

MEMORANDUM

TO: Walter Kulash

DOCKETED
USNRC

DATE: January 24, 1983

FROM: ✓ Jerry Lutes

'84 MAY 24 AM 11:58

JOB: 719

SUBJECT: Follow-Up to 1/18/83 Meeting at Catawba

I have revised the evacuation routes around Rock Hill in light of what I learned at our recent meeting. Enclosed are copies of three QUEUE model summaries showing the impact of the changes.

- Sheet A: The results of our last computer run prior to the January 18 meeting.
- Sheet B: The results after reallocating traffic among the routes, reflecting the higher "drawing power" of SC 901 and US 21, as well as the fact that parts of them are two lane. Note also greatly increased evacuation time over SC 901.
- Sheet C: The same as Sheet B, except that traffic-control measures similar to those discussed on January 18 are implemented on the two most congested routes.
- Sheet D shows the traffic flows with and without the control measures. The controls on SC 901 make a dramatic improvement, yet are quite simple. In fact, traffic might flow in the indicated patterns spontaneously as evacuees tire of waiting in the traffic jam where SC 901 changes from two lanes to one lane. The fancier control measures around the US 21-I-77 interchange produce a much smaller improvement; they mainly shift its traffic from one bottleneck to another.

Sheets B and C are based on 0.430 cars per evacuee, derived from Census data for the counties in the EPZ. Sheet A is based on 0.413 cars per evacuee, the QUEUE model's default value.

As you may recall, John Lee asked for several copies of our summary maps to distribute. I propose sending him maps with the Sheet C results, since they are my best estimate of what would actually happen. What do you think?

On the enclosed map I have sketched the evacuation routes applicable if all evacuees go to their assigned shelters. After receiving your comments I will code it up and run it through the QUEUE model.

I've reviewed all the material John Lee has given us on "special facilities" in the EPZ. We have only a small fraction of the information reported in previous evacuation studies. Specifically, we have location information about Carowinds, PTL, some schools (but not all) and a couple of hospitals. We have nothing on nursing homes, prisons, or day-care centers. We have numbers of people only for the schools in Mecklenburg County. I think that either you or I should talk with John to agree on what information he will supply and when. How do you want to handle this?

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PDR ADOCK 05000413
G PDR

..1.2/83

DATA, ENTIRE SET

73.

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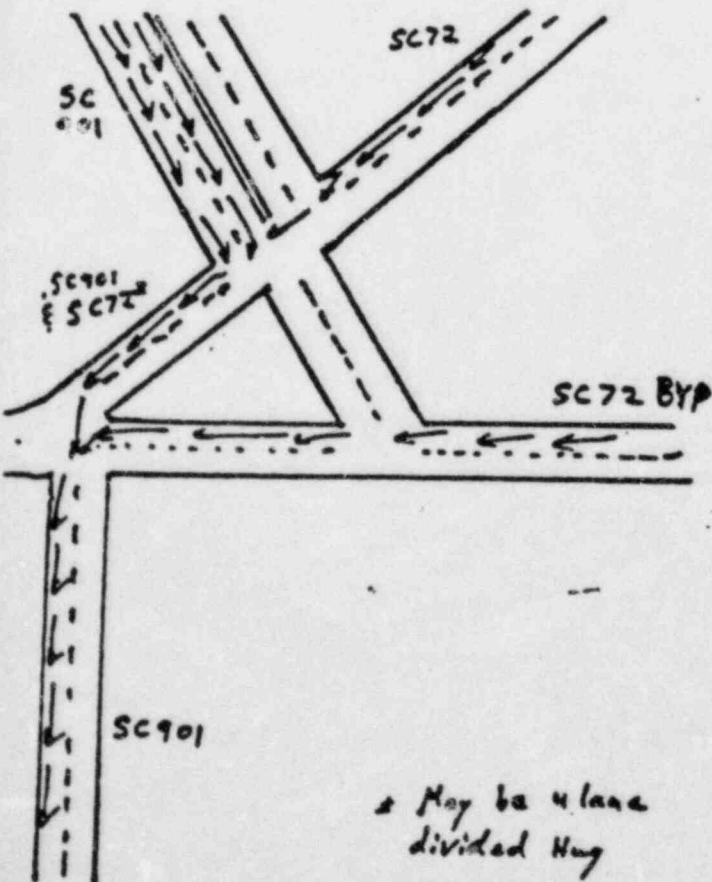
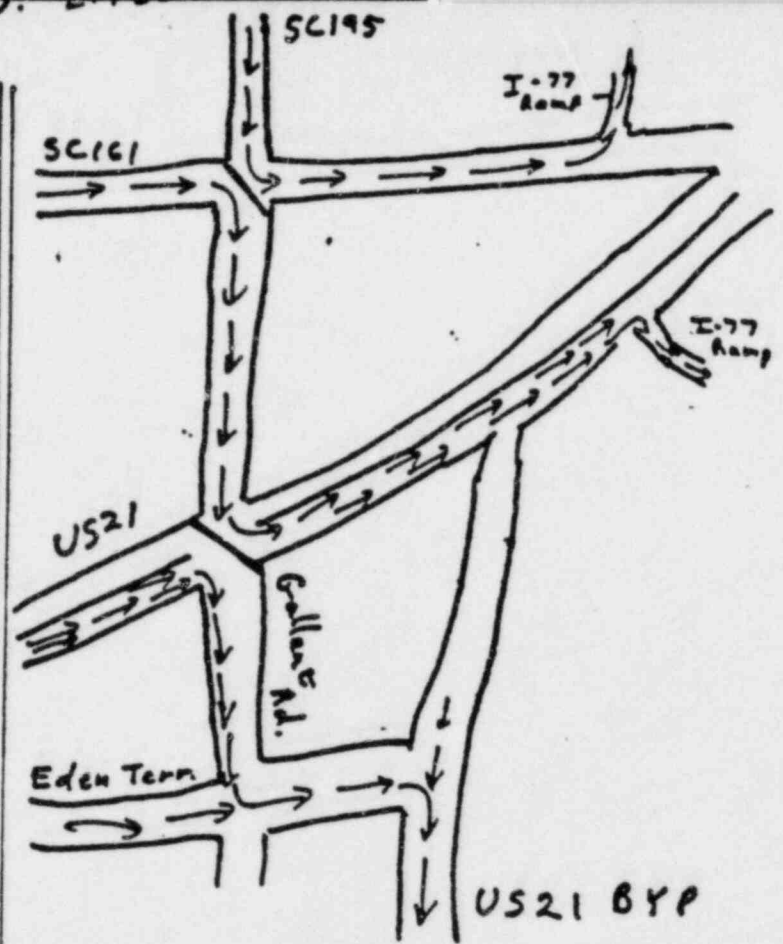
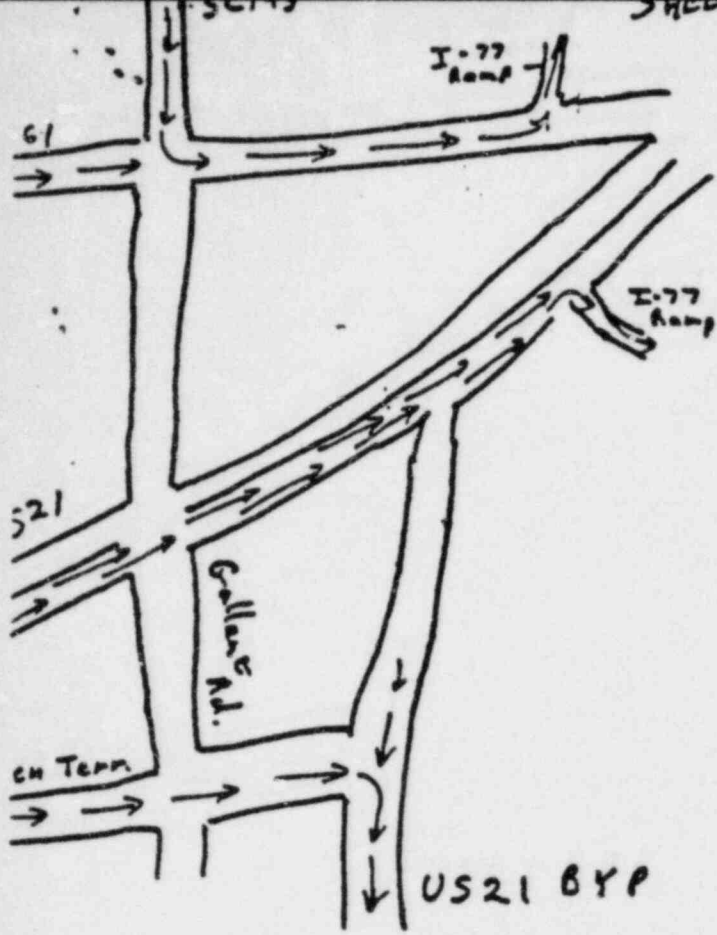
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EVACUATION ROUTE SUMMARY

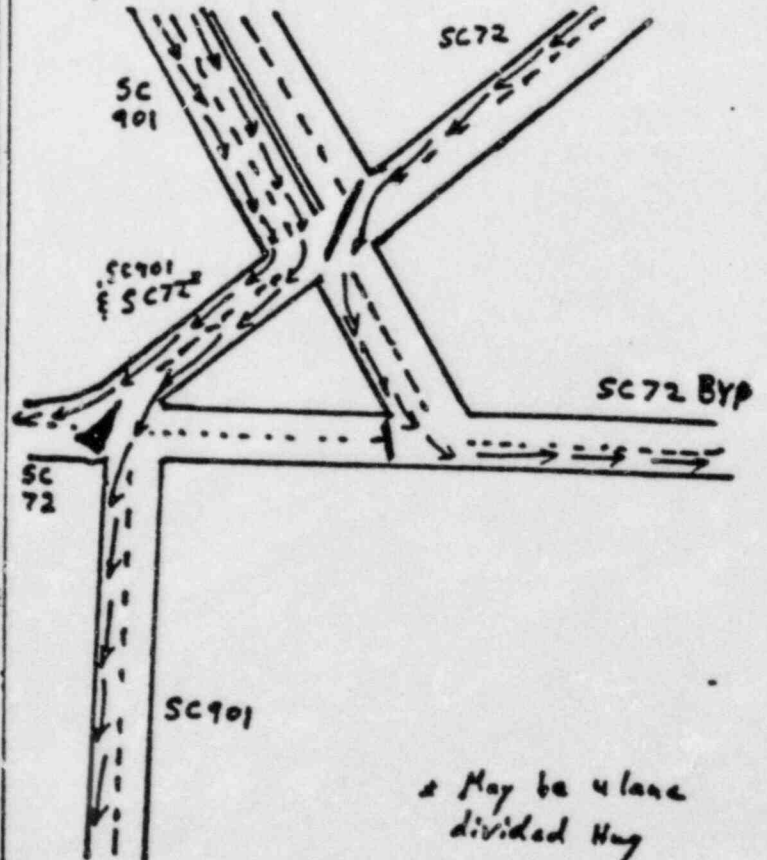
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EVALUATION SITE SUMMARY

ROUTE	POPULATION	VEHICLES	TIME TO EVACUATE (HOURS)
• 1-77 NB	8487	3623	3: 0
• 10321	13356	5623	3:30
• 1011 BLVD	4453	1317	2:45
• 1011 SB	13357	5623	4: 0
• 101121	1333	562	2:45
• 10332	3364	2372	3: 0
• 10331	3331	562	2:45
• 1033 25	1333	733	2:45
• 10331 25	3313	1333	2:45
• 1033 25	3373	3173	3:45
• 1033 25	1372	133	2:45
• 1033	1333	333	2:45
• 10331 25	3373	1423	2:45
• 10334 25	1333	133	2:45
• 10333	4323	1317	2:45
• 10331	1333	333	2:45
• 1033	3313	331	2:45
• 10333 SB	1317	3314	3:30
85,616			



WITHOUT CONTROLS

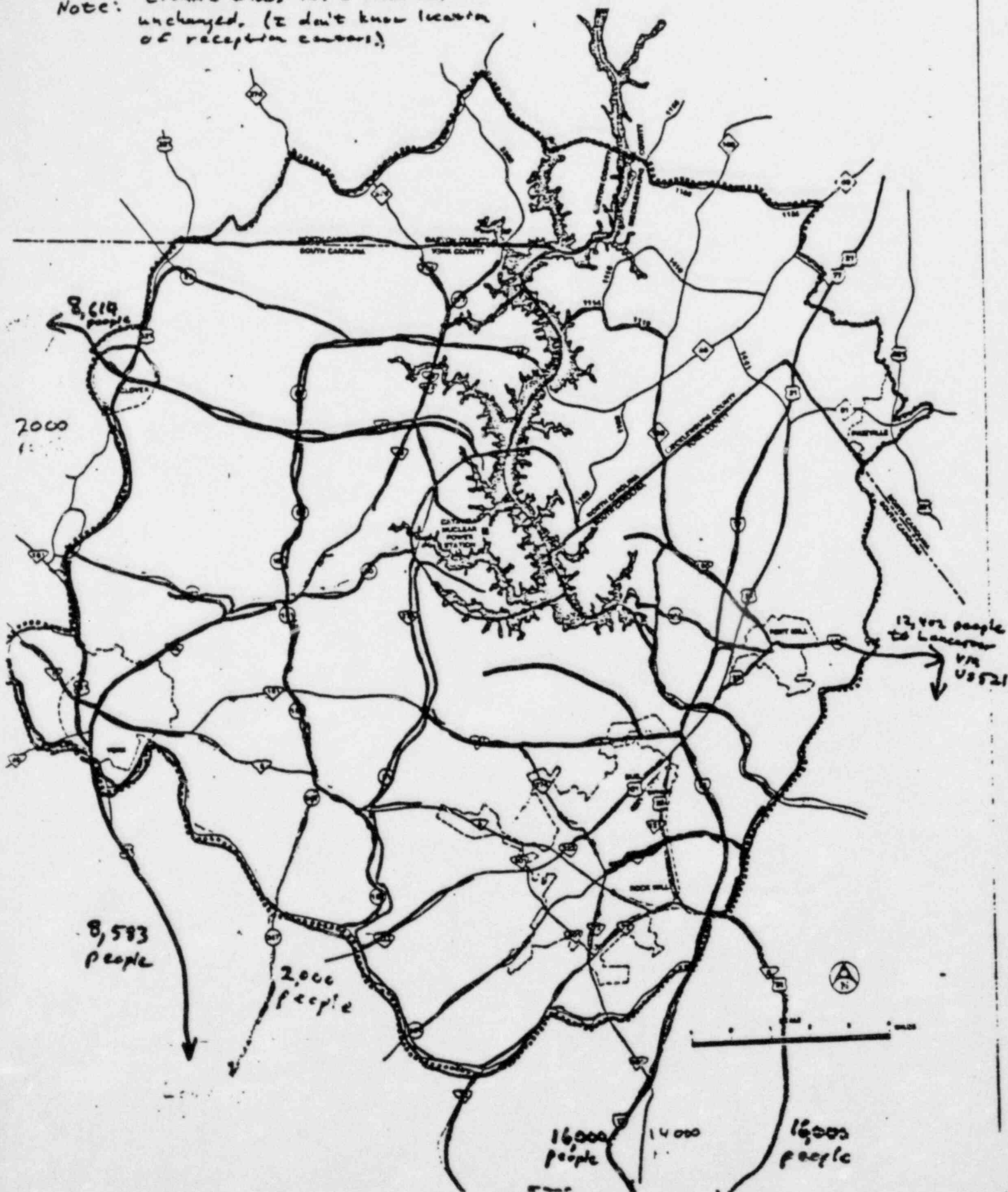


WITH CONTROLS

TRAFFIC FLOWS TO ASSIGNED EVACUATION CENTERS

11-4/83

NOTE: Traffic flows in NC assumed unchanged. (I don't know location of reception centers.)



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Same as on p. C-6 of October 1978

TRANSPORTATION - AUTO Ownerships
per occupied Dwelling Unit

43 autos ~~Table 2~~
~~per occupied Dwelling Unit~~

--- Pop. section --- / --- Occupied Housing Units ---

Cens	MECK	GASTON	YORK
0	14,729	5,746	3,383
1	50,451	18,301	10,359
2	56,261	21,075	13,837
3+	25,526	11,240	7,282
Σ	146,967	56,362	34,861
0%	10%	10%	10%
	404,270	162,568	106,720

Source: STF 3A. Census
 computer print out
 Table 414.2
 Section - (with
 commuting & Travel
 Time to work -)
 1990 Census

Jan 1/13/52

Results of Cens/Evacuee in Catawba EPZ

	Machlenburg Co.				Gaston Co.				York Co.				Total		
	D	1	2	3+	Total	D	1	2	3+	Total	D	1	2	3+	Total
A Cars owned/House hold	14,728	59,461	86,744	3,5516	146,849	5,744	18,304	21,057	11,340	56,345	3,383	16,369	13,857	7,282	34,891
B. House hold in County	0	1	1.5	2.0	—	0	1	1.5	2.0	—	0	1	1.5	2.0	—
C. Evacuated cars/House hold (approx)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D. Total evacuated cars (B+C)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E. Total people	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
F. Cars/person (D/E)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
G. Pop in EPZ	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
H. EPZ evacuated cars (G+H)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
I. Weigh down evac cars/EPZ	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
J. Cars of EPZ Pop (I+H)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Supplied by John Lee, Duke Power, based on 1940 census

TABLE 3. SPECIAL FACILITIES POPULATION
IN THE CATAWBA EPZ

<u>Facility</u>	<u>Population</u>	<u>Location (Zone)</u>
Gaston County Schools		
1 W.A. Bess	469	F-3
Mechlenburg County Schools		
1 Steele Creek Elementary	777	A-2
2 Pineville Elementary	844	A-2
3 Olympic High	1,176	A-2
York County Schools		
1 A. O. Jones School	563	B-2
2 Alternative School	76	C-2
3 Belleview Elementary	450	C-2
4 Bethel Elementary School	364	F-1
5 Career Development Center	862	C-2
6 Castle Heights Junior High	960	C-2
7 Catawba School	445	C-1
8 Clover High School	1,008	E-2
9 Clover Junior High	596	E-2
10 Clover Middle School	561	E-2
11 Ebenezer Avenue Elementary	431	C-2
12 Ebinport Elementary	417	C-2
13 Edgewood Center	116	C-2
14 Episcopal Church Home for Children	62	D-2
15 Finley Road Elementary	453	C-2
16 Fort Mill High School	915	B-2
17 Fort Mill Junior High School	250	B-2
18 Harold C. Johnson Middle School	1,025	D-2
19 Jefferson Elementary	715	D-2
20 Kinard Elementary School	591	E-2
21 McCelvery Elementary	686	C-1
22 Mount Gallant Elementary	790	D-2
23 Northside Elementary	454	C-2
24 Northwestern High School	1,322	C-2
25 Oakdale Elementary	448	C-2
26 Rawlinson Road Junior High	1,251	C-2
27 Richmond Drive Elementary	452	C-2
28 Riverview Primary and Elementary Complex	1,292	B-2
29 Rosewood Elementary	389	C-1
30 St. Anne's	171	C-2

Table 3, Continued

Facility	Population	Location (Zone)
York County Schools (continued)		
11 Sullivan Junior High	1,010	C-2
12 Sunset Park Elementary	458	C-2
13 Sylvia Circle Elementary	369	C-2
14 Trinity Christian	324	C-2
15 Winthrop College	4,881	C-2
16 York Christian School	140	D-2
17 York Comprehensive High and Johnson Vocational	1,070	D-2
18 York Road Elementary	562	C-2
19 York Technical College	2,850	C-2
Day Care Centers		
1 Adams Care Center	21	C-2
2 Child Development Center	62	E-2
3 Children's Christian	119	C-2
4 Children's Wonderland	70	C-2
5 College Park Nursery	30	C-2
6 Davis Day Care Center	33	C-2
7 Ebenezer Day Care Center, Inc.	32	C-2
8 Emmitt Scott Day Care	85	C-2
9 Jimmy's Day Care	40	C-2
10 Kiddie Kollege Child Development Center	200	C-2
11 LaPetite Academy	75	C-2
12 LaPetite Academy	47	C-2
13 Little Fox Nursery	33	B-2
14 Little Peoples Day Care	60	C-2
15 Mt. Gallant Day Care	49	C-1
16 Pine Grove Day Care Center	30	D-2
17 R. H. Comprehensive Day Care	114	C-2
18 Tega Cay Day Care	24	B-1
19 Toddler House Nursery	40	C-2
20 Wards Wonderland	35	B-2
21 Wee Care Day Care Nursery	68	C-2
22 Whiteheads Kiddie Kare	45	C-2
23 Yours, Mine and Ours	45	D-2

Table 3, Continued

<u>Facility</u>	<u>Population</u>	<u>Location (Zone)</u>
Hospitals		
Divine Savior Hospital	51	D-2
Piedmont Medical Center	160	C-2
Nursing Homes		
Anne's Convalescence Home	62	C-2
Divine Savior Home	51	D-2
Fallow Residential Care	37	C-2
Meadow Haven Nursing Center	132	C-2
Rock Hill Convalescence Center	141	C-2
Sunshine Homes	10	D-2
Penal Institutions		
York County Prison	45	D-2