Easton as a Walkable City

How the Concept of a 15-minute City Could Be Applied to

Easton, PA

Engineering Studies 480: Sustainable Solutions

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Executive Summary

This report, produced by Lafayette College's Sustainable Solutions course, details how and why the City of Easton should implement changes to move towards being a "15-minute City." Outlined in greater detail throughout this report is a description of the significance and necessity of such a project to be undertaken, an explanation of the methodologies for how our results were calculated, the criteria used to create models for analysis, how non-numerical data was both gathered and analyzed, and the sources used throughout the process with brief explanations of them. We hope that this report can be used to guide Easton's urban planning efforts into the future as the 15-minute city concept gains more momentum and value around the world. From our assessment of walkability and accessibility in Easton, we recommend these four action steps for Easton as a potential 15-min city:

- We recommend that the city of Easton address infrastructural barriers such as street and pedestrian intersections, poor street lighting, and invisible signage that makes it difficult for residents to walk or bike.
- 2) We recommend a Parks Department-led initiative to ensure each active park has the potential for physical activity for local families and children, such as a playground with equipment or the addition of signage and beautification efforts between pocket parks to create a quasi-trail.
- 3) We recommend that the City of Easton funds and supports small-scale neighborhood ambassador programs dedicated to maintaining and extending the beautification of Easton. We recommend that urban planning for the 15-min city in Easton revolve beyond the built-environment and take equity & justice into consideration. More specifically, the

city should assess how infrastructural and systemic changes might directly lead to gentrification. We suggest the city focuses on ways to strengthen the amenities and connections it currently has.

 We recommend that the city of Easton introduce a quality grocery store in the Westward, which has the highest proven walking time to a quality grocery.

A summary of our research, findings, and recommendations can be found at our website.

Introduction & Motivations

America's modern city is a confusing net of streets, overpasses, and highway ramps that make traveling by foot impractical or impossible. This enforces a need for private automobile ownership and perpetuates a cycle of urban sprawl, which is the rapid expansion of the geographic area of cities and towns. This phenomenon is characterized by low-density residential housing, single-use zoning, and increased reliance on the private automobile for transportation. Urban sprawl promotes ineffective land use and spaces that are not at the human scale. To get the most out of developed land, areas should have more than one function. Dense residential areas should offer a multitude of services and be organized in ways that empower citizens to walk, bike, or run to their destinations. Trying to integrate such a design in modern cities could prove difficult, but it is not impossible. Given the social, environmental, and economic benefits, promoting walkability in modern cities is well worth the effort.

The City of Easton is made up of four different neighborhoods: College Hill, West Ward, South Side, and Downtown. The Delaware River borders the eastern side of Downtown. To the south and north exists an incline that brings you to the South Side and College Hill respectively. Similarly, uphill of western Downtown is West Ward. Downtown sits at the lowest point of the four neighborhoods and houses the majority of restaurants, stores, and attractions of the city. Currently, the City of Easton is experiencing population growth and is looking to expand. Having set sustainable development goals through their Climate Action Plan, Easton has also begun work to address present day issues within the community. While Easton has made and continues to make great strides towards sustainability and walkability, there is room for improvement; specifically in regards to multi-use spaces and zones.

In an effort to identify the issues that Easton has regarding walkability, environmental impacts, and general quality of life, the concept of a 15-minute city was used as a framework for evaluation. A 15-minute city offers residents the ability to walk or bike to all essential services, such as groceries, pharmacies, and schools, within 15-minutes. Another aspect this city offers is a thriving interconnected community that is saturated with diversity. Neighbors see each other frequently, public spaces are being utilized constantly, and the reliance on travel by foot leads to more daily interactions. A city that "responds to our needs" and one that does not "force us to adapt and degrade our quality of life", as planner Carlos Moreno describes (Allam et al., 2022). The importance of the 15-minute city in addressing challenges of mobility, accessibility, and climate change mitigation has been well established in urban planning discourse. This concept has been applauded by planners around the world and has been implemented in Paris, France and Utrecht, Netherlands to great success.

Guided by Easton's local science and arts community space, the Nurture Nature Center (NNC), Lafayette College's Spring 2023 Engineering Studies: Sustainable Solutions course spent one semester researching the 15-minute city. This project was guided by and is a collaborative effort of Lafayette students, the NNC, and several Easton community leaders and residents who

graciously agreed to talk to us about their city. This report is a result of that research and aims to localize the 15-minute city urban planning phenomenon, present comprehensive suggestions for how the model could be adapted to fit Easton's unique problems and assets and contribute to the ongoing climate action efforts in the Easton community.

Past Work

Benefits of a Walkable City

In a highly car-dependent culture, the importance and benefits of walkability has often been neglected. Suburban and urban planning efforts have often been centered around cars and traffic control as a priority for mobility. The *Easton Climate Action Plan* names transportation as a source of nearly a quarter of the city's emissions. This dependency on cars results in various toxic impacts such as long commutes, traffic, environmental concerns, etc. (Bartzokas-Tsipras, 2022). The dependency on cars also exposes the public to car accidents. Decreasing the amount of cars used in cities has widespread health benefits. America's reliance on driving is so deeply embedded in the culture that many see driving and its consequences as a natural and inevitable part of modern life. Both the *Easton Matters* report and the *Easton Climate Action Plan* make evident that transportation in Easton is critical to the quality of life for residents and for the quality of the environment. The existence and functionality of walkable cities, however, negates the necessity of driving culture.

Walkable cities have environmental, social, and mental benefits, and a plethora of studies have investigated these advantages. A study done in China on neighborhood walkability and mental wellbeing revealed a positive correlation between a walkable neighborhood and mental health, mitigation of environmental stressors, as well as a sense of community (Xin et al., 2021). The results of this study in Chinese urban context are consistent with urban areas in different countries; for example, a walkability study done in a Canadian neighborhood found similar results (Lang et al., 2022). Creating more walkable cities has the potential to promote sustainable modes of transportation that have a lower impact on the environment, such as air pollution. Additionally, the IPCC's AR6 synthesis report asserts that supporting public transportation and active mobility in urban systems is a valid and effective adaptation/mitigation option to achieve emissions reductions and other co-benefits, such as human health and well-being (Lee et al., 2023). However, while increased walkability generally means lower vehicle emissions, this relationship does not account for the exposure to air pollution as a city undergoes urban planning changes. A study on the relationship between walkability and exposure to air pollution revealed that lower-income neighborhoods with a high walkability score have higher exposure to nitric oxide, a gas released by vehicles. (Tillett T, 2009). This result reflects the fact that lower-income neighborhoods tend to be located in busier urban areas, while higher-income areas are located farther from urban centers and are more walkable with low air pollution (Tillet T, 2009).

As walkable neighborhoods and the concept of the 15-min city become more desirable, it is crucial to ensure that minority and low income groups are included in these spaces. Walkability cannot only be discussed in the confinement of the built environment, considering that advantaged populations often see higher benefits at the expense of disadvantaged groups (Adkins et al., 2017). All neighborhoods, regardless of socioeconomic status and demographics, should equally benefit from walkability. An analysis of socially vulnerable populations in U.S. metropolitan areas suggests that even when those populations are living in more walkable

neighborhoods, they still are not afforded the same degree of accessibility to amenities (Bereitschaft, 2023). The X-Minute City is committed to addressing these issues of accessibility and inclusivity in order to ensure a holistic approach is taken when creating a walkable neighborhood.

X-minute City

The idea of a "15-minute city" was created by urbanist Carlos Moreno in 2016, a result of his views that urban areas needed to be people centered, focusing on the needs of the civilian rather than the needs of the city. The basis of the concept is simple: a city in which all necessary amenities are within a 15-minute walking or biking distance of any given point. In order to achieve this goal, there are a variety of factors that need to be taken into consideration as well as effectively executed. The 3 dimensions in which this concept exists beyond that of proximity are "(Density, Diversity and Digitalization) that can be calibrated to respond to the netzero agenda in an inclusive and equitable fashion." The way that these points are explained all revolve around improving a certain aspect of the overall city, complimentary to the other factors of influence, to create a copacetic final living space. Density, for instance, is straightforward but difficult to execute, as it stresses the need for a city to be compact, as previously mentioned above, so that everything that provides a citizen with full autonomy and ability to actualize is within immediate and reasonably accessible reach. When dealing with metropolitan areas in which sprawl has been the default, and capital, rather than quality of life, has been the driving force, this concept becomes much more convoluted (Allam Zaheer et al., 2022).

Diversity focuses on two areas, one of which being a mixed use of the land in the city. By stressing a balance between residential, commercial, and green areas, a living space that offers necessary variety to interesting life is created. The other use of diversity is diversity of culture.

This is necessary on two primary counts, the first is so that individuals from a variety of backgrounds can preserve some form of identity should they desire to do so, the second being to enrich the overall cultural experience of the city itself. As for digitalization, this area is designed to enrich the overall effects of the previously mentioned aspects through means such as smart cameras and sensors collecting data to ensure that user experience of public spaces is maximized. The point of a 15-minute city is not to create the most efficient living area possible for individuals, but rather to create a space in which their potential, for both themselves and contributions to their community, is at its climax (Allam Zaheer et al., 2022).

For more information about the specifics of creating a 15-minute city, we turned to resources from C40, a network of mayors from almost 100 international cities, that has a section of their website dedicated to walkability. The information that was gathered indicated that a full baseline of existing amenities is imperative to developing a more walkable city. Increasing compactness of the city and promoting mixed use of buildings are two ways to improve walkability. This can be achieved through updating zoning to allow for form-based as opposed to use-based zones. Form-based zones categorize buildings by physical structure, allowing for the same building to have multiple uses. Use-based zoning, which most cities currently use, does not allow for this flexibility as it categorizes buildings for specific functions such as 'residential' or 'business'. Including more zones for multifamily buildings, as opposed to single family and therefore would help to increase compactness of the city. Having more amenities within a small physical area makes those amenities more accessible to the community, and ensures that critical services are available at the neighborhood level. Something that Easton already does that can improve the distribution of amenities is having adaptive reuse (AR) zones so that vacant and underutilized buildings can be better used to serve the community. This is one step towards

bringing priority services (as defined by the community), amenities, and green spaces to every neighborhood. Additionally, in places such as schools and other municipal properties, efforts should be made to promote flexible use. This means using the property for different purposes at different times of the day/week. For example, using the library as a place to hold cultural events or school yards for weekend markets. For privately owned properties, incentives and support can be provided to persuade owners to allow their spaces to be used for multiple purposes (*Introducing Spotlight On: 15-Minute Cities*, n.d.).

To make walkable cities as inclusive and accessible as possible, C40 suggests methods of city improvement that minimize and ideally avoid displacement. These consist of affordable housing requirements, developer incentives for affordable housing, and inclusionary zoning amongst others. Inclusionary zoning creates incentives for a proportion of residential developments to include affordable housing units. Given the housing crisis, an expansion of affordable housing would help retain and house Easton residents while improving the area. Along with avoiding displacement, public spaces should be integrated into policies to build more complete communities (*Introducing Spotlight On: 15-Minute Cities*, n.d.).

Complete Streets are another urban planning approach that are a reciprocal with 15-minute cities. This approach to design offers a way to incentivize walking or biking by making streets safer and more accessible. Complete streets consist of elements such as sidewalks, bike lanes, wide and paved shoulders, bus lanes, comfortable and accessible transportation stops, frequent and safe crossing opportunities, median islands, accessible pedestrian signals, curb extensions, reduced speed limits, narrower travel lanes, roundabouts, and more (*Complete Streets - Smart Growth America*, n.d.). Each of these elements makes walking or biking more accessible to the general public but particularly groups such as children, wheelchair

users, the visually impaired, and others. This makes cities not only more accessible, but also more equitable by fostering more social interaction for vulnerable groups.

Increasing amenity access must also incorporate existing public transit. Existing transit stops should be connected by comprehensive pedestrian paths, while also linking various neighborhoods in an effective and affordable manner. If a neighborhood is isolated or otherwise poorly connected, the city should look into adding stops to increase access to public transportation. This begins with an inclusive planning process, where input is gathered from community members of all backgrounds and walks of life, as well as from academia and literature to maximize policies that benefit everyone.

Easton Literature

Walkability in Easton is not a foreign concept. It has been brought up by Easton's environmental leaders, the Nurture Nature Center, and Easton's Environmental Advisory Council (EAC). In 2009, EAC's transportation affinity circle published the report '*Enhancing Easton's Status as a Walkable Community: An Evaluation of the Third Street Corridor'*. The overarching goal of this report was to provide recommendations that could alter the balance of power between motor vehicles and pedestrians within the area in question. Issues considered included: pedestrian safety, pedestrian accessibility, connectivity for pedestrian traffic, and 'walkability'.

The report offered recommendations to the City of Easton to enhance walkability along the corridor, many of which involved changing the infrastructure and/or atmosphere so that people would feel more inclined to walk. Regarding safety, the EAC recommends potentially adding crosswalks and improving them by adding more white lines to increase visibility, altering curb ramps to a design where it is more clear to drivers which direction a pedestrian intends to walk, adding traffic calming measures, re-examining the necessity of the right-turn on red feature

near Route 22, and adding a physical barrier between bikes and cars on the Lehigh River Trail. Relating to aesthetics, the EAC recommends adding pedestrian amenities such as benches, public art, information signage, and public restrooms.

Not mentioned in the EAC report, however, is a major co-benefit of promoting walkability: reducing air pollution and greenhouse gas (GHG) emissions. Easton's *Climate Action Plan* does connect walkability to the environment. At the time of the report, transportation accounted for 24% of the City's GHG emissions. To address this, there are three proposed action items directly related to walkability:

TR-1C: "Make infrastructure improvements to enhance cyclist and pedestrian safety and ease of movement (bike lanes, signage, traffic calming measures, sheltered bike racks, places to lock bikes, requirements for bike storage, and parking facilities in new residential development)."

TR-1D: "Encourage biking and walking through education and incentive programs in partnership with local businesses. Consider a bike share program for low-income, workshops for e-bike conversions, and rentable bikes downtown for visitors to the city."

TR-1E: "Consider creating pedestrian zones that are closed to vehicles, potentially along Larry Holmes Drive or around Centre Square" (*City of Easton Climate Action Plan*, 2021).

These initiatives are primarily centered around increasing safety as a means to increase walking and biking. As discussed above, safety is only one of many factors that may influence someone's preferred method of transportation. An extremely influential factor is the presence of daily essentials within a reasonable walking distance. With this in mind, there are numerous other action items indirectly related to walkability, such as the following: Municipal Operations: "Integrate climate change considerations into all city planning and decision-making, including comprehensive plan, local hazard mitigation plan, stormwater management, zoning and land use decisions, etc.."

Urban Forest, Green Space, and Habitat objective 2: "Increase and enhance Easton's green space for the benefit of both native species and Easton residents:

UF-2B: "Celebrate and protect Easton's distinct waterfront by enhancing river access points, connecting the riverfront to the downtown, maintaining riparian areas, and controlling invasive species."

UF-2D: Consider new developments' impact on green space. Encourage higher density and mixed use development, consider maintaining green space in vacant lots rather than new construction, encourage sustainable uses for brownfield development, etc."

Local Food objective 2: Support local agriculture and the local food system.

LF-2C: "Continue to expand programs to connect city residents of all income levels to sources of local fresh food, including the Easton Farmers' Market, Easton Public Market, Buy Fresh Buy Local Fresh Food Bucks, Kellyn Mobile Mart, Vegetables in the Community, etc."

LF-2D: "Explore the possibility of developing a bulk food store in Easton to expand affordable, sustainable food options in areas that may lack access to a grocery store and minimize food packaging waste. Partner with Nature's Way to expand their bulk items."

Commercial Buildings objective 2C: "Encourage (and consider requiring) green space included for all commercial development/redevelopment" (*City of Easton Climate Action Plan*, 2021).

These objectives are not explicitly addressing transportation, but if implemented would increase the likelihood for walking and biking by making green spaces, food, and multi-use spaces more accessible by those modes of transportation.

Making Easton a safer city to walk and bike in and increasing the accessibility of essential amenities would not only aid the reduction of greenhouse gas emissions from transportation, but it would also help protect Easton residents as the climate changes. The Easton Vulnerability Assessment, published in 2018, analyzed Easton's susceptibility to extreme heat events and flooding. The frequency and intensity of both of these weather events are projected to increase as climate change progresses, which is cause for concern because they can be extremely detrimental to infrastructure and residents. The report identified the West Ward neighborhood as being highly vulnerable to the changing environment, both socially and geographically. This means that both the physical environment and social demographics leave this neighborhood at risk in the event of extreme weather events. West Ward's social vulnerability is echoed in the West Ward Choice Neighborhoods Draft Plan. The median income in this neighborhood is below local and national averages, and 25% of the population falls below the poverty line (West Ward Choice Neighborhoods Draft Plan, 2019). As shown in the Climate Action Plan, promoting walkability is a way to make strides towards lowered emissions, but. It is also a method to promote social equity. Vehicles are an expensive form of transportation, so promoting cheap (bicycles) or free (walking) options can level the playing field between Easton communities. Additionally, increasing the proximity of amenities could allow residents to not go without necessities during an extreme event such as a flood. Extreme weather has been proven to be deadly for residents who live alone and/or rely on electricity for necessary healthcare. By promoting a city where residents are on the streets frequently, meeting each other and making connections, social capital is created. In the long run, this can save lives.

The status of walkability is not an issue solely being brought up from the top-down – Easton residents also share concerns about the walkability of their city. The Nurture Nature

Center published an '*Easton Matters: What Environmental Issues Matter to You*' report based on a community needs assessment of Easton conducted from 2014 to 2016. The report states that residents "value the walkability of a small town with a vibrant downtown", and found that some of the most frequently stated concerns included "traffic, pedestrian safety and walkability, and the maintenance of sidewalks and street trees." There are other walkability related concerns mentioned in the neighborhood-specific section of the report. Specifically, the speed, noise, and congestion caused by car traffic was identified in all neighborhoods but the South Side. The South Side, however, had its own unique barriers related to walkability, specifically unlit streets, potholes, and lack of footbridges. Another neighborhood-specific walkability concern is in College Hill, where residents identified the lack of crosswalks as a safety concern. Other concerns raised in multiple neighborhoods include low food access and lack of parks. These are related to walkability because they revolve around the ability to access necessary amenities within a reasonable walking or biking distance.

The benefits of reducing Easton's reliance on cars cannot be understated – it would reduce greenhouse gas emissions and air pollution, offer opportunities for the creation of social capital, and make the city a more equitable place for all residents.

Methods

Quantitative Analysis Methodology

I: Amenity Mapping

Amenity mapping is an effective way to visualize the number of services and places of interest that are in a neighborhood. One of our main objectives was to create an amenity map of

Easton in order to get a good understanding of the current state of the city. The four neighborhoods, College Hill, Downtown, West Ward, and South Side, all face their own challenges and our goal was to identify each of the neighborhood's greatest strengths and weaknesses. The map was created through Google Maps, and can be accessed <u>through this link</u>. Our map differs from the default google map because it includes multiple layers that were used to isolate certain locations and amenities on the map. There are two location layers – one for each neighborhood and a sublayer for each census block in Easton. Census blocks are the smallest geographical unit of analysis used by the United States Census Bureau. The remaining layers are for amenities and are divided into categories of services. Examples of categories include restaurants, groceries/food, and health. The amenities were labeled using the key shown in *Table 1*. With the amenity map, we were able to then create a foundation for calculating walk times.

 Table 1. Definitions of Amenity and Key Categories. The Map Key can be accessed through this

 link.

Amenity	Definition	Symbol
Active Parks	Parks with established equipment/court/field for play	
Passive Parks	Parks with a bench or seating for relaxation but no set pieces of equipment for play	
Small Passive Parks	Passive parks with no/limited utility due to size (eg: pocket parks)	H.C.
Community Gardens	Place with gardens available to the community for use by the community	
Pool	Park or place with a public pool	0
Quality Grocery Store	Full service grocery store with daily access to fresh produce	***

Medium/Speciality Food Options	Limited temporal availability (i.e. only open 1x per week or X seasons per year) OR limited product availability (i.e. no fresh produce)	۲
Convenience Stores	Junk food or lack of fresh food	•
High End Food Options	Expensive restaurants	\otimes
Mid End Food Options	Mid range restaurants	X
Coffee Shops	Coffee shops	
Winery or Bar	Wineries and bars	
Fast Food & Chain Restaurants	Low cost, easily available restaurants	
Emergency Food Services	Food kitchens/pantries	
Hospitals & Emergency Health Services	Such as St. Luke's	T (3)
Pharmacies	Full service pharmacy	B
Walk-in Clinic	Walk-in clinics with available nurses/doctors	
Primary Care Physicians	Includes primary care physicians in all types of medical practices	te or
Pediatricians	Includes pediatricians in all types of medical practices	•
Other Medical Providers	Doctors whose exact category could not be gathered from their website	•
Primary Schools	Elementary schools	
Early Learning Centers/Daycares	Places for children below schooling age	stc. Pakir

Religious Center	Places of worship (specific religion denoted by different religious symbol)	Ð
Arts Organization	Such as the State Theater or Ballet Academy	erstrew
Community Center	Such as the Easton Area Community Center	0
Library	Public libraries	0
Business	Any place for shopping that is not mentioned in a previous category	0

Multiple categories have separate symbols depending on the quality and quantity the amenity offers. To reflect Easton's limited food accessibility, there are three tiers of grocery services. Tier 1 includes mass grocery stores, such as Giant, that offer a virtually infinite amount of options. Tier 2 grocery stores are medium/ specialty grocery options that offer more than a convenience store does in terms of quality or quantity, but it does not compare to a complete grocery store because certain necessities may not be available. Tier 3 grocery stores are convenience stores.

The centerpoints of each census block are based on the 2020 census population density per census block (*Easton, PA Social Explorer Data (Census Block 2020)*, n.d.). The centerpoint factors in both location and density of people in each census block using this data. The centerpoint of each census block is important because it is the starting point for each census block's walk time calculation. This metric was far more relevant to our study as it is people-centric and can offer a more accurate representation of amenity access. Once these centers were collected, we plotted the corresponding coordinates for each block onto our asset map.

II: Getting Walk Times

In order to get walk times, we closely followed the X-Minute City's criteria of being within a 15-minute walk to an amenity category. We recorded the time it took to walk from the population center of each census block in Easton to the nearest amenity in each subcategory of amenities. However, for businesses, restaurants, and cultural amenities, we calculated the number of each amenity within a 15-minute radius. This choice was due to a surplus of these amenities in Easton and to reflect the fact that when it comes to these categories, a variety of offerings is important. For example, one high quality grocery store within a walking radius would be adequate but one business or restaurant would not be. Walking time to each amenity was measured through the use of Google Maps' walking directions, which factors in obstacles such as elevation, stoplights, and more.

Some obstacles and walk time restraints were not accounted for by Google Maps, such as safety and the condition of sidewalks. These restraints were complex to identify and calculate into our walk times due to lack of available quantitative data.

III: Calculating Walkability Scores

We took the information from the amenity mapping of each neighborhood and used it to get the data into a standard score for each amenity so that our findings could be more easily understood. By taking the travel times of each amenity in the census blocks and weighting them by population, we were able to obtain a weighted average time of walking to each amenity within a neighborhood as well as the entire city.

Weighted Walk Time Average = $\Sigma(P * t)/\Sigma P$

P, population

t, walk time to amenity

IV: Data Analysis

Once all of the weighted walktime averages were calculated for the census blocks, the data was put into an Excel spreadsheet. With Excel, we created multiple tables based on walk times. These included tables regarding each amenity by neighborhood, as well as Easton as a whole. With these tables, we were able to make graphs and figures that are shown in our results section. These figures help visualize the walkability scores and allow each neighborhood to be assessed and compared with one another.

Qualitative Analysis Methodology

I: Methods Overview

We employed qualitative data collection and qualitative coding analysis methods to further assess walkability and accessibility in Easton. The purpose of the qualitative analysis was to gather information from community members in order to generate more comprehensive themes surrounding walkability and accessibility in Easton. This analysis also allowed us to incorporate direct quotes from Easton residents and empowered us to move our project out of the classroom and to truly collaborate with the community. Qualitative data collection was used to obtain information surrounding walkability and accessibility in Easton through informational interviews with Easton community leaders and residents. The information obtained from these interviews was coded into themes and patterns using an inductive approach; a bottom up approach that involves reading interview transcripts and developing themes,

While this analysis employed a formal data collection and coding method, it was not intended to be an all-encompassing study of how Easton community members understand walkability in their neighborhoods. As opposed to random sampling, our analysis heavily relied

on convenience and purposeful sampling because of the limited resources of this study. In other words, we chose to speak with community leaders who live and work across Easton's four neighborhoods who can provide important insights about their communities, representing the interests of locals. To ensure a fair analysis of the qualitative data, the information obtained from the interviews and the coding was paired with the quantitative data (ie. walkability scores) in order to draw nuanced conclusions that are representative of the state of walkability and accessibility in Easton.

II: Data Collection

In order to better understand the state of walkability and accessibility in Easton, key aspects of a 15-minute city, we interviewed nine Easton community leaders and members from the four different neighborhoods and a variety of organizations across the city. The interviewees were selected by researching various community organizations in the four neighborhoods and identifying community leaders. Among the thirty or so community contacts identified, twenty-two community leaders were chosen to be interviewed based on their involvement in either a community association, a food pantry, and/or a famer's market (See Appendix A). Three out of the twenty-two community leaders were chosen based on familiarity. The interviewees were categorized based on their involvement in a specific neighborhood or across neighborhoods. Around two to six community leaders per neighborhood were chosen by project members. From those 22 potential interviewees contacted, nine interviews were held. The interviews were conducted virtually over zoom, via phone, and in person. Using an automated transcription software and recording software, the conversations from the interviews were transcribed to text.

III: Data Analysis

Once the interviews were transcribed, two members of the group read over every transcription to categorize and manually code for themes and patterns. First, the data was sorted into categories based on the different neighborhoods and organization types each of the interviewees represented. Once the categories were formed, the notes were analyzed for themes and patterns, which were determined by the frequency of repeated concepts or issues across the nine interviews. For example, a theme of "difficulty in mobility" will be recorded if walking issues or the poor state of sidewalks are mentioned in multiple interviews. Each identified theme will be referenced using one to two common short quotes that appeared in different interviews. This inductive approach will ensure that the themes are not drawn from our understanding of the study, but rather from concepts around walkability and access that emerge from Easton community leaders.

Results & Discussion

City Level

Easton is a fairly walkable city using the simple standard of a 15-minute walk. However, there are key limitations that require attention to improve quality of life for residents. As noted in *Table 2*, many amenities have walking times below the 15-minute threshold, which is a positive asset of the community. Throughout Easton the weighted walk averages for parks, convenience stores, emergency food, primary care physicians (PCP's), and daycares are all under a nine-minute walking time. Amenities that are within a 9-15-minute walking time are specialty

food, pharmacies, and primary schools. The only amenity that is unwalkable on a citywide average are grocery stores.

Table 2. Average walking times in minutes to each amenity, weighted by population of each census block within the

 city of Easton

City	Population	Active Parks	Passive Parks	Quality grocery store	Specialty/ Medium options	Convenience store	Emergency Food Resources	Pharmacie s	Primary Care Physician	Primary Schools	Early Learning Centers
Easton Weighted Avg (min)	27860	6.89	6.76	31.99	12.78	6.76	8.4	13.43	7.42	9.16	8.3 7

Overall, Easton has quite a few strengths in terms of being a walkable city. Active and passive parks are accessible to the majority of residents. In terms of quantity, these passive parks are abundant throughout the city. Notably, the Easton Cemetery, Karl Stirner Arts Trail, and the River Trail are green spaces that are very large and offer high quality recreational use. In *Figure 3*, the histogram highlights that 89.5% of residents are within a 15-minute walk of an active park and 89.3% of residents are within a 15-minute walking distance of a passive park. While every neighborhood has walkable access to these amenities, the quality of passive parks vary by



neighborhood and has a lot of room for improvement.

Figure 3a



Figure 3. Histogram showing the number of people who live x distance away from the nearest active park (3a) and green spaces (3b)

Another strength in amenities that Easton has to offer is its accessibility to restaurants and cultural amenities. Easton is known by many as a 'foodie destination' due to its variety of restaurants mainly located around the Downtown area. While restaurants are mainly located in Downtown, there are pockets of restaurants and bars located in the other neighborhoods as well. Since Downtown is centrally located in the city, a lot of people are within a walkable reach to these restaurants. In *Figure* 4a, a histogram relates how many residents live within a certain number of restaurants within a 15-minute walk. Impressively, every Easton resident lives within a 15-minute walking distance of at least three restaurants. Cultural amenities, and businesses are also categorized in similar histograms in *Figures 4b & 4c*. Cultural amenities include religious centers, art organizations, community centers and libraries. Access to cultural amenities are quite strong, about two out of every three Easton residents are within reach of over four cultural

amenities within a 15-minute walk. Furthermore, businesses are in abundance in Easton, with about 90% of residents living within reach of over 10 businesses within a 15-minute walk.



Figure 4. Histogram showing the number of people who live within a 15-minute walk of an amount of restaurants (4a), businesses (4b), and cultural amenities (4c)

Residents of the City of Easton as a whole do not have walkable access to quality grocery access. With only one supermarket actually inside the confines of Easton, an overwhelming majority of Easton citizens are left dependent on motor vehicle access in order to purchase produce and grocery goods. While residents of College Hill and West Ward are both closer to separate grocery stores that lay outside city limits, for many, they still take far beyond 15-minutes to reach on foot. Even the medium options which could help supplement grocery needs are lacking in most areas.

As previously stated, the lack of quality grocery stores is the biggest barrier to Easton being a city in which citizens can easily walk to all important amenities. We define a quality grocery store as one that has fresh produce and diverse food and supply options. Our asset map shows northern parts of College Hill that require a nearly 45-minute walk to the nearest grocery store. Easton's qualification as a food desert is one of the largest obstacles to overcome when analyzing recommendations. In *Figure 5*, a city wide histogram highlights that over 18,000 of Easton's population are over a 26-minute walking distance to the nearest grocery store. Furthermore, about 87% of the population is beyond a 15-minute walk of a grocery store.



Figure 5. Histogram showing the number of people who live x distance away from the nearest grocery store.

Another common citywide amenity category is access to pharmacies. In *Figure 6*, the histogram highlights that about 31.6% of Easton residents are beyond a 15-minute walk to a pharmacy. While this issue is not as severe as the cities lack of a grocery option, it is important to mention. Unlike grocery stores, there are a few pharmacies in Easton which are placed in central areas of neighborhoods. Surprisingly, none of the people interviewed expressed the lack of access to pharmacies. This is likely due to the small sample size of interviewees. After further evaluating the data, the majority of the residents beyond a 15-minute walk to a pharmacy are located in College Hill due to the lack of a pharmacy and two interviewees from College Hill expressed the lack of walkable access to necessary health services.



Figure 6. Histogram showing the number of people who live x distance away from pharmacies.

A holistic view of Easton shows multiple natural topographic barriers to walkability. There are significant physical barriers separating all neighborhoods. West Ward, College Hill, and South Side each share a border with Downtown. None of these three neighborhoods share a border with one another. Despite this 'proximity', the neighborhoods remain divided. West Ward and College Hill are separated from Downtown by steep hills, and South Side is separated by a steep hill, an unsafe intersection (Larry Holmes Drive), and the Lehigh River. Throughout the interviews conducted in Easton, there were many trends in needed improvements of walkability that did not come up in our quantitative data analysis. Notably, a lack of common spaces for residents to come together was a very common issue that affects walkability. Common spaces are ideal in walkable cities because it provides a space where all residents can meet up for important events, community meetings, and leisure. When common spaces are placed in central areas, it invokes people to walk and come together. Another common theme from our interviews is that there were quite a few areas that are not walkable due to safety concerns.

Mentioned safety concerns include the pedestrian route down College Ave, which is a high risk traffic intersection due to its lack of a marked crosswalk and indication for drivers to be wary of passengers according to the Easton Advisory Council transport risk assessment map. In fact, for the entirety of Easton, "lack of pedestrian friendly corridors/sidewalks' ' arose as a theme in three community leader interviews when asked about concerns of walkability in Easton. This lack of foot-traffic-friendly pedestrian access creates a disjointed community between the neighborhoods.

This disconnect does not end at merely physical barriers. The socioeconomic status of neighborhoods plays a key role in walkability access and amenities. Downtown and West Ward both have access to a lot of amenities but it is more expensive to live in Downtown, especially new apartment complexes, partially due to the quality of amenities being better than West Ward's. College Hill is the wealthiest sector of Easton totaling a median income of over \$112,000, most likely due to its high population of Lafayette College faculty and staff. However, College Hill is simultaneously the area of Easton with the least amount of daily amenities, lacking critical needs such as a pharmacy, emergency food options and specialty food options. In

College Hill, the average car per household is over 1, and is a big reason why College Hill is the most expensive neighborhood to live in, yet it has the least amenities. Another theme regularly cited in our interview analysis is the use of Lafayette and the Hill for walking or recreation. Green spaces and usable recreational areas in College Hill are virtually restricted to residents who reside nearby or own a car. In Conclusion, socioeconomic status is somewhat linked to the amenities that are within the neighborhood, but the lack of direct correlation between median income and number of amenities nearby is due to the car dependent culture of our society which allows people of a higher socioeconomic status to have access to more amenities by car.

Neighborhood Level

Each neighborhood brings their own unique feel to Easton. Therefore there are many differences in walking scores and available amenities between each neighborhood. This section dives into each neighborhood's strengths and weaknesses through analysis of quantitative and qualitative data. The primary source of quantitative data is provided in *Table 2* below. *Table 2* builds off of *Table 2* and provides walking scores to amenities from each neighborhood. In addition, *Figure 2* sorts this data and visualizes it into a bar chart.

Table 2. Walking times in minutes to each amenity, weighted by population of each census block within the

 neighborhood. We summed the products of population and walking times, and then divided them by the total

 population. We did it for each neighborhood, and then the entire Easton city. The highlighted red sections are all the

amenities that are above a 15-minute walking time. Yellow sections are 9-15-minutes and Green sections are 0-9 minutes.

Census block	Population	Active Parks	Passive Parks	Quality grocery store	Specialty / Medium options	Convenience store	Emergency Food Resources	Pharmacies	Primary Care Physician	Primary Schools	Early Learning Centers
WW Weighted Avg (min)	10390	5.2	7.51	43.29	9.62	5.31	5.63	7.19	6.97	8.89	4.97
DT Weighted Avg (min)	2538	7.14	8.1	33.9	4.82	4.75	4.03	15.32	5.03	4.78	6.36
CH Weighted Avg (min)	5694	12.11	2.88	37.2	21.97	9.6	15.8	30.3	9.21	10.1	8.19
SS Weighted Avg (min)	9238	5.5	7.95	15.56	12.86	7.21	8.14	9.53	7.47	10.08	12.87
Easton Weighted Avg (min)	27860	6.89	6.76	31.99	12.78	6.76	8.4	13.43	7.42	9.16	8.37





<u>Downtown</u>

The Downtown neighborhood has a population of 2538 people. While it is the neighborhood with the fewest residents, it has the most businesses and is a hub for commerce. As seen in *Figure 2*, this neighborhood has two amenities that are unwalkable: quality grocery stores and pharmacies. The nearest grocery store is over 30 minutes walking distance on average. For residents of Downtown, this means that access to fresh groceries can be challenging depending on their class status. While there are the Easton Public Market, Nature's Way, and the Easton Farmers' Market that sell fresh produce, the cost for these groceries can be quite high, pricing out many residents, as well as the fact that not all of them are available on a daily basis. That being said, the clients of these shops hold them fondly and there is no doubt that they are great assets for Downtown to have. For those that cannot afford these options however, a car is required to get food outside of restaurants. Tony Klapatch, an interviewee, who has a background in pedestrian safety, transit safety, and cycle safety, explained the lack of a walkable grocery store played a significant role in his move from Downtown to Forks.

The nearest pharmacy for most Downtown residents is just over 15-minutes away. Pharmacies are businesses that many people need on a regular basis for medications, vaccines, and other general needs. They are not only places for health products but also general stores, something that is lacking in these areas. There is a Family Dollar store Downtown that serves this purpose for the community.

Downtown has an abundance of high end restaurants and bars that offer a lively community at the heart of the neighborhood. Tony Klapatch described it as the highlight of living in the area. The easy access to social spheres like bars and restaurants offered him an entry into the community that he really enjoyed.

Physically speaking, Downtown is easy to walk around. Klapatch noted that the sidewalks and crosswalks were good with visible and clear markings for pedestrians and drivers. An exception to this is the Larry Holmes Drive/S 3rd St intersection, the only pedestrian way to get to South Side. This crosswalk has long pedestrian wait times and a long crossing with an unsafe amount of walking time. He described to us how small changes like highly visible crosswalks, better signage, street cut outs for walking, and other small scale improvements can offer large scale benefits to the quality of life to those who are traveling. He added that when crossing these streets, the traffic that is moving around you makes it feel like a barrier to the main green spaces of Downtown, Scott and Riverside Park which both house open green spaces and playgrounds. He also went on to describe that the residents of Downtown he was close with felt that these spaces were inaccessible because of these barriers to walking. Alternatively, one Easton resident explained that while they did not look forward to crossing Larry Holmes Drive, it did not stop them from enjoying Scott park with her dog, and that she would frequently see others in the area. So although Downtown has wonderful green spaces, they seem somewhat removed from the population of the neighborhood despite physical proximity. These factors reduce accessibility, at least in some capacity, to amenities that are otherwise well within walking distance.

West Ward

The West Ward neighborhood of Easton has a population of 10,390 people. Comparatively, West Ward has better overall walking times to many amenities. *Figure 2* shows that West Ward has short walking times in relation to the other residential neighborhoods. In detail, parks, trails, specialty food, convenience stores, emergency food, pharmacies, primary

care physicians, primary schools, and daycares were all within a 10-minute walk. All of this data suggests that West Ward is walkable by our 15-minute walk time standard.

However quantitative data does not express the full picture. While there is walkable access to specialty, convenience, and emergency food options, there is no walkable access to a quality grocery store, and the quality of the lower tier options is also significantly lower than that of Downtown. In addition, the specialty/ medium food options of West Ward, such as Mana *Food Market*, are not as good in quality compared to Downtown's medium food options, such as Easton Public Market. While Downtown at least has expensive options for produce like in the public market, or places with limited availability like Asian Produce, it is more difficult to find such vendors in West Ward. So while this neighborhood has specialty food options, they are nowhere near the quality or level of choice that Downtown has. Bulk food, fresh produce, and many other items are not available in West Ward as they are Downtown. The nearest quality grocery store is about a 45-minute walk away, and this is a major area of concern for West Ward residents. This is a massive issue, and deeply impacts the West Ward's overall walkability score. Access to a grocery store is crucial and carries far more weight than other amenities. West Ward has the farthest walking time to a grocery store among the four neighborhoods by over 10 minutes (see *Table 2*).

From looking at the amenities map and factoring in the population of this neighborhood, there are certainly areas in the West Ward that lack access to amenities more than others, and are less walkable than the averaged times show. In the West Ward, many of the amenities are very concentrated on its main road, Northampton Street, leaving areas near the river much further away from amenities than the averages that the quantitative data suggests.

Furthermore, qualitative data provides much more clarity as to how walkable West Ward truly is. In interviews with community leaders and residents of West Ward, common faults of the neighborhood are that the hilly terrain prevents people from walking to amenities, there is a lack of a grocery store, limited access to public transportation, and low walking safety. Edith Adams, a resident of West Ward of 25 years, said "I think the biggest factor in the West Ward would be there is no actual grocery store, as you would see, like your Giants, there's nothing like that in place."

Common benefits of the neighborhood that were mentioned are abundance of parks, convenience stores, and proximity to Downtown. Edith Adams described her home by saying, "It's a very, very relaxed, laid back area and brings a lot of joy because for the residents that I spoke to, as I said, it's such a convenience that downtown is right there, almost, and that brings them so much joy to be close to everything that they need to be within their community." Adams went on to say that her ideal version of the West Ward would be to primarily keep everything the same, just upgrade existing amenities. Overall, aside from the need of a grocery store, interviewees emphasized that going forward in improving walkability, West Ward needs to keep upgrading what is already there, rather than changing the existing amenity layout of the neighborhood. For example, while there are parks, there are not many and most of them do not have recreational use, especially for children. West Ward has access to a large quantity of amenities, however the quality of the amenities needs to be improved so that they are used and appreciated more by residents of the West Ward.

College Hill

Walkable access to amenities to and from College Hill is quite limited, due to a limited number of amenities in the neighborhood combined with the challenge of walking up and down a

very steep hill to access amenities downtown.. College Hill is generally walkable from a street infrastructure perspective. According to one of the expert interviewees, a lifelong College Hill resident, "There's a lot of nice wide streets....so it makes for a really walkable environment." However, the same does not apply to the sidewalks. Two community leaders voiced issues with the lack of pedestrian friendly sidewalks. While the neighborhood is physically walkable and most College Hill residents walk for recreation, access to amenities within a walkable distance is limited. For College Hill residents, amenities such as pharmacies and a quality grocery store take 30-37 minutes to access by foot (see Table 2). Other amenities like active and passive parks, convenience stores, early learning centers etc... are within a 15-min walking distance. The only convenience store within the 15-min walk time is the Wawa located on Cattell St. College Hill residents' proximity to a convenience store still does not improve access to basic necessities. One interview from a College Hill resident, Joseph L. Woo, covered the difficulty of accessing small essentials such as over the counter medicine or first aid kits. Another College Hill resident, Rachel Hogan-Carr, reiterated this idea saying that "you need to get on a highway in order to get to a lot of the community health and human services that are important for people."

In order to access critical amenities most residents depend on cars or the few bus stops that can transport them Downtown. Notably, there is the issue of physical barriers to walking in and out of College Hill from the other Easton neighborhoods. Factors within the built environment also present obstacles to walking in College Hill. Streets like Cattell St. on College Hill are difficult to cross, with few stop signs and heavy car traffic. This makes it both difficult and unsafe to walk across for many people. There is an unmarked crosswalk leading from McCartney St across from College Ave and College Dr that is a common crossing point for both

College Hill residents and Lafayette College students. There is no signage or markings alerting drivers to the crossing, which can make this area extremely unsafe.

South Side

South Side's 9,238 residents are faced with multiple challenges when it comes to walkability. This neighborhood is beset by multiple long walking times to amenities, specifically grocery stores, specialty/medium food options, emergency food resources, pharmacies, primary schools, and early learning centers (see *Figure 2*). South Side is more physically separated from the rest of Easton, only having one main road that connects it to the rest of the city. Additionally, the entire South Side is across the Lehigh River and up a long steep hill that makes walking very difficult. South Side's only amenity greater than 15-minutes away are grocery stores which pose a real challenge for acquiring fresh produce (see *Figure 2*). Outside of grocery stores, South Side fits under the *15-minute City* standard, but this does not mean there are no issues to address.

The amenity map adds more context to *Figure 2*, it is important to note that the one grocery store that resides in the South Side is at the very top of the hill. Furthermore, one of our general Easton contacts indicated that the public opinion of the store is quite negative, saying "[she] wouldn't shop there if you paid [her]." So although Google Maps shows that the average able-bodied pedestrian can make it there within 15-minutes, the travel time holds little weight if the store is realistically useless to the population. Functionally this leaves the South Side, without a quality grocery store. This issue highlights one of the shortcomings of our quantitative data. We were unable to assess the quality of each amenity with respect to actual operation, only its location, distance from population centers, and categorical classification.

South Side has also been noted as having the shortest average walk time to a park, with a 5.5-minute walk to the nearest active park and almost 8 minutes to a passive park (*Table 2*).

However, just because these parks are accessible, does not mean they are of a high quality and beneficial to the community. The amenity map shows that some of these parks, like the Nesquehoning street park and St. Joseph street park, are quite small and may be better suited as a place to rest or relax rather than play. This may not be best for families with children who want to play, even if they have some playground equipment. The issue of having quality parks is not unique to the South Side either, as the West Ward has many parks that are decently distributed, however some of them are just open lots in residential areas. Access to parks is no doubt important, but ensuring that the parks actually satisfy the needs of the community is as well.



Figure 1. Bar chart showing the population weighted average walk times to each amenity (per neighborhood)



Figure 2. Histogram showing the number of people who live x distance away from the nearest active park (3a) and

green spaces (3b)











Figure 3c

Figure 3d

Figure 3b

Figure 3. Histogram showing the number of people who live x distance away from the grocery (3a), specialty (3b), and convenience store (3c), and emergency food (3d)









Figure 4. Histogram showing the number of people who live x distance away from PCPs (4a) and Primary Schools

(4b)



Figure 5. Histogram showing the number of people who live x distance away from Daycares and Early Learning

Centers





(c)

Figure 6. Histogram showing the number of people who live within a 15-minute walk of an amount of restaurants (6a),

businesses (6b), and cultural amenities (6c)

Recommendations

Lafayette College's Sustainable Solutions course has compiled a set of recommendations for the City of Easton to implement towards achieving the "15-minute city." Our

recommendations are anchored in literature research, quantitative data, and qualitative data obtained from talking to Easton community members. The qualitative data in the research played an imperative role in dictating the proposed set of recommendations. Thus, the proposed recommendations will often refer to themes and quotes that emerged from the conducted expert interviews in order to emphasize our commitment to addressing the implementation of the 15-minute city through the needs of Easton's residents.

Considering the results from both the qualitative and quantitative data, our recommendations range from: infrastructure improvements, renovation of parks and recreation spaces, revitalization and beautification of neighborhoods beyond Downtown, and community building through the prioritization of equity and justice, and improving access to a quality grocery store. We acknowledge that these recommendations have financial and logistical barriers for the City of Easton. Nevertheless, Easton's path towards a 15-minute city highlighted in these recommendations has the potential to address a lot of residents' needs that are not being met and gaps that are not currently being filled, which make up for the possible economic or logistical limitations.

Infrastructure Improvements

We recommend that the city of Easton reduce or eliminate physical barriers to walking in order to encourage its residents to walk more. During our interviews with Easton residents and leaders, themes surrounding barriers to walking and biking throughout Easton came up quite often. Most of these barriers are directly correlated to safety. The theme of better safety leading to better walkability came up in three out of the nine interviews conducted. One College Hill resident, who did feel like Easton was a safe city, said "[Safety] is actually a consideration for walkability" when referring to issues of crime. Another Easton resident, approached the issue of

safety differently, referring to pedestrian safety when walking in unsafe intersections such as Eddyside park, saying that it "is pretty unsafe to walk to due to traffic. It is not a good combination in the summer when there's a lot of kids running around. It is very dangerous to cross there."

Furthermore, five problematic intersections have been noted by the Environmental Advisory Council as points needing improvement. These are the Philadelphia Road/West Milton Street intersection, the Larry Holmes Drive/South 3rd Street intersection, the Spring Garden/North 3rd Street intersection, the Bushkill Street/North 3rd Street intersection, the East side of North 3rd Street, and the McCartney Street/College Ave and College Drive intersection. For instance, intersections such as College Ave & McCartney street do not have any traffic light or aid for walking pedestrians. An overall check on dangerous intersections, especially those surrounding parks, must be assessed to ensure safety and accessibility. In addition to these areas, one interviewee discussed that the Northampton Street/Larry Holmes Drive intersection and Cattell Street were difficult to cross. It is important to note that there are Cattell Street pedestrian improvements being planned through the partnership of Pennsylvania's Department of Transportation and Lafayette College (Cattel, 2022). There is hope to introduce more curbouts, highly visible crosswalks, better signage, and an adjusted light schedule to make crossing easier for many of these intersections.

We believe that enforcing speed limits and the pedestrian right of way on problematic streets and intersections could change the habits of drivers to increase the safety of pedestrians. Better signage and/or thicker paint could enhance the visibility of crosswalks with poor visibility, therefore helping to alert drivers of pedestrians attempting to cross. Another safety-related barrier to walking is the lack of street lighting in the South Side. This was a concern for our

interviewees as well as in other Easton community concern surveys (The Nurture Nature Center, 2016). Increasing street lighting would hopefully enhance feelings of safety and therefore the likelihood that residents would choose to walk during the darker hours of the day. An aspect of safety related to biking also came up in the interviews. An Easton resident has raised concerns over the usability of the artistic bike racks throughout Easton; although there are an abundance of them, they fail to offer a safe place to lock bikes up. The lack of true usability hinders people from biking due to fear of theft. A College Hill resident made the observation that "biking communities are forming around Easton", thus, a possible infrastructure improvement could be to implement more usable bike racks that offer more security to resident's personal property.

Parks & Recreation Renovation and Community Building

We recommend that the City of Easton focus on the revitalization of active and passive parks in order to provide a space for community gathering and play. Active parks are parks with an established piece of equipment, court, or field in which to play or recreate; while passive parks are parks that provide a bench or seating on which you can relax. Most often, passive parks lack pieces of equipment for play. An overarching theme in the expert interviews was the limited space around Easton for community gathering and spaces for kids and adults to engage in recreational activities. This gap can be filled through the presence of usable and well-maintained active and passive parks.

Improving Easton residents' access to usable active and passive parks is not only essential to creating a walkable community, but to also recognizing the role that play and recreation has on creating a sense of cohesion within the community, which is a pillar of the 15-minute city ideal. As previously discussed in this report, Easton currently has a large number of accessible active and passive parks. While the current passive parks are still beneficial for the community, they do not offer much for youth activity or access to public recreational spaces. A College Hill resident noted that "none of the neighborhoods have any gathering places where kids can go out and play any kind of team sports." They follow this by acknowledging that there are a few small community parks in West Ward and in Southside with a playground and a few pieces of equipment, but they are not always in good shape (an example being Hackett park) or not usable for recreational sports such as soccer or baseball.

Quantity of active or passive parks is not where the issue lies in improving Easton accessibility; rather, these parks must be revitalized and improved to offer a robust community area within a brief walking distance of every Easton resident. A Parks Department-led initiative is a tangible program that the city of Easton could spearhead to ensure each neighborhood has access to at least a quality active park, preferably an active and passive park. An active park could serve as passive, but the opposite is not true. By offering a quality active park within walking distance to all residents and maintaining these essential amenities, the endless possibilities for play and community gathering will be accessible to Easton residents.

Another possibility to fill the gap of community gathering spaces would be to access community spaces, such as designated community centers, outdoor public green spaces, and informal neighborhood gathering points. Easton currently has some seasonal community spaces that are effective at bringing residents together. An example of this is the wintertime use of Center Square, where roads are closed off and pop up shops are opened for residents to roam. Events like these are great for the community and should continue to be done. Temporarily closing off streets for community events is a great way to invoke walking and bring people together. Community centers in the city, such as Boys and Girls Club of Easton, need to continue to be supported and used. Some improvements that are realistic and impactful would be for the

Easton Area School District to let the community use school property for community events, and programs. In addition, EASD should include more evening family programs to bring children and family closer together.

In addition, it is imperative that Lafayette College improve its role in community building not only by facilitating students' access to Easton, but by also facilitating Easton's access to Lafayette. While Lafayette has some events open to the public, it is very hard for Easton residents not living in College Hill to participate due to the hill acting as a barrier to walking. Lafayette can improve this by opening up the LCAT to Easton residents and effectively advertising it. In addition, Lafayette needs to improve communication with Easton residents when there are events happening on campus. An effective way to bring the community closer to Lafayette is to allow the community to use campus space for events, similar to the suggestion for EASD. Lafayette could also make an immediate impact in the downtown area by hosting movie nights or art galleries in the arts buildings at the bottom of the hill.

Beautification & Revitalization

We recommend an expansion of the Easton Ambassadors program into all the neighborhoods in order for the community to have power and autonomy in the state of their neighborhood. A West Ward resident as well as community ambassador noted how important revitalization is for her community, saying "[residents] need a little more revitalization, you know, to make it a more enjoyable and safer space." This resident engaged in a housing revitalization project in the West Ward and they used community interactions, surveys, and city officials to get funding for this project. It is important that revitalization and beautification measures, through the use of community ambassadors, be taken to improve the attractiveness of Easton City beyond the Downtown neighborhood. This would improve the aesthetics of the area, making it more likely that residents would want to walk in those places. Two interviewees made an observation that the scenery motivated people to walk more. A clean area is more welcoming to residents than one filled with litter and debris, and would give people a better space to inhabit. Easton could directly target these places that need help with facade improvement grants.

Equity & Justice

We recommend trying to avoid changes that might directly lead to gentrification, such as an influx of private businesses and housing. Rather, we suggest the city focuses on ways to strengthen the amenities and connections it currently has. A primary reason that walkable cities are a popular urban planning concept is because they can create more equitable cities. However, there is the concern of gentrification, or the process of changing a poor urban area in a way that attracts wealthy inhabitants and raises the cost of living beyond what the previous inhabitants could afford. Creating a city where residents have what they need within a physically and aesthetically safe distance while maintaining stability for residents is a delicate process.

Most neighborhoods in Easton have a reasonable quantity of private amenities. For example, College Hill has fewer amenities than the other neighborhoods, but the solution is not necessarily an increase of amenities in College Hill. Rather, access between College Hill and Downtown can be strengthened. This is already underway with the College's new walking trail. Other options to increase access from College Hill include increasing the frequency, range, and awareness of the Lafayette College Area Transportation (LCAT) shuttle. The inadequacy of public transportation for residents throughout the city is a well-known issue. As an intermediary solution to reduce GHG emissions, the city could consider a city shuttle that has targeted routes between Downtown and the other neighborhoods. Not only would this result in a more well connected city, but it would seriously aid in the parking issue that currently exists Downtown.

College Hill has the highest average income of the four neighborhoods, so it is logical that most public incentives to increase the quality of life should not be focused here. Rather, incentives should be focused in the West Ward and South Side to improve the lived experience of those residents. Again, it is better to bolster what these neighborhoods already have instead of inviting in private solutions. These neighborhoods need increased community connections, which can be achieved through an increased quantity and quality of free, public gathering spaces such as parks and schools. Connections can also be increased by educating residents about what is within a reasonable distance of where they live. For any new public housing units built, there can be public signage indicating which amenities are within a walkable or bikeable distance. The city can promote walking without increasing gentrification by making the streets safe and comfortable to walk. This can be done with relatively simple adjustments such as lighting, crosswalks, and sidewalk maintenance.

Access to Quality Grocery Store

One of the most critical issues that we found the need to address was the distinct lack of accessible grocery stores, which was a recurring theme in all of the expert interviews. While Easton residents are enjoying and making use of the access to food or produce they have, it is undeniable that an accessible quality grocery store would be quite beneficial.

This is one amenity category which will require a private investment. As has been shown in this report, there are no quality grocery stores within the city limits. Residents have addressed food access as an issue, as do the city's leaders. If possible, it would be most beneficial to introduce a grocery store in the WestWard, which has the highest proven walking time to quality grocery access. There is already discussion about the possibility of a new grocery store being built near the location of Daddy's Place. It would occupy the first floor of a 6 story apartment building, and while the central location would be beneficial to many Easton residents, there are questions of how parking will be managed. Due to the amount of space that a full scale grocery store requires, construction in any central or population dense location will prove difficult, making this prospect all the more significant. As previously stated, the introduction of shuttles to Downtown helps in terms of emission reduction as well as general accessibility, however it would be even more beneficial to individuals if there was a centralized grocery store. On their own the shuttles would greatly benefit residents that need to cross nearly the entire town in order to purchase produce, but the effect would be compounded if a central location were to appear.

Bibliography

Allam, Z., Bibri, S. E., Chabaud, D., & Moreno, C. (2022). The '15-Minute City' concept can shape a net-zero urban future. *Humanities and Social Sciences Communications*, 9(1), 126. https://doi.org/10.1057/s41599-022-01145-0

America's Suburban Experiment. (2022, July 11). Strong Towns. https://web.archive.org/web/20220711191920/https://www.strongtowns.org/curbside-chat -1/2015/12/14/americas-suburban-experiment

Andres Duany, R. S. (2022, December 13). *From slogan to substance, planning the 15-minute city* [Text]. CNU.

https://www.cnu.org/publicsquare/2022/12/13/slogan-substance-planning-15-minute-city

- Bartzokas-Tsipras, A., & Bakogiannis, E. (2022). Quantifying and visualizing the 15-Minute walkable city concept across Europe: A multicriteria approach. *Journal of Maps*, 1–9. https://doi.org/10.1080/17445647.2022.2141143
- Cattell Street Pedestrian Improvements. (2022, August 29). Lafayette Facilities Planning. https://facilitiesplanning.lafayette.edu/2022/08/29/cattell-street-pedestrian-improvements/
- Cheshmehzangi, A. (2015). The Reinvention of Liveability in Public Places: Interaction
 Mapping Analysis of Central Nottingham's Improved Walkability. *Journal of Human Behavior in the Social Environment*, 25(5), 426–440.

https://doi.org/10.1080/10911359.2014.980594

City of Easton Climate Action Plan. (2021). Nature Nurture Center.

Complete Streets—Smart Growth America. (n.d.). Smart Growth America. Retrieved May 1, 2023, from https://smartgrowthamerica.org/what-are-complete-streets/

- Dill, J., Mohr, C., & Ma, L. (2014). How Can Psychological Theory Help Cities Increase Walking and Bicycling? *Journal of the American Planning Association*, 80(1), 36–51. https://doi.org/10.1080/01944363.2014.934651
- *Easton, PA Social Explorer Data (census block 2020).* (n.d.). Social Explorer. https://www.socialexplorer.com/a9676d974c/explore
- Easton Vulnerability Assessment. (n.d.). Nature Nurture Center.
- Enhancing Easton's Status as a Walkable Community: An Evaluation of the Third Street Corridor. (2009). Easton Environmental Advisory Council Transportation Affinity Circle.
- Federal Highway Administration University Course on Bicycle and Pedestrian Transportation.(2006). U.S. Department of Transportation Federal Highway Administration.
- Forsyth, A., & Krizek, K. J. (2010). Promoting Walking and Bicycling: Assessing the Evidence to Assist Planners. *Built Environment (1978-)*, 36(4), 429–446.
- Introducing Spotlight On: 15-minute cities. (n.d.). C40 Knowledge. Retrieved May 10, 2023, from
 - https://www.c40knowledgehub.org/s/article/Introducing-Spotlight-On-15-minute-cities?l anguage=en_US
- Lam, T. M., Wang, Z., Vaartjes, I., Karssenberg, D., Ettema, D., Helbich, M., Timmermans, E. J., Frank, L. D., Den Braver, N. R., Wagtendonk, A. J., Beulens, J. W. J., & Lakerveld, J. (2022). Development of an objectively measured walkability index for the Netherlands. *International Journal of Behavioral Nutrition and Physical Activity*, *19*(1), 50. https://doi.org/10.1186/s12966-022-01270-8

- Lang, J. J., Pinault, L., Colley, R. C., Prince, S. A., Christidis, T., Tjepkema, M., Crouse, D. L., de Groh, M., Ross, N., & Villeneuve, P. J. (2022). Neighborhood walkability and mortality: Findings from a 15-year follow-up of a nationally representative cohort of Canadian adults in urban areas. *Environment International*, 161. https://doi.org/10.1016/j.envint.2022.107141
- Lee, H., Calvin, K., Dasgupta, D., & Others. (2023). SYNTHESIS REPORT 1 OF THE IPCC SIXTH ASSESSMENT REPORT (AR6). Intergovernmental Panel on Climate Change.
- Logan, T. M., Hobbs, M. H., Conrow, L. C., Reid, N. L., Young, R. A., & Anderson, M. J. (2022). The x-minute city: Measuring the 10, 15, 20-minute city and an evaluation of its use for sustainable urban design. *Cities*, 131, 103924. https://doi.org/10.1016/j.cities.2022.103924
- Lu, M., & Diab, E. (2023). Understanding the determinants of x-minute city policies: A review of the North American and Australian cities' planning documents. *Journal of Urban Mobility*, 3, 100040. https://doi.org/10.1016/j.urbmob.2022.100040
- Marohn, C. (2019, June 3). *So, You'd Like a Neighborhood Grocery Store*... Strong Towns. https://www.strongtowns.org/journal/2019/6/3/so-youd-like-a-neighborhood-grocery-stor e
- Prior, L. (2013). Assessment Report: Lehigh Valley Local Food Economy (p. 120). Nature Nurture Center. https://nurturenaturecenter.org/wp-content/uploads/2018/02/assessment20report20lv20fo od20economy20final.pdf
- Reasons Why Bicycling And Walking Are Not Being Used More Extensively As Travel Modes. (n.d.). U.S. Department of Transportation Federal Highway Administration.

- Running a Campus Food Pantry:Student Government Toolkit. (n.d.). College & University Food Bank Alliance.
- Singleton, B. E., Gillette, M. B., Burman, A., & Green, C. (2021). Toward productive complicity: Applying 'traditional ecological knowledge' in environmental science. *The Anthropocene Review*, 20530196211057024.

https://doi.org/10.1177/20530196211057026

Strong Towns. (2023, February 14). Strong Towns. https://www.strongtowns.org

- The Nurture Nature Center. (2016). *Easton Matters: What Environmental Issues Matter to You*. https://issuu.com/nurturenaturecenter/docs/easton matters public issu
- Turoń, K., Czech, P., & Juzek, M. (2017). The concept of a walkable city as an alternative form of urban mobility. *Scientific Journal of Silesian University of Technology. Series Transport*, 95, 223–230. https://doi.org/10.20858/sjsutst.2017.95.20

Walk Score Methodology. (2011). Walk Score.

Ziani, A., & Biara, R. W. (2022). Walkable Urban Environment: Sensory Experiencing in Bechar City (Algeria). *Environmental Research, Engineering & Management*, 78(1), 105–116. https://doi.org/10.5755/j01.erem.78.1.30075

Appendix

Appendix A: Codes

Physical ability as barrier to walking more****	Lack of shelters/community health services **	Housing crisis/homelessness **
Lafayette as a barrier**	Lack of grocery stores *****	Gentrification*
Lack of Pedestrian friendly corridors/sidewalks***	Lack of recreation/sport fields for youth and adults****	College expansion*
Dependence on downtown public bus service****	Lack of accessible general stores ***	Lack of affordable housing*
Scenery motivating people to walk **	Increase daytime activities to build support for amenities**	
Walking for recreation in CH**	Lack of parking downtown ****	
Better safety, better walkability***	Lack of common places/spaces***	
Lack of public transit connecting college hill to other areas**		
general lack of public transit****		
	*	
	amount of time theme has appeared in all the interviews	