1

APPLICATION SUBMITTED TO THE DEPARTMENT OF ENVIRONMENTAL REGULATION FOR CORRIDOR CERTIFICATION

HOPKINS (CITY OF TALLAHASSEE, FLORIDA)

TO

BAINBRIDGE (GEORGIA POWER COMPANY) 230 KV TRANSMISSION LINE

BY

CITY OF TALLAHASSEE, FLORIDA

HURLEY W. RUDD
MAYOR-COMMISSIONER

JAMES R. FORD
MAYOR PRO TEM-COMMISSIONER

CAROL BELLAMY
COMMISSIONER

SHELDON E. HILAMAN
COMMISSIONER

KENT SPRIGGS
COMMISSIONER

DANIEL A. KLEMAN
CITY MANAGER

HERBERT J. SECKEL
CITY AUDITOR-CLERK

BRYAN W. HENRY
CITY ATTORNEY

TELEPHONE
(904) 599-8100

CITY HALL
32301

MARCH, 1981

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Received DER

APR 2 1981

P.P.S

IN THE MATTER OF

APPLICATION FOR CERTIFICATION)
OF CITY OF TALLAHASSEE 230KV)
TRANSMISSION LINE)

DOCKET NO.

APPLICATION FOR CERTIFICATION OF TRANSMISSION LINE

Comes now the Applicant, City of Tallahassee, and requests that the Department of Environmental Regulation ("Department") take those steps provided by the Transmission Line Siting Act and Chapter 17-17, Florida Administrative Code, to process the attached application and file its recommendation with the Board, as defined in s. 403.522(5), Florida Statutes, 1980 Supplement, that the line described in the attached application be certified. In support thereof, the Petitioner states that:

1. The City of Tallahassee is engaged in the generation, transmission and distribution of electric power within its service area. Its address is:

City of Tallahassee Utility Department
2602 Jackson Bluff Road
Tallahassee, Florida 32304

2. The City of Tallahassee has entered into an agreement with Georgia Power Company to construct and operate a 230KV transmission line from Georgia Power Company's Bainbridge South substation to Tallahassee's transmission grid at its Hopkins Power Plant, as shown in the attached application. This line is subject to the Transmission Line Siting Act and Chapter 17-17, Florida Administrative Code.

3. The City of Tallahassee filed its petition for Determination of Need with the Florida Public Service Commission March 2, 1981, and requested that the Commission file its order determining need with the Department.

4. The attached application is complete and sufficient and demonstrates that this line should be certified since the application shows minimal environmental impact and substantial savings to the City's cusomters, including the State of Florida, through displacement of high cost imported oil and increased reliability.

WHEREFORE, the City of Tallahassee respectfully requests that:

1. The Department take those steps provided by law and rule to process the attached application and present its recommendation to the Board that this transmission line be certified;

2. The hearing in this matter be held as a formal hearing pursuant to s.120.57(1); and

3. The Department cause appropriate notice to be published as provided by law.

RESPECTFULLY SUBMITTED this _____ day of April, 1981.

Hurley W. Rudd
Mayor - Commissioner

Bryan W. Henry
City Attorney

Barrett G. Johnson
Special Counsel
702 Lewis State Bank Building
Tallahassee, Florida 32301
(904) 224-6025

PERTINENT APPLICANT INFORMATION

Applicant's Official Name City of Tallahassee

Address 2602 Jackson Bluff Rd., Tallahassee, Florida 32304

Address of Official Headquarters Same

Business entity (corporation, partnership, co-operative, name(s), Owner(s), etc., Municipality

Name and Title of Chief Executive officer(s) DANIEL A. KLEMAN, City Manager

Name, title, address and phone number of official representative responsible for obtaining certification Pete N. Koikos, Superintendent Transmission & Distribution address same as above - phone: 904/576-1171

Corridor Location (Counties of Origination-In-Between-Termination):

Leon County and Gadsden County

Incorporated Cities within the corridor (names) None

Termination points Interstate 10, Florida/Georgia border

Voltage 230 kV

Line Type: AC or DC AC

Line length and number of circuits 15 miles, single circuit

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1.0 PROJECT OVERVIEW

The following report has been prepared to support the City of Tallahassee Electric Department's (City) application to the Florida Department of Environmental Regulation (DER) for transmission line corridor certification in accordance with Chapter 17-17, Part II, Florida Administrative Code. The format of this report follows that of DER Form 17-1.122 (118) - Application Form for Certification of a Proposed Electrical Transmission Line Corridor.

1.1 Project Introduction

The City is proposing to construct the Florida portion (Interstate 10 to the Florida/Georgia State line) of a 230 kV transmission line which would extend from its 230 kV substation at the Hopkins Generating Station to Georgia Power Corporation's (GPC -an affiliate of the Southern Company) South Bainbridge 230 kV Substation. In accordance with its executed interconnection agreement with Southern, the City has agreed at its expense to construct, own, operate, and maintain the portion of the line from its Hopkins 230 kV Substation to the Georgia/Florida State Line.

The proposed line, "Hopkins to Bainbridge 230 kV Transmission Line", will be constructed to substantially improve the reliability of supply to the City's electric system and customers; to enable the City to purchase substantial amounts of coal-fired capacity and energy which will reduce its dependency on the use of oil and, therefore, its cost for generating electricity; to gain direct access to other alternative bulk power supply resources; and to reduce the costs for power received from resources located across the state line. A detailed analysis of the need for this project is included in Appendix A - Petition for Electric Transmission Line Need Determination, filed with the Florida Public Service Commission on March 2, 1981. This analysis indicates that the proposed transmission line in conjunction with power purchases from Southern Company, is the only reliable alternative for displacement of oil as a boiler fuel in the City's generating facilities. It is estimated that the proposed line will allow the City to displace an average of 676,000 barrels of oil annually for the period 1982-1986, and commencing in 1988 and thereafter would displace 900,000 barrels of oil annually.

1.2 Corridor Location and Layout

The City is planning to utilize one circuit of an existing double-circuit transmission line between its Hopkins Generating Station and Substation No. 7, which has been designed and constructed for 230 kV operation. This circuit runs from the Hopkins Generating Station north for approximately two miles where it turns to the east. At this point, the proposed new 230 kV wood H-frame transmission line will be connected. The new line will then extend north approximately 15 miles to the Florida/Georgia State line where it will connect with GPC. Figure 1-1 illustrates the location of the proposed corridor and Figure 1-2 shows the City's existing transmission system.

GPC has agreed at its expense to construct, own, operate, and maintain the remainder of the transmission line from the Georgia/Florida State line to its South Bainbridge 230 kV Substation. The agreement provides that unless otherwise agreed, the facilities shall be completed and ready for operation on or before October 31, 1981. GPC has completed design and specifications for its portion of the line and right-of-way acquisition will be completed in March, 1981. Construction for its portion will begin in April, 1981.

1.3 Transmission Line Size and Design Characteristics

A summary of the major characteristics of the proposed line to be constructed by the City to the Florida/Georgia State line follows:

Project Name:	Hopkins to Bainbridge 230 kV Transmission Line
No. of Circuits:	One
Design Voltage:	230 kV
Operating Voltage:	230 kV
Conductor Size:	954 MCM ACSR
Tower Construction:	H-Frame Wood Poles
Width of Right-of-Way:	100 feet
Approximate Span:	600 Feet
Length of Line:	15 Miles

Figure 1-3 illustrates the typical wood H-frame structure and span to be used.

1.4 Existing Generation and Transmission Facilities

The City's electric utility system includes generation, transmission, and distribution facilities. The physical location of the City's existing transmission lines, bulk power substations, and generation sites is shown in Figure 1-2 (including the proposed transmission line). The system is electrically interconnected with Florida Power Corporation (FPC) and the City's electric operation and planning processes are coordinated with other Florida utilities.

The City's generating facilities include approximately 103 MW of steam generation and 22 MW of combustion turbine generation at the Purdom Plant, which is south of the City in Walkulla County. An additional 303 MW of steam generation and 40.5 MW of combustion turbine generation are located at the Hopkins Generating Station. All of these generating units can be fired with either oil or natural gas. In addition, the City has a 1.333 percent interest in FPC's Crystal River No. 3 nuclear unit, located in Citrus County, which provides approximately 10 MW of capacity. Table 1-1 lists these existing generating units and their capabilities.

The City's existing bulk power transmission system includes approximately 155.5 circuit miles of transmission facilities that are operated at voltages of 230 kV, 115 kV, and 69 kV. Table 1-2 contains a list of the City's transmission lines, and their length, operating voltage, and maximum possible loading in megawatts. The 115 kV transmission network as shown in Figure 1-2 basically forms a 115 kV loop that extends around and through the City limits. Certain of these facilities located north of the City between the Hopkins Generating Station and Substation No. 7 are constructed for 230 kV operation but are currently operated at 115 kV. Nine substations, located at various sites on the electric system, transform power from the transmission voltage of 115 kV to the distribution network voltage of 12.47 kV.

IMAGE QUALITY

AS YOU REVIEW THE NEXT FEW PAGES, PLEASE NOTE THAT THE ORIGINAL DOCUMENT WAS OF POOR QUALITY.

Table 1-1

CITY OF TALLAHASSEE, FLORIDA
ELECTRIC DEPARTMENT
EXISTING GENERATING FACILITIES AND UNIT CAPABILITIES

Line No.	(a)	Location (County) (b)	Fuel Type (c)	Maximum Generator Name Plate Rating (kW) (d)	Commercial In Service Date (e)	Expected Date For Retirement(1) (f)	Net Capacity - MW(2) Summer (g)	Net Capacity - MW(2) Winter (h)
	Fossil Steam							
	Sam O. Purdom Generating Station							
1	Unit Nos. 1-2.....	Wakulla	No. 6 Oil	15,000	01/52	05/84	0.0 (3)	0.0 (3)
2	Unit No. 3.....	Wakulla	No. 6 Oil/Gas	7,500	01/52	05/84	7.0	7.6
3	Unit No. 4.....	Wakulla	No. 6 Oil/Gas	7,500	04/54	05/84	7.0	7.6
4	Unit No. 5.....	Wakulla	No. 6 Oil/Gas	25,000	04/58	04/90	22.0	22.0
5	Unit No. 6.....	Wakulla	No. 6 Oil/Gas	25,000	01/61	-	22.0	22.0
6	Unit No. 7.....	Wakulla	No. 6 Oil/Gas	50,000	06/66	-	45.0	46.0
7	Subtotal.....						103.0	105.2
	Arvah B. Hopkins Generating Station							
8	Unit No. 1.....	Leon	No. 6 Oil/Gas	75,000	05/71	-	55.0 (4)	77.0 (4)
9	Unit No. 2.....	Leon	No. 6 Oil/Gas	259,250	10/77	-	220.0 (4)	220.0 (4)
10	Subtotal.....						275.0	297.0
	Combustion Turbine							
	Sam O. Purdom Generating Station							
11	Unit No. 1.....	Wakulla	No. 2 Oil/Gas	15,000	12/63	-	11.0	11.5
12	Unit No. 2.....	Wakulla	No. 2 Oil/Gas	15,000	05/64	-	11.0	11.5
13	Subtotal.....						22.0	23.0
	Arvah B. Hopkins Generating Station							
14	Unit No. 1.....	Leon	No. 2 Oil/Gas	16,320	02/70	-	12.5 (4)	15.5
15	Unit No. 2.....	Leon	No. 2 Oil/Gas	27,000	09/72	-	22.0 (4)	30.0
16	Subtotal.....						34.5	45.5
	Nuclear							
	Crystal River							
17	Unit No. 3(5).....	Citrus	Nuclear	11,872	03/77	-	10.1 (6)	10.4 (6)
18	Totals.....			549,442			444.6	481.1

(1) The expected retirement dates for the Sam O. Purdom generating units 1-5 are being used for planning purposes by the Electric Department staff. The retirement dates for the remaining generating units have not yet been determined.
(2) Amounts shown are being used for planning purposes by the Electric Department staff and are based on the demonstrated continuous net output for each facility.
(3) These facilities are currently considered by the Electric Department staff for planning purposes to be on "cold standby" since operation of these units requires major repairs to the boiler.
(4) The net capacity for these facilities is temporarily reduced by equipment limitations. The net capacity shown below for each facility is anticipated by the Electric Department staff to be restored by the summer of 1981.

	Net Capacity (MW) Summer	Net Capacity (MW) Winter
Arvah B. Hopkins Generating Station		
Fossil-Steam Unit No. 1	78.0	80.0
Fossil-Steam Unit No. 2	225.0	228.0
Subtotal	303.0	308.0
Combustion Turbine Unit No. 1	14.0	15.5
Combustion Turbine Unit No. 2	26.5	30.0
Subtotal	40.5	45.5

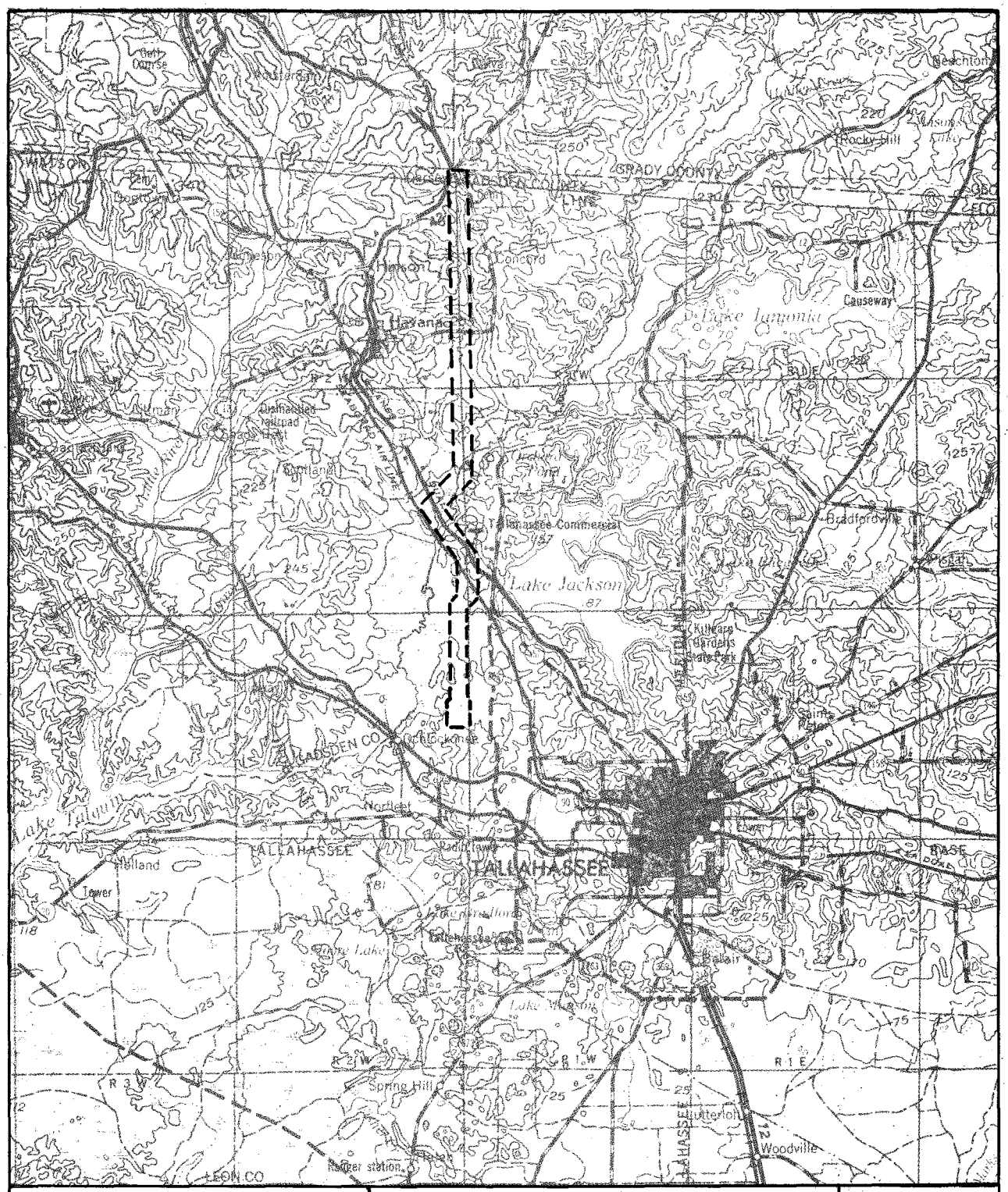
(5) As a Participant in the Crystal River Unit No. 3 nuclear unit ("CR-3"), the City of Tallahassee has a generation entitlement share to 1.3333% or 11,872 kW based on a Maximum Generator Nameplate rating of 890,460 kW as reported by FPC in its Ten-Year Site Plan dated March 21, 1980.
(6) The City's net capacity for CR-3 reflects FPC's net summer and winter capacity rating of 704,000 kW and 726,000 kW, respectively, as contained in its Ten-Year Site Plan dated March 21, 1980, and a loss factor of (1 - 0.034) to transmit the power over FPC's transmission network.

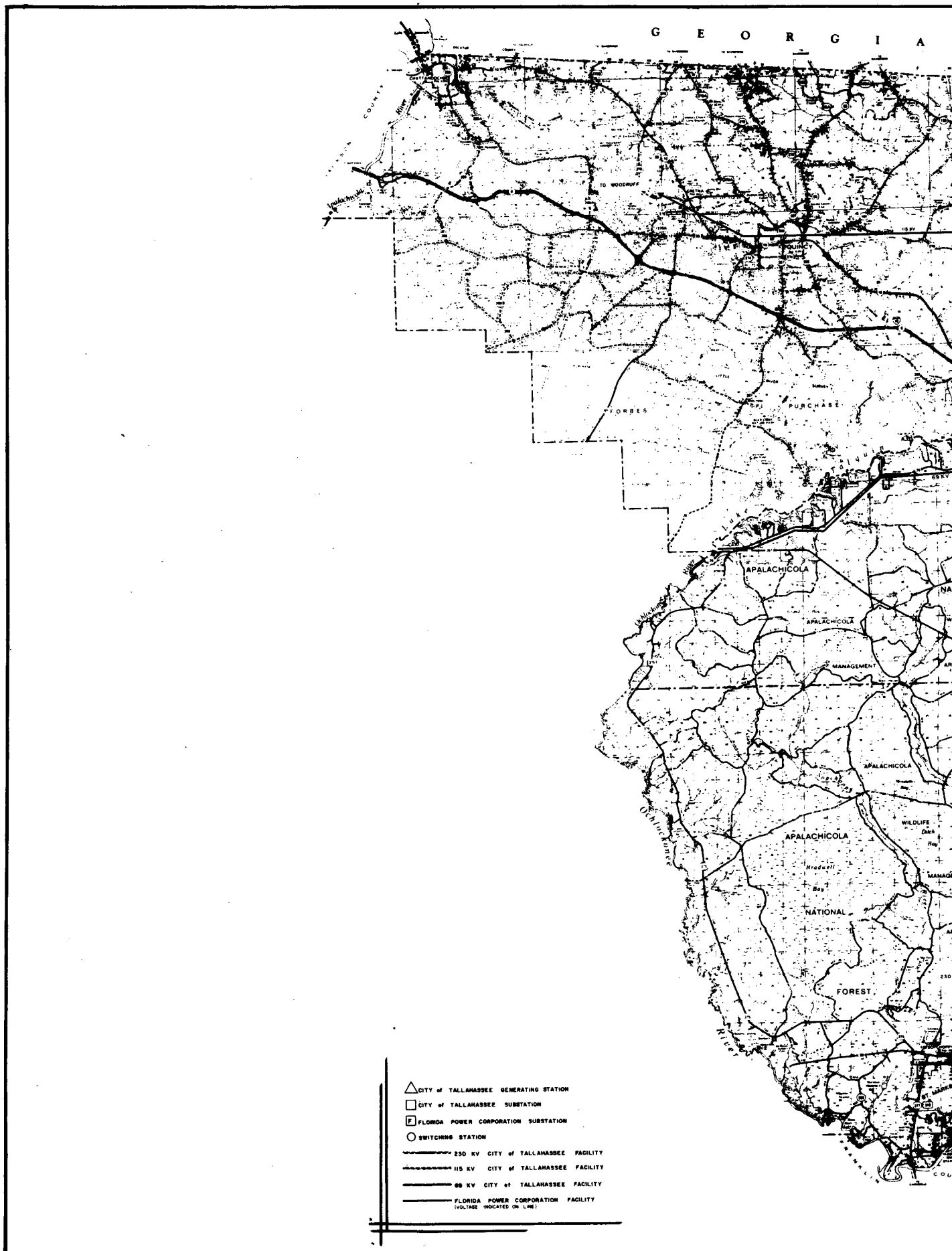
Table 1-2

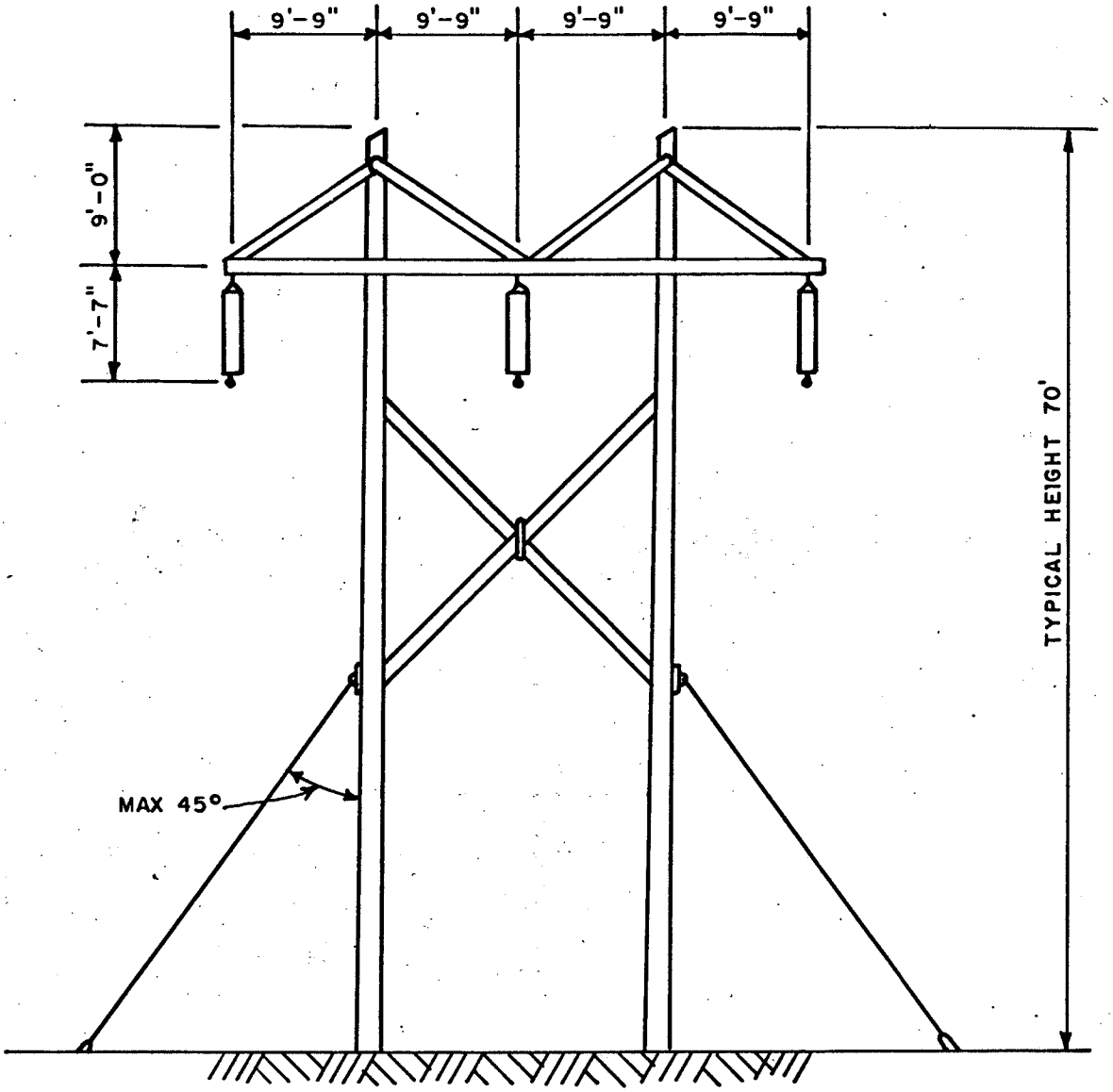
CITY OF TALLAHASSEE, FLORIDA
ELECTRIC DEPARTMENT
EXISTING TRANSMISSION FACILITIES (1)

Number	Line		Length (Miles)	Operating Voltage (KV)	Maximum Possible Loading (MW)
	From	To			
(1-A)	Purdom Plant	Substation #5	15.0	115	80
(1-B)	Substation #5	Substation #1	5.0	115	80
(2-A)	Purdom Plant	Switching Structure	15.9	115	80
(2-B)	Switching Structure	Substation #6	4.7	115	80
(2-C)	Switching Structure	Substation #5	1.8	115	80
(3)	Purdom Plant	Substation #3	20.8	115	80
(5)	Hopkins Plant	Substation #3	6.7	115	160
(6)	Hopkins Plant	Substation #3	7.4	115	160
(7-A)	Hopkins Plant	Substation #10	5.1	115(3)	191
(7-B)	Substation #10	Substation #8	3.2	115(3)	191
(7-C)	Substation #8	Substation #7	2.9	115(3)	191
(10)	Substation #3	Substation #6	1.6	115	160
(11)	Substation #3	Substation #1	2.4	115	80
(12)	Substation #3	Substation #2	2.9	115	80
(13)	Substation #3	Substation #2	4.2	115	80
(14)	Substation #6	Substation #1	0.7	115	80
(15A)	Substation #5	Substation #4	9.0	115	80
(15B)	Substation #5	Substation #9	5.5	115	80
(15C)	Substation #9	Substation #4	3.5	115	80
(17)	Substation #4	Substation #7	3.8	115	160
(20)	Substation #7	Florida Power Corporation Bradfordville West	6.0	115(3)	160
(21)	Substation #3	Florida Power Corporation Tallahassee Substation	4.8	69(2)	48
(31)	Hopkins Plant	Florida Power Corporation Crawfordville Substation	21.6	230	550
(Cable)	Substation #2	Substation #13	1.0	115	120
Total	-	-	155.5	-	-

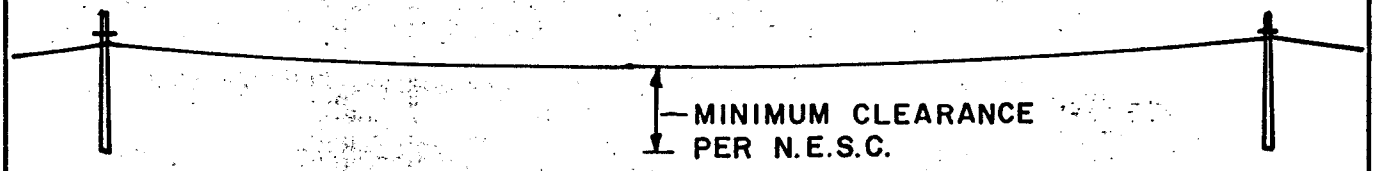
(1) Based on Form 12, Year Ended December 31, 1979 updated for actual lines added to the system.
(2) Insulated for 115 kV operation.
(3) Insulated for 230 kV operation.


Bethany
Woodlawn
Beachton
Rocky Hill
GRADY COUNTY
Concord
Harmon
Havana
Causeway
Bellair
Tallahassee Commercial
Bradfordville
Lake Jackson
Killearn Gardens State Park
Saints Rest
GADSDEN CO
Holland
Tower
TALLAHASSEE
Lake Talquin
Spring Hill
Lake Iamonia
Lake Miccosukee
Butterfield
Woodville
Keiser station
LEON CO
R 3 W
R 2 W
R 1 W
R 1 E
T 1 N
T 1 S
T 2 S
LEGEND
CORRIDOR BOUNDARY
FIGURE 1-1
GENERAL CORRIDOR LOCATION
N
CITY OF TALLAHASSEE
PROPOSED HOPKINS TO
BAINBRIDGE 230 KV
TRANSMISSION LINE
0
5
10
SCALE IN MILES


G E O R G I A
TO WOODRUFF
FORBES
PURCHASE
APALACHICOLA
APALACHICOLA
MANAGEMENT
APALACHICOLA
APALACHICOLA
WILDLIFE
NATIONAL
FOREST
CITY of TALLAHASSEE GENERATING STATION
CITY of TALLAHASSEE SUBSTATION
FLORIDA POWER CORPORATION SUBSTATION
SWITCHING STATION
230 KV CITY of TALLAHASSEE FACILITY
115 KV CITY of TALLAHASSEE FACILITY
69 KV CITY of TALLAHASSEE FACILITY
FLORIDA POWER CORPORATION FACILITY
(VOLTAGE INDICATED ON LINE)



TYPICAL 230 KV WOOD H-FRAME STRUCTURE



TYPICAL 230 KV 600 FT. SPAN FOR WOOD H-FRAME STRUCTURES

CITY OF TALLAHASSEE PROPOSED HOPKINS TO BAINBRIDGE 230 KV TRANSMISSION LINE	TYPICAL 230 KV WOOD H-FRAME STRUCTURE AND SPAN FIGURE 1-3

2.0 BACKGROUND FEATURES OF THE PROPOSED CORRIDOR

2.1 Corridor Selection

2.1.1 General Discussion

The City, commencing in August, 1979, undertook negotiations with both FPC and Southern for the construction by the City of a 230 kV interconnection between the Hopkins Generating Station and Florida/Georgia State line and the establishment of an interconnection arrangement with Southern for the exchange of various types of interchange power. Originally, under the proposed arrangement, the City was to route the line so as to provide an additional point of interconnection with FPC at its Havana Substation and provide additional area support to FPC at that point. A number of meetings were held between the City and FPC to study and equitably divide the costs and benefits that would be derived by both parties from such an arrangement. On March 12, 1980, FPC advised the City that it was no longer interested in pursuing the additional interconnection point at Havana at this time and that it would temporarily resolve its area support problems through other actions.

Southern has contracted to sell long-term firm power to the City commencing with the date the interconnection is placed in service and extending through 1986. This sale, of course, would help reduce the dependence on oil-fired generation and decrease cost to the City's customers including the State of Florida. In addition, this interconnection increases the reliability of the City's Electric System and provides for the exchange of capacity and energy between the City and Southern on economy basis as well as for scheduled maintenance or emergencies.

In negotiating with Southern a location for interconnection at the State line was identified and agreed upon. This location is north-northeast of Havana, Florida just north of the intersection of U.S. Highway 27 and State Highway 157 as shown in Figure 2-6c.

The other end point is the interconnection with the City's existing 230 kV line which is just south of Interstate 10, northwest of Tallahassee. This end point is shown in Figure 2-6a.

Since the end points are fixed and the line is only 15 miles long, the number of feasible alternatives was obviously limited. Furthermore, much of the area is relatively undeveloped, forest or agricultural land. The proposed corridor was selected to minimize impacts on wetlands, vegetation, wildlife habitat and/or property owners. The following section discusses the alternative corridors evaluated.

2.1.2 Alternate Corridors

Alternate 1

Alternate 1 is a straight line interconnection of the proposed termination points discussed above (see Figure 2-1). While this alternative would be relatively easy to construct and would be the shortest alternative corridor it would require crossing the Ochlockonee River several times due to the winding nature of the river. These crossings could disrupt vegetation and wildlife near the river. Also, the centerline of the corridor would pass 200 to 300 feet in front of the northwest runway of the Tallahassee Commercial Airport. Based on these conditions, this alternative is impractical due to excessive environmental impact, hazardous location, and reduced reliability.

Alternate 2

This alternative corridor is shown in Figure 2-2. Centerline of the alternative corridor would be a common corridor with FPC's existing 69 kV transmission for approximately 4.5 miles to a point just north of the Ochlockonee River. At that point, the corridor would travel northeast for a short distance and then directly north, following the same route as Alternate 1 to the termination point with Southern.

Use of the common corridor would seem to be beneficial from an overall environmental impact standpoint. However, impact on property owners would be significant. From the point where common corridor begins with FPC's 69 kV line to Tower Road, approximately 17 small parcels of platted property would have to be crossed by the corridor centerline (Leon County Property Appraisers Maps 21.06 and 24.31, Revised 8/1/78 and 12/1/78, respectively). Some of these properties are already crossed by the existing FPC 69 kV line. Many of these properties are in a housing development and in order for the line to be built numerous homes would have to be moved to allow proper clearances.

An additional consideration is the reliability of transmission in a common corridor. If the proposed line is constructed adjacent to the existing 69 kV line, failure of any structure on either line could result in damage and loss of power on both lines.

Based on the above considerations, Alternate 2 is impractical due to the high social cost of displacing existing homes and reduced reliability.

Alternate 3 (Proposed Corridor)

Alternate 3, shown in Figure 2-3, allows the flexibility to avoid crossing small platted parcels and existing homesites north of I-10 by utilizing the State of Florida land which is administered by the Game and Fresh Water Fish Commission, Division of Forestry and Department of Natural Resources. Also, on State land within this corridor, some vegetation has already been cleared where home owners abut the State property. This clearing was recently done to install a fence and also provides a buffer for hunting activities on the State land. Alternate 3 also avoids the Ochlockonee River floodplain near the I-10 river crossing (west of the corridor).

penalties

This alternate would be in a common corridor with FPC's 69 kV line where it crosses U.S. Highway 27 and the Ochlockonee River. The reliability of using a common corridor was accepted in this area to minimize the environmental impact of the river crossing. The corridor then leaves the 69 kV line and travels a short distance northwest before continuing straight north along the same route as Alternate 1. As compared to Alternate 1, the jog to the west basically minimizes the river crossing difficulty and associated impacts, but at the same time avoids the small platted parcels of property that are located north-northwest of the Ochlockonee River Crossing. Use of the common corridor with FPC's 69 kV line minimizes vegetation impacts at the river crossing and will provide access for construction of the proposed line.

In summary Alternate 3 avoids the social costs of displacing substantial numbers of existing homes, the impacts of crossing a large number of small parcels, and the reliability penalties of using a common corridor.

Based on these considerations, Alternate 3 is the only practical corridor for the proposed transmission line and therefore the preferred corridor.

2.1.3 No Action

Should the proposed Hopkins to Bainbridge 230 kV transmission line not be built or construction of the line be delayed. A number of adverse effects would be experienced by the City and its customers. Detailed description of these effects are included in Sections II and VI of Appendix A, Petition for Electric Transmission Line Need Determination to the Florida Public Service Commission. The following is a summary of some of these effects:

1. The City's electric system would suffer from reduced reliability of supply and depressed voltages during times when certain of its generation facilities are taken out of service on a single emergency basis.

2. The City would be denied direct access to certain economical bulk power supply resources available from Southern and GPC which are projected to substantially reduce the City's cost of power and displace oil with resultant savings to its retail customers.

3. The cost to the City and its customers of transmission service and increased transmission losses for the delivery of such resources from Southern and GPC over the system of FPC are estimated to be approximately $20.3 million greater over the period 1982-1994 when compared with the ownership costs of the proposed Hopkins to Bainbridge 230 kV transmission line.

4. Studies indicate that such resources from Southern and GPC could not be reliably delivered to displace oil as a boiler fuel in the City's generating facilities without the proposed Hopkins to Bainbridge 230 kV transmission line. It has been estimated that with such line, the City could, on the average, displace 676,000 barrels of oil annually for the period 1982-1986, aggregating approximately 3.4 million barrels for the five years. This equates to approximately

$24.3 million in net power cost savings to the customers of the City. Commencing in 1988 and thereafter it has been estimated that the City would displace 900,000 barrels of oil annually.

2.1.4 Wheeling Power

Another apparent alternative to the proposed transmission line is to wheel power over FPC's transmission network under provisions of the transmission service tariff currently under consideration by the Federal Energy Regulatory Commission. This alternative was studied as indicated in detail in Section IV of Appendix A. The studies show that power from Southern could not be reliably delivered to the City without the proposed line in service. In addition to the reliability aspects, the studies show substantial cost benefits to the City to construct, own, operate and maintain the proposed line. Savings for owning the line for the time period 1982-1994 are estimated to be approximately $21.6 million.

2.2 Corridor Description

2.2.1 Governmental Jurisdictions

In order to assess environmental conditions and expected impacts within the project area, a study corridor approximately one-half mile wide was established in consultation with the Department of Environmental Regulation. The location of this corridor is shown in Figure 1-1 (General Corridor Location) and Figures 2-6a, 2-6b, and 2-6c (Land Use and Cover Classification). No incorporated cities or towns are within a one-mile distance from either corridor boundary. The closest town to this corridor is Havana, whose incorporated town boundary is more than 6,000 feet beyond the western corridor edge. Some scattered population areas (such as Gibson, Rich Bay, Concord and Darsey) lie within the general area of the corridor. However, these are small, isolated communities, and would not be affected by proposed construction activities.

The following special land use areas do not lie within any portion of the corridor:

National Parks, Wildlife Refuges, Wilderness Areas, Memorials, Monuments, Sanctuaries, RARE Areas, State Parks, Areas of Critical State Concern, Conservation and Recreation Lands, Aquatic Preserves, and, other special management areas. (Personal and written communications from the Department of Environmental Regulation, the Department of Natural Resources, the Department of Community Affairs, the United States Forest Service, the National Park Service, and the Florida Game and Freshwater Fish Commission between January 28, 1981 and February 27, 1981).

The corridor will traverse a portion of the Ochlockonee Wildlife Management Area (Bailey, February 10, 1981). Approximately 2.0 miles of the eastern edge of the Management Area is crossed by the corridor. Also, the line will cross the Ochlockonee River. This river is regarded by the Department of Environmental Regulation as an Outstanding Florida Water (OFW) and as a Special Water (Hinkley, February 6, 1981). In addition, the corridor centerline will traverse the eastern edge of the Lake Talquin State Recreation Area, which is common to the Wildlife Management Area.

2.2.2 Easements, Titles, Agency Works, and Land Use Plans

This subsection describes whether the proposed transmission line may potentially conflict with the current zoning designations or future comprehensive land use plans developed by Leon and Gadsden Counties.

It is not expected that any changes or modifications will have to be made to any roads, highways or other existing rights-of-way in order to accommodate the transmission line.

The centerline of the corridor traverses approximately 2.1 miles of state owned lands. In accordance with State procedures for aquisition of easements through State owned property, the City will apply to the Board of Trustees for necessary rights-of-way.

Special approval for State or Interstate Highway crossings will be secured in accordance with the Utility Accommodation Guide Procedures (State of Florida, Department of Transportation, July 1979). This guide regulates the location and installation of utility facilities on the State Maintained Highway System. County road crossings will be permitted in accordance with applicable County requirements.

The proposed line will also cross the Seaboard Coast Line Railroad (Figure 2-6a). No agency or organization in Florida currently regulates high voltage overhead transmission crossings of rail lines (Salley, January 23, 1981). Instead, crossing requirements and specifications are established by the National Electric Safety Code and the individual railroad company. The City will comply with the Seaboard Coast Line Railroad Company's Specifications for Overhead Crossings of Electric Light and Power Transmission Lines.

Both Leon and Gadsden Counties have developed comprehensive land use plans. Although these plans differ in terms of scope and detail, each plan establishes guidelines for the orderly development of future growth and for the accommodation of future land use change. Although existing land use and zoning conditions provide the basis for planning objectives, each comprehensive plan focuses on expected needs and goals, rather than on current land use patterns.

The Gadsden County Future Land Use Plan (a part of the local government Comprehensive Plan) does not correlate land use or zoning objectives to specific areas. The land use and development policies in this plan are general in nature and do not "key" to particular areas within the county. Section V of the Gadsden County Future Land Use Plan (which deals with general land use and development policies) addresses the issue of acceptable or controlled industrial development. The plan generally supports organized industrial or commercial growth within the county that would provide good wage and employment opportunities for local residents. Orderly development is encouraged, and is balanced by a general policy that "encourages site planning techniques for all development which protect and preserve the value of unique and important natural, cultural, and historic features and amenitites associated with the site and surrounding areas".

Zoning?

The selected routing for the Hopkins to Bainbridge 230 kV transmission line will minimize adverse environmental impacts to existing or projected land uses, and the presence of this proposed transmission line appears to be consistent with the stated policy and objectives of this Future Land Use Plan.

The Leon County Comprehensive Land Use Plan (not yet officially released for general distribution) is more specific and shows future or intended land use patterns on a large scale map. This makes it possible to identify individual areas of potential conflict. This plan, only recently adopted by the Tallahassee City Commission and the Leon County Board of County Commissioners, projects county land uses for the "target" year 2000, and shows a considerable change in land use patterns. These changes are shown in Figure 2-4. As measured along the centerline of the corridor, nearly all of the line would, by the year 2000, traverse land planned for either (1) low density residential, (2) urban undesignated, or (3) open space uses. In contrast to this, and as described in Section 2.2.3, existing principal land uses along this centerline are currently mixed forest (63 percent of the entire corridor length) and crop/pasture (22 percent of the total corridor).

The area of the transmission corridor in Leon County is primarily zoned for agricultural or residential development. As measured along the centerline of the corridor, all of the land that will be crossed in Leon County is currently zoned A2 - Agricultural District (A2 Zoning). The provisions of the A2 Zoning are intended to apply to non-urban areas where "normal agricultural activites, outdoor recreational activities, certain resource development activities and certain other non-intensive uses compatible with agricultural uses are carried on. The regulations in this district are intended to permit a variety of activities which may require non-urban locations and at the same time protect adjoining rural activities from possible blighting influences. Principal uses of the A2 Zoning include development of mills or other activities utilizing the natural resources of the region" (Zoning Code of City of Tallahassee and Leon County, Florida, revised to January 1979). The construction of a high voltage transmission line would not conflict with this zoning classification. (Davis, February 18, 1981).

2.2.3 Land Use

This subsection identifies significant land use types in and adjacent to the transmission corridor that could potentially be affected by construction. Existing land uses were measured along the centerline of the corridor. The ultimate right-of-way alignment will be within this corridor and may vary from the centerline, depending upon future detailed engineering and design studies. However, the centerline measurement of existing land use conditions is expected to generally characterize existing land uses throughout the entire corridor. Land use data were obtained directly from Leon or Gadsden County planning personnel and from aerial photographs of the region, and were confirmed for selected areas by the City's consulting environmental engineer during a field inspection of the corridor.

Current land uses along the transmission corridor and surrounding areas have been mapped on a scale of 1:24,000, (United States Geological Survey base maps) and are detailed in accordance with the Florida Land Use and Cover Classification System: A Technical Report (see Figures 2-6a, 2-6b, and 2-6c). Current land use conditions are depicted within the corridor, and are extended at least one-half mile beyond each respective corridor boundary. Basic land uses are therefore assessed for an area not less than 3/4 mile on either side of the transmission corridor centerline.

As Figures 2-6a, 2-6b, and 2-6c show (Figure 2-5 is a locator map for these individual segments), the transmission corridor traverses areas that are generally undeveloped. Of the entire corridor length (14.9 miles), approximately 3.9 miles (26 percent of the route) will cross agricultural areas, pastures, or other open areas that reflect human development or activity. The remainder of the corridor (11.0 miles) is forested or wooded. Individual land use types are summarized in the table below. Numerals shown in parenthesis after each land use type refer to the designation system used in the Florida Land Use and Cover Classification System: A Technical Report, and also refer to the location of specific land use types as shown in Figures 2-6a, 2-6b, and 2-6c.

Individual Land Use Type[1]	Approximate Number of Miles Traversed
Mixed Forest (431)	9.4
Cropland/Pasture (210)	3.3
Clearcut Areas (451)	0.4
Other Hardwood (422)	1.1
Pine Flatwood (411)	0.2
Open Land/Other (190)	0.1
Wetland Hardwood/River (621)	0.3
Residential (110)	0.1
Total	14.9

[1]These land use categories are taken from the Florida Land Use and Cover Classification System: A Technical Report.

Potential concerns with existing Gadsden County land uses have been identified, and include the Gadsden County Sanitary Landfill (located in Township 3N, Range 1W, Section 30, immediately to the north of State Route 12a), and several residences located near this landfill, as well as residences located west of Concord and south of Darsey. (Blume, February 13, 1981).

In Leon County, some potential concerns exist along the 1W/2W Range line, south of the Ochlockonee River. In this area, the corridor centerline passes through a portion of the Ochlockonee Wildlife Management Area and the Lake Talquin State Recreation Area, and passes to the west of a developed residential area located in Section 6.

2.2.4 Sensitive Areas

In this assessment, the discussion of sensitive areas includes archaeology, historic or cultural resources, the Ochlockonee River crossing, the Ochlockonee Wildlife Management Area, and the Lake Talquin State Recreation Area. These were included since they represent areas specifically designated under State programs that will be crossed by the proposed transmission line, or are recognized to have potential for cultural significance.

No archaeological or historic sites currently on, or eligible for, the National Register of Historic Places are known to lie within the transmission corridor.

The area of the Ochlockonee River crossing is regarded as a potentially sensitive area. This river is currently designated by DER as an "Outstanding Florida Water" (OFW) and as a Special Water, and is protected and administered by the Department of Environmental Regulation.

In addition, a portion of the Ochlockonee Wildlife Management Area may be crossed by the proposed transmission line (Bailey, February 10, 1981). As a worst case estimate, it is expected that approximately 2.0 miles of this Management Area could potentially be crossed by the transmission facilities, depending upon final right-of-way selection. The Lake Talquin State Recreation Area, also a potentially significant area, lies within part of the corridor. No developed recreation facilities lie within this portion of the Recreation Area (Hyatt, February 23, 1981).

No other areas within the corridor were designated under specific state or federal programs, such as environmentally endangered lands, aquatic preserves, conservation and recreation lands, or wilderness areas.

Biological field investigations conducted along portions of the entire corridor by the City's consulting environmental engineer did not reveal any ecologically unique or uncommon areas. In general, habitat conditions and ecological areas found throughout the transmission corridor are also encountered elsewhere in this region.

2.2.5 Archaeological and Historic Sites

The majority of the proposed corridor has not been previously surveyed by prehistoric or historic archaeologists. One designated site (8Le508) was determined to lie within the corridor. This site was located during the right-of-way survey for Interstate 10. However, the Florida Department of State, Division of Archives, History, and Records Management has determined that this site is not currently on the National Register of Historic Places, nor has it been determined to be eligible for inclusion in the Register.

The designated corridor will pass through an area of moderate to high potential for archaeological finds (Tesar, January 29, 1981). In order to assist in evaluating the project's potential impact on presently unrecorded site remains, the Division of Archives, History and Records Management has provided the City and the Department of Environmental Regulation with a map showing physiographic locals in which such resources are likely to occur. To the extent practicable, the City will avoid these potential areas in establishing the final right-of-way and tower placement.

Prior to transmission line construction, the City will archaeologically survey any proposed disturbance areas. The scope of this survey will include, but will not necessarily be limited to, an assessment of prehistoric, historic, and cultural resources that may be affected by proposed construction activity.

The archaeological survey will utilize methods that are acceptable to the Division of Archives, History and Records Management, and will emphasize the location and identification of sites, analysis of the significance of site remains, and, if necessary, recommendations for protection or mitigation. The significance of sites will be determined in accordance with the criteria presented in 36 CFR Part 63 "Determinations of Eligibility for Inclusion in the National Register of Historic Places".

Following completion of this archaelogical reconnaissance, the required number of archaeology report copies will be forwarded to the Division of Archives for their inspection and review.

2.2.6 Geology and Geography

The proposed corridor is within the greater topographic province called the Tallahassee Hills, which is an east-west strip about twenty miles wide bounded on the north by the Florida/Georgia state line, on the west by the Apalachicola River, and on the east by the Withlacoochee River. This areas exhibits some of the greatest relief found in Florida. Hills in this area are composed of a heterogeneous mixture of yellow-orange clays, silts and sands that are weakly cemented. These are commonly called the Norfolk-Ruston-Orangeburg Soils. These soils resist erosion and the impermeable nature of the sediments gives rise to wet weather ponds and lakes in the lower areas. Sand and clay sediments are typically underlain by a permeable bed of limestone which holds the commonly known "Floridian Aquifer". Generally, because of the impermeable nature of the sandy clays above, the water enters the Aquifer at low points in the area such as sinkholes which do exist in the area, or creeks connected to underground streams (Apalachee Engineers, 1974).

2.2.7 Affected Waters and Wetlands

The major surface water which will be crossed by the proposed transmission line is the Ochlockonee River. This river is the major drainage system for the southern part of the corridor. The Ochlockonee River is classified by DER as a Special Water (Section 17-3.041, F.A.C.). A Special Water is a specific category of the Outstanding Florida Water (OFW) classification. This classification allows no effluents to be discharged into this water system.

The Florida Land Use and Cover Classification System A Technical Report defines wetlands as "areas which are subject to permanent or prolonged periods of inundation or saturation and/or exhibit vegetative communities characteristic of this hydro-period". According to this definition, wetlands were determined by vegetation type. Those wetlands occurring within the proposed transmission corridor were identified by aerial photographs and by field survey. Wetland areas are shown in Figures 2-6a, 2-6b and 2-6c. Open water wetlands are also shown on these figures, either on the U.S.G.S. base map or on the bold print overlay (water is designated "W"). Emergent vegetation may occur around the perimeter of these areas.

Wetland Hardwood Forest will be traversed by the proposed transmission line (Figure 2-6a) at the river crossing. This area supports bottomland hardwoods such as red maple and willow, species characteristic of an area inundated seasonally. This is a common vegetation type for this area. There are few understory species in this specific area due to a nearly closed tree canopy.

A second area supporting Wetland Hardwood Forest is traversed by the centerline between the Seaboard Coast Line track and Tower Road (Figure 2-6a). This area is designated on this figure as 621. This area is swamp-like and supports wetland deciduous tree species. A "keyhole" access will be developed if a structure is to be located in this area. A typical design of the "keyhole" access is shown in Figure 2-7. The route for access to the keyhole will be carefully selected to minimize impacts to these areas.

For the aerial crossing of the river and for the possible placement of structures within the wetlands described above, a joint application to the DER and Corps of Engineers for construction will be processed, as described in Section 3.3.

2.2.8 Vegetation and Wildlife

The proposed corridor is located on the Oak-Pine Forest Region of the Temperate Deciduous Forest (Braun, 1950). The natural communities along the proposed transmission line may be divided into two major types, upland pine-hardwood and lowland mixed hardwood associations.

2.2.8.1 Vegetation

The vegetation types identified in the corridor have been described in accordance with The Florida Land Use and Cover Classification System: A Technical Report (Level III). In this discussion, numbers associated with vegetative types refer to the identification system used in that report. This numerical system also denotes the location of vegetative types, as shown in Figures 2-6a, 2-6b, and 2-6c. The naturally occurring upland pine-hardwood vegetation types may be subdivided into Pine Flatwood (411) and Mixed Forest (431). The Pine Flatwood association is typically dominated by longleaf or slash pine. This is an edaphic sub-climax association maintained by fire. Pine species,

though less competitive than hardwoods, are fire resistant and therefore remain the dominant species. These open canopy pine forests typically have a dense understory consisting of saw palmetto, wax myrtle, gallberries, and fetterbush. A relatively undisturbed Pine Flatwood Forest occurs in the southern part of the corridor. Approximately 0.2 mile of this vegetation type is traversed representing 1 percent of the total line length. Mixed Forest occurs throughout the corridor area. This is the major vegetation type in the corridor representing 9.4 miles traversed by the centerline and 63 percent of the total line length.

In areas where fire has historically been excluded, the more competitive hardwood species have become dominant. In these areas the pine forest has succeeded to an ecotone of Mixed Forest (Other Hardwood, 422). This association typically has a nearly closed canopy with only shade-loving understory species. Typical tree species are live oak, laurel oak, blackjack oak, magnolia, sweetgum, dogwood, and titi. Scattered relict pines also occur in this vegetation type. This hardwood forest type was identified near the north end of the line. Approximately 1.1 miles (7 percent of total line length) of this vegetation type are traversed by the centerline.

Wetland Hardwood Forest (621) occurs in floodplain areas where fire seldom occurs. Common tree species include water oaks, red maple, sweetgum, and other bottomland hardwoods. These areas usually have little to no understory occurring due to frequent flooding and a nearly closed canopy. Wetland Mixed Forests (631) have similar species but these areas also include a few pine species. Wetland Hardwood (621) occurs adjacent to the Ochlockonee River and in a small area 1.6 miles south of the river. Approximately 0.3 mile (2 percent of the total line) of Wetland Hardwood Forest is crossed by the corridor centerline. Wetland Mixed Forest occurs within the corridor, but is not crossed by the centerline. Fresh water swamps occur in the Wetland Hardwood Forest in ponds and slow moving river sloughs. In these areas, cypress occasionally occurs in association with the other bottom hardwood species. Cypress was identified in several of the areas shown on the land use and cover type maps; however, there was no cypress identified within the corridor.

Two man-produced vegetation types which occur in the corridor are Planted Coniferous Forests (441) and Clearcut Areas (451). The Planted Coniferous Forests are usually seeded with slash pine and have an open canopy and a dense understory. Clearcut areas are void of tree species with primary successional species occurring. Planted Coniferous Forests occur within the corridor but are not crossed by the centerline. Approximately 0.4 mile of Clearcut Areas are traversed by the centerline, which represents 2 percent of the total line length.

2.2.8.2 Wildlife

The density and diversity of wildlife species in the area of the corridor is dependent on the vegetation type. In pine and hardwood forest with a closed canopy (and therefore little understory), there are few wildlife species with mostly aboreal mammals and canopy feeding and nesting birds occurring. Common species include the grey squirrel, fox squirrel, opossum, brown-headed nuthatch, white-eyed vireo, blue-gray gnatcatcher and the tufted-tit mouse.

Forested areas with an open canopy and dense understory support a more diverse faunal community including flickers, weasels and land turtles. Large forested areas occur primarily in the southern portion of the corridor in the Ochlokonee Wildlife Management Area.

Ecotones and "edge habitat" are the areas of transition between natural plant associations or between natural and man-influenced communities. These areas support a dense understory and herbaceous layer and support a diverse faunal community. Racoons, small rodents, rabbits, quail, morning doves and sparrows are common "edge habitat" species. This vegetation type occurs throughout the entire corridor and the animal constituents will occur frequently in these areas. An important game species in this area, the whitetail deer, is found in open pine and mixed forest ecotones adjacent to pasture or agricultural land.

Predatory animal species such as bobcats, hawks and eagles will range over a large area including many vegetation types. These are usually found in large areas with little human activity, such as along the densely vegetated Ochlockonee River basin.

2.2.8.3 Threatened, Endangered and Important Species

The potential occurrence of threatened, endangered and important plant and animal species in the study corridor was determined by reviewing the U. S. Fish and Wildlife Service Threatened and Endangered species list, contacting representatives of the Florida Game and Fresh Water Fish Commission and other specialists for these species, and by field observations.

Plant species that are listed "under current review" for listing by the United States Fish and Wildlife Service and those that are considered rare or threatened by the state are shown in Table 2-1. The species listed by the United States Fish and Wildlife Service in Table 2-1 are taxa "for which information . . . indicates the probable appropriateness of listing as endangered or threatened, but for which sufficient information is not presently available to biologically support a proposed rule" (Federal Register, December 15, 1980). The plant species designated as threatened by the Florida Committee on Rare and Endangered Plants and Animals, which are not on the Federal Threatened and Endangered List, are afforded limited state protection. Flora species and the locations within which they may occur in the corridor were identified by the Florida State Botantist (Langdry, February 4, 1981).

Animal species that are listed by the United States Fish and Wildlife Service and the Florida Game and Fresh Water Fish Commission are shown in Table 2-2. The species listed by the United States Fish and Wildlife Service as threatened or endangered are afforded federal protection as authorized by the Endangered Species Act of 1973. The species listed have ranges which include the study corridor and for which suitable habitat may be found within the study corridor. Faunal species were identifed by the Florida Game and Freshwater Fish Commission, Threatened and Endangered Species Specialist (Shapiro, January 30, 1981). Two species listed by the United States Fish and Wildlife

Service have ranges which include the proposed corridor. The red-cockaded woodpecker, listed as an endangered species, has a limited habitat type of old pine forest where there are pine trees with red-center rot which can be utilized as nesting trees. There was none of this habitat type identified in the corridor during field efforts in January, 1981. The eastern indigo snake, listed as a threatened species, can survive in a variety of habitats which occur within the corridor. However, none of these animal species were identified during field efforts.

A cattle egret (Bubulcus ibis) colony site was identified in the proposed corridor by the Florida Game and Fresh Water Fish Commission (Rodgers, February 23, 1981). This colony site (#592003) is located on the south side of U.S. Highway 27 near the Ochlockonee River. The proposed corridor provides sufficient flexibility to avoid this colony area.

The City Electric Department will coordinate with the Department of Environmental Regulation to assure that impacts to any of these plant and animal species shown in Tables 2-1 and 2-2 are minimized.

TABLE 2-1

Rare, Threatened and/or Endangered Plant Species Which May Range Within the Study Corridor

Common Name	Potential Location[1]		Scientific Name	FDA
Dimpled dogtooth violet Potential Location:	edge of range in Gadsden County, near Ochlockonee River.	-	Erythronium umbilicatum	Threate
Wiregrass gentian Potential Location:	south edge of corridor.	-	Gentiana penneliana	Threate
Karst pond yellow-eyed grass Potential location:	south edge of corridor.	-	Xyris longisepala	Threate
Venus-hair fern Potential location:	shady locations throughout corridor.	-	Adiantium capillus-veneris	Rare
Flyr's nemesis Potential location:	edge of range in Gadsden County.	-	Brickellia cordifolia	Rare
Coral-root orchid Potential location:	inundated sites throughout corridor.	-	Hexastylis arifolia	
Mountain laurel Potential location:	Possible isolated populations throughout corridor.	-	Kalmia latifolia	Rare
Cedar elm Potential location:	may occur at south end of corridor.	-	Uvularia floridana	Rare

[1]Species and potential location as identified by Dr. K. R. Langdon, Botanist, Florida Department of Agriculture and Consumer Services, Februar

[2]Status designated by the United States Fish and Wildlife Service, Endangered and Threatened Species List, Federal Register, Vol. 45, No. 242, D

TABLE 2-2

Species of Special Concern, Important Species, Threatened and/or Endangered

Animal Species which range within the study corridor

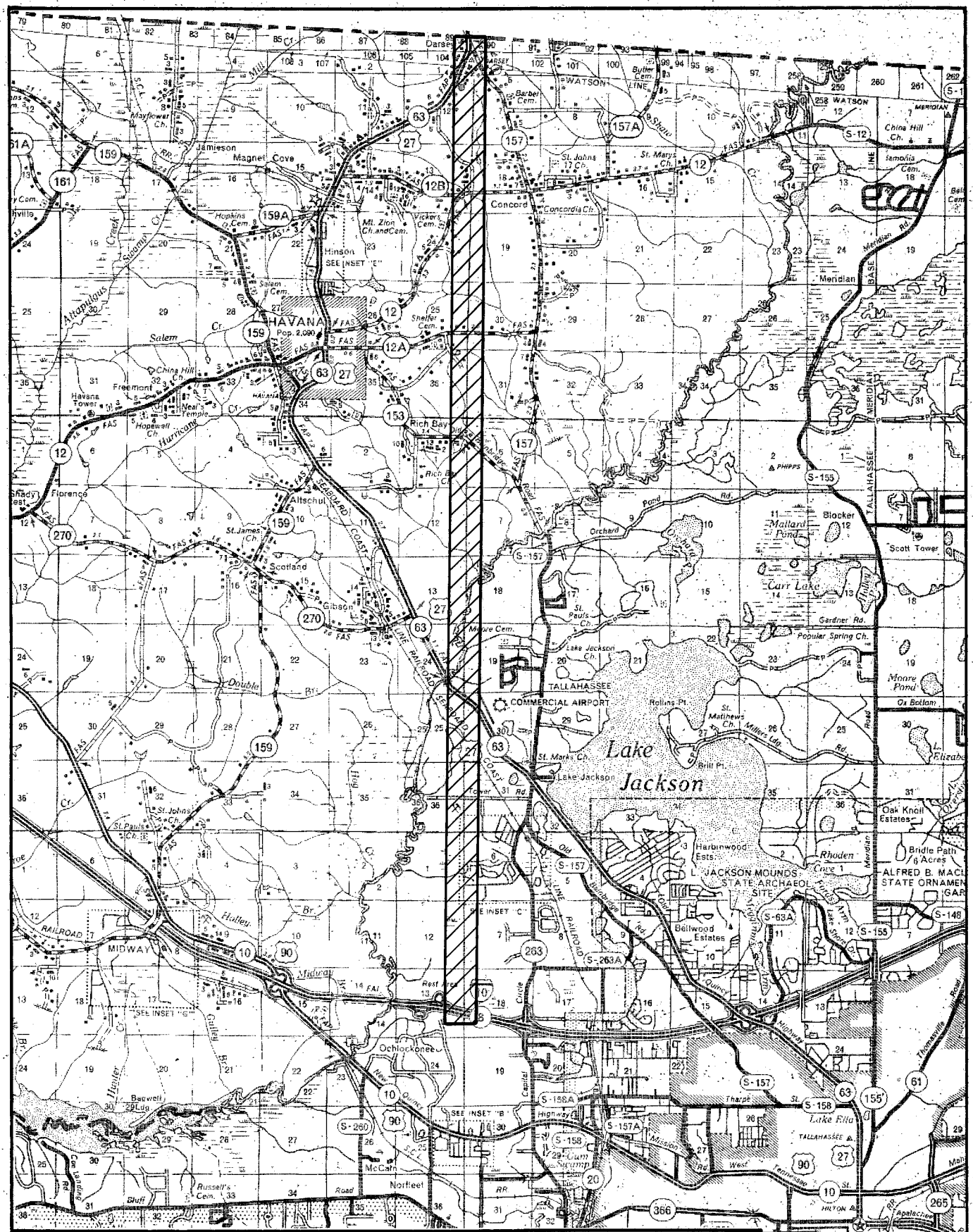
Common Name	Potential Location		Scientific Name	Designa FGFWFC[1]
Amphibians and Reptiles				
Four-toed salamander Habitat:	spagneceous seepage slopes at mature stream floodplains, under small wood debris.	-	Hemidactylium scrutatum	Important Species
Gopher frog Habitat:	varied.	-	Rana areolata	Species of Special Co
Gopher turtle Habitat:	varied.	-	Gopherus polyphemus	Species of Special Co
Eastern indigo snake Habitat:	varied.	-	Drymarchon corais couperi	Threatened
Birds				
Red-cockaded woodpecker Habitat:	old growth pine stands.	-	Picoides borcalis	Threatened
Southeastern kestrel Habitat:	varied.	-	Falco sparverius paulus	Threatened
Louisiana waterthrush Habitat:	along rivers and swamps.	-	Seiurus motacilla	Important
Mammals				
Southeastern shrew Habitat:	open fields and woodlots; moist areas.	-	Sorex longirostris	Important

[1]Status designated by FGFWFC. Legal Status of Endangered and Potentially Endangered Species in Florida identified by FGFWFC, October 1, 198
"Important" species identified FGFWFC, February 12, 1981.

[2]Status designated by the United States Fish and Wildlife Service (Federal Register, Vol. 45, No. 99, May 10, 1980.)

IMAGE QUALITY

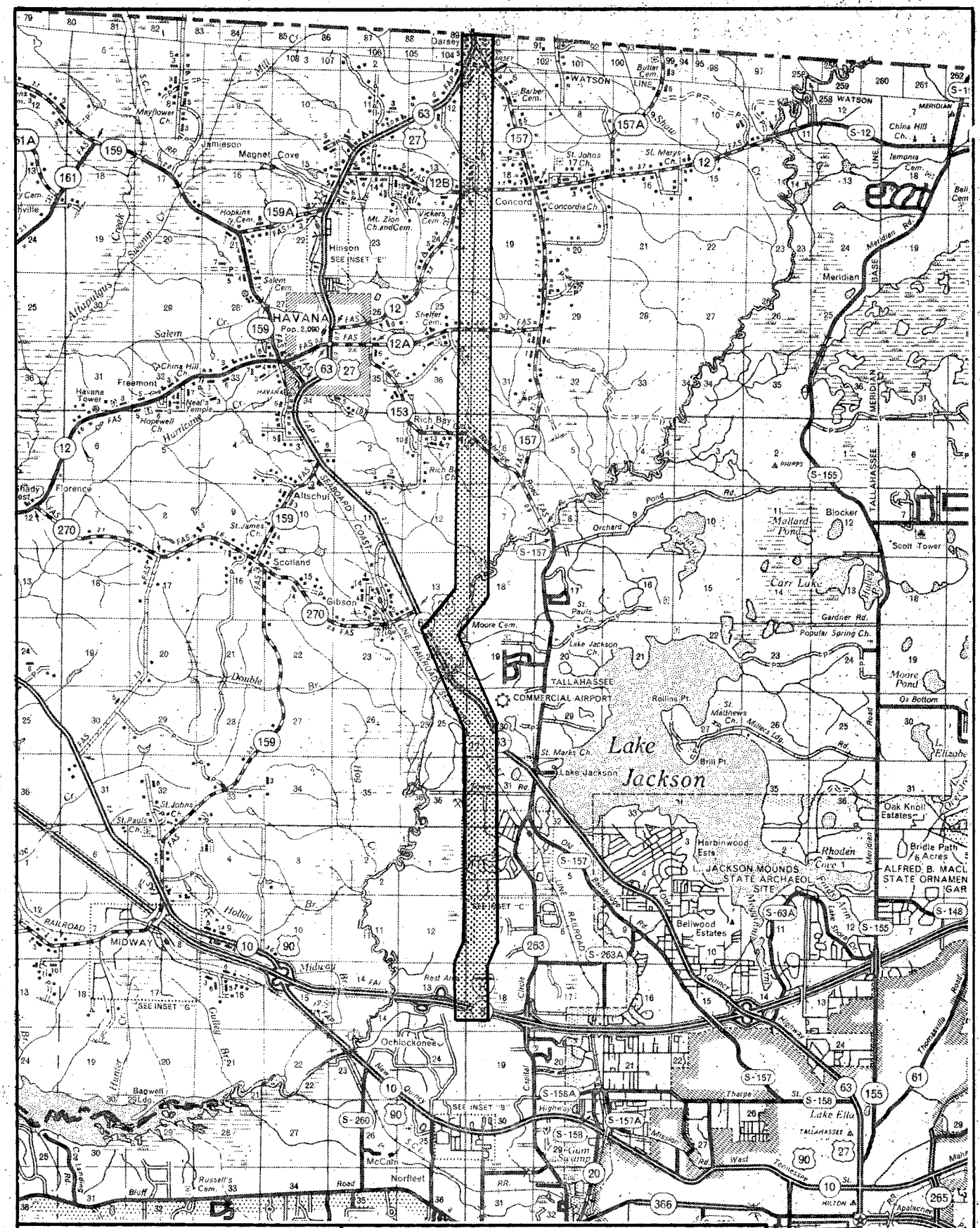
AS YOU REVIEW THE NEXT FEW PAGES, PLEASE NOTE THAT THE ORIGINAL DOCUMENT WAS OF POOR QUALITY.



CITY OF TALLAHASSEE

PROPOSED HOPKINS TO BAINBRIDGE 230 KV TRANSMISSION LINE

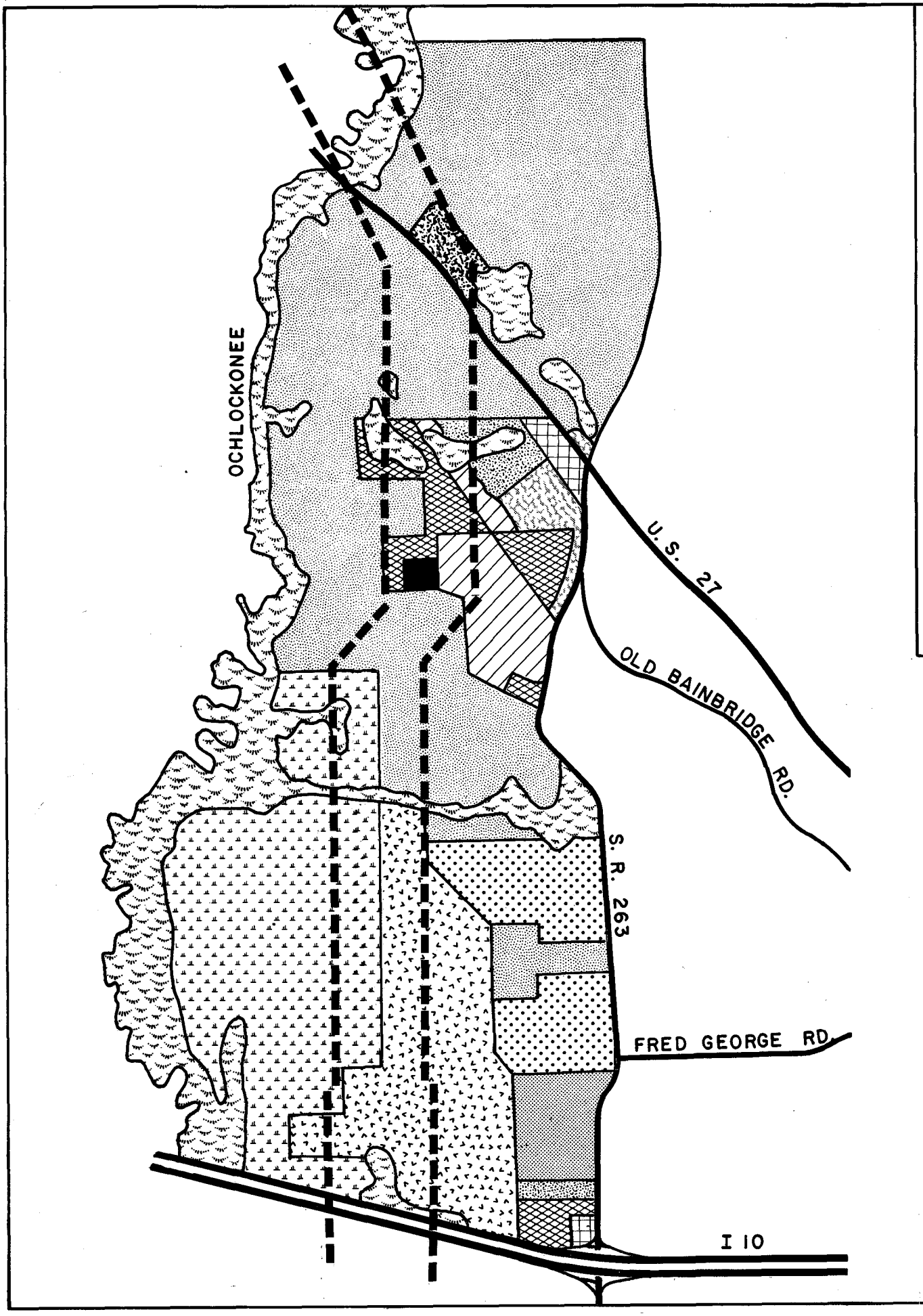
FIGURE 2-1
ALTERNATE CORRIDOR 1



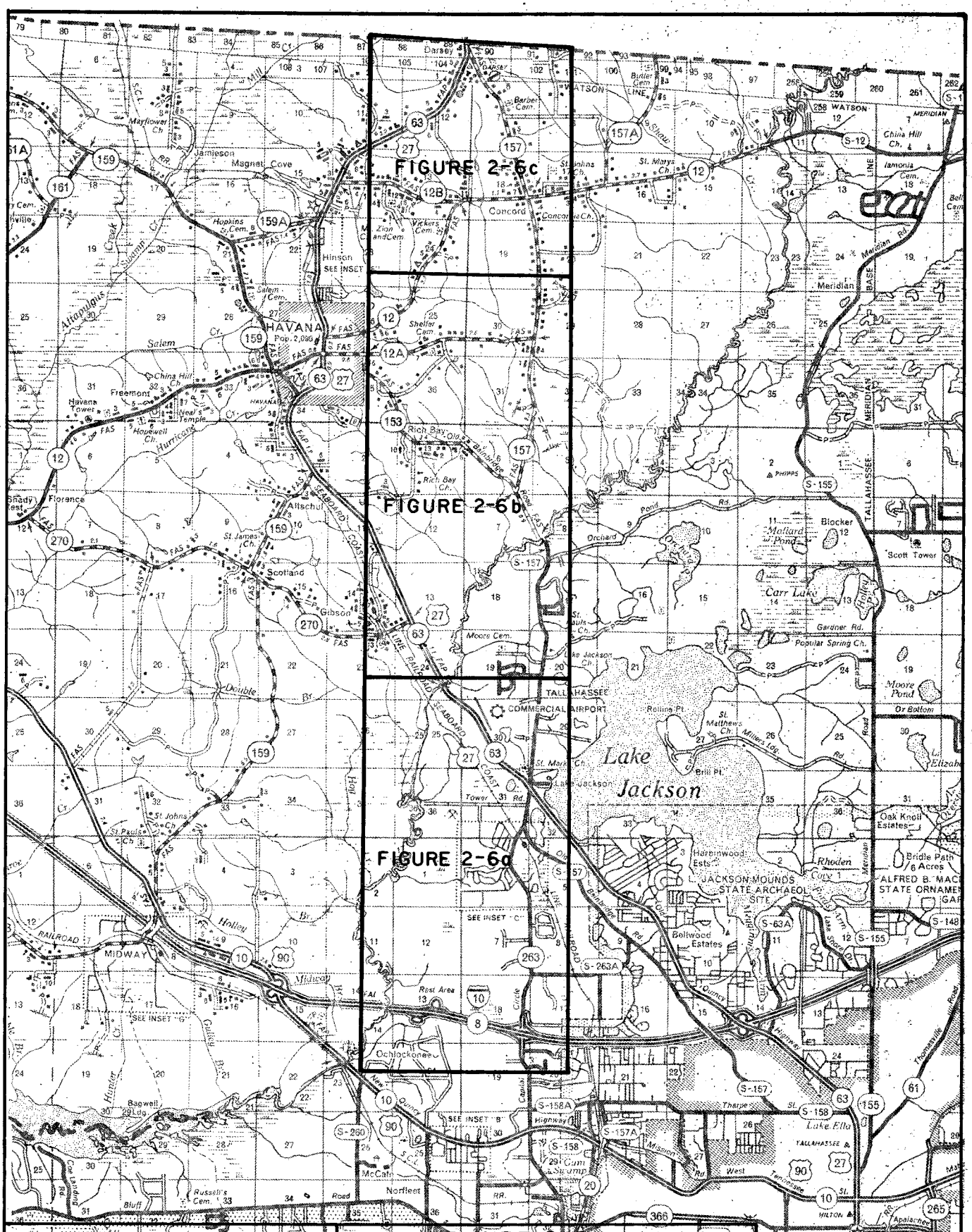
CITY OF TALLAHASSEE

PROPOSED HOPKINS TO BAINBRIDGE 230 KV TRANSMISSION LINE

FIGURE 2-2
ALTERNATE CORRIDOR 2


OCHLOCKONEE
U.S. 27
OLD BAINBRIDGE RD.
S.R. 263
FRED GEORGE RD.
I 10

431
621
431
TIE-IN POINT
R 2 W
R 1 W
210
190
431
210
190
110
110
210
210
431
210
Ochlockonee
RIVER
OCHLOCKONEE
GADSDEN CO
LEON CO
PRIVATE
Rest Area
Substation
SEABOARD

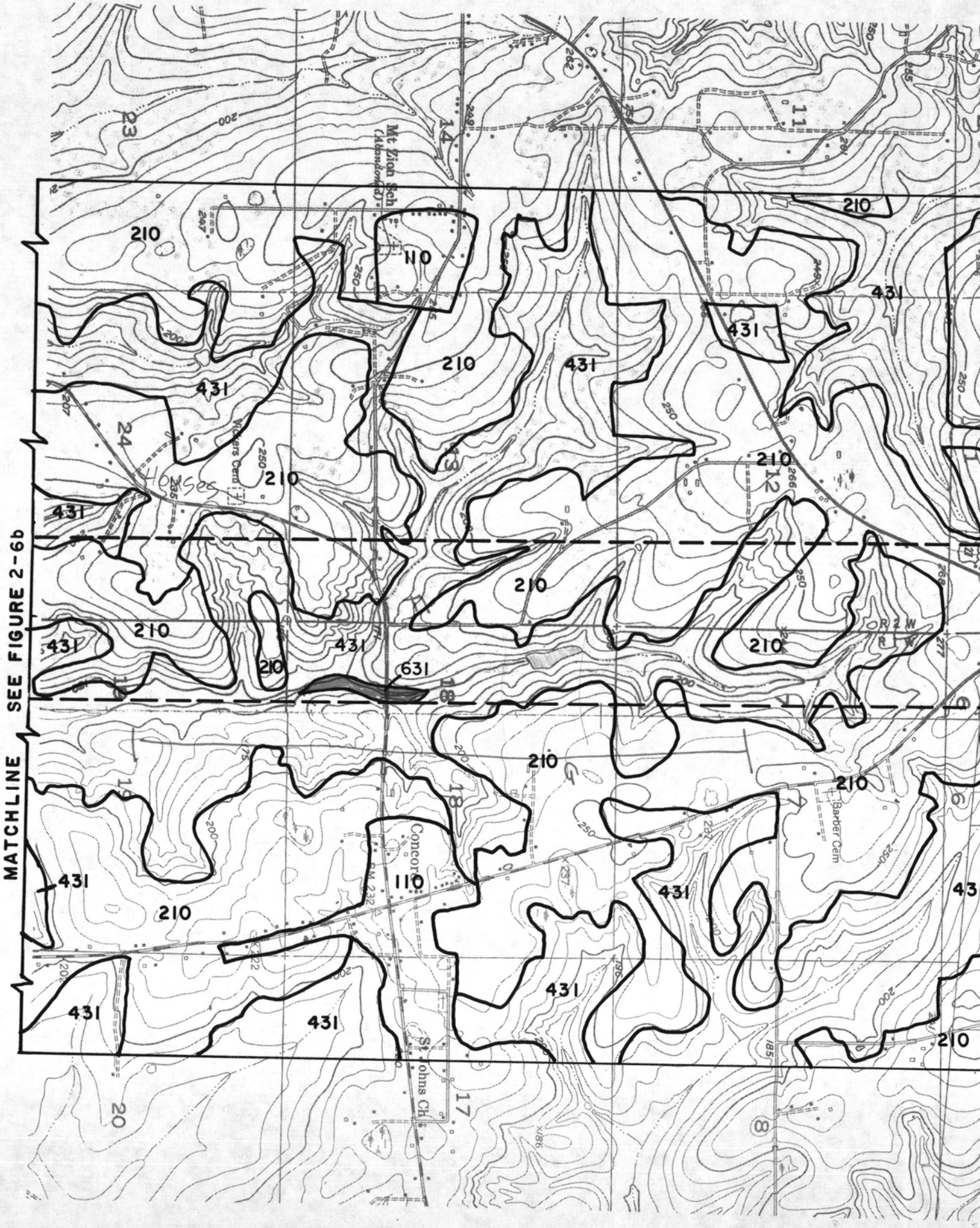


CITY OF TALLAHASSEE

PROPOSED HOPKINS TO BAINBRIDGE 230 KV TRANSMISSION LINE

FIGURE 2-5
LOCATOR MAP FOR FIGURES 2-6a, 2-6b, 2-6c

MATCHLINE SEE FIGURE 2-6a
431
110
210
190
451
621
441
411
LEON CO.
GADSDEN CO.
Gibson
Sandpit
Borrow Pit
Substation
AIR LINE
RIVER
ROAD
Moore Cem
Lake Jackson
St Pat's Ch
OCHLOCKONEE


MATCHLINE SEE FIGURE 2-6b
210
431
110
631
Mt Zion Sch (Abandoned)
Concord
St Johns Ch
Barber Cem
Wilders Cem
R 2 W
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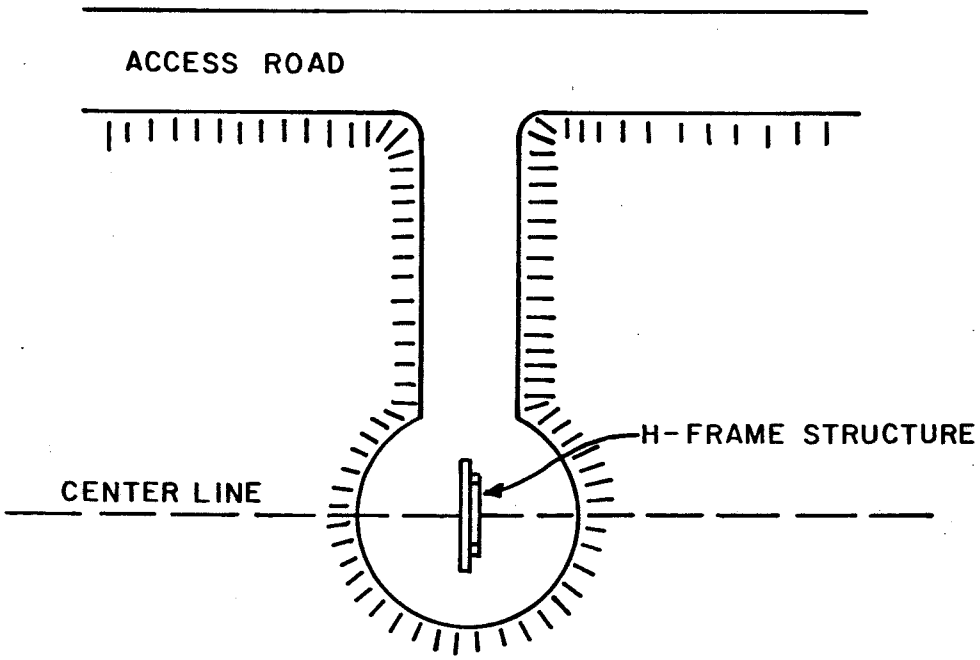

PLAN

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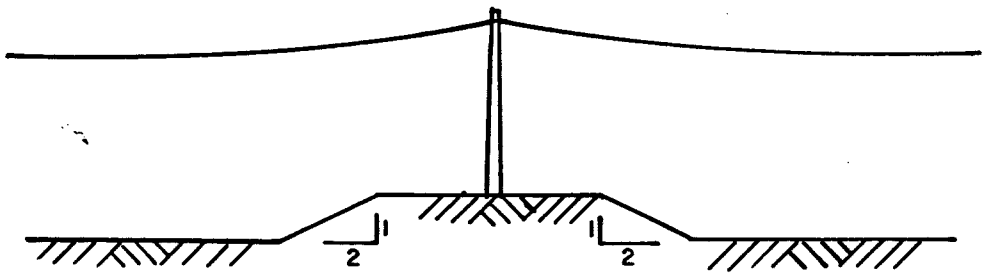

PROFILE

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CITY OF TALLAHASSEE PROPOSED HOPKINS TO BAINBRIDGE 230 KV TRANSMISSION LINE	PLAN AND PROFILE OF TYPICAL KEYHOLE DESIGN	FIGURE 2-7

3.0 ENVIRONMENTAL EFFECTS OF CONSTRUCTION

3.1 Land Impact

3.1.1 Impact on Land Use

The majority of the corridor centerline (11.0 miles, or 74 percent of the entire route) traverses land that is wooded and undeveloped. In general, the use of this predominantly undeveloped land for the location of the overhead, high voltage transmission line does not seriously conflict with the existing A2 Zoning designation (Davis, February 1981). The remainder of the line (3.9 miles or 26 percent of the entire route) will cross land that reflects some type of human development, which includes agricultural land, clearcut land, other open areas, and residential.

Construction of the transmission facilities will involve the use of approximately 3.3 miles of agricultural land (210) as measured along the corridor centerline. This includes land that is currently agricultural and land that is improved pasture, or land that could be readily converted to agricultural production. Not included in this classification is unimproved pasture, or undeveloped (open) land. This distance (3.3 miles) represents about 22 percent of the overall proposed line length.

If it is assumed that, on the average, about nine transmission towers per mile will be required, it is calculated that throughout the 3.3 miles, less than 0.05 acres of agricultural land could potentially be removed from active use.[1] However, this may overstate the actual land use impact since some of this distance is currently being used for pasture. Farming could continue beneath the transmission lines (between transmission towers) without any expected loss in overall productivity. It is noted that construction of access roads to the transmission line may provide new access to agricultural lands. Clearing of the corridor, if the "clear and grub" method is requested by the property owner, will make that land available to farming and will also provide more pasture and hunting land.

Approximately 0.4 mile of the centerline route (3 percent of the total length) will cross clearcut areas (451) and 0.1 mile (1 percent of the overall route) will cross open areas (190).

No residences are located along the corridor centerline. However, some residences were determined to lie elsewhere within the corridor. Several such areas have been identified where the transmission line could potentially infringe upon residential areas or individual residences: (1) an area of several residences located near the southern end of the corridor (north of Interstate Highway 10), (2) several homes located near the Gadsden County Sanitary Landfill, and (3) scattered residences to the west of Concord and south of Darsey. Immediately beyond the eastern corridor boundary (not within the corridor) is a developing neighborhood located in Township 1N, Range 1W, and Section 6. In this area, residential property boundaries abut the eastern corridor boundary.

[1]This figure is based on an average area per structure of approximately 60 square feet x 30 towers.

IMAGE QUALITY

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Visual impacts to homeowners in each of these areas could be mitigated by using available screening vegetation, and by using the proposed non-reflective wood pole structures rather than steel lattice towers or steel poles.

It is not expected that route acquisition in any area would necessitate removal of existing residences or other structures.

COC- submit map showing roads

3.1.2 New Roads

Existing road crossings or roads contiguous to the right-of-way will be utilized as often as practical to obtain access to the transmission line during construction and maintenance. Where necessary, a clearing 15 feet in width will be developed for access along the right-of-way so as to minimize interference with present water flow patterns.

3.1.3 Erosion

During the construction process, the potential exists for short term erosion. However, these impacts will be controlled by selectively clearing the rights-of-way, and leaving tree stumps and root systems intact. Disturbance of protective ground cover will be minimized. Where surface soils are exposed, revegetation should take place rapidly. Stream and wetland borders will be cleared by hand, and trees will be feathered back, leaving as much vegetation as possible while maintaining a safe clearance for the transmission lines.

Erosion will be controlled in the project area, and in areas outside the right-of-way where there are associated activities. This will prevent pollution of water, detrimental effects to public or private property adjacent to the project, and damage to the project area.

Erosion control features will consist of, but not necessarily be limited to, the following: artificial covering, temporary grassing, sodding, sand-bagging, berming, temporary bridging, culverting and the use of baled hay or straw.

The installation of temporary erosion control features will be coordinated with the construction of the permanent erosion control features to the extent necessary to assure economical, effective, and continuous control of erosion and water pollution throughout the life of the project.

The location of and method of operation in borrow pits, material pits, and disposal areas for waste material from the project (other than commercially operated sources) will be such that erosion during and after completion of the work will not result in detrimental siltation or water pollution.

Service roads will not be constructed on unstable slopes and there are no locations that will require vehicle crossing in streams, thus minimizing erosion potential.

3.2 Air Impacts

Air impacts may be created by the burning of cleared vegetation, or by the creation of some fugitive dust. All burning of cleared vegetation will be coordinated with the Florida Division of Forestry, and the necessary burning authorization permits will be secured by the City prior to any burning activity. The Division of Forestry indicates that open burning is allowed if it does not take place within 50 yards of the nearest roadway, and if in the opinion of the Division, the smoke will disperse quickly (Boatwright, February 16, 1981). The Division of Forestry is responsible for permitting opening burning activity within both Leon and Gadsden Counties.

A small amount of short term fugitive dust may result from clearing activities. However, this effect is expected to be short term and minor. In areas where clearing is necessary, the creation of dust will be minimized by leaving the vegetal root mat intact.

3.3 Impact on Waterbodies and Uses

Construction of the proposed transmission line will cross only one major water body (the Ochlockonee River) as shown in Figure 2-6a. Impacts to the river will be negligible. Trees that would otherwise create hazards to the line will be cleared in the right-of-way on both sides of the river. The banks of the river will not be disturbed and the vegetative root mat will be left intact. The line structures on each side of the river will be physically located away from the river banks, and will be well above the ordinary high water elevation (the jurisdiction limit of the United States Army Corps of Engineers, requiring a Section 10 and/or Section 404 permit for activities in navigable waters). However, since there will be an aerial crossing of the river, and since some of the line may cross some wetland areas as defined by the Florida Land Use and Cover Classification System: A Technical Report (see Section 2.2.7), a Joint Application of Army/Florida Department of Environmental Regulation Permit Application (SAJ Form 983) has been prepared and is included in Appendix B. Three intermittent streams, as identified on U.S.G.S. maps, which are also traversed by the centerline, will be spanned by the transmission line.

Two wetland areas are crossed by the corridor centerline. The northernmost of these two wetlands is adjacent to the Ochlockonee River. Approximately 600 feet of this wetland would be traversed. The other wetland lies approximately 1.6 miles to the south, just north of Tower Road. Approximately 800 feet of this wetland would be crossed. Both wetland areas are characterized as Wetland Hardwood (cover type 621), and each is shown in Figure 2-6a. This wetland type (621) is inundated seasonally. In the area of the Ochlockonee River, the crossing is planned to be located in a common corridor with the existing FPC 69 kV line. This existing corridor will provide access to the locations where structures must be placed. This will minimize the need for additional clearing and access roads. Exact locations for structures have not been defined. However, the figures attached to SAJ Form 983 (Appendix B) illustrate the approximate elevations of two structures that would possibly interact with the wetlands located on each side of the Ocklockonee River. There

will be no significant impact on these wetlands due to careful clearing methods. The majority of wetlands adjacent to the Ochlockonee River that will be spanned are dry, are only occasionally inundated, and generally have stable compact soils that allow vehicular movements for construction.

Examination of aerial photographs shows that the Wetland Hardwood area north of Tower Road is comparatively wet, and is inundated at least a portion of the year. If it is necessary to place an H-frame structure in this area, a "keyhole" design will be used which will ensure that wetland related impacts are minimized. Figure 2-7 shows a plan and profile drawing of a typical "keyhole" construction design. The sides of the built-up area would be constructed at an approximate slope ratio of 2 to 1.

The corridor was selected to minimize the number of wetland areas that would be crossed. Other than this river and wetland crossing, no other significant waterbody will be crossed. Third order and intermittent streams which are intercepted will be spanned. No adverse impacts to water uses will occur, and impacts to the wetland areas crossed will be minimal. Environmental impacts to these wetlands associated with the placement of wood H-frame structures and other construction activities would be expected if the line were located in marsh-like or saturated wetlands found elsewhere in this region.

3.4 Solid Wastes

Solid wastes resulting from this project will be the waste vegetal material produced from the corridor clearing. These wastes will be disposed of by such methods as burning, use of a "chipper", hauling from the site to an approved waste disposal area, and burial. The method used will be dependent on property owner preference. If the debris is burned, permits will be obtained and methods will comply with all applicable regulations, as described in Section 3.2. If the "chipper" is used, the residue will be deposited on the right-of-way as directed by the property owner. Debris to be buried will be at a site determined by the property owner. Waterways will not be blocked by solid debris.

3.5 Effects On Vegetation, Wildlife and Aquatic Life

The construction impacts to biota will be caused by right-of-way clearing and development of access roads. Construction will necessitate the clearing of trees and understory. The extent of clearing will be determined by the property owner, whether public or private.

Three different methods of right-of-way clearing will be utilized as described below:

a. Selective Clearing. This method of right-of-way clearing requires the removal of all "danger trees" within the right-of-way limits as well as that cutting or pruning necessary for properly conductor installation. This will leave low profile vegetation and the root mat intact. Final conductor to tree clearance will be achieved after conductors are sagged and tied in. Excavation at structure sites will be kept to a minimum and the width of access roads will not exceed 15 feet unless otherwise specified. Debris shall be disposed of described in Section 3.4.

A "danger tree" is described as any tree within the right-of-way or easement limits that due to configuration is impractical to trim and yet tall enough to interfere with or strike the conductors in the event it should fall.

b. Clear and Grub. Uproot all trees and underbrush, root-rake and dispose of debris as allowed on subject property.

Within the area of clearing and grubbing, all holes and other depressions shall be filled and all mounds and ridges cut down, and the area shall be brought to sufficiently uniform contour that any subsequent mowing and cutting operations will not be hindered by irregularity of terrain.

c. Clear Cut. Cut all trees and underbrush at or as near ground or water level as practical. Debris shall be disposed of as allowed on subject property.

Impacts to wildlife can be direct or indirect and are associated with construction, operation and maintenance of the transmission line and corridor. The direct impacts during construction tend to be short term and are associated with the removal of habitat and the potential impact to species' behavioral patterns caused by increased human activity in the area. Nocturnal species should not be affected by day activities and diurnal species are expected to avoid the construction activity area.

Operational and maintenance impacts will include selective vegetation clearing. This clearing will be done on an individual basis and thus will minimize impacts to the surrounding habitat. Access roads can be used by Florida Game and Fresh Water Fish Commission and Division of Forestry personnel in their management activities. Gates and locks on access roads will facilitate this by restricting unauthorized access.

There are no expected impacts on the Ochlocknee River, the major surface water traversed, and therefore no impacts to aquatic species are expected.

3.6 Impacts on Landmarks and Sensitive Areas

3.6.1 Extent of Impact on Sensitive Areas

Potentially sensitive areas that will be crossed by the corridor include the Ochlockonee River crossing, the Ochlockonee Wildlife Management Area, the Lake Talquin State Recreation Area, and Interstate Highway 10.

No areas of known historic or archaeological significance are within the corridor. Prior to construction, the areas proposed for disturbance will be archaeologically surveyed to ensure that no sensitive areas will be impacted.

The Ochlockonee River, designated as a Special Water and as an Outstanding Florida Water (OFW), will be spanned by the proposed transmission facilities. The Special Water and OFW designations are intended to prevent or control effluent discharges to certain water bodies that may result from

construction or operation of an industrial/commercial facility (Hinkley, February 6, 1981). The Ochlockonee River will not be noticeably affected by operation or maintenance of the line. During construction, erosion and sediment runoff will be controlled as described in Section 3.1.3. The towers to be used for river spanning will be located well away from the river banks. Since the Ochlockonee River crossing will utilize the existing FPC transmission corridor, no new access roads in this immediate area should be required. This will further minimize runoff (sedimentation) related effects to the river.

One sensitive area that could be crossed by the proposed line is the Ocklockonee Wildlife Management Area. Based upon a worst case estimate, it is calculated that approximately 2.0 miles along the eastern edge of this Management Area could be traversed by the right-of-way (Bailey, February 11, 1981). If final right-of-way placement does require the use of a portion of the Management Area, the City will cooperate with the Florida Game and Fresh Water Fish Commission, Division of Forestry, Department of Natural Resources and the Department of Environmental Regulation to minimize site specific impacts.

The eastern part of the Lake Talquin State Recreation Area (which abuts the 1W/2W Range line from the west) would be crossed by the right-of-way. However, no developed recreation or public facilities are within this portion of the Recreation Area.

It will be necessary to span Interstate 10 near the southern portion of the route. However, this crossing is not expected to cause a significant impact, since no support structures will be located within the Interstate Highway 10 right-of-way (Yawn, March 4, 1981). Most residual visual effects related to tower placement will be offset, since non-reflective wood H-frame structures will be used, and since background vegetation will tend to camouflage the line's presence.

3.7 Impact on Human Populations

Both right-of-way clearing and transmission line construction will generate audible noise. Clearing will generate noise due to the use of diesel machinery and gasoline powered chain saws. Construction of the actual transmission line will require the use of both drilling and lifting equipment for erection of the support structures.

Most construction noise levels will be acceptable and of relatively short duration. Worst-case noise levels for heavy diesel machinery used for right-of-way clearing are not expected to exceed a maximum of 90 dB(A) at 50 feet. At a distance of 5000 feet, maximum noise levels will attenuate to 50 dB(A) or less.

Noise impacts will be moderated by the following measures:

1. Work will generally be conducted during daylight hours when fewer receptors are present and ambient background levels are higher.

2. Construction equipment used on or around the job site will be required to meet State of Florida vehicular noise standards.

3.8 Archaeological and Historic Sites

Prior to construction of the transmission line, potentially affected areas will be archaeologically surveyed. If any archaeological or historic remains are located during this survey, it will be determined whether any such sites are apparently eligible for the National Register of Historic Places. The determination for eligibility for inclusion in the Register will be in accordance with 36 CFR, Part 63.

If it is determined that a significant site may potentially be affected by construction, the site will either be avoided, otherwise protected, or excavated as directed by the Division of Archives, History and Records Management. Procedures for site protection or excavation (if necessary) will not be implemented by the City until the Division of Archives, History, and Records Management approves such procedures.

4.0 ENVIRONMENTAL EFFECTS OF TRANSMISSION LINE RIGHT-OF-WAY MAINTENANCE AND POST-CONSTRUCTION IMPACTS

4.1 Maintenance Techniques

The right-of-way maintenance techniques chosen are expected to have little impact on native vegetation and wildlife. These techniques will be dependent on land ownership. Clearing methods will be continued as discussed in Section 3.5, as determined by the property owner, whether public or private. Natural vegetation will be allowed to grow back in the right-of-way. Trees will be trimmed as appropriate, on a case by case basis. No herbicides will be used in maintaining the right-of-way.

4.2 Multiple Uses

Generally, the right-of-way can be used by the owner in any manner not inconsistent with the National Electric Safety Code, or with operation and maintenance of the line. In agricultural areas, the transmission right-of-way can continue to be farmed. Only those areas actually taken up by transmission structures will be removed from agricultural production. In some wooded areas, it is expected that clearing for the right-of-way will increase the amount of edge habitat, which should in turn increase game animal populations.

4.3 Surface Water

Three intermittent streams, as identified on U. S. G. S. maps, and the Ochlockonee River will be spanned by the transmission line. There are also several small ponds within the study corridor that may be a part of the drainage system.

Drainage patterns are not expected to be impacted by maintenance techniques. Therefore, there will be no anticipated impacts to surface water during maintenance.

The only major surface water intersected, the Ochlockonee River, will be crossed in a common corridor with the existing FPC transmission line. This river is classified as an "Outstanding Florida Water" and as a "Special Water" by the Department of Environmental Regulation. This classification is designed to regulate effluent discharge into waterways. There will be no effluents produced by this project. Existing service roads will be used, which will minimize siltation to this river.

4.4 Air Quality Impacts

The methods used for burning as a clearing and maintenance technique are discussed in Section 4.1.

4.5 Effects of Public Access

The clearing of access roads and the transmission line right-of-way may marginally increase the exposure and accessibility of the public to resident wildlife. Because this access will be minimized by fencing and locking gates to the access roads, and because Florida Game and Fresh Water Fish Commission and Division of Forestry Officials will also have access for management activities, these effects should be minimal.

4.6 Changes in Species Populations

In forested areas, corridor clearing and danger tree removal will decrease closed-canopy and other forested habitat. Clear cut and clear-and-grub methods will produce open field and edge-habitat with primarily herbaceous species occurring. This will decrease shade-loving plant species. The faunal community will also change in species composition. Closed canopy species, such as cavity nesting birds and arboreal mammals will decrease in number, and open-field species, such as small rodents would increase. If game food plots are established this would increase species such as the white-tailed deer. Generally, corridor clearing will increase species diversity by increasing sun exposure and the resultant increase in ground cover. Selective clearing will leave more understory species and will provide more edge habitat preferred by many game and other wildlife species.

4.7 Archaeological and Historic Sites

If significant archaeological or historic sites are located within the right-of-way, and if any such sites are preserved in place during construction, right-of-way maintenance techniques will be used that do not adversely affect such sites. These techniques will be prepared in consultation with, and approved by the Department of State, Division of Archives, History, and Records Management.

4.8 Other Post-Construction Impacts

Other post-construction impacts considered in this section are: (1) operating noise, (2) potential health effects related to exposure to electromagnetic fields, (3) ozone/nitrogen oxide production, and (4) radio/television interference. Of consideration in discussing these impacts is the fact that most impact studies have been associated with transmission lines equal to or larger than 345 kV. Therefore, impacts for the proposed 230 kV line are expected to be considerably smaller. Also in order to minimize the potential for these impacts the City has selected the corridor to avoid residential areas where possible.

Transmission operating noise on lines carrying voltage less than 345 kV is considered negligible. Based on studies of much larger lines, the proposed 230 kV transmission line will not create a significant noise pollution problem (Electric Power Research Institute, 1975).

Studies have not shown any correlation between adverse health effects and close proximity to electric and magnetic fields. Systematic medical examinations of lineman working for years in strong electric fields such as those encountered in live line maintenance of extra high voltage (ehv) transmission lines has indicated no evidence of ill effects caused by transmission line electric fields (Kouwenhoven, 1967 and 1973). A specific study performed by the University of Toronto consisted of 30 men who regularly worked on ehv transmission lines equipment and had done so for a period of at least five years. Each man in the exposed group was matched with a man in a control group. The conclusion of the study was that no difference in health status could be determined when comparing the test group to the control group (Stopps, 1979). Again these studies were conducted for lines typically much larger than the proposed 230 kV line.

Since the proposed line may tend to create voltages in conductive objects that are partially or completely insulted from ground, these objects will be appropriately grounded. Conductive fences running parallel to the transmission line will be grounded at specified intervals; fences running perpendicular to the line will be grounded at the edge of the right-of-way.

No adverse environmental effects are expected from ozone or nitrogen oxides produced by the operation of the proposed line. Field measurements were made adjacent to a 345 kV switchyard with a high concentration of 345 kV and 138 kV transmission lines and adjacent to a 765 kV line. These measurements indicated no measureable effect on ozone present in the atmosphere at ground level adjacent to the lines (Fern, 1974).

No significant radio interference is expected under fair weather conditions. Likewise no significant interferences are expected during foul weather conditions, when interferences are most likely to occur. This is based on the City's past experiences with their present 155 miles of 115 kV and 230 kV transmission lines. Television interference is not anticipated due to the size of the proposed line. Numerous studies have been conducted for larger line voltages, indicating interference problems should be insignificant for the proposed line. The City has not experienced any television interference problems with their existing 155 miles of transmission lines.

In order to assure radio and television interference is minimized the conductor and materials to be used for the line will be of high quality. Also specifications for the line will assure high quality installation to avoid nicks in the conductor and loose equipment which would contribute to noise and interferences. All equipment installed will be in accordance with the National Electric Safety Code.

5.0 ENVIRONMENTAL DATA COLLECTION

5.1 General

General methods for the collection of baseline environmental data were discussed with the Department of Environmental Regulation prior to implementation. To a great extent, existing data sources were relied upon. This included extensive contacts with Federal, State, and local government representatives. However, certain "key" areas (regions understood to be relatively sensitive) were field checked by R. W. Beck and Associate's personnel. This field review included, but was not limited to, an inspection of certain residential areas, the Ochlockonee Wildlife Management Area, the Lake Talquin State Recreation Area, the Ochlockonee River crossing, wetlands, and various representative habitat types.

5.2 Data Collection

5.2.1 Water

Background measurement of physical/chemical parameters of surface water will not be necessary for this project, since no effluent or chemical discharges will occur as part of transmission line construction or operation. During construction, some erosion could take place, which could result in slight sedimentation increases to streams or rivers. However, this short term impact would not be particularly adverse, and would therefore not require measurement or monitoring.

5.2.2 Ecology

The baseline description for vegetation and wildlife was developed by review of existing sources of pertinent ecological data. Major vegetation types, as discussed in Section 2.2.8, were determined by review of United States Geological Survey 7.5 minute series topographic maps, aerial photographs (scale 1 inch = 400 feet) infra-red maps, and a corridor reconnaissance survey conducted in January, 1981. Major vegetation types were defined according to the Florida Land Use and Cover Classification System: A Technical Report and are delineated on land use cover maps (Figures 2-6a, 2-6b, and 2-6c). Information describing characteristic vegetation associations and the biotic community was provided by literature review (Kurz, 1976; Braun, 1950; and Shelford, 1963). Faunal information was provided by a review of range maps in field guides (Conant, 1975; Peterson, 1947; Robbins, 1966; and Burt, 1976) and by review of the Draft Environmental Impact Statement, (Apalachee Engineers, 1974).

Contacts were established with the Florida Game and Fresh Water Fish Commission, U. S. Forest Service, Bureau of State Land Management, the Department of Agriculture, and the Department of Environmental Regulation to formulate baseline characteristics. Important species, species of concern, and rare, threatened or endangered species were identified by the United States Fish and Wildlife Service and the Florida Game and Fresh Water Fish Commission, and the Department of Agriculature and Consumer Services (plant species). The

habitat requirements for the red-cockaded woodpecker, an endangered species that is federally protected, are specific to old pine forest trees with red-center rot for nesting. This limited habitat was surveyed for during field efforts in January and no potential habitat was identified.

The City will coordinate with the Department of Environmental Regulation to minimize impacts to these sensitive species as listed in Tables 2-1 and 2-2.

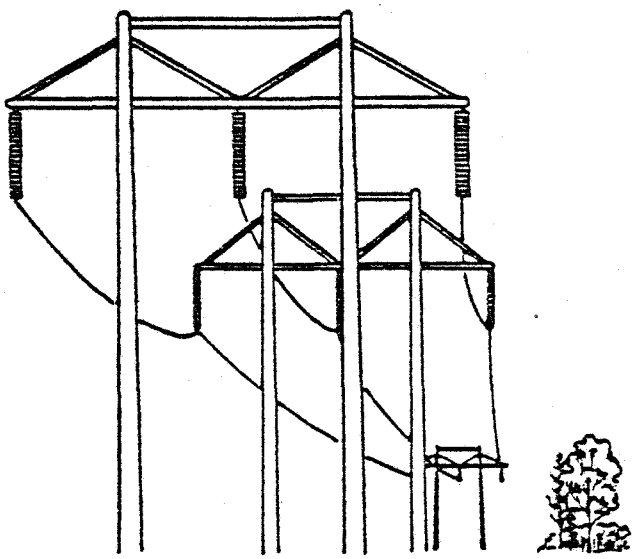
5.2.3 Noise

Information used in assessing the environmental effects of construction noise near residences was derived from previous experience with similar projects (R. W. Beck and Associates, 1978). It is estimated that construction noise levels may reach 90 dB(A) at 50 feet, and 50 dB(A) at 5,000 feet.

APPENDIX A

PETITION FOR ELECTRIC TRANSMISSION LINE NEED DETERMINATION

PETITION SUBMITTED TO
THE
FLORIDA PUBLIC SERVICE COMMISSION
FOR
ELECTRIC TRANSMISSION LINE NEED DETERMINATION



HOPKINS (CITY OF TALLAHASSEE, FLORIDA)

TO

BAINBRIDGE (GEORGIA POWER COMPANY)

230KV TRANSMISSION LINE

BY

CITY OF TALLAHASSEE, FLORIDA

MARCH, 1981

IMAGE QUALITY

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RICHARD P. "DICK" WILSON
MAYOR-COMMISSIONER

HURLEY W. RUDD
MAYOR PRO TEM-COMMISSIONER

CAROL BELLAMY
COMMISSIONER

JAMES R. FORD
COMMISSIONER

SHELDON E. HILAMAN
COMMISSIONER

DANIEL A. KLEMAN
CITY MANAGER

HERBERT J. SECKEL
CITY AUDITOR-CLERK

BRYAN W. HENRY
CITY ATTORNEY

TELEPHONE
(904) 599-8100

CITY HALL
32301

BEFORE THE PUBLIC SERVICE COMMISSION
STATE OF FLORIDA

IN THE MATTER OF

CITY OF TALLAHASSEE 230 KV TRANSMISSION LINE AND RELATED FACILITIES	DOCKET NO.

PETITION TO DETERMINE NEED
FOR TRANSMISSION LINE

Comes now the Petitioner, City of Tallahassee, and requests that that the FLORIDA PUBLIC SERVICE COMMISSION ("Commission") determine, pursuant to Section 366.14, F.S., that there is a need for the proposed transmission line described in the attached application and file its order making that determination with the Department of Environmental Regulation ("DER") pursuant to the Transmission Line Siting Act. In support thereof, the Petitioner states that:

1. The City of Tallahassee is engaged in the generation, transmission and distribution of electric power to persons within its service area. Its address is:

City of Tallahassee
City Hall
Tallahassee, Florida 32301

2. Tallahassee has entered into an agreement with Georgia Power Company to construct and operate a 230 KV transmission line from Georgia

Power Company's Bainbridge South Substation to Tallahassee's transmission grid at a point near its Hopkins Power Plant, as shown in the attached application. The line and its associated facilities (collectively, "the proposed transmission line") is subject to the Transmission Line Siting Act (the "Act"), and to the provisions of s. 366.14, F.S. providing for determinations of need by the Commission.

3. Pursuant to Section 366.14, F.S., 1980 Supplement, and to Florida Administrative Code Rules 25-2.130 and 25-2.131, the Commission has jurisdiction to determine the need for the proposed transmission line.

4. The attached information demonstates the need for the proposed transmission line in the proposed time frame as the most cost effective alternative available, taking into account the need for electric system reliability and integrity, the need for adequate reasonable cost electricity, and other relevant matters. Of particular importance is the substantial amount of imported oil which will be displaced by the energy transmitted over this line, which will have significant effects on the cost of electricity to Tallahassee customers. The energy transmitted over this line will be produced from primary sources other than oil, thus reducing oil imports for this country as a whole as well as Tallahassee.

WHEREFORE, Tallahassee respectfully requests that:

(1) the Commission set a date for a hearing on this Petition within 10 days after the date of filing hereof and shall hold the hearing within 30 days after the date of filing, all as required by s. 366.14(1) F.S.;

(2) the hearing in this matter be held as a formal hearing pursuant to Section 120.57(1), F.S.;

(3) the Commission cause notice of the hearing to be published at least 20 days before the date set for hearing, as required by s. 366.14(1), F.S.; and

(4) the Commission determine that there is need for the proposed transmission line as set forth in this Petition, and file its order making such determination with the Department of Environmental Regulation pursuant to the Transmission Line Siting Act.

RESPECTFULLY SUMBITTED this 2nd day of March, 1981.

Richard P. "Dick" Wilson
Mayor - Commissioner

Bryan W. Henry
City Attorney

Barrett G. Johnson
Special Counsel

OUTLINE OF REPORT

PETITION SUBMITTED TO
THE
FLORIDA PUBLIC SERVICE COMMISSION
FOR
ELECTRIC TRANSMISSION LINE NEED DETERMINATION

Hopkins (City of Tallahassee, Florida)
To
Bainbridge (Georgia Power Company)
230 KV Transmission Line
BY
City of Tallahassee, Florida

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SECTION I

INTRODUCTION

Purpose

This report has been prepared in accordance with the requirements of the Florida Public Service Commission's (the "FPSC") Order No. 9631 (the "Order") relating to implementation of Section 366.14, Florida Statues, which provides for a finding of determination of need for proposed transmission lines. The City of Tallahassee, Florida (the "City") is proposing to construct, own, operate, and maintain a 230 kV transmission line that is planned to be placed in commercial operation by late 1981, and which will result in its electric system being directly interconnected with The Southern Company ("Southern") through the electric system of Georgia Power Company ("GPC"), an operating affiliate of Southern. The City and Southern have entered into an interchange contract dated December 15, 1980 to accomplish such purpose. The line, identified herein as the "Hopkins to Bainbridge 230 kV Transmission Line", is being constructed to substantially improve the reliability of supply to the City's electric system and customers; to enable the City to purchase substantial amounts of coal-fired capacity and energy which will reduce its dependency on and use of oil and, therefore, its cost for generating electricity; to gain direct access to other alternative bulk power supply resources; and to reduce the transmission costs for power received from resources located across the state line.

Sections I through VI of this report were prepared under the guidelines of paragraphs (1) through (7) of Rule 25-2.131 (the "Rules") of the FPSC's Order. Section II contains a general description and maps showing the location, load and electrical characteristics of the City's electric system. Section III contains a description of the proposed transmission line and Section IV includes a general discussion to identify specific operating situations, conditions, and contingencies on the City's system that were simulated using "load flow" studies. This section also contains excerpts from a power supply study prepared by the City's Consulting Engineer which describes the reasons the City is pursuing this transmission project. Section V describes the alternative improvements that were examined and Section VI contains summary statements of the major reasons for adding the proposed line. It is the City's opinion that paragraph 7 of the Rules, dealing with phasing of the project, does not apply in this petition.

Adverse Consequences of Denial

Paragraph 6 of the Rules requires a statement of adverse consequences to the City should the FPSC deny the application. As more fully described in Sections II through VI of this report and based upon the information and studies available at this time, should the FPSC deny the City's petition for construction of the proposed Hopkins to Bainbridge 230 kV Transmission Line, the City would be adversely affected in the following manner:

1. The City's electric system would suffer from reduced reliability of supply and depressed voltages during times when certain of its generation facilities are taken out of service on a single emergency basis.

2. The City would be denied direct access to certain economical bulk power supply resources available from Southern and GPC which are projected to substantially reduce the City's cost of power and displace oil with resultant savings to its retail customers.

3. The cost to the City and its customers of transmission service and increased transmission losses for the delivery of such resources from Southern and GPC over the system of FPC are estimated to be approximately $20.3 million greater over the period 1982-1994 when compared with the ownership costs of the proposed Hopkins to Bainbridge 230 kV Transmission Line.

4. Studies indicate that such resources from Southern and GPC could not be reliably delivered to displace oil as a boiler fuel in the City's generating facilities without the proposed Hopkins to Bainbridge 230 kV Transmission Line. It has been estimated that with such Line, the City could, on the average, displace 676,000 barrels of oil annually for the period 1982-1986, aggregating approximately 3.4 million barrels for the five years. This equates to approximately $24.3 million in net power cost savings to the customers of the City. Commencing in 1988 and thereafter it has been estimated that the City would displace 900,000 barrels of oil annually.

SECTION II

DESCRIPTION OF THE EXISTING LOAD AND ELECTRIC CHARACTERISTICS OF THE ELECTRIC SYSTEM

Paragraph 1 of the Rules requires the submission of a general description of the existing characteristics of the City's system. The City operates its electric system that includes generation, transmission, and distribution electric facilities. The physical location of the City's existing transmission lines, bulk power substations, and generation sites is shown in Exhibit II-1. The system is electrically interconnected with Florida Power Corporation ("FPC") and the City's electric operation and planning processes are coordinated with other Florida utilities.

Historical and Projected Peak Demand and Energy Requirements

The City's historical demand and energy requirements, as shown in Table II-1, have grown at an average annual compound growth rate of 7.1% and 6.3%, respectively, over the ten year period 1970 through 1980. The respective growth rates for the most recent five years were 6.4% and 5.0%.

Projections have been prepared of the City's demand and energy requirements for the period 1980 through 1989 and presented in its Ten Year Site Plan submitted in April, 1980 to the Florida Department of Community Affairs. This forecast, which is curently being updated, resulted in compound growth rates in demand and energy requirements of approximately 4.9% and 4.5%, respectively, which are summarized below for certain years and shown in Table II-1 for the entire time period. The City's peak demand is projected to occur during the summer season, as has occurred in the past.

Year	Peak Demand (MW)	Projected Calendar Year Net Energy Requirements (gWh)
1981	285 (1)	1,230
1983	316	1,347
1985	351	1,437
1987	383	1,604
1989	417	1,748
Compound Annual Growth Rate	4.9%	4.5%

(1) Actual peak demand in January 1981 was 293 MW.

The foregoing projections were prepared using an econometric model and gave effect to an end-use model for verification of the results. The econometric model was developed to capture the behavioral relationships between energy consumption and the levels of income, employment, electricity rates, prices of competing fuels and other explanatory variables. The end-use model, based in part on the consumer survey conducted by the City during 1980, produced higher projections than the econometric model for residential consumption throughout much of the forecast period.

Subsequent to the completion of the load forecast the FPSC issued its Order No. 9634 to establish conservation goals for electric utilities in Florida. The purpose of these goals is to reduce demand and energy growth in accordance with the requirements of the Florida Energy Efficiency and Conservation Act ("FEECA"), enacted by the Florida Legislature during its 1980 session. The new rules supersede emergency rules previously adopted by the FPSC in its Order No. 9512.

The final rules seek to reduce the use of oil as a generating fuel by 25% by 1990 and target the growth rate in accordance with an algorithm designed to produce an energy growth rate of 75%, and a demand growth rate of approximately 72.25% [$(85\%)^2$], of the growth rate in residential customers. The rules are not intended to restrict growth in the supply of power to support economic development by industrial or commercial enterprises.

As shown on Table II-1, a preliminary projection has been made of the City's demand and energy requirements utilizing the goals prescribed by the order (the "FEECA Forecast"). The City's 1980 forecast of demand and energy requirements, when compared with the FEECA Forecast, is approximately 8.4% and 3.1% lower, respectively, in 1981; approximately the same in 1985; and 10.8% and 11.4% higher, respectively, in 1989. The reductions in projected peak demand and energy requirements under the FEECA Forecast in 1989 amount to 45 MW and 200 gWh, respectively. The average annual growth rates over the period 1981-1989 would be reduced from 4.9% to 2.4% for demand and from 4.5% to 2.5% for energy, respectively.

Existing Generation Facilities

The output of the City's generation facilities, located at two separate sites adjacent to the City load center, are integrated into the electric system by its 115 kV transmission grid. Approximately 103 MW of steam generation and 22 MW of combustion turbine generation facilities, as shown in Table II-2, are located at the City's Purdom Generating Station south of the City in Wakulla County as can be seen in Exhibit II-1. The Arvah B. Hopkins Generating Station, located to the west of the City, includes approximately 303 MW of steam generation and 40.5 MW of combustion turbine generation facilities. All of the City's generating units at the two sites can be fired either with oil or natural gas as shown in Table II-2. The units range in size from 7 MW to 225 MW.

In addition to the generation facilities located physically on its system, the City has a 1.333% interest in FPC's Crystal River No. 3 nuclear unit located in Citrus County, which provides approximately 10 MW of capacity. FPC is the City's operating agent for this generation facility. This power is transmitted to the City's system through its interconnections with FPC in accordance with the FPC's transmission tariff on file with the Federal Energy Regulatory Commission (the "FERC").

Existing Bulk Power Transmission System

The City's existing bulk power transmission system includes approximately 155.5 circuit miles of transmission facilities that are operated at voltages of 230 kV, 115 kV, and 69 kV. Table II-3 contains a list of the City's transmission lines, and their length, operating voltage, and maximum possible loading in megawatts. The 115 kV transmission network as shown in Exhibit II-1 basically forms a 115 kV loop that extends around and through the City limits. Certain of these facilities located north of the City between the Hopkins Generating Station and Substation No. 7 are constructed for 230 kV operation but are currently operated at 115 kV. Nine substations located at various sites on the electric system transform power from the transmission voltage of 115 kV to the distribution network voltage of 12.47 kV.

Interconnection Arrangements with Florida Electric Utilities

The City is interconnected with FPC at four locations on its system as shown in Exhibit II-1. Its 230 kV interconnection at FPC's Crawfordville Substation located south of the City is connected into the City's electric system by its 230 kV transmission line that terminates at the City's Hopkins Generating Station. The City's 115 kV interconnection at FPC's Bradfordville West Substation located north of the City is connected into the City's electric system by its 115 kV line that terminates at the City's Substation No. 7. The City also has two 69 kV interconnections with FPC, one of which is located adjacent to its Purdom Generation Station and the other of which is located west of its Substation No. 3.

The City's interconnection agreement with FPC, which was originally executed in 1968 and is currently being re-negotiated, provides for mutual support through the exchange of energy in the event the City or FPC is temporarily unable to supply its required power and energy from normally available resources. The agreement identifies four classes of interchange service including (i) emergency, (ii) scheduled, (iii) economy, and (iv) firm power exchange. The City has entered into similar interchange contracts with Orlando Utilities Commission and the City of Lakeland.

Prior to the City's undertaking the construction of its Hopkins Unit No. 2, the City and FPC entered into a firm power contract whereby the City purchased firm capacity from FPC prior to the in-service date of the unit. Such contract also provided that FPC purchase firm capacity from the City subsequent to the in-service date of the unit. The letters of commitment for such sales, initially executed in November, 1972 and subsequently amended in December, 1977, provided for the following amounts of capacity sales by the City to FPC.

Year Ended March 31	Firm Capacity Sales(MW)
1978	130
1979	90
1980*	130
1981	100
1982	80
1983	60
1984	30

*Contract amended in December, 1977 to extend capacity sales from the City to FPC commencing April, 1979.

State Transmission Grid

The City coordinates its daily electric system operation with the other electric generating utilities in Florida and participates in operation and planning studies conducted by the Florida Electric Coordinating Group (FCG). As shown in Exhibit II-2, the City system is physically located in the northwest portion of the state transmission grid and is electrically connected to peninsula Florida through the only 230 kV transmission line west of Perry, Florida. This 230 kV transmission line ties Gulf Power Company's ("Gulf Power") Calloway 230 kV Substation with FPC's Pt. St. Joe 230 kV Substation and continues east to FPC's Crawfordville, Perry and Suwannee 230 kV Substations. The City's electric system is also tied to the 115 kV network physically located north of the 230 kV transmission line, described above, which begins at FPC's Suwannee 115 kV Substation and extends west through its Drifton, Bradfordville West, and Quincy 115 kV Substations and on where it interconnects with Gulf Power's system at its Scholtz 115 kV Substation.

Southern Electric System

The existing generating plants and 500 kV, 230 kV and 115 kV transmission facilities of the Southern electric system are shown on Exhibit II-3.

TABLE II-1

CITY OF TALLAHASSEE, FLORIDA
ELECTRIC DEPARTMENT

HISTORICAL AND PROJECTED NET DEMAND AND ENERGY REQUIREMENTS

Line No.	Year	1980 Ten Year Site Plan Forecast Summer Net Peak Demand (MW)	1980 Ten Year Site Plan Forecast Calendar Year Net Energy Requirements (gWh)	FEECA Forecast (1) Summer Net Peak Demand (MW)	FEECA Forecast (1) Calendar Year Net Energy Requirements (gWh)
			Historical		
1	1970	149	656	-	-
2	1971	160	708	-	-
3	1972	195	802	-	-
4	1973	202	910	-	-
5	1974	203	885	-	-
6	1975	216	947	-	-
7	1976	227	971	-	-
8	1977	234	1,076	-	-
9	1978	256	1,144	-	-
10	1979	252	1,146	-	-
11	1980	295	1,211	295	1,211
Compound Annual Growth Rate					
12	1970-1980	7.07%	6.32%	-	-
13	1975-1980	6.43%	5.04%	-	-
			Projected		
14	1981	285 (2)	1,230	309	1,269
15	1982	298	1,285	321	1,327
16	1983	316	1,346	333	1,376
17	1984	333	1,409	343	1,417
18	1985	351	1,472	350	1,449
19	1986	367	1,536	357	1,480
20	1987	383	1,604	363	1,506
21	1988	400	1,675	368	1,528
22	1989	417	1,748	372	1,548
Compound Annual Growth Rate					
23	1981-1989	4.87%	4.49%	2.35%	2.52%

(1) Florida Energy Efficiency and Conservation Act (FEECA). Projected energy and demand targets have been calculated in accordance with the rules prescribed by FPSC's Order No. 9634 and include commercial class additions for the years 1981 through 1985, which by 1989 represent approximately 47.6 gWh or 3.1% of the annual energy requirements and 9.6 MW or 2.6% of the peak demand for such year. Such incremental loads are also incorporated in the 1980 Ten Year Site Plan Forecast.

(2) Actual peak demand in January 1981 was 293 MW.

TABLE II-2

CITY OF TALLAHASSEE, FLORIDA
ELECTRIC DEPARTMENT
EXISTING GENERATING FACILITIES AND UNIT CAPABILITIES

Line No.	(a)	Location (County) (b)	Fuel Type (c)	Maximum Generator Name Plate Rating (kW) (d)	Commercial In Service Date (e)	Expected Date For Retirement(1) (f)	Net Capacity - MW(2) Summer (g)	Net Capacity - MW(2) Winter (h)
	Fossil Steam							
	Sam O. Purdom Generating Station							
1	Unit Nos. 1-2.....	Wakulla	No. 6 Oil	15,000	01/52	05/84	0.0 (3)	0.0 (3)
2	Unit No. 3.....	Wakulla	No. 6 Oil/Gas	7,500	01/52	05/84	7.0	7.6
3	Unit No. 4.....	Wakulla	No. 6 Oil/Gas	7,500	04/54	05/84	7.0	7.6
4	Unit No. 5.....	Wakulla	No. 6 Oil/Gas	25,000	04/58	04/90	22.0	22.0
5	Unit No. 6.....	Wakulla	No. 6 Oil/Gas	25,000	01/61	-	22.0	22.0
6	Unit No. 7.....	Wakulla	No. 6 Oil/Gas	50,000	06/66	-	45.0	46.0
7	Subtotal.....						103.0	105.2
	Arvah B. Hopkins Generating Station							
8	Unit No. 1.....	Leon	No. 6 Oil/Gas	75,000	05/71	-	55.0 (4)	77.0 (4)
9	Unit No. 2.....	Leon	No. 6 Oil/Gas	259,250	10/77	-	220.0 (4)	220.0 (4)
10	Subtotal.....						275.0	297.0
	Combustion Turbine							
	Sam O. Purdom Generating Station							
11	Unit No. 1.....	Wakulla	No. 2 Oil/Gas	15,000	12/63	-	11.0	11.5
12	Unit No. 2.....	Wakulla	No. 2 Oil/Gas	15,000	05/64	-	11.0	11.5
13	Subtotal.....						22.0	23.0
	Arvah B. Hopkins Generating Station							
14	Unit No. 1.....	Leon	No. 2 Oil/Gas	16,320	02/70	-	12.5 (4)	15.5
15	Unit No. 2.....	Leon	No. 2 Oil/Gas	27,000	09/72	-	22.0 (4)	30.0
16	Subtotal.....						34.5	45.5
	Nuclear							
	Crystal River							
17	Unit No. 3(5).....	Citrus	Nuclear	11,872	03/77	-	10.1 (6)	10.4 (6)
18	Totals.....			549,442			444.6	481.1

(1) The expected retirement dates for the Sam O. Purdom generating units 1-5 are being used for planning purposes by the Electric Department staff. The retirement dates for the remaining generating units have not yet been determined.

(2) Amounts shown are being used for planning purposes by the Electric Department staff and are based on the demonstrated continuous net output for each facility.

(3) These facilities are currently considered by the Electric Department staff for planning purposes to be on "cold standby" since operation of these units requires major repairs to the boiler.

(4) The net capacity for these facilities is temporarily reduced by equipment limitations. The net capacity shown below for each facility is anticipated by the Electric Department staff to be restored by the summer of 1981.

	Net Capacity (MW) Summer	Net Capacity (MW) Winter
Arvah B. Hopkins Generating Station		
Fossil-Steam Unit No. 1	78.0	80.0
Fossil-Steam Unit No. 2	225.0	228.0
Subtotal	303.0	308.0
Combustion Turbine Unit No. 1	14.0	15.5
Combustion Turbine Unit No. 2	26.5	30.0
Subtotal	40.5	45.5

(5) As a Participant in the Crystal River Unit No. 3 nuclear unit ("CR-3"), the City of Tallahassee has a generation entitlement share to 1.3333% or 11,872 kW based on a Maximum Generator Nameplate rating of 890,460 kW as reported by FPC in its Ten-Year Site Plan dated March 21, 1980.

(6) The City's net capacity for CR-3 reflects FPC's net summer and winter capacity rating of 704,000 kW and 726,000 kW, respectively, as contained in its Ten-Year Site Plan dated March 21, 1980, and a loss factor of (1 - 0.034) to transmit the power over FPC's transmission network.

TABLE II-3

CITY OF TALLAHASSEE, FLORIDA
ELECTRIC DEPARTMENT
EXISTING TRANSMISSION FACILITIES (1)

Number	Line		Length (Miles)	Operating Voltage (KV)	Maximum Possible Loading (MW)
	From	To			
(1-A)	Purdom Plant	Substation #5	15.0	115	80
(1-B)	Substation #5	Substation #1	5.0	115	80
(2-A)	Purdom Plant	Switching Structure	15.9	115	80
(2-B)	Switching Structure	Substation #6	4.7	115	80
(2-C)	Switching Structure	Substation #5	1.8	115	80
(3)	Purdom Plant	Substation #3	20.8	115	80
(5)	Hopkins Plant	Substation #3	6.7	115	160
(6)	Hopkins Plant	Substation #3	7.4	115	160
(7-A)	Hopkins Plant	Substation #10	5.1	115(3)	191
(7-B)	Substation #10	Substation #8	3.2	115(3)	191
(7-C)	Substation #8	Substation #7	2.9	115(3)	191
(10)	Substation #3	Substation #6	1.6	115	160
(11)	Substation #3	Substation #1	2.4	115	80
(12)	Substation #3	Substation #2	2.9	115	80
(13)	Substation #3	Substation #2	4.2	115	80
(14)	Substation #6	Substation #1	0.7	115	80
(15A)	Substation #5	Substation #4	9.0	115	80
(15B)	Substation #5	Substation #9	5.5	115	80
(15C)	Substation #9	Substation #4	3.5	115	80
(17)	Substation #4	Substation #7	3.8	115	160
(20)	Substation #7	Florida Power Corporation Bradfordville West	6.0	115(3)	160
(21)	Substation #3	Florida Power Corporation Tallahassee Substation	4.8	69(2)	48
(31)	Hopkins Plant	Florida Power Corporation Crawfordville Substation	21.6	230	550
(Cable)	Substation #2	Substation #13	1.0	115	120
Total	-	-	155.5	-	-

(1) Based on Form 12, Year Ended December 31, 1979 updated for actual lines added to the system.
(2) Insulated for 115 kV operation.
(3) Insulated for 230 kV operation.

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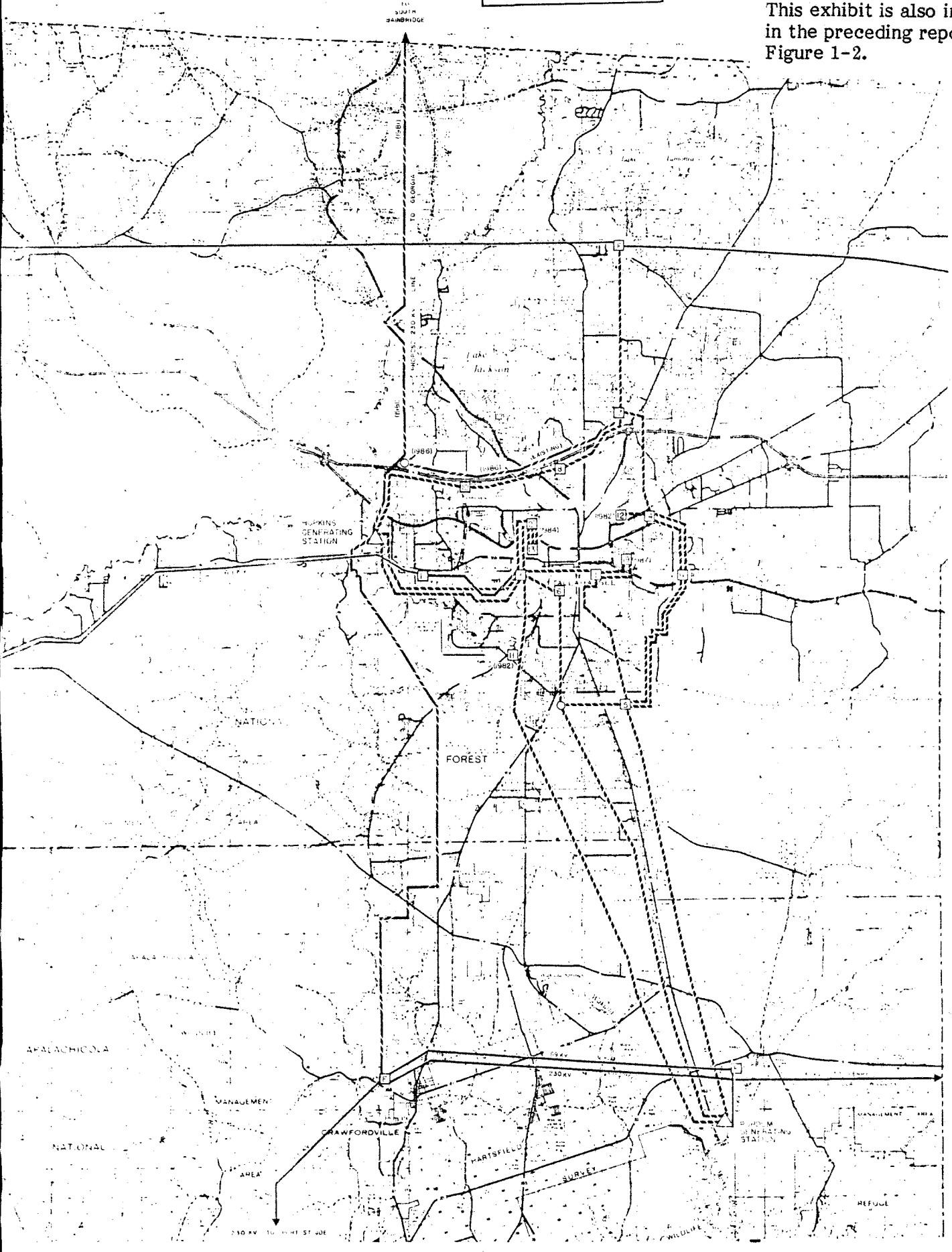
EXHIBIT II-1

This exhibit is also included in the preceding report as Figure 1-2.



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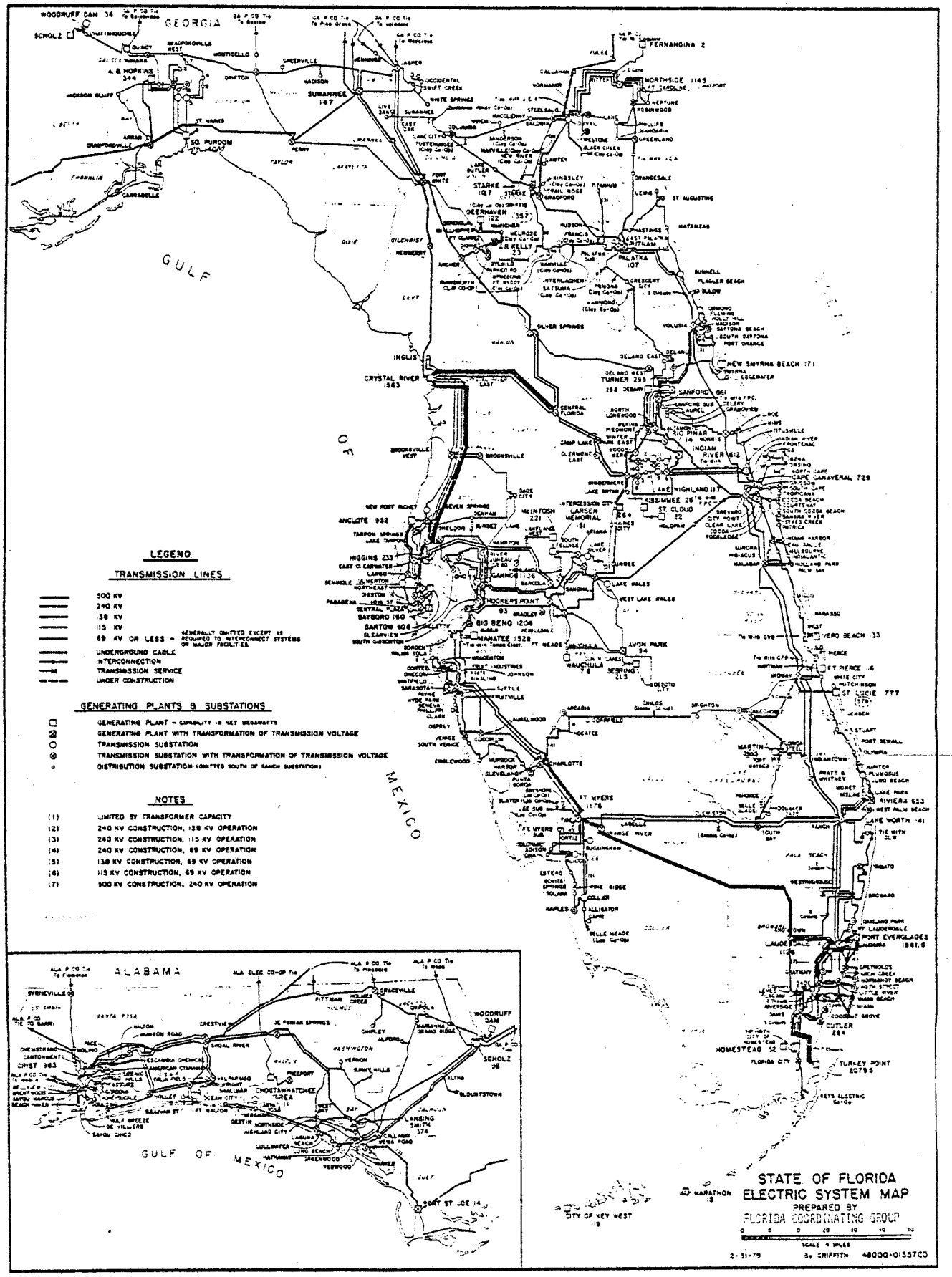

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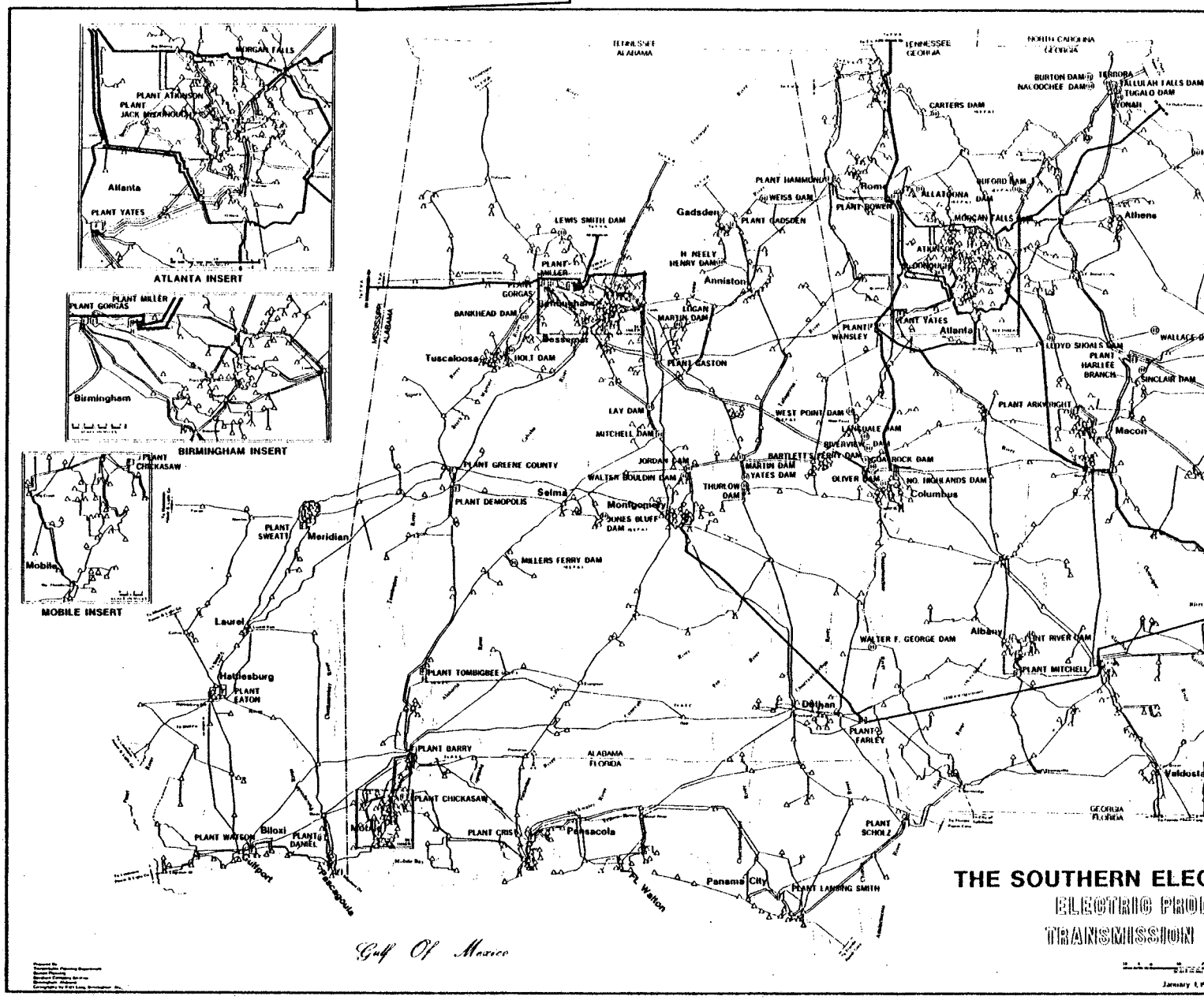


SECTION III

DESCRIPTION OF THE PROPOSED HOPKINS TO BAINBRIDGE 230 KV TRANSMISSION LINE

Paragraph 2 of the Rules requires the submission of a general description of the proposed Hopkins to Bainbridge 230 kV Transmission Line. The City is proposing to construct the Florida portion of a 230 kV transmission line which would extend from its 230 kV substation at the Hopkins Generating Station shown on Exhibit II-1 to GPC's South Bainbridge 230 kV substation shown on Exhibit II-3. In accordance with its executed interconnection agreement with Southern the City has agreed at its expense to construct, own, operate, and maintain the portion of the line from its Hopkins 230 kV Substation to the Georgia-Florida State Line. The City is planning to utilize one-half of a segment of an existing double-circuit transmission line between its Hopkins Generating Station and Substation No. 7, which has been designed and constructed for 230 kV operation. This transmission segment, shown on Exhibit II-1, exits the Hopkins Generating Station and extends north for approximately two miles where it turns to the east. The remaining one-half of the double-circuit line will continue to be operated at 115 kV.

GPC has agreed at its expense to construct, own, operate, and maintain the remainder of the transmission line from the Georgia-Florida State Line to its South Bainbridge 230 kV Substation. The agreement provides that unless otherwise agreed, the facilities shall be completed and ready for operation on or before October 31, 1981. It is currently expected that this date will be extended by two or three months.

A summary of the major characteristics of the line to be constructed by the City to the Florida-Georgia State line follows:

Project Name:	Hopkins to Bainbridge 230 kV Transmission Line
No. of Circuits:	One
Design Voltage:	230 kV
Operating Voltage:	230 kV
Conductor Size:	954 MCM ACSR
Tower Construction:	H-Frame Wood Poles
Width of Right-of-Way:	100 Feet
Length of Line:	15 Miles

History and Description of the Interchange Arrangement

The City, commencing in August, 1979, undertook negotiations with both FPC and Southern for the construction by the City of a 230 kV interconnection between the Hopkins Generating Station and the Florida-Georgia state line and the establishment of an interconnection arrangement with Southern for the exchange of various types of interchange power. Originally, under the proposed arrangement, the City was to route the line so as to provide an additional point of interconnection with FPC at its Havana Substation and provide additional area

support to FPC at that point. A number of meetings were held between the City and FPC to study and equitably divide the costs and benefits that would be derived by both parties from such an arrangement. On March 12, 1980, FPC advised the City that it was no longer interested in pursuing the additional interconnection point at Havana at this time and that it would temporarily resolve its area support problems through other actions.

Concurrent with the FPC-City negotiations, several meetings were held between the City and Southern on the terms and conditions of the proposed interconnection agreement between the parties. As the agreement is now executed, the parties will be able to exchange emergency energy, short-term capacity and energy, and economy energy over the 230 kV line which is scheduled to be placed in service by the end of 1981.

In addition, Southern has agreed to sell and the City has agreed to purchase 50 MW of long-term firm power commencing with the date the interconnection is placed in service and extending through 1986. Such long-term power is similar to that committed to by FPC under which FPC is purchasing 200 megawatts of such power through March 31, 1983, with an option to extend such purchases through the end of 1986. Florida Power & Light Company ("FP&L") and Jacksonville Electric Authority ("JEA") are also each purchasing 100 MW of such power with Southern are planning to increase the amounts of long-term power to 300 MW each commencing in August, 1982 and extending through 1986 after the first of two currently planned 500 kV transmission lines between the parties is placed in commercial operation. Southern has indicated that the availability of long-term power is dependent upon its generation expansion program and the availability from time to time, of generating resources temporarily surplus to its own requirements. Southern further indicated that it did not want to commit at this time to any long-term power sales of this nature in years subsequent to 1986.

As to Southern, such interconnection agreement is subject to approval by the FERC. The agreement provides for the use of a formulary approach with respect to determining any capacity costs, which approach has also been used in the Southern-FPC long-term power transaction, the Southern-Florida Power & Light interconnection agreement, and the Intercompany Interchange Contract among the operating affiliates of Southern. All such contracts have been filed with the FERC which has consolidated the hearings for all of the parties involved primarily because of the formulary approach utilized.

It is the opinion of the City and of its Consulting Engineer, which has prepared certain studies relating to the interconnection, that the City stands to gain substantial benefits from a 230 kV interconnection with Southern. Currently the only direct physical interconnections the City has are with FPC, and the addition of an interconnection with Southern will permit it to gain direct access to other major sources of bulk power supply including the long-term power service described above and potential participation in Plant Vogtle. Additionally, the City's geographical location places it at the weaker end of FPC's transmission system and, as such, the City is faced with the prospect of

reduced reliability in the near future without the construction of additional transmission interconnection facilities. A direct transmission line between the City and Southern should substantially improve the City's reliability of supply both now and in the future.

Estimated Project Cost

The City's Consulting Engineer has prepared an estimate of the total construction cost of the proposed transmission line and termination facilities at the Hopkins 230 kV Substation. The estimated direct construction costs total approximately $3.3 million, which is shown in Table III-1, and includes provision for land and land rights, transmission line, substation, engineering and construction supervision, owner administration, and a 10% allowance for contingencies. This cost estimate is predicated on the assumptions contained in the footnotes to the table. This direct construction cost is equivalent to approximately $4.3 million of bonds assuming the City finances such facilities through the sale of approximately $3.5 million of short-term notes.

Progress on Construction

Bonds, or notes in anticipation thereof, have been authorized by the City for the project and have been validated by the circuit court for Leon County. The proposed right-of-way for the line has been surveyed and the City has retained a consultant to assist it in performing the environmental work associated with the project. The City has also received proposals from a number of consultants for the design of the line and is in the process of evaluating and selecting a design engineer to do the work.

GPC reports that, with respect to its section of the line, engineering design and specifications are complete, land acquisition will be completed by the end of March, 1981, right-of-way clearing is expected to begin in April, 1981, and construction is expected to commence in June, 1981.

Table III-1

CITY OF TALLAHASSEE, FLORIDA
ELECTRIC DEPARTMENT
ESTIMATED COST TO THE CITY FOR A 230 KV INTERCONNECTION BETWEEN
THE CITY'S HOPKINS STATION AND
GEORGIA POWER COMPANY'S SOUTH BAINBRIDGE SUBSTATION

Line No.	Description (a)	Dollars($) (b)
	Direct Construction Cost Estimate	
1	Land and Land Rights(1)	544,500
2	Transmission Line Costs(2)	1,721,000
3	Substation Costs(3)	405,000
4	Engineering & Construction Supervision	291,500
5	Owners Administration	88,000
6	Direct Construction Cost	3,050,000
7	Contingency(4)	251,000
8	Total Direct Construction Cost	3,301,000
	Anticipation Notes(5)	
9	Interest Earnings(6)	169,000
10	Net Construction Cost	3,132,000
11	Discount and Issuance Expense(7)	106,000
12	Interest During Construction(8)	292,000
13	Total Principal Amount of Anticipation Notes	3,530,000
	Bond Cost(5)	
14	Payment of Principal Amount of Anticipation Notes	3,530,000
15	Reserve Account(9)	391,000
16	Bond Discount and Issuance Expense(10)	129,000
17	Interest Contingency(11)	250,000
18	Total Principal Amount of Bond	4,300,000

(1) Land and land rights utilizing a 100-foot transmission right-of-way estimated at a cost of $3,000 per acre as provided by the City's Electric Department Staff.
(2) Cost for 15 miles of 230 kV, single circuit line utilizing 954 MCM ACSR conductor on H-frame wood poles which includes land clearing, structures and foundation, conductor, overhead shield wire, grounding and insulator assemblies.
(3) Cost for termination at the 230 kV Hopkins Substation which includes substation equipment with one breaker.
(4) Contingency at 10% of direct construction cost.
(5) Assumes the facilities will be financed initially with the issuance of anticipation notes in 1981 followed with the issuance of bonds in 1981 or 1982 for permanent financing.
(6) Interest earned on fund invested during construction.
(7) Based upon a total allowance of 3.0% of the total principal amount of notes.
(8) Interest payments on notes outstanding during the construction period.
(9) Reserve amount funded from bonds equal to the annual levelized debt service payment.
(10) Based upon a total allowance of 3.0% of the principal amount of bonds.
(11) Interest contingency that includes interest during construction for the last month of construction and an allowance for interest during construction for a delay beyond the currently planned in-service date and is estimated to be sufficient to provide six months of additional interest payments.

SECTION IV

SUMMARY OF STUDIES DEMONSTRATING NEED FOR THE PROPOSED HOPKINS TO BAINBRIDGE 230 KV TRANSMISSION LINE

As required by paragraph 3 of the Rules, this section presents a summary of studies conducted by the City to show a need for the proposed Hopkins to Bainbridge 230 kV Transmission Line. Certain of these studies were analyzed and presented in a report prepared by the City's Consulting Engineer that provided an analysis of alternative power supply arrangements reasonably available to the City in order to serve its future load requirements at a reasonable cost and adequate reliability.

Preliminary Report - Power Supply Study

The City, in October 1979, directed its Consulting Engineer to conduct a long-range study of power supply alternatives to update the last such study completed in 1973. On October 14, 1980, the Consulting Engineer presented to the City a preliminary report on the results of the alternative power supply arrangements for the City being studied for the period 1985 through 1994. The studies to that date included revised projections of the City's demand and energy requirements, analyses of a number of power supply alternatives including coal-fired facilities which may be added on the City's system,and participation through the Florida Municipal Power Agency ("FMPA") in power supply resources not located on the City's system including participation in GPC's Plant Vogtle, FPC's mid-80's coal-fired units, and FP&L's St. Lucie Unit 2. The report also included summaries of studies relating to the proposed 230 kV interconnection with Southern and a 5-year projection of the operating results of the City's Electric Department, taking into account a projection of capital improvements to the City's Electric System and related bond requirements giving effect to, among other matters, internal transmission system additions, the proposed interconnection with Southern and the proposed Jackson Bluff Hydroelectric Project. The City has taken permanent action on the 230 kV interconnection with Southern, including commitment to the purchase of 50 MW of long-term power.

With respect to the proposed interconnection arrangement between the City and Southern, it was the opinion of the Consulting Engineer, based upon the assumptions, preliminary studies, investigations and analyses contained in the report, that:

1. The proposed 230 kV interconnection between the City and Southern should substantially improve the City's reliability of supply, provide the City direct access to alternative bulk power supply arrangements, and provide net economic benefits to the City both now and in the future.

2. The purchase by the City of at least 50 MW of long-term firm power from Southern for the period 1982 through 1986 represents a lower cost power supply alternative than oil-fired energy generated at the Hopkins Plant.

3. Entitlement by the City, acting through FMPA, to 80 MW of the Plant Vogtle output represents a reasonable power supply alternative to serve, in part, its long-term power and energy requirements, subject to successful financing and the development of the various arrangements and agreements still to be negotiated.

It is also the opinion of the Consulting Engineer that the City can beneficially utilize the output of the Southern purchases and Plant Vogtle in reducing its dependency on oil as a boiler fuel and in serving its long-term power and energy requirements under either the 1980 load forecast or the forecast which would result under the FPSC's Order No. 9634. Such projects can reasonably be expected to result in lower long-range power costs to the City when compared with oil-fired energy generated by the City's existing units.

It was further estimated by the Consulting Engineer that the 50 MW purchase from Southern would provide 20% - 31% of the City's total energy requirements in each of the years 1982-1986, and that an 80 MW entitlement to Plant Vogtle would provide 21% - 30% of such requirements in each of the years 1988-1994 and decline thereafter, assuming growth occurs on the City's system. Neither of these estimates gave effect to probable economy energy purchases by the City from Southern, having a predominately coal-fired system, that would further reduce the City's dependency on and use of oil as a boiler fuel.

Economic Benefits

Power Cost Savings

The Consulting Engineer's report also contained projections of power cost savings available to the City resulting from a purchase by the City of 50 megawatts of long-term power from Southern for the period 1982 through 1986. The estimated savings for such a purchase were shown under two different assumptions: (a) the City would utilize only that portion of the energy available from the purchase necessary to serve its own load, and (b) the City would purchase additional energy from Southern over and above that necessary to serve its own requirements and sell such additional amounts to others through its economy energy exchange schedules. The projected savings give effect to the most current projections of the City's demand and energy requirements and availability of natural gas for boiler fuel, to recent projections of delivered coal energy prices provided by Southern, and to the City's ability to reduce such purchases from Southern, as provided in the agreement with Southern, in the amounts and at the times the City may acquire entitlement to the output of the Plant Vogtle capacity.

Estimated Savings with
50 MW Purchase of Long-Term Power From Southern

	Year Ending September 30, ($000)*					
	1982	1983	1984	1985	1986	Total
Potential Fuel Cost Savings.....	6,903	8,097	8,918	8,219	7,622	39,759
Estimated Fixed Cost Component.....	2,843	3,186	3,326	3,144	2,917	15,416
Estimated Net Power Cost Savings.....	4,060	4,911	5,592	5,075	4,705	24,343
Estimated Net Power Cost Savings with Economy Sales.....	4,510	5,375	6,071	5,738	5,556	27,250
Barrels of Oil Displaced..	732,000	738,000	740,000	633,000	538,000	3,381,000

* Assumes capacity amount would be lowered to 40 MW commencing April, 1985, when Vogtle Unit 1 is expected to be placed in operation.

Based on the foregoing estimates, purchase by the City of 50 megawatts of such power from Southern, as shown on line 3 of the foregoing table, would result in estimated five-year net power cost savings of approximately $24,300,000 if the City were to utilize only that portion of the energy available to serve its own load. As shown on line 4, such amount would increase to approximately $27,300,000 over the same period taking into account potential economy energy sales with other utilities. These estimated savings represent the net of estimated reduced fuel costs on the City's system and the estimated added fixed costs for such a purchase (not including the cost of the interconnection) and are primarily attributable to the projected large difference between the cost of coal-fired energy and the cost of oil-fired energy.

Comparison of the Difference in Cost to the
City for Owning Transmission Interconnection Versus
Paying Transmission Services Charges to FPC

Ownership of a direct interconnection with Southern can provide other economic benefits to the City with respect to bulk power purchases from Southern or GPC in that certain transmission service charges and transmission losses would be avoided should such purchases be made over the system of FPC.

To demonstrate this, a comparison has been made for the period 1982 - 1994 to show the difference in costs to the City between its owning the 230 kV transmission interconnection to Southern and paying for the cost of transmission

service and wheeling power over FPC's transmission system. The City's annual costs associated with ownership include (i) annual debt service payments on long-term bonds issued by it to finance the cost of the transmission interconnection (ii) operation and maintenance expenses, and (iii) administrative and general expenses. The estimated annual costs for owning the interconnection facilities are summarized in Table IV-1 on lines 1, 2 and 3. The cost for net debt service shown on line 1 includes debt service payments for bonds issued at an assumed coupon rate of 10% offset by interest earnings from the reserve account, required and established under the City's bond resolution. Operation and maintenance costs shown on line 2 were estimated at 1.5% of the investment cost and escalated at an annual rate of 9% through 1990 and 8% thereafter. Line 2 also includes costs for administrative and general expenses at 16% of operation and maintenance costs based on the City's projected 1981 costs for operation and maintenance expenses. Total annual ownership costs shown on line 3 are projected to increase from $508,000 in 1982 to $649,000 by 1994.

Lines 4 through 9 show the capacity amounts and estimated costs for transmission service from FPC for (i) a 50 megawatt long-term purchase from Southern for the period 1982 through 1984, which amount may be reduced to 40 megawatts in 1985 and 1986 under the provisions of interconnection agreement; and (ii) an entitlement, acting through FMPA, to 40 megawatts of capacity and energy from each of the two units of Plant Vogtle. These capacity amounts are summarized on lines 4, 5 and 6. Estimated transmission service payments to FPC are shown on line 7 of this table and are based on its transmission service rate of $0.983 kW/month currently under consideration by the FERC. This rate was escalated from its current amount at an annual rate of 2.1% based on an analysis presented in the FMPA Preliminary Power Supply Study dated February, 1979. Line 8 shows the estimated cost of energy losses for energy associated with the capacity shown on line 6 that would be transmitted over FPC's system. This cost is based on a loss factor of 3.5% and assumes that such energy would be displaced with generation from the Hopkins Unit No. 2. Line 9 shows the estimated total cost to the City for transmission service from FPC which increases from approximately $1.2 million in 1982 to $3.3 million by 1994. Lines 10 and 11 show the estimated cost savings to the City from owning the transmission interconnection with Southern versus obtaining transmission service from FPC. The cost savings are estimated to increase from $0.7 million in 1982 to $2.6 million by 1994 and over the period would total approximately $20.3 million. The present worth of such savings, shown on line 11, total approximately $9.1 million for the study period.

Reliability Benefits

Certain of the power supply arrangements identified in the previous section anticipate the operation of the proposed Hopkins to Bainbridge 230 kV Transmission Line. Accordingly, the studies summarized in this section include load flow analyses to simulate for the year 1982 the Florida and Southern electric transmission system facilities, loads and resulting power flows with and without the proposed transmission line during normal operation and for certain single contingencies.

Load Flow Analyses

Transmission load flow studies were made using the Philadelphia Electric Company (PECO) Load Flow Program which simulates the power flows for the state transmission grid in 1982 with and without the proposed Hopkins to Bainbridge 230 kV Transmission Line. The 1982 State of Florida data base, which contains an equivalent for Southern transmission network includes the existing firm schedule "D" type power transactions between the Florida utilities; interchange associated with the jointly owned Crystal River Unit No. 3; and the following long-term power purchases by Florida electric utilities from Southern.

	MW
Florida Power Corporation	200
Florida Power & Light Company	100
Jacksonville Electric Authority	100
Total	400

The data base also contains three existing 230 kV and four existing 115 kV transmission lines that interconnect the State of Florida and Southern's electric transmission systems. This case is considered as the Base Case.

The percent voltages for selected buses are summarized for each case on Table IV-2. The results of the various power flow cases have been plotted on one-line diagrams which are contained in the Appendix. These diagrams show real power flows (MW) and reactive power flows (MVAR) for select transmission lines, and the per unit voltage at certain substations for the City, FPC, Gulf Power, and GPC's systems. Normal and emergency transmission line ratings have been plotted on the first diagram contained in the Appendix that represent the minimum rating on one segment between the buses shown in the diagram.

Base Case

The Base Case was simulated with and without the proposed Hopkins to Bainbridge 230 kV line and without any purchases by the City from Southern. No substantial differences in the voltage profile occur on the City, FPC, or Southern electric systems between the two cases. The following summary of the power flows on the 230 kV tie lines shows that the proposed line would reduce the power flow on FPC's 230 kV tie lines with Southern by approximately one-half.

230 kV Tie Lines	Power Flows (MW) With 230 kV Hopkins-Bainbridge Line Case I-A	Power Flows (MW) Without 230 kV Hopkins-Bainbridge Line Case II-A
Suwannee (FPC)-Pine Grove (Southern)	69	60
Pt. St. Joe (FPC)-Calloway (Southern)	17	103
Subtotal	86	163
Yulee (FP&L)-Kingsland (Southern)	133	140
Hopkins (City)-Bainbridge (Southern)	120	-
Total	339	303

Load Flows with 100 MW Interchange from Southern to Tallahassee

Additional load flow cases were simulated that include an additional 100 MW power transfer from Southern to the City in 1982 with and without the proposed line. The 100 MW amount was selected to account for 50 MW of long-term capacity and energy and 50 MW of economy energy purchases. These purchases by the City increase the total amount of power scheduled from Southern into the state to 500 MW. The per unit voltage at the buses for the City, FPC, and Southern electric systems remains relatively constant for the two cases, with and without the proposed line. The power flows on the 230kV tie line are summarized below.

230 kV Tie Lines	Power Flows (MW) With 230 kV Hopkins-Bainbridge Line Case I-B	Power Flows (MW) Without 230 kV Hopkins-Bainbridge Line Case II-B
Suwannee (FPC) Pine Grove (Southern)	80	131
Pt. St. Joe (FPC)-Calloway (Southern)	25	90
Subtotal	105	221
Yulee (FP&L)-Kingsland (Southern)	140	150
Hopkins (City)-Bainbridge (Southern)	179	-
Total	424	371

The foregoing table shows that power flows on FPC's tie lines reduce by approximately one-half with the proposed line when compared to the case without the proposed line. For the case without the line (Case II-B), FPC's Jasper to Pine Grove 115 kV interconnection with Southern reaches its maximum rating (101%), as is summarized in Table IV-3, and its Woodruff to Scholtz 115 kV interconnection with Southern exceeds its maximum rating by approximately 14%.

Load Flows with a Transmission Contingency

Two transmission contingency cases were simulated with the 100 MW interchange from Southern to Tallahassee and with and without the proposed line. The two contingencies are:

230 kV Transmission Line Contingency Cases	Case Number: With 230 kV Hopkins-Bainbridge Line	Case Number: Without 230 kV Hopkins-Bainbridge Line
Suwannee (FPC)-Pine Grove (Southern)	Case I-C	Case II-C
Crawfordville (FPC)-Hopkins (City)	Case I-D	Case II-D

In all four cases, the voltage profile for the City, FPC, and Southern electric systems remained substantially the same with and without the proposed line. However, as shown in Table IV-3, the line loading on FPC's Woodruff to Scholtz 115 kV interconnection without the proposed line increased to 147% of its maximum rating during a contingency outage of the Crawfordville to Hopkins 230 kV transmission line. Additionally, the line loading on FPC's Jasper to Pine Grove 115 kV interconnection without the proposed line increased to 173% of its maximum rating during a contingency outage of the Suwannee (FPC) to Pine Grove (Southern) 230 kV interconnection. The only contingency case that resulted in transmission line overloading with the proposed line was for a contingency outage of FPC's 230 kV Suwannee to Pine Grove interconnection with Southern when the 115 kV Jasper to Pine Grove interconnection overloaded to 122% of its maximum rating.

Overloading on transmission lines in each of the contingency cases simulated was reduced with the addition of the proposed Hopkins to Bainbridge 230 kV Transmission Line.

Load Flows with a Generation Contingency

One generation contingency case was simulated to show the effect of the loss of the City's largest generation unit, Hopkins Unit No. 2, with the 100 MW interchange from Southern to Tallahassee and with and without the proposed line.

The City's schedule of generation before and after the loss of the Hopkins Unit No. 2 is shown below. Cases were run with an emergency import from Southern and from FPC.

	Net Generation	
	Normal Operation (MW)	Loss of Unit No. 2 (MW)
Hopkins Unit No. 2	233	0
Purdom Unit No. 7	16	49
Crystal River Unit No. 3	11	11
Import	100	240
Sale to FPC	(60)	0
Net System Load	300	300

Transmission line overloading similar to that described previously for the transmission contingency cases occurs for the generation outage contingency cases. Power flows on the two overloaded lines for the generation outage contingency cases with and without the proposed line are summarized in Table IV-3. As before, overloading on the transmission lines was substantially reduced with the addition of the proposed line.

Without the proposed line, the voltage on the City's system and the adjacent FPC system, as shown in Table IV-2, depresses below 90% during the generation outage contingency whether the replacement power is received by the City from FPC or Southern. This indicates that FPC's transmission system is close to the time when it is no longer capable of providing adequate backup to the City's system. This is due in part to load growth on both the City and FPC's systems during the past few years. With the proposed line, no voltage problems occurred at buses serving load, which indicates that Southern's system is capable of providing adequate additional backup for the City's system.

An additional load flow case was simulated, without the proposed line and without any contingency outages, to determine the maximum power flow the City could transfer into its system while maintaining an acceptable voltage profile. Power flows into the system were reduced to 150 MW before an acceptable voltage profile was obtained.

Exhibits IV-1 and IV-2 depict the City's scheduled interchanges and estimated maximum import capability for 1982, without and with, respectively, the proposed Hopkins to Bainbridge 230 kV Transmission Line. The export to FPC from the City of 49 MW is the net of the 60 MW "Schedule D" sale to FPC and the

City's entitlement to Crystal River Unit No. 3. The import from Southern to the City represents the amount for the long-term purchase. The maximum import capability as described previously is shown to be 150 MW and 250 MW, without and with, respectively, the proposed line.

Conservation Goals

A load flow case was simulated to determine if targeted peak loads as the result of the FPSC Order No. 9512 would eliminate the low voltage problems that occur in the previously described load flow case simulating the loss of the City's largest unit without the proposed line (Case No. II-F). Load levels contained in the FCG load flow data base were reduced to estimates for load levels prepared under the guidelines of such order for the City's system and for the adjacent systems of FPC and Seminole Electric Cooperative, Inc. (Seminole). The table below summarized for FPC, Seminole, and the City the 1982 loads contained in the FCG data base that were projected in 1980 by each utility and the 1982 loads estimates provided by the FPSC staff prepared with the guidelines of the order. The targeted loads are approximately 10.4% lower for FPC, approximately 14.7% lower for Seminole and approximately 4.4% higher for the City.

1982 Project Peak Demands

Utility (a)	FCG Load Flow Data Base (MW) (b)	Florida Energy Efficiency Conservation Act Forecast * (MW) (c)	% Reduction (d)
Florida Power Corp.	3,980	3,567	10.4
Seminole	1,334	1,138	14.7
Tallahassee	298	311	(4.4)

* Estimate provided by the FPSC staff that uses actual 1980 data as the base year.

This load flow case results in essentially the same low voltage profile as for the previous case (Case II-F). This occurs since the estimated reduction in load in northwest Florida for the City's system and the adjacent area systems totals only 35 MW. The table below,in column (b), contains an estimate of the 1982 projected peak demands served in northwest Florida by FPC, Seminole, and the City. These estimates were made from information contained in the FCG data base. The percent reduction in load for each of the three systems contained in the prior table and shown in the following table in column (c) were applied to the loads in column (b) to determine an estimate of the load reduction for loads served in northwest Florida by each utility that totals 35 MW.

Estimate of the 1982 Peak Demands of Loads
Served by Utilities in Northwest Florida Adjacent to
the City's System

Utility	FCG Load Flow Data Base	Estimated Load Reduction for Conservation Goals *	
	(MW)	(%)	(MW)
(a)	(b)	(c)	(d)
Florida Power Corp.	210	10.4	22
Seminole	175	14.7	26
Tallahassee	298	(4.4)	(13)
Total	683	5.1	35

* Estimate provided by the FPSC staff that uses actual 1980 data as the base year.

Based on the foregoing analyses and load flow studies, it is the opinion of the City and of its Consulting Engineer that the City requires an additional interconnection by 1982 to reliably serve its customers during single contingency emergency conditions, and that the lowest cost and most reliable addition is the proposed Hopkins to Bainbridge 230 kV Transmission Line.

IMAGE QUALITY

AS YOU REVIEW THE NEXT FEW PAGES, PLEASE NOTE THAT THE ORIGINAL DOCUMENT WAS OF POOR QUALITY.

TABLE IV-1

CITY OF TALLAHASSEE, FLORIDA
COMPARISON OF ANNUAL COST FOR OWNERSHIP OF THE INTERCONNECTION FACILITIES
VERSUS TRANSMISSION SERVICE PAYMENTS TO FPC
FISCAL YEAR ENDING SEPTEMBER 30

Line No.			1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
	230 kV Transmission Interconnection Ownership Cost											
1	Net Debt Service (1)	- $(000)	430	430	430	430	430	430	430	430	430	430
2	Operation and Maintenance and Administrative and General Expenses (2)	- $(000)	78	85	93	101	110	120	131	143	155	169
3	Total Ownership Cost	- $(000)	508	515	523	531	540	550	561	573	585	599
	Transmission Service from Florida Power Corporation											
4	Long-Term Purchase from Southern	- MW	50	50	50	40	40	-	-	-	-	-
5	Participation through FMPA in Plant Vogtle	- MW	-	-	-	30	40	40	80	80	80	80
6	Total Capacity	- MW	50	50	50	70	80	40	80	80	80	80
	Transmission Service Payments											
7	to FPC (3)	- $(000)	602	615	628	897	1,047	534	1,091	1,114	1,138	1,162
8	Cost for Energy Losses (4)	- $(000)	572	633	699	887	1,108	535	1,085	1,261	1,381	1,509
9	Total Cost for Transmission Service from FPC	- $(000)	1,174	1,248	1,327	1,784	2,155	1,069	2,176	2,375	2,519	2,671
	Savings (Loss)											
10	Savings (Loss) for Ownership	- $(000)	666	733	804	1,253	1,615	519	1,615	1,802	1,934	2,072
11	Present Worth of Savings (Loss)(5)	- $(000)	577	577	576	816	956	280	790	801	782	762

(1) Debt service payment assuming notes and bonds issued at an interest rate of 10% less interest earnings at 10% on the Reserve Account.
(2) Operation and maintenance (O&M) cost estimated per the DOE/FERC publication entitled Hydroelectric Power Evaluation dated April, 1979 at 1.5% of inves through 1990 and 8% thereafter. Administrative and general cost estimated at 16% of O&M cost based on the City's projected costs for 1981.
(3) Based on FPC's transmission service rate of $0.985 kW/month currently under consideration by the FERC escalated at a rate of 2.1%. This rate of escal Preliminary Power Supply Study dated February, 1979.
(4) Energy losses estimated at 3.5% based on FPC's loss factor contained in its current transmission service tariff. Such energy losses, determined for e term purchase from Southern and from Plant Vogtle, were priced at the cost for generation at Hopkins Unit No. 2.
(5) Present worth to January, 1981 at an interest rate of 10%.

TABLE IV-2

CITY OF TALLAHASSEE, FLORIDA
ELECTRIC DEPARTMENT
SUMMARY OF PER UNIT VOLTAGES FOR SELECT BUSES
1982 LOAD FLOW STUDIES

	Base Case				Outage 230 kV Suwannee to Pine Grove Line		Outage 230 kV Hopkins to Crawfordville Line		Loss	
	Case I-A	Case II-A	Case I-B	Case II-B	Case I-C	Case II-C	Case I-D	Case II-D	Case I-E	Case II
Power Import to Florida Utilities from Southern - MW	400	400	500	500	500	500	500	500	639	639
Power Import to City from Southern - MW	0	100	100	100	100	100	100	100	239	239
Load Flow Bus Numbers, Names and Voltages (a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
475 Yulee (230)	1.000	0.999	0.999	0.998	0.996	0.993	0.999	0.998	1.000	0.996
1432 Kingsland (230)	0.997	0.996	0.996	0.994	0.992	0.989	0.995	0.994	0.996	0.992
688 Suwannee (230)	1.035	1.034	1.034	1.031	1.016	1.041*	1.044	1.039	1.030	1.002
1435 Pine Grove (230)	1.016	1.016	1.013	1.012	1.000	1.003	1.017	1.016	1.008	994
670 Jasper (115)	1.015	1.015	1.015	1.012	1.003	1.008	1.021	1.016	1.013	1.001
1456 Pine Grove (115)	1.011	1.012	1.009	1.007	0.998	1.003	1.013	1.011	1.003	0.990
678 Suwannee Pl. (115)	1.046	1.045	1.045	1.043	1.034	1.042	1.050	1.046	1.042	1.023
1457 Twin Lakes (115)	1.011	1.010	1.008	1.007	0.997	1.001	1.013	1.010	1.004	0.988
1459 Tarver (115)	1.006	1.006	1.005	1.003	0.995	0.998	1.011	1.006	1.004	0.992
681 Woodruff (115)	0.995	0.992	0.993	0.988	0.992	0.987	0.993	0.983	0.986	0.942
687 Port St. Joe (230)	1.040	1.038	1.039	1.035	1.037	1.035	1.056	1.051	1.035	0.989
1483 Callaway (230)	1.046	1.046	1.046	1.045	1.046	1.045	1.050	1.049	1.045	1.033
1356 Hopkins (230)	1.003	1.002	1.001	0.999	1.001	1.001	0.997	0.999	0.994	0.909
1482 Scholz (115)	1.000	1.000	1.000	1.000	1.000	1.001	1.000	1.000	1.000	0.975
635 Fort White (230)	1.033	1.032	1.032	1.031	1.023	1.033	1.045	1.037	1.031	1.015
615 Fort White (115)	1.021	1.024	1.024	1.023	1.016	1.027	1.033	1.026	1.024	1.024
685 Crawfordville (230)	1.019	1.016	1.017	1.012	1.013	1.014	1.052	1.043	1.008	0.926
667 Bradfordville W. (115)	0.990	0.982	0.983	0.970	0.979	0.969*	0.981	0.952*	0.942**	0.837
655 Tallahassee (69)	0.999	0.996	0.997	0.997	0.996	0.997	1.000	0.987	0.981	0.887
663 St. Marks (69)	1.001	0.998	0.994	0.989	0.991	0.990	0.997	0.981	0.976	0.909
1446 S. Bainbridge (230)	1.011	1.021	1.009	1.019	1.007	1.017	1.007	1.019	1.002	1.009
1367 Substation #7 (115)	0.990	0.984	0.984	0.975	0.981	0.975	0.981	0.961	0.944**	0.841
1380 Substation #3 (69)	1.003	1.000	1.000	1.000	0.999	1.000	1.003	0.988	0.979	0.881
1359 Purdom (69)	0.998	0.995	0.989	0.984	0.986	0.985	0.991	0.973	0.968*	0.894

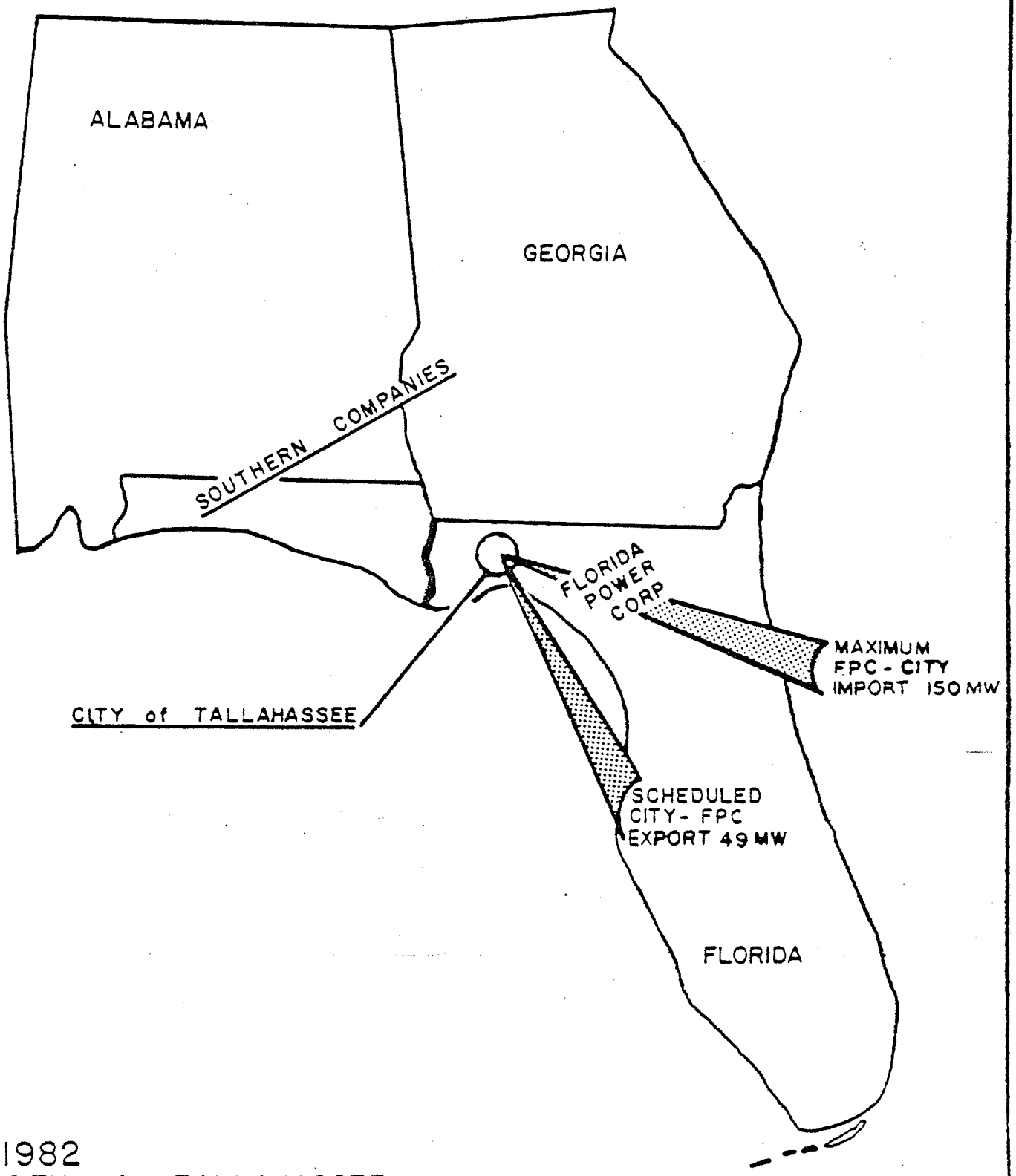
* Indicates Per Unit Voltage is below 0.970.
** Indicates Per Unit Voltage is below 0.950.
*** Indicates Per Unit Voltage is below 0.900.

TABLE IV-3

CITY OF TALLAHASSEE
ELECTRIC DEPARTMENT
SUMMARY OF LOADING FOR CERTAIN TRANSMISSION LINES
(1982 Conditions)

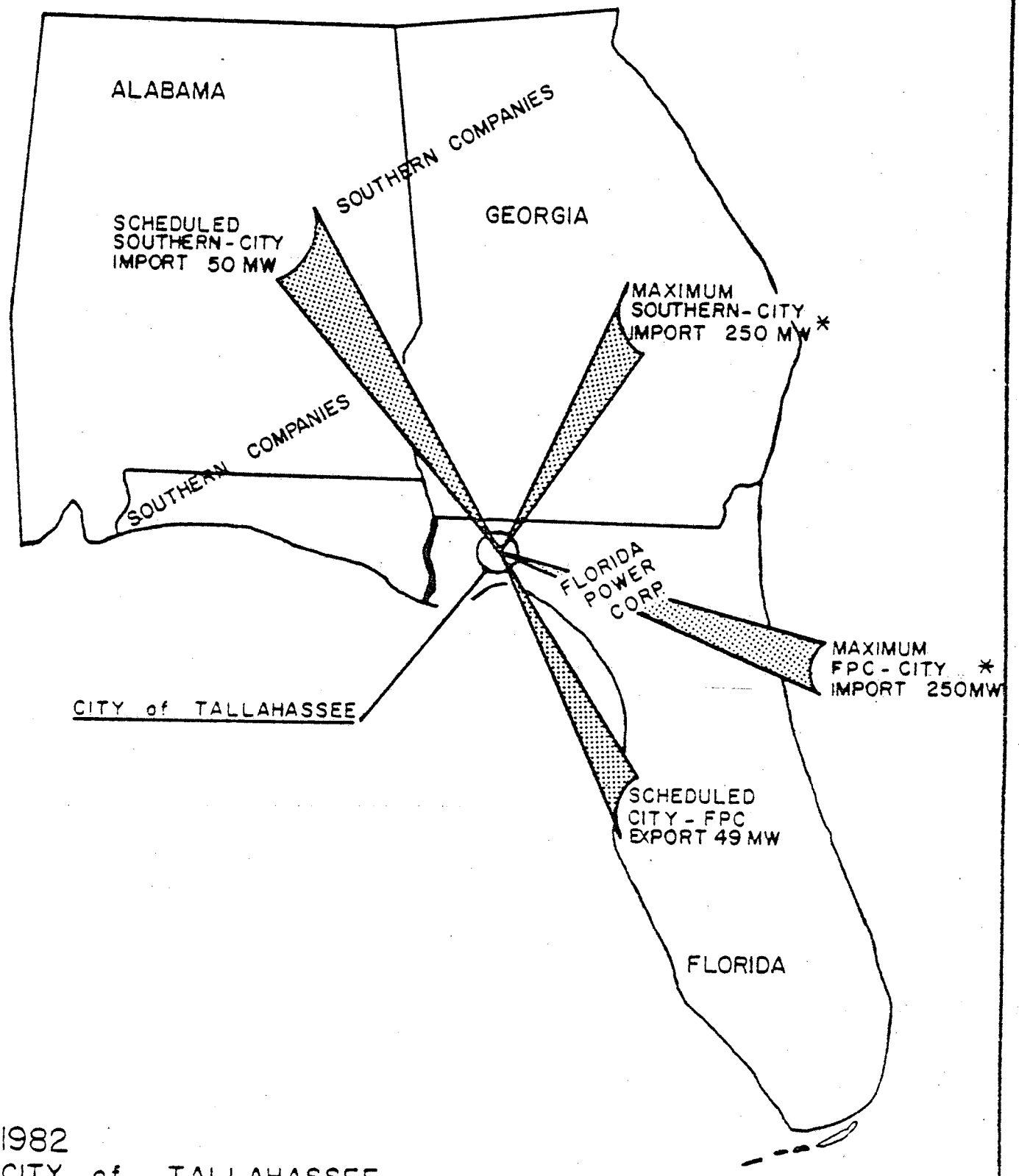
	Power Flow (MW) as a Percent of Maximum Transmission Line Ra			
		230 kV Transmission Line Contingency		Loss of I
	No Contingency	Suwannee (FPC)-Pine Grove (Southern)	Crawfordville (FPC)-Hopkins (City)	Emergency Imp from Souther
115 kV Jasper (FPC) - Pine Grove (Southern)(2)				
With 230 kV Hopkins-Bainbridge Line	(Case I-B) 86%	(Case I-C) 122%	(Case I-D) 90%	(Case I-E) 77%
Without 230 kV Hopkins-Bainbridge Line	(Case II-B) 101%	(Case II-C) 173%	(Case II-D) 100%	(Case II-E) 98%
115 kV Woodruff (FPC) to Scholtz (Southern)(3)				
With 230 kV Hopkins-Bainbridge Line	(Case I-B) 63%	(Case I-C) 67%	(Case I-D) 61%	(Case I-E) 93%
Without 230 kV Hopkins-Bainbridge Line	(Case II-B) 114%	(Case II-C) 132%	(Case II-D) 147%	(Case II-E) 179%

(1) Assumes 500 MW of power are imported into the Florida network from Southern system.
(2) Based on a rating of 39 MVA.
(3) Based on a rating of 72 MVA.



1982
CITY of TALLAHASSEE
TRANSMISSION GRID CHARACTERISTICS
WITHOUT GEORGIA TIE

njh 2/81



1982
CITY of TALLAHASSEE
TRANSMISSION GRID CHARACTERISTICS
WITH GEORGIA TIE

* - NON - COINCIDENT

n/h 2/81

SECTION V

SUMMARY OF ALTERNATIVES

Paragraph 4 of the Rules requires a summary discussion of alternatives to the proposed Hopkins to Bainbridge 230 kV Transmission Line. The City and its electric system, because of its physical location in the northwest portion of the state, is remote from strong sources of generation and transmission facilities in Florida. The City's electric system, as described in Section II, is currently interconnected with the transmission grid in northwest Florida and provides area support to FPC's northern division. The closest other major generation resource in Florida is located east of the City at FPC's Suwannee Plant, some 60 miles away. The next closest transmission network to the City system is that belonging to Southern.

Alternative transmission improvements for obtaining an interconnection with Southern include a number of possible alternative routes between the City's system and that of Southern located in a corridor east of the City's Hopkins Generating Station and west of its Substation No. 7. Since the exact location of this line is the topic of an environmental siting report to be submitted to the Department of Natural Resources, a preferred route was selected to estimate the cost of such an interconnection as described in Section III of this report.

As described in Section IV, the City requires, in the near future, additional transmission interconnections to reliably serve its customers under contingency outages of certain generation facilities. The logical solution is the proposed Hopkins to Bainbridge 230 kV Transmission Line, not only because of the short distance involved (total of 29 miles of which 15 miles are in Florida) with resulting lower construction and operating costs, but also because GPC's South Bainbridge Substation is a strong electrical point of interconnection (currently three 230 kV lines and three 115 kV lines terminate at South Bainbridge and one of the 230 kV lines is only 50 miles from Southern's 500 kV system). GPC is also of the opinion that the proposed line will strengthen the Southern electric system interconnection with the Florida utilities and will result in greater capacity and flexibility in power transfers between the two states.

Other possible alternatives to achieve the degree of reliability required, such as the construction of a 230 kV line to FPC's Suwannee Plant or to Gulf Power, would result in much greater construction and operating costs and would be of questionable value for such purpose, particularly when compared with the Hopkins to Bainbridge 230 kV Transmission Line.

FP&L and JEA are constructing two 500 kV transmission lines to the Florida-Georgia state line where they will interconnect with two 500 kV lines being constructed by GPC to its Plant Hatch Substation. The lines are expected to be placed in service by 1983. JEA and FP&L have also entered into letters of

commitment for the purchase of up to 500 MW and 1,000 MW of unit power, respectively from Southern over the period 1983 through 1992. The electrical characteristics of the transmission facilities between the City's system and the Jacksonville area, where the two 500 kV lines are to terminate, are such that the 500 kV lines would have little value in improving the City's reliability problems. It is also the City's understanding that the proposed 500 kV line between FPC's Fort White Substation and GPC's Tifton Substation has been deferred. It is the opinion of the City and of its Consulting Engineer that the line, if constructed, does not in and of itself cure the City's reliability problems.

Notwithstanding the foregoing reliability aspects, as previously discussed, an alternative to receiving power over the proposed line from (i) the 50 MW long-term purchase from Southern, and (ii) from Plant Vogtle, is to wheel such power over FPC's transmission network under the provisions of its transmission service tariff currently under consideration by the FERC. An analysis comparing the cost for wheeling this power versus owning the line was presented in Section IV of this report. The analysis showed substantial cost benefits available to the City to construct, own, operate and maintain the proposed Hopkins to Bainbridge 230 kV Transmission Line. Savings for owning the line for the time period 1982-1994 are estimated to be approximately $20.3 million.

SECTION VI

SUMMARY OF MAJOR REASONS FOR THE PROPOSED HOPKINS TO BAINBRIDGE 230 KV TRANSMISSION LINE

As required by paragraph 6 of the Rules, this section presents a summary of the major reasons the City is proposing to construct the Hopkins to Bainbridge 230 kV Transmission Line which would interconnect its system with that of Southern.

1. The proposed 230 kV interconnection between the City and Southern will substantially improve the City's reliability of supply. The maximum import capability into the City's system under its current interconnection arrangement with FPC is limited to approximately 150 megawatts. This amount is less than the size of the City's largest unit, Hopkins Unit No. 2, which has a net continuous summer rating of 225 megawatts. The proposed interconnection will increase the power transfer capability into the City's system to at least 250 megawatts.

2. The City requires, in the near future, additional transmission interconnections to reliably serve its customers under contingency outages of certain generation facilities. Other alternatives to the proposed interconnection would result in much greater construction and operating costs and would be of questionable value for such purpose.

3. The proposed interconnection will provide the City direct access to bulk power supply arrangements with Southern and GPC that may not otherwise be available to it without the interconnection. The 50 megawatt long-term power purchase by the City from Southern will on the average allow the City to displace its purchases of oil by at least 676,000 barrels of oil annually for each of the years 1982 through 1986, which represents approximately 68% of its oil usage during 1980. Should the City ultimately participate in Plant Vogtle in the amount indicated, commencing in 1988 (the first year in which both units of the plant are expected to be in commercial service) and subsequent thereto, the City on the average would displace in excess of 900,000 barrels of oil annually, which represents 90% of its oil usage during 1980.

4. The proposed interconnection will allow the City to integrate the operation of its electric system with that of Southern for economy energy transactions and emergency and short-term power exchanges. It is anticipated that the City will be able to obtain substantial amounts of coal-fired energy in addition to the 50 megawatt long-term power purchase that will further reduce its dependence on and use of oil as a boiler fuel.

5. The proposed interconnection will strengthen the Southern electric system interconnection with the Florida utilities and will result in greater capacity and flexibility in power transfers between the two states. The line will provide an additional path for power to flow into the State of Florida and, as shown in this study, during contingency outages will reduce overloading on existing interconnections between Florida and Southern that occurred during a power transfer into the state of 500 megawatts.

6. It is estimated that the ownership costs of the proposed interconnection, when compared with the costs of obtaining transmission service from FPC, will result in power cost savings to the City of approximately $20.3 million over the 15-year period ending in 1994.

APPENDIX

LOAD FLOW PLOTS

APPENDIX

HOPKINS TO BAINBRIDGE 230 KV TRANSMISSION LINE
(GEORGIA TIE)
LOAD FLOW CASE DESCRIPTIONS

CASE I-A (Base Case) Summer 1982

Georgia Tie in Service; 400 MW Import from Southern to Florida; Tallahassee Net Interchange 49 MW; 11 MW from Crystal River #3, 60 MW to Florida Power Corporation

CASE II-A Summer 1982

Georgia Tie Not in Service; 400 MW Import from Southern to Florida; Tallahassee Net Interchange 49 MW; 11 MW from Crystal River #3, 60 MW to Florida Power Corporation

CASE I-B Summer 1982

Georgia Tie in Service; 500 MW Import from Southern to Florida, 100 MW to Tallahassee; Tallahassee Net Interchange 51 MW; 11 MW from Crystal River #3, 100 MW from Southern and 60 MW to Florida Power Corporation

CASE II-B Summer 1982

Georgia Tie Not in Service; 500 MW Import from Southern to Florida, 100 MW to Tallahassee; Tallahassee Net Interchange 51 MW; 11 MW from Crystal River #3, 100 MW from Southern and 60 MW to Florida Power Corporation

CASE I-C Summer 1982 - Loss of Suwannee to Pine Grove Line

Georgia Tie in Service: 500 MW Import from Southern to Florida, 100 MW to Tallahassee; Tallahassee Net Interchange 51 MW; 11 MW from Crystal River #3, 100 MW from Southern and 60 MW to Florida Power Coporation

CASE II-C Summer 1982 - Loss of Suwannee to Pine Grove Line

Georgia Tie Not in Service; 500 MW Import from Southern to Florida; 100 MW to Tallahassee; Tallahassee Net Interchange 51 MW; 11 MW from Crystal River #3, 100 MW from Southern and 60 MW to Florida Power Corporation

CASE I-D Summer 1982 - Loss of Hopkins to Crawfordville Line

Georgia Tie in Service; 500 MW Import from Southern to Florida; 100 MW to Tallahassee; Tallahassee Net Interchange 51 MW, 11 MW from Crystal River #3, 100 MW from Southern and 60 MW to Florida Power Corporation

CASE II-D Summer 1982 - Loss of Hopkins to Crawfordville Line

Georgia Tie Not in Service; 500 MW Import from Southern to Florida; 100 MW to Tallahassee; Tallahassee Net Interchange 51 MW, 11 MW from Crystal River #3, 100 MW from Southern and 60 MW to Florida Power Corporation

CASE I-E Summer 1982 - Loss of Hopkins #2

Georgia Tie in Service; 639 MW Import from Southern to Florida; Tallahassee Net Interchange 250 MW, 11 MW from Crystal River #3, and 239 MW from Southern

CASE II-E Summer 1982 - Loss of Hopkins #2

Georgia Tie Not in Service; 639 MW Import from Southern to Florida; Tallahassee Net Interchange 250 MW, 11 MW from Crystal River #3, and 239 MW from Southern

CASE I-F Summer 1982 - Loss of Hopkins #2

Georgia Tie Not in Service; 500 MW Import from Southern to Florida; Tallahassee Net Interchange 250 MW, 11 MW from Crystal River #3, 139 MW from Florida Power Corporation and 100 MW from Southern

CASE II-F Summer 1982 - Loss of Hopkins #2

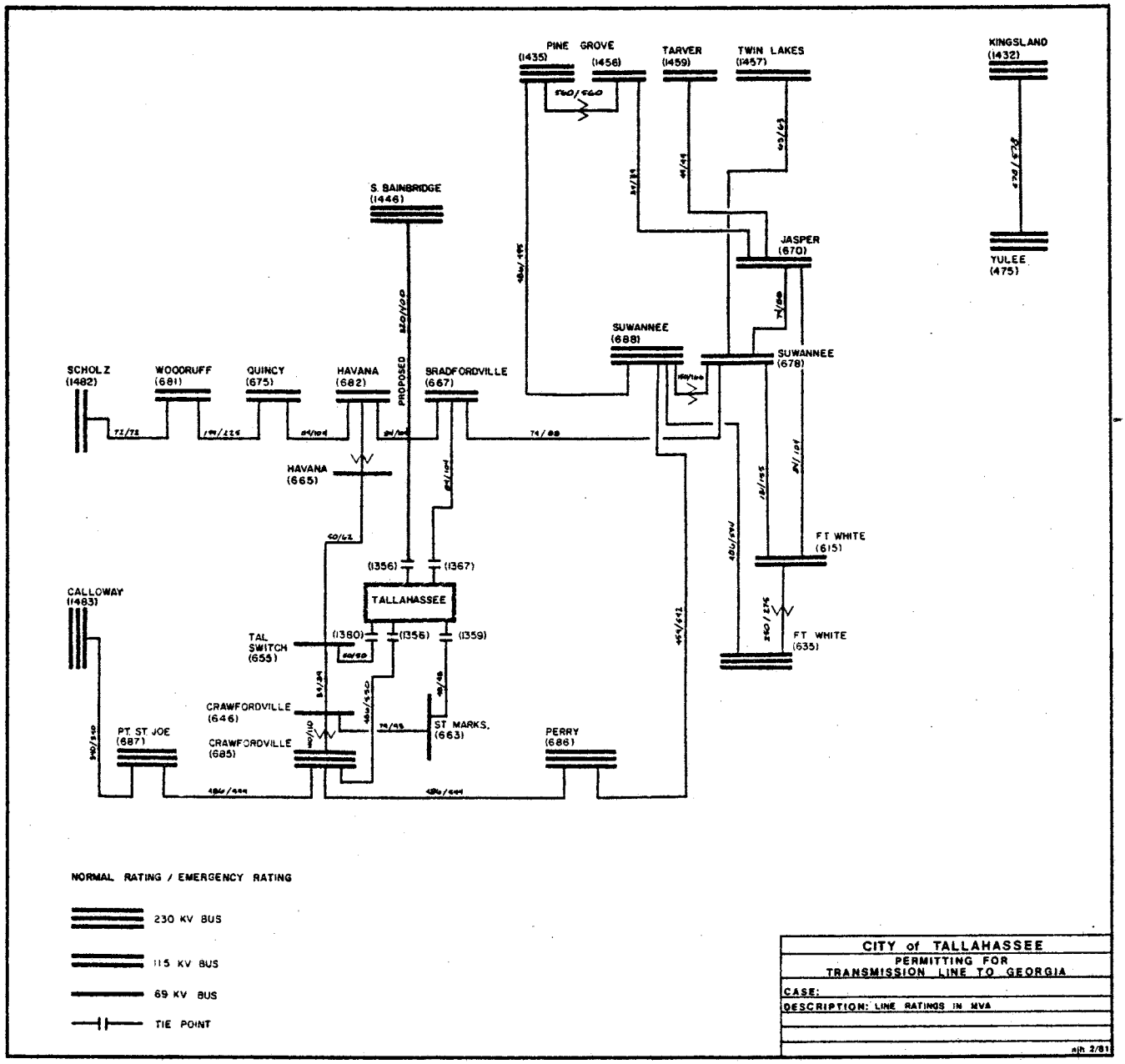
Georgia Tie Not in Service; 500 MW Import from Southern to Florida; Tallahassee Net Interchange 250 MW, 11 MW from Crystal River #3, 139 MW from Florida Power Corporation and 100 MW from Southern

CASE II-G Summer 1982 - Maximum Import

Georgia Tie Not in Service; 500 MW Import from Southern to Florida; Tallahassee Net Interchange 150 MW, 11 MW from Crystal River #3, 139 MW from Florida Power Corporation and 100 MW from Southern

IMAGE QUALITY

AS YOU REVIEW THE NEXT FEW PAGES, PLEASE NOTE THAT THE ORIGINAL DOCUMENT WAS OF POOR QUALITY.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JASPER
(670)
YULEE
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ST MARKS.
(663)
PERRY
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NORMAL RATING / EMERGENCY RATING
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69 KV BUS
TIE POINT
CITY of TALLAHASSEE
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CASE:
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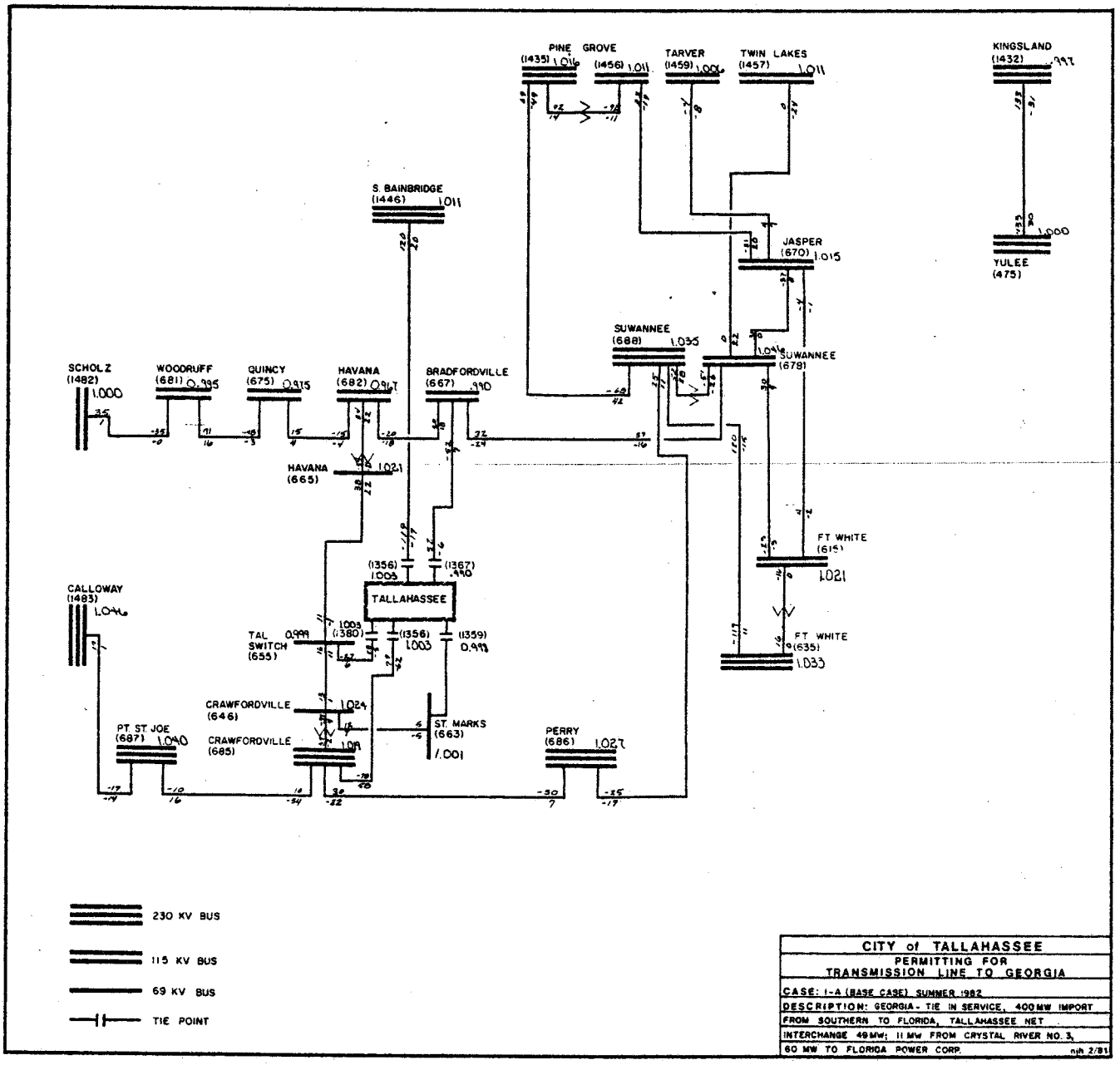
ajh 2/81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ST. MARKS
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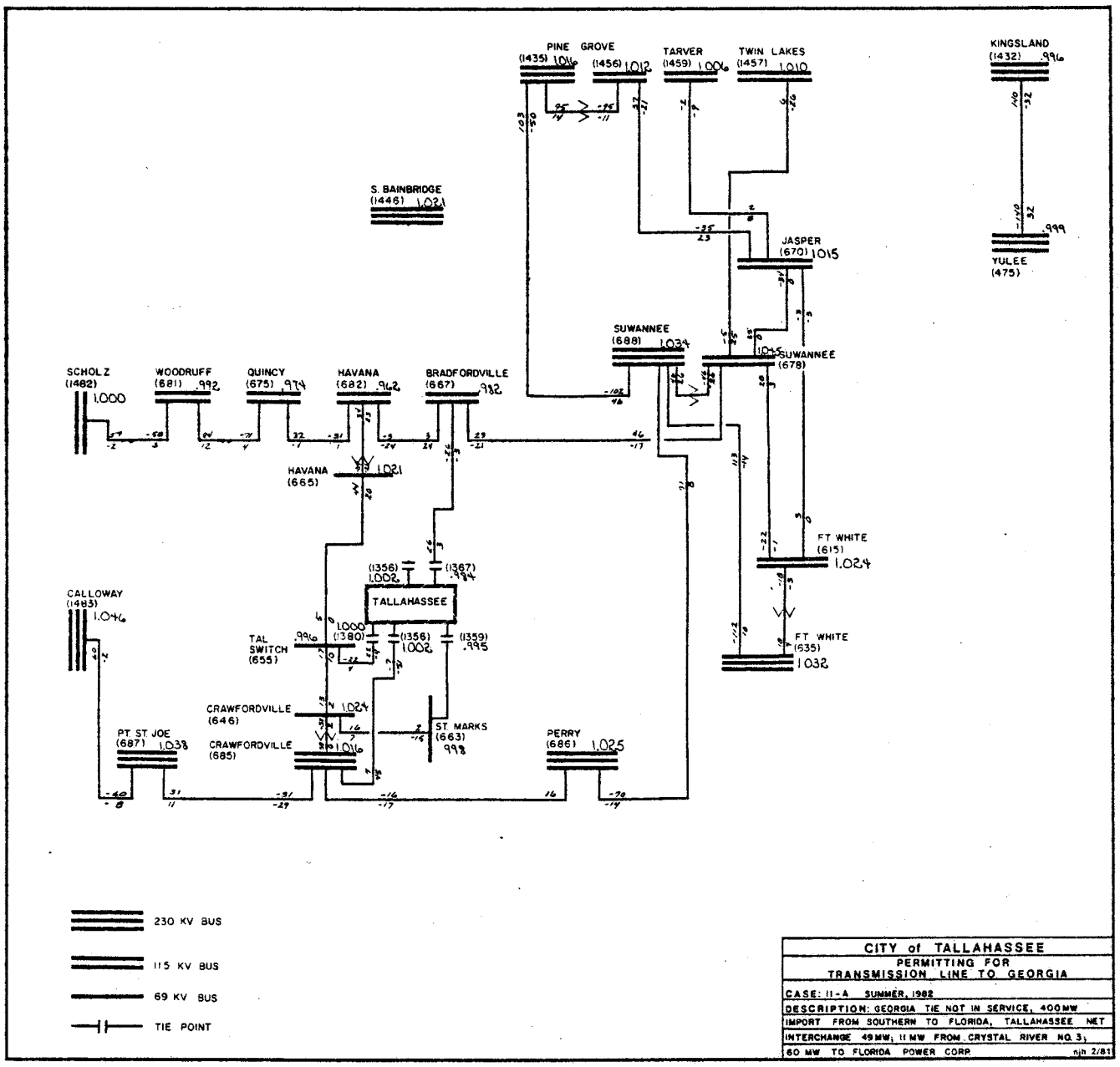
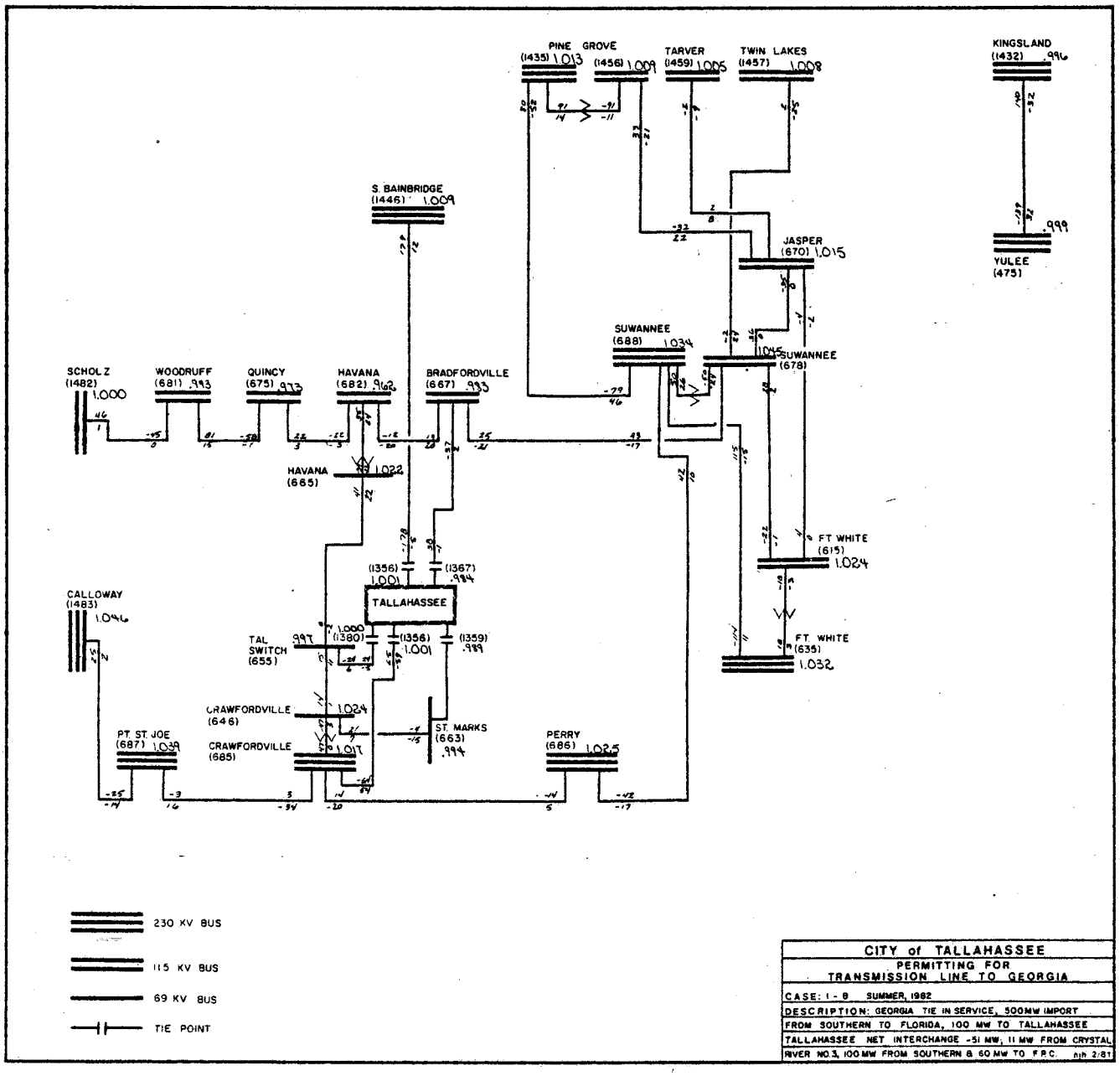
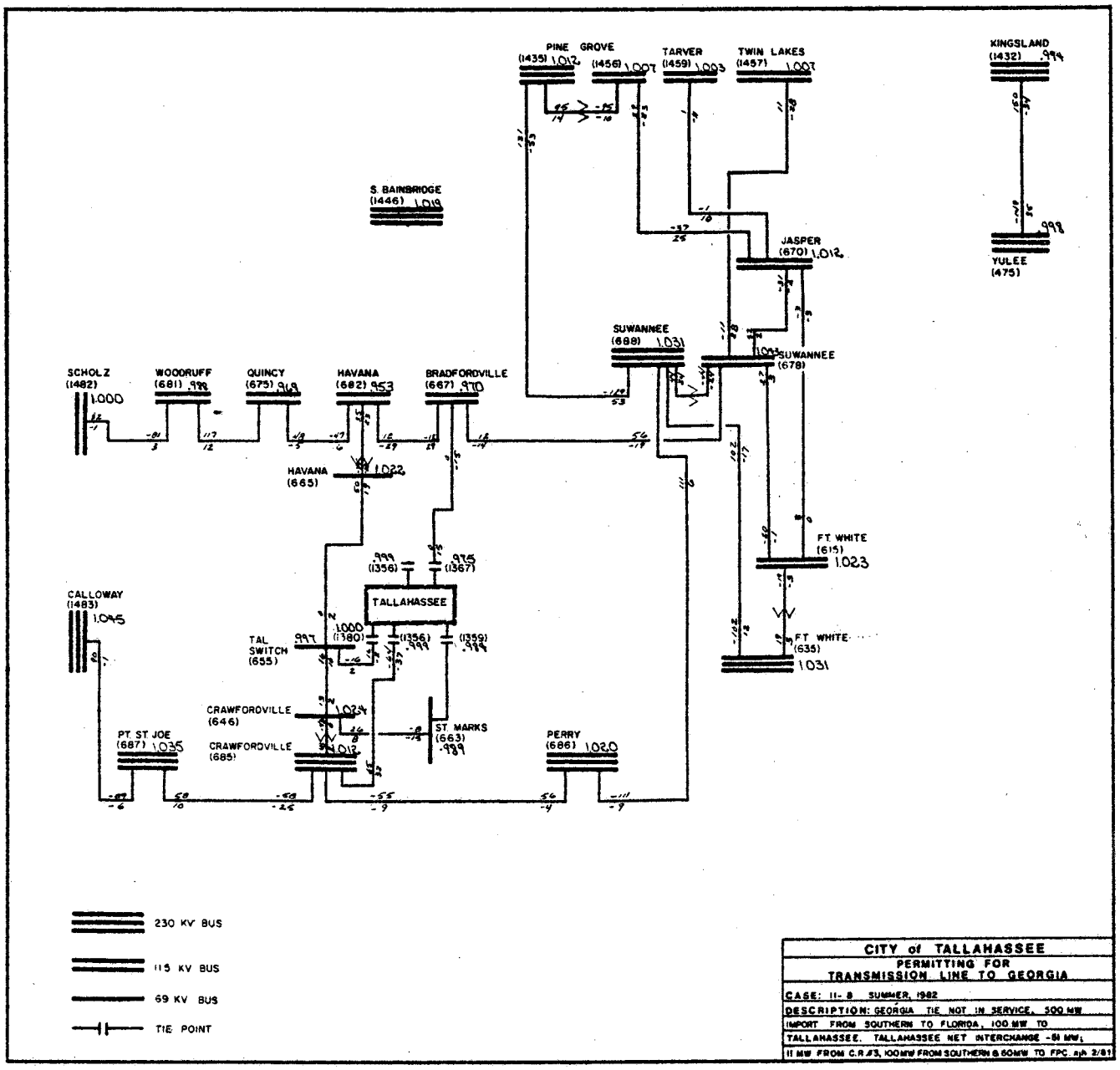
1.001
PT. ST JOE
(687) 1.040
CRAWFORDVILLE
(685) 1.019
PERRY
(686) 1.027
230 KV BUS
115 KV BUS
69 KV BUS
TIE POINT
CITY of TALLAHASSEE
PERMITTING FOR
TRANSMISSION LINE TO GEORGIA
CASE: 1-A (BASE CASE) SUMMER 1982
DESCRIPTION: GEORGIA - TIE IN SERVICE, 400 MW IMPORT
FROM SOUTHERN TO FLORIDA, TALLAHASSEE NET
INTERCHANGE 49 MW; 11 MW FROM CRYSTAL RIVER NO. 3,
60 MW TO FLORIDA POWER CORP.
mh 2/81



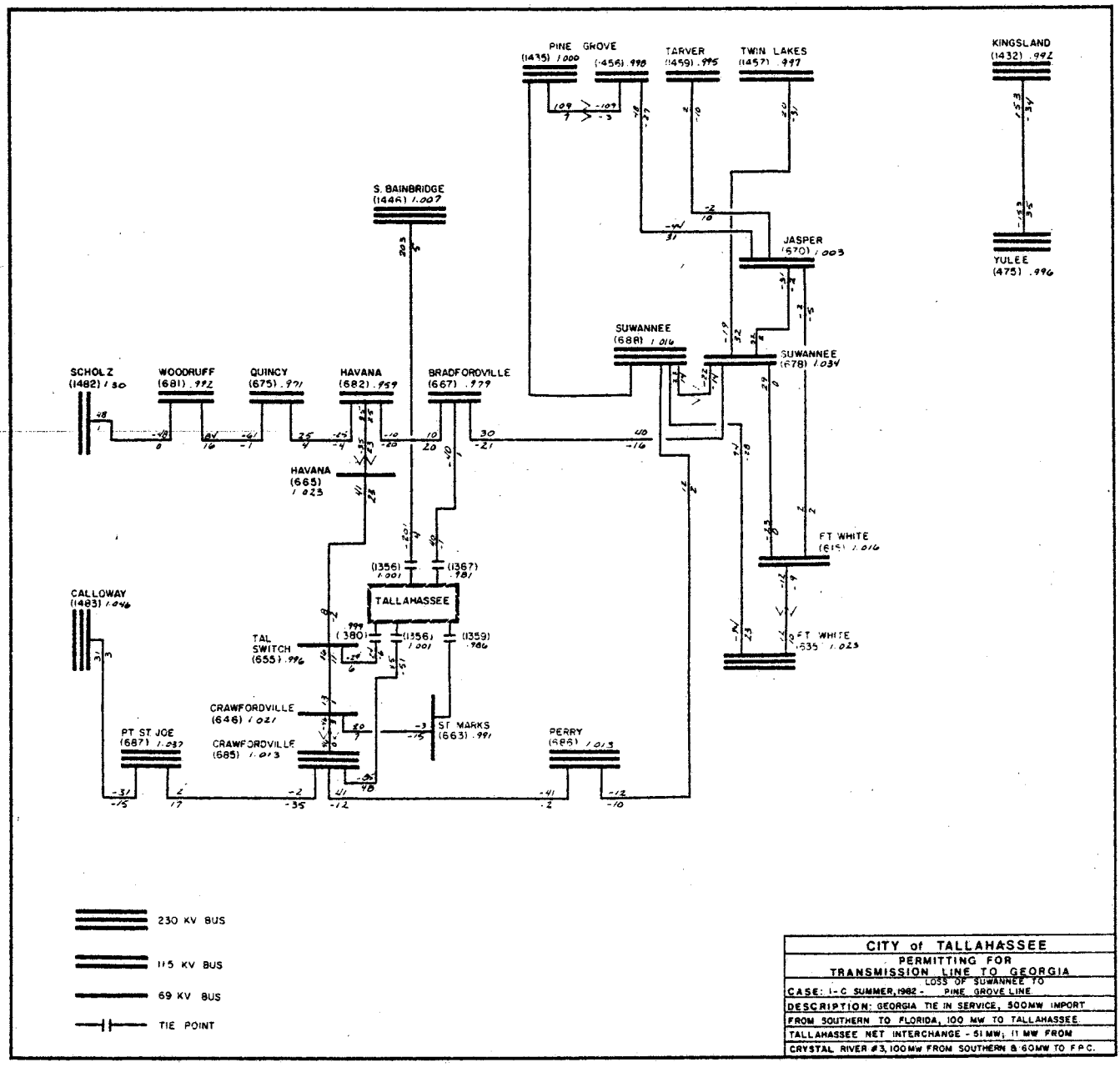
CITY of TALLAHASSEE
PERMITTING FOR TRANSMISSION LINE TO GEORGIA
CASE: II-A SUMMER, 1982
DESCRIPTION: GEORGIA TIE NOT IN SERVICE, 400 MW
IMPORT FROM SOUTHERN TO FLORIDA, TALLAHASSEE NET
INTERCHANGE 49 MW; 11 MW FROM CRYSTAL RIVER NO 3;
60 MW TO FLORIDA POWER CORP. njh 2/81



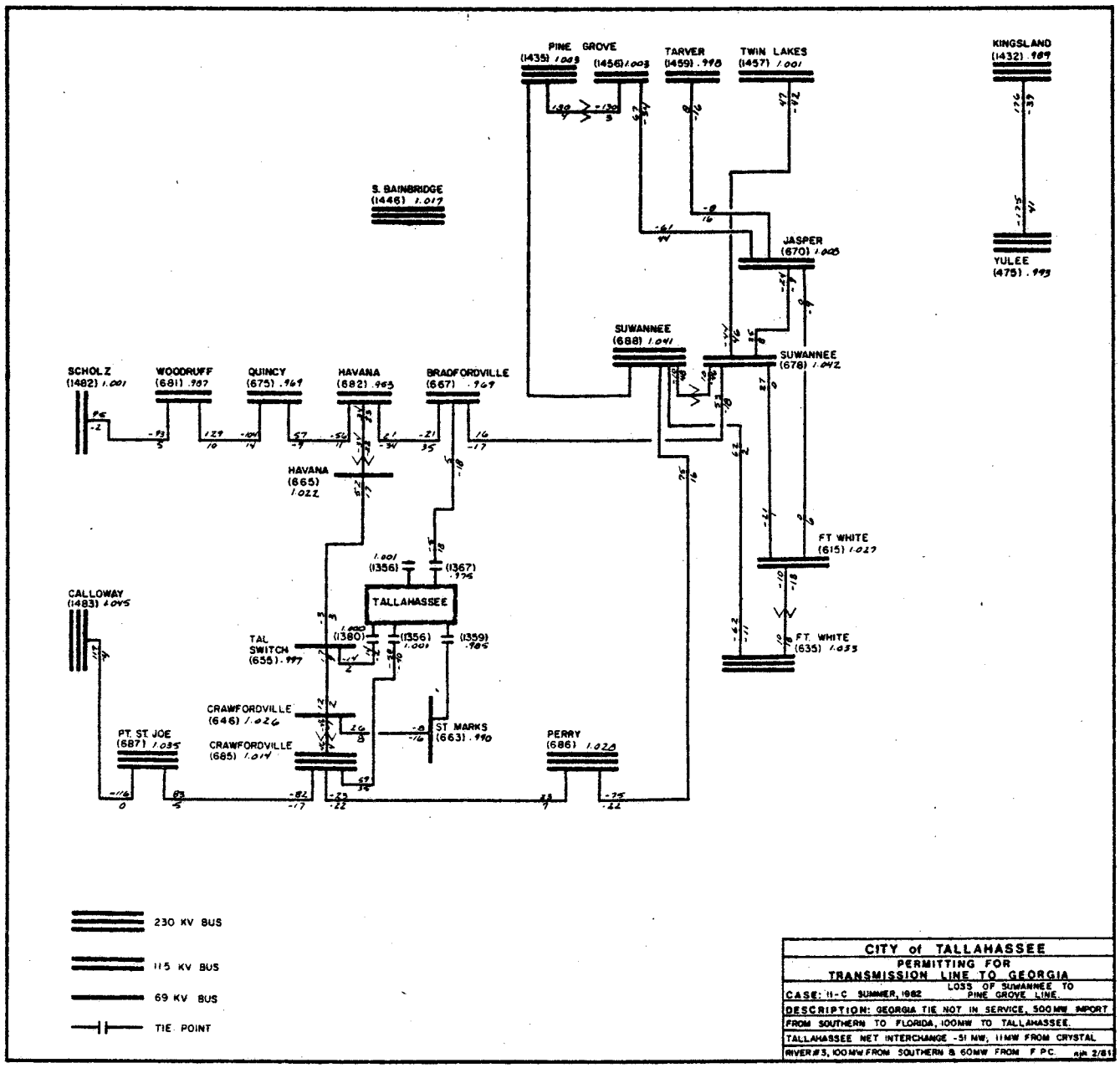
CITY of TALLAHASSEE
PERMITTING FOR TRANSMISSION LINE TO GEORGIA
CASE: 1 - B SUMMER, 1982
DESCRIPTION: GEORGIA TIE IN SERVICE, 500MW IMPORT
FROM SOUTHERN TO FLORIDA, 100 MW TO TALLAHASSEE
TALLAHASSEE NET INTERCHANGE -51 MW; 11 MW FROM CRYSTAL
RIVER NO.3, 100 MW FROM SOUTHERN @ 60 MW TO F.P.C. nh 2/81



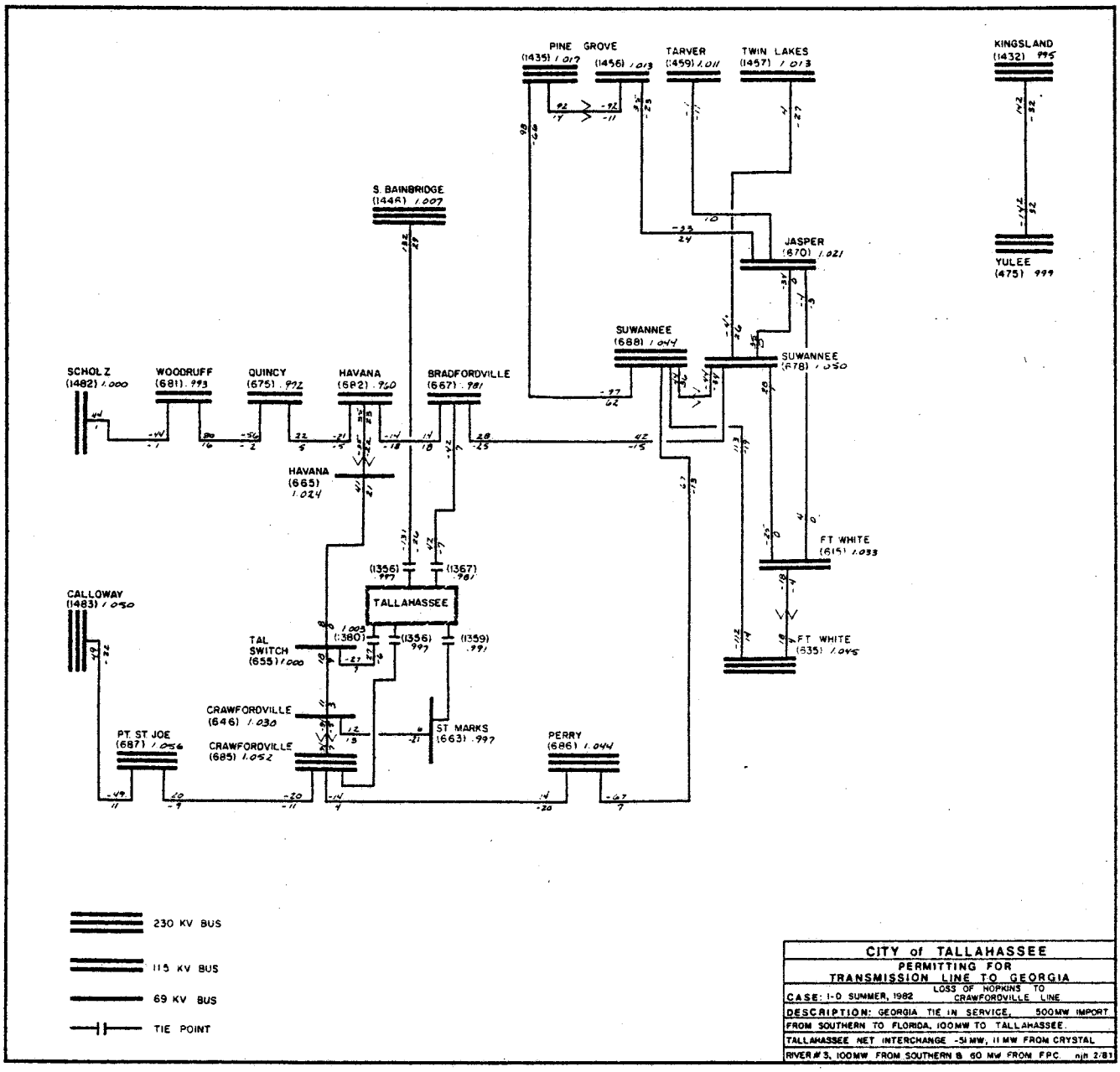
CITY of TALLAHASSEE
PERMITTING FOR TRANSMISSION LINE TO GEORGIA
CASE: 11- 8 SUMMER, 1982
DESCRIPTION: GEORGIA TIE NOT IN SERVICE. 500 MW IMPORT FROM SOUTHERN TO FLORIDA, 100 MW TO TALLAHASSEE. TALLAHASSEE NET INTERCHANGE -61 MW; 11 MW FROM C.R.#3, 100 MW FROM SOUTHERN & 60 MW TO FPC. a/h 2/81



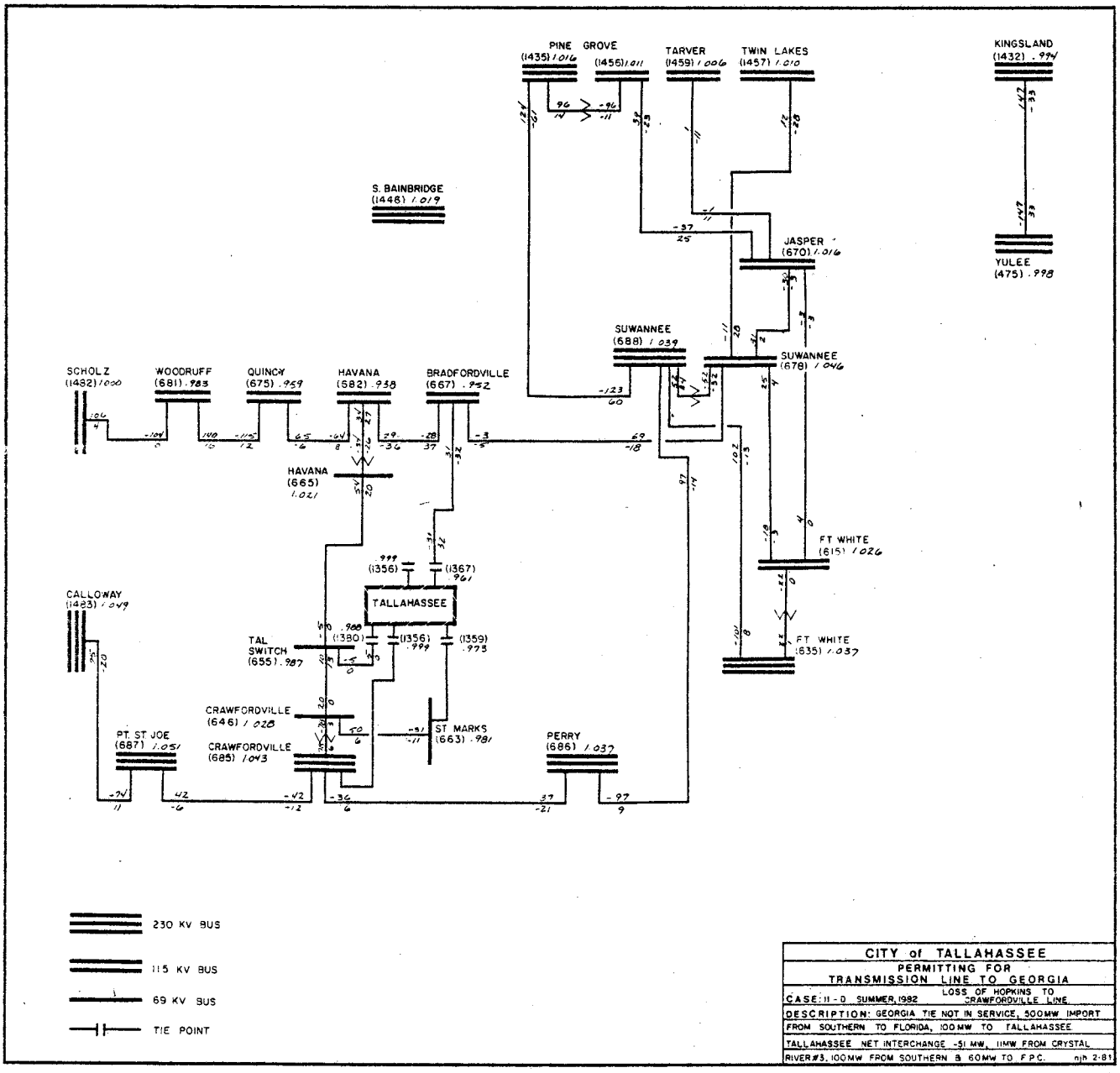
CITY of TALLAHASSEE
PERMITTING FOR TRANSMISSION LINE TO GEORGIA
CASE: 1-C SUMMER, 1982 - LOSS OF SUWANNEE TO PINE GROVE LINE
DESCRIPTION: GEORGIA TIE IN SERVICE, 500MW IMPORT
FROM SOUTHERN TO FLORIDA, 100 MW TO TALLAHASSEE.
TALLAHASSEE NET INTERCHANGE - 51 MW; 11 MW FROM
CRYSTAL RIVER #3, 100 MW FROM SOUTHERN & 60 MW TO F.P.C.



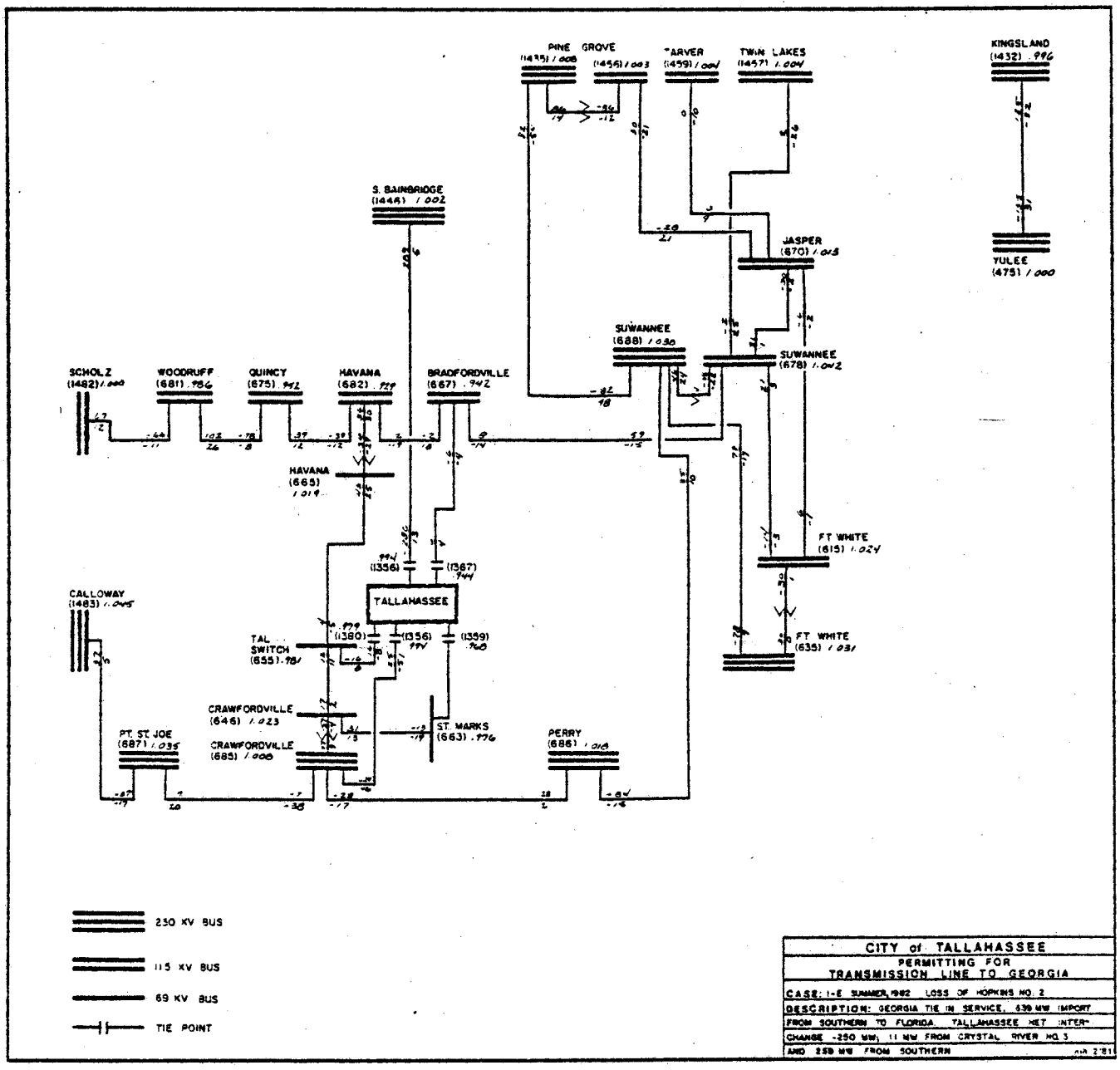
CITY of TALLAHASSEE
PERMITTING FOR TRANSMISSION LINE TO GEORGIA
CASE: 11-C SUMMER, 1982 LOSS OF SUWANNEE TO PINE GROVE LINE
DESCRIPTION: GEORGIA TIE NOT IN SERVICE, 500 MW IMPORT FROM SOUTHERN TO FLORIDA, 100MW TO TALLAHASSEE.
TALLAHASSEE NET INTERCHANGE -51 MW, 11MW FROM CRYSTAL RIVER #3, 100 MW FROM SOUTHERN & 60MW FROM F P C. ajh 2/81



CITY of TALLAHASSEE
PERMITTING FOR TRANSMISSION LINE TO GEORGIA
CASE: 1-D SUMMER, 1982 LOSS OF HOPKINS TO CRAWFORDVILLE LINE
DESCRIPTION: GEORGIA TIE IN SERVICE, 500MW IMPORT
FROM SOUTHERN TO FLORIDA, 100MW TO TALLAHASSEE.
TALLAHASSEE NET INTERCHANGE -51 MW, 11 MW FROM CRYSTAL
RIVER # 3, 100MW FROM SOUTHERN & 60 MW FROM FPC. njh 2/81



CITY of TALLAHASSEE
PERMITTING FOR TRANSMISSION LINE TO GEORGIA
CASE: 11 - 0 SUMMER, 1982 LOSS OF HOPKINS TO CRAWFORDVILLE LINE
DESCRIPTION: GEORGIA TIE NOT IN SERVICE, 500MW IMPORT
FROM SOUTHERN TO FLORIDA, 100 MW TO TALLAHASSEE
TALLAHASSEE NET INTERCHANGE -51 MW, 11MW FROM CRYSTAL
RIVER #3, 100MW FROM SOUTHERN & 60MW TO F.P.C. njh 2-81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YULEE (4751) / 000
SUWANNEE (688) / 030
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250 KV BUS
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69 KV BUS
TIE POINT
CITY of TALLAHASSEE
PERMITTING FOR
TRANSMISSION LINE TO GEORGIA
CASE: 1-E SUMMER, 1982 LOSS OF HOPKINS NO. 2
DESCRIPTION: GEORGIA TIE IN SERVICE, 539 MW IMPORT
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CHANGE -250 MW; 11 MW FROM CRYSTAL RIVER NO. 3
AND 250 MW FROM SOUTHERN
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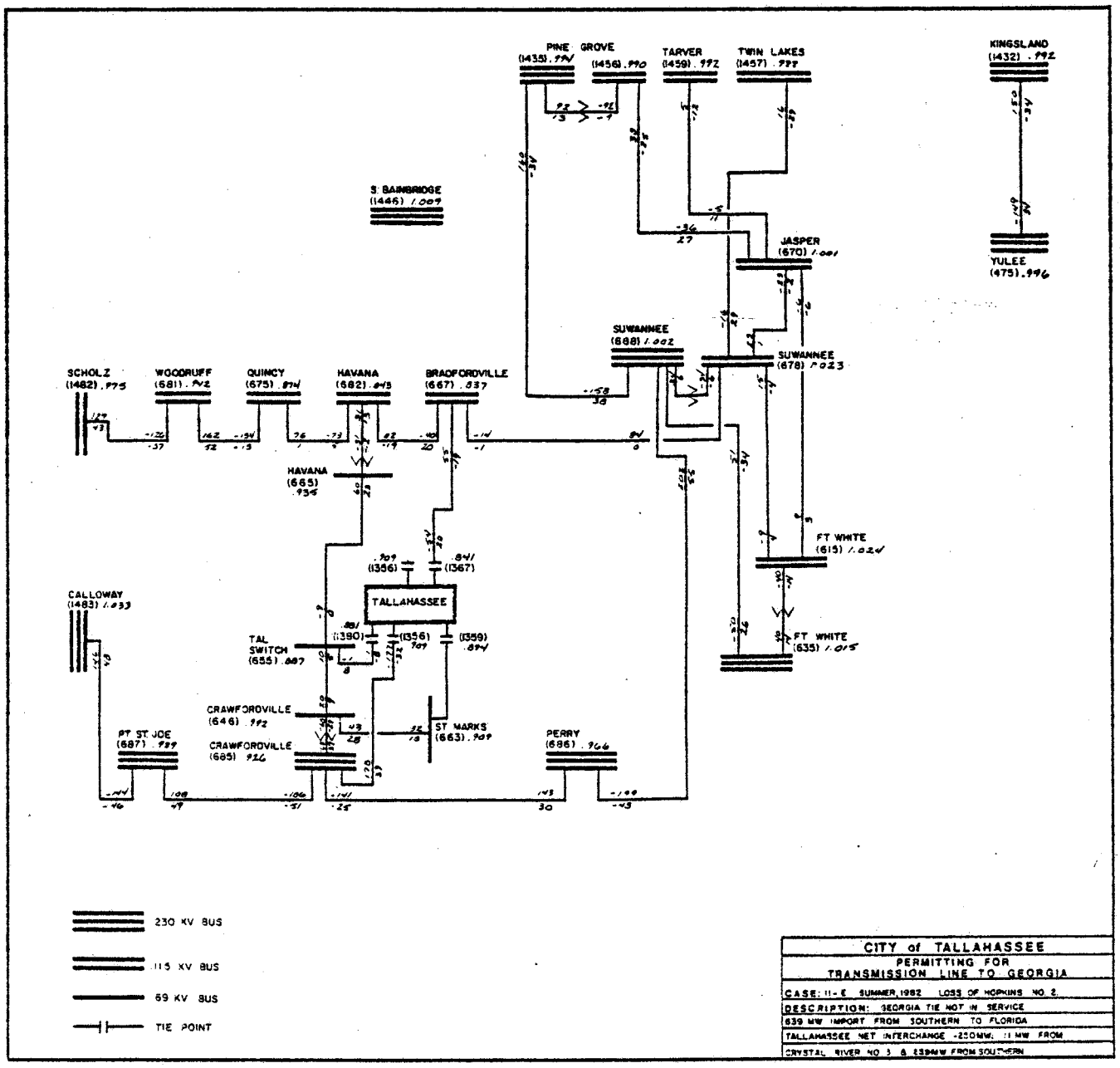
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SUWANNEE
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TALLAHASSEE
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SWITCH
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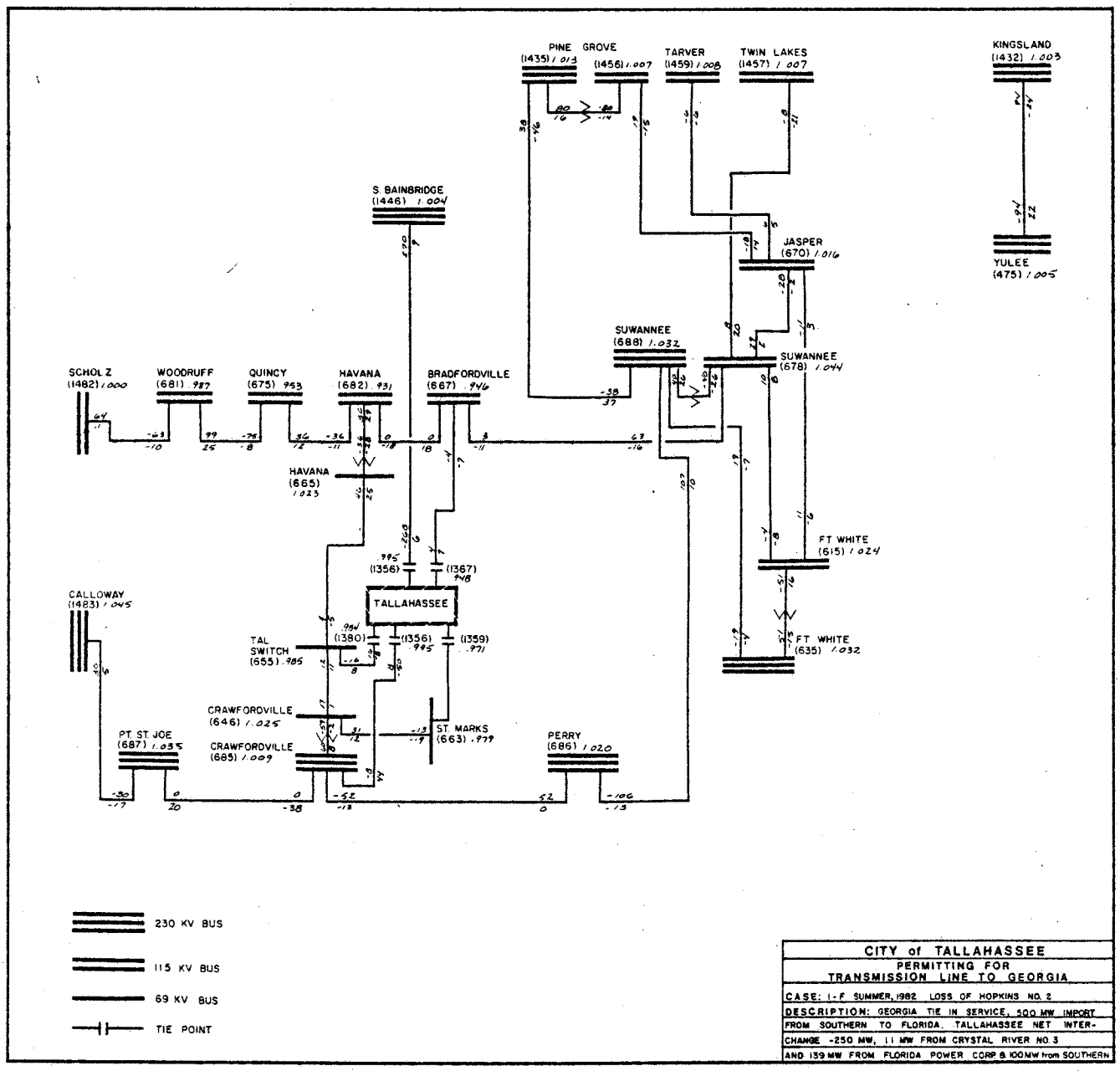
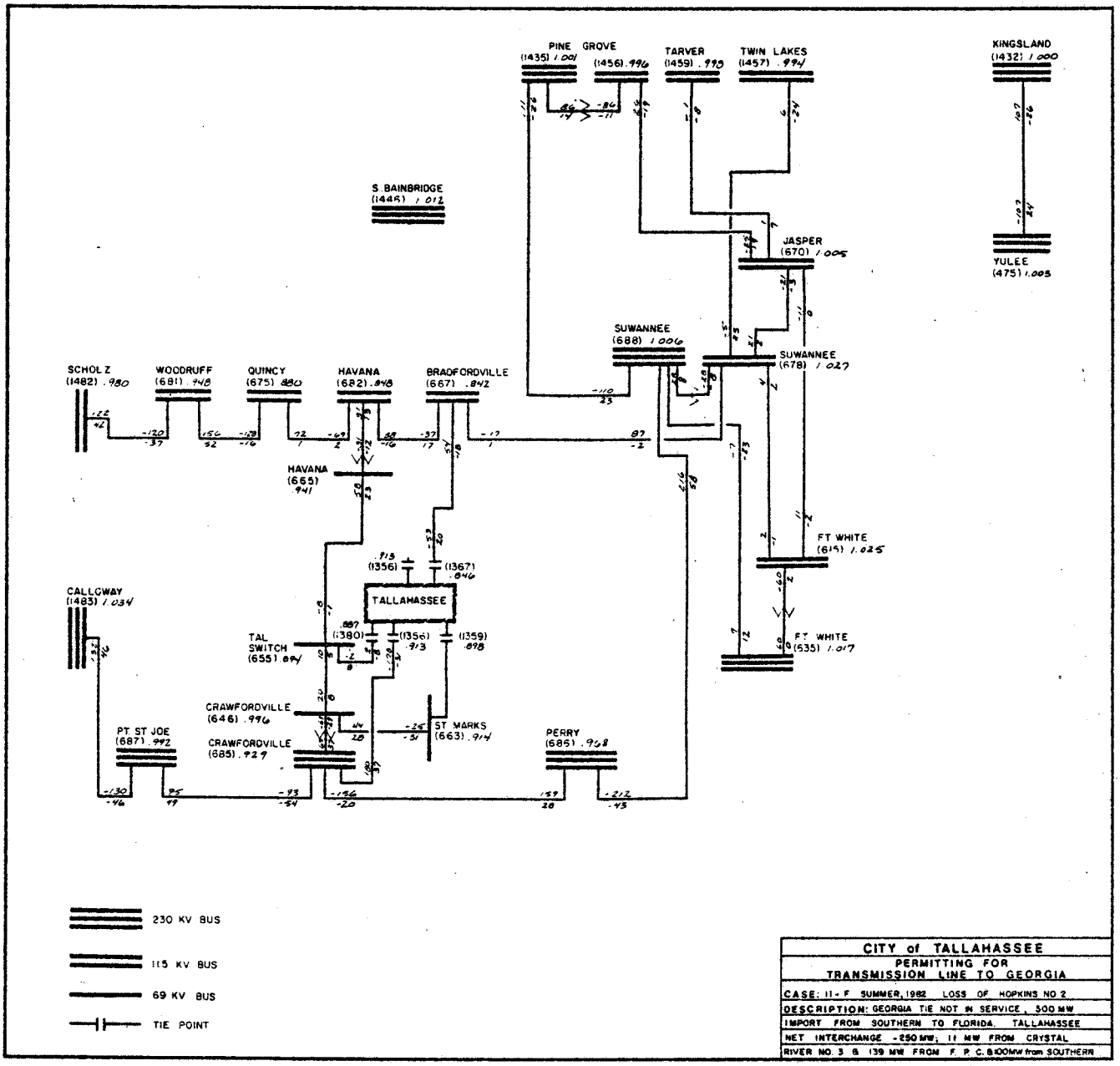
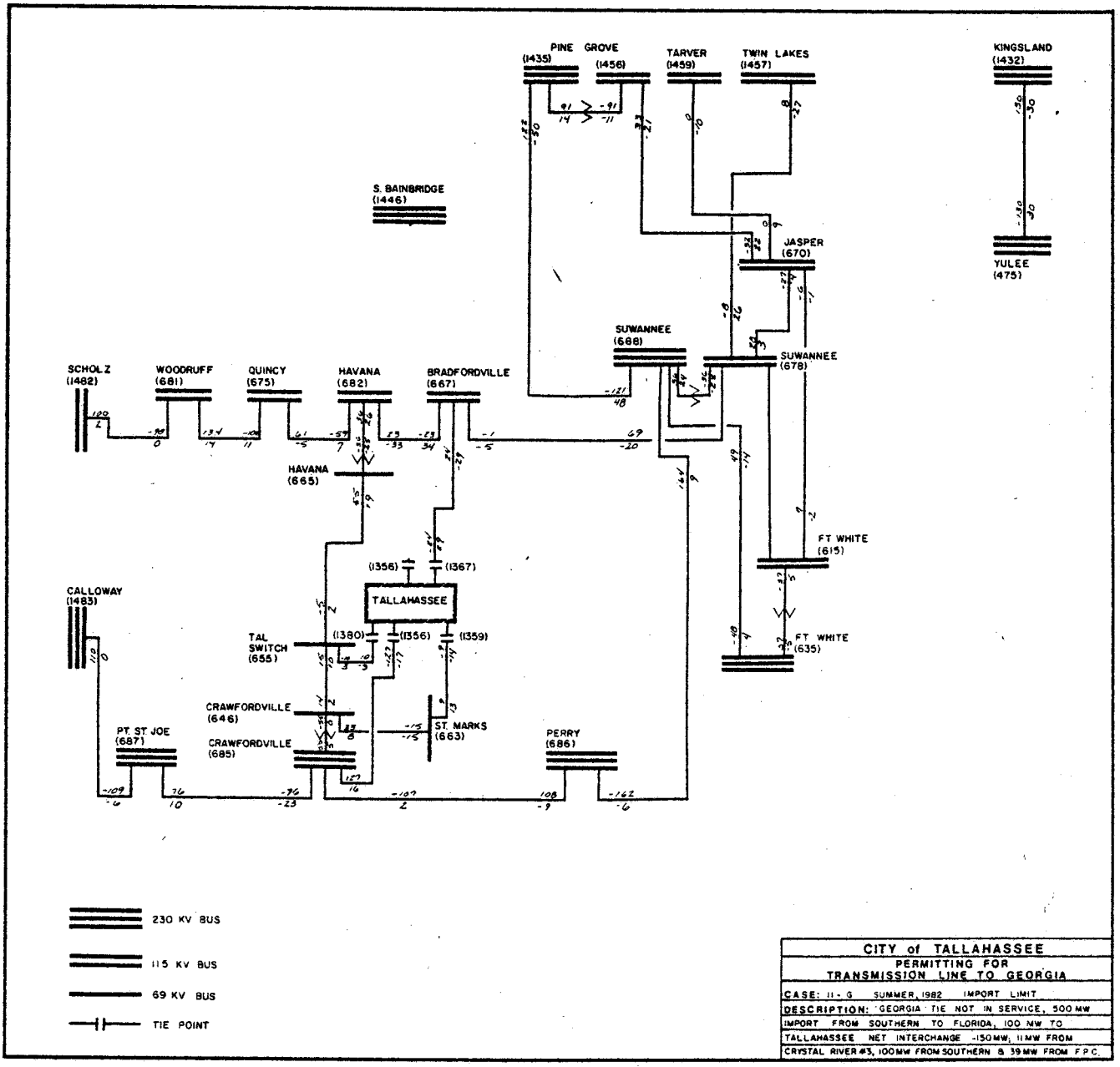
709
(1359)
.894
FT WHITE
(635) 1.015
CRAWFORDVILLE
(646) .992
ST MARKS
(663) .909
PT ST JOE
(687) .999
CRAWFORDVILLE
(685) .926
PERRY
(686) .964
230 KV BUS
115 KV BUS
69 KV BUS
TIE POINT
CITY of TALLAHASSEE
PERMITTING FOR
TRANSMISSION LINE TO GEORGIA
CASE: 11-E SUMMER, 1982 LOSS OF HOPKINS NO. 2
DESCRIPTION: GEORGIA TIE NOT IN SERVICE
639 MW IMPORT FROM SOUTHERN TO FLORIDA
TALLAHASSEE NET INTERCHANGE -250MW; 11 MW FROM
CRYSTAL RIVER NO 3 & 239MW FROM SOUTHERN



CITY of TALLAHASSEE
PERMITTING FOR TRANSMISSION LINE TO GEORGIA
CASE: 1-F SUMMER, 1982 LOSS OF HOPKINS NO. 2
DESCRIPTION: GEORGIA TIE IN SERVICE, 500 MW IMPORT FROM SOUTHERN TO FLORIDA. TALLAHASSEE NET INTER-
CHANGE -250 MW; 11 MW FROM CRYSTAL RIVER NO. 3
AND 139 MW FROM FLORIDA POWER CORP & 100 MW from SOUTHERN



CITY of TALLAHASSEE
PERMITTING FOR TRANSMISSION LINE TO GEORGIA
CASE: 11 - F SUMMER, 1982 LOSS OF HOPKINS NO 2
DESCRIPTION: GEORGIA TIE NOT IN SERVICE, 500 MW IMPORT FROM SOUTHERN TO FLORIDA. TALLAHASSEE NET INTERCHANGE -250 MW; 11 MW FROM CRYSTAL RIVER NO. 3 & 139 MW FROM F. P. C. & 100MW from SOUTHERN



CITY of TALLAHASSEE
PERMITTING FOR TRANSMISSION LINE TO GEORGIA
CASE: II - G SUMMER, 1982 IMPORT LIMIT
DESCRIPTION: GEORGIA TIE NOT IN SERVICE, 500 MW
IMPORT FROM SOUTHERN TO FLORIDA, 100 MW TO
TALLAHASSEE NET INTERCHANGE -150 MW; 11 MW FROM
CRYSTAL RIVER #3, 100 MW FROM SOUTHERN & 39 MW FROM F.P.C.

APPENDIX B

JOINT APPLICATION
DEPARTMENT OF THE ARMY/FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
FOR
ACTIVITIES IN WATERS OF THE STATE OF FLORIDA

JOINT APPLICATION
DEPARTMENT OF THE ARMY/FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
FOR
ACTIVITIES IN WATERS OF THE STATE OF FLORIDA

Refer to Instruction Pamphlet for explanation of numbered items and attachments required.

1. Application number (To be assigned)	2. Date 2 (Day) 4 (Mo.) 81 (Yr.)	3. For official use only

4. Name, address and zip code of applicant

City of Tallahassee
Electric Department
2602 Jackson Bluff Road
Tallahassee, Florida 32301

Telephone Number (904) 576-1171

5. Name, address, zip code and title of applicant's authorized agent for permit application coordination

N/A

Telephone Number _____

6. Describe the proposed activity, its purpose and intended use, including a description of the type of structures, if any, to be erected on fills, or pipe or float-supported platforms, and the type, composition and quantity of materials to be discharged or dumped and means of conveyance.

Construction of a 230 kV transmission line which will cross the Ochlockonee River and some wetlands. This construction will include selective clearing of trees and shrubs along the right-of-way corridor. If structures must be placed in wetland areas, "keyholes" will be used as shown in Figure 4 of 4 attached.

Volume of Material:	Dredged/Excavated		Filled/Deposited	
	_____ CY Waterward of O.H.W. or M.H.W.	_____ CY Landward of O.H.W. or M.H.W.	_____ CY Waterward of O.H.W. or M.H.W.	_____ CY Landward of O.H.W. or M.H.W.

7. Proposed use

Private [ ] Public [X] Commercial [ ] Other [ ] (Explain in remarks)

8. Name and address including zip code of adjoining property owners whose property also adjoins the waterway.

9. Location where proposed activity exists or will occur

Street address _____

Longitude 84° 23' Latitude 30° 37' (If known) (River Crossing)

Sec. 24 Twp. 2N Rge. 2W

Florida	Gadsden/Leon		Havana
State	County	In City or Town	Near City or Town

10. Name of waterway at location of the activity Ochlockonee River

11. Date activity is proposed to commence — 30 days after receipt of permit
    Date activity is expected to be completed — 12 months after receipt of permit.

12. Is any portion of the activity for which authorization is sought now complete? Yes [ ] No [X]
    If answer is "Yes" give reasons in the remarks section. Month and year the activity was completed _____
    _____ _____. Indicate the existing work on the drawings.

13. List all approvals or certifications required by other Federal interstate, state or local agencies for any structures, construction, discharges, deposits or other activities described in this application, including whether the project is a Development of Regional impact.

Issuing Agency	Type of Approval	Identification No.	Date of Application	Date of Approval
Department of Environmental Regulation	Corridor Certification		4/2/81	—

14. Has any agency denied approval for the activity described herein or for any activity directly related to the activity described herein?
    Yes [ ] No [X] (If "Yes" explain in remarks)

15. Remarks (see Instruction Pamphlet for additional information required for certain activities)

Transmission line may require wetland crossings in an area approximately 1.6 miles south of the river crossing. This area is shown on Figure 2-6a of the Application for Transmission Line Certification submitted with this joint application. If structures must be placed in wetlands, "keyhole" filling will be utilized as illustrated in Figure 4 of 4 attached.

16. Application is hereby made for a permit or permits to authorize the activities described herein. I agree to provide any additional information/data that may be necessary to provide reasonable assurance or evidence to show that the proposed project will comply with the applicable State Water Quality Standards or other environmental protection standards both during construction and after the project is completed. I also agree to provide entry to the project site for inspectors from the environmental protection agencies for the purpose of making preliminary analyses of the site and monitoring permitted works, if permit is granted. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

David A. Klem — Signature of Applicant

3/27/81 — Date

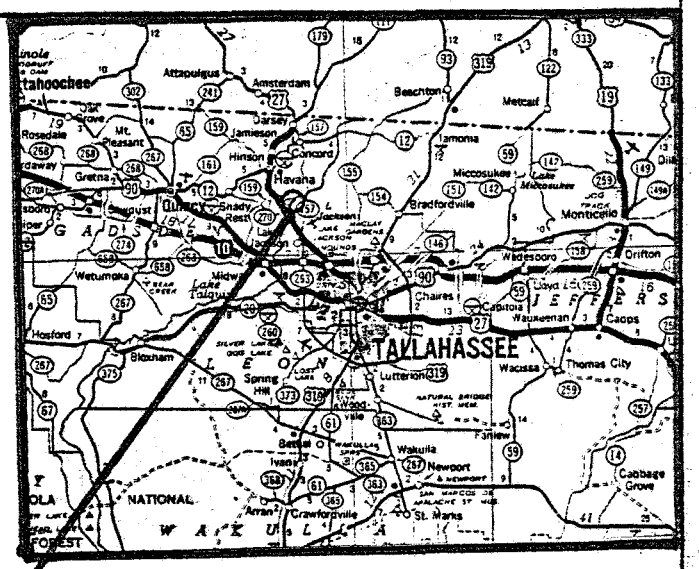
18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both.

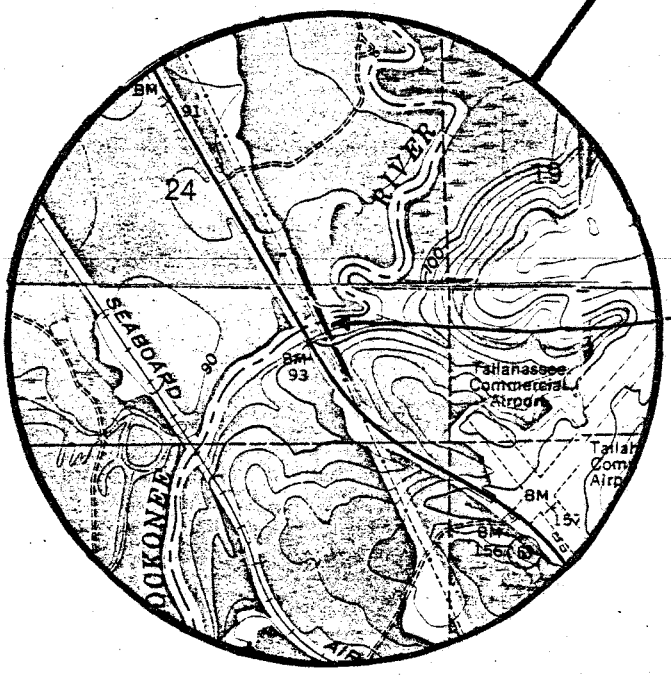
The application must be signed by the person who desires to undertake the proposed activity; however, the application may be signed by a duly authorized agent if accompanied by a statement by that person designating the agent and agreeing to furnish upon request, supplemental information in support of the application.

FEE: Attach Checks/Money Orders on front
Payable to Department of Environmental Regulation
$200 Standard form projects
$20 Short forms and Chapter 403 projects only

CITY OF TALLAHASSEE
PROPOSED 230 KV TRANSMISSION LINE

LOCATOR MAPS





PROPOSED RIVER CROSSING

PURPOSE: 230 KV TRANSMISSION LINE

DATUM:

ADJACENT PROPERTY OWNERS:

River Crossing
Michael Harbin (Gadsden Co.)
Richard L. Wilson (Leon Co.)

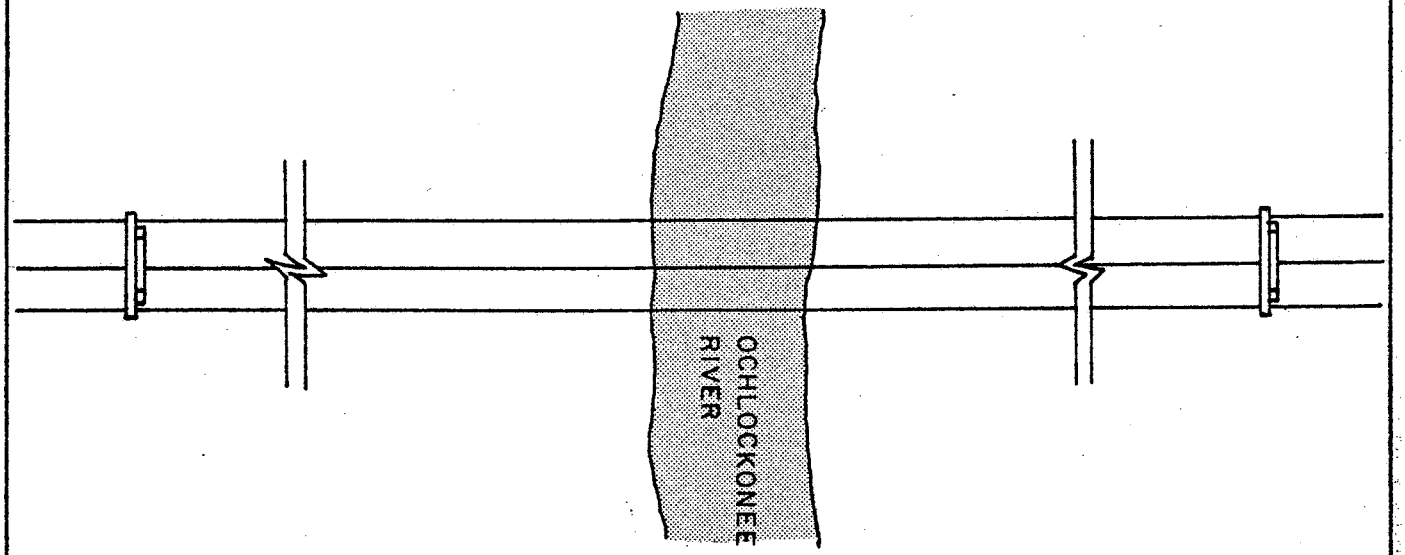
IN OCHLOCKONEE RIVER

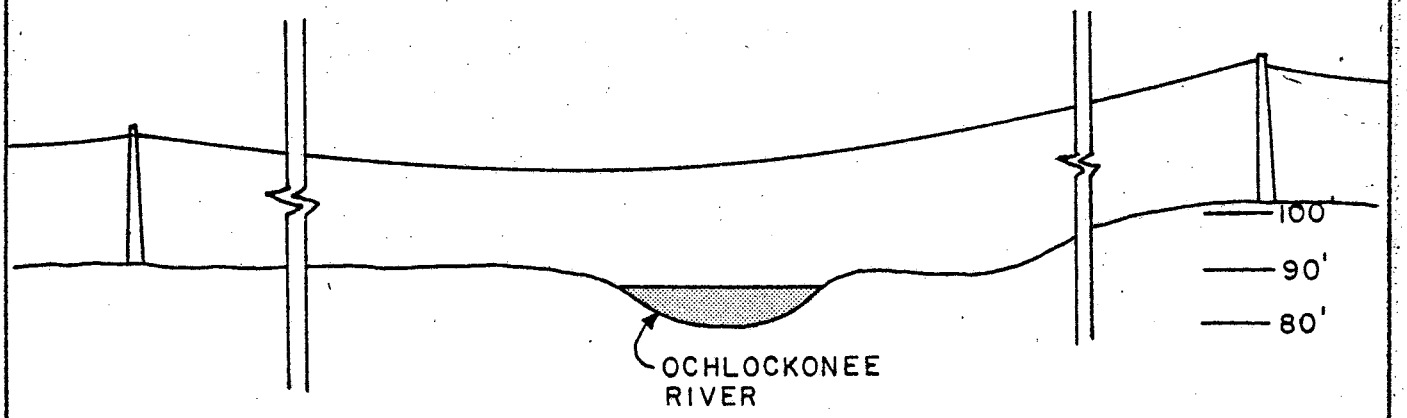
AT

COUNTY OF LEON/GADSDEN STATE FLORIDA

APPLICATION BY

CITY OF TALLAHASSEE
PROPOSED 230KV TRANSMISSION LINE





PURPOSE: 230KV TRANSMISSION LINE

DATUM

ADJACENT PROPERTY OWNERS:

River Crossing
Michael Harbin (Gadsden Co.)
Richard L. Wilson (Leon Co.)

IN OCHLOCKONEE RIVER

AT

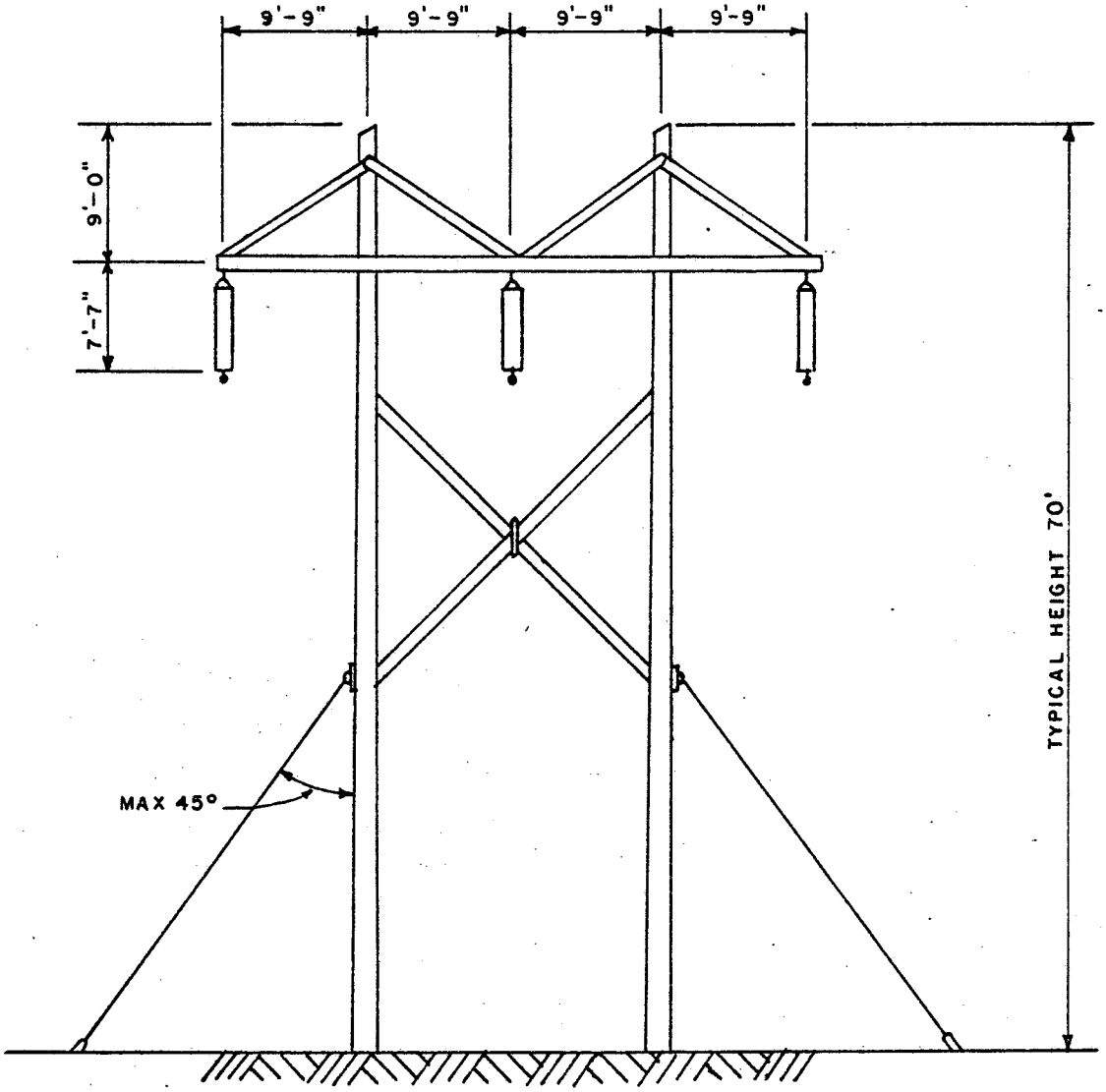
COUNTY OF LEON/GADSDEN STATE FLORIDA

APPLICATION BY

SHEET 2 OF 4 DATE 4-2-81

CITY OF TALLAHASSEE

PROPOSED 230 KV TRANSMISSION LINE



TYPICAL 230 KV WOOD H-FRAME STRUCTURE

PURPOSE: 230KV TRANSMISSION LINE

DATUM:

ADJACENT PROPERTY OWNERS:

River Crossing
Michael Harbin (Gadsden Co.)
Richard L. Wilson (Leon Co.)

IN OCHLOCKONEE RIVER

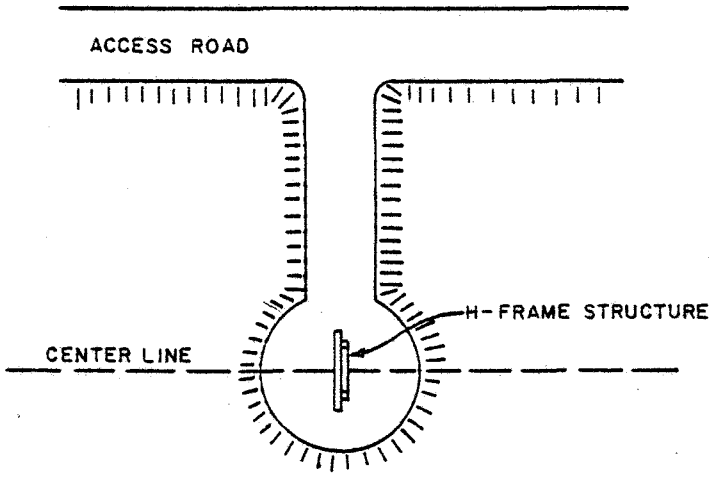
AT

COUNTY OF LEON/GADSDEN STATE FLORIDA

APPLICATION BY

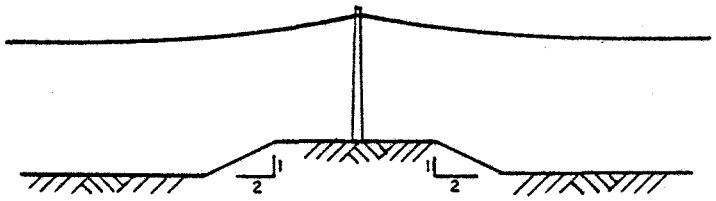
CITY OF TALLAHASSEE
PROPOSED 230 KV TRANSMISSION LINE

PLAN AND PROFILE DRAWING OF TYPICAL KEYHOLE STRUCTURE



PLAN

NOT TO SCALE



PROFILE

NOT TO SCALE

PURPOSE: 230 KV TRANSMISSION LINE

DATUM

ADJACENT PROPERTY OWNERS:

① Pond Crossing Near Tower Road
② William Wilson (Leon Co.)

IN OCHLOCKONEE RIVER

AT

COUNTY OF LEON/GADSDEN STATE FLORIDA

APPLICATION BY

SHEET 4 OF 4 DATE 4-2-81

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