

Introduction

From 1921 to 1961, several companies operated wood-treating facilities at the area now known as the Boise Cascade/Onan Corp./Medtronics, Inc. Superfund site in Fridley, Minnesota. Site operations and waste disposal practices contaminated soil and groundwater with creosote and pentachlorophenol (PCP). Cooperation among the U.S. Environmental Protection Agency (EPA), the Minnesota Pollution Control Agency (MPCA), potentially responsible parties (PRPs) and developers has led to the successful cleanup and reuse of the property.

Superfund site restoration and reuse can revitalize local economies with jobs, new businesses, tax revenues and local spending. Cleanup may also take place while active land uses remain on site. Today, six businesses operate at the site. One of the businesses uses solar power to help off-set its operating costs and has planted a native prairie instead of a conventional turf lawn. The prairie and an on-site pond provide habitat for area wildlife. This case study explores the cleanup and reuse of the Boise Cascade/Onan Corp./Medtronics, Inc. Superfund site, illustrating the opportunities and beneficial effects of Superfund redevelopment.

Beneficial Effects

- Site businesses employ about 3,000 people, providing estimated annual employment income of over \$322.5 million and generating nearly \$973 million in annual sales revenues.
- Site properties are currently valued at over \$81.4 million and generate about \$3.1 million in annual property tax revenues.
- Incorporation of remedial design components into the construction of a new on-site building enabled the safe redevelopment of the property and protects indoor air quality.
- Participation of PRPs and developers in the MPCA’s Voluntary Investigation and Cleanup Program enables the continued safe redevelopment of site properties.

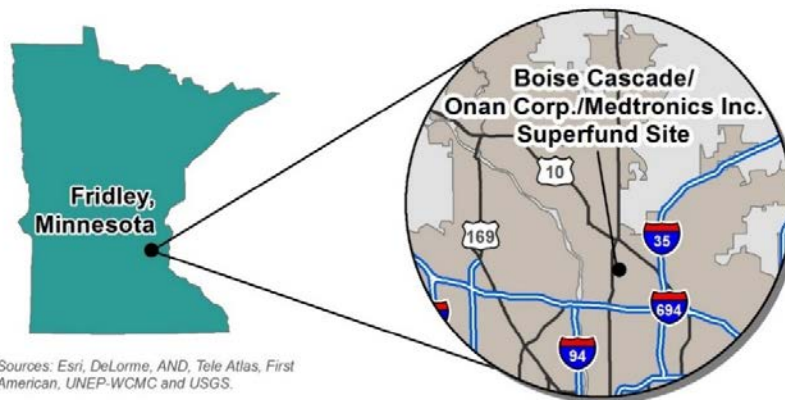


Figure 1. Location of the Boise Cascade/Onan Corp./Medtronics, Inc. Superfund site in Fridley, Anoka County, Minnesota.

Site History

The site occupies 183 acres in Fridley, Anoka County, Minnesota. Residential areas surround the site to the north, east and south and commercial properties are west of the site. Current property features include commercial and light industrial buildings, associated parking areas and a small pond. According to the 2015 U.S. Census, about 28,000 people live in Fridley.

Wood-treating activities took place on site for 40 years. Site operators used creosote, and later PCP, to treat railroad ties, poles and lumber. Following the treatment process, the wood was left to cool and drip-dry in the pressure-treatment process area, referred to as the retort area. The treatment process also involved the discharge of wastewater through a trench into two wastewater treatment lagoons.

Boise, one of the site's PRPs, sold the site property to Cummins Power Generation (Cummins) and Medtronic in 1967. Cummins (formerly Onan Corp.) acquired the eastern part of the site, which included the retort area. Medtronic acquired the western part of the site – the location of the wastewater treatment lagoons (Figure 5).

In 1979, Cummins began excavation for construction purposes and encountered large quantities of creosote and PCP-impacted soil. Similar deposits were found on the Medtronic portion of the site. Wood-treating operations and waste disposal practices had contaminated soil and groundwater with creosote and PCP. Boise, Cummins and Medtronic conducted extensive soil and groundwater investigations at the site, starting in 1979. Based on the findings of those investigations, EPA placed the site on the Superfund program's National Priorities List (NPL) in September 1984.

Site Cleanup

In January 1984, Boise, Medtronic and the MPCA entered into a consent decree for cleanup of the Medtronic property. In December 1984, Boise, Onan Corp. and the MPCA signed an injunctive order to address cleanup of the Cummins property, typically referred to as the "Onan property." In 1984, EPA selected cleanup plans to address site contamination in two records of decision. One record of decision was for the Medtronics part of the site; the other was for the Onan property.

Cleanup of the Onan property included excavation of impacted soil and wastes, construction of a subsurface slurry wall to contain the excavated materials, capping of the area surrounded by the slurry wall, and backfilling of excavated areas with clean soil. Cleanup of the Medtronic property included excavation and off-site disposal of

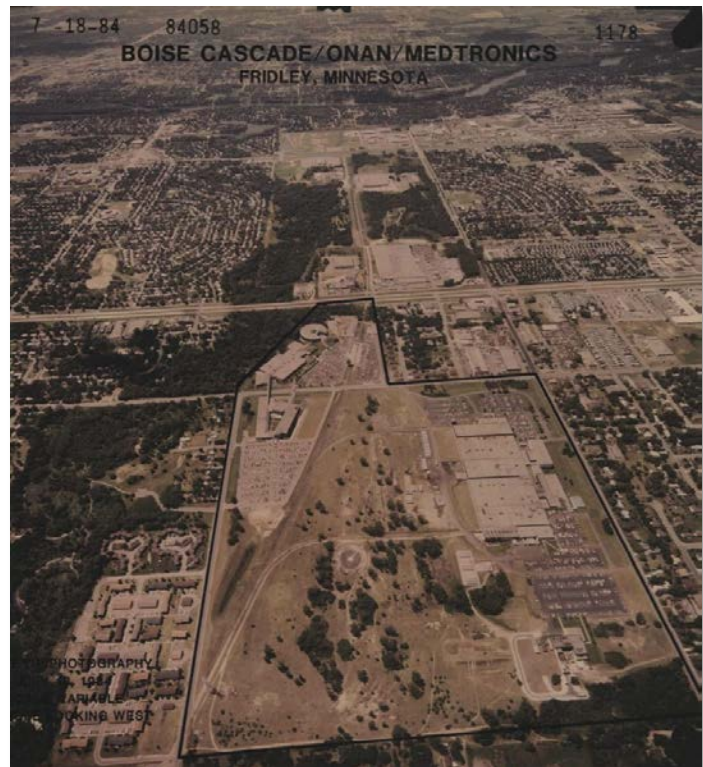


Figure 2. Aerial view of the site in 1984.

contaminated soil and materials from the wastewater treatment lagoons and lagoon trench, and collection, treatment and discharge of impacted groundwater directly beneath the lagoons to the Fridley sanitary sewer system. Cleanup also included collection and off-site disposal of about 5,000 gallons of oil discovered near the primary wastewater treatment lagoon. The site's PRPs completed remedy construction in 1992 and EPA took the site off the NPL in February 1995. Groundwater monitoring is ongoing.

EPA considered future site use when selecting the site's remedy. EPA's carefully-designed cleanup not only protects public health and the environment, but also supports safe redevelopment of the site property. The site's cleanup plan requires that parties notify the MPCA prior to any excavation work. This provision enables the state to oversee any excavation work and help manage any potentially impacted materials that may be discovered during the work.

Redevelopment and the MPCA's Voluntary Investigation and Cleanup Program

Property owners began site redevelopment efforts in the 1980s. Those initial activities included construction of an office building and parking lot on the western part of the site by Medtronic, and construction of an office building, manufacturing facility and parking lots on the eastern part of the site by Onan Corp.

Murphy Warehouse Development

In September 1998, Real Estate Recycling started work on a redevelopment plan for the southern half of the Onan property (the south-central part of the site). The plan involved the purchase of the property by Shamrock Investments III, LLC and construction of a large industrial warehouse and associated parking areas. The plan also included landscaping and the construction of a stormwater retention pond. The developer, new property owner and the MPCA worked together to make sure that the construction would not result in unacceptable risks to human health or the environment.

The property owner and developer relied on the MPCA's Voluntary Investigation and Cleanup Program for guidance and oversight throughout the construction process. In 1999, during construction of the warehouse, workers encountered contaminated soil and about 100 buried drums. Under the oversight of the MPCA's Voluntary Investigation and Cleanup Program, the property owner excavated the impacted soil and drums and disposed of them off site. The cleanup also included monitoring groundwater for two years. Cooperation between

MPCA's Voluntary Investigation and Cleanup Program

The program provides guidance for site investigations, provides MPCA review of the adequacy and completeness of such investigations, and includes approval of cleanup plans to address identified contamination. The program can also provide property owners and developers with certain assurances and help address liability concerns.

Program guidance documents provide a phased approach by which parties that voluntarily conduct an approved investigation or cleanup can obtain various written MPCA assurances. If the voluntary party is eligible for protection under the Land Recycling Act of 1992, and has led an investigation and approved response actions, the assurances could be incorporated into a Certificate of Completion. Under the Land Recycling Act, future liability protection is available to eligible parties (lenders and purchasers of property) when response actions approved by the MPCA Commissioner are conducted by property owners who may be responsible persons as defined by the Minnesota Environmental Response and Liability Act (MERLA) of 1983, a law that complements CERCLA.

the property owner and the MPCA resulted in the successful cleanup of the area and the construction of the 400,000-square-foot Murphy Warehouse.

Cummins Facility Development

In 2009, Cummins began investigating the northeastern part of the site (the Onan property) as part of preparations for construction of a new Power Generation Test Cell Facility, referred to as the Acoustical Testing Center (ATC). Workers encountered a layer of stained black soil about 6 to 9 feet below the surface of the ground, within the planned footprint of the new facility. The property owner enrolled the property in the MPCA's Voluntary Investigation and Cleanup Program. Further investigation determined that the impacted soil was associated with former wood-treating activities on site.

Cleanup of the area included excavation and off-site disposal of over 1,300 tons of contaminated soil. Because of the unexpected amount of impacted soil encountered, some of the soil was left in place under the southern part of the building and the parking lot. Cummins and the MPCA worked together on an approach that would allow for the safe construction of the facility above the impacted soil. The MPCA approved Cummins' design for a vapor barrier and sub-slab system below the new building to prevent the movement of harmful vapors from the soil below into the facility. The remedy took the future use of the property into consideration, enabled construction of the facility to move forward, and protects indoor air quality for people working in the building.

Throughout cleanup and the construction of the ATC facility, Cummins reached out to the community about the project, which the company referred to as "Project Sonitus." For example, Cummins regularly shared Neighborhood Update documents with the community. The updates discussed the contamination discovered during construction, cleanup details and project benefits. Cummins also hosted an open house to provide an opportunity for community members to learn about the project and ask questions and share concerns. Cummins completed construction of its ATC facility in 2011.



Figure 3. Covered piles of excavated soil during cleanup of the Cummins ATC area. Image source: MPCA

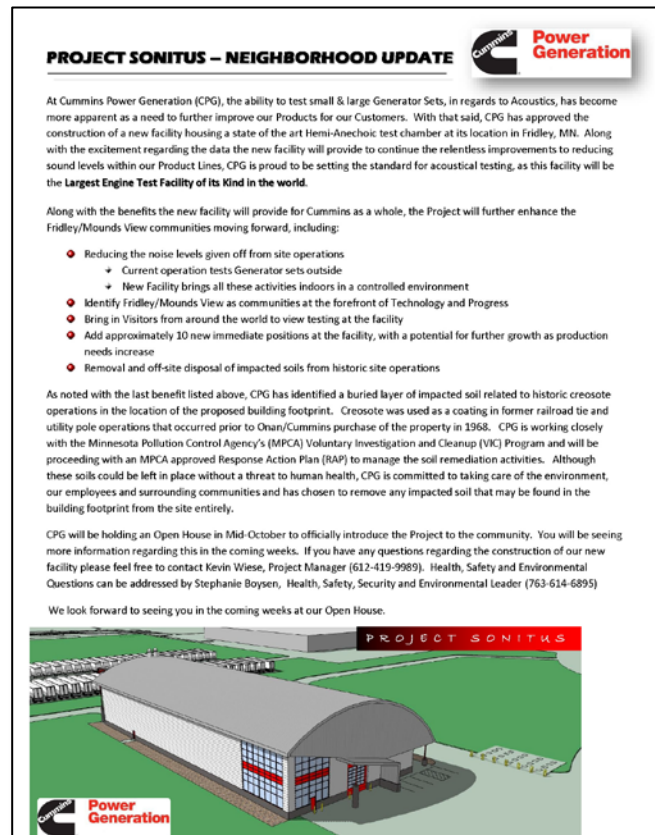


Figure 4. One of the Neighborhood Updates shared with the community.

Following soil cleanup, the MPCA issued a “No Further Action determination” for the hazardous substance release to Cummins for the 4-acre part of the site associated with the ATC facility. The July 2012 determination provided Cummins with assurance that the MPCA would not require any additional cleanup or take any additional action against Cummins related to the 4-acre area.

“I appreciated how the Voluntary Investigation and Cleanup Program provided a framework for this collaborative effort of so many stakeholders. The Program facilitated the development of this 4-acre parcel to its highest value in less than two years while actively managing all contaminant pathways.”

– Edward P. Olson, MPCA Project Manager

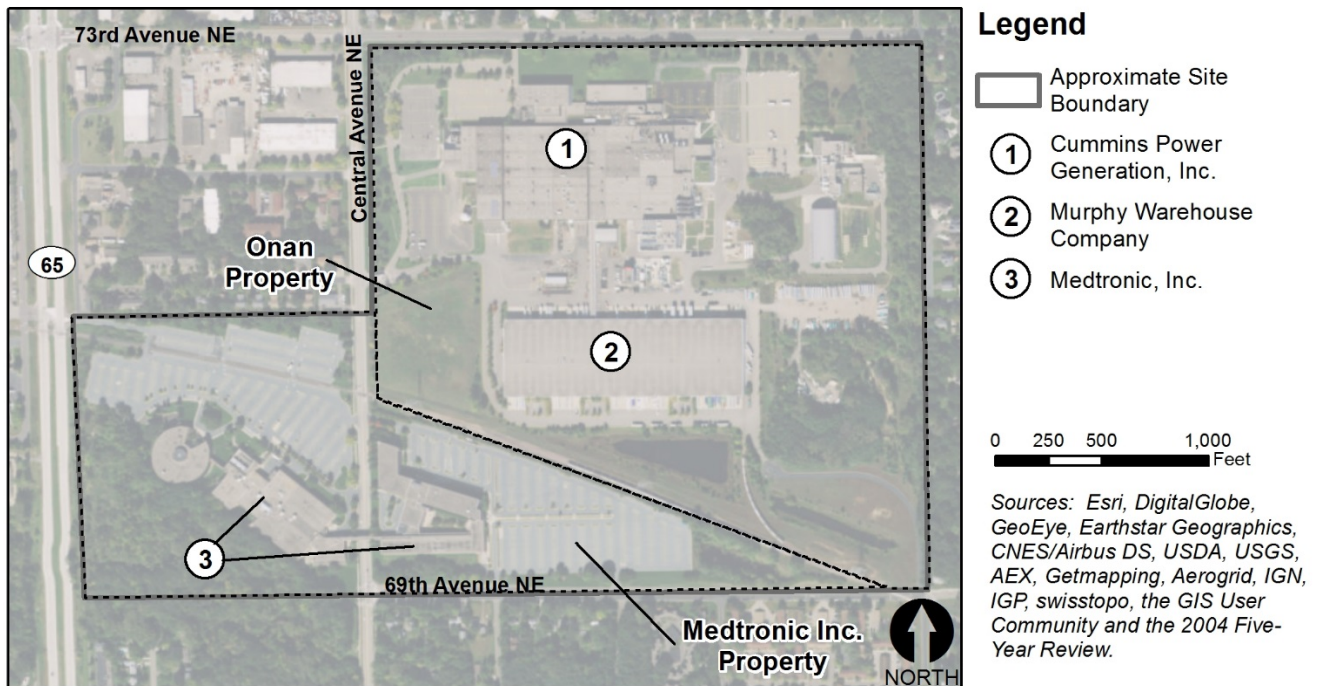


Figure 5. Site layout and current site facilities.

Beneficial Effects

The cleanup of the site, under both Superfund and MPCA oversight, protects human health and the environment and has enabled the successful and safe redevelopment of the site properties. Today, the businesses that operate on site bolster the local economy and help generate local and state tax revenues. The section below describes the specific beneficial effects provided by businesses at the site.

Cummins Power Generation

This company makes home standby generators and commercial, industrial and mobile generator systems for a range of industries that rely on a constant and reliable source of power. Industry sectors include data centers, healthcare, military, mining, oils and gas, telecommunications and water treatment. The company’s on-site location is home to its Fridley Headquarters and its state-of-the-art ATC facility, which opened in October 2011. The 23,000-square-foot facility is the largest engine-testing facility of its kind in the world. Testing at the ATC facility eliminates external noise interference and allows the company to precisely measure the noise output from fully-assembled generator sets of all types and sizes.

The company is dedicated to minimizing the impact of its products and practices on the environment. Some of these efforts include meeting or exceeding all EPA and European Union emissions standards, improving the fuel efficiency of its engines, and developing cleaner combustion techniques. In 2002, EPA recognized Cummins as the first engine manufacturer to meet the Agency's on-highway standards. In 2016, the company received the Clean Energy Ministerial Award of Excellence in Energy Management, one of only three ISO 5001-certified organizations to be honored. Cummins constructed the ATC facility in accordance with Leadership in Energy and Environmental Design guidelines for green building design. The ATC facility also reduced potential environmental and quality-of-life impacts on surrounding areas by eliminating the need for outdoor testing.

The on-site business includes a community garden. Employees plant and tend the garden and then donate the produce to local food banks. Cummins provides its employees with time to work in the garden, and to participate in other activities that give back to the local community.

Today, Cummins' operations on site generate about \$71 million in annual employee income. In 2016, estimated annual sales for the on-site business exceeded \$300 million.

Vallen Distribution

This industrial distribution and supply chain solutions business operates out of the Cummins facility at 1400 73rd Avenue Northeast. Previously known as Hagemeyer North America, the business also provides technical services, including safety equipment inspection, maintenance, certifications and solution design. Jobs at the on-site business branch contribute nearly \$325,000 in estimated annual employment income to the community. In 2016, sales revenue for the business branch reached nearly \$13 million.



Figure 6. Cummins business sign along 73rd Avenue Northeast.



Figure 7. The grand opening ceremony for the ATC facility.

Image source: Cummins Power Generation



Figure 8. The interior of the ATC facility.

Image source: Cummins Power Generation

Murphy Warehouse Company

This family-owned business, founded in 1904, provides logistics services, including bulk, rack and food grade warehousing and transportation. The company operates four logistics facilities in Minnesota and is committed to reducing greenhouse gas emissions and resource efficiency. Through Leadership in Energy and Environmental Design certification efforts at all four Minnesota facilities, the company has reduced its water usage by 4 million gallons, compared to a 2010 baseline, and produces more than 10 percent of its on-site electricity from roof-mounted solar panels. The on-site facility supports a small, roof-mounted solar array, which provides renewable power for facility use. The company has also saved \$27,000 in annual maintenance costs by planting native prairies instead of conventional turf lawns. The prairies also remove more than 28 metric ton equivalents of carbon from the atmosphere each year. The 11-acre prairie habitat at the on-site business branch has been planted with wildflowers and is home to birds, rabbits, deer and foxes. Part of the Murphy Warehouse Company site property also includes a large pond, which is home to several species of waterfowl.

The Murphy Warehouse Company became Minnesota's first warehousing and logistics company – and one of just four companies in Minnesota – to earn Leadership in Energy and Environmental Design Gold recertification in October 2015. The on-site facility also generates nearly zero waste and operates with sustainably purchased products, including low-mercury light bulbs. Jobs at the on-site business provide about \$203,000 in annual employee income. In 2016, estimated business sales exceeded \$1.1 million.

"This project was a win for all parties involved. After cleanup and EPA delisting, the property went from having a negative net worth to contributing over a half million dollars in real estate taxes per year to the community."

– Richard Murphy, CEO, Murphy Warehouse Company



Figure 9. Aerial view of the Murphy Warehouse Company facility.
Image source: Murphy Warehouse Company



Figure 10. Native flowers and grasses in the prairie habitat on the Murphy Warehouse Company property.
Image source: Murphy Warehouse Company

Medtronic

This global healthcare solutions company researches, designs and manufactures medical instruments and devices used in a wide range of healthcare applications. The on-site facility includes two campuses connected by a raised walkway over Central Avenue NE. The business generates about \$250 million in annual employee income. In 2016, its estimated annual sales exceeded \$655 million.



Figure 11. One of the on-site Medtronic buildings and a walkway over Central Avenue NE that connects two on-site Medtronic buildings.

US Bank

This commercial bank branch is located within the Medtronic facility at 7000 Central Avenue Northeast. It contributes an estimated \$780,000 in annual employment income to the community and generates about \$1.7 million in annual sales.

Cardiac Rhythm Management


This administrative office services business also operates within the Medtronic facility on site. It contributes an estimated \$152,000 in annual employment income to the community.

Property Values and Tax Revenues

On-site properties help generate property tax revenues that support local government and public services. Today, site properties have a combined value of over \$81.4 million. In 2017, site properties will generate over \$3.1 million in total property tax revenues.

Conclusion

Collaboration and cooperation among EPA, the MPCA, PRPs and developers was vital to the successful cleanup and beneficial reuse of the Boise Cascade/Onan Corp./Medtronics, Inc. Superfund site. EPA's and MPCA's carefully designed cleanups not only protect public health and the environment, but also took the safety of future development at the site into consideration. The MPCA notification requirement for all site excavation activities enables the state to oversee and manage site work to ensure the safety of workers as well as planned reuses. Incorporating remedial design components such as the vapor barrier and sub-slab system into the construction of the Cummins facility enabled development to move forward and protects indoor air quality over the long term.



This once-contaminated area now supports businesses that provide jobs and services to the community and strive to do so in environmentally conscious ways. Today, on-site businesses support local economic growth, providing about 3,000 jobs and over \$322.5 million in estimated annual employee income. In 2016, on-site businesses generated nearly \$973 million in sales revenue.

*For more information about EPA's Superfund Redevelopment Initiative, visit:
<https://www.epa.gov/superfund-redevelopment-initiative>.*



www.epa.gov

Reuse and the Benefit to Community Boise Cascade/Onan Corp./Medtronics, Inc. Superfund Site

Technical Appendix

Employment Information for On-Site Jobs

EPA obtained the data included in this appendix directly from reputable sources and reported the data as presented by those sources. Information on the number of employees and sales volume for on-site businesses came from the Hoovers/Dun & Bradstreet (D&B) database.¹ EPA also gathered information on businesses and corporations from D&B. D&B maintains a database of over 225 million active and inactive businesses worldwide.

When the Hoovers/D&B database did not include employment or sales volume information for on-site businesses, EPA used the ReferenceUSA database.² These databases include data reported by businesses. Accordingly, some reported values might be underestimates or overestimates. In some instances, business and employment information came from business-published annual reports and discussions with business representatives. While sales values typically exceed estimated totals of annual income, sales can sometimes be lower than estimated income. This could be attributed to a number of business conditions and/or data reporting.

Wage and Income Information for On-Site Jobs

EPA obtained wage and income information from the U.S. Bureau of Labor Statistics (BLS). Part of the U.S. Department of Labor, the BLS is the principal federal agency responsible for measuring labor market activity, working conditions and price changes in the economy. All BLS data meet high standards of accuracy, statistical quality and impartiality.

EPA used the BLS Quarterly Census of Employment and Wages database to obtain average weekly wage data for businesses at the Boise Cascade/Onan Corp./Medtronics, Inc. Superfund site. Average weekly wage data were identified by matching the North American Industry Classification System (NAICS) codes for each type of business with weekly wage data for corresponding businesses in Anoka County. If weekly wage data were not available at the county level, EPA sought wage data by state or national level, respectively. In cases where wage data were not available for the six-digit NAICS code, EPA used higher-level (less-detailed) NAICS codes to obtain the wage data.

To determine the annual wages (mean annual) earned from jobs generated by each of the selected businesses at the Boise Cascade/Onan Corp./Medtronics, Inc. Superfund site, EPA multiplied the average weekly wage figure by the number of weeks in a year (52) and by the number of jobs (employees) for each business.

¹ Hoovers/D&B database: <http://www.dnb.com/>.

² ReferenceUSA database: <http://resource.referenceusa.com/>.

Table 1. Boise Cascade/Onan Corp./Medtronics, Inc. Superfund Site: Information for On-Site Businesses

On-site Business	NAICS Code ^a	NAICS Title	Number of Employees ^b	Average Weekly Wage (2015) ^c	Annual Wage (Mean Annual) per Employee	Total Annual Income ^d	Annual Sales (2016) ^b
Cardiac Rhythm Management	561110	Office Administrative Services	2	\$1,463	\$76,076	\$152,152	\$110,000 ^e
Cummins Power Generation Inc.	335312	Motor and Generator Manufacturing	1,000 ^f	\$1,362	\$70,824	\$70,824,000	\$301,861,111 ^g
Medtronic, Inc.	334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	2,000 ^h	\$2,406	\$125,112	\$250,224,000	\$655,295,455 ^g
Murphy Warehouse Company	493110	General Warehousing and Storage	4	\$978	\$50,856	\$203,424	\$1,138,800 ^g
US Bank, Medtronic Rice Creek	522110	Commercial Banking	12	\$1,250	\$65,000	\$780,000	\$1,708,000 ⁱ
Vallen Distribution, Inc.	423840	Industrial Supplies Merchant Wholesalers	5	\$1,249	\$64,948	\$324,740	\$12,791,667 ^g
Total			3,023			\$322,508,316	\$972,905,033

^a NAICS code provided in the D&B database.

^b Data are from the D&B database, unless otherwise noted.

^c Average weekly wage per employee based on BLS 2015 Average Weekly Wage data.

^d Total annual income figures derived by multiplying “Number of Employees” by “Annual Wage (Mean Annual) per Employee.”

^e While sales values typically exceed estimated totals of annual employee income, annual reported sales can sometimes be lower than estimated annual income. This atypical condition of estimated income exceeding sales can be a result of business conditions, estimated business wages not accurately reflecting actual wages for the site-specific business, annual sales being under-reported, a business loss for the year or a combination of those factors.

^f Employee number provided by Cummins Power Generation HSE Sustainability & Compliance Leader, Alma Allen-Webb, during a 7/20/2017 phone interview.

^g Annual sales value calculated using the “Sales Per Employee” method. In cases where information sources do not provide annual sales data, an estimated annual sales value was calculated using the “Sales Per Employee Method”. This method involves dividing the company-wide sales value by the number of employees that work at all branches of the business. That value equals an estimated business sales value per employee for the entire business, for all locations. That value is then multiplied by the number of employees at the on-site business location to calculate an estimated annual sales value for the site-specific business location.

^h Employee number provided by Senior Medtronic EHS Manager, Brian Moynihan, during a 6/29/2017 phone interview.

ⁱ Data are from the ReferenceUSA database.

Property Values and Local Tax Revenue Generated from Property Taxes

EPA obtained data on the most recently assessed values for property parcels at the Boise Cascade/Onan Corp./Medtronic, Inc. Superfund site in April 2017 through property records accessible through Anoka County’s online property appraisal database (<http://www.anokacounty.us/1201/About-Us>). EPA also obtained 2017 property tax information for the site parcels.

Table 2. Property Value and Tax Summary for Taxes Payable in 2017

Parcel ID No.	Parcel Address	Total Market Value of Land and Improvements (2017)	Total Property Tax (2017)
12-30-24-34-0002	6970 Central Ave. NE, Fridley, MN 55432-0000	\$587,700	Exempt ^a
12-30-24-34-0003	7000 Central Ave., Fridley, MN 55432-0000	\$24,757,600	\$954,610
12-30-24-34-0004	7000 Central Ave. NE, Fridley, MN 55432	\$112,600	\$4,342
12-30-24-41-0004	1400 73rd Ave. NE, Fridley, MN 55432-0000	\$33,633,100	\$1,296,840
12-30-24-43-0001	6951 Central Ave. NE, Fridley, MN 55432-0000	\$22,238,900	\$858,871
12-30-24-43-0004	None	\$100	\$1,213
12-30-24-44-0002	None	\$100	\$4
13-30-24-21-0018	None	\$79,300	Exempt ^a
13-30-24-21-0058	None	\$7,600	Exempt ^a
		\$81,417,000	\$3,115,880

^a Tax exempt property owned by Anoka County.