What Will It Take to Support New Jersey's Industry Clusters?

April 2013

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PlanSmart NJ

PlanSmart NJ is an independent, non-profit planning and research organization committed to improving the quality of community life through the advancement of sound land use planning and regional cooperation. With over four decades of experience shaping land use policy in the state, PlanSmart NJ balances expertise and real-world contexts in framing issues to find constructive solutions, create innovative tools and strategies to better inform land-use decision-making in NJ. PlanSmartNJ believes that our state's challenges in the areas of economic development, transportation, housing, regional equity, and the environment are linked -- and most holistically addressed -- through the common nexus of land use. Through more sensible land use planning, we can mobilize and build upon our tremendous assets. PlanSmartNJ adopts a regional planning approach to foster balance between environmental and economic interests, with the goal of creating a sustainable future for all New Jersey residents.

The New Jersey Chamber of Commerce

Created in 1911, the New Jersey Chamber of Commerce is a business advocacy organization based in Trenton that works for and is funded solely by members ranging from solo proprietors to Fortune 500 companies. Members of the New Jersey Chamber represent every industry doing business in the state and include New Jersey's most prestigious and innovative companies. New Jersey Chamber lobbyists interact daily with key legislators in Trenton to discuss ways to ease the tax burden, reduce burdensome regulation and generate economic growth. Located across the street from the State House enables staff to react and mobilize quickly to the rapid events that unfold in the state's capital. The New Jersey Chamber's reach extends to Washington, where members are represented in the halls of Congress and at the White House. Whether you own a business, represent one, lead a corporate office, or manage an association, the New Jersey Chamber of Commerce provides members with a voice of experience and influence in Trenton. The Chamber also provides members with networking events that offer access to decision makers in Trenton as well as top business leaders across the state. From the Chamber's inception – Thomas Edison was a founding member in 1911 – the organization's talented leaders have provided the guidance necessary to develop solutions to the important and tough issues of the day with the singular goal of creating a prosperous economy for New Jersey.

ABOUT US

Authors

Kayla Malsbury is an Assistant Planner for PlanSmart NJ, where she has served in various capacities since 2010. She is currently at PlanSmart NJ part-time while she completes a Masters of City and Regional Planning at the Edward J. Bloustein School of Planning and Public Policy with a concentration in urban and community development. Her work at PlanSmart NJ involves proposal development, research, and mapping analysis concerning a wide range of issues, including transportation, housing, social equity and economic development. In her capacity at the Bloustein School, Kayla employs her mapping skills as Teaching Assistant for GIS courses. She was also recently part of a studio project, "The Belford Neighborhood Revitalization Plan," that received a 2013 New Jersey Planning Officials Achievement in Planning Award. Kayla graduated Summa Cum Laude with a Bachelor of Science degree in Community and Regional Planning from Appalachian State University in North Carolina. While there, she also received the North Carolina APA Marvin Collins Planning Award in the Outstanding Student category and was NCAPA's 2011 Undergraduate Student Paper Competition Winner. Contact: kmalsbury@plansmartnj.org

Jonathan Scharff, a comprehensive researcher and project manager, is finishing the Master in City and Regional Planning (M.C.R.P) program at the Rutgers' Edward J. Bloustein School of Planning and Public Policy in May 2013. While completing the M.C.R.P degree, Jonathan was a part of the studio project "The Belford Neighborhood Revitalization Plan" that received the 2013 New Jersey Planning Officials Achievement in Planning Award. His contributions included aligning the Belford Plan to the NJ Draft State Strategic Plan and adding infrastructure elements aimed at diversifying and creating a sustainable local economy. Working part-time as a Payne Scholar and member of the Government Relations Team at the New Jersey State Chamber of Commerce, Jonathan contributes economic and policy research and analysis to support the Chamber's advocacy efforts. Prior to joining the Chamber, Jonathan was an economic policy intern at the New York City Council. He came onboard to the "Regional Innovation Clusters Report" in January 2013, and worked to move the project to completion by incorporating feedback from the advisory committee and expanding the study's scope and applicability. Jonathan is passionate about state and regional planning, transportation policy, and supporting initiatives that create economically vibrant places. Contact: Jscharff@njchamber.com

Lizzie Browder, a highly motivated and industrious problem solver, is finishing the Master in City and Regional Planning (M.C.R.P.) program at Rutgers' Edward J. Bloustein School of Planning and Public Policy, where she concentrated in Environmental Planning and Economic Development. In addition to completing an M.C.R.P. degree, Lizzie serves as the Education Coordinator for the New Jersey Chapter of NAIOP, the Commercial Real Estate Development Association, where she facilitates the organization's continuing education program. Lizzie also works as a Teaching Assistant for the Geographic Information Systems (GIS) courses offered at the Bloustein School. Before NAIOP NJ, Lizzie participated in the New Jersey State Chamber of Commerce's inaugural class of Payne Scholars, where she developed skills in tracking and analyzing policy initiatives and collaborated on crafting the "Regional Innovation Clusters Draft Report." As a first year graduate student, Lizzie interned at the National Center for Neighborhood & Brownfields Redevelopment, acquiring research and project management skills and pursuing her interest in waterfronts and water resources management while assisting the Sustainable Raritan River Initiative. Prior to living in New Jersey, Lizzie attended DePaul University in Chicago, where she obtained dual Bachelor of Arts degrees in International Studies and Geography with concentrations in International Urban Development and Geotechnology. Contact: lizziebrowder@icloud.com

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This report, *What Will It Take To Support New Jersey's Regional Innovation Clusters (RICs)?*, provides the results and interpretation of a collaborative research project completed by the New Jersey State Chamber of Commerce and PlanSmart New Jersey. The Chamber and PlanSmart NJ conducted this project to explore the concept of Regional Innovation Clusters (RICs), a theory that is explicitly promoted as a means to achieve targeted economic growth in various state level economic development initiatives. This report documents the relationship between New Jersey's industry clusters and the state's existing infrastructure to evaluate how infrastructure investment and economic development align on the ground.

The report generated the following findings:
- All eight industries exhibit a clustering pattern which is supported by the Nearest Neighbor Ratio statistic and visual map observations.
- The Life Sciences, Healthcare, Finance, Technology, and Transportation, Logistics, and Distribution industries are more concentrated in New Jersey than the rest of the country.
- The Life Sciences and Healthcare industries are considered strong and growing industries within the state.
- Research shows that both hard infrastructure and soft infrastructure, such as higher education institutions, play a critical role in the development and prosperity of industry clusters.
- A relationship exists between the location of employment density and the state's existing infrastructure as evidenced by the report's eight unique cluster maps.

EXECUTIVE SUMMARY

Section 1 of this report explains industry cluster theory and lists examples of successful RIC initiatives implemented around the country. Section 2 records the methodology used to complete this report. Section 3 analyzes eight industry clusters identified through the advisory board feedback process: life sciences; healthcare; advanced manufacturing; finance; technology; transportation, and logistics, and distribution; aerospace and defense; and tourism. Following this list, in section 4 is an overview of the hard and soft infrastructure needed to support the state's eight industry clusters including: transportation, water and sewer, power, telecommunications, business parks and industrial facilities, higher education institutions, hospitals, institutions for collaboration, and quality of life. Section 5 utilizes mapping to visually demonstrate the linkages between the eight key industries described in Section 3 and infrastructure described in Section 4. Section 6 concludes future initiatives that are planned as a result of this study. The appendix contains two case studies that will examine the clustering of the life sciences industry in Princeton and the effects of Superstorm Sandy on the tourism industry and infrastructure at the Jersey Shore.

This report is meant to serve as a starting point to spur further research on the relationship between industry and infrastructure in New Jersey. We hope that the knowledge gained from these analyses can spark meaningful discussion and policy ideas that can further the goals of state level initiatives concerned with but not limited to regional innovation clusters, economic development incentives and future state planning efforts.

What Will It Take To Support New Jersey's Regional Innovation Clusters (RICs)?

Introduction

In October 2011, the Christie/Guadagno Administration released the New Jersey's Draft State Strategic Plan for Development and Redevelopment, which established four goals to prioritize the themes of smart growth, preservation, sustainability, and good governance within the state's planning process. To differentiate itself from the existing statewide planning framework, the Draft State Strategic Plan identified specific industries that prove valuable to New Jersey and advocated for strategic investment in the physical and cultural infrastructure that enable these industries to thrive in the Garden State.

Additionally, top tier state level initiatives have been created with the intention of supporting economic and workforce development for New Jersey's top industries. Choose New Jersey, through marketing, business attraction and lead generation, markets New Jersey as an ideal location for businesses to take advantage of extensive infrastructure and a highly educated workforce. The New Jersey Talent Network's helps connect businesses in New Jersey's top industry clusters with education institutions, workforce development agencies, government and community groups to identify the skills and training Garden State employers require to remain competitive in the global market.

By way of their backgrounds, the New Jersey State Chamber of Commerce, an independent voice representing a broad base of small, medium and large businesses, and PlanSmart New Jersey, a planning and research organization committed to improving the quality of community life through the advancement of sound land use planning and regional cooperation, found the plan's discussion of balanced economic growth and environmental preservation to be a useful framework. The two organizations formed a partnership in late 2011 to investigate the relationship between New Jersey's industry clusters and its existing infrastructure to evaluate how the state's goals of strategic investment and economic development align on the ground. This report, "What Will It Take To Support New Jersey's Regional Innovation Clusters (RICs)" provides the results and interpretation of the collaborative research undertaken by the New Jersey State Chamber of Commerce and PlanSmart New Jersey.

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Regional Innovation Clusters (RICs)

The State of New Jersey, as a means to achieve "targeted economic growth," explicitly promotes the development and expansion of Regional Industry Clusters (RICs). Cluster theory, the foundation of RICs, anchors its origins to the nineteenth century economist, Alfred Marshall, and his book, *The Economics of Industry*. In this publication, Marshall explained that social and political conditions impact market forces such as supply and demand, cost of production, and marginal utility, which in turn influence industrial location. In contemporary times, cluster theory experienced resurgence when Harvard Professor Michael Porter tied the theory to his well-known writings on competition, business strategies, and globalization. Porter's work defines industry clusters as geographic assemblages of related companies that simultaneously compete and cooperate with each other (Porter, 1998: 197). According to Porter, clusters take on various forms, but they typically include:

> "…end-product or services companies; suppliers of specialized inputs, components, machinery, and services; financial institutions; and firms in related industries…firms in downstream industries (that is, channels or customers); producers of complementary products; specialized infrastructure providers; government and other institutions providing specialized training, education, information, research and technical support (such as universities, think tanks, vocations training providers); and standards-setting agencies," (1998: 199).

RICs demonstrate the characteristics associated with cluster theory while also including the principles of regional development and business innovation to provide a holistic approach to industrial growth.

RICs offer a number of benefits that make them a vital element in the restructuring and revitalization of local economies. According to Porter, RICs increase an area's competitive edge because companies located in clusters prove more productive, highly innovative, and better able to create spinoffs or closely associated business activities that boost local employment (Porter, 1998). The proximity between businesses within a cluster enables companies to access

high quality research and development information, build stronger relationships with their suppliers and customers, and network beyond their internal employment base. Additionally, the interconnectedness of clusters and supportive infrastructure and/or institutions within RICs allows companies to speed up the creation and distribution of goods and services. It also provides businesses with an opportunity to unite together and advocate for policies that foster strong business communities.

Dr. John Lechleiter, the Chairman, President and CEO of Eli Lily believes that "federal policy plays a key role in the success of regional economic clusters at both the micro and the macro level" (Lechleiter, 2010). In line with this logic, the Federal Government put forth several initiatives to support RICs. In 2010, the Small Business Administration established two programs within its Regional Cluster Initiative that offered a total of $600,000 in funding to support the growth of 15 different RICs throughout the country (Byrne, 2012). In the 2011 budget, two line items sought to financially support the development of RICS: a provision of monies to encourage gathering of information on successful regional economic clusters and a line item for grants to help foster the expansion of emerging RICs. In May 2012, fourteen federal agencies launched the $26 million Advanced Manufacturing Jobs and Innovation Accelerator Challenge. This program awards financial and technical assistance to applicant enterprises that retain jobs, create jobs, and/or provide training to prepare job seekers for careers in the field of advanced manufacturing (Atwood, 2012).

The Brookings Institution, a Washington D.C. based policy and research think tank, confirms that well-designed policies, especially those at the state level, prove instrumental to the formation and growth of successful RICs. According to an article published by Brookings, RICs offer state and local leaders a vision for prosperity that includes stakeholders. Cluster strategy also unites all of the various state and federal resources for encouraging economic growth under one guiding theme of Local Economic Development (LED). While gridlock in Congress and recessionary economic trends negatively impact growth at the state level, Governors can deflect these impediments if they "leverage clusters to drive their economic competitiveness efforts" (Muro and Fikri, 2011). The Brookings Institution adds that effective cluster strategies typically involve: the application of rigorous data analysis to determine clusters; the provision of grants, disbursed in amounts proportional to cluster performance; and the reorganization of existing

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programs into one cohesive set of pro-growth policies. The RIC initiatives found in California, Maine, and Ohio described below exemplify other statewide strategies for promoting industry clusters:

- **California Innovation Hub (iHub) Initiative**: The State of California's iHub initiative looks to designate certain regions in the state as iHubs (another iteration of RICs) and then leverages that area's assets, which may include industry parks, university campuses, federal laboratories, and trade groups, to bolster its economic competitiveness and encourage local investment. In total, California designated 12 regions as iHubs and most of them contain industries associated with "clean and green" technologies. For instance, the Sacramento iHub specializes in clean and medical technologies, while the North State iHub deals with renewable energy, biofuels, and advanced material manufacturing (Governor's Office of Business and Economic Development, 2012).

  To date, the iHub program engendered two projects that advance its goals for local economic development. One development, Sonoma Mountain Village, exists as a zero waste and zero carbon community built on a former factory site. The Village, which functions as a business incubator, contains "green," sustainable features. One of the companies locating at the village, a modular steel framing manufacturing facility, obtains 100 percent of its operating power from solar energy and produces zero waste. There is also a water plant that uses green infrastructure to treat and manage water at the site, an exemplary model for new development in California. This project demonstrates the strength and attractiveness of the emerging green economy. Companies like DC Power, Comcast, and AT&T signed on to lease space and the project is expected to generate about 4,000 jobs at full buildout. Another project, the March LifeCare Campus, is being constructed in Riverside as a self-contained healthcare facility that offers high-quality healthcare facilities, nursing services, and treatment centers along with amenities not typically found in a hospital like a spa, retail shops, and entertainment places. March LifeCare will replace the former March Air Force Base, creating about 12,000 construction jobs and 7,000 permanent jobs in the

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health care industry at this previously abandoned and underutilized site.

- **The Maine Technology Institute (MTI)**: Funded by the state of Maine, MTI is a non-profit corporation that provides start-up capital and other resources to promote the development of new technologies, products, and enterprises that eventually grow into profitable RICs for the state of Maine. Similar to New Jersey's very own EDA and Choose NJ, a Board of Directors consisting of industry leaders from across the state governs the organization (Maine Technology Institute, 2010). Since its creation in 1999, MTI successfully facilitated the development and expansion of several clusters including: biotechnology; composites and advanced materials; environmental technologies; forest and agriculture products; information technology; marine technology and aquaculture; and precision manufacturing. In the past decade, MTI awarded over $100 million in funding to support growth in these industries and according to MTI, every $1 they award to fund business innovation leverages about $14 in additional investment. Moreover, MTI partners with the University of Southern Maine to conduct a biannual thorough, independent review of its operations and transactions to ensure the organization keeps in step with its mission of advancing Maine's RICs (Muro and Fikri, 2011: 5).

- **Ohio's Hubs of Innovation and Opportunity**: This statewide program directs grants, brownfield redevelopment incentives, and tax credits to specifically designated hubs or geographically confined areas in Ohio that house RICs. Some Ohio Hubs include: the Solar Energy Innovation Hub in Toledo, the Aerospace Hub in Dayton, and the Biomaterials Commercialization Hub in Akron. Ohio's Hubs program demonstrates that cluster strategy should seek to align existing state programs for redevelopment and growth. In addition, regions seeking these designations must put together an application that identifies a research or higher education institution that will facilitate programs for local economic development. This is a powerful element of Ohio's RIC strategy because it requires regions to secure commitments from local actors, ensuring regional buy-in and cooperation (Ohio Office of Redevelopment, 2011).