

ENVIRONMENTAL IMPACT CASE STUDY

MARTINSVILLE BYPASS

by

Environmental Team

Daniel D. McGeehan, L. Ellis Walton, Jr., Scott Schafer
Highway Research Analysts

and

Michael Dixon
Student Assistant

Virginia Highway Research Council
(A Cooperative Organization Sponsored Jointly by the Virginia
Department of Highways and the University of Virginia)

Charlottesville, Virginia

June 1971
VHRC 70-R55

RECOMMENDATIONS

Public Utilities

It is suggested that the proposed route be modified to avoid displacing the water tower at Whittby Acres (Station 250). Conversations with various people in the field of geology and ground water resources have indicated that duplication of this facility could run in excess of \$60,000. There are possible additional costs to this move which have not been calculated.

In the construction of the proposed bypass, it is suggested that the Department cooperate with Martinsville-Henry County officials involved in the planning of their new sewerage system.

Residential and Neighborhood Character and Location

Modifications should be considered which would allow the road (Station 497) in the Carver area to continue providing access to present traffic. This is a small road which has not yet been taken into the state system but could well be accepted by the time construction reaches this location. Further, this road appears to be a link between two areas which could easily be considered a community, and its elimination could constitute disruption. By modification at this time, the Department would be anticipating an additional cost that has the probability of appearing in the future and is not now included.

Religious Institutions and Practices

The modification to Route 57 as a result of the construction of the bypass may have, in the opinion of many church members, a semi-isolating effect on the Fort Trial Baptist Church (Station 185-190). It is therefore suggested that some modification be made to allow a continuation of the present use of this road.

There are many small family cemeteries in the Henry County area which are not always easily seen. It is suggested that extra care be taken to locate these so that they may be handled in the manner normally used by the Department.

Conservation

It is suggested that the Department attempt to coordinate its efforts with those of the Corps of Engineers and the U. S. Conservation Service in order to avoid conflicts in construction near proposed projects.

Efforts made to simulate factors in any stream to be rechanneled which are essential to maintaining its natural flow (e.g., velocity of flow) should minimize any danger to conservation in the area.

Natural and Historic Landmarks

It is suggested that R. L. Gravely and Howard MacCord of the Virginia Archaeological Society be contacted and informed of times when they may conduct excavating activities in the areas of possible landmark significance.

Mr. Gravely has expressed much interest in aiding the Department in order to preserve or record any valuable sites. If the Department can assist in these operations it is suggested it do so.

Noise, Air, and Water Pollution

Again it is suggested that the Department coordinate its efforts with local government to avoid taking water sources in the area and to assist in, to the extent possible, the carrying out of their sewer and water system plans.

Education

It is suggested that special consideration be given to the location near the Carlisle School athletic field. Measures to be taken should include the planting of white pines along the edge of the right-of-way fence and the construction of a protective barrier to protect against objects falling onto the highway from the field, which will be located above and adjacent to the road.

MARTINSVILLE BYPASS

Background

At the request of the Environmental Quality Division, the Environmental and Economics Section of the Virginia Highway Research Council conducted an environmental impact study of the proposed Route 220 bypass around Martinsville. This evaluation of the social, economic, and environmental considerations was initiated as part of the Department's effort to ensure in the proposal stage that projects will complement the environment they traverse.

METHODOLOGY

The methodology employed in this study evolved from an 18-month study conducted by the Research Council. The Council approach utilizes an interdisciplinary team that studies the area first hand. In order to measure community values team members interviewed selected members of the community.

ENVIRONMENTAL CONSIDERATIONS

1. Fast, Safe, and Efficient Transportation

The Rt. 220 bypass of Martinsville is an four lane, limited access, divided highway, incorporating modern designs and engineering technology, and it should provide fast transportation with maximum safety. Further, this bypass should greatly relieve traffic on Rt. 220, particularly Rt. 220 north, which now carries approximately 13,000 vehicles per day.

The bypass should not only permit travelers wishing to bypass Martinsville to do so, but also, by reducing traffic in the Martinsville area, provide more efficient travel for those who must go into Martinsville.

The main passenger railway service for the Martinsville - Henry County area is located in Danville. The nearest commercial airline service for Henry County is also located in Danville, approximately 30 miles east of Martinsville. The Blue Ridge Airport, operated by the Joint Airport Authority administered by Henry County and the city of Martinsville, is about 10 miles west of Martinsville along Route U. S. 58. The bypass should provide faster and safer motor travel for persons using these facilities.

2. National Defense

The John D. Bassett School on Rt. 57, Fieldale-Collinsville near Rt. 220 north, Drewry Mason on Rt. 220 south, and the city high schools of Laurel Park and Martinsville will all be close to and somewhat linked by the new bypass. These schools and others can be used to organize and house citizens in time of national and regional emergencies. The new hospital, a major factor in national defense, will be more accessible to a major portion of the population when the bypass is completed.

There are no major military facilities in the Martinsville area; therefore, troop movements to this area or to other parts of the state will be facilitated by the bypass.

In general the new bypass should have a positive effect on travel relating to national defense.

3. Economic Activity

In the county, modification to Route 57 could affect the operation of the cleaners located near the Bassett Forks end of Route 57 between the Fort Trial Baptist Church and Route 754, by inconveniencing travel to and from the cleaners. Generally the county seems to consider the Route 220 bypass as a catalyst to the development of industries and business in general.

The city of Martinsville is experiencing a trend not uncommon to most cities, i. e. , the movement of business from the center of town to suburban shopping centers. However, the city is now studying the possibilities of developing a Central Business District. One shopping center — the Patrick Henry Mall — has been developed within the city on Route 58 east. It appears that the new bypass will not hinder growth in the city but rather, by enabling travel around the city, make the business district more desirable for those people who choose to work and shop in the city.

4. Employment

Contact with the regional employment commission has provided information which indicates that the bypass would be largely beneficial to the area. Nearly two-thirds of the civilian work force is engaged in manufacturing, the majority being employed in furniture, textiles, and related industries.

According to the employment commission, the skills used in many of these industries are interchangeable and the bypass would allow greater opportunity for employment, by enhancing the mobility of the labor force, in the event of difficult times, such as a significant layoff which occurred in November of 1970. Except for situations such as this layoff the unemployment rate in the Martinsville-Henry area has been stable at about 2 percent \pm .5.

5. Recreation and Parks

The Route 220 bypass will generally traverse undeveloped areas; however, one of its interchanges is located near a ball field on Rt. 58. Improved transportation to this area should enhance the value of this recreational facility.

The bypass will go through an existing drive-in theater in the Bassett Forks area. In a broad sense, this theater could be considered a recreational facility; but because of the considerable amount of entertainment of this type in the area, the bypass should not be viewed as detrimental to recreation in this instance.

The major existing parks and recreational centers in the area are the Philpot Dam and the Fairystone State Park, both located about 10 to 15 miles from Bassett Forks, where the Route 220 bypass will begin. Access to these facilities will be greatly enhanced by the bypass.

In the future, Lakeside Park, now located in Roanoke, is to be phased out and relocated near Route 58 between Martinsville and Danville. The bypass will increase the safety of transportation to this area, and provide a link between this facility and those on the northern side, mentioned above.

6. Fire Protection

The city of Martinsville has a paid fire department; Henry County has several volunteer units such as the one in Axton. The faster transportation provided by the bypass should greatly benefit these units. The bypass will not close off any existing routes and the only foreseeable problems would be those which might occur during construction.

7. Aesthetics

The proposed bypass, with the use of modern design techniques in engineering and landscaping, should not have an adverse effect on the area. It is realized that placing a man-made structure through natural terrain may offend the aesthetic values of some people.

8. Public Utilities

(a) Water Supply

The water system in the Martinsville - Henry County area comprises both private and public facilities. The majority of these facilities are private; some were constructed in conjunction with private developments, and some are individual wells and commercial plants which originated in the "company town" concept under which water was supplied to the community by its parent industrial establishment. Public water systems include the municipally owned systems of the city of Martinsville and the town of Ridgeway, the newly acquired properties of the Henry County Public Service Authority, and the "semi-public" water system of the Fieldale Sanitary District.

Generally the Martinsville - Henry County area does not have an abundance of usable fresh water. The ground water resources are described in the Comprehensive Water and Sewer Study, Henry County Planning Commission, as follows:

"The mantle of soil and weathered material overlying bedrock, generally ranging from 20 to 60 feet deep in most areas of the county, yields numerous small domestic wells. However, these wells are often susceptible to decreasing yields in dry years and to surface contamination.

The more productive and dependable wells are drilled into fracture zones of the underlying rock. Records on 140 wells drilled in the county indicate that although total depths ranged from 40 to 900 feet, in ninety percent of the cases water was reached at depths of less than 200 feet. Although the yield of eighty percent of these wells is less than 20 gallons per minute, a few have yields in excess of 100 gallons per minute. In general, the yields of wells in the lowlands are about double those of wells on the ridges. The well water is generally hard and tends to be corrosive in some areas.

Numerous springs of good quality are found in low areas throughout the county, but their yields rarely exceed 5 gallons per minute."

(b) Sewerage Systems

The sewerage systems in the Martinsville - Henry County area range from the public sewerage system in the city to septic tanks and relatively primitive forms of facilities in many of the rural areas.

Publicly owned systems serving county areas include the municipal system of the city of Martinsville and the Collinsville system of the Henry County Public Service Authority. The sewage collected by the semi-public system of the Fieldale Sanitary District, the sanitary sewage collected from the residential and commercial area, and from the parent industrial establishment, are treated by industrial treatment plants. Some subdivisions are served by privately owned systems usually restricted to a large septic tank.

(c) Natural Gas

Natural gas is supplied to Martinsville and the larger communities in the county by the Southwestern Gas Company.

(d) Electricity

Electricity is supplied to the municipally owned distribution system of Martinsville and the communities and rural areas of the county by the Appalachian Power Company.

There does not seem to be any unusual problem connected with the relocation of the natural gas and electrical facilities; however, movement of any water facility may involve numerous problems and should be avoided. Specifically noted in this project is the water tower of the privately owned Whittby water works. This tower has two wells, one presently operating and the other on standby. The well in use (#1) is about 361 feet deep and pumps in excess of 60 gallons per minute — tested by R. S. Fitts, III of Fitts Pump and Well Co., Danville, Virginia. The average daily usage from the tower is approximately 10,000 gallons per day. The standby well (#2) — last tested in December of 1958 by James L. Searce of the Smith Well Co., Greensboro, North Carolina — is 315 feet deep and has a pumping capacity in excess of 150 gallons per minute. According to information gained in the study, duplicating the capacities of these wells may be very difficult.

The Martinsville - Henry County area has a comprehensive water and sewerage plan. Many of the proposed sewerage lines are in the area of the proposed bypass. Coordination with these entities during construction may significantly aid them with their developments.

9. Public Health and Safety

The proposed bypass should improve traffic safety in general.

The general health of the community should be indirectly aided from any help given Martinsville - Henry County area officials in carrying out their future sewerage system plans.

In another aspect, the improved access to parts of the county should improve the efficiency of any health programs in the future (e. g. , visiting nurses, etc.).

10. Residential and Neighborhood Character and Location

The Route 220 bypass is being constructed in a predominantly rural setting. Along the 18-mile bypass approximately twenty-seven homes will be displaced; however, these are spread along the project and do not seem to constitute a community or neighborhood.

However, between Stations 495 and 500 there is a dirt road which is to be eliminated. This road connects two housing units and its elimination could be termed a disruption of a community. Further, if this road is accepted into the system before construction is completed in this area modification may have to be made. Recognition of this situation could aid in anticipating costs not now considered.

The Whittby subdivision could be severely affected if its water supply, to be taken during construction, is not replaceable.

Other than these possible effects no other negative effects on communities is foreseen at this time.

11. Religious Institutions and Practices

There are three churches in the general vicinity of the proposed bypass: the Fort Trial Baptist Church (Station 185-190), the Fort Trial Christian (Station 195-200), and the Riverside Baptist (235-240). The Fort Trial Christian Church and the Riverside Primitive Church do not seem to be adversely affected. However, many of the members of the Fort Trial Baptist Church feel that the manner in which Route 57 will be affected will greatly inconvenience travel to the church. Other roads to the church are Route 606 or 754, which are narrow and not suitable for carrying heavy traffic. The effect could be a loss of congregation and possibly a loss of financing.

The tradition of having numerous small family cemeteries as opposed to a few large cemeteries has been observed in this area. Much care should be used in the location and relocation of these small cemeteries; because of their age they are not always easily spotted.

12. Conduct and Financing of Government

The estimated loss to the real estate tax base will be approximately \$3,300. However, no actual loss to the county's tax base should occur. Experience has shown that when improvements such as the proposed bypass are built, values and tax base actually increase due to increased development and speculative value. Further, the bypass will take a number of years to complete and the estimated loss will be distributed over that period of years, in which time new development should occur.

13. Conservation.

The U. S. Conservation unit has completed a project in the Leatherwood Creek area on Route 58 east. The proposed bypass terminates in this area and should not presently affect the current project. The U. S. Conservation Office in the area has expressed plans for other projects in this area.

Flood control in this area has been the concern of the U. S. Corps of Engineers, the Philpot Dam being the main project in the area.

Wildlife, according to the state forester, should not be affected to any great extent. There are no unusual types of wildlife in this area. The only danger to wildlife is that of accidental kills normally associated with a road of any type. Generally, these will not be significant.

There is always a danger connected with the rechanneling of existing stream beds, (e.g. sedimentation, erosion, etc.). In rechanneling, efforts should be made to simulate those factors which are essential to the natural equilibrium of the stream (e.g. velocity).

14. Natural and Historic Landmarks

The Martinsville - Henry County area has many historic buildings. Hillcroft is located on Route 682, north of the proposed bypass, and should not be affected by it. On the Patrick Henry Farms, there is a house which has strong possibility of being Patrick Henry's birthplace. This fact has not been definitely established, however, there is an accurate description of the house in the book Patrick Henry, Vol. II (Meade 1957). The highway is to be located in this area but is not seen as

a problem at this time. Other sites in the area are Belview and Fort Trial. The former will not be affected; the latter has never been actually recorded as a historic site.

R. P. Gravely was contacted in reference to any archaeological concerns in the area. Mr. Gravely has offered his assistance in locating and excavating possible sites in the area. Coordination of construction activities with Mr. Gravely and Mr. Howard MacCord of the Virginia Archaeological Society is urged. Thus far, areas of concern are Leatherwood Creek, the area of the proposed bypass along the Little Marrowbone Creek, and the probable site of Fort Trial (Smith River Area).

With the help of Mr. Gravely and the Virginia Archaeological Society there should be no problem in these areas.

15. Noise, Air, and Water Pollution

The environmental team used the computer program developed by the National Cooperative Highway Research Program to simulate the noise of the future facility. Actual readings were taken at several locations and compared to the computer estimates.

Based on a comparison of the computer estimates and actual readings, it is the opinion of the team that noise from the proposed bypass will be no major problem.

The new highway will allow high speed transit, which will allow higher engine speeds resulting in greater engine efficiency. This will not only increase distribution of vehicle emissions but also minimize noxious gasses emitted into the air. High speeds decrease the emission of CO but increase the emission of NO₂; the latter being less harmful seems to indicate that the high speed highway will result in the least harmful pollution to the total environment.

Water pollution is a very great concern in this area. Construction activities should be closely coordinated with the county officials to avoid unnecessary problems.

16. Property Values

In general the overall property values should be increased in the area. There are areas where damages will result, however, compensation will be made for them.

17. Multiple Use of Space

There does not appear to be any immediate opportunities for multiple use and joint development of space at this time.

18. Replacement Housing

A study of the local newspapers, in conjunction with interviews with officials in the area, indicates that there is no problem in relation to replacement housing.

19. Education

Interviews with the City Manager, County School Superintendent and the Headmaster of Carlisle High School indicate that there will be no adverse effect on school district operations. However, Carlisle School's athletic field will border on the proposed right-of-way and efforts should be made not to cause a safety problem in this area.

In the county, the bypass is viewed as an aid to county vocational programs for public school and an aid in recruiting students for the private school.

20. Displacement of Families and Businesses

Approximately 27 houses and 5 businesses are to be displaced. However, as mentioned in the section on Replacement Housing, there is no problem in housing replacement. Because of the nature of the businesses involved, there should be no problem in relocating them.

PEOPLE CONTACTED

1. City Manager, Martinsville
2. Civil Defense Coordinator
3. County Executive, Henry County
4. Henry County School Superintendent
5. City Engineer, Martinsville
6. Col. Mather, West Piedmont Regional District Commissioner
7. Mr. Goode, owner of the Whittby Water Works Respondent to Public Health in 1969
8. Mrs. R. Bruce, Secretary of the Local Historic Landmarks Association
9. Mr. R. L. Gravely, local expert on archaeology — Past President Archeological Society of Virginia
10. Local Armory in Martinsville — 1st Sgt.
11. Mr. A. L. Aydlett, Jr., Executive Vice President of Martinsville — Henry County Chamber of Commerce
12. Mr. Prager, Lynchburg Branch of the Water Control Board
13. Mr. J. R. Fishburne, Assistant Director, Virginia Historic Landmarks Commission
14. Mr. Ruddle, Manager, Philpot Reservoir
15. Mr. William McDaniel, Regional Forester
16. U. S. Conservation Office, Martinsville Area
17. Col. P. S. Dension, Commanding Officer, U. S. Army Corps of Engineers, Wilmington District
18. The Reverend Cloninger, Fort Trial Baptist Church
19. Mr. Floyd Bryant, Sr., Board of Trustees, Primitive Baptist Church
20. Local State Employment Commission
21. Pastor, Fort Trial Christian Church
22. Mr. C. Kellam, District Engineer, Salem
23. Mr. Coffman, Resident Engineer, Martinsville
24. Mr. Charles Cuminsky, Headmaster, Carlisle High School
25. Mr. Elmer Ramsey, Division of Water Resources, Ground Water, Richmond
26. Martinsville Public Library
27. Patrick Henry Library

REFERENCES

1. Topographical Map of Martinsville East, West, Philpot Reservoir, and Spray, 1966
2. Martinsville Bulletin (General Survey)
3. Martinsville Area Map, 1971-1972
4. Martinsville - Henry County Ministers Listing — Compiled March, 1971
5. Scrolls of Department Survey
6. Detailed plans of Department of Highways Surveys
7. Aerial Mosaics of Project — Department of Highways
8. Report on Comprehensive Water and Sewer Study — Henry County Planning Commission.
9. Martinsville Master Transportation Plan

APPROXIMATE TAX BASE LOSS FROM MARTINSVILLE BYPASS

	Total Tax Loss ^{1/}	Tax Loss Land Improvement(s)	Assessed Value ^{2/} Land Improvement(s)	Total Acreage	Total Take
1.	\$549.15	\$306.00	\$7,200	6	6
2.	76.50	68.85	1,620	.7	.7
3.	128.35	120.70	2,840	6	6
4.	201.45	45.85	1,080	7.3	7.3
5.	1.12	1.12	5,300	2	
6.	37.40	2.55	360	17.8	3
7.	49.95	11.70	460	10	6
8.	1.70	1.70	40	.42	.42
9.	6.40	6.40	150	1	1
10.	36.95	7.20	340	24	12

11.	103.70	4.25	99.45	100	2,340	.44	.44
12.	22.95	3.82	19.13	90	450	1.0	1.0
13.	4.25	4.25		100		1.46	1.46
14.	11.22	11.22		2,280		190	22
15.	4.25	4.25		100		2.5	2.5
16.	5.63	5.62		420		23.8	7.5
17.	17.82	2.52	15.30	120	360	19	9
18.	4.74	4.74		280		15	6
19.	13.68	13.68		1,860		103.7	18
20.	2.86	2.86		540		8	1
21.	16.10	16.10		1,800		66	14
22.	38.89	16.84	22.95	340	540	9.4	9.4

23.	34.43	26.78	7.65	900	180	54	10.5
24.	.56	.56		80		4.5	.75
25.	3.96	3.96		280		3	1
26.	24.09	24.09		4,860		280	40
27.	8.50	8.50		200		.8	.8
28.	3.40	3.40		80		.26	.26
29.	3.40	3.40		80		.46	.46
30.	5.95	5.95		140		.46	.46
31.	78.20	1.70	76.50	40	1,800	.46	.46
32.	3.40	2.40		80		.92	.92
33.	.80	.80		40		.92	.45
34.	.50	.50		1,680		215	1.5

2614

35.	4.23	4.23	200	18	9
36.	1.35	1.35	800	111	4.5
37.	6.45	6.45	420	58	21.5
38.	1.10	1.10	460	6.3	3.5
39.	2.10	2.10	260	36.5	7
40.	.60	.60	100	14	2
41.	.60	.60	120	17	2
42.	.90	.90	120	17	3
43.	5.52	5.52	970	59.5	8
44.	1.05	1.05	100	6	1.5
45.	11.90	11.90	280	.91	.91
46.	57.80	38.32	900	5.8	5.8
		19.55	460		

47.	11.90	11.90	280	.91	.91
48.	2.97	2.97	140	.53	.25
49.	2.97	2.97	140	1	.5
50.	4.17	4.17	420	14	3
51.	83.73	2.98	140	1,900	.5
52.	71.49	38.25	900	780	5.7
53.	403.75	56.10	1,320	8,180	6.9
54.	9.96	2.31	360	180	.5
55.	6.42	6.42	540	10.7	3
56.	1.48	1.48	160	18	4
57.	3.40	3.40	160	17	8.5
58.	5.49	5.49	320	22	9

59.	2.25	2.25	120	17	7.5
60.	11.08	11.08	60	9.2	4
61.	25.87	25.87	2,680	99	22.5
62.	3.39	3.39	280	10.5	3
63.	3.45	3.45	320	11.7	3
64.	68.00	68.00	640	62.2	2.5
65.	101.15	13.60	320	1.4	1.4
66.	10.46	10.46	320	1.3	1
67.	8.97	8.97	640	.95	.33
68.	10.17	10.17	460	17.25	9
69.	4.95	4.95	360	23	7.5
70.	4.75	4.75	500	55	12.5

71.	3.47	3.47	220	28	10.5
72.	.59	.59	280	20	1
73.	81.59	46.74	2,200	81.8	41
74.	31.86	31.86	11,260	27.1	18
75.	11.68	11.68	900	1.08	.33
76.	160.52	15.17	900	1.26	.5
77.	39.36	3.66	200	.76	.76
78.	30.91	2.43	130	.79	.79
79.	50.15	18.70	440	1.06	1.06
80.	8.50	8.50	400	.75	.5
81.	34.85	4.25	100	3.7	3.7
82.	4.93	4.93	1,100	81.1	8.5

83.	6.37	6.37	3,340	188	8.5
84.	.92	.92	280	6.48	.5
85.	34.85	4.25	100	.29	.29
86.	14.40	14.40	2,680	297	36
87.	19.60	19.60	2,840	242.5	40
88.	1.16	1.16	220	4.0	.5
89.	.51	.51	140	2.9	.25
90.	41.80	41.80	620	7.15	5
91.	5.06	5.06	3,100	283.5	11
92.	.34	.34	300	28	.75
93.	87.54	11.04	260	1,800	2
94.	.29	.29	380	28.3	.5
95.	87.54	11.04	260	1,800	2
96.	.29	.29	380	28.3	.5

97.	3.30	3.30	860	119	11
98.	21.17	21.17	7,280	419	29
99.	51.50	51.50	35,600	1,465	50
100.	4.08	4.08	600	49.7	8
101.	22.44	22.44	5,500	349	34
102.	7.20	7.20	48,000	2,814	10

TOTAL \$3,293.80 = \$1,500.88 + \$1,792.91

1/ Consists only of private taxable property directly affected by the highway improvement.

2/ Land and improvements are assessed at eighteen (18) percent of the appraised or market value (last appraised in 1966).
A tax rate of \$4.25 per \$100.00 of assessed value is levied (1970).

