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Reuse and the Benefit to Community Havertown PCP Superfund Site

Introduction

In the late 1940s, National Wood Preserving and Philadelphia Chewing Gum Company began manufacturing operations in Haverford Township, on the outskirts of Philadelphia. These companies were important local employers. However, improper disposal of wood-treating process wastes from the National Wood Preserving facility contaminated soil, sediment and groundwater. The closure of the businesses and concern about contamination spurred a local focus on the need for the cleanup and redevelopment of the Havertown PCP Superfund site.

Collaboration among EPA, the Pennsylvania Department of Environmental Protection (PADEP), Haverford Township, the YMCA Philadelphia Freedom Valley and other stakeholders resulted in the site's cleanup and revitalization. Today, an 80,000-square-foot on-site YMCA facility serves 24,000 members. Thoughtful remedial design resulted in a cap that contains contaminated soil and allowed for construction of a new storage facility on top of it.

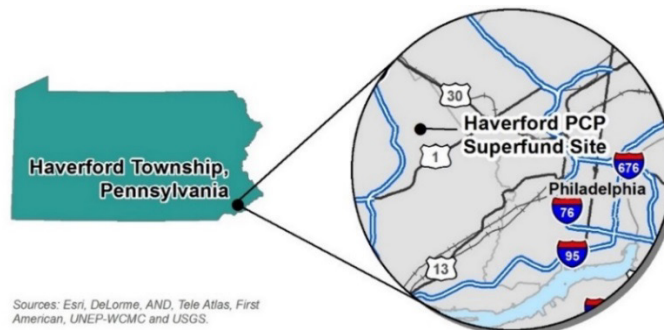
Superfund site restoration and reuse can revitalize local economies with jobs, new businesses, tax revenues and local spending. Cleanup may also take place while active land uses remain on site. This case study explores Havertown PCP's cleanup and reuse, illustrating the beneficial effects of Superfund redevelopment.



Figure 1. New Haverford Area YMCA facility.

Beneficial Effects

- Community members visiting the site's YMCA facility and walking the Pennsy Trail realize significant health and productivity benefits.
- Five commercial businesses are currently active at the site. In 2016, they generated over \$9.3 million in annual sales.
- Site businesses employ over 400 people, providing annual employment income of over \$14 million to the local community.
- In 2017, site property parcels have a total property value of \$7.8 million and will generate \$14,336 in tax revenues.



Sources: Esri, DeLorme, AND, Tele Atlas, First American, UNEP-WCMC and USGS.

Figure 2. Site location in Haverford Township, Pennsylvania.

Site History

This 12-acre former industrial facility is located 10 miles west of Philadelphia. The site sits on the northern edge of Havertown, a small unincorporated community in Haverford Township. Naylor's Creek, a small stream that drains to the Delaware River, flows through the site (Figure 2). In 2015, about 48,800 people lived in Haverford Township.¹

On land that had previously supported a railroad storage yard and a lumber yard, National Wood Preservers built and began operating its wood-treating facility in 1947. Across the street, the Philadelphia Chewing Gum Company built a 200,000-square-foot plant in 1948 (Figure 2). The company, a major local employer, produced Swell bubble gum, El Bubble Gum cigars and other snacks at the facility for 55 years.



Figure 3. Major historic site features.

National Wood Preservers disposed of an estimated million gallons of liquid waste, including pentachlorophenol (PCP)-contaminated oil, in a well on site. The liquid wastes contaminated the groundwater, spilled into Naylor's Run and also spilled onto the ground surface, contaminating soil in the area. In 1962, the Pennsylvania State Department of Health discovered the contamination in Naylor's Run and identified the wood-treating facility as its source. In 1964, the company changed its oil-based treatment process to a process using metal salts.

In 1972, the Pennsylvania Department of Environmental Resources (PADER, now PADEP) discovered contaminated groundwater discharging from a stormwater system into Naylor's Run. PADER held National Wood Preservers and the owner of the company's leased land accountable for the cleanup but did not address environmental concerns at the site. At PADER's request, EPA began a two-phase cleanup under the Clean Water Act in 1976. EPA installed filter fences in Naylor's Run to contain the contamination and remove PCP-contaminated oil from the surface water. EPA then sealed the sanitary sewer. In September 1983, EPA placed the site on the Superfund program's National Priorities List (NPL).

¹ American Community Survey, 2011-2015 5-Year Demographic and Housing Estimates. Accessed on 4/13/17 at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

Site Cleanup and Transformation

To manage the cleanup, EPA divided the site into three areas, or operable units (OUs). OU1 addressed on-site soil, waste material and storm sewer effluent at the Naylor's Run catch basin. OU2 addressed the shallow groundwater aquifer. OU3 addressed remaining groundwater and soil contamination not addressed as part of the other OUs. During site investigations and remedial design for the three OUs, EPA conducted a series of short-term actions to address immediate threats posed by contamination. These actions included installing a catch basin to contain contamination in Naylor's Run in 1987 and removing contaminated tanks and drums and securing site buildings in 1992. EPA selected final remedies for OUs 1, 2 and 3 in separate records of decision in 1989, 1991 and 2008, respectively.

The remedy for OU1 included soil monitoring, installation of an oil/water separator for storm drain effluent, landfilling of waste on site, and off-site treatment of liquid wastes. In 1997, EPA installed a 3-acre synthetic cap, covered with 18 inches of soil to prevent exposure to the contamination. The next year, EPA covered this area with an additional 4 to 10 feet of fill and planted it with grasses. The addition of this extra fill material increased the overall impermeability of the cap and provided an enhanced setting to support future construction of light industrial facilities with certain restrictions. EPA also removed and disposed of nearly 280 55-gallon drums of waste, over 4,700 gallons of liquid waste and 100 gallons of sludge.

Cleanup activities for OU2 included installation of wells to recover liquid waste, storm sewer line repairs to reduce groundwater infiltration to the sewer, and groundwater collection and treatment. EPA began construction of the groundwater collection and treatment system in 1997. The treatment plant began operating in 2001.

Completed in 2008, the OU3 cleanup plan integrated the OU2 remedy as part of a final cleanup approach for site groundwater. Groundwater cleanup activities included collecting, treating and discharging groundwater to Naylor's Run, increasing the capacity of the groundwater treatment facility, and constructing and operating an in-place flushing system. The cleanup also included excavating around wells and the sewer line and backfilling with clean soil, monitoring aquatic organisms in Naylor's Run, monitoring groundwater, and putting institutional controls in place. Additional cleanup activities included excavation of sewer line and contaminated soil between homes and near creeks, followed by capping, riprap installation along stream banks, drainage swale installation, topsoil placement and seeding. The ecological study completed that year showed that aquatic communities were showing improvement. To complete the OU3 work, EPA worked with Haverford Township to put required institutional controls in place.

EPA declared the site's cleanup complete in 2010; PADEP took over responsibility for ongoing maintenance activities in 2013. Groundwater extraction, treatment and monitoring is ongoing. EPA will continue working with the YMCA to monitor the potential for vapor intrusion and maintains monitoring wells around the building.



Figure 4. Cleanup activities at the Havertown PCP site.



Figure 5. Groundwater treatment facility on the north end of the site.

Early on, reuse considerations were integrated as part of site cleanup plans. Philadelphia Chewing Gum Company closed its plant on the east side of North Eagle Road in 2003. The company had been an important employer in the area, and the plant's closure spurred conversations about the property's future. Returning the site to productive use was an important priority for Haverford Township, which ultimately acquired the property through eminent domain in 2008. Recognizing the opportunity presented by a large, developable parcel in an underserved area, the YMCA worked with EPA and Haverford Township on plans for the site's redevelopment. In 2010, the YMCA agreed to demolish the factory, signing a \$2 million, 25-year ground lease for the property.² The old gum manufacturing facility was demolished the following year. The YMCA coordinated with EPA to ensure that the monitoring wells and portion of the remedy on the property were not damaged or interfered with.

The community expressed concerns about the plume of contaminated groundwater beneath the planned health facility. EPA evaluated the potential for contamination to enter building air from the ground, a process known as vapor intrusion. While the evaluation found that risks were within acceptable ranges, EPA recommended the installation of vapor intrusion mitigation equipment to address potential future exposure pathways that could be created by the construction and use of the new building.

In May 2012, the community celebrated the YMCA's groundbreaking. The \$22.5 million, 80,000-square-foot facility opened to the public in October 2013. Local organizations and volunteers worked together to complete the property's connection to Pennsy Trail, a recreational trail built on an abandoned rail corridor, in advance of the opening.³



Figure 6. Construction of the YMCA facility.



Figure 7. Sign showing the YMCA design.

² Alicia Guide for Patch. Swell Bubble Gum Factory Meets Demise. April 13, 2011. <https://patch.com/pennsylvania/haverford/swell-bubble-gum-factory-meets-demise>.

³ Friends of Haverford Trails. Brookline/Llanerch Walking Trails. Available at <http://www.havtrail.com/trailmap/penmap.htm>.



Site Features After Cleanup and Redevelopment (2017)

- Ⓐ Groundwater Treatment Plant
- Ⓑ Mr. Storage location
- Ⓒ Swiss Farms Store
- Ⓓ Tony Ronis Pizza
- Ⓔ Haverford Township Area YMCA and Novocare
- Ⓕ Penny Trail

0 75 150 300 Feet

Imagery Source: Google 2017 Map Data



Figure 8. Site features following cleanup and redevelopment.

In 2015, reuse of the National Wood Preservers portion of the site west of North Eagle Road moved forward. A Mr. Storage self-storage facility was built on top of the 3-acre cap installed in 1997. EPA, PADEP and Haverford Township reviewed construction plans and monitored the project to make sure it did not impact the protectiveness of the cap or the operation of the groundwater treatment system. The plans took into consideration the cap’s weight and depth restrictions, incorporating closely spaced load-bearing walls to distribute the weight evenly and allow for a shallow foundation.⁴

Award-Winning Redevelopment

In 2015, EPA recognized the Philadelphia Freedom Valley YMCA, Vice President of Facilities Michael Troupe, and past Board Chair Carl Everett with its Excellence in Site Reuse Award. The award recognizes stakeholders who have gone above and beyond in cooperative efforts to redevelop Superfund sites.

⁴ Louis Puglionesi. MainLine Times. Self-storage center coming to Superfund site in Haverford? February 15, 2012. Available at http://www.mainlinemedianews.com/mainlinetimes/news/self-storage-center-coming-to-superfund-site-in-haverford/article_b017df1f-b5b1-54ce-bf44-799f9ef3d20c.html.

Local Impacts

Today, the revitalization of Haverford PCP site properties has returned the land to productive economic use. The site supports five businesses, including the 80,000-square-foot YMCA and the newly completed Mr. Storage facility. Together, site businesses employ over 400 people, contribute about \$14 million in annual employment income and generate an estimated \$9.3 million in annual sales.

Haverford Area YMCA

Serving 24,000 members, the YMCA facility features an indoor track, gymnasium, swimming pools, a childcare area, a 10,000-square-foot wellness center and classrooms. Before construction, the YMCA estimated that facility construction would provide up to 250 construction jobs.⁵ In 2016, the location generated nearly \$8.1 million in estimated annual sales.

Novacare Haverford Area

Offering physical therapy services at the YMCA location, this firm contributes about \$62,000 in estimated annual employment income and generated nearly \$198,000 in estimated annual sales in 2016.

Mr. Storage

Construction of the 21,000-square-foot, 3-story facility finished in 2016. The business generated \$337,000 in estimated annual sales in 2016.

Swiss Farms Store

In 2016, this drive-through market and restaurant generated \$500,000 in estimated annual sales.

Tony Roni's Pizza

The business is located in a space that previously hosted a produce market and other restaurants. It contributes annual employment income to the community and generated about \$230,000 in annual sales revenue in 2016.



Figure 9. The Haverford Area YMCA.



Figure 10. Sign for NovaCare inside the YMCA.



Figure 11. Mr. Storage, Swiss Farms Store and Tony Roni's Pizza locations.

⁵ YMCA Prospectus. Available at http://4haverforddocuments.com/YMCA_Prospectus.pdf.

Economic Benefits of Recreation

Beyond the annual sales and employment income generated by recreational facilities like the Haverford Area YMCA, these community assets generate other important economic benefits. For example, a 2012-2013 study of the economic and social benefits of the New York City YMCA system, which serves 200,000 members, estimated “the aggregate earnings of parents who are able to work as a result of their children’s participation in [New York area] YMCA after-school programs total approximately \$63 million annually.” The report found an additional \$8.2 million in medical and productivity savings associated with increased physical fitness of members.⁶ Long-term payoffs of social investments studied included \$19.9 million in lifetime social costs of Type 2 diabetes avoided due to participation in the organization’s Diabetes Prevention Program.⁷

Pennsy Trail, which connects to the YMCA and is part of Haverford Township’s 15 miles of walking trails, also provides economic benefits. Recreation trails generate increased tourism and consumer spending, increased property values, and health care savings. For example, a 2004 study found that every \$1 in trail development investment led to \$2.94 in direct medical benefits.⁸



Figure 12. Entrance to the Haverford Area YMCA.



Figure 13. Runner enjoying Pennsy Trail.

Property Values and Property Tax Revenues

Properties cleaned up under the Superfund program and kept in use provide tax revenues for local municipalities, providing funding for schools, local government operations and transit. The 2017 value of land and improvements at the Havertown PCP site is \$7.8 million. The properties contribute \$14,336 in annual property taxes. On-site businesses that produce retail sales and services also generate tax revenues through the collection of sales taxes, which support state and local governments.⁹

⁶ Here for Good: The Impact of the YMCA of Greater New York on New York City’s Economy. 2013. Available at <https://secure.ymcanyc.org/page/-/Full%20Study.pdf>.

⁷ Ibid.

⁸ Economic Benefits of Trails. Stuart Macdonald. American Trails Magazine. Summer 2011. Available at <http://www.americantrails.org/resources/economics/economic-benefits-trails-macdonald.html>.

⁹ The Pennsylvania sales tax rate is 6 percent. The Haverford Township Mercantile Tax (assessed on all retail and wholesale related business activities) and Business Privilege Tax (assessed on all other business activities) are each 1.5 percent. For more information, see <http://www.revenue.pa.gov/GeneralTaxInformation/Current%20Tax%20Rates/Pages/default.aspx#.WP9QPWnyupo> and <http://www.haverfordtownship.org/topic/subtopic.php?topicid=15&structureid=6>.

Conclusion

Once a blighted and abandoned former industrial area, the Haverford PCP site has been restored to productivity as a bustling hub that supports businesses, recreation and public health. EPA's collaboration with PADEP, Haverford Township, the YMCA and other stakeholders resulted in a cleanup that protects human health, has restored the environment, and enabled the site to support several high-priority uses. Today, site reuse provides a range of economic benefits, including sales revenues, employment income and increased local tax revenues. Medical and productivity savings also result from community members' enjoyment of the recreational amenities provided by the Haverford Area YMCA and Pennsy Trail.

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



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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 lacked employment and sales volume for on-site businesses, EPA used the ReferenceUSA database.² In cases where ReferenceUSA did not include employment and sales volume for on-site businesses, EPA used the Manta database.³ 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 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 Havertown PCP 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 Delaware 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.

¹ <http://www.dnb.com/>

² <http://resource.referenceusa.com/>

³ <http://www.manta.com/>

To determine the annual wages (mean annual) earned from jobs generated by each of the selected businesses at the Havertown PCP 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.

Table 1. Havertown PCP Superfund Site: Information for On-site Organizations and 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
Haverford Area YMCA	624110 ^e	Child & Youth Services	400 ^f	\$667	\$34,684	\$13,873,600	\$8,050,000 ^{e,g}
Mr. Storage	531130 ^e	Lessors of Miniwarehouses and Self Storage Units	1 ^e	\$584	\$30,368	\$30,368	\$337,000 ^e
Novacare Haverford Area	813410	Civic and Social Organizations	5	\$238	\$12,376	\$61,880	\$197,510
Swiss Farms Store	445110 ^g	Supermarkets and Other Grocery (except Convenience) Stores	1 ^g	\$434	\$22,568	\$22,568	\$500,000 ^g
Tony Ronis Pizza	722511 ^e	Full-Service Restaurants	1 ^e	\$354	\$18,408	\$18,408	\$231,000 ^e
Total			408			\$14,006,824	\$9,315,510^g

^a NAICS code provided in the D&B database, unless otherwise noted.

^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 Data are from the ReferenceUSA database.

^f Employee number estimate provided by EPA remedial project manager, per interview with YMCA staff in 2015.

^g 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.

^h Data are from the Manta website.

Property Values and Local Tax Revenue Generated from Property Taxes

EPA obtained data on the most recently assessed values for property parcels at the Havertown PCP Superfund site in April 2017 through property records accessible through Delaware County's online property appraisal database.⁴ 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.	Total Assessed Value of Land and Improvements (2017)	Total Property Tax (2017)
22-03-00929-00	\$413,400.00	\$0.00
22-01-00335-00	\$4,664,970.00	\$0.00
22-01-00332-00	\$50,120.00	\$0.00
22-01-00331-00	\$51,910.00	\$0.00
22-01-00366-00	\$456,600.00	\$2,505.82
22-01-00366-01	\$1,566,160.00	\$8,770.49
22-01-00727-00	\$131,150.00	\$719.75
22-03-01872-00	\$172,200.00	\$964.32
22-03-00958-00	\$245,600.00	\$1,375.36
22-01-01412-01	\$5,200.00	\$0.00
Total	\$7,757,310.00	\$14,335.74

⁴ <http://w01.co.delaware.pa.us/pa/publicaccess.asp?real.x=0&UAYN=I+Agree>