



Planning for Healthy Outdoor Spaces for Older Adults

How to Improve Mobility & Amenities at Farley Towers, Elizabeth, NJ



RUTGERS

Edward J. Bloustein School
of Planning and Public Policy

Planning for Healthy Outdoor Spaces for Older Adults
Age-Friendly Community Studio
Farley Towers, Elizabeth, New Jersey
Course: 970:510:04

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EXECUTIVE SUMMARY

The Housing Authority of Elizabeth, in conjunction with the Lifelong Elizabeth program of Jewish Family Services of Central New Jersey, requested Rutgers University to provide recommendations on how to improve the outdoor spaces of J. William Farley Towers, a low-income, public-housing building for older adults in Elizabeth, New Jersey. The project examines these recommendations through the lens of what is known as an age-friendly community initiative. This report outlines and analyzes recommendations for the property. The first two sections provide an overview of this project and the context of the property and its residents. The third and fourth sections set out to learn about the needs and wishes of the local resident population. The final section details the specific proposed recommendations, split between those that enhance mobility and other that suggest new amenity improvements.

In the Demographics section, we describe the census tract area where Farley Towers is located in addition to demographic information and other characteristics of Farley Tower residents. We also share state health and environmental data which highlights the air pollution and health disparities which Elizabeth residents face compared to the greater county and state. Lastly, we describe in this section why Elizabeth residents need access to outdoor spaces, such as decreased exposure to harmful pollutants during specific times of day, increased opportunities for social interaction, and increased air quality through trees and other vegetation.

The Resident Input section describes our process for collecting resident input and data, such as key concerns, suggestions and complaints. We collected input from both a resident survey and focus group in September 2018. We describe the results including a summary of resident perceptions of outdoor space and the

specific aspects of the outdoor space which they enjoy. We also describe whether residents agreed or disagreed with a series of questionnaire statements regarding their quality of life, safety and comfort. In addition, we summarize how residents currently use the outdoor space around Farley Towers. Finally, we describe some of the residents' recommendations, which includes a broad range of topics such as cleanliness, maintenance, safety, animals and protection from the elements.

The Mobility section identifies street-level conditions that make it difficult for residents to move around, such as dangerous crosswalks, busy traffic on Cherry Street, and a lack of a designated drop-off and pick-up zone. We provide three different street redesigns that aim to 1. Reduce traffic speed in front of Farley Towers, 2. Improve the Cherry Street midblock crosswalk, and 3. Improve the pick-up and drop-off procedure. Each redesign is comprised of numerous elements that can be implemented independently.

The Amenities section considers the existing strengths and issues of various outdoor areas on the property, and proposes ways to implement productive improvements to them, as suggested by the residents and backed by research. The suggestions include: 1. Improved lighting, 2. A Fitness area for residents, 3. Enhanced Garden Space, 4. Expanded Gathering Spaces, and 5. A Dog Run. Like the mobility section, each proposed change provides options for level of implementation.

This report should be used to improve the lives of the local residents of Farley Towers and continue dialogue that insists that older adults deserve “age-friendly”, high quality, livable spaces where they experience inclusion and are able to actively participate in community activities.

CONTENTS

Acknowledgements.....	2	4.4 Self-Reported Uses of Outdoor Space	22
Executive Summary.....	3	4.5 Residents’ Recommendations	23
List of Figures and Tables.....	6	5. Existing Site Conditions & Recommendations.....	24
1. Overview	7	5.1 Mobility Analysis & Recommendations	25
1.1. Introduction	8	5.1.1. Background	25
2. Background	9	5.1.2. Existing Street Conditions.....	29
2.1. National Context	10	5.1.3. Solutions	29
2.2. Farley Towers Overview.....	11	5.1.4. Funding	38
2.3. Studio Research Questions	11	5.2. Amenities Analysis & Recommendations	39
2.4. Studio Methodology	11	5.2.1 Background	39
2.5. Location.....	12	5.2.2. Lighting.....	39
2.6. Structural Characteristics.....	14	5.2.3. Fitness Area.....	41
2.7. Future Property Development.....	15	5.2.4 Garden Space	42
2.8. Elizabeth River Trail.....	15	5.2.5 Gathering Spaces	43
3. Demographics	16	5.2.6. Dog Run.....	45
3.1. Population, Age, and Income.....	17	5.2.7 Funding	45
3.2. Other Demographic Details	17	7. Appendices.....	i
3.3. Air Quality & Health in Elizabeth	18	7.1 Farley Towers Survey	ii
3.4. Value of Outdoor Spaces	19	7.2 Focus Group Structure	v
4. Resident Input.....	20	7.3 Potential Mobility Recommendation Funding Sources	vi
4.1 Survey and Focus Group Goals	21	7.4 Potential Amenities Recommendation Funding Sources ...	xiv
4.2 Focus Group Participation	21	7.5 Mobility Redesign Highlights	xvi
4.3 Resident Perceptions of Outdoor Space.....	21	7.6 Recommended Amenities Cost Estimates	xix
		8. References	xxi

LIST OF FIGURES AND TABLES

Figure 1. Where We Live (AARP).....	11
Figure 2. New Jersey	12
Figure 3. Union County	12
Figure 4. Farley Towers Map.....	13
Figure 5. Farley Towers Site	13
Figure 6. Farley Towers Parking Lot and Site	13
<i>Table 1. Breakdown of Unit Types</i>	<i>14</i>
<i>Table 2. Breakdown of Parking Lots and Type</i>	<i>14</i>
Figure 7. Aerial Site Photo	14
Figure 8. Future Property Map	15
Figure 9. Average Age of Total Farley Residents	17
<i>Table 3. 2015 Hospitalization rates for asthma (primary diagnosis) per 10,000 residents.....</i>	<i>18</i>
<i>Table 4. Resident Perceptions of Outdoor Space</i>	<i>22</i>
Figure 10. Survey Results: Desired Features.....	23
Figure 11. Mobility Concerns (Crosswalk)	26
Figure 12. Mobility Concerns (Intersection)	26
Figure 13. “Average Daily Volume”	27
Figure 14. Pedestrian and Cyclist Crashes 2006-2013	28
Figure 15: Speed and Fatality Percentages.....	32
Figure 16. Pinch-point.....	33
Figure 17. Raised Crosswalk.....	33
Figure 18. Circular Driveway	34
Figure 19. Painted Crosswalk.....	35
Figure 20. Pedestrian-Scale Lighting.....	35
Figure 21. HAWK Signal.....	36
<i>Table 5. Implementation Hierarchy</i>	<i>36</i>
<i>Table 6. Budget</i>	<i>37</i>
Figure 22. Existing Lighting Conditions	39
Figure 23. Proposed Exterior Lighting.....	40
Figure 24. Proposed Exterior Lighting #2.....	40
Figure 25. Proposed Fitness Area	41
Figure 26. Existing Gardens.....	42
Figure 27: Elevated Garden Beds.....	42
Figure 28. Potential Sensory Garden	43
Figures 29-30. New Furniture	44
Figure 31. Proposed Gazebo	44
Figure 32. Proposed Dog Run Area	45

1. OVERVIEW

1.1. INTRODUCTION

This report details the final plan and recommendations of the Age-Friendly Community Studio held in the Bloustein School of Planning and Public Policy at Rutgers University in New Brunswick, New Jersey during the Fall 2018 semester. Eight graduate students from a variety of concentrations, including transportation, land use, community development, public health, and informatics, participated in this studio course. The group was asked to explore recommendations for outdoor improvements at J. William Farley Towers, a residential apartment complex located along the Elizabeth River in Elizabeth, New Jersey.

The clients include the **Housing Authority of the City of Elizabeth**, which owns and operates the building, and the religious non-profit **Jewish Family Service** of Central New Jersey, which operates **Lifelong Elizabeth**, “a city-wide initiative with the mission to ensure that Elizabeth is a friendly place to grow up and grow old” (“Lifelong Elizabeth,” n.d.).

This report:

1. Provides a framework and purpose of the studio
2. Explores the background and context of the physical site
3. Provides a review of the demographics of the area
4. Describes the residential input obtained through surveys and focus-groups
5. Reviews existing site conditions and makes recommendations for mobility and amenities improvements

2. BACKGROUND

2.1. NATIONAL CONTEXT

According to the Association of American Retired Persons (AARP) in their guidebook *Where We Live*, 46 million Americans are 65 years old and above, or roughly 1 in 7 among the general population; by 2030, that number is estimated to be 73 million, or one in five persons (LeaMond, 2016, p. 2).

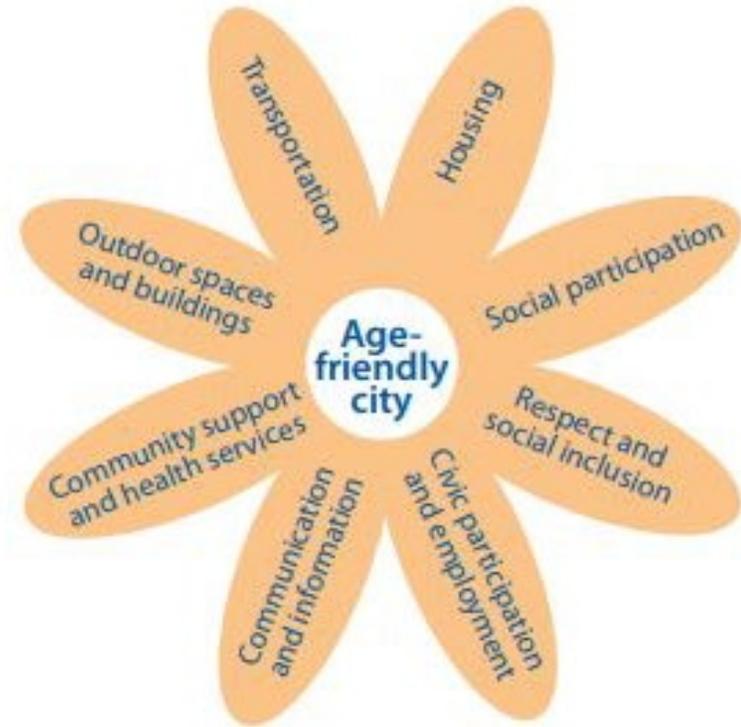
There is a growing demand for high quality, livable spaces, where older adults experience inclusion and are able to actively participate in community activities. An “age-friendly” world is one where all people are treated with respect and dignity, regardless of their age.

One way to build an age-friendly world is through Age Friendly Community Initiatives (AFCI’s), which are targeted actions among various clients within a specific local community. The goal is to improve social and physical surroundings for older adults in order to boost their health, well-being and community involvement (Greenfield, Oberlink, Sarch, Neal, & Stafford, 2015, p. 192-93).

According to the World Health Organization (WHO), there are eight domains in the age-friendly lexicon. These include:

- Housing
- Social participation
- Respect and social inclusion
- Civic participation and employment
- Communication and information
- Community support and health services
- Outdoor spaces and buildings
- Transportation

This studio focuses on two domains for Farley Towers: transportation and outdoor spaces and buildings.



The goal of the studio is to provide health and safety for residents by improving the outdoor environment. Thinking in terms of the bigger picture, the entire city of Elizabeth will benefit as this large section of the population can become healthier and remain connected to the community with increased participation.

2.2. FARLEY TOWERS OVERVIEW

Farley Towers provides low-income public housing to adults older than 62 as well as adults with disabilities. This building is one of four senior complexes that the Housing Authority of the City of Elizabeth owns and operates.

Despite the plural “towers”, Farley Towers is a single 10-story building with 249 active rental units that was built in 1963.

2.3. STUDIO RESEARCH QUESTIONS

1. *How can the outdoor spaces on the property be enhanced for healthy use?*
2. *How can safety and mobility around the Farley Towers property be improved?*

2.4. STUDIO METHODOLOGY

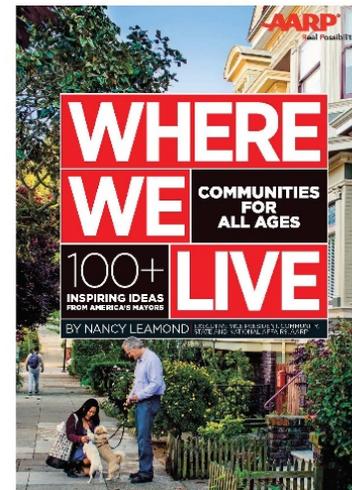
The studio was divided into three groups tasked with:

- Mobility concerns
- Amenity concerns
- Data gathering

The first task was assessing current conditions and needs of the property. The group documented conditions via on-site observations, including taking item counts and measurements of the dimensions of the outdoor spaces. Part of the assessment involved meeting with staff members on September 12th and September 26th, 2018. To obtain resident input, the studio members distributed a survey from September 14th to September 28th, and also conducted a focus group on September 26th.

After gathering information about existing conditions and hearing from residents, the studio members researched best practices through existing scholarship, AARP guides, and municipal reports in order to provide a list of improvement recommendations.

FIGURE 1. WHERE WE LIVE (AARP)



2.5. LOCATION

Farley Towers is located at 33 Cherry Street, near downtown Elizabeth, which hosts numerous civic buildings as the County Seat. As the maps below indicate, Elizabeth is a city in eastern Union County, in northern New Jersey.

FIGURE 2. NEW JERSEY

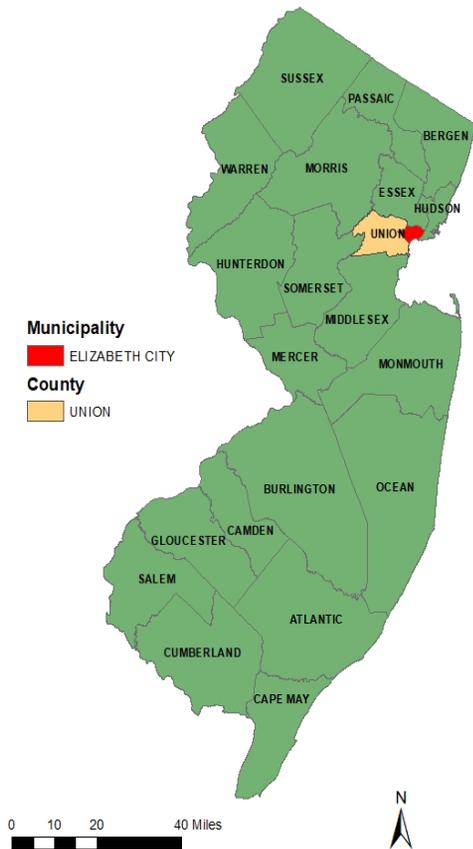
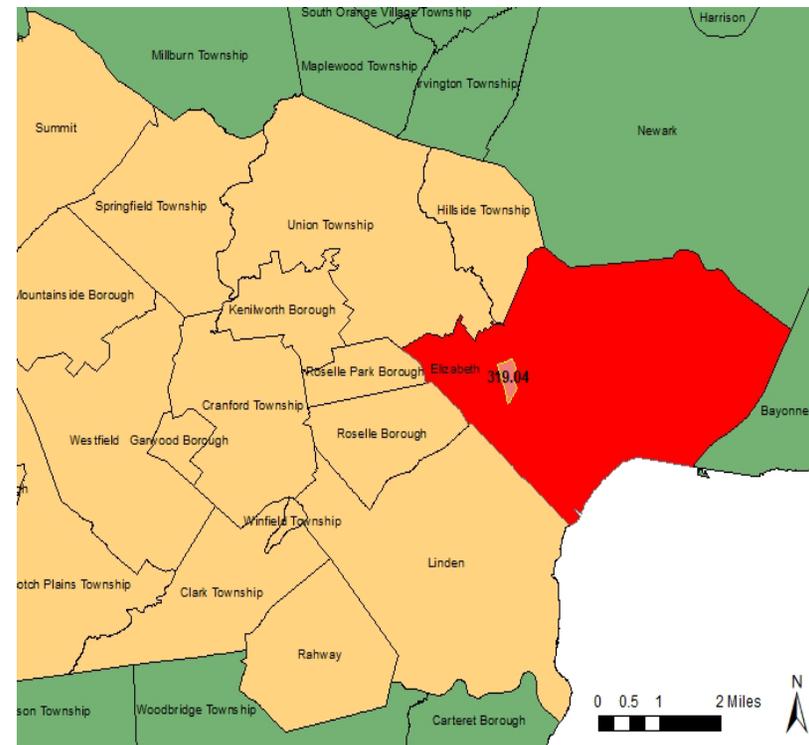


FIGURE 3. UNION COUNTY



This census tract map on the next page, with both the site parcel and parking parcel highlighted (see Figure 4), shows the location of Farley Towers just to the west of the municipal and county offices of downtown Elizabeth. The map highlights the surrounding areas and transportation networks near the apartment complex. The NJ Transit rail line runs near the edge of the property line, and the Elizabeth Train Station is only 0.3 miles away. Cherry Street, which runs between the towers and parking lot, is a continuation of New Jersey State Route 27. To the south of the map area is the New Jersey Turnpike and to the northeast is Newark Liberty International Airport. The property lines share a boundary with the Elizabeth River.

FIGURE 4. FARLEY TOWERS MAP



Aerial and site photos (as shown in Figure 5 and Figure 6) provide context to the downtown area and depict the nearby structures of the County Courthouse Annex and two places of worship. The complex sits in a residential neighborhood with a nearby retail and commercial area. Vacant lots sit on either side of the river. The photos also highlight the amount of parking and outdoor space that belong to Farley Towers.

FIGURE 5. FARLEY TOWERS SITE



FIGURE 6. FARLEY TOWERS PARKING LOT AND SITE



2.6. STRUCTURAL CHARACTERISTICS

Farley Towers is a ten story building built in 1963. The overall site is a mostly flat, sometimes sloped 2.29 acres, of which about half is taken up by the Y-shaped structure. There are a total of 249 residential units in the building, of which 54 are studio units, 149 are one-bedroom units, and 46 are two-bedroom units (see Table 1). There are approximately 112 parking spots, split between three parking lots (see Table 2), and one loading dock area (see Figure 7).

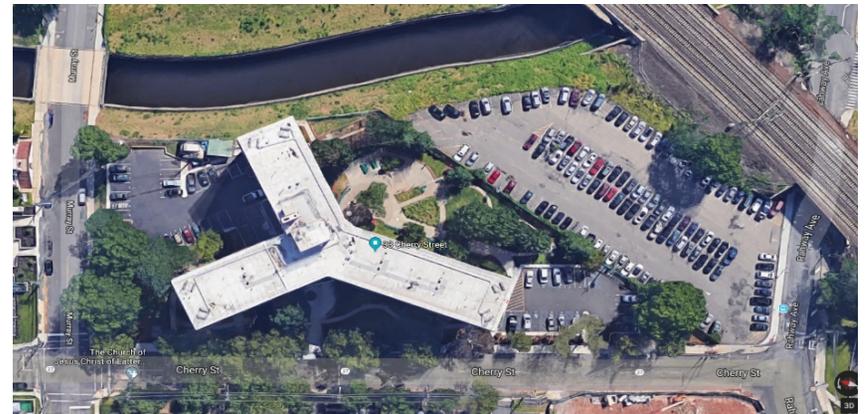
TABLE 1. BREAKDOWN OF UNIT TYPES

Unit Types	Number of Units
Studio (300 SF)	54
One-Bedroom (480 SF)	149
Two-Bedroom (720 SF)	46
TOTAL	249

TABLE 2. BREAKDOWN OF PARKING LOTS AND TYPE

Lot Location	No. of Regular Spaces	No. of Reserved Spaces	No. of Handicapped Spaces	Total Spaces
Cherry Street	78	0	4	82
Murray Street	8	8	0	16
Rahway Ave	2	0	10	12

FIGURE 7. AERIAL SITE PHOTO



2.7. FUTURE PROPERTY DEVELOPMENT

Currently, there are several vacant lots near the Farley Towers, close to the Elizabeth River, that are slated to be developed into residential buildings. A total of five residential properties are planned to be constructed, which will add a total of 784 units to the local housing stock and make this section of the Elizabeth River quite a popular location (Sabre Real Estate Group LLC, 2017) (Kofsky, 2017). Figure 8 demonstrates these planned changes.

2.8. ELIZABETH RIVER TRAIL

There are plans for an Elizabeth River Trail to run adjacent to the property, which will allow Farley Towers residents to walk up to 1.5 miles along the river when the trail is complete. Currently, Phases I and II of the project, just to the southeast of Farley Towers, are opened to the public, while Phase III and Phase IV are under construction (Loomis, 2018).

FIGURE 8. FUTURE PROPERTY MAP



3. DEMOGRAPHICS

3.1. POPULATION, AGE, AND INCOME

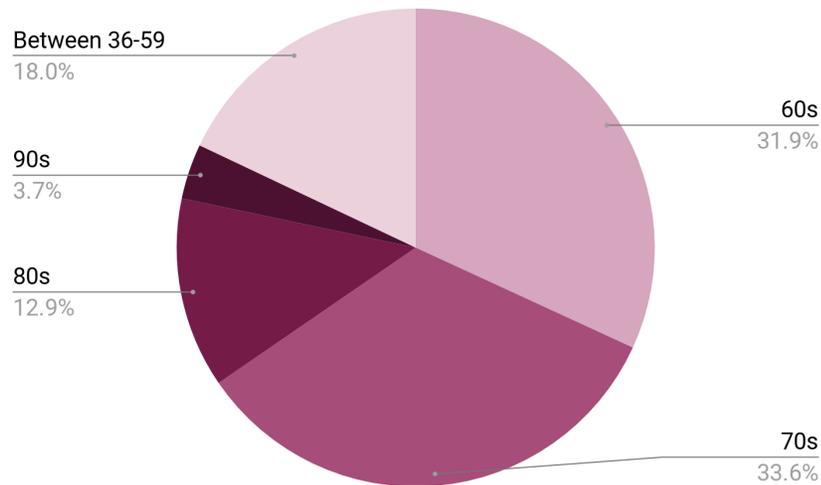
Farley Towers is located in Census Tract 319.04 in the City of Elizabeth in Union County, New Jersey. Census Tract 319.04, which has a population of 2,953, has a slightly higher population density and proportion of seniors than surrounding areas (U.S. Census 2010). Farley Towers is home to 295 residents. As Farley Towers is a low income senior housing facility, the majority of residents are either seniors or people with disabilities. Per HUD eligibility requirements, residents have an income below \$50,000 per year per person, or \$57,000 per year per for a family of two. The majority (193) of Farley Towers residents are between the ages of 60 and 80. 49 residents are over the age of 80 and 53 residents are under between the ages of 36-59 (Pichirallo, 2018).

3.2. OTHER DEMOGRAPHIC DETAILS

Additional information about the residents' other characteristics was provided by Farley Towers Building Manager Sal Pichirallo. About 25% of residents use a mobility aid or product. Approximately 30 residents use a cane, 30 residents use a walker, and 12 use a wheelchair (total: 72/295). Four residents were reported to be deaf, while none were reported to be blind. This data helped to guide our design recommendations, such as increasing lighting along walkways, creating a circular drive as a convenient pick-up or drop-off area, and installing signage and sensors at the crosswalk in front of Farley.

Fifteen residents reported to be dog owners (5%). Based on our observations, at least one owner had multiple dogs.

FIGURE 9. AVERAGE AGE OF TOTAL FARLEY RESIDENTS



3.3. AIR QUALITY & HEALTH IN ELIZABETH

Elizabeth has among the state’s worst air pollution, having the highest annual average and highest 24-hour average of fine particle (PM 2.5) levels (New Jersey Department of Environmental Protection, 2017). This is largely due to Elizabeth’s high population density (Bureau, 2015), which generates significant vehicle emissions, as well its location near major infrastructure and pollution sources such as the Port Elizabeth Marine Terminal, the Newark Liberty International Airport, the Bayshore petrochemical complex and the New Jersey Turnpike (I-95) which bisects Elizabeth (Tsolou, 2018)

Health data revealed that Elizabeth’s residents face significant health disparities compared to the greater county and state. For example, Elizabeth has one of the highest hospitalization rates of asthma in New Jersey (15.8 per 10,000 residents), higher than the county average (10.6 per 10,000) and state average (12 per 10,000) between 2000-2017.

TABLE 3. 2015 HOSPITALIZATION RATES FOR ASTHMA (PRIMARY DIAGNOSIS) PER 10,000 RESIDENTS

	Numerator (hospitalization counts)	Denominator (pop.)	Rate per 10,000
Elizabeth	204	129,315	15.77
Union County	593	557,073	10.6
State	11,113	8,958,013	12.4

(Source: NJSHAD, 2015)

Primary risk factors include fine particulate matter (PM 2.5) and ozone in outdoor air. Demographic data also revealed racial disparities in Elizabeth. In 2016, Latinos and Blacks older than 65 had higher rates of asthma hospitalization--163 and 150 hospitalizations per 100,000 respectively--which was more than three times the rate of Whites and Asians, who had 59 and 52 hospitalizations per 100,00, respectively (NJSHAD, 2017).

3.4. VALUE OF OUTDOOR SPACES

Although chronic exposure to particulate matter can be damaging for anyone (American Lung Association, page 41), it is still important for residents at Farley Towers to have access to outdoor spaces, as well as having mobility options to access spaces in the wider community or beyond.

There are strong benefits to spending less time indoors. In addition to the boost in morale and connections to other people or friends, spending less time indoors can lead to lower exposure of harmful indoor pollutants as well. In a recent study, PhD candidate Ioanna Tsolou used sensors to measure the air quality data of PM and other pollutants across all hours of the day in multiple public housing units in Elizabeth. Tsolou determined that PM 2.5 and CO2 differences were higher in the afternoon and evening hours due to human activities such as opening or closing windows, indoor smoking, lighting candles, incense or cooking (Tsolou, 2018).

Creating space to separate smokers from non-smokers may be particularly relevant to a large public housing building such as Farley. Our own studio's survey heard from one resident who complained about the presence of second-hand smoke from her floor. Meanwhile, our focus group session heard from residents who asked for a designated smoking area.

Tsolou also found that outdoor spaces and mobility options were important for senior residents: "Some seniors spent time outside in the front or back yard maintained by HACE (Housing Authority of City of Elizabeth) to get some shade or interact with neighbors. Some occupants had supportive networks of nurses, relatives, and friends, who checked on them or took them out for a ride or to go

shopping during the heat of the day. Some others left their apartments for a short time to visit a church nearby, a park or a senior/cooling center owned and managed by the city of Elizabeth" (Tsolou, 2018, p. 36).

There is evidence that outdoor spaces with trees and vegetation would help to reduce air pollutants and greenhouse gas emissions in the micro-climate surrounding Farley (EPA). Trees naturally cool the air and also improve air quality by absorbing pollutants and by decreasing pollutants which are temperature dependent (Nowack, 2002). By developing on-site amenities, and mobility for Farley residents, the building can provide similar flexibility to Farley residents and as a result enhance their physical and mental health.

Public spaces can also help address social isolation. One study determined chronic social isolation could be as detrimental to one's health as smoking 15 cigarettes in one day. Poor social relationships were associated with a 29% increase in risk of coronary heart disease and a 32% increase in risk of stroke (Valtorta, et. al, 2016). AARP calls social isolation the "silent killer" which costs Medicare \$6.7 billion in additional spending every year (AARP, 2018).

4. RESIDENT INPUT

4.1 SURVEY AND FOCUS GROUP GOALS

In order to assess residents' perceptions of and experience with the outdoor spaces surrounding Farley Towers, residents were invited to participate in a survey and focus group. After an initial site visit to Farley towers during which staff shared their observations and common complaints from residents, including concerns about safety and transportation, the studio team collaborated with HACE and Lifelong Elizabeth to draft a questionnaire. A combination of six questions were provided that were open-ended, multiple choice, and rating scale. (See Appendix 7.1)

Building Manager Sal Picharallo distributed the surveys in both Spanish and English to the doors of the 295 residents. 20 surveys were returned, which is about 6.7% of the Farley Towers population. The age and race/ethnicity of each survey participant was the following:

- Sex: Male (6), Female (9), Unknown (5)
- Race/ethnicity: White (4), Black (6), Hispanic/Latino (6), Hispanic/White (1), Refused (5)

4.2 FOCUS GROUP PARTICIPATION

In September 2018, Lifelong Elizabeth staff conducted two focus group sessions with 31 residents: one was facilitated in Spanish and the other in English. Students from the studio were present to take notes as well as suggest questions (See Appendix 7.2). Due to time constraints, not all questions could be asked.

4.3 RESIDENT PERCEPTIONS OF OUTDOOR SPACE

Both the survey and focus groups included the question "What you like about the outdoor space around Farley Towers?" In their responses, residents highlighted several key characteristics and amenities of the outdoor space. The participants most frequently mentioned that they enjoy the gardens and ability to grow food. The second most frequently discussed feature of the outdoor space was the availability of seating. Other aspects that residents discussed were the clothes drying equipment and grill. In addition, several residents expressed appreciation for the maintenance and landscaping of the grounds. Finally, two residents commented on the environment created by the community, praising the serenity of the back area and the ability to have community and share with neighbors.

In addition to these open ended questions, survey participants were asked to indicate whether they agreed or disagreed with a series of statements regarding their quality of life, safety, and comfort. We then scored their responses on a scale of 1 to 5 and averaged the scores for each statement. The average score for each of the responses was close to "3" (Unsure) with each statement receiving a range of "agree" and "disagree" responses. Nearly half of the respondents disagreed with the statement "I feel safe crossing the street in front of Farley Towers". Further, 7 of the 19 participants that responded to the question "I am satisfied with my quality of life" disagreed with this statement. These responses corresponded with resident concerns highlighted during the focus groups and complaints made to Farley Towers staff.

TABLE 4. RESIDENT PERCEPTIONS OF OUTDOOR SPACE

	Strongly Agree (5)	Agree (4)	Unsure (3)	Disagree (2)	Strongly Disagree	Average Score
I am satisfied with my quality of life	4	3	5	1	6	2.89
I feel safe taking the bus from Farley Towers	5	3	5	3	3	3.21
I feel safe crossing the street in front of Farley Towers	3	4	4	3	5	2.84
I feel safe being picked up/dropped off	4	4	6	3	2	3.26
The seating outside of Farley Towers is comfortable	4	3	6	2	4	3.05

4.4 SELF-REPORTED USES OF OUTDOOR SPACE

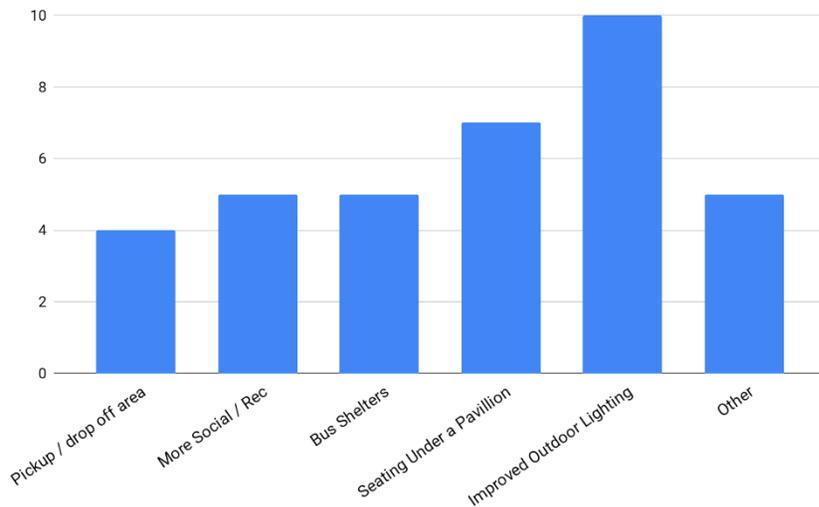
During the focus group, residents were asked about their current uses of the outdoor space around Farley Towers. The majority of residents commented that they primarily use the space for sitting either alone or with others and getting fresh air. Other reported uses of the outdoor space included gardening and walking dogs.

In order to understand the frequency of residents' engagement with the outdoor space surrounding Farley Towers, residents were asked to report on how often they 1) leave Farley Towers, 2) use the outdoor space at Farley Towers, 3) walk to a destination near Farley Towers, 4) Take the bus from Farley Towers, 5) Use a taxi cab/Uber/Lyft, and 6) Plant and tend the gardens. We found that while 9 (about 50%) of survey participants leave Farley Towers at least daily, only 3 respondents reported using the outdoor space daily. 8 respondents (about 50%) reported they had never used the outdoor space. In addition, survey respondents used walking or the bus to reach their destinations much more often than taxis or ride sharing services. Only two respondents indicated that they had taken a taxi or rideshare, and only one had noted they had tended or planted the gardens. This data suggests the current outdoor space is underutilized by residents. A nearby bus shelter could encourage more transit use while a pick-up/drop-off zone could facilitate more easy access to vehicular transportation. Expanding on-site amenities such as lighting, gardening opportunities, age-friendly exercise equipment, and improved landscaping and seating could encourage use of the outdoor space.

4.5 RESIDENTS' RECOMMENDATIONS

In order to understand residents' desires for the space and to prioritize recommendations, we asked residents to respond to the question "Would you like to see any features added to the space outside of Farley Towers?". In the survey, residents were asked to mark features that they would like see added to the space outside of Farley Towers. Figure 10 below provides an overview of their selections. Among six options, lighting improvements and covered seating were the most frequently selected options.

FIGURE 10. SURVEY RESULTS: DESIRED FEATURES



In addition to selecting from a list of features, respondents were given the option to identify other modifications to outdoor space in an "other" option in this item, as well through comments on the survey and open ended questions during the focus group. Their responses included a broad range of topics, cleanliness and maintenance, safety,

animals, and protection from precipitation, which are summarized below.

With regard to safety, residents raised concerns about the speed of traffic near the front entrance. To address this issue, residents suggested traffic calming measures, including speed bumps and flashing lights. In addition, residents reported concerns about substance use on or near the property. Residents' recommendations to address these concerns included security staff during evenings hours.

With regard to animals, residents expressed concerned with unattended dogs and cats in the outdoor space. In addition, several residents expressed concern about accumulation of animal waste, particularly from dogs, cats, and birds. Several residents mentioned concerns that lack of consistency in garbage removal may be contributing to insect infestations. Participants suggested that both staff and residents can play a role in addressing these concerns through more frequent cleaning and increased responsibility in removing pet waste and garbage.

While residents appreciate the availability of public seating, some residents expressed a desire for more comfortable seating. In addition, several residents mentioned that covered seating to provide protection from sun and rain would be helpful. Residents are particularly interested in covered seating near pick up areas so that people taking taxis can wait outside without being exposed to the weather.

Finally, several residents expressed concern about tensions and lack of trust among residents (particularly between racial and ethnic groups) and between residents and staff. One resident, for example, suggested the removal of pebbles from the outdoor space due to concerns that they are being thrown at people. In addition, two residents mentioned that they prefer to sit in the back to avoid gossip. One resident commented "Everyone should try to get along – that's what make the place nice. We all should be nice to each other," and suggested that more activities and opportunities for residents to build community may help improve these tensions.

5. EXISTING SITE CONDITIONS & RECOMMENDATIONS

5.1 MOBILITY ANALYSIS & RECOMMENDATIONS

5.1.1. BACKGROUND

WHAT IS MOBILITY?

Mobility refers to both a person's physical ability to move around and access to the outside world. It is a crucial part of a healthy lifestyle, especially in the older adult population. Without mobility, independence can be limited which makes it difficult to go shopping, travel, and complete other day-to-day activities. Another critical feature of mobility is that it allows participation in the community and interaction with others. When mobility is limited and it is difficult to go outside, there is a higher likelihood of isolation, which can have detrimental effects on mental health (Lampinen & Heikkinen, 2003).

Mobility is fundamentally important to older adults being able to maintain their physical and psychological health (Yeom, 2008). Mobility also promotes healthy aging as it relates to the basic human need of physical movement. Mobility declines with as age increases, and the most complex and demanding tasks are affected first. Unmet physical activity need, defined as the inability to increase physical activity despite being willing to do so, is common among community-living older people who have mobility problems and who report negative environmental features in their neighborhood (Rantakokko, 2010). Some of the physical benefits that come with being mobile include, but are not limited to: helping maintain the ability to live independently and

reducing the risk of falling and fracturing bones; helping to maintain healthy muscles, bones, and joints and also helping to control joint swelling and pain associated with arthritis. Other benefits include reducing the risk of dying from colon cancer, diabetes, coronary heart disease and also helping to reduce blood pressure in some people with hypertension (Mollenkopf, 2005). Physical activity can also reduce the symptoms of anxiety, depression and promotes improvements in mood and feelings of well-being (Pinder, 2016).

Outdoor mobility refers to the ability to access surroundings. It refers to all types of trips outside the home, either by foot or by other means of transportation (Mollenkopf, 2005). Mobility is necessary for accessing commodities, making use of neighborhood facilities, and participation in meaningful social, cultural, and physical activities.

Commuting and transportation systems influence mobility; however, the report focus is on walking. Walking is an integral part of mobility and may be considered a prerequisite for unassisted use of other forms of transportation.

WHAT ARE MOBILITY CONCERNS AT FARLEY TOWERS?

While some older adults may have certain pre-existing health conditions that hinder their mobility, such as arthritis or fibromyalgia, there are also environmental conditions that can hinder mobility. At Farley Towers, the mobility of the resident population may be reduced due to:

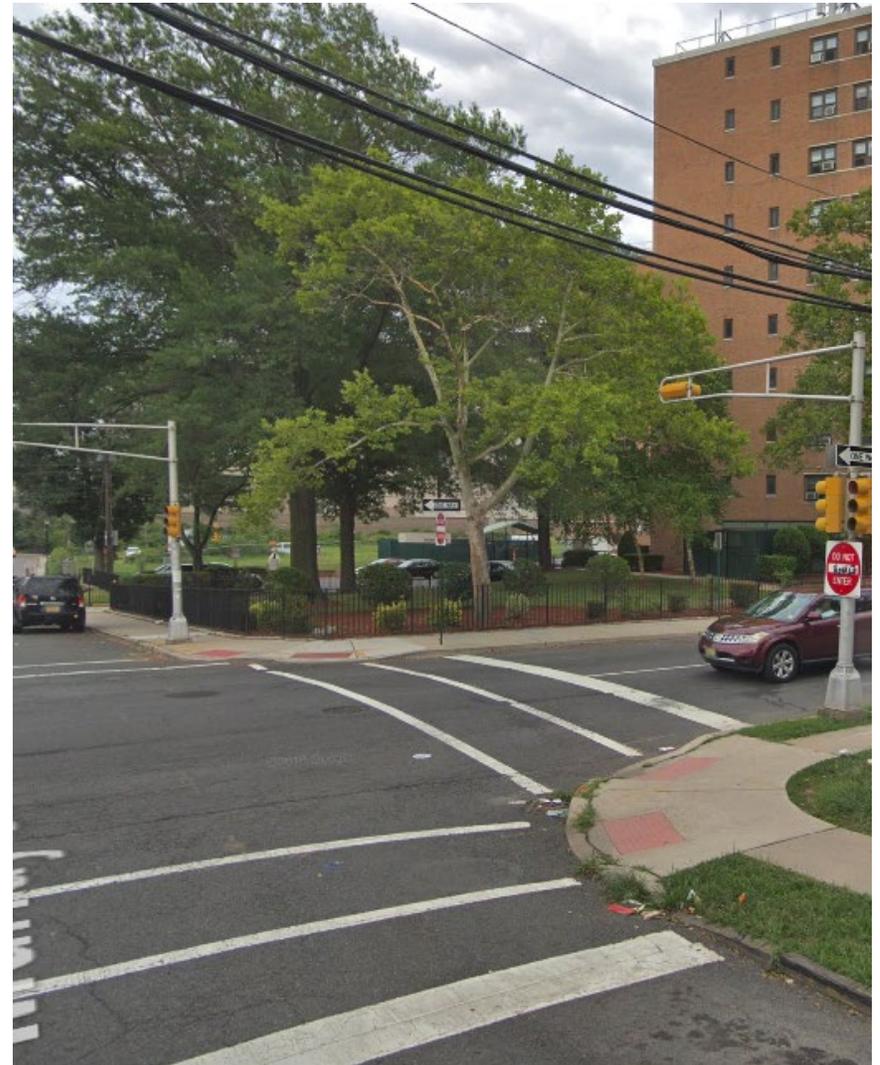
- Dangerous crosswalks
- Long distances to destinations
- Lack of resting places
- Lack of designated drop-off / pick-up zone
- Busy traffic.

In the example of the dangerous crosswalk, if it is challenging to cross a street due to unsafe conditions, it is possible that a resident will opt to stay inside rather than engage in what is perceived as risky behavior outside. This demonstrates how unfavorable environmental conditions can limit mobility.

FIGURE 11. MOBILITY CONCERNS (CROSSWALK)



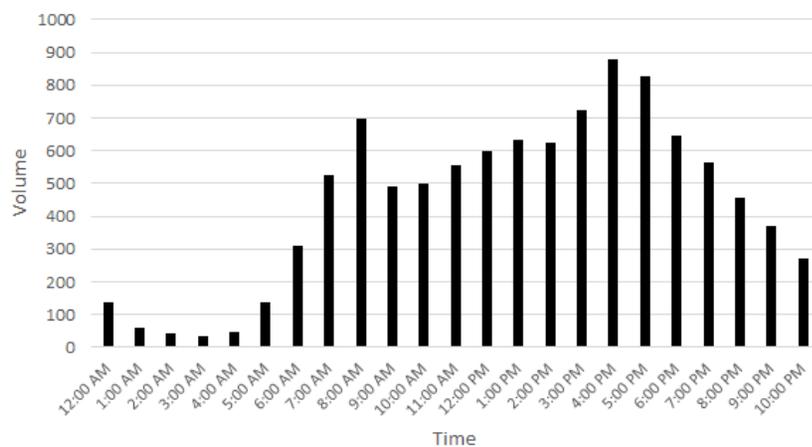
FIGURE 12. MOBILITY CONCERNS (INTERSECTION)



Another serious mobility concern is the high vehicular traffic in front of Farley Towers on Cherry Street during the A.M. and P.M.

rush hour period. According to a 2015 traffic count by the New Jersey Department of Transportation, from 4pm to 5pm close to 900 vehicles were recorded on Lincoln Highway between West Jersey and Grand Street, just two blocks north of Farley Tower (NJDOT, 2015). Although the data was not collected right in front of Farley Tower, it is reasonable to assume that a comparable number of vehicles passes by on a typical day. This has potentially negative mobility implications: if one wishes to cross the street from Farley Tower to the west side of Cherry Street, they could navigate dozens, or even hundreds of vehicles hoping that they will stop and let you cross. Just the thought of having to cross such a busy street may keep some older adults inside their apartments.

FIGURE 13. “AVERAGE DAILY VOLUME”



Concerns about the dangerous conditions surrounding Farley Tower were confirmed Thanksgiving night this year, when a 62-year old woman was killed while crossing Cherry Street at 9:45 P.M. (Rosoff, 2018). Although there are limited details about the

cause of the crash, a vehicle normally needs to be traveling at a relatively high speed to cause a fatality. While it is the driver that causes the vehicle to reach unsafe speeds, roadway design also plays a role and that role can be addressed through design interventions.

CYCLIST AND PEDESTRIAN CRASH DATA 2006-2018

In 2017, Union County had a total 19,629 total crashes (NJDOT Crashes Chart, 2018) and 34 of those resulted in fatalities (NJSP Fatality Chart, 2018). Cyclists and pedestrians are particularly susceptible in crash situations. As seen in (Figure 14), there have been four fatal cyclist and pedestrian crashes within a half-mile distance from Farley Towers over the past 12 years. A half-mile distance is roughly a 10-minute walk for the average adult and we know that residents are traversing the area. Green points of interest -Elizabeth YMCA, Elizabeth Train Station, and Supremo Food Market-were specifically listed by residents on the focus group surveys as places they visit (Figure 14). Yellow stars indicate pedestrian crashes that resulted in injuries of varying degrees. It is important to note that only actual points of contact are reported, so it is likely that there are a greater number of near-misses. Our report focused on the Cherry Street length directly in front of Farley Towers in order to address crossing for parking and drop-off situations. As outlined in the City of Elizabeth’s Complete Streets Policy, streets should “provide safe and accessible accommodations for existing and future pedestrians, bicycle, and transit facilities” (Elizabeth CS, 2014, p.6).

5.1.2. EXISTING STREET CONDITIONS

Cherry Street is a segment of Route 27, a state highway that is maintained by the New Jersey Department of Transportation (NJDOT). Vehicular traffic flows northbound in two-lanes on Cherry Street, right in front of Farley Tower. Each lane is approximately 17 feet wide. While parking is illegal on both sides of the street, residents use the western curb of Cherry Street as an unofficial drop-off and pick-up location. There is a mid-block crosswalk which connects the front entranceway of Farley Tower to the resident parking lot across the street.

5.1.3. SOLUTIONS

BACKGROUND: ELIZABETH AND COMPLETE STREETS

The City of Elizabeth has been proactive in its commitment to traffic safety through its adoption of a Complete Streets policy in 2014. Complete Streets (CS) is a movement to ensure that engineering designs accommodate people of all ages and abilities. This is often referred to as the “8-80” concept in that what is designed for an eight-year-old and an eighty-year-old would be safe for anybody in-between. Elizabeth’s CS policy outlined some key points of consideration that are to be implemented into future Master Plan reexaminations (Elizabeth CS, 2014, p.5):

- Generation of multimodal networks
- Safety and accessibility for cyclists and pedestrians
- Transportation facilities that anticipate future multi-modal travel

- Design with Safe Routes to School, Safe Streets to Transit programs in mind
- Compliance with the American Disabilities Act

Currently, Union County has not adopted their own Complete Streets policy. Through incorporation into the Master Plan, the City of Elizabeth’s Complete Street ideals would be enforceable and leaders would be accountable for their implementation in the future.

TRAFFIC CALMING ROUTE 27

Traffic calming strategies use physical design and other measures to improve safety for motorists, pedestrians, and cyclists (U.S. Department of Transportation). It also aims to encourage safer, more responsible driving and potentially reduce traffic flow. Implementation of traffic calming measures can reduce traffic speed, reduce motor-vehicle collisions, and improve safety for pedestrians and cyclists. These measures can also increase pedestrian and bicycling activity (U.S. Department of Transportation).

Farley Towers is located along NJ State Road 27. There are two main methods to implement the traffic calming strategies on state roads in New Jersey. The first is through an application process provided by NJDOT. Each calming technique will need its own application. Successful applications were able to show that there is a problem by way of a case study showing the need for safety measures. The strongest case studies show that the proposed traffic calming area has an excessive volume in eight- and four-hour periods, rush-hour congestion, pedestrian delays, school crossing hazards, traffic flow problems and a history of collisions.

The second way to implement the traffic calming strategies on state roads in New Jersey is through the New Jersey Department of Transportation (NJDOT) pilot program, “New Jersey Seniors: A Driving Force for Health and Safety.” This is a collaborative effort between NJDOT and the New Jersey Department of Health and Senior Services (NJDHSS) as an interdepartmental effort to improve senior mobility, safety, and health (New Jersey FIT: Future In Transportation). The pilot program identifies location-specific strategies, 3-E engineering, education, and enforcement as safety improvements.

The program runs on a three-year cycle. Every three years, the programs choose at least three locations that are in need. All locations have high concentrations of senior citizen residents and have senior citizen centers in close proximity. The first cycle took place at Grand Avenue (Route 93) and West Central Boulevard (County Route 501) in Palisades Park Borough, Bergen County. This site was chosen based on a high rate of pedestrian crashes over the past several years. Route 22 and Washington Avenue in Green Brook Township, Somerset County, was chosen based on a high rate of motor vehicle crashes over the past several years. Route 71 Corridor, Asbury Park, Monmouth County was chosen based on a high crash rate along the corridor (New Jersey FIT: Future in Transportation).

The pilot program at each location has two major components that do the groundwork, a Senior Health and Safety Program and a safety audit. A Senior Health and Safety Program, co-hosted by NJDOT and NJDHSS, feature organizations such as the American Automobile Association (AAA), AARP and the Motor Vehicle Commission (MVC) to conduct informational programs and offer resources (New Jersey FIT: Future in Transportation). The program provides an opportunity to distribute educational materials related to senior health and safety to area residents. Seniors in

attendance are also asked to provide feedback on health and safety resources, concerns and recommendations. In addition, a safety audit is conducted to determine potential engineering and enforcement improvements for the study intersection. This audit is conducted by a multi-disciplinary Safety Impact Team (SIT) of professionals, advocates and citizens that tour the intersection and then brainstorm recommendations based on the field observations (New Jersey FIT: Future in Transportation). Candidate engineering improvements are primarily low-cost measures, such as enhanced signing and striping, reflectorized curbs, lighting enhancements, and pedestrian accommodation improvements.

METHODOLOGY FOR MOBILITY

A combination of activities guided our suggestions. First there were two on-site visits to Farley on September 12 and 26. Crash figures for Elizabeth were drawn from NJ State Police and NJDOT data. Handwritten surveys were completed by residents and a formal focus group was conducted. Farley staff were interviewed. Focus group sessions were presented in English and Spanish to ensure resident translation and comprehension. Further details about survey construction and distribution can be found in the introduction above. The Bloustein class conducted research on national and international case studies to present best practice recommendations.

MOBILITY GOALS

After consulting resident surveys, Farley staff input, crash analysis, and researching best practices, three major mobility goals surfaced:

1. Reduce traffic speed in front of Farley Towers
2. Improve Cherry St. crosswalk
3. Improve pick-up and drop-off procedure

According to those surveyed, over half leave Farley Towers at least daily and 40% walk to a nearby destination at least once a week (Bloustein, 2018). Senior community shuttles and NJ Transit buses operate along Farley, but 40% of the respondents never take the bus (Bloustein, 2018), so improving safety for walkers and those being picked-up or dropped-off became a key motivator for the class suggestions. Respondents also disagreed with the statement, “I feel safe crossing the street in front of Farley Towers” more often than they agreed.

REDESIGN PROCESS

Although items are “packaged” in redesign scenarios, please note that elements can be implemented independently of each other. The following designs get progressively more expensive to implement (higher material costs) and build off the previous design. For example, Redesign #2 contains all of the Redesign #1 elements plus its own suggestions.

REDESIGN #1

Lanes

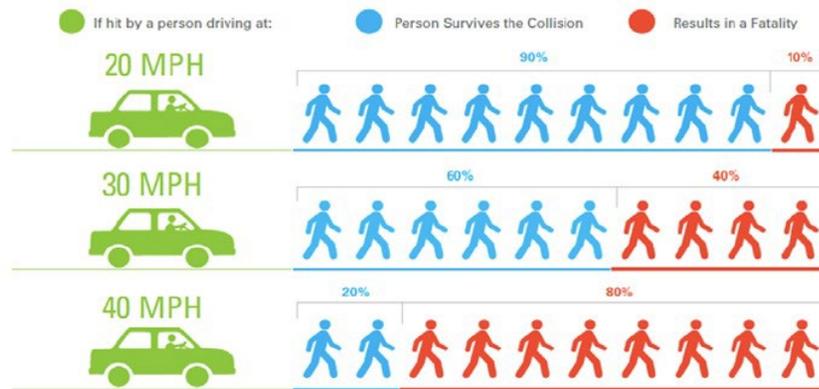
Cherry Street currently has two 17 ft.-wide lanes. Using inexpensive paint and restriping, it can be immediately reduced to two 10 ft. lanes to address speeding issues.

Lane Width and Speed

Farley Tower residents reach their cars by crossing Cherry St. mid-block. Marked 25mph, the two travel lanes span a flat roadway. In Maine, they found that “the vast majority (71%) of pedestrian crashes happened on level, straight roads” (Garder, 2004, p.538). One way to reduce the speed, is through lane size reduction. Through restriping, an immediate reduction from 17 ft. per lane to 10 ft. per lane would result in extra width that could be used for parking and a taxi/rideshare/on-road unloading zone.

The National Association of City Transportation Officials sets widely-referenced standards in its *Urban Street Design Guide*. They noted, “lanes greater than 11 feet should not be used as they may cause unintended speeding” (NACTO, 2017, p.9). This could easily be remedied using inexpensive paint.

FIGURE 15: SPEED AND FATALITY PERCENTAGES



Speed greatly influences the mortality of a pedestrian in a crash. As shown in the chart above, pedestrians hit by a driver traveling 40 mph have a 10% chance of living. If the speed is reduced to 20mph, the pedestrians have a 90% chance of living (Figure 15, VZ Network, 2018). They are still investigating the 2018 Thanksgiving hit-and-run crash; however, it is likely that speed was a contributing factor. A driver's vision also narrows as they speed. For example, a car traveling at 15 mph can see more of their surroundings (and crossing pedestrians) than the tunnel vision of 30mph. In Boston, estimated odds of people exceeding 35 mph dropped 29.3% after the city changed the default speed to 25 mph (Boston, 2018, p.7).

Cherry St. is already marked 25 mph, so no policy change on speed limit is necessary. Engineering would be the next logical step in speed reduction. Since Cherry St. has state road status, cooperation with the NJDOT is necessary. Speed enforcement through police is helpful, but due to limited resources, not always available. Speed cameras could be consulted in the future but should be considered after engineering improvements.

Metered-Parking

There is currently no curbside Cherry Street parking. Once lanes are reduced, a 7 ft. parking lane on the left side of the road is a suitable option. Parking meters can be installed and operated by NJDOT since Cherry St. is a state road. Meters would provide extra parking for courthouse guests and time limits would deter commandeering spaces for too long. Enforcement of the meters could provide an employment opportunity. If the Elizabeth Housing Authority can cooperate with NJDOT, unused revenue from the meters could go directly to a HACE improvement fund. In West Palm Beach, unused parking revenue (extra time after a car departs prior to when the next vehicle arrives) was funneled to the Department of Housing and Community Development (West Palm, 2018, p. 3) for homeless initiatives. If the parking suggestion is turned down, seven feet is suitable bike-lane width. Perhaps in a future bike lane network, this section of Cherry St. could provide a linkage from Rahway Avenue.

Load Zone

Lane reduction also results in an eight-foot taxi load and unload zone. Again, using inexpensive paint, 50 ft. of striping would indicate a load/unload zone area. This would be located behind the Cherry St. Crosswalk. The rest of the lane not used as a taxi/rideshare load zone could operate as a shoulder.

Covered Waiting Area

Survey respondents mentioned a desire for a covered waiting area. There are transit-stop-style shelters that vary in both material and design. If placed on Farley Towers property, jurisdiction would be held by HACE.

REDESIGN #2

The second redesign builds on the low-cost features of Redesign #1, such as narrower lanes, metered street parking, taxi load zone, and covered waiting structure. Although Redesign #1 should slow down through traffic, especially as drivers will need to navigate a 10' lane with less margin for error, there are still concerns about the 35' distance that Farley Tower residents need to cross.

To create safer crossing conditions, we propose installing curb extensions. In our case, since the curb extension is mid-block, it is called a pinch-point or choker. This safety intervention works by decreasing the overall width of a roadway by literally extending the curb just up to the lane of traffic. The pedestrian is aligned with the parking lane which creates increased visibility of the pedestrian for oncoming drivers (NACTO, 2018, Curb Extensions). Curb extensions be installed using low-cost materials such as plastic bollards or planters. This feature is especially important for older adults who may walk at slower rates and need more time to cross the street.

FIGURE 16. PINCH-POINT



In this example, the pinch-point curb extension was installed at a relatively low-cost by using just paint and plastic bollards.

The second critical feature of Redesign #2 is the installation of a speed hump. These are about 3-4 inches high and can reduce speeds to 15-20 mph (NACTO, 2018, Speed Humps). The speed hump would be placed before the crosswalk so that drivers are forced to slow down prior to reaching the crosswalk. This gives pedestrians crossing the street the security that a vehicle won't be speeding through the crosswalk above 20 mph- speeds which can be very dangerous in case of a crash.

Other speed hump options include a speed cushion, which allows for emergency vehicles to pass by without needing to slow down, as well as a speed table (raised crosswalk), which is a combination of a speed hump and a crosswalk. Cushions provide openings within the bump that emergency vehicle tires can ride through. The raised crosswalk extends the width of the street and elevates the pedestrians into view.

FIGURE 17. RAISED CROSSWALK



The speed hump installation costs more than other low-cost interventions that we suggested. However, the cost can be justified by the guarantee that drivers will be forced to slow down in front of Farley Towers.

REDESIGN #3

The third redesign consists of a circular driveway that will serve as a pickup and drop-off area, and a lighted crosswalk with a Hybrid Pedestrian Beacon (HAWK Signal) overhead. The circular driveway is designed to allow residents to be safely dropped off or picked up away from street traffic. The proposed circular driveway is for Farley Towers use only. In terms of rough engineering estimates, the drive would be 12 feet wide with a 50 feet radius. The circular drive is one-way, with the exits located before the mid-block crosswalk. The driveway should be located to the right of the building, along with the sidewalk on the property as shown in Figure 18.

FIGURE 18. CIRCULAR DRIVEWAY



Lights within, above, and around the crosswalk are effective in making sure that pedestrians are seen. The crosswalk is located next to the exit of the driveway as seen in Figure 18. In-road lights alert motorists to the presence of a pedestrian crossing or preparing to cross the street. There are a few options: the crosswalk can be activated via a push button or solar lights-in

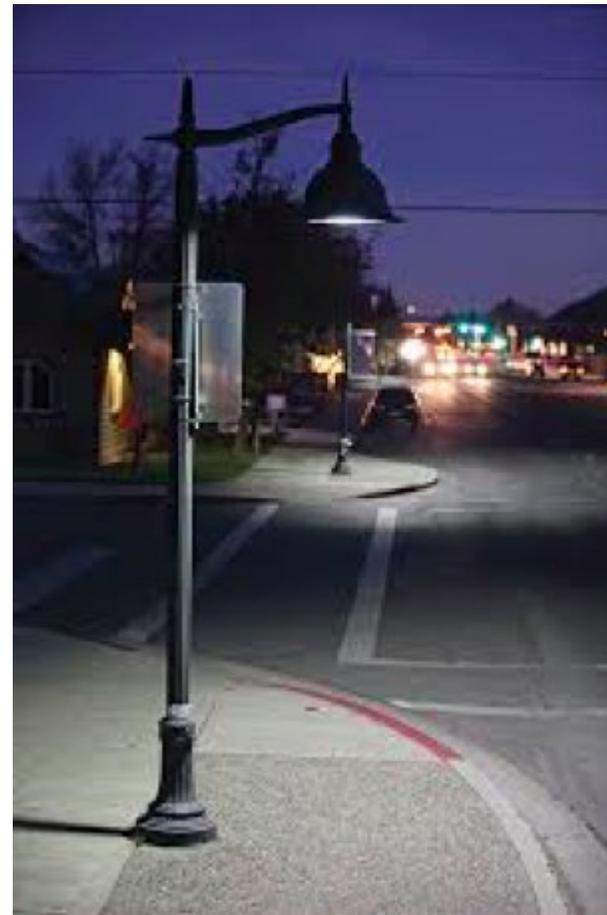
pavement LED lights, or be motion detectable. Another option is a colorfully painted crosswalk that draws the attention of motorists and aids in the visibility of a pedestrian crossing.

FIGURE 19. PAINTED CROSSWALK



Pedestrian-scale lighting, on the other hand, may cost more, but requires less maintenance than in-road lights and serve the same purpose of safety, allowing pedestrians to be seen.

FIGURE 20. PEDESTRIAN-SCALE LIGHTING



The Hybrid Pedestrian Beacon (HAWK Signal) is a traffic control device designed to help pedestrians safely travel across busy or higher-speed roadways. The beacon head consists of two red lenses above a single yellow lens (U.S. Department of Transportation, Federal Highway Administration, 2017). All lenses remain inactive until a pedestrian pushes the call button to activate the beacon (U.S. Department of Transportation, Federal Highway Administration, 2017). The signal then initiates a yellow

to red lighting sequence consisting of steady and flashing lights that direct motorists to slow and come to a stop (U.S. Department of Transportation, Federal Highway Administration, 2017). The pedestrian signal then flashes a “WALK” display to the pedestrian, which may be set to count down the number of seconds allotted to cross or motion detected. Once the pedestrian has safely crossed, the hybrid beacon again goes inactive.

FIGURE 21. HAWK SIGNAL



IMPLEMENTATION HIERARCHY

The following table should provide guidance about which features can provide a projected safety impact for its relative price. Safety prioritization was determined from resident survey responses, on-site observations, and crash data analysis. Our class determined that speed reduction was a major concern. Shrinking lane width through repainting ranks as a “High” safety priority, yet “Low” cost initiative. As mentioned before, items are individual of each

other and can also be incorporated into street modifications through a phased process.

TABLE 5. IMPLEMENTATION HIERARCHY

Treatment	Safety Priority	Cost	Purpose
Static Signage	Medium	Low	Alert drivers
Crosswalk Paint	High	Low	Crosser visibility
Lanes: Thermoplastic Paint	High	Low	Reduce Lane Width
Parking Meters	Low	N/A	Revenue Collection
Covered Shelter	Medium	Medium	Protected drop-off
Speed Humps	Medium	Medium	Slow traffic
Curb Extensions (6' wide, 20 ft. long)	Medium	Medium	Reduce crossing distance
Hybrid Pedestrian Beacon (HAWK Signal)	Medium	High	Crosser visibility
Circular Drop-off: Asphalt	Medium	High	Protected drop-off
Pedestrian-scale lighting (12 ft. tall)	High	Low	Crosser visibility
Speed Hump alternative: Raised Crosswalk	High	Low	Crosser visibility

BUDGET

Even though traffic features are packaged within each redesign, each element can be implemented individually. Prioritization of elements from a safety perspective is listed in Table 6. Funding availability may also drive item selection. Costs were drawn from engineering firm NV5. Parking meter infrastructure would need cooperation with NJDOT because Cherry Street is a state road.

TABLE 6. BUDGET

Design #	Treatment	Est. Unit Cost* (Labor + Material)	Est. Product Cost* (Labor + Material)	Est. Cumulative Design Cost
1	Static Signage	\$500-800	\$500-800	\$700
1	Crosswalk Paint	\$3.20/ sq ft	\$720/10 ft. wide & 30 ft. long	\$1,400
1	Lanes: Thermoplastic Paint	\$3.20/ sq ft	600 ft/line*3 lines*3.20=\$5,760	\$7,100
1	Parking Meters			N/A
1	Covered Shelter**	\$5-10,000	\$5-10,000	\$14,100
2	Speed Humps	\$3,000-5,000 each	\$3,000-5,000 each	\$18,100
2	Curb Extensions (6' wide, 20 ft. long)	\$6,000	\$6,000	\$24,100
3	Hybrid Pedestrian Beacon (HAWK Signal)	\$90-150,000	\$90-150,000	\$134,100
3	Circular Drop-off: Asphalt	\$95/sq ft.	\$20-30,000	\$164,100
3	Pedestrian-scale lighting (12 ft. tall)	\$,2250-4,000	\$2,250-4,000	\$167,100
3	Speed Hump alternative: Raised Crosswalk	\$8,200 each	\$8,200 each	Or \$171,300

*NV5 Safe Routes to School Cost Sheet
2017

5.1.4. FUNDING

Aside from HACE's own funding, a number of selected funding opportunities are listed below. It includes a handful of grants that students determined to be the most appropriate for the suggested mobility and pedestrian modifications. The lowest-hanging fruit would be city-wide. Cherry Street is a state road and therefore ineligible for county aid. The Union County Board of Chosen Freeholders have distributed infrastructure funding themselves. Statewide grants would be next best because these tend to have fewer restrictions than federal opportunities. Please note that most state grants are submitted through SAGE (System for Administering Grants Electronically) and may require a full-time grant writer employed by the municipality. Elizabeth should utilize Farley Tower's proximity to the train station in its applications. There are a number of aid programs within the NJDOT Local Aid Office. They can be reached at the following:

District 2 Office for Union County Assistance

153 Halsey St. 5th Floor
Newark, NJ 07102
Phone: 973-877-1500
Fax: 973-648-4547

A full state aid handbook can be found at this link:
<https://www.state.nj.us/transportation/business/localaid/documents/StateAidHandbook.pdf>

Non-profit grant opportunities are more scarce, but their micro-loan approach could be suitable to fund smaller elements or education programs quickly.

TMA Help

EZ Ride, a Transportation Management Association that provides service in Union County is also a resource for free programming. Cyclist and pedestrian safety programs are provided to the larger community at no cost. They assist municipalities with arranging carpools, vanpools, Safe Routes to School programming, and senior rides on demand with the Ryde4Life service. More here: <https://ezride.org/>

Please see the Appendix 7.3 for more information about various funding sources.

5.2. AMENITIES ANALYSIS & RECOMMENDATIONS

5.2.1 BACKGROUND

Creating healthy spaces for Farley Towers residents to participate in outdoors activities is a primary goal of this report. Residents enjoy spending time outside socializing, gardening, walking their dogs, playing croquet, and taking a break from time indoors. Given the health benefits of time spent outside, designing better amenities to make the outdoor experience safer and more enjoyable will help encourage more residents to spend more time outside.

METHODOLOGY

Using a combination of resident and staff feedback, guidance from experts on the aging community, research of best practices, and knowledge of the social determinants of health, we have come up with suggestions on how to improve the amenities that Farley Towers has to offer.

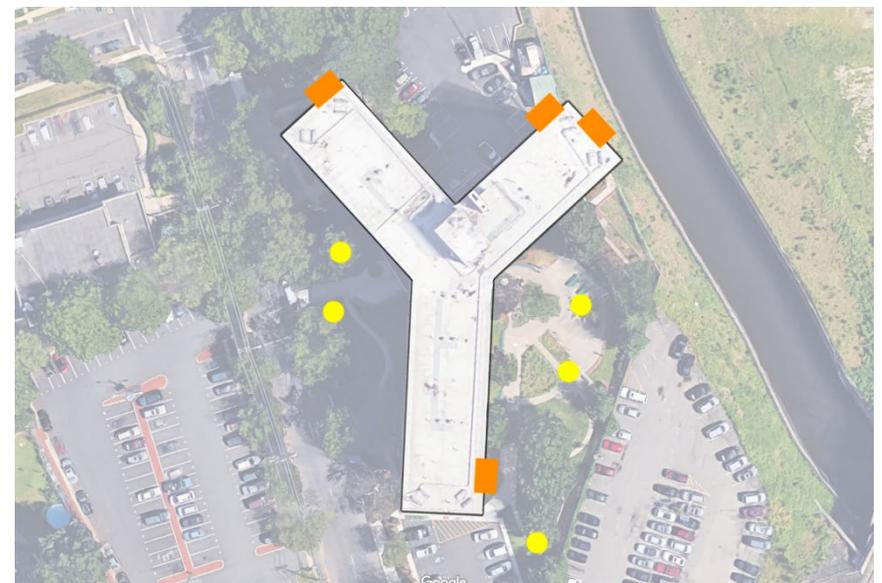
After narrowing down the residents' most desired amenities, we composed a list of five suggestions: improved lighting, a fitness area, organized and desirable garden spaces, improved gathering spaces, and a dog run. Research into each of those areas enabled us to develop an implementation hierarchy (See Section 5.2.7) that can be used to further prioritize these recommendations.

5.2.2. LIGHTING

EXISTING CONDITIONS

The residents of Farley Towers prioritize better exterior lighting above all other amenities. Currently, there are 5 stand-alone lights located throughout the property and 4 flood-lights affixed to the building itself. As illustrated in Figure 22, the floodlights are affixed towards the end of each wall; the stand-alone lights are placed by seating areas in the rear of the building and the main entrance.

FIGURE 22. EXISTING LIGHTING CONDITIONS



The location of these lights presents multiple issues. At Farley Towers, there are just under 900 feet of walkway. The radius of light emitted from each of these fixtures is not enough to effectively illuminate all of the walkways in the evening, as they are

placed mostly by seating areas rather than spaces with heavy foot traffic. The lack of lighting makes residents feel unsafe and restricted and it presents tripping hazards.

PROPOSED LIGHTING

Residents' feedback as well as experts on lighting safety shaped our recommendations for improved lighting. In Figure 23 and Figure 24, the proposed lighting bollards can be seen in various locations around the property.

The American Optometric Association reports that eye problems can begin occurring at age 40; given that the majority of Farley Towers residents are older than 65, it is safe to assume that some residents have visual impairments. People are able to see better and react faster to their surroundings with adequate lighting.

Improved mental health is another benefit of adequate lighting. According to Guarnaccia et al. (2017), poor lighting can contribute to learning difficulties, higher perception of pain or discomfort, higher rates of depression, and decreased productivity. Falling is a major concern among the aging population, and a building's exterior contains many risks: uneven surfaces, reflective surfaces, and landscaping, just to name a few. Adequate lighting helps the aging population to properly adapt to these features.

As mentioned previously, Farley Towers has just under 900 feet of walkways. This report recommends placing 200 to 250 of these lighting bollards about every 4 feet in order to adequately illuminate the paths. Concerns from maintenance included the bollards getting in the way during snow clearance; this report suggests that during the winter they be placed only in the most heavily-trafficked areas, such as the walkway from the Cherry Street to the front entrance of the building, or even further apart

to allow for snow to be moved between them. The bollards are held in by stakes, so they are easy to move when necessary.

FIGURE 23. PROPOSED EXTERIOR LIGHTING



FIGURE 24. PROPOSED EXTERIOR LIGHTING #2



5.2.3. FITNESS AREA

EXISTING CONDITIONS

The conditions of the existing fitness space are decent. The grounds are well maintained. The size of the proposed area is around (66'x47'). In the area, there are two or three large trees that take up a significant amount of space. This could be seen as a challenge because it's not a completely open space which would be more ideal for fitness equipment.

Based on our feedback gathered during the outreach session, many residents at Farley towers requested an area to exercise. Some of the residents do not use the back leisure area at all. According to data collected, residents at Farley towers use the leisure only 30% of the time. During the outreach meetings, many residents commented that the addition of an exercise area in the back would encourage more frequent outdoors use.

PROPOSED FITNESS AREA

To address the issue of lack of use of the back leisure area, a designated fitness area was recommended. The fitness area fits into the primary goal of the project which is to promote and improve the quality of life at Farley towers and its residents. Installing a dedicated fitness area will allow residents to exercise at their leisure, which is very important to maintaining a healthy lifestyle. The equipment would be “age friendly” exercise equipment, which is made specifically for senior citizens. Some examples of this type of exercise equipment include an Outdoor Exercise Walker, Tai Chi Wheels, and Strength & Stretch Bars. An

additional reason to install the fitness area is to accommodate children, such as visiting grandchildren, who could also benefit from this resource.

FIGURE 25. PROPOSED FITNESS AREA



5.2.4 GARDEN SPACE

EXISTING GARDEN SPACE

Farley Towers has just under 1,400 square feet of garden space in the rear of the property, distributed throughout four separate gardens (See Figure 26).

FIGURE 26. EXISTING GARDENS



Based on our survey and focus group discussion, there are mixed feelings from residents about the garden areas. Some residents responded that they do not use the space at all, but some residents

are very passionate about gardening. However, one recurring complaint was that the space is neglected and overgrown. Additional complaints included animal waste nearby the area, some residents stealing others' produce, and simultaneously not enough space and too much overgrown space. There have also been some complaints about the process of allocating garden space.

PROPOSED GARDEN SPACE

This report recommends partially replacing the garden space closest to the river with a covered seating area and providing elevated garden beds as an alternative. (See Figure 27).

FIGURE 27: ELEVATED GARDEN BEDS



These garden beds are more accessible to the aging and disabled community than traditional gardens. Those that have mobility issues or difficulty bending are better able to participate using these higher beds. Additionally, these beds are not permanent fixtures so they can be placed anywhere on the property that residents would like to garden. Because the elevated garden beds are defined spaces, they would also be easier to allocate. One recommendation would be creating a sensory garden. (See Figure 28. Sensory gardens, where fragrant and vibrantly colored plants are placed, would give residents a healthy, stimulating outdoor destination.

FIGURE 28. POTENTIAL SENSORY GARDEN



However, this report recommends doing more than just physically altering the garden spaces into more socially and aesthetically pleasing areas. The garden space on the property is a significant source of tension between the residents. These concerns and

complaints, such as unfair allocation of space or lack of accountability for tending to the gardens, *must* be addressed through some sort of public engagement process. There need to be clear guidelines as to how garden space is allocated and taken care of, and when that is established it needs to be communicated clearly to the residents. Only then would these suggestions be used to their full potential.

5.2.5 GATHERING SPACES

EXISTING CONDITIONS

Residents at Farley Towers enjoy gathering outside around the property. Currently, there are 12 benches, 2 picnic tables, and 57 chairs dispersed throughout the property. Benches are typically placed along the walkways and the majority of the chairs are placed in the areas just outside the front and rear entrances. According to resident feedback, the central issues with gathering spaces are that there are not enough places for groups of people to socialize (especially out front), there is no pavilion to shelter residents from the shade and other weather, and the existing furniture is difficult to maintain.

PROPOSED GATHERING SPACES

To address those issues, this report recommends that in addition to keeping the existing furniture, new furniture that is easier to maintain and more comfortable to sit in be placed throughout the property with an emphasis on fostering social interaction in the front of the property. (See Figures 29-30.)

FIGURES 29-30. NEW FURNITURE



When picking out this furniture, recommended dimensions for senior furniture from the Center of Design for an Aging Society (CDAS) were kept in mind, such as having high arms to aid in standing and sitting, a small slope from the front of the chair to the back, and having a variety of options. Additionally, considering the weather and climate of Elizabeth, cast aluminum, resin wicker, and stainless steel are going to be the most weather-resilient materials to use, as well as the easiest to maintain. Please see the attached Amenities Costs sheet for details in the Appendix.

FIGURE 31. PROPOSED GAZEBO



Additionally, this report also recommends installing a gazebo in the rear of the property to partially replace the gardens closest to the Elizabeth River (See Figure 31). This gazebo would be installed on top of a concrete slab approximately 11'x13' in size and 4" in depth. Movable, comfortable furniture would be placed underneath it to give residents a new place to socialize and enjoy the outdoor space. The movable seating would allow residents to view whichever sight they choose: the Elizabeth River and surrounding wildlife, future development that will be constructed across the river, or the gardens that will surround it. With adequate lighting, the backyard gazebo will provide residents with a sociable, comfortable, safe, and enjoyable destination. Because of the 4" slab of concrete, an ADA-accessible ramp would also be necessary to accommodate all of the residents of Farley Towers.

5.2.6. DOG RUN

EXISTING CONDITIONS

The existing conditions for the proposed dog run area are adequate, with well-maintained landscaping. The size of the proposed area is 62'x86'. An important strength of this space is that it is a separate location from the existing leisure area on the Farley Towers property. The negative slope in certain sections of the proposed area is a potential challenge, which may be considered a liability for the proposed dog run. Another issue is the presence of mosquitos in the area, which can be an issue for residents and their dogs.

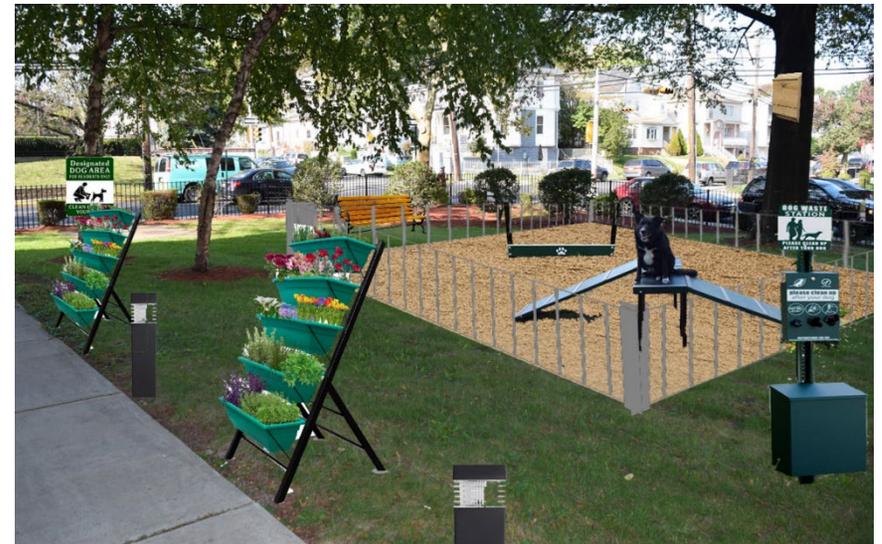
Based on feedback gathered during the outreach session, many residents at Farley towers requested a dog run area and requested a separation of spaces between the tenants who had dogs and the ones that did not. This was a considerable issue because tenants who did not have dogs felt like there was too much dog waste located nearby the leisure areas of the property.

PROPOSED DOG RUN AREA

To address this issue, a dog run was proposed for the property. The specific location of the property is located at the corner of Cherry and Murray street, which is completely separate from the current leisure area. Some of the main objects and materials for the dog area include: fencing, which would keep the dogs in one area while allowing them to roam free; signs which would let residents and guests know that this area is specifically for dog owners and their dog's leisure; a dog waste station which would allow for residents

to clean up waste left by their dogs in a sanitary manner; and various amenities which allows dogs to exercise and have fun. The dog area would increase social interaction among the Farley Towers residents. Additionally, the creation of this dog run area addresses concerns raised by the residents while also improving the quality of life of Farley Towers.

FIGURE 32. PROPOSED DOG RUN AREA



5.2.7 FUNDING

Please refer to Appendix 7.4 for more information about funding sources.

7. APPENDICES

7.1 FARLEY TOWERS SURVEY

Farley Towers: Healthy and Safe Outdoor Spaces Survey

As you complete this questionnaire, we ask you to think about the outdoor space around Farley Towers. This includes the **front and rear courtyards, gathering spaces, gardens, side yard, Elizabeth River, parking lots, and surrounding streets**. The survey is anonymous. Your responses to this survey will inform plans to improve the outdoor space around Farley Towers.

1) What you do you like and dislike most about the outdoor space around Farley Towers?

- Likes
- Dislikes

2) (Optional) What is your...

- Age?
- Gender?
- Race/ethnicity?

3) For each of the statements below, please indicate whether or not you agree.

	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
I am satisfied with my quality of life.					
I feel safe taking the bus from Farley Towers.					

I feel safe crossing the street from Farley Towers.					
I feel safe being picked up/dropped at Farley Towers.					
The seating outside of Farley Towers is comfortable.					

4) How often do you engage in each of the following activities?

	Multiple times a day	Daily	Weekly	Monthly	Almost Never
Use the outdoor space at Farley Towers For what?					
Leave Farley Towers					
Walk to a destination near Farley Towers					
Take the bus from Farley Towers					
Use a taxi cab/Uber/Lyft					

Plant and tend the gardens					
----------------------------	--	--	--	--	--

5) Would you like to see any features added to the space outside of Farley Towers? Please circle up to 3 items from the list, or share ideas on the “other” line below.

- Pick up and drop off area
- Dog Park
- Bus shelter
- Improved outdoor lighting
- Seating under a Pavilion
- More social or recreational programs
- Other (please describe)

6) Do you regularly use any of the following? Please circle all that apply.

- Cane
- Walker
- Wheelchair
- Service Animal
- Other mobility aid?

7) Is there anything else you would like to tell us?

If you would like to discuss the outdoor space around Farley Towers in more detail, please share your name and contact information here:

7.2 FOCUS GROUP STRUCTURE

Welcome/Introductions

- Review purpose of group
- Introductions - share name, relationship to Farley Towers (if resident, how long have you lived here?)

Opening Questions

- How often do you use the outdoor space around Farley Towers?
- How do you use the outdoor space around Farley Towers?
- What do you like best about the outdoor space outside of Farley Towers?
- What would you like to see improved or changed in the outdoor space around Farley Towers?
- How well do you know other Farley Tower residents and what are some ways you speak or interact with them?

Mobility Questions

- What kinds of physical activities would you like to see? A pathway to the River? Exercise equipment along the way? (Personal mobility and health is just as important to emphasize)
- What modes of transportation (walking/biking/train/car) do you typically use?
- Do you use the local senior centers? If so, how do you get there? (Aside: Do residents view their unit as purely a home or place with recreational/social potential?)
- Do you commute by train? NJ Transit Bus?
- What distance would you be *able* to walk for recreation? (in minutes)

Amenities Questions

- Would residents be interested in “alternative” types of outdoor seating (leaning benches, for example)?
- Where would seating be used where it does not currently exist?
- How do the residents feel about having a dog park in one of the open spaces?
- Would the residents enjoy alternative forms of gardening (standing-height potting benches, vertical gardens)? Do you know who uses the garden currently and do you think all residents have a fair opportunity to use it?
- What ideas do you have for activities or opportunities to interact with the wider Elizabeth community? Is this something you are interested in?

7.3 POTENTIAL MOBILITY RECOMMENDATION FUNDING SOURCES

COUNTY

Union County Infrastructure Grant					
Type:	City	County	State	Federal	Other
Distributing Entity:	Union County Board of Chosen Freeholders				
General Application Timeline:	Unspecified				
Targeted Modifications:	Street improvements, striping, drainage				
Link:	http://ucnj.org/press-releases/public-info/2018/05/04/county-of-union-awards-2018-infrastructure-grants-to-all-21-municipalities/				
Notes:	City of Elizabeth awarded \$125,000 (unspecified activity) in 2018				

STATE

Municipal Aid					
Type:	City	County	State	Federal	Other
Distributing Entity:	NJDOT Local Aid and Economic Development Office				

General Application Timeline:	Late January
Targeted Modifications:	Award categories include “Pedestrian safety,” “Mobility,” “Roadway Safety” and address traffic calming, signage, signals, striping
Link:	https://www.state.nj.us/transportation/business/localaid/municaid.shtm
Notes:	\$400M for state, additional \$10M available statewide for those eligible under Urban Aid

Local Aid Infrastructure Fund (LAIF)					
Type:	City	County	State	Federal	Other
Distributing Entity:	NJDOT / State Legislature for County Roads				
General Application Timeline:	Accepted any time				
Targeted Modifications:	Pedestrian safety and bikeway projects				
Link:	https://www.state.nj.us/transportation/business/localaid/descrfunding.shtm				
Notes:	Recent winners ranged \$60,000 to \$494,000				

Safe Streets to Transit					
Type:	City	County	State	Federal	Other
Distributing Entity:	NJDOT Local Aid and Economic Development Office				
General Application Timeline:	Unspecified				

Targeted Modifications:	Ped. safety connecting Farley Towers to Elizabeth Train Station
Link:	https://www.state.nj.us/transportation/business/localaid/safe.shtm
Notes:	<ul style="list-style-type: none"> • City of Elizabeth designated Transit Village Status in 2007 • Summit, NJ City Station awarded \$400K in FY2018

Transit Village					
Type:	City	County	State	Federal	Other
Distributing Entity:	NJDOT Local Aid and Economic Development Office				
General Application Timeline:	Unspecified				
Targeted Modifications:	Award categories include “Pedestrian safety,” “Mobility,” “Roadway Safety” and address traffic calming, signage, signals, striping				
Link:	https://www.state.nj.us/transportation/business/localaid/transitvillagef.shtm				
Notes:	New Jersey committed to increase Transit-Oriented Development projects in 2018				

New Jersey Transportation Infrastructure Bank Fund					
Type:	City	County	State	Federal	Other
Distributing Entity:	NJDOT and New Jersey Infrastructure Bank				

General Application Timeline:	Rolling
Targeted Modifications:	Low interest loans for infrastructure projects, “land-side improvements” (circular driveway), “pedestrian walkways,” “signal systems”
Link:	https://www.njib.gov/njtib/
Notes:	N/A

FEDERAL

Transportation Alternatives Grant (FHWA)					
Type:	City	County	State	Federal	Other
Distributing Entity:	NJDOT, North Jersey Transportation Planning Authority, Delaware Valley Regional Planning Commission, South Jersey Transportation Planning Organization				
General Application Timeline:	Unspecified				
Targeted Modifications:	Pedestrian safety improvements, streetscaping, corridor landscaping, cyclist lanes				

Link:	https://www.state.nj.us/transportation/business/localaid/alternatives.shtm
Notes:	FHWA Transportation Alternatives Program Design Assistance Program: Consulting engineering services that can assist in developing plans

New Jersey Highway Traffic Safety Grants: Community Highway or Pedestrian Safety, Enforcement, and Education Fund					
Type:	City	County	State	Federal	Other
Distributing Entity:	New Jersey Division of Highway Traffic Safety				
General Application Timeline:	Unspecified				
Targeted Modifications:	"Projects should address Federal priority areas: Speed Control, Pedestrian/Bicycle Safety, Roadway Safety"		https://www.nj.gov/oag/hts/downloads/Grant_Availability_State_and_Comp.pdf		
Community Highway:					
Pedestrian Safety:	"purchasing and installing of traffic signs; education materials or media campaigns concerning pedestrian safety; compensation for law enforcement officer or		https://www.nj.gov/oag/hts/downloads/Grant_Availability_Ped.pdf		

	authorized crossing guards assigned to an intersection”	
Link:	https://www.nj.gov/oag/hts/grants/index.html	
Notes:	N/A	

OTHER

10-Minute Walk					
Type:	City	County	State	Federal	Other
Distributing Entity:	National Recreation and Park Association				
General Application Timeline:	Opens September, Closes November				
Targeted Modifications:	Ten cities receive \$40,000				
Link:	https://www.nrpa.org/our-work/partnerships/initiatives/10-minute-walk/grants-technical-assistance/				
Notes:	<ul style="list-style-type: none"> • Campaign for every citizen to be within 10-minute walk to park • City of Elizabeth - Mayor Christian Bollwage - participant 				

National Aging and Disability Transportation Center (NADTC) Grants					
Type:	City	County	State	Federal	Other
Distributing Entity:	NADTC				
General Application Timeline:	Unspecified				
Targeted Modifications:	Ten communities receive \$20,000 each for six months, Design of program to increase “availability and accessibility of community transportation for people with disabilities and older adults”				
Link:	https://www.nadtc.org/grants-funding/nadtc-grant-opportunities/current-nadtc-funding-opportunities/				
Notes:	N/A				

Sustainable Jersey Grants Program					
Type:	City	County	State	Federal	Other

Distributing Entity:	Sustainable Jersey
General Application Timeline:	Mid-February
Targeted Modifications:	LED Streetlights, idling reduction plans, street trees for Cherry Street, Farley Towers gardens
Link:	http://www.sustainablejersey.com/grants-resources/sustainable-jersey-grants-program/
Notes:	<p>Typical prize:</p> <ul style="list-style-type: none"> • Four \$20,000 awards • Eight \$10,000 awards <p>City of Elizabeth Connections:</p> <ul style="list-style-type: none"> • Bronze-certified in 2018 • Established green team certified in 2010 • Resolution of Sustainable Jersey support passed

7.4 POTENTIAL AMENITIES RECOMMENDATION FUNDING SOURCES

Union County Means Green					
Type:	City	County	State	Federal	Other
Distributing Entity:	Union County Board of Chosen Freeholders				
General Application Timeline:	March				
Targeted Modifications:	Senior waist-high planters				
Link:	http://ucnj.org/union-county-means-green-2018-community-garden-grants/				
Notes:	<ul style="list-style-type: none"> • Union County Plant a Seed Initiative • Emphasizes empowerment and socialization through gardens • Eligibility: 501c3 non-profits 				

Union County Senior Focus Grant					
Type:	City	County	State	Federal	Other
Distributing Entity:	Union County Board of Chosen Freeholders				
General Application Timeline:	Unspecified				
Targeted Modifications:	Senior fitness equipment				

Link:	http://ucnj.org/press-releases/public-info/2017/09/19/union-county-senior-focus-grant-helps-purchase-new-equipment-for-clark-senior-fitness-center/
Notes:	<ul style="list-style-type: none">• Clark, NJ and Plainfield, NJ received \$25,000 each for indoor senior fitness equipment in 2017• City of Elizabeth awarded \$25,000 for computers in 2017

7.5 MOBILITY REDESIGN HIGHLIGHTS

Resizing Lanes

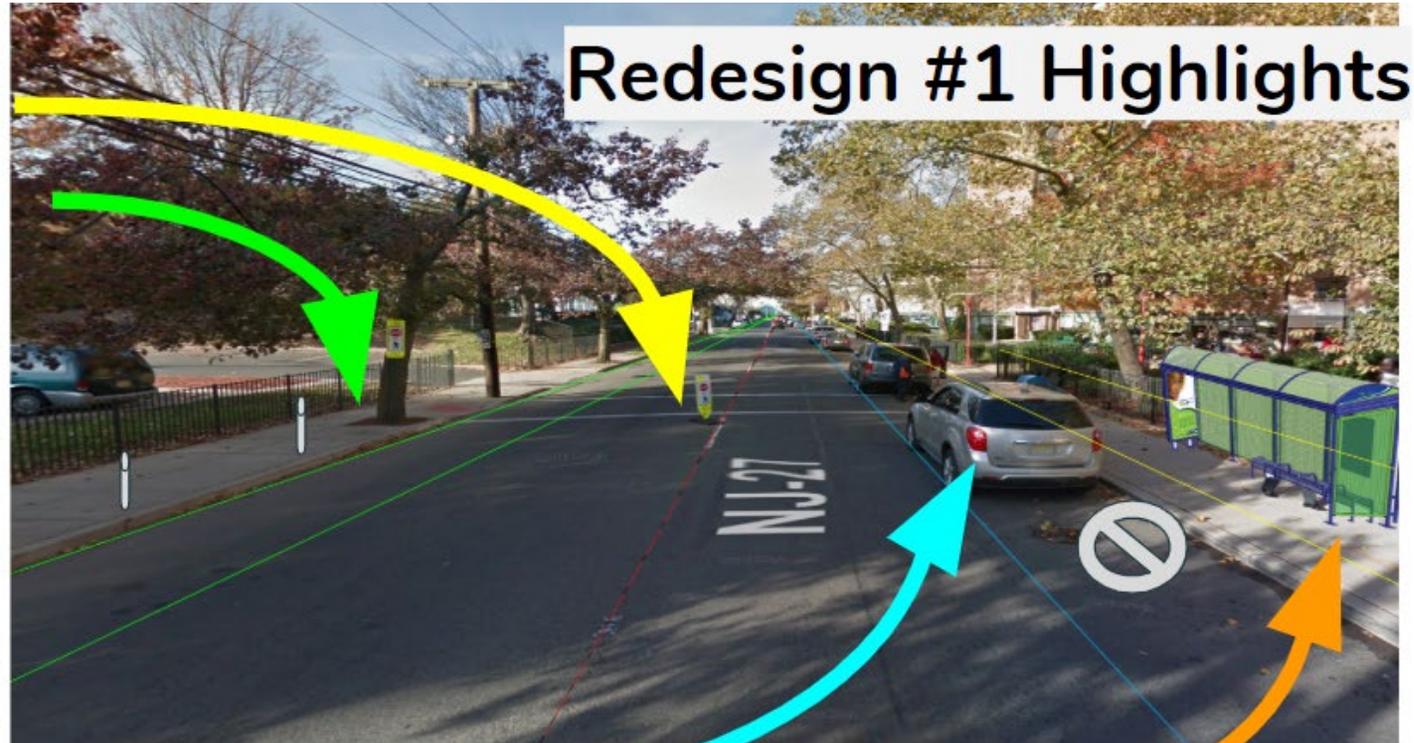
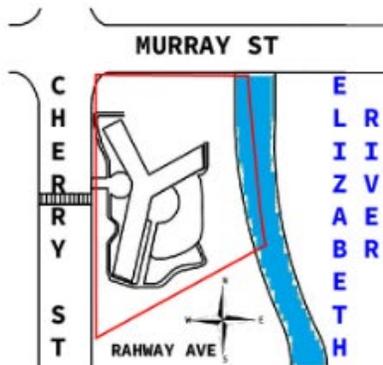
- 17' → 10'

Metered street parking

- Revenue placed in housing improvement fund

Inexpensive Materials

- Paint



Redesign #1 Highlights

Taxi Load Zone

- 8 ft. wide
- Shoulder with 'Load Zone Sign' OR Yellow "no parking" on curb and lines

Covered Waiting

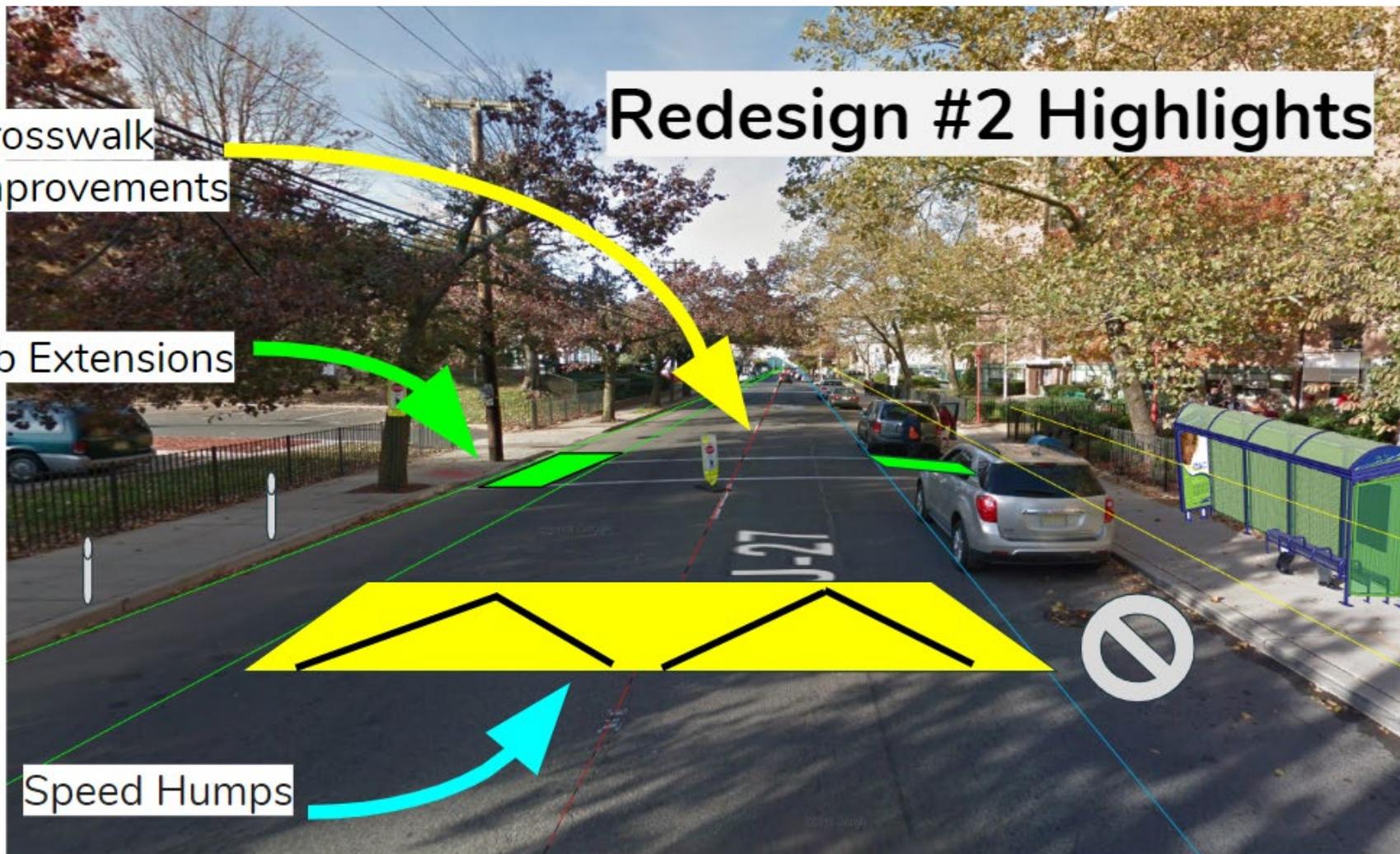
- On Farley Towers property
- Open designs are available

Redesign #2 Highlights

Crosswalk Improvements

Curb Extensions

Speed Humps



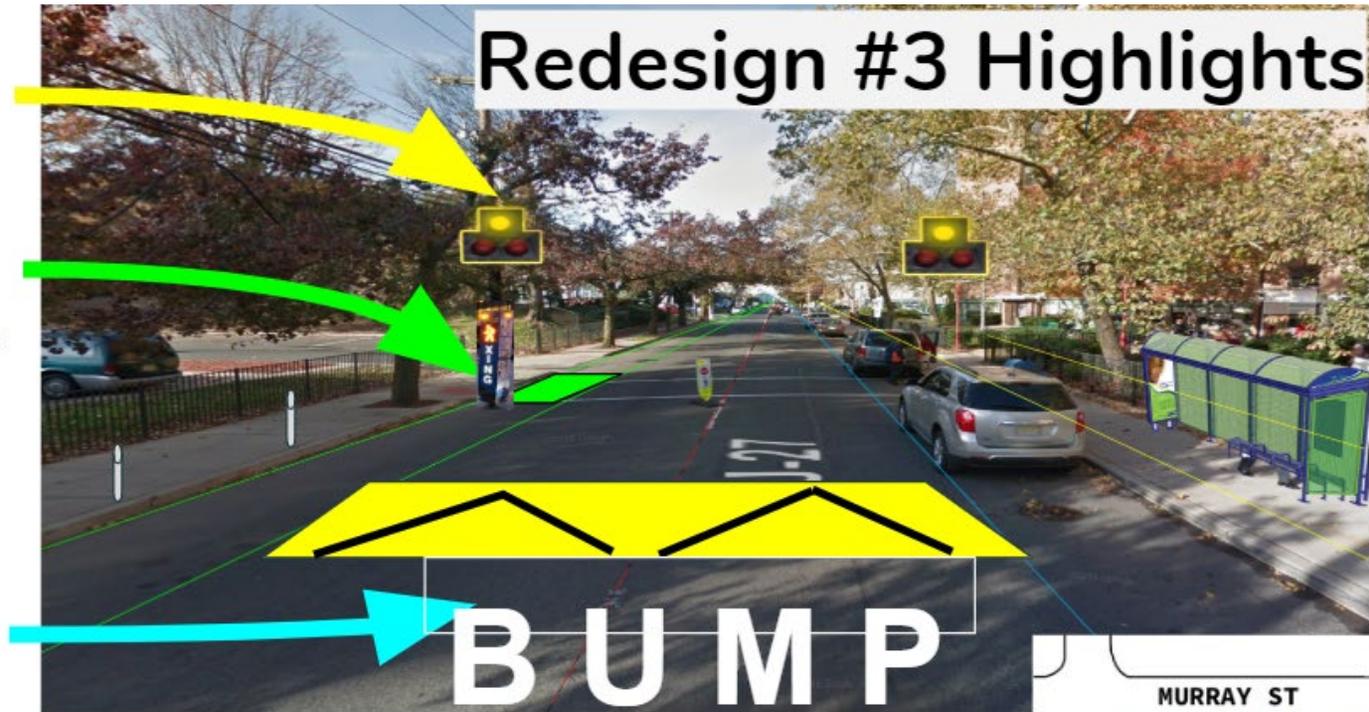
Redesign #3 Highlights

Signage & Lighting

- Alert drivers to reduce speed
- Sensors and lights tell drivers to be aware of pedestrian crossing

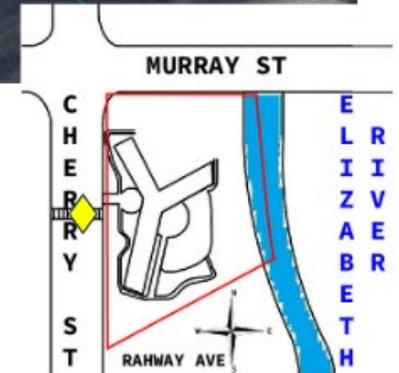
Speed Humps

- Vertical Traffic Calming Device
- 3-4 inches high
- Humps reduce speeds to 15-20 mph



Materials

- Lights
- Signage
- Speed Hump Installation



7.6 RECOMMENDED AMENITIES COST ESTIMATES

Recommendation	Item	Included in Unit	Price Per Unit	Quantity	Total Cost	Source
<i>Alternative & Modified Seating</i>	Dining Set	1	\$599.99	3	\$1,799.97	Wayfair
	Chairs	2	\$169.99	2	\$339.98	Overstock
	Sofa	1	\$509.49	1	\$509.49	Overstock
	End Table	1	\$98.00	1	\$98.00	Lowe's
	Gazebo	1	\$1,569.00	1	\$1,569.00	Home Depot
	<i>Seating Subtotal</i>					\$4,316.44
<i>Alternative Garden Space</i>	Elevated Garden Bed	4	\$519.80	3	\$1,559.40	Amazon
	<i>Garden Space Subtotal</i>					\$1,559.40
<i>Fitness Area</i>	Outdoor Exercise Walker	1	\$775.00	1	\$775.00	Outdoor-Fitness
	Tai Chi Wheels	1	\$807.00	1	\$807.00	Outdoor-Fitness
	Strength & Stretch Bars	1	\$1,147.00	1	\$1,147.00	Outdoor-Fitness
	<i>Fitness Area Subtotal</i>					\$2,729.00
<i>Dog Run</i>	Metal Hexagrid Fence Kit	1	\$519.95	1	\$519.95	McGregor Fence Co. LLC
	Bench	1	\$577.00	2	\$1,154.00	Dog-On-It Parks
	Dog Waste Station	1	\$266.00	1	\$266.00	Dog-On-It Parks
	"Designated Dog Area" Sign	1	\$25.00	1	\$25.00	Dog-On-It Parks

	Double Ramp	1	\$1,541.00	1	\$1,541.00	Dog-On-It Parks
	Seesaw	1	\$894.00	1	\$894.00	Dog-On-It Parks
	Shimmy Poles	4	\$497.00	1	\$497.00	Dog-On-It Parks
	Plank Jump	1	\$222.00	1	\$222.00	Dog-On-It Parks
	<i>Dog Run Subtotal</i>				\$5,118.95	
<i>Lighting</i>	Solar Black Outdoor Integrated LED Landscape Plastic Square Bollard	6	\$32.97	37	\$1,219.89	Home Depot
	<i>Lighting Subtotal</i>				\$1,219.89	
<i>Additional & Miscellaneous Items</i>	Quikrete 80-lb bag for 13'x11' Concrete Pad (143 sq. ft.; 4" thick)	1	\$6.99	72	\$503.28	Ace Hardware
	Installation	-	\$25.00-\$70.00/hr	-	-	HowMuch
	Portable Ramp for ADA-Compliance	1	\$111.99	1	\$111.99	Amazon
	<i>Misc. Subtotal</i>				\$615.27	
GRAND TOTAL*					\$15,558.95	

*Total does not include installation costs or shipping

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