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APPENDIX 2A

POPULATION AND LAND USE

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UNIVERSITY OF FLORIDA  
COLLEGE OF BUSINESS ADMINISTRATION  
GAINESVILLE 32603

BUREAU OF ECONOMIC & BUSINESS RESEARCH  
221 MATHERLY HALL

May 5, 1967

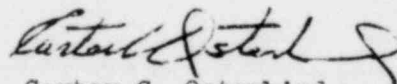
Mr. W. R. Dreyer  
Florida Power Corporation  
Box 14042  
St. Petersburg, Fla.

Dear Mr. Dreyer:

The report prepared by Mr. Ronald Beller and Mr. Robert Pickhardt of our staff, projecting the population and land use within specified distances from your proposed Crystal River plant, has been transmitted to you under separate cover so that it would be available for incorporation into your total report.

The purpose of this letter is to affirm that I have reviewed this report and discussed it several times with Mr. Beller and Mr. Pickhardt, and that I am in accord with the report as it has been submitted to you. The methodology and general analytical procedures they have employed conform to acceptable standards for this type of analysis.

Sincerely yours,



Carter C. Osterbind  
Director

CCO:ab

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## I Population

### 1.1 Population Centers Within 100 Miles of Plant Site.

The cities with a population of 25,000 or more on January 1, 1967 are shown in Figure 1.1. The 1960 Census population is listed by each city and the distance from the city to the site is printed on the line connecting the two points.

### 1.2 Distribution of Population Within 50 Miles of Plant Site, 1967 and 2015.

The resident population within 50 miles of the plant site for the years 1967 and 2015 is presented in Figures 1.2 through 1.7. Each of the diagrams is self-explanatory. The population projection and distribution methodology is briefly described in section 1.4.

A large portion of the area within five miles of the proposed site is under lease to a pulp and paper producer. Little population growth was anticipated in these sectors because of this lease agreement.

The area within four miles of the plant site contains at most one family at present and the area is expected to remain largely uninhabited through 2015. Some population growth is indicated for the three through five mile zones, related to development of Crystal River City and associated growth north along U.S. Route 19.

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### 1.3 Part-time Population Within 50 Miles of Plant Site.

The part-time population within the 50 mile zone is composed of out-of-state visitors and state residents from outside the zone.

Out-of-state visitors have been estimated to be approximately 10,200 per day at present, composed as follows:

7,000 per day visiting in-zone tourist attractions.

3,200 per day using major north-south highways running through 50 mile zone.

10,200 per day out-of-state visitors

The 7,000 visiting tourists per day is derived from Florida Development Commission origin-destination surveys. The highway user population is based on traffic counts on all major north-south highways in the 50 mile zone.

The portion of the part-time population that is comprised of Florida residents, are primarily weekend visitors. There are no readily available estimates of their number.

Table 1.1--Population Of Counties Within Fifty  
Mile Zone, 1960, 1966, 1967 and 2015

County	1960 Census*	County Population		2015 Projection
		1966 Estimate**	1967 Projection	
Alachua	74,100	88,900	91,800	192,000
Citrus	9,300	13,800	14,200	44,000
Dixie	4,500	5,400	5,200	4,000
Gilchrist	2,900	3,200	3,200	4,200
Hernando	11,200	13,000	13,200	44,000
Lake	57,400	64,500	66,000	135,000
Levy	10,400	12,000	12,200	20,000
Marion	51,600	63,200	65,000	130,000
Pasco	36,800	46,900	48,900	120,000
Sumter	11,900	14,500	14,900	30,000

\*U.S. Bureau of Census, 1960 Decennial Census: Rounded to nearest 100 persons.

\*\*Prepared by Bureau of Economic and Business Research, University of Florida.

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Figure 1.1--Cities With A Population of 25,000 Or More  
Within 100 Miles Of Plant Site, January 1, 1967

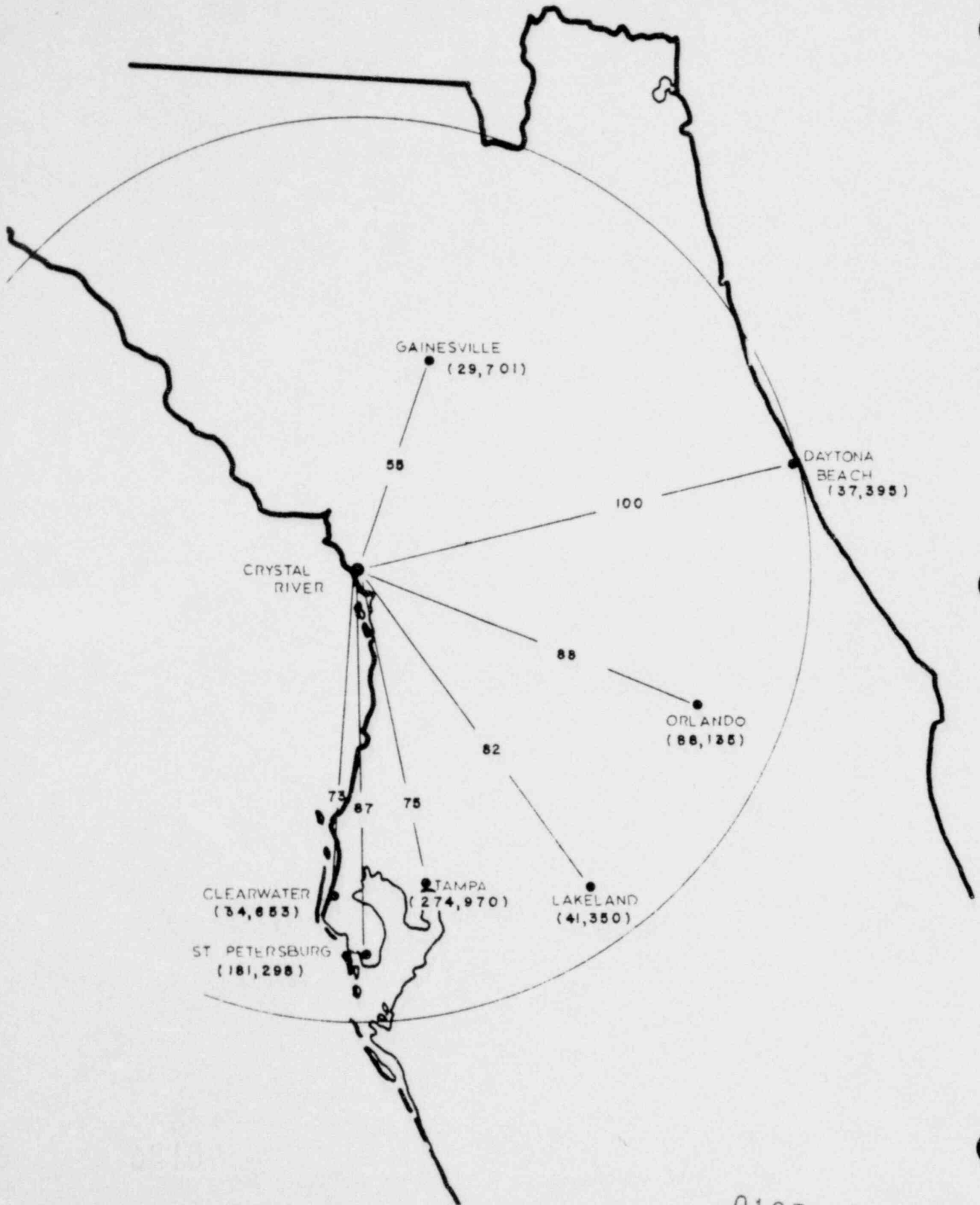
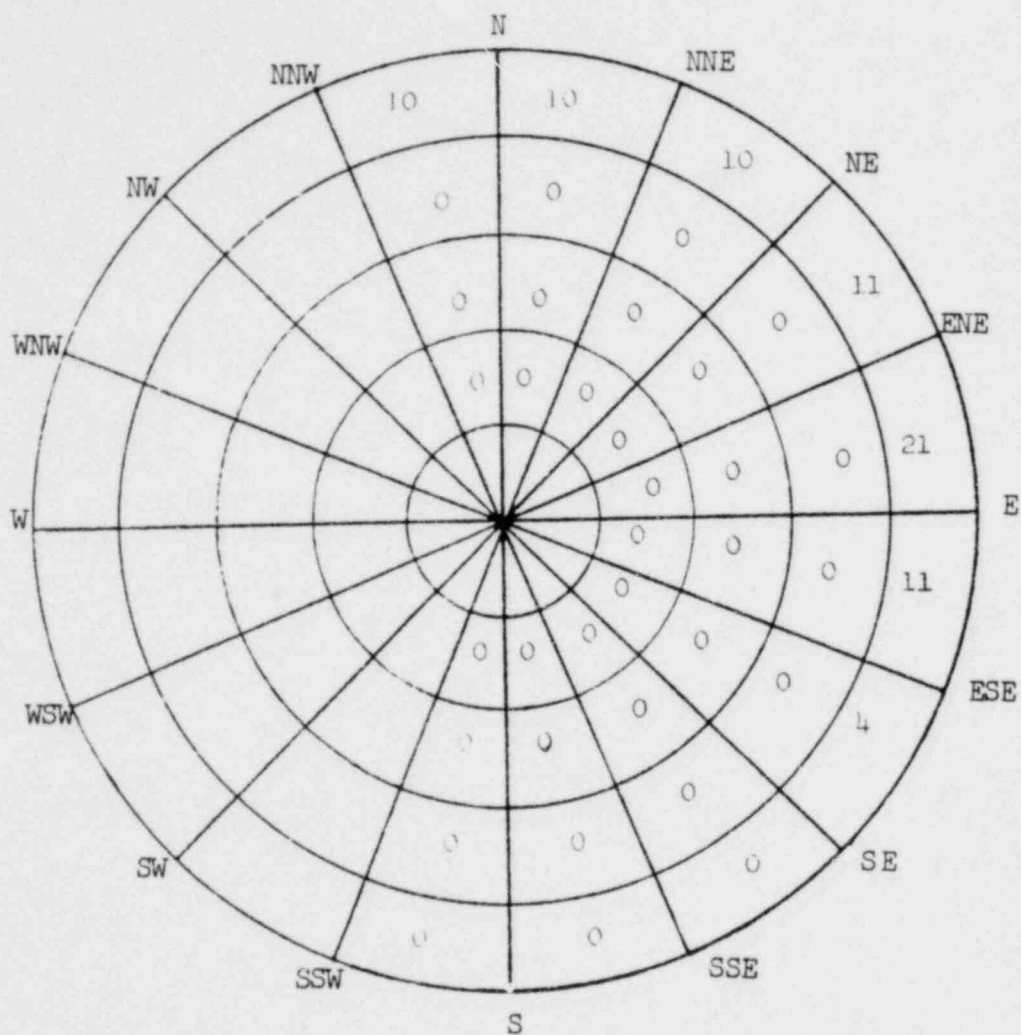


Figure 1.2--Estimated Population Distribution 1967

0-5 Miles



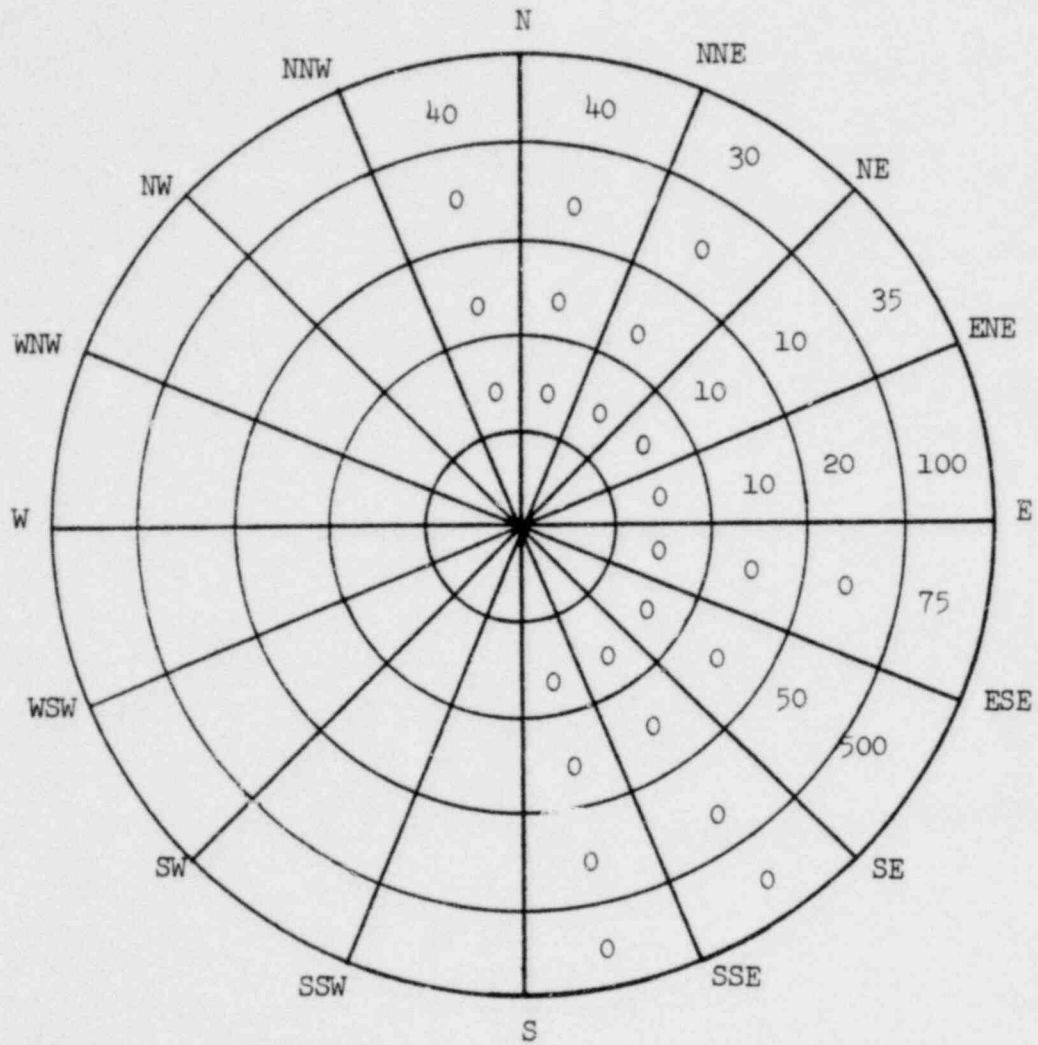
Note: Figure in sector is population of sector

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Figure 1.3--Estimated Population Distribution 2015

0-5 Miles

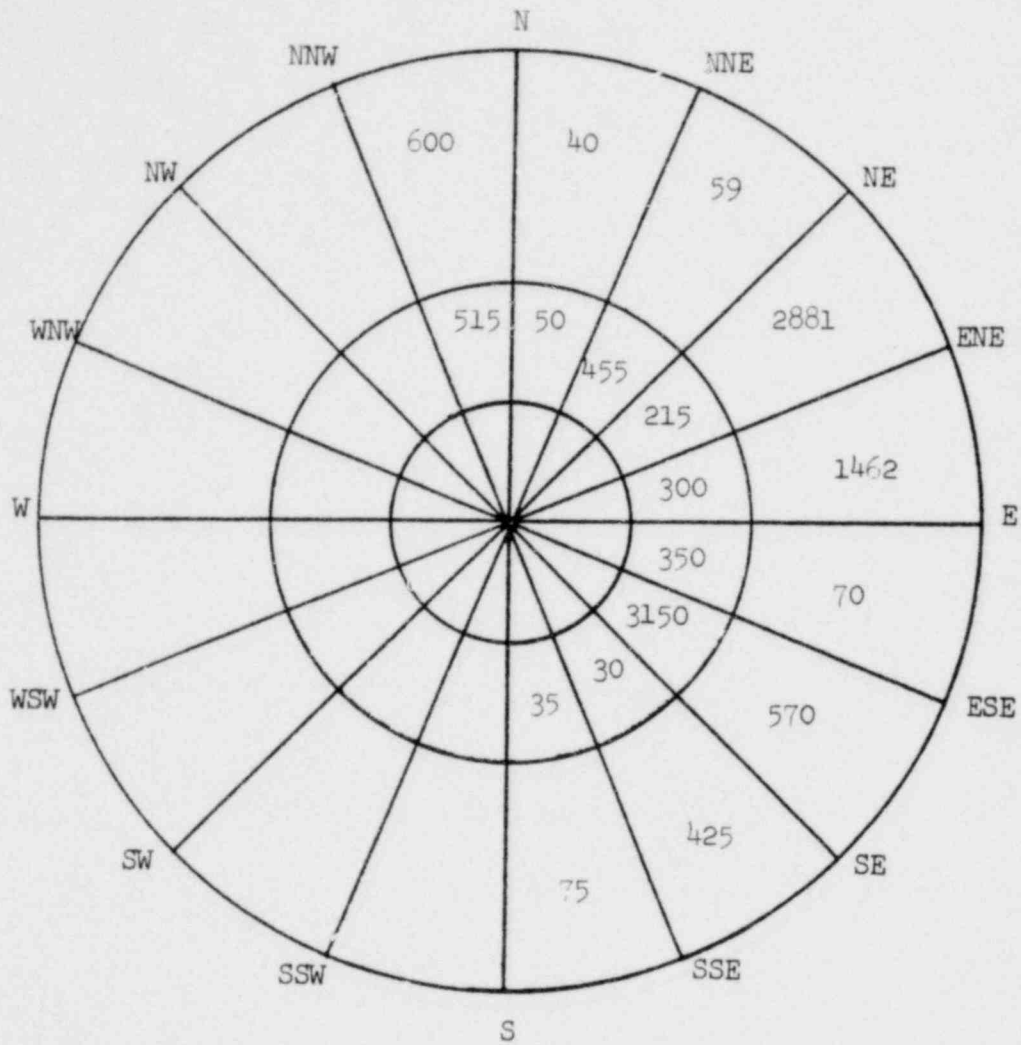


Note: Figure in sector is population of sector

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Figure 1.4--Estimated Population Distribution 1967

5-20 Miles

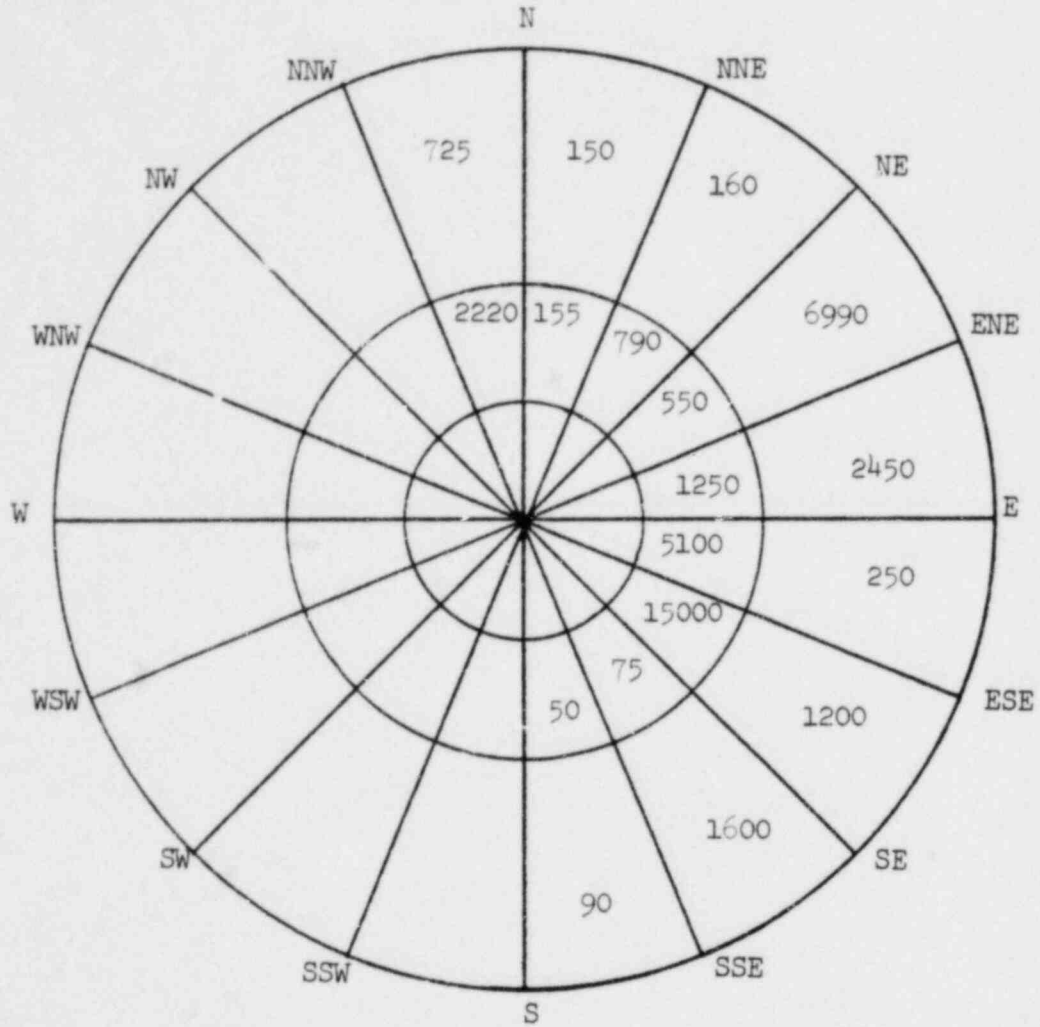


Note: Figure in sector is population of sector

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Figure 1.5--Estimated Population Distribution 2015

5-20 Miles

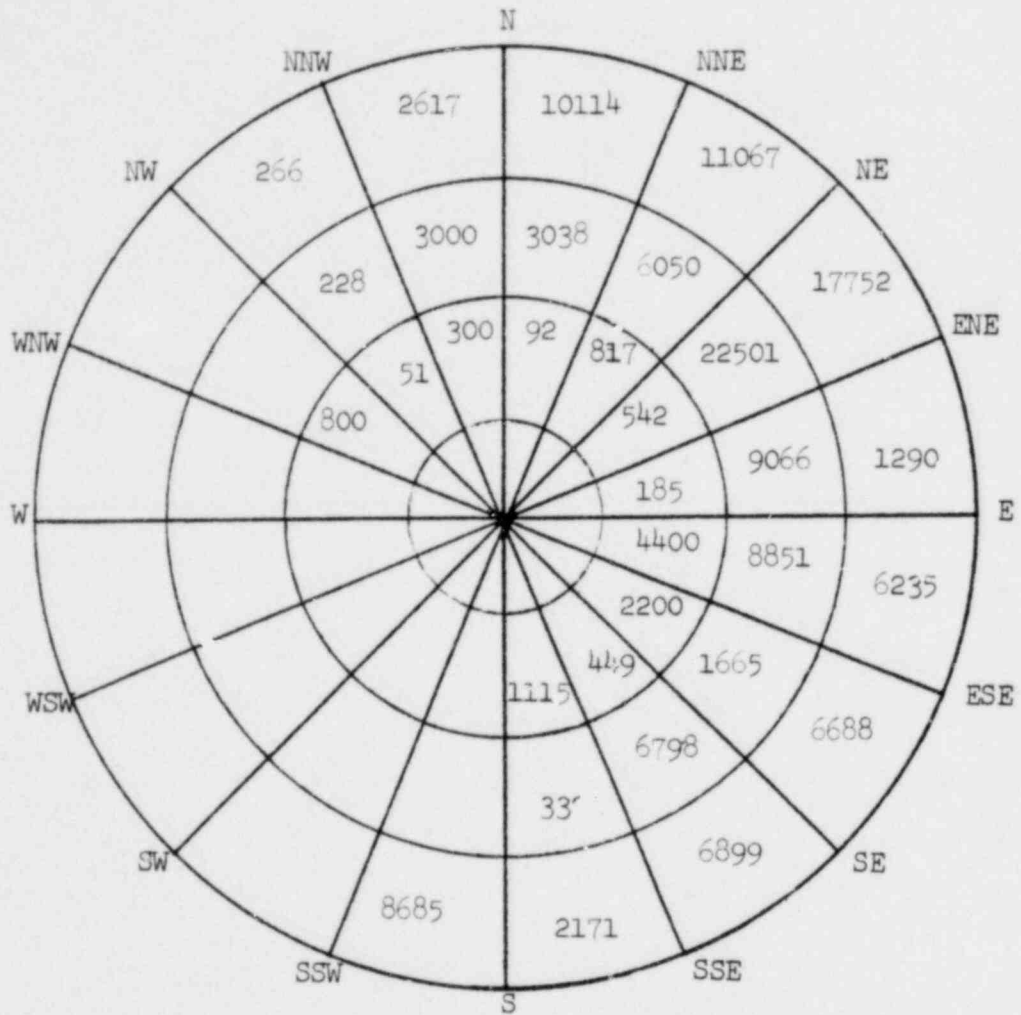


Note: Figure in sector is population of sector

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Figure 1.6--Estimated Population Distribution 1967

20-50 Miles

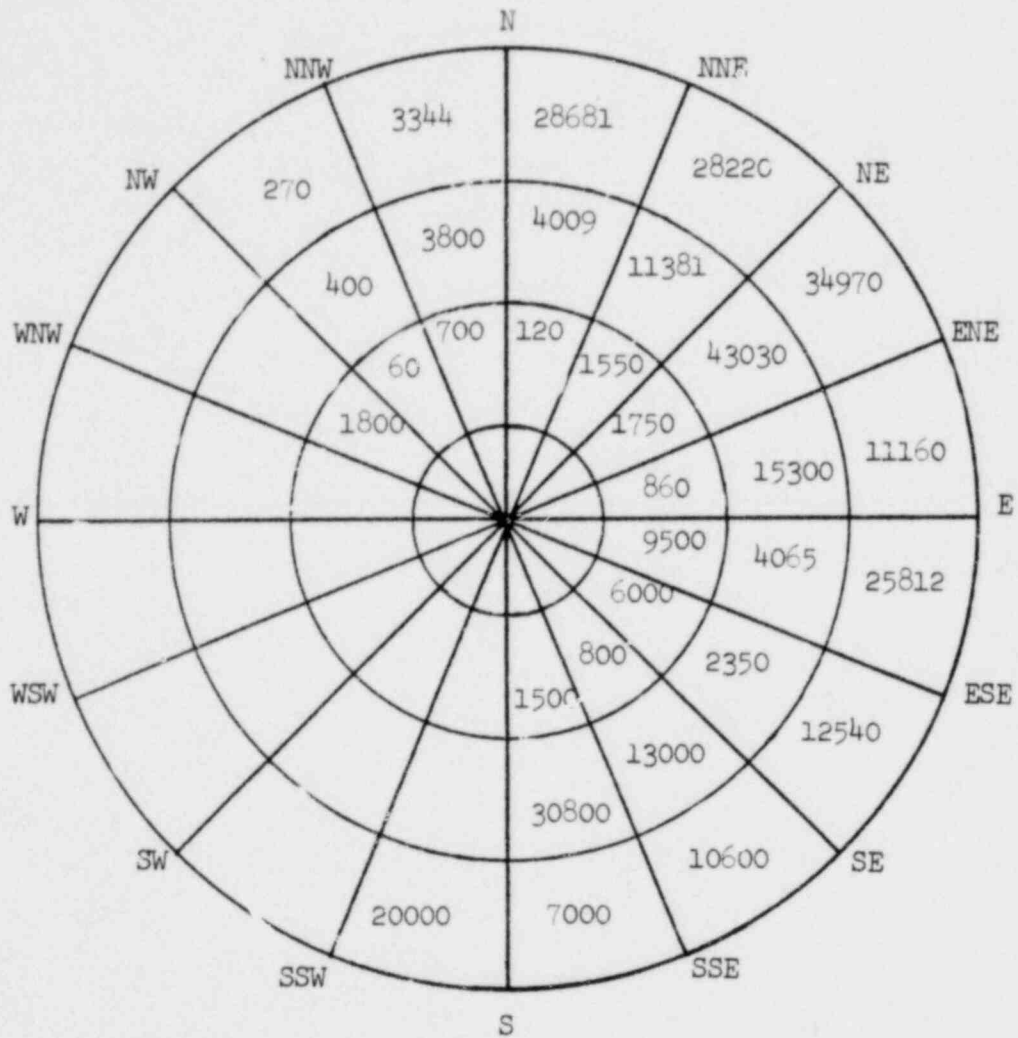


Note: Figure in sector is population of sector

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Figure 1.7--Estimated Population Distribution 2015

20-50 Miles



Note: Figure in sector is population of sector

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Section 1.4--Population Projection and Distribution  
Methodology

The population projections for 1967 and 2015 are based on estimates of the population of Florida counties prepared each year by the Bureau of Economic and Business Research, University of Florida. Two techniques are used in the preparation of these estimates: (1) Census Component Method II as described in the U. S. Bureau of the Census publication, Current Population Reports, Series P-25, No. 133. (2) Vital Rates Method as described in the Journal of the American Statistical Association, June 1950, pp 149-163. These techniques have provided reliable estimates of county population for Florida over many years, having been verified against both the 1950 and 1960 decennial censuses.

1967 Projection

The 1967 projection of the population of the ten (10) counties included in the 50 mile radius was developed by continuing the recent population trends of each of these counties. These projections should have an average error no greater than plus or minus 10 percent. The total state population for 1967 was developed by multiplying the U. S. Bureau of the Census, Series C, U. S. projection, Current Population Reports, Series P-25, No. 362, by an estimated Florida share of the U. S. population in 1967. This share is considered to be the "most likely share" based on an

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analysis of annual increase in Florida's share of U. S. population for different time periods during the past 17 years.<sup>1</sup>

#### 2015 Projection

The 2015 projection of the population of the ten counties is based on two separate computations:

1. The total Florida population for 2015 was determined by multiplying the Census Series C, U. S. projection (same reference as above) by an estimated Florida share of the U. S. population in 2015 (determined as above).
2. The individual county's share of Florida population was developed from the fitting of a least squares straight line to weighted county/state ratios for the last 20 years, with judgmental modification where the indicated trend seemed absurd (i.e. too high for county to support based on existing knowledge of county potential, or too low based on a minimum population assumption for a given county).

It should be emphasized that projections for the year 2015 are highly subjective. The trend line for this distant year is used as a point of departure rather than as a primary determinant of the projection. Application of judgment based on information pertaining to the development of the 10 county region was the most important factor in these projections.

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<sup>1</sup>See Appendix A for projection data details.

### Population Distribution

Population was distributed to the various sectors within the 50 mile zone on the following basis:

- (1) Sector population in 1960 was related to county and county census division population for 1960.
- (2) County projections (see Table 1.1 - Section 1.) were allocated to the various county census divisions by extrapolating the recent growth trends of these divisions.
- (3) Projected county census division population was allocated to the various sectors by extrapolating the recent growth trends of the sectors relative to the county census division.

In some counties it was impossible to use county census divisions. In these cases, projected county population was allocated directly to the sectors by extrapolating recent growth trends of the sectors relative to the total county.

Sector share of 1960 population was based on a detailed study of spatial distribution of households within the counties. It was assumed that the major portion of population growth would occur in and around existing metropolitan areas. Departures from historical trends were made when available data indicated they were appropriate.

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County Development Information

Alachua County - County population was assumed to be influenced mainly by expansion of enrollment of the University of Florida to 35,000 students by 2015, with 30 percent being graduate students. The faculty is expected to expand to about 2000 during the 50 year time span. The higher proportion of graduate students was assumed to infer more student families; this coupled with total student growth and faculty increase should in turn contribute to expansion of the supporting community surrounding the university.

Citrus County - This is one of the two counties at the western end of the Cross-Florida Canal, anticipated to be a section of the Canal which industrializes most rapidly. Citrus County should experience most of the population growth associated with this industrial development because of favorable living conditions in its major cities relative to other cities in the vicinity of the canal mouth.

The county is developing as a recreation area for out-of-state visitors and Florida residents from the populous north-central counties. Continued expansion of the population in these counties, the opening of the canal and the Gulf Intracoastal Waterway should enhance development as a recreation site.

Dixie County - This county is sparsely populated at present and was assumed to remain so to 2015. Nearly all of the county's agricultural acreage is in pine timber production or in beef cattle range. The only industries in the county are timber related

and of small size.

The portion of Dixie County in the 50 mile zone has little to offer as an industrial location with the exception of the Suwannee River which forms the county's southern boundary. The projection of this county's population assumed no significant industrialization of the Suwannee. The recreation potential of the county is dimmed somewhat because of its remoteness from population centers.

Gilchrist County - This county is even less populated than Dixie County and should continue to be to 2015. The county is predominantly agricultural with about 95% of the land having severe limitations that reduce the choice of crops or require special conservation practices. Non-agricultural employment is virtually non-existent and was assumed to remain so.

No appreciable population overlap from Alachua County was anticipated. Gilchrist's population has achieved a fairly stable long-run level.

Hernando County - This county had an estimated population of 13,000 on July 1, 1966, most of it in its single significant city or along the north-south routes that funnel tourists south to the Greater Tampa Bay area. The population of this county is expected to grow because it has been selected as the location for the development of a large, planned community by a major land developer. The community's growth is assumed to parallel

that of other developments of this type in Florida. The westernmost strip of the county along U.S. 19 should be part of a continuous strip of population extending north from St. Petersburg by 2015.

Lake County - The portion of this county in the 50 mile zone is quite small, but is expected to show fairly rapid population growth associated with expansion of the city of Leesburg. Citrus oriented industries and an expanding mobile home industry are expected to support modest growth in this sector.

Levy County - This county is the second of two at the west mouth of the Cross-Florida Canal. A large hardwood and pine plywood mill located in the county in the past year and anticipates employing 300-400 persons. The mill also controls about 1/7 of the total county acreage through ownership or lease.

Population is expected to increase modestly as the result of Canal industrialization. The county has abundant water resources in the Suwannee and Withlacoochee Rivers, but no significant development of industry along these rivers was assumed.

Marion County - This county has a major regional highway hub at Ocala. Expanding tourism and the breeding of quality cattle and thoroughbred horses have strengthened the county's economy in recent years.

The county straddles the Cross-Florida Canal and plans to develop a barge port at Dunellon. Population should increase

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moderately as the result of Canal inspired industrial development. I-75 and the proposed Turnpike extension (if completed) enhance the county's industrial development potential because of the intersection of these highways with the Canal within the county borders. Industrial development to date has been quite modest.

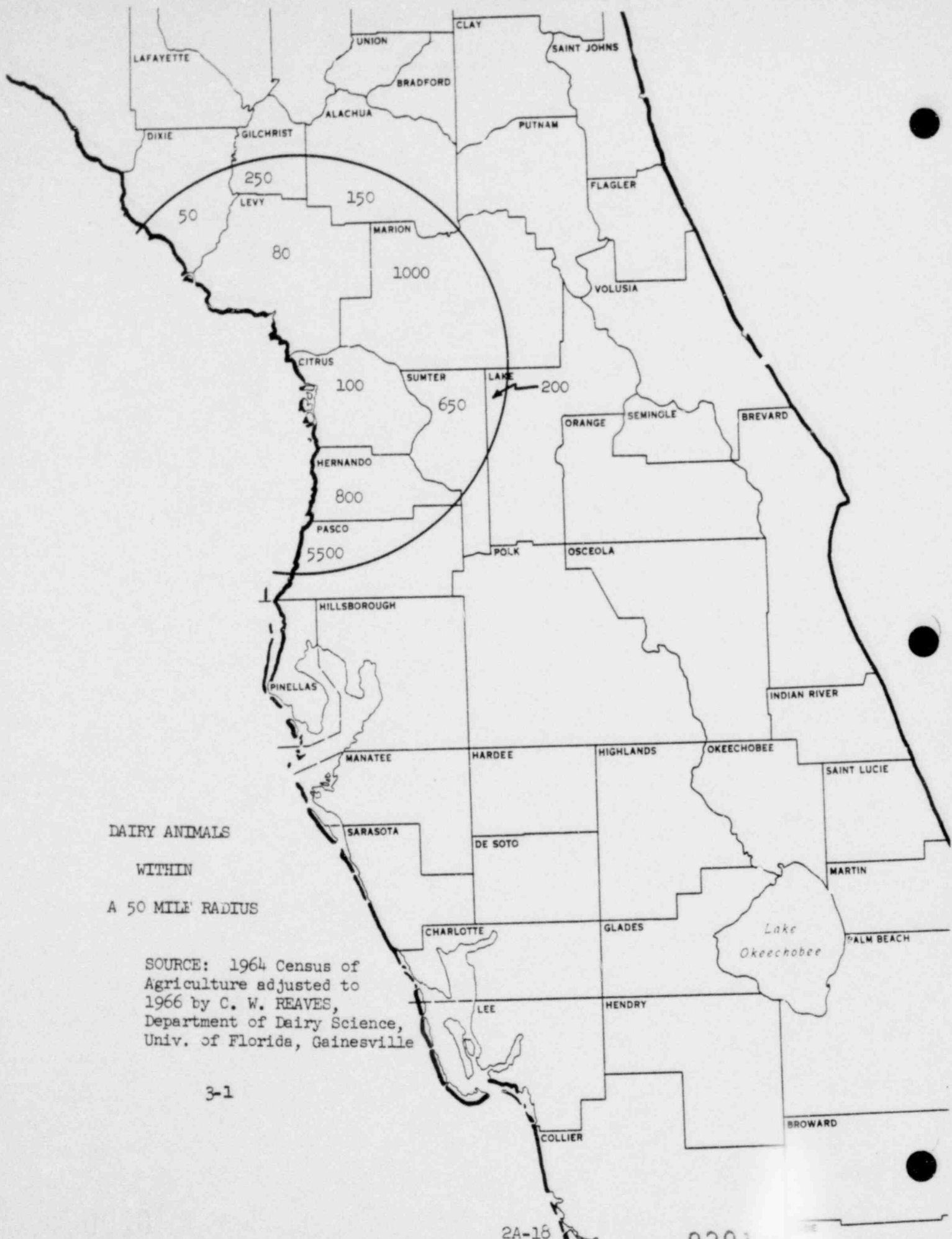
Pasco County - This county's population growth in recent years was due primarily to overlap of population from the large metropolitan counties to the south which now include nearly a million people. Pasco is expected to exhibit population increases because of continuing pressure from the growth of Hillsborough and Pinellas Counties. The planned community in Hernando should lead to the development of the northern half of the county along the major north-south highways.

Sumter County - This county should be a relatively slow growing one during the next 50 years. It is a relatively poor county with few locational advantages. The population projected for 2015 shows a modest increase over 1967, but a stable or slightly declining population is nearly as likely an outcome.

An over-riding assumption has been made for this analysis that the Cross-Florida Canal will be completed by 2015. Some additional general assumptions were made:

1. No major war will occur before 2015.
2. No major economic depressions will occur during the years up to 2015.
3. No widespread catastrophic epidemics will occur through 2015.

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DAIRY ANIMALS  
 WITHIN  
 A 50 MILE RADIUS

SOURCE: 1964 Census of  
 Agriculture adjusted to  
 1966 by C. W. REAVES,  
 Department of Dairy Science,  
 Univ. of Florida, Gainesville

## II Land Use

The area in the vicinity of the proposed site has a marked agricultural orientation. An examination of Table 2-1 reveals that currently more than 90% of the area is devoted to agriculture. Little of the available land, however, is involved in crop production. Woodland constitutes the most significant acreage and represents close to 59% of the total. While pasture and range constitutes slightly less than 20% of the total surface, a major part of the woodland is also used for grazing purposes.

Soil capability studies<sup>1</sup> show that most of the land area can be used for crop production and an intensified land use program is possible. Given this capability and the expected population expansion of the state, with the accompanying reduction in the total land available for agriculture, projections call for land in the Crystal River region to be shifted to more productive applications.

The projection<sup>2</sup> presented in Table 2-2 predicts a significant reduction in woodland (41% of the total area as opposed to 57.4% for the comparable area of Table 2-1.) and an increase in the agricultural area devoted to crops and pasture and range (11.0% and 31.4% as opposed to 8.6% and 26.9% respectively.). Increased utilization is further indicated by the expected increase in improved pasture and the virtual disappearance of rangeland. The expected increase in urban and built up areas, right-of-way, water and

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<sup>1</sup>Soil Conservation Service, Florida Soil and Water Conservations Needs Inventory, March, 1963, Gainesville, Florida.

<sup>2</sup>Since projections were not available for the entire area of interest, total acreages in Tables 2-1 and 2-2 are not directly comparable.

recreational areas is signified by a predicted reduction in agricultural land from a comparable 89.6% of the total area to 77.6%.

NOTE: For the details on the methodology used in the land use projection, see Report and Appendix Water and Related Land Resources: Florida West Coast Tributaries, U. S. Department of Agriculture River Basin Investigations, 1965.

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TABLE 2.1 -- CURRENT MAJOR LAND USE BY COUNTY OR COUNTY SEGMENT BY DISTANCE FROM PROPOSED SITE

County or County Segment	Approx. Distance to Center of Area (miles)	Approx. Heading from Site	Total Cropland 1,000 acres	Citrus 1,000 acres	Total Pasture and Range 1,000 acres	Improved Pasture 1,000 acres	Total Woodland 1,000 acres	Grazed Woodland 1,000 acres	Other Agri- culture 1,000 acres	Total Agri- culture 1,000 acres	Urban and Built Up 1,000 acres	Water 1,000 acres	Other Non- Agri- culture 1,000 acres	Total Non- Agri- culture (inc. water) 1,000 acres	Total Area 1,000 acres
Citrus <sup>1</sup>	18	116° SE	8.6	(2.5)	56.3	(22.0)	232.8	(212.7)	42.3	340.0	5.7	69.5	7.8	83.0	423.0
Levy <sup>1</sup>	24	354° NW	40.9	(0)	58.1	(51.6)	585.6	(307.3)	8.1	692.7	2.1	20.8	5.3	28.2	720.9
Hernando <sup>1</sup>	34	148° SE	16.0	(14.7)	31.9	(28.5)	218.5	(130.1)	27.5	293.9	6.9	17.0	7.3	31.2	325.1
Marion <sup>2</sup>	38	65° NE	70.0	(10.0)	252.6	(213.3)	420.9	N.A.	28.1	771.6	N.A.	19.8	N.A.	59.1	830.7
Sumter <sup>1</sup>	42	114° SE	19.5	(2.0)	150.5	(96.3)	128.0	(115.5)	18.1	316.1	5.0	15.9	7.7	28.6	344.7
Alachua <sup>2</sup>	43	26° NE	29.2	(.3)	51.1	(25.1)	88.1	N.A.	16.2	184.6	N.A.	13.0	N.A.	40.0	224.6
Lake <sup>2</sup>	50	101° SE	37.5	(35.7)	16.6	(13.5)	17.0	N.A.	18.4	89.5	N.A.	33.9	N.A.	47.2	136.7
Pasco <sup>1</sup>	51	158° SE	48.5	(43.7)	155.4	(53.5)	228.7	(200.5)	16.4	449.0	19.2	21.8	4.1	45.1	494.1
Gilchrist <sup>3</sup>	51	352° NW	56.0	(0)	18.0	(12.0)	130.7	N.A.	7.2	211.9	.8	4.3	3.0	8.1	220.0
Dixie <sup>3</sup>	52	326° NW	11.3	(0)	13.5	(9.0)	394.5	N.A.	10.1	429.4	3.6	11.8	3.5	19.0	448.3
Total Acres (1,000) by Type Use			337.5	(108.9)	804.0	(524.8)	2444.8	N.A.	192.4	3778.6	N.A.	227.8	N.A.	389.5	4168.1

<sup>1</sup>Land use information for these counties was drawn from backup data for the U. S. Department of Agriculture River Basin Investigations' report (1965) on the Florida West Coast Tributaries. Data is as of 1963.

<sup>2</sup>Land use information for these counties was obtained via a direct combination of the backup data referred to in (1) above and preliminary data for the U. S. Department of Agriculture River Basin Investigations' report (in preparation) on the St. Johns River Basin. This preliminary data is as of 1965. No adjustment was made for the two year difference in data time.

<sup>3</sup>Land use information for these counties was drawn from the Soil Conservation Service's report (1963): Florida Soil and Water Conservation Needs Inventory. Data is as of 1958.

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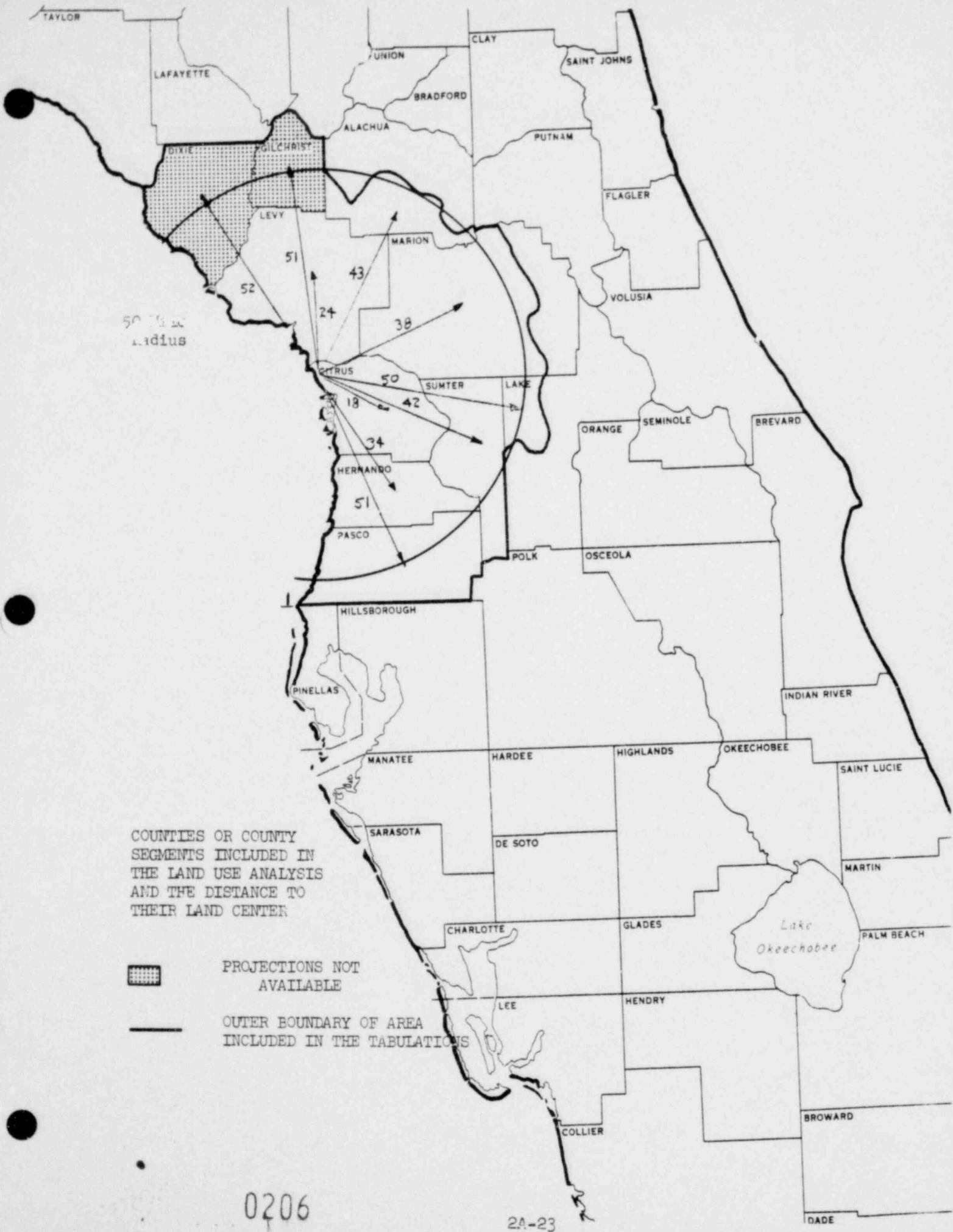
TABLE 2.2 -PROJECTED MAJOR LAND USE BY COUNTY OR COUNTY SEGMENT BY DISTANCE FROM PROPOSED SITE, 2015

County or County Segment	Approx. Distance to Center of Area (miles)	Approx. Heading from Site	Total Cropland 1,000 acres	Citrus 1,000 acres	Total Pasture and Range 1,000 acres	Improved Pasture 1,000 acres	Woodland 1,000 acres	Other Agri- culture 1,000 acres	Total Agri- culture 1,000 acres	Urban and Built Up 1,000 acres	Water 1,000 acres	Other Non- Agri- culture 1,000 acres	Total Non- Agri- culture (inc. water) 1,000 acres	Total Area 1,000 acres
Citrus <sup>1</sup>	18	116° SE	14.0	(4.0)	60.0	(50.0)	148.5	35.0	257.5	15.0	82.0	68.5	165.5	423.0
Levy <sup>1</sup>	24	354° NW	39.0	(0)	80.0	(75.0)	553.9	4.0	676.9	12.0	21.0	11.0	44.0	720.9
Hernando <sup>1</sup>	34	148° SE	20.0	(12.0)	67.0	(60.0)	143.0	15.1	241.1	20.0	19.0	45.0	84.0	325.1
Marion <sup>2</sup>	38	65° NE	76.7	(14.9)	316.8	(311.6)	268.5	23.0	685.0	N.A.	29.2	N.A.	145.7	830.7
Sumter <sup>1</sup>	42	114° SE	17.5	(4.0)	133.3	(133.3)	65.2	8.0	224.0	16.4	73.5	30.8	120.7	344.7
Alachua <sup>2</sup>	43	26° NE	17.0	(.3)	41.3	(39.9)	94.2	7.4	159.9	N.A.	13.0	N.A.	64.7	224.6
Lake <sup>2</sup>	50	101° SE	55.1	(47.1)	12.9	(12.8)	5.4	6.1	79.5	N.A.	33.9	N.A.	57.2	136.7
Pasco <sup>1</sup>	51	158° SE	60.0	(45.0)	145.0	(95.0)	156.1	30.0	391.1	40.0	43.8	19.2	103.0	494.1
Total Acres (1,000) by Type Use			299.3	(127.3)	852.3	(777.6)	1434.8	128.6	2715.0	N.A.	315.4	N.A.	784.4	3499.8

NOTE: Projections are not available for Gilchrist and Dixie counties.

<sup>1</sup>Land use projections for these counties were drawn from backup estimates for the U. S. Department of Agriculture River Basin Investigation report (1965) on the Florida West Coast Tributaries. The projections were to the year 2015.

<sup>2</sup>Land use projections for these counties were obtained from a direct combination of the backup projections referred to in (1) above and preliminary projections for the U.S.D.A. River Basin Investigations' report (in preparation) on the St. Johns River Basin. These latter projections were to the year 2020. No adjustment was made for this 5 year time difference in projections.



COUNTIES OR COUNTY SEGMENTS INCLUDED IN THE LAND USE ANALYSIS AND THE DISTANCE TO THEIR LAND CENTER



PROJECTIONS NOT AVAILABLE



OUTER BOUNDARY OF AREA INCLUDED IN THE TABULATIONS

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### III Dairy Animals

Total dairy animal population within a fifty mile radius of the proposed site is only 8,780. Map (3-1) locates these animals within counties and county segments and shows that about 63% of this population is concentrated in the Pasco County segment.

No forecasts are available for the year 2015 but considerable growth in dairy operations are anticipated within the area of interest. The 1966 Florida cow population was estimated at 179,000 and is expected to grow to about 200,000 by 1975.<sup>1</sup> It is expected that the growth rate in certain areas within the fifty mile radius will exceed that of the state. Two major factors that are expected to contribute to this growth differential are:<sup>2</sup>

- (1) Transfer of existing dairy operations from the territory surrounding Orlando, St. Petersburg and Tampa into Hernando, Pasco and Sumter counties. Several such moves have already taken place and have had a major impact on dairy cattle distribution. For example, a 1200 head Orlando dairy operation has already purchased land in Sumter County and plans to move in about 1968. This one move will roughly triple the cow population in Sumter County.
- (2) Growth of dairy operations in prime citrus production area is restricted by land cost.

In addition to above average growth in Hernando, Pasco and Sumter counties, it is expected that Alachua and Marion counties will experience considerable growth in dairy cattle population.

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<sup>1</sup>The DARE Report, Institute of Food and Agriculture Sciences, University of Florida, Gainesville, 1963.

<sup>2</sup>C. W. Reaves, Department of Dairy Science, University of Florida, Gainesville.

Appendix A

Total State Population

1967

U.S. Bureau of Census, Series C U.S. Projection, Current  
Population Reports, Series P-25, No. 359

U.S. population, 1967: 199,042,000

Estimated Florida share of U.S. population, 1967: 3.073%

Projected Florida population, 1967:

$$199,042,000 \times 0.03073 = 6,117,000$$

2015

U.S. Bureau of Census Series C U.S. Projection, Same reference

U.S. population, 2015: 373,502,000

Estimated Florida share of U.S. population, 2015: 4.626%

Projected Florida population, 2015:

$$373,502,000 \times 0.04626 = 17,278,000$$