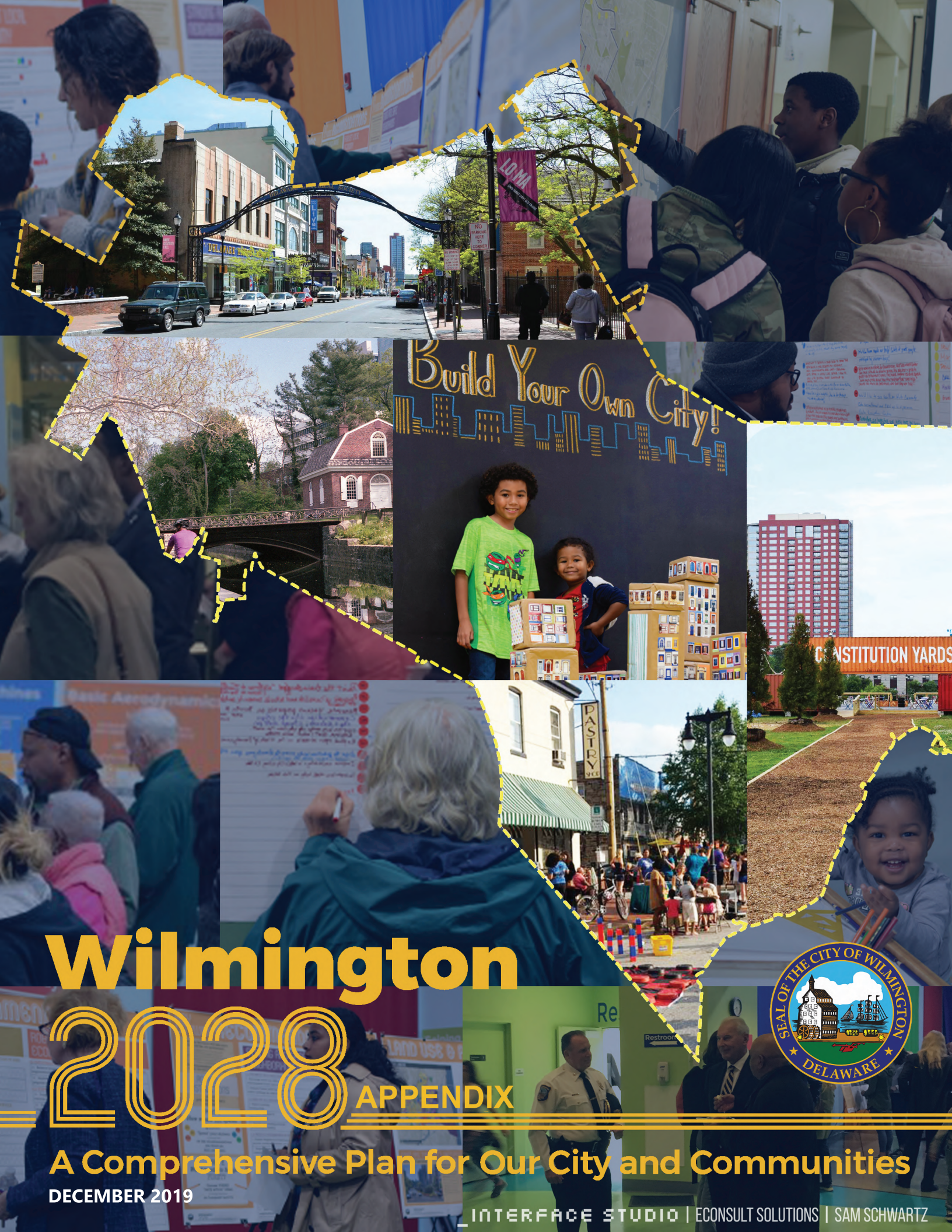

Wilmington 2028 APPENDIX

A Comprehensive Plan for Our City and Communities

DECEMBER 2019

_INTERFACE STUDIO | ECONSULT SOLUTIONS | SAM SCHWARTZ

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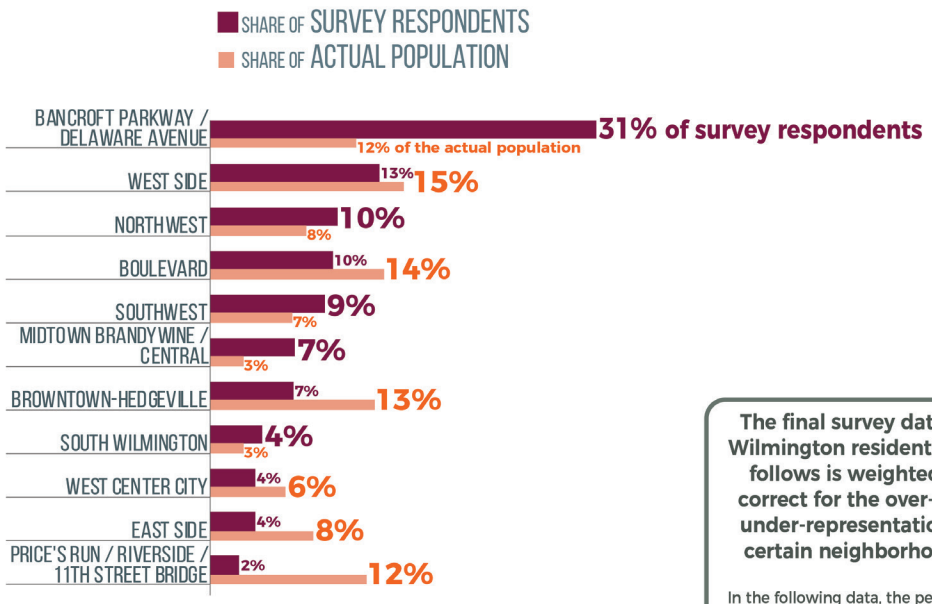
SURVEY

NEIGHBORHOOD OF RESIDENCE AMONG SURVEY RESPONDENTS WHO LIVE IN WILMINGTON

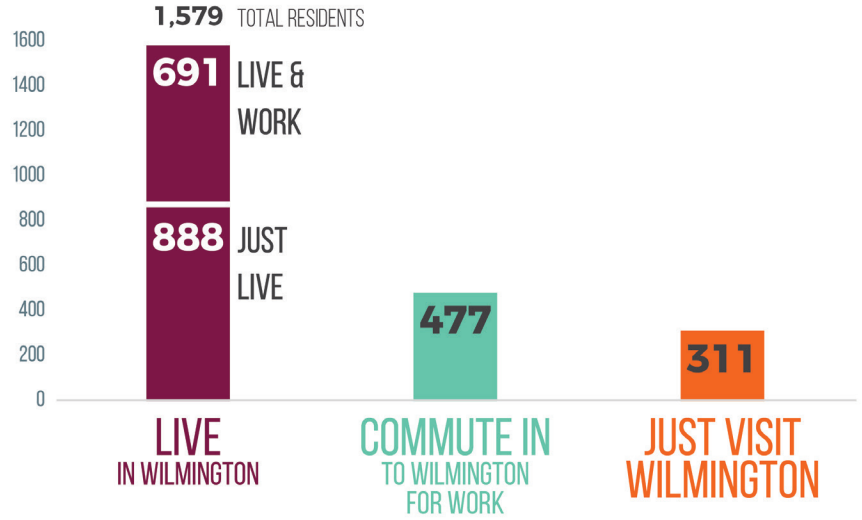


WILMINGTON 2028 SURVEY, SEPT - NOV 2017
DATA ON THIS SLIDE REFERS ONLY TO RESPONDENTS WHO LIVE IN WILMINGTON

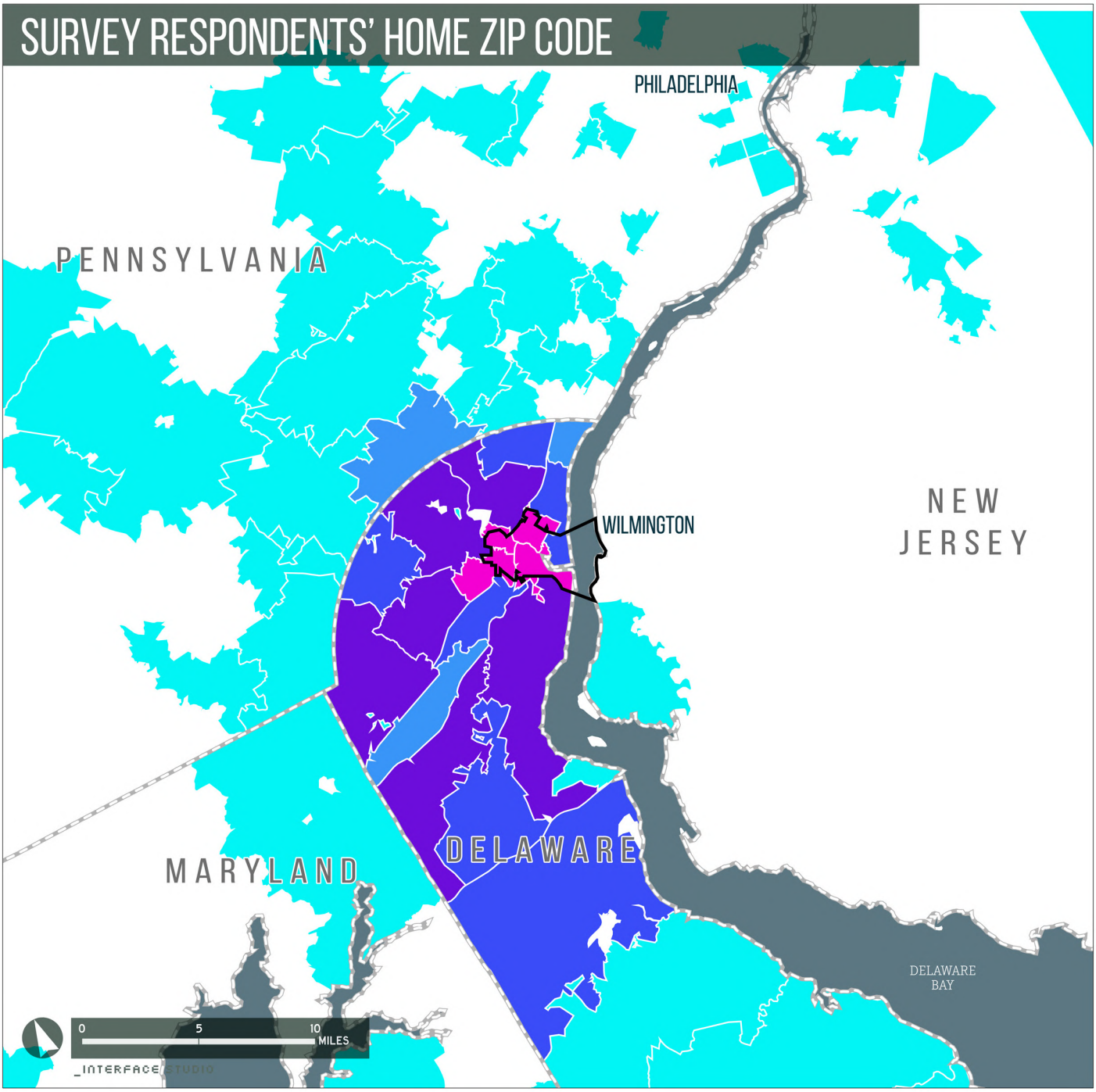
The final survey data on Wilmington residents that follows is weighted to correct for the over- and under-representation of certain neighborhoods.

In the following data, the percent of respondents from each neighborhood is the same as the actual percentage of Wilmington residents who live there.

SURVEY RESPONDENTS' RELATIONSHIP TO WILMINGTON



WILMINGTON 2028 SURVEY, SEPT - NOV 2017



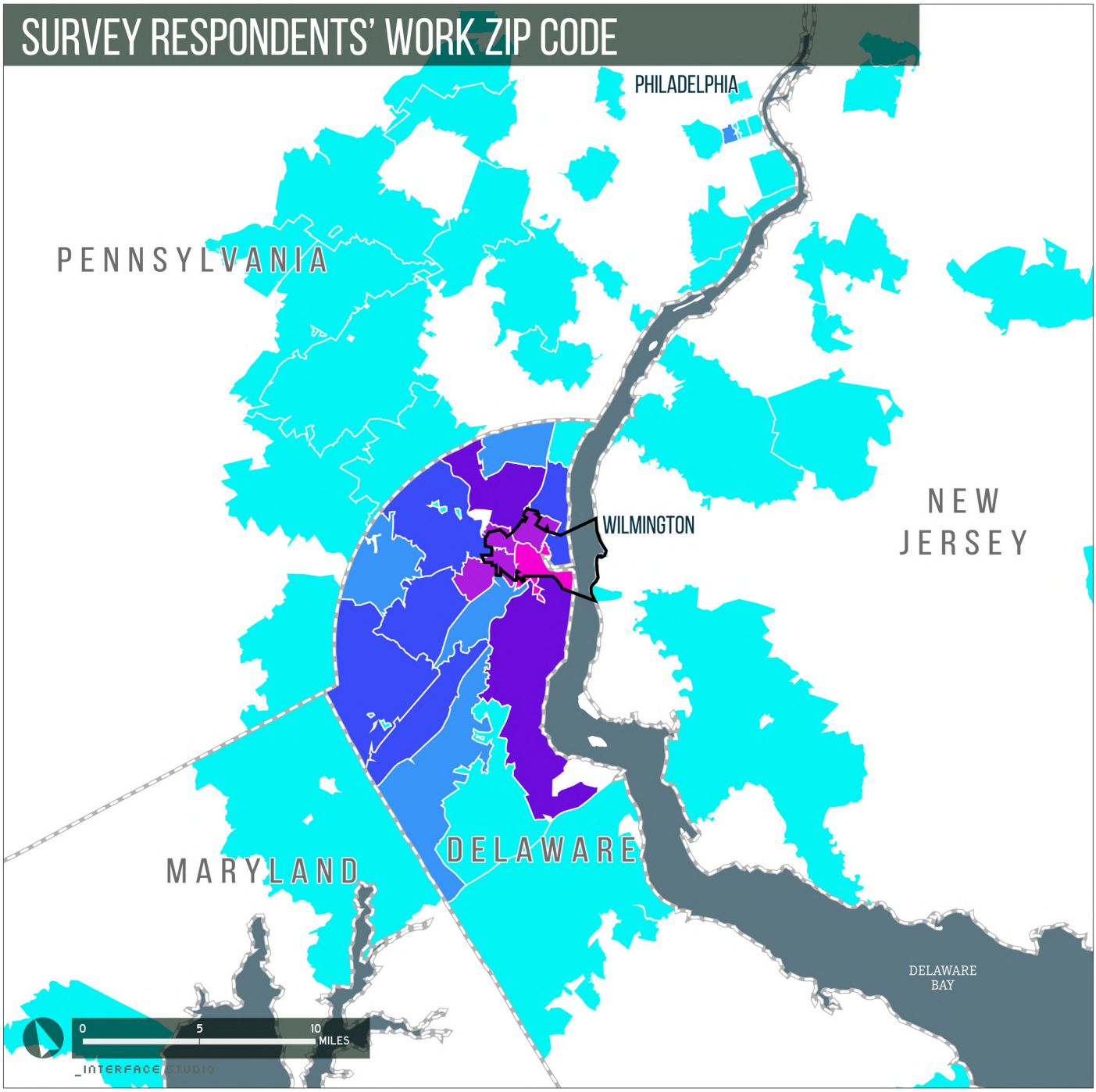
Number of Respondents

- Less than 10
- 10 - 24
- 15 - 49
- 50 - 99
- 100 - 199
- 200 and above

- City of Wilmington
- State Border

Source: Interface Studio Survey of Wilmington Residents, Workers, and Visitors

SURVEY RESPONDENTS' WORK ZIP CODE



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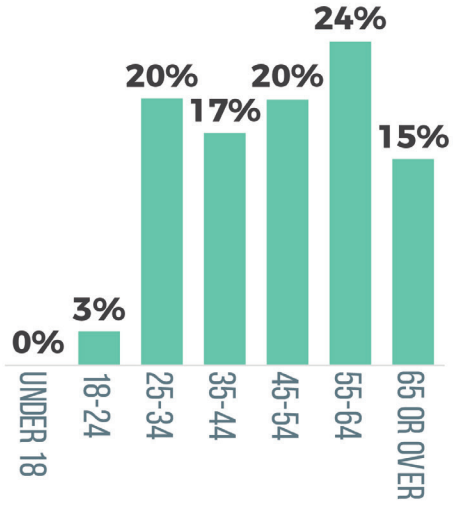
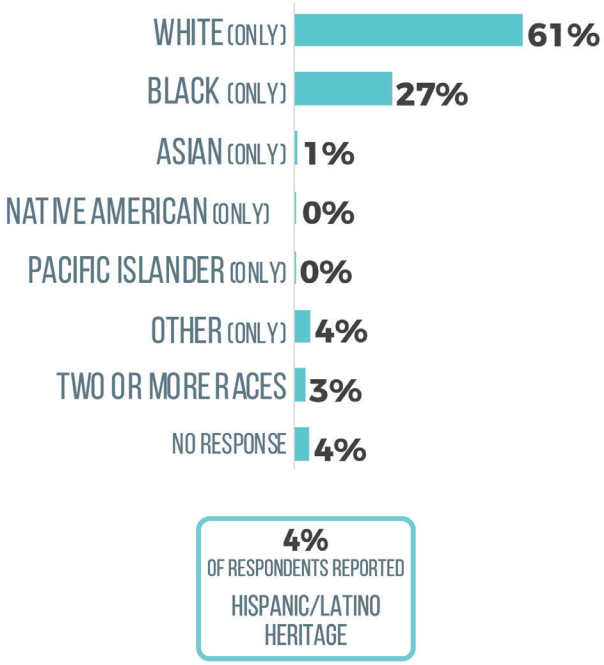
Source: Interface Studio Survey of Wilmington Residents, Workers, and Visitors

AGE



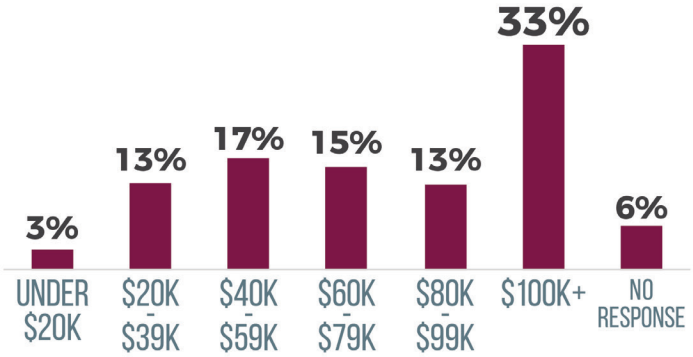
RACE



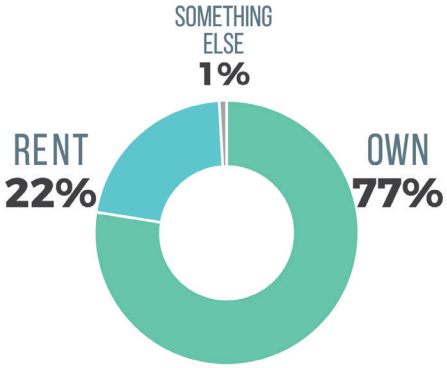
WILMINGTON 2028 SURVEY, SEPT - NOV 2017

DATA ON THIS SLIDE DESCRIBES ONLY RESPONDENTS WHO LIVE IN WILMINGTON

HOUSEHOLD INCOME



HOUSEHOLD TENURE



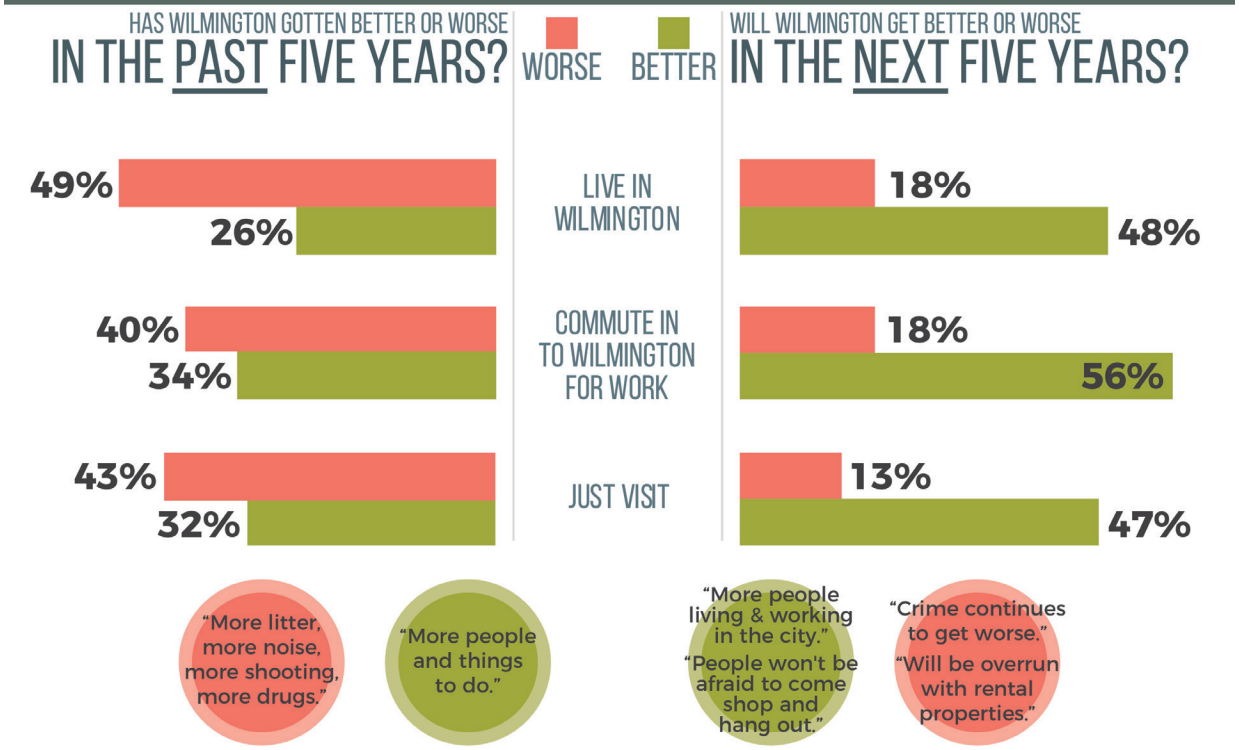
TIME LIVING IN WILMINGTON

<1 YEAR	1-5 YEARS	6-10 YEARS	11-20 YEARS	21-30 YEARS	MORE THAN 30 YEARS
7%	20%	14%	19%	10%	31%

WILMINGTON 2028 SURVEY, SEPT - NOV 2017

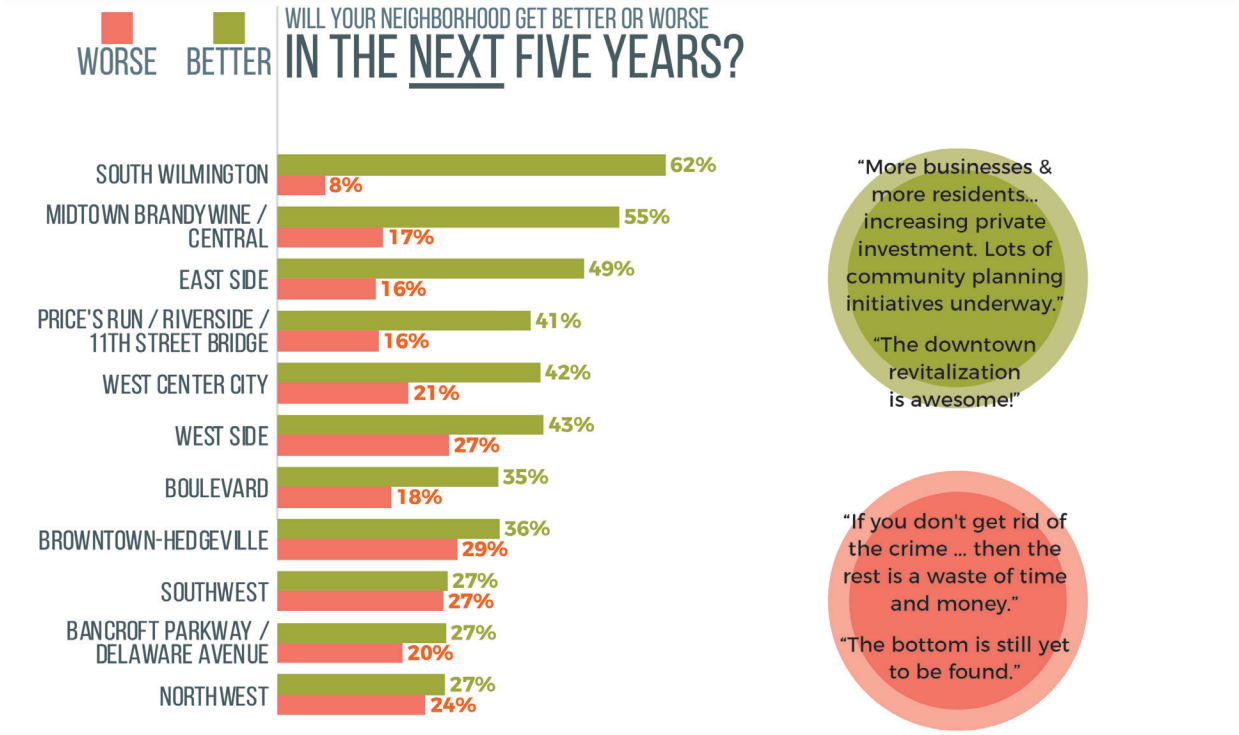
DATA ON THIS SLIDE DESCRIBES ONLY RESPONDENTS WHO LIVE IN WILMINGTON

CITYWIDE: FEELINGS ABOUT THE CITY'S PAST & FUTURE



WILMINGTON 2028 SURVEY, SEPT - NOV 2017

THE NEIGHBORHOODS: RESIDENTS' FEELINGS ABOUT THE FUTURE

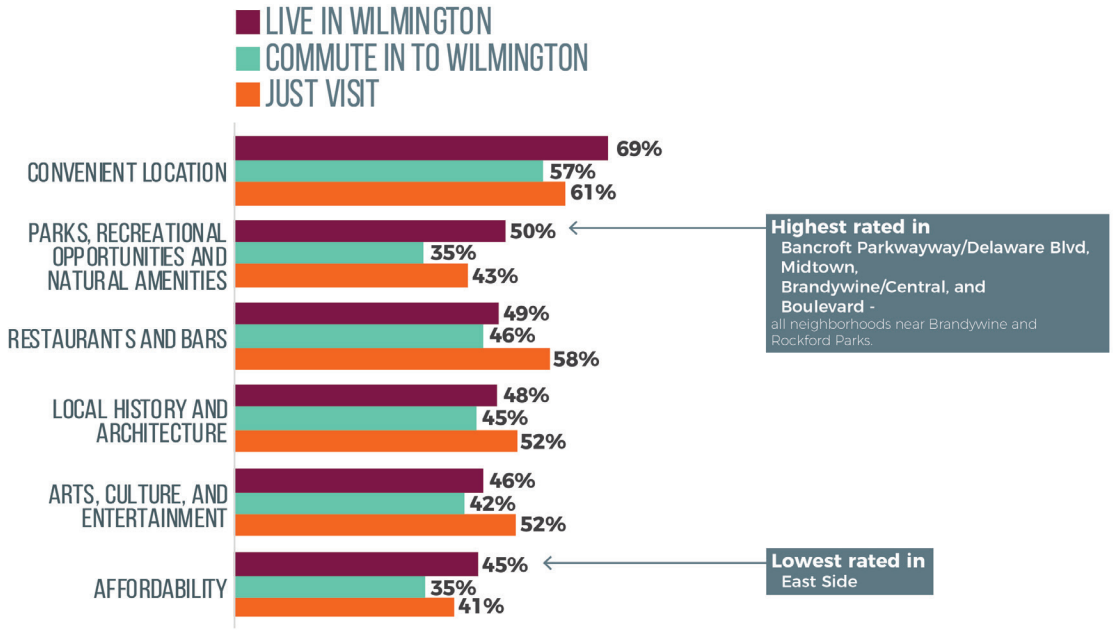


WILMINGTON 2028 SURVEY, SEPT - NOV 2017
DATA ON THIS SLIDE REFERS ONLY TO RESPONDENTS WHO LIVE IN WILMINGTON

CITYWIDE: WILMINGTON'S BEST RATED QUALITIES

PERCENT OF RESPONDENTS WHO

RATED EACH QUALITY "GOOD" OR "VERY GOOD"

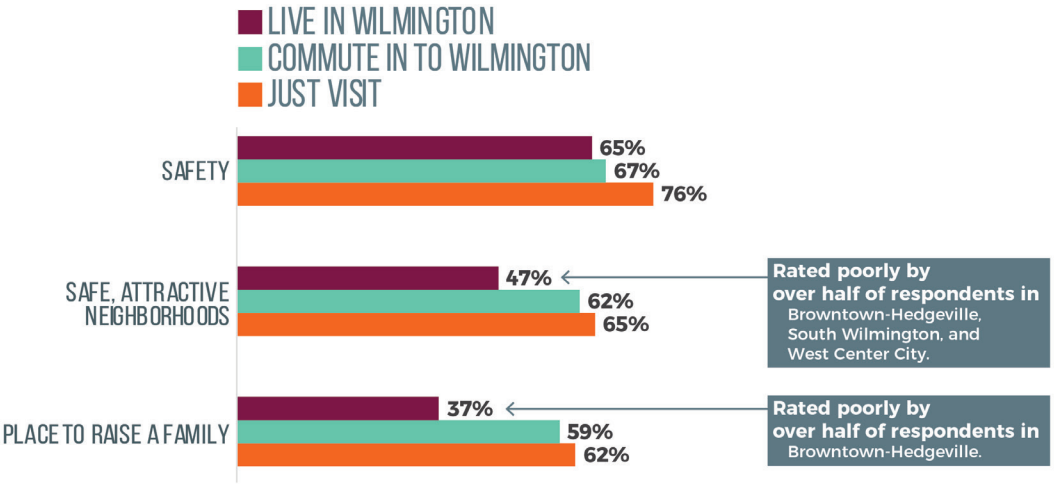


WILMINGTON 2028 SURVEY, SEPT - NOV 2017
ADDITIONAL OPTIONS THAT FEWER RESPONDENTS SELECTED ARE OMITTED FROM THIS SLIDE

CITYWIDE: WILMINGTON'S WORST RATED QUALITIES

PERCENT OF RESPONDENTS WHO

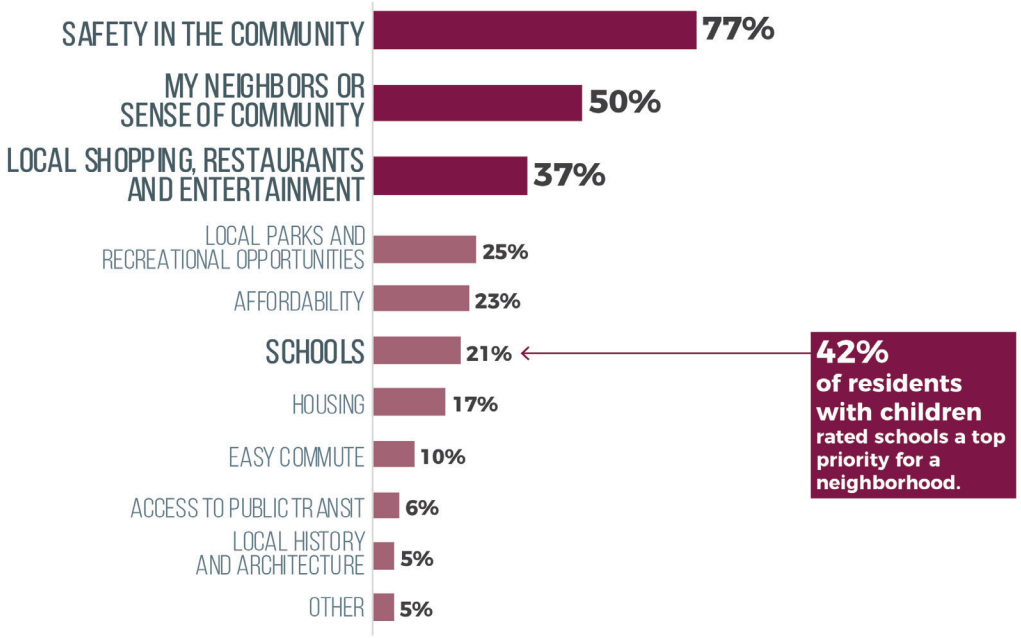
RATED EACH QUALITY "POOR" OR "VERY POOR"



WILMINGTON 2028 SURVEY, SEPT - NOV 2017
ADDITIONAL OPTIONS THAT FEWER RESPONDENTS SELECTED ARE OMITTED FROM THIS SLIDE

THE NEIGHBORHOODS: RESIDENTS' PRIORITIES

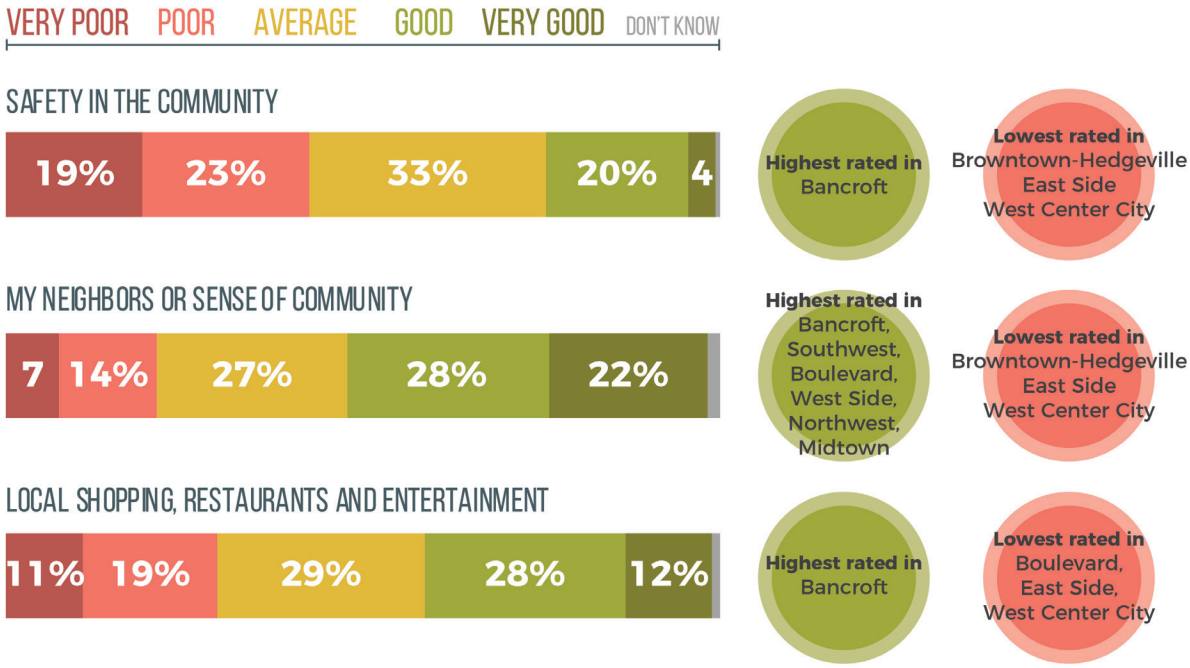
WHICH OF THESE QUALITIES ARE THE MOST IMPORTANT TO YOU IN A NEIGHBORHOOD? [CHOOSE UP TO THREE]



WILMINGTON 2028 SURVEY, SEPT - NOV 2017
DATA ON THIS SLIDE REFERS ONLY TO RESPONDENTS WHO LIVE IN WILMINGTON

THE NEIGHBORHOODS: RESIDENTS' RATINGS OF TOP 3 QUALITIES

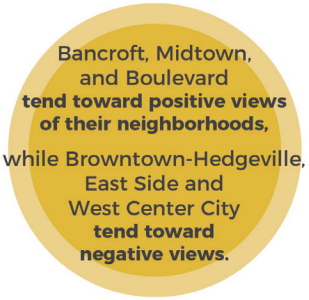
HOW WOULD YOU RATE THESE QUALITIES IN YOUR OWN NEIGHBORHOOD?



WILMINGTON 2028 SURVEY, SEPT - NOV 2017
DATA ON THIS SLIDE REFERS ONLY TO RESPONDENTS WHO LIVE IN WILMINGTON

THE NEIGHBORHOODS: RESIDENTS' OVERALL SATISFACTION

HOW SATISFIED ARE YOU LIVING IN YOUR NEIGHBORHOOD?



WILMINGTON 2028 SURVEY, SEPT - NOV 2017
DATA ON THIS SLIDE REFERS ONLY TO RESPONDENTS WHO LIVE IN WILMINGTON

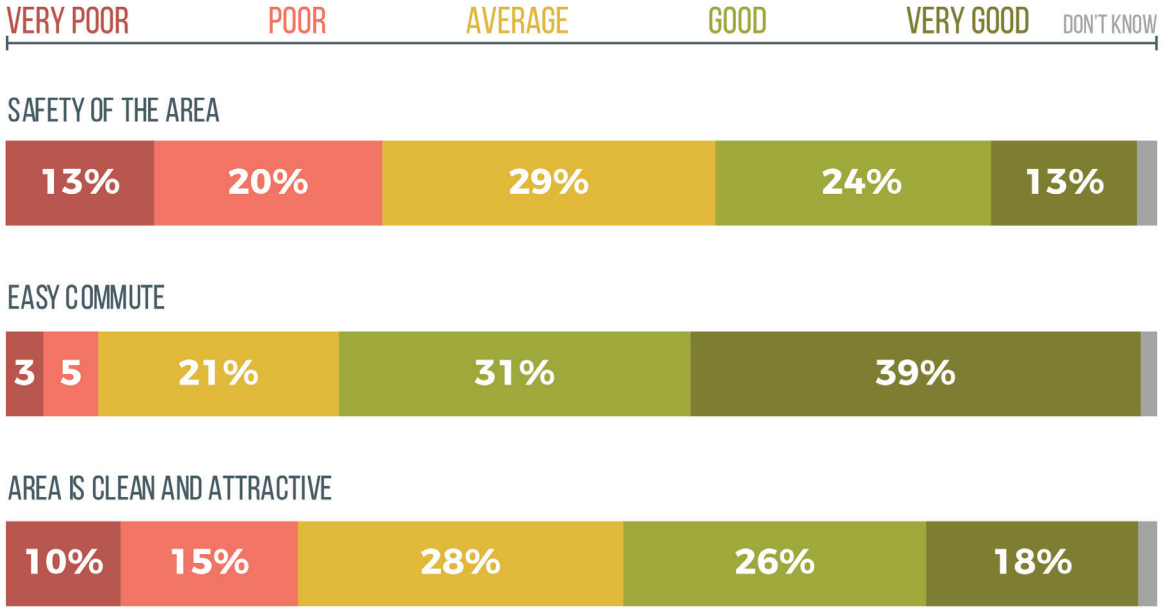
WORKING IN WILMINGTON: WORKERS' PRIORITIES

PERCENT OF RESPONDENTS WHO SAID EACH QUALITY IS IMPORTANT IN A JOB LOCATION

WILMINGTON 2028 SURVEY, SEPT - NOV 2017

WORKING IN WILMINGTON: WORKERS RATINGS OF TOP 3 QUALITIES

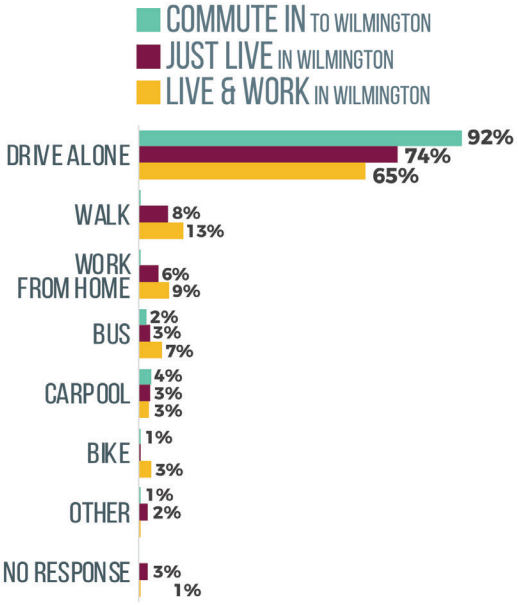
HOW WOULD YOU RATE THESE QUALITIES OF YOUR JOB LOCATION IN WILMINGTON?



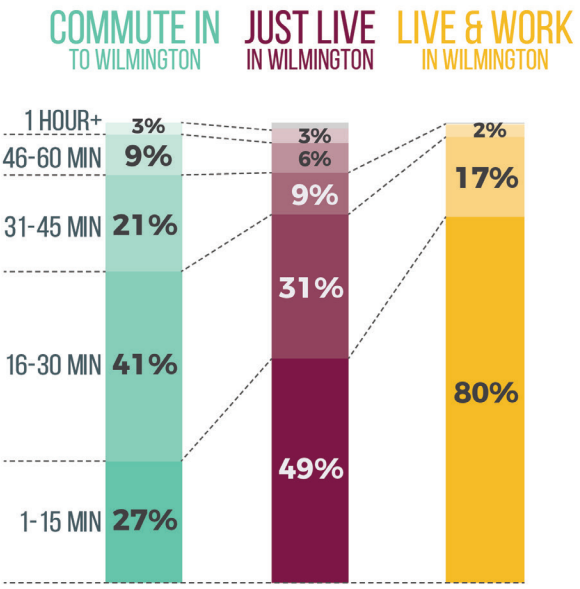
WILMINGTON 2028 SURVEY, SEPT - NOV 2017
DATA ON THIS SLIDE REFERS ONLY TO RESPONDENTS WHO WORK IN WILMINGTON

COMMUTING HABITS

MODE OF TRAVEL TO WORK



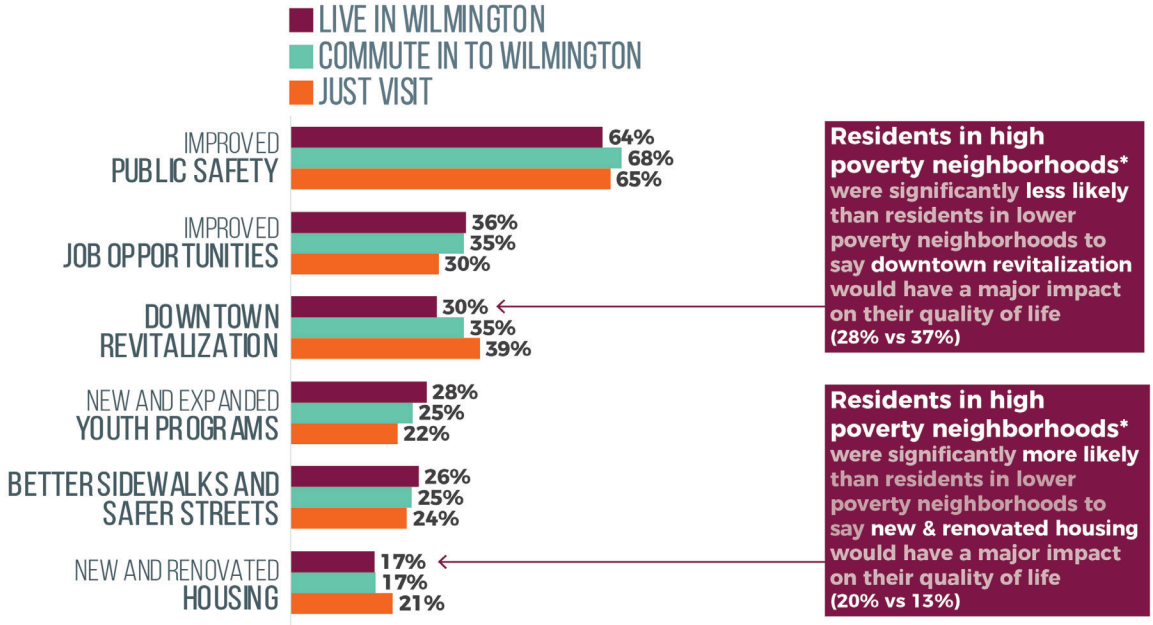
LENGTH OF COMMUTE



WILMINGTON 2028 SURVEY, SEPT - NOV 2017

CITYWIDE: TOP RATED IDEAS FOR WILMINGTON

WHAT IMPROVEMENTS DO YOU THINK WOULD MAKE THE GREATEST IMPACT ON QUALITY OF LIFE IN WILMINGTON? [CHOOSE UP TO THREE]

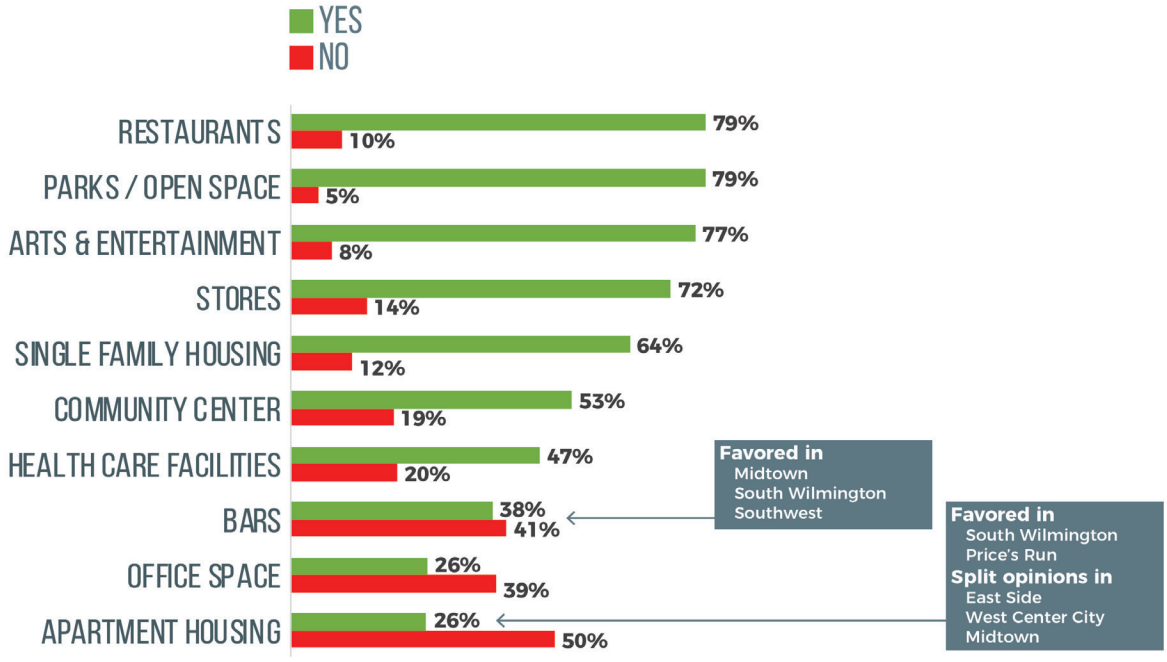


*"HIGH POVERTY NEIGHBORHOODS" INCLUDE THOSE IN WHICH GREATER THAN 25% OF RESIDENTS LIVE BELOW THE POVERTY LINE ACORDING TO 2016 ACS 5-YEAR ESTIMATES INCLUDING: RIVERSIDE/11TH ST BRIDGE/PRICE'S RUN, WEST CENTER CITY, BROWNTOWN-HEDGEVILLE, AND SOUTHWEST

WILMINGTON 2028 SURVEY, SEPT - NOV 2017
ADDITIONAL OPTIONS THAT FEW RESPONDENTS SELECTED ARE OMITTED FROM THIS SLIDE

THE NEIGHBORHOODS: FAVORABILITY OF DEVELOPMENT TYPES

WOULD YOU LIKE TO SEE THE FOLLOWING TYPES OF DEVELOPMENT IN YOUR NEIGHBORHOOD?



WILMINGTON 2028 SURVEY, SEPT - NOV 2017
DATA ON THIS SLIDE REFERS ONLY TO RESPONDENTS WHO LIVE IN WILMINGTON

BUSINESS OWNERS RATE WILMINGTON AS A PLACE TO DO BUSINESS

OVERALL, HOW WOULD YOU RATE WILMINGTON AS A PLACE TO DO BUSINESS?

205
RESPONDENTS
TOTAL

WILMINGTON 2028 SURVEY, SEPT - NOV 2017
DATA ON THIS SLIDE REFERS ONLY TO RESPONDENTS WHO OWN A BUSINESS IN WILMINGTON

THE NEIGHBORHOODS: RESIDENTS RATE ACCESS TO PUBLIC TRANSIT

RATE ACCESS TO PUBLIC TRANSIT IN YOUR NEIGHBORHOOD

CITYWIDE: FREQUENCY WITH WHICH RESIDENTS USE PUBLIC TRANSIT

IN GENERAL, HOW OFTEN DO YOU TAKE TRANSIT?

WILMINGTON 2028 SURVEY, SEPT - NOV 2017
DATA ON THIS SLIDE REFERS ONLY TO RESPONDENTS WHO LIVE IN WILMINGTON

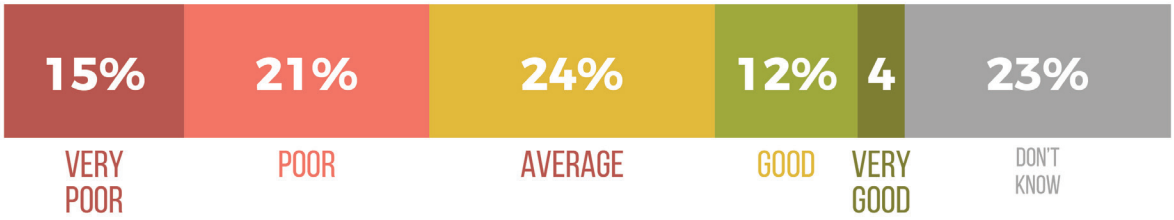
THE NEIGHBORHOODS: RESIDENTS RATE THEIR PARKS

RATE LOCAL PARKS AND RECREATIONAL OPPORTUNITIES IN YOUR NEIGHBORHOOD

WILMINGTON 2028 SURVEY, SEPT - NOV 2017
DATA ON THIS SLIDE REFERS ONLY TO RESPONDENTS WHO LIVE IN WILMINGTON

THE NEIGHBORHOODS: RESIDENTS RATE THEIR SCHOOLS

RATE SCHOOLS IN YOUR NEIGHBORHOOD



WILMINGTON 2028 SURVEY, SEPT - NOV 2017
DATA ON THIS SLIDE REFERS ONLY TO RESPONDENTS WHO LIVE IN WILMINGTON

PUBLIC FORUM 1

YOUR VISION FOR 2028

118 responses

Wilmington in 2028 will...

- 49 Be safe
- 36 Be vibrant, with things to do
- 26 Be easy to get around (walk, bike, transit)
- 24 Have economic opportunities
- 19 Be community-oriented and engaged
- 17 Have youth opportunities
- 16 Have revitalized neighborhoods
- 16 Be clean and attractive
- 12 Be proud
- 12 Have affordable housing
- 12 Have great parks
- 10 Be green and sustainable

WHAT IS A GREAT STREET?

267 responses

Most desired characteristics of a great street

WHAT IS A GREAT STREET?

267 responses

Desired characteristics of most mentioned streets

Market Street [52 mentions]

pedestrian-friendly
inviting
friendly

Union Street [28 mentions]

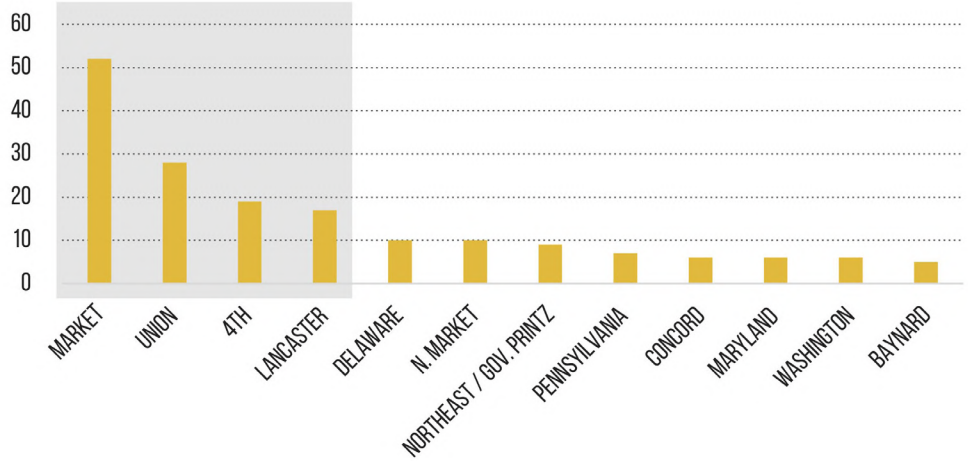
people-oriented
inviting
attractive

4th Street [19 mentions]

festive
beautifying
inviting
creative
fun

Lancaster Avenue [17 mentions]

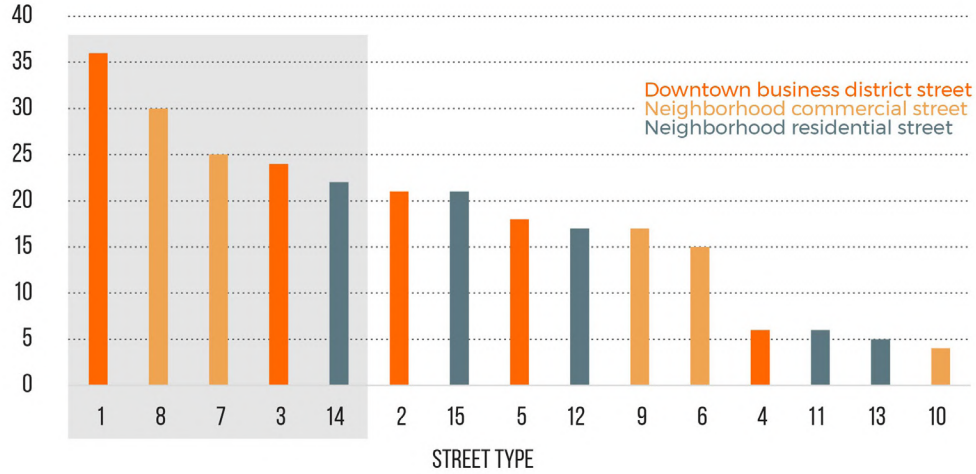
people-oriented
attractive
landscaped



WHAT IS A GREAT STREET?

267 responses

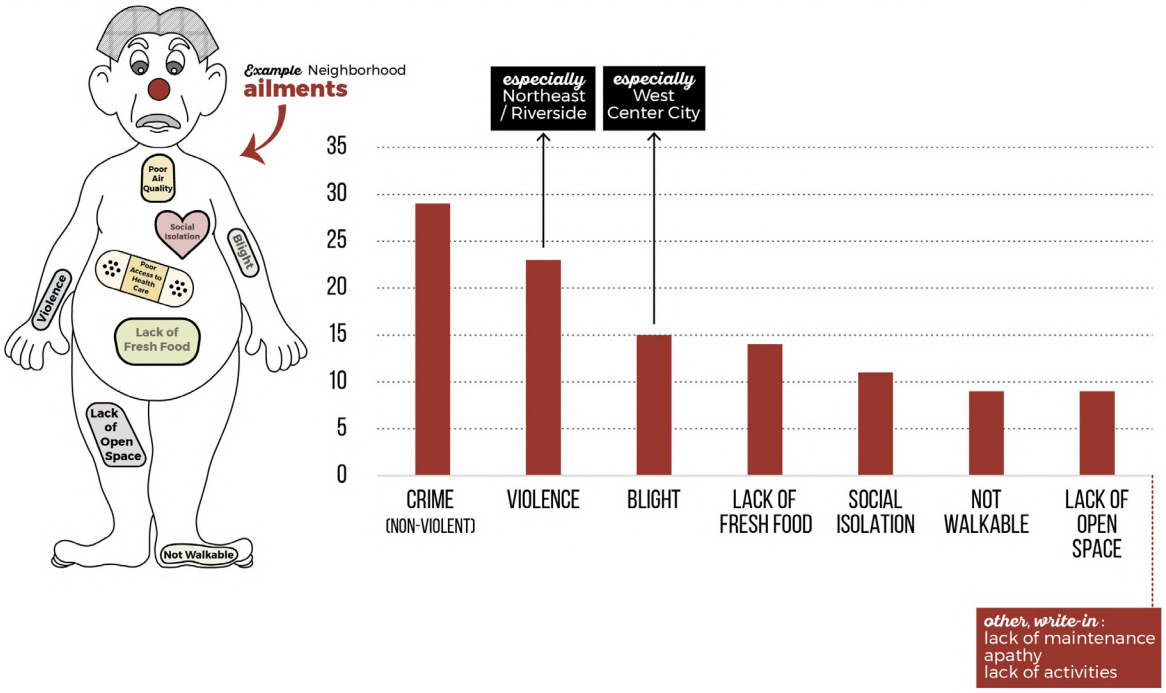
Top street types



Wilmington NEIGHBORHOOD DOCTOR

139 responses

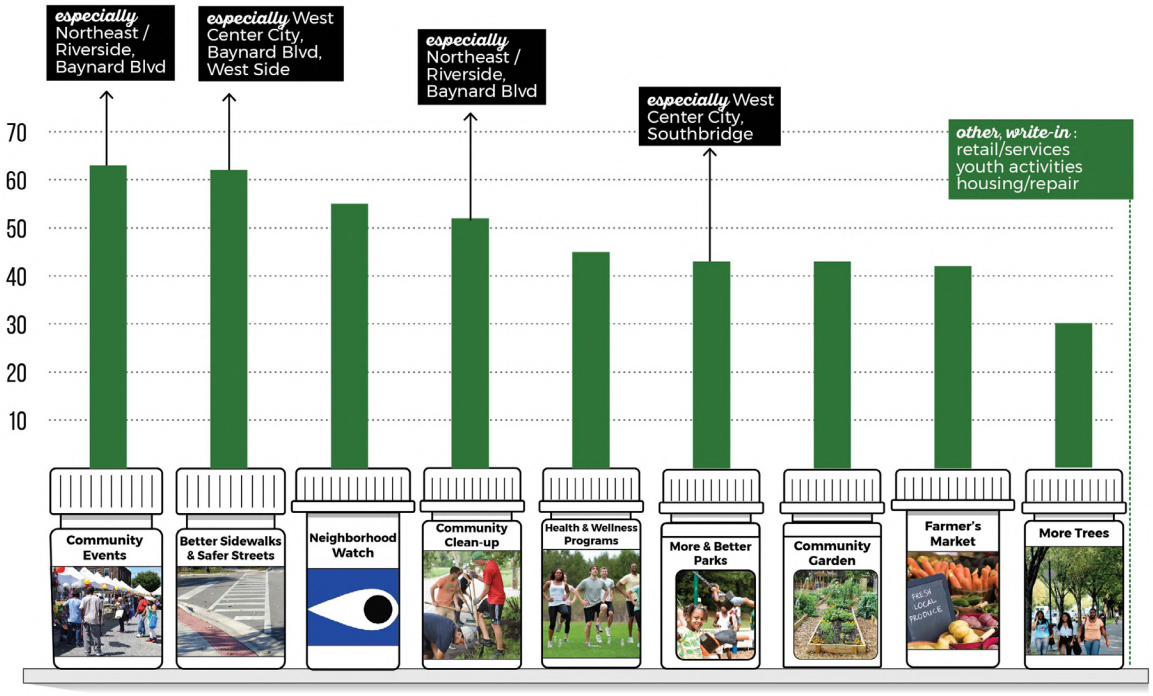
What **ailments** does your neighborhood need help with to be **healthy**?

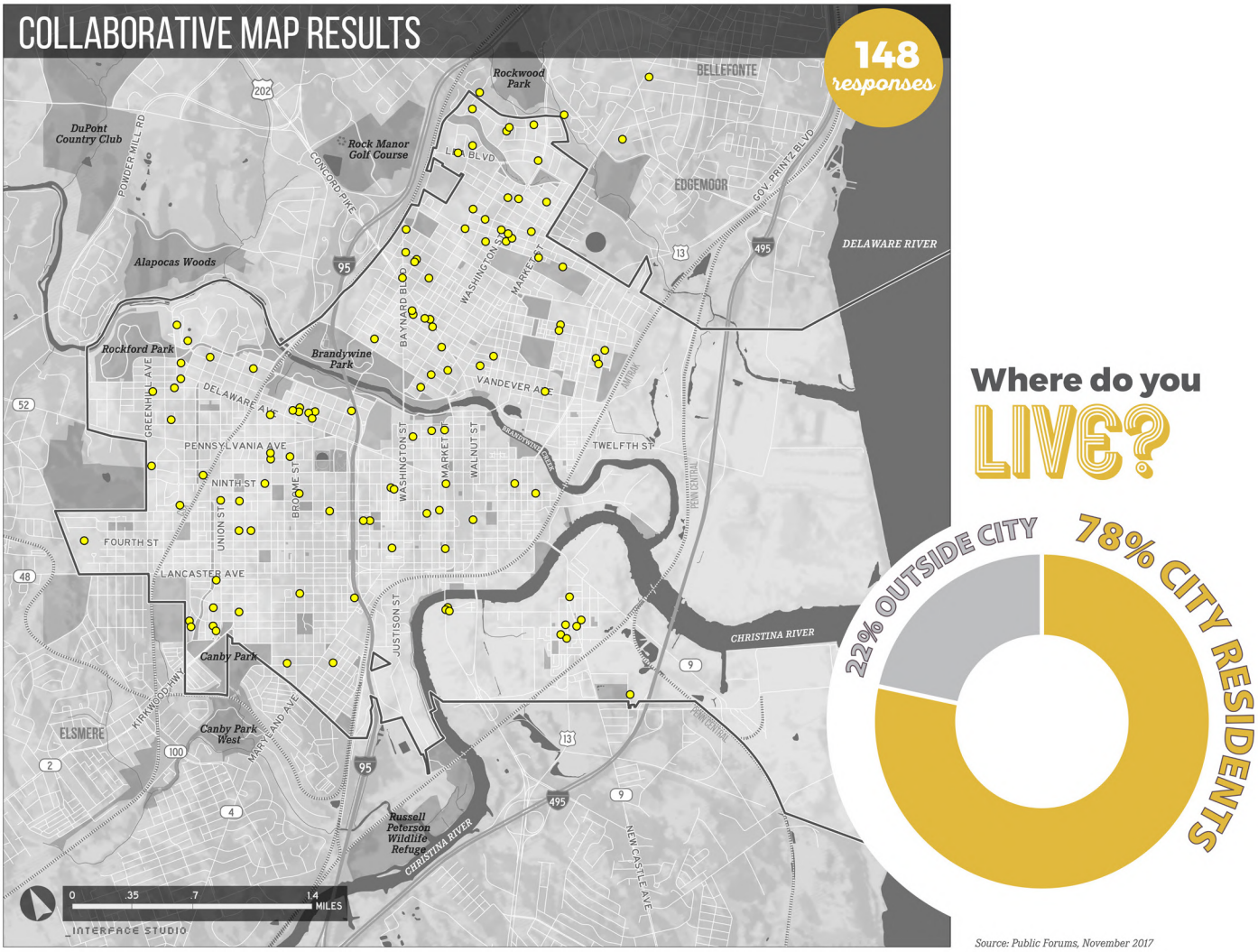


Wilmington NEIGHBORHOOD DOCTOR

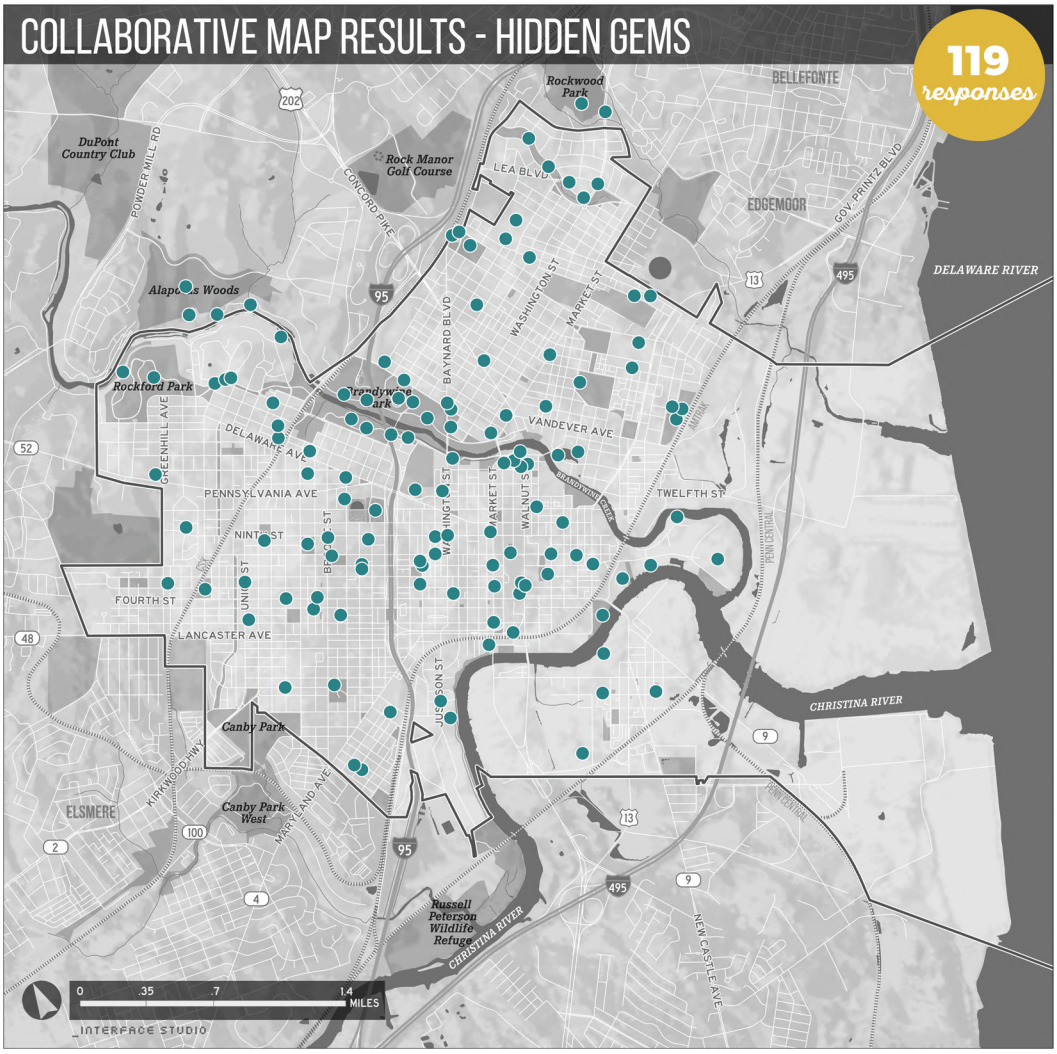
139 responses

What would you **prescribe** for your neighborhood to be **healthy**?





Source: Public Forums, November 2017



Where are the HIDDEN GEMS in your City?

Historic Assets 23%

Great Places 22%

Parks or Open Spaces 22%

Institutions (Schools, Churches, etc.) 12%

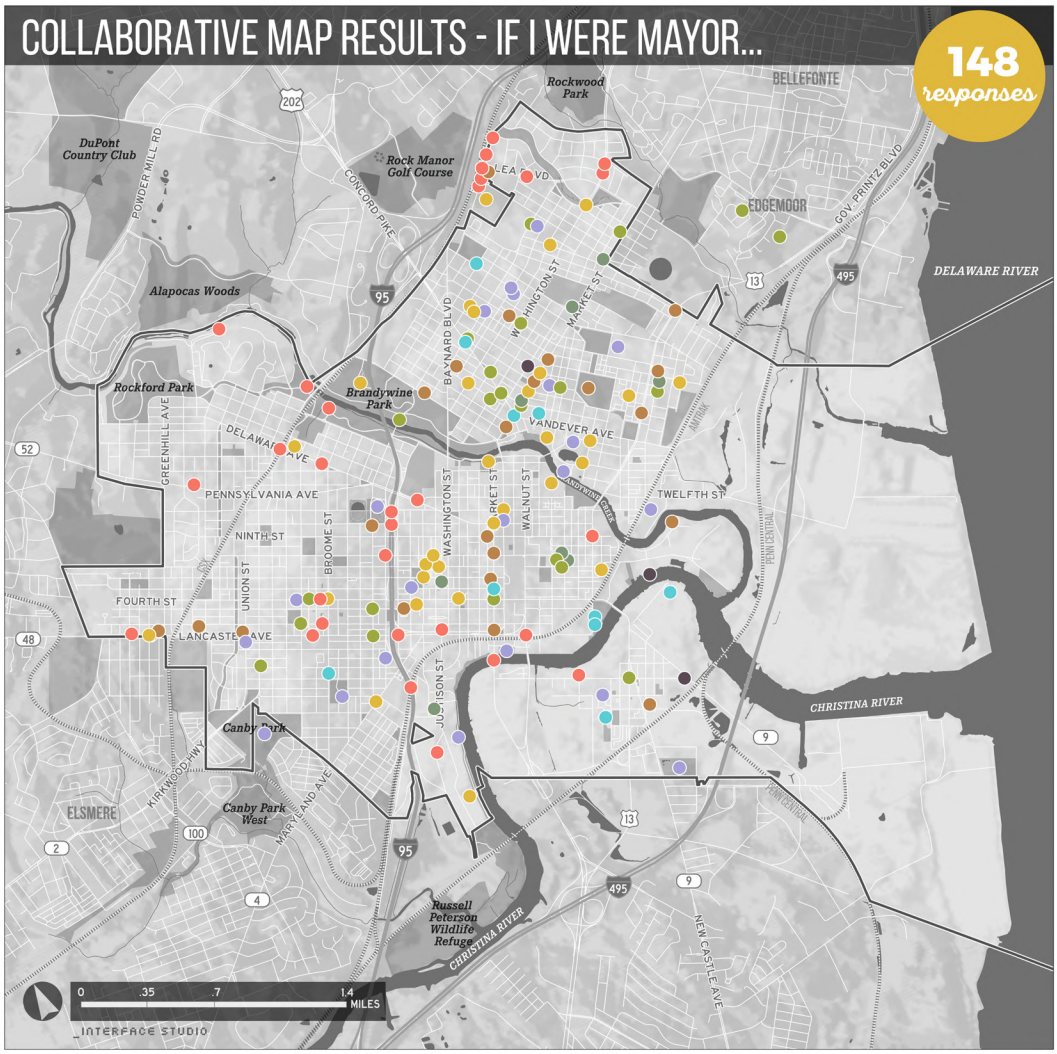
Arts, Culture, & Entertainment Venues 9%

Redevelopment Opportunities 4%

Transportation Assets 4%

Great New Development 3%

Source: Public Forums, November 2017



If I were MAYOR I would focus on...

Better Connectivity 22%

Revitalizing Neighborhoods 19%

Fostering Vibrant "Main Streets" 16%

Improving Crime & Safety 14%

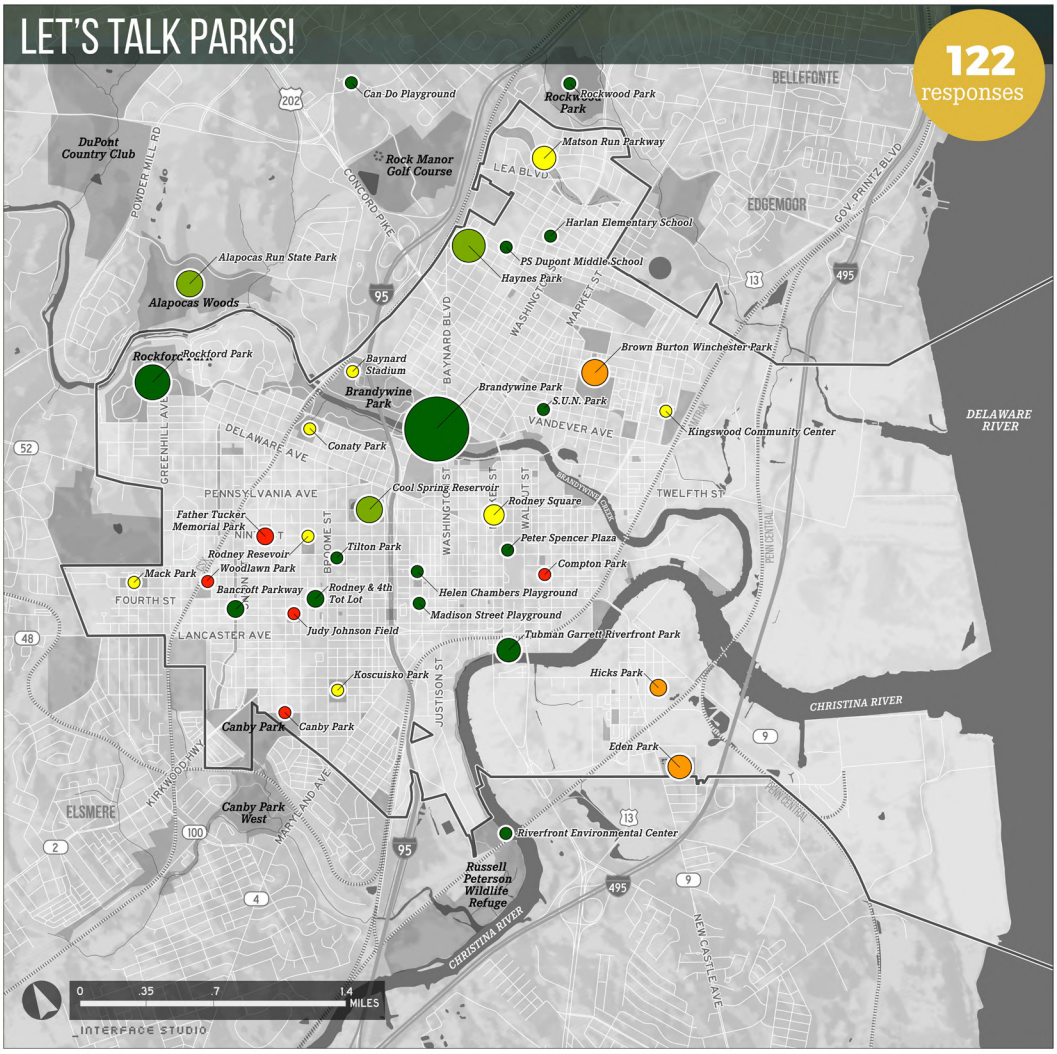
Creating Great Public Spaces 14%

Improving Opportunities for People & Helping Others 10%

Creating Better, and Affordable, Housing Options 5%

Protecting the Environment 2%

Source: Public Forums, November 2017



I would like this PARK better if...

(of 121 responses)

...it was better maintained — 22 responses

...it got the basics right — 20 responses

...it felt safe to use — 18 responses

...it was better connected to the city — 18 responses

...it hosted more community events — 14 responses

...it had more recreational facilities — 13 responses

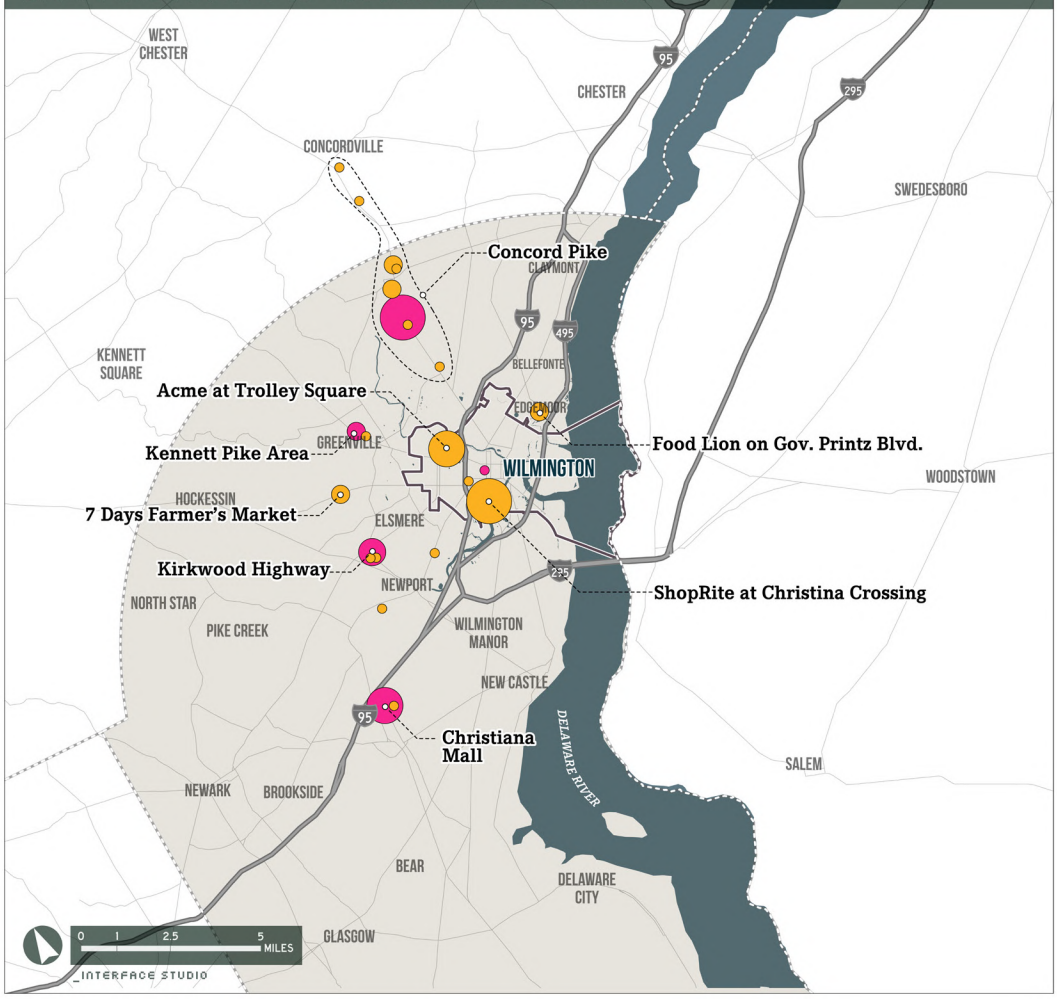
...it had more types of activities — 13 responses

Park Quality: Good / Average / Poor

Ratings Per Park: 1, 5, 10

Source: Public Forums, 2017

SHOPPING HABITS OF WILMINGTON RESIDENTS



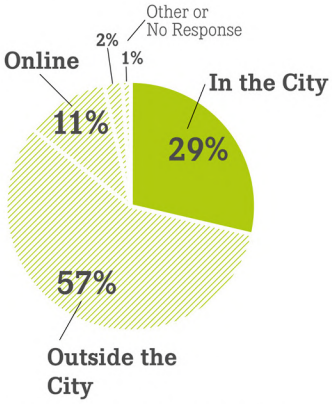
Shopping Type

- Groceries/Day-to-Day
- Non Day-to-Day

Frequency of Responses

- 10 - 50
- 50 - 100
- 100 - 250
- 250 - 500
- 500 - 1,000

Share of Shopping Trips



Source: Interface Studio Survey of Wilmington Residents, Workers, and Visitors

PUBLIC FORUM 2

OPINIONS ON VISION AND GOALS

PARTICIPANTS WERE ASKED TO CHOOSE THEIR FAVORITE ELEMENT OF THE VISION STATEMENT AND WRITE-IN A PHRASE IF THEY FELT SOMETHING WAS MISSING
PARTICIPANTS WERE ALSO ASKED TO COMMENT ON WHICH GOALS WHERE MOST IMPORTANT TO THEM

Vision Statement

TOP VISION ELEMENTS

a safe, healthy, and attractive city
&
a city of opportunity for everyone

each received 30% of total votes

SUGGESTIONS FOR "WHAT'S MISSING?" FROM THE VISION INCLUDED:

Shared prosperity from riverfront to riverside across the entire city

Facilitate this process on a regular basis for continued improvements

A city that is affordable to all

A healthy, vibrant & thriving place to live, work & visit

inclusivity, equity

Hip and fun!

Economically healthy

Goals

TOP SELECTED GOAL AREAS:

1. Strong and Safe Neighborhoods
received 35% of total votes

4. Connected City and Region
received 22% of total votes

TOP SPECIFIC GOALS:

Connected City & Region 4.1: Connect across Wilmington and throughout the region via a multimodal network

Strong & Safe Neighborhoods 1.3: Reduce neighborhood blight and crime

Healthy & Thriving Communities 2.1: Ensure all youth have opportunities to shape their future in and out of school

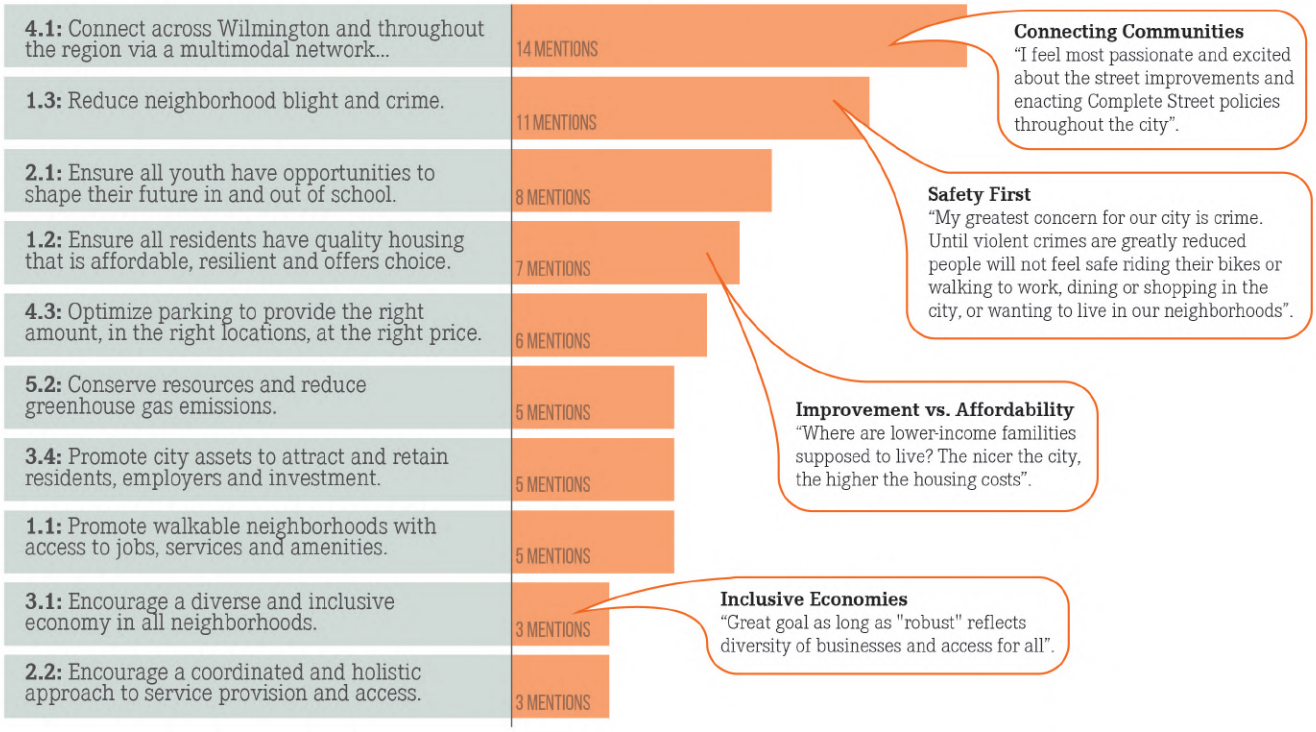
Strong & Safe Neighborhoods 1.2: Ensure all residents have quality housing that is affordable, resilient and offers choice

Invitations to public rollout event at Delaware Children's Museum

OPINIONS ON DRAFT GOALS

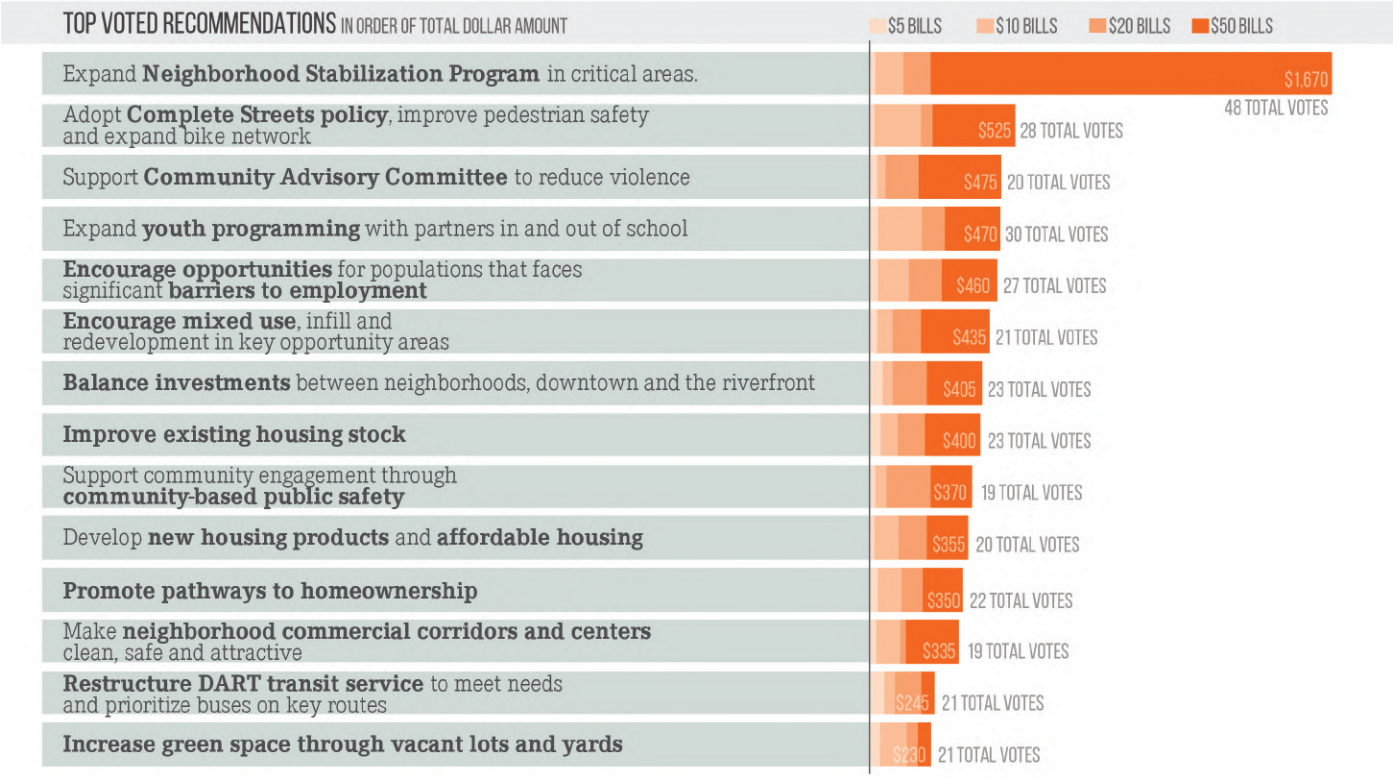
PARTICIPANTS WERE ASKED TO COMMENT ON WHAT GOALS THEY LIKED, AND WHICH GOALS RAISED A QUESTION OR CONCERN

TOP SELECTED GOALS & THEMES FROM COMMENTS IN ORDER OF TOTAL MENTIONS RECEIVED FOR EACH



TOP KEY CITYWIDE RECOMMENDATIONS

PARTICIPANTS WERE EACH ASKED TO "SPEND" A TOTAL OF $100 ON A LIST OF RECOMMENDATIONS. THEY WERE GIVEN A $50 BILL, A $20 BILL, TWO $10 BILLS, AND TWO $5 BILLS.



STREET TOOLBOX

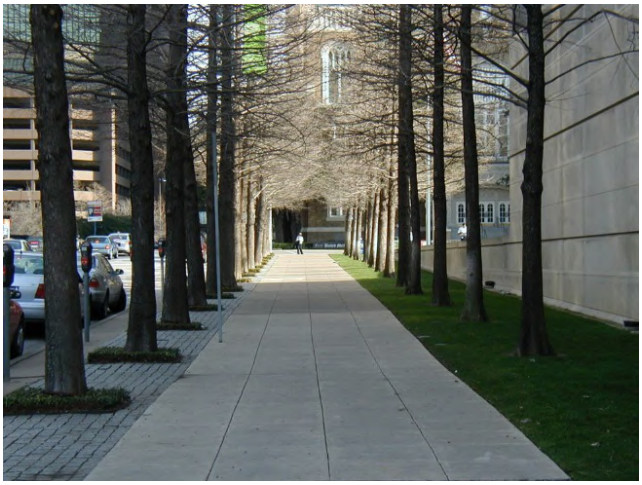
Tool	Gateway Corridors	Main Street Corridors	Neighborhood Corridors	Multimodal Corridors	Safe Intersections
Enhanced Sidewalks					
Street Trees					
Street Lighting					
Curb Extensions					
Crosswalks					
Pedestrian Refuge Islands					
Mid-Block Crossings					
Rectangular Rapid Flashing Beacons					
Signal Timing					
Center Medians					
Gateway Treatments					
Chicanes, Neck Downs, Roundabouts					
Street Furniture					
Road Diets					
Narrower Lane Widths					
Access Management					
Automated Photo Enforcement					

Raised Intersections					
Transit Shelters					
Transit Enhancements					
Bicycle Lanes					
Buffered Bicycle Lanes					
Separated Bicycle Lanes					
Off-Street Bicycle Paths					
Bike Box					

Enhanced Sidewalks

- Minimum 5’ wide, target 8’
- Landscaping/furniture zone/transit shelters to buffer sidewalk from street
- Benefits
    - Improve safety by reducing conflicts between people walking and cars
    - Provide space for walking, socializing, and gathering
    - Encourage economic activity by increase foot traffic
- Cost $$$
- Time: medium

Street Trees



- Street trees located between the sidewalk and street are a cost-effective way to enhance aesthetics and improve environmental quality while creating a safer and accessible corridor. Street trees buffer pedestrians from the vehicular traffic and calm traffic by visually narrowing the roadway.
- Street tree species, form, and aesthetic qualities should be determined based on characteristics of the road including cross section, usage, etc.
- Require at least ten square feet
- Trees should be limbed properly and setback from intersections and crossings to maintain proper sight lines.
- Benefits
    - Buffer and protect people walking from traffic
    - Environmental benefits: cooling, stormwater absorption, improve air quality
- Cost $
- Time: short

Lighting

- Lighting is a key element of the visual environment that allows pedestrians to move about safely and feel more secure after sundown. Well-lit sidewalks and roadways allow drivers to see pedestrians entering the roadway and allow pedestrians to avoid tripping hazards or other sidewalk elements.
- There are two types of lighting that may be used to illuminate the roadways: Pedestrian-Scale Lighting (12’-16’ height); and Roadway Lighting (20’-26’ height).
- Proper light levels vary depending on road typology and usage. For example, areas with high pedestrian traffic, such as commercial corridors, may require pedestrian-scale lighting in addition to standard roadway lighting.
- Benefits:
    - Create a safer environment after dark
    - Improve visibility for all road users
- Cost $$
- Time: medium

Curb ramps

- Curb ramps are the sloping element of the sidewalk that transition pedestrians from the sidewalk elevation to the roadway elevation. This transition allows for safe crossing and ADA-compliant accessibility. The design of curb ramps is closely regulated by the city based on New Jersey Department of Transportation guidelines.
- All pedestrian crossing areas (corners and mid-block) should be equipped with curb ramps.
- All curb ramps must be installed in compliance with ADAAG and PROWAG standards.
- Benefits:
    - Provide accessible crossing for pedestrians of all ages and abilities.
    - Minimize the need for pedestrians in wheel chairs or pushing strollers to walk in the street.
- Cost $$
- Time: short

Curb extensions

- A curb extension, or bump-out, is an area of sidewalk that is widened into the parking lane to reduce crossing distances, slow turning vehicles, and improve pedestrian visibility. The additional sidewalk space can function as gathering space, landscaped area, or a waiting zone.
- Benefits:
    - Provide safer crossing at wide intersections and decrease crossing distances
    - Increase visibility of people walking
    - Reduce traffic and turning speeds
- Cost $$-$$$
- Time: medium

Crosswalks

- Crosswalks are used to clearly identify where pedestrians should cross the road. Crosswalks are differentiated from other areas of the roadway by a change in the surface to designate the pedestrian right-of-way. The City of Newark uses either white “angled ladder” striped crossings or stamped resin “brick” crosswalks.
- Crosswalks should be located based on the desired walking paths of pedestrians
- Crosswalks should be aligned perpendicular to the roadway to provide the shortest possible crossing distance.
- Benefits:
    - Alert drivers to the presence of pedestrians in the roadway.
    - Notify pedestrians of the designated areas to cross the roadway.
- Cost $
- Time: short

Pedestrian Refuge Islands

- A pedestrian refuge island is a segment of roadway median that is used as a refuge for pedestrians that are crossing the road. They are used throughout the city along wide roadways and at multi-modal transit locations.
- Pedestrian refuge islands require the installation of a curbed island, flush sidewalk zone, tactile paver and bollards. Size and materials may vary greatly depending on location.
- Benefits:
    - Reduces pedestrian crossing distance and the exposure time experienced by the pedestrian crossing a wide roadway.
    - Reduces the complexity of crossing multiple lanes of traffic by allowing pedestrians to cross one direction of traffic at a time if needed.
- Cost $-$$
- Time: medium

Mid-Block Crossings

- Mid-block crossings are often installed in areas with heavy pedestrian traffic to provide more frequent crossing opportunities. They may also be added near major pedestrian destinations, such as schools, where people might otherwise cross at unmarked locations, or where the distance between crossings becomes onerous for people walking (~¼ mile).
- Additional pedestrian safety measures such as advanced warning signs, raised crosswalks and curb extensions should be considered at mid-block crossings.
- Stop lines at mid-block crossings should be set back a minimum of 20 feet from the crossing.
- Benefits:
    - Provide additional opportunities for pedestrians to cross the road.
- Costs $-$$
- Time: short to medium

Rectangular Rapid Flashing Beacons

- Rectangular rapid flashing beacons (RRFB) are yield-to-pedestrian-signals that can have sensors or be wirelessly synchronized to alert drivers when a pedestrian is entering the crosswalk. RRFBs are usually placed at mid-block crossings or on neighborhood main streets where an additional level of pedestrian safety is required.
- RRFBs have to be installed in pairs with one on each side of the roadway. If a median or Pedestrian Safety Island is used, then three RRFBs may be needed.
- Benefits:
    - Visually alerts drivers when pedestrians are entering the crosswalk.
    - Ideal for uncontrolled crossings locations like mid-block crossings.
- Cost $-$$
- Time: short to medium

Signal Timing

- Signal timing such as leading pedestrian intervals (LPI), lagging left turns, and protected turning phases are used to give pedestrians priority at intersections and temporarily separate pedestrian and vehicles at crossings. Crossing speeds of pedestrians should also be considered when retiming traffic signals.
- Short cycle lengths of 60–90 seconds are ideal for urban areas.
- Crossing time should be site specific. Longer crossing times should be considered in areas with higher populations of elderly residents and children.
- Benefits:
    - Reduce overall pedestrian wait times and exposure at intersections.
- Cost $-$$
- Time: short to medium

Center Medians

- Center medians are used to separate opposing lanes of traffic along wide roadways. Medians can be used to deter mid-block crossing or jaywalking, and may also be used to calm traffic by visually reducing the road width, especially if they contain trees and/or landscaping.
- Medians are constructed in the center of the roadway and consist of a curbed edge and either paved or landscaped center area. Additional elements that may be designed into the median include street lighting, landscape materials, raised planters or fencing.
- Unlike highway medians, medians installed within the city should be designed to visually narrow the roadway and calm traffic. If not properly designed, medians may inadvertently result in increased travel speeds.
- Benefits:
    - Calm traffic along excessively wide roadways.
- Cost $$
- Time: medium to long

Gateway Treatments

- Gateway treatments are often used to calm traffic when drivers are transitioning from a higher-speed roadway into a more pedestrian-oriented residential neighborhood or center. They typically involve a decorative sign, landscaping, and lighting.
- Benefits:
    - Notifies drivers that they are entering a neighborhood and should expect pedestrians to be using the street.
    - Calms traffic at neighborhood entry and transitional points.
- Cost $$
- Time: medium to long

Chicanes, neck-downs, and roundabouts

- Chicanes, neck-downs, and roundabouts are modifications made to the curb line, lanes, or traffic flow intended to slow, redirect or block vehicular through-traffic. They are useful tools for deterring speeding and cut-through traffic, particularly on local residential streets.
- These improvements have impacts on traffic circulation and therefore traffic volumes and emergency access requirements should be considered.
- Benefits:
    - Reduce cut-through traffic on neighborhood streets.
    - Reinforce speed limit.
    - Improve safety at intersections
- Cost $$-$$
- Time: medium to long

Street Furniture

- Street furniture such as benches, garbage and recycling cans, bicycle racks, and others can be located in the furniture zone between the sidewalk and street.
- Benefits:
    - Improve walkability by providing comfortable places to sit and rest and add to the visual interest of the street
    - Create a more welcoming pedestrian environment for people of all ages and abilities
- Cost $-$$
- Time: short to medium

Road Diets

- Road diets, also known as a road reconfiguration, refer to a reduction in the amount of space allocated to motor vehicles on a street by eliminating travel lanes or reducing lane widths. This reduction allows the roadway space to be reallocated for other uses such as bike lanes, pedestrian crossing islands, or sidewalks.
- Benefits:
    - Improves speed limit compliance and calms traffic.
    - Higher quality and safer space for other users.
- Cost $-$$$
- Time: Medium to long

Narrower Lane Widths

- Travel lanes are striped to define the intended path of travel for vehicles along a street. Narrower lane widths (e.g., 10') reduce speeding and improve safety without impacting a street's capacity or traffic flow.
    - Benefits:
        - Reduce speeding and improve safety
        - Shorten distance pedestrians must travel when crossing the street

- Cost $
- Time: short to medium

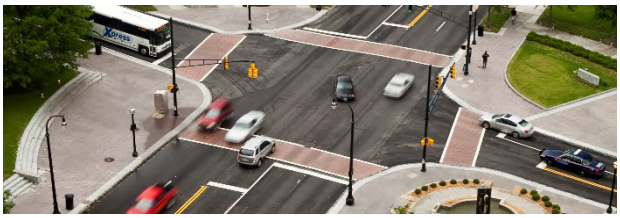
Access Management

- Access management should limit driveways and curb cuts and encourage shared access points and connections between adjacent parcels.
- Benefits:
    - Reducing the number of curb cuts along a street reduces conflicts between vehicles and people walking.
    - Reducing curb cuts is usually good for business as it increases the efficiency of parking, reduces crashes and conflict points, and reduces stress on customers and motorists.
- Cost $-$$
- Time: short to medium

Automated Photo Enforcement

- Automated photo enforcement can be a cost-effective way to reduce speeds, red light and stop sign running, and crashes. It is particularly effective where roadway geometry or traffic volumes make it difficult to use more traditional methods. Automated photo enforcement employs a detector that, when triggered, takes a photo of the vehicle that is breaking the law. A ticket is then issued to the owner of the vehicle based on the license plate number.
- Benefits:
    - Can reduce speeding, running of red lights, and number and rate of traffic crashes
- Cost $$
- Time: medium

Raised Intersections



- Raised intersections create a safe, slow-speed crossing and public space at intersections with low to moderate traffic volumes. Similar to speed humps and other vertical speed control elements, they reinforce slow speeds and encourage motorists to yield to pedestrians at the crosswalk.
- Benefits:

    - Proven/documented speed reduction for automobiles
    - Raised intersections improve pedestrian safety, facilitate crossing by the disabled and elderly and increase pedestrian visibility
    - Can serve as a form of a gateway treatment at or near the entrance to a development, shopping area or other attraction.
- Cost $$
- Time: medium

Transit Shelters

- Transit shelters are located in the streets' furniture zone and provide a protected place for people to sit and wait for the bus.
- Benefits:
    - Clean, comfortable transit shelters can reduce perceived waiting times and increase customer satisfaction.
- Cost $
- Time: short

Transit Enhancements

- Transit enhancements such as bus-only lanes, queue jumps, and transit signal priority can all be used to improve transit service and customer experience.
- Benefits:
    - All of the tools mentioned above can reduce travel times for buses and increase on-time performance.
- Cost $-$$$
- Time: short to long

Bicycle Lanes

- Bicycle lanes create a dedicated space for bicyclists to ride adjacent to traffic by designating a portion of the roadway for exclusive use by bicyclists using signs, striping, and pavement markings. Bicycle lanes are located in the street between the travel lane and the parking lane or curb.
- Standard bicycle lanes provide a low to moderate level of comfort. While they provide dedicated space for bicyclists, this space can be violated by motorists (for example through double-parking or swerving). On higher-speed streets or those with frequent curbside parking and loading activity, bicycle lanes do not provide a low-stress experience for the majority of bicyclists.
- Benefits:
    - Bicycle lanes foster more predictable behavior and movements between bicyclists and motorists.
    - Bicycle lanes provide dedicated space for bicyclists, and can increase safety and comfort on streets with low to moderate traffic volumes and lower travel speeds.
- Cost $$
- Time: medium

Buffered Bicycle Lanes

- A buffered bicycle lane is a standard bicycle lane coupled with a striped buffer space separating the bicycle lane from the adjacent travel lane and/or parking lane, enhancing bicyclist comfort.
- Buffered bicycle lanes provide a moderate level of comfort to bicyclists. Less experienced riders may find them more attractive on higher-speed streets than standard bike lanes.
- Benefits:
    - Buffered bicycle lanes provide greater clearance for bicyclists, allowing them to ride further outside the “door zone” and pass one another without encroaching on the vehicle travel lane.
- Cost $$
- Time: medium

Separated Bicycle Lanes

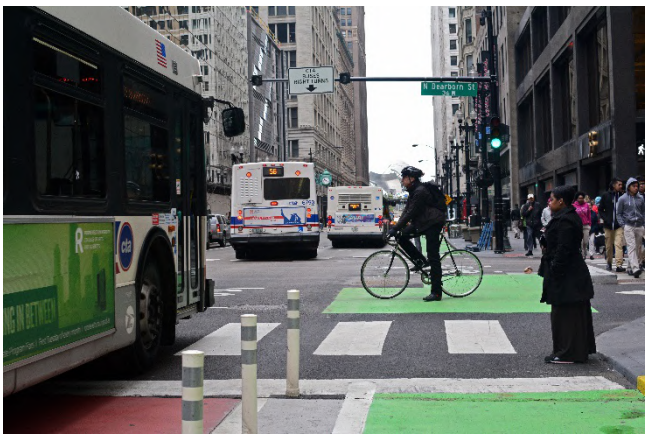
- A separated bicycle lane, or cycle track, is physically separated from motor traffic using a variety of treatments such as on-street parking, raised curbs or medians, bollards, landscaping, planters, concrete barriers and/or distinctive paving.
- Separated bicycle lanes provide a moderate to high level of comfort to a wide range of bicyclists, particularly when the separation is a physical barrier.
- While separated bicycle lanes have the potential to provide a superior facility for bicyclists, there are many more design challenges that must be addressed in their implementation. In particular, special consideration must be given to the design at intersections, driveways and transit stops to manage conflicts, improve visibility and maximize awareness for both bicyclists and motorists.
- The time frame and cost of a separated bicycle lane depends on the type of separation being employed. At its simplest, protection is provided by an off-set parking lane and a striped buffer. This approach can include a painted bicycle lane and/or raised pedestrian islands at crossings. Plastic flexi-posts or bollards can be added to provide more visibility or where there is not enough roadway width to provide for an adequately wide buffer. Concrete (Jersey) barriers or temporary or permanent curbs may be employed where traffic speeds and volumes warrant.
- Benefits:
    - The dedicated, separated space for bicyclists increases comfort and safety making the facility more attractive to bicyclists of a wide range of abilities and ages.
    - Physical separation reduces the risk of being doored
    - Physical separation prevents or reduces parking in the bicycle lane.
- Cost $$
- Time: medium

Off-Street Bicycle Paths

- Off-street bicycle paths, such as shared use paths used by pedestrians and bicyclists, are completely separated from vehicular traffic, aside from intersection crossings.
- Benefits:
    - The dedicated space for bicyclists increases comfort and safety, making the facility

more attractive to bicyclists of a wide range of levels and ages.
    - Isolation from vehicular traffic allows for low stress riding and eliminates the risk and fear of being doored or a collision with a vehicle (apart from any intersections).
- Cost $$$-$$$$
- Time: medium to long

Bike Box



- Bike boxes are designated spaces for bicyclists between the stop bar and pedestrian crosswalk at signalized intersections. They allow bicyclists to queue in front of motor vehicles at red lights, either to position themselves to make a left turn or to improve their visibility when proceeding on a green light.
- Benefits:
    - Offers bicyclists the ability to enter the intersection in front of motor vehicles when the signal turns green. Entering the intersection at the beginning of a green phase increases bicyclists' visibility to motorists, both behind them and those making turns through the intersection from the opposite direction. This can reduce bicycle-vehicle conflicts at intersections.
    - Formalizes bicyclist behavior at intersections, and encourage bicyclists to move up and in front of stopped motor vehicle traffic to increase their visibility when navigating the intersection during the next green phase.
- Cost $
- Time: short

Roadmap/ Next Steps for Underpass Improvements

Rehabilitation of I-95 from I-495 to North of the Brandywine River Bridge

1. Assess existing use of underpass areas.
   - Road Network: underpass traffic, speed limits, street classification
   - Pedestrian Network: pedestrian counts, sidewalk conditions
   - Bicycle Network: bicycle counts, existing/potential networks, bike lanes
   - Transit Network: bus routes and stops
   - Land Use & Zoning: parking lots, vacant lots, parks
     - Adams St basketball courts (City of Wilmington)
   - Environment: Flooding, stormwater problems
   - Social/ Economic: violent crime, people experiencing homelessness, existing installations or ongoing community efforts
     - Project Wilmington Skate Park (attempted)
     - http://www.wilmingtonskateproject.org/skateplaza

2. Engage and work with community groups to identify locations most in need for underpass improvements.
   - Identify and reach out to community groups within and near the project area (project aerial).
     - Schools (St Paul Elementary, Lewis Dual Language)
     - Religious Institutions (nearby churches very involved - particularly in clean up at Adams St Courts; Hilltop Lutheran Neighborhood, New Pentecostal United Holy)
     - Local businesses
     - Community organizations/ Cultural institutions (Wilmington Head Start, Latin American Community Center, William "Hicks" Anderson Community Center)
     - Community and neighborhood groups
   - Conduct an online survey for residents.
     - Current use
     - Perceived safety
     - Interest for improvements
     - What type of improvements are they interested in (art installation, lighting, sidewalk reconstruction, etc.)
     - Location of improvements
     - Provide ideas for concepts/ renderings
     - Future use with potential changes
   - Hold stakeholder meetings.

3. Based on community and stakeholder engagement and existing use assessment, prioritize underpasses in need of improvements.

4. For priority locations, develop scope of work and initial concept design for underpass improvements (e.g. lighting improvements, sidewalk reconstruction, art installation, furniture, basketball court, landscaping and green infrastructure).
    - Organize charrettes / public workshops to gather input/ideas for scope and concept design. Potential participants include:
        - Schools
        - Stakeholder meetings
        - Example of local artist organizations/collectives:
            - Creative Vision Factory
                - Article about Art & Transportation
            - Creative District Wilmington
            - Wilmington Placemakers
            - Artist Ave Station
            - Christina Cultural Arts Center
        - Example of city/state art organizations:
            - Delaware Division of the Arts
            - Delaware Arts Alliance
            - The Delaware Contemporary
    - Select elements to be included in each location's scope/design.

5. Identify costs and funding
    - Develop preliminary budgets for underpass improvements and work with DelDOT to incorporate into I-95 rehabilitation.
    - Identify potential additional funding sources.

Additional Links

- Article: Wilmington residents review proposed I-95 construction plan

Underpass Improvement Projects

Elevated freeways are a common feature of many U.S. cities. The spaces beneath these freeways, though, are often underutilized, dark, and feel unsafe—creating a barrier for people walking and biking. Many cities, community organizations, and other partners are working together to reclaim these spaces. Using lighting, landscaping, and public art, many underpasses have been transformed to create community space, improve mobility, and stitch together previously disconnected neighborhoods.
As Wilmington evaluates opportunities to implement similar changes, the following are key aspects of these projects to consider:

Cost: The costs of a project are determined by the size and elements included. Underpass transformations can range from painting a mural and improving lighting to creating a whole new park. According to the New York City Department of Transportation's Arts and Events initiative, the average cost for a mural installed on asphalt or a bridge wall is $7,500 (including an artist fee, cost of materials, labor and sometimes storage or equipment rentals). Mural costs are heavily dependent on the square footage of the surface. More involved projects may cost anywhere from $500,000 to $2 million or more. Projects on the high end of this range typically include more costly improvements like adding parking, sidewalk improvements, or geometric changes.

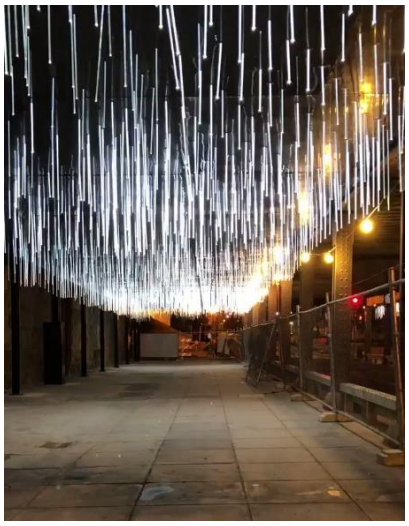
Funding: Funding varies significantly across projects; some are funded completely by cities or state DOTs, many rely on grants from foundations that encourage public art and placemaking, while others are funded by business improvement districts and developer contributions.

Art: Local artists are often selected through open competitions. Other cities have selected local or national architecture/design firms. In New York City, the Depart of Transportation's Art Advisory Committee reviews all applications. Most projects typically have a design development phase where the design can be modified. Final artwork is review by the Committee as well the DOT's Art team.

Maintenance: The most common arrangement is for a local business improvement district to be responsible for maintenance.

Project Leader: NOMA Parks Foundation

Location: Washington, D.C.
Design Partners/ Artists: Thurlow Small Architecture/ NIO
Funding: NOMA Parks received a charter $50 million grant from the City to improve parks and public spaces in the rapidly growing NOMA neighborhood. The budget for two underpass installations plus two public art installations (four projects in total) was $2 million.
Maintenance: NOMA BID

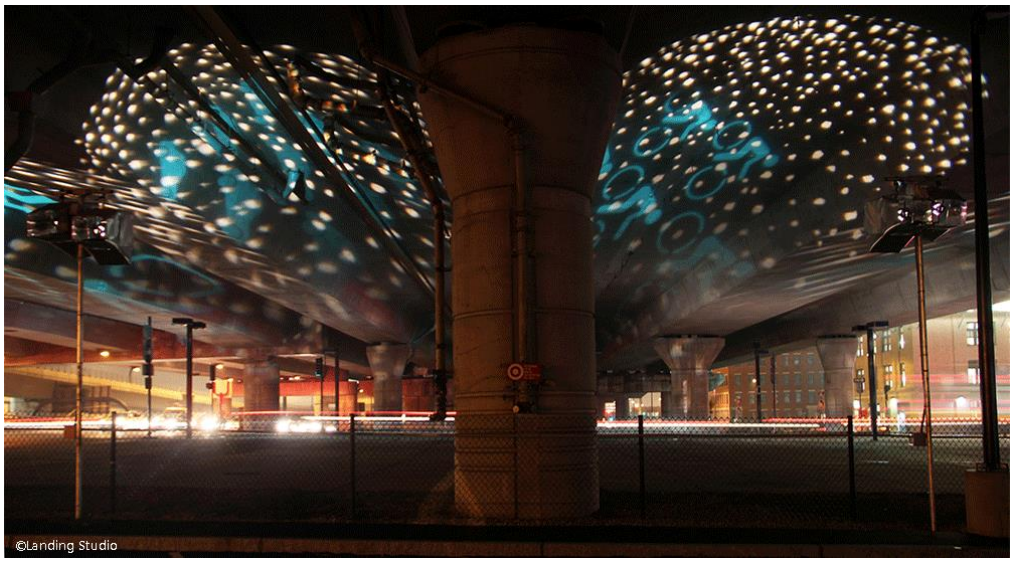


Project Leader: City of San Jose Office of Cultural Affairs' Illuminating Downtown Program

Location: San Jose, CA
Design Partners/ Artists: Dan Corson
Funding: The project received a $600,000 grant from ArtPlace America. The award went towards one of the I-87 underpasses and was matched with contributions, private funds, and appropriated public art funds for the second underpass. This includes $100,000 from the San Jose Downtown Association's (SJDA) Beautification Committee. The total project budget was $675,000.
Maintenance: SJDA and City of San Jose

Project Leader: MassDOT

Location: Boston, MA
Design Partners/ Artists: VHB/ Landing Studio
Funding: MassDOT funded $2.5 million for the art installation and parking, with an additional $250,000 from public benefit funds from a nearby development.
Maintenance: MassDOT



Project Leader Delaware River Waterfront Corporation

Location: Philadelphia, PA
Design Partners/ Artists: NV5, The Lighting Practice, Cloud Gehshan Associates
Funding: The project, Spring Garden Connector, was funded by the William Penn Foundation Project. Under the I-95 and commuter train lines, the project had a budget of $541,000 for the 2,500 linear foot area.
Maintenance: Delaware River Waterfront Corporation

Wilmington

2028

A Comprehensive Plan for Our City and Communities