2023 COASTAL MASTER PLAN

FILE NAMING CONVENTION

SUPPLEMENTAL MATERIAL C.1

REPORT: VERSION 01
DATE: FEBRUARY 2024

COASTAL PROTECTION AND
RESTORATION AUTHORITY
150 TERRACE AVENUE
BATON ROUGE, LA 70802
WWW.COASTAL.LA.GOV

COASTAL PROTECTION AND RESTORATION AUTHORITY

This document was developed in support of the 2023 Coastal Master Plan being prepared by the Coastal Protection and Restoration Authority (CPRA). CPRA was established by the Louisiana Legislature in response to Hurricanes Katrina and Rita through Act 8 of the First Extraordinary Session of 2005. Act 8 of the First Extraordinary Session of 2005 expanded the membership, duties, and responsibilities of CPRA and charged the new authority to develop and implement a comprehensive coastal protection plan, consisting of a master plan (revised every six years) and annual plans. CPRA's mandate is to develop, implement, and enforce a comprehensive coastal protection and restoration master plan.

CITATION

Coastal Protection and Restoration Authority (2024). 2023 Coastal Master Plan: Supplemental Material C.1: File Naming Convention. Version I. (p. 24). Baton Rouge, Louisiana: Coastal Protection and Restoration Authority.

TABLE OF CONTENTS

COASTAL PROTECTION AND RESTORATION AUTHORITY 2
CITATION 2
TABLE OF CONTENTS 3
INTRODUCTION 5
SPATIAL PROJECTIONS, VERTICAL DATUMS, AND UNITS 5
MODEL GEOMETRIES 5
ICM-HYDRO GRID 5
ICM-LAVEGMOD GRID 6
ADCIRC GRID 6
CLARA GRID 6
ECOREGIONS 6
CLARA COMMUNITIES 7
2010 CENSUS BLOCKS 7
2010 CENSUS BLOCK GROUPS 7
QAQC EXTRACTION POINTS 8
INITIAL CONDITIONS LANDSCAPE AND ENVIRONMENTAL FORCINGS 9
LAND/WATER 9
VEGETATION COVER LULC 9
FFIBS 9
MARSH EDGE EROSION 10
DEEP SUBSIDENCE 10
SHALLOW SUBSIDENCE 11
2023 MASTER PLAN PROJECTS 11
NOAA TIDAL STATION DATA ANALYSIS 11
ATTACHMENT B2: SUPPLEMENTAL MATERIALS 12
OUTPUT DATA: STORM SURGE, WAVES AND RISK ASSESSMENT 13
FLOOD DEPTH 13
EXPECTED ANNUAL DAMAGES, DOLLARS 13
ANNUAL EXCEEDANCE DAMAGES, DOLLARS 14
EXPECTED ANNUAL STRUCTURAL DAMAGE 14

ANNUAL EXCEEDANCE ANNUAL STRUCTURAL DAMAGE 15
SURGE WATER SURFACE ELEVATIONS BY EXCEEDANCE 16
WAVE HEIGHTS BY EXCEEDANCE 16
SURGE WATER SURFACE ELEVATIONS BY STORM 16
WAVE HEIGHTS BY STORM 17
NONSTRUCTURAL EXPECTED ANNUAL DAMAGE, DOLLARS 17
NONSTRUCTURAL EXPECTED ANNUAL STRUCTURAL DAMAGE 17
EXPOSURE 18
OUTPUT DATA: HYDROLOGY AND LANDSCAPE CHANGE 19
LAND CHANGE 19
VEGETATION TYPE: FFIBS 19
VEGETATION TYPE: VCT 20
SALINITY 20
WATER LEVEL 20
WATER LEVEL VARIABILITY 21
TOTAL SUSPENDED SOLIDS 21
TEMPERATURE 21
ELEVATION 21
LAND TYPE 22
INUNDATION DEPTH 22
MINERAL DEPOSITION 22
MINERAL ACCRETION 22
ORGANIC ACCUMULATION 23
ORGANIC ACCRETION 23
POPULATION AND POPULATION CHANGE 23
VEGETATION COVERAGE AREA 24

INTRODUCTION

This document provides a listing and brief description of the 2023 Coastal Master Plan data that has been posted for viewing, analysis, and/or download in the Master Plan Data Access Portal (MP-DAP). The MP-DAP is the primary point of access for modeling data, including: model grid files, initial conditions, boundary conditions, and model simulation output data for the 2023 Future Without Action and the Future With Master Plan under a variety of future environmental conditions.

If accessing the original model run simulations on the Pittsburgh Supercomputing Center's Oceans File Server, or if using 2017 Coastal Master Plan data files, please refer to the 2017 plan's Attachment C3-22.2: File Naming Convention report for a full list of model filenames and locations. However, for the vast majority of users accessing 2023 Coastal Master Plan data files, see below for the corresponding metadata. Please note the following metadata text is also available on the MP-DAP.

SPATIAL PROJECTIONS, VERTICAL DATUMS, AND UNITS

All geospatial data available in the MP-DAP uses the EPSG:26915 (NAD83/UTM zone 15N) projection. All elevation data is provided relative to the NAVD88 Geoid 12B vertical datum; unless labeled otherwise, SI units will be used. CLARA-produced flood depths are a notable exception; they default to US-feet. If in doubt, please email masterplan@la.gov for clarifications.

MODEL GEOMETRIES

ICM-HYDRO GRID

This polygon shapefile maps the ICM-Hydro compartments and includes a descriptor of how each compartment is utilized in ICM-Hydro. 2D compartments are the primary wetland area within coastal LA where the all ICM subroutines are activated (Hydro, Veg, Morph, HSI). Upland compartments are included for water balance purposes and are delineated following NHD boundaries to ensure smooth transitions with inland modeling exercises being undertaken by the Louisiana Watershed Initiative.

- **Units:** n/a
- **Spatial resolution:** varied
- **Temporal resolution:** n/a

ICM-LAVEGMOD GRID

This is the 480-m orthogonal grid that is used by ICM-LAVegMod and ICM-HSI subroutines. For each 480-m grid cell, ICM-LAVegMod calculates the percent coverage of each of the 46 landtypes/vegetation coverages that are tracked by the model.

- **Units:** n/a
- **Spatial resolution:** 480-m grid
- **Temporal resolution:** n/a

ADCIRC GRID

This is the mesh used by ADCIRC to model the existing conditions landscape, including levees on the landscape as of 2018.

- **Units:** n/a
- **Spatial resolution:** varied
- **Temporal resolution:** n/a

CLARA GRID

This is the mesh used to assess flood depth and economic damages with the CLARA model.

- **Units:** n/a
- **Spatial resolution:** varied
- **Temporal resolution:** n/a

ECOREGIONS

Ecoregions are used to summarize model output for the 2023 Coastal Master Plan. Ecoregions were defined first by coastal basin, but then further refined by hydrologic pathways and other prominent landscape features (either natural or manmade). Ecoregions were further split into barrier island subregions if the ICM-BIDEM model domain overlapped with the original ecoregion. The ecoregions used for the 2023 Master Plan are aggregated groups of ICM-Hydro compartments.

- **Units:** n/a
- **Spatial resolution:** varied
- **Temporal resolution:** n/a

CLARA COMMUNITIES

The Risk Assessment Team aggregates EADD and EASD results at the master plan community level. The team identified 204 communities using parish or municipal boundaries that were further categorized based on the community's location either inside or outside of existing structural protection, resulting in 374 distinct geographic areas.

- **Units:** n/a
- **Spatial resolution:** varied
- **Temporal resolution:** n/a

2010 CENSUS BLOCKS

Population modeling for the 2023 Coastal Master Plan was conducted on 2010 United States Census data. The Census Blocks are boundary defined and used by the United States Census Bureau.

- **Units:** n/a
- **Spatial resolution:** varied
- **Temporal resolution:** n/a

2010 CENSUS BLOCK GROUPS

Population change rates were modeled for the 2023 Coastal Master Plan at the 2010 United States Census Block Group level.

- **Units:** n/a
- **Spatial resolution:** varied
- **Temporal resolution:** n/a

QAQC EXTRACTION POINTS

Prior to starting simulations for the 2023 Coastal Master Plan, a number of locations were identified as "model save points". These points are locations at which all model data, down to a specific pixel, is saved in order to conduct quality assurance and quality control (QAQC) on model processes and simulations. There are three categories of QAQC extraction points: CRMS locations – every observation station within the Coastwide Reference Monitoring System (CRMS) was selected as a save point; Transects – several transects were deliberately placed at a variety of locations around the coastal domain; and randomly placed QAQC points.

- **Units:** n/a
- **Spatial resolution:** n/a
- **Temporal resolution:** n/a

INITIAL CONDITIONS LANDSCAPE AND ENVIRONMENTAL FORCINGS

LAND/WATER

Landscape composition developed from satellite imagery collected in 2018, this represent the initial conditions used for the 2023 master plan development process. Full documentation provided in 2023 Coastal Master Plan: Attachment B1. The raster values representing landscape composition are defined as follows: 1=vegetated wetland; 2=open water; 3=unvegetated wetland/bare ground; 4=developed/upland; 5=flotant marsh.

- **Units:** categorical
- **Spatial resolution:** 30-m raster
- **Temporal resolution:** n/a

VEGETATION COVER LULC

Landscape composition developed from satellite imagery collected in 2018, this represents the vegetation coverage of the initial conditions used for the 2023 master plan development process. Satellite imagery was classified to the predominant vegetation species included in ICM-LAVegMod. Full documentation provided in 2023 Coastal Master Plan: Attachment B1.

- **Units:** categorical
- **Spatial resolution:** 10-m raster
- **Temporal resolution:** n/a

FFIBS

Landscape composition developed from satellite imagery collected in 2018, this represents the vegetation coverage of the initial conditions used for the 2023 master plan development process, that is then reclassified into a weighted FFIBS score for each of the ICM-LAVegMod 480-m grid cells. Documentation for the vegetation classification is provided in 2023 Coastal Master Plan: Attachment B1. Documentation on the weighted FFIBS score methodology is provided in 2023 Coastal Master Plan: Attachment C8 and Attachment D2. FFIBS scores range from 0 to 24 for areas that are vegetated wetland. All other (non-vegetated wetland) areas use the following classifications: 200=open water; 300=unvegetated wetland/bare ground; 400=developed/upland; 500=flotant marsh.

- **Units:** weighted FFIBS score
- **Spatial resolution:** 30-m raster
- **Temporal resolution:** n/a

MARSH EDGE EROSION

This is a raster of historic marsh edge erosion rates (in m/yr) that were quantified from high resolution aerial imagery for all marsh edge areas with at least 300-m of omnidirectional fetch. The historic rates are used, in conjunction with the number of elapsed model years to determine whether any given edge pixel would be eroded during a given model year. For full documentation on this dataset, please refer to Attachment B1.

- **Units:** m/yr
- **Spatial resolution:** 30-m raster
- **Temporal resolution:** n/a

DEEP SUBSIDENCE

The deep subsidence rates (mm/yr; positive indicates downward movement) were developed for use as a boundary condition in the 2023 Coastal Master Plan. The interpolated surface was developed from CORS observational GPS stations located throughout Coastal Louisiana - with supplemental observation points from the CRMS benchmark surveys. Refer to full documentation in Attachment B3. In the master plan models, these deep subsidence rates are combined with variable (both in space and potentially across assumed scenarios) shallow subsidence rates that were derived from CRMS measurements. Furthermore, both the deep and shallow subsidence rates have all vertical accretion rates removed; the ICM dynamically models vertical accretion as a function of both mineral sediment deposition and organic matter accumulation in the vegetated areas. Therefore, for a total elevation change rate, four different datasets must be combined by the model: deep subsidence (downward movement), shallow subsidence (downward movement), mineral deposition (upward movement), and organic accretion (upward movement).This raster represents deep subsidence rates in coastal regions of Louisiana.

- **Units:** mm/yr
- **Spatial resolution:** 30-m raster
- **Temporal resolution:** n/a

SHALLOW SUBSIDENCE

The shallow subsidence rates (mm/yr; positive indicates downward movement) were developed for use as a boundary condition in the 2023 Coastal Master Plan. These rates were derived from the Coastwide Reference Monitoring System (CRMS) surface elevation and vertical accretion datasets. These rates are highly spatially variable, and were therefore averaged for each ecoregion used in the 2023 Master Plan. Descriptive statistics of shallow subsidence rates for each ecoregion are provided in this tabular file. A shapefile of the ecoregions is provided for download via the "Model Geometries" reference dataset. Subsidence rates were assigned to each ecoregion as defined by the future environmental scenarios (Appendix B). Refer to full documentation in Appendix B and Attachment B3. In the master plan models, these shallow subsidence rates are combined with deep subsidence rates that were derived from GPS data. Furthermore, both the deep and shallow subsidence rates have all vertical accretion rates removed; the ICM dynamically models vertical accretion as a function of both mineral sediment deposition and organic matter accumulation in the vegetated areas. Therefore, for a total elevation change rate, four different datasets must be combined by the model: deep subsidence (downward movement), shallow subsidence (downward movement), mineral deposition (upward movement), and organic accretion (upward movement).This raster represents deep subsidence rates in coastal regions of Louisiana.

- **Units:** mm/yr
- **Spatial resolution:** Ecoregion
- **Temporal resolution:** n/a

2023 MASTER PLAN PROJECTS

This is a geodatabase package that includes the spatial extent of all projects included in the 2023 Master Plan.

- **Units:** n/a
- **Spatial resolution:** Project
- **Temporal resolution:** Annual (implementation year)

NOAA TIDAL STATION DATA ANALYSIS

This is an archive package that contains Excel workbooks that were used to analyze all observational tidal data from the NOAA tide stations used as boundary conditions in the ICM-Hydro model. The data was downloaded for the 2006-2018 time period. The hourly water level from each tide station was decomposed into numerous tidal constituents (e.g., astronomic component, storm surge component, wind/pressure forcings subtidal component, etc.). Each station also had gauge-specific local

subsidence rates calculated from gauge-specific relative sea level rise rates and larger Gulf of Mexico-wide observations of mean sea level rise as determined from satellite altimetry data.

- **Units:** n/a
- **Spatial resolution:** varied
- **Temporal resolution:** n/a

ATTACHMENT B2: SUPPLEMENTAL MATERIALS

This is an archive package that contains multiple files used to develop boundary condition/environmental forcing timeseries for use in the ICM simulations. Full documentation and discussion of these files is available in Attachment B2.

- **Units:** n/a
- **Spatial resolution:** varied
- **Temporal resolution:** varied

OUTPUT DATA: STORM SURGE, WAVES AND RISK ASSESSMENT

FLOOD DEPTH

This dataset is the flood depth estimates (in feet), reported out at individual annual exceedance probabilities. To estimate flooding potential, our analysis considers storms of different intensity and tracks, and their expected probability of occurring in any one year. The flood depths resulting from those storms change over time as the coast degrades and sea level rise increases water levels. This dataset reports out the flood depth with a given likelihood of occurring in any given year, with a defined "annual exceedance probability". This is a statistically-derived dataset and is not representative of any actual single storm event. Rather this represents the flood depth with a given likelihood of exceedance for all points across the entire model domain.

- **Units:** ft
- **Spatial resolution:** varied
- **Temporal resolution:** Decadal

EXPECTED ANNUAL DAMAGES, DOLLARS

This dataset is the flood damage estimates (in dollars), reported as a statistically-derived expected annual value. To estimate flooding potential, our analysis considers storms of different intensity and tracks, and their expected probability of occurring in any one year. The flood depths resulting from those storms change over time as the coast degrades and sea level rise increases water levels. Rather than selecting a single probability of flooding or a single time period, this dataset combines the total damage from all possible flood events considered and the likelihood of each event occurring, or "expected annual damages". This damage is reported both in dollars (EADD) and in the number of structures damaged (EASD) and the degree of damage experienced. Three values are reported out for each exceedance/year combination: median estimates of damages as well as estimates for the 10th and 90th percentile of flood damages. This data is available by the type of asset that is experiencing flood risk. Asset types are classified as following: 1=Small Residential (single-family, manufactured homes, duplex); 2=Other Multi-family residential; 3=Commercial, Industrial, or Agricultural; 4=Other structural (e.g., public, educational, religious); 5=Non-structural assets (e.g., crops, vehicles, roads, etc.); 6=All asset types combined. Downloaded data can be joined to the CLARA Community available in the Model Grid reference files; the 'geometry' integer ID in the exported table should be joined to the 'MP_Community_ID_Final' values in the 'Model Geometries: clara_community' polygon dataset.

- **Units:** $

- **Spatial resolution:** CLARA Community
- **Temporal resolution:** Decadal

ANNUAL EXCEEDANCE DAMAGES, DOLLARS

This dataset is the flood damage estimates (in dollars), reported out at individual annual exceedance probabilities. To estimate flooding potential, our analysis considers storms of different intensity and tracks, and their expected probability of occurring in any one year. The flood depths resulting from those storms change over time as the coast degrades and sea level rise increases water levels. This dataset reports out the damage with a given likelihood of occurring in any given year, with a defined "annual exceedance probability". Like EADD/EASD, this is a statistically-derived dataset and is not representative of any actual single storm event. Rather this represents the flood damages with a given likelihood of exceedance for all points across the entire model domain. This damage is reported both in dollars and in the number of structures damaged. Three values are reported out for each exceedance/year combination: median estimates of damages as well as estimates for the 10th and 90th percentile of flood damages. This data is available by the type of asset that is experiencing flood risk. Asset types are classified as following: 1=Small Residential (single-family, manufactured homes, duplex); 2=Other Multi-family residential; 3=Commercial, Industrial, or Agricultural; 4=Other structural (e.g., public, educational, religious); 5=Non-structural assets (e.g., crops, vehicles, roads, etc.); 6=All asset types combined. Downloaded data can be joined to the CLARA Community available in the Model Grid reference files; the 'geometry' integer ID in the exported table should be joined to the 'MP_Community_ID_Final' values in the 'Model Geometries: clara_community' polygon dataset.

- **Units:** $
- **Spatial resolution:** CLARA Community
- **Temporal resolution:** Decadal

EXPECTED ANNUAL STRUCTURAL DAMAGE

This dataset is the flood damage estimates (in structure equivalents), reported as a statistically-derived expected annual value. To estimate flooding potential, our analysis considers storms of different intensity and tracks, and their expected probability of occurring in any one year. The flood depths resulting from those storms change over time as the coast degrades and sea level rise increases water levels. Rather than selecting a single probability of flooding or a single time period, this dataset combines the total damage from all possible flood events considered and the likelihood of each event occurring, or "expected annual damages". This damage is reported both in dollars (EADD) and in the number of structures damaged (EASD) and the degree of damage experienced. Three values are reported out for each exceedance/year combination: median estimates of damages as well

as estimates for the 10th and 90th percentile of flood damages. This data is available by the type of asset that is experiencing flood risk. Asset types are classified as following: 1=Small Residential (single-family, manufactured homes, duplex); 2=Other Multi-family residential; 3=Commercial, Industrial, or Agricultural; 4=Other structural (e.g., public, educational, religious); 5=Non-structural assets (e.g., crops, vehicles, roads, etc.); 6=All asset types combined. Downloaded data can be joined to the CLARA Community available in the Model Grid reference files; the 'geometry' integer ID in the exported table should be joined to the 'MP_Community_ID_Final' values in the 'Model Geometries: clara_community' polygon dataset.

- **Units:** structure equivalents
- **Spatial resolution:** CLARA Community
- **Temporal resolution:** Decadal

ANNUAL EXCEEDANCE ANNUAL STRUCTURAL DAMAGE

This dataset is the flood damage estimates (in structure equivalents), reported out at individual annual exceedance probabilities. To estimate flooding potential, our analysis considers storms of different intensity and tracks, and their expected probability of occurring in any one year. The flood depths resulting from those storms change over time as the coast degrades and sea level rise increases water levels. This dataset reports out the damage with a given likelihood of occurring in any given year, with a defined "annual exceedance probability". Like EADD/EASD, this is a statistically-derived dataset and is not representative of any actual single storm event. Rather this represents the flood damages with a given likelihood of exceedance for all points across the entire model domain. This damage is reported both in dollars and in the number of structures damaged. Three values are reported out for each exceedance/year combination: median estimates of damages as well as estimates for the 10th and 90th percentile of flood damages. This data is available by the type of asset that is experiencing flood risk. Asset types are classified as following: 1=Small Residential (single-family, manufactured homes, duplex); 2=Other Multi-family residential; 3=Commercial, Industrial, or Agricultural; 4=Other structural (e.g., public, educational, religious); 5=Non-structural assets (e.g., crops, vehicles, roads, etc.); 6=All asset types combined. Downloaded data can be joined to the CLARA Community available in the Model Grid reference files; the 'geometry' integer ID in the exported table should be joined to the 'MP_Community_ID_Final' values in the 'Model Geometries: clara_community' polygon dataset.

- **Units:** structure equivalents
- **Spatial resolution:** CLARA Community
- **Temporal resolution:** Decadal

SURGE WATER SURFACE ELEVATIONS BY EXCEEDANCE

This dataset is the statistically-derived expected annual storm surge still water elevation (in feet, relative to NAVD88) extracted at the centroid of each ICM-Hydro compartment. See description of Expected Annual Damage for a brief explanation of the statistical approach used. Three values are reported out for each exceedance/year combination: median estimates of storm surge as well as estimates for the 10th and 90th percentile.

- **Units:** NAVD88 ft
- **Spatial resolution:** Hydro Compartment
- **Temporal resolution:** Decadal

WAVE HEIGHTS BY EXCEEDANCE

This dataset is the statistically-derived expected significant wave height (in feet) extracted at the centroid of each ICM-Hydro compartment. See description of Expected Annual Damage for a brief explanation of the statistical approach used. Three values are reported out for each exceedance/year combination: median estimates of wave height as well as estimates for the 10th and 90th percentile of flood damages.

- **Units:** ft
- **Spatial resolution:** Hydro Compartment
- **Temporal resolution:** Decadal

SURGE WATER SURFACE ELEVATIONS BY STORM

This dataset contains the maximum stillwater storm surge elevation (in feet, relative to NAVD88) extracted at the centroid of each ICM-Hydro compartment for each synthetic tropical cyclone modeled in the 2023 Master Plan synthetic storm suite. The Storm ID number corresponds to the ID of the storm in the overall JPM-OS 645 storm suite.

- **Units:** NAVD88 ft
- **Spatial resolution:** Hydro Compartment
- **Temporal resolution:** Decadal

WAVE HEIGHTS BY STORM

This dataset contains the significant wave height (in feet) extracted at the centroid of each ICM-Hydro compartment for each synthetic tropical cyclone modeled in the 2023 Master Plan synthetic storm suite. The Storm ID number corresponds to the ID of the storm in the overall JPM-OS 645 storm suite.

- **Units:** ft
- **Spatial resolution:** Hydro Compartment
- **Temporal resolution:** Decadal

NONSTRUCTURAL EXPECTED ANNUAL DAMAGE, DOLLARS

This dataset is the flood damage estimates (in dollars) remaining after implementation of non-structural flood mitigation measures. It is reported as a statistically-derived expected annual value. To estimate flooding potential, our analysis considers storms of different intensity and tracks, and their expected probability of occurring in any one year. The flood depths resulting from those storms change over time as the coast degrades and sea level rise increases water levels. Rather than selecting a single probability of flooding or a single time period, this dataset combines the total damage from all possible flood events considered and the likelihood of each event occurring, or "expected annual damages". This damage is reported both in dollars (EADD) and in the number of structures damaged (EASD) and the degree of damage experienced. This data is available by the type of asset that is experiencing flood risk. Asset types are classified as following: 1=Small Residential (single-family, manufactured homes, duplex); 2=Other Multi-family residential; 3=Commercial, Industrial, or Agricultural; 4=Other structural (e.g., public, educational, religious); 5=Non-structural assets (e.g., crops, vehicles, roads, etc.); 6=All asset types combined. Downloaded data can be joined to the CLARA Community available in the Model Grid reference files; the 'geometry' integer ID in the exported table should be joined to the 'MP_Community_ID_Final' values in the 'Model Geometries: clara_community' polygon dataset.

- **Units:** $
- **Spatial resolution:** CLARA Community
- **Temporal resolution:** Decadal

NONSTRUCTURAL EXPECTED ANNUAL STRUCTURAL DAMAGE

This dataset is the flood damage estimates (in dollars) remaining after implementation of non-structural flood mitigation measures. It is reported as a statistically-derived expected annual value. To estimate flooding potential, our analysis considers storms of different intensity and tracks, and their

expected probability of occurring in any one year. The flood depths resulting from those storms change over time as the coast degrades and sea level rise increases water levels. Rather than selecting a single probability of flooding or a single time period, this dataset combines the total damage from all possible flood events considered and the likelihood of each event occurring, or "expected annual damages". This damage is reported both in dollars (EADD) and in the number of structures damaged (EASD) and the degree of damage experienced. This data is available by the type of asset that is experiencing flood risk. Asset types are classified as following: 1=Small Residential (single-family, manufactured homes, duplex); 2=Other Multi-family residential; 3=Commercial, Industrial, or Agricultural; 4=Other structural (e.g., public, educational, religious); 5=Non-structural assets (e.g., crops, vehicles, roads, etc.); 6=All asset types combined. Downloaded data can be joined to the CLARA Community available in the Model Grid reference files; the 'geometry' integer ID in the exported table should be joined to the 'MP_Community_ID_Final' values in the 'Model Geometries: clara_community' polygon dataset.

- **Units:** structure equivalents
- **Spatial resolution:** CLARA Community
- **Temporal resolution:** Decadal

EXPOSURE

This dataset presents the count of assets that are exposed to various depths of flooding, as reported out for different annual exceedance levels. Three types of flooding exposure are reported out. The first, "exposure", is a count of structures located where there is flooding over the ground in the vicinity of the structure. The second, "moderate exposure" is a count of structures where there is flooding at or above the first floor elevation of the structure (these structures are also counted in the first category of exposure). The third category, "severe exposure" is a count of structures where there is at least 2-ft of flooding above the first floor elevation of the structure (these structures are also counted in "moderate exposure" count). These exposure counts are reported out for all asset types included in the CLARA flood risk model. Asset types are classified as following: 1=Small Residential (single-family, manufactured homes, duplex); 2=Other Multi-family residential; 3=Commercial, Industrial, or Agricultural; 4=Other structural (e.g., public, educational, religious); 5=Non-structural assets (e.g., crops, vehicles, roads, etc.); 6=All asset types combined. This exposure data is also reported out for critical infrastructure and historic properties present in the coastal zone. Downloaded data can be joined to the CLARA Community available in the Model Grid reference files; the 'geometry' integer ID in the exported table should be joined to the 'MP_Community_ID_Final' values in the 'Model Geometries: clara_community' polygon dataset.

- **Units:** structures
- **Spatial resolution:** CLARA Community
- **Temporal resolution:** Decadal

OUTPUT DATA: HYDROLOGY AND LANDSCAPE CHANGE

LAND CHANGE

This is a raster that shows how the landscape composition has changed from initial conditions. If the land change is under a Future Without Action (FWOA), the raster values will be two digits. The first digit represents the landscape under initial conditions, and the second digit represents the landscape at the current year. For example, if the FWOA land change at year 10 has a value of 12, this indicates that the pixel started as land (1) in initial conditions and was converted to water (2) by year 10. If the land change is under a Future With Master Plan (FWMP), the raster values will be three digits. The first two digits will be identical to the FWOA land change, and the third digit will represent the landscape under FWMP. For example, if the FWMP land change at year 10 has a value of 121, this indicates that the pixel started as land (1) in initial conditions and was converted to water (2) by year 10 under FWOA; however, with the implementation of the Master Plan, this pixel was kept as land at year 10 under FWMP. The values of each digit representing landscape composition are defined as follows: 1=vegetated wetland; 2=open water; 3=unvegetated wetland/bare ground; 4=developed/upland; 5=flotant marsh.

- **Units:** categorical
- **Spatial resolution:** 30-m raster
- **Temporal resolution:** Annual (decadal in the MPDV)

VEGETATION TYPE: FFIBS

The vegetation data can be viewed in one of two different ways; the first is to use the marsh classification, which uses a weighted score to classify the vegetation as Fresh Forested, Fresh Marsh, Intermediate Marsh, Brackish Marsh, or Saline Marsh, or FFIBS. For more information on the weighted FFIBS score methodology, see Attachment C8. FFIBS scores range from 0 to 24 for areas that are vegetated wetland. All other (non-vegetated wetland) areas use the following classifications: 200=open water; 300=unvegetated wetland/bare ground; 400=developed/upland; 500=flotant marsh. The second method is to summarize the mixture of vegetation species present into one of 15 vegetation community types, or VCT. For more information on which species are commonly associated with each VCT, see: Snedden, G.A., 2019. Patterning emergent marsh vegetation assemblages in coastal Louisiana, USA, with unsupervised artificial neural networks. Applied Vegetation Science. 22: 213-229. DOI: 10.1111.avsc.12425.

- **Units:** weighted FFIBS score

- **Spatial resolution:** 30-m raster
- **Temporal resolution:** Annual (decadal in the MPDV)

VEGETATION TYPE: VCT

The vegetation data can be viewed in one of two different ways; the first is to use the marsh classification, which uses a weighted score to classify the vegetation as Fresh Forested, Fresh Marsh, Intermediate Marsh, Brackish Marsh, or Saline Marsh, or FFIBS. For more information on the weighted FFIBS score methodology, see Attachment C8. The second method is to summarize the mixture of vegetation species present into one of 15 vegetation community types, or VCT. For more information on which species are commonly associated with each VCT, see: Snedden (2019)[1].

- **Units:** categorical
- **Spatial resolution:** 30-m raster
- **Temporal resolution:** Annual (decadal in the MPDV)

SALINITY

This is the model-predicted salinity (in parts per thousand, ppt) as simulated by ICM-Hydro. Values are provided for each model node (e.g., compartment) in the ICM-Hydro grid. Values are provided for daily mean salinity, and annual mean salinity.

- **Units:** ppt
- **Spatial resolution:** Hydro Compartment
- **Temporal resolution:** Daily/Annual

WATER LEVEL

This is the model-predicted water surface elevation, or stage, (in meters relative to NAVD88) as simulated by ICM-Hydro. Values are provided for each model node (e.g., compartment) in the ICM-Hydro grid. Values are provided for daily mean and annual mean values.

- **Units:** NAVD88 m
- **Spatial resolution:** Hydro Compartment
- **Temporal resolution:** Daily/Annual

[1] Snedden, G.A., 2019. Patterning emergent marsh vegetation assemblages in coastal Louisiana, USA, with unsupervised artificial neural networks. *Applied Vegetation Science*. 22: 213-229. DOI: 10.1111.avsc.12425.

WATER LEVEL VARIABILITY

This is the model-predicted water level variability (in meters) as simulated by ICM-Hydro. Values are provided for each model node (e.g., compartment) in the ICM-Hydro grid. Values are provided for annual values. Water level variability is defined by ICM-LAVegModas the standard deviation of the water level; this is an indication of tidal connectivity/tidal range.

- **Units:** m
- **Spatial resolution:** Hydro Compartment
- **Temporal resolution:** Annual

TOTAL SUSPENDED SOLIDS

This is the model-predicted total suspended solids, TSS, (in mg/L) as simulated by ICM-Hydro. Values are provided for each model node (e.g., compartment) in the ICM-Hydro grid. Values are provided for daily and annual mean values.

- **Units:** mg/L
- **Spatial resolution:** Hydro Compartment
- **Temporal resolution:** Daily/Annual

TEMPERATURE

This is the model-predicted daily mean water temperature (in degrees Celsius) as simulated by ICM-Hydro. Values are provided for each model node (e.g., compartment) in the ICM-Hydro grid.

- **Units:** degrees Celsius
- **Spatial resolution:** Hydro Compartment
- **Temporal resolution:** Daily

ELEVATION

All elevations within the ICM are in units of meters relative to the North American Vertical Datum 1988 Geoid 12b (m NAVD88). Note that in coastal Louisiana, there are no differences between Geoid 12b, Geoid 12c, and Geoid 12d.

- **Units:** NAVD88 m
- **Spatial resolution:** Extraction Point

- **Temporal resolution:** Annual

LAND TYPE

This is a categorical classification of a pixel's landscape composition. The raster values representing landscape composition are defined as follows: 1=vegetated wetland; 2=open water; 3=unvegetated wetland/bare ground; 4=developed/upland; 5=flotant marsh.

- **Units:** n/a
- **Spatial resolution:** Extraction Point
- **Temporal resolution:** Annual

INUNDATION DEPTH

This is the average annual inundation depth, in meters, of a pixel as determined from the pixel's vertical elevation and the average annual water surface elevation.

- **Units:** m
- **Spatial resolution:** Extraction Point
- **Temporal resolution:** Annual

MINERAL DEPOSITION

Mass loading of mineral sediment deposited on the marsh surface for the given model year, in units of gram per square centimeter. This data is calculated independently for each pixel of the model domain and is a function of inundation depth and the suspended sediment concentration of the water inundating the marsh surface.

- **Units:** g/cm^2-yr
- **Spatial resolution:** Extraction Point
- **Temporal resolution:** Annual

MINERAL ACCRETION

Mineral component of vertical wetland soil accretion, in centimeters, for the given model year. This is calculated from the mineral sediment deposition mass loading rate and the self-packing density (e.g., bulk density) of the mineral component of marsh soils. This data is used, with the self-packing density (e.g., bulk density) of the mineral component of marsh soils, to calculate annual mineral accretion.

- **Units:** cm
- **Spatial resolution:** Extraction Point
- **Temporal resolution:** Annual

ORGANIC ACCUMULATION

Mass loading of organic matter on the marsh surface for the given model year, in units of gram per square centimeter. This data is calculated independently for ICM-LAVegMod grid cell based on the weighted FFIBS score (calculated from the vegetation coverage species mixture) and the organic matter accumulation rate (OMAR) assigned to marsh habitat coverage types that was derived from the Coastwide Reference Monitoring System observational data. This data is used, with the self-packing density (e.g., bulk density) of the organic component of marsh soils, to calculate annual organic accretion.

- **Units:** g/cm^2-yr
- **Spatial resolution:** Extraction Point
- **Temporal resolution:** Annual

ORGANIC ACCRETION

Organic component of vertical wetland soil accretion, in centimeters, for the given model year. This is calculated from the organic matter accumulation mass loading rate and the self-packing density (e.g., bulk density) of the organic component of marsh soils. This data is used, with the self-packing density (e.g., bulk density) of the organic component to marsh soils, to calculate annual organic accretion.

- **Units:** cm
- **Spatial resolution:** Extraction Point
- **Temporal resolution:** Annual

POPULATION AND POPULATION CHANGE

Population projections for coastal Louisiana for the period of 2020-2070. A cohort-change ratio projection technique was used to project resident population for Louisiana census block groups. These projections, like all projections, involve the use of certain assumptions about future events that may or may not occur. Users of these projections should be aware that although the projections have been prepared with the use of standard methodologies and with extensive attempts made to account for existing demographic patterns, they may not accurately project future populations in Louisiana. The projections are based on historical trends and current estimates. These projections should be used

only with full awareness of the inherent limitations of population projections in general and with knowledge of the procedures and assumptions described in this document. Refer to Attachment H7 : Population Projections for the 2023 Coastal Master Plan for full descriptions.

- **Units:** persons
- **Spatial resolution:** Parish (Population) and Census Block Group (Population Change)
- **Temporal resolution:** Decadal

VEGETATION COVERAGE AREA

This is the area, in square meters, of each categorical vegetation habitat type located within each modeled ecoregion. The vegetation coverage within each FFIBS category (Forested wetlands, Fresh herbaceous marsh, Intermediate marsh, Brackish marsh, Saline marsh) is tabulated for each model year across all ecoregions. Tabulated areas for upland/developed areas and open water are also provided.

- **Units:** square m
- **Spatial resolution:** Ecoregion
- **Temporal resolution:** Annual