North Central Florida Regional Planning Council

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2009 NW 67th Place, Gainesville, FL 32653-1603 • 352.955.2200

MEETING NOTICE

CLEARINGHOUSE COMMITTEE

There will be a meeting of the Clearinghouse Committee of the North Central Florida Regional Planning Council on **January 24, 2013**. The meeting will be held at the **Holiday Inn Hotel & Suites, 213 SW Commerce Boulevard, Lake City**, beginning at **6:00 p.m.**

(Location Map on Back)

Holiday Inn Hotel & Suites
213 SW Commerce Blvd
Lake City, Florida 32025

Directions: From the intersection of Interstate 75 and U.S. Highway 90 (exit 427) in the City of Lake City turn, East onto U.S. Highway 90, travel approximately 450 feet to SW Commerce Blvd, turn right (South) onto SW Commerce Blvd, travel approximately 720 feet and the Holiday Inn Hotel & Suites is on the left.

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AGENDA

CLEARINGHOUSE COMMITTEE

Holiday Inn Hotel & Suites
Lake City, Florida

January 24, 2013
6:00 p.m.

v:\chouse\meeting\agenda.docx

NORTH CENTRAL FLORIDA REGIONAL PLANNING COUNCIL

CLEARINGHOUSE COMMITTEE

MINUTES

North Central Florida Regional Planning Council
Gainesville, Florida

January 9, 2013
3:30 p.m.

MEMBERS PRESENT

Sandra Haas, Chair (via telephone)
Thomas Hawkins, Vice-Chair (via telephone)
Donnie Hamlin (via telephone)
James Montgomery (via telephone)
Stephen Witt (via telephone)

MEMBERS ABSENT

Jim Catron
Daniel Riddick
Wesley Wainwright
Mike Williams

STAFF PRESENT

Steven Dopp

The meeting was called to order at 3:30 p.m. by Vice-Chair Hawkins.

I. APPROVAL OF MEETING AGENDA

ACTION: **It was moved by Mr. Montgomery and seconded by Ms. Haas to approve the meeting agenda. The motion carried unanimously.**

II. APPROVAL OF DECEMBER 13, 2012 MEETING MINUTES

ACTION: **It was moved by Commissioner Hamlin and seconded by Commissioner Riddick to approve the December 13, 2012 minutes as circulated. The motion carried unanimously.**

III. COMMITTEE-LEVEL REVIEW ITEMS

#20 - Hamilton County Comprehensive Plan Draft Amendment (DEO No. 13-1ESR)

Mr. Dopp stated that the staff report finds the County comprehensive plan, as amended, is not anticipated to result in significant adverse impacts to Natural Resources of Regional Significance, regional facilities, or adjacent local governments.

ACTION: **It was moved by Mr. Montgomery and seconded by Commissioner Hamlin to approve the staff report as circulated. The motion carried unanimously.**

#21 - Alachua County Comprehensive Plan Draft Amendment (DEO No. 13-1ESR)

Mr. Dopp stated that the staff report finds the County comprehensive plan, as amended, is not anticipated to result in significant adverse impacts to Natural Resources of Regional Significance, regional facilities, or adjacent local governments.

ACTION: **It was moved by Ms. Haas and seconded by Mayor Witt to approve the staff report as circulated. The motion carried unanimously.**

The meeting adjourned at 3:40 p.m.

Sandra Haas, Chair

Date

v:\chouse\minutes\130109minutes.docx

COMMITTEE-LEVEL ITEMS

FLORIDA REGIONAL COUNCILS ASSOCIATION
LOCAL GOVERNMENT COMPREHENSIVE PLAN AMENDMENT REVIEW FORM 01

Regional Planning Council: North Central Fl
Review Date: 1/24/13
Amendment Type: Adopted Amendment

Regional Planning Council Item No.: 30
Local Government: Suwannee County
Local Government Item No: CPA 12-03
State Land Planning Agency Item No: 13-2ESR

Date Mailed to Local Government and State Land Planning Agency: 1/25/13

Pursuant to Section 163.3184, Florida Statutes, Council review of local government comprehensive plan amendments is limited to adverse effects on regional resources and facilities identified in the strategic regional policy plan and extrajurisdictional impacts that would be inconsistent with the comprehensive plan of any affected local government within the region. A written report containing an evaluation of these impacts, pursuant to Section 163.3184, Florida Statutes, is to be provided to the local government and the state land planning agency within 30 calendar days of receipt of the amendment.

DESCRIPTION OF AMENDMENT

County item CPA 12-03 reclassifies 77.64 acres from Agriculture-1 (up to 1 dwelling unit per 5 acres) and Highway Interchange to Industrial (see attached).

1. ADVERSE EFFECTS TO SIGNIFICANT REGIONAL RESOURCES AND FACILITIES IDENTIFIED IN THE STRATEGIC REGIONAL POLICY PLAN

The subject property is adjacent to Interstate Highway 10 and U.S. Highway 90, both of which are identified as part of the Regional Road Network in the North Central Florida Strategic Regional Policy Plan. The local government data and analysis report indicates that significant adverse impacts are not anticipated to the Regional Road Network as a result of the amendment. The subject property is located within an Area of High Recharge Potential to the Floridan Aquifer, a Natural Resource of Regional Significance identified and mapped in the regional plan. Nevertheless, significant adverse impacts are not anticipated to occur to Natural Resources of Regional Significance as a result of the amendment as the County Comprehensive Plan contains adequate policy direction to mitigate significant adverse impacts to the Area of High Recharge Potential to the Floridan Aquifer consistent with the regional plan (see attached).

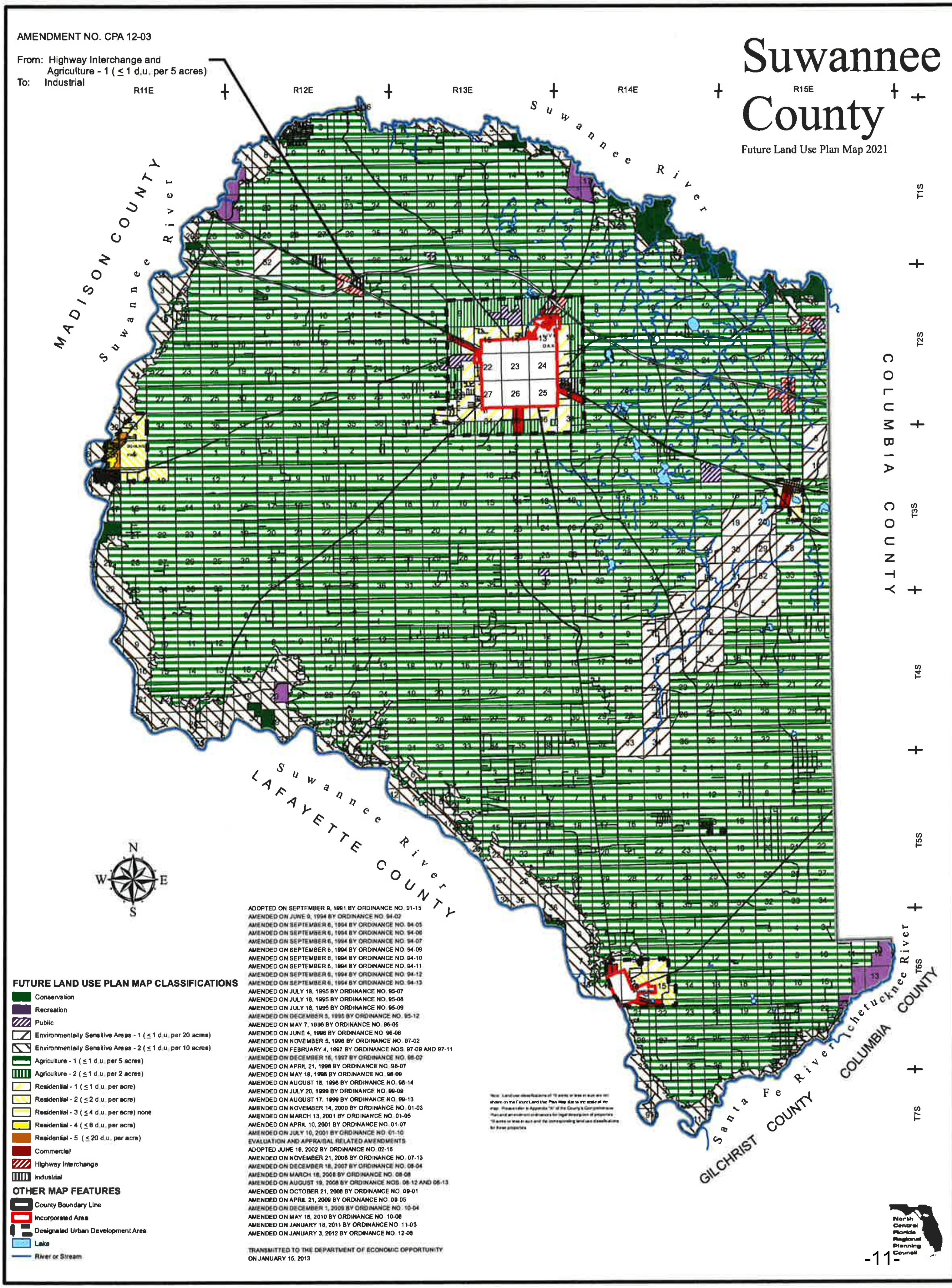
2. EXTRAJURISDICTIONAL IMPACTS INCONSISTENT WITH THE COMPREHENSIVE PLANS OF LOCAL GOVERNMENTS WITHIN THE REGION

Adverse extrajurisdictional impacts are not anticipated to occur to adjacent local governments as a result of the amendment.

Request a copy of the adopted version of the amendment?

Yes __X__	No ________
Not Applicable	________

It is recommended that these findings be forwarded to the County and the Florida Department of Economic Opportunity.



Suwannee County
Future Land Use Plan Map 2021
AMENDMENT NO. CPA 12-03
From: Highway Interchange and Agriculture - 1 (≤ 1 d.u. per 5 acres)
To: Industrial
R11E
R12E
R13E
R14E
R15E
T1S
T2S
T3S
T4S
T5S
T6S
T7S
MADISON COUNTY
COLUMBIA COUNTY
LAFAYETTE COUNTY
GILCHRIST COUNTY
Suwannee River
Santa Fe River
Ichetucknee River
N
S
E
W
FUTURE LAND USE PLAN MAP CLASSIFICATIONS
Conservation
Recreation
Public
Environmentally Sensitive Areas - 1 (≤ 1 d.u. per 20 acres)
Environmentally Sensitive Areas - 2 (≤ 1 d.u. per 10 acres)
Agriculture - 1 (≤ 1 d.u. per 5 acres)
Agriculture - 2 (≤ 1 d.u. per 2 acres)
Residential - 1 (≤ 1 d.u. per acre)
Residential - 2 (≤ 2 d.u. per acre)
Residential - 3 (≤ 4 d.u. per acre) none
Residential - 4 (≤ 6 d.u. per acre)
Residential - 5 (≤ 20 d.u. per acre)
Commercial
Highway Interchange
Industrial
OTHER MAP FEATURES
County Boundary Line
Incorporated Area
Designated Urban Development Area
Lake
River or Stream
ADOPTED ON SEPTEMBER 9, 1991 BY ORDINANCE NO. 91-15
AMENDED ON JUNE 9, 1994 BY ORDINANCE NO. 94-02
AMENDED ON SEPTEMBER 6, 1994 BY ORDINANCE NO. 94-05
AMENDED ON SEPTEMBER 6, 1994 BY ORDINANCE NO. 94-06
AMENDED ON SEPTEMBER 6, 1994 BY ORDINANCE NO. 94-07
AMENDED ON SEPTEMBER 6, 1994 BY ORDINANCE NO. 94-09
AMENDED ON SEPTEMBER 6, 1994 BY ORDINANCE NO. 94-10
AMENDED ON SEPTEMBER 6, 1994 BY ORDINANCE NO. 94-11
AMENDED ON SEPTEMBER 6, 1994 BY ORDINANCE NO. 94-12
AMENDED ON SEPTEMBER 6, 1994 BY ORDINANCE NO. 94-13
AMENDED ON JULY 18, 1995 BY ORDINANCE NO. 95-07
AMENDED ON JULY 18, 1995 BY ORDINANCE NO. 95-08
AMENDED ON JULY 18, 1995 BY ORDINANCE NO. 95-09
AMENDED ON DECEMBER 5, 1995 BY ORDINANCE NO. 95-12
AMENDED ON MAY 7, 1996 BY ORDINANCE NO. 96-05
AMENDED ON JUNE 4, 1996 BY ORDINANCE NO. 96-06
AMENDED ON NOVEMBER 5, 1996 BY ORDINANCE NO. 97-02
AMENDED ON FEBRUARY 4, 1997 BY ORDINANCE NOS. 97-09 AND 97-11
AMENDED ON DECEMBER 16, 1997 BY ORDINANCE NO. 98-02
AMENDED ON APRIL 21, 1998 BY ORDINANCE NO. 98-07
AMENDED ON MAY 19, 1998 BY ORDINANCE NO. 98-09
AMENDED ON AUGUST 18, 1998 BY ORDINANCE NO. 98-14
AMENDED ON JULY 20, 1999 BY ORDINANCE NO. 99-09
AMENDED ON AUGUST 17, 1999 BY ORDINANCE NO. 99-13
AMENDED ON NOVEMBER 14, 2000 BY ORDINANCE NO. 01-03
AMENDED ON MARCH 13, 2001 BY ORDINANCE NO. 01-05
AMENDED ON APRIL 10, 2001 BY ORDINANCE NO. 01-07
AMENDED ON JULY 10, 2001 BY ORDINANCE NO. 01-10
EVALUATION AND APPRAISAL RELATED AMENDMENTS
ADOPTED JUNE 18, 2002 BY ORDINANCE NO. 02-16
AMENDED ON NOVEMBER 21, 2006 BY ORDINANCE NO. 07-13
AMENDED ON DECEMBER 18, 2007 BY ORDINANCE NO. 08-04
AMENDED ON MARCH 18, 2008 BY ORDINANCE NO. 08-08
AMENDED ON AUGUST 19, 2008 BY ORDINANCE NOS. 08-12 AND 08-13
AMENDED ON OCTOBER 21, 2008 BY ORDINANCE NO. 09-01
AMENDED ON APRIL 21, 2009 BY ORDINANCE NO. 09-05
AMENDED ON DECEMBER 1, 2009 BY ORDINANCE NO. 10-04
AMENDED ON MAY 18, 2010 BY ORDINANCE NO. 10-06
AMENDED ON JANUARY 18, 2011 BY ORDINANCE NO. 11-03
AMENDED ON JANUARY 3, 2012 BY ORDINANCE NO. 12-05
TRANSMITTED TO THE DEPARTMENT OF ECONOMIC OPPORTUNITY ON JANUARY 15, 2013
North Central Florida Regional Planning Council

EXCERPTS FROM THE
COUNTY COMPREHENSIVE PLAN

FACILITY TYPE	LEVEL OF SERVICE STANDARD
Wayne Frier's Mobile Home Park Community Potable Water System	67 gallons per capita per day
Wellborn Community Potable Water System	59 gallons per capita per day

Policy IV. 5.2 The County shall permit a residential density in excess of 1.0 dwelling unit per acre only within areas served by centralized potable water.

NATURAL GROUNDWATER AQUIFER RECHARGE SUB ELEMENT

GOAL IV-6 - ENSURE THE PROTECTION OF SURFACE AND GROUNDWATER QUALITY AND QUANTITY BY ESTABLISHMENT OF PLANS AND PROGRAMS TO PROMOTE ORDERLY USE AND DEVELOPMENT OF LAND IN A MANNER WHICH WILL PROMOTE SUCH PROTECTION AND AVAILABILITY

OBJECTIVE IV.6 The County shall require that no sanitary sewer facility have any discharge of primary treated effluent into designated high groundwater aquifer recharge areas as designated by the Water Management District and depicted in Appendix A of this Comprehensive Plan.

Policy IV.6.1 The County shall require that during the development review process, all proposed development within the drainage basin of any designated priority water body shall be coordinated with the Water Management District and ensure that any proposed development is consistent with any approved management plans within that basin.

OBJECTIVE IV.7 The County shall coordinate with the Water Management District to protect the functions of high groundwater aquifer recharge areas as designated by the Water Management District and depicted in Appendix A of this Comprehensive Plan and natural drainage features, by requiring that all developments requiring subdivision approval be reviewed by the Water Management District prior to final approval of the plat.

Policy IV.7.1 The County's land development regulations shall provide for the limitation of development adjacent to natural drainage features to protect the functions of the feature, by establishing a design standard that require all development to conform to the natural contours of the land and natural drainage ways remain undisturbed. In addition, no development shall be constructed so that such development impedes the natural flow of water from higher adjacent properties across such development.

Policy IV.7.2 The County shall provide for the limitation of development and associated impervious surfaces in high groundwater aquifer recharge areas as designated by the Water Management District and depicted in Appendix A of this Comprehensive Plan to protect the functions of the recharge area through requirement of the following:

1. Stormwater management practices shall not include drainage wells and sinkholes for stormwater disposal where recharge is into potable water aquifers. Where development is proposed in areas with existing wells, these wells shall be abandoned, including adequate sealing and plugging according to Chapter 17-28, Florida Administrative Code, in effect upon adoption of this Comprehensive Plan;

2. Well construction, modification, or closure shall be regulated in accordance with the criteria established by the Water Management District and the Florida Department of Health;

3. Abandoned wells shall be closed in accordance with the criteria established in Chapter 17-28, Florida Administrative Code, in effect upon adoption of this Comprehensive Plan;

4. No person shall discharge or cause to or permit the discharge of a regulated material as listed in Chapter 442, Florida Statutes, in effect upon adoption of this Comprehensive Plan, to the soils, groundwater, or surfacewater; and

5. No person shall tamper or bypass or cause or permit tampering with or bypassing of the containment of a regulated material storage system, except as necessary for maintenance or testing of those components.

OBJECTIVE IV.8 The County shall assist the Water Management District, with the implementation of its water conservation rule, when water shortages are declared by the District. Whereby, during such shortages, water conservation measures shall be implemented for the use and reuse of water of the lowest acceptable quality for the purposes intended. In addition, the County shall assist the Water Management District with the dissemination of educational materials regarding the conservation of water prior to peak seasonal demand.

Policy IV.8.1 The County shall assist in the enforcement of water use restrictions during a Water Management District declared water shortage and in addition, assist the Water Management District with the dissemination of educational materials regarding the conservation of water prior to peak seasonal demand.

OBJECTIVE IV.9 The County shall include within the land development regulations a requirement that construction activity undertaken shall protect the functions of natural drainage features.

Policy IV.9.1 The County's land development regulations shall include a provision which requires a certification, by the preparer of the permit plans, that all construction activity undertaken shall incorporate erosion and sediment controls during construction to protect the functions of natural drainage features.

V

CONSERVATION ELEMENT

INTRODUCTION

The following goal, objectives and policies constitute the Conservation Element providing for the promotion of the conservation, use and protection of the County's natural resources. The data collected for this plan element and analysis of this data, contained in the County's Data and Analysis document, are not part of this plan element, but serve to provide a foundation and basis for the formulation of this portion of the Comprehensive Plan.

Conservation uses are defined as activities within land areas designated for the purpose of conserving or protecting natural resources or environmental quality and within this plan includes areas designated for such purposes as flood control, protection of quality or quantity of groundwater or surface water, floodplain management, or protection of vegetative communities or wildlife habitats.

The Future Land Use Plan map addresses conservation future land use as defined above. The conservation future land use category shown on the Future Land Use Plan map identifies lands which have been designated "conservation" for the purposes of protecting natural resources or environmental quality.

The Future Land Use Plan map series includes the identification of flood prone areas, wetlands, existing and planned waterwells, rivers, bays, lakes, minerals and soils, which are land cover features, but are not land uses. Therefore, although these natural resources are identified within the Future Land Use Plan map series, they are not designated on the Future Land Use Plan map as conservation areas. However, the constraints on future land uses of these natural resources are addressed in the following goal, objective and policy statements.

CONSERVATION GOAL, OBJECTIVES AND POLICIES

GOAL V - CONSERVE, THROUGH APPROPRIATE USE AND PROTECTION, THE RESOURCES OF THE COUNTY TO MAINTAIN THE INTEGRITY OF NATURAL FUNCTIONS.

OBJECTIVE V.1 The County shall establish provisions within the site plan review process to protect air quality by requiring the appropriate siting of development and associated public facilities.

Policy V.1.1 The County's land development regulations shall require that all appropriate air quality permits are obtained prior to the issuance of development orders, so that minimum air quality levels established by the Florida Department of Environmental Protection are maintained in the County.

OBJECTIVE V.2 The County, in order to protect the quality and quantity of current and projected water sources, hereby establishes a 300 foot wellfield protection area around community water system wells. In addition, the County in order to protect high groundwater aquifer recharge areas as designated by the Water Management District and depicted in Appendix A of this Comprehensive Plan shall limit development in these areas as specified in the high groundwater aquifer recharge protection policy of the Sanitary Sewer, Solid Waste, Drainage, Potable Water and Natural Groundwater Aquifer Recharge Element of this Comprehensive Plan.

Policy V.2.1 The County as part of the development review process shall require the coordination of development plans with the Florida Department of Environmental Protection and the Water Management District to assist in the monitoring uses which may impact the County's current and projected water sources.

Policy V.2.2 The County shall protect the present water quality classification established by the Florida Department of Environmental Protection by prohibiting industrial uses, commercial uses and intensive agricultural uses, such as milking barns and chickenhouses, to be located adjacent to the County's surface water bodies.

Policy V.2.3 The County shall identify and make recommendations, where appropriate, for the purchase of environmentally sensitive lands by the State of Florida, Water Management District, or U.S. Government, under the programs administered by the U.S. Department of Interior, Florida Department of Natural Resources or the land acquisition programs of the Water Management District.

Policy V.2.4 The County's land development regulations shall require a 35-foot natural buffer around all wetlands, unless said wetlands are subject to a dredge and fill permit issued by the U.S. Army Corps of Engineers or the Florida Department of Environmental Protection, and prohibit the location of agriculture, residential, recreational, public, commercial and industrial land uses, and mining operations within the buffer areas, but allow resource-based recreational activities within buffer areas and silviculture uses within buffer areas subject to the provisions of silviculture policies of this element.

Policy V.2.5 The County shall, through the development review process, require that post-development runoff rates and pollutant loads do not exceed pre-development conditions.

Policy V.2.6 The County's land development regulations shall require all new development to maintain the natural functions of environmentally sensitive areas, including but not limited to wetlands and 100-year floodplains so that the long term environmental integrity and economic and recreational value of these areas is maintained.

Policy V.2.7 The County shall provide for the regulation of development within 100-year floodplains of the Suwannee, Santa Fe and Ichetucknee Rivers by establishing these areas as Environmentally Sensitive in accordance with the land use classification policy contained in the Land Use Element of this Comprehensive Plan. In addition, in order to maintain the flood-carrying and flood storage capacities of the floodplains and reduce the risk of property damage and loss of life, the County shall adopt flood damage prevention regulations and in the interim shall continue to enforce the provisions of the National Flood Insurance Program.

Policy V.2.8 Unless wetlands are subject to a dredge and fill permit issued by the U.S. Army Corps of Engineers or the Florida Department of Environmental Protection, the County shall conserve wetlands by prohibiting any development, excepting mining operations, or dredging and filling which would alter the natural functions of wetlands and regulating mining operations within wetlands, as stated in the mining policy contained in the Land Use Element of this Comprehensive Plan. Where no other alternative for development exists, excepting mining operations, mitigation will be considered as a last resort using criteria established within the rules of the Florida Department of Environmental Protection, in effect upon

OBJECTIVE V.5 The County, in order to protect significant natural resources in a manner which is in conformance with and furthers the North Central Florida Strategic Regional Policy Plan, as amended August 28, 1997, hereby adopts the following maps as they apply to the unincorporated areas of the County as part of the Future Land Use Map Series of this Comprehensive Plan; (1) Regionally Significant Natural Resources - Ground Water Resources, dated May 23, 1996; (2) Regionally Significant Natural Resources - Natural Systems, dated August 28, 1997; (3) Regionally Significant Natural Resources - Planning and Resource Management Areas, dated May 23, 1996; (4) Regionally Significant Natural Resources - Planning and Resource Management Areas (Surface Water Improvement Management Water Bodies), dated May 23, 1996; and (5) Regionally Significant Natural Areas - Surface Water Resources, dated May 23, 1996. The following policies provide direction for the use of these maps in applying the referenced policies of this Comprehensive Plan.

Policy V.5.1 The map entitled Regionally Significant Natural Resources - Ground Water Resources, dated May 23, 1996, included within the Future Land Use Map Series, identifies groundwater resources for the application of the provisions of the high groundwater aquifer protection policy of the Sanitary Sewer, Solid Waste, Drainage, Potable Water and Natural Groundwater Aquifer Recharge Element of this Comprehensive Plan.

Policy V.5.2 The map entitled Regionally Significant Natural Resources - Natural Systems, dated August 28, 1997, included within the Future Land Use Map Series, identifies listed species for the application of the provisions the critical wildlife habitat policy of this element.

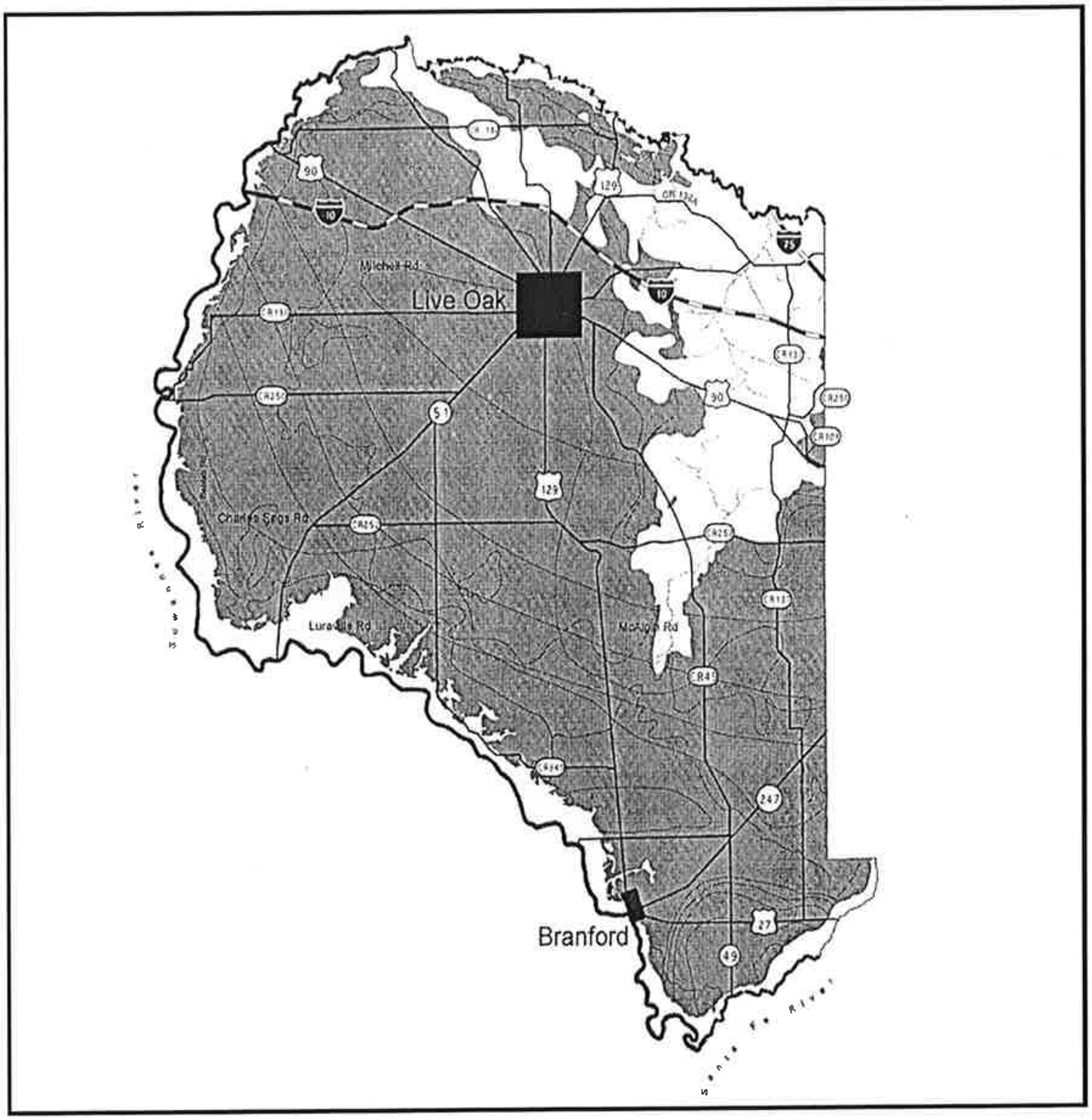
Policy V.5.3 The maps entitled Regionally Significant Natural Resources - Planning and Resource Management Areas, dated May 23, 1996, included within the Future Land Use Map Series, identifies state owned regionally significant lands for application of the provisions of the conservation land use policy of the Future Land Use Element of this Comprehensive Plan.

Policy V.5.4 The maps entitled Regionally Significant Natural Resources - Planning and Resource Management Areas (Surface Water Improvement Management Water Bodies), dated May 23, 1996, included within the Future Land Use Map Series, identifies surface water management improvement water bodies for the application of the provisions of the surface water runoff policy of this element.

Policy V.5.5 The map entitled Regionally Significant Natural Areas - Surface Water Resources, dated May 23, 1996, included within the Future Land Use Map Series, identifies surface water resources for the application of the provisions of the surface water and riverbank protection policies of this element.

ILLUSTRATION A - X

GROUNDWATER AQUIFER RECHARGE MAP



LEGEND

Major Rivers
Streams
Groudwater Aquifer Recharge Rank
High

SOURCE

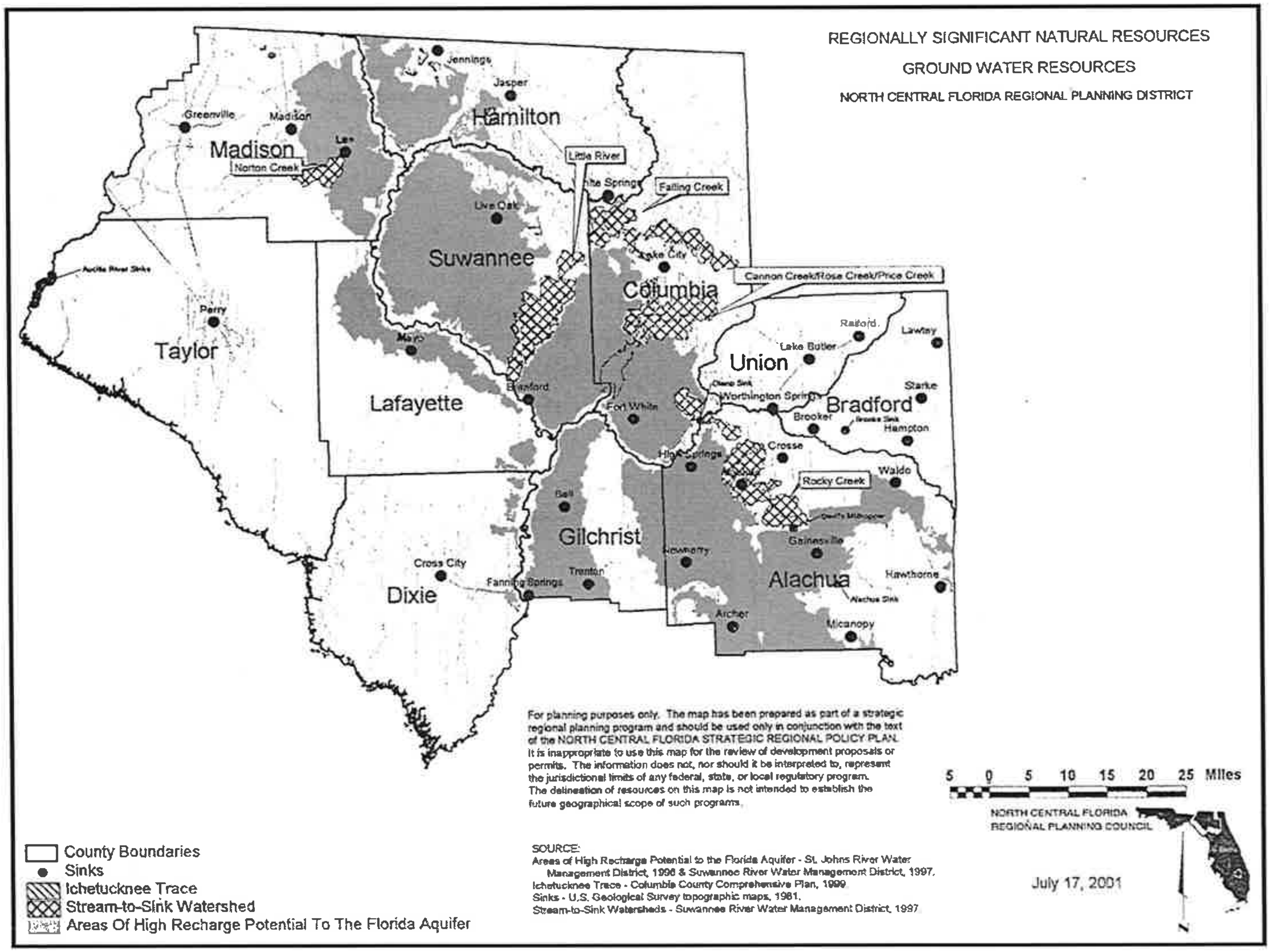
Swuwannee River Water Management District
Groudwater Aquifer Recharge Data, 2000

SCALE

0 1 2 3 4 5 6 7 8 9 Miles

N

REGIONALLY SIGNIFICANT NATURAL RESOURCES - GROUND WATER RESOURCES



STAFF-LEVEL ITEMS

FLORIDA STATE CLEARINGHOUSE
RPC INTERGOVERNMENTAL COORDINATION AND RESPONSE SHEET

DATE: 12/10/2012

SAI#: FL201212106445C
COMMENTS DUE TO CLEARINGHOUSE: 1/11/2013

CFDA#: 20.205 COUNTY: **BRADFORD** CITY: STARKE

[✓] FEDERAL ASSISTANCE [ ] DIRECT FEDERAL ACTIVITY [ ] FEDERAL LICENSE OR PERMIT [ ] OCS

PROJECT DESCRIPTION
DEPARTMENT OF TRANSPORTATION - DRAFT ENVIRONMENTAL IMPACT STATEMENT - US 301/SR 200 FROM CR 227 TO CR 233 - STARKE, BRADFORD COUNTY, FLORIDA. (REFERENCE ETDM NO. 7640)

ROUTING: **RPC**

X N. CENTRAL FLORIDA RPC

PLEASE CHECK ALL THE LOCAL GOVERNMENTS BELOW FROM WHICH COMMENTS HAVE BEEN RECEIVED; ALL COMMENTS RECEIVED SHOULD BE INCLUDED IN THE RPC'S CLEARINGHOUSE RESPONSE PACKAGE. IF NO COMMENTS WERE RECEIVED, PLEASE CHECK "NO COMMENT" BOX AND RETURN TO CLEARINGHOUSE.

NORTH CENTRAL FLORIDA
RECEIVED
DEC 13 2012
REGIONAL PLANNING COUN

COMMENTS DUE TO RPC: 1/4/2013

___ **BRADFORD**

NO COMMENTS: ___
(IF THE RPC DOES NOT RECEIVE COMMENTS BY THE DEADLINE DATE, THE RPC SHOULD CONTACT THE LOCAL GOVERNMENT TO DETERMINE THE STATUS OF THE PROJECT REVIEW PRIOR TO FORWARDING THE RESPONSE PACKAGE TO THE CLEARINGHOUSE.)

NOTES: See attached comments from the City of Starke.

ALL CONCERNS OR COMMENTS REGARDING THE ATTACHED PROJECT (INCLUDING ANY RPC COMMENTS) SHOULD BE SENT IN WRITING BY THE DUE DATE TO THE CLEARINGHOUSE. PLEASE ATTACH THIS RESPONSE FORM AND REFER TO THE SAI # IN ALL CORRESPONDENCE.

IF YOU HAVE ANY QUESTIONS REGARDING THE ATTACHED PROJECT, PLEASE CONTACT THE STATE CLEARINGHOUSE AT (850) 245-2161.

North Central Florida Regional Planning Council

Serving
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Hamilton • Lafayette • Madison
Suwannee • Taylor • Union Counties

2009 NW 67th Place, Gainesville, FL 32653-1603 • 352.955.2200

Mayor Com + O Mgr

SUBMITTED TO
BY
DATE 1-3-2013

Please read all information Comments by Jan 8th

DATE: 12-26-12

REGIONAL CLEARINGHOUSE INTERGOVERNMENTAL COORDINATION AND RESPONSE NOTIFICATION

PROJECT DESCRIPTION

#11 - Department of Transportation - Draft Environmental Impact Statement - US 301/SR 200 From CR 227 to CR 233 - Starke, Bradford County, Florida (Reference ETDM No. 7640) - SAI# FL201212106445C

The Council has received the above-referenced item for purposes of regional clearinghouse review as per Presidential Executive Order 12372, Gubernatorial Executive Order 95-359 and Clearinghouse Committee Procedures. A copy of the relevant portions of the item is enclosed for your consideration. Since your organization may be affected by the item, you are offered an opportunity to comment. Your organization is not required to return this form. Failure to respond by the comment deadline will indicate that your organization has no comment on the above-referenced item.

Comment Deadline: January 8, 2013

Mailing List

____ Bradford County

____ Town of Hampton

____ City of Lawtey

✓ City of Starke

✓ COMMENTS ATTACHED

____ NO COMMENTS

Thomas V Woods, Mayor (Name) CITY OF STARKE (Organization)

Anonymous comments will not be forwarded.

Dedicated to improving the quality of life of the Region's citizens,
by coordinating growth management, protecting regional resources,
promoting economic development and providing technical services to local governments.

On Friday, January 4th I held a conference call with Jordon Green from DOT, Clerk Johns and Operations Manager Oody regarding the letter received from North Central Florida Regional Planning Council, dated December 26, 2012.

I asked Mr. Green on Summary Page 3 of the letter, under PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED; the last line of the second paragraph "Relocation assistance will be provided and is addressed in Section 4.1.6, Relocations Effects" would there be any cost to the city?

Mr. Green responded there would be no cost to the city of Starke.

Thank you.

Travis V. Woods, Mayor

FHWA-FL-EIS-12-01-D
Florida Division
Federal Highway Administration

ADMINISTRATIVE ACTION
DRAFT ENVIRONMENTAL IMPACT STATEMENT

U.S. Department of Transportation
Federal Highway Administration

and

Florida Department of Transportation

In cooperation with
U.S. Army Corps of Engineers

Financial Project Number: 208001-12201
Federal Aid Project Number: 3114 018 P
ETDM Number: 7640

U.S. 301 (STATE ROAD 200)
CR 227 TO CR 233, BRADFORD COUNTY, FLORIDA

Two construction alternatives are under consideration for capacity and design improvements consistent with Florida Strategic Intermodal System (SIS) criteria. They include: (1) widening the existing four-lane facility to six lanes through the City of Starke (Urban Alternative); and, (2) construction of a four-lane freeway facility that bypasses the City of Starke (Rural Alternative). The project alternatives vary in length from 7.2 miles to 7.3 miles, respectively.

Submitted pursuant to 42 U.S.C. 4332(2)(c)

October 10, 2012
Date

[signature]
Division Administrator
Federal Highway Administration

For additional information, contact:
Mr. William R. Henderson
District Planning and Environmental Manager
Florida Department of Transportation
1109 South Marion Avenue
Lake City, Florida 32025-5874
Phone: (386) 961-3700

or

Mr. Martin C. Knopp
Division Administrator
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, Florida 32303
Phone: (850) 942-9650

Comments must be received by District Planning and Environmental Manager, William R. Henderson, Florida Department of Transportation, 1109 South Marion Avenue, Lake City, Florida 32025-5874.

By: ______________________________

SUMMARY

PROPOSED ACTION

The primary purposes of the proposed project are to 1) relieve congestion on the S.R. 200/U.S. 301 corridor within the City of Starke, caused by heavy truck traffic volumes, and 2) provide additional capacity for future traffic growth. Other objectives of the project are to improve the U.S. 301 corridor to Florida Strategic Intermodal System (SIS) design standards and to improve safety on the route.

The logical termini for the proposed project extend from just north of C.R. 227 to C.R. 233. This encompasses the urban development area surrounding the City of Starke in Bradford County and provides a safe connection or transition with the existing facility to the north and south of Starke.

The alternatives under consideration include the No Build Alternative and two Build Alternatives. The Build Alternatives include an Urban Alternative widening U.S. 301 from a four-lane divided facility to a six-lane divided urban facility, and a Rural Alternative that is a new limited access four-lane bypass facility to the west of Starke. With the Urban Alternative, bridge widening is anticipated at Prevatt Creek and new bridge construction is anticipated at Alligator Creek, C.R. 100A and the CSX railroad spur. With the Rural Alternative, new bridge construction is anticipated at Alligator Creek, C.R. 100A, the CSX railroad spur, C.R. 229, and Water Oak Creek. The Rural Alternative is anticipated to include interchanges at S.R. 100 and S.R. 16. The Build Alternatives have been designed to avoid and minimize natural and community environmental impacts.

OTHER MAJOR GOVERNMENT ACTIONS

In 2009, a traffic signal was installed on U.S. 301 at C.R. 227/Southeast 125th Street south of Starke (south project limits). Within the last five years, traffic signals were removed at Call Street and Washington Street in the downtown area. This allows for better sequencing of the remaining traffic signals. In early 2011, the railroad spur crossing on U.S. 301(S.R. 200) in Starke was rebuilt.

The Florida Department of Transportation has three other improvement projects programmed on U.S. 301, or intersecting with U.S. 301, within the project limits in the *Fiscal Year 2012-2016 Five-Year Work Program.* The programmed projects include:

- U.S. 301(S.R. 200) Intersection at S.R. 100 in Starke: This is a major intersection improvement scheduled for 2011-12 to widen the curb returns. This project will improve traffic flow for left turning truck traffic at the intersection.
- Southeast 144th Avenue: New road construction from the CSX Railroad to U.S. 301 in 2011-12. This project will provide an alternate connection between U.S. 301 and S.R. 100; thereby lessening the traffic load at the U.S. 301 intersection with S.R. 100.
- U.S. 301(S.R. 200) Resurfacing: A resurfacing project including the segment from Alligator Creek to Carter Road is programmed for 2014.

All of the above projects will enhance traffic movements throughout the corridor. None of these projects will conflict with the proposed project, and all have been considered in the analysis of the proposed alternatives.

ALTERNATIVES CONSIDERED

Various alternatives were considered to address the project needs, such as: widening the existing facility, alternate route locations inside and outside the city limits, alternate transportation modes and facility types, and the No-Build Alternative. Only the alternatives that involve widening the existing facility or construction of a bypass route were considered reasonable for further study. There are two

Build Alternatives under consideration, an Urban Alternative (widening) and a Rural Alternative (bypass).

The Urban Alternative involves widening the existing facility to six-lanes from just north of C.R. 227 to the north city limits of Starke, with additional median improvements from the north city limits to C.R. 233. This alternative is 7.2 miles in length. Where U.S. 301 is widened, the typical section will provide a six-lane divided urban arterial with a restricted median, turn bays, bike lanes, sidewalks, and grassed utility areas. Auxiliary lanes will also be provided within the urban area between the S.R. 100 and S.R. 16 intersections. This alternative also includes an alignment shift to allow for construction of a railroad overpass.

The Rural Alternative will provide a limited access bypass facility on new alignment to the west of the City of Starke urban area. This alternative is 7.3 miles in length. The typical section will be that of a four-lane divided limited access rural arterial with paved shoulders and swale drainage. The Rural Alternative will connect with the existing U.S. 301 just north of the Prevatt Creek bridge south of Starke and at C.R. 233 north of Starke. This alternative includes a railroad overpass and interchanges at S.R. 100 and S.R. 16. Bridges will also be constructed over Alligator Creek, CR 100A, CR 229 and Water Oak Creek. The Rural Alternative could be constructed in phases. The Rural Alternative is the locally preferred alternative.

MAJOR ENVIRONMENTAL IMPACTS

The proposed project, depending on the alignment alternative recommended, will cause the relocation of properties ranging from 9 to 26 residences, 2 to 60 businesses, and one public facility. Initial economic impacts will include a loss in tax revenues and a loss in jobs and earned income. However recovery from these initial economic losses is expected over time as secondary land use changes and new development occurs in the project area resulting in an overall economic benefit. There are 15 to 131 noise-sensitive sites that may experience noise levels that approach or exceed the Federal Highway Administration (FHWA) noise abatement criteria. There are 34 to 139 potential contamination sites that will be impacted. Wetlands and flood prone areas will be encountered throughout the project area, and mitigation will be required for approximately 4.5 to 81 acres of jurisdictional wetland impacts.

The Urban Alternative will directly affect one historic structure that has been determined to be potentially eligible for the *National Register of Historic Places* (NRHP). Three unrecorded historic structures, potentially eligible for the NRHP, may also be directly affected by the Urban Alternative. The Atlantic Suwannee River and Gulf (ASR&G) railroad, a historic resource eligible for the NHRP, will be overpassed by the Urban Alternative. The Rural Alternative will not affect any historic structures that have been determined to be potentially eligible for the NRHP. The ASR&G railroad, a historic resource determined to be eligible for the NRHP, will be overpassed by the Rural Alternative. The proposed project will not require right-of-way from the railroad and no effect on the integrity of the resource has been identified. Special considerations will be made for two historic cemeteries located along the Rural Alternative.

Impacts during construction include air, noise, and localized storm water runoff. Long-term, operational impacts may include increased air pollution and noise in the immediate vicinity of the proposed alternatives.

The proposed project will provide additional roadway capacity along this congested segment of U.S. 301 for local traffic and traffic traveling longer distances on the Florida Strategic Intermodal System (SIS). The maximum service volume with the widening alternative (Urban Alternative) will be 48,600 annual average daily traffic (AADT). The maximum service volume for the bypass alternative (Rural Alternative) will be 37,100 AADT, in addition to the existing facility service volume of 32,100 AADT.

AREAS OF CONTROVERSY

Coordination with various governmental agencies, property owners, and local groups has recognized one area of potential controversy. Some business owners located on the existing U.S. 301 were concerned about the loss of business should the Rural Alternative (bypass) be selected. The issue was addressed through a special economic study that included: a survey of area businesses; research of other communities with constructed bypasses; and analysis of statistical data. The economic impact analysis report was distributed to the Chamber of Commerce committee that met with Florida Department of Transportation (FDOT) on numerous occasions to discuss the project. The committee has been supportive throughout the development of project alternatives and discussions of the economic impacts of the project. The North Florida Regional Chamber of Commerce has passed a resolution (see Appendix B, Exhibit B.5) in support of the Rural Alternative.

Access may be an issue that will be dealt with on an individual basis during the final design phase. Preliminary engineering of an Urban Alternative provides direct or alternate access to properties that currently have access to U.S. 301. Preliminary engineering concepts for the Rural Alternative have been modified to accommodate access at the north and south ends of the bypass by eliminating the interchanges in favor of at-grade intersections with the existing U.S. 301. Other local roads will be over-passed and where necessary driveway connections will be made to frontage roads.

LIST OF OTHER GOVERNMENT ACTIONS REQUIRED

An Environmental Resource Permit (ERP) will be required for the project pursuant to *Chapter 373, Florida Statutes.* This permit will be filed with the Suwannee River Water Management District and will be reviewed by the Florida Department of Environmental Protection (FDEP), the Florida Fish and Wildlife Conservation Commission (FWC), the U.S. Fish and Wildlife Service (USFWS), the U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (USACE). This permit will address dredge and fill activities in wetlands and management of surface and storm water. A permit will also be required from the U.S. Army Corps of Engineers for dredge and fill activities in wetlands, in accordance with *Section 404, Clean Water Act.* The USACE is listed as a cooperating agency in the review of the *Draft Environmental Impact Statement* (DEIS).

A National Pollutant Discharge Elimination System notice of intent will be filed with the FDEP (as delegated by the USEPA for coverage under the Construction General Permit prior to construction. Best management practices will be used to control storm water runoff from the construction site.

Additional coordination with the State Historic Preservation Officer (SHPO) is required with regards to historic resources associated with the selected alternative. The proposed project is consistent with the *Florida Coastal Management Plan* (FCMP) and the comprehensive plan of the local governments pursuant to *Chapter 163, Florida Statutes.*

PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

The avoidance of the environmental impacts has been taken into consideration in the development of project alternatives. Each alternative has potential adverse effects; however, evaluation and selection of one alternative will further reduce the probable impacts.

The relocation of 9 homes and displacement 60 businesses is probable with the Urban Alternative. The relocation of 26 homes and displacement of 2 businesses is probable with the Rural Alternative. The Rural Alternative will affect a portion of the City's wastewater spray field. Relocation assistance will be provided and is addressed in Section 4.1.6, Relocations Effects.

The Urban Alternative will directly affect at least one historic structure potentially eligible for listing on the NRHP, and three unrecorded structures that are potentially eligible for the NRHP. With the Rural Alternative, mechanical scraping of an area where the Brymer Cemetery is purportedly located has been coordinated with SHPO and an archaeological monitoring report documenting the excavation in this area will be prepared and submitted prior to construction.

Noise levels are expected to approach or exceed the FHWA noise abatement criteria, or substantially increase, at 131 noise sensitive sites with the Urban Alternative, and at 15 noise sensitive sites with the Rural Alternative.

Thirty-six potential contamination sites may be impacted by the Rural Alternative, and 139 potential contamination sites may be impacted by the Urban Alternative.

The Urban Alternative will remove 4.5 acres of wetlands from productive use and the Rural Alternative will remove 81 acres of wetlands from productive use. The total area and type of wetlands impacted is dependent upon which alternative design is selected. Section 4.4.5, Wetlands, discusses proposed wetland mitigation efforts.

IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

While the relocation of individuals and families will be unavoidable, relocation assistance and payments will be provided, as addressed in Section 4.1.6, Relocations Effects.

Project alternatives will require commitment of resources for labor and materials, and the taking of approximately 78 acres of undeveloped land with the Urban Alternative and approximately 239 acres of undeveloped land with the Rural Alternative for highway purposes. Some fill material for roadway embankment may have to be obtained from outside the project right-of-way thus committing to the alteration of the terrain in nearby borrow areas.

The Urban Alternative will directly affect at least one historic structure potentially eligible for listing on the NRHP, and three unrecorded structures that are potentially eligible for the NRHP.

FEASIBLE MEASURES TO AVOID OR MINIMIZE POTENTIAL ADVERSE IMPACT

While the relocation of businesses, non-profit organizations, individuals and families will be unavoidable, relocation assistance and payments will be provided and is addressed in Section 4.1.6, Relocations Effects.

Impacts to wetlands have been avoided to the extent possible through early identification of wetland areas and careful development and evaluation of corridor alternatives. Further minimization efforts will include structures across wetland areas and other design features that reduce fill in wetlands and maintain surface and groundwater flow across project corridors. These design details will be developed in coordination with permitting agencies.

Construction activities in the vicinity of noise-sensitive sites will be controlled by adherence to the noise controls in *Florida Standard Specifications for Road and Bridge Construction*. Dust from earthwork and unpaved roads and smoke from open burning will be minimized by adherence to all state and local regulations and to the *Florida Standard Specifications*. In order to protect water quality during construction, temporary increases in turbidity will be controlled by procedures and techniques outlined in the *Florida Standard Specifications, Section 104*, "Prevention, Control and Abatement of Erosion and Water Pollution." No harm will come to Eastern indigo snakes should they be sighted in the area during construction.

SHORT-TERM IMPACTS VERSUS LONG-TERM ENVIRONMENTAL BENEFITS

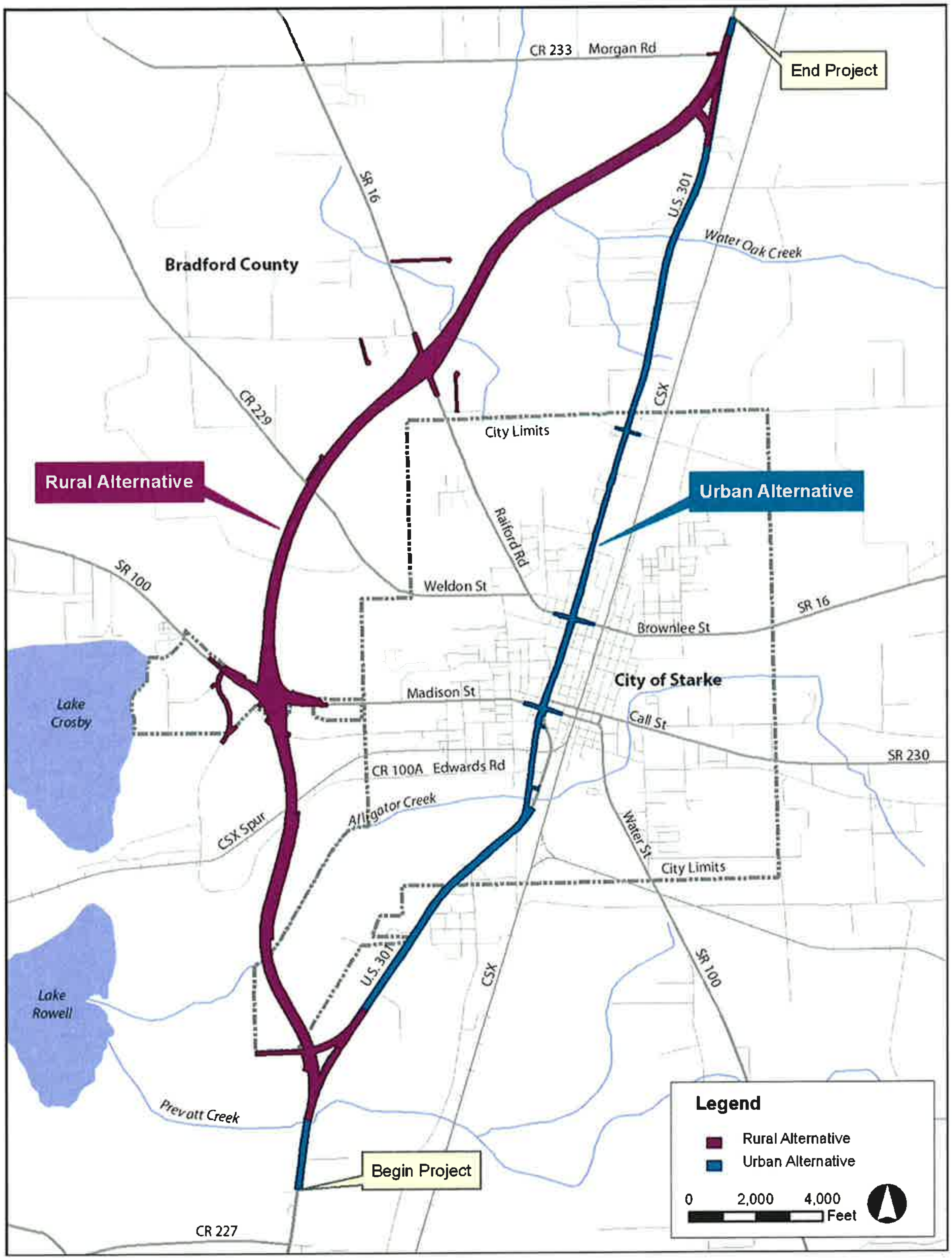
Short-term impacts related to the road and bridge construction will occur. This may cause some temporary interruption to vehicular traffic flow in and around the project area. Temporary air pollution from dust and exhaust fumes and noise associated with construction operations cannot be avoided.

Mitigation of wetland impacts and treatment of storm water runoff will be permitted so that the proposed alternatives will not add to past impacts, thereby, avoiding cumulative effects. In addition, cumulative impacts from storm water runoff from past development activities are expected to be partially rectified through capture of storm water in the urban area and treatment with runoff from the improved roadway.

Initial economic impacts of the project alternatives are expected to gradually recover as businesses suffering displacement or loss of business are reestablished and the supply and demand balances itself out in the community resulting in long-term economic benefit.

Users of the facility will appreciate the long-term benefits of improved traffic flow, such as: time savings, safety, and reduction in property damage losses. Less congestion on U.S. 301(S.R. 200) should result in a net air quality improvement and more efficient usage of energy. The project will also provide the availability of an additional, and or enhanced, emergency access and evacuation route.

Figure 2.4 Design Alternatives



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REGIONAL CLEARINGHOUSE
INTERGOVERNMENTAL COORDINATION AND RESPONSE

Date: 12-21-12

PROJECT DESCRIPTION

#16- U.S. Department of the Interior, Bureau of Ocean Energy Management, Gulf of Mexico Outer Continental Shelf Region - Notice of Availability of Draft Supplemental Environmental Impact Statement and Public Hearings for Gulf of Mexico Outer Continental Shelf Oil and Gas Proposed Western Planning Area Lease Sale 233 and Proposed Central Planning Area Lease Sale 231

TO: Lauren Milligan, Florida State Clearinghouse

____ **COMMENTS ATTACHED**

_X_ **NO COMMENTS REGARDING THIS PROJECT**

IF YOU HAVE ANY QUESTIONS REGARDING THESE COMMENTS, PLEASE CONTACT STEVEN DOPP, SENIOR PLANNER, AT THE NORTH CENTRAL FLORIDA REGIONAL PLANNING COUNCIL AT (352) 955-2200 OR SUNCOM 625-2200, EXT 109

Dedicated to improving the quality of life of the Region's citizens, by coordinating growth management, protecting regional resources, promoting economic development and providing technical services to local governments.

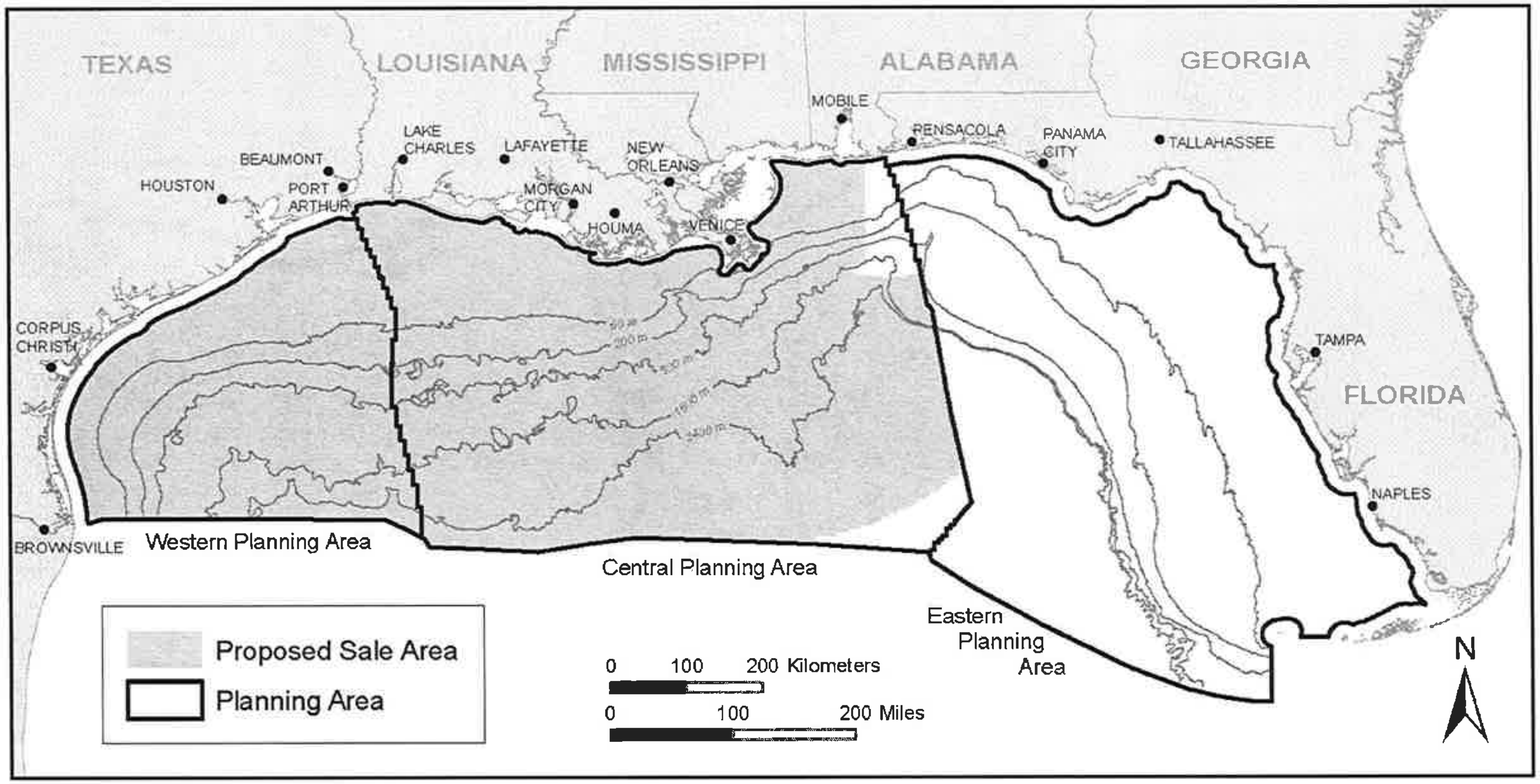

Figure 1-1. Gulf of Mexico Planning Areas, Proposed Lease Sale Areas, and Locations of Major Cities.

D. ESSENTIAL FISH HABITAT ASSESSMENT

D.1. PROPOSED ACTIONS

Purpose of and Need for the Proposed Actions (Chapter 1.1)

The proposed Federal actions addressed in this environmental impact statement (EIS) are 10 areawide oil and gas lease sales, 5 each in the Western Planning Area (WPA) and Central Planning Area (CPA) of the Gulf of Mexico (Gulf) Outer Continental Shelf (OCS) (**Figure 1-1**). Under the *Proposed Final Outer Continental Shelf Oil & Gas Leasing Program: 2012-2017* (Five-Year Program), two sales would be held each year—one in the WPA and one in the CPA (**Table 1-1**). The first two proposed lease sales are WPA Lease Sale 229 scheduled for late 2012 and CPA Lease Sale 227 scheduled for 2013. The purpose of the proposed Federal actions is to offer for lease those areas that may contain economically recoverable oil and gas resources. The proposed lease sales will provide qualified bidders the opportunity to bid upon and lease acreage in the Gulf of Mexico OCS in order to explore, develop, and produce oil and natural gas. This EIS analyzes the potential impacts of the proposed actions on the marine, coastal, and human environments. This EIS will be the only National Environmental Policy Act (NEPA) document prepared for proposed WPA Lease Sale 229 and proposed CPA Lease Sale 227. An additional NEPA review will be conducted for each subsequent proposed lease sale in the Five-Year Program.

Prelease Process (Chapter 1.4)

Scoping for this EIS was conducted in accordance with Council Environmental Quality (CEQ) regulations implementing NEPA. The Bureau of Ocean Energy Management (BOEM) also conducted early coordination with appropriate Federal and State agencies and other concerned parties to discuss and coordinate the prelease process for the proposed lease sales and this EIS. Key agencies and organizations included the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (FWS), U.S. Department of Defense (USDOD or DOD), U.S. Coast Guard (USCG), U.S. Environmental Protection Agency (USEPA), State Governors' offices, and industry groups. On June 20, 2011, the Area Identification (Area ID) decision was made. One Area ID was prepared for all proposed lease sales. The BOEM mailed copies of the Draft Multisale EIS for review and comment to public and private agencies, interest groups, and local libraries. To initiate the public review and comment period on the Draft Multisale EIS, BOEM published a Notice of Availability (NOA) in the *Federal Register* on December 30, 2011. Additionally, public notices were mailed with the Draft Multisale EIS and placed on BOEM's Internet website (http://www.boem.gov/).

A consistency review will be performed and a Consistency Determination (CD) will be prepared for each affected State prior to each proposed lease sale. To prepare the CD's, BOEM reviews each State's Coastal Management Program (CMP) and analyzes the potential impacts as outlined in this EIS, new information, and applicable studies as they pertain to the enforceable policies of each CMP. Based on the analyses, the BOEM Director makes an assessment of consistency, which is then sent to each State with the Proposed Notice of Sale (NOS).

The Final Multisale EIS will be published approximately 5 months prior to the first proposed sale, WPA Lease Sale 229, which is scheduled for late 2012. To initiate the public review and 30-day minimum comment period, BOEM will publish a NOA in the *Federal Register*. The BOEM will send copies of this Final Multisale EIS for review and comment to public and private agencies, interest groups, and local libraries. After the end of the comment period, the U.S. Department of the Interior (USDOI or DOI) will review the EIS and all comments received on the Final Multisale EIS.

The EIS is not a decision document. A Record of Decision (ROD), which is the last step in this NEPA process, will identify the alternative chosen. The ROD will summarize the proposed action and the alternatives evaluated in the EIS, the conclusions of the impact analyses, and other information considered in reaching the decision. All comments received on the Final Multisale EIS will be addressed in the ROD.

A Proposed NOS will become available to the public 4-5 months prior to a proposed lease sale. If the decision by the Assistant Secretary of the Interior for Land and Minerals (ASLM) is to hold a proposed lease sale, a Final NOS will be published in its entirety in the *Federal Register* at least 30 days prior to the sale date, as required by the OCS Lands Act.

Postlease Activities (Chapter 1.5)

Measures to minimize potential impacts are an integral part of the OCS Program. These measures are implemented through lease stipulations, operating regulations, Notices to Lessees and Operators (NTL's), and project-specific requirements or approval conditions. These measures address concerns such as endangered and threatened species, geologic and manmade hazards, military warning and ordnance disposal areas, archaeological sites, air quality, oil-spill response planning, chemosynthetic communities, artificial reefs, operations in hydrogen sulfide (H_2S) prone areas, and shunting of drill effluents in the vicinity of biologically sensitive features.

A geological and geophysical (G&G) permit must be obtained from BOEM prior to conducting off-lease geological or geophysical exploration or scientific research on unleased OCS lands or on lands under lease to a third party (30 CFR 551.4 (a) and (b)). Geological investigations include various seafloor sampling techniques to determine the geochemical, geotechnical, or engineering properties of the sediments.

Formal exploration plans (EP's) and development plans (Development Operations and Coordination Documents [DOCD's]) (30 CFR 550.211 and 550.241) with supporting information must be submitted for review and approval by BOEM before an operator may begin exploration, development, or production activities on any lease. Supporting environmental information, archaeological reports, biological reports (monitoring and/or live-bottom survey), and other environmental data determined necessary must be submitted with an OCS plan.

A Programmatic EA must be completed to evaluate the potential effects of the deepwater technologies and operations (USDOI, MMS, 2000). The EP describes exploration activities, drilling rig or vessel, proposed drilling and well-testing operations, environmental monitoring plans, and other relevant information, and includes a proposed schedule of the exploration activities. Before any development operations can begin on a lease in a proposed lease sale area, a DOCD must be submitted to BOEM for review and decision. A DOCD describes the proposed development activities, drilling activities, platforms or other facilities, proposed production operations, environmental monitoring plans, and other relevant information, and it includes a proposed schedule of development and production activities.

Technologies continue to evolve to meet the technical, environmental, and economic challenges of deepwater development. New or unusual technologies (NUT's) may be identified by the operator in its EP, deepwater operations plan (DWOP), and DOCD or through BOEM's plan review processes. The operating procedures developed during the engineering, design, and manufacturing phases of the project, coupled with the results (recommended actions) from hazard analyses performed, will be used to develop the emergency action and curtailment plans. The lessee must use the best available and safest technology to enhance the evaluation of abnormal pressure conditions and to minimize the potential for uncontrolled well flow.

Prior to conducting drilling operations, the operator is required to submit and obtain approval for an APD. Besides the application process, the lessee must design, fabricate, install, use, inspect, and maintain all platforms and structures on the OCS to assure their structural integrity for the safe conduct of operations at specific locations.

A permanent abandonment includes the isolation of zones in the open wellbore, plugging of perforated intervals, plugging the annular space between casings (if they are open), setting a surface plug, and cutting and retrieving the casing at least 15 feet (ft) (5 meters [m]) below the mudline. This also must be addressed in the application.

Regulatory processes and jurisdictional authority concerning pipelines on the OCS and in coastal areas are shared by several Federal agencies, including DOI, the Department of Transportation (DOT), the U.S. Army Corps of Engineers (COE), the Federal Energy Regulatory Commission, and the USCG. Pipeline applications are usually submitted and reviewed separately from DOCD's. Pipeline applications may be for on-lease pipelines or rights-of-way for pipelines that cross other lessees' leases or unleased areas of the OCS. Pipeline permit applications to the Bureau of Safety and Environmental Enforcement (BSEE) include the pipeline location drawing, profile drawing, safety schematic drawing, pipe design data, a shallow hazard survey report, and an archaeological report, if applicable. The BSEE evaluates the design, fabrication, installation, and maintenance of all OCS pipelines. Applications for pipeline decommissioning must also be submitted for BOEM review and approval. Decommissioning applications are evaluated to ensure they will render the pipeline inert and/or to minimize the potential for the pipeline becoming a source of pollution by flushing and plugging the ends and to minimize the likelihood that the decommissioned line will become an obstruction to other users of the OCS by filling it with water and burying the ends.

The BSEE will provide for both an annual scheduled inspection and a periodic unscheduled (unannounced) inspection of all oil and gas operations on the OCS. The inspections are to assure compliance with all regulatory constraints that allowed commencement of the operation. The lessee is required to use the best available and safest drilling technology in order to enhance the evaluation of conditions of abnormal pressure and to minimize the potential for the well to flow or kick. Because blowout preventers (BOP's) are important for the safety of the drilling crew, as well as the rig and the wellbore itself, BOP's are regularly inspected, tested, and refurbished. The BSEE's responsibilities under the Oil Pollution Act of 1990 (OPA) include spill prevention, review, and approval of oil-spill-response plans (OSRP's); inspection of oil-spill containment and cleanup equipment; and ensuring oil-spill financial responsibility for facilities in offshore waters located seaward of the coastline or in any portion of a bay that is connected to the sea either directly or through one or more other bays. The responsible party for covered offshore facilities (COF's) must demonstrate oil-spill financial responsibility (OSFR), as required by BOEM regulation 30 CFR 553. Under 30 CFR 250.1500 Subpart O, BSEE has outlined well control and production safety training program requirements for lessees operating on the OCS.

Alternatives (Chapter 2)

Alternative A—The Proposed Action: This is BOEM's preferred alternative. This alternative would offer for lease all unleased blocks within the WPA and CPA for oil and gas operations (**Figure 2-1**).

Alternative B—The Proposed Action Excluding the Unleased Blocks Near Biologically Sensitive Topographic Features: This alternative would offer for lease all unleased blocks in the WPA and CPA, as described for the proposed action (Alternative A), with the exception of any unleased blocks subject to the Topographic Features Stipulation.

Alternative C—No Action: This is the cancellation of a proposed WPA or CPA lease sale. Any potential environmental impacts resulting from a proposed WPA or CPA lease sale would not occur or would be postponed. This is also analyzed in the EIS for the Five-Year Program on a nationwide programmatic level.

D.2. GUIDANCE AND STIPULATIONS

The BOEM Topographic Features Banks, Live-Bottom (Pinnacle Trend Features), and Live Bottom (Low Relief Features) Stipulations were formulated over 20 years ago and were based on consultation with various Federal agencies and comments solicited from State, industry, environmental organizations, and academic representatives. These stipulations address conservation and protection of essential fish habitat/live-bottoms areas. The stipulations include exclusion of all oil and gas activity (structures, drilling, pipelines, production, etc.) on or near live-bottom areas (both high-relief and low-relief), mandatory shunting of drilling muds and cuttings near high-relief features, relocation of operations including pipelines away from essential fish habitat/live bottoms, and possible monitoring to assess the impact of the activity on the live bottoms. A continuous annual monitoring study has been ongoing at the East and West Flower Garden Banks since 1988.

Mitigating measures that are a standard part of the Bureau of Ocean Energy Management's OCS Program limit the size of explosive charges used for platform removal, require placing explosive charges at least 15 ft (5 m) below the mudline, establish No Activity and Modified Activity Zones around high-relief live bottoms, and require remote-sensing surveys to detect and avoid biologically sensitive areas such as low-relief live-bottoms, pinnacles, and chemosynthetic communities.

In 2009, NTL 2009-G39 ("Biologically Sensitive Areas of the Gulf of Mexico") and NTL 2009-G40 ("Deepwater Benthic Communities") were produced; these now supersede the previous guidelines for these features found in NTL 2004-G05 and NTL 2000-G20, respectively (USDOI, MMS, 2009). They offer guidance on the regulations at 30 CFR 550.216(a), 30 CFR 550.247(a), 30 CFR 550.221(a), 30 CFR 250.552(a), and 30 CFR 550.282. These are information regulations for EP, DOCD's, and development such as United States Coast Guard (USCG) cutters, helicopters, and rescue planes, and firefighting vessels.

Table 1

Blowout Scenarios and Key Differences in Impacts, Response, and/or Intervention

Location of Blowout and Leak	Key Differences in Impacts, Response, and/or Intervention
Blowout occurs at the sea surface (i.e., at the rig)	Offers the least chance for oil recovery because of the restricted access to the release point; therefore, greater impacts to coastal ecosystems. In addition to relief wells, there is potential for other intervention measures such as capping and possible manual activation of blowout-preventer (BOP) rams.
Blowout occurs along the riser anywhere from the seafloor to the sea surface. However, a severed riser would likely collapse, resulting in a leak at the seafloor.	In deep water, the use of subsea dispersants may reduce impacts to coastal ecosystems; however, their use may increase exposure of marine resources to oil. There is a possibility for limited recovery of oil at the source. In addition to relief wells, there is potential for other intervention measures, such as capping and possible manual activation of BOP rams.
At the seafloor, through leak paths on the BOP/wellhead	In deep water, the use of subsea dispersants may reduce impacts to coastal ecosystems; however, their use may increase exposure of deepwater marine resources to dispersed oil. With an intact subsea BOP, intervention may involve the use of drilling mud to kill the well. If the BOP and well stack are heavily compromised, the only intervention method may be relief wells. Greatest possibility for recovery of oil at the source, until the well is capped or killed.
Below the seafloor, outside the wellbore (i.e., broached)	Disturbance of a large amount of sediments resulting in the burial of benthic resources in the immediate vicinity of the blowout. The use of subsea dispersants would likely be more difficult (PCCI, 1999). Stopping this kind of blowout would probably involve relief wells. Any recovery of oil at the seabed would be very difficult.

2.2. MOST LIKELY AND MOST SIGNIFICANT IMPACTS

Impacts during Phase 1 would be limited to environmental resources in the immediate vicinity of the blowout. The most recent EIS's prepared by this Agency for oil and gas lease sales in the Gulf of Mexico detail the potential impacts from reasonably foreseeable blowouts (USDOI, MMS, 2007 and 2008). In addition to the impacts described in those documents, the most likely and most significant impacts resulting from a catastrophic blowout outside the wellbore are described below.

2.2.1. Physical Resources

2.2.1.1. Air Quality

A catastrophic blowout close to the water surface would initially emit large amounts of methane and other gases into the atmosphere. If high concentrations of sulfur are present in the produced gas, hydrogen sulfide (H_2S) could present a hazard to personnel. The natural gas H_2S concentrations in the Gulf of Mexico OCS are generally low; however, there are areas such as the Norphlet formation in the northeastern Gulf of Mexico, for example, that contain levels of H_2S up to 9 percent. Ignition of the blowout gas and subsequent fire would result in emissions of nitrogen oxides (NO_x), sulfur oxides (SO_x), carbon monoxide (CO), volatile organic compounds (VOC's), particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$). The fire could also produce polycyclic aromatic hydrocarbons (PAH's), which are known to be hazardous to human health. The pollutant concentrations would decrease with downwind distance. A large plume of black smoke would be visible at the source and may extend a considerable distance downwind. However, with increasing distance from the fire, the gaseous pollutants would undergo chemical reactions, resulting in the formation of fine particulate matter ($PM_{2.5}$) that includes nitrates, sulfates, and organic matter. The $PM_{2.5}$ concentrations in the plume would have the potential to temporarily degrade visibility in any affected Prevention of Significant Deterioration (PSD) Class I areas (i.e., National Wilderness Areas and National Parks) and other areas where visibility is of significant value. Organic aerosols formed downwind from the DWH oil spill (de Gouw et al., 2011), during which the lightest compounds, the VOC's, in the oil from the DWH blowout evaporated within hours and during which the heavier compounds took longer to evaporate, contributing to the formation of air pollution particles downwind.

2.2.1.2. *Offshore Water Quality*

During the initial phase of a catastrophic blowout, water quality impacts include disturbance of sediments and release and suspension of oil and natural gas (methane) into the water column. These potential impacts are discussed below. As this section deals with the immediate effects of a blowout that would be located at least 3 nautical miles from shore, it is assumed that there would be no impacts on coastal water quality during this initial stage.

Disturbance of Sediments

A catastrophic blowout below the seafloor, outside the wellbore (Table 1) has the potential to resuspend sediments and disperse potentially large quantities of bottom sediments. Some sediment could travel several kilometers, depending on particle size and subsea current patterns. In the deep Gulf of Mexico, surficial sediments are mostly composed of silt and clay, and, if resuspended, could stay in the water column for several hours to even days. Bottom currents in the deep Gulf of Mexico have been measured to reach 30 centimeters/second (cm/sec) (12 inches/second [in/sec]) with mean flows of 1.5-2.5 cm/sec (0.6-0.9 in/sec) (Hamilton, 1990). At these mean flow rates, resuspended sediment could be transported 1.3-2.1 kilometers/day (0.8-1.3 miles/day). Sediment resuspension can lead to a temporary change in the oxidation-reduction chemistry in the water column, including a localized and temporal release of any formally sorbed metals, as well as nutrient recycling (Caetano et al., 2003; Fanning et al., 1982). Sediments also have the potential to become contaminated with oil components.

A subsea release also has the potential to destabilize the sediments and create slumping or larger scale sediment movements along depth gradients. These types of events would have the potential to move and/or damage any infrastructure in the affected area.

Release and Suspension of Oil into the Water Column

As the DWH event showed, a subsea release of hydrocarbons at a high flow rate has the potential to disperse and suspend plumes of oil droplets (chemically dispersed or otherwise) within the water column and to induce large patches of sheen and oil on the surface. These dispersed hydrocarbons may adsorb onto marine detritus (marine snow) or may be mixed with drilling mud and deposited near the source. Mitigation efforts such as burning may introduce hydrocarbon byproducts into the marine environment, which would be distributed by surface currents. The acute and chronic sublethal effects of these dilute suspended "plumes" are not well understood and require future research efforts.

Large quantities of oil put into offshore water may alter the chemistry of the sea with unforeseeable results. The VOC's, including benzene, can have acutely toxic effects. The components of crude oil that are water soluble are more available than some of the heavier components to exert a toxic effect on marine life. The PAH's are present in crude oil and include carcinogenic compounds and compounds that pose various risks to marine organisms and possibly to the higher trophic level species, including humans that feed on these organisms. The PAH's are also persistent in the environment. Impacts from the subsequent extended oil spill on offshore water quality are discussed further in Section 3.2.1.2.

Release of Natural Gas (Methane) into the Water Column

A catastrophic blowout could release natural gas into the water column; the amount of gas released is dependent upon the water depth, the natural gas content of the formation being drilled, and its pressure. Methane is the primary component of natural gas (NaturalGas.org, 2010). Methane may stay in the marine environment for long periods of time (Patin, 1999; p. 237), as methane is highly soluble in seawater at the high pressures and cold temperatures found in deepwater environments (NRC, 2003;

p. 108). However, methane diffusing through the water column would likely be oxidized in the aerobic zone and would rarely reach the air-water interface (Mechalas, 1974; p. 23). In addition to methane, natural gas contains smaller percentages of other gases such as ethane and propane. It may also contain VOC's (including benzene, toluene, ethylbenzene, and xylene) and H_2S, which have individual toxic characteristics. Methane and other natural gas constituents are carbon sources, and their introduction into the marine environment could result in reducing the dissolved oxygen levels because of microbial degradation of the methane potentially creating hypoxic or "dead" zones. Depletion of dissolved oxygen in the Gulf of Mexico because of the release of natural gas from the Macondo well (DWH event) is currently being examined as a result of the DWH event (Schenkman, 2010). Unfortunately, little is known about methane toxicity in the marine environment, but there is concern as to how methane in the water column might affect fish (see Section 3.2.2.2).

2.2.2. Biological Resources

Impacts during the initial event would be limited to environmental resources in the immediate vicinity of the blowout as described below.

2.2.2.1. Marine and Migratory Birds

Many migratory birds use offshore platforms or rigs as rest sites during migration (Russell, 2005). In addition, seabirds are attracted to offshore platforms and rigs (Tasker et al., 1986; Wiese et al., 2001). The numbers of birds present at a platform or rig are greater when platforms or rigs are closer to shore during drilling operations (Baird, 1990). Birds resting on the drilling rig or platform during a catastrophic blowout are likely to be killed by an explosion. While it is assumed that most birds in trans-Gulf migration would likely avoid the fire and smoke plume during the day, it is conceivable that the light from the fire could interfere with nocturnal migration, especially during poor visibility conditions. It has been documented that seabirds are attracted to natural gas flares at rigs and platforms (Russell, 2005; Wiese et al., 2001); therefore, additional bird fatalities could result from the fire following the blowout. Though different species migrate throughout the year, the largest number of species migrates from March through November. A blowout during this time would cause a greater number of bird fatalities. While the number and species of birds killed depends on the blowout location and time of year, these initial fatalities would likely not result in population-level impacts for species present at the time of the blowout and resulting fire (Russell, 2005, Table 6.12).

2.2.2.2. Fish, Fisheries, and Essential Fish Habitat

Depending on the type of blowout and the proximity of marine life to it (Table 1), an eruption of gases and fluids may generate not only a toxic effect but also pressure waves and noise significant enough to injure or kill local biota. Within a few thousand meters of the blowout, resuspended sediments may clog fish gills and interfere with respiration. Settlement of resuspended sediments may, in turn, smother invertebrates or interfere with their respiration. Offshore benthic habitats that support fisheries could also be impacted, as discussed below.

2.2.2.3. Marine Mammals

Depending on the type of blowout, the pressure waves and noise generated by the eruption of gases and fluids would likely be significant enough to harass, injure, or kill marine mammals, depending on the proximity of the animal to the blowout. A high concentration of response vessels could result in harassment or displacement of individuals and could place marine mammals at a greater risk of vessel collisions, which would likely cause fatal injuries.

2.2.2.4. Sea Turtles

Five species of sea turtles are found in the waters of the Gulf of Mexico: green, leatherback, hawksbill, Kemp's ridley, and loggerhead. All species are protected under the Endangered Species Act (ESA), and all are listed as endangered except the loggerhead turtle, which is listed as threatened. Depending on the type of blowout (Table 1), an eruption of gases and fluids may generate significant pressure waves and noise that may harass, injure, or kill sea turtles, depending on their proximity to the accident. A high concentration of response vessels could place sea turtles at a greater risk of fatal injuries from vessel collisions.

Further, mitigation by burning puts turtles at risk because they tend to be gathered up in the corralling process necessary to concentrate the oil in preparation for the burning. Trained observers should be required during any mitigation efforts that include burning.

2.2.2.5. Offshore Benthic Habitats

Gulf of Mexico benthic resources are divided into shelf habitats and deepwater habitats. Shelf habitats of the Gulf of Mexico include soft-bottom habitats (sandy and muddy substrate) and hard-bottom habitats (rock or salt outcroppings that provide habitat for encrusting organisms). Deepwater benthic communities of the Gulf of Mexico include soft-bottom, coral, and chemosynthetic habitats. The impacts to these benthic communities depend on the location and the type of catastrophic blowout that occurs.

Introduction

Sediment disturbance as a result of the blowout above the seafloor would not occur. A catastrophic blowout that occurs above the seabed (at the rig, along the riser between the seafloor and sea surface, or through leak paths on the BOP/wellhead) would result in released oil rising to the sea surface. However, if the leak is deep in the water column and the oil is ejected under pressure, oil droplets may become entrained deep in the water column. The upward movement of the oil may be reduced if methane in the oil is dissolved at the high underwater pressures, reducing the oil's buoyancy (Adcroft et al., 2010). The large oil droplets will rise to the sea surface, but the smaller droplets, formed by vigorous turbulence in the plume or the injection of dispersants, may remain neutrally buoyant in the water column, creating a subsurface plume (Adcroft et al., 2010). Oil droplets less than 100 micrometers in diameter may remain in the water column for several months (Joint Analysis Group, 2010a), where they will not be in contact with benthic habitats; similarly, large oil drops on the sea surface will not be in contact with benthos. However, oil in the water column or at the sea surface may sometimes sink, contact benthos, and have impacts, as discussed below.

As discussed below, a catastrophic blowout outside the well casing and below the seafloor or at the seafloor water interface could resuspend large quantities of bottom sediments and create a large crater, destroying many organisms within a few hundred meters of the wellhead. Some of the sediment could travel up to a few thousand meters before redeposition, negatively impacting a localized area of benthic communities.

The use of subsea dispersants would increase the exposure of offshore benthic habitats to dispersed oil droplets in the water column, as well as the chemicals used in the dispersants. The use of subsea dispersants is not likely to occur for seafloor blowouts outside the well casing.

Soft-Bottom Shelf Habitats

The vast majority of the Gulf of Mexico seabed is comprised of soft sediments. Microbes to metazoans (e.g., polychaete worms and crabs) inhabit the soft-bottom benthos, many forming the base of the food chain for several species. When soft-bottom infaunal communities are physically impacted by a blowout (either lost to the crater formation or smothered by sediment), recolonization by populations from neighboring soft-bottom substrate is expected within a relatively short period of time. Many of the organisms on soft bottoms live within the sediment and have the ability to migrate upward in response to burial by sedimentation. A blowout that occurs outside the well casing can rapidly deposit 30 cm (12 in) or more of sediment within a few hundred meters and may smother much of the soft-bottom community in a localized area. In situations where soft-bottom infaunal communities are negatively impacted, recolonization by populations from neighboring soft-bottom substrate would be expected over a relatively short period of time for all size ranges of organisms, in a matter of days for bacteria, and probably less than 1 year for most macrofauna and megafauna species. Recolonization could take longer for areas affected by direct contact of concentrated oil. Initial repopulation from nearby stocks of pioneering species, such as tube-dwelling polychaetes or oligochaetes, may begin with the next recruitment event (Rhodes and Germano, 1982). Full recovery would follow as later stages of successional communities overtake the pioneering species (Rhodes and Germano, 1982). The time it takes to reach a climax community may vary depending on the species and degree of impact. Full benthic community recovery may take years to decades if the benthic habitat is heavily oiled (Gesteira and Dauvin, 2000; Sanders et al., 1980; Conan, 1982). A slow recovery rate will result in a community with reduced biological diversity and possibly a lesser food value for predatory species.

Hard-Bottom Shelf Habitats

The Gulf of Mexico has several hard-bottom features on the continental shelf in water depths less than 300 m (984 ft), features upon which encrusting and epibenthic organisms attach. Though there are varying degrees of relief on the hard bottom, the impacts from a catastrophic blowout are similar for the banks of varying relief because similar organisms occur on these features. Thus, they are discussed as a single grouping under "hard-bottom communities," with references to specific communities where impacts may differ.

Topographic features are isolated areas of moderate to high relief that provide habitat for hard-bottom communities of high biomass and moderate diversity. These features provide shelter and food for large numbers of commercially and recreationally important fish. There are 37 named topographic features in the Gulf of Mexico with specific BOEM protections, including the Flower Garden Banks National Marine Sanctuary. The BOEM has created "No Activity Zones" around topographic features in order to protect these habitats from disruption because of oil and gas activities. A "No Activity Zone" is a protective perimeter drawn around each feature that is associated with a specific isobath (depth contour) surrounding the feature in which structures, drilling rigs, pipelines, and anchoring are not allowed. These "No Activity Zones" are areas where activity is prohibited based on BOEM policy. Notice to Lessees and Operators (NTL) 2009-G39 recommends that drilling should not occur within 152 m (500 ft) of a "No Activity Zone" of a topographic feature.

The northeastern portion of the central Gulf of Mexico is a region of low to moderate relief known as the "Pinnacle Trend" at the outer edge of the Mississippi-Alabama shelf between the Mississippi River and De Soto Canyon. Fish are attracted to these outcrops that provide hard substrate for sessile invertebrates to attach. The NTL 2009-G39 recommends that no bottom-disturbing activities occur within 30 m (100 ft) of any hard bottoms/pinnacles with a relief of 8 ft (2 m) or greater.

Potentially sensitive biological features are features that have moderate to high relief (8 ft [2 m] or higher), provide hard surface for sessile invertebrates, attract fish, but are not located within Pinnacle-designated blocks or the "No Activity Zone" of topographic features. No bottom-disturbing activities that may cause impact to these features are permitted.

Impacts that occur to hard-bottom shelf habitats as a result of a blowout would depend on the type of blowout, distance from the blowout, relief of the biological feature, and surrounding physical characteristics of the environment (e.g., turbidity). The NTL 2009-G39 recommends the use of buffers to prevent blowouts in the immediate vicinity of a hard-bottom habitat or its associated biota. Much of the oil released from a blowout would rise to the sea surface, therefore minimizing the impact to benthic communities by direct oil exposure. However, small droplets of oil that are entrained in the water column for extended periods of time may migrate into "No Activity Zones." Although these small oil droplets will not sink themselves, they may attach to suspended particles in the water column and then be deposited on the seafloor (McAuliffe et al., 1975). These long-term impacts, such as reduced recruitment success, reduced growth, and reduced coral cover, as a result of impaired recruitment, are discussed in Section 3.2.2.6. Also, if the blowout were to occur beneath the seabed, suspension and subsequent deposition of disturbed sediment may smother localized areas of benthic communities, possibly including organisms within No Activity Zones or other hard-bottom substrate.

Benthic communities on a hard-bottom feature exposed to large amounts of resuspended and deposited sediments following a catastrophic, subsurface blowout could be subject to sediment suffocation, exposure to resuspended toxic contaminants, and reduced light availability. Impacts to corals as a result of sedimentation would vary based on coral species, the height to which the coral grows, degree of sedimentation, length of exposure, burial depth, and the coral's ability to clear the sediment. Impacts may range from sublethal effects such as reduced growth, alteration in form, and reduced recruitment and productivity to slower growth to death (Rogers, 1990).

The initial blowout impact would be greatest to communities located in clear waters that experience heavy sedimentation. Reef-building corals are sensitive to turbidity and may be killed by heavy sedimentation (Rogers, 1990; Rice and Hunter, 1992). However, it is unlikely that reef-building corals would experience heavy sedimentation as a result of a blowout because drilling activity would not be allowed near sensitive organisms in the "No Activity Zones," based on the lease stipulations as described in NTL 2009-G39. The most sensitive organisms are also typically elevated above soft sediments, making them less likely to be buried. It is possible, however, for potentially sensitive biological features outside of "No Activity Zones" or Pinnacle-designated blocks to experience some turbidity or sedimentation impacts. Corals may also experience discoloration or bleaching as a result of sediment exposure, although recovery from such exposure may occur within 1 month (Wesseling et al., 1999).

Initial impacts would be much less extreme in a turbid environment (Rogers, 1990). For example, the Pinnacle Trend community exists in a relatively turbid environment, starting just 65 km (40 mi) east of the mouth of the Mississippi River and trending to the northeast. Sediment from a blowout, if it occurred nearby, may have a reduced impact on these communities compared with an open-water reef community, as these organisms are more tolerant of suspended sediment (Gittings et al., 1992). Many of the organisms that predominate in this community also grow tall enough to withstand the sedimentation that results from their turbid environment or they have flexible structures that enable the passive removal of sediments (Gittings et al., 1992).

A portion or the entire rig may sink to the seafloor as a result of a blowout. The benthic communities (hard- or soft-bottom communities) on the seafloor upon which the rig settles would be destroyed or smothered. A settling rig may suspend sediments, which may smother nearby benthic communities as the sediment is redeposited on the seafloor. The habitats beneath the rig may be permanently lost; however, the rig itself may become an artificial reef upon which epibenthic organisms may settle. The surrounding benthic communities that were smothered by sediment would repopulate from nearby stocks through spawning recruitment and immigration.

Deepwater Habitats

The effects of a catastrophic blowout event on Gulf of Mexico benthic resources in deep water (>1,000 ft; 300 m) are similar to those on the shelf communities. The main factors are the type of blowout and the proximity to the habitat. Known deepwater communities include soft bottoms and two types of hard-bottom communities: chemosynthetic communities and deep coral communities. Many of the organisms on soft bottoms live within the sediment and have the ability to migrate upward in response to burial by sedimentation. A blowout that occurs outside the well casing can rapidly deposit 30 cm (12 in) or more of sediment within a few hundred meters and may smother much of the soft-bottom community in a localized area. In situations where soft-bottom infaunal communities are negatively impacted, recolonization by populations from neighboring soft-bottom substrate would be expected over a relatively short period of time for all size ranges of organisms, in a matter of days for bacteria, and probably less than 1 year for most macrofauna and megafauna species. Recolonization could take longer for areas affected by direct contact of concentrated oil.

The BOEM's restrictions applicable to work near deepwater hard-bottom areas (as described in NTL 2009-G40) would prevent direct negative effects from a seafloor blowout. The established policy prohibits location of wells within 2,000 ft (610 m) of a suspected hard-bottom habitat. Geophysical analyses have achieved a high degree of reliability in detecting the potential presence of hard-bottom communities in the Gulf of Mexico. In rare instances, the subtle geophysical signatures of hydrocarbon seepage that are a probable indicator of a hard-bottom community are not discovered during routine environmental analysis. Therefore, it is possible that a well could be drilled close enough for a hard-bottom community to be damaged in the event of a catastrophic blowout.

Blowouts at points above the seafloor (in the riser or on the drill platform) would have little immediate effect on deepwater seafloor communities unless the structure sinks and physically impacts the seafloor. If a structure sank directly on a hard-bottom community, at least 2,000 ft (610 m) from the well, organisms could be crushed and smothered.

2.2.3. Socioeconomic Resources

2.2.3.1. Offshore Archaeological Resources

The BOEM protects all known, discovered, and potentially historic and prehistoric archaeological resources on the OCS by requiring appropriate avoidance criteria as well as directives to investigate these resources.

Onshore archaeological resources, prehistoric and historic sites, would not be immediately impacted during the initial phase of a catastrophic blowout because the distance of a blowout site from shore is at least 3 nautical miles. However, offshore catastrophic blowouts, when compared with spills of lesser magnitude, may initially impact multiple archaeological resources. Resources adjacent to a catastrophic blowout could be damaged by the high volume of escaping gas, buried by large amounts of dispersed sediments, crushed by the sinking of the rig or platform, destroyed during emergency relief well drilling, or contaminated by the hydrocarbons.

Based on historical information, over 2,100 potential shipwreck locations have been identified in the Gulf of Mexico OCS (USDOI, MMS, 2007). This number is a conservative estimate and is heavily weighted toward post-19th century, nearshore shipwrecks, where historic records documenting the loss of the vessels were generated more consistently. Of the 2,100 recorded wrecks, only 233 records were determined to have associated spatial data possessing sufficient accuracy for BOEM's needs.

In certain circumstances, BOEM's Regional Director may require the preparation of an archaeological report to accompany the EP, DOCD, or DPP, under 30 CFR 550.194, and BSEE's Regional Director may do likewise under 30 CFR 250.194 if a potential wreck is encountered during operations. As part of the environmental reviews conducted for postlease activities, available information will be evaluated regarding the potential presence of archaeological resources within the proposed action area to determine if additional archaeological resource surveys and mitigations are warranted.

2.2.3.2. Commercial Fishing

The initial explosion and fire could endanger commercial fishermen in the immediate vicinity of the blowout. Although commercial fishing vessels in the area would likely aid in initial search-and-rescue operations, the subsequent fire could burn for over a month, during which time commercial vessels would be expected to avoid the area so as to not interfere with response activities. This could impact the livelihood and income of these commercial fishermen.

2.2.3.3. Recreational Resources and Fishing

A substantial amount of recreational activity is associated in the immediate area around shallow water oil and gas structures because these structures function as artificial reefs, promote coral growth, and attract fish. About 20 percent of the recreational fishing activity and 90 percent of the recreational diving activity in the Gulf of Mexico occurs within 300 ft (91 m) of oil and gas structures (Hiett and Milon, 2002). Therefore, an explosion and fire within 100 mi (161 km) of shore could endanger recreational fishermen and divers in the immediate vicinity of the blowout, especially if the blowout is located between water depths of 100 and 200 ft (30 and 61 m). Recreational vessels in the area would likely aid in initial search-and-rescue operations but would also be in danger during the explosion and subsequent fire. The subsequent fire could burn for more than a month, during which recreational vessels would be expected to avoid the area and not interfere with response activities. This will impact the income of recreational fishing and diving businesses. Also, if the fire and smoke is visible from recreational beaches, their recreational use may be impacted.

2.2.3.4. Human Resources, Land Use, and Environmental Justice

Fatalities and serious injuries would likely occur during the initial explosion and/or fire. Due to the large number of people (>100) working on a deepwater drilling rig or platform, dozens of fatalities and serious injuries could occur.

With the explosion >3 nautical miles from the shore and the likelihood that the resulting fire will burn for a short duration, the initial fire and/or explosion is not expected to impact land use, demographics, or economics, although some recreational beach use may be impacted (Section 2.2.2.3). Thus, the initial fire and explosion should not disproportionately affect low-income persons or minorities, and therefore, will not raise environmental justice concerns.

APPENDIX C. BOEM-OSRA CATASTROPHIC RUN

A special Oil-Spill Risk Analysis (OSRA) run was conducted in order to estimate the impacts of a possible future catastrophic or high-volume, long-duration oil spill. Thus, assuming a hypothetical high-volume, long-duration oil spill occurred, this analysis emphasized modeling a spill that continued for 90 consecutive days, with each trajectory tracked for up to 120 days. The OSRA for this analysis was conducted for only the trajectories of oil spills from five hypothetical spill locations to various land segments. The probability of an oil spill contacting a specific land segment within a given time of travel from a certain location or spill point is termed a *conditional probability*; the condition being that a spill is assumed to have occurred. Each trajectory was allowed to continue for as long as 120 days. However, if the hypothetical spill contacted shoreline sooner than 30 days after the start of the spill, the spill trajectory was terminated, and the contact was recorded. Although, overall OSRA is designed for use as a risk-based assessment, for this analysis, only the *conditional probability*, the probability of contact to the resource, was calculated. The probability of a catastrophic spill occurring was not calculated; thus, the combination of the probability of a spill and the probability of contact to the resources from the hypothetical spill locations were not performed. Results from this trajectory analysis provide input to the final product by estimating where spills might travel on the ocean's surface and what land segments might be contacted if and when another catastrophic spill occurs, but it does not provide input on the probability of another catastrophic spill occurring.

OSRA Overview

The OSRA model, originally developed by Smith et al. (1982) and enhanced by this Agency over the years (Ji et al., 2002, 2004a, and 2004b), simulates oil-spill transport using model-simulated winds and ocean currents in the Gulf of Mexico. An oil spill on the ocean surface moves around by the complex surface ocean currents exerting a shear force on the spilled oil from below. In addition, the prevailing wind exerts an additional shear force on the spill from above, and the combination of the two forces causes the transportation of the oil spill away from its initial spill location. In the OSRA model, the velocity of a hypothetical oil spill is the linear superposition of the surface ocean current and the wind drift caused by the winds. The model calculates the movement of hypothetical spills by successively integrating time sequences of two spatially gridded input fields: the surface ocean currents and the sea-level winds. Thus, the OSRA model generates time sequences of hypothetical oil-spill locations—essentially, oil-spill trajectories.

At each successive time step, the OSRA model compares the location of the hypothetical spills against the geographic boundaries of shoreline. The frequencies of oil-spill contact are computed for designated oil-spill travel times (e.g., 3, 10, 30, or 120 days) by dividing the total number of oil-spill contacts by the total number of hypothetical spills initiated in the model from a given hypothetical spill location. The frequencies of oil-spill contact are the model-estimated probabilities of oil-spill contact. The OSRA model output provides the estimated probabilities of contact to segments of shoreline from the five launch points (LP) in the Gulf of Mexico, which are explained below.

There are factors not explicitly considered by the OSRA model that can affect the transport of spilled oil as well as the dimensions, volume, and nature of the oil spills contacting environmental resources or the shoreline. These include possible cleanup operations, chemical composition or biological weathering of oil spills, or the spreading and splitting of oil spills. The OSRA analysts have chosen to take a more environmentally conservative approach by presuming persistence of spilled oil over the selected time duration of the trajectories.

In the trajectory simulation portion of the OSRA model, many hypothetical oil-spill trajectories are produced by numerically integrating a temporally and spatially varying ocean current field, and superposing on that an empirical wind-induced drift of the hypothetical oil spills (Samuels et al., 1982). Collectively, the trajectories represent a statistical ensemble of simulated oil-spill displacements produced by a field of numerically derived winds and ocean currents. The winds and currents are assumed to be statistically similar to those that will occur in the Gulf during future offshore activities. In other words, the oil-spill risk analysts assume that the frequency of strong wind events in the wind field is the same as what will occur during future offshore activities. By inference, the frequencies of contact by the simulated oil spills are the same as what could occur from actual oil spills during future offshore activities.

Another portion of the OSRA model tabulates the contacts by the simulated oil spills. A contact to shore will stop the trajectory of an oil spill; no re-washing is assumed in this model. After specified periods of time, the OSRA model will divide the total number of contacts to the coastline segments by the total number of simulated oil spills from each of the five LP's. These ratios are the estimated probabilities of oil-spill contact from offshore activities at that geographic location, assuming spill occurrence.

Conducting an oil-spill risk analysis needs detailed information on ocean currents and wind fields (Ji, 2004). The ocean currents used are numerically computed from an ocean circulation model of the Gulf of Mexico driven by analyzed meteorological forces (the near-surface winds and the total heat fluxes) and observed river inflow into the Gulf of Mexico (Oey et al., 2004; Oey, 2005). The models used are versions of the Princeton Ocean Model, which is an enhanced version of the earlier constructed Mellor-Blumberg Model.

The ocean model calculation was performed by Princeton University (Oey et al., 2004). This simulation covered the 7-year period, 1993 through 1999, and the results were saved at 3-hour intervals. This run included the assimilation of sea-surface altimeter observations to improve the ocean model results. The surface currents were then computed for input into the OSRA model, along with the concurrent wind field. The OSRA model used the same wind field to calculate the empirical wind drift of the simulated spills. The statistics for the contacts by the trajectories forced by the currents and winds were combined for the average probabilities.

Catastrophic OSRA Run Overview

A special OSRA run was conducted in order to estimate the impacts of a possible future catastrophic spill. Thus, assuming a hypothetical catastrophic oil spill occurred, this analysis emphasized modeling a spill that continued for 90 consecutive days with each trajectory tracked for up to 120 days. The OSRA for this analysis was conducted for only the trajectories of oil spills from five hypothetical spill locations to various land segments (**Figures C-1 and C-2**). The probability that an oil spill will contact a specific land segment within a given time of travel from a certain location or spill point is termed a *conditional probability*; the condition being that a spill is assumed to have occurred. Each trajectory was allowed to continue for as long as 120 days. However, if the hypothetical spill contacted shoreline sooner than 30 days after the start of the spill, the spill trajectory was terminated, and the contact was recorded. Although, overall the OSRA is designed for use as a risk-based assessment, for this analysis, only the *conditional probability*, the probability of contact to the resource, was calculated. The probability of a catastrophic spill occurring was not calculated, thus the combination of the probability of a spill and the probability of contact to the resources from the hypothetical spill locations was not performed. Results from this trajectory analysis provide input to the final product by estimating where spills might travel on the ocean's surface and what land segments might be contacted if and when another catastrophic spill occurs, but it does not provide input on the probability of another catastrophic spill occurring.

Trajectories of hypothetical spills were initiated every 1.0 day from each of the launch points over the simulation period from January 1, 1993, to December 31, 1998 (**Figure C-1**). The chosen number of trajectories per site was small enough to be computationally practical and large enough to reduce the random sampling error to an insignificant level. Also, the weather-scale changes in the winds are at least minimally sampled, with simulated spills started every 1.0 day.

These launch point locations were developed within the Gulf of Mexico region for the purpose of this analysis. Five launch points were identified and encompassed the approximate areas with the possibility of finding the largest oil volume within the following regions:

- Central Gulf of Mexico shelf area west of the Mississippi River;
- Central Gulf of Mexico shelf area east of the Mississippi River;
- Central Gulf of Mexico slope area;

- Western Gulf of Mexico shelf area; and
- Western Gulf of Mexico slope area.

Longitude	Latitude	Launch Point (LP)
-92.17851	28.98660	1
-88.15338	29.91388	2
-90.22203	27.31998	3
-96.76627	27.55423	4
-94.51836	27.51367	5

The methodology used for launch point selection is not part of the OSRA model in the manner it has been typically run for this Agency's spill analyses. Gulf of Mexico OCS Region geologists and engineers used the following methodology to select the five points. For each geologic play currently recognized, the undiscovered technically recoverable resource volume was allocated throughout the play area based on the likelihood of future oil discovery potential. The probability factor used to allocate undiscovered oil volumes to areas within the geologic play was based on the density of existing discoveries, the density of undrilled prospects on leased acreage, and the results from recent exploration activity. In areas where the potential for undiscovered technically recoverable resource volume exists for more than one geologic play, the oil volumes were aggregated. Results from the aggregation were used to identify five geographic areas of high potential for future oil discoveries: three in the Central Planning Area and two in the Western Planning Area of the Gulf of Mexico. Although these areas may encompass hundreds of square miles, the coordinates for the five launch points were selected qualitatively to correspond with the centroid of these areas. After their selection, the five points were given to the OSRA analysts for use with the OSRA model.

Additionally, the total estimated oil-contacted area of water was also determined. The OSRA model integrates the spill velocities (a linear superposition of surface ocean currents and empirical wind drift) by integrating in time to produce the spill trajectories. The time step selected was 1 hour to fully utilize the spatial resolution of the ocean current field and to achieve a stable set of trajectories. The velocity field was bilinearly interpolated from the 3-hour grid to get velocities at 1-hour intervals.

The trajectories simulated by the model represent only hypothetical pathways of oil slicks; they do not involve any direct consideration of cleanup, dispersion, or weathering processes that could alter the quantity or properties of oil that might eventually contact the environmental resource locations. However, an implicit analysis of weathering and spill degradation can be considered by choosing a travel time for the simulated oil spills when they contact environmental resource locations that represent the likely persistence of the oil slick on the water surface. Therefore, OSRA model trajectories were analyzed up to 120 days. Any spill contacts occurring during this elapsed time are reported in the probability tables. Conditional probabilities of contact with land segments within 120 days of travel time were calculated for each of the hypothetical spill sites.

The probability estimates were tabulated as 90-day groupings of the 120-day trajectories, as averages for the 6 years of the analysis from 1993 to 1998. These groupings were treated as seasonal probabilities that corresponded with quarters of the year: Winter, Q1 (January, February, and March); Spring, Q2 (April, May, and June); Summer, Q3 (July, August, and September); and Fall, Q4 (October, November, and December). These 3-month probabilities can be used to estimate the average number of land segments (counties/parishes) contacted during a spill, treated as one spill occurring each day for 90 days, within the quarter. The seasonal quarterly groupings take account of the differing meteorological and oceanographic conditions (wind and current patterns) during the year. The latest meteorological and oceanographic information in the Gulf of Mexico available to BOEM were for the years 1993-1998.

The area of ocean surface contacted by oil from the hypothetical spills was estimated by creating a grid of 1/6 degree longitude by 1/6 degree latitude. As the trajectories were computed, contact to the grid cells was tabulated. To estimate the area, the number of grid cells was multiplied by the approximate area of 342 square kilometers per grid cell. The number of grid cells and the approximate area of the ocean contacted by the spills were summarized at the same time intervals that were used for the land segment (county/parish boundary) tables (3, 10, 30, and 120 days).

Catastrophic OSRA Results and Discussion

It should be noted that the study area only extends somewhat into the Atlantic Ocean, where oil spills in the Gulf might be transported via the exiting Loop Current. However, on average, less than 0.5 percent of the simulated spills made it across the northern or southern Florida Straits boundary within 30 days, and only 1-2 percent within 120 days. The hypothetical spill trajectories from launch points in the western Gulf of Mexico (e.g., LP1, LP4, and LP5) have a much less chance of being transported through the Florida Straits than those in the central Gulf of Mexico (LP2 and LP3).

As one might expect, land segments closest to the spill sites had the greatest risk of contact. As the model run duration increases, more of the shoreline segments could have meaningful probabilities of contact (≥0.5%) (See **Tables C-1 through C-5** for the probabilities expressed as percent chance of one or more offshore spills ≥1,000 bbl contacting the areas noted in **Figure C-2**.). It should be reiterated that these are *conditional probabilities*; the condition being that a spill is assumed to have occurred. The longer transit times up to 120 days allowed by the model enable hypothetical spills to reach the environmental resources and the shoreline from more distant spill locations. With increased travel time, the complex patterns of wind and ocean currents produce eddy-like motions of the oil spills and multiple opportunities for a spill to make contact with shoreline segments. For some launch points and for the travel times greater than 30 days, the probability of contact to land decreases very slowly or remains constant because the early contacts to land have occurred within 30 days, and the trajectories that have not contacted land within 30 days will remain at sea for 120 days or more.

To summarize the differences between the LP's, a chart showing the estimated square area of each launch point for the 6-day intervals is shown (see **Figures C-3 through C-7** corresponding to LP's 1-5, respectively). The differences between the estimated spill areas from each LP can be explained by meteorological and oceanographic conditions.

- LP1—CPA, shelf area, west of the Mississippi River Delta, offshore south-central Louisiana, deepwater. Launch Point 1 is located near the Louisiana coast, and the fall circulation results in persistent and recurring coastal current from Louisiana waters toward Texas waters.
- LP2—CPA, shelf edge area, east of the Mississippi River Delta, south of the Alabama-Mississippi border, ultra-deepwater. Launch Point 2 is located near the Mississippi River Delta on the eastern side. The trajectories contact the coastline of Louisiana, Mississippi, Alabama, and Florida. Many of the trajectories are forced offshore by the wind drift and interact with the Loop Current and Loop Current eddies.
- LP3—CPA, shelf area, west of the Mississippi River delta, due south of New Orleans, deepwater. Launch Point 3 is located relatively far offshore and west of the Mississippi River Delta. The estimated area contacted by the spill is the largest of all the selected points, and the trajectories are influenced by the deepwater Loop Current eddies and offshore currents.
- LP4—WPA, shelf area, deepwater. Launch Point 4 is near the Texas coast in the western Gulf of Mexico. The trajectories from this launch point frequently contact land. The coastal flow near Texas, but to the south of the U.S./Mexico border, has a high fraction of northward currents, the wind is relatively persistent with a westward component, and the trajectories remain in a relatively smaller area.
- LP5—WPA, slope area, ultra-deepwater. Launch Point 5 is in the western Gulf of Mexico between the coast (LP4) and the central Gulf (LP3). The trajectories are forced by the Loop Current eddies that are somewhat weaker in this part of the Gulf of Mexico because these eddies dissipate kinetic energy as they drift to the west from their original separation zone.

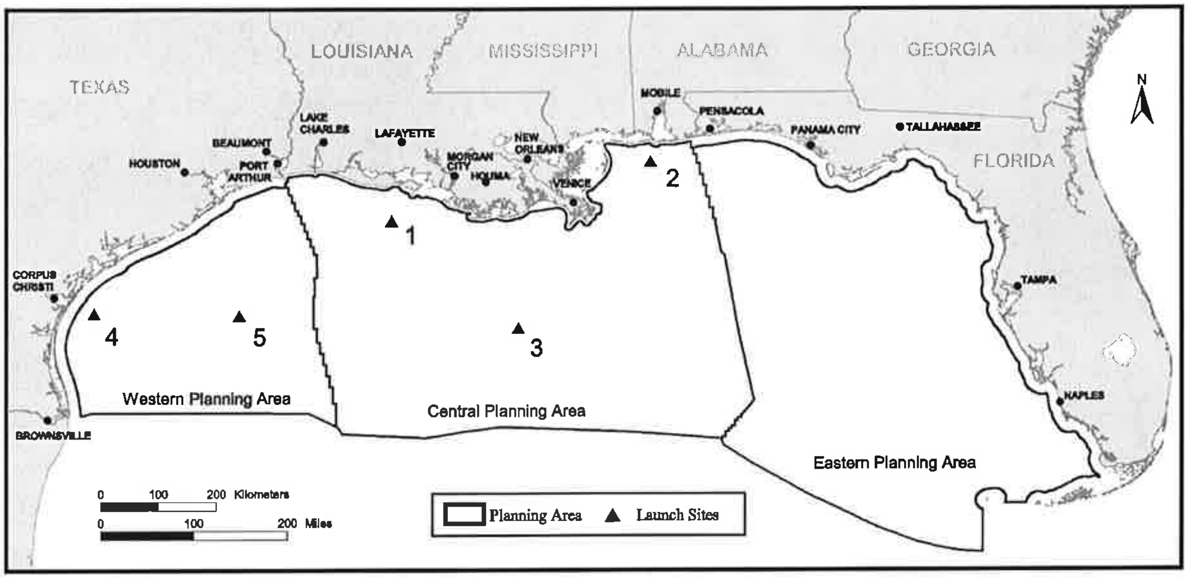

Figure C-1. Location of Five Hypothetical Oil-Spill Launch Points for OSRA within the Study Area.

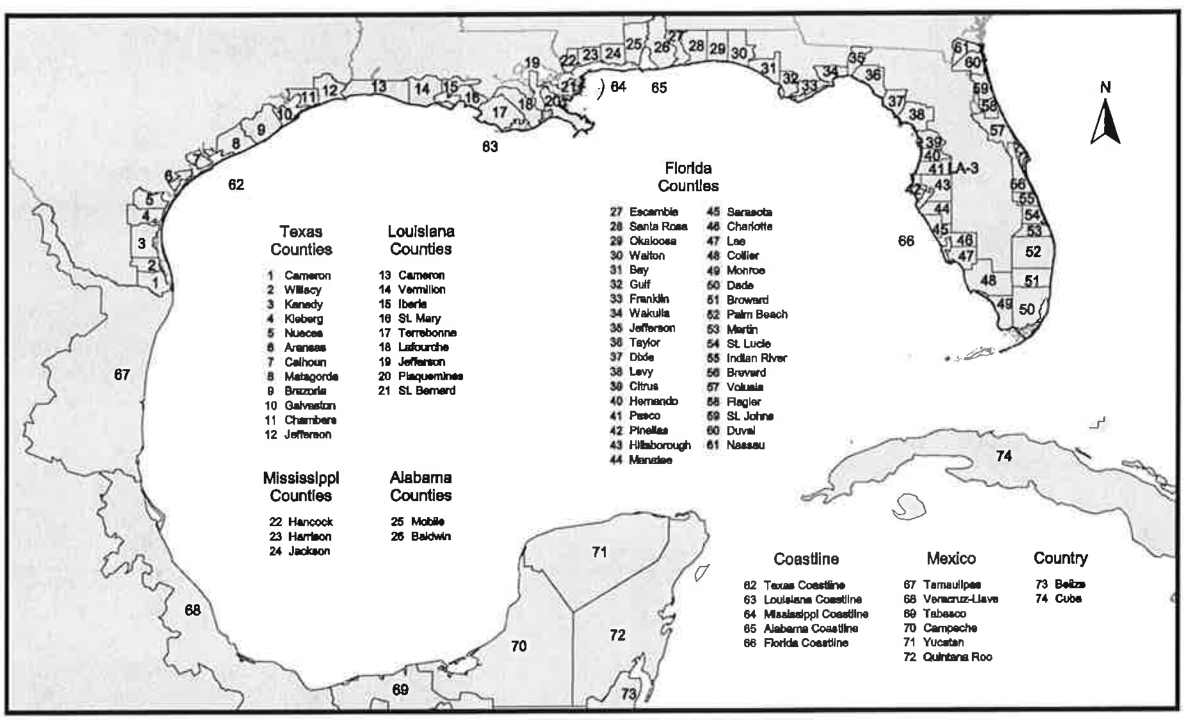

Figure C-2. Locations of Parishes, Counties, and Coastlines Examined in the Special OSRA Run Conducted in Order to Estimate the Impacts of a Possible Future Catastrophic Spill.

Table C-1

Conditional Probabilities Expressed as Percent Chance that an Oil Spill Starting at Launch Point One Will Contact a Certain Parish, County, or Coastline within 120 Days

	Season	Winter				Spring				Summer				Fall			
	Day	3	10	30	120	3	10	30	120	3	10	30	120	3	10	30	120
ID	Name	Percent Chance															
1	Cameron, TX	-	-	1	2	-	-	-	-	-	-	-	1	-	-	-	2
2	Willacy, TX	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
3	Kenedy, TX	-	-	1	3	-	-	-	-	-	-	1	1	-	-	2	4
4	Kleberg, TX	-	-	-	1	-	-	-	1	-	-	1	1	-	-	1	3
5	Nueces, TX	-	-	1	4	-	-	-	-	-	-	1	2	-	-	1	3
6	Aransas, TX	-	-	2	4	-	-	-	-	-	-	2	2	-	-	2	4
7	Calhoun, TX	-	-	5	10	-	-	-	-	-	-	4	4	-	-	2	3
8	Matagorda, TX	-	1	13	17	-	-	1	1	-	-	3	4	-	1	9	11
9	Brazoria, TX	-	1	9	10	-	1	3	3	-	-	4	6	-	-	6	6
10	Galveston, TX	-	2	9	11	-	2	8	9	-	2	12	15	-	1	9	9
11	Chambers, TX	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-
12	Jefferson, TX	-	2	5	6	-	5	9	9	-	2	9	10	-	3	6	6
13	Cameron, LA	2	10	13	15	5	35	41	41	-	7	18	20	2	13	16	19
14	Vermilion, LA	4	9	10	10	8	22	24	24	1	9	12	12	4	8	9	9
15	Iberia, LA	1	2	3	3	1	5	6	6	-	5	7	7	1	2	3	3
16	St. Mary, LA	-	1	1	1	-	1	1	1	-	-	-	-	-	-	-	-
17	Terrebonne, LA	-	1	1	1	-	2	2	2	-	-	5	6	-	1	1	1
18	Lafourche, LA	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-
19	Jefferson, LA	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
21	St. Bernard, LA	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
62	Texas Coastline	-	6	45	68	-	8	23	24	-	5	37	47	-	6	38	52
63	Louisiana Coastline	8	23	28	30	14	64	75	76	2	21	43	49	6	23	30	32
64	Mississippi Coastline	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
67	Tamaulipas, Mexico	-	-	-	1	-	-	-	-	-	-	2	2	-	-	1	3

Note: Values of <0.5% are indicated by "-". Any areas where the percent chance within 120 days of all seasons are all <0.5% are not shown. See Figure C-1 for the location of Launch Point One. See Figure C-2 for the location of the named land areas.

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Table C-2

Conditional Probabilities Expressed as Percent Chance that an Oil Spill Starting at Launch Point Two Will Contact a Certain Parish, County, or Coastline within 120 Days

	Season	Winter				Spring				Summer				Fall			
	Day	3	10	30	120	3	10	30	120	3	10	30	120	3	10	30	120
ID	Name	Percent Chance															
1	Cameron, TX	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
2	Willacy, TX	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
3	Kenedy, TX	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
4	Kleberg, TX	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
7	Calhoun, TX	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
8	Matagorda, TX	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	2
9	Brazoria, TX	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
10	Galveston, TX	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-
12	Jefferson, TX	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
13	Cameron, LA	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
14	Vermilion, LA	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
17	Terrebonne, LA	-	-	3	4	-	-	-	-	-	-	-	1	-	-	-	1
18	Lafourche, LA	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	1
19	Jefferson, LA	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1
20	Plaquemines, LA	1	14	21	23	-	3	4	6	1	8	20	25	2	21	27	28
21	St. Bernard, LA	-	4	5	5	-	1	2	3	1	7	14	16	-	8	9	10
22	Hancock, MS	-	1	2	4	-	2	2	2	-	2	3	3	1	3	5	5
23	Harrison, MS	2	3	4	5	-	4	4	4	1	3	4	4	1	2	3	3
24	Jackson, MS	7	11	11	13	5	11	12	12	1	3	4	4	6	12	13	14
25	Mobile, AL	11	14	14	15	11	16	17	17	4	8	9	10	8	11	12	13
26	Baldwin, AL	4	7	7	9	6	14	16	17	1	8	10	10	1	2	2	3
27	Escambia, FL	-	1	1	2	1	5	11	13	1	3	5	6	-	-	1	1
29	Okaloosa, FL	-	-	-	1	-	1	2	3	-	-	1	1	-	-	-	-
30	Walton, FL	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	1
31	Bay, FL	-	-	-	1	-	2	3	5	-	-	1	2	-	-	-	-
32	Gulf, FL	-	-	-	-	-	1	3	5	-	-	1	1	-	-	-	-
33	Franklin, FL	-	-	-	-	-	-	-	3	-	-	1	2	-	-	-	-
34	Wakulla, FL	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
36	Taylor, FL	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
38	Levy, FL	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
49	Monroe, FL	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-
50	Dade, FL	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
62	Texas Coastline	-	-	-	7	-	-	-	-	-	-	-	5	-	-	1	6
63	Louisiana Coastline	2	18	29	37	-	4	6	9	1	15	34	43	2	29	39	41
64	Mississippi Coastline	9	15	17	22	5	16	18	19	3	7	11	12	7	16	21	22
65	Alabama Coastline	15	21	21	24	18	30	34	34	5	16	19	20	9	13	14	15
66	Florida Coastline	-	2	2	6	1	10	20	36	1	3	10	14	-	-	1	2
67	Tamaulipas, Mexico	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	1

Note: Values of <0.5% are indicated by "-". Any areas where the percent chance within 120 days of all seasons are all <0.5% are not shown. See Figure C-1 for the location of Launch Point Two. See Figure C-2 for the location of the named land areas.

Table C-3

Conditional Probabilities Expressed as Percent Chance that an Oil Spill Starting at Launch Point Three Will Contact a Certain Parish, County, or Coastline within 120 Days

	Season	Winter				Spring				Summer				Fall			
	Day	3	10	30	120	3	10	30	120	3	10	30	120	3	10	30	120
ID	Name	Percent Chance															
1	Cameron, TX	-	-	-	2	-	-	-	-	-	-	-	2	-	-	-	2
2	Willacy, TX	-	-	-	3	-	-	-	-	-	-	-	2	-	-	-	3
3	Kenedy, TX	-	-	-	8	-	-	-	1	-	-	-	9	-	-	-	5
4	Kleberg, TX	-	-	1	6	-	-	-	-	-	-	-	4	-	-	1	6
5	Nueces, TX	-	-	1	6	-	-	-	-	-	-	-	2	-	-	1	2
6	Aransas, TX	-	-	-	5	-	-	-	1	-	-	-	3	-	-	-	2
7	Calhoun, TX	-	-	1	6	-	-	-	-	-	-	-	6	-	-	1	4
8	Matagorda, TX	-	-	2	17	-	-	3	4	-	-	-	11	-	-	1	6
9	Brazoria, TX	-	-	3	12	-	-	1	3	-	-	2	8	-	-	1	5
10	Galveston, TX	-	-	3	10	-	-	3	6	-	-	2	5	-	-	1	4
12	Jefferson, TX	-	-	1	4	-	-	7	9	-	-	1	1	-	-	-	2
13	Cameron, LA	-	-	1	4	-	-	11	12	-	1	1	4	-	-	-	4
14	Vermilion, LA	-	-	1	2	-	-	5	6	-	1	1	2	-	-	-	-
15	Iberia, LA	-	-	-	1	-	-	4	4	-	-	-	-	-	-	-	-
17	Terrebonne, LA	-	1	2	3	-	4	12	14	-	-	-	2	-	-	-	-
18	Lafourche, LA	-	-	1	1	-	2	8	10	-	-	1	2	-	-	-	-
19	Jefferson, LA	-	-	-	1	-	-	2	2	-	-	1	1	-	-	-	-
20	Plaquemines, LA	-	-	-	1	-	2	10	12	-	-	1	2	-	-	-	-
24	Jackson, MS	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-
26	Baldwin, AL	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-
31	Bay, FL	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
33	Franklin, FL	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
49	Monroe, FL	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
50	Dade, FL	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
62	Texas Coastline	-	-	12	78	-	-	14	24	-	-	6	54	-	-	4	41
63	Louisiana Coastline	-	1	6	14	-	9	52	60	-	1	4	13	-	-	-	6
64	Mississippi Coastline	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-
65	Alabama Coastline	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-
66	Florida Coastline	-	-	-	1	-	-	1	4	-	-	-	2	-	-	-	2
67	Tamaulipas, Mexico	-	-	-	4	-	-	-	1	-	-	-	10	-	-	-	10
68	Veracruz-Llave, Mexico	-	-	-	-	-	-	-	-	-	-	1	7	-	-	-	1
69	Tabasco, Mexico	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-

Note: Values of <0.5% are indicated by "-". Any areas where the percent chance within 120 days of all seasons are all <0.5% are not shown. See Figure C-1 for the location of Launch Point Three. See Figure C-2 for the location of the named land areas.

Table C-4

Conditional Probabilities Expressed as Percent Chance that an Oil Spill Starting at Launch Point Four Will Contact a Certain Parish, County, or Coastline within 120 Days

	Season	Winter				Spring				Summer				Fall			
	Day	3	10	30	120	3	10	30	120	3	10	30	120	3	10	30	120
ID	Name	Percent Chance															
1	Cameron, TX	1	3	3	3	-	-	-	-	-	-	-	-	-	2	3	3
2	Willacy, TX	3	4	4	4	1	1	1	1	-	1	1	1	3	7	8	8
3	Kenedy, TX	10	22	23	23	7	9	9	9	3	9	9	9	10	21	22	23
4	Kleberg, TX	9	14	15	16	12	14	14	14	9	17	17	17	7	13	14	14
5	Nueces, TX	10	16	17	18	21	26	26	26	8	17	18	18	11	16	17	17
6	Aransas, TX	11	15	16	16	28	33	33	33	17	26	26	26	9	12	13	13
7	Calhoun, TX	7	12	13	14	12	15	15	15	18	25	26	26	7	11	12	12
8	Matagorda, TX	1	3	3	4	1	2	2	2	-	2	2	2	-	1	2	3
9	Brazoria, TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
62	Texas Coastline	51	90	94	98	82	99	**	**	56	98	**	**	48	84	91	93
67	Tamaulipas, Mexico	-	1	2	2	-	-	-	-	-	-	-	-	-	-	1	1

Note: Values of <0.5%.are indicated by "-". Any areas where the percent chance within 120 days of all seasons are all <0.5% are not shown. Values of >99.5% are indicated by "**". See Figure C-1 for the location of Launch Point Four. See Figure C-2 for the location of the named land areas.

Table C-5

Conditional Probabilities Expressed as Percent Chance that an Oil Spill Starting at Launch Point Five Will Contact a Certain Parish, County, or Coastline within 120 Days

	Season	Winter				Spring				Summer				Fall			
	Day	3	10	30	120	3	10	30	120	3	10	30	120	3	10	30	120
ID	Name	Percent Chance															
1	Cameron, TX	-	-	2	4	-	-	-	-	-	-	2	3	-	-	3	5
2	Willacy, TX	-	-	1	4	-	-	-	-	-	-	2	3	-	-	2	3
3	Kenedy, TX	-	1	8	14	-	-	1	1	-	-	4	7	-	-	6	9
4	Kleberg, TX	-	-	5	7	-	1	2	2	-	-	1	3	-	-	4	5
5	Nueces, TX	-	1	5	9	-	1	2	2	-	-	1	1	-	-	3	5
6	Aransas, TX	-	1	5	10	-	-	3	3	-	-	2	3	-	-	4	6
7	Calhoun, TX	-	2	10	20	-	3	11	12	-	-	7	9	-	1	5	7
8	Matagorda, TX	-	1	8	14	-	18	29	30	-	2	12	21	-	2	9	15
9	Brazoria, TX	-	-	3	4	-	9	13	13	-	-	7	12	-	1	4	6
10	Galveston, TX	-	1	2	4	-	3	11	13	-	-	5	12	-	1	2	3
12	Jefferson, TX	-	-	-	1	-	-	12	15	-	-	1	4	-	-	-	1
13	Cameron, LA	-	-	-	1	-	1	5	6	-	-	6	8	-	-	-	-
14	Vermilion, LA	-	-	-	-	-	-	2	3	-	-	1	2	-	-	-	-
20	Plaquemines, LA	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
62	Texas Coastline	-	7	50	91	-	35	85	90	-	2	43	79	-	5	43	65
63	Louisiana Coastline	-	-	-	1	-	1	8	9	-	-	8	11	-	-	-	-
67	Tamaulipas, Mexico	-	-	1	6	-	-	-	-	-	-	3	7	-	-	2	11
68	Veracruz-Llave, Mexico	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-

Note: Values of <0.5% are indicated by "-". Any areas where the percent chance within 120 days of all seasons are all <0.5% are not shown. See Figure C-1 for the location of Launch Point Five. See Figure C-2 for the location of the named land areas.