DRAFT

City of Gainesville Industrial Use Study

Prepared for

City of Gainesville
Community Development Department
306 NE 6th Avenue
Gainesville, Florida 32601

Prepared by

Water & Air Research, Inc.
6821 S.W. Archer Road
Gainesville, Florida 32608

October 2001
01-5373-03

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Contents

Contents, Continued

Introduction

In May 2001, The City of Gainesville placed a moratorium on 48 manufacturing uses. The moratorium was put in effect to allow the City to determine whether the 48 manufacturing uses or other uses allowed in the City's industrial zones, should, based on their environmental or nuisance impacts, be prohibited, restricted as a special use, or allowed subject to performance standards. In order to make these determinations, the City performed this study to evaluate its industrial areas and to make recommendations on changes to its regulations. The study consisted of four primary tasks:

- **Task 1.** Review each of the City's I-1 and I-2 areas and surrounding land uses with emphasis placed on the environmental and existing built character of these areas and the uses surrounding these areas;
- **Task 2.** Analyze the uses subject to the moratorium and other manufacturing uses allowed in the industrial zones to determine whether those uses are appropriate for the City's industrial areas given the location of residential and other uses near those areas and determine what impact the uses will have on present air quality, groundwater (wellfield protection) and other environmental impacts and nuisance impacts.
- **Task 3.** Assess federal, state and local environmental regulations that apply to the impacts of industrial uses, and enforcement mechanisms as it relates to the recommendations for review of the City's industrial regulations. Discuss what other review mechanisms will regulate industrial uses in addition to the City zoning rules.
- **Task 4.** Prepare a report that details changes (and the basis for those changes) that need to be made to the city's industrial zoning regulations, including whether any of the currently allowed uses should be prohibited, allowed only by special use, allowed only subject to performance standards, or allowed only in certain location due to particular air quality problems or other nuisance or environmental factors.

Working in conjunction with Staff from the City's Community Development Department, Task 1 was conducted using the City's geographic information system (GIS) to provide maps and data for each of the City's ten industrial areas (areas in I-1 and I-2 districts). For each area, existing land use was summarized based on aggregation of the 99 land use categories in the Department of Revenue's (DOR) land use code. Existing land use and future land use (based on the City's future land use map) in 500 and 1,000-foot bands surrounding the industrial areas were also examined. In addition to the GIS-based information, aerial photographs and windshield surveys were conducted of the industrial areas. A brief synopsis of each area was prepared that focused on the breakdown of existing and future uses within and surrounding the districts and the environmental overlay districts present.

The analysis in Task 2 was accomplished largely through manipulation of databases of national census data for manufacturing industries and national environmental databases dealing with pollution produced by various manufacturing industries. This information was assembled to allow a comparison of industries by pollution potential.

Federal, state and local regulations that apply to the environmental impacts of industrial uses in the City of Gainesville were summarized in Task 3. As part of this analysis, over 40 industrial ordinances from throughout the United States were reviewed in conjunction with City staff, to see how other jurisdictions apply performance standards to their industrial areas.

Recommendations for changes to the City's industrial zoning districts and code and to the City's general performance standards were formulated in Task 4. The recommendations are: to prohibit certain uses that are judged inappropriate given the nature of the use and the locational characteristics of the City's industrial areas and surrounding land uses; to require a special use permit for certain industrial uses that are likely appropriate but should receive further scrutiny given their intensity; and to amend the City's existing general performance standards to make them more measurable and allow additional regulation of environmental or nuisance impacts.

There is little question that the City has a need for sites that can be developed for industrial use. The selected sites should be inside the urban growth boundary, served by appropriate transportation infrastructure and other urban services, and large enough to accommodate new industry.

The recent Gainesville Council for Economic Outreach (CEO)/Lockwood Greene study (as well as previous studies) noted that the City is heavily dependent on the University of Florida and state and county governmental offices for employment of its citizens. This lack of diversity is a contributing factor in the City's chronic underemployment problems. To diversify its industrial and employment base, the Lockwood Greene study recommends three clusters of industry to target as "best fits" for the Gainesville area:

- Pharmaceuticals/Biotech cluster
- Surgical, medical, and dental instruments and supplies cluster
- Electronics, instruments and telecommunications equipment cluster

While the City has many comparative advantages over other areas, such as superior telecommunications infrastructure, the presence of the University, research centers and training facilities, school and health care system, and high quality labor force, it also has limitations to economic development in that available industrial property is limited to scattered properties in a relatively narrow band of land along Highway 441, traditional industrial areas, and land adjacent to the regional airport. The presence of extensive residential areas and the University presents barriers to transportation and development of new facilities and services to the west and south. State and local government owns much of the property free of development constraints to the east.

According to data for the year 2000, the Gainesville MSA had an annual average employment of 120,521, of which 5,429 were manufacturing jobs. This is a ratio over 21:1 non-manufacturing jobs to manufacturing jobs. For the State of Florida this ratio is below 14:1, and for the United States as a whole, this ratio is closer to 5:1. Based upon population projections and using the statewide ratio as a reasonable goal, approximately 5,000 new manufacturing jobs should be created in the Gainesville area by 2020. Estimates based on employees per gross acre ratios for industrial uses indicate that approximately 250 to 700 acres would be necessary to accommodate the needed employment, depending on the type of industrial use. An inventory of land currently zoned industrial in the City of Gainesville shows 2,341 acres, of which 1,255 acres are unimproved or in use for agriculture or timber. This

implies that the indicated growth could occur within the City; however, portions of this land are constrained by environmental limitations, location, size, and/or infrastructure.

Managing land use in and around the City's industrial areas is similar in scope to managing land in and around an airport, and is no less important to the region's economic well-being. Industrial areas must be carefully planned to ensure they can meet the needs of existing and new industry while at the same time remaining compatible with surrounding areas. Conversely, land surrounding industrial areas requires careful planning to ensure that land use decisions do not constrain the type of industrial development the City is seeking. In recent years, land use planning has moved toward a more adaptable approach that seeks methods to make different types of uses compatible with less reliance on simply separating different uses into isolated monochromatic zones. As the City of Gainesville and Alachua County adopt land use plans that promote more mixed-use developments and infill development, the challenge to create or refit industrial areas that are in harmony with this approach is heightened. The recommendations in this report on changes to the uses allowed in industrial areas and performance standards go hand in hand with this approach.

1 Existing Industrial Areas and Surrounding Land Use

1.1 Introduction

The purpose of this section is to examine land use within and surrounding each of the City of Gainesville's industrial areas to identify characteristics of each area such as degree of parcelization, acreage of unimproved land, and potentially incompatible land uses. For each industrial area, data on land use within and adjacent to the area was compiled. This information is used as background for analysis of uses in Section 2 and for recommendations in Section 4.

Based on an examination of the City's I-1 (Limited Industrial District) and I-2 (General Industrial District) industrially zoned land, ten discrete areas were identified. In most instances these areas are distinct islands of contiguous industrial zoned parcels; however, in a few cases, groupings of separate industrially zoned parcels were aggregated. Figure 1.1.1 shows the location of the ten I-1 and I-2 areas. All but one of the areas is located to the north of University Avenue, primarily along Waldo Road, US 441 and 53rd Avenue.

For each of the areas, analyses of existing and future land use both within and surrounding the areas was conducted. For each of the ten areas the following information was compiled:

- Acreage and number of parcels within the industrial areas by Department of Revenue (DOR) land use
- Acreage and number of parcels by DOR land use within 500 and 1,000 feet of industrial areas
- Acreage and number of areas by future land use within 500 and 1,000 feet of industrial areas

Additionally, the presence or absence of Wellfield Protection Zones, Surface Water and Wetland Districts, Greenway Districts, Gateway Districts and Nature Park Districts was examined.

Five of the areas contain a mix of I-1 and I-2 districts while two areas are entirely I-2 and three are entirely in the I-1 district. Two of the industrial areas zoned I-1, IA 9 and IA 10, consist of single isolated parcels and were therefore only reviewed cursorily. Overall, the mix between I-1 and I-2 acreage is fairly even with 1,107 acres in I-1 and 1,233 acres in I-2.

The I-1 and I-2 districts have a range of allowable uses. The I-1 district is established to provide sufficient space in appropriate locations physically suitable for the development of certain types of retail-commercial sales and services, as well as research operations, wholesale or storage distribution concerns, and enterprises engaged in light manufacturing, processing or fabrication of products and machinery. This district contains those industries which generally are not objectionable because of noise, heavy truck traffic or fumes, or which generate nuisances, which may be mitigated adequately by performance standards. One of the purposes of the I-1 district is to serve as a transition zone between intensive industrial activities and uses that are relatively sensitive to nuisance, such as residential and commercial areas and arterial streets.

The purpose of the I-2 district is to provide areas in appropriate locations where various heavy and extensive industrial operations can be conducted without creating hazards or property

devaluation to surrounding land uses. It is generally inappropriate to locate this district adjacent to residential zoning districts or most arterial streets.

1.2 Overview of Industrial Areas

There is a wide range in the size of the industrial areas and in the mix or lack of mix of I-1 (Limited Industrial District) and I-2 (General Industrial District) zoning within each area. Table 1.2.1 lists the number of parcels and acres in 11 land use categories for the industrial areas. The areas range in size from 49 acres (IA 1) to 862 acres (IA 3). Examination of land uses in all districts shows that Unimproved Land comprised 929 acres (40 percent of the total) and Agriculture/Timber comprised an additional 326 acres (14 percent). Of the developed areas, Industrial uses comprised 457 acres (20 percent), Commercial, 197 acres (8 percent), Public Service, 156.6 acres (7 percent), and Office, 120 acres (5 percent). Residential uses are found in six of the industrial areas (1, 2, 3, 4, 5, and 7) and total approximately 75 acres or three percent of the area zoned I-1 and I-2.

Table 1.2.2 lists the existing land use surrounding the industrial areas in 500 and 1,000-foot bands and for the total area within 1,000 feet. There is a wide range of uses within 500 feet. The primary uses are Agriculture/Timber (374 acres), Public Service (326 acres) and Unimproved Land (251 acres). Residential uses total 222 acres (13 percent) of the acreage within 500 feet of the industrial areas. Between 500 and 1,000 feet, land uses are similar with Agriculture/Timber (503 acres), Unimproved Land (319 acres), and Public Service (304 acres). Overall, Residential uses make up about 15 percent of the surrounding uses within 1,000 feet of the industrial areas. The high percentage of Agriculture/Timber and Unimproved land (a combined 40 percent) indicates that many of the areas are located at the edge of developed areas.

Table 1.2.3 lists acreage in future land use designations in 500 and 1,000-foot bands around the industrial areas. Public Facilities (281 acres), Agriculture (225 acres) and Single Family (164 acres) comprise the highest acreage within 500 feet. Residential uses, not including mixed use areas, account for 26 percent of the future land use designations within 500 feet. Between 500 and 1,000 feet the same primary uses are present. Residential uses comprise about 23 percent of this area.

1.2.1 Industrial Area 1 (IA 1)

Overview of Area. IA 1 is located in the northwest section of the City along the east side of US 441. Figure 1.1.1 shows its location within the City relative to other industrial areas. It is approximately two miles north of the intersection of US 441 and SR 121 and one quarter mile south of the intersection of US 441 and NW 43rd Street. Access to the area is from US 441. IA 1 is comprised of 48.91 acres contained within 15 separate land parcels. The entire area is within the I-2 zoning district.

Existing Land Use. Figure 1.2.1.1 shows the existing land use within IA 1. The primary (sole) industrial use in this district is Griffis Lumber, which occupies 23 acres or approximately one-half of the total district. The majority of the remaining area is comprised of Residential (17.8 acres) and Unimproved Land (7.05 acres). Table 1.2.1 lists the existing land use by acreage and percentage of land area.

TABLE 1.2.1a
Land Use Within Industrially Zoned Areas by Parcels and Acreage

Land Use	IA 1		IA 2		IA 3		IA 4		IA 5		IA 6		IA 7		IA 8		Total Parcels	Total Acreage
	Parcels	Acres	Parcels	Acres	Parcels	Acres	Parcels	Acres	Parcels	Acres	Parcels	Acres	Parcels	Acres	Parcels	Acres		
Agriculture & Timber	2	0.24	2	0.30	10	301.89							15	16.80			31	326.10
Commercial	2	23.12	6	17.72	30	52.70	16	102.72	41	25.44							97	222.05
Conservation	2	0.02	23	0.24	1	0.00	2	0.00									28	0.26
Education					1	0.01											1	0.01
Industrial			40	52.14	87	143.83	19	24.07	92	71.92	8	68.65	60	96.03			307	456.98
Office			7	17.72	18	25.92	7	5.48	16	13.28	1	54.35	9	3.47			58	120.21
Other Parkland & Recreation													1	1.59			1	1.59
Public Service	2	0.66	5	2.40	4	0.17	5	4.98	4	1.54	6	113.12	14	32.29	1	1.44	41	156.60
Residential/High Density	1	4.75	2	0.73	7	26.77			10	4.80			5	5.34			25	42.38
Residential/Low Density	5	13.06	2	0.04	10	2.47	6	0.02	2	0.47			34	16.19			59	32.25
Unimproved Land	1	7.05	21	79.93	58	296.05	29	59.65	28	35.30	17	84.51	68	68.12	1	295.42	227	928.99
No Data			2	0.04	6	12.77	1	0.00			6	19.79	4	0.24			19	32.83
Total	**15**	**48.91**	**110**	**171.25**	**232**	**862.57**	**85**	**196.92**	**193**	**152.74**	**38**	**340.41**	**210**	**240.07**	**2**	**296.86**	**894**	**2320.25**

TABLE 1.2.1b
Land Use Within Industrially Zoned Areas by Percent of Parcels and Acreage

Land Use	IA 1		IA 2		IA 3		IA 4		IA 5		IA 6		IA 7		IA 8		Total Parcels	Total Acreage
	Parcels	Acres	Parcels	Acres	Parcels	Acres	Parcels	Acres	Parcels	Acres	Parcels	Acres	Parcels	Acres	Parcels	Acres		
Agriculture & Timber	13%	0%	2%	0%	4%	35%	0%	0%	0%	0%	0%	0%	7%	7%	0%	0.0%	3.5%	14.1%
Commercial	13%	47%	5%	10%	13%	6%	19%	52%	21%	17%	0%	0%	0%	0%	0%	0.0%	10.9%	9.6%
Conservation	13%	0%	21%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0.0%	3.1%	0.0%
Education	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.0%	0.1%	0.0%
Industrial	0%	0%	36%	30%	38%	17%	22%	12%	48%	47%	21%	20%	29%	40%	0%	0.0%	34.3%	19.7%
Office	0%	0%	6%	10%	8%	3%	8%	3%	8%	9%	3%	16%	4%	1%	0%	0.0%	6.5%	5.2%
Other Parkland & Recreation	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0.0%	0.1%	0.1%
Public Service	13%	1%	5%	1%	2%	0%	6%	3%	2%	1%	16%	33%	7%	13%	50%	0.5%	4.6%	6.7%
Residential/High Density	7%	10%	2%	0%	3%	3%	0%	0%	5%	3%	0%	0%	2%	2%	0%	0.0%	2.8%	1.8%
Residential/Low Density	33%	27%	2%	0%	4%	0%	7%	0%	1%	0%	0%	0%	16%	7%	0%	0.0%	6.6%	1.4%
Unimproved Land	7%	14%	19%	47%	25%	34%	34%	30%	15%	23%	45%	25%	32%	28%	50%	99.5%	25.4%	40.0%
No Data	0%	0%	2%	0%	3%	1%	1%	0%	0%	0%	16%	6%	2%	0%	0%	0.0%	2.1%	1.4%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100.0%	100.0%

TABLE 1.2.2a
Acreage of Land Uses Within 500 Feet of Industrial Areas

Land Use	IA 1	IA 2	IA 3	IA 4	IA 5	IA 6	IA 7	IA 8	Total Acres
Agriculture & Timber	22.2	56.0	219.4		3.1	2.9		70.9	374.5
Commercial	15.9	1.4	46.1	74.4	9.1	7.3	34.5	4.2	193.1
Conservation	25.3	16.1	12.8	1.0			14.0	34.1	103.4
Education		0.3	3.0	10.4	0.3		7.6		21.5
Industrial	1.9	3.5	9.7	9.9	14.1	25.8	1.6		66.5
Office		0.9	9.4	6.2	0.4	4.3			21.1
Other Parkland & Recreation			9.8				0.1		9.9
Public Service	19.7	3.2	9.5	14.9	84.9	123.9	61.8	8.3	326.3
Residential/High Density	0.1	3.0	18.4	9.8	0.1		17.9		49.3
Residential/Low Density	4.9	5.7	27.6	45.4	30.6		56.6	2.3	173.0
Unimproved Land	1.6	29.6	35.6	40.9	4.6	16.7	63.6	58.4	251.0
No data	0.3	1.7	18.2	1.5	0.2	40.4	3.1	0.7	65.9
Total	91.8	121.3	419.5	214.5	147.3	221.3	260.7	178.9	1655.4

TABLE 1.2.2b
Acreages of Land Uses Between 500 and 1,000 Feet of Industrial Areas

Land Use	IA 1	IA 2	IA 3	IA 4	IA 5	IA 6	IA 7	IA 8	Total Acres
Agriculture & Timber	42.1	98.3	212.0	0.5	17.0	14.4	0.0	119.1	503.4
Commercial	29.5	18.3	23.1	81.5	4.4	11.6	26.1	11.0	205.6
Conservation	17.6	1.2	6.5	2.2	3.9	0.0	(12.2)	3.9	23.2
Education	0.0	4.1	10.2	5.4	7.1	0.2	15.9	0.0	42.9
Industrial	4.0	2.1	8.6	2.0	9.4	29.5	9.6	0.0	65.3
Office	3.6	6.2	8.3	11.8	0.0	0.0	10.4	0.0	40.2
Other Parkland & Recreation	0.0	0.0	22.5	0.0	0.0	0.0	0.7	6.1	29.3
Public Service	26.8	5.0	22.3	10.9	91.1	120.9	26.9	0.7	304.6
Residential/High Density	0.3	4.5	11.6	9.9	0.0	0.0	34.3	0.0	60.6
Residential/Low Density	15.5	9.8	59.6	57.5	42.0	0.0	70.7	11.1	266.2
Unimproved Land	4.2	48.2	33.5	42.0	30.4	25.5	75.8	59.4	318.9
No data	0.6	3.4	16.1	0.3	0.7	58.0	6.3	2.2	87.6
Total	144.2	201.0	434.3	223.9	206.1	260.1	264.6	213.6	1947.8

TABLE 1.2.2c
Acreage of Land Uses Within 1,000 Feet of Industrial Areas

Land Use	IA 1	IA 2	IA 3	IA 4	IA 5	IA 6	IA 7	IA 8	Total Acres
Agriculture & Timber	64.3	154.3	431.4	0.5	20.1	17.3		190.0	877.9
Commercial	45.5	19.8	69.2	155.9	13.6	18.9	60.6	15.2	398.6
Conservation	42.9	17.3	19.3	3.3	3.9		1.8	38.1	126.6
Education		4.3	13.2	15.7	7.4	0.2	23.5		64.4
Industrial	5.9	5.6	18.3	11.9	23.5	55.3	11.2		131.8
Office	3.6	7.0	17.7	18.0	0.4	4.3	10.4		61.3
Other Parkland & Recreation			32.3				0.8	6.1	39.2
Public Service	46.5	8.1	31.8	25.8	176.1	244.8	88.7	9.0	630.9
Residential/High Density	0.4	7.5	30.0	19.7	0.1		52.2		109.8
Residential/Low Density	20.3	15.5	87.2	102.9	72.6		127.3	13.4	439.3
Unimproved Land	5.7	77.9	69.1	82.9	35.1	42.1	139.3	117.8	570.0
No data	0.9	5.0	34.3	1.8	0.9	98.5	9.4	2.8	153.6
Total	236.1	322.3	853.8	438.4	353.5	481.4	525.2	392.5	3603.2

TABLE 1.2.3a
Acreage of Future Land Use for Areas Within 500 Feet of Industrial Zones

Future Land Use	IA 1	IA 2	IA 3	IA 4	IA 5	IA 6	IA 7	IA 8	Total Acreage
AGR		54.91	169.88						224.79
C	0.74		37.70	89.79	5.88		0.16	27.92	162.19
CON	25.31	16.12	12.81	1.05				34.15	89.43
E			1.49	9.87			16.92		28.28
H/IND					10.62			12.39	23.01
IND	0.04	23.56	75.88	2.00	0.71		1.92	27.34	131.44
L/IND								7.49	7.49
LOW								10.58	10.58
MU-H							7.92		7.92
MU_L			2.95	11.13			13.75		27.83
MU_M		1.13	0.09	10.43			9.57		21.22
O			11.03	0.40				8.40	19.83
PF	9.67	0.54	14.38	12.84	65.34	86.86	82.53	9.12	281.28
PUD		7.16	6.49	2.28					15.93
R_H							19.74		19.74
R_L	15.16	12.40	50.01	24.50	6.15		16.10	1.57	125.89
R_M		0.29	18.61	20.77			13.80	14.48	67.95
REC			8.80		4.46		7.32		20.58
SF		0.21	5.92	28.61	53.43		76.24		164.40
Total	50.92	116.31	416.03	213.67	146.59	86.86	265.98	153.44	1449.78

TABLE 1.2.3b
Acreage of Future Land Use for Areas Between 500 and 1,000 Feet of Industrial Zones

Future Land Use	IA 1	IA 2	IA 3	IA 4	IA 5	IA 6	IA 7	IA 8	Total Acreage
AGR	0.00	55.71	155.48						211.19
C	0.21		30.02	92.29	0.29		0.75	31.50	155.06
CON	17.82	1.19	6.48	2.22	3.94		1.80	3.94	37.39
E			9.10	4.16			11.52		24.78
H/IND				0.00	9.12			24.71	33.83
IND		38.61	77.23					42.29	158.13
L/IND					5.01			17.51	22.52
LOW								13.45	13.45
MU-H							7.54		7.54
MU_L				9.64			6.64	1.16	17.44
MU_M		14.72	6.86	13.12			0.29		34.98
O			3.26	9.65			1.65	8.42	22.98
PF	12.85	7.03	23.83	11.83	106.60	74.34	42.93	1.01	280.41
PUD	6.61	50.52		0.54				0.02	57.69
R_H							37.71		37.71
R_L	33.72	20.78	59.90	40.44	0.35		20.03	3.50	178.73
R_M		5.66	23.43	15.52	4.46		30.68	12.22	91.96
REC			14.00	0.00	137.54		17.90	6.13	175.57
SF		5.30	18.03	24.88	(53.43)		79.92	2.88	77.58
Total	71.22	199.51	427.62	224.28	213.89	74.34	259.35	168.71	1638.91

TABLE 1.2.3c
Acreage of Future Land Use for Areas Within 1,000 Feet of Industrial Zones

Future Land Use	IA 1	IA 2	IA 3	IA 4	IA 5	IA 6	IA 7	IA 8	Total Acreage
AGR		110.62	325.36						435.98
C	0.96		67.72	182.08	6.17		0.91	59.41	317.25
CON	43.12	17.31	19.29	3.26	3.94		1.80	38.09	126.82
E			10.59	14.02			28.45		53.06
H/IND					19.73			37.10	56.84
IND	0.04	62.17	153.11	2.00	0.71		1.92	69.63	289.58
L/IND					5.01			24.99	30.00
LOW								24.03	24.03
MU-H							15.46		15.46
MU_L			2.95	20.77			20.40	1.16	45.27
MU_M		15.84	6.95	23.54			9.86		56.20
O			14.29	10.05			1.65	16.82	42.81
PF	22.52	7.56	38.21	24.67	171.94	161.20	125.46	10.13	561.69
PUD	6.61	57.68	6.49	2.82				0.02	73.62
R_H							57.45		57.45
R_L	48.88	33.18	109.91	64.94	6.50		36.13	5.07	304.62
R_M		5.95	42.03	36.29	4.46		44.48	26.70	159.92
REC			22.80		142.00		25.22	6.13	196.15
SF		5.50	23.95	53.49			156.16	2.88	241.98
Total	122.13	315.82	843.65	437.94	360.47	161.20	525.33	322.15	3088.70

Overlay Districts. The industrial area is located along US 441, which at this location is part of a Gateway District (Figure 1.1.2). It is not within the Wellfield Protection District, Surface Waters and Wetlands District, or Greenways District.

Surrounding Land Use. IA 1 is located on the east side of US 441 and the ACL Railroad. The roadway and rail rights-of-way are 370 feet in width. Turkey Creek Forest Subdivision and a mix of commercial/office uses are located on the west side of US 441. North and east of the property are undeveloped wooded areas. To the south of the district is the Whitney Park Mobile Home Park (MHP).

Existing land use in 500 and 1,000-foot bands is shown in Figure 1.2.1.2 and the acreage listed in Table 1.2.2. Drawing a 500-foot buffer around the outer boundary of the district yields an area of 91.85 acres. Land use within the 500-foot band is predominantly Conservation (25.31 acres), Agriculture/Timber (22.2 acres), Public Service (19.71 acres), and Commercial (15.94 acres). It should be noted that the Whitney Park MHP falls within the Commercial land use category. Residential (other than Whitney Park MHP) uses within 500 feet of the site account for 4.86 acres.

Existing land use between 500 and 1,000 feet of the site contains 144.21 acres. It is comprised primarily of Agriculture/Timber (42.07 acres), Commercial (29.54 acres), Public Service (26.78 acres), Conservation (17.64 acres) and Residential Low Density (15.47 acres). The area between 500 and 1,000 feet captures a larger portion of Turkey Creek Forest and the Whitney Park MHP.

Future land use in 500 and 1,000-foot bands around the area is shown in Figure 1.2.1.3 and acreage of future land uses is listed in Table 1.2.3. Future land use for those portions of the district adjacent to the City of Gainesville are predominantly Conservation, Residential Low Density and Public Facilities for properties within 500 feet and within 1,000 feet. Northeast of the area, land is under the jurisdiction of Alachua County and is designated for Rural/Agriculture (1 DU per 5 acres). West of the area, a portion of the property is within the City of Alachua and has a future land use designation of Commercial.

Summary. IA 1 is one of the City's smaller industrial areas with just under 50 acres. It is one of just two areas that are entirely within the I-2 zoning district. Its location east of US 441 and the ACL Railroad provides a separation (actual and perceived) from land uses to the west of US 441. Roadway and railway access are also major assets of the area. Expansion potential of IA 1 is limited, with a mobile home park to the south, GRU's Deerhaven plant to the north, US 441 to the west, and wetland areas to the east.

The area as currently configured is compatible with surrounding land uses. This is due in part because existing uses other than Griffis Lumber are not industrial but vacant or residential. Were heavy industrial to locate throughout the property some incompatibilities might arise with Whitney Park MHP and Turkey Creek Forest and the I-2 zoning in the southern portion of the property is generally inappropriate adjacent to residential areas.

Limiting factors to the development of IA 1 are its size and potential compatibility problems both internally and with surrounding residential land uses. Slightly less than half the area is developed in industrial uses while much of the remainder is currently in residential use. Unimproved lands total only seven acres.

1.2.2 Industrial Area 1 (IA 2)

Overview of Area. IA 2 consists of one contiguous area containing three distinct, separately accessed, industrial areas located in the northeast quadrant of the intersection of SR 121 and US 441 (Figure 1.1.1). The area is predominately in the I-2 zoning district (140 acres) with a smaller portion in I-1 zoning (30 acres). IA 2 contains 171 acres divided between 110 land parcels. The northwest section of the site is accessed via US 441 at NW 74th Place. Rail access is available along the western boundary adjacent to US 441. The northeast section is accessed via SR 121 at NW 73rd Place. The southern and larger industrial section is accessed from SR 121 at NW 71st Place and NW 66th Court.

Existing Land Use. IA 2 is comprised primarily of Unimproved Land (80 acres), Industrial (52 acres), Office (18 acres) and Commercial (18 acres). Figure 1.2.2.1 illustrates existing land use. Table 1.2.1 lists the acreage by land use for the entire area.

The northwest section of IA 2, accessed from US 441 at NW 74th Place, is zoned entirely for I-2. The majority of parcels in the northwest section are in Industrial uses. The non-industrial parcels are in Commercial and Public Sector uses. There are two undeveloped parcels; the largest, a strip of land along the northern boundary with frontage on both US 441 and SR 121. Some of the businesses in this area include University Towing, Traffic Control Devices, Carbonaire, Consolidated Freightways, and Rafferty Machine and Tool.

The northeast section of IA 2, accessed from SR 121 at 71st Place, is zoned predominantly I-2, with a strip of I-1 along SR 121. There are four parcels in this section. The primary uses are an auto service shop and an office use.

The largest section of IA 2 is within the Northwood Industrial Park. This area is zoned primarily for I-2 with portions fronting SR 121 zoned for I-1. Uses are a mix of Industrial, Office and Commercial. There are also a number of Unimproved parcels. Uses in this park include Exachtech, Gainesville Iron Works, Perry Roofing, Central Builders Supply, Mr. Paper, and Culligan.

Overlay Districts. Portions of IA 2 are within various environmental overlay zones of the City. The eastern portion of the area is within the Wellfield Protection District Tertiary Zone. Portions of the area are within the Surface Waters and Wetlands Districts. There are no Regulated Creeks. US 441 along the west side of the area is a Gateway Street.

Surrounding Land Use. IA 2 is well insulated from surrounding developed areas on most sides. Existing land use from the boundaries of IA 2 in 500 and 1,000-foot bands is shown in Figure 1.2.2.2 and the acreage of land uses within the bands is listed in Table 1.2.2. To the north is a large expanse of Agriculture/Timber lands. To the west are, in order, a drainage easement and buffer zone, GRU power plant road, ACL Railroad, and US 441. The distance from the back property line of IA 2 on the east side of US 441 to properties along the west side of US 441 is approximately 450 feet. On the west side of US 441, existing uses are predominantly Commercial, Public Service, and Office with a small area of Residential at the entrance to Northwood Pines. To the east, across SR 121, are Industrial and Unimproved Lands as well as two residential developments.

There are 121 acres located within 500-feet of the outer boundary of the district. Land use within this area is predominantly Agriculture/Timber (56 acres), Unimproved Land (30 acres), and Conservation (16 acres). Potentially incompatible land uses within this area include

approximately 9 acres of Residential and an Institutional use (a church) located at the entrance to Northwood Pines off US 441. Residential uses include Hidden Lake and Buck Bay.

Existing land use between 500 and 1,000 feet of the site contains 201 acres. It is comprised primarily of Agriculture/Timber (98 acres), Unimproved Land (48 acres), Commercial (18 acres), and Residential (high and low density) (14 acres). Potentially incompatible land uses include nine lots in Northwood Pines and much of Hidden Lake and Buck Bay.

Future land use within 500 feet and between 500 and 1,000 feet is shown in Figure 1.1.2.3 and the acreage of future land use designations is listed in Table 1.2.3. The future land uses designated within 500 feet of the district boundary are primarily Agriculture (55 acres), Industrial (24 acres), Conservation (16 acres) and Residential Low (12 acres). Between 500 and 1,000 feet the primary future land use designations are Agricultural (56 acres), Industrial (39 acres), PUD (50 acres), and Mixed Use Medium (15 acres).

Summary. In terms of compatibility with surrounding areas, IA 2 is well-planned and generally meets the objectives of the I-1 and I-2 districts. US 441 and the ACL Railroad provide a wide buffer and physical separation from land uses located to the west. Agricultural uses to the north are compatible with the industrial area. Along SR 121 on the eastern boundary, the two residential developments are potentially incompatible with intensive industrial development. However, careful planning has reduced the potential for negative impacts by placing conservation areas and the less intense I-1 zoning along SR 121. Approximately 80 acres of Unimproved Land remains within IA 2. Much of the undeveloped area is in smaller parcels within the Northwood Industrial Park. One large parcel along the northern boundary of the area is still intact. Some of these undeveloped parcels likely have limitations to development due to wetlands.

1.2.3 Industrial Area 1 (IA 3)

Overview of Area. IA 3 is the City's largest industrial area with 863 acres (Figure 1.1.1). It is bordered by SR 121 to the west, US 441 and NW 6th Street on the southwest, and Agriculture/Timber lands along most of its northeast side. It includes large blocks of land north and south of NW 53rd Avenue and extends almost to NW 39th Avenue along its southern border. It contains the Northwest Industrial Park and Gainesville North Industrial Park, as well as many smaller areas that are individually accessed or contain small clusters of uses accessed from the City's road system. It is comprised of 513 acres zoned I-1 and 339 acres zoned I-2. The I-1 zoning is located along the northern and southern perimeter and the I-2 zoning is located in the central area, both north and south of NW 53rd Avenue. It contains the largest acreage of I-2 zoning within the City's industrial areas.

Existing Land Use. Of the 863 acres in IA 3, Agriculture/Timber and Unimproved Land comprise almost 70 percent of the land area. Industrial (144 acres), Commercial (53 acres), and Office (26 acres) are the primary developed uses (Table 1.2.1). Residential uses comprise approximately 29 acres distributed in two parcels north of NW 53rd Avenue, one parcel (Ranch Villa Mobile Home Park) near the intersection of NW 6th Street and US 441 and a number of parcels in the triangular area southwest of NW 6th Street near the southern boundary of IA 3. Figure 1.2.3.1 shows existing uses and degree of parcelization in and around the area.

Overlay Districts. IA 3 is located entirely within the Wellfield Protection Districts Tertiary zone and Secondary Zone. It has large areas of wetlands although there are no Regulated Creeks. NW 53rd Avenue and US 441 are both Gateway Streets.

Surrounding Land Use. On the north and east sides of the industrial area, land use is predominantly Agriculture/Timber up to and beyond 1,000 feet. Along the west and southwest boundaries there are a mix of uses, with Residential comprising a high percentage. Figure 1.2.3.2 shows the existing land use around IA 3 in 500 and 1,000-foot bands. Table 1.2.2 lists the acreage of land uses within these bands.

Future land use (Figure 1.2.3.3 and Table 1.2.3) is predominantly Agricultural and Industrial to the northeast and Commercial to the southeast, although there is a broad mix of uses along the west side of US 441.

Summary. IA 3 is largely compatible with surrounding areas based on the overall objective of the I-1 and I-2 districts. Internally, there are a few residential uses that pose potential compatibility problems for future industrial development. Although there are a number of residential parcels located around IA 3, almost all of these parcels are adjacent to I-1 areas. The most suspect residential use is the previously mentioned Ranch Villa Mobile Home Park, which is located in the I-2 area. Portions of the I-2 district fronting NW 53rd Avenue and US 441 might also benefit from an I-1 transition area. This would prevent potentially more intensive I-2 uses from fronting directly onto arterial streets as recommended in the objectives for the district.

1.2.4 Industrial Area 1 (IA 4)

Overview of Area. IA 4 is a sprawling industrial area stretching from NW 39th Avenue on the north to NE 16th Avenue on the south and Main Street on the east to NW 4th Street on the west (Figure 1.1.1). It is comprised of 58 acres in I-1 zoning and 144 acres in I-2. The I-2 is located in the central and northern area and I-1 is located generally on the south and east side of the area. Much of IA 4 is located one or more blocks west of the auto dealerships on North Main Street and many of the uses within the district are auto related.

IA 4 contains 197 acres divided among 85 parcels. Access to the area is along the City's grid street system and there is no formally designated industrial park. Although there are a number of parcels in the district, a few large parcels account for a majority of the total acreage. Koppers Industries identified on Figure 1.2.4.1 as the large block of commercial land use, comprises 44 percent of the total area of IA 4.

Existing Land Use. Developed areas in the district are divided among Commercial (103 acres), Industrial (24 acres), Public Service (5 acres) and Office (5 acres) (Table 1.2.1). Unimproved Land encompasses 60 acres and is scattered throughout the district with a larger grouping near the center (Figure 1.2.4.1).

Overlay Districts. Much of IA 4 falls within the Tertiary Zone of the Wellfield Protection Districts with a small area in the northern portion of the district in the Secondary Zone and a small area in the southern portion outside the Wellfield Protection Districts (Figure 1.1.2). The area is the headwaters for two Regulated Creeks and some wetlands are present. No Gateway or Greenway Districts are present.

Surrounding Land Use. This area, although zoned I-1 and I-2 serves as a transition zone between the commercial uses along North Main Street and the residential uses to the west. Figure 1.2.4.2 illustrates this quite clearly with the yellow residential areas located almost exclusively to the west of the industrial area and commercial uses to the east. Table 1.2.2 confirms this: commercial uses and residential uses contain by far the largest acreage of land within 1,000 feet at 156 acres and 123 acres, respectively.

Figure 1.2.4.3 illustrates future land use within 500 and 1,000 feet of the area. It closely approximates the existing uses with Residential uses bordering the west side of the Industrial area and Commercial land use along the east, north, and south (Table 1.1.3).

Summary. IA 4 contains a mix of I-1 and I-2. The I-1 locations generally meet the objectives for the I-1 district. The I-2 areas are adjacent to Residential uses along the western border of IA-4 which is inconsistent with the objective for the I-2 district. The I-2 zoning at the north end of the area is largely developed in small parcel Commercial and Industrial uses. These uses are adjacent to an area with a future land use designation of Residential Low Density. To the south, a large block of I-2 zoning at the Koppers site backs up to areas with both existing uses and a future land use designation of Residential/Low Density. The proximity of residential areas to undeveloped I-2 zoned property raises concerns about the compatibility of future heavy industrial development in the area.

1.2.5 Industrial Area 1 (IA 5)

Overview of Area. IA 5 is located west of Waldo Road between NE 23rd Avenue and NE 39th Avenue (Figure 1.1.1). The area contains a fairly even mix of I-1 zoning (86 acres) and I-2 zoning (72 acres). The I-1 is located primarily around the perimeter of the area. IA 5 contains 153 acres divided between 193 parcels indicating a high number of smaller properties.

Existing Land Use. Existing land use within IA 5 is dominated by Industrial (72 acres), Commercial (25 acres), Unimproved Land (35 acres), and Office (13 acres) (Table 1.2.1). As illustrated in Figure 1.2.5.1, the central and southern portions of this district are highly parcelized and mostly developed. The area for future expansion as indicated by the amount of Unimproved Land (35 acres) is limited. Also, the district contains 12 residential parcels totaling over 5 acres.

Overlay Districts. As shown in Figure 1.2.2, the entire area is within the Wellfield Protection District. The northern one-third is in the Secondary Zone while the southern two-thirds is within the Tertiary Zone. Wetlands cover the northern portion of the area. Waldo Road is both a Gateway Street and has a Greenway located along its east side.

Surrounding Land Use. Figure 1.2.5.2 illustrates surrounding land use in 500 and 1,000-foot bands around the site. As is evident from the figure, IA 5 backs up to Residential areas along the west and south. The remainder of the surrounding uses is dominated by Public Service. Low Density Residential accounts for approximately 20 percent of the land area within the 500 and 1,000-foot bands (Table 1.2.2).

Future land use (Figure 1.2.5.3) tracks the existing land use with one exception. Along the northwest border of the industrial area, the future land use designation calls for Single Family Residential while the existing use is Public Service and Agriculture/Timber. Table 1.2.3 lists acreage of future land use within 500 and 1,000 feet of the boundary of the area. Future land uses along the east and north are Public Facilities and Industrial, while along the west and south, uses are almost extensively Single Family Residential.

Summary. IA 5 is one of the older and more developed industrial areas in the City. The placement of I-1 and I-2 zoning districts follows the industrial area objective to use I-1 zoning as a transitional zone between I-2 and less intense uses. The Single Family future land use designation along the northwest side of the industrial area should be revisited to examine feasibility of light industrial or other more intensive uses. This area is near a major intersection

and the airport. Were Single Family Residential to locate in this area it would abut Industrial uses to the east, north, and south.

1.2.6 Industrial Area 1 (IA 6)

Overview of Area. IA 6, the Airport Industrial Park, is located in the northeast quadrant of the City, north of the Gainesville Regional Airport (Figure 1.1.1). It is accessed from Waldo Road (SR 24) via three access roads. The Airport Industrial Park contains 321 acres divided between 32 separate parcels. The entire area is in the I-2 zoning category; however, protective covenants and restrictions for the industrial park state that "The property shall be used solely for the purposes of light industrial development, offices, research, display, warehousing, distribution, laboratories, assembly and processing, jobbing, wholesaling, and other uses normally associated with the light manufacturing, assembly and distribution found in a high quality light industrial or business park."

Existing Land Use. Figure 1.2.6.1 shows existing land use within the Airport Industrial Park. Table 1.2.1 lists the acreage and number of parcels based on existing use within the industrial park. The four main uses in the park are Public Service (113 acres), Industrial (69 acres), Office (54 acres), and Unimproved Land (85 acres). There are covenants and restrictions on the park that limit noise and toxic uses. In addition, there are restrictions due to the proximity of the Gainesville Regional Airport.

The protective covenants and restrictions for the park list prohibited uses and activities. These include: rendering plants, poultry processing plants, junk yards, chemical producing or manufacturing plants, cement plants, heavy manufacturing purposes, foundries or any other industry or business which is or becomes a nuisance by reason of the excessive emission of smoke, dust, noise, glare, odor, fumes or vibrations in expressly prohibited in the park. Uses are further restricted by language that states " No air pollutant or odorous matter shall be discharged or emitted into the atmosphere from any source in such quantities as to be readily detectable at any point beyond the individual tract or lot line to produce a public nuisance or health hazard. Any condition or operation that results in the creation of odors or air pollution of such intensity and character is prohibited."

Overlay Districts. The Airport Industrial Park has areas that are within most of the City's environmental overlay zones (Figure 1.1.2). Much of the property is within either the Wellfield Protection District Secondary Zone or Tertiary Zone. There are wetlands located throughout the area, predominantly in the northwest and eastern portions of the property. Little Hatchett Creek, which runs along the southern boundary, is a Regulated Creek. Waldo Road is Gateway Street and the former railroad adjacent to the road is a Greenway.

Surrounding Land Use. Existing land uses surrounding the Airport Industrial Park are shown in Figure 1.2.6.2. The Airport Industrial Park is bounded by Public Service (the airport) to the south, Waldo Road, Unimproved Land, and Residential property to the west, Industrial and Public Service to the north and Agriculture to the northeast. The property is on the border of the City of Gainesville, and is surrounded by the unincorporated area of Alachua County to the west, north, and east. Table 1.2.2 lists acreage within 500 and 1,000 feet of the site based on existing uses. There is a mobile home park located on the west side of Waldo Road across from the entrance to the park that is the only existing residential use within 1000 feet of the park.

The future land use designation for the area to the south within the City limits is Public Facilities (Figure 1.2.6.3 and Table 1.2.3). The remainder of adjacent future land uses are designated by Alachua County as Industrial and Rural Agriculture.

Summary. The Airport Industrial Park has only minor incompatibilities with existing surrounding land uses and does not appear to conflict with future land use designations on the City's or County's land use plan. Although zoned I-2, the protective covenants and restrictions for the park in essence convert it to an I-1 zone.

1.2.7 Industrial Area 1 (IA 7)

Overview of Area. IA 7 is the City's oldest and most urban industrial area. Centered south of Depot Avenue between SW 6th Street and SE 4th Street, it contains 240 acres divided between 206 parcels. Only IA 5 has a higher ratio of parcels to acreage. IA 7 contains 105 acres in the I-1 district and 140 acres in the I-2 district. The I-1 zoning districts are generally located around I-2 zones, providing a transition or step down to the surrounding area.

Existing Land Use. IA 7 is readily divided into a number of subareas. These include: the area west of Main Street which is predominantly industrial; the area east of Main Street which grades from large parcel Industrial, Public Service and Unimproved Lands into a finer mesh of Industrial, Residential and Commercial properties; and the southeastern extension which is a narrow strip of Industrial, Unimproved Land and Residential uses. Figure 1.2.7.1 shows the existing uses in the IA 7 area. The primary land uses in the district are Industrial (96 acres), Unimproved Land (68 acres), and Public Service (32 acres). There are 22 acres of Residential Low and High Density uses (Table 1.2.1).

Overlay Districts. IA 7 is within a number of environmental overlay districts. Sweetwater Branch (a Regulated Creek) runs along the eastern side of the district. A wetland area is located near Depot Avenue and SE 4th Street. Greenway Districts loop along a number of the area streets and abandoned rail lines.

Surrounding Land Use. Figure 1.2.7.2 illustrates existing land uses around the district in bands of 500 feet and 1,000 feet. Three distinctive attributes of the surrounding land use become apparent, especially when compared to most other industrial districts in the City: 1) the large number of parcels located within 500 and 1,000 feet, 2) the wide array of land uses within those parcels, and 3) the mix or lack of homogeneity of those uses. Table 1.2.2 lists the acreage of land uses within these bands. Residential Low Density and Unimproved Land comprise a high percentage of both the land area and the parcels.

Future land use in 500 and 1,000-foot bands is shown in Figure 1.2.7.3. There are surprisingly few land use incompatibilities between future land uses, given such a broad mix of land uses in the area. The thoughtful placement of I-1 districts around the perimeter of the Industrial area in conjunction with Public Facilities designation leaves few areas where I-2 abuts directly on Residential. Table 1.2.3 lists the acreage breakdown of future land use designations around the area.

Summary. Centrally located a few blocks south of the central business district, the Depot/South Main Industrial Area is the City's most diverse industrial area. The area borders both high-density housing and historic neighborhoods. It contains or is adjacent to a number of the City's public facilities. A brownfield site is within its borders. The area west of Main Street is largely developed and is adjacent to residential uses located to the north. Along Southeast 4th

Street, there are numerous residential parcels mixed with smaller industrial uses, however, the parcel sizes are small, somewhat limiting the intensity of uses, and the area has historically supported a mix of uses. The I-1 and I-2 zones generally meet the district objectives for I-1 and I-2 areas. The I-2 district, located in the southeastern portion (Suntee Paints), is adjacent to Residential areas as are some of the I-2 areas along Depot Avenue.

1.2.8 Industrial Area 1 (IA 8)

Overview of Area. IA 8 contains 297 acres all in the I-1 district (Figure 1.1.1). It is confined by North Main Street on the west, NE 15th Street on the east, and NW 53rd Avenue on the north. It is located north of NE 39th Avenue.

Existing Land Use. IA 8 is currently undeveloped. Its existing land use consists of two parcels (Unimproved Land (295 acres) and Public Service (1.4 acres). Figure 1.2.8.1 shows the limited number of existing uses in IA 8.

Overlay Districts. IA 8 lies entirely within the Wellfield Protection District Primary Zone and Secondary Zone (Figure 1.1.2) There are a number of wetlands in the area although there are no Regulated Creeks. Its northern boundary is along the NE 53rd Avenue, which is a Gateway Street.

Surrounding Land Use. The urban fabric in this portion of the City is less dense than most areas. Although IA –8 is the third largest industrial area, there are only 34 parcels within 500 feet of its outer boundary. The majority of these are compatible with light industrial development. They include Agriculture/Timber (71 acres), Unimproved Land (58 acres), Conservation (34 acres) and Public Service (8 acres). There are seven Residential low-density parcels within 500 feet of the area. Recently a 112-unit apartment complex was developed to the southeast of the area. The City's well fields are to the north. Figure 1.2.8.2 shows land use within 500 feet and 1,000 feet of the IA-8 boundary.

Extending out to between 500 and 1,000 feet, the mix of existing uses remains largely compatible with Agriculture/Timber and Unimproved Land accounting for over 80 percent of the area. Within this area there are also 11 acres of Commercial and a similar amount of Residential Low Density.

Future land use around the site (Figure 1.2.8.3) contains a mixture of Industrial, Commercial, Conservation, and Residential in fairly equal proportions (Table 1.2.3). Within the city, a 100-foot building setback is required for all I-1 uses adjacent to residential districts.

Summary. There are currently no incompatibilities between this district and surrounding uses since the district is undeveloped. Although there are existing and designated residential uses surrounding the area, development of the area in I-1 should allow future uses to remain compatible with surrounding areas.

1.2.9 Industrial Area 1 (IA 9)

Summary. As shown in Figure 1.1.1 and Figure 1.2.9.1, IA 9 consists of a single undeveloped 3.5-acre parcel that is in Timber use. It is surrounded by Unimproved Land, Agriculture/Timber, and Commercial (Lamplighter Residential Development). Due to its location and size, no additional information is provided in this report.

1.2.10 Industrial Area 1 (IA 10)

Summary. As shown in Figure 1.1.1 and Figure 1.2.10.1, IA 10 consists of a single 0.36-acre parcel in the I-1 district. Its current use is auto sales. Due to its limited size and current use, no additional information is provided in this report.

1.3 Conclusion

This section has examined land use within and around each of the City's industrial areas. The diversity within the industrial areas makes generalizations for the group as a whole difficult. However, there are some recurrent characteristics.

Generally, the I-1 zoning category has been effectively used as a transition area between I-2 and surrounding areas. Many Industrial areas show evidence of thoughtful land use planning in the location of I-1 and I-2 relative to surrounding areas.

The majority of land uses surrounding the industrial areas are compatible, although in almost all areas there are exceptions, as evidenced by the fact that 15 percent of surrounding existing uses are Residential. Future land use designations indicate that the percentage of Residential may increase to as high as 25 percent. There are relatively few areas where I-2 is adjacent to Residential uses, although in the older industrial areas it is not uncommon.

Generally, the areas along US 441, SR 121, NW 53rd Avenue, and Waldo Road provide better separation between incompatible uses than the older Industrial areas in the Depot area and west of North Main Street.

Available areas for acreage-intensive I-2 uses are limited in the older Industrial areas by the size and total acreage of unimproved parcels. In many of the older districts, land is being reused which poses a separate set of development constraints. Proximity of residential uses near (and in some instances within) these areas is also a limiting factor.

Almost all of the Industrial districts have residential uses (both existing and planned) within 500 feet of their boundary. Some of the industrial areas have residential uses within their borders. Given the proximity of residential uses to these areas, only a few sites within a few of the areas are suited to some of the intensive industrial uses allowed in the I-2 zoning district.

Based on the amount of acreage of Timberlands & Agricultural lands surrounding the industrial areas, some of the areas along US 441, SR 121, and NW 53rd Avenue may be capable of expansion. The area around the airport may offer similar possibilities.

Some areas are constrained from previous land use decisions by other jurisdictions. The City should work closely with other jurisdictions to ensure the remaining industrial areas are not further constrained by location of incompatible land uses.

2 Analysis of Industrial Uses

2.1 Methodology

Gainesville's industrial moratorium for I-2 industrial zoning was based upon the development of a Pollution Index to identify those industries with the greatest potential for releasing pollutants of

concern to the Gainesville area. The moratorium included 47 manufacturing Standard Industrial Classification (SIC) codes and nonmetallic mineral mining.

The analysis contained in this document is a more thorough characterization of the pollution potential of each SIC code. This allows estimation of potential impacts to air quality, groundwater, and surface water, as well as indications of possible nuisance problems in the form of odors and noise. In these analyses, only the characteristics of the industry are considered. Use of trucks, railroad, aircraft, or other means to transport raw materials, products, and by-products are not included.

The estimated environmental impact of manufacturing facilities is based upon national data developed by the U.S. Census Bureau, U.S. Environmental Protection Agency (USEPA), and Bureau of Labor Statistics. This approach exploits the fact that industrial pollution depends upon the scale of industrial activity, the industry's Standard Industrial Classification (SIC) code(s), and the process technologies that are employed in production. Although the City of Gainesville may have little or no industrial pollution data for a specific potential industrial land use, it will have relatively detailed data on the type of industry [e.g., SIC code(s)], employment, and traffic impacts. This approach is designed to convert this information to the best feasible profile of the associated pollution potential for a proposed manufacturing industry in the City. It operates through sector estimates of pollution intensity, or pollution per unit of activity. As with any estimation model based upon a broad population, the emissions from a specific plant cannot be predicted with precision, but indications of potential problem areas can be developed.

Merging manufacturing census file data with USEPA data on air, water, and solid waste emissions created the database used to develop these estimates. It contains complete environmental, economic, and geographic information for approximately 200,000 factories in all regions of the United States. It spans approximately 1,500 product categories, all operating technologies, and hundreds of pollutants. It can separately project air, water, and solid waste releases. Data on the industrial population of Florida and Alachua County focus on industries likely to locate in this portion of the country.

In order to establish a reliable picture of industrial pollution, a large sample of facilities across a broad array of SIC codes is required. The USEPA emissions databases contain information on the environmental performance of regulated industries across the United States. Three are of particular relevance to developing this estimation model: the Toxic Release Inventory (TRI), the Aerometric Information Retrieval System (AIRS), and the National Pollutant Discharge Elimination System (NPDES).

TRI contains information on annual releases of toxic chemicals to the environment. It was developed to provide communities with information about potential chemical hazards, and to improve planning for chemical accidents. The TRI reporting requirements cover all U.S. manufacturing facilities meeting the following conditions:

- They produce/import/process 25,000 pounds or more of any TRI chemical or they use 10,000 pounds or more in any other manner
- They are engaged in general manufacturing activities
- They employ the equivalent of ten or more full-time employees

TRI facilities must report annually all releases of TRI substances to air, water, or land, whether routine or accidental, and all transfers of TRI substances for off-site disposal.

AIRS is the management system of the U.S. national database for ambient air quality, emissions, and compliance data. The Air Facility Subsystem (AFS) contains the emissions and compliance data mandated by the Clean Air Act that are provided by individual facilities monitored by the USEPA and state agencies. There is some overlap with the TRI because the AFS data include emissions of some chemicals listed in TRI, but the AFS also includes a number of additional substances and parameters. The most important are the USEPA six criteria air pollutants: sulfur dioxide, nitrogen dioxide, carbon monoxide, particulate matter (TP), fine particulates (PM-10), and volatile organic compounds (VOC).

In this study, these databases are combined with the Longitudinal Research Database (LRD). The LRD is an establishment-level database constructed from information contained in the Census of Manufacturers (CM), the latest of which was taken in 1997 and published in June 2000. The CM is a complete enumeration of all manufacturing establishments, as classified by the Census Bureau according to SIC code. This provides basic data on employment, location, and numbers of facilities in each category.

The Agency for Workforce Innovation, in cooperation with US Department of Labor, maintains a database that is updated quarterly regarding employment and wages by geographic areas and SIC code. This provides data on manufacturers in Florida and Alachua County for the year 2000.

Access to the emissions and economic data described allows development of a comprehensive picture of the environmental risks associated with industrial development. Such an estimate can be presented as an index of pollution intensity, expressed as a ratio of pollution per unit of manufacturing activity. The most useful unit of manufacturing activity to gauge potential environmental impacts is the number of paid employees because this number is often available during the planning phase for such facilities.

The USEPA data used in this study cover only facilities releasing pollutants in quantities over a threshold level of emissions. Consequently, pollution intensity estimates based on these data may be upwardly biased, by exclusion of cleaner facilities.

2.2 Pollutants Considered

Chemicals vary in their toxicity to humans and ecosystems. Chemicals with higher toxicity are associated with the manufacture of pesticides, industrial chemicals, plastics, paper and metals. The most benign chemicals are associated with food and drink industries. The chemicals associated with other industries are approximately similar in their level of toxicity. Studies have shown that, with the exceptions noted above, the quantity of toxic chemicals released is generally more important than the toxicity of the chemical mix released in evaluating risks to humans and ecosystems. Thus, in this study, risk from toxic chemical releases is assumed to be proportional to the quantity of toxic chemicals released from a site.

With the exception of accidental releases, state and federal permits control industrial releases to air and water. All releases to air and water have the potential to pose a variety of hazards to human health, ecosystems, and economic activity. Releases to the soil are generally confined to landfills designed to contain the chemicals in the solid waste. Some of the potential effects of releases are discussed below.

2.2.1 Air Pollutants

- Total Suspended Particulates (TP) and Fine Particulates (PM10): Particulates are fine liquid or solid particles such as dust, smoke, mist, fumes or smog found in air emissions. In heavy concentrations, airborne particulates interfere with proper functioning of the human respiratory system. High levels of ambient TP in urban/industrial areas are therefore associated with greater morbidity and mortality from respiratory diseases. Particulate coatings on leaves inhibit plant growth. High TP concentrations may also force the use of high-cost filtration equipment by manufacturers. Fine particulates (PM10) are less than 10 micron in diameter. They pose a greater respiratory hazard than TP.

- Sulfur Dioxide (SO_2): Sulfur dioxide is a heavy, pungent, colorless, gaseous air pollutant formed primarily by fossil fuel combustion. It is associated with morbidity and mortality from respiratory disease. In addition, SO_2 is a prime source of acid rain. Acid rain and runoff have raised the acidity in numerous lakes in other parts of the country, some beyond the point where indigenous fish species can survive. Acid rain also degrades concrete, mortar, marble, metals, rubber and plastics.

- Nitrogen Oxides (NO_X): Nitrogen dioxide (NO_2) and nitric oxide (NO) are oxides of nitrogen, often collectively referred to as "NO_X." The primary source of NO is thermal combustion of fossil fuels. Upon release to the atmosphere, NO is converted to NO_2. Higher combustion temperatures, sometimes recommended to reduce emissions of Volatile Organic Compounds (VOCs), are associated with higher production rates of NO_X. NO_X emissions are intimately involved in the formation of acid rain and tropospheric ozone and as such have important ecological impacts. Inhalation of concentrated NO_2 damages the respiratory tract, resulting in a range of effects from mild reductions in pulmonary function to life-threatening pulmonary edema. However, the prime concern in the Gainesville area is its role in the formation of photochemical oxidants (tropospheric ozone) and contribution of fixed nitrogen (nitrate) to surrounding waters.

- Carbon Monoxide (CO): Carbon Monoxide is a colorless, odorless, and tasteless poisonous gas produced by incomplete fossil fuel combustion. CO binds with hemoglobin in human blood 200 times faster than oxygen. Thus, the blood's ability to carry oxygen to tissues is significantly impaired after exposure to only small concentrations of CO. High doses of CO can result in heart and brain damage, impaired perception and asphyxiation, and low doses may cause weakness, fatigue, headaches and nausea.

- Volatile Organic Compounds (VOC): The term volatile organic compounds describe a class of thousands of substances used as solvents and fragrances. VOCs are particularly important in the petrochemical and plastics industries. Human exposure to VOCs is mainly via inhalation, although some VOCs appear as contaminants in drinking water, food, and beverages. Many VOCs are suspected carcinogens. Acute effects from industrial exposures include skin reactions and central nervous system symptoms such as dizziness and fainting. Many VOCs are also considered sources of odors. Most importantly from the perspective of air pollution is the role of natural and manmade VOCs in the formation of photochemical oxidants, which have been identified as eye and lung irritants.

2.2.2 Water Pollutants

- Biological Oxygen Demand (BOD): Organic water pollutants are oxidized by naturally occurring microorganisms. This 'biological oxygen demand' removes dissolved oxygen from the water and can seriously damage some fish species that have adapted to the previous dissolved oxygen level. Low levels of dissolved oxygen may enable disease-causing pathogens to survive longer in water. Organic water pollutants can also accelerate the growth of algae, which will crowd out other plant species. The eventual death and decomposition of the algae is another source of oxygen depletion as well as noxious smells and unsightly scum. The most common measure for BOD is the amount of oxygen used by microorganisms to oxidize the organic waste in a standard sample of pollutant during a five-day period (hence, '5-day BOD').

- Suspended Solids (SS): Small particles of non-organic, non-toxic solids suspended in wastewater will settle as sludge blankets in calm-water areas of streams and lakes. This can smother plant life and purifying microorganisms, causing serious damage to aquatic ecosystems. The loss of purifying microorganisms enables pathogens to live longer, raising the risk of disease. When organic solids are part of the sludge, their progressive decomposition will also deplete oxygen in the water and generate noxious gases.

2.2.3 Toxic Pollutants

- Toxic Chemicals: Many chemicals in industrial emissions are poisonous to humans, either upon immediate exposure or over time, as they accumulate in human tissues. Humans can ingest severely damaging or fatal quantities through repeated exposure, or by consuming plants or animals in which these compounds have accumulated. Toxic chemicals may cause damage to internal organs and neurological functions, can result in reproductive problems and birth defects, and can be carcinogenic. Quantities and length of exposure necessary to cause these effects vary widely.

- Metals: Relatively low concentrations of some contaminants in air, water, soil, and plants become far more concentrated further up the food chain through bioaccumulation. Some metals, such as mercury and lead, are bioaccumulative and in the case of mercury can be converted to organic forms by bacteria, increasing the risk that they will enter the food chain. Bioaccumulative metals are particularly dangerous because they are dissipated very slowly by natural systems. They may cause both mental and physical birth defects. Other metals can become rapidly oxidized and converted to soluble form when sediment is exposed to oxygen. The metal of primary concern in the Gainesville area is mercury, but other metals considered potential problems are lead, arsenic, chromium, nickel, copper, zinc, and cadmium.

2.3 Identification of SIC Codes Associated With Higher Pollution Potential

There are two aspects to the data relevant to this analysis. One is the amount of pollution associated with an average-size plant in a SIC code, and the other is an industry's pollution

intensity, expressed as amount of pollution per paid employee. Large plants may make significant contribution to pollution levels even though their pollution intensity is modest. Small plants may have high pollution intensity but only contribute modestly to local pollution levels. The pollution potential profile expressed as pollution intensity for each SIC code is presented in Appendix A-1. Knowing the SIC code and employment of a proposed industrial project, the quantity and type of pollutants typically released by such a facility can be computed using Appendix A-1. If employment levels have not yet been determined for a proposed industrial project, Appendix A-2 presents the pollution potential profile expressed as emissions from an "average" facility based on national statistics for each SIC code. The national data on number of facilities, employment, and average number of employees per facility are presented by SIC code in Appendix A-3.

There is extreme variation in both pollution intensity and pollution from the average plant with SIC codes within each medium. Typically, a few SIC codes dominate the releases of each class of pollutants. There are a few industries that are more pollution-intensive than the others for each type of pollution considered. Typically, 50 percent of the pollution potential can be attributed to three percent of the SIC codes for each of the classes of pollutants, although different SIC codes may be in each class.

The method used for selection of the industries with the highest potential for environmental pollution is to develop a list of the top 15 of the 458 SIC codes for each class of pollutants. Thus, each of the 12 classes of pollutants has a list of the 15 SIC codes with the highest potential for pollution of our community. Developing lists for both the releases from the average plant and the intensity of the releases yields 24 lists. The frequency with which an SIC code appears on these lists is a good indicator of the pollution potential.

Grading each SIC code according to the frequency that it appears upon the lists by pollutant class for both intensity and plant releases allows some priority judgements for the appropriateness of the industry for Gainesville. Release of non-toxic water was a reduced consideration because the industrial zones are largely served by sewerage systems. The associated waste treatment plants are designed to handle non-toxic pollutants such as BOD and TSS. Toxic solid waste generation was also considered less of a problem because systems exist for proper disposal of toxic solid waste and it is generally in a form or area that is designed to control accidental releases.

2.4 Results

With these considerations, the SIC codes that appear on five or more of the 24 lists of the 15 industries with the highest pollution potential are listed below. These are the SIC codes that should be prohibited from developing in Gainesville industrial zones. It should be noted that developments in the processes for these industries could occur in the future to dramatically reduce their environmental impacts. For this reason, the City should be open to modifying the list through revision of the Land Development Code should sufficient evidence be presented.

2046 Wet corn milling
2611 Pulp mills
2621 Paper mills
2631 Paperboard mills
2812 Alkalis and chlorine
2816 Inorganic pigments

2819 Industrial inorganic chemicals (not elsewhere classified)
2821 Plastics materials and resins
2823 Cellulosic manmade fibers
2824 Noncellulosic organic fibers
2861 Gum and wood chemicals
2869 Industrial organic chemicals (not elsewhere classified)
2873 Nitrogenous fertilizers
2874 Phosphatic fertilizers
2911 Petroleum refining
2999 Petroleum and coal products (not elsewhere classified)
3241 Hydraulic cement
3312 Steel works, blast furnaces, and rolling mills
3313 Electrometallurgical products
3331 Primary copper
3334 Primary aluminum
3339 Primary nonferrous metals (not elsewhere classified)
3341 Secondary smelting and refining of nonferrous metals

There are five additional SIC codes discussed below. Three are related to food products and meet the criteria primarily because of generation of non-toxic water pollutants. These are:

2061 Raw cane sugar
2063 Beet sugar
2085 Distilled liquor

These may be allowed in compatible areas by Special Use Permit (SUP) if connected to and accepted by the sewage treatment system serving the area.

Another SIC code meeting the criteria because of particulate and VOC air pollution emissions is:

2075 Soybean oil mills

This may be allowed in compatible areas by SUP if adequate control technology is incorporated in the design.

The last SIC code meets the criteria because of burning fuel that contributes to all six of the identified air pollutants:

3274 Lime

This use may be allowed if there is a clear commitment to using a clean burning, low-sulfur fuel and adequate control technology.

SIC codes that appear frequently and release toxic materials or metals to the air and/or water are of concern and should be allowed only in compatible areas by SUP:

2111 Cigarettes
2261 Cotton finishing plants
2671 Packaging - coated and laminated paper
2754 Gravure commercial printing
2822 Synthetic rubber
2833 Medicinals and botanicals

2865 Cyclic crudes and intermediates
2892 Explosives
2895 Carbon black
2951 Asphalt paving mixtures and blocks
3211 Flat glass
3221 Glass containers
3229 Pressed and blown glass (not elsewhere classified)
3251 Brick and structural clay tile
3253 Ceramic wall and floor tile
3255 Clay refractories
3259 Structural clay products (not elsewhere classified)
3261 Vitreous plumbing fixtures
3262 Vitreous china food utensils
3275 Gypsum products
3295 Ground or treated minerals
3321 Gray iron foundries
3351 Copper rolling and drawing
3354 Aluminum extruded products
3355 Aluminum rolling and drawing
3363 Aluminum die-castings
3366 Copper foundries
3463 Nonferrous forgings
3479 Metal coatings and allied services

SIC Code 2951 (Asphalt paving mixtures and blocks) should not be included in this list if there is a commitment to using a clean burning, low-sulfur fuel.

The remainder of the SIC codes may be allowed by right if the parcel is judged to be compatible with the proposed use. The lists above contain 57 SIC codes, 41 of which were in the 47 included in the moratorium. The 16 additional SIC codes are primarily the result of including potential for metal pollutant release in the analysis. The seven moratorium SIC codes that are not included on these lists were excluded because the pollutants of concern were solid toxics or non-toxic water pollutants.

Nonmetallic minerals, except fuels, includes dimension stone, crushed and broken stone, sand and gravel, clay, and chemical mining (such as phosphate). The mineral resources of Alachua County are clay, peat, limestone, and undifferentiated resources such as sand, clayey sand, and organic muck. The Industrial zones of the City of Gainesville have only undifferentiated resources, with limestone under a fairly deep overburden. The removal of surface soils for fill or top soil can affect surface water resources, surficial aquifers, and wetlands. Such mining may release pollutants from the soil, including organic materials, suspended matter, metals, and nutrients.

It is unlikely that limestone resources will be exploited in the Industrial zones because of the amount of overburden that must be removed and the availability of more accessible resources in western Alachua County. If such mining were proposed, it should be rejected because of possible impacts to the wellfield. The City's Industrial areas are close to the City's wellfield, relative to other areas of limestone mining. The City's wellfield has also created strong hydraulic gradients toward the wells. Any release of pollutants could quickly move underground to contaminate the City's drinking water.

2.5 Nuisance Considerations

Some SIC codes are possible sources of odors and noise. Odors may occur in a wide range of conditions and are difficult to predict without site-specific data and are therefore best regulated through performance standards. Odors tend to be associated with uses generating VOCs, using reduced or organic sulfur compounds, or using reduced or organic nitrogen compounds. Using the odor surrogates of VOCs and BOD, the SIC codes that may be associated with odors are presented in Appendix A-4.

Noise is also difficult to typify by SIC code since it strongly depends upon building location and construction, and the geometry between source and receptor and therefore is also best regulated through performance standards. Indicators of noise are industries handling large amounts of low cost materials, since they often rely on large machines to move materials around. These machines are common noise sources. A review of the SIC codes yields Appendix A-5, which is a subjective evaluation of those that may tend to be noisier than others.

2.6 Manufacturing Permitted in I-1 Zones

Certain manufacturing SIC codes are currently allowed in I-1 zones. Profiles of potential pollutant releases from these industries are presented in Appendix A-6. Based upon the preceding analysis for I-2 industries, the following SIC codes should not be allowed in I-1 districts:

2046 Wet corn milling
2061 Raw cane sugar
2063 Beet sugar
2261 Cotton finishing plants
2671 Coated and laminated paper packaging
2754 Gravure commercial printing
2833 Medicinals and botanicals

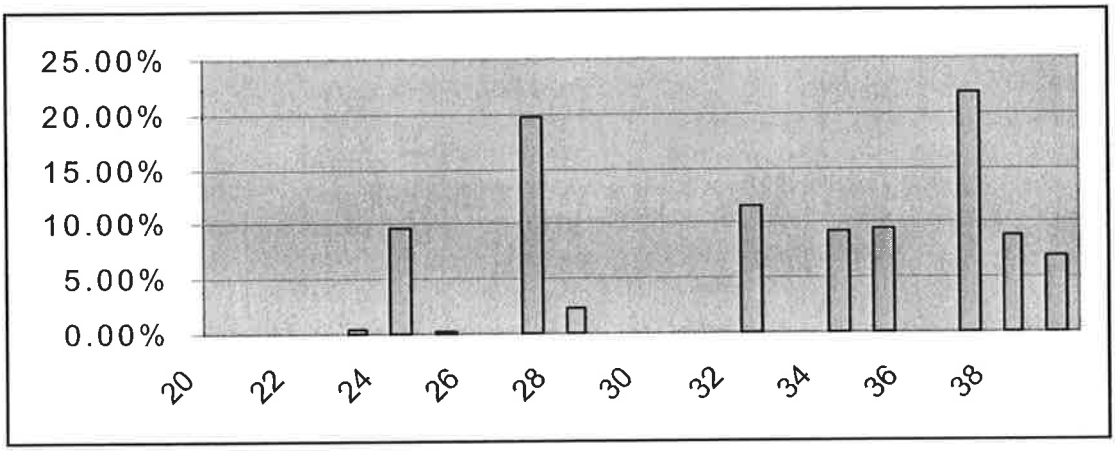
2.7 Manufacturing Overview

The year 2000 data from the Agency for Workforce Innovation for Alachua County indicates the type of industries that have located in this area. In the year 2000, Alachua County had 174 manufacturing units employing an average of 5,429 people. The major groups of manufacturing represented were:

Apparel and other textile, SIC Group 23	4 Units and 17 People
Lumber and wood products, SIC Group 24	15 Units and 418 People
Furniture and fixtures, SIC Group 25	5 Units and 9 People
Printing and publishing, SIC Group 27	51 Units and 858 People
Chemicals and allied products, SIC Group 28	6 Units and 100 People
Stone, clay and glass products, SIC Group 32	11 Units and 502 People
Fabricated metal products, SIC Group 34	8 Units and 406 People
Machinery and computer equipment, SIC Group 35	13 Units and 413 People
Transportation equipment, SIC Group 37	9 Units and 954 people
Instruments and related products, SIC Group 38	13 Units and 385 People
Miscellaneous manufacturing, SIC Group 39	9 Units and 302 People

The subtotals do not equal the total due to disclosure editing. This profile for Alachua County can be a summarized as a percent of jobs as shown in Figure 2.7.1. Alachua County's profile is strongest in Printing and publishing (SIC Group 27) and Transportation equipment (SIC Group 37), but also includes a number of SIC groups with employment of over 300 persons.

FIGURE 2.7.1
Two-digit SIC Code Profile for Alachua County as a Percentage of Reported Jobs



Statistics similar to those for Alachua County are not available for the City of Gainesville. Information is available on industry in the City from information developed by Alachua County, USEPA files, and City lists. Alachua County has developed a list of permitted air emission sources in the county during the year 1997. The manufacturing facilities and their SIC code that appear on that list are:

Bear Archery	3949
VE Whitehurst	2951
White Construction	2951
Hipp Construction	2951
Driltech	3532
Metal Container Corp.	3411
PCR Corp.	2869
Hunter Marine Corp.	3732
Seabring Marine	3732

Non-manufacturing sources appearing on this list are:

GRU Deerhaven	4911
GRU Kelly	4911
Florida Power Corp.	4911
VA Medical Center	8062
UF Vet School	8299

The only sources identified within the City are Metal Container Corp., GRU Kelly, Florida Power Corp., VA Medical Center, and UF Vet School.

A review of USEPA databases show the following industries as located or formerly located in the City of Gainesville.

SIC Code	Name	Location	Industrial Area
2491	Beazer East, Inc.	200 NW 23rd Avenue	4
2491	Koppers Industries, Inc.	200 NW 23rd Avenue	4
2491	Cabot Carbon	North Main Street	4
2711	Gainesville Sun	2700 SW 13th Street	
2741	Mr. Paper Printing	2401 NW 66th Court	2
2841	Spence Chemicals Supply Co.	2332 NE 17th Terrace	
2842	Spence Chemicals Supply Co.	2332 NE 17th Terrace	
2851	Suntec Paint, Inc.	1111 SE 2nd Avenue	7
2851	Flying Colors	4505 NE 49th Drive	6
2869	PCR, Inc.	5002 Sperry Drive	6
2869	Archimica Florida, Inc.	5002 NE 54th Place	6
2869	Clariant Life Science Molecules	5002 NE 54th Place	6
2899	Farchan Laboratories, Inc.	2603 NW 74th Place	2
3272	Florida Rock Industries, Inc.	924 S Main Street	7
3272	Pinch A Penny #33	5007 NW 34th Street	
3273	Florida Rock Industries, Inc.	924 S Main Street	7
3523	Flying Colors	4505 NE 49th Drive	6
3732	Gainesville Marine, Inc.	1030 E University Avenue	
3732	Little River Marine	250 SE 10th Avenue	7
3993	Gainesville Neon Signs, Inc.	618 S Main Street	7

Other manufacturers identified on other lists in Gainesville and their estimated SIC code are:

SIC Code	Name	Location	Industrial Area
2511	Mesh Furniture & Woodworking, Inc.	2302 NW 71st Place	2
2677	Double Envelope Corp.	2500 NE 39th Avenue	
2759	Southern Press	6825 NW 18th Drive	3
2759	Storter Childs	1540 NE Waldo Road	
3433	Heat Pipe Technology, Inc.	4340 NE 20th Way	5
3499	FABCO-Air, Inc.	3716 NE 49th Road	6
3732	Mirage Manufacturing Co., Inc.	3001 NE 20th Way	5
3842	Exactech, Inc.	2320 NW 66th Court	2

The City's profile is in general agreement with the Alachua County profile, which is not unexpected because the City of Gainesville is a major component of the Alachua County data. It would appear that the City contains much of the Chemicals and allied products (SIC Group 28) reported in the County, and apparently does not contain much of the Lumber and wood products (SIC Group 24) reported in the County. The only current use that would not be permitted if it were a new application is 2869, Industrial organic chemicals.

3 Federal, State, Regional, and Local Environmental Regulation of Industrial Land Uses

3.1 Introduction

Federal agencies that may be associated with the environmental regulation of industrial land uses include the U.S. Environmental Protection Agency (USEPA), U.S. Army Corps of Engineers (USCOE), U.S. Department of Commerce (USDOC), and U.S. Department of Interior. (USDOI). The USEPA has the major role in permitting of industry. Permits may be required for potential environmental impacts associated with air, water, hazardous substances and waste products, and pesticides and toxic substances.

The key State environmental permitting agency is the Department of Environmental Protection (FDEP), although the Department of Agriculture and Consumer Services (FDACS), Department of Community Affairs (FDCA), Fish and Wildlife Commission (FFWC), and Department of Health (FDOH) may also influence environmental permitting. FDEP is the lead state agency involved in air, water, dredge and fill, and resource recovery programs.

At the regional level, Gainesville is in a portion of two water management districts, the Suwannee River Water Management District (SRWMD) and the St. Johns River Water Management District (SJRWMD). The principal mission of the water management districts is to accomplish the conservation, protection, management, and control of the water resources of the state, including surface water and related land resources, and groundwater. The City of Gainesville is also part of the North Central Regional Planning Council (NCFRPC) for the regional coordination of comprehensive plans and development plans.

The City and Alachua County are the local governmental entities. Alachua County has a local environmental agency, the Environmental Protection Department (ACEPD). ACEPD participates in the review of proposed industrial projects, monitors impacts, and performs inspections. The City has a number of departments that regulate industrial land use including Community Development, Public Works, Building Inspection, and Fire Rescue. Gainesville Regional Utilities also plays an important role in permitting industrial uses.

3.2 Air Regulations

Under the Clean Air Act (CAA), the Administrator of USEPA addresses air pollution from stationary sources such as manufacturing facilities, as well as other mobile and stationary sources. Originally enacted in 1955, the Act was significantly expanded in scope by amendments in 1972, 1977, and 1990. The CAA is intended to foster the protection and enhancement of the nation's air quality and to safeguard public health and welfare. The Act is divided into six titles:

- Title I deals with control of pollution from stationary sources
- Title II deals with control of pollution from mobile sources
- Title III addresses general and administrative matters
- Title IV addresses emissions and sources that contribute to acid deposition
- Title V establishes an operating permit requirement for sources of air pollution
- Title VI regulates substances that deplete stratospheric ozone

The Act requires USEPA to promulgate national ambient air quality standards (NAAQS) for certain pollutants to protect the public health (primary NAAQS) and protect the public welfare (secondary NAAQS). Each state is required to adopt a plan, called a State Implementation Plan (SIP), that limits emissions from air pollution sources to the degree necessary to achieve and maintain the NAAQS. The SIP provides emission limitations, schedules and timetables for compliance by stationary sources. The Act focuses on "major" stationary sources – defined as sources that emit, or have the potential to emit, more than a prescribed amount of a designated pollutant. Because many industrialized urban areas have not attained the standards, the 1990 Amendments established deadlines and requirements for Nonattainment areas. Control requirements for individual facilities generally are more stringent in Nonattainment areas; however, states are also required to adopt measures to prevent significant deterioration of air quality (PSD) in "clean air areas."

In addition to the SIP regulatory scheme, the Act establishes two other major regulatory programs for stationary sources. The New Source Performance Standards (NSPS) program establishes stringent emissions limitations for "new" sources in designated industrial categories regardless of the state in which the source is located or the air quality associated with the area. An owner or operator of a new or modified source must demonstrate compliance with the NSPS within 180 days of initial start–up of the unit. And, the National Emissions Standards for Hazardous Air Pollutants (NESHAP), regulates emissions of pollutants for which no NAAQS is applicable but which cause increases in mortality or serious illnesses. The 1990 Amendments listed 189 hazardous air pollutants that must be addressed by new EPA "technology–based" regulations. The 1990 Amendments were added, in large part, to meet unaddressed or insufficiently addressed problems such as acid rain, ground–level ozone, stratospheric ozone depletion, and air toxics. Two new regulatory programs of particular interest were added — controls on electric utilities intended to reduce emissions that cause acid deposition and a new Title 5 operating permitting program – very similar to the discharge permitting program under the Clean Water Act (CWA).

At the state level, USEPA has delegated to FDEP the power and the duty to control and prohibit air pollution. The department has air emissions permitting jurisdiction over stationary installations that will reasonably be expected to be a source of air pollution in the state.

At the local level, Alachua County has a local environmental program that has been approved by the State of Florida, but the County's air program is not yet approved. It is presently pursuing FDEP approval of an air pollution program. Once FDEP approves the program, the program must provide by ordinance, regulation, or local law requirements compatible with or stricter or more extensive than those imposed by FDEP rules.

3.3 Water Regulations

Under the CWA, a 1977 amendment to the Federal Water Pollution Control Act of 1972, USEPA has regulatory jurisdiction over discharges of pollutants into the waters of the United States, which includes the coastal waters, rivers and their tributaries, wetlands, and other bodies of water. The goal of the CWA is to restore and maintain swimmable, fishable waters throughout the U.S. and to eliminate discharge of pollutants into the nation's waters. There are three major regulatory provisions under the CWA that may affect an industrial project: Section 402 which regulates the discharge of pollutants; Section 404 which regulates the discharge of dredge and fill; and Section 311 which addresses spills of oil and hazardous substances.

The Section 402 National Pollutant Discharge Elimination System (NPDES) is a permitting program to regulate the point discharges of pollutants into waters of the United States. USEPA has authorized the State of Florida to processes permit requests under this program. Permits set forth the limits, both nationally promulgated technology-based and state-set water quality-based standards, as well as site-specific compliance monitoring and reporting requirements. Limits generally apply at the "end-of-pipe" and are intended to ensure that the water quality is adequate for the water's designated use, such as boating, swimming, or fishing.

FDEP is the lead state agency involved in air, water, dredge and fill, and resource recovery programs. The department has the power and the duty to control and prohibit air and water pollution. The department has water quality permitting jurisdiction over stationary installations that will reasonably be expected to be a source of water pollution in waters of the state.

At the local level, ACEPD has a pollution prevention program that includes hazardous materials management, and a stormwater management program. The programs focus on the protection of groundwater and surface water resources of the county but does not include a permit program.

3.4 Dredge and Fill Regulations

The USACOE has jurisdiction over all activities that affect or modify navigable waters of the United States, including discharges of dredge or fill materials. These waters include coastal waters, marshlands, rivers, lakes, navigable artificial waterways up to headwaters, artificial canals and channels connected to navigable waters, tributaries of navigable waters, interstate waters up to headwaters, intrastate waters used for interstate purposes, and freshwater wetlands connecting or adjacent to navigable waters. The USACOE has discretionary jurisdiction in other water and wetland areas including inland shallows, marshes, estuaries, swamps, isolated wetlands, and other areas associated with inland navigable waters. Section 404 of the CWA is a permitting program to regulate discharges into U.S. waters, including wetlands, of dredge and fill materials, which can include dirt, gravel, tree stumps, and other solid materials. The USACOE has the direct authority to process the permit applications; but USEPA comments on the permit applications, can veto a permit the Corps intends to issue, and has the authority to enforce these provisions of the CWA.

At the state level, FDEP and the water management districts have developed a comprehensive regulatory program with respect to the management and storage of surface waters. This program is known as the environmental resource permitting program (ERP). ERPs include permitting surface water management systems (individual, standard general, conceptual, and noticed general permits), stormwater management systems (individual, general), and agricultural surface water management system permits (individual, general). ERP is the result of a legislative

directive to adopt rules governing the management and storage of surface waters to achieve a statewide, coordinated and consistent permitting approach to activities. ERP represents the consolidation of two former regulatory programs: the management and storage of surface waters (MSSW) permitting program and the wetland resource management (WRM) or dredge and fill permitting program.

3.5 Hazardous Substances and Waste Regulations

Hazardous Substances and Waste Products are regulated by USEPA under two major laws – the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund. RCRA Subtitle C authorizes EPA to regulate the treatment, storage, transportation, and disposal of hazardous wastes. Hazardous wastes are wastes that may cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of, or otherwise managed. Often referred to as a "cradle-to-grave" regulatory scheme because of the complete tracking requirements, the RCRA program is implemented through regulatory requirements and/or state issued permits. A substance is classified as hazardous by being either listed as such by the USEPA or by displaying certain hazardous characteristics, such as extreme acidity or flammability. The threshold quantity of hazardous wastes that USEPA regulates was significantly reduced by the 1984 amendments to RCRA, thereby increasing USEPA's regulatory jurisdiction. The 1984 amendments also required the phasing out of the land disposal of hazardous wastes.

RCRA Subtitle D also provides for the promulgation of guidelines for non-hazardous solid waste collection, transport, separation, recovery, and disposal practices and systems. "Solid waste" is defined as any garbage, refuse, or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility, and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities. It does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources under the Federal Water Pollution Control Act (FWPCA); or source, special nuclear or byproduct material as defined by the Atomic Energy Act. Perhaps the most significant impact of RCRA, as amended, is the authority to impose a total ban on land disposal of untreated hazardous wastes.

Finally, to address the growing environmental threat posed by leaking underground storage tanks (USTs), in November 1986, Congress amended RCRA to add Subtitle I which provides USEPA with the authority to regulate USTs containing petroleum and other hazardous substances.

CERCLA was enacted on December 11, 1980, and amended October 17, 1986. It authorizes USEPA to investigate and remediate or otherwise address properties contaminated by hazardous releases and to recover the cost of cleanup and associated damages from the responsible parties. EPA's authority includes two types of response actions: (1) short–term emergency responses to releases or threatened releases of hazardous substances ("removal actions") and (2) long–term response actions that permanently and significantly reduce the danger of releases or threatened releases of hazardous substances ("remedial actions"). Sites can be cleaned up solely by USEPA using the funds in the superfund, or by responsible parties under USEPA oversight. USEPA's cleanup monies come from a superfund created by taxes on the chemical and petroleum

industries. USEPA is then entitled to recover its documented costs from responsible parties, which can include owners, past owners and operators of the site and generators and transporters of waste sent to the site. The Act imposes strict, joint and several, and retroactive liability upon all responsible parties. Another provision of CERCLA, the Emergency Planning and Community Right–to–Know Act (Title III of SARA), requires the reporting of the storage or of releases of hazardous substances in quantities above specified amounts.

Section 311 provides requirements for preventing, reporting and responding to spills of oil or hazardous substances into waters of the U.S. The USEPA implements this program in partnership with the Coast Guard. Following the Exxon Valdez tragedy, USEPA's authority was further streamlined and strengthened by passage of the Oil Pollution Act of 1990.

Florida's waste management rules include many of the federal RCRA rules as well as more stringent state requirements for hazardous and solid (nonhazardous) waste, and UST management programs. FDEP administers and enforces the hazardous and nonhazardous waste management rules. FDEP also administers and enforces the UST rules in Florida.

ACEPD conducts the FDEP UST program in Alachua County. It also enforces the Alachua County Hazardous Materials Management Code designed to protect the ground and surface waters of the County.

3.6 Toxic Substances Regulations

For industries using the materials, there are two primary laws for the control of pesticides and toxic substances – the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA). The primary focus of FIFRA is to regulate the manufacture, distribution, sale, and use of pesticides so as to minimize risks to human health and the environment. A "pesticide" is defined as any substance intended to prevent, destroy, repel, or mitigate pests. FIFRA requires the registration of all pesticides with USEPA, restricts use of certain pesticides, establishes requirements for the certification of pesticide applicators, requires the registration of pesticide manufacturers, and sets standards for the disposal of pesticides. Before the use of a pesticide may be approved, toxicity and environmental tests are required. If the product's risks do not outweigh its benefits, it can be registered. Once a pesticide is registered, it must be labeled. The label must specify the pesticide's ingredients, uses, warnings, registration number, and, if applicable, special use restrictions. A pesticide may lawfully be used only in accordance with its labeling. In essence, the label serves as the "regulation" governing use of the pesticide.

TSCA grants USEPA significant power to regulate the manufacture and use of chemicals. It authorizes the USEPA Administrator to require testing of selected chemical substances or mixtures. Selection by the Administrator occurs if he or she finds that the manufacture, use, processing, or disposal of a chemical substance or mixture may present an unreasonable risk of injury to health or the environment. Selection may also occur if the Administrator finds that a chemical substance will be produced in substantial quantities and may reasonably be anticipated to enter the environment or that there may be significant or substantial human exposure. TSCA also provides the authority to gather information to assess those risks. The Act was designed to keep harmful chemicals out of the environment and to fill the gaps in existing environmental laws. There are specific rules in place for asbestos, polychlorinated biphenyls (PCBs), and chlorofluorocarbons (CFCs), as well as a program on radon.

The U.S. Department of Agriculture and Consumer Services has regulatory jurisdiction through registration of all pesticides distributed, sold, or offered for sale in the state. The department regulates the purchase or use of restricted pesticides by permitting and licensing. Additionally, under the Radiation Protection Act, the U.S. Department of Health is authorized to license and regulate the manufacture, production, transportation, use, handling, storage, disposal, sale, lease, or other disposition of radioactive material and radiation machines.

3.7 Drinking Water Regulations

Some industrial facilities may be affected by regulations associated with the Safe Drinking Water Act (SDWA) and the Federal Water Pollution Control Act of 1972 (FWPCA). Under SDWA, USEPA has regulatory jurisdiction over public water systems and the underground injection of fluids. The Public Water Supply (PWS) program regulates providers of public drinking water through regulatory requirements. It focuses on all waters actually or potentially designed for drinking use, whether from above ground or underground sources. The SDWA establishes maximum contaminant levels (MCLs) and maximum contaminant goals (MCGs) for various pollutants. The Underground Injection Control (UIC) program regulates placement of fluids underground for disposal or other purposes, and protects the freshwater aquifers.

The jurisdiction of the Florida Department of Health is limited to regulating, in conjunction with county health departments, water and sewer systems (including wells and septic tanks). The Department of Health and its agents have supervision and control over all private water systems and public water systems not covered or included in the Florida Safe Drinking Water Act. The Department of Health and its agents also have supervision and control to a limited extent of sanitary disposal facilities and disposal units.

At the local level, Alachua County is also involved in the regulation of public health provisions relating to sewer and water systems.

3.8 Endangered Species Regulations

Some industrial projects may be affected by regulations designed to protect threatened or endangered species. At the federal level, USDOI is the major federal agency charged with public land management responsibilities. The Secretary of the Interior, in conjunction with the Secretary of Transportation or the Secretary of the Treasury, is charged with enforcing the Endangered Species Act of 1973, and amended in 1981. The 1981 amendment deals mainly with the control of illegally taken fish and wildlife. The Act makes it unlawful for any person to import, export, transport, sell, receive, acquire, or purchase any fish or wildlife or plant taken or possessed in violation of any law, treaty, or regulation of the United States or in violation of any Indian Tribal Law. The Marine Mammal Protection Act of 1972 was amended by the Marine Mammal Protection Act of 1981, gives the Interior Department jurisdiction over the protection of dugongs, manatees, and other species.

The FDACS plays a role in soil and water conservation and the care and management of forests and woodlands in the state through the Soil and Water Conservation Districts and the Division of Forestry. Since 1978, the department and the Endangered Plant Advisory Council have had regulatory jurisdiction over the removal of endangered native Florida plants as set forth on the endangered plant list. In addition, FFWCC exercises the State's executive and regulatory power over wild animal life and freshwater aquatic life as well as marine life.

3.9 Planning

The federal government by in large leaves local planning that may affect proposed manufacturing facilities to other levels of government. The United States Department of Commerce delegated authority in coastal zone management to the National Oceanic and Atmospheric Administration (NOAA). NOAA approves comprehensive, long-range coastal management plans for those states in the coastal zone. The "coastal zone" inland limits are left to the discretion of the states. Florida has chosen to include the whole state in the coastal zone.

FDCA exercises jurisdiction over "developments of regional impact," which is a development that because of its character, magnitude, or location would have a substantial effect on the health, safety, or welfare of citizens of more than one county. As the state land-planning agency, the department is responsible for review and comment on Gainesville's proposed comprehensive plans.

In order to achieve goals under their areas of responsibility, the water management districts have developed district water management plans (DWMP) that provide long-range planning for water resource management. The water management districts use several strategies to conserve and protect the state's water supply. These strategies include initiating comprehensive water supply planning; adopting water shortage plans; establishing minimum flows and levels on certain aquifers, watercourses, and water bodies; providing technical support and public outreach; and regulating water use through permitting programs.

The districts are required to initiate water supply planning for a 20-year period for each water supply planning region where the districts determined that sources of water are not adequate for the planning period to supply water for all existing and projected reasonable beneficial uses and to sustain the water resources and related natural systems. SRWMD designated its entire district as a single water supply planning area. SRWMD has concluded that it has sufficient water sources to meet its projected water demands. Accordingly, SRWMD will not develop a regional water supply plan. Like SRWMD, SJRWMD has designated its entire district as one water supply planning region. Unlike SRWMD, SJRWMD has concluded that it does not have sufficient water sources to meet its projected water demands in all areas of the district. Currently, SJRWMD is developing a district-wide water supply plan.

Another regional group that participates in environmental regulation is the NCFRPC. It acts in an advisory capacity to constituent local governments, including the City of Gainesville, on matters involving land use, water resources, highways, recreational areas, public schools, sewage and garbage disposal, and other matters. The planning council also acts in an advisory capacity in the DRI process, prepares comprehensive regional policy plans, and comments on local government comprehensive plans.

At the local level, both Gainesville and Alachua County are required by state law to draft, adopt, and implement comprehensive plans. This state mandate requires local governments to look at conservation, drainage, sewer and water use, and land use. It also requires public facilities and services to be available concurrently with the impact of development allowed by Gainesville development orders.

3.9.1 Alachua County Environmental Protection Department

The centerpiece of local environmental control agencies in Alachua County is the Environmental Protection Department. Alachua County has a local environmental program that has been

approved by the State of Florida. The program focuses on the protection of groundwater and surface water resources of the county. It is presently pursuing DEP approval of an air pollution program. Once FDEP approves the program, the program must provide by ordinance, regulation, or local law requirements compatible with or stricter or more extensive than those imposed by FDEP rules.

3.9.2 City of Gainesville

The City, through its departments of Development, Public Works, Building Inspection, and Fire Rescue, and in conjunction with Gainesville Regional Utilities, regulates most aspects of industrial development from initial siting (future land use) through site planning (development review) and operation (code enforcement). In addition to zoning, building, and subdivision regulations administered by the City, state programs relating to land and water management also regulate Gainesville. The City functions as the agency of initial review in the DRI process. Alachua County is also involved in the regulation of public health provisions relating to sewer and water systems.

There are both specific and general land development regulations in the City's land development code that regulate development in industrial areas. First, there is the specific section of the code for I-1 and I-2 areas (Article IV -- Division 5). Second, there are regulations from other sections of the code that apply to industrial as well as other types of development. These include general performance standards (Article IX Additional Development Standards -- Section 30-345) and a brief section pertaining to air quality (Article IX, Section 30-337 Air Quality). Two other sections -- Article VIII – Environmental Management, and Article VII – Development Review Process – also contribute to regulating uses in industrial areas. Other sections of the code, such as the section on Special Use Permits, may also apply in some instances.

The core set of regulations for I-1 and I-2 industrial areas are found in Article IV-Division 5, Sections 30.69-30.71. I-1 and I-2 are distinguished by their intensity. The I-1 district contains industries which are generally not objectionable because of noise, heavy truck traffic or fumes, or which generate nuisances, which may be mitigated by performance standards. The I-1 district also serves as a transition zone between intensive industrial activities and uses that are relatively sensitive to nuisance such as residential and commercial uses and arterial streets. Conversely, I-2 districts provide areas where heavy and extensive industrial operations can be conducted without creating hazards or property devaluation to surrounding uses. This district is generally inappropriate to locate adjacent to residential zoning districts and most arterial streets.

Uses permitted within these districts are subject to front, side, and rear yard setbacks and both districts have setback requirements of 100 feet from any property that is in a residential district or shown for residential use on the future land use map. Once a use is allowed within an I-1 or I-2 district, there are few other specific district regulations that restrict their development. Development review standards, performance standards and regulations for environmental management are some of the other areas where industrial areas are regulated.

Performance standards are zoning controls that regulate the effects or impacts of a proposed development or activity on the community, instead of or in combination with regulations based on separating uses into various zones. The standards often relate to a site's development capability. In industrial areas, performance standards are often used to control impacts such as noise, odors, smoke, and other side effects from industrial activity. There are existing performance standards (Section 30-345) for fire and explosion hazards, radiation,

electromagnetic radiation, smoke and other particulate matter, toxic or noxious matter, waste disposal, vibration, heat, cold, dampness or movement of air, glare, and noise and odor that apply to apply to all uses and activities permitted in any zoning district. In addition, Section 30-337 requires all development to maintain air quality levels that comply with state and national ambient air quality standards.

Review of the City's existing performance standards was conducted as part of this work scope. The review included evaluation of the City's performance standards and a comparison of those standards with similar standards from jurisdictions throughout the United States. The literature search conducted by the City's Community Development Department, examined both recent planning literature on the effectiveness of performance standards and specific performance standards for over forty jurisdictions. The review focused on the performance standards used to limit or regulate off site nuisances. It examined fire/explosion hazards, radiation, electromagnetic interference, smoke or air pollution, toxics, waste disposal, vibration, noise, glare, and odor. Table 3.1 provides a summary of the types of performance standards used for offsite nuisances. The suggested changes to the City's performance standards in section four are based largely on this information.

The City also has Environmental Overlay Districts to protect or enhance specific resources. These are the Wellfield Protection Districts, Surface Waters and Wetland Districts, and Greenways, Gateway Streets, and Nature Parks. These districts add a layer of regulation to any properties within these areas. As discussed in Section 1, most of the City's industrial districts have areas that are within one or more of these overlays. For example, since most of the industrial areas are located in the northern part of the City they fall within the Wellfield Protection Zones and require a wellfield protection special use permit. The overlay districts provide an additional layer of protection to environmental and aesthetic features throughout the City.

The development plan review process for the City is the cornerstone for implementing the various environmental and development regulations. Through the development review the many layers of regulation are brought together in site plans. The purpose of the development plan review process is to promote harmonious, functional relationships among various elements within any development such as the location of activities, vehicular and pedestrian circulation systems and visual form to ensure compatibility with neighboring developments and the community at large. Development plan review also is intended to prevent detrimental impact to the natural environment on and off site. Development plan review is where the various land development regulations that apply to a site are brought together in a unified plan. Intermediate Review is triggered by 2,501 to 50,000 square feet of new construction or expansion and Major Review is triggered by over 50,001 square feet of additional or new floor area.

4 Recommendations

4.1 Introduction

Section 1 evaluated each of the City's industrial areas from a land use perspective examining existing land use within and adjacent to each industrial area, future land use, environmental overlays and potential land use incompatibilities. Section 2 examined allowable uses within the

TABLE 3.1

Industrial District Performance Standards for Off-Site Nuisances

Location	Fire/Explosion Hazards	Radiation	Electromag Interfer.	Smoke or Air Pollution	Toxics	Waste Disposal	Vibration	Noise	Glare	Odor
Alachua Co., FL (see Sec. 329.74)	Non-numeric standard	U.S. Bureau of Standards	FCC Standards	No visible emissions	Non-numeric standard	No discharges allowed	Non-numeric standard	Standard Octave Bands	No direct or reflected	Non-numeric standard
Alameda Co., CA	Non-numeric standard	Non-numeric standard	Non-numeric standard	Ringlemann #1 for < 3 min	State of California		Non-numeric standard	Non-numeric standard	No direct or reflected	Non-numeric standard
Ames, IA						Iowa State Codes		80 dB(A) Maximum	Exempts any < 1800 lumens	
Boca Raton, FL				Ringlemann #2 for 4 min per 30 min			Non-numeric standard	Standard Octave Bands	Non-numeric standard	Non-numeric standard
Brigham City, UT	Non-numeric standard	Non-numeric standard	Non-numeric standard	Utah State Standards		Utah State Dept. of Health	Non-numeric standard	Standard Octave Bands	No direct or reflected	1:4 dilution detection standard
Chicago, IL	National Fire Protection Association	Non-numeric standard	Non-numeric standard		Non-numeric standard		Non-numeric standard	Standard Octave Bands	Non-numeric standard	1:4 to 1:8 dilution standards
Columbia, MO							Non-numeric standard	Standard Octave Bands		
Cook County, IL	Non-numeric standard	State of Illinois	State of Illinois	20 smoke units/day; Ringlemann #2 or less	1/30th of threshold limits		Numeric Standard	Standard Octave Bands	0.5 foot-candle	Non-numeric standard
Cupertino, CA		Non-numeric standard	Non-numeric standard	Ringlemann #1; also Ringlemann #2 for 4 min in 30 min period	State of California	State of California	Non-numeric standard		50 ft-lamberts	1:2 dilution detection standard
Dallas, TX				Chapter 5A Dallas City Code	10% of threshold limits		Numeric Standard	65dB(A), except 70 dB(A) in I-3 district	Non-numeric standard	Chapter 5A Dallas City Code

Industrial District Performance Standards for Off-Site Nuisances

Location	Fire/Explosion Hazards	Radiation	Electromag Interfer.	Smoke or Air Pollution	Toxics	Waste Disposal	Vibration	Noise	Glare	Odor
Davis, CA	State of California & local laws	Non-numeric standard	Non-numeric standard	Ringlemann #2 or less		State of California	Non-numeric standard	Standard Octave Bands	No direct or reflected	1:4 dilution detection standard
Daytona Beach, FL	Flammable storage 350' from regulated uses			Non-numeric standard	Non-numeric standard		Non-numeric standard	75 dB(A)		Air Pollution Abatement Manual Standards
Denver, CO	1,000 feet from residential or assembly use	State of Colorado	Denver Municipal Code	Denver Municipal Code			Non-numeric standard	Denver Municipal Code		Denver Municipal Code
Durham, NC	Durham Fire Code	Non-numeric standard	Non-numeric standard	< 20 microns and 6 smoke units per 30 min period prohibited		Co. Health Dept. & Durham Fire Dept.		60 dB(A), except 50 dB(A) at night		
Fort Collins, CO				20% opacity			Non-numeric standard		Non-numeric standard	
Gainesville, FL (See Sec. 30-345)	City Fire Prevention Code	State Depts. Of HRS & Pollution Control	FCC Standards	State/Fed. Standards	State/Fed. Standards	Local, state, federal laws	Non-numeric standard	60 dB(A) night, 66 dB(A) day	Max of 25 foot-candles	
Glendale, CA	Non-numeric standard	Non-numeric standard	Non-numeric standard	Non-numeric standard	Glendale City Codes	Glendale City Codes	Non-numeric standard	Fully contained next to residential		Non-numeric standard
Gurnee, IL	Non-numeric standard	Federal & Illinois standards	Non-numeric standard	Ringlemann #2 or less; < 44 microns			Numeric Standard	Standard Octave Bands	No direct or reflected	15min/day limit
Indianapolis, IN	National Fire Protection Association					Marion County, State of Indiana	Non-numeric standard			

Industrial District Performance Standards for Off-Site Nuisances

Location	Fire/Explosion Hazards	Radiation	Electromag Interfer.	Smoke or Air Pollution	Toxics	Waste Disposal	Vibration	Noise	Glare	Odor
Iowa City, IA				Ringlemann #2 for 3 min/hr & Ringlemann #3 for 3 min per 8 hrs	Must not exceed 1/8 of threshold limit values		Numeric Standard		1.0 foot-candles limit	American Society for Testing & Materials (Dilution Method)
Kent County, Md	Non-numeric standard	Non-numeric standard	State of MD & U.S. Govt.	Ringlemann #2: 4min/hr	Off-site Emissions Limited to 10% of Ceiling		Numeric Standard	Standard Octave Bands	No direct or reflected	Air Pollution Abatement Manual Standards
Long Beach, CA				Less than Ringlemann #2			Numeric Standard	Extensive standards for many uses	No direct or reflected	Non-numeric standard
New Berlin, Wis	New Berlin Fire Code	Non-numeric standard	Non-numeric standard	State/Fed. Standards			Numeric Standard	Standard Octave Bands	No direct or reflected	15 min/day limit
Oakland, CA		Non-numeric standard	Non-numeric standard	Ringlemann #2 for 3 min/hr & Ringlemann #1 for 7 more min/hr	Non-numeric standard			Scaled from 65 dBA for 20 min/hr to 80 dBA for 1 min/hr	Non-numeric standard	Non-numeric standard
Ocala, FL	Storage regulated per Ocala Codes	Code of Fed Regs for radiation	Non-numeric standard	Limited to Ringleman #2 & 10 smoke units/hr	Atmospheric Dust Impinger		Numeric Standard	Standard Octave Bands	Non-numeric standard	Abatement Manual of the Man. Chemists Assoc.
Omaha, NE				20% opacity	Omaha has dust, SO2 & asbestos standards		Non-numeric standard	Varies; 60-85 dB(A) at adjacent districts	Non-numeric standard	

Industrial District Performance Standards for Off-Site Nuisances

Location	Fire/Explosion Hazards	Radiation	Electromag Interfer.	Smoke or Air Pollution	Toxics	Waste Disposal	Vibration	Noise	Glare	Odor
San Diego, CA		Non-numeric standard	Non-numeric standard	Non-numeric standard	Disclosure to San Diego Health Officer			Mean of 75 bB(A) and adjacent land use dB(A)	Non-numeric standard	
Sarasota County, FL	Florida State Fire Marshal	Code of Fed Regs for radiation					Numeric Standard		Non-numeric standard	Air Pollution Abatement Manual Standards
Tulsa, OK				Ringlemann #1 or 20% opacity						
Tuscaloosa, AL		Non-numeric standard	Non-numeric standard	Alabama Air Pollution Control Commission			Numeric Standard	55 dB(A) day, 45 dB(A) night Standard Octave Bands		
Washington, DC				Ringlemann #2	Non-numeric standard		Non-numeric standard		Non-numeric standard	Non-numeric standard

I-1 and I-2 districts and pollution potential for those uses. Section 3 summarized federal, state and local environmental regulations that are applicable to industrial development. This section provides recommendations for changes to the City's regulations for I-1 and I-2 districts and to the City's general performance standards.

4.2 Recommended Changes to Existing I-1 and I-2 Regulations

Based on the review of the allowable uses in I-1 and I-2 zoning districts in Section 2, changes are suggested to the list of allowed uses in the I-1 and I-2 districts.

The majority of uses allowed in the I-1 district are appropriate given the purpose of this district to provide locations for retail-commercial sales and services, research operations, distribution concerns, and light manufacturing. However, seven of the permitted uses in the I-1 districts should be removed. These are uses that produce higher levels of pollution and/or toxic pollutants and are listed in Table 4.1.

In the I-2 district, the 28 uses listed in Table 4.2 should be removed from the list of allowable uses (or specifically excluded). These uses are determined to be inappropriate within the City of Gainesville, given the pollution potential of the uses, the size and location of most of the I-2 areas, and the proximity of residential and other incompatible uses to I-2 districts. Five of the SIC codes may be allowed by SUP if conditions are met. It should be noted that developments in the processes for the prohibited industries could occur in the future to dramatically reduce their environmental impacts. In that event, the City should be open to modifying the list through revision of the Land Development Code should sufficient evidence be presented.

In addition to recommending prohibiting certain uses in the I-2 districts, an additional 29 uses are recommended to be allowed only through the special use permit process. Special use permits are intended for development that due to its nature, extent, and external effects, requires special care in the control of location, design, and methods of operations. Requiring a special use permit for these uses will allow additional review to determine in advance their compatibility with surrounding areas and their potential environmental effects. Some of these uses may be appropriate in certain I-2 areas and inappropriate in others. The City's current process for review of special use permit applications (Section 30-231) provides a satisfactory forum to review these requests. However, the City may consider amending Section 30-234(a) and (b) to enable the City to gather additional information specific to the request that might not normally be included in a preliminary development plan. As shown and discussed in Section 1, the I-2 districts present a diverse group of land areas in terms of internal uses, surrounding uses, vacant lands, and size. Without foreknowledge of the scale and nature of operations, and compatibility with the nearby land uses, it is impossible to determine if they should be permitted. Table 4.3 lists the uses that should be added to the list of uses allowed through the special use permit process. Also included on this list is one SIC code that should be included unless there is a commitment to using a clean burning, low-sulfur fuel in the process.

In general, the land use planning that has resulted in the designation of I-1 and I-2 districts exhibits consideration of the purpose of each district and regard for surrounding uses. In many of the areas with both I-1 and I-2 districts, the I-1 area has been thoughtfully placed to provide a transition to surrounding areas. In some locations the I-2 district is located next to residential areas or other incompatible land uses. This occurs in some of the older districts where the land

use pattern likely was well established prior to the adoption of land development regulations and comprehensive planning.

The following areas should be revisited to determine if it is worthwhile amending the I-1 and I-2 district boundaries.

- Industrial Area 1 – in the southern section residential areas are adjacent to I-2
- Industrial Area 3 – I-2 areas that front US 441 and NW 53rd Avenue. Consider I-1 transition zone adjacent to roadway. Consider replacing I-1 with I-2 in eastern area of NW Industrial Park
- Industrial Area 4 – Some I-2 areas are adjacent to residential
- Industrial Area 5 – Expand I-1 area along northwest side of district
- Industrial Areas Generally – Increase acreage of I-1 and I-2 in appropriate areas

4.3 Recommended Changes to Article IX, Division 4, Section 30-345-General Performance Standards

The changes to the City's general performance standards are recommended based on a review of similar standards from municipalities throughout the United States. These amendments apply to all uses and activities permitted in any zoning district while certain amendments apply particularly to the Industrial zones (I-1 and I-2). Impacts of concern are fire and explosion hazards, radiation, electromagnetic interference, vibration, sound, glare and lighting, odor, and waste disposal. In addition to these impacts, impacts of concern that are associated primarily with industrial activities are impacts due to air pollution, toxics, and hazardous materials storage. Specific amendments to the City's performance standards (Section 30-345) are listed in Table 4.4.

TABLE 4.1
Recommended Changes to Article IV, Division 5, Section 30-69 Limited Industrial District ((I-1), © permitted. (1) Uses by right.

Delete the following:

2046	Wet corn milling
2061	Raw cane sugar
2063	Beet sugar
2261	Cotton finishing plants
2671	Coated and laminated paper packaging
2754	Gravure commercial printing
2833	Medicinals and botanicals

TABLE 4.2
Recommended Changes to Article IV, Division 5, Section 30-70 General Industrial District (I-2), Permitted Uses. (1) Uses by right.

Delete the following:

2046	Wet corn milling
2061	Raw cane sugar*
2063	Beet sugar*
2075	Soybean oil mills†
2085	Distilled liquor*
2611	Pulp mills
2621	Paper mills
2631	Paperboard mills
2812	Alkalis and chlorine
2816	Inorganic pigments
2819	Industrial inorganic chemicals (not elsewhere classified)
2821	Plastics materials and resins
2823	Cellulosic manmade fibers
2824	Noncellulosic organic fibers
2861	Gum and wood chemicals
2869	Industrial organic chemicals (not elsewhere classified)
2873	Nitrogenous fertilizers
2874	Phosphatic fertilizers
2911	Petroleum refining
2999	Petroleum and coal products (not elsewhere classified)
3241	Hydraulic cement
3274	Lime°
3312	Steel works, blast furnaces, and rolling mills
3313	Electrometallurgical products
3331	Primary copper
3334	Primary aluminum
3339	Primary nonferrous metals (not elsewhere classified)
3341	Secondary smelting and refining of nonferrous metals

* Allowed in compatible areas by Special Use Permit (SUP) if connected to and accepted by the sewage treatment system serving the area.

† Allowed in compatible areas by SUP if adequate control technology is incorporated in the design.

° Allowed in compatible areas by SUP if there is a clear commitment to using a clean burning, low-sulfur fuel and adequate control technology.

TABLE 4.3
Recommended Changes to Article IV, Division 5, Section 30-70 General Industrial District (I-2), (c) Permitted Uses. (2) Uses by Special Use Permit.

Add the following:

2111	Cigarettes
2261	Cotton finishing plants
2671	Packaging - coated and laminated paper
2754	Gravure commercial printing
2822	Synthetic rubber
2833	Medicinals and botanicals
2865	Cyclic crudes and intermediates
2892	Explosives
2895	Carbon black
2951	Asphalt paving mixtures and blocks
3211	Flat glass
3221	Glass containers
3229	Pressed and blown glass (not elsewhere classified)
3251	Brick and structural clay tile
3253	Ceramic wall and floor tile
3255	Clay refractories
3259	Structural clay products (not elsewhere classified)
3261	Vitreous plumbing fixtures
3262	Vitreous china food utensils
3275	Gypsum products
3295	Ground or treated minerals
3321	Gray iron foundries
3351	Copper rolling and drawing
3354	Aluminum extruded products
3355	Aluminum rolling and drawing
3363	Aluminum die-castings
3366	Copper foundries
3463	Nonferrous forgings
3479	Metal coatings and allied services

SIC Code 2951 (Asphalt paving mixtures and blocks) should not be included in this list if there is a commitment to using a clean burning, low-sulfur fuel.

TABLE 4.4
Recommended Changes to Section 30-345. General Performance Standards (replace entire section)

Sec. 30-345. General Performance Standards.

(a) All uses and activities permitted in any zoning district shall conform to the standards of performance described in this section

(b) Showing of probable compliance. Uses and activities required to comply with this section shall make a showing of probable compliance with the performance standards described in this section. This showing shall be in the form of a letter submitted with a zoning compliance permit (or site plan), prepared by a professional engineer licensed by the State of Florida, certifying that the use or activity complies with all performance standards described in this section.

(1) Fire and explosion hazards. All activities and all storage of flammable and explosive materials or products at any place shall be provided with adequate safety devices against the hazards of fire and explosion, including adequate fire fighting and fire suppression equipment, as prescribed by the fire prevention code adopted in section 10-30.

(2) Radiation. All sources of ionizing radiation shall be registered or licensed by the Florida Department of Health. The handling of radioactive materials, the discharge of such materials into air or water, and the disposal of radioactive wastes shall be in conformance with applicable state and federal regulations.

(3) Electromagnetic interference. Electromagnetic radiation generated by activities shall not adversely affect any operation or equipment other than those of the creation of the radiation. Interference with radio and television reception is prohibited. Equipment or activities generating electromagnetic radiation shall conform to the regulations of and, where appropriate, be licensed by the Federal Communications Commission.

(4) Waste disposal. All waste disposal including discharge of any liquid or solid waste into any public or private sewage system, the ground, or any lake, creek, or wetland shall be in accordance with state, federal, and local law and applicable regulations of state, federal and local agencies.

(5) Vibration. No use shall at any time create earth-born vibration which when measured at the boundary property line of the source operation exceed the limits of displacement set forth below:

Frequency (Cycles per Second)	Maximum Displacement (Inches) Steady State	Impact
0 to 10	0.0055	0.0010
10 to 19	0.0044	0.0008
20 to 29	0.0033	0.0006
30 to 39	0.0002	0.0004
40 and over	0.0001	0.0002

TABLE 4.4, CONTINUED

Recommended Changes to Section 30-345. General Performance Standards (replace entire section)

(6) Sound. All uses and activities, except publicly owned roads, railroads, and airports, shall not exceed the sound pressure levels set forth below. The sound pressure level shall be measured at the lot line of the property on which the sound is generated with a sound level meter having an A-weighted filter constructed in accordance with specifications of the American National Standards Institute.

Maximum Permitted Sound Levels, dB(A)
(ref: 0.0002 Microbar)

Adjacent Land Use	Daytime	Nighttime (7PM to 7AM)
Residential or other Sensitive use	55	50
Commercial	60	55
Industrial	70	65

(7) Glare and Lighting. No use or operation shall be located or conducted so as to produce glare, or either direct or indirect illumination across bounding property line from a source of illumination into a residential or other sensitive property, nor shall any such light be of such an intensity as to create a nuisance or detract from the use and enjoyment of adjacent property. For the purpose of this performance standard, a nuisance shall be defined as more than one-tenth (0.1) of a foot candle of light measured at the residential property line and one-quarter (0.25) of a foot candle at any adjoining non-residential property line. Illumination levels of outdoor lighting shall either be measured by a qualified professional according to generally accepted Illuminating Engineering Society of North America (IESNA) methods, or computed using a generally accepted IESNA method, using certified photometric data furnished by the fixture manufacturer, lamp manufacturer, photometric laboratory, or other reliable authority satisfactory to the city.

(8) Light Pollution. All building lighting for security or aesthetics will be fully shielded type (with 80° cut-off), not allowing any upward distribution of light.

(9) Odor. No use shall be operated in any zoning district in such a manner that the emission of odorous matter occurs in such quantity or volume as to produce a nuisance, source of discomfort, or hazard beyond the bounding property lines of such a use. For the purpose of this performance standard, the presence of such a described odor shall be determined by observation by a person or persons designated by the City Commission. In any case, where the operator of an odor-emitting use may disagree with the enforcing officer where specific measurement of odor concentration is required, the method and procedures specified by the American Society for Testing and Materials (ASTM) E679 and E1432, entitled "Standard Practice for Determination of Odor and Taste Thresholds By a Forced-Choice Ascending Concentration Series Method of Limits" and "Standard Practice for Defining and Calculating Individual and Group Sensory Thresholds for Forced-Choice Data Sets of Intermediate Size," respectively. The cost of conducting the more elaborate ASTM E679 Procedure shall be equally shared by the operator and the City.

TABLE 4.4, CONTINUED

Recommended Changes to Section 30-345. General Performance Standards (replace entire section)

(10) Air Pollution Emissions. No industrial operation or use shall cause, create, or allow the emission of air contaminants which at the emission point or within the bounds of the property are in violation of the standards specified by the Florida Department of Environmental Protection, or subsequent agency.

(11) Other Air Pollution. Open storage and open processing operations, including on-site transportation movements, which are the source of wind-blown or airborne dust or other particulate matter; or which involve dust or other particulate air contaminant generating equipment including but not limited to paint spraying, grain or seed handling, sand or gravel processing or storage or sand blasting shall be conducted such that dust and other particulate matter so generated are not transported across the boundary property line or the tract on which the use is located in concentrations exceeding standards set by Florida Department of Environmental Protection, or subsequent agency.

(12) Toxics. No industrial operation or use shall emit toxic or noxious matter at a concentration exceeding ambient air quality standards for the State of Florida across the bounding property line of the tract on which operation or use is located. Where toxic materials are not listed in the ambient air quality standards of the state, concentrations shall not exceed one percent (1%) of the threshold limit values (TLVs) adopted by the American Conference of Governmental Industrial Hygienists (ACGIH). If a toxic substance is not listed by the ACGIH, verification of safe levels of the proposed toxic material for public health, plant and animal life will be required.

5 References

Alameda County, California.
www.co.alameda.ca.us/admin.admincode/Alameda_County_General-Ordinan.../020.htm. M-2. Heavy Industrial.

Ames, Iowa. Article 9. Industrial. Sup #21A/1995 Code. Revised 11-1-00. pp 29-53 — 29-54; 29-85 — 89. Chapter 11. Health and Sanitation. Sup #19/1995 Code. Revised 4-1-00. pp 11-1 — 11-3. Chapter 16. Noise Control. Sup #19/1995 Code. Revised 4-1-00. pp 16-1 — 16-3. Sup #2001-2.. Outdoor Lighting. Revised 4-1-01. pp 29-42 —29-43.

Bakersfield, California. San Joaquin Valley Unified Air Pollution Control District. http://bpc.iserver.net/codes/bakersfld/_DATA/TITLE17/C.../17_30_030_Uses_permitted_.htm. Title 17. Zoning. Chapter 17.30. M-2. General Manufacturing Zone.

Blue Springs, Missouri. http://www.ci.blue-springs.mo.us/UDC/UDC00052.htm. Unified Development Code of the City of Blue Springs. Section 404.170. HI, Heavy Industrial District. Section 405.010. Use Table.

Boca Raton, Florida. Municipal Code Corporation, Affiliated Municipality, 2000. http://fws.municode.com. Code of Ordinances. Codified through Ordinance No. 4359, adopted November 25, 1997. Volume II. Chapter 28. Zoning. Article XII. Industrial Districts. Article XV. Supplementary District Regulations. Chapter 10. Nuisances. Article III. Noise.

Brigham City, Utah. http://www.ulct.org/brighamcity/Title2910.htm. Chapter 29.10. Performance Standards for Industrial and Other Uses.

Bucks County, Pennsylvania. Center of Excellence for Sustainable Development: Land Use Planning, Codes/Ordinances. Performance Zoning Model Ordinance. Bucks County Planning Commission. January 1996.

Chippewa Falls, Wisconsin. http://fws.municode.com. Municipal Code Corporation, Affiliated Municipality, 2000. Code of Ordinances. Adopted July 7, 1998 (Supplement No. 7-21-98). Chapter 17. Zoning Code. Zoning Districts.

Columbia South Shore Oregon. Title 33. Planning and Zoning. Chapter 33.515. Columbia South Shore Plan District. 1/1/91.

Columbia, Missouri.
http://www.ci.columbia.mo.us/dept/council/Columbia_code_of_ordinances/Chapter_29/20.html. Section 29-20 District M-1, General industrial district.

Cook County, Illinois. Industrial Performance Standards.

Cumru, Pennsylvania. http://www.cumrutownship.com/Zoning/art13.html. Zoning Ordinance of 1991. Article XIII. GI: General Industrial District.

Cupertino, California. 19.60.060. Restrictions related to emissions.

Davis, California. Davis Municipal Code.
http://www.city.davis.ca.us/city/council/citycode/Chapter_40/20/040.htm. Article 40.20. Industrial (I) District. Article 40.24. Performance Standards.

Daytona Beach, Florida. Land Development Code. Article 13. Industrial Districts. 5-19-93.

Daytona Beach, Florida. Municipal Code Corporation, Affiliated Municipality, 2000. http://fws.municode.com. Land Development Code. Article 8. Supplemental Performance Standards. Section 5. Pollution, Hazard and Nuisance Control. Section 6. Noise. Article 13. Industrial Districts. Section 1. Industrial Districts Established.

Denver, Colorado. http://fws.municode.com. Municipal Code Corporation, Affiliated Municipality, 2000. Division 24, Industrial Districts. Sec. 59-410. Procedure for the review of conditional uses.

Des Moines, Iowa. Municipal Code Corporation, Affiliated Municipality, 2000. http://fws.municode.com. Municipal Code. Chapter 46. Fire Prevention and Protection. Article IV. Hazardous Substances. Chapter 134. Zoning. Article III. Districts. Division 24. M-1. Light Industrial. Division 25. M-2. Heavy Industrial.

District of Columbia. Title 11. Municipal Regulations. Chapter 8. Industrial Districts.

Dona Ana, New Mexico. http://chilepepper.co.dona-ana.nm.us/Planning.web/landuse/4.htm. Article 4. Performance District.

Dubuque, Iowa. Zoning Ordinance. Section 3-4.2. HI Heavy Industrial District.

Durham, North Carolina. Municipal Code Corporation, Affiliated Municipality, 2000. http://fws.municode.com. Part II. Code of Ordinances. Chapter 11. Health and Sanitation. Sec. 11-1. Noise—Generally.

Durham, North Carolina. Zoning Ordinance. http://www.ci.durham.nc.us/planning/zoneord/section4/4e5.html. General Districts. 4E5. Heavy Industrial District (I-3). Performance Standards

Edmond, Oklahoma. Municipal Code Corporation, Affiliated Municipality, 2000. http://fws.municode.com. Title 22. Zoning Ordinance. Title 5. Health and Sanitation. Chapter 5.16. A/R Quality Control.

Gainesville, Florida. Lockwood Greene. April 2001. CEO Final Report: Competitive Assessment of the Gainesville Region. Prepared for the Gainesville Council for Economic Outreach.

Gainesville, Florida. Lockwood Greene. May 2001. CEO Final Report: Target Industry Report for the Gainesville Region. Prepared for the Gainesville Council for Economic Outreach.

Glendale, California. http://www.ci.glendale.ca.us/gmc/30.92.htm. Glendale Municipal Code; Title 30, Chapter 92.

Gurnee, Illinois. http://www.gurnee.il.us. Zoning Ordinance 6.0 – Industrial Districts. 1998.

Indianapolis, Indiana. Municipal Code Corporation, Affiliated Municipality, 2000. http://fws.municode.com. Title III. Public Health and Welfare. Chapter 733. Zoning—Industrial Commercial Districts. Chapter 511. Air Pollution Control.

Iowa City, Iowa. http://nfo.datamgt.com/sd4/om_isapi.dll. Article S. Performance Standards.

Kent County, Maryland. 10.5. Industrial Performance Standards

Long Beach, California. http://www.ci.long-beach.ca.us/cityclerk/lbmc/title-21/. Chapter 21.33. Industrial Districts. Chapter 8.64. Air Pollution. Chapter 8.80. Noise.

Marion County, Florida. I-C. Industrial Complex. M-1. Light Industrial. M-2. Heavy Industrial. RI. Rural Industrial.

Milpitas, California. http://www.ci.milpitas.ca.us/3082.htm Plans and Ordinances, Zoning Ordinance. Section 31. "M2" Heavy Industrial District.Section 35. "MP" Industrial Park District.

New Berlin, Wisconsin. http://www.newberlin.org/ch17/zone07.htm. Section 17.0700. Performance Standards.

Norfolk, Virginia. http://fws.municode.com. Municipal Code Corporation, Affiliated Municipality, 2000. Appendix A. Zoning Ordinance. Code of the City. Chapter 26. Noise. Code of the City. Chapter 14.5. Environmental Offenses.

Oakland, California. http://city.oakcc.com/government/ceda/zoning_regulations/77007724.htm. Regulations Applying in All or Several Zones. Performance Standards.

Ocala, Florida. Municipal Code Corporation, Affiliated Municipality, 2000. http://fws.municode.com. Code of Ordinances. Chapter 122. Zoning. Article V. District Regulations. Division 25. M-1 Light Industrial District. Division 26. M-2 Medium Industrial District. Division 27. M-3 Heavy Industrial District. Chapter 122. Zoning. Article VIII. Industrial Performance Standards. Sec. 122-1144. Noise. Sec. 122-1146. Smoke. Sec. 122-1149. Radiation. Sec. 122-1151. Electromagnetic interference.

Omaha, Nebraska. http://fws.municode.com. Municipal Code Corporation, Affiliated Municipality, 2000. Part II. Municipal Code. Article IX. Industrial Districts. Chapter 55 Zoning. Chapter 41 Air Quality Control.

Palo Alto, California. http://www.city.palo-alto.ca.us/government/municipalcode.html.GM District (General Manufacturing). Title 17 Hazardous Materials Storage. Chapter 9.10. Noise. Chapter 18.64. Additional Site Development and Design Regulations for Commercial and Industrial Districts.

Prince William County, Virginia. http://www.co.prince-william.va.us/coatty/32-403.htm. Prince William County Code. Chapter 32, Article IV. Part 403. Industrial Districts.

San Bernadino, California. Industrial Districts. Pp II-135-138. May 1991.

San Diego, California. Chapter 13: Zones. Final Draft 11/08/96. Revised 04/10/97.

San Diego, California. San Diego Municipal Code. January, 2001. Chapter 4. Health and Sanitation. Article 2. Health Regulated Businesses and Activities. Division 9. Disclosure of Hazardous Materials. Chapter 5. Public Safety, Morals and Welfare. Article 9.5. Noise Abatement and Control. Chapter 13. Zones. Chapter 14. General Development Regulations.

Santa Rosa, California. Article 20. M-1 – Industrial District.

Sarasota County, Florida. Section 9. Performance Standards.

Shreveport, Louisiana. Chapter 106. Zoning. Page 10. Section 106.836 – 106.980. Division 3. I-2 Heavy Industry Districts. http://www.ci.chreveport.la.us/code/ch106j.htm#VIIDIVISION 3.

Tulsa, Oklahoma. Ordinances–Title 17: Health Regulations; Chapter 7–Clean Air Code. http://www.cityoftulsa.org/GI/ordiances/17_07.ihtml.

Tuscaloosa, Alabama. http://fws.municode.com. Municipal Code Corporation, Affiliated Municipality, 2000. Chapter 24 Zoning. Article V. Industrial District Regulations.

Other Publications

"City Plan Principles and Policies." February 18, 1997. Industrial Districts. Pp 203-204.

Davidson, Michael and Dolnick, Fay; editors. A Glossary of Zoning, Development, and Planning Terms. American Planning Association, Planning Advisory Service. Report Number 491/492.

Exner, Marlene, and Sawchuk, Russell. Steppingstones Partnership, Inc. A-C-T Streamlined Approval Process Project: The Performance-Based Planning Model. Final Report. Prepared for The Town of Morinville and Canada Mortgage and Housing Corporation. December 15, 1996.

Jaffe, Martin. "Performance Zoning: A Reassessment." Land Use Law. March 1993.

Kendig, Lane H. "Stop the Insanity!" Land Use Law. January 1995.

Kendig, Lane, with Susan Connor, Cranston Byrd, and Judy Heyman. Performance Zoning. Article IX. Administration and Enforcement.

Kendig, Lane. New Standards for Non Residential Uses. PAS #405. American Planning Association.

PAS Memo No. 444. 1993. Chapter 1. The Challenge for Industrial Performance Codes. Chapter 2. The Conceptual Framework for an Industrial Code. Chapter 3. Case Studies in Industrial Pollution Prevention. Chapter 4. Conclusion: A Note on Regulatory Philosophy.

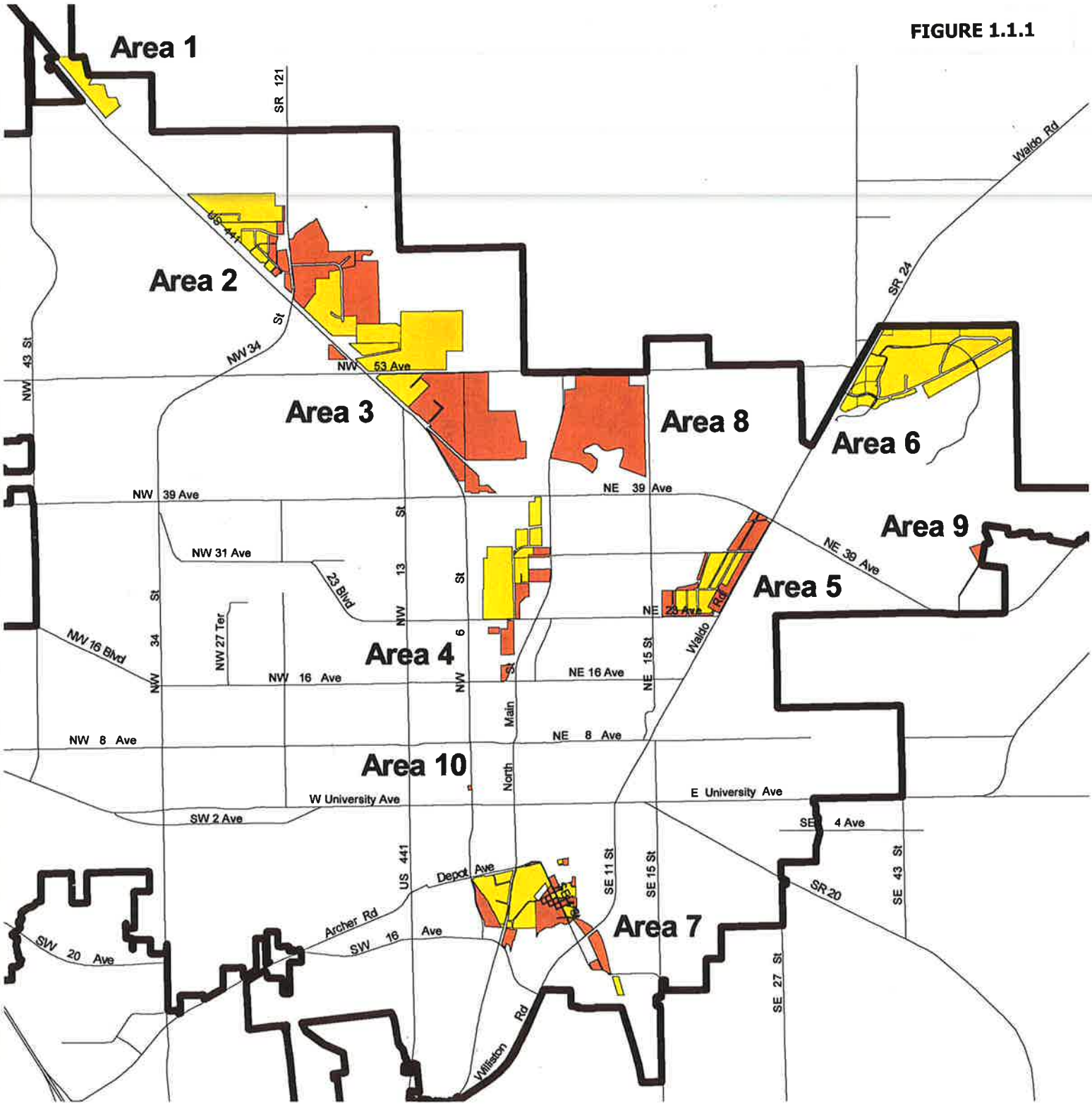
Porter, Douglas. "Flexible Zoning: A Status Report on Performance Standards." Uzoning NewsU. American Planning Association. January 1998.

Russell, Joel S. "Rethinking Conventional Zoning." Planning Commissioners Journal. Number 15. Summer 1994.

Waggoner, Eric. "Use of Performance Standards in Planned Developments." Illinois Planning News. Summer 1997.

Figures

FIGURE 1.1.1



Study Area Locator Map

Property with Industrial Zoning

I-1 Zoning

I-2 Zoning

N

2000 0 2000 Feet

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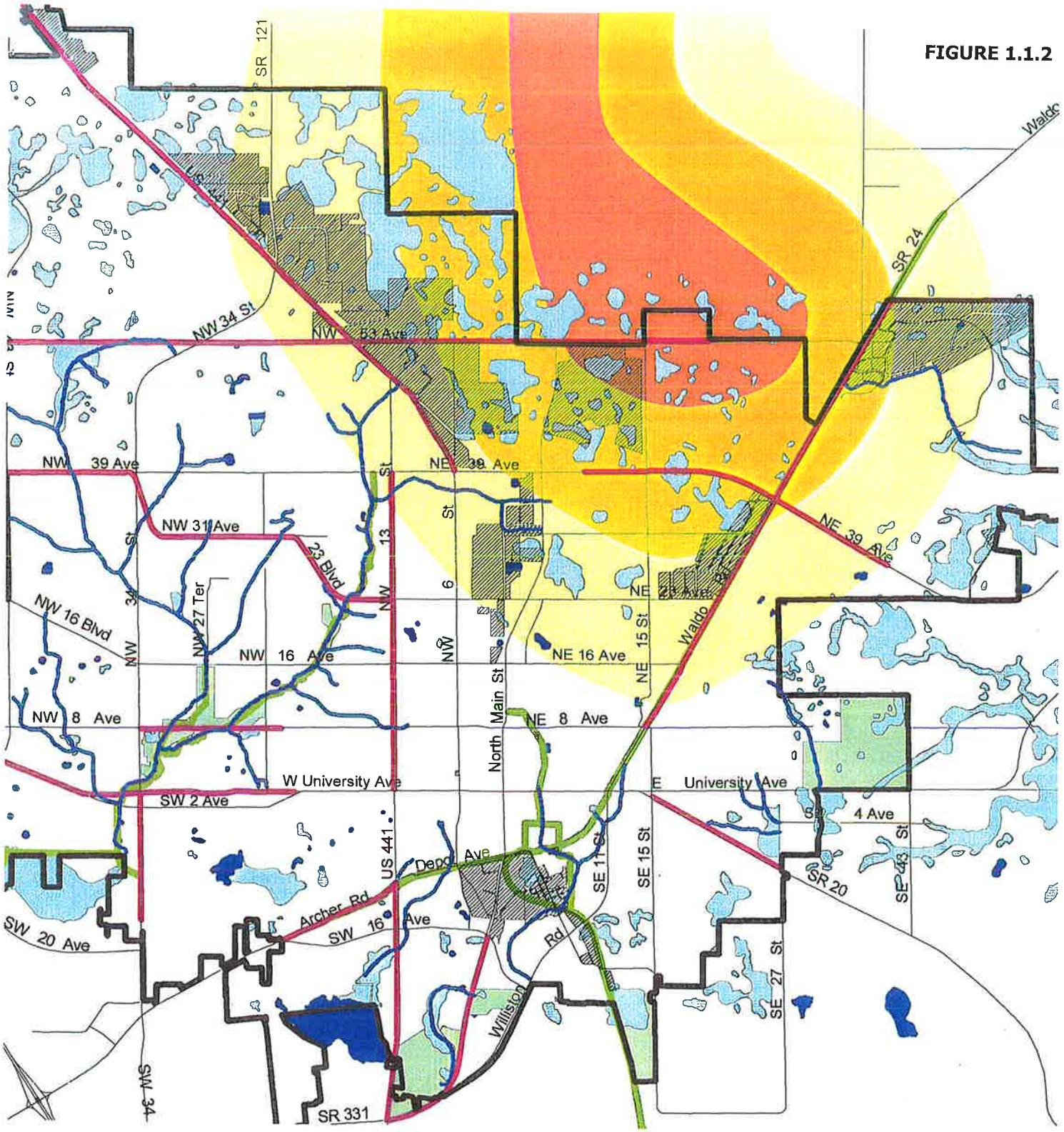
FIGURE 1.1.2



Environmental Overlay Districts* and Industrial Zoning

*Land Development Code, Section 30, Article VIII, Division 3.

Surface Waters & Wetlands Districts
- Regulated Creeks
- Lakes
- Wetlands

Wellfield Protection Districts
- Primary Zone
- Secondary Zone
- Tertiary Zone

Other Districts
- Greenways
- Gateway Streets
- Nature Parks

- I-1 and I-2 Zoning
- Gainesville City Limits

N

0.4 0 0.4 0.8 Miles

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July 2001

FIGURE 1.2.1.1

Area 1. Existing Land Use by DOR Codes

Industrial Zoned Property

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
- Unimproved Land
- Conservation
- Agriculture/Timber
- Other Parkland/Recreation
- No Data

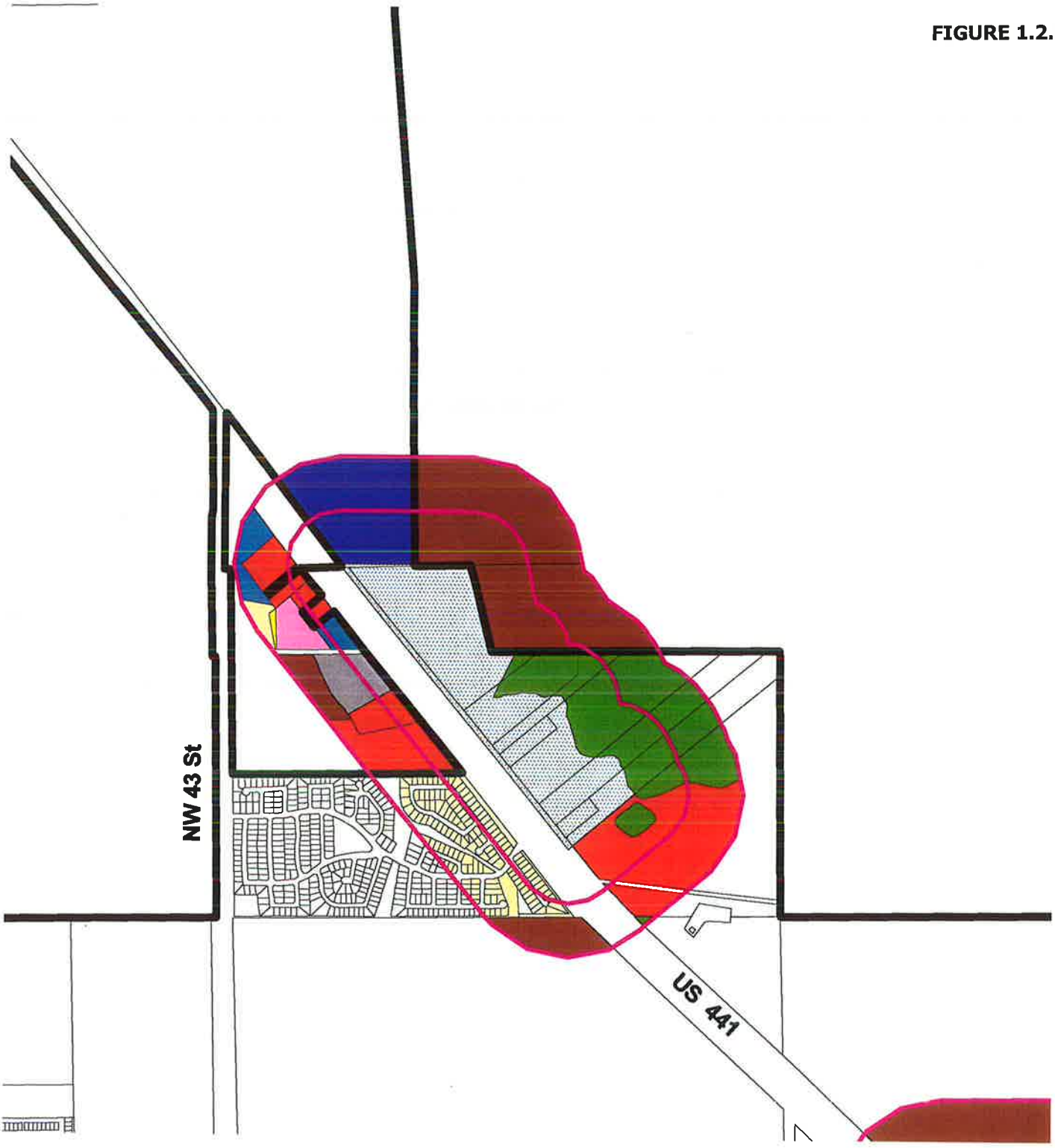
N

500 0 500 Feet

City of Gainesville
Gainesville, Florida
Prepared by the
Department of Commmunity Development, September 2001

Gainesville City Limits

FIGURE 1.2.1.2



Area 1. Existing Land Use by DOR Codes

Property within 500/1000 feet of Industrial Zoning

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
- Unimproved Land
- Conservation
- Agriculture/Timber
- Other Parkland/Recreation
- No Data
- 500/1000 Ft. Buffers
- I-1 & I-2 Zoned Parcels

N

500 0 500 Feet

City of Gainesville
Gainesville, Florida
Prepared by the
Department of Commmunity Development, September 2001

Gainesville City Limits

FIGURE 1.2.1.3

Area 1. Comprehensive Plan Land Use

Property within 500/1000 feet of Industrial Zoning

- Single Family
- Residential Low Density
- Residential Medium Density
- Residential High Density
- Mixed Use Residential
- Mixed Use Low
- Mixed Use Medium
- Mixed Use High
- Office
- Commercial
- Industrial
- Education
- Recreation
- Public Facilities
- Agriculture
- Conservation
- Planned Unit Development
- 500/1000 Ft. Buffers
- I-1 & I-2 Zoned Parcels

N

500 0 500 Feet

City of Gainesville
Gainesville, Florida
Prepared by the
Department of Commmunity Development, September 2001

Gainesville City Limits

FIGURE 1.2.2.1

Area 2. Existing Land Use by DOR Codes

Industrial Zoned Property

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
- Unimproved Land
- Conservation
- Agriculture/Timber
- Other Parkland/Recreation
- No Data

N

500 0 500 Feet

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Gainesville, Florida
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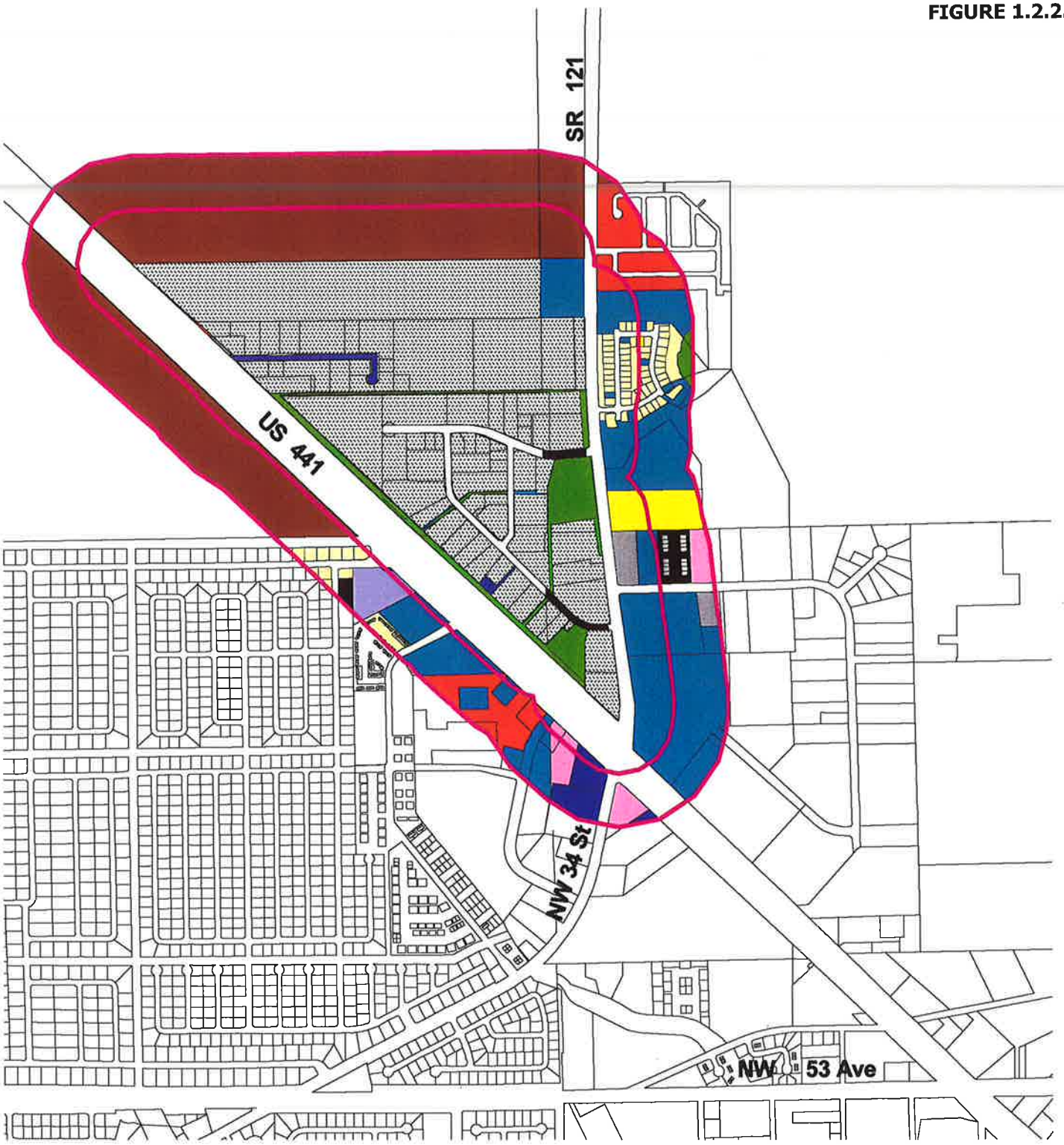
FIGURE 1.2.2.2



Area 2. Existing Land Use by DOR Codes

Property within 500/1000 feet of Industrial Zoning

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
- Unimproved Land
- Conservation
- Agriculture/Timber
- Other Parkland/Recreation
- No Data
- 500/1000 Ft. Buffers
- I-1 & I-2 Zoned Parcels

N

500 0 500 Feet

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Gainesville, Florida
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Gainesville City Limits

FIGURE 1.2.2.3

Area 2. Comprehensive Plan Land Use

Property within 500/1000 feet of Industrial Zoning

- Single Family
- Residential Low Density
- Residential Medium Density
- Residential High Density
- Mixed Use Residential
- Mixed Use Low
- Mixed Use Medium
- Mixed Use High
- Office
- Commercial
- Industrial
- Education
- Recreation
- Public Facilities
- Agriculture
- Conservation
- Planned Unit Development
- 500/1000 Ft. Buffers
- I-1 & I-2 Zoned Parcels

N

500 0 500 Feet

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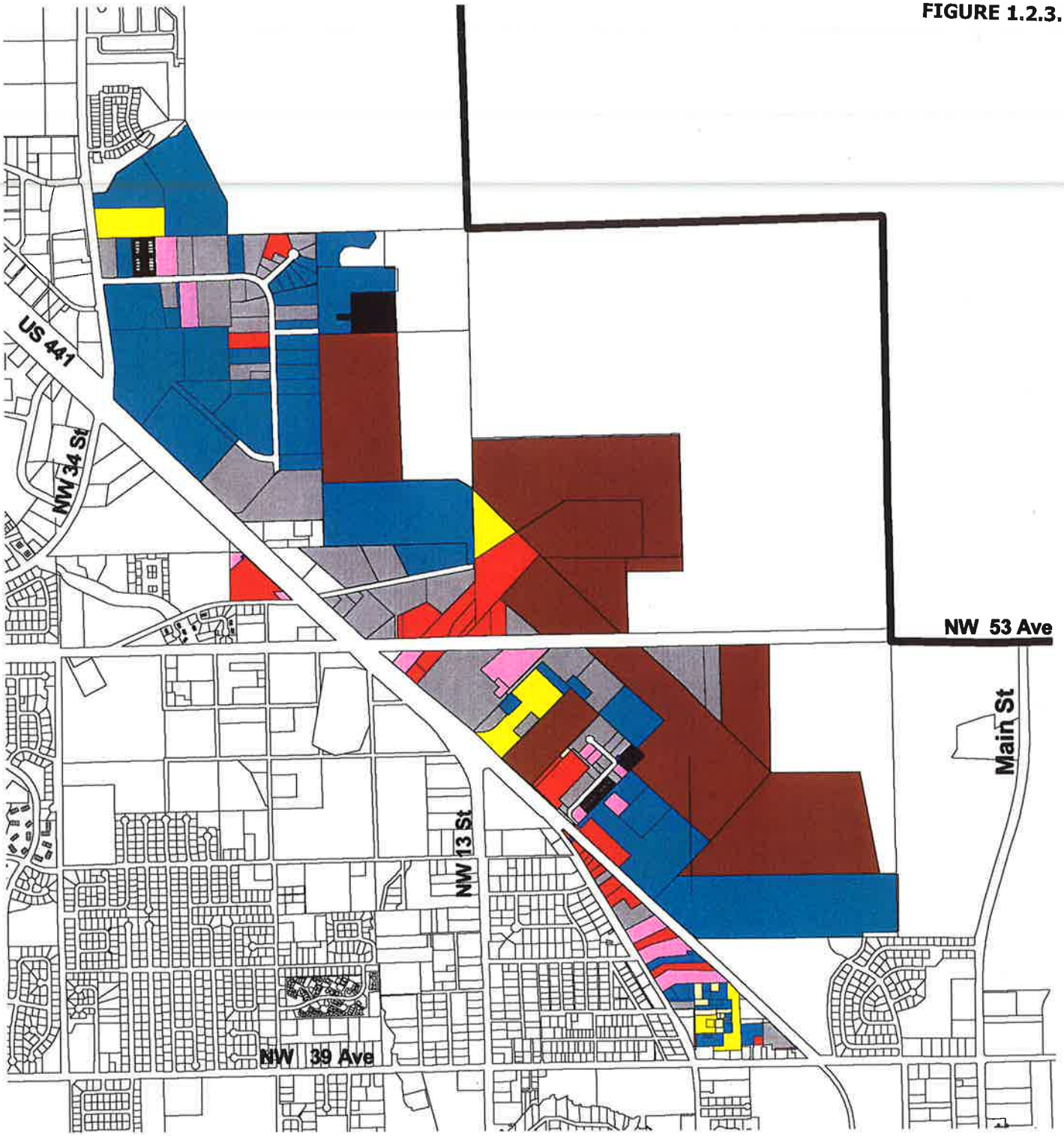
FIGURE 1.2.3.1



Area 3. Existing Land Use by DOR Codes

Industrial Zoned Property

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
- Unimproved Land
- Conservation
- Agriculture/Timber
- Other Parkland/Recreation
- No Data

N

700 0 700 Feet

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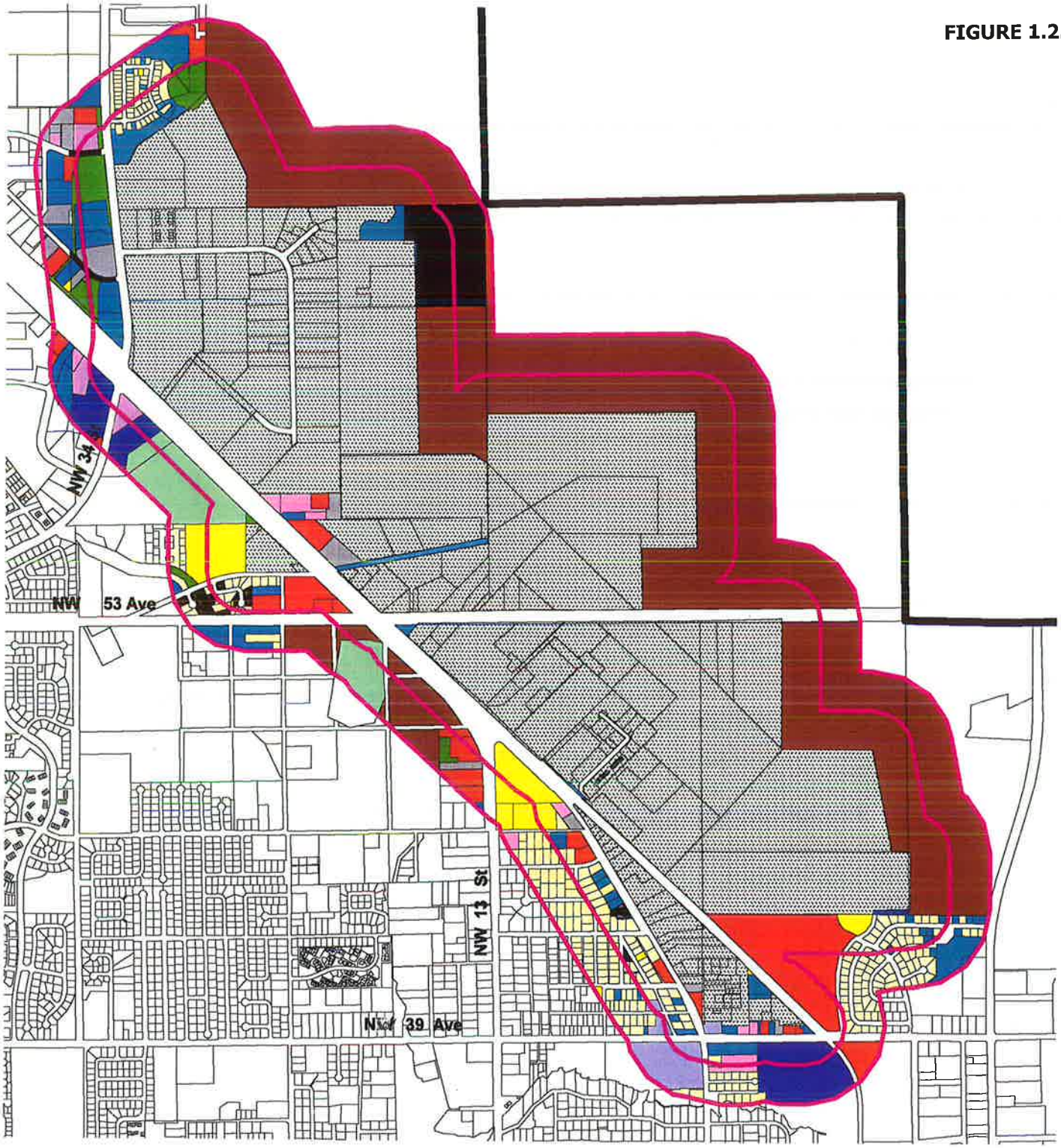
FIGURE 1.2.3.2



Area 3. Existing Land Use by DOR Codes

Property within 500/1000 feet of Industrial Zoning

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
- Unimproved Land
- Conservation
- Agriculture/Timber
- Other Parkland/Recreation
- No Data
- 500/1000 Ft. Buffers
- I-1 & I-2 Zoned Parcels

N

700 0 700 Feet

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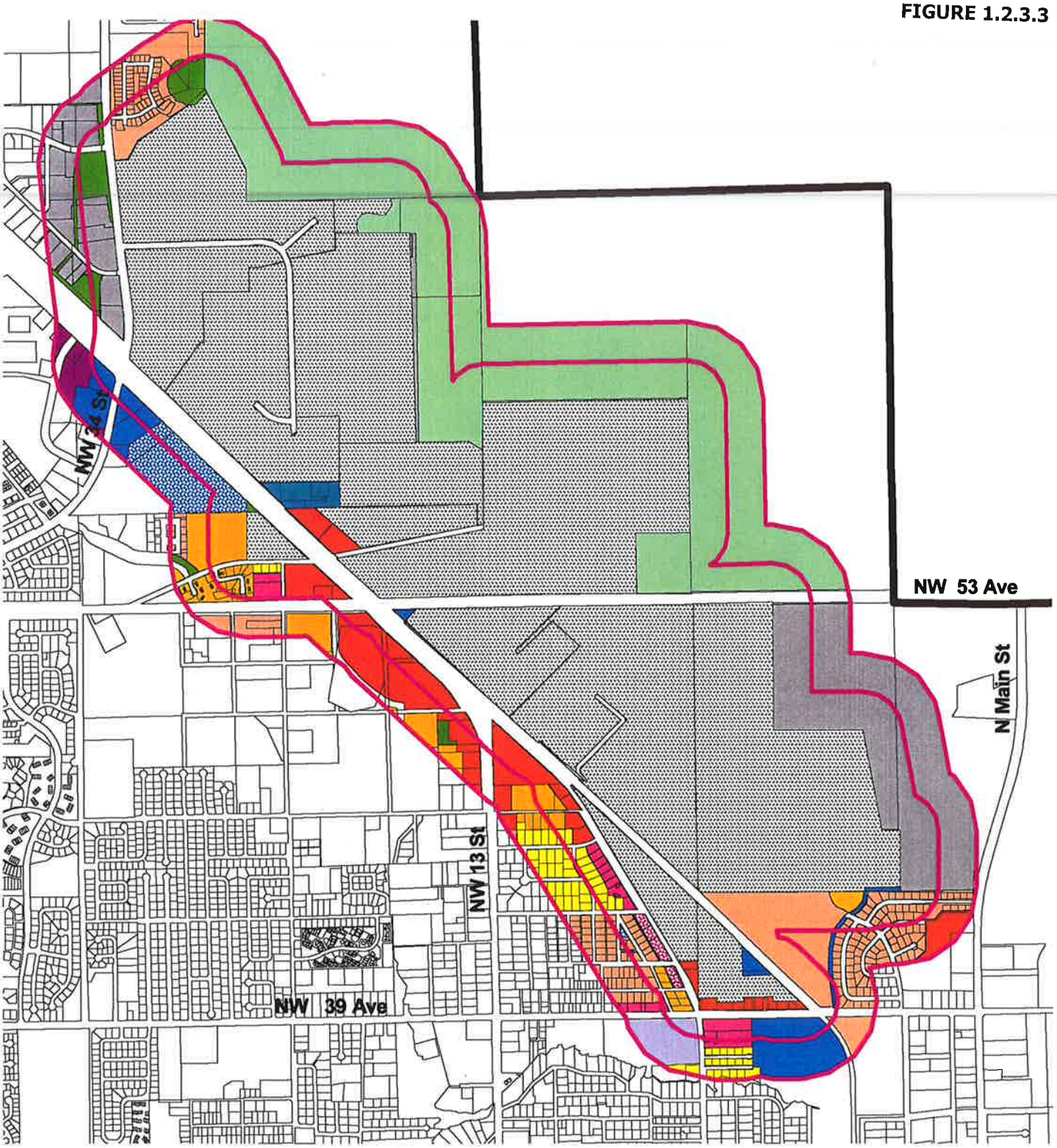
FIGURE 1.2.3.3



Area 3. Comprehensive Plan Land Use

Property within 500/1000 feet of Industrial Zoning

- Single Family
- Residential Low Density
- Residential Medium Density
- Residential High Density
- Mixed Use Residential
- Mixed Use Low
- Mixed Use Medium
- Mixed Use High
- Office
- Commercial
- Industrial
- Education
- Recreation
- Public Facilities
- Agriculture
- Conservation
- Planned Unit Development
- 500/1000 Ft. Buffers
- I-1 & I-2 Zoned Parcels

N

700 0 700 Feet

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Gainesville, Florida
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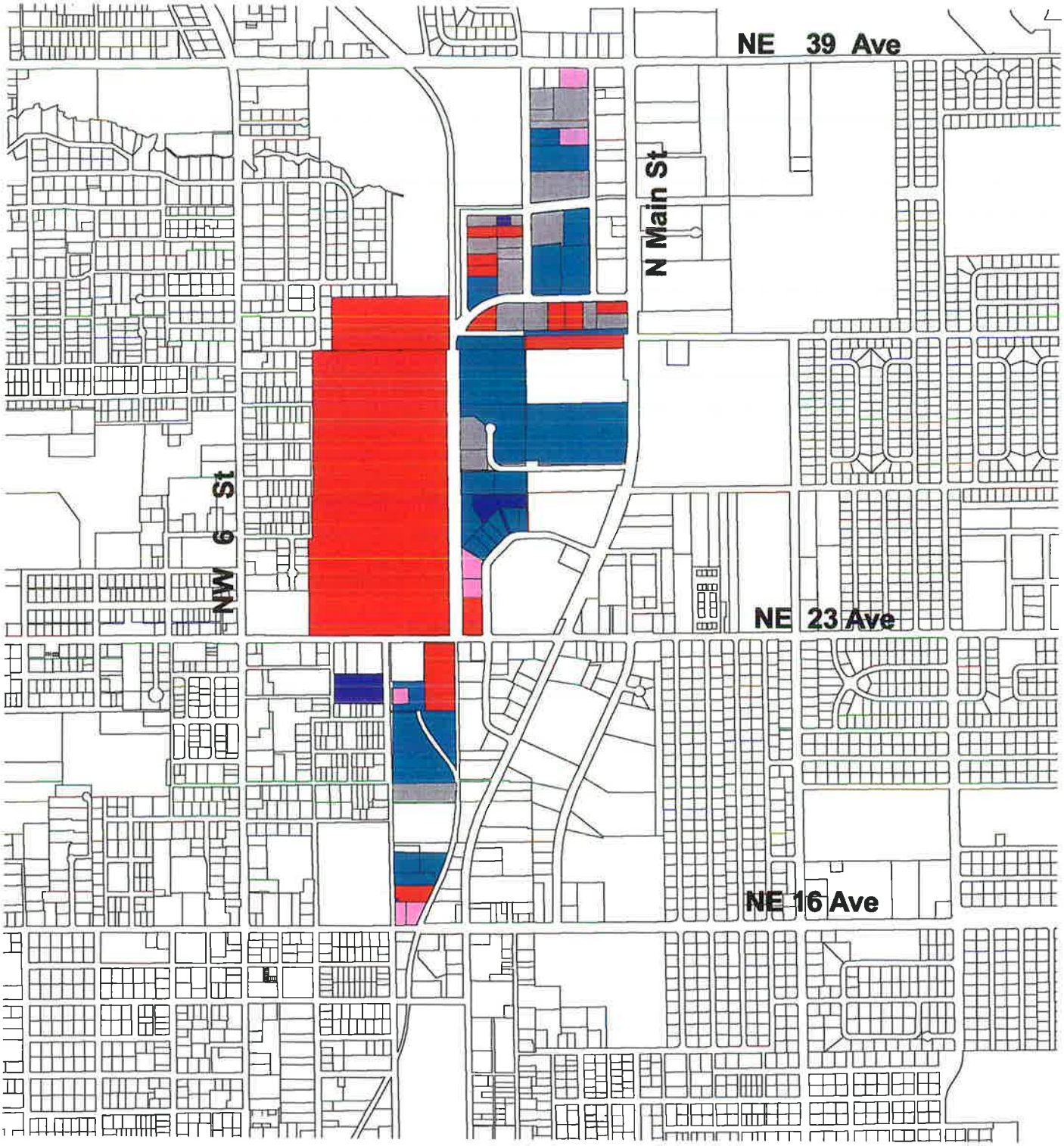
FIGURE 1.2.4.1



Area 4. Existing Land Use by DOR Codes

Industrial Zoned Property

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
- Unimproved Land
- Conservation
- Agriculture/Timber
- Other Parkland/Recreation
- No Data

N

500 0 500 Feet

City of Gainesville
Gainesville, Florida

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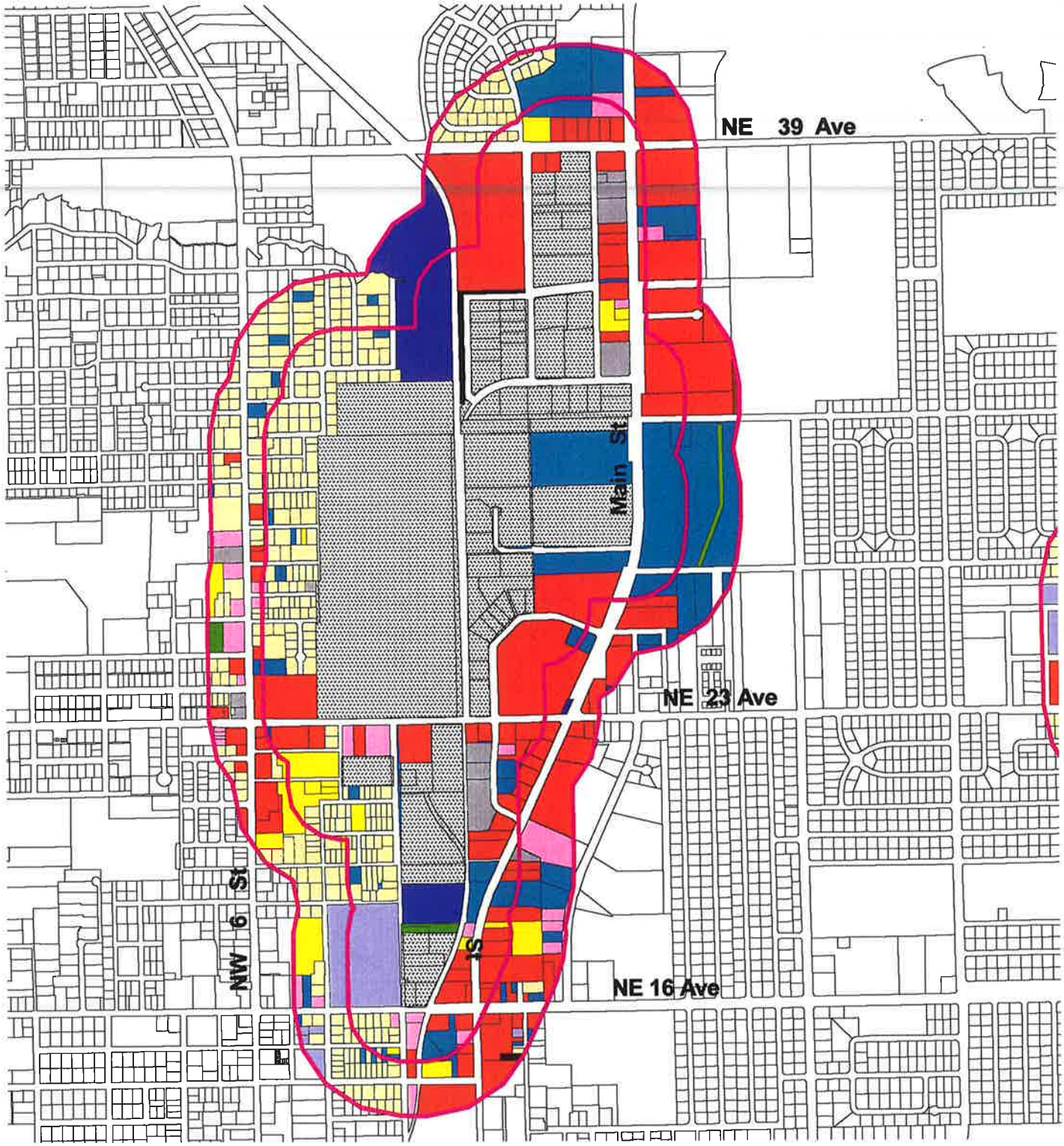
FIGURE 1.2.4.2



Area 4. Existing Land Use by DOR Codes

Property within 500/1000 feet of Industrial Zoning

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
- Unimproved Land
- Conservation
- Agriculture/Timber
- Other Parkland/Recreation
- No Data
- 500/1000 Ft. Buffers
- I-1 & I-2 Zoned Parcels

N

500 0 500 Feet

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Gainesville, Florida

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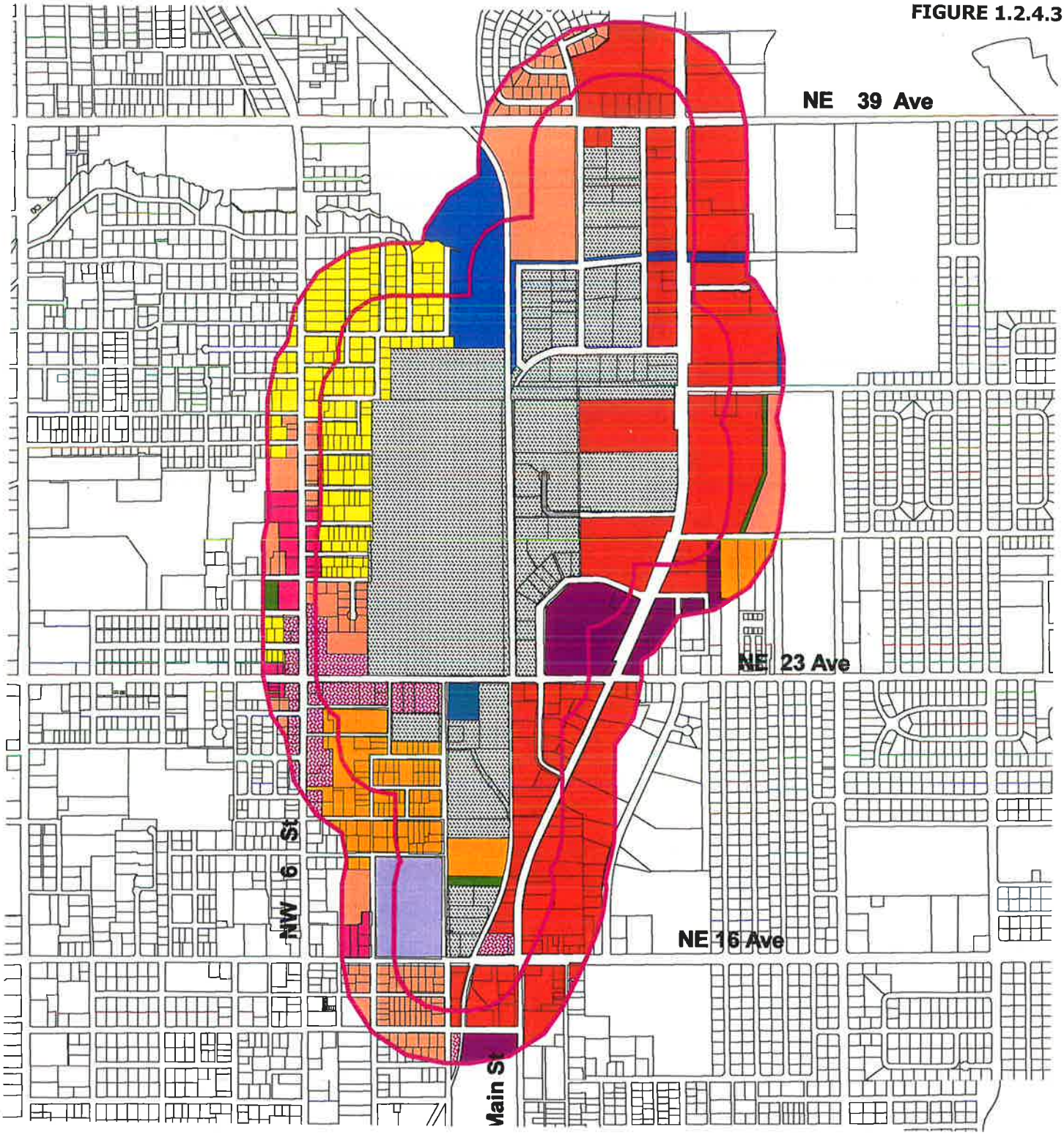
FIGURE 1.2.4.3



Area 4. Comprehensive Plan Land Use

Property within 500/1000 feet of Industrial Zoning

- Single Family
- Residential Low Density
- Residential Medium Density
- Residential High Density
- Mixed Use Residential
- Mixed Use Low
- Mixed Use Medium
- Mixed Use High
- Office
- Commercial
- Industrial
- Education
- Recreation
- Public Facilities
- Agriculture
- Conservation
- Planned Unit Development
- 500/1000 Ft. Buffers
- I-1 & I-2 Zoned Parcels

N

500 0 500 Feet

City of Gainesville
Gainesville, Florida
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Gainesville City Limits

FIGURE 1.2.5.1

Area 5. Existing Land Use by DOR Codes

Industrial Zoned Property

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
- Unimproved Land
- Conservation
- Agriculture/Timber
- Other Parkland/Recreation
- No Data

N

500 0 500 Feet

City of Gainesville
Gainesville, Florida

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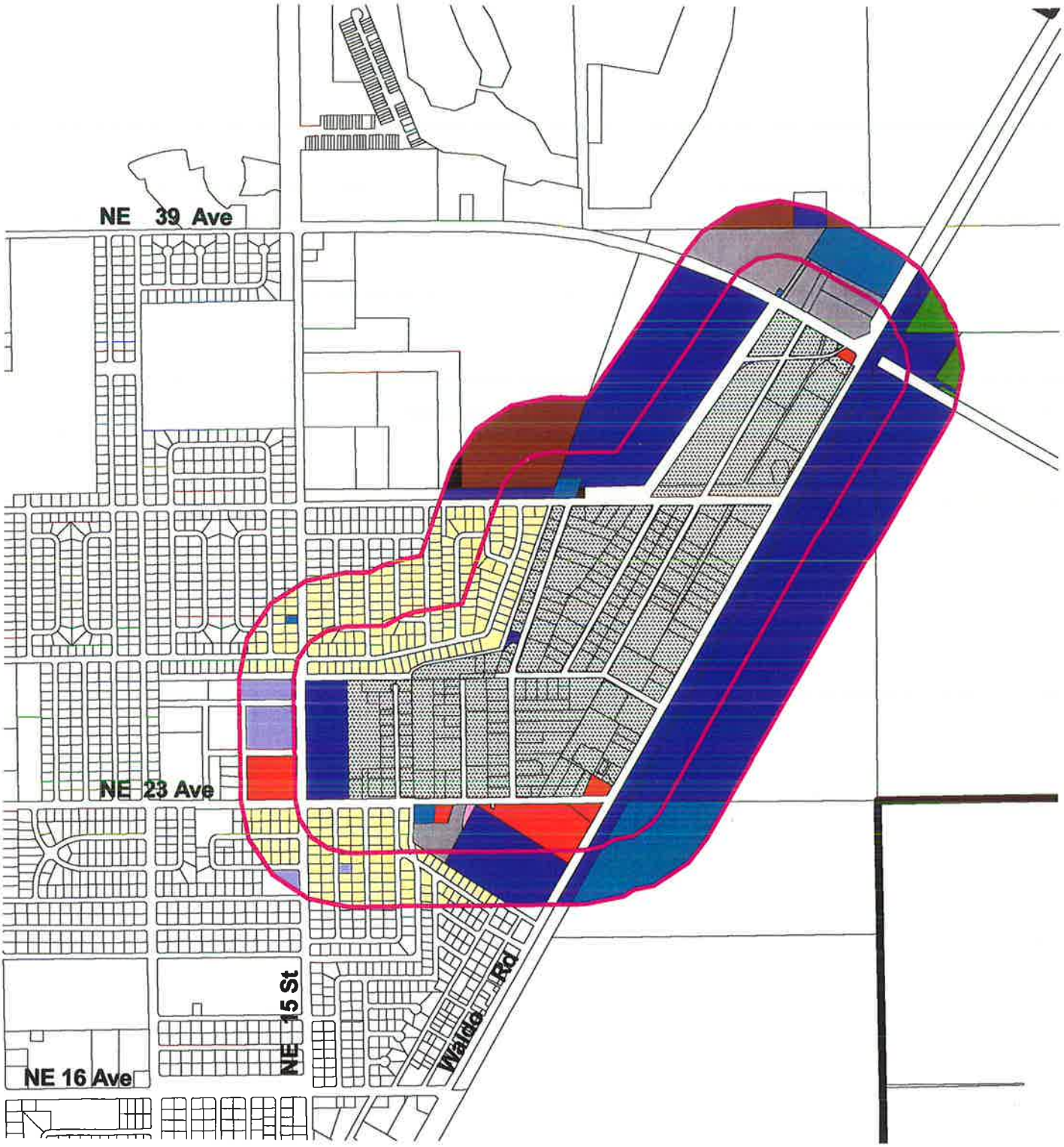
FIGURE 1.2.5.2



Area 5. Existing Land Use by DOR Codes

Property within 500/1000 feet of Industrial Zoning

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
- Unimproved Land
- Conservation
- Agriculture/Timber
- Other Parkland/Recreation
- No Data
- 500/1000 Ft. Buffers
- I-1 & I-2 Zoned Parcels

N

500 0 500 Feet

City of Gainesville
Gainesville, Florida

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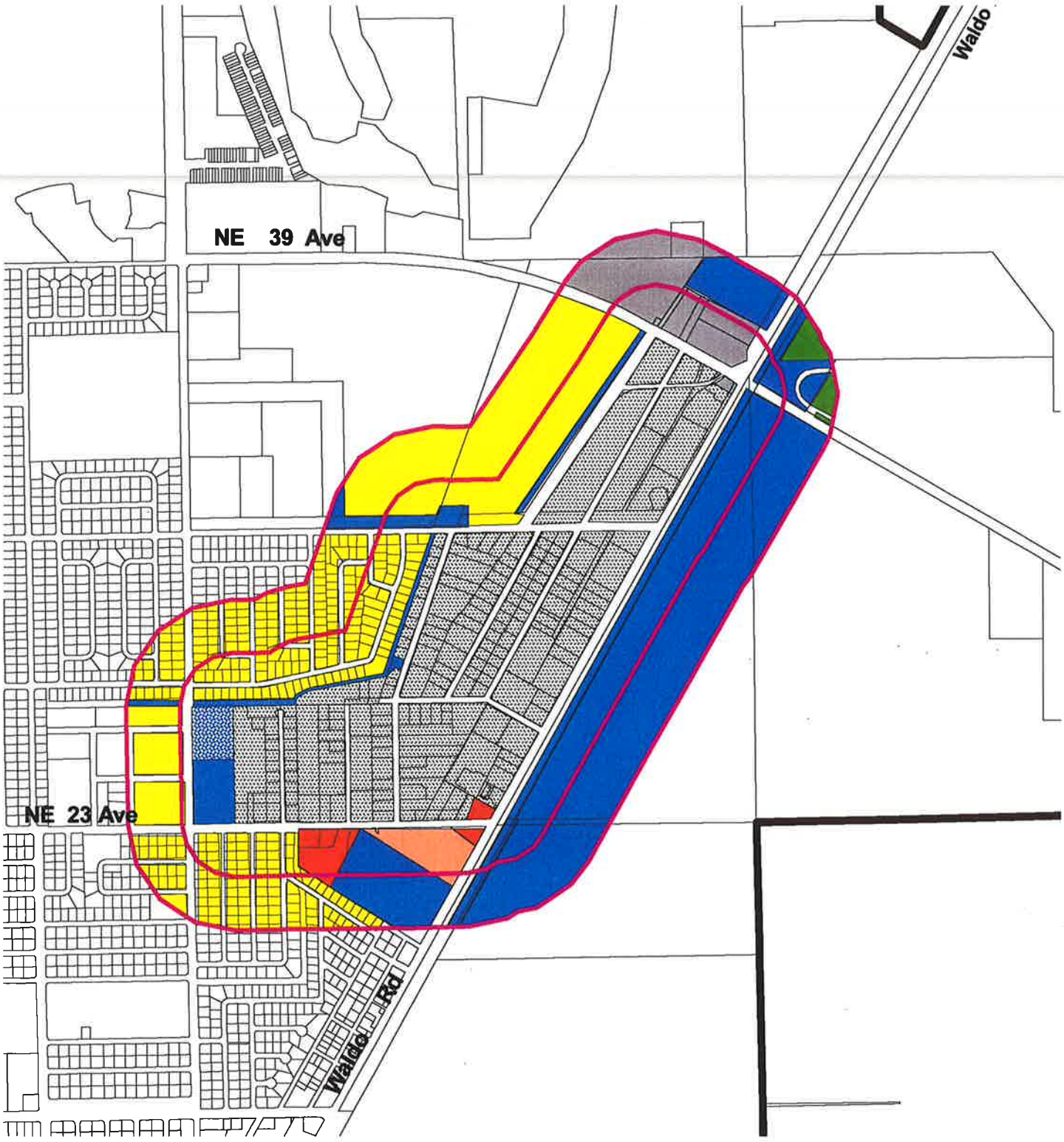

Area 5. Comprehensive Plan Land Use

Property within 500/1000 feet of Industrial Zoning

- Single Family
- Residential Low Density
- Residential Medium Density
- Residential High Density
- Mixed Use Residential
- Mixed Use Low
- Mixed Use Medium
- Mixed Use High
- Office
- Commercial
- Industrial
- Education
- Recreation
- Public Facilities
- Agriculture
- Conservation
- Planned Unit Development
- 500/1000 Ft. Buffers
- I-1 & I-2 Zoned Parcels

N

500 0 500 Feet

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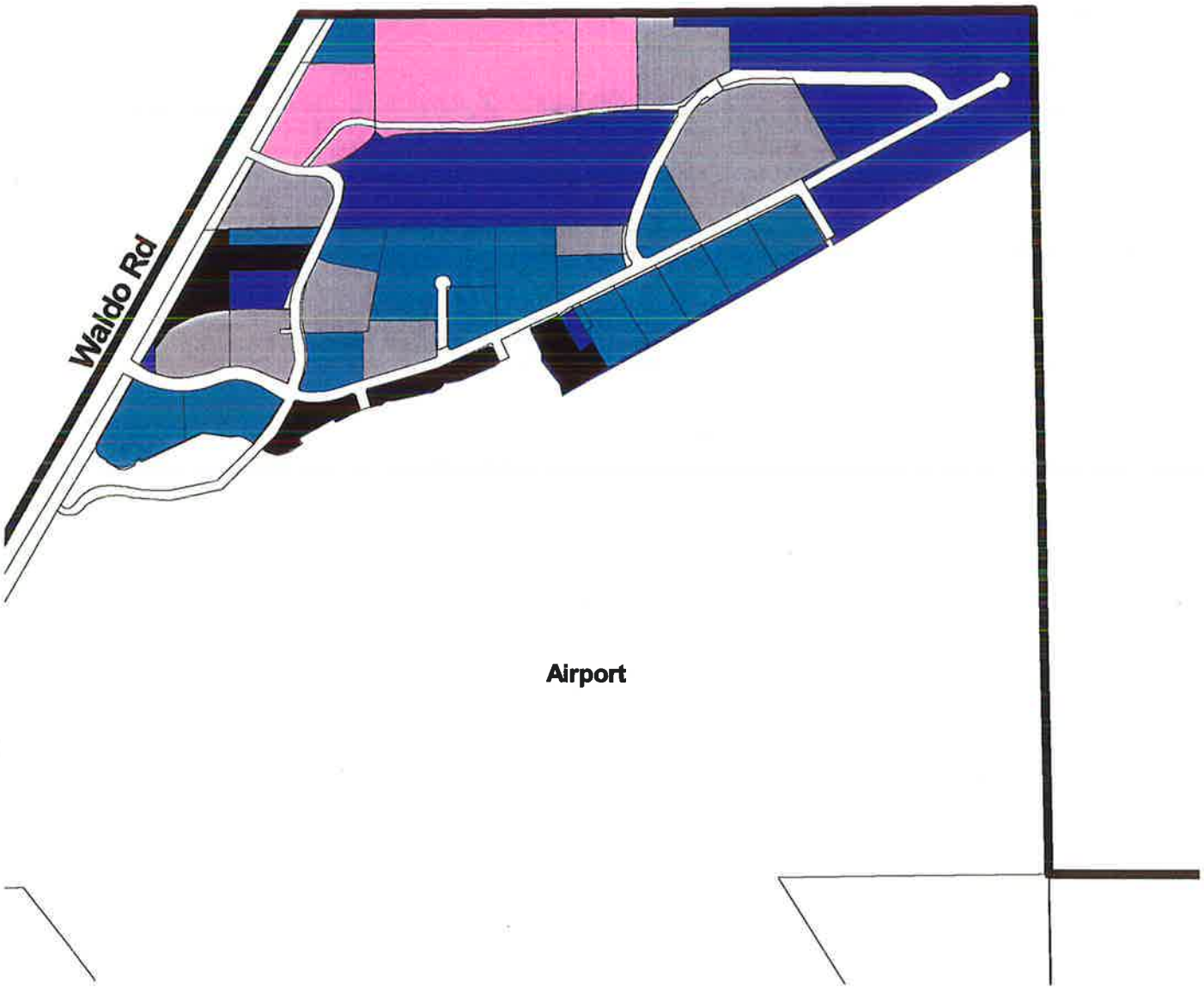
FIGURE 1.2.6.1



Area 6. Existing Land Use by DOR Codes

Industrial Zoned Property

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
- Unimproved Land
- Conservation
- Agriculture/Timber
- Other Parkland/Recreation
- No Data

N

500 0 500 Feet

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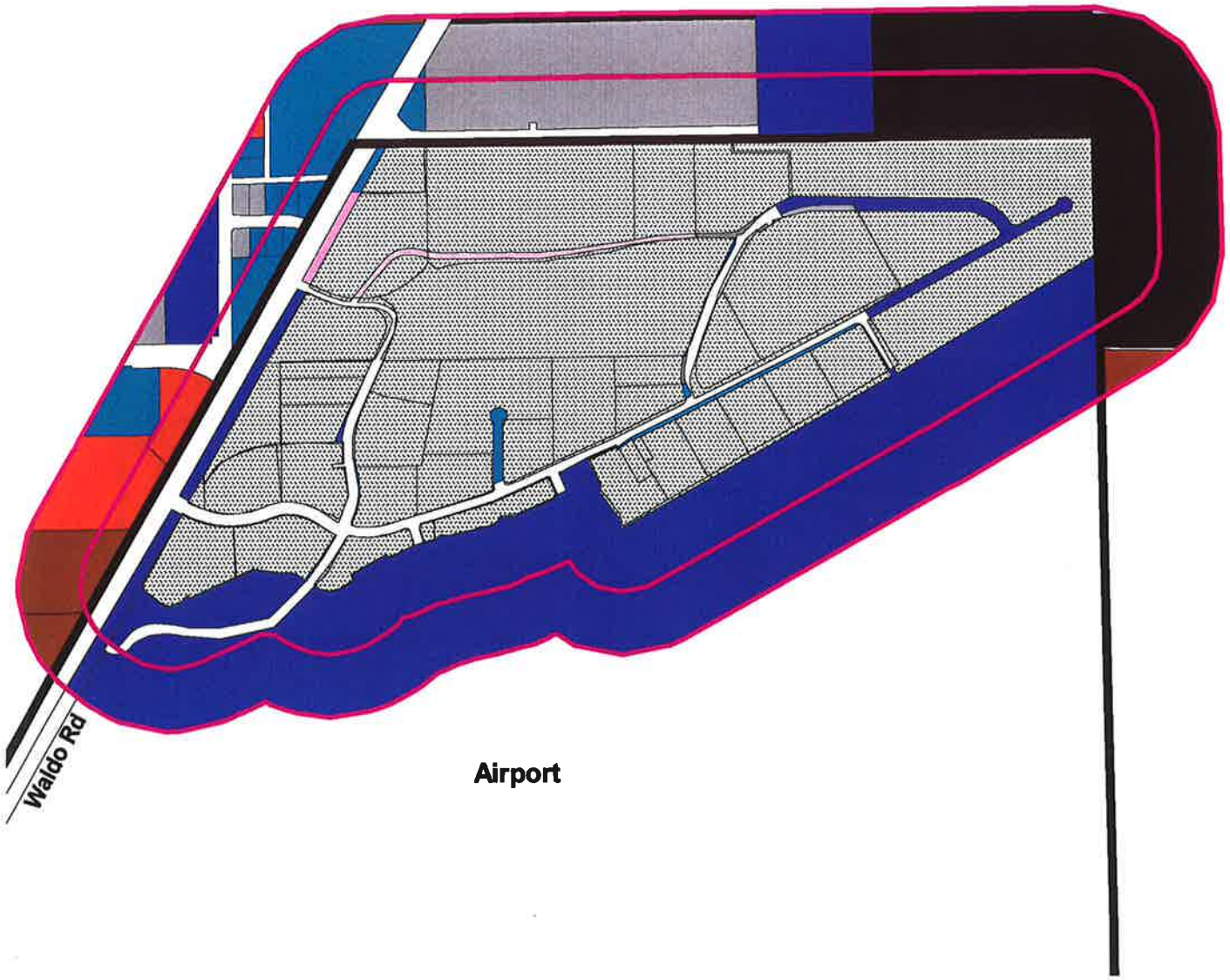

Area 6. Existing Land Use by DOR Codes

Property within 500/1000 feet of Industrial Zoning

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
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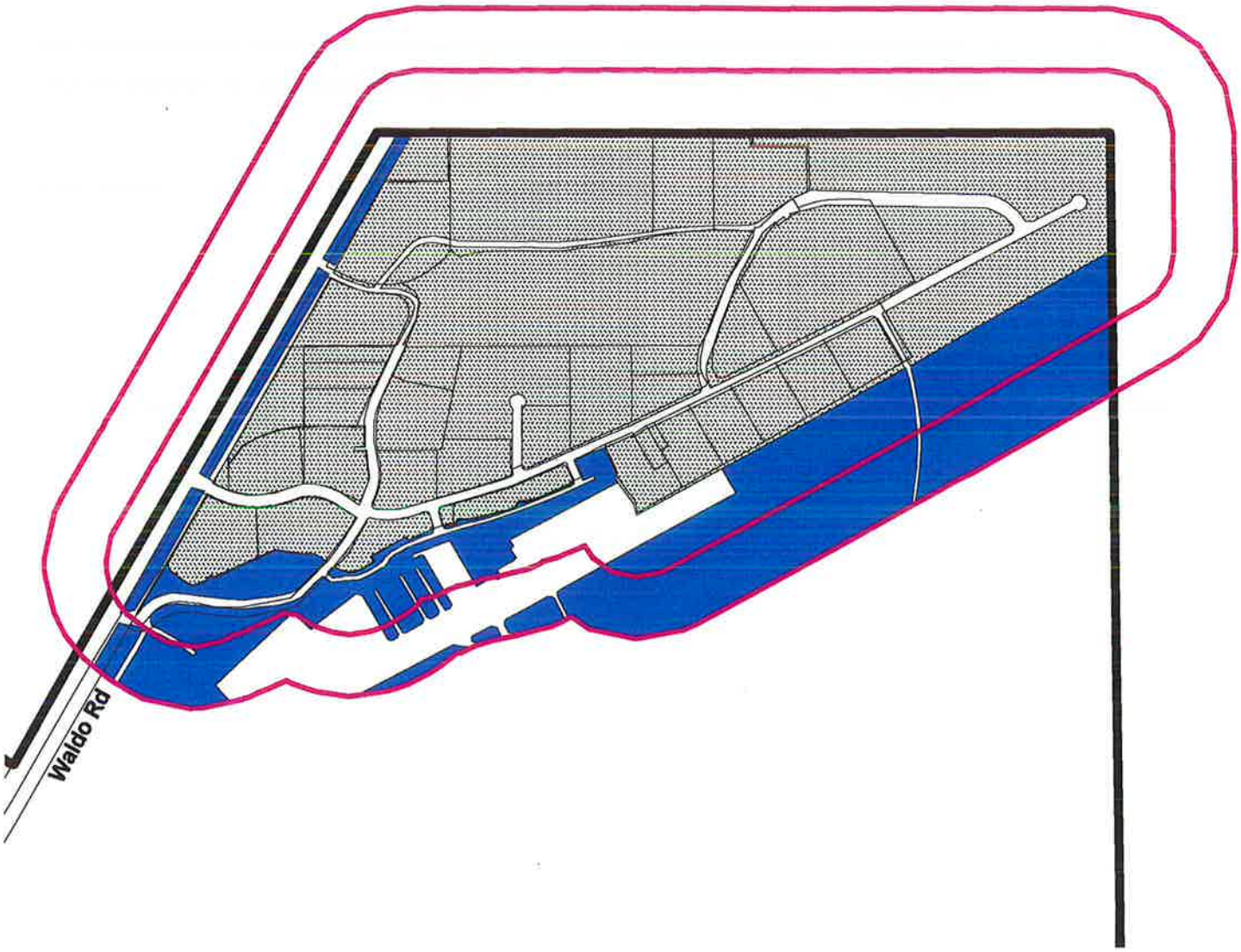

Area 6. Comprehensive Plan Land Use

Property within 500/1000 feet of Industrial Zoning

- Single Family
- Residential Low Density
- Residential Medium Density
- Residential High Density
- Mixed Use Residential
- Mixed Use Low
- Mixed Use Medium
- Mixed Use High
- Office
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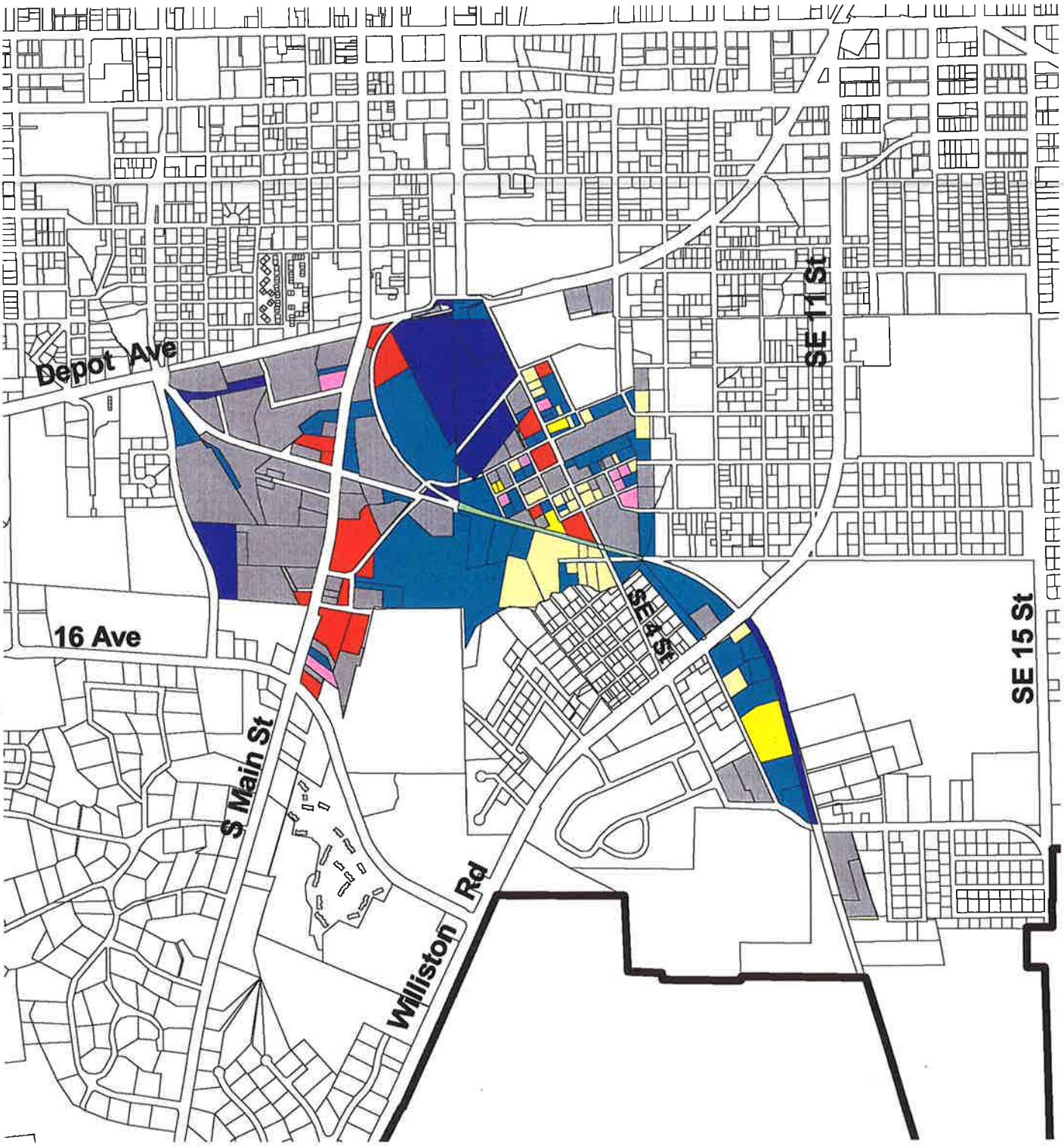
Gainesville City Limits



Area 7. Existing Land Use by DOR Codes

Industrial Zoned Property

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
- Unimproved Land
- Conservation
- Agriculture/Timber
- Other Parkland/Recreation
- No Data

N

500 0 500 Feet

City of Gainesville
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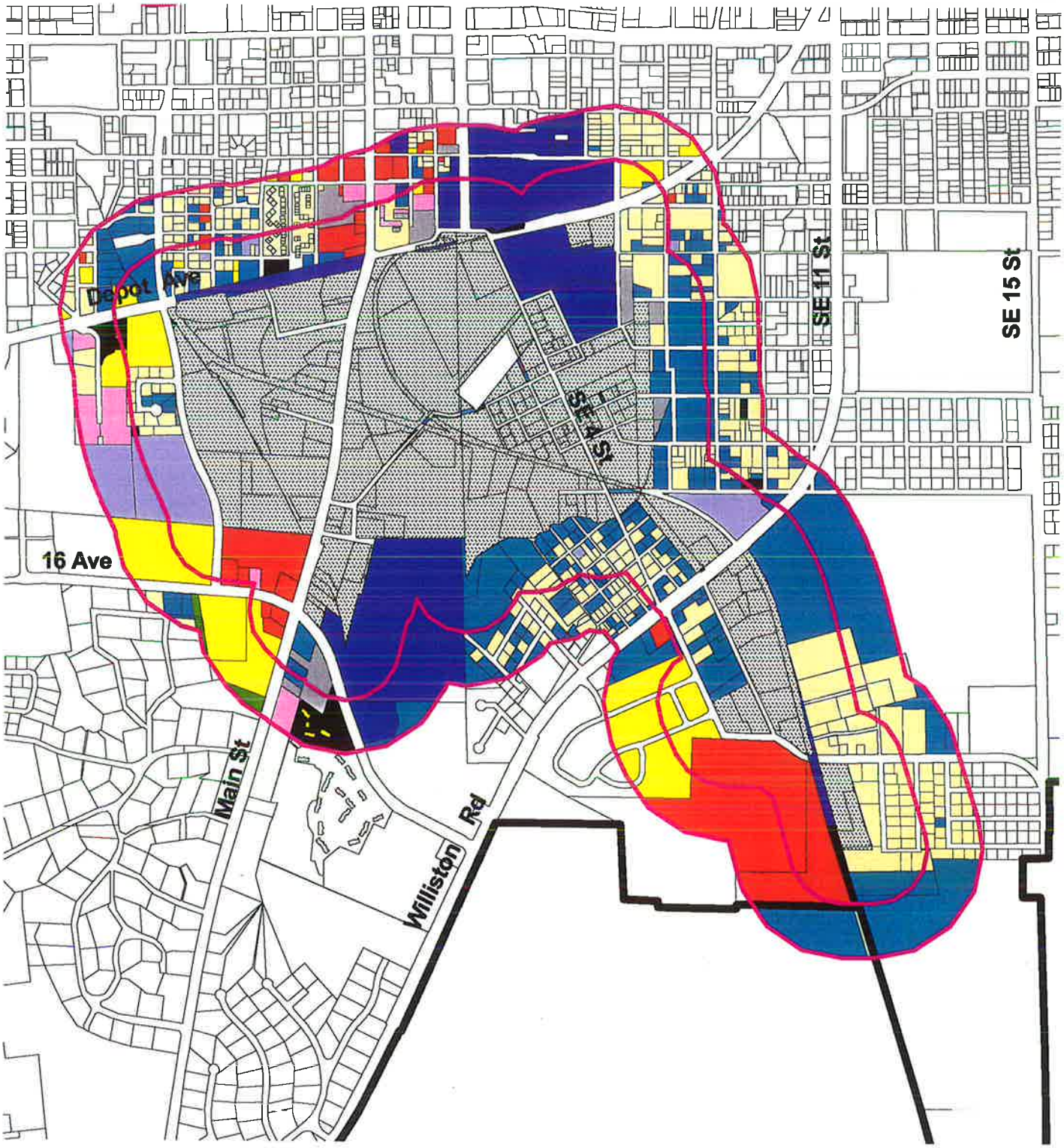
FIGURE 1.2.7.2



Area 7. Existing Land Use by DOR Codes

Property within 500/1000 feet of Industrial Zoning

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
- Unimproved Land
- Conservation
- Agriculture/Timber
- Other Parkland/Recreation
- No Data
- 500/1000 Ft. Buffers
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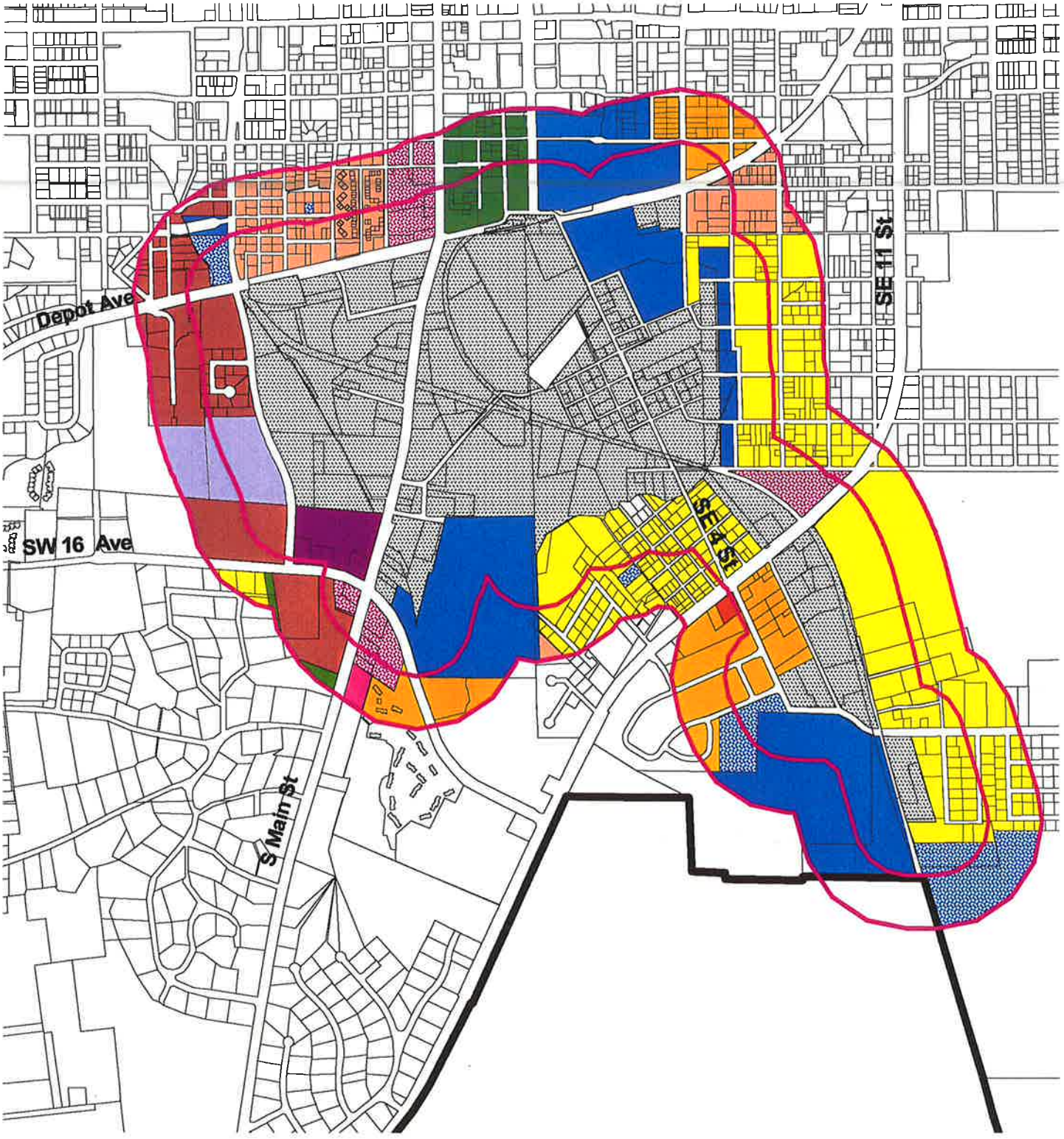

Area 7. Comprehensive Plan Land Use

Property within 500/1000 feet of Industrial Zoning

- Single Family
- Residential Low Density
- Residential Medium Density
- Residential High Density
- Mixed Use Residential
- Mixed Use Low
- Mixed Use Medium
- Mixed Use High
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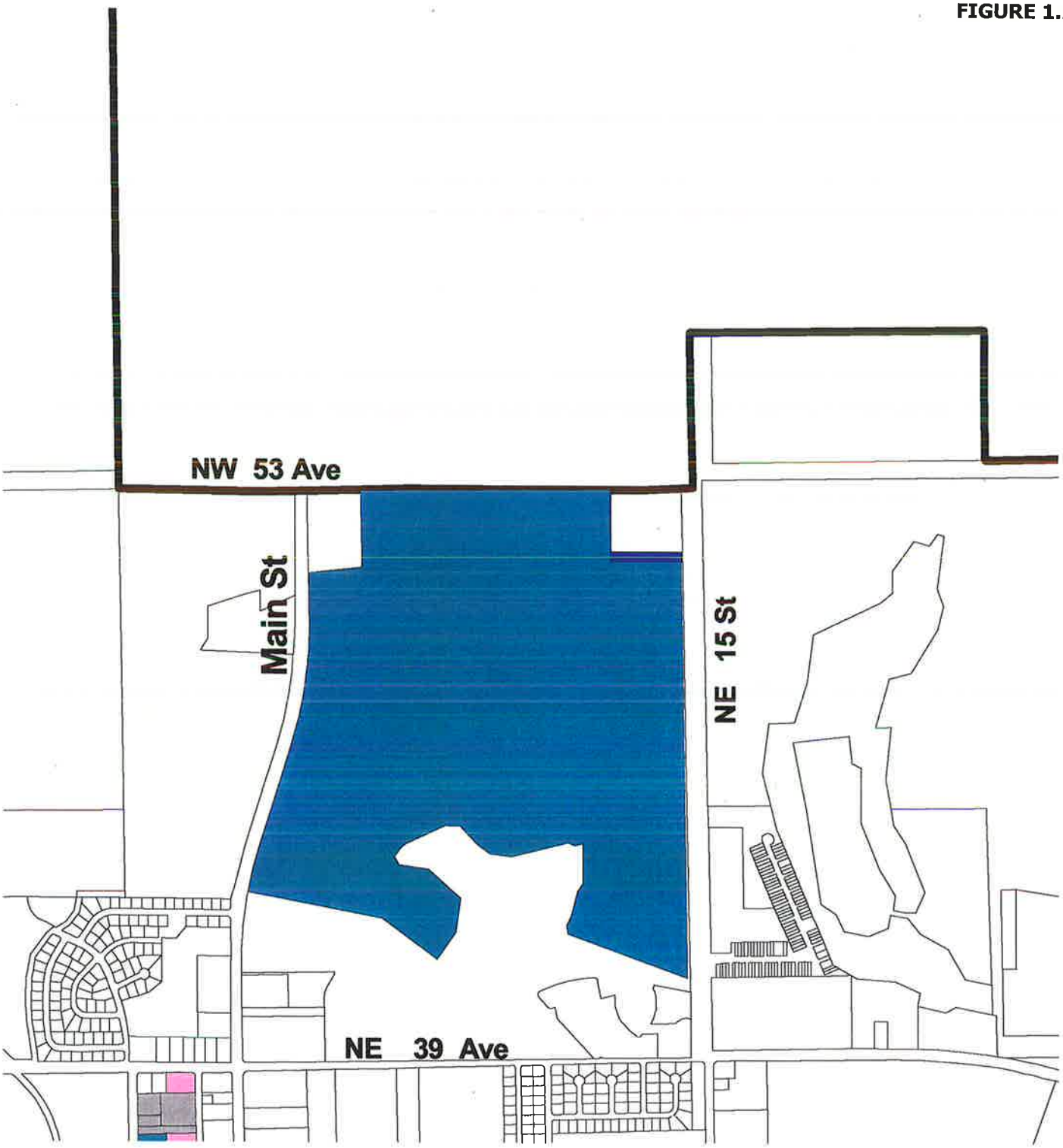

Area 8. Existing Land Use by DOR Codes

Industrial Zoned Property

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
- Unimproved Land
- Conservation
- Agriculture/Timber
- Other Parkland/Recreation
- No Data

N

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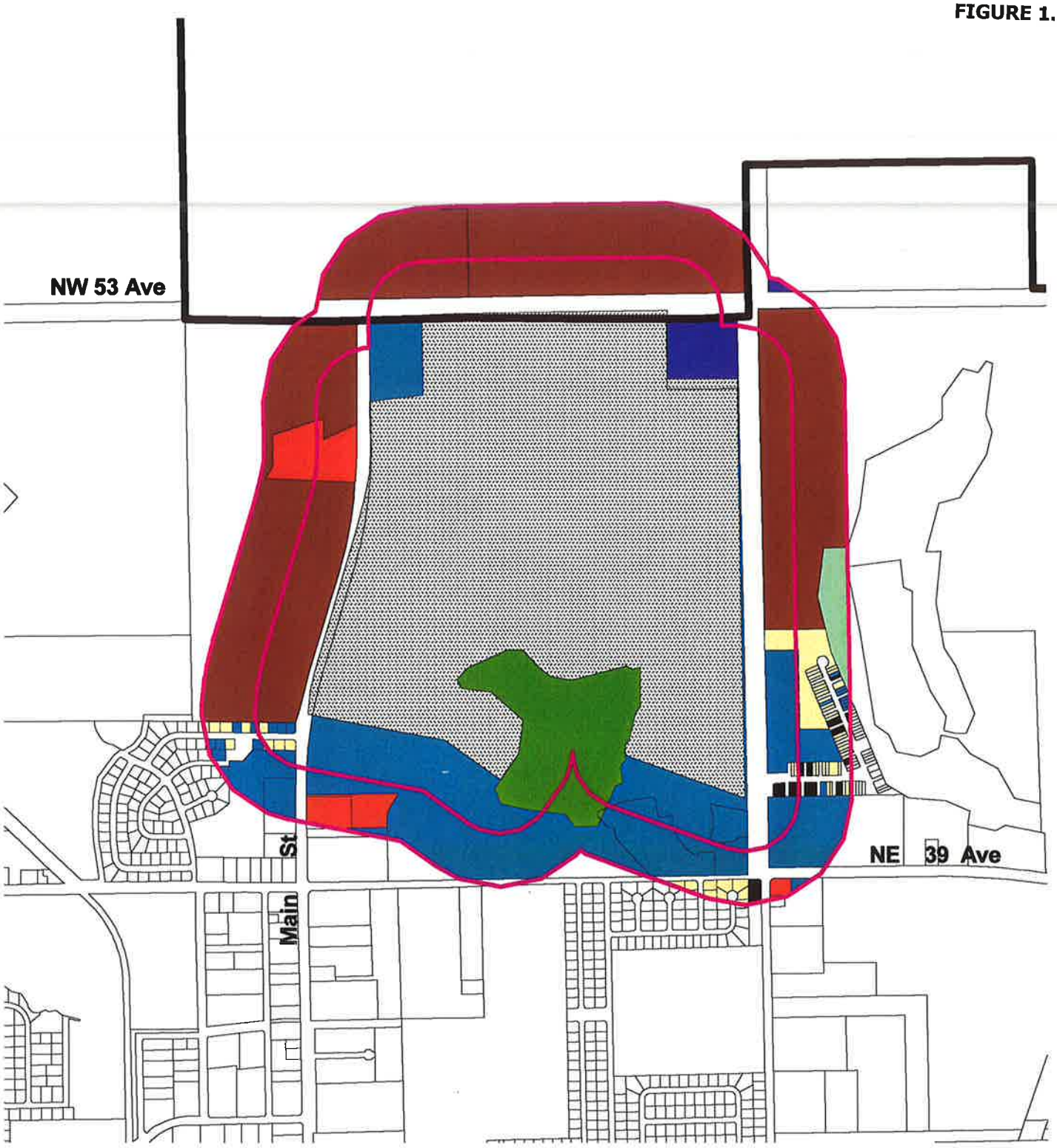

Area 8. Existing Land Use by DOR Codes

Property within 500/1000 feet of Industrial Zoning

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
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- I-1 & I-2 Zoned Parcels

N

500 0 500 Feet

City of Gainesville
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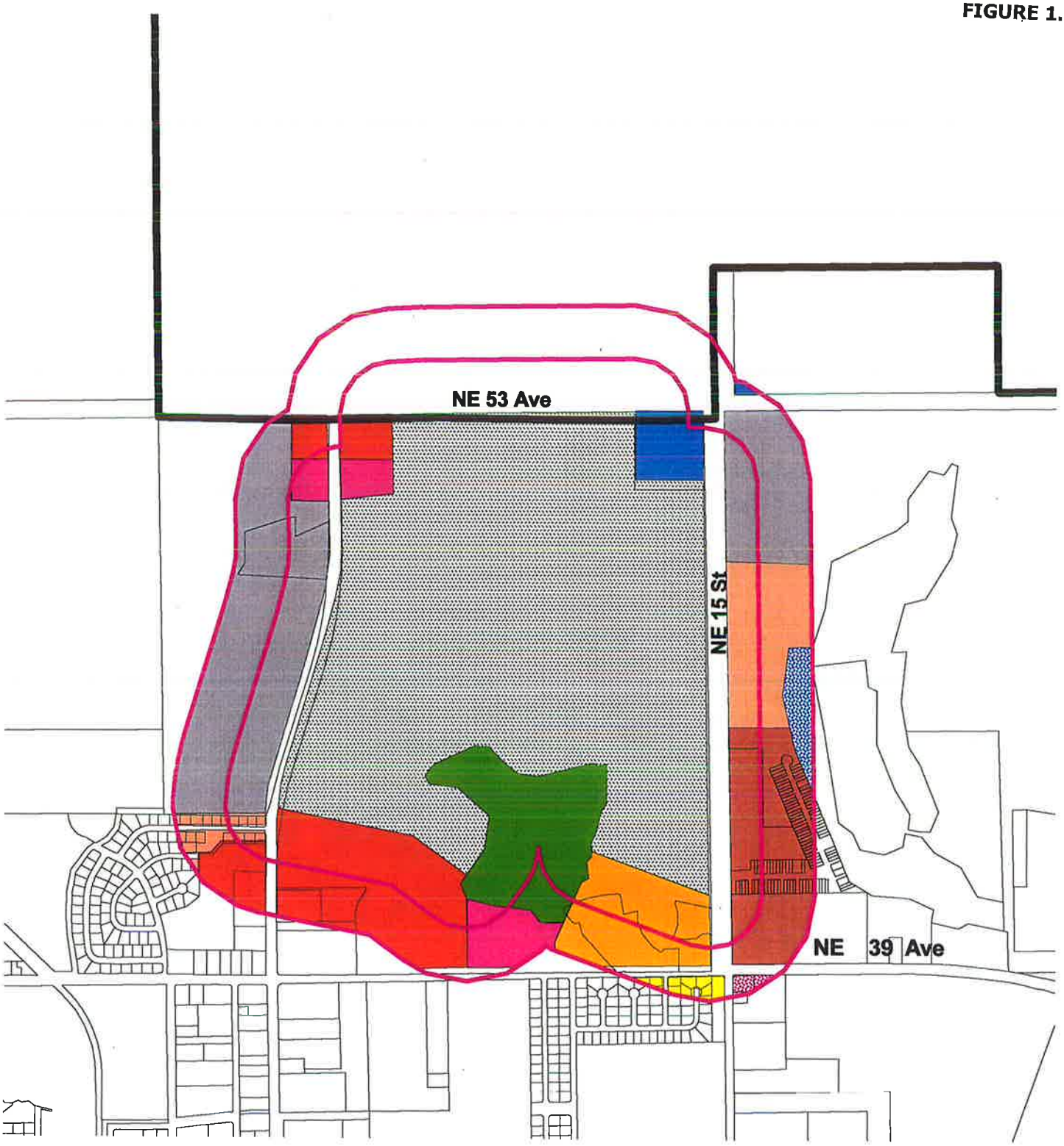
FIGURE 1.2.8.3



Area 8. Comprehensive Plan Land Use

Property within 500/1000 feet of Industrial Zoning

- Single Family
- Residential Low Density
- Residential Medium Density
- Residential High Density
- Mixed Use Residential
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N

500 0 500 Feet

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Gainesville City Limits

FIGURE 1.2.9.1

Area 9. Existing Land Use by DOR Codes

Industrial Zoned Property

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
- Unimproved Land
- Conservation
- Agriculture/Timber
- Other Parkland/Recreation
- No Data

N

500 0 500 Feet

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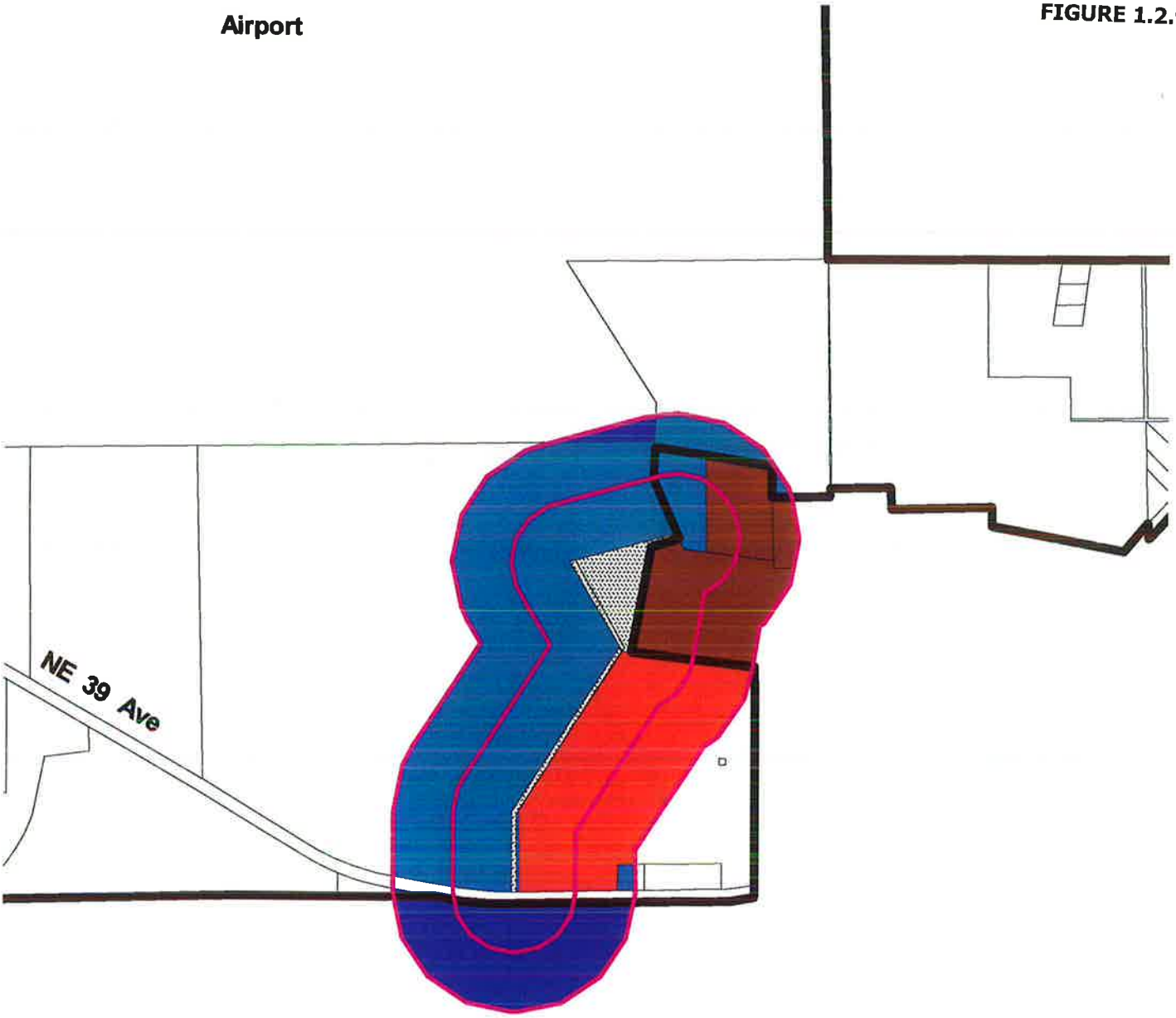
Airport

FIGURE 1.2.9.2



Area 9. Existing Land Use by DOR Codes

Property within 500/1000 feet of Industrial Zoning

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
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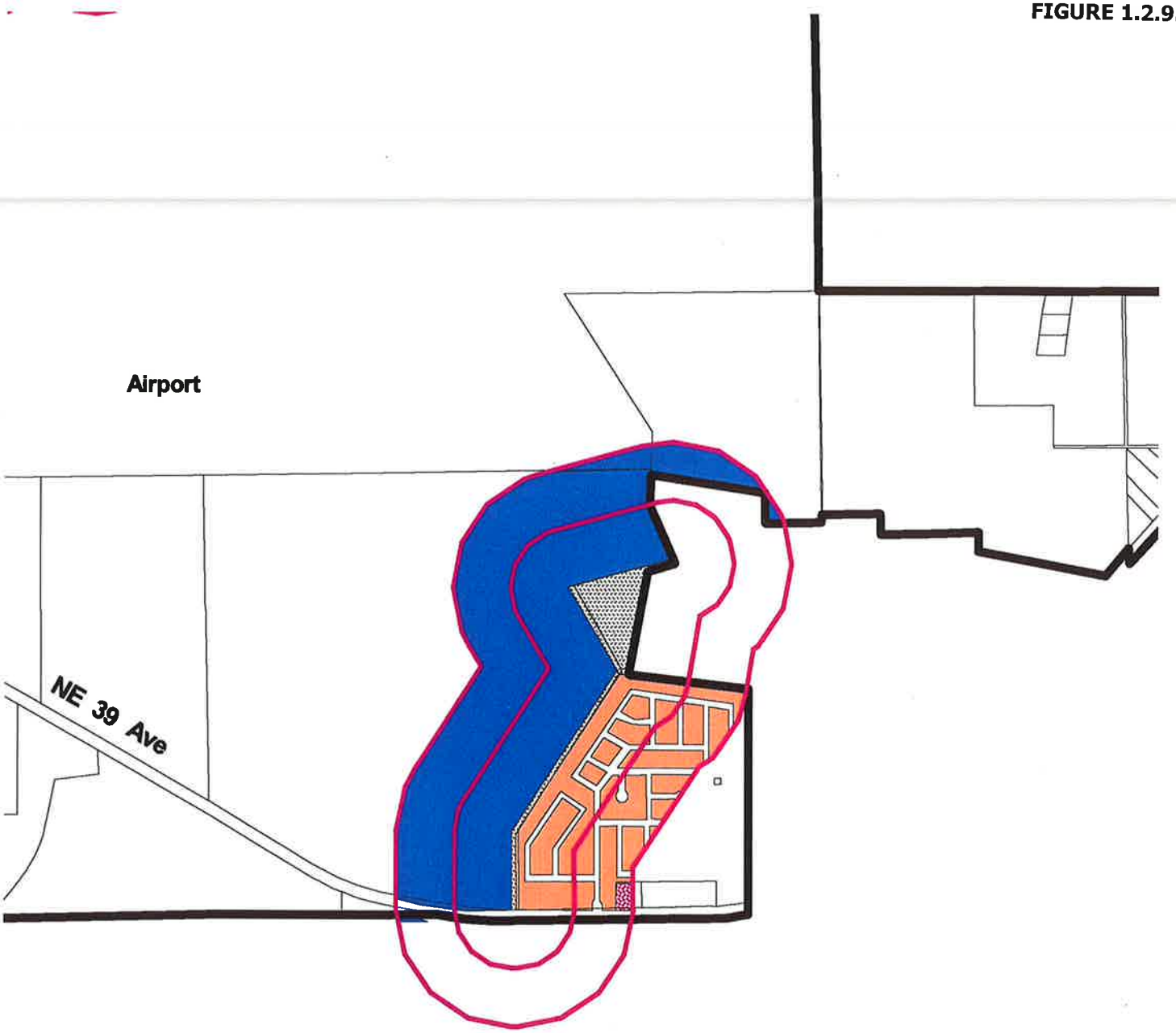
FIGURE 1.2.9.3



Area 9. Comprehensive Plan Land Use

Property within 500/1000 feet of Industrial Zoning

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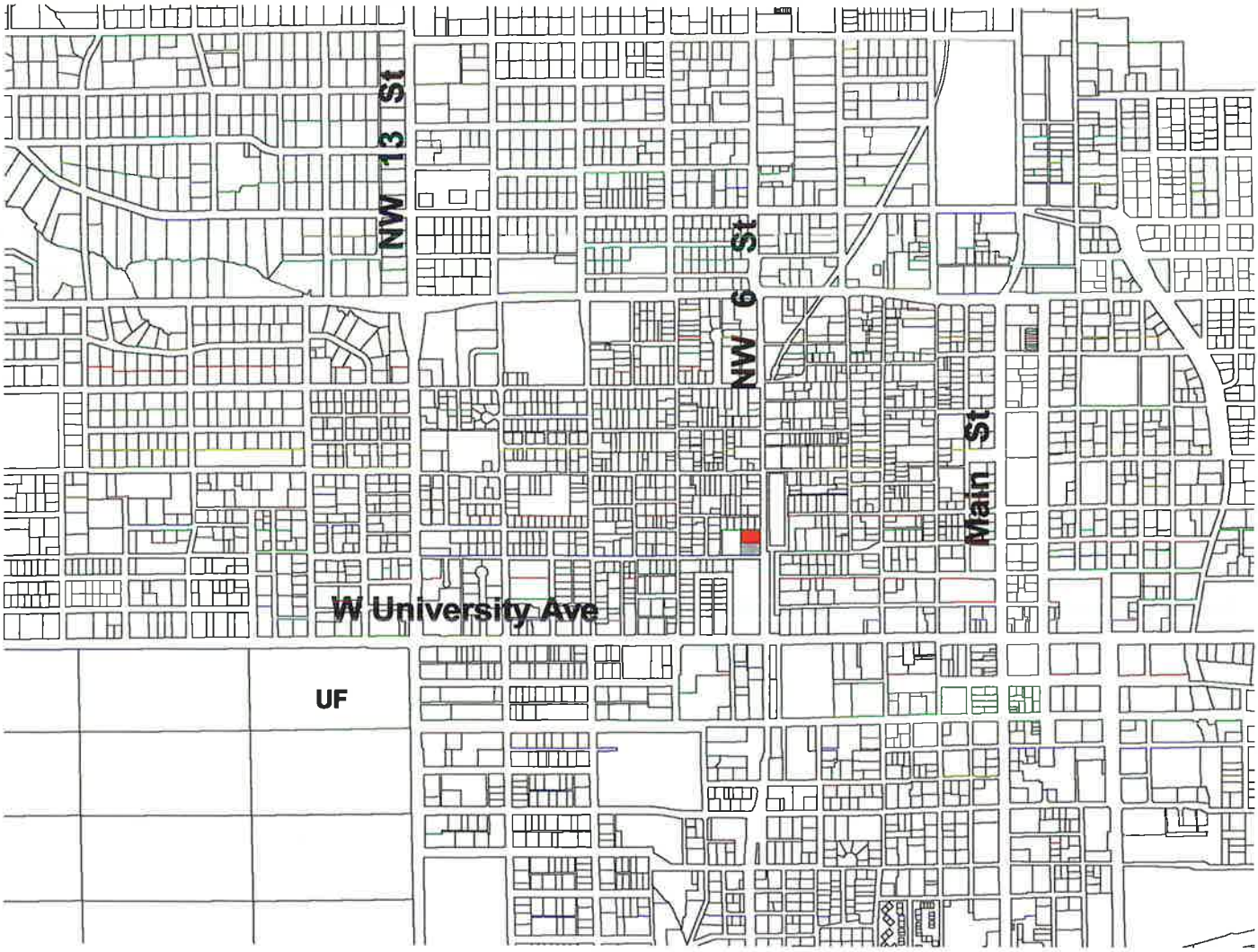

Area 10. Existing Land Use by DOR Codes

Industrial Zoned Property

- Residential/Low Density
- Residential/High Density
- Office
- Commercial
- Industrial
- Education
- Public Service
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- Conservation
- Agriculture/Timber
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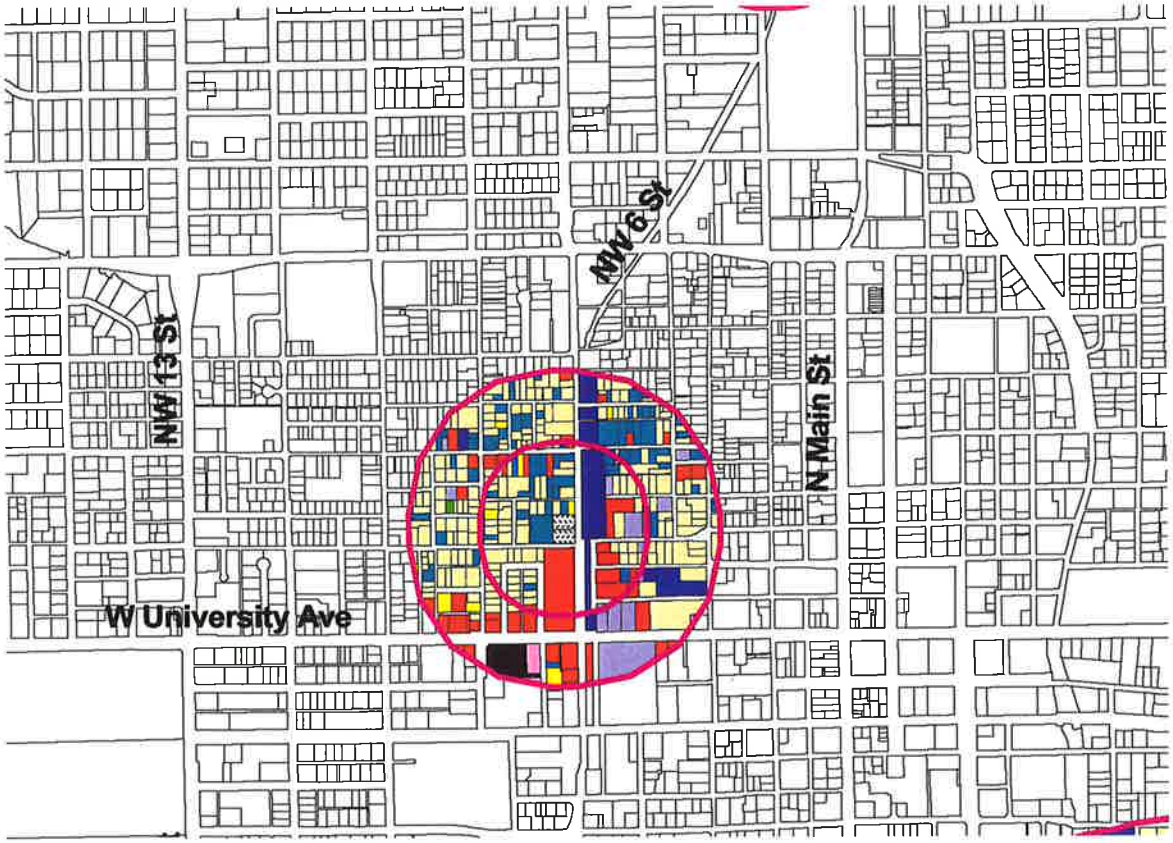

Area 10. Existing Land Use by DOR Codes

Property within 500/1000 feet of Industrial Zoning

- Residential/Low Density
- Residential/High Density
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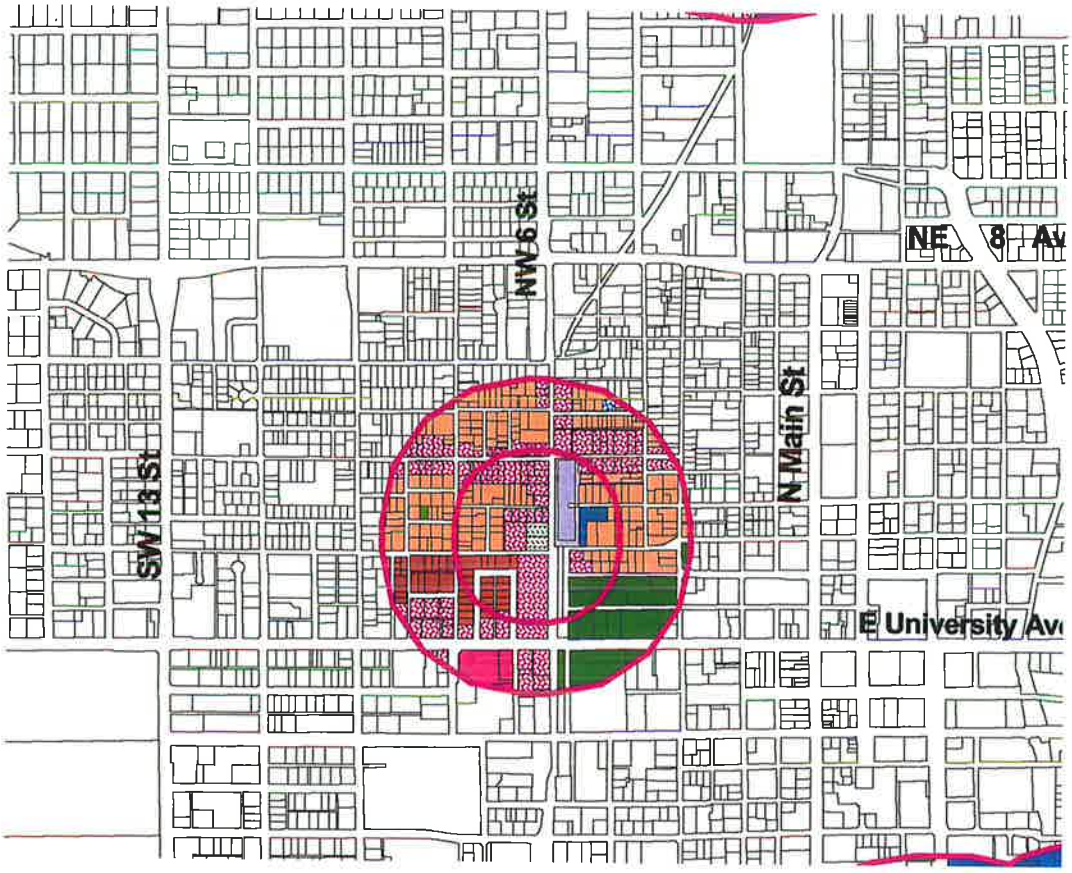

Area 10. Comprehensive Plan Land Use

Property within 500/1000 feet of Industrial Zoning

- Single Family
- Residential Low Density
- Residential Medium Density
- Residential High Density
- Mixed Use Residential
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500 0 500 Feet

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Gainesville City Limits

Appendix A

APPENDIX A-1
Pollution Intensity*

Standard Industrial Code	Standard Industrial Code Description	Particulates lb/1,000 empl	Carbon Monoxide lb/1,000 empl	Sulfur Dioxide lb/1,000 empl	Nitrogen Dioxide lb/1,000 empl	Volatile Organics lb/1,000 er
2011	MEAT PACKING PLANTS	33.26	301.77	109.51	1,212.23	1
2013	SAUSAGES AND OTHER PREPARED MEATS	7.98	62.12	33.24	242.07	7
2015	POULTRY SLAUGHTERING AND PROCESSING	0.12	0.01	1.47	0.26	0
2021	CREAMERY BUTTER	345.08	0.00	60.61	1,458.26	11
2022	CHEESE, NATURAL AND PROCESSED	10.92	34.10	76.64	141.85	6
2023	DRY, CONDENSED, EVAPORATED PRODUCTS	145.66	16.63	195.27	87.31	10
2024	ICE CREAM AND FROZEN DESSERTS	0.63	0.53	23.15	2.10	0
2026	FLUID MILK	3.54	3.40	7.50	9.08	0
2032	CANNED SPECIALTIES	42.90	36.58	393.14	242.85	66
2033	CANNED FRUITS AND VEGETABLES	10.94	12.65	129.31	56.52	36
2034	DEHYDRATED FRUITS, VEGETABLES, SOUPS	24.46	35.54	75.68	90.31	0
2035	Pickles & Other Pickled Products	0.59	1.77	10.73	3.64	0
2037	FROZEN FRUITS AND VEGETABLES	4.90	2.35	74.46	20.12	3
2038	FROZEN SPECIALTIES, N.E.C.	0.00	0.27	0.00	4.46	0
2041	FLOUR OR OTHER GRAIN MILL PRODUCTS	1,694.38	17.79	311.97	94.51	301
2043	CEREAL BREAKFAST FOODS	90.85	9.80	65.34	105.68	16
2044	RICE MILLING	339.51	89.22	0.46	252.57	31
2045	PREPARED FLOUR MIXES AND DOUGHS	21.31	0.00	0.00	0.52	0
2046	Corn Oil	17,641.07	869.53	19,214.16	5,065.53	1,705
2047	DOG AND CAT FOOD	98.96	9.90	190.93	38.52	22
2048	PREPARED FEEDS, N.E.C.	629.23	23.85	293.64	86.46	2
2051	BREAD, CAKE AND RELATED PRODUCTS	0.65	0.52	0.33	2.67	22
2052	COOKIES AND CRACKERS	6.27	0.77	2.93	9.83	22
2053	FROZEN BAKERY PRODUCTS, EXCEPT BREAD	0.00	0.00	0.00	0.00	0
2061	RAW CANE SUGAR	1,989.63	1,915.13	1,289.28	1,083.58	902
2062	CANE SUGAR REFINING	609.88	50.49	630.22	553.21	27
2063	BEET SUGAR	1,003.17	784.73	3,060.26	3,094.76	41
2064	CANDY AND OTHER CONFECTIONERY PRODUCTS ANI	1.81	0.05	11.64	1.81	0
2066	CHOCOLATE AND COCOA PRODUCTS					
2068	SALTED AND ROASTED NUTS AND SEEDS	0.00	0.00	0.00	0.00	0
2074	COTTONSEED OIL MILLS	374.51	3.89	0.00	27.97	823
2075	SOYBEAN OIL MILLS	6,464.94	984.53	3,055.95	2,813.36	5,066
2076	VEGETABLE OIL MILLS, N.E.C.	687.87	457.01	954.06	508.83	146
2077	ANIMAL AND MARINE FATS AND OILS	28.48	54.63	354.13	381.55	65
2079	EDIBLE FATS AND OILS, N.E.C.	35.60	28.00	376.64	238.36	35
2082	MALT BEVERAGES	46.35	35.61	912.51	711.92	33
2083	MALT	142.55	249.82	1,068.45	993.65	1,012
2084	WINES, BRANDY AND BRANDY SPIRITS	11.70	1.46	112.25	16.89	0
2085	DISTILLED AND BLENDED LIQUORS	126.28	98.02	1,508.80	524.39	5,183
2086	Soft drink flavoring syrup sold in bulk	0.13	0.06	0.82	0.26	0
2087	FLAVORING EXTRACTS AND SYRUPS, N.E.C.	3.27	0.23	0.00	0.70	44
2091	CANNED AND CURED FISH AND SEAFOODS	23.16	1.40	152.31	22.46	0
2092	FRESH OR FROZEN PREPARED FISH	1.94	0.70	6.04	9.50	0
2095	ROASTED COFFEE	159.96	14.23	113.85	133.97	42
2096	POTATO CHIPS AND SIMILAR SNACKS	3.80	0.44	4.24	2.24	0
2097	MANUFACTURED ICE	0.00	0.00	0.00	0.00	0
2098	MACARONI AND SPAGHETTI	2.75	0.00	36.44	6.19	0
2099	FOOD PREPARATIONS, N.E.C.	154.15	87.13	389.22	390.46	111
2111	CIGARETTES					
2121	CIGARS					
2131	CHEWING AND SMOKING TOBACCO	3.08	19.10	75.17	17.87	3
2141	TOBACCO STEMMING AND REDRYING	13.29	137.88	176.85	532.03	40
2211	BROADWOVEN FABRIC MILLS, COTTON	37.48	160.08	306.57	840.29	20

	PM-10	BOD	TSS	Air Toxics	Water Toxics	Solid Toxics	Air Metals	Water Metals	Solid Metals
mpl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl
74	0.37	0.0083	0.0050	12.967	1.611	6.564	0.003	0.003	0.000
96	12.10	0.0744	0.0568	107.194	4.297	36.334	0.000	0.018	0.231
67	0.00	0.0002	0.0038	5.030	0.000	0.000			
21	0.00			0.000	0.000	67.287			
00	0.00			0.000	0.000	11.831			
63	0.74			2.701	0.065	6.294			
00	0.00			0.766	0.000	0.089			
71	0.00	0.0006	0.0017	26.086	4.804	6.459			
27	6.39	0.0009	0.0007	39.510	0.155	35.275	0.000	0.000	0.848
32	0.00								
85	4.99	0.0767	0.1074	39.331	393.951	25.223	0.047	0.234	0.663
96	5.18	0.0550	0.1093	74.676	11.612	30.688			
08	6.02	0.0042	0.0216	117.751	5.420	302.734	0.023	0.000	2.360
00	0.00	0.0033	0.0055	35.714	8.574	64.411			
55	1.13	0.0008	0.0106	3.740	0.093	3.117			
00	0.00	0.0347	0.0385	20.754	0.237	14.437			
64	2.80	0.0067	0.0050	247.677	0.187	171.029			
51	0.00			1507.795	0.155	286.394	0.410	0.077	8.440
				43.567	0.000	6.715			
60	0.30	0.0002	0.0001	8.726	0.005	4.338			
15	0.00			170.394	0.000	0.467	0.700	0.000	0.000
92	0.52	0.0049	0.0137	89.293	0.115	135.996	0.000	0.033	118.102
00	0.00			2.514	0.000	0.000			
00	0.00			0.304	0.000	0.000			
00	0.83			0.015	0.000	0.000			
00	0.00								
00	0.00								
00	0.00								
00	0.00			0.089	0.000	0.000			
00	0.00								
00	0.00								
00	0.00								
06	0.00								
00	0.00			0.411	0.000	0.988			
00	0.00	0.0000	0.0000						
00	0.00			4.566	0.000	1.055			
00	0.00			0.017	0.000	0.050			
00	0.00			0.406	0.000	3.502	0.012	0.000	0.999
00	0.00								
00	0.00			6.669	0.000	0.827			
93	0.00								
00	0.00			49.018	0.000	2.155			
00	0.00								
00	0.00								
00	0.00								
00	0.00								
76	0.00			13.065	0.026	8.224	0.733	0.000	0.000
00	0.00			15.041	0.000	0.013			
00	0.00			10.199	0.000	7.660	0.000	0.000	6.891
00	0.00	0.0000	0.0000	2.305	0.000	0.000			
59	0.00			63.226	1.175	0.292			
00	0.00								
62	0.00			4.261	0.000	3.303			

APPENDIX A-1
Pollution Intensity*

Standard Industrial Code	Standard Industrial Code Description	Particulates lb/1,000 empl	Carbon Monoxide lb/1,000 empl	Sulfur Dioxide lb/1,000 empl	Nitrogen Dioxide lb/1,000 empl	Volatile Organics lb/1,000 en
2411	LOGGING	1.91	0.00	0.00	0.00	0.
2421	SAWMILLS AND PLANING MILLS, GENERAL	679.55	1,318.94	250.73	387.13	501.
2426	HARDWOOD DIMENSION AND FLOORING MILLS	214.33	240.44	4.05	63.53	83.
2429	SPECIAL PRODUCT SAWMILLS, N.E.C.	782.79	1,286.89	5.12	78.89	138.
2431	MILLWORK	24.38	20.92	8.62	51.96	87.
2434	WOOD KITCHEN CABINETS	19.15	2.50	44.69	13.94	239.
2435	HARDWOOD VENEER AND PLYWOOD	185.96	185.54	208.51	178.42	174.
2436	SOFTWOOD VENEER AND PLYWOOD	848.46	1,450.12	130.71	961.44	582.
2439	STRUCTURAL WOOD MEMBERS, N.E.C.	0.09	3.44	0.00	0.09	7.
2441	NAILED WOOD BOXES AND SHOOK	83.23	2.85	0.36	0.71	14.
2448	WOOD PALLETS AND SKIDS	1.56	0.00	0.00	0.00	0.
2449	WOOD CONTAINERS, N.E.C.	2.82	0.00	0.00	0.00	0.
2451	MOBILE HOMES	13.58	0.00	0.00	0.00	15.
2452	PREFABRICATED WOOD BUILDINGS	0.00	0.00	0.00	0.00	0.
2491	WOOD PRESERVING	52.48	126.67	13.57	87.77	231.
2493	RECONSTITUTED WOOD PRODUCTS	7.03	1.19	0.18	2.56	16.
2499	WOOD PRODUCTS, N.E.C.	328.16	322.88	223.90	144.13	378.
2511	WOOD HOUSEHOLD FURNITURE	76.51	29.07	24.13	22.43	841.
2512	UPHOLSTERED HOUSEHOLD FURNITURE	39.38	16.31	2.10	3.27	120.
2514	METAL HOUSEHOLD FURNITURE	0.49	0.00	0.42	0.49	62.
2515	MATTRESSES AND BEDSPRINGS	4.07	2.51	24.85	4.85	52.
2517	WOOD TV AND RADIO CABINETS	11.74	1.14	12.50	125.73	711.
2519	HOUSEHOLD FURNITURE, N.E.C.	3.25	0.72	0.00	2.17	461.
2521	WOOD OFFICE FURNITURE	26.32	3.86	14.41	6.70	219.
2522	OFFICE FURNITURE, EXCEPT WOOD	4.55	2.50	7.95	6.43	487.
2531	PUBLIC BUILDING AND RELATED FURNITURE	54.05	0.49	3.24	1.67	85.
2541	WOOD PARTITIONS AND FIXTURES	7.01	2.46	4.55	3.56	430.
2542	PARTITIONS AND FIXTURES, EXCEPT WOOD	1.01	0.63	1.13	1.01	100.
2591	Window shades and accessories	0.00	0.00	0.00	0.20	20.
2599	FURNITURE AND FIXTURES, N.E.C.	0.45	0.45	0.00	0.30	28.
2611	PULP MILLS	6,291.67	28,034.76	15,190.84	9,928.92	3,221.
2621	PAPER MILLS	752.23	4,157.34	5,963.58	2,864.29	739.
2631	PAPERBOARD MILLS	955.42	8,375.03	4,139.40	2,228.36	933.
2652	SETUP PAPERBOARD BOXES	8.54	3.17	103.76	41.02	110.
2653	CORRUGATED AND SOLID FIBER BOXES	11.63	92.96	43.84	397.37	97.
2655	FIBER CANS, DRUMS AND SIMILAR PRODUCTS	1.98	1.15	23.58	14.84	15.
2656	SANITARY FOOD CONTAINERS	0.00	0.00	0.00	0.00	63.
2657	FOLDING PAPERBOARD BOXES	0.00	0.00	0.00	0.00	6.
2671	PAPER COATED AND LAMINATED, PACKAGING	0.00	0.27	0.27	0.80	554.
2672	PAPER COATED AND LAMINATED, N.E.C.	0.14	3.41	8.24	5.25	337.
2673	BAGS: PLASTICS, LAMINATED, AND COATED	0.00	0.00	0.00	0.00	15.
2674	BAGS: UNCOATED PAPER AND MULTIWALL	0.00	0.00	0.00	0.00	0.
2675	DIE-CUT PAPER AND BOARD	0.55	0.00	7.49	1.80	12.
2676	SANITARY PAPER PRODUCTS	0.00	0.00	0.00	0.00	2.
2677	ENVELOPES	0.00	0.00	0.00	0.00	4.
2678	STATIONERY PRODUCTS	0.00	0.00	0.00	0.00	0.
2679	CONVERTED PAPER PRODUCTS, N.E.C.	9.58	36.31	416.58	124.41	49.
2711	NEWSPAPERS	0.00	3.58	0.90	1.15	25.
2721	PERIODICALS	0.17	0.19	0.08	2.17	30.
2731	BOOK PUBLISHING	0.75	0.69	0.48	3.23	71.
2732	BOOK PRINTING	7.04	0.29	6.00	3.14	38.
2741	MISCELLANEOUS PUBLISHING	0.00	0.00	0.09	0.06	2.
2752	COMMERCIAL PRINTING, LITHOGRAPHIC	3.29	41.06	3.58	6.31	52.

	PM-10	BOD	TSS	Air Toxics	Water Toxics	Solid Toxics	Air Metals	Water Metals	Solid Metals
pl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl
10	1.89	0.0000	0.0001	1700.285	0.010	105.284	0.032	0.008	2.284
24	0.00	0.0011	0.0010	23.632	0.000	2.257	0.000	0.000	0.122
79	0.00	0.0000	0.0000	24.715	0.000	30.147	0.005	0.000	0.000
00	0.00			22.860	0.000	7.054	0.000	0.000	0.024
45	0.00			23.617	0.000	2.998			
66	0.00	0.0017	0.0025	12.086	0.000	4.707	0.000	0.000	0.070
06	0.00			0.676	0.000	0.061			
38	0.00	0.0023	0.0005	4.488	0.000	9.382	0.035	0.000	0.519
55	11.90	0.0560	6.8439	2611.537	233.473	15058.993	2.624	9.292	28.581
50	3.06	0.2488	0.8702	621.077	24.486	659.203	0.309	0.226	9.311
40	7.69	0.0414	1.2790	2509.274	211.173	24119.359	100.244	155.033	2787.834
89	10.27	0.0346	0.6071	487.545	426.338	2202.140	16.382	8.465	572.347
94	3.09	0.2072	0.7087	1663.515	225.587	1459.256	0.870	0.848	54.090
		0.0860	0.3196	1889.086	78.849	9087.408	0.423	1.608	32.191
		0.1047	0.2408	9675.350	33.496	425.299	0.042	13.564	382.814
20	0.26	0.0230	0.0394	521.043	115.566	724.929	0.066	0.625	46.983
43	11.01	0.2435	0.3057	1912.184	18.808	3520.475	0.403	0.304	71.086
98	2.92	0.0074	6.9366	264.281	15.274	355.304	0.042	0.004	2.260
00	0.00	0.0065	0.0007	10.083	0.465	2.438			
00	0.00	0.0004	0.0028	175.129	0.186	147.058	0.000	0.143	5.011
61	187.20	0.0159	0.0267	29.383	0.350	132.082	0.022	0.000	9.702
64	0.00			22.800	0.237	51.925	0.026	0.000	0.092
01	0.00	0.0229	0.3682	986.707	15.687	1389.884	1.026	0.741	50.461
34	0.00	0.0730	0.0479	14.490	0.010	25.388	0.000	0.000	0.101
41	17.46	0.0001	0.0004	380.104	0.990	912.084	3.225	0.020	24.839
28	10,697.46	0.4115	0.6768	1316.107	42.490	279.655	0.000	0.769	3.276
38	0.00	0.4379	0.4494	1633.183	96.756	8541.145	1.631	7.178	147.895
42	1.78	0.4794	3.0939	1852.375	371.609	7933.447	3.792	1.971	96.412
93	800.90	0.0371	2.6454	22374.110	1804.630	12416.754	1.528	2.815	171.022
92	78.23	0.0004	30.1445	4000.037	17860.797	20339.520	0.644	0.081	0.585
29	37.90	0.0000	0.0000	19.932	1.231	291.760	1.807	0.459	1.650
93	6.44	0.0346	6.7317	1196.100	55.976	1500.051	1.192	0.138	140.232
66	2,487.35	0.0005	0.0035	275.663	2.502	410.198	0.839	0.114	3.404
84	82.48	0.0477	0.0593	678.122	132.073	134.253	0.078	0.074	1.085
19	0.00	0.0000	0.0000	142.014	0.071	122.862	0.686	0.071	3.488
		0.0000	0.0000	6479.415	0.000	112.123			
69	2.79	12.6422	2.1506	189.776	50.979	1325.784	1.414	0.360	20.629
39	202.56	0.3791	1.9025	962.835	72.606	4077.245	7.840	3.110	72.479
54	512.09	0.0273	0.0324	1.197	0.053	0.506	0.018	0.000	0.018
49	21.13	0.0004	0.0010	12.507	1.271	16.862	0.174	0.123	16.062
55	1.65	0.0000	0.0003	58.453	10.187	81.892	0.478	0.109	2.100
83	32.79	0.0004	0.0052	2375.120	6.146	165.382	0.471	0.000	25.033
87	8.66	0.0000	0.0023	22.001	0.455	37.992	0.855	0.043	33.265
49	0.19	0.0003	0.0004	51.262	0.000	10.249	0.002	0.000	0.905
70	0.00	0.0000	0.0000	189.615	0.040	142.795	0.270	0.029	66.022
38	0.60	0.0281	0.0403	183.752	1.825	55.783	0.048	0.000	3.162
13	0.13	0.0001	0.6895	141.800	0.041	22.478	0.332	0.025	11.303
85	0.12	0.0003	0.0003	452.289	0.108	90.622	0.304	0.028	34.259
05	0.00	0.0119	0.0118	492.989	4.191	479.691	0.067	0.016	6.135
88	0.00	0.0000	0.0000	31.058	0.000	16.897	0.090	0.000	0.328
00	0.00	0.0030	0.0016	1609.211	0.108	203.971	0.104	0.000	5.813
00	0.00	0.0000	0.0000	99.220	0.000	19.524			
00	0.73	0.0000	0.0000	0.436	0.000	0.498			

APPENDIX A-1
Pollution Intensity*

Standard Industrial Code	Standard Industrial Code Description	Particulates lb/1,000 empl	Carbon Monoxide lb/1,000 empl	Sulfur Dioxide lb/1,000 empl	Nitrogen Dioxide lb/1,000 empl	Volatile Organics lb/1,000 em
3086	PLASTICS FOAM PRODUCTS	0.00	0.00	0.50	0.07	50.
3087	CUSTOM COMPOUND PURCHASED RESINS	0.61	0.00	0.00	0.00	25.
3088	PLASTICS PLUMBING FIXTURES	5.36	0.00	0.00	0.00	178.
3089	PLASTICS PRODUCTS, N.E.C.	0.37	0.01	0.03	0.04	97.
3111	LEATHER TANNING OR FINISHING	24.66	19.88	204.30	53.95	600.
3131	FOOTWEAR CUT STOCK	0.00	0.00	0.00	0.00	79.
3142	HOUSE SLIPPERS	0.00	0.00	0.00	0.00	0.
3143	MEN'S FOOTWEAR, EXCEPT ATHLETIC	0.13	0.00	1.15	0.26	6.
3144	WOMEN'S FOOTWEAR, EXCEPT ATHLETIC	0.00	0.00	0.00	0.00	0
3149	FOOTWEAR, EXCEPT RUBBER, N.E.C.	0.00	0.00	3.64	0.00	0
3151	LEATHER GLOVES AND MITTENS	0.00	0.00	0.00	0.00	0
3161	LUGGAGE	1.34	0.57	0.00	3.25	0
3171	WOMEN'S HANDBAGS AND PURSES	0.00	0.00	0.00	0.00	0
3172	PERSONAL LEATHER GOODS, N.E.C.	0.00	0.00	0.00	0.00	34
3199	LEATHER GOODS, N.E.C.	1.40	0.00	0.00	0.00	66
3211	FLAT GLASS	262.09	204.41	548.84	1,842.58	43
3221	GLASS CONTAINERS	313.99	481.90	836.37	1,403.30	211
3229	Glass fiber, textile-type	192.62	39.33	335.67	834.00	285
3231	PRODUCTS OF PURCHASED GLASS	5.40	0.53	3.76	2.82	31
3241	CEMENT, HYDRAULIC	10,975.19	796.30	31,921.08	13,886.59	61
3251	BRICK AND STRUCTURAL CLAY TILE	3,502.97	1,194.36	284.50	5,058.85	345
3253	CERAMIC WALL AND FLOOR TILE	70.65	1.28	0.00	3.21	1
3255	CLAY REFRACTORIES	1,151.02	47.02	596.90	178.29	59
3259	STRUCTURAL CLAY PRODUCTS, N.E.C.	562.03	100.65	188.34	244.15	403
3261	VITREOUS PLUMBING FIXTURES	22.57	1.24	0.62	14.49	76
3262	VITREOUS CHINA TABLE AND KITCHENWARE	0.00	0.00	0.00	0.00	0
3263	SEMIVITREOUS TABLE AND KITCHENWARE	0.00	0.00	0.00	0.00	0
3264	PORCELAIN ELECTRICAL SUPPLIES	57.32	17.86	41.42	13.55	185
3269	POTTERY PRODUCTS, N.E.C.	1.29	4.93	28.08	7.29	6
3271	CONCRETE BLOCK AND BRICK	87.64	1.06	24.17	4.34	1
3272	CONCRETE PRODUCTS, N.E.C.	91.36	42.82	111.99	103.49	2
3273	READY-MIXED CONCRETE	197.56	26.22	138.02	46.03	10
3274	LIME	18,546.68	3,801.89	7,323.14	6,542.42	96
3275	GYPSUM PRODUCTS	3,271.61	86.54	2,532.86	766.30	97
3281	CUT STONE AND STONE PRODUCTS	3,233.32	50.72	201.27	192.87	63
3291	ABRASIVE PRODUCTS	45.15	21.65	210.11	83.27	145
3292	ASBESTOS PRODUCTS	550.00	40.22	154.89	46.74	667
3295	MINERALS, GROUND AND TREATED	9,068.07	277.40	5,969.38	2,209.90	166
3296	MINERAL WOOL	257.84	656.68	161.17	231.29	161
3297	NONCLAY REFRACTORIES	337.18	93.86	154.89	336.90	9
3299	NONMETALLIC MINERAL PRODUCTS, N.E.C.	368.78	1.36	20.79	6.82	64
3312	BLAST FURNACES AND STEEL MILLS	1,104.42	7,645.68	5,810.98	2,505.85	613
3313	ELECTROMETALLURGICAL PRODUCTS	2,598.10	10,766.78	5,044.48	1,693.49	74
3315	STEEL WIRE AND RELATED PRODUCTS	56.38	1,612.77	206.79	238.72	4
3316	COLD FINISHING OF STEEL SHAPES	63.67	134.12	71.20	77.36	10
3317	STEEL PIPE AND TUBES	4.08	1.32	0.20	27.61	8
3321	GRAY AND DUCTILE IRON FOUNDRIES	423.36	3,280.21	112.89	64.34	29
3322	MALLEABLE IRON FOUNDRIES	980.18	562.76	103.74	106.68	1
3324	STEEL INVESTMENT FOUNDRIES	48.58	221.93	0.00	11.69	1
3325	STEEL FOUNDRIES, N.E.C.	89.25	152.32	23.07	55.84	17
3331	PRIMARY COPPER					
3334	PRIMARY ALUMINUM	5,184.55	39,592.51	14,305.45	1,478.47	27
3339	PRIMARY NONFERROUS METALS, N.E.C.	187.71	1,978.64	865.68	495.69	3

	PM-10	BOD	TSS	Air Toxics	Water Toxics	Solid Toxics	Air Metals	Water Metals	Solid Metals
npl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl
37	1,327.46	17.5969	254.7580	620.319	46.574	1610.175	131.257	2.129	1238.722
87	0.00	0.0080	0.1181	153.975	4.433	730.553	34.548	3.636	661.024
53	3.53	0.0020	0.0127	439.076	18.700	31.633	6.449	0.111	2.212
26	0.13	0.0058	0.0141	86.839	2.513	101.382	15.554	0.077	9.873
72	0.00	0.0000	0.0005	122.178	0.000	54.331	16.338	0.000	54.331
68	1.03	0.0027	0.0121	123.410	3.674	505.251	3.611	0.253	103.446
39	0.28	0.0000	0.3725	60.472	0.700	103.602	0.327	0.058	61.371
00	0.00	0.0000	0.0000	39.943	5.525	156.955	23.974	0.000	37.707
00	0.00	0.0002	0.0024	28.006	11.633	37.224	5.292	0.183	13.069
88	5.68	0.0001	0.0011	19.114	0.040	28.418	0.862	0.040	20.164
38	0.00	0.0000	0.0005	70.566	0.034	124.951	41.351	0.034	117.789
31	2.09	0.0000	0.0000	75.900	0.000	453.371	2.630	0.000	15.340
81	0.00	0.0000	0.0001	76.245	0.000	120.143	0.191	0.000	7.902
07	0.00	0.0002	0.0004	347.336	8.197	98.762	14.353	1.110	76.711
03	0.82	0.0008	0.0025	735.662	0.357	217.988	0.120	0.000	44.093
00	0.48			431.407	0.091	305.000	0.152	0.000	6.471
69	0.00	0.0000	0.0000	117.960	0.000	1.413	0.000	0.000	0.270
64	0.00	0.0000	0.0001	47.202	0.518	47.860	0.983	0.011	12.644
00	0.00			71.508	0.068	32.200	0.102	0.068	17.548
35	0.00	0.0000	0.0001	88.748	0.236	42.879	1.708	0.014	14.715
90	0.52	0.0002	0.0000	125.816	0.228	32.389	2.432	0.228	24.119
94	21.49	0.0000	0.0004	47.324	0.104	90.319	4.443	0.104	79.146
49	0.00	0.0000	0.0000	26.033	0.013	9.853	0.000	0.000	0.026
09	4.12	0.0000	0.0000	14.749	0.000	23.043	0.844	0.000	0.296
56	0.00	0.0000	0.0000	45.730	38.239	28.264	0.016	0.003	0.577
80	0.06	0.0001	0.0002	25.670	0.025	12.928	0.427	0.018	0.738
69	0.00	0.0000	0.0000	14.697	0.643	11.007	0.026	0.000	0.959
08	0.00			12.105	6.012	22.377	1.298	0.700	2.813
89	0.00	0.0000	0.0000	43.761	0.040	67.539	0.030	0.040	11.601
04	0.00			27.353	0.012	180.418	0.097	0.000	124.383
24	0.00	0.0000	0.0000	45.119	0.006	84.046	0.000	0.000	58.939
43	0.00	0.0000	0.0001	54.044	0.053	123.266	0.065	0.027	3.179
19	0.32	0.0000	0.0003	3.210	0.040	65.516	0.230	0.030	56.986
30	0.00			62.455	10.841	123.151	37.377	0.071	9.135
89	0.00	0.0000	0.0001	17.815	0.372	21.583	0.122	0.000	1.877
77	0.00	0.0000	0.0002	139.127	0.041	31.366	0.000	0.041	1.223
11	0.04	0.0000	0.0000	70.686	0.732	86.392	0.595	0.025	21.451
02	0.36	0.0037	0.8084	141.249	13.733	370.173	1.614	0.477	106.380
73	0.00	0.0004	0.0009	181.207	9.559	564.028	8.753	3.973	153.239
		0.0000	0.0020	33.131	0.171	46.563	0.062	0.085	13.418
58	4.69	0.0016	0.0018	45.128	26.252	25.553	0.062	0.001	9.814
00	0.48	0.0000	0.0001	34.276	0.000	69.858	0.090	0.000	43.867
75	0.00	0.0001	0.0002	63.152	0.691	12.720	0.023	0.021	1.220
00	0.00	0.0000	0.0002	40.747	0.006	64.958	0.502	0.006	52.213
00	0.00	0.0000	0.0001	32.078	0.000	27.822	0.000	0.000	1.891
00	0.00	0.0000	0.0000	17.058	0.000	3.879	0.053	0.000	0.697
49	0.33	0.0000	0.0007	50.246	0.065	18.221	1.420	0.054	11.196
07	1.48			51.652	0.000	3.436	0.027	0.000	0.079
56	0.00	0.0000	0.0001	92.325	3.060	81.949	0.164	0.037	27.235
99	0.00			625.044	0.148	204.756	1.325	0.123	79.833
73	0.00	0.1401	0.0914	94.654	0.740	12.906	0.132	0.000	2.853
93	2.19	0.0012	0.0015	50.898	4.172	40.873	2.336	0.665	17.609
60	0.00	0.0000	0.0106	49.542	0.011	13.136	0.142	0.000	0.205

APPENDIX A-1
Pollution Intensity*

Standard Industrial Code	Standard Industrial Code Description	Particulates lb/1,000 empl	Carbon Monoxide lb/1,000 empl	Sulfur Dioxide lb/1,000 empl	Nitrogen Dioxide lb/1,000 empl	Volatile Organics lb/1,000 e
3519	INTERNAL COMBUSTION ENGINES, N.E.C.	33.64	58.62	95.78	75.04	124
3523	FARM MACHINERY AND EQUIPMENT	93.01	193.63	556.45	151.05	303
3524	LAWN AND GARDEN EQUIPMENT	0.08	0.08	0.00	0.74	48
3531	CONSTRUCTION MACHINERY	30.78	24.00	161.95	138.58	83
3532	MINING MACHINERY	5.02	7.44	31.71	27.67	11
3533	OIL AND GAS FIELD MACHINERY	0.00	0.00	0.00	0.00	0
3534	ELEVATORS AND MOVING STAIRWAYS	0.00	0.00	0.00	0.63	96
3535	CONVEYORS AND CONVEYING EQUIPMENT	0.13	0.07	0.07	0.13	8
3536	HOISTS, CRANES, AND MONORAILS	0.60	0.00	9.32	2.71	85
3537	INDUSTRIAL TRUCKS AND TRACTORS	0.00	0.00	0.00	0.00	31
3541	MACHINE TOOLS, METAL CUTTING TYPES	0.38	34.77	4.04	0.50	8
3542	MACHINE TOOLS, METAL FORMING TYPES	2.32	0.58	20.63	4.94	5
3543	INDUSTRIAL PATTERNS	0.00	0.00	0.00	0.00	0
3544	SPECIAL DIES, TOOLS, JIGS AND FIXTURES	0.52	20.08	0.08	0.02	0
3545	Precision measuring tools	0.00	0.00	0.00	0.00	1
3546	POWER-DRIVEN HANDTOOLS	0.00	0.00	0.00	0.00	0
3547	ROLLING MILL MACHINERY	0.00	0.00	0.00	0.00	0
3548	Gas welding and cutting equipment	0.00	0.00	0.00	0.00	0
3549	METALWORKING MACHINERY, N.E.C.	0.00	0.00	0.00	0.18	0
3552	TEXTILE MACHINERY	0.00	0.00	0.00	0.00	0
3553	WOODWORKING MACHINERY	0.00	0.00	0.00	0.00	0
3554	PAPER INDUSTRIES MACHINERY	1.35	0.24	0.00	1.84	0
3555	PRINTING TRADES MACHINERY	4.53	0.66	2.30	0.99	47
3556	FOOD PRODUCTS MACHINERY	0.00	0.00	0.00	0.00	7
3559	Foundry machinery and equipment	1.15	248.31	7.08	1.64	177
3561	PUMPS AND PUMPING EQUIPMENT	28.72	5.08	106.46	46.34	25
3562	BALL AND ROLLER BEARINGS	1.64	0.82	8.93	5.32	8
3563	AIR AND GAS COMPRESSORS	1.03	17.23	2.24	7.58	7
3564	BLOWERS AND FANS	6.58	0.08	44.90	28.36	393
3565	PACKAGING MACHINERY	0.27	0.00	0.00	0.00	22
3566	SPEED CHANGERS, DRIVES, AND GEARS	7.50	1.05	40.67	6.80	38
3567	INDUSTRIAL FURNACES AND OVENS	0.51	0.38	0.63	1.78	51
3568	POWER TRANSMISSION EQUIPMENT, N.E.C.	0.19	0.10	2.09	0.76	26
3569	GENERAL INDUSTRIAL MACHINERY, N.E.C.	5.14	6.23	11.89	68.62	4
3571	ELECTRONIC COMPUTERS	0.00	0.00	0.00	0.01	0
3572	COMPUTER STORAGE DEVICES	0.00	0.00	0.00	0.00	3
3575	COMPUTER TERMINALS	0.00	0.00	0.00	0.00	0
3577	COMPUTER PERIPHERAL EQUIPMENT, N.E.C.	0.00	0.00	0.00	0.00	0
3578	CALCULATING AND ACCOUNTING EQUIPMENT	0.00	0.00	0.00	0.00	0
3579	OFFICE MACHINES, N.E.C.	4.40	0.79	9.95	8.29	8
3581	AUTOMATIC VENDING MACHINES	0.00	0.00	0.00	0.27	1
3582	COMMERCIAL LAUNDRY EQUIPMENT	12.32	5.02	42.90	54.31	17
3585	REFRIGERATION AND HEATING EQUIPMENT	1.15	2.11	7.41	9.36	6
3586	MEASURING AND DISPENSING PUMPS	0.00	0.00	0.00	0.00	3
3589	SERVICE INDUSTRY MACHINERY, N.E.C.	17.50	32.59	69.88	49.43	
3592	Carburetors, new and rebuilt	8.20	1,393.56	2.83	38.38	6
3593	FLUID POWER CYLINDERS AND ACTUATORS	0.00	0.00	0.00	0.00	0
3594	FLUID POWER PUMPS AND MOTORS	0.00	0.00	0.00	0.00	0
3596	SCALES AND BALANCES, EXCEPT LABORATORY	0.00	0.00	0.00	0.00	0
3599	INDUSTRIAL MACHINERY, N.E.C.	2.93	0.24	8.00	1.88	1
3612	TRANSFORMERS, EXCEPT ELECTRONIC	35.49	7.03	2,643.65	384.19	9
3613	SWITCHGEAR AND SWITCHBOARD APPARATUS	0.00	0.00	3.12	0.69	0
3621	MOTORS AND GENERATORS	5.05	41.72	1.94	132.78	12

	PM-10	BOD	TSS	Air Toxics	Water Toxics	Solid Toxics	Air Metals	Water Metals	Solid Metals
npl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl	lb/1,000 empl
68	0.00	0.0014	0.0097	132.543	0.080	55.195	0.081	0.080	35.679
79	0.22	0.0002	0.0014	22.135	0.036	13.909	0.064	0.004	7.027
11	0.00			44.067	0.044	65.158	0.018	0.042	5.271
80	0.00	0.0000	0.0000	80.825	0.052	18.215	0.396	0.041	3.687
00	0.08	0.0000	0.0001	192.347	0.331	34.993	0.029	0.049	16.196
63	0.00	0.0008	0.0019	112.978	0.979	131.511	0.135	0.019	85.486
37	0.17			24.276	0.007	11.741	0.022	0.005	1.369
00	0.00			21.417	0.000	17.385	0.000	0.000	2.706
44	0.00	0.0000	0.0000	116.478	0.000	47.714	0.194	0.000	23.106
81	0.00	0.0001	0.0001	38.639	3.969	69.516	0.176	0.000	17.008
42	0.00	0.0000	0.0000	19.845	0.316	36.617	0.521	0.012	21.999
00	0.00	0.0000	0.0000	142.211	1.120	157.953	1.666	0.059	65.115
03	0.00	0.0000	0.0000	56.298	1.846	12.739	0.093	0.003	0.820
00	0.00			22.240	0.643	20.583	3.630	0.000	0.000
42	6.44			134.065	0.016	44.930	0.099	0.016	34.950
73	0.00	0.0000	0.0000	9.968	0.037	29.291			
72	1.02	0.0000	0.0000	44.284	0.000	94.407	0.000	0.000	13.031
00	0.00	0.0000	0.0000	51.515	0.101	1.514	0.000	0.000	0.715
32	1.84	0.0001	0.0003	97.987	0.046	12.770	0.012	0.010	1.488
00	0.00	0.0000	0.0001	12.117	0.000	5.351	0.002	0.000	0.038
00	0.00			56.974	0.000	12.828	0.025	0.000	2.118
00	0.00	0.0000	0.0001	61.805	0.168	121.760	0.209	0.062	5.398
00	0.00	0.0000	0.0004	155.625	3.452	282.423	0.272	0.122	74.580
04	0.09	0.0001	0.0000	42.957	0.653	109.638	0.004	0.001	0.411
54	0.00	0.0026	0.0038	186.990	11.917	93.297	0.192	0.023	25.546
85	0.00	0.3700	0.5098	102.785	0.000	40.538	0.000	0.000	0.016
00	0.00			7.770	0.000	2.416			
00	0.00			59.505	0.030	17.837	0.882	0.006	3.682
13	0.00	0.0000	0.0000	166.109	0.073	83.506	0.087	0.023	4.459
43	8.58	0.0000	0.0000	27.839	3.106	547.098	3.354	0.193	331.279
95	1.32			59.016	0.480	186.129	12.207	0.473	179.810
40	0.00	0.0000	0.0001	43.493	0.000	15.147	0.064	0.000	7.261
00	0.00			119.122	0.000	47.589	0.020	0.000	3.524
18	0.04			13.594	0.655	15.461	0.013	0.004	1.302
76	7.13	0.0001	0.0002	221.950	0.030	60.630	0.126	0.005	7.621
16	0.00	0.0000	0.0000	134.969	0.021	40.633	1.548	0.000	8.014
67	1.64	0.0002	0.0009	67.424	1.105	63.417	0.881	0.019	16.890
93	0.00	0.0000	0.0000	54.251	0.019	12.706	0.075	0.000	0.785
00	0.00			256.462	0.000	14.090	0.000	0.000	11.209
71	0.07	0.0000	0.0000	82.076	0.081	39.944	0.027	0.002	2.387
70	2.13	0.0000	0.0021	98.794	0.265	57.060	0.173	0.034	16.938
77	0.00	0.0000	0.0001	87.130	0.435	47.906	0.056	0.022	3.378
68	38.57	0.0000	0.0001	25.183	0.032	15.260	5.176	0.017	3.487
69	0.00	0.0000	0.0000	438.360	0.000	37.856	0.000	0.000	0.000
74	0.09	0.0000	0.0006	46.764	0.027	25.083	1.143	0.000	4.701
39	0.00	0.0010	0.0058	35.827	14.501	26.005	0.691	0.275	5.028
96	0.00	0.0001	0.0000	26.633	0.002	9.585	0.006	0.000	0.482
81	0.00	0.0045	0.0345	166.023	0.004	53.745	0.016	0.000	1.746
98	0.00			82.315	0.003	114.333	0.319	0.000	20.213
35	0.12	0.0000	0.0003	49.154	0.000	4.066	0.001	0.000	0.000
07	0.00			37.476	2.705	8.843	0.008	0.064	0.986
06	0.42	0.0000	0.0000	26.794	2.130	9.742			
06	0.00	0.0000	0.0000	16.855	0.004	8.533	0.001	0.000	0.267

APPENDIX A-1
Pollution Intensity*

Standard Industrial Code	Standard Industrial Code Description	Particulates lb/1,000 empl	Carbon Monoxide lb/1,000 empl	Sulfur Dioxide lb/1,000 empl	Nitrogen Dioxide lb/1,000 empl	Volatile Organics lb/1,000 em
3821	LABORATORY APPARATUS AND FURNITURE	0.00	0.00	0.00	0.00	0.
3822	ENVIRONMENTAL CONTROLS	0.71	0.39	9.75	4.64	23.
3823	PROCESS CONTROL INSTRUMENTS	4.13	3.90	1.54	29.33	18.
3824	FLUID METERS AND COUNTING DEVICES	0.00	0.00	0.00	0.00	4.
3825	INSTRUMENTS TO MEASURE ELECTRICITY	0.42	0.15	0.00	0.69	4.
3826	ANALYTICAL INSTRUMENTS	0.00	0.00	0.00	0.00	0.
3827	OPTICAL INSTRUMENTS AND LENSES	3.09	0.00	0.00	0.00	14.
3829	MEASURING AND CONTROLLING DEVICES, N.E.C	0.00	0.00	0.00	0.00	2.
3841	SURGICAL AND MEDICAL INSTRUMENTS	0.06	0.00	1.06	0.46	7.
3842	SURGICAL APPLIANCES AND SUPPLIES	0.65	0.14	8.57	1.35	0.
3843	DENTAL EQUIPMENT AND SUPPLIES	0.00	0.00	0.00	0.00	0
3844	X-RAY APPARATUS AND TUBES	0.00	0.00	0.00	0.00	0
3845	ELECTROMEDICAL EQUIPMENT	0.00	0.00	0.00	0.00	0
3851	OPHTHALMIC GOODS	2.21	0.44	12.72	19.61	10
3861	Photographic sensitized film and plates, silver halide type	113.19	24.11	997.68	385.23	366
3873	WATCHES, CLOCKS, WATCHCASES AND PARTS	0.00	0.00	0.00	0.00	0
3911	JEWELRY, PRECIOUS METAL	1.84	0.76	24.39	8.45	4
3914	SILVERWARE AND PLATED WARE	39.78	9.01	32.94	9.63	17
3915	JEWELERS MATERIALS AND LAPIDARY WORK	0.00	0.00	0.00	0.00	0
3931	MUSICAL INSTRUMENTS	9.01	9.71	5.48	40.97	127
3942	DOLLS AND STUFFED TOYS	0.00	0.00	0.00	0.00	0
3944	GAMES, TOYS, AND CHILDREN'S VEHICLES	0.00	0.00	0.00	0.00	0
3949	SPORTING AND ATHLETIC GOODS, N.E.C.	6.46	0.16	0.88	1.24	54
3951	PENS AND MECHANICAL PENCILS	5.00	0.25	4.25	1.75	5
3952	LEAD PENCILS AND ART GOODS	9.00	9.75	62.24	24.75	289
3953	MARKING DEVICES	0.00	0.00	0.00	0.00	0
3955	CARBON PAPER AND INKED RIBBONS	0.00	0.00	0.00	0.87	483
3961	COSTUME JEWELRY	0.00	0.00	0.00	0.00	0
3965	FASTENERS, BUTTONS, NEEDLES, AND PINS	0.00	0.00	0.00	0.00	0
3991	BROOMS AND BRUSHES	0.68	6.84	0.17	1.03	2
3993	SIGNS AND ADVERTISING SPECIALTIES	0.00	0.07	0.03	0.26	5
3995	BURIAL CASKETS	10.60	5.54	0.00	5.54	371
3996	HARD SURFACE FLOOR COVERINGS, N.E.C.					
3999	Furs, dressed and dyed	58.05	3.85	68.71	16.17	43

Source: U.S. EPA Toxic Release Inventory, Aerometric Information Retrieval System, and National Pollution Discharge Elimination System
U.S. Census Bureau, 1997 Economic Census published June 20, 2000

* Due to spreadsheet format constraints, more than three significant digits may be presented in this table. The source data justifies only 2 to

Volatile Organics (TPY)	PM-10 (TPY)	BOD (TPY)	TSS (TPY)	Air Toxics (TPY)	Water Toxics (TPY)	Solid Toxics (TPY)	Air Metals (TPY)	Water Metals (TPY)	Solid Metals (TPY)
0.00010	0.00002	1.019E-06	1.160E-06	0.00073112	0.00017009	0.00082602	0.00000000	0.00001314	0.00000091
0.00028	0.00019	3.128E-08	8.772E-08	0.00047516	0.00003584	0.00064013			
0.00000	0.00000	1.965E-06	2.615E-06	0.00157830	0.00015087	0.00048717			
0.00030	0.00000	4.232E-06	1.902E-07	0.00088906	0.00040376	0.00920633			
0.00023	0.00002	3.397E-04	8.131E-05	0.00018275	0.00006937	0.00626766			
0.00038	0.00000	5.983E-04	6.681E-07	0.00032954	0.00134083	0.00332639	0.00000267	0.00000000	0.00000000
0.00000	0.00000	1.279E-09	1.012E-09	0.00051807	0.00003188	0.00024786			
0.00002	0.00000	1.942E-07	2.070E-06	0.00038923	0.00024689	0.00239159			
0.00394	0.00001	3.579E-07	9.666E-07	0.00029138	0.00002295	0.00069024	0.00000000	0.00000828	0.00002107
0.00146	0.00001	3.393E-06	3.728E-06	0.00002694	0.00000423	0.00288139	0.00000000	0.00000000	0.00000031
0.00004	0.00008	0.000E+00	0.000E+00	0.00027855	0.00010423	0.00019877			
0.00000	0.00000	1.317E-09	3.529E-09	0.00013055	0.00000246	0.00067955			
0.00036	0.00022	1.509E-05	2.826E-05	0.00302639	0.00093849	0.00267433	0.00000000	0.00000138	0.00001472
0.00001	0.00000	0.000E+00	0.000E+00	0.00103579	0.00022732	0.00268396			
0.00507	0.01020	0.000E+00	0.000E+00	0.00007806	0.00000000	0.00000762			
0.00172	0.00373	0.000E+00	0.000E+00	0.00000159	0.00000000	0.00004937			
0.00089	0.00000	1.389E-09	1.764E-08	0.00013730	0.00000000	0.00000000			
0.00000	0.00000	0.000E+00	0.000E+00	0.00001866	0.00000000	0.00006270	0.00000245	0.00000000	0.00006270
0.13552	0.97356	4.003E-05	4.752E-05	0.01315140	0.00590207	0.07283807			
0.00086	0.00030	7.918E-08	1.161E-07	0.00059393	0.00005584	0.00016549			
0.00003	0.00162	8.138E-11	3.441E-11	0.00003941	0.00000271	0.00012427	0.00000222	0.00000000	0.00000281
0.00066	0.00000	0.000E+00	0.000E+00	0.00000905	0.00000000	0.00000083			
0.00117	0.00000	0.000E+00	1.952E-09	0.00001267	0.00000000	0.00000460			
0.00000	0.00000	1.483E-08	1.108E-08	0.00008838	0.00000000	0.00044325			
0.05750	0.00031	1.098E-04	2.374E-04	0.00007221	0.00000000	0.00173034	0.00000000	0.00000000	0.00006241
0.00298	0.00000	7.670E-05	2.544E-05	0.00002945	0.00008735	0.00001963			
0.00441	0.00971	4.445E-05	1.682E-05	0.00404750	0.00005563	0.01759559	0.00000000	0.00000000	0.00000058
0.00000	0.00000	4.519E-08	1.099E-07	0.00009939	0.00000000	0.00027914			
0.00000	0.00000	1.062E-06	3.430E-07	0.00087437	0.00000000	0.00053239			
0.00000	0.00000	2.934E-10	1.234E-09	0.00000000	0.00000000	0.00000000			
0.02381	0.00000	0.000E+00	0.000E+00	0.00000000	0.00000056	0.00100706			
0.15918	0.07338	7.290E-07	9.409E-07	0.00688304	0.00098237	0.01277618	0.00000341	0.00000114	0.00071707
0.00248	0.00665	1.197E-07	4.286E-06	0.00000501	0.00000000	0.00162944	0.00000000	0.00000000	0.00001001
0.00196	0.00034	2.765E-06	1.235E-06	0.00004088	0.00043874	0.00085678			
0.00131	0.00000	4.106E-07	9.420E-07	0.00151730	0.00033870	0.03348411	0.00000202	0.00000000	0.00096144
0.00107	0.00005	5.146E-07	1.381E-06	0.00157492	0.00008980	0.00085821	0.00000121	0.00000012	0.00038803
0.01939	0.00000	1.565E-06	1.104E-06	0.00023592	0.00000614	0.00001352			
0.00000	0.00000	1.185E-07	6.502E-08	0.00019633	0.00000000	0.00049797	0.00000000	0.00000000	0.00000215
0.28272	0.00360	1.745E-04	3.136E-04	0.00003036	0.00103615	0.00031580			
0.00000	0.00000	3.267E-10	4.754E-09	0.00003255	0.00000596	0.00011925	0.00000000	0.00000000	0.00000055
0.00129	0.00000	0.000E+00	1.004E-08	0.00044826	0.00000000	0.00166872			
0.00001	0.00003	4.775E-06	9.650E-06	0.00016168	0.00000000	0.00023253			
0.00000	0.00000	1.159E-06	1.816E-06	0.00000442	0.00000000	0.00000000			
0.00178	0.00000	2.332E-08	9.152E-08	0.00168887	0.00000000	0.00151293			
0.00000	0.00012	0.000E+00	0.000E+00	0.00019794	0.00000000	0.00006415			
0.00000	0.00000	0.000E+00	0.000E+00	0.00001924	0.00000000	0.00002999			
0.00000	0.00000	0.000E+00	0.000E+00	0.00006347	0.00000000	0.00000000			
0.00220	0.00019	7.678E-08	1.885E-08	0.00041793	0.00001059	0.00063031	0.00000018	0.00000686	0.00000475
0.00000	0.00000	0.000E+00	0.000E+00	0.11369650	0.00000000	0.00929527			
0.00000	0.00000	0.000E+00	0.000E+00	0.00013768	0.00000000	0.00000000			
0.00028	0.00000	0.000E+00	0.000E+00	0.00000000	0.00000000	0.00000000			
0.00403	0.00131	7.130E-07	8.707E-07	0.01756781	0.00056803	0.00289502			
0.00119	0.00100	4.232E-07	7.019E-07	0.00087726	0.00001136	0.00042245			
0.00075	0.00003	7.057E-07	4.243E-07	0.00110629	0.00013743	0.00055998	0.00000025	0.00000025	0.00000001
0.00034	0.00082	5.040E-06	3.847E-06	0.00726103	0.00029110	0.00246117	0.00000000	0.00000123	0.00001565
0.00051	0.00000	5.579E-09	1.141E-07	0.00015257	0.00000000	0.00000000			
0.00001	0.00000	0.000E+00	0.000E+00	0.00000000	0.00000000	0.00416542			
0.00000	0.00000	0.000E+00	0.000E+00	0.00000000	0.00000000	0.00047143			
0.00016	0.00003	0.000E+00	0.000E+00	0.00009142	0.00000221	0.00021302			

APPENDIX A-2

Pollution Release from the Average Plant in Each SIC code

Standard Industrial Code	Standard Industrial Code Description	Particulates (TPY)	Carbon Monoxide (TPY)	Sulfur Dioxide (TPY)	Nitrogen Dioxide (TPY)
2011	MEAT PACKING PLANTS	0.00171	0.01552	0.00563	0.06234
2254	KNIT UNDERWEAR MILLS	0.00000	0.00000	0.00000	0.00000
2257	WEFT KNIT FABRIC MILLS	0.00052	0.00010	0.00000	0.00007
2258	LACE AND WARP KNIT FABRIC MILLS	0.00189	0.00031	0.00200	0.00122
2259	KNITTING MILLS, N.E.C.	0.00000	0.00002	0.00000	0.00005
2261	FINISHING PLANTS, COTTON	0.00297	0.00195	0.02030	0.00805
2262	FINISHING PLANTS, MANMADE	0.00258	0.00245	0.03740	0.03800
2269	FINISHING PLANTS, N.E.C.	0.00056	0.00098	0.00730	0.00450
2273	CARPETS AND RUGS	0.00000	0.00000	0.00000	0.00000
2281	YARN SPINNING MILLS	0.00031	0.00017	0.00671	0.00255
2282	THROWING AND WINDING MILLS	0.00000	0.00002	0.00092	0.00020
2284	THREAD MILLS	0.00143	0.00164	0.02515	0.00624
2295	COATED FABRICS, NOT RUBBERIZED	0.00098	0.00042	0.00473	0.00199
2296	TIRE CORD AND FABRICS	0.00000	0.00000	0.00000	0.00000
2297	NONWOVEN FABRICS	0.00087	0.00030	0.00077	0.00033
2298	CORDAGE AND TWINE	0.00140	0.00116	0.00266	0.00083
2299	Jute goods & scouring/combing mill products	0.00034	0.00031	0.00295	0.00097
2311	MEN'S AND BOYS' SUITS AND COATS	0.00000	0.00000	0.00000	0.00000
2321	MEN'S AND BOYS' SHIRTS	0.00000	0.00000	0.00000	0.00000
2322	MEN'S AND BOYS' UNDERWEAR & NIGHTWEAR	0.00010	0.00049	0.00294	0.00158
2323	MEN'S AND BOYS' NECKWEAR	0.00000	0.00000	0.00000	0.00000
2325	MEN'S AND BOYS' TROUSERS AND SLACKS	0.00000	0.00000	0.00000	0.00000
2326	MEN'S AND BOYS' WORK CLOTHING	0.00000	0.00000	0.00000	0.00000
2329	MEN'S AND BOYS' CLOTHING, N.E.C.	0.00000	0.00000	0.00000	0.00000
2331	WOMEN'S AND MISSES' BLOUSES AND SHIRTS	0.00000	0.00000	0.00000	0.00000
2335	WOMEN'S, JUNIORS' AND MISSES' DRESSES	0.00000	0.00000	0.00000	0.00000
2337	WOMEN'S AND MISSES' SUITS AND COATS	0.00000	0.00000	0.00000	0.00000
2339	WOMEN'S AND MISSES' OUTERWEAR, N.E.C.	0.00000	0.00000	0.00007	0.00001
2341	WOMEN'S AND CHILDREN'S UNDERWEAR	0.00000	0.00000	0.00009	0.00001
2342	BRAS, GIRDLES, AND ALLIED GARMENTS	0.00000	0.00000	0.00000	0.00000
2353	HATS, CAPS, AND MILLINERY	0.00000	0.00000	0.00000	0.00000
2361	GIRLS' AND CHILDREN'S DRESSES, BLOUSES	0.00000	0.00000	0.00000	0.00000
2369	GIRLS' AND CHILDREN'S OUTERWEAR, N.E.C.	0.00000	0.00000	0.00000	0.00000
2371	FUR GOODS	0.00000	0.00000	0.00000	0.00000
2381	FABRIC DRESS AND WORK GLOVES	0.00000	0.00000	0.00000	0.00000
2384	ROBES AND DRESSING GOWNS	0.00000	0.00000	0.00000	0.00000
2385	WATERPROOF OUTERWEAR	0.00000	0.00000	0.00000	0.00000
2386	LEATHER AND SHEEP-LINED CLOTHING	0.00000	0.00000	0.00000	0.00000
2387	APPAREL BELTS	0.00000	0.00000	0.00000	0.00000
2389	APPAREL AND ACCESSORIES, N.E.C.	0.00000	0.00000	0.00000	0.00000
2391	CURTAINS AND DRAPERIES	0.00000	0.00000	0.00000	0.00000
2392	HOUSE FURNISHINGS, N.E.C.	0.00024	0.00002	0.00016	0.00007
2393	TEXTILE BAGS	0.00000	0.00000	0.00000	0.00000
2394	CANVAS AND RELATED PRODUCTS	0.00000	0.00000	0.00000	0.00000
2395	PLEATING AND STITCHING	0.00000	0.00000	0.00000	0.00000
2396	AUTOMOTIVE AND APPAREL TRIMMINGS	0.00000	0.00000	0.00000	0.00000
2397	SCHIFFLI MACHINE EMBROIDERIES	0.00000	0.00000	0.00000	0.00000
2399	FABRICATED TEXTILE PRODUCTS, N.E.C.	0.00000	0.00000	0.00001	0.00003
2411	LOGGING	0.00001	0.00000	0.00000	0.00000
2421	SAWMILLS AND PLANING MILLS, GENERAL	0.00941	0.01826	0.00347	0.00536
2426	HARDWOOD DIMENSION AND FLOORING MILLS	0.00367	0.00411	0.00007	0.00109
2429	SPECIAL PRODUCT SAWMILLS, N.E.C.	0.00515	0.00847	0.00003	0.00052
2431	MILLWORK	0.00041	0.00035	0.00014	0.00087
2434	WOOD KITCHEN CABINETS	0.00015	0.00002	0.00035	0.00011
2435	HARDWOOD VENEER AND PLYWOOD	0.00620	0.00619	0.00696	0.00595
2436	SOFTWOOD VENEER AND PLYWOOD	0.07894	0.13492	0.01216	0.08945
2439	STRUCTURAL WOOD MEMBERS, N.E.C.	0.00000	0.00006	0.00000	0.00000
2441	NAILED WOOD BOXES AND SHOOK	0.00064	0.00002	0.00000	0.00001
2448	WOOD PALLETS AND SKIDS	0.00001	0.00000	0.00000	0.00000

Volatile Organics (TPY)	PM-10 (TPY)	BOD (TPY)	TSS (TPY)	Air Toxics (TPY)	Water Toxics (TPY)	Solid Toxics (TPY)	Air Metals (TPY)	Water Metals (TPY)	Solid Metals (TPY)
0.00010	0.00002	1.019E-06	1.160E-06	0.00073112	0.00017009	0.00082602	0.00000000	0.00001314	0.00000091
0.00000	0.00003	0.000E+00	0.000E+00	0.00003672	0.00000000	0.00000258	0.00000000	0.00000000	0.00000258
0.00163	0.00015	0.000E+00	0.000E+00	0.00007156	0.00000000	0.00000205			
0.00000	0.00000	0.000E+00	0.000E+00	0.00000312	0.00000000	0.00000132	0.00000208	0.00000000	0.00000058
0.00300	0.00000	0.000E+00	2.570E-05	0.00117475	0.00001395	0.00216786	0.00010651	0.00000189	0.00154484
0.00067	0.00000	8.088E-06	9.975E-06	0.00708556	0.00005462	0.00071040	0.00000137	0.00000000	0.00001368
0.00380	0.00133	0.000E+00	0.000E+00	0.00084162	0.00000010	0.00007185	0.00000000	0.00000000	0.00000050
0.01710	0.00050	2.364E-11	3.408E-11	0.00446687	0.00000472	0.00023896	0.00000337	0.00000000	0.00000023
0.00471	0.00000	0.000E+00	0.000E+00	0.00083492	0.00000000	0.00010688			
0.00170	0.00000	0.000E+00	1.605E-09	0.00085779	0.00000000	0.00029035	0.00000049	0.00000000	0.00003644
0.00088	0.00000	0.000E+00	6.700E-10	0.00002385	0.00000000	0.00000018			
0.01520	0.00013	0.000E+00	0.000E+00	0.00324049	0.00000000	0.00023973			
0.00501	0.00000	0.000E+00	0.000E+00	0.00048380	0.00000000	0.00005901			
0.00496	0.00005	0.000E+00	0.000E+00	0.00141576	0.00000011	0.00038535	0.00000029	0.00000000	0.00002887
0.03003	0.00000	0.000E+00	0.000E+00	0.00526424	0.00001411	0.00296685	0.00001351	0.00000000	0.00014959
0.00339	0.00189	0.000E+00	0.000E+00	0.00058991	0.00000000	0.00040409	0.00000580	0.00000000	0.00002860
0.00437	0.00005	0.000E+00	0.000E+00	0.00016623	0.00000000	0.00002116			
0.00242	0.00000	0.000E+00	7.708E-09	0.00075261	0.00000145	0.00033909	0.00000231	0.00000004	0.00004021
0.00041	0.00000	0.000E+00	0.000E+00	0.00053335	0.00000000	0.00045427			
0.00048	0.00000	0.000E+00	0.000E+00	0.00046032	0.00000000	0.00004823	0.00000096	0.00000000	0.00000096
0.42327	0.08458	2.738E-03	4.414E-03	0.58757415	0.34500250	0.17424865	0.00014634	0.00205088	0.00127430
0.15525	0.06759	3.116E-04	5.979E-04	0.10969280	0.02189900	0.07192229	0.00000049	0.00017700	0.00088318
0.11757	0.04228	1.180E-03	5.958E-03	0.09537070	0.01483803	0.03738754	0.00000000	0.00009302	0.00030644
0.00223	0.00000	0.000E+00	0.000E+00	0.00015190	0.00000000	0.00000313			
0.00352	0.00008	1.135E-06	2.045E-06	0.00020740	0.00000000	0.00001583	0.00000000	0.00000000	0.00000018
0.00030	0.00000	0.000E+00	0.000E+00	0.00034000	0.00026443	0.00064968			
0.00573	0.00000	2.400E-10	8.715E-10	0.00761109	0.00013144	0.00150601			
0.00030	0.00000	2.676E-07	2.187E-07	0.00857964	0.00000022	0.00119520	0.00000000	0.00000000	0.00000127
0.02311	0.00000	7.888E-07	4.778E-06	0.01244711	0.00000000	0.00519755	0.00072808	0.00000000	0.00011155
0.01196	0.00000	0.000E+00	0.000E+00	0.03245322	0.00000158	0.00644355	0.00000356	0.00000000	0.00033508
0.00062	0.00000	8.821E-07	2.348E-07	0.00436321	0.00000001	0.00030879	0.00000000	0.00000000	0.00000530
0.00000	0.00000	0.000E+00	0.000E+00	0.00072434	0.00000087	0.00054276			
0.00022	0.00000	0.000E+00	0.000E+00	0.00255731	0.00000035	0.00020719	0.00000999	0.00000003	0.00000884
0.00011	0.00000	9.971E-06	8.201E-06	0.00205252	0.00020631	0.00110163	0.00000092	0.00001591	0.00000226
0.00021	0.00000	0.000E+00	0.000E+00	0.00137275	0.00000000	0.00025200			
0.00000	0.00000	4.083E-06	3.848E-06	0.00018262	0.00000000	0.00005203			
0.00115	0.00000	1.937E-07	1.634E-07	0.00793315	0.00000105	0.00251880	0.00000000	0.00000000	0.00002073
0.00059	0.00000	3.088E-08	1.286E-08	0.00000024	0.00000000	0.00000003			
0.00033	0.00000	0.000E+00	0.000E+00	0.00000414	0.00000000	0.00003208			
0.00111	0.00000	0.000E+00	0.000E+00	0.00000386	0.00000000	0.00001180			
0.00126	0.00000	0.000E+00	1.347E-09	0.00056871	0.00000125	0.00006516			
0.00003	0.00000	0.000E+00	0.000E+00	0.00000953	0.00000009	0.00000000			
0.00045	0.00000	1.983E-10	1.053E-10	0.00018635	0.00000002	0.00004597	0.00000001	0.00000000	0.00000223
0.06609	0.00005	8.612E-10	3.009E-09	0.04365190	0.00000025	0.00270298	0.00000083	0.00000020	0.00005863
0.00045	0.00000	8.876E-09	8.222E-09	0.00018970	0.00000000	0.00001812	0.00000000	0.00000000	0.00000098
0.00002	0.00000	0.000E+00	0.000E+00	0.00054714	0.00000000	0.00066740	0.00000011	0.00000000	0.00000001
0.00749	0.00000	0.000E+00	0.000E+00	0.00164554	0.00000000	0.00050776	0.00000000	0.00000000	0.00000173
0.00169	0.00000	0.000E+00	0.000E+00	0.00094147	0.00000000	0.00011951			
0.00117	0.00000	2.090E-08	3.090E-08	0.00014743	0.00000000	0.00005742	0.00000000	0.00000000	0.00000085
0.00000	0.00000	0.000E+00	0.000E+00	0.00000454	0.00000000	0.00000041			
0.00026	0.00000	2.214E-08	5.067E-09	0.00004386	0.00000000	0.00009169	0.00000034	0.00000000	0.00000507
0.23819	0.00074	3.491E-06	4.263E-04	0.16268535	0.01454417	0.93809807	0.00016343	0.00057885	0.00178045
0.00290	0.00002	1.735E-06	6.068E-06	0.00433127	0.00017076	0.00459715	0.00000216	0.00000157	0.00006493
0.01288	0.00045	2.407E-06	7.439E-05	0.14594481	0.01228230	1.40283410	0.00583040	0.00901707	0.16214647
0.06842	0.00058	1.944E-06	3.413E-05	0.02741054	0.02396935	0.12380765	0.00092103	0.00047593	0.03217821
0.25207	0.00018	1.190E-05	4.070E-05	0.09554050	0.01295614	0.08380929	0.00004998	0.00004873	0.00310656
0.00000	0.00000	3.650E-06	1.357E-05	0.08019368	0.00334722	0.38576999	0.00001796	0.00006827	0.00136655
0.00000	0.00000	4.190E-05	9.637E-05	3.87175257	0.01340383	0.17019051	0.00001681	0.00542800	0.15318942
0.20326	0.00005	4.266E-06	7.308E-06	0.09661443	0.02142884	0.13442000	0.00001224	0.00011589	0.00871182

APPENDIX A-2

Pollution Release from the Average Plant in Each SIC code

Standard Industrial Code	Standard Industrial Code Description	Particulates (TPY)	Carbon Monoxide (TPY)	Sulfur Dioxide (TPY)	Nitrogen Dioxide (TPY)
2011	MEAT PACKING PLANTS	0.00171	0.01552	0.00563	0.06234
2833	MEDICINALS OR BOTANICALS	0.01676	0.00234	0.13704	0.05061
2834	PHARMACEUTICAL PREPARATIONS	0.00491	0.00158	0.01937	0.00926
2835	DIAGNOSTIC SUBSTANCES	0.00000	0.00000	0.00000	0.00000
2836	BIOLOGICAL PRODUCTS EXCEPT DIAGNOSTIC	0.00000	0.00000	0.00000	0.00000
2841	SOAP AND OTHER DETERGENTS	0.00274	0.00295	0.00579	0.00525
2842	POLISHES AND SANITATION GOODS	0.00001	0.00003	0.00006	0.00010
2843	SURFACE ACTIVE AGENTS	0.00057	0.00006	0.00135	0.00097
2844	TOILET PREPARATIONS	0.00210	0.00064	0.00295	0.00587
2851	PAINTS AND ALLIED PRODUCTS	0.00061	0.00013	0.00102	0.00090
2861	GUM AND WOOD CHEMICALS	0.06812	0.30953	0.08872	0.04587
2865	CYCLIC CRUDES AND INTERMEDIATES	0.04528	0.08644	0.01787	0.01653
2869	INDUSTRIAL ORGANIC CHEMICALS, N.E.C.	0.02115	0.15514	0.17887	0.22610
2873	Urea	0.04819	0.14356	0.10351	0.27025
2874	Phosphoric acid	0.13196	0.03007	0.50898	0.13926
2875	FERTILIZERS, MIXING ONLY	0.00057	0.00002	0.00001	0.00007
2879	AGRICULTURAL CHEMICALS, N.E.C.	0.00351	0.00289	0.01517	0.01453
2891	ADHESIVES AND SEALANTS	0.03994	0.00006	0.00336	0.00240
2892	EXPLOSIVES	0.00407	0.01591	0.05822	0.05662
2893	PRINTING INK	0.00270	0.00403	0.00007	0.00286
2895	CARBON BLACK	0.00000	0.00000	0.00000	0.00000
2899	Fatty acids	0.00125	0.00289	0.00680	0.00917
2911	PETROLEUM REFINING	0.23939	1.40963	2.71348	1.56089
2951	ASPHALT PAVING MIXTURES AND BLOCKS	0.03306	0.03034	0.06378	0.05420
2952	ASPHALT FELTS AND COATINGS	0.01247	0.00604	0.03904	0.01547
2992	LUBRICATING OILS AND GREASES	0.00008	0.00086	0.00078	0.00668
2999	PETROLEUM AND COAL PRODUCTS, N.E.C.	0.09555	0.36895	0.68978	0.11717
3011	TIRES AND INNER TUBES	0.01332	0.00511	0.12048	0.04163
3021	RUBBER AND PLASTICS FOOTWEAR	0.00007	0.00005	0.00005	0.00021
3052	RUBBER AND PLASTICS HOSE AND BELTING	0.00000	0.00000	0.00000	0.00000
3053	GASKETS, PACKING AND SEALING DEVICES	0.00002	0.00000	0.00000	0.00001
3061	MECHANICAL RUBBER GOODS	0.00000	0.00000	0.00000	0.00000
3069	Compounds or mixtures	0.00098	0.00023	0.00387	0.00114
3081	UNSUPPORTED PLASTICS FILM AND SHEET	0.00062	0.00018	0.00246	0.00053
3082	UNSUPPORTED PLASTICS PROFILE SHAPES	0.00000	0.00000	0.00000	0.00000
3083	LAMINATED PLASTICS PLATE AND SHEET	0.00000	0.00000	0.00000	0.00000
3084	PLASTICS PIPE	0.00000	0.00000	0.00000	0.00000
3085	PLASTICS BOTTLES	0.00003	0.00000	0.00000	0.00000
3086	PLASTICS FOAM PRODUCTS	0.00000	0.00000	0.00001	0.00000
3087	CUSTOM COMPOUND PURCHASED RESINS	0.00001	0.00000	0.00000	0.00000
3088	PLASTICS PLUMBING FIXTURES	0.00009	0.00000	0.00000	0.00000
3089	PLASTICS PRODUCTS, N.E.C.	0.00001	0.00000	0.00000	0.00000
3111	LEATHER TANNING OR FINISHING	0.00056	0.00045	0.00461	0.00122
3131	FOOTWEAR CUT STOCK	0.00000	0.00000	0.00000	0.00000
3142	HOUSE SLIPPERS	0.00000	0.00000	0.00000	0.00000
3143	MEN'S FOOTWEAR, EXCEPT ATHLETIC	0.00001	0.00000	0.00007	0.00002
3144	WOMEN'S FOOTWEAR, EXCEPT ATHLETIC	0.00000	0.00000	0.00000	0.00000
3149	FOOTWEAR, EXCEPT RUBBER, N.E.C.	0.00000	0.00000	0.00007	0.00000
3151	LEATHER GLOVES AND MITTENS	0.00000	0.00000	0.00000	0.00000
3161	LUGGAGE	0.00002	0.00001	0.00000	0.00006
3171	WOMEN'S HANDBAGS AND PURSES	0.00000	0.00000	0.00000	0.00000
3172	PERSONAL LEATHER GOODS, N.E.C.	0.00000	0.00000	0.00000	0.00000
3199	LEATHER GOODS, N.E.C.	0.00001	0.00000	0.00000	0.00000
3211	FLAT GLASS	0.04215	0.03287	0.08826	0.29632
3221	GLASS CONTAINERS	0.05452	0.08368	0.14523	0.24367
3229	Glass fiber, textile-type	0.00663	0.00135	0.01156	0.02872
3231	PRODUCTS OF PURCHASED GLASS	0.00010	0.00001	0.00007	0.00005
3241	CEMENT, HYDRAULIC	0.33384	0.02422	0.97096	0.42240
3251	BRICK AND STRUCTURAL CLAY TILE	0.10797	0.03681	0.00877	0.15592

Volatile Organics (TPY)	PM-10 (TPY)	BOD (TPY)	TSS (TPY)	Air Toxics (TPY)	Water Toxics (TPY)	Solid Toxics (TPY)	Air Metals (TPY)	Water Metals (TPY)	Solid Metals (TPY)
0.00010	0.00002	1.019E-06	1.160E-06	0.00073112	0.00017009	0.00082602	0.00000000	0.00001314	0.00000091
0.00003	0.00000	0.000E+00	0.000E+00	0.00717438	0.00000627	0.00172472	0.80025690	0.16056519	61.59890816
0.00116	0.03652	0.000E+00	0.000E+00	0.00017563	0.00000438	0.00057542	1.47216327	0.04081633	9.00881633
0.00527	0.00000	0.000E+00	0.000E+00	0.00005442	0.00000000	0.00000293	3.31340309	0.00000000	0.00000000
0.00621	0.00000	0.000E+00	0.000E+00	0.00484038	0.00000000	0.00106957	0.18107465	0.00000000	9.70172896
0.00000	0.00000	0.000E+00	8.793E-08	0.00021068	0.00002063	0.00326047	0.18857251	0.09428625	3.50744861
0.00000	0.00000	1.089E-09	1.119E-09	0.00000000	0.00000000	0.00000000			
0.00631	0.00000	0.000E+00	1.076E-08	0.00154670	0.00000253	0.00458459	0.00001635	0.00000253	0.00182205
0.00005	0.00000	1.308E-07	3.167E-07	0.00000800	0.00000000	0.00000618			
0.00001	0.00000	0.000E+00	1.301E-09	0.00007614	0.00000000	0.00000169	0.00000014	0.00000000	0.00000000
0.00003	0.00012	3.633E-08	7.508E-08	0.00004746	0.00000000	0.00002087			
0.00009	0.00036	0.000E+00	2.109E-10	0.00000012	0.00000000	0.00000448	0.00000010	0.00000000	0.00000000
0.00303	0.38955	3.055E-09	2.542E-09	0.00000000	0.00000000	0.00014910	0.00000000	0.00000000	0.00014770
0.00308	0.09305	8.253E-07	1.554E-07	0.00000882	0.00000633	0.00006217			
0.00041	0.01315	0.000E+00	4.442E-09	0.00004159	0.00000000	0.00000624			
0.00464	0.00000	0.000E+00	0.000E+00	0.00472491	0.00000044	0.00125640	0.00000444	0.00000037	0.00029592
0.00867	0.00001	0.000E+00	4.371E-09	0.00045497	0.00004445	0.04067664	0.00000792	0.00000081	0.00113372
0.00218	0.00799	3.125E-11	4.337E-07	0.00131694	0.00000000	0.01119442	0.00026382	0.00000000	0.00041996
0.00587	0.00171	8.737E-09	1.101E-08	0.00778722	0.00000078	0.00276525	0.00000540	0.00000000	0.00056199
0.00031	0.00620	0.000E+00	8.994E-09	0.00052904	0.00003461	0.00218504	0.00019525	0.00000631	0.00215641
0.00082	0.00000	0.000E+00	0.000E+00	0.00141788	0.00000333	0.00193127	0.00003371	0.00000000	0.00006269
0.22239	0.57952	7.855E-07	3.579E-02	0.08610841	0.02393487	0.55489315	0.01940040	0.00257641	0.39128076
0.05388	0.00734	6.863E-09	8.637E-07	0.02157520	0.15951190	0.08906922	0.00311155	0.00004632	0.06732798
0.00200	0.00000	0.000E+00	5.016E-06	0.00676511	0.00239559	0.02637490	0.00003534	0.00007127	0.00775708
0.00423	0.00020	5.794E-10	9.188E-07	0.00318829	0.00004257	0.07717093	0.00002425	0.00002483	0.03453620
0.00486	0.00000	0.000E+00	7.585E-06	0.01003691	0.00056118	0.03081675	0.00007344	0.00008435	0.00186951
0.01865	0.00802	6.528E-07	1.747E-06	0.00661384	0.00065820	0.00769343	0.00015463	0.00017904	0.00419040
0.00092	0.00000	0.000E+00	2.897E-09	0.00001610	0.00000000	0.00089413	0.00001323	0.00000000	0.00089413
0.00075	0.00000	0.000E+00	0.000E+00	0.00395721	0.00000808	0.00695462	0.00025423	0.00000719	0.00449085
0.00749	0.00010	3.006E-08	2.726E-07	0.00126406	0.00001220	0.01103429	0.00022819	0.00000572	0.01028545
0.00000	0.00000	1.362E-09	1.986E-05	0.29877423	0.00103947	14.16629867	0.21999753	0.00089048	13.16501865
0.10494	0.01277	8.004E-06	5.089E-05	0.35452694	0.00206478	0.01812582	0.00243435	0.00019128	0.00542832
0.00108	0.00000	1.148E-07	5.420E-06	0.27414087	0.01162207	0.33878006	0.00563966	0.00010845	0.30131673
0.02336	0.03495	4.633E-04	6.707E-03	0.01633062	0.00122612	0.04238974	0.00345550	0.00005604	0.03261080
0.00187	0.00000	6.573E-07	9.682E-06	0.01262236	0.00036337	0.05988832	0.00283215	0.00029807	0.05418858
0.28869	0.00063	3.570E-07	2.278E-06	0.07875455	0.00335404	0.00567384	0.00115669	0.00001998	0.00039681
0.00913	0.00001	5.484E-07	1.338E-06	0.00823805	0.00023844	0.00961767	0.00147556	0.00000728	0.00093659
0.01034	0.00000	0.000E+00	3.244E-08	0.00811565	0.00000000	0.00360893	0.00108526	0.00000000	0.00360893
0.00162	0.00005	1.282E-07	5.666E-07	0.00578047	0.00017210	0.02366581	0.00016914	0.00001183	0.00484537
0.00315	0.00002	1.566E-10	2.903E-05	0.00471304	0.00005457	0.00807445	0.00002545	0.00000452	0.00478308
0.00000	0.00000	0.000E+00	9.908E-10	0.00174071	0.00024078	0.00684013	0.00104477	0.00000002	0.00164327
0.00000	0.00000	6.431E-09	7.391E-08	0.00086541	0.00035947	0.00115028	0.00016353	0.00000567	0.00040385
0.00002	0.00015	2.712E-09	3.031E-08	0.00052057	0.00000109	0.00077397	0.00002347	0.00000109	0.00054918
0.00006	0.00000	6.479E-11	7.258E-09	0.00100749	0.00000049	0.00178395	0.00059038	0.00000049	0.00168171
0.01577	0.00005	0.000E+00	0.000E+00	0.00175728	0.00000000	0.01049666	0.00006089	0.00000000	0.00035517
0.00001	0.00000	0.000E+00	1.400E-09	0.00106979	0.00000000	0.00168572	0.00000268	0.00000000	0.00011087
0.00069	0.00000	4.652E-09	1.001E-08	0.00801194	0.00018909	0.00227812	0.00033107	0.00002561	0.00176947
0.06505	0.00004	3.884E-08	1.268E-07	0.03667031	0.00001779	0.01086598	0.00000600	0.00000000	0.00219789
0.01690	0.00001	0.000E+00	0.000E+00	0.00902527	0.00000190	0.00638077	0.00000317	0.00000000	0.00013537
0.00216	0.00000	0.000E+00	0.000E+00	0.00400236	0.00000000	0.00004793	0.00000000	0.00000000	0.00000914
0.00035	0.00000	0.000E+00	1.485E-09	0.00094817	0.00001041	0.00096138	0.00001974	0.00000023	0.00025398
0.00000	0.00000	0.000E+00	0.000E+00	0.00185859	0.00000177	0.00083691	0.00000266	0.00000177	0.00045609
0.00122	0.00000	0.000E+00	3.689E-09	0.00306730	0.00000815	0.00148198	0.00005902	0.00000048	0.00050859
0.00232	0.00003	1.163E-08	0.000E+00	0.00714435	0.00001294	0.00183920	0.00013808	0.00001294	0.00136957
0.00089	0.00148	3.221E-09	3.029E-08	0.00326108	0.00000717	0.00622380	0.00030616	0.00000717	0.00545385
0.00046	0.00000	0.000E+00	0.000E+00	0.00064637	0.00000032	0.00024465	0.00000000	0.00000000	0.00000064
0.00069	0.00006	0.000E+00	0.000E+00	0.00021539	0.00000000	0.00033652	0.00001233	0.00000000	0.00000433
0.00144	0.00000	0.000E+00	0.000E+00	0.00120554	0.00100807	0.00074511	0.00000042	0.00000009	0.00001520
0.00083	0.00000	2.211E-09	4.547E-09	0.00052447	0.00000052	0.00026413	0.00000872	0.00000037	0.00001508

APPENDIX A-2

Pollution Release from the Average Plant in Each SIC code

Standard Industrial Code	Standard Industrial Code Description	Particulates (TPY)	Carbon Monoxide (TPY)	Sulfur Dioxide (TPY)	Nitrogen Dioxide (TPY)
2011	MEAT PACKING PLANTS	0.00171	0.01552	0.00563	0.06234
3444	SHEET METAL WORK	0.00000	0.00000	0.00006	0.00055
3446	ARCHITECTURAL METAL WORK	0.00001	0.00017	0.00002	0.00000
3448	PREFABRICATED METAL BUILDINGS	0.00000	0.00000	0.00000	0.00000
3449	MISCELLANEOUS METAL WORK	0.00006	0.00001	0.00000	0.00001
3451	SCREW MACHINE PRODUCTS	0.00000	0.00000	0.00000	0.00000
3452	BOLTS, NUTS, RIVETS, AND WASHERS	0.00009	0.00001	0.00000	0.00007
3462	IRON AND STEEL FORGINGS	0.00070	0.00098	0.00340	0.00301
3463	NONFERROUS FORGINGS	0.00119	0.00015	0.02699	0.00244
3465	AUTOMOTIVE STAMPINGS	0.00004	0.00004	0.00014	0.00025
3466	CROWNS AND CLOSURES	0.00008	0.00000	0.00009	0.00007
3469	METAL STAMPINGS, N.E.C.	0.00003	0.00002	0.00004	0.00011
3471	PLATING AND POLISHING	0.00002	0.00001	0.00003	0.00004
3479	METAL COATING AND ALLIED SERVICES	0.00077	0.00008	0.00011	0.00213
3482	SMALL ARMS AMMUNITION	0.00000	0.00000	0.00000	0.00000
3483	AMMUNITION, EXCEPT FOR SMALL ARMS, N.E.C	0.00037	0.00032	0.06020	0.00988
3484	SMALL ARMS	0.00000	0.00000	0.00022	0.00008
3489	ORDNANCE AND ACCESSORIES, N.E.C.	0.00000	0.00001	0.00008	0.00016
3491	INDUSTRIAL VALVES	0.00000	0.00000	0.00000	0.00000
3492	Fittings for metal & plastics tubing (fluid power)	0.00000	0.00000	0.00000	0.00000
3493	STEEL SPRINGS, EXCEPT WIRE	0.00260	0.39864	0.00079	0.00610
3494	VALVES AND PIPE FITTINGS, N.E.C.	0.00062	0.00008	0.00035	0.00022
3495	WIRE SPRINGS	0.00003	0.00012	0.00000	0.00013
3496	MISCELLANEOUS FABRICATED WIRE PRODUCTS	0.00003	0.00022	0.00000	0.00002
3497	METAL FOIL AND LEAF	0.00001	0.00001	0.00000	0.00042
3498	FABRICATED PIPE AND FITTINGS	0.00000	0.00000	0.00000	0.00000
3499	Metal ladders	0.00018	0.00176	0.00084	0.00042
3511	TURBINES AND TURBINE GENERATOR SETS	0.00213	0.00071	0.02045	0.00938
3519	INTERNAL COMBUSTION ENGINES, N.E.C.	0.00415	0.00723	0.01181	0.00926
3523	FARM MACHINERY AND EQUIPMENT	0.00231	0.00482	0.01384	0.00376
3524	LAWN AND GARDEN EQUIPMENT	0.00000	0.00000	0.00000	0.00004
3531	CONSTRUCTION MACHINERY	0.00150	0.00117	0.00791	0.00677
3532	MINING MACHINERY	0.00012	0.00017	0.00074	0.00064
3533	OIL AND GAS FIELD MACHINERY	0.00000	0.00000	0.00000	0.00000
3534	ELEVATORS AND MOVING STAIRWAYS	0.00000	0.00000	0.00000	0.00002
3535	CONVEYORS AND CONVEYING EQUIPMENT	0.00000	0.00000	0.00000	0.00000
3536	HOISTS, CRANES, AND MONORAILS	0.00001	0.00000	0.00016	0.00005
3537	INDUSTRIAL TRUCKS AND TRACTORS	0.00000	0.00000	0.00000	0.00000
3541	MACHINE TOOLS, METAL CUTTING TYPES	0.00001	0.00128	0.00015	0.00002
3542	MACHINE TOOLS, METAL FORMING TYPES	0.00007	0.00002	0.00065	0.00016
3543	INDUSTRIAL PATTERNS	0.00000	0.00000	0.00000	0.00000
3544	SPECIAL DIES, TOOLS, JIGS AND FIXTURES	0.00000	0.00018	0.00000	0.00000
3545	Precision measuring tools	0.00000	0.00000	0.00000	0.00000
3546	POWER-DRIVEN HANDTOOLS	0.00000	0.00000	0.00000	0.00000
3547	ROLLING MILL MACHINERY	0.00000	0.00000	0.00000	0.00000
3548	Gas welding and cutting equipment	0.00000	0.00000	0.00000	0.00000
3549	METALWORKING MACHINERY, N.E.C.	0.00000	0.00000	0.00000	0.00000
3552	TEXTILE MACHINERY	0.00000	0.00000	0.00000	0.00000
3553	WOODWORKING MACHINERY	0.00000	0.00000	0.00000	0.00000
3554	PAPER INDUSTRIES MACHINERY	0.00003	0.00001	0.00000	0.00005
3555	PRINTING TRADES MACHINERY	0.00007	0.00001	0.00004	0.00002
3556	FOOD PRODUCTS MACHINERY	0.00000	0.00000	0.00000	0.00000
3559	Foundry machinery and equipment	0.00002	0.00503	0.00014	0.00003
3561	PUMPS AND PUMPING EQUIPMENT	0.00107	0.00019	0.00398	0.00173
3562	BALL AND ROLLER BEARINGS	0.00016	0.00008	0.00089	0.00053
3563	AIR AND GAS COMPRESSORS	0.00004	0.00068	0.00009	0.00030
3564	BLOWERS AND FANS	0.00017	0.00000	0.00117	0.00074
3565	PACKAGING MACHINERY	0.00001	0.00000	0.00000	0.00000
3566	SPEED CHANGERS, DRIVES, AND GEARS	0.00023	0.00003	0.00123	0.00021

Volatile Organics (TPY)	PM-10 (TPY)	BOD (TPY)	TSS (TPY)	Air Toxics (TPY)	Water Toxics (TPY)	Solid Toxics (TPY)	Air Metals (TPY)	Water Metals (TPY)	Solid Metals (TPY)
0.00010	0.00002	1.019E-06	1.160E-06	0.00073112	0.00017009	0.00082602	0.00000000	0.00001314	0.00000091
0.00111	0.00000	0.000E+00	0.000E+00	0.00095909	0.00000000	0.00044748	0.00000035	0.00000000	0.00017478
0.00095	0.00000	4.515E-09	2.805E-08	0.00118256	0.00000144	0.00037831	0.00007882	0.00000015	0.00003604
0.00010	0.00000	0.000E+00	0.000E+00	0.00056037	0.00000000	0.00074354	0.00000125	0.00000000	0.00003684
0.00000	0.00000	0.000E+00	7.968E-11	0.00113368	0.00000074	0.00019686	0.00000045	0.00000015	0.00001824
0.00380	0.00000	0.000E+00	0.000E+00	0.00296990	0.00000000	0.00032857			
0.00000	0.00000	0.000E+00	6.232E-10	0.00044676	0.00000000	0.00000000			
0.00000	0.00000	0.000E+00	0.000E+00	0.00124771	0.00000167	0.00049098	0.00000074	0.00000015	0.00008261
0.00000	0.00000	4.987E-10	1.622E-07	0.00024930	0.00000080	0.00192290			
0.00431	0.00000	0.000E+00	0.000E+00	0.00170102	0.00000048	0.00091926	0.00000711	0.00000048	0.00022341
0.00047	0.00000	0.000E+00	1.222E-08	0.00096523	0.00000000	0.00000337	0.00000000	0.00000000	0.00000337
0.00595	0.00000	0.000E+00	0.000E+00	0.00041510	0.00000190	0.00094616	0.00000379	0.00000190	0.00088281
0.00563	0.00000	0.000E+00	4.430E-07	0.01189337	0.00005861	0.00307438	0.00012024	0.00000508	0.00138226
0.00015	0.00000	0.000E+00	0.000E+00	0.00029795	0.00000000	0.00042300			
0.00003	0.00000	0.000E+00	1.293E-10	0.00018334	0.00000000	0.00004646	0.00000014	0.00000000	0.00000000
0.00408	0.00004	0.000E+00	1.701E-08	0.00836070	0.00002027	0.00362219	0.00004616	0.00000073	0.00076869
0.00000	0.00000	0.000E+00	0.000E+00	0.00112532	0.00000730	0.00015695	0.00000097	0.00000000	0.00010050
0.00000	0.00000	8.013E-10	8.175E-10	0.00137671	0.00000000	0.00054714	0.00000160	0.00000000	0.00000240
0.00000	0.00000	0.000E+00	0.000E+00	0.00043521	0.00000000	0.00000000			
0.00009	0.00000	2.831E-09	1.402E-07	0.00002270	0.00000000	0.00001100	0.00000010	0.00000000	0.00000403
0.00413	0.00003	3.681E-08	1.563E-07	0.00226933	0.00000001	0.00101481	0.00001370	0.00000000	0.00047703
0.00003	0.00000	0.000E+00	1.486E-08	0.00101535	0.00001868	0.00091246	0.00000522	0.00000087	0.00036948
0.00834	0.00000	0.000E+00	1.090E-09	0.00305599	0.00002874	0.00081581	0.00022749	0.00002805	0.00018904
0.00785	0.00000	6.015E-08	4.187E-07	0.00572617	0.00000346	0.00238458	0.00000351	0.00000346	0.00154140
0.00015	0.00001	5.547E-09	3.537E-08	0.00057276	0.00000094	0.00035991	0.00000165	0.00000011	0.00018182
0.00039	0.00000	0.000E+00	0.000E+00	0.00099668	0.00000099	0.00147372	0.00000040	0.00000096	0.00011923
0.00739	0.00000	0.000E+00	0.000E+00	0.00844000	0.00000544	0.00190208	0.00004130	0.00000424	0.00038502
0.32340	0.00004	0.000E+00	4.945E-08	0.08761403	0.00015087	0.01593945	0.00001331	0.00002219	0.00737748
0.11694	0.00000	3.384E-07	8.147E-07	0.04918207	0.00042605	0.05724988	0.00005863	0.00000829	0.03721421
0.00733	0.00001	0.000E+00	0.000E+00	0.00151560	0.00000042	0.00073304	0.00000139	0.00000030	0.00008547
0.00000	0.00000	0.000E+00	0.000E+00	0.00331871	0.00000000	0.00269386	0.00000000	0.00000000	0.00041929
0.02788	0.00000	0.000E+00	6.317E-16	0.02547882	0.00000000	0.01043718	0.00004238	0.00000000	0.00505438
0.01385	0.00000	8.061E-09	8.186E-09	0.00374684	0.00038490	0.00674092	0.00001710	0.00000000	0.00164927
0.00080	0.00000	0.000E+00	0.000E+00	0.00085855	0.00001369	0.00158414	0.00002252	0.00000053	0.00095176
0.00000	0.00000	0.000E+00	0.000E+00	0.00764302	0.00006020	0.00848909	0.00008952	0.00000320	0.00349953
0.00018	0.00000	3.274E-10	4.063E-10	0.00092857	0.00003044	0.00021012	0.00000153	0.00000004	0.00001353
0.00000	0.00000	0.000E+00	0.000E+00	0.00072123	0.00002086	0.00066750	0.00011773	0.00000000	0.00000000
0.01576	0.00050	0.000E+00	0.000E+00	0.01043808	0.00000128	0.00349819	0.00000767	0.00000128	0.00272116
0.00131	0.00000	2.172E-10	8.305E-10	0.00027854	0.00000103	0.00081844			
0.00154	0.00003	0.000E+00	0.000E+00	0.00126805	0.00000000	0.00270328	0.00000000	0.00000000	0.00037313
0.00000	0.00000	0.000E+00	1.044E-09	0.00152687	0.00000299	0.00004487	0.00000000	0.00000000	0.00002119
0.01593	0.00016	8.584E-09	3.039E-08	0.00865486	0.00000406	0.00112789	0.00000104	0.00000088	0.00013141
0.00000	0.00000	1.228E-09	6.739E-09	0.00082272	0.00000000	0.00036334	0.00000014	0.00000000	0.00000259
0.00000	0.00000	0.000E+00	0.000E+00	0.00144366	0.00000000	0.00032506	0.00000064	0.00000000	0.00005366
0.00000	0.00000	0.000E+00	4.386E-09	0.00427117	0.00001164	0.00841445	0.00001446	0.00000429	0.00037302
0.00000	0.00000	0.000E+00	9.890E-09	0.00426008	0.00009449	0.00773107	0.00000745	0.00000333	0.00204156
0.00127	0.00001	1.258E-08	1.517E-09	0.00389893	0.00005927	0.00995110	0.00000038	0.00000013	0.00003728
0.00194	0.00000	1.929E-07	2.814E-07	0.01368506	0.00087217	0.00682806	0.00001403	0.00000171	0.00186962
0.00019	0.00000	1.860E-05	2.563E-05	0.00516688	0.00000000	0.00203781	0.00000000	0.00000000	0.00000082
0.00000	0.00000	0.000E+00	0.000E+00	0.00017489	0.00000000	0.00005438			
0.00000	0.00000	0.000E+00	0.000E+00	0.00319234	0.00000160	0.00095691	0.00004734	0.00000032	0.00019755
0.00356	0.00000	6.989E-12	8.520E-10	0.00642463	0.00000283	0.00322979	0.00000338	0.00000089	0.00017245
0.00165	0.00073	0.000E+00	3.020E-09	0.00236609	0.00026401	0.04649936	0.00028503	0.00001642	0.02815626
0.00168	0.00013	0.000E+00	0.000E+00	0.00584720	0.00004756	0.01844122	0.00120945	0.00004687	0.01781522
0.00057	0.00000	0.000E+00	3.296E-09	0.00199562	0.00000000	0.00069499	0.00000295	0.00000000	0.00033315
0.00000	0.00000	0.000E+00	0.000E+00	0.00490859	0.00000000	0.00196097	0.00000083	0.00000000	0.00014523
0.00030	0.00000	0.000E+00	0.000E+00	0.00014754	0.00000711	0.00016780	0.00000014	0.00000005	0.00001413
0.08186	0.00075	5.461E-09	2.172E-08	0.02351162	0.00000315	0.00642268	0.00001338	0.00000057	0.00080735
0.01303	0.00000	0.000E+00	0.000E+00	0.00394327	0.00000061	0.00118714	0.00004523	0.00000000	0.00023414

APPENDIX A-2

Pollution Release from the Average Plant in Each SIC code

Standard Industrial Code	Standard Industrial Code Description	Particulates (TPY)	Carbon Monoxide (TPY)	Sulfur Dioxide (TPY)	Nitrogen Dioxide (TPY)
2011	MEAT PACKING PLANTS	0.00171	0.01552	0.00563	0.06234
3714	MOTOR VEHICLE PARTS AND ACCESSORIES	0.00440	0.00066	0.00510	0.00216
3715	TRUCK TRAILERS	0.00002	0.00001	0.00012	0.00006
3716	MOTOR HOMES	0.00000	0.00000	0.00000	0.00000
3721	AIRCRAFT	0.00053	0.03602	0.00445	0.00605
3724	AIRCRAFT ENGINES AND ENGINE PARTS	0.00048	0.00075	0.00547	0.00333
3728	AIRCRAFT PARTS AND EQUIPMENT, N.E.C.	0.00005	0.00005	0.00015	0.00021
3731	SHIP BUILDING AND REPAIRING	0.00082	0.00010	0.00268	0.00089
3732	BOAT BUILDING AND REPAIRING	0.00001	0.00002	0.00000	0.00009
3743	RAILROAD EQUIPMENT	0.01567	0.00420	0.05891	0.02359
3751	MOTORCYCLES, BICYCLES, AND PARTS	0.00055	0.00015	0.00091	0.00053
3761	GUIDED MISSILES AND SPACE VEHICLES	0.00260	0.00690	0.00921	0.00525
3764	SPACE PROPULSION UNITS AND PARTS	0.00285	0.00682	0.00000	0.00031
3769	SPACE VEHICLE EQUIPMENT, N.E.C.	0.00002	0.00242	0.00001	0.00032
3792	TRAVEL TRAILERS AND CAMPERS	0.00002	0.00007	0.00000	0.00001
3795	TANKS AND TANK COMPONENTS	0.00104	0.40230	0.00737	0.01379
3799	TRANSPORTATION EQUIPMENT, N.E.C.	0.00000	0.00000	0.00000	0.00000
3812	SEARCH AND NAVIGATION EQUIPMENT	0.00000	0.00000	0.00000	0.00000
3821	LABORATORY APPARATUS AND FURNITURE	0.00000	0.00000	0.00000	0.00000
3822	ENVIRONMENTAL CONTROLS	0.00002	0.00001	0.00033	0.00016
3823	PROCESS CONTROL INSTRUMENTS	0.00010	0.00010	0.00004	0.00072
3824	FLUID METERS AND COUNTING DEVICES	0.00000	0.00000	0.00000	0.00000
3825	INSTRUMENTS TO MEASURE ELECTRICITY	0.00002	0.00001	0.00000	0.00003
3826	ANALYTICAL INSTRUMENTS	0.00000	0.00000	0.00000	0.00000
3827	OPTICAL INSTRUMENTS AND LENSES	0.00007	0.00000	0.00000	0.00000
3829	MEASURING AND CONTROLLING DEVICES, N.E.C	0.00000	0.00000	0.00000	0.00000
3841	SURGICAL AND MEDICAL INSTRUMENTS	0.00000	0.00000	0.00004	0.00002
3842	SURGICAL APPLIANCES AND SUPPLIES	0.00001	0.00000	0.00019	0.00003
3843	DENTAL EQUIPMENT AND SUPPLIES	0.00000	0.00000	0.00000	0.00000
3844	X-RAY APPARATUS AND TUBES	0.00000	0.00000	0.00000	0.00000
3845	ELECTROMEDICAL EQUIPMENT	0.00000	0.00000	0.00000	0.00000
3851	OPHTHALMIC GOODS	0.00005	0.00001	0.00029	0.00045
3861	Photographic sensitized film and plates, silver halide type	0.00487	0.00104	0.04296	0.01659
3873	WATCHES, CLOCKS, WATCHCASES AND PARTS	0.00000	0.00000	0.00000	0.00000
3911	JEWELRY, PRECIOUS METAL	0.00001	0.00001	0.00019	0.00006
3914	SILVERWARE AND PLATED WARE	0.00079	0.00018	0.00066	0.00019
3915	JEWELERS MATERIALS AND LAPIDARY WORK	0.00000	0.00000	0.00000	0.00000
3931	MUSICAL INSTRUMENTS	0.00010	0.00011	0.00006	0.00048
3942	DOLLS AND STUFFED TOYS	0.00000	0.00000	0.00000	0.00000
3944	GAMES, TOYS, AND CHILDREN'S VEHICLES	0.00000	0.00000	0.00000	0.00000
3949	SPORTING AND ATHLETIC GOODS, N.E.C.	0.00009	0.00000	0.00001	0.00002
3951	PENS AND MECHANICAL PENCILS	0.00019	0.00001	0.00016	0.00007
3952	LEAD PENCILS AND ART GOODS	0.00018	0.00019	0.00123	0.00049
3953	MARKING DEVICES	0.00000	0.00000	0.00000	0.00000
3955	CARBON PAPER AND INKED RIBBONS	0.00000	0.00000	0.00000	0.00002
3961	COSTUME JEWELRY	0.00000	0.00000	0.00000	0.00000
3965	FASTENERS, BUTTONS, NEEDLES, AND PINS	0.00000	0.00000	0.00000	0.00000
3991	BROOMS AND BRUSHES	0.00002	0.00017	0.00000	0.00003
3993	SIGNS AND ADVERTISING SPECIALTIES	0.00000	0.00000	0.00000	0.00000
3995	BURIAL CASKETS	0.00021	0.00011	0.00000	0.00011
3996	HARD SURFACE FLOOR COVERINGS, N.E.C.	0.00000	0.00000	0.00000	0.00000
3999	Furs, dressed and dyed	0.00079	0.00005	0.00093	0.00022

Source: U.S. EPA Toxic Release Inventory, Aerometric Information Retrieval System, and National Pollution Discharge Elimination System, (all 199
U.S. Census Bureau, 1997 Economic Census published June 20, 2000

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APPENDIX A-3

Facility Information from 1997 Economic Census

Standard Industrial Code	Standard Industrial Code Description	Number of Facilities	Number of Employees	En pe
2011	MEAT PACKING PLANTS			
2098	MACARONI AND SPAGHETTI	582	5,262	
2099	FOOD PREPARATIONS, N.E.C.	266	6,063	
2111	CIGARETTES	1,755	69,486	
2121	CIGARS	13	21,302	
2131	CHEWING AND SMOKING TOBACCO	42	3,750	
2141	TOBACCO STEMMING AND REDRYING	21	3,750	
2211	BROADWOVEN FABRIC MILLS, COTTON	29	5,827	
2221	BROADWOVEN FABRIC MILLS, MANMADE	398	46,402	
2231	BROADWOVEN FABRIC MILLS, WOOL	452	77,123	
2241	NARROW FABRIC MILLS	78	10,567	
2251	WOMEN'S HOSIERY, EXCEPT SOCKS	273	16,563	
2252	HOSIERY, N.E.C.	137	16,962	
2253	KNIT OUTERWEAR MILLS	455	36,260	
2254	KNIT UNDERWEAR MILLS	643	43,525	
2257	WEFT KNIT FABRIC MILLS	54	14,999	
2258	LACE AND WARP KNIT FABRIC MILLS	359	33,904	
2259	KNITTING MILLS, N.E.C.	262	23,401	
2261	FINISHING PLANTS, COTTON	62	3,750	
2262	FINISHING PLANTS, MANMADE	442	21,352	
2269	FINISHING PLANTS, N.E.C.	306	21,164	
2273	CARPETS AND RUGS	155	11,225	
2281	YARN SPINNING MILLS	474	52,419	
2282	THROWING AND WINDING MILLS	393	57,869	
2284	THREAD MILLS	146	21,643	
2295	COATED FABRICS, NOT RUBBERIZED	67	14,999	
2296	TIRE CORD AND FABRICS	229	10,106	
2297	NONWOVEN FABRICS	21	5,723	
2298	CORDAGE AND TWINE	193	17,047	
2299	Jute goods & scouring/combing mill products	201	6,417	
2311	MEN'S AND BOYS' SUITS AND COATS	355	17,500	
2321	MEN'S AND BOYS' SHIRTS	272	28,580	
2322	MEN'S AND BOYS' UNDERWEAR & NIGHTWEAR	633	59,638	
2323	MEN'S AND BOYS' NECKWEAR	93	10,358	
2325	MEN'S AND BOYS' TROUSERS AND SLACKS	123	4,926	
2326	MEN'S AND BOYS' WORK CLOTHING	378	58,881	
2329	MEN'S AND BOYS' CLOTHING, N.E.C.	260	25,876	
2331	WOMEN'S AND MISSES' BLOUSES AND SHIRTS	739	37,995	
2335	WOMEN'S, JUNIORS' AND MISSES' DRESSES	1,617	41,429	
2337	WOMEN'S AND MISSES' SUITS AND COATS	2,373	63,731	
2339	WOMEN'S AND MISSES' OUTERWEAR, N.E.C.	836	31,998	
2341	WOMEN'S AND CHILDREN'S UNDERWEAR	3,947	114,195	
2342	BRAS, GIRDLES, AND ALLIED GARMENTS	266	17,500	
2353	HATS, CAPS, AND MILLINERY	103	9,772	
2361	GIRLS' AND CHILDREN'S DRESSES, BLOUSES	393	17,543	
2369	GIRLS' AND CHILDREN'S OUTERWEAR, N.E.C.	316	17,500	

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214.0
32.4
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80.0
20.1
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APPENDIX A-3
Facility Information from 1997 Economic Census

Standard Industrial Code	Standard Industrial Code Description	Number of Facilities	Number of Employees	Em pe
2011	MEAT PACKING PLANTS	743	25,373	
2611	PULP MILLS	39	10,247	
2621	PAPER MILLS	256	107,552	
2631	PAPERBOARD MILLS	217	54,643	
2652	SETUP PAPERBOARD BOXES	155	6,227	
2653	CORRUGATED AND SOLID FIBER BOXES	1,732	124,537	
2655	FIBER CANS, DRUMS AND SIMILAR PRODUCTS	284	11,461	
2656	SANITARY FOOD CONTAINERS	83	14,925	
2657	FOLDING PAPERBOARD BOXES	588	50,921	
2671	PAPER COATED AND LAMINATED, PACKAGING	249	20,767	
2672	PAPER COATED AND LAMINATED, N.E.C.	507	35,958	
2673	BAGS: PLASTICS, LAMINATED, AND COATED	540	43,896	
2674	BAGS: UNCOATED PAPER AND MULTIWALL	145	17,086	
2675	DIE-CUT PAPER AND BOARD	438	15,926	
2676	SANITARY PAPER PRODUCTS	160	14,999	
2677	ENVELOPES	277	25,867	
2678	STATIONERY PRODUCTS	170	9,092	
2679	CONVERTED PAPER PRODUCTS, N.E.C.	656	30,502	
2711	NEWSPAPERS	8,773	400,818	
2721	PERIODICALS	6,331	137,865	
2731	BOOK PUBLISHING	2,948	91,935	
2732	BOOK PRINTING	745	49,104	
2741	MISCELLANEOUS PUBLISHING	3,435	78,627	
2752	COMMERCIAL PRINTING, LITHOGRAPHIC	26,623	461,374	
2754	COMMERCIAL PRINTING, GRAVURE	453	23,260	
2759	COMMERCIAL PRINTING, N.E.C.	6,924	111,158	
2761	MANIFOLD BUSINESS FORMS	922	40,823	
2771	GREETING CARDS	152	21,883	
2782	BLANKBOOKS AND LOOSELEAF BINDERS	419	33,406	
2789	BOOKBINDING AND RELATED WORK	1,285	31,349	
2791	TYPESETTING	2,069	27,755	
2796	PLATEMAKING SERVICES	1,276	24,942	
2812	ALKALIS AND CHLORINE	39	4,859	
2813	INDUSTRIAL GASES	630	8,787	
2816	INORGANIC PIGMENTS	74	8,608	
2819	INDUSTRIAL INORGANIC CHEMICALS, N.E.C.	667	75,000	
2821	PLASTICS MATERIALS AND RESINS	529	60,764	
2822	SYNTHETIC RUBBER	143	12,141	
2823	CELLULOSIC MAN-MADE FIBERS	6	4,802	
2824	ORGANIC FIBERS, NONCELLULOSIC	100	37,085	
2833	MEDICINALS OR BOTANICALS	338	27,530	
2834	PHARMACEUTICAL PREPARATIONS	807	112,429	
2835	DIAGNOSTIC SUBSTANCES	258	39,782	
2836	BIOLOGICAL PRODUCTS EXCEPT DIAGNOSTIC	364	23,285	
2841	SOAP AND OTHER DETERGENTS	799	29,022	
2842	POLISHES AND SANITATION GOODS			

nployees r Facil.
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270.5
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53.4
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APPENDIX A-3
Facility Information from 1997 Economic Census

Standard Industrial Code	Standard Industrial Code Description	Number of Facilities	Number of Employees	Em po
2011	MEAT PACKING PLANTS			
3199	LEATHER GOODS, N.E.C.	178	4,950	
3211	FLAT GLASS	435	9,006	
3221	GLASS CONTAINERS	36	11,579	
3229	Glass fiber, textile-type	61	21,184	
3231	PRODUCTS OF PURCHASED GLASS	516	35,533	
3241	CEMENT, HYDRAULIC	1,654	60,542	
3251	BRICK AND STRUCTURAL CLAY TILE	279	16,973	
3253	CERAMIC WALL AND FLOOR TILE	224	13,808	
3255	CLAY REFRACTORIES	169	8,804	
3259	STRUCTURAL CLAY PRODUCTS, N.E.C.	148	5,790	
3261	VITREOUS PLUMBING FIXTURES	51	1,332	
3262	VITREOUS CHINA TABLE AND KITCHENWARE	57	9,222	
3263	SEMIVITREOUS TABLE AND KITCHENWARE	34	4,959	
3264	PORCELAIN ELECTRICAL SUPPLIES	28	910	
3269	POTTERY PRODUCTS, N.E.C.	148	10,082	
3271	CONCRETE BLOCK AND BRICK	931	14,394	
3272	CONCRETE PRODUCTS, N.E.C.	940	18,256	
3273	READY-MIXED CONCRETE	2,986	72,709	
3274	LIME	5,253	94,300	
3275	GYPSUM PRODUCTS	85	5,358	
3281	CUT STONE AND STONE PRODUCTS	208	13,165	
3291	ABRASIVE PRODUCTS	1,021	13,165	
3292	ASBESTOS PRODUCTS	369	23,583	
3295	MINERALS, GROUND AND TREATED	19	493	
3296	MINERAL WOOL	388	10,144	
3297	NONCLAY REFRACTORIES	298	21,610	
3299	NONMETALLIC MINERAL PRODUCTS, N.E.C.	130	8,412	
3312	BLAST FURNACES AND STEEL MILLS	360	9,114	
3313	ELECTROMETALLURGICAL PRODUCTS	201	145,805	
3315	STEEL WIRE AND RELATED PRODUCTS	28	4,035	
3316	COLD FINISHING OF STEEL SHAPES	304	25,754	
3317	STEEL PIPE AND TUBES	186	14,362	
3321	GRAY AND DUCTILE IRON FOUNDRIES	235	27,723	
3322	MALLEABLE IRON FOUNDRIES	669	83,570	
3324	STEEL INVESTMENT FOUNDRIES	28	2,628	
3325	STEEL FOUNDRIES, N.E.C.	159	22,673	
3331	PRIMARY COPPER	288	23,982	
3334	PRIMARY ALUMINUM	16	7,360	
3339	PRIMARY NONFERROUS METALS, N.E.C.	21	15,763	
3341	SECONDARY NONFERROUS METALS	142	10,132	
3351	COPPER ROLLING AND DRAWING	256	13,479	
3353	ALUMINUM SHEET, PLATE, OR FOIL	129	21,150	
3354	ALUMINUM EXTRUDED PRODUCTS	70	25,111	
3355	ALUMINUM ROLLING AND DRAWING, N.E.C.	160	30,357	
3356	NONFERROUS ROLLING AND DRAWING, N.E.C.	20	2,657	

ployees Facil.
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APPENDIX A-3
Facility Information from 1997 Economic Census

Standard Industrial Code	Standard Industrial Code Description	Number of Facilities	Number of Employees	Em pe
2011	MEAT PACKING PLANTS			
3713	TRUCK AND BUS BODIES	472	100,000	
3714	MOTOR VEHICLE PARTS AND ACCESSORIES	715	41,779	
3715	TRUCK TRAILERS	3,609	490,657	
3716	MOTOR HOMES	390	30,678	
3721	AIRCRAFT	88	18,086	
3724	AIRCRAFT ENGINES AND ENGINE PARTS	204	200,961	
3728	AIRCRAFT PARTS AND EQUIPMENT, N.E.C.	369	82,557	
3731	SHIP BUILDING AND REPAIRING	1,138	127,729	
3732	BOAT BUILDING AND REPAIRING	700	97,385	
3743	RAILROAD EQUIPMENT	2,782	50,876	
3751	MOTORCYCLES, BICYCLES, AND PARTS	207	31,633	
3761	GUIDED MISSILES AND SPACE VEHICLES	385	17,500	
3764	SPACE PROPULSION UNITS AND PARTS	22	52,158	
3769	SPACE VEHICLE EQUIPMENT, N.E.C.	28	18,540	
3792	TRAVEL TRAILERS AND CAMPERS	49	6,110	
3795	TANKS AND TANK COMPONENTS	315	20,112	
3799	TRANSPORTATION EQUIPMENT, N.E.C.	37	14,999	
3812	SEARCH AND NAVIGATION EQUIPMENT	877	14,999	
3821	LABORATORY APPARATUS AND FURNITURE	680	187,557	
3822	ENVIRONMENTAL CONTROLS	385	18,253	
3823	PROCESS CONTROL INSTRUMENTS	317	21,450	
3824	FLUID METERS AND COUNTING DEVICES	1,002	49,196	
3825	INSTRUMENTS TO MEASURE ELECTRICITY	222	17,390	
3826	ANALYTICAL INSTRUMENTS	843	63,522	
3827	OPTICAL INSTRUMENTS AND LENSES	664	38,200	
3829	MEASURING AND CONTROLLING DEVICES, N.E.C	495	20,801	
3841	SURGICAL AND MEDICAL INSTRUMENTS	859	34,425	
3842	SURGICAL APPLIANCES AND SUPPLIES	1,598	107,298	
3843	DENTAL EQUIPMENT AND SUPPLIES	1,728	75,000	
3844	X-RAY APPARATUS AND TUBES	877	18,072	
3845	ELECTROMEDICAL EQUIPMENT	155	14,276	
3851	OPHTHALMIC GOODS	460	47,121	
3861	Photographic sensitized film and plates, silver halide type	575	26,366	
3873	WATCHES, CLOCKS, WATCHCASES AND PARTS	739	63,642	
3911	JEWELRY, PRECIOUS METAL	128	5,646	
3914	SILVERWARE AND PLATED WARE	2,272	34,694	
3915	JEWELERS MATERIALS AND LAPIDARY WORK	162	6,457	
3931	MUSICAL INSTRUMENTS	394	5,396	
3942	DOLLS AND STUFFED TOYS	576	13,411	
3944	GAMES, TOYS, AND CHILDREN'S VEHICLES	240	3,393	
3949	SPORTING AND ATHLETIC GOODS, N.E.C.	789	14,999	
3951	PENS AND MECHANICAL PENCILS	2,571	69,664	
3952	LEAD PENCILS AND ART GOODS	112	8,394	
3953	MARKING DEVICES	152	6,002	
3955	CARBON PAPER AND INKED RIBBONS	634	7,831	

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APPENDIX A-4

SIC Codes That May be Associated with Odor Problems

SIC Code	Description
2011	MEAT PACKING PLANTS
2015	POULTRY SLAUGHTERING AND PROCESSING
2021	CREAMERY BUTTER
2022	CHEESE, NATURAL AND PROCESSED
2023	DRY, CONDENSED, EVAPORATED PRODUCTS
2033	CANNED FRUITS AND VEGETABLES
2037	FROZEN FRUITS AND VEGETABLES
2046	Corn Oil
2061	RAW CANE SUGAR
2062	CANE SUGAR REFINING
2063	BEET SUGAR
2066	CHOCOLATE AND COCOA PRODUCTS
2074	COTTONSEED OIL MILLS
2075	SOYBEAN OIL MILLS
2077	ANIMAL AND MARINE FATS AND OILS
2083	MALT
2085	DISTILLED AND BLENDED LIQUORS
2091	CANNED AND CURED FISH AND SEAFOODS
2092	FRESH OR FROZEN PREPARED FISH
2231	BROADWOVEN FABRIC MILLS, WOOL
2261	FINISHING PLANTS, COTTON
2262	FINISHING PLANTS, MANMADE
2282	THROWING AND WINDING MILLS
2284	THREAD MILLS
2295	COATED FABRICS, NOT RUBBERIZED
2436	SOFTWOOD VENEER AND PLYWOOD
2493	RECONSTITUTED WOOD PRODUCTS
2511	WOOD HOUSEHOLD FURNITURE
2517	WOOD TV AND RADIO CABINETS
2522	OFFICE FURNITURE, EXCEPT WOOD
2611	PULP MILLS
2621	PAPER MILLS
2631	PAPERBOARD MILLS
2653	CORRUGATED AND SOLID FIBER BOXES
2671	PAPER COATED AND LAMINATED, PACKAGING
2672	PAPER COATED AND LAMINATED, N.E.C.
2676	SANITARY PAPER PRODUCTS
2678	STATIONERY PRODUCTS