A Roadmap to Green Manufacturing in Los Angeles:
Policies, Planning, and Partnership for Quality Jobs

A Comprehensive Capstone Project
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Spring 2012

Prepared for:
USC’s Program for Environmental & Regional Equity (PERE)
Los Angeles Alliance for a New Economy (LAANE)
Green For All
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Executive Summary

Los Angeles County is the largest manufacturing region in the United States. It leads all counties in the U.S. in terms of manufacturing jobs, payroll, and establishments, and is second only to oil-rich Harris County, Texas, in terms of value of sales and shipments. As such, manufacturing is a critical component of the Southern California regional economy, accounting for over 10 percent of the region’s GDP. Unlike other sectors, local manufacturing provides direct linkages to several other industries; without manufacturing, many jobs in trade, transportation, and services would not exist.

For working Angelenos, manufacturing is a source of economic mobility. Manufacturing offers career ladder jobs for workers across all skill and educational levels, providing important opportunities to underserved communities. Nationally and in Los Angeles County, manufacturing employees make higher average wages than workers in other occupations.

Clearly, manufacturing matters. Moreover, the nexus between California’s cutting edge climate change policy, land use planning and transportation investments provide an important opportunity to grow green manufacturing in Los Angeles. In 2008, Los Angeles County voters passed Measure R, a half-cent sales tax increase that will generate $40 billion over the next 30 years for rail expansion and highway improvements. These infrastructure investments are important to meet the future demands of a rapidly growing population, and can help bolster an already robust urban manufacturing sector in Los Angeles.

But, like most U.S. cities, Los Angeles’ manufacturing sector is losing high-quality jobs due to disinvestment and outsourcing. Since 1991, Los Angeles County lost over half of its manufacturing jobs, according to the Bureau of Labor Statistics Quarterly Census of Employment and Wages.

Despite the shrinking manufacturing sector, local manufacturers of value-added products such as high-precision aerospace parts have suffered but survived. Additionally, most manufacturers in Los Angeles are small- and medium-sized businesses in niche sectors. In fact, since the Great Recession, the number of smallest firms (with 5 or fewer employees) increased, while the number of larger establishments decreased. This demonstrates a resiliency in the local manufacturing sector and an opportunity to nurture innovation.

It also presents significant policy and organizing opportunities. Now is the time to pursue a strategic manufacturing partnership. The future of manufacturing requires substantial coordination between manufacturers and partnering advocacy and policy organizations. Therefore, a high-road manufacturing policy should launch a citywide dialogue about the region’s economic needs and the role of local manufacturing in meeting the demands of a dynamic global market.

However, to move forward with a comprehensive manufacturing strategy, several challenges must be addressed. First, Los Angeles has a disorganized manufacturing constituency. Therefore, despite trends in globalization and dynamic labor markets, there is little political momentum to help manufacturers remain in the region. Second, manufacturers need industrial land, but industrially zoned land in Los Angeles is scarce. The region has the nation’s lowest industrial vacancy rates, yet despite the high demand, industrial land continues to disappear. The fiscalization of land use – accelerated by California’s Proposition 13 – and the subsequent conversion of prime industrial land to other uses with greater revenue potential have led to a
serious attrition of potential sites for manufacturing operations.

The following report addresses the manufacturing landscape of Los Angeles, summarizes the challenges manufacturers experience, outlines policy recommendations for a high-road manufacturing policy, and suggests future research steps to build momentum for a comprehensive manufacturing initiative in Los Angeles. The outline of the report is as follows:

- Chapter 1 provides a framework for Los Angeles’ high-road industrial policy package, and summarizes key case studies from several cities that have implemented local high road manufacturing initiatives that preserve and grow green manufacturing. In this chapter, we offer lessons learned about manufacturing advocacy efforts that can help guide present and future industrial policy initiatives in Los Angeles.

- More broadly, Chapter 2 examines several manufacturing trends in Los Angeles and the U.S., and makes recommendations for future research and data needs that can guide a comprehensive manufacturing strategy.

- Chapter 3 looks into the literature around green manufacturing and gives specific policy recommendations for improving manufacturing to benefit the environment, economy, and workers in Los Angeles.

- Chapter 4 explores the current state of industrial land retention in Los Angeles. Through case studies on various several cities, this chapter outlines recommendations to retain and bolster the Los Angeles manufacturing sector through specific land use policies.

- Chapter 5 outlines the role of intermediaries and organizations in assisting the growth of manufacturing in the region. Additionally, to ensure continual industry growth, this section ends with policy recommendations for how to strengthen the linkages between intermediaries and manufacturers.

- Similarly, Chapter 6 explores the roles of Los Angeles and California employment training services in educating, retraining, and placing manufacturing workers in career pipelines. Also, this section addresses how governments continue to disinvest in educational systems, increasing the need for employment training services. Finally, this section identifies key stakeholders (i.e. labor, business, and community colleges) and explains how they can collaborate to fill the manufacturing employment training gap in the region.

- Chapter 7 assesses the situation of unions in Los Angeles and the role that unions can play in bolstering green manufacturing. Overall, this section makes a case for unions to collaborate with key stakeholders and pursue a high-road manufacturing strategy.

- Chapter 8 examines how government procurement policies can be used as part of an economic development strategy. Additionally, this chapter analyzes the application of Buy America laws as a high-road strategy to revitalize domestic manufacturing.

- Lastly, Chapter 9 builds on the previous chapter and gives an overview of rail standardization and the implications for transit-related manufacturing in Los Angeles.
High-Road Industrial Policy
A Framework & Lessons Learned

By John-Edward Guevarra & Madeline Wander

Abstract

American manufacturing still matters: it leads the nation’s product innovation and accounts for over three-fourths of the nation’s exports, which concentrate in cities. Unlike much of the service sector, manufacturing creates good jobs with upward economic mobility and career pathway out of poverty. In this chapter, we argue that the U.S. and its cities—including Los Angeles, which contains the largest manufacturing base in the country—need strategic policies to both grow manufacturing sectors and improve conditions for workers, communities, and the environment. In other words, we need a high-road industrial policy.

We recognize that instituting such a policy requires a strategic organizing and advocacy effort involving collaboration between public, nonprofit and private sectors, as well as political leverage. Therefore, in this chapter, we present case studies of three American cities—Chicago, New York, and Milwaukee. From these case studies, we offer the following lessons learned that can help guide present and future efforts to institute a high-road policy that preserves and grows green manufacturing here in Los Angeles: develop unlikely partnerships between labor, business, and communities to form a politically powerful manufacturing constituency; focus on strengthening small- to mid-size manufacturers, who make up the majority of Los Angeles’ manufacturing base; use on-the-ground research to understand the Los Angeles context and manufacturers’ and workers’ needs; focus on strengthening existing manufacturing assets; and, finally, target policy making at multiple levels of government, ranging from local to national.
Why High-Road Manufacturing Matters

Currently, manufacturing is at the center of the national political debate. Specifically, policy makers are discussing whether to expand federal support for manufacturing industries. Advocates argue that manufacturing is one of the most critical industries for providing workers with upward economic mobility and sustaining local and regional economies in the U.S.\(^1\) Opponents argue that intervention is unjustified because there is a supposed lack of evidence that manufacturing provides good paying jobs, and that further supporting manufacturing has little effect on improving economic outcomes.\(^2\)

Despite the political rhetoric, manufacturing has been, and still is, one of the most important industries in the U.S. because it continues to improve the nation’s competitive advantage in the global market.\(^3\) Specifically, manufacturing remains an important tool for regional economic development for three main reasons:

1. **Manufacturing creates jobs with upward mobility.**\(^4\) Manufacturing provides many high-wage jobs (compared to the national average) for workers with less educational attainment.\(^5\) These jobs, which are mostly production jobs, require specific technical skills; because their work and tacit knowledge are invaluable to firms, they receive higher wages than workers in other sectors. In addition to in-house work, manufacturing supports jobs related to exports, logistics, and transportation. These “direct linkages” between manufacturing and other sectors also help support high-level service jobs throughout the economy.\(^6\)

2. **Manufacturing accounts for a large share of the nation’s product innovation.** More than a third of all of the nation’s engineers work in manufacturing, many of whom contribute to in-house product innovations and intellectual patents.\(^7\) In addition, manufacturers and their suppliers contribute two-thirds of the nation’s research and development spending.\(^8\)

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\(^4\) Scott, “Professor Romer Needs Manufacturing 101”


\(^7\) Wial, “Manufacturing is special: Why America needs its makers.”

\(^8\) Ibid.
3. **Manufacturing accounts for a majority of the nation’s exports (approximately three-fourths), with the largest concentration of those exports in urban regions.** The sale of exports brings in outside money, and helps to generate wealth for a region.\(^9\)

Despite the importance of U.S. manufacturing to the national and regional economies, manufacturing jobs in the U.S. have tremendously decreased by nearly four million over the last ten years.\(^10\) In addition, the innovation networks associated with manufacturing are moving elsewhere, mainly because of the loss of critical supply chain networks. The loss of this “industrial commons” – the collaboration of engineers, research and development, and manufacturing in an industry – is an all too familiar phenomenon in the U.S. For example, due to outsourcing, the production and research and development of solar panels has relocated to other countries like China. This migration of the industrial commons – where product innovation and production intertwine – has multiple effects on the number of jobs associated with manufacturing firms of all sizes.\(^11\)

To reverse the decline, a comprehensive manufacturing strategy is necessary to restore and improve on the remaining manufacturing jobs across the supply chain, and to maintain an advantage in technological innovation. Indeed, countries across the globe have implemented comprehensive manufacturing strategies to bolster their national and regional economies.\(^12\) For example, Germany and Japan have utilized industrial policies to strengthen their existing manufacturing bases, and to support more advanced manufacturing. The argument for this strategy is four-fold:

1. Government can help promote research and development because research barriers exist, and no one firm is willing to invest in developing technologies;
2. No single private firm can coordinate, let alone manage, a national project;
3. Collaboration between private sector and government can achieve mutual interests and overcome market failures; and,
4. Manufacturing firms need government coordination to organize against unfair trade, tariff barriers, and to achieve regional and national interests.

But, any manufacturing policy is not always a good policy. Instead, the U.S. needs a strategic policy that will not only improve the growth of manufacturing firms, but also improve conditions for workers, communities, and the environment. This policy, called a high-road manufacturing strategy, can boost national competitive advantage, reinvest in trade and transportation infrastructure, and help to rebuild and re-skill the nation’s manufacturing workforce.\(^13\)

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\(^9\) Helper and Wial, “Accelerating Advanced Manufacturing with New Research Centers”


High-road policies rely on multiple strategies to improve worker outcomes and firm productivity. First, firms involve workers in a collaborative environment to learn the technical skills necessary to fulfill their jobs, and also encourage workers to give feedback to management on inefficiencies in the manufacturing process.14 Second, strategic collaborations between firms and their suppliers are necessary in building long-term relationships. In addition, technology plays a key role in supply chain management. Third, governments invest in already existing small and medium local firms—the lifeblood of local and regional economies—rather than solely investing in attracting large multi-national corporations.15 Last, the productivity gains from making high-quality products with less error and mistakes allows firms to pay their workers with a fair living wage, and their suppliers with a fair price, while still making substantial profits.

High-road strategies contrast low-road models, in which businesses and government exclude workers from decision-making processes and deny workers the right to form unions to protect their rights. Taking the low-road means, “improving business climates” by shifting tax burdens from large businesses to workers and residents, which ultimately undermines public services for low-income communities. Finally, low-road economic development supports a system that allows large corporations to pay low wages and deny their workers benefits.16 Unfortunately, low-road models are all-too-common in the U.S., which increases the importance of re-building American manufacturing with a high-road strategy.

In order to be effective, a high-road production model must be embedded in broader policies, like industrial policy. Additionally, government must implement high-road industrial policies on multiple scales, including a regional level for Los Angeles, and should coordinate with strategic partners, like community organizations, industry associations, and the labor movement.17

The following section defines industrial policy—a highly contested concept—and makes the case for why the U.S. and Los Angeles should institute such a policy. The second half of this chapter presents three case studies of American cities in the hopes of extracting lessons about specific industrial policy mechanisms and campaign strategies that may inform similar efforts in Los Angeles.

What is an Industrial Policy?

Economists have provided numerous definitions of industrial policy over the last half-century—most of which mirror the mainstream political leanings of the time. Specifically, the definition of and arguments for/against industrial policy tend to reflect the assumptions and biases of politically powerful interests, rather than economic reality. Beyond the basic understanding that industrial policies aim to address market failures (which we expand upon below), there is no consensus in the literature about what actually constitutes an industrial policy.

14 Susan Helper, in “The High Road for U.S. Manufacturing” acknowledges that “workers, particularly low-level workers, have much to contribute because they are close to the process: They interact with a machine all day, or they observe directly what frustrates consumers... In high-road facilities, such as the one run by members of the United Steelworkers at Mittal Steel in Cleveland, workers solve problems more quickly because they communicate with each other directly in a structured way.”


16 Ibid.

17 Helper, “The High Road for U.S. Manufacturing.”
Some main themes of industrial policy definitions include: a) boosting competitive advantages of U.S. companies in the global market,\textsuperscript{18} b) creating efficiency and coordination,\textsuperscript{19} and c) spurring economic growth and productivity through strategic resource allocation.\textsuperscript{20}

The definitions of industrial policy range from very broad to extremely narrow. The former tend to define industrial policy as “any government measure, or set of measures to promote or prevent structural change,”\textsuperscript{21} which involves shifting resources from traditional production activities to emerging technologies and untraditional practices.\textsuperscript{22} Narrow definitions tend to focus on “policies that target particular firms and industrial sectors.”\textsuperscript{23} The broader definitions often refer to a package of policies aimed at economic restructuring of industries, while narrow definitions tend to describe individual policy instruments, such as:

- Business and industry subsidies;
- Tax incentives for individual firms;
- Trade protection agreements;
- Public procurement policies;
- Investment planning policies;
- Establishing domestic purchasing quotas;
- Defense spending;
- Anti-monopoly laws and merger controls;
- Employment protection laws; and,
- Workforce development programs.

In general, industrial policy takes on different meanings depending on who is defining it. Proponents of tend to describe industrial policy as a set of general measures that improve competitive advantage, foster innovation, and provide means of adapting to structural changes and emerging challenges in the marketplace.\textsuperscript{24} Critics, on the other hand, describe industrial policy as an attempt to “pick winners” by discriminating between sectors and targeting specific industries, or even particular firms.\textsuperscript{25} Critics tend to define industrial policy as particular policy instruments, such as subsidies or tax incentives for particular companies, instead of an overall strategy to grow domestic businesses and sectors.

Definitions of industrial policy, however, do not always fit neatly into one political camp. Among advocates for industrial policy, there is disagreement between those who promote a sectoral approach and those who promote a “horizontal” approach, which targets financial markets, education and R&D directly rather than


particular industries and firms. The term “horizontal” refers to economy-wide measures that evenly affect all sectors, while “vertical,” or sectoral, policies target one particular industry from the top down. As many authors point out, however, the effects of horizontal policies vary significantly and can inevitably favor certain sectors. Therefore, since horizontal approaches have uneven outcomes for different industries, we need to understand horizontal policies as complements, rather than alternatives, to industrial policy. In response to the tension between sectoral and horizontal definitions of industrial policy, Aiginger and Seiber introduce the “matrix” approach, which represents a new paradigm that calls for the fine-tuning of horizontal approaches to help bolster those industries that disproportionately suffer from market failures.

Finally, recent economic restructuring, particularly the integration of and opening of trade markets resulting from globalization, has caused many economists and politicians to rethink the definition of industrial policy. With the rapidly increasing importance of technology in economic growth at the global scale, industrial policy is increasingly becoming a means to directly invest in knowledge and innovation to boost competitiveness.

The Case for Industrial Policy

There is a strong economic rationale for industrial policy: to curb market imperfections that disproportionately harm certain sectors, firms and workers. Development economists generally agree that market failures exist, and are a natural part of industrial development and structural change in local economies. The main source of disagreement, therefore, is not around the existence of market imperfections, but focuses on the extent to which these imperfections affect economies—ranging from the local to the global levels—and whether or not governments should intervene. The following list highlights specific market failures that justify the need for government intervention through industrial policy:

1. **Monopoly power:** Larger companies have the ability to create artificial barriers of entry for smaller companies. In addition, government needs to regulate company mergers needs to ensure no entity has overwhelming control over a single market.

2. **Asymmetric information and coordination failures:** First-movers face large risks when investing in new markets. The role of industrial policy is to overcome first-mover risks and to encourage investments in viable and emerging markets.

3. **Knowledge spillovers and copycats:** Investors may not directly benefit from investing in certain business opportunities. For example, if one business invests in research and development and produces an innovative product, other businesses are more likely to replicate that innovation without necessarily having to invest in the research of that product. Therefore, the goal of industrial

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27 Aiginger and Sieber, “The matrix approach to industrial policy.”


29 Rodrik, “Normalizing Industrial Policy.”

policy is to ensure that all investors appropriate gains, and that industries may last long enough for investors to benefit in collaborative research.31

4. **Wage gaps and unequal power in bargaining in the workplace:** Capitalism allows for employee exploitation through unequal power relations between management and production workers; government can help even the playing field between workers and management through employee protection laws.

5. **Trade deficit:** The U.S. has a “chronic manufacturing trade deficit,”32 with a deficit in manufactured goods quadrupling since 1998.33 Specifically, U.S. has trade deficits in plastic, wood and paper products, transportation equipment, textiles and apparel, and computers and electronics.34 Simply put, the U.S. has an “overwhelming” deficit in manufactured goods.35

6. **Negative environmental consequences:** It is indisputable that harmful externalities accompany traditional industrial development. Most notably, manufacturing plants and production facilities often produce toxic emissions that contribute to air and water pollution, which results in devastating community, health and environmental problems. As Aghion et al. argue, climate change—resulting from aggregated negative externalities associated with dirty industrial practices across the world—has highlighted the need for government intervention; without it, businesses have little incentive to innovate clean production processes and global warming will only intensify.36

7. **Lack of entry points for emerging start-ups and new technologies:** As Dani Rodrik explains, structural change requires investment in new industries. However, without track records, such investment is generally too risky for private lenders. Under these conditions, industries cannot successfully spur development on their own. Because the market will not generate the necessary finance to jumpstart new industries, government needs to either directly invest or incentivize investment in untraditional practices.37

As development economists have shown, market failures are a natural occurrence during times of economic structural change.38 Aghion et al. argue that the current context of globalization—arguably the most large-scale structural change the world has ever seen—justifies government intervention. In particular, the authors claim that the recent global financial crisis, rooted in laissez-faire policies that allowed the “uncontrolled development of non-tradable sectors (in particular real estate) at the expense of tradable sectors that are more conducive to sustainable growth and competitiveness,” demonstrates the need for governments to help facilitate and monitor future industrial development.39 As Aiginger and Selber describe, many factors have contributed to an environment ripe for industrial policy, namely globalization, decreased economic

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31 Ibid.
32 Lind, “An insider’s guide to the great manufacturing debate.”
33 Scott, “Professor Romer Needs Manufacturing 101.”
37 Rodrik, “Normalizing Industrial Policy.”
39 Aghion, Boulanger, and Cohen, Rethinking industrial policy.
growth and increased unemployment in developed nations, and the omnipresent threat of losing even more core industries to developing countries.  

**The Political Context for Instituting a U.S. Industrial Policy**

Although we are witnessing a renewed interest in industrial policy within both developed and developing nations across the globe, the U.S. has yet to catch on. Few policies have spurred more heated debates among both politicians and economists than industrial policy.  

41 Proponents argue market failures ultimately put domestic companies at a disadvantage in the global marketplace. Furthermore, they argue that without a national industrial policy, American industry, particularly manufacturing, will disappear, and with it the high-wage jobs that created our country’s now-shrinking middle class.

Opponents, on the other hand, argue that industrial policy simply creates new market inefficiencies by favoring certain industries and businesses over others; rather than growing industry, opponents say, industrial policy grows government.  

42 In addition, Buss argues that industry-based targeting is more often based on insufficient data, a lack of empirical evidence, and incites “incentive wars” between jurisdictions vying for federal funds for sectors in need.  

43 In short, the debate has become a battle of partisan ideologies regarding the role of government intervention in the private sector. Ultimately, both proponents and critics use extreme rhetoric to perpetuate what Chang calls an “unproductive debate” that is simply stalling the U.S. from catching up with the rest of the developed world. Many economists argue that if the U.S. does not institute an industrial policy, there is no doubt the U.S. will lose its competitiveness in the global arena.

However, change may be on the horizon with President Obama’s recent launch of the Advanced Manufacturing Partnership, a $500 million federal investment into building domestic manufacturing capabilities, reducing time to develop and deploy advanced materials, investing in new technologies, and developing energy-efficient manufacturing processes.  

44 This is indeed an important step in instituting a nation-wide strategy to retain and grow U.S. manufacturing.

**Distinguishing Industrial Policy from Cluster-based Policy**

When forming and instituting an industrial policy, it is important to understand how it is distinct from a cluster-based policy. The fundamental difference between the two policies is geographic scale. Cluster policies focus on a specific geographical area (usually a region), while industrial policies affect a single industry across an entire nation. However, the scale of industrial-based policies is also fluid. For example,

40 Aiginger and Sieber, “The matrix approach to industrial policy.”  
41 Change, “Industrial policy: Can we go beyond an unproductive confrontation?”.  
42 McKenzie, “Industrial policy.”  
44 Chang, “Industrial policy: Can we go beyond an unproductive confrontation?”.  
some cities like New York and Chicago have adopted sector-based policies to support domestic manufacturing (see our case studies below for more details on these municipal-level policies). On the other hand, cluster-based policies can be, but are not always, horizontal policies focused on improving the business climate and environment for all firms.

Additionally, the fundamental goal of cluster policy is to boost the competitive advantage of linked firms, sectors, suppliers, and industries in a specific geographic area. Cluster policies imply a form of targeting that cuts across related sectors, while industrial policy targets a specific industry, like semiconductors, electronics, or manufacturing.\(^46\)

Clusters are economic units, usually regional in size, that draw on public goods such as an educated workforce, and transportation infrastructure in order to enrich a competitive business climate.

Several scholars define cluster policies differently; examples of variations include:

- Cluster policies as a “form of industrial policy that implies a form of targeting”\(^47\).
- Clusters as “geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions in a particular field that compete but also cooperate”\(^48\).
- Clusters targeting “low-cost way to stimulate innovation, new-firm start-ups, and job creation by helping to link and align the many factors that influence firm and regional growth”\(^49\) and,
- Clusters as “reduced-scale national innovation systems” and an alternative to sectoral policy\(^50\).

With the rise of economic globalization, more policymakers began to consider cluster policies for bolstering regional economic growth.\(^51\) This comes with the understanding that cities are not closed systems, but rather “nodal points of trade” with an interconnected network of buyers and suppliers nearby.\(^52\)

In addition, every firm, supplier, industry association, and research/educational institution adds a significant role in cluster development.\(^53\) For example, small- and medium-size firms may develop a niche in order to compete internationally. In relation, these firm linkages create “overlapping clusters” with externalities in

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\(^47\) Ibid.
\(^53\) Roelandt and Hertog, “Cluster analysis and cluster-based policy making: The state of the art.”
technology and sourcing.\textsuperscript{54}

In relation to economic development, scholars suggest a cluster-based approach can enhance job creation through an export strategy, and by bolstering linkages across firms and industries.\textsuperscript{55} However, supporters of cluster-based policy are cautionary towards government’s role in stimulating clusters, and instead believe that government should act as a broker, not an interventionist, on behalf of business interests.\textsuperscript{56} They argue that clusters are spontaneous and not entirely a result of government intervention, but instead a consequence of private-sector activity.

Yet, the various roles for government in cluster development can include: 1) Facilitating and improving clusters, 2) Marketing clusters after they have emerged, 3) Acting as a network facilitator, and 4) Creating a collaborative institution.\textsuperscript{57}

Michael Porter further defines the role of public policy in cluster-based development, including: 1) Collecting and assembling information about existing clusters, 2) Bringing together cluster participants to understand local challenges to growth, and 3) Designing appropriate incentives to enhance collective investment in a cluster. Porter also argues that cluster policy cuts across different industries, and is not a nation-based policy like industrial policy.\textsuperscript{58}

\textbf{TABLE 1 - SIMILARITIES & DIFFERENCES BETWEEN INDUSTRIAL & CLUSTER POLICIES}

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Industrial Policy</th>
<th>Cluster Policy</th>
</tr>
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<tbody>
<tr>
<td>Target area</td>
<td>Mostly, national</td>
<td>Region</td>
</tr>
<tr>
<td>Approach</td>
<td>Top-down policy making decisions, and coordination among separate government departments</td>
<td>Collaborative decision-making amongst a coalition of stakeholders, usually from the private sector</td>
</tr>
<tr>
<td>Economic assumptions</td>
<td>To improve macroeconomic performance and to overcome market failures</td>
<td>To increase competitiveness and improve the business environment of a specific geographic area</td>
</tr>
<tr>
<td>Main actor(s)</td>
<td>Government</td>
<td>Private sector</td>
</tr>
<tr>
<td>Government’s role</td>
<td>Designer and main proponent of sector-based policies</td>
<td>A facilitator, broker, and negotiator of clusters after they have emerged</td>
</tr>
<tr>
<td>Measurements of evaluation</td>
<td>Macroeconomic performance</td>
<td>Job and wage growth</td>
</tr>
<tr>
<td>Target group</td>
<td>A specific sector</td>
<td>Geographic concentration of similar firms that</td>
</tr>
</tbody>
</table>

\textsuperscript{54} Porter, “Clusters and economic policy: Aligning public policy with the new economics of competition.”

\textsuperscript{55} Muro and Fikri, Job creation on a budget: How regional industry clusters can add jobs, bolster entrepreneurship, and spark innovation; Roelandt and Hertog, “Cluster analysis and cluster-based policy making: The state of the art.”

\textsuperscript{56} Ibid.

\textsuperscript{57} Ibid.

\textsuperscript{58} Porter, “Clusters and economic policy: Aligning public policy with the new economics of competition.”
<table>
<thead>
<tr>
<th>Main beneficiaries</th>
<th>A specific sector</th>
<th>A horizontal policy that benefits most firms in interrelated sectors through environmental improvements</th>
</tr>
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<tbody>
<tr>
<td>cut across interconnected sectors and industries</td>
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A Working Definition of Industrial Policy for the U.S. & Los Angeles

After reviewing industrial policy literature, we offer the following working definition of industrial policy for the United States, as distinguished from cluster policy: A package of interconnected policies, which stimulate domestic manufacturing sectors that disproportionately suffer from market imperfections to boost regional economies and benefit local communities.
Case Studies of U.S. Manufacturing Initiatives

Instituting a high-road industrial policy that benefits Los Angeles’s local manufacturers and workers requires a strategic organizing effort involving collaboration between public, nonprofit and private sectors, as well as political leverage.\(^5\) Other American cities have had some success in bolstering their local manufacturing industry in spite of globalization, the outsourcing of American jobs, and political environments that favor a laissez-faire approach to manufacturing.\(^5\)

The following case studies highlight municipal-level industrial policies in three U.S. cities: Chicago, New York, and Milwaukee. We focus on policies and programs, and on the advocacy efforts behind such initiatives, particularly in the Chicago and New York contexts. Specifically, we identify:

- Visions & campaign strategies;
- Key political, community, academic, and business players;
- Major challenges facing efforts to strengthening local and regional manufacturing; and
- Successful collaborations and coordination between public, private and nonprofit sectors.

Although context is important in each of the following case studies, we provide general lessons learned that can help guide present and future efforts to utilize a high-road framework that preserves and grows the green manufacturing base here in Los Angeles.

Chicago: Building the High Road to Manufacturing

Chicago’s Early Efforts

As the federal government began to institute policies and programs that favored the advancement of financial sectors over manufacturing, American workers suffered.\(^6\) In the 1970s and 1980s, like many U.S. cities, Chicago experienced a wave of plant closings. In response, city government, labor, academic research and grassroots organizations worked in tandem to retain local manufacturing jobs.

Starting in the 1970s, grassroots community activists formed an effort they called “Early Warning,” with the immediate goal of stopping the onset of plant closings and retaining good factory jobs by developing handbooks and other means that would help unions and community groups detect if a factory was in danger of closing.\(^7\) Over the long-term, Early Warning activists used research and community organizing to create a more democratic system in which workers have the right to participate in decisions about the economy.\(^8\)

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\(^5\) By “organizing efforts,” we are referring to the work of advocacy/research organizations and institutions pushing for industrial policies and programs at the municipal level, rather than union efforts focused on organizing workers. Although we mention union organizing throughout this section, see Chapter 7 of this report for more in-depth information about the role of unions in industrial policy efforts.

\(^6\) In this chapter, we focus on domestic case studies since we find those most applicable to the Los Angeles context. However, we recognize there are important international case studies that provide important lessons and models for Los Angeles, and we recommend future researchers focus on the international context. For a brief summary of industrial policies in Europe, specifically in Germany, see Appendix B of this chapter.

\(^7\) For a historical overview of national industrial policy in the U.S., see Appendix A of this chapter.


Dan Swinney was a key player in the original Early Warning efforts in the late 1970s and early 1980s. As a lathe operator at local steel plant in Chicago, Swinney got involved in labor organizing and noticed the lack of research and resources available to workers. After his plant closed in 1983, he founded the Center for Labor and Community Research (CLCR) and began deciphering the cause of Chicago’s epidemic of plant closings.64

At the same time, researchers at the Center for Urban Economic Development (CUED) at University of Illinois, Chicago explored how deindustrialization and corporate investment decisions further led to the displacement of local workers. They concluded that the plant closings were not inevitable, but instead, a direct product of corporate buy-outs that drained companies of their assets in an increasingly global marketplace. In short, with the expansion of government support, they found that manufacturing would be viable.65

Similar to Los Angeles today, CLCR found that a majority of the manufacturing plants were small- to mid-size firms with little resources to help sustain their businesses, such as successorship planning,66 as well as preserving urban land for industrial uses in the midst of growing pressure from residential real estate developers.67

In addition to labor and research organizations, local government, championed by Mayor Harold Washington, was an integral player in Chicago’s early industrial policy efforts.68 Recognizing the importance of manufacturing jobs to the health of Chicago’s working class communities, the City’s Department of Economic Development (DED) facilitated and funded CLCR and CUED to form the West Side Jobs Network—a community labor coalition that researched plants and organized communities and workers to implement Early Warning initiatives.69

During this time, as Clavel and O’Neill-Kohl argue, the City initiated an industrial policy partially responding to Early Warning advocacy efforts, and partially recognizing the broader social movement around the welfare of Chicago’s local communities. Specifically, city officials within DED recognized that good quality and high wage manufacturing jobs were integral to improving the health of Chicago’s working class neighborhoods. Therefore, the City’s policy included the following programs/mechanisms:

- Planned Manufacturing Districts (PMDs): The PMDs aimed to protect small manufacturers from being displaced by real estate development. This program was a direct result of successful campaign led by Donna Ducharme, a planner who organized small manufacturers threatened by residential real estate speculation as well as neighborhood organizations to support innovative zoning to retain manufacturing and good jobs.

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64 Charpentier, “Early Warnings on Chicago.”
• Sector-specific Task Forces, particularly the Steel Task Force: These task forces aimed to help firms develop business plans, find industrial land, and have access to technical assistance. Unfortunately, schisms between business and community/labor interests hindered the effectiveness of the task force.70

Ultimately, a change in political administrations—Mayor Daley replaced Mayor Washington after his sudden death in 1987—and a lack of support from the federal government hindered local capacity and dampened the impact of early efforts to solidify a manufacturing industrial policy. Nonetheless, the Early Warning efforts planted the seeds for future successes in building a powerful manufacturing constituency and establishing industrial policies by employing the following strategies:71

1. Strategic research/information gathering to help mobilize workers and communities and build a manufacturing constituency;
2. Dissemination of ideas in the media and within communities most affected by plant closings;
3. Coalition building between labor, community-based organizations, academic research, Mayor Washington, and city economic development representatives; and
4. Direct worker and community participation.

In sum, advocacy and research efforts during the 1970s and 80s helped build the foundation that supports today’s ecosystem of non-governmental groups and government agencies concerned with manufacturing and industrial retention.72

**Chicago’s Recent Efforts**

In 2001, the U.S. Department of Labor funded the Chicago Federation of Labor and Dan Swinney to research the growing concern about the advanced manufacturing “skills shortage” within Chicago’s workforce. As part of this project, they assessed the performance of Cook County’s public education system and the needs of Chicago’s local manufacturers. Their research revealed that because the baby boomers were starting to leave the workforce, about 10,500 manufacturing jobs were available every year—but there were not enough skilled workers to fill them. They concluded the current system of public education fails to serve both the manufacturing firms and local workers, particularly people of color in disenfranchised neighborhoods.73

Since this seminal study, several efforts have recently emerged to close the skills gap between advanced manufacturing and Chicago’s workforce. Namely, in 2005, Dan Swinney formed the Chicago Manufacturing Renaissance Council (CMRC), a coalition of business leaders, labor groups, government agencies and community leaders to make Chicago the global center of advanced manufacturing.74 At the forefront of CMRC’s strategy to bolster advanced manufacturing is training and leadership development of workers and communities by re-structuring the education system itself.75

Specifically, CMRC started the Austin Polytechnic Academy, a public school that focuses on providing education, training, leadership development and access to manufacturing career ladders to a traditionally underserved, predominantly African American community. By partnering with 59 local manufacturers,

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70 Ibid.
71 Ibid.
students received “work-based learning opportunities like factory tours, job shadowing, paid internships, and industry-recognized machining certifications for the National Institute for Metalworking Skills (NIMS).”\textsuperscript{76} In 2012, 23 students earned nationally recognized machining certifications from the NIMS. Additionally, CMRC works with local community colleges to host manufacturing-oriented programs within already existing institutions.\textsuperscript{77} Indeed, CMRC is helping groups in other American cities—namely New York City, Detroit, and the San Francisco—replicate CMRC’s model.\textsuperscript{78}

As Swinney describes, CMRC’s initial success represents the power of unlikely partnerships. Before the formation of CMRC, the Chicago Federation of Labor (representing the city’s labor unions) and the Illinois Manufacturers’ Association (IMA) (representing anti-union business interests) were political opponents. However, in order to achieve an effective high road approach to re-building the city’s manufacturing base, CMRC organizers understood that labor and business needed to work together. For over a year, CMRC convened the chairs of the Chicago Fed and the IMA to discuss how the Chicago labor movement and business interests could work together in a disciplined way to make manufacturing viable again. Due to these conversations, the traditionally opposed interests joined together in pursuit of a very focused goal: to reform public education to meet the needs of firms and workers and to make Chicago the international hub of advanced manufacturing.\textsuperscript{79} In other words, labor and business stakeholders came together to re-build the high-road to manufacturing.

In addition to CMRC’s work, Chicago is addressing the current manufacturing skills shortage through sector-based workforce development.\textsuperscript{80} In 2005, the Mayor’s Office of Workforce Development leveraged federal Workforce Investment Act (WIA) funds to support industry-specific workforce centers, including manufacturing. From this, ManufacturingWorks was born, which launched a unique model to workforce development in which its customer is the manufacturing employer, rather than the job-seeker. By focusing on a single industry, ManufacturingWorks has developed nuanced knowledge about the needs of manufacturing companies throughout the region, which benefits both the employer and job-seeker by closing the skills gap. In short, ManufacturingWorks creates upfront mechanisms to funnel workers into the company.\textsuperscript{81}

ManufacturingWorks not only provides training and assessment services for employers, but convenes manufacturers as a way to build a network across the city. As Garritano describes, maintaining relationships between employers, job-seekers, and politicians is essential to building a manufacturing constituency with the political power to influence policy\textsuperscript{82}—something that Los Angeles is currently lacking.

These are but a few pieces of the larger movement of organizations and individuals building off of Chicago’s long history of manufacturing initiatives to secure good jobs for Chicago’s workers, and these efforts have not

\textsuperscript{76} Clavel and O’Neill-Kohl, “Losing Out on Industrial Policy: The Chicago Case.”
\textsuperscript{78} Dan Swinney, phone interview with Madeline Wander, May 25, 2012.
\textsuperscript{79} Ibid.
\textsuperscript{80} Dave Hanson, Jeff Marcella, and Greg Schrocck, “Renewing Workforce Development: Chicago’s Sector-Based Workforce Centers” (City of Chicago Department of Community Development/Chicago Workforce Investment Board, 2009).
\textsuperscript{81} Tony Garritano, phone interview with Madeline Wander, May 21, 2012; for more information on workforce development in Los Angeles, see Chapter 6 of this report.
\textsuperscript{82} Tony Garritano, phone interview with Madeline Wander, May 21, 2012.
gone unnoticed. On February 29, 2012, Chicago Mayor Rahm Emmanuel announced the city’s top ten strategies in his new “Plan for Economic Growth and Jobs”; its number one strategy is “becoming a leading hub of advanced manufacturing” by pursuing initiatives and programs modeled after those of CMRC. By cultivating an ecosystem of diverse players working to preserve and grow Chicago’s manufacturing base, this issue now leads the political agenda.

New York: Retaining Local Manufacturers through Land Use Mechanisms

Like Los Angeles, New York City is one of the country’s largest manufacturing hubs, with a small and shrinking amount of vacant industrial land. Responding to a loss of 900,000 manufacturing jobs in the city since 1950, advocacy and research groups have worked with city agencies to focus on retaining local manufacturing through land use strategies.

In 1997, a group of advocates, including Adam Friedman, formed the New York Industrial Retention Network (NYIRN). On the basis that manufacturing provides good career ladder jobs, NYIRN assisted local manufacturing firms to stay in the region by providing financial and business services, particularly with identifying real estate opportunities.

Like Los Angeles, New York’s local manufacturing base is made up of many small firms, or micro-manufacturers. As NYIRN’s Amy Anderson describes, micro-manufacturers are the “lifeblood” of the city’s urban economy because smaller firms are integral in building intimate supply chain relationships. Therefore, to strengthen knowledge-sharing and collective innovation, NYIRN actively started to build a network of local manufacturing businesses. The hope is that the network will strengthen local businesses as well as the political base of manufacturers in the city, similar to efforts in Chicago.

NYIRN—which recently consolidated with the Pratt Center for Community Development—continues to “fill the gap” between city governments and the market by providing services and trainings for firms and workers, being advocates for local manufacturers in the policy making arena, and providing information and research to both firms and city government. Specifically, NYIRN has worked with over 2,100 firms employing 93,000 people access services, information and support. NYIRN’s research and policy work has helped put the importance of blue-collar businesses and workers on the political agenda as integral to the health of the city and its neighborhoods.

In 2005, NYIRN partnered with the City’s Office of Industrial and Manufacturing Businesses to create New York’s 16 Industrial Business Zones (IBZ). This program secured funds to help retain and grow manufacturing space, with a specific focus on bolstering green manufacturing in the city. NYIRN claims that it has “leveraged more than $20 million in energy efficiency improvements for industrial businesses in New York City.” Additionally, companies within the zones have access to tax credits, enhanced sanitation services and worker training programs.

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84 Ibid.
87 Ibid.
However, recent data indicate that the program is not succeeding in retaining manufacturing jobs. A 2008 Pratt Center report shows that since Mayor Bloomberg took office, the city has lost nearly 2,000 acres of manufacturing land. This demonstrates, as the Pratt Center argues, that the current Bloomberg administration is more focused on commercial and residential development, and not interested in fully implementing the IBZ program to help local manufacturers stay in the city.88 Although City Council has some advocates, the lack of leadership in the Mayor’s office, as well as the more tenuous IBZ program, presents major challenges to current industrial policy efforts in New York.

In lieu of an effective industrial policy that protects local manufacturers against real estate speculation, several economic and community development corporations have turned their focus to helping local manufacturers stay and locate in the city. For instance, the South Bronx Overall Economic Development Corporation has launched its own Industrial Business Zone Program, which help local manufacturers with financing, finding land, developing business strategies, and education about the various state and federal support for local manufacturing.89

Industrial policy efforts in New York yield two important lessons. First, non-governmental organizations are invaluable players in instituting local industrial policies, specifically to disseminate information and act as brokers between firms and local governments. Second, political climates largely determine the success of industrial retention programs. Because the current mayoral administration is not championing the IBZ program, it has been met with mixed results. Nonetheless, as Chapter 4 of this report shows, land use mechanisms are an evolving strategy and an idea worth pursuing in Los Angeles.

Milwaukee: Investing in Sustainable Manufacturing

Milwaukee remains of the country’s largest manufacturing hubs, despite a gradual decline of manufacturing jobs over the last decade.90 However, unlike many American cities, Milwaukee’s manufacturing sector is on the rise and the city is gaining manufacturing jobs.91

Understanding that “America’s manufacturing sector contributes to the economic viability and success of many communities,”92 the City of Milwaukee has spearheaded several programs and public-private partnerships focusing on bolstering particular industries and promoting environmental sustainable practices within those sectors. In recent years, the City of Milwaukee developed a key partnership with the federal government to implement the following two main programs with the goal of sustainable manufacturing.

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88 Lander, “Does NYC industrial zoning policy preserve local manufacturing?”.
Milwaukee “Economy, Energy and Environment” Program (ME3)

Partnering with several federal agencies—including the U.S. Environmental Protection Agency, U.S. Department of Commerce, U.S. Department of Energy, U.S. Department of Labor and the Small Business Administration (SBA)—the City of Milwaukee’s Office of Environmental Sustainability spearheaded the ME3 Program to provide technical assistance for sustainability assessments of small and medium sized manufacturers (i.e., those firms with 20-500 employees). By helping Milwaukee’s manufacturers make their production processes “cleaner and leaner,” city officials argue that local firms will save energy and thereby reduce overall costs. The hope for the program is that it will increase the competitiveness of local manufacturers and their ability to export, spur innovation, and grow the number of high-wage manufacturing jobs while reducing environmental impacts of manufacturing.93

In addition to working with several federal agencies, the City of Milwaukee has partnered with several colleges, worker training centers, and industry, community and environmental groups, including: Wisconsin Manufacturing Extension Partnership, University of Wisconsin – Milwaukee, Milwaukee Area Technical College, Wisconsin Energy Research Consortium, American Society for Quality, Milwaukee Area Workforce Investment Board, Wisconsin Regional Training Partnership, Veolia Water North America, Milwaukee Metropolitan Sewerage District, University of Wisconsin – Extension, Wisconsin Department of Natural Resource, Milwaukee Economic Development Corporation, and Focus on Energy.94

The federal government estimates that the E3 Program has the potential to reduce local manufacturer’s energy use by 10 million megawatt-hours, which would save domestic firms $1 billion and cut 14 million metric tons of carbon dioxide. Moreover, E3 could create 30,000 additional high-wage jobs in America’s manufacturing sector.95

Milwaukee Shines

In 2008, the Office of Environmental Sustainability initiated a program to bolster Wisconsin’s solar industry. As part of the federal Solar America Communities program, the U.S. Department of Energy initiated a federal-local partnership with Milwaukee to help promote the adoption of solar energy through financial and technical assistance. Specific mechanisms include solar education for workers, investment assistance in solar. The hope is to draw solar manufacturers to Milwaukee.96

Of course, Milwaukee’s local government has not come to the conclusion that investing local manufacturing will benefit its economy and workforce on its own. Nonprofit think tanks, academic research centers and labor groups throughout the state of Wisconsin actively promote green and high road strategies. In particular, the Center on Wisconsin Strategy (COWS) at the University of Wisconsin-Madison works with groups across the country to advocate for workforce development and green manufacturing career pathways to re-build Wisconsin’s middle class.97 However, unlike other cities, departments within the Milwaukee government have taken the lead, and forged a strategic relationship with the federal government for political

94 City of Milwaukee, “Green Milwaukee:”
95 Ibid.
and financial support\textsuperscript{98}—which appears to be the key ingredient for instituting a sector-based approach to green manufacturing.

Conclusion

Efforts in each of these cities strive for high-road economic development through public-private investments in several key manufacturing aspects, including business support for firms and workforce development. Each city that we profiled has taken a different approach to pursuing this path, and has had varying levels of success.

In Chicago, efforts have focused on providing educational and training services to better prepare workers for a career in advanced manufacturing. Focusing on closing the “skills gap” benefits firms, workers and residents; it helps firms that are in desperate need of skilled workers as well as leaders to take over companies when owners retire; and it provides residents with good jobs and career pathways out of poverty. Unlike partnerships between public, private and nonprofit organizations have built a diverse manufacturing constituency with political power to influence the institutionalization of high-road manufacturing. In turn, manufacturing has become one of the city’s key priorities, especially this year during the Emanuel administration.99

In New York, manufacturing efforts have focused on industrial retention through land use policy mechanisms, namely the Industrial Business Zones program. During the formation of the IBZ program, NYIRN, with other partnering organizations, acted as a central coordinator by closing the information and service gap between firms and city government. However, unlike Chicago, New York has not developed an active manufacturing constituency powerful enough to garner a critical mass of politicians’ support; this certainly presents a challenge to passing a local industrial policy.

In Milwaukee, local government has spearheaded efforts to support green manufacturing through partnerships with the federal government. The City identified the region’s assets, specifically solar potential, and concentrated investments in specific manufacturing sectors to support this industry. Although the policies are too new to determine their impact, they represent a unique approach and the potential of partnering with the federal government around bolstering local and regional manufacturing.

Although these case studies are context specific, we can draw applicable lessons to help guide similar advocacy, research and policy making efforts to preserve and grow the green manufacturing base through high road industrial policy here in Los Angeles.

Lesson #1: Develop Unlikely Partnerships to Form a Manufacturing Constituency

As we learned from the case studies, unlikely partnerships between the labor movement and business groups are necessary to galvanize a powerful manufacturing constituency that informs elected officials about the needs of workers and firms. As a result, viable manufacturing partnerships can engage the political decision-making process and collaborate with elected officials to advocate on their behalf. Without an active base of organizations and individuals advocating for a local industrial policy, Los Angeles will never adopt one.

In order to institute programs that benefit local manufacturers, their employees, and local residents in need

of work, we believe that labor needs to continue forming strategic partnerships with small- and medium-sized firms and industry-related associations. This cohesive base is indeed the foundation of a high-road approach to manufacturing.

**Lesson #2: Focus on the Smaller Manufacturers**

In all three case studies, local program and policies target small- to mid-size manufacturers, or those with less than 100 employees. Contrary to what many believe, small privately-held firms make up the majority of U.S. manufacturing bases. As the next chapter of this report details, small manufacturers are integral to the health and diversity of Los Angeles’s manufacturing base. However, small manufacturers are most at-risk to failing in the wake of competition and pressure from dynamic labor markets, particularly the outsourcing and off shoring of production processes. Therefore, local policy efforts should focus on strengthening the smaller firms through service provision and trainings for firms and workers. In short, efforts must help local manufacturers compete at the global level by initially re-building intimate supply chain relationships.

Additionally, as the case studies reveal, organizations such as the New York Industrial Retention Network (NYIRN) or the Chicago Manufacturing Renaissance Council (CMRC) act as advocates for small, local manufacturers in the policy making arena and provide information and research to both firms and city government. Moreover, new workforce development models that focus on specific sectors, especially those with higher numbers of small manufacturers, have the capacity to retrain incumbent workers, and to streamline workers into career ladders that guarantee upward mobility—again, a key ingredient to taking the high road.

**Lesson #3: Use On-the-ground Research to Understand the Los Angeles Context**

As evidenced by the case studies, a viable partnership must rely on in-depth sectoral analysis (e.g. exploring industry conditions and supply chains) and a thorough understanding of the key stakeholders in the industry. Dan Swinney’s sectoral analysis work exemplifies the power of on-the-ground research, or the collection of data through immersion in the field. By understanding conditions and challenges facing local manufacturers and unemployed workers, groups like the CMRC and NYIRN have identified their specific needs and helped inform policy making. In short, forming a high-road industrial policy in Los Angeles requires on-the-ground knowledge.

**Lesson #4: Strengthen Pre-existing Assets**

In the wake of globalization and outsourcing of much manufacturing, however, government needs to make smart investments, which reflect on-the-ground research and build on our region’s pre-existing manufacturing assets. Milwaukee, for instance, is investing heavily in solar, because research shows there is much potential in that niche. Likewise, to start on the high-road, Los Angeles should focus on enriching its existing manufacturing base, focusing on strong and growing niche markets, and rebuilding supply relationships.

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100 Swinney, “Manufacturing Regained: New Prospects for Business and Regional Communities.”
Lesson #5: Work at Multiple Levels of Government

Manufacturing supply chains usually extend past city boundaries. This suggests the need for multiple levels of government assistance to help connect manufacturers with the local supply chain and other related co-located sectors, and to continue building intimate relationships with suppliers.

Coordinating with government is critical in strengthening a high-road industrial policy. The case studies reveal that collaborations between various intermediaries and government can help to conceptualize and pass innovative policy mechanisms that meet the public interest, that improve the workforce, and that strengthen the economy. As the Milwaukee case study reveals, no single firm can coordinate an entire manufacturing initiative. In fact, it was necessary for various institutions, firms, and local government to partner with the federal government to generate these creative policy solutions that enriched the manufacturing workforce, and that improved the long-term sustainability of the local economy.

Looking Ahead

American manufacturing remains viable in many U.S. cities, but is on the decline. As Dan Swinney explained in a recent radio broadcast, the U.S. economy currently faces a fork in the road: we can remain passive and accept the decline of manufacturing, or we can create new pathways to grow local manufacturing bases, which provide economic mobility for those facing urban poverty. In other words, the decline of manufacturing, Swinney argues, is not inevitable, and we have the ability to reverse current manufacturing trends.

To meet the competitive demands of a global economy, and to continue contributing to the Los Angeles region’s economic growth, the future of manufacturing requires coordination and collaboration between public, private and non-profit organizations. More specifically, the U.S. and its large manufacturing centers, such as Los Angeles, need high-road strategic policies to both grow manufacturing sectors and improve conditions for workers, communities, and the environment. However, it will take nothing short of a social movement to establish a high road path for local, regional and national industrial policies. We hope the above framework and lessons learned will provide insight into catalyzing such a movement here in Los Angeles.
Appendix A: Historical Overview of U.S. Industrial Policy Efforts

As early as the 18th century, Alexander Hamilton, the first U.S. Secretary of Treasury, initially conceptualized and implemented the nation’s original industrial policies. He and Friedrich List of Germany created sets of national economic policies to benefit important sectors like manufacturing. They argued for specific mechanisms to induce economic growth, including tax and tariff policies to protect infant industries and domestic production. The goal was, arguably, to create an export-based economy. On the other hand, Thomas Jefferson argued against favoring manufacturing, emphasizing the benefits of boosting agriculture as part of U.S. competitive advantage.101

However, Hamilton’s infant industries were popular among industrialists, and, in turn, became one of the building blocks towards the “American System” adopted by Senator Henry Clay. The system advocated for securing the nation’s competitive advantage in manufacturing by utilizing subsidies, trade regulations, and tariffs. In addition, this system was one of the first in the world to apply technological innovations of science to key industries, like agriculture and manufacturing. The “American System” took this a step further, and helped to establish national-sponsored banks, and federal subsidies for transportation and trade infrastructure (i.e., highways and ports).102

Understanding the benefits of key infant industries like manufacturing and agriculture, Congress passed mercantilist-type policies to benefit the nation’s economic security.103 These included the Tariff of 1816, sponsored by Henry Clay and John C. Calhoun and designed to bolster the American manufacturing sector to compete with British manufacturing. This was in coordination with the Embargo Act of 1807, a policy designed to protect domestic production for supplies once provided by Britain and France.

Additionally, national policy continued to play an important role in supporting the national agricultural system through education policy. For example, the Morrill Act of 1862 helped establish land-grant colleges for the teaching of and application of science to agriculture, and the Hatch Act of 1887, providing federal funding to agricultural science stations.

In the 19th and 20th centuries, it was widely accepted that government-sponsored policies could effectively allocate funds to stimulate private development in the United States. National policies helped support several development initiatives, including: infrastructure investments (i.e. highways and railroads); technological innovations like telephones, radio, and television; and industrial developments like ships and airplanes. In the mid-20th century, industrial policy proponents backed various institutions that could boost industrial development.104 These included establishing a national bank, revising tax codes to give an advantage to domestic producers, domestic procurement requirements, and technical education and skills training.

103 Ibid.
104 Faux, “Industrial policy: The road not taken.”
In the 1980s, the Carter administration sought after industrial policy to address the nation’s tremendous economic decline,\(^{105}\) which sparked the debate over government’s role in industrial policy. However, due to term limitations, Congress did not adopt Carter’s proposed alternative-energy policy.

Shortly thereafter, the Reagan Administration implemented Project Socrates, a government-led initiative to stimulate technological innovation, and to focus on maintaining competitiveness in technology. The goal was to invest in technology-based planning, as opposed to economic-based planning seen in the early days of post-WWII industrialization.\(^{106}\) The project documented the nation’s difficulties in gaining an advantage in the technological application of science to key industries. If the following administration had not disassembled the project, it would have implemented policies to salvage the nation’s innovation system.

Since the 1980s, national officials, including both liberal Democrats and conservative Republicans, have been highly skeptical of industrial policy.\(^{107}\) In the 1990s, Washington officials were more interested in expanding financial services, rather than enriching the manufacturing base. Due to the political momentum promoting an anti-government intervention agenda, catalyzed by the Reagan and Bush administrations, President Clinton voted on several policies that promoted America’s financial and service industries. These policies included the deregulation of finance, and the passage of NAFTA that encouraged the migration of small- and medium-sized manufacturers to foreign countries.

As we outlined above, the current industrial policy debate is largely grounded in ideology. In the U.S., three significant periods shaped industrial policy to what it is today.\(^{108}\) These include: neoclassical (debates on market failures), structuralism (debates on global competitiveness), and pragmatism (debate on the practical conditions for making public/private actors better able to face challenges of the new economy).

After the 2008 recession, industrial policies all over the world have attempted to focus on improving technological innovation.\(^{109}\) The role of “innovation policy” is significant in stimulating R&D, especially in regions heavily integrated in a knowledge-based economy.

\(^{107}\) McKenzie, “Industrial policy.”
\(^{109}\) Aiginger and Sieber, “The matrix approach to industrial policy.” Aiginger, “Industrial policy: A dying breed or a re-emerging phoenix.”
<table>
<thead>
<tr>
<th>Industrial Policy</th>
<th>Time Period</th>
<th>Key Actors</th>
<th>Purpose</th>
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</thead>
<tbody>
<tr>
<td>Infant industry policies for emerging industries</td>
<td>Late 18th century</td>
<td>Secretary of Treasury Alexander Hamilton; President Thomas Jefferson</td>
<td>To secure the nation’s economy via subsidies, trade regulation, and tariffs; expand technological application of science to key industries, like agriculture and manufacturing.</td>
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<tr>
<td>The “American System”</td>
<td>Early to late-19th century</td>
<td>Senator Henry Clay</td>
<td>To establish a national bank, federal subsidies for infrastructure, and technological application of science to key sectors.</td>
</tr>
<tr>
<td>Industrialization</td>
<td>Late 19th and early 20th century</td>
<td>--</td>
<td>To support American production with a national railroad system.</td>
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<tr>
<td>Communications network</td>
<td>Late 19th and early 20th century</td>
<td>--</td>
<td>To invest in radio, television, and telephone</td>
</tr>
<tr>
<td>Transportation</td>
<td>Early and mid-20th century</td>
<td>Federal Transportation Administration</td>
<td>To establish a national highway system; to invest in airplanes;</td>
</tr>
<tr>
<td>Basic and applied science research</td>
<td>1950’s onward</td>
<td>National Science Foundation</td>
<td>To improve the application of technological research to several key industries like semiconductors, advance materials, the internet, biomedical science, and computers.</td>
</tr>
<tr>
<td>National Industrial Policy (NIP) (not implemented)</td>
<td>1980’s</td>
<td>Robert Reich; Walter Mondale; Lester Throw; John Kenneth Galbraith</td>
<td>To reverse deindustrialization and regain “core” manufacturing sectors like steel and automobiles; to establish national and regional economic development banks, create “tripartite councils,” and provide worker protections.¹¹⁰</td>
</tr>
<tr>
<td>Project Socrates</td>
<td>1983 to 1990</td>
<td>Reagan Administration, and the U.S. Defense Intelligence Agency</td>
<td>To invest in technology-based planning; and, to analyze America’s competitiveness in the global market.</td>
</tr>
<tr>
<td>Automobile industry</td>
<td>2008 to present</td>
<td>Obama Administration</td>
<td>To rescue the U.S. automobile industry from further decline.</td>
</tr>
<tr>
<td>Alternative energy</td>
<td>2008 to present</td>
<td>Obama Administration</td>
<td>To stimulate investments in the alternative energy markets.</td>
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Appendix B: International Case Studies of High Road Industrial Policies—Europe & Germany

Europe

Historically, European industrial policy has broadly focused on integrating local and regional markets. Strategies included sector-based and horizontal industrial policies emphasizing research and development, innovation, and regional competitive advantage. Specifically, three phases of European industrial policy included:111

1. 1960s to 1970s: Attempts to create national champions in important sectors including high-technology industries like computers and aerospace;
2. 1980s, 1990s, and 2000s: Shifts towards horizontal policies to improve the infrastructure and business climate for all firms; and,

Additionally, these national economic policies represented several strategies to make European markets more competitive with other regional markets. Specifically, the goals of the economic policies included:112 1) Creating structural change for significant industries and sectors, 2) Fostering a competitive environment for large firms and helping to integrate small and medium-sized firms, 3) Increasing cooperation amongst firms, and 4) Expanding policies focusing on innovation, and research and development.

Generally, industrial policy was important in enriching Europe’s national industrial portfolio.113 These measures of success included: a growth of technology and skill-intensive industries, increased performance and productivity of target industries, and in general, stronger macroeconomic performance.114

Germany

In Germany, manufacturing remains one of the strongest sectors contributing to economic growth, mainly because of government-led initiatives to improve industrial development.115

Historically, industrial policies were an integral part in stimulating Germany’s diverse economic base. In the mid-20th century, industrial policy, aimed at the regional level, supported declining sectors like coal and steel, and also in key technologies like nuclear power, aerospace, and information technology. Several factors assisted Germany’s success, including:116

1. Industrial finance institutions;
2. State support for industrial research and development; and,

111 Geoffrey Owen, “Industrial policy in Europe since the Second World War: What has been learnt” (Brussels, Belgium, 2012).
112 Aiginger and Sieber, “The matrix approach to industrial policy.”
113 Soete, “From Industrial to Innovation Policy.”
114 Aiginger and Sieber, “The matrix approach to industrial policy.”
116 Ibid.
3. Policies supporting a skilled labor force.

Germany continues to compete based on a high-road approach, mostly due to linked policies that benefit the nation’s triple-bottom line. These policies include:

- “Fraunhofer”: A set of linked policies stressing collaborations between research institutions and small- and medium-sized firms. Simply, innovations in the lab are shared at the shop floor at scale to be produced;
- Career training: An important policy is job training of a highly skilled workforce for production workers. In addition, Germany subsidizes doctoral students in engineering to work at SME companies to utilize information from Fraunhofer institutes on the shop floors;
- Financial institutions: National and provincial banks provide specialized assistance to manufacturers. In addition, several private banks are specialists in supporting manufacturers with lending;
- Labor protection laws: Unions continue play a significant role in making decisions about production and investment.
Interviewees

**Amy Anderson**  
Planner/Industrial Specialist  
New York Industrial Retention Network  
New York City, NY

**Cecilia Estolano**  
Co-Founder  
Estolano LeSar Perez Advisors, LLC  
Los Angeles, CA

**Tony Garritano**  
Director  
ManufacturingWorks  
Chicago, IL

**Susan Helper**  
Chair & Professor of Economics  
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**Satya Rhodes-Conway**  
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Center on Wisconsin Strategy  
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**Greg Schrock**  
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College of Urban & Public Affairs, Portland State University  
Portland, OR

**Dan Swinney**  
Co-founder  
Chicago Manufacturing Renaissance Council  
Chicago, IL
Bibliography


Hanson, Dave, Jeff Marcella, and Greg Schrock. “Reworking Workforce Development: Chicago’s Sector-Based Workforce Centers”. City of Chicago Department of Community Development/Chicago Workforce Investment Board, 2009.


Manufacturing Trends in Los Angeles

By: Steven Guerry and Seth Boots

Abstract

This section provides a statistical overview of manufacturing trends principally in Los Angeles County, but also the U.S. for context. It begins with an overview of all manufacturing and durable manufacturing by looking at both the absolute and relative size of manufacturing in Los Angeles, finding that manufacturing remains an important piece of the larger economy and source of jobs. It also finds that while its preeminence does owe much to the size of Los Angeles itself, disproportionately large in specific industries, most notably apparel manufacturing and durable industries like transportation. The disproportionate presence of the apparel industry affects much of the data. It resulted in showing slightly smaller establishments, a higher presence of women, and leaving an impression that manufacturing is not a good source for well-paying jobs in Los Angeles. It then looks at trends—with special emphasis on employment—over the last twenty years, showing that the decline of manufacturing was not evenly distributed among all sectors. Most notably relevant to this project, the steepest declines occurred in the early 1990s in durable manufacturing subsectors connected to the aerospace industry. The end of the section concludes with a policy recommendation related to data collection. Specifically, that the manufacturing data currently available to the public is ill-suited for guiding a comprehensive region-wide policy aimed at restoring and promoting manufacturing in Los Angeles. We recommend an entity charged with collecting, updating, and disseminating data aimed at guiding manufacturing policy in Los Angeles.
Introduction

Action is only as effective as the data that guides it. Therefore, a thorough understanding of manufacturing trends within Los Angeles and relevant industries, with a national context, is essential to guide project goals and suggest policies to meet these goals. An understanding of manufacturing trends and the sector’s role in the regional economy is important for the following reasons:

- Manufacturing is a substantial part of the Los Angeles economy and Los Angeles is the largest manufacturing county by employment in the nation. A data-supported analysis is crucial to understanding manufacturing trends and their implication for Los Angeles’ economic future.
- Local manufacturing trends measurements like wages, demographics, and firm size, all shed light on region specific trends and aid in identifying policy strategies for Los Angeles.
- Identify the strengths and weaknesses of manufacturing in Los Angeles are in order to develop informed policies in light of Los Angeles’ capacity for high-skilled durable manufacturing.
- Manufacturing wage and employment trends dictate specific areas of need with respect to the Los Angeles labor pool.
- Nationwide and state trends provide a useful context for local trends. Manufacturing in the United States and Los Angeles have both declined, however, Los Angeles manufacturing decline does not mirror United States manufacturing decline.

Overview of Manufacturing in Los Angeles

In the Los Angeles-Long Beach-Santa Ana Metropolitan Statistical Area, manufacturing accounted for 10.1 percent of the region’s GDP in 2010. It ranked behind only Finance, Insurance, and Real Estate (FIRE) with 25.1 percent. As Figure 1 shows, in 2009, among super sectors (two digit NAICS code) manufacturing accounted for 11.3 percent of all employees (second with 420,013), 5.6 percent of all establishments (seventh with 13,681), and 12.0 percent of total wages (third with over $21 billion). The location quotient—or the ratio of an occupation’s share of employment in Los Angeles to that occupation’s share of employment in the U.S. as a whole—in terms of manufacturing employees is 1.05. This means the concentration of manufacturing employees is about 5 percent higher than it is nationally. For the measurements typically used to measure size, in 2007, the year of the last Economic Census, durable manufacturing accounted for about half (52.2 percent of establishments, 65.6 percent of employees, and 40.0 percent of shipments). A more detailed discussion of durable manufacturing will follow later.

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1. According to the Bureau of Economic Analysis (BEA).
2. 2009 U.S. Census, County Business Patterns.
4. 2007 Economic Census.
This distribution among industries is in line with national figures. The 332,000 manufacturing establishments and 13 million paid employees in the United States accounted for 11.7 percent of the country’s GDP in 2010, according to the U.S. Bureau of Economic Analysis. Like Los Angeles, over half of this 11.7 percent of GDP (6.3 percent) was attributed to durable manufacturing. Manufacturing’s contribution to GDP ranked behind only FIRE at 20.7 percent, and Professional and business services at 12.3 percent.

Los Angeles is the Largest Manufacturing Region in the Country

Absolute Size of Los Angeles Manufacturing

Given the size and complexity of the region, the overview above does not convey the sheer size of Los Angeles manufacturing. In nearly every basic measurement, Los Angeles County has the largest manufacturing presence in the nation. According to the 2007 Economic Census, among all counties in the U.S. Los Angeles County ranks first in terms of number of paid employees (451,656), number of employer establishments (15,158), aggregate payroll ($20.52 billion), and value added ($74.7 billion). Value added is an especially telling indicator because it accounts for the value added to a product in Los Angeles specifically. Only Houston’s petroleum industry (based in Harris County) beat Los Angeles County in value of shipments and capital expenditures. As Figure 2 shows, if it were its own state, Los Angeles County would rank anywhere from 7th to 12th in the above measurements.

In terms of production occupations, Los Angeles-Long Beach-Glendale metropolitan region is third behind Chicago and New York, according to BLS, with over 253,000 production workers, or 6.6 percent of the total workforce in 2011, which is only slightly more than the national figure of 6.5 percent. In both regions, production workers as an occupation rank behind Office and Administrative Support (18.5 percent in Los

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Establishments and employees from 2007 United States Economic Census.
Angeles), Sales (10.2 percent), Food Preparation and Serving (8.4 percent), and Transportation Materials and Moving (7.1 percent).

**Figure 2: Los Angeles County in Relation to States**

Los Angeles County’s manufacturing is not dominant simply because Los Angeles is the largest county by population. Los Angeles County’s population was just over 9.8 million in 2007, or about 3.3 percent of the national population.\(^6\) In contrast, Los Angeles accounted for more manufacturing establishments (4.2 percent), greater number of employees (3.4 percent), but roughly the same aggregate annual payroll (3.3 percent).\(^7\) On the other hand, value of sales represents a smaller percentage of national manufacturing (2.9 percent).

California, not surprisingly, is itself dominant in most of the ways manufacturing would be measured. It ranks first among states in number of establishments, with just over 88,000—nearly double the next state, Texas, which has just over 49,000; first in aggregate annual payroll ($71.2 billion), ahead of Texas with $42.8 billion; and first in number of employees, with just shy of 1.45 million (Texas has 893,000). The only category where Los Angeles lags is in value of sales, shipments, receipts, revenue, or business done. Texas is ranked first with nearly $595 billion while California has just over $494 billion, which again, is likely owed to the oil and gas sector.

Los Angeles’ manufacturing presence dwarfs all other California counties. According to the 2007 Economic Census, it is the largest county in terms of establishments, value of sales, shipments, receipts, revenue, or business done, annual payroll, and employees. The counties that most commonly rank closest behind Los Angeles in these categories are Orange County, Santa Clara County, and San Diego County. Santa Clara

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\(^6\) 2007 American Community Survey 1-Year Estimates.

\(^7\) 2007 Economic Census. The low-pay is largely due to the presence of apparel manufacturing in Los Angeles County, a subject explored later.
County, home to well-paid high-tech manufacturers, is second in terms of payroll with $10.3 billion (or 14.5 percent of California, compared to Los Angeles County’s 28.8 percent). Orange County is second in terms of employees with 177,115 (or 12.2 percent of the state total compared to Los Angeles County’s 31.2 percent), establishments (9,718), and value of sales, shipments, receipts, revenue, or business done ($49.5 billion).

**Figure 3: Counties Share of California Manufacturing Measurements**

![Bar chart showing the share of California manufacturing measurements by county](chart)

Source: 2007 Economic Census

**Characteristics Unique to Los Angeles**

**Slightly More Small Establishments**

Los Angeles County’s disproportionately greater share of smaller manufacturing establishments may suggest that the manufacturing sector is characterized by smaller businesses and consequently explains a correspondingly disproportionately greater number of establishments. The difference between local and national proportions is not substantial, however. While manufacturing establishments with zero to four employees account for 40.2 percent of total manufacturing establishments in the United States, they account for 41.7 percent of total establishments in Los Angeles County. Establishments with five to nine employees account for 14.8 percent of total manufacturing establishments in the U.S. but 17.2 percent in Los Angeles County. The proportion of establishments with 10 to 19 employees in the U.S. and Los Angeles is at near parity, accounting for 14.7 and 14.3 percent respectively. For manufacturing establishments with 20 employees or more, Los Angeles has a disproportionately small share, with the greatest disparity coming with establishments of 100-249 employees (5.8 percent of total for U.S. and 4.6 percent of total for Los Angeles).
Figure 4: Manufacturing Establishment Sizes by Number of Employees—Los Angeles County versus United States

Large Apparel Manufacturing Industry

The apparel industry is relevant to the interests of this report because its considerable size in terms of employment informs not only how we characterize manufacturing in the previous section, but also many of the subsequent discussions of occupations. The dominance of apparel in local manufacturing could explain the high number of smaller establishments, since most apparel makers are small companies.\(^8\) In Los Angeles County, roughly 93 percent of apparel manufacturing establishments employ 50 employees or fewer.\(^9\) As Figure 5 shows, apparel is the largest manufacturing subsector in terms of number of establishments and employees, with 2,885 and 52,636 respectively. While the apparel industry accounts for 2.6 percent of manufacturing establishments nationwide, in Los Angeles they are 19.0 percent. In terms of number of manufacturing employees, the apparel industry only accounts for 1.3 percent of the national total compared to 11.7 percent in Los Angeles. Production occupation location quotients, allows insight on where these occupations are concentrated. Fabric and Apparel Patternmakers is by far the most concentrated, with 10.35.

\(^8\) 2007 Economic Census.
\(^9\) 2007 Economic Census.
The dominance of the apparel industry may also explain why Los Angeles, despite ranking first among U.S. counties in categories like number of employees and establishments, falls to second in categories having to do with value of shipments and capital expenditures. Despite its size, the apparel manufacturing industry ranks seventh among manufacturing subsectors in terms of value of shipments, which represents 5.3 percent of all manufacturing.\footnote{2007 Economic Census.} Compare this percentage to that for the substantially smaller coal and petroleum products manufacturing subsector, which accounts for a huge 24.7 percent of total manufacturing shipments even as it ranks last in number of establishments (50).\footnote{2007 Economic Census.}

Low Concentration of Non-Textile Production Occupations

Beyond the relatively high concentration of textile, apparel, and furnishings production occupations, the concentration of most other production occupations in the Los Angeles metropolitan statistical region (MSA) are relatively low. The second largest category of production workers in Los Angeles, metal and plastic workers, accounts for 16.7 percent (42,000) of all production workers, less than the 21.0 percent nationally. The largest individual occupation is team assemblers, of which there are just over 23,000 in Los Angeles. This is a slightly lower proportion of all production workers (9.2 percent) than the U.S. as a whole (11.4 percent).
This is in contrast to neighboring regions like Orange County\textsuperscript{12} and Riverside-San Bernardino (hereafter Inland Empire) metropolitan regions. In east Orange County, the highest number of production workers is team assemblers at 12,060, a number that is far less than Los Angeles' 23,200, but more concentrated, with a location ratio of 1.17 compared to Los Angeles' 0.82. This is similar for machinists, the location quotient of which is 1.27 in east Orange County but only 0.82 in Los Angeles.

The discrepancies are not quite as great between Los Angeles and the Inland Empire, partly because the Inland Empire also has a strong apparel industry. By employment, the largest in Riverside-San Bernardino is Assemblers and Fabricators, All Other, which is sixth among all production occupations, with 2,980 workers, compared to Los Angeles's 6,080. The location quotient at 1.26 is higher than Los Angeles’ 0.77. Similarly, Welders, Cutters, Solderers, and Brazers—the next largest occupation—is more concentrated in Riverside-San Bernardino than Los Angeles (location quotient 0.86), but neither is above 1.00 (Los Angeles is 0.58). The one exception are machinists, who while underrepresented when compared to national figures, are less underrepresented in Los Angeles, which has a location quotient of 0.82 versus the Inland Empire’s 0.65.

### Other Characteristics of Los Angeles Manufacturing

#### Race, Gender, and Age

Hispanics are the largest group of manufacturing employees in Los Angeles County. According to the Longitudinal Employer-Household Dynamics (LEHD) Census Data, 41.6 percent of manufacturing workers were Hispanic in 2010. This is a figure that has declined slightly since 2001, when it was 43.3 percent. White non-Hispanic workers come in second, accounting for 33.2 percent of manufacturing workers, a slight

\textsuperscript{12} Technically classified as Santa Ana-Anaheim-Irvine MSA in Bureau of Labor Statistics.
decrease from 34.0 percent in 2001. This predominance of Hispanic workers was evident in this project’s manufacturing site visit to an expanded metals products manufacturer. At this facility located in the City of Industry, the predominant race of production line workers was Hispanic. The largest gains have been among Asian manufacturing workers, who accounted for 16.1 percent of manufacturing workers in 2010 and 13.6 percent in 2001. At the national level, the largest group of manufacturing workers is white (approximately 70 percent), followed by Hispanic (15.5 percent). African American and Asian manufacturing employees are also in similar proportions to national demographics at 9.0 percent and 5.7 percent respectively.

**Figure 7: Proportion of Males in Manufacturing**

According to the LEHD, 65.7 percent of the 2010 Los Angeles manufacturing workforce was male. This proportion has remained essentially constant since 2001. This is noticeably lower than the national figure of 72.0 percent, likely owing to the large number of female workers in the apparel industry. Evidence of this gender distribution during site visits was inconclusive. At an expanded metal products manufacturer, 100 percent of individuals observed working on the manufacturing floor were male. During this site visit, only 2 females were encountered out of a staff of 100. This contrasts significantly with a site visit to the solar panel manufacturing facility where the gender distribution appeared to be roughly equal.

**Overview of Durable Manufacturing**

Because the U.S. Census and Bureau of Labor Statistics do not provide a definition of durable manufacturing sectors according to NAICS code, we use Canada’s National Statistical Agency’s, which includes the follow ten NAICS codes: Wood Product Manufacturing (321), Non-Metallic Mineral Product Manufacturing (327), Primary Metal Manufacturing (331), Fabricated Metal Product Manufacturing (332), Machinery Manufacturing (333), Computer and Electronic Product Manufacturing (334), Electrical Equipment, Appliance

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and Component Manufacturing (335), Transportation Equipment Manufacturing (336), Furniture and Related Product Manufacturing (337), and Miscellaneous Manufacturing (339).

The importance of durable manufacturing to United States manufacturing and the economy as a whole cannot be understated. As mentioned earlier, durable manufacturing accounts for over half of total manufacturing contributions to GDP. There are over 8.4 million people employed in durable manufacturing. One measurement of durable manufacturing’s importance is its employer value of sales, shipments, receipts, revenue, or business done compared to the other two leading industries. At $2.6 trillion, durable goods manufacturing generates greater value than professional services ($2.5 trillion) and over half that of FIRE industries ($4.1 Trillion). When number of employed persons are considered, durable goods manufacturing’s value per employee of $317 thousand is approximately twice that of professional services employees ($159 thousand per employee) and compares favorably with FIRE industries at $472 thousand per employee.

According to the 2007 Census, in Los Angeles county durable manufacturing accounted for 14,471 establishments (52.2 percent of manufacturing total), 246,532 employees (54.6 percent), and 62.7 billion (40.7 percent) of sales, shipments, receipts, revenue, or business done. Compared to other counties, Los Angeles is even more dominant in durable manufacturing than it is in general manufacturing. According to the 2007 Economic Census, it ranks first in number of establishments, employer value of sales, shipments, receipts, revenue, or business done, annual payroll, and number of paid employees (246,532). If Los Angeles County were its own state it would rank 9th, 17th, 10th, and 11th respectively.

Figure 8: Durable Manufacturing as a Proportion of All Manufacturing—Los Angeles County vs. United States

Despite this domination in absolute terms, in every single measurement, Los Angeles County durable manufacturing as a proportion of total manufacturing is relatively smaller than durable manufacturing nationally. The greatest discrepancy comes in number of establishments. Where durable manufacturing accounts for 64.1 percent of all manufacturing on a national level, it only accounts for 52.2 percent in Los Angeles County. Value of sales, shipments, receipts, revenue, or business done is 40.7 percent durable in Los Angeles County and 50.6 percent durable nationally, and number of paid employees is 54.6 percent versus
63.1 percent. As discussed previously, this probably has to do with the fact that many of Los Angeles County’s largest manufacturing industries—such as apparel and food—are not categorized as durable.

Underrepresentation of durable manufacturing in Los Angeles County is not distributed evenly among all durable manufacturing subsectors. In fact, there are a few durable subsectors in Los Angeles County that are consistently more represented compared to national figures. These would be computer and electronic manufacturing, which represents 11.6 percent of all manufacturing employees in Los Angeles County but only 7.9 percent nationally and 11.4 percent of all manufacturing sales, shipments, receipts, revenue, or business done but only 7.4 percent nationally. Furniture and related product manufacturing is similarly overrepresented but constitutes a significantly smaller percentage of the total manufacturing industry. This will be explored in greater detail in sections dealing specifically with rail-relevant industries. Figure 9 shows how different subsectors of durable manufacturing vary greatly as a proportion of total manufacturing.

**Figure 9: Selected Subsectors of Durable Manufacturing as a Proportion of All Manufacturing**
Trends

All Manufacturing: A Long Employment Decline

The Bureau of Labor Statistics data on manufacturing employment in Los Angeles County show that the decline of manufacturing employment is at least a 20-year trend, with annual losses of over 7 percent in the early 1990s and a decline of over 10 percent during the recent recession. The U.S. Census shows a peak of manufacturing employment in the Los Angeles-Long Beach metropolitan statistical area in 1987, with 851,800 employees. By 1992 that number declined to 702,900, a 17 percent drop. Production workers had declined from 550,300 to 443,800, a 19 percent drop. By the 2002 Economic Census, the number of employees in Los Angeles County was 530,939 and 451,656 in 2007. This is a 46 percent drop over 20 years. Conversations with management staff during site visits were inconclusive regarding this trend. While they state that their businesses have experienced regular growth even through the recession, it is unclear whether this is due to overall subsector growth or due to these companies benefiting from the failure of competitors.

Figure 10: Manufacturing and All Industry Employment Decline

Los Angeles Suffered More than the Rest of the Nation

Taking a closer look at the last ten years, there were 577,654 manufacturing employees in Los Angeles County in 2001, and 373,487 in 2010—a drop of 35.3 percent. Until the recession, the percentage drop
appeared to be decreasing, rising from a 7.5 percent drop in 2002 to only a 2.9 percent drop in 2008.¹⁴ But as the economic slowdown intensified, this was followed by the greatest one-year decline in 2009, when employment dropped the aforementioned 10.7 percent. Most recently, in 2010 it dropped 4.0 percent. These declines in manufacturing employment reflect a drop in overall employment in Los Angeles County, but far more severe. Total employment only dropped 6.4 percent in the same nine-year period. Overall employment actually grew 5.2 percent just before the recession; from 2003 and 2007, but even in this period manufacturing employment declined 10.2 percent. This has resulted in an employment location quotient drop from 1.09 in 2011 to 1.05 in 2010, showing that while all U.S. manufacturing is suffering in terms of job losses, Los Angeles County is suffering even more.

### Number and Size of Establishments

Nationwide, the number of smaller establishments is increasing in all industries, but is declining in manufacturing. Since 2001, the number of establishments in all industries increased by 13.6 percent, mostly among smaller establishments, while within manufacturing the number of establishments declined 15.3 percent. The smallest establishments (fewer than five employees) declined the least (5.8 percent), while the second largest (500-999 employees) decreased the most (41.7 percent). In Los Angeles County, establishments had been declining since 1977, which, when combined with the increasing employment up until 1987, may have reflected establishment consolidation.

The number of establishments in Los Angeles County has dropped 29.1 percent between 2001 and 2010, from 18,917 to 13,398. For all industries, number of establishments has actually grown by 35 percent from 307,232 to 417,332 since 2001. The growth in recent years has been flat at 0.07 percent. This declining number of establishments was anecdotally confirmed in manufacturing site visits performed in conjunction with this project. In the course of these visits, a common narrative was the expansion of companies through either acquiring smaller firms or similar size firms merging into one larger firm. As would be expected, both Los Angeles County and the U.S. number of establishments in a given size group is inversely correlated to the establishment size that group represents. In other words, there are more small establishments, and fewer large establishments, in both geographic regions.

#### Figure 11: Establishment Sizes 2001-2010

<table>
<thead>
<tr>
<th>Year-to-year Percentage Change, California Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
</tr>
<tr>
<td>All Sizes</td>
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<tr>
<td>&lt; 5</td>
</tr>
<tr>
<td>5 - 9</td>
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<tr>
<td>10 -19</td>
</tr>
<tr>
<td>20 -49</td>
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<tr>
<td>50 -99</td>
</tr>
<tr>
<td>100 - 249</td>
</tr>
<tr>
<td>250 - 499</td>
</tr>
<tr>
<td>500 - 999</td>
</tr>
<tr>
<td>1000 +</td>
</tr>
</tbody>
</table>

Source: Bureau of Labor Statistics

Manufacturing Trends in Los Angeles

The Bureau of Labor Statistics, which provides year-to-year data on establishment sizes does not have data at the county or metropolitan level but because Los Angeles County is such a huge proportion of California manufacturing, it can stand-in as a rough estimate. The greatest declines between 2001 and 2010 are among the larger establishments. Those with 500-999 employees declined 41.9 percent while those with 250-499 declined 41.2 percent. Like the national figures, the smallest establishment sizes decreased the least. Those establishments with less than five percent decreased 14.3 percent.

Aging Workforce in Los Angeles

The total number of employees in the manufacturing industry in Los Angeles County has declined over the past decade, but some age groups have declined much faster than others. There has been a much steeper decline in younger workers than older workers. The employment numbers of those age 19-44 have declined 63.5 percent since 1992, from 466,795 to 170,497; while those ages 45 and over decreased by 8.6 percent, from 223,821 to 204,498. The steepest drop is among those ages 25-34, whose numbers have declined 70.5 percent in that time period. The smallest decline has been among those 55 and older whose numbers have declined only 2.4 percent.

Higher and Increasing Wages

In the U.S., total manufacturing payroll ranks between professional services and FIRE industries. Nationally in 2010, manufacturing payrolls almost $614 Billion compared to $587 Billion for FIRE industries and just over $1 Trillion for professional services. Wages and salaries for all industries including manufacturing increased from 2001 to 2010 with manufacturing wages increasing faster than wages in FIRE and professional services industries. According to the Bureau of Labor Statistics, manufacturing wage and salary accruals per full-time equivalent employee (unchained dollars) increased 36 percent from 2001 to 2010, from $44,216 to $60,003 per year (both in 2010 dollars). While finance and insurance wage and salary accruals per full-time equivalent employee (unchained dollars) increased 31 percent from 2001 to 2010, from $67,021 to $88,118 per year (both in 2010 dollars) and Real estate wage and salary accruals per full-time equivalent employee (unchained dollars) increased 34 percent from 2001 to 2010, from $36,539 to $48,993 per year (both in 2010 dollars), both of these industries experienced declining wages from 2008 to 2009.

The story is similar in Los Angeles. Between 2001 and 2010, weekly wages for all industries and manufacturing industries increased in both the Los Angeles metropolitan region and nationally, but did so at different rates, with manufacturing wages increasing faster than wages in all industries, and manufacturing wages in the Los Angeles region increasing the most. According to the Bureau of Labor Statistics, weekly manufacturing wages increased 11.1 percent from 2001 to 2010, from $995 per week to $1106 per week (2010 dollars, Los Angeles Metro specific CPI). This brings it to be exactly equal to national manufacturing weekly wages (also $1106 in 2010), which increased 8.7 percent from $1017 (2010 dollars, national CPI). Wages for all industries increased 2.2 percent in the Los Angeles region and 4.8 percent nationally.
Annual payroll per production worker is highest among the computer and electronic manufacturing industry, at $167.01 in Los Angeles County and $129.45 nationally, followed by transportation equipment manufacturing at $130.55 and $78.58 respectively. Holding up the bottom in Los Angeles County are apparel manufacturing ($33.03), textile mills ($37.40), and textile product mills ($39.32). While these are not equivalent to hourly wages, they do give an indication of how different industries pay their workers.

Asian Worker Wage Gains

According to the Longitudinal Employer-Household Dynamics (LEHD) Census Data, white non-Hispanic manufacturing workers earned an average of $7,564 in monthly wages. By comparison, Asian manufacturing workers earned $5,137 in monthly wages (67.9 percent of white non-Hispanic wages), blacks earned $4,512 (59.7 percent), Pacific-Islander $3,614 (47.8 percent), and Hispanics $3,231 (42.7 percent).

Since 2001, wages have increased more or less at the same rate with one exception. Asian manufacturing workers have seem the greatest increase of nominal wages, having gone up 57.1 percent. This is followed by

15 2007 Economic Census.
16 2007 Economic Census.
Hispanics (42.8 percent), blacks (42.7 percent), Pacific-Islander (40.2 percent), and non-Hispanic whites (39.4 percent).  

Manufacturing and the Recession

According to the Bureau of Economic Analysis, the long-term trend of Gross Domestic Product (GDP) in the United States has been one of sustained growth at an average rate of 2.8 percent increase from the preceding year. Interspersed within this period of generally continuous growth have been several one or two year periods of GDP decline relative to the previous year with the most recent of these occurring in 2008 and 2009 with GDP decline of -0.3 and -3.5 percent decline respectively. Following these declines; however, GDP increased in 2010 to $15,087 Billion in 2011. The 3.0 percent growth in GDP experienced during 2010 is even greater than the 2.7 percent average growth experienced from 2002-2007. As explained before, manufacturing is not only a significant portion of GDP, but is a sizable portion of this growth and even leads the economic recovery by outperforming sectors such as FIRE and professional services.

Manufacturing has been one of the more resilient sectors of the national economy. Unlike FIRE and professional services industries, manufacturing’s contribution to the year-to-year change in GDP actually increased in 2009. FIRE industries on the other hand, experienced a 0.05 percent decline in contribution to GDP. Before the recession, FIRE industries’ average contribution to GDP was 0.55 percent (2002-2007). While manufacturing was the third largest contributor to GDP before the recession (0.59 percent) it was the largest contributor to GDP in 2010 (1.23 percent).

Figure 13: Manufacturing Outperforms Other Industries After the Recession

Source: Bureau of Labor Statistics

17 2007 Economic Census.
Durable Manufacturing: Greater Employment Decline than All Manufacturing

The decrease in military funding after the end of the Cold War combined with the predominance of aerospace manufacturing in Los Angeles resulted in a greater decline in durable manufacturing employment than general manufacturing. In 1991, according to BLS, durable manufacturing employment declined 10.9 percent compared to a 7.4 percent decline in all manufacturing. Electrical Equipment, Appliance, and Component Manufacturing employment declined 19.3% in 1992 and Aerospace manufacturing employment suffered a single year-to-year decline of 18.6 percent in 1993.18

The strong economy of the Clinton years led to increases in Los Angeles County durable manufacturing employment between 1996 and 1998 (1.5 percent annualized) but decline thereafter. After 1998 durable manufacturing declined more in line with overall manufacturing. According to the Bureau of Labor Statistics, there were 325,765 employees in durable manufacturing in 2001 but only 207,325 in 2010, a drop of 36.4 percent. The steepest declines came in furniture and related product manufacturing (58.7 percent) and nonmetallic mineral product manufacturing (56.1 percent). The least severe decline was in computer and electronic product manufacturing, which suffered a 30.0 percent drop in number of employees, followed very closely by transportation equipment manufacturing at 30.9 percent and fabricated metal product manufacturing at 31.0 percent. The recession affected the furniture industry the most, with the steepest one-year decline coming in Furniture and Related Product Manufacturing at 22.2 percent in 2009.

Figure 14: Year-to-Year Change in Employment Among Durable Manufacturing Subsectors

<table>
<thead>
<tr>
<th>Year</th>
<th>Mfg.</th>
<th>Durable</th>
<th>Metal</th>
<th>Fabricated</th>
<th>Metal</th>
<th>Computer/</th>
<th>Electronic</th>
<th>Nav.</th>
<th>Electrical</th>
<th>Equipment</th>
<th>Transpo.</th>
<th>Aerospace</th>
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<td>1996</td>
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Source: BLS
Slightly Less Paying than All Manufacturing

According to the definition described earlier, durable manufacturing covers a wide spectrum of NAICS subsectors, and not surprisingly wages are just as varied. Nationally, durable goods manufacturing employees earned $1,029 weekly, according to the BLS, slightly more than the $959 for all manufacturing. From 2001 to 2010, wages increased 36% from $46,493 to $63,355. Other non-manufacturing industries did not experience as much wage gains. The average weekly wage of those working within durable manufacturing employees in 2010 ranged from $644 in wood manufacturing (NAICS 321) to $1,779 in computer and electronic manufacturing (334). The wage for durable manufacturing together was $1,068, slightly less than all manufacturing ($1,106).

Demographics in Durable Manufacturing

Nationally, 73 percent of workers within durable manufacturing are white, 13 percent Hispanic, 7.6 percent African American, and 6.1 percent Asian. Nationally, women are less represented in durable manufacturing (24.4 percent) than they are in regular manufacturing (28.0 percent). Race and gender durable manufacturing data is not available at the Los Angeles County level.

Durable Production Workers Underrepresented

In terms of individual occupations that can be clearly attributed to durable manufacturing and the industries that are at the center of this report, all are underrepresented in Los Angeles. The largest proportion of production workers within durable manufacturing subsectors is for machinists, which includes just under 9,000 workers, or roughly 3.5% (versus 4.4% nationally) of total production occupations. This is followed by Assemblers and Fabricators, all Other (2.4% versus 3.2% nationally), Production Workers, All Other (2.3% versus 2.8% nationally), Welders, Cutters, Solderers, and Brazers (2.1% versus 3.8% nationally), Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic (1.7% versus 2.2% nationally), and Electrical and Electronic Equipment Assemblers (1.5% versus 2.2% nationally).

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19 This figure represents BLS’s definition of durable goods manufacturing, which is slightly different than what we use.
20 Bureau of Labor Statistics
Figure 15: Major Durable Occupations as Proportion of All Production Workers

Location quotients reveal a different story behind the absolute size of Los Angeles’ larger production occupations. It reveals some smaller occupations conceivably related to durable manufacturing that may not employ as many workers have a proportionally high representation. Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic (1.62), Forging Machine Setters, Operators, and Tenders, Metal and Plastic (1.6), and Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic (1.34), all have relatively small absolute numbers but are more concentrated than most manufacturing occupations.

The California Employment Development Department (CEDD) permits a finer grain analysis of occupation by industry. While the data is at the state level, given Los Angeles’ predominance as a manufacturing hub within the state, the numbers can still stand in for local trends. Indeed, machinists in machine shops number most among occupations related to durable manufacturing, with roughly 12,200 in California in 2008. According to the CEDD, this number is predicted to decline by 1,200 or 9.8 percent by 2018. At the state level, behind machinists, are Electrical and Electronic Equipment Assemblers in the Semiconductor and Other Electronic Component Manufacturing industry, with 8,400 workers in 2008. 23

Production Workers are Paid More

Interestingly, looking at Los Angeles County only, amounts for annual payroll per production worker are higher than for annual payroll per employee. This suggests that on average production workers are paid better than other type of employees, presumably service workers such as janitors and clerical workers. The greatest discrepancy is within computer and electronic product manufacturing. 24 Site visits to manufacturing establishments support this finding. Wages for assembly line workers at an electronic product manufacturing facility start relatively low but workers can eventually earn greater than $100,000 per year.

Railcar Related Subsectors

In terms of railcar manufacturing related NAICS subsectors, we focused on five: Fabricated metal product manufacturing (332), Machinery manufacturing (333), Computer and electronic product manufacturing (334),

23 The California Employment Development Department (CEDD).
24 2007 Economic Census.
Leading Railcar Subsectors

Of the railcar-relevant subsectors listed above, the following were chosen for their predominance in Los Angeles County. A discussion of their relative sizes is followed by an emphasis on value of shipments as an indicator of performance.

Computer Electronic Product Manufacturing

NAICS code 334 includes the computer and electronic product manufacturing subsector using processes such as the design of integrated circuits and specialized miniaturization techniques. This is one of largest railcar-related sectors by multiple measures, which according to the 2007 Economic Census, nearly ties for first among all manufacturing subsectors in employees with 52,315; $17.6 billion in sales, shipments, receipts, revenue, or business done (28.1 percent); and 27.7 percent in payroll ($3.5 billion). In term of number of establishments it lags only behind Santa Clara County in Silicon Valley. Los Angeles County has 1,021 and Santa Clara 1,060. Even still, computer electronic manufacturing number of employees is 11.6 percent of total manufacturing (compared to 7.9 percent nationally) and annual payroll of over $3.5 billion or 17.2 percent of total manufacturing (10.8 percent nationally).

Within computer electronic manufacturing, electronic instrument manufacturing is the largest in terms of employees (21,947 or 42.0 percent of all computer and electronic manufacturing), of which over half is communications equipment, possibly reflecting the navigational needs of the aerospace industry (see below) or the broadcasting needs of the entertainment industry. Computer and electronic industry dominates in terms of value added with 16.4 percent of total manufacturing, higher than the proportion nationally (9.8 percent). The performance of computer electronic manufacturing in Los Angeles County has been inconsistent. It successfully rebounded from a 1.7 percent decline from 1997 to 2002 with an impressive 54.4 percent increase to $17.58 Billion in total 2007 shipments.

Transportation Manufacturing

NAICS code 336 includes manufacturers of products used for transporting people and goods using machinery and processes such as bending, welding, and assembly of metal or plastic parts. Transportation manufacturing payroll is $3.0 billion, or 15.1 percent of total manufacturing, a figure slightly higher than the national proportion of 14.3 percent. Among the 46,660 employees who work in the transportation manufacturing subsector, 72 percent work in the aerospace industry, which despite a decline in recent years, makes Los Angeles County the largest aerospace manufacturing hub in the country. Motor vehicle parts manufacturing is second with 8,987 employees. The performance of this subsector in Los Angeles County displayed a pattern of loss followed by gain. In Los Angeles County, a decrease of 23.3 percent from 1997 to 2002 was followed by an increase of 14.0 percent from 2002 to 2007, to end at a total shipments value of $15.59 Billion.

25 2007 Economic Census.
**Fabricated Metal**

NAICS code 332 represents the fabricated metal product manufacturing subsector that transforms metal into intermediate or end products using forging, stamping, bending, forming and machining processes. Fabricated metal is the leading industry in terms of employees, with 52,332 in Los Angeles County. This is roughly the same proportion as the national ratio (11.6 percent of manufacturing in Los Angeles County versus 12.0 percent nationally). In terms of establishments, fabricated metal product manufacturing accounts for 15.3 percent (2,312) of the total for establishments which is also slightly lower than the national proportions of 18.3 percent. The performance of fabricated metal product manufacturing in Los Angeles County has been erratic with an 8.4 percent decrease in value of shipments from 1997 to 2002 followed by an increase of 19.1 percent from 2002 to 2007 to end at a total shipments value of $9.67 Billion. The growth in shipments for this subsector in Los Angeles is similar to California but unlike those for the United States, which experienced a greater range of percentage changes from one Economic Census year to the next.

**Figure 16: Major Railcar Related Industries**

![Figure 16: Major Railcar Related Industries](image)


**Number and Size of Establishments within Railcar Manufacturing Relevant Industries**

Taken as one group, the differences between the aforementioned NAICS sectors in Los Angeles County are not much different than those nationally, although like Los Angeles in general, they do show a slight disproportionate share of smaller establishments. As a proportion of total establishments, there is 1.6 percent more establishments of 0-5 and 5-9 employees in Los Angeles than the nation.26 The next largest discrepancies are among establishments with 100-249 employees. Among these, Los Angeles has 1.2 percent less than the national figures. For establishments 50-99, there are 1.1 percent less establishments in Los

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Angeles. The discrepancies among the others are so small to be negligible, from 0.6 percent for establishments with 250-499 employees to 0.022 percent for the largest companies (2,500 or more employees).27

When we look at establishment sizes within the specific NAICS sectors listed above, the differences are a little greater, and show that some sectors have a greater number of smaller establishments than others, when compared to national figures. The largest discrepancy comes with machinery manufacturing establishments with less than five employees. In Los Angeles County, this establishment size accounts for 38.7 percent of all machinery manufacturing establishments; in the U.S. it is 33.6 percent, for a difference of 5.1 percent. The next highest is among electrical equipment, appliance, and component manufacturing establishments with 10-19 employees. In Los Angeles County this accounts for 17.3 percent of total establishments for this subsector, in the U.S. it’s 12.4 percent, for a difference of 4.9 percent.

Stronger Wages than Most Manufacturing Sectors

As mentioned earlier in the section on durable manufacturing, computer electronic manufacturing pays best, at $1,779 per week, followed by transportation equipment manufacturing with $1,615 per week. Since 2001, pay within electrical equipment and appliance manufacturing increased the most, by 24.6 percent, from $852 to $1,062 (2010 dollars). Transportation manufacturing wages saw a jump in wages of over 15 percent, even despite its already relatively high wage. Computer and electronic product manufacturing saw a more modest increase of 10.6 percent and fabricated metals at 6.7 percent. Barely increasing at all was machinery manufacturing, with only a 1.0 percent jump in real wages since 2001. On the low-end in terms of pay was fabricated metal product manufacturing, at $946 per week. Machinery sat in the middle at $1,141, just above the all manufacturing average of $1,106. In sum, all these wages show gains over the last year—with the exception of fabricated metal and electrical equipment and appliance manufacturing—all paid better than the average manufacturing and durable manufacturing wage.28

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In terms of occupations, Computer numerically controlled machine tool programmers, metal and plastic are paid the most ($54,830), followed by tool and die makers ($47,210), Engine and Other Machine Assemblers ($45,980), and Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders ($36,120). Of these, the Los Angeles MSA mean annual wage is at least 10% higher than the national mean annual wage, with the exception of Tool and Die Makers, which is 2.0% lower.

Conclusion and Policy Recommendations

Despite the wealth of data above, the following are reasons to exercise care in its application to policy:

1. Patterns from the data will vary across time. Large positive gains are sometimes followed by large negative gains. The recent recession has shown that many longstanding trends can change in a very short amount of time. The rapidly evolving nature of outside forces like globalization, economic crises abroad, the uncertainty surrounding federal policy, and changing trends even within the sectors and subsectors themselves.

2. Manufacturing trends are unique to specific regions, and policy that works in one may not work in another. Although the United States, California, and Los Angeles County in some instances experienced similar patterns, it should not be inferred that past trends are necessarily predictive of
future trends. Therefore, policies that work well in one geographic area may have the same effect in another. One should consider the unique characteristics of Los Angeles.

3. There are limitations to the categorization of industries. Even though industries are grouped together in categories like durable and railcar-related industries, their performance may vary greatly. This may seem like common sense, but it must be recognized that an improving economy does not necessarily affect all subsectors equally.

Following from these warnings, our major policy recommendation is continual improvement of data collection and management. The data used in this section was collected from numerous local, state and federal governmental sources including the United States Economic Census, the United States Bureau of Labor statistics, and others. They collect data at different time increments and with different objectives in mind, none of which are focused on promoting manufacturing in Los Angeles. Often, categories of measurement from one agency will vary from another and at times even conflict. These potential conflicts impose serious complications and may even derail efforts to grow the manufacturing industry in Los Angeles. One example is the distorting effect of the apparel manufacturing industry. The overwhelming size of the industry gives the inaccurate impression that manufacturing jobs are not as well-paying, when in fact, manufacturing in high skilled industries like machining and aerospace are still potentially an important avenue to the middle class. Given the importance of manufacturing to Los Angeles and its economic health, we recommend establishing a central data compilation and distribution system managed by an entity focused on the promotion of manufacturing. The following specific suggestions for such an entity:

1. Centralizing data from local, state, and federal resources regarding and pertinent to manufacturing in Los Angeles.

2. Update and distribute this information as it becomes available.

3. Produce regular reports on this new data that in order to influence policy makers and the public regarding the needs of manufacturing in Los Angeles.

4. Identify data relevant to Los Angeles manufacturing that is not already available and advocate for more frequent updating of existing data.

We have no specific recommendations for the organizational structure of this entity. But at the very least, it should be comprised of parties whose main goal is promoting Los Angeles manufacturing as the engine of greater economic vitality. This would no doubt include the thousands of manufacturing establishments that already call Los Angeles their home, the government officials tasked with keeping them here, and the wider public whose well-being is dependent on the economic health of the region.
Bibliography

American Community Survey


Bureau of Economic Analysis (BEA).


California Employment Development Department (ES-202).

California Labor Market Information (http://www.labormarketinfo.edd.ca.gov/).

United State Census, County Business Patterns.


Quarterly Census of Employment and Wages
Green Manufacturing

By Steven Guerry and Seth Boots

Abstract

This section develops a definition for green manufacturing by combining ideas from three areas of knowledge related to sustainability. First, previous definitions of sustainability suggest the level of specificity of defining sustainability. Second, the concept of the Triple Bottom Line states that policies affect economics, the environment, and people. Third, the idea of technology wedges refers to action affecting the use of technology, materials, and energy can eventually lead to sustainability. Considering these three areas of knowledge, Green manufacturing is an ongoing process of continually improving manufacturing techniques with an ultimate goal of sustainability and it is a process with sustainability as the ultimate albeit distant goal.
Introduction

Understanding the origin and evolution of concepts like sustainability and green manufacturing is necessary to develop definitions to guide project goals, develop policies, and establish criteria by which to judge the success of recommended action. Creating and preserving green manufacturing jobs in Los Angeles are the primary goals of this project; therefore we need to develop a framework for doing so. Sustainable practices are important to creating good manufacturing jobs because:

- There is a simultaneous focus on productivity and good wages. Green manufacturing represents an opportunity to create jobs that contribute to high value added worker output.
- Green manufacturing provides economic benefits through the sale of new products and promotes the availability of green products to consumers and municipalities outside the area.

Los Angeles a logical place to develop such a framework because

- Both California and Los Angeles have a history of leadership in environmental protection policies. Examples include aggressive air quality regulations through market based programs like cap and trade, renewable energy initiatives, urban infill programs, and climate change legislation.
- Public leadership in Los Angeles promotes innovative solutions to environmental problems. The Port of Los Angeles is a good example. Container ship emissions have been reduced through the construction of shore electrical power that allows docked ships to use relatively clean shore power in lieu of high polluting on board power.

In the context of the current project, it is not practical to develop a single definition of “green manufacturing” because it fails to recognize the inherent limitations and trade-offs in translating such a broad concept to the narrow confines of our goal of creating green jobs in Los Angeles. The literature surrounding “green manufacturing”—especially in its popular use—uses the term almost interchangeably with the concept of sustainability. Due to overuse and conflation, definitions have become muddled. Often, different definitions are at odds with each other or do not incorporate the most basic tenets of their originally intended meaning. Therefore, to frame the current discussion about green manufacturing we will say at the outset that while “green manufacturing” and “sustainable” are closely related, “sustainable manufacturing” and “green manufacturing” are not the same. But because in our chosen definition the latter derives from the former, a definition of “sustainable” is necessary before a definition of “green manufacturing.”

Defining Sustainable

The origin of the word “sustainable” in its current use as related to environmental issues can be traced back to 1987’s World Commission on Environment and Development (WCED). We will use the WCED definition of sustainable: “meeting the needs of the present generation without compromising the ability of future generations to meet their own needs.”

This simple definition contains huge implications for the underlying structure supporting the modern economy and current manufacturing. Take the most obvious example—energy. The energy sources on which the vast majority of the modern economy and manufacturing rely, namely fossil fuels, are by their very nature unsustainable. The supply of fossil fuels is fixed, which means

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1 World Commission on Environment and Development
sometime in the future they will become depleted, thereby preventing a future generation from meeting their own needs. Technology may improve our ability to use them more efficiently, and temporarily increase supply, but it does not change the fact they will run out in the future. The same applies to raw materials. There is a fixed supply of rare earth metals like copper, gold, and lithium. Plastics are made from petroleum. Rubber comes from trees, and if producers decimate forests it will prevent future generations from using rubber. This is also by definition unsustainable. The point of these examples is not to push for the full abandonment of fossil fuels or the materials essential to manufacturing. Rather, it is simply to frame this discussion and demonstrate sustainability’s full implications.

This is very plainly not the model on which our current society operates. According to the U.S. Energy Information Administration, in 2010 78.0 percent of energy production came from fossil fuels (coal, natural gas, and crude oil), 11.5 percent from nuclear sources, and 10.5 percent from renewable sources (geothermal, solar, wind, and biomass). Despite the growing excitement about solar and wind technology, this is a proportion that has gone relatively unchanged since the mid-1970s when oil shocks forced the U.S. to increase its sources of nuclear energy. In 2006, this proportion was roughly the same within manufacturing. Thirteen point five percent of manufacturing energy consumption was classified as “non-combustible renewable energy sources”.2

This chapter is an effort to clearly identify terms because the word sustainability is used in ways that often lose its original meaning and its implications. The Department of Commerce, for example, defines sustainable manufacturing as the “…creation of manufactured products that use processes that minimize negative environmental impacts, conserve energy and natural resources, are safe for employees, communities, and consumers and are economically sound.” 3 This definition takes the same approach as the Organisation for Economic Co-operation and Development (OECD), whose Sustainable Manufacturing toolkit says “…sustainable manufacturing is all about minimising the diverse business risks inherent in any manufacturing operation while maximising the new opportunities that arise from improving your processes and products…”.4 As an example of the current use of the word sustainable, these definitions do not convey the true implications and are therefore insufficient. At the same time, we will not argue that fully sustainable manufacturing processes are immediately possible or even desirable. So how then do we go about determining what is possible to achieve now?

**Toward a Green Manufacturing Framework: The Triple Bottom Line**

Possibly the most popular contemporary framework for understanding the trade-offs inherent with any commercial endeavor is what has become known as “The Triple Bottom Line.” Coined in 1994 by John Elkington, founder of the British consultancy SustainAbility, the Triple Bottom Line is a concept to account for all costs of doing business, not just the conventional monetary costs. The triple in Triple Bottom Line stands for: profit, people, and the planet.

Profit refers to conventional accounting and what most businesses have always concerned themselves with: the desire to earn a return on investment. People reflects the fact that business ventures do not occur

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3 http://trade.gov/competitiveness/sustainablemanufacturing/how_doc_defines_SM.asp

4 Organisation for Economic Co-Operation and Development (OECD).
without effects on the people involved, and that these effects—both positive and negative—should be included when accounting total costs. Examples include the effects of working conditions, wages, job security, future career prospects, and a sense of fulfillment. It also refers to the effects on people external to the project, like those living around a factory who might suffer disproportionately the effect of air pollution. Planet refers to the costs to the environment. The most common environmental cost is pollution. In more recent years, discussion has turned specifically to the costs associated with greenhouse gas emissions. Of course these costs are not always perfectly discrete; costs associated with people are closely connected to the costs to the environment.

This leads to a question of how these costs can or should be measured. The answer is easiest for profit, as the costs of doing business more easily economically quantified. Less easily quantified are the costs to human health. Some costs we never may be able to quantify, like the benefits of job security or a sense of fulfillment. Efforts to account for some costs, like greenhouse gas emissions, are already underway in the form of carbon taxes or a cap and trade programs. Others, however, are more difficult if not outright ignored. How do you quantify the loss of a patch of swamp as you make room for a housing development? No less subject to economic valuation, how do you value the aesthetic pleasure society derives from an unpolluted beach?

These are difficult questions and are beyond the scope of the current discussion, but they are important to consider as we move forward with this project. Each set of costs factor into the total project’s cost-benefit analysis. Some we will have to weight as more important than others. They are all part of the trade-offs to be considered as we decide how to promote green manufacturing in Los Angeles.

Technology Wedges

Earlier we acknowledged the difficulty, if not outright impossibility, of converting to sustainable manufacturing processes right away. If we were to attempt to employ sustainable manufacturing using our chosen definition, manufacturing and the economy would come to a screeching halt. Therefore, we choose to borrow a concept from David Dornfeld, a Mechanical Engineer at University of California, Berkeley, who describes “technology wedges,” a term originally employed to address the gap between present unsustainable trajectory of CO₂ emissions and sustainable levels. This is a concept we believe has wide applications across manufacturing, not just in relation to CO₂ production. Dr. Dornfeld identifies three levers that can serve as wedges toward eventual sustainability: technology, material, and energy. We have already discussed the implication of sustainability for the second two. With respect to manufacturing, a technology wedge would refer to machinery efficiency improvements. The material lever would entail using materials that do not rely on finite sources and are less harmful to the environment. Energy refers to finding power that does not come from more harmful conventional sources like coal. By incrementally improving practices in any one of these three categories—by reducing energy consumption, by developing more efficient manufacturing techniques—we move closer to sustainability.

Other organizations take similar approaches. The Bureau of Labor Statistics’s (BLS) definition of green jobs, for example, describes two approaches: by output or by product. A green job can be defined as one which “produce[s] goods or provide services that benefit the environment or conserve natural resources” (output), or “in which workers’ duties involve making their establishment’s production processes more

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environmentally friendly or use fewer natural resources.”\textsuperscript{6} Rosen and Kishawy (2012) echo this when they name process, product, and practice, as the three factors that affect the environment and manufacturing. Product, like BLS’s output simply refers to manufacturing strategy that produces “environmentally benign products”; and process as referring to environmental improvements related to manufacturing processes “linked to reduction, reuse, recycling, and manufacturing.” Practice simply refers to the metrics used to measure improvement or the gains toward a goal of sustainability. Part of the challenge going forward will be identifying the processes and practices that are most amenable to improvement, and researching what specific new technologies are available. This of course will depend on the industry being investigated.

**Green Manufacturing Defined**

Green manufacturing is thus an ongoing process of continually improving manufacturing techniques with an ultimate goal of sustainability and it is a process with sustainability as the ultimate albeit distant goal.

**Recognizing What We Can Control**

In an age of accelerating globalization, complete vertical integration is rare. Companies buy from suppliers with little or no concern for internal practices and processes, as long as the product is of sufficient quality. In this respect we may have limited power over controlling the full range of the supply chain to guarantee that not just the final assembly adheres to standards of green manufacturing, but that the entirety of the supply chain does as well.

**Tradeoffs as Strategy**

We must be prepared to deal with businesses that have little to no interest in promoting a triple bottom line. Therefore, it is important to decide ahead of time where we are and are not willing to compromise. Some advocates may emphasize the human aspect of the triple bottom line is more important than the environmental aspect. We should be fully informed about what emphasis one aspect might mean for another, make decisions on what is the best track to take, and then move forward in consensus.

**Accountability**

Defining green manufacturing as an ongoing process subject to continual improvement may make it easy to become lax about pressing forward. The pressure to let off the goal of sustainability in favor of cost savings today will be constant and be coming from many different directions.

**Conclusion**

Therefore, in the face of competing priorities, developing a definition of green manufacturing for this project will require tough decisions about how aggressively to pursue the ultimate end goal of sustainability. If we

\textsuperscript{6} Rosen, M., Kishawy, H. (2012).
pursue it too aggressively, it may mean loss of partnerships with companies. If we do not pursue it aggressively enough, it may mean a loss of credibility as we define our endeavor as one employing green manufacturing techniques.

This report is not the place to recommend techniques we consider to be part of “green manufacturing” and which of those can be applied to manufacturing.
Bibliography


Abstract

This chapter provides an overview of the current state of land use policy in Los Angeles as it pertains to manufacturing. Because adequate high-quality industrial land is at the foundation of a successful manufacturing sector, this topic is a particularly significant piece of any attempts to retain and boost the number of manufacturing operations. While there have been attempts in Los Angeles to use land use policy to stymie the attrition of manufacturing land and jobs, these efforts have failed to gain much traction. Moreover, in the wake of the demise of Community Redevelopment Agencies in California, manufacturing lacks a political champion to pursue such policies.

It is important to note that land use alone cannot save manufacturing jobs. Rather, in order to be successful, land use policy must be tied to economic development plans that focus on maximizing the region’s manufacturing potential. Our case study research reveals that several cities are attempting to stem the loss of manufacturing jobs by tying land use to a broader economic development strategy. Among our study of American efforts toward industrial retention, New York, Chicago, Portland, and Berkeley offered promising and replicable tools for retaining and strengthening the manufacturing base of their respective cities. Chicago’s effort is a case that, given adequate political will, is highly transferrable to Los Angeles. After summarizing the key tools that Los Angeles might implement in its efforts to retain and bolster the manufacturing sector, we conclude with a series of “high road” industrial policy recommendations specific to land use.
Introduction

The land use impacts of Los Angeles’ shifting industrial economy generated significant policy and political attention in the last decade. The recent housing boom spurred the transformation of several industrial neighborhoods in Los Angeles into new urban residential centers, primarily in downtown. As new condos gobbled up manufacturing land, city officials raised concerns about what the loss of industrial space would mean for future economic development. The attention came as the city was looking for ways to enter the green manufacturing sector and analyzing ways that city policies could attract emerging industries.

Los Angeles has much to gain from the renewed interest in manufacturing. Los Angeles County continues to be the nation’s top manufacturing center, with almost 400,000 industrial jobs. The region’s proximity to the ports of Long Beach and Los Angeles, its transportation networks, robust supply-chain opportunities, built-in consumer base and abundant labor force make it a prime location for a new manufacturing economy.

But in order for the City of Los Angeles to promote manufacturing, there must be land for new industries to come and grow. In 2000, as new residential buildings started to replace industrial space, the Los Angeles County Economic Development Corporation estimated that the region was losing out on $700 million in direct wages because of the lack of modern industrial facilities. By 2007, the City of Los Angeles estimated that 26 percent of its industrially zoned land was being used for non-industrial purposes. The economic recession stalled the conversion of industrial space in places like downtown Los Angeles, which offers an opportunity to rethink the city’s industrial land use policy as a tool to support regional economic growth.

In order to do so, land use policy must be tied to a strategic economic development plan focused on maximizing the region’s manufacturing potential. Los Angeles County hosts several cities that have tied their economic fortunes to an industrial base, such as Vernon, Industry and Commerce. However, the City of Los Angeles has an opportunity to act as a leader in efforts to revitalize manufacturing and promote industrial jobs as a regional economic development goal. Land use policy offers powerful tools to attract emerging industries to the region, if it’s combined with the right industrial policy and economic vision.

There are significant challenges. Industrial retention is not a new topic, yet a decade after several reports stressed the importance of an industrial base, permissive permitting processes still make it possible to do spot-by-spot conversions of industrial space to other land uses. The City of Los Angeles has launched an innovative effort to attract so-called cleantech businesses, but it lacks the resources to strategically put in place an industrial policy agenda that takes advantage of land use-based tools. More importantly, industrial retention needs a political champion that can bring to the forefront the economic advantages of a diversified employment base.

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3 City of Los Angeles. Los Angeles’ Industrial Land: Sustaining a Dynamic City Economy. Prepared by the City of Los Angeles Planning Department and the Community Redevelopment Agency (December 2007), 4.
Data Sources

As part of this study, we reviewed the City of Los Angeles’ industrial land use policy history and analyzed the political and economic factors that have stagnated its progress. We interviewed city planners, a member of the Mayor’s economic development team, and real estate brokers to survey current industrial land use conditions. We looked toward cities that have also grappled with land use issues in a changing economic landscape to see how we can use their lessons learned as case studies for industrial retention. We also did spatial analysis of the regional industrial landscape that could be used as a tool for key players looking to target their organizational efforts.

Local land use literature tends to focus exclusively on the City of Los Angeles itself, but manufacturing is a key industry throughout the entire metropolitan region. In 2000, the city employed nearly 60 percent of the county’s manufacturing workforce and was the largest generator of manufacturing activity\(^4\). While manufacturing trends\(^5\) show a diminishing manufacturing workforce, the city is sure to have retained the economic power necessary to lead political efforts to support manufacturing in the wider region. Therefore, while many of our findings and recommendations are specific to the City of Los Angeles, they will still have significant repercussions for the region’s economic fate.

Summary of Findings

As a result of our study, we concluded the following key findings:

*Lax land use controls continue to imperil the availability of manufacturing space in the City of Los Angeles, despite longtime efforts to highlight the need for stronger industrial retention policies.*

Manufacturing has historical roots as the foundation of the Los Angeles regional economy and continues to play a key role in the area’s economic development. The city has virtually no developable land to expand its industrial base, underscoring the importance of maintaining the city’s existing industrial/manufacturing space. Yet, manufacturing continues to compete with other uses, such as housing, commercial and open space. The city’s current permitting processes make it possible for other land uses to continue encroaching on manufacturing land. While some regional cities have greater industrial land use flexibility, Los Angeles County continues to have the lowest industrial vacancy rates in the nation, demonstrating a demand for more manufacturing land.

*Regional economic policy fails to implement land-based incentives to galvanize a new green manufacturing industry.* Policy efforts such as the Cleantech Corridor, created to attract emerging industries, are a good start, but regional economic development policy lacks a comprehensive strategy. Industrial economic development policy should capitalize on existing resources and implement more land-use based incentives such as tax-incentives and property improvement assistance.

*Despite local competition from the Inland Empire, Los Angeles County has several location advantages that position it to capitalize on new manufacturing trends.* Southern California industrial


\(^5\) More information on manufacturing employment is available in the manufacturing trends chapter.
developers know that the Inland Empire is the place to go for those who want to build big, newer facilities, but proximity to suppliers and access to port and transportation networks means Los Angeles will continue to be a strong manufacturing hub. A manufacturing economic development strategy will reinforce these advantages, keep Los Angeles competitive, and stem the loss of manufacturing jobs. Los Angeles’s size, value as a brand, and locational advantages can at the same time aid the entire region’s industrial base.

Having stemmed the loss of industrial land to commercial and residential development, the real estate bust and subsequent economic recession presents an opportunity for smart industrial planning. Requests to convert industrial zoning to non-manufacturing uses have slowed since the onset of the recession, offering a crucial opportunity to enact protections against future industrial land attrition. Some efforts are underway, but clear zoning controls are lacking.

A coalition of key players needs to act as a political champion for industrial land use. Our case studies found that broad-based coalitions, which included manufacturers, property owners, labor groups and community residents, led successful industrial retention efforts in other cities and regions. The demise of the Community Redevelopment Agency leaves existing industrial efforts without a political champion and without a dedicated funding stream. Consequently, there is a need and opportunity to organize a constituency around industrial retention and manufacturing-based economic development.

Economic incentives encourage existing manufacturing property owners to upgrade their buildings to be cleantech-ready and dissuade land-banking. Real estate brokers and research reports indicate that there is still significant interest in doing manufacturing business in Los Angeles. A major impediment is the availability of modern industrial space, especially in some of the most desirable areas, such as downtown. Manufacturing property owners lack the financial incentives to upgrade their facilities and often may prefer to sell to speculative developers. Land use-based tools such as property improvement programs can be used to spur interest among property owners to participate in a manufacturing renaissance. The city’s current technical and financial assistance is insufficient and not part of a comprehensive economic development strategy.

Industrial retention policies need to be supported with complementary high-road industrial policy initiatives. Industrial retention detractors blame high business taxes, expensive rents and other onerous regulations for the city’s manufacturing decline, and financial rewards tilt in favor of non-industrial commercial and residential uses that offer revenue from sales taxes and real estate speculation. But local governments are equipped to create good-paying jobs that provide a path to the middle class through business incentives and supportive policies that focus on manufacturing. Industrial retention alone cannot resurrect manufacturing in Los Angeles, so it should be part of a comprehensive economic strategy that includes workforce development, new businesses incubation, and living-wage jobs.

Protecting Industrial Space in Los Angeles

The Los Angeles General Plan explicitly states that city policy must ensure an adequate amount of industrial space within the city. According to the general plan, the official land use industrial policy states that the city must:

“...actively ensure that the City has sufficient quantities of land suitable to accommodate existing,
new and relocating industrial firms.”

It also stipulates that existing industrial land be protected from conversion to other uses through the following principles:

- Retain current industrial land use to provide space for emerging sectors.
- Limit rezoning of industrial land, unless it mitigates existing conflicts.
- Maintain regionally competitive industrial sites.
- Ensure enough land to accommodate new industrial firms.
- Ensure that land use encourages sound environmental practices and protects industrial economic engines.

Despite these protections, available industrial land has been on the decline. Only eight percent of the city is zoned for industrial uses, accounting for about 20,000 acres throughout the city. Despite limited supply and high demand, the industrial acreage in Los Angeles is slowly shrinking.

Manufacturing classifications in Los Angeles

Manufacturing land in Los Angeles generally falls under the following two categories:

**Heavy Industry:** This classification is designated for industries that have significant impacts on surrounding land, are noxious and noisy. Intensive uses such as aerospace, transportation and logistics, refineries and produce storage and distribution facilities fall into this category. Heavy industry zones are typically separated from other uses, including other industrial designations.

**Light Industry:** Less intensive uses such as clothing makers, furniture design, packaging and assembly fall into this category. Businesses that provide neighborhood industrial services such as animal hospitals, automobile services and construction materials also fall into the light industry designation.

Heavy industrial areas include parts of downtown, Hollywood, portions of the San Fernando Valley and communities near the Port. These and other geographic areas have established industry clusters. The entertainment industry is based in Hollywood, Studio City and other portions of the San Fernando Valley (and they tend to be light industrial); warehouses and logistics are primarily located near LAX and the Port; freight transportation is based out of downtown. The last two tend to reside in heavy industrial zones. Please refer to the appendix for maps pinpointing the exact location of Light and Heavy Manufacturing zoned land.

Despite the strong industrial presence of in these neighborhoods, places such as downtown and Hollywood have drawn the interest of residential developers. Applications to convert less expensive manufacturing parcels to other uses inundated the Planning Department at the height of the housing boom, resulting in spot

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6 City of Los Angeles. *Los Angeles’ Industrial Land: Sustaining a Dynamic City Economy.* Prepared by the City of Los Angeles Planning Department and the Community Redevelopment Agency (December 2007), 3.
7 City of Los Angeles. General Plan: Economic Development. [http://cityplanning.lacity.org/cwd/framwk/fwhome0.htm](http://cityplanning.lacity.org/cwd/framwk/fwhome0.htm)
8 City of Los Angeles, December 2007.
9 Ibid.
zoning decisions that often placed conflicting land uses next to each other. For over a decade, the City of Los Angeles has grappled with the economic implications of industrial attrition, but many of the recommended policy actions have been stalled by a combination of factors: the lack of political will, real estate interests, the economic recession, and recently, the elimination of the Community Redevelopment Agency. The lack of a political champion has meant that industrial land use policy is not the forefront of economic development discussions.

Industrial Land Use Policy in Los Angeles

Gentrification is defined as the displacement of lower-income residents in working class neighborhoods by urban professionals. Much of the scholarly research on the impacts on gentrification focuses on the residential impacts, ignoring that much of the high-end development also displaces industry. Gentrification is also occurring in Los Angeles. By 2007, almost 30 percent of the available industrially zoned land hosted non-industrial uses. The remaining industrial land is at risk of conversion, since industrial land is cheaper to purchase and the city’s permissive code makes it possible to convert to more lucrative uses such as luxury housing.

Gentrification in Los Angeles hurts industry in two ways. First, the demise of industrial land use further tightens an already limited market for manufacturing space in Los Angeles. Second, the land speculation by real estate developers inflates industrial land prices, increasing uncertainty that adversely affects future land use policy. This unstable industrial land use policy makes it difficult to attract new manufacturing firms to expand or relocate in Los Angeles. Furthermore, as industrial areas urbanize, residential pressures may limit manufacturing activities and eventually push companies out.

Flexible land-use permitting contributes to land. In 2002, the city’s first report on industrial land use found that despite the steadily declining manufacturing base, the city’s industrial real estate market retained low vacancy rates. Despite high demand, deteriorating buildings and infrastructure challenges kept industrial rents down. The city’s permissive land development code and associated policies, however, increased property prices through real estate speculation. Industrial developers could only pay about $38 per square foot of land, compared to $177 for residential developers. The report showed that property owners have little financial incentive to keep their industrial properties and make improvements when the opportunity to make money from a sale was so high.

Cities lured by the near-term financial incentives of converting land to commercial uses end up sacrificing

12 Ibid.
13 City of Los Angeles, December 2007.
14 Ibid.
15 Ibid.
16 IDPI Phase I Report, 89.
17 City of Los Angeles, December 2007, 22.
manufacturing jobs. Started in 2003 by Mayor James Hahn and continued with a 2005 directive from Mayor Antonio Villaraigosa, the city embarked on an economic assessment of the city’s industrial future and established guiding principles to promote stable economic growth. Almost a decade later, a firm industrial retention policy remains stalled. Understanding the city’s previous efforts and the political obstacles is necessary in order to help move industrial policy to the forefront of the city’s economic development strategy.

**Industrial Land Use Policy Project**

In the early 2000s, underused and outdated industrial parcels started to attract the attention of developers and city officials looking to revitalize the urban core. Mayor Hahn commissioned a group of real estate, economic and industrial experts to develop a set of policies that would both aid the redevelopment of industrial space and protect industrial interests where it was established as an economic imperative. The Mayor’s Industrial Development Policy Initiative was a two-phase effort to develop a set of policies aimed at increasing the efficiency of the city’s industrial land and attracting new businesses and investors to the city. The first report, release in 2004, identified the following issues:

- The conversion of industrial land to non-industrial uses.
- Infrastructure challenges faced by the city’s remaining industrial base.
- The changing industrial economy, driven by the loss of manufacturing jobs.
- Environmental challenges to the redevelopment of land

The second phase offered a framework for policy opportunities to address these challenges and provided several alternatives for action. Mayor Antonio Villaraigosa continued the effort and in 2005 directed staff to produce policy recommendations for industrial land use. After a two-year study period, the directors of the Planning Department and Community Redevelopment Agency, tasked with the policy report, issued a joint directive calling for the end of spot zoning conversions and setting retention standards throughout the city’s industrial zones.

The directive limited zoning conversions to 261 acres of industrially zoned land, while maintaining 2,663 acres for economic development in the downtown areas. It offered a series of land-use based tools and economic development strategies to aid local manufacturing and help lure emerging industries. It examined some of the common rationales for land use conversions, namely the idea that residential construction would result in cheaper housing. The report found that apartment prices within previous industrial districts were only 8 percent cheaper than similar apartments within the downtown core.

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18 Los Angeles County Economic Development Corporation 2000, 4.
21 Estolano, Cecilia and S. Gail Goldberg. Memorandum Directing Staff on the Implementation of Adopted City Policy Regarding Industrial Lands in the City of Los Angeles. 8 Jan
http://articles.latimes.com/2008/jan/04/local/me-downtown4
23 City of Los Angeles 2007, 23.
The document recommended the creation of four industrial land designations to protect further erosion of industrial space:

- **Employment Protection Districts**: Areas where industrial zoning should be maintained and residential uses would be prohibited.
- **Industrial Mixed Use Districts**: Areas that should be predominately industrial/employment districts, but where limited residential could be allowed.
- **Transition Districts**: Areas where the industry is no longer viable as a result of land conversion and should continue the transition to other uses.
- **Correction areas**: Areas where zoning changes resulted in inappropriate land use patterns that need to be corrected.

The maps below indicate the proposed land use categories in the central city area, which has some of the highest rents in the county.

![Map showing land use categories in central Los Angeles](image)

Figure 2: The above map shows the land use policy directions for central Los Angeles along Alameda Street. The districts proposed to fall under the following designations: 1 & 5) Employment Protection District; 2) Transition District; 3 & 4) Industrial Mixed Use District.  

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25City of Los Angeles, Dept. of City Planning 2007
The final report was advisory and did not make changes to the permitting process or to zoning policy\textsuperscript{27}. Opposition to the directive was immediate. The Central City Association commissioned a review of the city’s findings by CB Richard Ellis, a real estate consulting company. The report argued that the city’s recommendations to restrict the rezoning of the downtown industrial land would slow down the district’s revitalization and forfeit jobs tied to the residential boom\textsuperscript{28}. Councilman Jose Huizar and Councilwoman Jan Perry, who represent downtown, threatened to ignore the directive and said they would continue to approve residential developments\textsuperscript{29}. The most recent blow occurred earlier this year, when the state dissolved the city’s redevelopment agency, eliminating one of the city’s key industrial champions.

In the last four years, city officials have tried to implement portions of the city’s industrial policy report. The city designated a Clean Tech Corridor along an industrial area to attract green manufacturers. The city Planning Department is implementing community plans that incorporate a version of the employment protection land use designations recommended by the city’s 2007 study. But efforts have largely languished under competing economic interests, lack of resources and the absence of an economic development strategy. The city’s industrial efforts that remain lack some of the core concepts developed during the industrial policy review, and industrial retention continues to face many of the same challenges identified over a decade ago.

\textsuperscript{26} City of Los Angeles, Dept. of City Planning 2007
\textsuperscript{27} Ibid.
\textsuperscript{28} CB Richard Ellis Consulting. \textit{Industrial vs. Mixed Use Economic Impact Study}. Prepared for Central City Association (Feb. 2007), 7.
\textsuperscript{29} Hymon 2008.
Existing industrial efforts and challenges

Based on interviews with key players in economic development, planning and industrial real estate, the following provides an overview of ongoing industrial efforts and existing challenges:

**CleanTech Corridor:** The vision for the downtown industrial corridor was developed as part of the 2007 industrial policy efforts. The CleanTech Corridor is a four-mile long district along the Los Angeles River designated as an industrial park to serve as an incubator for emerging businesses. The CleanTech Corridor is supported by the CleanTech Incubator, a city-supported resource center for new businesses. Plans to build a CleanTech Manufacturing Center on city-owned land have been delayed by the dissolution of the Redevelopment Agency. The loss of the Community Redevelopment Agency limits the city’s ability to assemble land or offer financial incentives to lure manufacturers back to the area. More importantly, the CleanTech Corridor remains unorganized and provides few incentives for existing property owners to work with officials to lure industrial tenants. Many of the buildings are dilapidated and too small to meet the space demands of new clients.

**Cornfield Arroyo Seco Plan:** The Cornfield Arroyo Seco Plan is an effort to rezone a 660-acre area of northeast downtown Los Angeles in order to eliminate the separation of housing and industrial land use. The plain aims to lure clean-tech companies through zoning incentives and plan industrial areas to ensure compatibility with residential uses. The Cornfield Arroyo Seco Plan is predicated on the idea that emerging industries are more compatible with mixed-uses and that the combination of high-skilled jobs and housing can help accomplish other goals, such as increased transit-oriented development and walkable communities. The Cornfield Plan is an example of the long-term planning and policy controls that protect manufacturing space and align industrial land use with larger economic goals.

**Lack of modern buildings:** The outdated, dilapidated and small buildings in the downtown industrial area, one of the city’s most attractive industrial zones, fail to meet the requirements of newer manufacturing firms and emerging industries. Despite the efforts to promote the zone through the CleanTech Corridor, the city has not offered any financial incentives to encourage property owners to upgrade their buildings. Furthermore, infrastructure in the area (such as roads and truck access) also needs improvements.

This review of industrial policy shows that Los Angeles’s vision for a manufacturing-based economic revival is insufficient. To draw from best practices of industrial retention and renewal, we will now look toward other cities that have embarked on land-used based efforts to revive urban manufacturing jobs.

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33 Interview with Conni Pallini, Senior Planner with the City of Los Angeles’ Planning Department. March 14, 2012.

34 Ibid.

35 Ben Stapleton interview, April 2012.
Case Studies: New York, Chicago, Portland, and Berkeley

Many cities have seen an attrition of manufacturing land, paralleling the overall decline in the sector over the past several decades. Alan Berger notes that “Post-World War II sentiment against ‘dirty’ industries in favor of ‘clean’ businesses such as offices, banks, and brokerages led to public policy that also catalyzed industrial attrition”.36 In large cities with hot real estate markets—Los Angeles, New York, and Chicago, for example—there has been tremendous pressure to develop manufacturing land into other uses deemed more lucrative. Owing to the fiscalization of land use, or the planning of land for maximum revenue, a significant amount of land zoned for industrial use in these cities is becoming high-end housing, large mixed-use developments, or other uses that are not even tangentially related to manufacturing37. At the same time, due to the low position of industrial uses in the hierarchy of zoning, manufacturing is squeezed out altogether, unable to locate in “higher” use zones.38

Because pressures on manufacturing land are not unique to Los Angeles, it is important to examine what successful land use policies are being explored and adopted in these cities to counteract the trend of attrition. Advocates in New York push for industrial land use policy that preserves manufacturing and encourages new growth by establishing areas to be set aside exclusively for manufacturing39. Decision-makers in Chicago are undertaking an effort to organize the environmental, social, and economic features of the city’s manufacturing sector into a single comprehensive planning effort40. Reform has come from the grassroots as well, as the case of Berkeley’s protected manufacturing zones illustrates. Meanwhile, policymakers in Los Angeles are synthesizing many of these precedent cases and ideas to create a land use policy that seeks to maintain the region’s position as a manufacturing stronghold.

New York

New York’s real estate market has grown increasingly tight over the past few decades. The strong demand for housing and other uses has put manufacturers at a disadvantage, especially when one considers the financial and globalization pressures already afflicting the sector. Because other uses have the ability to pay much higher rents, manufacturers—in particular, smaller operations—have a tough time maintaining their land in a highly speculative real estate market41. Moreover, as land is converted from (City of Chicago Department of Housing and Economic Development, 2010)industrial to other uses, any new manufacturing operations find it increasingly difficult to secure land upon which to locate. Manufacturing advocates argue that the city’s land use and zoning policies have failed to keep up with these changes in the land market, and have thus allowed the needs of certain uses to overtake those of other uses.

One factor contributing to the undervaluing of manufacturers’ land use needs is the perception that a significant portion of land in areas zoned for manufacturing is underutilized. This is the conclusion of the New York Department of City Planning in their Citywide Industry Study42 conducted in the 1990s. The study found

36Berger 2006, 47
37Chapman 2008
38Berger 2006
39The Pratt Institute Center for Community and Environmental Development 2001
40City of Chicago Department of Housing and Economic Development 2010
41The Pratt Institute Center for Community and Environmental Development 2001
42The Pratt Institute Center for Community and Environmental Development 2001, 26
that manufacturing was on the decline and, as such, lands previously reserved for it should be opened up to other uses. In reality, vacancy rates for manufacturing buildings have actually been declining, and now reside in the single digits\(^{43}\). Moreover, much of the land zoned for industrial uses is consumed by other uses, namely warehouses, distribution centers, public transportation yards, solid waste disposal facilities, and parking\(^{44}\). Manufacturing is effectively being squeezed out of the city.

In many ways, New York serves as the archetypal example of industrial land use patterns taking place across the nation, including in Los Angeles. Manufacturing employment in the city fell from roughly 1 million in the 1950s to about 200,000 in 2001, mirroring the precipitous decline of the sector nationwide\(^{45}\). As jobs evaporated, so did areas zoned for manufacturing. This has led to the following scenarios:

- Commercial and residential uses have been allowed to enter areas zoned for manufacturing through variances granted by the New York City Board of Standards and Appeals, eroding the core stock of manufacturing land\(^{46}\).
- Much of the land that was previously zoned for manufacturing has been rezoned. Many manufacturing firms are located in these areas, and are now considered non-conforming uses. Because of this status, many manufacturers are subject to displacement\(^{47}\).

Both of these land use developments have put manufacturing in a precarious situation. With these pressures facing manufacturing in New York, advocates for reform of industrial land use policy—including the Center for an Urban Future, and the Municipal Art Society in conjunction with the Pratt Institute for Community and Environmental Development (PICCED)—identified land use best practices from other cities that served to preserve manufacturing. These include:

- From Chicago, Planned Manufacturing Districts (PMDs) that restrict non-industrial development in areas with substantial manufacturing presence that are threatened by rising land costs from residential and commercial development. In addition to PMDs, Chicago has established “Industrial Corridors” in several other manufacturing areas\(^{48}\).
- From Portland, three types of industrial development zones and two types of mixed industrial/commercial development zones. Residential development is mostly prohibited in these zones, and commercial development is only permitted when it supplements industrial enterprises\(^{49}\).

From these best practices, in conjunction with the findings of their intense study of manufacturing needs in New York, PICCED came up with several land use strategies to help maintain the manufacturing base in the city. Among the most salient and transferable were:

- The creation of Manufacturing Development Zones (MDZs) overlaid in areas with a large concentration of manufacturing uses and jobs. Other uses would be required to obtain a special permit to locate within these zones\(^{50}\).

\(^{43}\)The Pratt Institute Center for Community and Environmental Development 2001, 22
\(^{44}\)The Pratt Institute Center for Community and Environmental Development 2001, 2
\(^{45}\)Doyle 2005
\(^{46}\)The Pratt Institute Center for Community and Environmental Development 2001, 10
\(^{47}\)The Pratt Institute Center for Community and Environmental Development 2001, 2
\(^{48}\)The Pratt Institute Center for Community and Environmental Development 2001, 46
\(^{49}\)The Pratt Institute Center for Community and Environmental Development 2001, 47
\(^{50}\)The Pratt Institute Center for Community and Environmental Development 2001, 5
• Permitting non-noxious manufacturing activities to locate in commercial zones provided they meet environmental performance and compatibility standards.  
• The establishment of two types of mixed use districts—transitional, and non-transitional. Non-transitional mixed use districts would have a substantial number of manufacturing jobs and relatively little commercial or residential conversion. In these districts, the city would employ financial, legal, and programmatic support to counteract the real estate pressures on manufacturers.  
• The restriction of variances granted in areas zoned for manufacturing.

Chicago

Chicago has been a leader in using land use policy to protect its remaining manufacturing base. In addition to implementing the aforementioned land use policies, its Chicago Sustainable Industries (CSI) initiative seeks to further support the city’s manufacturing sector within a changing global economy. Chicago has been a center of manufacturing in the United States throughout the past century, though like New York and the nation, has seen its employment in manufacturing plummet to around one fourth of 1950 levels. The CSI seeks to maintain the high quality manufacturing jobs that do remain.

The CSI will coordinate several efforts to aid manufacturing firms that locate in Chicago. One example is the Local Industrial Retention Initiative (LIRI), which the city established to aid companies within specific industrial corridors. The city has also modified its building codes for industrial structures, and parking requirements within industrial zones, in an effort to preserve manufacturing.

Since the 1990s, the city has established 24 Industrial Corridors—comprising approximately 12% of its land—that provide protection and incentives for industrial firms. Within these corridors, proposals for zoning changes are reviewed by the Chicago Plan Commission, which has the ability to reject those proposals that weaken the stability of industry within the corridor. The intent of the Industrial Corridors program is to “develop business environments in industrial corridors that continue to meet the needs of existing companies, while anticipating and encouraging future development opportunities”. Moreover, as part of the program, industrial and community interests are brought together in order to plan and implement improvements in each corridor. In essence, the ultimate goal of the program is to ensure Chicago’s industrial corridors retain their competitiveness. In 12 of these corridors, Planned Manufacturing Districts (PMDs) have been established. This designation specifically prohibits residential and large-scale retail development within these corridors. These land use protections are supplemented by favorable tax policies, bonds, and loans offered by the Department of Housing and Economic Development. Clearly Chicago is taking a proactive approach in confronting the land use issues that face manufacturers within its jurisdiction. To complement its Planned Manufacturing District Ordinance, the City of Chicago has several other incentive programs to aid in industrial development and retention. One of these is the “Façade Rebate Program”,

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51 The Pratt Institute Center for Community and Environmental Development 2001, 5  
52 The Pratt Institute Center for Community and Environmental Development 2001, 6  
53 City of Chicago Department of Housing and Economic Development 2010  
54 City of Chicago Department of Housing and Economic Development 2010  
55 City of Chicago Department of Housing and Economic Development 2010, 3  
56 City of Chicago Department of Housing and Economic Development 2010, 5  
57 Edds 2004, 36  
58 Edds 2004  
59 City of Chicago Department of Housing and Economic Development 2010, 9
which is aimed at bolstering the physical attractiveness—and therefore marketability—of industrial areas by offering technical and financial assistance to businesses who wish to renovate their facilities. Rebates of up to $40,000 are available for this activity. Another city program aimed at industrial retention is the “Industrial Area Improvement Program”. This program complements those mentioned above by revitalizing basic industrial infrastructure, with an emphasis on improvements to railroad crossings, streets and alleys, and intersections. Chicago’s multifaceted industrial land use policy is truly a model for industrial retention efforts in Los Angeles.

**Portland**

Portland’s land use policy works to ensure that industrial clusters remain intact and protected from fragmentation by other uses. Through a 1990 amendment to its Comprehensive Plan, Portland proclaimed the preservation of industry as a city goal. The city has emphasized that new and existing industrial operations are highly dependent on access to major transportation facilities, customers, and supply chain partners, and that disregarding this fact threatens the health of manufacturing and other industrial operations. Portland has found, like other cities, that competing uses locating on prime industrial land can lead to lower tolerance toward industrial neighbors (due to noise, smell, etc.), increased auto traffic, and an increase in land values. Eventually, these factors can degrade an industrial corridor or cluster to the point that manufacturing or other industrial operations are forced out by these competing uses, which threatens their competitiveness in the global marketplace.

To stymie this trend, and to realize its 1990 goal, Portland established three zoning districts classified as “Industrial Sanctuary”. The aim of these sanctuary areas is to prevent potential conflicts among competing uses, and to preserve prime industrial land for industrial uses. Small retail or office operations (less than 3,000 square feet) are permitted in these areas, but those larger than 3,000 must receive conditional use approval. Moreover, over time the city has recognized that many older manufacturing structures are no longer appropriate for new industrial uses. In these cases, the city still bans large, traditional office uses, but allows commercial uses it sees as compatible with industrial uses. These include “creative service” businesses such as software/design production, video production, advertising, etc. As illustrated in this “planned retreat” approach, an important piece of Portland’s land use policies for industrial retention has been to identify areas obsolete for industrial operations, and to allow these areas to be opened for other uses. This helps mitigate claims that industrial land is underutilized and underproductive, which in turn reinforces the integrity of other protected industrial areas that remain productive. Another key component of Portland’s approach is the prohibition of residential development in protected industrial zones. An additional facet of the city’s effort is the transparency and accountability of Portland’s Comprehensive Plan (similar to the “general plan” in Californian municipalities), which is revised every five years. In cities such as Los Angeles, the Community Plan update process offers a similar opportunity to both

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60 Edds 2004
61 Edds 2004
62 The Pratt Institute Center for Community and Environmental Development 2001, 47
63 City of Portland Bureau of Planning 1999
64 City of Portland Bureau of Planning 1999
65 City of Portland Bureau of Planning 1999
66 City of Portland Bureau of Planning 1999
67 City of Portland Bureau of Planning 1999
institute protections for manufacturing land, and to ensure that changing land use patterns are accounted for.

Berkeley

The development of protected manufacturing zones in Berkeley, California is a unique case of a grassroots movement stepping in to preserve the city’s manufacturing base in the face of economic restructuring. In a location and era of attrition for manufacturing jobs, the process was halted when a “community-based economic justice coalition negotiated with local residents, developers, and city officials to institute a protected manufacturing zone”.

The effort to create a protected manufacturing zone was initially opposed by developers and real estate interests who were wary of limits on where they could buy, sell, and build. However, after about two years, this group was included in the consensus creation of the new protected zones. The underlying agreement was that every economic sector had a right to coexist in West Berkeley, including manufacturing.

The plan was guided by the idea that industry—particularly small local businesses—provided an important opportunity for those without a college degree to earn middle class wages, which was corroborated by a wage survey of employers in the district. It created six zones in the area, along the continuum from strictly residential to strictly manufacturing. Part of the intent of this gradation was the separation of use according to “environmental and economic compatibility”. To ensure that the city’s environmental goals were met, the plan disallowed new uses that would contribute to pollution, and created a monitoring and enforcement framework for existing industries. According to Vanessa Tait, “The 15-year development projections of the plan saw the addition of 420 manufacturing jobs, along with almost 300 units of affordable housing to the area”. Clearly grassroots efforts have the potential to catalyze important changes in land use policy, and should be considered a companion strategy of more top-down approaches.

Key Takeaways and Tools for Los Angeles

The above case studies exemplify the efforts of several cities to retain and build upon their manufacturing base. Many of these tools, if implemented in Los Angeles, would likely have a significant and beneficial effect on manufacturing retention. These tools summarized as follows:

- **Industrial Corridors.** Within these corridors, proposals for zoning changes should be reviewed by the Los Angeles City Planning Commission. The commission would have the power to reject proposals that weaken the stability of industry within the corridor. Additionally, industrial and community interests could be brought together in order to plan and implement improvements in each corridor.
  - **Updates to existing zoning codes and standards.** Zoning codes should be modified to reflect uses and standards that meet the needs of modern manufacturing processes, and the characteristics of Industrial Corridors.

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68 Tait 1997
69 Tait 1997
70 Tait 1997
• **Manufacturing Development Zones.** Certain crucial Industrial Corridors should be deemed Manufacturing Development Zones. Favorable tax policies, bonds, and loans should be offered to help manufacturers in these districts remain competitive, and encourage firms to remain/relocate in Los Angeles.
  o **Prohibition of competing uses.** Competing uses should be prohibited in MDZs to alleviate pressure on manufacturers. This includes a restriction, or ban, on variances granted to competing uses in areas zoned for manufacturing.
• **Incentive programs.** Façade Rebate and Industrial Area Improvement Programs can help improve industrial infrastructure and improve marketability of manufacturing areas.
• **Allow certain manufacturing operations in commercial zones.** Permitting non-noxious manufacturing activities to locate in commercial zones, provided they meet environmental performance and compatibility standards, would alleviate some of the locational pressures for manufacturers whose operations are compatible with adjacent commercial uses.
• **Planned retreat.** Identify areas obsolete for industrial operations, and to allow these areas to be opened for other uses.

**High Road Industrial Policy Recommendations**

**Designate Protected Manufacturing Zones/Manufacturing Development Zones**

Protected Manufacturing Zones, or Manufacturing Development Zones, would specifically prohibit non-compatible or competing uses, such as retail and residential, from compromising the integrity of identified manufacturing corridors in order to maintain cohesive corridors, and thus reduce the rate of attrition for prime manufacturing land. This helps ensure the stability of existing careers for those with technical/manufacturing expertise, rather than simply creating short-term construction jobs, or low-wage retail employment. It also allows manufacturing operations to better compete in the global marketplace with reduced financial pressure from competing uses and interests, such as the conversion of manufacturing land to high-end lofts. Manufacturing Development zones could be enacted on a city-by-city basis, or at the regional level through the Southern California Association of Governments.

**Create a Targeted Industrial Retention Policy for Protected/Development Zones**

An industrial retention policy that targets the protected/development corridors is an added step for promoting a vital manufacturing sector. This policy would aid companies within these zones to remain competitive in the global economy by providing tax incentives, bonds, and loans to companies to aid in the retention of manufacturing operations and jobs. Moreover, the city should modify its building codes in these protected zones to make them conducive to industrial retention without compromising safety, and should require fewer off-street parking spaces as to maximize the productivity of manufacturing land. These incentives might be tied to workforce standards such as a living wage or comprehensive benefits. Incentives can also be tied to job training programs, and perhaps require manufacturer participation in them. Like the Manufacturing Development Zones, this could be enacted on a city-by-city basis, or at the regional level.
A Manufacturing Economic Development Strategy That Utilizes Land Use Tools

The CleanTech Corridor represents the vision of a restored role for manufacturing in the City of Los Angeles. A manufacturing economic development strategy must be paired with a strategic plan. The city should integrate land use policies with financial assistance, business supportive resources, program development, and connections with other city institutions. The city should assess where its manufacturing strengths lie and use those resources to lure companies who could make use of the city’s existing manufacturing networks. In return, cities should require that investments in local businesses pay off in the form of good-paying jobs and local hire.

Build a Manufacturing Constituency

The city’s existing efforts to attract emerging industries are disconnected from larger grassroots efforts to use economic development as a tool for building a new economy. Furthermore, manufacturing business and property owners are often not involved in policy discussions or strategic efforts. A broad-based coalition is needed to bring attention to the role of industrial retention plays in creating living wage jobs. A constituency that includes labor, community members, and business leaders can help secure a political champion within City Hall.
Bibliography


Bowin, Claire interview, City Planner with the City of Los Angeles Planning Department. May 11, 2012.


City of Los Angeles. General Plan: Economic Development. [http://cityplanning.lacity.org/cwd/framwk/fwhome0.htm](http://cityplanning.lacity.org/cwd/framwk/fwhome0.htm)


Pallini, Conni interview, Senior Planner with the City of Los Angeles’ Planning Department. March 14, 2012.


Appendix

The following maps were created using 2009 Los Angeles County zoning data from the Southern California Association of Governments. The shapefile can be found at http://egis3.lacounty.gov/dataportal/index.php/2012/04/10/countywide-zoning/

The shapefile was then converted into KMZ format and imported into Google Earth. These KMZ files, which can be loaded into Google Earth on Mac or PC, are available at the Program for Environmental and Regional Equity website: http://dornsife.usc.edu/pere/home/. Clicking on a given parcel within Google Earth reveals several attributes, including Assessor ID Number, Zone Code, City General Plan Code, SCAG General Plan Code, and Area (in square feet).

For the maps in the print version of this report, we focused on the City of Los Angeles. For other areas of Los Angeles County, please download the KMZ files mentioned above. For manufacturing operations with larger space needs—such as a comprehensive rail car manufacturing center—we also identified parcels zoned for Heavy Manufacturing that were greater than 100,000 square feet, as well as parcels that are adjacent to railroad access.
Manufacturing and Land Use in Los Angeles

Figure 1: Land Zoned for Manufacturing in the North San Fernando Valley, City of Los Angeles.\textsuperscript{71,72}

\textsuperscript{71}Southern California Association of Governments 2009.
Figure 2: Land Zoned for Manufacturing in the West San Fernando Valley, City of Los Angeles

73Southern California Association of Governments 2009.
Figure 3: Land Zoned for Manufacturing in the Central San Fernando Valley, City of Los Angeles

Figure 4: Land Zoned for Manufacturing in the East San Fernando Valley, City of Los Angeles

Legend
- Blue: Parcels zoned for Light Manufacturing
- Pink: Parcels zoned for Heavy Manufacturing
- Yellow: Parcels zoned for Heavy Manufacturing >= 100k sq. ft.
- Light Blue: Parcels zoned for Heavy Manufacturing with railroad access
- Red: Parcels zoned for Heavy Manufacturing, with railroad access, >=100k sq. ft.

Figure 5: Land Zoned for Manufacturing in Atwater Village, City of Los Angeles

79 Southern California Association of Governments 2009.
Figure 6: Land Zoned for Manufacturing in West Los Angeles, City of Los Angeles.\textsuperscript{81,82}

\textsuperscript{81}Southern California Association of Governments 2009.
Figure 7: Land Zoned for Manufacturing in Hollywood, City of Los Angeles\textsuperscript{8384}

\textsuperscript{83}Southern California Association of Governments 2009.
Figure 8: Land Zoned for Manufacturing in Northeast Downtown Los Angeles, City of Los Angeles\textsuperscript{85,86}

\textsuperscript{85}Southern California Association of Governments 2009.
Figure 9: Land Zoned for Manufacturing in Central Downtown Los Angeles, City of Los Angeles.\textsuperscript{87,88}

\textsuperscript{87}Southern California Association of Governments 2009.
Figure 10: Land Zoned for Manufacturing in Southeast Downtown Los Angeles, City of Los Angeles\textsuperscript{89}90

\textsuperscript{89}Southern California Association of Governments 2009.
Manufacturing Land in South Central Los Angeles

Figure 11: Land Zoned for Manufacturing in South Central Los Angeles, City of Los Angeles

91 Southern California Association of Governments 2009.
Figure 12: Land Zoned for Manufacturing in Harbor Gateway, City of Los Angeles\textsuperscript{9394}

\textsuperscript{93}Southern California Association of Governments 2009.
Figure 13: Land Zoned for Manufacturing in Wilmington, City of Los Angeles

95 Southern California Association of Governments 2009.
Organizations and Intermediaries

Groups playing a coordinating role to upgrade and expand regional manufacturing

By G. H. Ian Elder

Abstract

There is considerable potential for manufacturing firms to become more productive through inter-firm coordination and the pooling of shared resources. Small and medium manufacturers, often unable to fully capitalize on economies of scale in training, research and development (R&D), marketing, managerial expertise, and technology, may especially benefit from collaboration or outside coordination. Such firms constitute a major subset of manufacturing in Los Angeles and in the United States.

There are three major categories of organizations which might play a useful coordinating role: government, industry, and labor unions. This chapter focuses mainly on government programs dedicated to upgrading manufacturing, and trade associations. Manufacturing Extension Partnerships and the National Machining and Tooling Association are highlighted as especially promising organizations.

Yet such organizations need not stop at working to improve manufacturing competitiveness. Manufacturing Extension Partnerships in particular are well positioned to add growth and retention research, planning, and policy to their activities. Policy organizations interested in developing the regional manufacturing sector should partner with appropriate intermediaries, and explicitly encourage the adoption of industrial retention and growth as an objective, in addition to productivity growth.
Introduction

Perhaps the most obvious way to strengthen manufacturing in Los Angeles is to find ways to make the regional sector more productive and more competitive vis-à-vis other manufacturing regions. This is more easily said than done, but there are several possible strategies to consider. In addition to improving the regulatory environment and trade regime—strategies which are beyond the scope of the section—there are numerous forms of collective action that can improve the productivity of the sector by addressing market failures. Dense urban regions in particular provide localized benefits, which shared or collective organizations can harness to the sector’s advantage.

The purpose of this section is to investigate the work of these organizations and consider how their approach could relate to an intensified strategy of manufacturing upgrading in Los Angeles. First, I will discuss in theory how outside organizations, including governmental agencies, could potentially contribute to manufacturing productivity and competitiveness. Agglomeration theory and cluster theory in particular provide strong theoretical justifications for intervention by organizations. Then, I will describe what work these groups are actually doing. Many of them have been in the business for quite a while, and considerable work is already taking place. Yet, there is also room for improvement. Therefore, I will also consider how these organizations could increase their effect on productivity.

Research Questions:

To better understand the roles of these organizations and identify opportunities for collaboration, this chapter explores the following three research questions:

1. Excluding basic functions of government, what collective needs of manufacturers could be addressed through collaboration with other organizations? To what extent does addressing these needs actually improve competitiveness for the typical manufacturer?

2. What organizations contribute to action that fosters competitiveness, by addressing the collective needs of manufacturers? Where did these organizations come from—or, alternatively, how did they get in the business of assisting manufacturing? What do they do? How effective are they?

3. How could the work of these organizations be improved or increased?

Methodology

I will begin by addressing the first question theoretically: what are the foreseeable needs of manufacturers which individual companies are unlikely to be able to meet on their own? Approaching the question from another angle, how might government and third-party interventions improve the competitiveness of Los Angeles manufacturers? After identifying the major needs and potential interventions, I will investigate organizations that currently seek to address those needs, beginning with internet, scholarly, and trade research.

Two kinds of qualitative data will then be necessary. First, I will interview representatives from these organizations in order to better understand their approach and begin to develop ideas about how their work could be improved or expanded. Second, business interviews will be necessary in order to determine the extent to which the theorized needs are actually present in the minds of small to medium sized manufacturing firms. If manufacturers do not perceive these needs to be pressing, manufacturers will be
encouraged to consider how assistance in these areas could improve their competitiveness in previously unforeseen ways. Then, it is important to question manufacturers on their past and current interactions with these organizations. This will help to determine both the relevance of these organizations to typical manufacturers, and to assess the benefit to manufacturers. This information will ultimately aid in critiquing the efforts of these organizations, and in considering possible improvements to or expansions of their work.

Theory

Two theories of regional economics suggest a significant role for organizations in helping manufacturers to improve their productivity and competitiveness. These are agglomeration theory and cluster theory.

Agglomeration theory originated as an explanation for the existence of cities in capitalist societies. It seeks to answer the fundamental question: why do people and economic activities locate together geographically? This is a relevant question to the competitiveness of a region’s manufacturing sector, because if manufacturers are benefiting from being located in an urban area like Los Angeles—which in some ways they clearly are—then there are probably some identifiable mechanisms driving those benefits. And if we can identify and target those mechanisms, we can potentially further improve the productivity of local manufacturing, and deepen their ties to the region.

Empirically, there is strong evidence for agglomeration economies in manufacturing, and that location within an urban area significantly increases productivity.¹ The question is whether those advantages can be leveraged further.

Agglomeration theory argues that many businesses experience external economies of scale. That is, the presence of multiple firms can help other firms by lowering costs or improving access to shared resources or infrastructure.² Shared resources include the following:

- Labor pool
- Supplier networks
- Educational and training systems
- Research and development institutions
- Knowledge spillovers
- Favorable land use and regulatory regimes
- Transportation and utility infrastructure

All of these shared factors arise “naturally” at some level through the process of capitalist development. Indeed, they are why urban areas develop in the first place. Neither the market nor the American political economy operates perfectly, however, and there may be considerable room for improvement in several of these factors.

Some of them fall short of their socially optimal provision because their benefits are partially external to each firm. As a result, firms do not reap the full benefit of their investments. For instance, firms cannot capture the full benefits of worker training because workers change jobs. Workers cannot capture those full benefits either, because of uncertainty about the job market. Worker training can also operate as a form of social service. Therefore, it makes economic sense for governments to at least subsidize training in many cases. Similarly, transportation provides benefits to broad swaths of the population and economy, and it is frequently difficult or impossible to make users pay based on their usage.

Other factors may fall short due to a simple lack of coordination. For example, manufacturing a complex final durable good requires inputs and services from a great number of firms. Tier 1 coordination may be the responsibility of the lead firm, but this does not necessarily help with Tiers 2 and 3. Small and medium manufacturers may find it difficult find appropriate production partners without assistance from some collective or outside organization.

Each of the above shared factors has its own types of possible policy interventions. However, instead of theoretically exploring each conceivable type of intervention here, I will discuss each actual program in terms of its theoretical justification in the appropriate subsection.

A final source of agglomeration economies is the home market effect, introduced as a source of agglomeration by Paul Krugman. The home market effect is the fact that under free trade, high transportation costs, and increasing returns, the region with greatest demand for a good—all else being equal—is the one most likely to produce and export it. Home market effects are important to pay attention to for at least two reasons. First, they are significant for manufacturing because manufacturers are major buyers of each other’s goods and services. Changes in demand in one part of the supply chain are likely to have large effects on the rest of the sector. Second, home market effects suggest that regional procurement policies can push the regional industry towards becoming net exporters. It may well be the case that the Los Angeles railcar industry is too small for local procurement to push the industry into exporting; but local procurement would nonetheless lay a finger on the scales.

Cluster theory is a similar idea to agglomeration, but instead of focusing on the sources of external economies of scale, it considers the phenomenon of specialized sets of interconnected firms, known as clusters. Although the theory has numerous theoretical limitations and is not thoroughly formulated, it has strong intuitive appeal.

For instance, the theory depends on the notion of regional specialization. It is questionable how useful this concept is. Regional specialization would be the next step in the progression of scales in the division of labor, from technical, to social, to spatial. That is, at the factory level, productivity increases dramatically when workers specialize in a particular part of the production process (technical division of labor). Further increases may accrue when firms specialize their role by contracting parts of the process to other companies (social division of labor). Are there further productivity gains to be found when regional industries specialize

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(spatial division of labor)? And are knowledge spillovers enhanced or reduced in specialized regions?\textsuperscript{6} These questions are still under debate.

Regardless of the solidity of its theoretical underpinnings, however, cluster policy offers some useful ideas. First, Michael Porter’s formulation of cluster policy reemphasized a focus on sectors and clusters as opposed to individual companies.\textsuperscript{7} More significantly, Porter’s work has increased policy focus on the interconnectedness of firms in a cluster—the most important lesson of cluster theory for this section.\textsuperscript{8} Next, Porter emphasized innovation as a source of growth and development for the cluster. Finally, even if the cultivation of specialized regions is theoretically dubious, perhaps an emphasis on specialization might reinforce the use of intervention techniques that are carefully tailored to actual industry needs.

Porter, the most prominent proponent of cluster policy, emphasizes three critical conditions—or sources of competitive advantage—of a cluster: input conditions, demand conditions, and networks of related industries.\textsuperscript{9} His discussions of input conditions and demand conditions are not terribly different from the ideas of agglomeration theory, except in their emphasis on specialization and innovation. As mentioned above, emphasizing specialization is questionable per se but may promote more thoughtful interventions. In order to promote innovation, Porter emphasizes maintaining inter-firm competition within the cluster, facilitating research collaborations, and government acting as a sophisticated buyer in procurement.\textsuperscript{10}

The idea of cultivating supplier networks is an important one. Porter mentions sponsoring forums for companies to collaborate, attracting key suppliers from other locations, and establishing specialized free-trade zones or industrial parks.\textsuperscript{11} Interestingly, he neglects to mention the possibility of using industrial policy to strengthen weak threads in the web of suppliers. It seems as if in his determination to differentiate cluster policy from industrial policy, he has ignored one of the most obvious applications of the latter to the former.

As with agglomeration theory, I will not discuss possible interventions further in this theoretical section. Rather, I will consider the theoretical implications of initiatives by specific organizations and programs.

Before moving on to discuss programs and organizations, a final warning about cluster policy may be in order. Cluster policy is intended to help existing clusters upgrade to become more productive and competitive. It is not a tool for helping to create a new cluster. This is not to say that creating a cluster could never be done, but it would require an intense cluster-minded industrial policy. The inspirational case for American cluster policy advocates is Silicon Valley, which managed to snatch the information technology industry from Boston. This cluster has been enormously and famously successful, and cluster policy might in fact take some credit for maintaining it as long as it has. But most of the birth and development of the cluster was accidental; a “natural” result of capitalism’s creative destruction.

\textsuperscript{6} Leppälä and Desrochers, “The division of labor need not imply regional specialization,” 144.
\textsuperscript{8} Motoyama, “What was new about the cluster theory? What could it answer and what could it not answer?” 356.
\textsuperscript{10} Ibid, 28.
\textsuperscript{11} Ibid, 28.
Organizations and Intermediaries

Government

Government plays a massive role in establishing an environment in which business can flourish. Not every one of its roles is relevant to this discussion. This section is particularly focused on organizations that can address market failures that may plague manufacturing in particular.

Training Programs

Labor markets are probably the greatest source of external economies. This suggests that the development of a skilled labor force should be one of the main areas for collaborative or governmental action. Training programs are also popular because of their broad political acceptability. Training is most useful when programs provide actual skills that employers need and that lead to a job; hence training led by labor unions and trade associations may be the most promising. Ideally, programs not only upgrade workers’ skills, but facilitate employment matching, connecting workers to good jobs, and manufacturers to needed capabilities.

Figure 1 Michael Porter’s (2000) Depiction of the California Wine Cluster. The diagram eloquently portrays the interconnectedness of farms, processing facilities, educational facilities, government, and other industries.
As Gordon Lafer (2002) and others have argued, most training programs by themselves are grossly inadequate as a solution to poverty. Less studied but more relevant to this study is the question of how effectively they make appropriately skilled workers available to manufacturers on a regional basis.

Chapter 6 is devoted to a discussion of training programs.

Research and Upgrading Programs

Manufacturing Extension Partnership

The Manufacturing Extension Partnership (MEP) represents one of the two most explicit federal policies to improve the competitiveness of American manufacturing (the other being Trade Adjustment Assistance for Firms). It was established by Congress in 1988 to facilitate technology adoption by small and medium manufacturers in the U.S. MEP Centers are run by local nonprofit organizations in partnership with the Hollings Manufacturing Extension Partnership, a program under the National Institute of Standards and Technology, which in turn is an agency of the U.S. Department of Commerce (see organization chart below).

For example, the MEP Center for Southern California is called California Manufacturing Technology Consulting (CMTC). It is a private non-profit company that operates in agreement with the Hollings MEP. It is located in Torrance, California.

MEP Centers offer consulting services to manufacturing firms. These services are partially funded by fees paid by the firms themselves. There are three broad categories of service provided by MEP Centers: assessment services, quality management assistance, and business management assistance.

Assessment services provide technical advice on upgrading or expanding. The MEP Center works collaboratively with the firm to develop a strategy for making the firm more productive or competitive. Technology services entail the implementation of upgrading improvements. These improvements mostly consist of energy management, lean manufacturing practices, and quality management. Energy management refers to the reduction of energy consumption. Lean manufacturing is a set of practices that reduce “waste in human effort, inventory, time to market and manufacturing space to become highly responsive to customer demand while producing world-class quality products in the most efficient and economical manner.” Lean manufacturing leads to significant productivity increases, and is the practice to which Japanese success in automobile manufacturing is attributed.

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15 Ibid.
Quality management refers to practices that allow manufacturers to attain consistently high standards of performance. Improvements in quality management can enable manufacturers to attain quality and performance certifications, such as the AS9100, which enable the manufacturer to produce for clients with high performance standards. MEP Centers assist manufacturers in attaining quality certifications.

Business management consulting refers to business assistance projects including marketing, financing, and business strategies, including assistance with exporting strategies.

Organization

Under federal guidelines, any nonprofit can become an MEP by applying to the Hollings MEP and demonstrating that it has a plan and the capacity to provide manufacturing technology consulting in line with Federal guidelines.

To apply, a nonprofit must submit a proposal with a description of their organization, a plan to meet MEP goals, and qualifications for running an MEP, including the following: government and industry linkages, a plan to fund at least 50% of operations, a plan for the allocation of Intellectual Property (IP) rights for technology emerging from the MEP, a statement to agree to focus on technology transfer and not exclude out-of-state customers, and a commitment to MEP goals.

Proposals are evaluated on the basis of the following:

- Identification of target firms in proposed region, including a market analysis, geographical location
- Technology resources

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16 For examples, see Client Success Stories on MEP’s website at http://www.nist.gov/mep/.
• Technology delivery mechanisms, including linkages with industry, universities, nonprofits; and program leverage, and
• Management plan.

Hollings MEP gives priority to nonprofits that significantly contribute to the geographic coverage of the MEP system.\textsuperscript{18} According to NIST regulations, each of the above four categories is accorded equal weight, so location should account for a maximum of 25\% of the total deciding factors. However, it is uncertain how NIST considers this factor in practice. Proposed MEPs in close proximity to existing centers may be at a considerable disadvantage. Thus, CMTC’s extensive geographical coverage (described below) could present a barrier to another MEP starting in the Los Angeles metropolitan area.

Initial Federal funding starts at one half of its MEP-related budget, which decreases over the course of six years to one third. After six years of operation, MEPs may continue to receive Federal funding for up to one third of their budget, depending on satisfactory biennial reviews and continued Congressional funding.\textsuperscript{19} Other potential sources of funding include fees for consulting services, state or local contributions, foundations, or industrial sources. Consulting fees are by far the most common source of funding.

\textit{Initiatives}

The Federal program, Hollings MEP has developed extensive initiatives in partnership with other organizations and government agencies to increase the range of services it offers. These partnerships seek either to exploit opportunities in manufacturing, or to promote other public policy goals. Relevant partnerships include:

• Next Generation Rail Supply Chain (Department of Transportation and MEP)
• Clean Energy Manufacturing Center (BlueGreen Alliance Foundation and MEP)
• Green Suppliers Network (EPA and MEP; component of E3 Initiative).

\textit{Next Generation Rail Supply Chain}\textsuperscript{20} is a collaborative program between the U.S. Department of Transportation (DOT) and MEP. According to MEP’s website, the initiative’s goal is to connect “rail OEMs [Original Equipment Manufacturers] and manufacturers interested in becoming suppliers to support of intermodal transportation in the U.S.” As of March 2012, the program is quite new: its first component was a website with links to a railcar Request for Proposals (RFP) along with detailed railcar and locomotive specifications and contact information for railcar OEMs. In December 2011, it hosted a webinar on rail manufacturing.

Most recently, the program hosted two forums intended to bring together rail OEMs with suppliers: one in Sacramento on 8 February 2012, the other in Chicago on 14 February 2012. CMTC (Southern California MEP) and MANEX (Northern California MEP) hosted the Sacramento forum, which was attended by over 200 manufacturers, suppliers, OEMs, and other organizations.

It is uncertain what the program’s next steps might be, but it appears to intend to continue to help connect OEMs to suppliers and enable MEP Centers to assist manufacturers become rail suppliers.

\textsuperscript{19} Ibid.
The Clean Energy Manufacturing Center\textsuperscript{21} is a project of the BlueGreen Alliance Foundation. It is thus an independent project, but it works closely with MEP to train MEP staff to work with wind and solar energy manufacturers and suppliers (currently training account managers in the Illinois, Indiana, Montana and West Virginia MEP Centers); provide technical assessment of manufacturers to identify and qualify potential wind energy suppliers; hold at least nine regional supply chain workshops; and issue surveys and reports of regional wind energy suppliers.

The Green Suppliers Network (GSN)\textsuperscript{22} is a joint project between the U.S. EPA and MEP. It is also part of the E3 Initiative, a broader collaboration between the EPA, Department of Labor (DoL), Department of Commerce (DoC), Department of Energy (DoE), and the Small Business Administration (SBA) to promote the triple bottom line (economic considerations, social responsibility, and the environment) in U.S. manufacturing.

The GSN provides assessment reviews through regional MEP Centers to help manufacturers reduce their waste and environmental footprint. They also provide on-site training and consultation on integrating into green supply chains and the green marketplace.

MEPs do not necessarily have to participate in federal initiatives, but doing so can improve their ability to serve their clients, and bolster their case for continued federal financing.

\textit{California Manufacturing Technology Consulting}

California Manufacturing Technology Consulting (CMTC, Southern California’s MEP Center) in Torrance is an extremely active MEP. In 2011, CMTC served a total of 698 manufacturing companies, with 323 in Los Angeles County alone.\textsuperscript{23} It is highly responsive to federal initiatives, implements an advanced strategy for broad regional coverage, and proactively takes on new fields in its consulting. It may therefore be an adaptable partner in promoting regional manufacturing retention and growth.

Aside from submitting to biennial reviews to ensure compliance with Federal program goals, the other means by which local MEPs interact with the Federal program is to take on Federal initiatives. CMTC has been quick to take advantage of the opportunities provided by these initiatives. For instance, CMTC co-hosted the first Next Generation Rail Forum with the Northern California MEP. They also encouraged several Southern California firms specifically to participate.\textsuperscript{24} According to Ellen McKewen, CMTC’s marketing director, the non-profit promoted the event particularly among aerospace suppliers who had the capacity to produce for rail, and who might be seeking to diversify their customer base. The MEP’s case studies also testify that they are active in providing Green Supplier Network consulting services.

CMTC receives one third of its funding from NIST. The rest of the funding derives mostly from consulting fees, as it does not receive any state funding.\textsuperscript{25} The non-profit also recently expanded the non-MEP component of its work to include defense and healthcare consulting. Because these activities do not fit within the Federal MEP framework, they are fully funded though user fees.


\textsuperscript{24} Ellen McKewen, telephone interview with author, 23 June 2012.

\textsuperscript{25} Ibid.
Although CMTC has only one office, they have been able to extend their geographic reach considerably through the use of dispersed, telecommuting teams throughout Southern California. CMTC recruits mainly though its website, email marketing, and through events.

CMTC has developed a large number of partnerships among trade associations, community colleges, economic development agencies, and workforce investment boards (WIBs). More research is needed to understand the exact relationship between this organizations and the MEP. Figure 3 below lists the non-profit’s main collaborators.

Assessing MEPs

The original intent of the MEP legislation was to improve manufacturing productivity through technological transfer among small and medium manufacturing firms. There are two primary comments to be made here. First, advanced technological transfer does not appear to be a major component of most MEPs, including CMTC.26 Consulting on business strategies and lean and green manufacturing practices are the main stock in trade at the MEP. These are valuable, but do not fully realize the original vision of the program, which was to enable Manufacturers to take advantage of state-of-the-art manufacturing technology. The original legislation, for instance, suggested that MEPs should keep advanced equipment in reserve for loan to small companies. It also encourages the MEP to incorporate technology from National Laboratories in their consulting. CMTC engages in neither of these activities. The first idea sounds impractical perhaps even to a layperson, but more research needs to be done to ascertain why MEPs may be unable to benefit from research produced by National Laboratories.

Regardless, MEPs appear to be highly successful in improving manufacturing productivity. Natalie Davila’s (2004) evaluative study of MEP found that participants reported high satisfaction with their MEP services. These ratings were significantly higher nine months after implementation, suggesting that satisfaction rose after manufacturers witnessed the results of the consulting (Davila 2004, 293). The study also demonstrated that the MEP program both contributed to economic growth, and provided net fiscal benefits for states (ibid).

Second, while it is of obvious benefit to the American economy in general, and the manufacturing sector in particular, to assist manufacturers in becoming more productive, the goal of productivity is not identical to the goal of regional manufacturing retention and growth.

Of course, improving productivity is a major factor in retaining and growing the sector, since productivity is closely related to competitiveness. And MEPs encourage growth explicitly in some ways: by providing business assistance for exportation and by helping to coordinate supply chains in procurement. MEP has been directed to investigate Buy America domestic production waiver requests, on the basis of whether a domestic supplier can be found. Chapter 8 in this report, which discusses procurement policy, provides greater detail on MEP’s role in enforcing Buy America compliance. Finally, initiatives such as the Clean Energy Manufacturing Center seek to connect suppliers to areas of growth in manufacturing. All of these efforts should contribute to the development of the manufacturing sector.

26 Ellen McKewen.
The obvious missing link is in policy coordination oriented towards growth and retention. In most places, MEPs are the premier organization dedicated to upgrading the manufacturing sector. They interact closely with manufacturers and are supported partially by the government. They are, therefore, in a unique position to collect data and provide crucial manufacturing policy and planning information to states and localities.

Providing research and community-based planning is probably not within the competency of most MEPs, but these competencies could be easily developed. As mostly independent nonprofits, there is nothing preventing individual MEPs from taking on such activities. There are at least two possible strategies to encourage this. First, states or localities could provide funding for MEPs, dependent on the MEP’s incorporation of manufacturing retention and growth research and planning into their activities. Second, policy organizations interested in planning should seek to collaborate with MEPs in order to share resources.

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and promote shared goals. MEPs are likely to be receptive to efforts to promote regional growth, if they are provided with the resources or expertise to do so.

More research is necessary to ascertain what challenges MEP faces and where improvements or policy changes are needed. Interviews with manufacturers should attempt to determine how they view MEP services and how they make the decision whether or not to seek MEP consulting services.

**Trade Adjustment Assistance for Firms**

*Trade Adjustment Assistance for Firms* (TAA for Firms)\(^{28}\) is a program of the Department of Commerce, Economic Development Administration (EDA) (see organization chart above) that provides matching funds to import-impacted manufacturers to upgrade and improve their competitiveness. The funds can be used to pay consultants, engineers, designers, or industry experts for projects including technology, assessment, quality management, or marketing. The kinds of projects funded are highly comparable with those provided by MEP, though they may include more advanced technological consulting. They cannot be used for capital investment. The maximum TAA contribution is $75,000.

TAA for Firms operates nationally through eleven regional non-profits. Los Angeles lies within the Western region, which is covered by the Western TAAC in the Western Research Application Center at the University of Southern California Viterbi School of Engineering.

TAA for Firms is a component of Trade Adjustment Assistance (TAA), which also includes TAA for Workers under the Department of Labor (DoL) for competition-impacted workers, and TAA for Farmers under the Department of Agriculture (DoA) for competition-impacted farmers.

**U.S. Small Business Administration**

The *U.S. Small Business Administration* (SBA)\(^{29}\) is an executive agency that provides services to small businesses. Small businesses standards for manufacturing depend on the number of employees, which ranges from 500 to 1000 for most kinds of manufacturing, depending on the sector.\(^{30}\) Their main programs are lending services and businesses counseling services.

SBA does not lend directly to businesses, but helps businesses secure loans with good terms by providing loan guarantees.

SBA works with businesses through District Offices. The Los Angeles District Office covers Los Angeles, Ventura, and Santa Barbara Counties. It administers lending programs, and coordinates technical assistance through local SCORE offices, Women Business Centers, and Small Business Development Centers.

SCORE offices match volunteer business counselors to aspiring entrepreneurs and business owners. Small Business Development Centers are partnerships between SBA and colleges or universities that provide educational services for aspiring entrepreneurs and small business owners.

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U.S. Small Business Innovation Research

U.S. Small Business Innovation Research (SBIR)\(^{31}\) programs provide grant money to support R&D for small businesses, emphasizing manufacturing in particular. The program is administered by the SBA. Every federal agency with R&D budgets exceeding $100 million must make 2.5% of their funding available to small businesses through SBIR. The agencies post topics that address their research priorities, and make awards to small businesses through a competitive grant process. Figure 4 below provides a schematic of SBIR’s award process.

While these grants seem to contribute significantly to American innovation, it is unclear how useful the program is to most manufacturers. The main reason for doubt is that these grants are awarded on the basis of being able to engineer solutions to specific technical problems posed by the administering agencies. Therefore, they are not likely to be available to most small or medium businesses. On the other hand, to the extent that these solutions provide benefits to a wide variety of businesses, they are useful in providing important technology improvements.

The Department of Transportation’s SBIR program frequently posts research topics relevant to the development of transit projects. Hence this program could be useful to small and medium businesses well positioned to take advantage of research opportunities.

Los Angeles City Office of Small Business

The Los Angeles City Office of Small Business\(^{32}\) provides free business consulting to entrepreneurs and small businesses with the city. It administers this program through six BusinessSource centers in the City of Los Angeles. These centers provide one-on-one consulting and technical assistance on the following topics:

- Small business financing
- Workforce development
- Business plan development
- Tax incentives and credits

They also provide business courses to aspiring entrepreneurs and small business owners. Finally, the office attempts to assist business owners in navigating city regulations, and works with other agencies to help them incorporate an attention to small business needs into their work.

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Trade Associations

Manufacturing trade associations play a major role in coordinating networks of manufacturers. Trade associations are usually, but not always, sector-focused. They are best known for their lobbying activities, but many trade associations also undertake considerable economic development activities.33

The following types of economic development activities are common among manufacturing trade associations:

- Supplier matching services and events
- Workforce development and training
- Research
- Shared resources (e.g. business insurance)

These activities cover the main sources of competitive advantage. Therefore, full-service trade associations are excellent agents for implementing sector-focused upgrading. Trade associations have other strengths as well. First of all, manufacturers know their needs best. If any group is qualified to develop industry initiatives on the basis of their usefulness to manufacturing firms, it is the firms themselves. Second, as private organizations, they do not require public funds. Third, these organizations allow firms to elect whether to join or not, depending on how useful the firm deems membership. Firms that join are more likely to be amenable to collaboration, making trade associations strong potential partners in upgrading efforts.

Trade associations also have some potential drawbacks. The main difficulty of trade associations is that their policy advocacy is often anti-progressive. The most common conservative policy positions for trade associations are anti-unionism and anti-environmental regulation. For example, the National Association of

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Manufacturers (NAM) takes credit for helping to defeat the Employee Free Choice Act in Congress. On the other hand, their advocacy on environmental regulations may be partially beneficial, since environmental regulators are unlikely to adequately consider the needs of manufacturers. If their advocacy on environmental issues is nuanced and highly relevant to manufacturers, it may play an important role in protecting manufacturers from well-meaning but highly damaging regulations.

Another possible shortcoming with trade associations is that many of them have a narrow sectoral focus, which may not fully cover certain industries or clusters. Even if associations are open to businesses in other sectors, cluster firms in other sectors may not identify with the association’s sector as a whole, and thus refrain from participation. Therefore there may be an added need for other organizations to help coordinate firms within the cluster or industry. This could take the form of additional industry or cluster groups or organizations, or partnerships between relevant trade associations.

The National Association of Manufacturers (NAM), located in Washington, D.C., is mainly a lobbying association for manufacturers. Their website is mostly dedicated to outlining detailed policy positions on issues including labor and employment, energy and climate, health care, infrastructure, tax and corporate finance, technology, and trade. They are historically and vehemently anti-union.

The National Tooling and Machining Association (NTMA), headquartered in Independence, Ohio, is a full-service trade association for small and medium business engaged in precision custom manufacturing. Over 50 local chapters in the United States administer its programs. Its activities include:

- Business development; including supplier matching and networking activities
- Workforce development and training programs
- Online education and knowledge sharing on standards and best practices
- Foundation for manufacturing education
- Shared resources, including discount programs and business insurance
- Policy advocacy

The Los Angeles Chapter of the NTMA, LA-NTMA, has over 140 members, making it the largest chapter of the NTMA. It defines precision custom manufacturing to include precision machining and grinding, precision fabricating and welding, die building and production, mold building and production, special tooling and production, and special machine building and production. It is located in San Clemente and operates training centers in Norwalk, Santa Fe Springs, and Ontario.

The Los Angeles Chapter is the only one to operate training centers. These centers are equipped with full machine shops. LA-NTMA offers an intensive 720 hour machinist training course, and a number of 144 hour advanced courses on CNC machining, advanced CNC machining, Mastercam, Advanced Mastercam, and

39 Brenda Baker, telephone interview with author, 2 May 2012.
Inspection. These centers advertise extensively, through television, their website, and connections with regional high schools. The Chapter also helps connect trainees with job opportunism with member firms.

The trade association’s website has a members’ directory, and a member search by firm capability to facilitate supplier matching. Most networking with suppliers, however, takes place through informal connections, which the group fosters through monthly seminars, roundtables, and social events, including golf tournaments.

According to Brenda Baker, the Executive Director, the association is highly member-driven. All of its Board of Directors and most of its Officers are affiliated with a member manufacturing firm. Ninety percent of its members are precision manufacturers, mostly having under 50 employees. The other ten percent are associate members interested in providing services to the main membership.

The Chapter recently started a health insurance program, which members can choose to buy into to provide insurance to anyone in their company who receives benefits. Members of the chapter join through the National Association, so they automatically have access to the extensive resources available to National members.

The LA-NTMA is a particularly large and involved example of a regional trade association, and may therefore be a strong partner in the development of a regional industrial policy. The list of trade associations detailed here barely scratches the surface of relevant organizations, however. Policy makers interested in collaborating with industry should seek out partnerships with a variety of manufacturing associations. Figure 3 above, which lists the industry partners of California Manufacturing Technology Consulting (Southern California’s MEP), provides a good short list of trade associations to consult. Additional trade associations of interest are the:

- Precision Metalforming Association
- California Metals Coalition
- National Railroad Construction and Maintenance Association, and
- National Center for Manufacturing Sciences.

Future Research

Going forward, qualitative data from manufacturers will be crucial to determining how best to work with these organizations. Research is needed on how relevant manufacturers consider these organizations to be, why manufacturers may or may not take advantage of their services, and what gaps exist in providing for collective resources and coordination.

This section did not explore the considerable potential for labor unions to improve manufacturing competitiveness. Chapter 7 on Labor Unions begins this discussion, but more research is necessary. Contrary to popular belief or political rhetoric, unions can and should play a crucial role in retaining and growing manufacturing in the United States. This chapter also did not include a discussion of university-manufacturing partnerships, which are relevant to some of the most innovative subsectors of manufacturing. And, a deeper

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40 Brenda Baker.  
41 Ibid.  
42 Ibid.
exploration of government programs providing business assistance is necessary, to determine how competent they are at providing business consulting to manufacturing firms.

Finally, an extensive survey of trade associations may prove valuable to future efforts to develop a well-designed industrial policy.
Bibliography

Interview Subjects

- Ellen McKewen, Marketing Director at CMTC
- Brenda Baker, Executive Director at Los Angeles Chapter of the NTMA

Books, Academic Articles and Policy Reports


Rutherford, Tod D. and John Holmes. 2007. “‘We Simply Have to Do that Stuff for our Survival’: Labor, Firm Innovation and Cluster Governance in the Canadian Automotive Parts Industry.” *Antipode* 39, 1: 194-221.
Employment Training System in Los Angeles
Does it Support Manufacturing?
By Antonio Sanchez

Abstract

While employment training is important in every occupation, it is especially important in manufacturing because many occupations within it require technical training that can only be gained through specific and localized employment training. Employment training plays a critical role in helping employers find new employees, as well as retrain existing ones to better face technological changes within manufacturing sectors. As the education system in California continues to be defunded and as the cost of higher education continues to rise, accessible and effective employment training is desperately needed in order for manufactures to have a qualified workforce.

Politicians and policy makers in Los Angeles all want to nurture local manufacturing sectors, but good intentions are not enough. It is imperative that government (Workforce Investment Boards, California Employment Training Panel, and the Los Angeles Community College District), unions, and business collaborate to fill the manufacturing employment training gap in Los Angeles, not just pay it lip service.

This section focuses on the role of governments and unions and how they fit into employment training within the Los Angeles manufacturing sectors. It also connects the role of workforce investment boards and Information was gathered by interviewing government employees and one elected official.
The Need for Well Funded Higher Education

Gone are the days when our tertiary education and employment training system were well funded, resulting in a quality education and quality employment training that was within reach of the average high school graduate. This structural problem begins with the state government and includes our education system as a whole, from preschool to higher education. The fact is the California public education system is not arming students with the necessary job skills to enter the workforce, causing many to be ill prepared to gain employment. The defunding of the education system has a ripple effect that not only does a disservice to students, it’s hurting our local. Employers, especially manufacturers, need employees with job skills that are no being taught anymore.

According to the Quality Counts 2012 Report, when compared to other states, California is 47th in per pupil spending. Furthermore, the Report gives California a “C” for the student success and the quality of the teaching profession. Students in California do not receive the support they once did and teachers are overworked and under paid. I interviewed a high school teacher that reported having to mop and sweep his classroom because the custodial staff was reduced to five people and those five people did have the time. After his broom and dustpan were stolen, he was forced to replace them in order to keep a clean classroom.

Nearly thirty years ago, California’s public universities accounted for 18 percent of the general budget. Today our public universities make up about ten percent of the state’s general budget. This means many students are forced to attend public universities and community colleges that are overcrowded and offer limited access to under-funded courses and vocational training programs. The California education system is in a poor state and effective employment training is needed now more than ever.

Higher education and employment training important to manufacturing sectors in Southern California because manufactures need highly trained employees, or at least employees with minimal machine shop skills to survive, grow, and succeed. Experts agree that employment training benefits employers by ensuring they have knowledgeable, capable, and productive employees, resulting in desired products, reduced labor turnover, professional service, innovation, and higher productivity. In turn, employment training benefits trainees by making them more employable, increasing their earning potential, and making the work environment more pleasant – all resulting in a higher quality of life and more stable employment.

Employment training has the potential to positively affect everyone’s lives, not just the employee but it depends on who is involved in its implementation. Employment training programs must consist of partnerships that include three key players - government, business, and labor – especially in manufacturing sectors. Involving government, business, and labor produces employment training that is sensitive to the needs of the employer and the employee. It is also important to include the appropriate government

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2 Antonio Sanchez personal interview with Oscar Mesta, April 24, 2012.
4 Ibid.
6 Ibid.
7 Ibid.
agencies because many have the power to subsidize the training. If one or two of the key players are involved in the decision making of an employment training program, or if everyone isn’t fully invested in the program, the result will be inadequate training, loss in available training funds, and little or no connection to employment.

But involving the three key players means changing the manner of which business is done. Traditional roles must be broken and redefined. For example, training programs are not considered the “bread and butter” of unions, but unions must be included in the development of employment training programs. Also, business owners must allow for unions to be equal decision making partners and include them in the formation of a employment training program.

The Role of Workforce Investment Boards

Established and funded by the Workforce Investment Act of 1998, Workforce Investment Boards (WIBs) are the entities the federal government uses to fund employment training in every community in the United States. By law, over fifty percent of the WIB membership must be appointed from the private or business sector. This guarantees that the private sector, not labor unions, hold a majority in decision making of the employment training strategy in all communities in the United States. In turn, this majority requirement ensures that all WIBs are not controlled by unions. In practice, the local WiBS are more progressive than others because their appointing authorities tend to be more progressive and union friendly.

Seven WIBs serve Los Angeles County including the Los Angeles County WIB, Los Angeles City WIB, Foothill WIB, South Bay WIB, South Los Angeles County WIB, Verdugo WIB (Verdugo Jobs Center) and Long Beach WIB (Pacific Gateway). The Los Angeles City WIB and the Los Angeles County WIBs are considered the most relevant because they both have an annual budget of about 50 million dollars (City of Los Angeles WIB Annual Report 2012, Los Angeles County Budget Report FY11-12). In addition, the Los Angeles City WIB is in the limelight most often because it services the second largest city in the country and has an active press relations department.

Based on direct observation and contact, the staffs of the local WIBs know of each other, but do not communicate or collaborate on a regular basis. This can be troublesome for the service they provide and the clients they serve. In terms of gathering information about specific employment training programs, the websites are not very helpful and do not list specific training programs. Furthermore, the toll free numbers are usually answered by an automated message, not a live person. This made researching this topic very frustrating; one can only imagine how the WIB clientele must feel. It seems like the goal of every WIB is to get people to walk into their offices. Few responses were granted to several email and telephonic inquiries directed at them. Maybe the wrong questions were being asked because various WIB employees that were

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10 Ibid.


12 Antonio Sanchez email message and phone calls to each of the 7 local WIBs, March 5, 2012.
contacted had trouble providing the information that was requested. This leads one to believe that progress reports of the programs implemented by the WIBs are not regularly written, are not made public, or the programming is far removed from the WIB and administered by a non-profit or other agency.

Out of the seven, the Los Angeles City WIB was the most transparent and its staff was the most helpful to inquires about their work.

The Los Angeles City WIB is primarily funded by Workforce Investment Act formula money received from the Federal government, but also includes funding from the Department of Labor, Community Development Block Grant, Energy Efficiency and Conservation Block Grant, and a donation of $150,000 from Wells Fargo. The large donation by Wells Fargo funds an employment training program that prepares enrollees to be bank tellers. The Los Angeles City WIB budget does not include any money donated by a manufacturer. This is important to highlight because one can assume manufacturers are not engaged at the same level as Wells Fargo is.

By observation, employment training in manufacturing is considered a priority by the Los Angeles City WIB but not heavily funded. This is made clear by simply reading a recent report released by the City of Los Angeles WIB. The report highlights that “Los Angeles is the number one manufacturing center in the U.S.,” but not one page, graph, or success story directly mentions manufacturing. Furthermore, on January 25, 2012, the WIB recommended to fund the “Sector Initiative Program,” granting $3.2 million for employment training programs that target eight different sectors including construction, entertainment, financial, green/solar, health care, hospitality, security, and transportation. Manufacturing is not directly included in any of the sectors. The green/solar sector is the closest sector but it only involves the installation of solar panels, not the manufacturing of them.

The Mayor of Los Angeles appoints the forty-eight members of the Los Angeles City WIB. Only three of the forty-eight members are described as being in a manufacturing sector. Those members include the Chair Charlie Woo (toy manufacturing sector), Camilla Eng (plastic pipe manufacturing sector), and Willie Zuniga (biopharmaceutical manufacturing sector). One can argue that Charlie Woo isn’t in the toy manufacturing business, but it a wholesaler of toys imported from Asia. This means that overall, WIB members have very little experience in manufacturing. The lack of manufacturing experience within the membership is also true on the Los Angeles County WIB. Manufacturing is also widely ignored by other department of the City of Los Angeles. The Los Angeles City Community Development Department produces a score card that tracks its

14 Ibid.
15 Ibid.
17 Antonio Sanchez interview with David Eder, City of Los Angeles WIB staff, March 15, 2012.
18 City of Los Angeles Workforce Investment Board. Building a Stronger Los Angeles Workforce: 2010-2011 Annual Report
job placement but it only mentions manufacturing mentioned once, and to a very limited extent, in that score card\textsuperscript{20}.

In order for our current employment training system to prioritize employment training in manufacturing sectors, the two largest WIBs (Los Angeles City WIB and Los Angeles County WIB) in Los Angeles County must have more members with manufacturing experience and incorporate manufacturing into their employment training programs. When our employment training system includes more leaders with manufacturing experience, employment training policies will better support manufacturing, and the smaller WIBs might follow in its footsteps.

The Role of the California Employment Training Panel

Created in 1982, the California Employment Training Panel (ETP) is funded by California’s unemployment insurance system in an effort to address the displacement of workers resulting from plant closures\textsuperscript{21}. Its annual budget has varied between $45-$100 million a year and funds are primarily used to subsidize customized training programs to retrain incumbent workers, with 10 percent of the funds used to train unemployed workers\textsuperscript{22}. The ETP funds most of the employment training and retraining in California, especially in manufacturing.

The ETP is made up of eight members, seven are appointed by the Governor and the leadership of the legislature and the other is the Secretary of Business, Transportation and Housing, or his/her designee. Only one member, Janice Roberts, has experience in the manufacturing sector\textsuperscript{23}. Again, like the local WIBs, very few members of a large government body that funds employment training have experience in manufacturing. Nevertheless, the ETP is unlike other training programs because it targets manufacturing sectors and implements a strict “pay for performance” policy. The “pay for performance” policy requires that workers complete all required training and stay in their job for at least 90 days before the ETP pays for any training\textsuperscript{24}. This makes certain that trainees complete their training and retain or find a new job.

The 2009-2010 budget of the ETP prioritized sectors that include manufacturing, green technology, nursing and allied healthcare, construction, goods movement and transportation logistics, information technology services, biotechnology and life sciences, multimedia/entertainment and agriculture\textsuperscript{25}. 48 percent of training funding was allocated to manufacturing, totaling to a little over $30 million, which includes just over 30,000

\textsuperscript{20} City of Los Angeles Community Development Department, City of L.A. Workforce Development System Scorecard, 2011.


trainees. Unlike the local Southern California WIBs, the ETP allocates a large portion of their budget to manufacturing. In the Los Angeles metropolitan region, it appears that the ETP and private business are the source of most employment training because representatives from three local WIBs (Los Angeles City WIB, Los Angeles County WIB, and Verdugo Hills WIB) all stated that they received some ETP funds for training in manufacturing. Unfortunately, the representatives couldn’t specially tell me the name of the training program they fund.

The Role of Community Colleges

Community colleges were created to give all citizens, not just a privileged few, access to higher education. Soon after being created, mounting pressure quickly forced them to provide college level vocational instruction. Today, two-year community colleges service the highest proportion of students of color, recent immigrants seeking higher educational opportunities, and part-time, commuting students who work full- or part time. In addition, their role now includes contract training, small business development, and local economic planning.

For over 100 years, community colleges have been a major partner in job training. Their involvement usually happens in two ways. Employees can either register in a class and ask for their employer to pick-up the tab, or employers can contract with community colleges to provide specific training to their employees. The latter is more proactive because employers help shape the curriculum of the class. When employers shape the curriculum of an employment training program, the class provides more specific training and more directly meets the needs of the employers, not the community college.

Los Angeles Community College District (LACCD) services a large portion of Los Angeles County and has several campuses that offer a contract training service. Contract training service refers to when an employer contracts the college to produce a training course for their employees. This service needs to be better utilized by manufacturers. Further research is needed to evaluate how much of the contract service is done in manufacturing sectors. LACCD does not publicize their contract training well - the workforce development section in the LACCD website is buried deep within the website.

26 Ibid.


32 Antonio Sanchez Interview with Steve Veres, LACCD Trustee, March 20, 2012
Under-publicizing the contract training service is a big disservice because businesses are already unlikely to work with and approach a community college to help with their employment training. There are two variables that have been found to affect the probability an employer will collaborate with a community college and they need to be addressed: establishment size and sector. It is known that larger businesses are more likely to contract a community college to provide its employees employment training, this is happens because of several reasons. Large businesses have large machinery that require a well trained employee, so they have no choice, they need to train their employees. Large businesses also operate within an occupational structure that includes varies jobs, use high performance work practices, have a human resources department, and have a capacity to bear the costs of training.

Certain sectors (finance, insurance, and real estate) are also more likely to collaborate with a community college to provide employment training because state subsidies favor those sectors and require community colleges to do so. These sectors also receive more attention because they are associated with high-wage jobs, have jobs with growth potential and are technology intensive. This is where state policy can help nature employment training in manufacturing sectors, by providing subsidies to employment training programs that will benefit manufacturers.

In 2003, about 30 percent of businesses with more than fifty employees used community colleges as their employment training providers. The sectors with the highest use include finance, insurance, and real estate. These are followed by durable and nondurable manufacturing sectors, where just shy of 50 percent of businesses enlist community colleges for their employment training. LACCD must continue to mature in its role as employment training providers in order for businesses in the manufacturing sectors to stay in Los Angeles and hire and train qualified employees.

The Role of Unions

As the influence of American unions in the workplace continues to decline (a topic covered extensively in the next chapter), unions have needed to create new roles for themselves to advance their agenda. One way of doing that is by becoming more involved in employment training through workforce development strategies. Workforce development is different and more inclusive than employment training because it is

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34 Ibid.

35 Ibid.

36 Ibid.

37 Ibid.

believed to incorporate more activities such as orientation to the work world, recruiting, placement, mentoring, access to childcare, and crisis intervention\textsuperscript{39}.

A local example of the positive effects a union can have on employment training is the partnership between the National Electrical Contractors Association (NECA) and the International Brotherhood of Electrical Workers (IBEW), Local 11. NECA and IBEW Local 11 formed the Electrical Training Institute (ETI) and offer apprenticeships to anyone that qualifies\textsuperscript{40}. Students participate at no cost to them and receive high quality training that connects them to full employment. The training is funded by the unionized electrical construction industry in Los Angeles. Duplicating those collaborative efforts is difficult because working conditions are never the same but manufacturers can follow by simply engaging union representatives and including them in the formation of their employment training programs.

Conclusion

Employment training is especially important today because the education system is no longer preparing people to enter the workforce with the necessary skills to succeed as it once was. The lack of existence of employment training within manufacturing in Los Angeles is stunting the region’s economic growth and employers are not being provided with qualified employees. It is well understood that improper employment training costs everyone money in various ways. Inevitably little or no employment training slows production, causing employers to lose out on sales and employees to lose out on higher salaries.

More innovative approaches are needed for successful employment training and workforce development in the Los Angeles metropolitan region. There is a need for sector specific and industry specific training programs to help pull people out of poverty, and maintain and help grow the manufacturing sectors in Los Angeles. It is critical that training consultants - unions, local community colleges, manufacturers, and government officials - all be involved in the development and implementation of employment training and workforce development. This means educators, employers, and WIBs need to work together to facilitate employment training in manufacturing sectors. Collaboration among educators, employers, WIBs, and unions will require that they reexamine their traditional roles and create new ones.

Best practices of a successful employment training programs include a motivated employer that is willing to invest in their current or future employees, motivated trainees that are committed to completing the program, and funding from a WIB or government agency.

In Los Angeles, small changes made to the employment training system can result in big gains for employers and employees. First, appointees to the local WIBs should have more manufacturing experience. This will help bring manufacturing into the conversation. As a result, WIBs might direct more funding to employment training in manufacturing sectors. Second, LACCD needs to foster stronger relations with businesses within manufacturing and offer their contract training service. This can result in better prepared employees for manufacturers and more state or federal funding for LACCD for the purposes of employment training. Third, unions within manufacturing should continue to be involved in the employment training of their members. If implemented, these small changes will help include more issues important manufacturing into our employment training system and manufacturing will receive more support from it.

\textsuperscript{39} Ibid.

Bibliography

Antonio Sanchez email message and phone calls to each of the 7 local WIBs, March 5, 2012.


Antonio Sanchez interview with David Eder, City of Los Angeles WIB staff, March 15, 2012.

Antonio Sanchez interview with Oscar Mesta, LAUSD teacher April 24, 2012.

Antonio Sanchez Interview with Steve Veres, LACCD Trustee, March 20, 2012


City of Los Angeles Community Development Department, City of L.A. Workforce Development System Scorecard, 2011.


City of Los Angeles Workforce Investment Board. Building a Stronger Los Angeles Workforce: 2010-2011 Annual Report


Unions in Green Manufacturing
Trends & Opportunities
By Craig Raphael

Abstract

This chapter studies the role of unions in green manufacturing. It explores the benefits of unions not only in terms of wage and benefits premiums, but also enhancements in productivity and the manufacturing process. It presents figures on the current state of unionization in Los Angeles, California and the United States as a whole, indicating that union membership has declined dramatically over the last three decades. But while unions are weak, their justification remains strong. Data is presented that counters the popular argument that unions are “job killers.”

Several local unions could play a greater role in the effort to revitalize manufacturing in the Los Angeles region. These efforts should be focused around high road strategies that capture synergies between business and labor interests. To that end, unions would be wise to identify areas in which they share common ground with employers, while at the same time maintaining the competitive advantage of their workers by supporting apprenticeship programs.

To be successful, high road strategies must take existing resources and political realities into account. There are many resources to assist unions in pursuing the high road, several of which are listed in the bibliography for this section.
A brief history of unions

Fundamentally aimed at addressing the asymmetry of power between workers and employers, labor unions in the United States began to take shape in the mid-19th century in correlation with the rise in manufacturing. As the modern economy formed and workers were forced to seek wage labor from factory owners and corporations, this asymmetry became increasingly clear. Workers had little choice but to cope with long working hours, low pay and dangerous conditions.

Over time and through tremendous struggle, unions were able to win a host of benefits and job protections while also providing a space for workers to unite around shared interests. Reaching its membership peak in the late 1950s, the labor movement began its steady decline amidst public accusations of corruption, most famously with the Teamsters. Private union membership continued to fall as public sector unions gained numbers in the 1960s.

Many reasons have been proposed for the lack of major labor upheavals since the mid-century. These include a weakening of labor laws (particularly the Taft-Hartley Act) that made it difficult to organize, as well as difficulty in overcoming sexual and racial tensions. In addition, the movement was purged of what remained of its radical leaders in the 1950s, and has since capitulated to the class structure of mainstream American politics and the democratic party.¹

Why unions in green manufacturing?

The state of organized labor today is such that many unions are fighting to stay alive. But while they may be weak, the justification for unions remains as strong as ever. Below are a few of the key benefits that unions provide:

Wage and Benefits Differential

Union members consistently earn higher wages and enjoy more benefits than their non-union counterparts. The union wage advantage has been placed between 10 to 20% for workers with similar characteristics.² For lower wage workers, the differential is even more significant; 20.6% compared to 11.9% for the typical worker (one in the 50% percentile).³ Union workers also have higher rates of health insurance coverage, as well as significantly higher inclusion in pension and retirement plans.⁴ While it varies geographically and across industries, union benefits are also typically higher for minority members.⁵

These differentials are not just significant for workers themselves—they have important spillover effects for local economies, and have the net effect of creating tens of thousands of additional jobs

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³ Ibid.
⁴ Unions are good for productivity, the economy and the environment.” AFL-CIO. http://www.aflcio.org/joinaunion/why/uniondifference/uniondiff8.cfm
⁵ Ibid.
because of the income differential of union workers.\textsuperscript{6} They can also help lift the wages and working conditions for non-union workers as well.

**Job security and protection against discrimination**

One of the fundamental goals of unions is to shift the balance of power between labor and management. Lacking the protection of a union, employers are free to exploit workers without recourse. Unions and collective bargaining agreements help ensure that workers are treated with dignity and respect. They protect workers from being fired without just cause or on the basis of discrimination (so long as bargaining agreements are enforced).

**Strength in numbers**

Unions give workers a means to express grievances in a public setting free of potential backlash. They grant them a voice in the workplace, instilling them with a sense of dignity and respect by putting them on more equal footing with their employers. They also ensure workers have an adequate voice in key workplace decisions.

**Improvements in the manufacturing process**

When worker knowledge and experience are integrated into production and management processes, a plant is more likely to meet productivity goals and minimize waste. While union participation in the implementation of lean manufacturing processes may cost more initially, union/management partnerships can effectively leverage worker knowledge to streamline and improve production, as well as inspire changes in training and workplace culture.\textsuperscript{7}

Union participation should not be viewed as optional in promoting lean and advanced manufacturing techniques, but rather necessary. A 2006 study showed that unionized component manufacturers must achieve a 7 to 10 percent productivity gain over lower wage domestic and foreign competitors in order to compete.\textsuperscript{8} The study showed that when unions were active partners in this effort, better results ensued for both workers and employers.\textsuperscript{9} Indeed, workers can play a key role in lean manufacturing by helping to identify opportunities to reduce waste, improve quality and enhance supplier relationships.


\textsuperscript{9} Ibid.
Are unions job killers?

Unions are often accused of being job killers in the popular discourse. Most recently, a March 2012 article in the Wall Street Journal (WSJ) claimed that workers were forced to “lower their expectations and become more flexible” at the same time that employers were opening new plants in states “where unions are weak and wages are low.”\(^{10}\) The loss of worker bargaining power, it argued, was necessary to make employers more competitive. To support its claims, the article included a table displaying all 50 states (and the District of Columbia) with corresponding job losses over the last decade. The tables below reproduce the data from the WSJ article, with the addition of the percent of union membership in each state from the Bureau of Labor Statistics.\(^{11}\) This data is provided to test the correlation between job loss and unionization.

Table 1: Top Job Losses by State, 2001-2011 and Percent Union Membership (2011)

<table>
<thead>
<tr>
<th>State</th>
<th>Manufacturing jobs in 2001</th>
<th>Manufacturing jobs in 2011</th>
<th>Percent Change</th>
<th>Percent Union Membership</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC</td>
<td>3,100</td>
<td>1,100</td>
<td>-64.50%</td>
<td>9.0%</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>64,500</td>
<td>40,600</td>
<td>-37.10%</td>
<td>16.5%</td>
</tr>
<tr>
<td>North Carolina</td>
<td>666,800</td>
<td>434,000</td>
<td>-34.90%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Michigan</td>
<td>781,800</td>
<td>510,800</td>
<td>-34.70%</td>
<td>16.5%</td>
</tr>
<tr>
<td>New Jersey</td>
<td>381,600</td>
<td>251,100</td>
<td>-34.20%</td>
<td>17.1%</td>
</tr>
<tr>
<td>Delaware</td>
<td>38,200</td>
<td>25,400</td>
<td>-33.50%</td>
<td>11.4%</td>
</tr>
<tr>
<td>New York</td>
<td>672,500</td>
<td>454,700</td>
<td>-32.40%</td>
<td>24.2%</td>
</tr>
<tr>
<td>Maryland</td>
<td>162,100</td>
<td>110,800</td>
<td>-31.60%</td>
<td>11.6%</td>
</tr>
<tr>
<td>Virginia</td>
<td>328,400</td>
<td>227,000</td>
<td>-30.90%</td>
<td>4.6%</td>
</tr>
<tr>
<td>Mississippi</td>
<td>191,600</td>
<td>133,800</td>
<td>-30.20%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>366,100</td>
<td>255,800</td>
<td>-30.10%</td>
<td>14.5%</td>
</tr>
<tr>
<td>West Virginia</td>
<td>70,300</td>
<td>49,400</td>
<td>-29.70%</td>
<td>14.8%</td>
</tr>
<tr>
<td>Vermont</td>
<td>43,500</td>
<td>30,600</td>
<td>-29.70%</td>
<td>11.8%</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>State</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Percent Change</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tennessee</td>
<td>435,000</td>
<td>306,800</td>
<td>-29.50%</td>
<td>4.7%</td>
</tr>
<tr>
<td>Maine</td>
<td>70,300</td>
<td>49,700</td>
<td>-29.30%</td>
<td>11.6%</td>
</tr>
<tr>
<td>Ohio</td>
<td>908,700</td>
<td>645,300</td>
<td>-29.00%</td>
<td>13.7%</td>
</tr>
<tr>
<td>Florida</td>
<td>439,600</td>
<td>313,300</td>
<td>-28.70%</td>
<td>5.6%</td>
</tr>
<tr>
<td>Arkansas</td>
<td>218,100</td>
<td>156,000</td>
<td>-28.50%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>784,400</td>
<td>564,100</td>
<td>-28.10%</td>
<td>14.7%</td>
</tr>
<tr>
<td>Georgia</td>
<td>482,800</td>
<td>353,100</td>
<td>-26.90%</td>
<td>4.0%</td>
</tr>
<tr>
<td><strong>California</strong></td>
<td><strong>1,685,600</strong></td>
<td><strong>1,242,600</strong></td>
<td><strong>-26.30%</strong></td>
<td><strong>17.5%</strong></td>
</tr>
<tr>
<td>Illinois</td>
<td>776,200</td>
<td>576,900</td>
<td>-25.70%</td>
<td>15.5%</td>
</tr>
<tr>
<td>South Carolina</td>
<td>297,900</td>
<td>221,300</td>
<td>-25.70%</td>
<td>4.6%</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>89,000</td>
<td>66,200</td>
<td>-25.60%</td>
<td>10.2%</td>
</tr>
<tr>
<td>Missouri</td>
<td>332,100</td>
<td>247,800</td>
<td>-25.40%</td>
<td>9.9%</td>
</tr>
<tr>
<td>New Mexico</td>
<td>39,100</td>
<td>29,400</td>
<td>-24.80%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Connecticut</td>
<td>218,600</td>
<td>164,800</td>
<td>-24.60%</td>
<td>16.7%</td>
</tr>
<tr>
<td>Alabama</td>
<td>314,890</td>
<td>238,970</td>
<td>-24.10%</td>
<td>10.1%</td>
</tr>
<tr>
<td>Colorado</td>
<td>169,700</td>
<td>129,100</td>
<td>-23.90%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Kentucky</td>
<td>281,000</td>
<td>214,900</td>
<td>-23.50%</td>
<td>8.9%</td>
</tr>
<tr>
<td>Arizona</td>
<td>191,200</td>
<td>149,100</td>
<td>-22.00%</td>
<td>6.4%</td>
</tr>
<tr>
<td>Oregon</td>
<td>205,700</td>
<td>164,000</td>
<td>-20.30%</td>
<td>16.2%</td>
</tr>
<tr>
<td>Indiana</td>
<td>592,100</td>
<td>472,500</td>
<td>-20.20%</td>
<td>10.9%</td>
</tr>
<tr>
<td>Hawaii</td>
<td>16,310</td>
<td>13,200</td>
<td>-19.10%</td>
<td>21.8%</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>163,400</td>
<td>132,200</td>
<td>-19.10%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Montana</td>
<td>20,700</td>
<td>16,900</td>
<td>-18.40%</td>
<td>12.7%</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>538,600</td>
<td>442,300</td>
<td>-17.90%</td>
<td>14.2%</td>
</tr>
<tr>
<td>Minnesota</td>
<td>364,600</td>
<td>302,300</td>
<td>-17.10%</td>
<td>15.6%</td>
</tr>
<tr>
<td>Idaho</td>
<td>65,900</td>
<td>55,800</td>
<td>-15.30%</td>
<td>7.1%</td>
</tr>
<tr>
<td>Louisiana</td>
<td>164,400</td>
<td>139,800</td>
<td>-15.00%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Kansas</td>
<td>190,900</td>
<td>162,800</td>
<td>-14.70%</td>
<td>6.8%</td>
</tr>
<tr>
<td>State</td>
<td>Manufacturing jobs in 2001</td>
<td>Manufacturing jobs in 2011</td>
<td>Percent Change</td>
<td>Percent Union Membership</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------------------</td>
<td>---------------------------</td>
<td>----------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Texas</td>
<td>981,100</td>
<td>844,600</td>
<td>-13.90%</td>
<td>5.4%</td>
</tr>
<tr>
<td>Nebraska</td>
<td>107,900</td>
<td>93,400</td>
<td>-13.40%</td>
<td>9.3%</td>
</tr>
<tr>
<td>Nevada</td>
<td>42,900</td>
<td>37,800</td>
<td>-11.90%</td>
<td>15.0%</td>
</tr>
<tr>
<td>Iowa</td>
<td>231,100</td>
<td>211,400</td>
<td>-8.50%</td>
<td>11.4%</td>
</tr>
<tr>
<td>Washington</td>
<td>301,400</td>
<td>276,900</td>
<td>-8.10%</td>
<td>19.4%</td>
</tr>
<tr>
<td>Wyoming</td>
<td>9,500</td>
<td>9,100</td>
<td>-4.20%</td>
<td>7.4%</td>
</tr>
<tr>
<td>Alaska</td>
<td>11,300</td>
<td>11,100</td>
<td>-1.80%</td>
<td>22.9%</td>
</tr>
<tr>
<td>Utah</td>
<td>116,800</td>
<td>115,800</td>
<td>-0.90%</td>
<td>6.5%</td>
</tr>
<tr>
<td>South Dakota</td>
<td>39,100</td>
<td>38,900</td>
<td>-0.50%</td>
<td>5.6%</td>
</tr>
<tr>
<td>North Dakota</td>
<td>23,800</td>
<td>24,400</td>
<td>2.50%</td>
<td>7.4%</td>
</tr>
</tbody>
</table>

Source: Wall Street Journal (From Moody’s Analytics and Bureau of Labor Statistics) and Bureau of Labor Statistics, “Union affiliation of employed wage and salary workers by state” (see sources)

A simple regression model run using this chart indicates a very low correlation between percent unionization and percent job loss, with an r square value of .001. Additionally, states with right to work laws demonstrate a similar relationship. Even though their job losses are relatively high, they have a low percentage of union membership, as displayed in the table below:

**Table 2: Job losses and unionization in right to work states**

<table>
<thead>
<tr>
<th>State</th>
<th>Manufacturing jobs in 2001</th>
<th>Manufacturing jobs in 2011</th>
<th>Percent Change</th>
<th>Percent Union Membership</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Carolina</td>
<td>666,800</td>
<td>434,000</td>
<td>-34.90%</td>
<td>3%</td>
</tr>
<tr>
<td>Virginia</td>
<td>328,400</td>
<td>227,000</td>
<td>-30.90%</td>
<td>5%</td>
</tr>
<tr>
<td>Mississippi</td>
<td>191,600</td>
<td>133,800</td>
<td>-30.20%</td>
<td>5%</td>
</tr>
<tr>
<td>Tennessee</td>
<td>435,000</td>
<td>306,800</td>
<td>-29.50%</td>
<td>5%</td>
</tr>
<tr>
<td>Florida</td>
<td>439,600</td>
<td>313,300</td>
<td>-28.70%</td>
<td>6%</td>
</tr>
<tr>
<td>Arkansas</td>
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<td>156,000</td>
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<td>4%</td>
</tr>
<tr>
<td>Georgia</td>
<td>482,800</td>
<td>353,100</td>
<td>-26.90%</td>
<td>4%</td>
</tr>
<tr>
<td>State</td>
<td>2011</td>
<td>2010</td>
<td>Change</td>
<td>Percentage</td>
</tr>
<tr>
<td>---------------</td>
<td>-------</td>
<td>-------</td>
<td>--------</td>
<td>------------</td>
</tr>
<tr>
<td>South Carolina</td>
<td>297,900</td>
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<td>-25,700</td>
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</tr>
<tr>
<td>Alabama</td>
<td>314,890</td>
<td>238,970</td>
<td>-24,920</td>
<td>10%</td>
</tr>
<tr>
<td>Arizona</td>
<td>191,200</td>
<td>149,100</td>
<td>-42,100</td>
<td>6%</td>
</tr>
<tr>
<td>Indiana</td>
<td>592,100</td>
<td>472,500</td>
<td>-119,600</td>
<td>11%</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>163,400</td>
<td>132,200</td>
<td>-31,200</td>
<td>6%</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>538,600</td>
<td>442,300</td>
<td>-96,300</td>
<td>14%</td>
</tr>
<tr>
<td>Idaho</td>
<td>65,900</td>
<td>55,800</td>
<td>-10,100</td>
<td>7%</td>
</tr>
<tr>
<td>Louisiana</td>
<td>164,400</td>
<td>139,800</td>
<td>-24,600</td>
<td>4%</td>
</tr>
<tr>
<td>Kansas</td>
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<tr>
<td>Texas</td>
<td>981,100</td>
<td>844,600</td>
<td>-136,500</td>
<td>5%</td>
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<tr>
<td>Nebraska</td>
<td>107,900</td>
<td>93,400</td>
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<td>9%</td>
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<td>42,900</td>
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<td>-5,100</td>
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<td>Iowa</td>
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<td>-19,700</td>
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<tr>
<td>Washington</td>
<td>301,400</td>
<td>276,900</td>
<td>-24,500</td>
<td>19%</td>
</tr>
<tr>
<td>Wyoming</td>
<td>9,500</td>
<td>9,100</td>
<td>-400</td>
<td>7%</td>
</tr>
<tr>
<td>Utah</td>
<td>116,800</td>
<td>115,800</td>
<td>-1,000</td>
<td>7%</td>
</tr>
<tr>
<td>South Dakota</td>
<td>39,100</td>
<td>38,900</td>
<td>-200</td>
<td>6%</td>
</tr>
<tr>
<td>North Dakota</td>
<td>23,800</td>
<td>24,400</td>
<td>600</td>
<td>7%</td>
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</tbody>
</table>

Source: Wall Street Journal (From Moody’s Analytics and Bureau of Labor Statistics) and Bureau of Labor Statistics, “Union affiliation of employed wage and salary workers by state” (see bibliography)

Unions in 2012: Los Angeles, California, and the United States

There are many reasons given for the decline of union membership. These include the growth of globalization and corporate power; a shift from manufacturing to a service-based economy; anti-union sentiment in the popular media; weak labor laws and a harsh legal climate; political dealings of the NLRB; and so on.

The charts below indicate the current state of unions in Los Angeles, the state of California and the country as a whole.
Chart 3: Union Membership as Percentage of Total Employment (United States)\textsuperscript{12}

Union Membership as Percentage of Total Employment

- **Private Sector, Manufacturing**
  - 1973: 39%
  - 2011: 11%

- **Private Sector (Total)**
  - 1973: 24%
  - 2011: 9%

- **Public Sector (Total)**
  - 1973: 23%
  - 2011: 37%

Data: http://www.unionstats.com

\textsuperscript{12} Data from http://www.unionstats.com. For the years 1973-81, the May Current Population (CPS) from the Bureau of Labor Statistics. For the years 1983-2011, the CPS Outgoing Rotation Group (ORG) Earnings Files.
National trends have also played out in similar fashion at the local level with somewhat greater fluctuation:

**Chart 4: Percent Union Membership in LA Metro Area**, 1986-2011

![Chart showing percent union membership in Los Angeles Metropolitan Area, 1986-2011.](http://www.unionstats.com)


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How could local unions get involved in regional efforts to revitalize manufacturing?

Because of the weak position of unions today, most regional and national organizations such as the AFL-CIO focus the bulk of their efforts politically. As a result, they devote fewer resources to new organizing campaigns. In Los Angeles, organizing efforts are especially weak with regards to manufacturing. Unions do not have a great deal of leverage with successful employers in durable manufacturing because workers are often highly valued and are offered competitive wages and benefits. This is especially true in industries like aerospace, where a high premium is placed on labor because of its relative scarcity. As such, organizing efforts in manufacturing from the bottom up have traditionally been difficult. When employers threaten to shut down, as they often do, it can be difficult for workers to swallow—especially in a severe recession.

To be successful, new organizing campaigns must draw on both industry-wide and company-specific analyses. They should focus on companies that lie neither at the high nor the low wage end of the spectrum, but rather

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14 LA Metro area as defined above.
somewhere in the middle. They would also have to be backed by a union that is ready and willing to throw resources at the cause. Workers themselves would also have to create pressure from below in order to make organizing more viable.\(^\text{15}\)

Below is a list of the unions are currently playing, or potentially could play, a role in an effort to promote green manufacturing, particularly around rail cars. It also lists their current organizing efforts (if any):

**International Brotherhood of Electrical Workers (IBEW)**

IBEW Local 11 lead the effort in negotiating stipulations for union labor with primary contractors in the running for the Metro rail contract. The IBEW is a key partner in this project and is known for its excellent apprenticeship program. This is somewhat of a departure from Local 11’s typical organizing work, which is typically in the construction industry. (For more on Local 11, see the high road section that follows.)

IBEW retains 4,000 members working in aerospace facilities, down from a peak of approximately 26,000 in LA county alone. These are represented by Locals 2295 and 1710, which have not been active in organizing for some time. This is likely due to a lack of resources, as well as lack of an organizing culture in these locals.\(^\text{16}\)

**International Association of Machinists (IAM)**

The IAM began as a railroad union in 1888, but today, the union “represents employees in all major industries, including aerospace, air transport, ground transport and auto repair, office, computer, clerical, medical and technical positions as well as traditional manufacturing positions such as machinists, tool & die makers, logistics, assemblers, production and maintenance and even security jobs. IAM members are also employed in metal products manufacturing facilities, on the railroads, and in the design, construction, repair, support and maintenance work of an almost endless variety of skills and occupational endeavors.”\(^\text{17}\)

With regards to aerospace, IAM has petitioned NLRB for representation at Hawker Pacific Aerospace in Sun Valley in 2010 and 2006, Pankl Aerospace Systems in Cerritos in 2008, Vought Aircraft in Hawthorne in 2007 and Brea in 2005, and at Raytheon’s aircraft repair facility in San Diego in 2000. Many of these petitions have been withdrawn.\(^\text{18}\) UAW petitioned NLRB to decertify the union recognized by Sierracin / Sylmar Corporation in 2000; in 2007, the company petitioned NLRB for a new union election, though it is unclear whether UAW had won representation in the meantime.\(^\text{19}\)

Other union organizing activities include the Electrical Workers’ drive to organize at Rockwell Collins in Costa Mesa in 2001.

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\(^\text{15}\) Based on interview with Glen Arnodo, Staff Director, LA County Federation of Labor. 2/29/11

\(^\text{16}\) Interview with Kevin Norton, IBEW Local 11. 2/29/11

\(^\text{17}\) IAM District Lodge 725, “Who We Are,” [http://iam725.org/](http://iam725.org/)


\(^\text{19}\) Ibid.
The IAM is also currently working on a campaign related to DirecTV contractors. It also represents public workers in the City of Long Beach.

United Automobile, Aerospace and Agricultural Implement Workers of America (UAW)

The UAW primarily represents aerospace workers in Los Angeles, though it does so mainly on the level of prime contractors. UAW Local 887 represents assemblers of Pratt & Whitney engines, modifiers of Boeing aircraft, and Boeing maintenance workers.

An attempt by UAW to organize workers at a metal stamping company in Paramount in 2010 was defeated, according to Local 887 President Homer Marshall, due to the company’s hiring of union-busters before the election.

The last time UAW undertook a major organizing campaign in the auxiliary parts industry was at Ducommun Aerostructures in 2001. The union was defeated, though Painters & Allied Trades, the Teamsters and International Association of Machinists & Aerospace Workers (IAM) have had contracts with Ducommun (it is not clear whether they still do currently). UAW has had contracts with Triumph Fabrications in El Cajon.²⁰

As a footnote, the UAW also represents UCLA graduate students through Local 2685.

International Longshore and Warehouse Union (ILWU)

The ILWU is primarily organized out of its international union in San Francisco. Its largest local, ILWU Local 13, represents nearly 20,000 workers at the Port of Los Angeles and the Port of Long Beach. According to their website, Local 13 is the largest ILWU on the West Coast with over 7,000 registered members.²¹ The local is active in the fight to stop the expansion of the Panama Canal, which would allow larger ships to bypass the region and discharge cargo on the East Coast starting in 2014.²²

Teamsters

The Teamsters are known from targeting whole industry sectors such as port truckers, waste and sanitation workers. They also maintain a wide presence in the film industry. They draw on resources from international and local unions, and have public policy components to their campaigns. The LA County Fed often assists them with their political undertakings.

Other unions with connections to manufacturing

The following unions also play a role in manufacturing (and railcar manufacturing) but are not known to be leading major organizing campaigns at this time:

- United Electrical, Radio and Machine Workers of America
- Amalgamated Transit Union

Unions and High Road Strategies: A Framework for Discussion

As discussed in Chapter One, the “high road” is a suite of policies that create and sustain quality jobs in close partnership with community groups and organized labor. This stands in direct opposition to the “low road,” an economic development approach born in response to pressures of the 1970s and 1980s, in which cities and regions attempted to offset plant closings and layoffs by attracting new businesses with low-wages, tax breaks, undermining of public services and a “business friendly climate.” The low road shifts tax and cost burdens from employers onto workers and the public at large through lax regulation and a diminishing tax base for public services. While the low road has arguably been successful in creating new (albeit lower paying) jobs, many have argued that the wealth it has created has flowed to fewer individuals, exacerbating income equality to previously unforeseen levels.

By contrast, the high road operates under the assumption that strong economies compete on value, not cost; investments in human, financial and physical infrastructure provide the basis of future growth; economic development should improve the well-being of the public at large, not just corporations; effective leadership can turn economies around; and the government is an indispensable partner in this process.

Unions are an essential partner in promoting the high road for several reasons. To begin with, the presence of unions can help to raise wages for all workers, not just those that are unionized. Moreover, as discussed earlier, unions provide an essential link between workers and employers that can help to further gains in productivity and improve the efficiency of the manufacturing process. Unions can also be leaders in providing training and apprenticeship programs that promote career pathways and create a more skilled workforce.

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## Two Roads for State and Local Economic Development

<table>
<thead>
<tr>
<th></th>
<th>Low Road</th>
<th>High Road</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goals</strong></td>
<td>1. Create new jobs</td>
<td>1. Retain good jobs</td>
</tr>
<tr>
<td></td>
<td>2. Retain existing jobs</td>
<td>2. Create good new jobs</td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td>Closed</td>
<td>Open, democratic</td>
</tr>
<tr>
<td><strong>Strategies</strong></td>
<td>1. Recruit large employers</td>
<td>1. Renew large and small employers.</td>
</tr>
<tr>
<td></td>
<td>2. Improve “business climate”</td>
<td>2. Improve quality of life in the community</td>
</tr>
<tr>
<td><strong>Elements</strong></td>
<td></td>
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<tr>
<td>Wages</td>
<td>“Competitive” (i.e., low) wages</td>
<td>High minimum wage</td>
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<tr>
<td></td>
<td></td>
<td>Davis-Bacon</td>
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<tr>
<td></td>
<td></td>
<td>Living wages</td>
</tr>
<tr>
<td>Unions</td>
<td>Support right-to-work laws</td>
<td>Partner with unions to move toward high road</td>
</tr>
<tr>
<td>Education</td>
<td>Underfunded, low quality</td>
<td>High standards; adequate $</td>
</tr>
<tr>
<td>Employment and Training Services</td>
<td>Customized training for recruitment; OJT as wage subsidy; lack of standards. Business is primary customer.</td>
<td>Broad training accessible to all workers; employment services for all. Both workers and businesses are key customers.</td>
</tr>
<tr>
<td>Benefits</td>
<td>Cut Unemployment Insurance taxes and benefits</td>
<td>Maintain adequate UI to support families temporarily</td>
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<tr>
<td></td>
<td>Cut Workers' Compensation</td>
<td>Maintain Workers' Comp.</td>
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<tr>
<td></td>
<td></td>
<td>Increased safety and health technical assistance</td>
</tr>
<tr>
<td>Taxes</td>
<td>Use tax incentives to lure new companies</td>
<td>Limit tax incentives and require public accountability</td>
</tr>
<tr>
<td></td>
<td>Cut business taxes; Increase income and property taxes</td>
<td>Equitable, progressive taxes on businesses, individuals</td>
</tr>
<tr>
<td>Regulations</td>
<td>Reduce environmental, health and safety, zoning regulations</td>
<td>Regulations to maintain quality of life. Land use planning</td>
</tr>
<tr>
<td>Government</td>
<td>Shrink government; cut social programs</td>
<td>Invest in people—adequate health care, education, training, welfare</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Target to new companies as part of industrial recruitment</td>
<td>Invest in infrastructure that helps all companies and workers</td>
</tr>
<tr>
<td>Technology and Business Assistance</td>
<td>Deploy technology to eliminate jobs/desk skill work,</td>
<td>Partner with workers and unions to deploy worker-friendly technology.</td>
</tr>
</tbody>
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There are a variety of strategies that unions can employ to actively promote the high road. These include greater participation in state economic development plans; promoting and setting worker friendly wage and tax standards; encouraging regional participation that ends intra-regional bidding wars; and informing workforce development programs. In addition, under a high road framework, unions can harness their political clout to push for legislation alongside business that results in a “win-win” for both.

The Path Forward: The Case of IBEW Local 11

For many unions, a high road approach will necessitate a shift in thinking. Instead of viewing employers as adversaries, unions must identify synergies where business and labor interests coalesce. By identifying this common ground, unions are more likely to succeed in steering business interests down a high road path.

As explored above, there are many potential paths that unions can take to pursue the high road. Of course, these strategies will vary depending on resources, political alliances and regional differences. In Los Angeles, the case of IBEW Local 11 is worth highlighting because it demonstrates many aspects of a high road approach.

In 2008, Local 11 provided funding and political support to pass Measure R, a half-cent sales tax increase dedicated towards public transit and highway improvements in Los Angeles County. According to Organizing Director Kevin Norton, the union supported the measure in order to help create permanent jobs in railcar manufacturing:

“My opinion is that labor needs to find different ways to organize companies, contractors and workers. One way we have been successful in the construction industry is being a valuable political partner. Aside from just saying our members cost more money, we say we’ll help you pass [Measure R]. Our workers may cost more, but they’re better trained and more productive.”

In addition to supporting legislation, the union maintains a robust apprenticeship program that has trained 11,000 workers over the last five years. This program ensures tembers maintain a competitive advantage over non-labor shops, while also investing in the human capital of the community at large. Norton also noted that the union has made an active attempt to foster better relationships with industry and contractors associations.

While the most recent campaign to influence Metro’s procurement process was unsuccessful, Norton remains optimistic. “It was a great learning experience, and hopefully similar opportunities will open up. It’s so hard to organize workers through the NLRB process. High road partnerships are really a better way to do it. We need to look forwards, not backwards.”

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Conclusion

While the state of organized labor in the United States is weak, the justification for unions remains as strong as ever. In addition to providing wage and benefits premiums, unions give workers a voice on the job and a process by which to arbitrate grievances. They can serve as valuable intermediaries between workers and employers in the effort to streamline operations, improve productivity and eliminate waste.

There is little doubt that unions will continue to face tremendous pressure from employers, politicians and industry groups in years to come. Many strategies can be employed in the continued fight to support existing unionized workers and organize new ones. Fundamentally, unions would be wise to identify areas in which they share common ground with employers, while at the same time maintaining the competitive advantage of their workers by supporting apprenticeship programs. This is just one element of a high road strategy as outlined above. To be successful, high road strategies must take existing resources and political realities into account. There are many resources to assist unions in pursuing the high road, several of which are listed in the bibliography for this section.
Bibliography


AFL CIO. “Why Unions are Good for Business.”
http://www.afcio.org/joinaunion/why/uniondifference/uniondiff8.cfm

AFL-CIO. “Unions are good for productivity, the economy and the environment.”
http://www.afcio.org/joinaunion/why/uniondifference/uniondiff8.cfm


Good Jobs First. “High Road or Low Road: Job Quality in the new green economy.”


IAM District Lodge 725, “Who We Are,” http://iam725.org/


Phone Interview with Glen Arndt, Staff Director, LA County Federation of Labor. 2/29/12

Phone Interview with Kevin Norton, IBEW Local 11. 2/29/12

Phone Interview with Kevin Norton, IBEW Local 11. 5/25/12

Labor Relations Institute Online Contracts Library,
http://search.irionline.com/LRIOL/Contracts/SearchResults.lasso?-session=irio:4B52OFCA1b0770066Fpnk3B644C8

Labor Relations Institute Online Organizing Library, http://search.irionline.com/index.html?

http://bostonreview.net/BR22.1/luria.html

Parker, Eric and Rogers, Joel. “Building the High Road in Metro Areas: Sectoral


Geographic Preferences in Public Procurement

Understanding Local and Domestic Content Provisions

By: Brenda Pérez & Doug Smith

Abstract

This chapter investigates the demand-side drivers of policy and procurement as a strategy for developing and sustaining a green manufacturing economy in the Los Angeles region. The first part of this chapter explores options for local preferences and investigates the use of public procurement as a tool for economic development at the municipal and county levels. The second part surveys the domestic content requirements that accompany federal funding in the transportation sector. Specifically, this part outlines the contours of the FTA Buy America law, as it is written in law, as it is applied in practice, and the ways it is interpreted and debated in current political discourse. Both parts of this chapter highlight challenges and opportunities to link procurement policy to broader efforts to revitalize manufacturing and promote high-road employment and economic development opportunities in the region.
Introduction to Public Procurement and Geographic Preferences

As a vehicle for a variety of social and economic policies, public procurement has been used to promote different socioeconomic policies with the goal of equality and efficiency. Increasingly, local agencies such as cities and counties are recognizing that their purchasing power may positively impact local employment and businesses. As a result more and more local agencies have procurement policies that give a preference and competitive advantage to local businesses when contracting for goods and services.

Public procurement policy—the standards and regulation that govern the ways that cities, counties and public agencies procure goods and service and geographic preferences, or the various ways that agencies might require or give preference to goods or services that are sourced either locally or domestically - leverage the assets and strengths in a particular region. By supporting networks and institutions through a public procurement policy, local governments can have a targeted effect on their respective local economies.

Public procurement and geographic preferences are important to an economy not only in terms of monetary value, but also because public procurement frequently sets standards that are implemented in future dealings. The enterprises that may emerge from directed procurement policy are an opportunity to promote a base of shared knowledge and physical facilities. Resources like these can help spur innovation and further develop a market in places where such policies are instituted. The goal behind these local preferential programs is to encourage local businesses, increase local tax revenues, and create good jobs.

Overview: Public Procurement

Government procurement “is the procurement of goods and services on behalf of a public authority, such as a government agency.”¹ The goal of procurement is to acquire specified goods or services at the best possible total cost for the direct benefit of the purchaser. Procurement processes are typically heavily regulated and scrutinized since contracts often deal with large amounts of public funds. Regulations associated with public procurement processes aim to prevent misuse, scams and corruption by encouraging a transparent and efficient process.

“Selective Purchasing laws” have been used for preference purchasing for more than 200 years.² At the U.S. federal level, government labor standards date back to 1917, while a preference for small businesses goes back to at least 1941.³ Historically, emphasis has been placed on socioeconomic programs favoring small businesses and disadvantaged communities.

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Preference forms in State and Local Governments

There are two types of preference laws found in state and local government procurement: geographical and non-geographical “preference law.” According to Cummings et al., there are five types of geographical preference laws in government procurement, as follows:

- “The percentage preference law gives in-state or local bidders a specific advantage over out-state or nonresident bidders in the award of public contracts.
- The tie-bid preference law allows in-state or local bidder to win the award if their bids are same as those of nonresident bidders. Nearly all the states and local governments have this policy.
- State and local governments also have adopted “general, often ambiguous, preference law which...ranges from tie-bid preference to a relatively large percentage preference” authorizes administrators to extend “comparable” preference, “in the best interests of the jurisdiction” or “as far as may be practicable.” Due to its administrative ambiguousness, it is difficult to document or assess this type of preference law.
- The absolute preference law stipulates government must buy certain goods or services within a designated area. Printing is the most common “protected” commodity, followed by coal. Lumber and paper products and such food as milk are protected products in New York and South Dakota.
- The reciprocal preference law gives preference to residents whose state does not have preference laws. More than half of the states have this type of preference laws.”

Also related to geographic preference laws is a “Buy American” law that is adopted by many state governments, in which domestic goods are favored over imported goods. The domestic content regulations that attach to transit procurements using federal funds are discussed in the second part of this chapter.

Many states also have programs for a range of different purchases that include “environmentally sound products and set aside programs for certain groups including small, minority, disadvantaged, veteran-owned or women-owned businesses.” To this end, cities, states, counties use their purchasing power as a tool to achieve certain political and social purposes; implying that certain “social and political benefits from these programs are worth the cost arising from restricted competition.”

According to Cummings et al., a 1998 survey by the National Association of State Procurement Officials found that:

- “27 states have product preferences. 25 states apply to commodities
- 12 states have price preference or set aside for women-owned businesses;
- 18 states give price preferences and set-asides to minority-owned businesses;
- 20 states give preference and set-asides to work centers;
- 28 states give preference and set-asides to prison industry;
- 12 states have preference treatment to small businesses;
- 27 states have certification program for minority-owned business;

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4 A complete list of states that provide absolute and percentage preferences can be found at: <http://eva.virginia.gov/learn-about-eva/files/listing-states-preferences.pdf>.
7 Ibid., p. 2.
8 Ibid., p. 3.
• 18 states have policies, procedures, or laws assist in balancing the competing interests of preferred sources (products by the blind and handicapped and correctional industries) versus resident, small, minority, and women-owned firms
• 15 have “Buy American” laws

In addition, some states require that a certain portion of the purchases be of recycled products. A new socioeconomic program through public purchasing is a living wage law that:

“require[ing] employers receiving [government] contracts or [government] business subsidies to pay full-time workers a wage sufficient to support themselves and their families at a subsistence level – typically from $8.5 to $12.00 per hour and to provide health benefits” (Cooper, 2003, p. 1).

Baltimore was the first city to adopt this law, followed by more cities, including Los Angeles, New York, Portland and Boston.

Federal and Local Government Level Procurement Programs

The federal government has similar preferential programs. As the largest purchaser in the country, it has targeted various programs such as environmentally friendly products, small businesses, small disadvantaged businesses that are at least 51 percent owned by socially and economically disadvantaged individuals, and women owned businesses, among others.

Local and state preference programs typically apply to either absolute or percentage preferences. For example, if a city releases a request for proposals, the city will seek the lowest responsible bidder. However, the city may grant a ten percent preference to a local business. If after applying the discount the bid is equal or less than the lowest bid or proposal, the bid of the local business will be considered the lowest bid and awarded the contract. These may apply broadly or to only certain types of services or goods. While many policies like these that apply geographic preferences have been upheld by the courts, local, state, and federal regulatory and constitutional law impose constraints on the implementation of these policies. This is discussed in detail in the next section.

It is important to understand the various forces at play in the public procurement system. According to Thai, the ability of a public procurement policy to accomplish its goals is influenced by its environment in the form of the market, internal environment, legal environment, political environment, and socio-economic and other environment. The interactions between these elements, the types of goods and services, and regulations all serve to affect the goals of a procurement program. The following lists these and their conditions:

• Market Environment
  o Market conditions have a large weight over the public procurement policy to maximize competition. According to Thai, “the market determines whether or not socio-economic objectives of procurement are accomplished, whether or not a governmental entity can fulfill its needs; the timeliness of fulfillment; and the quality and costs of purchased goods, services and capital assets.”

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9 Ibid., p. 3.
10 Ibid., p. 4.
11 Ibid., Thai, p. 12.
12 Ibid., p. 12.
Different levels of economic growth among industrialized and developing countries also unequally favor specific markets. For example, even in countries like the United States, a captive market that is limited in scope like weapons systems can limit the scope of potential growth.

As international free trade agreements lead to the more globalized markets, the public procurement system is adjusted. Waiving Buy American Act supply contracts are an example of this.

- **Legal Environment**
  - Different rules and regulations govern the activities of public procurement including: research and development, manufacturing, finance, marketing and deception advertising, personnel (equal opportunity regulations), and contracts.

- **Political Environment**
  - Many groups, individuals and organizations in the public sector are actively involved in many aspects of the public procurement system. Different interests, objectives and beliefs influence the process of such policies. Coalitions form between policy makers and interest groups. For example, in the area of defense procurement, a coalition of parties place their effort in getting policies adopted. After a contract is placed for competition these companies shift their focus to competition, as failures and successes in winning these contracts carry large consequences.

- **Social, Economic and other Environment Forces**
  - Many public procurement contracts place their emphasis on social policies such as preferences of minority or women owned small businesses. Other contracts focus on economic development by preferring local firms.
  - Procurement policy is also used as a foreign policy tool. For example, the United States may choose not to buy a good from another country because it does not approve of their programs.
  - Other forces that influence the public procurement system include culture and technology.

**Public Benefits of Local Procurement**

Public procurement has been extremely important to the global economy, accounting for up 20 percent of the GDP in developed countries. While traditionally the investment has been in physical infrastructure, more and more information related infrastructure is gaining a crucial role in national development.

This suggests that extensive buying by government may be used as a policy tool and encourage certain economic and social activities to occur. The large monetary value of public procurement implies that government is playing a key role in deciding what standards are adapted in an economy. In its role as the single buyer in a transaction, the government has substantial bargaining power and is able to promote certain policies. In this vein, public procurement is not only a tool to purchase things, but can also be used to advance social goals.

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13 Ibid., Mukhopadhyay, p. 29.
14 Ibid., Mukhopadhyay, p. 29.
A city can benefit from preference to local suppliers. Beyond the value of an initial government contract, money that is spent locally can generate additional economic activity, as local suppliers source goods and services locally. The additional money spent in the local context boosts “local activity, employment, and ultimately tax revenue.” The ultimate goal of procurement policy is to obtain the maximum value for the money spent, and this includes costs over the life of the project and other social justice goals.

Procurement Preference Controversies

Although there are many reasons and objectives behind these preference programs, they remain controversial. As previously noted, there are several forces in the procurement policy environment that affect the goals of the policy. The section below lists some of the most common challenges in detail.

Favoring Local and In-State Purchases

While many cities have adopted competitive bidding preferences to local and in-state purchasers in order to encourage local economies, the constitutionality of these preferences has been challenged in the courts. A survey done by the National Association of State Purchasing Officials found that 39 states use the location of the firm as a tiebreaker if other aspects of the bid are equal. Preferences are not allowed under the following circumstances:

- If state law prohibits it.
- City councils cannot enact ordinances that give local preferences if the city charter requires that contracts be awarded to the lowest bidder.
- Federal statutes prohibit in state and local preferences if federal funds are being used.
- If international trade agreements require that goods be only purchased by price and performance.

Out of state companies argue “such favoritism conflicts with the Commerce Clause of the Constitution (Article 1, §8), as well as the equal protection and due process clauses of the 14th Amendment.” As mentioned previously, courts have generally upheld local preference regulations, especially when the local agency can make a case that the policy will achieve a state or local interest.

Local Procurement Statute: Smith Setzer & Sons Inc. v. South Carolina Case

In the case Smith Setzer & Sons Inc. v. South Carolina, Smith Setzer & Sons Inc. (a manufacturer that was based in North Carolina), sued the state of South Carolina over a state policy that gave preferences to in-state firms. The statute required that state agencies purchase end products made, manufactured, or grown in South Carolina, even if their bid price was five percent higher than a non-South Carolina product. Smith Setzer & Sons was the lowest bid, but lost the contract due to the provision. The company challenged the ordinance, but the Fourth Circuit Court of Appeals concluded that states could in fact favor local firms when they act as market participants—when they themselves are the customers.

The court noted that “rules stating a preference that such (tax) monies (generated from the citizens of the state) be recycled within the local economy, either through the purchase of locally-produced products or

17Ibid.
through purchases from local vendors, rather than funneled out of state, reflect legitimate state concerns.” South Carolina had an econometric study done that showed that “although South Carolina could save $50,000 by purchasing Smith Seltzer’s product, the state’s economy would suffer an overall economic loss (in terms of lost jobs, tax revenue, etc.) of $2.1 million if it did so.”

Given this case it seems that excluding a local, state or national regulation that prohibits local procurement preferences, the courts will support these types of statues, especially if the city or state makes a sensible case that the statues will help the local interest.

**Anti-Competion**

Critics argue that preferential treatments to socioeconomic causes are inherently anti-competition. Many believe that awarding contracts partly because the owners may be minority or women owned business or because the goal is to protect American products (such as “Buy American” laws), violate principles of public purchasing: “equity, impartiality, open competition and the least cost to the taxpayer.”

While it is true that economically these preferences may be costly to taxpayers by discouraging competition and allowing subsidies, in some cases, the money is returned to the local economy. Governments are also able to pursue several aspects of social justice in a direct way by channeling their purchasing power. Governments use their “power of the purse” not only by participating in the market, but also by regulating it at the same time. While the purpose of public procurement maybe to give the buyer the best value for their money, in many situations, value implies more than price. Moreover, the initial cost may not mean that it is the best value over the life of the project.

**Legal Challenges to Preference Laws**

As mentioned above, federal regulations may impact local procurement preferences if federal funds are used. Some federal purchasing regulations specifically forbid recipients from imposing geographic preferences (whether in-state or local) in the evaluation of bids and proposals. However, absent explicit regulatory provisions that promote such policies, many local procurement policies have been upheld against constitutional challenge.

The two most common and significant challenges to local procurement preferences (procurement policies that give preference to local goods or businesses) arise under the Dormant Commerce Clause and the Privileges and Immunities Clause of the U.S. Constitution.

The Commerce Clause provides that Congress shall have power...to regulate commerce...among the several states. It is long established by common law that the Commerce Clause also directly limits the power of the states to discriminate against interstate commerce. This “dormant” aspect of the Commerce Clause prohibits economic protectionism – that is, regulatory measures designed to benefit in-state economic interests by burdening out of state competitors. If a law or policy facially discriminates against interstate commerce, the

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18 Ibid.
19 Ibid.
20 Ibid., Cummings, p. 6.
22 U.S. Const. art. I. §8 cl.3.
regulation will trigger strict scrutiny and likely struck down. On the other hand, policies that regulate even-handedly but have an incidental effect on interstate commerce are more likely to be upheld. These “facially neutral” policies will be struck down only if the burden imposed on interstate commerce is “clearly excessive in relation to the local benefits.”

A local procurement policy that gives a preference and advantage to local businesses would seem to be facially discriminatory against out of state businesses, thus being exactly the type of policy the dormant commerce clause prohibits. However, there exists an exception to dormant commerce clause scrutiny.

Under what is known as the market participant doctrine, a state or local government action that imposes a burden on interstate commerce will not be found to violate or implicate the Dormant Commerce Clause if the state or local government is acting as a direct participant in a given market. Under the market participant exception, when a local government enters the private market and expends its own funds, it may act as a private party; and since a private party could adopt a local preference policy and not offend the Commerce Clause, so too could a local government adopt such a preference policy. This exception is only available in narrow circumstances when the government acts not as a market regulator, but as a distinct market participant. The doctrine is limited in that it allows a government to impose burdens on commerce within the market in which it is a participant, but allows it to go no further. The government may not impose conditions that have a substantial regulatory effect outside of the particular narrowly defined market.

Courts have consistently cited the market participant doctrine as justification for upholding local procurement policies against Commerce Clause challenges. Advocates and lawmakers who are interested in a more robust local procurement policy structure should consult legal assistance to determine whether any proposed policy conforms to the doctrine.

Local procurement policies have also been challenged as violating the Privileges and Immunities Clause of the Constitution. The Privileges and Immunities Clause provides that “the citizens of each state shall be entitled to all Privileges and Immunities of Citizens in the several states.” The Privileges and Immunities Clause applies to city ordinances just as it does to state legislation and it applies to ordinances that discriminate on the basis of municipal residency just as it does to ordinances that discriminate on the basis of state residency. However, the Privileges and Immunities Clause is inapplicable to corporations, and a shareholder – even the sole shareholder – does not have standing to assert claims alleging wrongs to the corporation. As a result, the Privileges and Immunities Clause is unlikely to be invoked in a challenge to a policy that gives preference to local businesses (since it would be businesses, not individuals that would allege harm), but is

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25 Pike v Bruce Church, 397 U.S. 137, 142 (1970).
26 J.F. Shea So v. City of Chicago, 992 F.2d 745, 749 (7th Cir., 1993)
27 South Central Timber Development Inc. v Wunnicke, et. al., 467 U.S. 82 (1984)
29 U.S. Const. art.IV, §2, cl.1.
very likely to be invoked in challenges to local hiring policies (since it is individual out-of-state employees that would be alleging harm).

Advocates and policymakers considering local hiring provisions or policies should consult legal advices and be especially aware of case law pertaining to local hire regulations. In particular, United Building & Construction v. City of Camden is often incorrectly cited as prohibiting local hire. In reality, it holds that the Privileges and Immunity Clause does not preclude local hire requirements placed on public contracts – it merely states a legal claim that requires justification of them. The court in Camden also noted that “every inquiry under the Privileges and Immunities Clause must...be conducted with due regard for the principle that the States should have considerable leeway in analyzing local evils and in prescribing appropriate cures. This caution is particularly appropriate when a government body is merely setting conditions on the expenditure of funds in controls.” In addition, there are ways to limit the applicability of the local hire policy only to in-state residents, thus avoiding discrimination against citizens of other states, which creates a shield against Privileges and Immunities challenges.

The issues are nuances and fact-specific, but courts have routinely upheld local procurement and local hire policies attached to government contracts or purchases. Advocates or policymakers interested in creating or expanding such policies should conduct further legal research and consult legal experts, but the opportunities for local procurement preferences certainly exist.

Encouraging Local Public Procurement

Centralized purchasing has steadily become widespread in local and state government. Researchers and practitioners have contested this trend toward centralization arguing that government purchasing authority must be decentralized in order to more appropriately respond to users. The following section details some efforts made by local jurisdictions to encourage and empower local public procurement without the possible hindrance of a centralized organization.

Case Studies

The following case studies are examples of cities and states that have encouraged economic development through local sourcing and procurement policies.

Arizona: Wist Office Products and Office Max

After noticing that local businesses were losing government contracts to big-box retailers, Local First Arizona commissioned to evaluate the relative economic impacts of Wist Office Products, a local Arizona business, and Office Max contract division. The study found that the purchasing contract with Wist, the independent

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local supplier recirculates three times as much more money in the local economy as the same contract with the national firm.³⁶

In Arizona, like most states, the procurement of office supplies and equipment involves large amounts of money. While historically, “metropolitan areas have been served by a number of wholesalers of varying sizes and specialties, nearly all of which were locally or regionally based. However, in recent years, large national retailers such as Staples, Office Max, and Office Depot have moved into the contract supply business on a massive scale.”³⁷

Methodology and Results

For comparison, Office Max was chosen because it maintains one of its 52 distribution centers in the Phoenix area. The survey suggested that since “Office Max does have a physical presence in the Greater Phoenix area as a contract supplier of office supplies therefore, the impacts that Office Max has on the local economy would be much greater than that of, for example, Staples which merely delivers products stored, sorted, and administered elsewhere. This is an important distinction to make, as essentially Wist is being compared to the one national chain that keeps the greatest amount of money in the local economy.”³⁸

The study used four main components to calculate money kept locally:

- Labor:
  - Wist spent a larger percentage of revenue on labor, providing greater wages and benefits.

- Profit:
  - The profits that Wist earned stayed in the Phoenix area. The money is recirculated as it is spent or invested.

- Procurement:
  - Wist contracted a greater portion of its supply and operations from Phoenix-based firms. Office Max does not contract for such services in the market area.

- Charity:
  - Wist had a greater involvement and contributions to the local community.

When taking these results into account, the study found that only 11.6 percent of Office Max Contract’s total revenue remained in the local economy, compared to 33.4 percent of Wist’s total revenue, or nearly 3 times as much.

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³⁸Ibid., p. 5.
Implications

The study concludes by saying that government entities, as well as the private sector “might benefit from giving additional consideration to the enhanced economic impact of truly local firms. Additional dollars recirculating in the local economy generate taxable transactions, employ local citizens, and promote the economic vitality of the community.” Arizona has further committed to local purchasing policies as reflected by the recent passage of State Bill 1233, which requires that state contracts go to in state businesses when their bids are equal to or less than those out of state bidders.

Through empirical research, this study suggests that local purchasing may enhance the local economy. A procurement policy similar to this in Los Angeles might reveal similar results on the impact of local spending.

South Carolina

The state of South Carolina has a Consolidated Procurement Code that gives a seven percent preference to South Carolina businesses “whose products are made, manufactured, or grown in South Carolina.” An additional 3% preference is awarded to a bidder who is both a resident of South Carolina and whose products are made, manufactured, or grown in South Carolina. A preference “of 2.5% in contracts awarded pursuant to this section is given to South Carolina contractors in tie bids for highway, bridge, and building construction and building renovation contracts.” Section 11-35-1524(c)(1) gives explicit preference to manufacturers from the state:

(C)(1) When evaluating pricing for purposes of making an award determination, the procurement officer shall decrease a bidder’s price by seven percent if the bidder maintains an office in this State and either (i) maintains at a location in South Carolina at the time of the bid an inventory of expendable items which are representative of the general type of commodities on which the award will be made and which have a minimum total value, based on the bid price, equal to the lesser of fifty thousand dollars or the annual amount of the contract; (ii) is a manufacturer headquartered

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39 Ibid., p. 12.
40 Code Of Laws Of South Carolina Annotated, Title 11, Article 5, § 11-35-1524
41 Ibid.
Although private business is an important factor to economic growth, local firms have become important generators of new jobs. Owners of firms who reside in the community may have the best interests of the community in mind when conducting business. Local procurement policies such as the South Carolina Consolidated Procurement Code may provide new employment sources and activity for the local economy.

Conclusion: Opportunities for Advocacy and Next Steps

The previous section outlined the efforts of public procurement as a tool in developing the local economy. Given that public procurement is a large part of the GDP of both developed and developing countries, public investments can present a crucial role in local and regional development. Governments, especially local, are able to leverage their purchasing power as a policy tool to encourage targeted economic and social activities.

In addition, the section highlighted how government agencies define eligibility and authority to implement geographical preferences programs for goods and services. As described in the case law review, although tensions exist between national and local polices in the United States, procurement policy many times has to balance various objectives.

The challenge in the case when there might be conflicts is to design mechanisms for procurement that encourage both fairness and efficiency. While a uniform procurement policy cannot be designed because the objectives of regions and municipalities may be different, assurance that there is consistency of procedures, goals and objectives is essential. Analyses of the performance of procurement policies in light of the goals and objectives might help strengthen the case for local geographic preferences, such as in the Arizona Wist case study presented.

Acknowledgement of public procurement as a policy tool is needed for local governments to recognize that they have local authority and they are main actors in employment promotion and local economic development. Recognition that a targeted procurement policy is a strategic function in government will not only benefit the immediate tasks at hand, but may also create local markets.

The following section, Part II: Buy America, will survey at domestic content requirements that accompany federal funding in the transportation sector. By outlining the specifics of the FTA Buy America law in both its written form and practice, this second section will highlight the challenges and opportunities to link public procurement to economic development opportunities in the Los Angeles region.

42http://www.scstatehouse.gov/code/t11c035.php
44 Ibid., p. 277.
Buy America
Domestic Content Requirements for Transit Procurement

Summary

The FTA’s “Buy America” requirements originally appeared as a provision of the Surface Transportation Assistance Act of 1982, and are now codified in Section 5323(j) of Title 49 of the United States Code. Buy America provisions are a condition of FTA grants to state, municipal or other organizations - including transit agencies such as LACMTA (Metro). The provisions apply to FTA assisted projects that involve the purchase of more than $100,000 of iron, steel, manufactured goods, or rolling stock.

Under the Buy America statute, projects that receive FTA funds must ensure that all iron, steel and manufactured goods are produced in the United States. The domestic content requirements for rolling stock are less stringent. To satisfy Buy America requirements, the cost of the rolling stock components that are produced in the United States must be more than 60% of the total cost of all components; and final assembly of the rolling stock must take place in the United States. Waivers may be granted for certain projects that can prove that adhering to Buy America standards would be against the public interest, impossible, or cost-prohibitive.

While FTA funding will impose Buy America requirements on local transportation projects, this funding will also prohibit those agencies from utilizing sub-national geographic preferences in their procurement policies. In the context of light rail expansion and light rail vehicle procurement, FTA funds are often involved. Thus, the domestic content requirements of Buy America - rather than any proposed local purchasing preferences - will provide the context for local efforts to promote good jobs and build a sustainable green manufacturing economy through light rail vehicle or bus procurement. This chapter first provides an overview of the law; then looks at how the law is applied (or not applied as the case may be) in practice; provides an overview of the current political discourse surrounding Buy America; and concludes with policy ideas that may warrant further research.
An analysis of how the law has been applied in various transit projects across the country illustrates several important lessons. First, a study of the complaint and investigation process suggests that companies will hold each other accountable to Buy America as a competitive tool. Second, while the FTA is concerned with enforcement, it is just as concerned with ensuring the public receives the benefits of transit investment.

The Buy America waiver process illustrates three lessons. First, public interest waivers have been used to perpetuate the trend of locating the high value added research and design work for U.S. orders in foreign countries despite Buy America requirements. Second, the FTA under the Obama administration has stepped up Buy America enforcement and is now less likely to allow public interest waivers. Third, the transparency requirements inherent in the waiver process afford an opportunity to match suppliers with producers and identify gaps in the supply chain. However, for this to happen, public oversight and coordinated information sharing is critical.

In addition, the Buy America statute and regulations contain four distinct loopholes that potentially allow for manufacturing to be located overseas. First, some agencies have successfully “segmented” projects in order to segregate non-federal funds and therefore circumvent Buy America requirements. Second, the final assembly requirements for rolling stock don’t adequately protect against the offshoring of engineering, research and development associated with prototype vehicle production. Third, the regulations classify “systems” as “end-products” thereby potentially exempting subcomponents from domestic content requirements. Fourth, the law currently only requires that rolling stock contain 60% domestic content by price, allowing a significant amount of the manufacturing associated with U.S. orders to take place overseas.

Against this backdrop, Buy America has remained a political issue, especially as the Obama administration and Congress look to manufacturing and transit investment as tools for job growth and economic recovery. The Obama administration has expressed support for stronger Buy America provisions and Congress is currently considering several amendments to the law. In addition, the state of California has recently enacted legislation that allows for stronger domestic content preference in local purchases, and at least one transit agency has implemented a Buy America policy that is stronger than the federal requirements.

By looking at Buy America through three lenses – how it is written in law, how it is applied in practice, and how it is envisioned for the future – this chapter provides context for efforts to engage the statute in order to enhance the manufacturing economy in the Los Angeles region. Buy America has weaknesses that can be fixed, but it also has strengths that can work to the advantage of a manufacturing rejuvenation. Engaging in work around Buy America can not only promote American employment and economic gains, but with strategic advocacy and the right political champions, it may also be a vehicle to deliver these same benefits to the L.A. region.45

45This chapter was researched and drafted with Metro’s P3010 Light Rail Vehicle procurement in mind. In May 2012, just before finalizing this report, the Metro Board voted to conditionally approve the staff’s recommendation to enter into a purchasing agreement with Kinkisharyo for an initial order of 78 vehicles (with an option of purchasing an additional 157 vehicles). While that particular procurement may be finalized, we hope that this chapter may still be useful in establishing a framework to assist advocates and stakeholders prepare for future transit purchases.
Buy America: Overview of the Law

This section will briefly describe the domestic content requirements and procedures that govern large transit procurements using federal funds. This section will first situate the FTA Buy America statute and regulations within the context of a broader federal domestic content regulatory structure. This section then provides an overview of the mechanics of the FTA Buy America provisions, including requirements, procedure and enforcement. Finally, this section provides a brief overview of the FTA Buy America statute’s relation to international trade agreements.

FTA Buy America: One of Several Federal Domestic Content Statutes

This chapter will focus primarily on the Federal Transit Administration (FTA) Buy America statute, codified in 49 U.S.C. 5323(j). This statute imposes domestic content requirements on purchases made for projects that receive FTA funds. In the procurement of new Light Rail Vehicles (LRVs) or busses, LACMTA (Metro) must comply with FTA Buy America provisions. However, the FTA Buy America statute is just one of several domestic content statutes that exist in federal law. In order to understand FTA Buy America and how it might impact local manufacturing, it is important to situate the regulations within the broader regulatory structure.

Domestic content requirements first emerged in the aftermath of the Great Depression. The Buy American Act (note the “n” on American – this should not be confused with the separate “Buy America” act) was enacted in 1933 and applies to all large federal government agency purchases of goods. Under the Act, substantially all of the content of goods for public use – including manufactured items and construction materials – must be produced in the United States. These provisions apply only to direct purchases by federal agencies or departments, such as purchases made by the Department of Transportation. Purchases by state and local governments – no matter how much of the funding is provided by the federal government – are not subject to the Buy American Act.

In 1978 however, domestic content requirements were extended to transportation purchases made by state, municipal or other organizations using federal funds. The Surface Transportation Assistance Act of 1978 created Buy America requirements for various agencies within the Department of Transportation, including the Federal Transit Authority (FTA), Federal Highway Administration (FHWA), and the Federal Rail Administration (AMTRAK). The precise requirements for each agency’s respective Buy America statutes are contained in separate sections of the U.S. Code.(See Table below).

Each separate agency is also responsible for creating the federal regulations that govern the domestic content requirements and administering interpretive decisions to enforce the provisions. Unsurprisingly, inconsistencies have developed between DOT agencies. For instance, under both the FTA and FHWA Buy America statutes, domestic content requirements apply to all purchases made for “projects” that receive federal grants. FTA interprets “project” broadly to capture all of the various contracts that are encompassed within a single project, regardless of whether a discrete part could be funded with local funds. On the other hand, FHWA has interpreted “project” narrowly to correspond with an individual contract. This effectively

allows local funds to be segmented for certain purchases in order to bypass Buy America requirements. This will be discussed in greater detail later.

Other federal programs have implemented Buy America provisions as well. For instance, the Clean Water Act imposes domestic content requirements on grants for water treatment projects, the Department of Energy imposes domestic content requirements in its Innovative Clean Coal Technology Transfer Program, the Energy Policy Act of 1992 imposes domestic content requirements for equipment costs, and CAFÉ standards for passenger automobiles include domestic content requirements. Finally, in 2009, the American Recovery and Reinvestment Act imposed domestic content requirements on all public works projects. FTA has stated that the normal FTA Buy America provisions apply to “all capital public transportation projects funded with amounts appropriated in the ARRA. Therefore, an applicant, in carrying out a procurement financed with federal assistance authorized under ARRA must comply with the applicable Buy America requirements.”

The following table, provided by the Apollo Alliance, provides a breakdown of the various domestic content statutes and their requirements.  

<table>
<thead>
<tr>
<th>Federal Agency</th>
<th>Statute</th>
<th>Domestic Content Req.</th>
<th>Applicability</th>
<th>Waivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buy American Act</td>
<td>41 U.S.C. §10</td>
<td>51%</td>
<td>“Substantially or all” goods for public use (articles, materials, or supplies) must be produced in the U.S.; only 51 percent of the components of supplies and construction materials must be made domestically for the final product to qualify as U.S. – made</td>
<td>A Waiver is permitted if the cost of the U.S. manufactured good is six percent more than the imported good, or 12 percent more for small business</td>
</tr>
<tr>
<td>Federal Highway Administration</td>
<td>23 U.S.C. §101</td>
<td>100%</td>
<td>Prohibits granting of FHA funds unless steel, iron, and manufactured goods used in the project are produced in the U.S.</td>
<td>Inconsistent with the public interest; Not produced in sufficient and reasonably available amount or are not of a satisfactory quality; Will increase the cost of the overall project contract by more</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Agency/MoDOT</th>
<th>Statute</th>
<th>Percentage</th>
<th>Requirements/Exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Transit Administration</td>
<td>49 U.S.C. §§5301, 5323(j)</td>
<td>60%</td>
<td>FTA funds may only be released where the steel, iron, and manufactured goods used in the project are produced in the U.S.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inconsistent with the public interest; Not produced in sufficient and reasonably available amount or are not of a satisfactory quality; Will increase the cost of the overall project contract by more than 25 percent</td>
</tr>
<tr>
<td>Federal Rail Administration (AMTRAK)</td>
<td>49 U.S.C. §24305</td>
<td>100%</td>
<td>Amtrak shall buy only – (A) unmanufactured articles, material, and supplies mined or produced in the United States; or (B) manufactured articles, material, and supplies manufactured in the United States substantially from articles, material and supplies mined, produced, or manufactured in the United States. Applies only when the cost of those articles, material, or supplies bought is at least $1,000,000.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inconsistent with public interest; The cost of imposing requirements is unreasonable; Not produced in a sufficient and reasonably available amount or are not of a satisfactory quality; Equipment cannot be bought and delivered in the United States within a reasonable time</td>
</tr>
<tr>
<td>Department of Transportation – Intercity Passenger Rail Service Corridor Grant</td>
<td>49 U.S.C. §24405</td>
<td>100%</td>
<td>Funds may only be allocated if the steel, iron and manufactured goods used in the project are produced in the U.S.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inconsistent with the public interest; Not produced in a sufficient and reasonably available amount or are more of a satisfactory quality; Equipment cannot be bought and delivered in the United States within a reasonable time; Will increase the cost of the overall project by more than 25 percent</td>
</tr>
<tr>
<td>American Recovery and Reinvestment Act</td>
<td>Section 1605 of P.L. 111-5</td>
<td>100%</td>
<td>Applies to ‘public works’ projects. All of the iron, steel, and manufactured goods used in the project must be produced in the U.S.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inconsistent with the public interest; Not produced in a sufficient and reasonably available amount or are not of a satisfactory quality;</td>
</tr>
<tr>
<td>Law/Program</td>
<td>Statute</td>
<td>U.S. Percentage</td>
<td>Requirement</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------</td>
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<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Clean Water Act – Grants for Water Treatment Projects</td>
<td>33 U.S.C. §1295</td>
<td>100%</td>
<td>All articles, materials, and supplies used in such works will be mined, produced, or manufactured in the U.S.</td>
</tr>
<tr>
<td>Department of Energy, Innovative Clean Coal Technology Transfer Program</td>
<td>42 U.S.C. §13362</td>
<td>50% of the cost of equipment</td>
<td>At least 50% of the cost of equipment shall be attributable to components made in the U.S.</td>
</tr>
<tr>
<td>Energy Policy Act of 1992</td>
<td>42 U.S.C. §13316, 13387</td>
<td>50% of the cost of equipment</td>
<td>At least 50% of the cost of equipment shall be attributable to components made in the U.S.; requires “the maximum participation of U.S. firms.”</td>
</tr>
<tr>
<td>CAFÉ Standards</td>
<td>49 U.S.C. §32904(b)</td>
<td>75%</td>
<td>A passenger automobile is deemed to be manufactured domestically if at least 75 percent of the cost to the manufacturer is attributable to value added in the U.S., Canada, or Mexico</td>
</tr>
</tbody>
</table>

While each Buy America statute may be applied, interpreted and enforced according to distinct agency practice and policy, the promotion of U.S. jobs is a common thread throughout all the domestic content legislative history. For instance:

The “protection of the American worker” has been described as the “dominant theme” of the 1933 Buy American Act’s legislative history. During floor debate, it was stated that the act “will mean work for our
workers. It will help stem the tide of foreign competition and thus prevent further reduction of wages for the American worker,” and the act will “foster and protect American industry, American workers, and American invested capital.”

When the 1978 Surface Transportation Assistance Act was being considered, a House Report stated the Buy America provision was added “to protect American manufacturers and suppliers who have suffered substantial losses as a result of competition from foreign imports, which in many cases, are underpriced because of governmental support and cheap labor costs. This loss of business by domestic companies adds to the trade deficit, fuels inflation, and leads to unemployment and reduced productivity.”

One of the stated goals of the 2009 Recovery Act was to “preserve and create jobs.” FTA Administrator Peter Rogoff has asked recipients of Recovery Act funds “to be held accountable to the American public by using these resources to maximize opportunities to put Americans back to work and to support our domestic manufacturing industry.” He has also stated that the FTA will not waive Buy America for Recovery Act projects because such action would undermine the very purpose and intent of the Recovery Act—to preserve and create jobs in America.

Later sections of this chapter will document various ways that agencies and foreign manufacturers have been able to bypass domestic content requirements, contributing to the offshoring of manufacturing jobs. However, it is clear that the spirit and legislative intent of the various Buy America(n) provisions is deeply rooted in the creation and preservation of American jobs.

Mechanics of the FTA Buy America Law

This section will describe the mechanics of the FTA Buy America statute. It is these provisions and regulations that must be adhered to in Metro’s 3010 LRV procurement, as well as future LRV and bus procurements.

What Triggers Buy America Requirements?

Every FTA grantee is a party to the FTA’s Master Agreement, in which the grantee agrees to comply with Buy America regulations. The FTA Buy America requirements are enumerated in 49 U.S.C. §5323(j). The FTA regulations that govern the procedures are found in 49 CFR § 661 – 663. These regulations prevent FTA from obligating federal funds to transportation projects unless the steel, iron and manufactured goods used in the project are produced in the United States.

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56 “Dear Colleague Letter,” (FTA, March 17, 2011), http://fta.dot.gov/newsroom/12910_12450.html. According to GUIDE TO FEDERAL BUY AMERICA REQUIREMENTS, supra note 54 at note 38, “‘Dear Colleague Letters’ are frequently issued by the FTA Administrator to provide guidance to grantees on industry- wide issues regarding FTA policies and procedures. Dear Colleague Letters are not rulemakings, but are more analogous to the FTA Best Practices Manual or FTA Circulars.”
requirements, regardless of whether the recipient could fund a discreet part of the project with non-FTA funds. Only if an activity is outside the FTA project and is financed entirely without funds to which FTA’s Buy America regulations would apply may the recipient disregard FTA’s Buy America requirements.

**What Does Buy America Require?**

For projects that fall within the ambit of Buy America (those receiving FTA funds), all steel, iron and manufactured products must be produced in the United States. For a manufactured good to be considered produced in the United States, all of the manufacturing processes for the product must take place in the United States, and all of the components of the product must be of U.S. origin. A component is considered to be of U.S. origin if it is manufactured in the United States, regardless of the origin of its subcomponents.

For procurement of Rolling Stock, the cost of the rolling stock components produced in the United States must be more than 60% of the total cost of all components; and final assembly of the rolling stock must take place in the United States. A “component” is any article, material, or supply, whether manufactured or unmanufactured, that is directly incorporated into an end product (the rolling stock) at the final assembly location. For a component to be of domestic origin more than 60 percent of the subcomponents of that component, by cost, must be of domestic origin and the manufacture of the component must take place in the United States. Rolling stock is defined as “transit vehicles such as buses, vans, cars, railcars, locomotives, trolleys, and ferry boats, as well as vehicles used for support services.” The regulations contain a list of items that typically would be considered components of rail rolling stock. The regulations also include a list of operations that should be conducted domestically, at a minimum, to satisfy the requirement that final assembly take place in the United States.

While Buy America imposes domestic content requirements on purchases using federal funds, other federal laws prohibit sub-national geographic preference for transportation purchases using federal funds. The Common Grant Rule also requires that federal grant recipients conduct procurement transactions “in a manner providing full and open competition.” These regulations prohibit the use of local geographic preferences in the evaluation of bids or proposals, except in those cases where applicable Federal statutes expressly mandate or encourage geographical preference. FTA has stated, “there are no such
Federal statutes applicable to FTA’s awards of grant funds authorizing such preferences.” The FTA has gone on to state, “The U.S. Department of Transportation has always interpreted local hiring solicitation provisions as restricting full and open competition.” Buy America regulations explicitly prohibit FTA grant funding of any contract that is governed by state and local Buy Local preference provisions. The combination of Buy America provisions and federal procurement regulations means that local agencies such as Metro must give preference to American manufacturing, but may not give explicit preference to a particular sub-national geographic area.

**What is the Procedure?**

Both the purchasing agency and the bidding contractors have obligations under Buy America. When an agency, such as Metro, seeks to procure steel, iron, or manufactured products, or rolling stock, it must include in its RFP an appropriate notice of the particular Buy America provisions that apply (100% domestic content for iron, steel and manufactured products, or 60% domestic content and final assembly for rolling stock). The RFP must also require that the bidder submit a completed Buy America Certificate with the bid.

There are two types of Buy America certificates that a bidder may present when bidding on a project. The bidder may complete and submit a “Certificate of Compliance with Buy America Act Requirements,” thereby promising to comply with the requirements of 49 U.S.C. 5323(j) and the applicable regulations in 49 C.F.R. 661. Alternatively, if a bidder cannot comply with Buy America requirements, but believes that it may qualify for a waiver (discussed below), it can complete and submit a “Certificate of Non-Compliance with Buy America Requirements.” Whether or not a bidder certifies that it will comply with Buy America, the bidder is bound by its original certification. Therefore, where a bidder originally certifies that it will comply with the applicable Buy America, it is (with one exception) not eligible for a waiver of those requirements later on.

The statute provides three specific exemptions that apply to all Buy America requirements:

- **Public Interest.** The Buy America general requirements may be waived if the Administrator finds that the application would be inconsistent with the public interest. In determining whether a public interest exemption applies, the Administrator will consider all appropriate factors on a case-by-case basis. If a public interest waiver is granted, the Administrator will issue a detailed written statement justifying the waiver. This justification will be published in the Federal Register, giving the public an opportunity to comment.

- **Non-Availability.** The Buy America general requirements may be waived if the Administrator finds that the materials for which a waiver is requested are not produced in the United States in sufficient quantities.

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7049 C.F.R. 661.21.
7149 C.F.R. 661.6.
7249 C.F.R. 661.13(c). However, non-availability waivers may be granted after an award has been made to bidder who originally certified compliance with Buy America in good faith but can no longer comply with its certification.
7349 C.F.R. 661.7.
and reasonably available quantities and of a satisfactory quality. This waiver may be granted after an award has been made to a bidder who originally certified compliance with Buy America in good faith, but can no longer comply with its certification.

**Cost prohibitive.** The Buy America general requirements may be waived if the Administrator finds that the inclusion of a domestic item or domestic material will increase the cost of the contract between the purchasing agency and its supplier of that item or material by more than 25 percent.

The Public Interest and Non-availability waivers may be granted for a component or subcomponent of rolling stock. If a waiver is granted for a component or a subcomponent, that component or subcomponent will be considered to be of domestic origin for the cost calculations. 74

In general, only a grantee (the recipient of FTA funds, such as Metro) may request a waiver. 75 Therefore, a bidder who seeks to establish grounds for an exemption must do so through the grantee. The request “must be in writing, include facts and justification to support the waiver, and be submitted to the Administrator through the appropriate regional office.” 76 The Administrator will issue a written determination setting forth the reasons for granting or denying a waiver application. Each request and FTA responses are available for public inspection.

Purchases of rolling stock have additional pre-award and post-delivery review requirements. When an agency seeks a revenue service rolling stock grant from FTA, it must first submit a Certificate of Compliance. This document certifies that the agency will conduct pre-award and post-delivery audits of rolling stock purchases. 77

A recipient purchasing revenue service rolling stock with FTA funds must first ensure that a pre-award audit is complete before the recipient enters into a formal contract for the purchase of such rolling stock. 78 To comply with this requirement, a grant recipient must either obtain a letter from FTA granting a waiver for the rolling stock purchases, or conduct a review of Buy America information from the proposed manufacturer. The recipient agency or a duly appointed analyst must conduct the review. The information that must be provided by the manufacturer and reviewed by the recipient includes: 79

- A listing of the rail vehicle components and subcomponents that will be used to calculated the percent domestic content (with a listing of the manufacturer, country of origin and cost for each component or subcomponent);
- The proposed final assembly location;
- Activities that will take place during final assembly; and
- The proposed total cost of final assembly.

To be assured that the manufacturer can comply with the requirements, the analyst must verify that the rail vehicles will contain at least 60 percent domestic products, by cost. To do so, the agency must review the component and subcomponent listings to verify domestic product content and review the final assembly cost. The agency must also verify that the final assembly will take place in the United States, by making sure

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74 49 C.F.R. 661.7(f).
75 49 C.F.R. 661.9(c). The exception to this rule, FTA will consider a request for a waiver from a bidder only if the waiver is being sought under 661.7(f) or (g), which allows waivers for components or subcomponents of rolling stock or manufactured products.
76 49 C.F.R. 661.9(d).
77 49 C.F.R. 663.7.
78 49 C.F.R. 663.25.
that the manufacturer has identified a final assembly location within the United States and verifying that the list of final assembly activities qualify as valid final assembly activities under the statute. After this review is complete, the agency must complete the Buy America Compliance Certification and keep a copy on file for future FTA reviews.\(^{80}\)

In addition, recipients must also comply with the post-delivery review requirements during and after vehicle manufacturing. To comply with this requirement, a grant recipient must either obtain a letter from FTA granting a waiver for the rolling stock purchases, or conduct a review of Buy America information from the proposed manufacturer. The recipient agency or a duly appointed analyst must conduct the review.\(^{81}\) The review is similar to the pre-award review, except that the recipient is responsible for certifying the actual rolling stock being produced rather than the proposed rolling stock. Like the pre-award review, the post-delivery review looks at:\(^{82}\)

- The components and subcomponent parts of the rolling stock identified by the manufacturer of the part,
- The country of origin and costs of each component and subcomponent;
- The actual location of the final assembly point; and
- A description of the activities that took place at the final assembly point and the cost of final assembly.

To comply with the post delivery certification requirements, recipients may send an inspector to the manufacturer’s final assembly facility to visually inspect the facility and activities. The inspector’s manufacturing report should include accurate records of all vehicle construction activities, and a description of how the construction and operation of the vehicles fulfills the contract specifications. After the inspector has completed the report, the recipient should review the report and then conduct his or her own visual inspections. Once completed, the recipient must complete a Post Delivery Purchaser’s Requirements Certification and keep a copy on file for future FTA reviews.\(^{83}\)

**Investigation and Enforcement**

Buy America regulations state, “it is presumed that a bidder or offeror who has submitted the required Buy America certificate is complying with the Buy America provision.\(^{84}\)

Despite this presumption, any party may petition the FTA to investigate the compliance of a successful bidder or offeror. The challenging party must include in its petition a statement of the grounds of the petition and any supporting documentation. If it is determined that the presumption of compliance has been overcome then the FTA will begin an investigation.\(^{85}\) In some circumstances the FTA may elect on its own to initiate an investigation, even without a formal petition from a third party.\(^{86}\)

\(^{80}\) 49 C.F.R. 663.25.
\(^{82}\) 49 C.F.R. 663.35
\(^{83}\) 49 C.F.R. 663.
\(^{84}\) 49 C.F.R. 661.15(a).
\(^{85}\) 49 C.F.R. 661.15(b).
\(^{86}\) 49 C.F.R. 661.15(c).
Once an investigation has been initiated, the FTA requests that the grantee require the successful bidder to
document its compliance with Buy America. The successful bidder has the burden of proof to establish that it
is in compliance. Documentation of compliance is based on the specific circumstances of each investigation,
and FTA will specify the documentation required in each case.\(^{87}\) Federal laws grant FTA the authority to “have
access to and the right to examine and inspect all records, documents, and papers, including contracts,
related to a project for which a grant is made.”\(^{88}\)

Moreover, FTA – in the course of the investigation – may make site visits to manufacturing facilities and final
assembly locations. FTA will make information bearing on the substance of the investigation available to any
interested party, except to the extent that withholding information is required by law.\(^{89}\)

When a petition for investigation has been filed before the agency has awarded the contract/bid, the award
will not be made until the resolution of the investigation. Exceptions may be made for items that are urgently
required. If the agency decides to make the award during investigation, FTA reserves the right to withdraw
funding.\(^{90}\)

FTA will make initial decisions on the investigation in written form. Reconsideration of an initial decision may
be requested by any party involved in an investigation, but reconsideration will only be granted if the
requesting party can provide new matters of fact or points of law that were not known or available during
the investigation.\(^{91}\)

Outside of the right to petition the FTA to investigate compliance, there is no private right of action under the
Buy America statute.\(^{92}\) However, once FTA has ruled on a petition, a party that is adversely affected by a final
agency action has the right to seek review under the Administrative Procedure Act.\(^{93}\)

### Buy America and International Trade Agreements

Domestic content requirements, including FTA Buy America, have been criticized as violating U.S. obligations
under international trade agreements and inhibiting free trade. However, despite the rhetoric, domestic
content restrictions applied to mass transit purchases made by transit agencies such as Metro are, at least
technically, not in violation of trade agreements.

The two main international trade agreements of concern are the North American Free Trade Agreement
(NAFTA) and the WTO Agreement on Government Procurement. Signed in 1994, NAFTA is an agreement
between the United States, Canada and Mexico to expand trade and procurement opportunities and
enhance North American international competitiveness. Chapter 10 of NAFTA imposes requirements on
government procurement activities and covers almost all federal government agencies in the three

\(^{87}\) 49 C.F.R. 661.15(d).
\(^{88}\) 49 U.S.C. §5325(g).
\(^{89}\) 49 C.F.R. 661.15(j).
\(^{90}\) 49 C.F.R. 661.15(m).
\(^{91}\) 49 C.F.R. 661.15(o).
\(^{92}\) 49 C.F.R. §661.20(b), GUIDE TO FEDERAL BUY AMERICA REQUIREMENTS, supra note 54, at 28. See also, Ar-light
federal right in favor of the plaintiff, and there is no indication of a legislative intent to do so.”)
\(^{93}\) 49 C.F.R. §661.20(a). The APA is codified at 5 U.S.C. 702 et. seq.
The agreement requires that goods produced in Canada or Mexico should be treated the same as goods produced in the United States when considered as part of a government procurement. However, the “Scope and Coverage” of these provisions is limited to federal agencies. State and local government entities, such as Metro, are not bound by NAFTA requirements. It should be noted that Provincial governments in Canada are also exempt under NAFTA procurement codes, and “a number of Canadian provinces maintain ‘Buy Canada’ and other policies that put U.S. suppliers at a disadvantage.”

The WTO Agreement on Government Procurement (GPA) became effective in 1996. Signatories to the GPA include the United States, Canada, Iceland, Israel, Japan, Korea, Aruba, Norway, Singapore, Switzerland and all members of the EU. Like NAFTA, the GPA opens government procurement to firms based in the signatory countries. However, unlike NAFTA, the provisions of the GPA govern many sub-national government agencies as well. To date, most federal agencies are governed and 37 states have opted in. However, there is one big exception to note. It is expressly stated that, “The Agreement shall not apply to restrictions attached to Federal funds for mass transit and highway projects.” As a result, the FTA Buy America preference requirements attached to transit procurements do not violate the WTO GPA.

Critics argue that even if Buy America provisions do not technically violate international trade agreements, they go against the spirit of the agreements and damage U.S. international reputation. In 2009, the inclusion of Buy America provisions in the Recovery Act reignited this issue and spawned heated political debates. In addition, it has been suggested that avoiding NAFTA requirements by classifying transit equipment purchases as state and local government procurements is “nothing more than a legal fiction and a sham.” This argument is not without merit. For instance, on the one hand, Metro’s purchase of light rail vehicles is considered procurement by a non-federal agency and thus the purchase is exempt from NAFTA rules. On the other hand, when Metro makes the same purchase using the same federal funds, it is precluded from imposing its own local values in the context of local hire or local procurement policies because it is treated as a federal action. Thus, in one context, transit procurement is treated as a local function, and in another it is treated as a function of the federal government. This is a tension that has not been fully analyzed or resolved. Nevertheless, under current interpretations of international trade agreements, the domestic content provisions of FTA Buy America are valid and enforceable and must be adhered to by local transit agencies.

101 Lawrence Hughes, Buy North America: A Revision to FTA Buy America Requirements, 23 TRANSP. L.J. 207, 223 (1995). Hughes argues for a revision of FTA Buy America to provide preference for Mexican and Canadian produced products. Hughes also provides a concise summary of Buy America legislative history (current through 1995).
Buy America, As Applied

In theory, Buy America ensures that projects receiving federal transportation funds use domestic content and create domestic jobs. However, the way these provisions are applied in practice adds a level of nuance to the analysis. While the previous section described the provisions of Buy America as they are codified in federal law, this section will look at how those provisions are actually employed in practice. In particular, this section will describe 1) the consequences and lessons of FTA investigations; 2) the availability of waivers and exemptions to Buy America requirements; and 3) other loopholes that exist in Buy America law that allow agencies and vendors to circumvent domestic content requirements.

Complaints and Investigations

A third party may petition FTA to investigate the compliance of a successful bidder.\textsuperscript{102} According to a 2009 report by the Transportation Research Board, “the bulk of compliance issues are raised by disappointed bidders that challenge the Buy America Certificates of successful competitors.”\textsuperscript{103} However, the FTA presumes that any bidder who has supplied the required Buy America certificate is complying with the requirements,\textsuperscript{104} and it is rare for a petitioner to actually overcome this presumption.\textsuperscript{105} Beyond the right to petition FTA investigation, there is no other private right of action under the Buy America statute.\textsuperscript{106}

*Complaint Process*

If a complaint provides information that is sufficient to overcome the presumption of compliance, FTA will initiate an investigation. When FTA commences an investigation, it usually requests that the grantee require the successful bidder to demonstrate its compliance with Buy America, specifying the required documentation on a case-by-case basis. The successful bidder then has the burden of proof to establish that it is in compliance.\textsuperscript{107}

Generally, the FTA will correspond with the grantee, however the bidder under investigation may correspond directly with the FTA if it notifies the grantee in writing and receives agreement from the grantee. The FTA will likely conduct site visits in the course of an investigation. The FTA will also make the information it acquires during an investigation available to the public, to the extent permitted by law or regulation.\textsuperscript{108}

When a petition for investigation has been filed before the agency has awarded the contract/bid, the award will not be made until the resolution of the investigation. Exceptions may be made for items that are urgently required. If the agency decides to make the award during investigation, FTA reserves the right to withdraw funding.\textsuperscript{109}
FTA may impose sanctions against the vendor or against the grantee if a violation is discovered. FTA will make initial decisions on the investigation in written form. Reconsideration of an initial decision may be requested by any party involved in an investigation, but reconsideration will only be granted if the requesting party can provide a new matter of fact or points of law that were not known or available during the investigation.110

If a vendor is found to have violated Buy America requirements, that vendor may be debarred or suspended. A vendor may also be ineligible to receive any contract or subcontract made with federal funds if it has been determined by a court or federal agency that the vendor intentionally misrepresented that any such product was produced in the United States.111

However, most sanctions against vendors that violate Buy America are the result of contractual provisions between the vendor and the grantee.112 The Buy America regulation requires notification of the Buy America requirements in FTA-funded contracts, but does not specify the language to be used.113

If a grantee is found to have violated Buy America requirements, the Secretary may terminate all or part of the federal financial assistance.114 If the FTA determines that the grantee has willfully misused federal assistance funds by failing to comply with Buy America, FTA may require the grantee to refund the entire amount of federal funds provided for the project.115

**Case Study: Houston Metro Investigation**

In April 2010 the FTA initiated an investigation to determine whether the Metropolitan Transit Authority of Harris County, Texas (Houston Metro) complied with FTA’s Buy America procurement rules when it entered into contracts with Contrucciones y Auxiliar de Ferrocarriles (CAF) for the purchase of 103 light rail vehicles.116

The controversy arose in response to the following actions, as reported in FTA’s Report of Investigation:

- In an effort to construct, expand and improve several rapid transit projects throughout the city, Houston Metro decided to employ an innovative project delivery method where a Facility Provider — consisting of a team of engineering, construction, construction management, and vehicle manufacturing firms — would design and expedite construction.
- As a Public Private Partnership (PPP), this project delivery method qualified to participate in the federal Public Private Partnership Pilot Program (Penta-P). This program allowed FTA to relax certain requirements in order to study the efficacy of PPP methods. However, FTA clearly stated in a letter

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110 49 C.F.R. 661.15(o).
111 49 C.F.R. 661.18.
112 GUIDE TO FEDERAL BUY AMERICA REQUIREMENTS, supra note 54, at 28-29.
to Houston Metro on Feb 26, 2008 that “While FTA may confer certain benefits on Houston Metro through Penta-P, these benefits do not include a waiver of Buy America requirements.”

- Metro’s initial RFP for the light rail vehicles, released on August 31, 2007, stated, “There is no requirement that the manufacturer must abide by any “North American or Federal Transit Administration standards, e.g., Buy America, or any other restraints normally applied to such procurements.” The FTA investigation concluded that Houston Metro “apparently believed that by having its Facility Provider (see above) issue the RFP and buy the vehicles, or by separating the procurement into Federal and non-federal parts, Metro was free to acquire vehicles without regard to FTA requirements.”

- Over the next several months, FTA continuously advised Houston Metro that its RFP was incorrect and that it must in fact comply with Buy America provisions for this procurement. Houston Metro consistently ignored or discounted this advice.

- By October 29, 2007, six companies had submitted initial proposals in response to the RFP. CAF’s proposal clearly stated that it intended to build two prototype vehicles in Spain. Houston Metro selected five firms, including CAF, to proceed to the next phase of the procurement.

- FTA continued to advise Metro that it must comply with Buy America.

- In February of 2008, Siemens informed FTA that Houston Metro was telling bidders that Buy America did not apply. FTA replied with a letter sent to Siemens and Houston Metro, stating in no uncertain terms that Houston Metro must comply with Buy America for this particular procurement.

- Houston Metro continued to resist the inclusion of Buy America provisions in the LRV procurement.

- Again in the spring of 2008, FTA advised Houston Metro in writing that it must comply with Buy America provision and offered solutions “to cure the deficiencies in the original RFP.”

- Finally, in April of 2008, Houston Metro issued an addendum that added Buy America to the solicitation. The letter directed proposers to “revise, substitute or revalidate their proposals,” but advised them that they were not required to submit a Buy America certification until the best and final offer.

- In a letter dated April 18, 2008 CAF stated that it would comply with Buy America regulation and submitted a Buy America certification. However, in the letter to Houston Metro, CAF simply revalidated its previous commercial offer “with no changes.” Therefore, CAF submitted a Buy America certification.

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117 Letter from Severn Miller, Chief Counsel, Federal Transit Administration, to Robin Stimson, Vice President, Siemens Transportation Systems, (Feb. 26, 2008). Copies of the letter were sent to Houston Metro.
119 Id., at 10.
120 Id., at 11-12.
121 Id., at 12.
122 Id.
123 Id., at 5.
124 Id., at 13.
125 Id., at 5.
126 Id., at 14.
America certification for a proposal that clearly indicated an intent to build two prototype vehicles in Spain.\(^{127}\)

- In a second review, Houston Metro concluded that CAF’s proposal was Buy America compliant, despite the announced plan to assemble LRVs in Spain. In July 2008 Houston Metro concluded that CAF’s proposal represented the best and final offer and began negotiations.

- Soon thereafter, Houston Metro and CAF began discussing the possibility of a Buy America waiver application for the prototype LRVs.

- In March 2009, Houston Metro formally applied for a public interest waiver. Simultaneously, Houston Metro’s general counsel wrote to FTA regarding its intent to lease two pilot LRVs, and Houston Metro immediately began preparing an Executive Decision document authorizing this purchase from CAF.

- On April 14, 2009 FTA denied the request for a public interest waiver. Citing Federal Regulations (49 CFR), FTA held that its original certificate of compliance bound CAF.\(^{128}\) The FTA also noted that the two pilot LRVs “are integral to CAF’s proposal and thus cannot be separated from Metro’s contract with CAF for production of the entire order.”\(^{129}\)

- On the same day as FTA’s denial of a waiver, Houston Metro President and CEO signed an Executive Decision Document seeking Board authorization to negotiate a sole source contract with CAF for the purchase of the two pilot LRVs. CAF President sent several emails to Houston Metro suggesting that this approach - where Houston Metro would buy the two prototypes without federal money - would allow the bypass of Buy America.\(^{130}\)

- Houston Metro then initiated the initial LRV contract for 103 vehicles on April 22, 2009 and the next day, authorized the negotiation of a contract for two prototype LRVs to be assembled in Spain.

- On April 23, 2010, FTA initiated the investigation. According to FTA, it “initiated the investigation on its own accord pursuant to authority contained at 49 C.F.R. § 661.15 and 49 U.S.C. § 5325(g).” While Alstom Transportation, Inc. did send a letter to FTA identifying irregularities with Houston Metro’s procurement process, this letter was sent more than one month after FTA initiated its investigation and Alstom did not style its letter as a bid protest.\(^{131}\) Therefore, the investigation did not depend on a complaint from a competitor, which would have required the protester to “exhaust all administrative remedies with the grantee . . . before pursuing a protest with the Federal agency.”\(^{132}\)

After a four-month investigation, in which the above facts were discovered, FTA found three substantial violations of FTA’s Buy America and procurement rules.

\(^{127}\) Id., at 14-15.

\(^{128}\) 49 C.F.R. 661.13(c) states that “where a bidder or offeror certifies that it will comply with the applicable Buy America requirements, the bidder, offeror or grantee is not eligible for a waiver of these requirements.” Only recently has FTA been given the statutory authority to issue post-award waivers as a result of section 3023(i)(5)(C) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (Pub. Law 109-59). Congress, however, precluded post-award waivers on the basis of public interest, specifying that the only basis for post-award waivers was for non-availability. Consequently, the only post-award waivers granted to date have been on the basis of non-availability.

\(^{129}\) REPORT OF INVESTIGATION, supra note 118, at 16.

\(^{130}\) Id., at 17.

\(^{131}\) Letter from FTA to CAF (October 1, 2010),http://www.fta.dot.gov/legislation_law/12921_12063.html.

\(^{132}\) 49 C.F.R. § 18.36(b)(12).
1. FTA found that Houston Metro and CAF violated Buy America requirements by releasing an RFP that stated that Buy America requirements did not apply, failing to properly evaluate CAF’s Buy America compliance and Certificate, and deciding not to require CAF to meet it contractually mandated Buy America requirements and circumvent these requirements by entering into a separate locally funded contract for the pilot vehicles.

2. FTA found that Houston Metro violated FTA’s competitive procurement rules when it chose to negotiate with CAF to the exclusion of all other offeror and allowed CAF to continue revising its price while refusing to allow other offerors the opportunity to present their best and final offer.

3. FTA found that Houston Metro’s LRV procurement was flawed “due to a sum of many failures, including the lack of an adequate procurement plan, the lack of an adequate source selection evaluation plan, failure to disclose all evaluation factors in the solicitation...and failure to perform a complete best value analysis.”

In the letter to Houston Metro outlining the finding of the investigation, FTA called the results of the investigation “both alarming and disturbing.” However, while noting that Houston Metro’s violations “could nullify the ability of the FTA to participate in any projects tainted by such violations,” FTA ultimately concluded that in the case of Houston METRO, the Administration believes that the commuters of Houston should not be denied needed transit improvements due to the actions of prior METRO management. FTA agreed to continue funding Houston’s light rail expansion projects, provided that Houston Metro terminate its existing contracts with CAF, re-procure LRVs in a manner that complies with FTA rules requiring full and open competition, and provide a detailed plan explaining how Houston Metro intends to achieve full compliance with all Federal requirements.

Shortly after FTA’s initial decision, new leadership at Houston Metro “indicated that it ‘agrees with the findings of the investigation,’” and outlined the actions it took upon receipt of FTA’s decision, including the issuance of a stop work notification to CAF, the decision to terminate its contracts with CAF, and the development of a process for re-procuring LRVs in accordance with Federal rules.

CAF however, quickly submitted a request to FTA for reconsideration of the initial decision. Pursuant to 49 C.F.R. § 661.15(o), FTA will only reconsider an initial decision if a party requesting reconsideration submits new matters of fact or points of law that were not known or available to the party during the investigation. FTA denied the request for reconsideration, on the grounds that CAF was unable to submit any new fact or points of law.

However, in its response letter, FTA did provide answers to some of CAF’s arguments. For instance, CAF argued that since Houston Metro signed a separate contract for the two pilot vehicles, using only local funds, it should be exempt from Buy America requirements. FTA responded, “Buy America requirements apply to entire projects, regardless of how many contracts may be needed to complete the project.” While it is true that projects without federal funds are not required to adhere to Buy America, “the mistake in CAF’s analysis

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133 REPORT OF INVESTIGATION, supra note 118, at 1.
134 Id.
135 Id., at 2.
137 Id.
was to equate the terms “project” and ‘contract.’... if there are FTA funds in a project, then the Buy America requirements apply to all contracts needed to complete the project.”\textsuperscript{139}

In addition, CAF attempted to argue that it was “common practice” for manufacturers to request and obtain public interest waivers from FTA to assemble pilot or prototype vehicles outside of the United States.\textsuperscript{140} In its response to CAF, FTA stated that although it “has granted public interest waivers for pilot and prototype vehicles in the past, FTA’s longstanding position has been and will continue to be ‘that Congress intended that the public interest waiver provision . . . be utilized in extremely limited situations.’ Thus, FTA will only grant public interest waivers in exceptional circumstances, and has no intention of routinely granting waivers for prototype or pilot vehicles in the future.”\textsuperscript{141}

This particular investigation highlights several important lessons:

- FTA has indicated, and supported with this action, the notion that it has “raised the bar,” making it more difficult for agencies or companies to achieve public interest waivers to produce prototype vehicles outside the United States.
- FTA will not permit “sole source” contracts where an agency severs the project to have federally funded components that are subject to Buy America and locally funded components that are exempt. In the case of Houston Metro, there was clearly one single project, despite several contracts. However, that is not to say that every case will be so clear-cut. A clear definition of what constitutes a “project” is critical to enforcing the domestic content requirements of Buy America.
- The current FTA leadership is willing to enforce Buy America provisions, but will stop short of killing projects as punishment. In its letter to Houston Metro, FTA underscored its decision to not withdraw federal funding (despite its authority to do so) by highlighting the desire to “keep workers on the job.”\textsuperscript{142}
- Competing bidders will hold each other accountable to Buy America, if only as a tactic to contest bids or prevent a competitor from gaining an advantage.

**Buy America Waivers: Understanding Important Trends and Lessons**

Federal law authorizes FTA to waive the Buy America requirements under three separate conditions. First, FTA may issue a non-availability waiver when it finds that a product is not produced in the United States in a sufficient and reasonably available amount or of an unsatisfactory quality. Second, FTA may issue a price differential waiver if including domestic material will increase the cost of the overall project by more than 25 percent. These two waivers are generally dependent on findings of fact. The third available waiver is more discretionary. A “public interest” waiver may be granted if FTA finds that the application of Buy America standards would be inconsistent with the public interest.

\textsuperscript{139}Id.
\textsuperscript{140}Id. Indeed, a review of FTA waivers over the years indicates that FTA has a history of granting such waivers allowing a couple prototype or pilot vehicles to be assembled overseas at a manufacturer’s headquarters before the larger batch is assembled in the U.S.
\textsuperscript{141}Id.
\textsuperscript{142}Letter from FTA to Houston Metro (September 2010), http://www.fta.dot.gov/legislation_law/12921_11975.html.
As described previously in this report, in most circumstances, waiver requests must be made by the grantee. In addition, waiver requests must come after a bidder certifies non-compliance in its bid. If a bidder certifies compliance with Buy America, it will generally not be allowed to request a waiver retroactively.

A close review of FTA waiver decision letters suggests three important trends. First, manufacturers of rolling stock frequently request (through the grantee) the ability to develop “prototype” or “pilot” vehicles in the manufacturer’s home country before assembling the full order in the United States. While these “prototype” vehicles only represent a small percentage of the total orders, it underscores the notion that the advanced research and development jobs continue to be located overseas, despite domestic content and assembly requirements. Second, under the Obama Administration, FTA has very recently “raised the bar,” refusing to grant public interest waivers except “under the most extreme circumstances.” Third, optimal enforcement will rely heavily on public oversight and coordinated information sharing.

“Prototype” Vehicles and the Continued Offshoring of R&D

While the non-availability and price differential waivers generally require a more fact-intensive analysis by the FTA, public interest waivers may be granted at the discretion of the agency. Historically, one of the more common requests for public interest waivers concern the creation of a few “prototype” or “pilot” vehicles associated with a larger order. Manufacturers argue that it is important for the first pilot vehicles to be manufactured and assembled in the same location as the research and development work, allowing for testing and changes that would then be incorporated into the full order. Manufacturers argue that creating and testing pilot vehicles at the same location as the research and development functions will improve safety and expedite the process. Consider the following waivers granted by FTA:

In 1999, the Sacramento Regional Transit Authority requested and was granted a public interest waiver in the procurement of one prototype LRV from CAF in Spain. The transit authority argued that “final assembly requirement [should] be waived for a prototype LRV because assembly in the same location as the design and manufacturing engineering will insure quality and reliability. Further, skilled personnel familiar with the product will be utilized, therefore allowing a systematic and expeditious transition of this LRV technology to the United States. Changes that are determined necessary at this early state will then be incorporated in to the remaining LRVs during final assembly in the United States.” FTA agreed with this argument and granted the waiver. As justification, the determination letter stated, “FTA implements the Buy America requirements in a manner that takes in to account the realities of the industry and the practical necessities of foreign

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143 49 C.F.R. 661.9(b). (“A bidder or offeror who seeks to establish grounds for an exception must seek the exception, in a timely manner, through the grantee.”) The exceptions to this rule are if a manufacturer seeks a waiver for a component or subcomponent of rolling stock, or for a specific item or material that is used in the production of a manufactured product.


assembly of a prototype vehicle in appropriate circumstances. First article testing and inspection before full domestic manufacture and delivery of an order justifies conditions necessary for a public interest waiver.”

Also in 1999, the Metropolitan Atlanta Rapid Transit Authority (MARTA) requested and was granted a public interest waiver of final assembly requirements in the procurement of two pre-production pilot rail cars from Breda, an Italian manufacturer. MARTA and Breda requested permission for these two prototype vehicles to be manufactured, assembled and tested at Breda’s facilities in Italy, while the remaining order would be assembled in the United States. MARTA argued that the contract with Breda required a progressive test program prior to full production, the purpose of which was “to ascertain that the components and assemblies will interface properly and operate as ordered.” MARTA argued “this qualification testing can best be conducted at Breda’s primary facility located in Pistoia, Italy, under the direct observation of the engineering team with access to advanced rail technology test equipment which is only available at the design and manufacturing facility. Accordingly, if any problems arise, Breda would have the capability to adjust the design during initial assembly and testing and prior to full production.” MARTA further argued that allowing for the waiver would expedite the manufacturing process, allowing MARTA to better “satisfy ridership demands and meet its commitment to the public.” FTA granted the waiver, citing “the realities of the industry and the practical necessities of foreign assembly of a prototype vehicle in appropriate circumstances.”

In 2004, Sound Transit (Seattle) requested and was granted a public interest waiver of the final assembly requirements for two prototype light rail vehicles in procurement from Kinkisharyo. Sound Transit argued that testing of the electrical systems “is best accomplished if Kinkisharyo is allowed to assemble and test the prototypes in its primary facility, with the accompanying expertise and test tracks, in Osaka, Japan.” Sound Transit argued that this would “ensure that the components and assemblies of the vehicles will interface properly and operate in accordance with its performance parameters,” and “testing in Japan will also improve the production and delivery schedule.” FTA justified its decision to grant this waiver by citing public comments in support of the waiver. These public comments, submitted by representatives from other transit agencies and manufacturers, generally stated that assembly and testing of pilot cars at a manufacturer’s home facility insure better quality and a safer product.

Historically, FTA has consistently granted public interest waivers for similar requests to assemble and test prototype vehicles at facilities outside the United States. Using a 2010 letter to FTA, CAF went so far as to suggest that it was “common practice” for manufacturers to request and obtain public interest waivers from FTA to assemble pilot or prototype vehicles outside of the United States.

The fact that manufacturers and transit agencies will routinely go through the process of requesting waivers for just 1-2 cars out of a total order of sometimes over 100 vehicles underscores the fact that most if not all transportation rolling stock research, testing and design is conducted overseas. It is true that efficiency and safety may be improved if prototype vehicles are assembled and tested in the same location as the research and design phases. However, the continuous granting of waivers to allow this to be done overseas illustrates the ineffectiveness of the Buy America statute – in its current form -to keep skilled research and

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development jobs in America. In order to link domestic transportation investments to greater industry growth, Buy America could be strengthened in the form of incentives, mandates and targeted investments to expand the U.S. role in high value-added research and development.¹⁴⁹

**SAFETEA-LU and The Obama Administration “Raising the Bar” for Waiver Requests**

Despite the historical prevalence of waivers - particularly public interest waivers -for rolling stock procurements, the FTA has actually increased the scrutiny and tightened down on the granting waivers in recent years. In 2005, the Safe, Accountable, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU) amended Buy America to require the Secretary to issue a detailed justification for public interest waivers and to publish such a waiver in the Federal Register.¹⁵⁰ In the final rulemaking document, the FTA took the position that SAFETEA-LU intended a four-step process: 1) publish the incoming waiver request on FTA’s website for public review and comment; 2) based on the comments received, prepare a justification that explains the rationale for approving or denying the waiver request; 3) publish the justification in the Federal Register for notice and comment; and 4) post copies of the final decision on the FTA website.¹⁵¹ FTA has interpreted this legislation as “raising the bar” for waivers.¹⁵² In 2008, FTA employed what could be interpreted as higher standards when it denied a request from the Massachusetts Bay Transportation Authority for a waiver that would have allowed Vossloh España S.A. to assemble two pilot locomotives in Spain. In its decision letter, FTA outlined the criteria it would use for determining whether to grant public interest waivers for prototype and pilot vehicles:¹⁵³

- FTA requires a clear nexus between the waiver requested and the beneficial impact on the public;
- FTA will consider all factors on a case-by-case basis;
- FTA will implement Buy America in a manner that takes into account the realities of the industry and the practical necessities of foreign assembly of prototype vehicles in appropriate circumstances;
- FTA will deny requests that do not include factors like safety or the introduction of significant new technology; and
- FTA will deny requests predicated on a cost saving of less than 25 percent.

Under the Obama Administration, the FTA has further reiterated these criteria, and in a 2010 letter to Houston Metro and CAF, FTA President Peter Rogoff stated that rolling stock manufacturers are “on notice”

¹⁵⁰ 5 U.S.C. § 702 et seq.
¹⁵³ Letter from Sherry E. Little, Deputy Administrator FTA, to Daniel A. Grabauskas, Massachusetts Bay Transportation Authority (November 14, 2008), http://www.fta.dot.gov/legislation_law/legislation_law_8894.html. This letter to MBTA did not cite SAFETEA-LU as providing for a heightened standard, but a later 2010 letter from FTA Chief Counsel Dorval Carter to CAF stated that “the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, raised the bar by adding a provision to the law that requires FTA to publish a written justification in the Federal Register and to allow for public comment before it may grant a public interest waiver.” See, Letter from FTA to CAF (Oct. 1, 2010), http://www.fta.dot.gov/legislation_law/12921_12063.html.
that FTA will only grant public interest waivers in exceptional circumstances, and [now] has no intention of routinely granting waivers for prototype or pilot vehicles."  

Additionally, in a February 2011 “Dear Colleague Letter,” Peter Rogoff stated that “the FTA will not consider any requests for a public interest waiver of FTA’s Buy America regulation for Recovery Act projects. Mr. Rogoff also indicated that FTA will “carefully scrutinize requests for waivers based on non-availability to determine whether suitable American-made alternatives exist, and if none do, whether the funds can be used in an alternative manner that fulfills the goals of the Recovery Act. Similarly FTA will examine requests for cost-differential waivers to determine whether the cost savings justifies the loss of American jobs, especially in critical manufacturing sectors.”

Mr. Rogoff also stated that “this heightened standard is not exclusive to the Recovery Act.” The letter goes on to advise that “All [waiver] requests will be scrutinized. Most requests will result in FTA offering technical assistance to develop a solution that will not necessitate a waiver. Please be cautious about leading your projects down a path where a Buy America waiver will be needed, as it is unlikely to be granted.”

In addition, under the Obama Administration, the Manufacturing Extension Program (MEP) (discussed in greater detail later) has begun working with the FTA to improve its ability to assess the merits of requests for waivers from Buy America requirements, eliminate the need for some waivers, and strengthen FTA’s support for these requirements. Indeed, since 2009 there have been no public interest waivers granted for prototype vehicles, and several non-availability waivers have been denied as a result of the MEP’s efforts to find alternative solutions.

Clearly, there is support within the FTA and the Obama administration for more stringent enforcement of Buy America provisions as a domestic job creation strategy. However, this represents a discretionary policy decision by the current administration and is not binding on subsequent administrations. With November elections fast approaching, this policy stance could change dramatically in a relatively short period of time. Therefore, while the Obama administration’s approach is promising, actual amendments to the statute are needed in order to make this higher level of scrutiny permanent and sustainable.

**Buy America Enforcement Relies on Public Oversight and Coordinated Information Sharing**

By changing Buy America regulations to require the publishing of waivers in the Federal Register and allowing for public comment, Congress indicated a desire for greater transparency and accountability. FTA’s interpretation of this amendment – that it requires a four step process where FTA will make waiver decisions based on public comment- further supports the notion that public comment/input should help mold FTA decisions. Thus, public input and participation can be an essential tool to ensure that Buy America is applied in a way that protects and enhances domestic manufacturing.

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FTA has made efforts to improve access and transparency through its online presence. For instance, interested parties can subscribe to be notified whenever a new item is published on a specific FTA webpage, including waiver applications posted in the federal register.\footnote{See, http://fta.dot.gov/legislation_law/federal_register_notices.php, and select “Sign up for email updates.”} FTA has also made efforts to consolidate information in one centralized website. In 2010, The DOT created a new FTA Buy America website where users can access regulations, Dear Colleague Letters, Policy Guidance documents, Rulemaking Documents, Investigations, and Waiver Requests. In particular, by posting waiver requests on the more accessible website (in addition to being published in the Federal Register), the federal government hopes that more potential suppliers can respond to agency requests for non-availability waivers.\footnote{U.S. Dept. of Transportation, Fast Lane, “DOT’s ‘Buy America’ Website: Helping Keep American Companies Healthy and American Workers on the Job,” (Dec. 15, 2010), http://fastlane.dot.gov/2010/12/buy-america.html.} This increased transparency has several benefits. When an agency submits a waiver request, claiming that a certain product is not available domestically, suppliers that do in fact manufacture that product can respond and potentially win a contract. In addition, non-availability and cost-prohibitive waiver requests can serve to identify gaps in the domestic supply chain, presenting opportunities for domestic manufacturers to diversify production to meet the need.

There is evidence that this public oversight and engagement is actually succeeding at keeping manufacturing jobs in the U.S. In 2004, FTA denied two non-availability waivers after requesting public comment and receiving a response from a manufacturer who produced the products that were claimed to be unavailable.\footnote{Letter from FTA to President of Sweicon, U.S. (November 29, 2004), http://www.fta.dot.gov/legislation_law/legislation_law_655.html.} Again in 2009 and 2010, at least two waiver requests were rescinded after American producers were identified during the comment period.\footnote{ALLIANCE FOR AMERICAN MANUFACTURING, BUY AMERICA WORKS (Dec. 9, 2009), http://americanmanufacturing.org/blog?p=6744.}

Oversight by advocacy groups has proven successful as well. In 2009, a project in Oregon was seeking a non-availability waiver under the Federal Highway Administration’s (FHWA) Buy America statute (similar but separate from the FTA’s Buy America requirements). A field Coordinator for the Alliance for American Manufacturing noticed the waiver application and began researching potential domestic suppliers herself. She found a manufacturer that did in fact supply the component being procured, and on that basis successfully requested that FHWA deny the waiver.\footnote{Id.}

The efforts by manufacturers and advocacy organizations to leverage Buy America waiver transparency requirements suggests the need for better coordination and information sharing along the domestic supply chain. In an attempt to address this need, U.S. Department of Commerce under the Obama Administration has expanded the scope of the Manufacturing Extension Program (MEP) to address Buy America waiver requests. The MEP Buy American Supplier Scouting Program has created a process for federal Buy America waivers (for all federal programs with Buy America requirements, including the Recovery Act) that has been approved by the Office of Management and Budget. Under this process, a contractor completes a streamlined waiver request with the appropriate information on the manufactured item that they are requesting from outside the U.S. MEP then distributes the need to domestic manufacturers through its nationwide network to find matches. MEP facilitates interaction between the federal agency, contractor and potential manufacturer to analyze the match and potentially facilitate a domestic procurement.\footnote{MANUFACTURING EXTENSION PARTNERSHIP, MAKE IT IN AMERICA, (2010)http://www.nist.gov/mep/upload/Buy-American-One-Pager_v7.pdf.}
program with the U.S. Department of Energy’s Office of Energy Efficiency and Renewable Energy was able to match domestic providers to over half of the submitted waivers.\textsuperscript{163}

MEP is in the process of expanding this program on a larger scale with other federal programs.\textsuperscript{164} Already, MEP has been working with the FTA to improve its ability to assess the merits of requests for waivers from Buy America requirements, eliminate the need for some waivers, and strengthen FTA’s support for these requirements. Beyond addressing waivers, MEP is engaged in more widespread efforts to match domestic suppliers with OEMs who need to fulfill Buy America requirements.\textsuperscript{165}

Buy America Loopholes

In addition to waiver requests, there are four primary ways that transit agencies and/or manufacturing companies are able to circumvent Buy America requirements and conduct manufacturing activities overseas.

\textit{Segmenting of “Projects”}

Perhaps the most talked-about example of an agency exploiting a Buy America loophole is the use of Chinese steel to rebuild the San Francisco-Oakland Bay Bridge. The $6.3 billion project to replace the 2-mile span of the bridge that was damaged in the 1989 earthquake is the largest public works project in California history. More than $300 million in Federal Highway funds have been expended on the project. As a result of that federal expenditure, the FHWA Buy America provisions (which are similar but separate from the FTA provisions) \textit{should} apply, necessitating that all steel products be produced in the U.S.

However, the state of California subdivided the project into multiple contracts. While contracts that used federal funds were subject to FHWA Buy America provisions, other contracts that used only state funds were free from Buy America constraints. As a result, to the dismay of many, California entered into a contract, using only state funds (despite the fact that it was the availability of federal funds that freed the state funds to be used for other contracts) to procure over 43,000 tons of steel component pieces for the bridge from a Chinese-state owned company.\textsuperscript{166}

The potential for this particular type of abuse was on Congress’ radar well before the Bay Bridge controversy. A Conference Report from the 2005 SAFETEA-LU contained a paragraph on the “Sense of Congress Regarding Buy America.” The Report stated:

The Committee is concerned that the intent of Congress in the original Buy America (P.L. 97–424 §165) is being misinterpreted on federally funded bridge projects. The Buy America provision provides that domestic iron and steel be used in federal transportation projects unless its use would increase the “overall project contract” by more than 25 percent. The

\textsuperscript{163} Id.
\textsuperscript{164} Id.
problem that is emerging in the highway bridge industry is that project managers are attempting to circumvent the Buy America requirement by breaking bridge projects into component parts and applying the 25% test separately to each of the component parts, rather than to the entire bridge project as required by law. The intent of the Buy America/domestic content law was to ensure that when taxpayer money is invested on direct federal government procurement and infrastructure projects, these expenditures stimulate U.S. production and employment. This provision is intended to end any confusion or misinterpretation of the law by making clear that it is the Sense of Congress that the Buy America test applies to the overall bridge project.

Rather than enforcing the purpose of the law and prohibiting this type of abuse, the FHWA has essentially ignored this statement of congressional intent. A 2005 memorandum from FHWA Chief Counsel stated that “while the term "project" [as defined in 23 U.S.C. 101(a)(21)] may be used in varying contexts, the meaning of the term "project," as it relates to the obligation of Federal funds under the Federal-aid highway program and application of Federal requirements, is on a contract-by-contract basis...Thus, for purposes of obligating Federal funds to a project under the Federal-aid highway program, the terms "project" and "contract" are synonymous.” The memo justified continuing this interpretation of a “project” despite clearly contradictory Congressional intent by noting that “The law is very clear that a "sense of Congress" provision in enacted legislation is merely guidance and not positive, enforceable law.”

In the context of mass transit projects, FTA has taken a different approach than the FHWA. FTA’s Circular 4220.1F “Third Party Contracting Guidance” states, “if FTA funds are used for the project, Buy America requirements apply to all procurement contracts under the project irrespective of whether a recipient decides to fund a discrete part of the project without FTA funds.” This interpretation has been enforced in recent FTA decisions. In its 2010 investigation of Houston Metro, FTA rejected CAF’s argument that a separate contract for a prototype LRV was a separate project funded only by state resources. FTA made it clear that it was a mistake to equate “contract” with “project.”

That said, the very fact that CAF tried to make this argument in 2010 illustrates that foreign manufacturers are well aware of the possibility of avoiding FTA Buy America requirements by segmenting projects to include contracts without federal funding. Without clear statutory guidance on what constitutes a “project” for Buy America purposes, foreign manufacturers may continue to exploit this ambiguity to avoid domestic content requirements.

**Final Assembly Requirements don’t Adequately Capture Research and Design**

A 2010 study of rail car manufacturing in the U.S. found that “OEMs tend to keep the high-value roles—such as design, engineering, and systems integration—near their home headquarters, or at least near the largest markets they serve. In the case of a small U.S. rail market dominated by foreign-owned companies, this

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168 Id.
Geographic Preferences in Public Procurement

means offshore. To meet Buy America requirements, these OEMs and many of their Tier 2 suppliers perform lower-value manufacturing in the United States. These companies often use temporary local subcontractors or establish low-cost assembly operations to fill large orders, and then close them when the orders are filled. In some cases, this practice has been deemed valid under Buy America Final Assembly regulations.

The minimum requirements for final assembly of rolling stock are described in a 1997 FTA Dear Colleague Letter. The provisions set out in this letter were incorporated into the federal law through the 2005 SAFETEA-LU. Final Assembly should typically include, as a minimum, the following operations:

- Installation and interconnection of propulsion control equipment, propulsion cooling equipment, brake equipment, energy sources for auxiliaries and controls, heating and air condition, communications equipment, motors, wheels and axles, suspensions and frames
- The inspection and verification of all installation and interconnection work; and
- The in-plant testing of the stationary product to verify all functions.

While these requirements ensure that the physical assembly of the vehicle takes place in the U.S., they do nothing to ensure that the high value design and engineering work is conducted domestically. Just as the public interest waiver has been used to keep the high-value research and design jobs overseas, the final assembly requirements further perpetuate this trend. In fact, even as the FTA has cracked down on the use of public interest waivers, it has maintained a final assembly loophole for prototype vehicles.

FTA’s 2010 letter to WMATA concerning a vehicle production plan proposed by Kawasaki exemplifies this loophole. In that case, Kawasaki sought FTA guidance because it intended to perform certain design and engineering activities in Japan and wanted to ensure that it complied with the requirement that in-plant testing be conducted in the United States. Rather than request a waiver, Kawasaki’s plan essentially dictated that the company would “engineer and design four prototype vehicles in Japan for the limited purpose of conducting design qualification testing.” After successful design qualification testing, Kawasaki would then strip the prototype vehicles down to the car shells (and certain components that are not feasible to remove), and then ship these shells to the U.S. to be reassembled, with all new components. The cars would then undergo in-plant testing in the U.S. plant. FTA approved this plan as being fully compliant with Buy America requirements.

In awarding the P3010 LRV contract to Kinkisharyo in May 2012, Metro and the Japanese OEM followed this same approach. Kinkisharyo’s bid indicated a plan to develop and test 4 prototype vehicles in Japan, then disassemble the prototypes after testing, and ship to the U.S. for reassembly. At the Metro Board meeting, the Metro staff presentation stressed that this approach – the Kawasaki Plan – had been blessed by FTA and suggested the FTA’s letter to WMATA acted as precedent to support Kinkisharyo’s plan. By suggesting that an

171 MARCY LOWE, SAORI TOKUOKA, ET. AL., U.S. MANUFACTURE OF RAIL VEHICLES FOR INTERCITY PASSENGER RAIL AND URBAN TRANSIT: A VALUE CHAIN ANALYSIS,(Center on Globalization, Governance, and Competitiveness at Duke University, 2010), 51.
172 Id.
173 FITZGERALD, GRANDQUIST, ET. AL. supra note 149, at 13.
174 Appendix D to 49 C.F.R. 661.11.
isolated decision concerning WAMTA should be treated as broad precedent, Kinkisharyo and the Metro staff have in effect attempted to exploit what amounts to a blanket waiver for prototype vehicles to be tested overseas. In May of 2012 the FTA determined that Kinkisharyo’s plan complied with requirements.\textsuperscript{176} If Kinkisharyo’s now-approved production plan for the prototype vehicles actually expands the scope of testing and development beyond that which was allowed for the Kawasaki (i.e. is the plan distinguishable?), then the result could be not just a perpetuation, but also an expansion of this loophole.

FTA’s decision to allow this end-run around final assembly is inconsistent with the Agency’s simultaneous position that public interest waivers for prototype vehicles will no longer be granted. Therefore, FTA should reject the “Kawasaki Plan” as precedent and should consider final assembly issues on a case-by-case basis, as was the intent of the law. By only requiring the physical assembly and later-stage testing to be conducted in the U.S., this interpretation of the FTA Buy America act effectively allows foreign owned railcar manufacturers to keep the higher value research, design and engineering jobs associated with U.S. orders in their home countries. As a result, U.S. rail car orders actually increase and sustain research innovation and good high skill manufacturing jobs in other countries, while precluding it domestically.

\textit{“Systems” as “end products”}

Another potential loophole in the Buy America regulatory framework exists in the context of how components and subcomponents are defined. Buy America requirements apply to “end products,” which consist of “components” and “subcomponents.” Under Buy America, all manufactured products must be produced in the United States. For a manufactured product to be considered produced in the United States, all of the components of the product must be of U.S. origin, but the statute does not account for the origin of subcomponents.\textsuperscript{177} In other words, for manufactured products, components must be domestically produced, but subcomponents may be foreign sourced.

Therefore, whether an item is considered a “component” or an “end product” dictates how far downstream Buy America regulates. This is particularly relevant in the context of agency procurements of “systems,” which consist of various parts that contribute together to a clearly defined function. Because a system consists of easily identifiable separate parts, it could be argued that each of those parts is a manufactured end product that must comply with Buy America. On the other hand, because a system integrates those parts into a single product that achieves a clearly defined function, it could also be argued that the system itself is the manufactured end product.

If a system were considered an end product, despite being composed of many easily distinguishable parts, Buy America would apply only to those different parts. In this scenario, the parts would need to be manufactured in the U.S., but the parts of the parts could be foreign manufactured. On the other hand, if each distinct part of the system were considered an end product, then Buy America would apply to the distinguishable parts that make up the system, as well as the components of each part. Under this second scenario, Buy America would reach more of the manufacturing process and would ensure that more of the manufacturing employment remained in the United States.

\textsuperscript{177} 49 C.F.R. 661.5(d)(2).
This subtle distinction may be better explained using the example of an automated fare collection system. An automated fare collection system is comprised of several parts, including ticket vending machines, fare gates, computers, software, and other items. Take the ticket vending machine for example. If the system itself is not an end product, but rather the ticket vending machine is a separate and distinct end product, then the next level of manufactured products that make up the machine would be considered components, which must also be manufactured domestically. On the other hand, by designating the entire automated fare collection system as a single end product, the parts of the system like the ticket vending machine would be considered components, and would be required to be manufactured domestically. But, the manufactured parts that comprise the vending machine would be classified as subcomponents, and would be free from regulation (that is, they may be foreign sourced). Therefore, the loophole exists “whereas ‘major system’ designated as an end product results in the designation of critical equipment as components, rather than as end products, thereby dramatically increasing the quantity of foreign manufactured equipment that may be incorporated into a procured system.”

Congress recognized this potential, and the 2005 SAFETEA-LU required FTA to address the procurement of systems “to ensure that major ‘system’ procurements are not used to circumvent the Buy America requirements.” FTA responded with proposed rulemaking documents and solicited public comment. A number of comments suggested that if FTA allowed systems to be classified as end products, then more of the manufacturing process and employment would take place overseas.

Despite these concerns, the final rule nonetheless included the word “system” in the definition of “end product.” As a result, the regulations open the door for systems to be classified as end products, thereby potentially increasing the amount of manufacturing that is exempt from Buy America regulations. However, the regulations do include several factors that FTA can consider in determining whether a system should or should not be considered an end product.

Currently, it is FTA policy to review major systems procurements to determine whether an integrated system actually exists, using the criteria now listed in 49 CFR 661.3. Moreover, “under FTA’s current methodology, if a purported end product is too large, i.e. composed of what FTA traditionally considers to be separate ‘end products’ such as structures, vehicles, fare collection equipment, etc., FTA will break it down into separate end products.” FTA stated that it “is aware of the developing trend towards systems procurements and the potential circumvention of Buy America requirements, and will therefore exercise heightened scrutiny in the area.” Indeed, FTA exercised this right to intervene in 2011, when it notified the Public Bike System Company that it might not classify a bike share system as an end product. FTA held that “a bicycle sharing system is too large – it consists of too many elements that could be separately procured and independently operated – to be considered an end product...If FTA were to consider a bicycle sharing system, in total, to be an end product for purposes of Buy America, the result would be a near total circumvention of Buy America.”

However, notwithstanding this current administration’s commitment to enforcing Buy America’s purpose, this circumvention mechanism is still statutorily available given that the current definition of end product

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181 49 C.F.R. 661.3.
184 Letter from Dorval Carter, Chief Counsel FTA to Peter Kirby (April 8, 2011).
includes the term “system.” Without clear guidance, the entire determination is at the discretion of FTA. This has the potential to cause continued confusion in the market as well as an increased risk that a “system” designation may be used as an end run around domestic content requirements.

**Lower Domestic Content Requirement for Rolling Stock**

Finally, under FTA Buy America regulations, the domestic content requirements for rolling stock stands at only 60 percent, compared to the 100 percent requirements for iron, steel and manufactured products. This allows a significant portion of rolling stock manufacturing to take place overseas. Moreover, the FTA regulations count the full cost of a component toward the domestic origin threshold if that component contains at least 60 percent domestic subcomponents. As a result, a piece of rolling stock can be Buy America compliant if 60 percent of its components have at least 60 percent domestic subcomponents. In other words, a project can be Buy America compliant with as little as 36 percent of the total cost of the components of the rail produced in the United States (See figure below)

Figure 1: Breaking down the domestic content requirements for rolling stock procurement.

<table>
<thead>
<tr>
<th>U.S. Subcomponents</th>
<th>$18</th>
<th>36%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign Subcomponents</td>
<td>$32</td>
<td>64%</td>
</tr>
</tbody>
</table>

Here, three of the five components are considered to be of domestic origin, satisfying the 60% threshold. But, if you take into account that the components can be considered of domestic origin with only 60% domestic subcomponents by cost, you have a scenario where only 36% of the total parts that make up the order are domestically sourced.

In addition, it is important to note that the law applies a percentage requirement to costs rather than total parts. This is an important distinction. For instance, a manufacturer could produce a couple, expensive component domestically – satisfying the 60 percent cost requirement - while all other parts could be produced in other countries.
A 60 percent domestic content requirement for rolling stock hamstrings efforts to improve economic and employment opportunities through U.S. investment in transportation infrastructure. The Dukakis Center for Urban and Regional Policy at Northeastern University published a study in 2010 that looked at the employment impacts of three different scales of U.S. transit investment: a “business as usual scenario,” a “increased domestic investment scenario,” and an “international competitiveness scenario.” The report found that amending Buy America to require full domestic content for rolling stock would substantially increase employment estimates in all three scenarios. According to the study, “almost all of the additional jobs gained under a 100 percent domestic production scenario would be in firms that supply the railroad rolling stock manufacturing industry.”

Increasing rolling stock domestic content requirements could result in big employment gains throughout the supply chain.

While Buy America regulations do allow states to impose contracting preference provisions based on more stringent domestic content requirements than those set forth in the federal law, the FTA will not participate in the funding of state and local contracts with those preference provisions if they are not explicitly set out under state law. Opportunities for enhanced preferences at the state and local level will be discussed in greater detail in the next section.

The Future of Buy America: Current Political Discourse

As described in the previous section, the way that Buy America is actually applied in practice demonstrates several shortcomings in the statute’s ability to protect and enhance American employment and economic growth. These shortcomings may be symptomatic of a greater disinvestment in manufacturing and industrial policy at all levels of government that has occurred over the past few decades. However, in recent years, the issue of manufacturing and infrastructure investment has reemerged in political discourse, and with it has come a focus on Buy America. There are now policy discussions and strategies that exist on several fronts concerning domestic content legislation. This section highlights proposed policies and public statements by high-level officials concerning Buy America at the federal, state and local level, and also identifies political opposition to a more robust Buy America framework.

Obama Administration Manufacturing Initiatives

Over the last couple years the Obama administration has pushed for improved manufacturing policies and programs as a job creation/economic recovery vehicle. Much has been made of the notion of “leveling the playing field” to allow American companies to better compete in an international marketplace. While the administration has pushed for a variety of manufacturing and industrial programs, changes and improvements to domestic content policy has been one of the focal points.

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185 FITZGERALD, GRANDQUIST, ET. AL. note 149, at 30. While the report concludes that “full domestic sourcing would dramatically increase employment,” it also cautions that the current U.S. rail market is not large enough to support the comprehensive supplier industry needed to move to full domestic supply. There are gaps in the U.S. value chain that must be filled in order to support a 100 percent domestic content requirement for rolling stock.

186 49 C.F.R. 661.21.

The 2009 Recovery Act, pushed hard by the Obama Administration, included Buy America requirements for all public works projects. Structured similarly to other domestic content legislation, The Act stipulated that “None of the funds appropriated or otherwise made available by this Act may be used for a project for the construction, alteration, maintenance, or repair of a public building or public work unless all of the iron, steel, and manufactured goods used in the project are produced in the United States.” The inclusion of domestic content provisions in the stimulus bill was a major point of contention, with opponents suggesting that expanding domestic content is detrimental to foreign trade relations. At the time, President Obama himself expressed concern over whether the domestic content provisions would “signal protectionism.”

In 2011, the DOT and the Commerce Department created a partnership to encourage the creation of domestic manufacturing jobs and opportunities for U.S. suppliers through transportation investments. The Department of Commerce’s Manufacturing Extension Partnership (MEP) was expanded in an effort to ensure manufacturers meet Buy America standards, and to better connect U.S. manufacturers and suppliers for transit projects. Under the partnership, MEP is expected to “leverage over 1,300 expert manufacturing assistance field staff in over 350 locations to provide knowledge of local manufacturing capabilities from across the nation. MEP will identify suppliers’ production and technical capabilities to match them up with viable business opportunities that may have otherwise gone to foreign suppliers, ensuring maximum economic benefit for taxpayer-funded transportation investments across all modes.”

In addition, FTA Administrator Peter Rogoff has expressed support for increasing the FTA Buy America rolling stock domestic content threshold. In his testimony before U.S. Senate Committee on Banking, Housing, and Urban Affairs, Mr. Rogoff stated:

“The Obama Administration is committed to ensuring that projects built using United States tax dollars generate the maximum number of jobs right here in the United States. As such, we request that Congress implement the necessary legal changes to increase the “Buy America” standard for federally funded transit equipment and components over time to 100 percent U.S. content. The Administration proposes to achieve this goal by gradually increasing the percentage of rolling stock components and subcomponents that must be produced in the United States. This increase would take place over a five-year period to enable vehicle manufacturers to enlist a greater number of U.S.-based vendors, and to give vendors time to relocate or commence manufacturing activities in this country. By 2016, 100 percent of the cost of components and subcomponents for rolling stock, including rolling

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stock prototypes, would have to be produced in the United States and final assembly would have to occur here as well.”

Mr. Rogoff reiterated this commitment in April 2012 at a speech given at a bus manufacturing plant in Hayward, California. Mr. Rogoff stated,

“This administration is taking posture that we’re going to claw and fight to get every American manufacturing job back we can. Part of our proposal as an administration, specifically as it relates to transportation, is to raise the American content of buses and railcars that are brought with American tax dollars. These are taxes paid by you and me and all the other American taxpayers for public investments in public transportation. And we have not only the right but the obligation to insist that those dollars are plowed into American jobs... we want the percentage of these American vehicles to grow not just from the minimum sixty percent...but also to grow it by ten percent a year every year until we can get it to 100 percent.”

This proposed increase is in line with the contents of several proposed bills that are being considered by the House and the Senate (discussed further below).

Recently Transportation Secretary Ray LaHood toured the Siemens locomotive and passenger car manufacturing plant in Sacramento. After the factory tour, Secretary LaHood met with California-based manufacturers and suppliers at the Next Generation Rail Supply Chain Connectivity Forum, hosted by the Manufacturing Extension Partnership (MEP). Secretary LaHood stated that “through a “Buy America” approach to construction, the Obama Administration is ensuring that high-speed rail projects are built with American-made products.” In addition, 30 rail companies from around the world have pledged that if selected for high-speed rail contracts, they will hire American workers and expand their bases of operation in the United States.”

Clearly, there is support within the administration both for increased transit investment and for efforts to rejuvenate, enhance and sustain the domestic manufacturing economy. The administration has been able to move the dial on some issues (see, MEP expansion, Recovery Act) while other goals have been stalled by political gridlock. The administration’s support and policy ideas, whether fully realized or not, have helped create a renewed national dialogue about manufacturing. Obviously, the November 2012 elections will determine whether an Obama administration has another four years to further promote and develop their manufacturing and transit agenda.

Potential Buy America Improvements in a Federal Transportation Bill

As of June 2012, Congress was in the midst of debating a Transportation Reauthorization bill. As an initial step, in March the Senate passed their version of a $109 billion Transportation Bill with a bipartisan vote of

195 For instance, Obama’s jobs bill would have included a provision allowing local hire preferences for projects with federal funds. But, the bill was widely opposed by Republicans and never gained any real traction.
The Senate’s bill included an amendment that strengthens various Buy America preferences for transportation projects (affecting FTA, FHWA, and Amtrak regulations). Specifically, the bill:

- Requires agencies to provide notification on a public website and a 15 day comment period before proposed waivers of Buy America preference are granted (This requirement already existed in the FTA Buy America regulations)
- Requires an annual report on the use of Buy America waivers, including justification for each waiver and the monetary value for each waiver. (FTA Buy America already required justification to be posted in the Federal Register, but the annual reporting requirement and monetary value reporting requirements are new.)
- Ensures that public works projects receiving federal aid cannot be “segmented” to evade Buy America preferences. The bill accomplishes this by stipulating that Buy America applies to contracts carried out within the scope of the National Environmental Policy Act (NEPA).

The Senate Bill’s most significant improvement to Buy America is the provision that closes the segmented projects loophole. While this was not a large problem for FTA funded projects under the current administration, it was a significant issue for FHWA projects. Moreover, a codified definition of “project” that is applicable to all Buy America provisions will give it the force of law and make sure that the loophole is not determined by agency discretion. Despite these improvements, the bill passed by the senate does not increase the rolling stock domestic content threshold from 60% to 100% as many, including the Obama administration, hoped it would.

The issue is now being considered by the House, where in the last year, several stand-alone bills have been introduced that would increase domestic content thresholds for rolling stock.

**H.R. 3533 The Invest in American Jobs Act of 2011** was introduced by Rep. Nick Rahall in December of 2011. The introduction to the bill begins with a synopsis of the loophole in the FHWA Buy America statute (described above) that allowed California to purchase large segments of the Bay Bridge from a Chinese manufacturer. The bill is presented as a way to close this loophole and “ensure that all future bridges and similar transportation and infrastructure projects financed by U.S. taxpayers will be stamped “made in America,” crafted with American workmanship, and will create and sustain good-paying jobs in our local communities – not outsourced overseas.” The bill both strengthens existing Buy America provisions applied to FTA grants, FHWA grants, and Amtrak projects, and imposes new Buy America requirements on other infrastructure investment programs.

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198 For instance, refer to the Oakland Bay Bridge example.
199 *Peter Rogoff Senate Testimony, supra* note 192.
201 *Id.*
With respect to the FHWA Buy America statute, H.R. 3533 “ensures that highway and bridge projects receiving federal assistance cannot be segmented to evade Buy America requirements by specifying that such requirements apply to all contracts carried out within the scope of the applicable finding, determination, or decision under the National Environmental Policy Act of 1969 (NEPA), regardless of whether each specific contract is funded with federal funds.” By applying Buy America requirements to each contract that falls within the scope of the “project” as defined by NEPA, the bill will ensure that contracts are not manipulated in order to avoid domestic content requirements.

With respect to the FTA Buy America statute, the bill applies the broader NEPA definition of “project,” regardless of whether each specific contract is funded with federal funds. In addition, the bill incrementally increases the percentage of components and subcomponents of rolling stock that must be manufactured in the United States from the current 60 percent requirement to full 100 percent domestic content by FY 2016.

In addition to strengthening FHWA and FTA Buy America requirements, the bill requires the DOT to submit a Buy America Annual Report to Congress. On top of the requirements that FTA publish waiver requests and solicit public comments in the Federal Register, this provision would also require DOT to document and report each project that received a waiver, a justification for each waiver, the monetary value of contracts awarded pursuant to each waiver, and provide an employment impact analysis of the cumulative effect of all waivers issued in the preceding year on manufacturing employment in the United States.

A similar bill, H.R. 613 “Make it in America Act” was introduced by California Senator John Garamendi in 2011. The proposed bill amends the waiver process for several Buy America statutes, and also increases the rolling stock requirement in FTA Buy America from 60% domestic content to 100% domestic content.

These bills may be incorporated, in some form, in a House version of the Transportation Reauthorization Bill. However, the House has experienced a significant political gridlock concerning this and many other issues during this current session. At this point it is unclear just what will or will not make it to the President’s desk in terms of federal transportation policy. The current federal surface transportation law is set to expire again on June 30, but it is very possible that the law will again get a short-term extension so as to table the reauthorization debate until after the November elections.

Given this current political stalemate, it is unclear which, if any, of these Buy America improvements will actually become law. Currently, the House and Senate are working to resolve two different iterations of a billion May 10, 2012, six Senators led by Sharrod Brown and Jeff Merkley sent a letter urging the inclusion of an amendment that would eliminate the project segmentation loophole discussed elsewhere in this chapter. However, there seems to be very little discussion about raising the domestic content requirements for rail cars from 60%, despite what appears to be support for such a move from the FTA and the Obama administration.

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202 Id.
203 Id., at 7.
204 Id. at 10.
In addition, just as was the case with the Recovery Act, there are those that worry that any Buy America provisions in a transportation bill will hurt international trade relations. Canadian firms are currently beginning to question whether the transportation reauthorization will preclude them from opportunities created by the funding programs.  

California AB 1097

Even without any of the proposed amendments, the FTA Buy America statute currently allows state governments to enact domestic content preferences greater than 60 percent for rolling stock procurements, as long as such a provision is set forth in state law. In January 2012, California became the first state to do so. AB 1097 provides explicit permission for local agencies to employ a domestic content preference greater than 60 percent for rolling stock procurements. The bill reads:

Section 14031.1 is added to the Government Code, to read: In accordance with federal regulation (49 C.F.R. 661.21), the state or a local agency, relative to the use of federal funds for transit purposes, shall be authorized to provide a bidding preference to a bidder if the bidder exceeds Buy America requirements applicable to federally funded transit projects. The state and each local agency shall have the discretion to apply those preferences.

The most recent Assembly Floor Analysis suggested that the bill was introduced to help support the use of federal transportation monies as a vehicle for job creation. As a result of this legislation, California governments and transit agencies are free to give preference to bidders that exceed a 60 percent domestic content threshold for rolling stock. In the short time since this bill was enacted, local agencies have already begun to implement this change.

BART: Enhanced Domestic Content Policies.

In early 2012, Bay Area Rapid Transit (BART), which was a strong supporter of AB 1097, adopted the state’s first rolling stock procurement policy that gives additional weight to bids that propose domestic content at levels greater than 60 percent. The BART policy gives a 0.25 percent price preference for each 1 percent increase in domestic content. Therefore, a bid that proposes 100 percent domestic content for rolling stock will receive a 10 percent price preference (40 percent increase x 0.25).

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207 49 C.F.R. 661.21.
This policy was quickly put to the test in the spring of 2012 when BART contracted for the purchase of up to 775 new cars. In a process that virtually mirrored that which occurred in Los Angeles, one company with significantly better U.S. employment prospects was pitted against a company with a lower overall price tag.\textsuperscript{211} Under the new rules that gave a price preference for enhanced domestic content, Canadian company Bombardier submitted a bid that promised 66\% American content. French company Alstom on the other hand, submitted a bid that promised 95\% American content. Despite a Make it in America media campaign\textsuperscript{212} and pressure from public officials,\textsuperscript{213} labor leaders\textsuperscript{214} and community advocates, the BART Board ultimately voted to award the contract to Bombardier, arguing that the lower price makes it more likely that the agency could afford to purchase the full order of 775 cars.\textsuperscript{215} The domestic content preference enhanced Alstom’s score beyond what it would have been without such a preference, but it was not enough to yield the highest overall score.\textsuperscript{216}

In Los Angeles, Metro has not yet adopted a formal policy, but staff has recommended revised evaluation criteria for bus procurement that would implement a preference for proposals that exceed the 60 percent requirement.\textsuperscript{217} Providing points for going beyond the 60 percent requirement was discussed as a potential part of the 3010 LRV RFP as well.\textsuperscript{218} However, as the BART experience suggests, even implementing a formal procurement policy that gives a percentage preference to enhanced domestic content will not ensure that companies who propose higher American content will ultimately be awarded the contract. If the political will exists for Metro to enact its own domestic preference policy under AB 1097, then Board members, advocates and stakeholders should think about ways to strengthen a potential policy. A greater preference than that allowed by BART (or even a mandate) may be considered. Likewise, Metro may consider using the state bill to support a different kind of preference. For instance, Metro might consider awarding points not only based on the percentage of domestic content, but also to companies that promise to conduct prototype development and testing in the United States. This could potentially incentivize not just content and assembly, but also the R&D that is associated with prototype testing.


\textsuperscript{212} See, http://bartforamerica.com/.


\textsuperscript{216} BAY AREA RAPID TRANSIT, \textit{EXECUTIVE DECISION DOCUMENT, AWARD OF CONTRACT N. 40-FA-110 FOR PROCUREMENT OF TRANSIT VEHICLES}, http://www.bart.gov/about/bod/meetings/agendas/05-10-12%20Agenda%20Packet%20v4.pdf (“While Alstom’s Buy America domestic content was significantly higher than Bombardier’s, Bombardier’s price was low enough to receive the maximum number of points available for price.”)


\textsuperscript{218} See, Memorandum from Los Angeles County Metropolitan Transit Authority (Metro), Executive Management and Audit Committee, Operations Committee, – Light Rail Vehicle Procurement,(October 21, 2010), http://www.metro.net/board/Items/2010/10_October/20101021EMACItem6.pdf.
Buy America Political Opposition

It should come as no surprise that efforts to expand domestic content legislation are not universally supported. It seems that Buy America encounters opposition both from the standpoint of efficiency and fiscal responsibility, as well as in the context of international trade relations.219

From an efficiency and fiscal responsibility standpoint, opponents argue that Buy America requirements drive up bid prices, requiring agencies to spend more on domestic products, thus siphoning money away from other deserving transit projects.220 Opponents further contend that while Buy America creates or protects a handful of U.S. jobs, the price premium on domestic manufactured products does not go entirely to workers. Instead, they argue, it helps create a co-dependent cottage industry of consultants and lobbyists.221 Some state transit officials have also suggested that the regulations create burdensome bureaucratic process and increased project costs and delays.222

Despite consistent opposition to the perceived cost increases associated with American manufacturing, the biggest recent organized resistance to Buy America was actually tethered around international trade relations and the fear of retaliatory policies. This issue percolated in 2009 as Congress was debating the Recovery Act. Those who opposed the inclusion of Buy America requirements in the bill suggested that such a “protectionist” approach would invoke retaliatory policies by trade partners. The U.S. Chamber of Commerce sent a letter to the President, arguing that Buy America provisions “invite our trading partners to retaliate by closing their own markets. In so doing, they risk creating a downward protectionist spiral that will hurt millions of American workers who rely upon global engagement for their jobs through exports, foreign direct investment and imports. In short, the proposed Buy American expansions would have the effect of costing – not protecting – American jobs.”223 A 2009 Report by the Peterson Institute for International Economics reiterated this concern, arguing that “in response to the Buy American measures, other countries would likely choose to echo US legislation by further restricting the ability of foreign firms to bid on public contracts. Such action – applied to lucrative new projects covered by their own stimulus programs - would raise additional barriers to US manufactured exports.”224

In addition to suggesting the likelihood of retaliatory policies, opponents such as the US Chamber also suggest that “the proposed Buy American expansions go against the spirit and letter of our binding international commitments in the World Trade Organization and numerous bilateral agreements.”225 However, as discussed earlier in this chapter, FTA’s Buy America statute likely does not

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219 This section aims to present political opposition in an objective manner. For a succinct rebuttal to these main oppositional arguments, see, Alliance for American Manufacturing, In Defense of ‘Buy America’ Preferences, (March 19, 2012), http://americanmanufacturing.org/blog/defense-buy-america-preferences.

220 See, e.g., a blog posting at, The High Cost of Buy America, SYSTEMIC FAILURE, (May 8, 2012), http://systemicfailure.wordpress.com/2012/05/08/the-high-cost-of-buy-america/.


225 Letter from the U.S. Chamber of Commerce to the President, supra note 223. As noted elsewhere in this chapter, Buy America requirements do not actually violate NAFTA or WTO agreements. Moreover, Section 1605 of the
violate NAFTA or any other trade agreement, and the Recovery Act’s Buy America rules ultimately included a provision that it “be applied in a manner consistent with United States obligations under international agreements.”

The organizations that have been most vocal in their opposition to domestic content legislation are the U.S. Chamber of Commerce and several large corporations. In January of 2009, lobbyists for General Electric and Caterpillar expressed the opinion that domestic content provisions in the Recovery Act would spur retaliation, calling the Buy America provision “an anti-export provision.” One can easily speculate that these retaliatory arguments are a way to frame self-serving policies. But it should also be pointed out that inclusion of the domestic content provisions in the Recovery Act was pushed hard by Rep. Peter Visclosky who headed the steel caucus in Congress, with support from several large steel companies. Clearly, dialogue and debate about the merits of domestic content provisions cannot easily be separated from the politics and interests involved.

Despite political voices that oppose Buy America provisions, it should be noted that domestic content requirements enjoy strong public support. A 2009 Harris Interactive poll commissioned by the Alliance for American manufacturing found that 84 percent of Americans favored Buy America requirements in the Recovery Act.

Conclusion: Opportunities for Advocacy and Next Steps

The previous sections of this chapter have outlined the contours of FTA Buy America as it is written in law, as it is applied in practice, and the ways it is interpreted and debated in current political discourse. But what does all of this mean for a renewed green manufacturing economy in the Los Angeles region? This final section will present potential opportunities for policy advocacy. Of course different policies and practices are enacted, reformed and implemented at different levels of government. Likewise, depending on a variety of factors, interested stakeholders and advocates acquire the leverage and opportunities to engage from different sources. Accordingly, this section identifies the level of government or governance at which the policy change might occur, and where feasible, suggests potential points of leverage to help stakeholders and advocates better engage and participate in the decisions that affect domestic content regulations.

In looking at the ways that Buy America has been implemented and utilized, it is clear that the law has strengths and weaknesses as it relates to a high road manufacturing employment strategy – both domestically and locally. Therefore, this section presents policy ideas in three frames: how Buy America’s weaknesses can be improved; how Buy America’s inherent strengths and benefits can be maximized; and the role Buy America might play in enhancing the capacity of high road, sustainable green manufacturing in the

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228 Id.

Los Angeles region. These policy ideas are presented in the context of the research described above. They are intended not as finalized policy recommendations, but rather to highlight potential opportunities for further research and analysis by the experts at LAANE, PERE, Green for All and other interested stakeholders.

How can Buy America Weaknesses be Strengthened?

This chapter has outlined several weaknesses of the Buy America statute when it comes to ensuring domestic production and manufacturing in the transit sector. Specifically, waivers and loopholes have allowed firms and agencies to continue to offshore much of the manufacturing process, despite the clear legislative intent behind the statute. There are several steps that can be taken to close these loopholes and strengthen the Buy America framework. Doing so would be a big step in realizing the full potential of government procurement as a tool to develop, rejuvenate and sustain American manufacturing.

Increase the Rolling Stock Domestic Content Thresholds from 60% to 100%

As noted above, the Obama administration has expressed support for incrementally increasing Buy America rolling stock requirements from 60% to 100% domestic content. There is a slim chance that such a change might make its way into the federal transportation reauthorization bill. A recent study suggests that simply increasing the threshold to full domestic content for rolling stock would significantly increase employment among firms that supply the rolling stock industry.230

A change to the federal Buy America statute would be a significant victory for American manufacturing. That said, even if such a change is impossible in the current political climate, recent California state law has provided an opportunity to implement this change at the local level. AB 1097 now gives explicit permission for transit agencies to adopt policies that give preferences to bids that exceed the federal Buy America standards. Metro should consider adopting a policy similar to the one adopted by BART earlier this year to give preference to bidders that promise to source more than 60% of rolling stock costs from domestic suppliers. More research could be conducted to determine whether it would be feasible for Metro to go a step beyond the percentage preference approach employed by BART and actually impose a 100% domestic content mandate.

Stop the Offshoring of Research and Development for U.S. Orders

Public interest waivers and loose “final assembly” requirements have perpetuated the trend of locating the high-value research and development phases of U.S. orders in foreign countries. Current FTA leadership has indicated that they will be less willing to grant public interest waivers for pilot or prototype vehicles. However, as long as the public interest waiver remains a discretionary process, there is no sustainable mechanism to ensure that prototype vehicles (and by extension, high value research, development and engineering) are conducted in the United States. Moreover, as we have seen first with Kawasaki and now with Kinkisharyo here in L.A., it is possible for OEMs to conduct prototype vehicle production and testing overseas without even needing a public interest waiver.231

230 FITZGERALD, GRANDQUIST, ET. AL., supra note 149.
requirements should also include provisions that prohibit or limit the offshoring of research and development for U.S. orders. Avenues to achieve this goal include technology transfer agreements and R&D investments, as well as the potential enactment of procurement preferences for domestic prototype vehicle production by local agencies.

A 2010 Report conducted by Worldwide Institute, Apollo Alliance and the Dukakis Center for Urban and Regional Policy highlighted the success of China’s technology transfer agreements in promoting research, design and engineering activity within the country. The Report concluded that the United States should likewise seek to expand the capacity of American companies by negotiating technology transfer agreements. A 2009 report by the U.S. Public Interest Research Group cites the success of South Korea in licensing the technology for its high-speed rail system from a French company and then using the technology to expand its domestic production capacity. The Report recommends that the United States follow a similar approach to “expand the capacity of American companies to produce high-speed rail systems and components by negotiating technology transfer agreements and investing in research and development.”

This recommendation was made in the context of high-speed rail, but the concept applies to light rail systems as well. Further, a 2010 Report conducted by the Duke University Center on Globalization, Governance and Competitiveness concluded that while Buy America alone is insufficient to build higher value within the manufacturing base, “the right mix of additional measures could make it more feasible for new U.S. players to emerge and be able to compete against the experience and expertise of large international OEMs.” These measures include technology agreements, joint ventures, and joint licensing agreements.

Portland’s United Streetcar, which is currently the only U.S. based modern streetcar manufacturer, developed its first prototype car in 2007 after signing a technology transfer agreement with a Czech railcar company. With help from a federal grant, the company is now developing a new propulsion system that will increase the U.S. content of its streetcars from 70% to 90%. More research is needed to determine the feasibility of technology transfer agreements as a mechanism to promote more robust domestic research and design capabilities for rail car manufacturing. There appears to be a growing level of support for this strategy, as a component of a comprehensive national industrial policy framework.

Another potential avenue to consider, especially if the political impasse at the federal level continues, is to leverage recent California legislation to help ensure domestic research and design through state and local procurement. AB 1097 was discussed and passed in the context of rolling stock domestic content thresholds and it has been used to support a BART policy that gives preference to manufacturers that source greater content thresholds.

interpretations of final assembly requirements have allowed the company to build and test prototype vehicles in Japan, then disassemble the vehicles and ship the various parts to the U.S. for reassembly.

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232MICHAEL RENNER AND GARY GARDNER, GLOBAL COMPETITIVENESS IN THE RAIL AND TRANSIT INDUSTRY, (WorldWatch Institute, 2010). See also, Jamil Anderlini, High Speed China Changes Rail Landscape, FINANCIAL TIMES, March 16, 2010, http://www.ft.com/intl/cms/s/0/a04d14cc-310b-11df-b057-00144feabd0.html#axzz1pVtQ3 (China appears to have a domestic content law similar to Buy America, except that in addition to local content and assembly, it also requires transfer of technology and design.)

233RENNER AND GARDNER, supra note 232.


235LOWE, TOKUOKA, ET. AL., supra note 171, at 51.

236Id.

237Id., at 46.

238Id., at 47.
than 60% of their component parts from the U.S. But could it also be used to support a policy that gave a preference for domestic prototype vehicle development and testing?

The statute stipulates that “the state or a local agency, relative to the use of federal funds for transit purposes, shall be authorized to provide a bidding preference to a bidder if the bidder exceeds the Buy America requirements applicable to federally funded transit projects. The state and each local agency shall have the discretion to apply those preferences.” While this language has been used to allow preferences for higher overall domestic content levels, it might also support an agency policy that gave preference to bidders who promise to conduct the research and development work associated with prototype vehicle production and testing at the same site as final assembly. Arguably, giving preference to domestic prototype testing and design is an example of “exceeding Buy America requirements applicable to federally funded transit projects,” and would thus be an appropriate bidding preference under the new state law.

Local advocates and stakeholders could work with Metro to help develop a policy that not only matches the over 60% preference policy that was enacted by BART, but goes a step further and gives preference for domestic production of prototype vehicles. Siemens currently designs and tests its prototype vehicles for U.S. orders at its Sacramento facilities, so domestic research and design associated with prototype vehicles are clearly feasible. Promoting the production of prototype vehicles at U.S. final assembly facilities would be a significant step in creating a transportation manufacturing sector that is more than just final assembly, but integrates the technology and innovation that is needed to sustain such a sector. More research and policy analysis is needed to determine whether this is a feasible strategy, but it presents an interesting option for further exploration.

*Clearly Define “Project” to Prohibit Segmentation of Federal Funds*

After the public outcry that resulted from the purchase of Chinese manufactured steel for the Oakland Bay Bridge, there is a steady effort underway to close the loophole that allowed this to occur. A clear definition of “project” is required to make sure that agencies and manufacturers cannot circumvent the domestic content requirements of Buy America. Project should be defined so as to capture more than just individual purchase agreements or contracts, but rather any contract that is a part of a wider programmatic goal. This will prevent agencies from segmenting state and local funds in order to make large purchases without adherence to Buy America requirements. There is currently a lot of momentum for such an amendment to the Buy America law to be included in a federal transportation reauthorization bill.

*How Can Current Buy America Strengths and Benefits be Maximized?*

While this chapter has focused on many of the loopholes and waivers that have allowed manufacturers to circumvent the regulations and keep production overseas, it is important to remember that Buy America, as it currently exists, is still a valuable tool that does in fact spur domestic manufacturing and create jobs in the

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midst of economic challenges.\textsuperscript{241} The value of this statute as a mechanism to prohibit further outsourcing and rebuild a manufacturing economy should not be understated. At the very least, numerous European and Canadian bus and rail manufacturers have located assembly plants (creating assembly jobs) in the U.S. for purposes of Buy America compliance.\textsuperscript{242} In addition, a 2009 report found when domestic content is maximized, manufacturing employment gains from infrastructure investment increase by up to 33 percent.\textsuperscript{243} Thus, in addition to efforts to strengthen the law, stakeholders and advocates should also look to take advantage of the built-in strengths of the statute that already exist, in order to maximize the potential to improve and sustain American manufacturing.

\textit{Enhanced Oversight and Community Participation}

If properly enforced, the requirements of Buy America can create and sustain local jobs by keeping the production associated with government purchases in the United States. However, much of the enforcement entails discretionary agency decisions\textsuperscript{244} and unverified certifications by foreign OEMs.\textsuperscript{245} While the current FTA leadership has been reliable in “raising the bar” and fully enforcing the spirit of the law, this has not always been the case, nor is such discretion guaranteed to be continued with subsequent administrations. Recent changes that have enhanced transparency – such as a consolidated website with waiver requests and proposed federal legislation that would require annual reports on the monetary value of waiver approvals – have the potential to make Buy America requirements more enforceable. However, coordinated public oversight activities could do more to maximize the inherent strengths in Buy America requirements.

For instance, efforts by advocacy groups to closely scrutinize all waiver requests have actually resulted in contracts being awarded to domestic suppliers that otherwise would have been outsourced.\textsuperscript{246} Local stakeholders should consider working with the Regional MEP to develop a system to consolidate and analyze Buy America waiver requests in order to match identified needs with local suppliers and to identify gaps in the supply chain that local suppliers might be able to fill by diversifying their production capabilities. For more information on the regional MEP and opportunities to participate in the waiver process, see the chapter in this report titled Organizations and Intermediaries.

\textsuperscript{242} GUIDE TO FEDERAL BUY AMERICA REQUIREMENTS, \textit{supra} note 54 at 29. For a partial list, \textit{see} footnote 240.
\textsuperscript{243} JAMES HEINTZ, ROBERT POLLIN AND HEIDI GARRETT-PELTIER, HOW INFRASTRUCTURE INVESTMENTS SUPPORT THE U.S. ECONOMY: EMPLOYMENT, PRODUCTIVITY AND GROWTH, (Political Economy Research Institute, 2009), 4.
\textsuperscript{244} \textit{See, Supra.} The FTA Administrator or Chief Counsel determines whether a transit agency qualifies for a public interest waiver of Buy America requirements. Other Buy America statutes for FHWA and Amtrak have similar procedures .In addition, FTA often releases “Dear Colleague Letters” or letters that, while not having the force of law, give agency interpretation of Buy America compliance issues. Of particular note is a recent letter in which FTA approved of Kawasaki’s interpretation of final assembly requirements to allow for the construction or prototype vehicles in Japan, followed by disassembly and reassembly in the U.S. Letter from Dorval Carter, Chief Counsel FTA, to Carol O’Keefe, General Counsel, Washington Metropolitan Area Transit Authority (July 23, 2010), http://www.fta.dot.gov/legislation_law/12316_11881.html.
\textsuperscript{245} \textit{See, Supra.} OEMs submit Buy America certifications with their bids in which they pledge to comply with domestic content requirements. The law affords a presumption of compliance and their practices will not actually be analyzed or verified as being Buy America compliant unless that presumption is overcome by a challenge launched by another bidder.
Supply Side: Enhanced Domestic Supply Chain Capabilities

While the Buy America statutes provide a tool by which American manufacturing can be sustained and strengthened through government procurement, at the end of the day Buy America is only as good as the domestic supply chain. If we are to require agencies to purchase goods from domestic manufacturers, there must be a vibrant domestic supply. This represents a bit of a chicken and the egg scenario, in that the demand that is created by Buy America cannot be sustained without an adequate supply, while enhancing the supply requires the built-in demand of government procurement. Thus, Buy America alone is an unsustainable driver for supply. The statute should be linked to other efforts to improve and sustain the domestic manufacturing supply chain. Opportunities include a continued expansion of the MEP program that utilizes regional and national networks to match Buy America waiver requests with local producers. In addition, targeted employment training and education programs are critical to preparing a workforce to meet the needs of domestic manufacturers. These and other efforts are described in detail in other chapters of this report.

Demand Side: Enhanced Federal Investment in Transit and Infrastructure

It’s a relatively simple concept, but if Buy America leverages federal transit dollars to create domestic jobs, then more federal transit dollars would translate into more domestic jobs (not to mention improved safety, environmental quality, and regional connectivity). A number of recent studies have outlined the ways that federal transit investment will mean better jobs for more Americans.

Fitzgerald, Grandquist, et. al. extol the virtues of investment in high-end manufacturing and suggest that a high level of government investment combined with full domestic content requirements for rolling stock could result in the creation of over 225,000 new direct and indirect jobs.247 Pollin and Baker report that government spending in transit and green technology creates more jobs than equal spending in the defense and fossil fuels sectors.248 Lowe, Tokuoka, et. al. analyze the U.S. value chain for rail vehicles and find that for the domestic industry to fully develop, much larger and more consistent federal investments in passenger and transit rail are needed.249 Renner and Gardner identify a “pent up demand for federal funding from state and local authorities, but caution that a short-term injection of funds like the stimulus act is not sufficient to entice rail manufacturers to build domestic facilities and create permanent jobs. Instead, they contend, “investments need to be ratcheted up and sustained at a high level, providing a clear signal of long-term commitment.”250 The Apollo Alliance has outlined a series of recommendations for expanded investment in clean transportation in order to boost demand and in turn promote a comprehensive manufacturing strategy to create good American jobs.251 A full discussion of U.S. industrial policy is covered in another chapter of this report. Suffice it to say, increased federal spending on transit and infrastructure projects would create many public benefits, but the American jobs that would be created can be partially attributed to the Buy America statute. In that sense, federal investment enhances the positive impact of Buy America.

247 Fitzgerald, Grandquist, et. al. supra note 149, at Table 11.
249 LOWE, TOKUOKA, ET. AL., supra note 171, at 51.
250 RENNER AND GARDNER, supra note 232, at 11.
That said, it should at least be noted that federal investment can take many forms. While rail investment enhances rail system manufacturing, the region must not neglect bus services, which often serve the most transit-dependent communities. This Chapter has focused primarily on rail car procurement and manufacturing, in the context of Metro’s P3010 procurement. However, the same regulations and concepts by and large apply to the procurement of busses. Fitzgerald and Grandquist, et. al., make a case for increased federal investment in bus manufacturing as a means of creating a significant amount of new high paying jobs. \(^{252}\) Given that California is already a state with a higher level of bus manufacturing market share, potential changes to Metro’s internal bus procurement policy may be an area for further research and advocacy.

Finally, a standardization of rail car specifications would allow different agencies and states to join together in larger purchases, thus leveraging the requirements of Buy America for greater impact. In April 2012, the DOT released a $550 million RFP for a multi-state effort to jointly purchase Amtrak rail cars. \(^{253}\) Federal Railroad Administrator Joseph C. Szabo stated that “standardized rolling stock will provide an unprecedented opportunity to leverage Buy America requirements, ensuring maximum economic benefit for taxpayer-funded transportation investments.” \(^{254}\) More information on rail car standardization is contained in the next chapter of this report.

**Domestic Content, Local Gain?**

Clearly, as it stands, Buy America is an imperfect but important tool to sustain manufacturing jobs and businesses in America. But, if properly understood and utilized, could it also be a tool to promote a *regional* manufacturing renaissance in Los Angeles?

As noted in the beginning of the chapter, Buy America gives with one hand and takes with the other. The statute provides domestic content mandates that keep at least some of the manufacturing jobs in the U.S. However, the presence of federal funds also requires “full and open competition” for contract bids, which the FTA has interpreted as precluding local (sub national) hire or local purchasing preferences. The most obvious (if not most difficult) option for getting around the local preference prohibition is to change the law. While local hire for federal transportation projects is gaining support at the federal level, the current stalemate that permeates congressional politics may prevent the required amendments from being passed. In that case, advocates and stakeholders can still work within the current regulatory system to leverage Buy America for local gain.

**Statutory Amendments to Allow Local Hire in Conjunction with Federal Funds**

FTA’s current interpretation of the “full and open competition” requirements of 49 U.S.C. 5325(a) can be found in a May 2011 letter from the FTA Chief Counsel to Metro CEO Art Leahy. The letter, written in response to Metro’s request for FTA advice on the 3010 LRV Procurement RFP, states:

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\(^{252}\) Fitzgerald, Grandquist, et. al. *supra* note 149, at 24-28.


\(^{254}\) *Id.*
“The U.S. Department of Transportation has always interpreted local hiring solicitation provisions as restricting full and open competition because they may exclude potential contractors that would otherwise possess all the necessary capabilities to deliver the contracted-for goods, but are unwilling or unable to make the investment needed to perform the contact in a particular area. The overriding objective of full and open competition is to achieve procurement cost-effectiveness by maximizing the number of offerors that can participate in procurement, resulting in the lowest possible price and thereby ensuring the most efficient use of federal funding.”

The letter went on to give support to the inclusion of a U.S. Jobs Plan component to the RFP, provided that it does not contain any local geographic preference. According to a memo prepared by Chris Brown of PolicyLink and Julian Gross of Partnership for Working Families, DOT has indicated that “the only way to provide a fair, consistent set of standards allowing prudent local hiring measures is to include in the next surface transportation authorization policy language that provides more discretion.”

In May of 2011, FTA Administrator Peter Rogoff publicly advocated for Congress to change the law to allow local hiring and local procurement to be included in projects that receive federal transit dollars. In a statement to the Senate Committee on Banking, Housing and Urban Affairs, Mr. Rogoff stated:

> Currently, FTA is prohibited from allowing local hiring preferences on projects using Federal transit assistance. ...We believe that local hiring is an effective tool that could be used to maintain and promote the working population by giving local workers a leg up on projects they pay for as taxpayers—projects that are being built in their own backyard. For this reason, the Administration supports establishing standards under which a contract for construction may be advertised that contains local hiring requirements in limited circumstances. This provision would be applied only if construction were being conducted in a designated area of high unemployment (per Department of Labor data) and the contract’s total capital costs were over $10 million. Workforce Development Program funds could be used to train individuals hired under contracts allowing local hiring preferences.

This statement further indicates that FTA supports idea of local hire for federally funded projects, but feels constrained by federal law.

In August of 2011 Mayor Villaraigosa traveled to Washington D.C. to lobby Congress to allow local hiring or purchasing programs on projects that utilize federal transportation funds. According to the Los Angeles Times, Metro Board Member Richard Katz traveled to Washington to support the proposal as well. San

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256 Id.  
258 Peter Rogoff Senate Testimony, supra note 192.  
260 Id.
Francisco city officials have made similar pitches to federal officials to allow a recently enacted city local hire ordinance to also apply to federally funded projects. The Los Angeles Times reported that “a U.S. Department of Transportation spokesman said the department was working with Congress to develop rules that ‘could encourage local hiring on large projects as long as quality demands and schedule constraints are met.”

It appears as if the Obama administration supports the inclusion of local hire and local job training in federally funded transit programs as well. The administration’s draft transportation bill, which was leaked in April 2011, would have amended the U.S. code to allow state and local agencies to “establish bid specifications or requirements that direct employment or job training opportunities to local workers who are low income, who reside in low-income census tracts, who are displaced homemakers, or who are members of targeted groups as defined in Internal Revenue Code Section 51(d).”

Statutory interpretation would also support an amendment to DOT policy to allow for local hire provisions. Specifically, the 2005 SAFETEA-LU includes a “Sense of Congress” that states “federal transportation projects should facilitate and encourage the collaboration between interested persons, including Federal, State, and local governments, community colleges, apprentice programs, local high school, and other community-based organizations that have an interest in improving the job skills of low-income individuals, to help leverage and to help ensure local participation in the building of transportation projects.”

However, despite the support from the Administration and persuasive statutory interpretation, current incarnations of the transportation bill being considered by the House and Senate do not include changes that would allow for local hire. It should also be noted that the amendments proposed in the Obama transportation bill would only affect FHWA funded projects. The Bill did not change the language pertaining to FTA funded projects. It is unclear if this was a purposeful or inadvertent omission.

Given the support for local hire attached to federal transportation grants, both at the regional and federal level, advocates and stakeholders should continue to push for changes to the law. As noted earlier in this chapter, Congress has changed the law to allow local purchasing in connection with federal grants in the past.

**Beyond the RFP: Advocacy, Outreach and Incentives from Local Stakeholders**

Even if the current law dictates that transit agency RFPs must be silent on the issue of local preferences, regional stakeholders may still reach out to prospective bidders and educate them on the value of a local production facility. Local officials may also wish to utilize other means to incentivize or attract rail car OEMs to locate in the region. This might entail attraction strategies like tax credits and reduced land costs.

However, in many cases, race to the bottom tax incentives and subsidies have the dual effect of depletion

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public resources while subsidizing companies with unfair or unsustainable employment practices. If such incentive strategies are to be utilized – whether land use entitlements or tax credits - they should be conditioned on high road employment policies such as living wage, first source hire, project labor agreements and support for targeted training programs. Stakeholders should continue to carefully monitor public subsidies and work to ensure that recipients are held accountable to standards that will protect and benefit rather than harm the community. For more information on potential business attraction strategies in the context of land use policy and decisions, see the chapter of this report titled, Manufacturing and Land Use in Los Angeles.

**Metro Procurement Policies and RFPs without Explicit Geographic Preference**

In addition to outside advocacy, there may be opportunities for transit agencies to employ a “best value” analysis that would promote regional gain, without actually explicitly providing a local preference. This section will suggest a couple strategies that may be worth considering. Nevertheless, such changes would require policy amendments and changes by the Metro Board, so much deeper analysis of the current political will is required.

Federal Disadvantaged Business Enterprise (DBE) legislation may conceivably provide opportunities to funnel the domestic content requirements of Buy America into opportunities for qualified local suppliers.49 C.F.R. Section 26 requires most recipients of DOT funding to establish and operate a DBE Program that sets out goals for DBE inclusion in the letting of bids and contracts. New regulations enacted in 2011 “add provisions to ensure that prime contractors fulfill commitments to use DBE subcontractors. State and local agencies will be required to monitor each contract to make sure prime contractors are fulfilling their obligations and do not dismiss DBE subcontractors without good cause. The rule also requires state and local agencies to create a plan for improving the use of small businesses, including DBEs.”267 While agencies generally establish a broad DBE program that covers all federally funded projects, in the context of transit vehicle manufacturing, the regulations explicitly allow local transit agencies to “establish project-specific goals for DBE participation in the procurement of transit vehicles in lieu of complying through the procedures of this section.”268

With guidance from FTA, Metro could conceivably establish a separate DBE program specifically for rail car or bus procurement. While such a program would still be precluded from explicitly favoring local DBEs, there may be room within the DBE program regulations to craft a policy that provides enhanced opportunities to local WMBE or DBE suppliers through outreach activities.269 Metro’s recently enacted Construction Careers Program may be a good model to apply here, in the manufacturing context. For instance, while the Construction Careers Program does not include local hiring targets for federally funded projects, it does maintain goals for disadvantaged workers and workers from national economically disadvantaged areas. Then, the policy also creates a jobs coordinator position, who is responsible for outreach, job fairs, and networking opportunities and compiling a database of qualified workers and subcontractors. All of this

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268 49 C.F.R. 26.49(d).

269 For an overview of different DBE and WMBE contracting programs, including the use of outreach programs, see JULIAN GROSS, PUBLIC CONTRACTING IN THE PROPOSITION 209 ERA: OPTIONS FOR PREVENTING DISCRIMINATION AND SUPPORTING MINORITY AND WOMEN OWNED BUSINESSES (Insight Center for Community Economic Development, 2012), http://www.insightcced.org/uploads/assets/Contracting%20in%20the%20Proposition%209%20Era.pdf.
activity can be conducted in the “local community,” thus enhancing the ability of local workers to gain access to the opportunities even if a local preference is not explicitly provided. A similar outreach program created in conjunction with a DBE program for transit procurement might be worth considering. A DBE coordinator position could conduct outreach and facilitate networking opportunities for local manufacturers and providers in order to enhance their ability to qualify for federally required DBE opportunities, even without a local preference. More research is needed to determine if DOT’s DBE regulations provide a feasible avenue to enhance opportunity for women or minority owned manufacturing businesses in local disadvantaged or underserved communities.

Moreover, while FTA will not permit explicit preference to be given particular geographic regions, there may be some room for local transit agencies to highlight the importance of factors such as proximity and accessibility when issuing an RFP. Arguably, FTA has opened the door for the creative use of geographically relevant factors. In 2009 the FTA published a FAQ Guidance document pertaining to the issue of local preferences. Consider the following question and FTA’s response, published in that FAQ Guidance Document:

Q. We want to include the following statement in an upcoming RFP: “The successful Proposer should also be able to perform the core required tasks from an office in the region.” Does this statement unfairly restrict competition due to geographic preference?

Background: We are procuring the services of a consultant to create a regional transit action plan that may affect multiple agencies and jurisdictions within our region. This will be a labor–intensive contract with a short contract term. We believe that a familiarity with the transit atmosphere in our region as well as the ability to perform most of the work from an office in our region is a fair qualification for consultants for this project.

A. [FTA’s response] Federal regulations prohibit geographical preferences in making contractor selections except for A&E contracts. However, your RFP could evaluate the expected responsiveness of each proposer in terms of the time it will take them to be at the site of the work, the time it would take to be at your offices or those of other agencies in the area, for conferences, the cost to your agency of the travel expenses and the time for traveling, etc. In other words, you can evaluate the important parameters involved with responsiveness and economics without requiring a local office. You could require, for example, that the proposer be able to comply with a time limit between your notifying them and their presence at the sites where they are needed. This would not be a violation of the geographical preference rule. You could also state in your RFP that your agency will not pay for travel expenses to bring consultants into the area for meetings or consultations with local agencies that must participate in planning this program. Based on this decision not to pay for travel, you could then state in the RFP that your agency strongly recommends a local presence as the only feasible way to efficiently accomplish the work within the time and dollars allotted. (Revised: August 21, 2009) [Emphasis added]

This response suggests that it would not be improper for Metro to issue RFPs that incorporated travel time and accessibility factors into a best value analysis. Arguably, this would not represent a preference given to bids that promise jobs or facilities in a specific location, but rather would allow Metro to consider the benefits of regional operations in the context of responsiveness, accessibility, and efficiency.

As an interesting potential model, a bill was introduced in the Oregon state Assembly in 2012 (it ultimately failed) that included several adjustments to bidding procedures intended to promote high-road procurement. One of the provisions would adjust final bid prices by adding “an imputed amount that reflects the cost of fossil fuel consumption and carbon generation involved in delivering the goods to the point of delivery within this state that is necessary to perform the work required for the procurement.” A similar environmental lifecycle analysis could be employed in a Metro RFP. Adjusting bid prices according to the distance that the products must travel to reach Metro’s facilities could be justified as a means of achieving the region’s interest in promoting green manufacturing by limiting the externalities associated with transporting large components from far-away manufacturing and assembly locations. Obviously this approach straddles a very fine line and Metro would need to consult closely with FTA to develop an RFP that complies with the regulations.

**Linkages to Municipal and County Procurement Policies**

Finally, while current federal law limits the ability to promote sub-national manufacturing through procurement policy, purchases without FTA funds are not as constrained. As noted previously, there are a wide variety of local procurement policies that have been implemented by local, county and state governments. The City of Los Angeles currently provides for a 10% preference to be given to “small, local businesses” in city contracts for $100,000 or less. The City has also created a “Green Retrofit and Workforce Program,” where the City will create a plan to retro-fit city-owned buildings, employing project labor agreements and employing local residents.

Would a stronger local procurement policy by the City or County help enhance regional manufacturing? Stakeholders should consider engaging the City and County for a couple reasons. First, while the City and County are not responsible for as many large-scale purchases in the transit sector as Metro, local procurement could attract rail car suppliers to the region by providing a built-in demand for other manufactured goods. In other words, if manufacturers in the rail car supply chain have diverse production capabilities, then the promise of city and county purchases of these other products may attract manufacturers to the region, or retain manufacturers that are already here. In this scenario, an OEM that locates in the region can enjoy the local procurement RFPs from the city/county and be in proximity to Metro. The Apollo Alliance has reported that local preference policies, when combined with fairly substantial investments, have helped entice manufacturers to a particular region.

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271 Oregon Legislative Assembly- 2012 Regular Session, House Bill 4144, http://www.leg.state.or.us/12reg/measures/hb4100.dir/hb4144.intro.
272 Los Angeles Administrative Code, Section 10.28.
273 Los Angeles Administrative Code, Section 7.302. The Green Retrofit program is not a direct local procurement policy, but is similar in the sense that it relies on local contractors and workers to conduct city-contracted work. For more information on the Green Retrofit Program, see, Ben Beach, Using Government Policy to Create Middle Class Green Construction Careers, J. L. & Policy (2009), 28-30; LOS ANGELES APOLLO ALLIANCE, CITY OF LOS ANGELES GREEN RETROFIT AND WORKFORCE PROGRAM (2009), http://www.scopela.org/downloads/LA%20Apollo%20Green%20Retrofit%20One%20Page%20English.pdf
Moreover, there is much more to a revitalized green manufacturing economy than just light rail vehicle production. Whether food processing, green energy production or green building materials, there is significant potential for local government procurement policy to help benefit local businesses and workers. These purchases, not funded by FTA, would not implicate Buy America regulations. Expanding the scope to include public purchases and contracts for all types of green manufacturing products enhances the importance of city and county procurement policies. As discussed earlier, such policies can ensure that public funds used for public purchases are directed back to the local community in the form of good employment opportunities.
Rail Standardization
A New Manufacturing Opportunity for Los Angeles

By William Hamilton

Abstract

Transit is a Green Manufacturing sector that has growth potential, rail transit in particular. This report looks at how Los Angeles could benefit if some form of standardization is implemented for Light Rail Vehicles (LRV). Gathering information from individuals directly involved in rail transit and current and past instances of standardization as well as analyzing Los Angeles current LRV systems the potential of standardization of LRV and the benefits it could provide to the Los Angeles manufacturing base is presented. Should it become a reality, standardization in terms of LRV and other aspects of rail could help reinvigorate manufacturing in Los Angeles.

Light Rail Vehicle Manufacturing

Rail manufacturing presents a great opportunity for Los Angeles. Despite recent declines, the region continues to be the most significant manufacturing center in the United States. Meanwhile, rail transit in Los Angeles and cities throughout the world continue to expand. Furthermore, increase in rail transit is likely to continue in the coming decades as a steady increase in the cost of oil makes the automobile prohibitively expensive. The above factors combine to result in an opportunity for manufacturers in Los Angeles to enter a market that may be on the verge mass production. Considering the links Los Angeles has to markets through its ports and its location on the Pacific Rim, manufacturing in Los Angeles could provide high quality rail parts and components for a global market.

What is Rail Standardization?

Rail standardization is more than simply setting a standard for the gauge (distance between) rail lines. This was an issue in the past as different rail companies in the United States in the 19th century had different gauges until 1886 when the worldwide standard gauge of four feet and eight and one half inches was formally adopted by all rail companies. This standard gauge
applies primarily to freight rail and Amtrak passenger rail. This can apply to most public transit rail systems to include streetcars (Classic Red Car system), Light Rail, and Heavy Rail. The kind of rail standardization that discussed in this work will be an attempt to establish a common foundation and establishing a baseline for both suppliers and buyers in regards to dimensions and specifications for bodies, chassis, and, subsystems, components. It will also refer to factors such as standard operation speeds, lighting under emergency conditions, placement of the operator, etc.¹

Why is Rail Standardization Relevant?
Standardization is relevant to Los Angeles because it provides an opportunity for new manufacturers to enter the supply market as well as allow for increased profits for current manufacturers by simplifying the market. It allows the region’s broad and diverse manufacturing base to enter a market with great growth potential. At the same time, it creates an opportunity to create jobs in a sector that has been known historically to provide better incomes². Manufacturers can also find opportunities to generate profits especially if local regulations and trade laws are structured properly. This is a win-win situation for both labor and businesses. The multiplier effect from reinvigorated industry needs to be considered as well, as increased manufacturing can increase the demand for logistics, tools, raw materials, etc. The growth of rail transit in North America for both new railcars and their various components makes rail transit manufacturing a profitable venture for Los Angeles manufacturers well into the future. Buy America also provides some additional leverage for manufacturers in Los Angeles through its guidelines requiring that components of new cars are built by American workers, with American produced steel, iron, and manufactured goods.

Is There a Need for Standardization?
This is a question that business owner should ask. One of the factors that may be a driving force for or against standardization is how it will affect a manufacturer’s bottom line. If standardization can lower costs in design and development, and/or operations and maintenance then it is a worthwhile goal. However, if it raises costs and this is not offset by a gain in safety or efficiency, then it may not be justified. This is especially true during a time were costs are being cut in every part of the public sector and austerity has become more prevalent in political and economic circles.

Standardization in the Past
The Presidents Conference Cars (PCC) are an example of an earlier effort at standardization. The first cars were delivered to New York, Chicago, and Pittsburgh in 1936 and despite a pause in production due to World War II, became popular in cities across the US and the world. The design was a step forward from earlier designs, and was considered aesthetically pleasing. They were also considered quiet, comfortable, and easy to maintain.

Today, some of these same cars are still used on street car systems, particularly in San Francisco, Philadelphia, and San Diego. Transit agencies in Europe and Cairo Egypt also still have active PCC cars. These relatively low-tech predecessors to modern LRT vehicles are a prime example of how a standard can be set and exported successfully. While PCC cars may seem outdated or obsolete when compared to Nippon Sharyo cars, which are the oldest LRVs in the current LA Metro inventory, the fact that the basic design is still so widely used is proof of the success of the basic PCC car design 70 years after its introduction. In the absence

¹APTA LRV Standard Specification Draft 2010
²See Manufacturing Trends Section of this report
of data regarding purchase and maintenance costs, this observation justifies further investigation regarding this design and the concept of a standardized modular LRV.

Light Rail in Los Angeles
The Los Angeles Metropolitan Transit Agency (LA Metro) operates six transit rail lines with four of them being Light Rail Vehicle lines. These lines are the Blue Line, Green Line, Gold Line, and Expo Line. The Crenshaw Corridor is a line currently under development and review. LA Metro currently operates LRV vehicles from manufacturers Nippon Sharyo (P865 & P2020), Siemens (P2000), and AnsaldoBreda (P2550). A recent contract has just been awarded to Kinkisharyo, adding one more manufacturer to the mix. Visually, the cars made by each manufacturer look different from those of the others and the internal components are similarly diverse. In addition, each line has unique characteristics that differentiate it from the others.

Blue Line (1990): This is the oldest line and is the spiritual successor of the original Pacific Electric Railway (aka The Red Cars) as the section of the route that runs between the Long Beach Willow Street Station and the Los Angeles Washington station run along one of the original Red Car routes. The line operates alongside automobile traffic in both downtowns and has exclusive right of way along most of its route with several at grade crossings.

Green Line (1995): This line operates between the cities of Norwalk and El Segundo along Interstate 105 and there are plans to link this line to Los Angeles International Airport. This line operates completely above grade in between the eastbound and westbound lanes of the interstate. The green line is unique in that it functions primarily in an ATO (Automatic Train Operator) mode. This means that the vehicle is highly automated and the primary job of the operator is to open and close the doors while the train is at a station. In order to function in this mode, the Green line has transponders that the Train artificial intelligence (AI) uses to determine its location and make decisions although the human operator does have the ability to override the AI.

Gold Line (2003): This line runs from Downtown Los Angeles into the San Gabriel Valley with plans to push the line out to Montclair, California and possibly as far east as the city of Ontario, California ending at the Ontario International Airport. There are also plans to link this line with El Monte California and possibly Los Angeles Eastside, ending in the City of Whittier. This would make the Gold Line LA Metro’s most expansive line. This line shares operation environments with its predecessors; it operates at street level with traffic like the Blue Line and also operates along a freeway route similar to the Green Line, in this case Interstate 210.

Expo Line (2012): This is Los Angeles newest LRV line and begins in Downtown Los Angeles and once Phase 2 is completed, will run into the City of Santa Monica. It currently runs parallel to Interstate 10 and ends at La Cienega Boulevard in Culver City.

Crenshaw Corridor (Proposed): This line will connect the Expo Line with the Green Line, mostly travelling through South Los Angeles. The current proposal has the line ending at LAX (along with a possible extension the Green Line that will do the same).

With the exception of the Blue and Expo lines, none of the LRT lines connect or share rail. LA Metro has plans to build the Regional Connector that will link the Gold Line with the Blue/Expo lines and allow trains

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3Los Angeles County Metropolitan Transit Authority website http://www.metro.net/%20 May 2012.
to run from Long Beach into the San Gabriel Valley and beyond without the need to transfer. The Green Line will continue to remain separate from its companion lines. Its cars can be used on other lines, but they lose the highly automated function and operate in a more conventional manner.

The Green line used former Aviation/Aerospace personnel in its design and is the most technically advanced line in Metro’s system. In contrast to this, the older Blue line was rapidly built at lower cost and the newer Gold Line was intended to use off the shelf parts and also be low cost. The green line uses Siemens cars where the shells were built in the US, but the expertise behind their research and development remained in Germany.

The variance in the characteristics of each line shows the difficulty with attempts to standardize these systems. However the fact that future plans will spread the range of the system shows the need to simplify the operation and maintenance of a diverse fleet.

Aspects of Standardization

Historical Districts

The City of Los Angeles and many of its neighbors are over century old and with that age come a sense of history and unique neighborhoods with unique architecture and layouts. Several LA Metro LRT lines run through these historical communities. The Gold Line in particular runs through Little Tokyo and the City of Pasadena. The impact of having LRT vehicles running through these neighborhoods can be significant and the result could be the resistance of residents and public officials to LRT. Jess Montes, an Engineer at LA Metro describes how if overhead wires or third rails are not available because of the desire to not impact the appearance of historical districts, LRT vehicles would have to be self-propelled during particular portions of their routes. This would mean the installation of batteries, generators, and or fuel systems that would add significant complication, cost, and weight to the cars. This can be further complicated if there is a wide variance in the operation and design of this component. This also complicates switching cars between lines due to the weight issue Increased weight (or mass) affects acceleration and braking, requiring more effort from the respective systems to do both. The braking systems and drives of the LRVs will need design modifications to handle the increase in demand that will be required of them. This can increase costs and developments time.

Right of Way

As mentioned above, the Gold and Blue lines interact with vehicular traffic. These cars must be designed to accelerate more often, have braking systems that can stop more frequently, as well as function continuously at lower speeds. Brake systems in these cars must also be more durable as they will see much more use compared to LRT vehicles that do not interact with traffic. Since the Blue line travels on surface streets, its braking system also has to function more conservatively for the stop and go nature of surface streets with traffic signals while still maintaining passenger comfort.

Another factor is the need for cars to provide collision protection to the riders. As with automobiles, the reinforcements needs to protect occupants can add to the weight of the vehicle, require locomotion and brake systems to work harder due to the increased mass. The Blue Line has a history of collisions with both vehicles and pedestrians and the newer Gold Line has several incidents as well. Meanwhile, the Green Line has none of these issues due to its exclusive right away. LRVs do have to be conscious of weight restrictions

Hamilton, Will Interview with MTA Employee Los Angeles, CA, February 2012.
because there are some above grade crossings designed to carry buses and excessive train weight could exceed weight restrictions.

**Operational Environments**

Los Angeles mild Mediterranean climate provides consists of predominately-sunny days with minimal extreme weather. This weather does not complicate the operation of LRV vehicles as it would in Phoenix, Arizona, or Denver. The hot, dry, desert climate in Phoenix would require LRT vehicles to have stout climate control systems to keep passengers and operators comfortable. The impact of the heat on the LRT vehicle systems would also have to be factored into the design as many modern electronic systems do not function well in excessive heat.

In contrast, extremely cold environments such as Denver would have a different effect on LRT systems. Excessive cold can freeze mechanical components and freezing rain can present problems for by icing over power lines and causing breakdowns. Furthermore, heating, ventilation, and air conditioning (HVAC) systems would have to be able to continuously provide adequate heating for passengers.

**Mechanical and Electrical**

In the U.S., passenger vehicle electrical systems are based on 12 volts regardless of the manufacturer. In the U.S. army, a vast majority of the ground equipment have electrical systems based on 24 volts, with a few of the newer vehicles utilizing 12/24 volt hybrid systems to take advantage of more commonly available and cheaper 12 volt light bulbs. An example is primary and auxiliary power units (APU). The primary systems power the engine and the auxiliary systems power the lights, signs, doors, etc. The voltage range for APUs run from 24 Volts-Direct Current (VDC) to 37.5 VDC. A bidder is looking to minimize costs and a vendor is selling a 37.5 VDC APU at a lower price, is it clear what this component is likely to be installed in the car? This, as well as the diverse origin of LRV vehicles leads to a wide variation in electrical systems. It may be the case that a LRV vehicle’s voltage may be based on the components the vehicle manufacturer can purchase at the lowest price. This can mean that one manufacturer can design and build models all with different voltages. In the long-term, this can complicate maintenance due to higher costs associated with such wide variance in parts and also training for maintenance personnel. Standardizing voltage could benefit transit agencies though lower costs.

This could be extended to the dimensions of LRV vehicle bodies including floor height as well as the dimensions of doors, APUs and many other various components. A common base could simplify the market and lower costs.

**Service Life**

A hidden benefit of standardization could be the extension in the service life of vehicles. Standardized components can be replaced allowing a chassis to see a longer operational lifespan. Barring significant advances in technology, newer parts or components can replace older ones. This is similar to what is possible in many automobiles, especially in regards engines and transmissions. This can also be true for parts related to the body of the LRVs such as panels and even doors.

**Goals of the Transit Agency**

A transit agency can have different goals for various transit lines throughout its system. The Green Line was intended be a project utilizing the expertise of aerospace engineers and advanced technology. In contrast The Gold Line intended to be a fast and economical expansion of the rail system. These are two different goals
from one entity, LA Metro. Ultimately, the goals of the agency planning and operating the lines as well as those of any politicians involved must be seriously considered.

What about the Red and Purple Lines?
The Red and Purple Lines are Heavy Rail Train (HRT) systems. These systems utilize cars manufactured by Breda Costruzioni Ferroviarie which is now AnsaldoBreda. In 1998, the MTA Reform and Accountability Act of 1998) stopped the use of local funds for subway tunneling, effectively eliminating any future expansion of the subway system. The passage of Measure R has once again opened the possibility of expansion with a planned purple line extension to UCLA, The West Los Angeles Veterans Administration Campus, and Century City. Expansion of that line would require more cars in order to provide sufficient service. The San Fernando Valley, most of which lies within the boundaries of the City of Los Angeles, has only one Bus Rapid Transit line (Orange Line) and the northernmost stop of the Red Line in North Hollywood. BRT lines are a viable alternative to LRV lines, but they still require some form of exclusive right of way. In the built out environment of the San Fernando Valley, a resource such as space is very limited. Future expansion of the Redline into that region could increase the number of vehicles needed and substantiate further a need for standardization.

Resistance to Standardization
Two points of resistance are that suppliers fear standardization could erode a company’s profitability and rein in its proprietary offerings. The validity of these fears would have to be looked at closer. If manufacturers are expected to engage in this burgeoning market, there will be a need acknowledge and analyze the cause of these fears. Profitability is very important because unprofitable companies do not hire new workers and layoff current one. If job creation is the goal, the interests companies have in being profitable cannot be undervalued or dismissed although it is a factor within an equation that includes people and the planet. Another point of resistance concerns politics. Today’s political environment seems to be highly resistant to efforts that may be construed to appear as if the government is exerting additional influence on the market. The media campaign against the Environmental Protection Agency (EPA) and its efforts at shifting the US towards cleaner sources of energy is evidence of resistance to government policies that are seen as threats to profits. Meanwhile, there are few campaigns in support of rail transit, with an effort championing a rail project in Honolulu, Hawaii backed by the Pacific Resource Partnership.  

Lastly, two other points to consider are the differences in the needs of each city that utilizes or plans to utilize urban rail and the environments of these cities. LA Metro has to balance its goals with that of local politicians and the perceived needs of the riding public.

One issue in the past with the construction of rail transit vehicles in Los Angeles was lengthy development time. It is here that standardization may be most beneficial as it may cut back on design times. If baseline standards and specifications for vehicles are established, then the process could be expedited.

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5 See Triple Bottom Line; Green Manufacturing Section.
It is interesting to note that while there may be resistance to standardization in urban rail, there is already standardization in freight rail. Considering the scale of freight rail operations in the United States, the resistance to standardization in regards to detrimental effects on suppliers may be challenged in the face of the effective implementation of the concept in a related sector.

A View of Standardization form the Frontlines

An interview with an MTA Employee provided insight as to how professionals currently working in public transportation view standardization. In short, he broke the pros and cons of the concept down to a short list:

Pros:
- Reduced Inventory of Parts
- Simplified Training for Maintenance Personnel

Cons:
- Costs/Low Bid contract- This means the current system of awarding contracts to the lowest bidder who in turn cuts costs by using parts/components that are priced to their benefit
- Technology changes over time

According the MTA Employee, the primary obstacle to standardization is the authority’s perception of its need at that time. He states that standardization makes sense, but there can be a tradeoff of advanced technology for standardization. The MTA has to focus on keeping both the riding public and politicians happy. Therefore, standardization may not be overtly political, but anything regarding transit is likely to be politicized.

Current Standardization

Freight Rail

Current freight rail in the United States accounts for 43 percent of the ton-miles of hauling, more than any other method of freight transportation. It is intermodal freight that has pushed rail towards standardization. Although there are a variety of container sizes, lengths of 20 and 40 feet are some of the most common. This means that rail cars, regardless of the rail line operator, have to have some commonality in design in order to accommodate the containers. When the standard rail gauge is taken into account, then there is more standardization in this aspect of rail than any other. Part of it is driven by regulation with the rail gauge; the other is driven by the market with the containers.

Future Standardization

Amtrak

A $551 million request for proposals was announced to manufacture 130 new bi-level cars in the U.S. This is the result of a new, multi-state effort to standardized equipment on Amtrak’s intercity routes in California. 

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8 Ibid
and parts of the Midwest. Amtrak began providing service in 1971 with the help of funds and equipment from private rail operators that had previously provided both freight and passenger operations. Amtrak’s history as a combination of various operators means their current fleet has some equipment that is over 60 years old. Amtrak reports that some of its locomotives have reliability issues and according to its own estimates, much of its fleet of railcars are at or beyond their service life. Overhaul costs for a bi-level car approach $500 thousand dollars. Furthermore, modernizing Amtrak’s is touted as an unprecedented opportunity to leverage Buy America to create jobs in the United States.

**Rail Standardization Abroad**

The European Committee for Standardization (CEN), the European Committee for Electrotechnical Standardization (CENELEC) and the European Telecommunications Standards Institute (ETSI) have initiated discussions regarding standardization of urban transit rail. The sessions were hosted by the International Association of Public Transport (UITP) in Brussels on 27 January 2012. This event was intended for UITP members, which include public transport operating companies, authorities and manufacturers (industry).

Sessions included discussion on the legal and industrial environment and the standardization process. In the afternoon, examples of best practices regarding the use of standardization in the supply industry were presented. Examples of EU research projects, which could possibly contribute to supporting standardization activities, were also introduced.

**How Can Standardization Benefit Los Angeles?**

If standardization opens the door for new manufacturers to enter the supply chain for LRT and can prove to be a profitable and enduring endeavor, then it may be a market Los Angeles can pursue. The dissolution of the aerospace industry and other skilled manufacturing has left a void in Los Angeles. While LRT production has not entered a mass production scale yet, if there is an increased demand for mass transit in the US via LRV this may change. Additionally, if standardization is established abroad, that may become an opportunity for suppliers to export their products. Globalization has largely functioned to bring foreign products into the US market while drawing jobs out; however, there may be opportunities to increase exports if suppliers are able and willing to compete in a global market.

If standardization cannot be initiated on a national level, then LA Metro can take the lead in this area much like the state of California has done regarding emission standards for automobiles. Perhaps LA Metro could take note of developments in the European Union and align its policy closely with that entity in order to aid the future development of vehicles for Los Angeles. The key factor that clearly determines how likely standardization will become a reality is the rail industry reaching the point of mass production. Should rising gas prices and growing populations push the industry into mass production through increased demands for mass transit, Los Angeles has a unique opportunity to benefit from increased demand for rail car manufacturing.

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11 Ibid
13 Amtrak, Fleet Strategy 3.1, March 2012
14 Progressive Railroading, April 2012
Bibliography


Employee, MTA, interview by Will Hamilton. (February 9, 2012).


Acknowledgements

We would like to thank the following:

The Surdna Foundation, for providing the funding for this project;

Our clients, LAANE, PERE and Green for All. Special thanks for the advice and contributions by Mirabai Auer and Jennifer Ito of PERE, and Linda Nguyen of LAANE;

Our numerous sources, noted in our chapters, who responded to our interviews with patience and valuable insights;

And our instructor, Goetz Wolff, for his support and guidance.