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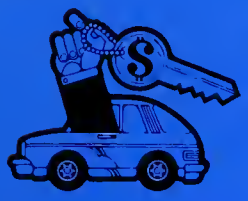


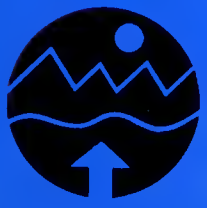
Automobile Liability Insurance Rates

Financing Highways, Roads, and Streets

The Equitable Distribution Act in North Carolina

Community Mediation Programs

Pollution Prevention



Ground Water Quality Law in North Carolina

Contents

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Automobile Liability Insurance Rates: *An Update*

Ben F. Loeb, Jr.

The Spring 1979 issue of *Popular Government* contained an article entitled "North Carolina Auto Liability Insurance Rates." There have, of course, been numerous changes in the law and rates since that article was published. The present article will summarize the current automobile insurance rate system, including the Safe Driver Insurance Plan and the Reinsurance Facility. The basic cost of statutorily required auto insurance in North Carolina is quite low—less than $100 per year per vehicle. However, any of the factors discussed below can raise individual rates dramatically.

Insurance points

A major factor in determining how much a motorist pays for his automobile insurance coverage is the number of insurance points on his driving record. The insurance point schedule is not contained in a statute; rather it is set out in a document referred to as the "Safe Driver Insurance Plan." This plan is proposed by the North Carolina Rate Bureau (an agency of the insurance companies) and then must be approved by the State Commissioner of Insurance.[1] Insurance points bear no relationship to driver's license points (which are assigned by the State Division of Motor Vehicles) but, like driver's license points, insurance points accumulate and stay on a driver's record for a period of three years. These points are assigned when one is *convicted* of certain traffic violations or is responsible for an accident. The word *conviction* includes a plea of guilty, a prayer for judgment continued, or being found responsible for an infraction.[2] Provisions of the Safe Driver Plan apply to premiums for bodily injury liability, property damage liability, medical payments, collision, fire and theft, and comprehensive coverages. Covered vehicles include private passenger cars and station wagons, pick-up and panel trucks, vans, and motorcycles. In general, large trucks, buses, and other commercial vehicles are not eligible for coverage under the Safe Driver Insurance Plan.[3]

As many as 12 points are assigned for a conviction of a serious offense such as prearranged racing or hit-and-run involving injury or death. On the other hand, only one point is assigned for a minor violation, such as running a stop sign or red light. A speed-limit violation does not result in any points (except in school zones) if the driver is traveling not more than ten miles per hour above the legal limit and has a clean driving record—that is, no convictions for the past three years. By way of contrast, four points are assigned for speeding in excess of 75 miles per hour, even if the driver has no previous convictions or accidents on his record. The schedule of points for the various violations is set out in Table 1.[4]

Insurance points are also assigned for "chargeable" accidents. The word *chargeable* means negligent, and supposedly no points are assigned for accidents when the operator of the insured

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The author is an Institute faculty member; one of his specialties is motor vehicle law.

1. N.C. GEN. STAT. ch. 58, art. 12B.
2. *Personal Auto Manual North Carolina* (Raleigh, N.C.: Insurance Services Office, 1980), 5.
3. *Id.*, at 3.
4. *Id.*, at 3, 4.

Table 1
Number of Insurance Points Awarded per Violation

12 points
- Manslaughter
- Prearranged racing
- Hit and run (with bodily injury)

10 points
- Impaired driving (DWI)
- Transportation of liquor for sale
- Highway racing (not prearranged)

8 points
- Operating vehicle during license revocation

4 points
- Hit and run (property damage only)
- Reckless driving
- Passing stopped school bus
- Speeding in excess of 75 MPH

2 points
- Illegal passing
- Speeding in excess of 55 MPH*
- Following too closely
- Driving on wrong side of road
- Each chargeable auto accident in excess of $500 damages (or bodily injury)

1 point
- Any other conviction for a moving traffic violation*
- Each chargeable accident of $500 damages or less

* No points are assigned if a driver with a clean record is not speeding more than 10 MPH over the limit.

vehicle is free of negligence. Also no points should be assigned if the auto was lawfully parked, the accident was caused by contact with an animal or fowl, or the collision involved flying gravel, missiles or falling objects. In the event of a chargeable accident, two points are assigned if there is bodily injury or death, or if total damage to all property (including the insured's own) exceeds $500. Only one point is assigned when the accident results in total property damage of $500 or less.[5]

Table 2 shows the percentage increase for insurance points and indicates how the points translate into extra dollars in annual premiums. (The dollar amount shown in the right-hand column is for each $100 paid annually for insurance.) In those cases where an insurance policy covers more than one vehicle, the surcharge for points is based on the vehicle with the highest premium. Thus if a person has two cars with annual premiums of $1,000 and $500 respectively, a 10 per cent increase from points would be 10 per cent of $1,000 (or $100), not 10 per cent of $1,500 (or $150).[6]

Age and sex

The 1975 Session of the North Carolina General Assembly enacted a new G.S. 58-30.3, providing that no insurance company could base any rating plan for private passenger automobiles or motorcycles upon the age or sex of the persons insured. However, under the provisions of G.S. 58-30.4, companies may impose premium surcharges for drivers having less than two years experience as licensed drivers. This "inexperienced operator surcharge" is quite large, and in some cases virtually doubles the cost of automobile insurance for a period of two years. For most drivers the surcharge is applied from age 16 to age 18, but the same rule would be applicable to a 50-year-old if he had no previous driving experience.

The Reinsurance Facility

Other factors, including location, affect auto insurance rates. For example, a person in Durham would pay somewhat more than a person in Asheville for the same coverage, and a motorist residing in High Point would pay more than either. For most vehicle owners, however, the major factor affecting the cost of insurance (other than insurance points) is whether or not their policy has been ceded to the Reinsurance Facility. The North Carolina Reinsurance Facility is a nonprofit legal entity consisting of all insurers engaged in writing motor vehicle insurance in North Carolina.[7] The purpose of the facility is to provide liability insurance for drivers or vehicle

5. *Id.*, at 4, 5.

6. *Id.*, at 7.

7. N.C. GEN. STAT. § 58-248.27.

owners whom companies do not wish to insure as part of their regular (voluntary) business. In brief, it is a method of transferring the risk of loss from the individual insurance company to all insurance companies.

The statutes do not specify which individuals are to be assigned to the Facility rather than being insured by a company as a part of its regular business. If an applicant for motor vehicle insurance is, for some reason, considered an undesirable risk, he may be assigned to the Facility even though he has a clean driving record. In other words, it is possible for a person who has never received a traffic citation (or had an automobile accident) to be transferred to the Facility. Obviously persons with bad driving records are prime candidates for the Facility, but a company may cede anybody it considers a bad risk for any reason. Reportedly, young drivers, single or divorced persons, as well as some occupational groups often fall within this undesirable category. In 1982, 63 per cent of the reinsured cars had no insurance points whatsoever.[8]

Since the Facility has many high-risk drivers, it is allowed to set a higher rate than is allowed in the voluntary market. In the late 1970s Facility rates were only about 10 per cent higher, but by 1984, rates for persons in the Facility (who also had insurance points) were over 40 per cent higher. Those in the Facility who have clean driving records pay the same as other persons with clean driving records.[9]

Table 2
Percentage Increase in Premiums on Basis of Points

Points	Percentage of Basic Rate	Annual Cost of Insurance per $100
0	100%	$100
1	110	110
2	140	140
3	170	170
4	200	200
5	230	230
6	270	270
7	310	310
8	350	350
9	400	400
10	450	450
11	500	500
12 or more	550	550

Recoupment surcharge

Even the higher rate is not enough to prevent the Facility from sustaining losses. These losses are recouped by putting an additional surcharge on all drivers with insurance points, whether or not they are in the Facility. The current recoupment surcharge is 38.9 per cent.[10]

A policy holder who has insurance points *and* has been ceded to the Facility pays a great deal more than a clean-risk driver for the same coverage. To illustrate by means of a worst-case scenario, suppose a motorist is paying only $100 per year for his liability insurance at the time he is convicted of driving while impaired. In all likelihood his policy will be ceded to the Reinsurance Facility, and for the next three years his insurance will be calculated as follows:

(1) The basic cost will rise from $100 to $140 because the Facility rate is at least 40 per cent higher than the regular base rate.
(2) This $140 will be increased by 450 per cent (10 insurance points) because of the DWI conviction, to a total of $630.
(3) The recoupment surcharge of 38.9 per cent will be added to the $630 for an annual cost of $875.

Thus, this luckless driver will be paying $875 per year for the same coverage that he had purchased for $100—an increase of almost 900 per cent.

Rates in other states

At the time the previous auto insurance article appeared in *Popular Government*, North

8. *North Carolina Insight*, 7, No. 3 (February 1985), 50.
9. *Id.*
10. N.C. Gen. Stat. § 58-248.33. See "Auto Insurance to Rise for Higher-Risk Drivers," *News and Observer* (Raleigh, N.C.), January 10, 1986, p. 18D.

Carolina had about the lowest auto insurance rates in the country. More than half a decade later this still appears to be the case (see Table 3). According to *North Carolina Insight*,

> . . . the average cost of insurance per car, for all types of coverage, was $237 in North Carolina, nearly a third less than the national average . . . only such rural states as Tennessee and Alabama had lower average rates. The highest rates were in New Jersey, New York, and Massachusetts, all heavily urban . . . .[11]

It should be mentioned that the figures in Table 3 were derived by dividing the total premiums written by the number of automobiles registered in each state. While this may be a very imprecise way of determining insurance costs, North Carolina would have low premiums by almost any measurement.

The future

There has been considerable public dissatisfaction with the current auto insurance rate system. At least part of this dissatisfaction stems from the large rate increases that are occasioned when a policy holder accumulates insurance points. The rates for most other types of insurance are not determined on the basis of fault. For example, if a person is seriously injured in an auto accident while driving under the influence, his medical insurance costs probably will not increase at all; however, his automobile insurance will go up at least 450 per cent. This result may be fair, but it is not very popular. The continued public criticism of the current system led the last General Assembly to enact Chapter 1027, requiring a new classification plan and safe driver incentive plan for nonfleet private passenger automobile insurance. This new plan, which will be developed by the Rate Bureau and the Insurance Commissioner, will probably be put into effect within the next year so so. While the provisions of the new plan cannot be predicted at this time, it is possible that insurance points will play a smaller role in determining the cost of automobile insurance.

Table 3
Average Automobile Insurance Premiums by State

Ranking	State	Average Premium	Ranking	State	Average Premium
1	New Jersey	$516.89	26	New Hampshire	$292.45
2	New York	429.20	27	Arkansas	287.98
3	Massachusetts	424.73	28	Missouri	287.73
4	Alaska	399.80	29	Virginia	282.61
5	Pennsylvania	390.93	30	Kansas	282.38
6	Nevada	387.37	31	Florida	281.22
7	District of Columbia	384.67	32	Oklahoma	281.19
8	Louisiana	377.57	33	Vermont	268.00
9	California	368.17	34	Utah	267.53
10	Maryland	364.21	35	Wyoming	263.07
11	West Virginia	355.89	36	Nebraska	256.31
12	Hawaii	355.38	37	Indiana	255.94
13	Arizona	348.38	38	Maine	251.43
14	Texas	340.55	39	Montana	250.64
15	Connecticut	339.34	40	North Dakota	248.61
16	Rhode Island	332.45	41	Idaho	246.28
17	South Carolina	330.11	42	Wisconsin	242.74
18	Michigan	326.81	43	New Mexico	241.63
19	Delaware	322.31	44	Ohio	241.15
20	Colorado	315.01	45	Kentucky	238.90
21	Illinois	309.27	46	**North Carolina**	236.91
22	Oregon	302.09	47	Iowa	234.45
23	Washington	301.05	48	Mississippi	231.56
24	Minnesota	298.25	49	Tennessee	216.48
25	Georgia	295.00	50	South Dakota	211.10
			51	Alabama	205.86
				National Average	$322.63

11. *North Carolina Insight*, *supra* note 8, at 32-33.

State-Local Responsibilities for Financing Highways, Roads, and Streets

Charles D. Liner

In North Carolina, the state government is responsible for building and maintaining highways, secondary and rural roads, and urban thoroughfares (the major highways and streets inside municipal boundaries that bring traffic into municipalities or serve major destinations inside municipalities). Of the 96,000 miles of roads and streets in the state, the state government maintains 76,459 miles, about 80 per cent of the total.[1] This makes North Carolina's system the largest state-maintained system in the nation.

The state government is responsible not only for intercity highways, but also for all roads outside municipal boundaries (including over 50,000 miles of secondary and rural roads, which in many states are the responsibility of local governments) and all streets and roads inside municipalities that serve major destinations or that link parts of the state system. County governments have no responsibility or authority for building or maintaining roads and streets. Municipalities are responsible for maintaining in-town streets that are not part of the state system, but those streets are financed in part with revenues from the state gasoline tax.

Under this system, responsibility for both spending and financing is heavily centralized at the state level. State government spending (including spending financed by federal aid and state aid to municipalities in the form of gasoline tax revenue) accounts for 92.5 per cent of the total amount spent by the state and local governments for highways, roads, and streets (see Table 1). That percentage ranks North Carolina first among the states.[2] Since municipalities spend part of the revenue collected by the state, direct spending by the state accounts for only 83.1 per cent of the total amount spent in the state, but that is the third highest percentage in the nation (after Kentucky and West Virginia). About 29 per cent of state road-related revenue comes from the federal government. Of the total amount of road-related revenue collected within North Carolina by both the state government and local governments, the state government collects 91.3 per cent.

The state government has not always borne such a large share of the responsibility. In 1900, the responsibility for highways and roads rested entirely with counties, municipalities, townships, and road districts, which raised the necessary revenues entirely from local sources. As we shall see, that responsibility was transferred largely to the state in deliberate actions taken in 1921, 1931, and 1951.

In the last few years, however, the pressure to build and improve roads, particularly in fast-growing urban areas, has led to proposals that would allow or require counties and municipalities to play a larger role in financing highways and roads. Several bills were introduced (but not enacted) during the 1985 General Assembly that would have given counties authority to spend county-raised funds for roads, and one municipality has sought

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The author is an Institute faculty member who specializes in state and local government finance.

1. *North Carolina Highway Needs for Growth, Opportunity, and Progress,* The Report of the Transportation Task Force (Raleigh, 1986), p. 7.

2. United States Bureau of the Census, Census of Governments, *Governmentol Finances in 1983-84*, Table 13, and *State Government Finances in 1984*, Table 11.

Table 1
Expenditure and Sources of Revenue for Highways, Roads, and Streets in North Carolina, Fiscal Year 1983-84

	Amount (millions)	Percentage of total
Total state and municipal expenditure:[1]	$ 748.8	100.0%
Total state expenditure from all sources, including federal grants	692.9	92.5
Direct expenditure	622.1	83.1
Aid to municipal governments	70.8	9.5
Total municipal expenditure	126.7[2]	-
Aid from state government	70.8	-
Financed from local sources	55.9	7.5
Primary sources of revenue:		
State sources	823.1	100.0
Federal grants	237.8	28.9
Motor fuel taxes	398.6	48.4
Motor vehicle license taxes	176.7	21.5
Registration and other fees	10.0	1.2
Local sources	126.7	100.0
State aid[3]	70.8	55.9
Local revenue sources	55.9[4]	44.1

Notes:

1. Includes expenditures from federal, state, and local sources.

2. All but $0.5 million (probably for county road signs and other road-related expenses) was spent by municipalities. The figure includes only expenditures made directly by local governments; it does not include expenditures by private developers, who often pave streets in new subdivisions before the streets are accepted by the state or a municipal government.

3. Primarily Powell Bill funds.

4. Actual local revenues were not available. This figure was calculated as total direct local expenditure less state aid. The percentage of street expenditure financed from local revenue sources varies widely among municipalities. Small towns generally meet their street needs with little or no support from the property tax or special assessments, while larger towns and cities rely more heavily on these sources. For example, the state's eight largest cities account for $56.5 million of the total of $126.7 million spent in 1983-84 by municipal governments.

Sources: United States Bureau of the Census, Census of Governments, *State Government Finances in 1984*, *Governmental Finances in 1983-84*, and *City Government Finances in 1983-84*.

authority for a local-option gasoline tax.[3] Several municipalities have begun to use local revenues to speed or augment state highway construction projects. The 1986 report of the Transportation Task Force, appointed in 1985 by the Secretary of the Department of Transpor-

3. H 549 and H 587 jointly would have given counties with populations over 200,000 authority to acquire right-of-way. H 566 would have authorized large counties to use property tax revenue for right-of-way acquisition, and H 548 would have authorized them to borrow money for that purpose. H 1143 would have permitted counties to spend public funds to bring existing dedicated but unaccepted roads up to state highway standards and to construct, pave, and improve roads already on the state secondary road system. None of those bills was reported out of the House Transportation Committee. In 1985 Charlotte sought authority for a local-option gasoline tax.

tation, has recommended legislation that would give counties, in cooperation with cities, authority and responsibility for bearing at least part of the cost of right-of-way acquisition for state highways and thoroughfares from local revenue sources, including several new sources suggested by the Task Force.[4]

In considering these and other proposals for greater financial participation by local governments, it may be useful to review how and why responsibility for highways and roads evolved from an entirely local responsibility to a largely state responsibility. This article also reviews the present system of state and local responsibilities and examines some of the issues raised by those proposals.

The Evolution of Responsibilities for Highways, Roads, and Streets[5]

During the nineteenth century, the counties were responsible for maintaining roads outside municipal boundaries. Under a system inherited from English law, counties were divided into districts, an overseer was appointed for each district, and all able-bodied male citizens were required—subject to a penalty—to work on the roads under the overseer's supervision for a prescribed number of days each year. This ancient "labor tax" method survived in some counties until this century. When townships were formed after the Civil War, many township authorities assumed responsibility for seeing that the roads were maintained. In 1879 Mecklenburg County took the lead in changing the system by levying a special property tax for roads, and in 1885 it began to use chain gangs—prisoners in the county jail—to build and maintain roads. Municipalities, on the other hand, began to abandon the labor tax method as early as 1756, using tax revenues and (beginning in the late nineteenth century) street assessments to finance street construction and maintenance.

In the nineteenth century the state had chartered private companies to build toll roads and bridges and to operate ferries. It had also invested public funds in stock and bonds of companies chartered by the state to improve navigation and to build plank roads and railroads, but at the beginning of this century the state had no significant role in providing roads and highways. Beginning about 1900, several factors led the state, as well as counties, into a more active involvement in road-building. First, the establishment of the federal rural free mail delivery system spurred public interest in having better rural roads. Second, the "Good Roads Movement" became a political force through the efforts of both the North Carolina Good Roads Association, formed in 1902, and local groups. An even stronger inducement to state action was the initiation of federal highway grants in 1916. The greatest factor leading to change, however, was the growing number of automobiles. In 1913, 10,000 automobiles were registered in the state; by 1919 some 109,000 cars were registered.

During the first 20 years of this century, the state's role increased in importance but was limited primarily to assisting counties. A State Highway Commission established in 1901 had no power other than to advise counties, and it existed for only two years. In 1909 the General Assembly appropriated $5,000 to enable the State Geological Survey to provide engineering assistance to counties, and the state began to levy an automobile license fee, paying over 60 per cent of the revenue to the counties. To meet a requirement for federal road grants, a second State Highway Commission was established in 1915 and authorized to appoint a state highway engineer and a staff to assist counties, but it received an appropriation of only $10,000.

When the first federal highway grants were made in 1916, the counties had to supply the matching funds because the state had neither an adequate source of revenue for this purpose nor an organization for building and maintaining roads. State financial aid to counties was limited to sharing revenue from license fees and lending construction funds to counties from road bonds authorized in 1917. A substantial increase in federal appropriations in 1919 forced the state to take a larger role because not all the counties could afford to match the higher level of federal grants. Under a 1919 statute,[6] the counties and the state were to match the federal funds equally; the state was to finance its portion from higher automobile license fees. But though financed partly with state and federal grants, the road system was still a county responsibility.

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4. *Op. cit. supra* note 1, p. 15.

5. For a more complete history of highway development in North Carolina, see Cecil K. Brown, *The State Highway System of North Carolina* (Chapel Hill: The University of North Carolina Press, 1931); Clement H. Donovan, "The Readjustment of State and Local Fiscal Relations in North Carolina, 1929-1938" (doctoral diss., The University of North Carolina, 1940); and Albert Coates, "Historical Background of Roads and Streets in North Carolina," *Popular Government* 17 (September 1950), 3-5.

6. 1919 N.C. Sess. Laws ch. 189.

When North Carolina acted to form a state highway system in 1921, it did so in dramatic fashion. The leaders of the Good Roads Movement had implanted the idea that the state should build a statewide system of roads, financed by a $50 million bond issue, that would link all parts of the state. Popular support for improved roads and the election of Governor Cameron Morrison, who in his campaign had promised "a great system of highways," led the 1921 General Assembly to enact legislation that called for the state to "lay out, take over, establish and construct, and assume control of approximately 5,500 miles of hard-surfaced and other dependable highways running to all county seats and to all principal towns, State parks, and principal State institutions . . . ."[7] The state was to pay for building those parts of the system that passed through towns smaller than 3,000 population, but all municipalities were to remain responsible for maintenance within their borders. Rejecting proposals to leave responsibility for maintenance with the counties or to finance the system partly through a statewide property tax, the General Assembly authorized the issuance of $50 million (an amount unprecedented in those times) in state road bonds. To cover debt service and other costs of the new system, automobile license fees were increased, and a gasoline tax of 1 cent per gallon was enacted.

During the 1920s, the state not only carried out the ambitious plan prescribed in the 1921 legislation, but also augmented it by taking more county roads into the state system. The amount of highway debt grew to $115 million, and the gasoline tax was increased three times in that decade. The state spent an estimated total of $200 million for road construction during the 1920s. This amount was about 20 times the total state budget of 1921. In 1930, expenditures for roads accounted for 57 per cent of the total state operating budget.[8] By 1930, the state system included almost 10,000 miles of roads, and North Carolina had become known as "The Good Roads State."

Meanwhile, the counties were still responsible for maintaining 45,000 miles of county roads, which were administered by about 200 county, district, and township boards. While the state was building a reputation for efficiency in road-building and maintenance, dissatisfaction with local administration and finance increased. Several studies and surveys in the late 1920s showed serious faults with local administration. Many counties, and certainly the districts and townships, were too small to use construction and maintenance equipment effectively.

The most serious problem came from using local property tax revenues to finance road maintenance. Once people began using the improved state road system, they realized that the local property tax was not an appropriate means for financing roads. The state's highly successful gasoline tax, whose burden was clearly related to benefits received from use of the new roads, came to be recognized as an equitable way to finance highways. Furthermore, reliance on local property taxes led to substantial variation in local spending and tax rates—the wealthier counties had higher expenditures and lower rates on a larger tax base, while the poorest counties needed much higher rates to meet even minimum maintenance standards.[9]

When the gasoline tax was raised for the third time in 1929, all the proceeds—plus an additional $500,000—were used to establish a County Road Aid Fund to help counties pay for roads and debt service.[10] But as the property tax and mounting debt service became more burdensome in the late 1920s, particularly after the Depression began in 1929, dissatisfaction increased to the point that the counties asked the state to assume responsibility for county roads, and two commissioned studies recommended that it do so.[11]

The long-standing problems with local administration and finance, combined with the severe fiscal crisis of the Depression, led the state to accept that responsibility, a step that no other state had taken (Delaware, Virginia, and West Virginia followed during the next two decades). The 1931 General Assembly placed full responsibility for maintaining 45,000 miles of county roads with the State Highway Commission and abolished all county, district, and township road boards.[12] (Also in 1931, the State of North Carolina took two other

7. 1921 N.C. Sess. Laws ch. 2, § 2.

8. Donovan, *supra* note 5, Table A-1, pp. 233-34.

9. *County Road and Finance Survey*, Report of the State Tax Commission of North Carolina, 1930, p. 55.

10. 1929 N.C. Sess. Laws ch. 40.

11. One study was undertaken jointly by the State Highway Commission, the State Tax Commission, and the United States Bureau of Public Roads. See "County Road and Finance Survey," *supra* note 9. The second study was by The Brookings Institution, *Report on a Survey of the Organization and Administration of County Government in North Carolina* (Washington, D.C.: The Brookings Institution, 1930).

12. 1931 N.C. Sess. Laws ch. 145.

Intercounty Commuting Patterns in North Carolina, 1980

Source: *North Carolina Highway Needs for Growth, Opportunity and Progress,* Report of the Transportation Task Force (Raleigh, 1986), p. 2.

revolutionary steps: it assumed primary responsiblity for financing the public schools, and it undertook operation of the county prison camps, bringing them into the state penal system.) The additional costs to the state were financed by retaining the gasoline tax revenues that previously had gone to the counties and by increasing the gasoline tax from 5 cents to 6 cents per gallon.

The reorganization of 1931 left counties with no responsibility for roads. But municipalities were still responsible for their streets, including the maintenance of the city streets that were part of the state highway system. Municipal governments soon began to press the state for a share of state highway revenues to support local street maintenance. In 1935 the legislature began to appropriate $500,000 annually in revenues from the gasoline tax and license fees for state maintenance of those municipal streets that formed part of the state highway system.[13] In 1941 the appropriation was doubled, but the funds were allocated for state maintenance in individual towns and cities on the basis of population, share of state highway mileage, and relative need.[14] The appropriation act authorized use of these funds for maintenance of streets that connected to state highways and also began the practice of allowing municipalities to recommend uses within the municipality for the state funds.

In response to the municipalities' continued demands for more state aid, the 1949 General Assembly increased the state appropriation to $2.5 million[15] and established a commission to study the issues involved in financing streets.[16] That Commission, contending that it was unfair for the state to deny city residents a share of the gasoline tax and license fee revenues while using these revenues for rural roads, concluded that streets should be treated the same as roads, and it suggested that rather than allocate state highway funds to municipalities, the 7,000 miles of municipal streets should be taken into the state system, as both Governor W. Kerr Scott and the League of Municipalities had suggested.[17]

13. 1935 N.C. Sess. Laws ch. 213.
14. 1941 N.C. Sess. Laws ch. 217.
15. 1949 N.C. Sess. Laws ch. 1250.
16. James A. Doggett, et al., "Report of the State-Municipal Road Commission," *Popular Government* 17 (December 1950-January 1951), 10-13.
17. John A. McMahon, "Roads and Streets in North Carolina—a Report to the State-Municipal Road Commission," *Popular Government* 17 (September 1950), 14-15.

The 1951 General Assembly rejected this proposal, but it enacted legislation[18] (still referred to as the Powell Bill, for its chief legislative sponsor) that (1) made the state responsible for maintaining all municipal streets that are part of the state system "to the same extent and in the same manner" as for roads and highways, and (2) provided that proceeds of ½ cent per gallon from the gasoline tax should be allocated to municipalities for street construction and maintenance. These revenues (Powell Bill funds) were to be allocated according to each city's population and share of street mileage in the state system. In 1971 the Powell Bill allocation from the gasoline tax was doubled to 1 cent per gallon (with all additional proceeds distributed according to population). In 1981, when the state gasoline tax was increased to 12 cents per gallon, the Powell Bill allocation was raised to 1⅜ cents per gallon (75 per cent allocated according to population, 25 per cent according to share of state system mileage). The municipal share was increased to 1¾ cents in 1986, when the state tax was increased to 14 cents per gallon, and a new 3 per cent tax was levied on the wholesale price of gasoline.

The Street and Highway System Today

The enactment of the Powell Bill in 1951 essentially completed the evolution of North Carolina's system of shared state and local responsibility for highways, roads, and streets. The result is a highly centralized system in which the state is responsible for financing, constructing, and maintaining all highways and roads outside municipal boundaries as well as an extensive system of thoroughfares and connecting streets and roads within municipal boundaries. The state also shares about 11 per cent of total gasoline tax revenues, in the form of Powell Bill funds, to help municipalities construct and maintain other city streets.

As Table 1 shows, in 1983-84 state spending for roads—including aid to municipalities—accounted for 92.5 per cent of the total amount spent on roads in the state (including funds spent from federal, state, and local sources), and funds spent directly by the state accounted for 83.1 per cent of total direct spending on roads and streets by the state and municipalities. Federal grants contributed 28.9 per cent of the total amount of road-related revenues of the state government. Over half of total municipal spending for streets is financed from state aid. Only 7.5 per cent of total road spending is financed from local sources; of this amount, almost half is accounted for by the eight largest cities, which tend to rely more than smaller towns and cities do on local revenue sources, including street assessments. Even in some larger cities, the property tax finances only a minor portion of total spending on streets. The state provides maintenance services directly under contract with many municipalities, especially the smaller ones.

Responsibility for planning streets and roads in municipalities is shared through a cooperative planning process. Each municipality must develop, in cooperation with the Department of Transportation, a comprehensive plan for a coordinated street system.[19] Once the plan is adopted by both the city's governing body and the Department, it serves as the basis for future street and road improvements in and around the municipality. All prospective improvements to be made according to the comprehensive plan are reflected in the Department's annual programs for maintenance or construction.[20]

Although counties are no longer responsible for roads or streets and are not authorized to develop jointly-approved comprehensive plans as municipalities do, the State Board of Transportation is required to consult formally with each board of commissioners and to consider the commissioners' recommendations regarding secondary road construction and paving.[21] Representatives of the Board of Transportation must meet yearly with each board of commissioners to discuss the proposed annual plans, and the county commissioners may make recommendations for changes in either the plan for construction or, after a public hearing, the proposed paving plan. The Board of Transportation must follow those recommendations "insofar as they are compatible with its general plans, standards, criteria, and available funds . . . ." The annual work plan adopted by the Board of Transportation must be followed, unless changes are approved by that Board and notice is given to the board of commissioners. The board of commis-

18. 1951 N.C. Sess. Laws ch. 260.

19. N.C. Gen. Stat. § 136-66.2.
20. *Id.* §§ 136-44.3, -44.4, and -44.7.
21. *Id.* § 136-44.8.

sioners may petition the Board of Transportation for a review of the changes to which the county board does not consent. Funds for improving unpaved roads must be apportioned among the counties according to their share of the total mileage of unpaved roads in the state.[22]

Current Issues

The recent proposals (cited above) to authorize counties to participate in road and street construction and to require counties and cities to bear at least part of the cost for right-of-way acquisition for state roads and thoroughfares raise questions about the role of local governments in financing roads and streets and about the types of revenues that should be used to finance them. Should counties be authorized to use local revenue sources for road and street construction? Should counties and municipalities assume a larger role in acquiring and financing right-of-way for roads that will be part of the state road system? If so, what revenue sources should be used?

These questions have been raised in recent years mainly for two reasons. First, state Highway Fund revenues have not increased very rapidly during the past decade, and therefore road construction has not kept pace with perceived needs. Second, traffic congestion resulting from population growth and development in many urban areas has resulted in demands on local governments to augment efforts of the state to improve urban thoroughfares.

Until 1986, when the General Assembly levied a 3 per cent tax on the wholesale price of gasoline, the state's gasoline tax was based solely on the number of gallons sold at retail. Although the number of automobiles and trucks has continued to increase, increases in gasoline prices during the 1970s have motivated substantial increases in fuel efficiency, and therefore gasoline tax revenue has not grown in proportion to the number of vehicles or to the cost of road construction. While travel miles increased over 3 per cent annually from 1975 to 1985, and average road construction costs increased 91 per cent during that period, Highway Fund revenue increased only 72 per cent, and about two-thirds of that growth occurred as a result of tax and fee increases made after 1981 (in comparison, General Fund revenues increased 170 per cent during the decade with no increases in the rates of the major state taxes).[23]

Traffic congestion that results from urban development is not a new phenomenon. Road construction naturally tends to lag behind development, and road improvements in developing areas do not necessarily reduce congestion because they frequently increase the demand for development near the improved roads. Local officials' failure to limit development, or to control the form of development in commercial areas, also contributes to road congestion. Although the problem of road congestion in developing areas is not new, the reduced rate of growth in highway and road construction that has resulted from the reduced rate of growth of Highway Fund revenue has added to it. The General Assembly responded to these problems in both 1985 and 1986 by allocating additional funds for urban construction projects.[24]

In addressing issues and questions regarding state and local authority and responsibility for highways, roads, and streets, it is important to recognize two principles that have evolved during North Carolina's history of road financing.

The first principle is that the state government should be responsible for constructing, maintaining, and financing the state's primary and secondary road system, including those roads inside municipalities that are part of the state road network. This principle was followed in 1921, when the state began to create the intercity network; in 1931, when the state assumed responsibility for county roads; and in 1951, when the state assumed responsibility for municipal streets that link parts of the state road system. The historical record shows that local governments were not capable of providing a coordinated state road network, and many of them were inefficient in constructing and maintaining roads. Furthermore, reliance on local revenue sources led to disparities in the quality of roads and inequities in taxation among local units because of differences in income and tax base among local units.

The second principle is that roads should be financed from dedicated taxes and fees imposed on users. Following this principle means that roads are paid for

22. *Id.* §§ 136-44.5 and 44.6.

23. *Op. cit. supra* note 1, pp. 5-6.

24. Special appropriations of $17 million and $20 million were made in 1985 and 1986, respectively, for urban construction projects. Increases in motor fuels taxes enacted in 1986 also permitted additional appropriations for primary, secondary, and urban road construction.

by those who benefit from them, either directly by traveling on them or indirectly through the prices of products that are transported on them. Furthermore, because road-user taxes and fees are dedicated to highway and road construction, those who pay the taxes and fees are assured that the revenues will be used to improve the highways and roads.

Dedicating road taxes and fees for road construction and maintenance also provides an important political limitation on road expenditures. Demand for spending on roads will tend to be greater than demand for spending on other types of public services. Residents of a region or community are not likely to exert pressure on the state to spend money in their areas on public school or social services programs, for example, that primarily benefit only their area because money for such programs is usually spent uniformly across the state. But they are likely to press for additional roads or road improvements for their areas. If spending on highways and roads is not limited by revenues from users, the result is likely to be that spending for schools, social services programs, and other public services will be reduced to meet the political demand for road spending. For this reason, the General Assembly has strongly resisted attempts to use General Fund revenue for roads or road-related programs.

In view of these principles, how would we evaluate the proposals that counties and cities assume a larger role in financing highways, roads, and thoroughfares? First, proposals that call for counties and cities to pay part of the cost of roads and thoroughfares (as opposed to streets, which municipalities are responsible for now) are not consistent with the principle that the state road network is a responsibility of the entire state. That urban thoroughfares account for a disproportionate share of the state system's traffic and that residents of urban areas benefit more than others from improvements in their roads are not valid arguments for placing a larger share of the burden on urban residents because the higher volume of traffic in those areas also generates more gasoline tax revenue.

Requiring local units to bear a share of the cost of highways, roads, and thoroughfares that form part of the state road network also would create problems involving the second principle, that roads should be paid for through road-user taxes and fees. Under the current system, municipalities are responsible for maintaining city streets that are not part of the state system, and they receive a share of state gasoline tax revenues for that purpose. To finance other local functions, counties and municipalities rely primarily on the local property tax and the local-option sales taxes (part of the proceeds of the latter must by law be used for schools (in the case of counties) and water and sewer facilities (in the case of municipalities). Thus, under the current revenue system, asking counties and cities to share highway, road, and thoroughfare costs would mean that funds to meet these costs would have to come primarily from the local property and sales taxes as well as from other general revenue sources. As the state's history of road finance demonstrates, relying on local tax revenue leads to disparities in spending and inequities in tax burdens because the level of income and the tax base varies substantially among local units. Furthermore, the political pressure to spend money for roads would be as strong at the local level as it is at the state level, and such pressure might lead to correspondingly reduced local spending for schools and other purposes.

Those objections might be addressed by authorizing local units to levy road-user taxes and fees and by dedicating those revenues for spending on roads. For example, local units could be authorized to levy a local gasoline tax (which would probably be collected by the state). The Transportation Task Force suggested the following alternative local revenue sources: a local-option sales tax on gasoline sales, a local-option sales tax on sales of new and used vehicles, and an increase in Powell Bill funds (in 1986 the General Assembly increased the Powell Bill rate by 27 per cent but did not change municipalities' responsibilities).

One obvious problem with a local fuel tax is that people who commute into counties or cities that levy such a tax could easily avoid paying the tax by purchasing gasoline outside the local unit. Local residents who could not easily avoid paying the tax by purchasing gasoline outside the local unit would then bear more of the cost for providing roads that also benefit residents of other units.

Another, and more basic, consideration has to do with how the revenues from the local taxes would be spent. Such taxes might be appropriate if the proceeds were spent to provide improved roads that benefit users according to the taxes they pay—if, for example, the revenues were collected from commuters and local residents and used to improve the thoroughfares that commuters travel as well as those that benefit primarily the local residents. It is not clear that this would always be the case, however, because the local unit that levies

(continued on page 23)

Equitable Distribution Comes to North Carolina

Dona G. Lewandowski

On August 17, 1947, Bessie and Floyd Leatherman were married. Four years later Floyd bought a bulldozer and began doing custom grading work. Bessie kept the books, answered the telephone, paid the bills, and handled the business end of the work. Neither Bessie nor Floyd drew a salary from the business; instead, income from the business was deposited directly into their joint bank account, and household and business expenses were paid from the account. As time went on, the business grew. By 1963, the company had 28 employees, and Bessie was working in the business office 40 or more hours each week. In 1965, the couple decided to incorporate the business, and Leatherman, Inc. was born. The company had a net worth of about $93,000 by this time, and "for tax purposes" all of the stock was issued to Floyd.

Ten years later, Bessie and Floyd were divorced. Bessie contended that she owned one-half the business and sought a court order to this effect. Her efforts were of no avail, however, because all of the shares of stock were in Floyd's name, and Bessie could not prove that she and Floyd had ever agreed that she would share in the ownership of the business. What about the time and effort and energy she had devoted to the business for almost 25 years? The court said these services were assumed to have been a gift from Bessie to Floyd, since Bessie did not even claim, much less prove, that the couple had ever agreed that she would be paid or otherwise compensated for her work.[1]

The *Leatherman* case was decided by the North Carolina Supreme Court in 1979, and the result was greeted with neither approval nor surprise by lawyers practicing in the area of family law. While it seemed very unfair that Bessie Leatherman should be deprived of the fruit of her labors, the law in North Carolina had long been that property belonged to the person holding title to it. When a husband and wife were divorced, the law endeavored to return to each spouse the property that "belonged" to that spouse, and that determination was based whenever possible on record evidence of ownership. In the case of an automobile or land, for example, the court would examine the title or deed to determine the owner of the property. Ownership of a business was determined by documents such as partnership agreements and stock certificates. Money held in a bank account ordinarily belonged to the person in whose name the account was established.[2] Property without record evidence of ownership ordinarily belonged to the person furnishing the funds to acquire the property. Application of these principles often meant that spouses who contributed labor rather than funds to the acquisition of property found themselves destitute upon divorce.

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1. Leatherman v. Leatherman, 297 N.C. 618, 256 S.E.2d 793 (1979).

2. In the case of a joint account in the names of both spouses, the court would attempt to identify the person furnishing the funds; if the source of funds could not be identified, the funds would belong to both spouses.

A variety of legal theories provided some relief from this harsh doctrine,[3] but these applied only in limited situations. Furthermore, these theories were often grounded on the assumption that husbands and wives deal with each other just as they deal with other people—in an arms-length, businesslike manner. On divorce, if a spouse was unable to show some contract of employment or other formal business arrangement with the other spouse, he would be entitled to take with him only that property to which he held title.[4]

In 1981 the North Carolina General Assembly followed the lead of approximately 40 other states and drastically changed the law governing ownership of property after divorce. It is impossible to overstate the impact of the Equitable Distribution Act[5] on the property laws of North Carolina. Under the Act, title is of virtually no significance in determining which spouse ultimately retains possession of property the couple acquired during the marriage. Instead, a district court judge hears evidence and applies complicated statutory criteria to determine what division of property is "equitable," i.e., what result is fairest to both spouses. This emphasis on a fair division of property is based, as one court put it, on the "idea that marriage is a partnership enterprise to which both spouses make vital contributions and which entitles the homemaker spouse to a share of the property acquired during the relationship."[6] Another court asserted that "The heart of the theory is that both spouses contribute to the economic circumstances of a marriage, whether directly by employment or indirectly by providing homemaker services."[7]

How it works

Before a judge can decide which spouse is entitled to what property, the husband or wife must ask the judge for equitable distribution. A person is entitled to equitable distribution if (1) the couple has not entered into a written and notarized property settlement; (2) the request for equitable distribution is made before a divorce is granted; and (3) a judgment of absolute divorce has been entered.

It is important to be aware that a person waives his right to have the court equitably distribute the marital property if he fails to request equitable distribution before a divorce is granted.[8] Ordinarily, equitable distribution is requested in the complaint for divorce, in the response to the complaint (called an "answer"), or in a motion filed after the divorce action has begun.[9]

In today's world of increased legal fees, many people choose to represent themselves, rather than hire a lawyer, in an action for divorce that they expect to be uncontested, and various books and other references are available to assist them in doing so. Since the Equitable Distribution Act came into effect, however, this is a much more significant (and

3. At common law, persons were sometimes successful in asserting claims against property titled to another by demonstrating that the other person had given them the property. A person could also recover under a "resulting trust" theory if he could show that he furnished the actual purchase price for the property, but title to the property was placed in the name of someone else. A third approach that sometimes worked was a "constructive trust," which arises when a person holding title to property is ordered by a court to give the property to another because it would be unfair under the circumstances to allow the first person to keep the property. To establish a constructive trust, however, there must be a showing of fraud or some other wrongdoing by the person with title. Spouses like Bessie Leatherman could seldom make such a showing. Finally, a person could establish an interest in property if he could show that he and the person with title had contracted or agreed that he would receive the property in exchange for work, money, or other contributions. Traditionally, few spouses entered into such businesslike arrangements with each other. Each of these approaches is discussed in *Leatherman*.

4. It is important to distinguish alimony and child support from division of property following divorce. North Carolina has always recognized a parent's duty to support his children, and courts have long had authority to order a parent to pay child support. Furthermore, a judge may order a spouse to pay alimony if two requirements are met: first, the spouse receiving payments must be a "dependent spouse" under the law, and second, the spouse making payments must have been at fault in bringing the marriage to an end. *See* footnote 23. While judges have had the power for decades to order child support and alimony, a court had no authority before 1981 to divide property between divorcing spouses except on the basis of title. For this reason, the *Leatherman* court had no choice but to find that Bessie Leatherman was not entitled to any part of her husband's business.

5. N.C. GEN. STAT. §§ 50-20, -21 (1984).

6. White v. White, 312 N.C. 770, 775, 324 S.E.2d 829, 832 (1985).

7. Smith v. Smith, 314 N.C. 80, 86, 331 S.E.2d 682, 686 (1985).

8. N.C. GEN. STAT. § 50-11(e) (1984). This rule is subject to two narrow exceptions, involving the situation in which a person may not have known that his spouse had filed for and obtained a divorce and the situation in which the court granting the divorce did not have jurisdiction over one spouse. In these cases, the spouse who did not file the action for divorce has six months from the date of divorce to assert his claim for equitable distribution. See also *id.* § 50-11(f).

9. *Id.* § 50-21(a) (1984) also permits a party to seek equitable distribution in a separate lawsuit.

potentially dangerous) decision because many people are not informed about their right to have the court decide on a fair division of the marital property. Indeed, many people continue to believe that property is divided according to title. If the husband has title to the car or house, for example, the wife may assume he is entitled to that property. If a person who is not informed about his rights decides to represent himself in an action for divorce and fails to request equitable distribution before divorce is granted, he loses forever his right to share in the marital property. Instead, property will be divided as it was before the new law took effect, on the basis of title and pre-divorce ownership.

A valid property settlement (sometimes contained in a document labeled a "separation agreement") is a bar to a party's request for equitable distribution. The law prefers that people settle their affairs by agreement rather than by bringing their disputes to court. Consequently, the court will not interfere with an agreement about the division of marital property as long as the agreement meets certain requirements. Those requirements are: (1) the agreement must be written; (2) it must be signed by both parties; (3) it must be signed before a notary, judge, magistrate, or clerk of court; and (4) the agreement must be a *property* settlement, i.e. it must contain the parties' understanding about how the property accumulated during the marriage will be divided between them.[10] Often, separation agreements contain provisions about child custody, child support, and alimony, but contain no provisions about property. A *separation agreement* that does not include a property settlement will not prevent a court, on request of one of the spouses, from dividing the property.

Divorce is an absolute prerequisite to equitable distribution of property. In one case the parties agreed that they wished to live legally separate but did not wish to divorce, and they asked the court to decide on a fair division of property. The court could not make a legally binding decision, despite the couple's agreement, because the parties were not divorced.[11] North Carolina is a "no-fault" divorce state, and almost all divorces are based on one year's separation. Thus anyone can obtain a divorce in this state if he proves that he has lived in North Carolina for six months and that he and his wife have lived separate and apart continuously for one year.[12] Only after the divorce is actually granted, may the court divide the property.

Assume that the divorcing couple is unable to agree on how to divide their property, and that one or both spouses ask the court for equitable distribution. How does the court decide how to divide the property? After the divorce is granted, the judge will conduct a hearing on equitable distribution. At the hearing, the parties have an opportunity to present testimony and other evidence about the property they own and about its value. The law requires the judge, after he considers all the evidence, to follow a four-step process in making his decision. First, he must identify the property to be distributed, called "marital property" in the Equitable Distribution Act. Next, the judge must determine the value of each item of marital property. Then, the judge must decide what division of property would be most fair; should the property be divided equally between the parties or should one spouse receive more than the other? In deciding what division would be fair, the law requires the judge to take many different factors into consideration, including such things as the health of the parties, the contribution of one party to the career of the other, and the need of the spouse with custody of the children to continue to live in the marital home. Finally, after the judge decides what division is fair, he goes on to decide what specific property each spouse should have. This process is sometimes described in terms of a pie. The judge first determines what property goes into the "marital pie." Next, he determines how large the pie is. Then he decides how to cut the pie: right down the middle, or in some other way. Finally, he decides which party gets which piece of pie.

This four-step process sounds fairly straightforward, and many times it is. Often, however, the

10. If a separation agreement is entered into in another state and it satisfies the requirements of that state's law, it does not have to meet these requirements in order to bar an action for equitable distribution.

11. McKenzie v. McKenzie, 75 N.C. App. 188, 330 S.E.2d 270 (1985).

12. N.C. GEN. STAT. § 50-6 (1984).

court confronts complex and troublesome questions in its quest to make a decision that is fair to both parties.

What goes into the pie?

As we have seen, under the Equitable Distribution Act, the first step in deciding on a fair division of property is identification of the property to be divided. Not all property owned by one or both of the spouses at the time of divorce is eligible for distribution. The only property the court has authority to divide is "marital property."[13] The statute defines marital property as property acquired during the marriage and before separation. Some types of marital property are obvious: furniture and other goods purchased during the marriage, the family car, the family house, the joint savings and checking accounts. Other types of marital property are less obvious. Pension and retirement benefits, for example, are marital property under some conditions. One spouse's dental practice may be marital property, and the value of that property includes the value of goodwill. Insurance policies are another often-overlooked example of marital property.

In deciding what assets constitute marital property, it is important to remember that title is unimportant. Suppose John Doe works as a dentist throughout his marriage to Jane. Each week John deposits his paycheck into his checking account. (Jane and John have a joint account, and each maintains a separate account as well.) After several years, John withdraws the money from his account and buys a bright red sports car. Title to the car is in his name alone. Is the car marital property? Absolutely. The car was acquired during the marriage and before he and Jane separated. Unless the car falls into one of the exceptions set out in the statute, it is marital property.[14]

Possession is also unimportant in determining whether an item of property is marital property. It makes no difference that John drives off in his new sports car when he and Jane separate, and that the car is in his possession when the judge sits down to decide how to divide the property. Even though Jane and John were separated for a year before the divorce, and even though John drove the car as his own throughout that time, the judge has authority to order John to transfer title to and possession of the car to Jane.

Not all property is marital property, however. Property acquired before marriage, inherited property, and gifts are examples of "separate property." The distinction is important because separate property is excluded from equitable distribution. Thus, if the judge finds an item of property is separate property, that item of property will be given to the person who has title to it.

Some types of property present special classification problems. One example is gifts. A gift from one spouse to the other will be marital property unless the gift is accompanied by some clear statement that the giver intends that the gift belong to the other spouse alone. If John gives Jane a diamond necklace for Christmas, the necklace is marital property, and its value will be included in the total amount of marital property. If John encloses a note with the necklace, however, saying that he intends the necklace to be exempt from equitable distribution in the event of divorce (a highly unlikely contingency), the necklace will be separate property, and its value will not be included in the total marital property to be distributed.

A gift from someone other than a spouse receives different treatment under the Act. In this case, the classification depends on whether the property is given only to one spouse or to both, and on the giver's intention at the time she makes

13. In certain limited situations, the court may also award one party the separate property of his spouse. In Wade v. Wade, 72 N.C. App. 372, 325 S.E.2d 260, *disc. rev. denied*, 313 N.C. 612, 330 S.E.2d 616 (1985), the husband owned a parcel of land before marriage. After marriage, he and his wife built a house on the property. The Court of Appeals noted that the land was separate property, the house marital property, and that it was not practical to return the land to the husband, since the house was on it. In this situation, said the Court, the trial judge could distribute house and land to the wife, even though the land was not marital property, and direct the wife to pay the husband compensation for his property.

14. There is one exception to the rule that title is irrelevant to classification of property. This exception applies only to a type of property referred to in the law as "real property": land and buildings constructed on land. When real property is titled in the name of both husband and wife, that title creates a "presumption" that the property is marital property. McLeod v. McLeod, 74 N.C. App. 144, 327 S.E.2d 910, *disc. rev. denied*, 313 N.C. 612, 333 S.E.2d 488 (1985). This is further discussed later in the text.

the gift. If Jane's mother gives a necklace to Jane, for example, the necklace is Jane's separate property. On the other hand, if Jane's mother gives Jane and John an oil painting for Christmas, the painting will be marital property unless Jane can somehow prove to the judge that her mother intended that the painting belong only to Jane.

Suppose that shortly after his marriage to Jane, John graduated from dental school and went into private practice with two of his classmates. When Jane and John divorce, the part of the practice that "belongs" to John is marital property. Even though Jane cannot take possession of John's dental practice, the law recognizes that a profitable business has value, and thus treats it like any other kind of property. Assuming that John's interest in the practice was "acquired" during the marriage and before separation, it will be included in the total marital property.

Certain pension and retirement benefits are also marital property. The law says that "vested" benefits are marital property, while the expectation of "nonvested" benefits is separate property. A retirement or pension benefit is "vested" if the person is entitled to keep the benefit even if he is fired or resigns from his job. A benefit is "nonvested" or contingent, on the other hand, if the benefit will be lost if the person leaves his job.

Vested pension and retirement benefits are classified as marital property because these benefits are regarded as postponed income. The theory is that John would bring home a larger salary (marital property) if he or his employer were not contributing part of his total compensation to a retirement fund. It would not be fair, the reasoning goes, to allow John to shelter part of his salary from equitable distribution simply by postponing receipt of it. Consequently, the amount of retirement benefits that accrue during the marriage and before separation is marital property, as is the anticipated interest or growth on that amount.

In addition to dealing with specific types of property, the Equitable Distribution Act also establishes some general rules for classifying property. First, in a rule called "the exchange provision" the Act provides that property acquired in exchange for separate property is also separate property. The simplest example of this is as follows: John inherits $2,000 from his mother. The money is separate property because of the rule that says inherited property is separate property. When John receives the money, he uses part of it to buy himself a watch. The watch is also separate property because it was obtained in exchange for separate property. This is true even though the watch is obtained during the marriage and before the separation of John and Jane. Only if John gives the watch to Jane and expressly states his intention that the watch lose its character as separate property will the property be treated as marital property.

Another general rule established by the Act is that increases in value of separate property are separate property. If John invests the $2,000 he inherited from his mother in a money market account, and ten years later the amount in the account has grown to $5,000, the $3,000 increase in value is also separate property, even though it was "acquired" during the marriage and before the separation of the parties.[15]

Complicated questions arise when an asset is acquired with funds made up of a combination of separate *and* marital property. Imagine that John and Jane decide to buy some land that costs $10,000. John contributes $5,000 of separate property, and the remainder of the price is taken from John and Jane's checking account, which contains marital funds. Ten years later, when John and Jane separate, the property is worth $50,000, having increased $40,000 in value. How much of this amount should go into the marital property pie? Both the exchange provision and the increase-in-value rule are involved in this determination. Since John contributed $5,000 in separate property to the acquisition of the land, he is entitled to keep $5,000 of its value at the date of separation as separate property under the exchange provision. Furthermore, under

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15. The limits of this general rule have not yet been defined by our appellate courts. One opinion hints, however, that this rule might be subject to exception in the following situation: husband has significant separate property before marriage. After marriage, he places all of his separate property in money market accounts and other passive investments. Husband and wife support themselves during the marriage by income earned by both (i.e., marital property). Because husband is able to live on marital property, he has no need to deplete his separate property, which continues to grow in value throughout the marriage. It is quite possible that, faced with this situation, a court might find the increases in value of husband's separate property to be marital property because the increases were made possible only by depletion of marital property. *See McLeod*, 74 N.C. App. at 149 n.1, 327 S.E.2d, at 914 n. 1.

the increase-in-value rule, since John contributed one-half of the purchase price of the land, he is entitled to one-half of the increase in value, or $20,000. Thus, John keeps $25,000 as separate property, and $25,000 goes into the marital property pie.

Assume that in the above example the land's increase in value occurred because John and Jane built a house on the property. John and Jane did a lot of the work on the house themselves, and the residence was paid for with marital funds. In this case, John is still entitled to the return of his $5,000 under the exchange provision. He is not entitled to one-half the increase in value, however, because the increase is not attributable to his $5,000 contribution. The increase is instead attributable to the work and further contributions of both John and Jane. The courts have referred to this type of increase in value as "active appreciation." An increase in value resulting from inflation and increased prices is not attributable to any efforts or further contributions of the parties, and this type of increase in value is referred to as "passive appreciation." The rule established by the courts is this: when separate property increases in value, the court must determine how much of the increase represents passive appreciation and how much represents active appreciation. The amount of increase that results from active appreciation is marital property. The amount of increase that results from passive appreciation remains separate property.

A special rule applies when a married couple acquires land or a house and has title placed in both their names. In this one limited circumstance, title *is* important, because it establishes a presumption that the property is marital property. Even if one spouse paid for part or all of the property with separate funds or owned the property before marriage, if the title is in both names, the court will usually classify the entire property as marital property. In order to have part of the property classified as separate, the spouse who furnished the property must show by "clear, cogent, and convincing evidence" that he or she did not intend for the other spouse to share in the property.[16] Only in a rare case will a spouse be able to meet this standard of proof.

16. *McLeod*, 74 N.C. App. at 154, 327 S.E.2d, at 917.

How much is the pie worth?

The trial judge has now identified John and Jane's marital property. His list looks like this:[17]

Marital Property	*Separate Property*
Red sports car	*$2,000 inheritance (John's)*
Diamond necklace from John to Jane	
Oil painting from Jane's mother	
Dental practice	
Retirement benefits	
Cash in checking and savings accounts	
Household furnishings	
House and land (title in John's name)	*Return of John's $5,000 investment*

After the judge identifies each item of marital property, his next task is to determine the value of each item. The Equitable Distribution Act provides two rules to assist the court in doing this. First, the Act directs the court to determine *net* value of property. Net value is defined as fair market value less the amount of any encumberances.[18] John's new red sports car may have a fair market value of $15,000. If John still owes the bank $12,000, however, and he used the car as collateral for the loan, the net value of the car is $3,000. If the court ultimately decides to divide the marital property equally between the parties, John and Jane each will receive $1,500 worth of property as a result of the car's inclusion in the marital property pie.

The second valuation rule established by the Equitable Distribution Act applies to the time at which marital property is to be valued. Because the value of property is constantly changing, it is necessary to have some fixed time for setting value. The Act provides that property is valued as of the date the parties separate. For example, assume

17. This list is used for explanatory purposes and is obviously abbreviated. The typical list of marital property contains a more detailed itemization than "household furniture" for example. Clothing and other personal effects are also usually marital property and are another example of typical assets omitted from this list in the interests of brevity and simplicity.

18. Alexander v. Alexander, 68 N.C. App. 548, 550, 315 S.E.2d 772, 775 (1984).

John's red sports car had a fair market value of $15,000 at date of separation, and that he owed $12,000 on the car, with a resultant net value of $3,000. The equitable distribution hearing takes place a year later.[19] By this time the car has a fair market value of $13,500, and John has paid the loan down to $10,000. The net value at time of trial is thus $3,500. In valuing the marital property, the court will list the car as having a net value of $3,000 because the Act requires valuation as of date of separation.[20]

Valuation is sometimes a very complicated and expensive process. When the property to be valued is a professional practice or small business, for example, it is almost always necessary to hire accountants and other experts to appraise the property and testify at the hearing. Furthermore, different experts may reach widely divergent results, depending on the appraisal method each expert uses. In this case, the judge is faced with the very difficult task of deciding which expert's testimony is most credible in reaching his decision about the value of particular property.

How should the pie be cut?

The trial judge in Jane and John's case has finished valuing the marital property, and his list now looks like this:

Marital Property	*Value*
Red sports car	*$3,000*
Necklace from John to Jane	*$10,000*
Oil painting from Jane's mother	*$2,000*
Dental practice	*$75,000*
Retirement benefits (John and Jane)	*$50,000*
Cash in checking and savings	*$15,000*
Household furnishings	*$50,000*
House and land (title in John's name)	*$45,000*
TOTAL MARITAL PROPERTY	*$250,000*

After the judge decides what property goes into the pie and how much the whole pie is worth, he must decide how to cut the pie. The law strongly favors cutting the pie in half. This preference is sometimes referred to as a "presumption" that an equal distribution of the marital property would be equitable, and it is based on the premise that in most marriages both parties contribute an equal amount, albeit in different ways, to the acquisition of property. Consequently, unless one party offers evidence showing that an equal division of property would not be "equitable," or fair, the court will divide the property equally between the parties.

What evidence might persuade the judge that an unequal division is equitable? The Equitable Distribution Act lists twelve specific factors that the court should consider:

1. The income, property, and debts of each party at the time of trial.
2. Either spouse's obligation to pay child support to a child born of a previous marriage or alimony to a former spouse.
3. The duration of the marriage and the age and physical and mental health of the parties.
4. The need of a parent with custody of the children to live in or own the marital home and to use or own the household furnishings.
5. The expectation of nonvested pension or retirement benefits.
6. The contributions of a party not having title to an item of marital property to the acquisition of that property.
7. Contributions or assistance by one spouse to help educate or improve the career potential of the other spouse.
8. A direct contribution by one spouse to an increase in value of separate property owned by the other spouse.
9. The liquidity of marital property.
10. The difficulty in valuing an interest in a business or profession and the economic

19. Because almost all divorces in this state are based on one year's separation and because the court cannot distribute marital assets until divorce is granted, at least one year will have elapsed between separation and the equitable distribution hearing in virtually all cases. Only if divorce is based on the incurable insanity of one spouse does a different valuation date apply. In that case, marital property is valued as of the date the divorce action is filed or as of date of separation, whichever is earlier.

20. Note the profound consequences of fluctuations in value of assets between date of separation and date of distribution. As is discussed later in the text, fluctuation can result in substantial inequity if, for example, one spouse is awarded an asset having an official (as of date of separation) value of $10,000 but a present (as of date of distribution) value of $50,000 or $100!

desirability of retaining such an interest free from claims or interference by the other party.

11. Tax consequences to each party.

12. Acts by one party to protect or to waste or neglect marital property during the period between separation and distribution.

Suppose John and Jane have been married for 15 years. Jane dropped out of college to take a job as a secretary to help put John through dental school. The couple began having children while John was in school, and Jane never went back to get her degree. After John graduated from dental school, he went into private practice with two of his friends. The practice grew, and after ten years John was making approximately $90,000 a year. Jane worked at home during those years, raising the children and maintaining the household. She also worked part-time as a secretary, but the salary she brought home was far less than John's.

Because John and Jane were students with little income when they married, neither of them brought much property to the marriage. Consequently, almost all of their property will be marital property, property acquired during the marriage and before separation. In considering how to divide the property, the court will take note of the following facts: First, John's income at the time of trial is in excess of $90,000, and Jane has only a small income. Neither party was married before, and thus neither has support obligations arising out of a previous marriage. The marriage was of lengthy duration, and both parties are in good health and are in their thirties. They have three children and have agreed that Jane will have custody of the children. Except for the marital home, Jane has nowhere to live at present. John and Jane have vested pension rights, which have been included in the marital property, but neither party has nonvested pension rights. Jane contributed throughout the marriage to the growth of John's dental practice by rendering services as a parent and homemaker and by working as a secretary when the practice was first getting off the ground. Jane contributed to John's education and career potential by supporting the family while John went to dental school. John's interest in his dental practice and both parties' interest in their retirement benefits are nonliquid and difficult to value. Further, it would clearly be economically undesirable to give Jane an ownership interest in the dental practice, since she is not a dentist, and John's partners have not agreed to a partnership with Jane.

After considering these facts, many judges might be concerned that giving Jane only 50 per cent of the marital property would not be fair. Jane's lawyer will argue that Jane has contributed as much to the marriage as John has, even though her contributions have been non-monetary for the most part. Her lawyer will also point out that Jane sacrificed her education so that John could become a dentist, and that John will continue to earn a very high salary, while Jane has little earning power. These considerations may result in Jane's receiving more than 50 per cent of the marital property.

In deciding whether equal is equitable, the trial judge is not limited to the factors set out above. The Equitable Distribution Act also provides that the court may consider "[a]ny other factor which the court finds to be just and proper." This factor, often referred to as the "catch-all factor," has generated more litigation than all the others combined, largely because of disagreement about whether the court should consider the bad conduct of one party in deciding how to divide the marital property. The states are evenly divided in their answers to this question. In North Carolina the question was answered in the case of *Smith v. Smith*.[21]

In *Smith*, the evidence showed that Barbara Smith, one of the parties, had abandoned her husband and two children "without justification," left the children unsupervised on several occasions, and used alcohol excessively. The evidence also indicated that Mrs. Smith did not contribute to the children's support after the separation, and that she seldom visited the children. The only marital asset of any significance was the home owned by the parties. The trial court awarded the home to Mr. Smith. The award was based on a number of considerations, including those outlined above. Since the home was the only asset, this award amounted to a 100 per cent versus 0 per cent split in the husband's favor, as opposed to the usual equal division. Mrs. Smith appealed, and the North Carolina

21. 314 N.C. 80, 331 S.E.2d 682 (1985).

Supreme Court reversed, holding that the trial court improperly considered Mrs. Smith's misconduct in making its decision.[22] The North Carolina rule, announced in *Smith*, is that the court may consider "economic fault"—conduct by one party that relates to the economic condition of the marriage. "Moral fault," however, may not be considered by the court in determining an equitable division of marital property. This rule is consistent with the philosophical basis of equitable distribution: that because both parties contribute to the economic partnership of the marriage, both are entitled to a fair return of that contribution. Only evidence relating to that economic partnership is relevant in determining a fair return.

The *Smith* rule means that such behavior as adultery, domestic violence, abandonment, and alcohol and drug abuse is irrelevant to a determination of an equitable division of marital property. Even if a spouse admits to having engaged in all these behaviors, he or she would still be entitled to 50 per cent of the marital property, nothing else appearing.[23] Economic behaviors are not irrelevant, however. If one spouse transfers marital property to his mistress immediately before separating from his wife, for example, the law says this is economic fault, and this conduct is properly considered by the court in deciding on a fair division of property.

In addition to permitting the court to consider economic fault, the catch-all factor is useful in another situation. When property values change significantly between the date of separation and trial, the results may be very unfair unless the court relies on this factor to support an unequal division of property. Consider the following example. Jane and John own a house and some land when they separate. At the date of separation, the property has a net value of $50,000. After separation but before trial, development near the land causes its value to increase to $100,000. At trial, the court is obliged by law to list the value of the land as of the date of separation—$50,000. If the court divides the marital property equally based on this valuation, the spouse who actually receives possession of the land will get a $75,000 windfall. To prevent this from happening, the court may rely on the catch-all factor in support of the decision to divide the property "unequally" by giving one party the land (theoretically worth $50,000) and the other party $100,000 in marital property.[24]

Which party gets which slice of pie?

Imagine that the judge in *Doe vs. Doe* determines that an equal division of property would be equitable. Jane and John are thus each entitled to receive $125,000 worth of marital property. How does the judge determine the specific property that Jane and John receive? It is interesting that this is often the decision the parties care most about, and yet the statute provides virtually no guidance to the trial judge in making this determination. As one Court of Appeals opinion notes, "Once property has been properly designated marital property and valued, and the court has decided in what proportions its value should be divided, there appears to be no other guide than the discretion and good conscience of the trial judge in determining which party gets which specific property."[25]

The Equitable Distribution Act does contain a few suggestions for the trial court in distributing John and Jane's property. First, two of the factors

22. The North Carolina Supreme Court noted that some of the evidence introduced at trial would support the action of the trial judge. For example, Mr. Smith's need, as custodial parent, to occupy the home is a proper consideration, and the trial court could have properly awarded him the home based on this factor alone. [The presence of even one factor is enough to support a trial judge's decision to divide the property unequally. Andrews v. Andrews, 79 N.C. App. 228, 338 S.E.2d 809 (1986).] The order entered by the judge, however, clearly revealed that he had also taken into consideration Mrs. Smith's misconduct, and thus the appellate court sent the case back to the trial court for determination of an equitable division based solely on proper considerations.

23. While fault is irrelevant to equitable distribution, it is essential to an award of alimony. No spouse is entitled to court-ordered alimony unless a judge or jury first determines that grounds for alimony exist. All of the grounds for alimony, set out in N.C. GEN. STAT. § 50-16.2 (1984), are based on the fault, or misconduct, of the party against whom an alimony claim is asserted. Further, fault by the party seeking alimony will decrease the amount of—or even bar an award of—alimony. N.C. GEN. STAT. §§ 50-16.5, 50-16.6 (1984).

24. It is anomalous that the trial judge in this situation must rule that an equal distribution of the marital property would not be equitable, and must state reasons in justification of his decision, in order to effect a truly equal division of property between the parties as of the time of trial.

25. Andrews v. Andrews, 79 N.C. App. 228, 338 S.E.2d 809 (1986). The *Andrews* court noted two possible exceptions to this statement: (1) the marital home and (2) property of great sentimental value.

discussed above have implications for distribution as well as division of property. The need of the custodial parent to own or occupy the parties' home will often cause the court to award ownership of the home to that party. Similarly, the predictable problems that would arise from awarding one party an interest in the other party's business or professional practice will usually cause the court to award possession of that type of property to the party engaged in the business or professional practice.

Assume that the judge in John and Jane's case decides to distribute the property as follows:

	Jane's		*John's*
House and land	*$45,000*	*Dental practice*	*$75,000*
Retirement benefits	*$10,000*	*Retirement benefits*	*$40,000*
Red sports car	*$3,000*		
Necklace	*$10,000*		
Oil painting	*$2,000*		
Furniture	*$50,000*		
Cash in Bank	*$5,000*	*Cash in Bank*	*$10,000*
Totals	$125,000		$125,000

If the court orders this distribution, one more step is necessary to achieve an equal division of property. Remember that the house and land awarded to Jane has a net value of $50,000. Of this amount, $45,000 is marital property, and $5,000 is John's separate property. It is not practical to award John one-tenth of this property; to divide the property this way would give John a useless piece of property and would decrease the value of both parcels of land. Consequently, the Equitable Distribution Act provides for a "distributive award" in this situation.[26] The distributive award in this case will take the form of a court-ordered cash payment from Jane to John in the amount of $5,000. In return, John will transfer title to the property to Jane, and she will thereafter own the property free from any claim of John's.

Suppose that the judge had concluded that a 60/40 per cent split, with Jane receiving the larger share, would be equitable. In this case, Jane would be entitled to $150,000 worth of marital property, and John's share would be worth $100,000. Even if John is awarded only his dental practice and retirement benefits, however, these assets total $115,000, exceeding the amount to which John is entitled by $15,000. What is the court to do in such a situation? The judge could simply award Jane an interest in John's dental practice, but neither Jane, John, nor John's partners finds this solution acceptable. John's retirement benefits, while marital property, will not be available for actual distribution until John retires some years in the future. In this situation, if the parties agree,[27] the trial court may make a distributive award of $15,000 to Jane. Further, since John does not presently have funds to make a lump sum payment, the court may direct John to make payments over time in a certain amount, to continue until Jane receives the sum to which she is entitled. This payment to Jane rounds out her share of the marital property, allowing John to retain his dental practice and retirement benefits free of claims by Jane.

Conclusion

The Equitable Distribution Act is five years old now. The appellate courts have decided more than 50 cases arising under the Act, and new cases are handed down regularly. To family law practitioners and others interested in the development of the law in this area, it sometimes seems that each new appellate decision raises more questions than it answers, and it is clear that a host of extremely significant issues remain to be resolved. Nevertheless, the law has been in effect long enough to elicit some initial reactions and, perhaps not surprisingly, its effectiveness in achieving a more

26. N.C. GEN. STAT. § 50-20(b)(3) (1984 and Supp. 1985) defines "distributive award" as "payments that are payable either in a lump sum or over a period of time in fixed amounts . . . ." N.C. GEN. STAT. § 50-20(e) (1984) provides for a distributive award in any case in which the court finds that distribution of marital assets would be impractical.

27. The requirement that parties agree to the distributive award in this case results from the special treatment accorded retirement benefits under N.C. GEN. STAT. § 50-20(b)(3) (1984 and Supp. 1985). That portion of the Act provides that a court may *order* retirement benefits to be divided between the parties only at the time benefits are actually received. Both parties must agree before the court can utilize the alternatives of a lump-sum payment or installment payments by one spouse to the other before retirement benefits begin to be received.

equitable system of property division meets with mixed reviews. Many practitioners point out that a court action for equitable distribution is often very expensive, and some cynics have suggested that the Act is in reality a "lawyer's relief bill." There are loopholes in the statute, and opportunities for inequitable manipulation of the law. Application of seemingly straightforward statutory language sometimes results in extremely complicated legal questions. Judges often experience profound difficulty in identifying and valuing certain items of marital property, such as retirement benefits and business interests, particularly when they must also deal with such slippery concepts as passive and active appreciation. In short, the Equitable Distribution Act is not a perfect law.

On the other hand, the Act has substantial strengths. Its emphasis on fairness and commonsense decisionmaking is far more difficult to circumvent and manipulate than the former title system of property. The race to take possession of cash and other property, so common under the old system, is of little avail to parties under the new law. The expense of litigation is of limited significance in the vast majority of cases, which never go to court because parties agree on how their property should be divided. And the availability of distribution under the Act, even though expensive, gives substantial bargaining power to parties who have traditionally had little with which to bargain. Perhaps the greatest strengths of the Act are its recognition of the myriad of ways in which people contribute to the economic growth of their marital partnership and its means of property division that takes into account, however imperfectly, the informal and un-businesslike manner in which married couples typically conduct their property transactions within the context of the marital relationship. Despite its loopholes and difficulty of application, the Act is a great step forward in achieving a fair and reasoned system for dividing and distributing property following divorce. ☙

Financing Highways

(continued from page 12)

such a tax is more likely to be interested in making improvements that chiefly benefit its residents than in improving roads that benefit residents of other areas. There would be an obvious inequity if the proceeds of local-option road taxes levied in part on nonresidents were authorized for use on residential streets because commuters and other travelers to a city mainly use roads and thoroughfares that are part of the state-maintained system (that municipalities receive a share of state gasoline tax revenues to maintain residential streets is based on the rationale that fuel used to travel those streets is subject to the state gasoline tax). ☙

Community Mediation Programs: *A Growing Movement*

Dee Reid

A typical day in an American courtroom should be enough to convince just about anybody that there must be a better way to resolve some of the passionate disputes that clog both criminal and civil dockets nationwide. For example:

—A tenant refuses to pay his overdue rent until the landlord fixes the plumbing; the landlord blames the tenant for stopping up the plumbing in the first place;

—An elderly woman has charged the young man next door with trespassing for parking in her yard; the man says he has a deed that shows the parking space is in fact on his own property; and

—A couple trying to get a divorce have reached an impasse over who should keep the expensive living-room set given to them by the wife's parents as a wedding present.

Thanks to a growing corps of community volunteers, North Carolina is leading a movement to resolve many such conflicts outside of court. "Mediation"—a form of dispute resolution—is seen as an alternative to court, and it is catching on in communities across the nation. There are over 350 alternative dispute-resolution programs in 47 states, ten in North Carolina alone.

The mediation process involves the participation of one or more neutral third parties—trained mediators—who intervene in a conflict with the consent of the disputants for the purpose of helping them arrive at a mutually satisfactory settlement. Moreover, the mediator tries to help disputants air the problems that may have contributed to their conflict. At the same time, the disputants learn new communication skills to help them resolve future conflicts in a more productive manner. Mediation differs from arbitration in that the disputants themselves set the conditions of their settlement, while the mediator acts as a facilitator of the discussion.

North Carolina's growing community mediation movement began a decade ago in Chapel Hill with the formation of The Orange County Dispute Settlement Center. The state's ten centers have offices in the following areas: Asheville, Chapel Hill, Charlotte, Durham, Greensboro, Hendersonville, High Point, Hillsborough, Pittsboro, Raleigh, Tryon, and Winston-Salem. Each of the centers operates as an independent, nonprofit organization with a board of directors composed of local attorneys, volunteer mediators, and other interested individuals who represent a cross-section of the community. Each mediation center also has the support of the local district attorney, district court judges, and bar association.

In 1985 the MediatioNetwork of North Carolina was established to provide information and services to existing dispute-settlement centers and to help start new ones. Since then, the Network has been establishing ethical guidelines and policies for its member organizations and associated mediators to follow. The Network has also been documenting and measuring the growth of mediation in North Carolina.

According to MediatioNetwork's latest figures, local mediation programs handled nearly 4,000 cases in 1985, cases very much like the ones mentioned in the opening paragraph of this article. About 92 per cent of the cases ended in voluntary agreements bet-

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ween the parties—agreements that were reached outside the courtroom and usually without the intervention of attorneys. In most cases the mediation process did not cost the disputants a dime.

North Carolina's community mediation centers operate with small budgets and staffs; the average center has fewer than 1.5 paid employees and runs on a $45,000 annual budget. The centers are funded individually by state, county, and local government; the centers also receive funds from private organizations such as the Z. Smith Reynolds Foundation, the United Way, and local churches. Several centers receive funding directly through the North Carolina Administrative Office of the Courts; others have received seed money through local appropriations from the General Assembly.

The bulk of the work of these centers is done by a cadre of trained volunteers, averaging 28 per center, for a total of more than 400 statewide. In 1985, mediation center volunteers contributed more than 13,000 hours of service.

Community-based mediation centers in North Carolina, as in many other states, use trained volunteers to help citizens resolve all sorts of conflicts, from dog bites to divorce. About 72 per cent of the cases handled by North Carolina's dispute-settlement centers involve criminal misdemeanors, and these cases are referred by the district courts. The other cases come from small claims court, private attorneys, churches, and individuals seeking to resolve their disagreements outside the courts. Recently the state Attorney General's Office agreed to begin referring appropriate business-consumer conflicts to the local dispute-settlement centers.

The procedure used by dispute-settlement centers in North Carolina involves several steps.

Dispute-Settlement Centers
in North Carolina

Chatham County Dispute Settlement Center
P.O. Box 1151
Pittsboro, N.C. 27312
(919) 542-4075

Dispute Settlement Center Neighborhood Justice Center
P.O. Box 436
Winston-Salem, N.C. 27102
(919) 724-2870

Dispute Settlement Center of Durham
P.O. Box 2321
Durham, N.C. 27704
(919) 683-1978

Dispute Settlement Program
623 E. Trade St., #410
Charlotte, N.C. 28202
(704) 336-2424

Guilford County Dispute Settlement Center
1105 E. Wendover Ave.
Greensboro, N.C. 27405
(919) 273-5667
or
214 E. Kivett Drive
High Point, N.C. 27260
(919) 882-1810

Dispute Settlement Center of Henderson
P.O. Box 1465
Hendersonville, N.C. 28739
(704) 697-7055

The Mediation Center
P.O. Box 7171
Asheville, N.C. 28807
(704) 251-6089

Mediation Services of Wake, Inc.
Box 1462
Raleigh, N.C. 27602
(919) 821-1296

Orange County Dispute Settlement Center
P.O. Box 464
Chapel Hill, N.C. 27514
(919) 929-8800
or
732-2359 in Hillsborough, N.C.

Polk County Dispute Settlement Center
P.O. Box 183
Lynn, N.C. 28750
(704) 859-9819

First a trained in-take screener interviews the disputants and reviews the case to determine whether mediation is appropriate. Because mediation is a participatory process, it will not be fruitful if all the parties involved are not willing to try it. Moreover, mediation cannot be effective if one party is afraid of the other; for this reason, dispute-settlement centers in North Carolina do not ordinarily handle cases involving domestic violence, but instead refer disputants to the appropriate local agency.

Once the in-take screener and disputants agree that the case should be mediated, one or more trained volunteer mediators are assigned to meet with the parties at a designated time on "neutral territory," usually at the local dispute-settlement center. Mediation sessions typically last about two hours, but sometimes the disputants will need more than one session before they can work out an agreement.

At the beginning of the session, the mediators explain to the disputants that the mediator's role is simply to listen to both sides and if possible help the parties

Innovative Programs

Uses for mediation seem limitless, judging from the experiences of North Carolina's community dispute settlement centers. For example, a few of the innovative programs now underway across the state include:

Bad checks

Bad checks can mean bad news for merchants, consumers, and the courts. During 1985, in Durham County alone, some 5,000 warrants were issued for worthless checks totaling about $250,000, but trying to prosecute and collect on them cost the courts and sheriff's office about $200,000.

Mike Wendt, Director of The Dispute Settlement Center of Durham, decided there must be a better way; he found it in Columbus, Ohio, where a mediation center helped merchants and admitted bad-check writers reach agreements on payment without having to go to court. Last year, Wendt launched a pilot program to mediate bad-check disputes in Durham.

Under the program, the bad-check writers first receive a notice from the merchant indicating that they have 21 days to make good on the check. The notice is accompanied by a stern letter from the district attorney underscoring the seriousness of the situation. If payment is not made by the deadline, the merchant and check writer are asked to come to a special mediation session to work out an arrangement for payment. If that effort is unfruitful, the case is referred back to the district attorney's office for possible prosecution.

Wendt reports that most of the checks are being paid off when the check writers receive the written notice, without the need for mediators to intervene at all.

Contact Mike Wendt, The Dispute Settlement Center of Durham, P.O. Box 2321, Durham, N.C. 27704; telephone (919) 683-1978.

Mediation in the public schools

Dispute-settlement centers in Asheville and Pittsboro have trained 40 high school students, teachers, counselors, and administrators to mediate student disputes. Each school participant has received 15 to 18 hours of training in the basics of mediation.

The Chatham County center in Pittsboro has also trained another 90 elementary and middle school students to be "conflict managers." Conflict managers have learned how to settle their disagreements at school and at home, without resorting to violence. Each participating student receives 12 hours of training and a special "conflict manager" tee-shirt. Conflict managers take turns monitoring activities in the school yards and hallways; when a disagreement breaks out, the conflict manager on duty helps the disputants to resolve it.

A follow-up survey shows that a majority of teachers affected by the program said that they felt they could give students more responsibility and they had sent fewer students to the office for disciplinary problems than they had before the program.

Contact Alice Phalan, Chatham County Dispute Settlement Center, Box 1151, Pittsboro, N.C. 27312; telephone (919) 542-4075; or Paul Godfrey, The Mediation Center, P.O. Box 7171, Asheville, N.C. 28807; telephone (704) 251-6089.

Victim-Offender Reconciliation

The Guilford County Dispute Settlement Center is working with the local Sentencing Alternatives Center on a unique program called Victim-Offender Reconciliation (VORP). Under this project, eligible nonviolent criminal offenders referred by the court or probation department meet face-to-face with the person affected by their offense. The meeting is held to work out, with the help of a trained volunteer mediator, an understanding of what happened, why it happened, and what can be done about it. If the victim and the offender reach an agreement, the mediator will recommend that the offender be allowed to work out a restitution plan in lieu of a prison term or some other penalty. The entire process is conducted at no cost to the victim or the offender.

VORP Program Director Lee Dix Harrison hopes to get funding to train additional mediators for victim-offender reconciliation work. So far Harrison—a trained mediator and former social worker and court liason—has been handling the cases herself. For more information, contact Lee Dix Harrison at The Guilford County Dispute Settlement Center, 1105 E. Wendover Ave., Greensboro, N.C. 27405; telephone, (919) 273-5667.

work out their own agreement. The mediators emphasize that they are not judges, attorneys, or counselors, but rather local volunteers trained to serve as neutral facilitators.

The disputants are then asked to sign a statement declaring that everything that is said during the session must remain confidential and that they will not involve the mediators or the dispute-settlement center in any future court proceedings. The mediators also agree not to divulge details of the mediation session. These pledges of confidentiality are exchanged for two reasons: to encourage the parties to talk openly and honestly and to discourage them from attempting to call the mediators as witnesses in any litigation involving a future breakdown or misunderstanding about the settlement.

Mediators are, however, bound by law to report to the appropriate authorities if they suspect that a child is abused or neglected or if they have reasonable cause to believe that a disabled adult needs protective services as the result of abuse, neglect, or exploitation. The disputants are told of these reporting requirements before the session begins.

Once the disputants have been informed about the process, the mediation proceeds. Each party is encouraged to explain the nature of the conflict and relate any feelings or incidents that may have contributed to the dispute. During this time, the mediators listen and ask questions designed only to elicit clarifying information and to help the parties understand the possible underlying causes of the problem. The disputants are asked to suggest and discuss potential solutions to the conflict. Throughout, the mediator's role is to help the parties listen to each other's perceptions of the conflict and achieve a mutually satisfactory agreement.

The mediators—even those who may hold degrees in law or psychology—are never supposed to offer legal or psychological counseling, but rather to refer the parties to relevant resources when appropriate. For example, disputants who are working out a complicated property settlement are advised to seek outside legal counsel before signing any agreement.

If an agreement is reached, the mediators help the disputants put it into writing. The disputants are advised that the agreement reached during the mediation session is not necessarily legally binding. If the parties wish to make it a legally-binding document, they are advised to state their intent in the agreement and before signing it, to seek the advice of outside legal counsel to ensure that they fully understand their rights under such a contract.

Usually, once the conditions of the agreement are fulfilled, any related pending criminal or civil charges are dropped.

Statewide, mediators are able to help disputants reach an agreement better than nine times out of ten. But mediators are never supposed to try to persuade the disputants to enter into an agreement that appears grossly unbalanced, unfair, or untenable, just for the sake of resolving the dispute.

When the parties appear unable to reach an acceptable accord, the mediators may decide to end the mediation. Sometimes the parties will go on to court; they may eventually finish working out an agreement on their own or at some future date; or they may just never work out an agreement at all and continue having conflicts.

In most dispute-settlement programs, mediators represent a cross-section of the local community. They include highly educated professionals, blue-collar workers, homeworkers, students, and retirees. One thing they have in common is that they have been trained to understand and carry out the mediation process.

Most volunteer mediators in North Carolina have received a minimum of 18 hours of training and an additional apprenticeship with an experienced mediator. MediatioNetwork of North Carolina recently adopted a resolution requiring new members to have at least 20 hours of training plus an apprenticeship. Training includes an overview of the mediation process, the steps that are included in a mediation session, the development of listening and negotiation skills, participation in mediation role playing, and evaluation.

In the spring of 1986, MediatioNetwork held a week-long seminar in Durham, where two trainers from San Francisco taught 20 mediators how to train new mediators. Some of the participants have already taught mediation skills to new recruits in their communities.

One of the most valuable outcomes of mediation is that, unlike adversarial court proceedings, it addresses and attempts to resolve the root of the problem. Perhaps this is why the concept has the ever-increasing support of judges, magistrates, district attorneys, and private attorneys all across the state. The American Bar Association and the North Carolina Bar Association have endorsed the mediation concept. In fact, many North Carolina mediators were trained by Larry Ray of the American Bar Association's Special Committee on Dispute Resolution.

In a 1975 task force report, the North Carolina Bar Foundation recommended that the state bar association encourage the continued development of community-based dispute-settlement centers.

The report concluded that "there is substantial evidence to suggest that because they are voluntarily constructed by the parties, mediated agreements are more likely to be honored than a court imposed settlement."

The North Carolina Bar Association has taken the task force recommendations to heart and has formed a special dispute-resolution committee, including a subcommittee dealing exclusively with community-based mediation centers. Attorney Frank Laney, former chair of the Bar Association's subcommittee on dispute-settlement centers, was hired last summer to be the full-time coordinator of the Bar Association's ongoing efforts to promote mediation, arbitration, and other alternatives to court.

Court officials in districts that have dispute-settlement centers have learned first-hand of the advantages of mediation. Carl Fox, the District Attorney for Orange and Chatham counties, says "Resolutions that are the result of mediations by the Dispute-Settlement Center are more successful than any other form of resolution, including the courts." GP

New Institute Faculty Member

Stephen Allred received a B.A. degree in political science in 1974 and a Master of Public Administration in 1976 from The University of North Carolina at Chapel Hill. He then worked for eight years with several federal agencies, including the U.S. Office of Personnel Management and the Defense Mapping Agency, in the area of labor relations and personnel management. He was graduated from the Columbus School of Law, Catholic University of America, in 1985, where he served as Associate Editor of the *Catholic University Law Review*.

Before joining the Institute of Government faculty on August 1, 1986, Mr. Allred was an associate with a Washington, D.C. law firm. His field of work at the Institute is labor and employment law. He has a special interest in Title VII issues, government employee grievance procedures, and discharges. He recently published a *Local Government Law Bulletin* on the subject of requiring government employees to be tested for drug use.

Pollution Prevention

Roger Schecter

Every day in North Carolina, industry generates two billion gallons of wastewater, 30 thousand pounds of air emissions, and 19 million pounds of hazardous wastes. As the state's population and economy grow, the environment will be asked to handle even more. In the past, pollution control focused on "end-of-the-pipe" and "out-the-back-door" approaches—creating waste and then trying to figure out what to do with it. Once waste is generated, treatment often simply removes the pollutants to a different place in the environment. Wastewater treatment, for example, removes pollutants from the water but generates sludges that are disposed of in landfills and may subsequently cause groundwater problems.

As added regulations, higher "treatment" expenses, and increased liability costs continue to affect them, industrial leaders have begun critical examinations of end-of-pipe pollution control measures. The value of in-process waste reduction, recovery, and waste segregation has become apparent to those firms taking the opportunity to look at environmental management rather than concentrating solely on pollution control.[1]

A major United States corporation, 3M, developed an innovative approach to environmental management in the late 1970s and learned a startling lesson. The Minnesota-based corporation documented that pollution prevention pays off on the corporate profit and loss statement as well as on the environmental report card. The company's Pollution Prevention Pays program has eliminated over 140,000 tons of air, water, and hazardous pollutants in its United States operations. The startling lesson for 3M was that the company paid itself more than $76 million from the program in the first six years.[2]

Innovative Approach for Government

The prevention of waste rather than the control of pollution already generated is an innovative governmental approach. Traditional regulation of pollution through standards, treatment systems, and negative incentives places the regulators and the regulated in an adversarial relationship. All wastes cannot be prevented, but a hierarchy of management approaches can provide an effective alternative to the "hammer" effect of costly regulations. (See Figure 1.)

North Carolina's response

In North Carolina, considerable discussion was underway in 1980 regarding waste management, particularly management of hazardous wastes. Recommendations of the Governor's Waste Management Task Force resulted in passage of the Waste Management Act of 1981.[3] Intended as a strong policy statement that hazardous wastes should be kept out of landfills, the statute states, "The General Assembly of North Carolina hereby finds and declares that prevention, recycling, detoxifica-

The author heads the Pollution Prevention Pays Program, North Carolina Department of Natural Resources and Community Development.

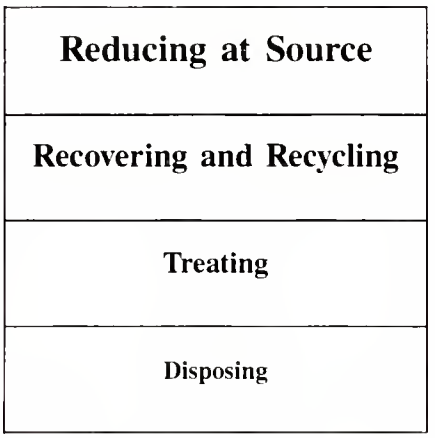
1. *Regional Residuals Environmental Quality Management Modeling*, ed. Blair T. Bower (Washington, D.C.: Resources for the Future, 1977), a report on a 1974 conference in the Netherlands, sponsored by the World Health Organization and Resources for the Future, is one of the earliest accounts of waste reduction.

2. "Low or Non-pollution Technology Through Pollution Protection" (3M Company for the United Nations Environment Program, n.d.).

3. The Task Force was composed of agency, private sector, and university representatives and was the forerunner of the Governor's Waste Management Board established by the 1981 statute.

Figure 1
Hierarchy of Waste-Management Alternatives

Most desirable



Least desirable

tion, and reduction of hazardous wastes should be encouraged and promoted."[4]

The "pollution prevention pays" philosophy for waste reduction involving air, water, and land (multimedia) was formally introduced to North Carolina in 1982 through the statewide symposium, "Making Pollution Prevention Pay: Ecology with Economy as a Policy." Business, government, and university leaders met to discuss the concept, share information, and encourage implementation of pollution-prevention policy.[5]

The Legislature responded by empowering the Legislative Research Commission to study the "desirability and feasibility of creating a Pollution Prevention Pays Research Center in North Carolina."[6] The Hazardous Waste Study Commission of 1983 was appointed to study prevention, reduction, treatment, incineration, and recycling alternatives to landfill disposal and to explore the idea of a research center.

The study commission adopted the "hierarchy of alternatives" in hazardous waste management (presented in Figure 1) and outlined objectives for a multimedia waste reduction program instead of a typical research center devoted solely to hazardous wastes. The committee recognized alteration of manufacturing operations and reduction of the overall generation of wastes as a preferred waste-management strategy. To implement a waste reduction effort, the Commission directed that the proposed pollution prevention program be nonregulatory, yet operate in coordination with regulatory and other agencies to meet its goals. The commission further recommended that the program be established within the Department of Natural Resources and Community Development.[7] The development and implementation of such a waste reduction effort preceded other state initiatives and, as discussed below, any federal activity.

North Carolina is now recognized as the leading state in the nation in implementing a Pollution Prevention Pays program. With the support of state business and environmental leaders, state government has adopted the pollution prevention pays philosophy as a major policy to reduce hazardous wastes and water and air pollution in environmental protection efforts. The goal of the North Carolina program is to find and promote ways to reduce, recycle, and prevent wastes *before* they become pollutants. The program provides technical assistance, research and education, and matching grants. This comprehensive statewide effort addresses toxic materials, water and air quality, solid wastes, and hazardous wastes. Cooperating agencies include the Hazardous Waste Management Branch, the Governor's Waste Management Board, and the North Carolina Board of Science and Technology. (See Figure 2.)

Federal response

At the federal level, waste reduction was identified by the U.S. Environmental Protection Agency (EPA) as "priority" for hazardous and nonhazardous wastes as early as 1976.[8] A policy statement declaring waste reduc-

4. N.C. GEN. STAT. § 143B-216.10

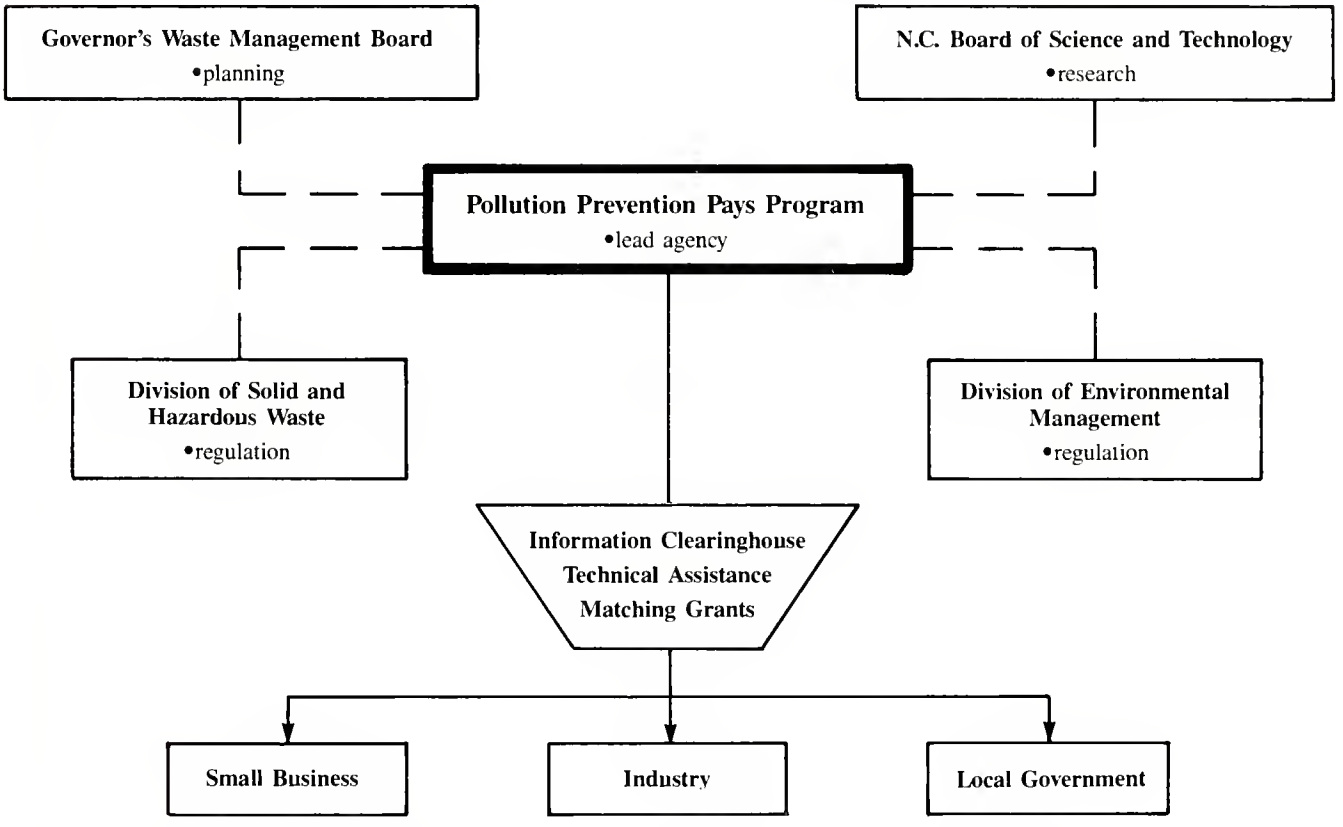
5. The two-day symposium was sponsored by the North Carolina Board of Science and Technology. The *Proceedings*, ed. Don Huising and Vicki Bailey (Pergamon Press, 1982), is a frequently cited reference on the subject.

6. Resolution 54 of the 1983 Sessions Laws; Senate Resolution 653.

7. The Commission's report was submitted to the Legislature, which subsequently appropriated funds to establish the lead agency and funds to support research and education through the N.C. Board of Science and Technology

8. 41 FED. REG. 35050 (August 18, 1976). This was issued as a position statement of EPA during the transition between the Solid Waste Disposal Act and its replacement statute, Resource Conservation and Recovery Act (passed in October 1976). The statement clearly outlined the waste manage-

Figure 2
Waste Reduction Organization: The Pollution Prevention Pays Program and Cooperating Agencies



tion's primacy was subsequently included in the Resource Conservation and Recovery Act. The concept of reduction had not appeared in any earlier major environmental statutes such as the Solid Waste Disposal Act, the Clean Water Act, the Clean Air Act, or the Toxic Substances Control Act. The EPA, however, continued to focus on treatment and disposal of single-media wastes until recently.[9] The Hazardous and Solid Waste Amendments of 1984 initiated new policy and regulatory responses for waste reduction, stating that: "Congress declares it to be the national policy of the United States that, wherever feasible, the generation of hazardous waste is to be reduced or eliminated as expeditiously as possible."[10]

Regulations as a result of the 1984 Amendments now require a certification on Waste Manifest Forms for off-site shipments of hazardous wastes. The waste generator must certify that he has minimized the waste amounts of toxicity. In addition to manifest certification, a generator must submit a biennial report, describing efforts to minimize waste generation. Finally, per-

ment options, "in order of priority" as: reduction, separation and concentration, exchange, energy recovery, incineration, treatment, and disposal.

9. In 1980 EPA did attempt a "consolidated permit program," but it was primarily a consolidated application package of individual permit documents. In the last two years, EPA has done considerable work on multimedia risk management.

10. 1984 Amendments to § 1003(b), Resource Conservation and Recovery Act.

mit holders for treatment, storage, and disposal facilities must certify annually that they have in place a minimization program that reduces the volume and toxicity of hazardous wastes.[11]

EPA and the Congressional Office of Technology Assessment have prepared "Reports to Congress" on waste minimization and reduction. While the reports differ somewhat on definitions and federal level recommendations, each stresses the need for strong multimedia reduction programs at the state level and highlights the North Carolina approach as the example.[12]

Waste Reduction Benefits to Industry and Government

Many North Carolina firms have used the pollution prevention pays concept as a successful alternative to the pollution treatment and disposal approach. These firms have used such techniques as volume reduction, production-process modifications, recovery, and reuse to reduce costs for manufacturing, management, disposal, and raw materials (see Table I). Case studies prepared by the Pollution Prevention Program of more than 55 industries across the state have documented savings of almost $14,000,000 each year from reducing pollution. These savings are in sharp contrast to the high annual costs of treatment and disposal. Economic incentives have direct effects on industries as well as on local government. (See Table 2.)

Local governments also generate wastes. Many of today's toxic cleanup sites were once local landfills, and every community that operates a refuse collection service, landfill, or wastewater treatment plant is handling some quantities of hazardous wastes. Local governments also use hazardous chemicals in their own operations and generate the chemicals as wastes (i.e., motor vehicle oils and grease, paint and solvent residues, pesticides and chemicals, school lab wastes, and others).

Publicly owned wastewater treatment plants are prime examples of where simple waste reduction tech-

Table 1
Sample Techniques of Waste Reduction

Inventory Management

—Inventory and trace all input or process chemicals
—Audit amount purchased versus amount used
—Purchase fewer toxic and more nontoxic chemicals
—Review new products for hazardous waste generation

Modification of Production Process

—Change process material to nonhazardous inputs
—Modify production line processes
—Improve efficiency of equipment operation
—Set up regular preventive maintenance
—Specify good housekeeping and material-handling procedures
—Implement employee training and feedback
—Carry out an environmental or a waste audit

Volume Reduction

—Separate hazardous and nonhazardous wastes
—Segregate wastes by type for recovery or reuse
—Apply physical or chemical treatment
—Concentrate or compact waste

Recovery and Reuse

—Directly reuse within the production process
—Recover and recycle on-site
—Recover and recycle off-site for resale
—Exchange wastes

11. 40 C.F.R. §§ 262.41(a)(6), 262.41(a)(7), and 264.73(b)(9), respectively.

12. When this article was written in September, the EPA and OTA reports were in final draft and scheduled for release to Congress in October 1986. Other reports scheduled for release at that time from the Environmental Defense Fund and Natural Resource Defense Council also cite the North Carolina program as exemplary.

Table 2
Economic Incentives for Waste Reduction

—Reduced on-site waste treatment costs: capital and operational
—Reduced transportation and disposal costs for wastes shipped off-site
—Reduced compliance costs for permits, monitoring, and enforcement
—Lower risk for spills, accidents, and emergencies
—Lower long-term environmental liability and insurance costs
—Reduced production costs through better management and efficiency
—Income derived through sale or reuse of waste
—Reduced effluent costs and assessments for local wastewater plants

niques such as those listed above may result in significant and low-cost results. More than 1,100 industries and numerous small businesses discharge wastewater to about 130 municipal plants that have pretreatment programs. Many plants are at capacity or have compliance problems. The traditional solution would be to build larger treatment plants. Such an alternative is very costly, particularly when state and federal funding is at its lowest point in 15 years.

An alternative is to look at prevention and reduction of wastes from each of the industrial and business contributors. Reductions at the source could result in increased capacity, or reduced toxicity, in the municipal plant at a cost considerably lower than the amount necessary for an upgraded or expanded treatment plant. This new-found capacity could provide for connection of new industry or take care of the increased water-treatment demands of residential growth. For example, Mount Airy conducted a toxic substances reduction evaluation and identified sources and types of toxic discharges. As a result, local industries are developing substitute process chemicals, which are nontoxic. In New Bern, Maola Dairy reduced its use of processing water and recovered organic waste in-plant, reducing the organic load discharged to the city's wastewater plant by 70 per cent. New Bern benefits, and at the same time, the company saves more than $300,000 annually.[13]

All levels of government can benefit from applying pollution-prevention and waste-reduction techniques. Those techniques can reduce the load on such local services as drinking water supplies, wastewater treatment, and solid waste collection and disposal. Additionally, local governments benefit from reduced liability and environmental compliance costs. Reduction in the quantity and strength of wastewater discharged by local industry to a publicly owned treatment facility, for example, can reduce the plant's operating costs, increase its treatment capacity, and improve the local government's treatment capability. Increased industrial growth without additional capital investment could be a result. Furthermore, the problems and costs of meeting effluent discharge limits will be reduced.

The North Carolina Program

The North Carolina Pollution Prevention Pays Program focuses on three major services: (1) technical assistance, (2) research and education, and (3) financial assistance. These services are discussed in order below.

Technical assistance

Information clearinghouse. A growing information data base in the Pollution Prevention Program's library provides quick access to literature sources, contacts, and case studies on waste reduction techniques for specific industries or waste streams. More than 1,500 references on waste reduction methods have been identified and organized by industrial category. Information is also available through customized computer searches of literature data bases.

The clearinghouse also has access to a network of universities, trade associations, industries, research labs, and government agencies that can provide additional

13. These and subsequent examples of waste-reduction efforts are documented in two publications of the Pollution Prevention Pays Program: *Accomplishments of North Carolina Industries* and *Profits of Pollution Prevention*.

technical, economic, or regulatory information. This network includes contacts in state, federal, and international technical assistance and research organizations.

Waste reduction reports published through the Pollution Prevention Program are also available from the clearinghouse. These reports are prepared in-house, under contract, as final reports for research projects, or as handbooks from workshops.[14]

The program staff responds to a monthly average of 75 telephone calls and letter requests for general information and assistance. Staff members have prepared detailed information packages for over 60 industries and communities. These information packages include summaries of reduction techniques, references, case studies, contacts, and computer literature searches. Information packages have also included specific information on textiles, food processing, metal finishing, microelectronics, industrial laundry, furniture, and municipal wastewater treatment and pretreatment.

On-site technical assistance. Comprehensive technical assistance is provided directly through staff visits to facilities. During an on-site visit, program staff collect detailed process and waste stream information and consult with plant personnel on current management practices.[15] The collected information is analyzed, and a series of waste reduction options for each waste stream are identified. A short report outlining the management options and including a preliminary assessment of reduction potential and economics is prepared for the facility. The report package includes such supporting documentation as literature, contacts, case studies, and vendor information.

On-site technical assistance has been provided to 12 firms, ranging from radiator repair to biotechnology during the past year. On-site visits have addressed such problems as waste oils, metal-contaminated wastewater, oily wastewater, high organic wastes, acids/bases, metallic sludges and solvents.

Outreach. The staff of the Pollution Prevention Pays Program give presentations on pollution prevention to trade associations, professional organizations, citizen groups, universities, and industrial workshops. Depending on the audience, these programs range from an overview of the state's Pollution Prevention Pays Program to in-depth discussions of specific technologies for specific industries. These presentations provide background information on the concept of pollution prevention, how pollution prevention can be applied, and how to get assistance in implementing pollution prevention techniques.

Research and education

A great deal of pollution prevention research and education takes place in North Carolina. Projects are funded through the North Carolina Board of Science and Technology, with staff provided from the Pollution Prevention Pays Program. Grants are made available to sponsoring universities and institutions for projects that address the application of pollution prevention techniques to reduce the generation of hazardous wastes, the discharge of water and air pollutants, and the use of toxic chemicals.[16] The program supports research and education projects that address the following objectives:

—Targeting waste streams and industries specific to North Carolina.
—Documenting economic and technical feasibility of waste reduction techniques.
—Reducing the volumes of the state's major hazardous, toxic, water, air waste streams.
—Developing innovative approaches to environmental management.

Research projects range from in-plant demonstration projects to applied research on new technologies. Some of the recent projects include application of pollution prevention techniques in such industries as wood preserving, chemicals, electroplating, textiles, food processing, and fiberglass molding. Projects have also addressed North Carolina case studies, toxic reduction in wastewater effluents, and environmental auditing.

Education. Educational programs have been developed for businesses, communities, and citizens. Program staff members have participated in workshops throughout the state on pollution prevention techniques

14. An annotated list of program publications and an extensive bibliography are available on request. Contact the N.C. Department of Natural Resources and Community Development, Pollution Prevention Pays Program, P.O. Box 27687, Raleigh, NC 27611. Telephone 919/733-7015.

15. Often, during on-site visits, problems in addition to the one for which assistance was originally requested are identified. Specifying a full range of reduction techniques for water, air, and hazardous waste from "hands on" experience is much more effective than mailing an information package in response to a telephone call.

16. An annual average of 14 research and education projects have been supported since 1983. A list of projects, final reports, and working manuals is available from the program.

for specific industries and waste streams. These educational efforts include on-site demonstrations and workshops on waste minimization for solvents, waste oil, hospital and clinical laboratories, food processing, tire recycling, and furniture manufacturing. Two projects are aimed at increasing educational opportunities in pollution prevention at the college level: (1) a pollution prevention curriculum that can be used in engineering and industrial technology programs has been developed; (2) an engineering-intern project is underway to place graduate level engineering students with industries to help develop waste reduction programs and techniques for individual firms.

Financial assistance

Challenge grants. To help businesses and communities develop and implement waste reduction programs, financial assistance is available through challenge grants from the Pollution Prevention Pays Program. The grants provide matching funds (up to $5,000 of a $10,000 project) for the cost of personnel, materials, or consultants needed to undertake pollution prevention projects. Projects eligible for grant funds range from characterizing waste streams in order to identify pollution reduction techniques to conducting in-plant and pilot-scale studies of reduction technologies. Since 1984, 30 projects have been funded, representing more than $412,000 in pollution prevention and waste reduction efforts. These projects addressed wastes from such areas as textiles, food processing, hospital labs, paper manufacturing, waste oil, treatment of drinking water, electroplating, waste solvents, seafood processing, and municipal solid waste management.[17] Grant proposals are reviewed on the bases of several criteria:

- —Commitment and ability of applicant to implement pollution prevention recommendations.
- —Severity of pollution/waste problems or uniqueness of opportunity to prevent or reduce waste.
- —Specificity of approach to reduce waste volumes or toxicity through process modification, waste stream segregation, equipment redesign, recovery for reuse, etc.
- —Potential of implemented recommendations to be economically beneficial to the applicant through payback or cost savings.
- —Potential of transfer to other similar waste streams, businesses, or communities.

Referral. The program staff help identify sources of potential financial assistance and refer firms to the appropriate state or federal agencies. Agencies such as the North Carolina Department of Commerce and the Small Business Administration can help firms obtain financial assistance through industrial revenue bonds or loans. The North Carolina Technological Development Authority provides funds for development of new or improved products, processes, or services.

North Carolina tax statutes provide benefits for purchasing and installing equipment, and for constructing facilities for recycling, resource recovery, and waste reduction. Laws allow firms to deduct the cost of equipment and facilities from their state taxes and exclude the equipment and facilities from property taxes.[18] In order to qualify for this special tax treatment, a firm must obtain certification from the North Carolina Department of Human Resources, Solid and Hazardous Waste Management Branch.

Research support. As discussed above, funding is available to investigate, develop, and apply waste reduction techniques through research and education grants. Research topics generated by trade associations and industries are considered for funding through the university system. Several of the previously mentioned research projects are being conducted with the participation of specific industries or trade groups.

Pollution Prevention Techniques

The techniques used to implement a pollution prevention program fall into four general categories: (1) inventory management, (2) modifications to the production process, (3) reduction in the volume of waste

17. Descriptions of completed projects are available in the program publication *Pollution Prevention Challenge Grants: Project Summaries.*

18. Corporate franchise tax deductions [G.S. 105-122(b)]; rapid amortization [G.S. 105-130.10, G.S. 105-130.5(b)(6), and G.S. 105-147(13)]; property tax exclusion [G.S. 105-275(8)].

generated, and (4) recovery and reuse of material and energy contained in the waste.[19]

Inventory management

Proper control over the materials used in a manufacturing process or a local government activity is important in reducing waste generation. Reducing both the quantity of hazardous materials used in the process and the amount of excess raw materials in stock can reduce the quantity of waste generated. Effective review and control procedures for material purchasing can help accomplish a reduction in the overall quantity of hazardous materials in the premises. The City of Raleigh has an environmental auditing program that is based on a chemical inventory and recordkeeping system designed to track hazardous materials and to ensure their proper storage and use.

Review procedures should require that all material be approved before purchase. The approval process involves evaluating the hazardous constituent content of production materials and determining whether alternative, nonhazardous materials are available. The Material Safety Data Sheets that are provided by the chemical supplier contain information necessary to determine the existence of nonhazardous substitutes. Any material that has been approved can be ordered, while new material must first go through the approval process. Consolidated Diesel in Whitakers has initiated such a program and significantly reduced hazardous wastes as well as worker exposure to hazardous chemicals.

Review procedures should also be applied during new product development. Before a new product is produced, the materials and processes used to make it should be evaluated. The use of hazardous materials should be reduced as much as possible before production. Additionally, the proposed production process should be evaluated for waste reduction potential.

Production process modifications

Three general approaches for reducing the production of waste through process modifications are effective: changes in the process input materials, physical modifications to the process, and improvements in operation and maintenance procedures.

Process changes. Eliminating the use of hazardous materials in production or in the production process can eliminate the source of the hazardous waste. One good example of product reformulation is the replacement of organic solvent-based paints, inks, and adhesives with water-based products. This replacement eliminates the generation of waste containing organic solvents during both the manufacturing and use of these products. As an example, Kemp Furniture Industries in Goldsboro reduced the quantity of its solvent waste by using water-based inks in the manufacturing process. The Hamilton Beach Division of Scovill, a manufacturer of small appliances in Clinton, saves more than $12,000 a year by using water-based detergents in place of solvents for degreasing.

Physical modifications. Physical modifications in production processes can also reduce waste generation rates. New, more efficient equipment that generates less waste can be installed, or existing equipment can be modified to take advantage of new production techniques. For instance, Emerson Electric Company, a manufacturer of power tools in Murphy, installed a more efficient painting process and reduced its annual waste disposal costs by 97 per cent and its raw material costs by $600,000.

Operation and maintenance. Improvements in operation and maintenance of the production process can also reduce waste. Strict operation and maintenance procedures can significantly reduce the quantity of material released from the production process by leaks, spills, overflows, process dumps, and rejected products. Additionally, effective operation of the production process can efficiently utilize input materials. These simple procedures will reduce the quantity of raw feed and process materials that can become waste products.

Volume reduction

Volume reduction includes techniques to separate hazardous waste from nonhazardous waste. These techniques fall into two general areas: source segregation and physical volume reduction.

Source segregation. A simple, low-cost technique for waste reduction is source segregation. By segregating the hazardous waste from the nonhazardous waste, the total volume of hazardous waste generated is reduced. Additionally, reusable, recoverable wastes can be segregated from the other process wastes. The Daly-

19. Gary Hunt and Roger Schecter present additional, more specific discussion and examples in "Minimization of Hazardous Waste Generation," in *Standard Handbook for Hazardous Waste Treatment and Technology* (New York: McGraw-Hill, 1987).

Herring Company of Kinston has reduced its annual raw material and waste disposal costs by $11,000 through segregating and reusing waste material in its pesticide production process. Desoto of Greensboro has reduced the quantity of waste cleanup solvents it generates by 98 per cent through segregating by type and color and reusing the solvents in producing printing inks.

Volume reduction. Techniques such as filtration and compaction can also be used for physical reduction of the volume of waste generated. Filters can remove the water from wet process wastes, significantly reducing the volume of waste to be disposed of. Separating the waste fraction from the water phase allows the water to be reused in the process or discharged with little or no further treatment. The concentrated waste fraction can be recycled or treated and disposed of. IBM in Research Triangle Park has used physical volume reduction to lower its transportation and disposal costs by $120,000 a year.

Recovery and reuse

Many methods are available for recovery and reuse of wastes or other residuals from production processes. These methods fall into three general categories: in-plant recovery and reuse, off-site recovery, and waste exchanges.

In-plant recovery. Often the best place to recycle process wastes is within the production process itself. Wastes that are just contaminated versions of the process inputs are excellent candidates for in-process recovery and recycling. For example, Acme-United Corporation, a manufacturer of medical instruments in Fremont, has reduced its annual waste disposal and raw material costs by $40,000 by recovering and reusing metal lost during its electroplating process. The Boling Company, an office furniture manufacturer in Mount Olive, was able to recover the cost of its solvent recovery unit in only one year through reduced new solvent purchases and lower waste disposal costs.

Off-site recovery. Wastes can be recovered at an off-site facility when the equipment is not available to recover them on-site or when not enough waste is generated to make an in-plant system cost effective. For example, waste solvents and oils are commonly recovered off-site. Other good candidates for off-site recovery include materials that cannot be directly reused by the recovery facility but can be used by other industries. For example, the IBM facility in Charlotte saved more than $500,000 in raw material costs in 1984 by sending its waste solvent generated during the production of printed circuit boards to an off-site recovery facility.

Waste exchange. In many cases waste materials can be transferred from one facility to another for use as process input materials. This sort of waste exchange can benefit both companies, reducing waste disposal costs for one and reducing raw material costs for the other. Industrial and Agricultural Chemicals in Red Springs has lowered operational costs by substituting waste materials from other firms for virgin raw materials used to produce fertilizer additives. In North Carolina, the Southeast Waste Exchange publishes "Waste Watcher," which lists materials that are available and those that are wanted.

Activities in Other States

The National Roundtable for State Waste Reduction Programs was initiated in April 1985 to bring together states with programs and those interested in starting programs. The first meeting was in Raleigh, and the North Carolina program has continued to sponsor the meetings semiannually. The Roundtable has increased from 25 people from five states to 70 people from 24 states.[20]

In addition to North Carolina, six states have active programs with a budget, staff, and agency location (see Table 3). Programs vary from research to a full range of activities and assistance. All but the North Carolina program focus exclusively on hazardous wastes. Most have been established since 1984, and all are primarily funded through the specific state's general fund. On the average, waste reduction programs provide technical assistance with a staff of five on an annual budget of $600,000. Several states coordinate assistance in waste reduction with organized waste exchanges and Governor's Award programs for industrial recognition.[20]

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20. EPA has funded preparation of *Proceedings of the State Waste Reduction Workshops* for the last three meetings in Washington, D.C. (October 1985, April 1986, and November 1986).

21. In 1983, the North Carolina Governor's Waste Management Board was the first to establish a Governor's Award for Excellence in Waste Management.

Table 3
Summary of State Waste Reduction Programs

State	Funding	Source	Staff	Program Elements	Agency(s)	Comments
California	$1,400,000	Waste end tax General Fund	5	Research & development Technology demonstration	Dept. of Health Services Alternative Technology Section	Established FY85 Contract studies and demonstrations
Georgia	250,000	General Fund EPA	5	Compliance assistance On-site evaluation	Environmental Protection Division and Georgia Tech	EPA funded 1983 Modeled after OSHA Consultation approach
Illinois	1,600,000	General Fund Disposal fees	15	Research & education	Hazardous Waste Research & Information Center	Staffed in 1985 Research by Center staff
Minnesota	230,000	General Fund[1]	2	Technical assistance Education	MN Tech. Assist. Program (Univ. of Minn.) and Governor's Waste Management Board	Started in 1984 Matching grants Governor's Awards through GWMB
New York	494,000	General Fund	4	Technical assistance On-site consultation Waste Exchange	Environmental Facilities Corp. Industrial Materials Recycling Project	State recently proposed a research & development center for hazardous waste
North Carolina	600,000	General Fund EPA[2]	2	Information clearinghouse Technical assistance On-site consultation Matching grants Research & education	Pollution Prevention Pays Program (lead) Board of Science and Technology, Hazardous Waste Branch	Started in 1983 Multi-media reduction Governor's Awards through GWMB SE Waste Exchange
Pennsylvania	200,000	General Fund[3]	2	Technical assistance	Pennsylvania Technical Assistance Program, University of Penn.	Part of larger Industrial Extension Program

1. Funded through Minnesota's Governor's Waste Management Board.
2. Three-year Cooperative Agreement of $100,000 each year through 1987.
3. Funded through the Pennsylvania Department of Commerce.

At least five states are currently developing and staffing waste reduction programs, focusing on technical assistance and hazardous wastes. These include Connecticut, Kentucky, Massachusetts, New Jersey, and Tennessee. Tennessee initiated a Governor's Award for Pollution Prevention in 1986 and will be providing technical assistance through the University of Tennessee's Center for Industrial Services. Massachusetts is developing a coordinated program involving the state's regulatory and environmental management departments.[22]

22. For more information on existing and proposed programs, see Roger Schecter, "Summary of State Waste Reduction Efforts," in *Proceedings of the Woods Hole Waste Reduction Conference*, Tufts University, Medford, Massachusetts (June, 1986).

Conclusion

North Carolina's waste reduction program is an innovative and successful example of how government can work positively toward economic development and environmental quality. An effective alternative to negative incentives of regulations and costly treatment options has been documented through pollution prevention approaches. Strong support from industries, governmental representatives, citizens groups, and the General Assembly has been instrumental in making the program effective and in ensuring that the efforts will continue to be successful. Such leadership has been recognized by other states and federal agencies and is resulting in similar programs across the nation. GP

Ground Water Quality Law *in North Carolina*

Milton S. Heath, Jr.

If the 1970s were the decade of "clean rivers," the 1980s may go down in history as the decade of safeguarding ground water. In the public arena, protection of ground water against toxic contamination heads many agendas—from the highest federal policy levels down to the grass roots of local government.

Federal initiatives now are pointing toward stronger programs to protect ground water quality, but these federal measures are not written on a blank slate. Rather, they address a subject traditionally dominated by state law and regulations. This article addresses the question: What is the law of North Carolina concerning ground water quality? Section I includes some basic definitions and the common law background. Section II covers the statutes and regulations on the subject.

Neither North Carolina nor most other states has a truly comprehensive or systematic law of ground water quality—no system of coherent legal principles or of comprehensive administration exists. But the main elements of this body of law and administration can be catalogued along the following lines:

—Traditional common law theories of ground water rights or tort liability (i.e., nuisance, negligence, trespass, and strict liability) may give legal remedies to some persons whose wells have been contaminated. Still, in today's climate of litigation, some plaintiffs may be more likely to win such lawsuits on the basis of statutory remedies set forth in the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation and Liability Act (Superfund), or state statutes than under common law theories.

—The most nearly comprehensive approach to ground water administration is the North Carolina ground water classification system. The state ground water classification system adapts the concepts of the traditional surface water classification system to ground water conditions, and it serves as a checkpoint for other environmental program decisions (such as landfill siting) that may affect ground water quality.

—Federal and state hazardous and solid waste laws and radiation protection laws are designed, among other purposes, to protect ground water quality.

—The Oil Spill Control Act authorizes state government to respond to spills of oil and hazardous substances that affect surface or ground waters, and it creates parallel private rights of action.

—Protection of drinking water quality (both ground and surface water) is the basic objective of the federal Safe Drinking Water Act and of counterpart state statutes in North Carolina and other states. This program is administered by the state's public health agency.

—Some aspects of the state's water use laws and well-drilling laws address water quality problems. These include authority in the North Carolina Capacity Use Areas Law to declare a moratorium that can be applied in areas af-

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fected by a "generalized condition of water pollution," in the well-injection restrictions of the same statute, in parts of the North Carolina Well Construction Standards Act, and in public health regulations.

—Mining laws and regulations provide some protection to ground water, as do septic tank regulations.

—Recent federal initiatives concerning ground water contamination from underground storage tanks, surface impoundments, landfills, pesticides, and nitrates will result in further protection to ground water pursuant to federal and state regulations. In North Carolina, general statutory authority has been granted for the state to adopt regulations and standards on underground storage tanks and to study further these and other sources of ground water contamination.

The remainder of this article examines in more detail several of the better-developed aspects of ground water quality law and administration in North Carolina.

I. Common Law Decisions

Ground water rights

In 1958 Wells Hutchins penned a classic summary of the case law concerning ground water rights. It still serves as an excellent resume of the subject:

> Throughout the history of ground water law, a legal distinction between waters of definite underground streams and percolating waters has run through various texts, statutes, and court decisions. According to this distinction, a definite underground stream has the characteristics of a watercourse on the surface—definite channel with bed and banks, definite stream of water, and definite source or sources of supply whereas percolating waters comprise all ground waters that do not conform to the classification of a definite stream. . . .
>
> The definite underground stream, being a counterpart of a surface watercourse, is governed by the same legal doctrines that pertain to the latter. . . . Therefore, in states that recognize the riparian doctrine of rights in surface streams, lands that overlie or are contiguous to definite underground streams have riparian rights in their waters.
>
> The presumption is that ground waters are percolating. Hence one who asserts that a definite underground stream exists has the burden of proving it. . . .
>
> Percolating waters "belong" to the owners of overlying lands in some jurisdictions, but are subject to appropriation in others.
>
> Of these doctrines of ground water rights that are inherent in overlying landownership, the English rule of absolute ownership—
>
> sometimes termed the common law doctrine—is the earliest in American jurisprudence. In some jurisdictions it still persists. Some courts, however, have imposed qualifications upon the exercise of rights incident to absolute ownership, to the extent that the water be used without malice, negligence, or unnecessary waste.
>
> Unfavorable experience with the English rule in some localities led to adoption by some courts of the American rule of reasonable use. This rule recognized the landowner's right to capture and use the water that exists in his land, but limits him to such quantity of water as is necessary for some useful purpose *in connection with the land from which the water is extracted* . . . . [Italics added.][1]

North Carolina was one of the first eastern states to adopt the American rule of reasonable use with regard to percolating ground waters.[2] In 1924, in *Rouse v. City of Kinston*,[3] the North Carolina Supreme Court sustained an $8,000 damage award in favor of an irrigator against a city that acquired land adjacent to a successful irrigated farming operation, sank artesian wells, drew water from a common aquifer to supply the city some miles

1. Hutchins, *Ground Water Legislation*, 30 ROCKY MOUNTAIN L. REV. 416, 416-18 (June 1958)

2. The ensuing discussion of North Carolina cases is adapted from M. HEATH & H. COFFIELD, CASES AND MATERIALS ON GROUND WATER LAW 7-9, 11-13 (Institute of Government, 1970).

3. 188 N.C. 1, 123 S.E. 482 (1924).

away, and dried up plaintiff's wells or reduced them to a trickle. The Court rejected the defendant's argument that the absolute-ownership rule should be applied, adopting instead the American rule of reasonable use. The Court further concluded that (a) the rule of reasonable use precludes removal of the water under one's land for use in a distant area; and (b) a reasonable use of the percolating ground water meant, first, a reasonable use of the overlying land and, incidental thereto, reasonable use of the water.

In a more recent case, *Bayer v. Nello Teer Company*,[4] the Court considered the application of the reasonable-use rule to mining and quarrying operations. In order to remove water from the floor of its rock quarry, the defendant pumped substantial amounts of water from percolating ground water common both to his land and the plaintiff's adjoining land, causing the plaintiff's well to turn brackish. Plaintiff sought and obtained damages from the trial court. The Supreme Court reversed on appeal, holding that mining is a reasonable use of the land. The evidence showed that defendant took no more water than was reasonably necessary to the operation of the quarry. The Court emphasized, as in *Rouse*, that the standard requires reasonable use of the *land*, not necessarily reasonable use of the water, and that the defendant's mining operations were conducted in accordance with the accepted good standards of the mining industry.

The important point to note about the so-called "reasonable use" rule of ground water rights as applied in these two North Carolina cases is that—unlike the reasonable-use version of riparian rights—it focuses not on the use of the water but on the use of the overlying land. Under this rule some very unreasonable uses of the water (from neighboring water users' point of view) may be legally permissible as long as the land is put to reasonable use according to the standards of the business or activity involved.

The *Rouse* and *Nello Teer* cases both dealt with diversion of percolating ground water. The North Carolina Supreme Court has dealt with underground streams in only two cases, and conclusively in neither. In *Masten v. Texas Company*,[5] the Court held that a property owner who allowed his underground gasoline storage tank to leak into an underground stream and thereby pollute his neighbor's well was liable in damages. It accepted that there was such an underground stream (calling it a "vein of water") but did not indicate what level of proof would be required to overcome the presumption that an underground body of water is percolating until it is proved otherwise.

In Jones v. Home Building & Loan Association,[6] the Court articulated the level of proof required for overcoming the presumption of percolating waters. It held that the location of the stream must be "known or ascertainable by men of ordinary powers and attainments from surface indications or other means without excavations for that purpose or without having recourse to 'abstruse speculations' of scientific persons."[7] The Court also indicated that once the presence of an underground stream is established, the riparian law applicable to surface streams will govern the rights and liabilities of the parties. The standard advanced by the Court clearly does not admit expert testimony. Equally clearly, it is a difficult standard to meet.

Implications for water quality

What are the implications for water quality in these common law precedents? The cases point up a fundamental weakness in the legal position of landowners with contaminated wells. The landowners would be in an advantageous position if they could rely on the theory that their wells are being contaminated by an underground stream that the defendant polluted, but the cases indicate that this theory will rarely if ever be available. Thus, plaintiffs usually must rely on their rights to percolating ground water—an unhappy position, since few plaintiffs can expect to prevail under the "reasonable use" doctrine as expanded in *Bayer v. Nello Teer Co.*

Another possible avenue of redress might be through one of the common law civil remedies—of nuisance, trespass, negligence, or strict liability—but

4. 256 N.C. 509, 124 S.E.2d 552 (1962).

5. 194 N.C. 540, 40 S.E. 89 (1927).

6. 252 N.C. 626, 114 S.E.2d 638 (1960).

7. *Id.* at 639, 114 S.E. at 647.

these traditional tort law doctrines present further obstacles. To win a *nuisance* action, the plaintiff must—among other things—meet the heavy burdens of proving that the defendant's activities substantially and unreasonably interfered with the use of his land, and often he must also persuade the court that the balance of conveniences favors protecting his (plaintiff's) interests at the defendant's expense. Few plaintiffs can carry these burdens. *Trespass* is an unlikely ground of recovery; even in the unusual case where a court might accept trespass to ground water as a viable legal theory, the courts have a way of treating the plaintiff as if he had brought a nuisance action—i.e., back to square one.[8] Plaintiffs who elect to rely on a *negligence* theory in disputes over property rights often are unable to prove that the defendant caused the injury or failed to meet an applicable standard of care, two essential elements of a negligence suit,[9] and few courts have accepted a *strict-liability* theory in cases like these.

Nevertheless, reported cases in neighboring states do offer potential plaintiffs some glimmer of hope. The South Carolina Supreme Court, in *Moore v. Chesterfield County*,[10] essentially found that the county had been so negligent in persistently contaminating the plaintiff's wells as to be liable for a "taking" of the plaintiff's property. A Virginia case, *Panther Coal Company v. Looney* (1946),[11] indicated that a mining company that polluted a stream might be held liable for well contamination caused by the polluted stream.

Although no North Carolina case has been found that applies the strict liability rule of *Rylands v. Fletcher*[12] to a case of ground water pollution, an early decision from Florida, *Pensacola Gas Company v. Pebbly* (1899),[13] affirmed a judgment for a landowner whose wells were polluted by the refuse from a neighboring gas works. The opinion in this case spoke of a "duty to confine the refuse . . . so that it could not . . . injure their neighbors." A later court quoted this language approvingly to justify a decision that explicitly adopted the rule of *Rylands v. Fletcher* and applied it to sustain a damages award for a fish kill that resulted from a dam break at a settling pond for phosphate slimes.[14]

Recent cases interpreting the remedial sections of the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act (Superfund) open up possible new avenues of relief for landowners whose wells are contaminated by hazardous wastes and toxic chemicals. Similar provisions in state statutes may offer additional opportunities for relief in state courts.

The RCRA provisions mainly contemplate a variety of EPA enforcement actions to implement the Act.[15] The Superfund also has provisions with a governmental-enforcement focus aimed at cleanup of abandoned hazardous dumps and recovery of the government's costs from responsible parties.[16] In addition, Superfund contemplates private cost recovery: a number of lower federal courts have held that Superfund legislation creates a private right of action for recovery of "response costs" incurred by private-sector plaintiffs.[17] That legislation also authorizes recovery of damages for injuries to natural resources. Potential defendants in suits under Superfund include present and former property owners, waste generators, transporters, and persons who arranged for disposal and treatment.[18]

The North Carolina Oil and Hazardous Spill Control Act may afford similar relief in some circumstances to private parties. In addition to its machinery for governmental spill control, cleanup, and cost-recovery actions, it includes the following section:

> **§ 143-215.93. Liability for damage caused.** Any person having control over oil or

8. *See, e.g.*, Renken v. Harvey Aluminum Co., 226 F. Supp. 177 (D. Ore. 1963).

9. Broughton v. Standard Oil Co. of N.J., 201 N.C. 282, 159 S.E. 321 (1931); *see* Byrd, *Actual Causation in North Carolina Tort Law*, 50 N.C.L. Rev. 261, 278 (1972).

10. 268 S.C. 460, 234 S.E.2d 864 (1977).

11. 184 Va. 758, 40 S.E.2d 298 (1946).

12. 3 H. & C. 774, 159 Eng. Rep. 737 (1865), *rev'd* L.R. 1 Ex. 265 (1866), *aff'd.* L.R. 3 H.L. 330 (1868) (leading English case imposing strict liability).

13. 25 Fla. 381, 5 So. 593 (1899).

14. *See* Cities Service Co. v. State of Florida, 312 So.2d 799 (Fla. Dist. Ct. App. 1975).

15. *See* 42 U.S.C. § 6901 *et seq.* (1982 & Supp. III), especially §§ 6928, 6972-6973.

16. *See id.* §§ 9606-9607, 9609.

17. *See* Walter & Muys, *Private Cost Recovery and Contributions Actions Under CERCLA*, ALI-ABA Video Law Review Study Materials: New Directions in Superfund and RCRA 157-87 (American Law Institute, 1985).

18. *See* 42 U.S.C. § 9607(a) (1982); Walter & Muys, *supra* note 17.

other hazardous substances which enters the waters of the State in violation of this Part shall be strictly liable, without regard to fault, for damages to persons or property, public or private, caused by such entry, subject to the exceptions enumerated in G.S. 143-215.83(b).

Elsewhere this statute [in G.S. 143-215.77(18)] defines "waters" as including underground water. The need to identify a person "having control over" a hazardous substance may be a problem for plaintiffs relying on this statute, although the joint-and-several-liability clause of the statute might help some plaintiffs over this hurdle.[19]

II. Statutes and Regulations

Ground water classification[20]

North Carolina's Environmental Management Commission's ground water rules classify all of the ground waters in the state and set either numerical or narrative standards for each classification.[21] These rules are adapted from the state's long-standing classification system for surface water. All ground waters in North Carolina are classified in one of the following categories:

GA—All ground water in the state containing *less than 250 ppm chlorides* (500 ppm TDS) and lying *deeper than 20 feet* below ground.

GSA—All ground water in the state containing *more than 250 ppm* chlorides and lying *deeper than 20 feet* below ground.

GB—All ground water in the state containing *less than 250 ppm* chlorides and lying *above 20 feet* below ground.

GSB—All ground water in the state containing *more than 250 ppm* chlorides and lying *above 20 feet* below ground.

GC—Ground waters of poor quality that are specially designated by the Commission.

To date, no ground waters have been designated GC.

The Director of the Division of Environmental Management may also classify an area of ground water as RS (restricted) when it has become polluted and is to be cleaned up, where naturally occurring water quality does not meet the standards, or when a variance has been issued. If an RS designation is based on man-induced contamination and the polluter is known, a cleanup order must be issued within 12 months. To date, no ground waters have been classified as RS.

Numerical standards for GA and GSA ground waters are identical to the drinking water standards and narrative standards for GB and GSB waters. (The narrative standards provide that no increase in the naturally occurring concentration of any toxic or deleterious materials is allowed without permission from the Director, on the basis of specified findings.) For GC waters, the standards are the quality levels of the constituents at the time of designation.

Before they are issued, new permits issued by the Department of Natural Resources and Community Development (NRCD)—National Pollutant Discharge Elimination System (NPDES) permits, nondischarge permits, and mining permits—and solid waste disposal and hazardous waste management permits issued by the Department of Human Resources (DHR) are all screened against the classifications by the Ground Water Section of the Division of Environmental Management. Environmental Management then recommends ground water protection and monitoring requirements to the permit-issuing agency. The DHR permits are reviewed pursuant to the provisions of an interagency memorandum of agreement between the secretaries of the two departments.

The classification system has been implemented through the permitting process already in place. No special permits were established to implement this program. The ground water standards are designed to be enforced in the same way as other NRCD and Commission rules and regulations—through civil or criminal penalties, injunctions, or a compliance procedure known as a "special order."

A violation of the standards will invoke the penalty provisions. A violation does not legally oc-

19. N.C. GEN. STAT. § 143-215.94 (1983).

20. This discussion of ground water classification is adapted from an unpublished 1985 report to the University of North Carolina Water Resources Research Institute by Dean Moss, "Analysis of State Rules and Regulations Dealing with North Carolina's Ground Water," pp. 12-17. On state programs in the southeast region generally, *see* A. D. Park, *Groundwater in the Coastal Plains Region: A Status Report and Handbook* (Coastal Plains Regional Commission, 1979).

21. See 15 N.C. ADMIN. CODE subch. 2L (1983).

cur until the pollution reaches the "perimeter of compliance," which is an imaginary vertical plane extending downward from the surface of the ground. The location of this perimeter varies, depending on whether the facility existed when the rules were adopted or is new. For existing facilities, the perimeter is located 500 feet from the point of discharge; for new facilities, either 250 feet from the point of discharge or 50 feet within the adjoining property boundary, whichever is less.[22]

If pollution occurs underneath the facility but short of the perimeter of compliance, the penalty provisions are not automatically invoked. Instead, either the polluter applies for a compliance schedule to clean up the mess or the Director will designate the ground water as restricted (RS) and impose a compliance schedule within one year. The compliance schedule is a device that will allow for cleanup on a more or less voluntary basis without the need for a major enforcement action. While the compliance schedule apparently is set up pursuant to the special-orders provision of the statute, the rules suggest that it is more of a negotiated instrument than a direct order, and no provision is made for a hearing. No polluter has ever been placed on a compliance order, and no formal enforcement of ground water standards has yet been carried out.

Readers familiar with the history of water pollution control programs will recognize a flexibility here that is more like the state surface water quality systems of the pre-EPA era than like existing environmental protection systems. One can only speculate how long this style will persist.

Hazardous waste management

The federal Resource Conservation and Recovery Act (RCRA) establishes regulatory requirements for hazardous waste management. EPA has delegated the responsibility for enforcing these responsibilities to North Carolina and other qualifying states.[23] RCRA contemplates a "cradle-to-grave" system of monitoring hazardous wastes from the time they are generated through ultimate disposal, relying on a manifest that will follow the materials and be filed with regulatory agencies. The key legal components of this cradle-to-grave system are identification and listing of hazardous wastes; specification of standards applicable to generators and transporters of hazardous waste and to owners and operators of hazardous waste treatment, storage, and disposal facilities; and permits for treatment, storage, or disposal of hazardous waste.

What implications do hazardous waste management laws have for protection of ground water quality? Dean Moss, in a recent analysis of the North Carolina hazardous waste rules[24] and program, illustrates these implications. (See the excerpt from Moss's report on page 46.)

Control of spills of oil and hazardous substances

The Oil Spill Control Act[25] authorizes state government, with the Environmental Management Division acting as lead agency, to respond to spills that affect or threaten surface or ground waters. Modeled after similar federal legislation, the Spill Control Act enables state agencies and local agencies designated by the state to rely on North Carolina legislation when they take part in containment and cleanup activities. The key features of the Act are these:

(1) Originally limited to oil spills, the Act was expanded in 1978 to cover spills of those hazardous substances that are listed by EPA regulations under the federal Clean Water Act § 311—a list of 300 or more chemicals in varying quantities.[26]

(2) A wide range of remedies is available to enforce the Act. These include recovery of the state or local government's cost of containment and cleanup from spillors; civil and criminal penalties for violations; and authority for injured parties to sue spillors for damages caused by the entry of oil or hazardous substances into ground or surface waters.[27]

22. 42 U.S.C. §§ 6921 *et seq.* (1982 & Supp. III).
23. *Id.*
24. N.C. GEN. STAT. §§ 130A-294 *et seq.* (1985 Cum. Supp.); 10 N.C. ADMIN. CODE subch. 10F (1984).
25. N.C. GEN. STAT. § 143-215.75 *et seq.* (1983).
26. *Id.* §§ 143-215.77(5a), -215.77A.
27. *Id.* §§ 143-215.90 to -215.94.

(3) Spillors who had control of the substance when a violation occurred are strictly liable for all of these penalties, subject only to the defense of force majeure or intervening third-party acts. Spillors are also jointly and severally liable.[28]

(4) The Act applies to discharges directly to waters, or to land close enough to waters that the discharge is reasonably likely to reach the waters. It also applies to *all* intentional discharges on land, whether or not close to waters.[29]

(5) In literal terms, the Act can be applied to protect ground waters as well as surface waters, since it defines "waters" to include both. In actual practice, enforcement agencies have found it awkward to enforce the Act against ground water contamination. The cases that have arisen so far have involved more than one potential culprit, and the agencies have found it difficult to meet the Act's requirement that the person or persons be identified who had control of the substance when either notice or discharge requirements were violated.[30] A possible solution may be the Act's provision that makes spillors jointly and severally liable.[31]

Regulation of drinking water[32]

In 1974 Congress enacted the Safe Drinking Water Act (SDWA),[33] which established national standards to protect the quality of drinking water supplied by public water supply systems. The Act directed EPA to develop primary regulations for protecting drinking water in order to protect public health, and secondary regulations in order to protect public welfare (with respect to such matters as odor and appearance). Since EPA has no power to enforce the secondary regulations, the federal program has focused on the primary regulations.

The national primary drinking water regulations apply to "public water systems"—those that have at least 15 service connections or regularly serve at least 25 individuals for at least 60 days in the year. A system is exempt if it sells no water, has no collection and treatment facilities, is supplied entirely by a public system, and is not an interstate carrier. Public systems are either "community systems" or "non-community systems." The former are more heavily regulated than the latter—for example, by more frequent sampling and monitoring. (A "community system" serves at least 15 connections that are used by year-round residents or regularly serves at least 25 year-round residents. All other public systems are "non-community" systems.)[34]

The primary regulations control the quality of drinking water mainly through "maximum contaminant levels" (MCLs) established by EPA for certain radiological elements, for ten inorganic chemicals and six organic chemicals (four chlorinated hydrocarbon insecticides and two chlorophenoxy herbicides), for turbidity, and for microbiological contamination. MCLs have also been recommended for eight volatile organic compounds (VOCs), and monitoring has been recommended for 51 other VOCs. The EPA is also to specify alternative treatment techniques for contaminants that may adversely affect health but whose safe levels are not measurable.[35] The agency has developed advisory guidelines to the states for MCLs on 12 other elements.

Congress amended the SDWA in 1986 by substantially codifying the recommended program described above. Under the 1986 amendments, EPA is required to set binding standards within three years for 83 drinking water contaminants. These include volatile organic chemicals, synthetic organic chemicals, inorganics, microbials, radionuclides, and disinfection byproducts. More contaminants are to be added to the list at least every three years.[36]

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28. *Id.* §§ 143-215.83, -215.94.

29. *Id.* § 143-215.77(4).

30. *Id.* §§ 143-215.77(18), -215.83, -215.85, -215.93.

31. The information in this paragraph is based on conversations with Thomas Hilliard, North Carolina Department of Natural Resources and Community Development, in August 1986.

32. For a detailed analysis of this subject, see W. E. Cox & K. S. Patrizi, *Institutional Framework for Rural Water Supply in North Carolina, South Carolina, and Virginia*, 73-88, Virginia Water Resources Research Center Bulletin No. 142, Blacksburg, Va., (1984).

33. 42 U.S.C. §§ 300f *et seq.* (1982 & Supp. III 1985).

34. *Id.* § 300f; 40 C.F.R. § 141.1(e)(ii) (1985).

35. 42 U.S.C. § 300g-1; 40 C.F.R. § 141.1 *et seq.*; *see* Cox & Patrizi, *supra* note 32, at 131.

36. Pub. L. No. 99-339 § 101(b), 100 Stat. 642 *et seq.* (June 19, 1986). *See* H. Conf. Rep. No. 99-575, 99th Cong., 1st Sess. (1986).

An Analysis of the North Carolina Rules*

Dean Moss

The North Carolina hazardous waste rules are simply a recodification of the Federal rules governing the same subject. They are complex and comprehensive and since procedures and techniques for the protection of the ground waters are found throughout the rules, it is difficult to abstract all the sections which specifically impact the State's ground water program. Additionally, since these are Federal rules in State clothing, there is no particular effort made to fit the program to the existing State ground water management program.

The rules do, however, contain two specific sections which address the requirements for ground water monitoring and pollution control; one deals with the interim standards and one deals with final standards. The interim standards were established to deal with facilities which were legally handling hazardous wastes but which had not yet been issued a permit. In general, all surface impoundments, landfills, and land treatment facilities handling hazardous waste had to establish a ground water monitoring program, monitor quarterly for specific constituents, and after one year analyze and report their results. If contamination was discovered, a program to define it had to be prepared. If no pollution was found the monitoring went on as before. In some cases, sites where contamination was found were set up to be addressed by the "superfund" program.

For facilities which received permits, the required monitoring program is established by the permit. The rules provide for the Secretary (of the Department of Human Resources) to specify a detection monitoring program for all surface impoundments, waste piles, landfills, or land treatment facilities. However, where these facilities are designed and constructed according to standards specified later in the rules, the monitoring program may be omitted. The rules require that the monitoring programs adequately define the background conditions and that ample samples be collected to define statistically what is occurring in the ground water.

The main focal point in the rules is on the so-called "point of compliance." This point is directly below the down gradient edge of the waste site. If any concentration of any of the constituents specified in the permit is discovered at this point, the facility must develop a compliance monitoring program. If the permit standards or the water quality standards are exceeded, a corrective action program must be initiated. The application for the permit must include a significant amount of data on the geohydrology and the ground water quality. There is no requirement for data on ground water use or classification. A comparison with the State ground water standards program is appropriate here.

The state program establishes the "perimeter of compliance" at some distance (250-500 ft.) from the source, whereas the Federal program kicks in almost directly under the source. The State program requires an increase to 50% of the standard before action is taken, whereas any concentration above background will activate the Federal response. The Federal and the State programs both use drinking water standards as a basis and both provide a provision for variances to accommodate special conditions.

The hazardous waste rules contain standards and procedural requirements for the development and approval of compliance monitoring programs and corrective action programs while acknowledging that site specific conditions will govern the details of any proposal. In another section the hazardous waste rules provide for monitoring of the unsaturated zone under land treatment facilities.

While adopting the Federal rules in-toto, the State has also specified certain additional setbacks to protect ground water. The facilities

*This material is excerpted from Dean Moss's 1985 report, "Analysis of State Rules and Regulations Dealing with North Carolina's Ground Water," made to the University of North Carolina Water Resources Research Institute.

must be at least 10 ft. above the high water table and at least 1,000 feet from any down gradient water supply well.

Permits for new hazardous waste facilities are issued by DHR but are sent to DNRCD for review and comment under the provisions of a memorandum of agreement between the two agencies. This memorandum states that DNRCD will review the permit application and will specifically recommend issuance, denial, or issuance with conditions. DNRCD must be specific as to its reasons for any recommendation. DHR will not issue a permit over DNRCD's objections and alternately will incorporate any DNRCD proposed conditions in the permit. If a variance from the ground water standards is required, that variance must be obtained by the applicant prior to getting the permit. The agencies also agree to share monitoring data and other information and to notify each other in the event of enforcement or the occurrence of ground water quality problems from solid or hazardous waste facilities.

The SDWA allows states to assume primary enforcement responsibility ("primacy") for the drinking water program if EPA finds that the state regulations are no less stringent than the federal ones. EPA has made that finding for North Carolina, and the state has assumed primacy. The North Carolina Drinking Water Act itself embodies legislation quite similar to the federal Act.[37] The Division of Health Services of the North Carolina Department of Human Resources administers this statute.

Under the 1986 amendments, a new federal ground water protection program will be created. States must develop plans, subject to EPA approval, to protect well fields for sources of public drinking water. The new legislation directs the states to develop programs to protect wellhead areas for public water supplies and to submit their proposed programs for review and approval or disapproval by EPA.[38] The Act defines a "wellhead protection area" as "the surface and subsurface area surrounding a water well or wellfield, supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or wellfield."[39] States are to determine the extent of these areas in their proposed programs under technical guidance documents to be developed by EPA.[40]

The 1986 amendments also contain procedures that look toward streamlining federal enforcement of SDWA,[41] a mandate for EPA within three years to promulgate rules that will require disinfection for all public water utilities;[42] and a prohibition on the use of lead pipe, solder, or flux when public water systems or plumbing systems that provide water for human consumption are installed.[43]

Part C of the SDWA prohibits underground injection of wastes by wells without a permit, and EPA has adopted detailed implementing regulations.[44] States with EPA-approved underground injections programs may be made responsible for administering these permits, and North Carolina has been given this authority.[45] By statute, North Carolina prohibits the discharge of wastes into deep wells.[46] (See the description of the North Carolina regulations on page 43.)

Water use statutes

The General Assembly passed the North Carolina Capacity Use Areas Act in 1967 in response to ground water problems that resulted from the discovery and development during the early 1960s of commercially significant phosphate

37. *See* N.C. GEN. STAT. § 130A-311 *et seq.* (1985 Cum Supp.).
38. Pub. L. No. 99-339 § 205.
39. *Id.* [adding 42 U.S.C. § 1428(e)].
40. *Id.*
41. *Id.* § 102.
42. *Id.* § 101(a) [adding 42 U.S.C.§ 1412(b)(8)].
43. *Id.* § 109 [adding 42 U.S.C. § 1417].
44. 40 C.F.R. pt. 144 (1986).
45. Information obtained from EPA Regional Offices, Atlanta and Philadelphia, August 19 and 20, 1985.
46. N.C. GEN. STAT. § 143-214.2(b) (1983).

deposits in southeastern North Carolina. Large quantities of water were continuously pumped from the ground in order to keep the mining pit dry, which lowered water tables for miles around the pit. The area contains a rich ground water aquifer, and there was concern about possible salt-water intrusion into the aquifer. These concerns lay behind a legislative response that produced the Capacity Use Areas Act and the Well Construction Standards Act (summarized below). The Capacity Use Act contemplates a three-step process.[47] First, the Environmental Management Commission, after studies and hearings, must find that a "capacity use area" should be declared. Second, the Commission must conduct a rule-making proceeding. If it finds, after further hearings, that controls are appropriate, the Commission is to choose—from a specified group of provisions—those it considers appropriate to the particular area. Third, permits are to be issued to large water users whose usage is likely to contribute substantially to the problems of water-short areas. In these permits, conditions may be included that carry forward the purposes of the regulations adopted in the second phase of the proceedings.

The range of controls available in implementing the Act includes provisions on timing of water withdrawals, protection against salt-water encroachment and against unreasonable adverse effects on water users in the area, well-spacing controls, limitations on well-pumping rates or levels, and reporting requirements. The Act lays down detailed criteria to guide the Commission in exercising these powers. These criteria bear a marked similarity to the factors that the courts have traditionally evaluated in resolving riparian-rights disputes.

The minimum usage for which a permit is required is 100,000 gallons per day. Permits with conditions are required only for "consumptive users" of water—those who, according to the terms of the Act, substantially impair water quantity or quality. Civil and criminal penalties are available for enforcing the Act. North Carolina has considered several capacity-use areas but adopted only one, which applies to the phosphate mining region whose problems motivated passage of the law—the area in and around Beaufort County.[48] The courts have considered the North Carolina statute more than once, and one reported appellate decision addressed certain procedural issues.[49]

An amendment adopted in 1973 added an abbreviated procedure under which the Commission, after notice and hearings, can prohibit new or increased discharges of water pollutants in an area if it finds that a "generalized condition of water pollution" has developed. Similar restrictions on withdrawals can be applied if the Commission finds a "generalized condition of water depletion" in an area.[50]

The North Carolina Coastal Area Management Act authorizes the Coastal Resources Commission (a) to designate watersheds or aquifers that are public water supply sources as "areas of environmental concern," and (b) to regulate development within these areas.[51] The Commission has implemented this authority by adopting some very general "well field" regulations affecting one limited area.[52]

Well drilling, reporting, and registration

North Carolina has legislation concerning well construction standards, registration of well drillers, and reporting of information concerning wells and ground water use.

The North Carolina Well Construction Standards Act[53] first lays down specific requirements and prohibitions for construction and maintenance, including sterilization of water-supply wells, provision of access ports to facilitate measuring water levels, and maintenance of valves and casings on flowing artesian wells. Second, it vests in the Environmental Management Commission a general rule-making power concerning well location, construction, repair and abandonment, and pump in-

47. The summarized provisions are codified at N.C. Gen. Stat. §§ 143-215.13 to -215.21 (1983).

48. 15 N.C. Admin. Code subch. 2E, § .0201 (1983).

49. *See* High Rock Lake Ass'n v. North Carolina Environmental Management Comm'n, 39 N.C. App. 699, 252 S.E.2d 109 (1979).

50. N.C. Gen. Stat. § 143-215.13(d) (1983).

51. *Id.* § 113A-113(b)(3)a.

52. 15 N.C. Admin. Code subch. 7H, § .0406 (1986).

53. N.C. Gen. Stat. §§ 87-83 to -96 (1985).

stallation and repair. Rules have been adopted on all of these subjects. The Act also imposes special requirements for barrier beach communities and areas underlain by metavolcanic rock. Third, it establishes permit requirements for wells or well systems with a design capacity of at least 100,000 gallons per day and for any wells in areas that the Board finds to need such controls in order to protect ground water resources and the public safety and welfare. Permit applications may be rejected only for noncompliance with either the Act or Board regulations. Wells constructed for domestic use on land appurtenant to single-family dwellings are excluded by definition from regulation under this Act.

The Act prohibits the use of wells for recharge, injection, or disposal of wastes into the ground without prior permission of the Environmental Management Commission, after it has consulted the Health Services Commission.[54]

Detailed regulations of the Environmental Management Commission prohibit injection wells for waste disposal but allow them under permit for several purposes that include air conditioning return flow; salinity barriers; experimental purposes, agriculture, and other drainage, recharge, and subsidence control.[55]

For some years North Carolina legislation required water well contractors who used power equipment to be licensed. The law applied in only a minority of the state's counties, and it was repealed by the state Sunset Law.[56] Well drillers who use power equipment must register annually with the Department of Natural Resources and Community Development. They also must furnish samples of well cuttings at the Department's request and file a report when a well is complete.[57] Under a Water Use Information Act, monthly water-use reports may be required of persons who use or withdraw ground or surface waters.[58] Public health regulations also govern drilling, design, and siting of water-supply wells for sanitary reasons.[59] (See also "Ordinances," below.)

Ordinances

At least ten North Carolina counties (Orange, Durham, Caswell, Chatham, Lee, Person, Mecklenburg, New Hanover, Union, and Warren) have local well ordinances. Typically the county well ordinances apply to all wells (including single-family wells). A recent analysis notes certain additional differences between one of these ordinances (the Orange County ordinance) and state regulations:

> Orange County requires two inspections of each well—before grouting and before use—while the State program does not require any inspections. The County is slightly stricter in its setback requirements and requires the director's approval of all well locations.
>
> The County has more specific technical standards governing well screens, large diameter wells, well head completion, and access ports, while the state is more specific regarding gravel packed wells, pumps and pump equipment yields, and well testing and records and data to be retained by drillers. The State has no section in its rules on maintenance and repair and semi-public wells while the County does not address specific standards for non-water supply wells.[60]

Although some state officials have encouraged local well ordinances in North Carolina to supplement limited state enforcement personnel, others have raised legal questions concerning possible preemption of these ordinances by state law. These questions have not been definitively resolved. ☙*

54. *Id.* § 87-88(j).

55. 15 N.C. Admin. Code subch. 2C, §§ .0201-.0214 (1983).

56. Former N.C. Gen. Stat. §§ 87-65 to -82, repealed by N.C. Gen. Stat. § 143-34.11 (1977 N.C. Sess. Laws ch. 712, § 2).

57. N.C. Gen. Stat. § 143-355(e)-(g) (1983).

58. *Id.* § 143-355(k).

59. 10 N.C. Admin. Code subch. 10D, §§ .0803, .1002, .1103 (1984).

60. Moss, *supra* note 20.

*Readers of this article should be aware that a number of changes are being made in this fast-developing field of law—such as regulations to implement the 1986 amendments to the federal Safe Drinking Water Act; a major 1986 rewrite of Superfund; possible relevant provisions of the 1987 revision of the federal Clean Water Act, if it becomes law; and possible changes in North Carolina statutes, classifications, and regulations in light of these federal developments.

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