

**CRS Activity 510
Annual Progress Report on Implementation of Credited Plan**

Which Plan is this for (use separate templates for each credited Plan):

Floodplain Management Plan (Hazard Mitigation Plan)

Repetitive Loss Area Analysis

Floodplain Species Plan

Substantial Damage Plan

Name of Community: [Town of Duck](#)

Date this Annual Progress Report was prepared (not the date of adoption of the credited Plan): [7/26/2022](#)

Name of Plan: [Outer Banks Hazard Mitigation Plan](#)

Date of Adoption of Plan: [6/2020](#)



**Outer Banks Regional
Hazard Mitigation Plan**



June 2020

wood.

5 Year CRS Expiration Date: [6/2025](#)

1. How can a copy of the credited Plan be obtained:

The 2020 adopted plan is available at the Duck Town Hall and on the Town's website.

2. Describe how **this annual progress report** (not the credited Plan) was prepared and how it was submitted to the governing body, released to the media, and made available to the public:

The annual progress report was prepared from a round table discussion of various department heads regarding existing conditions, problems areas, changing conditions, hazardous events and action items to address listed items.

This information is scheduled to be presented to the Duck Town Council at its August 3, 2022 public meeting. Once approved, the updated report will be made available on the Town's website and linked to thousands of interested parties through the Town's weekly e-news.

3. Provide a description of the implementation of each recommendation or action item in the action plan or area analysis report, including a statement on how the project was implemented or not implemented during the previous year:

See attached mitigation strategies update.

4. Discuss why any objectives were not reached or why implementation is behind schedule:

Items DCK5 - Completion of the Crisis Track SOG (DCK21) and Flood Response Plan (DCK5) are still pending. Delays in completion lie with staffing shortages over the last few years.

Items DCK23 and DCK29 – Fire Department staff is working on a phased approach and expects implementation status to begin with research, public education and awareness followed implementation of regulatory procedures as needed. Research is ongoing.

Item DCK14 – An extended permitting process and final funding approval of a large grant have delayed implementation of the Town's living shoreline project.

5. What are the recommendations for new projects or revised recommendations?

DK5 - **revised**, Town Staff intends to work to develop a Program for Public Information (PPI), Flood Insurance Assessment and Coverage Plan (FIA), Substantial Damage Management Plan (SDP) which will serve to further improve their CRS rating. Completion of the Crisis Track SOG (DCK21) and the Flood Response Plan (DCK5) are expected as well.

DCK10 – **new**, The Town is entering Phase III of the Resilient Coastal Community Program (RCCP) working with the NCDCM, DEQ, engineering consultants and stakeholders on a stormwater management plan studying causes and evaluating solutions for repetitive flooding issues in certain residential neighborhoods. The study will identify specific projects that can then be moved forward to implementation phase in future years. See also DCK15

DCK13 - **revised**, Town Staff has been actively working with NC Dept. of Agriculture and researchers regarding identification and control of invasive species and has supported facilitation of research to help confirm and develop modifications and improvements to best management practices along the shoreline.

DCK16, **revised** with updated completed items and new improvements to occur. See also DCK18.

DCK22 – **new**, Public Safety and Town Staff will conduct annual hazard warning exercises either in collaboration with the County Emergency Management or individually to include post event debriefs and action reports detailing strengths, weaknesses and areas for improvement with recommendations for implementation.

DCK28 – **revised**, Town staff is now actively updating a town wide database with owner contact information.

DCK30 – **new**, Town Staff, in collaboration with the CRS users group, has developed a new branded logo brochure titled *Prepare, Protect, Insure (PPI)* which will be distributed annually in conjunction with repeated and coordinated social media releases with the County and other municipal public information officers. This branded message will be updated as needed.

Name of Plan: Outer Banks Regional Hazard Mitigation Plan

Date Adopted: June 2020

Location where copies are available for review: Town of Duck Administration Offices AND Town of Duck Website

Table 7.3 – Mitigation Action Plan, Town of Duck

Action #	Action Description	Hazard(s) Addressed	Goal & Objective Addressed	Priority	Lead Agency / Department	Potential Funding Source	Implementation Timeline	2022 Status	2022 Implementation Status Comments
Prevention									
DCK1	Continue to fund enforcement and education of current hazard mitigation regulations.	All Hazards	3.1	High	Town Staff, Town Council	General Fund	Annual, Ongoing	Carry Forward	Town Council continues to annually fund a Code Enforcement Position and Certified Floodplain Manager as well as continuing education training.
DCK2	Adopt and apply development policies that balance protection of natural resources and fragile areas with residential and economic development	Hurricane & Tropical Storm, Coastal Hazards, Flood, Severe Weather, Wildfire	1.2	High	Town Staff, Town Council	General Fund	6 Month, Annual	Carry Forward	Town Council adopted an ordinance establishing allowances for living shorelines. They adopted a separate resolution establishing a policy related to the Emergency Pumping of Floodwaters in September, 2018. The Town had an emergency floodwater management discharge plan approved by the NCDWQ in May, 2019. Town Staff worked with the OBX CRS Users Group on the development of a new floodplain ordinance with higher regulatory standards for areas within the Special Flood Hazard Area (SFHA) as well as areas that are not located within the SFHA to address known flood risks. These standards were adopted 6/19/2020. The Town Council also updated and adopted its Comprehensive and Land Use Plan (which contains many relevant recommendations) in October 2021. This plan was certified by the CRC in November, 2021.
DCK3	Develop policies that minimize threats to life, property, and natural resources resulting from development located in or adjacent to hazard areas, such as those subject to erosion, high winds, storm surge, flooding, or sea level rise.	Hurricane & Tropical Storm, Coastal Hazards, Flood, Severe Weather, Wildfire	1.2	High	Town Staff, Town Council	General Fund	6 Month, Annual	Carry Forward	Adoption of revised Flood Insurance Rate Maps and Flood Damage Prevention Ordinance, local participation in CAMA LPO program, Participation in the FEMA Community Rating System, enforcement of NC State Building Code Revisions and amendments including wind-borne debris provisions. The Town has also revised policies related to oceanfront development including additional setbacks for accessory structures, new dune walkway standards, and remedies for structures encroaching on the ocean beach. Annual beach profile surveys initiated in 2017 continue to assess changing shoreline patterns.
DCK4	Develop location, density, and intensity criteria for new, existing development and redevelopment including public facilities and infrastructure so that they can better avoid or withstand natural hazards.	Hurricane & Tropical Storm, Coastal Hazards, Flood, Severe Weather, Wildfire	3.1	High	Town Staff, Town Council	General Fund	Annual Review	Carry Forward	Town Code revisions including lot coverage regulations, limitations on residential dwelling size, including increased setbacks for large structures, additional elevation requirements for V-Zone structures and incentives for use of permeable and semi-permeable materials for driveways and parking have been adopted. Town Council adopted additional limitations on the scale of development through house size limitations and increased setback requirements January, 2019. Town Staff developed and Town Council adopted a new floodplain ordinance with higher regulatory standards for areas within the Special Flood Hazard Area (SFHA) as well as areas that are not located within the SFHA to address known flood risks.
DCK5	As a FEMA CRS community, we will take advantage of the various mitigation strategies promoted by this program	Hurricane & Tropical Storm, Coastal Hazards, Flood	3.3	High	Town Staff, Town Council	General Fund	Annual	Carry Forward	The Town continues to develop actions and strategies that will lower its CRS rating and therefore provide lower flood insurance premiums to property owners within the Town. In conjunction with Dare County, there are topics that go out every month via social media and e-news. Town Staff intends to work to develop a Program for Public Information (PPI), Flood Insurance Assessment and Coverage Plan (FIA), Substantial Damage Management Plan (SDP), Flood Response Plan (FRP - started but not complete) and a Crisis Track SOG (started not complete). See also DCK3.
DCK6	Support programs and initiatives to annually assess shoreline changes (erosion and accretion)	Hurricane & Tropical Storm, Coastal Hazards, Flood	3.2	High	Town Council	General Fund	Annual, As Needed	Carry Forward	The Town has been monitoring high oceanfront erosion areas by documenting storm damage and taking photos/Go Pro and aerial drone video. A beach erosion study has been completed for the Town by the USACOE and Coastal Planning and Engineering which documents erosion patterns and existing conditions. The Town enacted an additional tax to support beach management activities, and annual beach profile surveys were initiated in 2017 to assess changing patterns. These surveys are supplemented with aerial drone technology providing 3D imaging analysis that will further enhance the Town's ability to track shoreline change. These techniques may likely be carried over to assess soundside shoreline changes as well.
DCK7	Stay informed, involved and supportive relative to Federal, State, and/or regional studies, initiatives and efforts concerning beach re-nourishment and maintenance	Hurricane & Tropical Storm, Coastal Hazards, Flood	3.2	High	Town Staff, Town Council	General Fund	Annual	Carry Forward	The Town participates in the annual program established by the Dare County Shoreline Commission to provide funds for beach maintenance. The Town started discussions in 3/2019 regarding beach re-nourishment in conjunction with Dare County and the Towns of Kill Devil Hills, Kitty Hawk and Southern Shores. These discussions transitioned into quarterly multi-jurisdictional meetings with all of the beach front communities engaging in nourishment activities. The Town also participates and engages with NC Beach Inlet Waterway Association (NCBIWA) and the South Atlantic Coastal Study (SACS).

Action #	Action Description	Hazard(s) Addressed	Goal & Objective Addressed	Priority	Lead Agency / Department	Potential Funding Source	Implementation Timeline	2022 Status	2022 Implementation Status Comments
DCK8	Develop a Fire Ordinance consistent with State regulations and unique to the Town.	All Hazards	3.1	Medium	Public Safety, Town Staff, Town Council	General Fund	6 Month	Complete/Carry Forward	Town Council adopted Fire Prevention Ordinance that will addresses fire inspections, mutual aid, allowable and prohibited fires, life safety provisions. Revisions and clarifications to the adopted ordinance are anticipated in the near future.
DCK9	Update CAMA Land Use Plan	All Hazards	3.3	High	Town Staff, Planning Consultant, NC Division of Coastal Management	General Fund	9 Month	Carry Forward	The Town of Duck completed its update to its Comprehensive CAMA Land Use Plan. The plan contains existing and emerging background information, assessments of issues and opportunities, and development of future goals and objectives. Key topics include natural resources, community resiliency, economic development, stormwater management, and multi-modal transportation. This plan is a backbone for developing areas of study, and resilient policies and flood damage mitigation efforts.
Property Protection									
DCK10	Identify areas most at risk for flooding and investigate strategies to reduce those risks	Hurricane & Tropical Storm, Coastal Hazards, Flood, Severe Weather	1.2	High	Town Staff	General Fund	Annual	New	The Town is entering Phase III of Resilient Coastal Community Program (RCCP) working with the Division of Coastal Management, DEQ, engineering consultants and stakeholders to identify priority projects with proposed solutions that will then be moved forward to implementation phase.
DCK11	Identify areas most at risk and investigate strategies to reduce risk from wild land/urban interface fires	Wildfire	1.2	High	Fire Department, Town Staff	General Fund	1-2 Years	Carry Forward	Fire department staff will be utilizing resources to include utilizing new GIS mapping tools to identify areas that may be vulnerable in order to determine effective risk reduction strategies.
Natural Resource Protection									
DCK12	Increase the amount of open space throughout the town by seeking land donations or making land purchases. Develop an open space plan to further enhance these areas.	Hurricane & Tropical Storm, Coastal Hazards, Flood	3.3	Medium	Town Council	General Fund	Annual Review	Carry Forward	The Town owns an 11-acre park in the center of the Village Commercial area which is partially maintained as open space. On this property, town staff continues to research ideas to engage the community in the natural environment while teaching them best management practices. An example is the recent completion of an effective stormwater wetland/rain garden with educational signage. Other ideas that are being researched include transitioning focal point areas to areas with native cultivars to improve and encourage habitat. As the Town is 90 percent developed, there are few areas available to purchase and maintain as open space. Additionally, Town funds for property acquisitions are limited. Future activities in this area will largely depend on the success of the Town in acquiring property or easements with available grants.
DCK13	Protect the oceanfront recreation area through active beach maintenance, nourishment, and public engagement	Hurricane & Tropical Storm, Coastal Hazards, Flood, Severe Weather	3.2	High	Town Council, Town Staff	General Fund, Dare County Occupancy Tax, Municipal Service Districts, Bonds	Annual Maintenance, 5 Year Renourishment	Carry Forward	The Town has funded and is awaiting the start of -renourishment of 1.7 miles of oceanfront beach. Before and after beach renourishment, surveys and data for the entire oceanfront are continually considered to determine whether other areas are subject to vulnerability and in need of nourishment as well. Aside from the renourishment, the Town continues to fund annual beach planting, limited sand fencing and supports a volunteer planting program to engage residents, owners and visitors in the protection of the ocean shoreline. Town Staff has been actively working with NC State Department of Agriculture, and researchers regarding identification and control of invasive species and has supported facilitation of research to help confirm and develop modifications and improvements to best management practices along the shoreline.
DCK14	Continue to work with State and Federal Agencies to promote living shoreline opportunities along the soundfront	Hurricane & Tropical Storm, Coastal Hazards, Flood, Severe Weather	3.3	High	Town Council, Town Staff	General Fund, Grants	2-3 Years	Carry Forward	The Town is working with an engineering consultant on the design and permitting of a living shoreline project in a vulnerable area along Currituck Sound. The Town is seeking grant assistance to fund a portion of the project costs. This project has been pushed back due to ongoing permitting, design and funding capabilities.
DCK15	Increase coastal resiliency through research and progressive planning	Hurricane & Tropical Storm, Coastal Hazards, Flood, Severe Weather	3.3	High	Town Council, Town Staff, NCDOT	General Fund, Grants	Present to 5 Years, Annual Review	Carry Forward	The Town is entering Phase III of the Resilient Coastal Community Program (RCCP) working with the Division of Coastal Management, DEQ, engineering consultants and stakeholders to identify priority projects with proposed solutions that will then be moved forward to implementation phase. A Neighborhood Stormwater Management Study will be the subject of Phase III. Other examples of future projects include Soundside Shoreline Management Study, pursuit of new Living Shoreline Opportunities, Sea Level Rise Analysis, Septic System Mapping and Climate Adaptation Planning.

Action #	Action Description	Hazard(s) Addressed	Goal & Objective Addressed	Priority	Lead Agency / Department	Potential Funding Source	Implementation Timeline	2022 Status	2022 Implementation Status Comments
Structural Projects									
DCK16	Improve stormwater drainage in vulnerable areas	Hurricane & Tropical Storm, Coastal Hazards, Flood	3.3	High	Town Staff, Town Council	General Fund	Annual	Carry Forward	Town Staff continues to identify and resolve localized roadway flooding issues as funding and resources become available. The Town has identified low lying areas through GIS mapping and associated flood risks to those areas resulting from rain events. The Town has submitted an emergency floodwater management plan that was reviewed and approved by NCDWR to address stormwater flooding in these areas. Drainage and stormwater improvement projects along NC12 are continually being considered and annually funded to mitigate flooding and standing water. The Town has received funding, has budgeting funding and awaiting funding for a road improvement project between the Waterfront Shops and Barrier Island. This project will include elevation of NC12, installation of storm tech chambers, sidewalk improvements, construction of a living shoreline and revetment. This project is in the permitting process while awaiting final approval for the remaining funding needed. Other improvements related to areas of standing water along NC12 and the Duck Trail have been identified at Station Bay Marina and Sanderling Resort, areas near Waxwing Lane, Wee Winks Square and the Duck United Methodist Church, and Charles Jenkins Lane. Numerous other areas within private neighborhoods are expected to be look at a part of RCCP Phase III.
DCK17	Lobby the NC Board of Transportation and the NC Department of Transportation and NC Turnpike Authority for the construction of the Mid-County Bridge.	Hurricane & Tropical Storm, Coastal Hazards, Flood	3.3	High	Town Council, NCDOT	NCDOT	Annual	Carry Forward	The Town Council has issued several resolutions to support the construction of the Mid- Currituck Bridge and to identify the Town's preferred design alternative for the project. The Town has sent letters to NCDOT and NC Turnpike Authority Staff providing comments on the project studies that have been underway for several years. The Town frequently discusses the project at regular Town Council meetings and is kept informed of the status of the project by Town staff and residents who serve on a local committee to support construction of the bridge. The Town Council approved funding for a traffic study that occurred during the summer of 2021. Findings related to that study are being implemented as funding allows.
DCK18	Address drainage issues on NC 12 as applicable and provide funding for necessary stormwater improvements.	Hurricane & Tropical Storm, Coastal Hazards, Flood, Severe Weather	3.3	High	Town Staff, Town Council	General Fund, NCDOT	Annual	Carry Forward	Engineering is ongoing to rectify localized drainage problems on parts of NC 12 and funding is being provided in the CIP annually. Completed projects include pedestrian improvements along the west side of NC12 in the Village which include a sidewalk with both landscaping and stormwater features. Duck Trail improvements north of Oyster Catcher to Blue Heron were completed 2020-2021. FY 2022-2023 budget includes funding for improvements along the east side of NC12 from Blue Heron to Waxwing with stormwater improvements and retrofits recommended in the areas of NC12 and Wee Winks/Duck United Methodist Church. Additional improvements and retrofits have been requesting in the CIP for Waxwing Lane, Station Bay Drive, and Charles Jenkins Lane. Collaboration with NCDOT continues as needed. See also DCK15.
Emergency Services									
DCK19	Participate in the Dare/Currituck County Local Emergency Preparedness Committee (LEPC)	All Hazards	4.1	High	Public Safety	General Fund	Quarterly	Carry Forward	The OBX LEPC is formed as a joint venture by Currituck and Dare Counties to meet the requirements of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) as a means of sharing knowledge, interest, concerns, and resources to better plan for, respond to, and recovery from chemical emergencies using an all threats/all-hazards approach. Public safety personnel is and will continue to participate in meetings and joint trainings to improve multi-jurisdictional emergency response to all hazards. Completed training exercises in 2022 included a regional oil spill tabletop in February and a fertilizer plant informational workshop in March resulting in a completed hazmat flow study.
DCK20	Annual Review of Emergency Operations Plan	All Hazards	2.2	High	Public Safety, Town Staff	General Fund	Annual	Carry Forward	Continue to review the Town's Emergency Operations Plan annually in order to address any lessons learned, priorities, procedures, or additions to ensure effective implementation of the plan.
DCK21	Develop Standard Operating procedure for Crisis Track	Hurricane & Tropical Storm, Coastal Hazards, Flood	3.3	Medium	Public Safety, Town Staff	General Fund	6-12 Months, Annual	Carry Forward	Public Safety and Town Staff will develop a standard operating procedure for instructional purposes on the process and use of the County Hurricane Assessment software, Crisis Track, to include annual staff and volunteer training. Pending completion.
DCK22	Conduct Annual Hazard Warning Exercises with Post-Storm After Action Reports	Hurricane & Tropical Storm, Coastal Hazards, Flood	3.3	Medium	Public Safety, Town Staff	General Fund	6-12 Months, Annual	New	Public Safety and Town Staff will conduct annual hazard warning exercises either in collaboration with the County Emergency Management or individually to include post event debriefs and after action reports detailing strengths, weaknesses and areas for improvement with recommendations for implementation.

Action #	Action Description	Hazard(s) Addressed	Goal & Objective Addressed	Priority	Lead Agency / Department	Potential Funding Source	Implementation Timeline	2022 Status	2022 Implementation Status Comments
Public Education & Awareness									
DCK23	Collaborate with Duck Fire and Town Staff to educate the homeowners, developers and landscapers on designing fire safe communities.	Wildfire	1.1	High	Fire Department, Town Staff	General Fund	6 Month-2 Years	Carry Forward	Fire department staff is initiating a phased approach with Phase I implementation focusing on education and awareness. Future phases will look at regulatory implementation and a formalized plan.
DCK23	Continue education efforts to promote dune maintenance.	Hurricane & Tropical Storm, Coastal Hazards, Flood	1.1	High	Town Staff, Division of Coastal Management	General Fund, Grant Fund	Annual	Carry Forward	Town distributes information and promotes the proper installation of sand fence and encourages the planting of native vegetation. The Town implemented volunteer based beach planting program November, 2017 with funding expected to be continued. The program has garnered support from residents, non-residents and local volunteer groups. Town Staff has also identified invasive species on our dunes and initiated assistance from State resources and local researchers to develop methods to eradicate these species. Staff have engaged local residents and volunteers to assist in the effort thereby educating them on both identification and treatment techniques. The Town funded a PSA related to one of the invasive species to increase awareness. As monitoring and treatment continues, additional PSAs may be developed.
DCK24	Keep effective construction techniques for coastal communities available online	Hurricane & Tropical Storm, Coastal Hazards, Flood	1.1	High	Town Staff	General Fund	Annual	Carry Forward	Town of Duck Floodplain webpage reworked 9/18 to include FEMA/NC Department of Insurance publications on Coastal Construction Techniques.
DCK25	Mitigate ocean overwash and sound erosion by identifying vulnerable areas, developing public outreach information and disseminating this information to the public.	Hurricane & Tropical Storm, Coastal Hazards, Flood	1.1	High	Town Staff	General Fund	6 Months- Annual	Carry Forward	The Town has been monitoring high oceanfront erosion areas by documenting storm damage and taking photos/go pro and aerial drone video. A beach erosion study has been completed for the Town by the USACOE and Coastal Planning and Engineering which documents erosion patterns and existing conditions. As a result of these findings, annual beach profile surveys were initiated in 2017 to assess changing patterns and will continue annually. These surveys are being supplemented with aerial drone technology to develop 3D imaging analysis. The Town still needs to develop a method to track sound side erosion but is optimistic that RCCP deliverables will put us in positions to acquire grant funds to complete a soundside shoreline management study. Information regarding these findings are disseminated through social media, the Town website and direct email correspondence to oceanfront owners and to soundfront owners once that database is completed.
DCK26	Provide residents information and links to technical assistance concerning beach nourishment, re-nourishment and maintenance activities, including options such as sand fencing	Hurricane & Tropical Storm, Coastal Hazards, Flood	1.1	High	Town Staff, Town Council	General Fund	Annual	Carry Forward	The Town website, social media and direct email communication is utilized to disseminate information. The Town provides information and issues CAMA permits to oceanfront property owners seeking to maintain their primary and frontal dunes.
DCK27	Continue to provide effective public information and education materials to disseminate data on hazards, and educate beachgoers on beach safety (rip currents, beach holes, beach fires, etc.)	All Hazards	1.1	High	Town Council, Town Manager, Public Information Officer, Ocean Rescue	General Fund	Annual	Carry Forward	Continue collaboration through the County's Joint Information Center (JIC) and Emergency Management tools to include methods such as OBXAlerts and other joint marketing techniques designed for large scale public dissemination. Continue annual and in-season evaluations and reviews regarding public safety staffing, life-guard stand locations, and effective means to communicate threats (ocean conditions, storms hazardous conditions); i.e. social media, life guard advisories, use of flag notification systems and signage at beach access locations.
DCK28	Continue development and improvement related to the dissemination of public information to stakeholders	All Hazards	1.1	High	Town Staff, Town Council	General Fund	Biannual	Carry Forward	The Town effectively utilizes its website, social media, and direct email and telephone communications to communicate threats to and from its stakeholders (i.e.; property owners, residents, business owners, and vacationers), however continual research and development of new and effective means of communication are constantly pursued. Collaboration with the County's Joint Information Center (JIC) and Emergency Management has helped with the development of new techniques and technology to disseminate information. To assist with dissemination of information to stakeholders, ongoing communications and efforts to collaborate with the Duck Community and Business Alliance (DCBC) and Duck Merchant's Association (DMA) continue. Direct emails are also sent to business owners. Databases for the purpose of direct email communications with oceanfront and soundfront owners are maintained and updated regularly. The direct email database has been expanded and is regularly updated in an attempt to -include all residents and owners within the Town.

Action #	Action Description	Hazard(s) Addressed	Goal & Objective Addressed	Priority	Lead Agency / Department	Potential Funding Source	Implementation Timeline	2022 Status	2022 Implementation Status Comments
DCK29	Develop Annual Outreach Event regarding Fire Safety	All Hazards	1.1	High	Public Safety, Town Staff	General Fund	Biannual	New	Public Safety and Town Staff are currently working on the development of an annual outreach program to educate and inform business owners on proper and safe fire prevention in connection with and addition to annual and multi-year inspections.
DCK30	Develop Branded Messaging related to Flooding and the need for Flood Insurance	Hurricane & Tropical Storm, Coastal Hazards, Flood	1.1	High	Town Staff	General Fund	Biannual	New	Town Staff in collaboration with the CRS users group has developed a new branded logo brochure, Prepare, Protect, Insure (PPI) which will be distributed annually in conjunction with repeated and coordinated social media releases with the County and other municipal public information officers. This branded message will be updated as needed.