points to transportation policies that interact with the built environment. Since location-efficient zoning and policies that integrate land use and transportation to ensure accessibility of major destinations are essential to reducing transportation energy use in the long run, a city stood to earn 8 points each in the location-efficiency and mode shift categories. The efficient vehicles category earns a much smaller proportion of overall points (3 out of 28) because the primary vehicle efficiency policies occur at the federal and state levels. Below is a brief discussion of the policy subcategories that make up each of the three policy areas for which we will evaluate ACEEE's choice of metrics and point weighting.

Location Efficiency

Where we choose to live and develop our neighborhoods has a huge impact on overall energy use. Living in compact, mixed-use communities that are well connected and near established transit facilities means significantly lower transportation-related energy use for the average household (EPA 2011a). Policies that encourage this location efficiency are therefore important to improving the overall efficiency of the transportation system (Vaidyanathan and Mackres 2012). These include the following policies:

Zoning and parking policies for location-efficient development. Changes to municipal zoning regulations that move away from traditional zoning practices used to segregate industrial and residential lands can direct investment and development toward high-density, mixed-use construction around existing transit facilities. Form-based zoning codes and the use of overlays are particularly useful for the planning of mixed-use and transit-oriented communities, as they add transit-related and density requirements to existing codes. Similarly, moving away from conventional zoning and development standards that have minimum parking requirements, such as one or more on-site parking spaces per housing unit and multiple spaces for commercial and institutional buildings, will encourage the growth of denser development.

Complete streets. These policies focus on the interconnectivity of streets and target safe, easy access to roads for all pedestrians, bicyclists, motorists, and public transportation users. Complete streets foster the increased use of alternatives to driving by creating a comprehensive network of connected streets, sidewalks, and bicycle lanes or by connecting to transit facilities. Therefore, the presence of an interconnected complete streets network can provide viable alternatives to driving and reduce a community's overall fuel consumption.

Location efficiency incentives and information disclosure. Cities may use a number of incentives to encourage compact growth and mixed-use projects, ranging from tax credits for developers to expedited permitting. Such financial and nonmonetary policy levers can make these projects deeply attractive to developers. Commonly used financial measures include low-interest loans and property tax abatement programs, both of which help with the large cost of development. Commonly used nonfinancial measures such as density bonuses and expedited permitting can similarly provide incentives for compact, mixed-use development. Additionally, to attract potential residents to transit-oriented development and mixed-use communities, cities may require disclosure of information on the location efficiency of buildings (e.g., Walk Score) to potential buyers or tenants as a part of a real estate or rental transaction.

Mode Shift

For routine transportation needs, such as commuting to a workplace, 75% of all trips nationally are made by single-occupant vehicles (EPA 2011b). To improve the overall efficiency of a transportation system, cities may implement policies that discourage residents from frequent driving and encourage a switch from driving to other modes of transportation (e.g., public transit, bicycles, walking). This can be achieved through the use of transportation demand management

programs, vehicle sharing efforts, and, more holistically, by ensuring that land use and transportation planning are properly integrated.

Integration of transportation and land use planning. Energy-efficient transportation is inherently tied to the integration of transportation and land use policies. An approach to planning that successfully addresses land use and transportation considerations simultaneously is critical to achieving an overall reduction in vehicle miles traveled (VMT). A number of policy levers can be used to integrate transportation and land use planning and thus shift travel from personal vehicles to other, more efficient modes of transport and reduce fuel consumption. These include VMT targets, modal share targets that aim to increase the percentage of trips taken on non-automobile modes of transportation, and growth boundaries that attempt to curb sprawl and concentrate development in particular areas.

Car and bicycle sharing. Car and bicycle sharing services give drivers access to shared vehicles, presenting them with an alternative to owning or driving a personal vehicle, thus reducing the overall miles driven in a given city.

Transportation demand management programs. The primary goal of transportation demand management (TDM) programs is to reduce the frequency of single-occupancy trips or to shift automobile trips out of peak traffic periods (SDOT 2008). TDM strategies that cities can support through policies and programs include: telecommuting, flexible work schedules, subsidized transit passes, parking cash-out programs, and ridesharing. TDM programs can be implemented by either employers or municipalities. In many cases, employers receive incentives from cities to encourage their employees to change their travel behavior.

Efficient Vehicles and Driver Behavior

The U.S. vehicle market has seen a significant rise in high-efficiency options for consumers in recent years. Manufacturers are maximizing the efficiency of conventional internal-combustion-powered vehicles, and there now are many more conventional hybrids, plug-in hybrids, and electric vehicles available for sale in dealerships across the country. While these vehicle types provide significant energy-saving opportunities, plug-in electric vehicles that require charging stations also present infrastructure challenges. Beyond vehicle purchase and infrastructure, maximizing the efficiency of a vehicle depends on a driver's behavior. Driving the speed limit, keeping the tires inflated, grouping trips together, and avoiding idling all serve to reduce a vehicle's overall fuel consumption.

Incentives for energy-efficient vehicles and charging infrastructure. A key barrier to the entry of advanced technology, fuel-efficient vehicles into the marketplace is their high cost. To encourage consumers to purchase these vehicles, financial incentives, including tax credits, rebates, and sales tax exemptions, are an important policy lever.

Transportation partnerships. Transportation partnerships and coalitions can be an important planning and organizing tool for cities interested in reducing their overall transportation-related energy use. These bring together relevant stakeholders—such as staff from city transportation

departments, metropolitan planning organizations, and nongovernmental organizations—to find comprehensive solutions to transportation challenges within a city's boundaries and throughout its broader region. For example, DOE's Clean Cities coalitions work to reduce petroleum use in communities by facilitating the adoption of new transportation technologies, with the goals of stimulating the local economy and creating more sustainable communities (DOE 2013).

Improvements to Scorecard Methodology

To determine whether or not our approach to scoring cities in the location efficiency and mode shift categories of ACEEE's City Scorecard is sound, we chose to compare our selection of metrics and allocation of points to energy savings analyses drawn from the Urban Land Institute's *Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions* (ULI 2009). Few studies have focused on the overall universe of transportation measures that can be implemented to reduce energy use and greenhouse gas emissions (GHGs). *Moving Cooler* fills this gap in the research by assessing the effectiveness of a broad range of transportation-specific strategies that will reduce emissions and fuel consumption (ULI 2009). These strategies include those that improve efficiency by promoting the implementation of advanced vehicle technologies, strategies to reduce the carbon content of fuels, strategies to reduce vehicles miles traveled or shift them to more efficient modes of transport, and finally, those that improve the overall efficiency of the transportation system (ULI 2009).

Moving Cooler assesses three scenarios for each strategy: expanded current practice, more aggressive, and maximum effort. Expanded current practice assumes expansion of existing practices to reduce GHGs in predominantly urban areas. The aggressive scenario assumes that strategies are implemented sooner, more broadly, and more aggressively. Finally, the maximum effort scenario assumes that GHG-reducing strategies are implemented within the framework of major changes in policy and with levels of investment that demonstrate a dedicated commitment to GHG reduction nationally, regionally, and locally (ULI 2009). These three scenarios are defined differently for each policy mechanism, as shown in the *Moving Cooler* Technical Appendices (ULI, 2009b). For the purpose of this comparison, we focus on the maximum effort scenario.

Location Efficiency

Moving Cooler identifies policies that affect land use and development as an important part of a comprehensive transportation strategy (ULI 2009). *Moving Cooler* provides savings impacts for a range of combined land use interventions that municipalities can implement, including urban growth boundaries, density minimums, transit-oriented housing, and mixed-use, transit-oriented zoning. Based on these assumptions and national energy savings figures from *Moving Cooler*, ACEEE determined in *Improving Travel Efficiency at the Local Level: An ACEEE Policy Toolkit* (Vaidyanathan and Mackres 2012) that, at the municipal level, location efficiency strategies can offer the fuel savings highlighted in Table 2.

Table 2. Energy savings from location efficiency strategies

Policy	Year	Percent Fuel Savings
Location Efficiency	2015	0.4%
	2020	2.3%
	2035	7.3%
	2045	10.2%

Source: Vaidyanathan and Mackres 2012

The benefits from location efficiency are largely realized only in the long run, due to the fact that changing land use and development patterns inherently takes a significant amount of time and requires a large amount of capital investment. Nevertheless, the potential to achieve a 10% reduction in energy use by 2045 if implemented alone highlights the value of location efficiency policies.

Mode Shift

ACEEE allocates a large proportion of the overall score for transportation metrics to the mode shift category. Since policies that integrate land use and transportation and improve the availability of alternative modes of transportation fall largely under local jurisdiction, they are highly indicative of whether or not a local government is taking a leadership role with regard to transportation policies. Cities stand to earn a maximum of 8 points out of 28. Of those 8 points, cities are awarded a point apiece if they have car or bike sharing programs, 2 points for the presence of any demand management programs, and 4 points for policies that integrate land use and transportation planning.

A number of policy levers can be used to integrate transportation and land use planning and thus shift travel from personal vehicles to other, more efficient modes of transport. These include VMT targets, modal share targets that aim to increase the percentage of trips taken on non-automobile modes of transportation, and growth boundaries that attempt to curb sprawl and concentrate development in particular areas. VMT targets give cities specific benchmarks for reductions in driving and can subsequently encourage the development of transit-oriented communities as well as the use of non-motorized transportation options. Likewise, cities that commit to concrete, long-run modal share targets can significantly change the travel behavior of their communities in favor of modes of transportation that consume less energy. However, targets without a plan to achieve them will result in few changes in development patterns and travel behavior.

Savings from *Moving Cooler* for the policies currently included in ACEEE's mode shift methodology are presented in Table 3 below. Note that savings estimates for both modal share targets and VMT targets are not shown in Table 3, as *Moving Cooler* incorporates these metrics into its location efficiency strategy analysis. ACEEE's City Scorecard makes it the centerpiece of its mode shift category, as integrating these two key components of city planning allows for a significant reduction in driving. In any case, this is an indication that the ACEEE scorecard

might consider policy categories that more closely match *Moving Cooler*'s breakdown or at the very least improve the definition of what we consider a mode shift policy.

Table 3. Energy Savings from mode shift strategies

Policy	Year	Percent Fuel Savings
Car Sharing	2015	0.7%
	2020	0.7%
	2035	0.7%
	2045	0.7%
Bike Strategies	2015	0.05%
	2020	0.4%
	2035	0.9%
	2045	0.9%
Commute Strategies	2015	1.0%
	2020	5.7%
	2035	5.7%
	2045	5.7%

Source: Vaidyanathan and Mackres 2012

In any case, *Moving Cooler*'s analysis indicates that even without VMT targets and modal share targets, the mode shift policies referenced in Table 3 could reduce fuel consumption by a little more than 7% (barring any interactive effects between the policies) at the city level. This suggests that ACEEE's City Scorecard employs a comprehensive range of metrics for the mode shift category that could help cities realize fairly significant energy savings in the long run. However, unlike the location efficiency category, potential energy savings found *in Moving Cooler* suggest that the importance of mode shift is perhaps too heavily weighted in ACEEE's scoring methodology.

Efficient Vehicles and Driver Behavior

Out of a total of 28 points allocated to energy efficiency measures in the transportation sector, City Scorecard assigns 3 points to a range of policies that encourage efficient vehicle adoption, the development of widespread vehicle charging infrastructure, and efficient driving policies. Of the 3 points, 1 point is awarded to cities that provide purchase incentives for hybrid, plug-in hybrid, or electric vehicles, and 0.5 points to those that have incentive programs to support the implementation of electric vehicle charging infrastructures. A half point is awarded if

a city has one or more policy in place to address driving behavior that applies to all vehicles, including anti-idling policies. Also scored in this category is whether or not a given city has an established transportation partnership.

Since *Moving Cooler* doesn't include an analysis of efficient vehicle policies, to evaluate our methodology for the efficient vehicles category in ACEEE's City Scorecard, we drew from a number of different resources. Key to our understanding of the effectiveness of our methodology is the State of California's Zero-Emission Vehicle (ZEV) Action Plan. The plan identifies specific strategies and actions that state agencies will take to achieve a final goal of 1.5 million ZEVs on the road by 2025, issued in an executive order by Governor Jerry Brown (State of California 2013). These actions fall into the following categories:

- *Complete needed ZEV infrastructure and planning* using key strategies such as supporting programs to fund early electric vehicle infrastructure construction, and develop interoperability standards for electric vehicle charging.
- *Expand consumer awareness and encourage demand* through support for consumer rebates for the purchase and leasing of ZEVs, continued high-occupancy-vehicle lane access for ZEVs, and consumer outreach programs that increase awareness about the benefits of ZEVs.
- *Transform public fleets* by ensuring that by 2020, 25% of the State's light-duty fleet is comprised of ZEVs.
- *Grow jobs and investment in the private sector* by attracting ZEV supply chain businesses to California, and meet ZEV-related training needs for business and trade associations (State of California 2013).

Likewise, the Northeast Electric Vehicle Network, out of the Transportation and Climate Initiative at Georgetown University, provides northeastern states with guidance on how to advance electric vehicles as a viable transportation option for residents. The initiative identifies including electric vehicles and EV infrastructure as permissible uses in zoning as necessary steps in order to encourage the construction of the necessary infrastructure in new developments. In combination with parking ordinances that support electric vehicles and charging, zoning changes can effectively serve to encourage the use of electric vehicles (Transportation and Climate Initiative 2012). Additional recommendations include expediting permitting for the implementation of electric vehicle supply equipment (EVSE) in single- and multi-family homes and using building codes for new development to ensure a consistent but flexible way to regulate the construction of EVSE (Transportation and Climate Initiative 2012).

Discussions from both of these policy road map documents indicate that much more can be done in municipalities to facilitate EV deployment beyond the provision of incentives. Compared to a gasoline-powered vehicle, a plug-in hybrid vehicle with an electric range of 40 miles could reduce gasoline consumption by 73% (Salisbury 2011). It is a little more difficult to estimate the overall energy impact at the city level. Nevertheless, the role of electric vehicles and EVSE in reducing transportation energy use and emissions is significant.

ACEEE's City Scorecard current scoring methodology for the efficient vehicles category does little to reward cities for important actions taken beyond accounting for financial and nonfinancial programs that encourage adoption of electric vehicles and construction of charging

infrastructure. It would be worthwhile to consider including an additional metric in the ACEEE methodology that helps determine how cities are incorporating electric vehicles into zoning and building codes, as well as awarding municipalities points for consumer outreach and education programs.

Conclusion

The *2013 City Energy Efficiency Scorecard* from ACEEE scores city transportation efficiency policies using a wide range of evaluation metrics that cover both efficient vehicles and overall transportation system efficiency. While the current methodology is a good first step, there are improvements to be made. Research from the Urban Land Institute's *Moving Cooler* indicates that the current methodology does a satisfactory job of addressing key policy metrics in the location efficiency category. However, further research will be needed to determine whether we have adequately represented mode shift policies in the ACEEE scorecard. Additionally, the question of whether the mode shift category is weighted too heavily remains. Table 4 shows a comparison of potential energy savings from each of these policy categories and the weighting of points currently allocated as part of the *2013 City Energy Efficiency Scorecard* methodology.

Table 4. Comparison of allocated points and potential energy savings for location efficiency, mode shift, and efficient vehicle categories

Policy Category	ACEEE Scorecard Weighting of Points (%)	Potential Energy Savings (%)
Location Efficiency	29%	0.4–10.2%
Mode Shift	29%	1.7–7%
Efficient Vehicles	11%	As much as 73% improvement in fuel economy per vehicle

With regard to the methodology used to score cities on their advancement of high-efficiency vehicles, it is evident that additional policy metrics should be included outside of city incentives for electric vehicle purchases and EVSE development. Given the critical role that zoning and building codes play in encouraging the citywide development of adequate charging infrastructure, ACEEE's City Scorecard methodology ought to evaluate a city's progress in these policy areas. This is also true of electric vehicle consumer outreach and education programs that show potential vehicle buyers the benefits of EVs in addition to making them aware of incentives they can take advantage of to finance the purchase of a vehicle or implementation of EVSE.

References

Alliance for Biking and Walking. 2014. *Bicycling and Walking in the United States: 2012 Benchmarking Report.* Washington, D.C.: Alliance for Biking and Walking.

[APTA] American Public Transportation Association. 2014. *Public Transportation Ridership Report*. Washington, D.C. American Public Transportation Association. http://www.apta.com/resources/statistics/Documents/Ridership/2013-q4-ridership-APTA.pdf

Davis, S.C., S.W. Diegel, & R.G. Boundy. 2013. *Transportation Energy Data Book: Edition 31.* Oak Ridge, TN: Oak Ridge National Laboratory, Department of Energy. ORNL-6987.cta.ornl.gov/data

[DOE]. 2013. "Clean Cities." Accessed May 2013. Washington D.C.: Department of Energy. http://www1.eere.energy.gov/cleancities

[EPA] Environmental Protection Agency. 2011a. *Smart Growth: A Guide to Developing and Implementing Greenhouse Gas Reductions Programs.*Washington, D.C.: U.S. Environmental Protection Agency. http://www.epa.gov/statelocalclimate/documents/pdf/sm_growth_guide.pdf.

_____. 2011b. *Transportation Control Measures: An Information Document to Developing and Implementing Emissions Reductions Programs.*http://www.epa.gov/otaq/stateresources/policy/430r09040.pdf. Washington, D.C.: U.S. Environmental Protection Agency.

_____. 2011c. Location Efficiency and Housing Type – Boiling it Down to BTUs. http://www.epa.gov/smartgrowth/location_efficiency_BTU.htm. Accessed June 2012. Washington, D.C.: U.S. Environmental Protection Agency.

Foster B. & T. Langer. 2013. *Energy Efficiency Potential of the U.S. Freight System: A Scoping Exercise.* Washington, D.C.: American Council for an Energy-Efficient Economy

Mackres, E., K. Johnson, A. Downs, R, Cluett, S. Vaidyanathan, & K. Schulz. *The 2013 City Energy Efficiency Scorecard.* Washington, D.C. American Council for an Energy-Efficient Economy

[SDOT] Seattle Department of Transportation. 2008. *7 Best Practices in Transportation Demand Management*. Seattle, WA: Seattle Department of Transportation.

Shaheen, S.A., A.P Cohen & E.W. Martin. 2012. *Public Bikesharing in America: Early Operator Understanding and Emerging Trends.* Washington, D.C.: 2013 Transportation Research Board Annual Meeting

State of California. 2012. Executive Order B-16-2012. http://gov.ca.gov/news.php?id=17472

_____.2013. *2013 ZEV Action Plan: A Roadmap towards 1.5 million Zero-Emission Vehicles on California Roadways by 2025*. Governor's Interagency Working Group on Zero-Emission Vehicles. Sacramento, CA: Office of Governor Edmund G. Brown Jr. http://opr.ca.gov/docs/Governor's_Office_ZEV_Action_Plan_(02-13).pdf

Salisbury, M. 2011. *What Can Cities and Counties Do to Promote the Deployment of Electric Vehicles?* Boulder, CO: Southwest Energy Efficiency Project (SWEEP)

[T4A] Transportation for America. 2012. *Thinking Outside the Farebox: Creative Approaches to Financing Transit Projects*. Washington, D.C. Transportation for America.

Transportation & Climate Initiative. 2012. *Creating EV-Ready Towns and Cities: A Guide to Planning and Policy Tools*. Washington, D.C. Transportation & Climate Initiative. http://www.transportationandclimate.org/sites/default/files/EVSE_Planning_and_Policy_Tool_Guide.pdf

[ULI] Urban Land Institute. 2009. Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions. Washington, D.C.: Urban Land Institute

_____.2009b. Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions (Appendices). Washington, D.C.: Urban Land Institute

[UN] United Nations Habitat. 2008. *State of the World's Cities 2008/2009—Harmonious Cities*. Nairobi, Kenya: UN-HABITAT. http://www.unhabitat.org/pmss/listItemDetails.aspx?publicationID=2562

Vaidyanathan, S. and E. Mackres. 2012. *Improving Travel Efficiency at the Local Level*. Washington, D.C.: American Council for an Energy-Efficient Economy. http://aceee.org/research-report/t121.