

Oakmont Borough

Interactive Map and Walking Routes



Project Report

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Executive Summary

Project Introduction

The objective of this project was to create a set of resources for Oakmont Borough to help residents and visitors navigate the community. The primary resource is an interactive online map that will display businesses, points of interest, and other helpful features (such as electric vehicle charging stations). We also created a series of walking routes that connect local landmarks and highlight these routes on the map. To accompany the online map, we developed physical signage that will direct people towards local landmarks and demarcate the walking routes.

Approach

To create our resources, we utilized a series of digital tools that can be used by the community. We used ArcGIS to create an interactive map featuring key businesses, points of interest such as recycling stations, and other features like vehicle charging stations. After completing the map, we published the tool in an ArcGIS StoryMap that could be accessed by the public through either a shared link or a QR code. This StoryMap featured search functions and filters to improve user navigation. For instance, a search bar was included on the map to allow users to locate specific points of interest. Additionally, we included relevant information such as addresses so that users could map routes to their destinations. Finally, the map included all necessary instructions for navigating the tool.

We also used the graphic design Canva to produce a physical signage design. We created three sign designs as described below. These signs included elements such as the logo of the Oakmont Borough, which was provided by the client. Additionally, we included a QR code linked to the interactive map to enable visitors to explore the Oakmont Borough. To select a final sign design, we produced two drafts and consulted within our team.

Overview of Oakmont



Oakmont Borough, with a population of 6,749 residents, is located northeast of Pittsburgh along the Allegheny River.¹ It is a small borough, 1.57 square miles in size, but is a thriving community with 131 businesses and community spaces and 5-6 miles of nature trails.² As such, it has seen a 7.2% in population growth since 2010.³ Of the 6,749 residents in Oakmont, 53.8% of the population are female and 46.2% are male.⁴ 78.9% of the population are between 21 and 62 years old, with a large demographic of young families moving to the Borough.

Oakmont is governed by a council of 7 elected individuals and the elected Mayor runs the police department.⁵ The borough was incorporated as a town in 1889 when they separated from the Borough of Verona.⁶

Oakmont is a popular daytrip destination for residents of the Pittsburgh metro area. Many visitors come to walk the charming brick streets that are surrounded by local businesses and greenery. The Oakmont Bakery is also well-known and many people outside of Pittsburgh come to visit. Additionally, the neighboring Oakmont Country Club has hosted 10 U.S. Opens and has caused many golf fans to visit the community.



¹ "History ." Oakmont Borough. Accessed April 28, 2026. <https://oakmontborough.com/history/>.

² Ibid

³ U.S. Census Bureau. "ACS Demographic and Housing Estimates." American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP05, <https://data.census.gov/table/ACSDP5Y2024.DP05?q=Oakmont+borough,+Pennsylvania>. Accessed on 8 Apr 2026.

⁴ U.S. Census Bureau. "ACS Demographic and Housing Estimates." American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP05, <https://data.census.gov/table/ACSDP5Y2024.DP05?q=Oakmont+borough,+Pennsylvania>. Accessed on 8 Apr 2026.

⁵ Ibid

⁶ Ibid

Stakeholders

The development of an interactive online map and walking routes involves numerous stakeholders in Oakmont and the local community.

Residents

Unlike most municipalities in the Pittsburgh metropolitan area, Oakmont is experiencing population growth. Many families moving into the borough may not know how to access borough services, and even longtime residents may not be aware of new services being offered. As such, there is broad demand for an intuitive service that lists borough services and allows residents to quickly orient themselves towards these services. Furthermore, many residents appreciate Oakmont's relative walkability, and would benefit from a tool that clearly demarcates ready-made walking routes within Oakmont.

Local Businesses

Oakmont is home to a thriving small business community, and many local businesses seek to capitalize on Oakmont's population growth. An online mapping service that allows people to easily locate local businesses would benefit these businesses and encourage budding entrepreneurs to open new businesses in Oakmont. Furthermore, the creation of walking routes that traverse Oakmont's commercial corridor will bring foot traffic to local businesses and help visitors quickly find their preferred commercial destination.

Oakmont Borough

Oakmont's elected officials are motivated to encourage further population growth, economic development, and sustainable practices. This project encompasses all three goals: an interactive online map allows residents to more easily locate borough services

and local amenities, which makes it more likely that people would consider moving to Oakmont; predetermined walking routes funnel pedestrians towards Oakmont's commercial corridor and incentivize the proliferation of dense, mixed-use developments; and the creation of these walking routes encourages residents and visitors to explore Oakmont (or do their shopping) on foot rather than by car. As such, the Borough is heavily invested in creating an online interactive map and local walking routes.

Visitors

Oakmont draws visitors from around the Pittsburgh metropolitan area due to local attractions like the Oakmont Bakery and the Oaks Theatre, as well as the numerous boutiques, restaurants, and shops that line Allegheny River Boulevard. Furthermore, golf tournaments at the Oakmont Country Club regularly attract visitors from around the world. However, there are few resources visitors can use to quickly locate necessities (like health services and grocery stores), points of interest, or local shopping and dining opportunities.

Visitors often desire an accessible and easy-to-use guide that clearly lists local points of interest and highlights areas with a high density of certain attractions or amenities. An interactive map and pre-determined walking routes will simultaneously help visitors locate essential services (should they need to address a medical issue, charge their electric vehicle, or visit a pharmacy) and encourage visitors to explore areas of the Borough they previously may not have known about.

GIS StoryMap & Walking Route Design

Data Collection

We decided to create our interactive map using ArcGis Online. Maps created in ArcGis Online can be published as interactive 'StoryMaps', which allow users to manipulate the published maps by applying filters, panning in and out, and using a location search feature. None of these actions change the underlying data represented by the map, which means that users can choose how to best visualize this data to suit their own needs. This feature was especially conducive to this project, as we wanted to ensure that map users could 'hide' certain locations on the map (if, for example, they were looking for Borough Services and had no interest in finding churches or schools in Oakmont) without removing these locations from the map entirely.

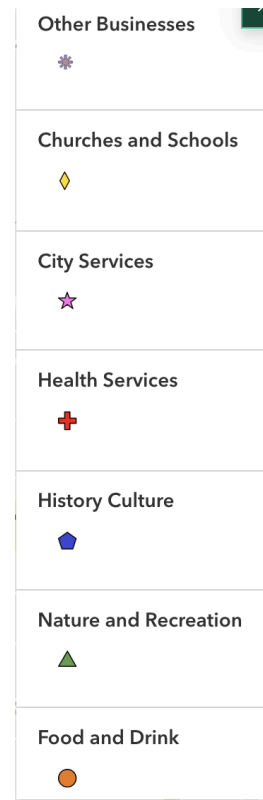
To generate the list of Oakmont locations featured on the map, we consulted the Oakmont Chamber of Commerce; Phyllis Anderson, Oakmont's Assistant Borough Manager; the Oakmont Historical Society; and the Oakmont Visitor Guide published by *Visit Pittsburgh*. We decided to demarcate the included locations into the following categories:

1. Food & Finds (which includes restaurants, bars, bakeries, boutiques, and other local businesses)
2. History & Culture (which includes museums, fraternal organizations, theatres, event centers, and memorials),
3. Borough Services (which includes the Borough building, as well as recycling stations, electric vehicle charging stations, and Christmas tree drop-off sites),
4. Nature & Recreation (which includes trails, city parks, and other recreational locations),
5. Health Services (which includes hospitals, clinics, rehabilitation centers, dentists, chiropractors, psychiatrists, and acupuncturists)
6. Churches & Schools

7. Other Businesses (which includes fitness centers, automotive shops, salons, martial arts studios, real estate companies, and law firms)

Initially, we deliberated whether to include chain establishments (such as Walgreens or Ace Hardware) on the map or limit it solely to local businesses. We ultimately decided to include larger chains on the map for two reasons. First, we did not want it to appear as though we were prioritizing the inclusion of certain businesses over others. Second, we concluded that many visitors and residents purchase essentials (such as groceries and medications) from large chain establishments and would benefit from a map that clearly displayed the locations of such businesses. At the behest of Phyllis Anderson, we excluded businesses that do not directly serve customers on-site, such as factories, warehouses, and contracting services, from the map.

To populate the map with businesses, locations of borough services, and other points of interest, we first created a Google Sheet with the name of each location, its category (e.g. Shopping, Health Services, etc), and its address. We then imported this sheet into ArcGis and used the 'Geocode Addresses' tool to automatically create point symbols on the StoryMap corresponding to the real-world locations. To help users differentiate between different point symbols, we gave each category a distinct color and shape. Locations in the Food & Drink category are symbolized as orange circles; History & Culture locations as blue pentagons; Nature locations as green triangles; Health Services as red crosses; Borough Services as pink stars; Churches & Schools as yellow diamonds; and Other Businesses as purple octagrams.



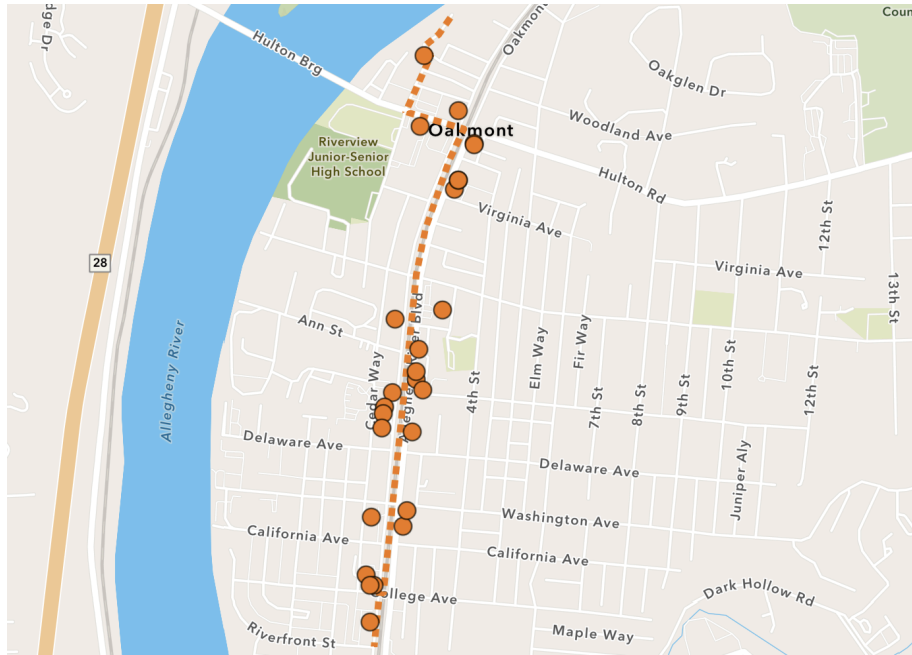
A portion of the map's legend showing the symbols for each category

Walking Routes

After consulting with Phyllis, we chose to create three distinct walking routes that each encompass a specific theme. These routes are as follows:

- The Food & Finds Route, which follows Oakmont's primary commercial corridor and links the Borough's shopping and dining establishments,
- The History & Culture Route, which links all of Oakmont's museums, historical points of interest, community organizations, and other cultural amenities, and
- The Nature & Recreation Route, which connects Oakmont's pre-existing trails, city parks, and other greenspaces

The process of creating the Food & Finds route was fairly straightforward. The bulk of Oakmont's commercial activity is clustered along Allegheny River Boulevard, which means that it is possible to demarcate a walking route along the existing Arboretum Trail (which parallels Allegheny River Boulevard) that automatically passes by most of the brick-and-mortar establishments in the borough. However, there are several businesses (such as the famous Oakmont Bakery) that are not located along the Arboretum Trail. As such, we extended the Food & Finds route northwest of the Arboretum Trail's northern terminus by routing it west along Hulton Road and then north along 3rd street. In doing so, we ensured that every local commercial business in Oakmont was located along this route. A full list of locations included in the Food & Finds Route can be found in the Appendix.

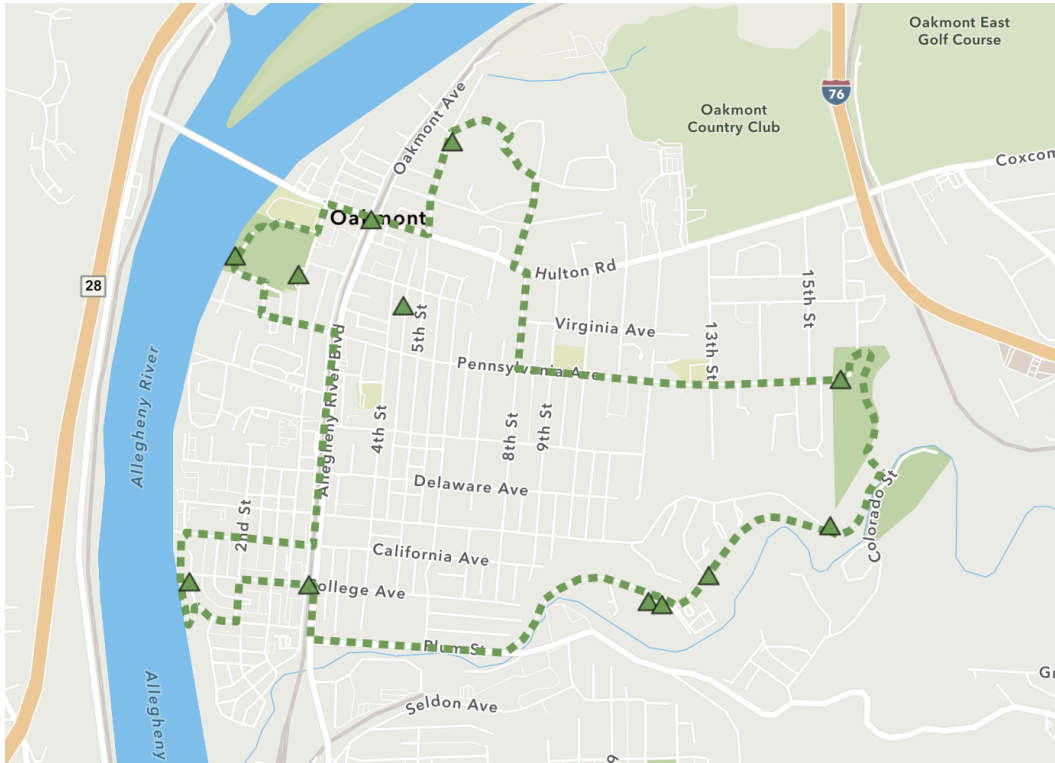


An overlay of the Food & Finds Route, with local businesses symbolized as orange circles

In contrast, creating the History & Culture Route and the Nature Route allowed us to take more creative liberties. We began by plotting the locations of landmarks relevant to each route: museums, civic organizations, and other cultural amenities for the History & Culture Route, and parks, trails, and recreational spaces for the Nature Route. We then strove to draw routes that connected each of the chosen locations, followed existing trails (such as the Arboretum Trail), and avoided busy roads. Unlike the Food & Finds Route, which is a point-to-point route, both the History & Culture and Nature Routes form complete loops. The locations served by these routes are as follows:

History & Culture Route:

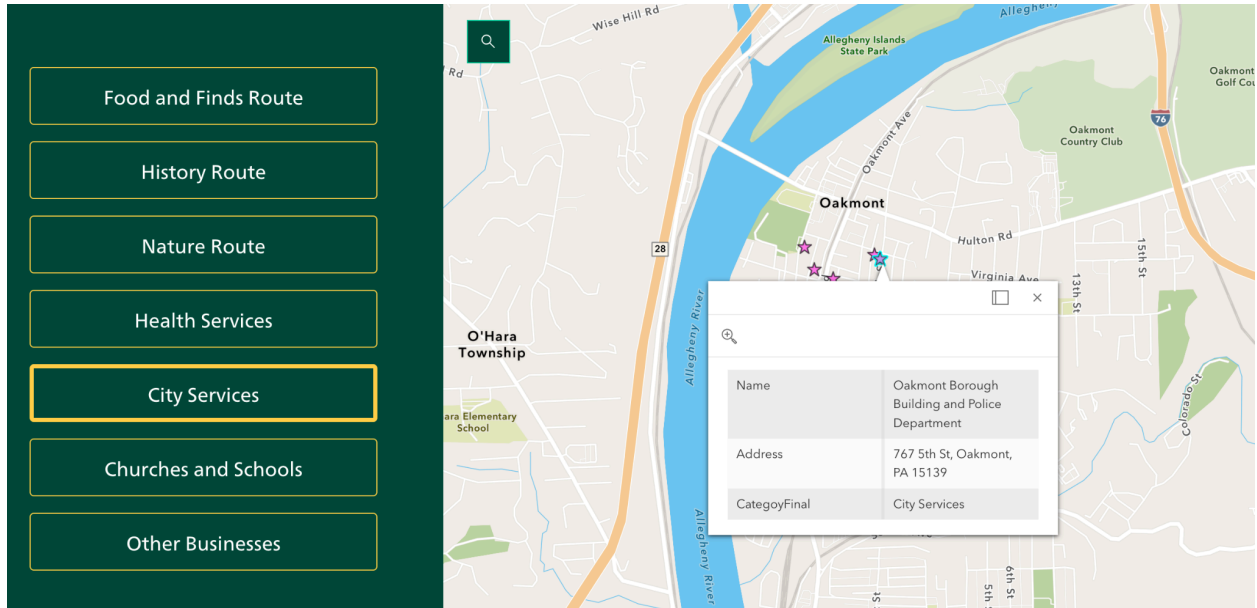
- Oakmont Historical Society
- The Kerr Museum
- Oakmont War Memorial
- American Legion
- The Oaks Theatre
- Oakmont Chamber of Commerce



An overlay of the Nature Route, with notable waypoints symbolized as green triangles

Each of the walking routes is represented by a different-colored line on the map. These colors correspond to the colors used to denote each route on our wayfinding signs (discussed below). The Nature Route is denoted in green; the Food & Finds Route in orange; and the History & Culture Route in blue.

To ensure the StoryMap did not appear overcluttered, we made several design decisions to streamline the user interface. First, we included filters that allow the viewer to toggle between the different categories. This way, users can easily find certain locations – such as restaurants or borough services – without being overwhelmed by all of the other points of interest on the map. Second, we chose not to overlay each location’s name on the map. If each location’s name appeared next to its symbol on the map, the interface would quickly become unreadable due to the overlapping text. If users wish to determine a location’s name, they can click on a location’s map icon to pull up its name, address, and category.



A visual representation of the map interface. City services are currently selected, so all other locations are hidden. Clicking on the location of the Oakmont Borough Building brings up a display that includes the location's address

Wayfinding Design

To create wayfinding signs we utilized Canva Pro. We chose this tool because it offered a simple user interface, a free Pro subscription trial, and a range of features including image layer separation, size adjustments, and blur reduction. Following a brief experimentation phase with Canva, we created a series of three draft signs. These signs were created with minimal best practices research and instead relied on our personal experiences with wayfinding signage. The draft designs were reviewed by our team and a decision was made to conduct wayfinding best practices research and create a second series of drafts.

The guidance we ultimately decided to follow was from the North Central Texas Council of Governments (NCTCG).⁷ This guide identified five best principles and six potential sign formats which are further explained below.

Best Principles:

1. Connect Places: Facilitate travel between destinations and provide guidance to new destinations and transit.
2. Keep Information Simple: Present information simply, using clear fonts and simple designs, so that it can be understood quickly.
3. Maintain Motion: Be legible and visible for people moving so that they can read the signage without stopping.
4. Be Predictable: Standardize the placement and design of signs so that signage patterns become predictable.
5. Promote Active Travel: Encourage increased rates of active transportation by helping people to realize they can walk and roll to the places they want to go.

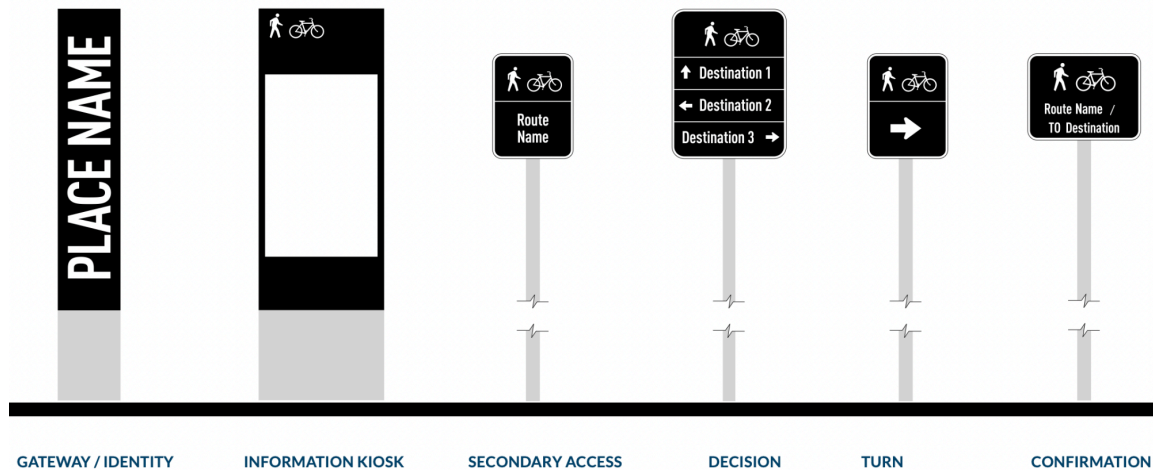
⁷ DFW. (2023). DFW Discovery Trail Branding and wayfinding. https://www.nctcog.org/getContentAsset/d6f7b536-db54-49a5-a0a9-43141b15a0e7/dfc3d011-8f63-43f6-9ed8-4b444333a1d0/WayfindingBPsStandalone_FINAL.pdf

Sign Format Options:

1. Gateway/Identity: Define the entry into a distinct neighborhood, or mark trailheads, access points, and landmarks. Opportunity for community-directed placemaking and integrated artwork.
2. Information Kiosk: Appropriately scaled maps can provide helpful navigational information, and are most effective when placed in plazas or rest areas. Kiosks may also present other information when paired with digital display boards such as trail counts or other dynamic trail information.
3. Secondary Access: Mark entry to trails or paths at location where limited user traffic may not necessitate as much information as information kiosks.
4. Decision: Clarify route options where two or more routes converge, or at complex intersections
5. Turn: Placed before a turn or intersection to help users stay on the designated path. Turn Guidance may also be configured as pavement markings.
6. Confirmation: Placed after a turn or intersection to reassure path users that they are on the correct route.

Sign Design:

Based on this guidance we decided to create three sign designs in Canva: Information signs, turn signs, and decision signs. While the NCTCG identified six designs, we thought it was important to consider the scope of our project and the potential costs of multiple sign designs. We decided not to include gateway signs because it was important to our Stakeholders not to single out any one business or location to avoid the appearance of preferential treatment. Additionally, to minimize sign production costs, we decided to combine the secondary access, turn, and confirmation sign designs highlighted by the NCTCG. Our turn signs feature the route name and turning information, so they can be placed at intersections or after decision signs to reassure path users that they are on the correct route.



Wayfinding Sign Designs from the North Central Texas Council of Governments

In terms of sign design, we sought to ensure information remained simple and could be read during motion. Our signs include only essential information like route direction denoted with an arrow and route name. Additionally, we sought to ensure visual simplicity by using only two colors in our turn and decision signs, a white font on a green background. We modeled this color combination off of sign examples provided in the NCTCG guidance handbook. Finally, we utilized a font that matches borough logos so that the signs match the character and existing signage in Oakmont.

Sign Placement:

According to the NCTCG, walking and biking route wayfinding signage should be placed every 25-50 feet to ensure those on the route have time to react to their information. However, it is important to note that sign placement decisions should be made on a case by case basis. We recommend that Oakmont borough officials walk the created routes to identify points that need signage:

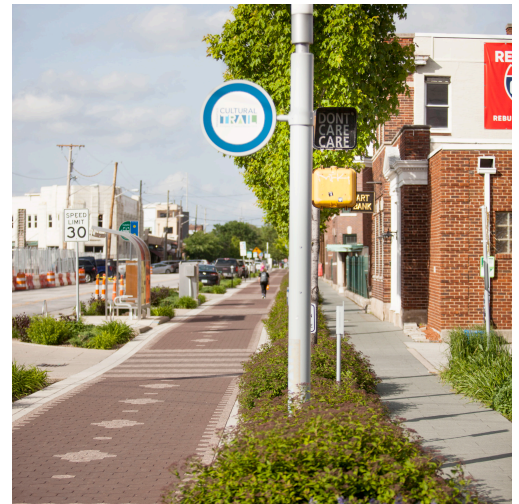
1. Decision signs should be placed at intersections along more than one walking route with necessary navigation arrows
2. Turn signs should be placed at each intersection along a single walking route and 25 feet after a decision sign to ensure users remain on their preferred route

3. Information kiosks should be placed in areas where users can take time to absorb the necessary information. We recommend that they be placed in central Oakmont at the convergence of all three walking routes, at the beginning and end of each route, and eventually at the start of the VOPP trail (which will connect Verona, Oakmont, Penn Hills, and Plum).

Walking Route Case Studies

Numerous municipalities in the US and around the world have focused on developing pedestrian-centered infrastructure and signage to promote sustainable community development. Several paradigmatic examples in the US are the Indianapolis Cultural Trail and the Freedom Trail in Boston. Both routes offer examples of successful design strategies that Oakmont can emulate.

The Indianapolis Cultural Trail is a designated 8-mile walking and bicycling route that connects seven distinct cultural districts across downtown Indianapolis. The route was explicitly designed to pass by a plethora of restaurants, retail locations, and museums across the city. Prior to the trail's designation, the various landmarks and points of interest connected by the trail were largely isolated from each other, and navigating between the destinations on foot was somewhat uncommon. After the trail was created, pedestrian traffic along the route increased substantially. This led to higher commercial occupancy rates for businesses along the route and an aggregate increase of \$1 billion in property values along the route.⁸



A section of the Indianapolis Cultural Trail

The Boston Freedom trail is a 2.5-mile demarcated walking route that connects historical, cultural, and commercial sites in Boston's Old North End. Prior to the trail's creation in 1951, the various landmarks that defined Boston's heritage as the cradle of the American Revolution – such as Bunker Hill and the Old North Church – were not typically viewed as part of a cohesive experience. Over the past seventy years, annual attendance on the trail has grown to more than four million people annually, and it is considered one of Boston's must-see attractions. The route is supported by a digital walking guide and numerous physical signposts and maps that help orient visitors. The

⁸ Indianapolis Cultural Trail Impact. (n.d.). *Indianapolis Cultural Trail*. Retrieved May 1, 2026, from <https://indyculturaltrail.org/impact/>

Freedom Trail Foundation estimates that the trail generates more than \$1 billion in annual revenue for local businesses.⁹

These examples demonstrate that creating walking routes with specific themes can be successful, even in cases where the destinations served by the route were previously considered distinct. Though Oakmont is considerably smaller than Indianapolis or Boston, it can still replicate these cities' accomplishments by marketing the new walking routes as tools residents and visitors can use to efficiently visit previously-distinct destinations in the Borough.

⁹ *Freedom Trail Establishment | The Freedom Trail*. (n.d.). Retrieved May 1, 2026, from <https://www.thefreedomtrail.org/about/freedom-trail-establishment>

Further Recommendations

The following section details strategies for maximizing the use of Oakmont's new walking routes, increasing awareness of the StoryMap, and bringing new visitors to Oakmont:

1. Print out maps of the new walking routes and place them in the Oakmont Borough Office
2. Launch a media campaign to spread awareness of the StoryMap and the walking routes.
 - a. Work with the Chamber of Commerce and local business owners to create social media posts and physical signage about the Food & Finds Route
 - b. Include information about the walking routes and StoryMap in the 2027 Oakmont Resident Guide
 - c. Create social media posts advertising the StoryMap and wayfinding routes on Borough websites and social media profiles.
 - d. Create a route passport that residents and visitors can use to track their usage of the walking routes. Participation could be rewarded with discounts or entry to a quarterly raffle.
3. Incorporate QR codes on wayfinding signage to link walking routes to the GIS StoryMap
4. Post wayfinding signage at every street intersection along each route

Additionally, we have included the following steps Oakmont can take to maintain the StoryMap and walking routes and ensure they remain accurate over time:

1. Coordinate with the Chamber of Commerce monthly to determine which establishments, if any, have opened or closed in Oakmont within the past month. If any changes have occurred, update the Google Sheet location database accordingly.
2. Design an API that automatically updates the ArcGIS feature layer (which contains all the point symbols corresponding to locations within Oakmont) whenever the Google Sheet is changed. Alternatively, manually update the ArcGis feature layer using the 'Geocode Addresses' tool, which automatically populates a new point symbol on the map corresponding to the location's inputted address.
3. Every six months, determine whether the walking routes still pass close to relevant points of interest and follow their optimal paths. As new businesses and trails open around the Borough, the optimal routing of each path might change. Furthermore, infrastructure changes may make certain routes more or less walkable than they currently are.

Appendicies

Appendix I: StoryMap and Location Database

The ArcGIS StoryMap can be found [here](#). Oakmont's ArcGIS account will be given editing privileges on the map. The Google Sheet containing the locations included on the StoryMap can be found [here](#). Oakmont has already been provided editing privileges on the Google Sheet.

Appendix II: Wayfinding Signs

The following signs were each created in separate Canva files and have been sized to ensure clear printing. For instance, information kiosks have been formatted for a 36x48 inch printing while turn signs have been formatted for 8.5x11 inch printing. Sign design files are included in the final shared materials. Additionally, each sign can be resized if necessary in Canva by uploading the provided files and selecting resize in the toolbar.

Information Kiosks:

OAKMONT WAYFINDING AND WALKING ROUTES

BOROUGH OF OAKMONT ESTABLISHED 1889

LEGEND

- Other Businesses
- Churches and Schools
- City Services
- Health Services
- History and Culture
- Parks and Recreation
- Food and Drink
- Shopping
- Foods and Finds Route
- Culture Route
- Nature Route

SCAN ME!

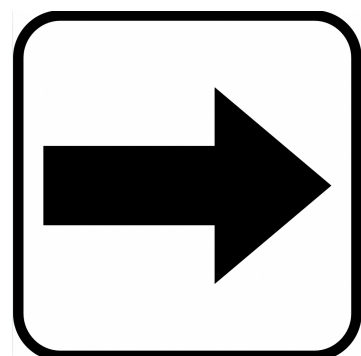
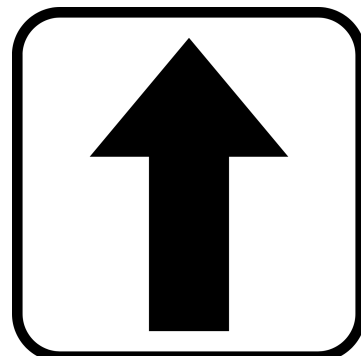
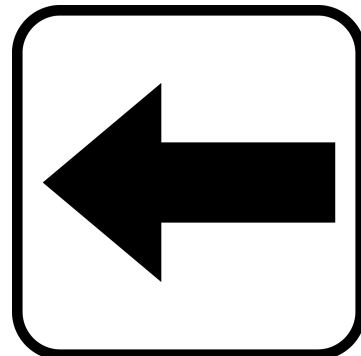
WELCOME TO OAKMONT! PLEASE USE THE FOLLOWING MAP TO NAVIGATE OAKMONT'S RESTAURANTS, SHOPS, PARKS, AND MORE. SCAN THE QR CODE FOR MORE INFORMATION.

The graphic features a map of Oakmont, Pennsylvania, with various walking routes highlighted in different colors: orange for 'Foods and Finds Route', blue for 'Culture Route', and green for 'Nature Route'. The map includes street names such as Hulton Rd, Delaware Ave, Washington Ave, and California Ave. Landmarks like the Allegheny River, Oakmont Country Club, and Dark Hollow Woods Park are also shown. A QR code is located in the bottom right corner of the graphic.

Turn Signs



Decision Signs



Appendix III: Why Walkability Matters

Car-centric communities harm residents' physical and social health. Research shows that in terms of physical health, car-centric communities reduce physical activity by limiting the enjoyment and potential of walking through segregated land use zoning, low density development, disconnected street designs, and insufficient biking and pedestrian infrastructure.¹⁰ In contrast, walkable communities create a relationship between the environment and the resident and encourage daily physical activity. They utilize mixed land use zoning, high density street networks, and pro-bike and pedestrian-oriented designs.

Similarly, research shows that car-centric communities harm social health by reducing the opportunity for social interaction.¹¹ A community that requires driving to complete daily errands eliminates the potential for interaction during travel, and instead results in a "residence-to-car and car-to-destination" experience. Environments with pedestrian features like sidewalks, signage, and open spaces provide safer and more enjoyable walking experiences while increasing one's sense of community.

The inclusion of the Oakmont wayfinding signage and walking trails supports the pedestrian experience by providing residents and visitors with guidance on how to navigate the borough. Pedestrians will have the opportunity to customize their walking experience to see the Oakmont attractions they are interested in. Furthermore, residents and visitors will be encouraged to use Oakmont's substantial walking infrastructure, which will improve their physical and social health.



¹⁰ Zhu, X., Lu, Z., Yu, C.-Y., Lee, C., & Mann, G. (2013). Walkable communities: Impacts on residents' physical and social health. *World Health Design*, 6(3), 68–75.

¹¹ *Ibid.*

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