

Improvements to the Wastewater Treatment in Western Nueces County

Final Report

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Executive Summary

From July 1st, 2023, to May 31st, 2025, the Nueces River Authority (NRA) completed improvements to wastewater treatment facilities in Western Nueces County under the GLO Coastal Management Program Project of Special Merit (PSM) grant. The primary objectives were to collaborate with the Cities of Bishop and Driscoll, and surrounding areas to improve wastewater plant treatment capabilities, and develop a Stakeholder Engagement Plan.

Partnership for Petronila Initiative

The Partnership for Petronila addresses deteriorating water quality in Petronila Creek and Baffin Bay caused by failing wastewater treatment plants in Bishop and Driscoll. It operates under a Stakeholder Engagement Plan that includes Service Delivery Strategy, land use assumptions, and community development toolkits.

Goals and Scope

The initiative aims to restore water quality in Petronila Creek and Baffin Bay while providing reliable wastewater services to Bishop, Driscoll, Robstown, and surrounding colonias, including Banquete. Central to this effort is developing the Petronila Regional Wastewater Treatment Plant (WWTP).

Strategic Framework

The Stakeholder Engagement Plan leverages existing community relationships and enhances NRA's role as a trusted regional development partner. It aligns with NRA's mission to provide dependable services meeting both people's and environmental needs, ensuring clean water and preserving the Nueces River Basin's biodiversity.

Significant Repairs

- Removing 390 tons of sludge from Bishop's wastewater ponds.
- Removing approximately 8 tons of sludge from the Race Track system, upgrading drying beds and blowers, and the reparation of aerators at the Driscoll WWTP facility.

These actions improved wastewater treatment efficiency, upheld environmental standards, and ensured regulatory compliance. The NRA monitored improvements through inspections, equipment supervision, and effluent sampling, supporting operations personnel and city administrators. The project successfully reduced both BOD (Biochemical Oxygen Demand) and *E. coli* levels in wastewater treatment processes at Driscoll and Bishop facilities, achieving key environmental targets. BOD measures the amount of oxygen needed by microorganisms to break down organic matter in water, indicating the level of pollution. High BOD levels can harm aquatic ecosystems. Meanwhile, *E. coli*, a type of bacteria often found in fecal contamination, serves as an indicator of water safety and hygiene. Lowering these metrics not only improved compliance with environmental standards but also contributed to preserving the health of local waterways and surrounding communities.

Background & Objectives

Wastewater in the northwest quadrant of Nueces County is currently treated by three wastewater treatment plants (WWTPs): Nueces County Water Control and Improvement District #5 (Banquete area), the City of Driscoll, and the City of Bishop. These WWTPs are outdated, and the mechanical equipment is failing. The facilities struggle to meet permitted parameters and are frequently non-compliant with state-issued permits, leading to fines, enforcement proceedings, and poor water quality. The Nueces and Baffin Bays receive untreated or partially treated wastewater effluent containing higher levels of nutrients and pathogens, causing a significant decline in water quality. However, these negative impacts on water quality can be mitigated if appropriate corrective actions are implemented.

The Nueces River Authority (NRA) utilized Coastal Management Program Cycle 28 Gulf of Mexico Energy Security Act (GOMESA) funds to secure interlocal agreements and resolutions to purchase and install new equipment at two existing WWTPs, and develop a Stakeholder Engagement Plan using the Regional Plant feasibility study and stakeholder input to address future consumer needs. NRA has a water/wastewater utility division that currently operates two wastewater plants within or adjacent to the coastal zone boundary, which will be the focus of the project. These two WWTPs are located in the City of Driscoll and the City of Bishop. Additionally, NRA secured funding from other sources for feasibility studies for both existing WWTPs, as well as the construction of the regional WWTP. The feasibility studies evaluated whether the existing WWTPs can meet the demands of projected future population growth and wastewater needs in terms of operational and maintenance requirements, and examined 40 square miles in Nueces County to determine the optimal location for the new regional plant.

This project aims to improve water quality, create more resilient wastewater treatment infrastructure, and reduce the fiscal burden on local governments. Streams receiving effluent from these WWTP facilities are listed on the State's impaired water quality list, and further degradation could impair Baffin Bay's ecosystem and recreational uses. Moreover, the communities currently operating the WWTPs lack the financial resources to afford the necessary equipment upgrades or staff required to meet water quality standards. By addressing this issue on a regional level, communities will be able to significantly reduce costs while enhancing local water quality.

Project Tasks

Task 1: WWTP Agreements

In July of 2023, the NRA obtained interlocal agreements with both the cities of Driscoll and Bishop to ensure the NRA had the authority and responsibility of operating, maintaining, and managing the WWTPs. Additionally, both city governments passed a resolution demonstrating the jurisdictions long-term involvement in this project and support of 1) the NRA allocating resources, conducting studies, and seeking funding for a regional wastewater treatment plant, 2) the urgency of improving the water quality in Petronila Creek and Baffin Bay and its urgent impact on tourism in the region, and 3) the need for the area to regionalize and increase its wastewater treatment to provide future economic development to the region.

Task 2: Equipment Purchase and Installation

The NRA purchased equipment and procured the necessary service providers for installation of equipment and specific improvements with the overall goal of repairing the WWTPs to operate within permitted specifications. The project successfully reduced both Biochemical Oxygen Demand (BOD) and *E. coli* levels in wastewater treatment processes at Driscoll and Bishop facilities, achieving key environmental targets (Table 1).

Bishop Ponds

The NRA removed 390 tons of sludge from the ponds in Bishop (Figure 1). Sludge removal was needed to bring our water quality to acceptable levels. Sludge removal from traditional pond wastewater systems is a critical process that ensures optimal water quality and environmental safety. Accumulated sludge can hinder the efficiency of the treatment process, leading to poor water output and potential contamination risks. By removing the sludge, the system improves its capacity to process wastewater more effectively, ensuring compliance with environmental regulations. Furthermore, sludge removal minimizes the risk of septic conditions, which can produce harmful odors and degrade the ecosystem. This practice not only enhances the overall performance of wastewater facilities but also safeguards public health by preventing the proliferation of pollutants in surrounding areas.

Driscoll WWTP

The NRA removed approximately 8 tons of sludge from the Driscoll Race Track (Figure 2). Sludge removal from a race track system at a wastewater plant is a vital process to ensure the efficiency, safety, and compliance of the facility. Accumulated sludge can obstruct the flow within the track system, reducing its ability to process wastewater effectively and causing potential regulatory violations. Over time, the buildup of sludge can lead to septic conditions, creating hazardous odors and degrading the surrounding ecosystem. By removing sludge regularly, the system can maintain optimal aeration and promote the activity of biological microorganisms, essential for breaking down waste and producing cleaner water output. This practice is not only critical for protecting public health by preventing pollutant proliferation but also for safeguarding aquatic systems downstream. Moreover, maintaining a clean race track system enhances the plant's operational lifespan, reduces maintenance costs, and ensures adherence to environmental standards, fostering a sustainable approach to wastewater management.

Drying Beds (Figure 3) were replaced due to their deterioration and malfunction. The old beds were leaking, causing regulatory violations. Drying beds are crucial components in wastewater treatment plants, as they facilitate the dewatering of sludge—a byproduct of the treatment process. Efficient drying beds ensure safe disposal of sludge, minimizing environmental impact and health risks. By replacing the faulty drying beds, the NRA aimed to maintain compliance with regulations, enhance the plant's efficiency, and protect the surrounding ecosystem from potential contamination caused by sludge leakage.

Both blowers (Figure 4) were also replaced to ensure the proper functionality of the wastewater treatment process. Blowers play a critical role in maintaining efficient operations within the treatment plant by supplying the necessary oxygen to the digester. This aeration process is vital for breaking down organic material in the wastewater and preventing the system from going septic. Proper aeration ensures that the biological microorganisms responsible for processing waste are active and effective, resulting in cleaner water output. Additionally, well-functioning blowers directly contribute to the stability of the Return and to Waste systems, enhancing overall plant performance. Both aerators (Figure 5) were repaired, ensuring the facility's optimal operation. Aerators play a crucial role in making the wastewater aerobic, which is vital for maintaining an effective treatment process and preventing the plant from going septic. Aerobic conditions aid in breaking down organic materials, promoting efficient waste management and cleaner water output.

Lastly, the NRA replaced the chlorination chamber (Figure 6) at the Driscoll WWTP. Chlorination is a vital step in wastewater treatment, ensuring the elimination of harmful pathogens and bacteria. It protects public health by disinfecting water before discharge or reuse, reducing risks of disease transmission. Furthermore, chlorination helps maintain environmental standards by preventing contamination of aquatic ecosystems. As a reliable and cost-effective method, it plays a key role in safeguarding both human health and the environment, ensuring clean water output and compliance with regulations.

Addressing these issues was essential to safeguard environmental standards and to maintain compliance with regulatory requirements. The repairs were essential not only for the proper functionality of the treatment system but also for upholding environmental standards and reducing risks associated with septic conditions. These improvements contribute to enhanced public health and environmental safety in the region.

Task 3: Develop Regional Plan & Stakeholder Outreach

The Nueces River Authority worked with a consultant to develop and implement a strategy to engage citizens, and local, regional, and state officials with the purpose of addressing critical wastewater infrastructure needs in the region. Engagement of over 50 stakeholders occurred through four community forums and the development of the Petronila Advisory Committee.

Overview

The Partnership for Petronila (see Appendix for the Stakeholder Engagement Plan) represents a critical regional initiative to address failing wastewater infrastructure in northwest Nueces County. Deteriorating conditions in Petronila Creek and Baffin Bay, caused primarily by failing treatment plants in Bishop and Driscoll, threaten the region's environmental sustainability, economic viability, and tourism potential.

Strategic Objectives

The Partnership aims to provide safe wastewater services to the Cities of Bishop, Driscoll, and Robstown, surrounding colonias (including Banquete), and regional industries through the development of the Petronila Regional Wastewater Treatment Plant (WWTP). This initiative aligns with the Nueces River Authority's mission to ensure adequate clean water supplies for current and future generations while preserving the basin's natural beauty and biodiversity.

Key Accomplishments

Stakeholder Engagement Success:

- Established a four-stage engagement process: Identify and Analyze, Educate and Inform, Listen and Consult, and Monitor and Adjust
- Created the Petronila Regional WWTP Advisory Committee with local, regional, and state officials
- Secured resolutions of support from Robstown, Driscoll, and Bishop city councils
- Obtained 22 letters of support from local, state, and federal officials for submission to the Texas Water Development Board
- Built trust and fostered collaboration among critical stakeholders and private sector partners

Service Delivery Framework:

- Developed a comprehensive Service Delivery Strategy with development suitability models for industrial and non-industrial growth
- Created Land Use Projection Maps to coordinate infrastructure investments and development regulations across jurisdictional boundaries
- Established 10 strategic growth frameworks for participating cities
- Produced community toolkits with practical checklists for sustainable development

Strategic Impact

This initiative positions the Nueces River Authority as a trusted regional partner while establishing the Petronila Regional WWTP as an essential community resource. The comprehensive approach promotes smart growth, prioritizes critical infrastructure investment, and ensures community input in decision-making processes.

Bottom Line

The Partnership for Petronila provides a proven framework for addressing critical wastewater infrastructure needs while promoting sustainable regional development. With strong stakeholder

support, clear strategic direction, and practical implementation tools, this initiative offers a model for preserving rural identity while building future-ready communities that serve both environmental and economic interests.

Task 4: Project Monitoring and Reporting

The Nueces River Authority submitted monthly progress reports and reimbursement requests in addition to project deliverables. The NRA also met with GLO staff monthly to coordinate and provide updates on the project's progress.

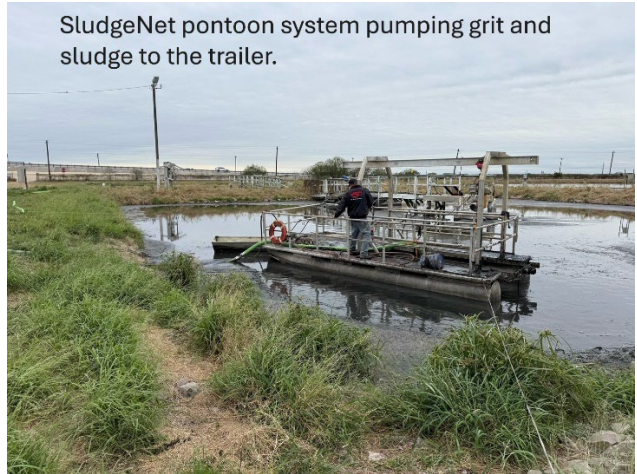
Figures & Tables

City of Bishop Wastewater Treatment Plant (WWTP)

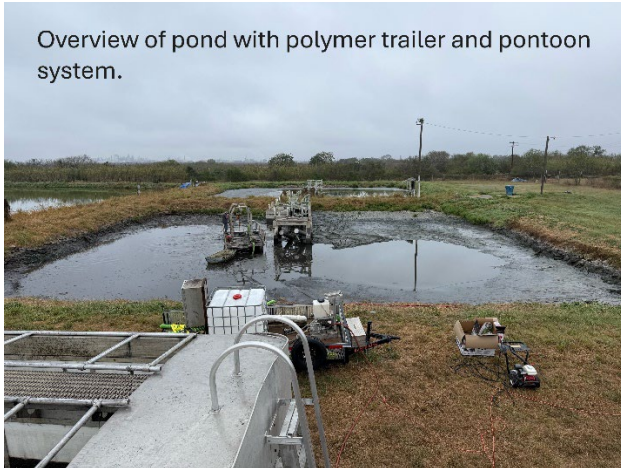
Figure 1: Sludge removal at Bishop Ponds.
Sludge from lagoon being pumped into
SludgeNet trailer.



SludgeNet pontoon system pumping grit and
sludge to the trailer.



Overview of pond with polymer trailer and pontoon
system.



Lagoon once trailers were full for the day and
dewatering.



Aerating heavy grit for submersible pump to work more efficiently.



City of Driscoll Wastewater Treatment Plant (WWTP)

Figure 2: Sludge removal at the Driscoll WWTP race track.



Before



After

Figure 3: Replaced drying beds at the Driscoll WWTP



Figure 4: Replacement blowers at the Driscoll WWTP



Figure 5: Aerator replacement at the Driscoll WWTP



Figure 6: Chlorination chamber replacement the Driscoll WWTP



Table 1: Permitted levels of Biochemical Oxygen Demand (BOD) and *E. coli* in Mg/L for both the City of Driscoll and Bishop Wastewater Treatment Plants (WWTP) with comparative levels tested during WWTP processes before and after completion of repairs.

	Permitted BOD	Before Repairs BOD	After Repairs BOD	Permitted <i>E. coli</i>	Before Repairs <i>E. coli</i>	After Repairs <i>E. coli</i>
City of Driscoll	20Mg/L	7.7 Mg/L	1.73 Mg/L	126 Mg/L	2,419 Mg/L	1.0 Mg/L
City of Bishop	30 Mg/L	34 Mg/L	26 Mg/L	126 Mg/L	2,419 Mg/L	84 Mg/L

Appendix



PARTNERSHIP FOR PETRONILA

STAKEHOLDER ENGAGEMENT PLAN

APRIL 30, 2025



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PREPARED FOR THE NUECES RIVER AUTHORITY



PREPARED BY MCDOUGAL & ASSOCIATES, GRAY PLANNING STUDIO, AND PARTNERS FOR PLACE



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EXECUTIVE SUMMARY

The **GOAL** the Partnership for Petronila is to provide safe wastewater service to the Cities of Bishop, Driscoll, Robstown, surrounding colonias (including Banquete), and industries in northwest Nueces County. The Stakeholder Engagement Plan (SEP) will build on existing relationships and help establish the Petronila Regional Wastewater Treatment Plant (WWTP) as an essential community resource and position the Nueces River Authority as a dependable and trusted partner in regional development.

The Stakeholder Engagement Plan outlines the strategies the planning team will use to engage stakeholders in the service area. The primary **OBJECTIVES** are to:

- ▶ **Build Trust**
- ▶ **Foster Collaboration**
- ▶ **Secure Rate Covenants / Interlocal Agreements.**

To achieve these objectives, the engagement process is designed to be both informative and responsive, ensuring that stakeholder needs are continuously addressed. The plan follows a structured, iterative loop consisting of four key stages:

- ▶ **Identify and Analyze:** Determine key stakeholders and assess their roles, interests, and potential impacts.
- ▶ **Educate and Inform:** Share relevant information to build awareness and understanding of the project's goals and benefits.
- ▶ **Listen and Consult:** Actively engage stakeholders to gather feedback, address concerns, and incorporate their input into planning.
- ▶ **Monitor and Adjust:** Continuously evaluate the effectiveness of engagement efforts and make necessary adjustments to strategies.



This Plan is informed by the Nueces River Authority's Mission of:

Utilizing our statutory charge to provide trusted services to meet the needs of the people and environment; ensuring that future citizens will have adequate supplies of clean water where both people and wildlife can live, prosper and enjoy the natural beauty and biologically rich environment of the Nueces River basin.

SETTING THE STAGE FOR COMMUNITY ENGAGEMENT

In October 2023, the Nueces River Authority engaged McDougal & Associates (MDA) to lead stakeholder engagement efforts for the Petronila Regional Wastewater Treatment Plant. This initiative, funded by a Gulf of Mexico Energy Security Act (GOMESA) grant through the Texas General Land Office (GLO), aims to address critical wastewater infrastructure challenges in the region.

As part of the project, the GOMESA grant also funded emergency stopgap repairs to the aging wastewater treatment plants in Bishop and Driscoll, which are currently at risk of failure. In parallel, the NRA is initiating a comprehensive stakeholder engagement process to build community support for the financing and construction of a new regional wastewater treatment plant. This facility will replace the failing plants and provide sustainable, long-term wastewater solutions for the communities it serves.

In October 2023, MDA collaborated with senior NRA staff to define project messaging and establish engagement priorities. During this initial phase, the core study area was delineated, including potential options for extending service to additional regions. The primary study area encompasses the cities and extraterritorial jurisdictions of Robstown, Bishop, and Driscoll, as well as the Banquete community. Future project phases aim to extend service to nearby colonias, further enhancing regional wastewater infrastructure. (See the service area map on page 7)

Building on information gathered in the preliminary phase, the following Stakeholder Engagement Plan (SEP) was developed. Designed as a dynamic and adaptive framework, the SEP is a living document, responsive to stakeholder needs and reflective of Authority feedback and priorities



Preliminary stakeholder engagement work included developing a phased engagement strategy:

1. **Prepare:** Background information and information gathering (10/2023 -2/2024)
2. **Plan:** Develop the strategic direction for stakeholder outreach and engagement (10/2023 - 7/2024)
3. **Implement:** Engage with stakeholders, monitor engagement outcomes, and adjust engagement approaches as needed. (10/2023 - 4/2025)
4. **Report and Recommendations:** Summarize stakeholder engagement outcomes and make recommendations for future engagement in support of the project. (By 4/2025)

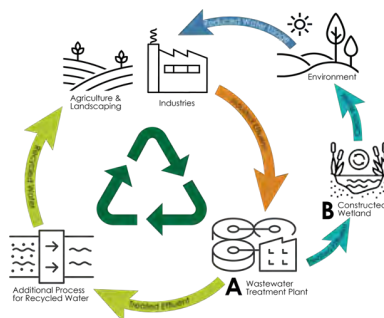
THE PARTNERSHIP FOR PETRONILA

There have been many dedicated partners working toward a solution to the contamination issues in Petronila Creek and Baffin Bay. The Nueces River Authority (NRA) builds upon this collective effort and is advancing plans for the construction of a modern, regional Wastewater Treatment Plant (WWTP)—the fastest, most impactful, and efficient strategy to address contamination in Petronila Creek.

By replacing the failing WWTPs in Driscoll and Bishop with a state-of-the-art facility, it is estimated that approximately 60% of the contaminants in Petronila Creek will be eliminated. This project, however, is not a standalone solution; it is part of a broader, multifaceted approach aimed at restoring water quality in Petronila Creek and ultimately benefiting Baffin Bay.

The Nueces River Authority (NRA) is leading or partnering in the following projects, which collectively support the restoration of water quality in Petronila Creek and Baffin Bay. These initiatives reflect a coordinated and collaborative effort to address contamination, improve wastewater management, and protect the region's vital water resources

- ▶ Petronila Wetland Construction
- ▶ Landowner / riparian restoration
- ▶ TCEQ emergency permits / WWTP operations
- ▶ Colonias
- ▶ On Site Septic Facilities (OSSF)
- ▶ Bringing Baffin Back ~ Harte Institute
- ▶ Coastal Bend (Region N) Water Planning
- ▶ Nueces Flood Planning Group (Region 13)



PETRONILA WASTEWATER SERVICE AREA





OUR PLACE IN THE COASTAL BEND

NUECES COUNTY

Named for the Nueces River, Nueces County is situated southeast of San Antonio bisected by Interstate 37 and Interstate 69E/Highway 77. The county comprises nearly 847 square miles of the Coastal Prairies eco-region. The terrain is generally flat with elevations ranging from sea level to 180 feet above sea level.

ECONOMIC DEVELOPMENT

The Interstate 69E/Highway 77 corridor is the backbone of the study area serving as the primary connector between cities and the site of much of the economic development in the area. While Nueces County and adjacent San Patricio County are technically part of the Corpus Christi Metropolitan Statistical Area (MSA), western Nueces County is rural with an economy based in agriculture. The last few years have brought significant growth and industrial development to the region, particularly the Interstate 69E/Highway 77 corridor. Recent projects include the construction of Tex-Isle, the expansion of Celanese, and the start of construction of a Tesla lithium battery refinery. Additionally, several hydrogen industries have expressed interest in locating in the study area; however, final decisions are pending the availability of utilities.

TOURISM

In addition to pressure for economic development, the Coastal Bend has been and will continue to be a destination for nature-based recreation and tourism. Protecting the waters of Baffin Bay, a recognized destination for trophy trout, and a black drum fishery, is vital to the environmental health and well-being of the region.

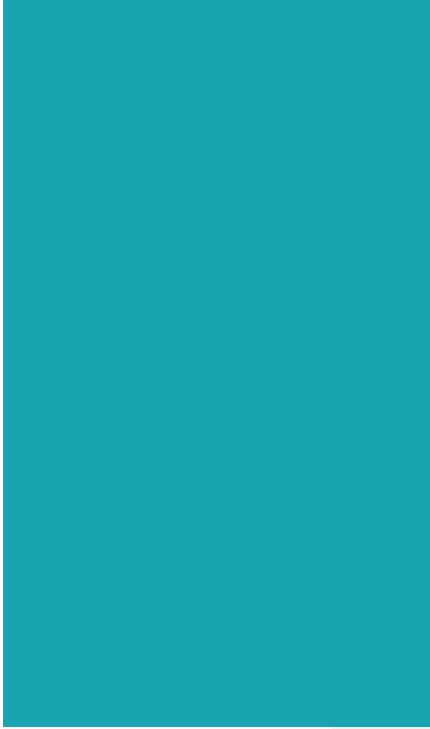
PUBLIC HEALTH & THE ENVIRONMENT

Safe, modern wastewater operations supporting Robstown, Bishop, Driscoll, Banquete, and area colonias are essential to the environmental, social, and economic well-being of the region. The proposed regional wastewater treatment plant will build upon Authority relationships in the region by consolidating operations thereby increasing safety and efficiency. The new plant will be designed to be hardened against coastal vulnerabilities.



36.4%

Average poverty rate in Robstown, Driscoll, Bishop, and Banquete





ADDRESSING AGING INFRASTRUCTURE

More than sixty years ago, the Cities of Bishop and Driscoll constructed wastewater treatment plants (WWTPs) using federal grant funding. These facilities were originally designed with an expected lifespan of 30 to 40 years. Now well beyond their useful life, the plants are failing, resulting in the release of raw sewage and untreated effluent into Petronila Creek, posing significant environmental and public health concerns.

PROJECT BACKGROUND

This Plan builds on a history of stakeholder engagement across the watershed. For more than two decades, a diverse set of stakeholders and partners have been working to restore the water quality in the Baffin Bay Watershed.

The following timeline summarizes some of the major studies, reports, and stakeholder engagement conducted over the past 20+ years. This is not an exhaustive list, rather a snapshot intended to demonstrate the critical need for the Petronila WWTP and the amount of education and engagement that has been undertaken in the study area.

- ▶ 2000: TCEQ water quality testing found elevation levels of chloride, sulfate, and TDS in Petronila Creek. In this same time, a large number of fish died in Baffin Bay, raising awareness about the importance of water quality.
- ▶ 2010, Petronila Creek designated as "impaired" for not meeting the state's water quality standards for contact recreation due to elevated levels of *E. coli* bacteria, as well as concerns for elevated nitrates, chlorophyll-a and total phosphorus.
- ▶ 2012: Nueces River Authority begins working with stakeholders to update and revise the TCEQ Implementation Plan for 3 TMDLs for Petronila Creek.
- ▶ 2022 the Harte Research Institute and Coastal Bend Bays and Estuaries Program founded the Bringing Baffin Back program
- ▶ 2023 EPA approves the San Fernando and Petronila Creeks Watershed Protection Plan
- ▶ 2023: Nueces River Authority receives funding from the Texas General Land Office (GLO) to make emergency, stopgap repairs to the Bishop and Driscoll WWTPs and begin to seek stakeholder support for a regional WWTP.

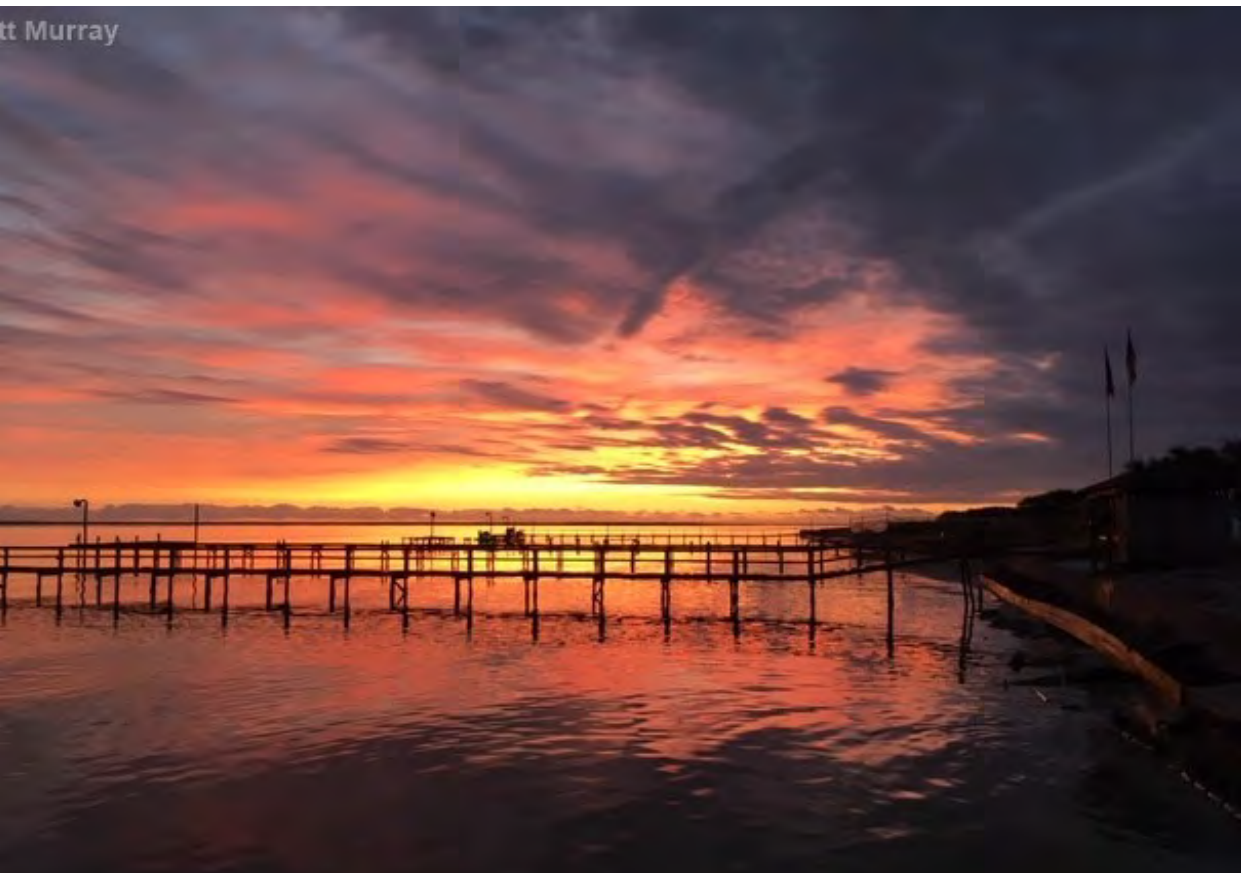
Petronila Creek

Petronila Creek is a 44-mile freshwater stream formed by the confluence of Agua Dulce and Banquete creek spanning Kleberg and Nueces counties. Located southwest of Corpus Christi, Petronila Creek is part of the Baffin Bay watershed. The surrounding terrain varies from flat with local shallow depressions to some locally dissected rolling areas. It is surfaced by clay and sandy loams that support water-tolerant hardwoods, conifers, grasses, some scrub brush, and cacti.

Petronila Creek is one of three major tributaries to Baffin Bay. The creek is considered impaired for not meeting the state's water quality standards for contact recreation because of elevated levels of enterococcus and *E. coli* bacteria, as well as problems with pH and elevated nitrates, chlorophyll-a and total phosphorous.

Fish kills, loss of seagrass, and persistent harmful algae blooms (HABs) in the early 2000s increased local community awareness about the importance of water quality and its impact on Baffin Bay and the surrounding ecosystem. In 2013, concerned stakeholders collaborated with Harte Research Institute (HRI) to study Baffin Bay's water quality, and found the Bay's watershed contributes excessive nutrient (nitrogen and phosphorus) and bacterial pollution to the Bay. In 2018, local residents, scientists, and conservation organizations came together to create the Baffin Bay Stakeholder Group (BBSG). This group represents a long-term collaborative effort to develop solutions to protect water quality in Baffin Bay and it led the charge to develop a watershed protection plan (WPP) for Petronila and San Fernando Creeks. Bringing Baffin Back™, a collaboration between HRI, the Coastal Bend Bays & Estuaries Program (CBBEP), and BBSG, unites efforts to protect the Bay and its watershed under one initiative.





Baffin Bay

Baffin Bay is the “jewel” of the Texas coast, with salty waters that have traditionally supported world-class fishing. Over the last 3-4 decades however, there has been a significant decline in its water quality and a deterioration in ecosystem health, with symptoms such as persistent harmful algal blooms, fish kills, and episodes of apparent starvation of a commercially important fish species (black drum). Anglers, fishing guides, landowners and bay-dependent businesses have commented that these symptoms were historically unprecedented for Baffin Bay but have been increasing in frequency and intensity in recent years, hurting their ability to make a living.

In 2013, HRI researchers enlisted 18 “citizen scientists” to study the water quality problems in Baffin Bay. They found that Baffin Bay is being subjected to excessive nutrient (nitrogen, phosphorus) pollution coming from its watershed. This nutrient pollution is a key promoter of the algal blooms and other symptoms of water quality degradation. Without good water quality, it is difficult for bays such as Baffin to support critical habitat and a healthy fishery. Over 60% of contaminants are attributed to failing wastewater treatment plants and failing on-site septic systems with the balance of contaminants coming from agricultural run-off.



STAKEHOLDER ENGAGEMENT PLAN



WHY ENGAGE THE COMMUNITY

The Petronila regional WWTP represents a generational investment, designed to address current wastewater challenges and support the region's long-term growth and sustainability. As such, stakeholder engagement must be a continuous process, extending from initial planning through construction and into ongoing operations. By maintaining open communication and fostering collaboration at every stage, the Nueces River Authority can ensure that the WWTP remains a vital and trusted resource for decades to come.

Key reasons for stakeholder engagement include:

1. **Building Consensus:** By involving stakeholders early in the process, the team can address concerns and incorporate input for the project. This fosters community ownership and reduces resistance to proposed solutions.
2. **Ensuring Equity:** Effective engagement ensures that the needs of all communities, including historically underserved areas such as colonias, are considered in the planning process. This promotes equitable access to improved wastewater infrastructure.
3. **Facilitating Compliance:** Collaborating with regulatory agencies and other partners ensures that the project meets environmental, public health, and legal standards, streamlining approvals and avoiding costly delays.
4. **Securing Support for Financing:** Engaged stakeholders are more likely to support critical funding mechanisms, such as rate covenants or grant applications, which are essential for project success.

HOW TO ENGAGE THE COMMUNITY – The Engagement Action Plan

Stakeholder engagement is framed and prioritized in the following **Engagement Action Plan (EAP)**, the roadmap for stakeholder engagement. The EAP captures the results of stakeholder identification and analysis and outlines and prioritizes engagement efforts. It is a living, nimble strategy guide designed to respond to changing conditions and circumstances while ensuring consistent messaging and working towards the same goal - construction of the Petronila Regional WWTP.

Engagement outcomes will be documented in the **Engagement Log**, included as an appendix to this plan.



ACTION PLAN COMPONENTS: IDENTIFYING & ANALYZING PROJECT STAKEHOLDERS

A stakeholder is any individual or entity with an interest in or impacted by the proposed regional Wastewater Treatment Plant (WWTP). Stakeholders include residents, public officials, business owners, visitors, industries, and environmental groups.

Because water quality has been an issue and concern in Petronila Creek and the Baffin Bay watershed for decades, the list of stakeholders is lengthy and diverse. Numerous projects have included stakeholder engagement including, but not limited to:

- ▶ GLO Texas Coastal Resiliency Master Plan (2023),
- ▶ TCEQ TMDL for Petronila Creek, (2000-present)
- ▶ Bringing Baffin Back & Bringing Baffin Back Stakeholder Group (2018),
- ▶ EPA Watershed Protection Plan (2023),
- ▶ Coastal Bend (Region N) Water Plan
- ▶ Nueces Flood Planning Group (Region 13).

Using these studies, reports, and planning initiatives as a starting point, the planning team developed a running inventory of individuals, entities, agencies, and institutions to be included in the Partnership for Petronila project.

Key decision-makers in this process are public officials from the Cities of Bishop, Driscoll, and Robstown, whose participation through Interlocal Agreements with the Nueces River Authority is crucial to the project's success.

After identifying stakeholders, the planning team assessed each group to determine whom to engage, about what issues, and with what level of intensity and frequency. This analysis helps prioritize engagement efforts and tailor approaches for specific groups.

The analysis also explores stakeholders' motivations, ranging from residents seeking community benefits to industries pursuing economic opportunities. Understanding these drivers ensures that engagement approaches are relevant and effective.

Stakeholders were categorized by type and role based on study area and stakeholder analyses. Recognizing that roles often overlap, individuals like elected City Council members may simultaneously act as Customers, Providers, Influencers, and Decision-makers. This layered understanding supports a comprehensive and adaptive engagement strategy.

STAKEHOLDER TYPES

- ▶ Public – Local
- ▶ Public – Regional
- ▶ Public – State
- ▶ Public – Federal
- ▶ Industry & Business
- ▶ Institutional, Nonprofits & Community Groups

STAKEHOLDER ROLES

- ▶ Customer
- ▶ Provider
- ▶ Influencer
- ▶ Decision-Maker
- ▶ Competitors

ACTION PLAN COMPONENTS:

MESSAGING & KEY ISSUES

Clear, consistent messaging is essential for effective stakeholder engagement. It ensures stakeholders understand the project's goals, processes, and status, reducing misunderstandings and fostering alignment. Accurate information builds trust, encourages constructive dialogue, and increases stakeholder support.

Tailored messaging that aligns with stakeholder interests helps address concerns, highlight benefits, and manage expectations, ultimately shaping positive perceptions of the project. By identifying and prioritizing key issues, the planning team can focus on areas of stakeholder interest, address potential conflicts early, and maintain trust through ongoing open communication.

OUTREACH FREQUENCY & TIMING

Establishing the right communication frequency ensures that stakeholders remain informed, engaged, and aligned with the project's objectives throughout its lifecycle. Regular and timely communication helps build trust, facilitate collaboration, and address concerns before they escalate into a significant issue.

ENGAGEMENT TOOLS

Outreach tools are critical to the success of the EAP, enabling effective communication, participation, and collaboration. These tools facilitate the distribution of project information, keeping stakeholders informed about updates, changes, and developments, which is essential for maintaining transparency and building trust.

Through a continuous loop of engage-monitor-adjust-engage, the Planning Team will have the necessary information needed to adjust and refine the EAP. This will help identify gaps in outreach, ensuring equitable participation and preventing disproportionate attention to the most vocal stakeholders.

EXPECTED OUTCOMES

The primary goal of the Partnership for Petronila stakeholder engagement is the successful execution of Interlocal Agreements between the Nueces River Authority and the Cities of Bishop, Driscoll, Robstown, and other communities in the region.

ENGAGEMENT ACTION PLAN

GOAL		EDUCATE & INFORM			LISTEN & CONSULT			MONITOR & ADJUST		
STAKEHOLDER ROLE	ENGAGEMENT TOOLS	 Advertising & Announcements Advertising is multi-pronged effort aimed at raising awareness about the project as well as opportunities to provide feedback. Platforms include: press releases; social media posts through integration and partnership with regional organizations and municipalities; and inserts in utility bills.	 Project Fact Sheets Project Fact Sheets provide necessary information about the project in an easy to understand format. Benefits of project fact sheets include consistent messaging, transparency, and education about the project.	 Support Pitch Packages Pitch packages are aimed at stakeholders able to provide support for the project. Pitch packages provide consistent messaging regarding the benefits of the project and how partner stakeholders can support and be engaged in project success.	 One-On-One Meetings These meetings allow the project team to customize communication with individual stakeholders and dive deep into specific issues, needs, concerns, or conflicts. Results include tailored and effective responses or solutions and recruitment of advocates for the project.	 Regional Leadership Meetings Regional meetings allow the project team to collaborate with leaders and influencers to better understand broad issues, build consensus, and strategically align resources.	 Town Halls & Open Houses Community level meetings allow the project team to directly engage with citizens and individual stakeholders. This meeting format promotes transparency, education and correction of misinformation, as well as civic engagement and accountability.	 Local Partner Toolkit Toolkits will be created for localities and local partners as a planning resource for assessing readiness for providing wastewater service to the region. The toolkits will allow the project team to respond to specific needs of stakeholders and support the success of the project.	 Public Meetings & Hearings Municipal partnerships are vital to project success. The project team will be present at and monitor civic meetings, representing the interests of the project. Results include resolutions of support, rate agreements, and other formal project documentation.	 Monitor Media Throughout project phases, the project team will monitor media to understand public sentiment, competitor projects, and other issues. The goal is to respond to and adjust project messaging effectively and promptly.
	Customers									
	Providers									
	Influencers									
	Decision-Makers									
	Competitors									

Engagement Action Plan										
Stakeholders						Action Plan				
Type	Names/Groups* <i>Identified as of the Drafting of this Document. To be Updated as Necessary.</i>	Role (s)					Messaging & Key Issues	Outreach Timeline & Frequency	Tools* <i>See Tools Chart</i>	Expected Outcomes
		Customer	Provider	Influencer	Decision Maker	Competitor				
Public - Local	City of Bishop Bishop ISD Bishop Chamber of Commerce City of Driscoll Driscoll ISD City of Robstown Robstown Utility System (Authority) Banquete (colonia) City of Aqua Dulce City of Petronila	X	X	X			● Cost savings of regionalization - The reduction of operational and management burdens on each locality will reduce the impact on already strained municipal budgets. ● Keeping rates low and protection of the rate-payer - The project aims to pass on the operational cost savings of regionalization to the individual user. Keeping rates low is vital to supporting individual and community well-being. ● Community health and safety - Cleaner waters mean healthier communities, ensuring a better quality of life for residents. ● Economic development - Improved water quality will support fishing & tourism industries, while new waste treatment and reuse options will facilitate new economic growth. ● Environmental protection and restoration - Addressing wastewater issues will lead to cleaner waters, healthier habitats, and the revitalization of marine life.	These key stakeholders are the focus of early and on-going engagement efforts. As the primary customers and providers of wastewater service, commitment and support in the initial stages of project planning is crucial. On-going engagement efforts will respond to local issues and concerns aiming for rate covenants and operational agreements. Regular check-in meetings with City Administrators, City Councils, and Mayors will be held to gauge interest and to keep them informed about where the Authority is in the process. Quarterly Regional Wastewater stakeholder meetings are held at the Authority offices in Robstown.	● Advertising ● Fact Sheets ● One-on-One Meetings ● Regional Leadership Meetings ● Town Halls & Open Houses ● Local Partner Toolkit ● Public Meetings & Hearings ● Monitor Media	● Letters of Support ● Resolutions of Support ● Executed Rate Covenant

Engagement Action Plan										
Stakeholders						Action Plan				
Type	Names/Groups* Identified as of the Drafting of this Document. To be Updated as Necessary.	Role (s)					Messaging & Key Issues	Outreach Timeline & Frequency	Tools* See Tools Chart	Expected Outcomes
		Customer	Provider	Influencer	Decision Maker	Competitor				
PUBLIC - REGIONAL	Nueces Co Drainage District #2	X	X	X		X	• Community health and safety - Cleaner waters mean healthier communities, ensuring a better quality of life for residents. • Economic development - Improved water quality will support fishing & tourism industries, while new waste treatment and reuse options will facilitate new economic growth. • Environmental protection and restoration - Addressing wastewater issues will lead to cleaner waters, healthier habitats, and the revitalization of marine life.	Quarterly Regional Wastewater stakeholder meetings are held at the Authority offices in Robstown.	• Advertising • Fact Sheets • One-on-One Meetings • Regional Leadership Meetings • Monitor Media	• Letters of Support
	Coastal Bend Regional Water									
	Petronila Creek Working Group									
	Coastal Bend Council of Governments (COG)									
	Texas Agri-Life Extension									
	Texas Sea Grant									
	South Texas Water Authority									
	Nueces Water Service Corporation									
	Nueces WCID #3									
	Violet Water Service Corporation									
River Acres Water Service Corporation										
Ricardo WWSC										
City of Corpus Christi										
Nueces Soil and Water Conservation District #357										
PUBLIC - STATE	Rep. Abel Herrero (D34 - Bishop)				X	X	• Community health and safety - Cleaner waters mean healthier communities, ensuring a better quality of life for residents. • Economic development - Improved water quality will support fishing & tourism industries, while new waste treatment and reuse options will facilitate new economic growth. • Environmental protection and restoration - Addressing wastewater issues will lead to cleaner waters, healthier habitats, and the revitalization of marine life.	Quarterly Regional Wastewater stakeholder meetings are held at the Authority offices in Robstown.	• Advertising • Fact Sheets • Pitch Packages • One-on-One Meetings • Regional Leadership Meetings • Monitor Media	• Letters of Support • Fiscal Support / Donation of Resources
	Rep. Michael Cloud (D27, Robstown, Bishop)									
	Rep. J.M. Lozano (D43 - Kingsville)									
	Sen Morgan LaMantia (D27)									
	Sen. Huan "Chuy" Hinojosa (D20)									
	Texas General Land Office (GLO)									
	Texas Commission on Environmental Quality (TCEQ)									
	Texas Railroad Commission									
	Texas Department of Agriculture									
	Texas Parks and Wildlife Department, Fisheries									

Engagement Action Plan										
Stakeholders						Action Plan				
Type	Names/Groups* Identified as of the Drafting of this Document. To be Updated as Necessary.	Role (s)					Messaging & Key Issues	Outreach Timeline & Frequency	Tools* See Tools Chart	Expected Outcomes
		Customer	Provider	Influencer	Decision Maker	Competitor				
PUBLIC - FEDERAL	Congressman Ted Cruz Congressman John Cornyn EPA USDA Army Corps of Engineers USDA / NRCS			X	X		• Community health and safety - Cleaner waters mean healthier communities, ensuring a better quality of life for residents. • Economic development - Improved water quality will support fishing & tourism industries, while new waste treatment and reuse options will facilitate new economic growth. • Environmental protection and restoration - Addressing wastewater issues will lead to cleaner waters, healthier habitats, and the revitalization of marine life.	As needed	• Advertising • Fact Sheets • Pitch Packages • One-on-One Meetings • Regional Leadership Meetings • Monitor Media	• Letters of Support • Fiscal Support / Donation of Resources
INDUSTRY, BUSINESS	Tesla Celanese Monarch Hydrogen NEER Hydrogen Oxy Oyster Farmers Nueces Electric Coop AEP	X					• Economic Incentives - The ability to treat wastewater at an industrial capacity and provide wastewater for industrial reuse opens the door for increased economic development in the region. • Environmental protection & stewardship - Addressing wastewater issues will allow industry to function as better stewards for the region's environment and reduce the liability of business operation in the area.	Regular meetings with existing and potential industries on an as-needed basis. These meetings consist of sharing information about water and wastewater needs, timing of the permitting and construction of the plant facility, and the timing of their current and future wastewater needs.	• Advertising • Fact Sheets • Pitch Packages • One-on-One Meetings • Monitor Media	• Letters of Support • Fiscal Support / Donation of Resources • Service Agreements

Engagement Action Plan										
Stakeholders						Action Plan				
Type	Names/Groups* <i>Identified as of the drafting of this document. To be updated as necessary.</i>	Role (s)					Messaging & Key Issues	Outreach Timeline & Frequency	Tools* <i>See Tools Chart</i>	Expected Outcomes
		Customer	Provider	Influencer	Decision Maker	Competitor				
INSTITUTIONAL, NONPROFIT, COMMUNITY GROUPS	Harte Research Institute for Gulf of Mexico Studies at TAMU-CC (HRI) Bringing Baffin Back Texas Water Resources Institute Texas By Nature Gulf of Mexico Trust Coastal Bend Bays and Estuaries (CBBE) Coastal Conservation Association - Texas (CCA) TAWWA Reuse The Voices of the Colonias Sierra Club Chispa Texas Texas A&M University Corpus Christi Texas A&M University Kingsville GLO Clean Coast Texas Texas Stream Team (Meadows Center) Driscoll Children's Hospital			X			● Community health and safety - Cleaner waters mean healthier communities, ensuring a better quality of life for residents. ● Economic development - Improved water quality will support fishing & tourism industries, while new waste treatment and reuse options will facilitate new economic growth. ● Environmental protection and restoration - Addressing wastewater issues will lead to cleaner waters, healthier habitats, and the revitalization of marine life.	Periodic meetings with environmental non-profits to inform them of project status.	● Advertising ● Fact Sheets ● Pitch Packages ● One-on-One Meetings ● Monitor Media	● Letters of Support ● Fiscal Support / Donation of Resources



RISK MITIGATION

Risk mitigation is essential to the Stakeholder Engagement Plan (SEP) as it helps identify and address potential issues that could hinder the success of the Petronila Regional Wastewater Treatment Plant (WWTP). In any project with diverse stakeholders, risks such as miscommunication, conflict, and differing priorities are inevitable. If not managed proactively, these risks can lead to delays, increased costs, or even project failure.

By incorporating risk management strategies into the SEP, the Planning Team can anticipate challenges, minimize negative impacts, and improve the likelihood of securing ongoing support for the project.

Once risks are identified, tailored mitigation strategies will be developed. For example, establishing clear communication channels can reduce miscommunication, and involving stakeholders early in decision-making can minimize resistance.

In recent years, the Nueces River Authority has worked diligently to build trust and foster strong relationships with stakeholders. As part of risk mitigation, it is crucial to protect and strengthen these relationships, ensuring long-term collaboration and support for the project.

REPORTING

Stakeholder engagement activities were tracked using the Engagement Log included in the appendix. This data was shared with the Nueces River Authority on an ongoing basis.

The following lists of Issues and Opportunities will support the development of a Risk Mitigation Strategy:

ISSUES:

- Cost to ratepayers
- Community / Civic Capacity
- Timing for industry needs.
- Sustained Engagement

OPPORTUNITIES

- Public health improvements
- Environmental health & education
- Industrial development
- Tourism development



CLOSE OUT & EVALUATION

Effective stakeholder engagement is crucial to the success of the Partnership for Petronila. By identifying stakeholders, analyzing their needs and expectations, and monitoring and managing engagement, the Nueces River Authority can ensure that stakeholders remain engaged and committed to the project outcomes.

This phase of stakeholder engagement will conclude in June 2025, when the GOMESA grant concludes. However, the Authority remains committed to ongoing stakeholder engagement through formal and informal interactions in the service area.

As part of building community capacity through engagement, and building on the need for Local Stakeholder Capacity Building identified in the GLO Texas Coastal Resiliency Master Plan, additional phases of this project will include development of "Community Partner Toolkits" including:

- ▶ **Service Delivery Strategy** including Land Use Projections and Community Land Use Goals
- ▶ **Community Profiles** (Included as an Appendix to the Service Delivery Strategy)
- ▶ **Land Use Assumptions** and positioning for Impact Fees
- ▶ Identifying a potential service area for **Sewer CCN**
- ▶ Identifying and sharing **tools and resources** to help partner communities benefit from future development.

APPENDICES

1. Engagement Log
2. Monthly Project Reports
3. Executed City Resolutions of Support
4. Community Forums Materials and Minutes
5. Advisory Committee Informational Material
6. DRAFT Partnership for Petronila Service Delivery Strategy
7. DRAFT Land Use Assumptions for the Petronila Region

ENGAGEMENT LOG & SUPPORTING MATERIALS

The following engagement log summarizes the outreach and engagement efforts conducted to date in support of the Partnership for Petronila / Petronila Regional Wastewater Treatment Plant. These activities have been critical in fostering dialogue with key stakeholders, including city leaders, residents, environmental groups, and utility providers. The log details the various meetings, communications, and community consultations held, as well as the input gathered to inform project planning and development. These efforts have helped to ensure that stakeholder concerns are addressed and that the project continues to move forward with broad community support. This log will be regularly updated to include all ongoing outreach and engagement efforts, reflecting the evolving nature of the project and ensuring that stakeholders remain informed and engaged throughout the planning, construction, and operational phases of the WWTP.

TWDB Letters & Testimony of Support

In July, the Texas Water Development Board (TWDB) announced that this project was #3 on their list to get funded in the next funding cycle. As part of that announcement, the public comment period was set with a deadline of August 2, 2024, for getting letters of support uploaded to the TWDB website. In most cases, we requested letters of support be sent back to us to keep count. In total, we directly received 22 letters from Water Districts, Cities, Counties, Schools, Non-Profits, the Railroad Commission, State Legislators, and State and Federal agencies. The Coastal Bend Bays and Estuaries Program (CBBEP) and the Gulf of Mexico Trust shared the request for letters with their constituencies as well. Those letters were sent directly to TWDB. The project's support level was very strong in favor of it.

OUTCOME: At least 22 letters of support sent to TWDB
Attending TWDB public hearing with Travis Pruski

Community Forums

Community forums were held during the month of September. In Banquete, the forum was held at the middle school cafeteria on September 3, 2024, at 6 pm. The forum was held at Driscoll City Hall on September 5, 2024, at 6 pm. In Bishop, the forum was held at Bishop City Hall on September 17, 2024 at 6pm. In Robstown, the Robstown Utility System held a Worksession of its Board of Directors on September 25, 2024, at 6 pm. A presentation was presented to the Board, and the Nueces River Authority Executive Director John Byrum II also addressed the Board.

Community Forum Promotion:

- o **Flyers:** we developed flyers for each of the forums that were distributed to City post offices, City Halls, Chambers of Commerce, Schools, and, where possible, Facebook and social media sites.
- o **City texts:** Driscoll and Bishop use a text service to communicate with their residents. Several texts were sent out, and the notifications were sent by text from the forums.
- o **Colonias:** Voice of the Colonias is a non-profit that is a voice for the colonias in the region, which are not represented by a formal city entity. The non-profit has a large audience on its Facebook page, and it has agreed to post the flyer.
- o **Schools:** The Banquete school district placed the forum on their website for students and parents.
- o **Nueces River Authority:** Placed the flyers on their Facebook page.

OUTCOME: Outcomes of the community forums are summarized in the following meeting materials and meeting minutes.

City Resolutions of Support

Resolutions were developed early in the engagement process with proposed plant operation rates for each of the four main wholesale customers: Banquete, Robstown, Driscoll, and Bishop. The Resolutions also included language that they were on board with the Nueces River Authority to allocate resources, conduct studies, and seek funding for a regional wastewater treatment plant. Also, the resolutions outlined the urgency of improving the water quality in Petronila Creek and Baffin Bay and its urgent impact on tourism in the region. Finally, the resolutions outlined the need for the area to regionalize and increase its wastewater treatment to provide future economic development to the region.

Between July and October of 2024, the Cities councils of Driscoll and Bishop and the Robstown Utility System board each individually adopted the resolutions.

OUTCOME: All three partner cities have passed resolutions supporting the Petronila Regional WWTP. Executed resolutions are attached.

General Stakeholder Outreach and engagement

Cities

Beginning in October of 2023, we began engaging the cities of Robstown, Driscoll, and Bishop regularly. Attending individual meetings with city administrators, city councilors, and attorneys, as well as attending regular city council meetings to give project updates. Quarterly Petronila working group meetings to keep stakeholders up to date were also held

Non-Profit Organizations

Regular meetings were held with (CBBEP), the Gulf of Mexico Trust, and Texas A&M Corpus Christi – Harte Institute to provide updates on the project. These meetings outlined the importance of the project's environmental and aquatic benefits. These agencies have steadfastly supported the efforts of the Nueces River Authority.

Working Group

A Petronila WWTP working group was created to generate stakeholder support and provide information to the future users of this regional wastewater treatment plant. Attendees include Nueces County Commissioners and engineers, City administrators, water districts, city councilors, State officials, regional agencies, and elected and appointed officials interested in the project.

Property Acquisition

Driscoll Children's Hospital owns property that will serve as the project's wetlands located on Petronila Creek. Efforts were made to explain the project, why its important in the region, and to request to purchase the land from them for the wetlands.

Industrial Prospects

Several meetings were held to keep existing and future industries informed of the project and to obtain their wastewater treatment needs to judge the demand and capacity of the facility. Tesla, Celanese, and prospective hydrogen facilities were just a few of the industries contacted.

Press Releases

A press release was developed for local distribution to the area news outlets. The Caller-Times and the Kingsville Record were sent the press release in June 2024. The press release outlined the grant from the Texas General Land Office (GLO) for \$900,000 to perform emergency repairs on both the City of Bishop and Driscoll wastewater treatment plants, as they were both under consent with the Texas Department of Environmental Quality (TCEQ). Quotes from the Nueces River Authority, Executive Director John Byrum II, and Commissioner Dawn Buckingham, M.D. were included outlining

the benefits of this vital project, including the Environmental, Economic Development, and Tourism attributes.

Presentations

A number of PowerPoint presentations have been created and shared as part of stakeholder engagement:

- Presentation prepared for T. Pruski, September 2024
- Presentation to Robstown Utility System (RUS) Workshop, September 2024

Petronila Advisory Committee

Commented [A1]: Add roster

An Advisory Committee was convened to act as a consulting body for facility planning, operations and capital improvements. Advisory Committee meetings were held during the planning and drafting process for the Service Delivery Strategies and Land Use Assumptions for the region. These meetings were held on:

- December 18, 2024 (Robstown, Texas)
- February 26, 2025 (Virtual)
- April 1, 2025 (Virtual)
- April 30, 2025 (Virtual)

It is the intent of the Authority to continue to meet at least quarterly with the Advisory Committee through planning and design. The Advisory Committee members include:

Petronila Regional WWTS Advisory Committee Roster | April 2025

Entity	Name	Title
City of Bishop	Delma Salinas	City Secretary
City of Driscoll	Joy Saenz-Perez	City Secretary
Robstown Utility Systems	Roland Ramos	Superintendent
Nueces River Authority	Eric Burnett	President, Board of Directors
Nueces River Authority	John Byrum	Executive Director
Nueces River Authority	Travis Pruski	Chief Operating Officer
Nueces River Authority	Robin Murray	Chief Financial Officer
Nueces River Authority	Philip Wiatrek	Director of Planning
Nueces River Authority <i>Alternate</i>		Director of Resource Protection and Water Quality
<i>Ex Officio:</i>		
Texas Railroad Commission	Jim Wright	Commissioner
South Texas Water Authority	John Marez	Executive Director
Corpus Christi Regional EDC	Mike Culbertson	Executive Director
Nueces Drainage District #2		



PARTNERSHIP FOR PETRONILA SERVICE DELIVERY STRATEGY

APRIL 29, 2025

PARTNERSHIP FOR PETRONILA SERVICE DELIVERY STRATEGY



This project was funded through a grant from the Texas General Land Office (GLO) providing Gulf of Mexico Energy Security Act of 2006 funding made available to the State of Texas and awarded under the Texas Coastal Management Program. The views contained herein are those of the authors and should not be interpreted as representing the views of the GLO or the State of Texas.

PREPARED FOR
The Nueces River Authority

PREPARED BY
McDougal & Associates
Gray Planning Studio
Partners for Place



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INTRODUCTION

The Nueces River Authority is planning the Petronila Regional Wastewater Treatment System to serve a portion of northwest Nueces County along the US 77 / Interstate 69 corridor. This project was initiated in response to deteriorating water quality conditions in Petronila Creek and Baffin Bay, primarily caused by aging wastewater infrastructure in Bishop and Driscoll and widespread failure of on-site sewage facilities (OSSFs) in the area.

Recognizing the importance of improving water quality in these water ways, in 2023, the Texas General Land Office (GLO) identified the regional WWTP as a priority project Texas Coastal Resiliency Master Plan. That same year, the Authority received a Gulf of Mexico Energy Security Act (GOMESA) grant from the GLO to undertake emergency repairs to wastewater treatment plants in Bishop and Driscoll and to begin a stakeholder engagement process to help shape the planning, funding, and implementation of the regional system.

This document outlines a Service Delivery Strategy for the Petronila Regional Wastewater Treatment System by planning for future growth, infrastructure, and land use in the area. The purpose is to assist the Nueces River Authority and the stakeholder advisory committee to determine the study areas treatment will be needed and used as a guide to finance current and future phases of the facility with impact fees.



REGIONAL PLANNING SHARED SUCCESS

THE NUECES RIVER AUTHORITY has an established history of cooperation and collaboration in study area and beyond. River Authorities are unique among public entities in Texas in that they have statewide jurisdiction. This flexibility allows the Authority to work with cities, counties, utility providers, and private sector partners, to protect water supply and water quality across Texas. Examples of these

Petronila Constructed Wetland: As part of the Petronila Regional WWTS, the Authority is constructing a man-made wetland near the plant. The wetland will enhance water quality by providing natural filtration and nutrient removal. In addition to water quality benefits, the wetland offer outdoor recreation opportunities along a system of nature trails and serve as a tourism destination for birders. An on-site education center will support environmental education programs for students and the public.

- » **MUNICIPAL PARTNERSHIPS** in the study area already exist. The Authority has been working with the Cities of Bishop and Driscoll to operate their wastewater treatment plants and secured funding from the Texas General Land Office for emergency repairs.
- » **REGIONAL WATER PLANNING:** The Authority is the sponsor of the 2026 Coastal Bend (Region N) Regional Water Plan, providing long range guidance on water supply for an 11 county region. As part of their commitment to cooperation and collaboration, the Authority also supports the South Central (Region L) Regional Water Plan.
- » **REGIONAL FLOOD PLANNING:** The Nueces River Authority (NRA) is one of 15 organizations selected to assist with the development of the State Flood Plan. As sponsor of the Nueces Flood Planning Group, NRA is responsible for drafting a regional plan serving all or portions of 32 counties to be included in the overall flood plan for the state
- » **REGIONAL NONPROFITS:** The Authority works with a variety of non-profit or semi-public partners across the basin. Examples include the Coastal Bend Bays & Estuaries Program, The Harte Research Institute for Gulf of Mexico Studies at Texas A&M Corpus Christi, the Bringing Baffin Back coalition, and The Nature Conservancy.

PLAN PURPOSE

The Service Delivery Strategy is an appendix to the 2024 Partnership for Petronila Stakeholder Engagement Plan (SEP) and is intended to serve as a long-term resource for the Nueces River Authority and the Petronila Regional WWTS Advisory Committee. It is anticipated that the Strategy will be amended as needed by the Committee and used to help guide decisions about land use and infrastructure throughout the study area.

The stakeholder engagement process revealed a number of community needs and priorities which directly informed the development of this Service Delivery Strategy. These needs include:

- » Ongoing stakeholder engagement in the planning and operation of the regional system, leading to the formation of the Petronila WWTS Advisory Committee.
- » Proactively planning for future growth to gain consensus on future development and land uses across jurisdictions in a way that ensures the adequate and efficient provision of services.
- » Evaluating development suitability and assessing existing infrastructure and service delivery to avoid duplication, fill service gaps, and prepare for future capacity needs.
- » Providing predictability in land use planning and land use patterns for prospective developers.
- » Recognizing that future development should be fiscally responsible and “pay its own way” via an assessment of Impact Fees or other tool. The goal of implementing Impact Fees necessitates an agreed-upon future land use strategy to inform Land Use Assumptions.
- » Creating an opportunity to support area municipalities and stakeholders with community planning best practices, implementation strategies, and economic development tools to support coordinated and sustainable growth, infrastructure investment, and regional collaboration.



**Stakeholder
Engagement**



Data & Trends



**Infrastructure &
Land Use Analysis**



**SERVICE DELIVERY
STRATEGY**

PETRONILA STUDY AREA | EXISTING CONDITIONS

The Service Delivery Study Area is in northwest Nueces County and is shaped by what is expected to be the long-term service area of the Petronila Regional Wastewater Treatment System. The area includes the cities of Robstown, Bishop, Driscoll, Agua Dulce, Petronila, and adjacent unincorporated areas, particularly those impacted by industrial growth and changing land use patterns. Also present in the study area are several water districts and colonias.

The population projections utilized in this Service Delivery Strategy are in keeping with the demographic forecasts included in the Draft 2026 Coastal Bend Regional Water Plan. According to data included in the draft plan, the area is expected to have flat to declining population growth through 2080.

Specifically, the populations of Bishop and Driscoll are forecasted to increase by 0.05% between 2020 and 2080. The plan does not specifically include projections for Robstown; however, it does state that the population of WCID #3, the water provider for the City of Robstown, is also expected to increase by 0.05% over the planning horizon. The unincorporated portions of the study area are addressed in the plan via data regarding the Nueces Water Service Corporation (WSC), which has a slightly higher growth projection of 0.07% by 2080.

These projections are in line with the Texas Demographic Center's 2022 population estimates, which show relative demographic stability or contraction in smaller municipalities outside of the Corpus Christi Metropolitan Statistical Area (MSA).

This Strategy is structured to reflect the dual realities of the planning area: stable or declining residential populations on one hand, and expanding industrial and economic activities on the other.



Compound Annual Growth Rate



-0.27%

Population
(Census)



0.06%

Households
(Census)



0.16%

Housing Units
(Census)



90% lower than Texas which is \$297,822

BUSINESS



555

Total Businesses



5,847

Total Employees

EMPLOYMENT



White Collar

44.3%



Blue Collar

33.3%



Services

22.4%

6.4%

Unemployment Rate

EDUCATION

24%

No High School Diploma



35%

High School Graduate



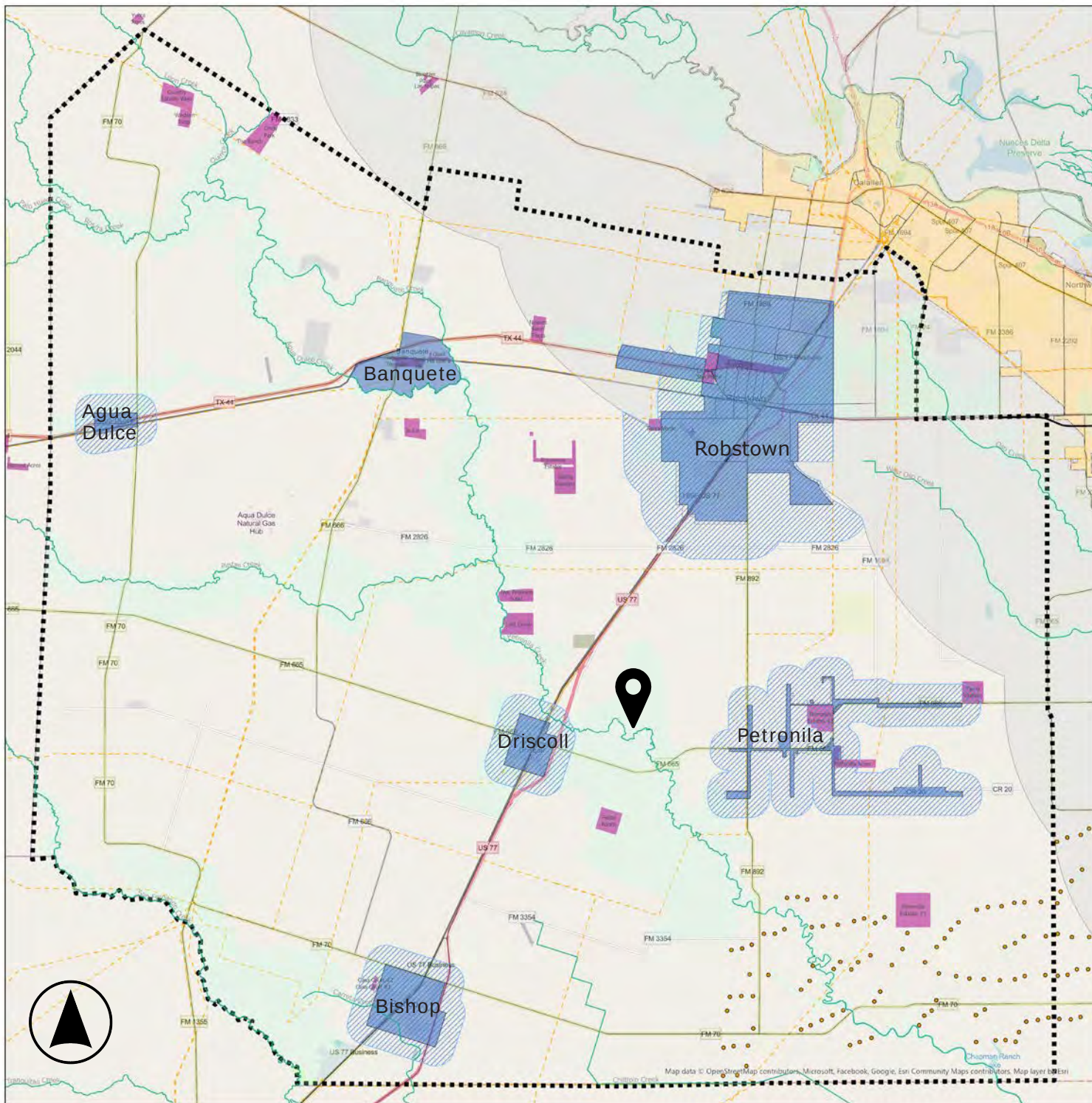
27%

Some College



15%

Bachelor's/Grad/Pr of Degree



MAP 1.1

PETRONILA STUDY AREA

-  Proposed WWTS and Wetlands Site
-  Study Area
-  Floodplain
-  Flowing Stream
-  Study Area Cities / Places
-  Study Area City ETJ
-  Colonia
-  Texas_Wind_Turbines
-  Transmission Lines
-  Corpus Christi
-  Corpus Christi ETJ

0 1 2 4 Miles



2
Airports



0
Hospitals



5
Public Safety Buildings
(Fire and Police)

INTERNET ACCESS (INDEX)



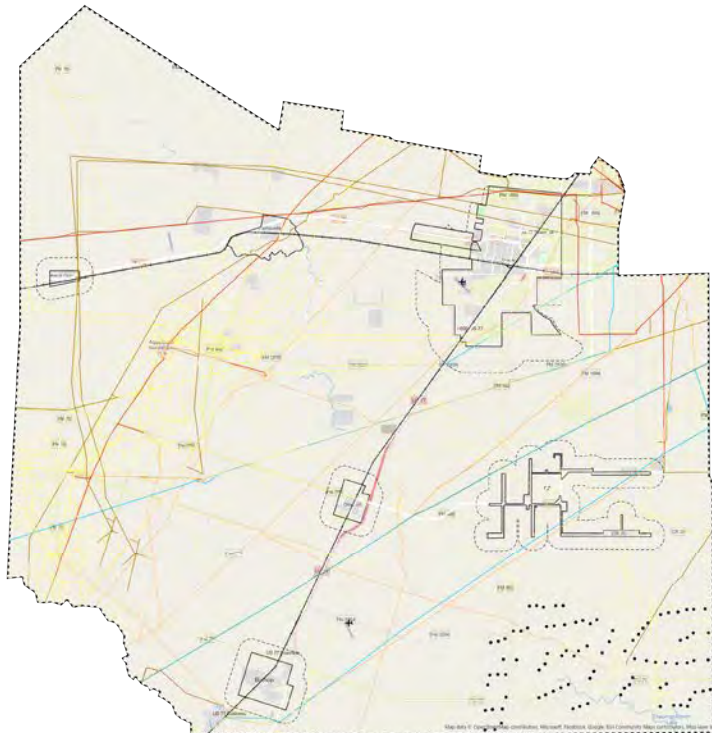
97
Access to Internet at home



95
Internet at home via high speed
connection

PIPELINE NETWORK

- ANHYDROUS AMMONIA
- CARBON DIOXIDE
- CRUDE FWS
- CRUDE OIL
- CRUDE OIL OFFSHORE
- HIGHLY VOLATILE LIQUID
- HIGHLY VOLATILE LIQUID (HVL)
- NATURAL GAS
- NATURAL GAS FWS
- NATURAL GAS OFFSHORE
- NATURAL GAS-DISTRIBUTION
- OTHER GAS
- REFINED LIQUID PRODUCT



UTILITY PROVIDERS IN THE STUDY AREA

WASTEWATER PROVIDERS

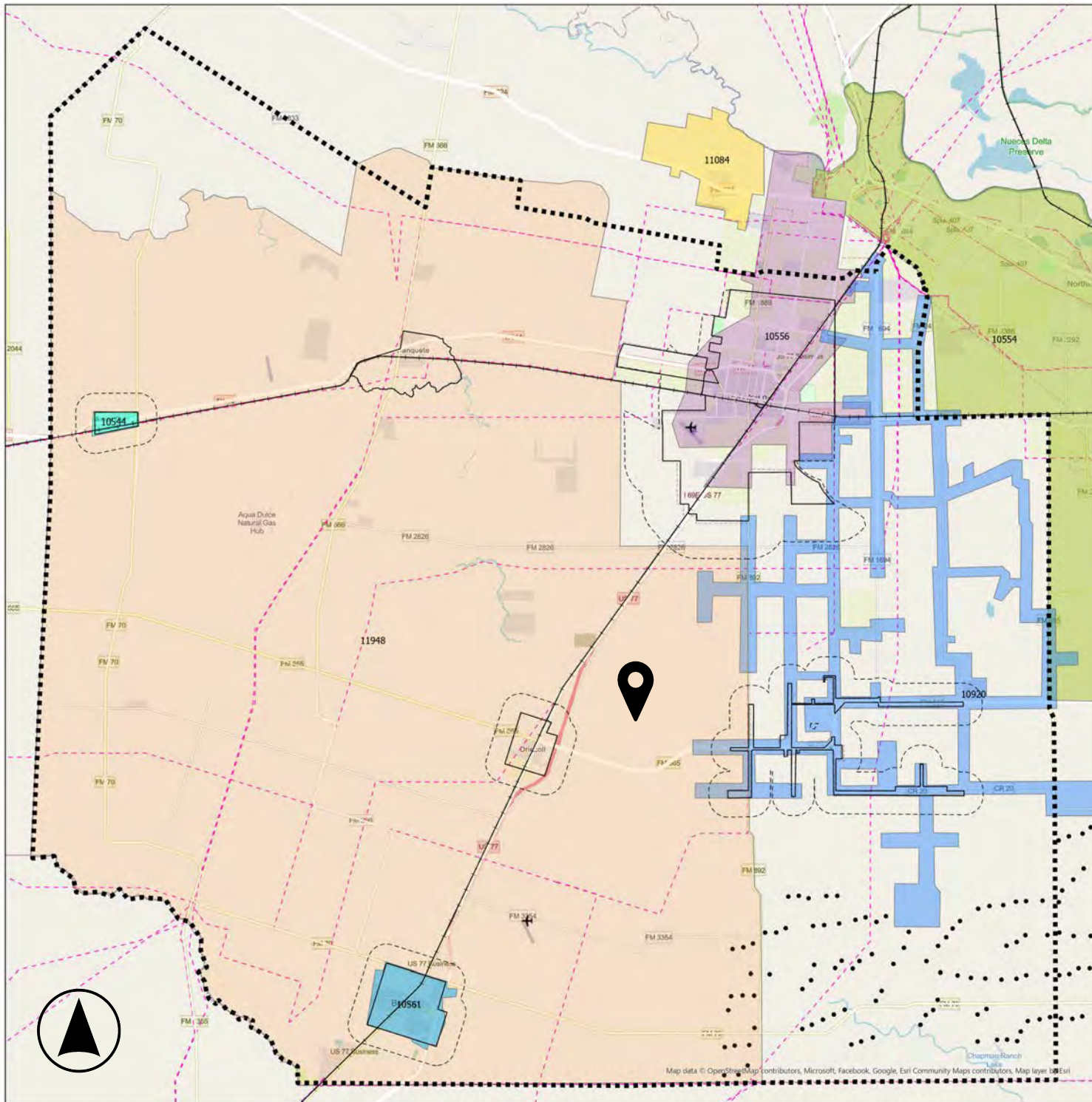
- » Nueces River Authority - pending
- » City of Robstown - CCN# 20220
- » City of Bishop - CCN# 20203 (TCEQ Emergency Order)
- » City of Aqua Dulce - CCN# 20214
- » City of Driscoll (TCEQ Emergency Order)

WATER PROVIDERS

- » Nueces Water Service Corporation
- » Aqua Texas
- » Violet Water Service Corporation
- » River Acres Water Service Corporation
- » Nueces WCID #3 (CCN pending)
- » City of Agua Dulce - CCN# 10544
- » City of Bishop - CCN #10561

OTHER UTILITY PROVIDERS

- » Robstown Utility System (Electric & Gas)
- » AEP (Electric)
- » Nueces Electric Cooperative (Electric)



MAP 1.2 INFRASTRUCTURE

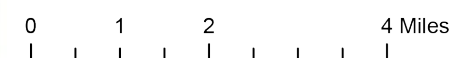
-  Proposed WWTS and Wetlands Site
-  Study Area
-  Study Area Places/Cities
-  Study Area City ETJs

UTILITY

-  CITY OF ACIA CREEK
-  CITY OF BISHOP
-  CITY OF CORPUS CHRISTI
-  NUECES COUNTY WCD
-  NUECES WSC
-  RIVER ACRES WSC
-  VIOLET WSC

-  Town, Ward, Tractlines
-  Unincorporated Areas, etc.

-  Airport
-  Railroad



2024 Race and ethnicity (Esri)

The largest group: Hispanic Origin (Any Race) (82.51)

The smallest group: Pacific Islander Alone (0.07)

Indicator ▲	Value	Diff	
White Alone	53.50	+5.00	
Black Alone	1.03	-11.37	
American Indian/Alaska Native Alone	0.72	-0.27	
Asian Alone	0.46	-5.45	
Pacific Islander Alone	0.07	-0.05	
Other Race	13.76	-0.18	
Two or More Races	30.45	+12.31	
Hispanic Origin (Any Race)	82.51	+42.31	

Age Profile: 5 Year Increments



2024 Households by income (Esri)

The largest group: \$50,000 - \$74,999 (18.3%)

The smallest group: \$150,000 - \$199,999 (4.8%)

Indicator ▲	Value	Diff	
<\$15,000	17.0%	+8.6%	
\$15,000 - \$24,999	12.8%	+6.8%	
\$25,000 - \$34,999	8.4%	+1.2%	
\$35,000 - \$49,999	10.6%	+0.2%	
\$50,000 - \$74,999	18.3%	+1.7%	
\$75,000 - \$99,999	9.8%	-3.0%	
\$100,000 - \$149,999	13.0%	-3.9%	
\$150,000 - \$199,999	4.8%	-4.9%	
\$200,000+	5.2%	-6.7%	

Bars show deviation from

LAND USE AUTHORITY IN THE STUDY AREA

INCORPORATED PLACES

Municipalities that exercise zoning authority, building code enforcement, and other land use controls within their corporate limits.

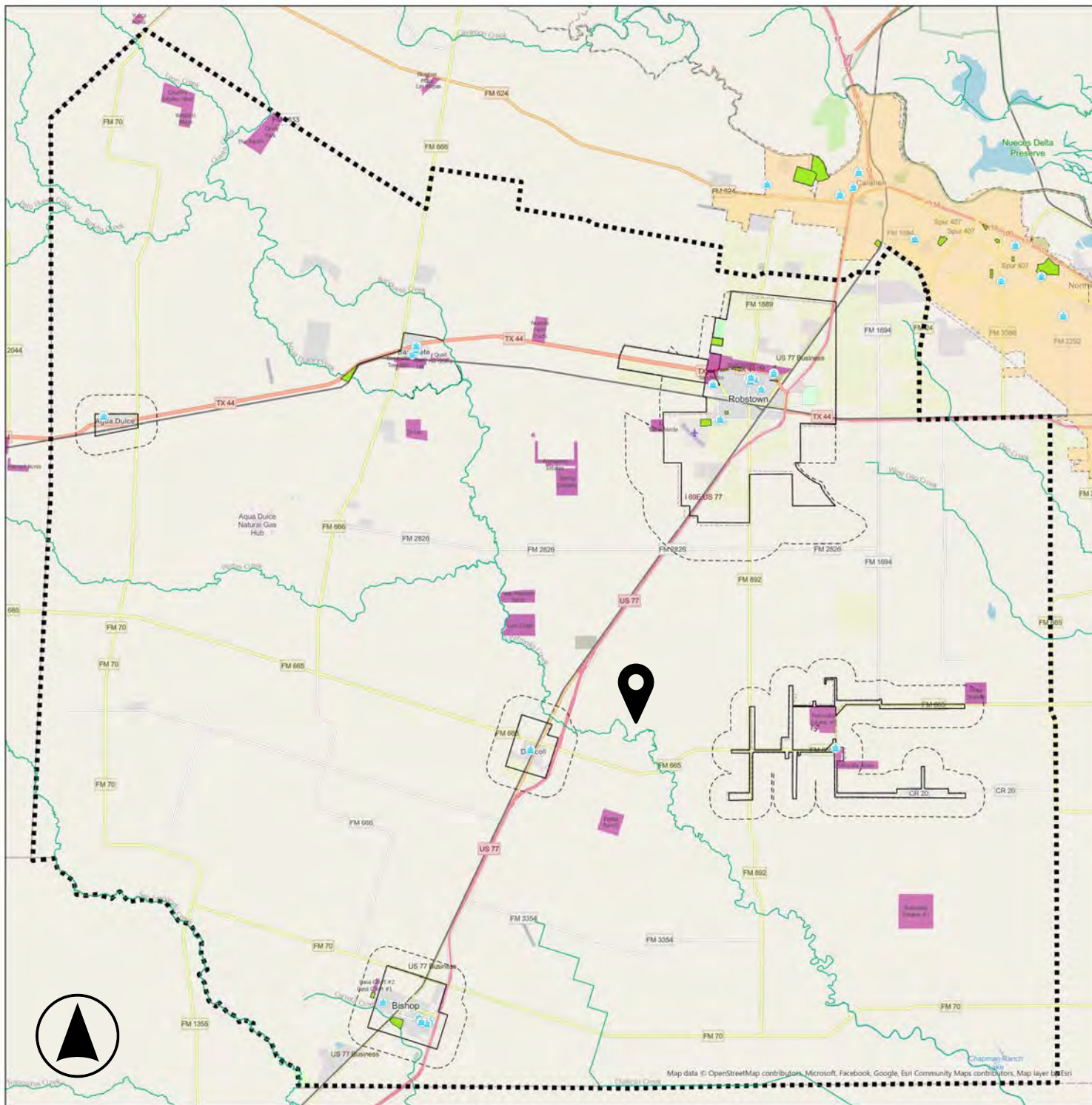
- » **City of Robstown, City of Driscoll, City of Bishop** - Type C General Law Cities
- » **City of Agua Dulce and City of Petronila** - Type B General Law Cities

UNINCORPORATED PLACES

- » **Nueces County** - Oversees the subdivision (platting) of land via Subdivision Regulations including Manufactured Home Rental Communities, Infrastructure Development Plans, and floodplain review and permitting.
- » **Banquete** - Part of County
- » **Approximately 20 Identified Colonias** - Part of County

OTHER ENTITIES

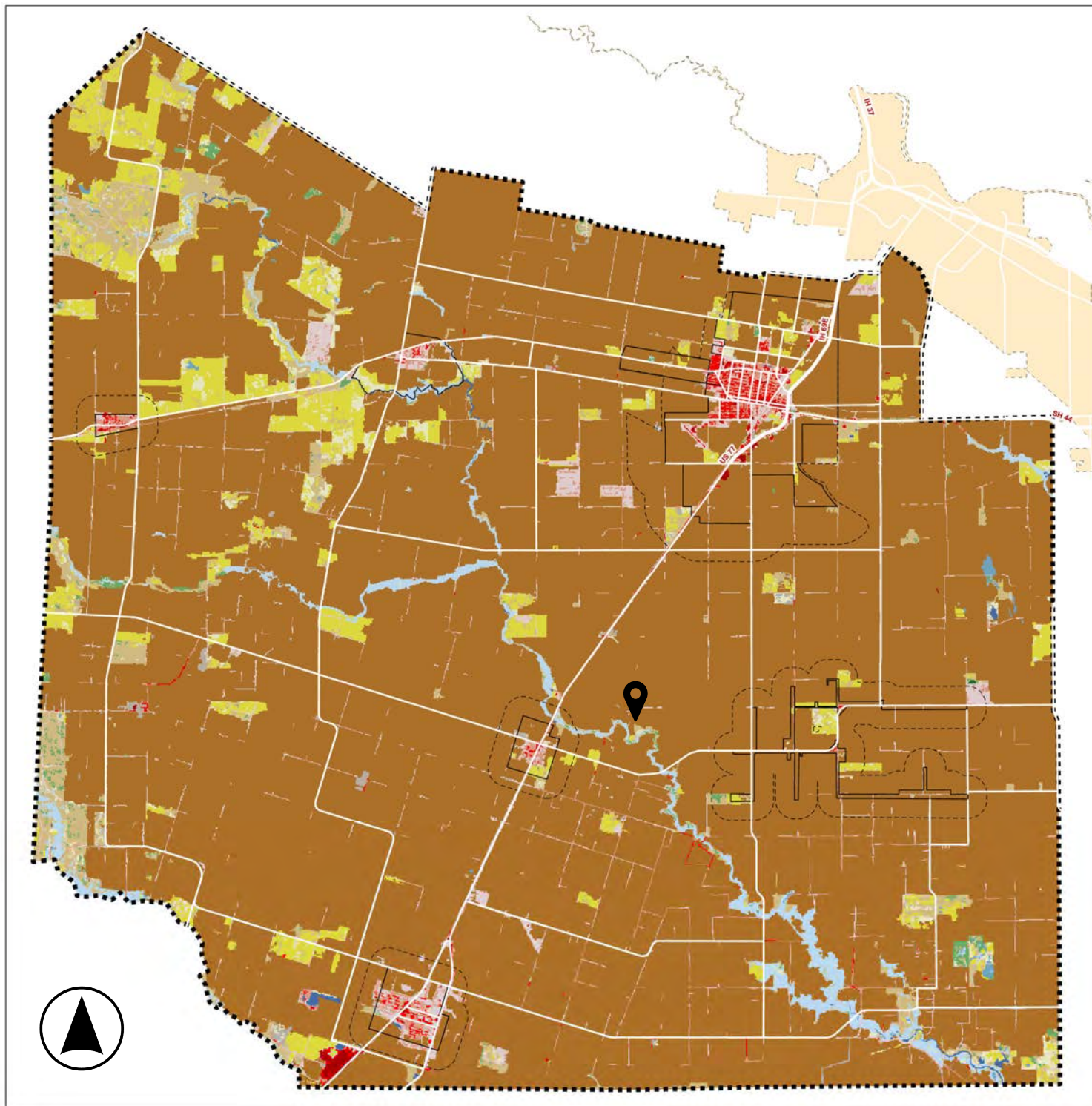
- » **Economic Development Corporations** - Nonprofit entities created to finance new and expanded business enterprises. EDCs are funded by sales tax to support business retention and expansion, attract new investment, develop infrastructure, fostering workforce development, and promoting economic diversification.
- » **Specialized Agencies** - Oversee specialized services such as drainage (Nueces County Drainage District #2) and environmental compliance (TCEQ and other state or federal agencies)



MAP 1.3 COMMUNITY SPACES

-
- Proposed WWTS and Wetlands Site
 - Study Area
 - Study Area Places/Cities
 - Study Area City ETJs
 - Parks
 - Colonias
 - Corpus Christi

0 1 2 4 Miles



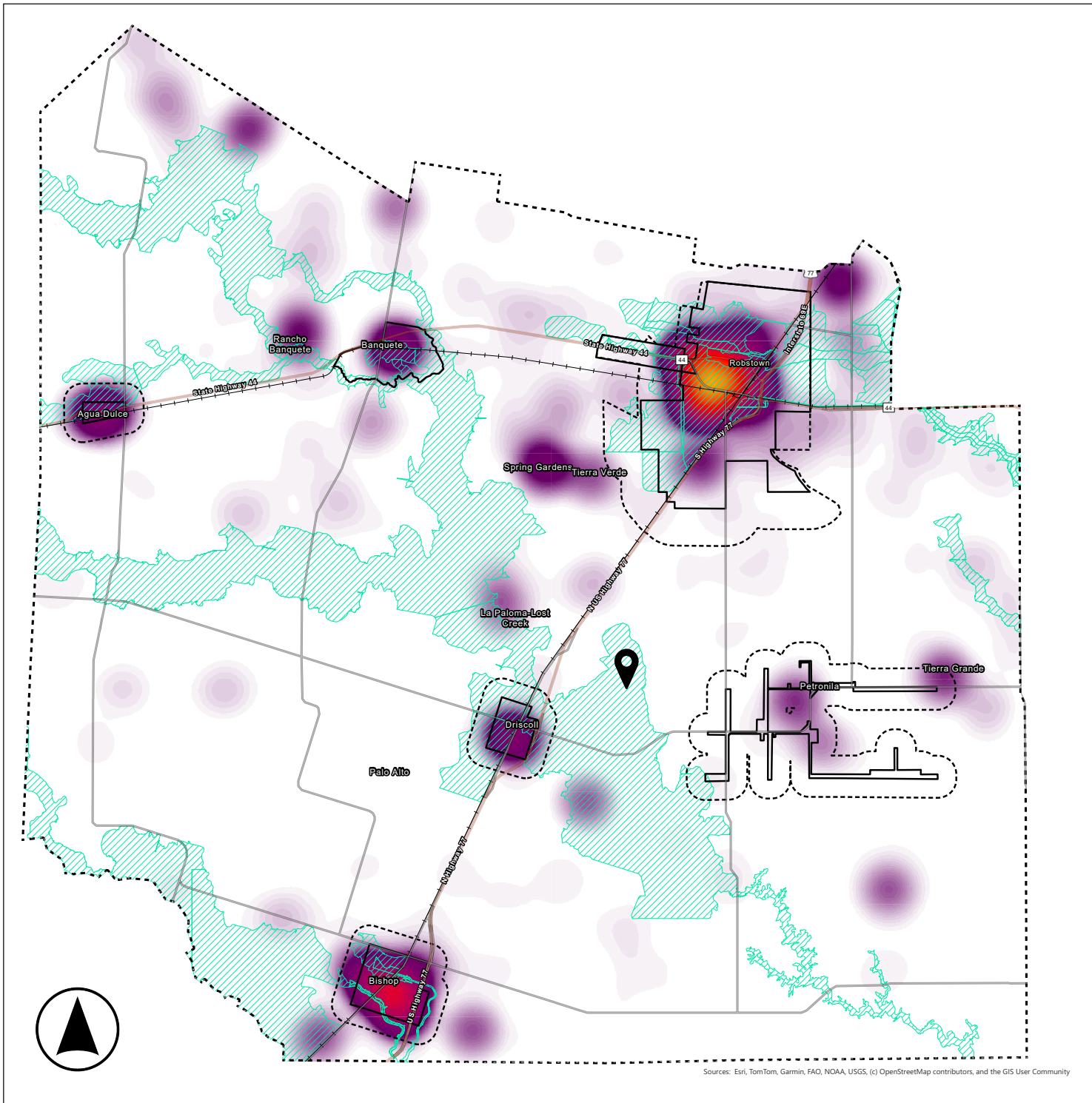
MAP 1.4 EXISTING LAND COVER

-  Proposed WWTS and Wetlands Site
-  Study Area Places/Cities
-  Study Area City ETJs
-  Corpus Christi

LANDCOVER_CLASS

-  Open Water
-  Developed, Open Space
-  Developed, Low Intensity
-  Developed, Medium Intensity
-  Developed, High Intensity
-  Barren Land
-  Deciduous Forest
-  Evergreen Forest
-  Mixed Forest
-  Shrub/Scrub
-  Herbaceous
-  Hay/Pasture
-  Cultivated Crops
-  Woody Wetlands
-  Emergent Herbaceous Wetlands

0 1 2 4 Miles



MAP 1.5
DEVELOPMENT DENSITY

-  Proposed WWTS and Wetlands Site
-  Study Area
-  Study Area Places/Cities
-  Study Area City ETJs
-  Floodplain
-  Sparse
Dense

0 1 2 4 Miles



The suitability of an area for a specific type of development depends on a range of factors, including environmental, ecological, social, and economic criteria that can either support or restrict development. These factors may vary depending on whether the intended development is residential, commercial, or industrial. This analysis focuses on identifying areas of the study area that are suitable for industrial and business growth and areas suitable for residential and local commercial uses. The criteria used in the study were quantified, weighted according to their relative importance to this planning process, and mapped using GIS technology to create a Development Suitability Model for the Study Area.

The analysis takes into consideration physical development, stakeholder input, socio-economic trends such as population projections, regulatory frameworks, environmental constraints, and the cost of providing essential services to support development. Existing water and sewer infrastructure was not included in the GIS model because the majority of the Study Area is not currently served by public utilities or existing public infrastructure is at capacity or failing (See Figure 2.3 for additional information of Water and Wastewater capacity in the region). To this end, the Development Suitability Model provides a data-driven method for identifying where expanded water and sewer infrastructure may be needed to support development demand and to make appropriate land use delineations and decisions for areas across the Petronila Service Area.

* See Figure 2.3, Water & Wastewater Matrix

**See Maps 1.4 and 1.5, Existing Land Use and Development Density

DEVELOPMENT SUITABILITY MODEL

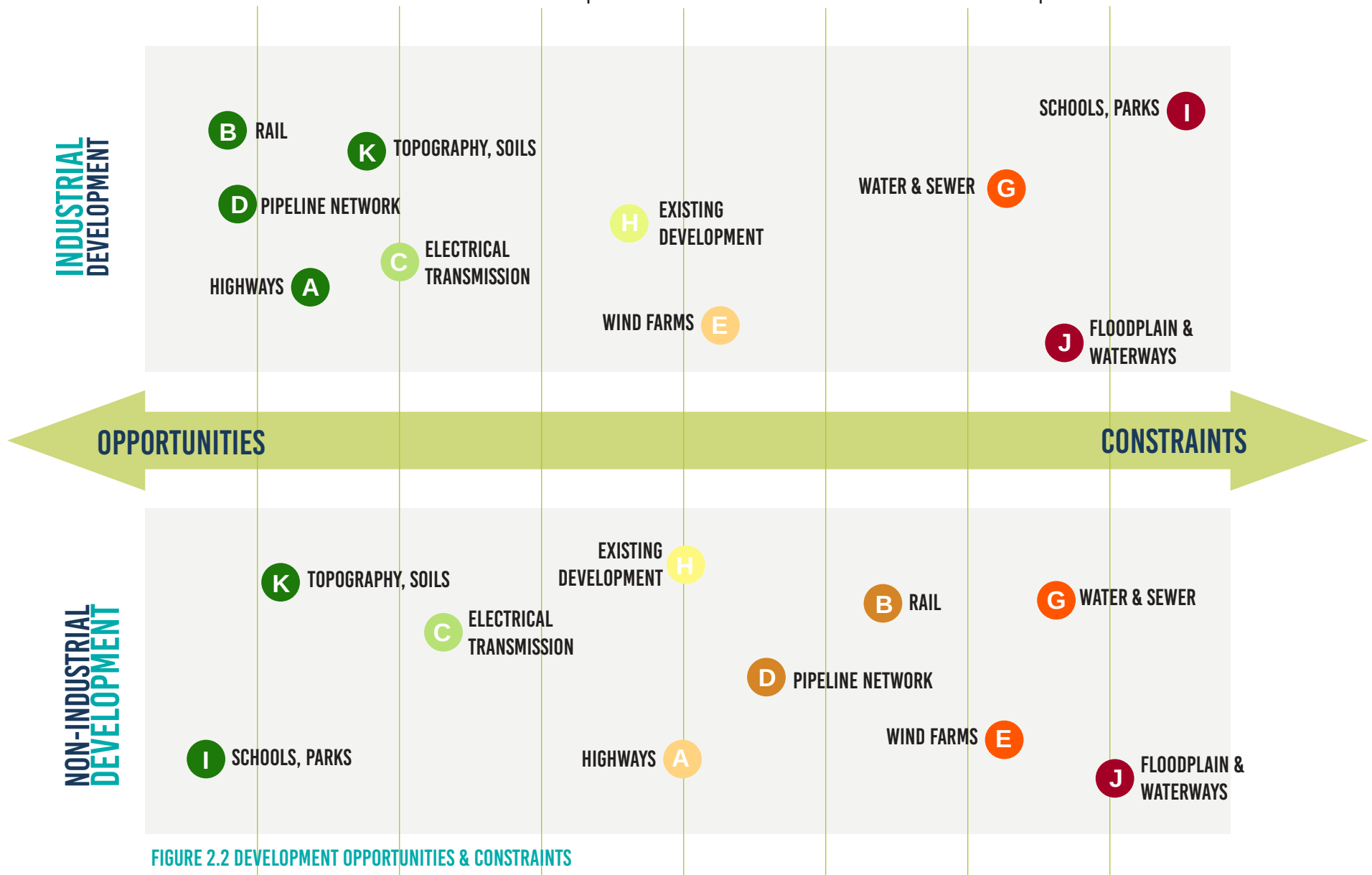
The relative importance of Development Suitability Factors is scored from 1 to 10 where 10 is the most important. These standardized and weighted data layers are combined to produce a composite suitability map (See Maps 2.1 and 2.2). Areas with higher scores are deemed more suitable for development, while lower scores indicate areas that are less favorable.

FIGURE 2.1 DEVELOPMENT FACTORS

FACTOR	RELATIVE WEIGHT OF IMPORTANCE
ACCESS & TRANSPORTATION	
Proximity to Interstates / Freight Corridors (A)	9
Proximity to Major Roads (A)	7
Proximity to Railroad (B)	5
INFRASTRUCTURE	
Proximity to Electrical Utilities (C)	7
Pipeline Network (D)	5
Natural Gas Infrastructure (D)	4
Energy Infrastructure / Wind Farms (E)	7
Broadband & Communications Infrastructure (F)	3
Water & Sewer* (G)	N/A
EXISTING LAND USE & DEVELOPMENT	
Land Cover & Existing Development (H)**	9
Proximity to Schools, Parks, Libraries, Etc (I)	8
Existing & Proposed Heavy Industry (H)	8
ENVIRONMENT	
Floodplain (J)	9
Topography & Soils (K)	2
Waterways (J)	10
Wetlands (J)	9
Prime Farmland (H)	5

DEVELOPMENT SUITABILITY MODEL

The Development Suitability Model is a composite map of factors affecting development - both constraints and opportunities. The Model was built for 2 scenarios - Industrial Development Potential and Non-Industrial Development Potential



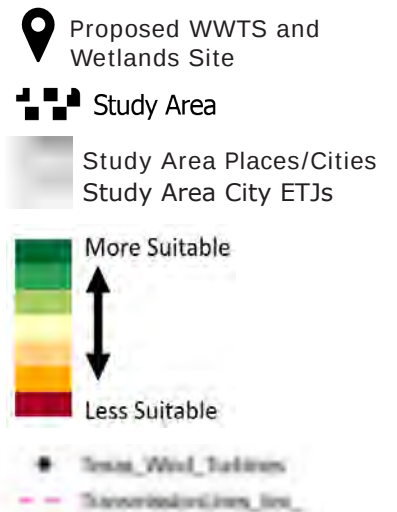
INDUSTRIAL DEVELOPMENT

VERY SUITABLE
76,000 ACRES (21%)

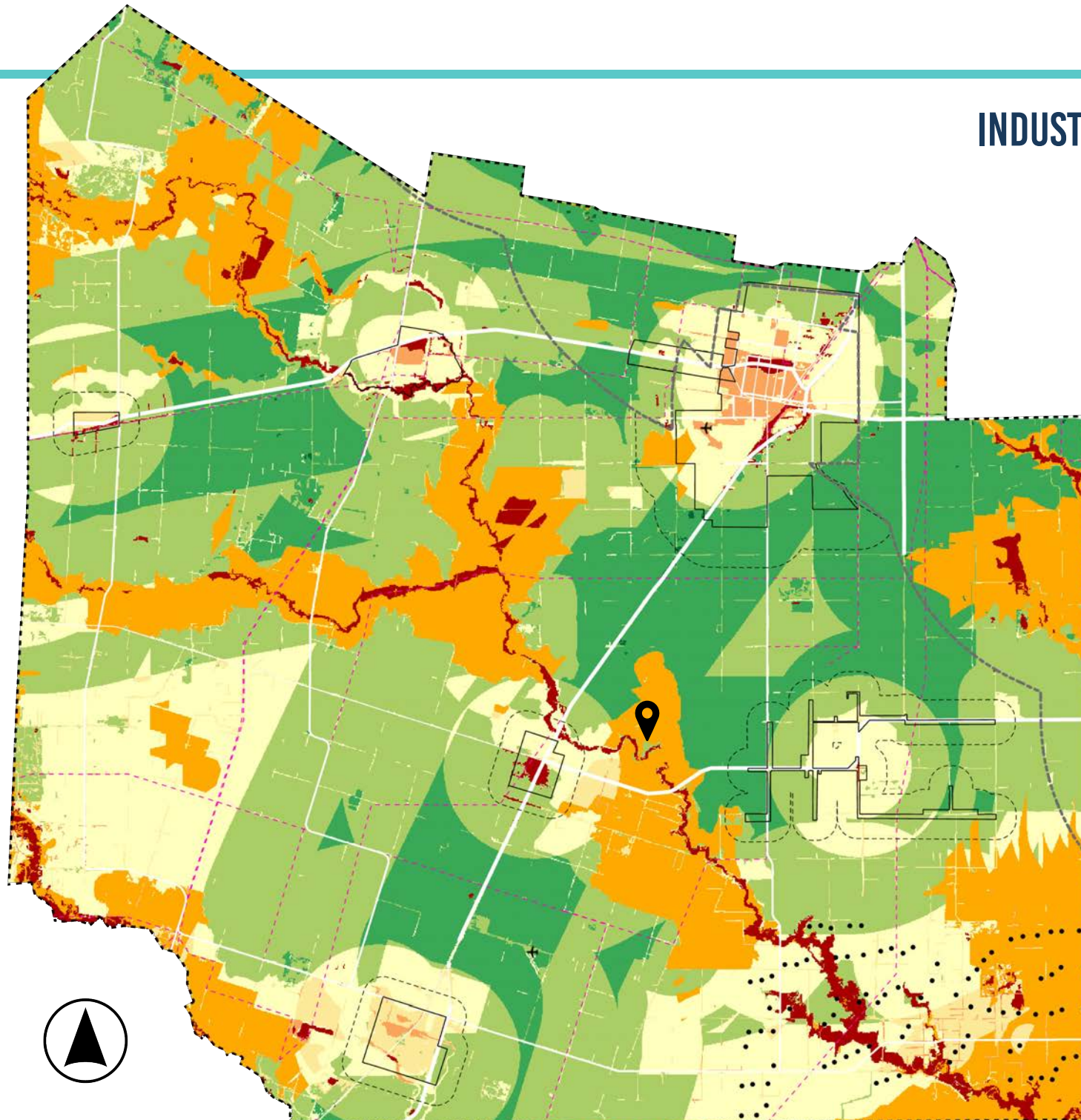
SUITABLE
155,000 ACRES (41%)

Over 60% of the study area is considered suitable or very suitable for industrial development. The area has few topographical restrictions, and with the exception of water and wastewater, adequate infrastructure to support industrial development.

MAP 2.1
INDUSTRIAL SUITABILITY



0 1 2 4 Miles



NON-INDUSTRIAL DEVELOPMENT

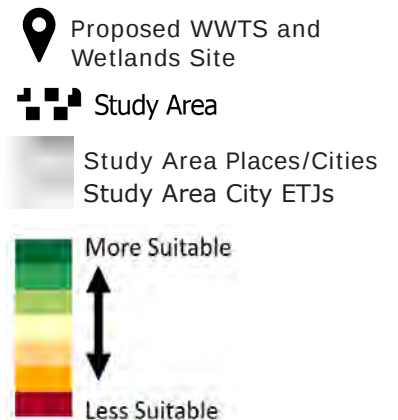
VERY SUITABLE
18,000 ACRES (5%)

SUITABLE
100,500 ACRES (27%)

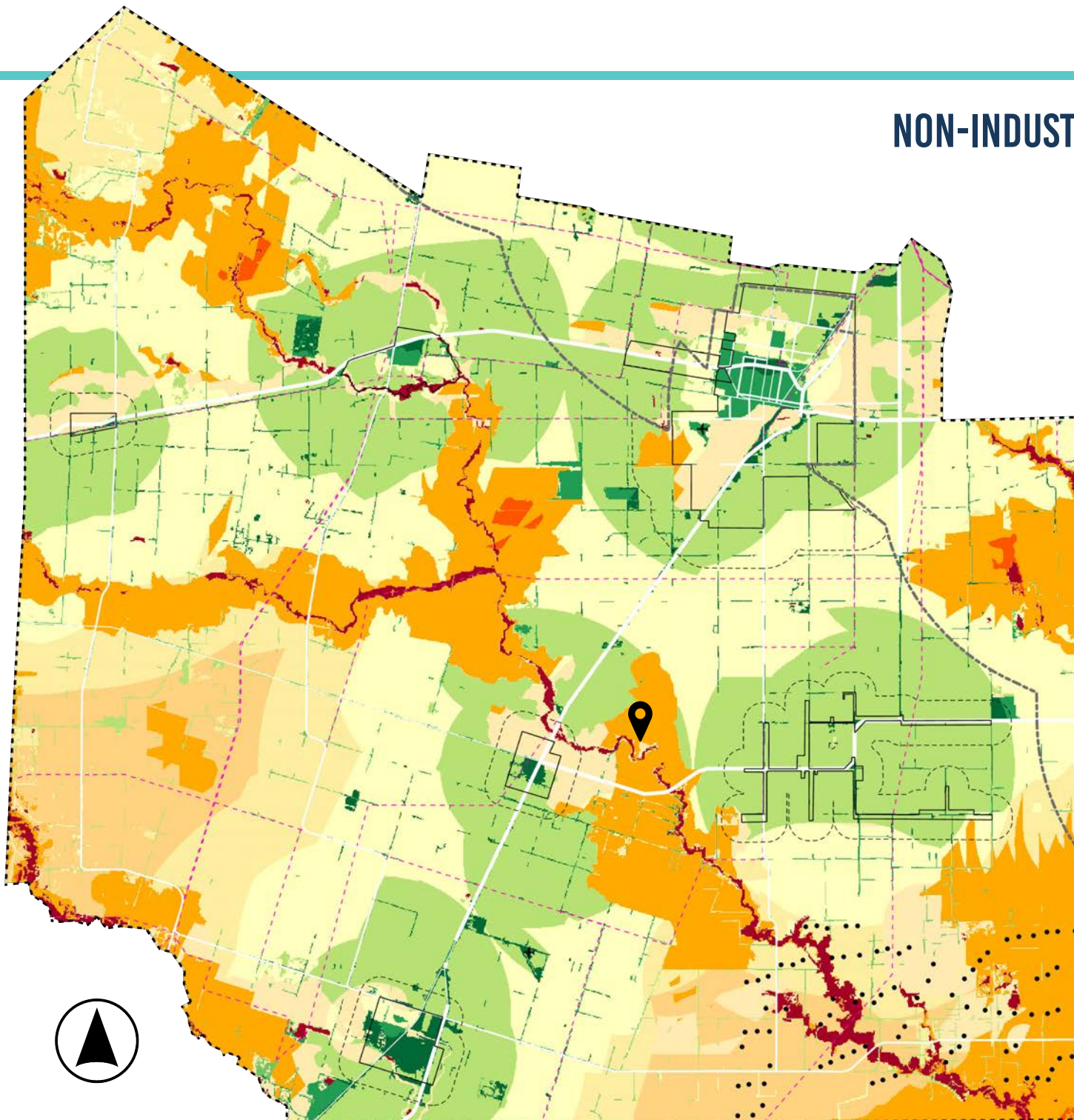
A significantly smaller portion of the Study Area is suitable for non-industrial development. Areas for residential suitability are primarily located within existing cities or communities. Taking into account population projections, the cost of providing services, and development demand, these areas are best suited for redevelopment and infill rather than expansion.

MAP 2.2

NON-INDUSTRIAL SUITABILITY



0 1 2 4 Miles



INFRASTRUCTURE ASSESSMENT

The most critical infrastructure concern facing the study area is the supply, sustainability, and resiliency of water resources. The Coastal Bend region has experienced prolonged drought conditions, with multi-year periods of below-average rainfall stressing local reservoirs, groundwater supplies, and surface water systems. Regional water planning documents, including the Draft Coastal Bend Regional Water Plan, emphasize that water scarcity will continue to be a limiting factor for residential, commercial, industrial, and agricultural development unless aggressive steps are taken. Future development will require embracing water reuse strategies, investing in conservation measures, and developing alternative water sources to ensure that growth is sustainable and that critical industries remain viable.

In addition to water supply challenges, the study area faces important stormwater and environmental constraints. Extensive floodplain areas, particularly along Petronila Creek, Banquete Creek, and other tributaries, present physical limitations to development. Protecting creeks, riparian corridors, and natural drainage ways is essential not only for flood risk mitigation but also for preserving water quality, habitat, and the overall resiliency of the region's ecosystems.



ELECTRICAL INFRASTRUCTURE

The study area's electrical power is supplied by two major providers, AEP and the Nueces Electric Co-op. Both companies currently have sufficient infrastructure and capacity to not only meet the existing power demands but also accommodate future growth and expansion in the study area. This ensures that businesses and residents can rely on a consistent and dependable power supply as the region develops and expands.



WASTEWATER INFRASTRUCTURE

Wastewater in the study area is provided through centralized wastewater systems or on-site sewage facilities (OSSFs), including septic systems. Robstown, Bishop, and Agua Dulce have centralized sewer systems, while Driscoll has limited sewer coverage and a mix of sewer and OSSFs. See Figure 2.3 for a complete list.



WATER INFRASTRUCTURE

In the study area, water is provided through a variety of municipal, public, and private water suppliers. See Figure 2.3 for a complete list.

Water infrastructure in the study area will also include the reuse of wastewater effluent by industries, reducing the reliance on raw water supplies in the area.

INFRASTRUCTURE KEY FINDINGS

- » **Wastewater:** No municipality or service provider currently reports excess sewer treatment or collection capacity. Expansion of wastewater infrastructure is necessary for public health, to support future development, and to regionally protect water quality.
- » **Electric Power:** Generally adequate for current and near-term needs; however, specific upgrades may be needed for new industrial sites or expansions.
- » **Drainage Systems:** Many areas lack formal drainage infrastructure, increasing vulnerability to localized flooding and stormwater management challenges.

WATER PROVIDERS & REGULATORY FRAMEWORK

In Texas, water is provided through a combination of public and private entities, regulated at the state and local levels. These entities are responsible for providing safe and accessible drinking water, while some also manage wastewater collection and treatment.

- » **Wholesale Water Providers (WWPs)** The study area includes two regional wholesale water providers (WWPs): the South Texas Water Authority and Water Control Improvement District (WCID) #3. The Nueces River Authority and the Port of Corpus Christi are actively working to provide water to the study area and beyond and, therefore, were designated as wholesale water providers in the Coastal Bend Regional Water Plan.
- » **Municipalities** may operate their own water utility or be a wholesale customer for a WSC or special purpose district.
- » **Water Supply Corporations (WSCs)** are non-profit, member-owned corporations that serve rural areas and small communities. WSCs are regulated by the TCEQ and Public Utility Commission (PUC) for service area boundaries and customer protections.
- » **Special Purpose Districts** such as Water Control and Improvement Districts (WCIDs)
- » **Investor Owned Utilities (IOUs)** are privately owned companies that provide water and wastewater services for a profit. IOUs are regulated by the PUC regarding rates and service areas.
- » **Regional Water Authorities** are large, regional entities that manage bulk water supplied, typically selling water wholesale to cities, districts, or utilities.

There are multiple agencies that regulate water treatment and distribution in Texas and the Region. These include:

- » **Texas Commission on Environmental Quality (TCEQ)** Oversees water quality, system safety, and environmental regulations. Issues permits and enforces rules for drinking water and wastewater systems.
- » **Public Utility Commission of Texas (PUC)** Regulates retail water rates and customer service for IOUs and certain special districts. Resolves disputes over service areas and other customer complaints.
- » **Texas Water Development Board (TWDB)** Provides grants, loans, and planning assistance for water infrastructure projects. Oversees long-range water planning for the state.
- » **Nueces County Groundwater Conservation District / Corpus Christi Aquifer Storage and Recovery Conservation District**
- » **Groundwater Management Area**

WATER & WASTEWATER ASSESSMENT

The Water & Wastewater Matrix summarizes the permitted capacity and service areas of water and wastewater providers in the study area. See Map 1.2 for specific locations. This assessment draws from the best available information available from the TCEQ, the Draft 2026 Coastal Bend Regional Water Plan (Region N), and from area municipalities.

FIGURE 2.3 WATER & WASTEWATER MATRIX

PROVIDER	CCN / PERMIT#	LOCALITY SERVED	STATUS	CAPACITY
WATER*				
Nueces County WCID #3	CCN 10556	City of Robstown and portions of unincorporated Nueces County	Pending Final Order Docket No 51926	69 ac-ft
Nueces Water Service Corporation (WSC)	CCN 11948	Unincorporated Nueces County	Commission Approved	2607 ac-ft
Aqua Texas (IOU)	CCN 13254	Neighborhood east of Bishop near the intersection of Hwys 6 and 77	Commission Approved	Data not available
Violet WSC	CCN 10920	City of Petronila and unincorporated Nueces County	Commission Approved	228 ac-ft
City of Bishop	CCN 10561	City limits	Commission Approved	550 ac-ft
City of Agua Dulce	CCN 10544	City limits	Commission Approved	Data not available

*The cities of Bishop, Driscoll, Agua Dulce, and the Nueces WSC all purchase water from the South Texas Water Authority.

FIGURE 2.3 WATER & WASTEWATER MATRIX

PROVIDER	CCN / PERMIT#	LOCALITY SERVED	STATUS	PERMITTED CAPACITY
WASTEWATER				
Nueces River Authority	N / A	Regional WWTS to serve the region, including Robstown, Bishop, and Driscoll.	WWTS Planning & Design Summer 2025	TBD
City of Robstown	CCN 20220 / TPDES Permit No. WQ0010261001	City of Robstown	Active	Not exceed an annual average flow of 2.4 mgd
City of Bishop	CCN 20203 / TPDES Permit No. WQ0011541002	City of Bishop	Plant in need of replacement	Average of 0.32 MGD / TCEQ Consent order
City of Driscoll*	No CCN / TPDES Permit No. WQ0010427001	City of Driscoll	Plant in need of replacement	Average of 0.10 mgd / TCEQ Consent order
City of Agua Dulce	CCN 20214	City of Agua Dulce	Aging infrastructure	Data not available
Banquete	No CCN / TPDES Permit No. WQ0011583002	City of Banquete	Aging infrastructure	Average of 0.10 million mgd

*In Driscoll, some properties are served by the wastewater treatment system and some are served by OSSFs. OSSFs are permitted through the Corpus Nueces County Health District



Land Use Projections are an essential tool for planning for infrastructure and meeting service demands in the Petronila region. Because the Petronila Study Area serves multiple jurisdictions, the Land Use Projection Map provides a coordinated approach to growth and service delivery planning. The Land Use Projection categories and map were derived from the development suitability analysis, consideration of current development trends, stakeholder input, existing land use patterns, and planning best practices. The projections are supported by planning guidance, specific strategies, for implementation, and suggested changes or additions to regulatory tools for each locality in the Study Area.

LAND USE PROJECTIONS CONSIDERATIONS

- » **Land Use Assumptions and Impact Fees** - Land Use Projections are a critical component of drafting Land Use Assumptions for the study area. Defined by Chapter 395 of Texas Local Government Code, Land Use Assumptions determine the type, amount, and location of existing development and expected growth in order to determine the costs associated with providing infrastructure. The results of the Land Use Assumptions may allow municipalities and authorities operating in the area to levy Impact Fees to help offset the cost of infrastructure service.
- » **Regional Water Plan Projections** - The area is not projected to have significant residential growth. Bishop, Driscoll, and the service area of WCID #3, which includes Robstown, are forecasted to have flat growth at a rate of 0.05%. Industrial and commercial growth potential, based on current activity and regional economic development plans, is much higher.
- » **Projections do not assume full build-out** - The projections do not anticipate or recommend full build-out of the study area at the proposed land use types and densities. Instead, the map provides a guide for growth that balances development opportunities with environmental stewardship and infrastructure capacity.

HOW TO USE THE LAND USE PROJECTIONS

The Land Use Projection Map serves as a framework for coordinating infrastructure investments, land use decisions, and informing development regulations across jurisdictional boundaries. Its purpose is to promote orderly, sustainable growth while supporting economic development, protecting community health and safety, and protecting natural resources.

The Land Use Projections are based on the results of the Development Suitability Analysis and, where appropriate, existing land uses. However, in areas where current land uses are conflicting, fragmented, or otherwise incompatible, the map's recommendations are guided by planning best practices and a reasoned evaluation of what constitutes responsible, context-sensitive future development.

The Land Use Projection Map illustrates how and where the various land uses - residential commercial, industrial, and mixed use - could develop over time. It is important to note that the projections do not anticipate or recommend full build-out of the study area at the proposed land use types and densities. Instead, the map provides a high-level, conceptual vision for future growth that balances development opportunities with environmental stewardship and infrastructure capacity.

At the local level, it is intended to help municipal officials make informed decisions about development applications, ensuring the protection of the health, safety, and general welfare of residents, advancing economic development goals, and ensuring that future development is sustainable.

Across the study area, it is intended to provide structure for decision-making about infrastructure planning and investments, and serve as a guide for land use decision-makers to use when reviewing requests for development, such as plats and permits.

LOCAL USE OF THE LAND USE TOOLS

- » **Adoption of Land Use Tools** - The Cities of Robstown, Bishop, and Driscoll are incorporated Type C General Law Cities. These communities have varying capacity to regulate land use and development. For example, not every city has a long range plan or zoning ordinance (See Community Partners Toolkits). The Land Use Projections, Land Use Goals, and Community Toolkits included in this document are structured so that each municipality may adopt them individually to serve as the community's Comprehensive Plan. Additionally, if adopted locally, the plans can be used as the basis for preparing Land Use Assumptions for the assessment of Impact Fees by the Cities, providing an important tool for managing growth and funding future infrastructure needs.
- » **Extraterritorial Jurisdiction (ETJ)**
 - Some municipalities have an ETJ, which allows them to exercise some control over land use in areas outside their boundaries.
- » **Annexation** - Municipalities can annex unincorporated areas into their boundaries, which subjects those areas to the municipality's land use regulations. Type C cities do not require contiguous annexation, meaning that cities can annex non-contiguous areas.

LAND USE PROJECTION MAP

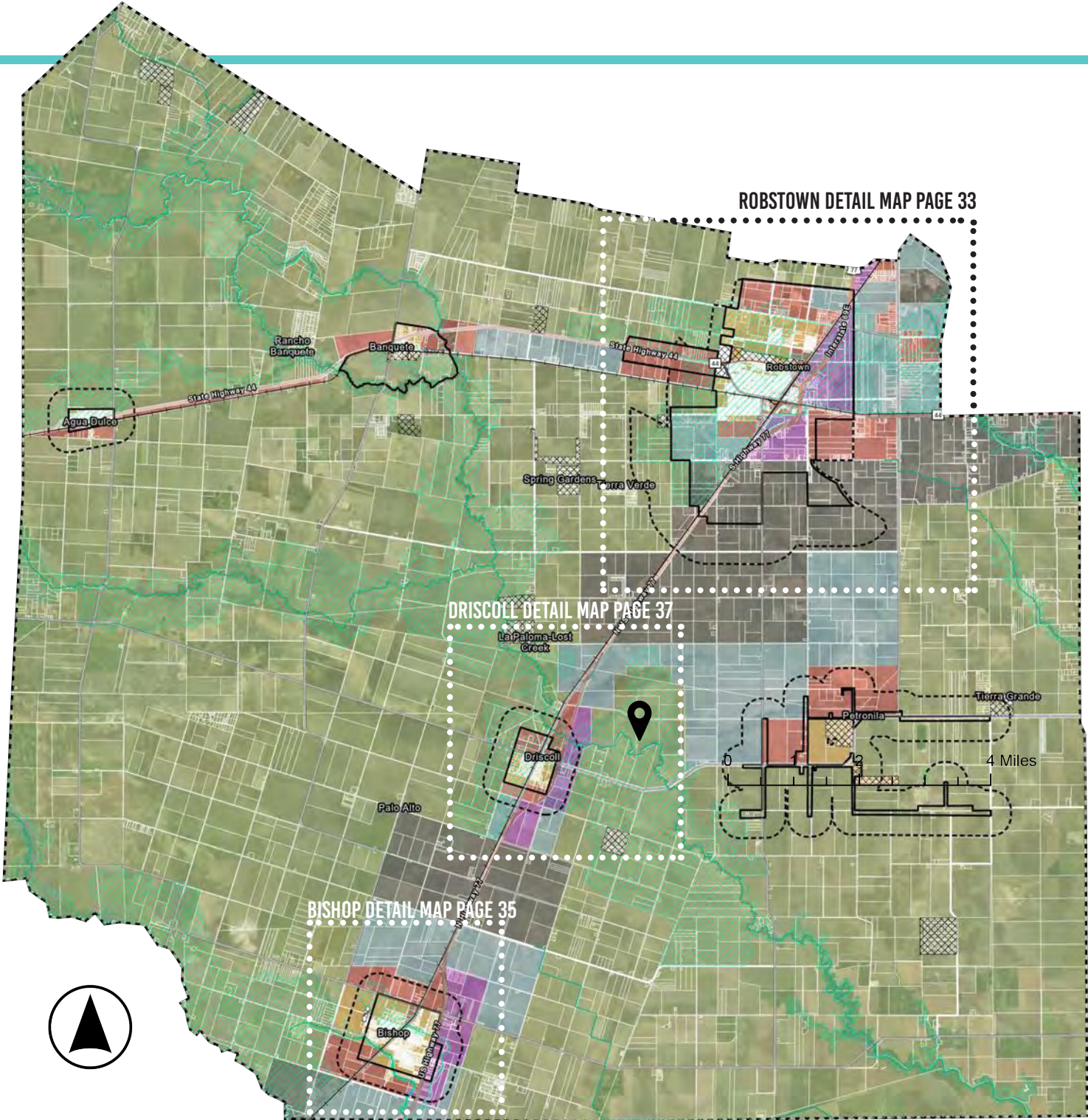


Scan to access an online, interactive version of the map.

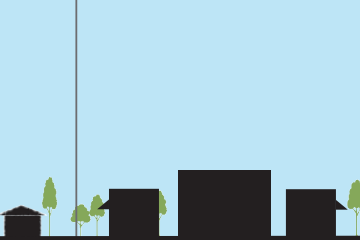
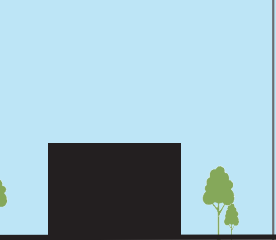
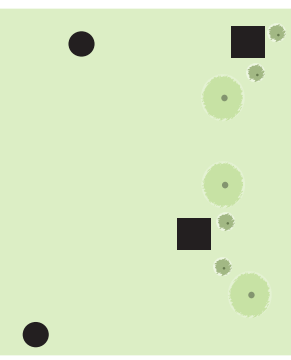
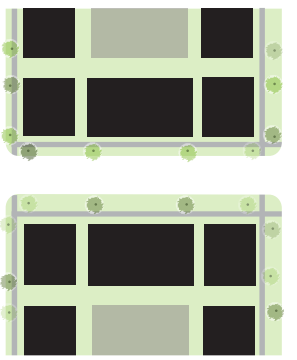
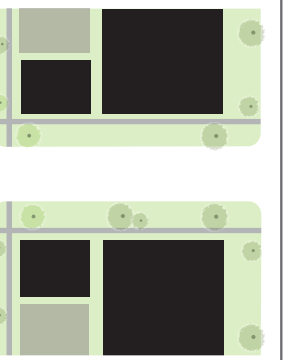
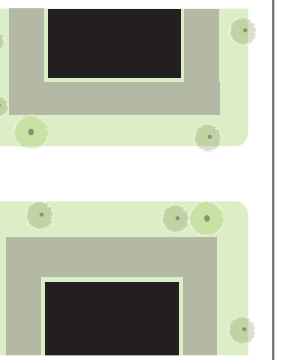
<https://arcgis.com/LeCun0>

MAP 3.1
LAND USE PROJECTIONS

- Proposed WWTS and Wetlands Site
- Study Area
- Study Area Places/Cities
- Study Area City ETJs
- Floodplain
- Colonia
- Agriculture and Energy
- Community Mixed Use
- Transitional Mixed Use
- Business Mixed Use
- Industrial Business
- Industrial



LAND USE PROJECTION CATEGORIES

					
					
					
					
					
1 Agriculture & Energy Production	2 Community Mixed Use	3 Transitional Mixed Use	4 Business Mixed Use	5 Industrial Business	6 Industrial

1 AGRICULTURE & ENERGY PRODUCTION

This is the largest land use type in the study area, accounting for almost 78% of all land. These areas are intended to protect and preserve lands which are presently rural or agricultural in character and use. While suburban and urban growth pressures are not yet present, these areas offer residential opportunities for those desiring a rural lifestyle, with an understanding that many services and amenities may be self-provided. Development of energy resources — including wind, solar, natural gas, oil, and carbon storage — is encouraged, provided it is conducted in a way that minimizes impacts on the environment and neighboring uses. Unique to the study area, this land use will also accommodate the Petronila Wastewater Treatment Plant (WWTP) and Constructed Wetland Facility, with integrated passive recreation facilities (e.g., trails) and an education/interpretive center.

DESCRIPTION

PRIMARY USES

- Limited Single Family Residential (large lot single family, manufactured housing, and limited accessory dwelling units)
- Agricultural Operations (crop agriculture, ranching)
- Commercial Agri-business (co-op facilities, plant nurseries, farmers markets)
- Energy Production (wind farms, solar farms, natural gas extraction, oil drilling, and carbon capture/storage)

TARGET LAND USE MIX

- Agricultural - 75-95%
- Energy Production - 20-30%
- Industrial (related to resource extraction/processing)- 10-25%
- Commercial (supporting ag and energy sectors)- 10-25%
- Civic / Public - 1-5% (support facilities like the wetland park and education center)

Target Non-Residential Density: Average 1,000 - 5,000 square feet per acre (low intensity, spread out facilities like substations, ag buildings, small commercial centers)

- Residential - 5-20%

Target Residential Density: 0.5 dwelling unit / acre (large lot, rural residential)



TARGET BUILDING HEIGHT

- N/A (mostly low-profile structures; equipment structures in energy production areas may be taller)

PLANNING GUIDANCE

- The permitting of new on-site sanitary sewage facilities (OSSFs) is generally discouraged in the study area; however, a significant portion of the Ag& Energy areas are not expected to have reasonable access to wastewater systems in the foreseeable future. In those cases, care should be taken in the permitting and siting of OSSFs.
- Development in the floodplain or riparian areas should be discouraged.
- Residential subdivisions should be limited, but if minor exceptions are made, they should be at least 10 acres. Rural cluster subdivisions or conservation subdivision design is encouraged, especially around floodplains and riparian areas.
- Heavy industrial energy uses should be buffered from non-industrial energy uses and sensitive environmental areas.
- Roads should be designed and upgraded to safely support agricultural, construction, and industrial traffic.

2 COMMUNITY MIXED USE

These “in town” areas are intended to encourage the redevelopment and development of walkable, small and compact neighborhoods with a mix of residential and service establishments to meet the frequent commercial, retail, and personal service needs of residents within a convenient traveling distance.

Areas designated as Community Mixed Use are suited for development based on existing land uses and infrastructure availability. They are intended to be supported by the full range of municipal public services, including centralized sewer and water, and improved streets. The goal is to create vibrant, connected places that offer a range of housing options, daily services, and civic amenities.

DESCRIPTION

PRIMARY USES

- Medium Density Mixed Residential (duplexes, triplexes, low-rise apartments, townhomes, and single-family on small lots and/or with accessory dwelling units)
- Neighborhood Scale Commercial / Retail (coffee shops, pharmacies, small groceries, specialty shops)
- Neighborhood Scale Service / Office (professional offices, clinics, co-working spaces)

TARGET LAND USE MIX

- Commercial / Retail - 15-25% (Density: Avg. 5,000–10,000 sq ft per acre)
- Service / Office - 10-20% (Density: Avg. 5,000–8,000 sq ft per acre)
- Residential - 40-60% (Density: Avg. 6–10 dwelling units per acre (mix of detached and attached housing))
- Civic / Public / Parks - 10-20%

TARGET BUILDING HEIGHT

- 1–3 stories (encouraging human-scaled, walkable form)



PLANNING GUIDANCE

- Infill development and redevelopment should be in keeping with existing development in terms of mass, scale, height, and setbacks.
- Neighborhood-scale commercial uses should be located at the intersection of residential streets and arterials, and within walking distance of neighborhood residential areas, or along arterials.
- Development and redevelopment projects should include traffic calming improvements, sidewalks, street trees, and increased street interconnections to improve walkability and slow traffic within existing neighborhoods
- Commercial/retail spaces are generally ground-floor or freestanding buildings within neighborhoods.
- The permitting of new on-site sanitary sewage facilities (OSSFs) is discouraged.
- Development in the floodplain or riparian areas should be discouraged.

3 TRANSITIONAL MIXED USE

These areas are intended to serve as bridges between uses of varying intensity - facilitating coordinated development that allows for a mix of residential, office, retail, civic, and compatible light industrial uses while ensuring that new development complements and transitions appropriately to existing adjacent neighborhoods and land uses.

Transitional Mixed Use areas serve three primary purposes:

- To provide a gradual transition between higher-intensity commercial and industrial uses - which may involve nuisances such as noise, traffic, light, dust, odor, or vibration - and less intensive uses; and,
- To act as protective buffers for existing residential neighborhoods located near industrial or commercial development, ensuring that new adjacent uses minimize conflicts.
- To provide development guidance along highway corridors where large-scale retail centers or intensive commercial service uses are not anticipated.

New development and redevelopment should be context-sensitive, respecting the scale, character, and operational impacts of surrounding land uses. Any new development should be fully served by public infrastructure. Residential development should be limited to medium- to higher-density housing. Low-density single-family residential is not recommended and, as a land use, is not supported by population projections included in the 2026 Draft Regional Water Plan.

DESCRIPTION

- Commercial / Retail - (grocery stores, restaurants, shopping centers)
- Service / Office - (professional offices, healthcare clinics, co-working spaces)
- Medium to High Density Housing - (apartments, townhomes, senior living)
- Hotels & RV Parks - (targeted to serve travelers, workers, and regional visitors)

PRIMARY USES

- Commercial / Retail - 30-50% (Density: Avg. 8,000–15,000 sq ft per acre)
- Service / Office - 15-30% (Density: Avg. 6,000–12,000 sq ft per acre)
- Residential - 20-35% (Density: Avg. 6–20 dwelling units per acre)
- Civic / Public / Parks - 5-10%

TARGET BUILDING HEIGHT

- 1-4 stories



PLANNING GUIDANCE

- Buffer requirements: Industrial or Business Industrial uses adjacent to residential uses should provide landscape buffers and berms, reduced lighting impacts, and low-profile signage
- Gateway and entryway improvements - landscaping, monument signs, art installations
- Connected parking lots to promote circulation and reduce driveway congestion
- High-quality design standards are critical to reinforce the role of these areas as key gateways to the community.
- Landscaping standards for commercial development, including tree planting and green buffers
- Sign regulations to control the size, height, and illumination of signage
- Parking areas located behind buildings to create more pedestrian-friendly frontages
- Discourage new on-site sanitary sewage facilities (OSSFs) to encourage centralized sewer service
- Discourage development within floodplains and riparian areas to protect natural resources and reduce flood risks
- Hotels and RV parks should be carefully sited with landscaping and screening when adjacent to residential or civic uses.

4 BUSINESS MIXED USE

The construction of Interstate 69E has created new opportunities for economic and commercial development along the corridor while shifting through-traffic away from Business 77. The Business Mixed Use areas are intended to capture this change by promoting a prosperous and efficient development pattern that accommodates a mix of commercial, retail, office, light industrial, and higher-density residential uses. These areas serve as key corridor entryways and are envisioned as regional destinations attracting customers, employees, and visitors. Development should reinforce high-visibility, high-access locations near highways and major arterials and must be fully supported by public services, including sewer, water, and improved roads.

DESCRIPTION

PRIMARY USES

- Large-scale, "big box" retail centers (regional shopping anchors)
- Hotels and RV Parks (serving business, tourism, and regional workforce)
- Service and Office (professional offices, medical offices, flex spaces)
- Higher Education or Technology Facilities (satellite campuses, research centers)
- High-Density Multi-Family Housing (apartments, mixed-use residential over retail)

TARGET LAND USE MIX

- Commercial - 40-60% (Density: Avg. 12,000–20,000 sq ft per acre)
- Light Industrial - 10-20% (Density: Avg. 8,000–15,000 sq ft per acre)
- Residential - 20-30% (Density: Avg. 12–30 dwelling units per acre)
- Civic / Public - 5-10%

TARGET BUILDING HEIGHT

- 1–6 stories (higher heights near key nodes and I-69E interchanges are acceptable)



PLANNING GUIDANCE

- Shared circulation among developments to limit driveways and improve traffic flow
- Design standards applied to commercial and industrial uses to ensure architectural quality and site aesthetics
- Landscaping and signage regulations to maintain a visually cohesive corridor character
- Gateway improvements and branding at major community entry points along I-69E and Business 77
- Discourage new on-site sanitary sewage facilities (OSSFs) to ensure centralized urban utilities
- Discourage development within floodplains and riparian zones to protect environmental quality and reduce flood risks
- Ensure light industrial uses are well-screened and consistent with commercial aesthetics.
- Focus development at nodes of 20 acres or greater to create significant economic hubs.

6 INDUSTRIAL BUSINESS

DESCRIPTION

Industrial Business areas are designated to support light manufacturing, warehousing, distribution, and logistics operations in locations fully served by public infrastructure. These areas are intended for low-impact industrial activities and must be carefully screened and buffered from surrounding non-industrial uses. Development should focus on efficient site design, protecting natural resources, and enhancing economic growth through industrial employment opportunities.

PRIMARY USES

- Warehousing and Distribution Centers
- Light Manufacturing and Processing Facilities
- Limited Commercial Uses to Serve Industrial Workforce (e.g., convenience retail, truck services, small restaurants or cafes for workers)

TARGET LAND USE MIX

- Light Industrial - 70-90 *%
- Commercial / Office / Retail - 5-15*%
- Civic / Public - 5-10 % (supporting infrastructure, fire stations, utility facilities)

TARGET BUILDING HEIGHT

- 1–3 stories (depending on warehouse or industrial facility type)



PLANNING GUIDANCE

- Industrial uses should be screened and buffered from adjoining residential, commercial, or civic uses through landscaping, berms, fencing, or building orientation
- Discourage new on-site sanitary sewage facilities (OSSFs) to encourage connection to centralized wastewater systems
- Discourage development within floodplains and riparian areas to protect sensitive environmental resources and minimize flood risks
- Encourage site design that supports truck circulation, minimizes traffic conflicts, and preserves visual corridors along major roadways
- Limited commercial services (like small convenience retail) help support the industrial workforce.

7 INDUSTRIAL

DESCRIPTION

Industrial areas are intended to accommodate heavy manufacturing, shipping terminals, resource extraction, oil and gas refining and processing, and other industrial operations involving large numbers of workers, heavy truck traffic, significant environmental impacts, and/or high-volume water and sewer service demands. These areas must be served by a full range of public utilities or approved private infrastructure, with direct access to arterial streets, principal highways, or rail corridors. Commercial and retail activities are generally not appropriate within Industrial areas.

Existing examples in the study area include Celanese, the Tesla Lithium Refinery, and proposed hydrogen production plants.

PRIMARY USES

- Storage terminals
- Pipe yards
- Cement manufacture
- Petroleum or petroleum products refining

TARGET LAND USE MIX

- Energy Production - 10-20%
- Industrial - 70-85%
- Commercial - 0-5% (only direct industrial support services)
- Civic / Public - 5-10% (supportive infrastructure, fire/emergency facilities)

TARGET BUILDING HEIGHT

- N/A — heavy industrial structures (e.g., refining towers, silos, large storage tanks) often exceed 50+ feet in height



PLANNING GUIDANCE

- Locate far from residential areas, or use Industrial Business zones as transitional buffers
- Discourage new on-site sanitary sewage facilities (OSSFs) to ensure centralized wastewater service
- Discourage development within floodplains and riparian areas to protect environmental quality and flood resilience
- Ensure direct access to major highways, ports, and rail corridors to minimize impacts on local street networks

CITY OF ROBSTOWN LAND USE GOALS

In addition to the Land Use Projections Map and Categories, the following goals and policies are intended to guide growth and development within Robstown. They are designed to support the Land Use Projections by coordinating land use planning, infrastructure investments, economic development initiatives, and public health efforts across the study area.

1. DEVELOP A CAPITAL IMPROVEMENTS PLAN (CIP)

Goal: Plan and prioritize public infrastructure projects to support community needs, promote orderly growth, and ensure fiscal responsibility.

Policy: Implement a Capital Improvements Plan (CIP) that identifies, schedules, and funds essential infrastructure improvements based on population and economic growth forecasts, and financial feasibility. Based on the CIP, assess Impact Fees to ensure that new development and major redevelopment pays for new or expanded infrastructure.

2. IMPROVE FLOODPLAIN MANAGEMENT AND ESTABLISH A STORMWATER UTILITY

Goal: Protect lives, property, and natural systems through proactive floodplain management and improved stormwater infrastructure.

Policy: Update and enforce development regulations within flood-prone areas to reduce risk. Establish a stormwater utility to provide dedicated funding for drainage infrastructure, participate in FEMA's Community Rating System to improve safety and lower insurance premiums.

3. PROMOTE DIVERSE AND SUSTAINABLE ECONOMIC DEVELOPMENT

Goal: Strengthen Robstown's economic base by attracting new businesses, supporting entrepreneurship, and capitalizing on local assets.

Policy: Identify and zone strategic areas for logistics, service providers, and commercial development, and ensure necessary infrastructure is in place to support economic growth.

4. ENSURE RELIABLE AND RESILIENT WATER AND SEWER SERVICES

Goal: Provide dependable water and wastewater services.

Policy: Upgrade aging water and sewer systems, plan for long-term service needs, and expand infrastructure in coordination with economic development priorities and in compliance with state and federal regulatory standards. Adopt Water and Wastewater Master Plans to plan for future maintenance, operations, and upgrades.

5. STRENGTHEN COMMUNITY RESILIENCY AND HAZARD PREPAREDNESS

Goal: Prepare for and adapt to natural and human-made hazards - hurricanes, floods, wildfires, etc.

Policy: Develop resiliency strategies that integrate hazard mitigation, infrastructure hardening, and land use into planning and investment decisions. Limit infill and redevelopment in the floodplain to minimize damage and increase pervious cover. Promote emergency preparedness education across the community and region.

6. PROMOTE REGIONAL COOPERATION AND STRATEGIC PARTNERSHIPS

Goal: Work collaboratively with regional partners to address shared infrastructure, emergency management, transportation, and economic development goals.

Policy: Forge partnerships with neighboring jurisdictions and state and regional agencies to coordinate on transportation, water management, infrastructure, emergency services, and economic initiatives.

7. BUFFER INCOMPATIBLE LAND USES TO PRESERVE COMMUNITY CHARACTER

Goal: Protect neighborhoods, schools, and other sensitive areas from the negative impacts of incompatible adjacent uses.

Policy: Adopt land use regulations that require incompatible land uses be developed apart from one another. Where separation is not possible, require transitional buffers, landscaping, and site design standards to transition between industrial, commercial, and residential uses.

8. INVEST IN A CONNECTED AND EFFICIENT TRANSPORTATION SYSTEM

Goal: Improve transportation infrastructure to enhance mobility, safety, and regional connectivity for all users.

Policy: Prioritize maintenance of existing roadways, expand pedestrian options, and ensure new developments support a cohesive transportation network.

9. REVITALIZE DOWNTOWN ROBSTOWN AS A VIBRANT COMMUNITY CORE

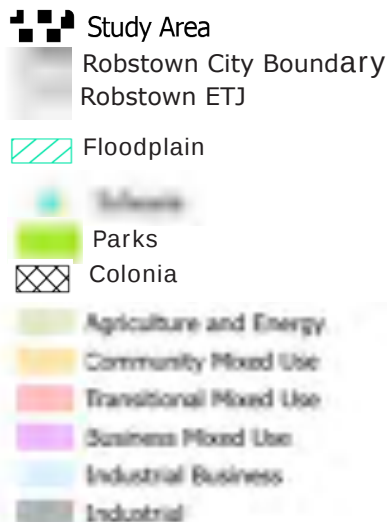
Goal: Re-establish Downtown Robstown as a lively, attractive center for civic, cultural, and commercial activity.

Policy: Invest in streetscape improvements, facade enhancements, public spaces, and marketing strategies to stimulate downtown revitalization and attract new businesses and visitors.

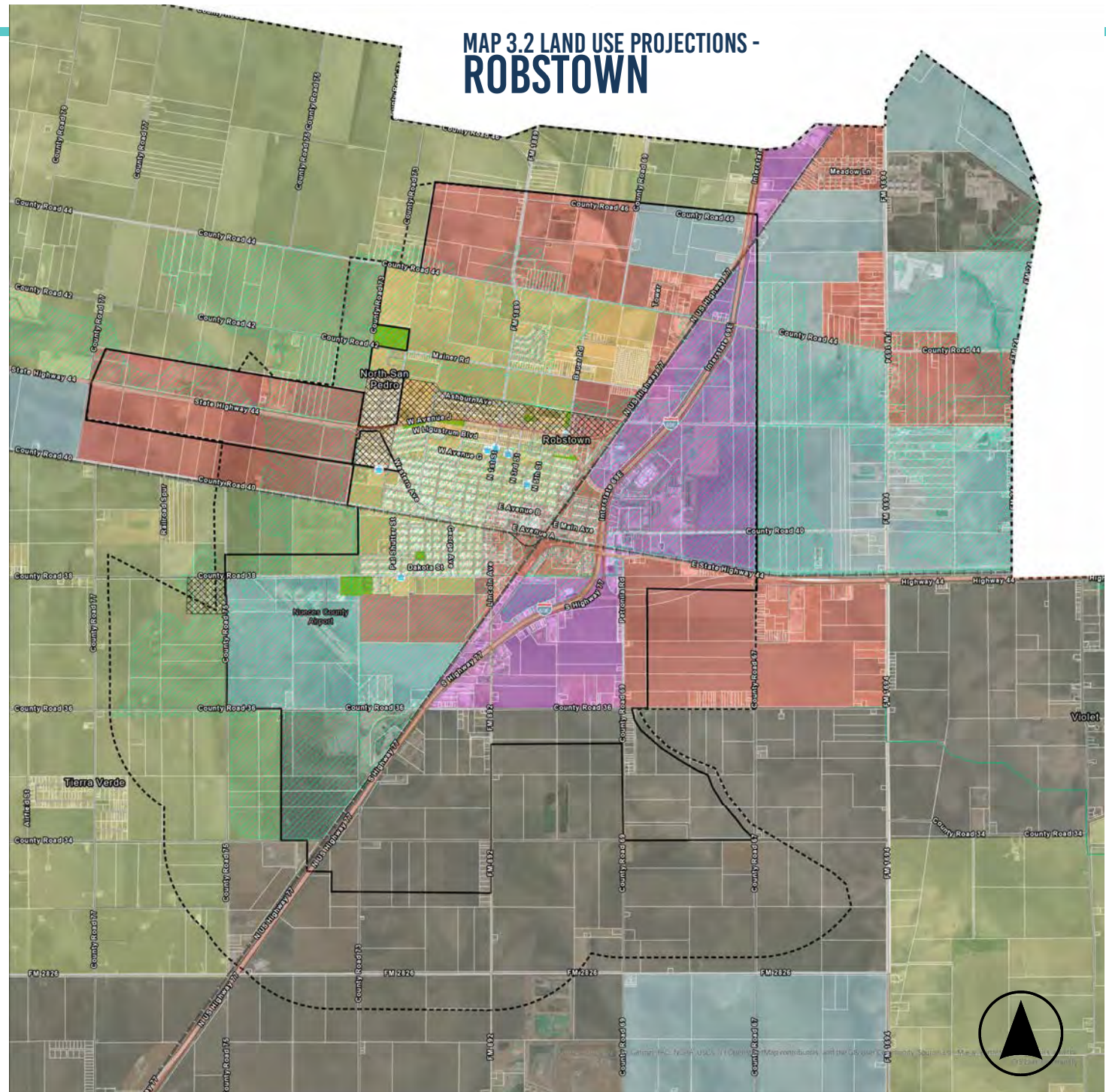
10. DEVELOP GATEWAYS TO STRENGTHEN COMMUNITY BRANDING AND IDENTITY

Goal: Create attractive gateway features that celebrate Robstown's heritage and enhance community pride.

Policy: Design and construct welcoming monument signs and landscaping at major community entrances coordinated with branding efforts, public art, and streetscape improvements.



MAP 3.2 LAND USE PROJECTIONS -
ROBSTOWN



CITY OF BISHOP LAND USE GOALS



In addition to the Land Use Projections Map and Categories, the following goals and policies are intended to guide growth and development within Bishop. They are designed to support the Land Use Projections by coordinating land use planning, infrastructure investments, economic development initiatives, and public health efforts across the study area.

1. LEVERAGE I-69E FOR STRATEGIC ECONOMIC DEVELOPMENT

Goal: Capitalize on Bishop's location along I-69E to attract logistics, manufacturing, and commercial enterprises.

Policy: Designate areas near I-69E for industrial and commercial development, ensuring appropriate zoning and infrastructure to support business growth.

2. PRESERVE AND ENHANCE COMMUNITY CHARACTER AMID GROWTH

Goal: Maintain the unique identity, history, and charm of Bishop through thoughtful land use and design.

Policy: Adopt design guidelines that promote cohesive architecture, attractive streetscapes, and the preservation of historic and cultural resources.

3. REVITALIZE THE BUSINESS 77 CORRIDOR AS A VIBRANT COMMUNITY GATEWAY

Goal: Transform Business 77 into an attractive, economically active corridor that serves as a welcoming entrance to Bishop.

Policy: Develop a corridor enhancement plan focusing on streetscape improvements, facade upgrades, and mixed-use development opportunities. Encourage public-private partnerships to stimulate investment and support local businesses along the corridor.

4. UPGRADE INFRASTRUCTURE TO MEET EMERGING NEEDS

Goal: Ensure that infrastructure systems—water, sewer, roads, drainage, and broadband—meet current needs and support future growth.

Policy: Develop a capital improvement plan, consider establishing CCNs for water and sewer, and consider assessing Impact Fees.

5. ENHANCE TRANSPORTATION AND MOBILITY OPTIONS

Goal: Improve mobility and connectivity for all users, including pedestrians, cyclists, and drivers.

Policy: Develop a multi-modal transportation plan that enhances street safety, walkability, and access to regional transit connections.

6. EXPAND PARKS AND RECREATIONAL OPPORTUNITIES

Goal: Provide accessible, high-quality recreational facilities and green spaces for all residents.

Policy: Expand the park and trail network, especially near residential neighborhoods, and maintain existing facilities to high standards.

7. SUPPORT SAFE, LIVABLE, AND AFFORDABLE NEIGHBORHOODS

Goal: Foster well-designed neighborhoods that are safe, inclusive, and offer a range of housing types and prices.

Policy: Encourage infill development, mixed-income housing, and rehabilitation of existing homes, while enforcing property maintenance standards.

8. PROTECT NATURAL RESOURCES AND PROMOTE RESILIENCE

Goal: Involve residents in local decision-making and maintain open, responsive government.

Policy: Regularly engage citizens through town halls, online platforms, and surveys to inform policies and projects.

9. FOSTER COMMUNITY ENGAGEMENT AND INCLUSIVE PLANNING

Goal: Engage residents in the planning process to ensure developments reflect community needs and values.

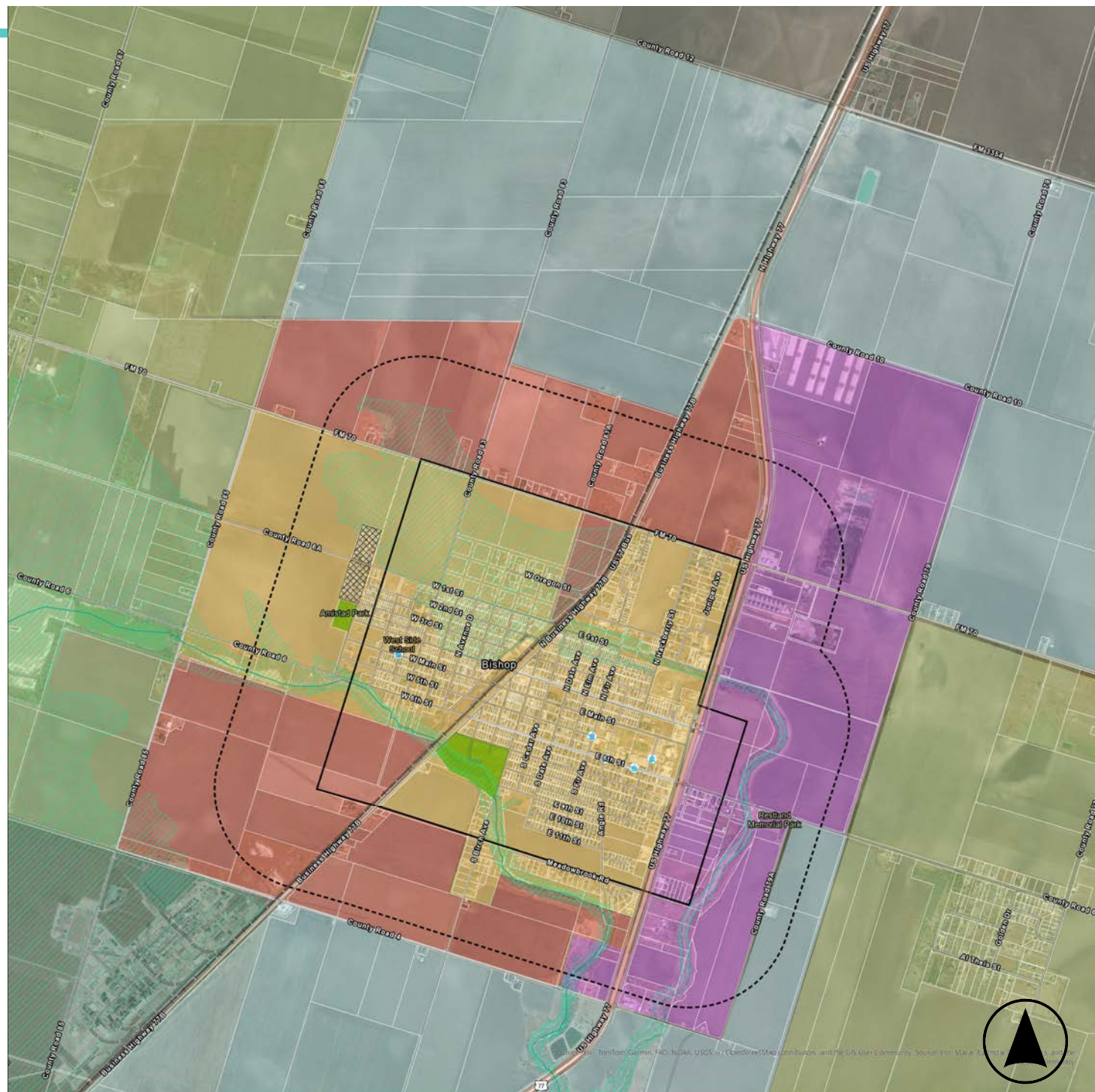
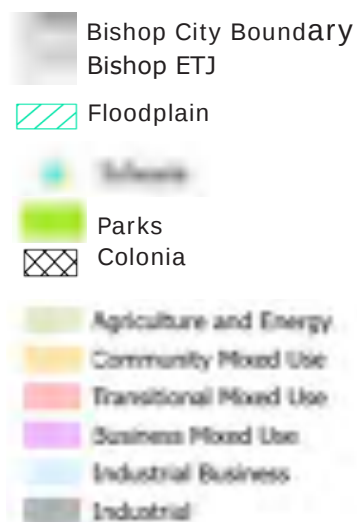
Policy: Host public forums, surveys, and workshops to gather input and keep the community informed about planning initiatives.

10. COLLABORATE REGIONALLY FOR SHARED PROSPERITY

Goal: Build partnerships with neighboring communities, regional agencies, and institutions to address common challenges and opportunities.

Policy: Coordinate on transportation, economic development, emergency services, and infrastructure to improve regional effectiveness.

MAP 3.3 LAND USE PROJECTIONS - BISHOP



CITY OF DRISCOLL LAND USE GOALS

In addition to the Land Use Projections Map and Categories, the following goals and policies are intended to guide growth and development within Driscoll. They are designed to support the Land Use Projections by coordinating land use planning, infrastructure investments, economic development initiatives, and public health efforts across the study area.

1. LEVERAGE I-69E FOR STRATEGIC ECONOMIC DEVELOPMENT

Goal: Capitalize on Driscoll's location along I-69E to attract logistics, manufacturing, and commercial enterprises.

Policy: Designate areas near I-69E for industrial and commercial development, ensuring appropriate zoning and infrastructure to support business growth.

2. PRESERVE AND ENHANCE COMMUNITY CHARACTER AMID GROWTH

Goal: Maintain the unique identity, history, and charm of Driscoll through thoughtful land use and design.

Policy: Adopt design guidelines that promote cohesive architecture, attractive streetscapes, and the preservation of historic and cultural resources.

3. REVITALIZE THE BUSINESS 77 CORRIDOR AS A VIBRANT COMMUNITY GATEWAY

Goal: Transform Business 77 into an attractive, economically active corridor that serves as a welcoming entrance to Driscoll.

Policy: Develop a corridor enhancement plan focusing on streetscape improvements, facade upgrades, and mixed-use development opportunities. Encourage public-private partnerships to stimulate investment and support local businesses along the corridor.

4. UPGRADE INFRASTRUCTURE TO MEET EMERGING NEEDS

Goal: Ensure that infrastructure systems—water, sewer, roads, drainage, and broadband—meet current needs and support future growth.

Policy: Develop a capital improvement plan, consider establishing CCNs for water and sewer, and consider assessing Impact Fees.

5. ENHANCE TRANSPORTATION AND MOBILITY OPTIONS

Goal: Improve mobility and connectivity for all users, including pedestrians, cyclists, and drivers.

Policy: Develop a multi-modal transportation plan that enhances street safety, walkability, and access to regional transit connections.

6. EXPAND PARKS AND RECREATIONAL OPPORTUNITIES

Goal: Provide accessible, high-quality recreational facilities and green spaces for all residents.

Policy: Expand the park and trail network, especially near residential neighborhoods, and maintain existing facilities to high standards.

7. SUPPORT SAFE, LIVABLE, AND AFFORDABLE NEIGHBORHOODS

Goal: Foster well-designed neighborhoods that are safe, inclusive, and offer a range of housing types and prices.

Policy: Encourage infill development, mixed-income housing, and rehabilitation of existing homes, while enforcing property maintenance standards.

8. PROTECT NATURAL RESOURCES AND PROMOTE RESILIENCE

Goal: Involve residents in local decision-making and maintain open, responsive government.

Policy: Regularly engage citizens through town halls, online platforms, and surveys to inform policies and projects.

9. FOSTER COMMUNITY ENGAGEMENT AND INCLUSIVE PLANNING

Goal: Engage residents in the planning process to ensure developments reflect community needs and values.

Policy: Host public forums, surveys, and workshops to gather input and keep the community informed about planning initiatives.

10. COLLABORATE REGIONALLY FOR SHARED PROSPERITY

Goal: Build partnerships with neighboring communities, regional agencies, and institutions to address common challenges and opportunities.

Policy: Coordinate on transportation, economic development, emergency services, and infrastructure to improve regional effectiveness.

Proposed WWTs and Wetlands Site

Driscoll City Boundary

Driscoll ETJ

Floodplain

Water

Parks

Colonia

Agriculture and Energy

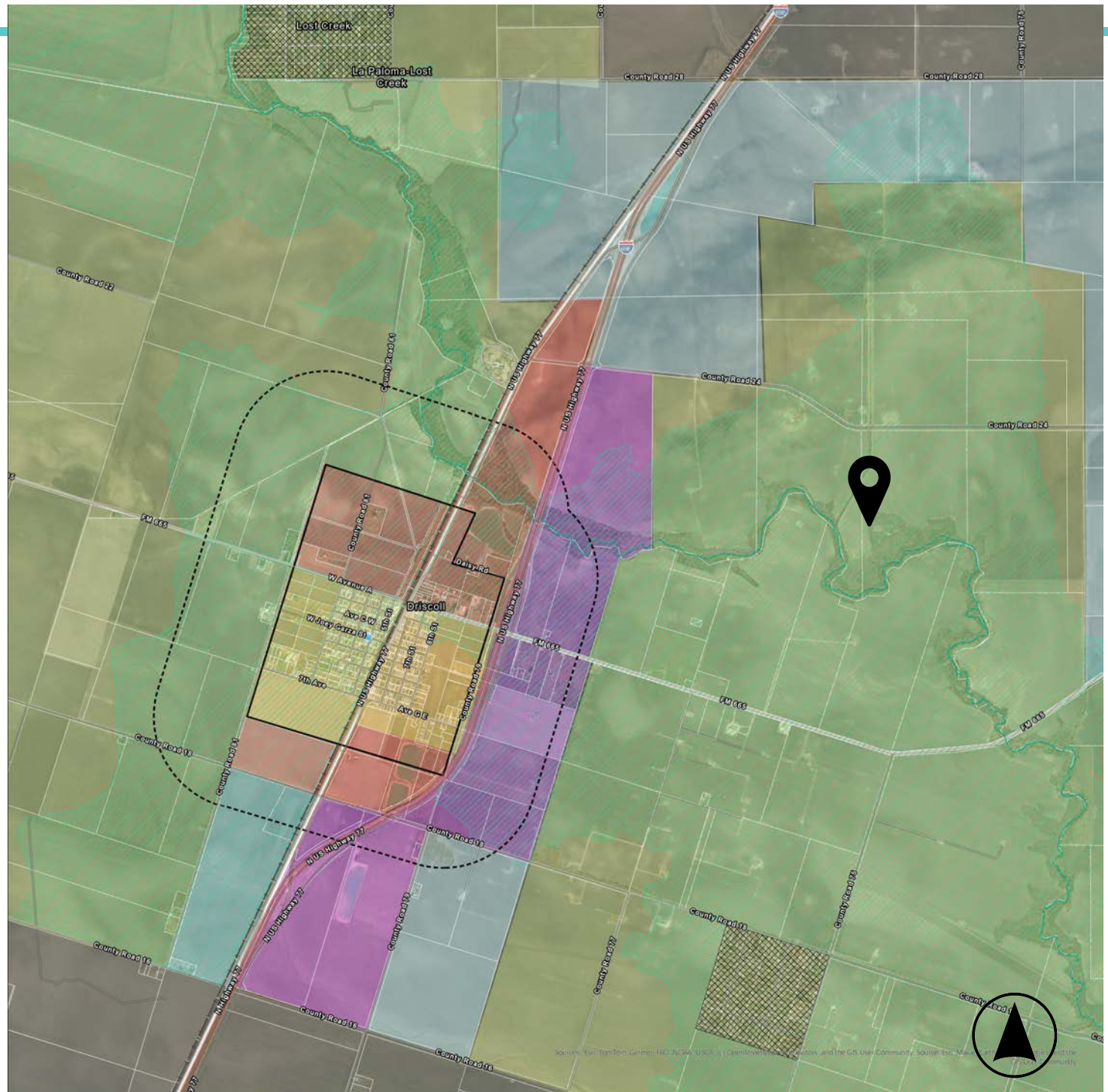
Community Mixed Use

Transitional Mixed Use

Business Mixed Use

Industrial Business

Industrial





As communities in northwest Nueces County face mounting pressures from industrial growth, infrastructure needs, and regional change, local leadership must be equipped with tools that support smart, sustainable decision-making. The following toolkits are designed to help localities plan proactively, maintain quality of life, and build regional resilience.

PLANNING TOOLS FOR REGIONAL SUCCESS

- » **GROWTH & DEVELOPMENT TOOLKIT**
Strategies to guide land use, zoning, and community character while accommodating future population and economic growth.
- » **INFRASTRUCTURE & COMMUNITY SERVICES TOOLKIT**
Tools to strengthen essential infrastructure systems, expand service delivery, and ensure environmental stewardship.
- » **ECONOMIC DEVELOPMENT & COMMUNITY VITALITY TOOLKIT**
Initiatives to promote economic development, workforce opportunities, and vibrant, thriving communities.

GROWTH & DEVELOPMENT TOOLKIT

The Growth and Development Toolkit provides strategies for guiding land use and community design to accommodate new development while preserving the character and quality of life in northwest Nueces County.

TOOL	DESCRIPTION
COMPREHENSIVE PLAN	The Comprehensive Plan is a city's official guide for making decisions about growth and development. The Plan is a summary of the goals, policies, and projects that will enable the city to achieve its vision for the future. The Texas Local Government Code establishes the legal basis for the comprehensive plan. The comprehensive plan is described as a plan for the orderly growth and development of the city and its environs. The plan should "facilitate the movement of people and goods, and the health, safety, and general welfare for the citizens of the city." Land use assumptions adopted in a manner that complies with Subchapter C, Chapter 395 (Financing Capital Improvements Required by New Development in Municipalities, Counties, and Certain Other Local Governments), may be incorporated in a comprehensive plan. Training for rural communities is available Texas A&M AgriLife Citizen Planner Program.
LAND DEVELOPMENT CODE & ZONING MAP	The Land Development Code (LDC) is the adopted law of the City that regulates land use, growth, and development. It divides the City into different zoning districts that are applied in different geographic areas of the City. The geographic area where each zoning district applies is identified on the City's Official Zoning Map. Zoning is governed by Ch. 211 of the Texas Local Government Code. The LDC also includes development standards (parking, height, landscaping, signage, etc.), design and operating standards, as well as information on agencies, boards, and administration.
DESIGN GUIDELINES	Design Guidelines encourage or require consistent, high-quality site design (e.g., signage, landscaping, setbacks, buffers, walkability). Design Guidelines may be incorporated into the Land Development Code or adopted as stand-alone ordinances.
STREET DESIGN STANDARDS	Street Design Standards provide policy and technical guidance for the design of new streets, to retrofit and to modify existing streets with new development, and when new subdivisions are built. Along with land use planning, street design standards play a large role in determining urban form. Street design standards help ensure the city street network is for vehicles and pedestrians.
MANDATORY ANNEXATION ORDINANCE	Requires any development seeking municipal services, i.e., water, wastewater, etc., to annex into the corporate limits of the city in order to receive services.

GROWTH & DEVELOPMENT TOOLKIT, CONTINUED

TOOL	DESCRIPTION
MANDATORY UTILITY CONNECT ORDINANCE	Requires connection to water or wastewater when within proximity to a main line. Connection requirements vary from as little as 500' to 1,500'.
BUILDING CODES	Building codes provide rules and standards for the design, construction, alteration, materials, maintenance, and performance of new and existing structures and industrialized housing. They are the minimum design and construction requirements to ensure safe and resilient structures. Texas is a home rule state. Building code adoption takes place at the local level. However, Texas' municipal building, residential, fire, plumbing, mechanical, fuel gas and swimming pool and spa codes are promulgated through legislation and found in state statute. A listing of these codes is referenced at Texas State Law Library at https://www.sll.texas.gov/law-legislation/texas/building-codes/. Municipalities can make local amendments to these respective codes as well as adopt later editions of them at will. More information about Texas building codes is available here.

INFRASTRUCTURE & COMMUNITY SERVICES TOOLKIT

The Infrastructure and Community Services Toolkit offers tools to strengthen essential infrastructure systems, improve service delivery, and ensure long-term environmental sustainability in support of both existing and future residents.

TOOL	DESCRIPTION
CAPITAL IMPROVEMENTS PLAN (CIP)	A Capital Improvements Plan (CIP) is a multi-year planning and budgeting tool that outlines a service provider's planned investments in major infrastructure and facilities. It helps identify, prioritize, and fund long-term capital projects such as water and sewer systems, roads, and other critical assets. CIPs typically span 5-10 budget years.
IMPACT FEES	Impact fees are one-time charges that cities or other service providers can impose on new development to help pay for the public infrastructure needed to serve that new development. Impact Fees ensure that 'growth pays for growth' rather than existing taxpayers bearing the cost of new infrastructure needed because of new homes, businesses, or industry. They are authorized by Chapter 395 of the Texas Local Government Code and are most commonly used to fund major capital improvements like: water supply and distribution systems; wastewater collection and treatment systems; roadway improvements; and, in some cases, stormwater management facilities. Service providers must prepare a detailed Land Use Assumptions (LUA) report and a Capital Improvements Plan (CIP) to determine if impact fees are warranted. Ch. A 395 of the Texas Local Government Code.
UTILITY RATE STUDY	A Utility Rate Study is an analysis conducted by a service provider to evaluate whether the rates charged to customers for water and wastewater services are sufficient, fair, and appropriate. The study typically looks at the utility's current and projected expenses, capital improvement needs, debt obligations, customer demand trends, and revenue streams and recommends adjustments to rates if needed. Utility rates should stay in line with expenses. Service providers should consider annual increases in line with federal cost-of-living rates to ensure that expenses are covered and the system has adequate capital reserves.
WATER / SEWER MASTER PLAN	A Water and Sewer Master Plan (also sometimes called a Water and Wastewater Master Plan) is a long-range strategic document that outlines how a community's water supply, distribution, wastewater collection, and treatment systems will be managed, maintained, expanded, and financed over a defined period—typically 10 years with supporting projections for 20 to 30 years. A key component of the Water and Sewer Master Plan is consideration for regulatory and technology upgrades. The Water and Sewer Master Plan should work in tandem with the service provider's CIP. Both planning documents should be evaluated annually as part of the budget process.
FLOOD DAMAGE PREVENTION ORDINANCE	A FDPO is a local law adopted by cities or counties to regulate development in flood prone areas in order to reduce the risk of flood-related damage to people, property, and infrastructure. These ordinances are a requirement for communities that participate in the National Flood Insurance Program (NFIP). More Information through FEMA.
STORMWATER UTILITY FEE	A stormwater utility fee provides a dedicated revenue stream to address stormwater infrastructure projects and activities that mitigate stormwater impacts. For example, projects may include drainage relief systems, channel improvements, detention facilities and green infrastructure elements such as pervious pavements, wetlands, bioswales and rainwater harvesting. A stormwater utility fee is an impartial, reliable method for stormwater management independent of property taxes. Therefore, drainage improvements aren't competing with other governmental needs in the budgeting process for the limited funding resources available to cities. Stormwater utility fees are most often based on the amount of impervious surface area on a lot (such as a roof or parking lot), so the fee is representative of the impact the property has on the stormwater system.

INFRASTRUCTURE & COMMUNITY SERVICES TOOLKIT, CONTINUED

TOOL	DESCRIPTION
IN CITY / OUTSIDE CITY UTILITY RATE SCHEDULE	A utility rate schedule that differentiates between in-city and extraterritorial customers charges different rates for water and/or sewer services depending on whether the customer is located inside the city limits or outside, typically in the extraterritorial jurisdiction (ETJ). • In-city customers typically pay a lower rate because they contribute to the city’s general tax base, which helps fund the maintenance and expansion of public infrastructure. • Extraterritorial Customers usually pay a higher rate to account for the fact that they do not pay city taxes but still use city-provided utility services. The higher rate helps recover the full cost of extending and maintaining services outside the city and compensates for the lack of tax revenue. Rate structures often include: • A base (fixed) monthly charge and a usage-based charge (per 1,000 gallons of water or wastewater). • Higher minimum bills or per-gallon rates for extraterritorial customers, sometimes 1.25 to 1.5 times the in-city rates (or more depending on the policy). Water rates should be structured so that development outside of the city limits pays more than rate payers inside the city limits. This also encourages annexation inside the City.
CONSERVATION RATE SCHEDULE	A conservation rate schedule (also called an inclining block rate or tiered rate) is a water pricing structure designed to encourage customers to use water more efficiently by charging higher rates as water usage increases. Under this system: • Lower usage levels (for basic needs like drinking, cooking, and sanitation) are billed at a lower rate. • Higher usage levels (often associated with discretionary uses like landscape irrigation or swimming pools) are billed at progressively higher rates. Communities use conservation rates to promote water conservation, align pricing with the cost of providing additional water supply, and to encourage better water management practices. For more information: Water Conservation Plan Guidelines US EPA
MARKET RATE TAP FEES	A Market Rate Tap Fee is a one-time charge that a utility provider imposes on new customers who are connecting to the water or sewer system. The “market rate” means that the fee is set not only to recover the actual costs of materials, labor, and installation, but also accounts for administrative overhead, future system impacts, and reflects the local market value of accessing utility service - especially in areas where access adds significant value. By pricing access to utilities at market value, the tap fee ensures that new development pays its fair share, reducing the financial burden on existing rate payers.
CERTIFICATES OF CONVENIENCE AND NECESSITY (CCN)	A Certificate of Convenience and Necessity (CCN) is a legal authorization issued by the State of Texas (through the Public Utility Commission, or PUC) that gives a utility the exclusive right and obligation to provide water or sewer service to customers within a specific geographic area. • The CCN defines the service territory where a utility is responsible for serving existing and new customers. • It protects customers by ensuring that a qualified utility must provide reliable service in the designated area. • It also protects utilities by preventing overlapping competition from other providers within the CCN boundaries.

ECONOMIC DEVELOPMENT & COMMUNITY VITALITY TOOLKIT

The Economic and Community Vitality Toolkit presents strategies to promote private investment, expand employment opportunities, and build vibrant, resilient communities where people want to live, work, and stay.

TOOL	DESCRIPTION
ECONOMIC DEVELOPMENT CORPORATION (4B)	Economic Development Corporations (EDCs) are nonprofit entities created to finance new and expanded business enterprises. EDCs are funded by sales tax to support business retention and expansion, attract new investment, develop infrastructure, foster workforce development, and promote economic diversification. There are two types of EDCs - Type A focused solely on industrial development and Type B focused on industrial and community development. See the Texas Comptroller for more information.
ECONOMIC DEVELOPMENT STRATEGY	An Economic Development Strategy is a plan that outlines how a community will attract, retain, and grow businesses, creat jobs, and improve its overall economic health and resilience. It sets priorities, goals, and action steps to guide the EDC, local government, and partners in making decisions that promote sustainable economic growth. Economic development strategies are not a one size fits all policy. They should be tailored to the unique needs and conditions of each community and region they serve. The Texas Comptroller has information about economic development programs and assistance.
ECONOMIC DEVELOPMENT INCENTIVE POLICY	An Economic Development Incentive Policy is a formal set of guidelines adopted by a local government or economic development organization to govern how and when financial or regulatory incentives—like tax abatements, grants, fee waivers, or infrastructure assistance—may be offered to businesses that choose to invest, expand, or locate within the community. Resources are available here.
HOTEL OCCUPANCY TAX (HOT)	A HOT is a state and/or local tax imposed on people who rent hotel rooms, short-term rentals (like Airbnb), and similar accommodations for stays of less than 30 days. RV parks and spaces do not remit HOT. HOT revenues must primarily be used to promote tourism and the hotel industry. The State of Texas levies a 6% tax and cities and counties can impose up to an additional 7% See the Texas Comptroller for more information.

TOOL NEEDS CHECKLIST

TOOL	LOCALITY			
	ROBSTOWN	BISHOP	DRISCOLL	NUECES RIVER AUTHORITY SERVICE AREA
COMPREHENSIVE PLAN	U	N	N	N/A
LAND DEVELOPMENT CODE / ZONING MAP	U	U	N	N/A
DESIGN GUIDELINES	N	N	N	N/A
STREET DESIGN STANDARDS AND MAP		N	N	N/A
IMPACT FEES	N	N	N	TBD
MANDATORY ANNEX ORDINANCE	N	N	N	N/A
BUILDING CODES	H			N/A
CAPITAL IMPROVEMENTS PLAN (CIP)	U	N	N	TBD
FLOOD DAMAGE PREVENTION ORDINANCE	H	H	H	N/A
UTILITY RATE STUDY	N	N	N	TBD

H - HAS TOOL **U** - HAS TOOL, UPDATE REQUIRED **N** - NEEDS TOOL

TOOL NEEDS CHECKLIST

TOOL	LOCALITY			
	ROBSTOWN	BISHOP	DRISCOLL	NUECES RIVER AUTHORITY SERVICE AREA
WATER AND SEWER MASTER PLAN	N	N	N	TBD
STORMWATER UTILITY FEE	N	N	N	TBD
CONSERVATION RATE SCHEDULE	U	N	N	N/A
IN CITY / OUTSIDE CITY UTILITY RATE SCHEDULE	U	N	N	N/A
MARKET RATE TAP FEES	U	U	U	TBD
WATER - CERTIFICATE OF CONVENIENCE AND NECESSITY (CCN)	H (VIA WCID #3)	H	N	N/A
SEWER - CERTIFICATE OF CONVENIENCE AND NECESSITY (CCN)	H	H	N	TBD
ECONOMIC DEVELOPMENT INCENTIVE POLICY		N	N	N/A
HOTEL OCCUPANCY TAX (HOT)		N	N	N/A

H - HAS TOOL **U** - HAS TOOL, UPDATE REQUIRED **N** - NEEDS TOOL



Western Nueces County is a rapidly evolving area that blends rural landscapes with growing development pressure from nearby retail, industry and support businesses. In addition some of the area creeks, rivers and bays are considered at risk for worsening environmental conditions that threaten wildlife and aquatic species alike. As the region experiences population growth and land use changes, it becomes essential to adopt a strategic service delivery strategy centered around utilities, sustainable development, and smart growth. This strategy should prioritize environmental stewardship to ensure that all communities benefit from progress.

Making water and wastewater investments as a priority in the region will ensure sustainable future growth. However, these investments are increasingly more costly as labor and materials continue to increase. As such, the region needs to come together to emphasize modern utility development. The service delivery strategy, shepherded by the Petronila WWTP Advisory Committee could be the catalyst for current and future needs in the area.

In addition, use of the Community Toolkits by the Cities of Robstown, Driscoll and Bishop as well as the colonias in the study area will help ensure that growth is targeted in their jurisdictional boundaries ensuring service delivery in an efficient and effective manner. In turn, new industry, retail, and residential uses to the region will not only be near the Petronila wastewater collection system, but also be provided with more efficient services from the Cities such as Police and Fire Protection.

In summary, a service delivery strategy overseen by the Petronila WWTP Advisory Committee for utilities, development, and planning in Petronila WWTP region will promote smart growth, invest in critical infrastructure, and prioritize community input. By doing so, the region can preserve its rural identity while building a future-ready community that meets the evolving needs of its population. Thoughtful planning today will lay the groundwork for sustainable and equitable growth for generations to come.

IMPLEMENTING THE PLAN

» **ADOPT THE SERVICE DELIVERY STRATEGY**

The Petronila Advisory Committee and municipalities in the Study Area can adopt the plan and implement the recommendations as part of their land use and infrastructure decision making processes.

» **DEVELOP LAND USE ASSUMPTIONS & DEVELOP A CAPITAL IMPROVEMENT PLAN (CIP)**

Develop a Land Use Assumptions and a Capital Improvement Plan (CIP) prioritizing upgrades to water, sewer, and roads that supports both infill and new development. The LUAs and CIP are the first steps in assessing Impact Fees.

» **CONTINUE REGULAR MEETINGS OF THE PETRONILA ADVISORY COMMITTEE**

Quarterly meetings to update stakeholders and guide wholesale customers through permitting and construction.

» **EDUCATION & OUTREACH**

Continue education and outreach regarding the wetlands and water reuse.

APPENDICES & RESOURCES

» COMMUNITY PROFILES (ATTACHED)

» DRAFT 2026 COASTAL BEND REGIONAL WATER PLAN (REGION N)

<https://www.twdb.texas.gov/waterplanning/rwp/regions/n/index.asp>

» TEXAS DEMOGRAPHIC CENTER

<https://demographics.texas.gov/>

» TEXAS COASTAL RESILIENCY MASTER PLAN

<https://www.glo.texas.gov/coastal/protecting-coast/coastal-planning>

» CITY OF ROBSTOWN 2015 MASTER PLAN, ZONING CODE, & MAP

<https://robstown-web-gis-cei.hub.arcgis.com/>

» CITY OF BISHOP ZONING CODE & MAP

https://www.cityofbishoptx.com/form_document.php?City-of-Bishop-Zoning-Map-307



APRIL 2025
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Partners for Place



PARTNERSHIP FOR PETRONILA **LAND USE ASSUMPTIONS**

MAY 5, 2025



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PREPARED FOR
The Nueces River Authority

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INTRODUCTION



In 2023, the Nueces River Authority received funding from the Texas General Land Office to make emergency repairs to the wastewater treatment plants in the Cities of Bishop and Driscoll. The plans have outlived their functional life and were failing, causing serious contamination to Petronila Creek and Baffin Bay. The condition at the plants caused the TCEQ to issue Consent Orders to both cities. Funding for the repairs was made available through a GLO-Gulf of Mexico Energy Security Act (GOMESA) grant and also included beginning the stakeholder engagement and planning process for a regional wastewater system. In addition to the wastewater treatment plant and collection system, the Authority is planning a constructed wetland to provide filtration, education, and economic development. These three components - plant, collection, and wetland - comprise the Petronila Regional Wastewater Treatment System.

Recent industrial development and interest in industrial development in the area warrant planning for expanded wastewater system capacity to ensure that water quality and water supply are protected. (Some industrial customers may use recycled wastewater effluent (reuse) thus protecting water supply.) As part of planning for future growth and development and in keeping with their commitment to be good partners with area communities, the Authority is exploring the viability of assessing Impact Fees as a means of ensuring that wastewater service is able to keep up with development pressure. The Petronila Regional WWTS Advisory Committee was formed to provide guidance and input into the planning and operation of the system and, to that end, developed a Service Delivery Strategy (SDS). The SDS includes a Development Suitability Analysis and Future Land Use Projections to aid in planning for the future.

This report documents the practical approach that was taken to determine Land Use Assumptions (LUA). This report is prepared pursuant to Chapter 395 of the Texas Local Government Code, which governs the adoption of impact fees and requires local governments to prepare and adopt reasonable land use assumptions as a basis for determining infrastructure needs and associated fees. The LUA establishes the foundational projections of growth in land use, population, and development patterns for the Petronila Service Area over a 10-year planning horizon.



THE NUECES RIVER AUTHORITY

The Nueces River Authority was formed by the Texas Legislature in 1935 and, in its almost 90 years of protecting the Nueces River watershed, has a demonstrated history of working with and for local communities to provide wastewater management and operations services. The Authority operates 12 water plants and 13 wastewater plants with a proven track record of owning and operating regional facilities, such as the Leakey Regional WWTP.

LAND USE ASSUMPTIONS METHODOLOGY

PURPOSE OF THE STUDY

In order to accurately determine the costs associated with providing infrastructure services to new and existing development, a study must be conducted to determine the type, amount, and location of existing development and expected growth. This study is called the Land Use Assumptions (LUA) report, and is the first step in the impact fee assessment process. Impact fees are levied against new development to pay for the off-site construction or expansion of infrastructure that is necessitated by the additional impact caused by the new development.

As defined by Chapter 395 of the Texas Local Government Code, impact fees are “a charge or assessment imposed by a political subdivision against new development in order to generate revenue for funding or recouping the costs of capital improvements or facility expansions necessitated by and attributable to the new development”, and that “a political subdivision imposing an impact fee shall update the land use assumptions and capital improvements plan at least every five years.

Chapter 395 identifies the following items as impact fee eligible costs:

- Construction contract price
- Surveying and engineering fees
- Land acquisition costs
- Fees paid to the consultant preparing or updating the capital improvement plan (CIP)
- Projected interest charges and other finance costs for projects identified in the CIP.

Chapter 395 also identifies items that impact fees cannot be used to pay for, such as:

- Construction, acquisition, or expansion of public facilities or assets other than those identified in the capital improvement plan.
- Repair, operation, or maintenance of existing or new capital improvements.
- Upgrading, updating, expanding, or replacing existing capital improvements to serve existing development in order to meet stricter safety, efficiency, environmental, or regulatory standards.
- Upgrading, updating, expanding, or replacing existing capital improvements to provide better service to existing development.
- Administrative and operating costs of the political subdivision.
- Principal payments and interest or other finance charges on bonds or other indebtedness, except as allowed above.



TEXAS LOCAL GOVERNMENT CODE

<https://statutes.capitol.texas.gov/docs/lg/html/lg.395.htm>



LAND USE ASSUMPTIONS DATA SOURCES

1. Existing land uses and existing square footages (source: FEMA, USGS, Nueces CAD)
2. Existing land use maps and zoning regulations (source: City of Robstown and City of Bishop)
3. Area population projections (source: Draft 2026 Coastal Bend Regional Water Plan, the Texas Water Development Board, and the Texas Demographers Office).
4. Regional industrial development activity (source: Corpus Christi Regional Economic Development Corporation and the Nueces River Authority)

STUDY METHODOLOGY

Population and land use are important elements in the analysis of wastewater systems. Through collaboration between MDA, the Petronila Advisory Committee, and the Nueces River Authority, MDA was able to estimate residential and nonresidential growth using land use projections from the Partnership for Petronila Service Delivery Strategy. The growth projections do not include redevelopment in any areas that are already served by a central wastewater system.

PRIMARY STEPS

- Define service area boundaries in accordance with state law
- Determine baseline conditions for 2025 population and square footage.
- Select anticipated average annual growth rates
- Classify undeveloped parcels
- Develop growth projections for the service area

SERVICE AREA

As defined by Chapter 395 of the Texas Local Government Code, a “service area” may include all or part of the land within the political subdivision or its ETJ to be served by the capital improvements or facilities expansions specified in the Capital Improvements Plan, except roadway facilities and storm water, drainage, and flood control facilities.

The Service Area is in northwest Nueces County and is shaped by what is expected to be the long-term service area of the Petronila Regional Wastewater Treatment System. The area includes the cities of Robstown, Bishop, Driscoll, Agua Dulce, Petronila, and adjacent unincorporated areas, particularly those impacted by industrial growth and changing land use patterns. Also present in the study area are several water districts and colonias.

Figures 1.1 and 1.2 show the service area for the Petronila Regional Wastewater Treatment System. Wastewater CCNs (City of Bishop and City of Robstown) and the City of Driscoll are expected to be wholesale customers.

It is worth noting that, but for a few large industrial projects, most utility demand remains along the Interstate 69 / Highway 77 corridor and in Bishop, Driscoll, and Robstown - communities that are by and large already served by centralized wastewater systems.

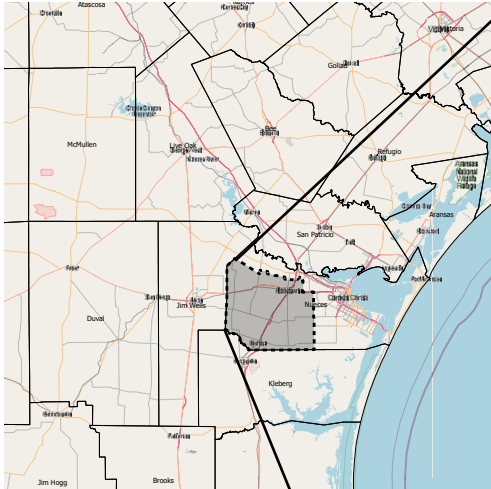


FIGURE 1.1
WASTEWATER IMPACT FEE
SERVICE AREA

- Service Area
- Colonia
- City/Place
- ETJs
- Floodzone
- Airport
- Railroad

0 1 2 4 Miles

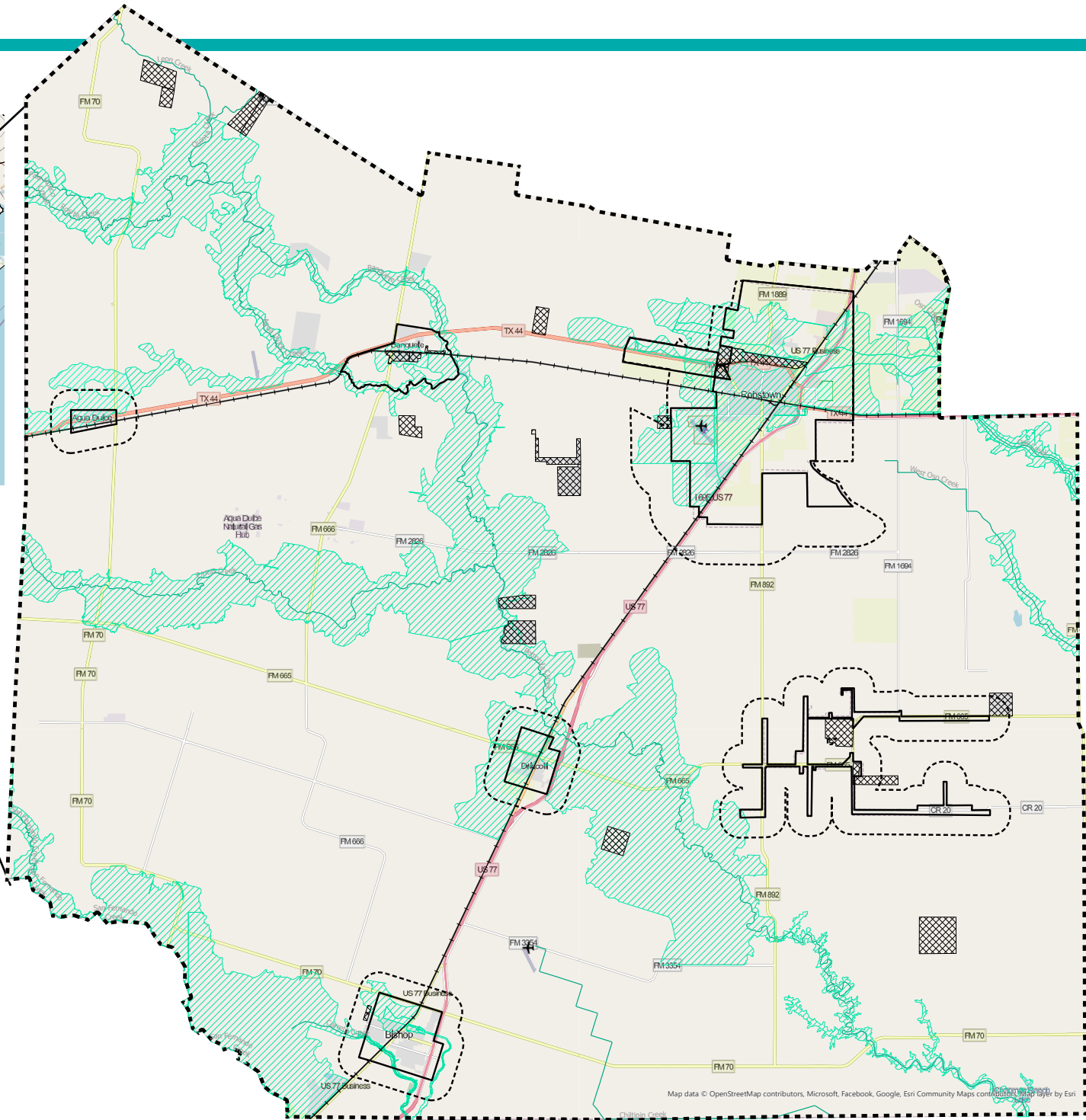
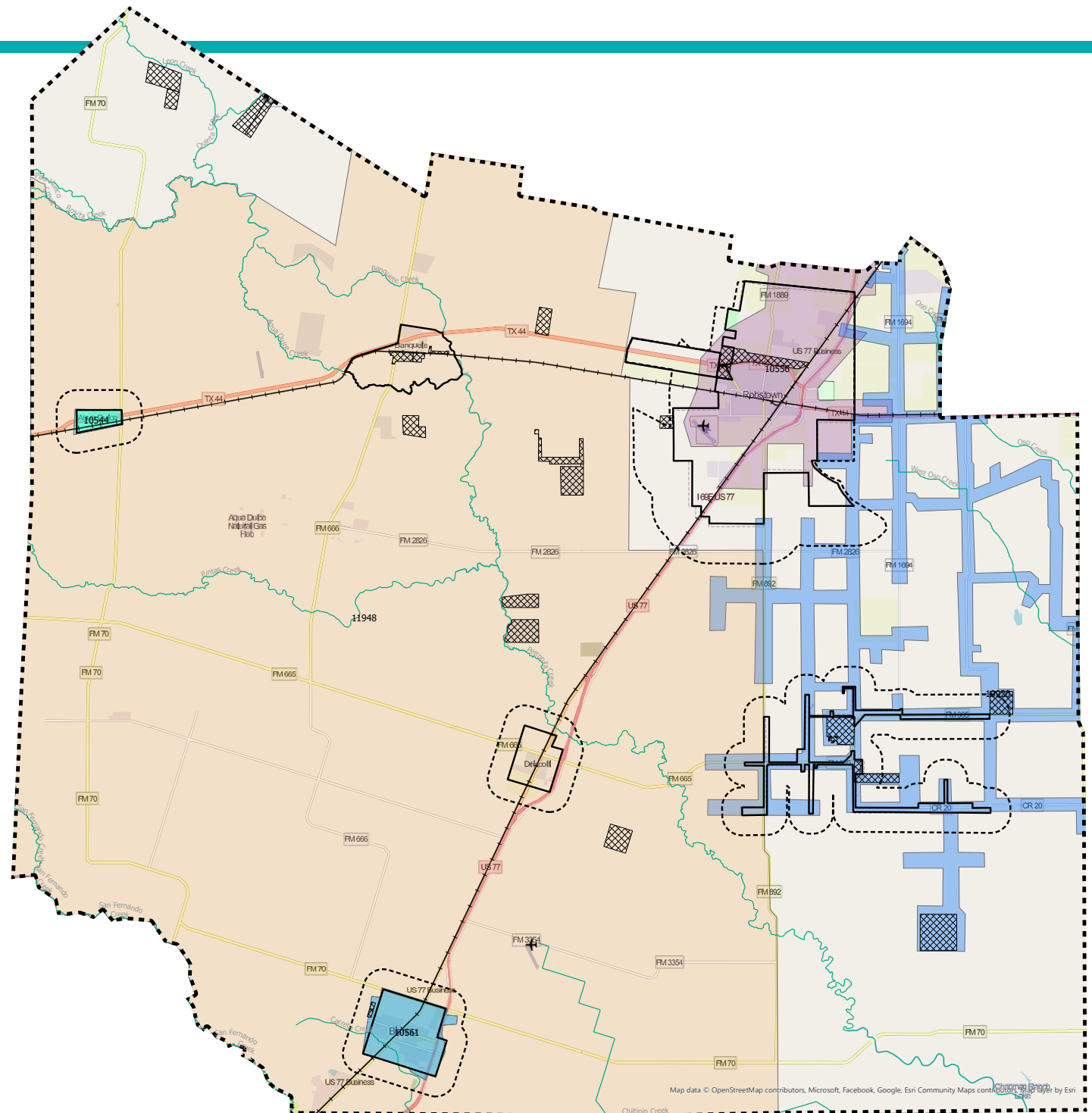
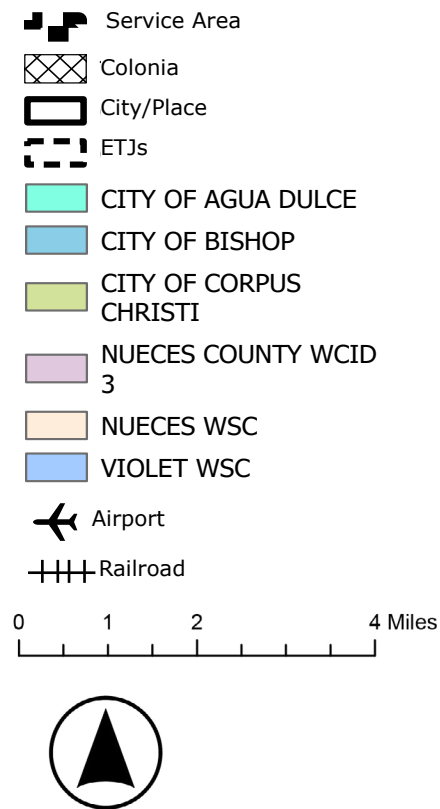


FIGURE 1.2
SERVICE AREA CCNS





POPULATION CHANGE

The baseline population in the service area as of April 2025 has been estimated at: 23,092. This estimate is based on historical data from the Texas Water Development Board included in the Draft 2026 Coastal Bend Regional Water Plan.

A complete summary of demographics and population is included in the **Partnership for Petronila Service Delivery Strategy**.

FIGURE 1.3 HISTORIC POPULATION CHANGE FOR THE PETRONILA REGION

LOCALITY	HISTORICAL				% GROWTH
	1990	2000	2010	2020	
BISHOP	3,337	3,305	3,332	3,160	-0.31%
DRISCOLL	688	825	682	621	0.36%
NUECES WSC			2,064	5,805	N/A
NUECES COUNTY WCID #3 (INCLUDES ROBSTOWN)			14,082	11,486	N/A

TOTAL POPULATION: 23,092

Source: Draft 2026 Coastal Bend Regional Water Plan

GROWTH RATES

Through collaboration between MDA, the Petronila Regional WWTS Advisory Committee, and the Nueces River Authority, MDA developed growth projections to estimate growth between the 2025 and 2035 planning years. The projected growth includes both residential and employment (nonresidential) connections. The growth projections do not include redevelopment in any areas that have existing development.

The projected residential square footage, including civic and educational, growth rate is 0.06%. This category include civic and educational land uses. This is based on data and projections included in the Draft 2026 Coastal Bend Regional Water Plan.

Figure 1.4 shows the population projections from the CBRWP

The projected employment square footage growth rate is 3%. This is based on data from the Draft CBRWP, Population Projections from the Texas State Demographer, and Growth Rates extrapolated from industrial absorption,

Employment Growth Rates were calculated using existing square footage of nonresidential (commercial and industrial) uses using data from FEMA. Base employment square footage projections are based on a growth rate of 3%. This rate is slightly higher than the lowest rate of statewide industrial absorption.¹

¹ <https://trerc.tamu.edu/article/industrial-space-race-2377/>

FIGURE 1.4 POPULATION PROJECTIONS FOR THE PETRONILA REGION

LOCALITY	POPULATION PROJECTIONS						% GROWTH
	2030	2040	2050	2060	2070	2080	
BISHOP	3,265	3,323	3,326	3,305	3,282	3,261	0.05%
DRISCOLL	641	652	654	649	645	640	0.05%
NUECES WSC	5,977	6,071	6,081	6,068	6,054	6,041	0.07%
NUECES COUNTY WCID #3 (INCLUDES ROBSTOWN)	11,864	12,076	12,086	12,009	11,933	11,857	0.05%

AVERAGE PERCENT GROWTH: 0.06%

Source: Draft 2026 Coastal Bend Regional Water Plan

DEVELOPMENT PATTERNS & AVAILABLE LAND

For the purpose of this analysis, land use typologies from the **Partnership for Petronila Service Delivery Strategy** were used to assist with the classification of existing non-residential square footages and distribution of future projections. These land use types are smaller sub-areas that nest within the larger service area and are a projection of future development potential. While some redevelopment is expected, this study assumes growth will predominantly occur on undeveloped parcels. Undeveloped parcels were identified using a combination of USGS Land Cover data, Nueces CAD real estate data, and field data collection.

The largest number of undeveloped parcels are in the Ag & Energy land use type. These parcels were excluded from the projections. It is assumed that new non-residential development in these areas will require separate planning due to scale and intensity of use. It is further assumed that the slight increase in residential growth will be served by On-Site Septic Facilities (OSSFs).

The Development Suitability Map is included in the Partnership for Petronila Service Delivery Strategy. As indicated on the map, over 60% of the service area is suitable for industrial development. This includes large-scale heavy industry, industrial business, and commercial land use types.

The same analysis was conducted evaluating the service area for suitability for residential development. The area identified for suitability lay within the corporate limits of extra-territorial jurisdiction of cities or in close enough proximity to receive city services. Only 32% of the service area was identified as suitable for residential development based on the criteria identified in the Service Delivery Strategy.

FIGURE 1.5
DEVELOPMENT DENSITY

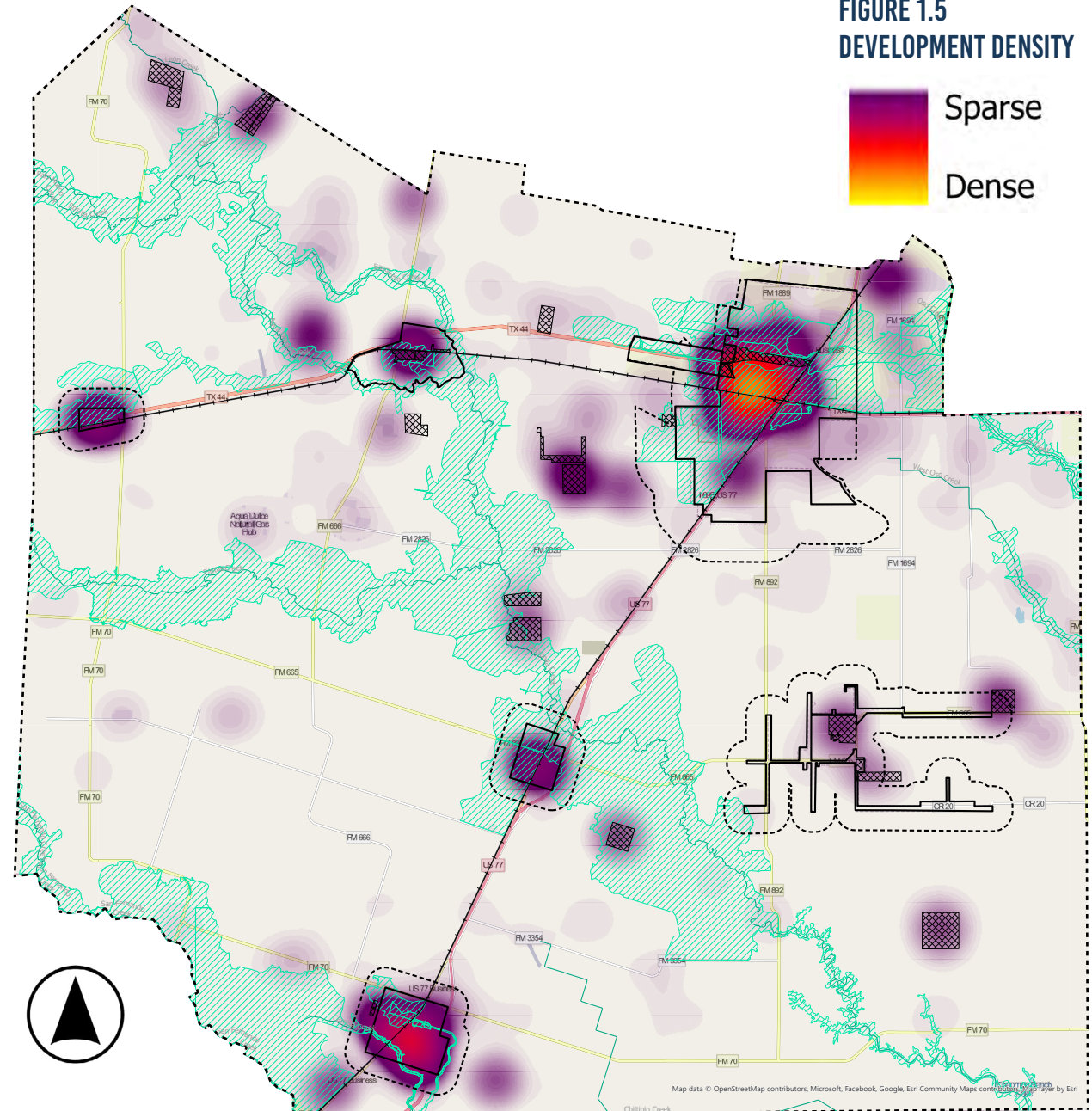
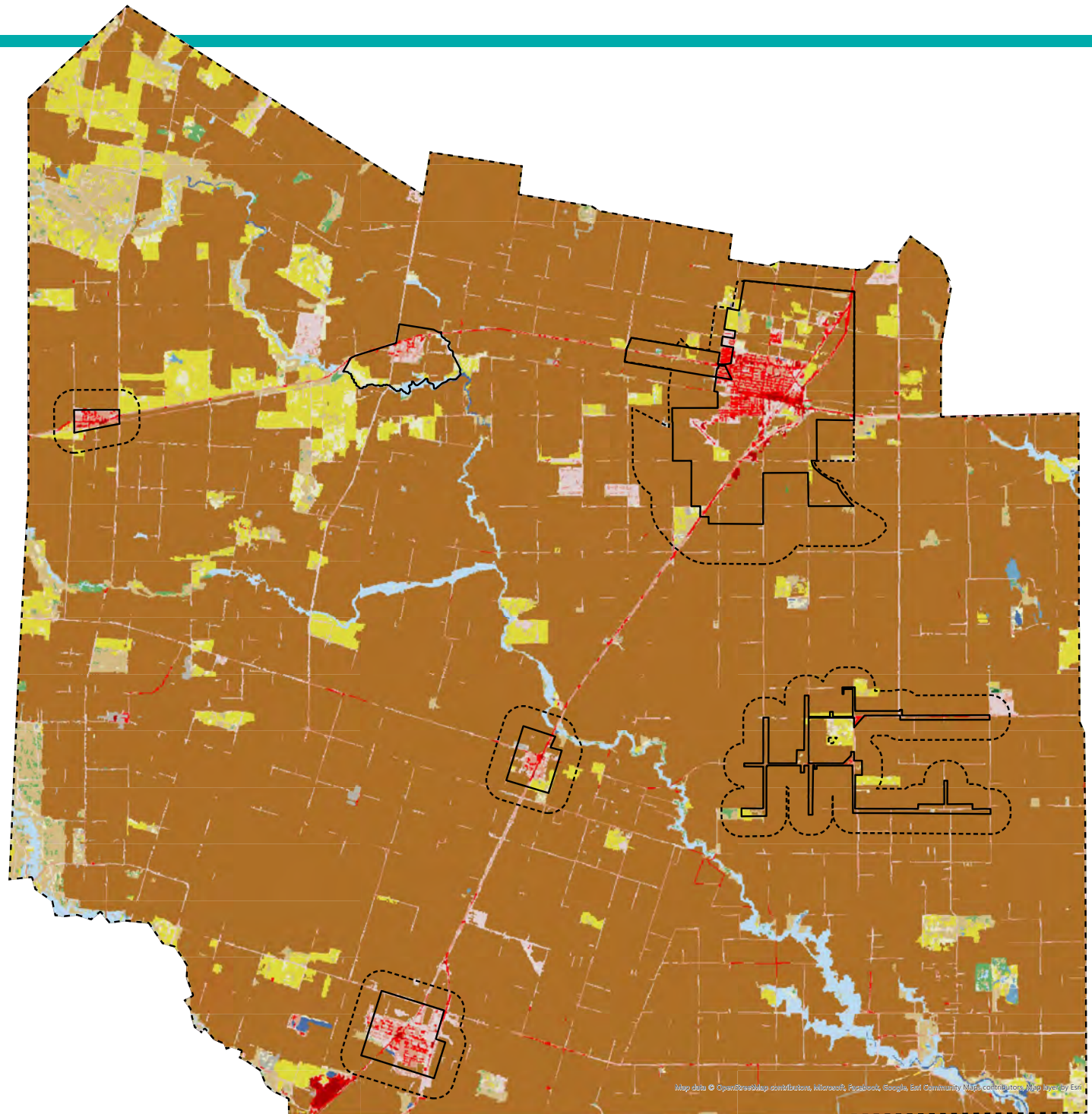


FIGURE 1.6 EXISTING LAND USE

LANDCOVER_CLASS

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Herbaceous
- Hay/Pasture
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands



INDUSTRIAL DEVELOPMENT

VERY SUITABLE
76,000 ACRES (21%)

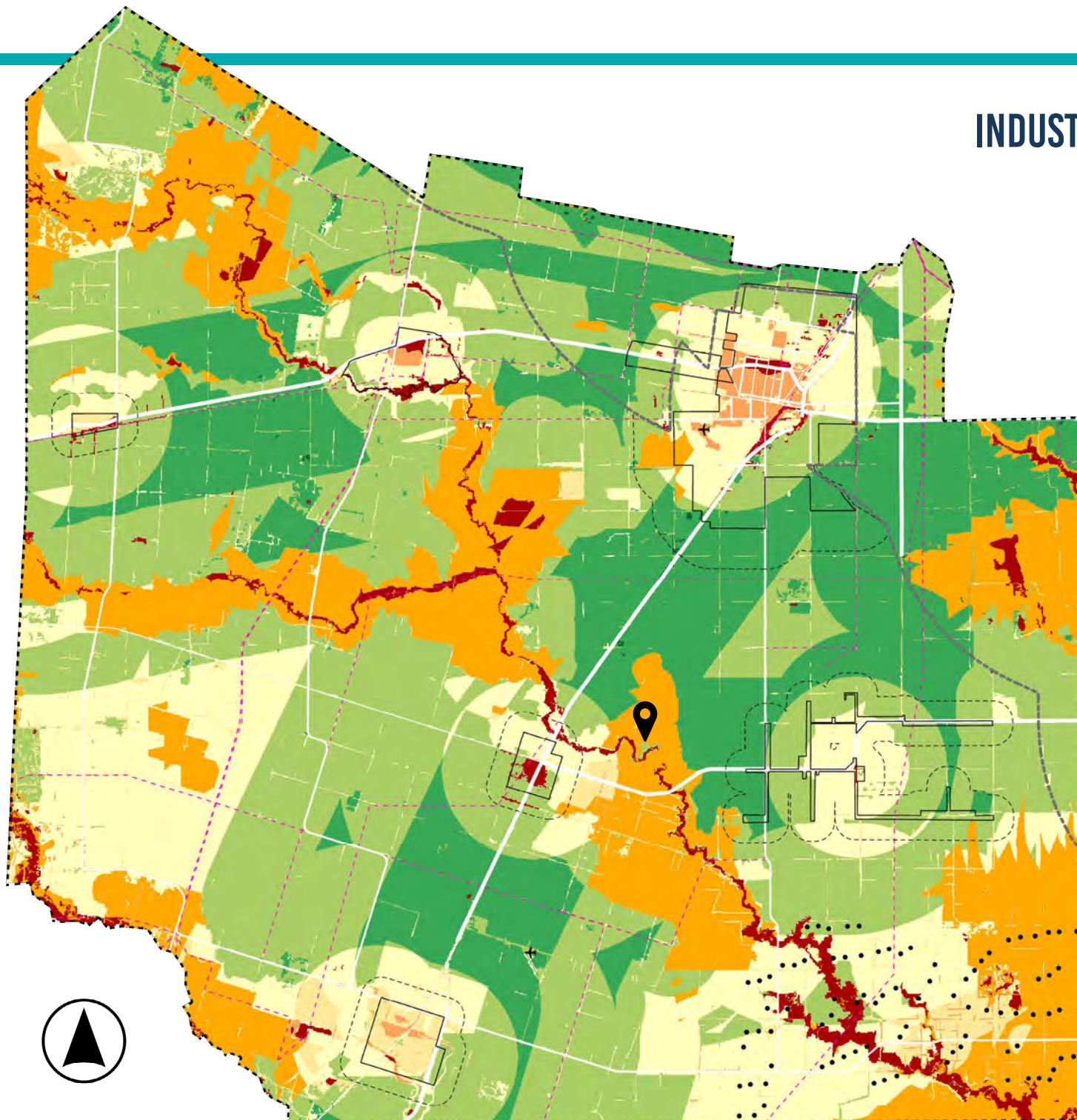
SUITABLE
155,000 ACRES (41%)

Over 60% of the study area is considered suitable or very suitable for industrial development. The area has few topographical restrictions, and with the exception of water and wastewater, adequate infrastructure to support industrial development.

FIGURE 1.7 INDUSTRIAL SUITABILITY



0 1 2 4 Miles



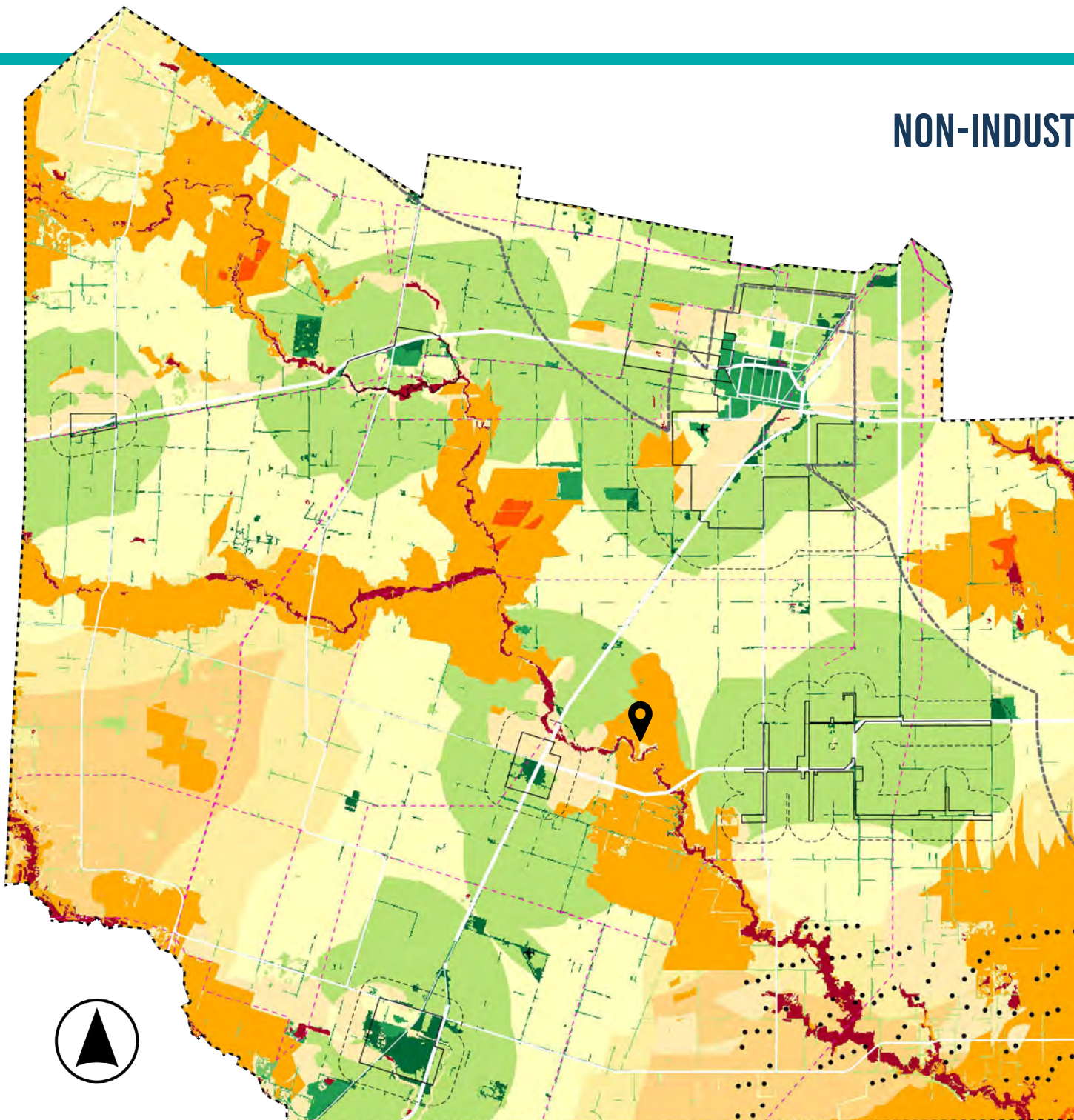
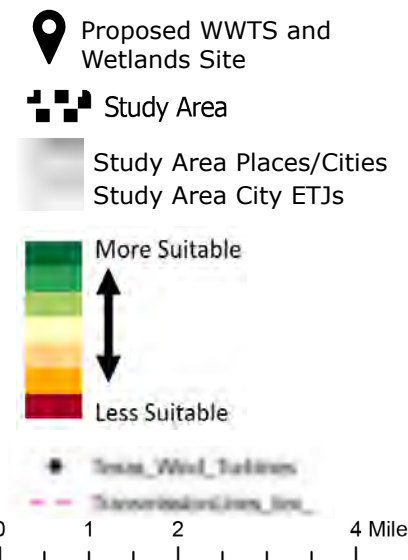
NON-INDUSTRIAL DEVELOPMENT

VERY SUITABLE
18,000 ACRES (5%)

SUITABLE
100,500 ACRES (27%)

A significantly smaller portion of the Study Area is suitable for non-industrial development. Areas for residential suitability are primarily located within existing cities or communities. Taking into account population projections, the cost of providing services, and development demand, these areas are best suited for redevelopment and infill rather than expansion.

FIGURE 1.8
NON-INDUSTRIAL SUITABILITY



GROWTH PROJECTIONS

BUILD OUT ESTIMATES

Growth projections for the Petronila Regional WWTS Service Area must be considered within the context of the regional market. The Coastal Bend has experienced significant industrial and industrial support development over the last ten years. According to the Draft 2026 CBRWP, “The primary economic activities within the Coastal Bend Region include transportation and warehousing, oil/gas extraction and mining services, manufacturing, agriculture, forestry, fishing and hunting. In 2021, industries employed 180,918 people in the Coastal Bend Region with annual compensation to employees of over \$8.2 billion.” (Draft 2026 Coastal Bend Regional Water Plan, p. 1-2)

While indicators and projections anticipate new development in employment sectors, all indicators point to relatively modest to flat population increases. It is expected that there may be some development to accommodate construction workers such as RV parks, hotels, and mid-r

For purposes of this report, land uses in the study area have been categorized into two categories: Employment and Residential. The residential and employment estimates and projections were compiled in accordance with the following categories:



EMPLOYMENT

Estimated square footage includes Commercial and Industrial land uses.

PROJECTED GROWTH RATE: 3%



RESIDENTIAL

Estimated square footage includes single-family, multi-family, and manufactured home land uses. Also included in this category are education and government uses.

PROJECTED GROWTH RATE: 0.06%



FIGURE 1.9 BUILD OUT PROJECTIONS FOR THE PETRONILA REGION

USE TYPE	SQUARE FEET (2025)*	EST. SQ FT: CBRWP / TWDB POP. PROJECTION (0.06%)	EST. SQ FT: PROJECTION BASED ON ABSORPTION OF INDUSTRIAL SPACE (3%)
AGRICULTURE & ENERGY	5,074,288.93	EXCLUDED	
COMMERCIAL, OTHER	1,390,058.99	1,398,421.90	1,868,123.05
COMMERCIAL, RETAIL	6,301,357.76	6,339,268.15	8,468,497.91
BUSINESS INDUSTRIAL	2,308,106.26	2,321,992.35	3,101,901.81
RESIDENTIAL / EDUCATION & GOVERNMENT	20,118,005.18	20,239,039.65	N/A

* Source: FEMA Building Footprint Layer

**Extrapolated from Texas Demographic Center projections for population growth rates. Assumes same annual growth rate over 10 year horizon

***Based on absorption of industrial space deliveries across Texas. Assumes same annual growth rate over 10 year horizon