THE CITY OF ROCKPORT

ALTERNATIVE SCENARIOS REPORT

Conducted in conjunction with the Aransas County Floodplain Management Planning Process

September 2016

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and the citizens of Rockport for their support on this project.

INTRODUCTION

Flooding and hurricane events in Texas over the past decade have shown that now is the time to improve Rockport's approach to flooding and disaster resilience. Aransas County and the City of Rockport have worked with Texas Coastal Watershed Program and Texas Sea Grant since 2015 to begin a local discussion about the needs and opportunities for this area. To this end, the Texas Coastal Watershed Program (TCWP) provided resiliency workshops in August of 2015 and in March of 2016. These workshops—offered to any Texas coastal county—are designed to initiate discussions intended to help support the building of durable, safe, and loved communities.

> Resilience: the ability to become strong, healthy, or successful again after something bad happens.
>
> -Merriam-Webster

The resiliency workshops utilize the Community Heath and Resources Management (CHARM) mapping tool, which was developed by TCWP, to help communities see how today's planning decisions will impact tomorrow's environment and community. The tool has the capacity to track over three dozen indicators, which can be used to assess planning decisions. CHARM, and the data, it generates allows local officials and citizens to digitally map potential development scenarios, and see the probable ramifications with real-time feedback.

As the City of Rockport, and Aransas County, pursue opportunities to better plan for our future, they would like to further engage the community in these discussions. This report is meant to inform the community about possible planning alternatives, and open a dialog about Rockport's future. None of the scenarios contained in this report are perfect. They are meant to showcase some potential opportunities, and allow the community to begin considering the different ideas they contain. It is intended that as a community, Rockport can decide on an "ideal future scenario" that the community supports, and will work to develop over the next 20 years. The scenarios within this document provide a starting point—ideas—that can be cultivated, altered, and transformed into a comprehensive vision of Rockport.

This report includes four alternative scenarios from which to start this discussion. Each of these scenarios map out different potential futures for the city, and surrounding areas of Aransas County. Two of the scenarios were developed by city staff and local citizens at the resiliency workshop in August of 2015. These were ideas created by local representatives and neighbors on how the city could expand and develop over the next 20 years. These scenarios are the "Large Development" scenario which focuses development along the interior core of the peninsula; and the "Maximum Development" scenario which focuses on creating a diverse array of development types, while protecting key natural areas. The other two scenarios were developed by a team of staff from the City of Rockport, Mission-Aransas National Estuarine Research Reserve, TCWP, and Texas Sea Grant. These scenarios are the "Development as Usual" scenario (or the "no change" scenario) which uses recent development history, and current development applications to predict what will occur if the city continues under the existing policies. Finally, the "Minimal Development" Scenario attempts to focus growth outside of flood-prone areas and preserve some key natural areas in order to provide an option for meaningful, constrained growth. The scenarios also offer a different model for expected population growth, assuming a large influx in both "Large" and "Maximum" scenarios, and lower population growth numbers in the "Development as Usual" and "Minimal Development" scenarios.

It is important to note that these scenarios include areas outside of the current City of Rockport boundaries. Unincorporated areas of the county have been periodically annexed and officially added to the City of Rockport city limits. It is anticipated that this will continue as development expands; as such these scenarios look at the city and the surrounding areas where development is expected to occur. Generally, the scenarios anticipate the growth of population, provide options regarding the types of development which could

accommodate that growth, and strategize where those developments could be placed. Growth is going to occur. The questions are: 1) how much growth; and 2) how does the community plan for growth in ways that ensure there will be a community that is safe, durable, and lovable in 2036?

The CHARM mapping tool was utilized to create each of the alternative scenarios. In creating these scenarios, the tool allows the groups to paint (via computer interface) on the existing map of the area with ten colors that represent different types of development. The types of development are defined in Table 1.

Table 1: Development Types.

Type of Development	Description
Town Center Mixed Use	A walkable mix of residences, retail, and offices, with transit options, and a small town feeling. It provides the most equal division between residential (33%), commercial (33%), and business (34%) opportunities. The buildings could be between one and three stories. There could be a mix of multifamily homes and single family homes, with an average of 30 homes per acre. There is a high percentage (85%) of impervious land cover.
Business Throughway	A walkable mix of residences, retail, and offices, with transit options, and an urban feeling. It provides slightly higher commercial (50%) and business (40%) opportunities, and less housing (10%) than the Town Center Mixed Use development. The buildings would be multi-story, possibly higher than three stories. This development would result in 20 homes per acre and 85% impervious land cover.
Low-Rise Residential	A mostly residential development, with transit options, and a small town feeling. The buildings would be between one and three stories, provide a multi-family setting, and 20 homes per acre. Only 4% of the development would be devoted to retail, and there would be no business opportunities. The land cover would be 70% impervious.
Postage Lawns Town Grid	A mostly residential development with a focus on single-family homes and suburban character. There is the possibility of neighborhood retail stores, but only 4% of the development would go to those commercial options. Like the Low-rise Residential, there are no business/office buildings. The availability of lawns provides considerably more pervious land cover; the result would be 35% impervious land cover.
Canal Homes and Condos	Unique to coastal communities, this development places single-family homes along a system of canals as well as streets. It is 96% residential, 2% retail, and 2% business. The buildings may be multi-story and the land cover would be 65% impervious.
Suburb Subdivisions	Highly suburban in character and 100% residential. The buildings are one to two stories and mostly single-family homes. Like the Postage Lawn Town Grid development, there are more lawns, more pervious surfaces, and the land cover is therefore only 38% impervious.
Park and Recreation Facilities	100% natural, publicly-protected, recreational open space. The impervious land cover is minimal (2%) and provides for public services such as parking and bathrooms.
Conservation Areas	100% natural, publicly-protected open space for recreation, agriculture, or wildlife habitats. The public services and roads are much less than in the Park and Recreational developments; the land cover is considered completely pervious.
Ranching and Agriculture	Strictly cultivated for ranching and agriculture. The land cover is only 2% impervious, with limited facilities, homesteads, and roads.
Heavy Industry	Developed land for rail, trucking, shipping, manufacturing, refining, and processing. The buildings are mostly one story, and the land cover is 100% impervious. Although this is an option in the CHARM mapping tool, no developments are considered heavy industry in the included scenarios.

As mentioned previously, the CHARM tool tracks a variety of indicators which can be used to assess planning decisions. Appendix 1 includes a table detailing a variety of these indicators for each of the proposed scenarios. Many of these numbers are discussed in the report for each of the individual scenarios; but not every indicator will be discussed for each scenario.

The remaining sections of this report will describe each of the four alternative scenarios, and discuss the associated implications for the city.

MIMIMAL DEVELOPMENT SCENARIO

The "Minimal Development" scenario is a staff-generated scenario that shows the lowest amount of development and concentrates that development in areas of higher elevation. This scenario is based on recently proposed development, while trying to protect some key natural areas, and offering a bit of constraint and diversity to the types of development. An ongoing area of expansion is along State Highway 35, southwest of the city limits (see Figure 1, page 8). Currently, there are pockets of development along the highway. If growth proceeds according to current land use practices, all these pockets will eventually become connected. This scenario assumes growth will continue in this area according to the current land use practices; and therefore places Business Throughway development along this stretch of the highway. Business Throughway development focuses on commercial and business opportunities, but also provides some residential use. It has an urban feel. Since State Highway 35 is one of the highest points on Live Oak Peninsula this is one of the safest places for development in the area. This Business Throughway immediately transitions into Suburban Subdivisions on both sides of the highway. Suburban Subdivisions focus on single-family homes and other residential uses. This would complement the Business Throughway development, and give the neighborhood residents easy access to stores and restaurants. One key aspect of this scenario is the inclusion of four parks within the Suburban Subdivisions (see Figure 2, page 9). These parks would encompass large sections of freshwater wetlands which act as natural buffers during storms, improve drainage and water quality of storm runoff, and generally prevent the water from flooding developed land.

Further north along State Highway 35, within the city limits of Rockport, an additional Business Throughway development is included. Beyond this smaller section of Business Throughway, where State Highway 35 turns east towards the Rockport-Fulton border, a small Low-Rise Residential neighborhood is also included. This type of development focuses primarily on multi-family residential buildings with a small amount of retail. Finally, there are two areas set aside for conservation in this scenario. The first area sits at the southeastern tip of Rockport's city limits; the second area dominates the eastern shore of Salt Lake. These two areas are critical because they include large areas of estuarine wetlands which provide natural drainage to the entire peninsula (see Figure 3, page 10). Large areas of wetlands are important to conserve because of the multitude of benefits they provide. Wetlands act as natural "sponges," filtering storm water runoff and improving water quality, while helping to prevent flooding in surrounding areas. Wetlands are also biologically important areas for a variety of plants and animals which enhance the productivity of our bays and estuaries.

The combination of Suburban Subdivisions and Low-Rise Residential neighborhoods provide a mix of single-family and multi-family homes. These, along with the Business Throughway and the Parks and Conservation areas, provide a mix of urban, suburban, and small town settings that protect key natural areas which provide natural buffers to aid in water absorption, and minimize flooding.

The "Minimal Development" scenario models a 3% growth rate over 20 years, which increases the population to 34,195, the lowest population growth rate among the scenarios. A total of 5,493 new homes would be built, with 87% existing outside current Rockport city limits. 77% of these new homes would be single-family structures, and 23% would be multi-family buildings (e.g. apartments and condominiums). It is important to note here that no new homes would be built in the floodplains (100-year or 500-year) (see Figure 4, page 11). However, if a Category 5 hurricane hits the area, then 4,861 of the newly built homes (25%) would be impacted by surge inundation (see Figure 5, page 12).

This scenario focuses the proposed development along the areas of highest elevation. A total of 2,337 homes would be built in or adjacent to freshwater wetlands, while no new homes would be in or adjacent to estuarine wetlands (see Figure 6, page11).

The amounts of water usage and impervious land cover are two additional issues that will impact the city as it develops over time, and are important considerations in each of our scenarios. The CHARM model uses these two factors as indicators. Each of the development types are assigned an average amount of water

demand according to national averages in other developments of this style. These usage estimates are calculated for indoor (drinking, cooking, showers, etc.), and outdoor (pools and lawns) consumption. Suburban Subdivisions, which make up a large percentage of the new development in this scenario, have one of the highest amounts of indoor water use per household. In addition, Suburban Subdivisions have the highest amount of outdoor usage. This would result in an overall increase in demand (new demand) for water in Rockport of 72% for indoor usage, and 28% for outdoor usage. This is an important consideration in future water planning for the City of Rockport. The city would need to ensure that it plans for the ability to accommodate for these new usage needs over the next 20 years.

Similarly, each of the development types are assigned an average percentage of impervious surface coverage. This includes things like roads, parking lots, driveways, and building footprints. Impervious surface coverage is important because it reduces the area of open ground available to absorb water. Significant increases in impervious surfaces contribute to high amounts of water runoff during storms, flooding, and the reduced ability to recharge groundwater. The amount of impervious surface created in the course of development is usually mitigated in some way. However, not all of the effects are mitigated, and these unmitigated effects accumulate over time and must also be managed.

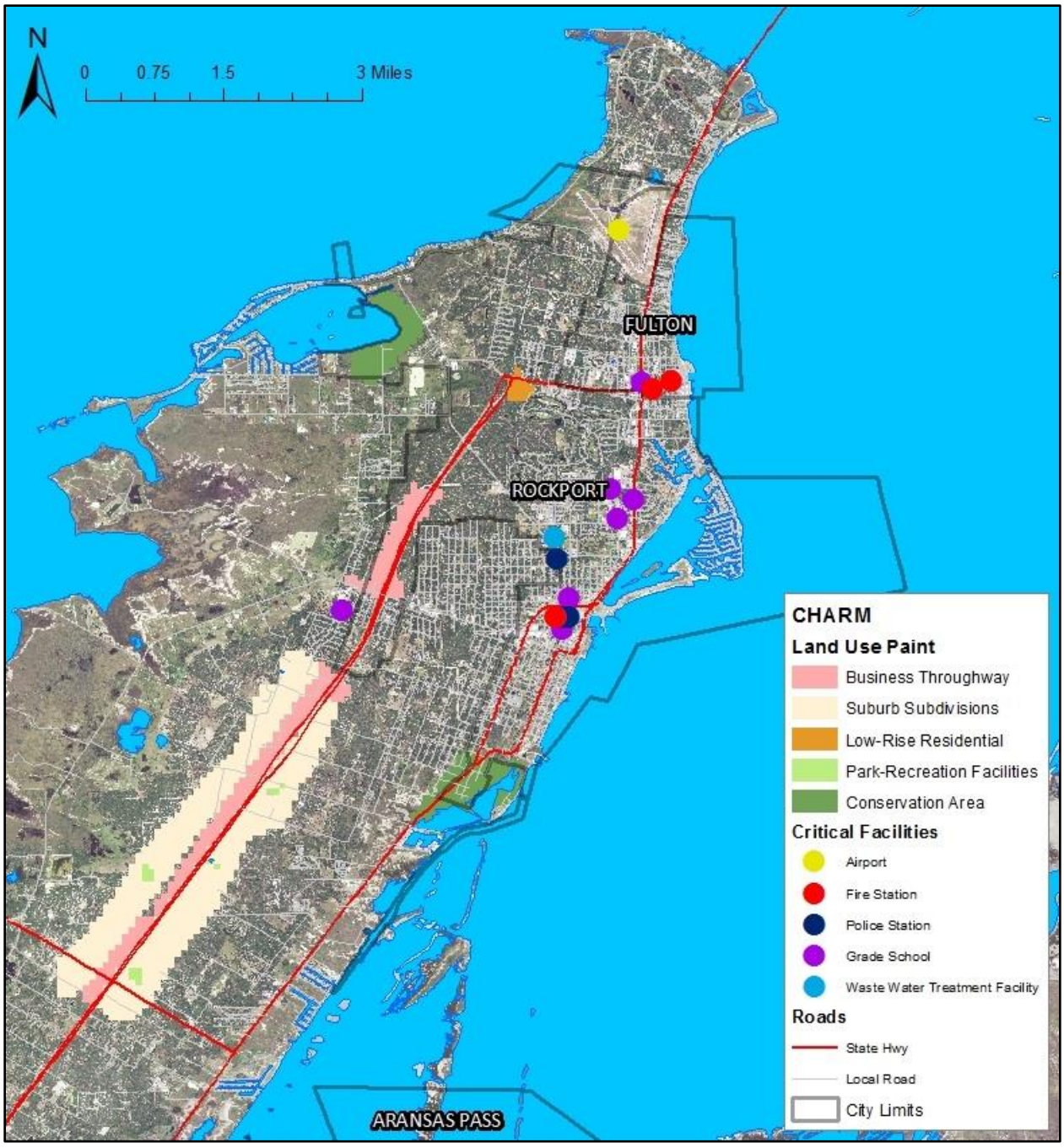

Figure 1: Minimal Development, Overview.

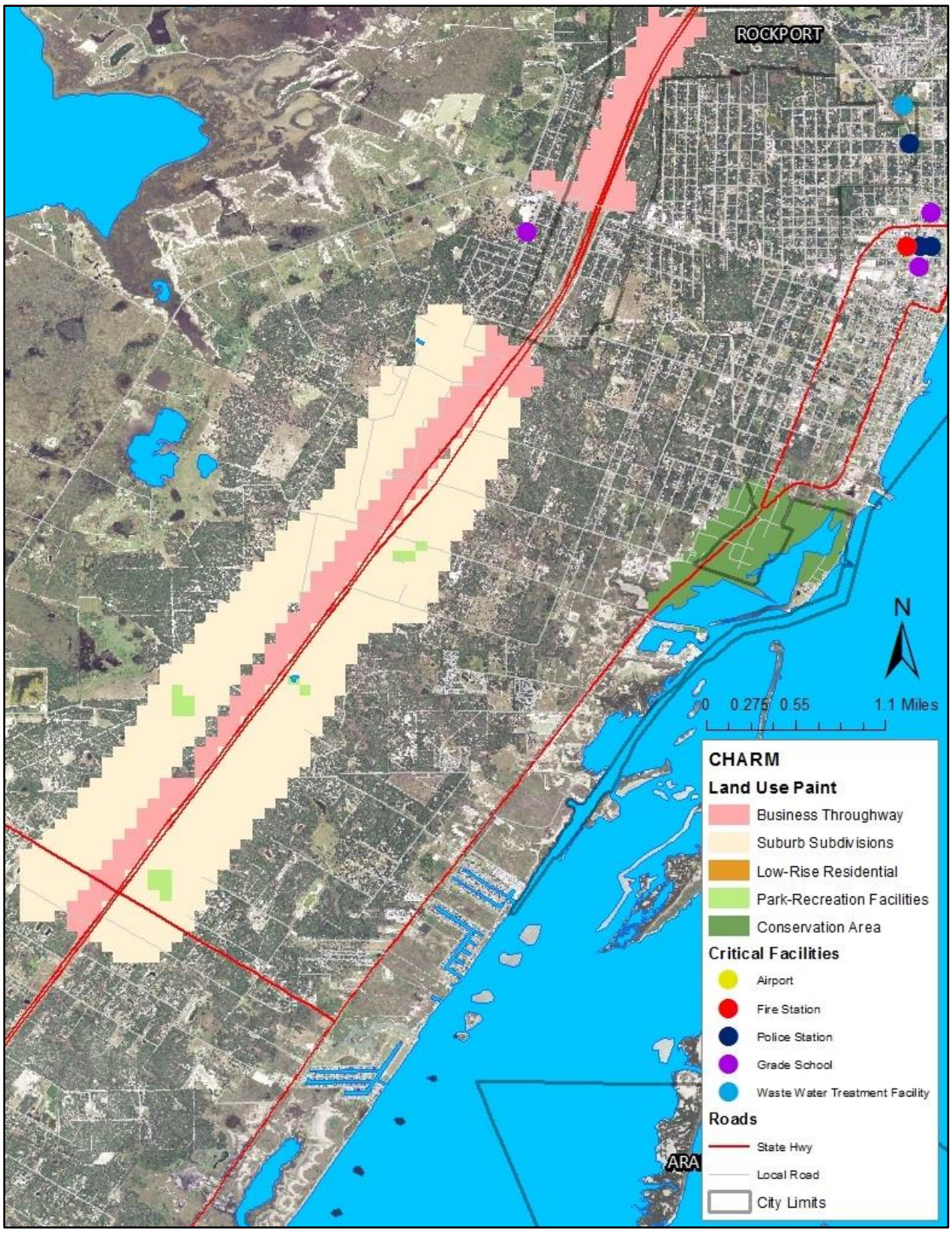

Figure 2: Minimal Development, Parks.

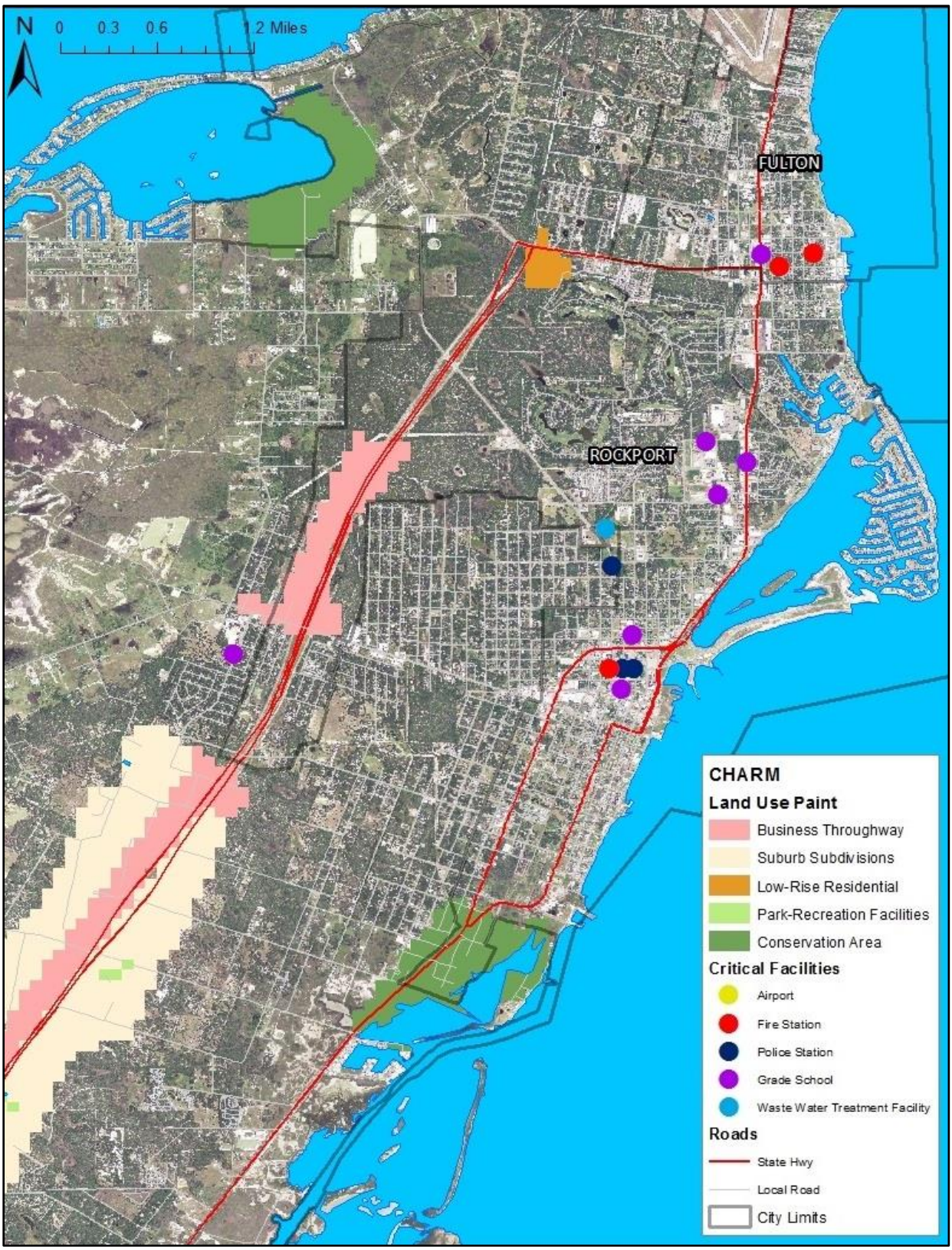

Figure 3: Minimal Development, Conservation Areas.

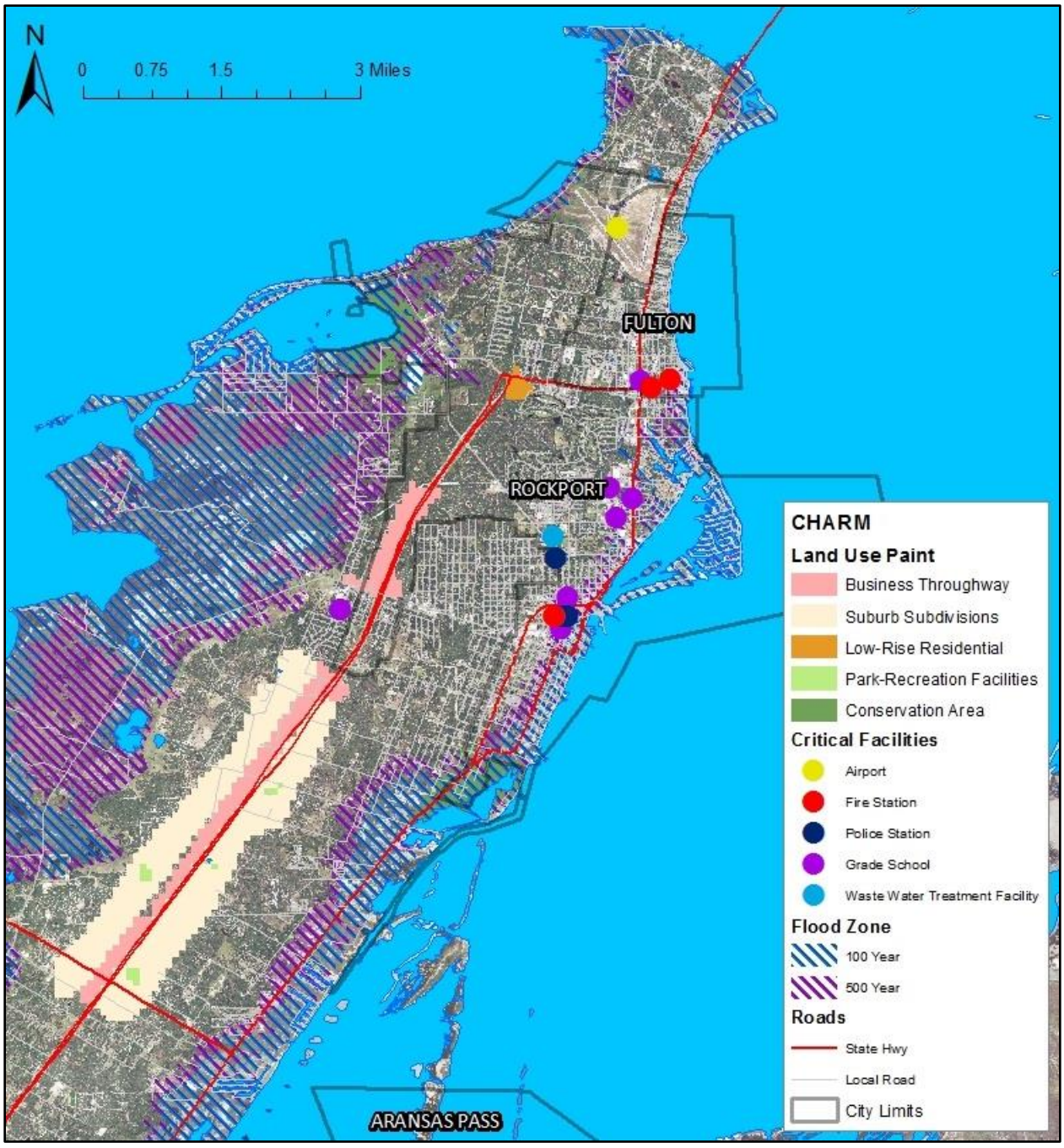

Figure 4: Minimal Development, Flood Zones.

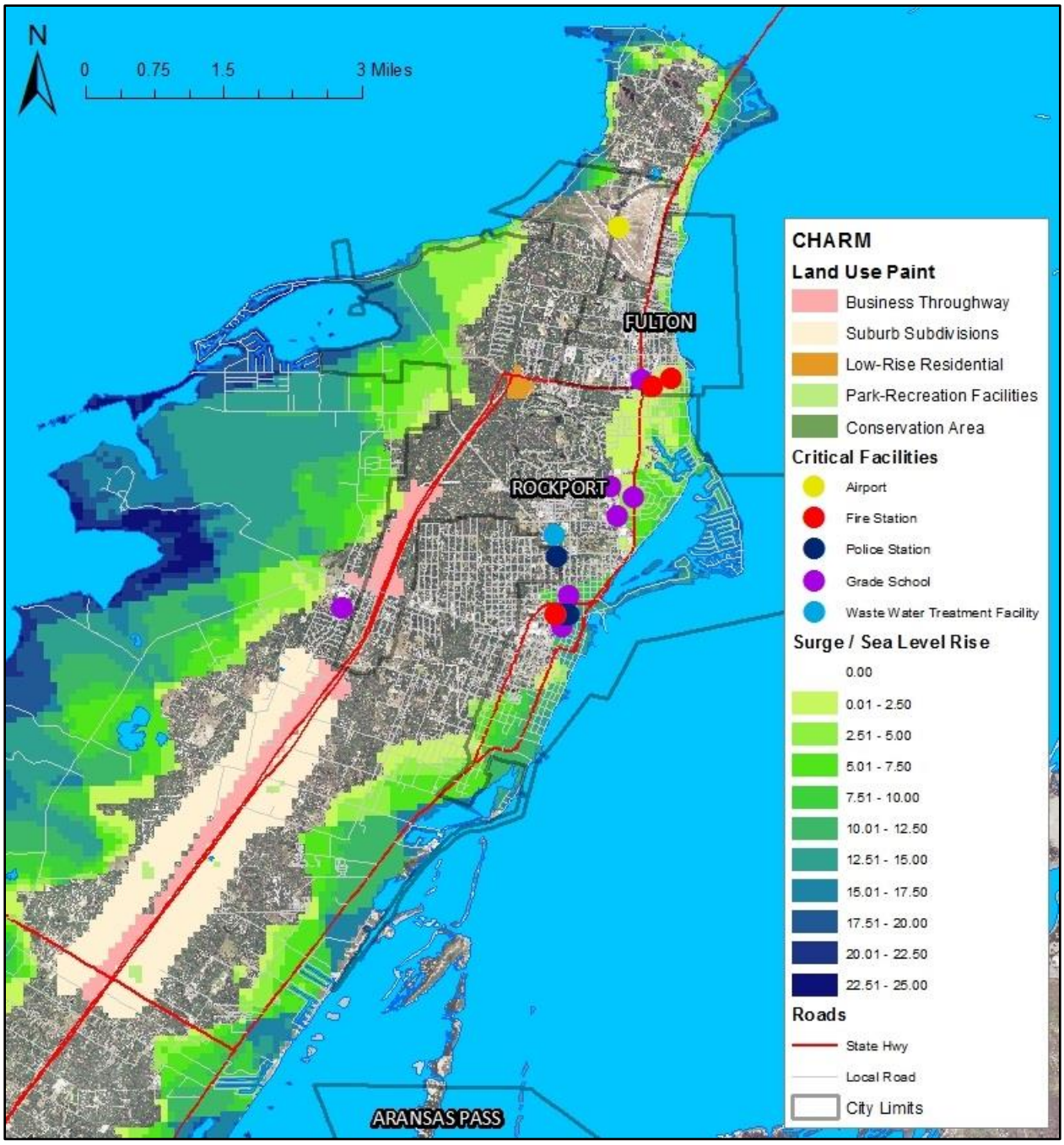

Figure 5: Minimal Development, Storm Surge Inundation.

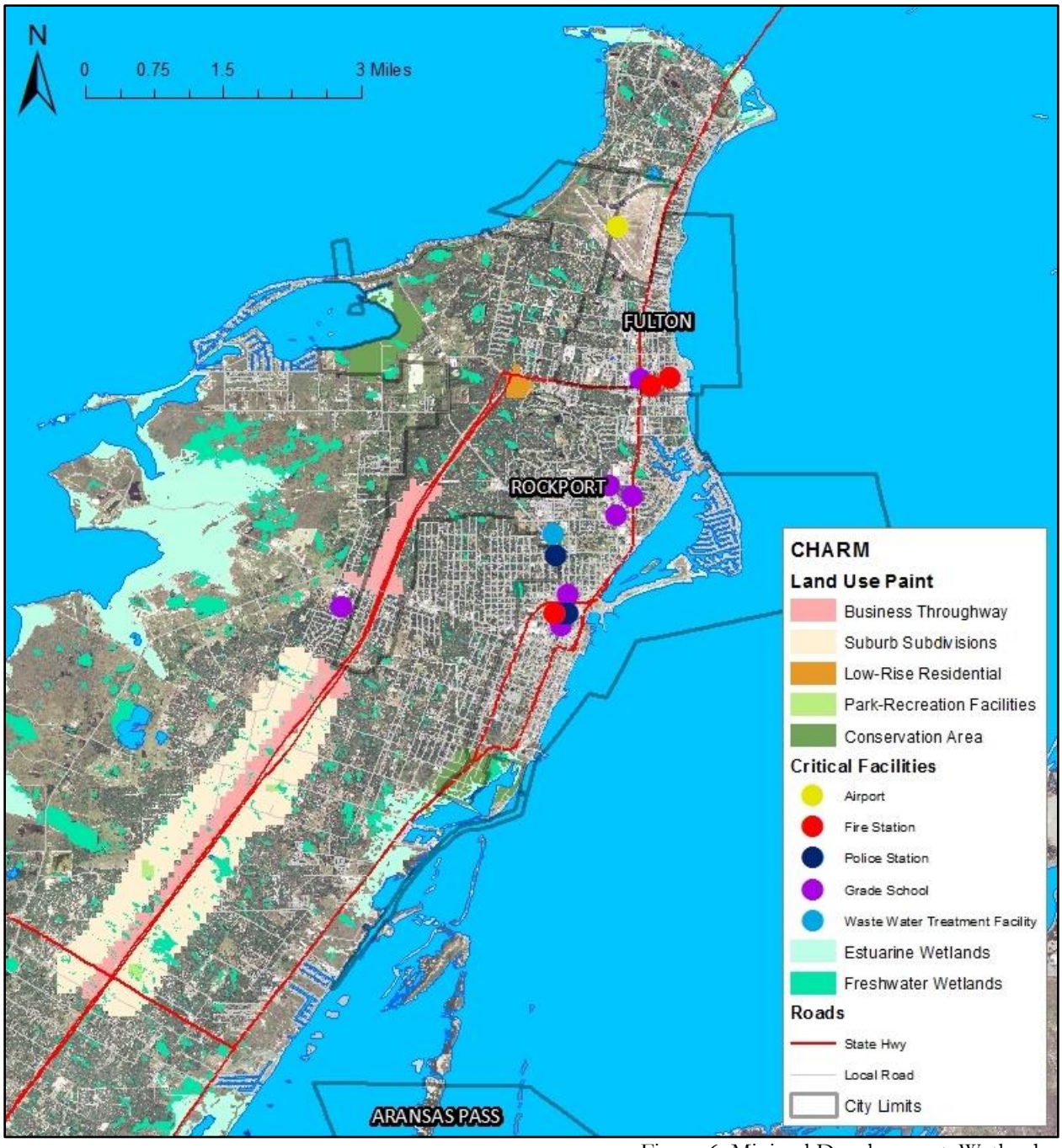

Figure 6: Minimal Development, Wetlands.

DEVELOPMENT AS USUAL SCENARIO

The "Development as Usual" scenario is a staff-generated scenario that accounts for areas where the City of Rockport is already considering annexation and for likely development projects. The main areas where these occur are along State Highway 35, southwest of the city limits (see Figure 7, page 16). Currently, there are pockets of development along the highway. If development proceeds according to current land use practices, all of these pockets will become connected. The scenario shows two bands on either side of the highway for Business Throughway development which then bleed into Suburb Subdivision development. Business Throughway development focuses on commercial and business opportunities, but also provides some residential use. It has a more urban setting compared to the Suburb Subdivision development that would lie beyond. The Suburb Subdivision, in turn, focuses on single-family homes and other residential uses. This would complement the Business Throughway development, and give the neighborhood residents easy access to stores and restaurants. Further north along State Highway 35, within the city limits of Rockport, additional Business Throughway development is included. Suburb Subdivisions are also included where the highway turns east towards the Rockport-Fulton border, and in the southeastern portion of the city along the coast.

Developers have also expressed an interest in building highly dense pockets of development in the northwestern and southeastern sections of the City. To accommodate for this highly dense development, staff chose to equate these projects to the Postage Lawn Town Grid development type from the CHARM tool. This decision was made because the proposed projects in these areas are similar to this type of development in the number of homes per acre, the high amount of residential use and minimal business operations, along with the amount of impervious land cover. Similarly, the Postage Lawn Town Grid "paint" color was used for another potentially highly dense development being considered in a northeastern portion of the city. This scenario also identifies potential Canal Home and Condo development in the southeastern portion of the city. This style of development is 96% residential, and allows for minimal retail and business operations. The focus on various high-density residential developments would accommodate the slightly larger population growth identified in this scenario; while doing so predominately through the use of single-family homes. The area would have a suburban character. In turn, the Business Throughway developments along the highways will focus more on commercial and business options, and have more of an urban feel.

This scenario models a population growth rate of 6% over 20 years, which results in slightly more than twice the existing population (47,264). It includes 11,106 new homes, with 18% of those homes falling within the current Rockport city limits and 82% of the homes being outside the current city limits. Single-family homes would make up 81% of the new housing, with multi-family homes (e.g. apartments and condominiums) making up the other 19%. A very low percentage of homes would be built in the floodplain–3% in the 100-year zone and 5% in the 500-year zone (see Figure 8, page 17). Figure 9 (page 18) shows that the developments along the coast, and portions of the coastal Suburb Subdivision, lie in the flood zones.

Overlap also exists between these homes and existing wetland areas (see Figure 10, page 19). The developments built along the southeastern portion of the city would eliminate 79 acres of estuarine (salt water) wetlands. In addition, 281 acres of freshwater wetlands would be lost on the peninsula due to the development in this scenario. This includes 2,547 new homes in or near estuarine wetlands, and 3,562 new homes in or near freshwater wetlands. In addition to the wetland acres lost, 2,547 acres of woodlands would also be impacted in this scenario. Theses habitats act as natural buffers during storms, absorbing precipitation and helping to prevent the water from flooding developed land. If the city chooses to provide protection to these areas, we could expect a reduction in the negative effects of flooding impacts, improved drainage, and better shoreline stabilization which helps decrease the effects of storm surge and large rain events. Another added benefit to preserving these areas is increased potential for park and recreation areas, enhancing the ability for Rockport residents and visitors to enjoy and appreciate their natural ecosystems. The social value of these systems is important and should be considered alongside the biological benefits of preserving natural habitat.

Figure 11(page 20) shows the areas that have the greatest likelihood of being impacted by surge, if a Category 5 hurricane were to strike in this scenario. As you can see in the map, almost all of the development along Aransas Bay, along the east side of the peninsula, has the potential to be impacted by this surge. In addition, some of the development along Copano Bay, on the western side of the peninsula, also has the potential to be impacted. The number of total future homes (existing and newly developed) at risk to surge inundation would be 5,786 homes (23%).

The amounts of water usage and impervious land cover are additional issues that will impact the city as it develops over time. The CHARM model uses these two factors as indicators. Each of the development types are assigned an average amount of water demand according to national averages in other developments of this style. These usage estimates are calculated for indoor (drinking, cooking, showers, etc.), and outdoor (pools and lawns) consumption. Canal homes and suburban subdivisions, which make up a large percentage of the new development in this scenario, have two of the highest amounts of indoor water use per household. In addition, suburban subdivisions have the highest amount of outdoor usage. This would result in an overall increase in demand (new demand) for water in Rockport of 72% for indoor usage, and 28% for outdoor usage. Like the "Minimal Development" scenario, this is an important consideration for future water planning for the city.

Similarly, each of the development types are assigned an average percentage of impervious surface coverage. This includes things like roads, parking lots, driveways, and building footprints. Impervious surface coverage is important because it reduces the area of open ground available to absorb water. Significant increases in impervious surfaces contribute to high amounts of water runoff during storms, flooding, and the reduced ability to recharge groundwater. The amount of impervious surface created in the course of development is usually mitigated in some way; however, not all of the effects are mitigated, and these unmitigated effects accumulate over time and must also be managed.

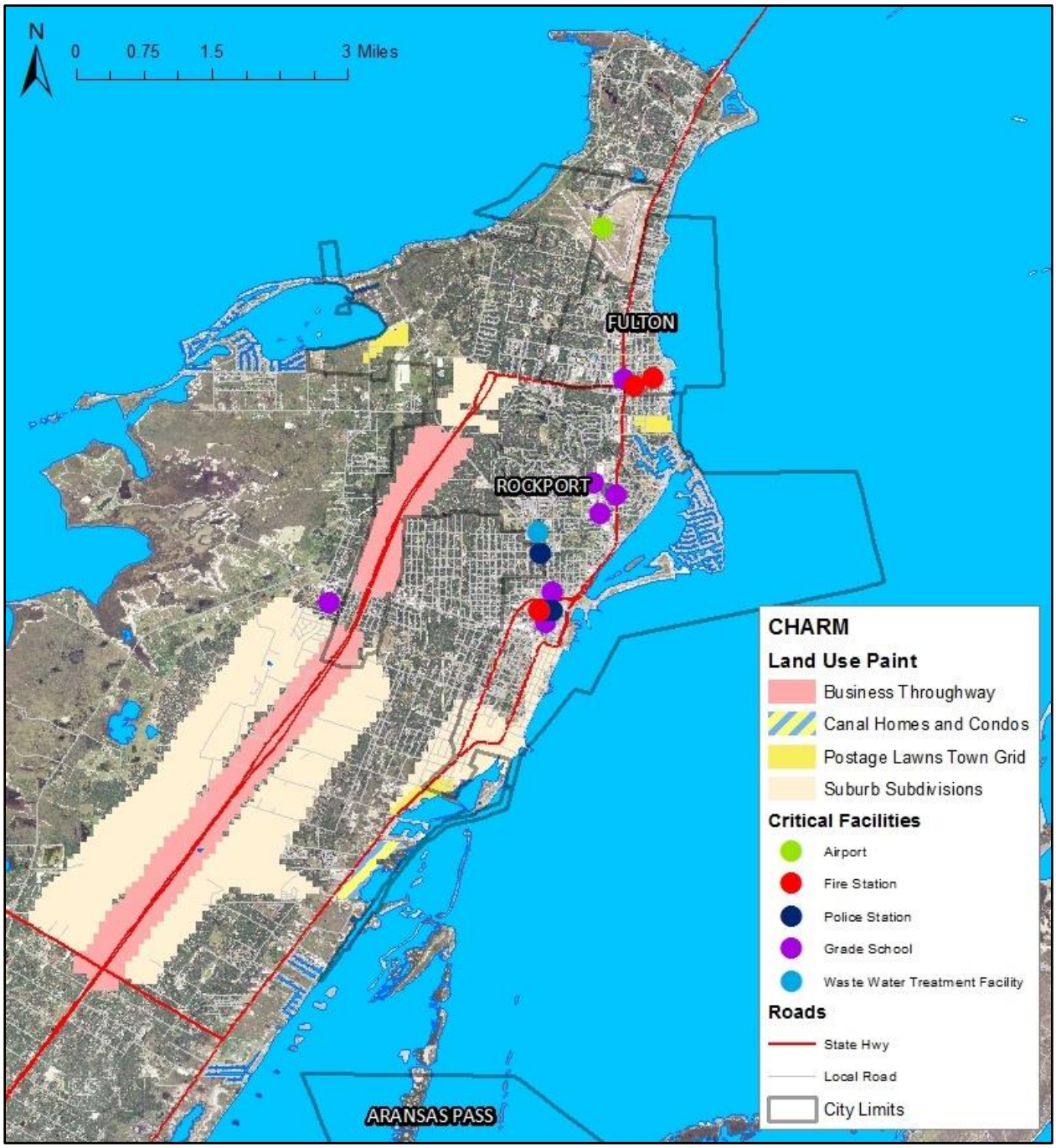

Figure 7: Development as Usual, Overview.

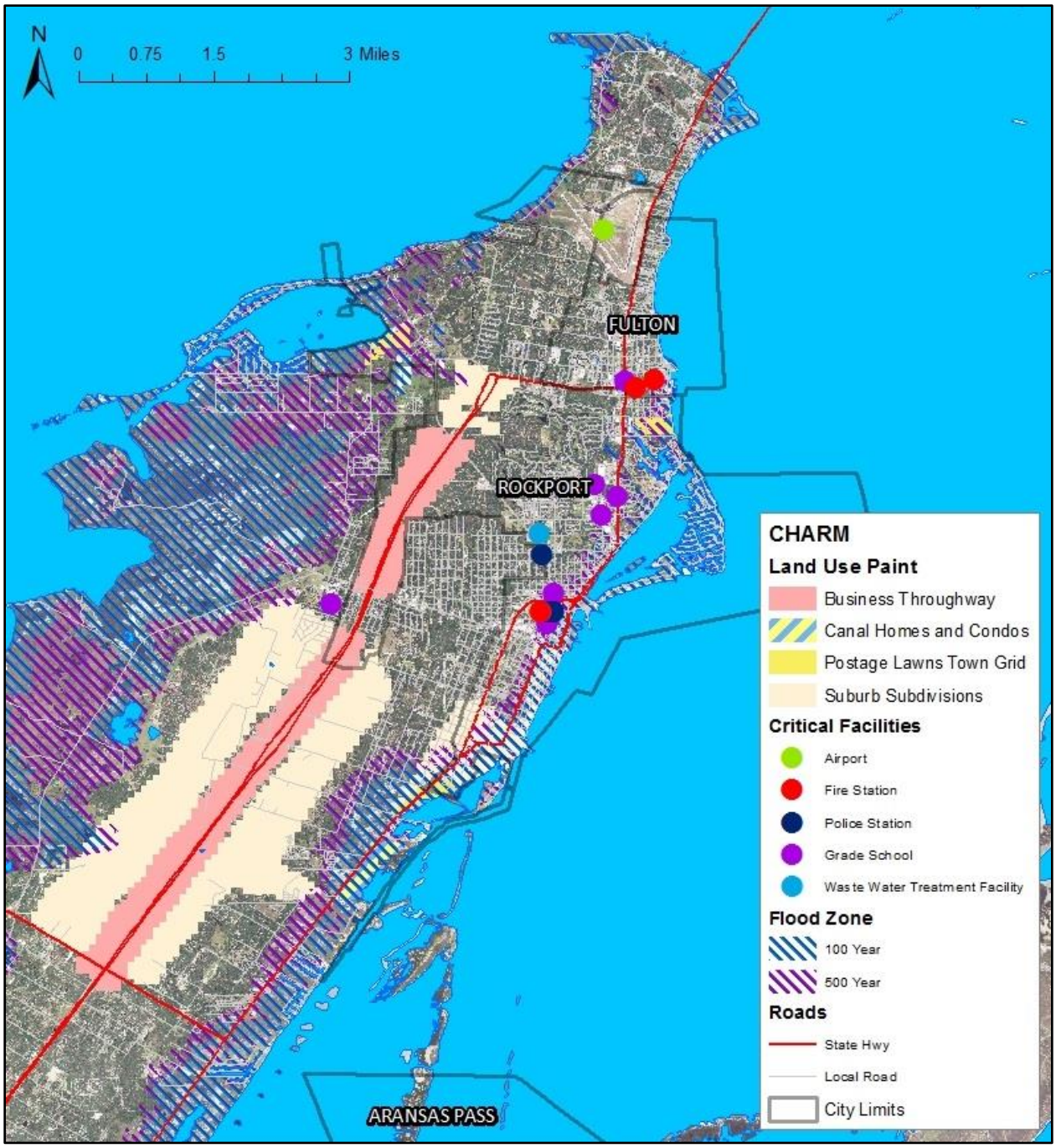

Figure 8: Development as Usual, Flood Zones.

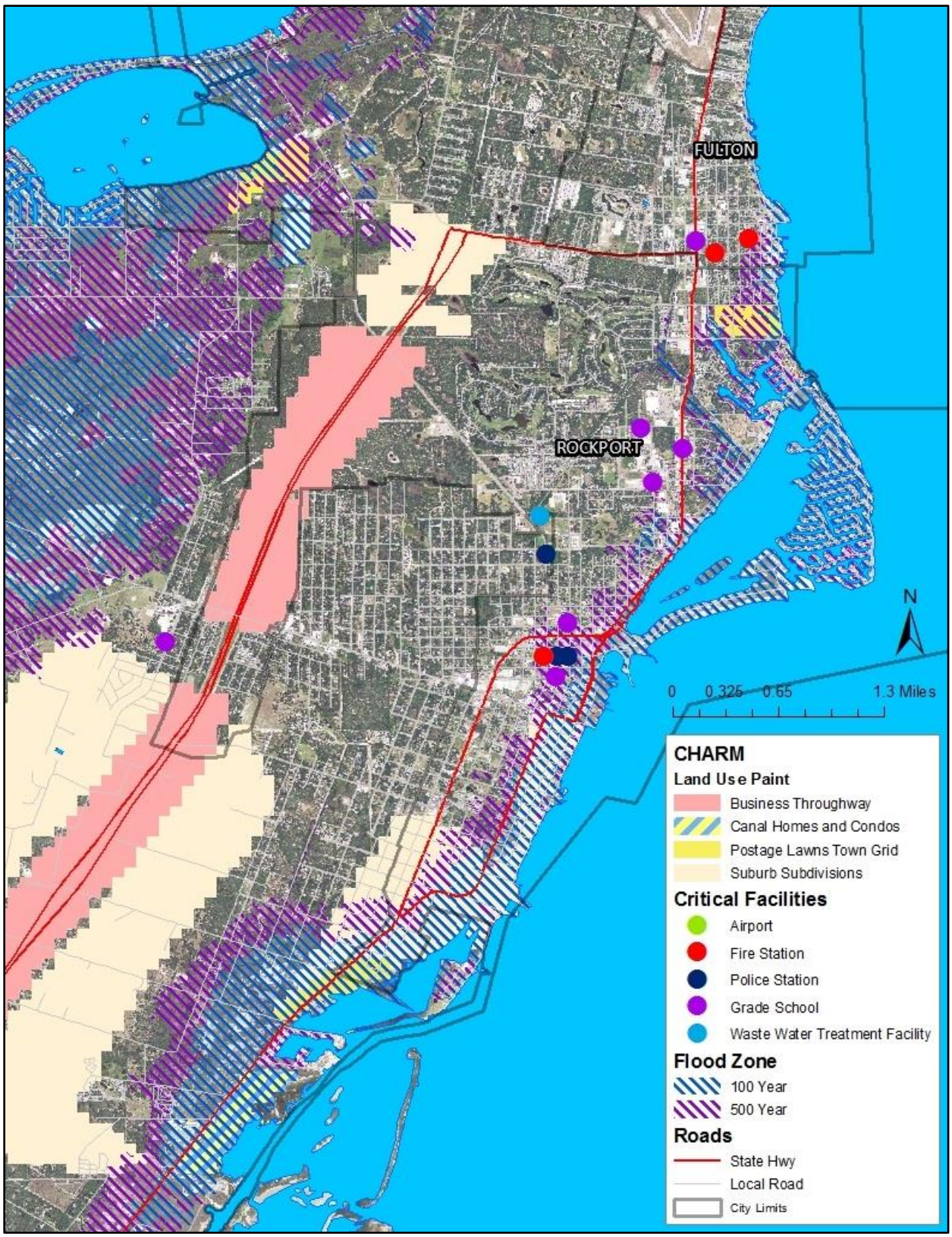

Figure 9: Development as Usual, Coastal Flood Zones.

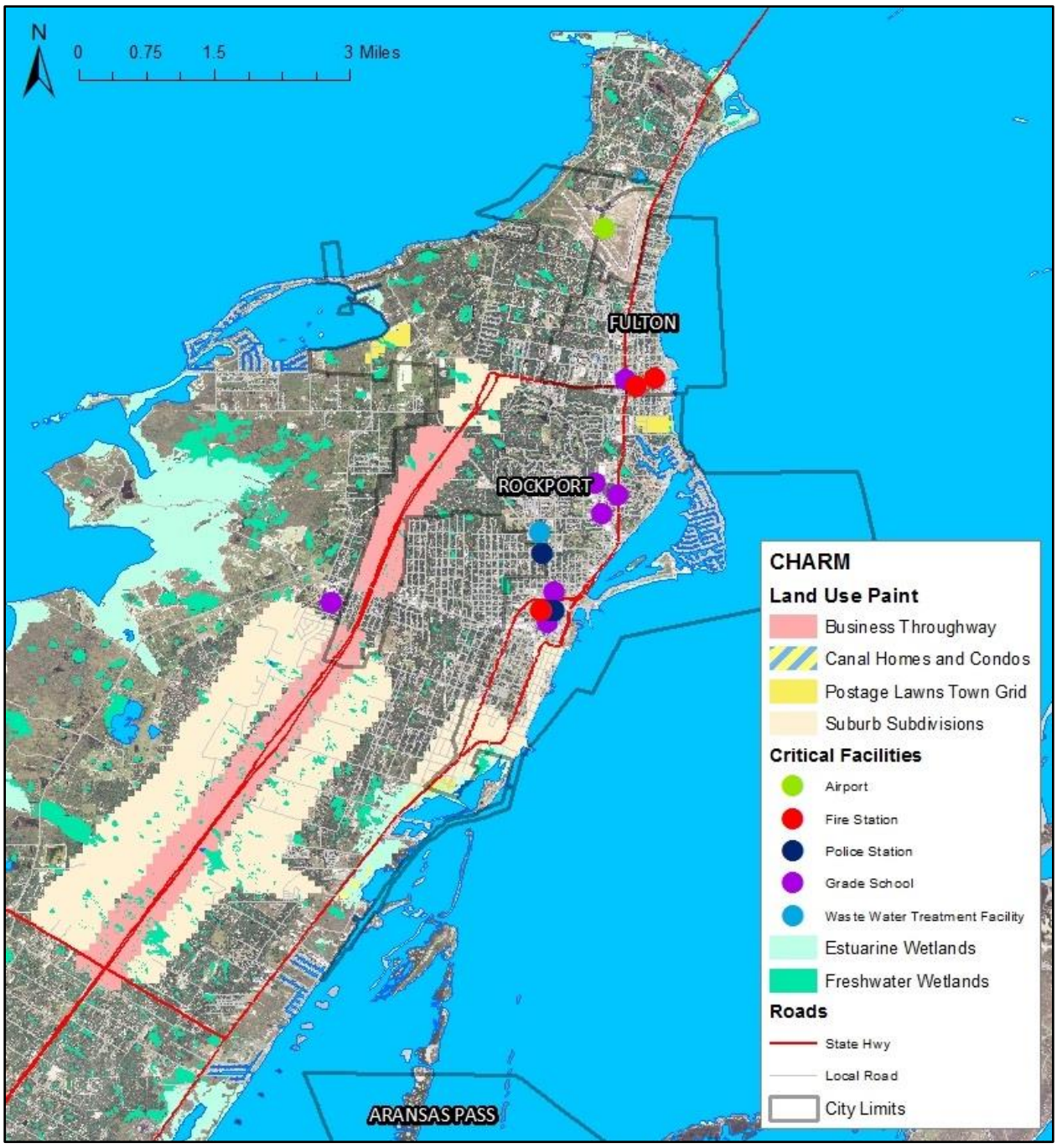

Figure 10: Development as Usual, Wetlands.

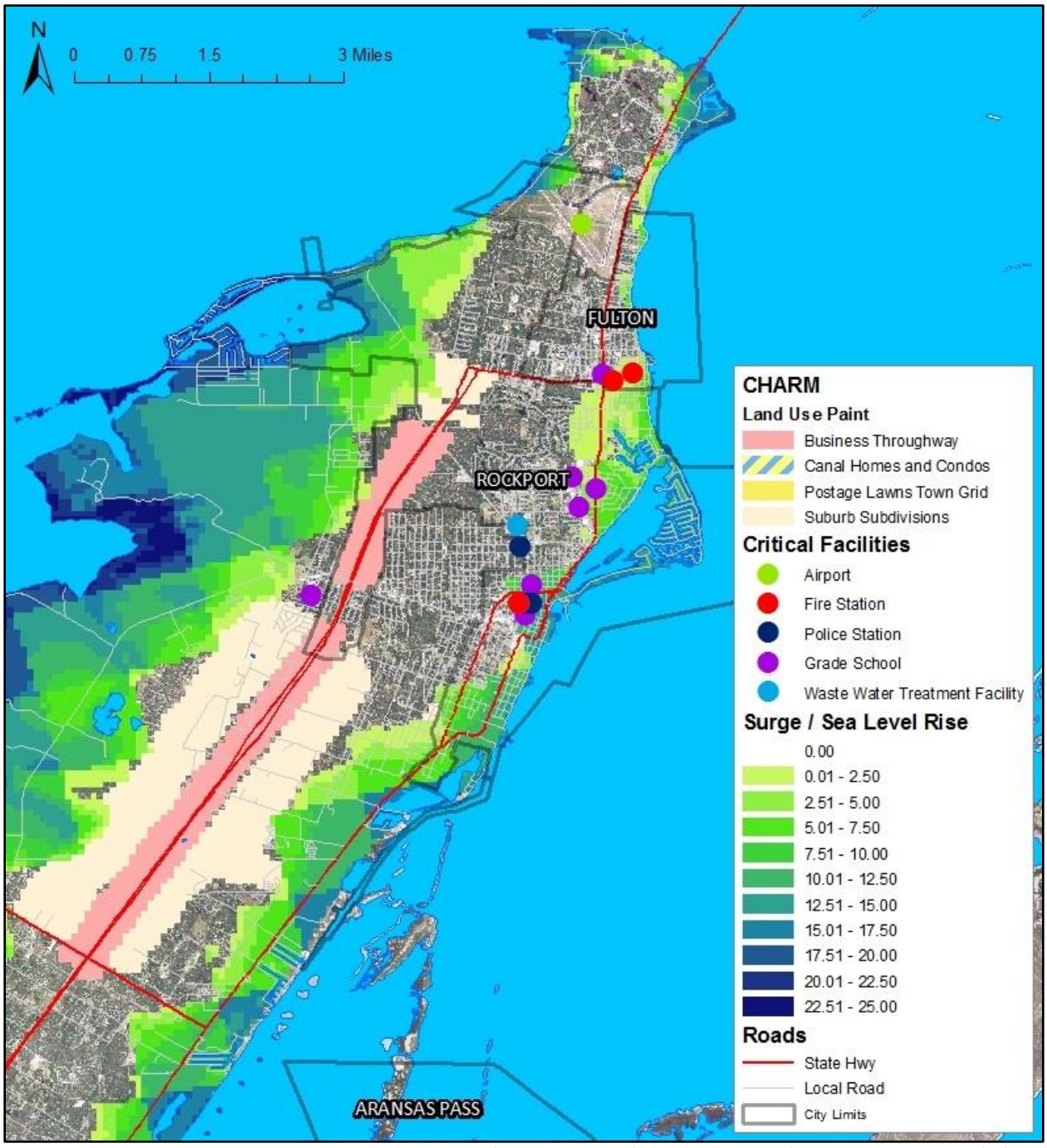

Figure 11: Development as Usual, Storm Surge Inundation.

LARGE DEVELOPMENT SCENARIO

The "Large Development" scenario is a community-generated scenario developed in the 2015 resiliency workshop which also uses the areas surrounding State Highway 35 as a source of development (see Figure 12, page 23). A large Suburb Subdivision is placed on the west side of the highway, south of Rockport's city limits. The Suburb Subdivision focuses on single-family homes. A Town Center Mixed Use development is placed just north of that subdivision, with most of the development occurring within the existing city limits. This will provide a densely built area of residences, retail and offices, which has a small town feel. A Low-rise Residential district lies east of the highway, mostly in a currently unincorporated portion of the county. This development will provide multi-family housing (e.g. apartments and condominiums) with a small amount of retail, and would expand the recent residential development in the area. This area sits between the two southern stretches of the City of Rockport and would be a logical area for annexation. The final development in this scenario is an additional Town Center Mixed Use area located just north of downtown Rockport.

The combination of the Low-Rise Residential and the Suburb Subdivision developments would present a large variety of homes, and help accommodate the relatively larger population growth anticipated in this scenario. The Town Center Mixed Use developments would provide homes as well, but would give equal access to retail shops and business offices. The mixed use developments would likely improve upon and expand the existing downtown area in Rockport, and allow the area to be walkable and transit friendly. The benefits of this type of development include maintaining Rockport's small—coastal—town feel, and maintaining the culture and connectedness of the community.

The "Large Development" scenario presents a 12% growth rate, which increases the population to 71,598 over 20 years. 22,961 new homes would be built, with 23% being located within the current city limits. This scenario provides an almost equal distribution of single-family (56%) and multi-family (44%) homes. This distribution is economically advantageous because multi-family housing is more affordable to the homeowner, while creating greater revenue on the city tax rolls. Likewise, the walkable, transit friendly, mixed use centers can allow for a greater variety of transportation options, possibly reducing the need for people to drive, and thus reduce the number of cars on the roads.

State Highway 35 is one of the highest points on Live Oak Peninsula. As such, development along this stretch would be ideal, given its elevation. However, this scenario focuses the Suburban Subdivision, and the Town Center Mixed Use developments along the western side of the highway. As such, the western most portions of both of these developments fall into the flood zones (see Figure 13, page 24). The development, as designed, would result in an additional 1,443 new homes (6%) falling within the 100-year floodplain, and an additional 4,014 new homes (17%) falling within the 500-year floodplain. These same areas have a high likelihood of being impacted by surge, if a Category 5 hurricane were to strike (see Figure 14, page 25). This scenario would result in an additional 6,740 new homes (32%) falling within the areas most likely to be impacted. The risks to homes and property, as well as the rising costs of flood insurance policies are considerations when developing in the floodplain. The ability of these homes to withstand the effects of flooding, and rebuild or recover following flood events, is another aspect to consider when developing in these areas.

The Suburban Subdivision development is built over a plethora of fresh water wetland areas (see Figure 15, page 26). These areas provide critical hydrologic functions by improving drainage, filtering runoff as it drains into the bay, and in retaining the water so that it does not flood developed areas. In total, this scenario results in in the loss of 422 acres of freshwater wetlands, and 62 acres of estuarine wetlands. This includes 156 new homes in or near estuarine wetlands, and 4,859 new homes in or near freshwater wetlands. If this scenario moved the proposed developments southwesterly, so that they straddle the highway, along with strategically placing a few conservation areas over some of the largest sections of wetlands, it would provide much needed natural buffers, reduce the amount of potential flooding, and help protect the investments made by homeowners, and the city in the future.

The amounts of water usage and impervious land cover are additional issues that will impact the city as it develops over time. Suburban Subdivisions, which make up a large percentage of the new development in this scenario, have one of the highest amounts of indoor water use per household. In addition, Suburban Subdivisions have the highest amount of outdoor usage. This would result in an overall increase in demand (new demand) for water in Rockport of 67% for indoor usage, and 33% for outdoor usage. Potential water demand continues to be an issue of concern.

Similarly, significant increases in impervious surfaces contribute to high amounts of water runoff during storms, flooding, and the reduced ability to recharge groundwater. The amount of impervious surface created in course of development is usually mitigated in some way; however, not all of the effects are mitigated, and these unmitigated effects accumulate over time, and must also be managed.

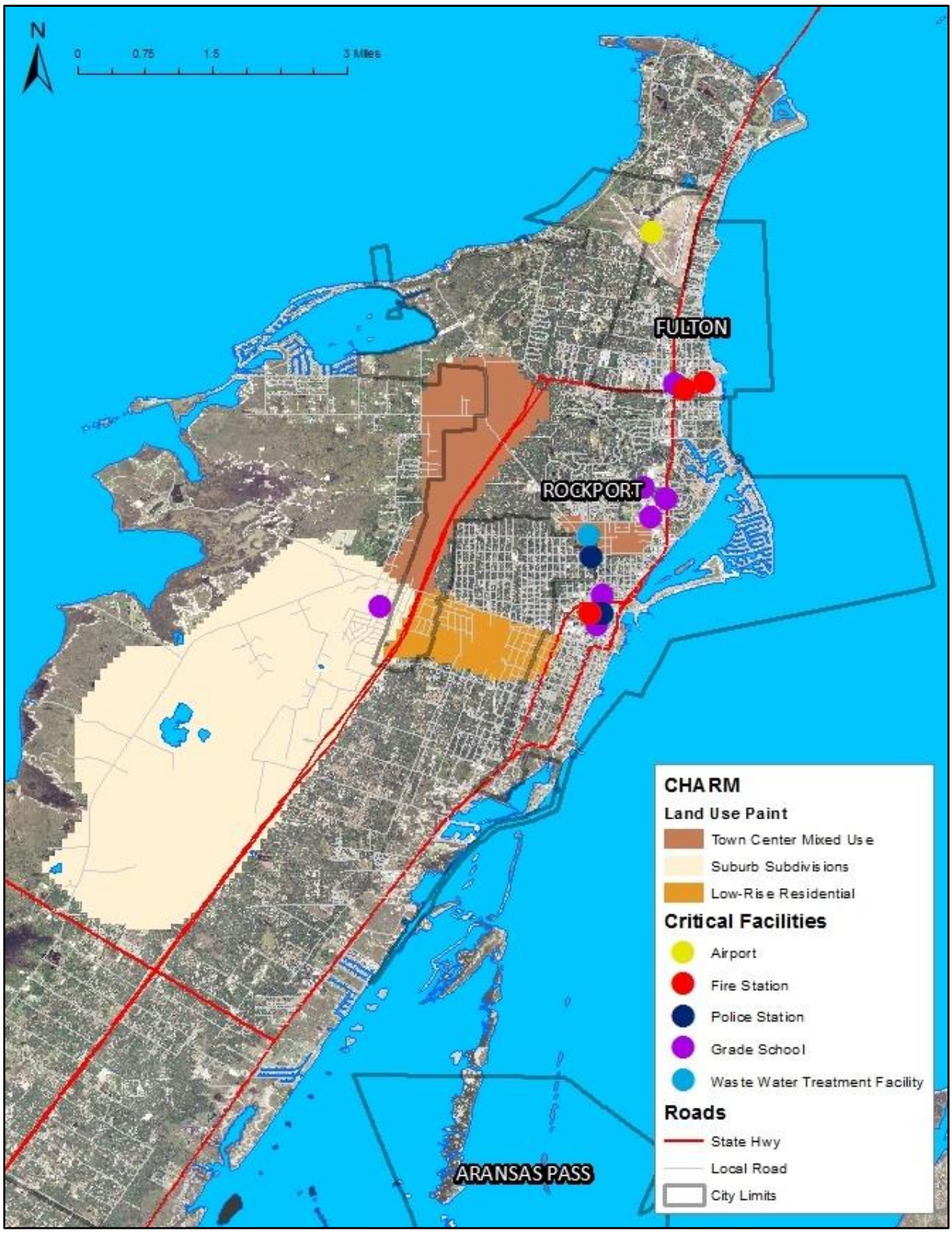

Figure 12: Large Development, Overview.

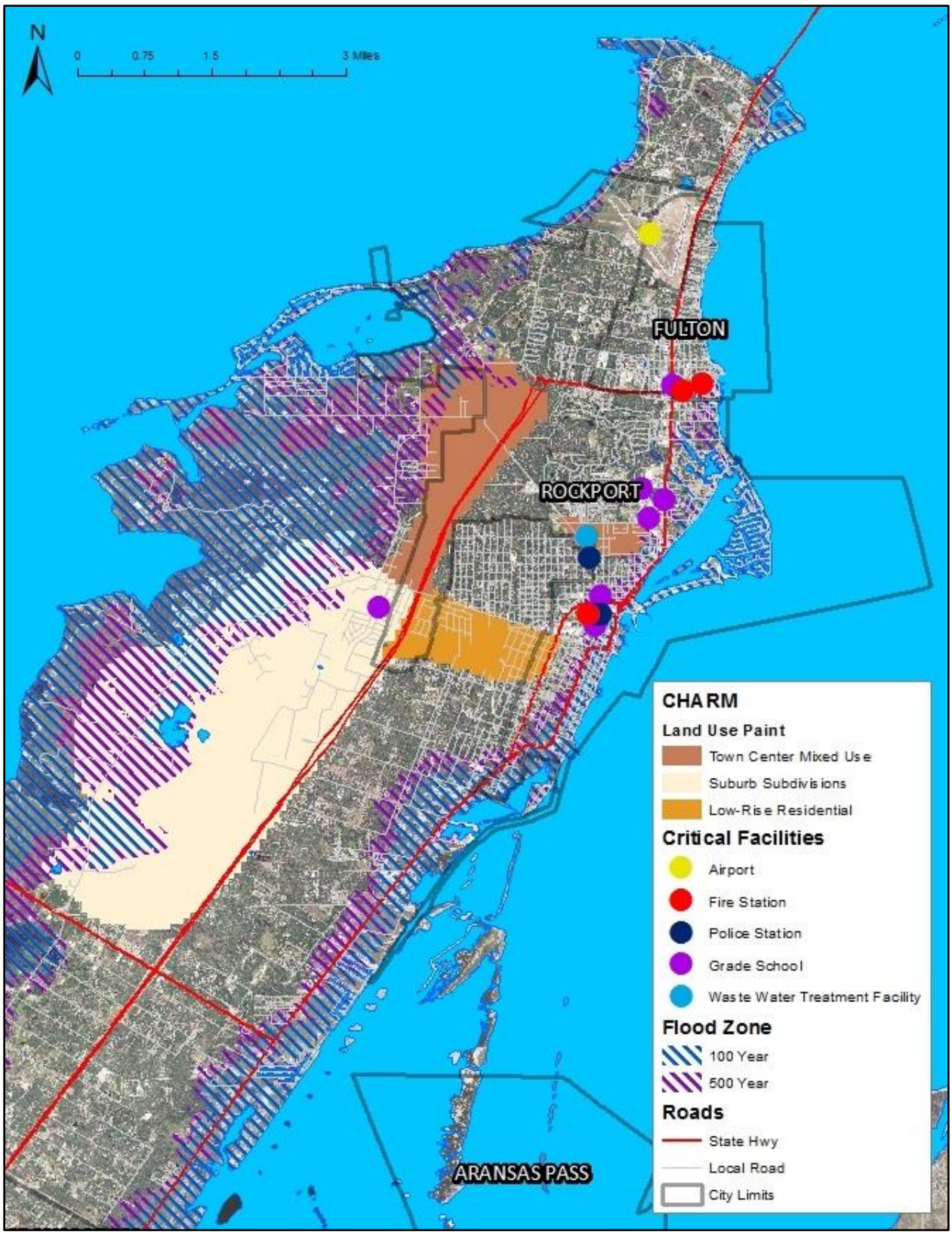

Figure 13: Large Development, Flood Zones.

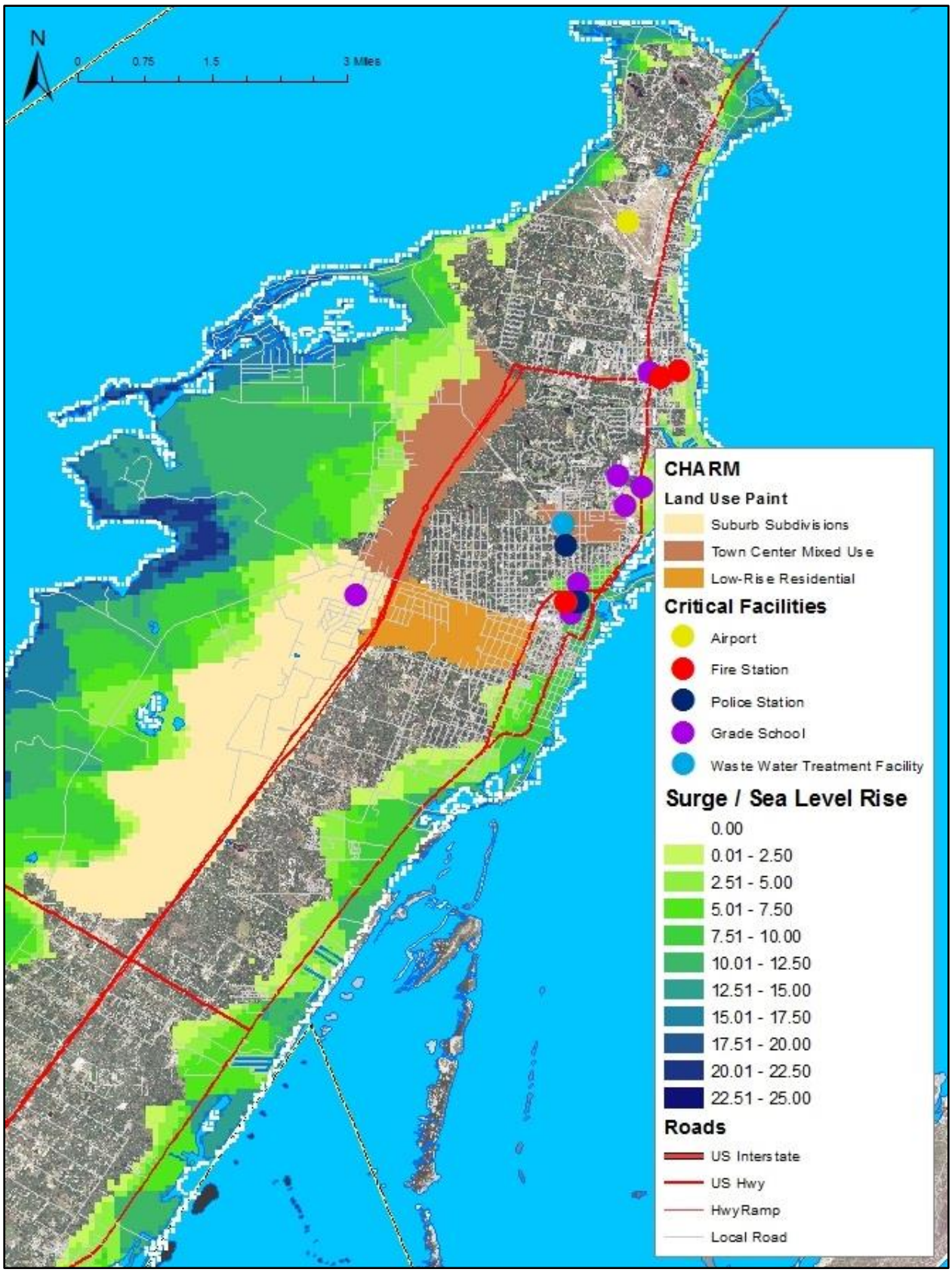

Figure 14: Large Development, Storm Surge Inundation.

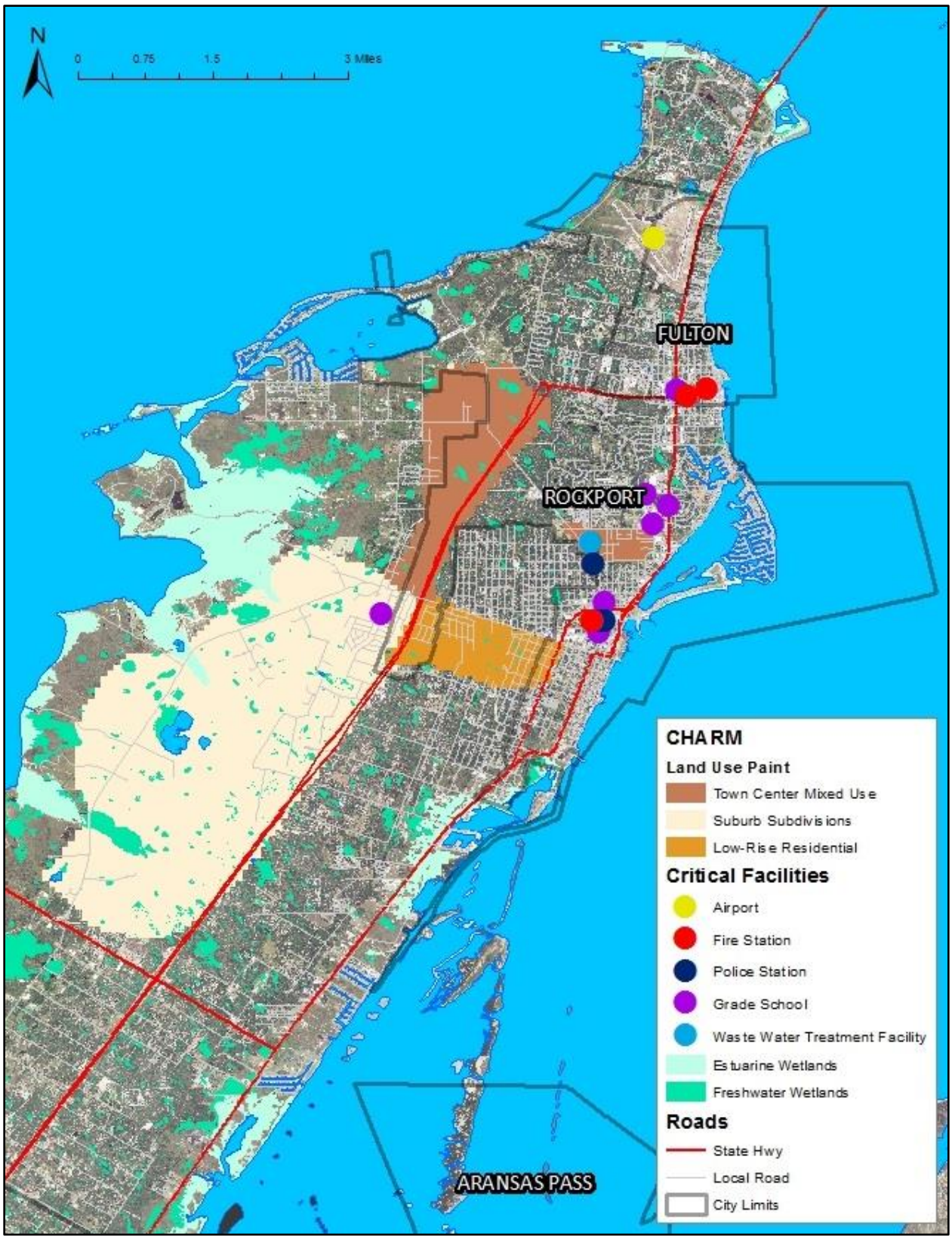

Figure 15: Large Development, Wetlands.

MAXIMUM DVELOPMENT SCENARIO

The "Maximum Development" scenario is a community-generated scenario created in the 2015 resiliency workshop that builds out most of Live Oak Peninsula, and redevelops portions of Rockport and Fulton. In doing this, it utilizes a variety of development types (nine), allowing for a diversity of life style options for the people of Rockport, while accommodating for the increased population expected in this scenario (see Figure 16, page 29). A large portion of the new development is Suburb Subdivision, which is 100% residential. In addition, sizeable patches of Postage Lawn Town Grid construction are located along the coast of Rockport, Fulton, the unincorporated area north of Fulton, and in the unincorporated region between the two southern stretches of Rockport. This development provides smaller lots (approximately one eighth of an acre in comparison to the quarter acre lots in Suburb Subdivision); but also includes a small percentage of neighborhood retail space. Canal Homes and Condo developments are located around Salt Lake, on Key Allegro, and along the southeastern coast of the peninsula, just south of the Rockport city limits. This type of development is even denser than the Postage Lawn Town Grid with approximately 10.8 units per acre. The development focuses on single-family homes (96%); but also offers a small amount of retail shop space (2%), and business establishments (2%).

Stretches of Business Throughway development are located along Business 35 in Fulton, Rockport, and south of Rockport. Other major roads such as Market Street and Corpus Christi Street also include Business Throughway development. These urbanized zones would allow more business and commercial buildings along with a small amount of residential use. In this scenario, some areas have been redeveloped or rezoned, such as downtown Rockport and a neighborhood just north of downtown. The downtown area is designated as Town Center Mixed Use, while the neighborhood just north is designated as Low-Rise Residential. In implementing these changes, these two area would evolve into a more densely developed mix of homes, businesses, and retail shops, which provide a small town character. This also allows for the larger population growth expected in this scenario to take up a smaller "footprint" than would be possible with the larger lot sizes utilized in suburban areas. The culture and small town feel can also be maintained through these planning strategies.

This scenario also includes areas for parks and recreation facilities and for conservation. Six park areas are designated, including the existing Rockport Beach and Memorial Park. The peninsula south of Salt Lake that juts into Copano Bay, two currently undeveloped areas within the Postage Lawn Town Grid developments, and a small area within the Town Center Mixed Use redevelopment area of downtown are also included. A large Conservation Area lies at the southeastern tip of Rockport's city limits and preserves critical wetland areas that improve drainage, serve as valuable migratory bird habitat, and enhance shoreline stability. This area also serves as an important natural space for residents and visitors, allowing appreciation of our coastal resources and a connection to the area's natural systems. Finally, the scenario includes a large area of Ranching and Agriculture along the southwest portion of the peninsula, west of the Suburban Subdivision, and south of the Canal Homes along Salt Lake.

This "Maximum Development" scenario models the highest growth rate (20%), and results in a population of 105,336 in 20 years. It provides 36,802 new homes (12,862 homes within the current city limits of Rockport). Single-family residences make up 85% of the new homes, while multi-family residences make up 15%. This scenario would result in 2,958 new homes (17%) being located in the 100-year flood zone, and 5,315 (14%) being located in the 500-year zone (see Figure 17, page 30). The majority of these homes are located on the coastal edge of the peninsula, or along the western most edge of the Suburb Subdivision development, closer to Copano Bay. In addition, the Business Throughway development along Business 35 south of Rockport and all of the Canal Homes and Condos throughout the county are within the flood zones. These same areas—approximately 18,193 new homes (36%)—would have a high likelihood of being impacted by surge inundation if the area were hit by a Category 5 hurricane (see Figure 18, page 31).

In this scenario, the largest area of Suburb Subdivision is built to avoid a large area of wetlands on the western side of the peninsula (see Figure 19, page 32). In addition, other patches of wetlands are protected by designating them for parks and conservation. This includes the conservation area in the southeastern tip of the city, Rockport Beach, the peninsula south of Salt Lake that juts into Copano Bay, and the two currently undeveloped areas within the Postage Lawn Town Grid developments. Regardless of these efforts to protect critical natural buffers, this scenario still has the greatest impacts, according to the indicators. It is important to understand that due to the maximum levels of development created (much greater than any of the other scenarios), it is logical that this scenario will have the highest impacts. This includes 1,305 new homes in or near estuarine wetlands, and 6, 363 new homes in or near freshwater wetlands. Ultimately, development is going to continue. However, the conservation of the largest unaltered areas of wetlands can provide critical buffers to development, and reduce the impacts of flooding. In addition, if development is going to be allowed to occur in areas which include wetlands, then additional regulations requiring minimal levels of freeboard would also help to protect these homes.

The amounts of water usage and impervious land cover are additional issues that will impact the city as it develops over time. Suburban Subdivisions, which make up a large percentage of the new development in this scenario, has one of the highest amounts of indoor water use per household. In addition, suburban subdivisions have the highest amount of outdoor usage. This would result in an overall increase in demand (new demand) for water in Rockport of 70% for indoor usage, and 30% for outdoor usage. Increases in suburban subdivision or other densely populated neighborhood are important factors in future water planning for the city. Similarly, significant increases in impervious surfaces contribute to high amounts of water runoff during storms, flooding, and the reduced ability to recharge groundwater. The amount of impervious surface created in course of development is usually mitigated in some way; however, not all of the effects are mitigated, and these unmitigated effects accumulate over time, and must also be managed.

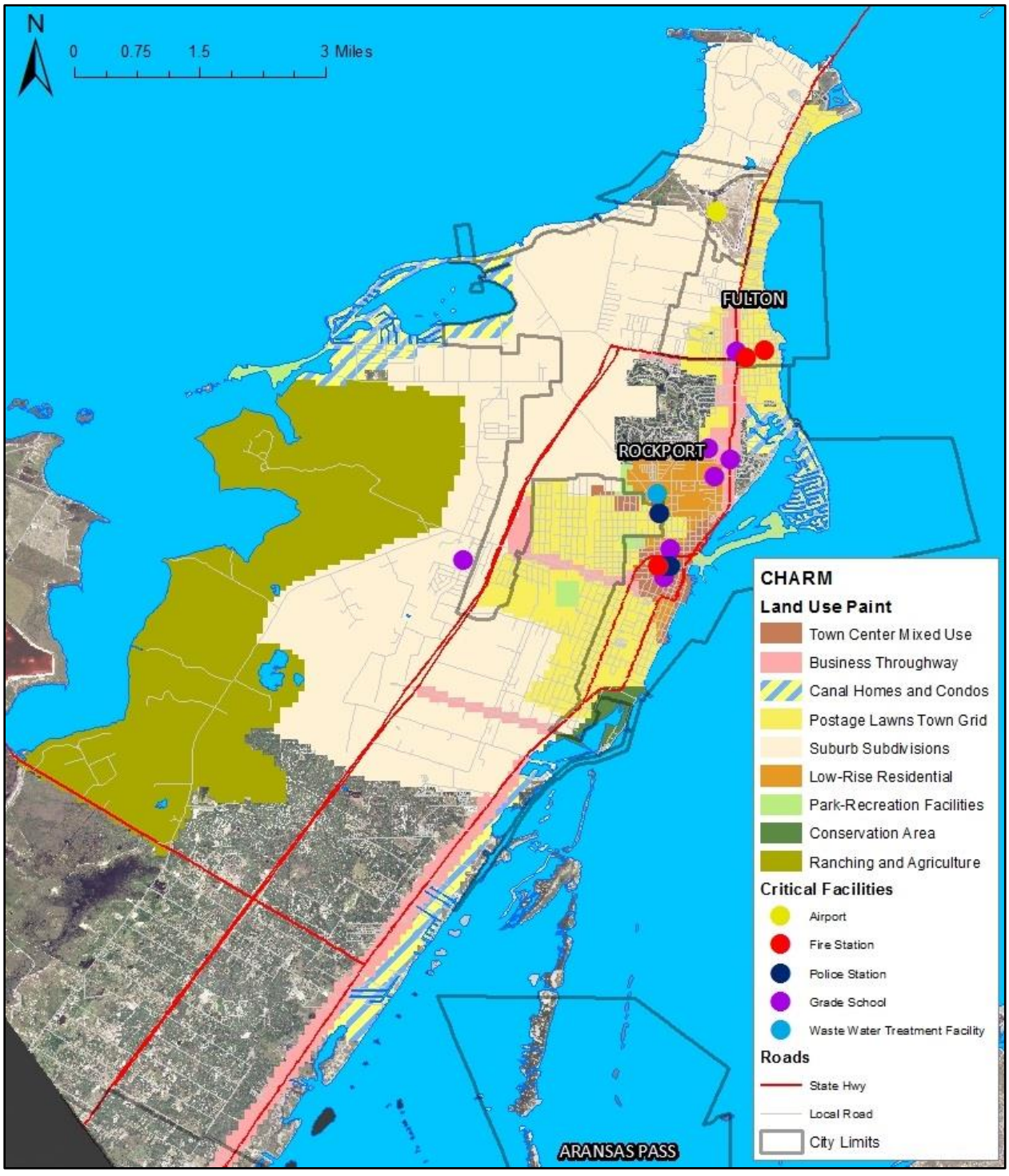

Figure 16: Maximum Development, Overview.

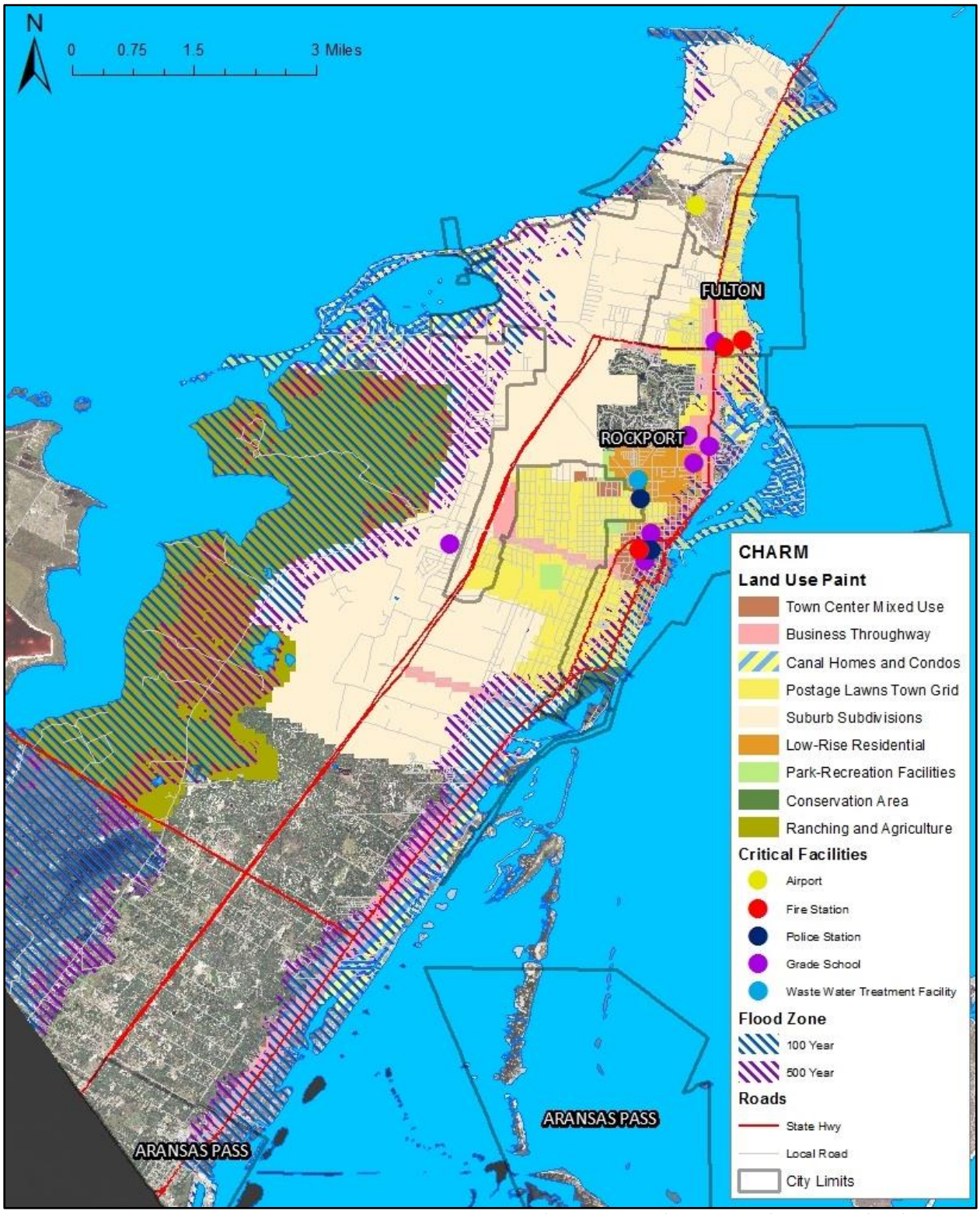

Figure 17: Maximum Development, Flood Zones.

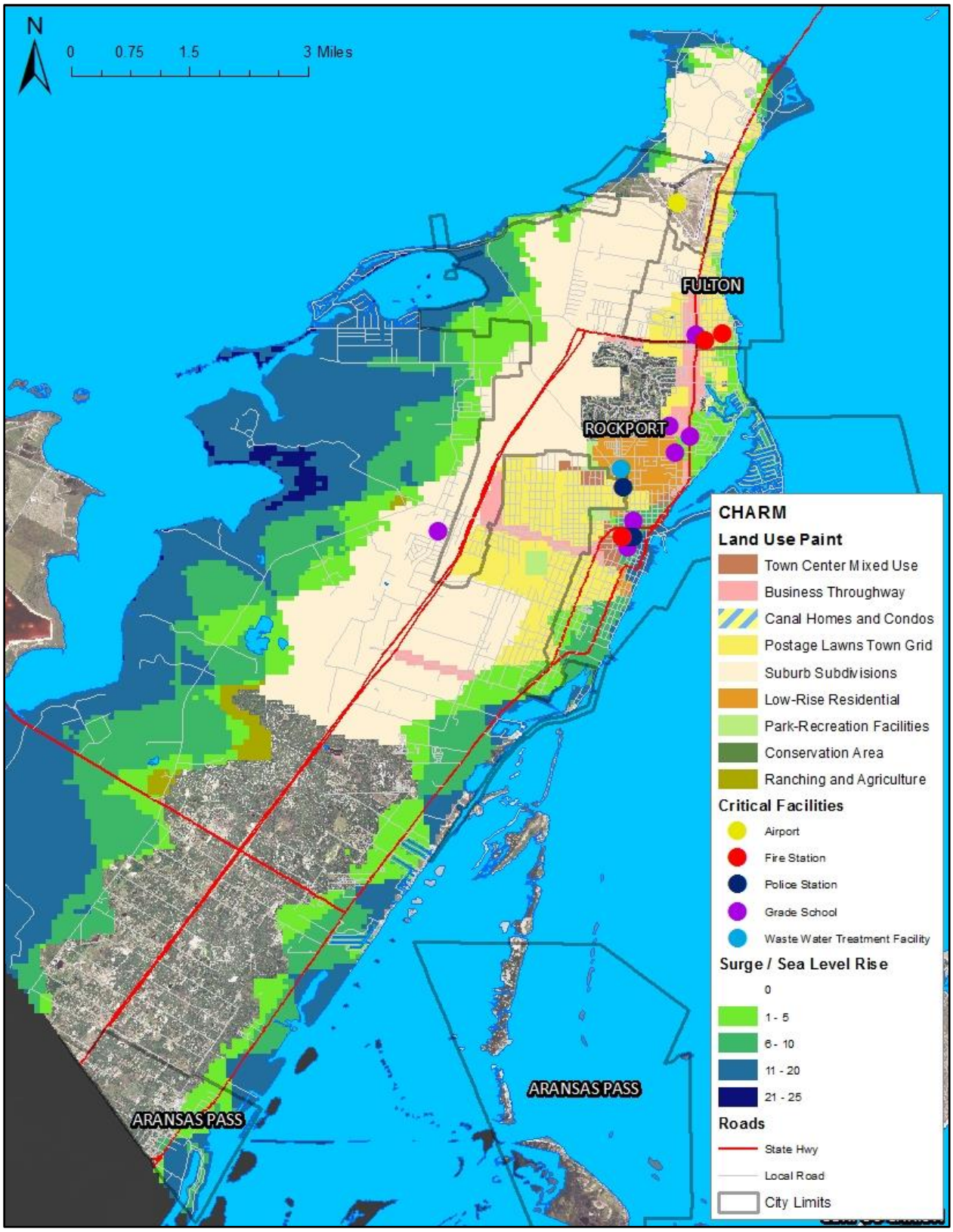

Figure 18: Maximum Development, Storm Surge Inundation.

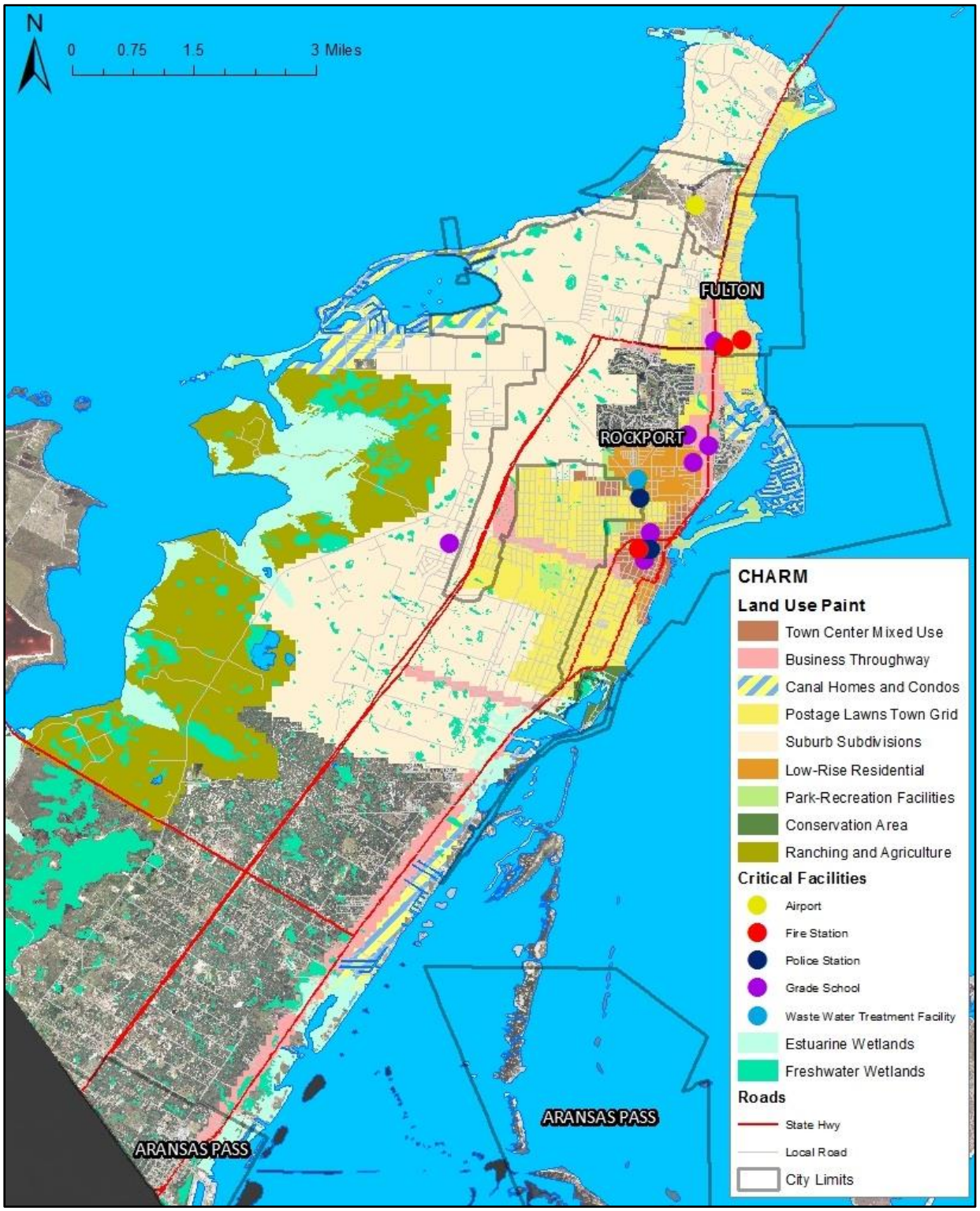

Figure 19: Maximum Development, Wetlands.

CONCLUSION

The CHARM mapping tool helps people visualize how today's planning decisions will affect tomorrow's environment and communities. The tool, and the data it generates, allows local officials and citizens to digitally map potential development scenarios, and see the probable ramifications with real-time feedback. As the City of Rockport and, Aransas County-pursue opportunities to better plan for the future, it is important to provide opportunities for community feedback in these decisions.

This report was deigned to inform citizens about the impacts of and ideas for possible planning alternatives, and open a dialog about what the community envisions for the future of Rockport. None of these scenarios are ideal; but, they are meant to showcase some potential opportunities. Reviewing these enables the community to begin examining and considering the impacts of the scenarios and the diversity of options they contain. As with any development, the community must assess the costs and benefits to all choices. The hope is that the citizens of Rockport can decide on an "ideal future scenario" that the community supports, and will work to develop over the next 20 years. The scenarios within this document provide a starting point—ideas that can be cultivated, altered, and transformed into a vision of Rockport's future.

The project staff would like to encourage the community to ask questions and actively participate in this discussion. The development decisions made now will affect the entire community for generations to come. It is important to evaluate what works, and what doesn't work, for the community at large. How will the Live Oak Peninsula look like in 20 years? Acting collaboratively, the citizens of this area have the ability to create a durable and safe future for Rockport. This effort can create a community that its citizens love and want to call home.

APPENDIX 1: SCENARIO INDICATORS

	Minimal Development	Development as Usual	Large Development	Maximum Development
Population				
Today	21,414	21,414	21,414	21,414
Future Scenario	34,195	47,264	71,598	105,336
Growth Rate	3%	6%	12%	20%
Homes (County Wide)				
Existing	13,741	13,741	13,741	13,741
New	5,493	11,106	22,961	36,802
Total Future	19,234	24,848	36,703	50,544
Homes (in Rockport)				
Existing	6,172	6,172	6,172	6,172
New	711	2,031	5,336	12,862
% of New county wide	13%	18%	23%	35%
Total Future	6,882	8,202	11,508	19,033
Homes (Not in Rockport)				
Existing	6,129	6,129	6,129	6,129
New	4,782	9,075	17,625	22,561
% of New county wide	87%	82%	77%	61%
Total Future	10,910	15,204	23,754	28,689
New Homes by Type (County Wide)				
Single-Family	4,257	8,990	12,902	31,278
% of Total new	77%	81%	56%	85%
Multi-Family	1,236	2,116	10,060	5,524
% of Total new	23%	19%	44%	15%
New Homes by Flood Zone (County Wide)				
Out	100%	92%	76%	68%
500 yr	0	5%	17%	14%
100 yr	0	3%	6%	17%
Total Homes in 100 yr Flood Zone (County Wide)				
Today	2,958	2,958	2,958	2,958
Future	2,958	3,295	4,401	9,313

	Minimal Development	Development as Usual	Large Development	Maximum Development
Total Homes in 500 yr Flood Zone (County Wide)				
Today	1,723	1,723	1,723	1,723
Future	1,723	2,248	5,737	7,038
Flood Depth of New Homes (100 yr Flood)				
0-3 ft	928	86	508	1846
3-6 ft	466	55	160	1,220
6-10 ft	21	0	1	90
10+ ft	0	0	0	8
Flood Depth of Total Future Homes (100 yr Flood)				
0-3 ft	928	1,014	1,436	2,774
3-6 ft	466	502	607	1,667
6-10 ft	21	21	21	110
10+ ft	0	0	0	8
Total Future Homes by Sea Level Rise (3 ft Assumption)				
Above	96%	97%	98%	97%
Below	4%	3%	2%	3%
Surge Risk to Homes (Category 5 Hurricane)				
Today Above	8,880	8,880	8,880	8,880
Today Surge	4,861	4,861	4,861	4,861
Future Above	14,373	19,062	25,101	32,351
Future Surge	4,861	5,786	11,602	18,193
% of Total future homes	25%	23%	32%	36%
New Homes by Surge Depth (Category 5 Hurricane)				
0-5 ft	0	520	3,205	4,659
5-10 ft	0	216	2,934	3,354
10-20 ft	0	189	601	5,248
20+ ft	0	0	0	72
Total Future Homes by Surge Depth (Category 5 Hurricane)				
0-5 ft	1,603	2,123	4,808	6,262
5-10 ft	1,781	1,997	4,715	5,135
10-20 ft	1,446	1,634	2,047	6,693
20+ ft	32	32	32	104

	Minimal Development	Development as Usual	Large Development	Maximum Development
Fire Stations by Surge Impact (Category 5 Hurricane)				
No Surge	2	2	2	2
Moderate	0	0	0	0
Major	0	0	0	0
Severe	1	1	1	1
Police Stations by Surge Impact (Category 5 Hurricane)				
No Surge	1	1	1	1
Moderate	0	0	0	0
Major	0	0	0	0
Severe	2	2	2	2
Grade Schools by Surge Impact (Category 5 Hurricane)				
No Surge	4	4	4	4
Moderate	1	1	1	1
Major	0	0	0	0
Severe	2	2	2	2
New Homes in or Near Wetlands				
Estuarine	0	2,547	156	1,305
Freshwater	2,337	3,562	4,859	6,363
Sum of New homes in or near wetlands	2,337	6,109	5,015	7,668
% of Total new homes	43%	55%	22%	21%
Wetlands Impacted				
Estuarine acres	129	79	62	1,965
Freshwater acres	177	281	422	1,336
Woodlands Impacted				
Woodland acres	1,229	2,547	2,162	4,005
New Demand for Domestic Water (Average Daily Household Use in Gallons)				
Kitchen/Bath/Laundry	116	116	109	114
Kitchen/Bath/Laundry (% increase)	72%	72%	67%	72%
Lawns and Pools	298	302	220	269
Lawns and Pools (% increase)	28%	28%	33%	30%

	Minimal Development	Development as Usual	Large Development	Maximum Development
Impervious Land Cover (ILC)				
Existing ILC	6%	6%	6%	12%
New ILC	3%	3%	9%	14%
Not ILC (Pervious Land Cover)	90%	86%	84%	74%
% of Total new homes	43%	55%	22%	21%