Map 42: Princeton-Midstreams neighborhood map with existing (white) and recommended (red) sidewalks, and recommended crosswalks (black), and points of interest

Figure 139: Detail of western Princeton sub-neighborhood with existing (white) and recommended (red) sidewalks, and recommended crosswalks (black)

Figure 140: Detail of central Princeton sub-neighborhood with existing (white) and recommended (red) sidewalks, recommended crosswalks (black), existing paths (yellow), and recommended paths (orange)

Figure 141: Detail of central Princeton at Midstreams Road Bridge with existing (white) and recommended (red) sidewalks and recommended crosswalks (black)

Figure 142: Detail of eastern Princeton with existing (white) and recommended (red) sidewalks, and recommended crosswalks (black)

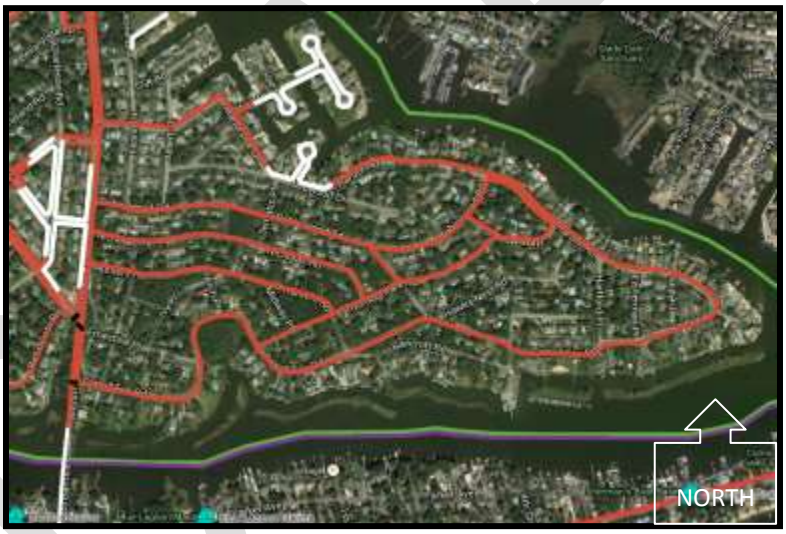


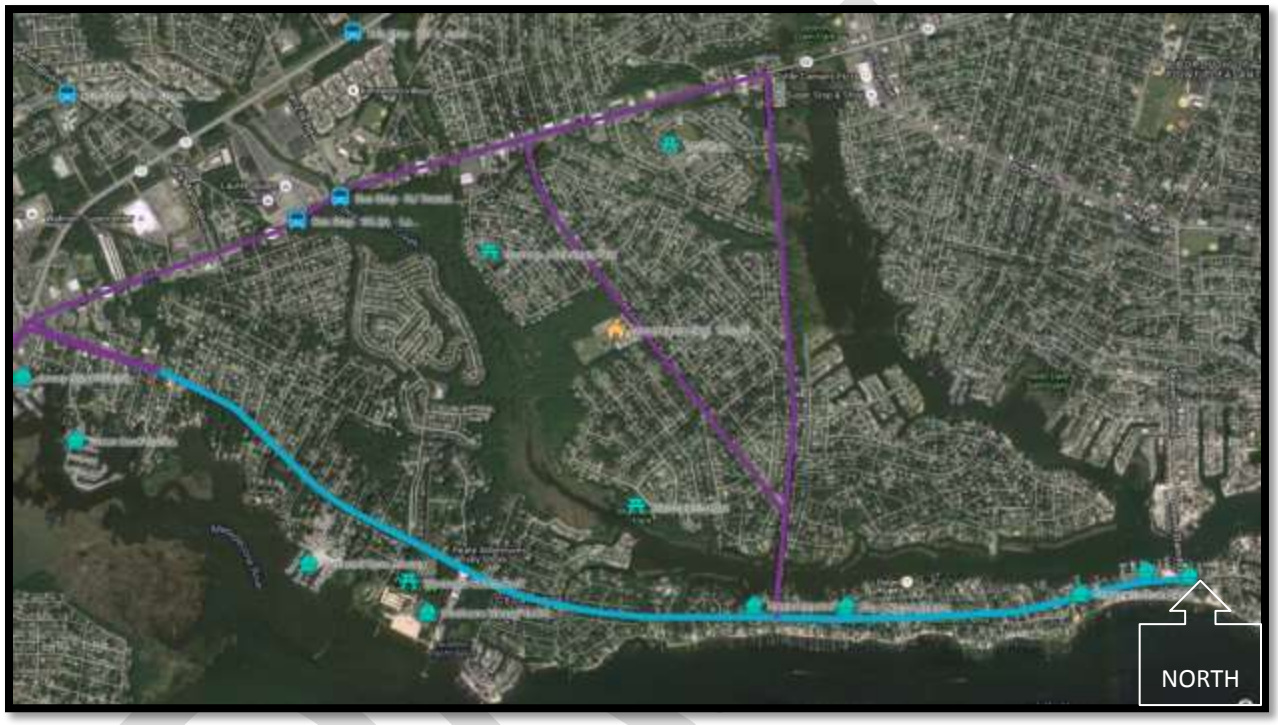
Figure 143: Detail of eastern Midstreams with existing (white) and recommended (red) sidewalks, and recommended crosswalks (black)

Figure 144: Detail of central Midstreams with existing (white) and recommended (red) sidewalks, recommended crosswalks (black), existing paths (yellow), and recommended paths (orange)

Figure 145: Detail of northwest Midstreams with existing (white) and recommended (red) sidewalks, recommended crosswalks (black), existing paths (yellow), and recommended paths (orange)

5. Crosswalks should be placed at minimum at east to west crossings on Midstreams Road and Jordan Road, north to south crossings on Princeton Avenue and N.J. Route 88, and other major roads and connections between neighborhoods, parks, and destinations, and at least every half-mile (see Map 42 and Figure 139 through Figure 145 above).
6. Designate "Bicycle Friendly" routes within the Princeton-Midstreams neighborhood and continue to build a network of bicycle lanes, shared lanes, and paths between the neighborhoods and

between major destinations from the rivers, Bay, parks, and commercial areas. New bicycle facilities should enhance access for existing facilities and focus on safety along other highly trafficked and populated areas. The major neighborhood roads, such as Midstreams Road, Jordan Road, and Route 88, are wide enough to accommodate sidewalks and/or shared bicycle lanes. The secondary residential roads in Princeton-Midstreams have a slow enough speed limit that safe bicycle routes could be designated and posted without major infrastructure.

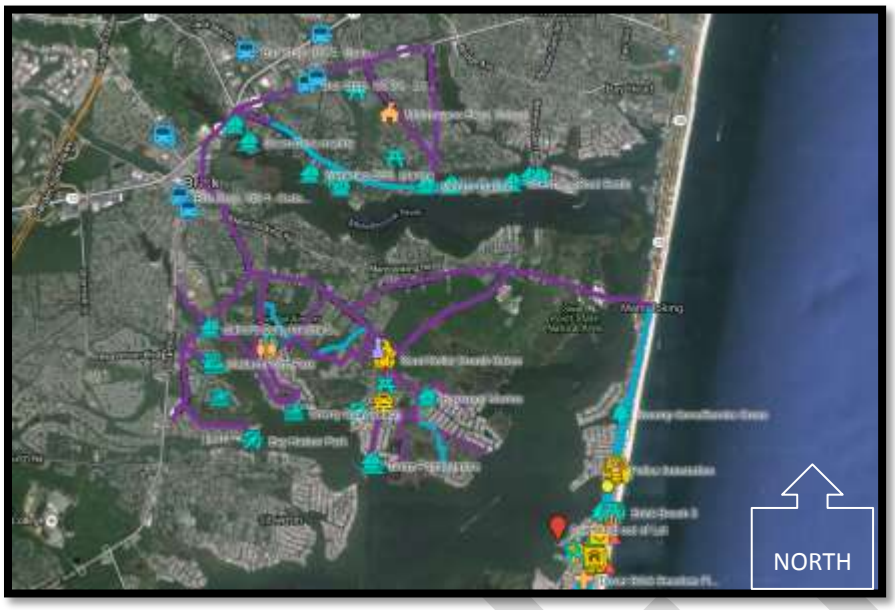


Map 43: Princeton-Midstreams neighborhood with existing bicycle paths (blue) and recommended (shared) lanes or paths (purple)

Figure 146: Examples of major roads that could benefit from bicycle treatments (Google Streetview)

Figure 147: Examples of primary and secondary roads that could benefit from bicycle treatments (Google Streetview)

We envision a much larger, comprehensive network of bicycle lanes and paths throughout the Township and County in the future that might develop to look similar to that which is pictured in Map 44 below. However, a further study must be conducted to determine precisely the needs and design of a bicycle network. These recommendations have been made based on mapping of existing bicycle lanes, most heavily trafficked roads, destinations, and Master Plan goals.



Map 44: Bicycle Circulation Plan connecting four Brick neighborhoods with existing bicycle paths (blue) and recommended (shared) lanes or paths (purple)

7. At minimum, a Circulation Plan with a wayfinding system should be further developed and implemented for bicyclists and pedestrians and educational outreach targeted toward children to reduce the risk of accidents.

8. Explore the possibility of extending a bus line into Princeton-Midstreams along Princeton Avenue or Midstreams Road. In coordination with Ocean County Department of Transportation (Ocean Ride), a neighborhood bus stop with a proper bus shelter could be executed for commuters. According to the 2010-2014 U.S. Census ACS data, 33.2% of 25 to 44 year-olds and 41.8% of 45 to 54 year-old workers in Brick Township use public transportation. This is an important demographic of the workforce to cater to due to the size of the population, although younger populations should be encouraged to use public transportation and fewer individual automobiles in order to curb greenhouse gas emissions, which are a leading cause of climate change.

Figure 148: Example of a well-designed suburban bus shelter

9. Sidewalk and curb treatments should be standardized with one pattern for the entire neighborhood, whether a Township standard or unique for the neighborhood, that can be modified to fit various applications. For example, slight variations could be used for smaller and broader crossing streets.

10. Where feasible, and where residential properties remain, raise the street levels in areas that are most prone to flooding and especially those that serve as coastal evacuation routes for sub-neighborhoods, including:

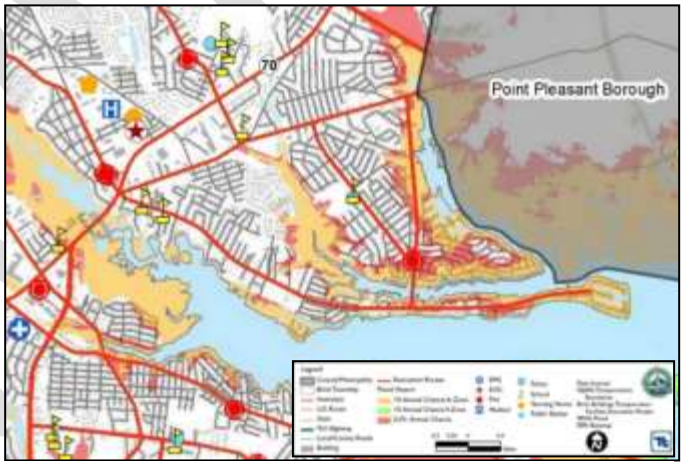


Figure 149: Coastal evacuation routes from subset of map "Flood Hazard Vulnerability in the Township of Brick", prepared by TetraTech for Brick Township Hazard Mitigation Plan, 2016

    a. Princeton – Princeton Avenue between lagoon and Point Avenue; North Drive; South Drive; Bay Avenue; Point Avenue; 4th Street; Parker Avenue between 4th Street and 2nd Street; Lenape Trail; North Cherokee Lane; Island Drive; and Island Court.
    b. Midstreams – Leone Drive between Sanctuary Court and Midcen Road; Arnies Pointe; Cliff Road; Albert Road between Cliff Road and Manorside Drive; Manorside Drive; Rahway Drive; Midwood Drive; Harbor Road; Clematis Place; Robin Hood Road between Elgin Parkway and Albert Street; Harbor Place; Field Place; Carroll Fox Road; Bancroft Road; Ernestine Place; and Bella Vista Road between Jordan Road and Rainbow Drive.

11. Upgrade storm drains along streets to allow more efficient outflow of flood water without "reverse flooding" (water entering through storm drains), to allow emergency access/evacuation.
    a. Flooding was noted as a severe issue in eastern Princeton (Princeton Avenue, North Drive, and South Drive) according to residents, and that the neighborhood is often cut off from major roads and emergency services during flooding events.
12. Explore the possibility of connecting the street grid within the Princeton sub-neighborhood, as shown in Figure 150, if the opportunity arises. Particularly, between the Laurel Heights and Princeton Commons districts of Princeton to N.J. Route 88 and Princeton Avenue. Alternatively, consider public right-of-ways for pedestrian paths between the streets. This will allow a higher density of development without adverse effect on traffic on the two thru-streets, and will increase accessibility to various parts of the neighborhood.

Figure 150: Possible street connections (red lines)

SIGNAGE

IDENTIFICATION SIGNAGE

With so many different neighborhoods within each sub-neighborhood with various typologies and a lack of adequate connections between Princeton and Midstreams, there does not appear to be any single identity for the neighborhood as a whole. It is simultaneously a neighborhood for residential and recreational use; it is a summer and a year-round destination; it has dense development, yet its streets are lined with trees and pocket parks; there are mansions and there are modest homes. The one defining

characteristic of the neighborhood as a whole is its location on two peninsulas between three rivers and surrounded by wetlands and forest.

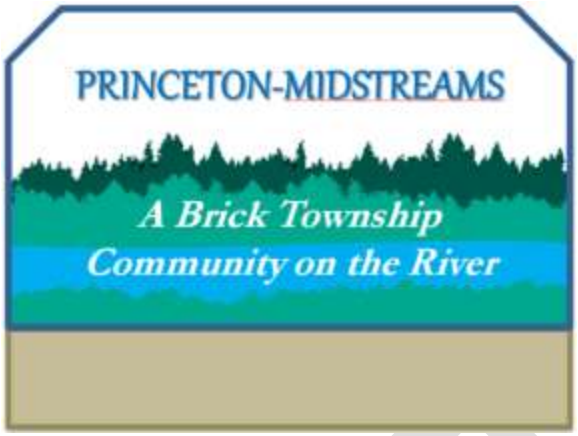
Although there are many things the same or similar in both sub-neighborhoods, the distinction is also visible in both the development patterns and the geography, where they are separated by Beaver Dam Creek, but connected by a bridge. Despite the obvious characteristics of each, they can also blend together as one neighborhood. Yet, without the appropriate signage, Princeton-Midstreams does not have an identity that is recognizable as a brand and that makes people aware of their location.

Certain areas within the neighborhood, such as the parks, school, and some smaller neighborhood districts and associations, as identified earlier in this Plan, have their own signage. However, it is uncoordinated and missing opportunities to mark the importance of certain places and help guide visitors.

The similarities of neighborhood form can be exploited to make the neighborhood appear more cohesive, if an effort is made to coordinate the overall branding and signage throughout. Individual signage for the separate sub-neighborhoods and districts within those sub-neighborhoods simultaneously helps identify their location, but also creates awareness about the connectivity of the neighborhood. This Neighborhood Plan recommends that there be some consistency in the identification message.

A common design theme and graphics for signage should be chosen that also reflects the local character of the neighborhood. A blend of existing Township and neighborhood color schemes, along with the consistent use of a font type and a recognizable, uniform name shows relationships and hierarchy among places. The combination of the names of the sub-neighborhoods in this Plan area, Princeton and Midstreams into “Princeton-Midstreams”, could continue to be used to refer to the entirety of the neighborhood. This name identifies the neighborhood by two of its most recognizable areas, as well as the main artery streets, and is unique.

Below is a graphic example of unified branding message for new identification and gateway signage, blending typical colors found in Brick Township and within Princeton-Midstreams, as well as an image and slogan that represents the neighborhood. It is also recommended that monument signage include a wooden base and an eave, similar to signs that already exist in the area. These signs should not be excessively large, but between 4-6 feet in height; should be wider than they are tall; should be freestanding on the ground; and should be oriented toward the opposite corner of the street on which they stand with a viewshed from the widest angle possible.



Additional signage could be altered slightly for each sub-neighborhood, but might appear like the following:

Finally, informational signage could also be provided for the neighborhood, landmarks, natural conservation areas, and parks with various facts about local history, important dates, names, ecology, and contact information.

WAYFINDING SIGNAGE

Wayfinding signage can be utilized as a way to navigate to different sub-neighborhoods, businesses, parks, and other destinations, which currently proves to be challenging. Some of the navigational challenges without signage include successive dead-end streets; long, winding streets; lagoons and waterways without crossing; and overall enormous size of the neighborhood. A system of wayfinding signage for both pedestrians and vehicles should be coordinated with the gateway signage referenced above in order to reinforce the cohesiveness of the community, as well as to help residents, visitors, and

customers find existing and future services, especially during the summer tourism season. Wayfinding signage could also be coordinated on Township-wide level. An example of such a system is shown below in Figure 151.

Signage that clearly identifies destinations should be provided in visible and convenient areas throughout the neighborhood at a distance and orientation which is readable for both pedestrians and vehicles from the road, but which is not overwhelming in scale to the pedestrian environment. These would preferably be located at major intersections, crossroads, and destinations. Finally, a color or theme-coded system relating each to a subcategory of places allows for quick and easy dissemination of place descriptors and directions.

The following points of interest should be linked by wayfinding signage (colors included as an example):

- Sub-Neighborhoods (Yellow)
- Parks, Trailheads, and Open Spaces (Green)
- Beaches, Marinas, and Water-Related Uses (Blue)
- Business Districts (Red)
- Government/Municipal and Public Services and Buildings (Brown)
- Other Brick Neighborhoods (Purple/Lilac)

Figure 151: Wayfinding signage is used in downtown Toms River to direct motorists to primary destinations (left). The image to the right was taken in Nantucket, MA (June 2015) and shows a system of wayfinding using plaques purchased by businesses mounted into slots on a standard that matches the antique style of the pedestrian lighting on Main Street and points in the direction of the business.

COMMERCIAL SIGNAGE

It is recommended that the Township continue to enforce signage regulations in the commercial areas of the neighborhood.

Sandwich board signs should be used sparingly and only for temporary purposes, such as a sale or special event. These should not interfere with traffic or pedestrian right-of-ways, as has been witnessed.

The Township could encourage businesses to use signs that are scaled more for the pedestrian environment and that are attractive, with a similar theme among businesses, such as the wooden signs with eaves. It is also recommended that monument signs, or freestanding commercial signs, have some type of landscaping or planter around the base that can double as a rain garden.

Figure 152: Examples of appropriate scale and design for neighborhood signs

In order to better enforce design issues for signage, the Township could revisit or rewrite the Zoning Ordinance on Signs (Article XXXVI, Section 245-312 – 245-316).

ZONING RECOMMENDATIONS

Upon consideration of the existing zoning throughout the neighborhood, along with the physical challenges currently faced by the community and future predictions of storms and sea level rise, the following recommendations have been made to maintain and improve the built quality of the neighborhood:

BULK RECOMMENDATIONS

After reviewing the bulk standards, this Neighborhood Plan recommends the following be considered by the Township for the Shore Acres neighborhood:

Flexible Side Yard Setbacks

Lot widths vary greatly within Princeton-Midstreams, with the smallest lots in the Wardells Neck neighborhood of Princeton, which is the oldest and most dense neighborhood in the R-5 zone. Some lots are less than 40 feet wide. Presently, the code requires one yard to be 5 feet wide and with the

combined yards not less than 12 feet in the R-5 zone. In the R-7.5 zone, one side yard is required to be at least 6 feet and have combined side yards of at least 15 feet. A lot that is 40 feet in width would be restricted to a home that is only 28 feet wide in the R-5 zone and 25 feet wide in the R-7.5 zone, which is not practical or desired in today's residential designs.

Two short-term options are presented for the Township's consideration. The first is reducing the side yard setbacks for lots with a width less than 40 feet. A sliding scale could be provided to offer homeowners looking to rebuild with variance-free options. Lots between 31 and 39.9 feet (in width) could be permitted side yard setbacks of 4 feet each, for a total of 8 feet. Lots between 20 and 30.9 feet, if any, could be permitted a side yard setback of 0 and 3 feet, for a total of 3 feet.

The second option for the Township's consideration is a development concept called "zero-lot line". A zero-lot line home essentially places the home on one side yard line, allowing for a generous side yard on the other side that functions as the home's outdoor space in conjunction with the rear yard. On lots narrower than 40 feet, the zero-lot line concept provides one useable side yard instead of two unutilized side yards. As shown in Figure 153, the homes are located along one property line. This alternative would provide more flexibility to owners of undersized lots (less than 40 feet wide) and produce usable side yards instead of useless slivers.

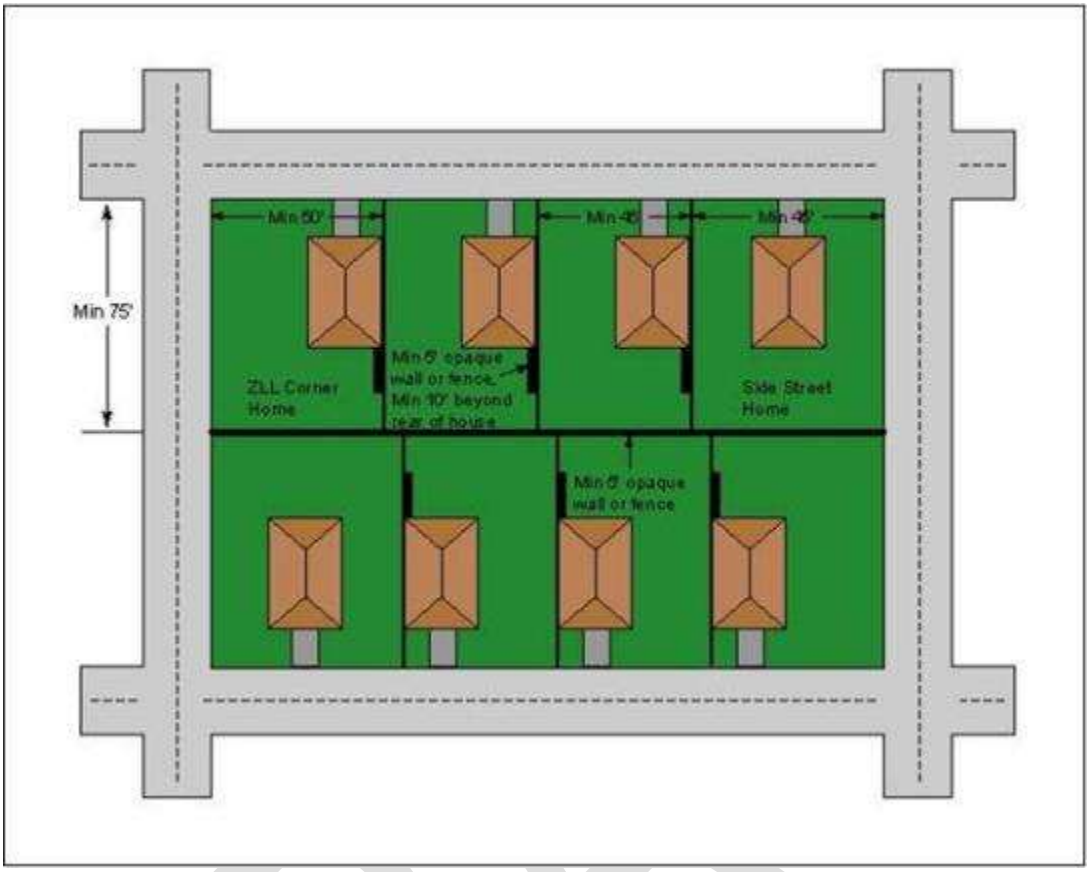


Figure 153: Illustration of Zero-Lot Line Homes

For both zones, the potential amendments to the side yard parameters could include:

Table 12: Amendments to Side Yard Setbacks

Lot Width (ft)	One Side Yard (ft)	Combined Side Yards (Both) (ft)
20 – 30.9 feet	0 and 5	5
31 – 39.9 feet	0 and 8	8
40 – 49.9 feet	0 and 12	12
50 – 50.9 feet	0 and 16	16

Lots that are 60 feet and greater in width could maintain the existing side yard setback requirements with two yards, so that larger homes do not overpower adjacent smaller lots.

Flexible principal building coverage

There are some lots within the neighborhood, particularly in Princeton, which, when applying the 35% maximum principal building coverage to the lot, significantly restricts the footprint of the home. Existing on-the-ground conditions reveal that undersized lots contain homes that cover much more than 35% of the lot area.

It is recommended that the Township consider allowing lots under a certain size (perhaps lots less than 3,000 square feet) to have a larger maximum principal building coverage, for example, 50% or 55%. This would allow a lot that is 30 feet by 50 feet to construct a home that has a first floor with 750 or 825 square feet.

On the other hand, many homes that occupy larger lots or double lots are oversized and sometimes have a principal building coverage greater than 35% or even greater than 50%. This kind of overbuilding on lots that already meet the zoning requirements should be restricted to prevent unwanted growth and reduce impervious surfaces.

In addition to some of the strides that have already been taken to assist homeowners who are rebuilding, the Township has identified the need to update and amend its Land Use and Development Regulations to address many of these issues and is currently developing recommendations for zoning amendments as one of its Phase II Post Sandy Recovery Planning projects.

ZONING MAP CHANGES

It is recommended that the Township investigate the potential for changes to existing zoning areas, as shown on the current Zoning Map (see Map 45 below) in comparison with the recommended changes on Map 46 and described below.

While the R-5 zone involves more undersized lots, consideration of whether a substantial number of them are undeveloped could lead to a possible downzoning to R-7.5 or R-10 bulk standards or greater to prevent overbuilding and to allow larger yards that will help to reduce impervious surfaces and create greater area for water retention. Lots will be slightly larger (7,500 square feet rather than 5,000 square feet) and reduce the number of properties impacted by flooding. Many of the properties already occupy more than one lot. This approach might trigger applications for lot area variances, but we think its exploration has merit. This might be applicable in the Princeton lagoon neighborhoods.

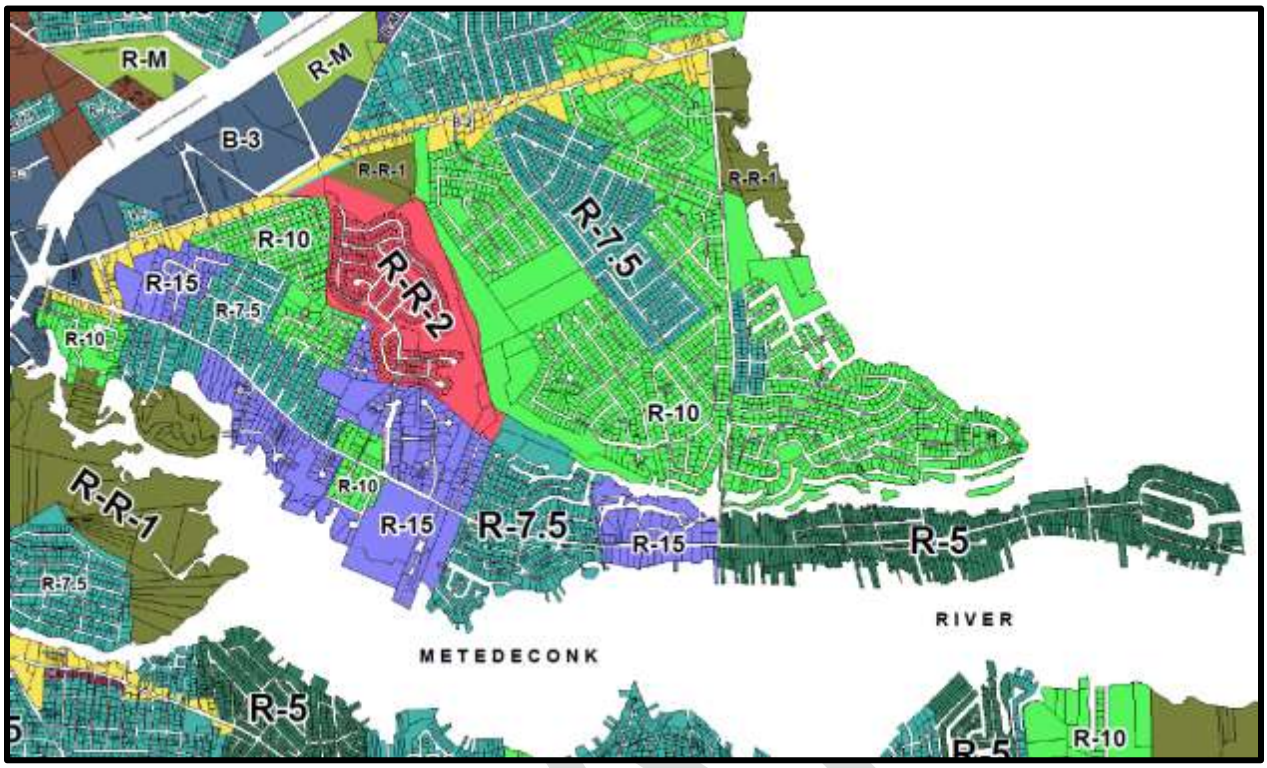
Upzoning of certain blocks that are less flood-prone and offer more amenities will help to offset the downzoning of other blocks. The upzoning of the area around Midstreams Elementary School from R-7.5 to R-5 will maintain the overall neighborhood character, while allowing for marginally more dense development in an area that has public amenities and a walkable street grid, in addition to being more elevated. This will also allow more families with children to live in the vicinity where it is safer and easier for schoolchildren to walk or bike to school or nearby recreational facilities. Similarly, the upzoning of

some of the blocks around VFW Park and the church might encourage more families to relocate there, which, in turn, will increase utilization of these amenities. Additionally, this area is located on a street grid near commercial destinations on N.J. Route 88.

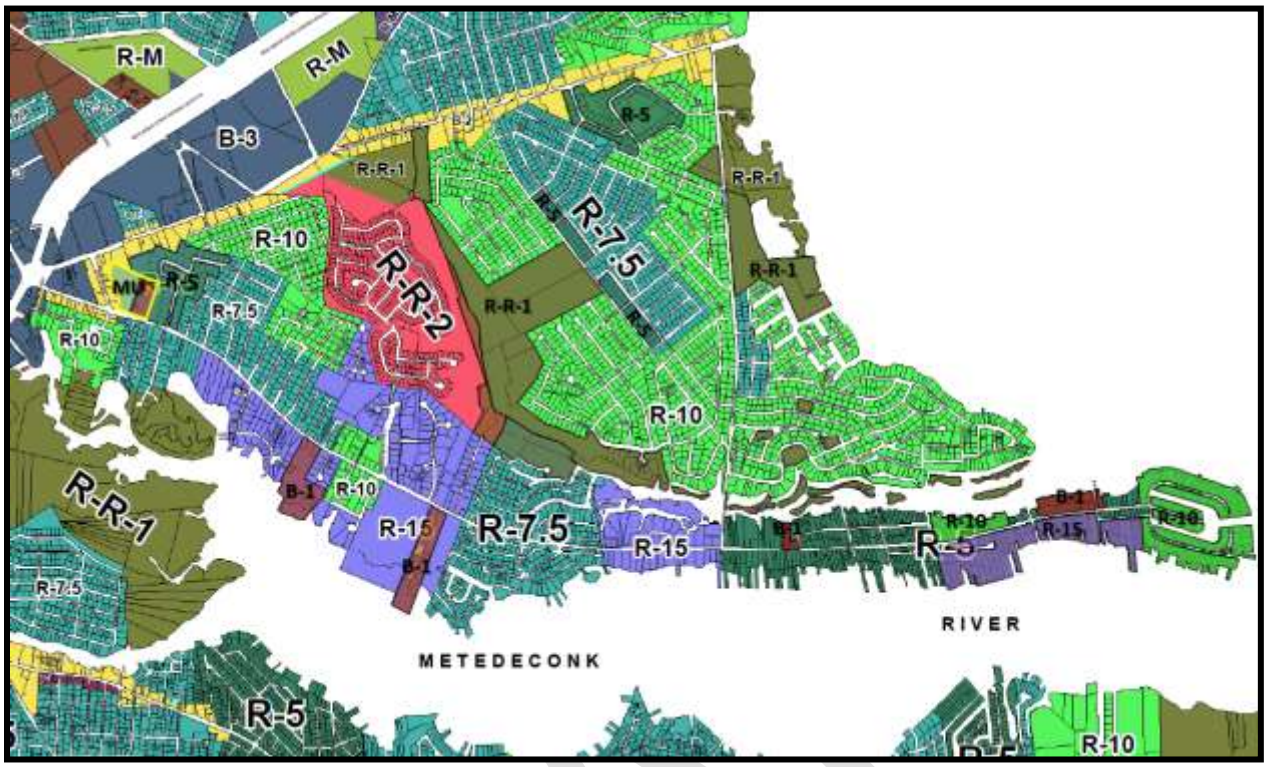
The R-15 zone on Princeton Avenue closest to N.J. Route 88 should be considered for upzoning to an R-7.5 or R-5 zone. The neighborhood is already much more dense than in other R-15 zones, as previously demonstrated. The zoning change would be more appropriate to fit existing development, as well as to encourage a more walkable, higher-density, and mixed-use neighborhood in the Princeton-Route 88 corridor. Similarly, the existing trailer park lot in the R-15 zone does not quite fit and should be considered for R-M multi-family zoning. The adjacent private school also does not comply with the permitted uses in the R-15 zone and should be considered for a commercial zone. Together, the lot with the trailer park and the school would be large enough to have Mixed-Use overlay zoning that could contribute several different uses to a high-density area with limited available land.

There are a number of additional parcels along Princeton Avenue that are located within various residential zones, but are commercial in use. Therefore, the Township may consider zoning these as Neighborhood Commercial (B-1), or another commercial zone in order to comply with the permitted uses and reduce the number of variances required for pre-existing properties. The Township may want to encourage more neighborhood businesses in these identified areas to provide more compact, walkable/bikeable, and mixed-use communities without changing the existing neighborhood character. Some of these lots include marinas, which might then be able to include shops and restaurants, especially those that are in proximity public parks.

Finally, areas around catch basins, rural parks, conservation areas, and wetlands, such as along Beaver Dam Creek South Branch, should be considered for downzoning to the Rural Residential (R-R-1) Zone in order to limit building, allow for more absorption of flood water in the basin without affecting private properties, and to provide additional public open space with access to the water.



Map 45: Existing Princeton-Midstreams Zoning Map



Map 46: Princeton-Midstreams Zoning Map with Recommended Changes

FUTURE NEIGHBORHOOD GROWTH

Consistent with the recommended zoning map changes, bulk recommendations, and predicted impacts of flooding, all future neighborhood growth should be concentrated accordingly.

The R-5, R-7.5, and R-10 zones will continue to have the densest residential properties; however, growth should be emphasized in areas of higher elevation away from the coastline in the northwest of Princeton-Midstreams. Higher density growth should be encouraged particularly in areas with a primary traffic corridor with a street grid, areas around parks, and areas surrounding commercial zones. This density should promote better accessibility to services and recreation, while removing the largest populations away from areas that may sustain the most environmental damage. Similarly, lower density development and conservation areas that can better absorb floodwater should be encouraged along the Metedeconk River and Beaver Dam Creek coastal areas.

Commercial properties that are not marine-related should be emphasized in the higher density inland areas to better serve the larger population. Currently, businesses occupying residentially zoned lots in Princeton generally do not comply with the permitted uses of that zone. Additional neighborhood commercial businesses that fall within the permitted uses should be encouraged in the commercial zones to make the community more inclusive and mixed-use.

DESIGN GUIDELINES

Providing greater resiliency against flooding, storm damage, and demographic shifts in the future greatly depends on the development and design guidelines and planning practices that occur during the post-Sandy recovery process. In particular, the elevation of existing residential buildings as a result of recovery grant programs, as well as the elevation of new construction based on compliance with Flood Damage Prevention, will be significant factors. The following design guidelines are intended to integrate elevated buildings with existing non-elevated residences to soften the visual impact on the neighborhood. Additionally, there are numerous opportunities to introduce new landscaping and street treatments in certain areas that permit more pervious surfaces and stormwater management.

ELEVATION OF BUILDINGS

The raising of residential homes is usually accomplished by either the use pilings or by increasing the height of foundations and crawl spaces by adding courses of masonry block. To the extent that property owners determine to increase the elevation of the lowest habitable floor to the "Design Base Flood Elevation" in the Flood Damage Prevention Ordinance (usually the "Advisory" or "Preliminary" Base Flood Elevation plus freeboard), the height difference between the grade and the first floor can be considerable, causing a design challenge to access the elevated building. Many residents are choosing to upgrade and raise their homes, although there is somewhat of a consensus that new homes are too large for the neighborhood and that the height makes getting inside difficult for emergency purposes and for elderly or disabled persons. However, residents were not as accepting of having the designs of their homes regulated.

Depending on the size of the lot and the density of the building pattern in the neighborhood, the solutions to the challenge of providing access varies from a straight run of stairs to a progression of porches or landings (see Figure 154).

Figure 154: Illustrations of various ways to design access to elevated first living floors of residential buildings, some which frame the piles and others that partially or completely "skirt" or wrap the piles for garage/storage space or use raised foundations.

As stated in the 2015 Hazard Mitigation Plan Element:

> *"Identifying strategies to support additional home elevations is a key opportunity for improved safety and resilience. However new home elevations also come with additional potential risks that must be planned for and addressed. Ensuring that spaces below elevated homes are used only as storage or garages, and not livable space, is essential to protecting public safety. If illegally converted into bedrooms or living space, these low areas become extremely dangerous during flood events. Newly elevated homes can also sometimes negatively impact the views and other aesthetic considerations for neighboring properties. Design and regulatory measures are currently in place and other controls are being explored that can help maximize the flood safety benefits of home elevations while finding creative solutions that reduce any negative impacts for neighboring properties."*[12]

Additionally, elevated buildings can pose a hindrance and hazard for disabled and elderly persons, as well as emergency services attempting to access persons in the house. For most physically impaired persons, the design guidelines and height requirements limit access almost entirely. Elevators from the ground floor to the first elevated floor, in addition to stairs, are ideal, although restrictive for many due to the high cost. Ramps are also ideal, but generally impractical for most houses that are being lifted to the maximum height, due to the space that they require, where most lots are quite small. However, for

[12] *Hazard Mitigation Plan Element (Draft)*. Page 27. Township of Brick. Prepared by TetraTech & Maser Consulting, P.A. November, 2015.

outdoor stairways it is recommended that they are not a straight run, but, rather, provide landings and, preferably, with turns in the stairway to allow for resting spots.

The desirability of requiring such design standards as concealing exposed piles with framing or skirting, avoiding straight run stairs without a landing every so many steps will need to be balanced with the eligible costs of elevating homes covered under the various disaster relief programs so that they do not become a financial burden on property owners. If such aesthetic improvements are not covered by insurance or relief funding, the Township would need to seek other grant assistance to supplement the costs.

LANDSCAPING

Another approach to softening the visual impact of newly elevated buildings is to mask the exposed areas around the piles with landscaping. However, the present conditions caused by the elevation of housing and smaller setbacks will require that the installed landscaping not only be able to survive within the seashore environment, but may need to be compact and columnar in nature when used with narrow lot configurations. This may restrict the plant palette that can be used.

It is also recommended that local plant species and xeriscaping techniques (landscaping that reduces or eliminates the need for supplemental water) be used to reduce water and fertilizer needs. Plant beds should be tolerant to the wind, sea salt, water, and overall variable conditions of the Barnegat Bay and estuaries, while also being able to aid in absorption of additional rain or flood waters.

The following are some selections that may work well, but any planting directly in line of prevailing winds will struggle.

Table 13: Plant Species for Brick Beach Neighborhood

Plant Type	Species
Small Trees	Red Maple (Acer Rubrum)
	Allegheny service-berry (Amelanchier laevis)
	Pawpaw (Asimina triloba)
	Black Cherry (Prunus serotina)
	American mountain ash (Sorbus americana)
Large Shrubs	Indigo bush (Amorpha fruticosa)
	Coastal sweet pepperbush (Clethra alnifolia)
	Bigleaf Hydrangea (Hydrangea macrophylla)
	Northern bayberry (Morella pensylvanica)
	Beach Plum (Prunus maritima)
Evergreens (for screening)	Atlantic White Cedar (Chamaecyparis thyoides)
	American Holly (Ilex opaca)

	Eastern Red Cedar (Juniperus virginiana)
Perennials (for decorative filler planting)	Yarrow (Achillea)
	Coreopsis
	Daylily (Hemerocallis)
	Lavender (Lavandula)
	Foxglove (Digitalis)
	Summer Phlox (Phlox paniculata)
	Stonecrop (Sedum spurium)
Ornamental Grasses (for filler and accent)	Fescue Grass (Festuca)
	Pannicum (Switch Grass)
	Pennisetum (Fountain Grass)

PUBLIC SPACES & STREETSCAPE DESIGN

The plant materials recommended above can also be used in plantings within public spaces such as road medians, tree lawns (the space between the curb and sidewalk or between the sidewalk and a parking lot or front property line), passive park spaces, and similar spaces that are identified as often being overgrown with weeds and unsightly in appearance.

Bioswales are a good design option that can be used in public spaces, especially along streets to function similarly to a rain garden, which absorb water from heavy rains and flooding, while also removing pollution and silt from surface runoff water, providing a buffer from the street, and enhancing the streetscape visually. Bioswales are built with gently sloping sides that are concave toward an area of drainage and gravel and the slopes are vegetated with flood-tolerant plants.

Figure 155: Example of a streetside bioswale (www.kwalliance.org)

The use of the softer palette of plantings such as ornamental grasses and perennials, combined with the use of stone groundcover can help to enhance the coastal theme for these spaces in the sub-

neighborhoods and could be relatively easily maintained by individual neighborhood associations or the Township. Private properties could also be encouraged to use similar groundcover, rather than traditional grass lawns. The images that follow are representations of various designs using these plant materials.

Figure 156: Grasses and perennials used with gravel to provide color and definition to public spaces.

Figure 157: Grasses and groundcovers can be used to soften roadside spaces and add visual interest to the public spaces such as medians.

Figure 158: Where space permits, perennials and ornamental grasses can be combined with conventional shade trees and shrubs to enhance commercial streetscapes.

Figure 159: Sidewalks are missing in many areas of the neighborhood, particularly where lawns or parking take the place of the public right-of-way, such as this commercial area on Princeton Ave., Princeton (Google Streetview)

Sections of Princeton Avenue and N.J. Route 88, particularly in the commercial areas such as that shown above, have no sidewalks due to the reliance on the public right-of-way for parking lots or private lawns. As development permits, these areas should be priorities for new sidewalks and other streetscape treatments that serve a threefold purpose: to provide a buffer that will increase safety for pedestrians; to improve the appearance of businesses and the neighborhood as a whole; and to absorb stormwater runoff. In these business areas, the use of a "signature" planter, such as that illustrated to the right, would enable the planting of annuals and perennials within customized planters that would be sponsored by the individual businesses. Planters also add some character to the streetscape and help to absorb some rainfall.

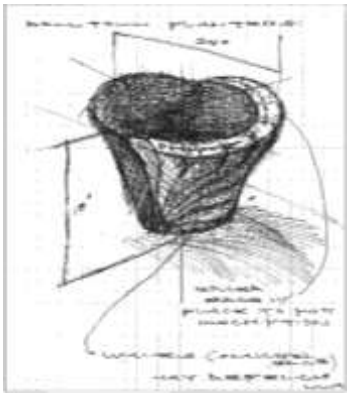


Figure 160: Example of a themed sidewalk planter

GENERAL APPEARANCE FROM STREET

Within the residential blocks, every effort should be made to provide designs for the newly elevated homes that will work within the context of the existing lot lines and setbacks to enhance the overall character of the neighborhood. A number of visual ideas are provided below to act as representative examples of what can be done. There have been some examples constructed within the neighborhood as part of the Sandy recovery which embody these ideas.

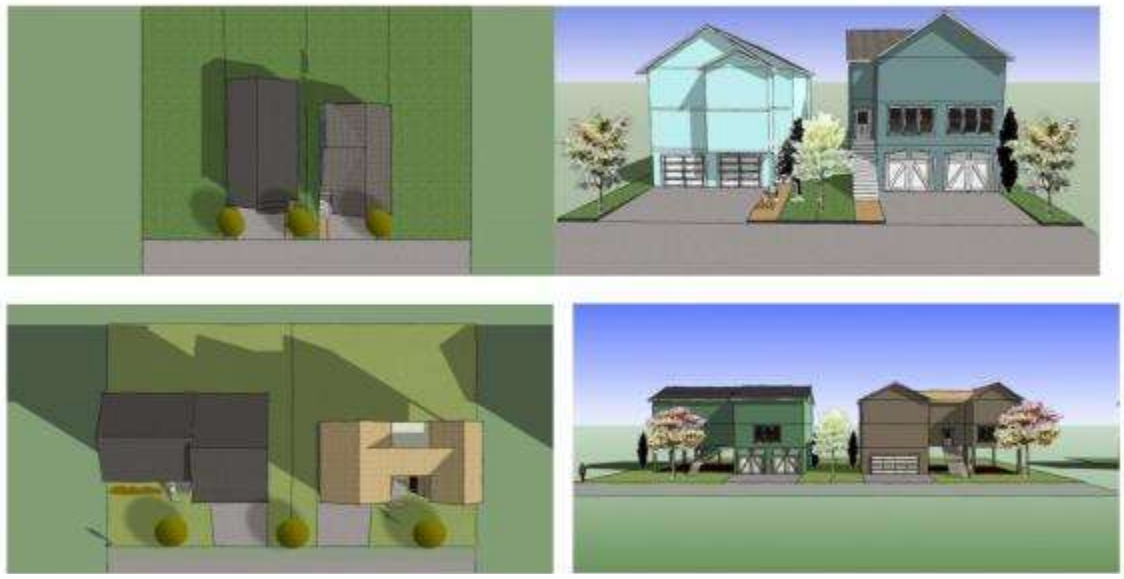


Figure 161: Upper set of illustrations shows potential streetscape treatment of narrow and deep lots using trees with vase shaped or columnar habit, while lower pair shows wider lots with street trees of spreading habit in larger spaces and narrower habit in more confined spaces between houses. Homes are shown as representative for the size of lots as elevated for flood resiliency.

Residents worry that properties on small lots will look overcrowded and unappealing. Simultaneously, many small homes on small lots are directly adjacent to new homes nearly three times their size. The Township should look at various models that work well in other municipalities and provide guidelines that are appropriate for each neighborhood. Allowing for some variations in the designs for proper entrances and yard space, but maintaining some setbacks and some of the current bulk standards should prevent overcrowding while providing the necessary space to adapt to new regulations.

ABANDONED BUILDINGS AND EMPTY LOTS

Following Superstorm Sandy, many property owners who endured major damage to their homes and/or could not afford the pursuant repairs and insurance were forced to leave their properties behind or have been unable to make improvements. Several years later, there are some properties with homes that remain abandoned, have not been demolished and continue to deteriorate, or that sit empty and have

not been rebuilt. These properties rest in a state of limbo because the property owners will not or cannot take responsibility and the Township has not established the necessary conduits for acquiring or selling such properties nor holding the owners accountable.

Figure 162: Examples of abandoned and/or unmaintained buildings throughout Princeton-Midstreams (Google Streetview)

Figure 163: Examples of vacant lots throughout Princeton-Midstreams (Google Streetview)

Figure 164: Six out of twelve lots vacant on South Drive subsection (Google Maps)

Below are some recommendations for properties and buildings that have remained abandoned or in disrepair for a long period of time, in response to concerns raised by residents.

1. Many homes sit abandoned, such as the properties shown in Figure 162, while some lots are entirely vacant, such as those in Figure 163. The Township needs to be more aggressive in taking action and holding property owners accountable.
2. The Township should look into the possibility of acquiring properties when they cannot hold property owners accountable or when property owners are unable to rebuild. Certain

properties, particularly repetitive losses, should be strategically held for water retention areas, doubling as public open space, while others that are less strategic could be resold.

3. The Township could consider downzoning vacant properties and encourage development of double lots to decrease density and provide more permeable coverage in flood-prone areas, while recovering some of the tax base.
4. The Township should encourage landscaping and public use for any lots that cannot be built upon or improved by the property owner for any reason and that cannot reasonably be acquired by the Township or County. Figure 165 provides an example.

Figure 165: Vacant, but landscaped lot in Princeton (Google Streetview)

PUBLIC PARKS, OPEN SPACE, AND CONSERVATION LANDS

All parks, open spaces, and conservation lands within the neighborhood should be considered for their dual role as wetlands to manage stormwater and to provide public amenities and recreation opportunities. In order to prevent further development in sensitive or critical conservation areas, the Township of Brick should consider registering all available lands to the ROSI/Green Acres program with the NJDEP.

To the extent possible, pervious surfaces and vegetation or plant beds should be used to allow for the absorption of stormwater or flooding, particularly in areas prone to flooding, such as eastern Princeton and Midstreams. Some parts of the neighborhood were built on former wetlands along Beaver Dam Creek and the Metedeconk River. Without adequate land, building, and road elevation, the neighborhood is extremely at risk. Asphalt and concrete should be avoided where pervious pavers, gravel, or natural vegetation could be used.

In addition to reconfiguring Township-owned properties and parks to serve this function, the Township should work with the neighborhood associations to act on opportunities to provide new open public spaces or areas for stormwater management within the neighborhood. If properties are deeded to the

Township or if abandoned lots can be acquired, such lots could be restored to a more natural state that also offers active or passive recreation facilities for public use. Waterfront properties should include replenished wetlands. The Township could partner with the NJDEP or groups such as the Nature Conservancy, to develop wetlands replenishment programs. Such facilities should permit and encourage public use, while being sensitive to the maintenance of the wetlands. Where open space is not practical, other public services could be placed.

On a similar note, it is recommended that the Township develop a comprehensive connectivity plan for sidewalks, crosswalks, and bicycle lanes in the neighborhood that strategizes how to best move people to various destinations around the neighborhood, including public parks and opens spaces. A connectivity plan should be able to serve the neighborhood at its peak population and use during the summer. This type of planning can be accomplished through a grant-funded Municipal Public Access Plan by the New Jersey Department of Environmental Protection.

EXISTING PARKS AND OPEN SPACE

Existing parks, open spaces, and conservation lands/wetlands with pervious or natural cover are a great way to absorb the impact of flooding events, as well as providing recreational opportunities for the public. These areas already function as a buffer between the water and residential developments, acting as natural absorption because of the wetlands.

Although existing waterfront parks in the neighborhood are very limited, there are a few key areas that could be improved to serve this function, including Windward Beach Park, Midstreams Park, Cayuga Lane Conservation Area, Princeton Avenue Conservation Area, Lagoon Island Conservation Area, and North Branch Beaver Dam Creek Conservation Area.

These coastal areas, although not in the most heavily impacted areas, will help to reduce the impact on the rest of the neighborhood. When funding becomes available, existing parks should be retrofitted to control and retain stormwater and filter any runoff. Consideration should be given to the transfer of water from other overwhelmed areas into the parks and upland areas through pipes or natural streams. Using surrounding wetlands could help to redistribute stormwater more equally and prevent flooding in certain developed areas, while also retaining water for later use for the parks.

In addition to stormwater management, the existing parks can provide an opportunity for better connectivity throughout the neighborhood for pedestrians, cyclists, and recreational non-motorized watercraft. In particular, designated bicycle paths or lanes should pass by or through the parks. A pedestrian trail could link Midstreams Park to Princeton Avenue and N.J. Route 88 through the adjacent forest and wetlands. This connection will greatly improve access for the adjacent communities. Where necessary, the Township may be able to work out an agreement with private owners of street-ends and

adjacent properties to allow a public pedestrian/bicycle right-of-way into public/conservation lands. Signs should also be included to identify the public access and whether parking is available.

VFW PARK

VFW Park currently sits in a state of disrepair and unutilized. Given its prime location in a dense and connected neighborhood within the vicinity of commercial businesses and conservation areas, the Township should make an effort to improve this park. Upzoning the surrounding area may increase the utilization of the park as the neighborhood develops slightly more densely.

If the Township determines that it is not feasible or impractical to maintain or improve due to funding or nearby parks, the lot should be considered for a multi-family or mixed use zoning to strengthen the diversity and vibrancy of the neighborhood that can reciprocally serve the adjacent commercial district on Route 88. The park amenities should not compete with, but complement other neighborhood parks. A playground, tennis/racquetball courts, and/or a community garden might be options for VFW Park.

RECOMMENDED PARKS AND OPEN SPACE

There are a few Township- or County-owned parcels of land in Princeton-Midstreams that currently do not have any designated use, conservation status, or improvements, but that provide optimal opportunity for both additional public open space and for water retention. The large forested and wetlands area to the north of the neighborhood between Princeton and Midstreams and adjacent to the conservation area may also offer space for more active or passive recreation, if sensitive to the surrounding wetlands and coordinated with various County, State, and Federal agencies. A Municipal Public Access Plan for the Township could help to further determine the needs and possibilities available to the community for expanded public access, particularly to the water. Some potentially feasible opportunities include:

In the eastern-most section of Princeton in the lagoon community on South Drive, there is a traffic triangle in the center of the road that is owned by the Township of Brick. This property is 0.15 acres, or 6,534 square feet, of land that is curbed and has a gravel groundcover and planted with coastal grasses and a variety of shade trees and shrubs. The traffic in this area is very minimal as it is the end of the peninsula in a single-family residential community. Therefore, this triangle space could be used as a passive park with a path, benches, and other simple improvements. The permeable and durable landscaping already allows for some degree of flooding and absorption, but bioswales and water retention tanks, if practical, could also be installed to further divert floodwater. This was the hardest hit area of Princeton-Midstreams, so this open space is a prime opportunity to implement any techniques for the diversion or retention of water to prevent future devastation.

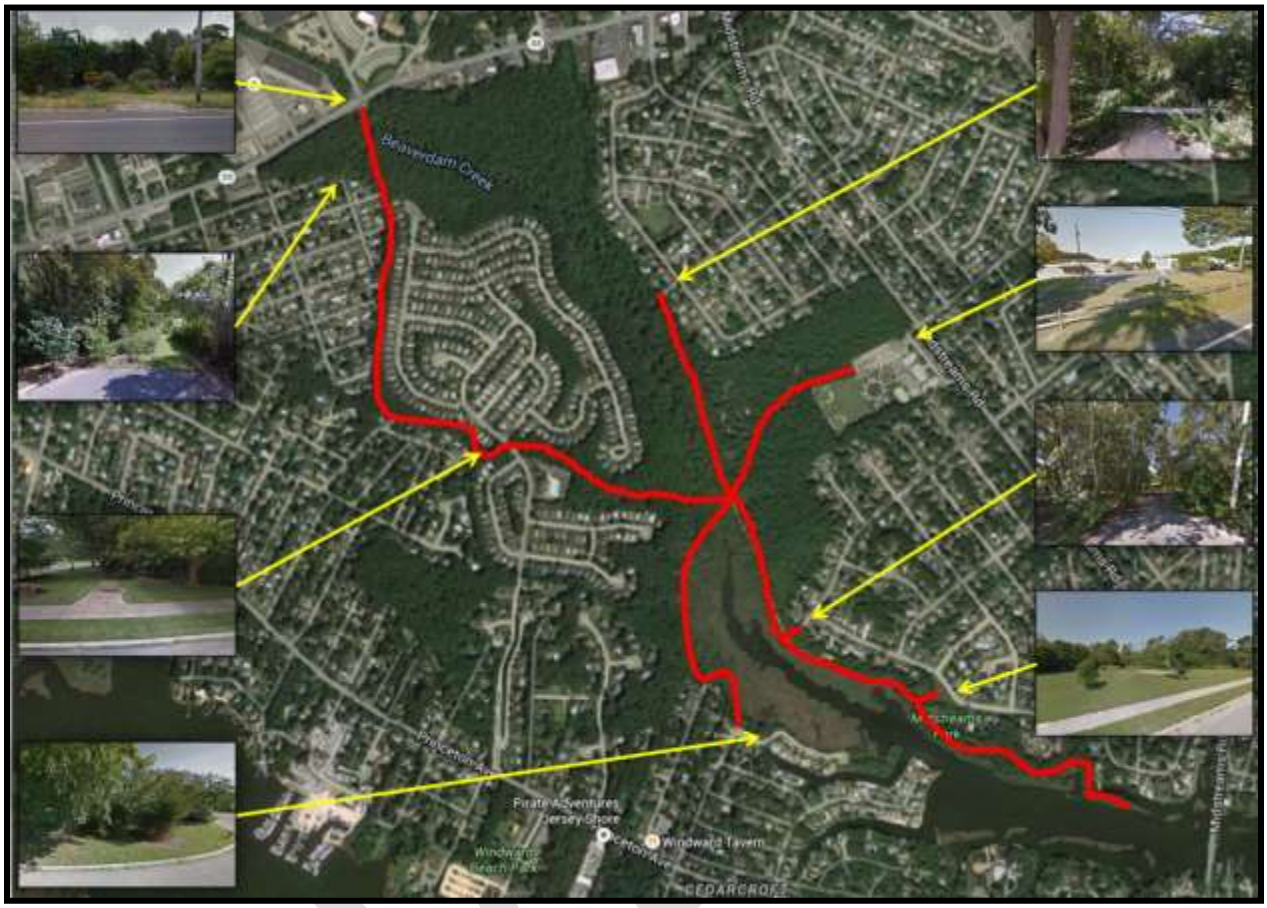
Figure 166: Unnamed triangle, center of South Drive, Princeton (Google Streetview)

Figure 167: Square outlined in red in Princeton subsection (Google Maps)

Map 47: Township Tax Map with Block 946, Lot 1 (outlined in red)

TRAILS

As a way to improve the connectivity of the neighborhood, as well as provide additional recreational opportunities, the Township could explore the creation and maintenance of a trail system between Princeton and Midstreams that runs through the central open space. A conceptual trail map with associated streetview images of potential trailheads is provided below.



Map 48: Conceptual open space trail map along Beaver Dam Creek – South Branch (Google Maps/Streetview images)

STREET-ENDS, BULKHEADS, AND RIGHT-OF-WAYS

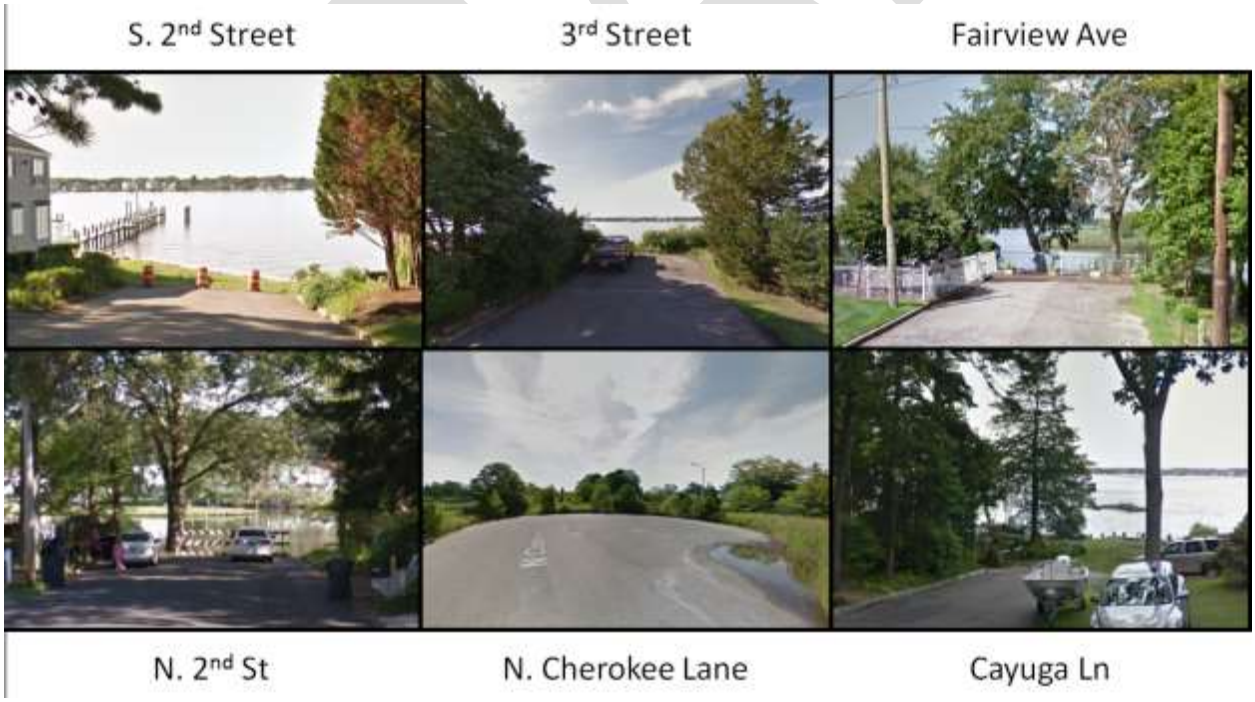
Bulkheads, like jetties and other manmade barriers, can often exacerbate erosion and push floodwater elsewhere rather than absorb the water. Living shorelines, on the other hand, which include natural wetlands, are a better long-term alternative to impermeable barriers that allows the land and water to coexist while averting major damage during flooding events. Living shorelines use gentle slopes with sediment, sand, and small rocks, anchored by native coastal vegetation.

The Township could experiment by removing bulkheads that are not directly protecting improved properties in strategic locations and replacing them with a natural living shoreline with native vegetation. This should be attempted where it does not interfere with neighboring properties, boat traffic, or boat launching.

Figure 168: Example of "Living Shoreline" (Courtesy: Virginia Institute of Marine Science, College of William & Mary, 2016)

Small lots, street-ends, and land adjacent to bulkheads that are insufficient to build upon and, especially those already owned by the Township, provide an exceptional opportunity to add living shorelines and/or passive public recreational space. The examples below show various parcels throughout Princeton-Midstreams that are owned by Brick Township or where private owners could permit the Township to acquire and maintain for flood prevention. Some of these areas could be planted with marsh grasses or landscaped with benches for sitting or fishing, if there is adequate space.

VISUAL INVENTORY OF STREET-ENDS IN PRINCETON-MIDSTREAMS:

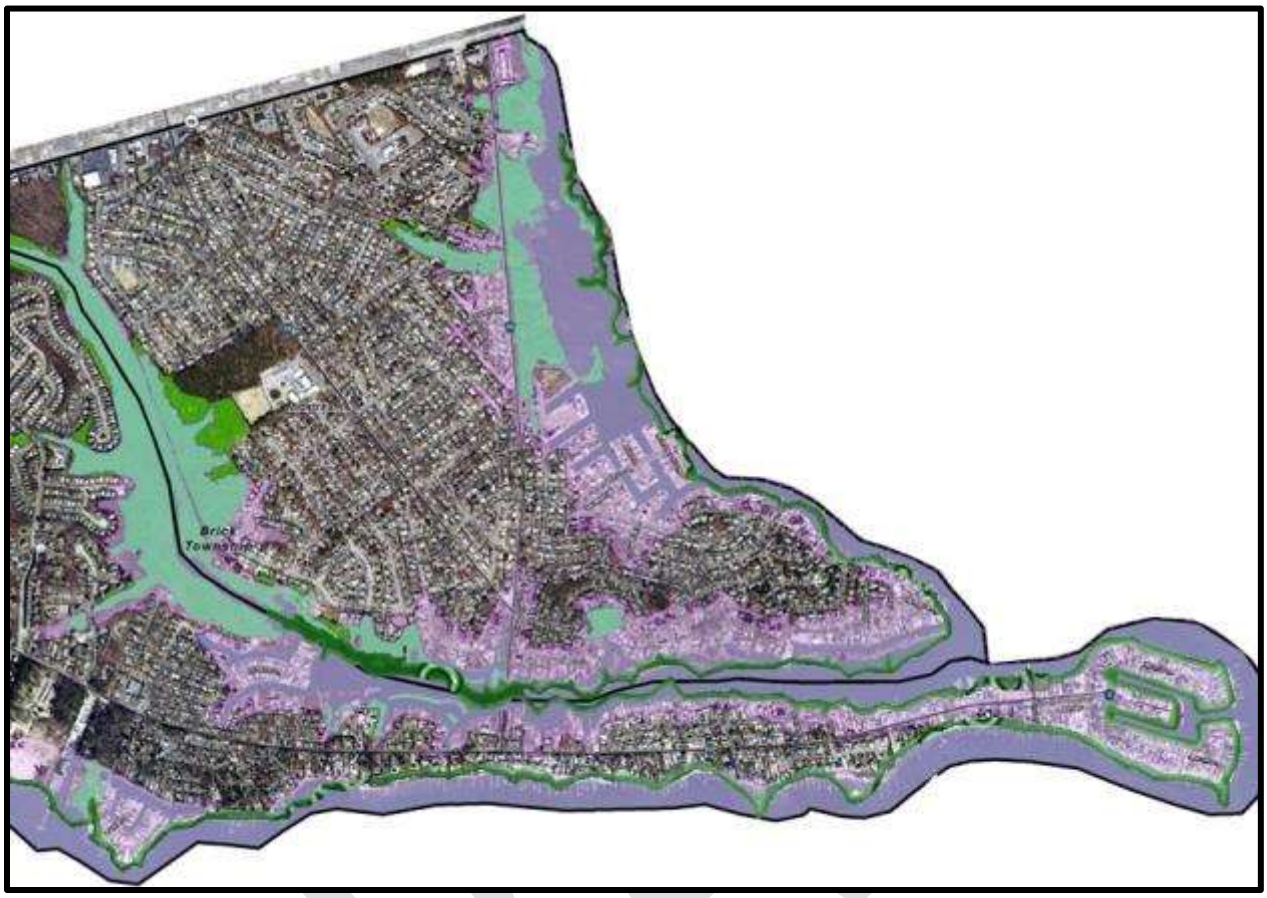


Right-of-way areas along the sides of streets abutting wetlands, lagoons, or rivers, should also be preserved for public use and enjoyment, as well as protection against flooding in the roads. Raised sidewalks, bike paths, or other types of trails with permeable materials along the road will allow or maintain vistas, public access to recreation, and buffers between the wetlands and the existing road.

ECOSYSTEM RESTORATION

Over the years, most of the natural ecosystem of the neighborhood has been replaced by dense development, including wetlands cleared for boat traffic. Restoring these ecosystems, particularly wetlands, has become increasingly important as habitat loss increases from development, diversity of species is reduced, and storms and sea level rise threaten to flood neighborhoods. The provision of new open spaces and conservation lands can help reduce the cost of flooded properties, while also improving water quality, providing nursery grounds, and enhancing quality of life. The inclusion of residents can foster a sense of environmental and community stewardship to advance this mission.

Based on a review of the early historic aerial photographs of the neighborhood, the wetlands and marshes surrounding the neighborhood were much more extensive than they are today. Correspondingly, the areas which lost the most wetlands since 1931 seem to have experienced the greatest storm surge and some of the most damage during Superstorm Sandy. Where there are existing wetlands, in most cases the storms surge inundated a majority of the wetlands without extending much farther inland. This is a testament to the importance of the ability of wetlands to absorb water. The map below shows this point by overlaying the wetlands line from 1931 with the Sandy Storm Surge Map.



Map 49: Map with Approximate 1931 Wetlands Line Overlaid on Sandy Storm Surge and Wetlands Map (dark green line = 1931 line; purple = Sandy storm surge; light green = existing wetlands; turquoise = existing wetlands inundated by storm surge; black line = neighborhood boundary)

For this reason, it is recommended that the Township explore opportunities to enhance, restore, or, in most cases, recreate wetlands in areas where they have previously existed in order to combat the level of storm surge that was experienced during Superstorm Sandy. The National Resource Conservation Service, through the United State Department of Agriculture, has some informational resources and practice standards for restoring and creating degraded wetlands.

The existing barrier islands that form the lagoons in Beaver Dam Creek present a good opportunity for enhancing or restoring wetlands because they offer a somewhat stable environment for new marshes to begin growing and are also critical for preventing even more extensive damage in the rear neighborhoods. The lagoons should be maintained as much as possible, while extending the size of the wetlands further into the river. This process may not be practical along much of the southerly side of Princeton in the Metedeconk due to higher erosion rates, heavy boat traffic, and dense development along the waterfront.

Map 50: Suggested areas for extended, restored, or enhanced wetlands (outlined in red)

FUTURE STORM AND DISASTER PREPAREDNESS

After speaking with several representatives and residents and from public feedback, there was a theme of there being a lack of proper communication channels throughout all stages of Superstorm Sandy's destruction – before, during, and in the wake of the storm. In addition to a well-designed built environment that can mitigate the effects of storms and provide physical connections for people, powered and effective communication services are critical to disaster preparedness and relief. Many times, a lack of or poor communication can lead to even more serious and costly consequences than the storm itself.

In addition to measures found in the Hazard Mitigation Plan Element, we recommend that the Township continue to take measures to inform all residents of potential storms and disasters that may affect them, as well to inform them of what steps to take beforehand, and what to do during emergencies. This will require some, if not all, of the following steps:

1. Maintain a database of resident and property owner contact information for reverse emergency warnings. Provide a means for all, including visitors to the extent possible, to give their contact information voluntarily in order to stay informed.

2. Coordinate with all neighborhood and condominium associations, as well as fire, police, and ambulatory services, to establish and inform residents of the best safety practices, evacuation routes, and emergency care and lodging centers.
3. Obtain funding for backup generators and improvements for all communication outlets in case of disaster to prevent power failures.
4. Ensure that neighborhoods are not cut off and that there are central emergency locations that are well-stocked with supplies for all residents, preferably within less than a half-mile.

The Township should also find ways in which to coordinate efforts with adjacent communities, including Point Pleasant Borough, in order to provide essential services and aid to those in need during disasters. Preparedness Plans and strategies for protecting properties and utilities could also be shared among municipalities.

SUSTAINABLE RECOVERY: LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN

Leadership in Energy and Environmental Design ("LEED") is a recognized green building certification rating system. LEED provides third-party verification that a new or renovated building was designed and built using strategies and materials to lower a building's carbon footprint. LEED was developed by the U.S. Green Building Council and is a "voluntary rating system that encourages buildings to do better, but does not add significant cost".[13] LEED has five rating systems for multiple project types that want to achieve LEED certification. The rating systems are:

- Building Design and Construction
- Interior Design and Construction
- Buildings Operations and Maintenance
- Neighborhood Development
- Homes

Within each rating systems there are eight main credit categories:

- Location and transportation
- Sustainable sites
- Water efficiency
- Energy and atmosphere
- Materials and resources
- Indoor environmental quality
- Innovation
- Regional priority

LEED "provides building owners and operators with a framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions".14 Furthermore, LEED has been constantly improving its manuals and guidelines to keep up with technology and trends. Presently, there are four levels of LEED certification – certified, silver, gold and platinum.

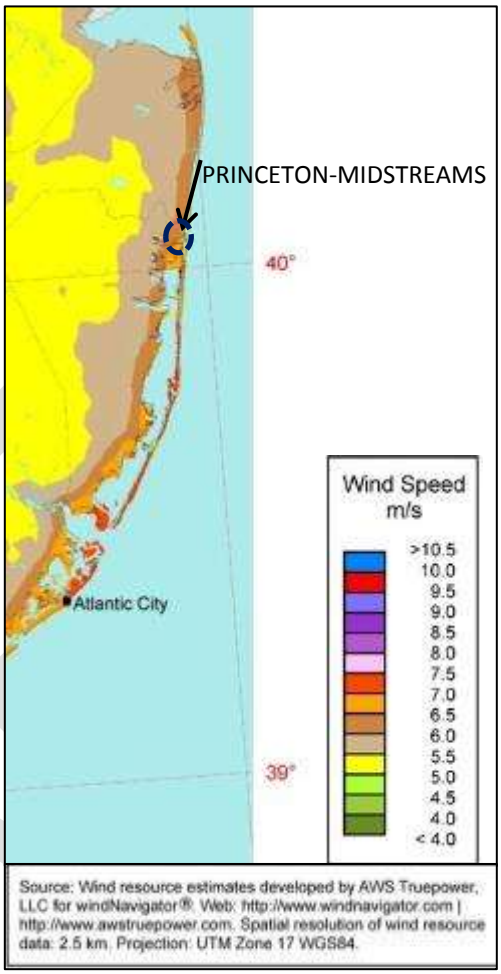
This Neighborhood Plan focuses on two of the rating systems that could apply – LEED for Homes (LEED-Homes) and LEED for Neighborhood Development (LEED-ND).

LEED FOR HOMES

LEED for Homes is the certification program for single-family home design and construction. LEED-designed homes provide clean indoor air and use less energy and water, which translates to lower utility

[13] http://www.usgbc.org/articles/leed-facts
[14] http://www.usgbc.org/articles/about-leed

bills. Homeowners looking to rehabilitate or redevelop their damaged home can use the LEED for Homes credit system to make smart choices when it comes to water efficiency, energy usage, material selection, air quality and even rainwater management. LEED for Homes is an excellent resource for homeowners, even if they are not seeking LEED Certification.



Credits that are worth noting, and that which could be utilized by the residents of the Princeton-Midstreams Neighborhood during rehabilitation and new home construction include:

- Rainwater management
  - Certain sections flood after a hard rain storm, let alone a hurricane. Reducing rainwater runoff is imperative.
  - LEED for Homes recommends the following actions to manage rainwater:
    - Planting areas with native or adapted plant material (e.g. trees shrubs)
    - Installing a vegetated roof
    - Using permeable paving
    - Installing permanent infiltration or collection features (e.g., vegetated swale, rain garden, rainwater cistern or rain barrels to capture roof runoff)
- Low-emitting materials
  - The intent of this LEED credit is to reduce concentrations of chemical contaminants that can impact air quality.
  - The requirement includes the use of low volatile organic compound (“VOC”) paints, floor materials and insulation.
- Quality views
  - Part of the appeal of the Princeton-Midstreams Neighborhood is that it is surrounded by riverfront views of Beaver Dam Creek North Branch, South Branch, the Metedeconk River, and Bay Head Harbor. However, private waterfront development means that most of these views are restricted for landowners. The purpose of this LEED credit is to give building occupants a connection to the natural outdoor environment providing quality views.
  - The requirement is to achieve a direct line of sight to the outdoors with glazing (e.g. windows and doors) for 75% of the regularly occupied floor area of the home.

- Green power and carbon offsets
    - LEED for Homes encourages homeowner to reduce their greenhouse gas emissions through the use of grid-source, renewable energy technologies.
    - In order to qualify for the credits, a homeowner must engage in a contract for a minimum of five years, which provides between 50% and 100% of the home's energy from green power or renewable energy certificates.
- Renewable energy production
    - In order to offset the rising costs of homeownership, this LEED credit relies on the sun to power homes. Princeton-Midstreams is ideally situated for both solar and wind systems, as the nature of the sea air and high wind levels limits large vegetation in what is largely a grassland (salt marsh/wetlands) ecosystem. Streets in the Princeton sub-neighborhood are generally oriented so that they run east and west or long portions of the blocks face south. However, Midstreams is generally not aligned with the ideal orientation and is more heavily forested. Optimal solar orientation for temperate climate zones is 17.5 degrees east of due south.[15] LEED-ND Credit 10 under Green Infrastructure and Building (GIB C-10) provides for credit when the long side of the street block is 15 degrees or less east or west of due south, or if the long axis of 75% or more of the buildings is 15 degrees or less east or west of due south. The Princeton street grids would provide opportunities for optimizing passive solar exposure on new or rehabilitated homes.
    - Areas with annual average wind speeds around 6.5 meters per second and greater at an 80-m height are generally considered to have a wind resource suitable for wind development. The Wind Speed Map indicates that the neighborhood is around 6.5 meters per second.
    - This credit is offered to homeowners if they meet the parameters for solar energy.
- Indoor water use reduction
    - The intent of this LEED credit is to reduce indoor water consumption.
    - Homeowners can receive up to six points for this line item depending on how much they reduce their water usage.
- Daylight
    - Daylighting is important in connecting building occupants to the outdoors, reinforcing circadian rhythms and reducing the use of electrical lighting.
    - The requirement is to achieve at least 55% daylighting for the regularly occupied floor area of the home.
- Outdoor water use reduction
    - The intent of this LEED credit is to reduce outdoor water consumption.

[15] Design With Climate, by Victor Olgyay, Princeton University Press, 1973, page 61.

- Homeowners receive credit if they reduce exterior irrigation between 50% and 100% by installing plants that require no irrigation (e.g. native species) or an efficient irrigation system with a water sense feature.

LEED FOR NEIGHBORHOOD DEVELOPMENT

LEED for Neighborhood Development or LEED-ND is a certification system for a neighborhood-scale project, such as the entire Brick Beach area. LEED-ND incorporates the principles of smart growth, urbanism and green building into a system for neighborhood design, which can be applied to entire neighborhoods, portions of neighborhoods or multiple neighborhoods.

There are five credit categories for LEED-ND:

1. Smart location and linkage
2. Neighborhood pattern and design
3. Green infrastructure and buildings
4. Innovation and design process
5. Regional priority credit

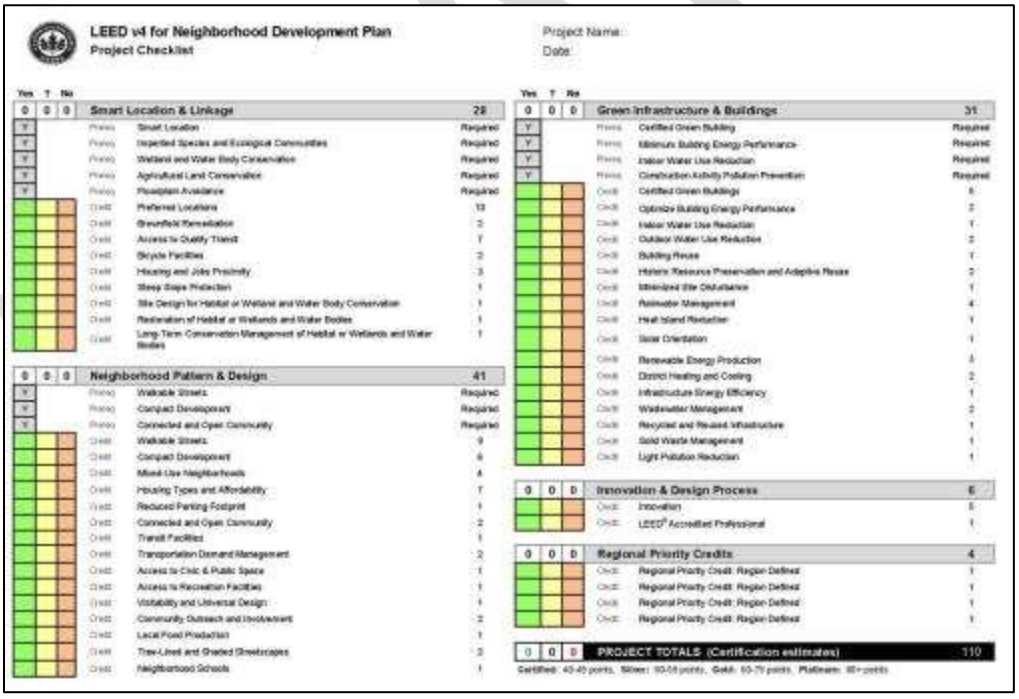


Figure 169: LEED-ND Checklist Chart

Within the five categories there are a total of 12 prerequisites that are required to gain certification. Princeton-Midstreams can potentially meet some of these requirements, but may need to improve in several areas, such as smart location and linkage, mixed-use neighborhoods, access to public services, transportation, and renewable energy production. The neighborhood already has some conservation areas, bicycle facilities, and compact development, among other items.

Although the neighborhood is predominantly residential in land use, there is a unique variety of densities and street grid typologies, as well as a number of commercial areas along N.J. Route 88 and Princeton Avenue. The existing areas with neighborhood businesses and marinas could be expanded upon.

Public transit does not currently service the interior of Princeton-Midstreams, but there are several Ocean County buses that stop along Route 88 and Brick Boulevard immediately to the west. However, Princeton-Midstreams is so expansive that getting to a bus stop from the opposite end could take nearly 20 to 25 minutes biking and over an hour walking. The Township could explore extending bus service from Route 88 to interior sections of Princeton-Midstreams, such as parks, beaches, restaurants, and schools. Like some of the other densely populated waterfront neighborhoods, there is ample potential for water-based/ferry transportation to provide public access along the Metedeconk River to commercial areas, or across the Bay connecting to the Brick Beaches. The Township should first focus on ways to make the neighborhood more “compact”, “connected”, and “complete”. Bicycle facilities, via a bike lane, is already provided along Princeton Avenue, but could continue to be expanded in identified heavy traffic areas and to connect public services.

These sustainability principles can also be combined with efforts to make the neighborhood more resilient to storm and flood events in the future by elevating buildings and selected streets, as well as investigating longer term solutions to flood mitigation through the use of stormwater management practices. Using the adjacent salt marshes as a potential for managed wetlands for stormwater management is consistent with LEED-ND.

In addition to the overall consistency with LEED-ND, homeowners can also advance the principles of LEED-ND by:

- Improving home energy performance by 5% for new homes or 3% for major building renovations.
- Reduce indoor water usage by 20% with water efficient toilets, faucets and showerheads.
- Reduce outdoor water use through the installation of native plants or smart irrigation systems.
- Reduce rainwater runoff.
- Design and orient new homes for maximum solar orientation.
- Utilize solar power, such as solar panels.

For more information on LEED-ND, go to http://www.usgbc.org/articles/getting-started-nd.

SEA LEVEL RISE AND THE FUTURE OF INFRASTRUCTURE

Sea Level Rise

This Neighborhood Plan for Princeton-Midstreams has been developed to deal with the immediate recovery needs of the neighborhood, as well as to anticipate measures for improving the resiliency of existing and future development to future storm events. However, it is important to recognize that the evidence for the phenomenon of sea level rise is compelling and that Superstorm Sandy may have been a precursor of more frequent and possibly more severe storm events to come in the future, which coupled with a rising sea level could threaten a repeat of the flooding that occurred during Sandy.

Map 51: Flood Map of Princeton-Midstreams with 2 feet of sea level rise (credit: NOAA, https://coast.noaa.gov/slr/, accessed March 18, 2016)

The map above estimates the portion of Princeton-Midstreams that would be flooded by a 1% storm event based on seal level rise of 2 ft.

Given the above, we believe the emphasis of this Neighborhood Plan on taking actions to elevate buildings, especially residential buildings, and to protect major community facilities and utilities (where applicable) would be consistent with a shorter range strategy, while elevating roads and improving stormwater management facilities would be consistent with a mid-range strategy. However, strategies such as preventing further development, or over-development, in flood-prone areas and replacing vacant

properties with natural absorbent wetlands will help to mitigate the effects of sea level rise and reduce the associated costs and hazards to human health and safety.

The key to protecting all of the mainland neighborhoods of Brick Township, as well as the Barrier Island, will be the coordination of beach dune construction and beach replenishment by the Army Corps of Engineers as soon as possible. This was a major concern of property owners and echoed by residents on both sides of Barnegat Bay during the neighborhood outreach in 2015.

ACTION PLAN

There are a number of relatively low cost actions that can be undertaken through a partnership between the neighborhood associations, private owners, Brick Township, and Ocean County and coordinated with the State of New Jersey Department of Transportation, Department of Environmental Protection, FEMA, and potentially with non-profits with a coastal or environmental focus. The identified actions are also prioritized into high, moderate, and low. The Township should plan to address all high priority projects first, followed by those that are lowest cost and easiest to implement. They are summarized in the table below.

Table 14: Princeton-Midstreams Neighborhood Plan – Action Plan

	Project	Responsible Entity	Begin	Estimated Cost			Priority		
				Low	Mod	High	Low	Mod	High
1.	Gateway Signage	Neighborhood associations & Township	Immediate to 1 year	X			X		
2.	Landscape Treatments, including water retention areas	Neighborhood associations with cooperation from Township & County	Immediate to 1 year	X				X	
3.	Update Zoning Map & Regulations	Township Zoning Board	Within 1 year	X				X	
4.	Develop and implement an Impervious Surface Ordinance	Township Planning Board	Within 1 year	X			X		
5.	Wayfinding Signage	Township, NJDOT Grant	Within 2 years	X				X	
6.	Elevate roads for emergency access and evacuation	Brick Township and FEMA with cooperation from Ocean County & NJDOT	Within 2 years			X			X
7.	Elevate residential buildings and utility buildings impacted by predicted flooding	Brick Township, FEMA	Within 2 years			X			X
8.	Strategic Plan for acquisition or sale of abandoned properties	Township, State of NJ	Within 2 years	X					X
9.	Conduct study to extend public bus route into Princeton-Midstreams	Township & Ocean County DOT	Within 2 years	X			X		
10.	Conversion of identified strategic abandoned properties to natural & public space and water retention areas	Township, NJDEP, FEMA	Within 3 years		X			X	
11.	Extension of sidewalk network & pedestrian improvements, including crosswalks (beginning with areas along Route 88, Princeton Avenue, Midstreams Road, and Jordan Road, where some currently exist)	Township & NJDOT Grant	Within 3 years			X		X	

12.	Bike Path network (Lane markings and/or signage on Township roads) to link to bike paths on St. Lawrence Boulevard and Joe Pal Airport Tract.	Township & NJDOT Grant	Within 3 years			X		X	
13.	Expand/Enhance public space and public access opportunities through the development of a Municipal Public Access Plan	Township & NJDEP	Within 5 years		X			X	
14.	Develop strategy and begin implantation of wetlands restoration and enhancement in Beaver Dam Creek and Metedeconk River	Township & NJDEP, partnership with coastal non-profits	Within 5 years		X				X
15.	Capital Improvements to stormwater management infrastructure	Township, FEMA Grants	Within 5 years			X			X

THE TOWNSHIP OF
BRICK, NJ

APPENDIX I

NOTES FROM THE SHORE ACRES PUBLIC MEETING

The observations and ideas summarized above were discussed with the Township professional staff and members of Shore Acres in a public meeting at Drum Point Elementary School on June 16, 2015. The following comments were brought up during the meeting by the Township professionals and the public and have been synthesized or paraphrased:

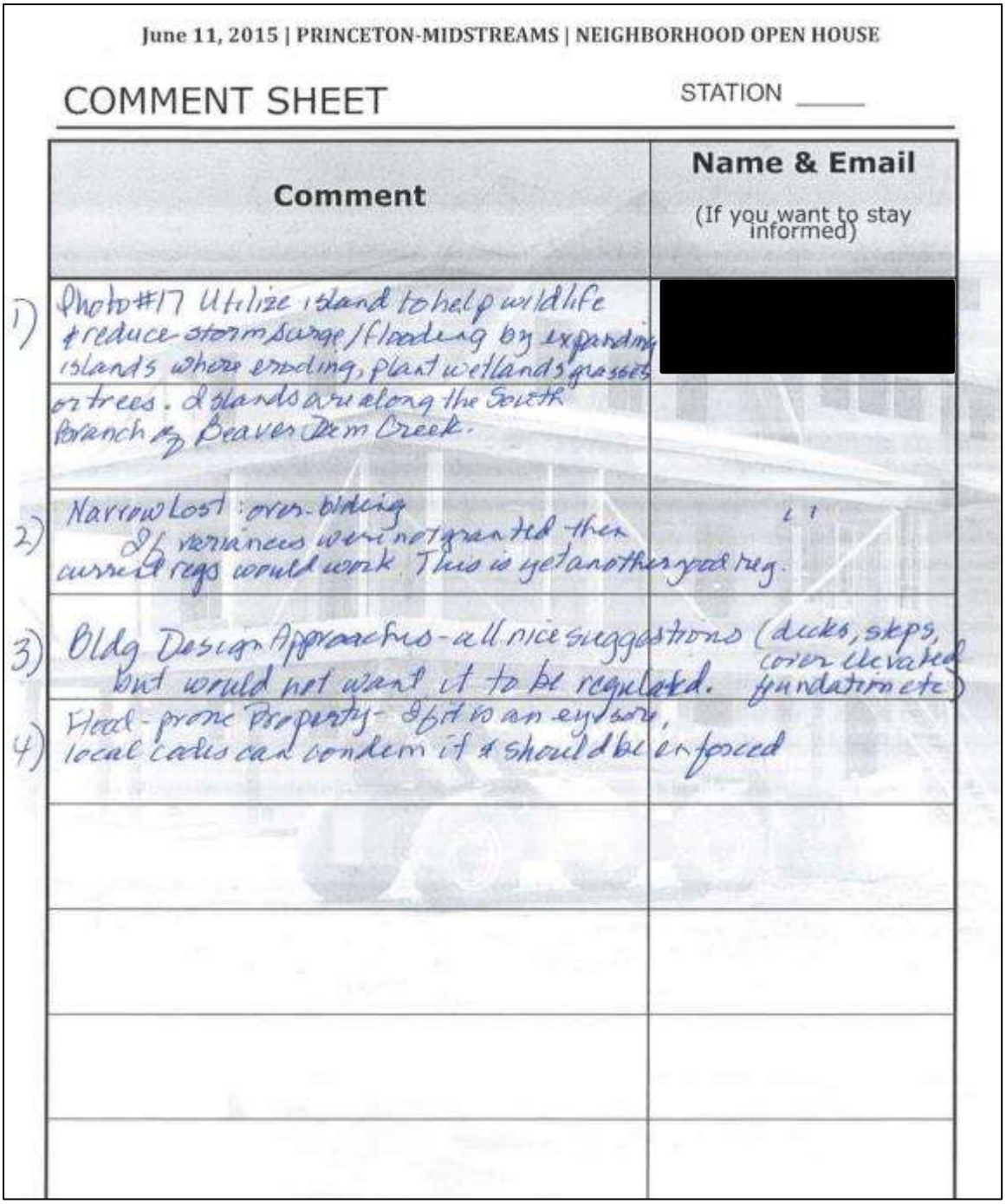
- Building up islands in Beaver Dam Creak as protected wetlands area to buffer homes on other side
- No-Wake Zone buoys on Beaver Dam Creek to prevent (minor) erosion along coast
- Permeable asphalt in parks
- "Photo #17 Utilize island to help wildlife and reduce storm surge/flooding by expanding islands where eroding, plant wetlands grasses on trees. Islands are along the South Branch of Beaver Dam Creek."
- "Narrow lots: over-building. If variances were not granted then current regulations would work. This is yet another good reg[ulation]."
- "Building Design Approaches – all nice suggestions, but would not want it to be regulated (decks, steps, cover elevated foundation, etc.)
- "Flood-prone property – If it is an eyesore, local codes can condemn it and should be enforced."
- Stormwater/catch basin issues.
- Flooding - End of East Riverside.
- Sewer back flow. Address stormwater from Mantol Road.
- Segoing Road – Need check valve on Kettle Creek pipe.
- Elevate road. Road flooding. Single access.
- Carroll Fox Road (at arch) – Road floods during rainstorms.
- Lenape Trail (off Princeton Avenue) – Unpaved driveways. Runoff washes away driveways and undermines the road. Limited stormwater management. Water never makes it to the drain.
- Create "living breakwater" (or expand) on the small islands on the south branch of the Beaver Dam Creek.
- Catch basin for Princeton Avenue currently backs up and floods front of property. Should be fixed soon to be piped directly to Beaver Dam Creek.
- East of #9 was isolated without clear evacuation routes. Two bridges flooded and trees came down and blocked western access.

- Water breached south of here, isolating land to the east and preventing evacuation. Times were mostly safe, but no medical help could get in, if needed.

THE TOWNSHIP OF
BRICK, NJ

APPENDIX II

RESULTS FROM PUBLIC COMMENT SHEETS



June 11, 2015 | PRINCETON-MIDSTREAMS | NEIGHBORHOOD OPEN HOUSE

COMMENT SHEET STATION _____

	Comment	Name & Email (If you want to stay informed)
1)	Photo #17 Utilize island to help wildlife & reduce storm surge/flooding by expanding islands where eroding, plant wetlands grasses or trees. 2 islands are along the South Branch of Beaver Dam Creek.	[redacted]
2)	Narrow Lost: over-building & variances were not granted then current regs would work. This is yet another good reg.	L1
3)	Bldg Design Approaches - all nice suggestions (decks, steps, but would not want it to be regulated. cover elevated foundations etc)	
4)	Flood-prone Property - if it is an eyesore, local codes can condemn it & should be enforced	