

An aerial photograph of Pittsburgh, Pennsylvania, showing the city skyline, the Allegheny River, and Emerald View Park. The image is in a monochromatic green color scheme. The skyline features several tall skyscrapers, including the PPG Place. The Allegheny River flows through the city, with several bridges crossing it. In the foreground, there is a large, open area with trees and a road, likely part of Emerald View Park.

EMERALD VIEW PARK REGIONAL PARK MASTER PLAN APPENDICES

Pittsburgh, PA

*City of Pittsburgh
Department of City Planning
June 2021*

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PUBLIC ENGAGEMENT PLAN**

Public Engagement Plan for Emerald View Park Master Plan

Prepared by MonWin Consulting

May 17, 2021

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Executive Summary

A Public Engagement Plan is required for all applicable City projects and programs to ensure that the project fulfills the principles for public engagement established by the Department of City Planning. This Public Engagement Plan is a living document that establishes the approach to engagement for a project, sets expectations with the public for engagements, and keeps record of all engagements throughout the course of a project. The Public Engagement Plan for Emerald View Park will reflect the principles and guidance established in the City's Public Engagement Guide.

Project Overview

Emerald View Park is a 250-acre regional park located in the City of Pittsburgh's Mount Washington, Duquesne Heights, and Allentown neighborhoods. Emerald View Regional Park is most recent addition to Pittsburgh's regional park system. Pittsburgh's regional parks, including Frick Park, Schenley Park, Highland Park, and Riverview Park, are vital cultural and ecological assets, each with unique identities that contribute to the City's iconic urban landscape. Emerald View Park includes a variety of public open spaces, greenways, trails, Grandview Avenue, and multiple neighborhood parks (Olympia Park, Mt. Washington Park, Grandview Park, Eileen McCoy Park, and Ream Park). The Emerald View Park Regional Master Plan will guide the future of the park. The goal is to connect the park's ecology, history, and culture to preserve the park's significance as a collection of neighborhood amenities and elevate its role as a regional destination.

The Emerald View Park Master Plan will be developed through a master plan process that includes community engagement, ecological review, and design of functional spaces. Completed plans from the park master planning program include the Sheraden Park Master Plan and the South Side Park Master Plan.

Accountability

An Advisory Committee will be established to provide local knowledge, help to steer the master planning process, and review design ideas. They will be consulted regularly (monthly) throughout the life of the project and help to course correct as needed. The committee represents a diverse group of individuals that use the park and/or will be involved in future implementation of the park design.

Project Team:

- Project Manager: Kara Smith, Project Manager and Senior Neighborhood Planner (Department of City Planning)
- Susan Rademacher & Kathryn Hunninen, Pittsburgh Parks Conservancy
- Consultants: Merritt Chase (lead consultant, landscape architecture); MonWin Consulting (engagement); Civil & Environmental Consultants (ecology + engineering); Spackman Mossop Michaels (parks and stormwater planning); Bohlin Cywinski Jackson (architecture)

Website: <https://engage.pittsburghpa.gov/emerald-view-park>



Section I: Project Description & Background

Project Overview

Emerald View Park

Emerald View Park is a 250-acre regional park located in the City of Pittsburgh's Mount Washington, Duquesne Heights, and Allentown neighborhoods. Emerald View Park is the most recent addition to Pittsburgh's regional park system. Pittsburgh's regional parks, including Frick Park, Schenley Park, Highland Park, and Riverview Park, are vital cultural and ecological assets each with unique identities that contribute to the City's iconic urban landscape. Emerald View Park includes a variety of public open spaces, greenways, trails, Grandview Boulevard, and multiple neighborhood parks (Olympia Park, Mt. Washington Park, Grandview Park, Eileen McCoy Park and Ream Park). The Emerald View Park Regional Master Plan and planning process will guide the future of the park. The goals are: to connect the park's ecology, history, and culture: to preserve its significance as a collection of neighborhood amenities: and to elevate its role as a regional destination.

The Master Plan Purpose

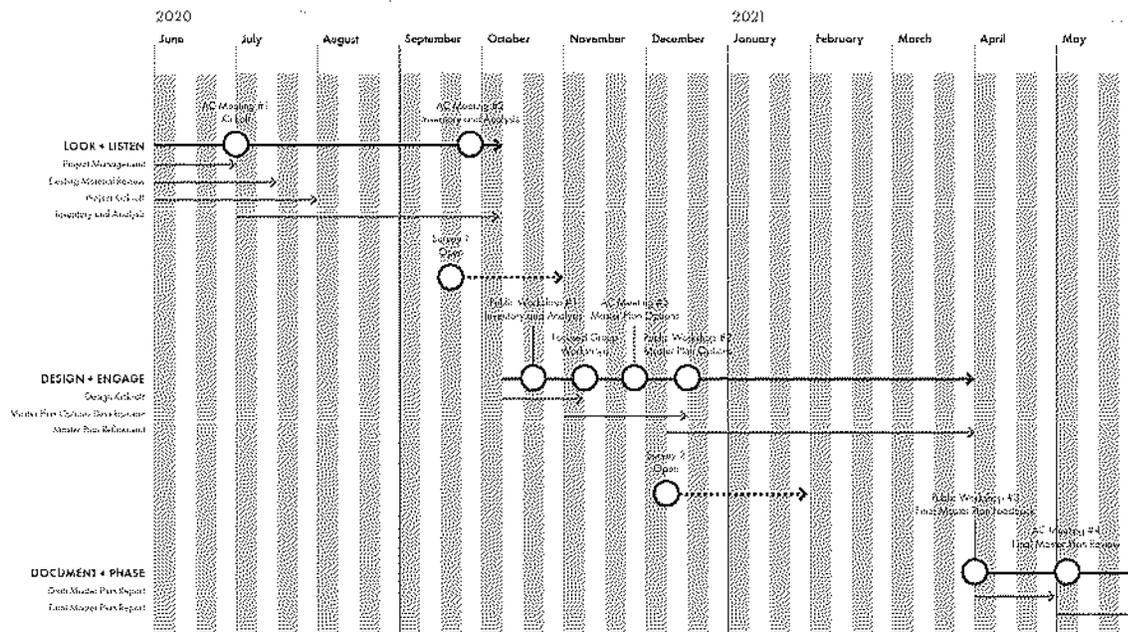
- Communicate the community's vision for a cohesive regional park
- Ensure that individual park improvements and day-to-day decisions fit within a larger vision
- Inspire local stewardship and build momentum for future project implementation
- Ensure that fundraising and implementation are properly sequenced and contribute to long-term goals
- Guide Emerald View Park's future physical development with conceptual design recommendations, a phasing plan, and cost estimates
- Preserve the park's significance as a collection of neighborhood amenities and elevate its role as a regional destination

Why Master Plan Now?

- Emerald View Park has never had a master plan
- Individual projects have been planned and implemented but a holistic master plan has not been completed
- The Master Implementation Plan for the Grandview Scenic Byway Park (2005) does not address recommendations for Emerald View Park's anchor parks or smaller parks (i.e.: Olympia Park, Grandview Park, Mt. Washington Park, Eileen McCoy Park, Ream Park)
- Emerald View Park is the newest park in Pittsburgh's Regional Parks system
- The Regional Parks Master Plan (2000) and Update (2012) do not include Emerald View Park
- Funding opportunities are easier to pursue for projects that are the result of a master plan
- The OpenSpacePGH plan (2013) has resulted in park master plans and recent park implementation projects

Project Timeline

- Phase 1 Look + Listen (June-September)
- Phase 2 Design + Engage (October-March)
- Phase 3 Document + Phase (April-May)



Project Resources & Project Team

The Pennsylvania Department of Conservation and Natural Resources (DCNR) has awarded the City of Pittsburgh \$80,000 grant funding for an Emerald View Park master site development plan. The City is contributing \$55,000 capital funding towards the local match. The Pittsburgh Parks Conservancy is contributing \$25,000 of in-kind professional services towards the local match. The project will be managed by environmental and neighborhood planners in the Department of City Planning, who have hired a team of consultants led by local landscape architects Merritt Chase. All aspects of the project will meet DCNR requirements, such as a thorough public engagement plan and process. DCNR has also funded other previous and upcoming park projects in the City of Pittsburgh, such as the South Side Park master plan and initial development phases.

In kind hours from the Parks Conservancy include:

- compiling information and documents relating to Emerald View Park history, past plans
- providing technical advisement on key aspects of the plan
- participating in advisory committee meetings
- supporting community engagement efforts

Project Team

Andrew Dash, Director of City Planning

Kara Smith, Project Manager and Senior Neighborhood Planner

Martina Battistone, Senior Environmental Planner

Susan Rademacher, Parks Curator, Pittsburgh Parks Conservancy

Kathryn Hunninen, Senior Manager of Special Initiatives, Pittsburgh Parks Conservancy

Consultants

Merritt Chase (lead consultant, landscape architecture)

MonWin Consulting (engagement)

Civil & Environmental Consultants (ecology + engineering)

Spackman Mossop Michaels (parks and stormwater planning)

Bohlin Cywinski Jackson (architecture)

Advisory Committee

The Advisory Committee will provide local knowledge about Emerald View Park and will help to steer the master planning process along the way. They are an integral part of the design team, and will meet with the Department of City Planning and the consultant team regularly throughout the life of the project. The committee represents a diverse group of individuals that use the park and/or will be involved in future implementation of the park design. Their role includes:

- Advising the project team on engagement, outreach, and sharing design ideas
- Serving as a conduit between the design team and the residents and organizations in the community
- Ensuring an equitable process
- Providing feedback on the Master Plan research and designs
- Building momentum for future implementation

Members of this initial committee are listed below:

Gordon Davidson	Mount Washington CDC (ED)
Perry Ninness	Mount Washington CDC (Pres)
replaced by: Tyler Abott	Allentown CDC / Hilltop Alliance
Replaced by: Paul Whiteside	Neighbors on the Mount
Theresa Kennedy	Mount Washington Community Garden
John Macalaro	Ream Recreation Center
Therese Moss	Emerald View Park & Sustainability Committee (EVPS)
Dr. Eva Simms	Duquesne University
City Departments	
Eric Setzler (Chief Engineer)	Dept. Mobility & Infrastructure
Andrea Ketzel (RLA)	Dept. Public Works
David Hutchinson	Office of Management & Budget
Zachary Zelazny (EVP Ranger)	Public Safety - Rangers
Henry Horn Pyatt	Office of Mayor, Bureau of Neighborhood Empowerment
Josiah Gilliam	Citiparks / Office of Mayor
Bill Urbanic (Budget Director)	City Council Office
Public Agencies	
Ana Flores (GSI Engineer)	Pittsburgh Water and Sewer Authority
Elected Officials	
Kim Salinetro	Council Dist. 2 Theresa Kail-Smith
Brosha Tkacheva	Council Dist. 3 Bruce Krauss
Blake Plavchak	Council Dist. 4 Anthony Coghill

Previous/Concurrent Efforts & Coordination

This planning process will consider input and ideas from prior plans, reports and studies including (but not limited to):

- Bike (+) Master Plan (2020)
- Restoring Pittsburgh Parks Plan (2019)
- Regional Parks Signage Manual (2018)
- Climate Action Plan 3.0 (2018)
- Greenways for Pittsburgh 2.0 (2017)
- Green First Plan (2016)
- p4 Pittsburgh (2015)
- Regional Parks Master Plan and Update (2000/2012)
- OpenSpacePGH (2013)
- Pittsburgh Urban Forest Master Plan (2012)
- PreservePGH (2012)

Additionally, the project team will coordinate with other studies and planning projects under way in the City of Pittsburgh and region including (but not limited to):

- City's Comprehensive Plan
- 2070 Mobility Vision Plan

Decision Making Process

The outcome of this process is a master plan vision for Emerald View Park. While this document will be presented to the Art Commission for conceptual approval, improvements, or construction of individual improvements on specific areas of the park will go through another level of approvals. For example, each phase of the park will be taken to the Art Commission for final design approval. Regarding the deliverable for this project,

- the public will weigh in heavily regarding what should be included in the park master plan
- the Advisory committee will provide guidance to DCP and the consultant team, and ensure there is alignment with the community's vision
- DCP will ultimately be responsible for adoption of the plan

Once the project is close to being heard by the Art Commission, the project team will publicize opportunities to participate in that process, and/or keep stakeholders apprised of the outcomes via social media, the project website, and project newsletters. The public will be informed of final decisions through these same communications outlets.

Section II: Public Engagement Process

The following are the core public engagement principles established by the Department of City Planning (DCP) in the Public Engagement Guide. Our Advisory Committee and project team will ensure that this engagement process responds specifically to these principles.

Public Engagement Principles

1. *Transparency and Open Communication*

Legitimate processes and credibility are built through transparency and open communication with all stakeholders.

2. *Build a Foundation of Trust*

Reconcile historic inequities to build a new foundation based on trust.

3. *Center Equity and Fairness*

Acknowledge systematic issues and make intentional efforts to address equity considerations in any engagement process.

4. *Value Relationships*

Human relationships with the community foster respect and increase engagement from representative community groups and residents. Project leads should value those relationships in any process.

5. *Maximize Participation*

Well-designed engagement processes maximize participation of residents and stakeholders.

The public engagement plan will also ensure impacted communities that were not historically included in the decision-making process are included in this planning process. While we recognize Covid-19 is making it even more difficult for people to get involved, we will take extra care to reach those often disenfranchised populations by :

- sending information through trusted partners, via channels that people actually visit regularly
- partnering with local orgs, including those that serve youth
- printing hard copies advertising meetings and opportunities to engage for people that do not have digital access
- using digital tools that can be used on smartphones
- keeping language accessible to a broad audience

Public Engagement Overview & Tools

		Stage	Advisory Committee	General Public
<u>July & August</u>	Official launch- establish advisory committee	NOTIFY	1st committee mtg.	
	Coordinate site tours and individual video chats/phone calls Learn more about specific areas of the park to weave into Inventory and Analysis	NOTIFY/ LISTEN		
<u>August</u>	Launch website	NOTIFY	Circulate website	Launch website
<u>Sept.</u>	Present inventory and Analysis findings to the Advisory Committee	EDUCATE LISTEN	2nd Advisory mtg: present the research, get input, fill in as needed; get feedback on the agenda and content for the 1st public meeting	
	Launch 1st survey- Provide a survey through EngagePGH to get broad input on the priorities, goals, vision for Emerald Park	LISTEN	Circulate the survey	Survey goes Live!
<u>October</u>	Public Workshop #1: Let's Plan a Park! Educate public on the master plan process, scope, schedule, inventory and analysis findings, survey findings, invite public to provide feedback on precedents/inspirational imagery after meeting (through website),	EDUCATE LISTEN	Attend public meeting	Public meeting (via Zoom)
<u>Nov.</u>	Small group workshops about individual parks Less formal, small group conversations focused on particular areas of EVP. Gather feedback from stakeholders who would like to provide input for a specific geography.	LISTEN	Participate in Individual park workshops	Participate in Individual park workshops

	Prep for Public Meeting #2	LISTEN	3rd Advisory mtg. Review public workshop content, invite comments, and refine as needed	
	2nd survey:	LISTEN	Circulate and fill out survey	Fill out survey
<u>December</u>	Public Workshop #2: Review Master Plan alternatives Update the public on the master plan process, present design options, and invite people to provide feedback on options after meeting (through website).	LISTEN	Attend public workshop #2	Public Workshop #2
	Prep for public meeting #3		4th Advisory mtg. Review public workshop content, invite comments, and refine as needed	
<u>March 2021</u>	Public Workshop #3: Final Master Plan Update public on the final master plan draft, invite the public to provide feedback on draft after meeting (through website).	REPORT BACK	Attend public workshop #3	Public Workshop #3
<u>April 2021</u>	Review Draft Master Plan send a draft master plan document to the Advisory Committee for review. Invite comments and amend as needed		Review the Draft Master Plan and provide comment	
<u>May 2021</u>	Complete Master Plan	FOLLOW THROUGH		View the final master plan

Listening Tours

Based on what's possible given social distancing parameters, the team may take a few listening tours with key stakeholders to understand specific elements of the geography of certain parts of the park. This will help the team understand different pieces of the park and inform the design process.

In addition, there may be a survey during this phase so we can hear from specific populations such as youth and older adults. The team may also explore the possibility of doing pop up events in the neighborhood or attend neighborhood meetings to better understand the context. We recognize specific populations, such as immigrants and people with disabilities, may be even harder to reach due to COVID-19 concerns, so we will work closely with the Advisory Committee to find the best ways to reach them (such as leaving surveys at activity centers).

Public Workshop #1: Let's Plan a Park!

At this first meeting, the design team will present the findings of the initial analysis and historic review. The public discussion will focus on:

- Beginning to understand Emerald Park as one regional park
 - Introducing people to this project, and the idea of a system
 - What is the identity of this regional park?
- Did we miss anything in our analysis? Are there other factors to consider?
- A discussion around visual preferences -- what elements do people like in a park?
- There may be a survey component at this phase if the Advisory Committee feels it is helpful

Focused Group Workshops

Following the first public meeting, the design team will host smaller group work sessions to hear more feedback on areas of Emerald View Park. The purpose of these meetings is to have a more informal setting for direct feedback and conversation on the following places:

- Mt. Washington Park
- Small Parks (Ream Park and Eileen McCoy Playground)
- Grandview Avenue and Overlooks
- Olympia Park
- Grandview Park and Surrounding Areas
- Duquesne Heights Greenway

Public Workshop #2: Review Master Plan alternatives

At the second workshop we will share a few alternatives for the park based on what we heard at the first meeting. Given the nature of this park, we may choose to facilitate multiple tables (or breakout rooms if it is remote) as follows:

- Major connections/ overall framework
- Mt. Washington Park
- Small parks (Ream, Eileen McCoy)
- Grandview Avenue Overlooks
- Olympia Park
- Grandview Park

The purpose of this workshop is to get specific feedback on the alternatives and begin to refine a preferred alternative.

Public Workshop #3: Final Master Plan

During the final workshop we will present a preferred option for the entire park. We may break out into several stations to look at specific parts of the park in more detail. The purpose of this meeting will be to see if there are any final adjustments to be made before the consultant team proceeds into documenting the final master plan.

Getting the Word Out

Below are potential ways that we will get the information out about the project.

- Press Releases
- Email Blasts: sending information through trusted partners, and via channels that are visited regularly. These channels include:
 - PPC eblast (12,000+ recipients)
 - City Hall (1000+ recipients)
 - Department of City Planning neighborhood groups (120+ recipients)
 - Department of City Planning newsletter (200+ recipients)
 - Office of Community Affairs (OCA) newsletter
 - Chatham Village, Hiking and outdoor groups
- Flyers/ Posters- printing hard copies when needed for people that do not have digital access
 - distributing physical collateral throughout the neighborhood
- Social Media- partnering with local orgs, including those that serve youth
 - Facebook: Neighbors on the Mount, WHAA,
- Project Website (can also be accessed on smartphone)

Communications Strategy

The consultant team will work closely with the communications team at the Department of City Planning to communicate in a consistent way about participating in the design process for the park. DCP will be responsible for developing and managing the project website which will be developed in a new online platform- Engage PGH. Merritt Chase will support DCP by providing content as needed.

Section III: Accountability & Evaluation

Public Involvement Feedback Loop

After all engagements, meeting notes will be uploaded to the project website (managed by DCP). All surveys and worksheets collected at public meetings will be summarized on the project website with full anonymized responses/input also provided.

Public Involvement Evaluation & Monitoring of Success

Each engagement will be recorded in an engagement log and report to be evaluated by the project team and working groups for possible adjustments.

Engagement Logs

The team will provide a record the public events & meetings that took place. These worksheets will include the following information:

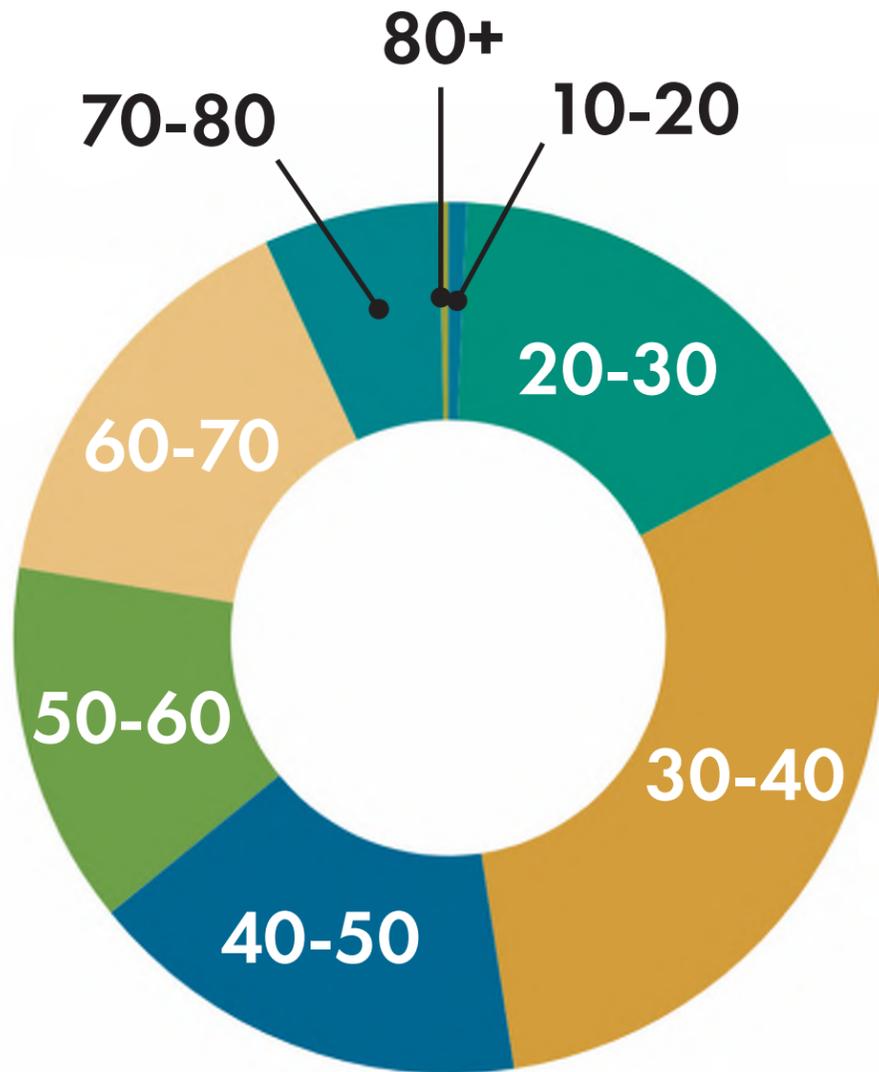
- Date Advertised
- Date of Event
- Type of tool employed (Public meeting, advisory meeting, etc.)
- Event Name
- Key Audiences
- Approximate Attendance
- Staff that participated
- Any additional comments

Engagement Report

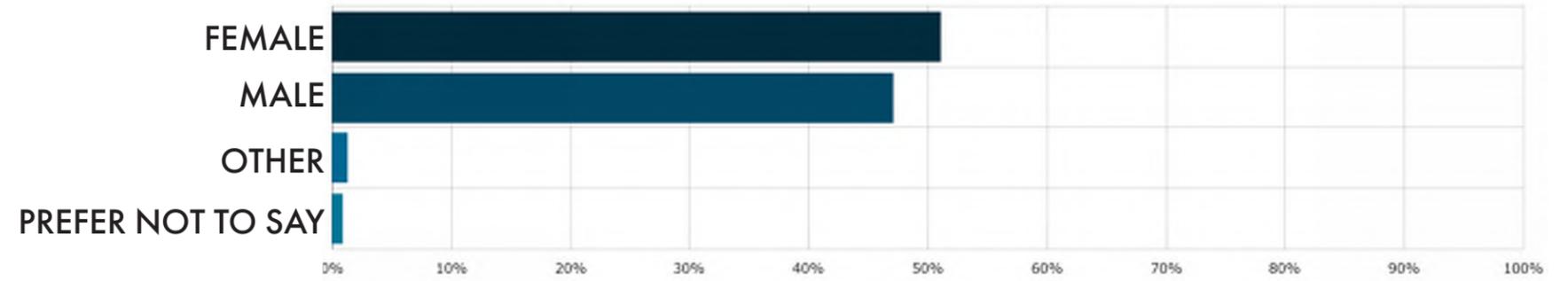
The team will prepare a report for each major public meeting which details the major outcomes of each meeting, and how the plan was affected accordingly. This ensures transparency around how engagement really impacted outcomes.

**APPENDIX B:
PUBLIC SURVEY RESULTS**

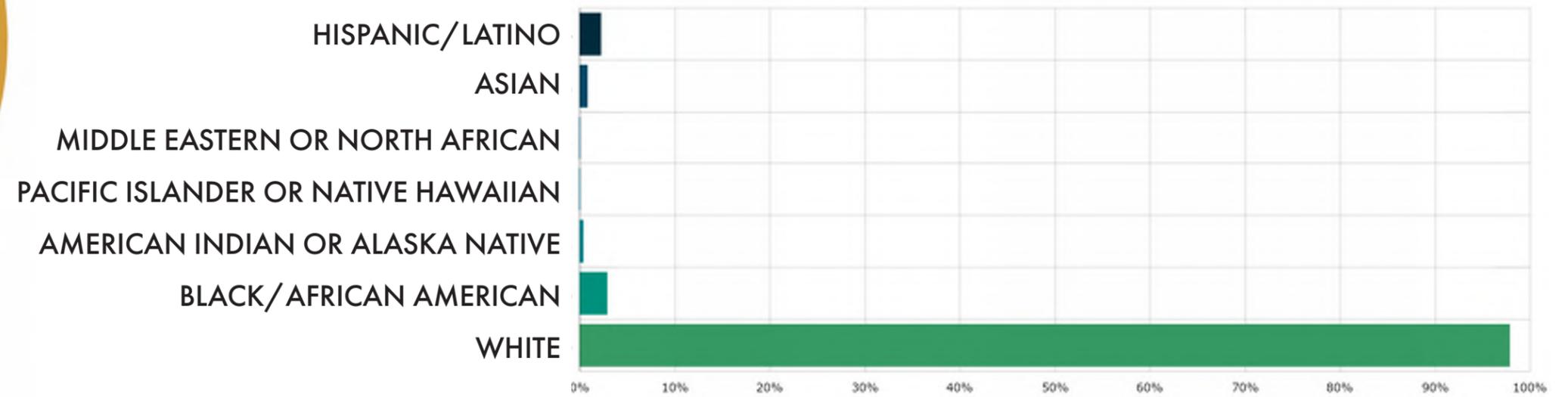
What is your age group?



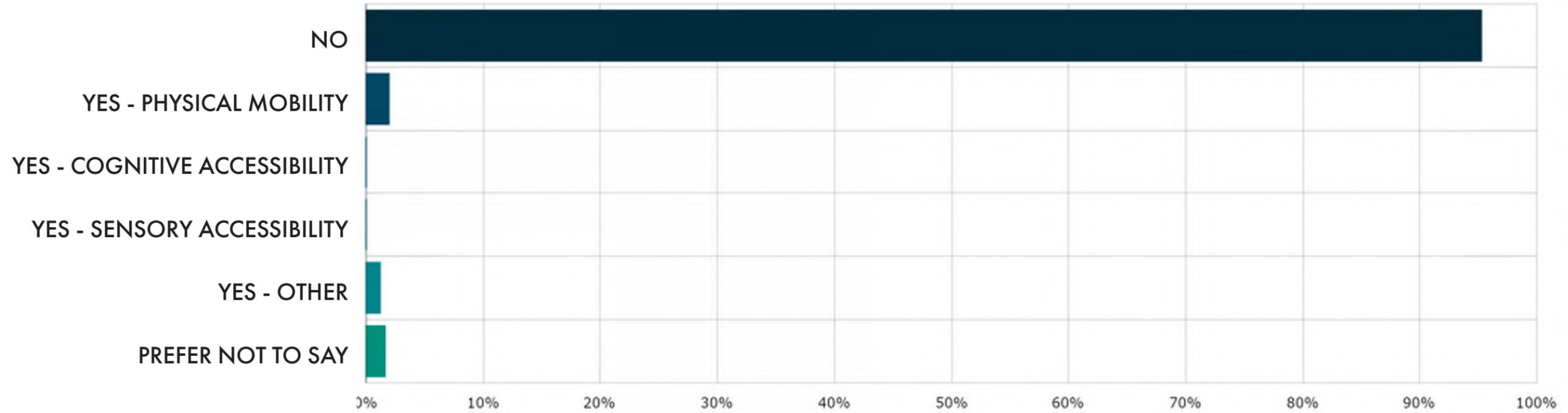
To which gender do you most identify?



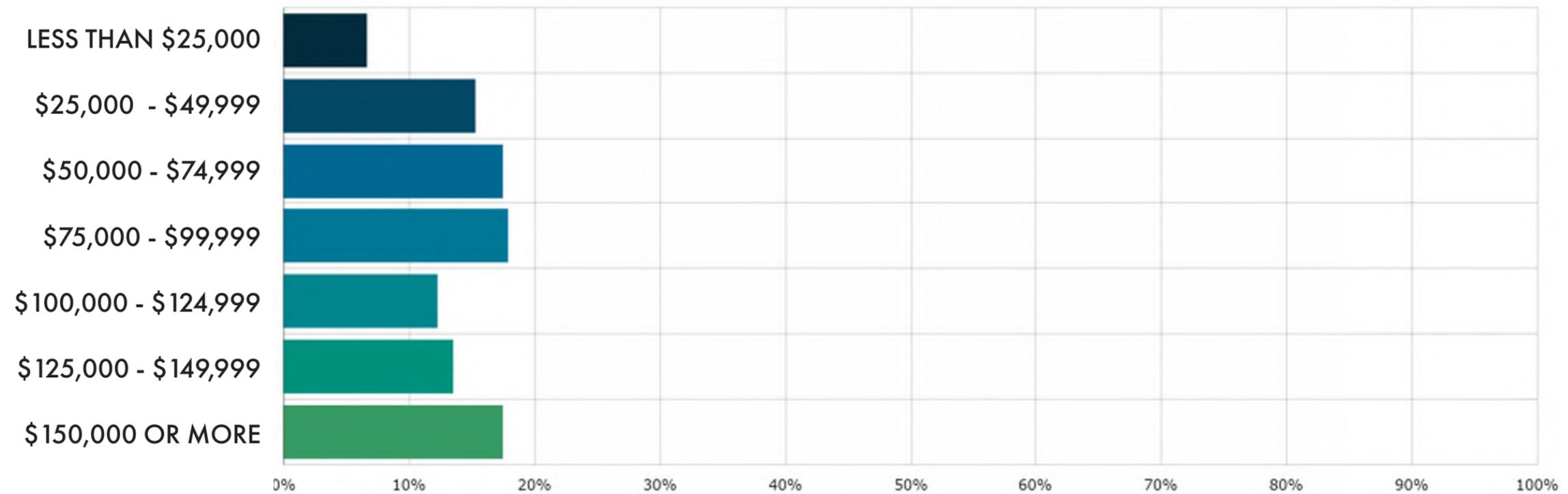
With which race(s) do you identify?



Do you have an accessibility challenge?



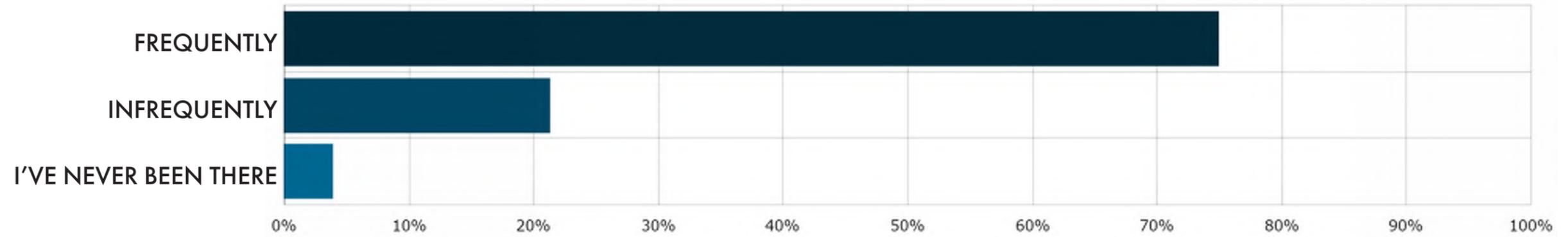
What best describes your 2019 household income?



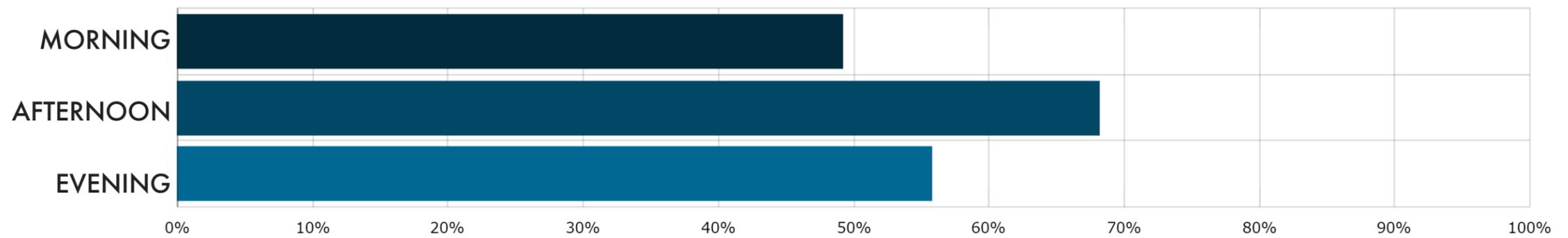
What comes to mind when you think about Emerald View Park?



How often do you visit Emerald View Park?

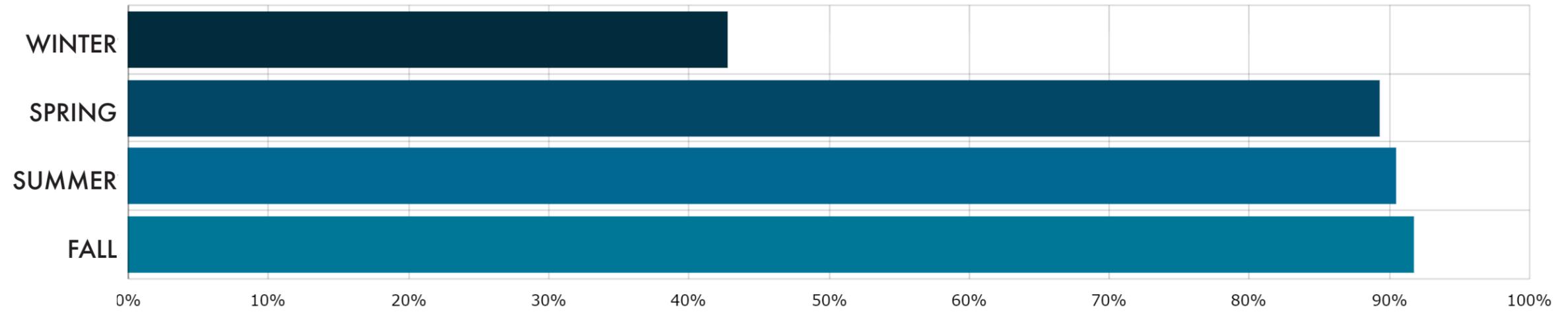


What time of day do you go to Emerald View Park?



*The survey question allowed the respondent to select multiple options; totals exceed 100%

What time(s) of year do you visit Emerald View Park most often? (check all that apply)

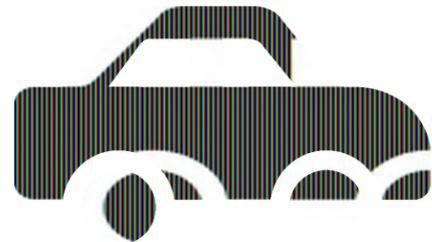


*The survey question allowed the respondent to select multiple options; totals exceed 100%

How do you usually get to Emerald View Park?



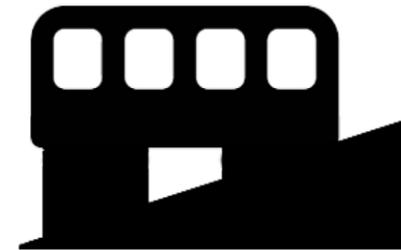
77%
Walking or
Running



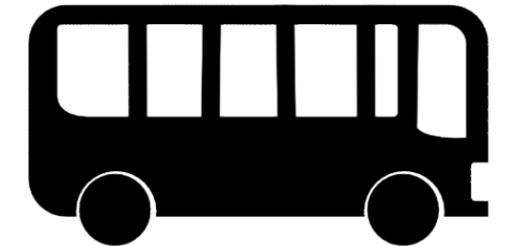
35%
Driving or
Car Share



12%
Bicycling



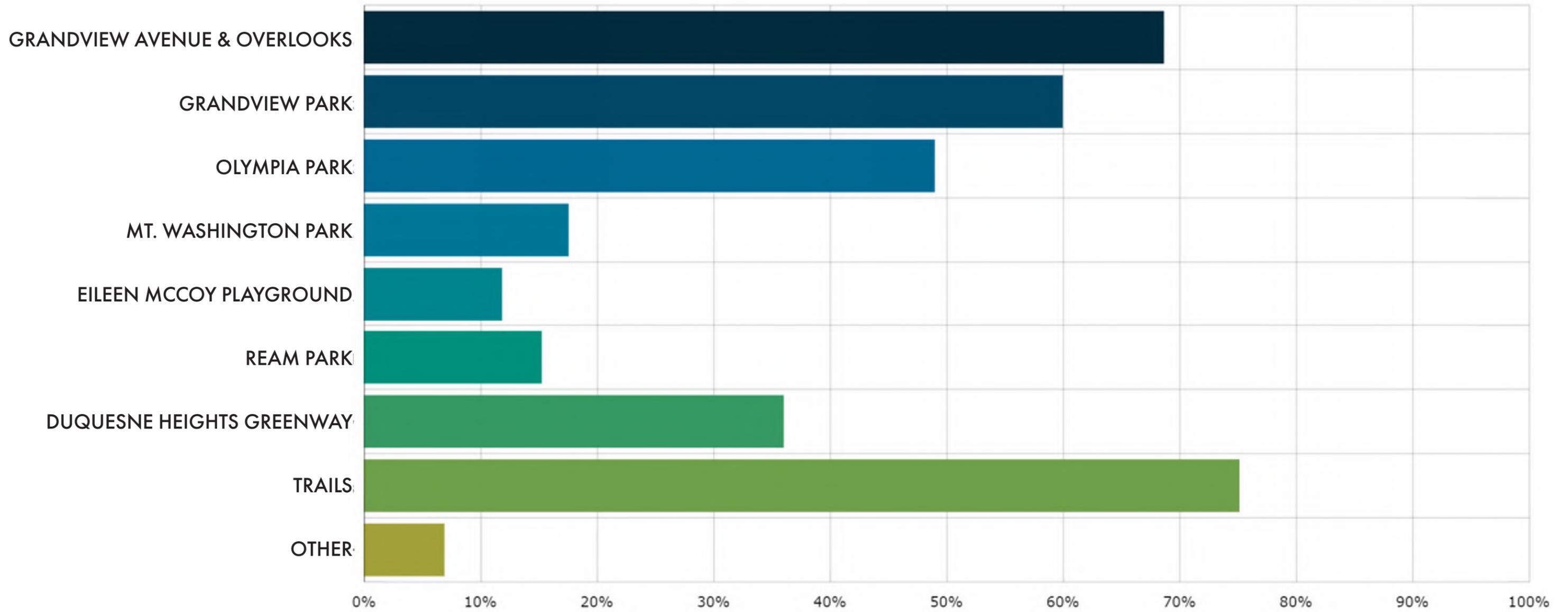
7%
Incline



4%
Bus or
Light Rail

*The survey question allowed the respondent to select multiple options; totals exceed 100%

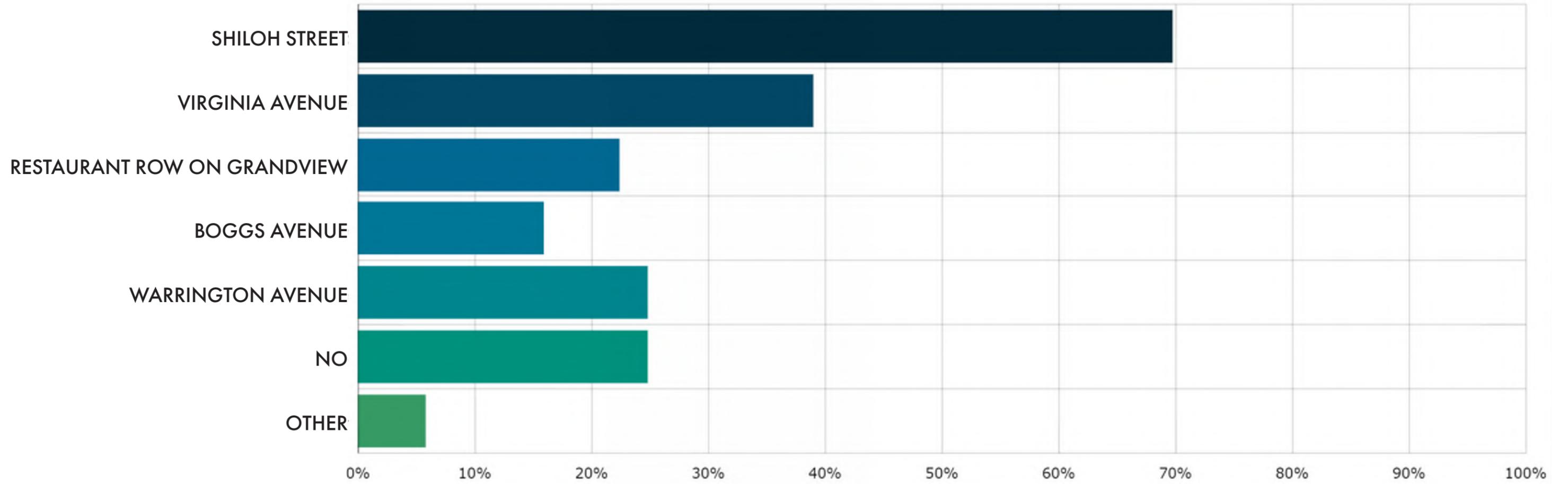
Where do you go within Emerald View Park?



*The survey question allowed the respondent to select multiple options; totals exceed 100%

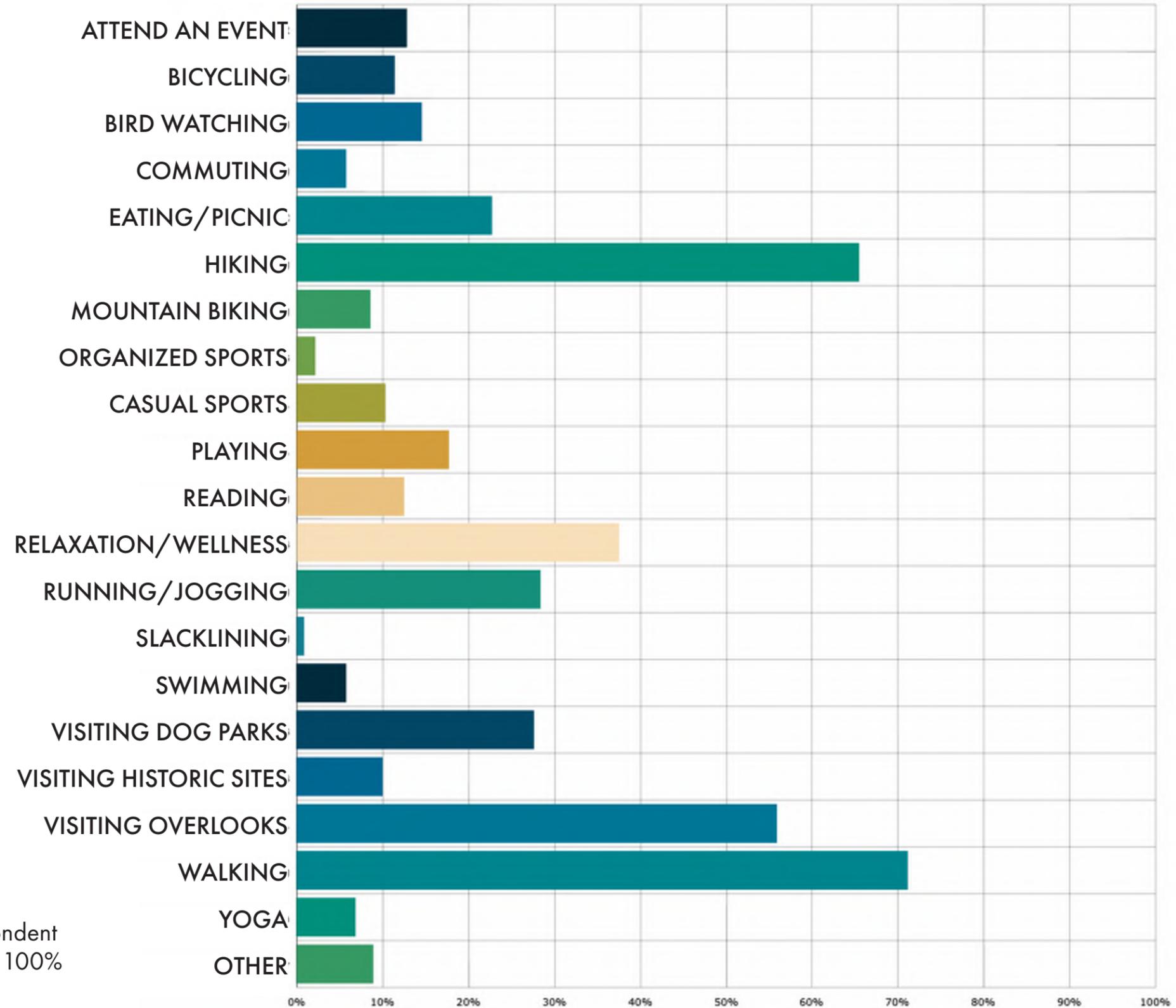
Public Survey Results

Do you ever visit any nearby business districts when you go to Emerald View Park?



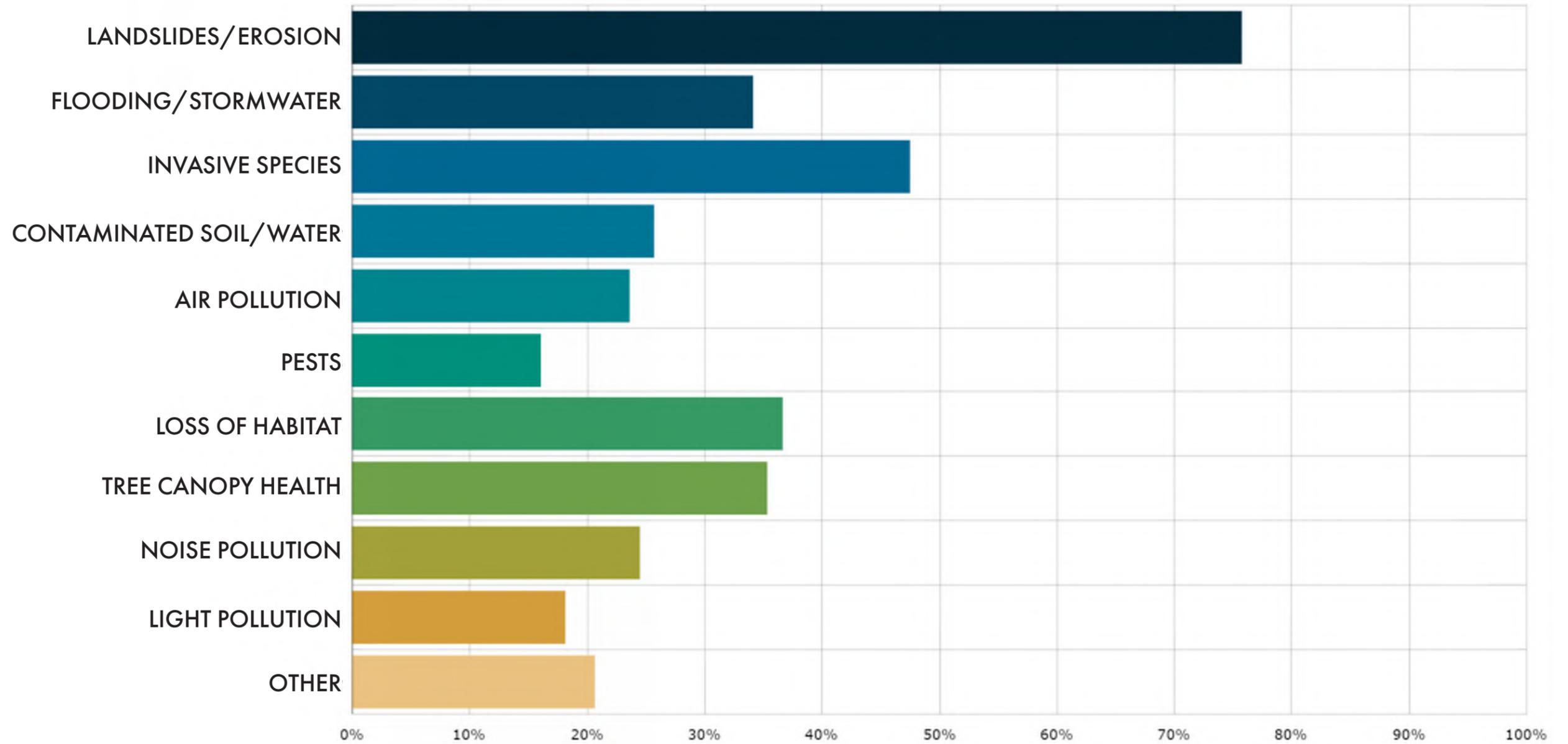
*The survey question allowed the respondent to select multiple options; totals exceed 100%

What do you do when you visit Emerald View Park?



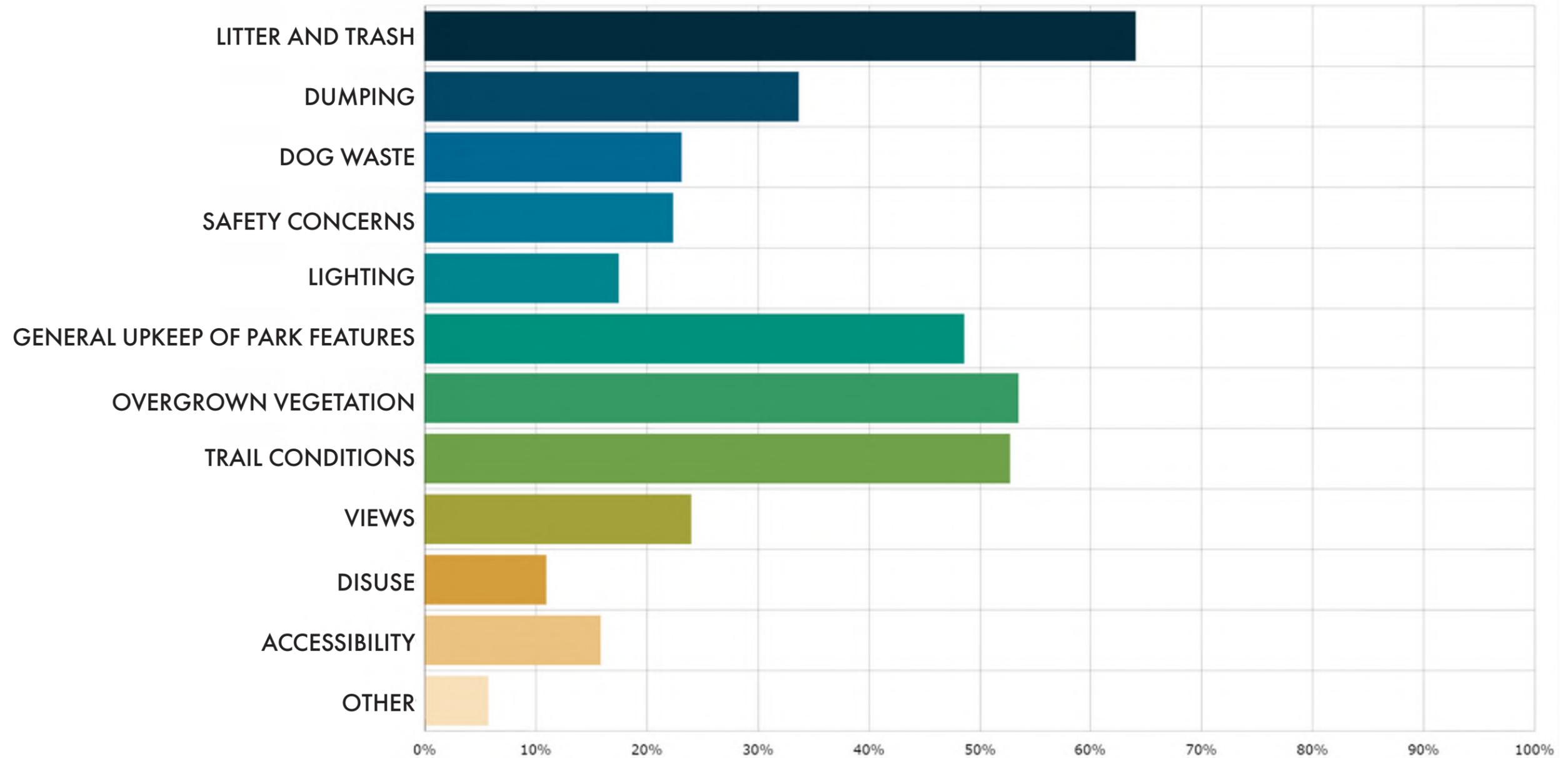
*The survey question allowed the respondent to select multiple options; totals exceed 100%

Do you have environmental or ecological concerns about Emerald View Park?



*The survey question allowed the respondent to select multiple options; totals exceed 100%

Do you have maintenance or management concerns about Emerald View Park?



*The survey question allowed the respondent to select multiple options; totals exceed 100%

**APPENDIX C:
EMERALD VIEW PARK HISTORY**

Emerald View Park Historical Timeline

Geologic Formation

440 million years ago / Taconic Orogeny

Volcanic islands crash into the North American continent and cause the northeastern lands to shift, fold and lift. This creates new mountains in eastern Pennsylvania and a basin in the state's central plateau.

440-410 million years ago

The Taconic mountains created in eastern Pennsylvania erode and deposit vast amounts of sediment into central and western Pennsylvania. This area, from New York through central Pennsylvania is known as the Catskill delta, where sedimentary rock forms to a depth of 4,000 feet.

375 million years ago / Acadian Orogeny

Continental fragments that now form a large part of the eastern United States collide creating more mountains in the eastern state and enlarging the Catskill delta.

300-220 million years ago / Pennsylvanian Period

During this period, Pittsburgh sits under swamps in a hot humid climate, which produces lush plant growth. These plants are later transformed into bituminous coal by bacteria, pressure, and heat and then sit under the sediment that forms Mount Washington. These plants thus provided the material resource that led to Pittsburgh's identity as an industrial city.

Alleghenian Orogeny

The North American and African continents collide. This movement washed sediment further into western Pennsylvania, creating much of the sedimentary rock on its surface seen today. Pittsburgh sits on more than 16,000 feet (3 miles) of this sedimentary rock.

20,000 years ago

The most recent glacial event occurs, reaching just north of Pittsburgh at today's Moraine State Park. While no glaciers from the Pleistocene Epoch reached Pittsburgh, the deposits and blockages they created shaped the configuration of the Monongahela, Allegheny and Ohio rivers. The resulting water deposits and erosion formed Pittsburgh's many hills and valleys. The last glacier receded in 8000 BC.

Indigenous Settlement

12,000 BC

The Meadowcroft Rockshelter in Washington County, PA is one of the oldest carbon dated human settlements in North America. This formation was used by indigenous peoples as a stopping place for shelter while hunting and gathering.

1100-200 BC

During the Early Woodland period, the Adena people reside in southwestern Pennsylvania and northern West Virginia. These indigenous peoples were hunter-gatherers as well as fishermen, and many resided along the rivers. The Adena tribe is known for building the McKees Rocks burial mound overlooking the Ohio River.

200 BC-400 AD

In the Middle Woodland period, the Hopewell cultures reside in today's Midwest region. These cultures reside near the rivers and form complex social networks, agriculture, trading systems, art, and burial mounds.

1000-1650

In the Late Woodland period, the Monongahela culture resides in the River valley in western Pennsylvania into eastern Ohio. This culture made distinctive pottery and lived in clustered villages of about 100-150 people.

Colonial Establishment

1681

King Charles II of England grants territory to William Penn, a 37 year old Quaker, to establish Pennsylvania under British territory. He is the proprietor of Penn's Woods until the Revolutionary War.

Early 1700s

Several different Native American tribes arrive in today's Pittsburgh after being forced from their land further east. The Delaware tribe comes from eastern Pennsylvania; the Shawnee tribe arrives from the south; and the Iroquoian tribe comes from New York. The three cultures blend in this area along with smaller tribes that arrive. These indigenous cultures form an elaborate system of government and hunt in the surrounding forest.

1753

Guyasuta, leader of the Seneca tribe, guides young George Washington through what is now Pennsylvania to the French Fort Le Boeuf. After this journey the two leaders spend years on opposing sides of the French and Indian War. In 1770, after Native American land is signed over to the British, the two leaders meet again and discuss the future of the region. The Point of View Statue (2006) on Grandview Avenue depicts the two leaders' meeting.

1754

Disputes over the control of land at the confluence of the Allegheny and Monongahela Rivers between the French and British ignite the French and Indian War (part of the Seven Years' War). Fort Duquesne is established by the French where today's Point State Park stands.

1758

The French burn down their own Fort Duquesne before the British can conquer it.

1761

The British construct Fort Pitt to replace where Fort Duquesne stood, naming the structure after Prime Minister William Pitt.

1760

The first mining of bituminous coal begins on "Coal Hill". Early residents of the Pittsburgh region gather coal to heat their homes and supply soldiers at Fort Pitt by transporting it on canoes. Early uses also included salt extraction and glass making.

The coal on Mount Washington is unique for how close it was to the ground's surface, stretching 10-12' and covering the entire hill. Coal was first discovered on Mount Washington by a British soldier stationed at Fort Pitt who scraped away the shale on the hillside and used what he found below to warm his barracks.

The first white settlers on Mount Washington were English, Scotch-Irish and Welsh and worked in the glass factories below. German immigrants would soon follow them.

1763

With the end of the French and Indian War, the British control much of the Great Lakes and Ohio territories. Due to the strict British policies towards Native Americans, tribal leaders in the area begin an open rebellion against the British, led by Ottawa Chief Pontiac. The Native American leaders focus on Fort Pitt during this rebellion, hoping to capture it and push the British out of their land. Their uprising is not successful though and a peace treaty is signed between the British and leaders of the Delaware, Seneca and Shawnee tribes. In 1766, after other rebellions further west, Chief Pontiac signs a formal treaty to end the war between the Native Americans and British.

1770

Mount Washington and the South Side are included in a 3,000 acre royal grant to Major John Ormsby.

1775-1783

During the Revolutionary War, American soldiers in Western Pennsylvania played a major role in killing and eradicating nearby Native American populations in order to defend frontier colonists. Many were sent on expeditions beginning at Fort Pitt to engage in battle with the Six Nations of the Iroquois Confederacy.

Emerald View Park Historical Timeline

City Growth and Coal Hill

1780s

The Penn family begins to sell large amounts of land in Pittsburgh. William Penn was the first owner of the farmland on Mount Washington. A survey of their land used trees as property markers and notes the presence of hickory, white oak, white walnut, Spanish oak, sugar tree and red oak trees.

1784

The Penn family begins to sell mining rights on Mount Washington. By this time, Pittsburgh has been nicknamed “The Smoky City” for its heavy use of coal.

1788

Pittsburgh earns the designation as the Allegheny County seat, with a population of more than 1,000.

1794

Pittsburgh is incorporated as a borough, gaining more recognition as a center of trade and early industry. The increasing amount of visitors to the area creates a constant market for goods and establishes the industrial base of the city.

1797

The first glass factories open near Pittsburgh. Because of the high quality, silica-rich sand left behind by the glaciers, the Allegheny River provides abundant resources for glass-making.

1803

Meriwether Lewis, a military officer stationed in Pittsburgh and Thomas Jefferson’s personal secretary, leaves Elizabeth, PA near Pittsburgh to join William Clark for their westward expedition.

1812

The War of 1812 spurs commerce through Pittsburgh as the Ohio and Mississippi Rivers become main North-South water routes. The city’s population dramatically increases from 2,400 in 1800 to 9,000 by 1815.

1816

Pittsburgh is chartered as a city. By this time, Pittsburgh has been nicknamed the “Iron City” for its largest industry in iron production, fueled by the coal from Mount Washington.

1827

Joseph Allen, a butcher, buys the extensive farmland on Mount Washington now known as Allentown which is named after him.

1830s

By this time, descriptions of Pittsburgh stop reflecting its environmental beauty, with a diverse tree canopy, lush wooded areas, abundant fish species, farms and orchards, and clear waters in the three converging rivers. Instead, visitors begin to note the layer of smoke residing over the city and deforested areas on its hills giving way to large quarries and furnaces.

In these early days as Coal Hill, Mount Washington was home to German immigrants, though it was mostly vacant. Irish and English immigrants followed, and then Italians, Polish and other Eastern Europeans. Some of these ethnic communities remain on Mount Washington today.

Construction begins on Pittsburgh’s railroad systems.

1833

The base of Coal Hill becomes home to a row of coke ovens that greatly contribute to the smoke and soot of the city.

1844

A red brick Greek Revival style house is built on the grounds of the future Chatham Village. This house was the home of Thomas and Maria Bigham and is reported to have been a stop on the Underground Railroad. Thomas Bigham was known as the sage of Mount Washington and was an attorney, newspaper publisher, politician and abolitionist. The house is now called Chatham Hall.

1849

The smoke in the city becomes so bad that the City Council proposes prohibiting further construction of coke ovens and brick kilns within Pittsburgh city limits. However, this smoke abatement ordinance is not actually introduced

until 1892. The coke oven ordinance was presented by John Paul, representative of Mount Washington’s 32nd Ward.

Early to Mid 1800s

The southern slopes of Mount Washington, currently Duquesne Heights, are known for its agricultural tracts. Large farms, orchards, and vineyards occupied the slopes and valleys.

The Smoky City

1854

Pittsburgh is connected to neighboring eastern and western states with the construction of the Pennsylvania Railroad.

1860s

A fire is accidentally started in a coalfield beneath Mount Washington and burns uncontained for reportedly sixteen years. Visitors’ accounts say they could barely stand on the surface of the hill because it was so hot and steam would rise out of any hole in the ground.

1861-1865

During the Civil War, several forts are built on Mount Washington and Duquesne Heights. There are remains of forts on the northern hillside of Mount Washington today.

1863

Miners for the Pittsburgh Coal Company and Federal Authorities build Fort Mechanic on today’s Saddle area. The Civil War trenches dug here were still visible in the early 20th century. These are erased with the new Castle-Shannon Incline.

1866

Due to the expanding industry in Pittsburgh and its nickname “the Smoky City,” James Parton declares that Pittsburgh is “hell with the lid taken off.”

1867-1877

New German residents on Mount Washington propose inclines on the steep mountain slope, modeling them after the German steilbahns, or “steel roads”. They begin to operate in 1877, transporting people, horses, wagons, and goods. The Monongahela Incline is completed in 1870 and the Duquesne Incline is completed in 1877. After these inclines are built, business districts are built on top of Mount Washington.

1870s

Iron and steel production for canals and railroads help spur the coal industry in Pittsburgh.

Emerald View Park Historical Timeline

1872

Allentown, Mount Washington, and Duquesne Heights are annexed to the City of Pittsburgh.

1879

The Pittsburgh and Lake Erie Railroad is built. Known as the “Little Giant” the railroad lines served Pittsburgh’s steel mills and carried 1% of the nation’s tonnage, out of proportion for how short the route was.

Late 1800s

Coal production in the city is at 13 million tons per year, or one fifth of the country’s total. Many of the most wealthy industrial entrepreneurs become linked to the Pittsburgh coal and steel industries, including Seward Hays, Henry Clay Frick, Andrew Carnegie, Henry Phipps and Thomas Mellon.

Because of this industrial expansion at this time, workers begin to settle on Mount Washington, converting the farmlands at the top of the hill to housing. Factory workers also use the “Indian Trail”, the mile long switchback on the mountain’s slope, as a transportation route.

Mount Washington Development

1889

The Director of Public Works in Pittsburgh, Edward Bigelow establishes a parks division within the Public Works department.

1890

Grandview Avenue is paved after years of indecision on the part of the city. An ordinance had been passed in 1873 to grade, pave and curb the avenue, but construction didn’t begin for sixteen years.

1897

Grandview Park is acquired and originally contains 18 acres of the Robinson Farm on the hillside. The park is one of the city’s highest points.

1899

Whittier School is established on Mount Washington. It is named after Isaac Whittier who was a director of Mount Washington public schools. In 1939 the school was rebuilt in its current location on Meridian Street.

1900

The Carnegie Library is built on Grandview Avenue as part of the Carnegie Library system. Unlike other libraries in the system, this building and land is owned by the City of Pittsburgh. This is because at the time of its opening, Andrew Carnegie had an insufficient amount of funds, so local residents pooled together their resources to ensure its opening. The neighborhood support of this library continues today.

By this time, because of both nationwide and regional railroad systems, and the continued growth of the city’s industries, Pittsburgh has more freight shipped through its center than any other city in the country. Also, because of the success of the inclines on Mount Washington, the city builds 17 inclines around the city to help traverse hillsides.

1903

The Wabash Tunnel running through the heart of Mount Washington is created as part of the Wabash Pittsburgh Terminal Railway, a short-lived transcontinental railway system that ran through downtown Pittsburgh and only lasted four years. Since its abandonment, the tunnel has

been the subject of many city planning projects, yet none have been able to succeed. Today the tunnel is a two-lane HOV roadway below Mount Washington.

1904

A streetcar tunnel is built through Mount Washington, providing much easier access to downtown for South Hills residents.

1908

Olympia Park is acquired by the city after nearby residents voice their desire for a local neighborhood park. These residents intend for the park to be a center for public games and recreation, thus why it is named Olympia.

That same year, Mount Washington Park is also established at the request of local residents. Both parks were formerly productive farmland. Mount Washington Park has also been referred to as Wilbert’s Grove, Dilworth Park, and “goat park” because of its steep slopes.

For its first fifty years, Grandview Avenue served as a neighborhood street used by workers to access the inclines that took them to mill, mine, and railroad jobs on the river. Houses faced the street, not the city, because the city view was obscured by smoke from the prosperous mills.

1909

The city builds a wooden stairway following the pathway previously known as the Indian Trail that leads up the hillside of Mount Washington from the Monongahela River. The new stairway leads from Carson Street to Grandview Avenue and becomes known as the Indian Trail Steps. It consists of almost 1000 steps and stretches for almost a mile on the steep slope. Pittsburgh workers frequently use these steps to commute from their homes on the hilltop to the factories below.

The city acquires two water towers that still stand today in Grandview Park, originally owned by the Monongahela Water Company. These two towers provide rudimentary water service to Allentown and Mount Washington residents. The city also constructs the park’s entranceway on Bailey Avenue.

1910

The Pittsburgh Civic Commission commissions Frederick Law Olmsted to conduct “A Report on Main Thoroughfares and the Downtown District.” In this study, Olmsted notes the need for accessible parks at most a half-mile away from any family, while also recognizing the difficulty of the city’s steep hillsides. Olmsted urges that the Mount Washington hillside should be “preserved intact for all time.”

“Generally speaking,” Olmstead states, “these steeper and more irregular pieces will be of greater use to the public than they could be to private occupants. It must be noted, however, that their value for recreation is distinctly limited. They cannot adequately or economically supply the local needs for playfields, out-door gymnasiums and the like; and as isolated fragments they cannot, of course, fulfill the functions of large rural parks. It is possible, however, to lay out sidehill walks on easy gradients and to furnish seats and terraces, especially near the upper edge of such declivities, where the people of the neighborhood can stroll and rest and enjoy interesting and extensive views over the city, the river or the adjacent valley; always with the steep natural hillside below as a foreground (Olmstead, 1910, p. 111-112).”

“Especially is it desirable that the precipitous hillside rising to Mount Washington, now largely an unfruitful waste, a place of raw gulleys and slides mingled with some painful advertising signs, should be treated with respect as a vital part of the great landscape of the city. It should be protected from defacement and its earthy portions should be re clothed with the beauty of foliage.”

1912

The City Council and Mayor commission “An Economic Survey of Pittsburgh” by J.T. Holdsworth. This survey directly links the city’s parks and open spaces with its economic health. Like Olmsted, Holdsworth encourages the expansion of park land on the Mount Washington hillsides.

“No general park extension plan can afford to overlook the utilization of the barren slopes on both sides of the Monongahela. At comparatively little expense these bleak banks can be converted into neighborhood parks accessible to the working community where the ever-changing panorama of river and city life may be enjoyed. By appropriate landscape treatment these eyesores can be made at once beautiful and useful in contributing to our recreation needs.”

Emerald View Park Historical Timeline

The Gossar Plan is also published which proposes a two-level bridge that connects downtown with a tunnel under Mount Washington opening at Haberman Street and Warrington Avenue.

St. Mary of the Mount High School has its first graduation class.

1913

A merry-go-round is built in Grandview Park and operates until 1946. (2005 MIP) This carousel is designed by Thomas Scott, and includes many animals including horses, lions, tigers, deer, giraffes, ostriches, kangaroos, and goats. A shelter house is also built in the park.

1915

Clubwomen from Pittsburgh decide to plant flowers on the dirty and dangerously steep Mount Washington, becoming the first of many women to work on beautifying the hillside.

1917

South Hills High School has its first graduation class.

1918

The seven year long review called the "Pittsburgh Plan" begins to review six of the city's features: playgrounds, streets, transit, parks, railroads, and waterways. The plan highlights the need for recreation and open spaces in the city. The availability and accessibility of recreational facilities affects the attraction of workers to the city.

1921

Pittsburgh City Council appropriates \$5,000 to begin road and path improvements at Mount Washington Park. A 1923 study by Pittsburgh's Citizens Committee on City Plan of Pittsburgh, entitled Parks: a part of the Pittsburgh plan noted that on the slopes "some grading for walks has been done."

1922

The Western Pennsylvania Conservancy is founded.

1924

The Liberty Tunnel beneath Mount Washington opens and helps in the development of the South Hills suburbs by connecting directly to downtown.

1928

The McArdle Roadway is paved, becoming one of the first roads on the steep hillside. Formerly the Mount Washington Roadway, it was renamed after Peter J. McArdle, a resident on Bigham Street who served for 27 years on the Pittsburgh City Council.

The City Planning Commission adopts a Mount Washington beautification plan, calling for 8,000 trees to be planted in one year. This \$75,000 plan that would take three years to implement was cut short by the Great Depression.

1930s

The Olympia Park Shelter is built.

1932-1936

Chatham Village is built on Mount Washington's southern slope. The historic planned community was designed by Clarence Stein and Henry Wright using the principles of the Garden City Movement. 30 acres of the community is managed open space. Originally this village was meant to be entirely affordable housing but has since become a middle-upper class neighborhood.

1934

Pittsburgh hires its first landscape architect, Ralph E. Griswold, who becomes responsible for much of the planting design at Grandview Park.

1935

Because of the new roadway leading up Mount Washington's northern slope, the Indian Trail Steps are dismantled due to disuse. Some portions of the old pathway can still be seen today.

Environmental Conservation

1939

The City Planning Commission refuses to put properties into the public sale process that are on slopes greater than 25%. This indirectly protects the city's steep hillsides and keeps them in city ownership.

[1943 Historical Data for Pittsburgh Public Parks]

1946

Gilbert Love, a columnist for the Pittsburgh Press, proposes a hanging garden on the Mount Washington hillside to become a world class attraction. Love suggests that the city's 73 garden clubs could each take a segment of the hanging garden.

1949

The local Chamber of Commerce leads a group of residents and school children in an attempt to plant sunflowers, cosmos, poppy and cornflower seeds on Mount Washington. One resident writes to different states and territories to send seeds and plants to create a "Garden of the States." By 1955 a majority of the plants had died but some still remained.

After WWII

Smoke abatements and other civic actions are passed, beginning a new era in environmental cleanup. By 1949, the city is reported in Newsweek to have "cut the famous smoke pall by half."

1950s

Grandview Overlook Park is established when the railroad donates land to the City with a deed restriction for its creation. The 50 acres provide the famous urban vista that earns a Pennsylvania Scenic Byway designation.

1953

Spearheaded by the Women's Club of Mount Washington, the City allocates funding to clear weed trees along the Mount Washington Roadway, beginning a series of annual Arbor Day events that last a decade. Chairwoman Verna Dibble leads the first event to beautify the hillside. By that fall, many maple sugar seeds were collected and scattered on the hillside to bring fall color. The organization also worked to remove billboards from the hillside.

1954

The City Parks Department and the Mount Washington Hillside Planting Committee, a spinoff of the Women's Club, each take on planting efforts on the hillsides with donated funds and plants. These plants included 100 crab apple trees, hawthorn seeds, black locust trees, honey locust trees, multiflora roses donated by the Dormont-Mt. Lebanon Sportsman's Club, sassafras, arrowwoods, mountain laurels, and azaleas.

1955

The Pittsburgh Brewing Company cancels their lease of the giant beer sign on the Mount Washington hillside at the encouragement of the Mount Washington Hillside Planting Committee.

1958

An overlook and bandstand are constructed at Grandview Park for Pittsburgh's bicentennial celebration. The overlook has been used for concerts and performances.

The City Council adds a new zoning classification for Special Areas (S) which includes steep slopes. The future uses for these areas are identified the following year in a Riverfront and Hillside Master Plan including overlooks, scenic drives, conservation and recreation areas.

1959

The Department of Parks and Recreation and the Department of City Planning outline a master plan for the city's riverfronts and hillsides.

1960

The Fort Pitt Tunnel opens, connecting the West End region with the South Shore neighborhood and Downtown through the Mount Washington underground. Excavations for this tunnel exceed the natural slope of the hill, intensifying erosion and plant loss. At the northeast end of the tunnel, visitors can see the famous panoramic view of the city.

1961

Grandview Elementary School is established in Allentown.

Emerald View Park Historical Timeline

1962

Because of their need for extensive repairs and maintenance, the owners of the Duquesne Incline (the Duquesne Incline Company) stop operation for lack of funding. But, Mount Washington residents begin a large fundraising campaign to save the incline and make necessary repairs. The community hosts bake sales, tourist events and parties to raise \$15,000. They eventually create a non-profit organization called the Society for the Preservation of the Duquesne Heights Incline which continues to manage the daily operations of the incline today, while the Port Authority maintains ownership. The renovated incline reopened in 1963.

1963

Federal highway funds are used to develop the east end of Grandview Avenue into a tourist area. These funds are used to build the four observation platforms, new lighting, fencing, park benches and street trees.

1965

An article in the Post Gazette features new planting on the Mount Washington hillside near the Fort Pitt Tunnel with which a lawn care company tested a new method of spreading seed. This planting was a mix of rye grass and Crown Vetch seed, which was known to grow under adverse conditions.

1966

Mayor Richard Joseph Barr, the City Council, the City Planning Commission and the Department of Parks and Recreation join forces to acquire remaining private properties on steep slopes, including parts of Mount Washington. 166 acres of land around the city were identified but not all purchased.

1969

The new state program known as "Project 70" provides matching funds for the purchase of recreational areas for historic and scenic purposes. The city's Planning Commission and Department of Parks and Recreation thus utilize this program to recommend seven priority areas where the purchase of steep land could be protected. These areas include portions of Mount Washington and were chosen for their high visibility, scenic vistas, hiking or walking potential, and value as open space within a fifteen minute walk from city neighborhoods. This planning effort eventually led to the designation of Duquesne Heights Greenway in the 1980s.

1970

The City Department of Parks and Recreation cites a USDA survey of Mount Washington noting that there are no evergreens on the hillside at this point. The trees catalogued on the hill include maples, locust, and some red oak, ash and sumac. In Grandview Park, mulberry, dogwood and walnut are also noted.

The City commissions a study by landscape architects Griswold, Winters and Swain to assess the potential for restoring Mount Washington. Their recommendations lead to an experimental test planting commissioned by the Mount Washington Hillside Planting Association, and also involves the Western Pennsylvania Conservancy and Hillman Foundation.

[1970 Mount Washington-Duquesne Heights: A Study for the Department of Parks and Recreation]

[1972 Mount Washington-Duquesne Heights: A Program for Implementation]

1970s

1000 Grandview Avenue, a condominium development on the hillside is built, beginning the view-oriented development of Grandview Avenue.

The Station Square project is initiated by the Pittsburgh History and Landmarks foundation as a major commercial development at the base of Mount Washington.

1980

Landscape architects Griswold, Winters and Swain conduct a follow-up survey to their 1970 study which outlines the plant growth that could most successfully hide the effects of the Fort Pitt Tunnel on the hillside.

1980s

Neighborhood groups on Mount Washington are invited to request a greenway project and they identify the Duquesne Greenway. 56 acres are designated as the Greenway, though this does not actually prevent development encroachment on the area.

1982

Revitalization planning for the 1.2 mile Grandview Walk begins, which leads to the Grandview Avenue Corridor Urban Design and Development Study completed by Bohlin Cywinski Jackson in 1993.

1984

The 25-story Trimont development project is built on the 1200/1300 block of Grandview Avenue, dramatically changing the Duquesne Heights neighborhood and demolishing the commercial district for the luxury condominiums and offices. This development also leads to private funds for the creation of a fifth overlook at the Duquesne Incline.

1985

The Port Authority expands and modernizes its Monongahela Incline building and facilities, making the incline more attractive for tourists and residents.

Grandview Avenue

1990

The Mount Washington Community Development Corporation (MWCDC) is formed in response to the need for a centralized group to oversee the development of the neighborhoods on Mount Washington.

1992

The MWCDC and WPC build a gazebo and landscape at the north side of the Merrimac and McArdle Intersection on the Scenic Byway.

1993

Bohlin Cywinski Jackson completes the Grandview Avenue Corridor Urban Design and Development Study, which is approved by the Planning Commission in 1995.

1994

City officials terminate discussions to redevelop the previous Edge restaurant property on the east end of Grandview because the developer could not secure funding. They had proposed a \$71 million plan to build a Ritz Carlton.

[1995 Grandview Avenue Corridor Urban Design & Development Study, Bohlin Cywinski Jackson]

1996

A Conceptual Design for the Grandview Walk is developed by Jennifer Higgins of Machian MacLachlan Cornelius & Filoni, Inc. This leads to the funding of two Grandview Walk projects: Photography Park and the Shiloh Gateway Entrance, designed by BCJ.

A playground is constructed at Grandview Park behind the Grandview Elementary School. This is near the original shelter house that was in the park.

1997

City Capital Budgets provide funding to initiate two Grandview Walk Projects: the Photography Park and the Shiloh Gateway Entrance. These funds are included in the 1997, 1998 and 1999 budgets. The City Engineering Department contracts Bohlin Cywinski Jackson in 1999 to design these projects.

[1997 Virginia/Shiloh Avenue Development Plan]

Inventory and Analysis

Emerald View Park Historical Timeline

The Emerald Link and Grandview Scenic Byway

1998

The Grandview Public Realm zoning goes into effect on December 31st. This was one of the recommendations in the Grandview Avenue Corridor Urban Design & Development Study completed by Bohlin, Cywinski & Jackson in 1993.

The MWCDC Open Space Task Force leads the effort to make the northern hillside of Mount Washington a large open space, called the “Emerald Link”. City Council forms the Grandview Walk Task Force consisting of Councilman Alan Hertzberg, city and county administrators, architects, regional planning staff, local business owners, Forest City Enterprises, and representatives of MWCDC. This Task Force applies to Regional Asset District (RAD) for funding for the repair of overlooks and 200 acres of green space. However, RAD turns down their request and created guidelines to disallow funding for overlooks.

Later that year, the URA designates Grandview Hillside (Grandview Overlook Park) as blighted. Residents push back, focusing on public knowledge of deed-restricted park land designation protected status in order to discourage attempts to develop the hillside.

Through the Map Pittsburgh Process, City Planning eliminates two zoning classifications that offered protected status to properties. The Special (S) and Open Space (OS) classifications are eliminated, leaving only the Hillside (H) as an available option for Mount Washington. These city wide efforts were focused on promoting infill development, particularly on slopes.

1999

Forest City Enterprises ties their multi-million dollar development of Station Square with the creation of Grandview Walk. \$750,000 is approved to improve pedestrian access to Mount Washington from the inclines.

A tornado touches down on Mount Washington and damages large forest areas of the Saddle.

Summary of the 20th Century (2005 MIP Plan): “For Mount Washington, the 20th century represented a time of recovery from the previous century of resource extraction and urbanization. Vegetation became reestablished, mostly through natural succession, although numerous landscaping efforts took place with varying degrees of success. As the escarpment greened and forest

grew back, subsequent generations came to regard Mount Washington and the other similarly recovering hillsides of Pittsburgh as characteristic of an unusually green city. However, the vision that guided the revegetation of Mount Washington was generally social (Olmstead), aesthetic (garden groups), or economic (city economic analysis) in focus. The ecological factors were not fully understood or appreciated, and no comprehensive management goals were established to guide its restoration.”

2000

MWCDC, the Presbyterian Church of Mount Washington, Grandview Elementary School, Allentown Civic Association and the national Student Conservation Association (SCA) begin collaborative efforts to transform Grandview Park into an active center for neighborhood recreation. CitiParks brought Saturday night movies; MWDC, CitiParks and Slippery Rock University created a mural on the bandstand and started band concerts in the park. A planning team (TOP) was created; lighting was replaced and safety issues addressed. Hiking trails, originally built in the 1930s by the WPA, begin to be restored by volunteers.

The City’s rezoning changes the area from Vinecliff to East Sycamore from a “Special District Class A” zoning, which required city approval for development, to a “Neighborhood Commercial” zoning. This new classification allows developers to construct commercial buildings with little required setbacks.

2001

Three Rivers Stadium is demolished and residents view the demolition from Grandview.

2002

The Gateway Entrance at Shiloh Street is completed. This includes a map of the business district, benches, a bluestone walkway and three large trees.

2003

Mount Washington’s Grandview Avenue, McArdle Roadway and E Sycamore Street receive designation as a State Scenic Byway from the Commonwealth of Pennsylvania. This effort is led by the Mount Washington Community Development Corporation’s Open Space Task Force through community discussion, planning and legislation.

The Emerald Link project also receives a grant of \$50,000 from Heinz Endowments for preliminary research. Later,

after completion of the scope for the project, Heinz awards WPC and MWDC another \$150,000 to complete the Master Implementation Plan. The first site for the Emerald Link project was to be the greenspace at the top of McArdle, across from the Gazebo Garden.

State Representative Michael Diven also presents MWDC with a \$10,000 state grant for the Emerald Link project. Part of this grant is also to be used to improve the area around the parking lot on Sweetbriar Street, which serves as a tourist staging area for bus and limousine traffic.

[2003 Saddle Landscaping Project]

2004

US Weekend names the Grandview Scenic Byway the second best view in the country. The Heinz Endowment funds MWDC with another \$20,000 to address items needing immediate attention while the MIP is developed.

After sitting abandoned for more than 50 years, the Wabash Tunnel reopens to one-way traffic.

A Hillside Report is completed by Perkins Eastment for citywide issues.

2005

City Councilman Dan Deasy introduces legislation to establish the Grand View Scenic Byway Park, which authorizes the city to place a moratorium on the sale or transfer of city-owned properties with the proposed park area to allow for a study period of the park. (2005 South PGH Reporter) Grand View Scenic Byway Park is created with a unanimous vote of the Pittsburgh City Council. The Council signs and agreement with MWDC for stewardship and planning responsibilities.

[2005 Grand View Scenic Byway Park Master Implementation Plan]

[2005 Grand View Scenic Byway Corridor Management Plan]

[2005 Point of View Landscape Design]

2006

Sculptor James A. West completes the Point of View statue that now sits on the western side of Grandview Avenue.

The Grandview Avenue Restoration project is completed just before summertime events on Mount Washington. Repairs and renovations included the overlooks, sidewalks, concrete walls and railings.

Emerald View Park

2007

On Earth Day, Pittsburgh Mayor Ravenstahl declares Grand View Scenic Byway Park as the city’s fifth Regional Asset District park. The MWDC obtains a formal Cooperation Agreement with the City to serve as the park’s steward.

MWDC also adds an additional 16 acres to the park in partnership with the Allegheny Land Trust who grants the land to the City of Pittsburgh. The conservation easement on these 16 acres is still held by the Allegheny Land Trust. MWDC continues working to add 36 more acres on the western side of the park.

The Ream Park Recreation Center is opened as a non-profit organization and reopens the center at Ream, which had been closed since 1995.

[A Study on Grandview Park, Student Conservation Association]

[2007 Point of View Landscape Design]

2008

The playground in Ream Park is renovated.

Local students and a mosaic artist create the fish mosaic at Olympia Park, supported by the MWDC and CitiParks.

MWDC, in partnership with Allegheny Cleanways and DPW, organizes residents and volunteer groups to clean up Emerald View Park dump sites. Between 2008-2016, over 350,000 pounds of trash had been removed from major dump sites in the park.

[2008 Grand View Scenic Byway Signage Meeting]
[2008 Mount Washington Business District Vision Plan]

2009

A fire closes the historic shelter at Olympia Park.

MWDC, Visit Pittsburgh and CitiParks host a city-wide naming competition to rename the Grand View Scenic Byway Park. This results in the new name Emerald View Park, which becomes official in 2010.

The Pittsburgh Boxing Club opens in Mount Washington’s Dilworth Shelter House.

Emerald View Park Historical Timeline

The lighting on Grandview Avenue is fully replaced.

Between 2009-2014, custom hanging baskets are installed along Grandview Avenue, meant to strengthen the identity of the park.

2010

Sculptor James Myford recreates his Untitled sculpture for Grandview Park as part of a conservation program led by the City of Pittsburgh and funded by the Richard King Mellon Foundation. The sculpture was originally commissioned in 1973 for the Carnegie Library in Squirrel Hill.

Emerald View Park gains 11 acres of land along Greenleaf Street with the transfer to the City of Pittsburgh from the Allegheny Land Trust. This almost completes the park's 19-mile trail system, with 14 more acres to be acquired.

[2010 Grand View Scenic Byway Park Trail Plan]
[2010 MWCDC Ten Year Neighborhood Housing Strategy]

2011

City commissions a site analysis of the Olympia Park building's systems and roof structure, which was completed by Lami Grubb Architects.

Emerald View Park becomes eligible for Regional Park funding from the Allegheny Regional Asset District board.

Emerald View Park's first new trail is completed, named the George & Guy Trail. The new trail connects the Point of View statue (West Grandview Ave) with Lizardi Way by Skookum Field.

The Edge Restaurant at the east end of Grandview Avenue is demolished for future redevelopment. The building has sat vacant since 1979. (South PGH Reporter) Since its demolition, this property has seen a number of proposals, including a Ritz-Carlton hotel, a ballroom, a religious center and a condominium development.

Visit Pittsburgh installs a new visitor kiosk at the Duquesne Incline station.

[2011 CEC Habitat and View Restoration in Emerald View Park]
[2011 Olympia Park, R. Paul Manion Recreation Center Analysis]

2012

Trail connections from Republic to Greenleaf and Horner Street is built, connecting hikers to the George & Guy trail.

The Hallock to Sweetbriar trail is also built. This trail was formerly vacant developed land that turned into a public green space.

[2013 Land Use History of Emerald View Park, Summer Research Project]
[2013 Mt. Washington Acid Mine Drainage Report]
[2013 Greenleaf Trailhead Concept Design]

2014

The Saddle/Sycamore Connection is completed.

Between 2014-2016, restoration plantings occur behind the ball fields at Mount Washington Park to help control invasive species growth.

[2014 Grand View Scenic Byway Point of View Landscape Project]
[2014 Emerald View Park Preliminary Archaeological Survey]
[2015 Emerald View Park User Surveys]
[2015 Emerald View Park Trail Naming]
[2015 Summary and Analysis of Data Concerning Olympia Park]

2016

Since 2011, 11 miles of trail have been constructed or renovated, 6,000 trees and shrubs have been planted in restoration projects, and 28 acres of land has been added to the park.

MWCDC's Emerald Trail Corps workforce development program transitions to an independent organization called Landforce, focused on providing opportunities for workforce training while conducting land stewardship services throughout the Pittsburgh region.

Volunteer events are held to help with trail improvements. Organizations include the Pittsburgh Trails Advocacy Group, Allegheny Cleanways Dumpbusters, Grace Anglican Church, Heinz Endowments Interns, University of Pittsburgh, CCAC, Duquesne University, and Pittsburgh Cares.

Emerald View Park sidewalk medallions are installed.

The Department of Public Works begins repairs on the Olympia Park Shelter, including a roof replacement and interior demolition and stabilization work.

[2016 DCNR Fort Pitt Tunnel Trail Connector Project]
[2016 Wetland Delineation & Stream Evaluation Report]
[2017 MWCDC Strategic Plan 2018-2022]

2018

A developer proposes another plan to redevelop the property on Grandview Avenue where the former Edge restaurant once stood. The \$95 million plan includes a hotel and conference center, designed by Desmone, an architecture firm based in Lawrenceville. The developer also purchases nine parcels near the site for \$1.7 million to include in the development.

A major landslide occurs in February in the Greenleaf area of the Duquesne Heights Greenway.

2019

DOMI rebuilds three smaller areas between the Grandview Avenue overlooks. Some sections had been elevated on precast concrete so they closed them and renovated them as bump outs.

The Ream Rec Center group help to maintain the pavilion and playground area at Olympia Park.

[2019 Park Listening Tour - Emerald View Parks Data]
[2019 Emerald View Park Phase 1 Signage Design and Installation]
[2019 Allentown Vision 2030]

2020

DOMI is looking at restorations to the four main overlooks on Grandview Avenue with funding from RAD and partnering with DPW.

Neighbors on the Mount, Pittsburgh Parks Conservancy and partners including Explorers Club of Pittsburgh, continue to lead cleanup efforts in Emerald View Park.

Sources

2002 MWCDC Emerald Link Report

2003 Grandview Park Study

2005 Grand View Scenic Byway Corridor Management Plan

2005 Grand View Scenic Byway Park Master Implementation Plan

2010 Emerald View Park Trail Plan

2014 Archeological Survey

2015 Olympia Park Report

Brookline Connection, History of Coal Hill

Heinz History Center

Images of America: Mount Washington and Duquesne Heights

Ohio History Central

Pittsburgh Parks Conservancy, Cultural Inventory

South Pittsburgh Reporter

WESA, Pittsburgh NPR News Station

University of Pittsburgh, Department of Geology and Planetary Science

**APPENDIX D:
ECOLOGICAL ASSESSMENT**



April 9, 2021

Ms. Kara Smith
City of Pittsburgh, Department of City Planning
414 Grant Street Room 502
Pittsburgh, PA 15219

Dear Ms. Smith:

Subject: Ecological Assessment Report
Emerald View Park
Allegheny County, Pennsylvania
CEC Project 194-140

Civil & Environmental Consultants, Inc., (CEC) presents to the City of Pittsburgh the findings associated with the Emerald View Park ecological assessment.

1.0 BACKGROUND & PURPOSE

CEC was retained by the City of Pittsburgh (via a subcontract from Merritt Chase Landscape Architects) to conduct an ecological assessment of Emerald View Park, located in the City of Pittsburgh, Allegheny County, Pennsylvania.

CEC understands that this assessment will be incorporated into a park master plan. Although no specific developments are planned at the time of this letter, CEC understands that future development will likely consist of new hiking trails, enhanced vistas, removal of illegal activities, and management of invasive plant species. CEC's observations and conclusions are summarized below.

Pittsburgh and Emerald View Park are urbanized land located within the mixed Appalachian forest community. The mixed Appalachian forest community has high species richness of both plants and animals. The area encompassed by Emerald View Park has been inhabited and used for coal production since the industrial revolution, subsequently all existing vegetation has regrown since Pittsburgh's industrial apex in the middle of the 20th century. The park is located 740-1160 feet above sea level with a topography that entirety consists of hillslopes with little to no flat or relatively flat grades, except for within the neighborhood parks that have been amalgamated into Emerald View Park. CEC's assessment focused on the primarily naturalized hillslope areas. The grades in these areas range from 3 horizontal to 1 vertical (H:V) to 1.5H:1V and also include sheer rock faces and embankments. According to the referenced Allegheny County Landslide Portal (ACLP) and the United States Geologic Survey (USGS) Landslide maps, the majority of the park slopes have been labeled as slopes with moderate to severe susceptibility to landsliding due to the outcropping red beds. The United States Department of Agriculture (USDA) soil survey for Allegheny County, Pennsylvania indicates that the majority site soils are fine-loamy and acid fine-loamy residual soils weathered from sandstone, shale, and siltstone with a water-restricting feature depth (fragipan or bedrock) located approximately 14 to more than 80 inches below ground surface (bgs). The soils around the perimeter of the park belong to the Urban Land- complex series that

consist of areas covered by pavement, buildings, or other human-transported materials. For further information regarding topography, soils, bedrock, landslides, coal, and mining please refer to CEC's Geohazard Assessment Letter dated June 17, 2020.

2.0 METHODS

During summer 2020 CEC conducted surveys within the vicinity of existing park trails to document the natural features of the park and assess the accuracy of a forest study conducted in 2005. Staff ecologists photographed and recorded locations of features using a global positioning system (GPS). The information collected was presented in a geographic information system, the project team utilized to formulate the recommendations in the master plan.

3.0 OBSERVATIONS

3.1 Vegetation and Land Cover

In 2005 the Western Pennsylvania Conservancy (WPC) conducted an extensive forest study of Emerald View Park and reported the park is approximately 458 acres in size and is 65.9% forested, 13.9% woodland, 15% developed, 2.7% shrubland, 1.5% open field, and less than 1% sparsely vegetated cliff (WPC, 2005). Further detail of the vegetation communities identified by WPC is illustrated in Chart 1. In 2020 CEC



Figure 1 Mature open forest

assessed the park and confirmed that the findings of the 2005 forest study remained largely accurate. Differences in forest composition observed by CEC were the result of increases in the number and density of non-native and invasive plants and the loss of ash trees due to the emerald ash borer infestation.

3.2 Forest Health and Composition

CEC utilized the WPC forest study data and observed the following differences between the 2005 forest survey and 2020 the site conditions:

- The white ash (*Fraxinus americana*)-mixed hardwood forest adjacent to Route-51 observed in 2005 has transitioned to a black cherry (*Prunus serotina*) woodland dominated by a dense undergrowth of invasive plants.
- The emerald ash borer infestation has resulted in the loss of green ash (*Fraxinus pennsylvanica*) throughout southwestern Pennsylvania and the park. In 2005 green ash were observed in low densities within most areas Emerald View Park and the loss of this species has not affected forest quality.

The highest quality habitat observed was the oak dominated forest on the southwestern where the forest is mature, and a lower density of invasive species are present.

An overabundance of white tail deer has led to the destruction of sub-canopy vegetation and has limited tree regeneration throughout the park. Overgrazing was observed within the higher-quality forests on the southwestern slopes as well as the invasive dominated steep northeastern slopes.

Planted trees were observed in small clusters near trail heads and appeared to be healthy. This attempt at reforestation through tree planting has not resulted in a detriment to forest health; however, it has not resulted in a measurable benefit.

CEC observed many black locusts (*Robinia pseudoacacia*) were in poor health due to age and stress and confirmed large areas of the forest were dominated by Norway maple (*Acer platanoides*). Many areas of the park were dominated by other non-native species, which Japanese knotweed (*Polygonum cuspidatum*), wineberry (*Rubus phoenicolasius*), and tree of heaven (*Ailanthus altissima*). Multiple utility rights-of-ways (ROW) near Pittsburgh's West End have acted as distribution corridors for herbaceous invasive species resulting in non-native species out competing native species on the western side of the park.

Extensive populations of oriental bittersweet (*Celastrus orbiculatus*) are present on the northeastern slope of Emerald View Park. These populations pose a serious threat to forest health. The trees near the dense bittersweet populations are relatively short and could be rapidly covered by bittersweet which would result in their eventual death.



Figure 2 Forested hillslope. Note the obvious browse line where shrub and tree leaves are absent within browsing reach by white-tailed deer.



Figure 3 Forest dominated by invasive species

3.3 Wildlife Habitat

Emerald View Park provides habitat for white tailed deer, wild turkeys, and migratory songbirds. Although not directly observed, it is assumed Emerald View Park would also provide habitat for other eastern woodland/urban species including opossums, eastern cottontails, woodchucks, gray squirrels, red fox squirrels, eastern chipmunks, coyotes, red foxes, grey foxes, raccoons, skunks, and porcupines as well as migratory and resident song bird species.



Figure 4 White tailed deer

3.4 Topography and Drainage

Emerald View Park is dominated by moderate to severe slopes and several small ephemeral and intermittent streams were observed. Many of these streams appear to be isolated channels without direct connection to streams further downhill. Many streams within Pittsburgh were incorporated into the combined storm sewer system when the storm sewers were initially constructed. As a result, most streams within the park loose channelization and wash out in the upland forest or flow into a drain inlet before reaching a larger stream.



Figure 5 Wood bridge

The existing trails were designed with the native topography in mind by including switchbacks where appropriate to reduce the overall grade of trails. The condition of the existing trails is elevated by functional, well maintained, wood bridges located over wet areas in certain locations.

3.5 Natural Resource Features

Many natural resources are present within Emerald View Park including rock outcrops, wetlands, seeps, small streams, and small waterfalls. Most of the rock outcrops are on the northeastern slope along existing trails, and many are obscured behind dense vegetation.

Most water features are located on the southwestern slope of the park, relatively near or crossing existing trails; however, seeps and small waterfalls were observed above the cliffs near Pittsburgh's West End away from existing trails. Waterfalls were generally safely viewable only from above, so photographic documentation was impracticable. The water quality of the streams within the park varies from clean to contaminated with acid mine drainage.



Figure 6 Rock outcrop



Figure 7 Obscured rock outcrop

3.6 Vistas

Several spontaneous scenic overlooks of downtown Pittsburgh, Oakland, and the West End are located on the northeastern slope of Emerald View Park. Most of these vistas are obscured by dense vegetation.



Figure 8 View of downtown Pittsburgh



Figure 9 View of downtown Pittsburgh

3.7 Illegal Activities

Illegal activities observed within Emerald View Park include dumping, graffiti, two homeless encampments, and tree mounted hunting standings.

There was little evidence of significant garbage dumping throughout the park. Dumping was largely limited to yard and building debris pushed from the cliffs near Chess Street and Southern Avenue.

Little vandalism was observed over all; however, graffiti was widespread throughout vertical concrete surfaces within the park. In many cases the graffiti was only visible at close range.

All forms of hunting are illegal within Pittsburgh city limits; however, numerous tree-mounted deer hunting stands were observed. Most illegal tree-mounted hunting stands were observed on the southwestern slope of the park.



Figure 10 Illegal dumping downhill from Southern Avenue



Figure 11 Illegal dumping downhill from Chess Street



Figure 12 Graffiti on rock outcrop



Figure 13 Tree-mounted hunting stand

4.0 RECOMMENDATIONS

4.1 Comprehensive Vegetation Management and Restoration Plan

Previous reforestation attempts have been relatively small and in isolated locations. Due to their scale, they have had limited effect in improving forest health and habitat within the park as a whole. A comprehensive, ecological restoration approach is needed that is built on a scientific foundation and that includes invasive species control measures as well as replanting plans. The development of a comprehensive vegetation plan is estimated to cost approximately \$50,000.

4.1.1 Immediate Invasive Species Control Needs

Invasive species are introduced plants and animals that negatively affect their new environment. Environmental damage can occur through prolific reproduction of the new species resulting in the out competition native species and the infection or damage of native species resulting in their death.

Many woody and herbaceous invasive species were observed in Emerald View Park and different management techniques are required for different species and population densities.

Empress tree (*Paulownia tomentosa*) and kudzu (*Pueraria montana*) occur in small, isolated locations and should be targeted for immediate eradication as these species could be controlled if action is taken soon. Both species have high potential to threaten forest health if allowed to spread through wide areas of the park.

Populations of Norway maple, Japanese knotweed, and oriental bittersweet are extensive throughout Emerald View Park and require well planned control measures. Norway Maple is a dominant tree species within the park in many areas, and cannot be removed *en masse* without causing widespread deforestation. Strategic removal of individual trees and planting of quick-growing native trees that survive well in urban environments may enable a forest transition.

The invasive species that pose the greatest threat to Emerald View Park are oriental bittersweet and Japanese knotweed (and potentially kudzu if not removed immediately). Extensive populations of oriental bittersweet pose an immediate threat to the existing forest community as the growth strategy of this plant is to climb, cover, strangle, and kill the existing trees. Japanese knotweed populations are extensive throughout the park and cause the greatest issue around trailheads and in utility ROWs. Japanese knotweed forms dense thickets that smother native vegetation that would otherwise help to control runoff and reduce erosion. During winter, brittle brown stems are left behind, often revealing garbage and debris that accumulated throughout the year. The populations near trailheads should be removed first to increase accessibility to the park. A comprehensive invasive species control plan should be developed for the park. Due to the scale of the

problem, this plan will almost certainly require chemical control with herbicides, applied by specialized and licensed applicators, and an appropriate revegetation plan that reduces likelihood of invasive species recolonization.

Several methods of invasive species control are effective under different circumstances and for different species. Some examples are:

- Goats – generalist browsers that will eat virtually every plant they can reach. They can be effective at clearing brush and herbaceous species, even on steep areas. However, they require several weeks to work in an area, and they will also eat potentially desirable species. Therefore, they are best suited to homogenous stands of invasive shrubs.
- Forestry mulcher (aka forestry mower) – machinery specialized for brush removal. Tracked vehicles can navigate steep slopes and an experienced operator can target specific species, avoiding damaging desirable species. It is also much quicker than goats and can remove larger material. However, it is noisy and cannot be used on extremely steep slopes.
- Hand control – cutting or pulling up individual undesirable plants can be very effective, especially if populations are relatively small and/or scattered. It is usually advisable to remove the pulled-up material from the area so it will not resprout or reseed.
- Chemical control – the only method to effectively eradicate many persistent invasive species like Japanese knotweed, tree of heaven, etc. Chemical treatment with herbicides must only be performed by licensed professional applicators in the context of an integrated pest management plan.
- Vegetation re-establishment – invasive species removal must always consider what will grow back once the invasives are removed or they will likely re-invade. Planting desirable species is almost always necessary.
- Most invasive species problems require a combination of the above approaches.
- It is generally advisable to concentrate invasive species removal intensively in well-defined areas where a high level of control can be achieved, rather than a distributed or haphazard approach that creates work but does not lead to effective control.



Figure 15 Forestry mulcher in action

4.1.2 *Right-of-Way Plan*

Open ROWs that are free of tall trees and shrubs are required for the safe operation and maintenance of utilities including water lines, electric lines, and natural gas pipelines.

Multiple utility ROWs occur throughout Emerald View Park (Figure 1). In many cases, existing ROWs have acted as distribution corridors for herbaceous invasive species, resulting in them out-

competing native species within the ROWs, most notably in the western side of the park. With the cooperation of the utility companies, the invasive species in the ROWs should be removed and replaced with native deep-rooted pollinator species. Once established the deeper roots of native species hold more of the soil column in place and transpire more water from the soil than invasive species which may help limit slumps and smaller landslides. Native grasses and wildflowers provide food for native pollinator species like bees, butterflies, and moths. Further pollinator habitat enhancements in the form of cut logs or brush piles could be added to the ROW edge for deadwood-nesting pollinator species. The utility ROWs cannot be removed, but through partnerships with groups like the Rights-of-Way as Habitat Working Group, North American Pollinator Protection Campaign, and Pollinator Stewardship Council, they can be transformed from eyesores dominated by invasive species to functional wildflower meadows that support native wildlife.

Once controlled, spot treatments of invasive species with ROWs should be part of an annual maintenance plan to avoid populations from reestablishing. Periodic mowing to limit woody species from establishing should be conducted early spring, before migratory birds return, to avoid disrupting nesting and to maintain overwintering habitat for winter-resident species.

4.1.3 *Forest Restoration*

A large proportion of the park is comprised of an urban forest community, dominated by invasive tree species like Norway maple and tree of heaven. These forests largely lack a suitable understory, limiting their habitat value and reducing their potential to absorb stormwater runoff when compared to a forest with a healthy understory and ground vegetation layers. In parallel with the recommended invasive species control plan, a comprehensive forest stewardship and restoration plan should be developed that considers the long-term sustainability and resilience of the park's forest communities and how they can best be managed to provide



Figure 13 ROW dominated by invasive Japanese knotweed

multiple benefits such as climate resilience, stormwater attenuation, and wildlife habitat.

4.2 Trail Enhancement Plan

Emerald View Park consists of hillslopes with little to no flat grades, as a result the primary way to enjoy the park via its trails. Most dominant trails within Emerald View Park are in good condition. Community stewards of the park have provided maintenance and small improvements such as lining paths with stones and creating small steps and bridges. This suggests a sense of community ownership and could be expanded with a “Friends of Emerald View Park” volunteer organization.



Figure 14 Community steward trail improvement

Although most trails are in good condition improvements could be made. Water drainage and a small intermittent stream have caused trail instability between the Roanoke Street and the Grandview Park entrances. Repairing this portion of the trail and installing proper drainage could solve this problem and improve trail quality. The southwestern slope of the park is dominated by high-quality oak forest, but chain-link fencing is present throughout this area. The purpose of the fence is unclear, and it detracts from the attractive surrounding forest. If not serving a purpose, this fence should be removed to improve the trail aesthetic. If fencing is required, a more visually appealing fence should replace the existing chain-link.



Figure 15 Community steward stump chair trail improvement

Visually appealing seeps and small waterfalls are present above the cliffs near Pittsburgh’s West End; however, the area is steep and is not accessible from the existing trail system. When considering the location of new trails, this area should be considered if there is the potential to create safe access to view these features.

Many of the rock outcrops on the northeastern slope along existing trails are obscured behind dense vegetation. This vegetation should be cut back and replanted with low-growing native shrubs or herbaceous vegetation that will not grow to a height that would obscure the view in the future.

4.2.1 Trail Head Uniformity

Most trail heads are located at the ends of neighborhood streets. Improved signage and clear trailheads would increase park usage. Using the Emerald View Park trail sign as a guide, CEC assessed each trail head within Emerald View Park. The only exception was the trail head at the intersection of Oneida and Meta streets which was inaccessible due to utility construction. Trail heads shown on the map on P.J. McArdle Roadway and Horner Street did not appear to exist. Photos and descriptions of each accessible trail head are included in the attached Emerald View Park Trail Head Assessment.

Signs throughout the park are inconsistent and often confusing, and most signage is at trailheads. The best sign type currently in use in Emerald View Park lists the park rules and regulations above a large map depicting the entirety of the park and trail system, but even this sign is confusing. It does not list every trail head that has parking and lists other trail heads as having parking when they do not. Some trail heads have signs with inconsistent park and trail names and many lack signage entirely. Most of the trail heads have no clear demarcation between public and private land creating the potential for accidental

trespassing. This could be ameliorated by installing uniform signs at every trail head, adding consistent design features (e.g., wooden entry ways) to each trail head, and painting blazes on the trees near the trail head and at trail intersections. Park cohesion would also be increased by a uniform trail blazing system.



Figure 16 Examples of inconsistent trail heads: Southern Greenleaf Street (above), Hallock Street (middle), and Lizardi Way (lower).

Thoughtfully designed landscapes utilizing native tree and shrub species for low-maintenance plantings near trail heads would create intentional and inviting trail heads that are clearly branded as entrances to Emerald View Park.

Because trail heads are often located at the ends of neighborhood streets and collocated with utility ROWs, they also present corridors for invasive species into the park. Invasive species are thus present near many trail heads and are often dense enough to make the trail head uninviting. Trail heads should be a targeted area for invasive species control (including replanting) because they present invasion corridors and in many cases effective control can be achieved in a relatively well defined area. Because trail heads are often collocated with utility rights of way, they also combined multiple objectives, such as providing pollinator habitat.

Expansion or clarification of parking areas would increase park usage and green infrastructure techniques could be utilized when updating or adding new parking areas.

4.2.2 Route-51 Corridor

Route-51 is a highly traveled corridor in Pittsburgh and signs indicating the location or existence of Emerald View Park in this region of the city could greatly increase public awareness; however, no signs referencing Emerald View Park are present along Route-51. Signs to increase public awareness should be added and wayfinding signs for trail heads should be posted near the intersections of Route-51 and Warrington Avenue and Route-51 and Woodruff Street.

4.2.3 View Management

Pittsburgh is a rare city whose skyline can be admired from within the city limits. Emerald View Park is uniquely located to offer many scenic overviews of Pittsburgh neighborhoods, including downtown Pittsburgh, Oakland, and the West End; however, most of these vistas are obscured by dense vegetation. To improve overviews the trees and tall shrubs should be removed below the trail and replanted with native shrub species that will not grow to a height that would obscure the view in the future. View management can be combined with a comprehensive trail head plan because many promising viewpoints are located at or in close proximity to trail heads.

4.2.4 The Saddle

The region of the park connecting Grandview Park with the Grandview Overview Park is called 'The Saddle'. The Saddle is fragmented by roads, residences, and abandoned properties, resulting in this region not feeling like part of the park. The Saddle has easy pedestrian accessibility and appears to be highly used, which is evident by the presence of light amounts of litter.

Increased cohesion is needed with the other regions of the park, so visitors know they are not trespassing on private property. Many abandoned properties and vacant parcels located within The Saddle are city owned. Many of these properties are potentially dangerous eyesores that are dominated by invasive vegetation and their potential for ecological restoration should be considered if they are under consideration for annexation to the park.

Crumbling remnants of basements present in this area of the park may provide points of interest if enhanced with signage explaining the rise and fall of the community and how it eventually came to be within a park and reclaimed by the forest.

4.2.5 *Landslide at Duquesne Incline*

One of the few gently sloping areas within Emerald View Park is the result of a large historic landslide near the Duquesne Incline. This area could be cultivated into a pollinator meadow habitat or reforested in tree planting but utilizing this area for new access points, passive recreation, or a shelter is not recommended as stated in CEC's Geohazard Assessment Letter dated June 17, 2020, "The identified landslides have the possibility of being activated and/or re-activated by construction activities (fill placement, excavation, addition of building loads, etc.), changing runoff patterns resulting from development above the landslide."

5.0 CLOSING REMARKS

CEC appreciates this opportunity to be of service to the City of Pittsburgh. Please call Tim Nuttle at 412.867.1299 or email at tnuttle@cecinc.com if you have any questions or comments.

Very truly yours,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Kate H. Gaglio
Project Manager

Tim Nuttle, PhD, CSE, CWB
Principal, Ecological Services

Attachments

EMERALD VIEW PARK TRAIL HEAD ASSESSMENT



Photo 1 Grandview Avenue trail head. There is a lack of signage referencing Emerald View Park. Nearby street parking is available to access this trail head.



Photo 2 Grandview Avenue trail head. This trail head can only be accessed from one location at the top of the hill. Additional access points would improve access, for example where the trail starts descending the hill, shown here..



Photo 3 East Sycamore Street trail head. The trail head is clearly marked and inviting.



Photo 4 Parking at the East Sycamore Street trail head. This trail head has ample parking; however, clear demarcation between public and private land is needed



Photo 5 Parks conservancy ecological restoration signage near planted trees. Stabilization and deer protection can be removed from the established trees and small populations of invasive species should be removed.



Photo 6 Grandview Park entrance. The signage is inconsistent in reference to Emerald View Park. Nearby street parking is available to access this trail head.



Photo 7 Grandview Park Bandstand. The bandstand is heavily covered in graffiti and should be repainted.



Photo 8 Invasive plant management in Grandview Park. The vegetation on site is being managed to improve the view of the city and replace invasive species with low growing native species that will not interfere with the view.



Photo 9 Grandview Park trail head. The trail head is inviting; however, signs indicating the location of the trail head are not visible from the trail or from the bandstand area.



Photo 10 McLain Street trail head. This trail head is open and inviting, but it is located adjacent to an elementary school and there is no clear demarcation between school and park property. There is no parking at this trail entrance.



Photo 11 Marn Way trail head. This trail head is not marked or inviting, there is a lot of trash and the houses nearby are in disrepair.



Photo 12 Marn Way trail head. The trail head is located at a sharp bend in the road and there is no room to park..



Photo 13 Norton Street trail head. The Emerald View Park sign is sun-bleached and illegible. The trail is clear and inviting but more signage is needed.



Photo 14 Mt. Washington Park on Norton Street. There is inconsistent signage in relation to Emerald View Park. This area is residential and street parking is available for trail and park access.



Photo 15 Hallock Street trail head. This trail head is extremely uninviting. The park sign has been torn down and damaged. There is no demarcation between the park and private property and turning around is not possible without using a private driveway.



Photo 16 Sweetbriar Street trail head. This trail head is open and inviting and has limited on street parking

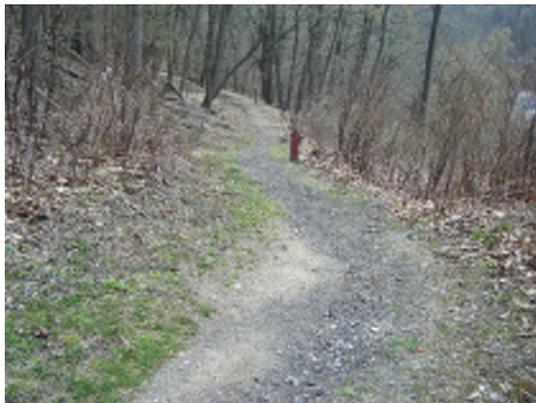


Photo 17 Sweetbriar Street trail head. Limited populations of invasive species are present near this trail head and should be targeted for removal. Afterwards this area could be planted with beneficial pollinator habitat.



Photo 18 Sweetbriar Street near trail head. This area appears to be graded for parking but is posted as "No Parking". This may exist to function as a turn-around. Clarifying signage is needed.



Photo 19 Debris near Sweetbriar Street Parking. *Denser populations of invasive species and isolated small dumping locations are present near the street parking for the Sweetbriar Street trail head.*



Photo 20 Wyola Street trail head parking. *All parking near the Wyola Street trail head is handicapped, there is no other street parking and both trails near the parking area are not ADA compliant.*



Photo 21 Wyola Street trail head adjacent to handicapped parking area. *This trail is not ADA compliant.*



Photo 22 Trail head at the terminus of Wyola Street. *This trail is not ADA compliant. Multiple utility right of ways are located near this trail head and the area is dominated by invasive species.*



Photo 23 Emerald View Park Signage on Augusta Street. *The trail head marking on Augusta Street is limited and there is no demarcation between public and private land. The trail head cannot be seen from the location of this sign.*



Photo 24 Park/Private border on Augusta Street. *It is unclear if the parking and maintained lawn near the Emerald View Park sign on Augusta Street is public or private. A picnic table would make this area more inviting and boundary signage is needed.*



Photo 25 Augusta Street trail head. This trail head is not marked and the road leading to it is not inviting.



Photo 26 Clarence Street trail head. The Clarence Street trail head is well marked and inviting with ample parking and turning space.



Photo 27 Clarence Street trail head. The view from this trail head could be improved by removing small populations of Japanese knotweed and tangles of vines. Maintenance costs could be reduced by replacing the grass with a low-growing native species that did not require mowing.



Photo 28 Clarence Street Trail. A trail from the Clarence Street trail head parking area joins Emerald View Trail within a powerline right of way. The right of way is overgrown by invasive species.



Photo 29 Republic Street trail head. This trail head is well marked and inviting but the “parking area” is confusing: it appears ample parking is available, but the entire area is marked as “No Parking”. There is room to expand the parking lot ca. 8 feet out to allow sufficient space.



Photo 30 Bradley Street trail head. The trail head is unmarked, uninviting, and lacks signage. It is located at the end of a road with multiple “Private Drive” signs and is behind a row of newly constructed houses. Park trail maps also are unclear as to how to access the trailhead.



Photo 31 Southern Greenleaf Street trail head. This trailhead is well marked and inviting and has ample off-street parking.



Photo 32 Southern Greenleaf Street trail head. Many established planted trees and shrubs have deer protection that can be removed to make the trail head less cluttered. A confusing fenced area is present and signs should be added to clarify what it is.



Photo 33 Lizardi Way trail head. This trail head is located at the terminus of Lizardi way. It was originally well marked but a land slide has closed the trail. The location of the sign is confusing, and it should be moved to the new trail head. The public/private land border is also unclear.



Photo 34 Lizardi Way trail head. The sign at the end of Lizardi way does not say the trail is closed and makes it unclear if this is a deer trail or part of Emerald View Trail.



Photo 35 New Lizardi Way trail head. This trail head was established after the land slide closed the main trail. It has an ambiguous and confusing sign. Blazing would help tremendously.

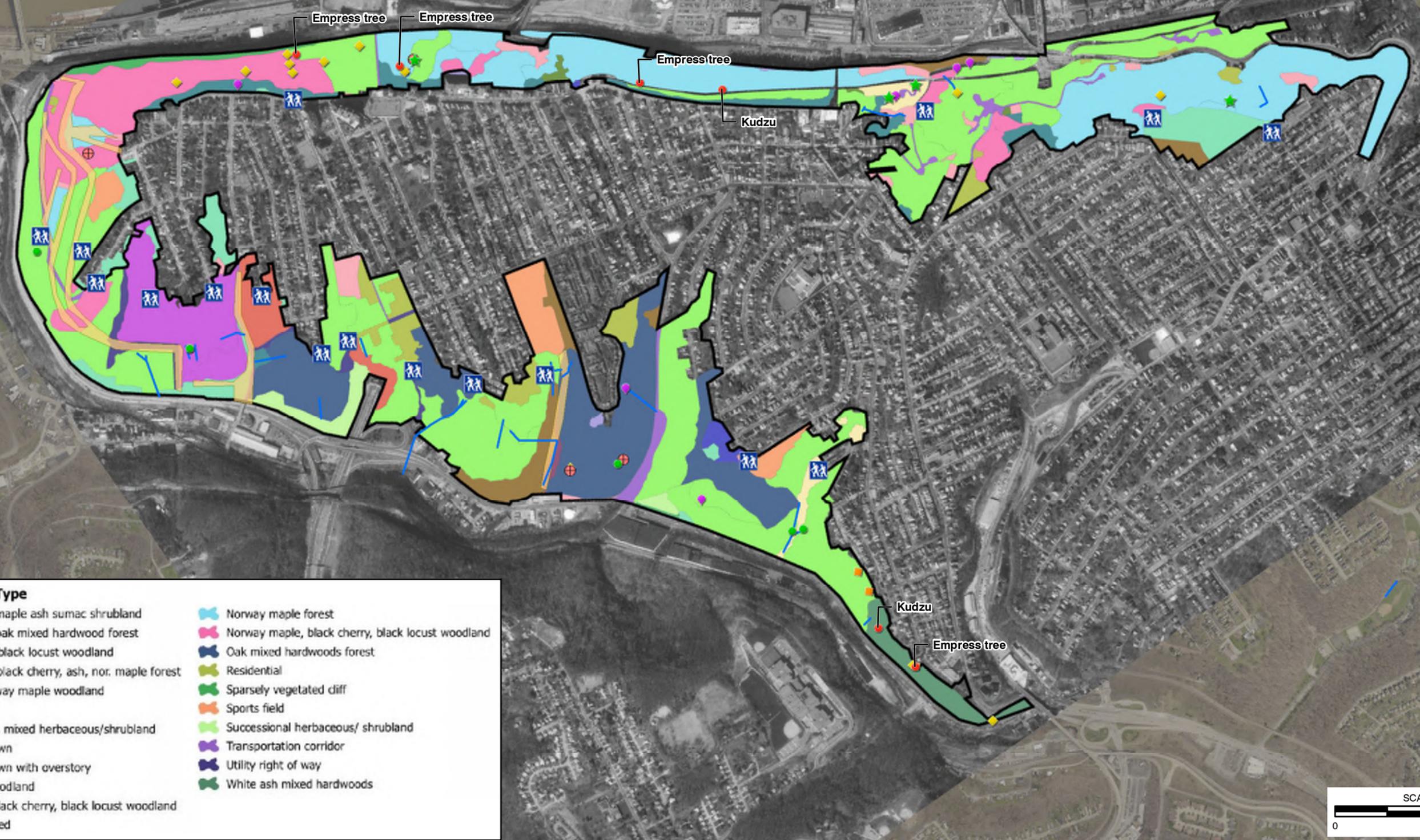


Photo 36 Northern Greenleaf trail head. This trail head is well marked but appears to be cut off from other parts of the trail due to a land slide.

CHARTS AND FIGURES



SUBMITTAL & REVISION RECORD		
NO	DATE	DESCRIPTION
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Specific Cover Type	
	Black cherry maple ash sumac shrubland
	Black cherry oak mixed hardwood forest
	Black cherry, black locust woodland
	Black locust, black cherry, ash, nor. maple forest
	Boxelder norway maple woodland
	Developed
	Ja. knotweed, mixed herbaceous/shrubland
	Maintained lawn
	Maintained lawn with overstory
	Maple oak woodland
	Maple, ash, black cherry, black locust woodland
	Misc. developed
	Norway maple forest
	Norway maple, black cherry, black locust woodland
	Oak mixed hardwoods forest
	Residential
	Sparsely vegetated cliff
	Sports field
	Successional herbaceous/ shrubland
	Transportation corridor
	Utility right of way
	White ash mixed hardwoods

LEGEND	
	TRAIL HEAD
	VISTA
	VANDALISM
	ROCK OUTCROP
	STREAM BY OTHERS
	AERIAL-ESTIMATED ROW
	ILLEGAL TREE STAND
	SELECTED SPECIES OF CONCERN
	DUMPING
	APPROXIMATE WETLAND LOCATION
	AERIAL-ESTIMATED ROW

REFERENCE
 SPECIFIC COVER TYPES DERIVED FROM "MOUNT WASHINGTON 'EMERALD LINK' MASTER IMPLEMENTATION PLAN, 'COVER TYPES' DRAWING BY THE WESTERN PENNSYLVANIA CONSERVANCY.
 PEMA IMAGERY FOR ALLEGHENY COUNTY, 2017.

C&E
Civil & Environmental Consultants, Inc.
 333 Baldwin Road - Pittsburgh, PA 15205-9072
 412-429-2324 · 800-365-2324
 www.cecinc.com

DRAWN BY:	JCH	CHECKED BY:	DRAFT
DATE:	4/9/2021	SCALE:	1" = 1,000'

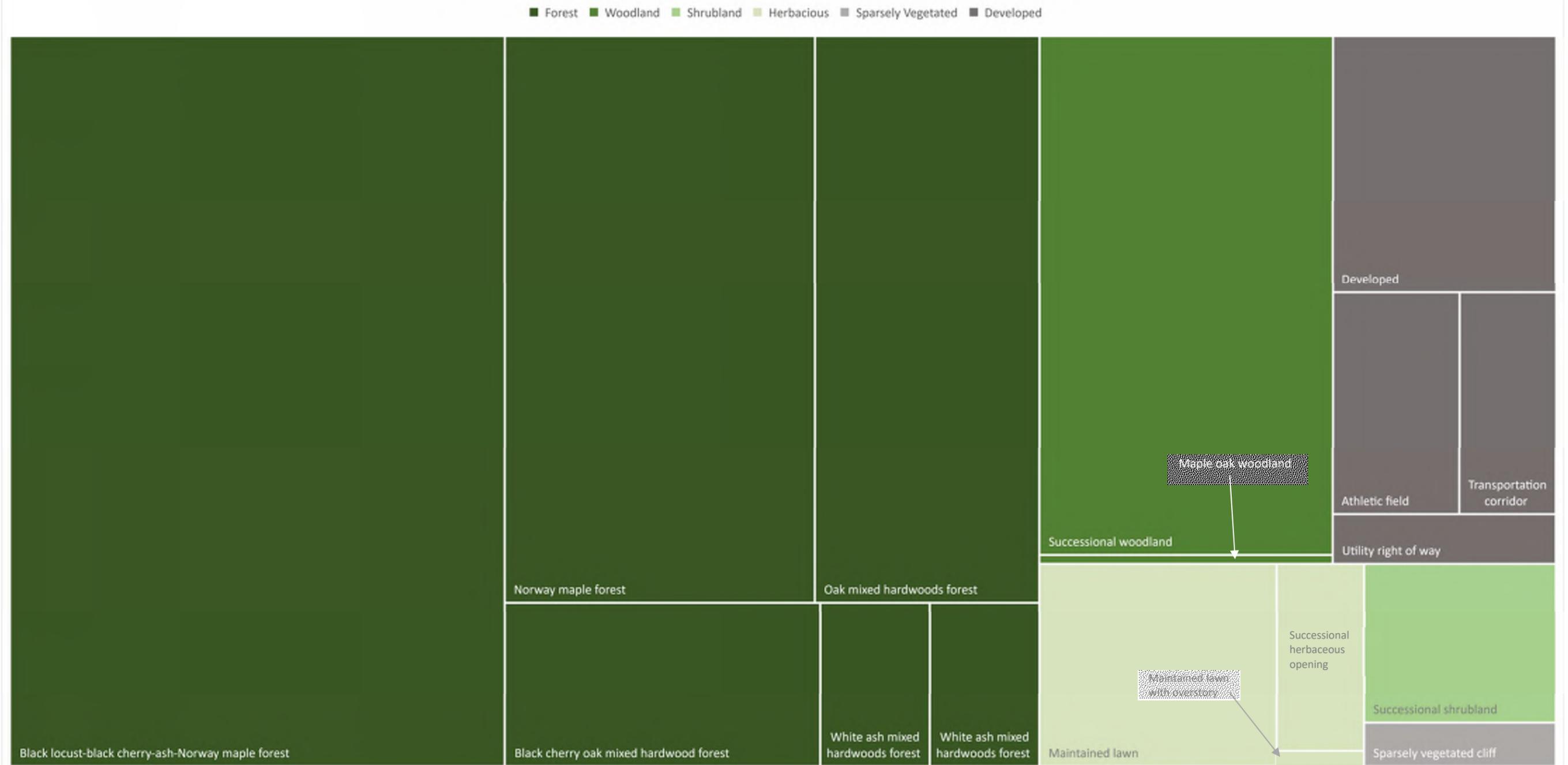
THE CITY OF PITTSBURGH
 DEPARTMENT OF CITY PLANNING
 EMERALD VIEW PARK
 PITTSBURGH, PENNSYLVANIA

EMERALD VIEW PARK
 ENVIRONMENTAL ASSESSMENT

APPROVED BY:		DRAFT	FIGURE NO:	1
PROJECT NO:	194-140			

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Chart 1 - Relative Proportion of Existing Land Cover Types in Emerald View Park



Rectangle sizes are proportional to the total percent cover each community represents within Emerald View Park as documented in the 2005 Western Pennsylvania Conservancy Master Implementation Plan for the Grand View Scenic Byway Park (p. 39).

**APPENDIX E:
GEOLOGIC ASSESSMENT**



June 17, 2020

Mr. Cody Winiesdorffer
City of Pittsburgh
414 Grant Street Room 502
Pittsburgh, PA 15219

Dear Mr. Winiesdorffer

Subject: Geohazard Assessment Letter
Emerald View Park
Allegheny County, Pennsylvania
CEC Project 194-140

Civil & Environmental Consultants, Inc. (CEC) presents to the City of Pittsburgh the findings associated with the Emerald View Park geohazard assessment.

1.0 BACKGROUND & PURPOSE

CEC was retained by the City of Pittsburgh to perform a review of available soil, bedrock, coal and, landslide mapping for the Emerald View Park located in the City of Pittsburgh, Allegheny County, Pennsylvania.

CEC's review of publically available references was performed to document and assess the site for geologic hazards within the limits of the park. CEC understands that the City of Pittsburgh plans to incorporate the findings of this assessment into a park masterplan. Although no specific developments are planned at the time of this letter, CEC understands that future development will likely consist of new hiking trails or limited grading to create greenspaces at the higher elevations of the park. The data obtained and CEC's conclusions on the potential geologic constraints (geohazards) are summarized below.

2.0 DESKTOP LITERATURE REVIEW

2.1 REFERENCES

CEC reviewed the following publically available information to identify potential "Geohazard Areas" that may exist within the park limits:

- Erg, T.M., Edmunds, W.E., Geyer, A.R., and others, compiler, 1980. Geologic Map of Pennsylvania: Pennsylvania Geologic Survey, 4th ser., Map 1, 2nd ed., 3 sheets. Scale 1:250,000
- Pennsylvania Bureau of Topographic and Geologic Survey, Department of Conservation and Natural Resources, Miles, C.E., and Whitefield, T.G., compilers, 2001, Bedrock Geology of Pennsylvania, edition 1.0 digital map, scale 1:250
- USDA Custom Soils Report for Allegheny County, PA (Emerald View), generated June 2020.
- Allegheny County Landslide Portal, accessed June 2020.
<http://landslide-portal-alcogis.opendata.arcgis.com/pages/map-tools>, accesses June, 2020
- Pomeroy, John S., 'Landslides and Related Features of the Pittsburgh East, PA Quadrangle.' United States Geological Survey Open File Map 79-1314 (D-1). (1979)

- Pomeroy, John S., ‘Landslide Susceptibility Map of the Pittsburgh West Quadrangle, Allegheny County, Pennsylvania.’ United States Geological Survey (1977)
- Commonwealth of Pennsylvania Department of Environmental Resources Office of Resources Management, Bureau of Topographic and Geologic Survey, ‘‘Coal Resources of Allegheny County, Pennsylvania, Part 1. Coal Crop Lines, Mined-out Areas, and Structure Contours.’’ Mineral Resources Report 89, Part 1. Pages 62-66 (1985)
- PAMAP Program, Light Detection and Ranging (LiDAR) data, dated 2006
- Pennsylvania Department of Conservation of Natural Resources, ‘‘Bedrock Geology of Pennsylvania’’, ArcGIS database, downloaded June 2019
- Pennsylvania Department of Environmental Protection’s (PADEP) Online Pennsylvania Mine Map Atlas, accessed June 2020. W.P.A Project No. 4483, Carnegie Sheet No. 3, Pittsburgh Seam, 1934
- The Pennsylvania State University, ‘‘Pennsylvania Mine Map Atlas’’, <http://www.paminemaps.psu.edu/>, Accessed June 2020

2.2 TOPOGRAPHY

According to the accessed LiDAR information, the topography of the park ranges from approximate Elevation 740 to the north, along East Carson Street (near the intersection with Arlington Avenue), to Elevation 1160, near the northwest corner of the park, above Saw Mill Run Boulevard (Route 51). The park in its entirety consists of existing slopes with little to no flat or relatively flat grades. The flatter portions of the park are noted to the south, at or above the elevation of the Pittsburgh Coal seam. The park slopes from Grandview Avenue down to Carson Street with slopes generally steeper than 1.5 horizontal to 1 vertical (H:V). From the westernmost park limits to the park’s southeastern terminus, along Saw Mill Run Boulevard, the grades are generally between 3H:1V and 1.5H:1V, with the exception of the steep rock faces and embankments directly adjacent to Saw Mill Run Boulevard.

2.3 SOILS

The United States Department of Agriculture (USDA) soil survey for Allegheny County, Pennsylvania indicates that the majority of the near-surface site soils belong to the Gilpin, Weikert, and Culleoka channery silt loam. The Gilpin, Weikert, and Culleoka series consist of fine-loamy and acid fine-loamy residual soils weathered from sandstone, shale, and siltstone. According to the USDA soil survey, the depth to a water-restricting feature at the site (fragipan or bedrock) typically ranges from approximately 14 to more than 80 inches below ground surface (bgs), and the water table is more than 80 inches bgs.

Around the perimeter of the park, the soils belong to the Urban Land- complex series. The Urban Land soil series consists of areas covered by pavement, buildings, or other human-transported materials.

2.4 BEDROCK

The USGS digital map indicates the bedrock along the upper elevations of the park belong to the Monongahela Group with the majority of the park belonging to the Casselman Group. The Monongahela Group is Pennsylvanian in age and consists of cyclic sequences of limestone, shale, sandstone, and coal. The base of the Monongahela Formation is at the bottom of the Pittsburgh Coal. The separation of the two geologic units is at the base of the outcropping Pittsburgh Coal, which is mapped on the upper park slopes at elevations ranging from 1020 to 1070 feet. The Casselman Group, also Pennsylvanian in age, consists of cyclic sequences of shale, siltstone, sandstone, red beds, thin, impure limestone, and thin, nonpersistent coal. Red beds, which are associated with landslides, are mapped as outcropping along the park slopes,

primarily below the elevation of the Pittsburgh Coal. Nearly all of the park slopes consist of outcropping red beds at or near the ground surface. The base of the Casselman Formation is at the top of Ames Limestone.

2.5 LANDSLIDES

According to the referenced Allegheny County Landslide Portal (ACLP) and the United States Geologic Survey (USGS) Landslide maps, the majority of the park slopes have been labeled as slopes with moderate to severe susceptibility to landsliding due to the outcropping red beds. Based on the review of the site geology and the USGS and ACLP maps, red beds, which are commonly associated with slope instability, are mapped along nearly all of the existing slopes below the elevation of the outcropping Pittsburgh Coal seam. The USGS and ACLP references identifies 17 areas labeled as prehistoric landslides with 11 areas identified as active or recent landslides. According to the USGS and ACLP references, prehistoric landslides are characterized by uneven, hummocky ground surfaces and slump benches that are relatively stable in an undisturbed state, but can be reactivated by excavation, loading, or changes in water conditions. Active landslides show more visible signs of slope instability as of the publish date of the references. The ACLP reference also indicates three (3) “reported landslides” exist within the limits of the park. The ACLP reference defines the reported landslides as being part of a database prepared by the Allegheny County Emergency Services (911) and the Allegheny County Department of Public Works. The extent and status of the reported landslides are not provided. Additionally, two (2) large areas of the existing slopes above Carson Street have been identified by the USGS and ACLP references as steep slopes most susceptible to rockfalls. The USGS and ACLP reference indicated a total of four (4) areas of “manmade fill.” Three (3) of the manmade fill locations are mapped within the west and south park limits, at elevations primarily above the outcropping red beds. One (1) area of mapped manmade fill is located just north of the southeastern park limit, which could affect development within the limits of the park, to the south of the mapped fill. The manmade fills are described as heterogeneous soil and rock material with variable susceptibility to slope failure dependent upon the nature of the fill, foundation soils, design, and placement.

CEC’s review of the most recent (2006) LiDAR data using hillshading indicates 23 landslides. Ten of the landslides identified using LiDAR coincide with landslides identified in the USGS maps, being completely, or partially mapped within the limits of the historic or active landslides. LiDAR identified landslide features may exist as shallow or deep-seated stability issues/slope movement which result in hummocky ground. Further investigation in the vicinity of the LiDAR identified features would be required to determine if they are hummocky ground related to past movement or are the result of man-made earth disturbance.

Additional landslide features may be present, but not identified, because they have occurred after the publication/LiDAR survey dates.

2.6 COAL AND MINING

The Pennsylvania Geological Survey “Coal Resources of Allegheny County, Pennsylvania,” and the WPA Project No. 4483 (Carnegie Sheet No. 3) indicate that underground mining has occurred within the vicinity of the park, above the outcrop elevation of the Pittsburgh Coal seam. Based on the mapped outcrop of the Pittsburgh Coal seam, between approximate Elevations 1020 to 1070, it appears that deep mining has occurred at or beneath higher elevations of the park.

Detailed mine maps that include mining techniques (room and pillar, retreat, etc.) or other mine features such as entrances, shafts, or haulage ways are not publically available, due in large part to the age of the mine. Based on CEC’s experience with historic mining in the vicinity of the park, it is likely that several

drift mines (mine entrances which accessed the coal seam outcrop) are likely to exist on the upper portions of the slopes in the vicinity of the Pittsburgh Coal outcrop elevations. Drift mine entrances are unlikely to exist as open shafts and have been sealed by caving soil/bedrock or were previously covered with mine tailings after they were abandoned. This is an indication that the slopes below the mining operations, within the limits of park, may contain remnants of mining operations such as mine spoils.

3.0 CONCLUSIONS & RECOMMENDATIONS

CEC presents the following conclusions and recommendations regarding the geohazards identified based on the desktop review.

Multiple landslide features were identified on the slopes throughout the park. The identified landslides have the possibility of being activated and/or re-activated by construction activities (fill placement, excavation, addition of building loads, etc.), changing runoff patterns resulting from development above the landslide, and from increased surface and subsurface water due to the removal of vegetation. These areas should be avoided to reduce the risk of re-activating the landslides or development should include addressing the landslide risk. Should development be proposed in these areas, CEC recommends an investigation to obtain additional information and develop recommendations for addressing the potential risks

Red beds outcrop along a significant portion of the park slopes. Red beds include zones of weak claystone and indurated clay in which abundant, ancient, and recent landsliding has occurred. It should be recognized that claystone and red beds weather and decompose rapidly when exposed to air and water. As the red beds weather and decompose, they experience a significant loss of strength. Slopes in these materials can erode and/or slump and slide over time, resulting in downslope instability and deposition of weathered claystone and clay along the base of the slope. Development plans should account for the issues associated with red beds, including the potential for weathering over time.

The areas of mapped manmade fill consist of soil and bedrock placed to raise the elevation of a site. When fill is placed on slopes and not properly keyed (notched into competent underlying soils or rock), placed in uniform lift thicknesses, and adequately compacted, it is classified as uncontrolled fill. Slopes may be unstable if they were constructed entirely of uncontrolled fill, especially when overlying red beds. The thickness and consistency of the manmade fills, as well as the underlying foundation soil and bedrock, should be evaluated prior to any major development in these areas. Because manmade fill placement is not usually publically documented, other deposits of manmade fill may exist within the limits of the park.

Slopes that are steeper than 1.5H:1V exist throughout the park, as illustrated on the geohazard map. The majority of the 1.5H:1V or steeper slopes exist along the northern park limits, near Carson Street and to the west at the lower elevations near Saw Mill Run Boulevard; however, several steep slopes are noted throughout the park at varying elevations. The slopes steeper than 1.5H:1V along Carson Street and Saw Mill Run Boulevard are likely the result of excavations for roadway construction. CEC's review of the published references did not indicate the presence of active or reported slides along Carson Street or Saw Mill Run Boulevard; however, CEC is aware of several cases of slope instability along Carson Street in the vicinity of the slopes steeper than 1.5H:1V. Additionally, the slopes mapped as being a rockfall risk are along Carson Street and in areas of known red bed outcrops. Due to the high potential for instability, and the steepness of the existing slopes, CEC does not recommend development of the northern park slopes below the elevation of the mapped outcropping red beds. Slopes steeper than 1.5H:1V are typically stable when the exposed slope face consists of competent bedrock and not soil or red beds. Slopes steeper than 1.5H:1V that consist of soil, especially red beds or weak bedrock, are typically unstable and should be

avoided during future development. Beyond the northern park slope limits that should be avoided, other park slopes steeper than 1.5H:1V should be field evaluated to determine if a stability risk exists.

The conclusions and recommendations presented herein are based solely on a desktop study and could change if actual field conditions differ. Areas of geologic hazards not identified on the references reviewed by CEC are likely to exist within the park. CEC recommends a field reconnaissance by a geotechnical engineer prior to any development to assess the actual risks associated with identified geohazards and to verify that other geohazards are not present.

4.0 DISCLAIMER

This report discusses geohazards identified in literature to aid the City of Pittsburgh in future planning for Emerald View Park. The geohazards identified are based on review of the referenced documents only. Additional geohazards may exist that have not been identified.

5.0 CLOSING REMARKS

CEC appreciates this opportunity to be of service to the City of Pittsburgh. Please call if you have any questions or comments.

Very truly yours,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.



Scott Hatfield, P.E.
Project Manager



Jeffrey C. Woodcock, P.E.
Vice President

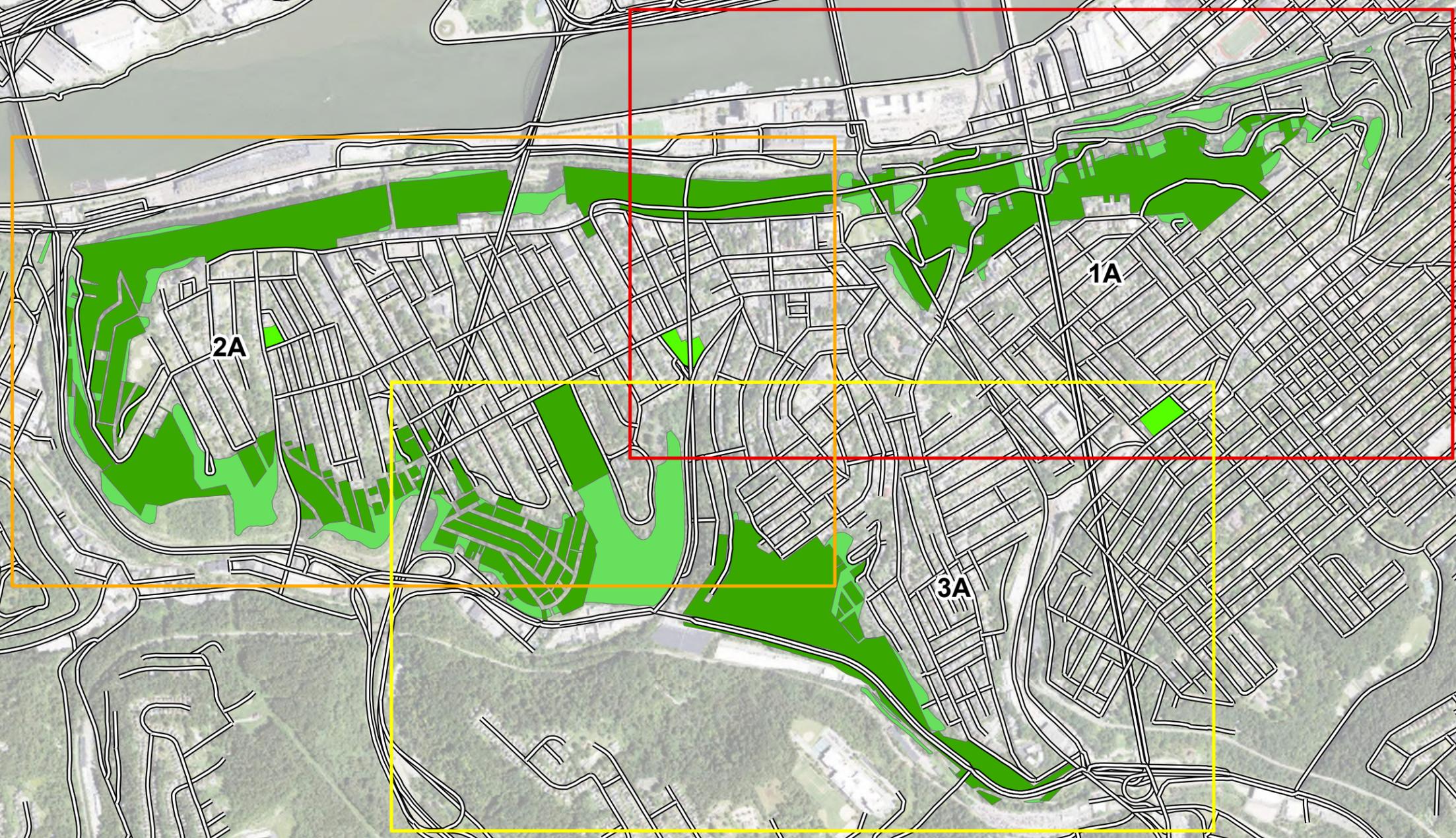
Attachment A – Geohazard Map (Figures 1, 1A, 2A, 3A)

194-140-LR-Geohazard Assessment.

ATTACHMENT A
GEOHAZARD MAP



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LEGEND	
	FIGURE 1A VIEWPORT
	FIGURE 2A VIEWPORT
	FIGURE 3A VIEWPORT
	ROAD
	PARK NODE
	LAND TRUST GREENPRINT
	MUNICIPAL PARK

- REFERENCES**
1. ALLEGHENY COUNTY GREENWAYS/ PARKS OBTAINED FROM ALLEGHENY COUNTY PLANNING DIVISION; DATED: 2010
 2. NATIONAL AGRICULTURE IMAGERY PROGRAM (NAIP) FOR ALLEGHENY COUNTY; DATED: 2017

Civil & Environmental Consultants, Inc.
 333 Baldwin Road - Pittsburgh, PA 15205-9072
 412-429-2324 • 800-365-2324
 www.cecinc.com

THE CITY OF PITTSBURGH
 DEPARTMENT OF CITY PLANNING
 EMERALD VIEW PARK
 PITTSBURGH, PENNSYLVANIA

GEOHAZARD STUDY LAYOUT

DRAWN BY:	HCC	CHECKED BY:	SAH	APPROVED BY: ^{Hand signature} on file	JCW	FIGURE NO:	1
DATE:	6/12/2020	SCALE:	1" = 1,200'	PROJECT NO:	194-140		



LEGEND	
	MUNICIPAL PARK
	LAND TRUST GREENPRINT
	PARK NODE
	BUILDING FOOTPRINT
	ROADS
	INDEX CONTOUR - 20 FT INTERVAL
	ACLP REPORTED LANDSLIDE
	LIDAR DERIVED LANDSLIDE
	ACTIVE LANDSLIDE PER USGS MAPPING
	HISTORIC LANDSLIDE PER USGS MAPPING
	MAPPED OUTCROP AREA OF RED BED
	MAPPED ROCKFALL SUSCEPTIBLE SLOPE
	MAPPED MANMADE FILL
	SLOPES GREATER THAN 1.5H:1V
	MINE ENTRY POINT/OPENING
	MINE SUBSIDENCE AREA
	PITTSBURGH COAL SEAM CROPLINE

REFERENCES
1. PAMAP PROGRAM LIDAR DATA, 2' INTERVAL, 2017
2. POMERY, J.S., 1978, "LANDSLIDES AND RELATED FEATURES OF THE PITTSBURGH WEST PA. QUADRANGLE", U.S. GEOLOGICAL SURVEY, OPEN FILE MAP 78-1057 (D-16)
3. POMERY, J.S., 1979, "LANDSLIDES AND RELATED FEATURES OF THE PITTSBURGH EAST PA. QUADRANGLE", U.S. GEOLOGICAL SURVEY, OPEN FILE MAP 79-1314 (D-1)
4. SOCOLOW, A. A., 1985, "COAL RESOURCES OF ALLEGHENY COUNTY, PENNSYLVANIA", COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL RESOURCES, MINERAL RESOURCES REPORT 89 - PART 1
5. ALLEGHENY COUNTY LANDSLIDE PORTAL (ACLP) ONLINE SOURCE; DATE ACCESSED: 6/11/2020
6. ABANDONED MINE LANDS INVENTORY SITES OBTAINED FROM PENNSYLVANIA DEP ONLINE SPATIAL DATABASE; ACCESSED 2020

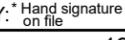


Civil & Environmental Consultants, Inc.
 333 Baldwin Road - Pittsburgh, PA 15205-9072
 412-429-2324 • 800-365-2324
 www.cecinc.com

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DATE: 6/12/2020	SCALE: 1" = 500'

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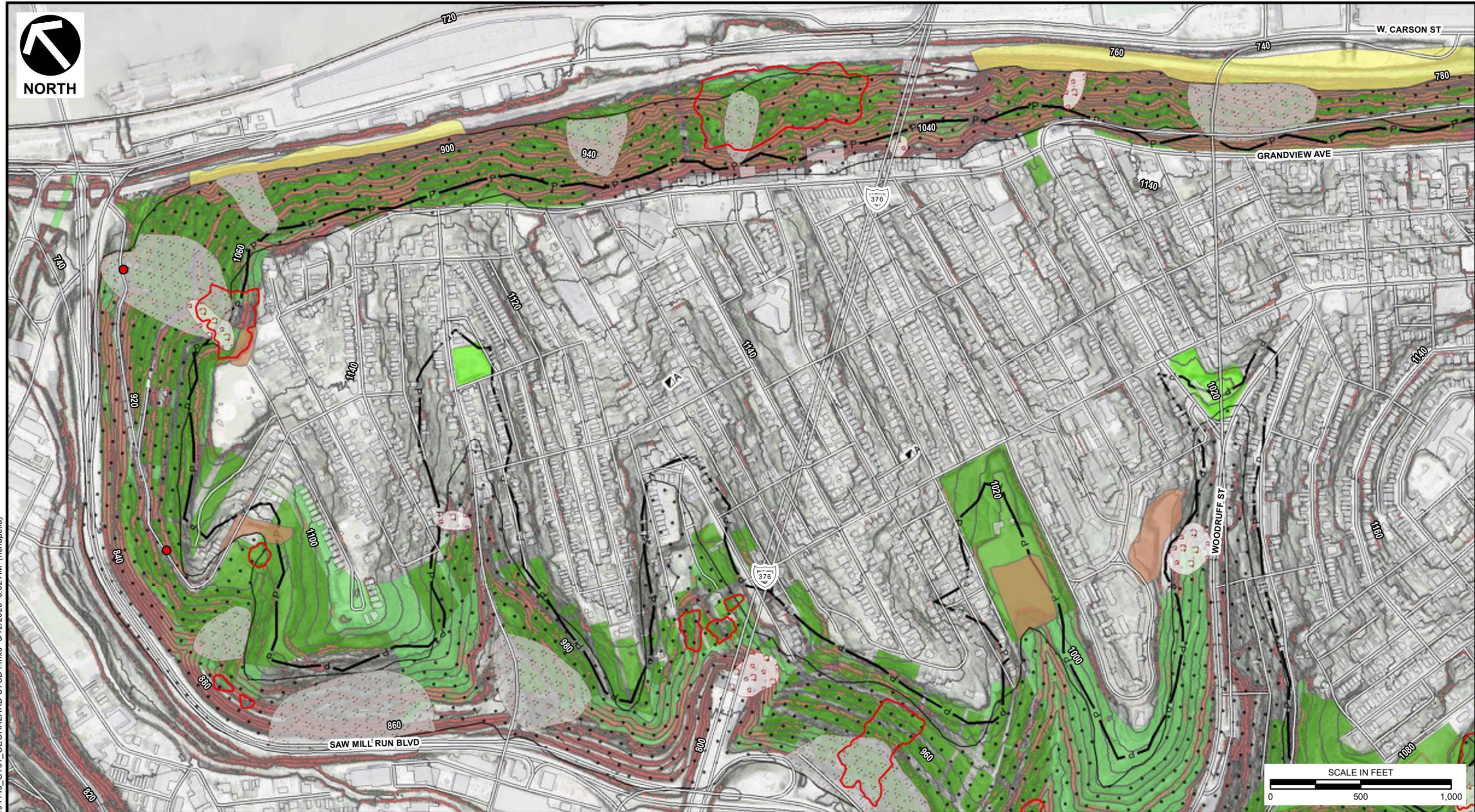
GEOHAZARD MAP

APPROVED BY:  JCW	FIGURE NO: 1A
PROJECT NO: 194-140	

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NORTH



LEGEND

	MUNICIPAL PARK		ACLP REPORTED LANDSLIDE		MAPPED MANMADE FILL
	LAND TRUST GREENPRINT		LIDAR DERIVED LANDSLIDE		SLOPES GREATER THAN 1.5H:1V
	PARK NODE		ACTIVE LANDSLIDE PER USGS MAPPING		MINE ENTRY POINT/OPENING
	BUILDING FOOTPRINT		HISTORIC LANDSLIDE PER USGS MAPPING		MINE SUBSIDENCE AREA
	ROADS		MAPPED OUTCROP AREA OF RED BED		PITTSBURGH COAL SEAM CROPLINE
	INDEX CONTOUR - 20 FT INTERVAL		MAPPED ROCKFALL SUSCEPTIBLE SLOPE		

REFERENCES

- PAMAP PROGRAM LIDAR DATA, 2' INTERVAL, 2017
- POMEROY, J.S., 1978, "LANDSLIDES AND RELATED FEATURES OF THE PITTSBURGH WEST PA. QUADRANGLE", U.S. GEOLOGICAL SURVEY, OPEN FILE MAP 78-1057 (D-16)
- POMEROY, J.S., 1979, "LANDSLIDES AND RELATED FEATURES OF THE PITTSBURGH EAST PA. QUADRANGLE", U.S. GEOLOGICAL SURVEY, OPEN FILE MAP 79-1314 (D-1)
- SOCOLOV, A. A., 1985, "COAL RESOURCES OF ALLEGHENY COUNTY, PENNSYLVANIA", COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL RESOURCES, MINERAL RESOURCES REPORT 89 - PART 1
- ALLEGHENY COUNTY LANDSLIDE PORTAL (ACLP) ONLINE SOURCE; DATE ACCESSED: 6/11/2020
- ABANDONED MINE LANDS INVENTORY SITES OBTAINED FROM PENNSYLVANIA DEP ONLINE SPATIAL DATABASE; ACCESSED 2020

C&E
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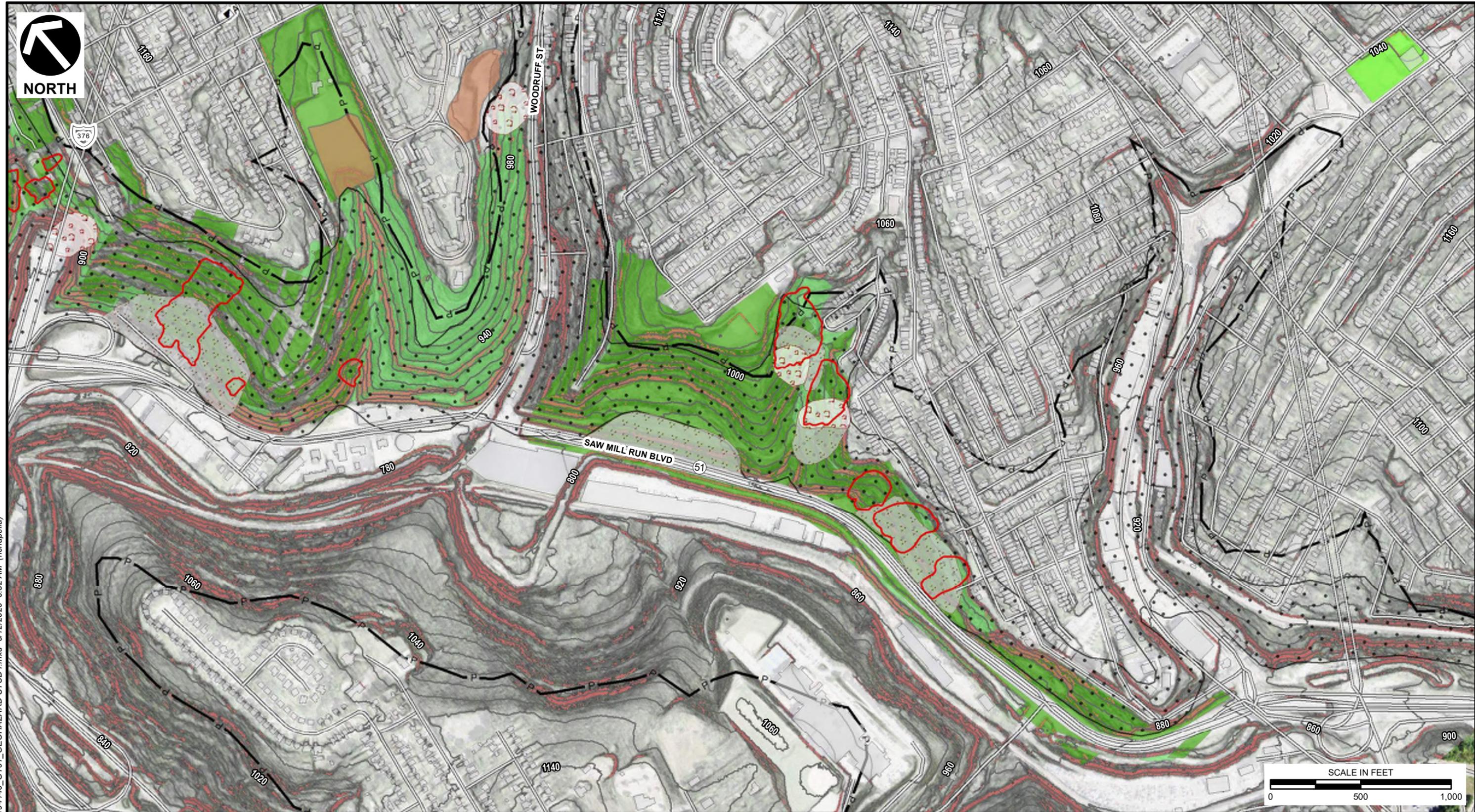
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GEOHAZARD MAP

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LEGEND

- MUNICIPAL PARK
- LAND TRUST GREENPRINT
- PARK NODE
- BUILDING FOOTPRINT
- ROADS
- INDEX CONTOUR - 20 FT INTERVAL
- ACLP REPORTED LANDSLIDE
- LIDAR DERIVED LANDSLIDE
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- MAPPED MANMADE FILL
- SLOPES GREATER THAN 1.5H:1V
- MINE ENTRY POINT/OPENING
- MINE SUBSIDENCE AREA
- PITTSBURGH COAL SEAM CROPLINE

REFERENCES

1. PAMAP PROGRAM LIDAR DATA, 2' INTERVAL, 2017
2. POMEROY, J.S., 1978, "LANDSLIDES AND RELATED FEATURES OF THE PITTSBURGH WEST PA. QUADRANGLE", U.S. GEOLOGICAL SURVEY, OPEN FILE MAP 78-1057 (D-16)
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GEOHAZARD MAP

APPROVED BY: <small>Hand signature on file</small> JCW	FIGURE NO: 3A
PROJECT NO: 194-140	

**APPENDIX F:
COST ESTIMATES**

Olympia Park - Cost Estimate

Description	Quantity	Unit	Unit Cost	Amount
Site Preparation & Demolition				
Site clearing	1	LS	\$300,000	\$300,000.00
Erosion control & sediment control	1	LS	\$15,000	\$15,000.00
Rough grading & site preparation	1	LS	\$200,000	\$200,000.00
Tree protection	1	LS	\$5,000	\$5,000.00
Park Utilities	1	LS	\$20,000	\$20,000.00
Miscellaneous removals	1	LS	\$20,000	\$20,000.00
Planting				
Tree planting	50	EA	\$600	\$30,000.00
Shrub and perennial planting	17,000	SF	\$3	\$51,000.00
Lawn	32,000	SF	\$0.50	\$16,000.00
Paving				
Asphalt	15,000	SF	\$12	\$180,000.00
Concrete	25,000	SF	\$15	\$375,000.00
Pavers	600	SF	\$30	\$18,000.00
Walking track	1,500	SF	\$30	\$45,000.00
Trail addition	1,400	LF	\$8	\$11,200.00
Virginia Avenue streetscape improvements (lighting, underground utilities, sidewalk concrete)	415	LF	\$570	\$236,550.00
Building Improvements				
Existing shelter renovation (in progress)				\$0.00
Additional picnic shelter	1	LS	\$25,000	\$25,000.00
Renovation of Historic Site Amenities				
Stone walls	700	LF	\$150	\$105,000.00
Stone stairs	100	SF	\$500	\$50,000.00
Site Amenities				
Benches	14	EA	\$1,400	\$19,600.00
Trash cans	8	EA	\$1,500	\$12,000.00
Water fountains	3	EA	\$5,000	\$15,000.00
Lighting	1	LS	\$20,000	\$20,000.00
Signage	3	EA	\$10,000	\$30,000.00
Proposed entrance walls	100	LF	\$115	\$11,500.00
Dog waste bag dispensers	2	EA	\$1,000	\$2,000.00
Dog park fence	1,200	LF	\$75	\$90,000.00

Stormwater Management

Bioswale	7,500	SF	\$14	\$105,000.00
Rain garden	6,000	SF	\$30	\$180,000.00
Subsurface detention (Infrastructure and R-tank)	1	LS	\$1,050,000	\$1,050,000.00

Field Improvements

Field renovation	94,500	SF	\$1	\$94,500.00
Field seating	550	LF	\$150	\$82,500.00

Playground & Court Improvements

Play structures	1	LS	\$250,000	\$250,000.00
Play surfacing	3,400	SF	\$25	\$85,000.00
Court renovations	1	LS	\$100,000	\$100,000.00
Playfull hillside	1	LS	\$250,000	\$250,000.00

Parking Lot Improvements

Asphalt	6,000	SF	\$12	\$72,000.00
Striping	200	LF	\$5	\$1,000.00

Contemplative Garden

Garden planting	2,000	SF	\$3	\$6,000.00
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		Subtotal		\$4,178,850.00
		Contingency	25%	\$1,044,712.50
		Public Art	1%	\$41,788.50
		Subtotal		\$5,265,351.00
		General Requirements	15%	\$789,802.65
		Total Estimated Cost		\$6,055,153.65

For reference - Park Area: 405000
 Total cost/sf: \$14.95

Mount Washington Park - Cost Estimate

Description	Quantity	Unit	Unit Cost	Amount
Site Preparation & Demolition				
Site clearing	1	LS	\$105,000	\$105,000.00
Erosion control & sediment control	1	LS	\$8,000	\$8,000.00
Rough grading & site preparation	1	LS	\$70,000	\$70,000.00
Tree protection	1	LS	\$5,000	\$5,000.00
Utilities	1	LS	\$15,000	\$15,000.00
Miscellaneous removals	1	LS	\$15,000	\$15,000.00
Planting				
Tree planting	32	EA	\$600	\$19,200.00
Shrub and perennial planting	4,300	SF	\$3	\$12,900.00
Lawn	36,500	SF	\$0.50	\$18,250.00
Paving				
Asphalt	3,800	SF	\$12	\$45,600.00
Concrete	3,900	SF	\$15	\$58,500.00
Pavers	930	SF	\$30	\$27,900.00
Trail addition	900	LF	\$8	\$7,200.00
Trail boardwalk	1,350	SF	\$45	\$60,750.00
Norton Street streetscape improvements (lighting, underground utilities, sidewalk concrete)	500	LF	\$570	\$285,000.00
Building Improvements				
Existing shelter renovation				\$0.00
Renovation of Historic Site Amenities				
Walls	510	LF	\$150	\$76,500.00
Stairs	430	SF	\$500	\$215,000.00
Site Amenities				
Benches	10	EA	\$1,400	\$14,000.00
Trash cans	5	EA	\$1,500	\$7,500.00
Water fountains	2	EA	\$5,000	\$10,000.00
Lighting	1	LS	\$15,000	\$15,000.00
Signage	2	EA	\$10,000	\$20,000.00
Walls	25	LF	\$115	\$2,875.00
Stormwater Management				
Rain garden	10,500	SF	\$30	\$315,000.00

Subsurface detention (Infrastructure and R-tank)	1	LS	\$450,000	\$450,000.00
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Field Improvements

Field renovation	28,500	SF	\$1	\$28,500.00
Field seating	170	LF	\$150	\$25,500.00

Playground & Court Improvements

Existing playstructures (completed)	0	LS	\$0	\$0.00
Existing court (completed)	0	LS	\$0	\$0.00

		Subtotal		\$1,933,175.00
		Contingency	25%	\$483,293.75
		Public Art	1%	\$19,331.75

		Subtotal		\$2,435,800.50
		General Requirements	15%	\$365,370.08
		Total Estimated Cost		\$2,801,170.58

For reference - Park Area:	142000
Total cost/sf:	\$19.73

Ream Park - Cost Estimate

Description	Quantity	Unit	Unit Cost	Amount
Site Preparation & Demolition				
Site clearing	1	LS	\$60,000	\$60,000.00
Erosion control & sediment control	1	LS	\$10,000	\$10,000.00
Rough grading & site preparation	1	LS	\$45,000	\$45,000.00
Tree protection	1	LS	\$5,000	\$5,000.00
Utilities	1	LS	\$10,000	\$10,000.00
Miscellaneous removals	1	LS	\$10,000	\$10,000.00
Planting				
Tree planting	18	EA	\$600	\$10,800.00
Shrub and perennial planting	3,000	SF	\$3	\$9,000.00
Lawn	20,000	SF	\$0.50	\$10,000.00
Paving				
Asphalt	5,200	SF	\$12	\$62,400.00
Concrete	2,800	SF	\$15	\$42,000.00
Merrimac Street streetscape improvements (lighting, underground utilities, sidewalk concrete)	400	LF	\$570	\$228,000.00
Renovation of Historic Site Amenities				
Stairs	180	SF	\$500	\$90,000.00
Site Amenities				
Benches	4	EA	\$1,400	\$5,600.00
Trash cans	3	EA	\$1,500	\$4,500.00
Water fountains	2	EA	\$5,000	\$10,000.00
Lighting	1	LS	\$20,000	\$20,000.00
Signage	2	EA	\$10,000	\$20,000.00
Walls	220	LF	\$115	\$25,300.00
Stairs	410	SF	\$150	\$61,500.00
Swimming pool fence	500	LF	\$75	\$37,500.00
Stormwater Management				
Rain garden	850	SF	\$30	\$25,500.00
Playground & Court Improvements				
Play structures	1	LS	\$250,000	\$250,000.00
Play surfacing	2,000	SF	\$25	\$50,000.00
Community Garden Improvements				

Garden beds	20	EA	\$300	\$6,000.00
				<hr/>
		Subtotal		\$1,108,100.00
		Contingency	25%	\$277,025.00
		Public Art	1%	\$11,081.00
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		Subtotal		\$1,396,206.00
		General Requirements	15%	\$209,430.90
		Total Estimated Cost		\$1,605,636.90
		For reference - Park Area:		86,300
		Total cost/sf:		\$18.61

Eileen McCoy Playground - Cost Estimate

Description	Quantity	Unit	Unit Cost	Amount
Site Preparation & Demolition				
Site clearing	1	LS	\$30,000	\$30,000.00
Erosion control & sediment control	1	LS	\$5,000	\$5,000.00
Rough grading & site preparation	1	LS	\$20,000	\$20,000.00
Tree protection	1	LS	\$5,000	\$5,000.00
Utilities	1	LS	\$5,000	\$5,000.00
Miscellaneous removals	1	LS	\$5,000	\$5,000.00
Planting				
Tree planting	25	EA	\$600	\$15,000.00
Shrub and perennial planting	1,900	SF	\$3	\$5,700.00
Lawn	7,300	SF	\$0.50	\$3,650.00
Paving				
Asphalt	10,000	SF	\$12	\$120,000.00
Shaler Street + Greenleaf streetscape improvements (lighting, underground utilities, sidewalk concrete)	430	LF	\$570	\$245,100.00
Renovation of Historic Site Amenities				
Walls	330	LF	\$150	\$49,500.00
Site Amenities				
Benches	8	EA	\$1,400	\$11,200.00
Trash cans	1	EA	\$1,500	\$1,500.00
Water fountains	1	EA	\$5,000	\$5,000.00
Lighting	1	LS	\$5,000	\$5,000.00
Signage	2	EA	\$10,000	\$20,000.00
Walls	60	LF	\$115	\$6,900.00
Fence	185	LF	75	\$13,875.00
Playground & Court Improvements				
Play structures and spray fountain	1	LS	\$250,000	\$250,000.00
Play surfacing	4,000	SF	\$25	\$100,000.00
Court renovations	1	LS	\$100,000	\$100,000.00
			Subtotal	\$1,022,425.00
			Contingency 25%	\$255,606.25
			Public Art 1%	\$10,224.25
			Subtotal	\$1,288,255.50

General Requirements	15%	\$193,238.33
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Total Estimated Cost		\$1,481,493.83
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For reference - Park Area:		37200
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Total cost/sf:		\$39.83
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Grandview Park - Cost Estimate

Description	Quantity	Unit	Unit Cost	Amount
Site Preparation & Demolition				
Site clearing	1	LS	\$300,000	\$300,000.00
Erosion control & sediment control	1	LS	\$20,000	\$20,000.00
Rough grading & site preparation	1	LS	\$200,000	\$200,000.00
Tree protection	1	LS	\$10,000	\$10,000.00
Utilities	1	LS	\$20,000	\$20,000.00
Miscellaneous removals	1	LS	\$20,000	\$20,000.00
Planting				
Tree planting	20	EA	\$600	\$12,000.00
Shrub and perennial planting	15,700	SF	\$3	\$47,100.00
Lawn	158,000	SF	\$0.50	\$79,000.00
Paving				
Asphalt	36,500	SF	\$12	\$438,000.00
Concrete	12,350	SF	\$15	\$185,250.00
Bailey Street streetscape improvements (lighting, underground utilities, sidewalk concrete)	125	LF	\$570	\$71,250.00
Allen Street streetscape improvements (lighting, underground utilities, sidewalk concrete)	170	LF	\$570	\$96,900.00
Building Improvements				
Existing bandstand renovation				\$0.00
Bandstand restroom	190	SF		\$0.00
Renovation of Historic Site Amenities				
Walls	630	LF	\$150	\$94,500.00
Stairs	2,350	SF	\$500	\$1,175,000.00
Entry fountain	1	LS	\$100,000	\$100,000.00
Site Amenities				
Benches	16	EA	\$1,400	\$22,400.00
Trash cans	8	EA	\$1,500	\$12,000.00
Water fountains	3	EA	\$5,000	\$15,000.00
Lighting	1	LS	\$25,000	\$25,000.00
Signage	4	EA	\$10,000	\$40,000.00
Walls	110	LF	\$115	\$12,650.00

Stormwater Management

Rain garden	6,600	SF	\$30	\$198,000.00
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Playground & Court Improvements

Play structures	1	LS	\$250,000	\$250,000.00
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Play surfacing	10,800	SF	\$25	\$270,000.00
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Court renovation	1	LS	\$100,000	\$100,000.00
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Parking Lot Improvements

Asphalt	7,600	SF	\$12	\$91,200.00
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Striping	160	LF	\$5	\$800.00
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		Subtotal		\$3,906,050.00
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		Contingency	25%	\$976,512.50
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		Public Art	1%	\$39,060.50
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		Subtotal		\$4,921,623.00
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		General Requirements	15%	\$738,243.45
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		Total Estimated Cost		\$5,659,866.45
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		For reference - Park Area:		443300
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		Total cost/sf:		\$12.77
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Bigbee Field - Cost Estimate

Description	Quantity	Unit	Unit Cost	Amount
Site Preparation & Demolition				
Site clearing	1	LS	\$30,000	\$30,000.00
Erosion control & sediment control	1	LS	\$5,000	\$5,000.00
Rough grading & site preparation	1	LS	\$25,000	\$25,000.00
Tree protection	1	LS	\$5,000	\$5,000.00
Utilities	1	LS	\$5,000	\$5,000.00
Miscellaneous removals	1	LS	\$5,000	\$5,000.00
Planting				
Tree planting	4	EA	\$600	\$2,400.00
Shrub and perennial planting	3,900	SF	\$3	\$11,700.00
Lawn	4,100	SF	\$0.50	\$2,050.00
Paving				
Concrete	5,100	SF	\$15	\$76,500.00
Trail addition	300	LF	\$8	\$2,400.00
Bigbee Street streetscape improvements (lighting, underground utilities, sidewalk concrete)	360	LF	\$570	\$205,200.00
Renovation of Historic Site Amenities				
Walls	240	LF	\$150	\$36,000.00
Stairs	125	SF	\$500	\$62,500.00
Site Amenities				
Benches	8	EA	\$1,400	\$11,200.00
Trash cans	2	EA	\$1,500	\$3,000.00
Water fountains	1	EA	\$5,000	\$5,000.00
Lighting	1	LS	\$5,000	\$5,000.00
Signage	1	EA	\$10,000	\$10,000.00
Proposed walls	60	LF	\$115	\$6,900.00
Proposed stairs	175	SF	\$150	\$26,250.00
Fence	400	LF	\$75	\$30,000.00
Field Improvements				
Field renovation	17,500	SF	\$1	\$17,500.00
Subtotal				\$588,600.00
Contingency 25%				\$147,150.00
Public Art 1%				\$5,886.00

Subtotal		\$741,636.00
General Requirements	15%	\$111,245.40
Total Estimated Cost		\$852,881.40
For reference - Park Area:		40,500
Total cost/sf:		\$21.06

Grandview Avenue - Cost Estimate

Description	Quantity	Unit	Unit Cost	Amount
Site Preparation & Demolition				
Site clearing, erosion control, rough grading, tree protection, miscellaneous removals	6,400	LF	\$7	\$44,800.00
Typical Sidewalk Improvements				
Infrastructure (lighting, power, telephone, cable, paving)	6,400	LF	\$1,500	\$9,600,000.00
Sidewalk improvements (site furnishings, planting, etc.)	6,400	LF	\$180	\$1,152,000.00
Specialty Roadway Improvements				
Roadway paving and crosswalk treatment	67,500	SF	\$40	\$2,700,000.00
Point of View Statue Overlook				
Tree planting	6	EA	\$600	\$3,600.00
Paving	1,100	SF	\$15	\$16,500.00
Benches	2	EA	\$1,400	\$2,800.00
Terrace seating	190	LF	150	\$28,500.00
Trash cans	1	EA	\$1,500	\$1,500.00
Walls	160	LF	\$115	\$18,400.00
P.J. McArdle Roadway Intersection				
Tree planting	1	EA	\$600	\$600.00
Shrub and perennial planting	2,900	SF	\$3	\$8,700.00
Paving	7,200	SF	\$15	\$108,000.00
Benches	1	EA	\$1,400	\$1,400.00
Trash cans	2	EA	\$1,500	\$3,000.00
Walls	40	LF	\$115	\$4,600.00
Railing	155	LF	\$75	\$11,625.00
Grandview Avenue Overlooks				
Overlook renovation				
Subtotal				\$13,706,025.00
Contingency			25%	\$3,426,506.25
Public Art			1%	\$137,060.25
Subtotal				\$17,269,591.50
General Requirements			15%	\$2,590,438.73
Total Estimated Cost				\$19,860,030.23

For reference - Park Length:	6,400
Total cost/lf:	\$3,103.13

LF CALCULATIONS

Site Preparation & Demolition

Site clearing	1	LS	\$300,000	\$300,000.00
Erosion control & sediment control	1	LS	\$15,000	\$15,000.00
Rough grading & site preparation	1	LS	\$200,000	\$ 200,000.00
Tree protection	1	LS	\$5,000	\$5,000.00
Miscellaneous removals	1	LS	\$20,000	\$20,000.00
				\$540,000.00
			cost/sf	\$1.33
			grandview sidewalk 5ft wide	\$6.67

Sidewalk Improvement cost (per 100ft)

Planting

Tree planting	1	EA	\$600	\$600.00
Shrub and perennial planting	200	SF	\$3	\$600.00

Site Amenities

Benches	2	EA	\$1,400	\$600.00
Trash cans	0.5	EA	\$1,500	\$750.00
Signage	0.5	EA	\$10,000	\$5,000.00
Bollards	20	EA	\$500	\$10,000.00
Railing Paint	100	LF	\$2	\$200.00
				\$17,750.00
			cost/1ft	\$177.50

Trails - Cost Estimate

Description	Quantity	Unit	Unit Cost	Amount
Trail Improvements (site preparation, grading, erosion control, tree protection, planting, surfacing, signage)		LF	\$70	
Trail Entrance Improvements (walls, fencing, signage, paving, planting)				
Sweetbriar Street - North (included with Grandview Avenue cost estimate)	0	SF	\$22	\$0.00
Homer Street	4,000	SF	\$22	\$88,000.00
Greenleaf Street - North	500	SF	\$22	\$11,000.00
Lizardi Way	1,700	SF	\$22	\$37,400.00
Greenleaf Street - South	5,500	SF	\$22	\$121,000.00
Republic Street	1,000	SF	\$22	\$22,000.00
Clarence Street	2,500	SF	\$22	\$55,000.00
Sweetbriar Street - South	1,200	SF	\$22	\$26,400.00
Hallock Street	1,900	SF	\$22	\$41,800.00
E Sycamore Street	8,000	SF	\$22	\$176,000.00
Bigbee Street (included with Bigbee Field cost estimate)	0	SF	\$22	\$0.00
Bailey Avenue (included with Grandview Park cost estimate)	0	SF	\$22	\$0.00
Roanoake Street	400	SF	\$22	\$8,800.00
Allen Street (included with Grandview Park cost estimate)	0	SF	\$22	\$0.00
Grace Street	4,000	SF	\$22	\$88,000.00
Norton Street (included with Mount Washington Park cost estimate)	0	SF	\$22	\$0.00
Chess Street	3,000	SF	\$22	\$66,000.00
Subtotal				\$741,400.00
Contingency			25%	\$185,350.00
Public Art			1%	\$7,414.00
Subtotal				\$934,164.00
General Requirements			15%	\$140,124.60
Total Estimated Cost				\$1,074,288.60

LF CALCULATIONS

Trails

Site clearing	1	LS	\$600.00	\$600.00
Erosion control & sediment control	1	LS	\$100	\$100.00
Rough grading & site preparation	1	LS	\$600	\$600.00
Tree protection	1	LS	\$100	\$100.00
Tree planting	5	EA	\$600	\$3,000.00
Shrub and perennial planting	300	SF	\$3	\$900.00
Trail surfacing	100	LF	8	\$800.00
Signage	0.1	EA	\$5,000	\$500.00
			Total per 100 lf cost/lf	\$6,600.00 \$66.00

Trail Entrances

Planting

Tree planting	1	EA	\$600	\$600.00
Shrub and perennial planting	400	SF	\$3	\$1,200.00

Paving

Asphalt	200	SF	\$12	\$2,400.00
Pavers	100	SF	\$30	\$3,000.00
Trail addition	20	LF	\$8	\$160.00

Site Amenities

Benches	1	EA	\$1,400	\$1,400.00
Trash cans	0.5	EA	\$1,500	\$750.00
Fence	40	LF	\$75	\$3,000.00
Signage	1	EA	\$10,000	\$10,000.00
Proposed walls	15	LF	\$115	\$1,725.00

Total for 1000 sqft cost/sqft	\$24,235.00 \$24.24
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