

CITY OF CHESTER WATERFRONT REDEVELOPMENT

PLN 403: Planning Design (Studio A)

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Aerial View of the City of Chester Waterfront Redevelopment Proposal

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1. Executive Summary

The purpose of the following document is to propose a vision for the redevelopment of a property along the waterfront in The City of Chester, Pennsylvania. We provide a literature review discussing current trends and strategies for waterfront development in a sustainable and community-oriented fashion. We were tasked with choosing a site based on a list of recommended areas and proposing redevelopment with the ideals of sustainability and community in mind. We involved the community through surveying which allowed us to listen to their wants and needs. Through this it was determined that the community would most benefit from better access to food, a place for the community to congregate, and improving the general aesthetics of the area. They were also concerned with access to transit and employment opportunities. We strongly encourage the city of Chester to develop a vacant lot located near the corner of West Front Street and Penn Street. This development would ideally include a grocery store, community center, and green space along with waterfront access. We will provide Sketch-Up and ArcUrban models to visually showcase the opportunities of this site, as well as proposed policy recommendations.

2. Introduction

City of Chester lies in the Township of Chester within Delaware County, Pennsylvania. The population in the 2020 census was 32,605. The land is primarily used for industrial purposes on the waterfront, with the surrounding community having a median household income of \$35,751. In this report, the demographic data of Chester will be analyzed to give a full demographic profile to show underrepresented communities and flaws within the area. Redevelopment is necessary in this community. This report will present and thoroughly explain the many ways that sustainability could improve the quality of life for current and future residents of the community. The waterfront has a great amount of potential to become an epicenter of social and economic activity. There must be a focus on rezoning along with an emphasis on encouraging economic development within the site space. A site plan will be presented showing the potential of the space which will include a grocery store, affordable housing, green space, and a community center.

2.1 Goals and Objectives

Goals:

Provide a grocery store, community center, and place of unity for residents within the community. The addition of a grocery store will help alleviate the current food desert in the area. Creating a community center in Chester will allow residents to connect at local gatherings. In addition, the community center will provide programs such as health care and educational opportunities.

Thesis:

Our goal is to provide this community with the services that are needed while emphasizing sustainability and benefiting the economy.

2.2 Equity in Planning

Equity allows for residents to gain equal opportunity and improved quality of life. Equity encourages planners to consider every person within a community and cater to their needs. Uplifting the community is a main goal within this plan. After surveying we were able to understand the perspectives, opinions, and desires of residents of the City of Chester. It was determined that the City of Chester has been underdeveloped, and therefore many necessary services have been neglected. By bringing these services to the community, planners can work towards achieving equity for residents in the City of Chester area.

2.3 Importance of Sustainability

The redevelopment of this lot along the waterfront will support current and future residents of The City of Chester. This redevelopment process is meant to positively impact the entire community. There are 3 different pillars of sustainability. These include social, environmental, and economic. The pillars are specifically designed to improve the quality of life in a community with limited harm to the environment (Purvis, 2019). The redevelopment of City of Chester will achieve each pillar of sustainability. The environmental pillar focuses on minimizing the harm that is caused on the land. Rezoning the area for mixed use will minimize the environmental harm caused while planning for the future and keeping the impacts of climate change in mind. In addition, the easy access to public transportation will benefit the community by minimizing the need for cars and granting residents transportation. The social pillar focuses on strengthening relationships within a community. By adding greenspaces in The City of Chester, residents will be able to connect while enjoying outdoor spaces. Adding affordable and accessible grocery stores, a local urgent care, and allowing residents within the community to connect through social activities.

2.4 Economic Development

Due to the decline of industry, The City of Chester's economy has been fading for some time now. Through enriching the waterfront area while showing the potential, developers will become more interested to invest in The City of Chester. This will benefit the community through the creation of jobs and general improvement of the waterfront area. Within the three pillars of sustainability, economic viability is a crucial segment. Thoroughly focusing on improving the economy will benefit the community in the present and the future.

2.5 Serving the Community

The City of Chester is in need of many basic services that will improve the quality of life for the residents of the community. The community lies within a food desert, has very little access to healthcare, and is heavily polluted by the industry that has been there for years. These issues need to be addressed because the residents of City of Chester have the right to a healthy and pleasant place to live. The additions that have been addressed in the previous sections will improve the quality of life for those who live in the area. By adding a grocery store, people will have access to healthy and affordable foods, and the current food desert will be alleviated. A community center will create a place where people can come together and socialize, while providing a place for programs, such as urgent care and other educational opportunities, to work from. Through developing with environmental sustainability in mind, the air and water quality can be improved, while adding greenery and biodiversity to the area. If done right, this project could be the start to a new The City of Chester. One that is resilient, bright, and sustainable.

3. SWOT Analysis

A SWOT analysis is a strategic planning tool that evaluates a project areas' "Strengths, Weaknesses, Opportunities, and Threats" (SWOT). Conducting a SWOT analysis at the beginning of the planning process is instrumental as it allows for a comprehensive assessment of internal strengths and weaknesses, as well as external opportunities and threats. This analysis establishes a foundational understanding of the strategic landscape at the beginning of the planning process and keeps key information in mind while developing alternative courses of action. By incorporating these insights, planners can make informed decisions and develop strategies that align with objectives and enhance overall effectiveness.

An exercise was conducted in the beginning of the planning process to capture these insights and apply them to the plan. These insights informed the planning process and established a shared framework of mutual understanding on the planning team.

3.1 Strengths

The presence of SEPTA Regional Rail stations at Marcus Hook and Highland Avenue enhances connectivity, facilitating transportation throughout the study area. The area's potential for a scenic view adds to its attractiveness, offering aesthetic value for residents and visitors to local parks and improving the financial value of any economic development. A strong culture of historic preservation in the region contributes to the unique character of the waterfront. Additionally, the presence of an interested and engaged planning department signals an ongoing commitment to improving the study area, fostering the potential for successful and well-coordinated redevelopment efforts.

3.2 Weaknesses

The community faces significant challenges, including limited food options and insufficient transit, impacting both accessibility and economic opportunities. Diversifying local food sources and enhancing public transportation are crucial steps towards fostering a more sustainable and connected community. Simultaneously, addressing the environmental footprint of local industries is imperative, necessitating a shift towards eco-friendly practices for the well-being of both residents and the environment.

In addition to these challenges, historical discrimination against minority residents adds a layer of complexity. Acknowledging past injustices is essential to rectify disparities and promote an inclusive community development approach. By simultaneously tackling these issues, the community can work towards a more vibrant, fair, and resilient future.

3.3 Opportunities

The study area prompts careful consideration of its developmental potential. This characteristic raises questions about how the lack of waterfront proximity might influence the overall dynamics of the area. Simultaneously, the abundance of brown space and empty lots within the study zone

presents a distinctive opportunity for strategic urban planning and revitalization initiatives. These vacant spaces offer a canvas for transformative redevelopment, allowing for the implementation of thoughtful urban design principles to enhance the community landscape.

The strategic location of the study area, particularly its proximity to Subaru Stadium and accessibility by car, positions it as a focal point for potential economic and transportation influences. Leveraging this strategic positioning can play a pivotal role in shaping the area's future growth and development. Additionally, the study area's potential for waterfront development and Delaware River recreation introduces an exciting dimension for enhancing the overall attractiveness and community engagement within the region.

3.4 Threats

The redevelopment initiative is influenced by several factors, including the lobbying power of the industry, which plays a pivotal role in shaping policy decisions. The cost of construction poses financial considerations that impact the feasibility and scope of the project. The evolving political landscape introduces dynamic challenges and opportunities, requiring adaptability in the planning process. The history of community and government relations adds a contextual layer, influencing stakeholder engagement and collaborative decision-making. Moreover, the accelerated planning process necessitates efficient coordination and strategic decision-making to ensure the successful and timely realization of planning studio goals.

4. Literature Review

4.1 Introduction

When creating a site plan, particularly for a waterfront location, it's crucial to keep in mind that the aim is to design a space that accommodates human behavior (Lynch, 1971). This requires a thorough understanding of the unique features of waterfronts, specifically urban waterfronts. It's essential to consider whom the site is intended for and the circumstances of the local community (Lynch, 1971). Furthermore, it's important to acknowledge that a planner's responsibility is to respect the community's history and cater to the needs and interests of the public (Galland & Hansen, 2012).

Waterfront redevelopment has been a goal for many municipalities worldwide as industries have changed in recent decades. Major coastal port cities continue to function in similar ways to their past glory while having experienced redevelopment, such as Baltimore and Toronto, while smaller inland ports have faded into disuse (Galland and Hansen, 2012). Many waterfronts that had been used as industry hubs for manufacturing and shipping now sit vacant, and they provide opportunities for reinvention to better suit communities. Redeveloping these spaces can help boost the local economy by providing employment opportunities during and post-development, as well as increasing the local tax base when housing is introduced (Taufen and Yocom, 2021).

Waterfronts have a natural allure and can be transformed into a thriving hub of a community's activities as demonstrated in how Boston redeveloped part of their waterfront (Auton). Enhancing the accessibility to water encourages business growth by fostering increased activity (Auton). This approach is achieved by incorporating shorter block lengths, diverse usage options, pedestrian walkways, dedicated public areas, and proper lighting (Auton). Boston's project also emphasized the significance of comprehending the community identity and integrating it into the scheme (Auton).

Waterfronts, up until the 1970s, had been traditionally industrial use (Goodwin, 1999). After the 1970s, industrial use began to decline substantially, leaving many industrial sites abandoned (Goodwin, 1999). Abandoned contaminated industrial areas, known as brownfields, became more prevalent due to newer technology and practices. Ocean travel became less popular, containerization reduced the number of ships needed, movement of ports to less developed areas, and urban renewal (Goodwin, 1999).

Many of these, especially former industrial spaces, are classified as brownfields, meaning they require additional attention in the revitalization process due to environmental contamination. In terms of waterfront redevelopment, this leads to the importance of taking the changing climate and weather patterns into consideration in the planning process. Ensuring that new developments will not only be resilient to the changing climate, but also follow current sustainability guidelines to lessen impacts on the environment is increasingly necessary. Much of the past literature on waterfront redevelopment has been focused on economic and environmental impacts, while ignoring the social impacts (Avni and Fischler, 2020). Waterfront spaces became inaccessible or unaffordable to the existing community, often lower-income communities of color. The purpose of reviewing the following literature is to assess different proposed and applied methods of waterfront redevelopment to identify ones that could be used in Delaware County, Pennsylvania. The review's additional purpose is to identify important shortcomings of previous projects to help avoid them in future projects.

The research reviewed here can be grouped into two main categories, the environmental and social implications of redevelopment, and the “What” and “How” of redevelopment.

4.2 Environmental and Social Implications

Environmental Implications

Susannah Bunce (2009) wrote about how to integrate sustainability into the urban planning process, specifically in waterfront development while being sensitive to the risk of gentrification. She highlights the connection between current sustainability policies and gentrification because many of these projects take place in middle-to-upper class neighborhoods and center profit maximization. She also stresses the difference between redevelopment and revitalization in the face of third-wave gentrification, which is centered around the globalization of real estate and connections between governments and the private sector. Governments have a responsibility to their citizens to make choices that benefit them and the municipality, which makes their decision making incredibly important. Bunce suggests using incentives to and positive externalities to draw in developers that can afford to invest in sustainable developments while also meeting the needs of the community. She also suggests using fewer but larger developers for the entirety of projects instead on a site-by-site basis to control the scale of development.

Social Implications

Airas and Hall (2019) discuss the social implications of waterfront redevelopment projects in suburban areas, specifically in Canada. They heavily critique both literature and completed planning projects of the past for their lack of consideration of historically marginalized communities. The transformation of these sites often has unintended impacts on minority communities, especially when it comes to public spaces. Many of these “public” spaces are often highly privatized and while greenspaces improve neighborhood health and appearances, they can lead to pricing out existing residents. Yocom et al (2016) propose a new policy framework, Human Well-being (HWB), to aid in the creation of policies specific to urban waterfront developments. They stress that while many previous frameworks focused on environmental and economic factors, many left out the human factors of revitalization projects. The framework aims to address healthy urban waterfronts as the intersection of human well-being, policy and prosperity, and physical and environmental prosperity. Structured into four tiers, the framework expands in detail as you move down through the attributes and indicators. They designed the framework to be broad and flexible to fit into all stages of development.

Avni and Fischler (2020) discuss how social and environmental justice intersect in waterfront redevelopment, specifically focused on D.C. and the Anacostia Waterfront Initiative. Green gentrification is a more recent but key factor to consider in the waterfront redevelopment process. Prime areas for waterfront redevelopment are often turned into inaccessible and unaffordable amenities that ignore the existing communities. The title of “greenspace” has become trendy in developments which drives up displacement of existing communities. Much like Airas and Hall, they discuss the lack of research and project objectives focused on the social justice implications of waterfront development. Avni and Teschner (2019) discuss conflicts in waterfront development due to a range of factors. Competition for water access and land ownership fragmentation makes cooperation on waterfront projects difficult. Heritage, identity, and culture often clash with the desire to modernize and market the waterfront.

In Camden, the construction of the Riverfront State Prison on the waterfront had unintended consequences. It became a symbol that Camden was being used as a dumping ground for New Jersey, rather than just a correctional facility for inmates (Morgia & Vicino, 2013). Unfortunately, this lack of investment in Camden's waterfront spread throughout the rest of the city and caused a systematic lack of economic development (Morgia & Vicino, 2013).

When designing a site on a waterfront, it is vital to factor in the distinctive characteristics that an urban waterfront brings, since not all activities are appropriate, as exemplified in Camden. Additionally, demographic considerations are critical, especially since the millennial generation has a major influence (Ehlenz et al., 2019). They tend to prefer walkable, urban areas with easy access to public transportation and less congestion (Ehlenz et al., 2019). To cultivate a thriving downtown waterfront, it is essential to attract pedestrians and thereby promote a safe and inviting ambiance (Robertson, 1995). Social and environmental justice implications are brought up in the discussion as well. Due to conflicts in ecology, environment, and resilience, it can be hard to meet the needs of the community while meeting the economic demands or goals of the municipality.

4.3 The “What” and “How” of Redevelopment

Development as a whole

Robertson (1995) discussed a range of downtown redevelopment strategies and recommendations. Pedestrianization helps attract people back to downtowns by giving pedestrians a greater sense of safety, a more positive image of downtown, and can boost the local economy. Transportation enhancement is important on its own, and when coupled with pedestrianization. Providing alternatives to cars allows for more accessibility and less need to take up space with parking. Indoor shopping centers within downtowns allow for the convenience of suburban shopping in a centralized location. Historic preservation gives downtowns the opportunity to keep the unique charm of historic architecture while giving new life to them. Waterfront development, where applicable, is a more challenging task due to land use competition and varying uses of waterfronts. Determining whether they want water-related, water-enhanced, or water-dependent uses is an important part of the process. Other strategies mentioned by Robertson were office development, special activity generators, entertainment, cultural attractions, housing, and hotels.

Ehlenz, Pfeiffer, and Pearthree (2020) discussed Millennial behaviors in the downtown environments of Houston and Phoenix. They found that downtown growth and development changes have been constant but arcing up and down over time. They also found that due to the differences in the preferred lifestyles of Millennials to previous generations, downtowns are changing in interesting ways, specifically in the types of housing being prioritized. The changes to downtowns threaten to price and size out other generations and family structures wishing to live in downtowns due to the prioritization of high-density micro-units. Lynch (1984) wrote a staple piece of planning literature with his book *Site Planning*, which details the site planning process from start to finish, describing it as non-linear, looping and cyclical. He frames it not as a question of “Should we site plan” but a question of “How should we site plan”. Chapters one and two define site planning, outline the process, objectives, and how to choose a site.

Waterfront specific redevelopment

As mentioned previously, many waterfront sites prime for redevelopment opportunities were once industrial sites, and many are brownfields. Fernandes et al (2018) discuss the implications of redeveloping brownfields in the face of climate change and sea level rise. Since waterfronts are in the flood zone, considerations must be made for how to mitigate long-term impacts and stormwater management. They address three approaches to brownfield regeneration including spatial planning, the systemization of planning tools, and carefully choosing an adaptation strategy that best suits the specific needs of the selected site. Klancnik and Brose (2010) discuss a waterfront redevelopment project on the Milwaukee lakefront.

They discuss the unique needs of development on the Great Lakes, specifically their position on Lake Michigan, in geography, geology, and climatology. The most important steps are proper site assessment, including bathymetric measurements, soil assessment, vegetation and species analyses, weather and climate history, and detailed coastal analyses. The specific project in Milwaukee included the reconfiguration of existing infrastructure, installation of breakwaters, pedestrian bridges, varying levels of waterfront use by boats and people, and creating a public-private partnership that centered environmental stewardship.

A thesis by Wang (2018) discusses how waterfront redevelopment projects often center urban greenspace, which is expensive, especially if the area is a brownfield. Since many of these projects feature private versus public investments, he suggests using a private-public partnership model. Mixed use development on waterfronts using a private-public partnership model would allow for environmental clean-up while boosting the economy and bettering the community. Private investments in public spaces can provide opportunities for higher quality infrastructure.

Galland and Hansen (2012) detail distinct roles of planning approaches and influences for waterfront development, which often differ case to case depending on local regulations and contexts. Four planning styles, public-investment planning, regulative planning, trend planning, and leverage planning, were discussed alongside examples. They propose a future need for hybrid approaches to better address the complex needs of waterfront redevelopment. In a less geographic-specific piece, Goodwin (1999) discusses state-level policies and tools for coastal development and their effectiveness, specifically regarding the Coastal Zone Management Act of 1972. He created a framework to assess the effectiveness of the act on a state-by-state basis through the relative contributions of projects based on their outcomes.

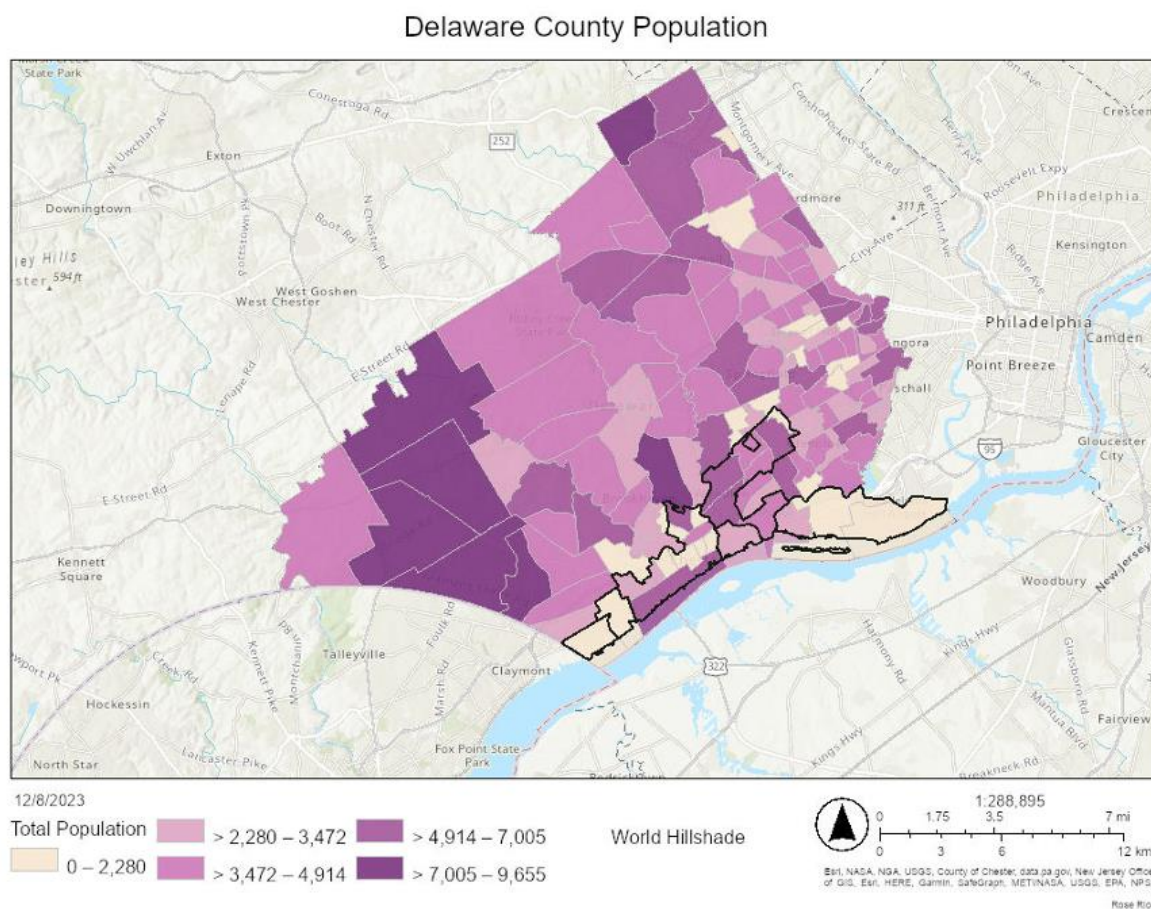
4.4 Literature Review Conclusions

There is a major focus on the how and what of waterfront redevelopment and revitalizations, and openings for research and development of strategies that center both social and environmental justice. There is a fine line in these projects between creating spaces that the public both want to and can use, spaces that boost the economy, spaces that are resilient to the changing environment without disrupting the existing environment, and spaces that do not clash with the visions for the community. Many existing frameworks and policies center on the environment and economic implications of a redevelopment plan, while ignoring the social implications. This lack of connectivity between frameworks for plans and policymakers had led to disconnected visions, and unintended impacts of completed plans such as green gentrification and displacement. The upcoming plan for Delaware County should be sure to account for these past failures to help avoid them. Transforming an urban waterfront into a vibrant community can be quite a feat, but it is certainly achievable. Extensive research and noteworthy success stories have demonstrated that the best strategies prioritize the needs of pedestrians and the local community, while also preserving the city's unique history. When approached thoughtfully, thriving waterfront communities that benefit all can be brought to life.

5. Community Background

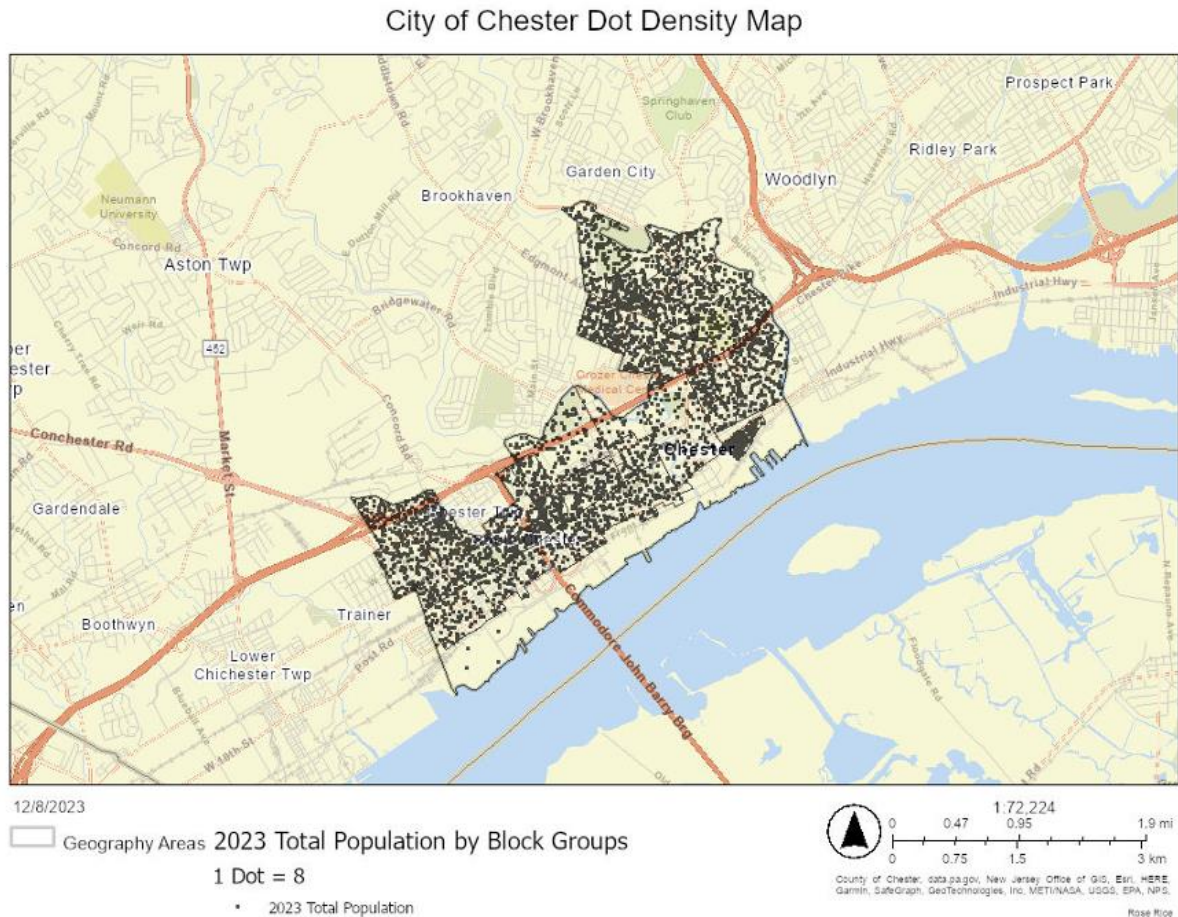
5.1 Demographics

For this proposal, we started by looking at all the municipalities along the waterfront. Those municipalities include Marcus Hook Borough, Trainer Borough, The City of Chester, Eddystone Borough, Ridley Township, and Tinicum Township. They have a total population of 74,576, as seen in Map 1 (Council on Environmental Justice, 2022).



Map 1: Population by Census Block (Council on Environmental Justice, 2022)

Looking specifically at City of Chester in Map 2, where we focused our site proposal, it has a population of 32,535, with the waterfront being the least populated area, due to it being mostly industrial zoning (ESRI, 2023).



Map 2: Population of City of Chester (ESRI, 2023)

The City of Chester's population is far more diverse than Delaware County and Pennsylvania. 84.8% of The City of Chester's population identifies as non-white, while only 36.25% of Delaware County and 33.35% of Pennsylvania do (US Census, 2020). This is seen in Figure 1, which shows how Chester's non-white population percentage is almost double that of Delaware County and Pennsylvania. Chester's population is also younger than Delaware County, as seen in Figure 2. This figure displays the population pyramid for The City of Chester, with the white line representing Delaware County. It shows how Chester's largest age group is 20-24 while Delaware County's is 65-69 (ESRI, 2023).

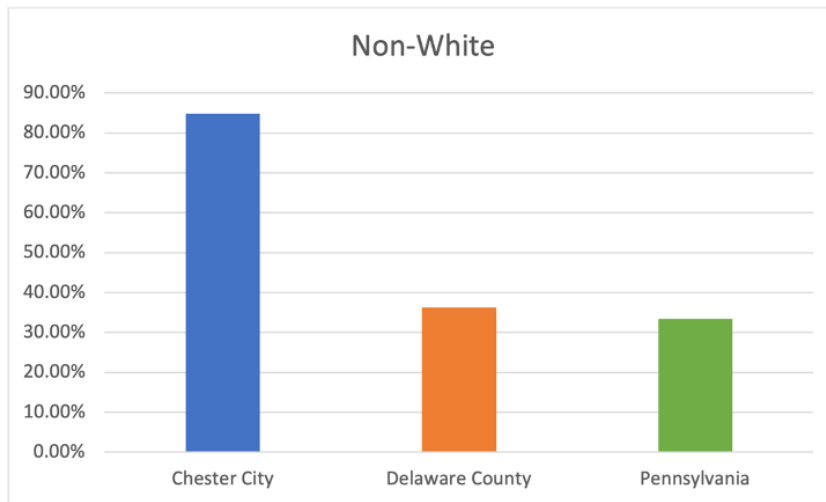


Figure 1: Non-White Population by Percentage (U.S. Census, 2020).

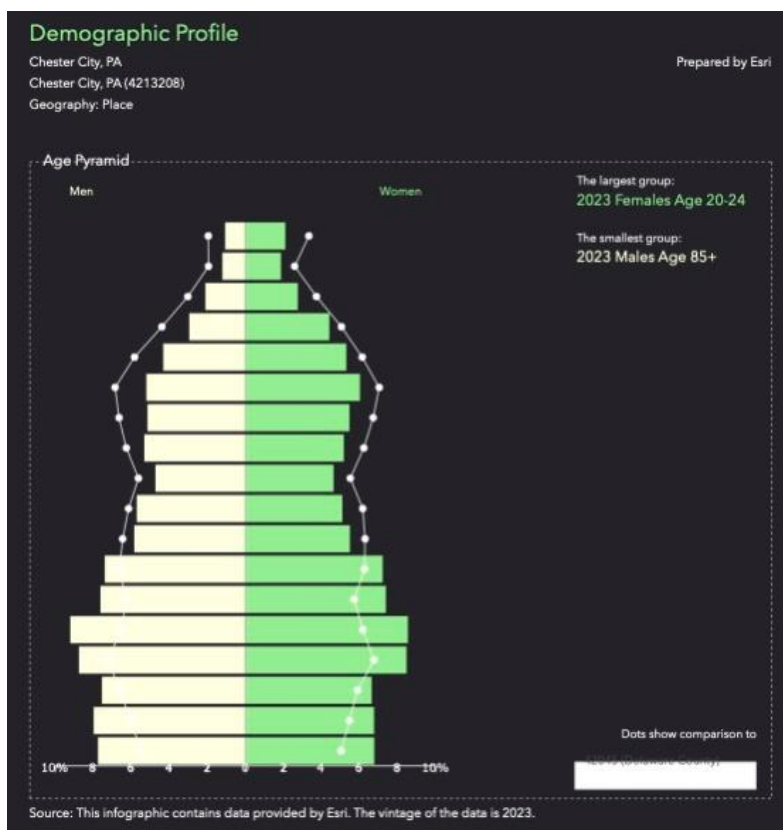
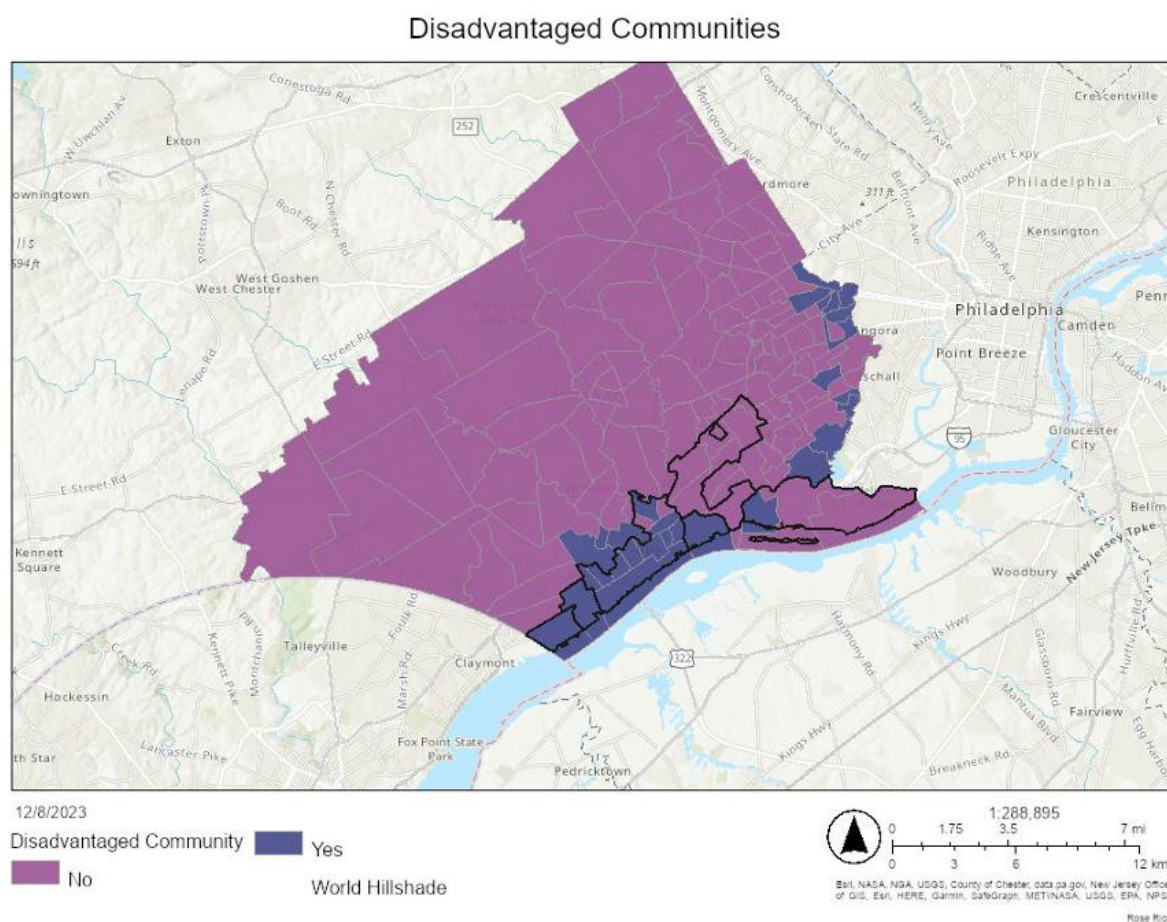


Figure 2: Population Pyramid for City of Chester (ESRI, 2023)

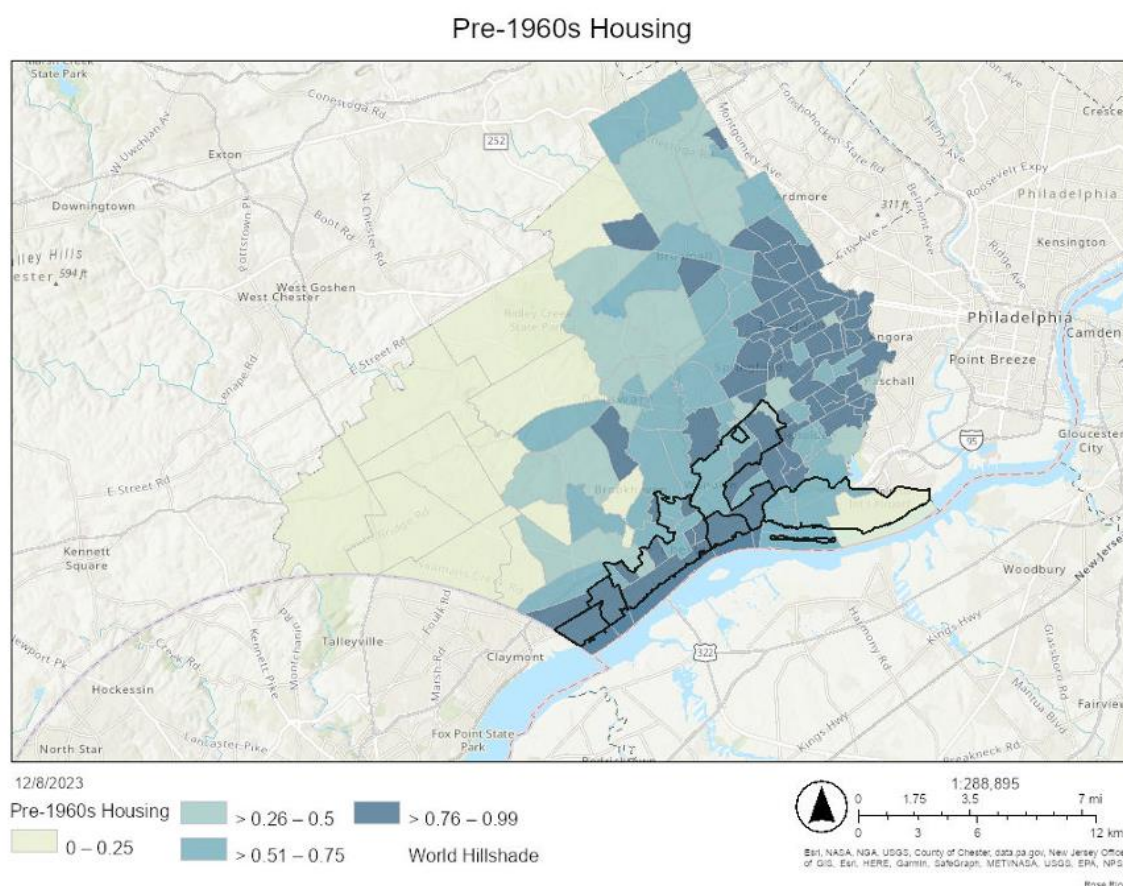
Looking back at the waterfront, many of the municipalities along the waterfront face serious challenges. The Council on Environmental Quality has created a climate and economic justice screen tool, which uses a variety of data points from both the Census and the American Community Survey. These data points are compared across the United States and each census block is put in a percentile compared to the rest of the census blocks across the nation. Analyzing all these together, they have determined if a census block is considered a disadvantaged community or not based on these factors. They defined disadvantaged communities as those that “experience burdens” (Council on Environmental Justice, 2022).

Looking at Map 3, the climate and economic justice screening tool has identified at least one census tract in five of the six municipalities as being disadvantaged (Council on Environmental Justice, 2022). All of Marcus Hook and Trainer are labeled as disadvantaged while ten of the twelve census block groups in City of Chester are identified as disadvantaged. Tinicum has one census block while Ridley Township has none. When comparing these waterfront communities to the rest of Delaware County, most of Delaware County is not disadvantaged.

Map 3: Disadvantaged Communities by Census Block Group (Council on Environmental Justice, 2022).



Going deeper into what data points this screening tool uses, Map 4 shows the breakdown of pre-1960s housing. Compared to the rest of the country, the waterfront municipalities are mostly in the top quarter percentile of communities that have housing that was built before 1960 (Council on Environmental Justice, 2022). This means these homes are more likely to have lead paint, need more repairs and maintenance, and are likely to be less energy efficient (Orentas, 2023).



Map 4: Pre-1960s Housing (Council on Environmental Justice, 2022).

Another factor used in this screening tool is looking at the poverty rate. Map 5 shows where each census block ended up when looking at the percentage of residents living at 200% of the federal poverty level, which is \$29,160 a year for a one-person household (Council on Environmental Justice, 2022; HHS, 2023). Most of the census blocks along the waterfront are in the top percentile. When looking at the federal poverty level, which is \$14,580 a year for one person, 28.5% of The City of Chester's population lives at or below the poverty rate, which is much higher than Delaware County at 9.7% and Pennsylvania at 11.8% (U.S. Census, 2020).

Map 5: Poverty by Census Group (Council on Environmental Justice, 2022).

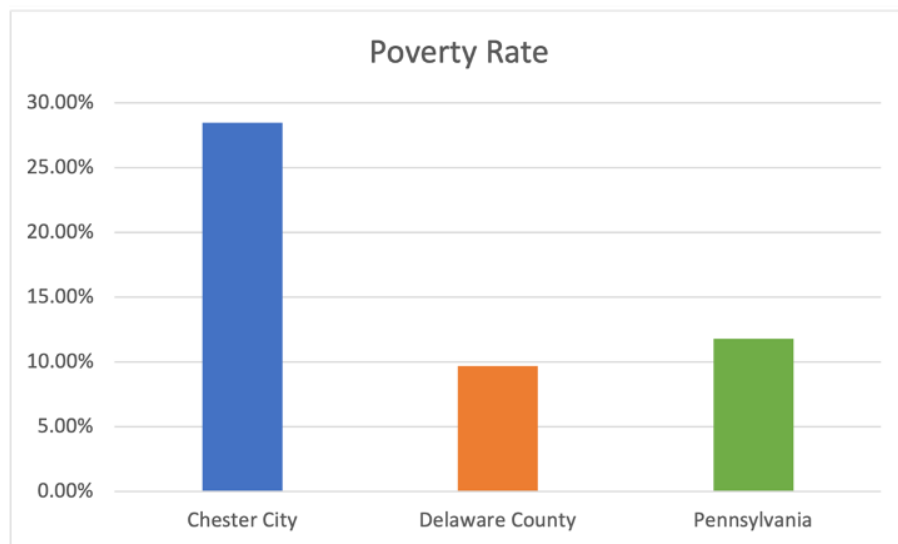
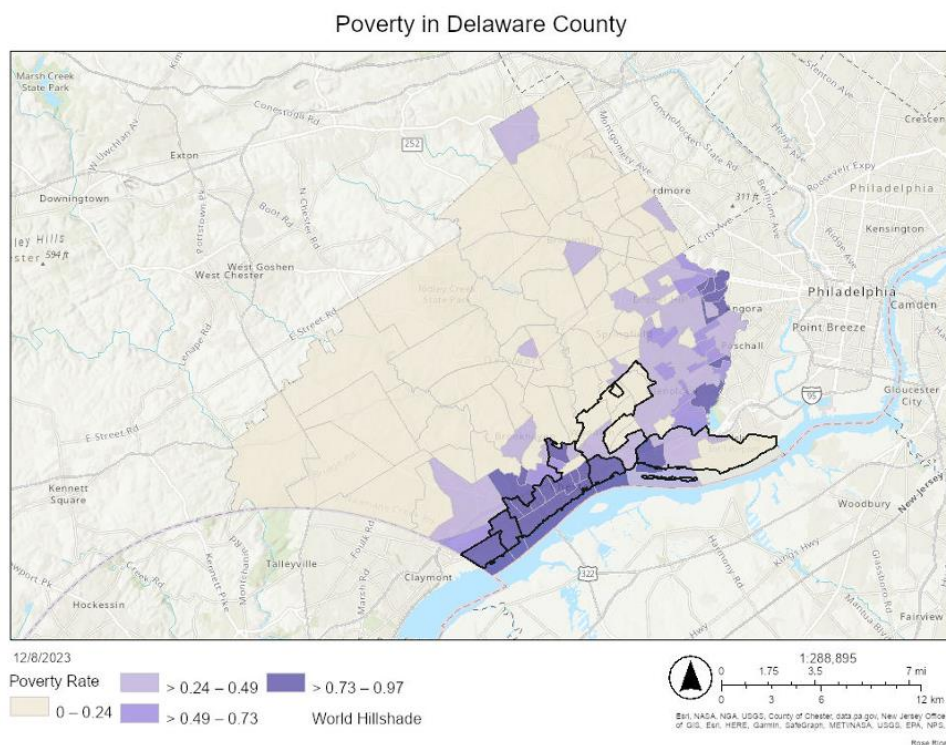


Figure 3: Poverty Rate (U.S. Census, 2020).

When looking at The City of Chester's median income, this is not surprising. As seen in Map 6, most of the census blocks in City of Chester have a medium income between \$34k and \$37k (ESRI, 2023). This is in stark contrast to Delaware County and Pennsylvania, as seen in Figure 4 (US Census, 2020). On average, a household in Chester has almost a third of the income that a household in Delaware County does.

Map 6: Median Household Income in City of Chester (ESRI, 2023).

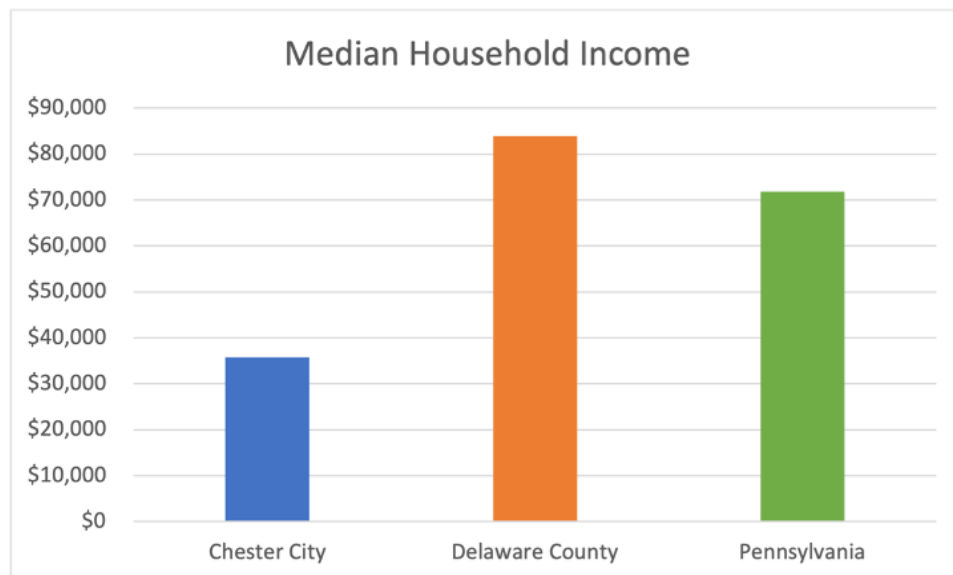
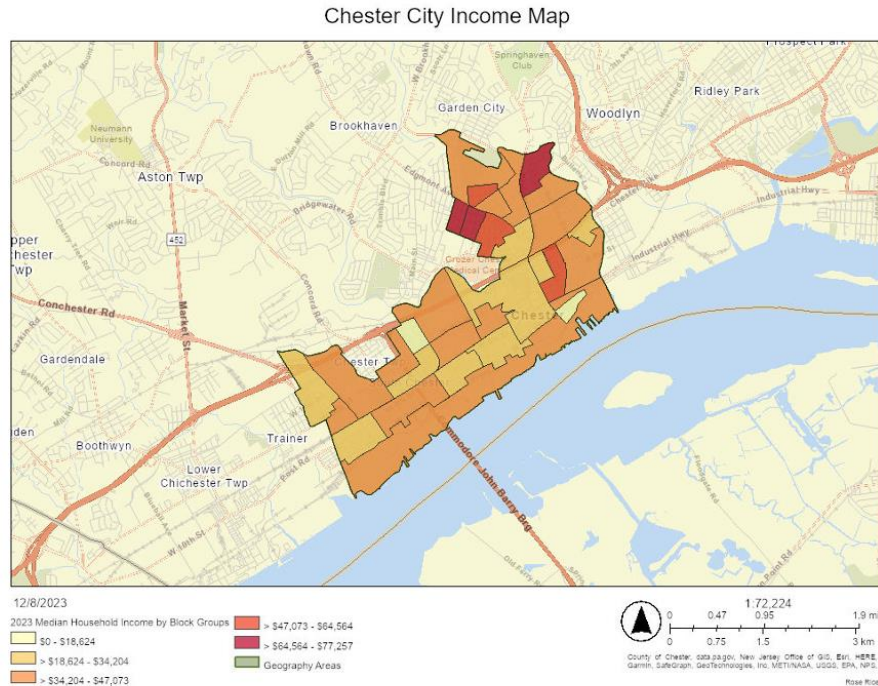
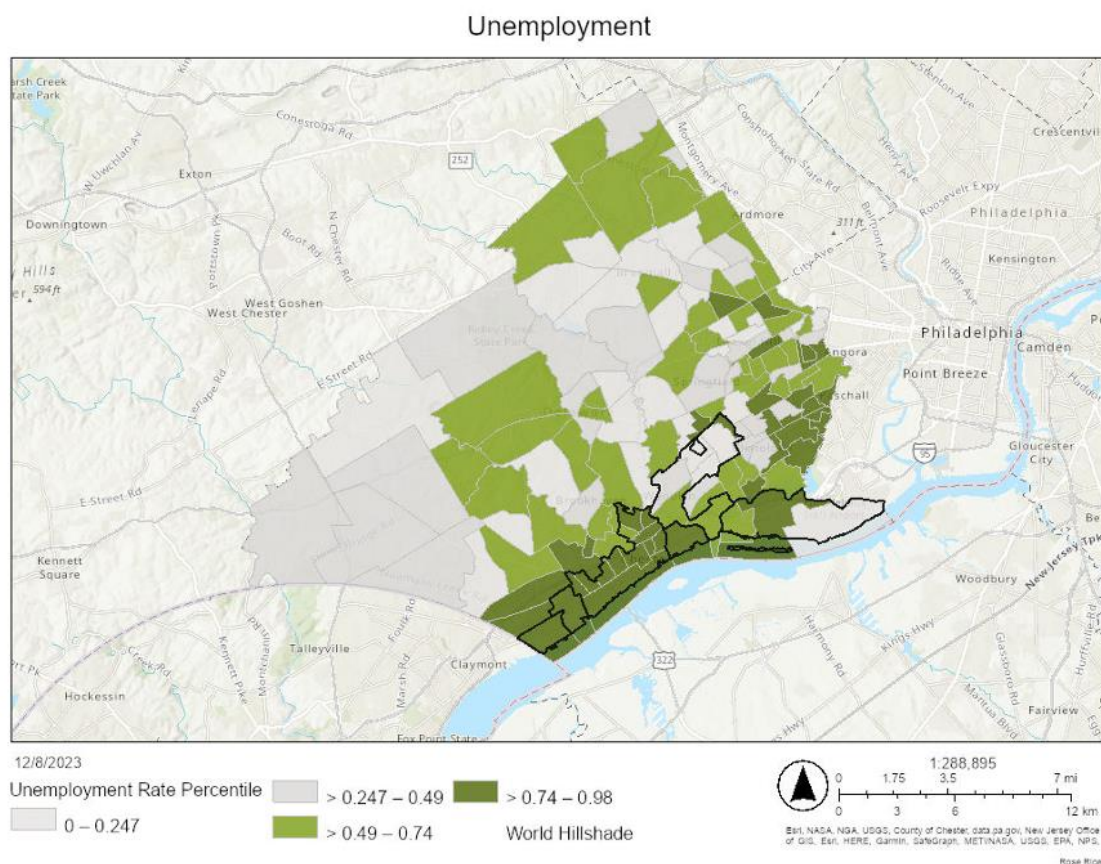


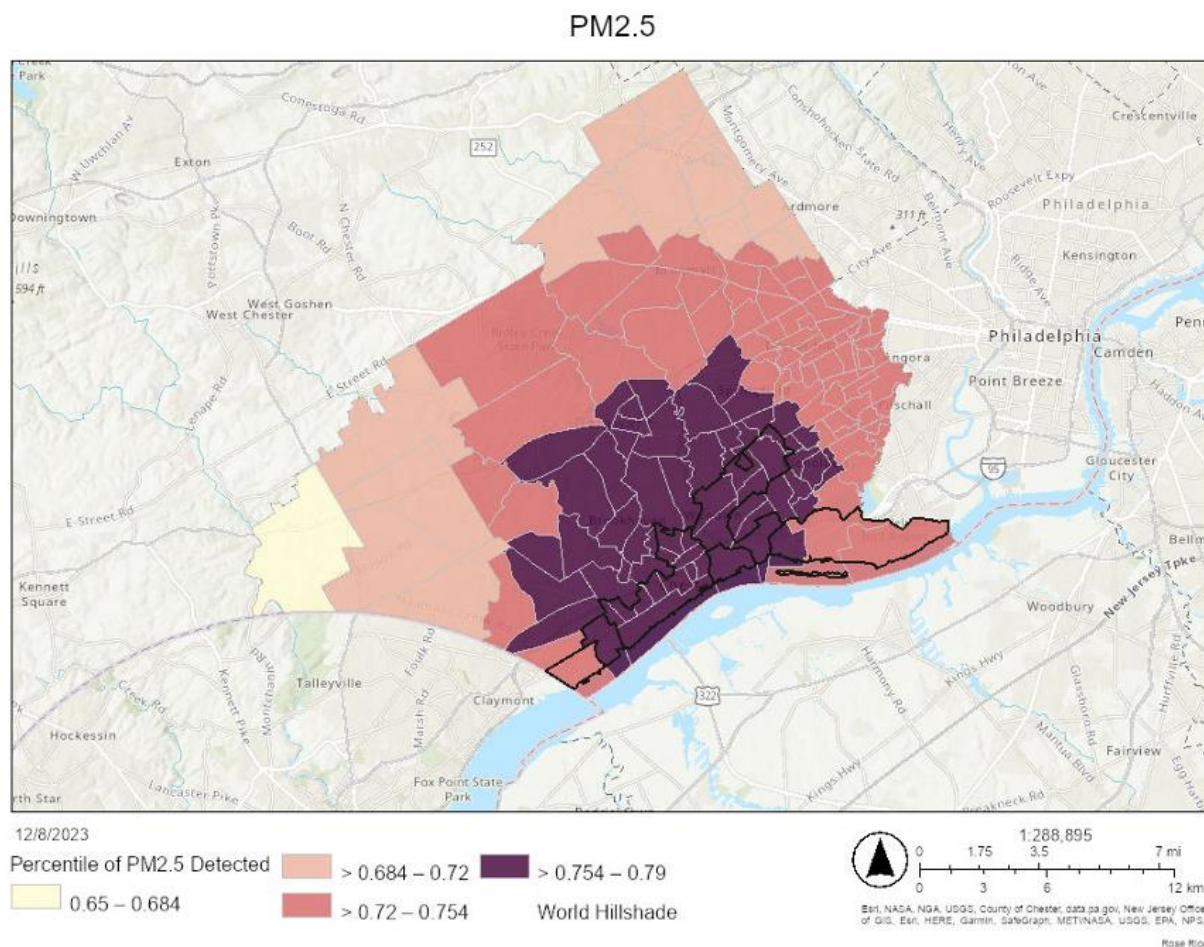
Figure 4: Median Household Income (U.S. Census, 2020)

Considering the waterfront, the same trend exists with unemployment rates as seen in Map 7 (Council on Environmental Justice, 2022). All of Marcus Hook, Trainer, Eddystone, and the City of Chester are in the top percentile of unemployment rates by population.



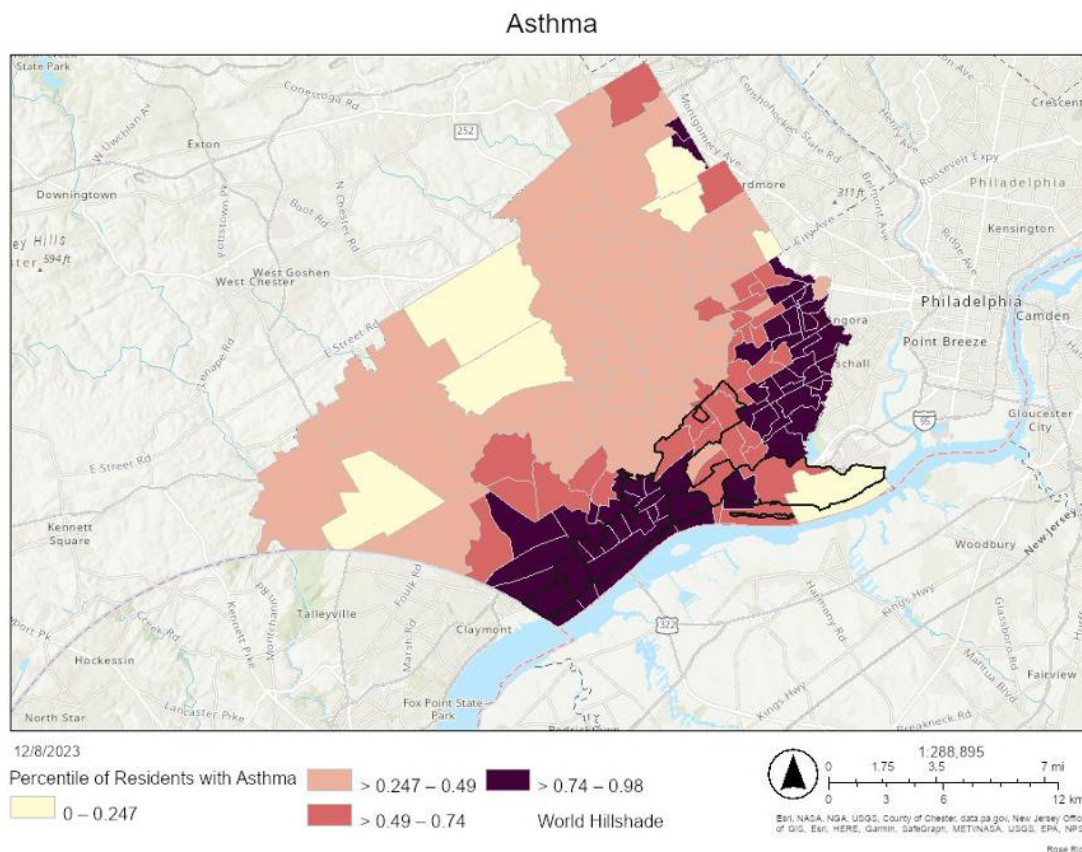
Map 7: Unemployment Rate by Census Block Group (Council on Environmental Justice, 2022).

Another factor that the screening tool considers is the environment around these communities. One of the data points they consider is the amount of Particulate Matter 2.5 detected in the air. Particulate Matter 2.5 is the most dangerous type of particle pollution because it is a fine inhalable size, measuring 2.5 micrometers in diameter (EPA, 2023). Their size makes them dangerous to an individual's health because they can get deep into the lungs and even enter the bloodstream (CDC, 2023). The CDC has linked particle pollution to heart disease, asthma, lung cancer, and low birth weight. Looking at Map 8, it shows that most of the waterfront communities, and those surrounding them, are in the top percentage of PM 2.5 detected across the nation. This is due to the industrialized nature of the waterfront, which is a main source of particulate pollution (EPA, 2023).



Map 8: PM 2.5 Detected (Council on Environmental Justice, 2022).

When looking at Map 9, which shows the percentile of rates of asthma, there is an inequity (Council on Environmental Justice, 2022). Most of the waterfront communities have high rates of asthma among their populations but the same communities next to them that have the same amounts of PM2.5 in the air do not see those types of rates.



Map 9: Asthma Rates by Percentile (Council on Environmental Justice, 2022)

While there are many factors for developing asthma, such as genetics or illness, it is also possible to develop due to being exposed to irritants (NIH, 2022). The National Institute of Health recommends keeping your home free of dampness and mold, avoiding air pollution, and maintaining a healthy weight to avoid developing asthma (NIH, 2022). These types of preventative measures cost money, such as buying HEPA filters for an HVAC system. Considering the disparity in income along the waterfront, it then comes as no surprise that these communities do not have the necessary resources to prevent asthma while other more affluent communities do.

The demographic analysis reveals a diverse and younger population in City of Chester compared to Delaware County and Pennsylvania, emphasizing the socioeconomic disparities within the waterfront municipalities. The Council on Environmental Quality's climate and economic justice screening tool identifies significant issues, including a high concentration of disadvantaged communities, pre-1960s housing, and elevated poverty rates.

The income disparity is evident in The City of Chester's median income, which is lower than that of Delaware County. Unemployment rates also reflect economic challenges, with waterfront communities consistently ranking in the top percentile. Environmental factors, such as elevated levels of Particulate Matter 2.5, pose health risks, particularly concerning asthma rates in the affected populations.

The inequities in health outcomes underscore the need for targeted interventions and community development initiatives. Addressing issues such as housing conditions, poverty, and environmental pollution requires a holistic approach that considers both social and economic factors. As efforts are made to revitalize waterfront communities, it is essential to prioritize community well-being, environmental justice, and sustainable development to create a more equitable and resilient future for all residents.

5.2 Comprehensive & Local Plans

There are a variety of plans from the county, city, and other organizations that talk about the different initiatives, goals, and objectives for The City of Chester. The County's comprehensive plan is broken into different topics, such as land use, open space, transportation, and housing. The first of these is their land use plan, which was created in 2013. This plan identifies the county's land use goal as "to preserve and enhance the existing diversity mix of land uses and provide for orderly and coordinated development that sustains a high quality of life" (Delaware County, 2013). For the county to look at what each municipality needed, they created character areas, which define areas with similar characteristics and patterns. The four they created are mature neighborhoods, growing suburbs, greenways, and open spaces.

City of Chester was labeled by the county as a mature neighborhood, which they define as an established and realized community with most of the population and employment growth built out, as well as built-out infrastructure (Delaware County, 2013). While some of these types of neighborhoods are flourishing communities with strong community identities and a strong housing market, others experience population loss and have a deteriorating infrastructure system. This is the case for The City of Chester, which saw a population decrease of 26% from 1980 to 2010 (Delaware County, 2015).

In their land use plan, the county states that the objective for mature neighborhoods is to encourage compatible land use, redevelopment, and revitalization which will stabilize and enhance the character of the community (Delaware County, 2013). Some actions that they identify are the use of smart growth principles, multi-municipal planning, and redeveloping vacant lots. Smart Growth is a strategy to development and conservation that strives to protect a community's health, the natural environment, and make a community attractive, socially diverse, and ready for climate change with a strong economy (EPA, year). There are ten basic principles that include mixed land uses, compact building design, creating walkable neighborhoods, preserving open space, and providing a variety of transportation choices (EPA, year).

Another part of Delaware County's comprehensive plan is the three volumes dedicated to open space, greenways, and parks. In the first volume, titled Open Space, the county labels City of Chester as an urbanized center (Delaware County, 2015). An urbanized center is a "medium to large scale community consisting of a multiple street central business district surrounded by mature

residential neighborhoods” (Delaware County, 2015) This volume also notes that infill development is expected to be a large trend in the City of Chester area. There is, however, some open space in The City of Chester, including both active recreational and non-recreational open space. In total, there are 180.7 acres of active recreation space and 5.6 acres of non-recreational open space.

The second volume of this three-volume plan discusses trails and is titled “Countywide Greenway Plan.” The plan notes that the Chester Creek Trail could be connected to Chester near the City of Chester Crozer Park development, and that part of the proposed East Coast Greenway is also in City of Chester (Delaware County, 2015). The last volume covers county-owned parks and is titled “Parks and Recreation Plan.” There is only one small parcel located south of Kerlin and Front Street that has no road access on its own in City of Chester (Delaware County, 2015).

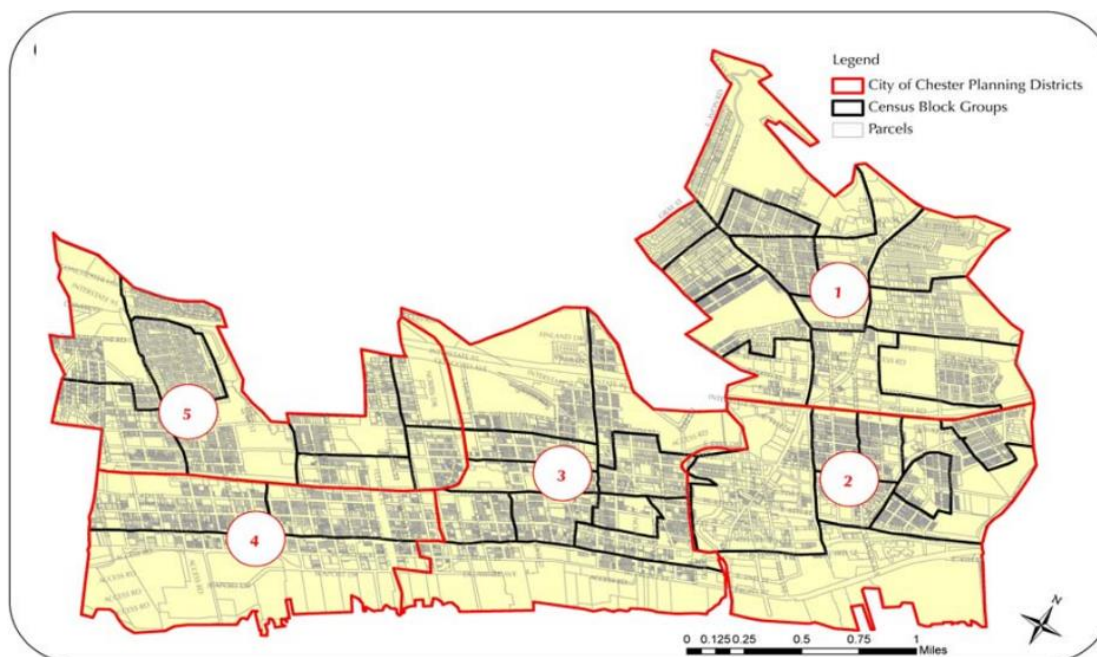
Delaware County also has an economic development plan, transportation plan, housing plan, and historic preservation plan. Their housing plan, created in 2020, mentions the important public housing authority that serves the residents of The City of Chester, the City of Chester Housing Authority (CHA). Operating exclusively within the City of Chester, the CHA operates 1600 housing choice vouchers and has a weighted list of over 600 households that have been closed since 2014 (Delaware County, 2020). Additionally, the plan mentions the vital role the Chester Economic Development Authority has in The City of Chester, as their goal is to improve distressed neighborhoods and build a stronger base of homeownership since most occupants rent in The City of Chester.

Their transportation plan, created in 2017, highlights the accessibility of The City of Chester. Home to the Chester Transportation Center, run by SEPTA, City of Chester includes a section of I-95, Route 322, and the Commodore Barry Bridge (Delaware County, 2017). There has been talk of adding an Amtrak stop in Eddystone, but the county identifies that it would be a better fit in The City of Chester. Finally, the plan notes that City of Chester households do not have easy access to a vehicle. 34% of households do not have a vehicle, while 44.9% only have one vehicle.

Finally, the last part of Delaware County’s comprehensive plan is the historic preservation plan, created in 2018. This focuses on the history of City of Chester and the important architecture and sites that exist, such as the William Penn Landing site. Additionally, they highlight how City of Chester is an older town, built in 1724, and has examples of Georgian buildings throughout (Delaware County, 2018).

Looking at more local plans, City of Chester created its Vision 2020 plan in 2012. The City of Chester's Vision 2020 serves as a guiding framework, addressing contemporary urban challenges and fostering sustainable growth (The City of Chester, 2012). The purpose of the plan is to focus on current trends and issues while addressing them with innovative solutions. Additionally, the goal is that the plan will assist state, county, and municipal officials in their decision-making processes.

One of the things this plan does is divide City of Chester into five planning districts, as shown in Map 10. While the planning districts’ boundaries do not always follow the exact boundaries of neighborhoods, they relate to Census Block Groups (The City of Chester, 2012). Their creation allowed for a structured analysis and specific recommendations from the plan.



Map 10: Map of City of Chester Planning District, The City of Chester, 2012

This plan also highlights the unique transportation City of Chester residents benefit from, like the county's transportation plan. There is immediate access to I-95 as well as close access to I-476. Additionally, 291, 352, and 320 are all accessible to residents living in City of Chester (The City of Chester, 2012). There is also near New Jersey with the Commodore Barry Bridge as well as convenient access to air travel due to Philadelphia International Airport being only seven miles to the northeast.

The goals and strategies of this plan are split into six categories with corresponding strategies throughout the Vision 2020 plan (The City of Chester, 2012). For land use and economic development, the goal is to improve land use compatibility and strengthen economic competitiveness. The strategies to achieve this goal include developing, fostering, and promoting local talent to attract enterprises, industry, construction, and services. Another strategy is to stabilize, strengthen, revitalize, and promote the city's neighborhoods by encouraging vibrancy mixed-use development, maximizing housing choices, and encouraging land recycling, and redevelopment, and updating development standards. Finally, they identify another action item as investing in aesthetic improvements to public spaces.

For natural systems and sustainability, the goal is to build a healthy and unsustainable community that protects, improves, and promotes its natural systems and resources and is resilient to changes in the climate and economy (The City of Chester, 2012). The strategies to achieve this include promoting interaction with greenways and waterfronts to improve the health and well-being of residents, increasing public awareness of Chester's natural resources, and promoting sustainability practices to engage residents. Finally, they identify encouraging responsible land use and economic development to foster a healthier community.

Their goal for infrastructure in City of Chester is to improve transportation safety, efficiency, convenience, and reliability to sustain quality of life and strengthen economic competitiveness (The City of Chester, 2012). The two action items they identified to meet this goal are maximizing

access to and use of the transit and rail systems and encouraging appropriate land uses, density, and site designs to reduce car dependency and encourage other forms of transportation. For cultural resources, their goal is to protect, restore, and celebrate cultural resources to enhance revitalization and maintain community character. The one strategy defined in this plan is to protect, restore, and promote Chester's historic buildings, art, and culture.

Looking at their neighborhoods, the city of Chester defines its goal here as building and supporting strong neighborhoods that provide exceptional housing, and community facilities, while instilling a sense of identity and community (The City of Chester, 2012). To reach this goal, they believe they need to provide new housing choices, encourage homeownership, and promote the preservation of existing housing stock through homeowner education, maintenance, and improvement programs. They also include the strategy of bringing public and private resources together to support and maintain neighborhood facilities, amenities, and activities.

Finally, their future land use goal is to revitalize the community and take advantage of the city waterfront as well as the location of the Philadelphia Union stadium, in conjunction with the number of abandoned lots (The City of Chester, 2012). Their main target is to create an area called Rivertown, which includes the area from Highland Avenue to the Commodore Barry Bridge. This area currently includes the historic Wharf building, which is being used for offices, and the Union stadium.

For the city to accomplish the future land use goal, they must amend zoning ordinances (The City of Chester, 2020). They need to clear neighborhood zoning and design standards to encourage walkability, such as creating a build-to-line, relocating parking to the rear, or unifying sidewalk appearances. They also need to create mixed-use districts with design standards as well as standards for infill development that ensure minimal environmental impacts.

In addition to this plan, City of Chester also created a plan called "Resilience Through Recreation" which they created in 2018. This is the City of Chester's plan to revitalize its public parks and recreation system to connect the community and improve health (The City of Chester, 2018). They can do this by improving existing parks and recreational facilities while also creating new ones. In this plan, Chester identified 6 parks to focus on: Chester, Memorial, Mitchell, Eyre, Deshong, and Sun Village parks. A community survey they did within this plan found that residents want safer and cleaner parks. Memorial Park is a clear favorite as it has a pool while Sun Village is considered the most dangerous. Other improvements in this plan include adding splash pads, football fields, basketball courts, tracks, pavilions, and stages.

Two other plans were created by outside organizations looking at the Delaware River. The William Penn Foundation funded the creation of the Delaware River Watershed Initiative. The William Penn Foundation is an NGO designated to improve the quality of life in the Philadelphia area. In 2014, they launched the Delaware River Watershed Initiative (DRWI) with an endowment of 100 million dollars and worked with 50 other organizations (William Penn Foundation, 2014).

The Delaware River watershed covers 13,500 square miles across New York, New Jersey, Delaware, and Pennsylvania (William Penn Foundation, 2014). Due to heavy industrialization and urbanization of the 20th century, large amounts of pollution found their way into the Delaware River. This significantly impacted the health of residents as well as the health of the ecosystem. By working with stakeholders, this initiative focuses on eight clusters of small sub-watersheds to

make a larger impact on the river. The plan describes how the best way to help filter pollution is by adding trees and restoring these watersheds.

The other plan is called “A River Reconnected.” This study was conducted by the Delaware Valley Regional Planning Commission or DVRPC. Their study noted that the industrialization and construction of ports and terminals severed the various connections along the Delaware River (DVRPC, 2021). This cut off not only communities from one another but the environment as well. With the rising threat of climate change, the DVRPC has come up with several strategies to reconnect the community with its ecosystem and the Delaware River Estuary.

Those strategies include supporting healthy communities by cleaning the river and giving access to healthy drinking water and clean water for recreation (DVRPC, 2021). It also means adding well-designed public access sites to increase community cohesion. Another is to connect to the environment by creating green spaces and protecting natural habitats. It will allow residents to study, enjoy, and connect with nature from the birds that make the banks of the river their home to the unique tree and plant life that grows alongside them.

DVRPC also lists another goal as enabling economic development (DVRPC, 2021). This can be done by investing in reducing stormwater and pollution. Increasing public health has seen not only improvements to the community but a return on investments with businesses, companies, and public institutions moving in and investing their own money. Finally, DVRPC also notes that access creates more access. This refers to how public access can come in a few ways, both from the community and the municipality. The municipality can create more access by not only building trails and bike paths but also by allowing residents and stakeholders to be active participants in the democratic process of planning.

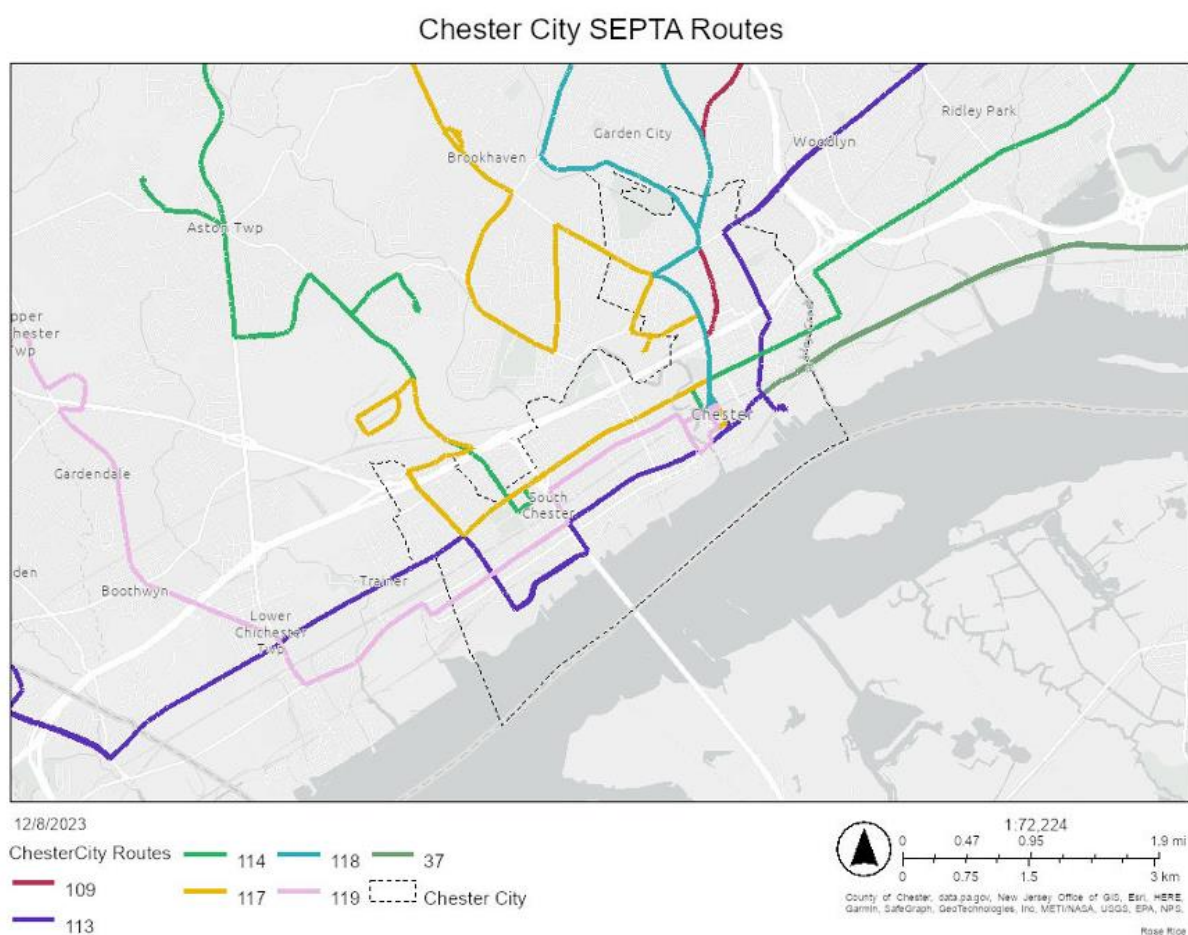
Overall, all these plans’ identity themes for The City of Chester. As an older neighborhood, it has a shrinking population with lots of vacant lots throughout the city. However, its accessibility by transit is an asset that can and should be utilized to help the city grow, in addition to its proximity to the water. Some important goals identified across all the plans include revitalizing and reinvesting in green space and parks across the city, making the city more walkable to promote less car dependency, and utilizing its unique position on the waterfront to create fun recreational opportunities for residents such as splash pads and stages.

6. Current State of Community

6.1 Infrastructure

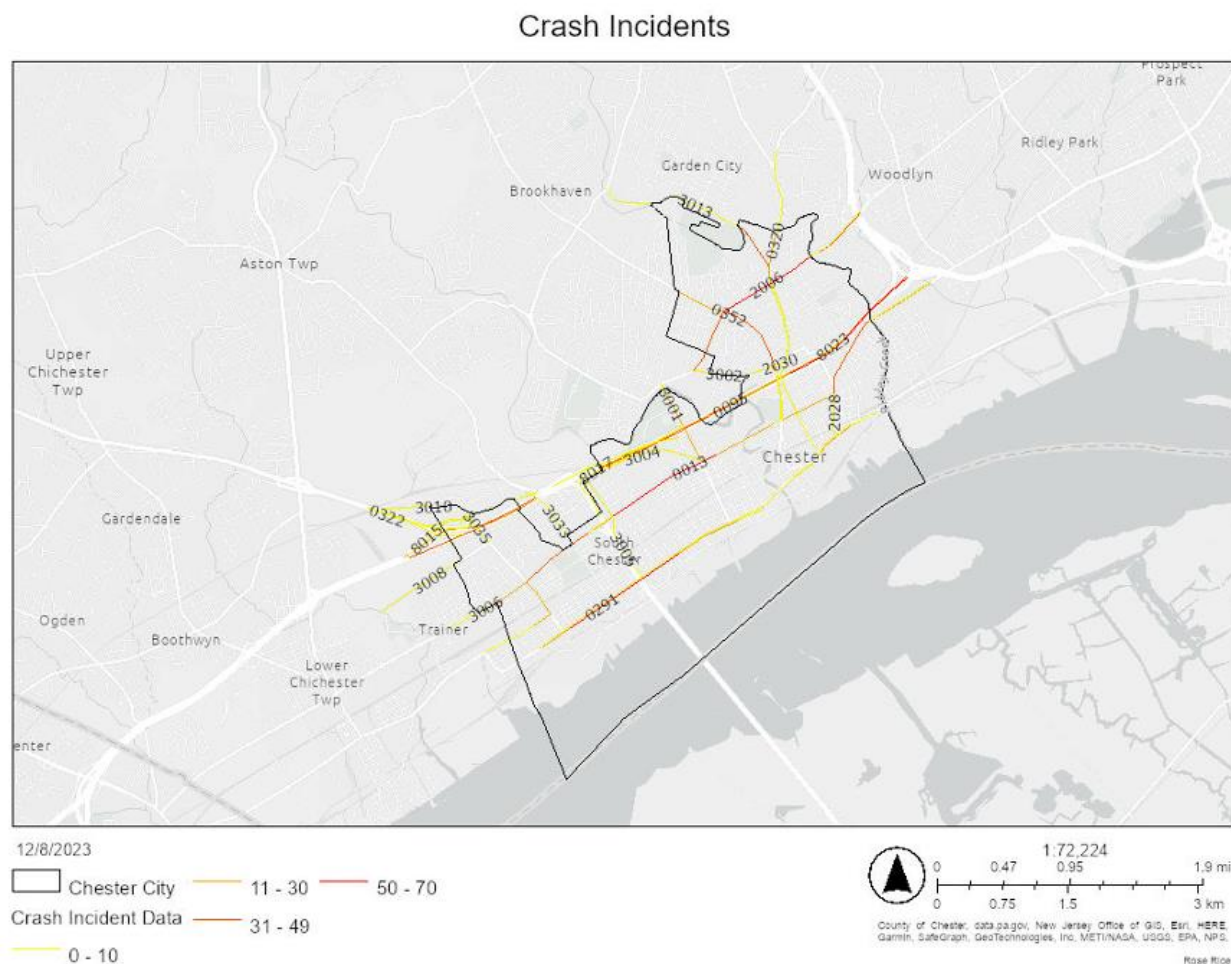
As discussed in the comprehensive and local plans section, City of Chester has a wide variety of infrastructure, including public transit and major roadways. Seven SEPTA bus routes run through The City of Chester, as seen in Map 11 (DVRPC, 2023). These routes travel to various places, including Broomall, Upper Darby, Philadelphia, and Thornbury Township. However, there is not a SEPTA regional rail stop in The City of Chester. There is one in Marcus Hook and Ridley Township, which residents would need to access by bus or car.

Map 11: City of Chester SEPTA Routes (DVRPC, 2023)



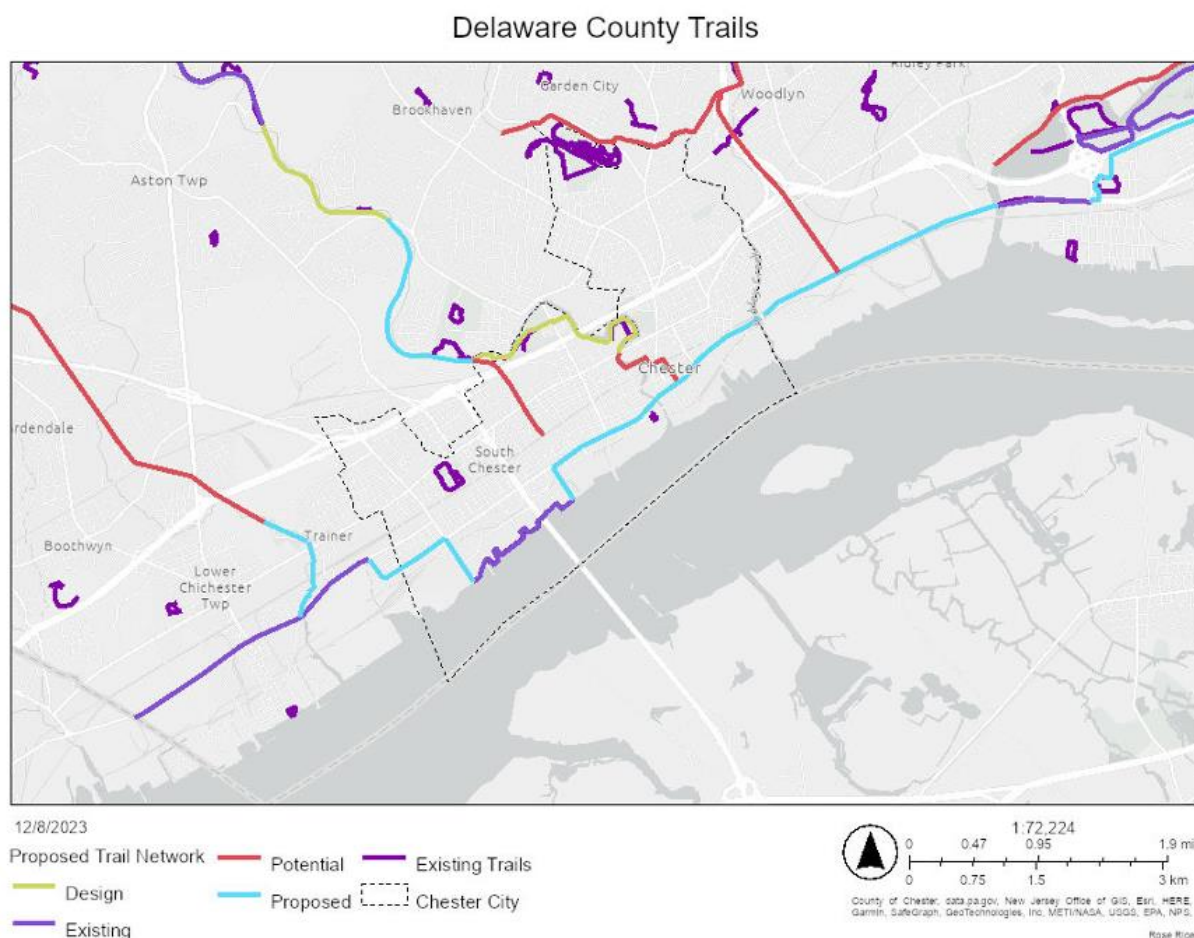
Multiple major roadways run through The City of Chester, such as I-95, 291, and 352. However, as seen in Map 12, these roads see a large amount of crash incidents that result in injuries (PennDOT, 2022). Along the section of 291 near 322, there are between 50 and 70 injuries that happened in 2022 due to car accidents, according to the Pennsylvania Department of Transportation. This is also true for large sections of Route 13 and I-95.

Map 12: 2022 Crash Incidents (PennDOT, 2022)



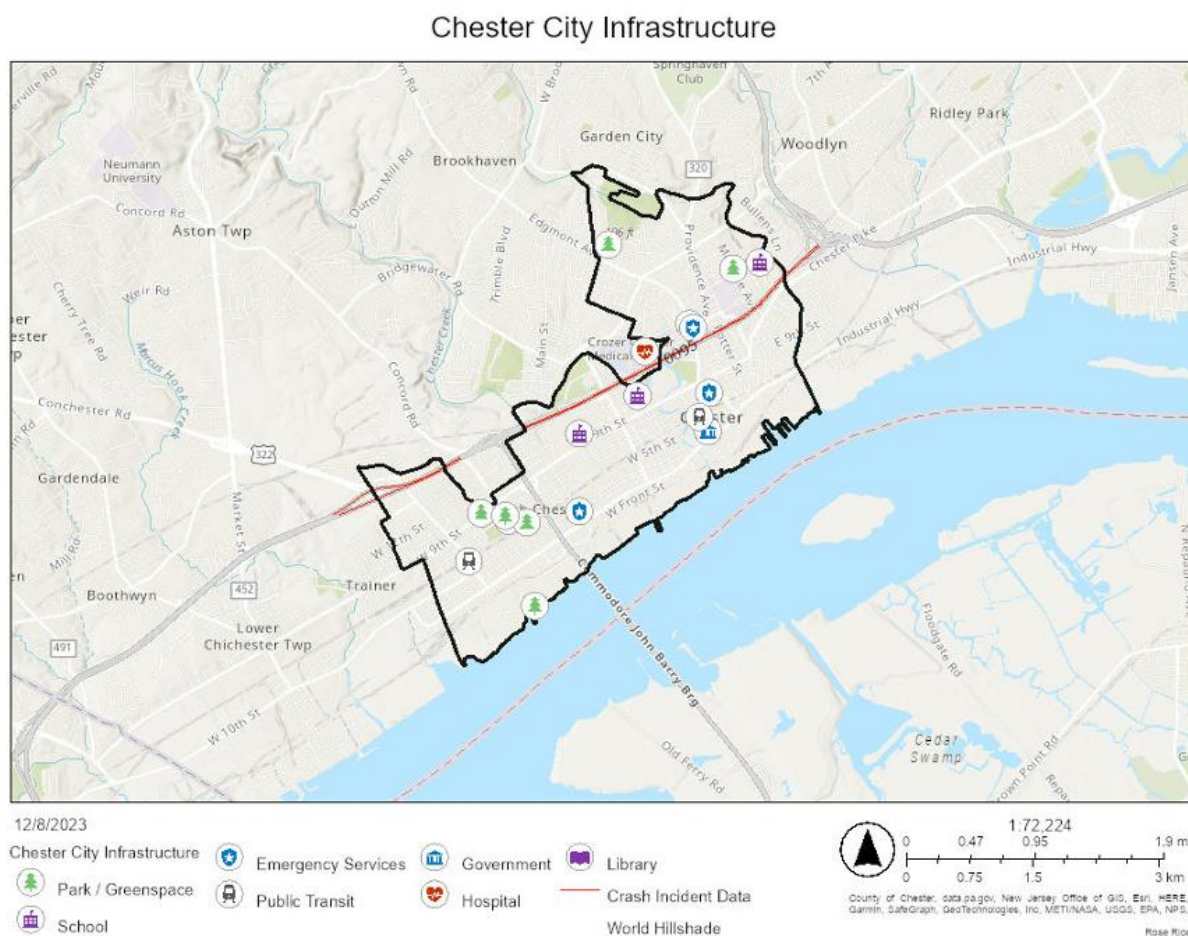
Another transportation option is cycling or walking, which can be enhanced by a trail network. Delaware County has a circuit trail network that is not yet complete. A large section of the proposed trail is within The City of Chester, as seen in Map 12 (Delaware County Planning Department, 2023). While there are sections of the trail existing near the Wharf Building and Union stadium, most of it is not yet realized. There are smaller walking trails located within parks in The City of Chester, but they are isolated and not connected (Delaware County Planning Department, 2023).

Map 13: Proposed Circuit Trails (Delaware County Planning Department, 2023).



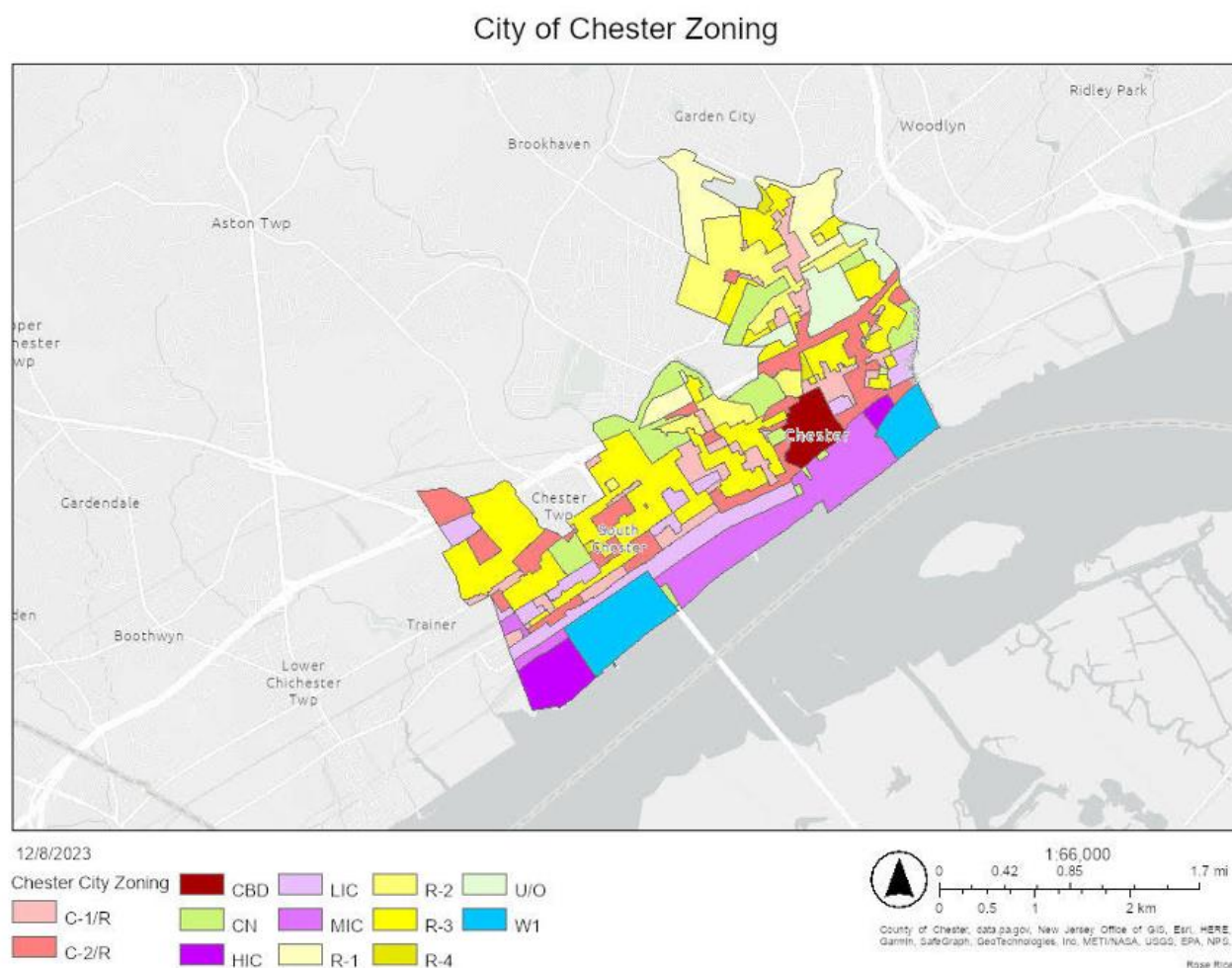
The City of Chester's other public infrastructure includes multiple parks, two police stations, two transit hubs, and multiple public schools, as seen in Map 14. While not in The City of Chester, there is a large medical complex and hospital located just outside of City of Chester called the Chester Crozer Medical Hospital. Unfortunately, Crozer Chester has been impacted by the poor financial choices of Prospect Medical Holdings, the for-profit California-based company that bought the Crozer Health System in 2016 (Cooper, 2023). Crozer Chester has been experiencing problems for years now due to this and has been subject to a lawsuit by the Attorney General.

Map 14: City of Chester Infrastructure



In addition to this infrastructure, City of Chester has a robust zoning code. There are 16 different zoning districts throughout The City of Chester, as shown in Map 15 (The City of Chester, 2015; Delaware County Planning Department, 2023). There are four residential districts, which are split up into low-density, single-family, medium-density, and high-density districts (The City of Chester, 2015). There is a central business district as well as a neighborhood commercial/residential district.

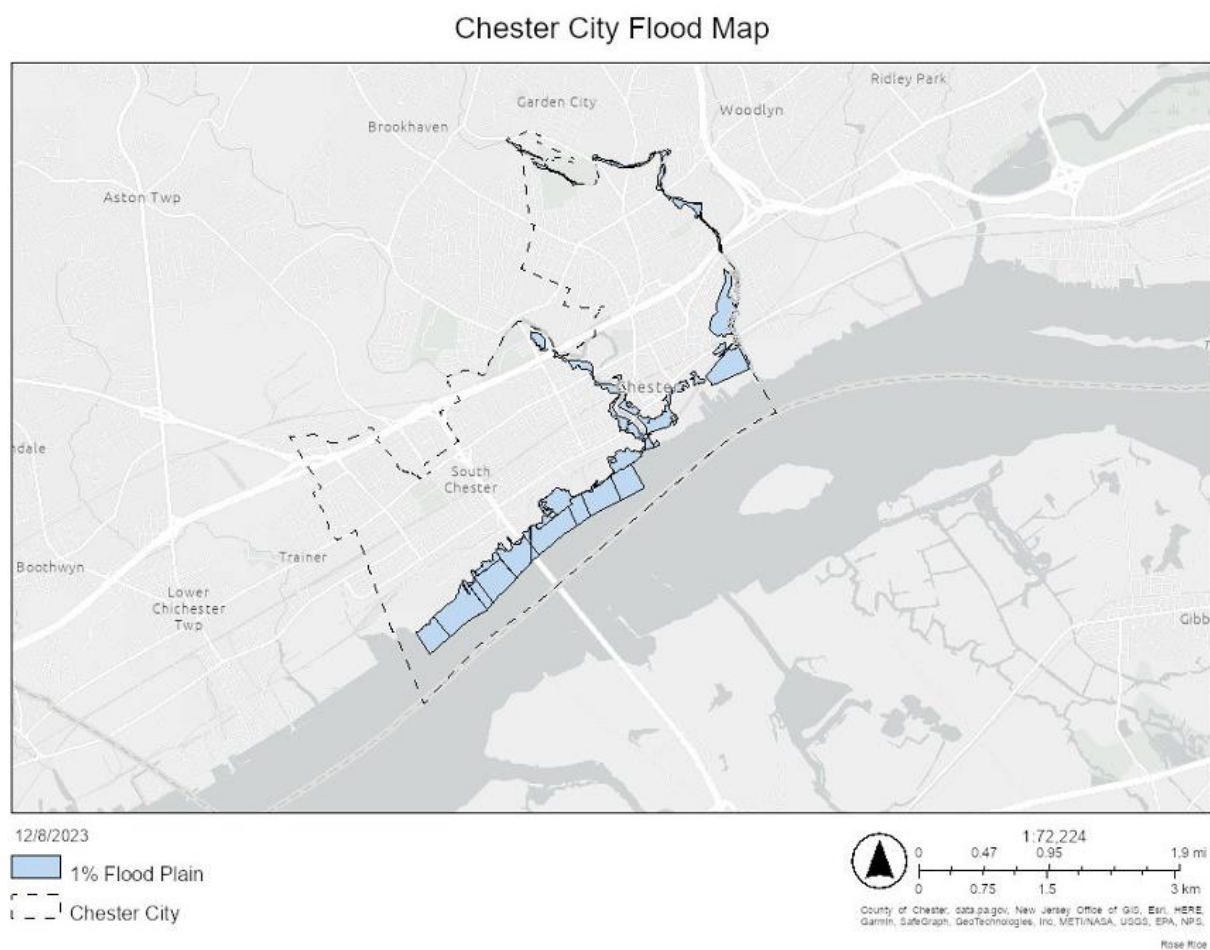
Map 15: Zoning Map of Chester (Delaware County Planning Department, 2023).



City of Chester has both a University/Office Research district and a Waterfront district. The waterfront district is to promote mixed-use redevelopment along the Delaware River (The City of Chester, 2015). There is also a waterfront overlay district that offers optional standards for non-residential development in certain parts of City of Chester on the waterfront. In addition to the waterfront overlay district, there is also a transit-oriented development overlay district, which offers an optional form of development within walking distance of the Highland Avenue SEPTA station.

Finally, when looking at infrastructure and zoning, it's also important to consider the flood plain and the consequences of being next to a tidal body of water. City of Chester is prone to flooding along the Delaware River and Chester Creek, as seen in Map 16 (FEMA, 2020). It's important to keep this into consideration, especially as climate change continues to worsen and worsen the flood plain and the resulting damages.

Map 16: 1% annual flood plain map (FEMA, 2020)



6.2 Infrastructure Conclusion

In conclusion, City of Chester boasts a diverse range of infrastructure, encompassing public transit, major roadways, and various public amenities. The absence of a SEPTA regional rail stop within the city necessitates reliance on alternative transportation options to nearby locations. The prevalence of traffic incidents, particularly on roads like I-95 and 291, highlights the need for enhanced safety measures. While cycling and walking present viable alternatives, the incomplete circuit trail network in Delaware County and isolated walking trails within the City of Chester underscore the potential for improvement in pedestrian infrastructure.

Despite challenges faced by the Crozer Chester Medical Hospital, the city's public facilities, including parks, police stations, and schools, contribute to its overall civic landscape. The comprehensive zoning code, featuring distinct districts and overlays, demonstrates the city's commitment to planned development. However, the city's vulnerability to flooding along the Delaware River and Chester Creek necessitates ongoing consideration, especially in the context of escalating climate change impacts. In addressing these aspects collectively, City of Chester can strive for a more resilient and well-connected urban environment.

6.3 Site Review

We visited the seven sites given as recommendations in the initial meeting we had with Mercedes, Brittani, and Komeh. There were a variety of sites in different municipalities along the Delaware County waterfront for us to explore through aerial photography analyses and with our boots on the ground. Two groups of students went to visit the sites.

Below is a list of all the sites each group was assigned to visit, and the following pages contain pictures of the current sites.

Group 1: Kimberly, Gabriel, Brandon, Jacob, Michael, Gianna

- 6.31 Union Power Plant (“The Wharf”)
- 6.32 Coventa Valley LP
- 6.33 Marcus Hook Community Center
- 6.34 Market Square Memorial Park

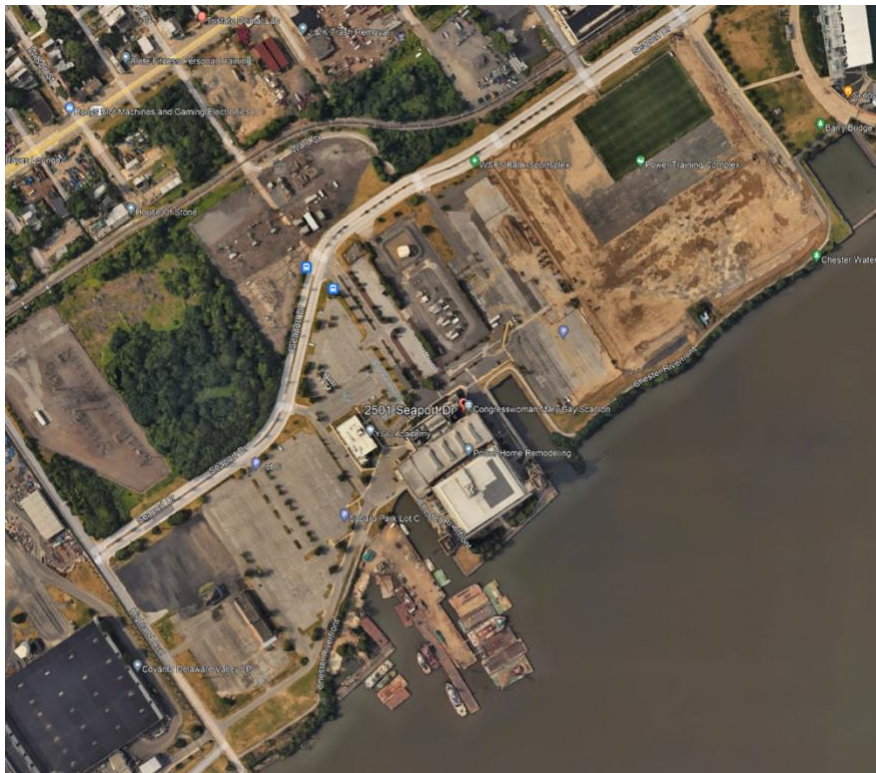
Group 2: Luis, JP, Grace, Gabe, Maddie

- 6.35 Governor Printz Park
- 6.36 Tinicum Municipal Building
- 6.37 Waterfront Park
- 6.38 City of Chester Vacant property

6.31 Union Power Plant (“The Wharf”)



Site Photo 1: Looking up at Union Power Plant from the Main Entrance



Site Photo 2: Aerial Imagery shows Union Power Plant from above.

6.32 Covanta Delaware Valley LP



Above: Site Photo 3: A parking lot within the study area, south of union power plant. Bottom left: Site Photo 4: The inside of an abandoned structure on the same parking lot. Bottom right: Site photo 5: Aerial imagery showing the same parking lot from above.

6.33 Marcus Hook Community Center



Above: Site Photo 6: The Delaware river as seen from Marcus Hook Community Center. Center: Site Photo 7: Marcus Hook Community Center from the Front Door. Bottom: Site Photo 8: Arial Imagery of both Marcus Hook Community Center and Market Square Memorial Park.



6.34 Market Square Memorial Park



Top: Site Photo 9: Market Square Memorial Park from the Delaware River. Center: Site Photo 10: The Delaware river is seen in the background, with a brick walkway and fencing in the foreground.



6.35 Governor Printz Park

- Address: Taylor Avenue & West 2nd Street, Essington, PA
- Size: 7.2 acres
- About: Site of the first European settlement in present day Pennsylvania (Commonwealth of Pennsylvania, N/A).
- What's there: Park, playgrounds, splash pad, gazebos, amphitheater, maintenance building, historical plaques and recreations of settler housing, unidentified sports areas and bleachers, farmer's market every other Wednesday. People were there exercising, walking dogs, and had children on the playground. It is between a hotel and a yacht club, but there is a line of trees separating it from the yacht club's side, which gives the illusion of more privacy.
- Suggestions: We don't think this site should be changed, but if there were to be changes, we suggest adding a pier. This would allow for additional uses of the waterfront without removing the current uses.



Site Photo 13: Aerial imagery of Governor Printz Park shows the overall site as framed by a parking lot to the north, housing to the west, and the Delaware river to the east and south.



Site Photo 21: A park bench is seen along a walkway parallel the Delaware River.



Site Photo 12: A walkway through Governor Printz Park is framed by trees and ornate lampposts in the afternoon sun.

6.36 Tinicum Municipal Building

- Address: 97 Wanamaker Avenue, Essington, PA
- Size: 10 acres
- About: The site has had many uses in the last 300 years, including the oldest maritime quarantine station in the United States, an athletic club, and a World War I seaplane base and flight school (The Lazaretto, N/A).
- What's there: Municipal building, pier, crates, greenspace, geese, flag poles, plaque discussing the island offshore. It was Sunday so no one was there, and we couldn't go inside.
- Suggestions: Revitalizing or extending the pier to allow for more use by the public, adding a community garden or native plants, picnic tables to allow the municipal workers or community to use the space, pathways.



Site Photo 14: Tinicum Municipal Building as seen from the front.



Site Photo 15: The rear yard of the Tinicum Municipal Building, with the Delaware River in the distance.



Site Photo 16: Tinicum municipal building as seen on aerial imagery.

6.37 Waterfront Park

- Address: 48 Norris Street, Chester, PA
- About: Attached to Lot A for Subaru Park Stadium.
- What's there: Parking for Subaru Stadium and the factories, narrow greenspace along the waterfront but there were people fishing there. It was a very loud site due to its proximity to the bridge.
- Suggestions: This is an interesting spot, but we don't really have any tangible suggestions for it. It is very unlikely for development due to the influence of industries and the stadium.



Site Photo 17: A fenced grassy field with the Delaware river in the background and the Commodore Berry bridge prominently shown.



Site Photo 18: Aerial imagery of the same grassy field as above.

6.38 City of Chester Vacant property

- Address: West Front Street & Penn Street, Chester, PA
- Size: ~5 acres
- About: Formerly owned by Kimberly-Clark Chester Mill.
- What's there: Nothing currently other than some concrete and trash. It is close to William Penn's landing site, which is in a run-down park. Really unfortunate to see since it has historical significance. The neighborhood has a lot of trash and blight. The lot was fenced off, so we had limited access. There are also train tracks between the park and the site.



Site Photo 19: In the foreground, train tracks, separated from a nearby empty lot by fencing.



Site Photo 20: Train tracks leading into the distance.

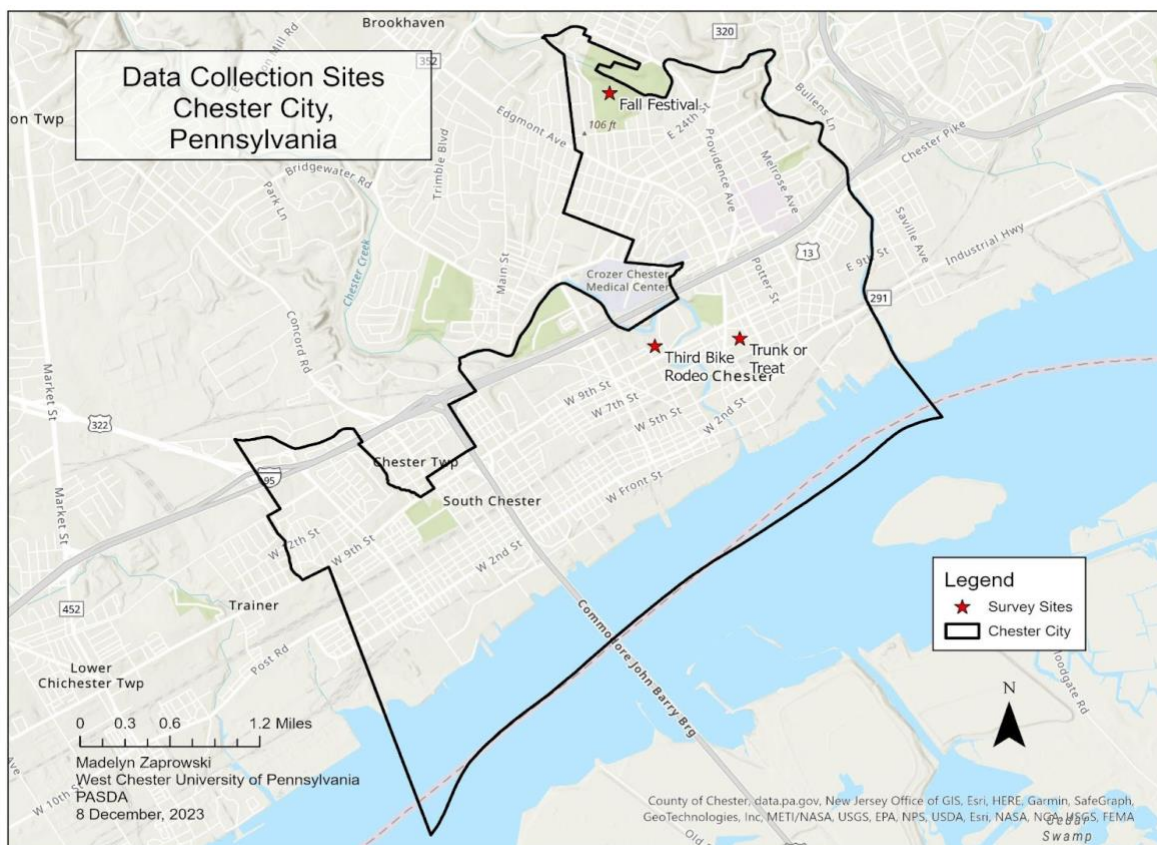


Site Photo 21: Aerial imagery of an industrial area within the project site.

6.5 Survey Analysis Report

Once we had our site selected, we began the process of creating a survey that could be used to gather information from the community on what they wanted to see in their city. As a group we brainstormed topics for questions to ask the community based on what we had seen during our site visits to Delaware County. In City of Chester specifically, we noticed a severe lack of grocery stores. Based on the literature review on waterfront redevelopment, we knew we wanted to ask the community about sustainability, as well as some of the features they might like to see in a new development. We wanted to limit the number of demographic questions asked because we felt they were unnecessary, and that the community might be less willing to answer a survey that was longer than ten questions. We included a question asking if they were residents, how long they had lived there for, and why they were in City of Chester at the time of the survey. Once we had a list of inspiration, Maddie and Gianna created and formatted the questions, and then Maddie created a survey using Google Forms to make distributing and giving the survey easier.

Survey Question Analysis Report



7. Policy Recommendations

7.1 Chester Zoning

Most of the City of Chester Waterfront is still zoned as industrial, a call back to its proud history of an industrial power base in the 20th century. Unfortunately, with industrialization and offshoring it is time for Chester to look towards the future and to see that future it is of the utmost importance that rezoning is put at the front to allow Chester's redevelopment. Looking to neighboring Wilmington, Delaware, a city with a similar industrial history that has become a model of rezoning.

The following would be an example of Chester's Zoning Waterfront District. It is important to permit housing, buildings, businesses, and utilities that bring the most use and benefit to the local stakeholders. To accomplish this the Industrial must be rezoned to a unique Waterfront Zoning district which encourages mixed-use development including residential and commercial, such as retail and restaurants.

1. Purpose. The W-X waterfront residential commercial district is designed to provide areas where medium to high density residential, retail and office development can take place.
2. Uses permitted as a matter of right. The following uses are permitted as a matter of right:
 - a. multifamily residential use
 - b. Library, museum, gallery.
 - c. Private or public school.
 - d. Private club or lodge.
 - e. Office, bank, or other financial institution, excluding any drive through facility.
 - f. Retail store and service
 - g. Hotel or motel.
 - h. Commercial recreation
 - i. Parking lot accessory to a commercial use.
 - j. Passenger terminal, rail, bus, or helicopter.
 - k. sign other than a billboard.
 - l. Nonprofit charitable institution not of a correctional nature.
 - m. Indoor/ Outdoor theater for the performing arts.
 - n. Restaurants/lunchrooms, excluding any drive through facility.
 - o. Automobile parking for permitted uses.
 - p. Family day care homes. Group day care homes and day care centers.
 - q. Public service uses.

Prior to any development it is important that development standards consider the local populace, unique ecosystem, and character of the waterfront. An example of a section;

Sec. xx-xxx. - Waterfront review standards.

To assure that all existing and future development will be of a quality nature, all development in the waterfront zoning districts shall conform to the waterfront review standards recommended by the department of planning with the advice of the planning commission and adopted by city council after public hearing. Such review standards shall be part of the comprehensive development plan, as well as standards for the administration of the waterfront zoning districts.

The promotion of affordable and sustainable medium-density housing is another top priority and to avoid falling into the pitfalls of expensive single-family homes and suffocating high density development. A happy equal must be found and promoted by zoning to create a safe, equitable and affordable community for stakeholders to live and protect the character, environment, and history of the waterfront.

b. Height requirements in waterfront zoning districts shall be as follows:

District	Height in Stories	Height in Feet
Waterfront	6	72

c. All new construction in the waterfront zoning districts shall be set back a minimum number of feet from the riverfront as follows:

Depth of property	Setback requirement
Less than 200 feet	30 feet minimum setback
Between 200 and 400 feet	40 feet minimum setback
More than 400 feet	50 feet minimum setback

d. In waterfront district, the maximum permitted floor area ratios shall be as given in the following table:

Home Type	Floor Area Ratio
-----------	------------------

Rowhome	.80
Garden-apartment development	1.00
Walk-up apartment	1.50
Medium density apartment houses	2.00
All other uses	2.00

- e. In waterfront zoning districts, the lot area occupied by all buildings on a parcel in relation to the total parcel area shall not exceed the ratios set forth below:

Building	Coverage ratio
Rowhome	0.4
Garden apartment	0.40
Walk-up apartment	0.50
Medium density apartment homes	0.50
All other uses	0.50

- f. Below are examples of housing that are possible if followed by the zoning guidelines given.



(Wilmington, DE townhomes)



(Wilmington, DE apartments)

7.2 3D Model/Rendering

The lots located at 99 Penn Street, both the one owned by City of Chester and the private Kimberly Clark Corporation, when combined make the area that proposed park project will be placed. This redevelopment of a former brownfield into a community space will coincide with the refurbishment of the adjacent William Penn Landing Site Park. Currently in poor condition, the sidewalks and parking lot should be replaced, along with all other failing park infrastructure. Recommended improvements to the landscaping, such as a flowering hedgerow, and the addition of a William Penn statue/fountain in the southeast corner of the park, can be seen in **Figure 5**.



***Figure 5** – Sketch of refurbished William Penn Landing Site Park.*

The new, much larger park and community center will have far more features. The most essential is the community center of **Figure 6**. This 2-story quarter-circle building includes a large panoramic window facing the waterfront, which emphasizes the importance of the Delaware river to the community and its revitalization. Most importantly, it will be the host to the many summer camps, rec leagues, medical clinics, festivals, and education programs as previously discussed in this policy report. Floor space will be dedicated to recreational facilities, meetings rooms, an event hall, and a historical and social center, along with malleable open space that can be used for more specific community needs.



***Figure 6** – Sketch of New Panoramic Community Center.*

The large brick building seen in **Figure 7** is the equally important combination community grocery store and affordable housing. The smaller, low-rise section of the building is the grocery. Its focus will be providing fresh food, stocked consistently with essentials, as the community had expressed a specific desire in the survey. The grocery store will accept SNAP food assistance program benefits, which will coincide with the availability of five floors of affordable housing stock. Further, to produce an example of the future of sustainable development, this building features two separate green roofs, one for each section.



Figure 7 – Sketch of New Community Grocery Store and Affordable Housing.

The splash pad seen in **Figure 8** is an essential part of the waterfront experience for the citizens of Chester. Although use of the Delaware River for recreation has its limitations, providing a water feature at the waterfront park will serve to fill this void. Because it is directly adjacent to the water, the splash pad will allow children to form a positive connection with the water around them. Rather than view it as a scary, dirty area reserved for industry, they can see it as an essential part of the childhood experience, spending summer days splashing around in clean water at the beautiful park on the waterfront.



Figure 8 – Sketch of Splash Pad on the Waterfront.

One final unique asset of this proposed park is the amphitheater directly on the waterfront. This amphitheater is distinctly directly on and facing the waterfront. As **Figure 9** shows, this places a

great emphasis on the Delaware River and positions it as a cultural asset, something to celebrate the arts on, rather than a detriment to the city. Inspired by the Salisbury, Maryland, Riverwalk Amphitheater, this has grass seating supported by concrete foundations. This allows for a more family friendly version on the concert experience, with ample room to spread out on the grass, picnic, or sit and enjoy the water during non-events.



Figure 9 – Sketch of Amphitheater on Waterfront with Grass Seating.

Figure 10 provides an overview of the park, in which the expansive trails weave through the park. These trails will be ADA accessible and importantly, run along the water itself. They will connect all major park features, including the four full basketball courts in the center for active recreation, as well as the multiple gazebos and pavilions scattered throughout.



Figure 10 – Sketch of Entire Waterfront Redevelopment Park.

This park will have no true effect within the community or upon the waterfront without first considering access. In this case, public access is key. This begins with the public coming to have knowledge of the park's existence, location, and facilities. A local engagement campaign would be a good start towards achieving this. Another key aspect is the relative proximity to residents

and other parks. This location has been identified as both having an appropriately central location in Chester's population, as well as a sound locational addition to their parks system. Safe travel to the park is similarly vital. So, proper lighting, maintenance, and community involvement must be promoted to ensure a safe, bright eyes on the street experience. Like most parks, this should close after dusk to deter unwanted activities that require the cover of night.

Transportation-related access is also essential. For this reason, public sidewalks have been expanded upon the streets bordering William Penn's Landing Park. **Figure 1** shows this as well as the addition of a bus stop and shelter along East 2nd Street. While public transit and safe walking and bicycling access are essential, those who drive as their main form of transportation have been included in the plan as well. The original parking lot of William Penn's Landing Park will be refurbished as previously mentioned, and an additional parking lot behind the community center will be added.

Finally, the emphasis on arts in Chester will be incorporated into the waterfront redevelopment. In the park itself, **Figure 11** includes a view of a new statue of William Penn in the back left of the image to complement the already existing plaque and monument in the park. Throughout the new waterfront park, sculptures, murals, and other artforms will be erected over time by local artists and community members. The interior of the community center will be decorated with murals. An important feature of the park will be the interactive splash pad, which will give children a way to experience the water features in an up-close intimate way.

Figure 11 – Sketch of refurbished William Penn Landing Site Park.



7.3 ArcUrban Model

After JP created the final design in Sketch Up, Michael and Maddie were able to translate it into ArcUrban, an ESRI software that allows for 3D renderings of cities through the creation of plans and projects. Projects are used for short-range plans that can show detailed building information and are placed within the context of their surrounding environment to allow for scenario comparisons. Plans are used for long range plans and show greater context and communicate how changes could contribute estimated targets for parcels such as housing demands, population growth, emissions, parking, and waste production. Plans can also be utilized for both land use and zoning plans. Sketch Up is good for more detailed models of specific sites and future projects from a design standpoint. ArcUrban includes data from entire cityscapes and allows you to select sites that already exist, remove the current infrastructure, and remodel them as your own. For this redevelopment vision, we chose to create a project over a vision because we are working at the parcel level and wanted to show multiple scenarios. Scenarios allow users to show multi-stage development projects that would take place over an extended period. ArcUrban is also able to calculate metrics using nationwide data and the net space of the project to calculate outputs from the new development. Some examples of metrics are jobs created, annual income generated, housing units, parking spaces, electricity, and CO2 emissions. We were not able to access the data we needed from Delaware County to include the metrics in this project which would have been the main purpose of creating a second 3D model of the site.

We started by creating the site from the USA Default base and drawing in the boundaries of the parcel for development. We removed the few buildings that exist on the site, so we had a flat surface to work with. Then using reference images of the Sketch Up model created by JP, we began creating the buildings on the site for the first scenario. We created the community center first because the shape was harder to nail in urban due to having to work with nodes and sections instead of a tool that creates curved lines. We estimated the height based on one story being about 15 feet tall. Then we created the grocery store and apartment building. Once we had the buildings places, we began adding in other features like parking, basketball courts, benches, trees, the amphitheater, and a splashpad. After finalizing the initial site, we moved on to the two William Penn landing sites. The site closest to the redevelopment is included in the first scenario for redevelopment and includes updated sidewalks, paved parking, a new statue to commemorate William Penn, and general housekeeping of the existing park. The second park will also mainly include general housekeeping and connectivity through bike lanes and updated sidewalks.

Images of the ArcUrban Model



8. Conclusion

Our group analyzed Chester's community and picked a site to redevelop. We spoke with many locals to better understand the wants and needs of the community. Then, we created an organized and realistic vision with hopes to improve the quality of life for residents. Our vision includes an addition of a community center, access to public transportation, greenspaces, a grocery store, and healthcare services.

Related Attachments

[Arc Urban Model](#)

[Story Map](#)

[Survey Final Analysis](#)

References

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Map Appendix

1. Population by Census Block Group <https://arcg.is/1WTz0X>
2. City of Chester Dot Density Map - <https://arcg.is/HWyDO>
3. Disadvantaged Communities - <https://arcg.is/1DDWqO>
4. Pre-1960s Housing - <https://arcg.is/GX0D5>
5. Poverty in Delaware County - <https://arcg.is/zm0an0>
6. City of Chester Income - <https://arcg.is/0CeXzr>
7. Unemployment Rate - <https://arcg.is/mH84j>
8. PM 2.5 - <https://arcg.is/1X5Lm8>
9. Asthma - <https://arcg.is/1W4W8L>
10. Map of City of Chester Planning Districts
11. City of Chester SEPTA Routes - <https://arcg.is/0jKXrn>
12. Crash Incidents - <https://arcg.is/1Pu5Oi0>
13. Delaware County Trails- <https://arcg.is/aLXi0>
14. City of Chester Infrastructure - <https://arcg.is/b5uKL0>
15. City of Chester Zoning - <https://arcg.is/1iv5zu0>
16. City of Chester Flood Map - <https://arcg.is/18Tnuy0>