

Sustaining the Suburbs

A study on conservational design within modern suburbs

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Village of Bayberry, Middletown, Delaware

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Project Overview

The following project aims to revitalize the development of suburban neighborhoods by introducing more underutilized greening techniques, using the community of Bayberry in Middletown, Delaware as a potential candidate. The interventions of this project will include general greenspaces, residential properties, stormwater management, and street design. The new approach will utilize a variety of methods from small to large scale changes, including many that go against many of the common industry practices that have become part of the modern suburban design.

The research is based on historical data and ecological studies in order to create a new foundation for suburban ecological design. By analyzing historic development patterns and finding the strengths or weaknesses of certain styles, it will be easier to make an efficient design. The ecological incorporation will also serve a large role in larger connections between communities, creating an expansive chain of sustainable developments. Furthermore, the ecological design provides artistic direction for the project, giving it two purposes in aesthetics and sustainability.

The final challenge to this project is selling it. There are reasons behind many of the patterns we see today along with certain industry staples used in landscape design. This is further compounded by various stigmas held by the general public regarding what homes should look like. The following studies will delve into why these stigmas are held and what can be done to sway this mindset.



Primary Topics and Research

What can be applied to modern sustainable suburban developments?



Regional Green Corridors

Due to the fracturing of local ecological corridors, we have seen heavy strain on **native wildlife population, pollution retention, and native plant biodiversity**. Reconnecting these fractured areas is essential for humans and wildlife alike.

Increased Attention
Stronger Communities

Design Guide
Corridor Restoration



Public Stigma

The industry is plagued with misunderstanding from homeowners and contractors alike. This has become a primary **contributor to deforestation, rapid urbanization, and increase in non-native species**. Setting examples can create educational and effective landscapes.



Low Impact and Green Design

Utilizing native plantings and minimal development can **reduce costs of infrastructure, support stormwater management**, and create **efficient layouts** for communities, all while providing a desired **appearance** and effective **social environment**.

New Demand
Education and Example

Ecological Corridors

Strategies to Reconnect



Fracturing of Green Corridors

Development has created a hard barrier to natural corridors. In order for corridors to be successful, they need to be connected together to form networks of nodes, links, and loops. These connections increase biodiversity through the interactions within them. The rapid development of suburbia has harshly limited the potential for interactions, thus creating a struggle for local organisms.

Source:

"Exploring The Ecology of Suburban Wildlife" - U.S Department of Agriculture

Defining the Ecosystem

All ecosystems have structure and function. Structure refers to the physical arrangement of biological and non-biological components of the system, whereas function refers to the way the components interact with one another. These two aspects of ecosystems cannot be effectively separated.

The local ecosystem has a massive impact on humans and organisms alike, influencing our physical, social, and mental health.

Source:

"Exploring The Ecology of Suburban Wildlife" - U.S Department of Agriculture

Suburban Biodiversity

The structure of a development allows for various potential green opportunities, but many are not taken advantage of. It is vital that roads, empty spaces, and residential properties are utilized for plants with different use cases. When utilized, hundreds of species can thrive in a place that originally displaced them. By reintroducing displaced species, there can be far more interaction within the environment, thus creating the link between corridors.

Source:

"South Florida greenways: a conceptual framework for the ecological reconnectedness of the region" - Landscape and Urban Planning

Public Use

Visual and functional choices



The Roles of Greenspace

The public greenspace serves an intricate purpose within the community regarding health, culture, safety, ecology, and connectivity. It is the lack of greenspaces in the modern suburban neighborhood that is contributing to the decline in both social and ecological sustainability. By building greenspaces around aesthetic and function, the modern suburb can establish an identity, and reconnect to the greater ecological systems beyond the communities.

Source:

"The influence of green space on community attachment of urban and suburban residents" - Urban Forestry & Urban Greening

Encouraging Public Use

Connecting people is the only way to create a community. Without connections, bonds, and emotions, a community cannot sustain itself. By encouraging greenspace usage, you can encourage interaction. A flat green field of grass is not enough to attract local residents. Ideally, people of all ages and backgrounds will be attracted to greenspaces. There are various ways of approaching this, either from a pure visual strategy, functional purpose, or educational value.

Source:

"The influence of green space on community attachment of urban and suburban residents" - Urban Forestry & Urban Greening

Interacting with Human Senses

It is important that there is some form of interaction between landscape and humans to create an experience worth having. Examples include the ambient sound of water in stormwater controls, creating scents through specific plant species that also attract pollinators, or create dynamic patterns in pathways that are made from pervious paving. Without this interaction, there cannot be a desire to have it to begin with, especially regarding cost and maintenance these features have.

Source:

"Sustaining beauty. The performance of appearance" - Journal of Landscape Architecture

Public Opinion

How Should Landscapes Look?



Modern View of Native Plants

Since the early 40s, the suburban and urban population has drastically increased, with nearly 70% of the world's population residing in one of these two communities. The majority of this new population typically reject the idea of native landscapes, due to the shared philosophy that they appear as unkempt, messy, and as an indication of a lazy owner. This has left the modern homeowner to fear native plantings, despite the various benefits they provide.

Source:

"Exploring Social and Cultural Norms to Promote Ecologically Sensitive Residential Garden Design" - Landscape and Urban Planning

Public Survey Results

Despite the general stigma of the suburban and urban residents, studies have shown that people generally prefer the dense native gardens as opposed to the traditional styles. With 306 people surveyed from throughout Texas, an overwhelming majority actually favored the native gardens that utilized human design techniques, regarding size hierarchy, color, and other factors. Similar studies in America and Europe have shown similar results, proving that it is a matter of ignorance as opposed to a true dislike of the native garden style.

Source:

"Exploring Social and Cultural Norms to Promote Ecologically Sensitive Residential Garden Design" - Landscape and Urban Planning

The Ecological Impact

Exotic species have taken the forefront of the modern residential landscape, with some being invasive and others being relatively safe or bland options. Furthermore, the development of residential communities themselves created fractures within the ecological corridors that serve vital roles in the American ecosystem. Native plants can reintroduce hundreds of creatures such as lepidoptera into the area, which would have struggled to survive otherwise.

Source:

"Rural+ the plain, the beautiful, the sustainable in rural housing" - Architecture Science Review

Changing Outlook

How To Spread The Word



Client Education

One of the best ways to sway a homeowner towards the use of native plants is to inform them about their benefits. For some, the ecological benefit is enough to convince them. For others, some want the visual benefit or simple maintenance. As a landscape contractor or designer, it is important to sit down with clients and explain the potential benefits before moving forward.

Source:

"Adding Native Plants to Home Landscapes: The Roles of Attitudes, Social Norms, and Situational Strength" - Journal of Environmental Psychology

Greenspace as Examples

Public greenspaces play an important role regarding community connection. As a social space, it will be well known by those living there and those visiting from outside the community. This makes public greenspaces the prime opportunity to utilize native planting for unique landscapes. This will create an interest within the community and influence them to replicate a similar style with their own properties.

Source:

"Adding Native Plants to Home Landscapes: The Roles of Attitudes, Social Norms, and Situational Strength" - Journal of Environmental Psychology

Maintenance and Investment

To the common homeowner, a native garden may seem overwhelming in terms of maintenance. The density and biodiversity seem too complicated when compared to the simple shrub and mulch bed. This is a large misconception, as native gardens tend to perform far better and require a different set of maintenance skills. Areas suffering drought and increasingly harsh climates have utilized native plants for their resilience and drought tolerance. This has allowed communities to conserve water and spend less time tending to their landscapes.

Source:

"Rural+ the plain, the beautiful, the sustainable in rural housing" - Architecture Science Review

NYCMA New York City Metropolitan Area

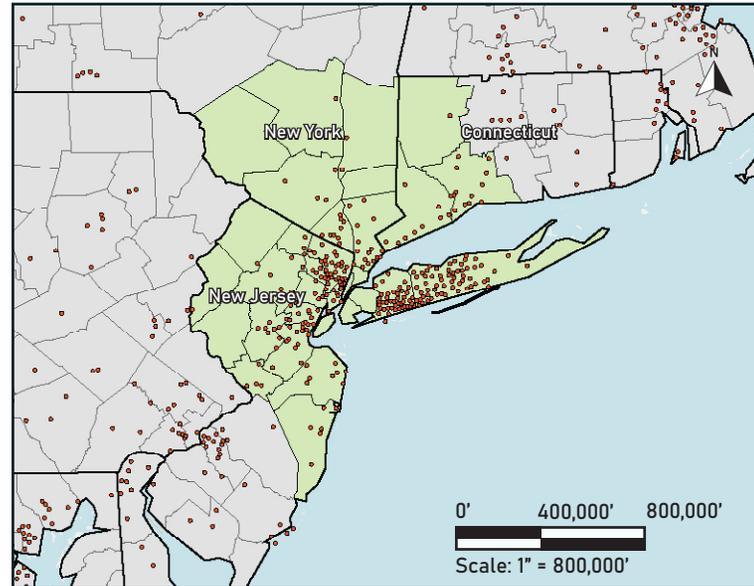
Case Study Regarding Ecological Corridor Restoration

Overview

The New York City Metropolitan Area, or NYCMA, is currently going under a massive multistate wide project to reconnect their lost ecological corridors. The end goal is to have cities and smaller communities linked together by these corridors through utilizing various strategies to green the urban land cover. This would naturally connect further beyond the local states and into the greater span of the United States. While a large project, this is something that will happen over the course of many years and utilizing small strategies. This concept can be applied on various scales, including the far smaller New Castle County scale of Delaware.

Source:

"Adopting a modern ecological view of the metropolitan landscape: the case of a greenspace system for the New York City region" - Landscape and Urban Planning



Urban Greenway Reach Counties Impacted Major City

Project Challenges

A project of this scale is bound to run into problems, whether it is financially, politically, or socially. This is a very similar issue to the native planting strategies and green infrastructure topics also covered here. The general lack of public education has greatly hindered progress on this plan, and struggles to gain further investment due to the lack of visible financial potential.

Project Benefits



Increased Erosion Control



Decreased Air Pollution



Stable Local Climates



Wildlife Support and Appearance

Travis Country Austin, Texas

Case Study Regarding Native Plant Design



Overview

Travis Country is a small suburban community southwest of Austin, Texas. In the face of the harsh climate and increase in droughts, many people within the community have decided to adapt their landscape to best tolerate the conditions.

Roughly half of the 1500 residents decided to join in the effort to renovate their home landscapes, with 500 utilizing primarily drought tolerant natives. The trend has continued to spread through word of mouth and local observation, spreading to other neighboring communities.

The trend has even reached the administration, influencing people to remodel their community spaces and signs with similar native palettes.



Renovated Community Sign

Source:

"Cookie-Cutter Suburbs Could Help Spread Sustainable Yards" - Scientific American



Local Travis Country Landscape



Residential Project

Common Native Palette



Buffalo Grass
(*Buchloe dactyloides*)



Texas Salvia
(*Salvia texana*)



Mountain Laurel
(*Kalmia latifolia*)



Red Yucca
(*Hesperaloe parviflora*)

Conclusion

In the face of rising climate and development change, it is important for communities to come together to find a solution appropriate for them. In this case, the utilization of native plants was a stunning success that will continue to define their identity. Through word of mouth alone, the populace was educated and improved. The trend can continue on throughout the Austin area, in the hopes of greatly improving the biodiversity and sustainability of communities.

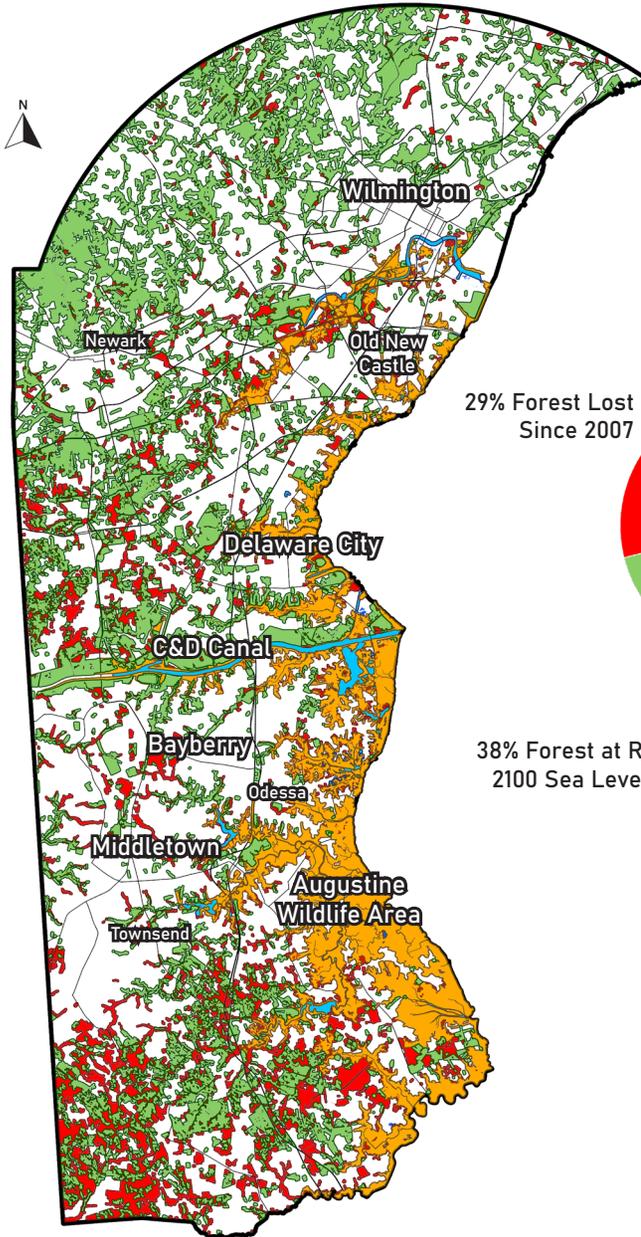


Site Data

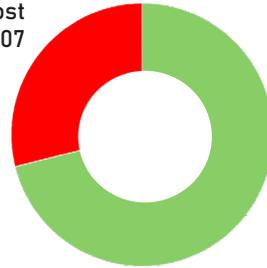
Existing conditions and identifying problems

New Castle County Forests

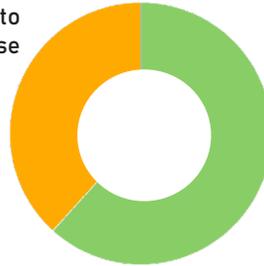
Current state of our forested land



29% Forest Lost Since 2007



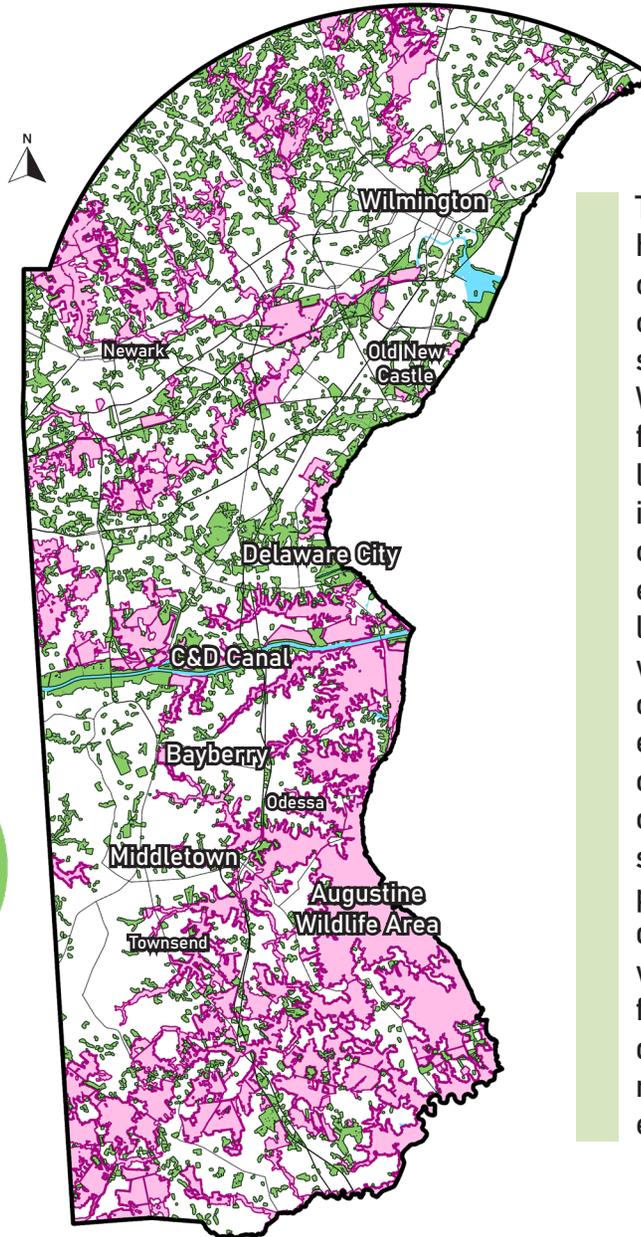
38% Forest at Risk to 2100 Sea Level Rise



Forested Land Over Time

0 Mi 5 Mi 10 Mi
Scale: 1" = 10 Miles

- Lost 2007 Forested Land
- Current Day Forested Land
- Forested Land at Risk to 2100 Sea Level Rise



Ecological Corridor and Fractured Forests

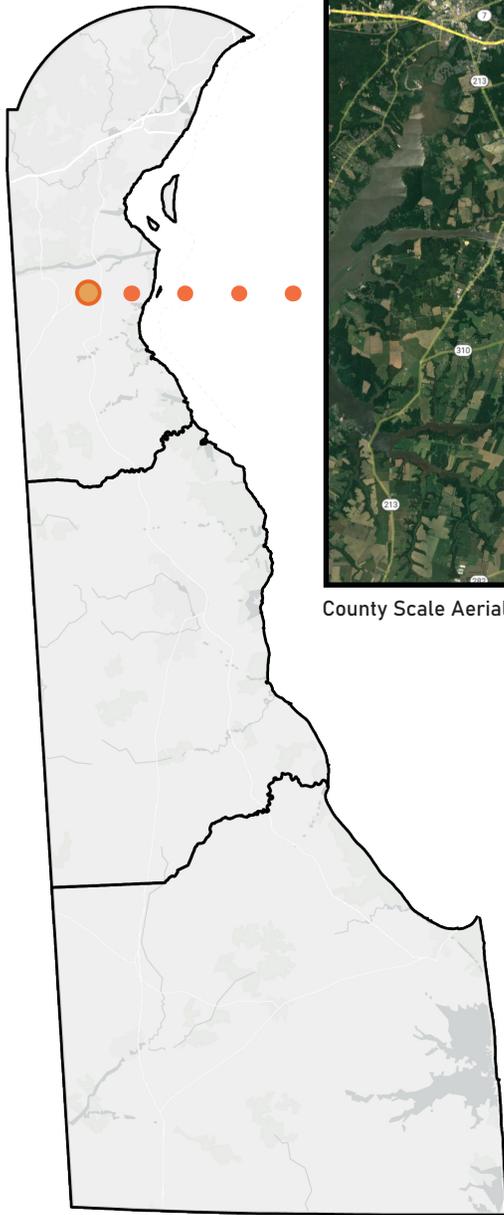
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Scale: 1" = 10 Miles

- Ecological Corridor
- Fractured Forests

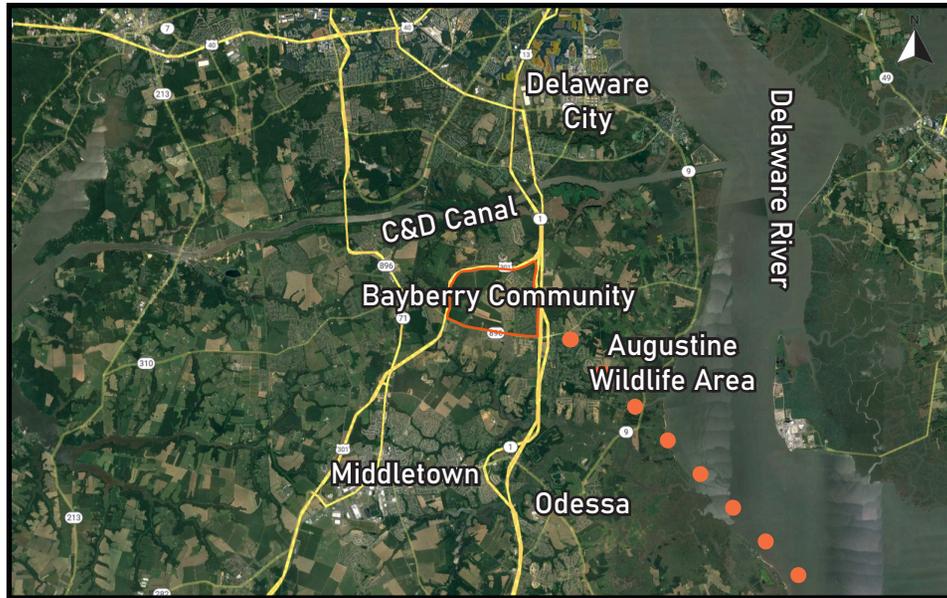
The combination of human intervention and changing climate has created a devastating situation from the East and West sides of Delaware for our local forested lands. With no signs of increasing the amount of natural land, we will eventually see a massive loss of corridor influence within the next 100 years, crippling the state's ecosystem by reducing overall biodiversity, carbon sequestration, stormwater control, and pollution control. Further degradation of the corridor will lead to more woodland fractures unless further development incorporates methods to preserve and expand what is existing.

Site Location

Satellite imagery and adjacent areas



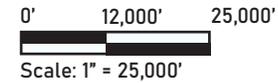
State Scale Location



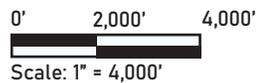
County Scale Aerial

This project will be conducted in the Bayberry community of Middletown, Delaware. This site is regarded as the standard for modern suburban design, which makes it the prime opportunity to study and improve upon. This site is expanding, meaning there is existing infrastructure, areas being developed, and areas that will be designed at a later date.

Site Boundaries



Site Boundaries

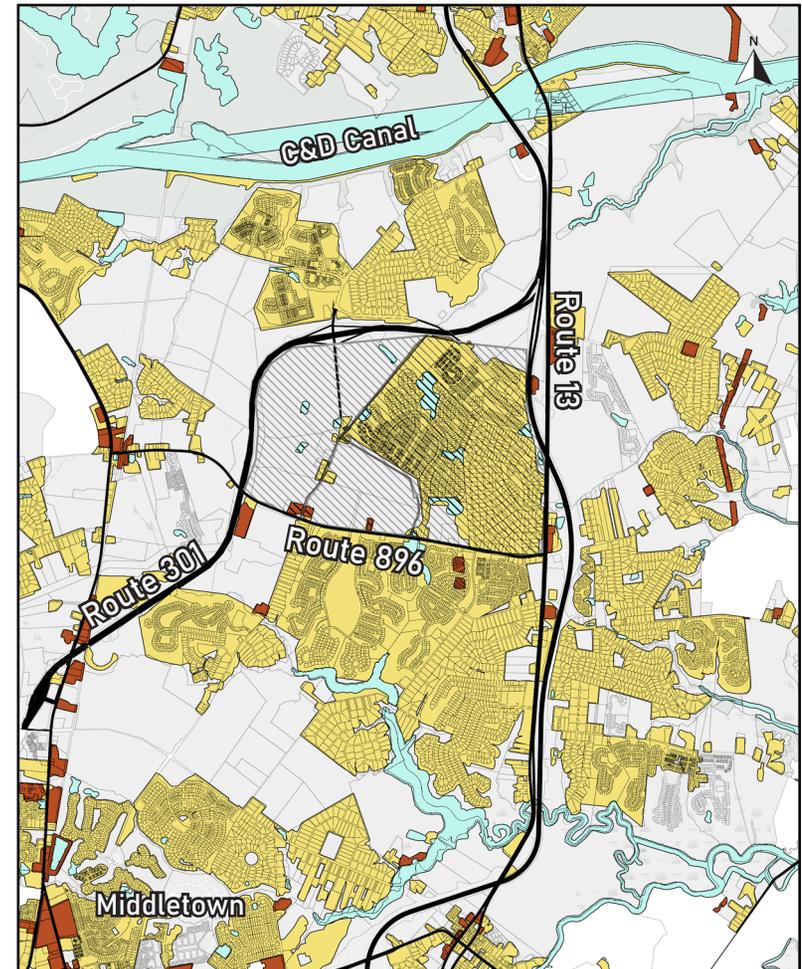
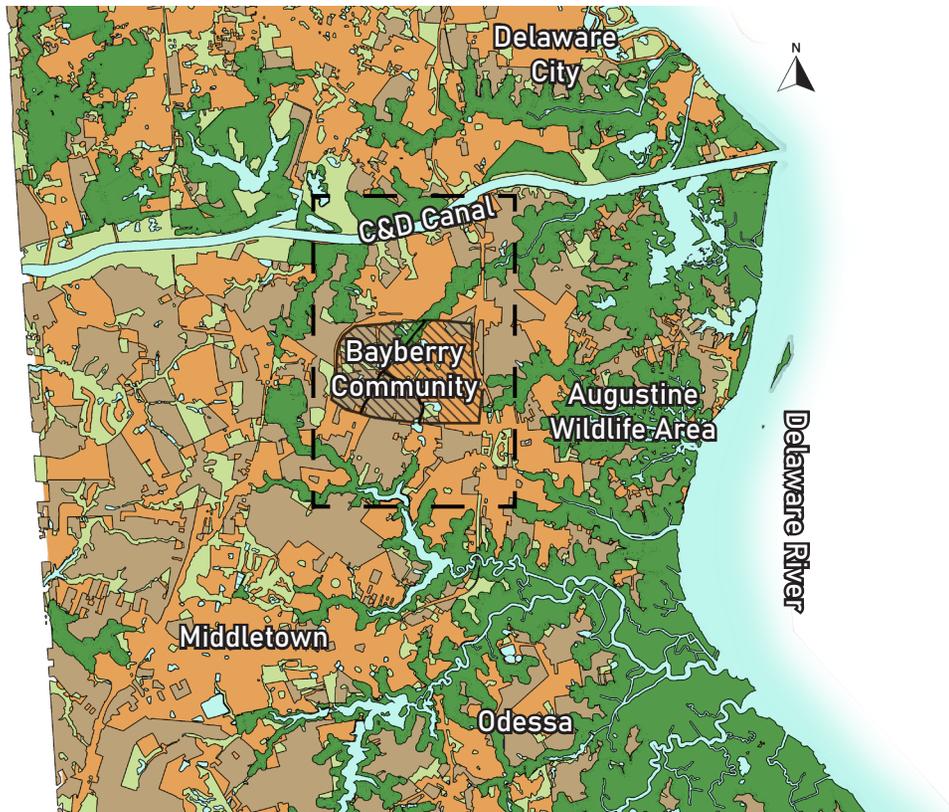


Community Scale Aerial

Land Use

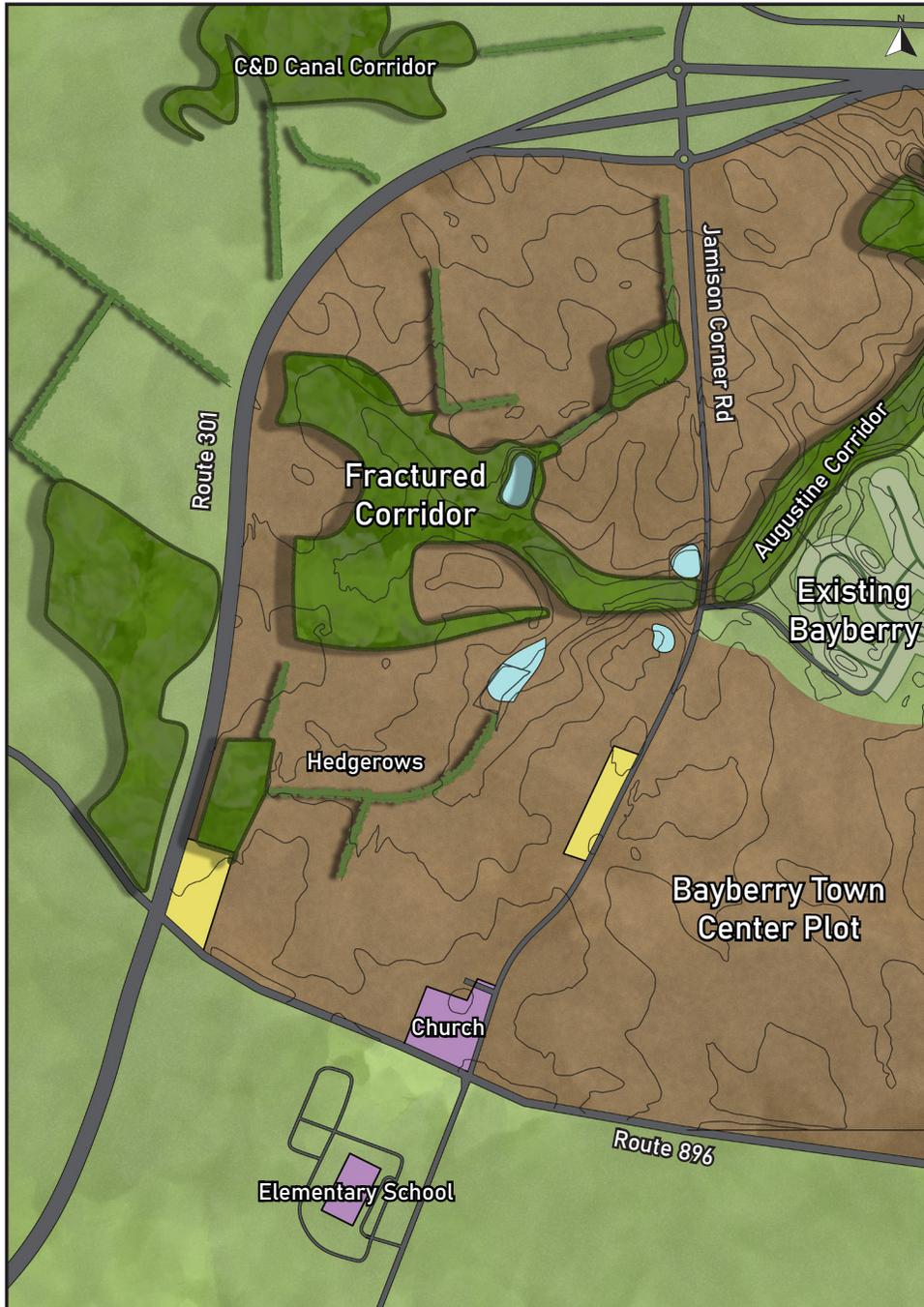
The impact of development on the state's ecology

Ecological corridors have been slowly deteriorating over time with the progression of human development. The following maps can show where they end, where they thrive, and where there are potential connections. Forested land not included within a corridor is greatly hindered in function, which should be reconnected in this design. The primary cause of this disconnect is the development of residential communities, which can serve as larger connections if developed with ecological preservation in mind.



Existing Base Map Opportunities and Constraints

The chosen site is used for agriculture, with the main point of interest being the fractured corridor segment at the center. Hedgerows also shape certain interior spaces. This site will need to be connected to surrounding points of interest, such as existing Bayberry, the local school, the future commercial expansion, and the three main roads bordering the whole site. The most activity happens along Route 896 and Route 301, meaning they cause the most noise and visual movement.



Base Map

Vegetation

- Fractured Corridor**
- Avoid construction inside
 - Should be reconnected to other forested areas
- Hedgerows**
- Mature trees should be preserved
 - Can be grown further into corridor

Ground Conditions

- Topography**
- Woodland sits at the lowest
 - All water flows towards woodland
 - All basins are man made by previous farmers
- Soil**
- Well drained silt loam
 - No known pollutant problem

Community

- Elementary School**
- Local school for residents
 - Few connections to recreation
- Church**
- Planned connection to commercial section and future development
 - No significant landscaping
- Bayberry Town Center**
- Townhouses and commercial activity
 - No connections beyond vehicular

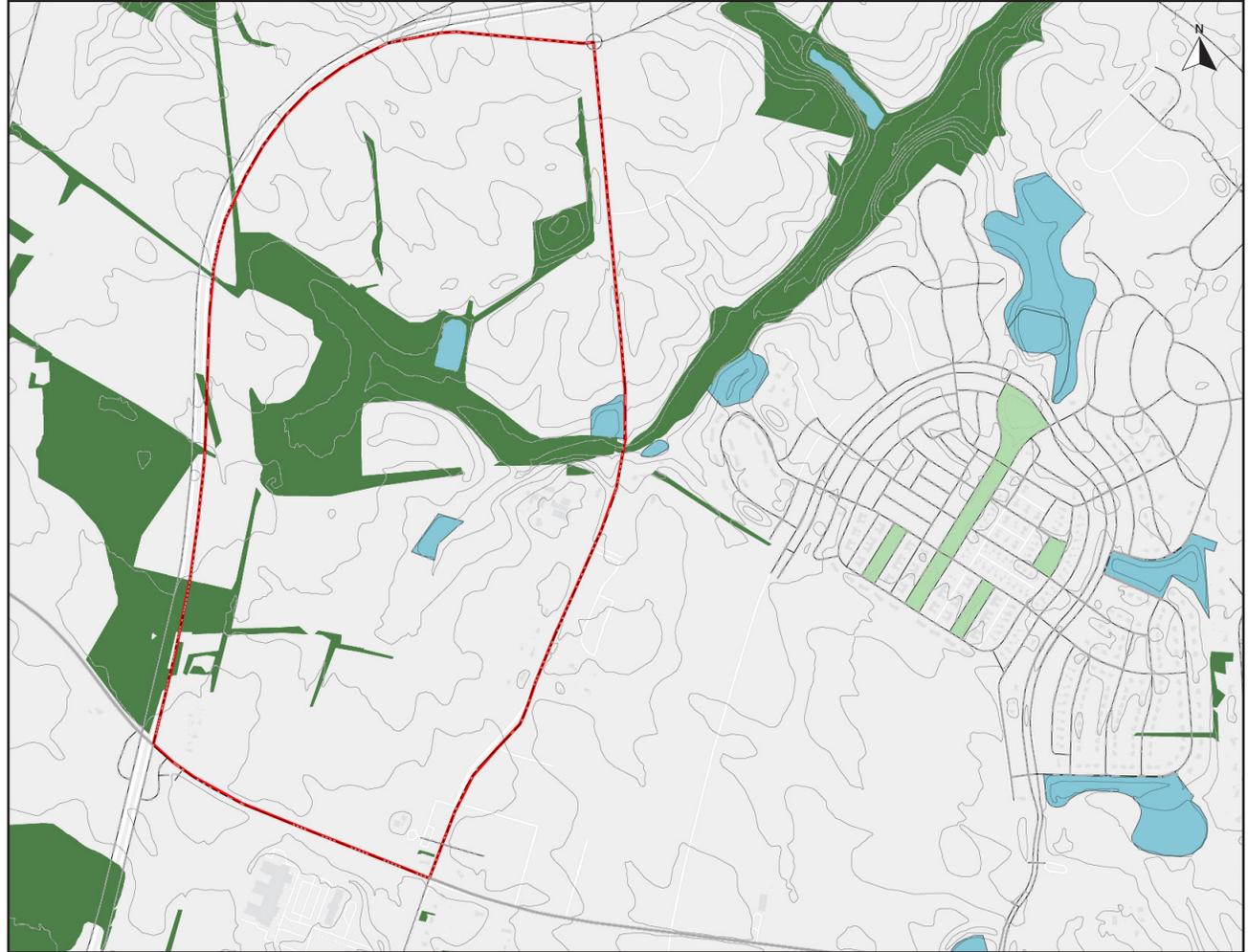
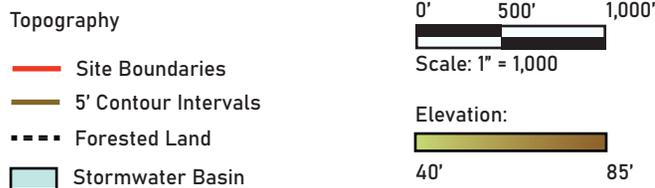
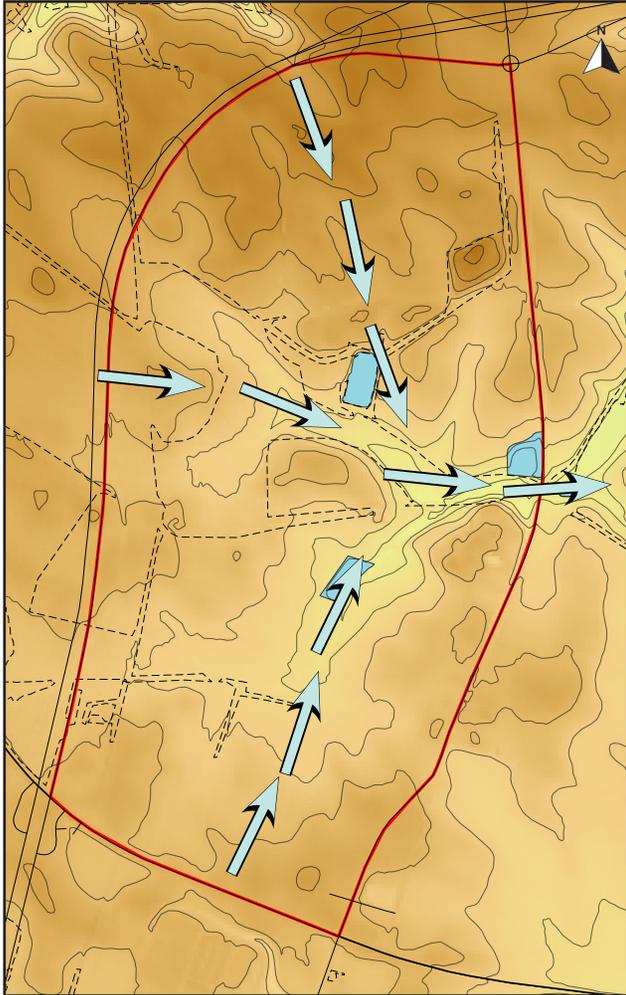
Connections

- Routes 301 and 896**
- Heavy traffic
 - Noise source
 - Border of the site
- Jamison Corner Road**
- Connects all plots
 - Eastern border
 - Breaks Augustine corridor

Ecological Conditions

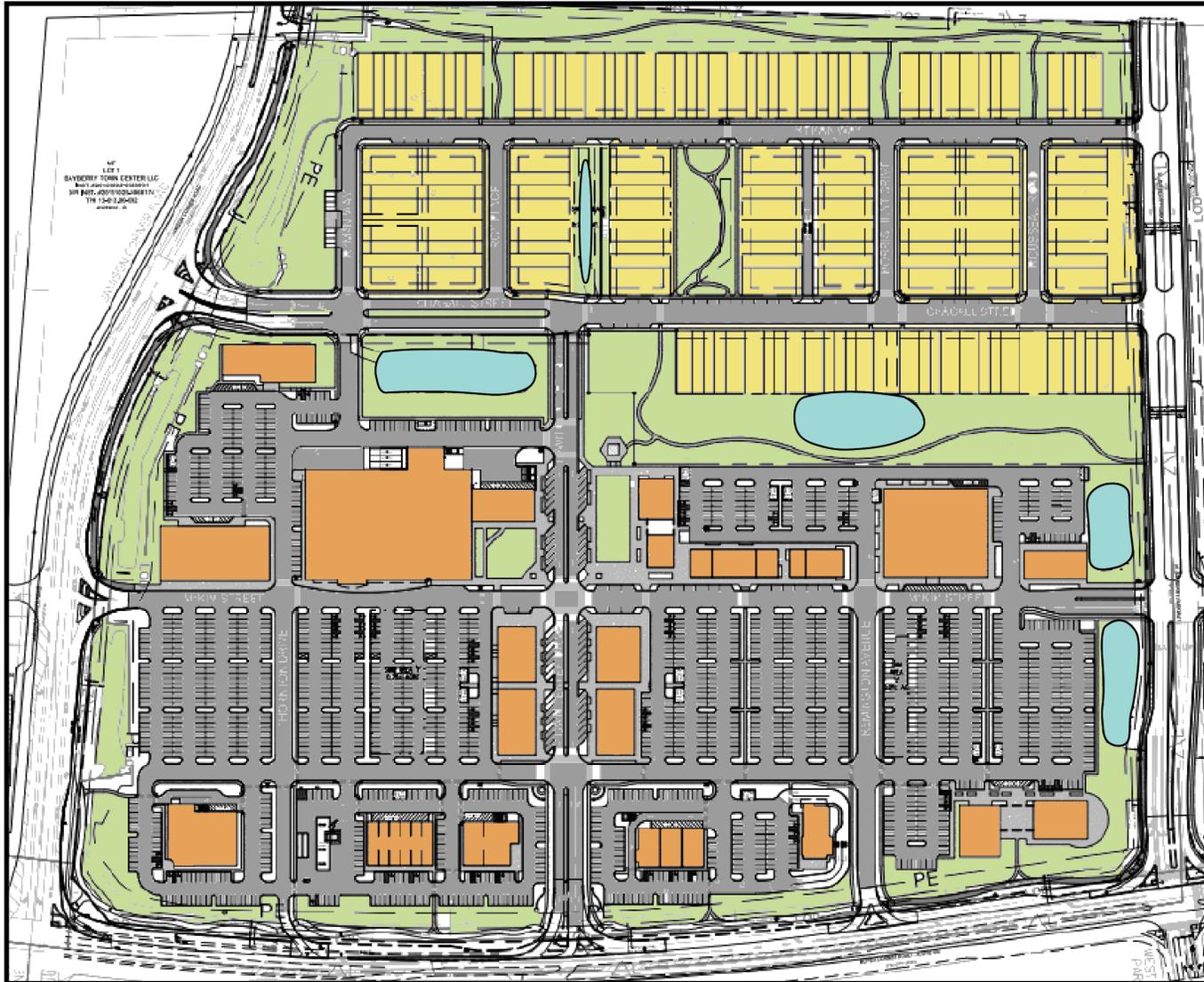
Site hydrology and vegetation

The topography of the site is higher towards the edges and gets lower towards the woodland area at a mostly even rate. This creates a northern stormwater flow from the southern edge of the site and a southern stormwater flow from the northern edge. The vegetation is heavily concentrated in the center, with some hedgerows branching out. Beyond this area, the only source of greenspace is within the existing Bayberry area, with all the other space being either developed or agriculture.



Commerical Development The current Bayberry expansion

As of December, 2022, the next phase of development will be on the Bayberry Town Center. This will serve as the center point of the community once the future development on the west side is completed. The plan will serve as the economic node, removing the need for further economic development in adjacent areas. It will still need to be connected to surrounding areas to fulfill its purpose.

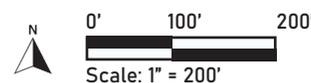


Reference Aerial

- Residential
 - 145 townhouses
 - Connected to 2 greenspaces
- Greenspace
 - 2 designated greenspaces
 - Single pavilion
 - 5 stormwater basins
 - Single connected path
- Commercial
 - 23 stores
 - Connected to 1 greenspace
 - ~1750 parking spots
 - 2 stormwater basins

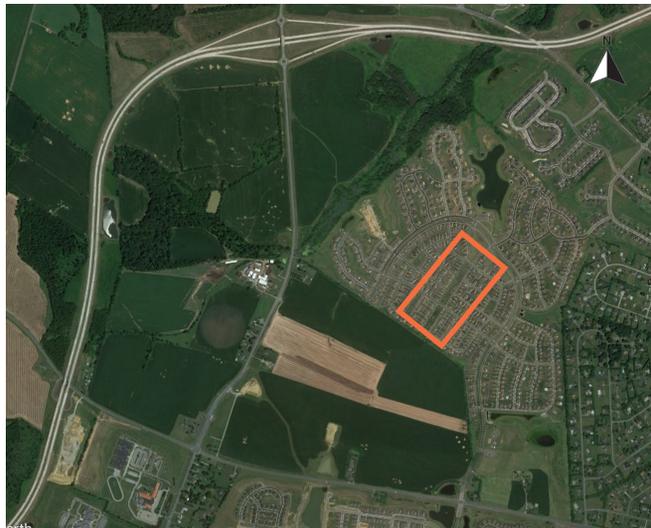
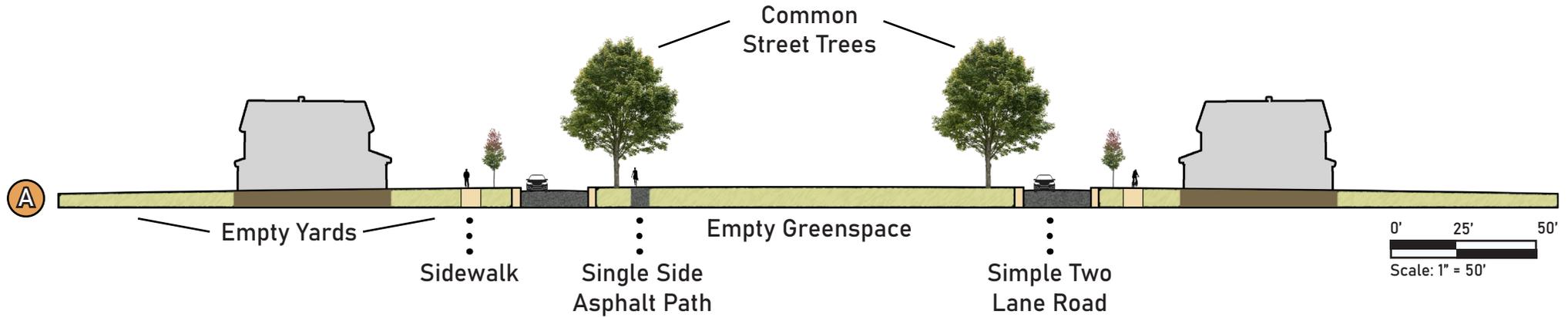
Existing Development Plans: "Bayberry Town Center"

- Residential
- Stormwater
- Greenspace
- Commerical

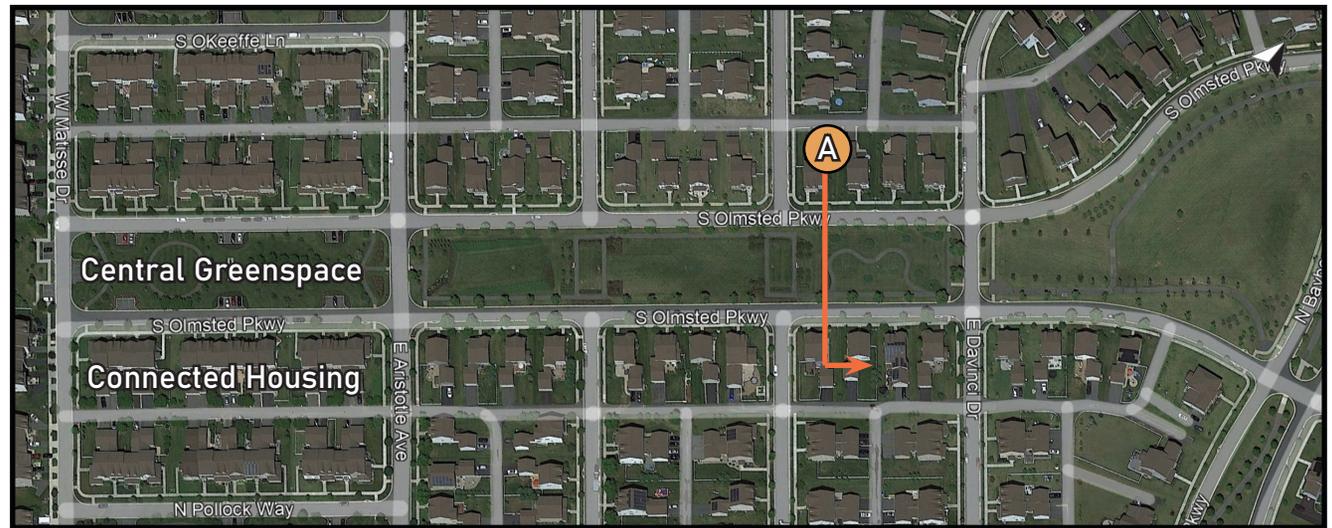


Existing Utilization of Space The modern yard and greenspace

Sustainability of the suburb will come down to the utilization of space. In the existing area, we can see that a majority of it is empty lawn space and underutilized. The plants used are mostly the same species, making the local plant palette scarce. To create a more sustainable neighborhood, these spaces need to fill multiple purposes and be more than just open space.



Full Area Aerial
 0' 1500' 3000'
 Scale: 1" = 3000'



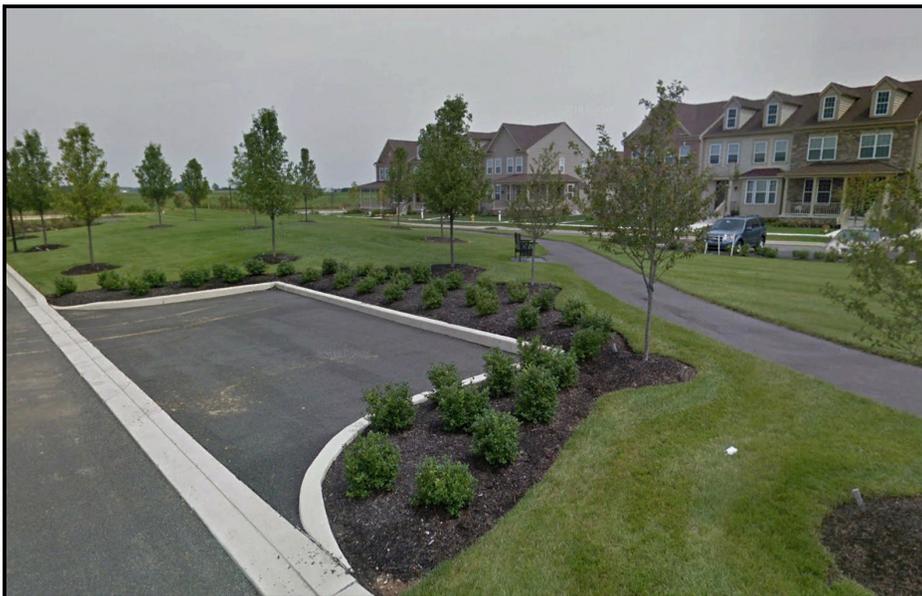
Central Green Space Aerial
 0' 150' 300'
 Scale: 1" = 300'

Existing Plant Palette: Home and Greenspace

The typical suburban plant palette will go for industry staples, typically involving exotic evergreen shrubs. The lack of diversity can greatly hinder the ecological performance and overall visual quality of a neighborhood, and the invasive nature of some of these species can have serious negative consequences when planted near existing woodlands.



Bayberry House Photo



Bayberry Central Greenspace Photo

Common House Choices



Aucuba japonica
(Spotted Laurel)
Non-native Evergreen Shrub



Buxus sempervirens
(Common Boxwood)
Non-native Evergreen Shrub



Hydrangea arborescens
(Smooth Hydrangea)
Native Deciduous Shrub



Ilex glabra
(Inkberry Holly)
Native Evergreen Shrub



Liriope muscari
(Lilyturf)
Non-native Perennial



Nandina domestica
(Heavenly Bamboo)
Invasive Evergreen Shrub



Spirea japonica
(Japanese Spirea)
Invasive Deciduous Shrub



Thuja occidentalis
'Rheingold'
(Yellow Arborvitae)
Native Evergreen Cultivar

Common Greenspace Choices



Acer rubrum
(Red Maple)
Native Deciduous Tree



Buxus sempervirens
(Common Boxwood)
Non-native Evergreen Shrub



Lagerstroemia indica
(Crape Myrtle)
Non-native Deciduous Tree



Myrica pensylvanica
(Northern Bayberry)
Native Evergreen Shrub



Rosa 'Knockout'
(Knockout Rose Bush)
Hybrid Deciduous Shrub

Existing Plant Palette: Road and Corridor

The streetscape of the community utilizes many native trees that perform well within the harsher environments while still providing the tree cover that is demanded. However, the street is also decorated with non-native species that serve little purpose beyond visual appeal. The ecological corridor contrasts this, having an array of native plants that provide various ecological purposes while also having a unique visual appeal.



Bayberry Front Entrance Photo



Local Ecological Corridor Photo

Common Street Choices



Cornus florida
(Dogwood Tree)
Native Deciduous Tree



Rosa 'Knockout'
(Knockout Rose Bush)
Hybrid Deciduous Shrub



Juniperus virginiana
(Red Cedar)
Native Evergreen Tree



Platanus occidentalis
(American Sycamore)
Native Deciduous Tree



Quercus rubra
(Red Oak)
Native Deciduous Tree

Existing Corridor Plants



Acer rubrum
(Red Maple)
Native Deciduous Tree



Quercus alba
(White Oak)
Native Deciduous Tree



Eupatorium serotinum
(Late Boneset)
Native Perennial



Schizachyrium scoparium
(Little Bluestem)
Native Ornamental Grass



Juniperus virginiana
(Red Cedar)
Native Evergreen Tree



Solidago flexicaulis
(Goldenrod)
Native Perennial



Liquidambar styraciflua
(Sweetgum)
Native Deciduous Tree



Viburnum dentatum
(Arrowwood Viburnum)
Native Deciduous Shrub

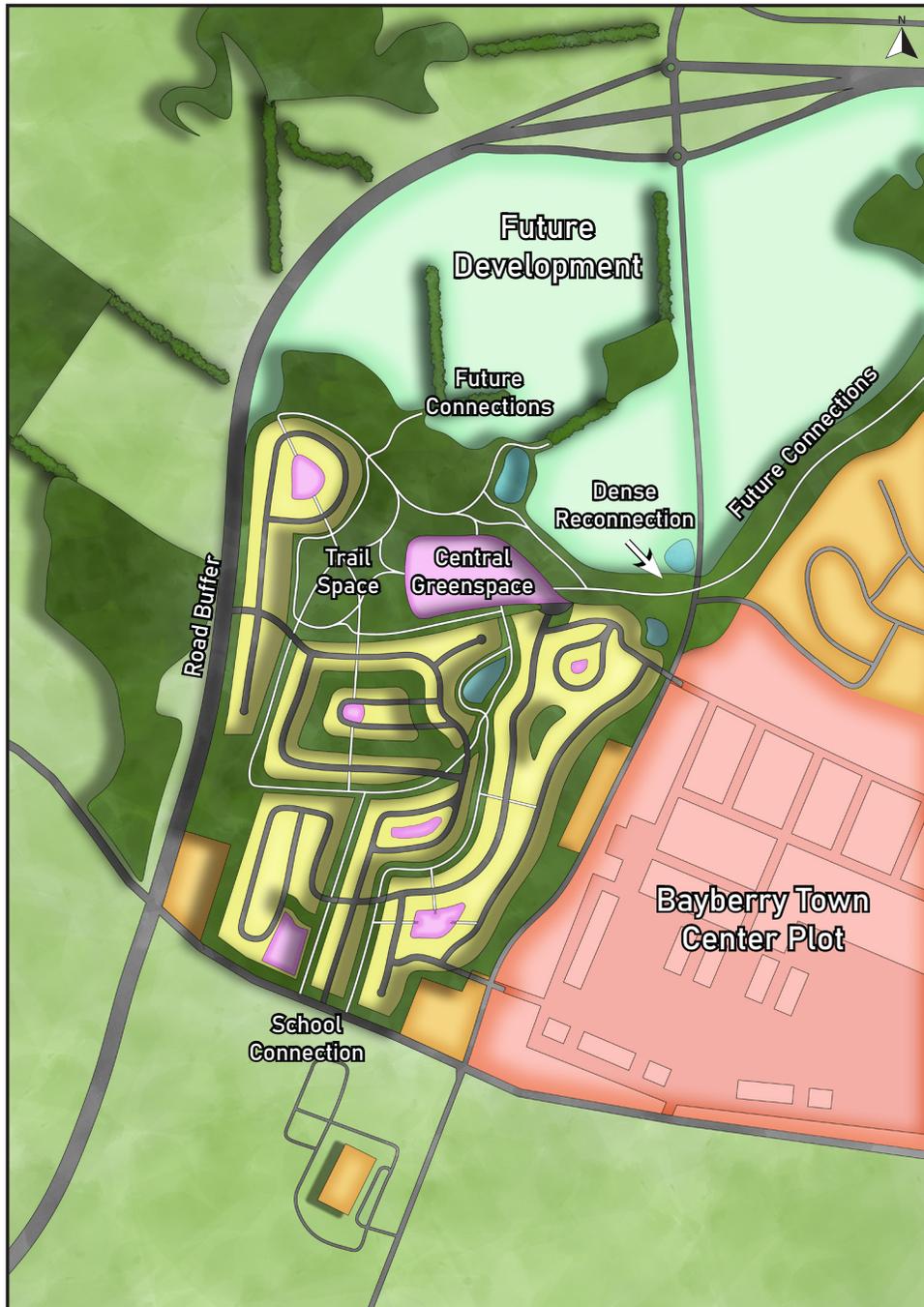


Proposals

Forming a new image for future developments

Master Plan Community connections and layout

The master plan is shaped around existing vegetation and topography in order to preserve existing conditions. The vegetation of the plan is based around the fractured corridor and existing hedgerows, which are expanded upon for a variety of human uses. Land use is maximized, ensuring as many house lots can fit within the space provided, with any extra area being used for shared recreational spaces.



- Open Space
- Residential
- Commercial
- Forested Land
- Recreational
- Future Development
- Basin
- Existing Structures

0' 300' 600'
Scale: 1" = 300'

Layout Proposal

Properties

- Housing Options**
- Singles or Connected
 - Most are backed by woodline
 - Focus on larger landscapes and less lawn

Comparisons:

	Existing	Proposed
Lot Total Within 200 acres	356	323
Lot Density Within 50 acres	94	136
Lot Size	1/2 Acre	Various

Infrastructure

- Connections**
- Narrow roads
 - Infiltration sidings
 - Pedestrian sidewalks
 - New trail system

Ecological Impact

- Corridor Utility**
- Biodiversity and green sprawl
 - Stormwater infiltration
 - Visual appeal

Comparisons:

	Existing	Proposed
Preserved In Acres	7	48
Created In Acres	<1	66
Greenspaces	4	7

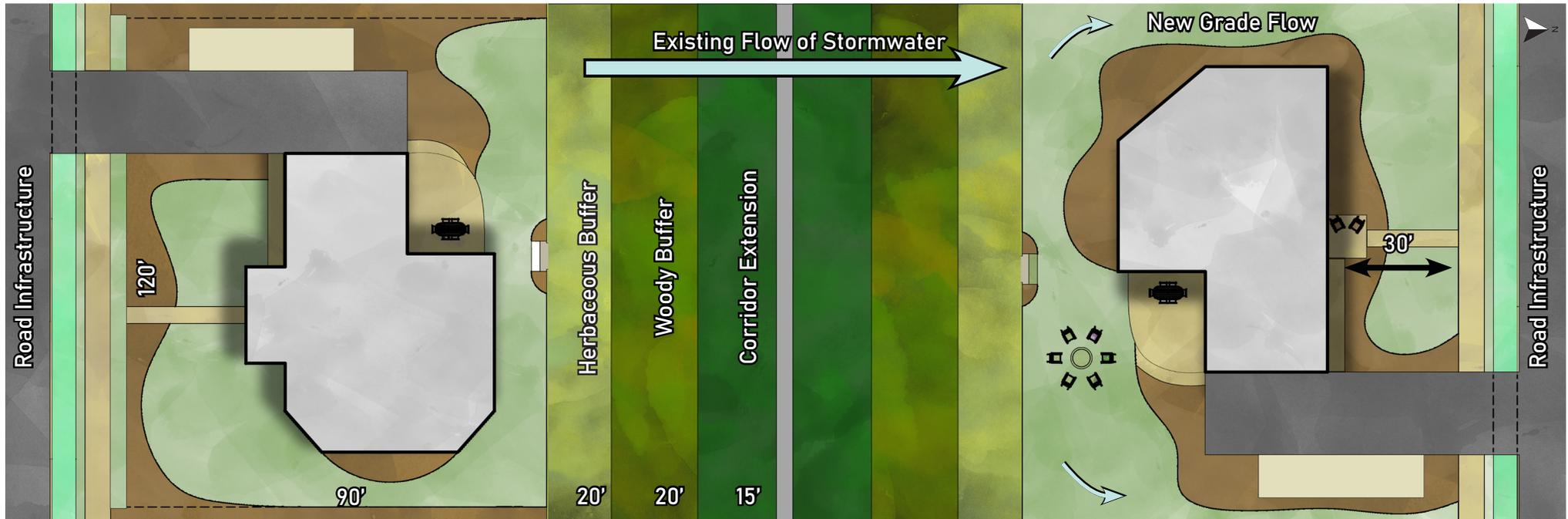
Cost

- Housing**
- Higher density, more lots
 - Higher value in community features

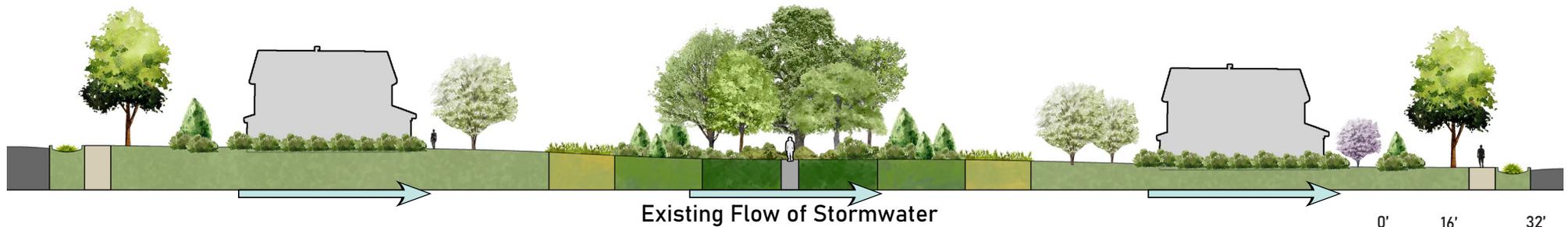
- Infrastructure**
- Low impact, less development

Corridor Plan Housing, street, and corridor interactions

The water will flow from south to north in the developed area, with the corridor extension serving as a form of infiltration with each buffer serving a vital function against pollution, invasive species, and sound. Furthermore, it provides a scenic wall that serves as privacy for the home and community path within that connects all major points of the community. All excess water funnels into the street system.

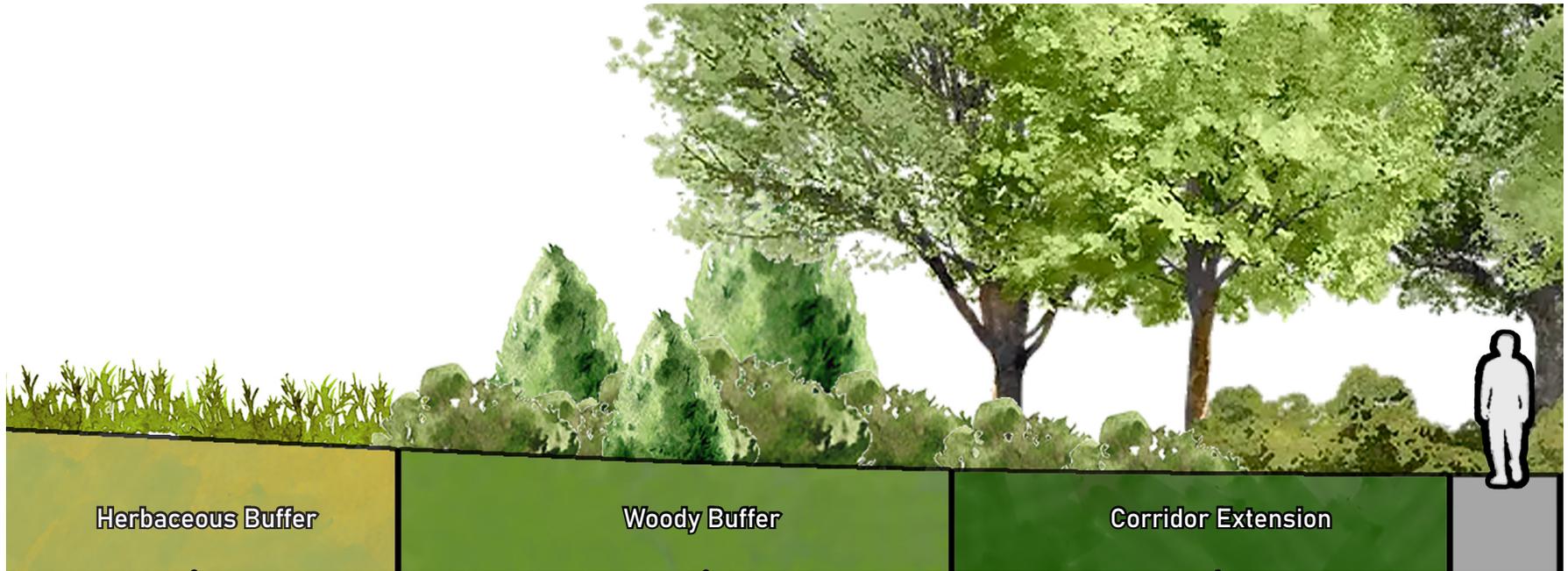


Property and Buffer Layout



Property and Buffer Section

Corridor Plan Plant palette



Herbaceous Buffer

Woody Buffer

Corridor Extension



Schizachyrium scoparium
(Little Bluestem)
Native Ornamental Grass



Echinacea purpurea
(Coneflower)
Native Perennial



Solidago flexicaulis
(Goldenrod)
Native Perennial



Symphyotrichum novae-angliae
(New England Aster)
Native Perennial



Juniperus virginiana
(Red Cedar)
Native Evergreen Tree



Panicum virgatum
(Switch Grass)
Native Ornamental Grass



Myrica pensylvanica
(Northern Bayberry)
Native Deciduous Shrub



Ilex opaca
(American Holly)
Native Evergreen Shrub



Liquidambar styraciflua
(Sweetgum)
Native Deciduous Tree



Quercus alba
(White Oak)
Native Deciduous Tree

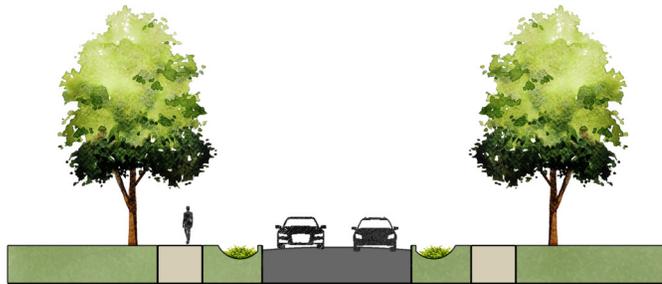
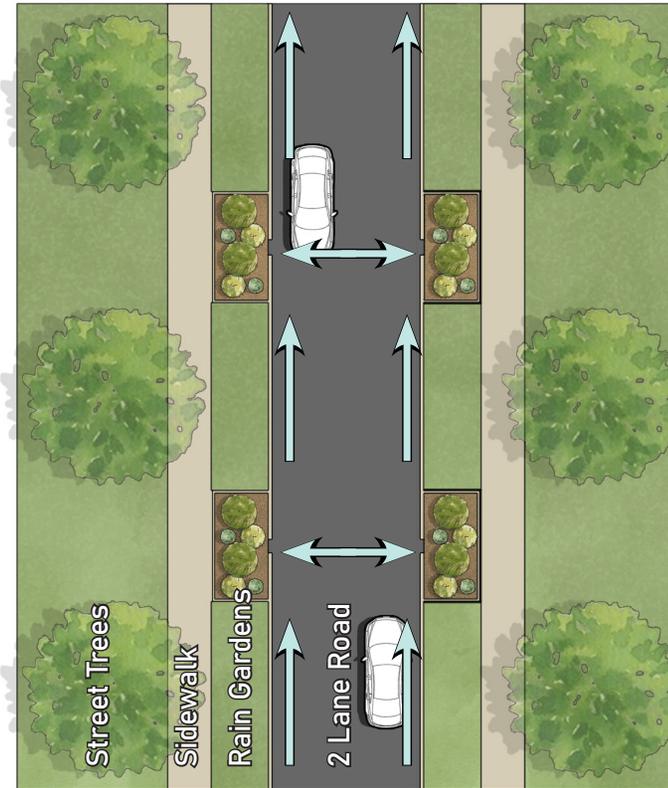
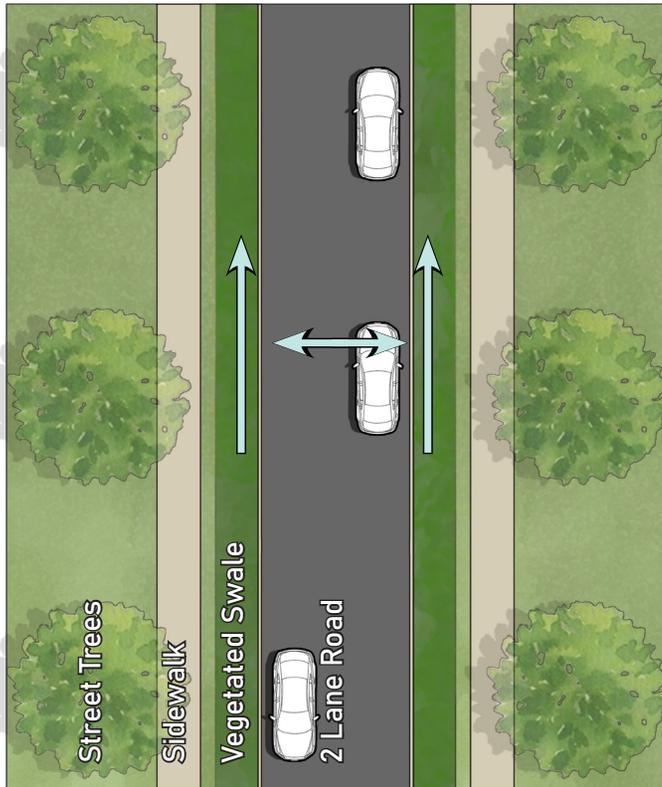


Viburnum dentatum
(Arrowwood Viburnum)
Native Deciduous Shrub



Osmundastrum cinnamomeum
(Cinnamon Fern)
Native Fern

Street Plan Road infrastructure and appearance

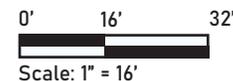


Proposed Swale Method

→ Stormwater Flow



Proposed Rain Garden Method



The roads will serve a vital purpose in vehicular, pedestrian, and stormwater management. Roads are also purposefully thinner and linear compared to the streets of existing Bayberry to cut down on development cost and impervious surface. Each street proposal serves the same purpose in two different ways, with the swale system serving as an easier and more affordable method of infiltration and way to carry water away. The rain garden system serves as a slightly more costly method, but provides a way to add more character to a section of the community, as they can be an aesthetically creative way around stormwater management.

Street Plan Plant palettes



Rain Garden Proposal Palette

0' 8' 16'
 Scale: 1" = 16'



Lobelia cardinalis
 (Cardinal Flower)
 Native Perennial



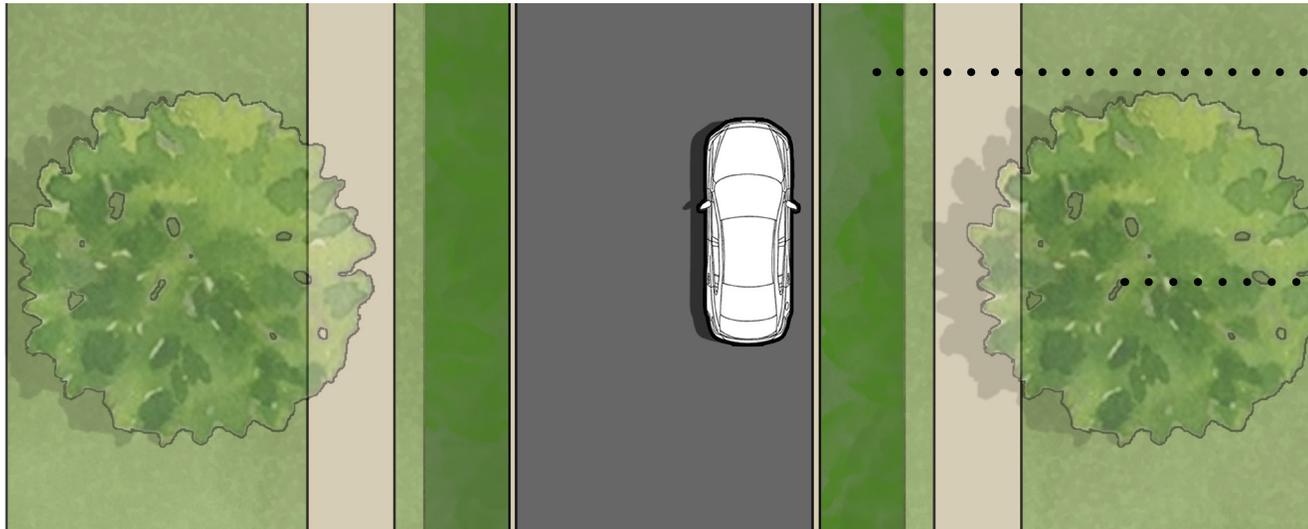
Itea virginica
 (Virginia Sweetspire)
 Native Deciduous Shrub



Panicum virgatum
 (Switch Grass)
 Native Ornamental Grass



Echinacea purpurea
 (Coneflower)
 Native Perennial



Swale System Proposal Palette

0' 8' 16'
 Scale: 1" = 16'



Caltha palustris
 (Marsh Marigold)
 Native Perennial



Carex stricta
 (Tussock Sedge)
 Native Perennial



Aronia melanocarpa
 (Black Chokeberry)
 Native Deciduous Shrub



Acer rubrum
 (Red Maple)
 Native Deciduous Tree

Property Plan Single house options



1/8 Acre Property



1/4 Acre Property



1/2 Acre Property



Street View



Backyard



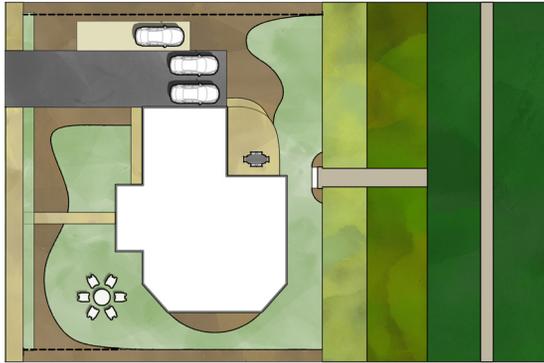
Trail Experience

By including a wide variety of housing, we can include a larger spectrum of target audience. The typical house lots range from 1/8 acre to the standard bayberry 1/2 acre and include connected housing that is similar to the ones planned in the central commercial plot. This ensures a diverse collection of interests are met and can live simultaneously.

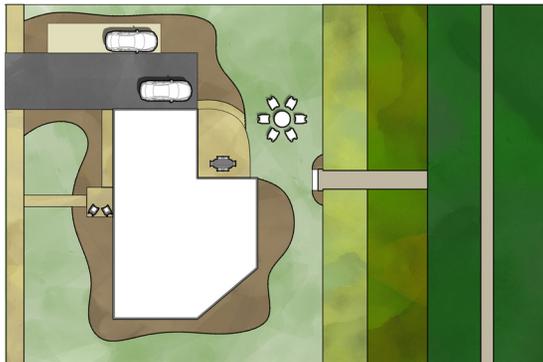
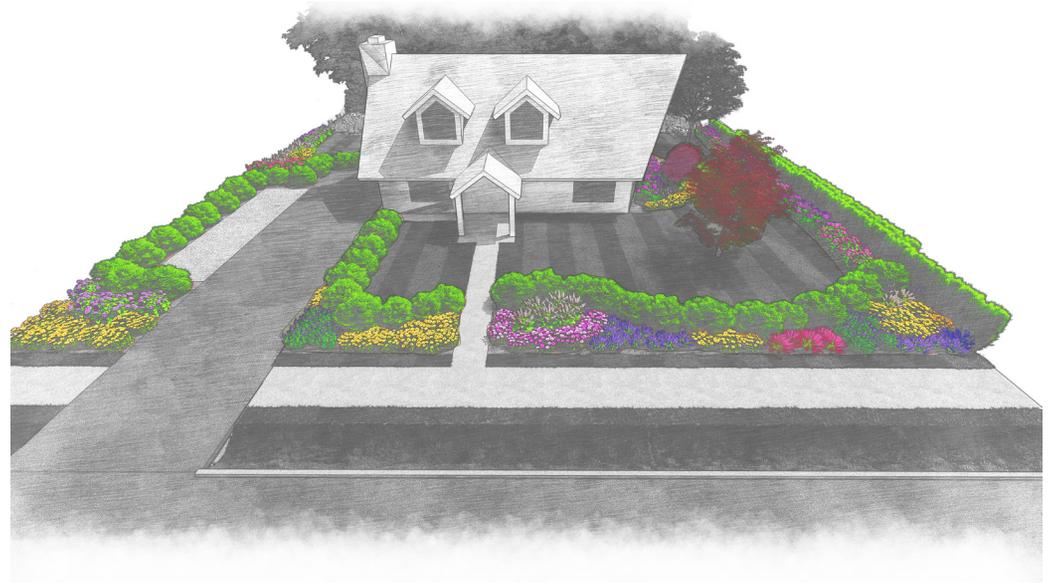
By reducing the lawn space and including more plant beds, each property has the ability to shape itself in a way that best suits the homeowner. These plans also retain enough space in the front and back yards to host the basic amenities expected from a yard, but now in a more formally shaped space.

Property Plan Individuality through landscape

Because the landscaping is such a vital role to this project, it is important to include different options to better express the homeowner and meet their maintenance demands. This brings out a sense of individualism and character that modern suburbs have lost, with properties being able to stand out from one another even if the house itself is identical.



1/4 Acre Property: Proposal 1

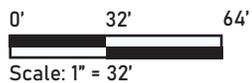


1/4 Acre Property: Proposal 2



1/4 Acre Lot Proposal Options

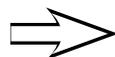
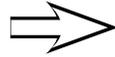
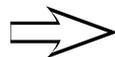
- Lawn
- Bed Space
- Concrete
- Asphalt
- Swale



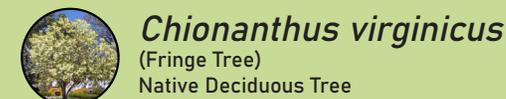
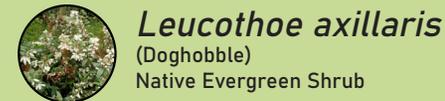
Property Plan Plant palette

By utilizing native plants, we can also incorporate the houses into the greater ecological corridor system. By incentivising individuality, we can also see more variety in native plants, which in theory would create an ecosystem far more diverse than nature could be by itself. This also makes houses a necessity in the corridor as opposed to a wall.

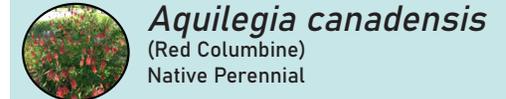
Existing Non-native Plants



Native Alternatives



Other Companion Options:



Existing Landscape Highlight



Proposed Landscape Highlight

Recreational Spaces Example plans

A

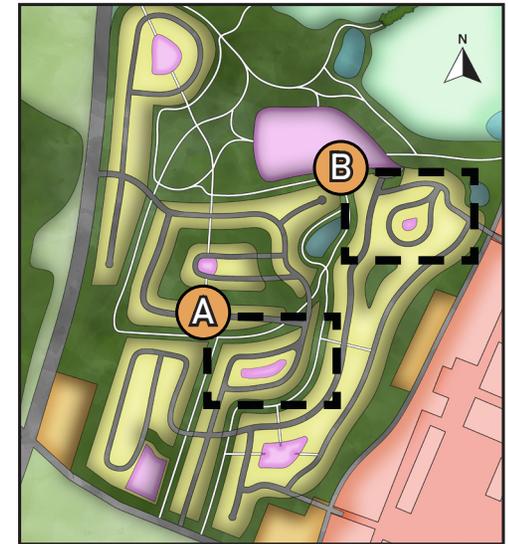


Condo Large Recreation Node



- Open Space
- Residential
- Corridor
- Swale
- Concrete
- Bed Space
- Water

0' 100' 200'
 Scale: 1" = 200'



Base Map Reference

0' 1000'
 Scale: 1" = 1000'

B



Small Housing Recreation Node



The greenspaces throughout the master plan serve as recreation nodes shared between all nearby plots, with the adjacent lots being directly connected to them. This shared backyard system aims to conserve space, interconnect properties and people alike, and expand upon the simple structure of greenspaces previously seen in Bayberry.

Adjacent properties serve as the backdrop to the whole greenspace, creating a dynamic and biodiverse landscape based on the individuality of the homeowners' yards.

Recreational Spaces Space experience

Despite the rectangular and rigid nature of the condos, the area can be rounded out through the path design and plantings. Each node the path creates hosts a programmatic element, and the landscaping mimics the single houses by creating a backdrop formed by the individuality of the homeowner, which goes further by creating extravagant entry points for the greenspace.



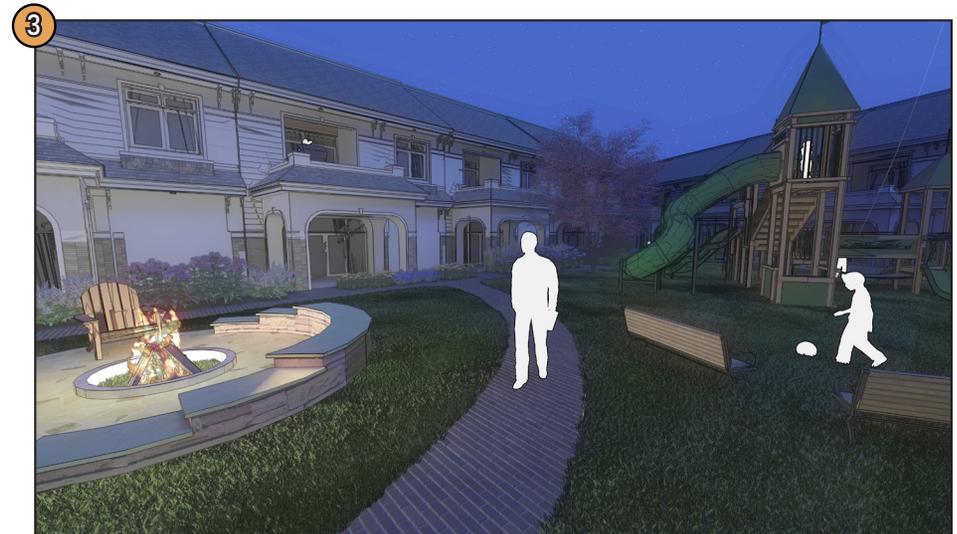
Base Map Reference



Overhead View



Entrance Perspective



Night Experience



Conclusions

Final comparisons and lasting impacts

Final Comparisons

Costs and Benefits

Countering Stigma

The meshing of landscaping and human social experience will be the key to changing general opinion on the purpose of landscaping. The shared spaces and connected properties creates a unique experience that is rarely found in Delaware, and is aided by the emphasis on individuality among properties. This approach aims to serve as the first step in a wider trend within the area.

Source:

"Rural+ the plain, the beautiful, the sustainable in rural housing" - Architecture Science Review

General Costs

Utilizing low impact design will create innovative methods for handling common issues while also saving money by reducing the overall amount of infrastructure needed, with the reduced impermeable surface and stormwater control being the primary factors. It is important to acknowledge the investment the corridor presents, as it will require its own form of maintenance and time to be naturalized, taking upwards of 50 years to reach maturity. It is this restraint that reinforces its need to be implemented sooner rather than later.

Source:

"Changes in event-based streamflow magnitude and timing after suburban development with infiltration-based stormwater management" - Hydrological Processes

Environmental Differences

Striving towards individuality among residents and native palettes will allow homes to no longer be an ecological barrier, but be a vital part to the overall corridor. The potential the roads, homes, and greenspaces provide can lead to an ecosystem stronger and far more diverse than nature could do by itself. It is evidence that human intervention is not always destructive, and that further development can support the area financially, socially, and ecologically.

Source:

"The influence of green space on community attachment of urban and suburban residents" - Urban Forestry & Urban Greening

Closing Statements

Costs and Benefits



Role of Landscape Architecture

As we progress into the future, it is the responsibility of landscape architects to find unique methods for preserving native lands. It is our creativity and depth of strategy that will revolutionize the way the industry sees the common landscape. When it comes to suburban developments, I hope to see great changes within my lifetime regarding how they are structured for social and ecological benefits.

Acknowledgements

I would like to personally thank everyone who I worked with not only on this project but for my duration at the University of Delaware. This capstone proposal was an ambitious prospect from the start, and I am thankful that I got to work with as many passionate people as I did. This includes the University of Delaware Landscape Architecture staff of professors and the students I worked side by side with. I would also like to thank the outside professionals who took the time to work with me including John Gaadt and the Ruppert Landscaping Team.

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