AN ADVISORY SERVICES PANEL REPORT

Cleantech Corridor Los Angeles, California

Urban Land Institute
www.uli.org

Cleantech Corridor
Los Angeles, California

A Vision for the Evolution of an Industrial Corridor

May 17–21, 2010
An Advisory Services Program Report

Urban Land Institute
1025 Thomas Jefferson Street, NW
Suite 500 West
Washington, DC 20007-5201

About ULI

The mission of the Urban Land Institute is to provide leadership in the responsible use of land and in creating and sustaining thriving communities worldwide. ULI is committed to

- Bringing together leaders from across the fields of real estate and land use policy to exchange best practices and serve community needs;
- Fostering collaboration within and beyond ULI's membership through mentoring, dialogue, and problem solving;
- Exploring issues of urbanization, conservation, regeneration, land use, capital formation, and sustainable development;
- Advancing land use policies and design practices that respect the uniqueness of both built and natural environments;
- Sharing knowledge through education, applied research, publishing, and electronic media; and
- Sustaining a diverse global network of local practice and advisory efforts that address current and future challenges.

Established in 1936, the Institute today has nearly 30,000 members worldwide, representing the entire spectrum of the land use and development disciplines. Professionals represented include developers, builders, property owners, investors, architects, public officials, planners, real estate brokers, appraisers, attorneys, engineers, financiers, academics, students, and librarians.

ULI relies heavily on the experience of its members. It is through member involvement and information resources that ULI has been able to set standards of excellence in development practice. The Institute has long been recognized as one of the world's most respected and widely quoted sources of objective information on urban planning, growth, and development.

Cover photo: CRA/LA.

1025 Thomas Jefferson Street, NW
Suite 500 West
Washington, DC 20007-5201

About ULI Advisory Services

The goal of ULI's Advisory Services Program is to bring the finest expertise in the real estate field to bear on complex land use planning and development projects, programs, and policies. Since 1947, this program has assembled well over 400 ULI-member teams to help sponsors find creative, practical solutions for issues such as downtown redevelopment, land management strategies, evaluation of development potential, growth management, community revitalization, brownfields redevelopment, military base reuse, provision of low-cost and affordable housing, and asset management strategies, among other matters. A wide variety of public, private, and nonprofit organizations have contracted for ULI's Advisory Services.

Each panel team is composed of highly qualified professionals who volunteer their time to ULI. They are chosen for their knowledge of the panel topic and screened to ensure their objectivity. ULI's interdisciplinary panel teams provide a holistic look at development problems. A respected ULI member who has previous panel experience chairs each panel.

The agenda for a five-day panel assignment is intensive. It includes an in-depth briefing day composed of a tour of the site and meetings with sponsor representatives, a day of hour-long interviews of typically 50 to 75 key community representatives, and two days of formulating recommendations. Long nights of discussion precede the panel's conclusions. On the final day on site, the panel makes an oral presentation of its findings and conclusions to the sponsor. A written report is prepared and published.

Because the sponsoring entities are responsible for significant preparation before the panel's visit, including sending extensive briefing materials to each member and arranging for the panel to meet with key local community members and stakeholders in the project under consideration, participants in ULI's five-day panel assignments are able to make accurate assessments of a sponsor's issues and to provide recommendations in a compressed amount of time.

A major strength of the program is ULI's unique ability to draw on the knowledge and expertise of its members, including land developers and owners, public officials, academics, representatives of financial institutions, and others. In fulfillment of the mission of the Urban Land Institute, this Advisory Services panel report is intended to provide objective advice that will promote the responsible use of land to enhance the environment.

ULI Program Staff

Marta V. Goldsmith
Senior Vice President, Community/
Education Provost

Thomas W. Eitler
Vice President, Advisory Services

Caroline Dietrich
Panel Associate, Advisory Services

Gwen McCall
Senior Administrative Manager, Community

James A. Mulligan
Managing Editor

Laura Glassman, Publications Professionals LLC
Manuscript Editor

Betsy VanBuskirk
Creative Director

Craig Chapman
Senior Director, Publishing Operations

Acknowledgments

The panel wishes to thank Mayor Antonio Villaraigosa for his vision for a cleaner, more sustainable city that offers cutting-edge jobs for its residents. The panel also wishes to thank the Community Redevelopment Agency of the City of Los Angeles (CRA/LA) and the Los Angeles Department of Water and Power for collaborating to sponsor this panel and help move Los Angeles toward a better future. In particular, the panel expresses gratitude to the following from CRA/LA: Christine Essel, Calvin Hollis, David Riccitiello, Len Betz, Curt Gibbs, Karen Yamamoto, Christine Kalamaros, Sharon Gi, Josh Rohmer, and Martha Estrada.

The panel also thanks Bob Fazio who helped organize and work out the specific details of the panel's visit, and from the mayor's office, Alex Fay. Finally, the panel wishes to thank the more than 100 citizens, business leaders, community leaders, and government officials who took part in the panel interview process and the more than 200 individuals who attended the final briefing, and notably the Central City East Association for its dedication to making the reception an outstanding success and CleanTech Los Angeles for the excellence it brought to this endeavor. Without their participation, the panel would not have been possible.

Contents

ULI Panel and Project Staff

Panel Chair

John M. Walsh III
President
TIG Real Estate Services, Inc.
Carrollton, Texas

Panel Members

Brian T. Coleman
Chief Executive Officer
Greenpoint Manufacturing and Design Center
Brooklyn, New York

Thomas Curley
Founder
Thomas A. Curley Associates, LLC
New York, New York

Ron Golem
Principal
Bay Area Economics
Emeryville, California

Jim Heid
Founder
UrbanGreen, LLC
San Francisco, California

Jeff Kingsbury
Managing Principal
Greenstreet, Ltd.
Zionsville, Indiana

Ralph L. Núñez
President/Design Principal
DesignTeam Limited
Southfield, Michigan

Sharon E. Pandak
Partner
Greehan, Taves, Pandak & Stoner, LLC
Woodbridge, Virginia

Michael Stern
Principal
Strada
Pittsburgh, Pennsylvania

ULI Project Staff

Thomas W. Eitler
Vice President, Advisory Services

Patrick Pontius
Research Director, Center for Balanced Development in the West

Caroline Dietrich
Associate, Advisory Services

The Study Area and the Panel's Assignment

With its West Coast location, diverse mix of people from around the world, and optimistic and free-spirited outlook, Los Angeles has a well-earned reputation as a place for creativity, innovation, and reinvention. The city that defied expectations by growing beyond anyone's wildest dreams in the 20th century now faces a new century fraught with challenges. One challenge lies in maintaining Los Angeles' competitive edge and sizable employment base as a manufacturing center while adapting to a new global model in which heavy manufacturing is often outsourced. To that effect, Los Angeles has launched an ambitious plan to transform an approximately four-mile swath of land downtown along the banks of the Los Angeles River into a catalytic Cleantech Corridor full of enterprises engaged in the pursuit, development, and manufacture of "cleantech" products and technologies. City leaders hope that Los Angeles can pioneer cleantech industrial innovation in the 21st century just as it did with film, infrastructure, aerospace, and myriad other ambitious endeavors in the 20th century.

Many people think of Los Angeles through a Hollywood filter, but the reality is far different. Although entertainment plays a major role in the regional economy, the port and its related industrial and logistics corridor function in the aggregate as a tremendous regional economic driver. A heavily industrial corridor running through a dense population center poses difficulties, however, not to mention that global economics make large-scale manufacturing in U.S. cities increasingly difficult. The widely lauded and studied Alameda Corridor that placed the freight-rail lines below street level from the port to downtown has been a tremendous boon to the city and has kept thousands of people employed. However, Los Angeles' industrial fabric is older and has limitations. The city sees cleantech as a way to reinvent its manufacturing base and incite new economic development while improving quality of life for the city and its residents.

What Is Cleantech?

Cleantech is new technology and related business models that offer competitive returns for investors and customers while providing solutions to global challenges. Clean technology, or cleantech, should not be confused with the terms environmental technology (envirotech) or green technology (greentech) popularized in the 1970s and 1980s.

Although greentech or envirotech has represented "end-of-pipe" technology of the past (for instance, smokestack scrubbers) with limited opportunity for attractive returns, cleantech addresses the roots of ecological problems with new science, emphasizing natural approaches such as biomimicry and biology. Greentech has traditionally represented only small, regulatory-driven markets.

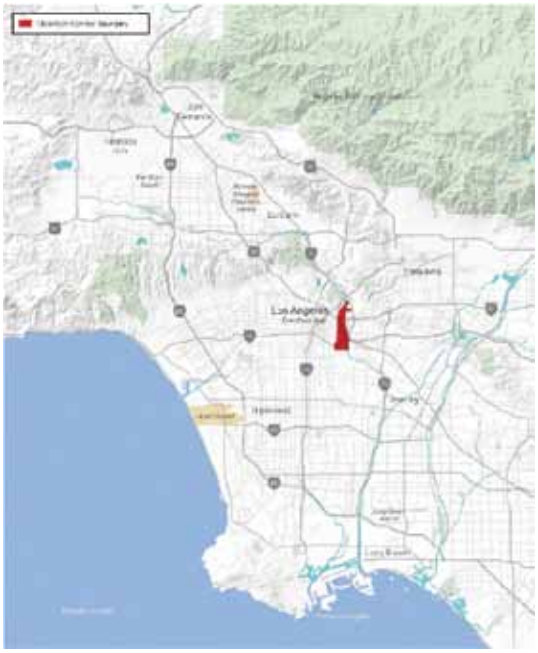
Cleantech is driven by productivity-based purchasing and therefore enjoys broader market economics, with greater financial upside and sustainability.

Cleantech represents a diverse range of products, services, and processes, all intended to

- Provide superior performance at lower costs, while
- Greatly reducing or eliminating negative ecological impact, at the same time as
- Improving the productive and responsible use of natural resources.

Source: Cleantech Group, LLC.

Although directed by the city through the mayor's office, the Cleantech Corridor concept stems from CleanTech Los Angeles (CTLA), a collaborative partnership that includes not only the city but also the Community Redevelopment Agency of the city of Los Angeles (CRA/LA); the Los Angeles Department of Water and Power (LADWP); the University of California, Los Angeles; the University of Southern California; the California Institute of Technology; the Jet Propulsion Laboratory; the Central City Association; the Los Angeles Area Chamber of Commerce; the Los Angeles Business Council; and the Los Angeles County Economic Development Corporation. The city handles most of the governance, but everyone affiliated with CTLA has agreed to the following goals:



The proposed Cleantech Corridor is highlighted in red on this map of the Greater Los Angeles area.

- Create well-paying, family-supporting jobs by attracting and retaining clean technology businesses that will create job opportunities at all levels, including those with career ladders;
- Stimulate demand by facilitating the continued growth of a large marketplace for clean technology goods and services; and
- Facilitate environmental solutions that deploy clean technologies to clean up the environment, create a better quality of life, and exceed regulatory responsibilities.

The Cleantech Corridor stretches four miles along the Los Angeles River. It begins to the north at North Spring Street at the site formerly known as the Cornfields and now designated as the future home of the Los Angeles State Historic Park. Traversing south, the corridor passes through part of the historic pueblo, Chinatown, Union Station, and the Arts District before terminating at 27th Street just south of Washington Boulevard along the border of the city of Vernon. Just to the east of the river beyond the industrial plain lies the historic Boyle Heights neighborhood. The Interstate 10 freeway, the Gold Line light rail, and many freight-rail lines cross the site. Of note, several of the partners in CTLA are also supporters of the Los Angeles River Revitalization Master Plan that the city adopted in 2009, which outlines a 20-year blueprint for the revitalization of the river.

Aerial view of downtown Los Angeles with the Cleantech Corridor highlighted in red. Dodger Stadium lies at the northern edge, and I-10 runs east to west just above the bottom of the image.

With industrial uses on both sides, the Los Angeles River bisects the area proposed for the Cleantech Corridor.

The Panel's Assignment

CRA/LA and LADWP, with support from the Central City East Association, cosponsored the panel to examine development opportunities, market potential, and development strategies consistent with the goals of CTLA. Specifically, the sponsors asked the panel to address the following four questions:

1. What actions should the city of Los Angeles undertake to both promote sustainability for existing manufacturing uses and proactively attract new and advanced technology-based industry into the Cleantech Corridor while growing the district as a high-quality manufacturing center for the 21st century?

2. What land use and related measures will facilitate an evolution of the manufacturing character in the Cleantech Corridor from its historic orientation geared to traditional practices to a center of innovation and sustainability?

3. What policies, programs, strategies, and partnerships can foster and maintain a diverse and advanced technology manufacturing and employment base, with growth opportunity for a wide spectrum of occupational and professional skill sets, through the cooperative and collaborative partnership that is CTLA?

4. What are appropriate goals and objectives to unify the partners of CTLA toward the implementation of a common vision that itself requires definition?

A typical industrial block in the Cleantech Corridor area contains early 20th-century industrial space and streets full of truck traffic.

Summary of Recommendations

After extensive discussions with close to 100 stakeholders and an intensive analysis of the constraints and opportunities, the panel has come up with the following high-level recommendations, outlined in more detail throughout the full report:

- *Reexamine approaches to economic development, and realize that existing assets may be most important for the corridor's physical development.* Partnerships with educational institutions will be critical to the success of the cleantech effort, and economic development today is much more about brains and talent than about marketing a specific site large enough for large-scale manufacturing. Although cleantech is a great concept and one fitting for Los Angeles, do not depend on that brand alone. The corridor already possesses many marketable assets that will appeal to a variety of potential users.

- *Focus on a delicate balance between smaller flex spaces and heavier industrial space, between smaller firms and large, and between commercial and residential users.* The market analysis reveals great potential demand for flex space that the fine-grain buildings and blocks would suit. As the grain shifts south, the potential for larger facilities emerges. The area has many small businesses, which is a tremendous asset, and a variety of mixed-use spaces varying in size that are able to take advantage of the opportunity for adaptive use.

- *Understand the demographic range for target customers, operators, and residents.* The area has a relatively small residential population, but according to an analysis of the types of uses the corridor can support, a range of users exists who will want to live, work, and run businesses in the area. Again, mixed use is critical.

- *Concentrate on a smaller area where cleantech activity can best be catalyzed because the corridor as designated is too large and disjointed.* The first push should occur in the area near the Southern California Institute of Architecture (SCI-Arc) currently designated as the Arts District and should flow south toward the 20-acre Cleantech Manufacturing Center. This area has a mix of users, buildings, and activity, and it has a potential link to mass transit—all ingredients ripe for a catalytic transformation. This smaller portion of the corridor should be rebranded as the Arts and Innovation District, consistent with supporting and expanding existing arts-related uses and encouraging the development of a clean and sustainable 21st-century industrial business sector. Investment by LADWP and CRA/LA in the planned Clean Technology Development Center and Business Incubator is a valuable and strategic step toward catalytic action for this area.

- *Start now, with essential yet relatively easy changes, to gain momentum: update the zoning, and address cosmetic improvements.* The vision for the Cleantech Corridor is ambitious and will take time, but some simple tactics can jump-start the transformation and require minimal financial investment. Although the city should work to preserve some of the industrial base in the area, it should be open to a delicate balance of residential and commercial uses, so the zoning should be revised to facilitate mixed use in the area. Similarly, the area suffers from a deficient streetscape; the city should make all the simple changes, such as fixing potholes, as soon as possible.

- *Extend the Red Line to SCI-Arc to create multimodal accessibility.* The Los Angeles County Metropolitan Transportation Authority currently has a service yard adjacent to SCI-Arc and an active line connected to Union Station, so this move would be a relatively cost-effective and high-potential game changer in terms of access and perception. Currently under review, this near-term goal appears to have potential feasibility. Furthermore, a continued extension of the Red Line to Seventh Street should be evaluated for its feasibility and its capacity to reinforce the multiuse character of the Arts District as well as the district's accessibility and position within the Cleantech Corridor.

- *Embrace and complement the Los Angeles River Revitalization Master Plan.* The river can serve as a phenomenal amenity for residents and workers, and it can effectively link the industrial area on the west bank with Boyle Heights to the east.

- *Create an entity or role, and vest that group or person with sole authority over the Cleantech Corridor.* While CTLA is organizing itself to develop a stronger partnership and role, it could benefit from a person or team whose sole responsibility is specifically the Cleantech Corridor area of the city.

Market Potential

The corridor represents a dynamic and evolving market that already accommodates a wide range of uses and is well positioned to stimulate future economic growth in the city. This section provides an overview of how the city's population and economy are growing and changing, how growth can be captured in the corridor's existing buildings and new development, where current and future real estate market trends and opportunities lie, and what economic development opportunities cleantech presents. This analysis provides a framework for understanding the corridor's potential and the amount and types of built space the market can support.

Future Citywide Growth Potential

Projections by the Southern California Association of Governments (SCAG) indicate that the city of Los Angeles will continue to experience substantial growth in its population, household, and employment over the next 25 years, from 2010 to 2035 (table 1).

During this period, the city will gain 358,000 new residents who will form 250,000 new households (new households are the drivers of demand for new residential development). The city will also gain 174,000 new jobs during this period. Although substantial, these figures lag statewide growth, which has historically averaged approximately 1 percent per year.

Table 1
Population, Household, and Employment Projections, City of Los Angeles, 2010–2035

	2010	2015	2020	2025	2030	2035	Total Change
Population	**4,057,484**	**4,128,125**	**4,204,329**	**4,277,732**	**4,348,281**	**4,415,772**	**358,288**
Change from Prior Period	n.a.	70,641	76,204	73,403	70,549	67,491	14,332
Annual Growth Rate	n.a.	0.3%	0.4%	0.3%	0.3%	0.3%	
Households (HH)	**1,366,985**	**1,424,701**	**1,485,519**	**1,532,998**	**1,578,850**	**1,616,578**	**249,593**
Change from Prior Period	n.a.	57,716	60,818	47,479	45,852	37,728	9,984
Average HH Size[a]	3.0	2.9	2.8	2.8	2.8	2.7	
Annual Growth Rate	n.a.	0.8%	0.8%	0.6%	0.6%	0.5%	
Employment	**1,820,092**	**1,864,061**	**1,892,139**	**1,925,148**	**1,960,393**	**1,994,134**	**174,042**
Change from Prior Period	n.a.	43,969	28,078	33,009	35,245	33,741	6,962
Jobs/Housing Ratio	1.3	1.3	1.3	1.3	1.2	1.2	
Annual Growth Rate	n.a.	0.5%	0.3%	0.3%	0.4%	0.3%	

Source: SCAG, Adopted 2008 RTP Growth Forecast.

Notes: n.a. = not applicable.

[a]Does not include adjustment for group-quarters population.

The rate of household growth is projected to exceed population growth, which results in average household size decreasing from 3.0 persons in 2010 to 2.7 persons in 2035. The jobs/housing balance will decrease slightly from 1.3 jobs per housing unit in 2010 to 1.2 jobs per housing unit in 2035.

Another significant consideration is the need for job growth in the city to accommodate a range of worker skill levels. Approximately 29 percent of city residents 25 years or older have less than a high school education. At the other end of the scale, 29 percent of city residents 25 years or older have a college degree or advanced degree, which is a lower proportion than other cities that have developed high-tech clusters, including San Diego, San Jose, and the San Francisco Bay Area.

Table 2
Los Angeles County Economy by Sector, 2008

Sector	Jobs	Share (%)
Natural Resources and Mining	11,300	0.3
Utilities	29,700	0.7
Construction	147,700	3.5
Manufacturing	**433,200**	**10.4**
Wholesale Trade	**223,800**	**5.4**
Retail Trade	418,400	10.0
Transportation and Warehousing	**180,700**	**4.3**
Information	**214,300**	**5.1**
Finance, Insurance, Real Estate	236,300	5.7
Professional, Scientific, Technical	**271,400**	**6.5**
Management and Administrative	315,500	7.6
Education and Health Care	824,100	19.8
Leisure and Hospitality	411,300	9.9
Other Services and Unclassified	**286,600**	**6.9**
Public Administration	162,100	3.9
Total	**4,166,400**	**100.0**
Total Potential Cleantech Corridor (With 20% Prof/Sci/Tech; Information; Other Services)	**992,160**	**23.8**

Sources: EDD; AECOM, 2010.Source: SCAG, Adopted 2008 RTP Growth Forecast.

Composition of Area Employment

Data for Los Angeles County in 2008 indicate a total of nearly 4.2 million jobs across all major industry sectors (table 2). Six sectors are most likely to generate demand for the warehouse and flex industrial space that is typical of the corridor: manufacturing; wholesale trade; transportation and warehousing; information; professional, scientific, and technical; and other services. Only a portion—potentially as little as 20 percent—of professional, scientific, and technical; information; and other services may require warehouse or flex industrial space. Even with that adjustment, approximately 992,000 jobs in Los Angeles County, or almost 24 percent of the total, require the type of space found in the corridor.

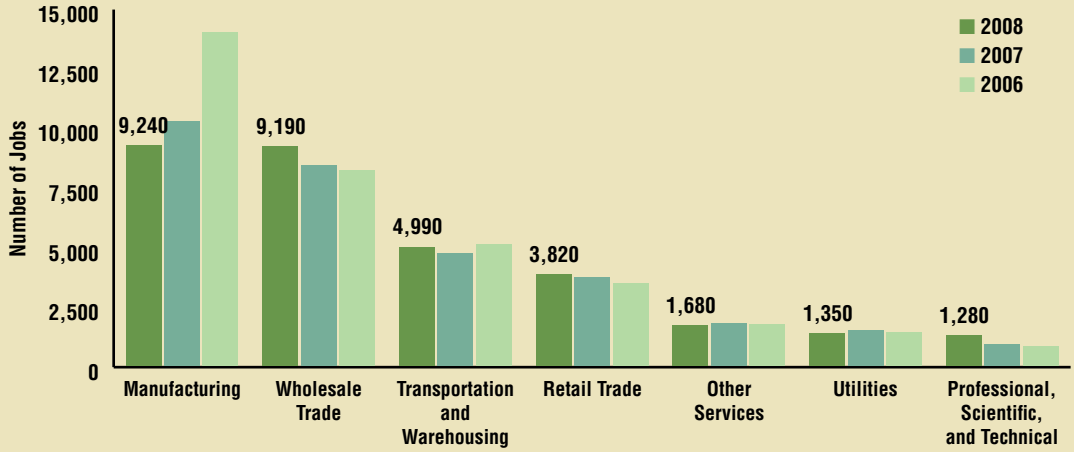
The city of Los Angeles had approximately 40 percent of countywide employment in 2008, meaning the city had nearly 400,000 jobs that could potentially use warehouse and flex industrial buildings in the corridor. Focusing on just manufacturing jobs, these represented slightly more than 433,000, or 10 percent, of countywide employment. Applying the same city-to-county jobs ratio suggests that the city had more than 173,000 manufacturing jobs in 2008.

Corridor Employment Trends

Census data provided to the panel indicate that the corridor had 36,920 jobs in 2008, with more than 9,200, or 26 percent, of the total in manufacturing. This job count represents a major decrease of 4,690 jobs from 2006 figures (a decrease of one-third). By comparison, jobs have been fairly constant in other industry sectors or have even increased slightly (figure 1).

Various subdistricts of the corridor show considerable variation in employment density. For example, slightly more than two-thirds of the jobs in 2009, or 24,900 jobs, were located in the core of the corridor, from First Street to the corridor's southern end. More than half of all employment, or 19,500 jobs, was in the southern end of the corridor, from the CleanTech Manufacturing Center site up to Seventh Street. By comparison, approximately 14 percent of corridor jobs, or 5,300 jobs, were located in the northern portion of the corridor above Cesar Chavez Avenue.

Figure 1: Jobs by Industry (Top Employment-Generating Industries in Corridor, 2008)



Source: U.S. Census Bureau Local Employment Dynamics OnTheMap Origin-Destination Database.

Another defining characteristic of existing corridor employment is its concentration in small firms. For example, the average firm size from First Street to the southern end of the corridor is just over 13 employees. The subarea from Seventh Street to the southern end of the corridor has the largest average firm size, with 16 employees per firm, and a total of 1,220 firms. Arts District firms are even smaller, with an average of nine employees per firm, and a total of 630 firms. This discussion excludes the major public agency employers concentrated in facilities around the U.S. Route 101 freeway.

This concentration of existing small firms is a significant asset of the corridor. According to the U.S. Small Business Administration, small businesses employ slightly more than half of all private sector employees and have accounted for 64 percent of new employment growth over the past 15 years. They also employ 40 percent of all high-tech employees and comprise 97 percent of identified exporters.

The Corridor's Share of Existing and Future City Population and Employment

Another way of considering the future population and employment potential of the corridor is to evaluate (a) what share it represents of the city's current households and jobs and (b) what that share implies for how much future household and employment growth it can capture. Based on U.S. census data, in 2010 the corridor contained 0.2 percent of the city's households and 2 percent of its employment. Applying these ratios to SCAG's projections for 2035 suggests that the corridor could capture another 500 housing units and 3,500 new jobs. This can be considered a "baseline" projection (table 3).

These figures represent relatively small shares, so a plan to increase the attractiveness of the corridor to new residents and businesses could result in its capturing a larger share of future growth. A reasonable assumption for the corridor's potential to increase its share would be an increase of 0.2 percent in household growth, to 0.4 percent, and an increase of 1 percent in employment growth, to a total of 3 percent. As shown in table 3, the corridor could capture more than 3,200 new households (and housing units) by 2035, nearly doubling its share. The corridor could also capture 19,600 new jobs, a nearly 50 percent increase above the baseline projection.

As described in this report, the combination of an improved urban environment with enhanced amenities and a mix of uses that can attract cleantech and other companies represents the type of action that could lead to an increase in the corridor's share of new households and employment.

The Downtown and Corridor Residential Market

Data on the for-sale residential market are available by zip code, which does not correspond to the corridor's boundaries. Data were assembled for the seven zip codes (90012, 90013, 90014, 90015, 90017, 90021, and 90071, excluding the portion of the corridor east of the Los Angeles River, which lies in Boyle Heights zip codes 90023 and 90033) that make up most of the downtown and corridor area, referred to as the Central City area for this section.

Based on U.S. census data, the corridor had 7,700 residents in 2009 (excluding residents of group quarters), and the Central City area had 72,061 residents. Thus, the corridor currently makes up slightly more than 10 percent of the Central City population.

Demographic data indicate that in 2009 Central City residents were overwhelmingly renters as compared to city residents overall, 92 percent compared with 62 percent. Median household incomes are also considerably lower, $17,769 compared with $45,782. These disparities reflect the substantial number of single-room occupancy and other types of subsidized and below-market-rate rental units in the Central City area. These data do not reflect the emergence of substantial new market-rate housing in the Central City area over the past two decades in both historic buildings in the downtown core area and new construction in other areas such as the Arts District.

Data on for-sale condominiums in 2009 reflect decreased market activity occurring because of the current real estate crash. Sales occurred only in two of the seven Central City zip codes, with 153 units sold. The data also show variation between zip codes. In the 90012 zip code, which includes a portion of the Arts District and the corridor, 91 units sold with a median price of $325,000, down nearly 23 percent from 2008. By comparison, in the 90015 zip code, which includes a portion of South Park, 62 units sold, with a median price of $425,000, down slightly more than 5 percent from 2008.

Table 3
Potential Market Capture for Cleantech Corridor, 2010–2035

	2010		2035		Revised 2035		Increase over Base 2035 Projection	
	Number	Share (%)	Number	Share (%)	Number	Share (%)	Number	Percent
Population								
City	4,057,484	100.0	4,415,772	100.0	4,415,772	100.0		
Corridor	7,700	0.2	8,380	0.2	13,247	0.3	**4,867**	**58**
Households[a]								
City	1,366,985	100.0	1,616,578	100.0	1,616,578	100.0		
Corridor	2,750	0.2	3,252	0.2	6,466	0.4	**3,214**	**99**
Employment								
City	1,820,092	100.0	1,994,134	100.0	1,994,134	100.0		
Corridor	36,700	2.0	40,209	2.0	59,824	3.0	**19,615**	**49**

Sources: SCAG Adopted 2008 RTP Growth Forecast; AECOM, 2010.

[a]Does not include adjustment for group quarters population.

The citywide market-rate apartment market is relatively flat, also reflecting current economic conditions. Citywide, there are 750,000 rental units, with a 5.4 percent vacancy rate in 2010. Currently, 10,924 rental units are under development. Forecasts by market analysts suggest the apartment market will need two years, until 2012, to stabilize with a decrease in vacancy rates and increases in rental rates.

The Corridor Warehouse and Flex/Industrial Market

Most of the built space in the corridor consists of warehouse and flex/industrial space. Warehouse space can accommodate a wide range of manufacturing, distribution, warehousing, and other functions. Flex/industrial space offers additional electrical capacity, greater interior volume, a larger proportion of office space, and other amenities that facilitate its use for manufacturing or creative industries.

According to CoStar data, the corridor has 37.5 million square feet of warehouse and flex/industrial space. Only 3 percent of this space, or just over 1 million square feet in 19 buildings, is considered to be flex/industrial space particularly suited to more intensive manufacturing.

New developments in the corridor between 2003 and 2009 totaled more than 1.3 million square feet of warehouse space, with deliveries varying by year from a low of 91,000 square feet in 2009 to a high of 320,000 square feet in 2008. New flex space was developed in only three years during this period: 4,300 square feet in 2004, 37,600 square feet in 2006, and 29,000 square feet in 2007.

Rents are strong, with average annual rental rates for warehouse space of $10.49 per square foot, net. Flex space asking annual rates in 2007, the last year data were available, were even stronger at $14.06 per square foot. Current vacancy rates are low, with warehouse space in the corridor at 3.9 percent. Flex/industrial vacancy rates are minimal at 0.3 percent.

Corridor rental rates are considerably higher than in competing locations. Warehouse and industrial space elsewhere in the city of Los Angeles at the end of 2009 had an average asking annual rent of $6.18 per square foot, net, and other nearby cities had even lower asking annual rents of $4 to $5 per square foot, net. Vacancy rates are comparable and range from 2.4 percent to 4 percent. However, most of the space in these locations is in buildings that are considerably larger than those in the corridor. The corridor has a competitive advantage for users who require smaller spaces that are not available elsewhere, as well as for users who gain locational advantages from proximity to the Fashion District, the Produce District, or other downtown businesses. This advantage explains why corridor buildings are able to obtain higher rents despite typically being smaller and older than buildings in competing locations.

Net absorption rates in the corridor for warehouse space reflect recent recessionary economic conditions, with 172,000 square feet of negative net absorption (more space vacated than leased) in 2009, and 77,000 square feet of negative net absorption for 2010 year to date. Comparison of annual net absorption between 2003 and 2008 shows that it varied considerably, from a low of negative 197,000 square feet in 2007 to a high of positive 436,000 square feet in 2006, with an annual average of positive 75,000 square feet net absorption for the period.

Net absorption rates in the corridor for flex space are modest, reflecting its smaller inventory of buildings, with only 4,700 square feet in 2009 and none year to date in 2010. Comparison of annual net absorption rates between 2003 and 2008 shows that rates ranged from a low of a negative 2,100 square feet in 2008 to a high of 22,100 square feet in 2005, with an annual average of 8,000 square feet for the period.

The total net negative absorption of 329,000 square feet from 2006 to 2008, during the recent economic downturn, is considerably less than what would be expected from the loss of 4,690 manufacturing jobs during this period. Based on typical employment densities, this amount of job loss could result in several million square feet or more of negative net absorption. The fact that net negative absorption has been much lower during this period suggests that a great deal of manufacturing activity occurs in space classified as warehouse space and that lessees and owners are continuing to hold onto their locations, either because of existing lease commitments or in anticipation of economic recovery.

The Corridor Office Market

The corridor has a wide range of office space, ranging from Class A buildings that are owned and occupied by public agencies near the 101 freeway, to a variety of Class B and Class C space in other locations. According to CoStar, the corridor has 1.7 million square feet of office space; of this amount, 1.1 million square feet is Class B or C space that would be expected to be occupied by private sector tenants. Class B space represents 763,000 square feet, with an average annual asking rate of $14.33 per square foot and a vacancy rate of 14.8 percent. Class C space represents 359,000 square feet, with an average annual asking rate of $22.12 per square foot and a vacancy rate of 1.4 percent. The higher asking rates and lower vacancy for Class C buildings likely reflect that these buildings, which are often considered inferior because they are in older, "funkier" buildings, are actually more desirable to creative services and other firms that seek this environment, whereas Class B space is often in obsolete buildings originally built for corporate or institutional tenants. Cleantech, along with fashion, arts, and other uses with a creative orientation, is much more likely to be interested in Class C space because it is affordable and has more interesting architecture than Class A or Class B space.

Office market activity for Class B and C space has been very modest from 2003 through 2009. Over that period, average annual net absorption for Class B space was negative 9,800 square feet, which is consistent with older corporate or institutional buildings that continue to lose tenants until they are renovated and repositioned in the market. By comparison, Class C space had an average annual net absorption of 100 square feet during this period.

Future office opportunities in the corridor will likely be for space in renovated or new buildings that target the Class C office market. Key considerations will be the ability of buildings to accommodate a range of small and medium-sized firms with interesting design and nearby amenities. An emerging trend of fashion tenants also appear to be looking for office space in the corridor so they can access a creative environment in an urban setting. One major jeans company is currently planning to relocate a large number of its headquarters staff from another city to a new building in the corridor.

Cleantech Sectors and Employment

The "green economy," including longstanding environmental-related uses as well as newer cleantech firms, has been one of the leading growth sectors in the state's economy from 1995 through 2008. The sector has averaged a 2.4 percent growth rate, compared with a 1 percent growth rate for the overall California economy. Cleantech jobs span a range of skills, from blue collar to white collar, and pay rates ranging from just above those required by the city's living wage ordinance up to $100,000 or more annually.

Table 4
Supportable New Development for Cleantech Corridor, 2010–2035

	2010 Existing	2035 Baseline	2035 with Larger Share	2010–2035 Increase
Warehouse + Flex (sq. ft.)	37,468,000	41,050,789	61,075,923	23,607,923
Residential (dwelling units)	2,680	3,252	6,466	3,786
Employment Density (sq. ft. per employee)	1,021			

Sources: SCAG Adopted 2008 RTP Growth Forecast; ULI panel, 2010.

In 2008, according to an analysis by Next10, the Los Angeles region had 40,000 green jobs. The largest concentrations include the following:

- Air and environmental services, with approximately 10,000 jobs;
- Energy generation–related firms, with more than 5,000 jobs;
- Recycling and waste stream–related firms with approximately 10,000 jobs; and
- Energy-efficiency firms, with approximately 5,000 jobs.

The growth of jobs in energy-efficiency firms in the Los Angeles region was 77 percent greater than in the state as a whole, indicating the region's strength in this sector. Green transportation, primarily in motor vehicles, was also strong in the region, with 152 percent growth in employment between 1995 and 2008. Water and wastewater-related firms in the region saw extraordinary 3.5-fold growth from 1995 through 2008 in water conservation activities, with a lesser but still strong 68 percent growth in research and testing.

Venture capital investment is seen as a major driver of research and development. In California, venture capital investment in cleantech is growing dramatically and nearly doubled from 2007 to 2008, to $3.3 billion. The Los Angeles region received $600 million, the largest amount invested after the San Francisco Bay Area and Silicon Valley. This investment suggests interest in venture capital firms in the Los Angeles cleantech sector. The success of San Diego and its biotech cluster, despite the lack of local venture capital firms, shows that high-tech clusters can be successfully created even without a heavy local presence.

Drawing definitive conclusions on what types of real estate are needed to support cleantech can be difficult, because it covers a broad range of industries with diverse needs for real estate products. However, the experience of other areas in growing high-tech clusters indicates that the key is to create environments attractive to scientists commercializing new technologies that provide affordable spaces and promote interaction with other scientists. Numerous examples show how random encounters between scientists and others have led to new ideas, collaborations, and companies. This experience underscores how an industrial mixed-use environment with significant amenities that promote interaction could create a desirable destination for cleantech startups and firms.

Summary on Market Potential

As discussed, improving the corridor to create an urban mixed-use industrial environment that can retain existing firms and attract new cleantech and other users should enable it to increase its share of the city's growth through 2035—for households by 0.2 percent and for employment by 1 percent. This increased share could translate to market support for up to 3,800 new residential units and more than 23 million square feet of new flex/industrial, office, and other space, as shown in table 4.

Market potential to support new uses and development appears considerably greater than available buildings and land. This finding reinforces the importance of focusing on the types of development that best leverage the area's physical characteristics to further city goals for cleantech and economic development. Although potential market demand could support denser development, replacing many existing buildings with larger new buildings would not be advantageous, even if the challenges of land assembly could be resolved. The reuse of existing buildings should be a priority to create the type of sustainable, industrial mixed-use environment with affordable spaces that will attract smaller and new firms.

A significant advantage of the corridor is its potential to appeal to younger generations, including Generation Y and Millennials. Persons in their 20s and 30s represent the age ranges that are responsible for starting most new businesses, including recent university graduates and faculty who will lead the creation of many new cleantech companies. The corridor's appeal to this demographic lies in its alignment with their interests. Compared to older generations, these younger generations emphasize convenience and access in locating homes and businesses, with a strong preference for denser, in-town locations that offer a diverse, walkable environment with significant amenities. They are also interested in smaller homes and are more typically renters. Along with interesting urban neighborhoods featuring smaller and older buildings, such as the envisioned mixed-use industrial district, a restored Los Angeles River is the type of urban amenity that will have significant appeal to them.

Market Potential Case Study: New York

The study area has a large concentration of garment manufacturers and warehouse distribution operations. According to the U.S. Bureau of Labor Statistics, the average annual area wages for these occupations are $20,590 and $25,800, respectively. The existing industrial base is a very important one, and all efforts should be extended to ensure its viability because of the jobs the area creates for residents of the study area and the city as a whole.

CTLA leadership should commit significant resources to marketing publicly owned sites, particularly the large CleanTech Manufacturing Center located in the southern portion of the study area. A nationally recognized real estate entity should be engaged to properly market the site on a national and international basis.

Quality-of-life issues are of great concern in the study area. Infrastructure improvements, streets in desperate need of paving, pothole repair, rubbish removal, and illegal parking are just some of the many issues mentioned by those who operate businesses and own property in the district. Addressing these issues would be relatively easy and send a message that the city of Los Angeles cares about existing industry. In addition, the reduction of taxes, fees, and permits; the reduction of energy and utility costs; and the encouragement of alternative energy production for property and business owners should all be given high priority to reduce operating costs. Such initiatives are imperative to maintain the existing manufacturing base and facilitate change in the study area.

The ULI panel sees the evolution of this area as a natural progression from a low-tech, low-skill industrial area to a community of creative manufacturing and artisanal uses. Although many of the existing jobs pay a minimum living wage, the study area has greater potential because of its proximity to markets; creative environment, particularly in the growing Arts District; demand for custom products and fabrication; and ability to attract entrepreneurs in creative and artisanal industries.

Lessons can be drawn for the study area from examples of other industrial areas. Not unlike the study area, the communities of Williamsburg, Greenpoint, and Bushwick, Brooklyn, in New York City also were home to larger-scale manufacturing facilities, such as Pfizer Pharmaceuticals' more than 300,000-square-foot facility or the giant waterfront home of Domino Sugar, both of which have left the area, taking thousands of high-quality manufacturing jobs with them. However, not just large-scale national firms closed their doors but so did the sweater manufacturer who could no longer meet foreign competition and the 100-person furniture-manufacturing shop whose product is now manufactured in Vietnam.

As these industrial areas of Brooklyn changed from heavily concentrated manufacturing communities to younger, more creative communities, industry changed too. Replacing the older, dirtier, larger-scale businesses that left the city because of higher wages, taxes, and utility and real estate costs are small, clean, and efficient businesses led by creative entrepreneurs who brought their 21st-century version of manufacturing to the area. No longer occupying entire buildings, these firms occupy 3,000 to 5,000 square feet and employ five to ten workers.

The Greenpoint Manufacturing and Design Center (GMDC), New York City's only nonprofit industrial developer, was founded in 1994 out of a need to house this new kind of manufacturer. Unique nationally, GMDC creates and sustains viable manufacturing sectors in urban neighborhoods by planning, developing, and managing real estate and offering other related services.

GMDC's primary goal is to create high-quality, affordable, long-term space for urban manufacturing companies that often find themselves threatened by economic, political, and land use challenges on a local, national, or international level. The preservation of industrial activities and jobs has a threefold benefit to cities: it creates employment opportunities for those who lack the education, language, or life skills to function in other jobs; it diversifies local economies, making them less susceptible to economic downturns; and it fosters the kind of creative and productive mix of uses that have helped revive urban neighborhoods across the country.

Current market conditions mean that limited amounts of new speculative development in the corridor or elsewhere will be available over the next couple of years. Near-term market potential in the corridor is much more likely to arise from the city and others working closely with existing corridor tenants to understand their plans and needs and to identify opportunities to retain them in the corridor.

The key for the corridor's long-term success will lie in attracting cleantech and other new users while retaining existing firms and creating an improved, amenitized, and diverse industrial mixed-use environment. This strategy can lead to an increase in the corridor's share of future city household and employment growth, as well as attract firms that might otherwise locate in other cities, thereby increasing the city's tax base and other revenues needed to help finance the creation of the corridor's 21st-century, mixed-use industrial environment.

GMDC's buildings house 107 businesses, employing 520 people. These businesses represent the diversity of New York City's modern manufacturing sectors: custom, sustainable value-added businesses creating unique products in the marketplace in which they are sold using a combination of a skilled and talented immigrant workforce coupled with young and enthusiastic entrepreneurs. A sampling of some of these businesses includes architectural woodworkers, custom cabinet makers, precision metalworkers, jewelry makers, fine artists, set designers, electronics manufacturers, and costume makers.

Of the business owners in GMDC properties, 91 percent are New York City residents and 96 percent of their employees live in New York City, with 50 percent in Brooklyn. Fifty-five percent of the business owners and employees take public transportation to work, while 14 percent walk or bike.

Industrial jobs provide a high-quality option for a key segment of the population in New York City:

- Fifty-one percent of the employees in GMDC's buildings speak English as a second language.
- Employees in GMDC's buildings earn an average of $44,000 annually. This wage is significantly higher than national averages for manufacturing work because of the custom non-assembly-line nature of the production. GMDC businesses produce custom, value-added goods that offer higher returns for the business and higher wages for employees.

GMDC's most recent project, 221 McKibbin Street, highlights the transformation of a historic former single-use manufacturing facility into a sustainable modern manufacturing center for multiple manufactures and artisans. The McKibbin project, which sits just blocks away from 10,000 units of public housing, is a three-story, 72,000-square-foot facility. McKibbin, as well GMDC's previous completed projects, serves as a model for transforming older industrial stock, often derided as obsolete and inefficient for modern manufacturing, into viable employment centers for emerging businesses and technologies.

Benefits and outcomes: GMDC's projects generate jobs in both the short and the long term. According to an economic study performed as part of the New Market Tax Credit benefit analysis, the project generated 100 full-time jobs during construction and will house more than 100 permanent jobs when it is fully leased. In addition to the $17.8 million of direct investment in the project, the analysis found that the total economic impact of the project will be $181 million. The industrial jobs available in GMDCs' buildings are more likely than retail and service sector jobs to provide a living wage with benefits and to employ people with limited language skills and education.

An approach to adaptive use for industrial property: The benefit 221 McKibbin Street brings to the area expands beyond job creation. Prior to its renovation, 221 McKibbin Street was in a state of extreme disrepair and was largely inactive, creating blight on an otherwise vibrant block. The ground floor and back of the building had been closed tight for security reasons for over 30 years—the windows and skylights blocked up with concrete block. The residential population surrounding the building, including middle-income and rental housing, had little interaction with the property. Not only has the renovated building brought new activity and jobs to McKibbin Street, but it has also brought the building back into interaction with this mixed-use block at the edge of the North Brooklyn Industrial Business Zone.

GMDC's buildings are a large and integral part of the communities in which they exist. The business owners and their employees live in the neighborhoods that surround the manufacturing centers. GMDC businesses employ locally, purchase locally, and sell locally, completing an economic circle that makes these projects an economic and community development success.

GMDC projects harness the creative and productive energy of a community and demonstrate that older industrial buildings can be given new life as manufacturing and technology centers in the 21st century.

Vision and Development Strategies

"We are just now perceiving that the university's invisible product, knowledge, may be the most powerful single element in our culture, affecting the rise and fall of professions and even of social classes, or regions, and even of nations."

—Clark Kerr,
president of the University of California, 1963

For much of the last half of the 20th century, economic development relied primarily on a traditional toolbox of business attraction and retention incentives, such as tax breaks or infrastructure. Increasingly, the old model is proving less effective with a rapidly evolving and increasingly global economy.

Rethinking Economic Development

An Upjohn Institute study of 75 communities around the United States that used enterprise zones, a traditional economic development tool, found "very little impact on new investment" as a result of the enterprise zones. Research and development, technology transfer assistance, and workforce training are often included among the incentives, but sometimes without an alignment to the given economic development strategy.

As pointed out by David Shaffer and David Wright in "A New Paradigm for Economic Development: How Higher Education Institutions Are Working to Revitalize Their Regional and State Economies" in their report for the Nelson A. Rockefeller Institute of Government (*Higher Education,* March 2010), the 21st century presents an opportunity to develop a new, "knowledge first" approach in which higher-education institutions explicitly take a leading role in economic development and, by extension, community revitalization. In an economy more dependent on innovation, universities and colleges are playing a more active role in spurring innovation and commercialization. Such a paradigm shift has proven effective in communities throughout the United States, where investment in education is yielding results in job creation and income, comparable to more conventional financial incentives and tax breaks, while also being more economically sustainable long term. As such, traditional economic development models that focused on manufacturing and physical infrastructure have yielded to a model emphasizing education and connectivity (see table 5).

Connections and synergy between industry and educational institutions are critically important for the generation of new knowledge and intellectual property with commercialization potential to generate economic growth. Furthermore, the education and training (or retraining) of people throughout the workforce, both blue and white collar, is criti-

Table 5
Comparing Old and New Economic Development Models

	20th-Century Economic Development Model	21st-Century Economic Development Model
Leadership	Public Sector	Private/Public Partnership
Incentives	Buffet	A la carte
Recruitment Strategy	Shotgun	Laser
Competitive Positioning	Low Cost	High Value
Workforce Development	Labor	Talent
Organization	Enterprise Zones	Business Improvement Districts
Critical Infrastructure	Roads	Connectivity
Value Proposition	Incentives	Knowledge Transfer

Source: Greenstreet Ltd.

cal and begins with ensuring a strong foundation of student achievement at the primary and secondary school levels. With outstanding higher education and research institutions in the region, such as the University of California, Los Angeles; the University of Southern California; the California Institute of Technology; the Jet Propulsion Laboratory; and Los Angeles Trade Technical College, a focused cleantech initiative can marshal the resources and assets to collectively build the brands of the institutions as well as the Los Angeles region.

A physical, tangible manifestation of a cleantech strategy is important. The planned LADWP and CRA/LA Innovation Campus and Business Incubator is an important investment to create visible leadership. Other successful models have included business incubators, teaching and workforce development space, and applied research facilities. With increasingly constrained budgets, particularly among higher-education providers, the ability to colocate and share resources among public, private, and education partners cultivates new ideas and ensures that public and private investment goes further.

Reframing the Vision: Creating Focus and Defining Target Markets

Big ideas are the basis from which change is created, especially in complex urban environments. In an increasingly competitive world where markets, geography, and economic lines are blurred on a daily basis, laserlike focus is critical to long-term success. The Cleantech Corridor concept is a big idea that requires additional depth to generate economic value for the community in which it sits and the region it is meant to serve.

The panel synthesized background information, interview comments, and its experience into five steps for organizing the talent, assets, and opportunities presented by the corridor:

Step 1. Recognize the assets that make you unique.

Step 2. Define market segments to use resources efficiently.

Step 3. Organize a coalescing framework to guide future decision making and market segmentation.

Step 4. Align land use and resources to optimize investment for high-value, low-environmental-impact returns.

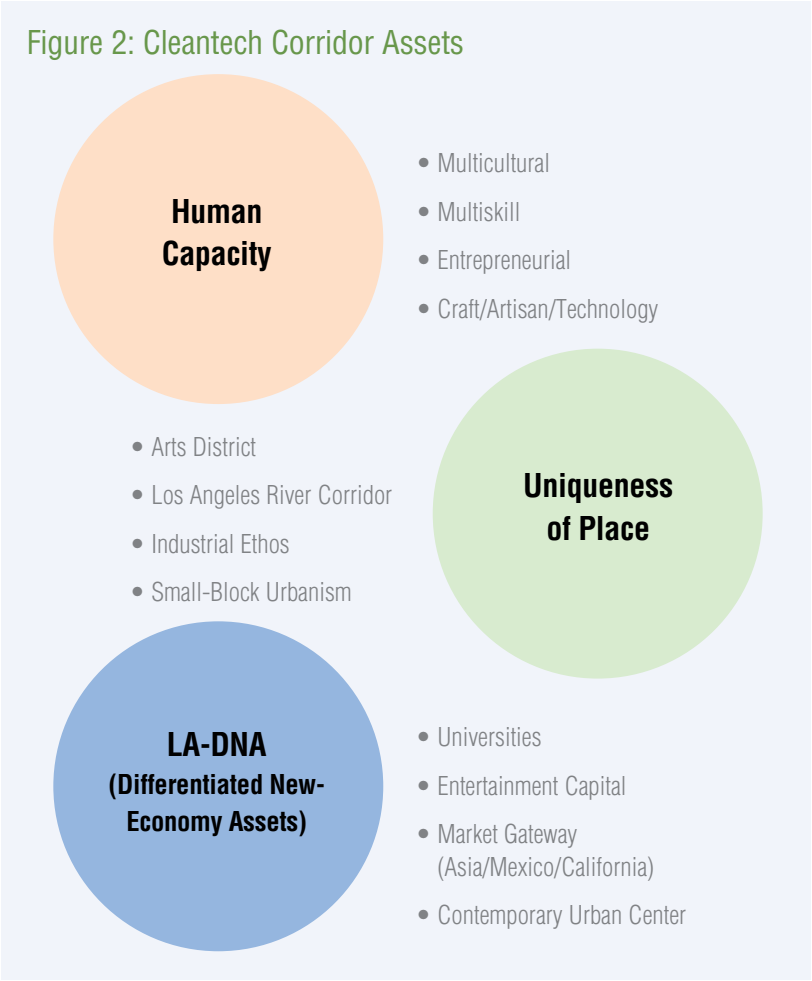
Step 5. Seize leadership opportunities of local urgency and global effect.

Step 1: Recognize Your Assets

Los Angeles possesses certain assets that are unique to the world, the United States, and the region. Identifying those assets and leveraging them to the greatest advantage of the cleantech initiative is important. To help the sponsor focus its effort, the panel organized these assets into the following three categories (figure 2):

- *Human capacity:* By virtue of its size, Los Angeles is blessed with a significant capacity and depth of human resources to develop, create, implement, and deliver a wide range of services, programs, and products. The region's multicultural history and diversity of skill levels and skill sets are resources that should be fully leveraged. Additionally, the city has a long legacy of innovative and entrepreneurial successes that should be celebrated and replicated to the greatest possible advantage. Finally, the city's recognized place in the world of cutting-edge design, fashion arts, and artisan and craft production is invaluable.
- *Uniqueness of place:* The corridor has a number of physical assets that could make it unique within the Los Angeles downtown area. A combination of small parcels and blocks and buildings of fine-grain, historic, and industrial architecture are readily suited to adaptive use for creative arts, small-scale artisan fabrication, galleries, and high-design home furnishings. The combination of these uses, a more pedestrian-friendly scale of architecture and public realm, and proximity to downtown allows the area to successfully distinguish itself consistent with other precedents such as SoMa in San Francisco, LoDo in Denver, or the Pearl District in Portland.

Figure 2: Cleantech Corridor Assets



Success in the Cleantech Corridor should be built upon the city's unique combination of human, place-based, and intangible assets.

- *Differentiating new-economy assets:* In today's highly competitive economic climate, playing to your strengths is important—the city has to sell those qualities that make it stand out from the crowd when businesses, knowledge workers, or investment capital makes choices about where to locate. Los Angeles enjoys world recognition and cachet for its leadership as the entertainment capital of the world, its exceptional research institutions, and its role as the gateway to Asia, Mexico, and the California economies. The city is often looked to as a model of the contemporary urban center.

  Just as individuals have a hidden "code" that makes them unique in the world population, Los Angeles' qualities of entertainment, brain trusts, market access, and urban form differentiate it in the new economy. The panel calls this the *Los Angeles DNA*.

Step 2: Define Appropriate Market Segments

The panel noted much confusion in the language it heard surrounding the appropriate types of uses, target markets, and definition of cleantech. This confusion will create great difficulty for the success of the entity charged with marketing the corridor. To provide a method for targeting, organizing, and locating appropriate types of business that are consistent with the corridor's vision, the panel suggests adopting the following "market continuum" (or a derivative thereof) as a tool for advancing development of the corridor.

Figure 3 highlights five different market segments:

- *Incubate:* Very small startup, leading-edge businesses that continually morph and evolve, but feed off the region's brain trust;
- *Innovate and create:* Small growing businesses in the creative arts, software, cleantech, and product design;
- *Fabricate:* Small to medium-sized businesses focused on high-quality, custom fabrication, including prototyping to support the first two segments, as well as artisanal crafts and small-scale boutique product fabrication;
- *Manufacture:* Medium-sized to larger businesses involved in the more traditional manufacturing of goods in larger quantities with less customization; and
- *Warehouse and distribution:* Storage, shipping, and transfer of raw materials necessary to support either the previous segments or the region at large.

Although the panel observed that any of these segments may be appropriate for the corridor, each segment brings a variety of needs and offers a differing level of value (both revenue and employment) to the city. For the purposes of advancing the discussion, each segment is provided with a definition and an example using transportation in figure 3.

Figure 3: Cleantech Corridor Market Segments

Incubate	Innovate + Create	Fabricate	Manufacture	Warehouse
"to develop something new as if by hatching"	*"to make changes to something established, or physically bring into being something new"*	*"to make something by art, skill and labor"*	*"to produce in a mechanical way without inspiration or originality"*	*"to store goods and merchandise"*
(Segway)	*(Smart Bike)*	*(West Coast Choppers)*	*(General Motors)*	*(Port)*

Step 2: Identify Appropriate Market Segments—The panel developed a continuum of potential use types that range from small boutique incubators to large-scale warehouse and distribution uses.

Although marketing and economic development efforts should focus on the full range of market segments, the panel believes that the "sweet spot" for the corridor (in terms of creating good-quality jobs, leveraging unique assets, and creating a district of value and place for the city) lies between the segments *innovate and create* and *fabricate*. Hence, most targeted marketing, economic development, and creative incentives should be directed there.

Step 3: Organize a Coalescing Framework

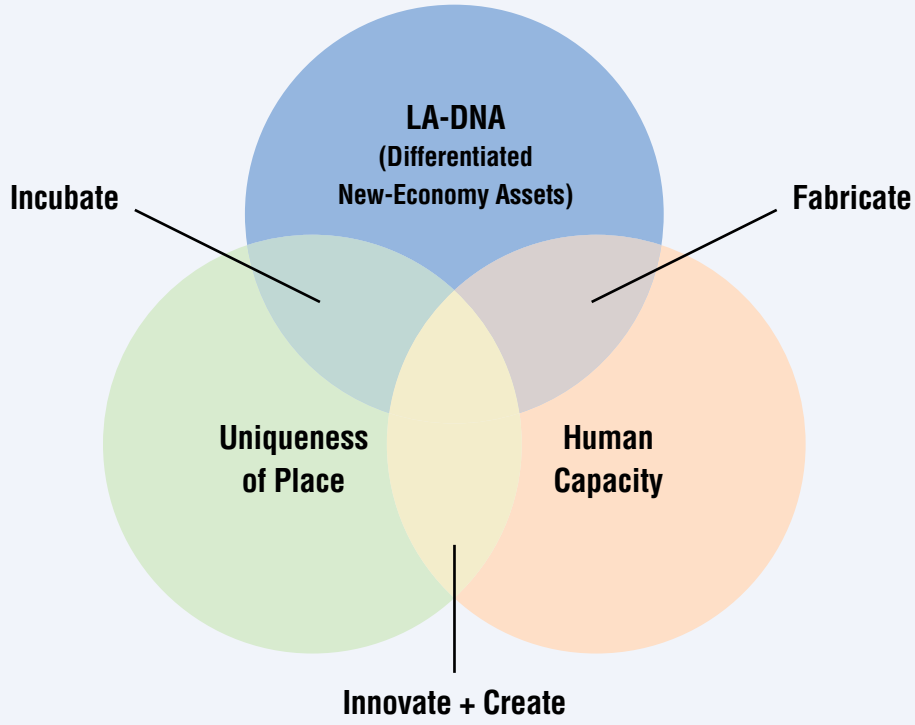
Given the broad variety of initiatives, partners, and efforts underway to realize the Cleantech Corridor's vision, the panel felt that a clear and simple framework was needed to provide greater direction and consistency of message and to focus actions and tactics. This framework is suggested in figure 4.

In keeping with the stated mission of the corridor to showcase sustainability, the identified assets are organized using the "three-legged stool" metaphor. The overlap between each circle is where synergy and potential for differentiation of the district are created. This synergy is what will put the Cleantech Corridor on the map. By relating each intersecting zone with the previously identified market segments, a clearer storyline is created for describing the benefits and opportunities available for new investment.

California is arguably the cleantech market leader in the United States. Although location within California is positive as a foundation for building a cleantech brand and an economic development strategy for Los Angeles, the city of Los Angeles will be facing intense competition from neighboring communities in the region and the state, many with well-established cleantech initiatives.

Within the United States, Colorado, Indiana, Massachusetts, Michigan, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Tennessee, Texas, and Washington are among the states with established cleantech initiatives that will affect Los Angeles' ability to be competitive in the cleantech sector. Around the world, Australia, Canada, China, Denmark, Germany, Israel, Sweden, Switzerland, the United Arab Emirates, and the United Kingdom are all focusing on cleantech to advance economic development while striving toward energy and resource independence.

Figure 4: A Coalescing Framework



The three defined assets are organized using the "three-legged stool" metaphor. The intersection of each circle provides an opportunity for synergy between those assets and aligns with the defined market segments.

Because of the ubiquitous use of the term *cleantech* and its varied definitions, pushing the Cleantech Corridor identity presents a risk as a branding strategy.

- The currently defined geographic area of the corridor represents a priority for new investment and cluster activity. The Cleantech Corridor could be misconstrued to be open only to those companies engaged in the cleantech sector. Similarly, the Cleantech Corridor label might cause companies to believe that this area is the only location available for cleantech, but the city should make sure that cleantech companies are welcome to locate elsewhere in Los Angeles.
- *Cleantech* is a trendy term, having been coined only since the early 2000s. The term could fall out of favor and sound dated.
- Cleantech industry segmentation is broadly defined, varying widely in communities that seek to capitalize on it. Many states and cities favor an identity that is more evocative and place-based or specific to the subsector of the cleantech spectrum in which they compete.

The briefing book provided insight into case studies of successful cleantech clusters from Austria, Canada, Japan, the United Kingdom, and the United States. Each case study varied in direct relevance to the Los Angeles Cleantech Corridor; some were place-specific initiatives while other efforts were regional. Several lessons learned and overarching themes from the case studies include the following:

- A lack of strategic focus is a weakness in executing both an economic development and a branding strategy. The case studies profiled included ECO WORLD (Austria); the EnviroCluster (United Kingdom); Kitakyushu Eco-town (Japan); and MaRS Discovery District (Canada). The panel recommends that Los Angeles focus its brand and competitive positioning on the cleantech subsectors where it can be competitive or dominate.

- CTLA is an excellent beginning to the region's plan to build consensus, create jobs, stimulate demand, and facilitate environmental solutions. However, 11 public and private sector entities—each with multiple missions and priorities—can be a significant challenge to implementation. Successful economic development initiatives evolve beyond loosely affiliated consortiums to established entities with the necessary focus and resources, both staff and funding, to execute a strategy with measurable results.

Step 4: Align Land Use and Resources to Optimize Investment

Attributes of each market segment can be further defined to help inform land use, economic development, and location and infrastructure decisions. Table 6 illustrates the relative relationship of each market segment across a number of important factors that the panel feels the CRA/LA and other entities involved in the corridor should address.

Table 6
Market Segment Attributes

	Incubate	Innovate + Create	Fabricate	Manufacture	Warehouse
Character	Mind	Mind + Hand	Mind + Hand + Machine	Hand + Machine	Building + Lot
Value Creation	$$$$$	$$$$	$$$	$$	$$
Barrier to Entry	Very High	Moderately High	Moderate	Low	Low
Differentiation	Very High	Moderately High	Moderate	Low	Low
Required Education/ Training	PhD + Master's	Bachelor's, Master's, Vo-tech	High School, GED, Vo-tech, Bachelor's	< High School, Vo-tech	< High School
Compensation	High	High–Moderate	Mid–Minimum	Minimum +	Minimum +
Requirements					
Physical	Inspired boutique	Creative urbanism	Industrial urbanism	Factory/Industrialism	Large lot
	Co-creative environments	24/7 edgy + clean	Efficient and flexible	Buffers and separated uses	Open space
	University access	Lifestyle amenities	Synergy of services	Access to raw materials	Transportation access
Compatible Uses	Education, housing, live/work, service retail, office, light industrial			Service retail, light industrial	
Transportation	Multiple modes including transit within 1/4 mile	Multiple modes including transit within 1/4 mile	Multiple modes, ease of truck movement	Shipping corridors	Shipping corridors
Real Estate	Diverse, small, flexible, agile space, adaptive use and new construction	Small–moderate footprint space, adaptive use	Medium-sized space with energy, water, transport	Large-footprint sites, simple low-investment buildings	Very large footprint, simple low-investment buildings, empty lots
Network	University research and development knowledge cluster	Related service providers, material providers	Related service providers, transportation	Raw material providers, storage and waste recyclers	Transportation

Figure 5 compares how existing zoning supports market segments identified in step 2.

Recommended zoning revision in figure 6 will better support target market segments identified in step 2.

Figure 5: Current Zoning

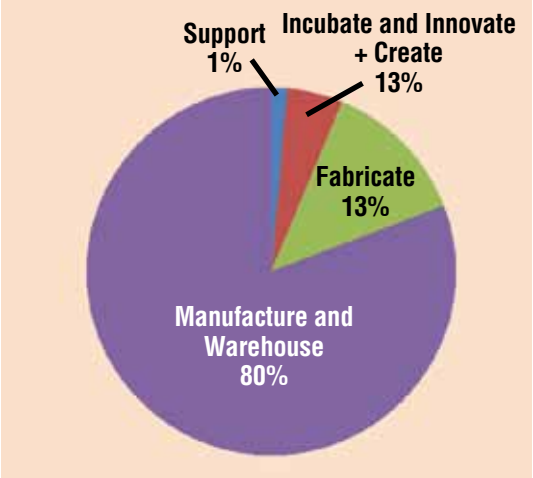
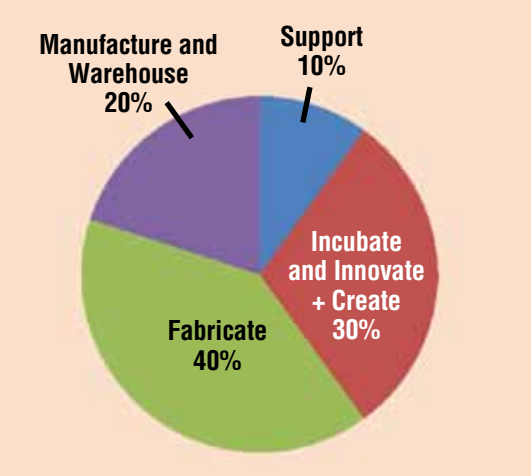


Figure 6: Proposed Zoning



The panel conducted a simplified review of the current zoning within the corridor to ascertain how well the corridor, if built out to its zoning potential, would support the high-value market segments defined in steps 2 and 3. The panel looked at current zoning categories and assumed that land in each category was built to its highest zoning category.

Figure 5 illustrates how the current capacity of the Cleantech Corridor is largely oriented to the far right end of the value continuum (that is, manufacturing and warehouse). This allocation is based on current zoning classifications, analyzed against potential uses that support each of the various market segments along the continuum.

The panel recommends that land use policy and zoning be revised to better support a more robust district that will permit greater alignment of land use with recommended target markets. Although not the result of detailed research, the panel believes that land allocation consistent with the percentages shown in figure 6 will more appropriately support the recommended target market areas.

Figure 6 illustrates the panel's proposed mix of land use allocation within the corridor to more appropriately promote the mix and value creation defined in the previous steps. For these categories, the panel reviewed and aligned land use with the Draft Industrial Zoning Typologies as follows:

- Creative Technology = Incubate and Innovate + Create;
- Industrial/Residential/Mixed Use = Incubate and Innovate + Create;
- Light Industrial Sanctuary = Fabricate and Manufacture; and
- Media Entertainment District = with minor modification, small areas associated with Incubate and Innovate + Create.

More-detailed overlay zoning may be appropriate for some segments of the corridor to achieve the combination of built-form development standards, public realm investment, and land use controls necessary to optimize the vision.

Step 5: Seize Leadership Opportunities of Local Urgency and Global Effect

To illustrate how the identified market segments can be used to direct focused marketing and attract new businesses, the panel explored two potential subject areas it found particularly relevant to cleantech and Los Angeles. Although these did not emanate from an exhaustive search of potential subjects, the illustrations are meant to help show how the previously described four steps would be used to begin populating the corridor.

Los Angeles has the potential to provide significant global leadership in sustainability while helping resolve local challenges in the two subject areas selected. The panel chose each subject for its ability to capitalize on the setting, assets, and opportunities provided by the Cleantech Corridor:

- Cleantech opportunity 1 (high tech): low-carbon water production and treatment; and
- Cleantech opportunity 2 (low tech): food processing and packaging.

Low-Carbon Water Production and Treatment

Only 2.5 percent of the world's water is fresh; 60 percent is trapped in glaciers, and 30 percent is in groundwater, leaving only 10 percent as surface water (lakes, rivers). Of the water taken from surface and ground sources, 70 percent is used for agriculture; 22 percent is used for industrial processes; and 8 percent is used for drinking, washing, and watering.

Potential for global leadership. Three hundred million people now get their water from the sea or from brackish groundwater that is too salty to drink, which is double the number of a decade ago. Within the next six years, new desalination plants may add as much as 13 billion gallons a day to the global water supply (the equivalent of another Colorado River). However, although the promise of desalination has been held out for years as a potential solution for resolving what many believe will be the next generation's new precious resource—water—it comes with significant environmental consequences.

Most desalination techniques require significant amounts of energy input, which is often fossil-fuel based. Additionally, the process of desalination often generates byproducts of concentrated salt solutions that are damaging to marine life or soils following their disposal.

Emerging technologies for solar desalination, forward osmosis, carbon nanotubes, and biomimetics provide some potential for solving these challenges. Many of these technologies are in early development and could benefit from focused efforts to further research, incubate new solutions and equipment prototypes, expand ideas and innovative solutions, and then test and deploy to local and global markets. Los Angeles' proximity to the ocean, chronically short water supply, and significant water requirements provide a locally relevant and globally important opportunity for a focused recruiting effort to add to this global solution set.

Potential for the Cleantech Corridor. At a local level, a focus on water has the potential to attract the following endeavors to the Cleantech Corridor:

- Supply chain of companies engaged in design, product development, and prototyping;
- Material chemistry;
- Polymers and membranes;
- Nanotechnology;
- Filtration systems and membrane cleaning; and
- Contaminant processing.

Food Industry

Food is as essential to life as water and air. Increasing attention on food sourcing, food purity, and the long-term environmental effects of production, transportation, processing, and waste disposal in the food chain have elevated its role as a significant component of sustainable community development.

Potential for regional leadership. The Cleantech Corridor already plays a major role in the region's food distribution, processing, and storage. Daily shipments from the Central Valley and the long-standing produce mart are a center of Los Angeles' food-based commerce. These are large-scale wholesale operations that operate on a 20th-century model of distribution and processing.

At the incubation end of the market segment, one low-tech example includes innovative food incubators such as San Francisco's La Cocina. There, a locally based nonprofit provides a state-of-the-art facility for ethnic entrepreneurs. La Cocina's high-quality facilities allow first-generation immigrants and their families to make specialized food for sale to local markets or as street vendors while ensuring health quality and learning skills necessary to scale up their businesses. La Cocina's business and financial support services provide many the means to turn their skill and passion into major market contributions as larger food distributors. Starting in the kitchen, these entrepreneurs tend to stay in the

neighborhood where they got their start, increasing local employment and the district's economic output.

In a very low-tech but essential service, helping create micro-distribution networks to bring fresh produce to local neighborhoods is an untapped opportunity. During the panel's interview process, a resident of Boyle Heights commented on how hard it was to obtain fresh fruits and vegetables in the neighborhood, which is less than one mile from one of the region's largest fresh produce distribution centers. "Who wants to buy a 10-pound bag of fruit, when all I want is a single peach? LA does not have neighborhood bodegas, yet fresh food is a critical element for the health of our children."

Other opportunities include developing innovative solutions for food packaging. Given the region's high catering levels (business and entertainment industries), a dedicated focus on creating, delivering, and bundling biodegradable food packaging is consistent with one view of cleantech. The European Union and its major supermarket chains are funding university research into nanotechnology-aided food packaging. SustainPack is an industry/university collaboration to create environmentally friendly fiber-based packaging to replace oil-based plastics. The fibers are obtained from natural, sustainable raw materials, such as wood, and modified using nanotechnology to provide the necessary characteristics for biologic breakdown. (For more information, see http://www.foodproductiondaily.com/Packaging/EU-funds-nano-packaging-research.)

Further upstream on the continuum, food processing and cold storage provide opportunities where more sustainable practices can be developed, tested, and implemented. "Sustainable design, whether it relates to a facility or process, has become such a universal goal that instead of asking *should we . . .* companies are asking, *how can we . . .*?" *Beneficial Strategies for Sustainable Food Processing* cited an example of a $4 million investment in water and energy improvements in a food processing plant yielding a 40 percent return on investment for the employer.

Potential for the Cleantech Corridor. At a local level, a focus on food has the potential to attract the following endeavors to the Cleantech Corridor:

- Incubator kitchens and business support for small food entrepreneurs;
- Micro-distribution services for neighborhood-scale greengrocers;
- Innovative approaches to low-waste, recyclable, or biodegradable food packaging materials; and
- Food waste processing and composting as part of long-term soil and river remediation and urban agriculture.

Planning and Design

Although the study area is at the historical center of Los Angeles, radiating from the Los Angeles River, and is largely considered an industrial district, it is in many ways a series of interstitial spaces that have been colonized by diverse uses capitalizing on the historic infrastructure. Rather than a unified corridor, it is a collection of subdistricts that have developed in response to the transportation infrastructure that has evolved in the corridor over the last century and a half.

In general, it is defined by the following land uses:

Industrial: Although the majority of the study area is zoned for heavy industrial, in fact it is used for diverse, mostly light industry and fabrication:

- Food processing and distribution;
- Apparel manufacturing;
- Newspaper printing;
- Transit maintenance and operation;
- Warehouse and distribution;
- Materials collection and recycling; and
- Smaller-scale fabrication.

Residential: Residential development is largely confined to more or less isolated communities, with the highest concentration of market-oriented housing within the Arts District.

Transportation infrastructure: In many ways, this use defines the study area because even the Los Angeles River has been subsumed into the rail systems and today exists only as a giant drainage channel within the rail corridors that line it. The highway systems that surround and dissect the study area further subdivide it while providing the generally good vehicular access that has caused the area to persist as a center of industrial activity. However, whereas the major highway and rail corridors have been developed to an extraordinary level of complexity and are generally well maintained, the local system of streets has been allowed to decay to a similarly extraordinary level. Compounded by the heavy use that these streets suffer from modern tractor-trailer vehicles, the neglect of these local streets has become a major limiting factor for the growth and development of the area.

The study area is a vast swath at the center of downtown Los Angeles (see corridor map in "The Study Area" section); as such, the panel has subdivided it into a series of subareas to develop more localized strategies for each of them:

- *Cornfield/Arroyo Seco:* The Cornfield Arroyo Seco Specific Plan process that has recently been completed provides excellent direction for the future development of this area in conjunction with the Los Angeles River Revitalization Master Plan. The goals of establishing it as a LEED (Leadership in Energy and Environmental Design)-Neighborhood Development, mixed-use neighborhood are fully compatible with the goals of this study.
- *Civic Center/Transportation Hub:* With the continuing development of Los Angeles' transit infrastructure and the advent of high-speed rail, the panel anticipates that this area will continue to develop at a high level of intensity. An increasing demand for high-density, mixed-use development—including residential, office, and retail—will continue as more and more of this infrastructure comes on line.
- *Little Tokyo:* In many ways, this district is the logical bridge between Downtown and the Arts District and offers greater potential for its continued growth as a mixed-use neighborhood.

This image shows the Southern Industrial Area along with adjacent uses.

- *Boyle Heights:* Although heavily affected by highway and rail infrastructure interventions over the years, the potential for cross-river connections as the Los Angeles River Revitalization Master Plan is implemented will continue to be enhanced by some strategic investments in open-space connections, as will be discussed further.

- *Southern Industrial Area:* Currently heavily populated with large manufacturing and distribution functions, the key site within this area is the CRA/LA's CleanTech Center. Because of its large size (20 acres) and adjacency to existing rail and highway infrastructure, continuing to seek a tenant who can use that unique parcel is logical. If, however, market and financial considerations do not support that use, the site could be reconsidered as a mixed-use node that could function as the southern terminus of the developing Arts District.

Growth and Development Nucleus: The Arts and Innovation District

The greatest short- and medium-term opportunity to establish a nucleus of growth and development currently exists within the Arts District. The panel has rebranded this district the Arts and Innovation District as an expression of both its past and its future. This rebranding reflects the core opportunity identified to enhance a mixed-use community that focuses on the Incubate/Innovate + Create/Fabricate end of the value proposition, as stated earlier. To achieve this goal, the core of the Arts and Innovation District should be conceived as the nucleus of a growth center of innovative urbanism that spreads from the core area of the SCI-Arc/Innovation Campus node and grows outward to eventually embrace the river and beyond.

The current Arts District centered on SCI-Arc represents an ideal nucleus for catalyzing the Cleantech Corridor.

Vision for the Arts and Innovation District

The existing urban structure and building stock of the district lends itself ideally to the development of a dynamic and creative 21st-century urban neighborhood that recolonizes and adaptively uses the early 20th-century forms. This vital pattern of regeneration has been implemented successfully around the world to great effect. The opportunity here is to enhance job creation through a dynamic community of skilled, knowledge-based workers who operate in a stimulating environment based on innovation and creativity.

The district offers the following key opportunities for establishing this neighborhood:

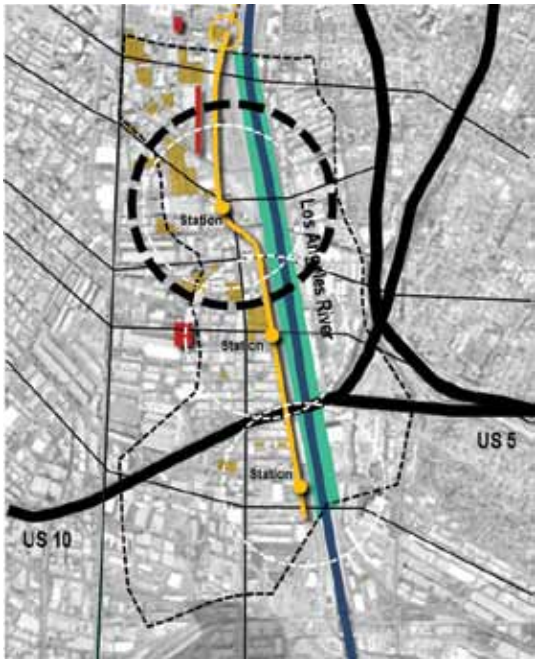
- The district has a unique character and sense of place based on its fine-grained urban structure and architecturally distinctive building stock. Clearly, not all, or even most, of the buildings within the area are architecturally valuable, but as a whole, the older industrial nature is highly valuable for its flexible opportunities for adaptive use. The generally small footprint size of the buildings is actually an advantage encouraging the development of small-scale spaces suited to business incubation and small business development.

- The small scale of streets and blocks is inherently pedestrian-friendly, a rare asset in downtown Los Angeles. With appropriate streetscape improvements and use of interstitial spaces for neighborhood-scaled open spaces, it has tremendous potential to become an appealing neighborhood.
- The same physical traits characterize the Boyle Heights industrial area, directly across the Los Angeles River, suggesting another opportunity.
- Accessibility to the civic, transportation, and business center of downtown and the surrounding neighborhoods creates additional business opportunities.

Tools for Neighborhood Transformation

To maximize the opportunities at hand, those in charge of implementation should consider and use a variety of strategies and tools. The following list offers a sample of some of the categories that should be addressed with tactics for transformation:

- Establish mechanisms to ensure mixed use:
  - Incentives for business development and innovation;
  - Incentives for educational presence; and
  - Market controls for housing.
- Invest in infrastructure:
  - Fix the streets; and
  - Extend rail service.
- Apply low-impact development standards throughout the district:
  - Green streets, stormwater infiltration, and best management practices;
  - Adaptive use and green buildings;
  - Rainwater, graywater, and blackwater recycling;
  - Green (brown) roofs;
  - Green energy systems including solar, district energy production, and net metering; and
  - Neighborhood-scaled open space in vestigial rail spaces.



With a nucleus centered in the Arts District, new transit connections and links to the streetscape and river offer a transformative opportunity for the entire Southern Industrial Area.

A sketch captures the new node of the Arts and Innovation District as it connects to transit and the surrounding area.

- Establish links, connections, and access:
  - Extend and expand transit service at neighborhood scale to service the district;
  - Complete streets:
    - Alameda and Santa Fe;
    - Internal street network;
    - Bridge streets (Sixth, Seventh, etc.); and
  - Create access and connections to and across the river.

Support the Downtown Industrial Business Improvement District

The Downtown Industrial Business Improvement District (BID) and the Arts District BID, under the auspices of the Central City East Association, are geographically defined areas serving a portion of the Cleantech Corridor. Routine services include maintenance activity to mitigate illegal dumping, trash and graffiti removal, and sidewalk cleaning. Special BID programming includes provision of trash containers and banners, promotion of local events, availability of a business trade directory, and nonprofit facilitation to develop community-generated projects. The role of the BID in maintaining a clean and safe district is an invaluable community service. Ongoing support of the BID by CRA/LA and the local business community is advisable.

Defining Initiatives for Planning and Design

To establish an effective branding strategy that is reflected in a measurable reality on the ground, the city needs to make a concerted focus to establish the Arts and Innovation District as a prototype development of experimental green urbanism that uses the tools of adaptive use, green infrastructure, water capture, conservation and recycling, renewable energy production and conservation, and other systems in every intervention within the district. This initiative should focus on applying these state-of-the-art and innovative technologies as they are developed by the businesses inside the district to the district—making the infrastructure of the streets, open spaces, and buildings as they are developed experimental test cases of the most progressive forms of green urbanism.

To advance this agenda for making the project a showcase for sustainability innovation and advancement of technical capacity in the region, five sustainability fronts should be addressed concurrently:

1. Establish current district performance. Develop a baseline analysis of key metrics commonly used to measure sustainability, including at a minimum:

   a. Energy use per square foot in kilowatt-hours;

   b. Water use per capita;

   c. Inbound employee transportation mode share;

   d. Waste generation in tons;

   e. Waste diversion (including in-district reuse) in tons;

   f. Combined carbon footprint of the district;

   g. Total employees;

   h. Total residents;

   i. Employee travel distance;

   j. Locally owned businesses (total number, gross revenue, and number of employees);

   k. Median income in district;

   l. Median income indexed to city of Los Angeles and region.

2. Target existing building efficiency for upgrades and adaptive use.

   a. Identify building age, typology, and use.

   b. Identify building use.

   c. Correlate a+b efficiency upgrade priority.

   d. Create efficiency audit program including training with vocational schools.

   e. Develop grant and revolving loan program to increase energy and water efficiency of adaptive-use buildings (building owners).

   f. Develop grant and revolving loan program to increase energy and water efficiency of product processes (tenants).

CITY OF LOS ANGELES

A conceptualization from the Los Angeles River Revitalization Master Plan 2007 depicts part of the Cleantech Corridor with a revitalized riverfront, green space, and a mix of cleantech facilities.

3. Advance new building innovation.

   a. Establish the study area as a laboratory of certification approaches.

   b. Do not limit to single program. Adopt a portfolio of approaches for exploration: Energy Start, Leadership in Energy and Environmental Design New Construction (LEED-NC), LEED Core and Shell (LEED-C/S), LEED Neighborhood Development (LEED-ND), Living Building, One Planet Living, BREEAM.

   c. Look at broader community or infrastructure programs, such as Low Impact Development (LID), LEED-ND, Sustainable Sites.

   d. Create university intern and research partnerships for ongoing measurement, document process, and performance.

   e. Develop support funding for testing increasingly advanced approaches to building design, such as Building Information Modeling (BIM) differentials.

   f. Brand district with walking tours, online reports, and mobile programs to share lessons learned and showcase accomplishments.

4. Create an eco-district approach to systems and process loops.

   a. Identify logical input and output scenarios.

   b. Aggressively pursue users and tenants that can share inputs and outputs.

   c. Explore eco-district approaches to power generation, stormwater capture and management, and other infrastructure needs.

5. Capitalize on the existing opportunities and investments in cultural and social capital to advance the diversity and vibrancy of the district.

   a. Stimulate and encourage the ongoing visual arts programs, galleries, and creative workplaces.

   b. Foster the development of music venues and street programming.

   c. Enhance the growth of a local food culture that promotes artisanal food production, locally sourced and produced foods, and restaurant diversity through new retail connections and outlets for the existing large-scale food distribution venues located within the study area.

Implementation

"If you want a better urban life you invent it, then fight for it."

—Manuel Castells

The city's revitalization of the Cleantech Corridor is about "making the place" and "making the deal." The city's ability to "grow" businesses in the corridor and increase its profile as a global competitor depends on city leadership and follow-through in these key areas.

Much of this report is devoted to envisioning the type of place that the Cleantech Corridor can be. "Making the deal," that is, getting businesses to come to the city is no less important.

Making the Deal

The mayor and city council took a substantial step forward earlier this year by creating the Office of the Deputy Mayor-Chief of Economic Development and Business Policy. However, this position encompasses far too many arenas for one person to concentrate on cleantech. The panel recommends that the city "incubate" this office further by instituting the position of economic development director (EDD) in that office with a very precise charge to develop the Cleantech Corridor.

"Getting There First": Economic Development Director

We all instinctively know that "the early bird gets the worm" and that to delay may mean others cherry-pick the targets of our pursuit. The Cleantech Corridor concept includes securing cutting-edge businesses or techniques. The city can benefit from getting to the targeted businesses first. By institutionalizing a new position and supporting team that are readily recognizable by the local, state, national, and global business communities, the city can jump-start its economic development program and improve its employment base.

With an EDD, the city can send a message of commitment to the business community and to the residents who own property, work in the businesses, and benefit from economic vitality in the area.

- The EDD's sole charge is quarterbacking targeted economic development prospects across the goal line of locating in the city, with a specific focus on the corridor, and growing the cleantech brand.
- The EDD can market both private and city property to prospective businesses. The EDD becomes a herald of the city's assets, environs, and unique brand in the field of cleantech tradeshows and the like.
- The EDD is a world-class individual who has the experience to effectively represent the city and the personality to cajole resources in the city to bring targeted industries into the city. The EDD position includes a salary commensurate with world-class talent and demonstrated experience.
- The EDD operates with independence in seeking and securing targeted economic development prospects.
- The EDD acts with the authority of the mayor and city council, whose confidence in the EDD allows the EDD's appropriate commandeering of city resources without micromanaging.
- The EDD marshals city planning, engineering, and building department resources; the proprietary departments of Water and Power; the harbor/port and the airport; the CRA/LA and other resources to secure a targeted prospect as a new city business.
- Relationship building with CTLA, universities, businesses, and community organizations engages them in the EDD's effective courting and securing of targeted businesses.

- The EDD can encourage small landowners to consolidate lots without city regulation to bring a targeted business to the collective site.
- The EDD's success is measured by performance, which includes the ability to earn incentives based on type of industry and number of prospective jobs secured.

The EDD's initial charge to market to and secure targeted businesses to join the corridor "incubates" this position. This pilot can then be expanded to include generating targeted cleantech business prospects and securing their location throughout the city.

Repurposing CleanTech Los Angeles

With respect to the city's ambitions for the Cleantech Corridor, the primary focus for achieving success lies in establishing the EDD position. However, efforts should also be made to revisit CTLA and reconfigure it strategically so that it can act as a complementary ally while the EDD leads the charge. CTLA currently has many respected groups at the table but seems to function in name only. One person in the city runs the Web site, and the groups involved in CTLA do not have any set obligations or responsibilities aside from lending their brand-name recognition. The current CTLA partners need to sit down together and figure out what the structure and role of CTLA should be moving forward. Initially, this process may involve a painful discussion involving jurisdictional boundaries, that is, cleantech efforts in the city of Los Angeles versus metropolitan Los Angeles. The city obviously wants to generate cleantech development within its borders, but some members of CTLA have interests in areas beyond the city limits. Competition for revenue has always been an issue in greater Los Angeles, given that the county and the city vie for dollars and that the county has 88 independent cities. In the long term, however, the Cleantech Corridor will benefit from a region full of cleantech enterprises. The corridor alone cannot accommodate every possible cleantech tenant, but the corridor will benefit from a regional clustering of cleantech businesses.

CTLA can act as the regional entity and brand for cleantech, but the entity can be structured in multiple ways. An organization—public, private, or nonprofit—will accomplish what it is organized to accomplish. Depending on the particular context of a community, its assets and liabilities, a public or private leadership model can be successful. In some cases, the public sector can best provide the requisite leadership and resources. In other cases, politics, bureaucracy, and inertia can create impediments, particularly among governmental and educational institutions.

The private sector, with its entrepreneurial culture, is often a viable choice to provide strategic direction and pull various stakeholders into alignment around a given initiative. Higher education and government then provide support and resources to implement the strategy. In the cleantech market, both large and small individual companies find moving their products into the marketplace challenging because of emerging market uncertainties and the cost of demonstrating technology in a real-world environment. Private sector or industry-led initiatives can allow corporations and institutions to partner to accelerate the pace of commercialization in the cleantech market.

Partnerships are critical for several reasons:

- First, companies typically need to integrate their technology with other technologies for successful implementation.
- Second, a partnership may provide demonstration resources that would otherwise be unavailable. The increased opportunities to pursue federal and other private funding often require a partnership.
- Third, partnerships can lower the overall cost of commercializing systems.

A possible evolution of CTLA could include an integrated set of educational, workforce, communication, branding, logistical, and entrepreneurial efforts within the following structure:

- CTLA could be established as a new 501(c)(6) business league.
- A new CTLA Foundation could be established as a 501(c)(3) or as a 509(a) type 1 supporting organization focused on programs and funding for CTLA initiatives.

CTLA Foundation can share executive leadership and have a common professional staff. CTLA would be authorized to appoint at least one member to the CTLA Foundation board of directors to ensure program and funding fidelity to the CTLA mission.

CTLA would be the brand encompassing both the business league and the charitable and educational focused initiatives funded by CTLA Foundation. Membership in the business league would be supported by significant annual fees and open by invitation only to high-level industry and community leadership committed to and capable of advancing key components of the CTLA mission.

The preceding brief outline is just one possible way to reposition CTLA. The following examples from Georgia and Indiana offer two real-life models that CTLA may wish to emulate.

Private Sector Leadership: Georgia Research Alliance

The Georgia Research Alliance (GRA) creates opportunities to grow Georgia's economy through university-based research in science and technology. It helps recruit enterprising scholars to Georgia, fuels the launch of companies that create high-value jobs, strengthens centers of research to innovate, and brokers working partnerships between industries and universities to commercialize new innovations.

The GRA grew out of private sector initiative—not government. With the financial backing of the Georgia state legislature, the state's research universities, private foundations, and other supporters, the GRA is a nonprofit entity governed by business and education leaders. In its first 19 years, the GRA leveraged $525 million in state funding into $2.6 billion of additional federal and private investment—$5 for every $1 of investment. More than 150 new companies were established and allowed established Georgia companies to expand into new markets, generating 5,500 new science and technology jobs. Today, the GRA is an internationally acclaimed model for bringing business, research universities, and government together to create and sustain a vibrant, technology-rich economy.

Keeping and Growing Its Own

A strong statement to prospective businesses is that existing businesses feel supported by the city. The city can immediately augment its expressions of support to existing businesses in the corridor, exhibited most recently by obtaining this study. Additional structural changes can send very strong positive messages.

The city may also consider creating an Economic Development Corporation (EDC) for planning and creating jobs. An EDC can bolster the EDD and CRA/LA. The EDC would be charged with

- Locating and bringing new business to the corridor and the city;
- Supporting and retaining existing businesses; and
- Looking for ways to incentivize the cleantech aspects of city businesses.

The city can set up a "strike team" with staff from the city community development review and financial agencies to identify matters affecting new and retained businesses, and reach consensus on an improved public approach, to include

- Streamlined permitting and priority processing for businesses; and
- Vetting of alternative energy production incentives and other sustainability fonts so that they can be effectively used by businesses to reduce their carbon imprint.

In summary, by positioning the city staff and public service entities as business-friendly by addressing the needs of new and existing business, the city is dramatically improving its ability to attract anchors that could further secure the viability of this corridor and the economic future of the city.

Engaging the State

The state legislative delegation should be engaged to make any tweaks to state law necessary to effectively mobilize local economic development forces. This action may include, but is not limited to, expanding CRA/LA's ability to clean up brownfields and provide appropriate infrastructure financing to businesses in revitalization areas. The delegation's assistance may also extend to the enhancement or protection of local private and public funds that can incentivize business or expedite public improvements.

Even if no formal legislation is needed or sought, the state delegation, lead by the Speaker, can become a guardian of the new vision for the Cleantech Corridor and a marketer of the concept and part of the resource pool should the EDD need assistance in closing a deal with a business prospect who will bring economic benefits, including jobs, to the state.

Making the Place: Planning and Zoning

The city has well-established processes for making necessary modifications to its general land use plan and modifying or creating the necessary zoning districts. These processes, including their extensive opportunities for public participation formally in public hearing and informally in community meetings, should be timely engaged to facilitate the new vision for the Cleantech Corridor.

The city will want to replan the Cleantech Corridor, as necessary, to make clear its altered vision for the area. A new plan enables more focused and comprehensive assessment of necessary and desirable local, state, and nationally funded public improvements that can catalyze infrastructure that otherwise would be forever in coming.

The panel's overview analysis concludes that the city zoning ordinance already has certain district designations that readily capture the uses the panel anticipates will attract and accommodate cleantech businesses and the environs in which they will thrive. Other districts, including the pending proposed changes in the heavy industrial districts, warrant review to ascertain whether they need to be tweaked to capture the new vision of the Cleantech Corridor that the panel has heard from the stakeholders.

One concept that can readily foster businesses in the identified areas is an overlay district that describes the targeted development and uses. Overlay districts can be very helpful in making an area more enticing to new or relocating businesses without requiring them to necessarily change the underlying zoning.

The panel recommends that the city consider one or more overlay districts for the prioritized corridor areas. Such districts may vary depending on the sense of place that the city wants to give to businesses and their respective employees. The overlays should be designed to provide parameters for density and performance standards. Performance standards include low impact development and sustainable development goals. The overlay parameters should also allow flexible standards for expansion of existing nonconforming uses and aggregation of small parcels consistent with aspirational sustainable development.

The panel recommends an expeditious review and consolidated approach so that stakeholders are not confused about direction.

It is sometimes overlooked that consistent planning and zoning to create a new vision of an area can be capitalized on to obtain or accelerate infrastructure, grants, historic preservation, or environmental protection. Succinctly, effective planning and zoning become building blocks that spur accomplishment of the vision, be it the river, bridge reconstruction, or simple critically needed transportation improvements. They can bring together what otherwise might be scattered efforts.

Effective and timely follow-up with respect to planning and zoning, once the goals of the corridor are adopted, will boost businesses' confidence that this is their place. Too often such changes linger and all stakeholders give up on the process, and the energy, which might otherwise have made viable forward-thinking concepts, becomes inertia.

The city should implement policies that will enable city government to give priority to buying from local innovators. This consumption of some locally produced goods can be a strong endorsement for the export of those goods.

City Official Leadership

Addressing the Cleantech Corridor provides an opportunity for the mayor and city council to send a strong message that the city is seeking the innovators of the future; open for business; and intends a strong marketing strategy, which includes a city quarterback in the EDD and renewed support for existing business. Such a policy statement followed up on a fast track by the concrete steps identified in this report is a powerful launch for the city:

- The city council enters into a memorandum of understanding with CTLA to commemorate and inspire further action with respect to "making the place" and "making the deal" within the corridor. The memorandum of understanding marks buy-in from the stakeholders.

Strategic Focus: Indiana Energy Systems Network

In 2008, the state of Indiana worked with the Central Indiana Corporate Partnership, a private sector group of companies collaborating to enhance very specific economic development strategies in Indiana, to establish connections between industry, education, and government that would enhance the awareness of assets and opportunities for collaboration.

One result of that collaboration was the creation of the Energy Systems Network (ESN). A nonprofit launched in 2009, ESN is an industry-led initiative of the Central Indiana Corporate Partnership and acts as a catalyst for synergies among private firms and research institutions to bring energy breakthroughs to market, leveraging Indiana's strong manufacturing sector, research and development capabilities, and heritage of engineering advanced power systems. Although only a year old, ESN has been successful at attracting millions of dollars in new investment.

Within the cleantech spectrum, ESN's focus is on advanced transportation, energy supply, and energy demand innovations because Indiana has a competitive advantage in all of these areas and can be globally competitive. Although ESN is Indiana's cleantech initiative, the Energy Systems Network name and identity was deliberately used to clearly communicate focus on the segment of cleantech that played to Indiana's strengths.

- The city council reaffirms and expands its understandings with higher education and the vocational schools to foster support for the Cleantech Corridor, incubator businesses, research, training of prospective workers, and assistance to established businesses with such cleantech matters as energy audits, and the like.
- The city council works with the mayor and moves quickly to implement the aspects of the study recommendations to capture the energy of this initiative. The panel believes that a dedicated funding source for defining "making the place" and "making the deal" will expedite this city initiative.

With these initial steps, top city officials can set the stage for a new era in Los Angeles, preserving the history of its past surrounding El Pueblo while catalyzing the future of an innovative corridor to house new cutting-edge businesses.

How Do You Measure Success?

The panel believes that implementation of its recommendations will allow greater alignment of land use and value creation while both reducing the local carbon footprint and making Los Angeles a player in the global market for incubation of cleantech businesses.

The number of locally owned businesses; previously mentioned sustainability factors relating to water, electricity, and water; diversity of ownership and diversity of skills and jobs; new investment; patents created and awards for initiatives; spin-off growth businesses; exports; and resident satisfaction are among the means of measuring success. All of these are integral in metrics that have already been or are being validated.

The panel recommends that the city take affirmative steps without delay to prepare the Cleantech Corridor to cultivate industry for the new millennium that will enhance the city's position as a global competitor. The panel's recommendations are the beginning of this course. The 21st-century world does not wait on planning, zoning, and administrative processes. The panel should perhaps take a hint from the next generations, who even as this report is written, have downloaded it from Wikipedia or made a deal by text messaging.

The panel greatly appreciates the involvement of all of the stakeholders, as well as city staff, in assisting in preparing this study. By endorsing aspects of each of their visions, the panel has launched them on a course of more effort. May they continue to be inspired by the quotation high on the wall of City Hall: "No government demands so much from citizens as democracy and gives so much back."

The city of Los Angeles has been presented with a new opportunity to grow and shine. This opportunity extends to property owners, businesspeople, and residents from all walks of life who live, work, or benefit from the activity that will occur in the Cleantech Corridor and whose children will benefit in the future from Los Angeles' initiative to cultivate cleantech industry within the city. In short, a new star is born, the revitalized economic urban business-incubating environment, to shine on Los Angeles' future.

Conclusion

Los Angeles has always had the audacity to dream big, and the city's vision to transform a sizable, primarily industrial swath of downtown into a thriving, 21st-century epicenter for cleantech enterprise continues this trend. The city, LADWP, and CRA/LA have collaborated in this endeavor, and their desire to preserve and create jobs while bringing innovative enterprise to the city is laudable. The panel approached its assignment with an awareness of just how significant, both in terms of scale and ambition, the Cleantech Corridor plan is for the city of Los Angeles.

To help the city, LADWP, and CRA/LA determine how to achieve their shared vision, the panel assessed the Cleantech Corridor area and interviewed countless stakeholders. The panel soon realized that the area as designated encompasses far too many uses and might be too broad. The panel suggests that the real focus area for cleantech should start within the area bordered by SCI-Arc and the Arts District and extend south just beyond the site of the CleanTech Manufacturing Center near Interstate 10. This area should be rebranded as the Arts and Innovation District. Although many cleantech efforts thus far have concentrated on finding a large-scale tenant for the 20-acre CleanTech Manufacturing Center site, the panel feels the current Arts District area offers the best opportunity for catalyzing cleantech.

Cleantech can involve large manufacturers, but more often it will involve many smaller commercial endeavors of varying sizes. Market analysis by the panelists supports the Arts District as an area ripe for cleantech, and it already has many viable uses that could align with cleantech. The Arts District contains many industrial buildings that are well-equipped for adaptive use as flex space that the market will support. The area also has a special appeal to potential users and residents who seek out an authentic, mixed-use neighborhood. With its adjacency to the river and proximity to Union Station, the Arts District is well positioned to enjoy the benefits of the Los Angeles River revitalization and is an ideal location for possible extension of rail service. Yet the area contains many challenges, such as poor infrastructure and outdated zoning, that require immediate attention. The panel recommends that the city institute a position with sole power and authority for making decisions regarding the Cleantech Corridor. By using the strategies suggested by the panel, Los Angeles can one day enjoy a dynamic and vibrant Cleantech Corridor that revolves around a delicate balance of uses, users, and innovation.

About the Panel

John M. Walsh III

Panel Chair
Carrollton, Texas

Walsh is president and founder of TIG Real Estate Services, Inc. TIG manages and leases almost 16 million square feet on behalf of its institutional clients in three states. Under Walsh's leadership, TIG has developed more than 3 million square feet of industrial and office projects. Prior to starting TIG, Walsh spent 17 years with Trammell Crow Company in various leasing, development, and senior management roles. During his tenure as development partner for the northwest Dallas area market at Trammell Crow, Walsh developed almost 5 million square feet and leased over 8 million square feet of office, industrial, and service center space. A Dallas native, Walsh has served as chairman, director, and trustee of various business and charitable organizations including Trammell Crow Employees Profit Sharing Trust, Valwood Improvement Authority, Carrollton Zoning Ordinance Board, Texas Commerce Bank, Valwood Park Federal Credit Union, and Sky Ranch Youth Camp. He has also served on working committees and boards for the city of Carrollton, the city of University Park, Highland Park Independent School District, and the city of Framers Branch.

Walsh is a leader and active participant in the Urban Land Institute. He has served as a volunteer member of numerous ULI Advisory Services panels, including panels in Hengelo, The Netherlands; Cedar Rapids, Iowa; St. Joseph, Missouri; Las Vegas, Nevada; Research Triangle Park, North Carolina; and Richmond and Portsmouth, Virginia. Walsh has participated as a speaker for ULI at both the national and local levels, acted as a product council chair and council counselor, and currently presides as chair of the Governance Committee of the North Texas District Council of ULI. In addition to his many ULI activities, Walsh is currently serving as a trustee.

With a law degree from Texas Tech University School of Law, Walsh is a member of the Texas State Bar. He served for ten years as an adjunct professor of business law at Dallas Community College and the University of Texas at Arlington. Walsh earned his undergraduate degree from the University of Texas, Arlington.

Brian T. Coleman

Brooklyn, New York

Coleman serves as the chief executive officer of the Greenpoint Manufacturing and Design Center and its related companies. GMDC creates and sustains viable manufacturing sectors in urban neighborhoods by planning, developing, and managing real estate and offering other related services. Since 1992, GMDC has developed more than 750,000 square feet of industrial space and currently has 120 tenants with over 500 employees. GMDC is currently working to replicate its nonprofit model in the city of Philadelphia.

Coleman joined GMDC in 2003 after 16 years of experience in economic development; commercial, industrial, and residential development; and property management in New York City and New Jersey. A graduate of Marist College, and a ULI member, Coleman serves on the boards of the Brooklyn Chamber of Commerce and New Partners for Community Revitalization.

Most recently, Coleman led a development team that acquired and rehabilitated a historic 72,000-square-foot industrial property in Bushwick, Brooklyn. The $17.8 million project used a combination of historic and new market tax credits and will be the home of 15 businesses and 100 employees when fully leased.

Thomas Curley

New York, New York

Curley's projects can be found on six continents for clients as diverse as the Walt Disney Company, the Guggenheim Museum, the city of New York, the U.S. Air Force Academy, the National Capital Planning Commission, the city of Washington, D.C., the New Jersey Nets, and the Smithsonian Institution.

Curley has designed new towns in Australia, China, India, and the Philippines and provided a submission for the 2008 Olympic Village in Beijing. He was the lead designer for Euro Disney in Marne-la-Vallé, France, and he provided strategic planning for 9,000 acres of Disney property south of the Disney World Resort in Florida. Curley provided the master plan for the reconstruction of downtown Beirut, for which he won an international design award for excellence from the Congress for the New Urbanism.

At the national level, Curley was one of the authors of the Washington Legacy Plan for the National Capital Planning Commission, and he just completed a 25-year master plan for Congress for Capitol Hill. In New York, he was the master planner for a new community of 1,600 units and a half million square feet of commercial development for the city of New York on one of the city's last large landholdings. Curley believes that to be called to service on public projects is the highest honor an architect can achieve.

Curley served as director of the New York office of the HOK Planning Group and head of the Urban Design Studio of the New York office of Skidmore, Owings & Merrill, LLP. Currently, he is teaching urban design history at Manhattanville College in New York.

Curley graduated from the Southern California Institute for Architecture with graduate degrees in architecture and urban design. He is a registered architect in the state of New York and is a LEED-accredited professional.

Ron Golem

Emeryville, California

Golem specializes in transit-oriented development, urban revitalization, public/private partnership development, strategic business planning, real estate transaction support, historic preservation, and nonprofit program development. His experience includes master planning, market, and feasibility studies, and development and management plans for mixed-use developments, commercial uses, market-rate and affordable residential, military base reuse, hospitality projects, and urban parks and recreational facilities.

In large-scale master planning, Golem's work includes public/private partnerships for the NASA Research Park, a new 200-acre business park and research facility in Silicon Valley at the NASA Ames Research Center that seeks to leverage technology transfer between Silicon Valley companies, universities, and NASA. Golem is currently working with the city of San Jose, California, on use of 400-plus acres of strategically located surplus lands to attract cleantech uses. Golem provided support for an economic development strategy for the Silicon Valley community of Sunnyvale, California, which seeks to leverage interest from solar manufacturers and other cleantech startups in the city's substantial inventory of available former manufacturing facilities.

Golem has been involved in numerous large-scale transit-oriented development strategic plans throughout the United States. He is currently assisting the state of Maryland in its negotiations with a master developer for mixed-use redevelopment of State Center, a 30-acre state office complex near downtown Baltimore that is the state's flagship transit-oriented development project. His current work has built upon his involvement in the project's initial planning and his formulation of its development strategy. Golem provided market and economic support for station area planning in conjunction with the extension of the Portland, Oregon, MAX (Metropolitan Area Express) light-rail system through North Portland, including incorporation of a broad range of community development objectives. Successfully implemented, this plan has led to the first significant new development in North Portland in several decades.

Golem has worked on commercial corridor revitalization for a number of suburban and smaller communities in Northern California and the Central Valley. He has also worked on a range of affordable housing and mixed-finance developments, including planning and application preparation of a HOPE VI project for the San Francisco Housing Authority. His experience with urban parks spans program development and business planning, including work in New York City on the recently opened High Line park and the East River Esplanade now under construction.

Prior to joining BAE, Golem worked for the U.S. National Park Service at the Golden Gate National Recreation Area and Presidio of San Francisco developing public/private partnerships for the adaptive use of historic park properties. He formulated the business plan to redevelop the historic Fort Baker Army base into a conference and retreat center that funds creation of a new nonprofit developing park-related

education. Passport Resorts has opened this facility as the Inn at Cavallo Point; the nonprofit Institute at the Golden Gate is now in its startup phase. As an asset and project manager with commercial real estate firms, Golem negotiated over 150 leases for various types of commercial real estate, and was responsible for the renovation and management of more than 2 million square feet of all types of residential and commercial real estate.

Golem holds a master's in city planning with a specialization in project development and a BA in economics, both from the University of California, Berkeley. He is an associate member of the Urban Land Institute and has previously participated in its Advisory Services Program panels.

Jim Heid

San Francisco, California

Heid is a real estate adviser, land planner, and sustainability expert, whose focus is the creation of developments that provide a positive contribution to their environment, region, and residents. In 2000, he founded UrbanGreen to advise established development companies, governments, and legacy nongovernmental organizations that seek better development models. With more than 30 years' experience in the design and development of new community, urban infill, and resort developments, Heid is known to effectively resolve the complex layers of community design and real estate development using a variety of proven tools and best practices. He is motivated by the need to deliver high-quality developments to a broader market—in an increasingly complex world of entitlements and financing—without compromising environmental, economic, or place-making objectives.

Heid brings rigor to the rapidly changing discussion of urban sustainability through a dedication to research and practical hands-on experience. Over the past decade, he has pioneered many of the Urban Land Institute's evolving contributions to sustainable land development, climate change, and real estate investment. For ULI he serves on the Climate, Land Use, and Energy Committee. He is a regularly featured speaker at national conferences and symposia and the primary instructor for ULI's Sustainable Communities Development Workshops. He is nationally recognized as an articulate advocate for responsible land development.

Prior to founding UrbanGreen, Heid worked as an urban designer, land planner, and real estate strategy adviser with two of the country's leading firms, Design Workshop (1987–93) and EDAW (1994–2000), where he also served as chief operating officer. In 1994, he earned an MS in real estate development at Massachusetts Institute of Technology as a way to more fully integrate the practice of land design with real world implementation strategies.

Heid's relevant experience includes the following:

- Abu Dhabi Framework Development Regulations, Urban Planning Council: sustainability adviser to team developing first urban development code for the city of Abu Dhabi;
- Estidama: program manager and lead consultant for Sustainability Assessment Tool for Urban Centers, Communities and Neighborhoods, and New Buildings for the emirate of Abu Dhabi;
- Horizon Uptown, Lend Lease Communities: sustainability, and team facilitator for development of urban design standards with heavy emphasis on sustainable land development practices, for new urban town center in Denver, Colorado;
- Galisteo Basin Preserve, Commonweal Conservancy, Santa Fe, New Mexico: development adviser for 13,000-acre mixed-use, mixed-income sustainable conservation development;
- Metolian, Dutch Pacific Resources, Sisters, Oregon: development and sustainability adviser for next-generation eco-resort and adventure camp set in Metolius Basin outside Bend, Oregon; and
- Sustainable development tools and techniques, Urban Land Institute: development and instruction of two-day national workshop series on sustainable land development.

Jeff Kingsbury

Zionsville, Indiana

Kingsbury is managing principal of Greenstreet Ltd. where he is responsible for general management of the firm as well as for leading business plan strategies for the firm's clients and projects. The firm is currently engaged as the co-master developer of a 400-acre brownfield redevelopment in Speedway, Indiana, planned for 2.5 million square feet of residential,

office, retail, entertainment, education, and civic uses. Anchored by the Indianapolis Motor Speedway, the redevelopment strategy is focused on developing a competitive cluster of businesses in motor sports, automotive technology, and advanced vehicles.

Kingsbury's experience includes nearly 20 years in the planning and development of 30 urban, suburban, rural, and resort master-planned communities throughout the Unites States, encompassing more than 35,000 acres. He has managed the sale of $350 million in real estate and consulted on planning, redevelopment, and development regulation issues for public and private sector clients in 13 states. He has held principal and senior executive positions with McStain Neighborhoods and Durango Mountain Resort in Colorado; Kirkwood Mountain Resort in California; Grossman Company Properties in Boise, Idaho; and the Shaw Company in Chicago. He was also a senior adviser to Cherokee, the leading private equity firm investing capital and expertise in brownfield redevelopment with over $2 billion under management.

Kingsbury holds degrees in urban planning and development, and environmental design from the College of Architecture and Planning, Ball State University, where he is also an adjunct professor of urban planning. He has been an adviser to the Conservation Fund's Center for Conservation and Development in Washington, D.C., and is a member of the U.S. Green Building Council and the Congress for the New Urbanism and chairman of ULI's Sustainable Development Council.

Ralph L. Núñez

Southfield, Michigan

Núñez is the president and design principal of DesignTeam Limited, a landscape architecture, planning, and design consulting firm. DesignTeam has more than 25 years of experience in working effectively with clients on creative problem solving. Its expertise in project development and planning strategies has created innovative solutions for difficult projects. Balancing the company's client's goals with environmental sensitivity and meeting regulatory requirements, DesignTeam has a proven record working within tight time frames and budgets to bring complex projects on line.

Prior to starting DesignTeam, Núñez was associate vice president and director of planning and landscape architecture for PRC Engineering, an international planning, design, and development company. His most significant project while in the Houston office was the Enclave, a $250 million office campus in West Houston.

Núñez has 34 years of experience as a planner and landscape architect, with particular emphasis on project design and management and development strategies. Projects include master plans and development plans for residential communities, senior living, commercial, office research campuses, and recreation facilities. He has been responsible for master planning more than 210,000 acres, over 100,000 dwelling units, 6.5 million square feet of office research, and 18 million square feet of commercial projects throughout the United States and internationally.

Notable projects include the following: Villages of West Creek, a 1,200-acre residential community, San Antonio, Texas; Toyota Tech Center, Ann Arbor, Michigan; Sunrise Senior Living Communities, Midwest region; Wynstone, a 556-acre residential community, Oakland Township, Michigan; and MPI Research, a $300 million campus plan expansion including more than 800,000 square feet of new research space and corporate offices, Mattawan, Michigan.

Núñez has been qualified as an expert witness in planning, landscape architecture and design. He is often called upon to develop plans resolving difficult and stalled projects before they go to litigation.

His commitment to sustainable design is evidenced by his teaching and professional activities. He has been a guest lecturer and also serves as an adjunct professor at Lawrence Technological University. Núñez has participated in numerous advisory design panels throughout the country for ULI.

Sharon E. Pandak

Woodbridge, Virginia

Pandak is a partner with the firm Greehan, Taves, Pandak & Stoner, PLLC, in northern Virginia. The firm was founded in September 2006 to serve as outside legal consultants and litigation counsel for Virginia local governments, primarily in the fields of zoning and land use, property valuation, personnel,

and public safety law. The four founding partners of the firm have over 100 cumulative years of experience working on behalf of local governments.

Focusing on diverse legal issues facing localities, other public entities, and associations interested in public policy, Pandak litigates in state and federal courts and handles appeals in the Virginia Supreme Court, federal courts of appeal, and the U.S. Supreme Court. She has worked with regional entities, appeared before the Virginia General Assembly and regulatory bodies, and worked on congressional legislation. She is known for her work on local government operations, land use, zoning, and public facilities.

On behalf of localities, Pandak has worked on such diverse projects as large mixed-use developments, economic development projects, a proposed Disney theme park, preservation of rural areas, down planning and down zonings, and Chesapeake Bay preservation regulations. She has frequently presented seminars on land use and other local government issues to elected and appointed officials.

Pandak served as county attorney for Prince William County for 15 years and before that as deputy and assistant county attorney, for a total of 25 years as local counsel. In this role, she advised the Board of County Supervisors and other county committees on a wide variety of issues, including land use, economic development, public safety, emergency services, and social services. Pandak assisted with the creation of the cross-county parkway, Virginia Railway Express commuter rail, and Potomac and Rappahannock Transportation Commission commuter bus service.

Governor Kaine appointed Pandak to serve on the Commonwealth Transportation Board and Northern Virginia Transportation Authority. Former governor Mark Warner appointed Pandak to serve on the Local Government Advisory Committee for the Chesapeake Bay and she participated in Governor Warner's Natural Resources Leadership Summit.

Pandak was also counsel at Sands, Anderson, Marks & Miller, P.C. She is a graduate of the William & Mary School of Law and has a BA from the College. She serves on the board of directors of the Prince William Historic Preservation Foundation and is a former board member of the local Habitat for Humanity. She is on the Partnership & Development Committee of the proposed Prince William–George Mason Hylton Community Performing Arts Center. She also is an active ULI member and previously served on a panel in 2008.

Michael A. Stern

Pittsburgh, Pennsylvania

Stern has been involved in aspects of urbanism, city building, and public landscapes throughout his professional career. The focus of his work has always been the search for successful ways to improve the quality of urban environments through the practical application of sound design principles rooted in enduring values of urbanism. He has worked on a broad range and scale of urban projects from urban garden design to planning new edge cities.

His professional experience in the New York firms of Cooper, Robertson & Partners and Quennell Rothchild Associates gave him broad training in the multiple aspects of planning, design, and construction of private and public urban precincts and landscapes. His subsequent teaching and research while a full-time faculty member at the University of Virginia School of Architecture focused on understanding the changing nature of urban form and organization in the face of new technologies and economies.

Through his private practice, prior to becoming a founding principal of Strada, Stern was involved in many of Pittsburgh's major urban design and planning efforts. He led the Pittsburgh Downtown Plan, the first comprehensive master plan for the greater downtown area in 35 years, and the Pittsburgh Regional Parks Master Plan—documents that are still touchstones a decade after their completion. Recent Strada projects he has led include the Rivers Casino, Dick's Sporting Goods Corporate Headquarters, Hermitage Town Center Plan, and the Larimer Neighborhood Vision Plan. Stern has lectured widely and published and edited numerous articles and journals on planning urban design and landscape design theory.

Urban Land Institute
1025 Thomas Jefferson Street, NW
Suite 500 West
Washington, DC 20007-5201

Printed on recycled paper.