



CITY OF TITUSVILLE

TITUSVILLE ENVIRONMENTAL COMMISSION

AGENDA

Regular Meeting

April 15, 2026 - 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 March 26, 2026

Approve Minutes

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

7. OLD BUSINESS

A. Wetlands

8. NEW BUSINESS

A. Alternative Water Supply

Provide Council with Recommendations

9. PETITIONS AND REQUESTS FROM THE PUBLIC PRESENT

10. REPORTS

11. FUTURE AGENDA ITEMS

12. 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: Members of the Titusville Environmental Commission
From: Bradley Parrish, Community Development Director
Subject: **Minutes March 26, 2026**
Department/Office: Planning

Recommended Action:

Approve Minutes

Summary Explanation & Background:

Minutes March 26, 2026

Alternatives:

Item Budgeted:

Source/Use of Funds/Budget Book Page:

Strategic Plan:

Strategic Plan Impact:

ATTACHMENTS:

1. 03.26.26 TEC Minutes Draft LG

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 Thursday, March 26, 2026, at 5:30pm.

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Chairman Myjak called the meeting to order at 5:30pm. Present were, Vice Chairwoman Laurilee Thompson, Member Jonathan Burdette, Member John Nico, Alternate Member William Young and Alternate Member Kevin Rosa. Member Hector Delgado, Member Beth Ann Tucker, and Member Jason Miller were absent. Staff present were Sustainability Program Coordinator Lily Galleo and Assistant City Attorney David Melito.

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Member Young made a motion to approve the March 11, 2026 meeting as presented. Member Thompson seconded. There was a unanimous voice vote in favor.

XXX

Petitions and Requests from Public Present

Stan Johnston of Titusville, Florida spoke about the Florida Today news and the Stormwater Master Plan in 1966.

XXX

Old Business

Wetland Conservation

Mary Sphar of Cocoa, Florida continued the discussion on wetland conservation FLUE Policy 1.16.3. Ms. Sphar provided a handout labeled “Ch. 163.3177, Florida Statutes” and went over the handout with the Titusville Environmental Commission. Ms. Sphar went on to review the handout “Try 3 – FLUE Policy 1.16.3” and conversations during meetings with Staff.

XXX

Member Rosa made a motion to use paragraph 2 in the proposed policy as written on the “Try 3 – FLUE Policy 1.16.3” as the updated version for 1.16.3 that reads

“Allowable uses within the Conservation land use area shall be limited to residential uses of one unit per five acres, conservation, and passive recreation. The limitation of one (1) dwelling unit per five (5) acres may be applied as a maximum percentage limiting wetland impacts to not more than 1.8% of each residential development’s total Conservation land use on a cumulative basis. Any impacts to wetlands shall not cause secondary impacts to adjacent properties. The Conservation land use designation shall remain on wetlands that are impacted as allowed in this policy. Commercial and industrial uses are not permissible in the Conservation land use category.”

Member Nico seconded.

Roll call was as follows:

| | |
|--------------------------|-----|
| Vice Chairwoman Thompson | Yes |
| Member Young | Yes |
| Member Burdette | Yes |
| Member Nico | Yes |
| Member Tucker | Yes |
| Chairman Myjak | Yes |

Motion passed.

XXX

Ms. Sphar led the discussion relating to FLUE Policy 1.16.2 and its strategies. Ms. Sphar provided a handout regarding Policy 1.16.2 and Strategy 1.16.2.1 and 1.16.2.2. Ms. Sphar also provided the additional handouts showing maps for the PD South as examples. Ms. Sphar went over the handouts in detail.

Vice Chairwoman Thompson asked if a LIDAR drone would be a generally accepted source. Ms. Sphar mentioned the goal of closing the loophole and requiring wetland delineation. Ms. Sphar moved on to the handout titled “Policy 1.16.2”

TEC discussed the proposed policy changes.

Vice Chairwoman Thompson asked if there were other reasons to preserve uplands beyond wildlife species. Ms. Sphar mentioned that was a question for Staff and was written because of preexisting language.

Chairman Myjak mentioned that the TEC in 2017 had tried to tackle the preservation for endangered species and Vice Chairwoman Thompson asked for stronger protection of the uplands beyond wildlife species.

Member Nico asked about looking to put process in place to protect the upland buffer.

Ms. Sphar suggested putting the buffer language in the Conservation Element and pointed out that the specifics are found in the Technical Manual.

XXX

Member Nico made a motion to adopt the new Policy 1.16.2 as written in the handout titled “Policy 1.16.2 that reads

“As of 2009, the wetlands shown as Conservation Land Use on the Future Land Use Map were established using the National Wetlands Inventory Map of 1988. The wetlands shown on this map have not been ground-truthed. In order to achieve more accurate mapping of wetlands, an environmental assessment including a wetlands delineation shall be provided where wetlands have been identified on site based upon the Future Land Use Map. The USFWS national Wetlands Inventory Map as amended, SJRWMD FLUCCS mapping, or other relevant and appropriate data sources. When the City receives a wetland delineation on specific sites, the delineations will be accepted by the City of Titusville. Prior to any future development, the Future Land Use Map will be amended to include as Conservation Land Use all wetlands five (5) acres or greater in size and additional wetland areas on the site to be preserved, along with any upland areas to be permitted for preservation for state and/or federal listed wildlife species.”

Member Rosa seconded.

Roll call was as follows:

| | |
|--------------------------|-----|
| Vice Chairwoman Thompson | Yes |
| Member Young | Yes |
| Member Burdette | Yes |
| Member Nico | Yes |
| Member Tucker | Yes |
| Chairman Myjak | Yes |

Motion passed.

XXX

Ms. Sphar went on to review the proposed Strategy 1.16.2.1.

XXX

Member Rosa made a motion to recommend the proposed Strategy 1.16.2.1 as stated

Before consideration of a change from Conservation land use beyond a wetland delineation adjustment for a wetland with onsite acreage less than five (5) acres abutting the boundary of the property, a determination shall be made of whether the wetland size onsite and any acreage offsite total at least five (5) acres. Relevant and appropriate data from professionally accepted sources shall be utilized for the determination. If the total acreage of the wetland is determined to be five (5) acres or greater, the Conservation land use designation shall remain, consistent with Conservation Element Strategy 1.6.3.2.

Vice Chairwoman Thompson seconded.

Roll call was as follows:

| | |
|--------------------------|-----|
| Member Nico | Yes |
| Vice Chairwoman Thompson | Yes |
| Member Burdette | Yes |
| Member Young | Yes |
| Member Tucker | Yes |
| Member Myjak | Yes |

Motion passed.

XXX

Ms. Sphar described her research related to issues that may be the result of annexation with developments like Verona but didn't see annexation as an issue and moved on to the concerns about the listed endangered species.

Ms. Sphar was looking for the requirement about Scrub Jay relocation and requirements.

Vice Chairwoman Thompson suggested reaching out to the Brevard Zoo as they have been handling Scrub Jay relocation for years.

Ms. Sphar passed out a handout titled “Protected Species”

The TEC discussed changes to the proposed Strategy 1.16.2.2

Ms. Sphar stated that after Strategy 1.16.2.2 moving on to the Conservation Element during the next meeting and discussing the listed endangered species.

Chairman Myjak and Member Nico asked for Staff to find out when does the city require for protected species and when the environmental assessment in the process is required as well as examples.

Member Burdette asked for more information on how Volusia County handles it with the mixed overlay of soil and habitat type requirements.

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New Business

None

XXX

Petitions and Requests from Public Present

None

XXX

Reports

Chairman Myjak asked to request a sabbatical for July, August, September and October meetings.

Chairman Myjak brought up the EELs Selection and Management Committee for the PD North and South and Sylvester property. Part of the large wetlands has signed a letter of intent with EELs and they had a unanimous vote in favor of moving forward with an assessment of the property with the caveat that the other property owners agree with a letter of intent. The aim is to work with partners with the goal of purchasing and caring for the larger wetlands in this area.

Vice Chairwoman Thompson mentioned meeting with Sandra and St Johns River Water Management District looking to qualify for grants and opportunity for partnerships with FDEP with a focus from SOIRL on water holding capacity.

Member Rosa brought up litter on SR 405 that never goes away and gets mowed into little pieces.

Chairman Myjak suggested for Member Rosa to draft a solution and bring it forward to a future TEC meeting.

Member Young stated that there is no requirement for site cleanup and FPL stated the same with power lines that are rolled up or hanging down. Chairman Myjak referred to the NASA term as abandoned in place.

Chairman Myjak mentioned that he will not be able to make the April 15th meeting and expressed his concerns and tradeoffs dealing with the effluent of the Brackish Water discussion. He provided a handout to be shared with the rest of the TEC for the April 15th meeting.

XXX

Future Agenda Items

1. April 15th Brackish Water Presentation and Wetlands
2. April 30th Urban Forestry Management Presentation and Wetlands

XXX

Adjournment 7:52 p.m.

City of Titusville
"Gateway to Nature and Space"

REPORT

To: Members of the Titusville Environmental Commission
From:
Subject: **Wetlands**
Department/Office: Planning

Recommended Action:

Summary Explanation & Background:

Ongoing wetlands discussion. Review the TEC Motions tracker sheet and continue reviewing Wetland policy in the Comprehensive Plan.

Alternatives:

Item Budgeted:

Source/Use of Funds/Budget Book Page:

Strategic Plan:

Strategic Plan Impact:

ATTACHMENTS:

1. Wetlands Confusion and Clarification -- FLUE 1-07-26
2. TEC Edits and Motions 3.26.26

Wetlands Confusion and Clarification

FLUE Policies

| Point of Confusion | Suggested Clarification Future Land Use Element policies for Conservation land use |
|---|--|
| <p>Comprehensive Plan Conservation Element Strategy 1.6.3.2 states: “At a minimum, wetlands 5 acres or more in size <u>shall</u> be designated as a conservation land use.” This is <u>very important</u> because there is a density limitation of one residential unit per 5 acres stated in FLUE Policy 1.16.3.</p> <p>FLUE Policy 1.16.2 contains an outdated loophole allowing removal of some wetlands 5 acres or greater from the Conservation land use. Strategy 1.16.2.1 does not require a wetland delineation when wetlands are suspected on land not designated as Conservation.</p> | <p>Revise the language in Policy 1.16.2 and Strategy 1.16.2.1 so that all wetlands 5 acres and greater in size are designated Conservation land use and always remain in Conservation.</p> |
| <p>When a property contains only a small portion (less than 5 acres) of a large wetland totaling 5 acres or greater, how should the City ensure that this small part of the larger wetland is designated Conservation land use? How can the City ensure that wetland size determination does not stop at property boundaries?</p> | <p>Add language ensuring that the best available and appropriate data shall be used to determine whether a wetland continuing onto adjacent property is 5 acres or greater in size.</p> |
| <p>How is compliance with the residential limitation of one unit per five acres to be assessed? Should the density limitation be interpreted as a percentage, such as 1.8% of the Conservation land use?</p> <p>Does “residential uses of one unit per five acres” allow for any residential types other than single-family?</p> | <p>Add language to Policy 1.16.3 specifying a method for assessing compliance with the one residential unit per five acres limitation.</p> <p>Also clarify in this policy whether or not “residential uses of one unit per five acres” can include residential types other than single-family.</p> |
| <p>How can the City discourage applicants from using “reasonable use of the land” as an excuse to try to wiggle out of the Conservation land residential density limitation?</p> <p>How should the City and the permitting agencies work together to regulate wetlands, but avoid duplication of effort?</p> | <p>Replace the confusing and problematic FLUE Policy 1.16.4 wording with a statement saying that the City shall apply the Comprehensive Plan land use and density requirements when wetland destruction or degradation has been permitted by SJRWMD or any applicable permitting agency.</p> |

TEC Suggested Edits

FLUE Policy 1.16.2 (Motion made on 11.12.26 and 3.28.26)

As of 2009, the wetlands shown as Conservation Land Use on the Future Land Use Map were established using the National Wetlands Inventory Map of 1988. ~~These~~ wetlands shown on this map have not been ground truthed. In order to ~~achieve provide~~ more accurate mapping of wetlands, ~~an environmental assessment including when the City receives a~~ wetland delineation ~~shall be provided where wetlands have been identified on site based upon the Future Land Use Map. The USFWS National Wetlands Inventory Map as amended, SJRWMD FLUCCS mapping, or other relevant and appropriate data sources. on specific sites, When the City receives a wetland delineation on specific sites, the~~ delineations will be accepted by the City of Titusville. ~~Prior to any future development, and the Future Land Use Map will be amended accordingly to include as.~~ The Conservation Land Use ~~all wetlands five (5) acres or greater in size and additional wetland areas on the site shall be amended to include all wetland areas on the~~ site to be preserved, ~~unless such wetlands are preserved by a conservation easement as part of a Planned Development (PD) or other master planned development, and any other along with any~~ upland areas to be permitted for preservation for state and/or federal listed wildlife species.

Strategy 1.16.2.1

~~Before consideration of a change from Conservation land use beyond a wetland delineation adjustment for a wetland with onsite acreage less than five (5) acres abutting the boundary of the property, a determination shall be made of whether the wetland size onsite and any acreage offsite total at least five (5) acres. Relevant and appropriate data from professionally accepted sources shall be utilized for the determination. If the total acreage of the wetland is determined to be five (5) acres or greater, the Conservation land use designation shall remain, consistent with Conservation Element Strategy 1.6.3.2.~~

Rationale for proposed changes to FLUE Policy 1.16.2

The wording in strike-through was added in 2017 to accommodate clustered development patterns, including conservation subdivisions, using Planned Development (PD) zoning. At that time, PD zoning was not was not allowed in Conservation land use. This was changed on February 27, 2018 with the passage of Ordinance 6-2018, rendering the language in strike-through no longer needed to accomplish its original purpose. Since 2017, problems with the language have surfaced. First of all, it is inconsistent with Conservation Element Strategy 1.16.3.2 (“Five Acre Rule”). Second, SJRWMD conservation easements are no

longer guaranteed to be permanent, and the amendment aims to head off potential problems resulting from that fact.

FLUE Policy 1.16.3 (Motion made on 2.26.26 and edits on 3.28.26)

~~Permitted Allowable~~ uses within the Conservation land use area shall be limited to residential uses of one (1) unit per five (5) acres, conservation, and passive recreation, open space, and stormwater management systems consistent with the policies of the Conservation Element and the land development regulations. The limitation of one (1) dwelling unit per five (5) acres may be applied as a maximum percentage limiting wetland impacts to not more than 1.8% of each residential development's total Conservation land use on a cumulative basis. Any impacts to wetlands shall not cause secondary impacts to adjacent properties. The Conservation land use designation shall remain on wetlands that are impacted as allowed in this policy. Commercial and industrial uses are not permissible in the Conservation land use category.

Rationale (via Mary Sphar Suggestions for small changes to motion made on 3-11-2026)

To clarify that the 1.8% is to be applied project by project

Strategy 1.16.3.1:

Impacts to wetlands in the Conservation land use category area shall not cause secondary impacts to adjacent properties.

Rationale (via Mary Sphar Suggestions for small changes to motion made on 3-11-2026)

It is premature to suggest such language because the City will be having a workshop on stormwater. Lately, "inundation areas" have been the focus, instead of restricting any solution to the 100-year flood plain.

FLUE Policy 1.16.4 (Motion made on 1.27.26 and Edits on 2.26.26 and 3.11.26)

~~Impacts to areas designated as Conservation land use designation shall be considered if it is unavoidable due to absence of feasible and/or practical alternatives for reasonable use of the land, or the regulations create an inordinate burden on an existing use of the land or a vested right to a specific use of the land, or due to significant site constraint and/or practical design modification constraint. The allowable impacts shall be based upon site specific evaluation determined through the permitting process conducted by all the regulatory agencies with jurisdiction. No wetlands shall be impacted by development activities without appropriate land use review and approval by the City. The City shall apply the land use planning policies of this Objective in a manner consistent with Objective 1.6 of the Conservation Element which pertains to wetlands. Permit approval by a regulatory~~

agency shall not substitute for independent land use review and approval by the City, and the City’s land use review and approval shall not be influenced by any action taken in response to a regulatory agency’s permitting decision.

TEC MOTIONS

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| 10/15/2025 | Member Miller made a motion to recommend to City Council to have city staff look at Policy 1.16.2 and specifically into the language regarding conservation easements. Seconded by Member Burdette. There was a unanimous voice vote in favor. Member Miller made a motion recommending that city staff review and find the best place within the Comprehensive Plan Future Land Use Element Wetland Policy 1.16 to include the language that decisions on these smaller parcels are made using the best and available appropriate data, I E and GIS or staff reports. Member Tucker seconded. |
| 11/12/2025 | Vice Chairwoman Thompson made a motion to recommend removing the following sentence from FLUE Policy 1.16.2 “unless such wetlands are preserved by a conservation easement as part of a Planned Development (PD) or other master-planned development”. Member Young Seconded. |
| 11/12/2025 | Member Browning made a motion to recommend changing the following language in FLUE Policy 1.16.2. Delete the words “and any other” and replacing them with “along with any”. Vice Chairwoman Thompson seconded. |
| 11/12/2025 | Member Delgado made a motion to recommend that when a wetland touches the property line the delineation continues to be counted beyond that property line until the entire wetland is fully delineated. Chairman Myjak seconded. Vice Chairwoman Thompson suggested that it should be delineated until it is determined to be five (5) acres in size. |
| 1/14/2026 | Vice Chairwoman Thompson made a motion to recommend the changes that have been discussed for FLUE Policy 1.16.2 as amended to staff to get their review and opinion. Member Miller Seconded. There was a unanimous voice vote in favor. |
| 1/14/2026 | Vice Chairwoman Thompson made a motion that Ms. Galleo pose a question to the GIS staff asking if the latest version of GIS mapping show that wetlands extend beyond a single property boundary to be five acres or more in size. Member Tucker seconded. There was a unanimous voice vote in favor. |
| 1/27/2026 | Member Thompson made a motion for Staff to review and comment on the proposed language added to 1.16.4 “Where the wetland degradation or destruction has been permitted or may be permitted in the future by the applicable regulatory agencies, no wetlands shall be impacted by development activities without appropriate review and approval by the City. The City shall apply the land use planning policies and density requirements for protecting wetlands and their functions as stated in the Future Land Use Element Objective 1.16 and the Conservation Element. |

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| 2/11/2026 | Vice Chairwoman Thompson made a motion to reaffirm their previous motion from January 14, 2026 in removing the following sentence from Policy 1.16.2, <i>unless such wetlands are preserved by a conservation easement as part of a Planned Development (PD) or other master planned development, and any other.</i> Member Tucker seconded |
| 2/11/2026 | Member Miller made a motion to accept the rationale that Mary Sphar provided in her handout to better clarify the removal of the sentence in Policy 1.16.2. Member Delgado seconded. |
| 2/26/2026 | <p>Vice Chairwoman Thompson made a motion and Member Tucker seconded it to recommend Option 2 changes to Policy 1.16.3 along with a new strategy labeled 1.16.3.1 to read</p> <p>Policy 1.16.3: Allowable uses within the Conservation land use area shall be limited to residential uses of one unit per five acres, conservation, recreation, open space, and stormwater management systems consistent with the policies of the Conservation Element and the land development regulations. The preceding limitation of one (1) dwelling unit per five (5) acres within the Conservation land use category may be applied as a maximum percentage limiting wetland impacts to not more than 1.8% of the total Conservation land use on a cumulative basis for residential developments. Commercial and industrial uses are not permissible in the Conservation land use category.</p> <p>Strategy 1.16.3.1: Impacts to wetlands in the Conservation land use category area shall not cause secondary impacts to adjacent properties. Allowable uses for Conservation land use located in the 100-year floodplain shall comply with the requirement for compensatory storage for fill stated in Conservation Element Objective 1.12 Stormwater Management.</p> |
| 2/26/26 | <p>Member Nico made the motion and Vice Chairwoman Thompson seconded to substitute the last sentence of Policy 1.16.4 that currently reads “The allowable impacts shall be based upon site specific evaluation determined through the permitting process conducted by all the regulatory agencies with jurisdiction.” To state</p> <p>No wetlands shall be impacted by development activities without appropriate land use review and approval by the City. The City shall apply the land use planning policies of this Objective in a manner consistent with Objective 1.6 of the Conservation Element which pertains to wetlands. Permit approval by a regulatory agency shall not substitute for independent land use review and approval by the City, and the City’s land use review and approval shall not be influenced by any action taken in response to a regulatory agency’s permitting decision.</p> |
| 3/11/2026 | Member Miller made a motion to remove the entire first sentence of FLUE Policy 1.16.4. Chairman Myjak seconded. |

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|-----------|---|
| 3/11/2026 | Member Miller made a motion to accept the suggested change provided by Ms. Sphar to Policy 1.16.3 which is to have the language read as follows: “1.8% of each residential development’s total Conservation land use on a cumulative basis. Commercial and Industrial uses are not permissible in the Conservation land use category. Member Tucker seconded. |
| 3/11/2026 | Member Miller made a motion to remove the entire second sentence in Strategy 1.16.3.1 that reads “Allowable uses for Conservation land use located in the 100-year floodplain shall comply with the requirement for compensatory storage for fill stated in Conservation Element Objective 1.12 Stormwater Management.” Member Tucker seconded |
| 3/26/2026 | Member Rosa made a motion to use paragraph 2 in the proposed policy as written on the “Try 3 – FLUE Policy 1.16.3” as the updated version for 1.16.3 that reads “Allowable uses within the Conservation land use area shall be limited to residential uses of one unit per five acres, conservation, and passive recreation. The limitation of one (1) dwelling unit per five (5) acres may be applied as a maximum percentage limiting wetland impacts to not more than 1.8% of each residential development’s total Conservation land use on a cumulative basis. Any impacts to wetlands shall not cause secondary impacts to adjacent properties. The Conservation land use designation shall remain on wetlands that are impacted as allowed in this policy. Commercial and industrial uses are not permissible in the Conservation land use category” Member Nico seconded. |
| 3/26/26 | Member Nico made a motion to adopt the new Policy 1.16.2 as written in the handout titles “Policy 1.16.2 that reads “As of 2009, the wetlands shown as Conservation Land Use on the Future Land Use Map were established using the National Wetlands Inventory Map of 1988. The wetlands shown on this map have not been ground-truthed. In order to achieve more accurate mapping of wetlands, an environmental assessment including a wetlands delineation shall be provided where wetlands have been identified on site based upon the Future Land Use Map. The USFWS national Wetlands Inventory Map as amended, SJRWMD FLUCCS mapping, or other relevant and appropriate data sources. When the City receives a wetland delineation on specific sites, the delineations will be accepted by the City of Titusville. Prior to any future development, the Future Land Use Map will be amended to include as Conservation Land Use all wetlands five (5) acres or greater in size and additional wetland areas on the site to be preserved, along with any upland areas to be permitted for preservation for state and/or federal listed wildlife species.” Member Rosa seconded |
| 3/26/26 | Member Rosa made a motion to recommend the proposed Strategy 1.16.2.1 as stated Before consideration of a change from Conservation land use beyond a wetland delineation adjustment for a wetland with onsite acreage less than five (5) acres abutting the boundary of the property, a determination shall be made of whether the wetland size onsite and any acreage offsite total at least five (5) acres. Relevant and appropriate data from professionally accepted sources shall be utilized for the determination. If the total acreage of the wetland is determined to be five (5) acres or greater, the Conservation land use designation shall remain, consistent with Conservation Element Strategy 1.6.3.2. Vice Chairwoman Thompson seconded. |

City of Titusville
"Gateway to Nature and Space"

REPORT

To: Members of the Titusville Environmental Commission
From:
Subject: **Alternative Water Supply**
Department/Office: Public Works

Recommended Action:

Provide Council with Recommendations

Summary Explanation & Background:

City Council recommended the Titusville Environmental Commission review the scope of work provided by CDM Smith to conduct a Brackish Water Feasibility Study. In response to Council's discussion, an alternative scope was provided by CDM Smith that will review other possible alternative water supply options prior to moving forward with the feasibility study for the selected option. A staff report summarizing some of those alternatives is attached.

Alternatives:

Item Budgeted:

Source/Use of Funds/Budget Book Page:

Strategic Plan:

Strategic Plan Impact:

ATTACHMENTS:

1. Alternative Water Supply Staff Report
2. Brackish Water Source Feasibility Study Scope of Work
3. Titusville Water Source Feasibility Study Scope

What Are Alternative Water Supplies?

Alternative water supplies include seawater, brackish ground water, surface water, stormwater, reclaimed water, aquifer storage and recovery projects, and any other nontraditional supply source identified in a regional water supply plan. These sources are frequently more expensive to develop and operate than traditional sources.

Why does the City Need an Alternative Water Supply?

Developing alternative water supplies is essential for Florida municipalities to ensure long-term water availability, comply with regulatory limits on traditional sources, improve drought resilience, and support sustainable growth while protecting natural resources.

Alternative Water Supply Options in Florida:

1. Seawater and Brackish Ground Water

Brackish ground water and seawater can be converted to fresh water through a process called **Reverse Osmosis (R.O.) desalination**. In Florida, reverse osmosis, a membrane technology, is the most common method of desalination. RO systems are utilized for removal of inorganic contaminants such as radionuclides, nitrates, arsenic, and other contaminants such as pesticides. The membrane rejects most dissolved ions and molecules, while allowing water of very low dissolved ion content to pass through. The process produces a concentrated reject stream in addition to the clean permeate product. Byproduct water—or the “concentrate”. For most brackish waters the concentrate is in the 10 to 25% range, while for seawater, it could be as high as 60%. Uses of the Technology in the United States, population growth and subsequent increases in demand for water in arid, semi-arid and coastal areas are contributing to a heightened interest in desalting membrane processes to augment existing supplies by treating alternative sources of water previously ignored in favor of traditional freshwater supplies. In addition, many communities are turning to membrane technology and desalting as a cost-effective method of meeting increasingly stringent water quality regulations.

Pros:

- **Technology Benefits:** Technology offers water production and fire flow protection during times of drought; brackish RO is a reliable source that is drought proof.
- **Cost-Effectiveness:** Brackish groundwater RO desalting plants are cost-effective when energy recovery systems are employed and are much less costly than seawater desalination due to lower energy consumption and operational costs.
- **Regulatory Compliance:** RO provides superior water quality ensuring compliance with drinking water standards.
- **Environmental Benefits:** These plants can reduce reliance on freshwater sources, conserving them for other uses and help provide proper sustainable resource management.

Cons:

- **Technological Challenges:** The brackish water source can present challenges in terms of pressure, recovery rates, energy efficiency and brine disposal if not properly planned, engineered and constructed.
- **Implementation:** Brackish groundwater RO requires pretreatment and post treatment that may need to be enhanced for long-term use.
- **Maintenance and Upgrades:** Membrane element life is directly related to pretreatment and the need for knowledgeable operators and known/acceptable maintenance procedures

Staff Comments: *These pros and cons highlight the importance of careful planning, plus the need to consider site specific constraints when evaluating the use of brackish RO desalting plants for potable water production. A RO brackish groundwater system with deep well injection for the concentrate should give the city a reliable source of water. There are many types of RO system we will investigate with the study, including a hybrid system which could also use all our current wells along with brackish water. Surface water RO is not ideal, it comes with many issues such as algae blooms, turbidity, temperature change and pollution.*

2. Reclaimed Water/Potable Reuse

Reclaimed water is domestic wastewater that has received advanced treatment and is reused for beneficial, non-potable purposes. Reclaimed water is used for agricultural irrigation, ground water recharge, industrial processes, and irrigation of lawns, landscapes, cemeteries and golf courses. The use of reclaimed water is widely beneficial to Floridians because it preserves drinking water quality sources for potable uses; helps the environment by reducing treated wastewater discharges; and recharges our aquifers.

Potable reuse is defined as the augmentation of a drinking water supply with advanced treated water from a municipal wastewater source. Proposed regulatory framework ensures that potable reuse systems include multiple layers of protection composed of source control, appropriate treatment technology that incorporates resiliency (i.e., ability to adjust to upsets), redundancy (i.e., backup systems), and robustness (i.e., features that simultaneously address multiple waterborne constituents) and expanded monitoring and reporting requirements for the control of emerging constituents and pathogens. There are two different types of potable reuse that The Department will be regulating in Florida; Indirect Potable Reuse (IPR) and Direct Potable Reuse (DPR). IPR is the planned delivery or discharge of reclaimed water to ground or surface waters for the development of, or to supplement, potable water supply. DPR is the introduction of advanced treated water into a raw water supply immediately upstream of a drinking water treatment facility or directly into a potable water supply distribution system. **Is potable reuse safe?** Yes, potable reuse water is put through a rigorous multi-level treatment process including disinfection. Once treatment is complete the water is required to meet all drinking water standards put forth by the state and EPA, as well as treated for emerging constituents and pathogens. What is advanced treated water? Advanced treated water is water produced from an advanced water treatment process for potable reuse applications. A specific combination of treatment technologies is employed depending on the quality of the source water, the type of potable reuse (i.e., indirect or direct potable reuse), and the existing treatment in place.

Pros: Reduces wastewater discharge, maximizes use of existing water resource, reliable local supply and Florida already leads the U.S. in water reuse.

Cons: Public perception concerns (toilet to tap stigma); requires advance treatment for potable use and regulatory complexity.

Staff Comments: *Would not recommend at this time due to current public perception. Staff has already begun planning for the expansion of the reuse system beginning with increased storage.*

3. Aquifer Storage and Recovery (ASR)

Aquifer Storage and Recovery (ASR) refer to the process of recharge, storage, and recovery of water in an aquifer. ASR systems are currently used for the storage of potable drinking water, partially treated surface water, groundwater, and reclaimed water. Surface water is collected during times when water is plentiful (typically during the wet season in Florida), treated to meet applicable water standards, and

then pumped into an aquifer through a well. Water can be stored and subsequently recovered and distributed for purposes such as water supply or ecosystem restoration. Most ASR facilities in Florida store water in the upper Floridan Aquifer, primarily in areas where the aquifer is brackish or somewhat salty. Typically, ASR is implemented on an annual cycle in which recharge of excess wet seasonal flows are stored, then recovered for distribution during the dry season. ASR technology offers the potential to store large quantities of water without the need for expansive tracts of land that would be required for aboveground storage facilities. An ASR system can also provide large volumes of water over long periods of time, increasing water supplies during seasonal and multi-year droughts.

Pros: Large underground storage reduces need for surface reservoirs and can be a stable water supply during drought.

Cons: ASR can suffer some loss source water to the aquifer depending on the aquifer's characteristics, environmental concerns including water quality issues and changes in local water flow patterns, injection and withdrawal of groundwater can lead to problems such as clogging of well and contamination of the aquifer. Water quality changes may occur during storage, which can necessitate additional treatment prior to distribution. Recovery efficiency can vary, and a portion of the injected water may not be recoverable.

Staff Comments: *ASR is not a new water source, it does not create additional water supply. ASR stores excess water underground for later use. Could be beneficial in conjunction with a brackish water source.*

4. Stormwater Capture/Surface Water Reservoirs:

Stormwater capture and use and Surface Water Reservoirs is the management practice of collecting and using stormwater (water from precipitation runoff that reaches the ground), rainwater (precipitation that falls on roofs and is collected before reaching the ground, streets, and other impervious surfaces), and water in storm drain systems to achieve multiple co-benefits. Capturing stormwater and appropriately treating for beneficial uses, such as for potable water, aquifer recharge, and urban park development, can help turn a burden into an asset for communities.

Pros: Flood mitigation, reduces peak runoff, treating stormwater before reuse prevents pollutants from entering rivers, streams and groundwater.

Cons: This approach would require extensive study to ensure it does not adversely affect the City of Titusville's surficial aquifers. Accurately estimating the volume of stormwater available for capture and reuse would also require detailed hydraulic analysis. Stormwater typically contains pollutants, sediments, nutrients, and bacteria, resulting in variable water quality and the need for more advanced and costly treatment. In addition, stormwater reuse for potable purposes is subject to stringent regulations, with evolving requirements that create regulatory uncertainty. Any use for groundwater recharge would require appropriate treatment prior to recharge.

Staff Comments: *While potable reuse is being implemented and advanced in Florida using treated wastewater, there are currently no widely documented examples of municipalities utilizing stormwater as a direct potable water source. Stormwater reuse in Florida is primarily limited to non-potable applications or groundwater recharge, and any future potable use would require significant regulatory development and advanced treatment. Expanding stormwater reuse throughout the City and exploring recharge that is allowed to percolate through soil is recommended over direct injection for potable water supply at this time due to the high uncertainty of the feasibility of the application.*

**SUBJECT: City of Titusville
Qualifications and Scope of Services for Engineering Consulting Services
for Brackish Water Source Feasibility Study**

CDM Smith (Consultant) is pleased to submit our qualifications and proposed scope of services for providing engineering consulting services to the City of Titusville (City) in response to the City's request. We understand the City Public Works Department requires assistance from a qualified Consultant to perform a feasibility-level evaluation to utilize brackish groundwater as a supplemental source of water for future growth, the ability to offset some of the existing wellfield usage and provide source reliability. This Task Order, when executed, shall be incorporated in and become part of the Non-Exclusive Professional Services Continuing Consulting Contract between the City and Consultant dated April 10, 2023, hereafter referred to as the Contract.

STATEMENT OF QUALIFICATIONS

The Consultant proposes to assign Ben Hayner, PE, PMP as the Consultant's Project Manager for this project. We enclosed copies of his resume including project experience history, and State of Florida PE license for the City's review to confirm that Ben Hayner, PE, PMP is a professional engineer licensed in the State of Florida and practicing in the design of water and wastewater infrastructure and facility projects.

WORK ITEMS

The Consultant's services proposed herein will include engineering services to provide a feasibility-level evaluation to utilize brackish groundwater as a supplemental water source for the City of Titusville. The evaluation will consider source, technical, regulatory, environmental, and financial aspects of developing brackish water infrastructure.

Task 1 – Data Gathering and Review

Consultant will review City's current Consumptive Use Permit (CUP) and staff report, surficial and Floridan aquifer wellfield data (Areas II, III, IV), plant record drawings and monthly operating reports (MORs) for existing water treatment facilities, St. Johns River Water Management District (SJRWMD) population projections, the existing Freshwater Management Evaluation, and other relevant planning documents. Consultant will identify data gaps and request additional information from the City as needed.

Task 2 – Source and Technical Assessment

Consultant will characterize the brackish water source, including aquifer identification, water quality, and sustainable yield. Brackish water sources for this evaluation will include the Upper Floridan Aquifer (UFA), Lower Floridan Aquifer (LFA), and the Indian River Lagoon (IRL). Consultant will evaluate extraction methods, potential well locations, and treatment technologies such as reverse osmosis (RO) and electro dialysis reversal (EDR). Consultant will evaluate up to three different water treatment alternatives, one for each source. Compatibility with existing treatment, storage, and conveyance infrastructure, as well as finished water blending strategies will be considered.

Task 3 – Regulatory and Environmental Assessment

Consultant will identify permitting requirements, potential environmental impacts, and compliance considerations. Consultant will assess current and future allocations and population data as dictated by the SJRWMD. Potential regulatory challenges and mitigation strategies will also be assessed.

Task 4 – Financial and Economic Evaluation

Consultant will develop conceptual-level cost estimates for well construction, conveyance pipelines, pump station, treatment facilities, and projected annual operation and maintenance (O&M) costs. A financial planning level feasibility analysis will compare brackish water development with alternative sources and assess potential funding options.

Task 5 – Brackish Water Source Feasibility Study Report

Consultant will prepare a written report summarizing findings from Tasks 1–4. The report will include recommendations, risks, and next steps. A digital draft report will be submitted for City review and comment. A final report will be provided following comment resolution.

Task 6 – Project and Quality Management

Activities performed under this task consist of those generally administrative functions required to maintain the project on schedule, within budget, and verify that the work products defined with this Task Order are consistent with the City's requirements and the Consultant's standards. The Consultant's Project Manager (PM) will be the primary point of contact for the City and will lead management activities, including invoicing. Project management functions to be completed over the period of performance are listed below:

- Prepare for and conduct a kickoff meeting.
- Set up project; track cost, personnel oversight, and status; manage records and file; and maintain budget.
- Prepare project invoices and monthly technical progress reports summarizing work completed, upcoming deliverables, and issues requiring decisions or actions.
- Perform a Technical Specialist Review of the report.
- Prepare written responses to City comments.
- Provide draft meeting minutes for City review and comment.
- Check that quality procedures are conducted in accordance with Consultant's Quality Management Plan.

Deliverable:

Brackish Water Source Feasibility Study Report

ASSUMPTIONS

Any work that is not included in the above-described services shall be classified as Additional Services. These additional services shall be performed at City’s request with compensation adjustments through an amendment. This Task Order includes the following assumptions:

- City shall provide CUP documentation and relevant planning data.
- City shall provide plant record drawings and MORs.
- City shall provide access to existing wellfields and infrastructure data.
- Consultant will use available data as-is and will not update hydraulic models. City shall be responsible for, and Consultant may rely upon, the accuracy and completeness of reports, data, and other information furnished by City to Consultant pursuant to this task authorization. Consultant may use such reports, data, and information in performing or furnishing services under this authorization. Consultant’s scope of work does not include verifying City provided information for accuracy or completeness. City may request an independent review of City provided information by Consultant and can be provided as an additional Task Order.
- A detailed review of water blending (water chemistry, stability, corrosion potential, etc.) is not included in this scope of work and can be included at a later stage in design.
- City shall provide data in digital format.


SCHEDULE

It is anticipated that the project will take 6 months to complete, starting within two weeks of receipt of a formal notice to proceed (NTP). The estimated schedule by task is shown below. Consultant will prepare an updated detailed schedule within the first 30 calendar days after NTP.

| Task | Duration |
|---------------------------|---|
| Kickoff Meeting | 2 Weeks from Start |
| Data Gathering and Review | 4 Weeks from Kickoff |
| Draft Feasibility Report | 12 Weeks from Data Gathering and Review |
| City Comment Period | 2 Weeks from Draft Submittal |
| Final Feasibility Report | 4 weeks from City Comments |

EXECUTION OF QUALIFICATIONS AND SCOPE STATEMENTS

The undersigned Consultant Principal attests that the submitted qualifications and scope statements are accurate, are within the professional services practice and capability of the Consultant and subconsultants, and form the proposed basis for executing the Task Order.



 (Signature)

2/26/26

 (Date)

[END OF QUALIFICATIONS AND SCOPE STATEMENTS SECTION]

FEE PROPOSAL

The Consultant proposes to complete the professional consulting engineering services stipulated herein for the lump sum fee as listed below in the amount of \$. Invoices will be submitted monthly based on the actual portion of the work performed (percentage of Task complete).

| <u>Tasks - Description</u> | <u>Estimated Value</u> |
|---|------------------------|
| Task 1 – Data Gathering and Review | \$12,690 |
| Task 2 – Source and Technical Assessment | \$14,700 |
| Task 3 – Regulatory and Environmental Assessment | \$15,800 |
| Task 4 - Financial and Economic Evaluation | \$10,590 |
| Task 5 – Brackish Water Source Feasibility Study Report | \$29,420 |
| Task 6 – Project and Quality Management | \$13,090 |
| Task Order Total Lump Sum Fee | \$96,290 |

EXECUTION OF FEE PROPOSAL

The undersigned Consultant Principal attests that the submitted fee proposal corresponds with the qualifications and scope statements and is the proposed basis for executing the Task Order.



(Signature)

2/26/21

(Date)

**SUBJECT: City of Titusville
Qualifications and Scope of Services for Engineering Consulting Services for
Water Source Feasibility Study**

CDM Smith (Consultant) is pleased to submit our qualifications and proposed scope of services for providing engineering consulting services to the City of Titusville (City) in response to the City's request. We understand the City Public Works Department requires assistance from a qualified Consultant to perform a feasibility-level source water evaluation to utilize as a supplemental source of water for future growth, the ability to offset some of the existing wellfield usage and provide source reliability. This Task Order, when executed, shall be incorporated in and become part of the Non-Exclusive Professional Services Continuing Consulting Contract between the City and Consultant dated April 10, 2023, hereafter referred to as the Contract.

STATEMENT OF QUALIFICATIONS

The Consultant proposes to assign Ben Hayner, PE, PMP as the Consultant's Project Manager for this project. We have enclosed copies of his resume including project experience history, and State of Florida PE license for the City's review to confirm that Ben Hayner, PE, PMP is a professional engineer licensed in the State of Florida and practicing in the design of water and wastewater infrastructure and facility projects.

WORK ITEMS

The Consultant's services proposed herein include engineering services to provide a feasibility-level evaluation of available water sources for the City of Titusville. The evaluation will consider source, technical, regulatory, environmental, and financial aspects of developing source water infrastructure.

Task 1 – Data Gathering and Review

As part of this effort, the Consultant will perform a high-level desktop review of available water supply sources within the project area, including surficial aquifer resources, deeper groundwater sources (e.g., Floridan Aquifer System), surface water bodies, ocean or brackish water sources, reclaimed water supplies, and potable water interconnects.

Task 2 – Water Source and Technical Assessment

The Consultant will characterize up to six potential water sources, including aquifer/source identification, estimated water quality, and sustainable yield. As part of this task, the Consultant will evaluate surface water and groundwater extraction methods and identify a representative treatment technology for each water source evaluated. For planning purposes, surface water extraction will be evaluated as occurring via an intake structure and groundwater extraction will be evaluated as occurring via wells.

Task 3 – Regulatory and Environmental Assessment

The Consultant will perform a high-level review of regulatory and environmental considerations that may affect the development of water supply sources. This includes review of permitting constraints, withdrawal conditions, and environmental protection requirements, associated with state and regional water resource regulations.

The Consultant will summarize relevant provisions in the St. Johns River Water Management District (SJRWMD) Consumptive Use Permitting framework, Florida Department of Environmental Protection (FDEP) regulations, and applicable Florida Statutes that govern water withdrawals, water source development, and treatment requirements. As part of this task, the Consultant will evaluate potential regulatory challenges, resource protection measures, and allocation conditions that may influence long-term water supply planning.

Task 4 – Financial and Economic Evaluation

The Consultant will develop a high-level financial comparison of up to six water sources. This planning-level assessment will rely on Consultant's assumptions regarding conceptual treatment processes, general infrastructure needs, and anticipated differences in operational complexity. The comparison will focus on relative order of magnitude rather than detailed cost estimating and will include general capital cost considerations, expected operational and maintenance factors, and long-term economic implications for each water source.

Task 5 – Water Source Feasibility Study

The Consultant will prepare a written Water Source Feasibility Study report documenting the findings from Tasks 1–4. The Water Source Feasibility Study report will include conclusions, recommendations, key risks, and next steps for the City's consideration. A digital draft report will be submitted for City review and comment. Following comment resolution, the Consultant will provide a final report in digital format (pdf).

Task 6 – Project and Quality Management

Activities performed under this task consist of those generally administrative functions required to maintain the project on schedule, within budget, and verify that the work products defined with this Task Order are consistent with the City's requirements and the Consultant's standards. The Consultant's Project Manager (PM) will be the primary point of contact for the City and will lead management activities, including invoicing. Project management functions to be completed over the period of performance are listed below:

- Prepare for and conduct a kickoff meeting.
- Set up project; track cost, personnel oversight, and status; manage records and file; and maintain budget.
- Prepare project invoices and monthly technical progress reports summarizing work completed, upcoming deliverables, and issues requiring decisions or actions.
- Perform a Technical Specialist Review of the report.
- Prepare written responses to City's comments.
- Provide draft meeting minutes for City review and comment.
- Check that quality procedures are conducted in accordance with Consultant's Quality Management Plan.

Deliverable:

Water Source Feasibility Study

ASSUMPTIONS

Any work that is not included in the above-described services shall be classified as Additional Services. These additional services shall be performed at City's request with compensation adjustments through an amendment. This Task Order includes the following assumptions:

- This Task Order does not include evaluations of treatment technologies for each water source. An industry standard technology will be assumed for treatment.
- City shall provide CUP documentation and relevant planning data.
- City shall provide plant record drawings and MORs.
- Consultant will use available data as-is and will not update hydraulic models. City shall be responsible for, and Consultant may rely upon, the accuracy and completeness of reports, data, and other information furnished by City to Consultant pursuant to this task authorization. Consultant may use such reports, data, and information in performing or furnishing services under this authorization. Consultant's scope of work does not include verifying City provided information for accuracy or completeness. City may request an independent review of City provided information by Consultant and can be provided as an additional Task Order.
- A detailed review of water blending (water chemistry, stability, corrosion potential, etc.) is not included in this Task Order and can be included at a later stage in design.
- City shall provide data in digital format, preferably MS Excel for data and pdf for reports.

SCHEDULE

It is anticipated that the project will take four months to complete, starting within two weeks of receipt of a formal notice-to-proceed (NTP). The estimated schedule by task is shown below. Consultant will prepare an updated detailed schedule within the first 30 calendar days after NTP.

| Task | Duration |
|--------------------------------------|--|
| Kickoff Meeting | 2 Weeks from Start |
| Data Gathering and Review | 2 Weeks from Kickoff |
| Draft Water Source Feasibility Study | 8 Weeks from Data Gathering and Review |
| City Comment Period | 2 Weeks from Draft Submittal |
| Final Water Source Feasibility Study | 2 weeks from City Comments |

EXECUTION OF QUALIFICATIONS AND SCOPE STATEMENTS

The undersigned Consultant Principal attests that the submitted qualifications and scope statements are accurate, are within the professional services practice and capability of the Consultant and subconsultants, and form the proposed basis for executing the Task Order.

(Signature)

[END OF QUALIFICATIONS AND SCOPE STATEMENTS SECTION]

(Date)

FEE PROPOSAL

The Consultant proposes to complete the professional consulting engineering services stipulated herein for the lump sum fee as listed below in the amount of **\$75,240**. Invoices will be submitted monthly based on the actual portion of the work performed (percentage of Task complete).

| <u>Tasks - Description</u> | <u>Estimated Value</u> |
|--|------------------------|
| Task 1 – Data Gathering and Review | \$8,430 |
| Task 2 – Water Source and Technical Assessment | \$13,860 |
| Task 3 – Regulatory and Environmental Assessment | \$13,260 |
| Task 4 – Financial and Economic Evaluation | \$11,030 |
| Task 5 – Water Source Feasibility Study | \$19,890 |
| Task 6 – Project and Quality Management | \$8,770 |
| Task Order Total Lump Sum Fee | \$75,240 |

EXECUTION OF FEE PROPOSAL

The undersigned Consultant Principal attests that the submitted fee proposal corresponds with the qualifications and scope statements, and is the proposed basis for executing the Task Order.

(Signature)

(Date)