
Multiple Plan Analysis for Rockledge and Brevard County

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Plan Analysis

Introduction

This report summarizes the methods and results of a comprehensive plan review for the City of Rockledge and Brevard County. Resilience is a community's "ability to prepare and plan for, absorb, respond, recover from, and more successfully adapt to adverse events".ⁱ Measuring a community's resilience is challenging but essential. Various measures exist and for this analysis, 85 indicators of resilience were obtained from multiple sources including the planning literatureⁱⁱ, disaster resilience literatureⁱⁱⁱ, and best practices^{iv}.

In this analysis, the City of Rockledge's CMP scored well for resiliency (29.36 out of 50). Of the 85 indicators, 42% (n=36) were discussed throughout the plan in great detail, 21% (n=18) were discussed in the plan but not in depth, and 36% (n=31) were rarely or not discussed in plan. The majority of these indicators were in the Policies, Tools, and Strategies component, which also scored the second to lowest in the analysis (4.2 out of 10). This section of the full report details the literature, methods, results, and recommendations of the full analysis completed for this grant.

Resilience Literature

Contemporary discussions of resilience can be traced back to the ecological literature, in which Dr. C. S. Holling defined it as "a measure of an ecological system's 'ability to absorb changes of state variables, driving variables, and parameters, and still exist'".^v Since then, it has been applied to multiple disciplines including urban and regional planning, emergency and disaster management, public administration, and policy. This analysis uses the National Academies of Science's definition stated in the introduction above. Specifically, a community's resilience needs to align with its goals and vision, which planning scholars argue are detailed in a city or county's comprehensive master plan.^{vi} For this analysis, we reviewed the extensive planning literature^{vii}, disaster resilience literature^{viii}, and best practices^{ix} to create 85 indicators of resilience. (The full code book is included in Appendix A of this report.) Prior to our analysis, the staff with the City of Rockledge and East Central Florida Regional Planning Council reviewed the indicators.

Methods

Dr. Claire Connolly Knox, Associate Professor and Director of the Master of Emergency and Crisis Management Program in the School of Public Administration at the University of Central Florida, trained two graduate students (Master of Science in Urban and Regional Planning, Master of Public Administration) in coding methodology. The research team coded independently and held weekly phone calls to discuss conflicting codes. Once the coding was completed, Dr. Knox conducted an intercoder reliability test (Krippendorff's Alpha), in which all the coding scored at or above 0.87 (minimum required is 0.80). The research team coded two plans for this grant project: Rockledge's CMP and Brevard County's CMP (Results of the county's CMP analysis are in Appendix B).

Plan Evaluation and Quality

Analysis of the CMPs included an assessment process developed by Dr. Samuel Brody at Texas A&M University and used by other scholars.ⁱⁱ The assessment is comprised of five core components: Factual Basis; Goals and Objectives; Policies, Tools and Strategies; Inter-organizational Coordination; and Implementation and Monitoring (see Table 1 for description).

Table 1: Description of Core Components ^x

Component	Description
Factual Basis	Quality is dependent upon maps, videos, tables, checklists, and detailed plans and is critical in setting the direction for well-informed goals and policies.
Goals and Objectives	Specify ways to create a vision and evaluate its components in terms of thoroughness, clarity, long-term mindset, consistency, implementation strategies, and adoption protocols. Must value population safety, property, and the environment.
Policies, Tools, and Strategies	Incorporates the actual means to realizing the goals and objectives. May include development regulations, land and property acquisition, information dissemination, and building standards.
Interorganizational Coordination and Collaboration	Incorporate steps to ensure cooperation among specified levels of government, neighboring jurisdictions, and applicable agencies and organizations.
Implementation and Monitoring	Indicators include clarity of schedule, allocation of resources, and frameworks for program and process evaluation.

For the coding portion of the analysis, the two trained coders applied a three-point coding system generated from previous planning evaluation research to measure depth and breadth of the 85 resiliency indicators across the 5 components (See Table 2).^{xi}

Table 2: Indicator Measurement ^{vi}

Types	Score of 0	Score of 1	Score of 2
Factual-related indicators (described/classified/visualized)	Not described Not classified Not visualized/ mapped	Vague description No specific description Vague classification	Full identification Clear statement Classification/catalog
Goal-related indicators	Not identified	Vague identification No specific objectives	Clear identification Measurable objectives
Policy coordination/implementation indicators	Not identified/ adopted	Non-mandatory words: may/prefer/encourage/ suggest/should/intend/ consider to adopt	Mandatory words: mandate/must/will/shall /already adopted

Once the team completed the coding, the principal investigator further analyzed the data utilizing IBM SPSS software to measure the depth and breadth of the data. More specifically, the plan components and total plan quality were calculated with these equations:

$$PC_j = \frac{10}{2m} \sum_{i=1}^{mj} I_i$$

$$TPQ = 5 \sum_{j=1}^5 PC_j$$

Whereas PC_j is the quality of the jth plan component (with a range of 1-10); m_j is the number of indicators within the jth plan component; and the I_i is the ith plan indicator score (with a range of 0-2); and TPQ is the total score of the plan (with a range of 0-50).^{vi}

Results for Rockledge Comprehensive Master Plan

Plan Quality

With a maximum score of 50, Rockledge’s CMP scored a 29.36 indicating a good job overall. Of the 5 components, the highest score of 7.78 (on a 0-10 scale) is goals and objectives, with interorganizational coordination scoring a 7.50. This means the city demonstrates a very good job of these components in its comprehensive master plan. Compared to land use plan analysis in the U.S., this is an above average score and stronger than most other plans. The third highest score of 5.71 is factual basis indicating a good effort. Finally, coming in a close fourth and fifth are Policy, Tools, and Strategies at 4.20 and implementation and monitoring at 4.17. This result is not surprising as these categories tend to be the weakest one in comprehensive land use plan analysis across the U.S.^{xii} When looking for areas to increase the city’s resiliency, these categories would be the first to consider as it would have the greatest long-term impact on community resilience.

Table 3: Rockledge’s CMP Component and Total Plan Scores

	Score	Out of
Factual Basis	5.71	10
Goals and Objectives	7.78	10
Policies, Tools, and Strategies	4.20	10
Interorganizational Coordination	7.50	10
Implementation and Monitoring	4.17	10
Total Plan Quality	29.36	50

Indicator Depth

Indicators Discussed Thoroughly and in Great Detail

Of the 85 resiliency indicators, 42% (n=36) are those discussed throughout the city’s plan and in great detail. These indicators included full identification, clear statements, measurable objectives, and/or concrete language, such as “mandate” and “adopted”.

Table 4: Indicators Discussed Thoroughly and in Great Detail

Category	Indicator
<i>Factual Basis</i>	Significant natural resources, environmentally sensitive lands
	Scenic/historic areas, recreational resources, open spaces
	Coastal water and water quality
	Critical facilities and services
	Critical infrastructure
	Transportation, roads, and coastal access points
<i>Goals and Objectives</i>	Economic development, population growth, recreation needs
	Protect and restore significant coastal resources
	Prevent, reduce polluted runoff to coastal waters
	Protect life and property in hazardous areas
	Provide for priority water-dependent uses
	Improve public shoreline access
	Maximize energy efficiency and minimize greenhouse gas emissions

<i>Policies, Tools, and Strategies</i>	Residential subdivision ordinances
	Affordable housing
	Storm water retention requirements
	Limitation of shoreline development
	Restrictions on dredging/filling
	Wetlands protection regulations
	Coastal vegetation protection regulations
	Requirements for habitat protection/restoration
	Land acquisition
	Citizen involvement
	Requirements for locating public facilities and infrastructure
	Requirements for locating critical private facilities
Public-private partnerships	
<i>Interorganizational Coordination and Collaboration</i>	Coordination with other plans
	Coordination with related emergency management plans
	Internal local government collaboration
	External local government collaboration
	Coordination with surrounding and regional organizations
	Coordination with state agencies
	Coordination with federal agencies
	Coordination with private organizations
<i>Implementation and Monitoring</i>	Designation of responsibility
	Regular monitoring, review and updating

Below are a few details from this list of indicators.

- For the indicator, “requirements for locating critical private facilities”, the CMP is very clear for medical, which is why it scored well. However, there is nothing in the plan about other private facilities, such as schools, daycares, toxic, etc. We recommend reviewing FEMA’s website for a complete list of critical private facilities.^{xiii}
- The majority of indicators within the interorganizational coordination and collaboration category scored extremely well with reference to multiple state and local agencies. However, as noted below, the city needs to improve on coordination with nonprofit and faith-based organizations. This aligns with the “whole community” approach and increases buy-in to the local planning process.
- While the goal “protect life and property in hazardous areas” scored very well, it should be noted that many of the hazard-related indicators were not detailed or included in the plan (see further discussion below).

Indicators Discussed, But Not in Great Detail

Table 5 includes the 21% (n=18) of indicators discussed in the comprehensive master plan, but not in depth. The majority are in the policies, tools, and strategies component, which is consistent with analysis of other county master plans. These indicators would be considered the easiest to improve upon as they are discussed in the plan; however, each one needs to be more detailed, include measurable objectives, and include mandatory words (e.g., mandate, must, will, shall, adopt/ed).

Table 5: Indicators Discussed, But Not in Great Detail

Category	Indicator
<i>Factual Basis</i>	Coastal zone boundary and maps
	Disaster vulnerable areas
<i>Goals and Objectives</i>	Build disaster-resistant, healthy, safe community
	Promote sustainable growth in coastal communities
<i>Policies, Tools, and Strategies</i>	Special local hazard retrofit standards for existing infrastructure
	Special local utility codes
	Fee simple purchase of undeveloped lands
	Acquisition of development rights or easements
	Transfer of development rights
	Density bonuses
	Clustered development
	Public education
	Seminars for developers and builders
	Impact fees
	Land trusts
<i>Interorganizational Coordination and Collaboration</i>	Identify stakeholders and their interests
	Coordination with non-profit organizations
<i>Implementation and Monitoring</i>	Amendment procedures

Below are a few details from this list of indicators.

- For the indicator, “promote sustainable growth in coastal communities”, the focus is on transportation, building, and energy efficiency; however, there are no measurable objectives.
- Regarding “disaster vulnerable areas”, there is only light reference to this indicator. The CMP provides no details, nor are there any maps or hazard analysis included. This aligns with many of the hazard related resilience indicators that were rarely or not discussed in the following section.
- There was limited discussion of “special local hazard retrofit standards for existing infrastructure” in the CMP. Specifically, there was reference to storm water, but not other city infrastructure. We recommend expanding to include the city’s other infrastructure.
- Regarding “density bonuses”, the CMP primarily included non-mandatory language, except for reference to transit-oriented development. The remaining references are non-committal - "will investigate the possibility of", "will consider adopting", and "will evaluate".
- “Public education” indicator was limited to only landscaping materials.
- For “seminars for developers and builders”, it is unclear as to whom the CMP is referring to - is the city promoting the training to the city workers or the private sector? Additionally, the seminars are limited the energy conservation techniques.
- In the indicator, “identify stakeholders and their interests,” the CMP limits its discussion to low-income populations. While an important population to consider in the plan, we recommend expanding to include other portions of the population.
- The plan addresses one specific “non-profit organization” – the United Way; however, it does not broadly address coordination with nonprofit organizations. From page 87: “The City of Rockledge may work with United Way or other agencies involved in the provision of housing to inform the public regarding housing programs that exist in Rockledge through these agencies.” We recommend expanding the city’s inclusion of nonprofit organization in various parts of the CMP.

Indicators Rarely or Not Discussed Thoroughly

Finally, Table 6 includes the 36% (n=31) of indicators not discussed or are rarely discussed in Rockledge’s plan. We recommend adding these indicators to the master plan. In our analysis, the emergency management related information was thoroughly discussed in great detail in Brevard County’s Comprehensive Emergency Management Plan. However, similar to other U.S. communities, the plans are not linked together, which is an opportunity to increase Rockledge’s resilience.

Table 6: Indicators Rarely or Not Discussed Thoroughly

Category	Indicator
<i>Factual Basis</i>	Major coastal zone management laws and regulations
	Coastal Construction Control Line
	Identification of vulnerable populations
	Previous disaster experience
	Global warming, climate change, sea level rise
<i>Goals and Objectives</i>	Improve government coordination and decision-making
<i>Policies, Tools, and Strategies</i>	Planned unit development
	Special overlay districts
	Agricultural or open space zoning
	Performance zoning
	Hazard setback ordinances
	Environmental impact assessment requirements
	Restrictions on shoreline armoring
	Dune protection regulations
	Special local standards for hazard resistance in new buildings
	Special local hazard retrofit standards for existing buildings
	Relocating existing buildings
	Formal education/training of staff
	Hazard disclosure requirements in real estate transactions
	Hazard zone signs
	Using urban service areas to limit development
	Lower tax rates for preservation
	Special tax assessment districts
	Tax abatement for mitigation methods for new development
	Suitable building sites in hazard prone areas
	Special building techniques for hazard prone areas
<i>Interorganizational Coordination and Collaboration</i>	Coordination with faith-based organizations
	Volunteer collaboration
<i>Implementation and Monitoring</i>	Clear timetable for implementation
	Necessary technical assistance
	Reliable financial support

Below are a few details from this list of indicators.

- While the city scored very well for the multiple indicators measuring Interorganizational Coordination and Collaboration, we note that the indicator, “improve government coordination and decision making”, was not addressed. Within the CMP, the focus is on maintenance and developing; we recommend adding language regarding improving coordination and decision making.
- The plan denotes open space and recreation goals and open space requirements for certain development; however, there is nothing for “agricultural lands or open space zoning”.
- For the indicator, “performance zoning”, the CMP denotes performance standards for developments and roadways/transportation; however, there is no mention of performance zoning within the plan.
- “Urban Service Areas” are defined in the CMP, but they are not identified as tools with which to limit development.
- While there is mention of an environmental audit in the plan, there is no mention of “environmental impact statements or environmental impact assessments”.
- The CMP defines shoreline armoring as shoreline protection structures; however, there are no “restrictions on shoreline armoring” denoted in the plan.
- There were no details or standards for the indicator “special local hazard retrofit standards for existing buildings”. We recommend including stronger standards similar to requirement to elevate buildings in flood zones in New Orleans, LA, following Hurricane Katrina in 2005 and Houston, TX, following Hurricane Harvey in 2017.
- For “clear timetable for implementation” of the CMP, there is only mention of a five-year schedule for the Capital Improvements element. There is no mention of a timetable for the entire plan.

Discussion

Comparison of Rockledge and Brevard County CMPs

Overall, the county’s CMP analysis results were 5.07 points stronger than the city’s results (34.43 versus 29.36 respectively) (see Table 7). (Full analysis is included in Appendix B).

Table 7: Brevard County’s CMP Component and Total Plan Scores

	Score	Out of
Factual Basis	8.21	10
Goals and Objectives	8.33	10
Policies, Tools, and Strategies	5.80	10
Interorganizational Coordination	7.92	10
Implementation and Monitoring	4.17	10
Total Plan Quality	34.43	50

Common indicators rarely or not discussed in both the city and county CMPs are listed in Table 8.

Table 8: Indicators rarely or not discussed either plan

Category	Indicator
<i>Factual Basis</i>	Previous disaster experience
<i>Goals and Objectives</i>	Improve government coordination and decision-making
<i>Policies, Tools, and Strategies</i>	Hazard setback ordinances
	Special local standards for hazard resistance in new buildings
	Hazard disclosure requirements in real estate transactions
	Hazard zone signs
	Lower tax rates for preservation
	Special tax assessment districts
	Tax abatement for mitigation methods for new development
	Suitable building sites in hazard prone areas
	Special building techniques for hazard prone areas
<i>Interorganizational Coordination and Collaboration</i>	Coordination with faith-based organizations
<i>Implementation and Monitoring</i>	Clear timetable for implementation

Specifically, coordination with faith-based organizations indicator was never discussed in the City’s or County’s CMP; however, it was included in the county’s Comprehensive Emergency Management Plan. Including the whole community is essential in community resilience. We recommend either engaging with this sector of the community, or if this is already occurring, include it using mandatory words.

For every \$1 spent on flood mitigation, saves a community \$6 post disaster.^{xiv} This National Institute of Buildings 2017 report specifically mentions adapting building codes in hazard prone areas. Many of the resilience indicators in Table 8 above coincide with this recommendation. Specifically, three factors in the Policies, Tools, and Strategies category – “Special local standards for hazard resistance in new buildings”, “Special local hazard retrofit standards for existing buildings”, and “Tax abatement for mitigation methods for new development” – are directly related to the recommendations from this report and we recommend strengthening them. Including hazard related elements in a comprehensive master plan is a critical element of resiliency as hazard plans do not have legal standing as master plans do. As seen in the 2016 Louisiana Floods and Hurricane Harvey in 2017, allowing development in flood prone areas, especially floodplains, increase residents’ vulnerability and decreases a community’s resiliency. Research studies conclude that communities that include hazard reduction related information in their comprehensive master plans experience less damage from a disaster and rebound more quickly; essentially the definition of resilience.^{xv}

Conclusion

This analysis empirically tested indicator breadth and depth along with the total plan quality for the City of Rockledge and Brevard County’s Comprehensive Master Plans. While the county’s plan scored higher across the five components and for the total plan quality, the city’s scores were in line with previous studies.^{iv} The weakness for both plans lies in the “Policies, Tools, and Strategies” and “Implementation and Monitoring” components, which is consistent with the planning literature.^{iv}

Results highlight a strength among 42% (n=36) of the 85 resiliency indicators used in the analysis of the City of Rockledge’s comprehensive master plan. Of the remaining indicators, 21% (n=18) are included but

not thoroughly or in great detail. These are the factors we recommend the city focus on to build resiliency as they are included in the current comprehensive master plan but are lacking details and/or mandatory words. Finally, 36% (n=31) of the indicators are rarely or not discussed in the city's plan. While many of them are included in Brevard County's Comprehensive Emergency Management Plan, we recommend increasing the city's resiliency by incorporating these factors into the comprehensive master plan.

Recommendations

Below are specific recommendations based on this analysis, which are also discussed throughout this report:

- For the indicator, “requirements for locating critical private facilities”, the CMP is very clear for medical, which is why it scored well. However, there is nothing in the plan about other private facilities, such as schools, daycares, toxic, etc. We recommend reviewing FEMA’s website for a complete list of critical private facilities.^{xvi}
- The majority of indicators within the interorganizational coordination and collaboration category scored extremely well with reference to multiple state and local agencies. However, we note that the indicator, “improve government coordination and decision making”, was not addressed. Within the CMP, the focus is on maintenance and developing; we recommend adding language regarding improving coordination and decision making.
- On a related note, the city needs to improve on coordination with nonprofit and faith-based organizations. The plan addresses one specific “non-profit organization” – the United Way; however, it does not broadly address coordination with nonprofit organizations. We recommend expanding the city’s inclusion of nonprofit organization in various parts of the CMP. This aligns with the “whole community” approach and increases buy-in to the local planning process.
- While the goal “protect life and property in hazardous areas” scored very well, it should be noted that many of the hazard-related indicators were not detailed or included in the plan
- For the indicator, “promote sustainable growth in coastal communities”, the focus is on transportation, building, and energy efficiency; however, there are no measurable objectives.
- Regarding “disaster vulnerable areas”, there is only light reference to this indicator. The CMP provides no details, nor are there any maps or hazard analysis included. This aligns with many of the hazard related resilience indicators that were rarely or not discussed.
- There was limited discussion of “special local hazard retrofit standards for existing infrastructure” in the CMP. Specifically, there was reference to storm water, but not other city infrastructure. We recommend expanding to include the city’s other infrastructure.
- Regarding “density bonuses”, the CMP primarily included non-mandatory language, except for reference to transit-oriented development. The remaining references are non-committal - "will investigate the possibility of", "will consider adopting", and "will evaluate".
- “Public education” indicator was limited to only landscaping materials.
- For “seminars for developers and builders”, it is unclear as to whom the CMP is referring to - is the city promoting the training to the city workers or the private sector? Additionally, the seminars are limited the energy conservation techniques.
- In the indicator, “identify stakeholders and their interests,” the CMP limits its discussion to low-income populations. While an important population to consider in the plan, we recommend expanding to include other portions of the population.
- The plan denotes open space and recreation goals and open space requirements for certain development; however, there is nothing for “agricultural lands or open space zoning”.

- For the indicator, “performance zoning”, the CMP denotes performance standards for developments and roadways/transportation; however, there is no mention of performance zoning within the plan.
- “Urban Service Areas” are defined in the CMP, but they are not identified as tools with which to limit development.
- While there is mention of an environmental audit in the plan, there is no mention of “environmental impact statements or environmental impact assessments”.
- The CMP defines shoreline armoring as shoreline protection structures; however, there are no “restrictions on shoreline armoring” denoted in the plan.
- There were no details or standards for the indicator “special local hazard retrofit standards for existing buildings”. We recommend including stronger standards similar to requirement to elevate buildings in flood zones in New Orleans, LA, following Hurricane Katrina in 2005 and Houston, TX, following Hurricane Harvey in 2017.
- For “clear timetable for implementation” of the CMP, there is only mention of a five-year schedule for the Capital Improvements element. There is no mention of a timetable for the entire plan.
- Some of these indicators are linked, so improving one can improve others (as seen in the vulnerable population discussion above).
- Many of the hazard-related indicators need to be included and/or more detailed in the city and county CMP to increase the disaster resilience.
- Overall, change as many of the “should” words to “shall” to strengthen the resiliency of Rockledge.

Appendix A

Resiliency Planning Coding Indicators for Rockledge and Brevard County Comprehensive Master Plans

I. Factual Basis

- Major coastal zone management laws and regulations
- Coastal zone boundary and maps (Location-based disaster risk information, i.e., GIS maps)
- Significant natural resources and environmentally sensitive lands
- Scenic and historic areas, recreational resources, and open spaces
- Disaster vulnerable areas (Risk or hazard information/details specific to their county pre and post disaster)
- Identification of vulnerable populations (elderly, unregistered/undocumented individuals, low socio-economic status, medically assisted individuals, prisoners, etc.)
- Previous disaster experience: lessons learned/actions taken because of a previous disaster
- Coastal water and water quality
- Critical facilities and services (hospitals, fire stations, city hall/government buildings, police stations, EOC, etc.)
- Critical infrastructure (wastewater treatment system, power grid, water purification system, roads, levees, dikes, seawalls, 911 system, communications system, etc.)
- Transportation, roads, and coastal access points
- Economic development, population growth, recreation needs
- Global warming, climate change, and sea level rise
- Coastal Construction Control Line

II. Goals and Objectives

- Protect and restore significant coastal resources
- Prevent, reduce polluted runoff to coastal waters
- Protect life and property in hazardous areas
- Build disaster-resistant, healthy, safe community
- Promote sustainable growth in coastal communities
- Provide for priority water-dependent uses
- Improve public shoreline access
- Improve government coordination and decision-making
- Maximize energy efficiency and minimize greenhouse gas emissions

III. Policies, Tools, and Strategies

- Residential subdivision ordinances
- Planned unit development
- Affordable housing
- Special overlay districts
- Agricultural or open space zoning
- Performance zoning
- Hazard setback ordinances
- Storm water retention requirements

- Environmental impact assessment requirements
- Limitation of shoreline development
- Restrictions on shoreline armoring
- Restrictions on dredging/filling
- Dune protection regulations
- Wetlands protection regulations
- Coastal vegetation protection regulations
- Requirements for habitat protection/restoration
- Special local standards for hazard resistance in new buildings
- Special local hazard retrofit standards for existing buildings
- Special local utility codes
- Fee simple purchase of undeveloped lands
- Acquisition of development rights or easements
- Land acquisition
- Relocating existing buildings
- Transfer of development rights
- Density bonuses
- Clustered development
- Public education
- Citizen involvement
- Formal education/training of staff
- Seminars for developers and builders
- Hazard disclosure requirements in real estate transactions
- Hazard zone signs
- Requirements for locating public facilities and infrastructure
- Requirements for locating critical private facilities
- Using urban service areas to limit development
- Lower tax rates for preservation
- Special tax assessment districts
- Tax abatement for mitigation methods for new development
- Impact fees
- Land trusts
- Public–private partnerships
- Suitable building sites in hazard prone areas
- Special building techniques for hazard prone areas

IV. Inter-organizational Coordination and Collaboration

- Identify stakeholders and their interests
- Coordination with other plans
- Coordination with related emergency management plans (Comprehensive Emergency Management Plan, Hazard Mitigation Plan, etc.)
- Internal local government collaboration (local government agencies within the county)
- External local government collaboration (local government agencies outside the county)
- Coordination with surrounding and regional organizations
- Coordination with state agencies
- Coordination with federal agencies
- Coordination with private organizations

-
- Coordination with non-profit organizations (NGOs)
 - Coordination with faith-based organizations
 - Volunteer collaboration

V. Implementation and Monitoring

- Designation of responsibility
- Clear timetable for implementation
- Necessary technical assistance
- Reliable financial support
- Regular monitoring, review and updating (evaluation)
- Amendment procedures

Appendix B

Results of the Brevard County Comprehensive Master Plan Analysis

Similar to the analysis completed for Rockledge’s Comprehensive Master Plan, below are the results of the analysis on the county’s Comprehensive Master Plan.

Table 9: Brevard County’s CMP Component and Total Plan Scores

	Score	Out of
Factual Basis	8.21	10
Goals and Objectives	8.33	10
Policies, Tools, and Strategies	5.80	10
Interorganizational Coordination	7.92	10
Implementation and Monitoring	4.17	10
Total Plan Quality	34.43	50

Indicators Discussed Thoroughly and in Great Detail

Of the 85 resiliency indicators, 51% (n=43) are those discussed throughout the county’s plan and in great detail. These indicators included full identification, clear statements, measurable objectives, and/or concrete language, such as “mandate” and “adopted”.

Table 10: Indicators Discussed Thoroughly and in Great Detail

Category	Indicator	
<i>Factual Basis</i>	Major coastal zone management laws and regulations	
	Coastal Construction Control Line	
	Coastal zone boundary and maps	
	Significant natural resources, environmentally sensitive lands	
	Scenic/historic areas, recreational resources, open spaces	
	Coastal water and water quality	
	Critical facilities and services	
	Critical infrastructure	
	Transportation, roads, and coastal access points	
	Economic development, population growth, recreation needs	
<i>Goals and Objectives</i>	Protect and restore significant coastal resources	
	Prevent, reduce polluted runoff to coastal waters	
	Protect life and property in hazardous areas	
	Promote sustainable growth in coastal communities	
	Provide for priority water-dependent uses	
	Improve public shoreline access	
	Maximize energy efficiency and minimize greenhouse gas emissions	
	<i>Policies, Tools, and Strategies</i>	Special overlay districts
		Performance zoning
		Storm water retention requirements
Environmental impact assessment requirements		

	Limitation of shoreline development
	Restrictions on shoreline armoring
	Restrictions on dredging/filling
	Dune protection regulations
	Wetlands protection regulations
	Coastal vegetation protection regulations
	Requirements for habitat protection/restoration
	Special local hazard retrofit standards for existing infrastructure
	Land acquisition
	Transfer of development rights
	Public education
	Requirements for locating public facilities and infrastructure
	Impact fees
<i>Interorganizational Coordination and Collaboration</i>	Coordination with other plans
	Coordination with related emergency management plans
	Internal local government collaboration
	External local government collaboration
	Coordination with surrounding and regional organizations
	Coordination with state agencies
	Coordination with federal agencies
	Coordination with non-profit organizations
<i>Implementation and Monitoring</i>	Necessary technical assistance

Indicators Discussed, But Not in Great Detail

Table 11 includes the 32% (n=27) of indicators discussed in the comprehensive master plan, but not in depth. The majority are in the policies, tools, and strategies component, which is consistent with analysis of other county master plans. These indicators would be considered the easiest to improve upon as they are discussed in the plan; however, each one needs to be more detailed, include measurable objectives, and include mandatory words (e.g., mandate, must, will, shall, adopt/ed).

Table 11: Indicators Discussed, But Not in Great Detail

Category	Indicator
<i>Factual Basis</i>	Disaster vulnerable areas
	Identification of vulnerable populations
	Global warming, climate change, sea level rise
<i>Goals and Objectives</i>	Build disaster-resistant, healthy, safe community
<i>Policies, Tools, and Strategies</i>	Residential subdivision ordinances
	Planned unit development
	Affordable housing
	Agricultural or open space zoning
	Special local hazard retrofit standards for existing infrastructure
	Special local utility codes
	Fee simple purchase of undeveloped lands
	Acquisition of development rights or easements
	Relocating existing buildings
	Density bonuses

	Clustered development
	Citizen involvement
	Formal education/training of staff
	Seminars for developers and builders
	Requirements for locating critical private facilities
	Using urban service areas to limit development
	Public–private partnerships
<i>Interorganizational Coordination and Collaboration</i>	Identify stakeholders and their interests
	Coordination with private organizations
	Volunteer collaboration
<i>Implementation and Monitoring</i>	Designation of responsibility
	Reliable financial support
	Amendment procedures

Below are details about these indicators:

- The plan details special needs populations; however, it is limited to only that population. There are other “vulnerable populations” the county needs to consider and include in the plan.
- Plan specifically addresses a “safe and healthy city” by focusing on transportation access and complete streets. Recommend expanding to include disaster resilient measures in the plan.
- For the “formal education/training of staff” indicator, it is limited to transportation and emergency management.
- “Various stakeholders” are mentioned in different areas throughout the plan; however, their interests are not identified.
- “Coordination with private organizations” indicator is only discussed in relation to recreational needs. Recommend expanding coordination efforts with the private sector in other areas of the plan.
- “Responsibility for plan implantation and monitoring” is delegated in pieces, but there is no delegation for the entire plan.
- “Financial support” is also addressed in pieces. Most of the time, funding is qualified with "as available."
- For “amendment procedures” for the plan, there is the only one mention of amendment procedures and no details are provided.
- While there is no mention of the county’s plan implementation, there is mention of a timetable for implementation of the conservation management plan and development of a monitoring and reporting program to track the implementation.

Indicators Rarely or Not Discussed Thoroughly

Finally, Table 12 includes the 18% (n=15) of indicators not discussed or are rarely discussed in the county’s plan. We recommend adding these indicators to the master plan. In our analysis, the emergency management related information was thoroughly discussed in great details in Brevard County’s Comprehensive Emergency Management Plan. However, similar to other U.S. communities, the plans are not linked together, which is an opportunity to increase county’s resilience.

Table 12: Indicators Rarely or Not Discussed Thoroughly

Category	Indicator
<i>Factual Basis</i>	Previous disaster experience
<i>Goals and Objectives</i>	Improve government coordination and decision-making
<i>Policies, Tools, and Strategies</i>	Hazard setback ordinances
	Special local standards for hazard resistance in new buildings
	Hazard disclosure requirements in real estate transactions
	Hazard zone signs
	Lower tax rates for preservation
	Special tax assessment districts
	Tax abatement for mitigation methods for new development
	Land trusts
	Suitable building sites in hazard prone areas
	Special building techniques for hazard prone areas
<i>Interorganizational Coordination and Collaboration</i>	Coordination with faith-based organizations
<i>Implementation and Monitoring</i>	Clear timetable for implementation
	Regular monitoring, review and updating

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