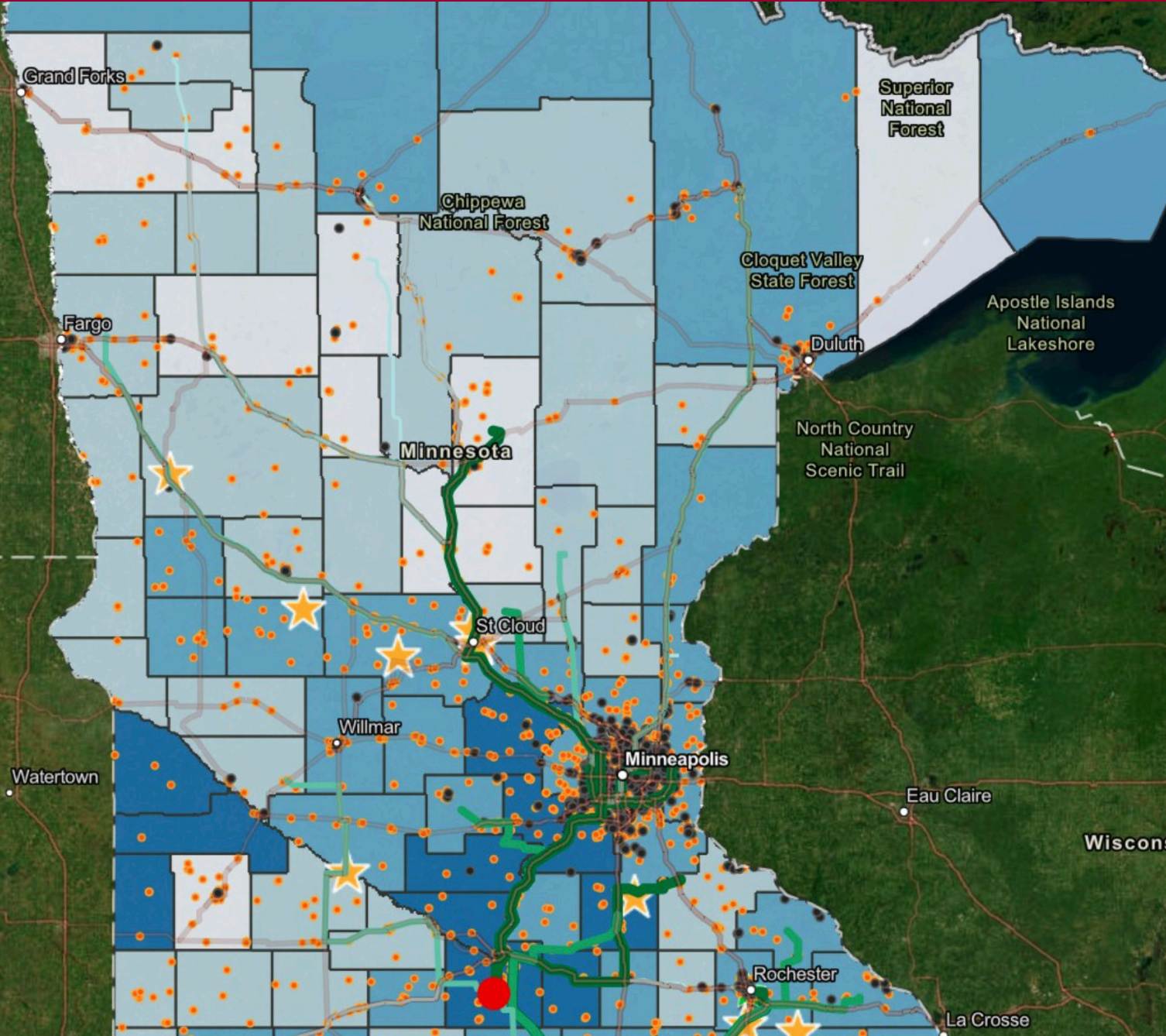


Steinbach

Lake of the Woods

Turtle River-White Otter Lake Provincial Park

# Medical Device Industry Cluster in Greater Minnesota: Spatial Impacts and Illustrative Case Study



**TPEC** TRANSPORTATION POLICY AND ECONOMIC COMPETITIVENESS



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# Overview

Minnesota has a long track record of medical and healthcare leadership—think Mayo Clinic to 3M to Medtronic. Building on this reputation, the state has become a global hub of innovation and production for medical devices and technology. The recent announcement of Minnesota as a federally funded Med-Tech Hub is the latest recognition of the state’s national leadership.

In a series of studies, University of Minnesota researchers have mapped and analyzed the state’s medical device industry cluster, exploring its economic impact and the vital role of transportation in its success. In their latest work, researchers analyzed the economic, community, and supply chain aspects of the medical device industry in Minnesota, with particular attention to its impact on Greater Minnesota.

The new research reveals that while there is a concentration of companies within the Twin Cities metro area, many companies in this cluster are highly dispersed throughout the state. Supply chain mapping demonstrates the importance of regional transportation networks for shipping within the cluster and for reaching national and international markets. And interviews with corporate leaders convey how a business strategy based on industry clusters can benefit individual firms—and their employees and communities.

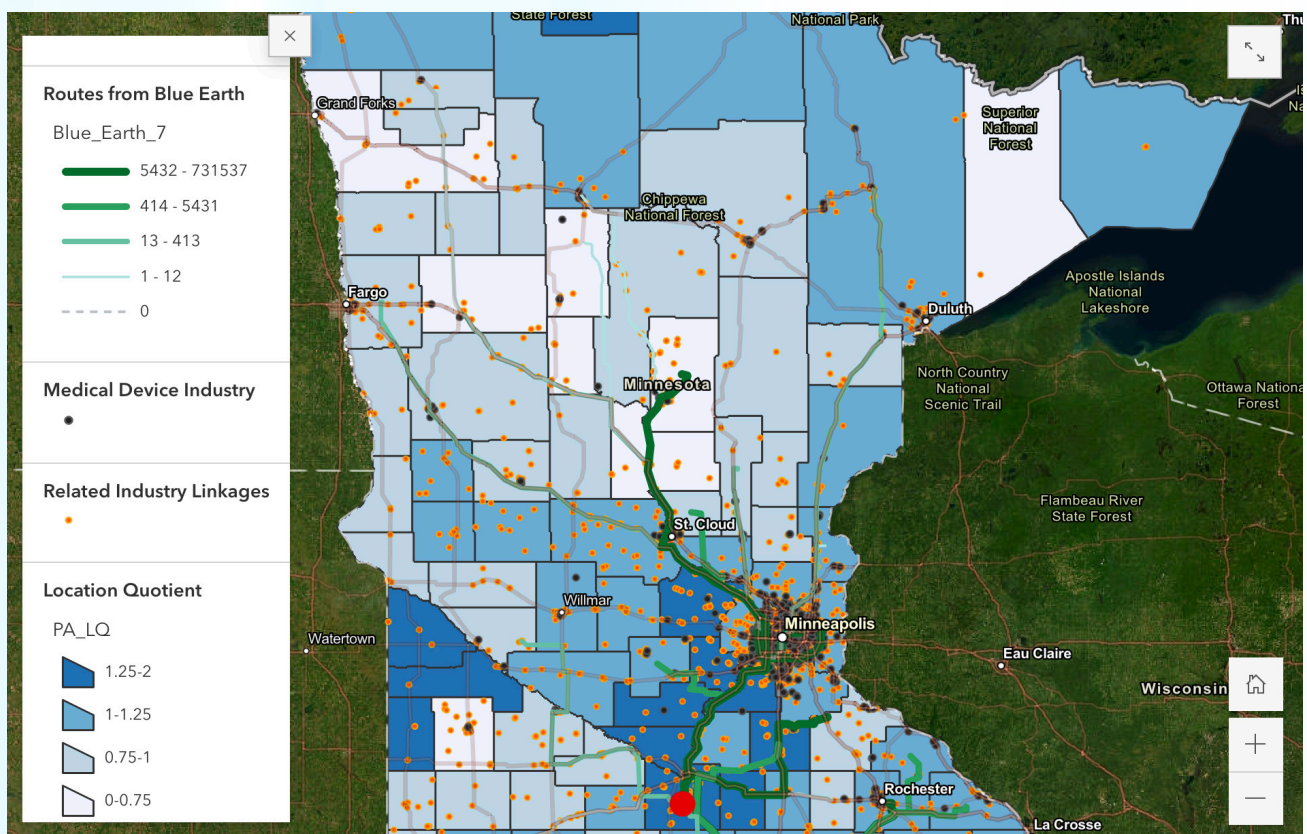
The research is summarized in an online StoryMap containing the quantitative findings that illustrate the cluster’s statewide expanse. A case study takes a deeper look at one innovative Minnesota firm—Granite Partners ([granite.com](http://granite.com))—that is investing in the Minnesota medical device industry and other clusters that are principally located in Greater Minnesota.

The findings of this research offer valuable insights for policymakers on how this robust industry drives economic development and competitiveness across Minnesota. They also underscore the importance of infrastructure investment in supporting the cluster’s continued growth.

## StoryMap illustrates industry cluster in Minnesota

The StoryMap shows the location and density of medical device companies, linked companies, and hospitals and clinics.

Access the interactive StoryMap online at: <https://tinyurl.com/mnclusterstorymap>



# Mapping Medical Device Industry Clusters

## Industry Clusters

According to Harvard Business School professor Michael Porter, industry clusters are critical masses—in one place—of unusual competitive success in a particular field.<sup>1</sup> Clusters explain why the immediate business environment outside companies—not just what happens inside—plays a vital role, with both contributing to create competitive advantage. Further, clusters play a fundamental role in driving regional economic competitiveness by encouraging higher rates of job growth, wage growth, new business formation, and innovation in the regions they are located in.

A cluster's boundaries are defined by the linkages and complementarities across industries and institutions that are most important to competition. Because clusters capture these important linkages and the potential spillovers of technology, skills, and information, they make a better lens for viewing economies rather than specific types of companies, industries, or sectors.

## Medical Device Industry Cluster

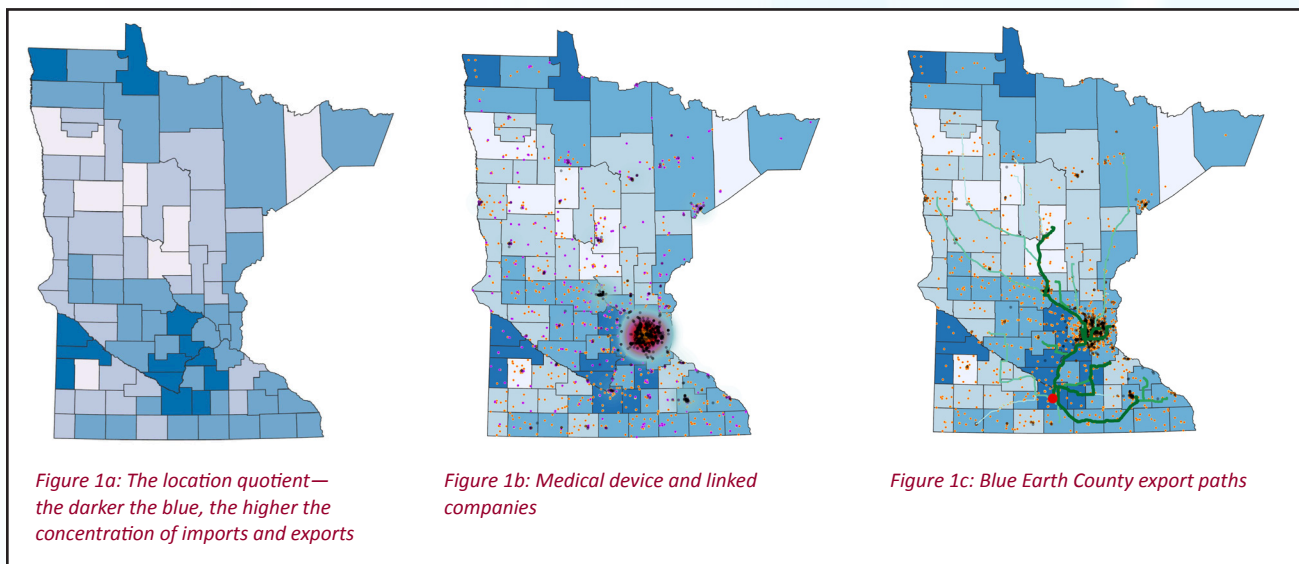
In this study, researchers analyzed the distribution of the medical device industry cluster in Minnesota, including the supply flows and transportation usage of medical device companies and their linked industries. A key measure for assessing the

relative impact of industry clusters is through a location quotient (LQ), which assesses the relative concentration of an industry cluster. A score of 1 equals the national average, and any score above that demarks above-average concentration.

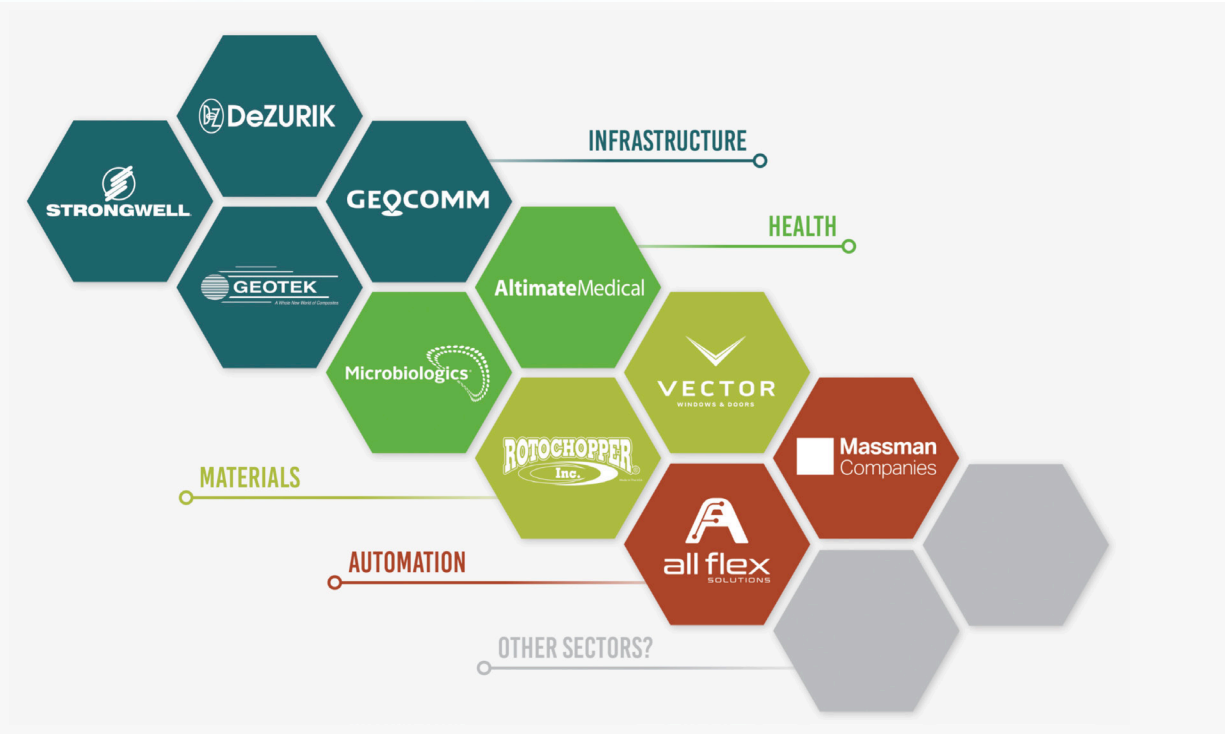
Figure 1a shows the LQ of the Minnesota medical device industry cluster by county. The darker the blue, the higher concentration of medical device-related imports and exports that county has compared with the overall federal average.

Figure 1b shows the spatial location and density of all medical device and linked companies in the state. These linked companies are connected to the core medical device manufacturing companies by supplying plastics, lighting, biopharma, production technology, IT, and metals manufacturing. Figure 1c shows the export paths of medical device products from Blue Earth County, highlighting the importance of the surface transportation system in the state.

"The locational pattern of medical device and linked industries confirms that this industry cluster is an important contributor to the state's economy, and not just in the Twin Cities but in Greater Minnesota as well," notes Tom Horan, dean of the School of Business at the University of Redlands and visiting scholar with the U of M's Humphrey School of Public Affairs.



<sup>1</sup> Porter, Michael E. "Clusters and the New Economics of Competition." *Harvard Business Review* 76, no. 6 (November–December 1998): 77–90.



*The solutions-oriented, business-to-business Granite Companies currently span four durable sectors, each with macro-environmental drivers for continued growth.*

## Case Study: Granite Partners

(Note: This information is for educational purposes only and does not constitute an offer or solicitation.)

Industry cluster studies have generally focused on economic development and the public policies that can foster it. This case study, in contrast, explores industry clusters from the perspective of one company—Granite Partners. “What is distinctive about this case study is that it focuses on how industry clusters can drive a business strategy and do so in a manner that has positive implications for communities,” says Horan, the lead investigator.

Specifically, the case study focuses on these aspects:

- Granite Partners’ enterprise strategy, to understand how the industry cluster approach drives competitive advantage.
- Both the hard and soft infrastructure implications of cluster-based economic development.
- How Granite Partners uses a “shared value” approach to promote community engagement by the business.

The case study concludes with a discussion of

implications for enterprise strategy, supportive infrastructure, and community development.

### Industry Cluster Investment Strategy

Granite Partners is a private investment and holding company founded in 2002 in St. Cloud, Minnesota. A catalyst to its founding was a series of acquisitions by outside investors. Rick Bauerly, founder and CEO, states that Granite Partners was founded on the premise that if it had locally based capital, “the company would be more sensitive to the needs of the community.” He recruited local business owners as investors; when they had 12 founding family investments secured, Granite Partners established its first fund and began making investments in platform companies referred to as “Granite Companies.”

Granite Partners made industry clusters a foundational part of its enterprise strategy. Operating partner Pat Edeburn recounts: “I was thinking about what to invest in. What is there in Minnesota?” He came upon some of the industry

cluster research from the University of Minnesota and found it “remarkable.” One paper identified some of the industries related to medical devices, such as production technology in west-central Minnesota.<sup>2</sup> “We began calling them investment themes,” he adds. “We felt that if we invested into these clusters, we would be more sustainable.”

Granite Partners invests in Minnesota platform companies that are strongly tied to Minnesota clusters with economic tailwinds, then supplements the companies’ organic growth with add-on acquisitions for market and product expansions, capability extensions, and talent acquisitions.

### Investment Cluster Platforms: Health Focus

Granite Partners currently focuses investments on the four durable sectors of health, infrastructure, materials, and automation. Each sector includes platform companies started by families with Minnesota ties. The 10 Granite Companies together represent 3,200 jobs, \$1 billion in total revenue, and more than \$2 billion in economic impact on local communities (based on the Bureau of Economic Analysis regional multiplier).

Within the health sector particularly, Granite Partners has been able to tap into the robust medical device industry cluster to extend beyond the borders of the Twin Cities. The medical device manufacturing industry has an extensive network of connections to other industries, which creates synergistic economic impacts throughout the state. Edeburn observes, “We’re getting a positive spillover effect from the strong medical device industry cluster in Minnesota. More specifically, the human capital side of it means we likely won’t have to go 60 miles down the interstate to find someone who understands regulatory affairs or someone with good medical manufacturing practices.”

Granite Partners’ platform company Microbiologics recently entered the biopharmaceutical cluster, which is related to its medical cluster. “Through add-on acquisitions, we supplement our ability to compete in the medical device cluster here with biology and biosciences in San Diego and pharmaceutical expertise out of Kalamazoo, bringing it all into Microbiologics’ strategy,” Edeburn says.

### Supply Chain Implications

While the Granite Companies source globally, Minnesota and the Upper Midwest supply chains play a significant role. This is particularly true for platform company Altimate Medical, for which more than half (54 percent) of the total supply chain value is sourced from Minnesota alone.

Altimate Medical makes a variety of medical equipment that offers wheelchair users a standing-frame alternative to sitting, such as EasyStand. While Altimate Medical’s supply chain movement remains strong in Minnesota and within the Midwest, it also has a national and global reach (see Figures 2 and 3). This interrelationship among greater regional suppliers is a critical and impactful aspect of the medical device cluster.

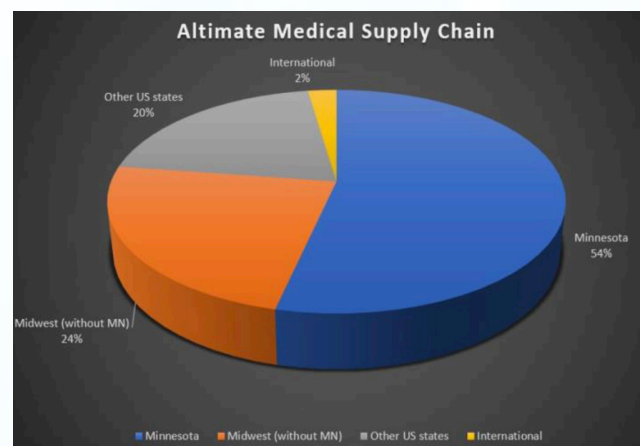


Figure 2: More than half of Altimate Medical's total supply chain value is sourced from Minnesota.

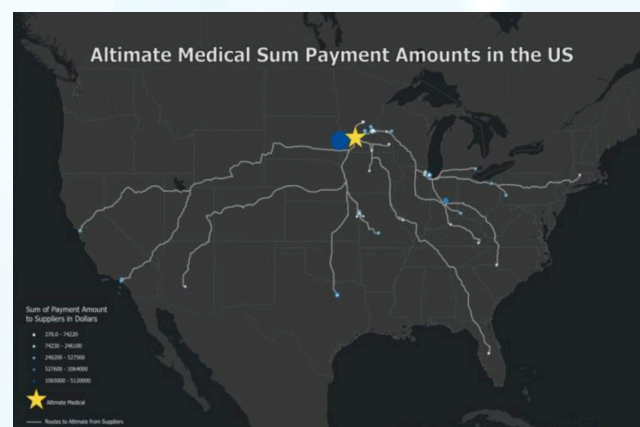


Figure 3: Altimate Medical has strong regional and national supply partners.

<sup>2</sup>Santelli, P., Turner, E., Weimann, K., and Munnich, L. (Instructor), (2010), *Automation of the Prairie*, Final Report, University of Minnesota, May 4, 2010.

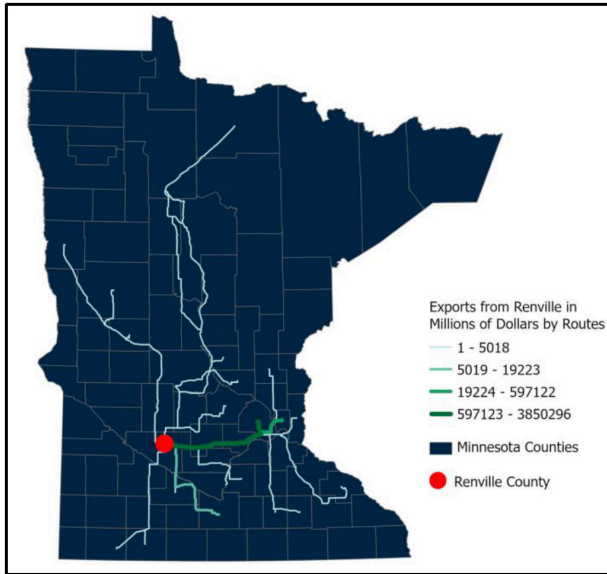


Figure 4: This map simulates the local supply chain for medical device products leaving Renville County.

Figure 4 simulates the interconnectedness of the local supply chain for medical device products leaving Renville County—where Altimate Medical is based—and moving to other parts of the state. This rendering provides transportation routes most likely used in this specific transportation network, an important reminder of the necessity of this transportation system.

## Talent Retention and Shared Value

Granite Partners' vision is "world-class individual and organizational wellbeing." One component of this vision is an emphasis on creating good jobs and attracting talent. The firm has taken a direct approach toward the education, training, and mentorship programs they offer to foster development and enhance wellbeing, giving them an upper hand in attracting and retaining talent. "Our aim is to partner with educational institutions and the community to attract graduating students, which benefits both parties," notes Shelly Bauerly Kopel, partner in charge of human resource strategy.

The firm incorporates environmental, social, and governance (ESG) factors into its business strategy as well. In considering sustainability, Granite Partners thinks about it broadly as a combined measure of business duration and business impact. To Granite Partners, "high wellbeing equals sustainability, and to reach 100 years, it's not only the strongest that survive, it's those that are most adaptable and innovative," says Carrie Willis, chief operating officer.

Granite Partners aims to create value for all stakeholders, and communities have a stake in that value as well. "When considering the community, we reflect on the significance of good-paying jobs with strong benefits for quality of life and community wellbeing," Bauerly Kopel says. "So, when we think about shared value, we think about creating value in a way that it has a positive impact for all."

*"What is distinctive about this case study is that it focuses on how industry clusters can drive a business strategy and do so in a manner that has positive implications for communities."*

—Tom Horan

## Regional and Community Implications

Granite Partners has implemented an enterprise strategy oriented around the value of industry clusters, and has done so in a manner that provides shared value to both the company and local communities. Bauerly recalls attending Michael

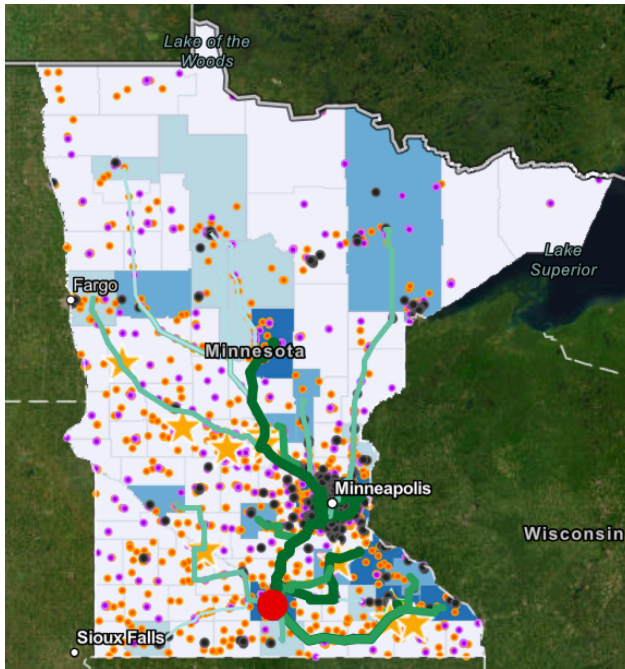


Figure 5: Composite map showing Granite Companies (as stars) and medical device industry cluster destinations from Blue Earth County

Porter's executive Shared Value course, saying, "What I took away was the idea that economic gains and social gains are not mutually exclusive, and that the 'either-or' thinking that permeates Western capitalism is often a false dichotomy." The firm's vision of world-class wellbeing extends to all stakeholders.

Granite Partners provides an example of the stronger, proactive role a company can play in providing jobs, supporting the community, and putting sustainable practices in place utilizing private-sector resources. That said, the public sector plays an important role in providing both hard (transportation) and soft (workforce) infrastructure support.

Transportation systems support regional suppliers and are conduits to reach national and international markets. Robust transportation links ensure that raw materials can reach manufacturers, workers can access job opportunities, and products can seamlessly reach markets.

Bauerly observes that competition matters, but so does collaboration. "We are acutely attuned to supply and demand. But we ought to pay more attention to collaboration. There are important synergies between business and society in this approach."

*"What I took away was the idea that economic gains and social gains are not mutually exclusive, and that the 'either-or' thinking that permeates Western capitalism is often a false dichotomy."*

—Rick Bauerly

## Project Team

Thomas Horan, Mattie Anders, Chad Lopez, Kristian Braekkan

## Related Reports

- *Greater Minnesota Medical Device Industry Cluster Project StoryMap*, Horan, T., Anders, M., Lopez, C., Braekkan, K. (Jan. 2024).
- *Granite Partners Case Study: Business, Regional, and Community Implications of a Cluster-Driven Strategy*, Horan, T., Anders, M., Lopez, C., Braekkan, K. (Jan. 2024).

Find these reports and other industry cluster research at [tpec.umn.edu](http://tpec.umn.edu)



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**For further information:**

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