1996 Annual Growth Report
Harford County, Maryland

Prepared by the Department of Planning and Zoning
May 1997

THE 1996 ANNUAL GROWTH REPORT

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EXECUTIVE SUMMARY

In accordance with the Harford County Adequate Public Facilities provisions (Section 267-104) of the Harford County Code, the Harford County Annual Growth Report must be updated annually to identify any facilities that are below the County's adopted minimum standards. This year's Annual Growth Report includes information and analysis regarding Public Schools, Water and Sewerage System, and Road Intersections.

Harford County Public Schools:

The adopted adequacy standards for the Public School system are:

Elementary Schools - 120 % of local rated capacity within 2 years.

Secondary Schools - 120 % of local rated capacity within 3 years.

Preliminary Plans for new developments cannot be approved in elementary school districts where the full-time enrollment currently exceeds or is projected to exceed 120 percent of the capacity within two years. Twenty-nine of the 31 elementary schools meet this standard. The projected enrollment for the Church Creek Elementary School during the 1998/99 school year is 757 for a utilization rate of 121 percent. As of this date, no additional elementary schools facilities that would relieve this situation have received funding. As occurred during the July 1, 1996 to June 30, 1997, period; any preliminary plans for new developments within this attendance area will not be approved but will be reviewed and placed on a waiting list until capacity is available for the year beginning July 1, 1997.

The utilization rate for Forest Hill Elementary School for the 1996/97 school year exceeded 120% of capacity. However, the new Forest Lakes Elementary School has a planned opening date of September

1997, and will provide relief to Forest Hill, Bel Air, Hickory, and Homestead/Wakefield elementary schools.

Preliminary plans for new developments cannot be approved in secondary school districts where full-time enrollment currently exceeds or is projected to exceed 120 percent of the capacity within three years. Of the seventeen middle and high schools in Harford County, sixteen meet the adequacy standard.

The projected enrollment for Fallston Middle School in the 1997/98 school year is expected to be 1,082 students for a utilization rate of 120.2%. As occurred during the July 1, 1996, to June 30, 1997, period; preliminary plans for new developments within this attendance area will not be approved but will be reviewed and placed on a waiting list until capacity is available for the year beginning July 1, 1997.

Harford County Water and Sewerage System:

Based on the Adequate Public Facilities Ordinance and the Harford County Water and Sewer Design Guidelines, preliminary plan approvals, Public Works Utility Agreements, and building permits in areas served by public water and sewer systems can be approved only where adequate capacity exists in the water and wastewater treatment facilities and in distribution and collection lines serving the area.

Harford County's sewerage system's average flow to the Sod Run Wastewater Treatment Plant is 10.1 Million Gallons per Day (MGD) while the design capacity is 12.0 MGD for a total Average Reserve of 1.9 MGD (as of December, 1996). The County Water system's current average daily usage is 8.6 MGD with a peak day consumption of 11.2 MGD. The Water Treatment capacity is 19.1 MGD, leaving a total reserve of 7.9 MGD (as of December 1996). These figures refer only to a County-wide total capacity figure.

The determination of water or sewerage capacity in a specific area of the County can be found in the "Water and Sewer 1996 Adequate Public Facilities Report " with appropriate guidance from the Department of Public Works. A determination of adequacy is made prior to preliminary plan approval, site plan approval, public works utility agreement execution, and building permit approval.

The water system is evaluated for adequacy for providing flows during the maximum day demand with the minimum required pressures for fire flows. Water booster stations and/or transmission lines, service mains, storage tanks, and water treatment plants are evaluated. Areas within the Harford County Development Envelope that exist at the highest elevations of the water pressure zones are evaluated for adequacy on a case-by-case analysis. The anticipated growth within the County is accommodated through a combination of developer funded projects and the capital improvement program.

The sewer system is evaluated to accommodate expected peak flows through collectors, interceptors, pump stations, force mains, and wastewater treatment plants. Should a problem exist in a collector sewer, it is the developer(s) responsibility to resolve the inadequacy. Inadequacies at major pumping stations and wastewater treatment plants are resolved by programmed capital projects or by projects cooperatively supported by a group of developers.

Harford County Road System:

To determine existing service levels at intersections and the impact of additional traffic, a Traffic Impact Analysis (TIA) must be submitted for development that generate 249 trips per day at the time of preliminary/site plan review.

The adequacy standards for road intersections within the study area based on the property's location within or outside the Development Envelope and are defined as follows:

Inside the Development Envelopment: LOS D.

If existing LOS is E or F at an intersection within the Development Envelope, the developer must mitigate the development's new trips.

Outside the Development Envelope: LOS C.

If the existing LOS is D or lower, then the developer must mitigate the development's new trips.

A developer is required to provide improvements at intersections within the study area where trips generated by the development lowers the Level of Service (LOS) below the adopted standards. These improvements must bring the level of service to the adopted standard. If the TIA determines that the existing level of service does not meet the adopted standards, the subdivider must mitigate the impact of the trips generated from the development site. The study area is defined for areas within and outside the development envelope as:

Inside the Development Envelope: The TIA study area shall include all the existing County and State roads from point of entrance of site to the second intersection of an arterial roadway or higher functional classification road, in all directions. Developments which generate 1,500 or more trips per day may be required to expand the study area.

Outside the Development Envelope: The TIA study area shall include all existing County and state roads from point of entrance to first intersection of a major collector or higher functional classification road, in all directions.

The determination of existing and projected Level of Service is calculated in the Traffic Impact Analysis, which is performed, by the developer and reviewed by the Departments of Planning and Zoning and Public Works.

In addition to the review of individual Traffic Impact Analyses, the Departments of Planning and Zoning and Public Works have studied a number of major roads and intersections to identify existing conditions. This list represents a cross section of key intersections located inside, outside, and on the fringes of the Development Envelope. There are four signalized and six unsignalized intersections with one or more movements operating at a LOS E or lower during peak hours.

The following intersections contain one or more movements that operate at an unacceptable LOS. The evaluation of the LOS is determined on performance of the intersection during one hour peak traffic periods in the a.m. and/or p.m. :

1. MD 24 & Bel Air South Parkway
2. MD 24 & MD 924 (Tollgate)
3. MD 543 & MD 22
4. MD 152 & U.S. 1
5. MD 543 & Wheel Rd.
6. MD 24 & Plumtree Rd.
7. MD 924 & Plumtree Rd.
8. MD 152 & Singer Rd.
9. MD 24 & Forest Valley Rd.
10. MD 152 & Hanson Rd.

Developments that impact these intersections will be required to mitigate their impacts to the intersection.

INTRODUCTION

The Annual Growth Report is an on-going analysis of growth trends, facility capacity and service performance. This report was prepared by the Department of Planning and Zoning in coordination with the Department of Public Works - Water and Sewer and Engineering Divisions and the Board of Education. It report provides information on the present development activity as well as past trends and future projections for Harford County and the region.

The information in this report will be used by public officials, citizens and private developers for various purposes:

- to assess facility adequacy during the development review and approval process;
- to assess facility capacity in regard to zoning reclassification decisions;
- to support the evaluation of priority projects in the annual Capital Budget review;
- to identify critical deficiencies which require prompt attention by the County.

GROWTH TRENDS

Population Projection Methodology

Yearly estimates of population and households in Harford County for the Annual Growth Report are determined from the 1990 Census. This data is adjusted to reflect a number of variables including building permits, average household size and household vacancy rates. The 5 and 10 year projections are based on these estimates with a growth factor applied to determine the rate and quantity of growth in the County. This growth factor is based on the number of building permits anticipated to be issued each year. It is important to note that projections are based on past trends and land availability. The population projections

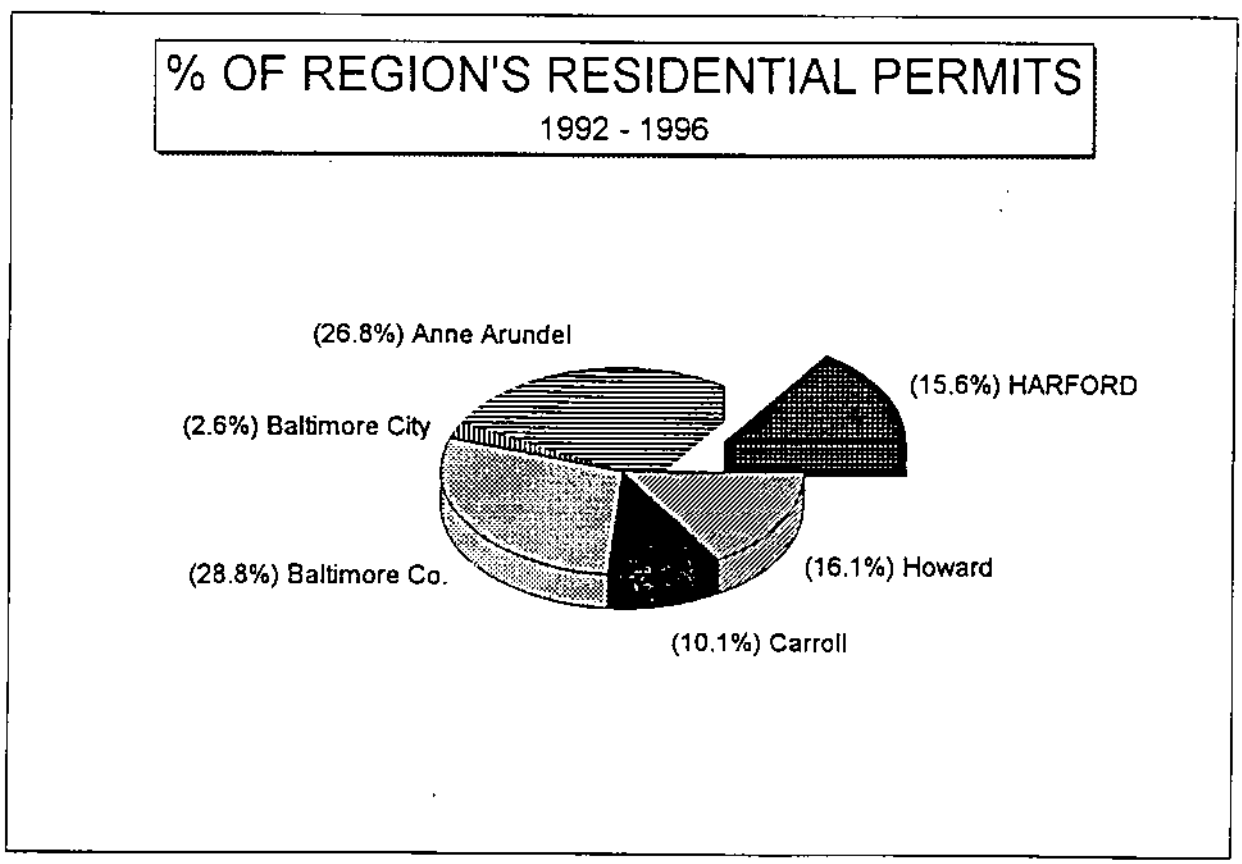
for the five remaining jurisdictions in the Baltimore Region are based on an interpolation of the Baltimore Metropolitan Council's Round 5-A population forecast.

The 1990 Census information at the census block level is utilized for specific analysis of each facility regarding area maps and demographic information. Building permits are identified by facility areas, by subdivision name and/or address of each building permit for each year. This provides the needed information on growth trends by facility service area.

HARFORD COUNTY - BALTIMORE REGION
RESIDENTIAL PERMIT ACTIVITY - 1992 - 1996

TABLE 1

County	1992	1993	1994	1995	1996	TOTAL 1992-1996
HARFORD	**2,508**	**1,835**	**1,847**	**1,616**	**1,929**	**9,735**
Anne Arundel	3,491	3,716	3,197	3,307	2,996	**16,707**
Baltimore City	78	315	257	366	596	**1,612**
Baltimore Co.	5,190	3,817	3,862	2,649	2,443	**17,961**
Carroll	1,046	1,389	1,436	1,299	1,162	**6,332**
Howard	2,603	1,869	2,032	1,860	1,706	**10,070**
REGION	14,916	12,941	12,631	11,097	10,832	**62,417**



Source: Harford County Dept. of Planning & Zoning
and Baltimore Metropolitan Council, May, 1997

TABLE 2

HARFORD COUNTY POPULATION / EMPLOYMENT PROJECTIONS

HARFORD COUNTY - BALTIMORE REGION
POPULATION / HOUSEHOLD PROJECTIONS: 1996 -2006

County	1996 POP	1996 HH	2001 POP	2001 HH	2006 POP	2006 HH
HARFORD	**212,580**	**75,220**	**229,120**	**82,980**	**241,000**	**88,820**
Anne Arundel	451,800	162,800	472,360	174,740	491,040	186,040
Baltimore City	719,400	278,980	716,480	280,700	706,120	281,720
Baltimore Co.	704,860	283,560	715,280	295,780	724,980	305,920
Carroll	136,700	48,560	147,460	53,840	159,900	59,300
Howard	221,280	83,040	251,300	96,740	277020	109,460
REGION	2,446,620	932,160	2,532,000	984,780	2,600,060	1,031,260

HARFORD COUNTY - BALTIMORE REGION
EMPLOYMENT PROJECTIONS - 1996 - 2006

County	1996 Total Employment	2001 Total Employment	2006 Total Employment
HARFORD	**79,620**	**84,420**	**90,280**
Anne Arundel	264,860	275,860	286,320
Baltimore City	463,080	465,540	467,920
Baltimore Co.	431,100	451,000	467,560
Carroll	51,980	55,100	58,940
Howard	118,740	133,760	147,460
REGION	1,409,380	1,465,680	1,518,480

Source: Harford County Dept. of Planning & Zoning, May, 1997.

HARFORD COUNTY - BALTIMORE REGION
NON-RESIDENTIAL PERMIT ACTIVITY - 1992 - 1996

TABLE 3

NEW NON-RESIDENTIAL PERMITS (Valued $50,000 & Over)

	1992		1993		1994		1995		1996	
PERMIT TYPE	# of Permits	Sq. Feet	# of Permits	Sq. Feet	# of Permits	Sq. Feet	# of Permits	Sq. Feet	# of Permits	Sq. Feet
Commercial	18	156,966	12	206,952	24	158,683	22	371,664	24	389,119
Industrial	5	51,488	8	77,523	9	43,491	6	328,786	12	237,575
Institutional	4	123,995	5	95,151	7	22,385	6	40,546	10	196,839
Utilities	1	NA	0	0	6	27,626	1	80	3	9,038
Other	1	8,976	1	7,746	2	36,922	1	7,542	4	15,092
Total	29	341,425	26	387,372	48	289,107	36	748,618	53	847,663

ADDITIONS, ALTERATIONS & REPAIRS (Valued $50,000 & Over)

	1992		1993		1994		1995		1996	
PERMIT TYPE	# of Permits	Sq. Feet	# of Permits	Sq. Feet	# of Permits	Sq. Feet	# of Permits	Sq. Feet	# of Permits	Sq. Feet
Commercial	19	NA	30	NA	31	NA	39	NA	61	NA
Industrial	8	NA	13	NA	7	NA	16	NA	14	NA
Institutional	3	NA	2	NA	10	NA	12	NA	12	NA
Utilities	1	NA	1	NA	2	NA	0	NA	2	NA
Total	31	NA	46	NA	50	NA	67	NA	89	NA

NA: DATA NOT AVAILABLE

Source: Baltimore Metropolitan Council, May, 1997.

PUBLIC SCHOOLS

Introduction

To assess current and future adequacy of the public school facilities; the capacities of the existing schools, the utilization of the schools, and future populations are analyzed. The data in this report regarding the public school system are aggregated by the elementary/middle/high school districts and include school enrollments, County-rated capacities for each school facility, utilization of each school facility, and 3 year projected school enrollments (Tables 4 & 5). In addition, development information such as building permits issued by dwelling type (Tables 6 & 7) and population and households (Tables 8 & 9) are included in this report. School maps and pupil yield factors by dwelling unit type are included in the Appendix.

Analysis

Each school facility has been analyzed in terms of past growth trends, current conditions and future enrollment projections. The information is based on factual data and is aggregated by the current school districts. The information in this report is based on factual data. Based on the Adequate Public Facilities provision of the County Code, the level of service standard for Public Schools are:

Elementary - 120% of local rated capacity within 2 years

Secondary - 120% of local rated capacity within 3 years

Of the thirty-one elementary schools, all but two meet this standard for the current school year and the next two years. The projected enrollment for the Church Creek Elementary School during the 1998/99 school year is 757 with a utilization rate of 121 percent (See Table 4). Based on the level of service standards established by the Adequate Public Facilities provision of the County Code (Sec. 267-104), preliminary

plans for residential subdivisions will not be approved in the Church Creek Elementary School District. All preliminary plans located in this district will be processed and placed on a waiting list until capacity is available.

The Forest Hill Elementary has been over 120% of rated capacity; however, the Forest Lakes Elementary School is currently under construction and will provide relief for Bel Air, Forest Hill, Hickory, and Homestead/Wakefield elementary schools. The Forest Lake Elementary is scheduled to open in the Fall of 1997, therefore, the moratorium on preliminary plan approvals is no longer in effect for the Forest Hill Elementary School.

Secondary Schools in Harford County include eight middle schools and nine high schools. Of the seventeen secondary schools, sixteen meet the adequacy standard. The projected enrollment for Fallston Middle School in the 1997/98 school year is expected to be 1,082 students with a utilization rate of 120.2%. Effective July 1, 1997, any preliminary plans for new developments within this attendance area will not be approved but will be reviewed and placed on a waiting list until capacity is available.

School Enrollment Projection Methodology

The methodology for projecting students utilizes historical data for live births and the number of children enrolled in public schools. Using these data, a series of ratios that reflect grade cohort survival are developed. These ratios include consideration of a number of factors:

1. Births in a given year which affect subsequent kindergarten and first grade enrollments.
2. Net migration of school age children.
3. Net transfer of children between public and private schools.

4. Nonpromotion of children to the next grade level.

5. Dropouts in the later years of secondary school.

6. Shifts between regular grade and upgraded groups other than special education.

This technique of establishing a ratio is used for each successive grade. For example, a ratio is developed between the number of children actually in the first grade in 1985 and the number in the second grade the following year. The ratio, therefore, represents the number of first graders who advance to the second grade. If significant variations exist (such as a housing boom), then factors such as pupil yields for subdivision activity and development trends must be measured.

In order to ensure accurate projections, development monitoring is a key task in maintaining accurate projections because housing expansion periods have a direct impact on school enrollments. Two of the primary means of calculating projected student enrollment due to a housing expansion period are by using pupil yield factors and build out schedules from developers.

Pupil yield factors are determined by researching the number of students from a particular community/subdivision that are actually attending their home school. By dividing the number of students accounted for by the number of dwelling units, a pupil generation factor is determined. It is important to note that different pupil yield factors are generated depending on housing type (single family, townhouse, apartment etc.) and school level (elementary, middle and high). Surveys of sample subdivisions to assess an accurate yield factor are completed on a regular basis. (See Appendix)

1996 HARFORD COUNTY SCHOOLS UTILIZATION CHART
ELEMENTARY SCHOOLS

TABLE 4

ELEMENTARY SCHOOLS	CAPACITY	Actual 1996-1997 ENROLL	Actual 1996-1997 %UTIL	Projected 1997-1998 ENROLL	Projected 1997-1998 %UTIL	Projected 1998-1999 ENROLL	Projected 1998-1999 %UTIL	Projected 1999-2000 ENROLL	Projected 1999-2000 %UTIL
Abingdon	625	590	94.4%	613	98.1%	677	108.3%	722	115.5%
Bakerfield	500	446	89.2%	456	91.2%	479	95.8%	485	97.0%
Bel Air *	525	557	106.1%	575	109.5%	584	111.2%	579	110.3%
Church Creek	625	636	101.8%	717	114.7%	757	121.1%	806	129.0%
Churchville	385	355	92.2%	355	92.2%	373	96.9%	367	95.3%
Darlington	200	162	81.0%	173	86.5%	174	87.0%	167	83.5%
Deerfield	545	530	97.2%	502	92.1%	480	88.1%	469	86.1%
Dublin	325	293	90.2%	285	87.7%	286	88.0%	278	85.5%
Edgewood	550	450	81.8%	476	86.5%	474	86.2%	467	84.9%
Emmorton	600	481	80.2%	481	80.2%	468	78.0%	478	79.7%
Forest Hill *	375	508	135.5%	504	134.4%	510	136.0%	501	133.6%
Fountain Green	600	588	98.0%	571	95.2%	537	89.5%	529	88.2%
Hall's Cross Rds	625	441	70.6%	457	73.1%	468	74.9%	489	78.2%
Havre de Grace	640	502	78.4%	543	84.8%	582	90.9%	607	94.8%
Hickory *	645	621	96.3%	599	92.9%	576	89.3%	546	84.7%
Hillsdale	460	388	84.3%	398	86.5%	390	84.8%	393	85.4%
Home/Wakefield *	980	1035	105.6%	996	101.6%	969	98.9%	956	97.6%
Jarrettsville	585	561	95.9%	530	90.6%	519	88.7%	526	89.9%
Joppatowne	530	485	91.5%	472	89.1%	471	88.9%	464	87.5%
Magnolia	525	574	109.3%	574	109.3%	577	109.9%	579	110.3%
Meadowvale	620	549	88.5%	557	89.8%	544	87.7%	551	88.9%
Norrisville	200	216	108.0%	219	109.5%	219	109.5%	231	115.5%
North Bend	600	532	88.7%	558	93.0%	555	92.5%	552	92.0%
North Harford	460	439	95.4%	409	88.9%	416	90.4%	414	90.0%
Prospect Mill	750	806	107.5%	780	104.0%	751	100.1%	754	100.5%
Ring Factory	600	544	90.7%	544	90.7%	562	93.7%	565	94.2%
Riverside	600	542	90.3%	551	91.8%	545	90.8%	528	88.0%
Roye-Williams	780	649	83.2%	651	83.5%	663	85.0%	672	86.2%
WP/OPR	1020	991	97.2%	1011	99.1%	1036	101.6%	1034	101.4%
Wm. S. James	575	576	100.2%	605	105.2%	629	109.4%	594	103.3%
Youth's Benefit	985	1074	109.0%	1052	106.8%	1040	105.6%	1036	105.2%
ELEMENTARY TOTAL	18,035	17,121	94.9%	17,214	95.4%	17,311	96.0%	17,339	96.1%

* Forest Lakes Elementary School is scheduled to open for the 1997-98 school year and is planned to provide relief for Forest Hill, Bel Air, Hickory, and Homestead Wakefield elementary schools. Adjustments to capacity have been calculated.

Source: Harford County Public Schools & Dept. of Planning & Zoning, May, 1997.

1996 HARFORD COUNTY SCHOOLS UTILIZATION CHART

SECONDARY SCHOOLS

TABLE 5

MIDDLE SCHOOLS

		Actual		Projected					
		1996-1997		1997-1998		1998-1999		1999-2000	
MIDDLE SCHOOL	CAPACITY	ENROLL	%UTIL	ENROLL	%UTIL	ENROLL	%UTIL	ENROLL	%UTIL
Aberdeen	1,530	1,227	80.2%	1,293	84.5%	1,341	87.6%	1,376	89.9%
Bel Air	1,310	1,194	91.1%	1,204	91.9%	1,208	92.2%	1,259	96.1%
Edgewood	1,390	1,105	79.5%	1,160	83.5%	1,174	84.5%	1,234	88.8%
Fallston	900	1,049	116.6%	1,082	120.2%	1,066	118.4%	1,020	113.3%
Havre de Grace	800	561	70.1%	576	72.0%	604	75.5%	617	77.1%
Magnolia	1,070	877	82.0%	895	83.6%	892	83.4%	932	87.1%
North Harford	1,240	990	79.8%	1,045	84.3%	1,024	82.6%	1,020	82.3%
Southampton	1,550	1,673	107.9%	1,692	109.2%	1,756	113.3%	1,763	113.7%
TOTAL - MS *	9,790	* 8,679	88.6%	8,947	91.4%	9,065	92.6%	9,221	94.2%

HIGH SCHOOLS

		Actual		Projected					
		1996-1997		1997-1998		1998-1999		1999-2000	
HIGH SCHOOL	CAPACITY	ENROLL	%UTIL	ENROLL	%UTIL	ENROLL	%UTIL	ENROLL	%UTIL
Aberdeen	1,875	1,218	65.0%	1,295	69.1%	1,360	72.5%	1,427	76.1%
Bel Air	1,410	1,389	98.5%	1,482	105.1%	1,552	110.1%	1,614	114.5%
C. Milton Wright	1,550	1,445	93.2%	1,400	90.3%	1,349	87.0%	1,310	84.5%
Edgewood	1,380	1,008	73.0%	1,091	79.1%	1,188	86.1%	1,231	89.2%
Fallston	1,670	1,465	87.7%	1,558	93.3%	1,627	97.4%	1,739	104.1%
Harford Technical	740	764	103.2%	818	110.5%	822	111.1%	834	112.7%
Havre de Grace	900	633	70.3%	642	71.3%	658	73.1%	662	73.6%
Joppatowne	1,140	922	80.9%	948	83.2%	993	87.1%	1,015	89.0%
North Harford	1,440	1,115	77.4%	1,109	77.0%	1,147	79.7%	1,181	82.0%
TOTAL - HS **	12,105	** 9,959	82.1%	10,343	85.4%	10,696	88.4%	11,013	91.0%
TOTAL SECONDARY	21,895	18,638	85.1%	19,290	88.1%	19,761	90.3%	20,234	92.4%

* INCLUDES 1 STUDENT ENROLLED IN ALTERNATIVE EDUCATION PROGRAMS.

** INCLUDES 11 STUDENTS ENROLLED IN ALTERNATIVE EDUCATION PROGRAMS

Source: Harford County Public Schools & Harford County Dept. of Planning & Zoning, May, 1997.

HARFORD COUNTY BUILDING PERMIT ACTIVITY BY ELEMENTARY SCHOOL DISTRICT 1992 - 1996

TABLE 6

SCHOOL	1992 BUILDING PERMITS ISSUED BY DWELLING TYPE					1993 BUILDING PERMITS ISSUED BY DWELLING TYPE					1994 BUILDING PERMITS ISSUED BY DWELLING TYPE					1995 BUILDING PERMITS ISSUED BY DWELLING TYPE					1996 BUILDING PERMITS ISSUED BY DWELLING TYPE				
	SF	TH	APT/ CONDO	MH	TOTAL	SF	TH	APT/ CONDO	MH	TOTAL	SF	TH	APT/ CONDO	MH	TOTAL	SF	TH	APT/ CONDO	MH	TOTAL	SF	TH	APT/ CONDO	MH	TOTAL
Abingdon	167	176	0	0	343	150	69	0	0	219	105	120	0	0	225	79	158	0	0	237	81	93	0	0	174
Bakerfield	49	0	0	1	50	51	0	0	0	51	11	5	0	1	17	20	31	0	0	51	14	55	0	0	69
Bel Air	10	0	284	0	294	12	4	0	0	16	5	0	0	0	5	7	0	0	0	7	8	0	0	1	9
Church Creek	33	151	58	5	247	53	37	12	0	102	10	50	10	1	71	11	39	0	0	50	41	48	116	0	205
Churchville	38	0	0	4	42	26	0	0	1	27	29	0	0	2	31	35	0	0	1	36	34	0	0	3	37
Darlington	5	0	0	7	12	7	0	0	2	9	5	0	0	2	7	6	0	0	4	10	15	0	0	4	19
Deerfield	19	0	0	1	20	19	0	0	0	19	45	0	0	0	45	18	0	0	0	18	39	0	0	0	39
Dublin	18	0	0	11	29	10	0	0	2	12	6	0	0	3	9	15	0	0	4	19	22	0	0	4	26
Edgewood	1	0	0	0	1	2	0	0	0	2	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0
Emmorton	40	83	36	0	159	50	30	24	0	104	60	38	0	0	98	35	42	0	0	77	38	49	0	0	87
Forest Hill	98	0	36	0	134	71	12	12	0	95	76	74	24	0	174	56	15	24	3	98	95	28	0	0	123
Fountain Green	3	0	0	3	6	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Hall's Cross Roads	0	0	0	0	0	0	0	0	0	0	7	0	0	0	7	10	0	0	0	10	0	0	0	0	0
Havre de Grace	2	0	0	0	2	0	0	1	1	2	4	0	10	0	14	0	0	1	1	2	2	0	16	0	18
Hickory	13	8	0	1	22	13	68	12	1	94	33	54	24	0	111	28	64	0	0	92	79	65	24	0	168
Hillsdale	17	0	0	31	48	8	0	0	0	8	5	0	0	1	6	8	0	0	0	8	11	0	0	0	11
Homestead/Wakefield	73	0	25	0	98	98	4	25	0	127	55	37	53	0	145	53	4	50	0	107	54	18	35	0	107
Jarrettsville	30	0	0	2	32	26	0	0	1	27	25	0	0	2	27	21	0	0	2	23	20	0	0	1	21
Joppatowne	1	0	0	4	5	2	0	0	1	3	28	0	0	1	29	67	0	0	2	69	44	19	1	0	64
Magnolia	12	0	0	5	17	4	0	0	0	4	2	0	0	0	2	2	0	0	0	2	32	0	0	0	32
Meadowvale	135	83	0	3	221	129	83	1	1	214	84	0	24	2	110	78	12	6	0	96	90	23	48	2	163
Norrisville	15	0	0	1	16	11	0	0	2	13	9	0	1	0	10	8	0	0	1	9	12	0	0	2	14
North Bend	38	0	0	13	51	35	0	0	2	37	32	0	1	9	42	32	0	0	0	32	37	0	0	7	44
North Harford	36	0	1	14	51	47	0	0	12	59	29	0	0	2	31	34	0	0	7	41	46	0	0	5	51
Prospect Mill	159	71	13	2	245	172	96	66	1	335	96	58	36	0	190	84	24	0	1	109	121	0	0	0	121
Ring Factory	111	47	16	0	174	88	7	24	0	119	78	15	25	0	118	80	39	36	0	155	61	70	48	0	179
Riverside	3	0	1	2	6	4	0	0	0	4	0	0	0	1	1	3	0	0	0	3	14	0	0	0	14
Roye-Williams	2	0	0	10	12	1	0	0	1	2	0	0	0	1	1	1	0	0	0	1	1	0	0	0	1
Wm. Paca/Old Post Rd	38	38	24	21	121	57	0	28	1	86	66	100	12	0	178	53	117	0	0	170	12	68	0	0	80
Wm. S. James	5	0	0	0	5	16	0	0	1	17	11	0	0	0	11	6	0	0	0	6	1	0	0	0	1
Youth's Benefit	42	0	0	4	46	56	0	2	1	59	40	0	0	1	41	39	0	0	0	39	52	0	0	0	52
TOTAL	1,213	657	494	145	2,509	1,218	410	207	31	1,866	959	551	220	29	1,759	889	545	117	26	1,577	1,076	536	288	29	1,929

Source: Harford County Dept. of Planning & Zoning, May, 1997.

HARFORD COUNTY BUILDING PERMIT ACTIVITY BY SECONDARY SCHOOL DISTRICTS 1992 - 1996 TABLE 7

MIDDLE SCHOOLS

SCHOOL	1992 BUILDING PERMITS ISSUED BY DWELLING TYPE					1993 BUILDING PERMITS ISSUED BY DWELLING TYPE					1994 BUILDING PERMITS ISSUED BY DWELLING TYPE					1995 BUILDING PERMITS ISSUED BY DWELLING TYPE					1996 BUILDING PERMITS ISSUED BY DWELLING TYPE				
	SF	TH	APT/ CONDO	MH	TOTAL	SF	TH	APT/ CONDO	MH	TOTAL	SF	TH	APT/ CONDO	MH	TOTAL	SF	TH	APT/ CONDO	MH	TOTAL	SF	TH	APT/ CONDO	MH	TOTAL
Aberdeen	109	151	58	48	366	118	37	12	1	168	40	31	10	6	87	57	35	0	1	93	75	62	116	1	254
Bel Air	223	130	361	0	714	243	45	73	1	362	200	90	78	0	368	168	85	86	0	339	151	137	83	0	371
Edgewood	227	214	24	24	489	230	69	28	1	328	219	244	12	0	475	151	310	0	0	461	134	202	0	1	337
Fallston	139	0	36	4	179	124	12	14	1	151	85	74	24	1	184	81	15	24	1	121	118	28	0	0	146
Havre de Grace	142	83	0	10	235	136	83	2	4	225	93	0	34	4	131	84	12	7	5	108	106	23	64	6	199
Magnolia	16	0	1	11	28	10	0	0	1	11	30	0	0	2	32	72	0	0	2	74	90	19	1	0	110
North Harford	132	0	1	33	166	123	0	0	19	142	98	0	2	15	115	104	0	0	13	117	130	0	0	18	148
Southampton	225	79	13	15	332	234	164	78	3	479	194	112	60	1	367	172	88	0	4	264	272	65	24	3	364
TOTAL	1,213	657	494	145	2,509	1,218	410	207	31	1,866	959	551	220	29	1,759	889	545	117	26	1,577	1076	536	288	29	1,929

HIGH SCHOOLS

SCHOOL	1992 BUILDING PERMITS ISSUED BY DWELLING TYPE					1993 BUILDING PERMITS ISSUED BY DWELLING TYPE					1994 BUILDING PERMITS ISSUED BY DWELLING TYPE					1995 BUILDING PERMITS ISSUED BY DWELLING TYPE					1996 BUILDING PERMITS ISSUED BY DWELLING TYPE				
	SF	TH	APT/ CONDO	MH	TOTAL	SF	TH	APT/ CONDO	MH	TOTAL	SF	TH	APT/ CONDO	MH	TOTAL	SF	TH	APT/ CONDO	MH	TOTAL	SF	TH	APT/ CONDO	MH	TOTAL
Aberdeen	109	151	58	48	366	118	37	12	1	168	40	31	10	6	87	57	35	0	1	93	75	62	116	1	254
Bel Air	223	130	361	0	714	243	45	73	1	362	200	90	78	0	368	168	85	86	0	339	151	137	83	0	371
Edgewood	227	214	24	24	489	230	69	28	1	328	219	244	12	0	475	151	310	0	0	461	134	202	0	1	337
Fallston	139	0	36	4	179	128	18	26	1	173	99	80	48	1	228	93	22	24	1	140	136	74	24	0	234
Havre de Grace	142	83	0	10	235	136	83	2	4	225	93	0	34	4	131	84	12	7	5	108	106	23	64	6	199
Joppatowne	16	0	1	11	28	10	0	0	1	11	30	0	0	2	32	72	0	0	2	74	90	19	1	0	110
North Harford	132	0	1	33	166	123	0	0	19	142	98	0	2	15	115	104	0	0	13	117	130	0	0	18	148
C. Milton Wright	225	79	13	15	332	230	158	66	3	457	180	106	36	1	323	160	81	0	4	245	254	19	0	3	276
TOTAL	1,213	657	494	145	2,509	1,218	410	207	31	1,866	959	551	220	29	1,759	889	545	117	26	1,577	1076	536	288	29	1,929

Source: Harford County Dept. of Planning & Zoning, May, 1997.

HARFORD COUNTY POPULATION / HOUSEHOLDS 1992 - 1996
BY ELEMENTARY SCHOOL DISTRICT

TABLE 8

SCHOOL	1992 *		1993 *		1994 *		1995 *		1996*	
	Households	Population	Households	Population	Households	Population	Households	Population	Households	Population
Abingdon	2,734	7,833	3,012	8,605	3,265	9,121	3,489	9,908	3,739	10,562
Bakerfield	2,591	7,425	2,640	7,542	2,687	7,655	2,704	7,678	2,752	7,774
Bel Air	3,145	9,010	3,363	9,608	3,439	9,720	3,444	9,780	3,451	9,747
Churchville	1,917	5,492	1,957	5,590	2,248	5,635	2,316	6,576	2,363	6,676
Church Creek	2,420	6,932	2,623	7,493	2,485	7,760	2,562	7,274	2,620	7,399
Darlington	755	2,163	770	2,200	775	2,212	781	2,219	791	2,234
Deerfield	1,920	5,500	1,941	5,544	1,957	5,581	1,999	5,678	2,017	5,696
Dublin	1,301	3,728	1,316	3,760	1,340	3,780	1,349	3,830	1,367	3,861
Edgewood	1,696	4,859	1,696	4,845	1,699	4,839	1,701	4,830	1,701	4,804
Emmorton	1,306	3,741	1,509	4,311	1,556	4,693	1,649	4,682	1,722	4,864
Forest Hill	2,239	6,414	2,365	6,756	2,456	7,004	2,681	7,615	2,834	8,007
Fountain Green	2,098	6,010	2,148	6,136	2,103	6,305	2,154	6,118	2,154	6,085
Hall's Cross Roads	1,831	5,246	1,836	5,244	1,831	5,228	1,837	5,218	1,847	5,217
Havre de Grace	2,567	7,354	2,569	7,340	2,570	7,324	2,584	7,337	2,586	7,304
Hickory	2,078	5,955	2,107	6,018	2,188	6,599	2,294	6,514	2,381	6,727
Hillsdale	1,837	5,262	1,878	5,366	1,890	5,369	1,896	5,383	1,903	5,376
Homestead/Wakefield	4,536	12,996	4,632	13,232	4,750	13,553	4,887	13,880	4,989	14,093
Jarrettsville	2,174	6,230	2,202	6,290	2,230	6,342	2,256	6,407	2,278	6,435
Joppatowne	2,901	8,313	2,908	8,307	2,909	8,296	2,936	8,339	3,002	8,480
Magnolia	1,417	4,061	1,434	4,095	1,437	4,094	1,439	4,087	1,441	4,071
Meadowvale	2,099	6,013	2,307	6,589	2,512	7,046	2,616	7,430	2,707	7,648
Norrisville	753	2,157	782	2,234	780	2,266	790	2,243	798	2,255
North Bend	1,865	5,345	1,903	5,438	1,949	5,519	1,989	5,648	2,019	5,704
North Harford	1,821	5,217	1,875	5,356	1,925	5,497	1,955	5,551	1,994	5,632
Prospect Mill	1,737	4,976	1,931	5,515	2,288	5,797	2,528	7,180	2,647	7,477
Ring Factory	1,722	4,935	1,840	5,257	2,001	5,455	2,113	6,000	2,260	6,384
Riverside	3,136	8,987	3,143	8,979	3,146	8,958	3,147	8,937	3,150	8,897
Roye-Williams	1,676	4,802	1,686	4,817	1,689	4,809	1,690	4,800	1,691	4,777
Wm. Paca/Old Post Rd	3,045	8,725	3,222	9,204	3,242	9,331	3,411	9,686	3,572	10,091
Wm. S. James	1,511	4,329	1,565	4,471	1,532	4,612	1,542	4,380	1,548	4,372
Youth's Benefit	4,763	13,648	4,813	13,749	4,866	13,862	4,902	13,920	4,939	13,952
TOTAL	67,589	193,656	69,971	199,892	71,745	204,263	73,640	209,130	75,260	212,600

*Population as of April 1.

Source: Harford County Dept. of Planning & Zoning, May, 1997.

HARFORD COUNTY POPULATION / HOUSEHOLDS 1992 - 1996
BY SECONDARY SCHOOL DISTRICT

TABLE 9

SCHOOL	1992 *		1993 *		1994 *		1995 *		1996 *	
	Households	Population	Households	Population	Households	Population	Households	Population	Households	Population
Aberdeen	11075	31732	11,423	32,631	11,582	32,976	11,705	33,285	11,821	33,393
Bel Air	8184	23449	8,862	25,317	9,206	26,211	9,556	27,173	9,878	27,903
Edgewood	9529	27302	9,994	28,549	10,305	29,340	10,853	30,721	11,321	31,981
Fallston	7003	20065	7,173	20,491	7,317	20,832	7,491	21,302	7,630	21,554
Havre de Grace	5420	15529	5,643	16,121	5,857	16,675	5,981	17,009	6,084	17,186
Magnolia	7556	21650	7,583	21,661	7,593	21,618	7,623	21,678	7,694	21,733
North Harford	7512	21524	7,670	21,910	7,805	22,220	7,914	22,504	8,025	22,669
Southampton	11310	32405	11,623	33,212	12,080	34,391	12,517	35,458	12,807	36,181
TOTAL	67,589	193,656	69,971	199,892	71,745	204,263	73,640	209,130	75,260	212,600

HIGH SCHOOLS

	1992 *		1993 *		1994 *		1995 *		1996 *	
	Households	Population	Households	Population	Households	Population	Households	Population	Households	Population
Aberdeen	11075	31732	11,423	32,631	11,582	32,976	11,705	33285	11,821	33,393
Bel Air	10620	30428	11,298	32,276	11,642	33,147	11,992	34100	12,314	34,784
Edgewood	7999	22919	9,994	28,549	10,305	29,340	10,853	30721	11,321	31,981
Fallston	9529	27302	8,048	22,991	8,212	23,382	8,429	23969	8,586	24,254
Havre de Grace	7878	22572	5,643	16,121	5,857	16,675	5,981	17009	6,084	17,186
Joppatowne	5420	15529	7,583	21,661	7,593	21,618	7,623	21678	7,694	21,733
North Harford	7556	21650	7,670	21,910	7,805	22,220	7,914	22504	8,025	22,669
C. Milton Wright	7512	21524	8,312	23,753	8,749	24,905	9,143	25864	9,415	26,600
TOTAL	67,589	193,656	69,971	199,892	71,745	204,263	73,640	209,130	75,260	212,600

*Population as of April 1.

Source: Harford County Dept. of Planning & Zoning, May, 1997.

WATER AND SEWERAGE

Introduction

The data included in this section for the water and sewerage system are aggregated by the water & sewer service area, which essentially reflects the Development Envelope as defined in the 1996 Harford County Land Use Element Plan. Additional information is included in this report on water/sewerage usage by dwelling type and for nonresidential uses, an inventory of existing water consumption/sewerage flows, demand projections (including the basis for their computation), and a list of capital projects contained in the County's Capital Improvements Program for expanding facilities - including project status. This information is extracted from the "1996 Water and Sewer Adequate Public Facilities Report," and can be found in section VI (pages 23-27) of this report.

Water and Sewer Facility Projection Methodology

Water:

The Harford County water service area is divided into four pressure zones because of varying topography within the Development Envelope. To provide an adequate supply of water, the transmission lines, pumping and storage facilities for all zones must be sized for estimated future demands. In 1990, the average daily water demand by customers served by the County's central system was approximately 5.9 MGD, with a corresponding maximum day demand of approximately 7.6 MGD. In 1996, the County's average day and maximum day demands were 8.6 MGD and 11.2 MGD respectively. To keep pace with the projected growth, staged construction programs are established so that facilities are available as required and are distributed over the long term.

There are seven multiple-use water systems that are not maintained or operated by Harford County, but are subject to the APF provision of the County Code. These systems are listed below:

1) Maryland-American Water Co.
2) Conowingo Power Co.
3) Campus Hills Water Works Inc.
4) Darlington
5) Greenridge Utilities Inc.
6) Lakeside Vista
7) Bel Air Heights

Sewerage:

The sewage flows to Harford County's existing Sod Run and Joppatowne Wastewater Treatment Plants (WWTP) originate from a portion of the Development Envelope. The area between the municipalities of Aberdeen and Havre de Grace as well as the cities themselves, are within the Development Envelope and are served by the municipal sewerage facilities. A complete "Sewer System Capacity Analysis" is included on pages 8-10 and pages 32-147 of the 1996 Water and Sewer Adequate Public Facilities Report.

The average daily influent flow to the Sod Run WWTP in 1996 was approximately 10.1 MGD, exclusive of recycle flows and septage. The average daily influent flow to the Joppatowne WWTP in 1996 was approximately 0.54 MGD. The determination of future wastewater flows to wastewater treatment plants are made by using population and household projections developed by Harford County Department of Planning and Zoning for the years 1995 through 2010. The projections were distributed by local transportation zone (LTZs) by aggregating the ultimate development in terms of equivalent dwelling units into sewerage drainage areas. In order to keep pace with projected growth, construction of an expansion of the Sod Run Wastewater Treatment Plant from 12 MGD in 1995 to 20 MGD by 2000 has been initiated.

There are two private multi-use sewerage systems in the County. The Conowingo-Susquehanna Power Company provides sewerage service to the Conowingo Power Plant and some surrounding residences and the Swan Harbor Dell Mobile Home Park which serves about 160 units.

Table 10
JANUARY - DECEMBER 1996
WATER CONSUMPTION & SEWAGE GENERATION

This table reflects the total number of water and sewer customers and the water consumption and sewage generations for residential and commercial/industrial users.

	1996
Total Number of Connections	30,017
WATER	
Water Average Consumption	8.6 MGD
Water Peak Day Consumption	11.2 MGD
Average Water Usage per Connection (gal/day)	311
Residential Unit Water Usage (gal/day)	175
Average Commercial/Industrial Water Usage (gal/day)	4,012
SEWAGE	
Sewage Average Flows	10.7 MGD
Sewage Peak Day Flows	24.1 MGD
Average Sewage per Connection (gal/day)	375
Residential Sewage Generation (gal/day)	175
Average Commercial/Industrial Sewage Generation (gal/day)	4012

* MGD = Million Gallons per Day

Table 11

HARFORD COUNTY SYSTEM WATER DEMAND PROJECTIONS

SYSTEM WIDE RESIDENTIAL/ COMMERCIAL INDUSTRIAL WATER DEMAND	YEAR									
	1990	1993	1994	1995	1996	2000	2005	2010	2015	2020
FIRST ZONE										
Avg. Day, mgd	3.4	3.2	3.4	4.1	4.05	5.6	6.6	7.6	9.0	10.4
Max. Day, mgd	4.3	4.6	4.8	6.0	4.8	8.7	10.6	12.7	15.3	18.2
Total of Second, Third and Fourth Zones Requirements										
Avg. Day, mgd	2.5	3.5	3.7	3.8	4.5	4.8	6.3	8.1	9.0	9.9
Max. Day, mgd	3.3	3.9	4.0	5.6	5.9	8.5	11.8	16.0	17.7	19.5
Aberdeen										
Avg. Day, mgd	0.0	0.0	0.0	0.5	0.05	0.5	0.5	0.5	0.5	0.5
Max. Day, mgd.**	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Maryland-American Water Company										
Avg. Day, mgd	0.0	0.0	0.0	0.0	0.0	0.01	0.01	0.01	0.01	0.01
Max. Day, mgd **	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5
Total										
Avg. Day, mgd	5.9	6.7	7.1	8.4	8.6	10.9	13.4	16.2	18.5	20.8
Max. Day, mgd	7.6	8.5	8.8	12.1	11.2	18.2	23.4	29.7	34.0	38.7

** - Allocated maximum day flow projections per 1995 and 1996 service agreements.

Table 12
Harford County Present and Projected Sewerage Demands and Planned Capacities In Million Gallons Per Day - (MGD)

	SERVICE AREAS				
	PLANNING YEAR	HARFORD COUNTY	FALLSTON	JOPPATOWNE	SPRING MEADOWS
PER CAPITA SEWAGE FLOW	1993	90	50	80	65
	1994	90	50	80	65
	1995	90	50	80	65
	1996	90	50	80	65
	2000	90	50	80	65
RESIDENTIAL POPULATION SERVED	1993	70,732	0	7,000	153
	1994	78,849	0	7,000	153
	1995	81,696	0	7,000	153
	1996	85,449	0	7,300	153
	2000	104,979	0	9,500	153
DOMESTIC FLOW (ADF)	1993	7.7	0	.59	.01
	1994	7.9	0	.56	.01
	1995	7.7	0	.56	.01
	1996	8.1	0	.56	.01
	2000	10.7	0	.76	.01
INDUSTRIAL FLOW (ADF)	1993	.4	.035	0.0	0
	1994	.5	.035	0.0	0
	1995	.5	.035	0.0	0
	1996	.5	.035	0.0	0
	2000	1.1	.000	0.0	0
INFILTRATION/INFLOW (ADF)	1993	1.0	0	.19	0
	1994	1.4	0	.19	0
	1995	1.4	0	.19	0
	1996	1.5	0	.19	0
	2000	2.1	0	.19	0
TOTAL FLOW	1993	9.1	.035	.78	.01
	1994	9.8	.035	.75	.01
	1995	9.6	.035	.75	.01
	1996	10.1	.035	.75	.01
	2000	13.9	.000	.95	.01
SYSTEM CAPACITY	1993	10.0	.035	.75	.01
	1994	12.0	.035	.75	.01
	1995	12.0	.035	.75	.01
	1996	12.0	.035	.75	.01
	2000	20.0	.000	.95	.01

*The Fallston Wastewater Treatment Plant will be removed from service after the Fallston Sewer Petition has been constructed.

Table 13
1996 EXISTING WATER & SEWER CAPITAL PROJECTS

The Capital Improvement Program establishes projects for expanding water and sewer facilities. This list of 1996 Capital Projects includes the projects status.

PROJECT NO.	PROJECT NAME	PROJECT STATUS
6438	Winters Run Parallel Interceptor	Phase 1: Construction completed Phase 2: Under design
6440	Infiltration/Inflow	Defining scope
6441	Fallston Sewer Petition	Under construction
6458	Lower Bynum Run Parallel Interceptor	Phase 1: Design completed Phase 2: Under design
6459	Bush Creek Sewage P.S. II	Under construction
6486	Whiteford-Cardiff Sewer Petition	Under design
6487	Perryman Well Head Protection Program	Preparing documentation and polices
6509	Singer Road Water Extension	Under design & Awaiting Right-of-Ways
6510	Abingdon Rd. Water Trans. Main I	Design completed
6510	Abingdon Rd. Water Trans. Main IV	Under design
6512	Wakefield Tran. Main	Construction completed
6516	Laurel Bush Rd. Water Trans. Main	Under design
6518	Red Pump Road Transmission Line	Awaiting Right-of-Ways
6521	Boulton St. & Tollgate Rd. Trans Main	Awaiting Right-of-Ways
6524	Joppa-Trimble Sewer Petition	Construction completed
6530	Old Constant Friendship Sewer Petition	Construction completed
6533	Joppa Storage Tank	Under construction
6540	Country Walk Tank & Booster Station	Design completed
6547	Underwood Lane Sewer Petition	Under design & Awaiting Right-of-Ways
6553	Upper Lake Fanny Sewer Petition	Under design
6559	Old Emmorton Road Sewer Petition	Under design

Table 13
1996 EXISTING WATER & SEWER CAPITAL PROJECTS

PROJECT NO.	PROJECT NAME	PROJECT STATUS
6563	Fox Bow Pumping Station	Under design
6564	Forest Lakes Elevated Water Storage Tank	Awaiting Right-of-Ways
6565	Fallston Fire Storage & Booster Station	Under design
6568	Magnolia Water Booster Station	Under design
7013	Joppatowne WWTP: Long Term Improvements	Construction completed
-	Zone 4 Water Improvements - Bynum Water Booster Sta. Pump Upgrade	Construction completed
-	Sod Run WWTP - Stage 2	Under construction

ROAD SYSTEM

Introduction

The information for the APF Road System contained in this section includes the following: signalized and unsignalized intersection capacity analysis results - existing conditions (Tables 15 and 16), average daily count locations (Table 17), a list of approved county capital projects funded for construction in FY 97 (Table 18), and a list of state consolidated transportation program projects funded for construction FY 97 (Table 19). This information will help identify existing deficiencies in the road system and guide both County and State capital project funding to the most critical road projects.

The intent of the APF Roads provisions of the County Code is to create a mechanism that requires proposed development to make appropriate and reasonable road improvements, based on the proposed development's impact to the road.

Road Intersection Analysis Methodology

A key feature of the APF Road Intersection regulations is the requirement of a traffic impact analysis (TIA) for residential and nonresidential uses that generate more than 249 trips. The TIA is a study to provide information regarding the impact of generated trips from proposed land uses on traffic safety and traffic operation within a designated area and recommending solutions to mitigate the impact. The method of conducting a Traffic Impact Analysis is outlined in the "Harford County Traffic Impact Analysis Guidelines".

A complete TIA includes the following:

- The designation of the study area as required in the APF regulations is based on whether the proposed development is inside or outside of the Development Envelope.

  Inside the Development Envelope :

  The TIA shall include all the existing County and State roads from the point of entrance of site to the second intersection of an arterial roadway or higher functional classification road, in all directions. Developments which generate 1,500 or more trips per day may be required to expand the study area.

  Outside the Development Envelope :

  The TIA shall include all existing County and State roads from point of entrance to first intersection of a major collector or higher classification road, in all directions.

- An analysis of existing conditions including traffic counts, lane configuration, and signal timings.
- An analysis of background conditions without site development, including growth in background traffic, future traffic generated by nearby proposed developments and the determination of Levels of Service with any approved/funded State and County Capital projects.
- An analysis of the projected conditions with site development, including the traffic being generated by the proposed development and the background traffic.
- An explanation of the results with recommended improvements as necessary.

The Developer will be required to provide improvements where the trips generated by the development reduce the Level Of Service (LOS) from adequate to a LOS below the standard. The standard for intersections within the Development Envelope will be LOS D. If existing LOS is E or F at an intersection within the Development Envelope, the developer must mitigate the impact of the development's new trips. The standard for intersections outside the Development Envelope will be LOS C. If the existing LOS is D or lower, then the developer must mitigate the impact of the development's new trips.

TABLE 14

Signalized Intersection Capacity Analyses Results
Existing Conditions
1996

Intersection Name	Level of Service Peak Hour	(Delay in Sec.)
MD 24 & Bel Air S. Pkwy	F	(>60) p.m.
MD 7 & US 40	D	(25.2) p.m.
MD 24 & MD 924 (Tollgate)	F	(>60) p.m.
MD 24 & Ring Factory	B	(12.2)p.m.
MD 543 & U.S.1	C	(22.1) p.m.
MD 924 & Abingdon	D	(30.1) p.m.
MD 22 & MD 136	C	(16.5) p.m.
MD 924 & Moores Mill	B	(14.6) p.m.
MD 24 & MD 755 (south)	C	(22.3) p.m.
MD22 & Brierhill	C	(23.1) p.m.
MD 543 & MD 22	F	(>60) p.m.
MD 24 & Trimble	B	(10.4) p.m.
MD 136 & MD 165	C	(17.8) p.m.
MD 152 & US 1	F	(>60) p.m.
MD 24 & US 1	C	(22.5) p.m.
MD 152 & Trimble	C	(23.0) p.m.
MD 24 & Jarrettsville Road	C	(20.7) p.m.

TABLE 15

Unsignalized Intersection Capacity Analysis
Existing Conditions
1996

Intersection Name	Level of Service (peak hour)			
	Eastbound	Westbound	Northbound	Southbound
MD 543 & Wheel Road	F	D	A	A
MD 24 & Plumtree road	F	F	A	--
MD 924 & Plumtree road	F	--	B	--
MD 152 & Singer Road	--	F	--	C
MD 159 & Spesutia Road	A	--	--	A
MD 7 & MD 159	--	A	A	--
Abingdon Road & Hookers Mill Road	A	--	--	A
MD 24 & Forest Valley Road	F	--	B	--
MD 152 & Hanson road	F	F	B	B
MD 165 & MD 24	B	B	A	A

TABLE 16

Average Daily Count Locations - 1996

Road Name	Location	Avg. Weekday Daily Count
Abingdon Road	N. of I-95	7,880
Beards Hill Road	N. of Churchville Road	8,387
Chapel road	N. of I-95	1,731
Hanson Road	S. of Silverbell Road	3,548
Jarrettsville Road	E. of MD 24	7,816
MD 152	S. of U.S. 1	20,475
MD 24	N. Singer Road	32,550
MD 543	S. MD 22	14,175
Moores Mill Road	W. of Old English Court	8,093
Moores Mill Road	W. of Coconut Court	9,999
Pleasantville Road	N. of Putnam Road	1,791
Trimble Road	E. of MD 24	1,610
U.S. 1	N. of MD 152	23,175
U.S. 40	N. MD 24	19,192
Stepney Road	N. of I-95, S. of Carsins Run	1,075
Ring Factory Road	W. of MD 24	1,901
Singer Road	E. of MD 24	6,056
Singer Road	W. of MD 24	7,419
MD 7	W. of MD 24	5,622
Hanson Road	W. of MD 24	8,658
Ring Factory Road	E. of MD 24	7,050
Plumtree Road	E. of MD 24	2,341
Trimble Road	W. of MD 24	3,919

TABLE 17

List of Approved County Capital Projects
Funded for Construction in FY 97

Access Rd / Rts 543 & 1	Intersection improvements
Arena Road Culvert	Replacement
Bridge Inspection Program	Inspection
Bridge Rehabilitation Program	Rehabilitation
Bridge Scour Repairs	Rehabilitation
Bynum Road / Route 24-Marshall Drive	Road Improvement
Cherry Hill Road Bridge	Replacement
Cooley Mill Road Bridge	Rehabilitation
Forge Hill Road Bridge	Rehabilitation
Hookers Mill Road Rehabilitation	Rehabilitation
Schuster Road Bridge	Replacement
Singer Road Bridge	Replacement
Southampton Road Bridge	Reconstruction
Tollgate Road Culvert	Replacement
Whitaker Mill Road Bridge	Replacement

TABLE 18

State Consolidated Transportation Program
Projects funded for Construction FY 97

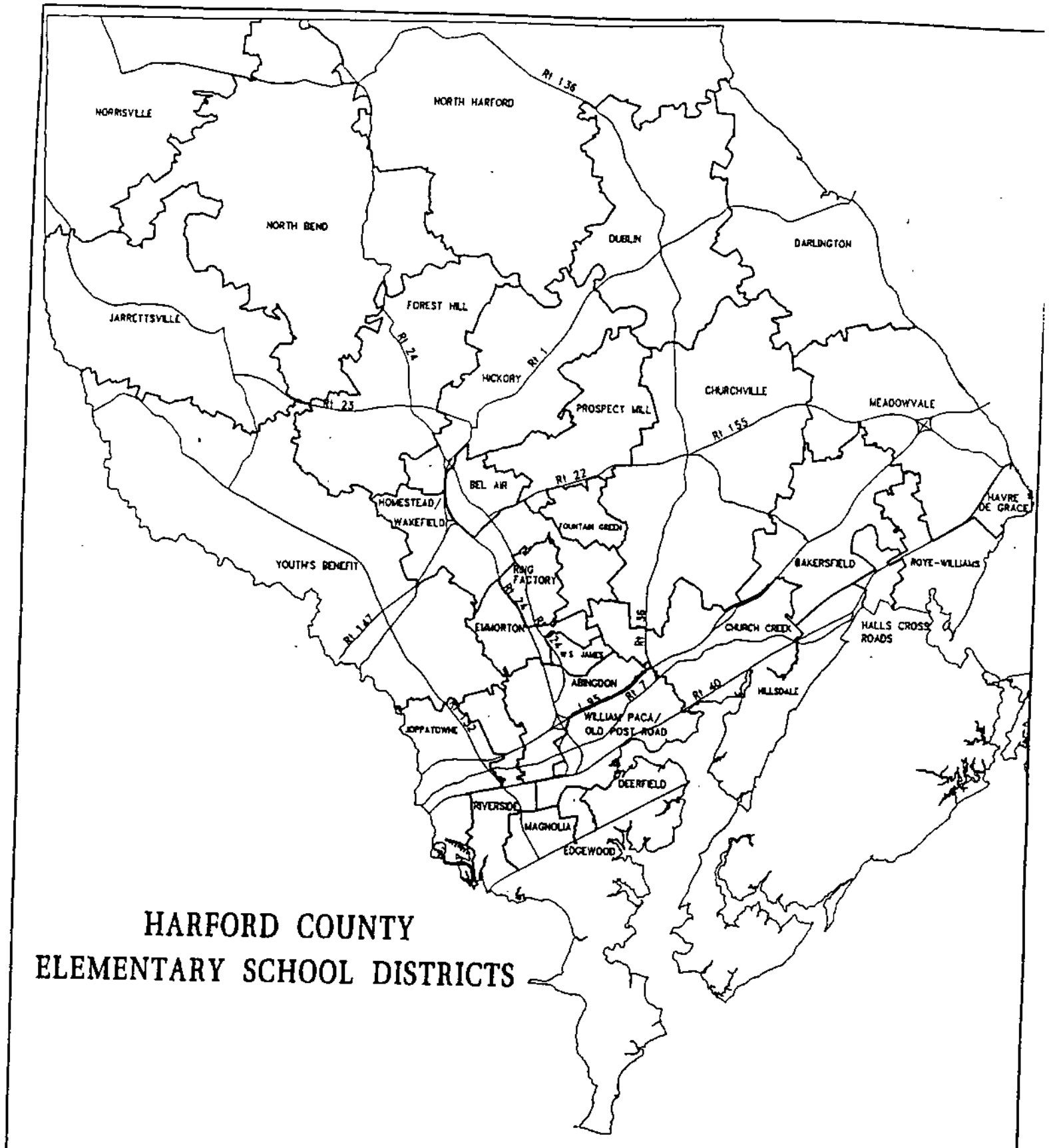
MD 22 - East of Shamrock to east of MD 543	Upgrade to a 4 lane facility
MD 24 - I-95 to MD 755	Upgrade to a 4 lane facility
MD 152 Bridge over CSX	Reconstruction / widen
US 1 - Baltimore Co. Line to MD 152	Safety and Resurface
MD 22 - East of MD 155 to I-95	Safety and Resurface
MD 24 at Jarrettsville Road	Widen intersection
MD 155 - MD 22 to McCommons Road	Safety and Resurface

APPENDIX

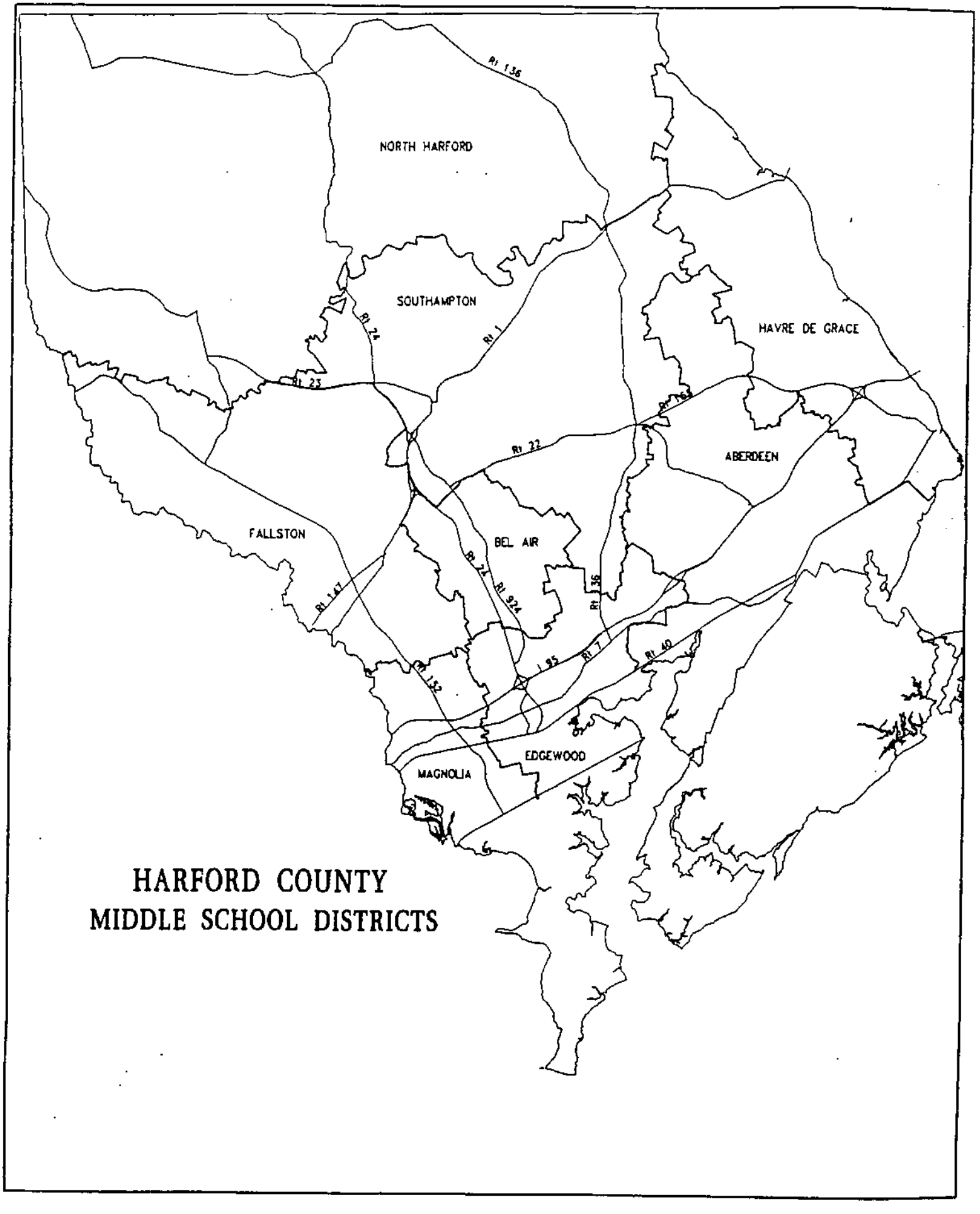
PUPIL YIELD FACTORS

Nineteen subdivisions were selected from various geographic locations throughout Harford County, to include single family dwellings, townhouse units, apartments/condominium units, and mobile home units. The subdivisions selected represented newly constructed and established subdivisions ranging in size from 69 units to 1,025 units. Additionally, subdivisions were selected to provide a broad range of attendance areas across the County. A count was made of each student who resided in each of the nineteen subdivisions studied. The data were tabulated by unit type, and the specific pupil yields were calculated for each subdivision in the elementary, middle, and high schools.

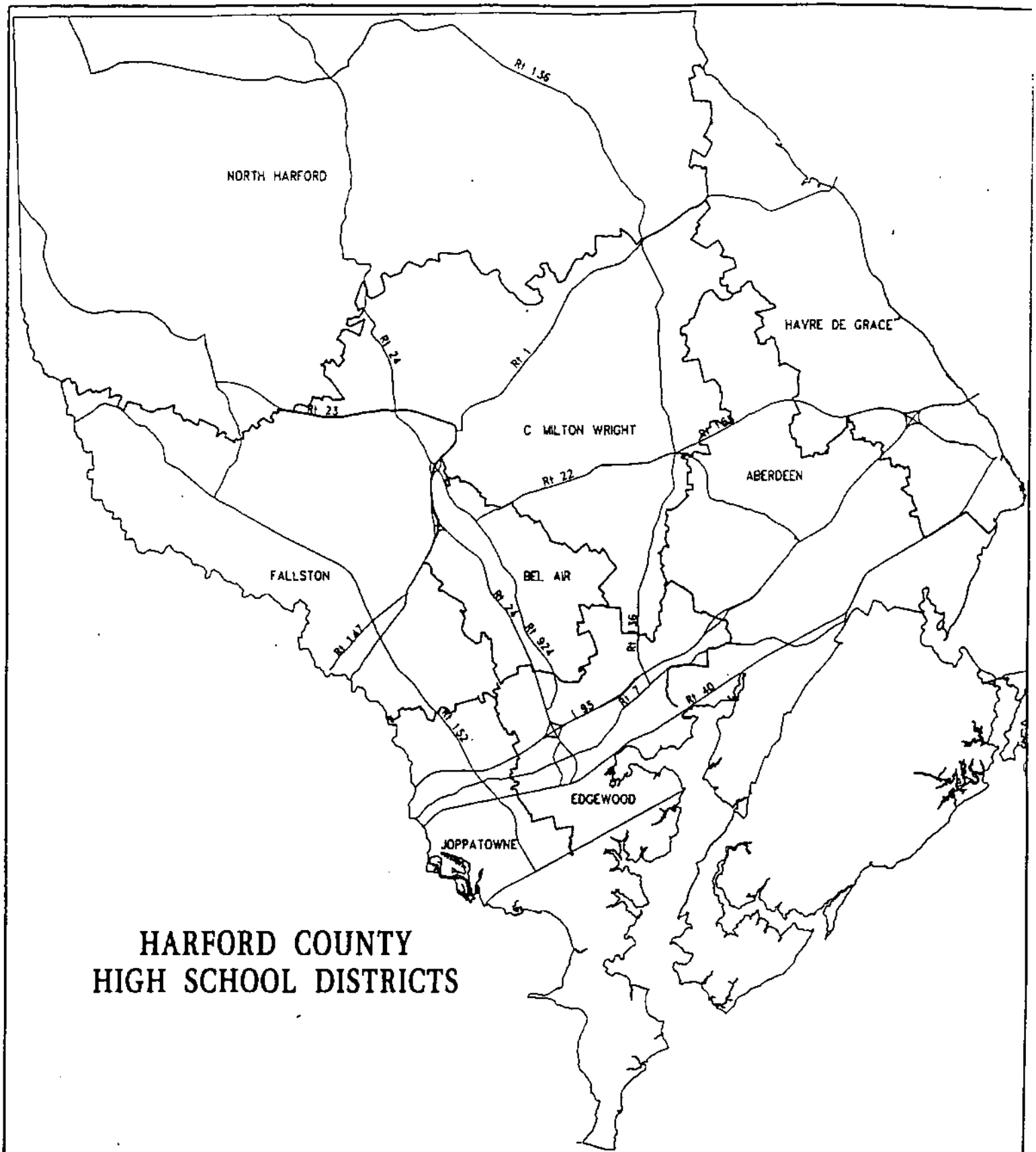
	GRADES		
UNIT TYPE	**K-5**	**6-8**	**9-12**
Single Family	.43	.18	.17
Townhome	.23	.08	.11
Apartments (2 Bdrms)	.15	.03	.03
Condo (2+ Bdrms)	.15	.03	.03
Mobile Home	.07	.02	.02



HARFORD COUNTY
ELEMENTARY SCHOOL DISTRICTS



HARFORD COUNTY
MIDDLE SCHOOL DISTRICTS



HARFORD COUNTY
HIGH SCHOOL DISTRICTS