

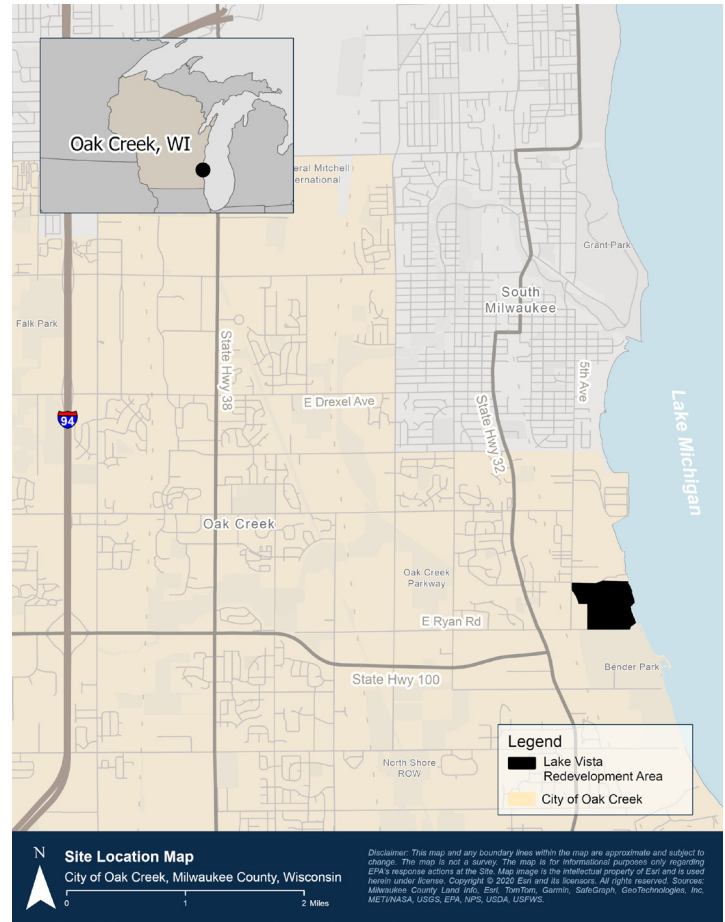
Introduction

During the First World War and the Great Depression, research and production activities at a chemical manufacturing facility in the Midwest supported wartime and household industries. Today, after cleanup, the Lake Vista Redevelopment (also known as the former Boerke site) is known for its family park, walking trails, scenic lakefront viewing area and sought-after residential properties.

The 98-acre area is in the city of Oak Creek in Milwaukee County, Wisconsin. It is about 15 miles south of Milwaukee and close to Interstate 94. The site extends along the shores of Lake Michigan, just north of Bender Park, a popular lakefront beach and boat launch with hiking trails. Oak Creek is one of the fastest-growing cities in Wisconsin.

Decades ago, chemical manufacturing activities resulted in disposal of arsenic-containing waste in wetlands and soil along the lakefront. After 30 years of investigations and cleanup, the reuse of the area is underway. Supported by partnerships with the EPA, the Wisconsin Department of Natural Resources, and potentially responsible parties DuPont de Nemours, Inc. (DuPont) and EPEC Polymers, Inc. (EPEC), property ownership transferred to the city of Oak Creek (the City) in 2014. The WDNR’s Voluntary Party Liability Exemption program helped make reuse possible. The City prioritized redevelopment, investing millions and benefitting from an initial investment of \$800,000 and seed money from the Wisconsin Energy Corporation. These efforts have been part of Lake Vista, a larger redevelopment initiative led by the city along the lakeshore. Today, Lakeshore Commons, 35 acres of homes, apartments and townhouses is on-site. Other site uses include Lake Vista Park, a bluff-top viewing area, and a path linking the area with hiking trails at Milwaukee County’s Bender Park.

This case study explores the tools and partnerships that have led to successful cleanup and mixed-use redevelopment at the site. The following pages trace the evolution of cleanup and reuse efforts, highlighting the community’s leadership, engagement of local stakeholders, and coordination of remedy and reuse considerations. The case study provides information for parties interested in public-private partnerships, comprehensive cleanup approaches to address cumulative risks and local partnerships to facilitate outreach and education of community members to support redevelopment efforts at Superfund sites and other contaminated lands.



The former DuPont and EPEC properties are located on the shores of Lake Michigan, 13 miles south of Milwaukee.

“The lakefront was going to be put behind a fence and locked up. That did not match the vision we had for our community. Our priority was to open Lake Michigan to the public and enjoy this great natural resource.”

– Larry Haskin, Former City Attorney,
City of Oak Creek



View of Lake Vista Park and apartment buildings at the former EPEC and DuPont properties.

Land Use Context

The Lake Vista development comprises two properties: DuPont's former chemical manufacturing facility and EPEC's neighboring property where chemical waste was stored. The EPEC property was largely undeveloped and had not been used for industrial purposes. Deed restrictions placed in 2007 limited site uses to commercial and industrial uses after cleanup. The local government was concerned that the property would remain vacant and inaccessible. "This was an industrial site with a long history of manufacturing use," noted the EPA's Brad Bradley. "Because the city of Oak Creek had a vision for the future, they were able to rely on that vision to inform the cleanup and guide local planning and priorities." Hoping to improve access to Lake Michigan and revitalize the area, the City initiated discussions with the EPA's Region 5, the WDNR and site PRPs in 2008. Hoping for a win-win outcome, the City planned to acquire the property from the PRPs for redevelopment. DuPont and EPEC were focused on resolving further liability for environmental considerations at the site. They agreed to convey the property to the City at no cost, walking away from the property after cleanup.

With the shared goal of transferring property ownership to the City, the EPA Region 5 and the WDNR provided technical assistance to the former and future owners of the

site. "The City had a lot of support backing this project. They brought redevelopment ideas to the table early, and involved the PRPs, the WDNR and the EPA to bring those ideas to life," said the agency's Sheri Bianchin. The EPA oversaw a Phase I Environmental Site Assessment in 2009, concluding that all contamination on-site had been identified and initial environmental activities were complete. EPEC, DuPont and the City then enrolled the site in the VPLE program. The program addressed future liability concerns and oversaw cleanup and thorough investigations. By the end of the VPLE process in 2014, the WDNR and the former and future property owners felt confident that they had identified and addressed all contaminants at the site.

This case study takes an in-depth look at the efforts that guided the former EPEC and DuPont properties from remedy to reuse.

"Formerly contaminated sites can be restored for safe and beneficial reuse. Here, Lake Vista, is a testament to redevelopment and the EPA's efforts to work with communities for desirable outcomes."

– Tom Bloom, the EPA's Region 5 Superfund
Redevelopment Coordinator

Site History, Contamination and Cleanup

From the early 1910s to 1940, two chemical companies ran a plant on the shores of Lake Michigan. Newport Chemical Company built the plant, a 34-acre facility focused on chemical production and research. During World War I, it produced chemicals, solvents, detergents, intermediates and dyes used in the manufacturing of explosives, medications and textiles. The primary product, phenol, was a chemical used in explosives and the production of aspirin. The manufacturing plant in Oak Creek was the Newport Company's largest facility. The company delivered over 130 tons of phenol per day and employed nearly 700 people. After the war, the company supplied dyes to the textile industry as well as solvents used in household paints.

In 1931, DuPont purchased Newport Chemical Company and the Oak Creek plant. DuPont was well-known for gunpowder production and sought to improve its position in the chemical and dye industry. The facility was well-equipped for vat dye production. DuPont oversaw dye manufacturing at the plant throughout the 1930s.

The property south of the DuPont plant was a 52-acre parcel owned by EPEC. Historically, this area was used for agricultural land and was mostly undeveloped. DuPont's dye production resulted in waste containing arsenic. DuPont disposed of this waste in a wetland and a quarter-acre pit on the EPEC property for a decade before production ended in 1940.

In 1985, DuPont led an investigation of the landfill and surrounding areas on the EPEC property after the discovery of a red icicle on the bluffs over Lake Michigan. The investigation found high levels of arsenic in the soil. The EPA's investigations found the site posed a potential threat to human health and the environment and required cleanup. In 1995, The EPA issued an Action Memorandum for a non-time-critical removal action and recommended the excavation of arsenic-contaminated soil and sediment.

In 1995 and 1999, the EPA entered Administrative Orders of Consent with the property owners. These identified DuPont and EPEC as potentially responsible parties and required that the companies undertake more investigations.

These efforts, which resulted in an engineering evaluation and cost analysis, documented contamination in disposal-area soils, sediment, wetland surface water, shallow groundwater and seepage water along Lake Michigan. The investigations determined the extent of contamination on-site and helped inform the remedial design.

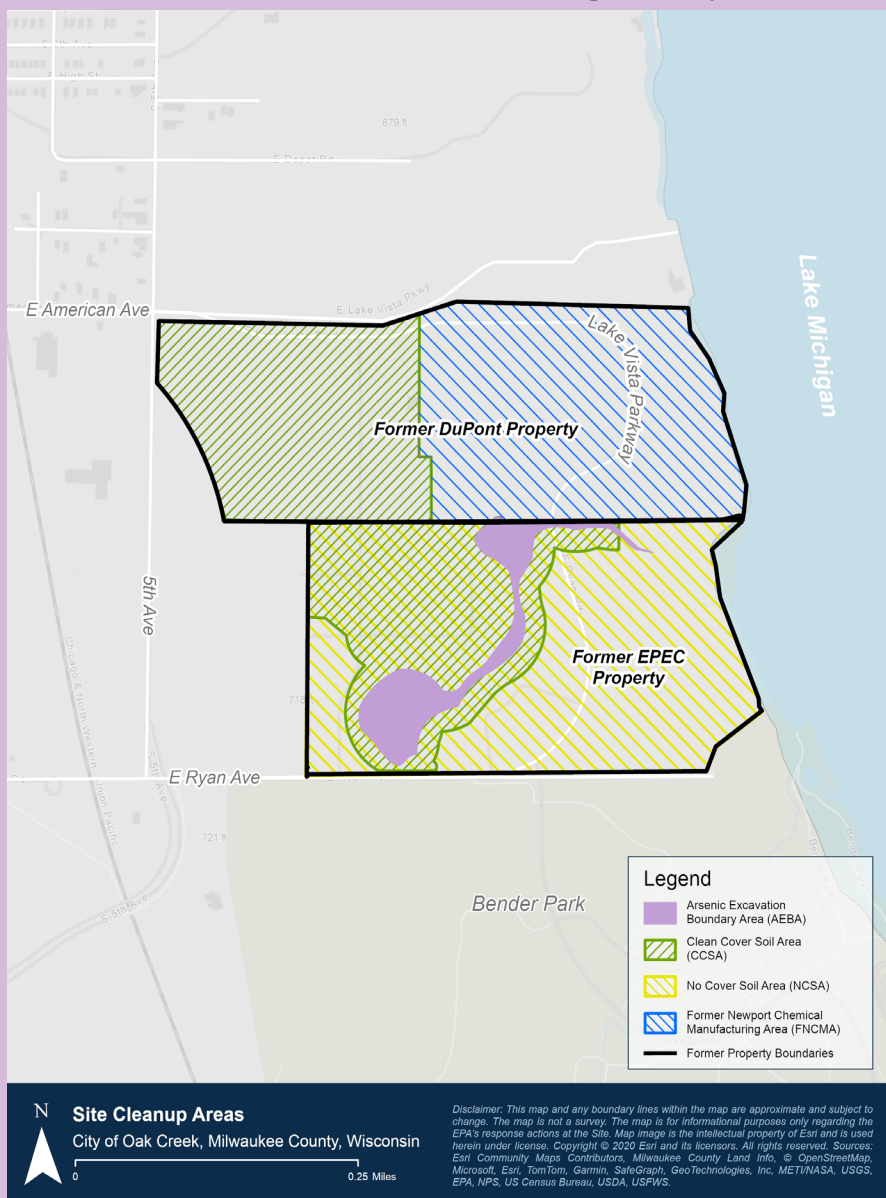
The EPA oversaw cleanup from September 2003 to January 2004. Cleanup included the excavation and off-site disposal of 20,400 tons of hazardous material and 35,400 tons of special waste and the covering of remaining contaminants with a clean soil barrier. These initial cleanup efforts were successful and considered protective, limiting the risk of exposure to contamination. From 2004 to 2007, EPEC oversaw groundwater monitoring, which found that contaminated soils were not leaching to groundwater. Deed restrictions put in place in 2007 restricted site uses to commercial and industrial uses. In 2009, the state took over primary responsibility for remaining site activities.



Past industrial facilities at the site. (Source: City of Oak Creek)

The city of Oak Creek worked with EPEC and DuPont throughout the cleanup process and began planning for reuse. The PRPs prioritized meeting and wrapping up their cleanup obligations, working closely with the City, the EPA, the WDNR and each other. The community's vision of opening the lakefront to public access and redeveloping the formerly contaminated properties guided the final stages of cleanup. Since the deed restrictions in place did not align with the City's goals, they worked with the WDNR on a higher cleanup level to make mixed-use redevelopment possible. The WDNR established a stricter cleanup level for site soils in 2011 and entered the properties into its VPLE program. The PRPs agreed to oversee cleanup to meet the new standard, working with the WDNR as voluntary parties so that the City would take ownership of the properties and release the PRPs from any future liability issues.

In 2012, WDNR approved the Final Remedial Action Plan for in-place stabilization and a clean cover soil cap for remaining arsenic in soil. In 2014, after these cleanup actions, The WDNR determined that all investigation and restoration activities were complete and granted a Certificate of Completion under the VPLE program. The City then acquired the property, taking a major step in its long-planned efforts to make the redevelopment of the community's lakeshore area a reality. The map below illustrates the properties where site investigations and cleanup activities have taken place. Today, these areas are the heart of the Lake Vista Redevelopment Project.



Project History

Early Cleanup, Restoring Areas for Commercial and Industrial Reuse

1995 to 2007

Initial cleanup efforts at the site were compatible with commercial and industrial uses, in line with the area's past uses. The EPA's Brad Bradley noted that "the first remedial action at the former EPEC and DuPont properties were successful. The remedy was protective and the site was available for industrial reuse." Site PRP DuPont led an initial investigation of the property in 1985 and remained involved at the site until 2014. Site PRP EPEC funded investigations and cleanup efforts from 1998 to 2014. The EPA and the WDNR oversaw cleanup efforts of both PRPs.

In July 2000, EPEC proposed stabilizing impacted soils and taking them off-site for disposal. In September, the EPA published the Proposed Plan for the cleanup. The cleanup approach mitigated the risk of direct exposure to any contaminated soil remaining at the site and was compatible with commercial and industrial uses. After a public comment period, cleanup started in September 2003. By January 2004, about 20,400 tons of hazardous material and 35,400 tons of special waste had been removed from the site. Excavated areas were filled with clean soil and returned to their original grades. The thickness of the soil barrier varied from 1 foot to 10 feet across the site.

The former DuPont factory and adjacent EPEC property were in an area of Oak Creek once known as Carrollville. It was a manufacturing stronghold in the Midwest where factories employed area residents, spurring population growth in the twentieth century. However, as America's industrial economy declined, facilities in Carrollville steadily closed, alongside hundreds of other factories across the Rust Belt. Looking forward, it was unlikely that industry would return to the area, despite the remedy's compatibility with manufacturing facilities. The area would likely remain vacant for years to come.

Historical Context: Carrollville


Oak Creek's lakefront hosted industrial facilities from the early 1900s to the 1980s. These included a glue and gelatin plant, DuPont's chemical and dye factory, a fertilizer factory, an aluminum smelter, a distillery, a coal-tar factory and a wood-treating site. The facilities and adjacent neighborhoods were known as Carrollville. With the decline of industry, these operations shut down and businesses left.

The area, soon described as a "ghost town," was at risk of being fenced off and forgotten. The redevelopment of the former DuPont and EPEC properties set the stage for the revitalization of this historic area and the reclamation of the lakefront for public benefit.



A variety of industries and adjacent neighborhoods made up Carrollville, a hub of factories and plants on the lakefront. (Source: City of Oak Creek)

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AN UNUSUAL INDUSTRIAL PROPERTY AT
CARROLLVILLE, WIS.



11 Miles to Milwaukee
75 Miles to Chicago

- **UNLIMITED WATER SUPPLY**—Complete pumping equipment
- **LARGE STEAM CAPACITY**—High and low pressure service, compressed air and refrigeration
- **FLEXIBLE LAYOUT**—Adaptable to varied requirements for present and future
- **ROOM FOR EXPANSION**—Developed area: 65 acres—Undeveloped adjoining area: 159 acres
- **MODERN INDUSTRIAL BUILDINGS**—15 buildings, designed to provide 307,000 sq. ft. floor area
- **LOCATED IN AN ESTABLISHED MANUFACTURING AREA**

A 1944 advertisement for the DuPont property. (Source: Hagley Museum and Library)

Reclaiming the Lakefront for Public Access 2008 to 2014

In 2008, the City set a goal to redevelop the site and restore the larger lakefront area as a public asset. The effort became known as the Lake Vista Redevelopment Project. As a first step, the City reached out to key parties with interests in the area. The City set up meetings in late 2008 to connect with the EPA, the WDNR, EPEC and DuPont. “These stakeholders had a variety of motivations for being involved. Ultimately, we were able to set a common goal that made everyone happy,” city administrator Andrew Vickers recalled. “The responsible parties [EPEC and DuPont] wanted to convey the properties to the City from the beginning. And of course, the EPA and the WDNR needed to be involved to make sure any plans for redevelopment protected human health and the environment. The project wouldn’t have been possible if we didn’t have everyone at the table.”

The responsible parties, DuPont and EPEC, confirmed that they wanted to convey the site property to the City at no cost and eliminate their future liability. The solution was the WDNR’s VPLE program. The program provides liability assurances for investors and property owners, making community redevelopment projects possible. As the stakeholder meetings progressed, the WDNR guided the PRPs and the City through the VPLE program.

With plans to acquire the site underway, the City partnered with the Urban Land Institute in 2009 to work on lakefront redevelopment plans. The ULI’s resulting report, *Reinventing the Lakeview Village Area*, considered 250 acres of former industrial properties in Oak Creek, including the former DuPont and EPEC properties. The report recommended residential uses, street improvements, bluff stabilization and recreation areas as opportunities to revitalize the lakefront. This 250-acre Lakeview Village area became the City’s Lake Vista Redevelopment Project. In addition to highlighting lakefront redevelopment opportunities, the report also identified other areas in the City with reuse potential. For example, it recommended redeveloping an 85-acre area where the Delphi industrial plant had been located as a mixed-use community hub. By 2014, construction of Drexel Town Square was underway. Today, the area hosts a new city hall, a public library and an apartment complex.



Oak Creek residents and visitors enjoy new walking and biking paths that extend along the lakeshore.

Wisconsin’s Voluntary Party Liability Exemption Program

Through the WDNR’s VPLE program, people, businesses and units of government voluntarily conduct environmental investigations and clean up properties. In return, they receive exemptions from future environmental liability for past contamination.

To learn more, visit dnr.wisconsin.gov/topic/Brownfields/vple.html.

“The responsible parties were incredibly generous and willing to work with us to address the contamination left on the property. The VPLE program was a win-win outcome for EPEC, DuPont and the city of Oak Creek.”

– Andrew Vickers, City Administrator,
City of Oak Creek

Oak Creek Wisconsin



The ULI's 2009 report *Reinventing the Lakeview Village Area* guided future use planning for the properties.

In 2009, EPEC, DuPont and the City applied for a Certificate of Closure under the VPLE program. The certificate serves as a permit to begin redevelopment. The WDNR required more background investigations at the site during the VPLE process and determined that a stricter soil cleanup level was required to allow mixed uses at the former DuPont and EPEC properties. Sampling reports identified areas requiring further cleanup.

EPEC submitted the final cleanup plan in 2012 to the WDNR. Working together, DuPont and EPEC oversaw cleanup activities. Previous cleanup activities had resulted in an Arsenic Excavation Boundary Area (see page 4). Remaining soil with arsenic concentrations exceeding cleanup levels was addressed using in-place stabilization; it was then relocated and covered with a final barrier. This area is known as the Clean Cover Soil Area (see page 4). "When it came time for redevelopment, the City had an environmental specialist onboard to keep track of all the complexities," recalled city attorney Melissa Karls. "We monitored the cleanup to make sure the cap stayed intact and the remedy was protected."

Serendipity and Creative Problem Solving

In 2010, the follow-on cleanup efforts required capping areas with 350,000 cubic yards of clean soil. Around the same time, the Wisconsin Department of Transportation was rebuilding the Interstate 94 and 844 Mitchell Interchange. It planned to excavate soil to construct tunnels. Staff from the City, the site's PRPs, the WDNR and the Wisconsin DOT met and worked out a protocol to bring 400,000 cubic yards of excavated soil from the interchange to the site to serve as capping material. This clean soil served as the environmental cap for Lake Vista Park.



Ground-level view of some of the clean soil trucked in from Milwaukee that served as capping material and the foundation for Lake Vista Park. (Source: EPA, 2013)

Navigating Reuse and Liability 2014 – Present

The additional cleanup efforts and stricter soil cleanup levels allowed for broader land use at the formerly contaminated properties and made mixed-use redevelopment possible. The WDNR’s project manager Eric Amadi, who has been involved at the site since 2005, noted that the remedy at the formerly contaminated property was strategically informed by the City’s goals for reuse. “The City was very involved. The remedy was geared to the uses that the City had in mind,” he said. “The result was a property that was quickly ready for reuse after cleanup.” Meeting about a dozen times between 2008 and 2014, the city, EPEC, DuPont, the EPA and the WDNR planned for reuse during the follow-on cleanup. When cleanup concluded in 2014 and it was time for the previous and future owners of the properties to submit a Construction Completion Report to the WDNR, they each included plans for extending Ryan Road across the site and creating a new roadway to access the lakefront (now Lake Vista Parkway). Including this request early on significantly advanced the construction timeline for the road extension and helped set the stage for redevelopment.

In 2014, the WDNR issued a Certificate of Closure, approving construction of the road, setting up a Barrier Maintenance Plan, and outlining closure conditions and continuing obligations. These obligations, sometimes called environmental land use controls or institutional controls, are legal requirements designed to protect public health and the environment from contamination that remains on a property after cleanup. Continuing obligations apply after a property is sold. The new owner receives liability protections when they adhere to the continuing obligations at a property. With the Certificate of Closure in place in Oak Creek, the Lake Vista Development Project could move forward.

EPEC and DuPont conveyed their properties to the City in December 2014. These 98 acres were added to the city’s long-term redevelopment efforts along the shore of Lake Michigan, resulting in a total area of 250 acres. According to Matthew Sullivan, assistant city administrator/engineer for the City, the WDNR’s guidance was key to quick progress after the City assumed ownership of the former DuPont and EPEC properties. “We had the ownership and the soil and barrier maintenance plan,” he said. “We had a cohesive master plan that helped us erase the former property lines while honoring the environmental restrictions.”



Lake Vista Parkway signpost.



The City's redevelopment plan for the 250 acres of former industrial properties along Lake Michigan. (Source: City of Oak Creek)

“Remedy and reuse went hand in hand for the Lake Vista Redevelopment Project. Everything from site investigations to cleanup work proceeded with reuse considerations in mind. This approach allowed the city to acquire the property in 2014 and made it possible for a public park, a pavilion and a roadway to be on-site by 2018.”

– David Hanson, WDNR Remediation and Redevelopment Program Staff

The City had a design team lined up, ready to move forward after the City assumed ownership of the site properties. RINKA+, a Milwaukee-based architecture firm, had worked on the Drexel Town Square project in Oak Creek. RINKA+ designed and helped open a public park and pavilion on the former DuPont property in 2018. With permission in place to extend a road through the property, the City also constructed Lake Vista Parkway, which traverses the site along the lakefront, providing public access to new facilities, including Lake Vista Park, the Larry Haskin Pavilion and a bluff-top viewing area along Lake Michigan.

The City also sought developers who shared their passion for the Lake Vista Redevelopment Project. RINKA+ connected the city with F Street, a Wisconsin-based investment group focused on community-based real estate projects. Together, the group worked on plans for Lakeshore Commons, a housing development overlooking Lake Michigan.

Next, the case study explores the Lake Vista Redevelopment project in more detail.

Timeline of Site Events

| Date | Event |
|----------------|--|
| 1931 | DuPont acquired Newport Chemical Company, including its local plant for dye and chemical manufacturing. |
| 1931 – 1940 | DuPont manufactured dye in Oak Creek and transported and deposited arsenic waste onto a neighboring property owned by EPEC. |
| January 1985 | The EPA's preliminary site assessment found high levels of arsenic in landfill soil. |
| 1985 | Site investigation of the landfill and surrounding areas. The investigation identified arsenic as the primary contaminant of concern. |
| March 1995 | Action Memorandum issued by the EPA for a time-critical removal action at the site. |
| September 1995 | Administrative Order by Consent signed by the EPA and DuPont, requiring that DuPont conduct an engineering evaluation/cost assessment at the site. |

| Date | Event |
|---------------------------------|--|
| December 1996 | EE/CA Report submitted. It proposed on-site containment and capping as the site's remedy. |
| 1997 | Focused investigation of soil and groundwater conditions at the site landfill. |
| December 1998 | Investigation of site areas outside the landfill. |
| August 1999 | The EPA updated the site's AOC, identifying EPEC as a second site PRP and requiring that EPEC conduct a second EE/CA. |
| December 1999 | Supplemental investigation found groundwater was not impacted and arsenic contamination was up to 4 feet deep in the drainage swales. |
| July 2000 | EE/CA Report prepared for the removal action. It recommended off-site stabilization and disposal of impacted soils. |
| September 2000 | The EPA published the site's Proposed Plan for cleanup. It highlighted the remedy recommended in the EE/CA Report. |
| April 2002 | The EPA issued an AOC requiring the excavation and off-site disposal of arsenic-contaminated soil and sediment. |
| May 2003 | Site's Removal Action Work Plan submitted to the EPA. |
| September 2003 –January 2004 | Removal action work took place. |
| 2004 – 2007 | Groundwater monitoring took place. |
| November 2007 | Milwaukee County recorded deed restrictions for the AEBA, restricting site uses to commercial and industrial uses. |
| October 2008 | City of Oak Creek led reuse planning meetings with DuPont, EPEC, the WDNR and the EPA. |
| September 2009 | The Urban Land Institute published an Advisory Services Panel Report and recommendations for reuse at the former manufacturing area. |
| November 2009 – June 2011 | EPEC enrolled the site in Wisconsin's VPLE program. |
| November 2011 | The WDNR established a site-specific naturally occurring arsenic concentration of 10 mg/kg. Sampling reports identified areas requiring further cleanup to meet this standard. |
| June 2012 — July 2012 | EPEC proposed in-situ stabilization and a clean cover soil cap for further cleanup work and started the cleanup. |
| April 2014 | EPEC submitted a Construction Completion Report to the WDNR and requested to extend Ryan Road across the site. |
| October 2014 | The WDNR issued a Final Case Closure with Continuing Obligations to EPEC, approved construction plans for the road, and authorized development on the CCSA and passive recreational use on the AEBA. |
| November 2014 | The WDNR issued the site's Certificate of Completion under the VPLE program. |
| December 2014 | EPEC and DuPont transferred site properties to the City. |
| 2018 | Lake Vista Park and Lake Vista Parkway opened on-site. |
| October 2021 | F Street purchased 34.7 acres of the site. The City agreed to provide up to \$30.1 million to help finance Lakeshore Commons. |
| August 2022 | F Street began Phase I of Lakeshore Commons on-site. |
| Ongoing | Continued reuse and further housing development at the site as part of the Lake Vista Redevelopment Project. |

The Lake Vista Redevelopment Project: The Story in Pictures

Pre-Cleanup—Site in Operation



Historical aerial view of Carrollville and industrial uses at the current Lake Vista property. (Source: City of Oak Creek)

Cleanup—Excavation and Capping



Aerial view of site cleanup, 2013. (Source: EPA)



Aerial image of vegetative regrowth at the site. (Source: EPA)

Redevelopment—Building with Institutional Controls



Aerial view of October 2021 preparations for housing development at the site. (Source: City of Oak Creek)

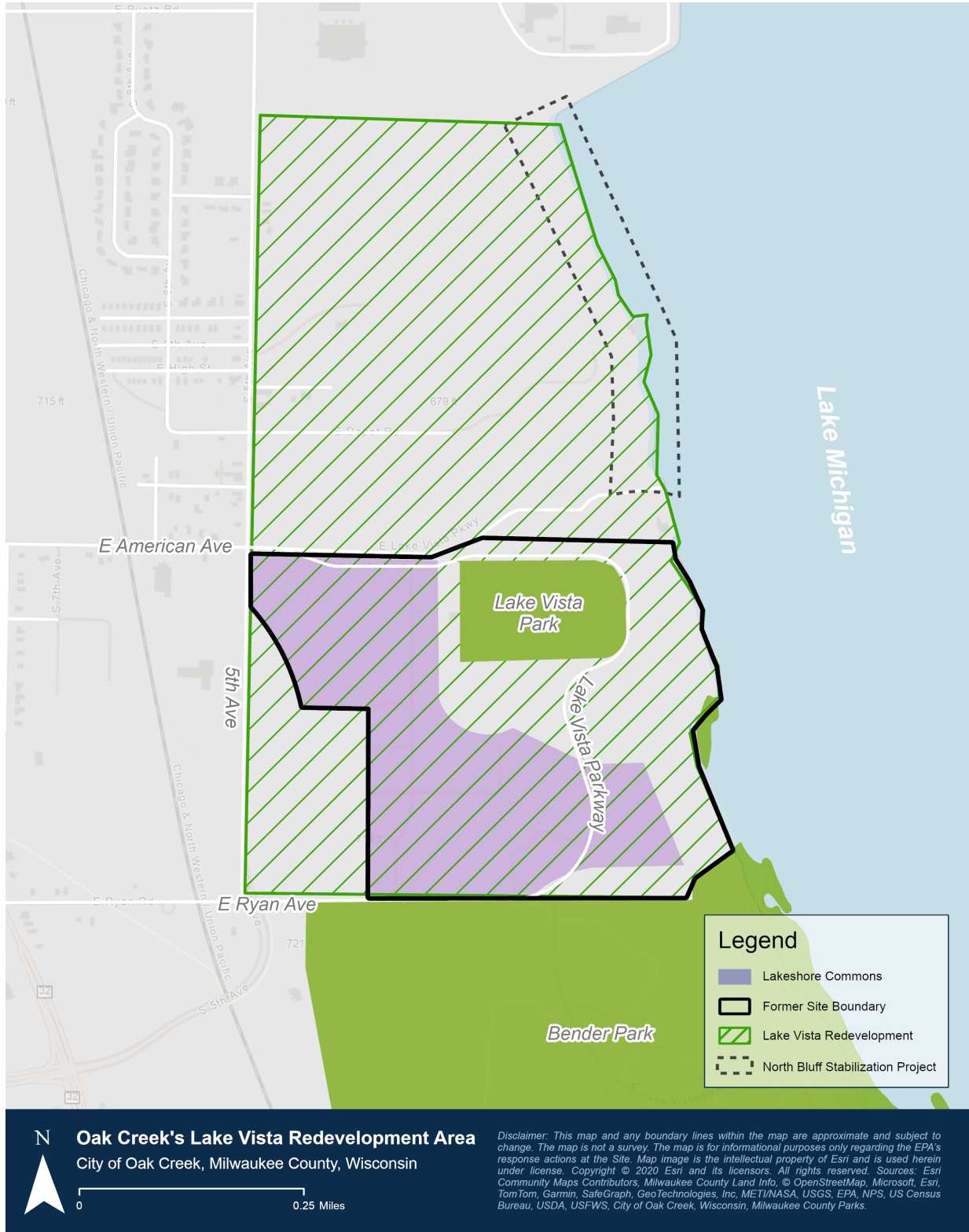
Phased Site Redevelopment



Aerial view of Lakeshore Commons under construction in August 2024. (Source: F Street)

Oak Creek's Lake Vista Redevelopment Project

In total, Oak Creek's 250-acre Lake Vista Redevelopment area includes seven parcels in the former industrial area known as Carrollville (see map below). This section of the case study highlights how the City worked with its partners to bring parks, recreation facilities and housing to the community's lakeshore area.



Lake Vista Park

In 2014, as part of its forward-looking, long-term planning efforts for the area, the City designed infrastructure to open more of the lakefront to the public. In their VPLE applications, EPEC and the City submitted requests to extend a roadway, Lake Vista Parkway, on-site. “This was a great way to open the lakefront to our community,” recalled then-city attorney Larry Haskin. The City pursued redevelopment efforts at the former DuPont property with two goals: to provide public green space and to foster follow-on investment opportunities at the site. The city invested \$7 million and partnered with RINKA+ to design Lake Vista Park and a pavilion, which both opened in August 2018. The pavilion, named in honor of former city attorney Larry Haskin, is available to rent for events on the lakefront. Lake Vista Park, visited by children and families daily, is popular for its soft, rubberized ground and varied play structures.

As hoped, creating this welcoming public green space in Oak Creek then stimulated further economic development in the area.



The playground at Lake Vista Park.



The Larry Haskin Pavilion at Lake Vista Park. (Source: City of Oak Creek)

Bender Park

Visitors can travel along the bluffs overlooking Lake Michigan from Oak Creek’s Lake Vista Park to Milwaukee County’s Bender Park. Bender Park is a largely undeveloped green space to the south. It is known for soaring bluffs, ravines, wetlands, a boat launch and marina, green space and a pavilion for picnicking and accessing Lake Michigan. Prior to the development of Lake Vista Park, Bender Park was the only access to the lakefront for Oak Creek residents.



Bender Park is directly south of the Lake Vista Park. Trails connect the two parks, providing extended waterfront access for recreation.

Lakeshore Commons

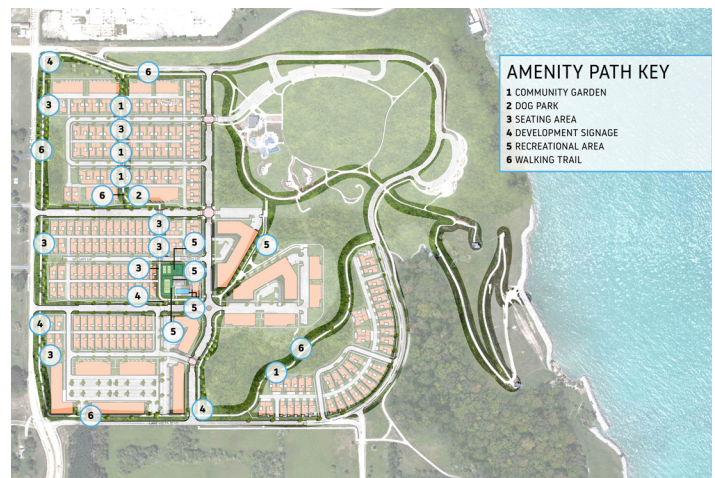
In 2021, F Street entered into an agreement with the City to develop housing on the former EPEC and DuPont properties. F Street purchased parts of the former DuPont and EPEC properties for \$108,900 per acre and the City agreed to invest \$30 million to develop infrastructure to support the housing project. This investment – for roads, sewer and water lines – would be funded by property tax revenue from future site uses. Reassured by the liability protections in place and the City’s determination, F Street pursued its first project located on a formerly contaminated property. “As a developer, you expect to problem solve every day. While we were new to this arena and redevelopment, we were confident that we had a team that was willing to problem solve. That dedication and mindset makes the discussions and solutions possible, and we saw that from the City and the community,” said F Street’s Scott Lurie. The real estate investment group sought third-party support from environmental consultants The Sigma Group, Inc., general contractors ADK, Duffek Construction and Stevens Construction, and design consultants RINKA+.

After RINKA+ designed Lake Vista Park, it joined F Street as their architect partner to design Lakeshore Commons – a community that offers a variety of housing types and recreation amenities as well as the natural beauty of Lake Michigan. Sigma worked with the WDNR and F Street to navigate the area’s institutional controls. The amenities that attract homebuyers and apartment dwellers to Lakeshore Commons are the project’s solution to managing use limitations. For recreation, homeowners visit the development’s Community Backyard, where they can access a clubhouse, patio space, barbecues, a swimming pool, a playground, and pickleball, basketball and tennis courts. Single- and multi-family homes come with above-ground planters so that homeowners can have gardens while maintaining the integrity of the soil cap on-site.

In line with the site’s continuing obligations, the WDNR reviewed all redevelopment plans. Construction began in August 2022 and development is planned in two phases. The first, ongoing phase of development is focused on the former DuPont and EPEC properties. As of October 2024, F Street has completed 406 units and a clubhouse. The second phase will expand the housing community onto a neighboring property owned by the Boerke Family Trust. At full buildout, Lakeshore Commons will host between 650 and 800 units of single- and multi-family homes, apartments and townhouses.

“Oak Creek’s vision for this property was the driver for this entire project. From the cleanup to the park to our housing development, the city’s determination at every step made us confident that this development couldn’t fail. The community wanted its lakefront back and they have accomplished that 10-fold.”

– Scott Lurie, President of F Street



Development plans and amenities at Lakeshore Commons. (Source: City of Oak Creek)



Townhouses under construction in June 2024 at Lakeshore Commons.



Lakeshore Commons offers an amenity-rich housing option in Oak Creek. Images from top left: single-family homes on East Lake Vista Boulevard, an aerial view of completed apartment buildings, the Lakeshore Commons Community Backyard amenities, and a row of townhouses along Lake Vista Parkway. (Source: F Street)

North Bluff Stabilization Project

The City continues to invest in the lakefront. On the north end of the former DuPont property, extending onto other former industrial sites that made up Carrollville, the City announced plans to create another public green space along Lake Michigan. The North Bluff Stabilization Project is a response to the consistent erosion of the shoreline in the area. The City and partners Edgewater Resources, the WDNR and the U.S. Army Corps of Engineers are working together to stabilize 3,500 feet of shoreline. Once stabilization efforts are complete, the City will open a public park that will provide recreation opportunities and further benefit property values in the area. The City sought public comments in 2022 and 2023 to inform redevelopment goals for the North Bluff.



Aerial view of the North Bluff Stabilization Project. (Source: F Street)



View from the Lake Michigan North Bluff viewing area at Lake Vista Park.

The EPA's Superfund Redevelopment Program

The EPA's Superfund Redevelopment Program helps communities affected by Superfund sites return land to safe and beneficial use. The EPA works nationwide, helping people realize the redevelopment potential of Superfund sites, transforming formerly contaminated lands into valuable community resources. Thinking about reuse from start to finish of the Superfund cleanup process makes sure future uses will be safe and compatible with site remedies. It also helps remove barriers that have kept areas vacant or underused for decades. Sites across the country are home to a wide variety of uses. The revitalization of places affected by contaminated lands is a key part of Superfund's mission, meeting community needs for thriving economies and improved environmental and public health outcomes.

The EPA's Superfund Redevelopment Program supports Redevelopment Coordinators in each of the EPA's 10 regional offices nationwide. These coordinators provide information to interested parties, including communities, about Superfund cleanup and reuse, and connect them with reuse tools and resources.

For more information, please visit www.epa.gov/superfund-redevelopment.



The EPA's Superfund Redevelopment Program has Redevelopment Coordinators responsible for a specific geographic area including tribes, states and territories.

Redevelopment Coordinators are available to provide information about Superfund cleanup and reuse and connect communities and other stakeholders with tools and resources for redevelopment.

Lessons Learned

“We had no prior experience redeveloping formerly contaminated properties. When these properties are cleaned up, they’re often cleaner than a lot of other areas. Developers should stop and take a look; there is significant capital available to help make redevelopment possible. In Oak Creek, we have been able to provide luxury housing on the shores of Lake Michigan.”

– Mike Doney, Chief Operating Officer, F Street

Participants agree that a combination of significant factors has contributed to the success of the Lake Vista Development Project.

- Motivated PRPs went above and beyond to earn liability protections and prepare the property for the City’s plans for reuse.
- A highly engaged local government with a broader view of lakefront revitalization and a willingness to dedicate available resources guided the project with a long-term focus.
- F Street and RINKA+ were motivated development partners who shared expertise and tackled project challenges as well as opportunities.
- Reuse considerations were integrated throughout remedy design and cleanup.
- The site’s size, varied topography, and proximity to downtown Oak Creek and the lakeshore made it attractive for private-sector redevelopment as well as public uses.
- The EPA and the WDNR were engaged partners with thorough knowledge of the site’s history and cleanup, and they worked closely with the PRPs, the City and F Street to support community reuse goals in the context of the site’s cleanup.
- All parties involved were patient and flexible, recognizing that the site’s mixed-use redevelopment was a complex process reliant on available incentives, multiple parties, market conditions and other factors.



Aerial view of Lakeshore Commons. (Source: F Street)



Mixed uses at the former DuPont and EPEC properties include a park, pavilion, apartment buildings, and single- and multi-family homes and townhouses.

The EPA and Reuse: Lessons Learned

Since the inception of the Superfund program, the EPA has been building on its expertise in conducting site characterization and remediation to ensure that contamination is not a barrier to the reuse of property. Today, consideration of future use is an integral part of the EPA's cleanup programs from initial site investigations and remedy selection through to the design, implementation, and operation and maintenance of a site's remedy.

Throughout the cleanup process in Oak Creek, remedial activities have been undertaken with an eye toward facilitating the reuse of the area. The goal to transfer property ownership to the City drove decisions to access and earn VPLE status at the site. Local government involved the Urban Land Institute early in the planning process and identified potential future uses to help inform remedial and development opportunities, including park space and housing.

The EPA works with site stakeholders to consider how future land use considerations can inform the implementation and long-term stewardship of site remedies as well as cleanup planning. At some sites, for example, reuse considerations can inform the future location of groundwater monitoring wells and other operation and maintenance equipment that might inadvertently hinder redevelopment efforts. At other sites, detailed site reuse plans have provided additional benefits that save time and reduce redevelopment costs. For example, future infrastructure corridors or building footers can be installed in coordination with site cleanup activities.



After years of collaboration, the area now hosts a public park, a lakeshore viewing area and housing.

Bigger Picture



View of the Lake Michigan shoreline from Lake Vista Park.

There are also a range of broader lessons learned from the successful cleanup, continued use and planned redevelopment of the site that can help guide similar projects at contaminated lands across the country:

The EPA's and state agencies' work with communities and stakeholders supports reuse outcomes that are compatible with site cleanups.

The EPA places a high priority on supporting the return of contaminated sites to productive and beneficial uses. As part of its ongoing effort to coordinate with the WDNR and the community to integrate cleanup and reuse considerations, the EPA oversaw initial cleanup responses and stayed involved in the project by attending regular meetings hosted by the City from 2008 to 2014. The City also used grants from the EPA and the WDNR to help fund a bioretention cell and permeable pavers that manage stormwater runoff from the site.

While the EPA provides tools and resources to support Superfund reuse, communities and public- and private-sector organizations make it happen.

The EPA's mission is to protect human health and the environment. The EPA relies on engaged community stakeholders to bring their future land use goals and priorities to the table so that this information can be incorporated as part of the remedial process, linking cleanup and redevelopment. In Oak Creek, the local government shared its redevelopment goals and visions

and worked cooperatively with the EPA and the WDNR. When possible, future use plans should be shared with the EPA and state agencies as early in the remedial process as is feasible.

Local governments can play a unique leadership role in reuse planning projects.

As the organizations responsible for their communities' general welfare, local governments are particularly well-positioned to bring together diverse stakeholders and use planning tools and incentives to foster positive outcomes. The city of Oak Creek has collaborated closely with project partners and helped bring community voices into cleanup and reuse discussions. An early decision to dedicate resources to the Lake Vista Development Project enabled the City to take an active role in the cleanup and build trust among partners.

The City also supported these projects using more than \$3 million in grants from a variety of sources, including the EPA, the WDNR, the Federal Emergency Management Agency's Hazard Mitigation Grant Program, Funds for Lake Michigan, the Milwaukee Metropolitan Sewer District, the Wisconsin Coastal Management Program and the Root-Pike Watershed Initiative Network. While project partners F Street and RINKA+ have led reuse construction efforts in the area, they both agree that the City's leadership and dedicated resources have been the foundation of the Lake Vista Development Project.

Community engagement and capacity building are vitally important.

A well-designed community engagement process ensures transparency and allows information to flow in both directions. Providing detailed information addresses concerns and establishes trust. Cleanup and redevelopment work in Oak Creek has involved extensive community engagement, from regular meetings to share information about cleanup activities, to the reuse planning activities such as meetings hosted for the EPA, the WDNR, DuPont and EPEC in 2008 to partnerships with F Street and building amenity-rich housing that is compatible with the area's institutional controls. Community members can provide valuable information and ideas throughout the planning process, making sure that the remedy and reuse plans reflect local conditions and priorities.

Think long term.

It can take many years to clean up contamination that has accumulated over decades, providing a time window for stakeholders to build partnerships and identify resources, coordinate with partners, and develop a strategy for returning a site to use while protecting future users. Even after a site is cleaned up, it can take time and the right economic climate to attract parties interested in reusing the area. Persistent outreach and long-term community support are both vitally important. The Lake Vista Development Project encompasses over 250 acres across five different properties. Most of these properties, including the DuPont and EPEC properties, are formerly contaminated areas. Setting the goal for reuse early in the process allowed the city of Oak Creek and its partners to phase cleanup and construction, setting the stage for successful mixed-use redevelopment.

"This was a fenced-off lakefront. Now it's set up to provide homes for hundreds of families and a park that people visit every day."

– Tom Bloom, the EPA's Region 5 Superfund
Redevelopment Coordinator



A signpost along the Oak Leaf Trail that connects Lake Vista Park to nearby recreational areas in Oak Creek.

Conclusion

Cleanup and mixed-use redevelopment in Oak Creek, Wisconsin, illustrates how local leadership, collaborating with EPA and state and community partners, innovative thinking, and flexible planning can result in several major outcomes: the protection of human health and the environment, innovative cleanups, productive redevelopment, new community assets and long-term partnerships.

In Oak Creek, the city government has led a successful project aided by support from local, state and federal partners. The city's leadership has enabled a complex cleanup and restoration effort that brought together cooperative partners and resulted in an approach that can guide similar efforts in communities across the United States.

Cleanup Fosters Broader Lakefront Revitalization in Wisconsin

THE LAKE VISTA REDEVELOPMENT IN OAK CREEK, WISCONSIN

Sources and Resources

SOURCES

Images and maps for this case study are from the EPA's Region 5, the city of Oak Creek, F Street, the WDNR, the Hagley Library and the EPA's contractor Skeo. This document contains copyrighted images for use in this publication and other materials generated by or for the EPA.

Maps for this case study were created with data from Google Earth, Esri, DeLorme, AND, Tele Atlas, First American, UNEP-WCMC and USGS.

RESOURCES

EPA Superfund Redevelopment Program:
www.epa.gov/superfund-redevelopment

EPA Green Infrastructure:
www.epa.gov/green-infrastructure

City of Oak Creek:
www.oakcreekwi.gov

Wisconsin Department of Natural Resources:
dnr.wisconsin.gov

RINKA+:
www.rinka.com

F Street:
www.fstreet.com

The Sigma Group, Inc.
www.thesigmagroup.com

The Urban Land Institute:
www.uli.org



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