

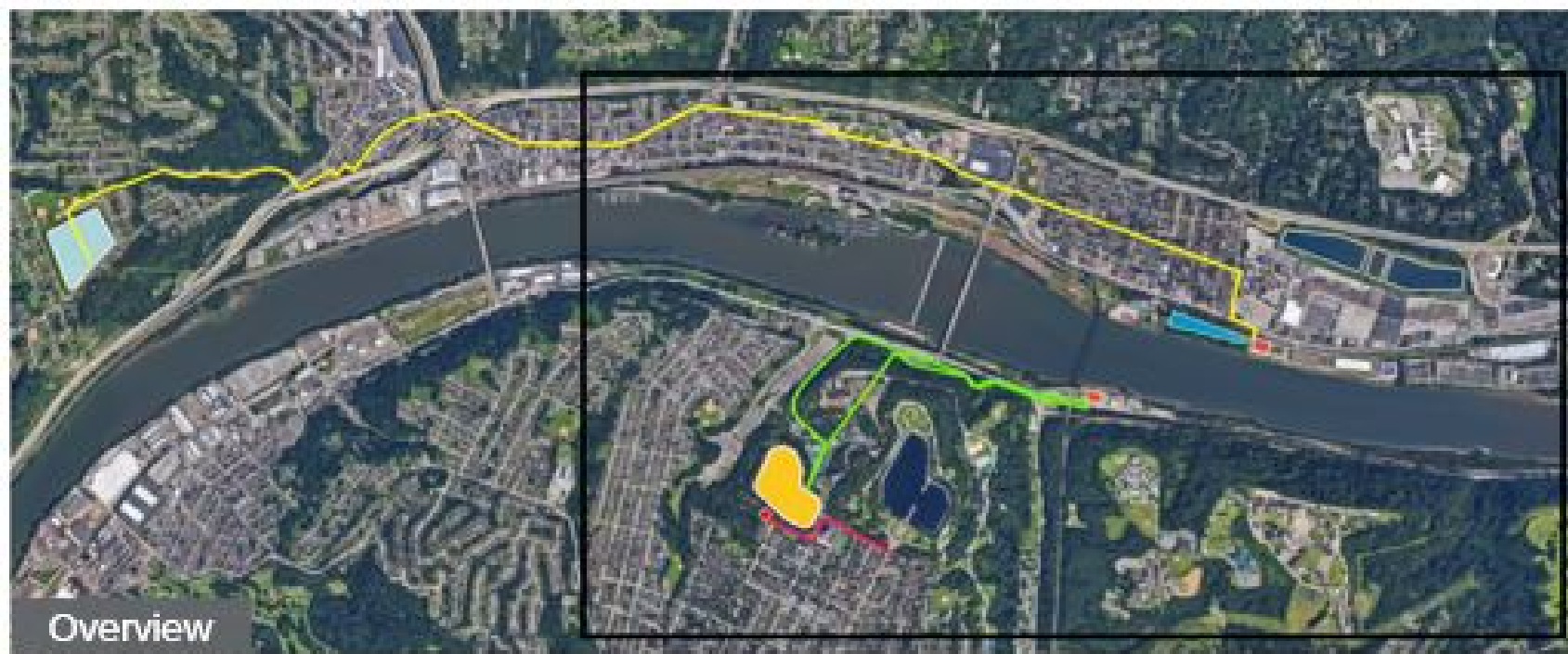


Pittsburgh
Water & Sewer
Authority

Highland Park Pump Station and Rising Main

Update to the Highland Park Community Council

October 17, 2019



ASPINWALL PS TO LANPHER RESERVOIR RISING MAIN
Schedule: 2019-2023
Est. Cost: \$49,454,000

LANPHER RESERVOIR IMPROVEMENTS
Schedule: -COMPLETED
Est. Cost: \$29,650,000

CLEARWELL IMPROVEMENTS
Schedule: 2019-2025
Est. Cost: \$67,810,000

CLEARWELL EMERGENCY BYPASS
Schedule: 2019-2020
Est. Cost: \$27,670,000

RISING MAINS 3 & 4
Schedule: 2019-2022
Est. Cost: \$23,550,000

AWTP HIGH SERVICE PUMPING (or APS and BPS UPGRADES)
Schedule: 2019-2023
Est. Cost: \$53,620,000

AWTP ELECTRICAL AND BACKUP POWER
Schedule: 2019-2023
Est. Cost: \$26,520,000

HIGHLAND 2 RESERVOIR IMPROVEMENTS
Schedule: 2019-2021
Est. Cost: \$27,510,000

HIGHLAND RESERVOIR PUMP STATION AND RISING MAIN
Schedule: 2018-2022
Est. Cost: \$37,130,000

Major Projects Critical to Water Supply - Priority

PROJECT CONTEXT: Urgent Projects - Summer/Fall 2018



1: Orthophosphate Facilities

These two small buildings, intended to be installed temporarily, will store and deliver orthophosphate to the potable water system. Orthophosphate is used to reduce corrosion in existing lead and iron pipes systemwide, thus preventing those pipes from leaching lead and iron into the water supply at buildings where those pipes exist.

The placement of these two facilities is strategic. By locating them at key junctures in the water system, they will be fast to install and will minimize the potential for an algal bloom on an open water body supplied by PWSA. Given the chemicals that will be stored in these buildings, they should be secured facilities. Typically, orthophosphate facilities are pre-fabricated fiberglass buildings secured with a tall barbed-wire fence. Given that these facilities will be sited in one of Pittsburgh's largest and most-used parks, is being designed to meet the performance and security requirements of PWSA while also meeting the aesthetic and amenity desires of the park.



Product image showing a typical orthophosphate facility. The design team is proposing a facility that meets both the needs of PWSA as well as the public. Source: Warminster. This is a top priority project. It is urgent! The sooner the orthophosphate facilities are installed, the faster corrosion reduction can take place.

2: U.V. Treatment at the MFP

A change in water quality standards set by the state DEP means this microfiltration plant (MFP) is no longer compliant and may not be used until approved modifications are made. Installation of U.V. treatment as part of the microfiltration plant in Highland Park will satisfy most of the DEP's new water quality standards.

When operational, the microfiltration plant treats the water from reservoir 1 before it is distributed to the reservoir 1 pressure zone. It was constructed in response to a state DEP mandate that all reservoirs be covered and to a City ordinance that prohibited the installation of a cover on reservoir 1. At the time, the MFP was deemed by the DEP to be a sufficient alternative to covering reservoir 1.

3: Perimeter Security

PROJECT CONTEXT: Strategic Projects - Spring 2019-2021



Highland Park Pump Station Replacement and New Rising Main Construction

4: Replace Pump House, Add New Pumping Capability

Pittsburgh Water and Sewer Authority (PWSA) is currently developing plans for the construction of a new 50 million gallons per day (mgd) drinking water pumping station located in the Highland Park area of the City of Pittsburgh. This pump station will replace the existing pumping station that was used to supply water to the Garfield Tank water supply system. Due to the age of the equipment and unsafe operating conditions that made its operation unreliable, PWSA ceased operation of this pumping station and installed a temporary pump next to the existing pump house.

In addition to the pumps that will deliver the water to the Garfield Tank water supply system, the new pumping station will house pumping equipment that will provide a supplemental and redundant supply of drinking water to the Highland 1 reservoir water district. This will ensure an uninterrupted and reliable water supply to over one-third of the City of Pittsburgh's customers.

The pumping station will be located behind the existing pumping station at the end of North Negley Avenue. The existing pumping station will be demolished.

5: New Rising Main

In order to connect the new pumping station to the Highland 1 Reservoir water supply system, a new 48-inch rising main will be constructed. The alignment of the rising main will be in the general area of the Mellon Terrace; Bunkerhill Street with the connection at Bunkerhill Street and Highland Avenue, near the upper entrance to Highland Park. The specific alignment was chosen to minimize impact to existing trees. The rising main cannot be placed within the Bunkerhill R.O.W. due to conflicts with existing utilities.

6: Replace Effluent Main

During initial design, it was deemed prudent to replace the main from reservoir 2 to the pump station. This main is original to the reservoir and is thus a century old. This will be replaced during construction of the pump house and rising main.

7: Replace Reservoir 2 Cover

The 2017-2021 Capital Improvement Program identifies Reservoir 2 for state-of-good-repair cover replacement. By replacing it during construction of the pump house, effluent main, and rising main, PWSA can minimize overall downtime.

CONCEPTUAL SITE PLAN



SITE CONSIDERATIONS

- The building is set back roughly 350 feet from the public right of way. It will have minor visibility by vehicles and pedestrians traveling on Negley Avenue, Mellon Terrace, and the hiking trail that extends behind the King Estate.
- To minimize site disturbance, a singular access road is planned.
- Paving and access road will be minimized by locating exterior equipment, transformers, generators, etc. easily accessible near the streetside of the structure.
- Given its location, there is sufficient space between the pump station and Mellon Terrace for a future bus depot and/or a trailhead park structure. The team is currently coordinating with, and will continue to coordinate with, Port Authority, Parks Conservancy, DPW, and the Zoo regarding site usage.

SITE CONTEXT: Vantage Points From Neighborhood

1 EXISTING PUMP STATION
(to be removed)



2 HISTORIC RESERVOIR STEPS



3 HIGHLAND PARK RESIDENCES



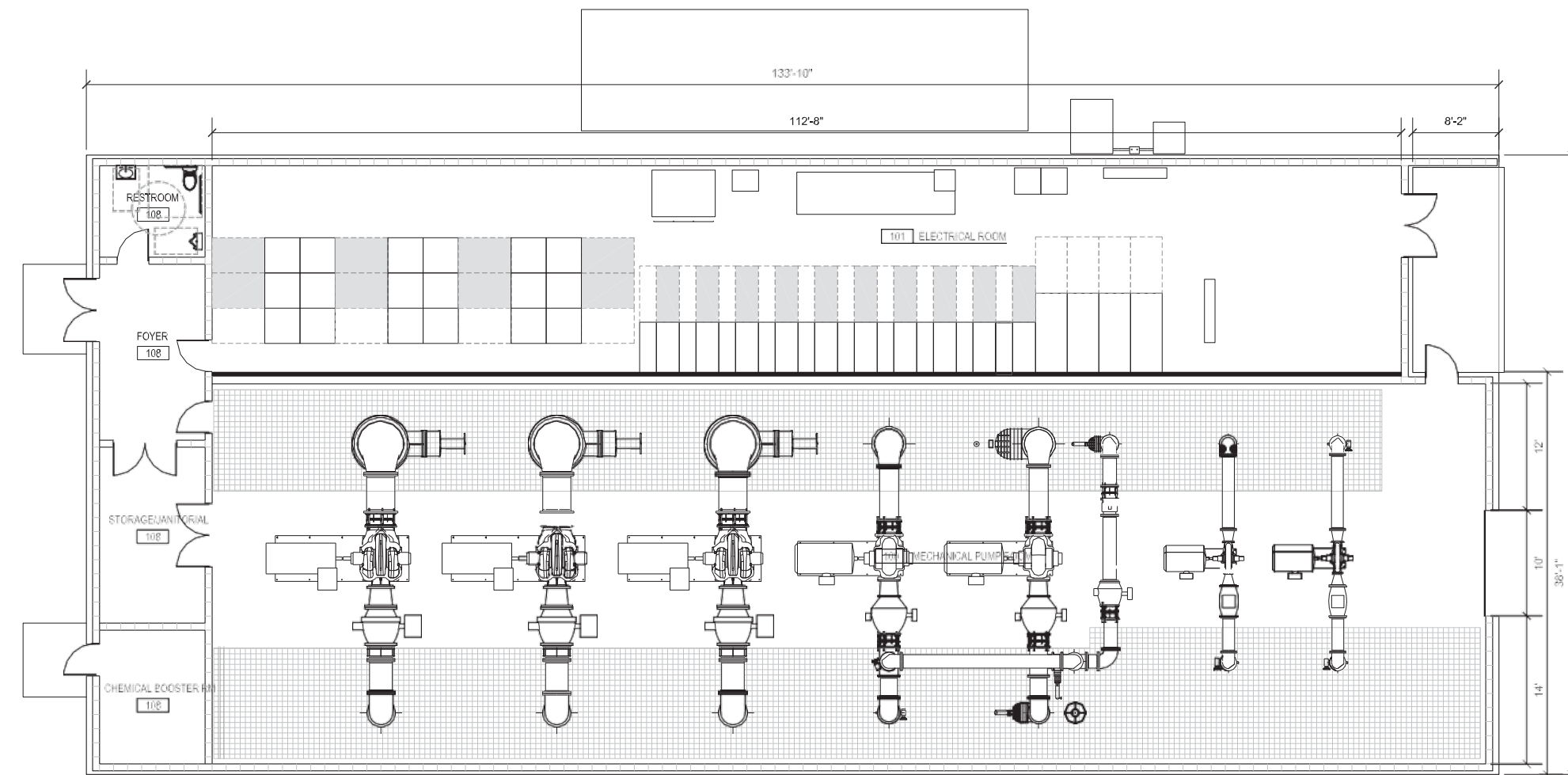
SITE CONTEXT

- Architectural site context is minimal in the immediate vicinity of the pump station site.
- The new pump station will be located 300' from the nearest residential unit and 300'+ from the historic reservoir steps.
- The infrastructural improvement planning process seeks to minimize tree disturbance at the site. The team has met with DPW regarding site disturbance.

*All image rom Google Earth

30% ENGINEERING PLAN AND ISOMETRIC

SCHEMATIC PROCESS LAYOUT



ENGINEERING SCHEMATIC

- The pump station will house a large pump room, associated electrical room and ancillary spaces. It will not be regularly occupied.
- Floor layout and basic massing is determined by the requirements of the engineering processes taking place. Ceiling heights have been determined by equipment and crane operation clearances.
- A perimeter fence will be required for security of the processes. Final location has not been determined.

SCHEMATIC RENDER



Current Design Concept



Light and Sound

- Building needs a secure perimeter and surveillance system
- Lighting balanced with neighborhood needs and security requirements of building
- Sound built to building code and noise ordinance

Project and Outreach Schedule

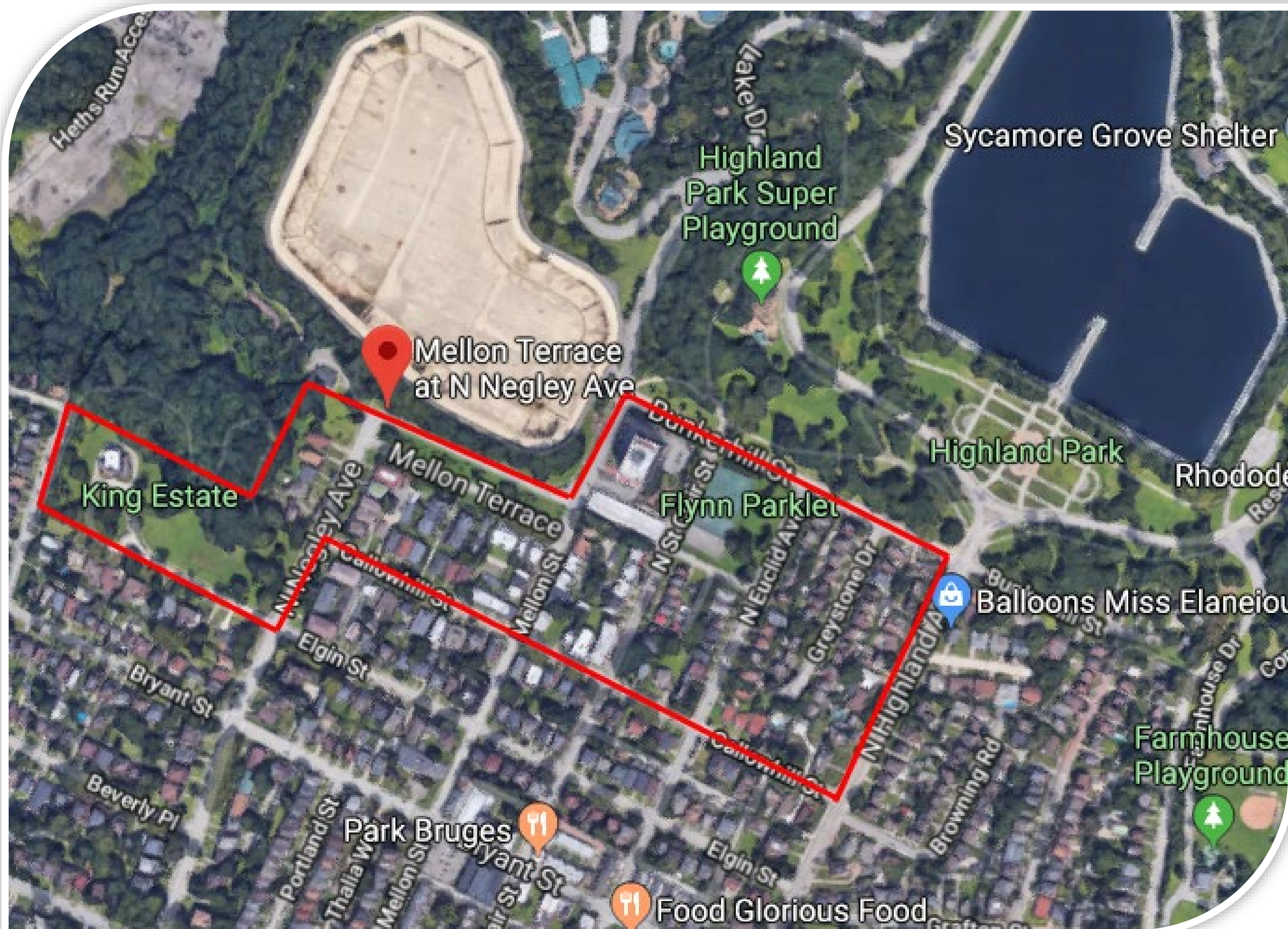
Project Schedule

- **Design:** Complete Spring 2020
- **Construction:** Late Summer 2020 through 2022

Outreach Schedule

- **Community Meeting:** March 2020, Focus Final Design
- **Community Meeting:** Summer 2020, Focus Construction
- **Neighborhood Conversations:**
 - Spring and Summer 2020
 - Ongoing through construction
- **Construction Updates:** Ongoing through construction

NEIGHBORHOOD CONVERSATIONS: Focus For Construction



Questions?