Advancing Transformational Infrastructure Projects Across Political Boundaries in the Northeast

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16. Abstract

The South Ward is the working site for the Port of Newark, the Newark Liberty International Airport, and the intercity and commuter rail station that serves the airport. It is also home to an historic Olmsted Brothers park surrounded by contiguous older neighborhoods, including Dayton and Weequahic, where many individuals and households are struggling. For decades, residents here have had lower household incomes and higher unemployment rates than those in most other North Jersey communities. The remaining area of the South Ward, located between the transportation infrastructure and the neighborhoods, consists of extensive industrial sites, many vacant or underutilized. The opportunity for change, for a more equitable and more resilient future for Newark's South Ward, is at the doorstep, as this report will describe. The fundamental inquiry of this design studio is the essential role of the public realm. The importance of this inquiry is now heightened as we find ourselves on the precipice of change in the way we view cities, jobs, and lives. The pandemic is accelerating forces that were already underway within our economy. The serious impact of contagion and job loss is significantly raising the visibility of inequality and division within our society.

The design challenge to the 13 talented graduate students whose work is presented here is not to create another master plan that will not be realized as drawn. Rather, it is to generate a new framework, a continuous "public realm" that will weave together the infrastructure, enterprises, and neighborhoods of the South Ward in a ribbon of connectivity between home and job. This ribbon can provide a range of experiences that enhance a sense of our commonality and our invaluable diversity. It will welcome visitors from near and far to Newark. It can become the territory of coming together to express ourselves, to lead our lives with the friction and joy of human interaction. It will be different than it was back in early 2020. The physical public realm will be even more important as the place to share our common responsibility to generate connections, reverse climate change, and catalyze a more inclusive and equitable economy.

17. Key Words

Newark Airport, public realm, urban design, transportation planning

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Executive Summary

The City Planning, Architecture, and Urban Design graduate students in this public realm studio are focused on how we can push the limits to extend beyond what is typically thought of as the public realm. The premise is to create a shared experience from start to end, by thinking about and incorporating spaces of transition and connection, as well as places to stop and stay. Thus, our projects seek to redefine the public realm as a publicly accessible space that ranges across different urban scales, conveys its own character, and is not limited to the external realm. We see this as an intentional strategy not only for connectivity but also for inclusion.

Within the context of the City of Newark, we focused on three specific scales -- Region, District, and Place -- to track the experience of the transitional spaces between and among each element of the public realm. With this definition in mind, we applied this approach by first looking at the regional connectivity of the City of Newark, including Newark Liberty International Airport (EWR), the highways, and the railroads. Then we zoomed into the urban districts of the South Ward and then further into the placemaking scale of the urban domain to locations within the South Ward including the airport terminals and railroad stations, Weequahic and Dayton neighborhoods, and the underutilized properties alongside the railroad right-of-way. We also sought to refresh and reconnect the neighborhood's parks, creeks, and ditches with the eastside marshlands Newark Bay.

This studio was also impacted by the COVID-19 pandemic that ultimately canceled our in-person meetings and forced us to collaborate online. This not only impacted our workflow but highlighted the

necessity of a great public realm to every city, neighborhood, and town. The urgency behind a public realm studio in these times is even clearer. The photos to the left show us before the pandemic, in Washington DC, and during our final review, which was done online.

Chapter 1.

The site that became Newark, New Jersey, was originally Lenni-Lenape Native American land. The city was founded in 1666 by colonists who left Connecticut looking for a place to set up a Puritan theocracy. They chose this spot because of its proximity to the Passaic River, which over the next two centuries would be critical to the city's growth through trade and commerce. Throughout the 1800's, Newark's industry grew thanks to the development of modern transportation networks, which opened up new markets to Newark from across the New York-New Jersey region. In Newark, the Morris Canal was completed in the 1830's, the first transportation feat of the area it was followed by the development of the Essex Railroad and a number of new turnpikes. This allowed the biggest industries during this time – leather tanning, textiles, iron production, breweries, and insurance[1] – to be produced in Newark and exported to the surrounding region.

Transportation continued to be integral to the growth of Newark into the 1900's when the Newark Port opened in 1910.The Dayton area's specific proximity to the Newark Bay made it a prime location for industry and shipping as well. Following the opening of the Morris Canal and the Essex Railroad, this was a site of iron and steel production. Starting in 1910, the wetlands started to be filled in to establish the beginnings of the Port of Newark.[2] Eventually, the wetland was completely dredged and filled in to create the site for the Newark Metropolitan Airport. In this process, the creek was piped and moved

[1] www.thirteen.org/newark/history2
[2] https://timesmachine.nytimes.com/timesmachine/1915/06/27/301808242.pdf

Figure 1. Historic Newark. The name "Weequahic" is a Lenni-Lenape term for "head of the cove" and likely refers to the area where Weequahic Park now stands as being the headwaters of a large salt marsh that covered most of the Weequahic and Dayton neighborhoods.

underground. Remnants of the marsh lands and creek can still be seen today around the site, with small ponds and water basins.

The Newark Metropolitan Airport, the region's first commercial airport, initiated operations in 1928 and was for a time considered the largest in the world.[3] However, the Great Depression hit Newark hard in the 1930's. Postwar, it reached peak population in the 1950's. The second half of the 20th century was harder for the people of Newark. Newark saw a similar urban decline as many cities across the country. Suburban flight caused large portions of the tax base to flee the city to the suburbs. By 1967, racial uprisings hit cities across the country, including Newark. The city had the nation's highest percentage of substandard housing and the second highest rates of crime.[4] This economic downward trend continued through the 70's and 80's, leaving behind most of its population in poor and marginalized communities. The city's population started to stabilize in the early 2000's and has since seen new growth and revitalization.[5]

[3] Airport Magazine, 2017
[4] www.thirteen.org/newark/history3.html
[5] http://archive.pov.org/streetfight/newark-a-brief-history/

Chapter 2. Newark Today

2.1. Context

Today, Newark is a city that shows the change that it has undergone over the years. Downtown Newark still has many beautiful old buildings that are a reminder of the strength of its past while adaptive reuse and new construction are breathing new life into the area. Some of the major revitalization efforts include the 1997 opening of the New Jersey Performing Arts Center (NJPAC) and the 2007 addition of the Prudential Arena. The growing presence of Rutgers University, New Jersey Institute of Technology, and Essex County College have also brought new construction to the University District.

Newark continues to thrive off its location in the middle of one of the nation's busiest transportation networks, and its proximity to New York City. It has built upon its industrial past and is now in its next stage of revitalization – finding its place in the tech, education, and insurance industries. With a high-speed fiber-optics line, major tech companies including Panasonic and Audible are moving to Newark to take advantage of its position in the region and its access to very high-speed Internet.

With all the recent investment and change that Newark has undergone, the City of Newark and current Mayor Ras Baraka are keeping its long-term residents and businesses in mind. Ensuring that all new development and industry that come in align with the city's #1 goal of achieving equitable growth – so that Newark residents continue to have a place in the city as it moves toward the future.

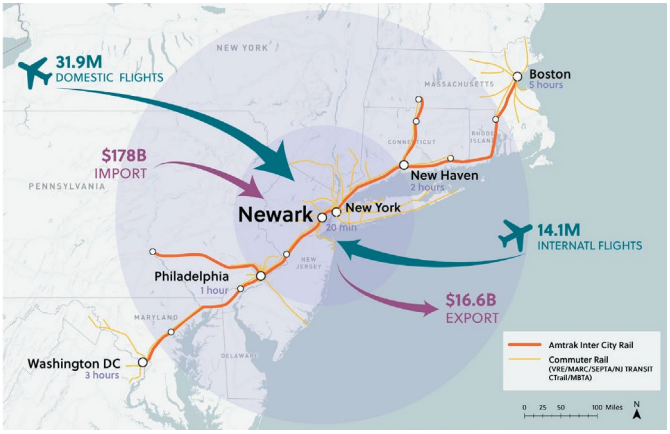


Figure 2. Northeast Corridor and Import/Exports.

2.1.1. The Northeast Corridor

Newark is centrally located on the Northeast Rail Corridor (NEC), halfway between Boston and Washington, DC. Its central location amplifies the importance of the Port of Newark and Newark Liberty International Airport (EWR). In 2019, the Port received over $178 billion in imports and exported nearly $16.6 billion, in addition to what was brought in through the airport.[6] As a result of its location, and the importance of the Port, Newark is well connected to the surrounding region by highways and rails.

The Northeast Corridor Rail Line provides this area with access to Amtrak and NJ Transit services, which connect users outside of the city. Commuters can reach New York City in twenty minutes and

[6] www.ustradenumbers.com/port/port-of-newark/

be in Philadelphia within an hour. In 2018, over 12 million paid riders took advantage of the rail system to travel through the EWR Airport Transit station, in addition to the others who used the AirTrain to connect into the airport.

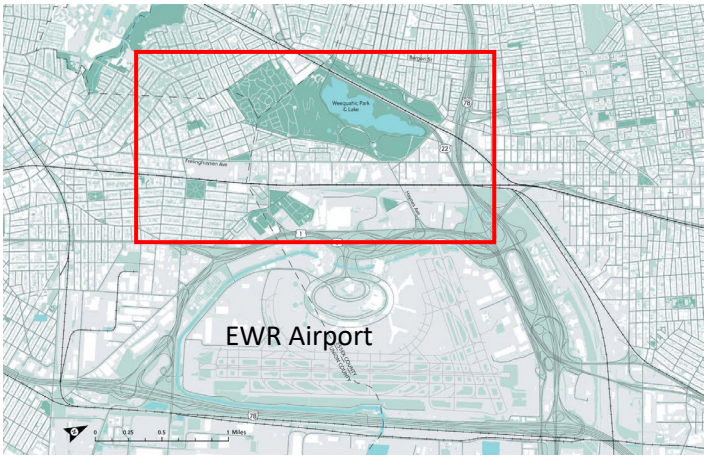


Figure 3. Study area base map.

2.2. The Study Area

The focus of this plan is on the area between Weequahic Park on the west and Newark Liberty International Airport on the east. This area is rich with history and complex in many ways. The study area spans across two municipalities and counties — Newark in Essex County and Elizabeth in Union County. This brings in a level of complexity in public ownership and services. EWR airport is owned by the two cities and leased to and operated by the Port Authority of New York and New Jersey, which also operates Port Newark through its tenants. Lastly, the railroad and right of way are controlled by Amtrak and ConRail.

This differentiation of ownership, in combination with the historic and neighborhood attachment to the area, has created a web of interconnectedness and a complex site that has great potential for change. Remnants of the industrial era can be seen along Frelinghuysen Avenue, a once vibrant corridor that now holds large and often vacant industrial buildings. Weequahic Park, designed by the Olmsted Brothers in the early 20th century, provides ample recreational and landscape amenities for residents of the Dayton neighborhood and the rest of the city. EWR airport and the NEC EWR rail station offer transportation-related development opportunities as well as tax benefits to industry within the Free-Trade Zone. By expanding and opening these locations, Newark could pave the way to capitalize on the future of transportation and to become a global leader of mobility.

Figure 4. EWR Airport Today.

Figure 5. EWR Airport Opening.

2.2.1. Newark Liberty International Airport

Built in 1928, Newark Municipal Airport was the first municipal airport in the New York-New Jersey region. It was one of the country's largest until New York City opened LaGuardia Airport in 1939. Today, the renamed Newark Liberty International Airport (EWR) is one of three airports in the New York Metropolitan Area. With approximately 50 million domestic and international passengers annually,[7] it is one of the most heavily trafficked airports in the region. Travelers can access the airport in many ways, cars and buses by the interstates and highways as well as city streets, passenger rail via Amtrak and New Jersey transit, and AirTrain that offers services from the EWR NEC Station.

The current airport occupies 2,027 acres[8] for its 4 terminals and 3 runways, and additional area for cargo and logistics. There are also over 13,100 parking spaces available around the airport in the Terminal C garage and surface parking lots; however, demand for parking has recently been reduced due to the popularity of ride-share services. A new Terminal One is being built by the Port Authority to replace the outdated Terminal A, with plans for a new Terminal Two also underway.

The Regional Plan Association (RPA) has conducted several studies and issued two seminal reports that address the future of the region's airports, Extending PATH to Newark Airport and Upgrading to World Class, on what the future of EWR looks like in 60 years. To increase efficiency and provide more connection with the railroad, a midfield concourse airport with an additional runway and a new

[7] www.panynj.gov/airports/en/statistics-general-info
[8] www.panynj.gov/airports/en/statistics-general-info

land-side terminal has been proposed. Advancing that proposal, our studio presents a headhouse that combines access to and from flights as well as direct connections to intercity and regional trains on the NEC. The proposed headhouse airport terminal and train station will span across the railroad tracks and open onto Frelinghuysen Avenue, allowing passengers as well as airport and train employees to walk directly into the Dayton and Weequahic neighborhoods.

Figure 6. Weequahic Park Signage.

2.2.2. Weequahic Park

Weequahic Park, designed by the Olmsted Brothers landscape architecture firm in 1899, has been an important community asset for over 120 years.[9] The focal point of the park is the 80-acre Lake Weequahic, that was created through damming of the historic Bound Creek that once flowed directly

[9] www.livingplaces.com/NJ/Essex_County/Newark_City/Weequahic_Park_Historic_District

from Newark Bay.[10] Weequahic Park held many amenities and uses throughout the early 1900s, including a boat house, amphitheater, stables, horse track and fairgrounds.[11] It also includes a public golf course, designed to PGA standards.

Unfortunately, the economic downturn of the 1970s saw the decommissioning of many of these uses.[12] The park has had a resurgence since the 1990s, with the inception of the Weequahic Park Association and the Weequahic Park Sports Authority.[13] Working with Essex County, these organizations are bringing the park up to modern standards by renovating various amenities, taking measures for shoreline stabilization, and water management.

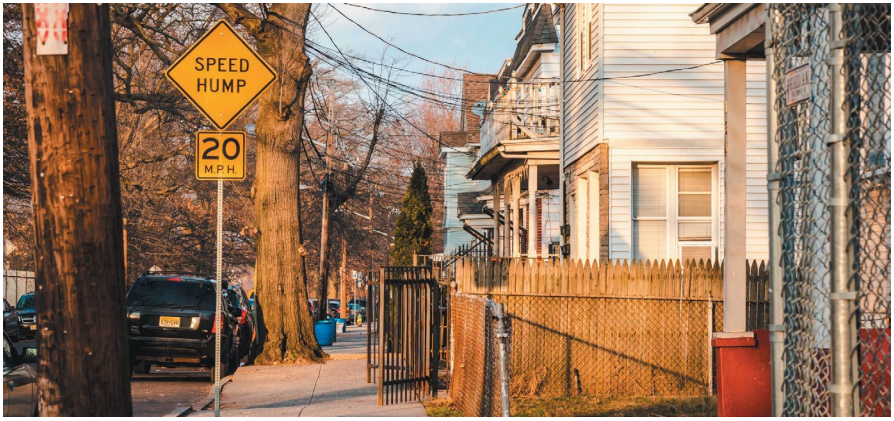


Figure 7. Dayton Residential Street

[10] Phase 1 Diagnostic-Feasibility Study of Weequahic Lake, 1983, F.X. Brown Associates, Inc.
[11] www.newarkhistory.com/weequahicpark
[12] www.livingplaces.com/NJ/Essex_County/Newark_City/Weequahic_Park_Historic_District
[13] Ibid

Figure 8. EWR Station Platform.

2.2.3. Dayton Neighborhood

Industry has long occupied the area between Newark Bay and Frelinghuysen Avenue. A small residential neighborhood sits between Weequahic, and Frelinghuysen Avenue. Dayton is a low-density residential neighborhood that creates a step down from the large industrial uses towards Weequahic Park. Much of these homes are single family, except for a low-income senior housing complex and the Seth Boyden Public Housing, which was shut down in 2011[14] and has remained vacant since. An RFP was released for the site in 2019,[15] making it a place of high interest for the city of Newark.

[14] www.patch.com/new-jersey/newarknj/residents-wonder-about-the-future-of-seth-boyden 16
[15] www.businesswire.com/news/home/20190604005930/en/Newark-Housing-Authority-Seeks-Development-Partners

Besides Seth Boyden, Dayton has three senior public housing projects and one family public housing project. The Otto Kretchmer Homes public housing also has the Training Recreation Education Center (TREC) that provides Dayton with art, fitness, and educational programming for the local seniors and other residents. Dayton also has the Dayton Street Elementary school which was the community public school until it closed and now remains vacant next to Seth Boyden. While most of Dayton is residential, the buildings along Frelinghuysen have remained mostly commercial and light industrial, creating a transition between the neighborhood to the industrial scale buildings across the avenue. Dayton is also considered to be a food desert with no healthy food options within the community, requiring a car trip to the nearest major grocery stores.

2.2.4. NEC EWR Station

Newark Liberty International Airport Station (EWR Station) opened in 2001,[16] connects Amtrak and New Jersey Transit train passengers with the airport terminals via the Newark Liberty International Airport AirTrain monorail system. The station is located east of Frelinghuysen Avenue and near the junction of U.S. 22 and Interstate 78.

Owned and operated by the Port Authority of New York and New Jersey (Port Authority), the station currently serves only the airport, not the city. Riders can only reach the airport facilities from this station. There is no provision for access to and from the City of Newark. This means that the residents, workers, and visitors on the west side of the rail right-of-way cannot use the station to access the

[16] https://www.nytimes.com/2001/10/22/nyregion/metro-briefing-new-york-manhattan-new-train-service-to-newark-airport.html

railroads or the monorail. The State of New Jersey and the City of Newark are strongly advocating that this missing link be replaced by an extended station with entry for all on its western side.

There are also issues confronting the transfer between the train station and the airport terminals. The monorail system does not have enough capacity to meet passenger demands during busy times, and, as a technology it is aging out. Riders seeking to catch a flight or train in a hurry are often left waiting and frustrated. The Port Authority has issued a call for proposals to upgrade or replace this system. The Port Authority has also been exploring plans to expand the capacity of PATH by extending service to the station.

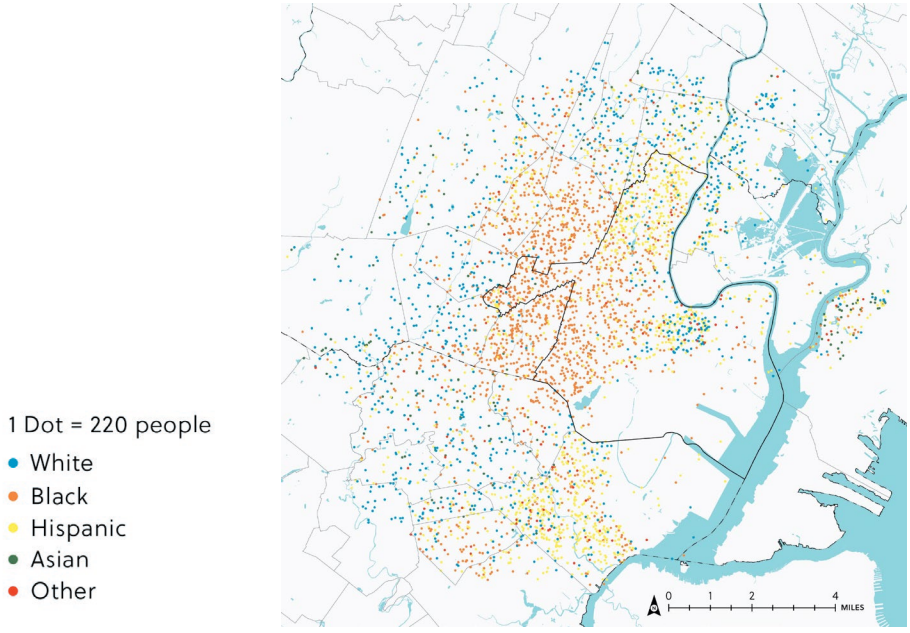


Figure 9. Racial Breakdown in the Region.

2.3. Demographics

Newark, NJ, has long been a very diverse city. It was historically a site for immigrants to join the industrial boom and saw many groups of Jewish, German, Italian and Irish immigrants come into its neighborhoods and workforce. The Black population in Newark also grew rapidly starting before World War I. By the 1950s and then the 1970s, Newark's population was majority Black. Today, of the approximately 282,000 residents in Newark, about 48% are Black and 35%, Hispanic and Latinx.

The city is home to the largest community of Portuguese immigrants in the US.[17] The median household income is about $37,500. This area has an unemployment rate of 18%.

EWR Airport and the study area fall within both Essex and Union Counties. In Union and Essex Counties as a whole, there are about 1.3 million people with a median household income of about $66,000. Over half of the population, about 58%, have a college degree or higher. The racial mix is even in percentage, but it is clear from the map (Figure 9), that it is not evenly distributed spatially. Narrowing down to an area within a two-mile radius of the airport, there are 188,600 residents, with a median household income of $42,000. Of people aged 25 and older, 39% have a college degree, and the average age is 34.[18]

It is important to note that due to the large area of EWR airport and the Port, nearly all the residential density lies west of the railroad and across Weequahic Park. The area between the railroad and Weequahic Park[19] present an even larger equity divide between this area and the county. About 3,000 people are estimated to live in this area, with a median household income of about $31,500. The population is estimated to be 87% Black, 10% Hispanic or Latinx, 2% White, and 2% Other[20]. Of people 25 and older, 42% are estimated to only have completed high school, and a huge majority of the population -- 82% -- is estimated to live in rental housing.[21]

[17] https://datausa.io/profile/geo/newark-nj/#demographics
[18] 2018, 5-year ACS
[19] Area include Essex County Census Tracts 17, 48.01, 48.02 and 49
[20] Other race categories include American Indian, Asian, Native Hawaiian, and other races
[21] 2018, 5-year ACS

2.4. Economy

Newark is known for, and takes pride, in its burgeoning role in the tech industry. With a high-speed fiber optics line, major tech companies, like Audible and Amazon, are taking advantage of the assets and available spaces in Newark by building offices and headquarters in town. This recent growth in the tech industry has attracted higher educated residents to Newark. While this will benefit the city, there is a necessity to ensure that existing Newark residents get the training they need to retain those jobs and keep Newark residents employed and living in the city.

Between 2010 and 2017, Newark has been losing middle and working-class jobs while gaining a higher-educated residential population. This has exacerbated a significant job-living mismatch — both spatially and economically. 75% of Newark residents commute outside of the city to work, while 82% of the jobs in Newark are held by non-Newark residents.[22] Further, most Newark residents earn less at their jobs outside of the city as opposed to those non-residents working in Newark.

2.5. Transportation

The City of Newark is extremely well connected to the widespread region through Amtrak, major highways, PATH and NJ Transit. However, there is a dearth of complete connections within the

[22] 2018, 5-year ACS

neighborhoods and specifically around the Dayton neighborhood. Frelinghuysen Avenue, the public transit system and even smaller interior roads focus mainly on connecting people to area outside the local neighborhoods, making the study area around the Dayton neighborhood, Weequahic Park transit deficient. There is a lack of efficient connections across the railroad right-of-way, with only Haynes Avenue on the North and McClellan Street on the south, a mile apart. These two links carry cars and trucks with little to no accommodation for pedestrians.

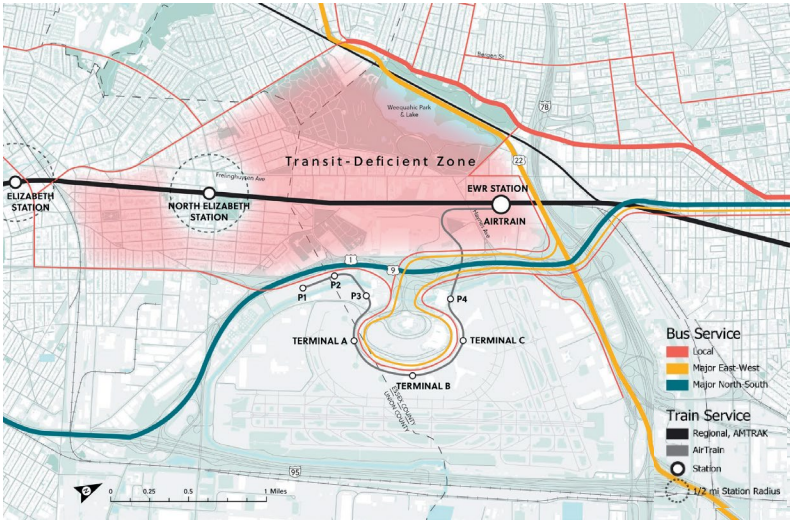


Figure 10. Transportation in the Area.

2.6. Zoning & Land Uses

As seen in the zoning map and supported by the demographic study, much of the residential density is outside of the study area. There are some lingering industrial uses remaining around Frelinghuysen Avenue, but much of the infrastructure has remained vacant and nearly all the land east of the railroad is surface parking.

One of the benefits the site has to offer is the Free Trade Zone (FTZ), a designation by the state of New Jersey and included in the Newark Zoning ordinance. Much of the land surrounding the airport and Port of Newark is zoned FTZ, which allows processing of materials, cargo, and production to be done on this land "tax-free" under certain specified conditions. All the parcels along Frelinghuysen Avenue and railroad tracks have this zoning designation, potentially creating an advantage for future development. Currently, this designation and land is underutilized.

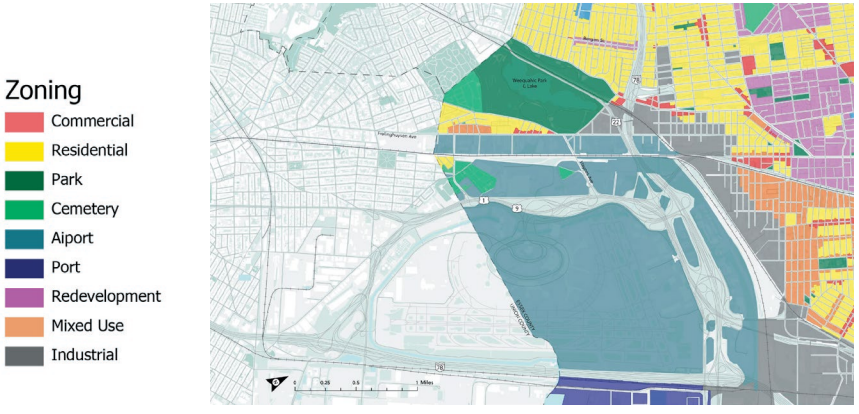


Figure 11. Newark City Zoning Map.

2.7. Flooding & Pollution

Historically salt marshes, the study area has undergone a lot of change. With the rise of industry, the marshes were paved over to make room to build development to support industry. Over the years, due to the nature of the industry on the land, much of the area has some form of soil of groundwater contamination. This land will require a remediation plan and sensitivity in terms of planning for the future. The site's proximity to Newark Bay is generally a positive asset. However, this also means that the area is very susceptible to sea level rise. Current projections show that EWR Airport will be completely inundated by six feet of sea level rise as soon as 2050 - within the timeline of this plan.

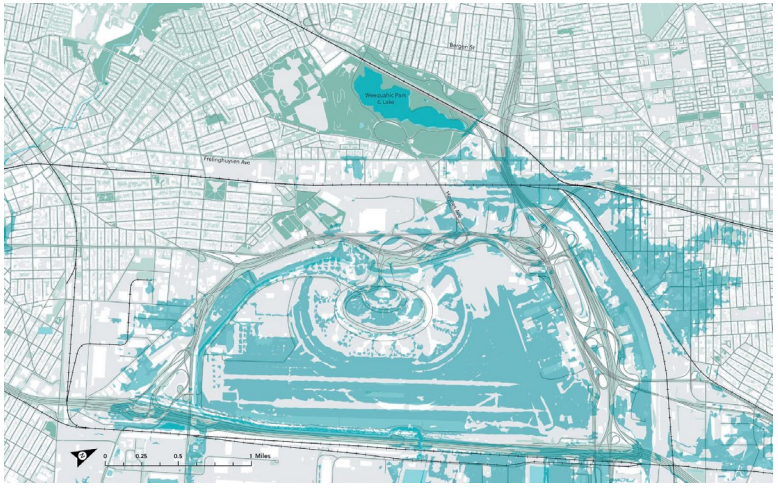


Figure 12. This area will be completely inundated by six feet of water as soon as 2050.

2.8. Susceptibility to Change

The current zoning, ownership and uses of the land gives a better understanding of how patterns of change are likely to occur. The places that are most likely to change are vacant and publicly owned, this includes the highly visible vacant Seth Boyden Public Housing that was shut down in 2011, as well as the surface parking lots between the railroad and EWR airport. Some of these sites are already publicly held and can be catalysts for the city's agenda to create a more equitable neighborhood. Areas that will need some extra work and support to obtain and incur change are the privately-owned surface lots, the light industrial uses, and areas of contamination. Lastly, land that is seen as most unlikely to change, and therefore must be planned as staying constant throughout the planning process, are the cemeteries, parks, as well as most of the existing occupied homes in the Dayton neighborhood.

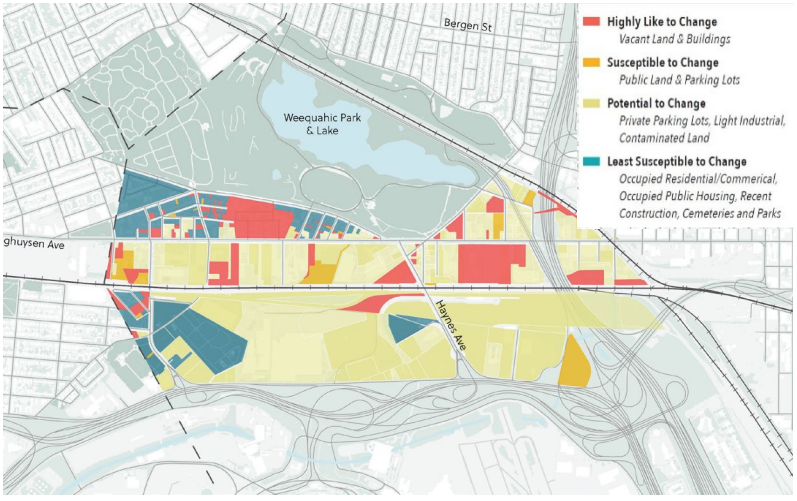


Figure 13. Susceptibility to change.

2.9. Planning Context & Assumptions

This studio used several relevant studies and plans by the City of Newark, the Port Authority of New York and New Jersey, and the Regional Plan Association to create a base of assumptions of what the area might look like on a 40-year timeline. We incorporated the future need for additional runway capacity, the addition of an airport headhouse/transit station on the Northeast Rail Corridor, and more pressing — the transformation of the existing railroad station to provide access to the cityside as well as to the airport. This studio used these ideas to think creatively about a future neighborhood that can be flexible to withstand change over time to pave the way to future airports and cities to demonstrate how Newark can become the global example of future connectivity, resilience, and equitable development.

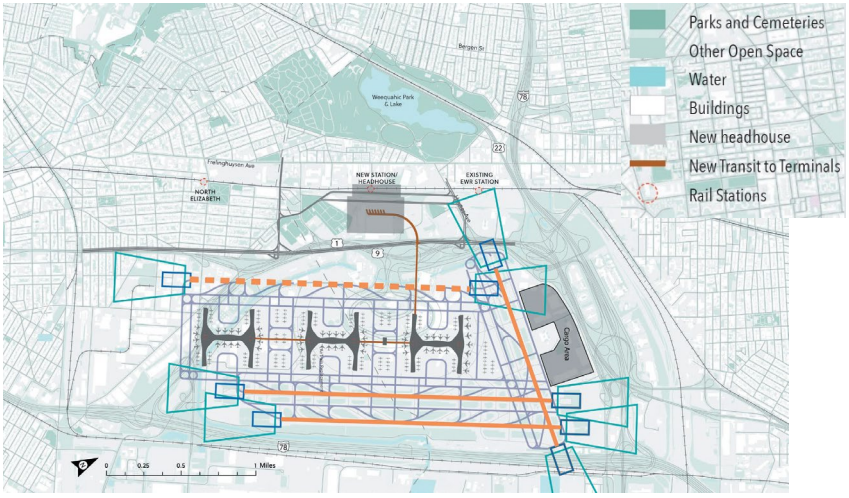


Figure 14. Planning assumptions include a new headhouse, a new runway, and cargo areas.

2.9.1. Connectivity

Despite the regional connections and network of highways, railroads and regional transit system, the local and interior connections are weak and have created a transit-deficient zone for most of the study area.

2.9.2. Underutilized and Vacant Land

As a result of the previous land uses, much of the current available land holds surface parking lots or vacant industrial buildings along Frelinghuysen Avenue. This leaves much of the study area underutilized or vacant.

2.10. Issues

2.10.1. Job-Living Mismatch

Majority of Newark residents commute outside of Newark to work in lower-paying jobs than those available in the city. Non-Newark residents are commuting in to the higher-paying jobs available in the city and taking away the opportunities from residents.

2.10.2. Flooding and Pollution

Proximity to the Port and Newark Bay is an asset to the area. However, industry has left the land contaminated, and the imminent future of sea level rise, the bay will inundate much of the area as soon as 2050.

2.11. Goals

With all the opportunities and assets that Newark has to offer, there are still areas which the city and region can improve to capture the potential of the high connectivity to the city and neighboring communities. The goals for this plan are focused on bring three qualities to this part of Newark, discussed below.

2.11.1. Connectivity

Improving the local connectivity to match the reach and efficiency of the regional system will position Newark as a new local, regional, and global hub. Developing a long-term vision for how Newark will respond to and adapt to the evolving transportation industry to move Newark as a global example of a transit city of the future.

2.11.2. Equitable Growth

Following Mayor Baraka's goal to create a more equitable Newark and correcting the job-living mismatch is crucial as Newark transforms. Attracting and creating jobs for skilled workers, job training for those positions, and access to opportunities for wealth creation are essential elements of Newark's future. Ensuring that there are plenty of affordable and mixed-income housing options will make this area as a preferred place to live and work. Support for small and minority businesses will ensure that the character and culture of Newark continue to thrive. This will be key to equitable growth, allowing all current and future residents to enjoy and reap the benefits of Newark's assets.

2.11.3. Resilience

Sea-level rise is imminent and cannot be ignored. As is the threat of storm surge inundation with the increasing number of severe storms and natural events. To protect the value of land and investments, neighborhoods and districts must define and deploy proven and innovative solutions to reclaim brownfields and improve water management. Resilience, both individual and collective, is essential to the security and longevity of communities that have the capacity and commitment to tackle problems of the future together.

Chapter 3. Newark Tomorrow

This studio tackled the challenges of the study area and produced four distinct design plans and proposals. Seeking to create a better connected, equitable, and resilient Newark, each of the four proposals pushes the boundary of the public realm to create an experience for residents, employees, and visitors to the area. Of the proposals, two are public realm strategies for the entire study area. Each proposal takes a unique approach to transform the area into two distinct plans.

- The **Generate Newark 2050** plan focuses on building upon the existing strengths of the neighborhood, while launching the area into a more resilient and equitable future.
- The **Public Health & Tech** vision concentrates around community connectivity and public health investment while using the existing neighborhood assets to respond to the COVID-19 pandemic and future job growth.

Two of the proposal are focused on areas and features that are incorporated into both public realm plans: existing Weequahic Park and the new EWR Headhouse & Train Station. These plans are inevitable and important for the future of Newark.

- The Weequahic Park Proposal focuses on improving existing amenities and adding programming to the park.
- The EWR Headhouse & Train Station creates an architectural feature in the middle of the site, where the public realm extends inside and creates a more connected and high functioning airport and transit facility of the future.

3.1. Generate Newark 2050 Proposal

Generate Newark 2050 (GN2050) focuses on generating short- and long-term investments that will improve the quality of life for current and future residents while preparing the area for decades of sustainable and equitable growth. It is a public realm plan that provides a foundation for the growth of jobs that contribute to upward mobility, land for new mixed-income and mixed-use neighborhoods, and access to new public spaces that will range from small plazas to expansive wetlands. Together, these projects are implemented across a flexible three-phase approach with focuses on catalytic change, creating the framework, and realizing the future.

The planning boundary for GN2050 is the City of Elizabeth to the south, EWR midfield concourses to the east, Interstate 78 to the north, and Weequahic Park to the west. Proximity to the EWR Airport and Newark/ Elizabeth Port are the greatest assets of the planning site. Therefore, generating new clean industrial activity in areas of underutilized industrial lands and developing new industry/office areas in the Free Trade Zone will produce goods that are sold locally, regionally, and even globally. Job growth is essential for this area and the city to open new doors of opportunity for area residents. A critical component of GN2050 is integrating job training centers into all major job centers. These job training centers are geared towards preparing the next generation of Newark workers as well as residents who are looking to upgrade their skills within a 21st century economy.

GN2050 takes a larger scale approach to generate a new urban and natural landscape that embraces its ecological heritage, while catalyzing a future that provides more green spaces and trails that connect

the South Ward to both the Newark Bay and Downtown Newark. Trail loops and paths will not only improve connectivity, but will also allow residents, workers, and visitors to interact with a green infrastructure system that provides health and educational benefits. Together with new transit job nodes and mixed-income neighborhoods, GN2050 provides a framework that blends old and new, familiar, and modern, yet remains uniquely Newark.

3.1.1. Site Context & Project Framework

The goal of Generate Newark 2050 is to bring the three overarching goals of Connectivity, Equitable Growth, and Resilience down to the ground level with specific focuses around generating positive change. To do this, key site features were identified for focus: entrances to Weequahic Park, EWR Station, and Frelinghuysen Ave.

In the existing site study area, Frelinghuysen Ave acts as a barrier because of wide travel lanes and limited active uses along the corridor. Additionally, there are large amounts of vacant and underutilized industrial land and airport parking. To move forward, this proposal asked two key questions:

- What will happen to this land as the airport transforms and transit service is expanded to the area?
- What are existing strengths that the area can build upon?

Generate Newark 2050 responds to these questions by expanding the existing framework of the area to incorporate more mixed-income and mixed-use areas for residential, commercial, industrial and transportation uses. This framework generates a plan where nodes of activity and expanses of new public green spaces are clearly visible and connected.

The concept feeds into the generation of a greater circular economy by pairing the existing cargo and port with the free trade zone designation to bolster the industrial corridor. New retail can generate activity along Frelinghuysen connecting the existing and future train stations and allows for local and regional sales of “Newark Made” goods and ideas. Eventually, these ideas and goods can circle back to the port and airport to export nationally and globally, once again positioning Newark as a global hub of commerce.

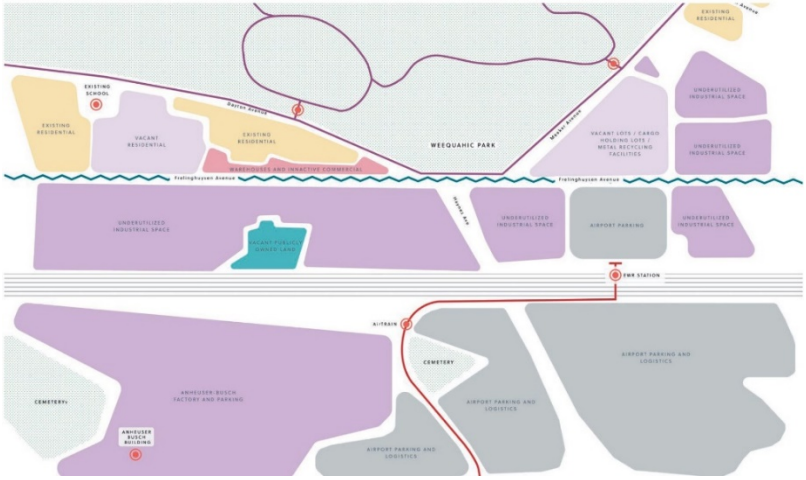
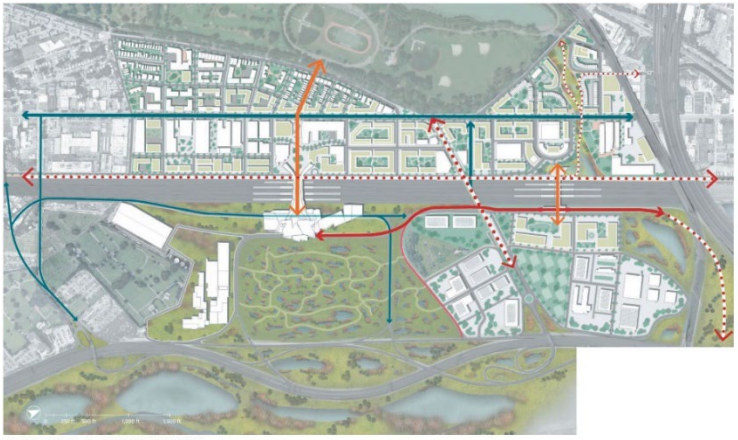


Figure 15. Study Area Framework Before.

Figure 16. Project Framework After.

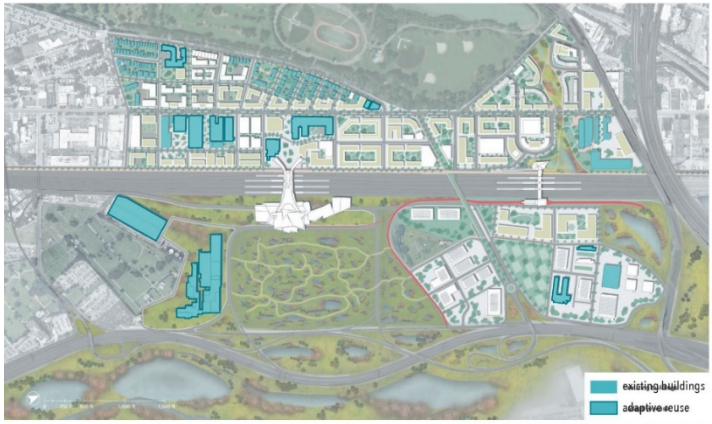


GENERATE | CONNECTIVITY

Figure 17. The site plan improves connectivity for pedestrians, multi-modal users, and motorists that span across both sides of the train tracks and highways. Key to this plan is building connectivity across urban and natural environments.

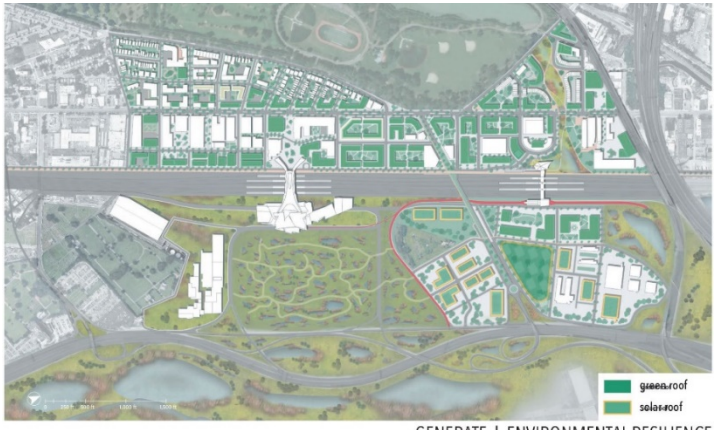
GENERATE | EQUITABLE GROWTH

Figure 18. Nodes of office and commercial spaces are clustered around the transit stations. Job training centers are strategically located within these nodes to not just create new jobs, but jobs that are available to residents in the South Ward and the city. This concept feeds into the greater circular economy of the region.



GENERATE | COMMUNITY RESILIENCE

Figure 19. Preserving existing residential housing and generating new job activity by adaptively reusing key industrial buildings along Frelinghuysen Avenue and airport side allows long-term residents, new and old, to continue to adapt to future conditions in this area.

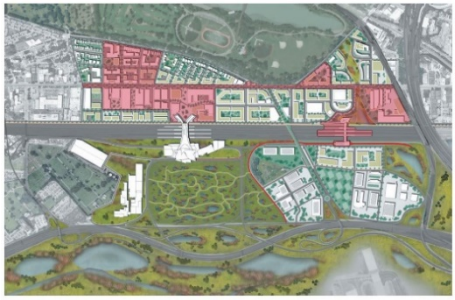


GENERATE | ENVIRONMENTAL RESILIENCE

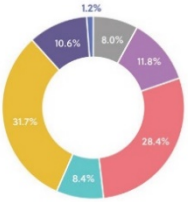
Figure 20. Sustainable development features, such as green roofs and solar panel installations, are proposed on buildings and in key sites, in addition to the expanded East Meadows wetland park. The site will employ current techniques as well as remain vigilant and adaptable for future uses and technologies.

3.1.2. Proposed Development

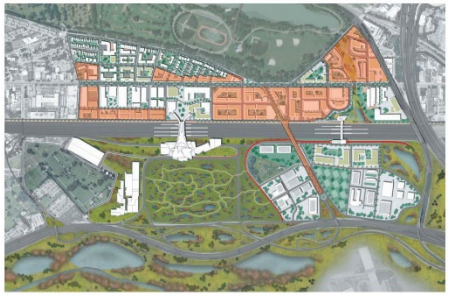
This plan is focused on creating a diverse mix of residential neighborhoods with job centers, civic spaces, and visitor amenities. The intention is for this area to become an asset for the City of Newark by generating a robust number of new residential units, jobs, and civic spaces. The transformation of this site will happen incrementally in three phases to ensure that the uses are well prepared to generate at optimal levels.



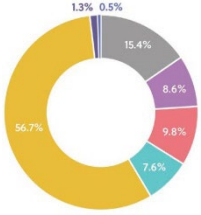
PHASE 1 | CATALYTIC CHANGE



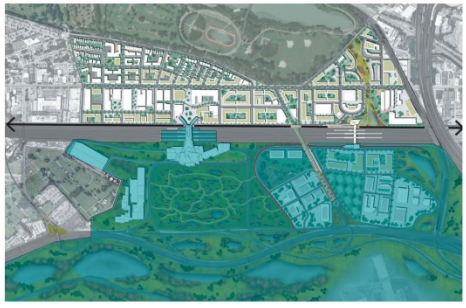
Phase 1 is building on the area's current strengths, starting with opening EWR Station to the city and airport side. Development in Phase 1 focuses on job generation around the existing station and preparing the area around the future headhouse and train station.



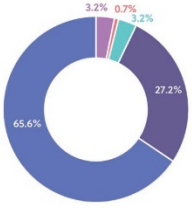
PHASE 2 | CREATING THE FRAMEWORK



Phase 2 focuses primarily on building out residential and mixed-use neighborhoods throughout the site and expanding the job centers around the headhouse plaza, with most development clustered around Frelinghuysen Avenue to complete the street frontage along the corridor.



PHASE 3 | REALIZING THE FUTURE



Phase 3 is about completing the vision of a more resilient future for Newark, by focusing on the civic infrastructure in conjunction with the transportation infrastructure. As the airport evolves, development in this phase takes advantage of the changes by creating the new public wetland park and free trade zone job development.

3.2. Weequahic AirTrail Station

Owned and operated by the Port Authority of New York and New Jersey (Port Authority), the Newark Liberty International Airport Station (EWR Station) serves to connect train riders from Amtrak's Northeast Corridor and New Jersey Transit's Jersey Coast lines to the Newark Liberty International AirTrain system. Although the EWR Station was only opened in 2001, it is already part of an outdated system.

The AirTrain itself is out of date and technical issues can leave riders in a hurry to catch a flight waiting and feeling frustrated. Additionally, EWR Station is sealed off from its surrounding context and does not allow access to pedestrians from either side of the tracks. Currently, it is impossible to walk out of the station into the surrounding neighborhood. On January 28, 2020, the Port Authority announced an open request for proposal (RFP) to update the AirTrain system. Included in the proposal is an estimated budget of $2 billion for infrastructure upgrades that the Port Authority is willing to invest in a new people mover system. The Port Authority has also been exploring plans to extend PATH service to EWR Station, allowing riders from lower Manhattan to ride PATH directly to the station, where they would then board the AirTrain to the Airport. Explorations into how the station could open to neighborhood access while accommodating PATH service have also begun.

Figure 21. Site plan showing the station proposal in relation to other Generate Newark 2050 interventions.

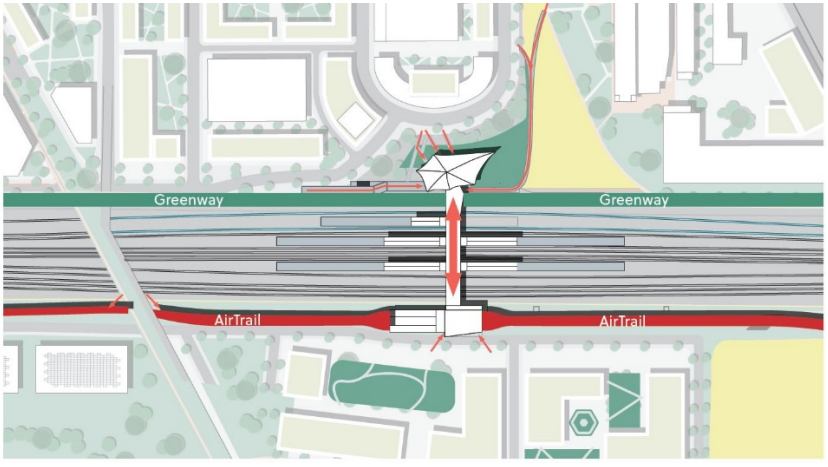


Figure 22. Public realm circulation diagram illustrating connected network to and through the station.

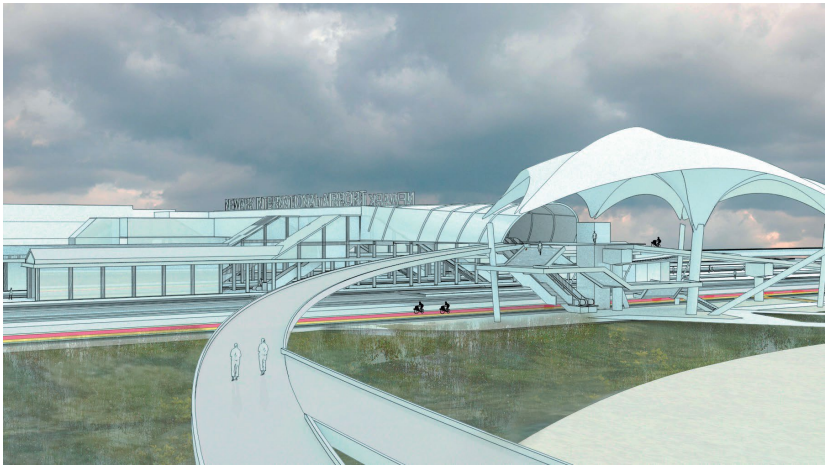


Figure 23. Rendering showing the approach to the Weequahic AirTrail Station through the Wetland Connector.

The central design challenge for this project is experience of moving through the Wetland Connector about connectivity and what Newark can do immediately on elevated pathways, up and into this place where to address this concern. By proposing a design that people coming and going to this neighborhood for opens the station and pulls the public realm through employment, education, or entertainment can all meet. the concourse, this place can become a new nexus of Once completely inaccessible to the City of Newark, this local and regional connections and be one of the first new station will allow riders and locals alike a chance catalyst of change for this neighborhood. Today, the two experience this remediated environment in new and station entrance would land in a vacant lot to the west crucial ways. of the tracks. However, one can soon imagine a new and crucial ways.

3.2.1. Building the AirTrail

A design challenge facing this project is what will happen to the AirTrain system in the future. The arrival of the headhouse less than a mile south of this station will render any new people mover system redundant and unnecessary. Responding to this challenge, it is important to recognize what new opportunities the city and its partners can leverage with this existing asset. The AirTrain system, outliving its useful life, will be repurposed into an active transportation network that will link pedestrians, cyclists, and users of all other personal mobility devices, directly to the proposed headhouse, as well as to a network of trails meandering through the wetlands park.

To accomplish this goal of creating a continuous public realm, the project proposes pulling the public realm through the station and anchoring each side of the station with an active node. A wide canopy shades pedestrians and cyclists on their approach to the station through the Weequahic Wetland Connector. Once within the concourse of the station, riders are funneled through directly to their destination platforms or moved swiftly through the open concourse to the beginning of the AirTrail system.

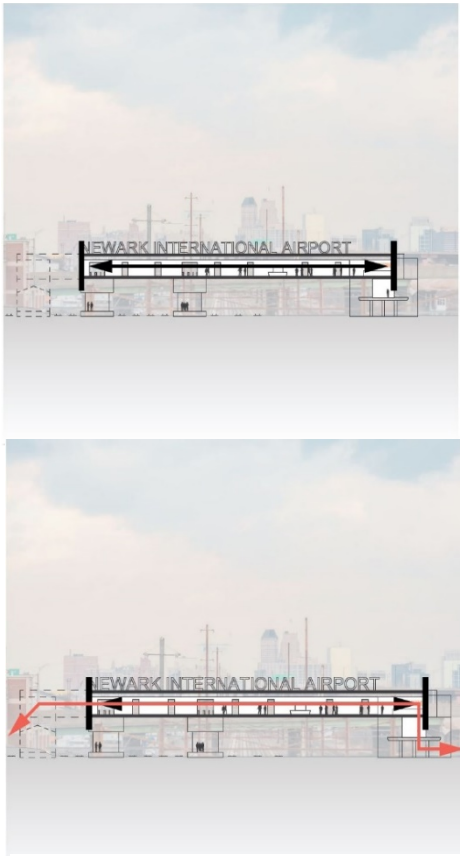


Figure 24. Section diagrams show how the existing station is currently a closed system, the proposal includes opening of each end of the station to pedestrian access.

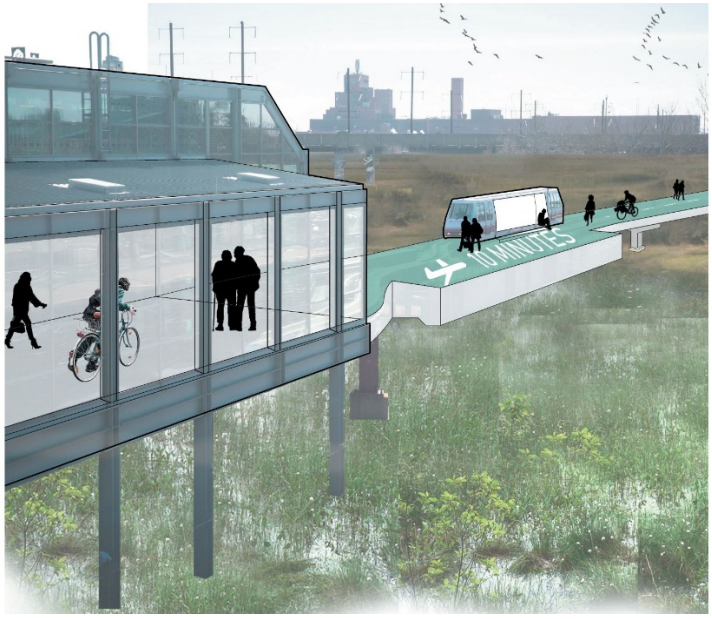


Figure 25. Rendering showing what the AirTrail system might look like.

3.3. Weequahic Wetland Connector

The renovation and expansion of the current EWR Station is a momentous opportunity to connect an under-served transit population of Newark to a critical component, quicker access to jobs in the city and region. However, a connection to the South Ward is not enough. The current built environment does not accommodate a comfortable and dynamic experience for residents or commuters to the station. Underutilized industrial uses surrounding the station do not best serve the residents or provide the South Ward with 21st century jobs.

This proposal combines connectivity with the additional goals of equitable development and resilience to generate a vibrant pedestrian and active-user experience that transforms the current area into one that provides mixed-income housing, clean industry jobs, maker spaces, and strengthened connections to EWR Station. The Weequahic Wetland Connector (WWC) is the backbone to this transformation. With the WWC, residents from the South Ward, park users, students at the Vo-Tech vocational school, and local workers walk along tree-lined trails framed by wetlands and a mix of apartment and townhouse residences for local workers.

Figure 26. The Weequahic Wetland Connector generates a sense of ease and comfort as pedestrians, commuters, and bicyclists traverse alongside its many shaded paths connecting the South Ward and Weequahic Park with EWR Station, blending new modular forms of housing with an industrial past adapted for current and future needs.

Figure 29. Existing triangle block uses in the Newark area highlight creative uses of these spaces to provide a variety of neighborhood amenities and services for local and regional residents.

Figure 28. Current neighborhood amenities and services are spread across a large area. What if the Wetland Connector could incorporate similar neighborhood amenities and services but within a 6–10-minute walk with multiple direct paths to increase ease of accessibility and walkability?

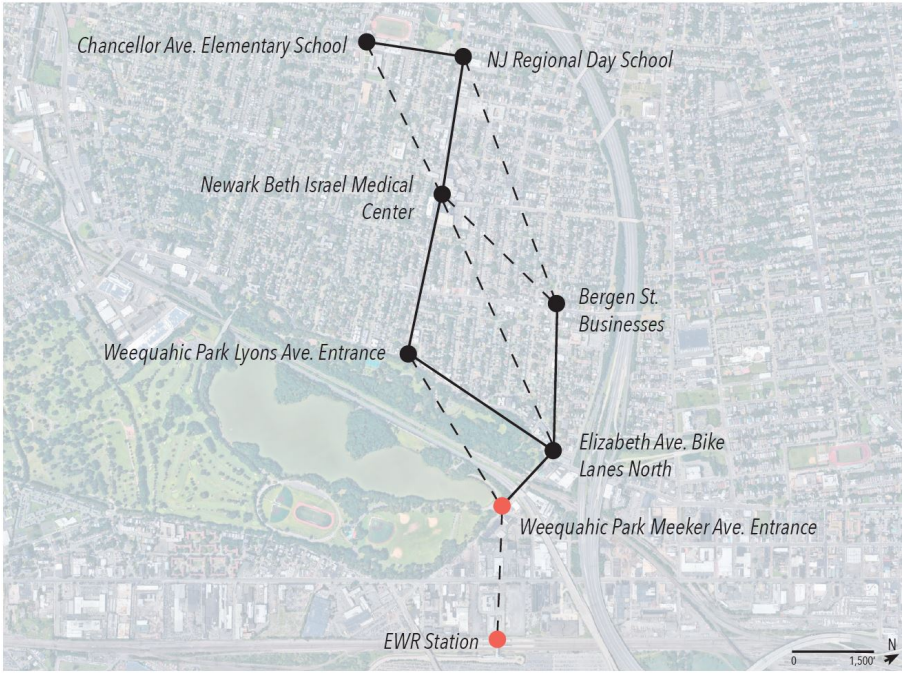
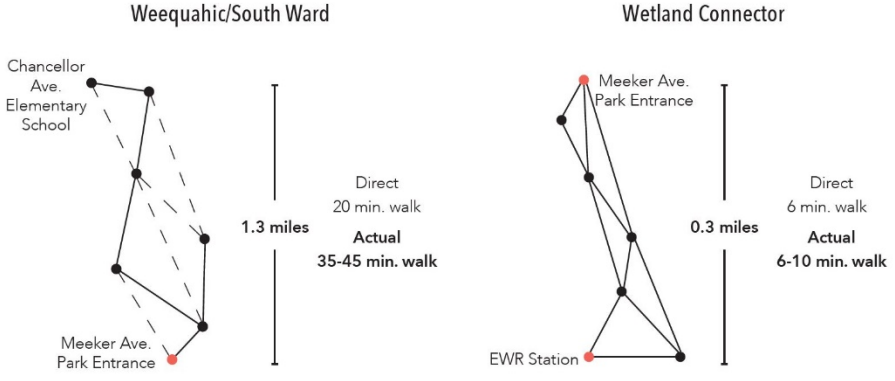


Figure 27. Area view of the Weequahic / South Ward neighborhood amenities and services. The solid line indicates existing routes of mobility. Dashed lines indicate ideal direct paths.



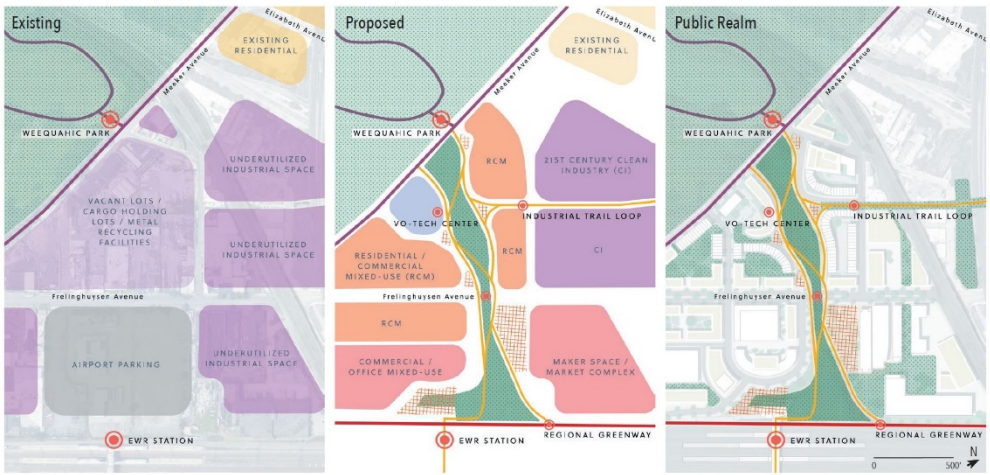


Figure 30. A progression of panels illustrating the generation of a new public realm and neighborhoods that integrate walkable mixed-income neighborhoods, 21st Century jobs, and resilient infrastructure.

3.3.1. An Integrated Public Realm Experience

Along the way, public spaces range from intimate plazas for neighborhood gatherings to open landings for larger programmable spaces at key destination points, such as in front of EWR Station and around adaptively reused industrial buildings adjacent to EWR Station, all within easy walking distance of each other. From there, secondary public spaces expand off the WWC and into the adjacent neighborhood fabric, generating an integrated network of active and green spaces. The WWC's programming is geared to serve a more urban environment, contrasting from programming in Weequahic Park, and ranges from weekly farmers markets to job fairs to spontaneous retail and restaurant pop-ups.

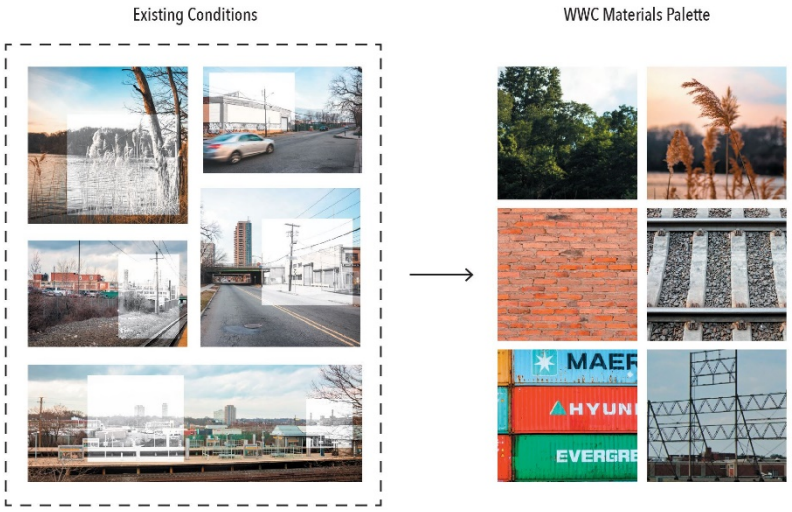


Figure 31. The WWC materials palette incorporates materials and textures that currently communicate the character of the area.

The WWC connects the South Ward to a past era of Newark via a reintroduction of wetland ecologies that are reminiscent of Bound Creek, a stream that once flowed through the site and has since been buried. In addition, the WWC beckons a future Newark that has integrated development, multi-modal connectivity, mixed-income housing, 21st century jobs, and a green corridor at its center. Rather than hide this green infrastructure from the public, the WWC is the counterweight highway to U.S. 22 and Interstate 78 and prioritizes the movement of pedestrians, cyclists, and water. The WWC offers a public realm experience that transforms the way Newark and the surrounding region thinks about community, transportation, and environmental investments.

Figure 32. A perspective section render looking towards Weequahic Park from EWR Station.

3.4. Dayton District

The Dayton District sits between the Northeast Corridor railroad on the east, Weequahic Park on the west, Evergreen Ave on the south, and Haynes Ave to the north. Frelinghuysen Avenue runs through the District as the main spine and connects this area to the Weequahic Wetland Connector. Currently, the area is mostly underutilized industrial space, with large parking lots east of Frelinghuysen Avenue and residential to the west. The Seth Boyden Housing Project sits vacant in the middle of the residential area.

These proposals for bringing in new modular affordable housing, renovating the existing schools, redesigning Frelinghysen Avenue, and creating a new signature plaza connecting the Dayton District to the new EWR Headhouse focus on creating short term catalytic improvements that will set the scene for the larger infrastructure changes. There is a focus on flexibility in this proposal and how this area can continue to grow and mature during each phase of the GN2050 plan.

3.4.1. Dayton Neighborhood & Light Industrial Redevelopment

The Dayton neighborhood is surrounded by Weequahic Park to the west and Frelinghuysen Avenue to the east. The proposal's approach to this area seeks to better integrate Dayton and the industrial area across the road to ensure that Frelinghuysen Avenue becomes a new center of the neighborhood when it previously served as a hard edge.

The plan preserves and adaptively reuses as many existing buildings as possible while bringing in new density to support the increased level of demand that the new headhouse will create. In Dayton, the existing school and library will be renovated and expanded to better serve current and future residents and their families. A new park will provide needed recreation space for students. The vacant Seth Boyden housing complex will be replaced with modular housing[1] that can be expanded and built up to accommodate the growing demand for housing as the phases of the plan progress. Modular housing can provide a range of housing unit sizes and affordability levels to accommodate a range of ages, incomes, and sizes of family. Widened sidewalks increase safety and ease of access to the signature Weequahic Park, neighborhood amenities, and a range of small pocket parks proposed throughout the neighborhood.

Across Frelinghuysen Ave, a mixed-use area will include light industrial, office, hotels, and some new residential buildings closer to the City of Elizabeth. Industries like breweries and distilleries could easily take up shop in some of the warehouse buildings and produce large quantities of their product

[1] Modular housing photo below from www.lgc.org/newsletter/the-move-to-modular-housing-cutting-costs-to-advance-affordable-housing/

while also using Frelinghuysen Avenue to serve customers directly. Similarly, a textile company could sew and sell their clothes all in one place. Workers and residents alike will be able to enjoy the public spaces that break up the buildings and connect the Dayton neighborhood to the greenway along the railroad track.

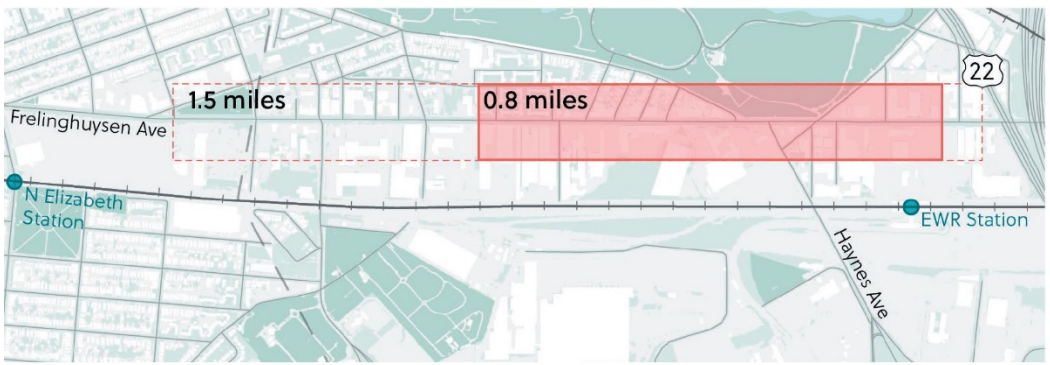


Figure 33. Frelinghuysen Avenue runs all the way from Elizabeth to downtown Newark. The new main street will be focused in an area that is about 0.8 miles long. According to precedent research below, 0.8 miles to 1 mile was the ideal length for a vibrant and successful main street.

Figure 34. The current condition along Frelinghuysen Avenue, a 70-foot roadway that is an edge to the Dayton neighborhood.

3.4.2. Frelinghuysen Avenue Corridor

The transformation of the Frelinghuysen Avenue corridor, the spine that travels through the entire site area, is critical to the success of the entire project. Bringing new life to the corridor will set the groundwork for the rest of the recommendations. Great main streets across the country have safe walkable sidewalks and crossings as well as building frontages and uses that keep visitors coming back. To create this, Frelinghuysen Avenue will be slimmed down, and the street wall will be enhanced and built out to create a more livable and human-scaled street that will be lively day and night.

The existing roadway is 70 feet wide with two driving lanes and a parking lane in each direction. The sidewalks on either side are 12 feet wide. The recommended changes widen the sidewalks to 18 feet wide – six feet for building frontage, six feet for walking, and six feet for street furniture and tree wells. The frontage zone can also be the site of sidewalk cafes and outdoor seating. The street furniture zone can be used for extra seating, bioswales, or tree wells. The new street configuration with bike lanes and bump-outs next to flexible parking areas reduce the crossing distance from 70 feet to just 42 feet wide.

A mix of adaptively reused existing buildings and new construction will create a consistent and varied street wall that will include a mix of uses. Many of the store frontages along Frelinghuysen Avenue can be the front-of-house space for some of the locally produced products that are made in the area. A reorientation of Dayton Avenue where it meets Frelinghuysen Avenue will also create a safer road condition by slowing down traffic. The new angle of the road opens up space for a new pocket park extension just outside of Weequahic Park.

Through these interventions, Frelinghuysen Avenue will be transformed from a high-speed pass-through to a regional destination for residents from Elizabeth, Dayton, the South Ward, Downtown Newark, and beyond.

Figure 35. The recommended changes widen the sidewalks to 18 feet wide to allow for frontage, walking, and street furniture zones. Parking lanes and bike lanes serve a range of modes and drop off needs. bump outs at the intersections further reduce the crossing distances from 64 feet to 48 feet.

Figure 36. This view of Frelinghuysen Avenue looking toward Elizabeth highlights the activity that can happen along this main street as well as one of the signature adaptive reuse buildings that helps anchor this new place within its history. Street trees are particularly important along this corridor and into the future for shade in the face of more extreme heat and helping overall reducing the impacts of an urban heat island.

Figure 37. Section A'

3.4.3. Headhouse Welcome Plaza

The Welcome Plaza is the new front door to Newark and the Dayton District. It is where visitors, and residents alike can arrive, depart, and relax as they come and go through the new EWR Headhouse or access the regional greenway. The plaza embodies all of Generate Newark 2050's goals of connectivity, equity, and resilience and generates new recreation opportunities for the Dayton District. It generates connectivity from the headhouse to Weequahic Park by defining a perpendicular axis to the avenue and directing visitors and residents on a clear and direct path to recreation.

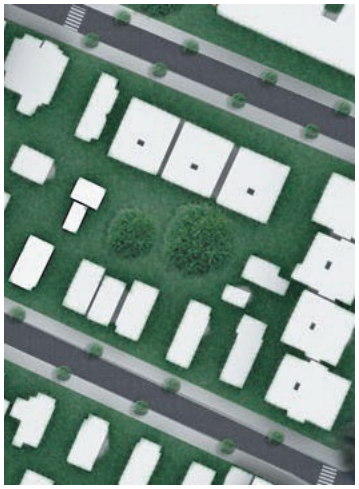


Figure 38. The Welcome Plaza is the main connector point between the new EWR Headhouse and the Dayton District. Residents and visitors alike can enjoy this space as an off shoot of Frelinghuysen Ave., the main thoroughfare, and spend as much time as they want under the shaded trees or in the smaller public spaces around nearby buildings.

Community resilience and equity is brought to the forefront through two signature adaptive reuse buildings that will welcome visitors to Newark and hark back to the area's strong industrial past. One of these buildings will be the main site of a job training center that connects Dayton, South Ward, Elizabeth, and Newark residents with jobs at the airport.

Environmental resilience is targeted through large wetland bioswales that will break up the pathway between the Headhouse and Frelinghuysen Ave. These triangular seating structures will provide needed refuge and seating while giving visitors a sneak peak of the wetland expanse that sits just beyond the airport. The bioswales can also provide educational opportunities through integrative learning and signage.

This new plaza will not only serve people passing through to the airport, but it will be a new community hub and extension of the activity along Frelinghuysen Ave. The part of the plaza closest to the Avenue will be family-friendly, with an interactive play structure, and active building frontages will make sure this area stays active at all hours of the day.

3.4.4. East Meadows Park

Historically, the Newark Liberty International Airport (EWR) and Port of Newark sites were covered by shallow tidal wetlands. Between the 1910s and 1970s, the bay was filled in and covered by the port, airport, and the New Jersey Turnpike. However, the great extent of impervious surface made the site vulnerable to imminent natural hazards like storms, surges, and sea level rise.

Figure 39. Existing airport land aerial image with projected sea level rise and existing wetland areas identified.

Currently, the land between the airport and the existing EWR station contains a sea of parking. EWR station provides AirTrain service that transports passengers from train station directly to the terminals. The experience of this monorail is an asset to the area because passengers can see memorable views of the Port of Newark, skyline of New York City, and neighborhoods west of the rails. Besides the AirTrain, airport parking, light industrial uses, the most noticeable land use on the airport site is the iconic Anheuser-Busch building. Opened in 1951, this brewery is the second oldest of the area's 12 major breweries.[2] For almost 70 years, the brewery's iconic A&Eagle sign has been part of the Newark identity. Upon realization of the new EWR plan, space between the new headhouse and the midfield concourse will become free for new uses and available for imagination.

[2] https://www.anheuser-busch.com/about/breweries-and-tours/newark-nj.html

Figure 38. Meadows Maze.

3.4.5. Meadows Maze

To address these issues, this proposal suggests designing a meadows park between the future headhouse and the midfield concourse among the other offices and industries. The park will include meadows and marshlands that will not only provide environmental benefits, like reducing stormwater runoff from the urban environment, filtering, and treating waterborne pollutants, but also provide a new experience for visitors to get closer to natural features. In addition, the site will also form a linkage to the Weequahic Park through blue and gray infrastructure along Frelinghuysen Avenue and via the Weequahic Wetland Connector (WWC), creating a robust regional urban water network.

Various sizes of marshes and meadow patches will form a meadows maze with trails designed to meander through this area. Visitors could access the Meadows Park from the neighborhood through the existing EWR station that will provide open access on both sides of the rail. Once visitors are in

the meadows maze, they could bike around and rest at the pavilion, while enjoying a view of the headhouse and redesigned industrial buildings on Frelinghuysen Avenue.

The existing warehouses and Anheuser-Busch building will be repurposed to offices and a learning center that is open to the public. The Anheuser-Busch building will function as a civic center where educational and environmental programs will be set up to for Newark residents to learn more about the wetlands and the history of the Newark. The buildings will also provide abundant space for organized community events. Visitors could access the building from U.S.1&9 or the roads south of the site from City of Elizabeth. Pedestrians could also access the building from the meadows maze and through the trails.

3.4.6. Free Trade Zone

The land directly adjacent to the existing EWR station will be reserved for office uses and light industrial buildings that will house job training offices. These industrial uses will take advantage of being in a Free Trade Zone and benefit from its tax credits. Offices here will have convenient access to the other side of the rail through the EWR station. Access to major highways will remain open, benefitting the light industrial uses.

The remaining land will be enhanced with designed wetland patches. In addition, a new solar farm will complement the green roofs and solar roofs proposed by Generate Newark 2050. This solar farm will generate power for local communities.

Figure 39. Land east of the existing EWR station will be reserved for offices and light industrial uses.

The existing AirTrain monorail system provides a convenient ground transportation for passengers. Although views from the AirTrain tracks of the port, concourses, and New York City are stunning, the land underneath the tracks is filled with warehouses for logistics and fenced parking lots. Pedestrians do not have access to this side of the rail and vehicles can only access the area through the Haynes Avenue via U.S. 1&9. With the AirTrail conversion, a new park trail is proposed to run along the AirTrail and lead people into the meadows maze.

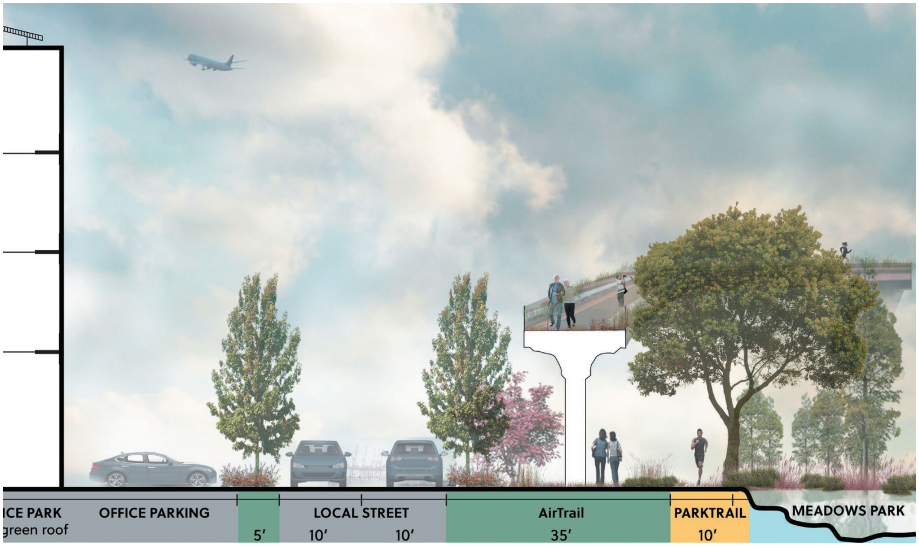


Figure 40. AirTrain tracks will be converted to an AirTrail that is accessible from the existing EWR station.

Figure 41. Land under the AirTrain tracks is currently used mostly for airport parking lots.

Figure 42. Wetland expansion enables water in the region to flow to the Port of Newark.

3.4.7. Wetland Expansion

In addition to creating new marshland, the East Meadows Park will also form a linkage to Weequahic Park via the Wetland Connector, and eventually lead water from Weequahic Park to the Port through wetland expansions in the area. Currently, much of the area north of the airport and along the railways is occupied by parking lots or airport hotels. By relocating airport hotels to Frelinghuysen Avenue and remediating the marshlands near the port, the wetland expansion could also connect with parks and green spaces closer to the Downtown Newark. The study area will be transformed to be a place where various scales of the public realm are stitched together.

Ultimately these elements will create a robust urban water network together, establish a more accessible place for residents in Newark, and create a strong foundation for future regional growth.

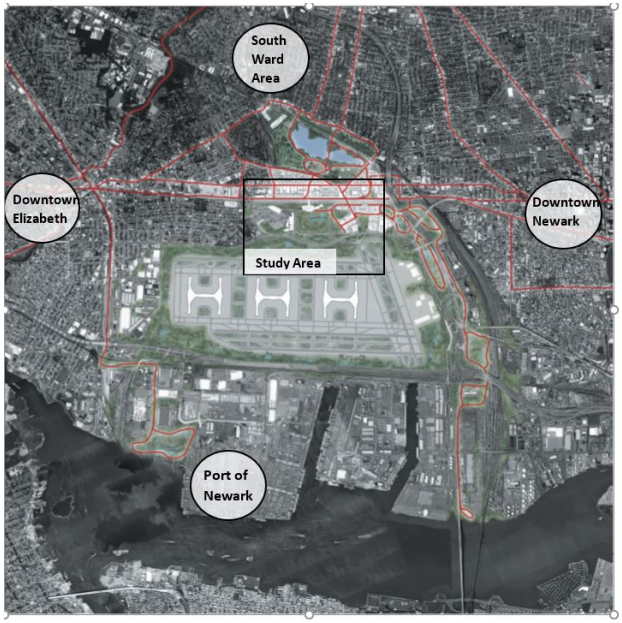


Figure 43. The Newark Greenway is a network of different routes that can connect users across the region to different points of interest. There are several routes within and surrounding the study area, in addition to routes that can extend beyond to connect to other areas of Newark and the larger region.

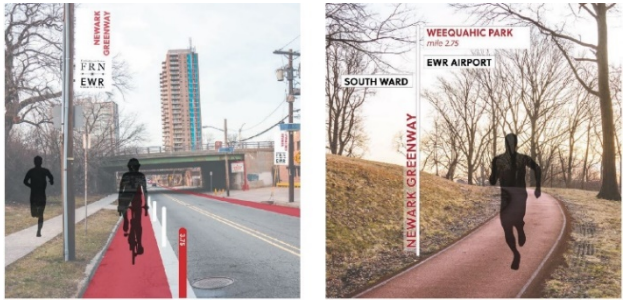


Figure 44. The Newark Greenway can be identified by consistent colors, signage and branding that link the different routes together with points of interest, directions, and mileage markers.

3.5. Newark Greenway

Regeneration goes beyond the boundaries of the study area, and a robust public realm is more just than creating destinations and a healthy environment. The public realm is most impactful when communities have adequate access to and opportunities to interact with the built and natural environment. During the COVID-19 global pandemic of 2020, the need for recreational access and community connectivity has become even more apparent. This proposal responds to these needs by building a resilient network of new and old trails and streets to connect to points of interest. The Newark Greenway will provide Newark residents, new and old, with easily accessible connections to all assets of the city, culminating at the study area.

The Greenway will take many forms and shapes as it moves through space. Users, whether they be residents, tourists, or the workforce, have the option to take the most direct route that will connect Weequahic to downtown Newark, Elizabeth and beyond to New York City. Recreational offshoots of the Greenway will spread throughout the city to connect to other assets like the East Meadows Park, a scenic route that gives users a firsthand view of the restored marshland. The Weequahic Arm will connect residents and workers from the transit station to the newly developed residential and commercial job center, ending at the edge of Weequahic Park. New and redesigned bridges will provide safe crossings over rail tracks and roads as well as provide vista points to view the Manhattan skyline with the wetland park in the foreground.

Beyond the new developments, the Newark Greenway can transform the existing City Beautiful era boulevards through road diets that will bring these classic boulevards into the future. As the car-dominant streets of the past will no longer be needed, wider sidewalks and multi-modal lanes will encourage more pedestrians and alternative mobility users to connect to the wider region.

3.5.1. Proposed New Trails

South Newark does not share the same level of internal connectivity as Newark does with the wider region. To improve this local transit deficiency, new paths can be built within the study area to connect residents, workers, and visitors to other areas of Newark and the surrounding region.

A direct path between Elizabeth and Downtown Newark can be established alongside the Northeast Rail Corridor. On this route, there can be two lanes of traffic -- one for faster speeds for multi-modal uses like bicycles and electric scooters, and a slower speed lane for pedestrians. On this route, users can experience new developments and have safe and uninterrupted paths over railroads and highways, all while still traveling efficiently between the proposed job centers.

An additional trail is proposed within the East Meadows Park that can lead users down through the natural reserve to the waterfront at Newark Bay. This trail can be a highlighting feature of the new resilient strategies that are being employed in the reclaimed wetlands. Educational tours and signage along the trail will offer insights about the significance and importance of wetlands for resilience, as well as about the historic uses of the land. Additionally, the trail can be used for recreational purposes, and will offer various loops and routes of difference lengths to provide users with options of where and how far they want to travel.

3.5.2. Existing Infrastructure

Beyond the study area, the Newark Greenway can completely transform existing infrastructure and bring them into its network. Broad Street in Downtown Newark is one of many wide car-centric boulevards in Newark. Using a road diet, Broad Street can de-emphasize the car lanes to make room for multi-modal options of the future. Adding more landscape features and the same visual indicators as other paths in the Greenway can create a better pedestrian experience, while also letting the user know they are traveling on a route that connects to a wider regional network.

Streets like Lyons Avenue in the South Ward show how the Greenway takes many different shapes and forms, depending on where it is. The intersection of Lyons Avenue with Weequahic Park has the potential to become a major transfer location. This transfer will connect the route from within the park to the study area and EWR airport, then on to major commercial corridors and residential density in the South Ward. This route is how existing residents of the area will be connected to the new job centers and activity happening in the study area.

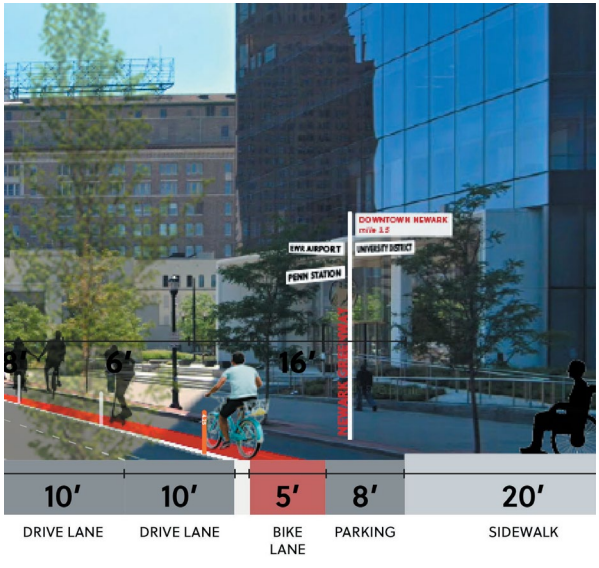


Figure 45. Within the study area, Haynes Avenue Bridge is one of two existing connections over the Northeast Corridor tracks. Currently it holds two lanes of traffic, at 70 feet wide it is not being used efficiently. By using a bridge diet, the driving lanes can be thinned down and re-routed to improve car circulation through the site, but it can also open more space for the Greenway and pedestrian use. The routes along this bridge will provide a full view of new project East Meadows Park, as it extends toward the Manhattan skyline.

Chapter 4. Public Health & Tech Proposal

4.1. A Focus on Public Health of the South Ward Communities

The Public Health and Tech proposal transforms the Dayton Neighborhood into a mixed-use airport city with an emphasis on public health services and tech research enterprises. The public health initiative is in response to the COVID-19 pandemic, to increase investment in public health, while encouraging immediate job growth to meet growing health services demands. The new public health and tech district will take full advantage of the City of Newark's global position based on its extensive transportation network of highways, seaport, transit system, and airport. With this approach, the urban district will further enhance the area's presence as a regional transportation hub, while preserving Dayton's community character through new community investments. As part of Newark's South Ward, the Public Health and Tech District maximizes the studio's goal of local and regional connectivity and builds on these assets through means of equitable growth, resilience, and new job opportunities for the locally based workforce.

This proposal seeks to address major challenges occurring in Dayton including, lack of connectivity, vacant and underutilized land, increasing flood risks, and a lack of access to healthy food and public health services. The Dayton and Weequahic neighborhoods currently lack pedestrian, bicycle, and transit connectivity to the EWR Airport in the form of a lack of community access to the current EWR train station, division from the railway corridor, and poor pedestrian access on Frelinghuysen Avenue. Additionally, the land between EWR, Dayton, and Weequahic Park includes high levels of vacancy, underutilized industrial properties, parking lots, and the abandoned Seth Boyden Public Housing

Project. Along with high vacancy rates, the community lacks adequate access to healthy food, public health resources, and community-oriented jobs.

While there are challenges to address, there are many great assets and opportunities presented within the South Ward. As mentioned in the existing conditions section of this report, the South Ward has prime access to the Newark EWR Airport, several major highways, proximity to the port, and is located along the rail systems. In addition, the South Ward has proximity to Weequahic Park, which serves as a community and cultural landmark for recreational opportunities. The area's underutilized land, vacancy, and abandoned properties also serve as an opportunity for urban redevelopment projects and for new job creation and community investment for Dayton.

By creating a public realm plan for a public health and tech district, this proposal addresses these challenges and opportunities through three project goals: improve connectivity, encourage equitable growth, and improve access to public health resources. Through these project goals, specific urban design and public realm interventions will be used to target each challenge.

To improve connectivity, new bike trails, transit routes, sidewalks, and pedestrian paths will be designed to encourage multi-modal mobility. Frelinghuysen Avenue will be redesigned as a Complete Street and the existing EWR train station will gain public access to the South Ward communities. New streets and public spaces will also be designed to enhance the public realm, bridging the South Ward to the airport and railway.

To encourage equitable growth, affordable and mixed-income housing will be developed at the Seth Boyden site and other underutilized lots. New live-work development and investment will create jobs

and educational opportunities for current and new residents to encourage a vibrant public realm. To improve access to public health resources, the master plan includes creation of new community health centers, additional healthy food options through community gardens and grocery stores, new bike and walking paths, and new community parks and green streets that will serve as green infrastructure to manage flooding.

Chapter 5. Public Realm Plan

5.1 Dayton-Weequahic Community Center

The first placemaking intervention is the Seth Boyden Housing site, a 1939 public housing project of 12 buildings and 530 units within a 15-acre lot situated between Dayton Street and Frelinghuysen Avenue in the Dayton neighborhood. In 2011, Seth Boyden was closed, leaving the buildings in poor condition.[3] In June 2019, a request for proposals (RFP) for redevelopment was issued by the Newark Housing Authority.[4] Currently the RFP process is on hold due to the pandemic but will continue once the economy opens back up. Along the site there is an additional 5.8 acres of vacant land, thus providing an opportunity for 20.8 acres of redevelopment. This project is prioritized as the first phase of the project due to the burden of the existing vacant lot on the community. The proposal is also crucial to the COVID-19 response by creating about 500 jobs and by investing in a community health clinic.[5]

Overall, the project proposes a mixed-use and mixed income development that will include a total of 600 units, with 270 (45%) offered as affordable. The development will include demolition to construct 16 new buildings, in addition to retrofitting the closed Dayton Street Elementary School into a library and a non-profit community space. The development's services will include a gym and yoga studio, restaurant and culinary school, a public health clinic, a public health research office, a grocery store, a community center, a pharmacy, and a coffee shop.

[3] http://dana.njit.edu/items/show/303
[4] https://www.businesswire.com/news
[5] Job count estimated by space utilization rate

5.1.1. Dayton Public Realm

In partnership with the Housing Authority and potential collaboration with the South Ward CDC, the project will enhance the public realm experience in Dayton. This will be achieved through a series of design interventions, including creation of bike paths along Dayton Street and Frelinghuysen Avenue, a pedestrian promenade, and a new community park. The pedestrian promenade provides rain gardens, planter benches, and bioswales that manage runoff and serve as a pleasant walking experience for neighbors. A new community park is proposed at the center of the development, providing the community with a local secondary park that complements the larger Weequahic Park.

The community park provides neighborhood services such as a coffee shop and community garden, while fostering a unique social environment. Overall, the experience is a walkable, urban neighborhood environment that provides residents with community resources. This development will allow the community to gain access to public health services and healthy food options without having to leave the neighborhood.

5.2 Weequahic Health Center

Prior to opening the new headhouse, EWR station will be the site for the first design interventions and will lead the way in transforming the South Ward. The site area is bounded by Weequahic Park and freight rail to the west, the existing EWR airport station to the east, Haynes Avenue to the south, and NJ State Highway 22 to the north.

While considering the increased train connectivity, this project focuses on creating a smooth transition between pedestrians and public transportation networks. Taking advantage of the proximity to multi-

modal transportation, a new vision for this area focuses on creating a new live-work community, a medical research campus, clinics, and a wellness center. In addition, this proposal emphasizes providing the public with access to new public green spaces and creating health and wellness opportunities within the public realm.

5.2.1. Urban Design Plan

The aim of the urban design plan is to create an open interface between the station, the city, and the public realm. The main feature in this plan is the linear central plaza that visually invites Weequahic Park into the site, which can be immediately viewed from the EWR station expansion. The plan also focuses on increasing the number of building faces that will have views to the park. The linear central plaza will be connected by a shared street, which stretches horizontally through the site.

5.2.2. Programming

The proposal features four main types of programing. The first is the health and tech research office complex sitting directly outside of the EWR station, in light blue. Adjacent to that is a light industrial park that sits along the railroad and the highway, in purple. A live-work community is located between the office campus and park, in yellow. The final area is a healthcare-focused institution building cluster that serves as the main anchor point to facilitate public health, in darker blue.

5.2.3. Height Strategy

The below section demonstrates how people are visually invited to the park. The buildings are arranged to face the park, with the plan strategically locating the mid-rise residential uses to maximize

views from buildings further back from the park. The design creates a low-scale experience of the building frontages along Weequahic Park.

5.2.4. Station Expansion

A simple station expansion is proposed to the city site, the updated station can be accessed easily dramatically change the flow of pedestrians. With an additional platform and new expansion over the road on the city site, the updated station can be accessed easily from the proposed plaza.

5.2.5. The Public Realm

The linear central plaza will focus on creating a smooth transition between pedestrians and public transportation networks. In addition, this proposal emphasizes providing people with access to public green spaces and creating health and wellness opportunities within the public realm. The plan proposes unique, smaller spaces to encourage people to gather leisurely, chat, visit, and seek a break during mealtimes.

5.3 Micro-Mobility

The proposal envisions a two-phase modification of Frelinghuysen Avenue to prepare the area for the future evolutions in the transportation industry, while promoting equal access to diverse transportation modes and economic opportunities.

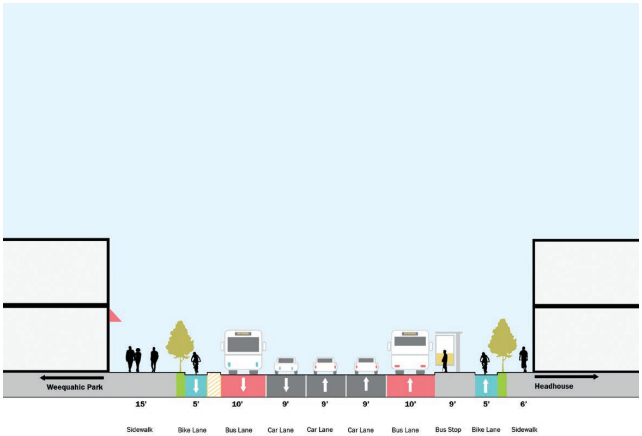


Figure 46. Frelinghuysen Avenue Redesign Phase One.

The first phase of the Frelinghuysen Avenue redesign improves safety for pedestrians and bicyclists, as well as improves public transportation efficiency by adding dedicated bus lanes and buffered bike lanes on each side. In the next decades, commuters and residents will be less reliant on personal vehicles. E-scooters, Segways, car-sharing, buses, and bicycles will become the primary local transportation modes of choice. The popularization of autonomous vehicles will enable more efficient use of the road, allowing reduction of driving lane widths to allow more space for bus transit and two additional e-scooter lanes. By encouraging public

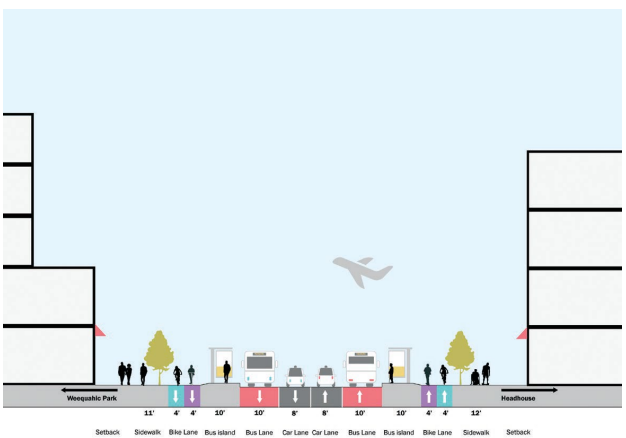


Figure 47. Frelinghuysen Avenue Redesign Phase Two.

transportation connections, the design will further community health outcomes and equitable access to opportunities.

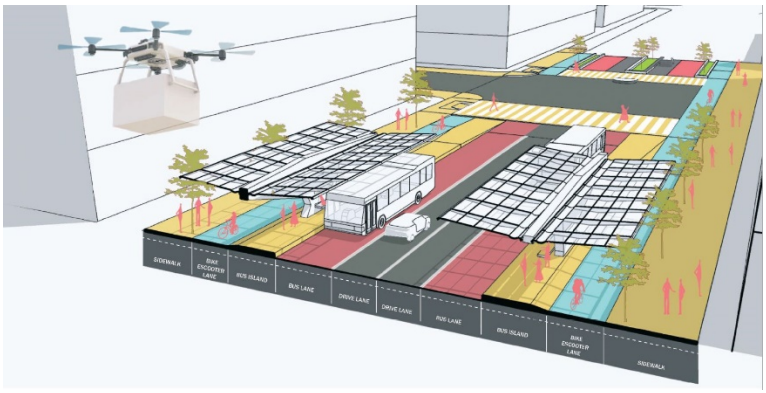


Figure 48. Frelinghuysen Avenue Redesign in Perspective.

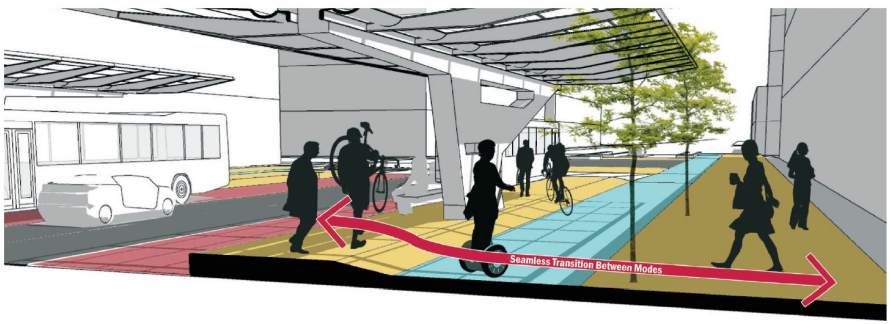


Figure 49. Seamless transition between modes of choice.

5.4 Pedestrian Spine

This proposal envisions a pedestrian spine to connect the headhouse Arrival Plaza and the existing station development. The permeable structure creates a connection to Weequahic Park and a proposed community center. The community center will be located at the visual gateway from Newark Downtown via Frelinghuysen Avenue.

Along the pedestrian spine is a mixed-use development, including programs such as offices, residential, retail, entertainment, hotel, and an event center. Most buildings are envisioned with retail on the first floor to activate pedestrians. The corridor will be constructed with permeable paving and bioswales to mitigate stormwater runoff, while adding aesthetic value and shading for pedestrians.

Along the corridor, there are three major public gathering spaces which provide a range of experiences for residents, workers, and visitors. These gathering spaces are located at a global inter-modal transit hub, with thousands of local, regional, and international users visiting daily. Based on their heavy foot traffic and opportunity to convene visitors of diverse backgrounds, these public spaces are an important platform for visitors to appreciate Newark's unique history and culture.

Figure 50. Site Plan.

Figure 51. Creating a visual connection to Weequahic Park is a key driver behind the stepping-down of building heights. Taller buildings are located closer to the railroad track to screen the noise and views of the train activity.

5.4.1. Plaza

These diagrams illustrate the public spaces along the proposed pedestrian spine. The plazas create a permeable yet enclosed space, while the building appearances are adapted from Newark's historic

buildings. The diagrams below show three of many possible activities that can take place in these public spaces, including a farmers market, holiday ice rink, and music events.

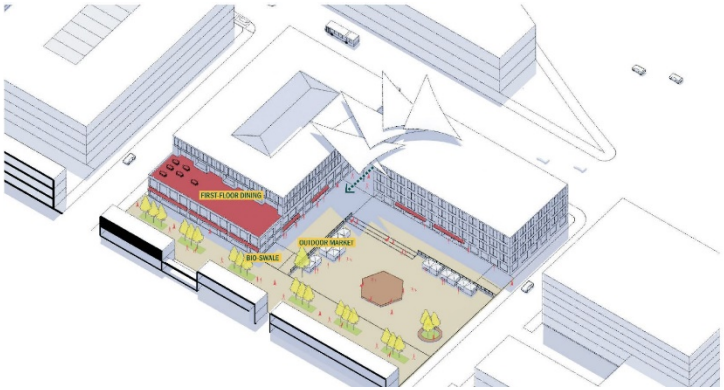


Figure 52. Plaza with farmers market.

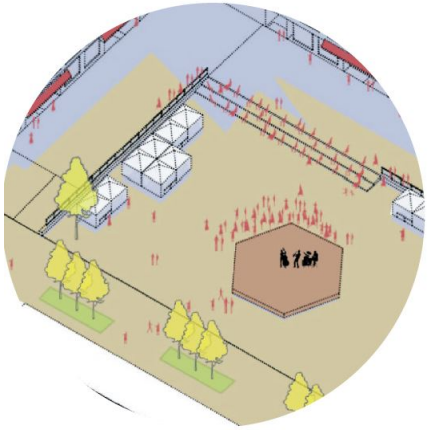


Figure 53. Plaza with music event.

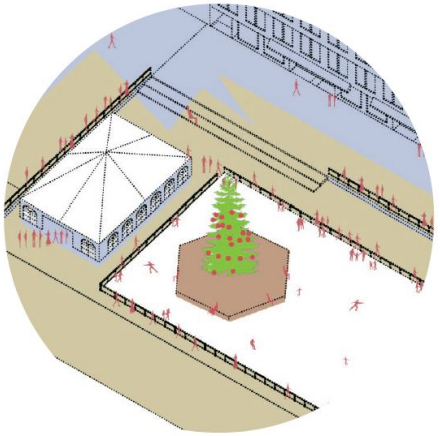


Figure 54. Plaza with Holiday Ice Rink.

5.5. Headhouse Square

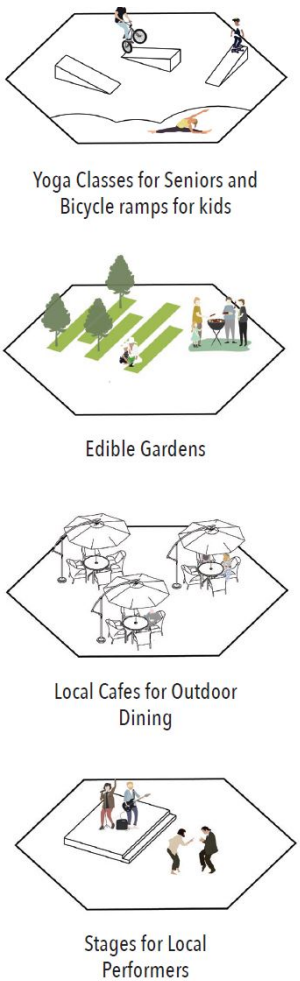
This proposal includes new design and programming strategies between Weequahic Park and the railway. The project site is roughly 1,400 feet wide and 2,200 feet long. It currently includes parking lots, industrial lots, and residential blocks. Today, these buildings are aging and do not have bicycle or pedestrian connections with the airport. These existing conditions are inadequate in supporting the future for Newark.

As the new headhouse plan is realized, the site will become a destination with a diversity of building types, higher density structures, and pedestrian-friendly road system. There will be more green spaces to improve the environmental quality users' experiences. The site will also provide more healthy services such as fresh food markets, community gardens, and outdoor sports fields. Finally, the site will collect the transport information together to help people plan their routes and travel methods.

5.6. A Front Door for Newark

Serving as the new front door for Newark, a terraced and landscaped plaza will be the first sight to greet people who are arriving to the South Ward. A two-level commercial building surrounds the plaza, creating a unique landmark, while offering pedestrians access to roof gardens and green spaces. Visitors can enjoy public life by walking through the commercial plaza and appreciating plants and landscapes from the roof level. The plaza will also provide different commercial services, including retail shops, local business, fresh food markets, and hotels.

To encourage foot traffic and multimodal transportation, the design creates a new pedestrian system using sidewalks and bicycle lanes. Additionally, the proposal adds bus services to better connect the site, headhouse, and Weequahic Park.



5.6.1. Public Spaces

This proposal offers a diversity of public spaces across the project sites. Public spaces are very important elements in the plan as they offer opportunities to show the neighborhood's vitality and creativity. Examples of activities taking place in these public spaces can include yoga classes for seniors and bicycle ramps for kids, local cafes for outdoor dining, stages for local performers and edible gardens.

Combining these unique public spaces, larger mixed-use buildings, and transportation improvements, the proposal creates a new eco-friendly, accessible, and mixed-used destination for the South Ward community and those using the airport. The proposal aims to create a new landmark for Newark that welcomes people from around the world, while offering new amenities and community services to those in the Dayton and Weequahic neighborhoods.

Figure 55. Activity types that can occur within the proposal's unique public spaces.

Chapter 6. Weequahic Park

6.1. A Vision for Weequahic Park

As part of the studio's comprehensive approach to the South Ward neighborhood, specific attention and proposals have been dedicated to Weequahic Park. With its plentiful open spaces and expansive lake, Weequahic Park may be one of the South Ward's most recognizable features. Certain aspects of the Olmsted Brothers' original park design still exist, including Divident Hill and the popular Weequahic Lake. Others have been lost to time, with new investments bringing the park into the 21st century.

Although local in scale, Weequahic Park encounters similar phenomena as the broader South Ward region. The South Ward's struggles with a lack of bicycle, pedestrian, and transit connectivity are seen within the bounds of Weequahic Park. While serving as a local open space amenity, the park stands as a barrier to transportation between the Clinton Hill, Weequahic, and Dayton communities. Residents who wish to move across the park have few choices for passage across the existing railroad tracks and U.S. 22 highway, while access along the park's perimeter is hampered by lack of entrances and impassable fencing. The South Ward's flooding and pollution concerns are in stark view at

Weequahic Park, where issues of stormwater runoff and point source pollution impact Weequahic Lake's ecological productivity and recreational capacity. Sea levels modeled with Newark's 500-year floodplain are predicted to flow into Weequahic Lake from downstream airport and industrial areas, causing potential safety and health concerns. Lastly, the South Ward's resident-amenity mismatch can

be observed at the site level, with sections of the park going underutilized despite local needs for more comprehensive programming and community services, such as jobs and access to healthy food.

Addressing these challenges requires a comprehensive and local approach that builds on Weequahic Park's unique site opportunities. The studio's larger goals of local and regional connectivity, equitable growth, and resilience find a home in Weequahic Park through a series of tailored design and programming approaches.

Figure 56. Weequahic Park Connectivity Strategy.

6.1.1. Connectivity Strategy

Building on the studio goal of local and regional connectivity, this proposal seeks to improve site-level connectivity by adding additional walking trails along the golf course perimeter and better equipping the park's internal road, Thomas Carmichael Drive, for bicycle and pedestrian use.

Complementing this approach, a transit route is proposed along Thomas Carmichael Drive, additional park entrances are suggested at key street intersections, and a bridge is planned to span across U.S. 22, the railroad tracks, and Weequahic Lake.

Modeled after the Providence Pedestrian Bridge in Providence, RI, the proposed Weequahic Park Bridge would offer key bicycle and pedestrian connections between the upper and lower park, while offering park users a new recreational experience. The bridge is envisioned as winding organically within the landscape and being constructed with natural materials, such as wood and plantings. Pedestrians and bicyclists on the bridge would have captivating views of the park and opportunities to gather on platforms close to the lake's water.

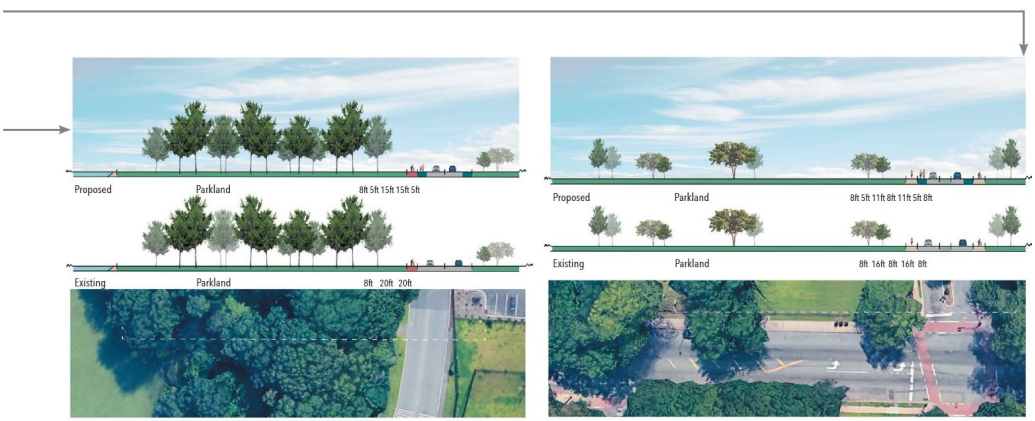


Figure 57. Thomas Carmichael Drive improvements.

Figure 58. Proposed Weequahic Park Bridge.

6.1.2. Programming Strategy

Building on the studio goal of equitable growth, this proposal provides new community programming in the form of an urban agriculture center and a community amphitheater (Figure 65). Modeled after precedent agriculture center Riverview Gardens in Appleton, WI (Figure 63), the Weequahic Agriculture Center would reclaim land adjacent to Weequahic Park and the Community Food Bank of New Jersey for greenhouses and fields, which would complement the food bank's existing operations (Figure 64). The center is envisioned as a new hub for food production, collection, and distribution that could serve the surrounding neighborhoods and greater Newark, while creating local job opportunities. The center would help increase community access to healthy foods, while working in tandem with education partnerships proposed in the Public Health and Tech proposal. In addition to the agriculture center, residents would gain a new home for existing park events with the proposed Weequahic Community Amphitheater. Modeled after the floodable outdoor McGrath Amphitheater in Cedar Rapids, IA, the proposed amphitheater would make use of Weequahic Lake's sloping banks to create an engaging, waterfront setting for community events and gatherings (Figure 66, Figure 67).

This venue could serve as home to ongoing community events such as the Weequahic Park House Music Festival and the Essex County Summer Music Concert Series.

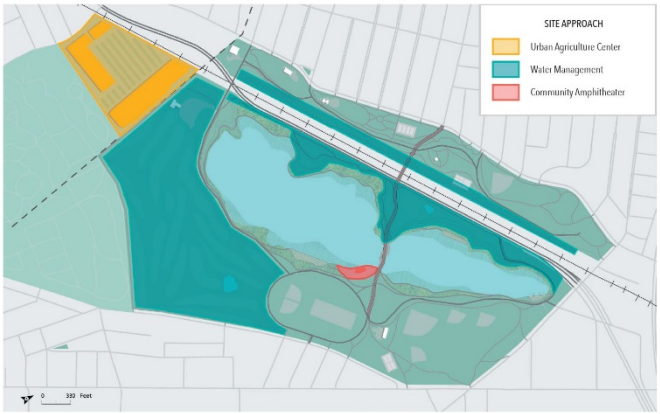


Figure 59. Weequahic Park Programming Strategy.

Figure 60. Proposed Weequahic Community Amphitheater

Figure 61. A McGrath Amphitheater performance.

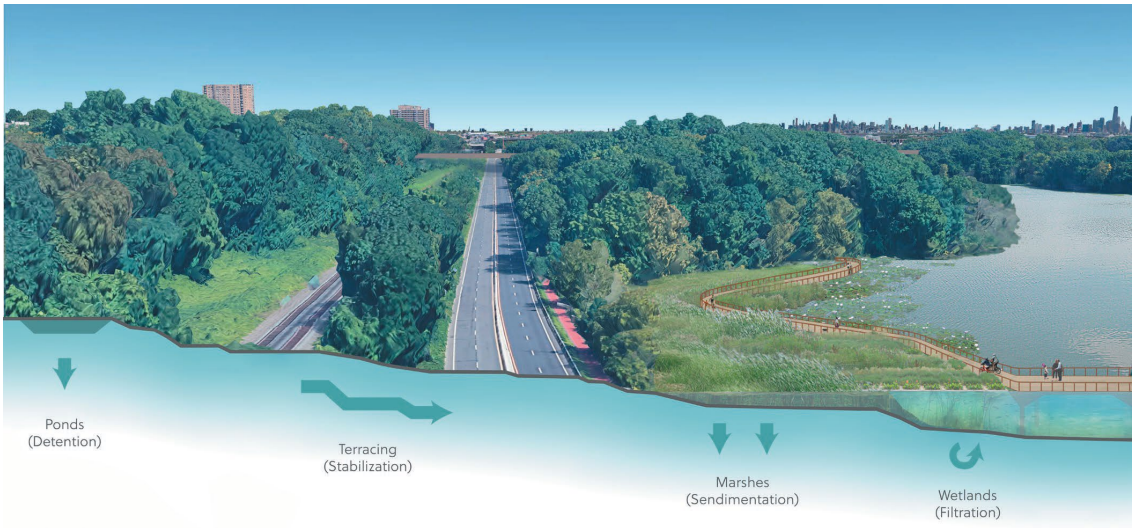


Figure 62. Site Water Strategy.

Figure 63. Floating wetland rafts.

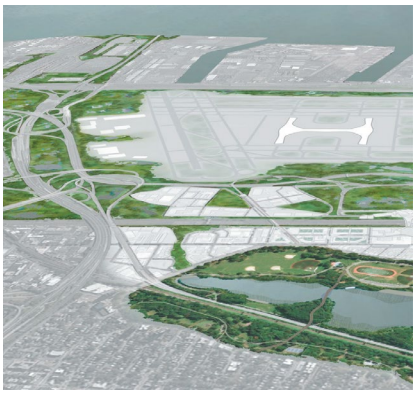


Figure 64. Regional Water Strategy.

6.1.3. Site and Regional Water Management

Adding to Weequahic Park's connectivity and programming strategies, this proposal offers a revised take on water management practices across the park and within Weequahic Lake. Although once used for boating in the early 1900s, the lake's water quality later deteriorated and prompted formal study in 1983 and 1990.[6] Although Essex County has made progress in addressing pollution from stormwater sewers, fixing cracked pipes, and preventing overflow events, Weequahic Lake continues to experience flooding and pollution events in modern day. Weequahic Park's sloping topography has resulted in erosion and an influx of sediment into the lake in events of heavy rainfall. The lake's proximity to point source pollutants, such as the railroad and U.S. 22, may have resulted in the presence of metals and oil in lake sediments.[7] Nearby amenities such as the Weequahic Golf Course have introduced phosphorus into the lake, contributing to eutrophication, algal blooms, and a struggling fish population.[8] From a community use standpoint, general upkeep of the shores has struggled with litter along the banks, meanwhile park users have few formalized opportunities to be near to and engage with the water.

To improve Weequahic Park's water management approaches, this proposal offers green infrastructure components to complement existing grey infrastructure. General stormwater management practices, such as detention ponds, are recommended within Weequahic Golf Course and the upper park regions (Figure 65). Terracing along steep slopes and establishment of marshes within shallow lake areas aim to slow and absorb excess stormwater and sediment moving downhill.

[6] Phase 1, Diagnostic-Feasibility Study of Weequahic Lake, 1983, FX Browne Associates, Inc, Weequahic Lake Restoration Project Progress Report, 1990, FX Browne Associates, Inc.
[7] Phase 1, Diagnostic-Feasibility Study of Weequahic Lake, 1983, FX Browne Associates, Inc
[8] Phase 1, Diagnostic-Feasibility Study of Weequahic Lake, 1983, FX Browne Associates, Inc

Floating wetlands are recommended along the open water and marshlands, providing a source of water filtration and new habitats for aquatic life. Weequahic Lake's northern outlet sewer would be redirected and daylighted to mimic the historic functions of Bound Creek, providing greater capacity in extreme flooding events. Once connected to the downstream Weequahic Wetland Connector and East Meadows Park referenced in Generate Newark 2050, Weequahic Lake would be well-positioned to operate as part of a regional water management system.

6.1.4. Waterfront Improvements

To reimagine the waterfront public realm experience and improve community access, this proposal seeks to restore historic uses along the lakeshore. Prior to struggles with pollution, Weequahic Lake was home to a boat house and hosted waterfront recreation activities. Referencing these prior uses, this proposal creates new walking trails among the marshes and floating wetlands to offer a unique nature experience. New public spaces are proposed along the lakeshore, including a boat dock near the northern cove and open wetland docks for gathering. These waterfront trails and docks complement the proposed Weequahic Community Amphitheater, situated along the lake's steep banks. Together, these new elements aim to bring community members closer to the lake in a way that helps them feel more connected to the aquatic assets that are in their own backyard. By improving water quality and providing new lake access points, this proposal seeks to reinvigorate community investment in lakeshore upkeep and provide a connection to the park's ecological history

Figure 65. Weequahic Lake postcards.

Figure 66. Proposed Weequahic Lake boat dock

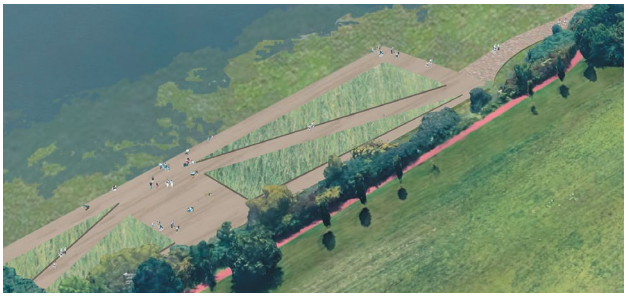


Figure 67. Figure 23. Proposed Weequahic Lake wetland dock.

Chapter 7. Future EWR Headhouse

7.1. A Vision for Rail-to-Air at EWR

The Regional Plan Association's (RPA) study of Newark Airport forecasts Newark Liberty International Airport as a mid-field concourse in 40 years. This includes a headhouse that would span across the railroad tracks and open onto Frelinghuysen Avenue. Our proposal further develops that study into a realized concept.

The EWR headhouse will include a new train station that will extend the public realm into spaces that are often considered private and secure. The design connects the headhouse to the South Ward neighborhood with an elevated bridge, as a solution to improve neighborhood access to local, regional, and international travel. Residents and visitors can walk on the bridge to access the extensive collection of public amenities conveniently located in the headhouse's interior and exterior, including restaurants, shopping center, performance venue, and public plaza. In addition to serving as a connection to the headhouse, the elevated bridge serves as a train station that will service both regional and inter-regional trains, including Amtrak, NJ Transit, and PATH. This design takes the unprecedented step of giving right of access to the public at the center of domestic and international travel.

The overarching design theme of the EWR headhouse and train station imagines a synthesis of disparate angular surfaces into an iconic harmonious volume while maintaining fundamental ambiguity. The intentional intersection of surfaces, the sharp edges, and dissected volumes collectively define the dynamic aesthetic of the project. The overall design scheme reflects the

progressive transformation that the City of Newark will embark on for the Newark International Airport in 2050.

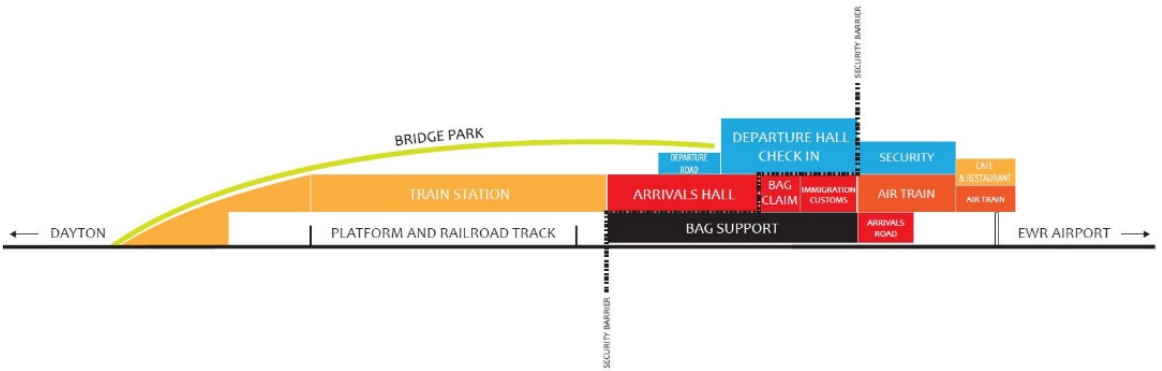


Figure 68. Left of the dotted lines are public use areas. These spaces are where people can say goodbye to loved ones, but more importantly a place to say hello, welcome to Newark Airport City.