

Executive Summary

For over eight decades, several companies, including the John A. Roebing’s Sons Company, made steel and wire products at the 200-acre Roebing Steel Company Superfund site in Florence Township, New Jersey. In later years, various other industrial activities also took place on site. Wastes from the steel-making process contaminated soil, sediment and groundwater. Cooperation among the U.S. Environmental Protection Agency (EPA), the New Jersey Department of Environmental Protection (NJDEP), Florence Township and the New Jersey Transit Authority has resulted in the area’s successful cleanup and reuse. Stakeholders recognized that consideration of reuse during cleanup planning could enhance the protection of public health and the environment while also addressing other community priorities.

Today, site uses include the Roebing Museum and a light-rail station. The area is also a recreational amenity for the community. This case study explores the area’s cleanup and reuse, illustrating the opportunities and beneficial effects of Superfund redevelopment initiatives in action.

Beneficial Effects

- Reuse of the Site allowed a new commuter light rail station, a part of the newly formed RIVER line, to exist on site. The station reduces Vehicle Miles Traveled (VMT) by about 1,213 miles each work day.
- One nonprofit business – the Roebing Museum – is currently active on site. The museum preserves the site’s rich history and offers a variety of public education programs and events.
- Cleanup of the site’s 34-acre former slag area enabled the creation of a valuable recreation resource for the community.
- In 2015, site properties had a total estimated property value of nearly \$5.8 million.

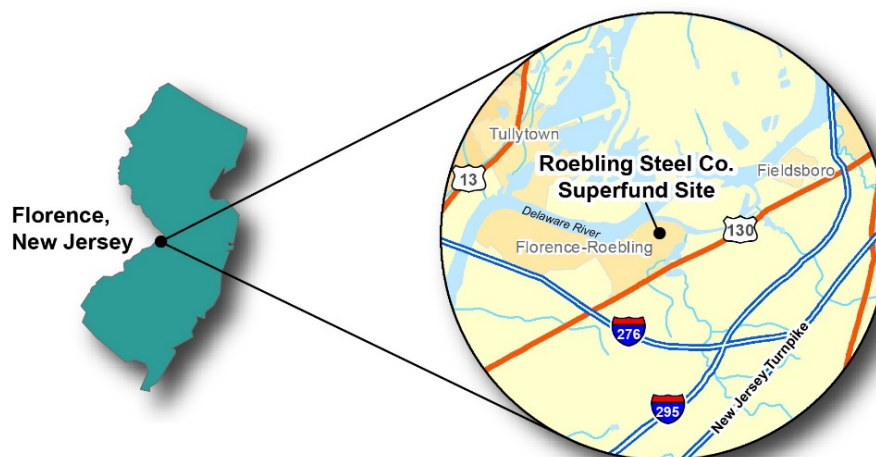


Figure 1. The site’s location in Florence Township, Burlington County, New Jersey.

Introduction

Site restoration and reuse can revitalize a local economy with jobs, new businesses, tax revenues and spending. Cleanup may also take place while there are active land uses on site. This case study captures the beneficial effects of redevelopment at the Roebing Steel Company site.

The 200-acre area is located primarily in Florence Township in Burlington County, New Jersey. A small part of the eastern end of the site is located in Mansfield Township in Burlington County. The village of Roebing borders the site to the west and southwest. The Delaware River and forested areas border the site to the north. Crafts Creek borders the area to the east. Residential and industrial areas are located south of the site. The site includes eight property parcels and several buildings, including the Roebing Museum, as well as paved and vacant areas. According to the Census, about 450,000 people live in Burlington County.¹ Over 12,000 people live in Florence Township.²

Site History

In 1904, the John A. Roebing's Sons Company expanded its Trenton-based steel manufacturing operations and purchased the site property. For nearly five decades, the company made steel and wire products on site. In 1952, the Colorado Fuel and Iron Steel Corporation (CF&I) purchased the plant. CF&I continued facility operations until 1974, when Crane Company, the major stockholder in the company, decided to close the facility due to declining profits. Following the plant's shutdown, the facility changed ownership several times. Steel production continued. In November 1981, the John A. Roebing Steel Corporation (JARSCO), the final site owner, ceased steel production. From then until 1988, a variety of other industrial businesses operated on site. They included a polymer reclamation facility, a storage facility for vinyl products, a warehouse and a construction equipment storage facility.

Steel production generated large amounts of contaminated wastewater, which was partially treated and then discharged to the Delaware River and Crafts Creek. Plant operators cleaned steel wire with hydrochloric and sulfuric acids, and dumped tubs of spent acid into the sewer system. Steel production also generated large amounts of slag material, which plant operators disposed of along the Delaware River. The companies disposed of spent refractory brick, baghouse dust, well scale, furnace scale and decommissioned process equipment in an on-site landfill. These facility operations and waste disposal practices led to contamination of site soil, sediment and groundwater.

During the last 25 years of steel production, the facility received many notices of environmental non-compliance from several regulatory agencies, including the New Jersey Department of Health (NJDOH) and NJDEP. Site companies complied with several of these notices, and built a wastewater treatment plant in 1972. In 1980, NJDEP indicated that the site was one of the 38 most hazardous waste sites in New Jersey. EPA listed the site on the Superfund program's National Priorities List (NPL) in September 1983.

¹ <http://www.census.gov/quickfacts/table/AGE275210/34005>.

² http://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml?src=bkmk.

Historical Site Photographs



Pre-Stressing Shop



Main Gate House



Slag Ladle



Steel Mill



Take-Up Machinery



Wire Mill Number 2

Site Cleanup

In May 1985, EPA started the site's remedial investigation and feasibility study (RI/FS) to determine the nature and extent of the contamination. EPA also fenced the area, posted warning signs, put security measures in place and stabilized the area. Removal actions in 1987 and 1988 removed picric acid and other explosive chemicals from an on-site laboratory, and removed lab pack containers, acid tanks, compressed gas cylinders and drums containing corrosive and toxic materials.

EPA continued field investigations from 1985 to 1998. They found that on-site buildings contained hazardous liquid and solid wastes, process dust, and exposed asbestos. Investigations also determined that steel production activities had contaminated soil and groundwater with metals, and river and creek sediments with metals and polycyclic aromatic hydrocarbons. Based on these findings, EPA divided the site into five areas, or operable units (OUs), to manage the cleanup. EPA selected cleanup plans to address the contamination in four Records of Decision (RODs). The sections below describe the cleanup of each of the site's five OUs.



Figure 2. Aerial views of the site, before cleanup (*left, dated 1991*) and after cleanup (*right, dated 2009*).

OU1

EPA designated the removal of drums, transformers, tanks, baghouse dust, chemical piles, tires and contaminated park soil from the Northwest Park (Roebing Park) as OU1. Northwest Park is located north of Riverside Avenue (Figure 4). The cleanup removed 263 over-packed drums and 663 crushed drums, 45,864 gallons of transformer oil and 860,709 pounds of transformer carcasses, 266,843 gallons of tank liquids and 1,351 tons of tank sludge, 800 tons of baghouse dust, 251 tons of chemical piles and asbestos, 126 tons of burnt tires, and 261 tons of recyclable tires. It also included the removal of 640 cubic yards of contaminated soil. EPA completed the cleanup of OU1 between September 1990 and September 1992.

OU2

EPA designated the Southeast Park part of the site as OU2. Southeast Park is located along the site's southern edge. Cleanup included the removal of contaminated soil, regrading and covering of the area with clean soil, and revegetation. EPA completed the OU2 cleanup between September 1994 and March 1995.

OU3

EPA designated the former slag area – the long western leg of the site that runs along the Delaware River – as OU3. Cleanup included capping and revegetation of the entire slag area, shoreline stabilization, storm water management, long-term monitoring and institutional controls. EPA completed the cleanup of OU3 between January 2006 and December 2014.

OU4

OU4 addressed the cleanup of all on-site buildings, the restoration of the Main Gate House and other historic preservation measures. EPA completed cleanup of the buildings and sources of contamination in May 2011. Activities included the demolition of 67 buildings, asbestos removal, building decontamination, and removal of underground chemical lines, underground storm sewer piping and oil-contaminated soil. Restoration of the Main Gate House took place between December 2005 and June 2009, in compliance with the National Historic Preservation Act. Cleanup included rehabilitation of exterior structures, demolition of non-historic buildings, rehabilitation of the interior of the Main Gate House, and capping of 7 acres of contaminated soil around the Main Gate House. Historic machinery and equipment left on site will eventually become part of the museum, in a new building next to the Main Gate House. Institutional controls will be implemented that limit future uses of remaining historic buildings once all remedial actions are fully implemented.



Figure 3. Dredging activities during OU5 cleanup.

OU5

OU5 includes site-wide soil, groundwater, and sediments in the Delaware River and Crafts Creek. EPA completed sediment dredging and wetland restoration in June 2013. EPA has capped two areas of contaminated soil – 5 acres of soil now covered by a New Jersey Transit River LINE station in June 2005 (Figure 4) and 6 acres of soil at the far eastern end of the site in March 2012. EPA also stabilized 1,300 feet of shoreline and restored habitat areas at the far eastern end of the site. Upcoming design efforts will include capping remaining soil areas of the OU and monitored natural attenuation of groundwater. Institutional controls will be implemented that prevent disturbances to the soil cap, limit future land uses and restrict contaminated groundwater use once all remedial actions are fully implemented. A deed notice is already in place at the New Jersey Transit River LINE station that prevents any disturbance of site soils.

Redevelopment and Site Reuse Initiatives

Following the completion of most cleanup activities, large parts of the site are now in reuse. Several agreements and grants have made this possible. Pilot funding from EPA's Superfund Redevelopment Initiative and a Cooperative Agreement with Burlington County led to a reuse assessment that identified community needs and priorities. The community's redevelopment plans focused on highlighting the steel mill's historic significance, creating open space areas, and identifying areas for possible commercial and industrial development. These collaborative plans led to three different redevelopment projects. The section below describes the beneficial effects of each of these projects.



Figure 4. Roebing Steel Company Superfund site and the three redevelopment initiatives.

Beneficial Effects

The Roebing Museum

In 1995, with cleanup underway, the Roebing Historical Society met to discuss ways to preserve the historical significance of the former Roebing Steel Mill. The group decided to approach EPA about creating a museum in the Main Gate House. Over the next year, EPA, Florence Township and the New Jersey Historic Preservation Office worked with the Roebing Historical Society to evaluate museum options as well as other historic preservation measures. Integrating remedy and reuse, EPA's cleanup plans for the Main Gate House and other historic artifacts were able to address historic preservation, restoration and conservation.

EPA, the Roebing Historical Society and Florence Township continued to work together during the planning and design process for the museum. The New Jersey Historic Preservation Office ensured compliance with the National Historic Preservation Act. In March 2005, EPA completed cleanup designs for the Main Gate House and surrounding 7 acres. Cleanup began in February 2006 and involved three phases.



Figure 5. Front entrance to the Roebing Museum, where thousands of steel mill workers passed through every day.

Phase one involved demolition of non-historic buildings and rehabilitation of the exterior of the Main Gate House to create a weather-tight building. It also included the removal and restoration of historic artifacts from buildings prior to demolition for later display in the museum. Phase two involved rehabilitation of the interior of the gate house so that it could support a functioning museum. Phase three consisted of capping the 7 acres of land around the Main Gate House with two feet of soil, sidewalks and a parking area. EPA completed these activities and officially opened the museum in June 2009.



Figure 6. Historic craneway, slag ladle and charging bucket.

The Roebling Museum is now a 7,000-square-foot facility located at 100 2nd Avenue in the village of Roebling. Situated in the Roebling Steel Company's former Main Gate House, the museum documents the engineering accomplishments of John A. Roebling, the wire rope industry he founded and the company town of Roebling. Thousands of workers passed through the Main Gate House on their way to the steel mill each day. It was a hub of company activity, and included payroll offices, time clocks, storage rooms, interview rooms, a jailhouse, phone operations, an infirmary and an ambulance house.

The Roebling Museum currently offers a variety of education programs and public events, including the annual Roebling Museum Car Show, Christmas in Roebling and various lectures. Programs include a summer engineering camp, town tours, school programs and internship opportunities. A team of 35 volunteers help make the museum's programs and events possible. This on-site organization is a valuable community asset and also helps to bolster the local economy. The museum generates about \$150,000 in estimated annual sales. In 2015, over 5,000 people visited the museum.



Figure 7. Exhibit at the museum displaying the final product of the mill.

Roebling Commuter Light-Rail Station

In 1997, Burlington County, the New Jersey Department of Transportation and the Delaware Valley Regional Planning Commission were working together to develop a revitalization plan for areas near Route 130 and the Delaware River. Extending light-rail passenger service nearby was a priority. The plan identified Roebling as a key area for the extension of light-rail service. The rail-line extension would serve the community and its steadily growing population.

In 1999, New Jersey Transit acquired the Bordentown Secondary Railroad Line, with plans to add a new light-rail passenger and commuter line to the existing freight line. New Jersey Transit and the Burlington County Redevelopment Department approached EPA and Florence Township in August 1998 about building a station on part of the Roebling Steel Company site. Florence Township agreed to lease part of the site's southern area to New Jersey Transit. To help address potential liability concerns regarding site contamination, EPA and New Jersey Transit signed a prospective purchaser agreement, or PPA. It stated that New Jersey Transit was not responsible for contamination at the site and could not be sued. For its part, New Jersey Transit agreed to conduct due diligence activities and pay for all cleanup activities related to the construction of the station.

In September 2003, New Jersey Transit began cleanup and construction activities. Cleanup included capping of soil near the station, implementation of storm water and soil erosion controls, and installation of perimeter fencing. Construction of the light-rail station and associated parking areas finished in 2005. The project provided the community with convenient access to New Jersey Transit's River LINE.

This commuter light-rail line has 21 stations, covers 34 miles, and connects Trenton and Camden, New Jersey.³ In 2014, the River LINE provided nearly 2.9 million passenger trips, with an average daily ridership of 9,014 people on weekdays, 5,922 people on Saturdays and 4,708 people on Sundays.⁴ For many daily riders, the primary destination is somewhere other than Trenton or Camden; the River LINE connects riders with the PATCO high-speed line service in Camden and Northeast



Figure 8. Roebling commuter light-rail station entrance.



Figure 9. The Roebling commuter light-rail station platform.

Why Reduce Vehicle Miles Traveled (VMT)?⁵

Reducing the number of VMT can have many regional benefits. Some of those benefits include:

- Savings on fuel and vehicle maintenance costs.
- Reduction in time lost from traffic delays.
- Reduction in number of highway fatalities and injuries.
- Improvements in air quality.
- Reduction in greenhouse gas emissions, especially carbon dioxide.
- Gains in quality of life from reduced traffic noise and driving stress.
- Savings on costs of vehicle ownership.

³ New Jersey State Rail Plan. April 2015. <http://www.njtransit.com/pdf/NJStateRailPlan.pdf>.

⁴ NJ Transit Facts at a Glance. Fiscal Year 2015. <http://www.njtransit.com/pdf/FactsAtaGlance.pdf>.

⁵ Analysis of Potential Greenhouse Gas Emission Reductions and Costs of Supporting Recommendations and Related Actions for New Jersey. November 2009. http://www.nj.gov/dep/sage/docs/njgrwa_final_report_appendix_5_Dec2009.pdf.

*Did You Know?*⁶

- The average New Jersey driver loses \$1,951 annually as a result of driving on deficient roads.
- 589 people were killed annually in New Jersey traffic crashes from 2008 to 2012.
- Thirty-five percent of New Jersey's major roads are in poor condition, providing motorists with a rough ride.
- VMT in New Jersey increased by 26 percent from 1990 to 2012.
- By 2030, vehicle traffic is expected to increase by another 15 percent.
- Commuters using the Roebling Station reduce VMT by approximately 1,213 miles per work day.



Figure 10. One of the commuter rail cars on the RIVER line.

Corridor trains in Trenton. Riders can thus easily access New Brunswick, Newark, New York, Philadelphia, Boston, Washington D.C. and Pittsburgh, as well as other smaller cities. Increased rail ridership at the site, as well as along the River LINE, reduces the number of cars on the road, resulting in lower greenhouse gas emissions, reduced (VMT) and an overall smaller environmental footprint for the community.

Roebling Park Extension

During remedy selection for the former slag area on site, EPA received feedback from area residents indicating a strong need for public access to the waterfront. The former slag dumping area had been fenced off for many years. EPA incorporated the community's feedback as part of the cleanup plan for OU3, which included connecting the area to Roebling Park, which is located immediately south of the former slag area. Original design plans called swale areas throughout OU3. To facilitate the area's use for recreation, EPA revised the grading and drainage plans so that the ground surface would be better suited for passive recreational uses.



Figure 11. Newly-added paved trails at Roebling Park.



Figure 12. The park extension and ample green space, with the Delaware River in the background.

⁶ New Jersey Transportation by the Numbers: Meeting the State's Need for Safe and Efficient Mobility. January 2015. http://www.tripnet.org/docs/NJ_Transportation_by_the_Numbers_TRIP_Report_Jan_2015.pdf.

Florence Township opened the park extension to the public in 2014. The extension adds 34 acres of green space to Roebing Park and runs from Second Avenue to Tenth Avenue along Riverside Avenue. The area provides views of the Delaware River and the village of Roebing. Recently added features include upgraded playgrounds and basketball courts at Roebing Park as well as paved pathways across the entire area, allowing residents and visitors to enjoy walks along the Delaware River and in the park. The added green space also provides plenty of space for sports and other recreation activities.

Benefits of Green Space at Superfund Sites

Open green spaces at Superfund sites can be used to support a wide range of reuse activities including recreational, ecological and agricultural use. Careful planning can enable the integration of green spaces into site cleanup plans, resulting in the transformation of contaminated properties into valuable community assets. Green spaces are integral components of sustainable communities – they can help protect the environment and human health while providing other social and economic benefits. Parks, community gardens and other public green spaces create opportunities for people to gather, exercise and connect with nature. The creation of green spaces at once-contaminated properties can serve to re-introduce ecosystems and biodiversity into urban and suburban landscapes by providing corridors for migrating species and preserving habitat. They can also help mitigate stormwater runoff problems by slowly absorbing and naturally filtering stormwater, resulting in improved water quality due to decreased runoff and erosion. Parks, natural areas and scenic landscapes also have great economic value - supporting regional economies through tourism, agriculture and other activities. Economic impacts of recreational activities can include outdoor recreation spending and reduced public costs related to healthcare and infrastructure. Protected green space can also increase the property values of nearby homes by providing amenities that draw people to live and work in the community. To learn more, see EPA's Green Infrastructure: Thinking Regionally website at <https://www.epa.gov/superfund-redevelopment-initiative/green-infrastructure-thinking-regionally> and EPA's Smart Growth website at <https://www.epa.gov/smartgrowth>.

Property Values

Florence Township owns the tax-exempt properties that make up most of the site's land area. In 2015, the Township's property was valued at nearly \$5.8 million. John A. Roebing Steel Corp. owns a small piece of site property, located at the eastern tip of the site. In 2015, that property was valued at \$100. PSEG Services Corp. also owns a small piece of site property at the eastern end of the site. In 2015, that property was valued at \$10,000. The Roebing Museum also helps to generate tax revenues through the collection of sales taxes, which support state and local governments.⁷

⁷ The combined sales tax rate in Burlington County is 7 percent. This includes sales tax rates for the state, county and city. For more information, see the State of New Jersey Treasury Department's website: <http://www.state.nj.us/treasury/taxation/salestax.shtml>.

Future Site Use

The Roebling Museum is planning to expand its facilities. The museum's Millyard Development Plan – which explores opportunities for the 7-acre millyard surrounding the museum – calls for walking paths and education areas demonstrating the scrap steel to bridge wire process. The areas will highlight large industrial artifacts as well as the thousands of steel workers who made daily operations possible, in recognition of their contributions to the community's history.

Looking forward, parts of the site remain vacant; these areas could host commercial or industrial development in the future. EPA will continue to work with stakeholders to support protective reuses and continued uses, and ensure the long-term stewardship of the remedy.

Conclusion

Collaboration and cooperation among EPA, NJDEP, Florence Township, New Jersey Transit and the community has been instrumental to the successful cleanup and reuse of the Roebling Steel Company Superfund site. EPA's carefully designed cleanup protects public health and the environment and supports the beneficial reuse of the site. These reuses provide recreational, educational and cultural benefits to the community; light-rail service connects commuters and residents with direct access to metropolitan areas up and down the east coast. Today, a remarkable on-site organization – the Roebling Museum – supports the local economy, providing nearly \$54,000 in estimated annual employee income and about \$150,000 in estimated annual sales revenues. On-site properties were valued at nearly \$5.8 million in 2015.

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



www.epa.gov

Reuse and the Benefit to Community Roebing Steel Company Superfund Site

Technical Appendix

Employment Information for On-site Jobs

EPA obtained the data included in this Technical 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. 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. Database data include public records, financials, private company insights, extensive global information, telephone numbers and physical addresses.

The D&B database includes data reported by businesses. Accordingly, some reported values might be underestimates or overestimates.

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. Its mission is to collect, analyze and disseminate essential economic information to support public and private decision-making. 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 Roebing Steel Company 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 Burlington 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 Roebing Steel Company 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. Roebing Steel Company Superfund Site: Information for On-Site Organizations and Businesses

On-site Business	NAICS Code ^a	NAICS Title	Number of Employees ^b	Average Weekly Wage (2014) ^c	Annual Wage (Mean Annual) per Employee	Total Annual Income ^d	Annual Sales (2015) ^b
The Roebing Main Gate Museum, A NJ Nonprofit Corporation	712110	Museums	2	\$519	\$26,988	\$53,976	\$149,380
Total			2			\$53,976	\$149,380

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

^b Data are from the D&B database.

^c Average weekly wage per employee based on BLS 2014 Average Weekly Wage data.

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

Property Values and Local Tax Revenue Generated from Property Taxes

EPA obtained data on the most recently assessed values for property parcels at the Roebing Steel Company Superfund site in January 2016 through property records accessible through Burlington County’s online property appraisal database (http://tax1.co.monmouth.nj.us/cgi-bin/prc6.cgi?menu=index&ms_user=monm&passwd=data&district=1301&mode=11) and through the Florence Township and Mansfield Township Tax Collector’s Offices. EPA also obtained 2015 property tax information for the site parcels.

Table 2. Property Value and Tax Summary for Taxes Payable in 2015

Parcel ID No.	Parcel Address	Total Market Value of Land and Improvements (2015)	Total Property Tax (2015)
0315-139-1	Hornberger & Second Ave.	\$5,172,600	Exempt
0315-139-1.01	Hornberger & Second Ave.		
0315-139-3	Hornberger & Second Ave.		
0315-126.01-2	Hornberger Ave. at RR	\$587,500	Exempt
0315-126.01-2.01	Hornberger Ave. at RR		
0318-69-5.01 ^a	Route 130	\$10,000	\$309
0318-69-5.02	Route 130	\$100	\$3
0318-69-5.03	Route 130		
		\$5,770,200	\$312

^a For tax purposes, Mansfield Township lists a combined property value and 2015 tax value for onsite parcel 0318-69-5.01 (7.8 acres) that includes off-site parcel 0318-69-4 (1.7 acres). According to the Mansfield Township Tax Collector’s Office, it is not possible to obtain property value and tax

information for only the onsite parcel (0318-69-5.01). As most of the combined parcel property is located within the site boundary, the entire property value and 2015 tax value have been included in this case study for parcel 0318-69-5.01.

Vehicle Miles Traveled (VMT) Calculation

EPA estimated the Roebbling Station daily reduction of VMT through multiplying half of the number of parking spots at the Roebbling Station parking lot (105.5) by the number of miles to the closest station (Trenton Station) that Roebbling Station riders most likely would have taken before the addition of the RIVER line (11.5 miles). Thus, 105.5 was multiplied by 11.5, resulting in 1,213.3 reduced VMT every work day due to the addition of the RIVER line. EPA estimated the number of parking spots and the number of miles from the Roebbling Station to the Trenton Station using Google Maps. This is an estimate and doesn't take into consideration all of the potential riders and scenarios that may result in additional reductions in VMT.