



CITY OF TITUSVILLE

TITUSVILLE ENVIRONMENTAL COMMISSION

AGENDA

Regular Meeting

February 12, 2025 - 5:30 PM

Council Chamber at City Hall

555 South Washington Avenue, Titusville, FL 32796

All persons who anticipate speaking on any Public Hearing item must fill out an Oath Card to be heard on that agenda item and sign the oath contained thereon. These cards are located on the table near the entrance to the Council Chamber or may be obtained from the Recording Secretary. This meeting will be conducted in accordance to the procedures adopted in Resolution No. 24-1997.

Those speaking in favor of a request will be heard first, those opposed will be heard second, and those who wish to make a public comment on the item will speak third. The applicant may make a brief rebuttal if necessary. A representative from either side, for or against, may cross-examine a witness.

Anyone who speaks is considered a witness. If you have photographs, sketches, or documents that you desire for the Commission to consider, they must be submitted into evidence and will be retained by the City. Please submit such exhibits to the Recording Secretary.

1. CALL TO ORDER

2. ROLL CALL

3. DETERMINATION OF A QUORUM

4. PLEDGE OF ALLEGIANCE

5. APPROVAL OF MINUTES

A. Minutes January 15, 2025

Approve Minutes

6. PETITIONS AND REQUESTS FROM THE PUBLIC PRESENT (NON-AGENDA ITEMS)

7. OLD BUSINESS

A. **TEC Member Recognition**

Discuss and make a recommendation to City Council.

B. **Natural Resources Report**

Approve the report.

C. **Native Municipal Tree, Canopy, and Landscape Management Trust Fund**

Discuss the Native Municipal Tree, Canopy, and Landscape Management Trust Fund concept.

8. NEW BUSINESS

A. **TEC By-laws**

Discuss the by-laws. No action is required.

B. **Fountain functionality and use of bubblers in stormwater ponds**

Discuss the bubblers. No action is required.

C. **Economic Development in Florida Urban3 Report**

9. PETITIONS AND REQUESTS FROM THE PUBLIC PRESENT

10. REPORTS

A. **TEC Semi-Annual Report to City Council**

Approve report and forward to City Council

B. **The Wyland National Mayor's Challenge for Water Conservation**

Discuss the Mayor's request.

C. **Vulnerability Assessment Webinar and Open Survey**

No action.

11. ADJOURNMENT

Any person who decides to appeal any decision of the Titusville Environmental Commission with respect to any matter considered at this meeting will need a record of the proceedings, and for such purpose, may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.

The City desires to accommodate persons with disabilities. Accordingly, any physically handicapped person, pursuant to Chapter 286.26 Florida Statutes, should, at least 48 hours prior to the meeting, submit a written request to the chairperson that the physically handicapped person desires to attend the meeting.

City of Titusville
"Gateway to Nature and Space"

REPORT TO COUNCIL

To: Members of the Titusville Environmental Commission
From: Brad Parrish, Community Development Director
Subject: **Minutes January 15, 2025**
Department/Office: Planning

Recommended Action:

Approve Minutes

Summary Explanation & Background:

Minutes January 15, 2025

Alternatives:

Item Budgeted:

Source/Use of Funds/Budget Book Page:

Strategic Plan:

Strategic Plan Impact:

ATTACHMENTS:

1. 01.15.25 TEC Minutes Draft

The Titusville Environmental Commission (TEC) of the City of Titusville, Florida met in regular session at City Hall in the Council Chamber located at 555 South Washington Avenue on Wednesday, January 15, 2025, at 5:30pm.

XXX

Chairman Michael Myjak, called the meeting to order at 5:30pm. Present were, Vice Chairwoman Laurilee Thompson, Member Jonathan Burdette, Member Beth Ann Tucker, Member Robert Walter, Member Michael Browning, Alternate Member William Young and Alternate Member Joshua Koci. Member Hector Delgado was absent. Staff present were Community Development Director Brad Parrish, Assistant City Attorney Chelsea Farrell, Sustainability Program Coordinator Lily Galleo, and Recording Secretary Laurie Dargie.

XXX

Vice Chairwoman Thompson made a motion to approve the November 13, 2024 meeting minutes. Member Tucker seconded. There was a unanimous voice vote in favor.

XXX

Assistant City Attorney Chelsea Farrell swore in Robert Walter, Jonathan Burdette and Michael Browning as the Titusville Environmental Commission's newest members.

XXX

Petitions and Requests from Public Present

Toni Shifalo of Titusville, Florida came to make comments about the City Council meeting on January 14, 2025.

Vicki Conklin of Titusville, Florida came to ask that recognition be given to Thomas Perez and Yvette Flis for their service on the Titusville Environmental Commission.

XXX

Old Business

Natural Resources Public Engagement Project Report (Draft Recommendations)

Community Development Director Brad Parrish was providing an overview of this item.

Vice Chairwoman Thompson asked if this item could be tabled as the newly appointed Titusville Environmental Commission members were not able to review the agenda item.

XXX

Member Walter made a motion to table the Natural Resources Public Engagement Project Report (Draft Recommendations) item until the February 12, 2025 Titusville Environmental Commission meeting. Member Browning seconded.

Roll call was as follows:

Member Burdette	Yes
Member Browning	Yes
Member Tucker	Yes
Vice Chairwoman Thompson	Yes
Member Koci	Yes
Member Walter	Yes
Chairman Myjak	Yes

Motion passed.

XXX

New Business

None

XXX

Petitions and Requests from Public Present

Mary Sphar of Cocoa, Florida came to ask that the email she requested to be provided to the Titusville Environmental Commission members be sent to the newly appointed Titusville Environmental Commission members.

Stan Johnston of Titusville, Florida came to speak about his concerns with the spraying of sewage from ponds with fountains.

Member Browning requested to know what the outcome of City Council's actions were pertaining to Mr. Johnston's complaints.

Vice Chairwoman Thompson provided comments to the actions that the Titusville Environmental Commission has taken regarding Mr. Johnston's complaints and concerns. Vice Chairwoman Thompson said that all Mr. Johnston is requesting is something in writing that all fountains in stormwater ponds will be turned off during any sewage spills to stop it from spraying. Vice Chairwoman Thompson said that this recommendation was made by the TEC but was not done by City Council.

The Titusville Environmental Commission had some discussion.

Chairman Myjak said that an agenda item for pond bubblers was supposed to be on this agenda for discussion and asked that it be on the February 12, 2025 TEC agenda.

XXX

Reports

Multifamily Canopy Ordinance Version 4

Community Development Director Brad Parrish gave an overview of this draft ordinance.

Kay St. Onge of Titusville, Florida came to speak about this item. Ms. St. Onge suggested adding the following language to Section 30-31 (b) (1) – (excluding single duplex units ***on properties two (2) acres or less and multifamily projects and properties two (2) acres or less that satisfies*** Comprehensive Plan Future Land Use Element Policy 1.7.7 for infill development).

Toni Shifalo of Titusville, Florida came to speak against multifamily development on infill lots.

Mary Sphar of Cocoa, Florida came to speak about the tree canopy requirements for multifamily and agrees with the suggested language that Ms. St. Onge provided.

Stan Johnston of Titusville, Florida came to speak and said he has concerns with overlapping tree canopy.

XXX

Member Browning made a motion to recommend approval of the changes presented by staff and the additional language from Kay St. Onge in Section 30-31 (b)(1) to be accepted as follows: including townhomes and multifamily projects (excluding single duplex units ***on properties two (2) acres or less and multifamily projects and properties two (2) acres or less that satisfies*** Comprehensive Plan Future Land Use Element Policy 1.7.7 for infill development). Vice Chairwoman Thompson seconded.

Roll call was as follows:

Member Walter	Yes
Vice Chairwoman Thompson	Yes
Member Koci	Yes
Member Burdette	Yes
Member Browning	Yes
Member Tucker	Yes
Chairman Myjak	Yes

Motion passed.

XXX

Artificial Turf Ordinance Version 11

Community Development Director Brad Parrish gave an overview of this item.

The Titusville Environmental Commission had discussions relating to all the negative impacts on the environment from the use of artificial turf.

Chairman Myjak said he does not want artificial turf used anywhere in Titusville.

Vice Chairwoman Thompson said that the Titusville Environmental Commission was against the use of artificial turf anywhere during the last discussion that took place on this ordinance.

Mary Sphar of Cocoa, Florida came to speak about this item. Ms. Sphar said that she is also opposed to any use of artificial turf in Titusville but thinks that it might be good to have standards in place to protect the Indian River Lagoon.

Chairman Myjak referred to Section 30-321 (f) and suggested that only the first sentence be kept which prohibits all use of synthetic plants.

XXX

Member Browning made a motion to recommend to City Council that Section 30-325 be deleted in its entirety and in Section 30-321 (f) only the first sentence be kept and the rest of (f) be deleted. It will read as follows:

Section 30-321 (f) *Synthetic plants prohibited*: Synthetic or artificial material in the form of trees, shrubs, ground covers, or vines are prohibited in landscaping and yards.

Member Tucker seconded.

Vice Chairwoman Thompson made a friendly amendment to include artificial turf in the language. Chairwoman Thompson suggested the following changes to Section 30-321 (f)

Section 30-321 (f) *Synthetic plants prohibited*: Synthetic or artificial material in the form of trees, shrubs, vines or ground covers (including artificial turf) are prohibited in landscaping and yards.

Vice Chairwoman Thompson also suggested keeping the definition of artificial turf.

Member Browning accepted the friendly amendment and Member Tucker seconded.

Roll call was as follows:

Member Burdette	Yes
Member Walter	Yes
Member Koci	Yes
Vice Chairwoman Thompson	Yes
Member Browning	Yes
Member Tucker	Yes
Chairman Myjak	Yes

Motion passed.

XXX

Kay St. Onge of Titusville, Florida asked that Chairman Myjak explain the scientific reason why artificial turf should not be used when this is presented to City Council.

Chairman Myjak would like to be told when this will be presented to City Council.

XXX

Sustainability Program Coordinator, Lily Galleo, gave an introduction of herself to the Titusville Environmental Commission members.

Ms. Galleo updated the Titusville Environmental Commission that the City of Titusville was awarded the Florida Department of Agriculture and Consumer Services grant for the Urban Community Forestry Program.

The Florida Department of Protection (FDEP) vulnerability assessment is moving forward, and the first public engagement meeting will take place in February.

Ms. Galleo is working with the GIS Department to feature the Low Impact Development projects that are taking place in Titusville.

Community Development Director Brad Parrish said that the Titusville Environmental Commission's next agenda will have the following items on it.

1. Natural Resources Public Engagement Project Report (draft recommendations)
2. TEC By-laws
3. Fountain functionality and use of bubblers in stormwater ponds
4. Native Municipal Tree Canopy and Landscape Management Trust Fund
5. Potential draft ordinance to review

XXX

Chairwoman Thompson provided a spiral bound report to all the Titusville Environmental Commission members called Economics of Development in Florida. Vice Chairwoman Thompson gave a summary of the report and said that the presentation is available on the 1000 Friends of Florida website 1000fof.org and would advise everyone to watch it.

Chairman Myjak also encouraged the TEC members to watch this as well as the public. Chairman Myjak also asked for this to be a future agenda item for discussion.

The 100th Project Completed celebration will be at Sandpoint Park on February 1, 2025 from 10:00am – 2:00pm.

Arbor Day celebration on Friday, January 17, 2025 at the Pritchard House.

XXX

Adjournment 7:54 p.m.

DRAFT

City of Titusville
"Gateway to Nature and Space"

REPORT TO COUNCIL

To: Members of the Titusville Environmental Commission
From: Brad Parrish, Community Development Director
Subject: **TEC Member Recognition**
Department/Office: Planning

Recommended Action:

Discuss and make a recommendation to City Council.

Summary Explanation & Background:

On January 14, 2025, the Commission requested recognitions be given to Thomas Perez and Yvette Flis for their service on the Titusville Environmental Commission. Chair member Myjyak requested a recommendation to Council at the beginning of the meeting to be talked about during Reports. No motion was made and there was no discussion during the final Reports portion of the meeting.

Alternatives:

Item Budgeted:

Source/Use of Funds/Budget Book Page:

Strategic Plan:

Strategic Plan Impact:

ATTACHMENTS:

None

City of Titusville
"Gateway to Nature and Space"

REPORT TO COUNCIL

To: Members of the Titusville Environmental Commission
From: Brad Parrish, Community Development Director
Subject: **Natural Resources Report**
Department/Office: Planning

Recommended Action:

Approve the report.

Summary Explanation & Background:

On January 15, 2025, this item was tabled to give the new members time to review the report.

In 2017-2020 the City of Titusville completed a partial update of the Comprehensive Plan, known as *Titusville Tomorrow*. Due to significant deliberations over proposed changes to the natural resources policies in the plan, these recommendations were not adopted by the City Council. Instead, Council determined that further public discourse was needed to understand the community's thoughts and ideas related to natural resource protection. This report documents public engagement aimed to determine how the City can prioritize natural resource protection within the horizon of the Comprehensive Plan.

Inspire Placemaking Collective (Inspire) was hired by the City to help facilitate the discussion with the TEC and community. This project consisted of a kick-off meeting and extensive data collection, a website with a public survey and idea wall, interviews with TEC members, and a public workshop. The report summarizes the public engagement effort and includes long-term strategies to amend the City's comprehensive plan, standards and programs.

On September 11, 2024, the TEC reviewed the report and provided several recommendations. The consultant updated the report and submitted the final draft. The staff subsequently made changes to some of the recommendations and explanatory language in the report. In addition, the staff added to the report references to strategies from the City's Sustainability Action Plan (SAP). Enclosed for the TEC's review and approval is the final draft with revisions.

Alternatives:

Do not approve the report.

Item Budgeted:

Source/Use of Funds/Budget Book Page:

Strategic Plan:

Strategic Plan Impact:

Goal 1: Quality of Life. (a) Continue initiatives and measure actions using the BMAP to improve the IRL. (f) Ensure the quality of drinking water.

Goal 2: Efficient & Effective Services. (a) Commit to funding Capital Improvement Plan, including infrastructure. (b) Continue partnerships and coordination with public, private and nonprofit entities. (c) Continue implementation of the Sustainability Action Plan.

Goal 6: Community Design. (a) Preserve wetlands. (c) Encourage managed growth using low impact development principles as a means of developing an attractive built environment while protecting and conserving natural resources and green space.

ATTACHMENTS:

1. Titusville_Nat_Res_Report_010325
2. bridge photos

TITUSVILLE

NATURAL RESOURCES

PUBLIC ENGAGEMENT SUMMARY AND RECOMMENDED STRATEGIES





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EXECUTIVE SUMMARY



During 2017-2020 the City of Titusville completed a partial update of the Comprehensive Plan, known as TitusvilleTomorrow. Due to significant deliberation over proposed changes to the natural resources policies in the plan, these recommendations did not get adopted by the City Council. Instead, Council determined that further public discourse was needed to understand the community's thoughts and ideas related to natural resource protection. This report documents public engagement aimed to determine how the City can prioritize natural resource protection within the horizon of the Comprehensive Plan.

Inspire Placemaking Collective (Inspire) was hired by the City to help facilitate the discussion with the Titusville community. Along with City Staff, Inspire provided multiple outlets for the community to provide input on natural resource protection. The public engagement plan included a project specific engagement focused website, interview sessions with all Titusville Environmental Commission (TEC) members, an Open House where participants could provide strategies on specific Titusville centric issues/concerns, a TEC workshop where public input was heard, and a final workshop with the TEC to unveil draft recommendations generated from the process. Section 2 of the report provides a recap of the public engagement activities and their outcomes. Section 3 provides more context and information regarding focused topic areas utilized during the public open house. Section 4 provides recommendations and potential strategies, which can be found at the end of the report.

The public engagement strategy was developed to be an accumulation of efforts. Each engagement was built of the outcomes of the prior activities, so each activity included custom material based solely on the community's thoughts, ideas, and concerns. The following topic areas were synthesized from the online survey and initial interview sessions:

1. Water Quality and the Indian River Lagoon
2. Aging Infrastructure
3. Tree Canopy and Preservation
4. Land Acquisition and Conservation
5. Wetland and Floodplain Regulations

While the list of topic areas is not in order of prioritization, if a priority were to be identified, protecting and restoring the Indian River Lagoon would be at the top. Many of the specific issues described in this report are, to a degree, being addressed by the City today. However, in some cases the TEC and community members would like to see more restrictions in place to effectuate a better outcome. For example, our data indicate that the community would like to see Low Impact Development (LID) required rather than encouraged, stiffer penalties for violating tree protection regulations, spending more on land acquisition, and require Florida-Friendly landscaping. Many of the recommendations and



strategies provided reflect the community's desire to strengthen the existing policies, while other strategies would be new to the City. These recommendations come with implementation and future considerations to enable the City to implement such changes.

SUMMARY OF PUBLIC ENGAGEMENT



To understand what changes the community wanted to see within the City as it relates to natural resource protection, engaging and listening to the public was a critical step. The public engagement process included interviews with each member of the Titusville Environmental Commission (TEC), a community engagement project website, a public Open House, and a TEC workshop which was open to the public. A description and summary of each engagement is provided below.

Titusville Environmental Commission Interviews

April 18, 2024

On April 18th, Inspire Placemaking Collective, Exum Associates, and City Staff conducted interviews with 8 members of the TEC at City Hall. An additional interview with the 9th commissioner was conducted virtually on May 3rd. Interview questions and responses are summarized below:

1. Tell us about your background regarding natural resources and your involvement with the TEC. Do you have interest in a specific topic related to natural resources in the City?

Although commissioners discussed a wide range of interests related to natural resources, common themes included water quality, infrastructure, tree canopy and clear cutting, land use and communication with the public. Water quality and freshwater discharge into the Indian River Lagoon (IRL) emerged as pressing concerns, in addition to adequate sewer capacity, flooding, and stormwater. Compact growth and better transportation connectivity near the Downtown area were also discussed.

2. What do you think the City does well related to natural resource protection?

Through projects like its baffle box installation program, Titusville has exceeded 2025 milestones for Nitrogen and Phosphorus reduction set in the North Indian River Lagoon Basin Management Action Plan. The living shoreline efforts, parks system, and river cleanup are also strengths for which the City should be commended.

3. What do you think the City needs to improve related to natural resource protection?

The City needs to focus on conservation/land acquisition and potentially create a wetland mitigation bank. Exemptions for clear cutting threaten Titusville's designation as a Tree City. Stormwater drainage, freshwater runoff into the IRL, and the sewer system need to be addressed. Communication and transparency could also be improved particularly related to health, safety and welfare concerns.

4. What do you feel are the biggest opportunities that the City could engage in related to natural resource protection?

The City could consider building a large stormwater treatment center on the west end and focus on more pedestrian friendly infrastructure. Tree preservation and water quality could also be improved.

5. What do you think are the top 3 priorities that the City should focus on related to natural resource protection?

Although answers varied from one commissioner to the next, common threads included water quality, the IRL, stormwater, flooding, sewage, tree protection, accountability, and communication.

6. Do you have any specific suggestions for projects or partnerships that could improve natural resources in, or near, the city?

Potential partnerships include NASA, Space Florida, the commercial space industry, a citizen-led Titusville Tree Team, Titusville Garden Tree Club, the Water Management District and the Brevard County Parks Department. Potential projects include additional testing at sewer plants and outfalls into the IRL, redirecting freshwater from IRL, and connecting greenspace and wetlands.

7. Is there any additional information you would like us to know?

Aging road and sewer infrastructure, Low Impact Development (LID), and increased connectivity for trails and bike lanes were additional areas of interest among the TEC.

Online Engagement

The project website launched on April 25, 2024 and provided residents with the project background and offered two forums where residents could provide feedback, the community idea wall and online survey. The community idea wall allowed participants to post ideas and comment on and like each other's ideas. Participants could share thoughts, pictures or links to express their opinions. The survey included ten questions that asked responders to provide insight on what natural resource protections/programs the participants think the city needs to prioritize and areas where the city should concentrate resources. Below, **Figures 1-5**, are the highlights of some of the online engagement. The specific results of each question can be found in the appendix.

Over the course of four months, the project had 83 respondents. Most of the respondents agreed that the city should do more to protect its Natural Resources, as shown in **Figure 1**. When asked to elaborate and provide reasons as to why the city does not do enough to protect its natural resources, respondents indicated sewage spills, clear cutting, and the IRL's poor water quality. Additionally, when asked if community members wanted the City to enforce stricter regulation than the St Johns Water Management district, **Figure 3**, almost 70% of survey responders said yes and another 20% were unsure.

As shown in **Figure 2** wetland protection, land acquisition, and improving stormwater runoff were the top three priorities respondents believed the City should prioritize. These themes also emerged when

asking survey respondents, **Figure 4**, where the City should prioritize funding. The top projects were improving the IRL water quality, wildlife habitat conservation/land acquisition, and enhancing wetland protection. The City along with many of their partnerships, has taken step to enhance the City's natural resources by creating the Draa Stormwater Park and adopting Low Impact Development Ordinance. **Figure 5** shows which initiatives community members believe has positively impacted the City's Natural Environment.

Figure 1: Do you think the City does enough to sufficiently protect natural resources?

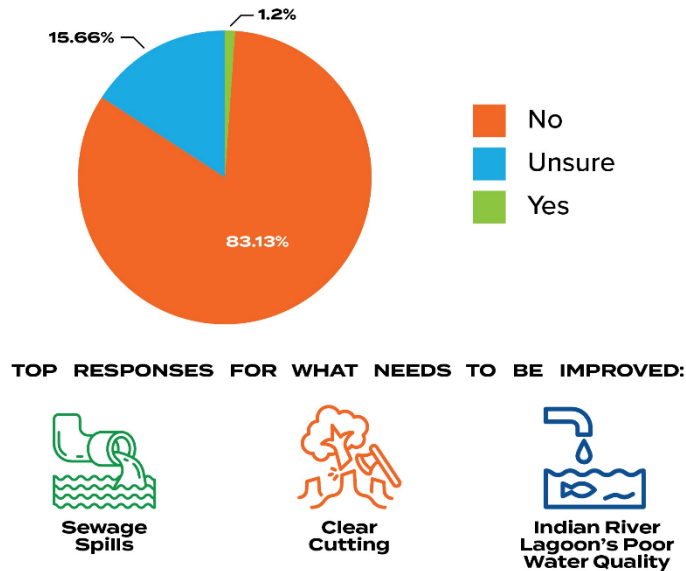


Figure 2: Select up to three initiatives the City should prioritize to protect natural resources. These are the top 5 results



Figure 3 Should the City provide more stringent wetland protection regulations than the St. Johns River Water Management District?

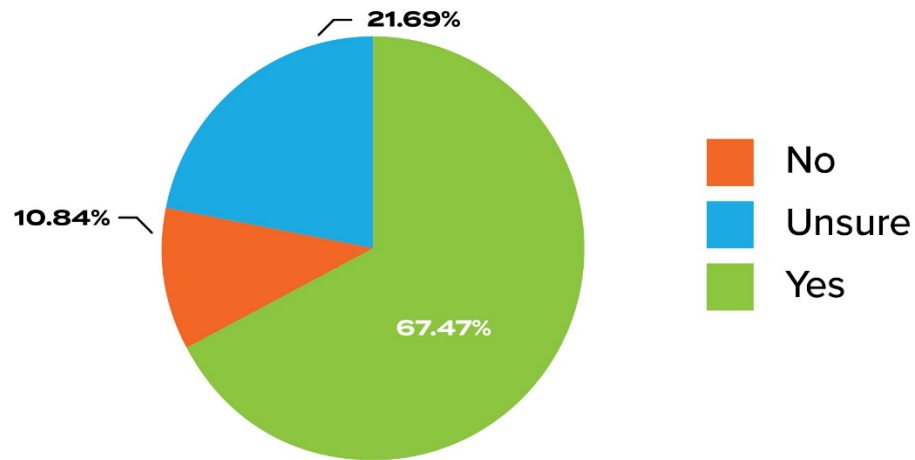


Figure 4: Rank the natural resource projects/programs the City should prioritize funding in the next 10-20 years

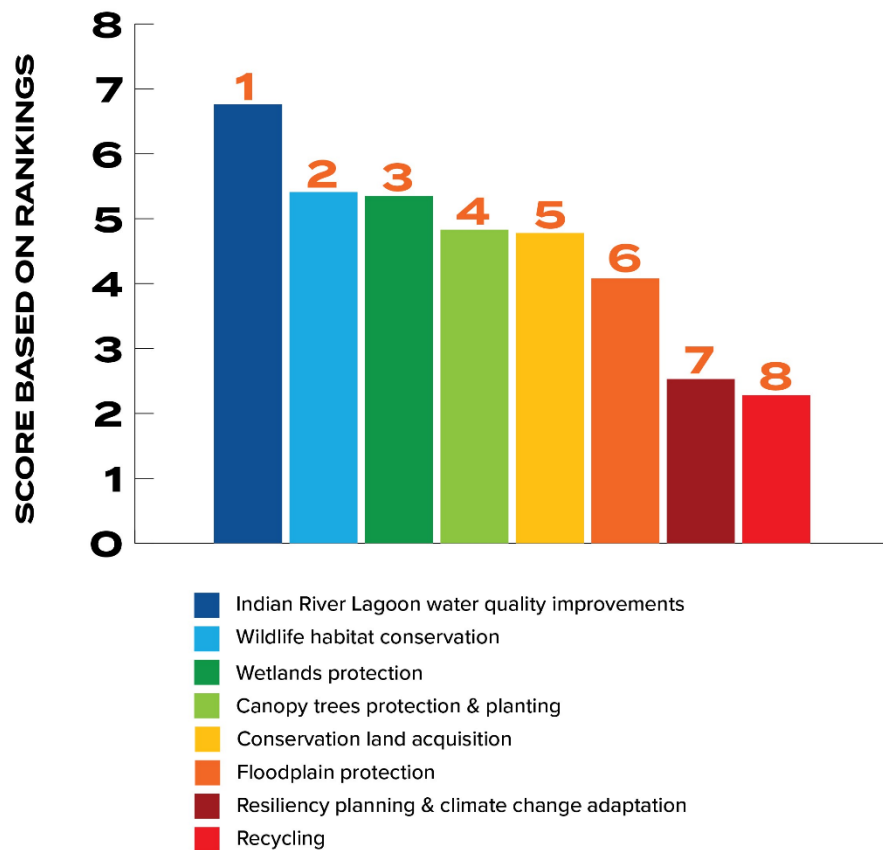
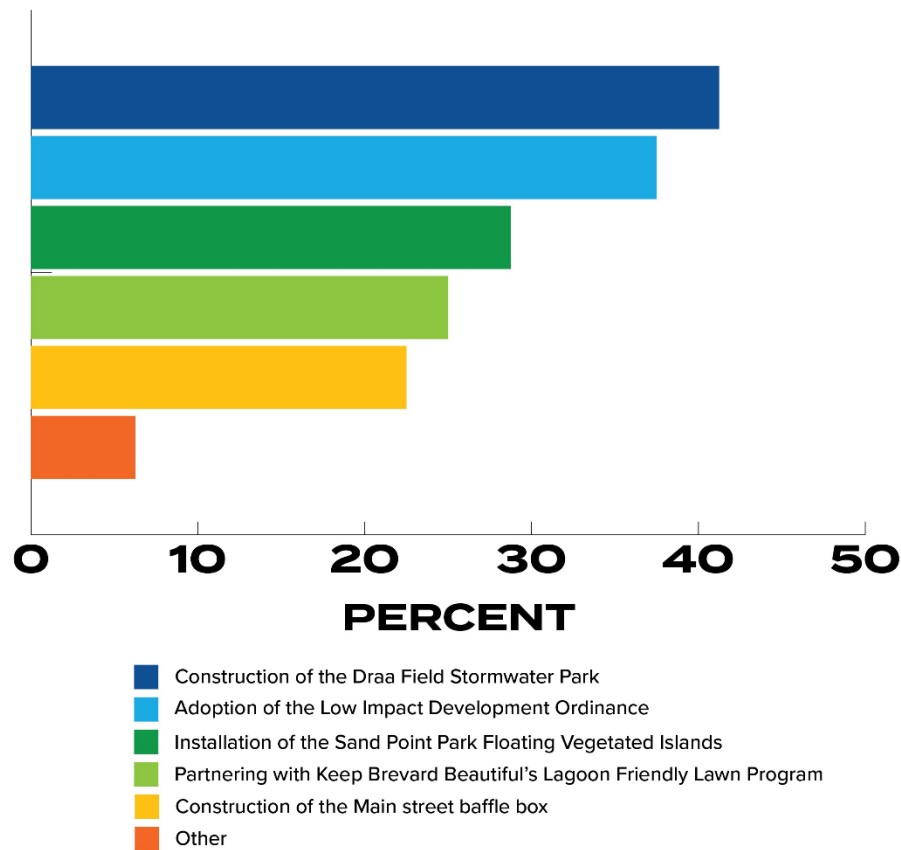


Figure 5 Which recently completed City project(s) do you feel benefits the environment the most?



Open House

May 30, 2024

On the evening of Thursday, May 30, 2024, Inspire and Exum Associates returned to Titusville City Hall with the purpose of gauging the community's concerns and goals related to natural resources, and developing proactive strategies based on five topic areas that would become the basis for updating the comprehensive plan. These five topic areas were crafted from the interviews and initial website results. The open house consisted of a brief presentation, which advertised our interactive project website and summarized the existing responses, followed by a participant-led breakout exercise which accounted for most of



the evening. Attendees were divided into three groups and given 12 minutes to develop recommendations related to each of the following topic areas:

- Water Quality and the Indian River Lagoon
- Aging Infrastructure
- Tree Canopy and Preservation
- Land Acquisition and Conservation
- Wetland and Floodplain Regulations

After the strategy development exercise was completed, participants were provided with stickers and asked to choose their top 20 strategies with no restrictions on how to allocate their stickers. The top-ranked strategies from each category are as follows:



Water Quality and Indian River Lagoon

- Half-cent sales tax to buy and maintain shoreline and collection of stormwater parks (18 votes)
- Reduce/address fresh water entering the lagoon (13)
- Partner with federal agencies to restore inflow of seawater (12)
- Bond referendum to preserve and acquire natural shoreline (5 votes)
- Maximize opportunities to partner with SOIRL and other agencies (5)

- Increase public outreach/education about water quality/restoration projects (social media) (5)

Wetland and Floodplain Regulations

- Don't allow conversion of conservation land use (9)
- Correct past mistakes through re-development (9)
- Assess total size of wetland rather than size of wetland on parcel (7)
- Educate the general public about wetlands (5)
- Recreate the natural flow/restore hydrology of IRL (5)

Land Acquisition and Conservation

- Stop rezoning areas that are designated as open space + recreation (21)
- Stop rezoning areas that are stormwater drainage (16)
- Create a connected green space master plan (7)
- Acquire wetlands greater than 5 acres in the city (4)
- Create a Titusville Park program in order to maintain parks (4)
- Seek partnerships (EELS, county, and other agencies) (4)



Aging Infrastructure

- Long-range study on existing aging infrastructure and the demands of new development (12)
- Charge significant impact fees for new development (11)
- Increase communications (7)
- Survey, assess, and quantify current infrastructure (6)
- Increase funding to fix infrastructure independent of development (3)
- Maintain wetland area (3)
- Investigate potential funding sources for infrastructure conditions studies (3)

Tree Canopy and Preservation

- Require tree canopy areas for multifamily developments (7)
- Increase tree fines significantly (7)
- Increase native plantings (6)
- Establish urban forestry program in comprehensive plan (6)
- Use the tree mitigation fund to plant trees not hardscape (5)

Titusville Environmental Commission Workshop

June 12, 2024

On Wednesday, June 12, 2024, the City of Titusville’s Environmental Commission held a special workshop in place of their regular monthly meeting, during which Inspire presented their findings from the project website as well as the open house. Commissioners and members of the public gave additional input on the themes outlined above, including new strategies that could be incorporated into the Conservation and Coastal Management elements of the Comprehensive Plan. Water quality proved to be an especially pressing topic; in particular, there is a strong concern about the potential for contamination in the IRL. Existing regulations of the St. John’s River Water Management District related to the volume of stormwater discharge are insufficient; the City should take a proactive role in pursuing higher goals and standards for factors that impact the IRL, such as LID. Stormwater should be diverted from the IRL through maintenance of the culverts under I-95 and conservation of wetlands, which store stormwater. The city should consider partnering with state and federal agencies as well as pursuing grant funding to implement measures to reduce stormwater discharge. Additional sample stations and more frequent water quality testing is needed, particularly at stormwater outfalls. Some of the water quality tests should include micro toxins and perfluoroalkyl and polyfluoroalkyl substances (PFAS - “forever chemicals”).

To adequately update aging infrastructure, participants suggested evaluating population growth, particularly in light of the Live Local Act, increasing wastewater treatment capacity and pursuing Build Back Better grants. New construction fees are preferable to increased property taxes as a funding source for infrastructure improvements.

The current tree ordinance is considered inadequate and should be strengthened to include 6” diameter trees. The city should require and/or incentivize new plantings of native species and follow ANSI A300/ISA minimum standards for tree preservation, which are roughly twice the current municipal standards. Additionally, the tree survey should document smaller trees.

In terms of land acquisition, suggestions included seeking grant funding, creating a stormwater park in the Royal Oaks Golf Course Area, conserving lands adjacent to wetlands of five or more acres and targeting areas of critical concern. Lastly, the Future Land Use and Conservation Elements contain a number of conflicting regulations and loopholes, which should be addressed.

Throughout the workshop, participants emphasized the importance of public education and engagement on natural resources, particularly regarding the value of wetlands and pollution in the IRL. Recommendations included utilizing social media and increased communication and transparency from the municipal government, such as through the consistent broadcasting of the TEC meetings.

TOPIC AREAS & FINDINGS



After the initial interviews with the TEC, initial survey responses, and review of existing City plans and projects, five topic areas became quite clear. The five focus areas include Water Quality and the Indian River Lagoon, Aging Infrastructure, Tree Canopy and Tree Preservation, Land Acquisition and Conservation, and Wetland and Floodplain Regulations.

Water Quality and Indian River Lagoon

The water quality of the IRL has been degrading over time and many longtime Titusville residents have noticed the changes. The IRL has seen a loss of fish populations and a loss of seagrass. Algae blooms, high nutrient runoff from wastewater and stormwater affect water quality within the IRL. Initiatives such as the 2016 sales tax referendum, Save Our Indian River Lagoon (SOIRL), have provided funding for projects that remove and prevent pollutants from entering the IRL, with the goal of restoring water quality.



From the onset of launching the public engagement process, the primary concern for community members has been the IRL and initiatives to improve its water quality. Some residents suggest that more testing and communicating results is needed to bring awareness to the issue and potentially generate more public support and buy in. Some residents want to emphasize the importance of the projects being implemented to restore the water quality. Many suggestions listed within this report tie back to the IRL and how implementing steps to resolve issues will restore its overall health. As the overwhelmingly most visited natural resource amenity within the City, there is no question that a significant amount of community members want the IRL to be protected and the water quality restored.

Aging Infrastructure



As recently as 2020, failing sewer pipes in the City have contributed to sewage leaks and a point source of pollution in the IRL. Aging infrastructure has been a growing concern in many communities as the typical life expectancy of sewer lines is between 40 and 60 years. These leaks have not only been responsible for raw sewage seeping into the IRL but also local stormwater infrastructure and other surface waters. This affects the salinity, nutrient load, and biochemistry of the water making the IRL inhospitable for seagrass and

aquatic fauna. The City, in partnership with Save Our Indian River Lagoon (SOIRL), has made improvements including upgrading lift stations, replacing force mains, and improving the water reclamation plant to remove more nutrients from the wastewater effluent. Prioritizing replacing aging infrastructure will significantly reduce the number of sewer pipe leaks and in turn lead to improved water quality.

2023 Florida legislation now requires sewer providers to assess the feasibility of connecting residential developments of 50 or more units at density greater than one dwelling unit per one acre to a wastewater system. The new statutes require that any new septic system within the IRL Protection Program be installed with a nitrogen reducing Onsite Sewage Treatment and Disposal System (OSTDS). By 2030, any commercial or residential property must connect to central sewer or upgrade to the nutrient reducing system. Currently, there are approximately 1,160 septic systems within the City. In 2024, the City published an OSTDS remediation plan to identify potential projects and connection opportunities for those properties not on the City's central sewer system. The City has utilized SOIRL funding to advance septic-to-sewer conversions and other water treatment upgrades.

The City conducted a National Community Survey in 2024 that assessed the livability of Titusville. The survey identified ten main facets of community livability, three of which included utilities, natural environment, and parks and recreation that relate to this effort. The published results for Titusville indicate that 95% of City residents consider utility infrastructure to be essential or very important - the two highest priority selections. However, only 30% of residents felt the City's utilities system was good or excellent. With sewer system issues documented as recently as four years ago, prioritizing infrastructure remediation is a top priority for most residents.

Tree Canopy and Tree Preservation

For over 23 years, Titusville has been recognized as a "Tree City" through the Tree City USA program. Nearly 3,600 cities in the US are considered Tree Cities. The goal of Tree City USA is to encourage communities to plant and care for trees to make them more desirable places to live. The City has

leveraged their participation in the program to increase the number of trees throughout the City, and in 2023 performed an urban tree canopy assessment to prioritize the areas of the City that need the most trees. In 2021, the City updated its Tree Preservation ordinance to strengthen requirements to curtail the clear cutting of lots. The amendments established incentives to preserve trees with the goal of reducing the need for mitigation.



However, during the public engagement process, residents described their concern over the amount of clearing that occurs during the development process and want more protections in place to prevent clear cutting and preserve the native landscape. This is exacerbated by the replacement of large, older trees with young and smaller trees at the completion of construction. Retaining the existing tree canopy is a priority for many residents as the trees provide shade from the heat, improve air quality, and habitat for wildlife.

Land Acquisition and Conservation



The most effective tool a City has for preserving natural land for future generations is to acquire property for conservation purposes. It was mentioned that a property was recently developed in a portion of the City designated as an Area of Critical Concern. This property is located in a prime recharge area but was entitled to be developed as a residential subdivision. To prevent this from occurring, this property could have been acquired. The City does not have a land acquisition program, but it has benefited from the Brevard County Environmentally Endangered Lands (EEL) Program,

which was originally established in 1990 and is funded by a property tax assessment. The program has resulted in the acquisition of four properties within Titusville: South Lake Conservation Area, Dicerandra Scrub Sanctuary, Fox Lake Sanctuary and the Enchanted Forest Sanctuary. These four properties have preserved over 3,248 acres and are used not only for preservation and conservation purposes but also for passive recreation and educational opportunities.

Feedback from the national community survey indicated that residents felt that the natural environment for Titusville was lacking, especially in the quality of the preserved natural areas and open space. Residents expressed concern about the rapid pace of development and would like to see more areas being placed into conservation. Due to the significant cost of land acquisition, securing additional

funding will be beneficial to continue to preserve more areas for conservation, resiliency, and flood mitigation purposes.

Wetland and Floodplain Regulations

The benefits of wetland and floodplain protection in a community and the general ecosystem are numerous. These important assets have become imperiled due to development and lack of effective regulations. Although these features are protected by regulations today, residents expressed a desire for more stringent regulations in the City's Land Development Regulations (LDR) to create opportunities for more stormwater management and future flood controls.

Currently, the City's LDRs allow wetlands to be impacted as long as the applicant follows the stormwater management plan and the guidelines of the St. Johns River Water Management District (SJRWMD). The City does enforce more regulations if the wetland is greater than five acres. If the City implements stricter regulations, it should consider doing so prior to the next legislative session. The legislature has been contemplating a preemption on all local governments from adopting regulations that are more stringent than state statutes or water management district rules.

As tropical disturbances become more frequent and summer afternoon thunderstorms progressively drop more rainfall, flood prevention and stormwater management will continue to become a significant priority for property owners in the community and the City. Stormwater regulations require new construction to be built at higher elevations to accommodate these stronger rain events. However, much of the existing infrastructure was developed prior to stormwater



regulations and provide little or no floodplain protection or stormwater management. The City has taken initiative in finding locations for stormwater management by creating the Draa Field Stormwater Park which holds and treats stormwater. The Chain of Lakes Park is another great example of a park's dual functions, which features recreational facilities as well as wetlands that capture stormwater runoff, remove pollutants, and replenish the aquifer

RECOMMENDATIONS



The recommendations outlined in the following matrix were developed through the public engagement process and vetted by city staff and the project team. Each of the recommendations are formulated as a potential policy with a column discussing implementation, future considerations, and are further categorized by how it could be implemented. For example, a strategy could be a project, a comprehensive plan amendment, a code of ordinance revision, etc. Some strategies may have multiple implementation options due to the complexity of the task. Examples of future consideration may include requiring additional staffing, needing significant funding, or challenges with the built environment. The TEC and City Council will provide guidance to staff on how each of these recommendations will be implemented either in the comprehensive plan or through other means. To assist the TEC in implementing these strategies, a proposed decision tree has been provided in the **Appendix**.

Categories: CP – Comprehensive Plan / IMP – Implementation Project / LDR – Land Development Regulations / SAP – Sustainability Action Plan / COO – Code of Ordinances / PRC – Public Relations / Communication

Advance Indian River Lagoon (IRL) Stormwater Quantity and Quality Improvement Projects.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan (SAP)
Continue to prioritize funding and seek grant funding for projects that improve water quality of the Indian River Lagoon. Category: IMP, SAP	Public Works will <u>continue to</u> seek partnerships (County or other agencies) to implement the IRL Basin Management Action Plan (BMAP) projects. The Sustainability Action Plan should be amended to include objectives oriented around grant funding and the health of the Indian River Lagoon.	This is <u>already</u> being implemented <u>to a certain degree with over \$20 million in grants received for IRL BMAP projects</u>. However, partnerships will help extend funding and resources.	CME Policy 1.1.5: The City shall, in preserving the Indian River Lagoon system and other bodies of water within the City limits, coordinate with other local governments and the Marine Resources Council to ensure: • adequate sites for water-dependent uses • prevention of estuarine pollution	Ecosystems & Resiliency 2.4.2 Collaborate with volunteer programs and organizations to assist with habitat restoration efforts on public and private properties.

Advance Indian River Lagoon (IRL) Stormwater Quantity and Quality Improvement Projects.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan (SAP)
			• control of surface water runoff • protection of living marine resources • reduction of exposure to natural hazards • public access • that required infrastructure is available to serve the development or redevelopment in the coastal area."	
Identify sources of stormwater discharge into the IRL and prepare plans to reduce the volume and improve the quality of the discharge. Category: IMP, CP	Public Works has already identified outfalls and water quality master plan and is in the process of implementing the master plan. <u>The City is already ahead of its current BMAP reduction goal.</u>	A comprehensive citywide stormwater study of this kind may be costly.	CME Policy 4.3.2: Continue to update, maintain, and make available for public review flood risk maps and related information indicating risks associated with high tide events, storm surge, flash flood, stormwater runoff, and related impacts of sea level rise. CME Policy 3.3.5: Evaluate designing a "natural runoff" or "net-zero discharge" policy for stormwater in subdivision and site design."	
When feasible and funding has been identified, implement infrastructure improvements that will capture and treat or divert	Public Works is in the process of conducting a stormwater study that <u>could help achieve this strategy will address CIPs</u>	Construction costs may be significant to divert stormwater away from the IRL. There may be limited opportunities to achieve this	CE Objective 1.12: Stormwater Management To retrofit existing stormwater drainage systems, to redirect outfalls from	Ecosystems & Resiliency 2.2.4 Evaluate current and planned stormwater infrastructure projects and determine the feasibility of incorporating

Advance Indian River Lagoon (IRL) Stormwater Quantity and Quality Improvement Projects.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan (SAP)
stormwater away from the IRL. Category: IMP	<u>for future water quality projects.</u>	due to existing infrastructure. Eminent domain, if necessary, for this may be cost prohibitive.	environmentally sensitive areas, and to enhance environmentally sensitive areas through man-made wetlands which provide both renourishment of the wetlands system and wildlife habitat.	additional green infrastructure
Examine the feasibility of establishing additional stormwater parks to capture stormwater before it runs off into the IRL. Category: IMP	This could be included as criteria for acquiring property for conservation purposes.	The costs could be significantly less than diverting water away from IRL and the park could serve multiple recreational and ecological functions. <u>Increase in maintenance costs would be costly.</u>	CME Policy 3.3.5 Evaluate designing a “natural runoff” or “net-zero discharge” policy for stormwater in subdivision and site design	Ecosystems & Resiliency 2.2.4 Evaluate current and planned stormwater infrastructure projects and determine the feasibility of incorporating additional green infrastructure
Prioritize funding to conduct restoration of the shoreline on properties owned by the City when feasible. Category: IMP	<u>The City has partnered with the Zoo and The IRLNEP to receive a grant to install a living shoreline at Scobie Park.</u> Living shoreline projects would improve resiliency and re-establish unique habitats adjacent to the IRL. Prioritize comprehensive restoration of City owned shoreline properties and establish installation and maintenance standards consistent with Florida	Costs of construction and staffing would be minimal compared to comprehensive infrastructure projects.	CME Policy 3.2.3: To preserve the functionality of natural sea level rise barriers, the City shall: • Examine the appropriate use of sediment-trapping vegetation, sediment mounds, etc., for coastal hazards; and • Implement shoreline restoration, plantings, and use of natural material, where feasible. CME Policy 3.2.4:	Ecosystems & Resiliency 2.4.2 Collaborate with volunteer programs and organizations to assist with habitat restoration efforts on public and private properties.

Advance Indian River Lagoon (IRL) Stormwater Quantity and Quality Improvement Projects.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan (SAP)
	Department of Environmental Protection.		The City will maintain shoreline protection and erosion control by: • Facilitating the installation and maintenance of native shoreline vegetation along appropriate areas of beach; and • Considering hard structures, such as seawalls, only when alternative options are unavailable.	
Continue to implement and promote the certification program for commercial lawn fertilizing services. Category: COO, IMP, PRC	Through a City Ordinance, the City requires that all commercial and institutional applicators of fertilizer to abide by and complete training and continuing education "Florida-friendly Best Management Practices for Protection of Water Resources by the Green Industries."	Promote knowledge of the program, inform residents to report misconduct of best management practices.		Ecosystems & Resiliency 2.2.3 Provide education and resources to homeowners on Florida Friendly Lawns and reducing the use of pesticides and garden chemicals Ecosystems & Resiliency 2.3 Continue to make demonstrable progress towards Resilient Titusville's Goals and Objectives

Prepare plans for addressing the City's aging wastewater infrastructure.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan
Conduct testing to evaluate water quality degradation. This study should include an assessment of the magnitude of impact and recommendations for remediation. Category: IMP	Partner with One Lagoon to share information with other organizations in the Monitoring Network and potentially conduct testing at the municipal level. Testing should <u>is already</u> be conducted at reclamation facilities (Osprey and Blue Heron)-if this is not already being done. The City previously partnered with SOIRL and the SJRWMD to upgrade the Osprey plant, effectively reducing total nitrogen and phosphorus levels. This could potentially be done at Blue Heron as well <u>Blue Heron is already an Advanced Wastewater Treatment Plant..</u>	While SJRWMD already monitors water quality at the fishing pier - additional testing may require the City to increase staff and incur costs for the analyses.	CME Policy 1.1.2: Wastewater treatment plant effluent impacts shall be minimized or eliminated to the maximum extent feasible. The following measures will be utilized to implement this policy. Strategy 1.1.2.1: Wastewater treatment systems outfalling to all existing surface water shall be designed or retrofitted as soon as economically feasible to reduce nutrients in the discharge. Strategy 1.1.2.2: Periodic inspections shall be conducted on all wastewater treatment plants within the City to ensure that the facility is in good repair.	
Conduct a study to locate, assess, and identify repairs to all existing wastewater lines, particularly near surface waters. Category: IMP	The city has already performed an analysis and modeling of the sewerage system, leading to a number of pipe replacements and improvements to prevent breaks and leaks and associated environmental	More extensive projects, like the IRFMI project, may entail significant fiscal costs; the City took out a \$9 million loan from the State Revolving Fund after putting out a bid for the project, initially estimated at \$5 million. Factors like supply chain issues and inflation can		

Prepare plans for addressing the City's aging wastewater infrastructure.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan
	degradation. Current sewer projects include the Indian River Force Main Improvement (IRFMI), <u>Bayview Lift Station Elimination, Riverside Dr Force Main Replacement</u>, which specifically targets threats to the IRL. The City should strive to keep these models accurate and up to date. The City should also prioritize improvements related to anticipated future capacity.	substantially drive-up improvement costs. Additionally, a study of the whole system would be extremely costly. <u>Water/sewer rates might need to be increased.</u>		
Prepare a feasibility study to determine the cost of replacing aging wastewater lines. Category: IMP	<u>The City has already contracted with and is in the process of implementing asset management software that will help with lifecycle costing of infrastructure.</u> The IRFMI project seeks to replace some of the City's aging sewerage system; the associated costs could provide a good estimate of what kind of funding another project of similar scale would cost.	The City will need to determine what qualifies as aging lines and when replacement is needed; sewer lines should generally last 40-60 years. While the cost of the study may not be of financial significance, the implementation of the improvements could be costly. <u>Water/sewer rates might need to be increased.</u>		

Prepare plans for addressing the City's aging wastewater infrastructure.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan
Establish a priority list of wastewater line repairs and replacement. Category: IMP	<u>Priority repairs and replacements are determined in the budget cycle. The City has already contracted with and is in the process of implementing asset management software that will help with lifecycle costing of infrastructure.</u> Priority could consider benefits to the IRL and other surface waters, other environmental impacts, pipe material, groundwater levels, and infrastructure age.	See above. High-priority repairs may also be significantly more expensive than others. <u>Water/sewer rates might need to be increased.</u>		
When a wastewater line breaks, prioritize emergency communications to apprise the community. Category: PRC	The City already follows proper notification protocols as required by the FDEP. However, the City should consider providing enhanced notice regarding sewer pipe breaks on its website and social media outlets, in addition to notifying news outlets that can reach residents through radio and television.	Consider accompanying precautions/health and safety advice and clarify what households/ businesses will be affected; describe what steps the City is taking to respond and what actions residents need to take<u>Stay up to date on current State notification protocols and requirements.</u>		Ecosystem & Resiliency 2.3 Continue to make demonstrable progress towards Resilient Titusville's Goals and Objectives

Aggressively seek funding opportunities for IRL projects.

Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan
Continue to coordinate with regional and state partners to seek funding opportunities for IRL projects. Category: IMP	In FY2023-2024, <u>the City had active projects that received over \$6 million in grant funding from the State and SOIRL programs.</u> Florida-DEP offered a grant specifically for projects targeting the IRL; while Titusville did not receive funding through this program, the City could consider other funding opportunities from DEP in the future. The City should also apply for funding through the SJRWMD's cost-sharing program. <u>The City has already applied for multiple grants from the FDEP and SOIRL in FY25 for IRL projects..</u>	Additional staff may be needed to pursue grants, and additional funds from the City may be requested to qualify for grants with a matching contribution requirement.	CME Policy 1.1.5: The City shall, in preserving the Indian River Lagoon system and other bodies of water within the City limits, coordinate with other local governments and the Marine Resources Council to ensure: • adequate sites for water-dependent uses • prevention of estuarine pollution • control of surface water runoff • protection of living marine resources • reduction of exposure to natural hazards • public access • that required infrastructure is available to serve the development or redevelopment in the coastal area.	
Continue to continue to pursue grants and partnerships to provide funding for IRL improvement projects. Category: IMP	Titusville could join One Lagoon's monitoring network, which includes Brevard County, SJRWMD, Florida Department of Environmental Protection and FAU's Harbor Branch Oceanographic Institute,	Additional staff may be needed to pursue grants, and additional funds from the City may be requested to qualify for grants with a matching contribution requirement.		

Aggressively seek funding opportunities for IRL projects.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan
	among other state, regional and federal partners. One Lagoon also distributes the Indian River Lagoon National Estuary Program's (IRLNEP) small grant funding. <u>The City partnered with the IRLNEP to receive grant funding for Scobie Park, the project is underway. The City has applied for multiple grants from the FDEP and SOIRL in FY25 for IRL projects.</u>			
Encourage the County to promote the reissuance of <u>Continue to utilize</u> the ½ cent sales tax to secure future funding for IRL projects. Category: IMP, PRC	The current sales tax is set to expire in 2026 and is projected to collect \$586 million in funds to implement a total of 432 projects. The city should educate the public on how that funding has enabled the implementation of million dollar projects.	Continued support for the sales tax will result in available funding opportunities for additional restoration projects.		

Develop a land acquisition program with a dedicated funding source.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan
Continue to coordinate with county, regional, and state partners for land acquisition and maintenance funding. Category: IMP, CP, SAP	Continue to implement.	No change in resources.		
Continue to pursue grants and partnership agreements to fund land acquisition and maintenance needs. Category: IMP, CP, SAP	Continue to implement.	Additional staff may be needed to pursue grants, and additional funds from the City may be requested to qualify for grants with a matching contribution requirement.		Ecosystem & Resilience 2.1 Increase natural resource acreage and habitat area for threatened species and wetlands
Evaluate opportunities for a dedicated funding source for land acquisition and maintenance (e.g., assessment, impact fees, stormwater utility fee, <u>discretionary sales surtax</u> , etc.). Category: IMP, CP	There are a number of funding mechanisms available to the City. The sales tax has been a successful and equitable measure that should be explored. Additional funding from the City will enhance and extend outside funding sources.	Asking residents to tax themselves more than they pay will be a difficult proposition. Impact fees on new development would help; however, this will drive up the cost of new construction to the end user. <u>Discretionary sales surtax is an additional tax levied by individual counties on top of the state's general sales tax.</u>		
Prioritize the acquisition of lands identified as areas of critical concern or wetlands and create a plan to prioritize purchase and fund maintenance. Category: IMP, CP	Create or update a map that identifies areas of critical concern and wetlands.	Acquisition of property with development entitlements is generally expensive. Prioritization of land acquisition is key when implementing this program. <u>Maintenance could be costly.</u>	CE Policy 1.2.5: The City shall ensure the protection and preservation of high quality native ecosystems through acquisition whenever it is economically feasible. The City shall also support	Ecosystem & Resiliency 2.1 Increase natural resource acreage and habitat area for threatened species and wetlands

Develop a land acquisition program with a dedicated funding source.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan
			cooperative land acquisition efforts for protection of the environment.	

Update Tree Preservation Ordinance to clarify and strengthen the regulations.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan
Evaluate the Tree Preservation ordinance every five years to assess its effectiveness and make necessary changes to prevent clearcutting of properties. Category: LDR	The Tree Preservation ordinance was updated recently; however, there is a perception that more can be done to prevent clearcutting and preserving the natural canopy.	Increasing tree preservation requirements could drive up the cost of construction and potentially negatively affect other goals of the City like economic development and housing affordability.		
Consider updates to the Tree Preservation ordinance to include measures to retain natural subcanopy vegetation. Subcanopy consists of suppressed mature trees, regenerating tree saplings, shrubs, herbs, snags and coarse-woody-debris. Category: LDR	This is an optional requirement in the Code. It could be changed to mandatory and cite replanting as a last resort.	Increasing the percent of retained natural subcanopy vegetation in lieu of new landscaping could be a good compromise; however, this may impact the type of development (i.e., taller buildings, higher density products, etc.).		

Evaluate the effectiveness of fines levied as a result of violations of the Tree Preservation Ordinance. Category: LDR, COO	Staff should research cities and counties that enforce fines on “after the fact” tree violations and propose a new fine structure.	If the amount of the fines are set appropriately, this could be an effective method of preserving tree canopy.		
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Update Landscaping Ordinance to strengthen regulations.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan
Amend the Land Development Regulations to require all plantings in new developments to be identified as native or Florida Friendly species. Category: LDR, COO	Update the comp plan and code to require native landscaping only. Many communities implement this.	Would result in lower water use for irrigation, the lack of a need for pesticides or fertilizers, and provide habitat for native animals. The City could also consider incentivizing native landscaping. <u>IFAS recommends Florida Friendly Landscaping.</u>		Ecosystems & Resiliency 2.1.3 Promote UF/IFAS Brevard County Extension Florida-Friendly Landscaping Program
Incorporate Low Impact Development (LID) methods for innovative stormwater management in the Land Development Regulations (LDRs). Category: LDR	This is already included in the LDRs. May consider <i>requiring</i> it for all development rather than encouraging its use.	LID is more cumbersome to maintain than traditional stormwater methods. A commitment to maintaining all stormwater infrastructure should be a priority.		Ecosystems & Resiliency 2.2 Prioritize the use of green infrastructure, low impact development, and nature-based solutions
Establish and pursue funding for an Urban Forestry Plan. Category: CP	A policy should be added to the Conservation Element to require the City to pursue this program. The City is currently pursuing a grant to create an urban forestry plan.	Continued participation in this will help elevate the City's desires to increase its urban tree canopy.		Ecosystems & Resiliency 2.1.2 Develop an Urban Forestry Management Plan to manage tree infrastructure and canopy
Actively participate in the Tree City USA program. Category: CP	A policy should be added to the Conservation Element to require the City to pursue this program <u>The City is currently actively participating in the Tree City Program.</u>	Being a Tree City can help the City secure funding for promoting tree preservation, Arbor Day events, and tree giveaways. To date, the City has not taken full advantage of this program, specifically		

Update Landscaping Ordinance to strengthen regulations.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan
	Tree City USA has additional standards and recognitions that exceed the Tree City status and could be explored.	with respect to planting trees. The City should evaluate whether the program is important to implement.		
Evaluate the LDRs to determine if all uses are achieving the goals of the Urban Forestry Plan. Category: CP, LDR	The City is currently pursuing a grant to create an urban forestry plan. As part of the Urban Forestry Study, an evaluation of the City's Comprehensive Plan and LDRs should be undertaken to determine if more can be done to implement the urban forestry plan.	After the evaluation, recommendations may require additional staffing.		Ecosystems & Resiliency 2.1.2 Develop an Urban Forestry Management Plan to manage tree infrastructure and canopy

Develop or amend existing wetland policies to clarify and create more limitation on wetland impacts.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan
Evaluate the LDRs to identify opportunities to clarify or strengthen City wetland regulations. Category: CP, LDR	Strategy 1.6.3.2 needs to be clarified to limit the loopholes and how land is subdivided to circumvent this requirement. The wetland should be evaluated based on its overall importance and size rather than if it's less than 5 acres on a single site.	This provision has caused confusion with its implementation and developers have circumvented the requirement. More clarity on this will create more predictability and protect wetlands of high value.		

Develop or amend existing wetland policies to clarify and create more limitation on wetland impacts.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan
Evaluate wetlands for preservation and pursue funding to create a plan to prioritize purchases and fund maintenance. Category: IMP	Secure and establish a funding source to purchase wetlands.	Land acquisition and maintenance requires significant funding. Depending on the surrounding land uses, the freshwater input to the wetland could be detrimental to the functionality of the ecosystem and potentially require treatment before entering the wetland system, if utilized for stormwater purposes.		
No net loss of wetlands. Category: CP, LDR	This is already required in Strategy 1.6.2.1 for conditional uses. This could be implemented citywide.	This may require additional staff resources or could be assisted by Brevard County through an interlocal agreement.	CE Strategy 1.6.2.1: In addition to the permitted land uses identified in the Future Land Use Element, conditional uses may be considered as provided for in the land development regulations, with criteria based upon the mitigation policies of the U.S. Fish and Wildlife Service. At a minimum, the criteria to be considered for approval of a conditional use shall include: 1. The use is ecologically sound; 2. The use is water dependent or water related and there is a documented public need;	Ecosystem & Resiliency 2.1 Increase natural resource acreage and habitat area for threatened species and wetlands

Develop or amend existing wetland policies to clarify and create more limitation on wetland impacts.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan
			3. The use is the least environmentally damaging alternative; 4. There is no practical alternative to insure reasonable use of the applicant's property; and 5. Any unavoidable damage or loss of wetland shall be mitigated to insure no net loss of wetlands and no loss of functional value.	
Implement a 1.8% maximum wetland impact for developments based on a threshold used at Viera for residential lots. Category: LDR, CP	This proposition may require a study to determine how this approach would affect development in the City.	Implementation may require additional staff resources or could be assisted by Brevard County through an interlocal agreement. The City may also consider conducting a study to determine a maximum wetland impact for developments.		
Clarify the intent of the 5-acre rule to include adjacent properties. Wetlands 5 acres or larger are currently required to be designated by Conservation land use. Category: CP	Strategy 1.6.3.2 needs to be clarified to limit the loopholes and how land is subdivided to circumvent this requirement. The wetland should be evaluated based on its overall importance and size rather than if it's less	This provision has caused confusion with its implementation and developers have circumvented the requirement. More clarity on this will create more predictability and protect wetlands of high value.		Ecosystem & Resiliency 2.1 Increase natural resource acreage and habitat area for threatened species and wetlands

Develop or amend existing wetland policies to clarify and create more limitation on wetland impacts.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan
	than 5 acres on a single site. An update of wetland protections should be considered. Functional values and better wetland delineation is needed. Explore the possibility of wetland protection through increased buffer requirements.			
Reconsider allowing conservation easements in Planned Developments in lieu of Conservation land use designations. Category: LDR, CP	Amend the Comprehensive Plan and LDRs to require conservation easements instead of designating it conservation land use.	Conservation easements would need to be dedicated to an entity (i.e. City, SJRWMD, or other entities) in perpetuity on a plat or binding document. Conservation easements would require maintenance of the land, and occasional monitoring.		

Increase public education and outreach throughout the City.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan
Review and amend its current public outreach strategy to increase resident awareness about how the City is addressing environmental issues.	The City currently provides information on environmental issues and resources on its website and social media outlets. However, additional	Physical publication and distribution would add printing and mailing costs. If the City creates or establishes an app or a text alert system, annual service costs need to be considered.	CE Policy 1.15.7: The City shall continue its public education and outreach in regard to stormwater management and its National Pollution	Community & Livability 1.1.3 Develop a public engagement strategy to engage the entire community in the implementation of the SAP

Category: PRC	avenues could be explored such as a quarterly mailers, text alerts, or app notifications.	The City is currently exploring improving their story maps located on the City's website.	Discharge Elimination System (NPDES) permit best management practices.	
Expand their educational series to increase resident awareness of the environmental programs the City is actively engaged in. Category: PRC	Monthly or bi-monthly speakers or curated activities could increase awareness and citizen engagement. The city should consider looking into IDEAS For Us and their educational "hives" as a model for this program.	Availability of hosting facilities and the cost of additional staffing should be considered.		Ecosystems & Resiliency 2.4.1 Continue education and outreach initiatives about sea level rise, climate change, and the Indian River Lagoon
Develop a branded social media initiative to educate residents about important environmental topics. Category: PRC	Create a campaign for a consistent social media message, posting regularly, and providing city insights.	This may require additional staff or a social media coordinator/communication department to collaborate on this effort. The sustainability planner could establish a social media presence dedicated to environmental topics.		

Assess impact fees.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan
Evaluate all impact fees every five years to ensure the fees are adequate to construct needed facilities.	Include a policy in the Capital Improvements Element to require the evaluation of all impact fees every 5 years. The City	This will enable the City to adequately fund construction of needed facilities.		

Category: IMP	<u>has contracting with a consultant to review all impact fees.</u> Staff is currently evaluating the CIP list.			
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Create a green space master plan.				
Strategy Considerations	Implementation	Future Considerations & Resources	Comprehensive Plan Policy	Sustainability Action Plan
Create a connected green space inventory and master plan that identifies all open space and recreation facilities within the City. Category: IMP, CP, SAP	Establish a policy in the Conservation Element to require the creation of a connected green space plan. The Sustainability Action Plan should be amended to include this strategy and expanded upon the existing objectives within the Community & Livability section.	Initial implementation will require a comp plan amendment and then creation of the green space plan. This will help in identifying land acquisition priorities and enhance the recreation priorities of the City.		Community & Livability 1.3.3 Develop a community parks initiative to ensure all residents and local schools have access within a half mile to parks, greenspace, and recreation that are barrier free for people with disabilities in coordination with the NRSAP.
Identify properties to expand the City's open space inventory as part of the green space master plan. Category: IMP	Create criteria to determine how to prioritize properties to expand the City's Open Space Inventory.	Land acquisition <u>and</u> <u>maintenance</u> costs can be significant; however, the costs to identify such land is minimal.	ROSE Strategy 2.1.1.1: The City shall develop a short term and long term land acquisition plan for park, recreation, conservation and open space areas.	

Appendix

Decision Tree for Prioritizing Actions, Funding, and Staffing

As this study shows, there are many actions that the city of Titusville can take to improve the value of natural resources within the city and in those areas affected by the city's actions (particularly the Indian River Lagoon). The recommendations provided in this study are focused on the key aspects of environmental protection relevant to both the significance of the natural resource and the city's role in protecting it. These recommendations involve a long-term horizon, collaboration with multiple partners, and a consistent commitment to resolution. The recommendations provide a blueprint for a long-term strategy for improving and sustaining natural resources within, and in areas affected by, the city.

A process for prioritizing how to move forward with these recommendations needs an assessment of the cost and benefit for engaging with any given recommendation. The decision tree assumes the recommendations are adopted by those responsible for improving or protecting the resource. There should also be clear objectives for each recommendation, metrics to evaluate success, and staff and funding in place to monitor progress. Priorities should be assigned to each of the recommendations provided in the report. Whether a recommendation is funded and initiated would depend upon its priority, the ease of accomplishment, the benefit to natural resources, the time frame for completion, expense, and likelihood of partnerships for funding or staffing.

Given all that, a concept for prioritizing actions might follow a process like the following:

1. Can the City's involvement make a difference?
Yes (Proceed to Question 3) No (Proceed to Question 2)
2. Encourage action by those responsible for the issue.
3. Does the City have existing funds and staff to achieve the objectives?
Yes (Proceed to Question 5) No (Proceed to Question 4)
4. Seek additional funds or partners to assist with actions to achieve objectives.
5. Create a plan, budget and timeline to accomplish the objectives.
6. Does the initiative provide short-term, cost-effective results associated with priority actions identified in the 2024 Inspire report?
Yes (Proceed to Question 7) No (Proceed to Question 4)
7. Consider budgeting this initiative in next year's annual budget.
8. Does the initiative provide long-term, low-cost results associated with priority actions identified in the 2024 Inspire report?
Yes (Proceed to Question 9) No (Proceed to Question 4)

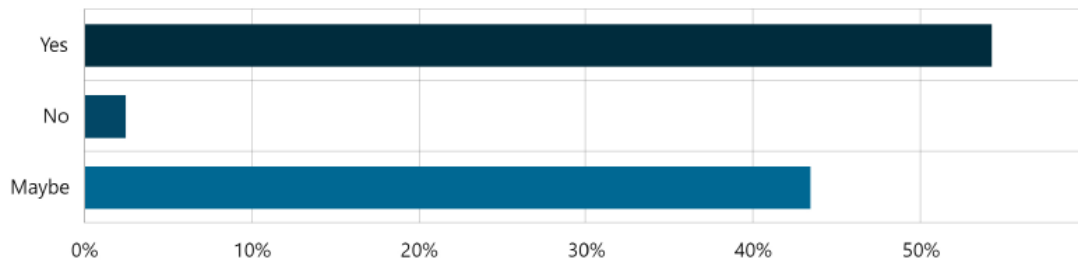
9. Consider providing long-term funding in the City's annual budget. Seek grants and partnerships to help fund the long-term effort. Create a timeline for proceeding, assign staff to manage the project and track results.
10. Is the initiative a high priority, but both long-term and costly? (Proceed to Question 11)
11. Assign staff to proactively work with natural resource agencies, Brevard County and others with potential for funding to make progress on long-term priority issues.

Project Website Survey Results

1. Please provide your zip code

Zip Code	Total Count
32754	1
32780	46
32796	25
32901	1
32926	1
32927	4
32935	1
32952	1

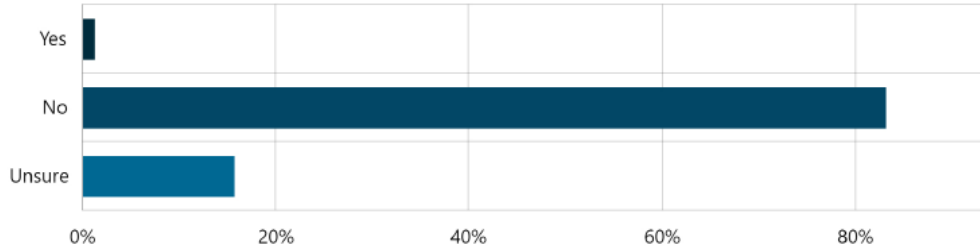
2. Would you be interested in attending public meetings to discuss Natural Resources



Answer choices	Percent	Count
Yes	54.22%	45
No	2.41%	2
Maybe	43.37%	36
Total	100.00%	83

3. Do you think the City does enough to sufficiently protect Natural Resources?

3. Do you think the City does enough to sufficiently protect Natural Resources? Required
Select Box | Skipped: 0 | Answered: 83 (100%)



Answer choices	Percent	Count
Yes	1.20%	1
No	83.13%	69
Unsure	15.66%	13
Total	100.00%	83

4. If you don't think the City sufficiently protects Natural Resources, please explain why

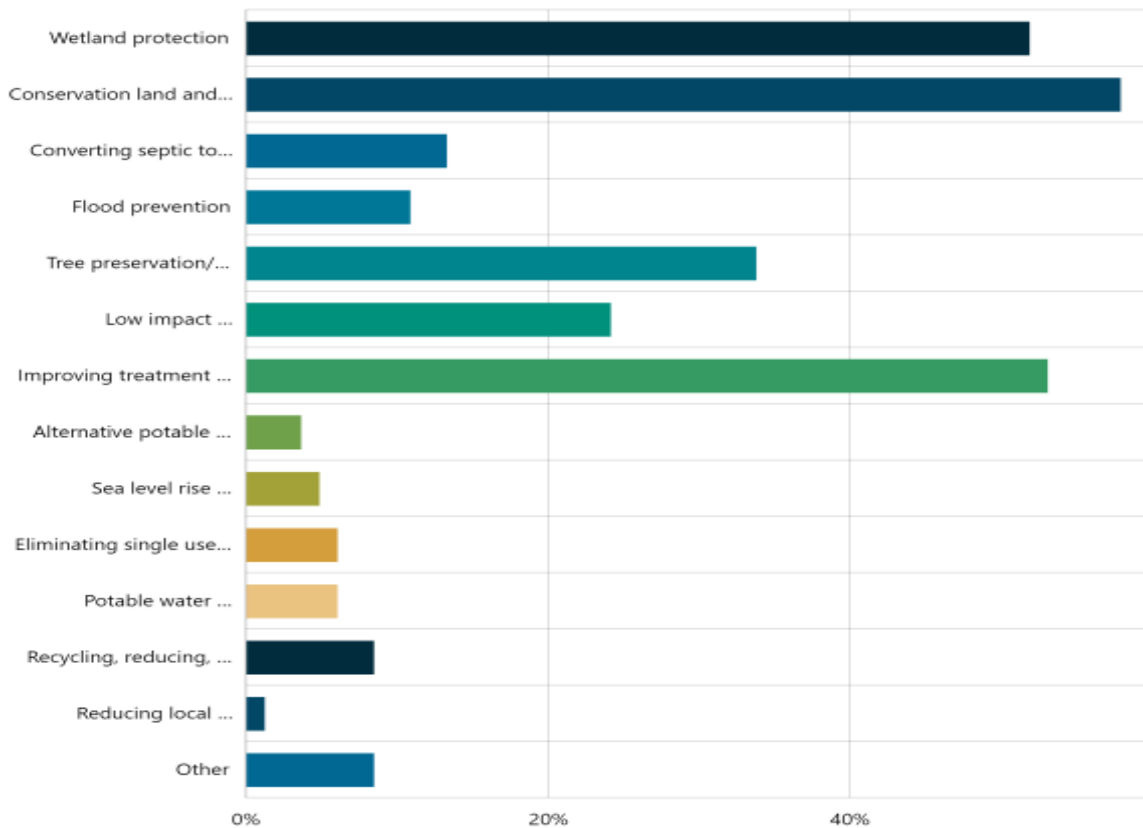
- COT is still “accidentally” spilling sewage into the river. Too many new home building permits while Not updating infrastructure such as roads. When roads deteriorate then it rains, pollution rolls into the river!
- You allow wastewater (even though you say it's safe) into our lagoon. Our water quality is very poor!
- Lagoon health is poor and dumping not controlled
- The City of Titusville does what it is at its reach! Pressure from the outside and the overwhelming growth desire of people and companies to move to Titusville is beyond the City's ability to control its growth! Therefore, nature is being sacrificed.
- They have pipes that run from the lift stations along Indian River Dr, into the middle of the Lagoon and the city still INTENTIONALLY releases RAW SEWAGE into the Lagoon and and then calls it a spill.
- Too many projects encroaching on wetlands w.o. shoring up infrastructure. Hence the sewage discharges
- Sewer spills and the Indian River
- Sewage spills, uncontrolled growth that stains the already maxed out sewage system.
- Too many adult trees cut down with minimal put back and then it's mostly ornamental stuff and half of it dies. The roadways and storm drain offs are not tended to. They are blocked with debris and street sweepers are not out enough. The sewage issue.
- Trees are being removed and the river is dying
- Have you looked or tried standing in the river, its gross, not clean and should be a priority
- Let's start with the sewage dumps and disregarding wetlands

- Not enough money allocated to the need.
- Sewage dumps
- No. The seer leaks have been going on for decades. It should have been addressed and handled decades ago. Actions speak louder than words. There has been little to no action ever.
- Consideration of preservation of existing landscape appears to not be enforced or even considered with new construction.
- I've seen firsthand pollution, sewage and bad water quality
- Sewage spills in the Indian river lagoon. I heard a kid had a cut on his leg and went swimming and now he's paralyzed
- Drainage should not go into river. Building permits need to stop.
- Abandoned city owned lots are filled with garbage, sewage and drainage issues effect the IRL
- Lack of communication education and action. Water quality in the lagoon is failing.
- Approved destruction of wetlands, lack of preservation of natural ecosystems, approved plans that allow drainage into Indian River lagoon. Etc
- Still having sewage spills in the IRL, and the tree protection ordinance, intended to preserve canopy shade, is not working. That is because the critical root zone (CRZ) formula does not meet minimum standards set by ISA and ANZI-300
- lack of leadership
- I lived here over 40 years & the City keeps “accidentally “ discharging seer into the River.
- Continued over development, clear cutting trees, not honoring it's citizens input, wasting tax pay dollars on frivolous lawsuits and counter suits. I
- Too much development, cutting of old growth trees, outdated sewer pipes.
- It seems as though the focus is on housing development which completely destroys natural resource areas.
- They do the opposite. Examples include, changes made at Parrish Park, the continued clear cutting of trees (Winn Dixie's parking lot), the over pruning of palms (reducing survival of a stressful weather event, refusal to dredge ponds
- The city spends more resources on city marketing than it does on making leadership available for crucial discussions on natural resources with residents. The city will not even Livestream its TEC mtgs. City needs to engage in relevant 2-way engagement.
- They let companies strip the lands clean and should replace with trees native but trees and or plants are not list is outdated! Leave the large trees might get less homes on the property their loss!
- There is far too much housing being built in a short amount of time.
- Keeping green spaces green with no development. Areas for animals to move about. Restoring the Indian River Estuary. Having green tourism. Education for both people who live here and visitors for what a treasure our nature resources are .
- Tree removal, river pollution, trash everywhere around town
- There is trash everywhere, we continue to have sewage spills, land is still being clear cut for developers.
- They are allowing too much development in the city.

- Need to update riverfront infrastructure so fewer to no leaks. City parks full of homeless and drugs.
- It seems that all of the green space on the west side of town is being rezoned and bulldozed to house people on welfare.
- The building is out of control. There is not enough water as it is, aren't we buying from Cocoa, of all places? Fresh water is the enemy of our Indian River Lagoon, besides rain water. Storm water run off and sewage spills and the fresh water from the cape
- Continuing loss of tree canopy due to development policies and lack of enforcement. Failure of the City to stop allowing sewage and fresh water to flow into the IR Lagoon.
- Rezoning threats to parts of Titusville, traffic and roads already problematic, have more community involvement by putting together community cleanup days,
- Clean water initiatives, waste management stricter recycling sorting, low walk ability from parts of town, no community gardens or shared co working spaces, minimal renewable energy infrastructure, soil degradation and high run off, minimal canopy coverage
- Developers continue to clear cut areas, for homesites. Existing ordinances apparently do not have sufficient penalties for this practice.
- The city has not adequately protected the lagoon. The incredible increase in development projects does not take into consideration the poor quality of the infrastructure. There needs to be a moratorium on new developments until the existing problems are
- Over the last few years the city has constantly polluted the river with sewage. This needs to STOP.
- Too much land be demolished for big projects such as housing developments and apartments.
- Our Indian river lagoon is polluted. Our green space is being turned into multi-family projects. We have one of the most pristine waterways in the country and we fail to protect.
- Because what has been done does not seem to reflect what was given, nor what was communicated to the public from the concept (which is beginning again here now!). And that's from us poor outsiders (public) and the little we get to see.
- City leaders have fought against local residents who overwhelmingly voted in favor for our right to clean water.
- The infrastructure is insufficient to handle the growth and developers are not required to make necessary updates on their properties beyond the bare minimum, take their profits and leave.
- The waste dumps into the river is the opposite of protecting nature.
- "Accidentally" discharging sewage to effluent to IRL has been going on since I moved here in 1985.
- too many developments straining our already overburdened area. cutting down mini pockets of vegetation, home to many species of wildlife and not fixing the sewage problem to help restore the river.
- Trash easily gets into the river from trash trucks. All septic tanks should be removed and attached to sewer
- A need to implement better urban forestry and water management practices ie tree planting via underprivileged areas and water reclamation for ALL residents.

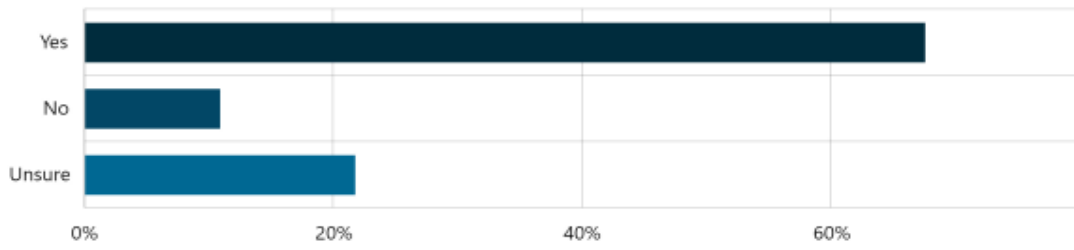
- On Earth Day you brag that Titusville had been a tree City for many years. What kind of tree City allows homeowners to cut down every tree in sight? Even obviously healthy trees with no permit needed. Developers clear-cut property saving no trees. And the They provide no shade, wildlife
- Allowing the destruction and construction of practically every inch of available property which is mostly wooded areas. All for adding housing that we don't need well ahead of any consideration of the natural resources or logistics to support it.
- Frequent spills and pollution into the IRL
- Our Lagoon,
- The city constantly dumps wastewater into our river.
- Water clean up not sufficient
- The City (Manager and Council) have constantly ignored the good scientific and ethical advice from its own Environmental Commission. Our precious wetland areas, the IRL, trees, etc. have all been neglected or even degraded by bad government.
- Indian River Sewage
- Planning issues permits allowing too much development and Council approves zoning changes that allow ecological degradation
- If the city did enough there would be enough seagrass for the manatees, no flooding, no sewer spills, no infections from wading in the lagoon. There would be shady streets and shorelines wouldn't erode.
- Titusville refuses to test their stormwater ponds and sewers. The IRL in Titusville is so polluted with nutrients that the marine life is dying.
- The degraded condition of the North IRL and its inability to support seagrass, oysters, fish, and manatees, as well as the current rate of clear cutting of wooded acreages/bird habitat for development indicate City doesn't protect Nat'l resources.

5. Which of the following initiative(s) should the City prioritize to protect natural resources?



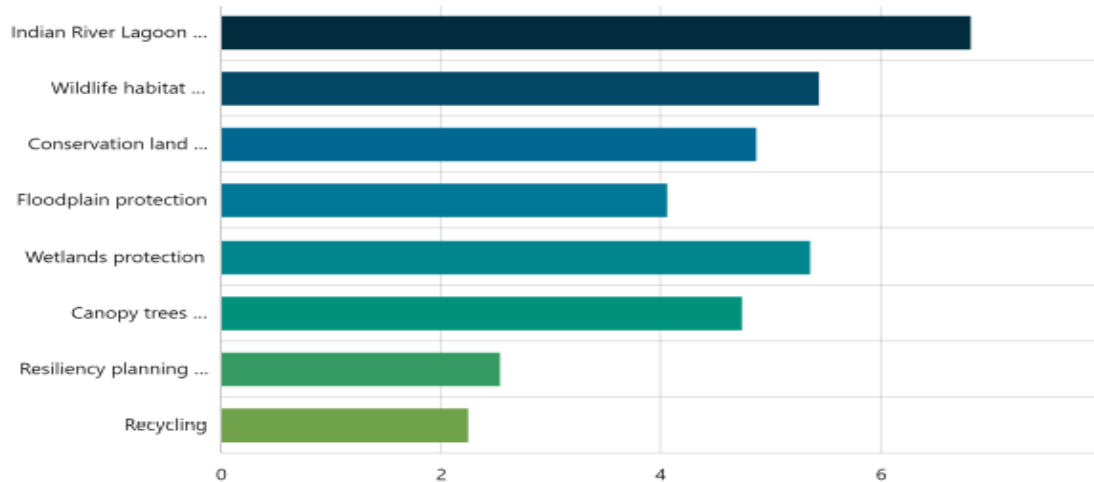
Answer choices	Percent	Count
Wetland protection	51.81%	43
Conservation land and wildlife habitat acquisition	57.83%	48
Converting septic to sewer	13.25%	11
Flood prevention	10.84%	9
Tree preservation/protection	33.73%	28
Low impact development methods (stormwater)	24.10%	20
Improving treatment and disposal of wastewater effluent	53.01%	44
Alternative potable water supply	3.61%	3
Sea level rise adaption projects	4.82%	4
Eliminating single use plastics	6.02%	5
Potable water conservation	6.02%	5
Recycling, reducing, or reusing materials	8.43%	7
Reducing local greenhouse gas emissions	1.20%	1
Other	8.43%	7

6. Should the City provide more stringent wetland protection regulations than the St. Johns River Water Management District?



Answer choices	Percent	Count
Yes	67.47%	56
No	10.84%	9
Unsure	21.69%	18
Total	100.00%	83

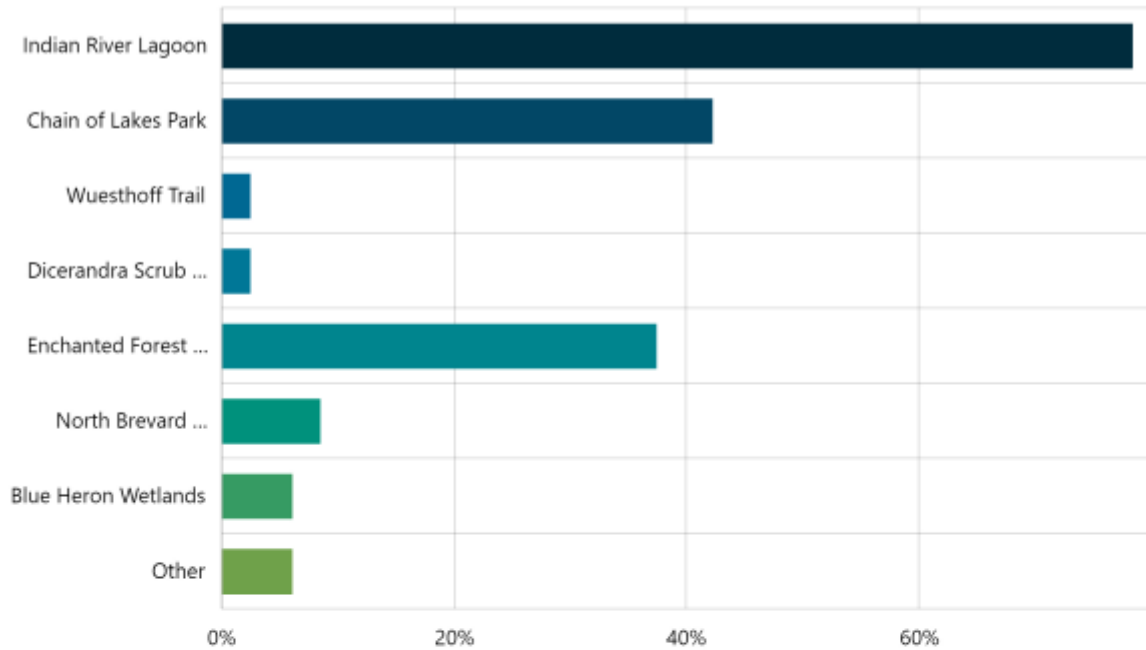
7. Please list in order of importance the natural resource projects/programs the City should prioritize funding in the next 10-20 years



	1	2	3	4	5	6	7	8	Count	Score	Avg Rank
Indian River Lagoon water quality improvements	55.42% 46	14.46% 12	13.25% 11	6.02% 5	1.20% 1	4.82% 4	2.41% 2	2.41% 2	83	6.81	2.19
Wildlife habitat conservation	8.43% 7	24.10% 20	18.07% 15	19.28% 16	15.66% 13	12.05% 10	1.20% 1	1.20% 1	83	5.43	3.57
Conservation land acquisition	9.64% 8	14.46% 12	18.07% 15	19.28% 16	14.46% 12	6.02% 5	8.43% 7	9.64% 8	83	4.86	4.14
Floodplain protection	4.82% 4	9.64% 8	8.43% 7	8.43% 7	21.69% 18	27.71% 23	16.87% 14	2.41% 2	83	4.05	4.95
Wetlands protection	8.43% 7	20.48% 17	22.89% 19	14.46% 12	19.28% 16	8.43% 7	6.02% 5	0% 0	83	5.35	3.65
Canopy trees protection and planting	8.43% 7	10.84% 9	14.46% 12	22.89% 19	15.66% 13	16.87% 14	4.82% 4	6.02% 5	83	4.73	4.27
Resiliency planning and climate change adaptation	3.61% 3	3.61% 3	3.61% 3	3.61% 3	7.23% 6	12.05% 10	27.71% 23	38.55% 32	83	2.53	6.47
Recycling	1.20% 1	2.41% 2	1.20% 1	6.02% 5	4.82% 4	12.05% 10	32.53% 27	39.76% 33	83	2.24	6.76

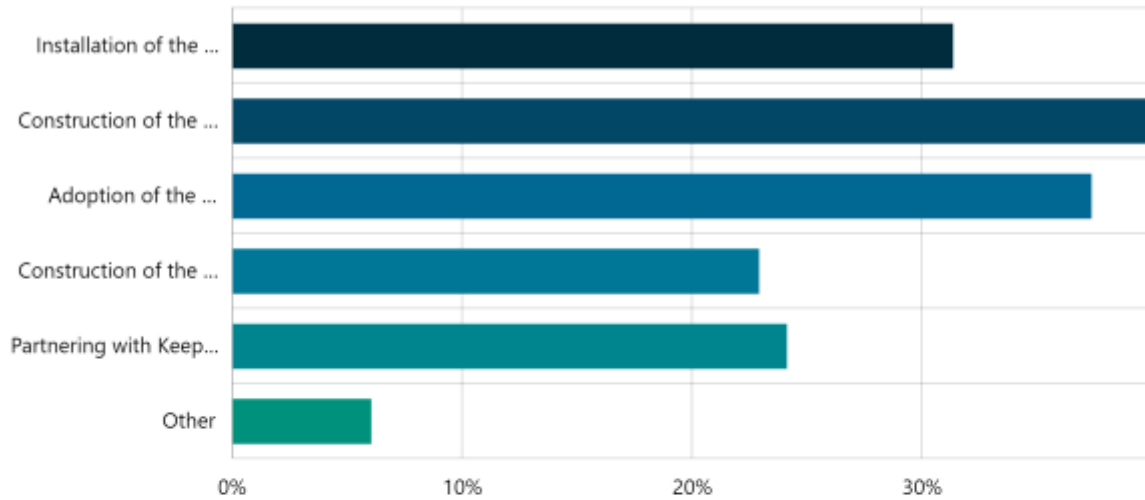
Score - Sum of the weight of each ranked position, multiplied by the response count for the position choice, divided by the total contributions. Weights are inverse to ranked positions.
Avg Rank - Sum of the ranked position of the choice, multiplied by the response count for the position choice, divided by the total 'Count' of the choice.

8. Which of the following natural resource park(s) do you frequent the most?



Answer choices	Percent	Count
Indian River Lagoon	78.31%	65
Chain of Lakes Park	42.17%	35
Wuesthoff Trail	2.41%	2
Dicerandra Scrub Sanctuary	2.41%	2
Enchanted Forest Sanctuary	37.35%	31
North Brevard Walking Trail	8.43%	7
Blue Heron Wetlands	6.02%	5
Other	6.02%	5

9. Which recently completed City project(s) do you feel benefits the environment the most?



Answer choices	Percent	Count
Installation of the Sand Point Park Floating Vegetated Islands	31.33%	26
Construction of the Draa Field Stormwater Park	39.76%	33
Adoption of the Low Impact Development Ordinance	37.35%	31
Construction of the Main street baffle box	22.89%	19
Partnering with Keep Brevard Beautiful's Lagoon Friendly Lawn Program	24.10%	20
Other	6.02%	5

10. Do you want to stay engaged with the project?

Out of 83 survey respondents 52 respondents indicated that they wanted to remain informed of the project.

Project Website Idea Wall

12 Posts and 28 Contributions

1. **Title:** Eliminate Herbicides, Post Metrics, Expand Littoral Bands @ City Ponds

Post: Florida has a reliance on herbicide usage to manage vegetative growth in and around storm water ponds. Herbicides are contaminants that should be reduced and removed whenever possible. In order to make progress on reduction of chemical treatments that is visible to residents, precise tracking is needed.

1) Recommend that the city document and publish the current usage of herbicides, current use of mechanical harvesting, and locations of current littoral bands around ponds where vegetation is permitted to grow.

2) Recommend the city publish specific goals for reducing herbicides, increasing mechanical harvesting, and expanding littoral bands around ponds. These efforts reduce the number of manmade pollutants that flow into the ponds and migrate to the rivers.

3) Recommend that the goals and updates against goals are published annually so that residents can track the city's progress. If we can't see the progress, how can we believe it?

Once the city revises its annual strategic planning process into a relevant, visible process, these goals can be incorporated into the city manager's performance measures and targets tracking list that is currently available only by public records request.

Comment: No comment

2. **Title:** Organic Fertilizer

Post: Eaton Worms produces Certified Organic Fertilizer that is safe for the environment and especially our waterways. We need to stop using synthetics and treat our earth with organic solutions. Not to mention it's a local company based in Titusville and a member of the Chamber of Commerce. Eaton Worms products are sold all across the state already, not to mention all the lectures they give to all the Garden Clubs and Wildlife Associations along with UF/IFAS and other colleges. This is a no brainer!! Get Eaton Worms involved and let their beneficial bacteria clean our lands and waterways!!

Comment: Brilliant

Comment: This product should be used and recommended by the City of Titusville and by Brevard County.

3. **Title:** Low Impact Development (LID) Implementation Guidebook with Ordinance Recomm

Post: Here is an excellent educational video that covers many aspects of LID and other items that should be in Titusville's Conservation Element of the Comprehensive Plan. It covers many aspects of LID and how to write ordinances. It even discusses converting an abandoned golf course into the Ocala Wetlands Recharge Park (a cost sharing project) for public enjoyment. It mentions the Cape Canaveral LID Guide. This video mentions many LID aspects in brief detail. However, it mentions what counties are doing and would be a good source of where to go for more details

Comment: No comment

4. **Title:** Free Mural

Post: I am born and raised in Titusville, and I've watched the Indian river lagoon water quality change substantially in my short amount of time here. I don't have any proper ideas to save it and I won't act like I know the best and right way to fix things.

But I would like to offer my services an artist and muralist to the town, as a way to inform and educate the public on the natural, bountiful beauty that Titusville has and why it's so important to take actions, as everyday citizens, to preserve it.

I am offering a free mural or painting to the town in a public space in order to spread awareness to locals and tourists.

All I need is the paint and permission to paint on a local wall space, the image is up to the community what they would like depicted.

5. **Title:** Get the word out - our lagoon will not survive

Post: I moved onto the river in 2011 having already lived in Titusville for 30 years.

When I bought my house, I had a beautiful vibrant riverfront and within three years, it changed from a healthy brackish coastal waterfront to a mucky barren area, TOTALLY devoid of plant life and wildlife as seen when I moved in.

It is to this day, still murky and mucky and often times smelly.

I was relieved to see our river and Lagoon health addressed by our citizens in the 1/2 cent tax vote in 2016.

I am hearten to see the progress that the "save our Indian River Lagoon program" has made over these eight years .

Few are aware of these efforts and the progress being made. How is this being communicated?

Surveying most people I know, no one knew of these efforts. Talking to the space community - the entities who will ultimately decide whether to allow SpaceX to expand their operations on the cape, not one person was aware of any recovery efforts. After speaking to officials with SpaceX, FAA, LEIDOS, NASA, the Wildlife & Conservation I found that not one person was aware past or current cleanup efforts. Nor the participating entities. Nor the inherent problems with our lagoon.

Our lagoon in north Brevard is the source, the incubation and breeding ground of the healthy Flora and fauna needed to improve the health of the ENTIRE Indian river. It starts here and with unchecked space program expansion, it would be cutting our nose, to spite our face and jeopardizing the health and future of our lagoon and river FOREVER.

We need to do a better job to get the word out - to get the cooperation and support of those in power to pass referendums, convince officials to act and to engage our citizens and voters.

Comment: I firmly believe that the solution I must clean up the Lagoon is effective. Despite the challenges I face in gaining support due to my status as a candidate for the office of Brevard County Commissioner, I am confident that my plan is worthwhile. Those interested in discussing my ideas can reach out to me at dwightseigler@gmail.com and let's collaborate on finding the best ways to fix our Lagoon.

6. **Title:** Incorporate Natural Resource Goals In the City's Strategic Planning Process

Post: The City of Titusville would benefit by completing a 5-year strategic plan to assist residents in understanding the city's plan for itself. The current pieces of a strategic planning process could be pulled into a cohesive whole for the benefit of the city and the residents.

The City of Titusville currently has an annual strategic planning process that lacks visibility and participation. The process results in the updating of the city's goals and objectives (by council members),

and subsequently performance measures and targets (by the city manager). There is currently no process in place for the Titusville Environmental Commission or for residents to weigh in directly on the city's performance measures and targets which are updated each year by the city manager after the city council spring workshop.

This year the city cancelled its Community Engagement Event, and did not allow residents to speak until the end of their workshop. Citizen suggestions were not incorporated into the updating of the city council goals and objectives. The resident survey that was completed in lieu of the Community Engagement Event was only superficially incorporated into the updating of the goals and objectives. Much more could be done with this survey and compared year over year to reflect improvement and citizen confidence. There needs to be a process where the TEC and interested citizens can weigh in on the city's annual performance metrics and targets, and where these metrics are posted on the city website. Currently the spreadsheet that is used is only available upon records request to the city. The city manager should host a workshop for citizens to review the city's measurements and to receive input and questions directly from residents. The TEC has also discussed having the city manager come to a TEC meeting and explain the performance measures and targets

Comment: If this doesn't sound like the people being IGNORED

7. **Title:** Expand Public Access to TEC Meetings

Post: Public engagement starts with public access to environmental meetings. Despite years of citizen requests and (3) unanimous votes of the TEC commissioners, the City of Titusville currently Livestreams only 5 of the 10 meetings per year. This provides inconsistent access for remote viewing of meetings. Please codify the Livestreaming of all TEC meetings to assist the public in being informed on the actions of this important advisory board.

Comment: The live-streaming of TEC meetings began in 2024. The importance of having the public informed of TEC deliberations cannot be overly stated. Those discussions provide context and the science behind TEC's recommendations to City Council. Having a truly functional Commission is dependent on its ability to have meetings that are available for all to see.

Comment: The 50% livestreaming began in 2024, and citizens appreciate the ones that are Livestreamed, but the consistency is not there when we cannot depend on each of the meetings to be available to viewers via Livestream.

Additionally, at the May 28th city council meeting, city council declined to allow Member Myjak to participate remotely during the months that he is away. This denial occurred despite the city manager and the city attorney stating that it was possible to include Member Myjak. This decision further impacts the continuity of an effective advisory board and reflects that city council does not value the contributions of each member sufficiently to expand access opportunities for all that wish to participate.

Comment: This sounds like a VERY EASY FIX, just livestream all 10 meetings.

8. **Title:** Comments for the Titusville Planning Workshop, April 30, 2024

Post: Titusville conducted a survey to develop many simple goals that can be completed without much effort. This ensures that Staff will receive excellent ratings and good increases in salaries. No measurements of stormwater and IRL pollution and temperature increases will be made. Titusville will brag about exceeding their goals even though the IRL pollution and Heat Island Effect increases.

Past loss of wetlands, natural protective shorelines, and trees has caused the excessive IRL pollution has killed the seagrasses, destroyed the marine habitat, killed most of the marine life, and made IRL water contact recreation unsafe. The Heat Island Effect and flooding have greatly increased because good LID

design has not been required for all developments. Titusville has been more interested in Growth and increasing the density of homes per acre than sustainability. Lack of LID has created flooding and polluted runoff that has greatly damaged the environment.

Titusville needs to hire consultants that will:

1. Measure the water quality in stormwater ponds and stormwater outfalls to the IRL.
2. Measure the actual water quality in the IRL where people recreate and where marine life habitat is critical.
3. Compare these measurements to safe government regulations, optimum marine life requirements, and determine what needs to be done to restore the IRL.
4. Determine the Heat Island Effect created by the loss of trees in Titusville using temperature measurements on roads, sidewalks, buildings, etc. and record the tree canopy of each section measured in the various sections of Titusville.
5. Determine the minimum tree canopy needed to reduce the temperature by 10 degrees or to an acceptable level for each area.
6. Determine the flooding created by the lack of proper LID requirements. No stormwater should runoff from any Development for the maximum annual expected 24-hour rain event.
7. Determine retrofits needed to correct inadequate LID design.

Comment: The statement made by Bill Kline reflects years of citizens bringing these issues before the TEC and City Council. The TEC has discussed these issues and made relevant science based recommendations to City Council. The fact that we are still trying to bring these changes about is a reflection on a City Council that is not in tune with what its citizens are telling them.

Comment: Such a TRUE statement. Now we see two of those Council members Mayor Dan Diesel and former Vice-Mayor Robert Jordan are both running for the office of Brevard County Commissioner for District #1. If the citizens of Titusville and North Brevard vote for people like this tells you a lot about how out of touch some of the voters are. Now is the time to vote for someone who has experience in getting things done. Stop voting for people with the most and largest signs or who were the local losingest football coaches. Even in sports, you don't hire a losing coach. So get this done we are going to have to start making better decisions about the people we vote for. Vote for candidates who have experience and who are going to be a voice for the people and just a voice of him or herself. I have some ideas and I'm willing to work with anyone to help improve our community.

9. **Title:** Natural Shorelines

Post: I posted a comment regarding the Sea Grant program for natural shorelines earlier today. Now, I see my comment has been removed. I suggested the city read and study the article and use its recommendations in their planning. I thought it was a really good idea and I am insulted that it was removed.

Comment: Brevard County Department of Natural Resources has a lot of good information about the advantages of natural shorelines over seawalls and rock hardened shorelines. This is something that Titusville should do with all their parks and other shoreline properties for the benefit of the IRL.

Comment: Our natural shorelines, mangroves and wetlands, are what protects us from the storms that are getting more frequent and stronger. That politicians can railroad their pet projects (such as the development of Parrish Park) through without being accountable to the many citizens who have objected to them demonstrates their contempt for the people they represent.

10. **Title:** Where is the Tree Planting and Maintenance Budget of \$99,660?

Post: Titusville must have a Tree Planting and Maintenance Budget of \$99,660 (2 x 49,830) to qualify as a Tree City. Titusville does not have a Tree Planting and Maintenance Budget in their 2025 Budget. Please add a Tree Planting and Maintenance Budget of \$99,660 to the 2025 Budget.

Comment: The pillaging of moneys set aside for tree planting and maintenance by the creation of a "Beautification Fund", to repurpose those funds for other City needs, such as signage, is another example of the City taking resources to meet its own predetermined needs. The creation of a beautification fund to replace the intent of the original fund close to 20 years ago is another example of the City acting to subvert the needs of the citizens by repurposing the use of those resources.

11. **Title:** Living Shorelines

Post: I think City Council, city staff, citizens, and all stakeholders should study the following short blog post from 2017 and use what is recommended to improve our city shorelines and the IRL.
<https://www.flseagrant.org/restoring-floridas-coast-with-living-shorelines/#:~:text=Key%20Components%20of%20Florida%E2%80%99s%20Living%20Shorelines%201%20Oysters,About%20Living%20Shorelines%20in%20Florida%20by%20Region%20>

Comment: Our natural shorelines, mangroves and wetlands, are what protects us from the storms that are getting more frequent and stronger. That politicians can railroad their pet projects (such as the development of Parrish Park) through without being accountable to the many citizens who have objected to them demonstrates their contempt for the people they represent. The recommendations made by citizens, based on available science would have been beneficial and practical. Instead we have a parking lot pushed through that will be vulnerable to extreme weather and limit its use by citizens and the horseshoe crabs depending on those spawning grounds.

12. **Title:** Urban Forest Plan - trees on public lands

Post: I commend the City for the following Comprehensive Plans language pertaining to tree protection on private lands:

"Policy 1.2.3:

The City will not allow the total removal of vegetation during land development. New development applications and landscape plans shall emphasize the maintenance of indigenous vegetation, rather than clearing and replanting.

Strategy 1.2.1.1:

The City will prevent clear cutting of land by requiring new developments to integrate existing healthy non-exotic vegetation into landscape plans."

However, the Comprehensive Plan has no language regarding increasing trees on publicly owned lands, such as streets, parks, and other public areas.

The Conservation Element indicates:

"Objective 1.2:

Native Vegetation and Trees.

The City shall preserve and protect trees and native vegetation.

Policy 1.2.1:

Assure the maintenance and conservation of trees and native vegetation within the City, through the continued maintenance of trees within City properties."

Objective 1.2 should refer to the City's intent not only to preserve and protect trees and native vegetation but to increase tree canopy by planting trees along streets, in parks, and other public spaces as part of a comprehensive Urban Forest Plan. In August, 2023, City Council direct staff to apply for a grant for an



Urban Forest Plan to develop a vision for an Urban Forest Plan with a canopy goal, and specific actions. Titusville has been a designated Tree City USA for 23 years. To be a Tree City USA, a community is to have an effective long-term plan for planting, care, and removal of trees from streets, parks and other public spaces. Yet the City admits it planted no trees in 2023, and very few trees in the previous years. Please consider adding language to the Conservation Element regarding an intent to develop an Urban Forest Plan with a tree canopy goal in the City by planting trees in streets, parks, and public areas.

Yes, Kay, the comp plan does have language encouraging to not demanding tree & vegetation conservation, but the actions of city planners & Council do not enforce this intention. Stricter interpretation of the Comp Plan is needed--thus requiring more citizen information & participation to make certain the Comp Plan reflects the dreams, desires, needs & practicalities of living here.















City of Titusville
"Gateway to Nature and Space"

REPORT TO COUNCIL

To: Members of the Titusville Environmental Commission
From: Brad Parrish, Community Development Director
Subject: **Native Municipal Tree, Canopy, and Landscape Management Trust Fund**
Department/Office: Community Development

Recommended Action:

Discuss the Native Municipal Tree, Canopy, and Landscape Management Trust Fund concept.

Summary Explanation & Background:

At the May 15, 2024, TEC meeting, the commission moved to table the discussion of the Native Landscape Trust Fund to the July 10, 2024, meeting. The item was again tabled to the November agenda and again at the January agenda.

Enclosed for discussion are two exhibits provided by Chair Myjak.

Alternatives:

Item Budgeted:

Source/Use of Funds/Budget Book Page:

Strategic Plan:

Strategic Plan Impact:

ATTACHMENTS:

1. Native Municipal Tree, Canopy, and Landscape Management Trust Fund (Native Landscape Trust Fund)

Native Municipal Tree, Canopy, and Landscape Management Trust Fund
or simply,
the Native Landscape Trust Fund

Summary

There is a growing loss of native Florida due to human development.

Our environment, the natural life-giving habitat, is being consumed by concrete, impervious surfaces and compaction. If this continues, it will squeeze “the Nature” right out of Titusville’s Motto.

So we must prepare for the future. What will our city look like? Every citizen wants professional police protection, a high-quality fire department, and the best possible administrators the city can offer. But how many people insist that the welfare of their community’s treasure of trees be entrusted to professional management?

One university study indicates that only 39 percent of our municipalities systematically care for their publicly owned trees, and fewer than 15 percent hire foresters. The result is that many of our urban forests are in trouble. Throughout America’s cities, more shade trees are dying than are being replaced. Scarce financial resources are being wasted on plantings that are doomed from the start, and life-extending practices such soil improvements, pruning and disease control are often neglected.

By contrast, communities that employ a professional to manage their trees are the big winners. In our community, native plants, trees and shrubs win big! They have lived here for thousands of years, without fertilizers, insecticides or watering (once established.) They survive drought, fire, heavy rains and all manner of bugs because natives are naturally resistant to them. These are features of our land.

Development is not likely to stop. So proper resource management should be key.

Better practices are needed –

- Pocket Rain Gardens**
- Structured Wetlands**
- A Managed Urban Forest (yes, from Canopy to Mycelium, maintenance too)**
- Employ alternative and creative stormwater practices**
- In summary, lets do some engineering *with* nature.**

Outline of the NLTF plan

- 1. Assess Mitigation fees**
- 2. Assess Development Incentives using mitigation reimbursement to incentivise:**
 - **LID in any development**
 - **Contributions toward advancing Titusville's Urban Forest.**
 - **Promoting native habitats and conservation subdivision planning**
 - **Others?**
- 3. Remainder of funds => a sustainable Urban Forest Management Program**
 - **Its what the Trust Fund funds with the remainder of the mitigation fees.**

➤ Native Plant Mitigation Assessment – some considerations:

- **Value of existing habitat and soil types**
 - Consider Environmental Value of existing Habitat(s) and Soil Types vs post development impacts
 - Consider the scenic heritage and natural beauty of Natural vs. Disturbed vs. Redeveloped lands
- **Hydrological services rendered -**
 - stormwater absorption
 - groundwater recharge
 - carbon capture
 - disturbance of the topology/mycelium
- **Endemic threatened or endangered Wildlife**
 - Can be inferred by soil/habitat type/loss
- **Nutrient load increases due to:**
 - Loss of vegetation => less transeaporation => increased stormwater
 - Introduction of fertilizers, pesticides, herbicides, or *any* chemical available for retail
 - New Sanitary Sewers means increased black water processing, potential effluent releases, and biosolid production
 - Increased freshwater flow into the estuary
- **Groundwater Resource Impacts**
 - Groundwater recharge is diminished due to impervious surface
 - Future groundwater reserves will be diminished due to this loss.
 - Increased potable water demands with population growth

Native Plant Trust Fund Incentives

- **LID Development**
 - Recovers up to 50% of mitigation fee based on post development environment
- **Vouchered Brevard County Native Plants**
 - Recovers 0-25% of the mitigation fee when planting 30% to 80%, respectively of Brevard County Native plants vouchered in the Atlas of Florida Native Plants.
- **Florida Regional Native Plants**
 - Recovers 0-12.5% of the mitigation fee when planting 30% to 80% respectively, Florida Regionally Native Plants as vouchered in the Atlas of FNP
- **Non-Native or Exotic Plants not found in the following:**
 - **Federal Noxious Weed List** managed by USDA APHIS PP
 - **Florida Noxious Weed List** by the Florida Department of Agriculture and Consumer Services (FDACS)
 - **Florida Prohibited Aquatic Plant List** currently under the jurisdiction of FDACS (according to FDACS Rule 5B-64)
 - **Florida Exotic Pest Plant Council** ([FLEPPC](#)) [Plant List](#).
 - Recovers 0% of the mitigation fee.
- **Urban Forest Management**
 - Recovers the remainder of the Native Plant Trust Fund
 - Applies to:
 - Funding a year-round Urban Forest Management Program, which
 - Pays for a full time Urban Forester
 - Reports to the Tree Board
 - Oversees Community Tree Awareness Programs
 - Ensures fund resources are spent wisely
 - Initiates and Assists Volunteer Groups
 - e.g., TGC, FNPS, Forest Friends, etc.
 - Provides valuable, localized tree care
 - Train/Supervise city crews & contractors on ordinance compliance
 - Champions Tree Plantings and preservation of existing trees throughout the City
 - Works with engineers to protect trees during highway construction and road widening
 - Provides budget for Tree Board support of Community plantings
 - Funds Tree Board Activities, workshops, plan development, etc.
 - Implements the Tree Board's Urban Forest Plan

Other Considerations?

Outline of the plan

1. Assess Mitigation fees
2. Assess Development incentives
3. Remainder of funds => Urban Forest Management Trust Fund
4. Repeat

➤ Native Plant Mitigation Fees assessment – some considerations:

- **Value of existing habitat and soil types**
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Other Considerations?

City of Titusville
"Gateway to Nature and Space"

REPORT TO COUNCIL

To: Members of the Titusville Environmental Commission
From: Brad Parrish, Community Development Director
Subject: **TEC By-laws**
Department/Office: Planning

Recommended Action:

Discuss the by-laws. No action is required.

Summary Explanation & Background:

At the January meeting, Chair Myjack requested an opportunity to amend the order of business in the By-Laws. Amendments to the By-laws must be presented for discussion, in writing, at one meeting and voted upon at the next meeting [Article XV. Amendment of the By-Laws].

Alternatives:

Item Budgeted:

Source/Use of Funds/Budget Book Page:

Strategic Plan:

Strategic Plan Impact:

ATTACHMENTS:

1. TEC Bylaws Current ADOPTED 01-12-2022

By-Laws

Of

The Titusville Environmental Commission

Article I. Duties and Powers

The duties and powers of the Titusville Environmental Commission shall be those set forth in Section 31-121, Land Development Regulations, of the City of Titusville, as amended April 27, 1999.

Article II. Membership

Any member of the Commission who fails to attend three or more consecutive regular meetings (not including special or workshop meetings) shall automatically forfeit membership in the Commission and the Chairman shall so inform the City Council. Any member of the Commission who fails to attend more than fifty percent (50%) of the regular, special or workshop meetings of the Commission within a six (6) month period shall automatically forfeit membership on the Commission and the Chairman shall so inform the City Council. Upon the approval of the City Council, the Council may authorize a member to miss more than three (3) consecutive meetings or more than fifty percent (50%) of the regular, special or workshop meetings during a six (6) month period. All members shall abide by the Standards of Conduct set forth in Article III, Sections 2-51 and 2-53 of the Code of Ordinances.

Membership shall be in accord with the provisions of Section 31-122, Land Development Regulations, City of Titusville.

Article III. Officers and their Duties

A Chairman, who shall preside at all meetings and public hearings and shall have other duties as further prescribed in these By-laws.

A Vice-Chairman, who shall, in the absence of the Chairman or his inability to act, have the powers to function in the same capacity as the Chairman.

In the absence of the Chairman and Vice Chairman, the most senior regular member present shall preside over the meeting where a quorum is present.

Article IV. Election of Officers and Vacancies

In accordance with Section 31-122, Land Development Regulations of the City of Titusville, the Chairman and Vice-Chairman shall be elected by the Commission from its membership. Terms of office shall be for one (1) year. Elections shall be held annually at the regular meeting in November. The Commission shall, from its membership, fill any vacancy in these offices by election.

Article V. Meetings

Section 1. Regular Titusville Environmental Commission meetings shall be held on the Wednesday following the second Tuesday of each month at 5:30p.m in the City Council Chambers. Any regular meeting may be adjourned to a definite date and time as established by four (4) concurring votes of Commission members.

Section 2. Adjourned, called, or special meetings may be held at any time, as required, subject to the call of the Chairman, or in his absence, by the Vice-Chairman. Upon written request of four (4) members, a special called meeting shall be held by the Chairman, or in his absence, by the Vice- Chairman, or in his absence, the most senior regular member shall have the authority to call a special meeting.

Section 3. Each member shall be notified of the date and time of each meeting by written notice or by telephone at least one week prior to the meeting. In cases where a meeting is cancelled, Commission members shall be notified at least 24 hours prior to the scheduled meeting.

Section 4. All meetings shall be open to the public. All agendas for the present meeting shall be posted on the bulletin board in the City Hall lobby.

Article VI. Quorum

As set forth in Section 31-123 (b), Land Development Regulations, four (4) members shall constitute a quorum; and concurring vote of at least four (4) members shall be required to pass on any matter.

Article VII. Voting

Section 1. Voting on all matters of business shall be by roll call or general consent. However, if the Commission is to make a recommendation to City Council, or other boards and commissions, the vote will be by roll call with the Recording Secretary recording the vote of each member in rotating order. The first roll call vote will begin with the Chairman followed by the Vice- Chairman, followed by the members (in alphabetical order) and rotating the order for each roll call vote following.

Section 2. No member present shall abstain from voting unless it is established that such member has a conflict of interest in the matter being voted upon.

Article VIII. Alternate Members

The alternate members may serve on the commission in lieu of a regular member when said regular member is unable to attend an official meeting of the commission; or, when a regular member has a conflict of interest on any item, said alternate member shall serve for the entire meeting or for the particular item that is the subject matter of the said conflict. The Chairman shall designate which alternate

member shall serve. Alternate members may serve on standing or special committees.

Article IX. Order of Business

Section 1. At regular meetings, the general order of business shall be as follows:

1. Call to order;
2. Roll call;
3. Determination of a quorum;
4. Pledge of Allegiance
5. Approval of minutes;
6. Petitions and requests from the public present (non-agenda items)
7. Old Business;
8. New Business;
9. Petitions and requests from the public present
10. Reports; and
11. Adjournment

Section 2. In order to provide an opportunity for discussion of business before the Commission, prior to the making of a motion the Chairman shall state the matter of business and then provide a period of discussion of the relevant facts. After a motion is made and seconded, the Chairman may ask for additional discussion prior to the vote.

Section 3. Citizens having business before the Commission shall be invited to speak immediately prior to discussion by the Commission on the matter with which they are concerned. If in the opinion of the Chairman time limitations are necessary in order to complete the agenda, the Chairman may place time limits for each speaker.

Section 4. The first and second petitions and requests from the public present will be an open forum. Citizens desiring to be heard under petitions and requests from the public present shall be limited to five (5) minutes unless extended by a majority vote of the commission.

Section 5. The order of business for called or special meeting shall be as follows:

1. Call to order;
2. Roll call;
3. Determination of a quorum;
4. Business that is the subject of the meeting; and
5. Adjournment;

Article X. Minutes

Minutes of all meetings shall be recorded by the Recording Secretary or designated representative; certified by the Recording Secretary after approval by the Commission; and become a public record of the proceedings of the meeting.

Article XII. Committees

The Chairman may appoint such committees as deemed necessary from time to time. The chairman shall be an ex-officio member on all committees but shall have no vote on the committee, unless he is an active member of that committee.

Article XII. Hearings

The Titusville Environmental Commission may hold public hearings when deemed expedient and necessary. Notice of such hearings shall be in accordance with the provisions of the City Charter and Code of Ordinances of the City of Titusville.

Article XIII. Parliamentary Authority and Organization Procedure

The rules contained in the latest available edition of Roberts Rules of Order are hereby adopted by the reference and shall apply at all meetings of the Commission and its committees, to the extent that such rules are not in conflict with these By-laws.

Article XIV. Correspondence and Communications

Section 1. Official communications of the Commission to the City Council shall be in writing. All original records, recommendations and reports shall be kept in the Commission files in City Hall.

Section 2. Any correspondence, notices (other than administrative procedures), communications, reports, studies, and plans originating from the Commission shall be authorized by the Commission members and signed by the Chairman.

Article XV. Amendment

Amendment to these By-laws must be presented for discussion, in writing, at one meeting and voted upon at the next meeting

City of Titusville
"Gateway to Nature and Space"

REPORT TO COUNCIL

To: Members of the Titusville Environmental Commission
From: Brad Parrish, Community Development Director
Subject: **Fountain functionality and use of bubblers in stormwater ponds**
Department/Office: Planning

Recommended Action:

Discuss the bubblers. No action is required.

Summary Explanation & Background:

On November 13, 2024, then Vice Chairman Myjak requested the Commission have a discussion regarding using bubblers in stormwater ponds in place of or in addition to fountains.

Alternatives:

Item Budgeted:

Source/Use of Funds/Budget Book Page:

Strategic Plan:

Strategic Plan Impact:

ATTACHMENTS:

1. Sandra Bubblers 1.31.25

TEC Meeting

From Reller, Sandra <Sandra.Reller@Titusville.com>

Date Fri 1/17/2025 10:04 AM

To Parrish, Bradley <Brad.Parrish@titusville.com>; Galleo, Lily <Lily.Galleo@Titusville.com>

Watching the TEC meeting regarding aerators in ponds, wanted to give you the background info on what we have for City owned ponds.. We call them aerators not bubblers, but they are the same thing.

1. I have applied for two SOIRL grants to install pond circulators (which are enhanced aerators) at both the Osprey Pond and Coleman Pond which will help the floating islands uptake more nutrients. This has been recommended by the SOIRL Advisory Committee and is waiting on Commission approval.
2. Draa Field Stormwater Pond –has aerators, the fountain has been removed
3. Senior Center Pond #2 – has aerators
4. Senior Center Pond #1 – has a fountain
5. Sand Point Park Ponds – Are County maintained

Thank you,
Sandy Reller
Public Works Operations Director
City of Titusville
Office: (321) 567-3861

City of Titusville
"Gateway to Nature and Space"

REPORT TO COUNCIL

To: Members of the Titusville Environmental Commission
From:
Subject: **Economic Development in Florida Urban3 Report**
Department/Office: Planning

Recommended Action:

Summary Explanation & Background:

Vice Chairwoman Thompson provided a spiral bound report to all the Titusville Environmental Commission members called Economics of Development in Florida. Vice Chairwoman Thompson gave a summary of the report and said that the presentation is available on the 1000 Friends of Florida website 1000fof.org and would advise everyone to watch it.

Chairman Myjak also encouraged the TEC members to watch this as well as the public. Chairman Myjak also asked for this to be a future agenda item for discussion.

Alternatives:

Item Budgeted:

Source/Use of Funds/Budget Book Page:

Strategic Plan:

Strategic Plan Impact:

ATTACHMENTS:

1. EconomicDevelopmentFlorida_Report_v2_compressed

Economics of Development in Florida

URBAN³
for



2024

Glossary

Arterial Roads

Thoroughfare roads designed for high capacity and speeds that usually connect activity centers; these roads sit below freeways/motorways in the road classification hierarchy.

Geoaccounting

Process of mapping a community's revenues and expenditures to understand how different land uses and development patterns perform financially.

Infill Development

The process of developing vacant or under-utilized parcels within existing urban areas that are already largely developed.

Land Uses

Regulating the use of land to achieve urban and regional planning goals; land uses include commercial, residential, industrial, agricultural, open space, recreational, etc.

Mixed-Use Development

A development that combines two or more land uses on one site. A classic mixed-use development type is a building with ground-floor retail spaces and apartments above.

Parcel

Area of land that is owned (i.e. lot, plot).

Return on Investment (ROI)

The measure of how much is earned over the course of an investment relative to the initial investment; profit minus cost.

Single Family Housing

A residential development intended to house only one family at a time.

Value Per Acre (VPA)

A metric used to evaluate the effectiveness of land use policy; property value divided by acres utilized.

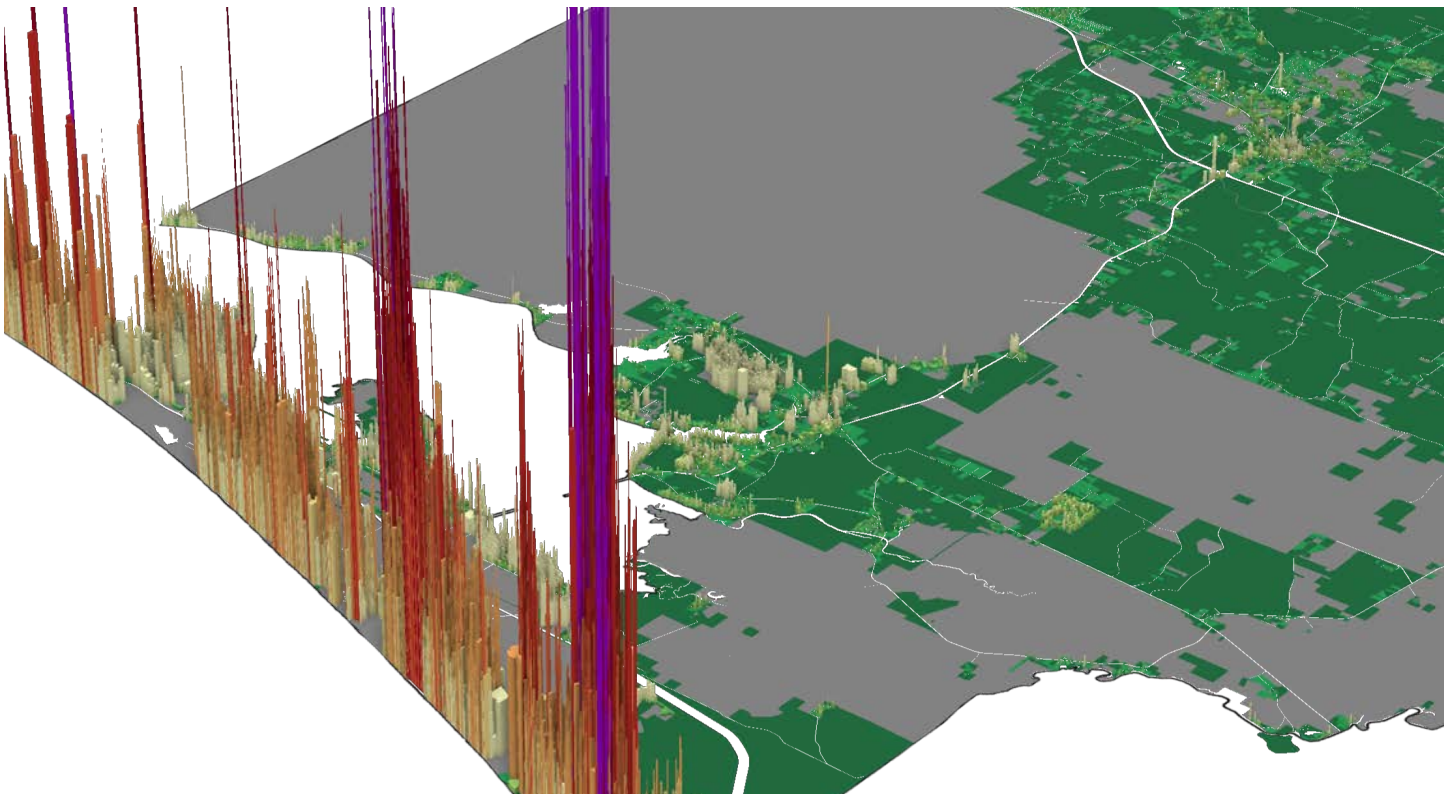


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About the Authors

URBAN3

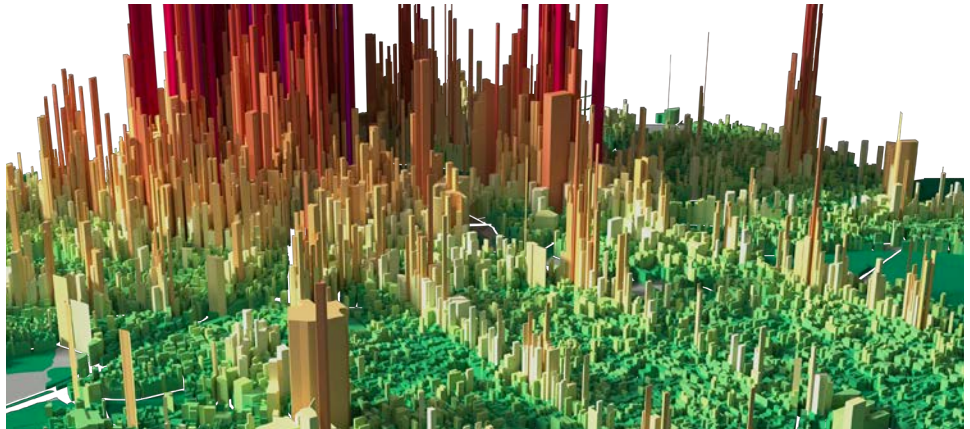


Image credit: Urban3

We are a consulting firm specializing in land value economics, property tax analysis, and community design. Our approach bridges the gap between economic analysis, public policy, and urban design. Our work will empower your community with the ability to promote development patterns that both secure its fiscal condition and create a strong sense of place.

We provide communities with an in-depth understanding of their financial health and built environment by measuring data and visualizing the results.



Photo credit: 1000 Friends of Florida

For more than half a century, Florida has depended on growth and sprawling development to fuel its economy. Sadly, we continue to experience the tragic consequences of this approach, which has been likened by some to a “Ponzi scheme.” Since 1986, 1000 Friends has been leading the way to a more sustainable future for Florida. We educate, advocate, and negotiate to protect our quality of life. Citizen involvement is at the heart of all we do. We conduct webinars and workshops, prepare special reports, and maintain a robust website to share information on Florida’s planning process. Through projects like Sea Level and Agriculture 2040/2070, we share visions of what our state could look like if more sustainable patterns of development are followed. We also advocate on behalf of citizens in the halls of the Legislature and in city and county chambers, and work to promote sound public policy on growth and development issues.



Photo credit: University of Florida

The Center for Landscape Conservation Planning was established in 2010 to provide an official forum within the University of Florida's College of Design, Construction and Planning for conducting applied research on the relationship between conservation, green infrastructure, and land use. The Center is affiliated with the Department of Landscape Architecture, forming a bridge between the disciplines of design, planning and wildlife conservation, and providing applied learning opportunities for students. Results of the Center's research are used to influence public policy through education and direct involvement in the application of relevant science, technology, sound planning principles, and state-of-the-art methods of conservation analysis, planning and management.



Photo credit: Live Wildly

Live Wildly Foundation is a 501(c)3 organization that applies an entrepreneurial approach to the conservation of half the State of Florida while seeking to balance smart growth, a robust economy and a connected, resilient landscape. We advance conservation in Florida by creating diverse coalitions, fostering collaboration, and empowering stakeholders. In partnership with Bellini Better World, Live Wildly strives to achieve a harmonious and sustainable future where economic prosperity coexists with a thriving and resilient ecological landscape.

Introduction

Urban3 has been in the practice of visualizing land-use economics for over a decade. We have analyzed hundreds of municipalities in 42 states, as well as communities in Canada, Australia, and New Zealand. Our portfolio includes 19 of the 67 counties in Florida (Figure 1). Although no two communities are identical, even in the same state, there are patterns and lessons that emerge to help policy makers better understand the forces that shape community development. As major population shifts continue over the coming decades, several factors will shape Florida's inland communities as well as the coasts. In fact, these changes are already happening. As inland communities grow, they have a chance to learn from coastal communities that have passed their growth spurts and avoid some of the inefficiencies from poor land-use practices.

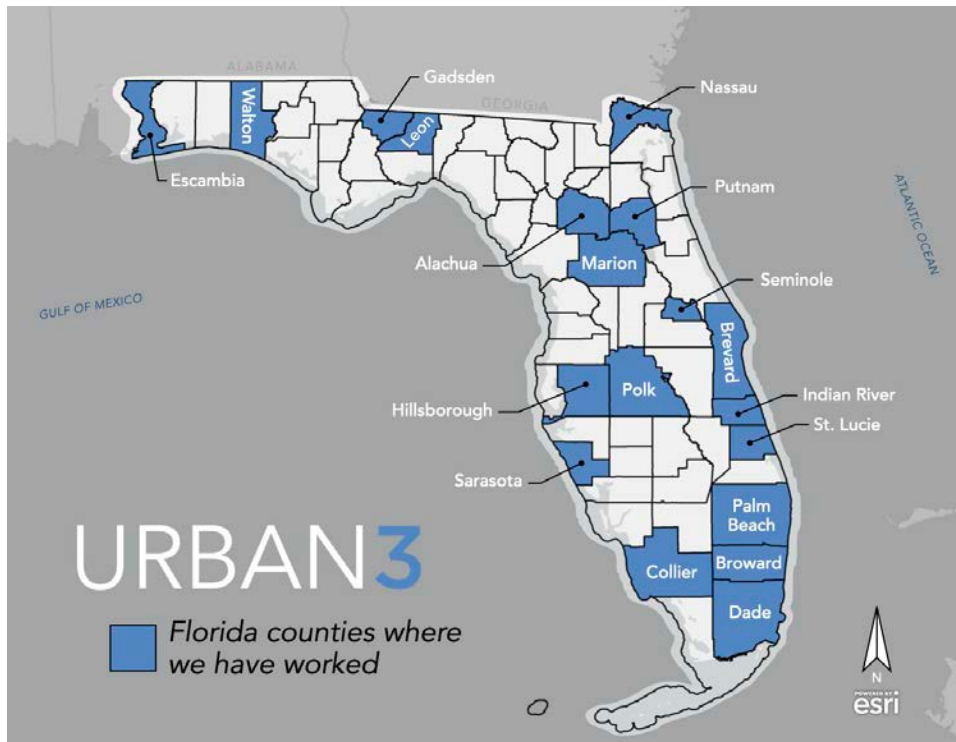


Figure 1. Map showing county locations of past Urban3 projects
Source: Urban3

This report is built on decades of professional work that has led Urban3 to analyze land-use economics for all kinds of places, from small towns such as Brevard, North Carolina of 8,000 residents to larger metros such as the Dallas-Fort Worth, Texas metroplex of several million. The knowledge gleaned from these projects gives Urban3 an expert advantage in perceiving and understanding modern issues in long-range planning.

Urban3's analyses focus on helping local governments understand their community's fiscal health by considering the potency of different development patterns from a value per acre perspective. Broadly speaking, every parcel of land in a community has different characteristics that

make it unique, perhaps most importantly its size. Simply comparing the overall productivity of properties with varying sizes is akin to comparing automobiles based on the miles they can travel per tank of fuel. We know that cars have different sized fuel tanks, so to understand their efficiency we compare them by how many miles they can travel per gallon of fuel. Comparing parcels similarly using value per acre as the key metric and applying it to both the revenues a property generates as well as the costs incurred to serve that property, we can determine how different land uses impact the long-term financial health of a community.

Major Findings

The first most important insight that Urban3 has gained by doing analytic work across the country is that communities of all sizes are struggling to afford essential infrastructure. The truth is that many communities have followed a development pattern that is fiscally insolvent. Suburban growth was made popular by federal subsidies beginning in the early- to mid-20th century, which helped pay for infrastructure and finance mortgages. Communities were flush with a combination of public and private money that made suburban development fast

and easy. Since the long-term financial liabilities of infrastructure have come due, communities have struggled to pay for those liabilities. In its professional practice, Urban3 has found that a suburban-type development pattern does not produce enough tax revenue to pay for its infrastructure liabilities. Unfortunately, this growth pattern has not been widely recognized as being fiscally insolvent and many communities have continued to grow in this way. This has been perpetuated over the decades by continued federal investment in highways, state policy, local planning and development standards, lending regulations, and more.

The second most important insight, inverse to the first, is that dense, walkable, mixed-use development patterns produce far more tax revenue per acre than is needed to pay for infrastructure. It is often the most dense, walkable areas of a community, such as a downtown, that help subsidize areas that are not as tax productive. By capitalizing on the potency of these areas, or even building new ones using principles of good urban design, communities can increase their fiscal sustainability.

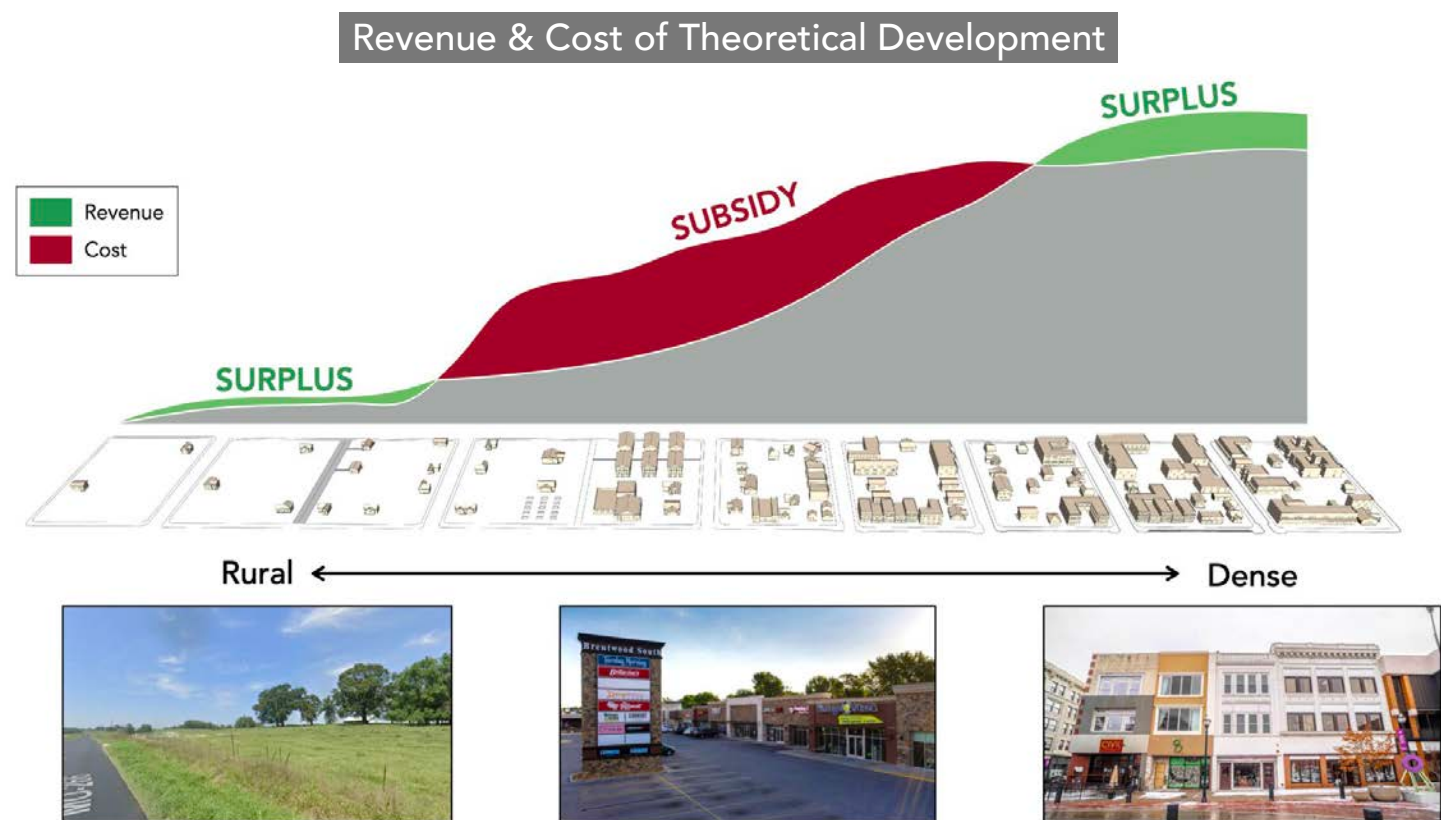


Figure 2.
Source: Urban3, Google Maps

The Connection Between Urban and Rural Planning

Good urban planning makes efficient use of land to maximize social and financial returns on investment. With sound planning, more people can be accommodated in more sustainable and livable communities that consume fewer acres of land, lessening the need to convert currently undeveloped natural and agricultural land to development. This, in turn, helps avoid fragmentation of land, which can play a critical role in maintaining functioning natural systems and economically viable agricultural lands.

Florida's natural and agricultural lands play a significant role in a variety of areas that directly impact people's lives across the state. Agriculture and related industries contribute more than \$106 billion to Florida's economy and serve as the economic backbone of communities from the Panhandle to the tip of the Peninsula. And

natural areas help support one of Florida’s largest industries, tourism. Springs, woods, wetlands, prairies, and beaches bring in visitors from around the world and significantly contribute to a more than \$100 billion tourism industry. In addition, these natural areas provide a variety of ecosystem services, helping to remove pollutants from water, provide clean air, and improve the state’s resilience to natural disasters.

Natural and agricultural lands require fewer services associated with urban and suburban development, reducing their burden on cities and counties where they are located. The development patterns that pose the greatest threat to these lands are low-density, disaggregated developments. Not only does low-density develop-



Figure 3.
Source: Eugene, OR (2019); Google Maps

ment have the potential to remove agricultural land production and fragment ecosystems, it also consumes far more in required revenue and annual maintenance for road, water, sewer, stormwater, and other urban services compared to natural and agricultural areas (Figure 3). Replacing agricultural and natural lands exclusively with low-density suburban development generates long-term economic and environmental challenges for communities including increased tax burden, increased infrastructure maintenance and costs, reduced services per capita, degradation of water quality, loss of greenspace and wildlife habitat, and reduction in food security. As we will see from an analysis conducted in Springfield, Missouri, maintaining natural infrastructure in urban envi-

“Every building must be thought of as adding one piece of the whole world.”
 - Leon Krier

Development Evaluator Tool

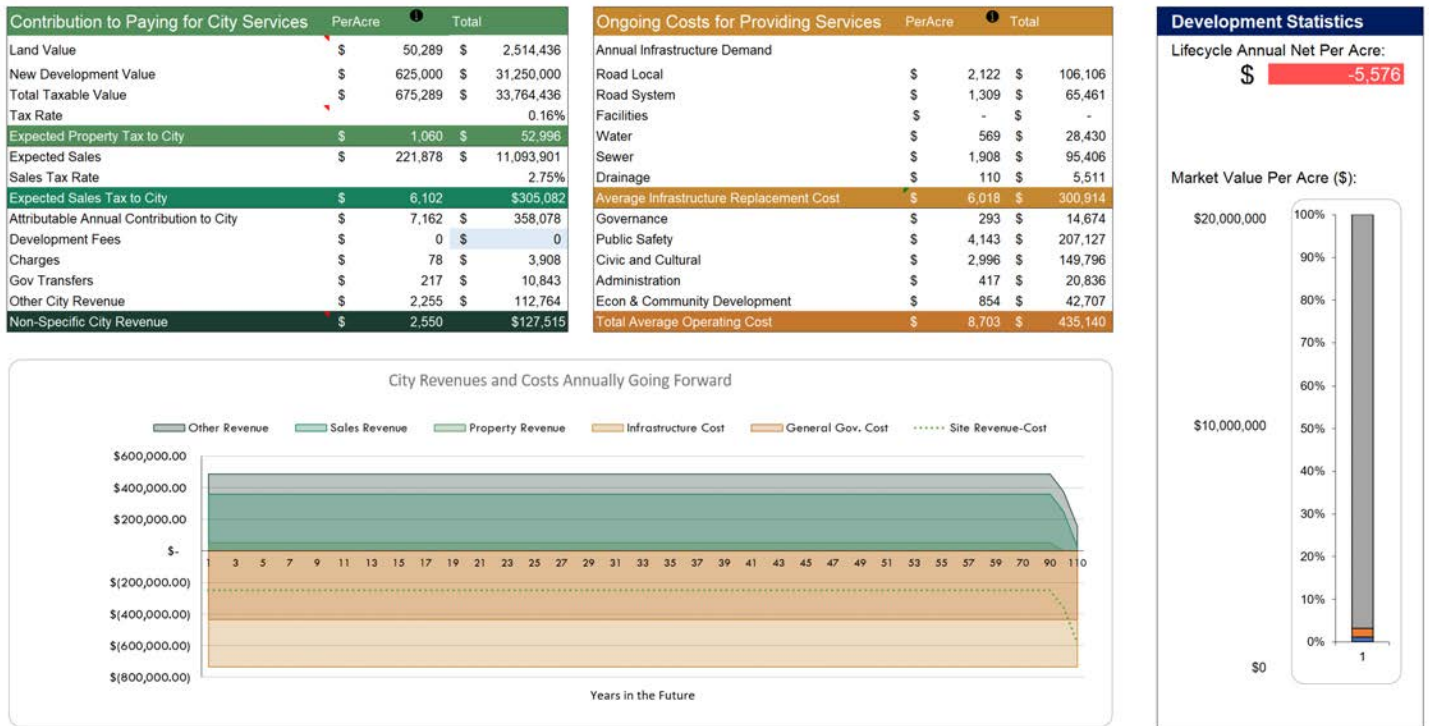


Figure 4.
Source: Urban3

ronments can, in fact, generate a direct financial surplus and improve the long-term fiscal health of a community.

Dense urban spaces lessen the need to develop natural lands, and those natural lands lend immense value to the communities that preserve them. Simply put, good urbanism is environmentally conscious, as it considers the long-term consequences and the efficiency of land use. To be blunt, it considers the land a priceless opportunity, not to be wasted by inefficient land-use patterns. The byproduct of this is also a financial and social benefit to the community. By doing both, Florida's communities can create greater compatibility between urban and natural environments, emphasizing protection of critical green infrastructure while providing essential grey infrastructure.

Florida is growing. In economic terms, this is a good position to be in. In environmental terms, this growth has significant ramifications. However, Florida has a choice in how it grows. It can continue to sprawl, increasing its fiscal liabilities and decreasing its environmental sustainability and availability of agricultural lands; or it can grow using the principles of good urbanism, increasing its tax productivity and minimizing its environmental and agricultural impacts.

When a new development, like a residential neighborhood, is constructed the developer takes responsibility for building not only the homes, but other pieces of infrastructure that support that development (Figure 4). Take the roads, for example (Figure 5). The city or county where that development is located gets those roads for "free" because they didn't have to build them initially. However, those roads, as well as other pieces of infrastructure, typically then become the responsibility of the city or county to maintain. They have to pay for annual maintenance as well as less frequent, but more costly, things like resurfacing. And eventually, those roads must be rebuilt entirely, which is extremely costly. The cyclical nature of maintenance is important for jurisdictions to consider as they grow and take on more infrastructure they will be responsible for maintaining in perpetuity.

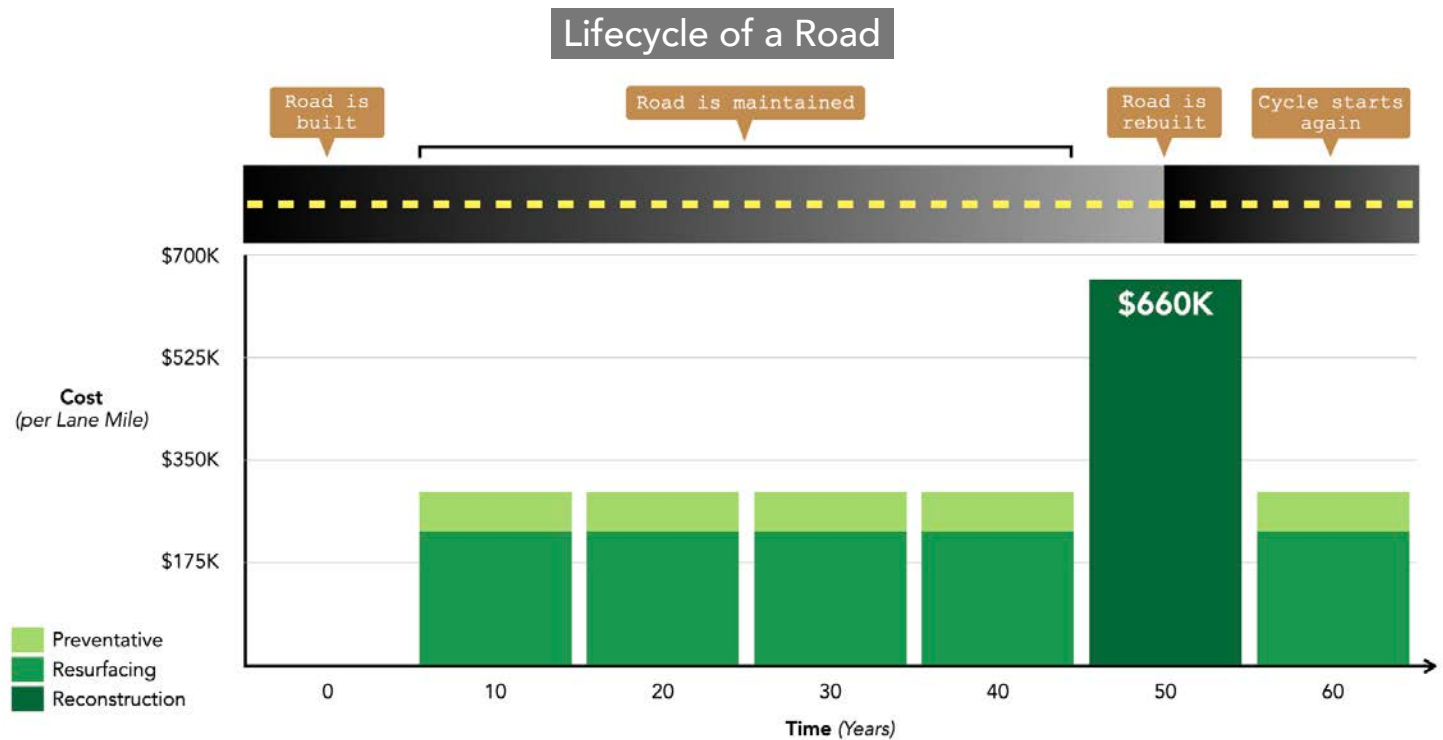


Figure 5. For illustration purposes as an "average," and may fluctuate due to level of service, usage, scale of road and substrate, and local cost of labor.
Source: Urban3, indusinc.com

Tax System

When considering the development patterns of a community, one should start by understanding the revenue and expenses of how communities are financed.

The largest driver of municipal design starts with how places create their revenues, and that starts with taxes (Figure 6). Local governments in Florida, including cities and counties, are funded mostly by property taxes. Sales taxes are typically the secondary driver, followed by other incomes such as fees, state transfers, grants, etc. Other forms of revenue include development fees, called impact fees in Florida, that are meant to help offset some of the costs associated with new development. However, it is rare that these fees do a reasonable job of accounting for the lifecycle costs of new systems that support new developments. Property taxes are the prime revenues for cities and counties. School board budgets are also largely reliant on property taxes.

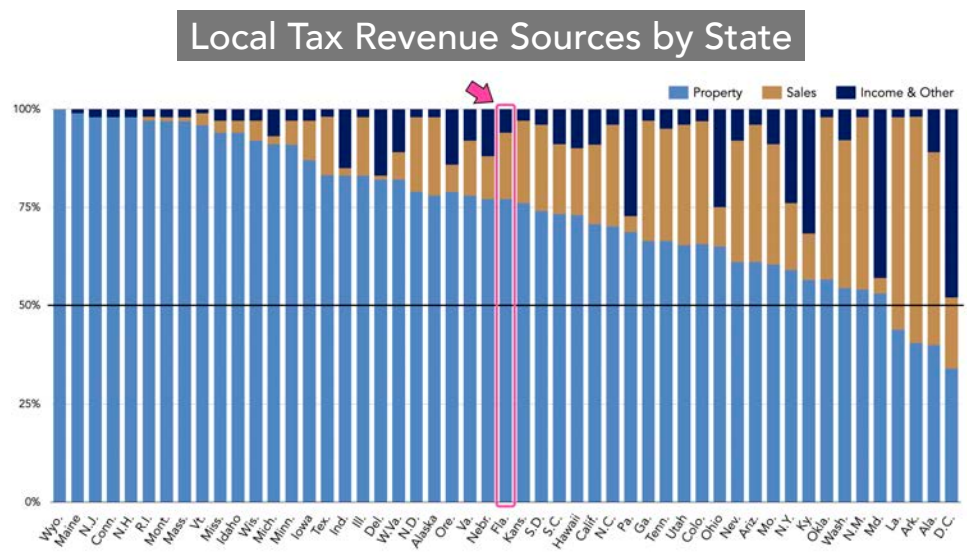


Figure 6.
Source: US Census 2021 State & Local Government Finance Historical Datasets and Tables

Not every property pays the same effective tax rate, however. First, homeowners are eligible for exemptions, which can take tens of thousands of dollars off their taxable value. Second, the Save Our Homes Amendment limits yearly taxable value increases for homeowners to the Consumer Price Index (CPI) increase or 3%, whichever is less. The lowest increase post-2008 was 0.7% in 2016.

It's important to keep in mind that while increases in residential taxable values are artificially limited by these policies, the cost of services and infrastructure they help pay for is not. The average price of asphalt, for instance, grew 5% annually from 2011 to 2020. But increases in infrastructure costs, as well as the CPI, have been much larger recently. The CPI increased 7% from 2021 to 2022 and the Producer Price Index for asphalt paving and roof materials increased 29% in the same period. However, for a significant share of properties, the growth of taxable value was capped at 3% (Figure 7).

Simply put, though it may be politically popular to cap homeowners' property values and their subsequent taxes, the economics of what a city costs does not follow those same rules. As inflationary periods continue, the chasm between the cost of materials and labor, on the one hand, and a community's ability to pay for those costs, on the other hand, will widen. One way out of this trap is to add more new taxpayers, but that comes with additional costs. Another method is to better understand the cost side of the ledger and maintain a more efficient pattern of development that is net neutral or net positive with its revenues against municipal cost.

Sales taxes are a sizable portion of municipal revenue, but not as significant as property taxes. The problem with sales taxes is that they are more responsive to market forces. For instance, in the Great Recession, sales of goods like boats and cars plummeted, and with it the sales tax revenue. Additionally, the state of Florida does not allow municipalities to analyze sales tax production at a local level smaller than a zip code. This may be sufficient for larger cities, but it is not for smaller communities. Urban3 has experience in states where this data is accessible for analysis (e.g., Texas, Colorado, California, South Carolina, Iowa to name a few) and those studies have shown that downtowns outperform suburban "big box" developments in tax productivity. In this report, we include the analysis of Gainesville, which tracks with those studies. Furthermore, we'd recommend that communities seek policy changes to allow for sales tax transparency at a more granular level, so that communities may be better informed.

The citizens of Florida should insist upon open access to this information, especially if they are counting on it for maintaining city services. There are ways to analyze sales tax production geospatially without revealing confidential business information. The states mentioned above have those policies in place and they can be replicated in Florida.

Finally, there is the question of fairness and equality with the Save Our Homes protections. Although logical

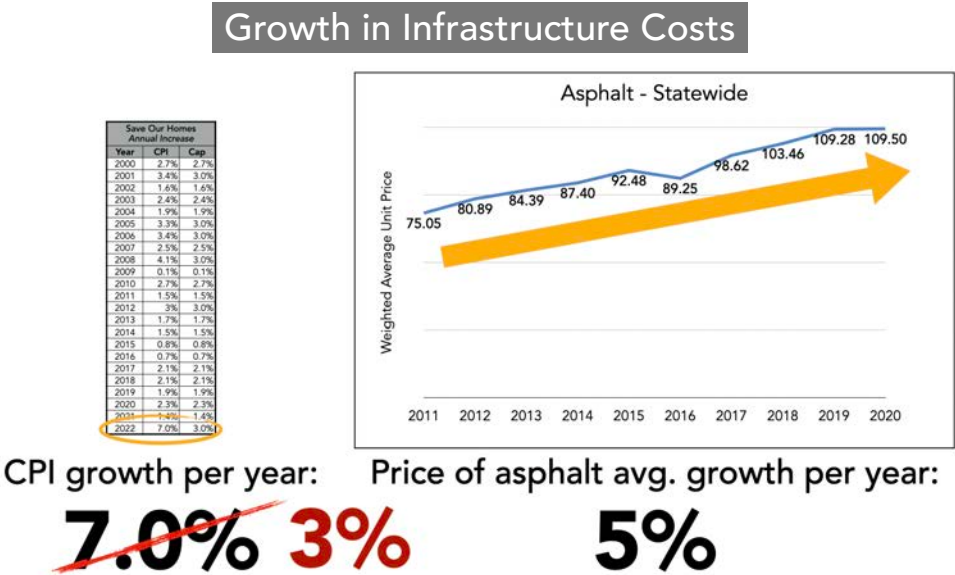


Figure 7.
Source: pcpa.org, FDOT 10 Year Cost Trend Report

from a standpoint of arresting market dynamics caused by population shifts within Florida, the protections this creates are not equal for all residents. A renter does not enjoy the same protection from market forces as a homeowner does. For instance, two identical houses that are side-by-side can have two very different tax bills for the same infrastructure access. This is yet another example of local economic quirks caused by policy created at a state level.

City Design Principles

City development patterns take many forms, but a few types seen over and over again are documented by Duany Plater-Zyberk in the guidebook *Architectural Graphic Standards* (2000). The drawings in Figure 8 show the general shape of each community (left) and that community turned into a diagram (right). Think of the diagram as the skeletal shape of the community that sets structure. There is a broader chapter on this concept, but the simple visual here works as a general primer on urban design.

These are by no means the only structural shape, but the predominant shape that allows for efficient growth while maintaining a sense of place without the larger negative effects of low-density patterns. Communities should consider the overall structure of the organizing elements of design within a neighborhood, but also how it scales up regionally. Communities are dependent on their neighbors for labor, commerce, and economics, but also for environmental integration. In Florida's case, this is necessary for functional hydrology and maintenance of water quality. But it is also true for habitats for focal species, and even agricultural productivity and integrity. While these illustrations help diagram ideal patterns for human settlement, nature follows its own pattern as well. Although this report will focus on the built environment, it will also discuss how cities interface with natural patterns.

It's important to understand each diagram's shape. The "towns and villages" diagram is a structure where there is a prime community (town or city) that has a regional network of smaller villages that connect through transportation corridors. Madison, Wisconsin offers an example in this case. This diagram can be thought of as a mother and children relationship. The space between developed areas is land reserved for agriculture and nature.

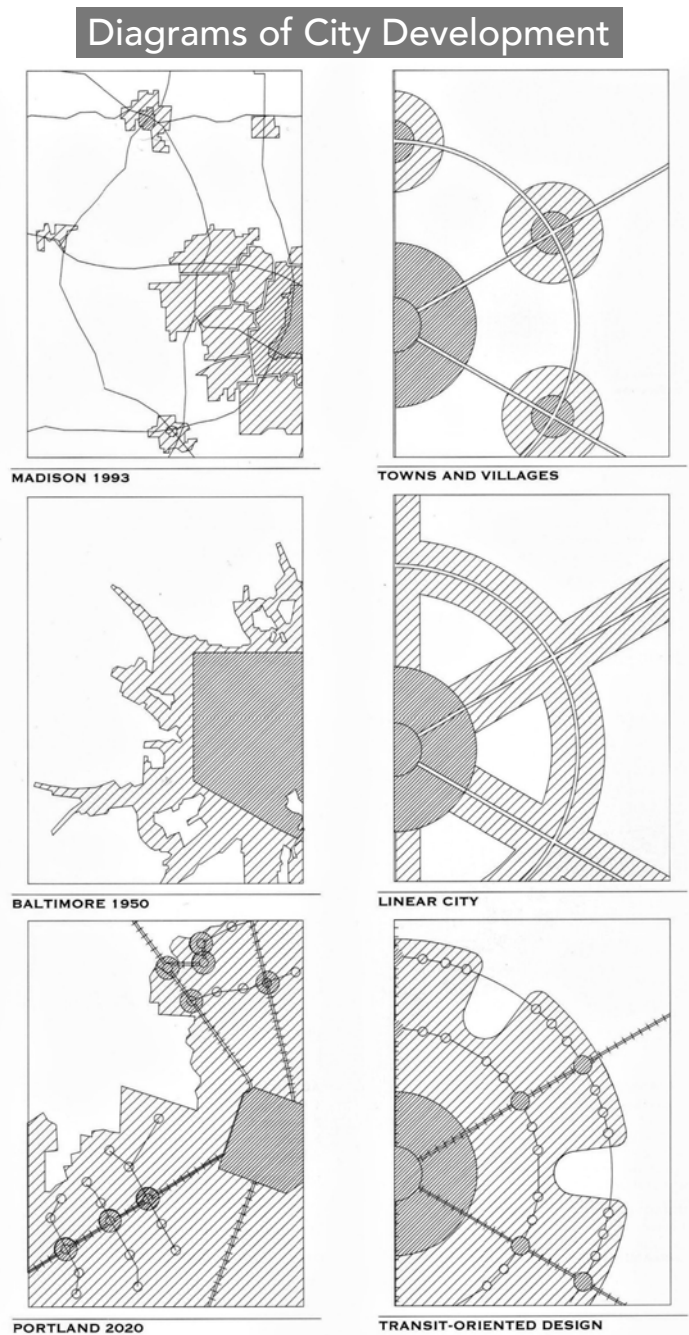


Figure 8.
Source: 'Architectural Graphic Standards,' Duany Plater-Zyberk (2000)

The “linear city” is a community that focuses on transportation corridors, like spokes out of a hub, seen in Baltimore, Maryland as an example. The transportation system in this model is a multimodal system that includes a transit strategy, as the core city is constrained by natural or geographic areas.

The diagrammatic patterns for healthy cities and nature are very similar. They both rely on the “node” and “network” and are scalable. Both rely on an interrelated diversity in proximity, similar to a “polyculture” in farming terms. Conversely, a “monoculture” is fragile in nature, as it is in city development.

Applying these diagrams to various Florida case studies outlines how some areas in the state have accomplished a reasonable balance between built and natural environments and how others can improve to better integrate development with the protection of green infrastructure.

Alachua County

Alachua County, Florida demonstrates an excellent example of the hub-and-spoke diagram (Figure 9). Not surprisingly, Gainesville, especially the zone from downtown to the University, stands out as the hub. At the county scale view, various villages across the county appear with smaller productivity spikes marking their downtowns, such as Alachua, Newberry, and Micanopy. The region has also maintained a form of “greenbelt” between the City and the villages in the form of wetland reserves to the south and east or agricultural lands to the west.

But Gainesville, and other unincorporated development, has also stretched itself westward, and foregone opportunities to make new “cores” among these new development patterns. Notable in the model is the unincorporated development west of I-75 which represents itself as a yellow-to-red range of development that is uniform like a carpet. This is what sprawl looks like. It’s a pattern of sameness without structure, unlike the core of Gainesville to the whole city. The structure of neighborhood centers should be smaller versions of the core of downtown, but it is clear from the model that they have not emerged. On the contrary, the downtown toward

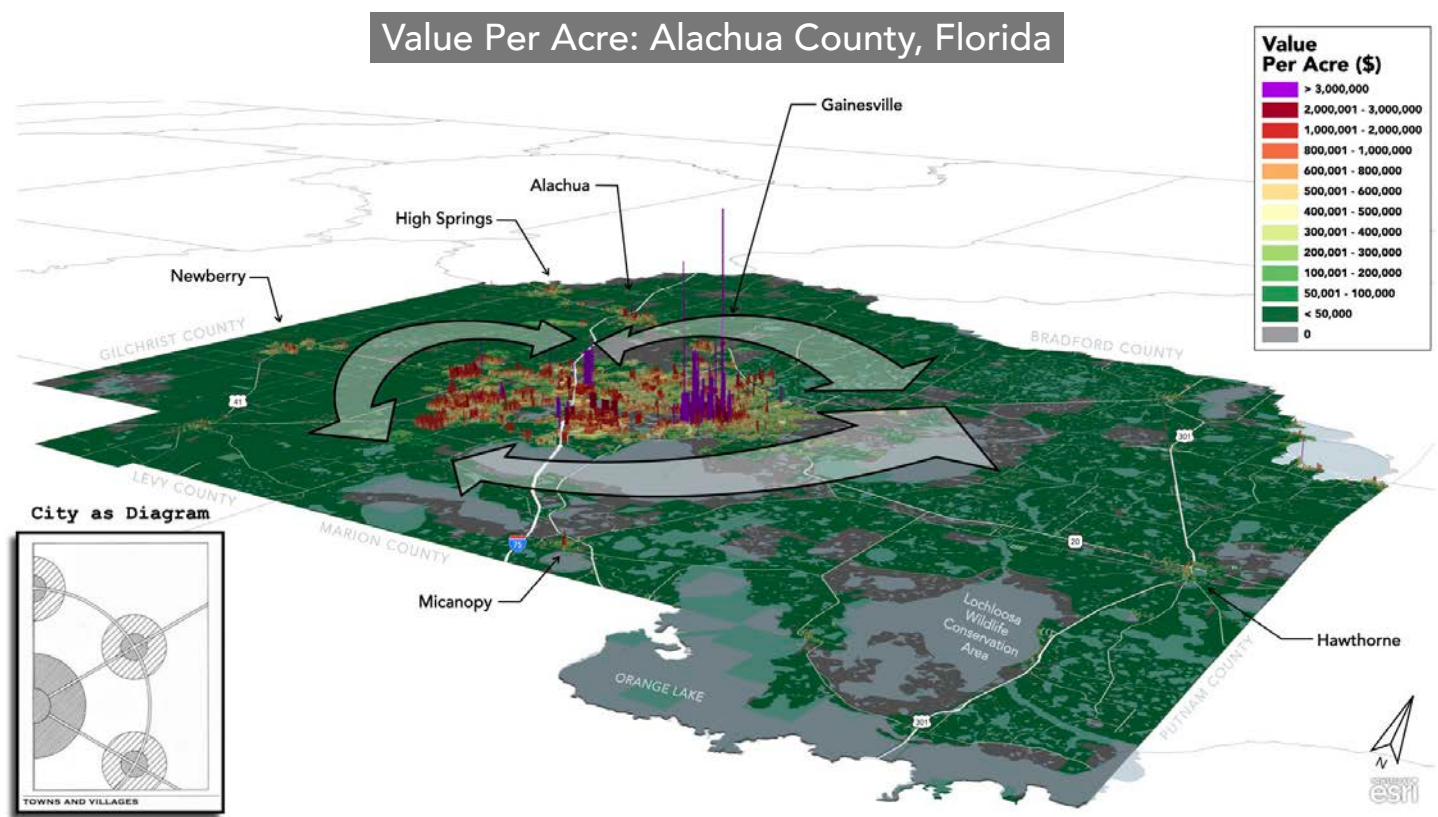


Figure 9.
Source: Alachua County Assessor (2017)

Taxable vs. Exempt Land in Alachua County

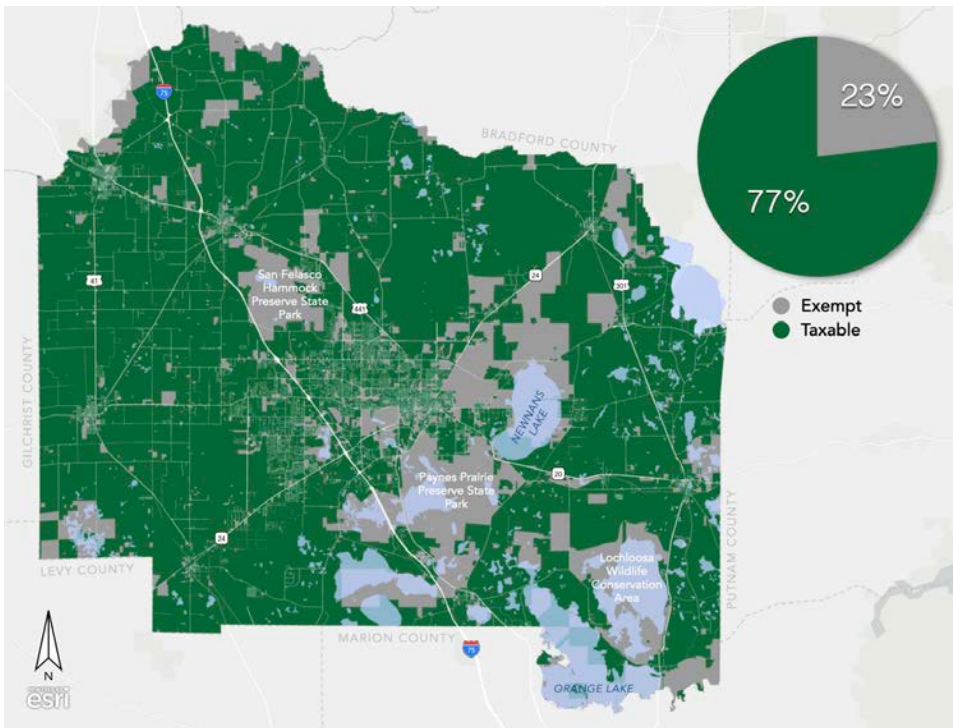


Figure 10.
Source: Alachua County Assessor (2017)

the University has demonstrated the potency of that walkable core in productivity, like a purple mountain. You can also see the downtowns of the communities beyond Gainesville, like Alachua, Newberry and Micanopy relative to their neighborhoods.

It should be noted that the county has worked to create a connected open space corridor. In the 2D map (Figure 10), it's easier to see some of the open space network from above, designated by the non-taxable areas on the right side of the city core. Most of the non-taxable area on the east side is public land. The same structural elements for human settlement patterns should be reflected in the natural space connectivity and structure.

Value Per Acre: City of Gainesville, Florida

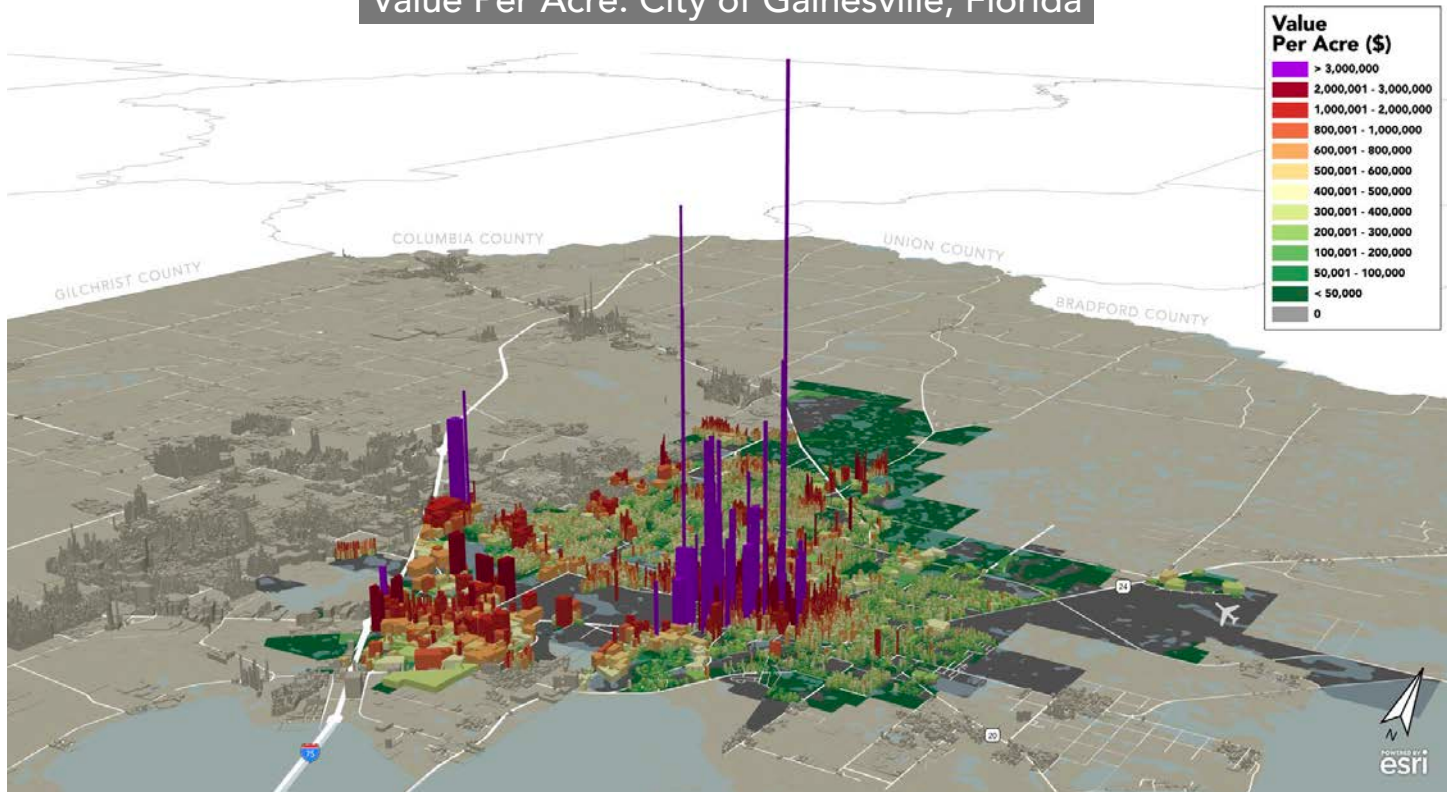


Figure 11.
Source: Alachua County Assessor (2017)

Zooming into Gainesville (Figure 11), downtown appears prominent, but new growth toward the University also stands out. In the City itself, some semblance of “sub-cores” can be seen elsewhere, but none have a clear pattern of development.

We also analyzed Gainesville’s retail sales productivity (Figure 12). However, we were limited to analyzing the data at a zip code level. Despite the relative lack of granularity, similar trends in sales per acre emerge. Downtown zip codes perform better compared to more suburban areas, even those that have robust retail districts on the west side of the core. The more compact development patterns of downtown support a more productive retail sales environment when considering the data on a per acre basis.

Gainesville has worked well to keep some structure of open space connectivity to the natural and rural landscape, but this is more difficult now that unplanned growth has seeped into the western, more agricultural portion of the county.

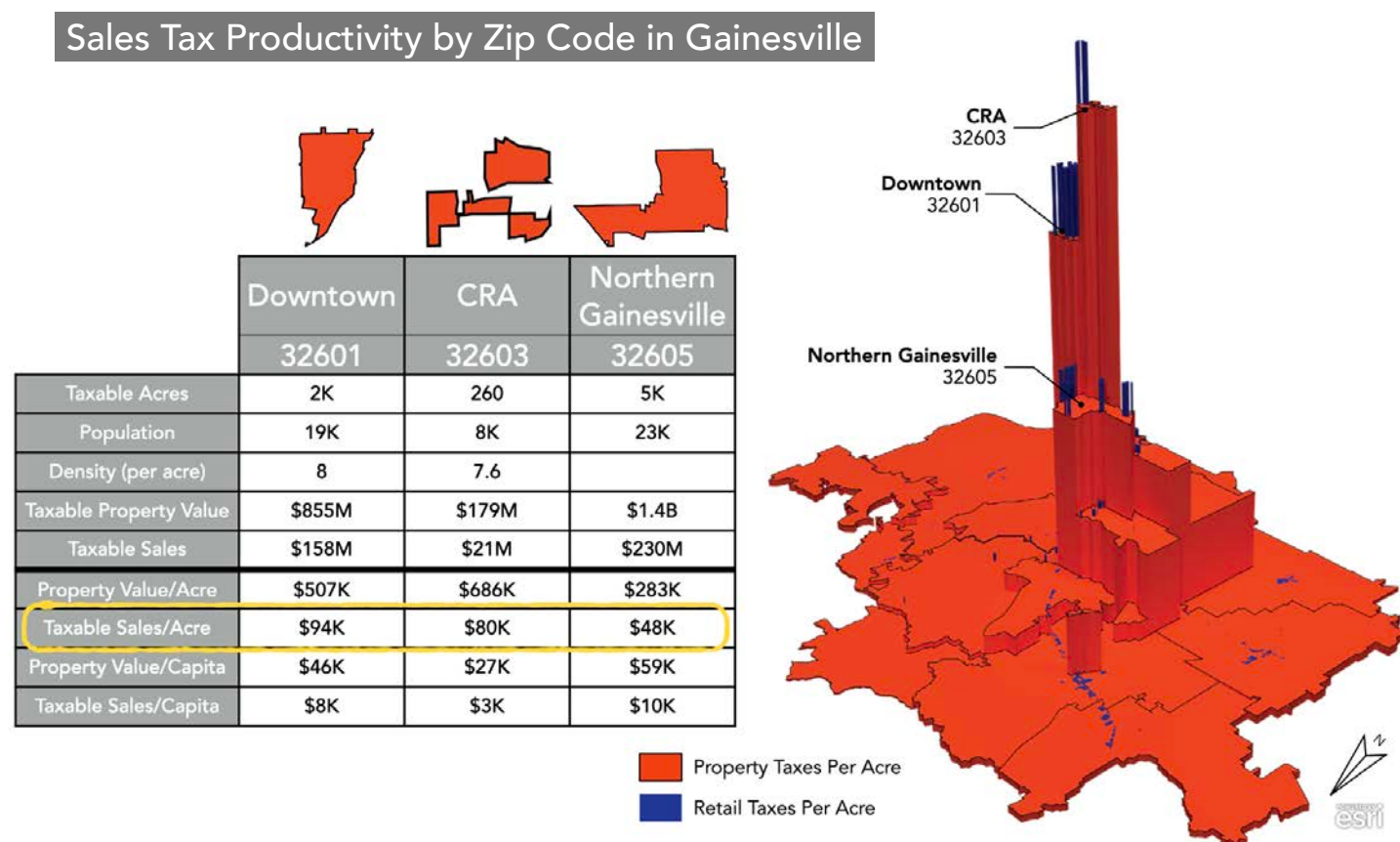


Figure 12.
Source: Alachua County Assessor (2017)

Florida Case Studies

Most patterns that emerge across Florida are based upon amenities such as ocean or Gulf access or lakes and rivers. Settlement patterns on the coast have a ridge of value near the water, as one would expect. For cities that have no waterfront, their patterns are more typical of city development that follows a prevailing industry and are centered on a downtown.

Value Per Acre: Nassau County, Florida

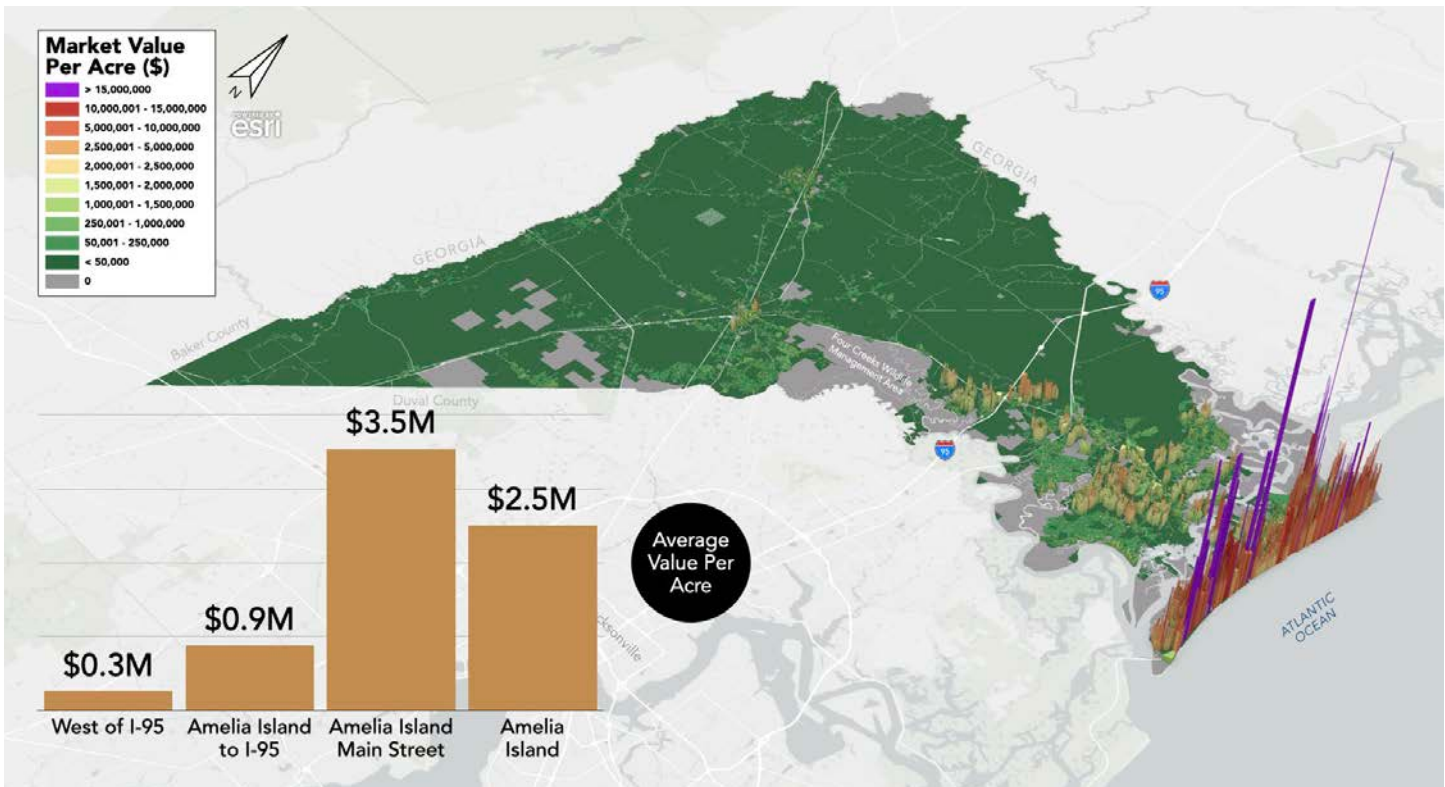


Figure 13.
Source: Nassau County Assessor (2023)

Nassau County

Nassau County exemplifies what Urban3 calls the “coastal effect” (Figure 13). Direct access to the ocean is highly desirable and creates immense value for properties along the coast. Counties along the coast of Florida follow similar predictable patterns, and it is very clear in the 3D models. Property along the coast, often situated on barrier islands, is magnitudes more productive than property on the mainland, as if it is two counties with-in one. Moving westward from Amelia Island, the productivity drops drastically in Nassau County. Amelia Island as a whole has an average value per acre (VPA) of \$2.5 million. Its Main Street has a VPA of \$3.5 million, despite being off the beachfront. Between Amelia Island and Interstate-95, the average VPA drops to less than \$1 million. West of I-95 is much lower, at \$300,000 per acre. But keep in mind, as the impacts of sea level rise intensify, this “coastal effect” may shift or even weaken.

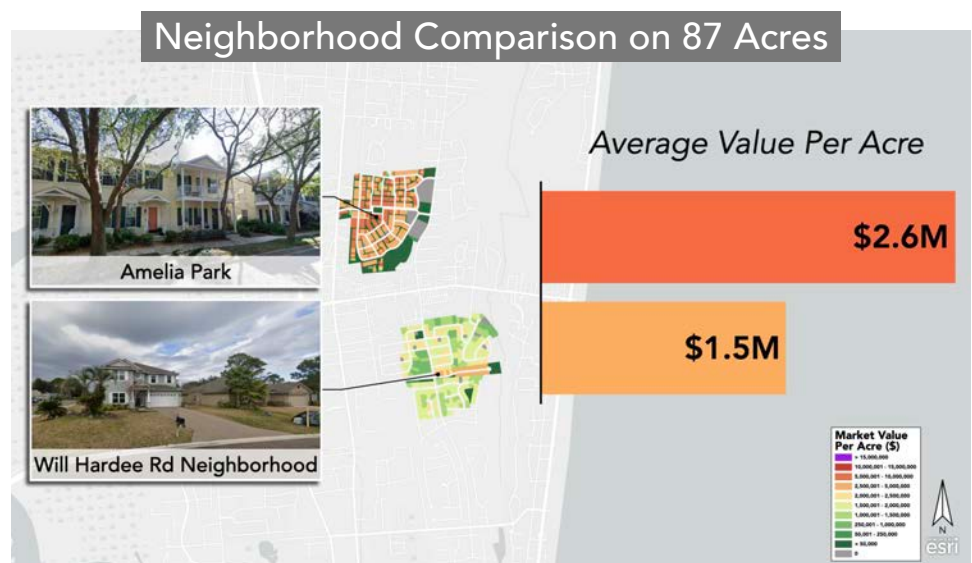


Figure 14.
Source: Nassau County Assessor (2023)

This trend is somewhat natural.

As you move west, land becomes less connected and accessible to higher valued amenities and is therefore worth less. However, even within a highly productive area such as Amelia Island, there are some variations. The Amelia Park neighborhood is slightly more productive than the island average, whereas the Will Hardee neighborhood to the south is less productive (Figure 14).

Will Hardee offers a standard suburban lifestyle with large lots and homes with garages. Amelia Park doesn't shun single family homes or the automobile, but it capitalizes on its location to be more productive. Building types mix detached single-family homes along with townhomes, and site designs tuck garage access behind homes in alleyways. The edge of the neighborhood also accommodates commercial uses, so residents have easier access to goods. On Amelia Island, land is not plentiful, and Amelia Park recognizes that, having developed in a way that blends productivity and livability. The Amelia Park example should be encouraged because of its productivity.

Walton County

Walton County, in the Panhandle, contains a variety of development patterns that highlight the fiscal realities of lower-density urbanization compared to more-dense urbanism. The coastal edge caters to a unique development economy due to its desirability for tourism as opposed to land that is farther inland which is much more residential in character. The economic model clearly shows that the coastal edge is a different condition than inland development, but within each area there are differences to be observed.

Many coastal communities have given up their waterfronts to resort developments that maximize land values with hotel and condo towers and meet the needs of tourists. While developing sensitive coastal lands creates challenges, various developments along Walton County's coast offer an alternative development pattern. Seaside, Alys Beach, and Rosemary Beach are communities that accommodate tourists and locals while also max-

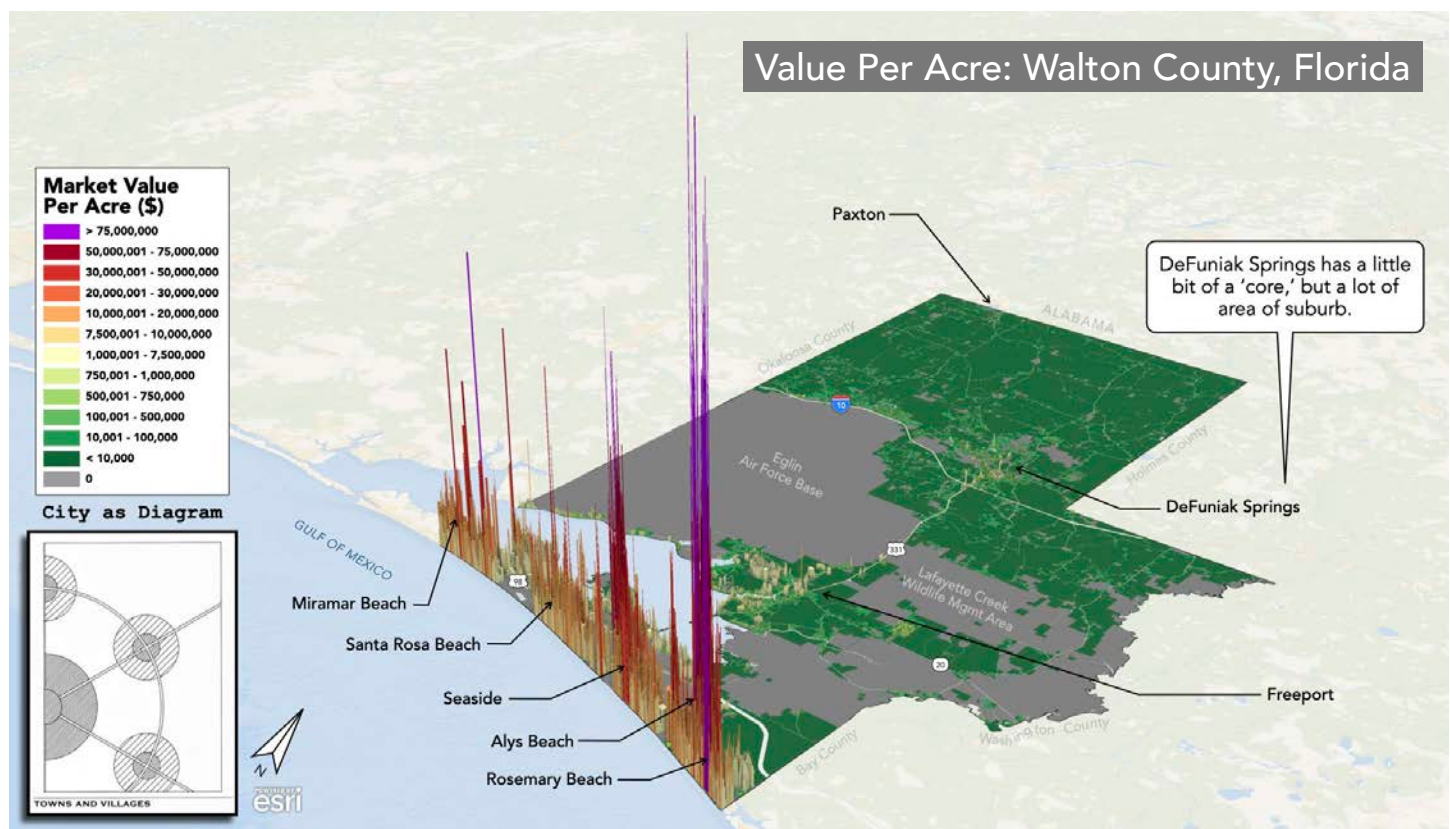


Figure 15.
Source: Walton County Assessor (2023)

imizing locational value. These communities feature walkable downtowns and an integration of building types with mixed-use cores that appeal to short-term visitors and long-term residents. This design approach creates more value across the entire development compared to adjacent developments of similar acreage. In a way, the design of those three communities builds upon lessons learned from urbanism patterns, and those same patterns, and subsequent values, are replicable in areas that are not Gulf adjacent.

Development along the Gulf displays clear economic advantages, but there are communities deeper into the county, such as DeFuniak Springs, not as visible in the model (Figure 15). If one zoomed into DeFuniak Springs, you'd see a similar pattern that one sees in Gainesville, just smaller. Additionally, much like some of the coastal developments, DeFuniak Springs also started as a resort community, albeit in the 1880s, but has maintained its identity as an evolved town. Its traditional layout has given it the ability to grow along its existing street network by intensifying parcels that are well connected.

If one of the "towns and villages" diagrams were to be applied to the inner county, DeFuniak Springs would be the core, and Paxton or Freeport would be villages on spokes. One caveat here is that Freeport shows the signs of monoculture development, as it appears flat in the Value Per Acre model. A village should have a more visible core as a "baby mountain" of productivity.

DeFuniak Springs should have its own core and network, but it isn't evident from the model that it has achieved that internal balance. To use the metaphor of the city diagram being like a fried egg with a yolk and egg white, DeFuniak Springs is mostly egg white, while Freeport is almost all egg white and no yolk.

South Florida

Figure 16 shows a model of South Florida, containing Miami-Dade, Broward, and Palm Beach County, plus the Florida Keys in Monroe County. This pattern mimics many of the patterns we've seen earlier, just at a larger scale.

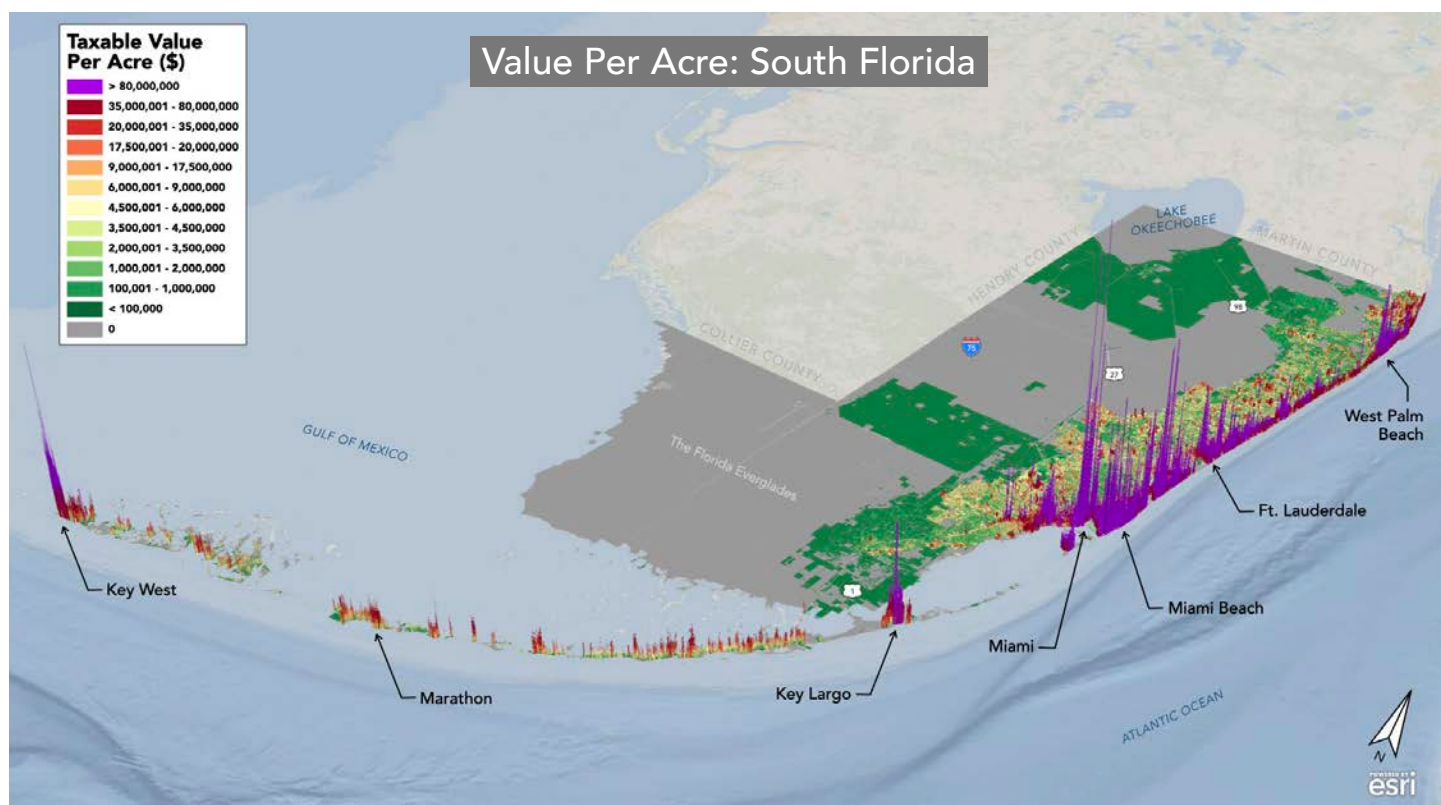


Figure 16.
Source: Miami-Dade, Broward, Palm Beach, and Monroe County Assessors

The Miami metro area, Florida's largest, exhibits several typical development patterns. The edge condition, where productivity is highest along the coast, is clear in downtown and the barrier islands. But west of this edge, an unproductive development pattern runs undifferentiated to the edge of the Everglades. Miami-Dade County has long held fast to its growth boundary, but it missed the opportunity to develop a coordinated open space plan within the boundary area. Additionally, the structure of the development patterns in the post-WWII development areas are indistinguishable from one community to the next. Numerous cities essentially form an undifferentiated blanket of sprawl west of Miami. But for the coastal cities and Coral Gables, there really isn't anything "popping up" on the maps to show a center that could be perceived as a second or third tier city. Doral is trying to change this, but it takes significant effort (as they know) to change the pattern, rather than building with intention as Coral Gables did.

West of I-95, the productivity across all three counties falls off. Zooming into Broward, this trend becomes clearer. There are 24 cities in Broward, 16 of which are west of I-95, yet none of the cores of these 16 cities stand out on the map. Where they begin and where they end is not obvious from the Value Per Acre map, which shows the communities' short-sightedness in planning. Most of them are characterized by suburban development patterns that repeat undifferentiated across the landscape. Again, this is the hallmark of Miami-Dade County development, but replicated in Broward. Because of this, the open-space infrastructure is fragmented and disconnected. Development patterns such as this are substandard in their design, tax potency, and ecosystem services. The error here is that as communities grow and add new development, there is an illusion of productivity as the tax base transitions from orchard to subdivision. But much like a sugar high, the infrastructure will eventually need maintenance and the productivity in suburban patterns is far too low to maintain its own infrastructure. These communities do not have their own "purple mountains" of productivity to benefit from (Figure 17).

"The error here is that as communities grow and add new development, there is an illusion of productivity as the tax base transitions from orchard to subdivision. But much like a sugar high, the infrastructure will eventually need maintenance and the productivity in suburban patterns is far too low to maintain its own infrastructure."

Many sprawling developments west of I-95 offer value not much more than farmland, but they come with all the costs of a neighborhood. Suburban sprawl in Davie isn't that much more valuable than farmland to the west. Farmlands don't demand services, but these new residents will. Rural sprawl in southwest Geneva isn't that much more valuable than orange farms to the north. Oranges don't call 911 for emergencies, but these new residents will. If counties are going to allow development into farmland that produces obligations for infrastructure maintenance and social services, those developments should offer tax returns far greater than the farmland they replace.

One city that bucks the poor productivity trend west of I-95 is Coral Gables. Its average city-wide value per acre is nearly that of Miami, at \$4 million. This is leagues above Doral, at \$1.8 million. Surprisingly, Doral is denser than Coral Gables. Doral has 5,485 people per square mile and Coral Gables has 3,804 per square mile. Doral achieves its density by spreading low dense development across its footprint without leaving much space for nature. Density typically adds value, but as Doral demonstrates, if it isn't planned accordingly, it won't create value. Coral Gables achieves its density by concentrating dense development in core areas and leaving space for nature, a large share within R. Hardy Matheson County Preserve. Coral Gables makes better use of its developed land, building fiscally valuable neighborhoods in the process, while leaving extra space for natural areas to thrive, ensuring environmental sustainability and increasing desirability for residents. The same density can be accomplished in two ways: sprawl out and destroy the connectivity of natural networks or encourage more

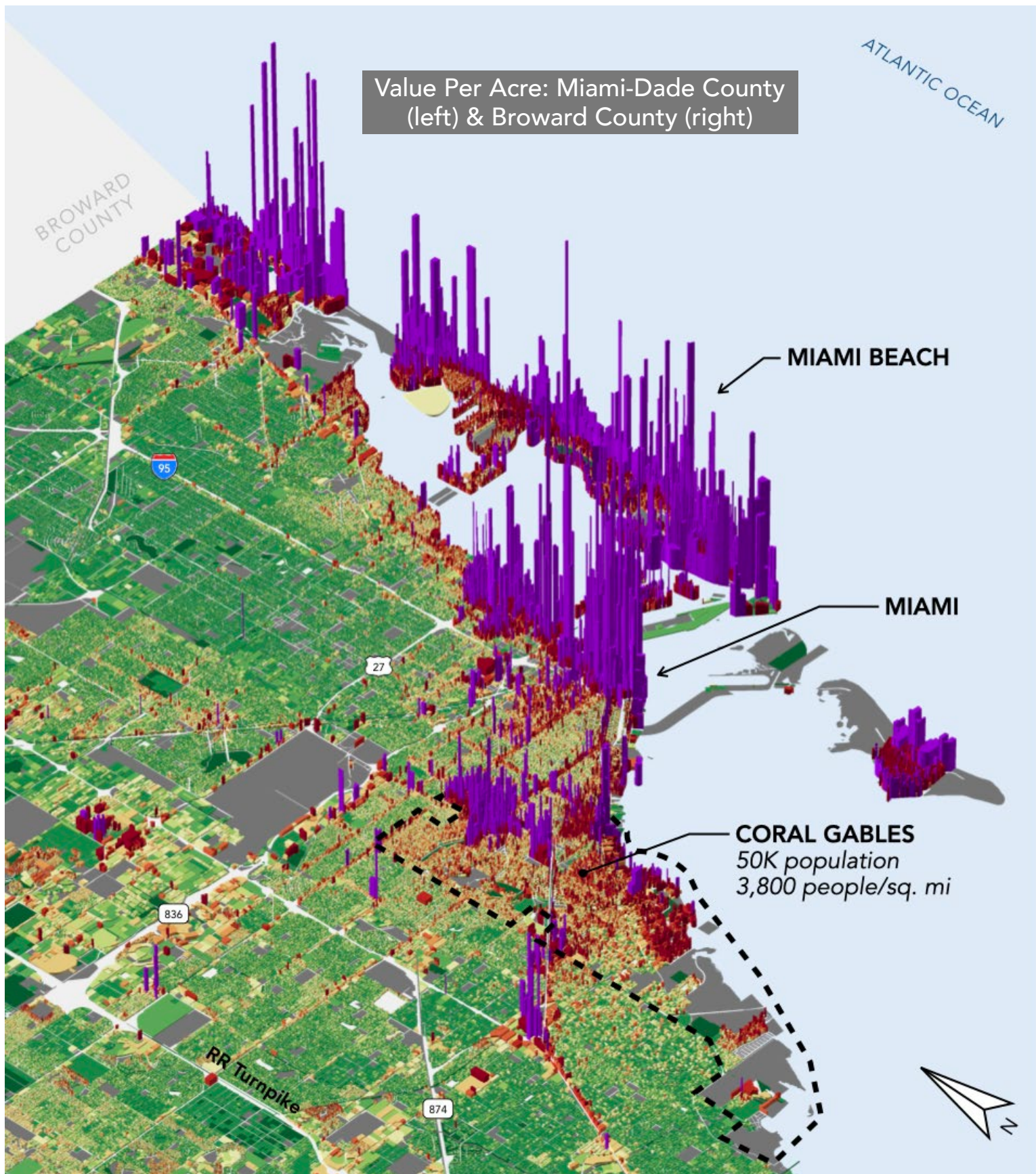
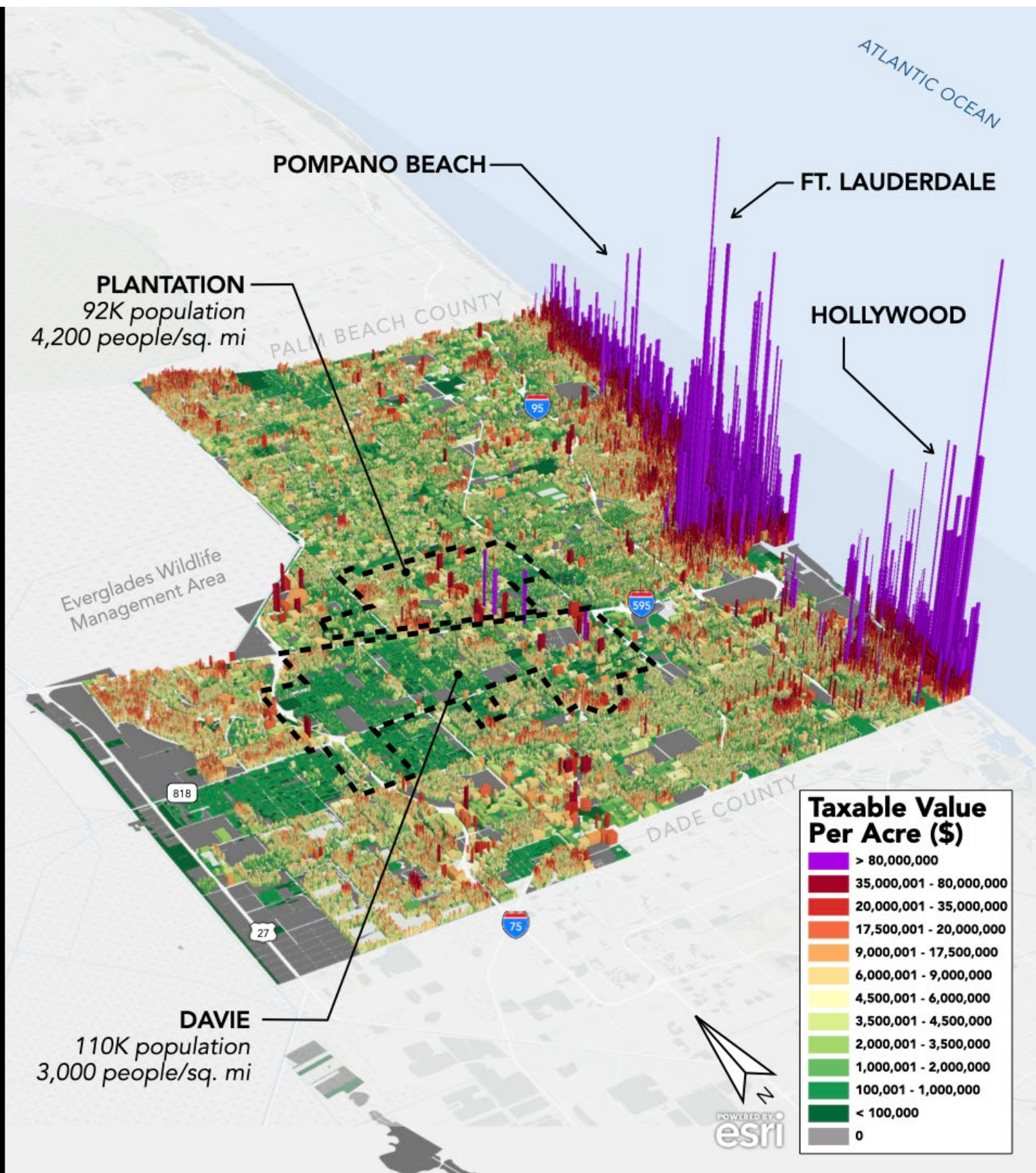


Figure 17.
Source: Miami-Dade, Broward, Palm Beach, and Monroe County Assessors



density and protect important agricultural and ecological spaces (Figure 18).

While most productive cores in coastal counties are along the coast, not all future cores are destined for the coastline. With thoughtful and intentional development, new cores like Coral Gables can be developed where a community lacks amenities such as a coast or waterfront.

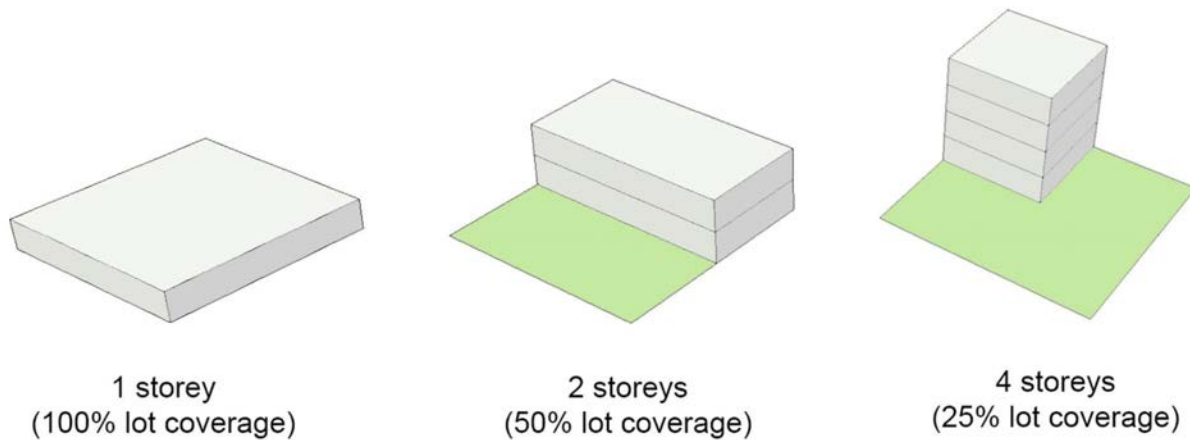


Figure 18. This graphic shows three different ways of accommodating the same amount of development. First, where a site is completely covered by low-density development. Second, where the same amount of development at a slightly higher density is built on half of the site, leaving the other half untouched. Third, where the same amount of development is built on a quarter of the site at a higher density, leaving three quarters untouched. If we extrapolate this out to an entire city, consider how much more space would be left for parks, civic spaces, or other uses and how much less infrastructure, like roads, water pipes, and sewer pipes, would be needed to accommodate the same total amount of development.
Source: *kda.nyc*

West Coast

Hillsborough County

The west coast is not immune to the coastal effect, and the 3D productivity models created on the west coast are familiar patterns found on the east coast of the state, just flipped. Tampa visually dominates the 3D (VPA) model of Hillsborough County (Figure 19). However, there are some interesting lessons in the productive cores that the inland communities are trying to grow. Plant City, another traditional city founded in the 1880s, shows up with the familiar pattern of a core with suburbs. The County is working with the unincorporated Wimauma community to do the same with its core. The Brandon community was notable because of the size of its population, and yet it lacks a core. Much like the patterns seen west of I-95 on the east coast counterparts, Brandon's pattern is flat with low productivity. While the County's most productive site is the Bank of America plaza in Tampa at 42 stories (\$170 million per acre), Plant City's most productive site is a modest two-story building hosting a local coffee shop, Krazy Kup (\$24 million per acre), in part because the site does not include on-site parking. For a city of only 31,653 people, a building of this productivity is impressive. The site is a standout for Plant City. Krazy Kup's VPA outshines the city's average VPA, and new buildings located downtown should shoot for this as a standard.

Downtowns of other inland cities don't fare as well. Brandon's peak VPA is a storage unit development, a far cry from good urbanism and a missed opportunity. Wimauma, a much smaller, more rural community, has its peak VPA represented by a townhome development, but there's still opportunity to build more of a village core there.

Value Per Acre: Hillsborough County, Florida

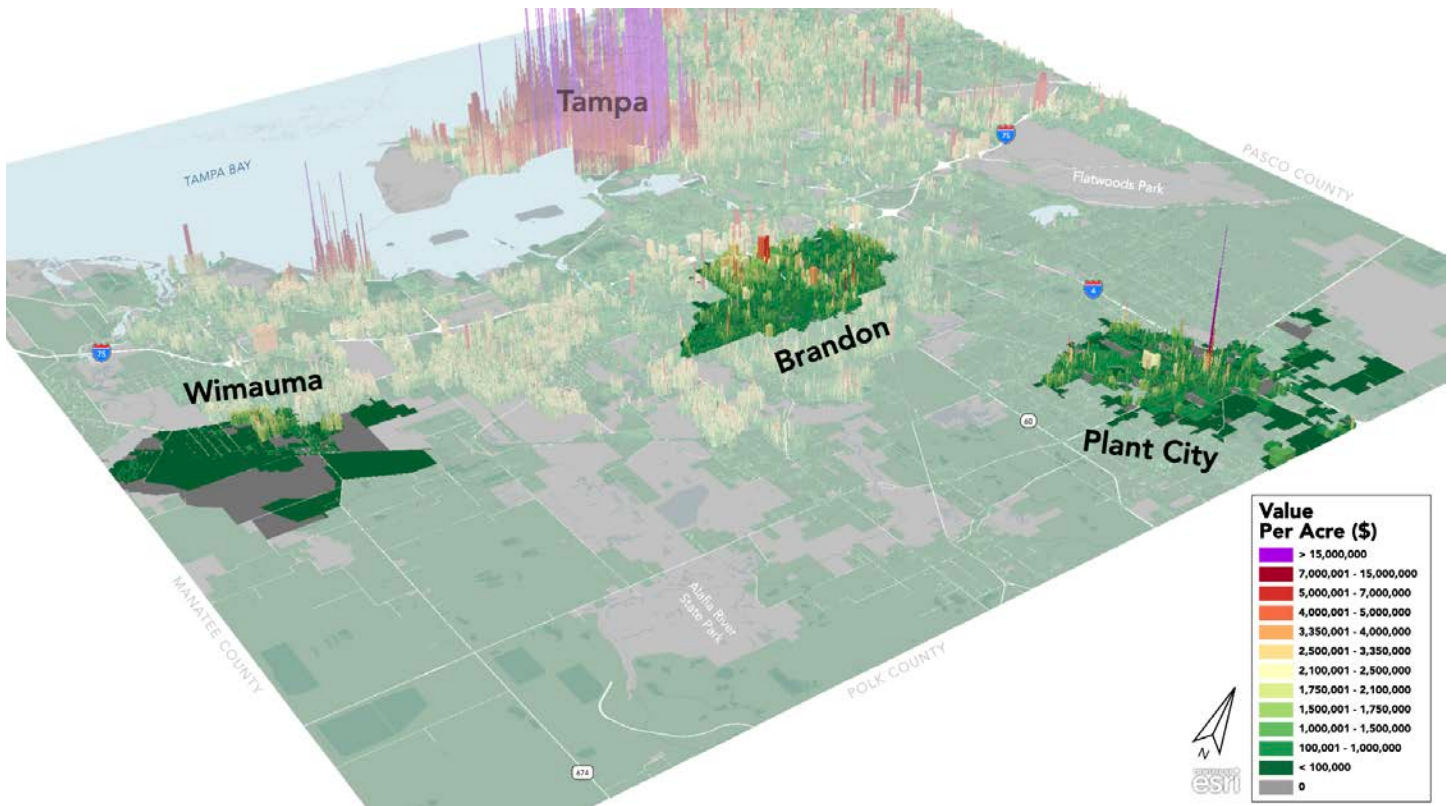


Figure 19.
Source: Hillsborough County Property Appraiser (2022)

Value Per Acre: Wimauma, Brandon, & Plant City

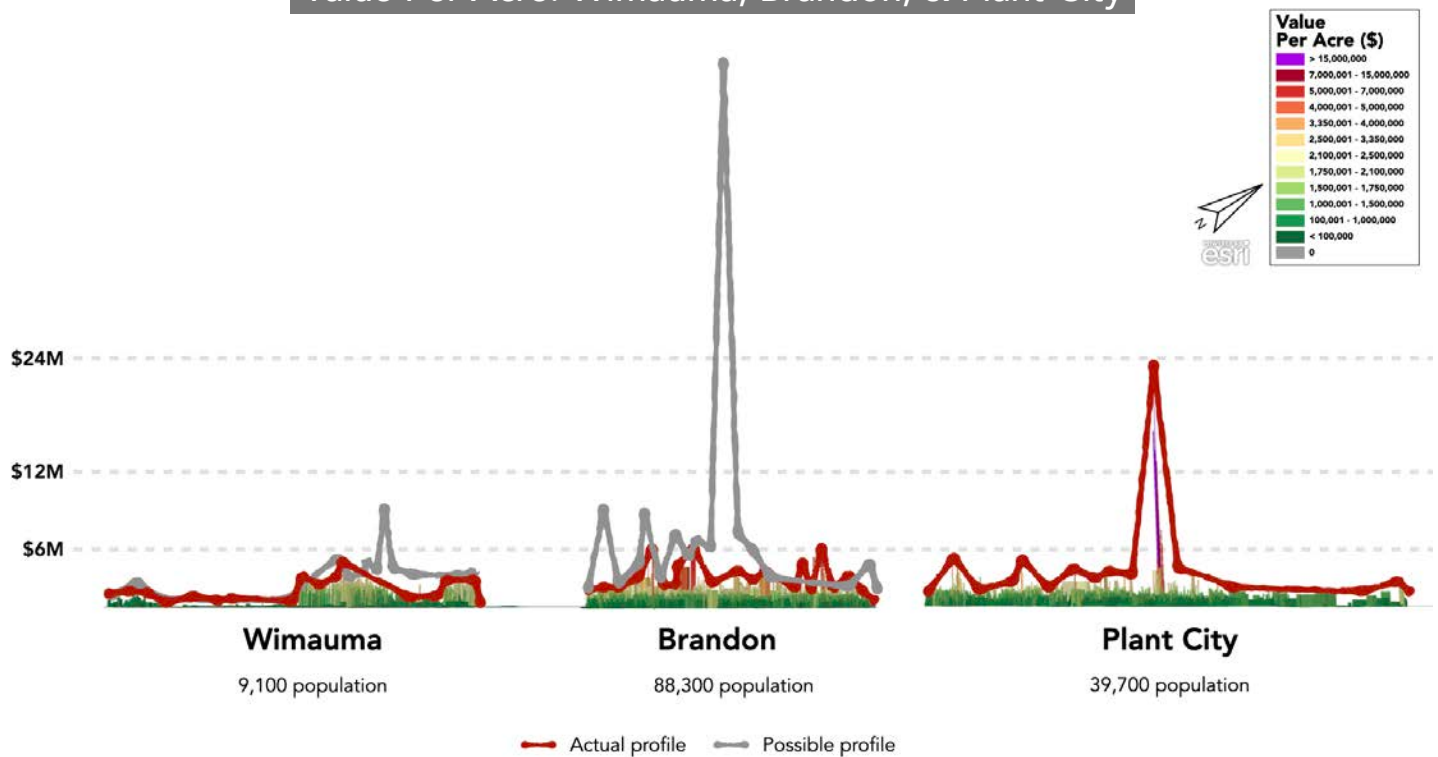


Figure 20.
Source: Hillsborough County Property Appraiser (2022)

Looking at the 3D VPA models of these communities from the horizon (Figure 20), Plant City’s model follows what looks like a livelier “heartbeat” in profile. If Brandon and Wimauma were to have a downtown with a similar profile, their peaks would be closer to \$50 million and \$9 million, respectively. Brandon could grow by sprawling across the county, or it could strategically densify by developing a new core that would strengthen not only its fiscal sustainability but its communal identity as well.

Inland Cities

Leon County

The City of Tallahassee, similar to Gainesville in Alachua County, dominates the VPA model in Leon County (Figure 21). Tallahassee’s core produces significant property value productivity compared to its surroundings. The major economic drivers of the State Capitol, Florida State University and Florida A&M University attract people to this area and the city has been able to capitalize on the economic activity through more dense development.

Some of this development has occurred around Gaines Street west of downtown, which can be seen in the model. This area has lower peaks but has a larger density of parcels high in productivity. In this way, Tallahassee demonstrates that cities can build on their core and build productive neighborhoods outside their traditional downtowns. And not all productivity comes in the form of tall buildings; neighborhood context buildings can be productive.

Generally, Leon County has been able to maintain ecological networks and green infrastructure with large swaths of protected lands in the southern and western portion of the county and hunting plantation lands to the north. However, low-density development patterns to the south of Lake Iamonia in the northern portion of the county exhibits the low productivity observed in other areas around the state. Leon County should be wary of allowing more of this development pattern that not only consumes important agricultural and natural spaces

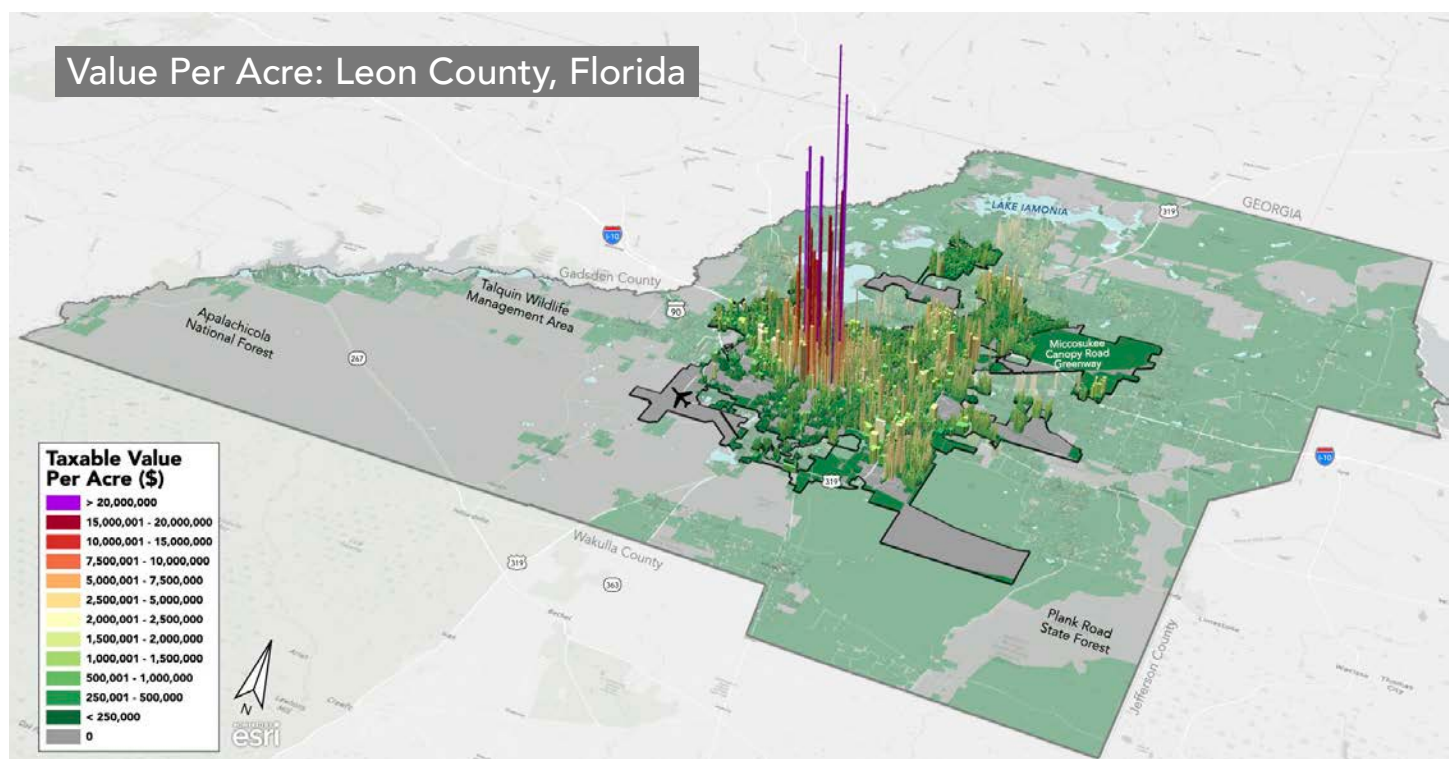


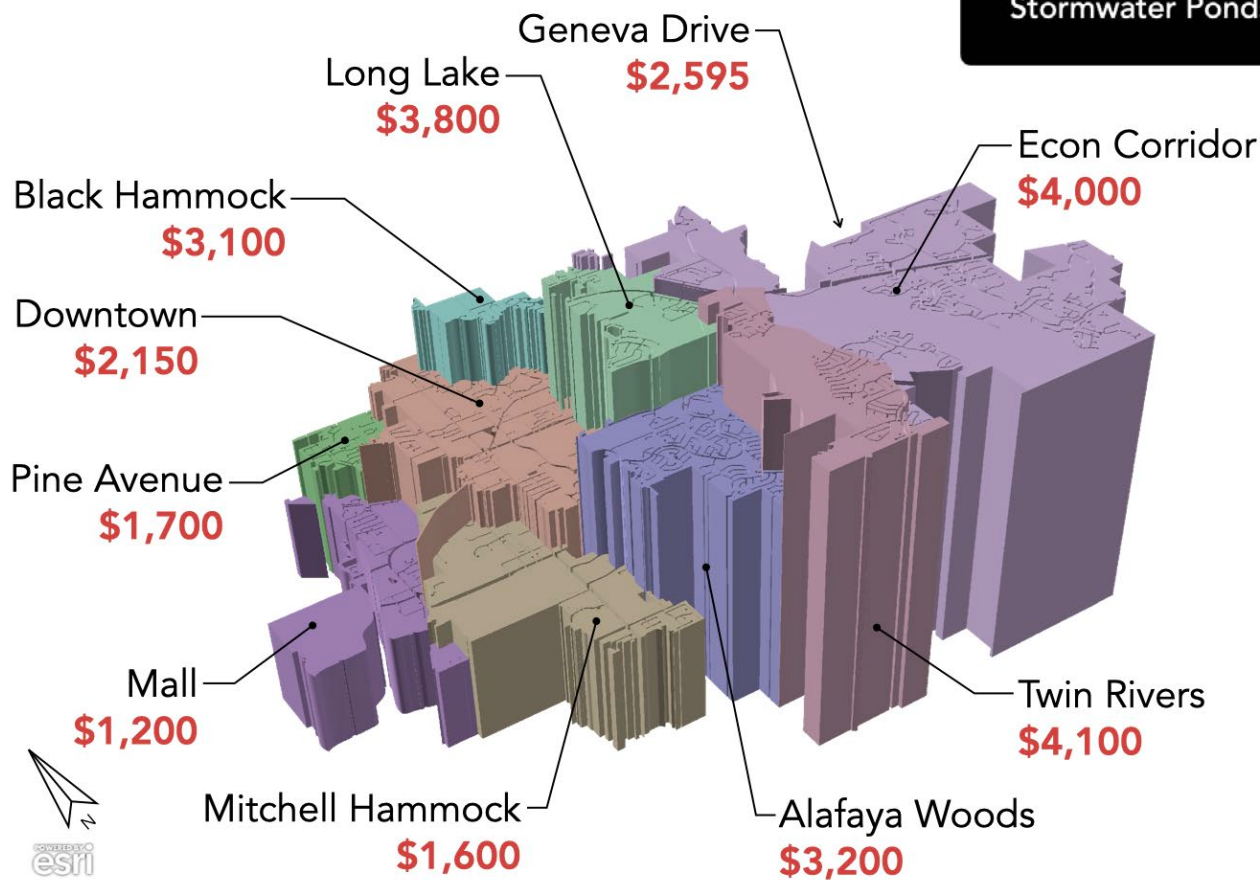
Figure 21.
Source: Leon County Property Appraiser (2022)

but is highly unlikely to be fiscally sustainable in the long-term.

Seminole County

Oviedo exists at the suburban fringe of the Orlando metropolitan area in Seminole County. Its traditional main street core has been impinged upon by state infrastructure projects, and it is building a new core deeper in the city. This community is a great example of a city that has identified its challenges and is seeking data-driven policies and practices to alter its future. Though it is a predominantly suburban environment, Oviedo is discovering that not all development is created equal. It's clear in the analysis that different development typologies come with different infrastructure costs. Townhomes toward the center of the city come with less than a third the costs than a suburban development at the edge of town on a per unit basis. The city's engineering department is aware of this. However, the existing financial system is not set up to reflect geographic differences in costs. Despite different developments carrying different costs and long-term liabilities, every household contributes the same amount, leading to a geographic inequity of who generates more significant costs and who pays to cover those costs (Figure 22).

Infrastructure Cost Per Acre: City of Oviedo, Florida





Infrastructure spending per household:

\$253

Infrastructure includes:

Roads

Sewer Pipes

Water Pipes

Stormwater Pipes

Stormwater Ponds

Figure 22.
Source: Oviedo FL Public Works, Seminole County, & Urban3 Estimates

Value Lost to Sea Level Rise

Investing in productive development in inland Florida is not only possible, but it seems to be a safe bet for the future. Some of the most valuable land in Florida's coastal counties is at risk of sea-level rise. Six feet of sea-level rise will likely see a loss of nearly one-third of both taxable value and taxable square miles in Miami-Dade County (Figure 23). For South Florida at large, this would result in over \$250 billion in taxable value being lost, making up nearly 340 square miles of land throughout Palm Beach, Broward, Miami-Dade, and Monroe counties. Residents in these counties are well aware of these issues; so are their insurance carriers. These factors are influencing consumer behavior in these counties, and counties in communities farther from the coasts should take note.

Sea-level rise will consume land directly along the coast, but a large share of land lost to water in scenarios with severe sea-level rise will be miles inland. Figuring out where to grow urban systems relies on understanding where to support natural systems, and that includes areas that will give way to flooding.

"Figuring out where to grow urban systems relies on understanding where to support natural systems, and that includes areas that will give way to flooding."

Susceptibility to Sea Level Rise: Miami-Dade County, Florida

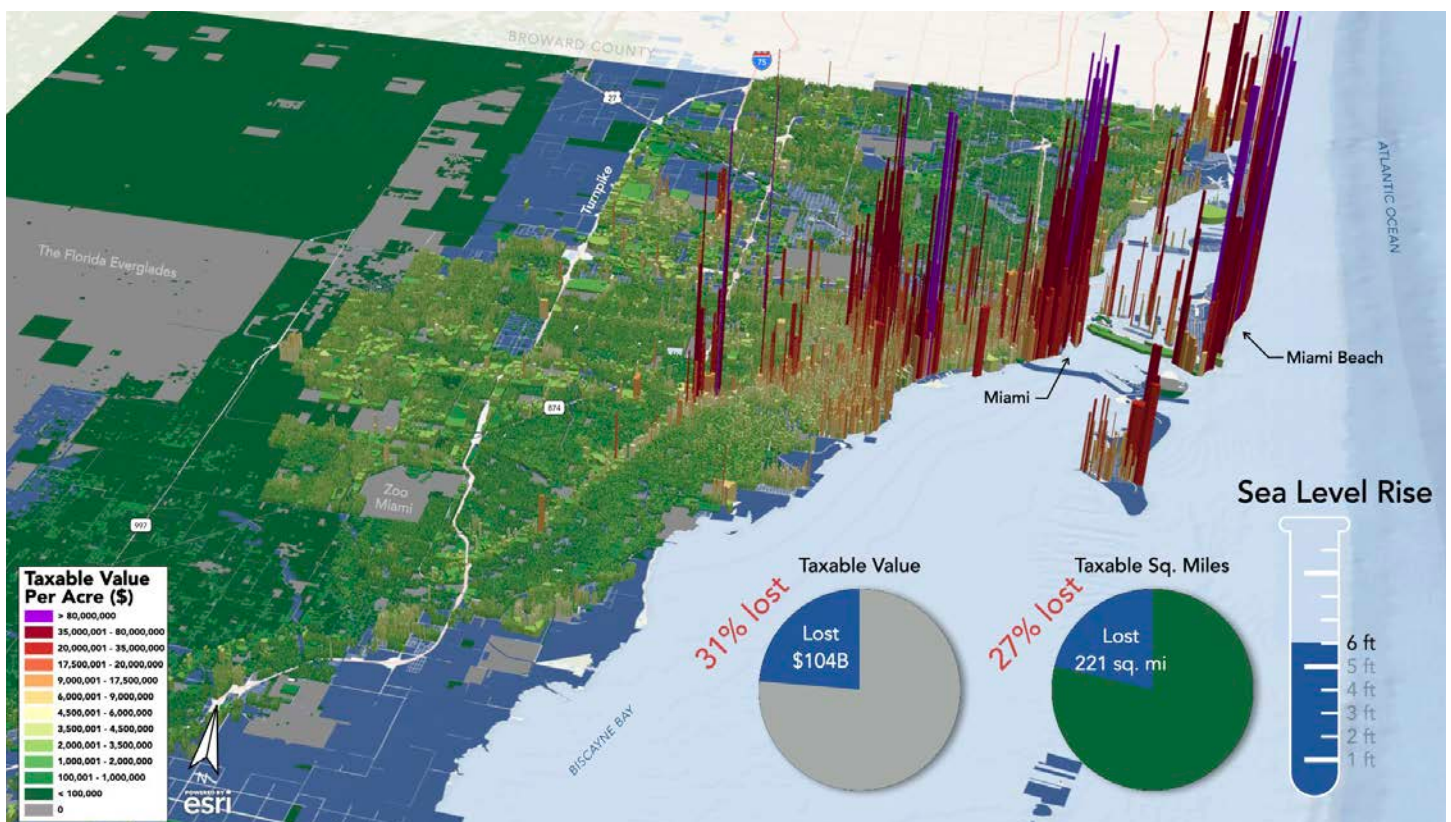


Figure 23.
Source: Miami-Dade County Assessor, NOAA

Migration

Intensifying effects of climate change will continually produce climate migrants, people leaving areas increasingly prone to natural disasters. Some Floridians will migrate inward (Figure 24), staying in the state, and some will leave altogether. From 2015 to 2019, over 100,000 Miamians left the county. The majority, 24,255, found new homes in Broward County. Most of the rest of them stayed in Florida, with some transplanting to Texas and even New York City (Data from US Census Bureau American Community Survey 5-Year Data 2015-2019).

A nearly identical amount of people moved to Miami-Dade County during this period, about half from within the United States and half from without. Most newcomers came from the Caribbean or South America, with the third largest coming from Broward County.

While Florida as a whole experienced net positive migration during this period, the state experienced some

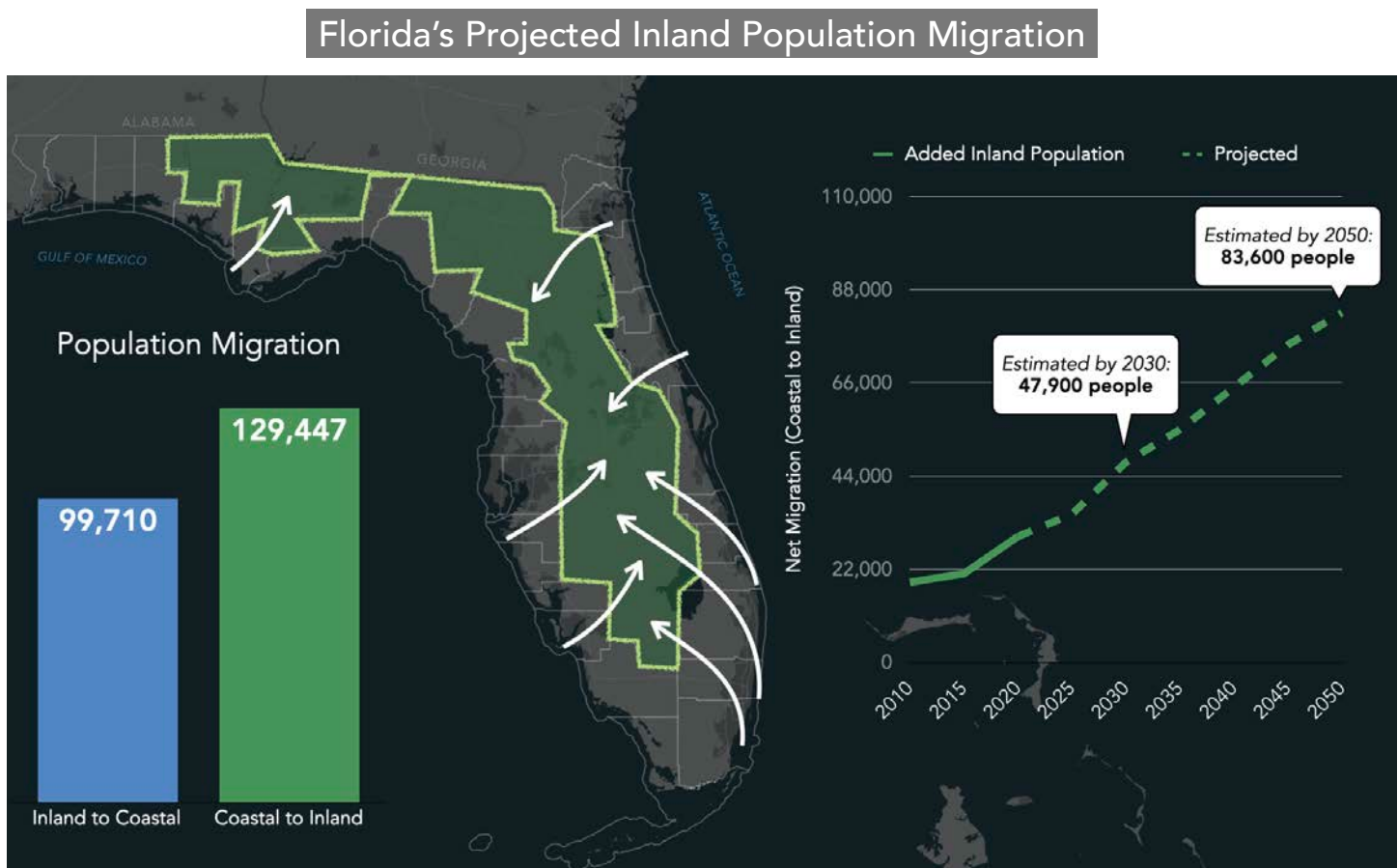


Figure 24.
Source: American Community Survey (2016-2020)

reshuffling of where people are choosing to live. As a whole, the state's coastal counties experienced a net negative migration of nearly 30,000 people relocating to the interior counties of Florida. By far the largest county receiving Floridians is Orange County.

Given these trends, Florida's inland communities will be forced to accommodate more and more people. Like it or not, this is a trend that will continue. With large swaths in the center of the state currently used for agricultural purposes or in a natural state, a significant amount of land is likely to be developed, and communities receiving this growth should make choices that their coastal counterparts failed to do. As discussed in the examples

above, the different development patterns that can be used to accommodate new residents can have varying environmental and fiscal consequences. The examples below will further highlight the realities of infrastructure liabilities associated with these patterns.

Neighborhood Design Comparison

Nassau County offers a spectrum of development typologies. Even strictly looking at single-family homes, there are various ways of delivering this type of housing product. Three specific development patterns—large lot, medium lot, and small lot—help compare and contrast the costs and benefits of building at different densities (Figure 25).

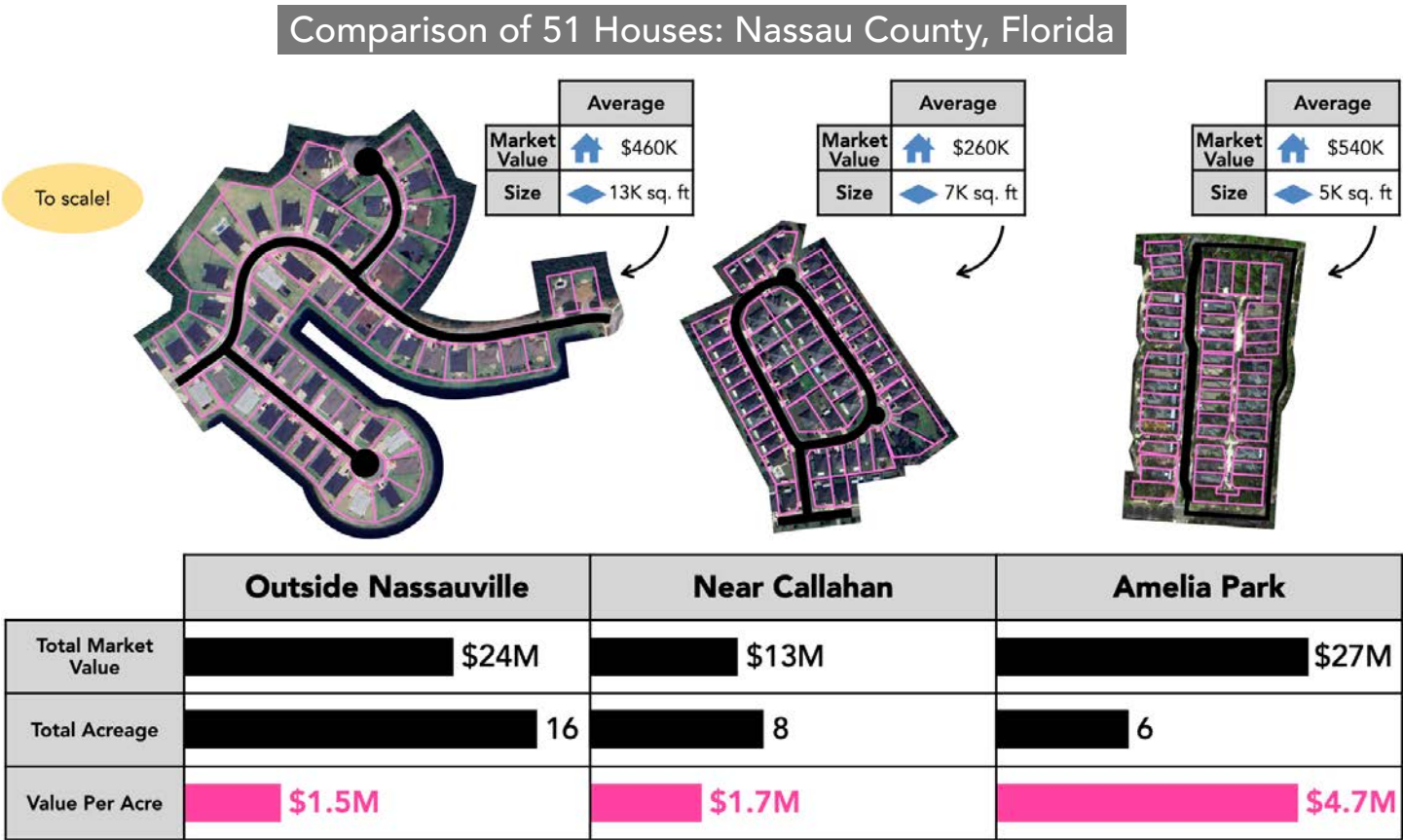


Figure 25.
Source: Nassau County Assessor (2023), Google Earth

The large-lot example is quintessential suburban development. Large-lot houses sit on organic-looking street networks with cul-de-sacs and poor connectivity. The streets are like tendrils extending from a large branch. The traffic that these neighborhoods generate needs to be funneled to the nearest arterial road by default. This results in congested roadways, rather than the dispersed pattern common to small block gridirons. Even neighborhood trips to the nearest store require one to drive on an at-grade arterial. Typically, these types of developments exist off a major arterial road with only one or two ways in and out, offering a poor template for an urban network. A development of this style might seem more supportive of a natural network on its own, with lots of space between homes, but it can have devastating consequences when replicated at scale. Because of its hungry land use, this development pattern offers a poor template for a natural network as well.

The medium-lot example attempts to resemble a block style pattern of development, although it also has one way in and one way out. While this development has the same number of homes as the large lot example, it takes up exactly half the space. In addition to reduced land consumption, the housing units created in this neighborhood are nearly half the cost of those in the more low-density development, with the average value of \$260,000 and \$460,000 respectively. However, though less value per unit, the overall value per acre is greater at \$1.7 million per acre versus the higher value houses at just \$1.5 million per acre. Increased housing affordability in this case, and potentially when evaluating compact development patterns more generally, is a positive by-product of this development. Additionally, both of these developments abut forested areas. However, the large-lot development had to consume more of the natural area to create the same number of dwelling units as the medium-lot development. Some advocates may decry dense urban development because it isn't "green." However, "green" space for lawns in low-density development is not always a fair trade for undisturbed forest.

"Some advocates may decry dense urban development because it isn't 'green.' However, 'green' space for lawns in low-density development is not always a fair trade for undisturbed forest."

Finally, the small lot example from Amelia Park exists on a classic city street grid that is connected to its surrounding context. A trip to the store here allows more than one option — not only in regard to the route but travel mode as well, as walking, biking, and transit are more likely options here. This development pattern takes up a whole 10 acres less than the large-lot example. The productivity of this sample comes in at a whopping \$16 million per acre, even though its housing averages only a little more than \$100,000 over the value of the Nassauville homes. This example, despite having better street connectivity, also has the least amount of roads, less than half the road area of the large-lot example. For every square foot of road, this example has the largest amount of property value per home, at \$16, while Nassauville only produces \$6 per home. Because of this ratio, this development pattern is better positioned to pay for the infrastructure it consumes.

Return on Investment

Urban development consumes both urban and natural resources. Urban resources come in the form of infrastructure, such as roads, sewer, stormwater, and water pipes. These resources do have direct costs, and they are primarily paid for by development in the form of property and sales taxes. The small lot example in Nassau County offers a wonderful example of a development pattern that is better positioned to pay for itself rather than relying on subsidies from elsewhere. Simply put, when you have less infrastructure, it is less expensive. When development is not capable of carrying the costs of its share of infrastructure, it must rely on more fiscally productive places to subsidize those costs. Subsidization is not inherently a bad thing, but it needs to be measured and managed so that a community has knowledge of the fiscal consequences of development patterns. Without enough productive neighborhoods, jurisdictions will face insurmountable maintenance and capital costs.

Asheville's regional neighbor, Brevard, has a solid walkable core that outshines the rest of the city on a productivity basis (Figure 26). This core might be enough to subsidize the neighborhoods within its older boundary, but as Brevard has grown northward, it has followed an unsustainable pattern of low-density development. Its northern growth spurt follows along a commercial "stroad" — a roadway that attempts to provide the accessibility of a street and the speed of a road while failing at both. Developments alongside stroads are characterized

by cheap, “big box” buildings set behind surface parking lots. Brevard’s pattern of development has slowly tipped the scale towards a net cost system rather than a net revenue system.

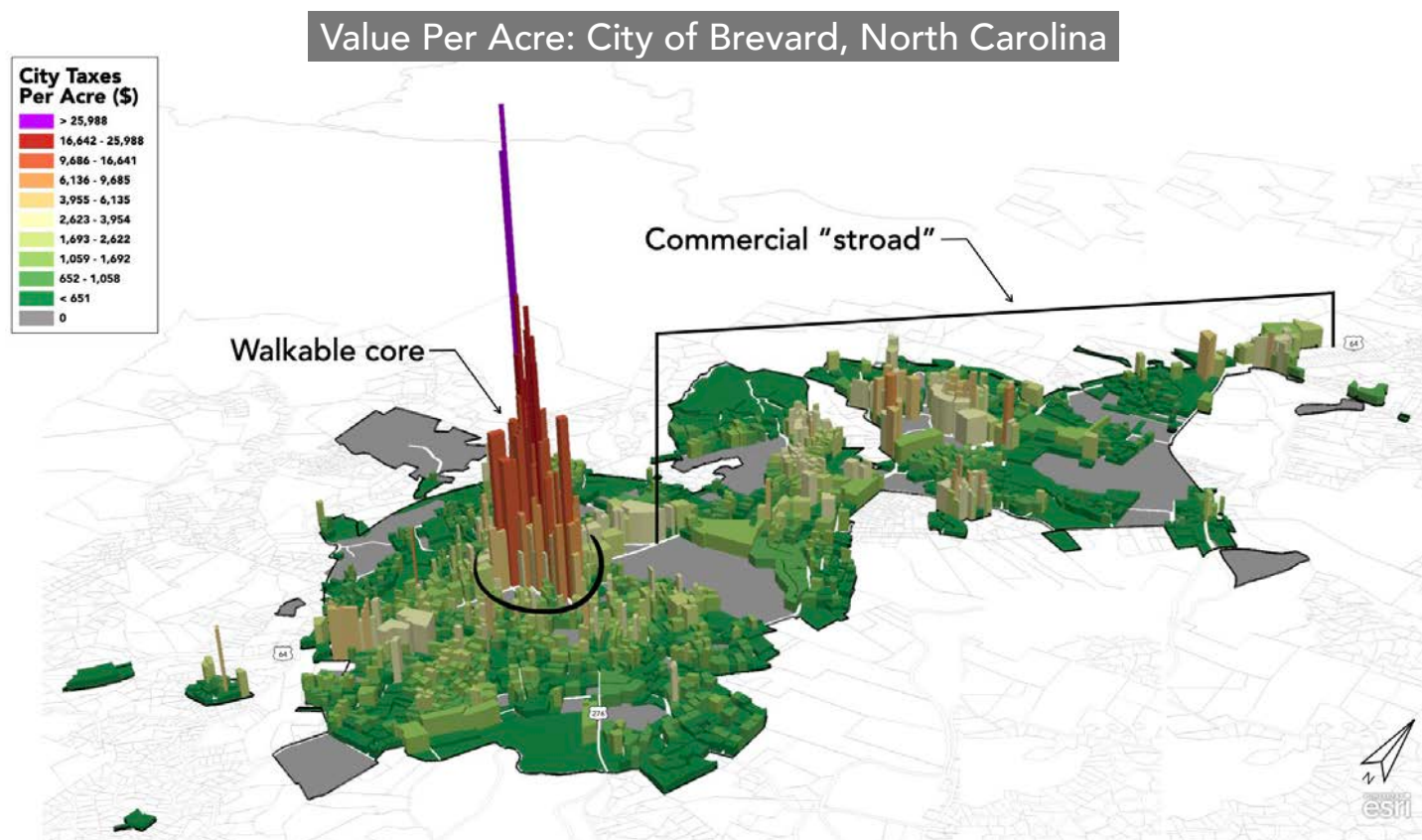


Figure 26.
Source: Transylvania County, NC Assessor

Urban Environments & Natural Resources

Urban development also consumes natural resources, but the scale of the consumption is dependent on the type of development. While dense urban development might seem less natural and green at the site level, it may save acres of undeveloped land elsewhere. Undeveloped natural resources don’t generally have a direct monetary cost, but they can be valued for storing carbon, enhancing property value, creating ecotourism, and so on.

Street trees are a specific type of resource that offers many benefits, including the ability to reduce stormwater runoff. The loss of a tree has a direct, calculable cost on the imposed need to manage stormwater runoff with hard infrastructure. Without trees absorbing water, the water must be managed through gutters, channels, and passive treatment to reduce pollution and flooding. While street trees come with costs for planting and maintenance, their cost savings for stormwater are higher.

For example, in Springfield, Missouri, we noticed that there was a lack of street trees. The community bias was that the trees are a nuisance to the streets and sidewalks. If one were to look at the world from a sidewalk maintenance only perspective, that may be true. But it neglects the fact that a proper tree pit and species selection would solve the problem. With that said, knowing the bias of the community, we focused on the stormwater benefit of a tree. Put another way, the tree is a stormwater replacement. The tree and maintenance have a cost

Annual Impacts of 10,000 Trees: Springfield, Missouri

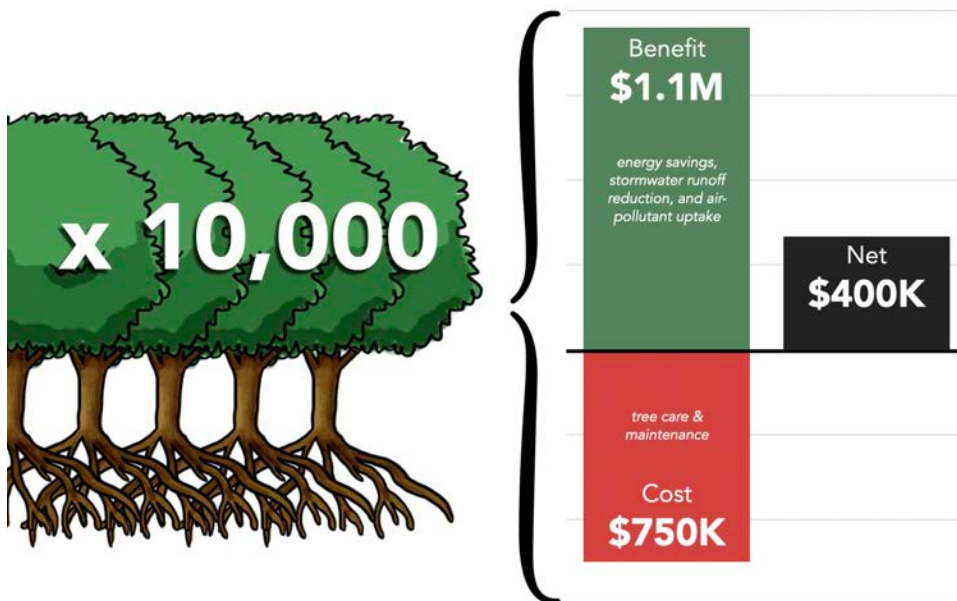


Figure 27.
Source: City of Springfield MO (2022), agnr.osu.edu

of \$75/year for the life of tree but provides \$115/year of infrastructure savings by doing the work of what would typically go to infrastructure expenses. Their trees currently have a net savings of approximately \$2.2 million per year in money that doesn't have to be spent on the stormwater system. Or put another way, if Springfield didn't have those trees, it would have to add \$2.2 million in expanding their stormwater system to manage excess runoff. Additionally, if they added 10,000 more street trees, they would see a net gain of \$400,000 per year (Figure 27). This value includes the cost of trees and their maintenance. The savings from investment in trees would

be enough to pay the salaries of 4 to 5 police officers. By doing the math on green infrastructure, communities can save money and fund other needs.

The Value of "Edge Effects"

The above lesson is for street trees. What if a community took this thinking more comprehensively into their community plan, and connected this thinking to neighborhood parks and networks of parks and open spaces? What if those spaces were networked as mentioned earlier as a system in conservation corridors and open space? That value of land is not "lost" or an 'opportunity cost' of lacking real estate development. On the contrary, that value does enhance developed area's value if it is comprehensively coordinated.

Urban parks also have clear "edge effects" on property values as well. The land value model of Hennepin County, Minnesota offers a great example (Figure 29). We all understand the waterfront real-estate value productivity spikes around Lower Lake. There is a clear edge spike in value in the land for those properties that have direct and private access to that amenity. However, the same is true for a park if it is designed to include a community. Minneapolis' older, 1920's neighborhoods have a park system and greenways that are accessible to several neighborhoods. The value of that park and lake amenity thus transfers into the neighborhood's land value, as if each property were alongside the amenity itself.

In Florida, Seaside, Alys Beach and Rosemary Beach offer similar examples (Figure 28). Coastal parcels that have decided to cede land to better protect dune ecosystems actually have higher land values than parcels that develop as close to the water as possible. As noted in the Land Value Per Acre maps, the aforementioned communities step back from the dunes, but also connect the community areas north of 30A to the beach, and thus the amenity value goes deeper into the community. This is noticeable for the properties in the western portion of the map. Areas that committed to this decision are both helping to protect the shoreline, adding value to their property by maintaining a valuable environmental asset, and providing greater access to natural amenities for more people. Communities should think of design options for natural and open space amenities this way at a neighborhood scale, but also for quadrants and the city as a whole.

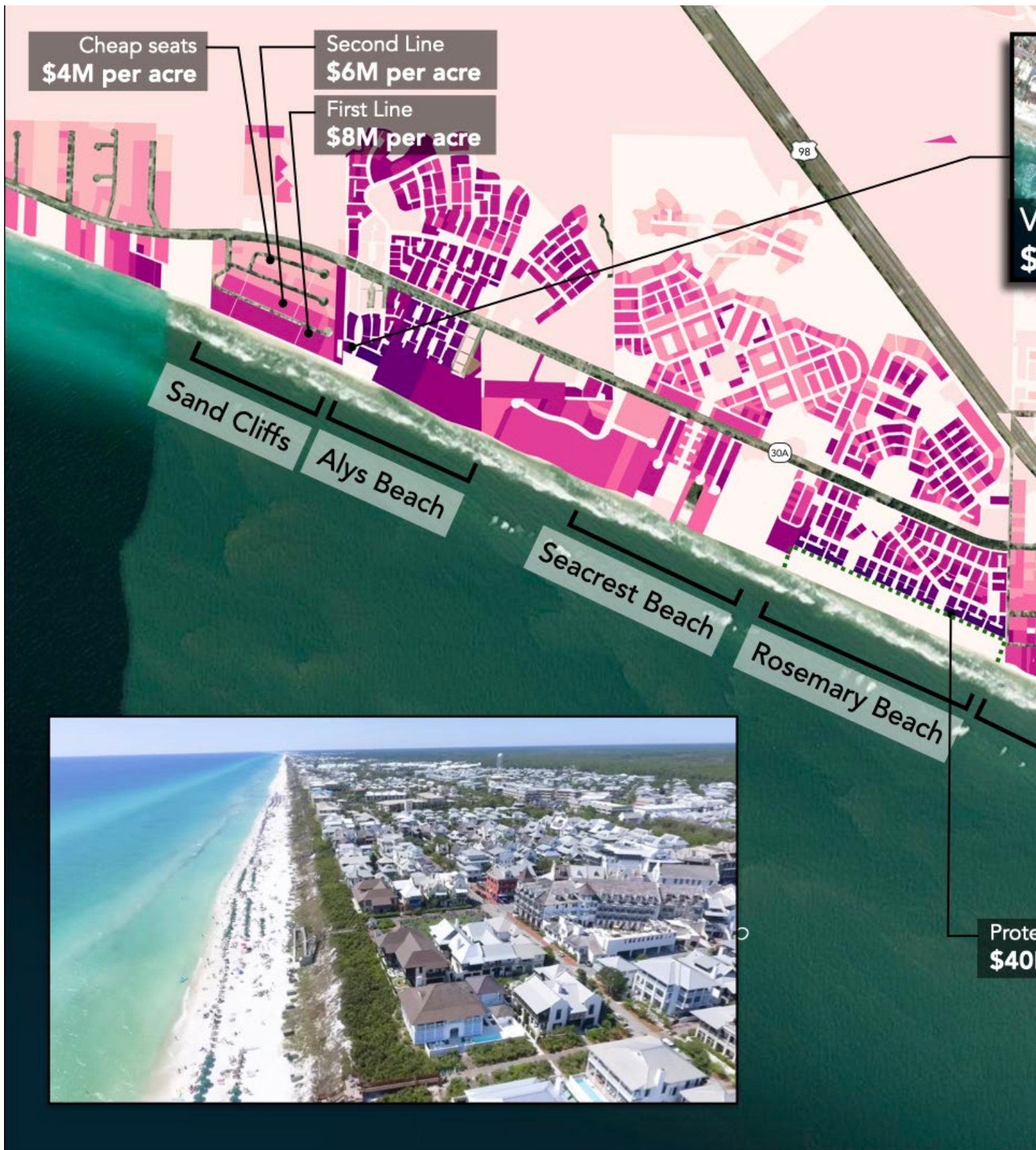
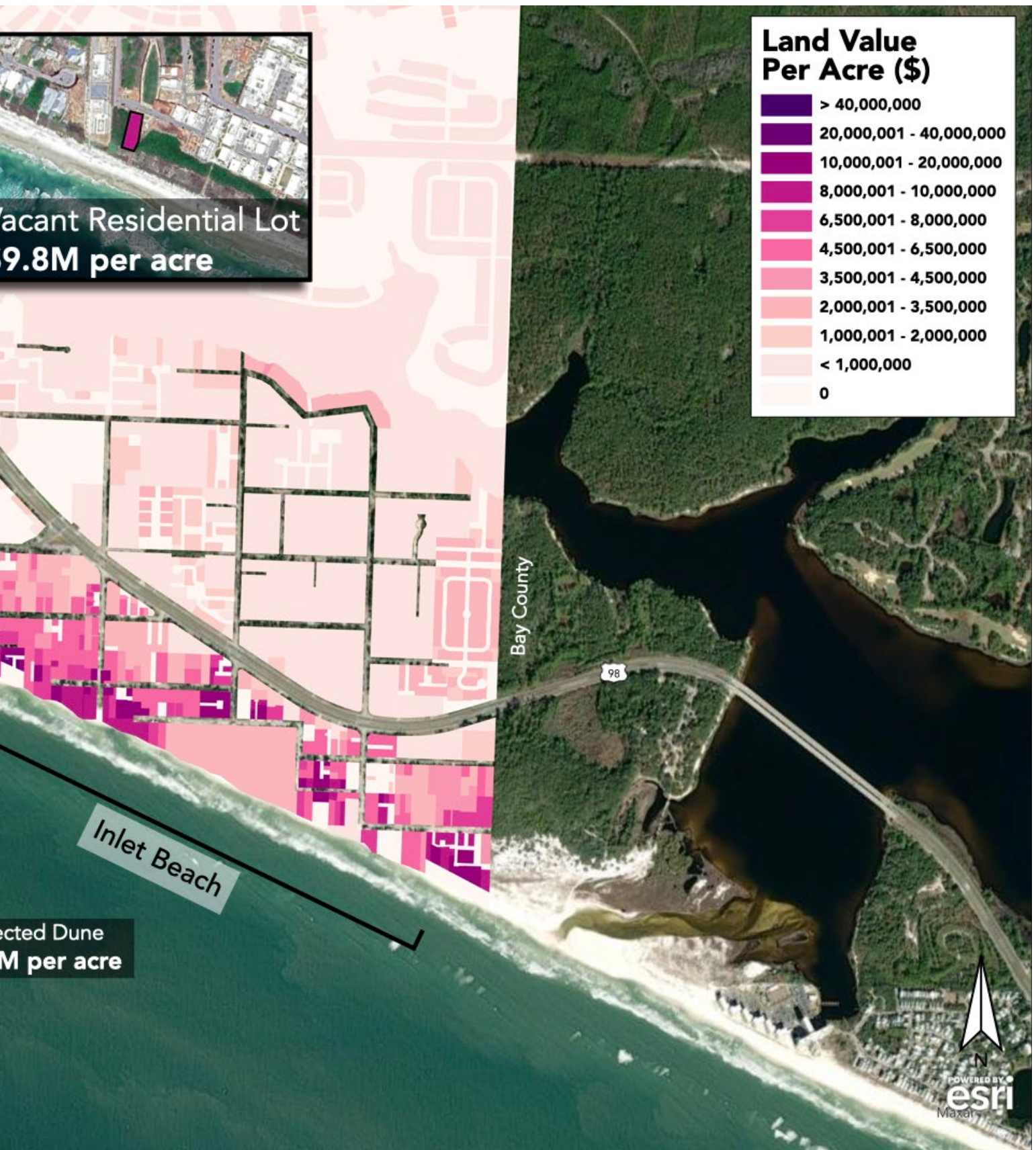


Figure 28.
Source: Walton County Assessor (2023)



Land Value Per Acre: Hennepin County, Minnesota

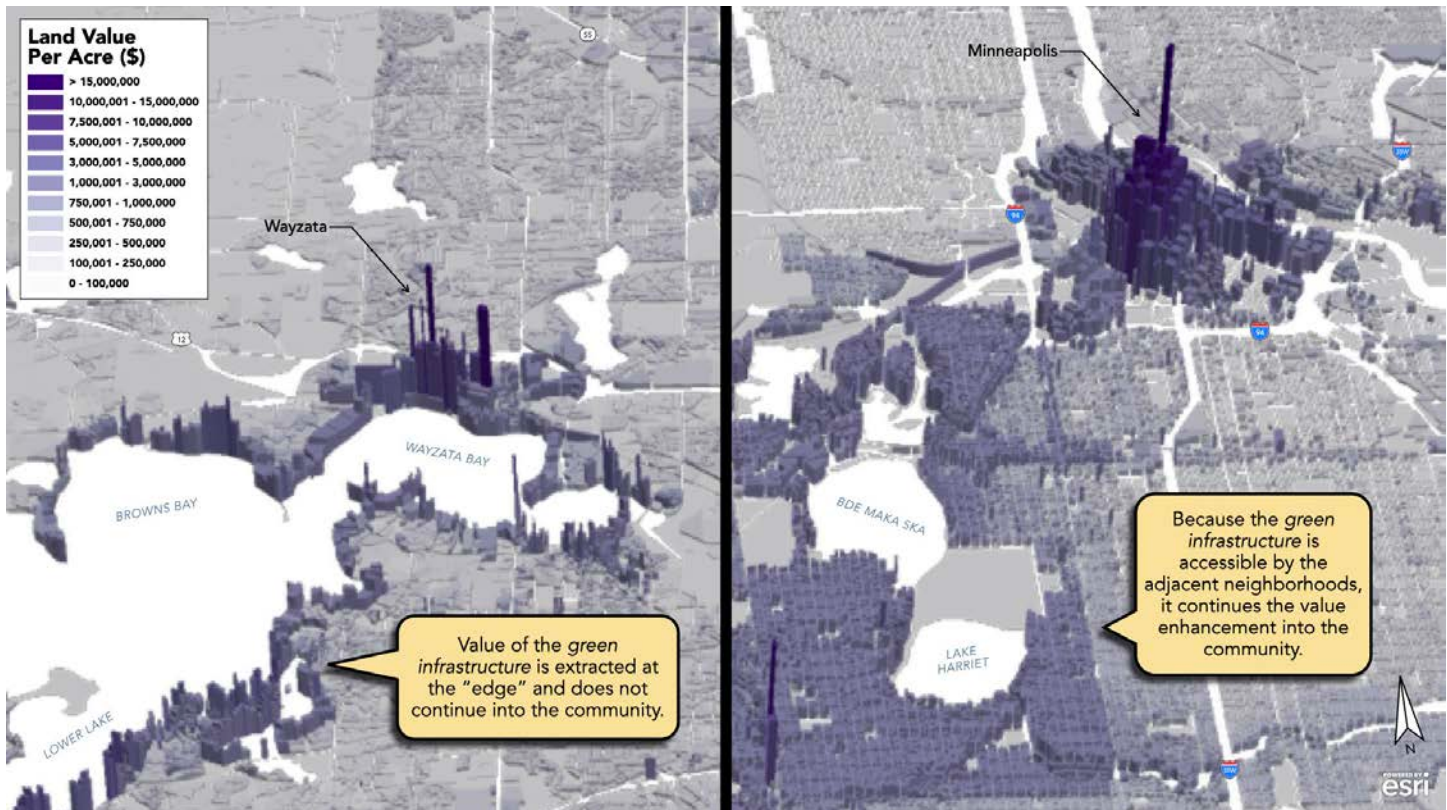


Figure 29.
Source: Hennepin County, MN Assessor

These are but a couple of examples to exhibit the opportunity for communities that haven't had the explosive growth that the coastal communities have already experienced. Now is the time to consider coordinating open-space plans along with development plans to maximize value and minimize infrastructure costs. Street trees are just part of it. Maintaining a wetland infrastructure that functions as a drinking water purification system will save the cost of building additional filtration systems. West Palm Beach is a great example of that with their water catchment preserve. That system had foresight, but an opportunity was missed in not expanding it for the entire county. Once development happens, you cannot go back and reconstruct a natural system that was doing the work for free. Or at least, if you try to reconstruct nature after the fact, it won't be cheap to do.

As Florida grows, the value of natural resources will only increase. As the population increases, the demand for parks, open space, natural lands, and agriculture will increase as well. But so will demand for developable land as more people move into the state or to inland parts of the state from the coasts.

These demands will put pressure on natural and agricultural resources. Preserving them will become more difficult but also more important. As Ian McHarg once said, "The man on the moon will know the value of a gallon of oxygen." So too should communities understand that the "value" of open space in Florida will only soar in price as it becomes rarer. The value is not lost or squandered when undeveloped but transferred to communities surrounding them. While it may never seem like a good time to invest in conserving land, Florida communities should encourage the protection and integration of natural resources as they will only grow more valuable.

**"The man on the moon will know the value of a gallon of oxygen."
- Ian McHarg**

So, What Now?

Shoot for 1:6

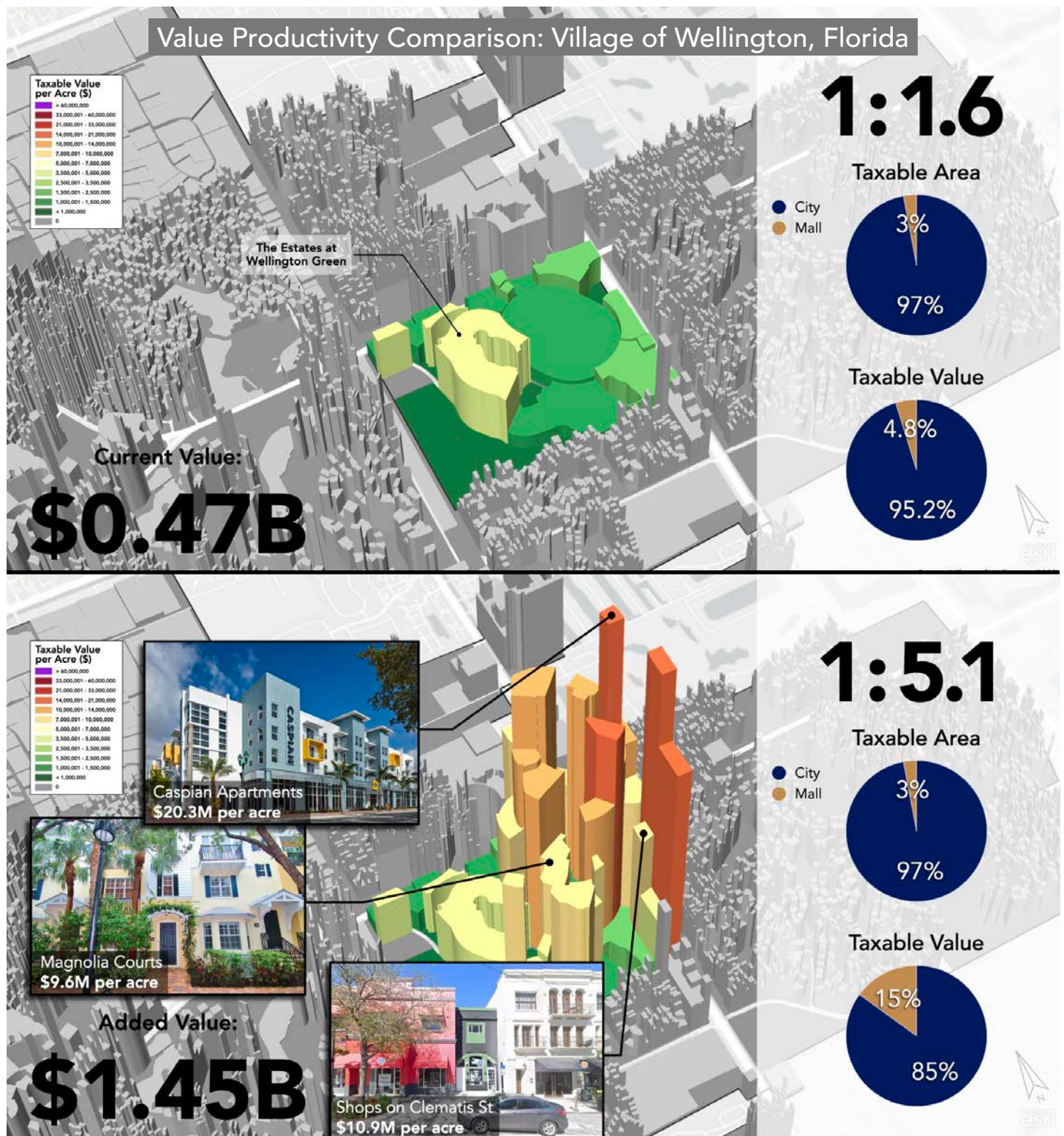


Figure 30. Current value of selected site in Wellington (top) versus a projected growth scenario for that same site (bottom)
Source: Village of Wellington, FL (2022)

In our collection of city analytics, one of the most important data points for economic productivity is the relationship of the city center to its surrounding neighborhoods. Cities have a stronger economic position if their downtown core has a 1:6 relationship with the remaining city. The value per acre of the downtown should be six times as productive as the average for the city. This is usually easy to spot in the productivity model if the downtown pops up in purple spikes as a visual “mountain.” Cities that lack this relationship tend to lack an older city center. This is typical of newer developed cities, such as those in Western Broward County. This development pattern may suffice in a growth spurt but when the city runs out of land, and moves into the replacement and maintenance of infrastructure, it becomes problematic.

As is demonstrated in the models, the conventional low-density development patterns cannot produce the revenues necessary to support maintenance or replacement of their infrastructures. Cities that have a strong core such as West Palm Beach or Gainesville have the benefit of their core productivity that carries their surrounding, low-density neighborhoods.

For communities that have a less than 1:6 relationship, they should prioritize the core development. Communities that don’t yet have a core can focus on retrofitting suburban centers into proper urban cores, like Wellington plans to do. By building up the center of the Mall at Wellington Green, the city’s core has the potential to become over five times as productive as the city average (Figure 30).

Development Patterns Impact Productivity

As our studies have shown, lower-density single-family development is a net loss when subtracting their infrastructure costs against their revenue contributions (Figure 31). This isn’t necessarily problematic, but it becomes so when a large share of a community follows this development pattern. Rural patterns can be productive, but

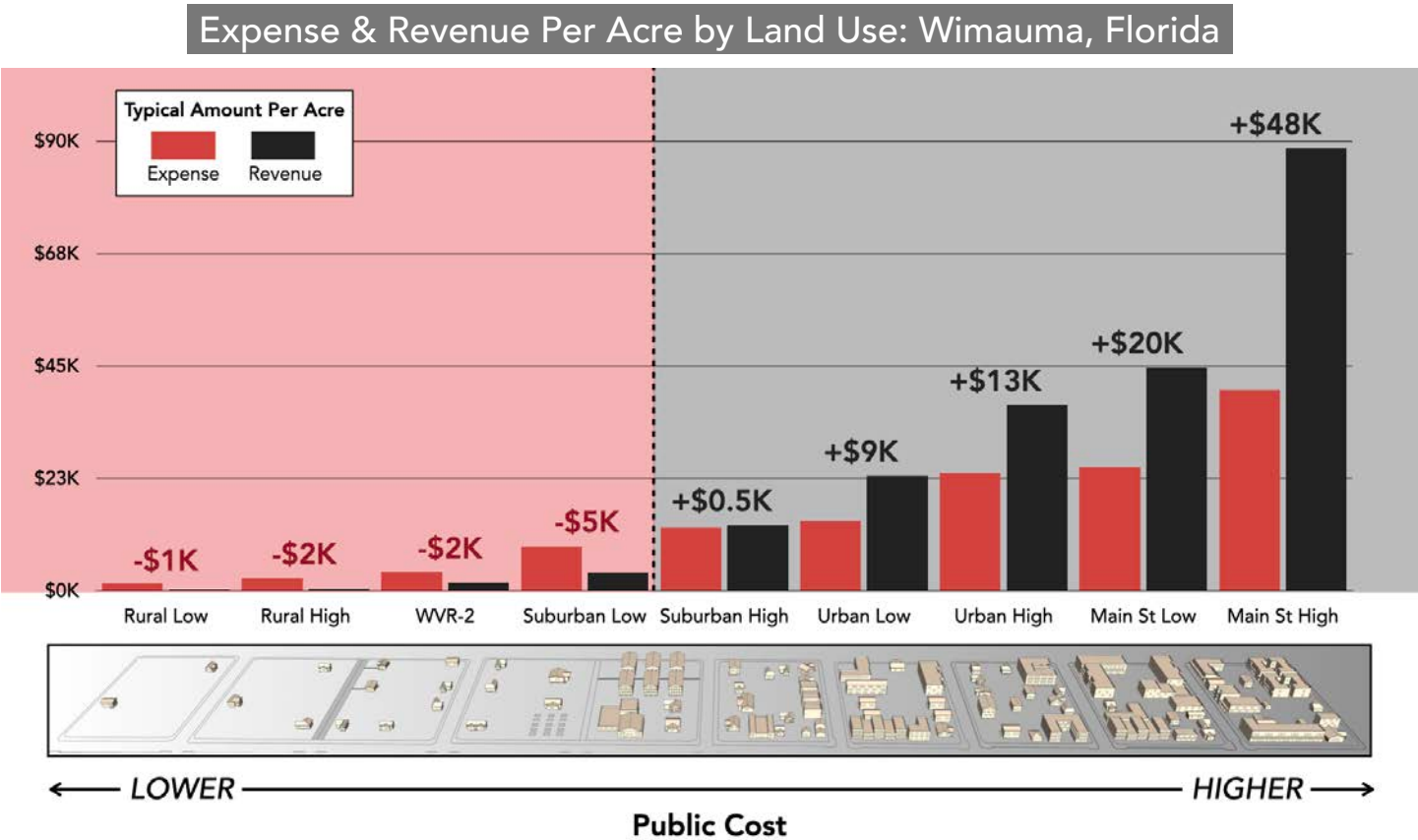


Figure 31.
Source: Hillsborough County FL Assessor, Urban3 Estimates

only when truly rural, and in demand of low levels of service and less than city-standard infrastructure. However, a plan must be made should those areas transition to ensure that more net positive development patterns are added when subsidized patterns of suburbia are added. Cities such as Gainesville have strong downtowns that are net positive, as well as various land uses of higher density typologies, such as townhouses and main street buildings, that help carry the losses of low-density development. Keeping this balance in mind is key. Communities such as Oviedo and Wellington are actively working on building up a core to compensate for net-negative development patterns and catch up financially.

With our focus on productivity, where do natural and agricultural lands fit in? These lands are less financially productive in terms of generating property and sales tax revenue, but they preserve many other economic and environmental benefits that suburban areas don't offer. These lands also demand minimal infrastructure services. Strawberries do not call the police, go to school, or use fire services. A dirt road is significantly less expensive per linear foot than a paved one. When it comes to return on investment, communities can either increase revenue productivity or decrease investment. Increasing productivity is a smart move in urban areas where development is encouraged, but where development isn't encouraged, reducing infrastructure and service needs accomplishes the same goal. For example, in Wimauma, low-density suburban areas are five times more costly than low-density rural areas. While rural areas may still come with costs, they return environmental and cultural value that suburban development patterns don't offer. Suburban areas require areas of higher productivity to cover the inherent subsidy in the low-density pattern. This is especially true in Florida because of the tax abatements baked into state property tax policy.

"While rural areas may still come with costs, they return environmental and cultural value that suburban development patterns don't offer. Suburban areas require areas of higher productivity to cover the inherent subsidy in the low-density pattern."

It is important to note that, in recent years, there has been increased state emphasis on the importance of Florida's rural lands, particularly the Florida Wildlife Corridor. A visionary 18-million-acre network of interconnected lands and waters, the Corridor protects Florida's drinking water, connects wildlife habitats, supports agriculture, and provides critical ecosystem services. To help protect the Corridor, Florida has allocated increased state funding for the conservation of natural and agricultural land through the Florida Forever and Rural and Family Lands Protection programs. Some counties also provide funding for land conservation that can match these and other programs.

Design Your Future

Patterns of migration are already underway within Florida. There are opportunities for revitalization for inland communities, but there are also challenges that growth will bring to these communities. Inland and growing communities should learn from the positives and negatives of their peer counties along the coast that are experiencing challenges of poor land-use planning. Escambia County offers a great example.

Escambia County contracted with Duany Plater-Zyberk CoDesign (DPZ CoDesign) to develop a series of development options for the redevelopment of a former military property, known as the OLF-8 Site. The County wisely sought to explore development options for likely development scenarios, based upon market demands. They spanned four basic scenarios (Figure 32). The Commerce option responded to demands for warehouse and commercial development. The Market development contained primarily residential development. The Gre-

Value Per Acre Projections: Escambia County, Florida



Figure 32.
Source: Escambia County FL Assessor, Urban3 Estimates

enway option prioritized an internal greenway with residential and commercial development. The Village option responded to a request for a rural village type development.

All of the plans contained DPZ CoDesign's integrated street networks and walkability. With design differences, the resulting market value of the developments differed significantly. The total value of the Commerce and Village options yielded about \$340 million and \$350 million, respectively. However, the two plans that focused on denser, walkable urbanism came in close to two times those values. The Market option came in at \$600 million and the Greenway came in at \$650 million. The difference in yield is a mix of additional density and walkable design.

What these four options reveal is that communities have a choice over how they develop. The decisions they make today will shape their legacy for decades to come. Communities can neglect their agency and continue with business as usual, or they can empower themselves and their residents to choose options that produce lasting value. Communities should follow Escambia's lead to better understand the economics of land-use choices and add that to community decision-making processes.

"Communities can neglect their agency and continue their business as usual, or they can empower themselves and their residents to choose options that produce lasting value."

Conclusion

Many communities around Florida and across the nation are under the false assumption that any growth is good growth. Compiling knowledge gleaned from more than a decade of visualizing land-use economics in hundreds of communities nationally and internationally and working in 19 of Florida's 67 counties, major findings include:

- Low-density development, suburban in nature, does not produce enough tax revenue to pay for its infrastructure lifecycle liabilities. This form of development is fiscally insolvent over the long term.
- Inverse to the above, dense, walkable, mixed-use development patterns produce far more tax revenue per acre than is needed to pay for infrastructure.

Not only are denser, walkable, mixed-use communities more livable than low-density development designed primarily for the car, but they also accommodate more people on fewer acres of land. This lessens the need to develop Florida's rural areas, leaving more land available for nature and agriculture and the many ecosystem services they provide. It also helps avoid fragmentation of functional natural systems and economically viable agricultural land. Natural and agricultural land, in turn, creates far less public burden (eg.: roads, water, sewer, stormwater, schools, and other services) compared to suburban areas.

Communities can support the following to enhance their fiscal health:

- **Shoot for 1:6** – Cities have a stronger economic position if their downtown core has a 1:6 relationship of land to value with the remaining city. The average value per acre of the downtown should be six times as high as the average for the city. Proper infill development, mixed uses, and walkable urbanism support this.
- **Increase fiscal productivity in existing suburban areas** – Suburban areas can be retrofitted with areas of higher productivity through infill development, new mixed-use centers, and enhanced walkability to help address the inherent subsidy in the low-density pattern.
- **Do the math on development patterns** – Develop a process of measuring development fiscal productivity on new and old development patterns to better understand fiscal consequences of growth and how to best maintain long term fiscal health of your community.
- **Keep rural lands rural** – While natural and agricultural lands are less financially productive in terms of generating property and sales tax revenue, they preserve many other economic and environmental benefits that suburban areas don't offer and require only minimal infrastructure demands. There are planning and land conservation strategies that can help protect natural and agricultural lands.

By making the right decisions today, communities can create a wealth building legacy for their children and grandchildren. They can build financial wealth through intentional land-use development and environmental wealth through enhanced ecological protection and connectivity. They can maintain the considerable economic, food security, and natural benefits provided by agriculture. Growth and preservation don't have to be in conflict. Proper infill development and walkable urbanism can build livable places while preserving Florida's natural and agricultural landscape heritage.

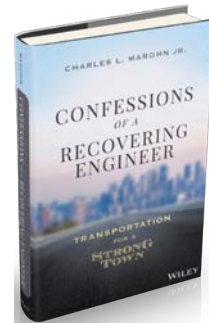
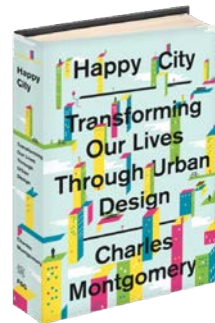
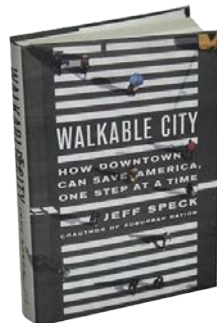
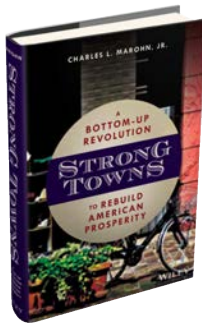
Expanded Readings

Strong Towns: A Bottom-Up Revolution to Rebuild American Prosperity
Charles L. Marohn, Jr.

Walkable City: How Downtown Can Save America, One Step at a Time
Jeff Speck

Happy City: Transforming Our Lives Through Urban Design
Charles Montgomery

Confessions of a Recovering Engineer: Transportation for a Strong Town
Charles L. Marohn, Jr.



All maps are created with ESRI software, and all data used in this analysis and report (unless otherwise noted) was provided by the Urban3 clients from the state of Florida.

urbanthree.com

URBAN3 for



City of Titusville
"Gateway to Nature and Space"

REPORT TO COUNCIL

To: Members of the Titusville Environmental Commission
From: Brad Parrish, Community Development Director
Subject: **TEC Semi-Annual Report to City Council**
Department/Office: Planning

Recommended Action:

Approve report and forward to City Council

Summary Explanation & Background:

Alternatives:

Make changes and additions

Item Budgeted:

Source/Use of Funds/Budget Book Page:

Strategic Plan:

Strategic Plan Impact:

ATTACHMENTS:

1. Semi-Annual_Report_TEC_November 2024

Titusville Environmental Commission Semi-Annual Report June 2024 to November 2024

June 2024

The Titusville Environmental Commission provided input regarding the Natural Resources Public Engagement Project led by Placemaking Collective Inc.

July 2024

The Titusville Environmental Commission had discussion regarding the Native Municipal Tree, Canopy, and Landscape Management Trust Fund and tabled this item until Member Myjak was able to participate.

The Titusville Environmental Commission proposed an amendment to the Titusville Environmental Commission's Powers & Duties: The proposed amendment was to recommend to City Council to have the Public Works Department starting now to spend all of the fund from the \$2.00 per capita for tree planting and initial care which includes the cost of the tree purchases, planting material, stakes, wrapping, watering, mulching, and competition control etc

** Council modified TEC recommendation to provide trees (palm trees) for Riverfront Park and come back with a number of trees to be planted and include the time frame of these plantings.

Additional discussion included planting palm trees at Riverfront Park, completing the Urban Forestry Plan and allowing the TEC to review the plan prior to being presented to City Council, determining the number of trees to be planted and including a time frame for the plantings, budget for planting the trees, calculating the number or percentage of canopy trees on City property, etc.

August 2024

The Titusville Environmental Commission reviewed and made recommendations on the Tree Ordinance.

- Motion to City Council requesting advisability for staff to re-evaluate the Critical Root Zone (CRZ) and grading standards within the CRZ in the Tree Ordinance (20-2021). *note for staff: 1ft per 1 inch diameter/ANSI A300 international standard* - Approved by City Council 09/10/24
- Motion to City Council requesting advisability for staff to evaluate adding "Multi-Family projects" in addition to Single-Family to require 25% of the development area tree canopy coverage in the Tree Ordinance (20-2021). Approved by City Council 09/10/24

The Titusville Environmental Commission had a discussion relating to lethal bronzing and this will be brought back in February 2025.

September 2024

The Titusville Environmental Commission received the final report from Placemaking Collective Inc., the Commission provided their feedback regarding the report.

October 2024

The Titusville Environmental Commission meeting for October 2024 was cancelled due to Hurricane Milton.

November 2024

The Titusville Environmental Commission will be discussing the Native Municipal Tree, Canopy, and Landscape Management Trust Fund.

The Titusville Environmental Commission held their Election of Officers.

The Titusville Environmental Commission reviewed the following draft ordinances.

- Critical Root Zone (CRZ) Ordinance
- Multi-family Canopy Ordinance
- Native Plant Ordinance
- Artificial Turf Ordinance

City of Titusville
"Gateway to Nature and Space"

REPORT TO COUNCIL

To: Members of the Titusville Environmental Commission
From: Brad Parrish, Community Development Director
Subject: **The Wyland National Mayor's Challenge for Water Conservation**
Department/Office: Planning

Recommended Action:

Discuss the Mayor's request.

Summary Explanation & Background:

The Mayor's Challenge asks city residents to go online to mywaterpledge.com and choose from 17 conservation action-pledges and implement them in their daily lives. Cities get points based on resident participation and compete to see which cities can be the most water-wise while residents win thousands of dollars in eco-friendly prizes. The Wyland Foundation is a non-profit organization dedicated to promoting, protecting, and preserving the world's oceans, waterways, and marine life.

Alternatives:

Item Budgeted:

Source/Use of Funds/Budget Book Page:

Strategic Plan:

Strategic Plan Impact:

ATTACHMENTS:

1. Mayor Water Competition 2025

Fw: 2025 Wyland National Mayor's Challenge for Water Conservation

From Mathews, Christine <Christine.Mathews@Titusville.com>

Date Thu 1/30/2025 9:37 AM

To Galleo, Lily <Lily.Galleo@Titusville.com>

Good morning Lily,

Mayor Connors would like to participate in the below and asked me to forward to the TEC to take it up on their agenda. Would you be the contact for this request?

Thank you!

Christine Mathews

Executive Assistant
City Manager's Office
City of Titusville
555 S. Washington Avenue
Titusville, FL 32796
(321)567-3702

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From: Melissa Calvano <melissac@wylandfoundation.org>

Sent: Wednesday, January 29, 2025 12:32 PM

To: Mathews, Christine <Christine.Mathews@Titusville.com>

Subject: 2025 Wyland National Mayor's Challenge for Water Conservation

Dear Ms. Mathews:

Thank you for speaking with me today. We would love to have Titusville participate in the Challenge this year!

The Wyland National Mayor's Challenge for Water Conservation is kicking off its 15th year April 1st with its new *Impact Insight Initiative*!

This new component to the Mayor's Challenge provides localized insights into how participants' conservation actions like reducing water or minimizing plastic waste affects their local community as well as the nation.

Understanding the direct connection between a person's conservation actions and the health of their local community is crucial to creating meaningful and sustained changes in behavior.

Designed to bring every facet of a community together for the shared goal of doing one's part to help the environment and one's city; the Mayor's Challenge asks city residents to go online to mywaterpledge.com and choose from 17 conservation action-pledges and implement them in their daily lives. Cities get points based on resident participation and compete to see which cities can be the most water-wise while residents win thousands of dollars in eco-friendly prizes.

Please sign up today and start promoting the new and improved 2025 Wyland National Mayor's Challenge to your city residents. The Challenge runs April 1st through April 30th. Just click this [link](#) and sign your city up to participate. Next we will email you an electronic marketing toolkit with everything you need to let your residents know how they can participate and win prizes for themselves while helping the city they live in.

About the Wyland Foundation

Founded in 1993 by environmental artist Wyland (best known for his series of 100 monumental marine life murals), the Wyland Foundation, a 501c3 non-profit organization dedicated to promoting, protecting, and preserving the world's ocean, waterways, and marine life. The foundation encourages environmental awareness through community events, education programs, and public art projects. www.wylandfoundation.org

HOW TO PARTICIPATE

The Wyland National Mayor's Challenge for Water Conservation reminds residents, and educates children, that simple individual actions can add up to huge change in protecting our environment. Cities sign up and agree to promote the Challenge out to their city residents. City residents can participate both virtually and physically in this fun and educational competition.

City Participation

Cities participate by simply signing up at <https://wylandfoundation.org/programs/national-mayors-challenge-for-water-conservation/>. Mayors or the appropriate sustainability, water, or city official can sign your city up to participate and we then provide a digital toolkit with digital assets to communicate the program to your city residents. Once signed up you will join mayors from prominent cities such as Houston, Dallas, San Diego, Denver, Los Angeles, Pittsburgh and many more who have led their cities in the National Mayor's Challenge.

City Landing Page

Participating residents go to mywaterpledge.com, select their city to begin, and are taken to their city's landing page. This landing page provides mayors or appropriate city officials an open platform to provide a statement of support for conservation, the Mayor's Challenge, and what your city is doing or what programs you provide. You can provide a written statement and or a video statement in YouTube format.

You can sign your city up for the Challenge as soon as today and then take as much time as needed to draft your statement of support and or video. You can also use the statement of support provided at the sign up [page](#). Once signed up we provide you with access to your landing page to upload/make changes/manage your statement of support and or video. Additionally, you can email statements/videos to mayorchallenge@wylandfoundation.org. All videos must be in the form of a YouTube link.

Resident Participation

Residents can participate two ways; making on-line conservation pledges at www.mywaterpledge.com; and with physical hands-on projects or actions at www.wylandfoundation.org/mywaterproject that can be done in their own backyard or neighborhood. The hands-on projects can be done as an individual, with family members, or as a virtual group activity inviting friends, neighbors, co-workers to do the same activity in their own backyard or neighborhood. A [student edition](#) of the Challenge offers teacher activities and curriculum as well as additional prizes for the classroom and school.

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Melissa Calvano
Wyland Foundation
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949-643-7070 ext 206

City of Titusville
"Gateway to Nature and Space"

REPORT TO COUNCIL

To: Members of the Titusville Environmental Commission
From: Brad Parrish, Community Development Director
Subject: **Vulnerability Assessment Webinar and Open Survey**
Department/Office: Planning

Recommended Action:

No action.

Summary Explanation & Background:

We invite you to [REGISTER HERE](#) - The City of Titusville, with the assistance of Geosyntec Consultants, will be conducting the first of several public engagement activities associated with the completion of a citywide vulnerability assessment. The City received a grant from the Florida Department of Environmental Protection (FDEP) Resiliency Florida Program to prepare the vulnerability assessment. This project kicked off in January 2025 and is expected to conclude by March 2026.

The 2025-2026 vulnerability assessment has many components, including acquiring and analyzing data; conducting exposure and sensitivity analyses of critical assets and infrastructure to flooding; identifying adaptation strategies and projects; prioritizing adaptation and mitigation projects; and public outreach.

This study will build upon prior resilience planning activities conducted by the City and address FDEP resilience grant requirements. It will expand upon the previous resiliency study by identifying critical local and regional assets that are exposed and sensitive to flooding due to rainfall, storm surge, sea level rise, and a combination thereof. This updated analysis will allow the City to develop actionable steps to address evolving vulnerabilities and opportunities for identified geographic and infrastructure focus areas.

The purpose of the first public meeting is to receive input during the initial data collection stage, including factors to consider in completing the vulnerability assessment and critical assets important to the community.

Take the survey & [Register for Webinar](#)

The meeting will be held online via the Teams platform on Tuesday, February 18, 2025, at 12pm. Opportunities for public engagement throughout the project will be shared with attendees.

For more information about the project visit <https://www.titusville.com/486/Resilient-Titusville>

Note: This meeting will be recorded and posted to the [Resilient Titusville](#) webpage as well as the [Community Development Newsletter](#).

Alternatives:

Item Budgeted:

Source/Use of Funds/Budget Book Page:

Strategic Plan:

Strategic Plan Impact:

ATTACHMENTS:

1. Public Engagement Post (4)



PUBLIC

ENGAGEMENT

ONLINE - TUESDAY, FEBRUARY 18TH @12 PM

The City of Titusville, with the assistance of Geosyntec Consultants, will be hosting a public online presentation in order to conduct a citywide vulnerability assessment.

Info & Registration:

www.titusville.com/486/Resilient-Titusville



Or Scan Here