HANFORD SITE EVACUATION TIME ASSESSMENT STUDY

Prepared by David Ottley

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Washington Public Power Supply System
Richland, Washington 99352

TABLE OF CONTENTS

LIST OF FIGURES, TABLES, AND ATTACHMENTS

ACKNOWLEDGEMENTS

The author expresses appreciation to these persons for their assistance:

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SECTION I - INTRODUCTION

A. Site Location & Emergency Planning Zone (EPZ)

Washington Public Power Supply System leases 1089 acres of land north of Richland, Washington, on the Hanford Reservation. This land is under the control of the Department of Energy (DOE). The Supply System's portion is approximately 3 miles west of the Columbia River and 12 miles north of the populated area of Richland. Figure 1 shows the Ten-Mile Plume Exposure Emergency Planning Zone Map. This Ten-Mile Emergency Planning Zone (EPZ) is the study area for which evacuation time estimates have been made.

B. General Assumptions and Methodology.

This assessment was made using CLEAR[1] (Calculate Logical Evacuation And Response), a computer program developed by Battelle Pacific Northwest Laboratories under a contract sponsored by the U.S. Nuclear Regulatory Commission under a related services agreement with the U.S. Department of Energy, Contract DE-AC06-76RLO 1830 (See Attachment 1 for a copy of the code as modified to meet Supply System needs.)

This model required dividing the Ten-Mile EPZ road network into segments connecting at intersections (See Figure 2 and Table 6). These segments were grouped as zones into mathematical evacuation trees for data handling. The zones used were the sixteen 22-1/2^{o} sectors around the center point located

midway between Washington Nuclear Projects #1, #2, and #4 (WNP-1, -2, and -4). This center point is 2800 feet east of WNP-2 and has coordinates of longitude 119° 19'18" west, latitude 46° 28'19" north. The south-southeast sector, which falls on both sides of the Columbia River, was divided into two zones for this analysis. The assessment considered four quadrants around the site; the Columbia River, forming a natural boundary between Benton and Franklin Counties, was used for one division and the other division is almost perpendicular to the river.

Figure 3 illustrates the evacuation routes, barricades, and assistance centers for the Hanford Site (See Section III, Traffic Capacity, for discussion). These routes were used to develop eight evacuation trees. The evacuation tree is a system for connecting road segments with at least one exit from the EPZ. Each road segment in the evacuation tree interacts only with other road segments in that tree, i.e., the model assumes that once a vehicle enters a road segment, it evacuates on that road segment's tree. The evacuation time estimate calculated for a single tree may or may not determine the evacuation time estimate for an entire quadrant. The evacuation time estimate for a particular quadrant is determined by analyzing all the trees within the quadrant and selecting the limiting factor or tree which took the longest to clear as the evacuation time for the entire quadrant.

In the computer model the initial road vehicle population is normally set at zero (see Section IV C for a discussion of starting with loaded roads). The population in a zone divided by the number of occupants per

vehicle determines the number of vehicles that will be evacuated from that zone. These vehicles are then assigned to road segments in numbers proportional to the road segment length divided by the total road length for that zone. Following this, vehicles from factories and schools are handled in a similar fashion using the data from the Independent Special Traffic Generators (ISTG) (For a description of these and other computer variables, see Table 1). Each vehicle is then assigned a loading position by using a random number generator. The vehicles are evenly spaced along the roadway but assigned random order in which to enter the traffic flow.

There are two algorithms that control the loading of the roads: MAXDEP and FRACT.

MAXDEP--The maximum time of departure, controls when the last person begins to leave the area. In areas where the population is high, such as with the transient population at the Hanford site, MAXDEP can be large and have no effect because it does not matter if the person waits to be notified to evacuate or waits in his car to evacuate. Either way, he cannot depart if the road is full. In areas of low population such as Franklin County, where the roads never become full, MAXDEP becomes the controlling factor.

The purpose of MAXDEP is to model the efficiency of the early warning system. Some people receive a delayed notification, others might have a delayed response due to preparation time such as a farmer readying his farm for an extended absence. In these low population areas the evacuation time is generally MAXDEP (one hour) plus time for this last individual to drive less than ten miles to the Ten-Mile EPZ boundary at NOMVEL, nominal velocity.

FRACT--The loading function generates the loading scheme in four time segments as follows:

(1-FRACT) loaded in first 25 percent of MAXDEP.

$(\frac{1\text{-FRACT}}{4})$ loaded in second 25 percent of MAXDEP.

$(\frac{1\text{-FRACT}}{2})$ loaded in third 25 percent of MAXDEP.

$(\frac{1\text{-FRACT}}{4})$ loaded in final 25 percent of MAXDEP.

At a FRACT of 0.10 and a MAXDEP of one hour, the following loading of vehicle population onto roadways will take place:

% Population Loaded	Time from Notification
10%	1st 15 minutes
22.5%	2nd 15 minutes
45%	3rd 15 minutes
22.5%	Final 15 minutes
100%	1 hour

In areas of high population, FRACT will have little effect for the same reason as MAXDEP, people can wait in their cars or wait in their buildings; either way, if the road is saturated they cannot begin their evacuation. In areas of low population, FRACT will affect the loading which in turn will determine the evacuation "S-curve" as vehicles will be able to leave the zone very shortly after being loaded (See Figure 8 for example and Section IV A for discussion).

FRACT's purpose is the same as that of MAXDEP--to model the efficiency of the early warning system and to model preparation time. At the Hanford site, for example, where everyone would be told to evacuate at approximately the same time, a high FRACT provides a realistic model. In Franklin County, where longer notification and preparation times are needed, a low FRACT (.10) provides a more realistic model. Since FRACT is a function of MAXDEP, these synergistic effects have to be kept in mind.

Once the vehicles have been loaded on the road segments, the algorithms that control movement are FLORAT, NOMVEL, V, and EVL. FLORAT, the input of vehicles per hour per traffic lane, only affects high-population density areas; in low density areas, all the vehicles can fit onto the road simultaneously.

Initially, the velocity of travel on the road segment is equal to the NOMVEL, nominal velocity. As loading increases to 80 percent of capacity, each vehicle must slow down to maintain a safe EVL (effective vehicle length). One vehicle length for every 10 mph of velocity was used as a safe

distance between vehicles for calculating EVL in normal weather. This distance was increased for modeling evacuations during adverse weather conditions. The base vehicle was considered to be 5.68 meters in length.

When the velocity decreases due to an increasing EVL, and becomes V, minimal velocity, stop and go traffic is simulated as this velocity is maintained. Actual traffic coming from the Hanford area was observed to maintain higher-than-normal minimal velocities (30 mph) with decreased effective vehicle lengths (EVL), so a higher V value was used for that tree. A lower value was used in Franklin County (15 mph) but, due to the low population density, this had little effect on final time estimates.

The model has four queues that a vehicle may reside within. All vehicles are initially assigned to NRAN, the random queue. The loading queue, NLOD contains vehicles scheduled to leave during the DELT of time. NBAC, the back up queue, contains vehicles that cannot move because of a traffic slow down. The VMOTO queue contains vehicles that are actually moving on the road segment. When the NBAC, backup queue, is full for a specific DELT of time for the computer run, a message appears on the computer CRT screen stating that the road segment is full. This allows planners to follow the evacuation in a simulated real time mode and determine where problem intersections are located.

Intersections where the individual road segment (ZNRD) flows onto the next road segment (LINK) and picks up another road segment (NRSEC) are handled by a computer subroutine. To allocate space for the advancement of

vehicles from the ZNRD onto the LINK, relative vehicle densities of the two segments are compared. This difference will be proportional to the priority for advancement given one road segment over another.

At intersections a green light-red light is simulated by the computer model allowing traffic to merge; as backups occur, stop and go traffic is simulated. The NBAC or stacking queue is used to keep track of the amount of vehicles involved in this simulated traffic jam.

After the model has performed the initial road segment loading, vehicle population as a function or radial distance is printed out in one-mile increments showing remaining and initial percentages of vehicles in that radii (see Attachment 2 for typical computer printouts). This is updated and reprinted each iteration (usually 10 minutes).

With every iteration the road segment vehicle population is also reprinted by zone showing queue loading. This queue loading, specifically the NBAC queue, is used to evaluate traffic flow upon which recommendations are made for evacuation mechanism improvements.

Other items, such as vehicle populations in the Two-, Five-, and Ten-Mile Zones, the percent of the initial population that has been evacuated, and the total numbers of vehicles within and outside the Ten-Mile EPZ are also updated and reprinted each iteration.

When the model has concluded that no vehicles are left within the zone, the time the last vehicle left the zone is printed and the modeling is complete. This time includes two basic sub-times: preparation time and response time. Initial notification times, both Supply System-to-county and county-to-populace, through the early warning system (30 minutes together, see IV A for discussion), were not included, but delayed notification and therefore delayed response times were included. Confirmation time estimates also were not calculated in the model but are estimated as a maximum of one hour (see V A for discussion). Therefore, the calculated time estimate starts at the time of the announcement over the EBS (Emergency Broadcast System) to begin evacuation until that evacuation is complete.

SECTION II - DEMAND ESTIMATION

Figure 4 presents the compass sector population estimates for 1980; this same information is also presented in Tables 2 through 5. Estimates were made relative to the center of the triangle formed by the three reactors. These figures were taken from the WNP-2 Environmental Report[5] where references and basis are given. Contacts with the County Auditor's Office and the Post Office confirmed the accuracy of the population data.

A. Permanent Residents

Permanent residents included all people residing in the area, but excluded occupants of institutions. The ten-mile radius around the site is shown in Figure 1. In 1980 an estimated 1306 people were living within the Ten-Mile EPZ. The nearest inhabitants occupy farms which are located east of the Columbia River and are thinly spread over five compass sectors. There are no permanent residents located within three miles of the site. Only about 80 persons reside between the three-mile and the five-mile radii; these are all located east of the Columbia River.

Of the 1306 people residing in the Ten-Mile EPZ, about 996 live in Franklin County and about 310 in Benton County. None of the residents live in incorporated cities.

There are no significant changes in land use expected in Franklin County over the next several years and, as it is currently irrigated to about the

maximum amount practicable, little population increase is foreseen. No significant change in land use on the Hanford Reservation is expected, and no foreseeable population will reside there; however, the unincorporated area near the Horn Rapids Dam on the Yakima River in the SSW sector is expected to be the primary growth area within the Ten-Mile EPZ. Population growth within this area is projected to be about 6% per annum.

Public transportation is not available within the Ten-Mile EPZ; therefore, no residents rely on such for evacuation. For those few residents who on occasion might be without transportation, arrangements could be made with neighbors for evacuation. The Sheriff's Department will be patrolling the area during an emergency and could make transportation arrangements for anyone not already evacuated.

B. Transient Population

The transient population is divided into three main subgroups: 1) industrial employees, 2) migratory agricultural workers, and 3) sportsmen. Figure 5 illustrates this population location graphically.

Industrial employees in the Ten-Mile EPZ total 19,380. These are all located in Benton County and form the main population to be evacuated, outnumbering the permanent residents by 15:1.

Over half of the industrial employees work at WNP-1, 2 & 4. The size of this work force (approximately 10,000) varies considerably with time; as many

as 12,000 workers were employeed in June 1981 prior to the slow down of construction at WNP-4, but the figure is currently (9/81) down to nearly 10,000. At fuel load, employment at WNP-2 will be approximately 1,000. At that time WNP-1 & 4, with full construction, could have as many as 10,000 employees, making a site employment total of 11,000. Typically, the night shift at the site has been about 20% of the total force, so even with 11,000 employees only 9,000 (the 80% on day shift) would have to be evacuated at any one time. Therefore, it appears that the 10,000 planning figure is conservative.

Current industrial employment in the Ten-Mile EPZ includes:

WNP#2	3000
WNP#1	3500
WNP#4	3500
DOE, FFTF, Fast Flux Test Facility	1187
EXXON, Horn Rapids Road Facility	750
DOE 300 Area	2918
DOE 3000 Area, Pacific Northwest Laboratory	2016
DOE 1100 Area, Bus Lot, Stores	1040
Supply System, Downtown Complex	1021
Others in Port of Benton Industrial Complex	448
TOTAL	19,380

The majority of these employees work days but there are some shift workers. Therefore, the planning figure of 19,380 to be evacuated is conservative.

The construction of two nuclear projects by Northwest Energy Services Company, to be located approximately four miles east of WNP-2, will significantly change these figures. However, construction is a number of years away.

There are up to approximately 1,000 migratory farm workers in the Ten-Mile EPZ. The peak season for these workers is May and June; the next highest employment season is during the fall harvest. These workers consist of both permanent and temporary residents of the Tri-Cities area, some living within the Ten-Mile EPZ. The numbers shown on Figure 5 and Table 3 reflect their work locations in Franklin County within the Ten-Mile EPZ, not their residences.

Sportsmen, consisting of hunters, fishermen and boaters, enjoy activities mainly along the east bank of the Columbia River. The primary fishing season is from June through November; the main hunting season being October through January. The heaviest use of the area by sportsmen is on weekends and holidays in the early morning hours. On the average, 50 fishermen and 10 hunters are present in Franklin County during the weekdays. This increases to about 100 fishermen and 50 hunters on weekends and holidays. Sportsmen also use the Yakima River with an estimated maximum of 50 at any time in this area. During peak fishing or hunting times, up to 1050 sportsmen may be located within the Ten-Mile EPZ.

The main concentration of sportsmen consists of fishermen located just south of the Ringold Fish Hatchery spillway on the Franklin County side of the Columbia River. Hunting consists of both water fowl, hunted at the

Wahluke Hunting Area on the Franklin County side of the Columbia River, and upland game birds hunted inland on the farm land of Franklin County. To model this section of the transient population from a potential evacuation standpoint the 1050 maximum was used with 400 sportsmen being assigned to the sector containing the Ringold Fish Hatchery and the Wahluke Hunting Area and the rest distributed inland. Of the total, 1000 are assigned to Franklin County and 50 to Benton County.

An automobile occupancy factor of 3, the same as residents, was used for these sportsmen.

C. Special Facility Population

There are no individuals within the Ten-Mile EPZ confined to institutions such as hospitals, nursing homes, or penal institutions. There is one school, the Edwin Markham Elementary School, with an enrollment of 250 students. Although most of these students live within the Ten-Mile EPZ, the total amount was added to the population for this study. PVSTG, the number of people per vehicle from this ISTG (Independent Special Traffic Generator), was determined by using a conservative figure of 35 students per bus.

D. Emergency Planning Zone and Sub-Areas

Sub-areas considered in this study were:

Radius	Area
0-2 miles	entire circumference
0-5 miles	three 90^{o} sectors
0-10 miles	three 90^{o} sectors
0-10 miles	entire EPZ

The 2-mile radius was not subdivided because it contains no residential population and the only institution populations are transients all working on contiguous Supply System properties. Only three of the four 5- and 10-mile 90^{o} sectors were examined because the fourth, entirely on the Hanford Reservation, contains no residential, transient or special population. These sectors are graphically shown on Figures 2 and 3. The Columbia River, as a natural border between Benton and Franklin Counties, was used to form the division between Sector II and Sector III. Franklin County was divided, approximately in half, as it was assumed that those north of the plant location would evacuate north toward Mesa/Connell and those in the opposite direction, south towards Pasco.

When making estimates for outer sectors it was assumed that the inner adjacent sectors were being simultaneously evacuated.

SECTION III - TRAFFIC CAPACITY

Figure 3 illustrates the evacuation routes, barricades and assistance centers for the Hanford Site. These routes have been designated as primary, secondary and additional secondary, based on discussions with local traffic and emergency planning officials.[6] These routes were identified as those over which the endangered population could be most expeditiously evacuated to the centers where they may be assisted.

In choosing the traffic flow direction for the computer model, as illustrated in Figures 2 and 3 and Table 6, populations were evacuated toward the closest primary, secondary or additional secondary road in decreasing priority that was headed north, south or east away from the plants. Permanent resident passenger vehicle numbers and total passenger vehicle numbers are shown in Figures 6 and 7 respectively.

A. Evacuation Roadway Network

Quadrant I

The primary evacuation route is Russell Road east to Highway 17 and north to Mesa and Connell or south to Pasco.

The secondary evacuation route is Route 170 east through Basin City to Mesa.

Additional Secondary Evacuation Routes are:

Mountain Vista Road/Hollingsworth Road

Basin Hill Road

Klamath Road

Ironwood Road

Quadrant II

The primary evacuation route is Eltopia West Road to Glade North Road then south towards Pasco or east to Eltopia and Highway 395.

The secondary evacuation route is Taylor Flats Road south towards Pasco.

Additional Secondary Evacuation Routes are:

Ringold Road

Elm Road

Sagemoor Road

Road 68

Quadrant III - Residental Traffic

The primary evacuation route for the residents in this quadrant is Harrington Road and Yakima River Drive or Grosscup Road to Van Giesen and then

south and east into Kennewick via Bombing Range Road to Highway 12, to Leslie Road, To Keene Road, to Gage Road, and to Center Parkway on which is located Sunset View Elementary School, the assistance center.

The advantage of this route is that it provides direct movement from the Ten-Mile EPZ for residents and would avoid the traffic congestion created by transients. The disadvantage is that both Grosscup Road and Bombing Range Road contain extensive sections of gravel and are rather narrow. A number of residences in this area are connected to major thoroughfares by short dirt roads.

The secondary evacuation route is Harrington Road and Yakima River Drive, or Grosscup Road to Van Giesen, then to Benton City via Highway 224 and east to Kennewick via Highway 12, to Leslie Road, to Keene Road, to Gage Road, and to Center Parkway on which is located Sunset View Elementary School, the assistance center. The main advantage of this route is the same as for the primary evacuation route in that it avoids the transient traffic. In addition, this route provides for hard surface access into Kennewick. The disadvantage of this route is that it is much longer than the primary route.

Additional Secondary Evacuation Routes are:

Highway 240 (either towards Benton City or Richland). This route's main disadvantage is that it initially leads deeper into the Ten-Mile EPZ.

Van Giesen (in towards Richland). This route's main disadvantage is that it leads directly into traffic congestion created by transients.

Quadrant III - Transient Traffic

Two primary evacuation routes exist for this area - George Washington Way and Stevens Drive.

The majority of transient traffic coming from the Hanford Reservation uses Stevens Drive to the Richland Bypass Highway 240, and to Highway 12 into Kennewick. The other route into Kennewick is George Washington Way to the Richland Bypass Highway 240, and to Highway 12. These same routes would be used during an evacuation. The major bottleneck of these routes occurs south of Richland where George Washington Way intersects the Richland Bypass Highway 240. This location is over 15 miles from the WNP-1, 2, & 4 sites.

One item discovered while performing the computer study was that directing the DOE 3000 Area Battelle employees to use George Washington Way would free Stevens Drive for use by DOE 300 Area employees and result in a quicker evacuation time. Although the 3000 Area employees are slightly closer to Stevens Drive, this route would require them to make a left turn crossing two lanes of traffic and merge into flow, whereas the George Washington route is a right turn merging into traffic. Probably as Stevens Drive fills, 300 Area employees would naturally go to George Washington Way because of the easier access.

Additional Secondary Evacuation Routes are:

Highway 240 (toward Benton City or Yakima). This route results in the evacuees remaining within the Ten-Mile EPZ for a considerable time.

Van Giesen (towards Benton City).

Route 4 south or the Yakima Barricade Route (towards Yakima for WNP-1, 2 & 4 and FFTF transients).

FFTF Access Route and Route 10.

B. Assistance Centers

Assistance centers have been selected by local emergency planning officials.[6] Criteria for selection included that these locations be at least 15 miles from the plants, in the path of normal travel, having adequate facilities, and readily available.

Residents evacuated from the Ten-Mile EPZ would be sent to the centers for registration, assistance in obtaining meals and lodging and to receive updated information.

Assistance Centers include:

Quadrant I

a. Mesa Elementary School, Mesa

This school is located on Highway 17, approximately seventeen miles from the plants. The school has adequate facilities for the number of persons in Quadrant I but parking is limited.

b. Connell Elementary School, Connell

This facility could be used as an alternate assistance center for the northern area. The Connell Elementary School, old gym and district complex are located on North Chelan Mate Avenue approximately 28 miles from the Hanford site. Adequate facilities and parking are available.

Motels available in this direction include the M & M Motel and the Tumbleweed Motel, both in Connell, with a combined capacity of 70 rooms and over 250 beds.

Quadrant II

a. Columbia Basin College, Pasco

Columbia Basin College is a community college located in Pasco, 19 miles from the Hanford Site. The school is located off Highway

12 and 20th Avenue and between Highway 395 and Taylor Flats Road and has excellent accommodations.

b. Pasco Senior High School, Pasco

This school is located on 10th and Court Streets in Pasco, 20 miles from the Hanford site, and can be used as an alternate center. Adequate facilities are available.

c. Green Giant Migrant Trailer Court, Pasco

This trailer court is located on the Sacajawea Park Road approximately 3/4 of a mile southwest of Highway 12/395, 21 miles from the Hanford site. This location was selected because of the large migrant work force employed in the Ten-Mile EPZ and residing in the trailer court. This is an ideal location for assisting migrant farm workers.

Motels in Pasco have a combined total capacity of 804 rooms and 1,729 beds.

Quadrant III

a. Sunset View Elementary School, Kennewick

This school is located on Hood Street off Center Parkway, 18 miles from the Hanford site. Ample facilities and parking to handle residential evacuees from Quadrant III are available.

b. Vista Elementary School, Kennewick

This school is located on Young Street and Victoria Street, 19 miles from the Hanford site.

Kennewick motels have a combined capacity of 726 rooms and 1,741 beds. An addition of 400 motel beds is projected by the end of 1981 which could result in a total capacity for 2,141 evacuees.

In addition, the Kennewick School System has a potential for sheltering over 9,000 persons and the Pasco School System over 7,000, for a combined capacity of at least 15,000 persons.

If an extended evacuation was warranted, Columbia Center, a large shopping mall in Kennewick located between the Sunset View and Vista Assistance Centers, could serve as a staging area. The paved parking area can hold 4,600 cars and an additional 5,000 cars could be parked in adjacent areas.

Yakima or Walla Walla could serve as host areas with ample motel and school facilities to house the entire Richland population. Massive use of such facilities appears highly unlikely. Past evacuations demonstrated that relatively few people use rooms provided by assistance centers, preferring instead to stay with friends or relatives.

If employees or their vehicles at the site were contaminated, they would, radiological conditions permitting, be decontaminated prior to evacuation. If this was not possible because of pending hazardous situations, then remote decontamination would take place at either the old Hanford town site, located in the north section of Quadrant IV, and the seldom-used road network located south of Battelle's 3000 Area Facility and between Stevens Drive and George Washington Way. These areas provide adequate space for the monitoring and decontamination of vehicles evacuated from within the 2-mile area.

SECTION IV - ANALYSIS OF EVACUATION TIME

A. Time Estimates

The Supply System is installing an early warning system capable of notifying the public within the Ten-Mile EPZ to take protective measures during an emergency. This system was designed to enable the county to notify the public within 15 minutes from the time the decision to evacuate is made by county officials. The Supply System has established procedures to notify the county officials within 15 minutes of an incident which would require protective actions by the public. Therefore, a maximum of 30 minutes notification time is assumed. Once the public has been notified, the evacuation begins according to the discussion in Section I B. The final stage of the evacuation is the confirmation that the evacuation is complete (see V A for discussion).

Evacuation time estimates for the Supply System Hanford site have been made and are shown in Table 7. Notification time varies from 15 minutes for Supply System facilities to 30 minutes for the general populace. Confirmation time is estimated at 30 minutes for Supply System employees and 60 minutes for the general populace (see Section V A for discussion).

Figure 8 illustrates "S-Curves" for some of the more important evacuation trees. As previously indicated, low populations, such as the Supply System's residential population, will evacuate shortly after they load onto

the road system. FRACT, this loading function, includes notification and preparation time. The resulting distribution forms an "S-Curve" shape which is illustrated during the evacuation by the permanent population curves of the Figure.

High populations such as the general population which includes transients working at the Hanford site, are not modeled by FRACT. FLORAT, the flow rate, V, the minimal velocity, and EVL, the effective vehicle length, model these population's evacuation distribution and form straight lines as illustrated by the general population curves of Figure 8.

B. Adverse Weather

Table 7 presents evacuation time estimates under two conditions: normal and adverse weather. Severe weather conditions such as blizzards, heavy rain storms, flooding, fog, or high winds could seriously hamper evacuation. However, historical records indicate that severe conditions of this nature have occurred rarely in the past. Typically, bad weather results in a vehicle velocity reduction of one-half. But, the reduction of traffic flow to even 20% should not result in large increases in evacuation times.

Blizzard conditions are the most likely to affect evacuations. On very rare occasions, drifts of snow up to several feet have been reported in the area. Since equipment to deal expeditiously with such conditions is generally lacking in both counties, this could result in people being "snowed-in." A realistic approach was utilized in the computer model by slowing

traffic down to 5 mph (20 percent of 30 mph, rounded down), but increasing EVL (the effective vehicle length) up to 1.5 car lengths, which is 14.20 meters, instead of the 0.5 car lengths that would have been used for this velocity under normal weather conditions.

C. Alternate Assumptions

Conservative but realistic assumptions were used in arriving at the evacuation time estimates. It was assumed to be daytime on a workday for areas with high numbers of transient employees. But daytime on a weekend for areas with high numbers of transient sportsmen.

It was assumed that the road network was initially free of traffic in the areas of the evacuation. This would generally be true. One exception to this would be if an evacuation was initiated during a shift change at DOE's 200 Area with an employment of 4133 workers. This could place as many as an additional 2755 vehicles vying for space on Route 4 south.

The tree containing this route was adjusted for proper linkage and an ISTG (Independent Special Traffic Generator) representing the 200 Area was added to the general population normal weather condition run. The resulting evacuation time estimate was 2 hours and 10 minutes, an additional 30 minutes from the 1 hour and 40 minutes previously obtained. The evacuation, even under these conditions, could be completed within a reasonable time.

It was assumed that no secondary routes from the Hanford area were utilized. Inclusion of one or more of these secondary routes in the computer model would lower the evacuation time estimate. As an example, the tree containing Route 10 was adjusted for proper linkage, and WNP-2 and FFTF traffic was sent down this route to Highway 240 and out of the Ten-Mile EPZ. This moved 4187 employees, in as many as 2791 vehicles, off the main road--Route 4 south. This was a general population normal weather condition run. The resulting evacuation time estimate was 1 hour and 20 minutes, a decrease of 20 minutes from the value otherwise obtained of 1 hour and 40 minutes. It can thus be seen that the use of additional routing could lower the evacuation time estimate.

It was assumed that the evacuation was complete when the vehicles had all cleared the Ten-Mile EPZ. One obstacle beyond this point, the Yakima River causeway, Highway 240, was investigated for traffic jamming. The tree containing this route was adjusted for proper linkage and the evacuation expanded five miles to this point so that the evacuation was complete at 15 miles rather than 10 miles. This was a general population normal weather condition run. The resulting evacuation time estimate was 2 hours and 10 minutes, an increase of 30 minutes over the previously obtained 1 hour and 40 minutes. Although this is a bottleneck, it does not appear to be a formidable one, and traffic would not back up from this intersection into the Ten-Mile EPZ.

The only special facility within the Ten-Mile EPZ is the Edwin Markham Elementary School with 250 students. Because of the small size of this

population, it was considered as part of both the permanent and the general population evacuation time estimates. Buses which could be used in the evacuation are located at the district bus lot in north Pasco during the day. It is assumed that the buses could be dispatched within the 1 hour MAXDEP time used for this quadrant.

SECTION V - SUPPLEMENTARY INFORMATION

A. Evacuation Confirmation Times

Visual confirmation of evacuation will be made by local sheriff's departments for permanent residents. It is estimated that this can be accomplished within one hour. The Supply System will be responsible for personnel accountability at Supply System facilities. It is estimated that this will take a maximum of 30 minutes.

B. Recommendations

Identified potential impediments to egress include:

- Bombing Range Road--This is a gravel road. If the county, as planned, gives this road a hard surface, evacuation of permanent residents in Quadrant III would be facilitated. However, since there are only 310 residents using this route, its present condition is not a major obstacle. Also, this road is located two to three miles beyond the Ten-Mile EPZ and is only used as access to the assistance center.

- The Yakima River Causeway--Highway 240. Although located 15 miles from the Hanford site, this is the only route leaving south out of Richland. If a traffic accident occurs on this route, traffic

could be snarled for hours. It is therefore recommended that planning be carried out to provide some mechanical means for clearing lanes at this location early in the evacuation. Such means could include wreckers or possibly even cranes.

Construction has already begun on new bridges crossing the Columbia and Yakima rivers south of Richland for Highway 240 with an expected completion date of 1984. A bridge is also planned for North Richland, crossing the Columbia River at Horn Rapids Road, with an expected completion date of 1986. Both of these bridges will result in shorter evacuation times.

C. Review of Study by State and Local Officials

A review of the draft of this report was submitted to the principal state and local officials involved in emergency response for the site. Their comments were solicited and a copy of their response follows.

JOHN SPELLMAN
Governor

HUGH H. FOWLER
Director

STATE OF WASHINGTON
DEPARTMENT OF EMERGENCY SERVICES
4220 E. Martin Way • Olympia, Washington 98504 • (206) 753-5255

September 22, 1981

Mr. Jack Shannon
Health, Safety and Security Manager
Washington Public Power Supply System
3000 George Washington Way
Richland, WA 99352

Dear Mr. Shannon:

Mary Alice Peterson and George W. Petre of our Fixed Nuclear Facility emergency planning staff have reviewed your Hanford Site Evacuation Time Assessment Study, September 18, 1981 and written by Dave Ottley.

The Department of Emergency Services finds this document to be adequate in meeting the requirements of NUREG-0654.

Sincerely,

Hugh H. Fowler
Director

HHF:ll

BENTON COUNTY
DEPARTMENT OF EMERGENCY SERVICES

JOHN D. DUNCAN, Director
Kennewick City Hall
P. O. Box 6144
Kennewick, Washington 99336-0144

Telephones:
Emergency: 911
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Home: (509) 588-3188

September 22, 1981

Jack Shannon, Manager
Health, Safety & Security Dept.
Washington Public Power Supply System

SUBJECT: HANFORD SITE EVACUATION TIME ASSESSMENT STUDY

Dear Mr. Shannon:

This document has been reviewed by the undersigned and comments presented to David Ottley on 9/22/81.

Relevancy and accuracy of permanent and migration population can only be verified by actual survey of the farming and residential areas. Primary and secondary routes should also be determined by this survey as people tend to form habits for shopping, visiting, etc. The habits established through normal routines will, to a large extent, determine routes and assistance centers.

Sincerely,

John D. Duncan
Director

JDD: clc

REFERENCES

1. CLEAR Computer Program, M.P. Moeller and A.E. Desrosiers, Pacific Northwest Laboratory, Richland, Washington, May 1981

2. Supply System Interoffice Memorandum, Selection of Appropriate Population (Household Size) Multiplier for Area Within Ten-Mile Radius of WNP-1, -2, -4, A.M. Lee, Socioeconomic Coordinator, to J.V. Everett, Supervisor Emergency Preparedness, July 28, 1980

3. Evacuation Risks--An Evaluation, U.S. Environmental Protection Agency Offices of Radiation Programs EPA--52016-74-002, Joseph M. Hans, Jr. and Thomas C. Salle, June 1974

4. Socioeconomic Impact Study WNP-1/4, Volume 4; Final Report, Community Development Services, Inc., Seattle Washington, May 1979

5. WNP-2 Environmental Report--Operating License Stage Amendment #5, July 17, 1981

6. Feasibility of Ten-Mile Emergency Planning Zone Evacuation, Hanford Site, Warren Hanson & Associates, December 1980

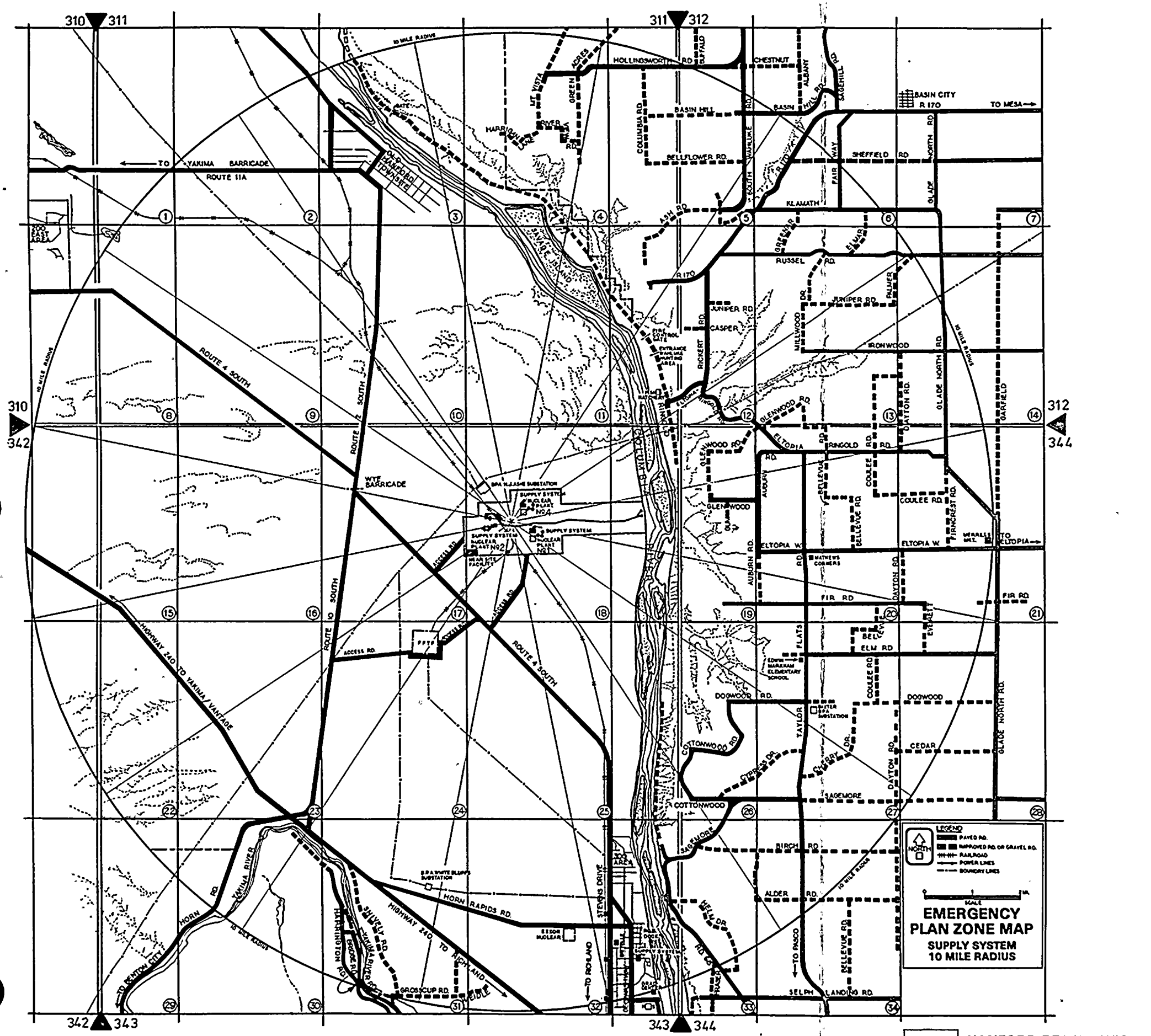


FIGURE 1 TEN MILE EXPOSURE EMERGENCY PLANNING ZONE

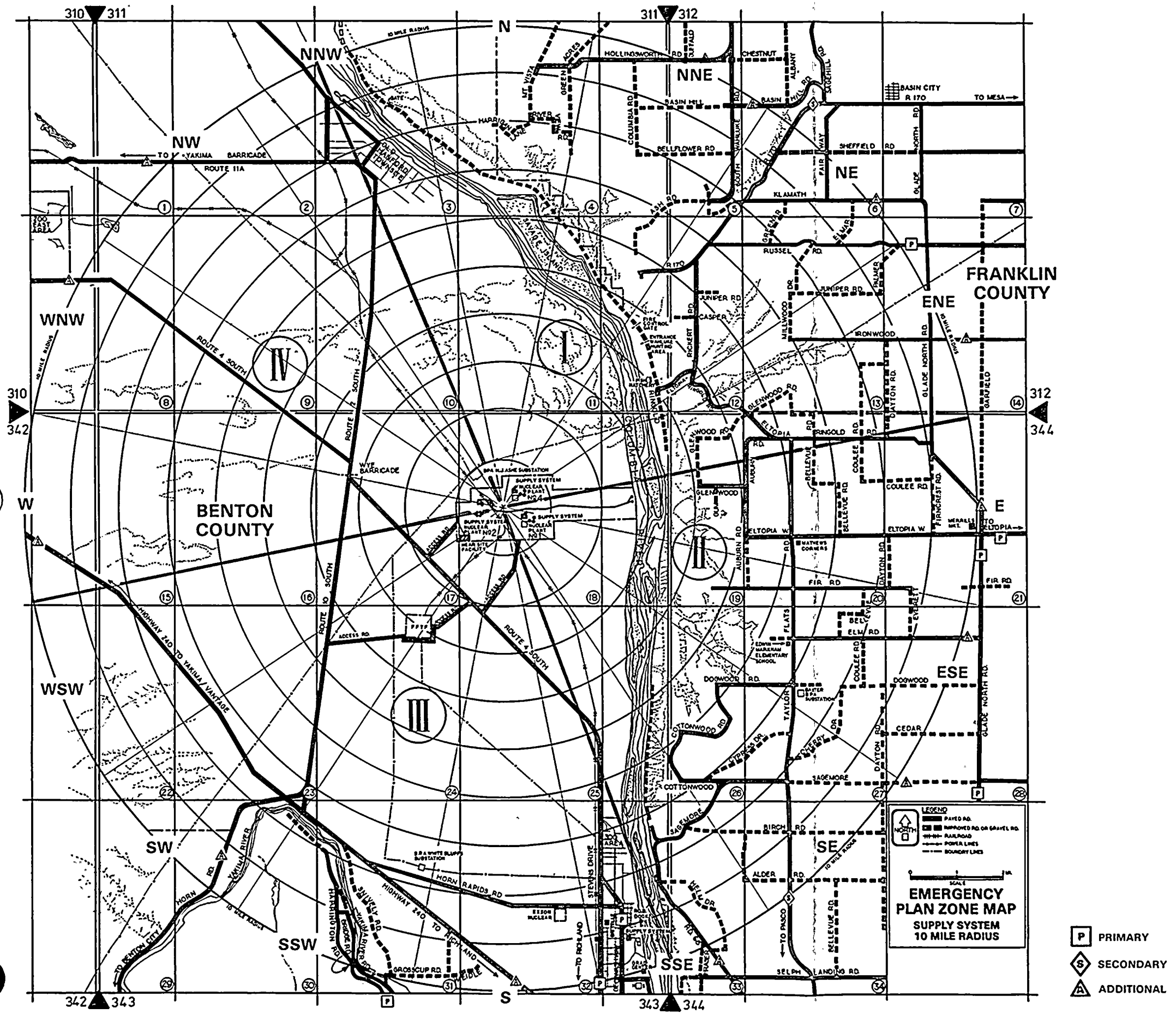


FIGURE 2 TEN MILE EPZ ROAD SEGMENT MAP

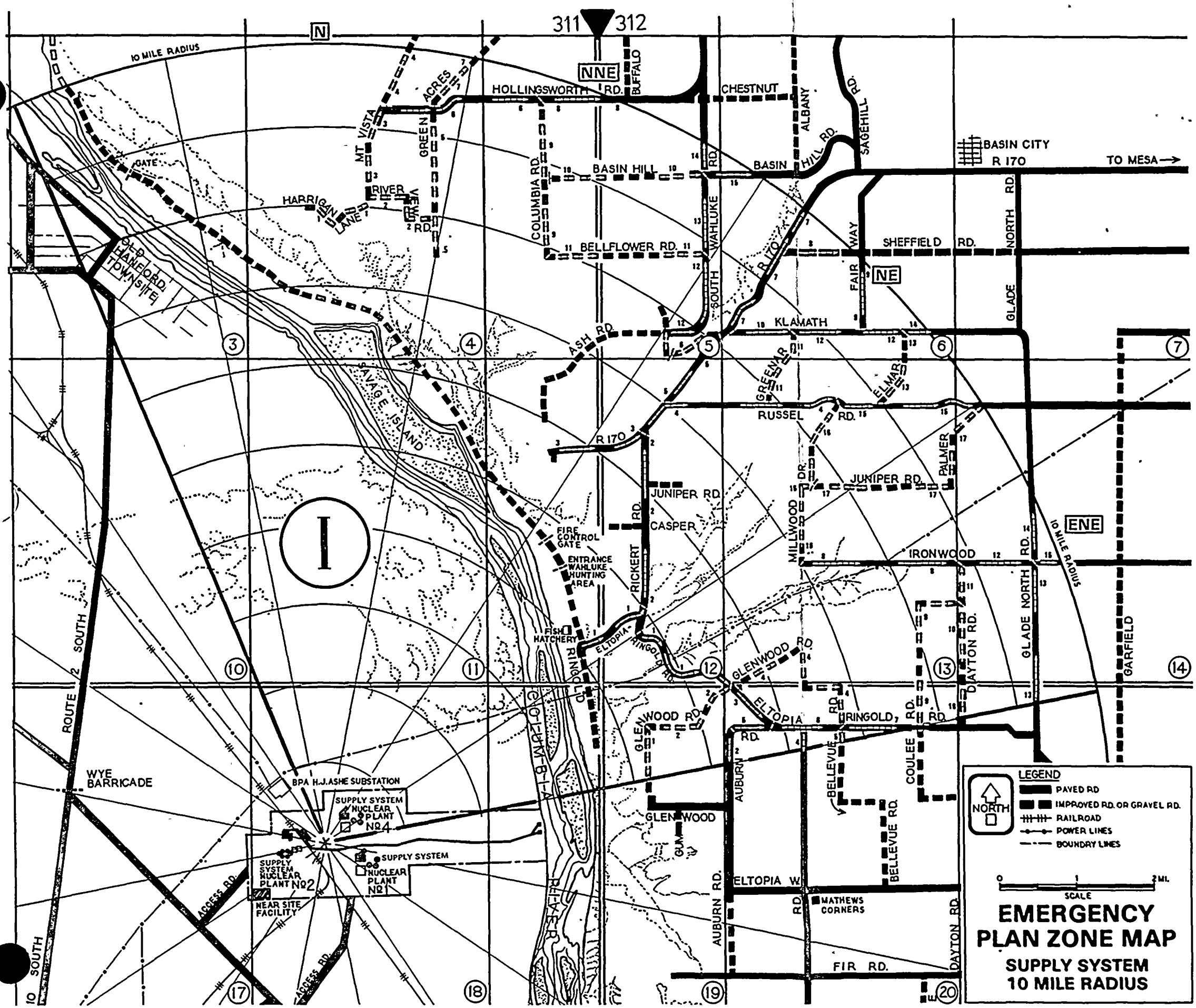


FIGURE 2 QUADRANT I

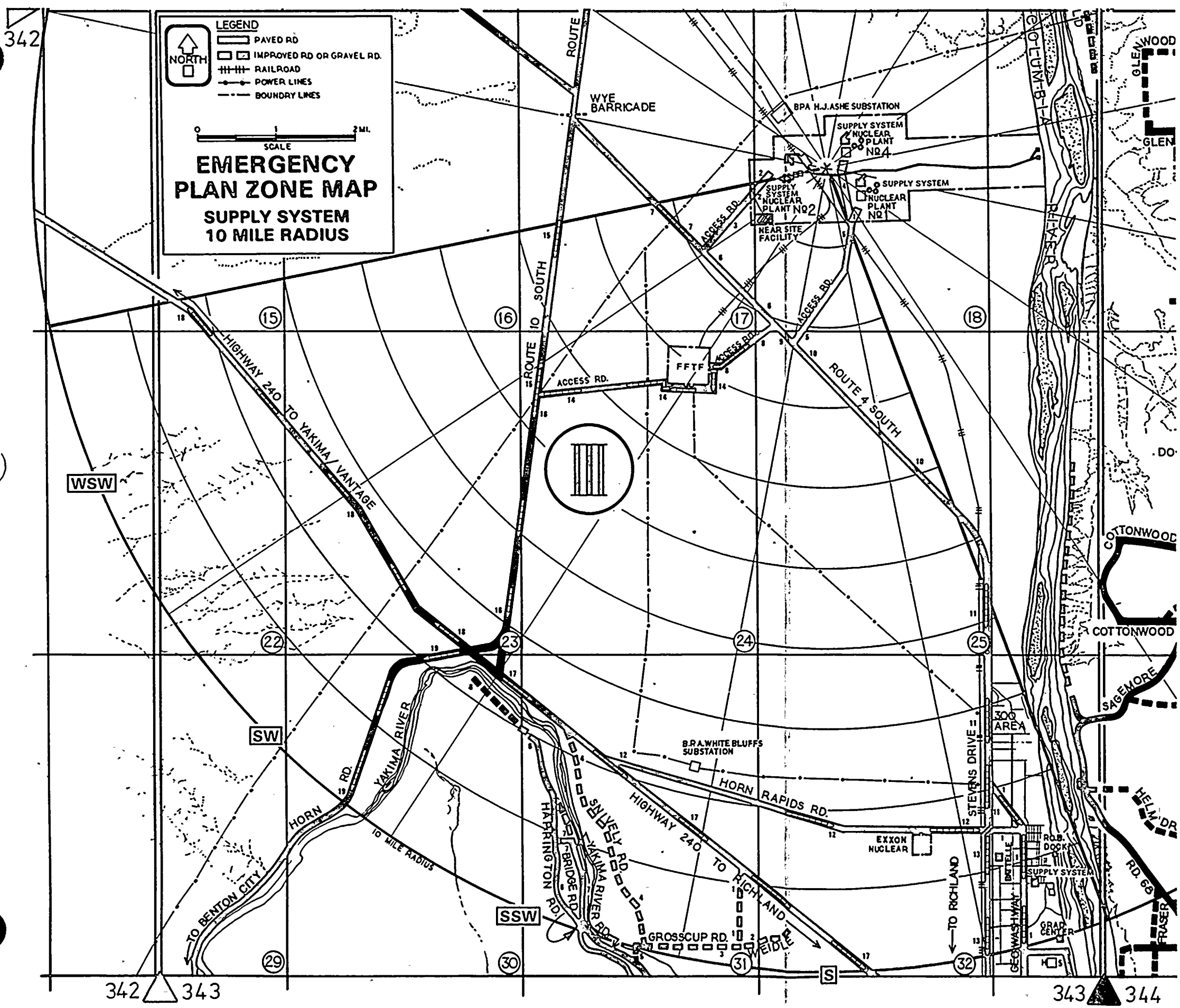


FIGURE 2 QUADRANT III

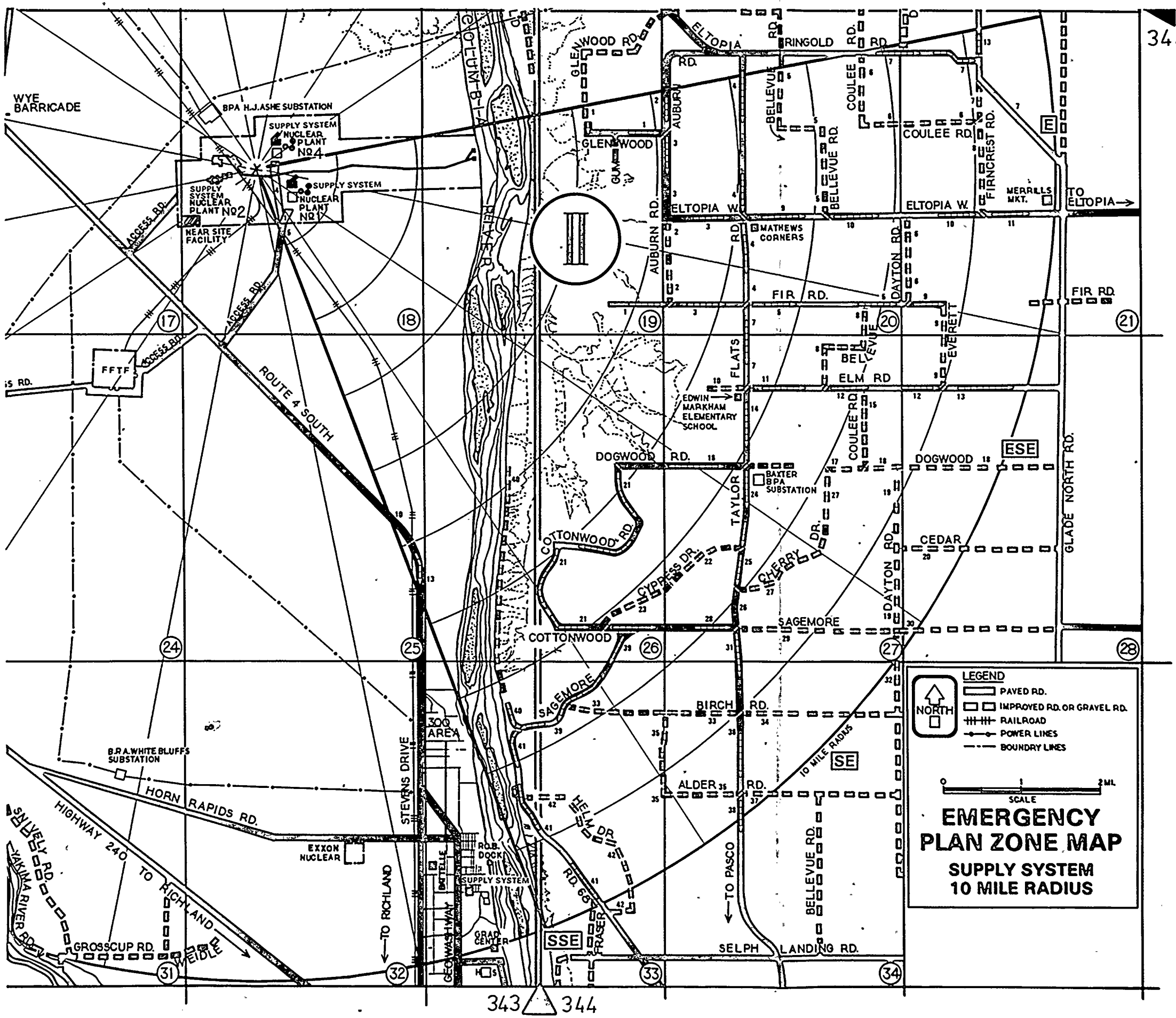


FIGURE 2 QUADRANT II

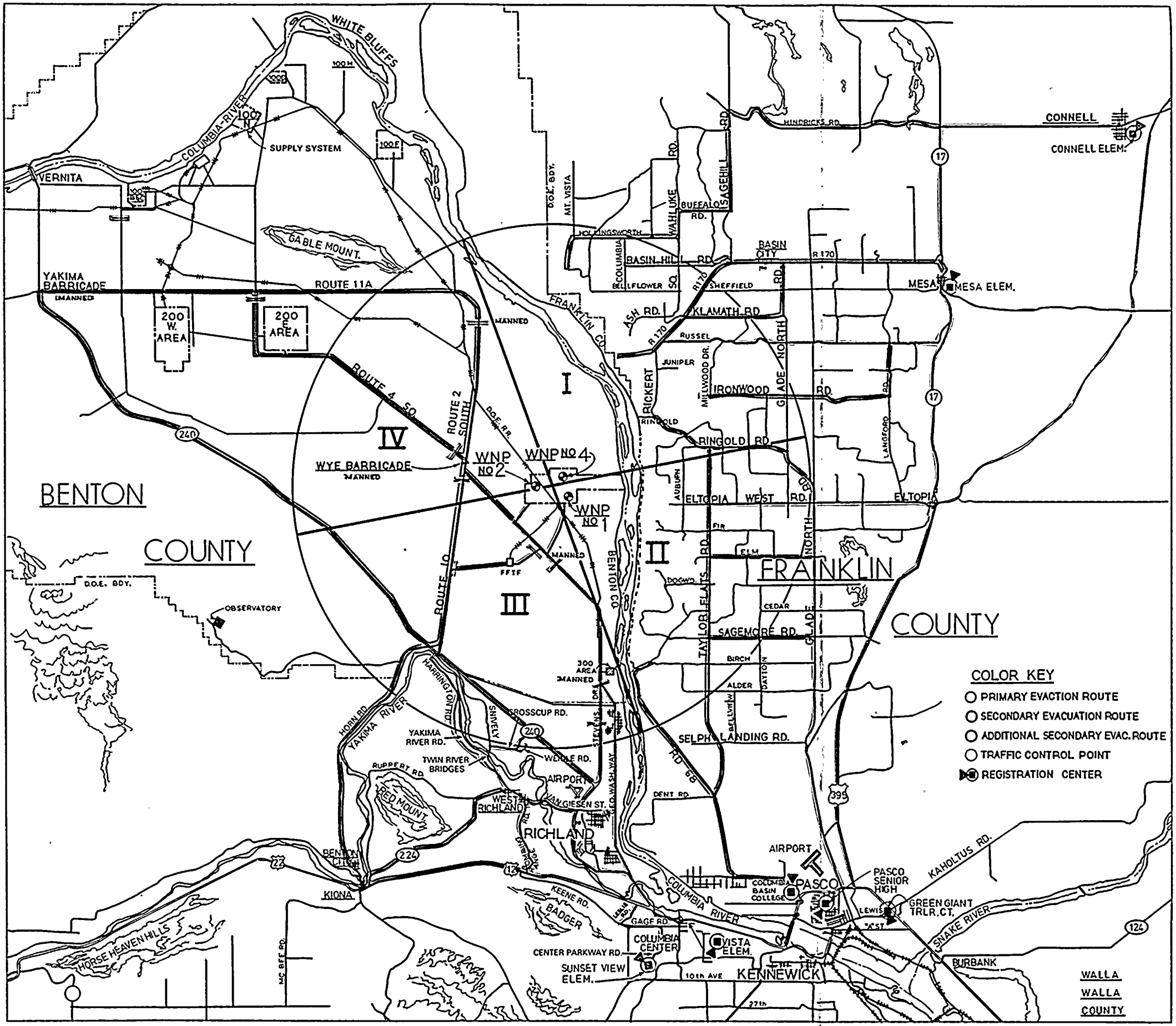
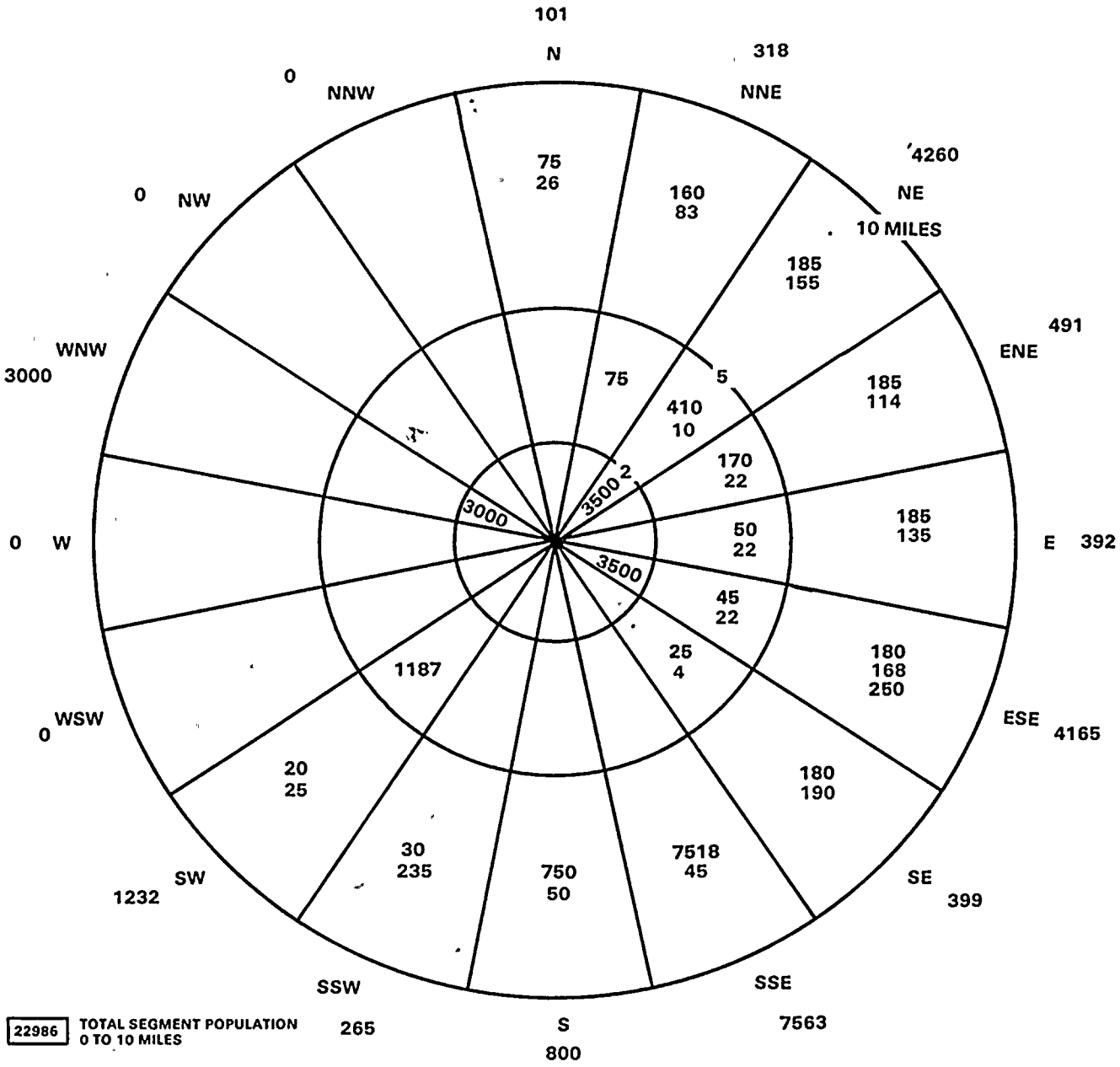


FIGURE 3 EVACUATION ROUTES — BARRICADES — ASSISTANCE CENTER



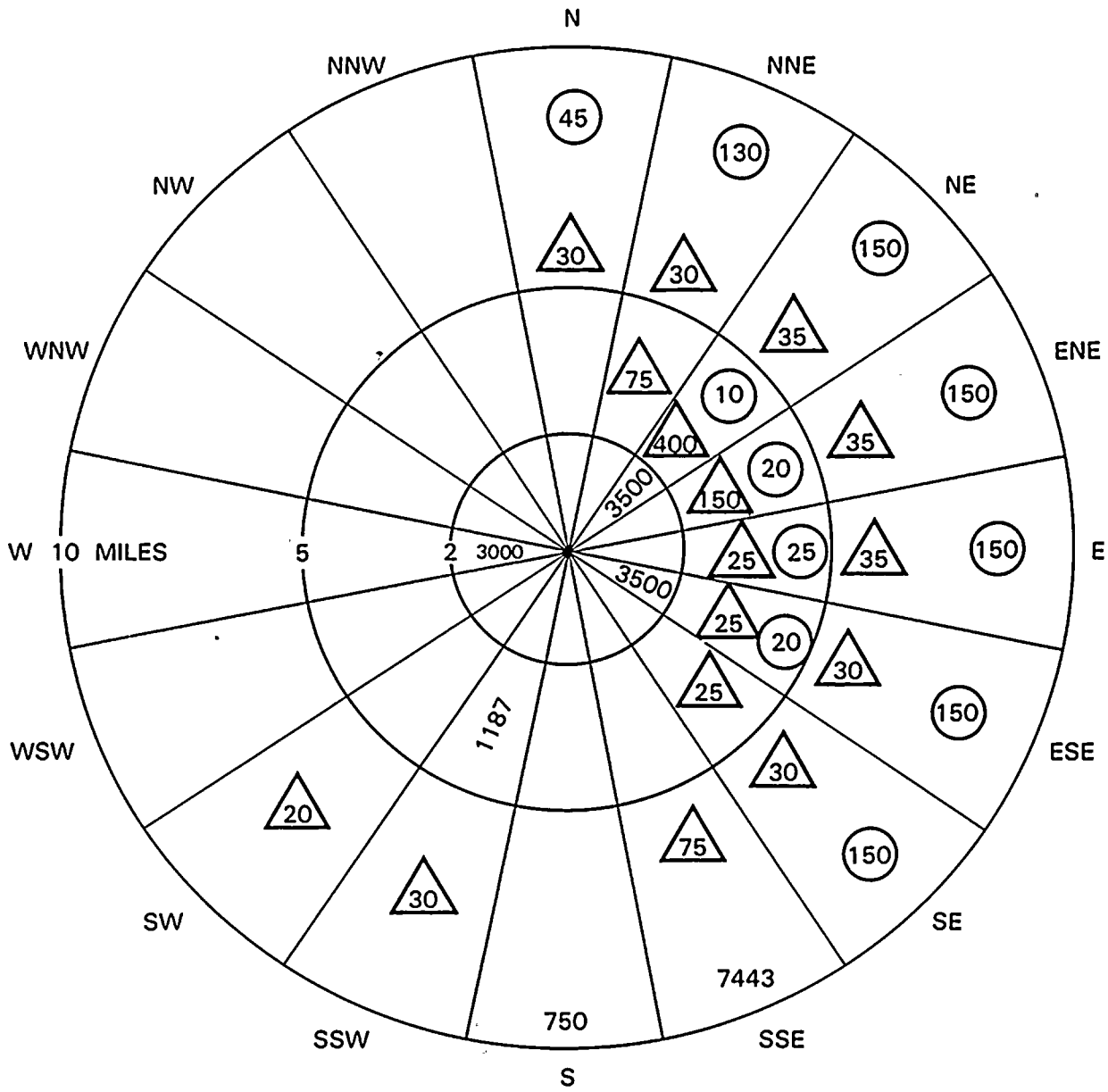
POPULATION TOTALS—PERMANENT			
RING, MILES	RING POPULATION	TOTAL MILES	CUMULATIVE POPULATION
0–2	0	0–2	0
2–5	80	0–5	80
5–10	1226	0–10	1306

POPULATION TOTALS—TRANSIENT			
RING, MILES	RING POPULATION	TOTAL MILES	CUMULATIVE POPULATION
0–2	10000	0–2	10000
2–5	1962	0–5	11962
5–10	9468	0–10	21430

POPULATION TOTALS—SPECIAL			
RING, MILES	RING POPULATION	TOTAL MILES	CUMULATIVE POPULATION
0–2	0	0–2	0
2–5	0	0–5	0
5–10	250	0–10	250

POPULATION TOTALS			
RING, MILES	RING POPULATION	TOTAL MILES	CUMULATIVE POPULATION
0–2	10000	0–2	10000
2–5	2042	0–5	12042
5–10	10944	0–10	22986

FIGURE 4 TOTAL POPULATION WITHIN THE 10 MILE EPZ BROKEN DOWN INTO 3 CLASSIFICATIONS



KEY

Industrial Employees	3000
Migratory Agricultural Workers	150
Sportsmen	30

FIGURE 5 DISTRIBUTION OF TRANSIENT POPULATION WITHIN 10 MILES OF SITE

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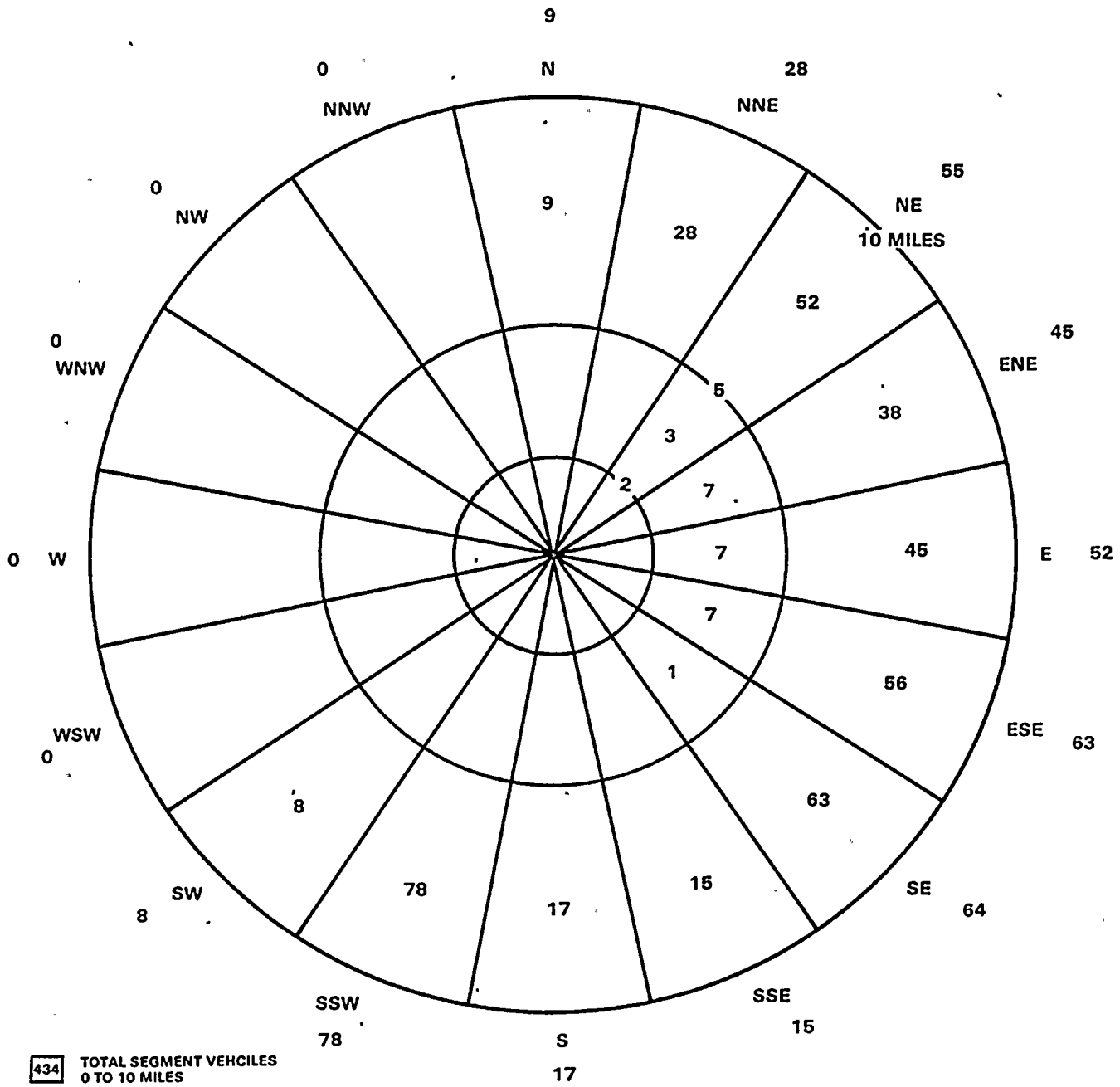
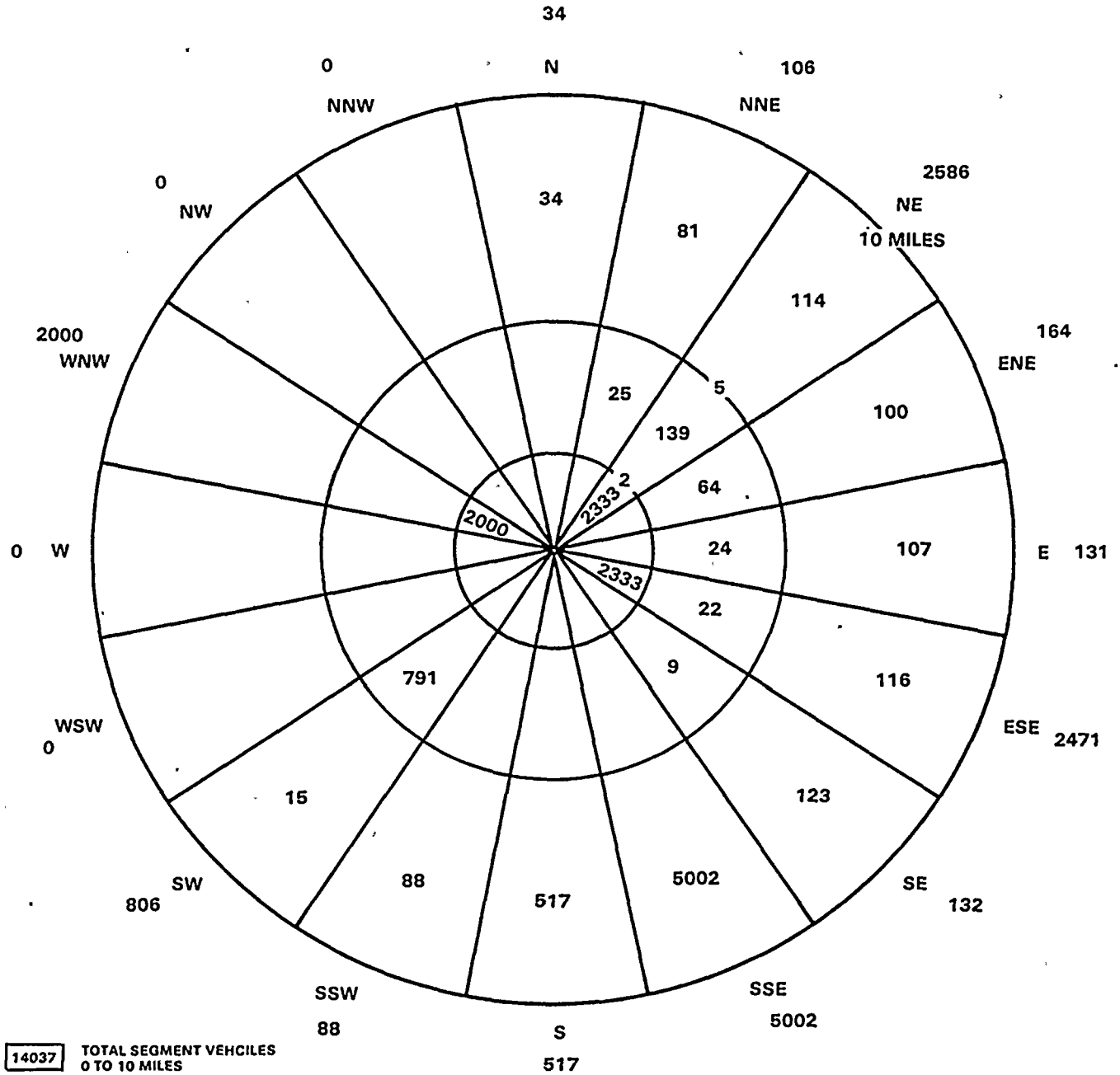


434 TOTAL SEGMENT VEHCILES 0 TO 10 MILES

VEHICLES TOTALS			
RING MILES	RING VEHICLES	TOTAL MILES	CUMULATIVE VEHICLES
0–2	0	0–2	0
2–5	25	0–5	25
5–10	409	0–10	434

FIGURE 6 PERMANENT RESIDENT PASSENGER VEHICLES WITHIN 10 MILE EMERGENCY PLANNING ZONE



14037 TOTAL SEGMENT VEHCILES 0 TO 10 MILES

VEHICLES TOTALS			
RING MILES	RING VEHICLES	TOTAL MILES	CUMULATIVE VEHICLES
0–2	6666	0–2	6666
2–5	1074	0–5	7740
5–10	6297	0–10	14037

FIGURE 7 TOTAL PASSENGER VEHICLES WITH 10 MILE EMERGENCY PLANNING ZONE

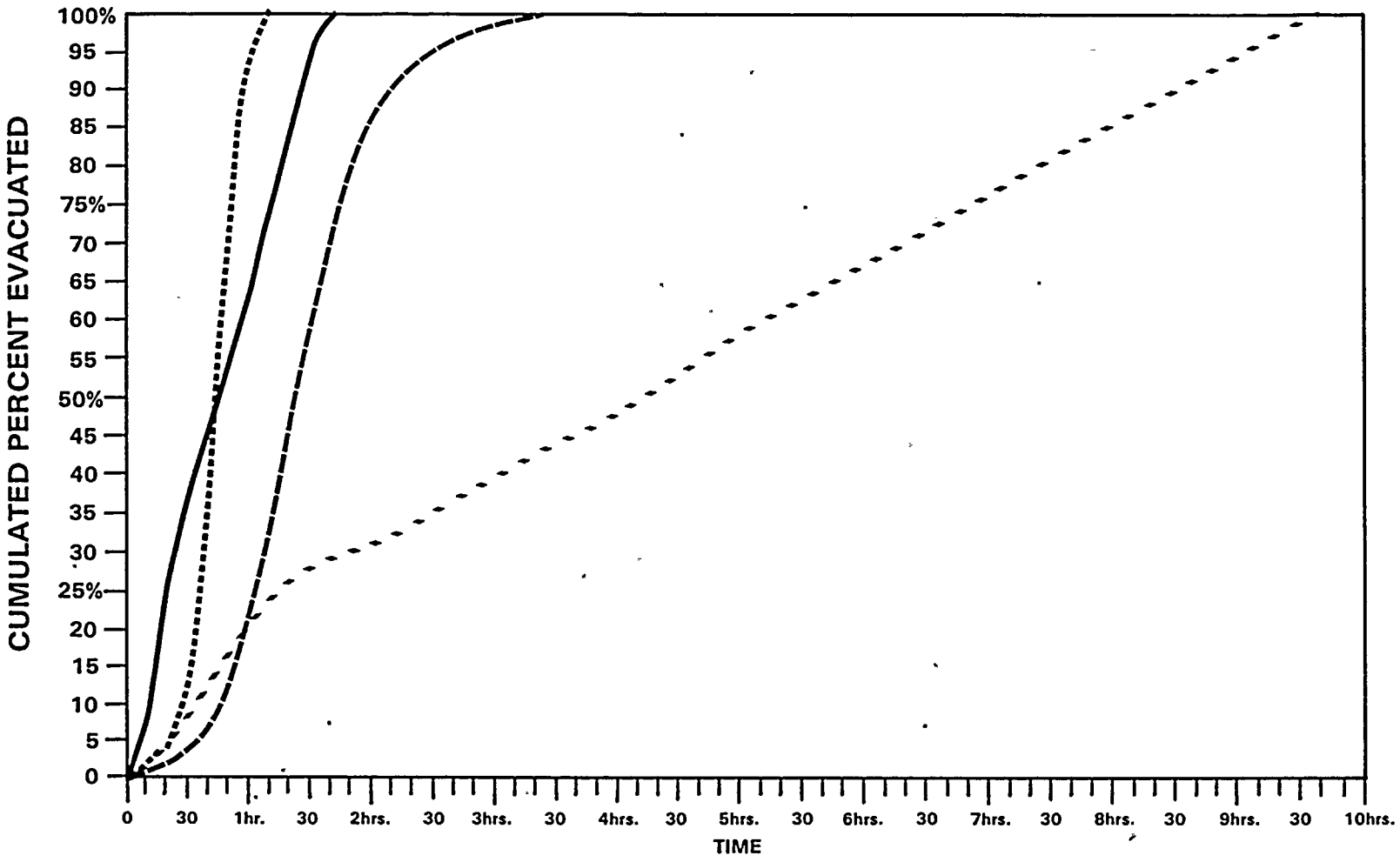


FIGURE 8 PERCENT EVACUATED VERSUS TIME FOR VARIOUS POPULATIONS AND CONDITIONS ("S-CURVES" FOR 10 MILE EMERGENCY PLANNING ZONE)

INPUT	DEFINITION	PURPOSE	EQUATION	CALCULATED VALUE	VALUE USED
1. LU	Output printer code	Tells computer in which mode to print data	— — —	— — —	6
2. DELT	Unit of time for simultaneous evacuation	Calculates all occurrences on all road segments during DELT, then creates a snapshot of vehicular location	Must be less than the shortest road segment length divided by fastest road nominal velocity	$\frac{500 \text{ meters}}{40 \text{ mph}}$ = 28 seconds	25 seconds
3. TYP	Controls frequency of printout	Controls volume of printout	TYP x DELT = frequency of printouts	Evacuations greater than 1 hr; $\frac{24 \times 24 \text{ sec}}{60 \text{ sec/min}}$ = 10 min. Evacuations less than 1 hr; $\frac{12 \times 25 \text{ sec}}{60 \text{ sec/min}}$ = 5 min.	24, 12
4. MAXDEP	Maximum time of departure (in seconds)	Determines when last person begins leaving the area	Must result in an integer when divided by DELT	— — —	Four values were examined: 10 min., 30 min., 1 hour and 2 hours
5. FRACT	Loading function	Controls the loading of the road segments	FRACT = Fraction of vehicles loading within 0.25 x MAXDEP	Fraction leaving within: 0.25 x 10 min. = 2.5 min. 0.25 x 1 hour = 15 min. 0.25 x 2 hours = 30 min.	0.05 = 5% 0.10 = 10% 0.20 = 20% 0.50 = 50% 0.90 = 90%
6. POPVEH	Number of persons per vehicle	Considers that more than one person will be in each vehicle, i.e., family evacuates together in same vehicle	— — —	— — —	3, see reference 2
7. LGCODE	Large Code	Provides ability to reduce volume by use of a random sample	LGCODE proportionately increases POPVEH and EVL, giving the same final answer	— — —	1, 5
8. FLORAT	Input vehicles per hour per lane	Indicates the number of vehicles which can move past a point each hour per lane during an evacuation	— — —	EPA study indicates 1000 to 2600; average between the two is 1800 (reference 3)	1700, 1000
9. EVL	Effective vehicle length at minimum speed	To account for actual distance occupied between cars on road segment	Base length of vehicle = 5.68 meters + $\frac{\text{5.68 meters times velocity}}{\text{10 mph of velocity}}$	At 15 mph. $5.68 + \left(\frac{15}{10} \times 5.68\right) = 14.2M$	14.2, 22.72, 8.52
10. V	Minimum velocity	Simulates stop and go traffic	— — —	— — —	15 mph, 30 mph, 5 mph
11. ZTWO ZFIV ZTEN	Total number of zones which are represented in the tree less than 2 miles, 5 miles and 10 miles from the plants respectively	Account for vehicle radial location during evacuation	— — —	— — —	Specific to individual tree

TABLE 1 INPUTS TO CLEAR COMPUTER MODEL

INPUT	DEFINITION	PURPOSE	EQUATION	CALCULATED VALUE	VALUE USED
12. ZEPZ	Total number of zones in the tree	Provides flexibility of adding zones beyond ten-mile EPZ if traffic could be slowed due to some barrier which would back traffic into the ten-mile zone	— — —	No special barriers were identified	Specific to individual tree
13. ISTG	Number of independent special traffic generators	Evacuates special areas as groups rather than individual residents, such as the evacuation of a factory or a school.	— — —	ISTG for Franklin County Edwin Markham Elementary School ISTG for Benton County WNP-2 WNP-1 WNP-4 Fast Flux Test Facility Exxon Nuclear 300 Area 3000 Area 1100 Area Supply System Headquarters Other North Richland Industrial Complex Facilities	Specific to individual tree, only 3 of 8 trees contain ISTGs
14. ROAD	The road segment where the ISTG is located	Place ISTG	— — —	— — —	Specific to individual ISTG
15. LENSTG	The length of the road from the ISTG to the LINK	Place ISTG	— — —	— — —	Specific to individual ISTG
16. PVSTG	Average number of people evacuating per vehicle from ISTG	Allow variance from POPVEH, people will leave in the same vehicles in which they came to work in	— — —	Franklin County: 35 students per bus (conservative) Benton County: 1.5 persons per car (reference 4)	Franklin County: 35 Benton County: 1.5
17. POPSTG	Population per ISTG	Add ISTG population	— — —	— — —	Values are given in Section II
18. EX	Number assigned to any exit roads leaving the 10-mile zone	Lets computer model know when a vehicle has left the EPZ	— — —	— — —	Specific to individual tree
19. EPZ	The first radiant distance mile outside the EPZ	Used to indicate when evacuation was complete	— — —	To indicate evacuation is complete at 10 miles, a value of 11 is needed; at 15 miles, 16 is needed	11, 16
20. POPZN	Population of each zone	Input population	— — —	— — —	See Figures 4 & 5 and Tables 2—5
21. NRDS	Number of road segments within the zone	Let computer know when to look for next zone	— — —	— — —	Specific to individual tree
22. LENRDS	Total length of all road segments within the zone	Proportions population according to the length of the road segment	$\frac{\text{LEN}}{\text{LENRDS}} \times \text{POPZN}$	— — —	Specific to individual tree

TABLE 1 INPUTS TO CLEAR COMPUTER MODEL Cont'd.

INPUT	DEFINITION	PURPOSE	EQUATION	CALCULATED VALUE	VALUE USED
23. ZNRD	Number assigned to the individual road segment	Necessary for the computer to construct the mathematical evacuation tree	— — —	— — —	See Figure 2
24. LINK	Road segment onto which the vehicles from ZNRD flow	Necessary for the computer to construct the mathematical evacuation tree	— — —	— — —	See Figure 2
25. LEN	Length in meters of ZNRD	Necessary for the computer to construct the mathematical evcuation tree	— — —	— — —	See Figure 2
26. RADIS	First radial distance beyond where the ZNRD intersects the LINK and the NRSEC	Used by computer to keep track of population at varying radi	— — —	— — —	See Figure 2
27. NOMVEL	Nominal velocity on ZNRD	Control upper speed of exiting vehicles	— — —	An EPA report states that, "Vehicle speed observed ranged from 25 to 45 mph (with an average of 35 mph) during the evacuation." (ref. 3)	Paved roads: 40 mph Improved roads: 30 mph Adverse weather conditions: 5 mph
28. NLANES	Number of lanes available	— — —	— — —	Credit was not taken for sending persons down both sides of the road except at WNP-1, -2 & -4 where this is done each day at shift change	1, 2
29. NRSEC	Number assigned to the road segment which intersects with the ZNRD and LINK	Necessary for the computer to construct the mathematical tree	— — —	— — —	See Figure 2

TABLE 1 INPUTS TO CLEAR COMPUTER MODEL Cont'd.

Mile	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	45	50		TOTAL
Sector N								6	10	10	138	194	675	826	454	526	2904	14968		20711
NNE						5	8	10	30	30	136	192	481	5278	732	2466	423	470		10261
NE					10	15	20	45	30	45	166	233	430	1585	355	295	130	796		4155
ENE				10	12	10	14	10	25	55	184	608	296	1421	90	331	100	113		3279
E					22	55	60	10	10		192	269	68	83	59	69	114	127		1138
ESE					22	20	35	43	45	25	80	112	69	84	77	90	280	584		1566
SE					4	5	50	60	40	35	547	3608	2762	3376	215	249	984	1100		13035
SSE							10	10	10	15	7588	41590	22902	1214	275	317	821	919		75671
S										50	25922	3021	84	103	567	4113	2050	14490		50400
SSW									135	100	1298	294	393	482	42	214	164	2446		5568
SW									25		494	2612	875	5290	219	254	199	222		10190
WSW											396	554	732	894	4478	17393	382	427		25256
W													536	655	1660	1918	6077	12438		23284
WNW													83	102	649	750	822	920		3326
NW													18	22	187	516	383	429		1555
NNW													82	100	318	1257	251	281		2289
Total				10	70	110	197	194	360	365	37141	53287	30486	21515	10377	30758	16084	50730		251684
Accumulated Total				10	80	190	387	581	941	1306	38447	91734	122220	143735	154112	184870	200956	251684		

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TABLE 2 PERMANENT POPULATION DISTRIBUTION

Mile	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	45	50		TOTAL
Sector N							30	10	15	20										75
NNE					75	20	20	35	40	45										235
NE	3500			400	10	30	35	35	40	45										4095
ENE				150	20	30	35	35	40	45										355
E				25	25	30	35	35	40	45										235
ESE	3500			25	20	30	30	35	40	45										3725
SE					25	30	30	35	40	45										205
SSE							75	2918	2016	2509										7518
S									750											750
SSW																				
SW				1187																1187
WSW																				
W																				
WNW	3000										1779	1361								6140
NW												993								993
NNW																				
Total	10000			1787	175	170	290	3138	3021	2799	1779	2354								25513
Accumulated Total	10000			11787	11962	12132	12422	15560	18581	21380	23159	25513								

TABLE 3 TRANSIENT POPULATION DISTRIBUTION

Mile	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	45	50		TOTAL
Sector N																				
NNE																				
NE																				
ENE																				
E																				
ESE							250													250
SE																				
SSE																				
S																				
SSW																				
SW																				
WSW																				
W																				
WNW																				
NW																				
NNW																				
Total							250													250
Accumulated Total							250													

TABLE 4 SPECIAL FACILITY POPULATION DISTRIBUTION

Mile	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	45	50		TOTAL
Sector N							30	16	25	30	138	194	675	826	454	526	2904	14968		20786
NNE					75	25	28	45	70	75	136	192	481	5278	732	2466	423	470		10496
NE	3500			400	20	45	55	80	70	90	166	233	430	1585	355	295	130	796		8250
ENE				160	32	40	49	45	65	100	184	608	296	1421	90	331	100	113		3634
E				25	47	85	95	45	50	45	192	269	68	83	59	69	114	127		1373
ESE	3500			25	42	50	315	78	85	70	80	112	69	84	77	90	280	584		5541
SE					29	35	80	95	80	80	547	3608	2762	3376	215	249	984	1100		13240
SSE							85	2928	2026	2524	7588	41590	22902	1214	275	317	821	919		83189
S									750	50	25922	3021	84	103	567	4113	2050	14490		51150
SSW									135	100	1298	294	393	482	42	214	164	2446		5568
SW				1187					25		494	2612	875	5290	219	254	199	222		11377
WSW											396	554	732	894	4478	17393	382	427		25256
W													536	655	1660	1918	6077	12438		23284
WNW	3000										1779	1361	83	102	649	750	822	920		9466
NW												993	18	22	187	516	383	429		2548
NNW													82	100	318	1257	251	281		2289
Total	10000			1797	245	280	737	3332	3381	3164	38920	55641	30486	21515	10377	30758	16084	50730		277447
Accumulated Total	10000			11797	12042	12322	13059	16391	19772	22936	61856	117497	147983	169498	179875	210633	226717	277447		

TABLE 5 MAXIMUM POPULATION DISTRIBUTION

QUADRANT I

Location in Miles	Sector	Tree	ZONE	ZNRD (Road Segment)	LINK	LEN (Length) METERS	RADIS (Radius) MILES	NOMVEL (Nominal Velocity) MPH	NLANES (Number of Lanes)	NRSEC (Intersecting Road)
5-10	N	4	1	1	3	1500	8	30	1	2
				2	3	2000	8	30	1	1
				3	6	3000	10	30	1	5
				4	16	1500	10	30	1	—
				5	6	3000	10	30	1	3
				6	8	2500	10	40	1	9
				7	16	1500	10	30	1	—
5-10	NNE		2	8	16	1500	10	40	1	—
				9	8	3500	10	30	1	6
				10	15	3500	10	30	1	13
				11	13	3500	9	30	1	12
				12	13	7000	9	30	1	11
				13	15	1500	10	40	1	10
				14	16	500	10	40	1	—
				15	16	1000	10	40	1	—
2-5	NE	5	1	1	2	4000	5	40	1	—
5-10	NE		2	2	4	5000	7	40	1	3
				3	4	2500	7	40	1	2
				4	15	4500	9	40	1	16
				5	7	2000	8	40	1	6
				6	7	1500	8	30	1	5
				7	18	3500	10	40	1	—
				8	18	1500	10	30	1	—
				9	18	1500	10	40	1	—
				10	12	1500	9	40	1	11
				11	12	2000	9	30	1	10
				12	14	3000	10	40	1	13
				13	14	2000	10	30	1	12
				14	18	500	10	40	1	—
				15	18	3000	10	40	1	—
				16	15	4000	9	30	1	4
				17	18	5000	10	30	1	—
2-5	ENE	6	1	1	3	2500	5	40	1	2
				2	3	2000	5	30	1	1
5-10	ENE		2	3	6	1000	6	40	1	5
				4	7	4000	7	30	1	6
				5	6	1000	6	40	1	3
				6	7	1500	7	40	1	4
				7	16	7000	10	40	1	—
				8	12	3500	9	40	1	11
				9	11	3500	9	30	1	10
				10	11	2500	9	30	1	9
				11	12	1000	9	30	1	8
				12	15	1500	10	40	1	13
				13	15	3500	10	40	1	12
				14	16	1500	10	40	1	—
				15	16	500	10	40	1	—

QUADRANT II

Location in Miles	Sector	Tree	ZONE	ZNRD (Road Segment)	LINK	LEN (Length) METERS	RADIS (Radius) MILES	NOMVEL (Nominal Velocity) MPH	NLANES (Number of Lanes)	NRSEC (Intersecting Road)
2-5	E	7	1	1	3	3500	5	30	1	2
5-10	E		2	2	3	1500	6	40	1	1
				3	9	3500	6	40	1	4
				4	9	3000	6	40	1	3
				5	10	4000	7	30	1	9
				6	8	4000	9	30	1	7
				7	8	1000	9	30	1	6
				8	11	2000	9	30	1	10
				9	10	1500	7	40	1	5
				10	11	3500	9	40	1	8
				11	12	1500	10	40	1	—
2-5	ESE	8	1	1	3	1500	5	40	1	2
				2	3	1500	5	30	1	1
5-10	ESE		2	3	7	1500	7	40	1	4
				4	7	1500	7	40	1	3
				5	9	3500	9	40	1	6
				6	9	2000	9	30	1	5
				7	14	2000	7	40	1	10
				8	12	2500	8	30	1	11
				9	13	2500	9	30	1	12
				10	14	1000	7	30	1	7
				11	12	1500	8	40	1	8
				12	13	2500	9	40	1	9
				13	44	2000	10	40	1	—
				14	24	1500	8	40	1	16
				15	18	1500	9	30	1	17
				16	24	2500	7	40	1	14
				17	18	1000	9	30	1	15
				18	44	3000	10	30	1	—
				19	29	3500	10	30	1	28
				20	44	1500	10	30	1	—
5-10	SE		3	21	30	6000	7	40	1	26
				22	25	2000	8	30	1	24
				23	28	2000	8	30	1	21
				24	25	1500	8	40	1	22
				25	26	1000	8	40	1	27
				26	31	1000	9	40	1	28
				27	26	3500	8	30	1	25
				28	31	3000	9	40	1	26
				29	30	3500	10	30	1	19
				30	44	500	10	30	1	—
				31	36	2000	9	40	1	33
				32	44	500	10	30	1	—
				33	36	3500	9	30	1	31
				34	44	2000	10	30	1	—
				35	38	3000	10	30	1	36
				36	38	2000	10	40	1	35
				37	44	500	10	30	1	—
				38	44	500	10	40	1	—
5-10	SSE		4	39	41	3500	8	40	1	40
				40	41	5500	8	30	1	39
				41	44	2500	10	40	1	—
				42	44	3500	10	30	1	—
				43	44	500	10	30	1	—

TABLE 6 ROADWAY CHARACTERISTICS

Location in Miles	Sector	Tree	ZONE	ZNRD (Road Segment)	LINK	LEN (Length) METERS	RADIS (Radius) MILES	NOMVEL (Nominal Velocity) MPH	NLANES (Number of Lanes)	NRSEC (Intersecting Road)
QUADRANT III										
0-2	—	1	1	1	5	500	1	40	2	4
				2	3	1000	1	40	2	—
				3	6	1500	2	40	2	7
				4	5	1500	1	40	2	1
				5	10	3000	2	40	2	9
				6	9	2000	2	40	2	8
				7	6	4000	2	40	2	3
2-5	SSW		2	8	9	2000	3	40	1	6
				9	10	500	3	40	2	5
				10	11	5500	5	40	2	—
				14	16	4500	5	40	1	15
				15	16	5500	5	40	1	14
5-10	SSE		3	11	13	6000	8	40	2	12
				12	13	8000	9	40	1	11
				13	20	2500	10	40	2	—
				16	17	6000	8	40	1	—
				17	20	10,000	10	40	2	—
				18	20	14,000	10	40	2	—
				19	20	4500	10	40	1	—

Location in Miles	Sector	Tree	ZONE	ZNRD (Road Segment)	LINK	LEN (Length) METERS	RADIS (Radius) MILES	NOMVEL (Nominal Velocity)	NOMVEL (Nominal Velocity) MPH	NRSEC (Intersecting Road)
QUADRANT III Cont'd.										
5-10	SSE	2	1	1	2	3500	10	40	2	—
5-10	S	3	1	1	3	1500	10	30	1	2
				2	3	1500	10	30	1	1
				3	5	2000	10	30	1	4
5-10	SSW		2	4	5	5000	10	30	1	3
				5	8	500	10	30	1	—
				6	8	6000	10	40	1	—
				7	8	3500	10	40	1	—

TABLE 6 ROADWAY CHARACTERISTICS Cont'd.

DESCRIPTION	TOTAL WITHIN 2 MILES	AREAS WITHIN 5 MILES				AREAS WITHIN 10 MILES			
		I	II	III	TOTAL	I	II	III	TOTAL
PERMANENT POPULATION	—	32	48	—	80	410	586	310	1,306
PERMANENT POPULATION VEHICLES	—	10	15	—	25	137	194	103	434
TRANSIENT POPULATION	10,000	655	120	11,187	11,962	1,260	740	19,430	21,430
TRANSIENT POPULATION VEHICLES	6,666	218	40	7,457	7,715	420	247	12,936	13,603
GENERAL POPULATION	10,000	687	168	11,187	12,042	1,670	1,326	19,740	22,736
TOTAL VEHICLES	6,666	228	55	7,457	7,740	557	441	13,039	14,037
NOTIFICATION TIME MINUTES	15	30	30	30	30	30	30	30	30
PERMANENT POPULATION EVAC. TIME NORMAL CONDITIONS HOURS MINUTES	—	:50	1:00	—	1:00	1:00	1:10	1:00	1:10
GENERAL POPULATION EVAC. TIME NORMAL CONDITIONS HOURS MINUTES	1:00	1:00	1:00	1:30	1:30	1:20	1:20	1:40	1:40
PERMANENT POPULATION EVAC. TIME ADVERSE CONDITIONS HOURS MINUTES	—	:50	1:00	—	1:00	2:50	3:20	1:00	3:20
GENERAL POPULATION EVAC. TIME ADVERSE CONDITIONS HOURS MINUTES	5:10	1:00	1:00	8:20	8:20	2:50	3:30	9:40	9:40
CONFIRMATION TIME MINUTES	30	60	60	60	60	60	60	60	60

TABLE 7 SUMMARY OF RESULTS OF EVACUATION TIMES ANALYSIS

ATTACHMENT 1

This attachment is a copy of the CLEAR Computer Code[1] as modified to meet Supply System needs.

USER: MLEE

LEE. CLEAR. RAND. M

```
**************************************************************************************************************************************************
**************************************************************************************************************************************************


M    M M      MMMMMM MMMMM
MM  MM M      M      M
M M M M       M      M
M M M M       MMMM   MMMM
M    M M      M      M
M    M M      M      M
M    M MMMMM  MMMMM  MMMMM


M      MMMMM MMMMM          MMM  M      MMMMM  MMM  MMMM          MMMM   MMM  M   M MMMM          M   M
M      M     M             M   M M      M      M   M M  M          M   M M   M  MM  M M   M          MM MM
M      M     M             M     M      M      M   M M  M          M   M M   M M M M M   M          M M M
M      MMMM  MMMM          M     M      MMMM   MMMMM MMMM         MMMM  MMMMM M M M M   M          M M M
M      M     M             M     M      M      M   M M M M         M M   M   M  M M M M   M          M   M
M      M     M       MM    M   M M      M      M   M M  M   MM    M  M  M   M  M M  MM M   M  MM    M   M
MMMMM MMMMM MMMMM  MM     MMM  MMMMM MMMMM M   M M   M  MM    M   M M   M  M M   M MMMM   MM    M   M


**************************************************************************************************************************************************
**************************************************************************************************************************************************
```

LABEL: PRT005 -FORM PRC   -COPIES   1

SPOOLED: 09/23/81 09:39
STARTED: 09/23/81 09:43, ON: MLC   BY: PRC

PRINTED ON COMPANION PRINTER PRC

```
C     ************************************************************************



C     ************************************************************************
$INSERT SYSCOM>KEYS.F
$INSERT SYSCOM>ERRD.F
$INSERT SYSCOM>A$KEYS
C
C*************************************************************************
C
C     DECLARATION OF VARIABLES.
      INTEGER *2  TYPE,CODE,EPZ,EX
      INTEGER *2  ITIME(15)
C
      IMPLICIT INTEGER  (D)
C
C        LABELLED COMMON:
C
       COMMON /LCOM/ DIST(30,6000),DISRAN(30,6000),DISLOD(30,6000),
     $DISBAC(30,6000),DISTOT(30,6000),ZNRDT(30,6000)
C
C                  DISBAC- DISTANCE FOR VEH TO REACH LINK FOR NBAC
C                  DISLOD- DISTANCE FOR VEH TO REACH LINK FOR NLOD
C                  DISRAN- DISTANCE FOR VEH TO REACH LINK FOR NRAN
C                  DIST  - DISTANCE FOR VEH TO REACH LINK FOR ZNRD
C                  DISTOT- DISTANCE FOR VEH TO REACH LINK FOR NTOT
C                  ZNRDT - FLAGS PROCESSING OF A VEHICLE FOR EACH DELT
C
      REAL  FRACT,PERLEN,PERCP,FREFLO,POPZN,LENRDS,EVL
C
C        FRACT...FRACTION OF POP LEAVING WITHIN .25*MAXDEP
C        PERLEN...PERCENTAGE OF ZONE ROAD'S LENGTH
C        PERCP....PERCENTAGE OF GREEN LIGHT CONDITION
C        FREFLO...FREE FLOW RATE IN AUTOS PER DELT-LANE-METER
C        POPZN....POPULATION PLACEHOLDER FOR A ZONE
C        LENRDS...TOTAL LENGTH OF ROADS IN ZONE
C        EVL......EFFECTIVE VEHICLE LENGTH OF AUTO AT MIN. SPEED
C.....
      INTEGER*4 TIME,ITL,KTL,BTL
      INTEGER*4 KIMIN,KIHOUR,KIONE
C.....
      INTEGER *2  M,J,N,K,A,B,C,I,EX,EPZ,TYP,ZTWO,ZFIV,ZTEN,ZEPZ,FLORAT,
     $POP,POPVEH,LGCODE,POPTWO,POPFIV,MAXDEP,DELT,SAVET,INT,ISTG,LE
     $NSTG,POPSTG,CAPVM,CAPNR,CAPLK,GREEN,PERAD,LU,INTPOP,POPEPZ,POPTEN
C
C                A...COUNTER OR PLACEHOLDER
C                B...COUNTER OR PLACEHOLDER
C                C...COUNTER OR PLACEHOLDER
C                CAPLK..CAPACITY FOR ROAD'S LINK
C                CAPNR..CAPACITY FOR ROAD'S INTERSECTING ROAD
C                CAPVM...CAPACITY FOR A ROAD BEING PROCESSED
C                DELT...UNIT OF TIME FOR SIMILTANEOUS EVACUATION
C                EPZ...FIRST RADIAL DISTANCE MILE OUTSIDE EPZ
C                EX..NUMBER ASSIGNED TO THE DUMMY EXIT ROAD
C                FLORAT..INPUT VEHICLES PER HOUR-LANE-MILE
C                GREEN..COUNTER FOR GREEN LIGHT CONDITION
C                I...COUNTER OR PLACEHOLDER
C                INT...INTEGER COUNTER USED TO INCREMENT TIME
C                INTPOP..INITIAL VEHICLE POPULATION AT TIME=
C                ISTG...NUM OF INDEPENDENT SPECIAL TRAFFIC GENERATOR
```

```
C     ***********************************************************************


C                J...IDENTIFIER FOR ROAD NUMBERS
C                K...COUNTER OR PLACEHOLDER
C                LENSTG..LENGTH FOR STG TO NEXT LINK
C                LGCODE....MODELS RANDOM SAMPLE (/LGCODE) OF TOTAL POP
C                LU....OUTPUT PRINTING CODE
C                M...IDENTIFIER FOR ZONE NUMBERS
C                MAXDEP..MAXIMUM TIME OF DEPARTURE (MIN=*DELT)
C                N...IDENTIFIER FOR SPECIFIC VEHICLE NUMBERS
C                PERAD..NUMBER OF VEHICLES FOR GREEN LIGHT CONDITION
C                POP...POPULATION PLACEHOLDER FOR A ROAD
C                POPEPZ..POPULATION WITHIN THE EPZ
C                POPFIV..POPULATION IN FIVE MILE RADIUS
C                POPSTG..POPULATION FORMING STG
C                POPTEN..POPULATION IN TEN MILE RADIUS
C                POPTWO..POPULATION IN TWO MILE RADIUS
C                POPVEH...POPULATION NUMBER PER VEHICLE
C                PVSTG...POPVEH FOR STG
C                SAVET...SAVES OR STORES VALUE OF DELT DURING LOOP
C                TIME....CUMMULATIVE TIME FROM BEGINNING OF EVAC
C                TYP..PRINT OUTPUT ONCE EVERY TYP*DELT
C                ZEPZ..HIGHEST ZONE NUMBER WITHIN EPZ
C                ZFIV..HIGHEST ZONE NUMBER IN FIVE MILE RADIUS
C                ZTEN..HIGHEST ZONE NUMBER IN TEN MILE RADIUS
C                ZTWO..HIGHEST ZONE NUMBER IN TWO MILE RADIUS
C
      INTEGER *4  LEN(145)
      INTEGER *2  ZNRD(23,145),POPRD(145),RADIS(145),POPRAD(21),NLANES(1
     $99),NRSEC(145),NOMVEL(145),VEL(145),VMOTO(145),LDT(145),NRDS(23),Q
     $FL(145),LINK(145),RANP(200),QROAD(145),NRAN(200),FLRAN(145),NLOD(2
     $00),FLLOD(145),NBAC(200),FLBAC(145),NTOT(200),FLTOT(145)
      INTEGER *2  FILNAM(16)
C.....
C.....
C
C                    FLBAC(145)..FLAGS NBAC EXISTS (.NE.0)
C                    FLLOD(145)..FLAGS THAT NLOD EXISTS (.NE.0)
C                    FLRAN(145)..FLAGS THAT NRAN EXISTS (.NE.0)
C                    FLTOT(145)..FLAGS NTOT EXISTS (.NE.0)
C                    LDT(145)..FLAGS LOADING FOR EACH DELT
C                    LEN(145)..LENGTH OF ROAD ZNRD(M,J)
C                    LINK(145)..NEXT ROAD BEYOND ZNRD(M,J) IN PATH
C                    NBAC(200)..NUMBER OF VEHICLES IN BACK UP QUEUE
C                    NLANES(145)..NUMBER OF LANES ON ZNRD(M,J)
C                    NLOD(200)..NUMBER OF VEHICLES IN LOADING QUEUE
C                    NOMVEL(145)..NOMINAL VELOCITY OF ZNRD(M,J)
C                    NRAN(200)..NUMBER OF VEHICLES IN RANDOM QUEUE
C                    NRDS(23)..NUMBER OF ROADS IN A ZONE
C                    NRSEC(145)..0 OR ROAD# INTERSECTING WITH ZNRD
C                    NTOT(200)..NUMBER OF VEHS IN LOAD & BACK QUEUE
C                    POPRAD(21)..POPULATION BY RADIAL DISTANCE
C                    POPRD(145)..POPULATION OF A ROAD ZNRD(M,J)
C                    QFL(145)..FLAGS BACK UP QUEUE FOR EACH ROAD
C                    QROAD(145)..REFERS TO A SPECIFIC ROAD'S QUEUE
C                    RADIS(145)..RADIAL DISTANCE OF ZNRD(M,J)
C                    RANP(200)..USED TO RELIST VEH FOR IRND SELECT
C                    VEL(145)..ACTUAL VELOCITY OF TRAVEL ON ROAD
C                    VMOTO(145)..NUMBER OF MOVING VEHICLES ON ROAD
```

```
C     ************************************************************************


C                    ZNRD(23,145)..REFERENCES ZONE M, ROAD J
C
C     BEGIN PROGRAM
C
C     ***** CHECK *****
C
      KIONE=1
      KIMIN=3600
      KIHOUR=60
C******    CALL THE SYSTEM TIMER BEFORE BEGINNING
C
      CALL TIMDAT (ITIME,15)
      PRINT 960, (ITIME(I),I=1,10)
      CALL TNOU (' TYPE IN THE  NAME OF YOUR INPUT FILE',37)
      READ (1,710) (FILNAM(I),I=1,16)
      PRINT 720, (FILNAM(I),I=1,16)
C     OPEN DATA FILE.
      CALL SRCH$$ (K$READ,FILNAM,16,1,TYPE,CODE)
C*****DELETE OLD OUTPUT FILE****
      CALL SRCH$$ (K$DELE,'CLEAR.OUT',9,2,TYPE,CODE)
      CALL SRCH$$ (K$WRIT,'CLEAR.OUT',9,2,TYPE,CODE)
      WRITE(6,705)FILNAM,(ITIME(I),I=1,3)
      WRITE (6,960) (ITIME(I),I=1,10)
C
C     READ IN INFORMATION CONCERNING TIME, POPULATION, AND OUTPUT.
      READ (5,730) LU,DELT,TYP,FRACT,MAXDEP,POPVEH,LGCODE,FLORAT,EVL
     1 , VELZ
C
C     PRINT HEADINGS
C
C     ***** CHECK *****
      WRITE (LU,740) LU,DELT,TYP,FRACT,MAXDEP,POPVEH,LGCODE,FLORAT,EVL
     1  ,VELZ
C
C     DETERMINE FREFLO FROM FLORAT.
      FREFLO = FLOAT(FLORAT)/(3600.0*FLOAT(LGCODE))
C
C     ADJUST POPVEH TO FIT RANDOM SAMPLE OR LARGE CODE.
      POPVEH = POPVEH*LGCODE
C
C     ADJUST EFFECTIVE VEHICLE LENGTH TO FIT RANDOM SAMPLE.
      EVL = EVL*FLOAT(LGCODE)
C
C     READ INFORMATION ON ZONES:
      READ (5,750) ZTWO,ZFIV,ZTEN,ZEPZ,ISTG,EX,EPZ
C
C     ***** CHECK *****
      WRITE (LU,760) ZTWO,ZFIV,ZTEN,ZEPZ,ISTG,EX,EPZ
C
C     ASSIGN EACH VEHICLE ON ALL ROADS A LOADING POSITION BY EQUALLY
C     DISTRIBUTING THE POPULATION IN GROUPS OF POP.VEH PER VEHICLE
C     ALONG THE ROADWAY SECTION PROPORTIONAL TO THEIR LENGTH.  THE
C     FIRST VEHICLE IS ASSIGNED TO THE BEGINNING OF THE ROADWAY AND
C     EACH VEHICLE THEREAFTER AN INCREMENTAL DISTANCE AWAY.
C
C     PROCESS EACH ROAD IN THE 24 ZONES COMPOSED OF EIGHT EQUAL
C     SECTORS DIVIDED AT THE TWO AND FIVE MILE MARK.
```

```
C     ************************************************************************


C
      M = 0
C     ZONE 25 INCLUDES ALL AREAS AND ROADS OUTSIDE 10 MILE RADIUS.
   10 IF (M.GT.ZEPZ) GO TO 100
      M = M+1
      J = 0
      READ (5,770) POPZN,NRDS(M),LENRDS
C
C        ***** CHECK *****
      WRITE (LU,780) M,POPZN,NRDS(M),LENRDS
C
   20 IF (J.EQ.NRDS(M)) GO TO 90
      J = J+1
      READ (5,790) ZNRD(M,J),LINK(ZNRD(M,J)),LEN(ZNRD(M,J)),RADIS(ZNRD(M
     $,J)),NOMVEL(ZNRD(M,J)),NLANES(ZNRD(M,J)),NRSEC(ZNRD(M,J))
C
C            ***** CHECK *****
      WRITE (LU,800) ZNRD(M,J),LINK(ZNRD(M,J)),LEN(ZNRD(M,J)),RADIS(ZNRD
     $(M,J)),NOMVEL(ZNRD(M,J)),NLANES(ZNRD(M,J)),NRSEC(ZNRD(M,J))
C
C            CHANGE VELOCITY FROM MILES/HOUR TO METERS/SECOND.
      NOMVEL(ZNRD(M,J)) = (FLOAT(NOMVEL(ZNRD(M,J)))*.447)
C
C            INITIALLY, THERE ARE NO TRAFFIC JAMS OR QUEUES ON THE
C            ROADS, SET FLAGS TO ZERO.
      QFL(ZNRD(M,J)) = 0
C
C            INITIALLY, NO ROADS HAVE BEEN LOADED. FLAG LDT KEEPS
C            RECORD OF THIS - (LDT=1:LOADED  LDT=0:NOT LOADED)
      LDT(ZNRD(M,J)) = 0
C
C            INITIALLY, VELOCITY OF TRAVEL ON ROAD IS EQUAL
C            TO THE ROAD'S NOMINAL VELOCITY.
      VEL(ZNRD(M,J)) = NOMVEL(ZNRD(M,J))
C
C            INITIALIZE ARRAYS TO ZERO TO START.
      QROAD(ZNRD(M,J)) = ZNRD(M,J)
      NRAN(ZNRD(M,J)) = 0
      FLRAN(ZNRD(M,J)) = 0
      NLOD(ZNRD(M,J)) = 0
      FLLOD(ZNRD(M,J)) = 0
      NBAC(ZNRD(M,J)) = 0
      FLBAC(ZNRD(M,J)) = 0
      NTOT(ZNRD(M,J)) = 0
      FLTOT(ZNRD(M,J)) = 0
C
      IF (M.GT.ZEPZ) GO TO 100
C
      PERLEN = FLOAT(LEN(ZNRD(M,J)))/LENRDS
      POPRD(ZNRD(M,J)) = PERLEN*POPZN
C
C            MAKE NRAN,ROUNDUP BY ADDING POPVEH-1 TO POPULATION.
      NRAN(ZNRD(M,J)) = (POPRD(ZNRD(M,J))+(POPVEH-1))/POPVEH
      POPRD(ZNRD(M,J)) = NRAN(ZNRD(M,J))*POPVEH
      INCDIS = LEN(ZNRD(M,J))/NRAN(ZNRD(M,J))
C
C            WRITE(LU,299) POPRD(ZNRD(M,J)),NRAN(ZNRD(M,J)),INCDIS
```

```
C     ********************************************************************


C     299           FORMAT(' POPRD= ',I8,' NRAN= ',I8,' INCDIS= ',I8)
C
C           RANDOMLY ASSIGN THE NRAN VEHICLES A LOADING POSITION ON
C           ROADWAY ZNRD(M,J) AND PUT THEM IN A QUEUE QROAD(ZNRD(M,J))
      A = 0
   30 IF (A.GE.NRAN(ZNRD(M,J))) GO TO 40
      A = A+1
      RANP(A) = A
      GO TO 30
   40 CONTINUE
C
      K = NRAN(ZNRD(M,J))
      N = 0
   50 IF (N.GE.NRAN(ZNRD(M,J))) GO TO 80
      N = N+1
C
C               FLAG NRAN.
C               FLRAN(ZNRD(M,J))=1
C
C               RANDOMLY SELECT A NUMBER I FROM ZERO TO NRAN-1.
C     A = IRND(K)
        IKAL=0
        A=IRND(IKAL)
71      IF(A.LT.K)GOTO 72
        A=A/10
        GOTO 71
72    A = A+1
      I = RANP(A)
      DISRAN(QROAD(ZNRD(M,J)),N) = LEN(ZNRD(M,J))-(INCDIS*(I-1))
C
C               INITIALLY, NO VEHICLES HAVE BEEN PROCESSED, SET
C               FLAG TO ZERO.
      ZNRDT(ZNRD(M,J),N) = 0
C
C               REMOVE NUMBER I FROM BEING PROCESSED AGAIN BY
C               RELISTING REMAINING NUMBERS.
      B = A
   60 IF (B.GE.K) GO TO 70
      RANP(B) = RANP(B+1)
      B = B+1
      GO TO 60
   70 CONTINUE
C
      K = K-1
C
      GO TO 50
   80 CONTINUE
C
      GO TO 20
   90 CONTINUE
C
      GO TO 10
  100 CONTINUE
C
C     ADD INDEPENDENT SPECIAL TRAFFIC GENERATORS TO CORRESPONDING
C     ROADS.  THE ADDITIONAL VEHICLES WILL BE PUT ON THE END OF THE
C     EXISTING NRAN LIST.
```

```
C     ***********************************************************************


  110 IF (ISTG.EQ.0) GO TO 130
C
C        READ IN INDEPENDENT SPECIAL TRAFFIC GENERATOR INFORMATION.
      READ (5,810) ZNRD(M,J),LENSTG,POPSTG,PVSTG
C
C        *** CHECK ***
      WRITE (LU,820) ZNRD(M,J),LENSTG,POPSTG,PVSTG
C
C        DETERMINE AND ADD NUMBER OF VEHICLES TO NRAN LIST.
      A = (POPSTG+(PVSTG-1))/PVSTG
      I1 = (NRAN(ZNRD(M,J))+1)
      I2 = (NRAN(ZNRD(M,J))+A)
      DO 120 B=I1,I2
        DISRAN(QROAD(ZNRD(M,J)),B) = LENSTG
C
  120 CONTINUE
C
      NRAN(ZNRD(M,J)) = NRAN(ZNRD(M,J))+A
      POPRD(ZNRD(M,J)) = POPRD(ZNRD(M,J))+(A*POPVEH)
      ISTG = ISTG-1
      GO TO 110
  130 CONTINUE
C
C     INITIALIZE INTEGER INT USED TO INCREMENT TIME.
      INT = 0
      TIME = 0
      C = 0
C
C     SAVE THE VALUE OF DELT IN SAVET BECAUSE DELT MAY BE REDUCED
C     BY THE AMOUNT OF TIME NECESSARY FOR A VEHICLE TO REACH THE
C     LINKING ROAD AT THE ROAD'S VELOCITY OF TRAVEL.  SAVET WILL
C     RESTORE DELT ORIGINAL VALUE AT THE END OF EACH VEHICLE LOOP.
      SAVET = DELT
C
C     PRINT INITIAL POPULATION STATISTICS.
      GO TO 420
C
C     MAIN LOOP - STOPPING CONDITION WHEN POPULATION IS TOTALLY
C     EVACUATED.
  140 IF (POPEPZ.EQ.0) GO TO 690
C
C        INCREMENT TIME
      TIME = INTL(INT)*INTL(DELT)
C
C        EXECUTE THE EVACUATION MOVEMENT ONE ZONE, ONE ROAD, AND ONE
C        POPULATION GROUP IN A VEHICLE AT A TIME.
      M = 0
  150 IF (M.EQ.ZEPZ) GO TO 380
      M = M+1
      J = 0
C
  160 IF (J.EQ.NRDS(M)) GO TO 370
      J = J+1
C
C              LOAD THE LOADING QUEUE OF THE LINK OF ZNRD(M,J) IF
C              IT HAS NOT ALREADY BEEN LOADED FOR THIS DELT AND SET
C              UP A TOTAL LIST OF QUEUED VEHICLES BY COMBINING THE
```

```
C     ***********************************************************************


C               LOADING QUEUE AND BACKUP QUEUE.
      IF (LDT(LINK(ZNRD(M,J))).NE.0) GO TO 180
C
C                  LOAD THE QUEUE ONLY IF THERE IS AN EVACUATING
C                  POPULATION SCHEDULED TO LEAVE DURING THIS DELT.
      IF (TIME.GT.INTL(MAXDEP)) GO TO 170
C                     USE SUBROUTINE LOAD
      INDEX = LINK(ZNRD(M,J))
      CALL LOAD (INDEX,DELT,TIME,FRACT,POPVEH,QROAD(INDEX),NRAN(INDEX),N
     $LOD(INDEX),FLLOD(INDEX),MAXDEP,POPRD(INDEX))
C
C                     FLAG LINK AS HAVING BEEN LOADED FOR THIS DELT.
      LDT(LINK(ZNRD(M,J))) = 1
  170 CONTINUE
C
      B = LEN(LINK(ZNRD(M,J)))*NLANES(LINK(ZNRD(M,J)))
C
C                  IF THERE IS ROOM ON THE ROAD, PLACE VEHICLES ON THE
C                  ROADWAY LINK FROM THE TOTAL QUEUE LIST.  DELETE
C                  VEHICLES FROM QUEUES IF PLACED ON LINK'S LIST OF
C                  MOVING VEHICLES.  USE SUBROUTINE PLACE.
      CALL PLACE (INDEX,VMOTO(INDEX),QROAD(INDEX),NLOD(INDEX),FLLOD(INDE
     $X),NBAC(INDEX),FLBAC(INDEX),NTOT(INDEX),FLTOT(INDEX),B,LEN(INDEX),
     $EVL)
C
C                  DETERMINE VELOCITY OF TRAVEL ON LINK.  USE
C                  SUBROUTINE VELCP.
      CALL VELCP (NLANES(INDEX),NOMVEL(INDEX),VMOTO(INDEX),VEL(INDEX),LE
     $N(INDEX),FREFLO,VELZ)
C
  180 CONTINUE
C
C               LOAD THE LOADING QUEUE FOR ROAD ZNRD(M,J) IF IT HAS
C               NOT ALREADY BEEN LOADED FOR THIS DELT AND SET UP A
C               TOTAL LIST OF QUEUED VEHICLES BY COMBINING THE LOADING
C               QUEUE AND BACKUP QUEUE.
      IF (LDT(ZNRD(M,J)).NE.0) GO TO 200
C
C                  LOAD THE QUEUE ONLY IF THERE IS AN EVACUATING
C                  POPULATION SCHEDULED TO LEAVE DURING THIS DELT.
      IF (TIME.GT.INTL(MAXDEP)) GO TO 190
C
C                     USE SUBROUTINE LOAD
      CALL LOAD (ZNRD(M,J),DELT,TIME,FRACT,POPVEH,QROAD(ZNRD(M,J)),NRAN(
     $ZNRD(M,J)),NLOD(ZNRD(M,J)),FLLOD(ZNRD(M,J)),MAXDEP,POPRD(ZNRD(M,J)
     $))
C
C                     FLAG ROAD AS HAVING BEEN LOADED FOR THIS DELT.
      LDT(ZNRD(M,J)) = 1
  190 CONTINUE
C
      B = LEN(ZNRD(M,J))*NLANES(ZNRD(M,J))
C
C                  IF THERE IS ROOM ON THE ROAD, PLACE VEHICLES ONTO
C                  ROADWAY FROM TOTAL QUEUE LIST.  DELETE VEHICLES
C                  FROM QUEUES IF PLACED IN ROAD'S LIST OF MOVING
C                  VEHICLES.  USE SUBROUTINE PLACE.
```

```
C     ***********************************************************************

      CALL PLACE (ZNRD(M,J),VMOTO(ZNRD(M,J)),GROAD(ZNRD(M,J)),NLOD(ZNRD(
     $M,J)),FLLOD(ZNRD(M,J)),NBAC(ZNRD(M,J)),FLBAC(ZNRD(M,J)),NTOT(ZNRD(
     $M,J)),FLTOT(ZNRD(M,J)),B,LEN(ZNRD(M,J)),EVL)
C
C                  DETERMINE VELOCITY OF TRAVEL ON ROAD.  USE
C                  SUBROUTINE VELCP.
      CALL VELCP (NLANES(ZNRD(M,J)),NOMVEL(ZNRD(M,J)),VMOTO(ZNRD(M,J)),V
     $EL(ZNRD(M,J)),LEN(ZNRD(M,J)),FREFLO,VELZ)
C
  200 CONTINUE
C
C            CHECK IF ZNRD(M,J) INTERSECTS WITH ANY OTHER ROADS
C            AT ITS LINK.  IF SO, DETERMINE THE PERCENTAGE OF
C            GREEN LIGHT TIME, PERCP, GIVEN TO ZNRD(M,J) AND THE
C            CORRESPONDING NUMBER OF VEHICLES TO ADVANCE.
      IF (NRSEC(ZNRD(M,J)).EQ.0) GO TO 210
      IF (ZNRDT(NRSEC(ZNRD(M,J)),1).EQ.0) GO TO 230
C
  210 CONTINUE
C
C                  THERE IS NO INTERSECTING ROAD OR THE OTHER
C                  INTERSECTING ROAD HAS ALREADY BEEN PROCESSED
C                  AND USED ITS SHARE OF THE LINKS CAPACITY.
  220 PERAD = 9999
      GREEN = -9999
C
C                  *** CHECK ***
C                  WRITE(LU,673) ZNRD(M,J),NRSEC(ZNRD(M,J))
C     673                FORMAT(' +INTERSECTION HAS A GREEN LIGHT ',
C     X                     'CONDITION FOR ROAD= ',I4,
C     X                     ' INTERSECTING WITH NRSEC= ',I4)
C
      GO TO 250
  230 CONTINUE
C
C            THERE IS AN INTERSECTING ROAD AND IT HAS NOT BEEN
C            PROCESSED FOR THIS DELT.  DETERMINE THE NUMBER OF
C            VEHICLES THAT COULD ADVANCE, PERAD, BY THE PERCENTAGE
C            OF VEHICLES IN MOTION ON THE TWO ROADS.
      IF ((VMOTO(NRSEC(ZNRD(M,J))).GT.0).AND.(VMOTO(ZNRD(M,J)).GT.0))
     $ GO TO 240
      GO TO 220
  240 CONTINUE
C
C                  DETERMINE CAPACITIES ON ROAD, INTERSECT, AND LINK.
      CAPVM = (FREFLO*FLOAT(NLANES(ZNRD(M,J)))*FLOAT(LEN(ZNRD(M,J))))/
     $FLOAT(VEL(ZNRD(M,J)))
      CAPNR = (FREFLO*FLOAT(NLANES(NRSEC(ZNRD(M,J))))*FLOAT(LEN(NRSEC
     $(ZNRD(M,J)))))/FLOAT(VEL(NRSEC(ZNRD(M,J))))
      CAPLK = (FREFLO*FLOAT(NLANES(LINK(ZNRD(M,J))))*FLOAT(LEN(LINK(ZNRD
     $(M,J)))))/FLOAT(VEL(LINK(ZNRD(M,J))))
C
C                  CALCULATE THE MOVING VEHICLE VERSUS CAPACITY
C                  RELATIONSHIP FOR THE ROAD AND THE INTERSECTING ROAD
C                  IN ORDER TO DETERMINE THE PERCENTAGE OF AVAILABLE
C                  OPENINGS ASSIGNED TO THE ROAD'S MOVING VEHICLES.
      PERCP = (FLOAT(VMOTO(ZNRD(M,J)))/FLOAT(CAPVM))/((FLOAT(VMOTO(NRSEC
```

```
C     ************************************************************************


     $(ZNRD(M,J))))/FLOAT(CAPNR))+(FLOAT(VMOTO(ZNRD(M,J)))/FLOAT(CAPVM))
     $)
C
C
C                DETERMINE NUMBER OF OPENINGS AVAILABLE ON LINK.
      PERAD = PERCP*(CAPLK-VMOTO(LINK(ZNRD(M,J))))
C
C                INITIALIZE NUMBER OF VEHICLES ADVANCING ON GREEN LIGHT.
      GREEN = 1
C
  250 CONTINUE
C
C                ADVANCE THE VEHICLES IN MOTION ON THE ROAD ZNRD(M,J)
C                ACCORDING TO DELT AND THE VELOCITY OF TRAVEL ON THE
C                ROAD.   IF A VEHICLE HAS SUFFICIENT TIME AND RATE TO
C                ADVANCE TO THE NEXT LINKING ROAD, DETERMINE IF THE
C                VEHICLE SHOULD BE PUT IN A.QUEUE OR TRAVEL ON THE LINK.
      N = 0
  260 IF (N.EQ.VMOTO(ZNRD(M,J))) GO TO 360
      N = N+1
C
C                   CHECK IF VEHICLE HAS ALREADY BEEN PROCESSED FOR
C                   THIS DELT.   (ZNRDT=0:NO, =1:YES.)
      IF (ZNRDT(ZNRD(M,J),N).NE.0) GO TO 350
C
C                      DETERMINE IF VEHICLE WILL GO BEYOND ROAD
C                      DURING THIS DELT.   (TIME=DISTANCE / RATE)
      IF (DELT.LE.(FLOAT(DIST(ZNRD(M,J),N))/FLOAT(VEL(ZNRD(M,J)))))
     $ GO TO 340
C
      A = (EVL*(VMOTO(LINK(ZNRD(M,J)))+1.))
      B = (NLANES(LINK(ZNRD(M,J))))*(LEN(LINK(ZNRD(M,J))))
C
C                         IF THE VEHICLE GOES BEYOND THE ROAD ZNRD(M,J),
C                         CHECK IF ANY ROADS LEADING INTO THE LINK ARE
C                         BACKED UP - IF A BACKUP QUEUE EXISTS OR IF
C                         THIS VEHICLE WILL CAUSE THE ROAD TO EXCEED
C                         CAPACITY.   AVERAGE VEHICLE LENGTH AT 15 MILES
C                         PER HOUR IS EQUAL TO 14.20 METERS.
      IF ((FLBAC(LINK(ZNRD(M,J))).EQ.1).OR.(A.GT.B)) GO TO 270
C
      GO TO 300
C
C                            THERE IS A BACKUP OR QUEUE.  PUT THE
C                            VEHICLE AT THE END AN EXISTING QUEUE OR
C                            FORM A NEW ONE.   THIS SIMULATES A TRAFFIC
C                            JAM OR STOP AND GO TRAFFIC BY STACKING
C                            THE VEHICLES.
C
  270 CONTINUE
C                            IF A ROAD HAS A FLAG THEN THE QUEUE
C                            ALREADY EXISTS.
      IF (FLBAC(LINK(ZNRD(M,J))).EQ.0) GO TO 280
C
C                               ADD VEHICLE TO THE END OF THE
C                               EXISTING BACKUP QUEUE.
           IF(NBAC(LINK(ZNRD(M,J))).GE.6000)GOTO 290
```

```
C     ***********************************************************************


      NBAC(LINK(ZNRD(M,J))) = NBAC(LINK(ZNRD(M,J)))+1
      GO TO 290
  280 CONTINUE
C
C                                  START A QUEUE AS VEHICLES IN MOTION BE-
C                                  GIN TO EXCEED ROAD'S SPACE LIMITATIONS.
      NBAC(LINK(ZNRD(M,J))) = 1
      FLBAC(LINK(ZNRD(M,J))) = 1
  290 CONTINUE
C
C                                SET VEHICLES DISTANCE IN BACKUP QUEUE.
      DISBAC(QROAD(LINK(ZNRD(M,J))),NBAC(LINK(ZNRD(M,J)))) = LEN(LINK
     $(ZNRD(M,J)))+2
C
      GO TO 310
  300 CONTINUE
C
C                           DETERMINE IF THIS VEHICLE SHOULD BE ADVANCED
C                           UNDER GREEN LIGHT CONDITIONS.
      IF (GREEN.GT.PERAD) GO TO 270
      GREEN = GREEN+1
C
C                           THE PATH INTO THE LINK IS CLEAR AND THE
C                           VEHICLE GOES BEYOND THE ROAD ONTO THE NEXT
C                           ROAD, ITS LINK.  DETERMINE DELT REMAINING.
      DELT = DELT-(FLOAT(DIST(ZNRD(M,J),N))/FLOAT(VEL(ZNRD(M,J))))
C
C                           ADD THE NEW VEHICLE TO THE LINK'S LIST OF
C                           MOVING VEHICLES.
      VMOTO(LINK(ZNRD(M,J))) = VMOTO(LINK(ZNRD(M,J)))+1
C
C                           I BECOMES NEXT MOVING VEHICLE IN LINK.
      I = VMOTO(LINK(ZNRD(M,J)))
C
C                           DETERMINE POSITION OF VEHICLE I ON LINK.
      DIST(LINK(ZNRD(M,J)),I) = LEN(LINK(ZNRD(M,J)))-(DELT*VEL(LINK(ZNRD
     $(M,J))))
C
C                           FLAG THIS VEHICLE SO THAT IT WILL NOT BE
C                           PROCESSED AGAIN FOR THIS DELT.
      ZNRDT(LINK(ZNRD(M,J)),I) = 1
C                           RETURN DELT TO ORIGINAL VALUE.
      DELT = SAVET
C
  310 CONTINUE
C
C                     SINCE THE VEHICLE PASSED BEYOND THE ROAD INTO
C                     ITS LINK, RELIST ALL OTHER MOVING VEHICLES ON THE
C                     ROAD SEQUENTIALLY.
      A = N
  320 IF (A.EQ.VMOTO(ZNRD(M,J))) GO TO 330
C     IF(A .GT.  199)GO TO 330***********************************************
      DIST(ZNRD(M,J),A) = DIST(ZNRD(M,J),A+1)
      ZNRDT(ZNRD(M,J),A) = ZNRDT(ZNRD(M,J),A+1)
      A = A+1
      GO TO 320
  330 CONTINUE
```

```
C     ***********************************************************************
C
C
      VMOTO(ZNRD(M,J)) = VMOTO(ZNRD(M,J))-1
      N = N-1
C
      GO TO 350
  340 CONTINUE
C
C                  THE MOVING VEHICLE STAYS WITHIN THE ROAD
C                  ZNRD(M,J) DURING DELT.  DETERMINE ITS NEW POSITION
C                  ON THE ROADWAY.
      DIST(ZNRD(M,J),N) = DIST(ZNRD(M,J),N)-(DELT*VEL(ZNRD(M,J)))
      ZNRDT(ZNRD(M,J),N) = 1
  350 CONTINUE
C
      GO TO 260
  360 CONTINUE
C
C           REEVALUATE VELOCITY OF TRAVEL ON ROAD ZNRD(M,J) USING THE
C           SUBROUTINE VELCP.
      CALL VELCP (NLANES(ZNRD(M,J)),NOMVEL(ZNRD(M,J)),VMOTO(ZNRD(M,J)),V
     $EL(ZNRD(M,J)),LEN(ZNRD(M,J)),FREFLO,VELZ)
C
      GO TO 160
  370 CONTINUE
C
      GO TO 150
  380 CONTINUE
C
C     INITIALIZE FLAGS TO ZERO SINCE THIS DELT HAS BEEN COMPLETED.
      DO 410 M=1,ZEPZ
C
C        PULL LOADING FLAGS FROM ALL ROADS.
        I1 = NRDS(M)
        DO 400 J=1,I1
          LDT(ZNRD(M,J)) = 0
C
C           PULL PROCESS FLAGS FROM ALL VEHICLES.
          I2 = VMOTO(ZNRD(M,J))
          DO 390 N=1,I2
            ZNRDT(ZNRD(M,J),N) = 0
C
  390     CONTINUE
  400   CONTINUE
  410 CONTINUE
C
C     INCREMENT TIME USING INTEGER INT.
  420 INT = INT+1
      C = C+1
C
C     PRINT OUTPUT ONCE EVERY FIVE MINUTES.
      IF ((C.NE.TYP).AND.(POPEPZ.NE.0)) GO TO 680
      C = 0
C
C     CLEAR DUMMY EXIT ROAD OF VEHICLES.
      VMOTO(EX) = 0
C
C     CALCULATE TIME IN HOURS, MINUTES, AND SECONDS.
```

```
C     ***************************************************************************

      KTL = TIME
      ITL = 0
      BTL = 0
C
  430 IF (KTL.LT.KIMIN) GO TO 440
      KTL = KTL-KIMIN
      ITL = ITL+KIONE
      GO TO 430
  440 CONTINUE
C
  450 IF (KTL.LT.KIHOUR) GO TO 460
      KTL = KTL-KIHOUR
      BTL = BTL+KIONE
      GO TO 450
  460 CONTINUE
C
C     PRINT INITIAL VEHICLE POPULATION.
      WRITE (LU,830) INTPOP
C
C     PRINT PRESENT TIME.
      WRITE (LU,840) TIME,ITL,BTL,KTL
C
C     INITIALIZE POPULATION BY RADIAL DISTANCE TO ZERO.
      DO 470 A=1,EPZ
        POPRAD(A) = 0
  470 CONTINUE
C
C     PRINT POPULATION ON EACH ROAD SEGMENT IN THE ZTWO
C     NUMBER OF ZONES BETWEEN THE ORIGIN AND THE TWO MILE RADIUS
C     AND DETERMINE THE POPULATION IN TWO MILE RADIUS.
      POPTWO = 0
      POPZN = 0
      M = 0
  480 IF (M.EQ.ZTWO) GO TO 520
      M = M+1
      J = 0
C
  490 IF (J.EQ.NRDS(M)) GO TO 510
      J = J+1
      POP = (NRAN(ZNRD(M,J))+NLOD(ZNRD(M,J))+NBAC(ZNRD(M,J))+VMOTO(ZNRD
     $(M,J)))
      IF (POP.EQ.0) GO TO 500
      WRITE (LU,850) M,ZNRD(M,J),POP,NRAN(ZNRD(M,J)),NLOD(ZNRD(M,J)),
     $NBAC(ZNRD(M,J)),VMOTO(ZNRD(M,J))
  500 POPZN = POPZN+POP
      POPRAD(RADIS(ZNRD(M,J))) = POPRAD(RADIS(ZNRD(M,J)))+POP
      GO TO 490
  510 CONTINUE
C
      WRITE (1,860) M,POPZN
      WRITE (LU,860) M,POPZN
      POPTWO = POPTWO+POPZN
      POPZN = 0
      GO TO 480
  520 CONTINUE
C
      WRITE (LU,870) POPTWO
```

```
C     ************************************************************************


C
C     PRINT THE POPULATION OF EACH ROAD SEGMENT IN THE ZFIV
C     NUMBER OF ZONES BETWEEN THE TWO AND FIVE MILE RADIUS
C     AND DETERMINE THE POPULATION IN THE FIVE MILE RADIUS.
      POPFIV = POPTWO
  530 IF (M.EQ.ZFIV) GO TO 570
      M = M+1
      J = 0
C
  540 IF (J.EQ.NRDS(M)) GO TO 560
      J = J+1
      POP = (NRAN(ZNRD(M,J))+NLOD(ZNRD(M,J))+NBAC(ZNRD(M,J))+VMOTO(ZNRD
     $(M,J)))
      IF (POP.EQ.0) GO TO 550
      WRITE (LU,850) M,ZNRD(M,J),POP,NRAN(ZNRD(M,J)),NLOD(ZNRD(M,J)),
     $NBAC(ZNRD(M,J)),VMOTO(ZNRD(M,J))
  550 POPZN = POPZN+POP
      POPRAD(RADIS(ZNRD(M,J))) = POPRAD(RADIS(ZNRD(M,J)))+POP
      GO TO 540
  560 CONTINUE
C
      WRITE (1,860) M,POPZN
      WRITE (LU,860) M,POPZN
      POPFIV = POPFIV+POPZN
      POPZN = 0
      GO TO 530.
  570 CONTINUE
C
      WRITE (LU,880) POPFIV
C
C     PRINT POPULATION OF EACH ROAD SEGMENT IN THE ZTEN
C     ZONES BETWEEN THE FIVE AND TEN MILE RADIUS AND
C     DETERMINE THE POPULATION IN THE TEN MILE RADIUS.
      POPTEN = POPFIV
  580 IF (M.EQ.ZTEN) GO TO 620
      M = M+1
      J = 0
C
  590 IF (J.EQ.NRDS(M)) GO TO 610
      J = J+1
      POP = (NRAN(ZNRD(M,J))+NLOD(ZNRD(M,J))+NBAC(ZNRD(M,J))+VMOTO(ZNRD
     $(M,J)))
      IF (POP.EQ.0) GO TO 600
      WRITE (LU,850) M,ZNRD(M,J),POP,NRAN(ZNRD(M,J)),NLOD(ZNRD(M,J)),
     $NBAC(ZNRD(M,J)),VMOTO(ZNRD(M,J))
  600 POPZN = POPZN+POP
      POPRAD(RADIS(ZNRD(M,J))) = POPRAD(RADIS(ZNRD(M,J)))+POP
      GO TO 590
  610 CONTINUE
C
      WRITE (1,860) M,POPZN
      WRITE (LU,860) M,POPZN
      POPTEN = POPTEN+IFIX(POPZN)
      POPZN = 0
      GO TO 580
  620 CONTINUE
C
```

```
C     ************************************************************************

      WRITE (LU,890) POPTEN
C
C     PRINT POPULATION OF EACH ROAD SEGMENT IN THE ZEPZ
C     ZONES BETWEEN THE TEN MILE RADIUS AND THE BOUNDARIES
C     FOR THE ENTIRE EPZ AND DETERMINE POPULATION IN THE EPZ.
      POPEPZ = POPTEN
  630 IF (M.EQ.ZEPZ) GO TO 660
      M = M+1
      J = 0
C
  640 IF (J.EQ.NRDS(M)) GO TO 650
      J = J+1
      POP = (NRAN(ZNRD(M,J))+NLOD(ZNRD(M,J))+NBAC(ZNRD(M,J))+VMOTO(ZNRD
     $(M,J)))
      WRITE (LU,850) M,ZNRD(M,J),POP,NRAN(ZNRD(M,J)),NLOD(ZNRD(M,J)),
     $NBAC(ZNRD(M,J)),VMOTO(ZNRD(M,J))
      POPZN = POPZN+POP
      POPRAD(RADIS(ZNRD(M,J))) = POPRAD(RADIS(ZNRD(M,J)))+POP
      GO TO 640
  650 CONTINUE
C
      WRITE (1,860) M,POPZN
      WRITE (LU,860) M,POPZN
      POPEPZ = POPEPZ+POPZN
      POPZN = 0
      GO TO 630
  660 CONTINUE
C
      WRITE (LU,900) POPEPZ
C
      IF (INT.EQ.1) INTPOP = POPEPZ
C   ***** WRITE THE PERCENT OF VEHECLES THAT HAVE BEEN EVACUATED SO FAR *
      IF(INT .GT. 1)PERPOP=(1-FLOAT(POPTEN)/FLOAT(INTPOP))*100.
      WRITE(LU,905) PERPOP
      WRITE (LU,910) INT
C
C     PRINT POPULATION AS A FUNCTION OF RADIAL DISTANCE.
      WRITE (LU,920) ITL,BTL,KTL
C
      IF (POPEPZ.LE.0) GO TO 690
      IF (INTPOP.LE.0) GO TO 670
      DO 670 A=1,EPZ
        PERLEN = ((FLOAT(POPRAD(A))/FLOAT(POPEPZ))*100.0)
        PERCP = ((FLOAT(POPRAD(A))/FLOAT(INTPOP))*100.0)
        I1 = A-1
        WRITE (LU,930) I1,A,POPRAD(A),PERLEN,PERCP
  670 CONTINUE
C
C     PRINT VEHICLES REMAINING AND NUMBER OF VEHICLES EXITED.
      A = INTPOP-POPTEN
      WRITE (LU,940) POPTEN,A
C
      A = INTPOP-POPEPZ
      WRITE (LU,950) POPEPZ,A
C
C     END OF MAIN LOOP
  680 CONTINUE
```

```
C     ***************************************************************************


C
      GO TO 140
  690 CONTINUE
C     ******   CALL THE SYSTEM TIMER FOR ENDING TIME    ********
      CALL TIMDAT (ITIME,15)
      PRINT 960, (ITIME(I),I=1,10)
      WRITE (LU,960) (ITIME(I),I=1,10)
      CALL CLOS$A (1)
      CALL CLOS$A (2)
      CALL EXIT
      STOP
C     ***************************************************************************
C
C
C
  705 FORMAT(' THIS IS A RUN MADE ON THE ',16A2,' COUNTY FILE ON DATE=',
     $1X,2(A2,,'/'),A2,4X,20(1H*),////)
  710 FORMAT (16A2)
  720 FORMAT (' INPUT FILE NAME IS ...   ',16A2)
  730 FORMAT (I1,I4,I3,F4.2,I5,I2,I2,I5,F6.2,F6.2)
  740 FORMAT (//,' LU= ',I1,' DELT= ',I4,' TYP= ',I3,' FRACT= ',F4.2,' M
     $AXDEP= ',I5,' POPVEH= ',I2,' LGCODE= ',I2,' FLORAT= ',I5,' EVL= ',
     $F6.2,'  V= ',F6.2)
  750 FORMAT (I3,I3,I3,I3,I3,I3,I3)
  760 FORMAT (' ZTWO= ',I3,' ZFIV= ',I3,' ZTEN= ',I3,' ZEPZ= ',I3,' ISTG
     $= ',I3,' EX= ',I3,' EPZ= ',I3)
  770 FORMAT (F10.0,I10,F10.0)
  780 FORMAT (' ***ZONE:  ',I2,'  POPZN= ',F6.0,'  NRDS= ',I2,' LENRDS= '
     $,F7.0)
  790 FORMAT (I10,I10,I10,I10,I10,I10,I10)
  800 FORMAT (' ZNRD:  ',I3,'  LINK= ',I3,'  LEN= ',I6,'  RADIS= ',I2,'
     $NOMVEL= ',I2,'  NLANES= ',I2,'  NRSEC= ',I3)
  810 FORMAT (I10,I10,I10,F10.2)
  820 FORMAT (' **ISTG: ROAD= ',I3,'  LENSTG= ',I5,'  POPSTG= ',I6,' PVS
     $TG= ',F6.2)
  830 FORMAT (///,' THE INITIAL VEHICLE POPULATION WAS = ',I9)
  840 FORMAT (' TOTAL TIME ELAPSED=',I8,' SECONDS OR ',I4,' HOURS, ',I4,
     $' MINUTES, AND ',I4,' SECONDS.')
  850 FORMAT (' VEHICLE POPULATION OF ZONE=',I2,'  ROAD=',I3,' IS EQUAL
     $TO ',I5,2X,' QUEUES: NRAN= ',I4,'  NLOD= ',I3,'  NBAC= ',I4,'  VMO
     $TO= ',I3)
  860 FORMAT (16X,' THE VEHICLE POPULATION IN ZONE=',I2,' IS ',I9)
  870 FORMAT (4X,' THE VEHICLE POPULATION IN THE TWO MILE RADIUS',' IS '
     $,I9)
  880 FORMAT (3X,' THE VEHICLE POPULATION IN THE FIVE MILE RADIUS',' IS
     $',I9)
  890 FORMAT (6X,' THE TOTAL VEHICLE POPULATION IN THE TEN MILE ','RADIU
     $S = ',I5)
  900 FORMAT (6X,' THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=',I7)
  905 FORMAT(/,6X,'THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN
     $EVACUATED = 'F6.2,'%',/)
  910 FORMAT (' ----------------------------------------','------
     $----------------------------------------','----------------',I
     $5)
  920 FORMAT (/,' VEHICLE POPULATION AS A FUNCTION OF RADIAL ','DISTANCE
     $ AT TIME: ',I4,' HOURS, ',I4,' MINUTES, AND ',I4,' SECONDS.')
  930 FORMAT (' RADIUS---',I2,'-TO-',I2,'---POPULATION= ',I5,'  *  THE %
     $ OF REMAINING VEHICLES=',F6.2,' %   * ',' THE % OF INITIAL VEHICLE
```

```
C     ***********************************************************************

     $S= ',F6.2,' % ')
  940 FORMAT (' -------TOTAL VEHICLE POPULATION WITHIN TEN MILES= ',,I5,
     $' ---VEHICLE POPULATION OUTSIDE TEN MILES= ',I5,' ----------------
     $-----')
  950 FORMAT (' ----------TOTAL VEHICLE POPULATION WITHIN EPZ= ',I5,' --
     $-VEHICLE POPULATION OUTSIDE EPZ= ',I5,' --------','---------------
     $-------')
  960 FORMAT ('1',////,T5,'DATE:  ',2(A2,'/'),A2,//,T5,'TIME (MIN,SEC,TIC
     $KS): ',2(I3,':'),I3,/,T5,'CPU TIME (SEC,TICKS):    ',I4,':',I3,/,T5,
     $'DISK I/O (SEC,TICKS):    ',I4,':',I3,//,T5,'( 330 TICKS/SECOND )')
      END
      SUBROUTINE LOAD (ROAD,DELT,TIME,FRACT,POPVEH,QROAD,NRAN,NLOD,FLLOD
     $,MAXDEP,POPRD)
C
C        AN INTERNAL PROCEDURE LOAD LOADS STATIONARY VEHICLES INTO
C        THE LOADING QUEUE FOR THE ROADWAY PARAMETERIZED.
C
C        DECLARATION OF VARIABLES.
C
      IMPLICIT INTEGER  (D)
C
C           LABELLED COMMON:
C
      COMMON /LCOM/ DIST(30,6000),DISRAN(30,6000),DISLOD(30,6000),
     $DISBAC(30,6000),DISTOT(30,6000),ZNRDT(30,6000)
C
      REAL  VEHLD(145)
C                                    NUMBER OF VEH LOADING IN THIS DELT
      REAL  FRACT
C                                    =FRACT
      INTEGER  A(145)
C                                    COUNTER FOR VEHICLES ORIGINAL POS.
      INTEGER*4 TIME
      INTEGER *2  MAXDEP,POPVEH,POPRD,I,ROAD,NRAN,NLOD,FLLOD,QROAD
C
C                          FLLOD=FLLOD(ROAD)
C                          I=    REPRESENTS VEHICLE NUMBER
C                          NLOD=NLOD(ROAD)
C                          NRAN=NRAN(ROAD)
C                          POPRD=POPRD(ROAD)
C                          QROAD=QROAD
C                          ROAD=REPRESENTS ROAD PARAMETER EXCHANGED
C        INITIALIZE VEHICLE LOADING ARRAY TO ZERO AT THE START.
      IF (TIME.NE.INTL(DELT)) GO TO 10
      VEHLD(ROAD) = 0.0
      A(ROAD) = 0
   10 CONTINUE
C
C        DETERMINE THE PERCENTAGE OF THE POPULATION AND THE
C        CORRESPONDING NUMBER OF VEHICLES THAT SHOULD BE LOADED
C        DURING DELT ACCORDING TO THE LOADING FUNCTION.
C       IF (((MAXDEP*0.5).GE.TIME).OR.(TIME.GT.(MAXDEP*0.75))) GO TO 20
C.....
      IF ((INTL(MAXDEP*0.5).GE.TIME).OR.(TIME.GT.INTL(MAXDEP*0.75)))
     1   GO TO 20
C.....
      VEHLD(ROAD) = ((((1.-FRACT)*FLOAT(DELT))/(FLOAT(MAXDEP)*.5))*
```

```
C     ************************************************************************


     $(FLOAT(POPRD)/FLOAT(POPVEH)))+VEHLD(ROAD)
C
C
   20 CONTINUE
C
C      IF ((TIME.LE.(MAXDEP*.25)).OR.((TIME.GT.(MAXDEP*.5)).AND.(TIME.LE.
C     $(MAXDEP*.75)))) GO TO 30
C.....
       IF ((TIME.LE.INTL(MAXDEP*.25)).OR.((TIME.GT.INTL(MAXDEP*.5)).AND.
      1    (TIME.LE.INTL(MAXDEP*.75))))    GOTO30
C.....
       VEHLD(ROAD) = ((((1.-FRACT)*FLOAT(DELT))/FLOAT(MAXDEP))*(FLOAT
      $(POPRD)/FLOAT(POPVEH)))+VEHLD(ROAD)
C
C
   30 CONTINUE
C
       IF (TIME.GT.INTL(MAXDEP*.25)) GO TO 40
       VEHLD(ROAD) = (((FRACT*FLOAT(DELT))/(.25*FLOAT(MAXDEP)))*(FLOAT
      $(POPRD)/FLOAT(POPVEH)))+VEHLD(ROAD)
C
C
   40 CONTINUE
C
C
C         IN AN EFFORT TO AVOID ROUND-OFF ERROR, REDUCE REQUIREMENT
C         TO LOAD VEHICLE WHEN NRAN IS EQUAL TO THE LAST VEHICLE.
   50 IF (NRAN.NE.1) GO TO 60
C      IF (VEHLD(ROAD).LT.0.699) GO TO 100
       GO TO 70
C
   60 CONTINUE
C
C         LOAD THE VEHICLES INTO THE LOADING QUEUE IN ORDER FROM
C         RANDOMLY ORDERED QUEUE NRAN FOR THIS DELT.
       IF (VEHLD(ROAD).LT.1.0) GO TO 100
C
   70 CONTINUE
C
       I = NLOD+1
       A(ROAD) = A(ROAD)+1
C
C
       IF (NRAN.EQ.0) GO TO 90
       DISLOD(QROAD,I) = DISRAN(QROAD,A(ROAD))
C
       NRAN = NRAN-1
       NLOD = NLOD+1
C
C                    IF THE VEHICLE IS THE FIRST ELEMENT IN THE
C                    ROAD'S LOADING QUEUE, PUT A FLAG ON THE QUEUE.
       IF (NLOD.GT.1) GO TO 80
       FLLOD = 1
   80 CONTINUE
C
C                    WRITE(LU,878) FLLOD
C     878                    FORMAT(' LOADR: FLLOD= ',I2)
```

```
C     ************************************************************************



C
C                    REDUCE VEHLD(ROAD) BY THE VEHICLE LOADED.
      VEHLD(ROAD) = VEHLD(ROAD)-1.0
C
      GO TO 50
   90 CONTINUE
  100 CONTINUE
      RETURN
C        ************************************************************************
      END
      SUBROUTINE PLACE (ROAD,VMOTO,QROAD,NLOD,FLLOD,NBAC,FLBAC,NTOT,
     $FLTOT,NLLEN,LEN,EVL)
C
C        AN INTERNAL PROCEDURE PLACE WILL DETERMINE IF A ROAD'S
C        CAPACITY IS FULL AND SET VEHICLES IN MOTION FROM THE COMBINED
C        LIST OF NTOT.
C
C        DECLARATION OF VARIABLES.
C
      REAL  EVL
      IMPLICIT INTEGER  (D)
C
C            LABELLED COMMON:
C
      COMMON /LCOM/ DIST(30,6000),DISRAN(30,6000),DISLOD(30,6000),
     $DISBAC(30,6000),DISTOT(30,6000),ZNRDT(30,6000)
C
      INTEGER *4  LEN
      INTEGER *2  A,B,C,I,ROAD,NLLEN,VMOTO,QROAD,NLOD,FLLOD,NBAC,FLBAC,N
     $TOT,FLTOT
C
C     ROAD...REPRESENTS ROAD PARAMETER
C     NLLEN..REPRESENTS ROAD LENGTH * NLANES
C     LEN....REPRESENTS ROAD LENGTH
C     VMOTO..=VMOTO(ROAD)
C
C
C        SET UP A TOTAL LIST OF QUEUED VEHICLES TO BE PUT
C        ON THE ROAD BY COMBINING LOAD ON TOP OF BACKUP QUEUE.
      NTOT = 0
      IF (FLLOD.EQ.0) GO TO 30
      I = 0
   10 IF (I.EQ.NLOD) GO TO 20
      I = I+1
      NTOT = NTOT+1
      DISTOT(QROAD,NTOT) = DISLOD(QROAD,I)
C
C
      GO TO 10
   20 CONTINUE
C
      FLTOT = 1
      GO TO 40
   30 CONTINUE
C
      FLTOT = 0
   40 CONTINUE
```

```
C     ************************************************************************


C
      IF (FLBAC.EQ.0) GO TO 90
      I = 0
C
   50 IF (I.EQ.NBAC) GO TO 60
      I = I+1
      NTOT = NTOT+1
      DISTOT(QROAD,NTOT) = DISBAC(QROAD,I)
      GO TO 50
   60 CONTINUE
C
      FLTOT = 1
C
      IF (FLLOD.EQ.1) GO TO 70
      NTOT = NBAC
      GO TO 80
   70 CONTINUE
C
      NTOT = NLOD+NBAC
   80 CONTINUE
C
   90 CONTINUE
C
C        CHECK THE CAPACITY OF THE LENGTH OF THE ROAD.  AS LONG AS
C        THERE IS ROOM ON THE ROAD AND VEHICLES IN NTOT, THEY WILL
C        BE PLACED ON THE ROAD.  IF THE LENGTH OF ALL VEHICLES ON THE
C        ROAD PLUS THE NEW ONE IS LESS THAN THE LENGTH OF THE ROAD
C        THEN IT WILL BE ADDED.  AT 15 MILES PER HOUR AN AVERAGE
C        VEHICLE OCCUPIES 14.20 METERS.
C
C
      A = 0
      B = 0
  100 IF ((FLTOT.EQ.0).OR.(B.EQ.-1)) GO TO 170
      IF ((EVL*(VMOTO+1)).GT.NLLEN) GO TO 140
      VMOTO = VMOTO+1
      A = A+1
C
      IF (DISTOT(QROAD,A).GT.LEN) GO TO 110
      DIST(ROAD,VMOTO) = DIST(QROAD,A)
      ZNRDT(ROAD,VMOTO) = 0
      GO TO 120
  110 CONTINUE
C
      DIST(ROAD,VMOTO) = LEN
      ZNRDT(ROAD,VMOTO) = 1
  120 CONTINUE
      NTOT = NTOT-1
C
      IF (NTOT.GT.0) GO TO 130
      FLTOT = 0
      NTOT = 0
      FLLOD = 0
      NLOD = 0
      FLBAC = 0
      NBAC = 0
      RETURN
```

```
C     ************************************************************************


  130 CONTINUE
C
      GO TO 160
  140 CONTINUE
C
      WRITE (1,260) ROAD
C
      II = A+1
      DO 150 C=II,NTOT
        IF (DIST(QROAD,C).LE.LEN) GO TO 150
        DIST(QROAD,C) = LEN
  150 CONTINUE
C
      B = -1
  160 CONTINUE
C
      GO TO 100
  170 CONTINUE
C
C        DELETE PLACED VEHICLES FROM THE QUEUES THEY WERE ORIGINALLY
C        IN.  (EITHER NLOD OR NBAC.)
      IF (A.EQ.0) GO TO 250
      B = NLOD-A
C
      IF (B.NE.0) GO TO 180
      FLLOD = 0
      NLOD = 0
      GO TO 230
  180 CONTINUE
C
      IF (B.GT.0) GO TO 190
      FLLOD = 0
      NLOD = 0
      NBAC = NBAC+B
      GO TO 240
  190 CONTINUE
C
      IF (B.LT.0) GO TO 220
      I = 0
  200 IF (I.GE.(NLOD-A)) GO TO 210
      DISLOD(QROAD,NLOD-A) = DISLOD(QROAD,NLOD)
      NLOD = NLOD-1
      GO TO 200
  210 CONTINUE
      NLOD = B
C
  220 CONTINUE
C
  230 CONTINUE
C
  240 CONTINUE
C
  250 CONTINUE
C
      RETURN
C
C        ************************************************************************
```

```
C     ************************************************************************


C
C
  260 FORMAT(' *** ROAD', I4, ' IS FULL.  **')
      END
      SUBROUTINE VELCP (NLANES, NMVEL, VVMOTO, VVEL, VLEN, FREFLO, VELZ)
C
C        AN INTERNAL PROCEDURE VELCP DETERMINES THE VELOCITY OF
C        TRAVEL ON A ROADWAY ACCORDING TO THE CAPACITY FUNCTION.
C        THEREFORE, CHECK IF THE NUMBER OF VEHICLES LOADING WILL
C        INCREASE THE ROAD'S VEHICLE POPULATION BEYOND THE ROAD'S
C        NOMINAL LOADING CAPACITY.  THE MINIMUM VELOCITY SET FOR
C        A ROAD IS STOP AND GO TRAFFIC AT 15.0 MILES PER HOUR.
C        15.0 MI/HR IS EQUAL TO MINVEL IN METERS PER SECOND.
C
C        DECLARATION OF VARIABLES.
C
      REAL  MM
C                          SLOPE OF THE VELOCITY CAPACITY FUNCTION
      REAL  Z
C                          TIMES CAPACITY DETERMINES CHANGE FROM VELOCITY
C                          A FREE FLOW TO VELOCITY LESS THAN FREE FLOW.
      REAL  FREFLO
C                          IS FREE FLOW RATE IN AUTOS/LANE-SECOND
      INTEGER *4  VLEN
      INTEGER *2  X, B, NLANES, NMVEL, VVMOTO, VVEL, V, NMCAP, MXCAP, MINVEL
C
C                  B.......Y-INTERCEPT OF FUNCTIONS SLOPING LINE
C                  MINVEL..MIN.  VEL.  IN METERS/SECOND
C                  MXCAP...ROAD'S CAPACITY AT MINIMUM VELOCITY
C                  NLANES..REPRESENTS NUMBER OF LANES ON ROADWAY
C                  NMCAP...ROAD'S CAPACITY AT FREE FLOW VELOCITY
C                  NMVEL...REPRESENTS NOMINAL VELOCITY PARAMETER
C                  ROAD....REPRESENTS ROAD PARAMETER
C                  V.......IS MIN.  VEL.  IN MI/HR = .
C                  VLEN....REPRESENTS ROAD LENGTH PARAMETER
C                  VVEL....REPRESENTS VELOCITY PARAMETER
C                  VVMOTO..REPRESENTS VMOTO PARAMETER
C                  X.......VALUE OF X COORDINATE OF FUNCTION
C        FIND THE ROAD'S VELOCITY BY THE LINEAR FUNCTION Y=(M*X)+B.
C        IF THE NUMBER OF VEHICLES IN MOTION AND LOADING FOR THIS
C        DELT DOES NOT EXCEED THE ROAD'S NOMINAL CAPACITY, THEN THE
C        ROAD'S VELOCITY REMAINS THE NOMINAL VELOCITY.
C
      Z = 0.8
C                       SHOULD BE 0.8
       V = VELZ
C.... V IS NOW AN DATA INPUT VARIABLE, 9/14/81, MAITLAND LEE
C....
C                       SHOULD BE 15 MILES HOUR
C
C        DETERMINE MINIMUM VELOCITY IN METERS PER SECOND.
      MINVEL = (FLOAT(V)*.447)
C
C        DETERMINE CAPACITY FROM MAX.  VELOCITY AND MIN.  VEL.  SLOPE.
      NMCAP = (FREFLO*FLOAT(NLANES)*FLOAT(VLEN))/FLOAT(NMVEL)
      MXCAP = (FREFLO*FLOAT(NLANES)*FLOAT(VLEN))/FLOAT(MINVEL)
C
```

```
C     ***************************************************************************


      IF (VVMOTO.LE.(Z*NMCAP)) GO TO 20
C
C        WRITE(LU,408) VVMOTO,NMCAP,ROAD
C     408         FORMAT(' *** NOTICE: VEHICLES= ',I10,' HAVE EXCEEDED',
C     X              ' 0.8 NOMINAL CAPACITY= ',I10,' ON ROAD= ',I4)
C
C           MM=NOMINAL VELOCITY OF THE ROAD DIVIDED BY ITS NOMINAL
C           CAPACITY.
      MM = (FLOAT(MINVEL)-FLOAT(NMVEL))/(FLOAT(MXCAP)-(Z*FLOAT(NMCAP)))
C
C           X=NUMBER OF VEHICLES IN MOTION PLUS THE NUMBER LOADING
C           MINUS THE ROAD'S NOMINAL CAPACITY.
      X = (VVMOTO-(Z*NMCAP))
C
C           B=THE ROAD'S NOMINAL VELOCITY.
      B = NMVEL
C
C           DETERMINE NEW VELOCITY OF TRAVEL
      VVEL = (MM*X)+B
C
C           BE SURE MIN VALUE OF ROAD'S VELOCITY IS MINVEL.
      IF (VVEL.GE.MINVEL) GO TO 10
      VVEL = MINVEL
   10 CONTINUE
C
   20 CONTINUE
      RETURN
C
      END
```

ATTACHMENT 2

This attachment includes two example computer runs. The first run is FRKTREE8, a residential population only, normal weather condition run from Franklin County, Quadrant II, Tree 8 sectors; east southeast, southeast, and south southeast. This tree took the longest to evacuate in Quadrant II and is therefore the limiting factor for that Quadrant as indicated in Table 7 and illustrated in Figure 8.

The second run is BENTREE1, a general population, normal weather condition run for Benton County, Quadrant III, Tree 1 sectors; south southwest and south southeast. This area starts at WNP-1, -2, and -4, and includes many of the IS&G's (Independent Special Traffic Generators).

USER: LANE

CLEAR.OUT

****
****

```
M       MMM  M   M MMMMM
M      M   M MM  M M
M      M   M M M M M
M      MMMMM M M M MMMM
M      M   M M M M M
M      M   M M  MM M
MMMMM M   M M   M MMMMM


 MMM  M      MMMMM  MMM  MMMM          MMM  M   M MMMMM
M   M M      M     M   M M   M        M   M M   M   M
M     M      M     M   M M   M        M   M M   M   M
M     M      MMMM  MMMMM MMMM         M   M M   M   M
M     M      M     M   M M M          M   M M   M   M
M   M M      M     M   M M  M   MM    M   M M   M   M
 MMM  MMMMM MMMMM M   M M   M  MM     MMM   MMM    M
```

****
****

LABEL: PRT002 -FORM PRC -COPIES 1

SPOOLED: 09/21/81 15:14
STARTED: 09/21/81 15:15, ON: MLC BY: PRC

PRINTED ON COMPANION PRINTER PRC

THIS IS A RUN MADE ON THE FRKTREE8A COUNTY FILE ON DATE= 09/21/81 **********

DATE: 09/21/81

TIME (MIN,SEC,TICKS):914: 6: 49
CPU TIME (SEC,TICKS): 2: 4
DISK I/O (SEC,TICKS): 5:102

(300 TICKS/SECOND)

```
I.U= 6 DELT=  25 TYP=  24 FRACT= 0.10 MAXDEP=  3600 POPVEH=  3 LGCODE=  1 FLORAT=  1000 EVL=  14.20  V=  15.00
ZTWO=  0 ZFIV=  1 ZTEN=  4 ZEPZ=  4 ISTG=  1 EX=  40 EPZ=  11
***ZONE:  1  POPZN=    26.  NRDS=  2 LENRDS=   3000.
ZNRD:   1  LINK=   3  LEN=   1500  RADIS=  5  NOMVEL= 40  NLANES=  1  NRSEC=   2
ZNRD:   2  LINK=   3  LEN=   1500  RADIS=  5  NOMVEL= 30  NLANES=  1  NRSEC=   1
***ZONE:  2  POPZN=   168.  NRDS= 17 LENRDS=  35500.
ZNRD:   3  LINK=   7  LEN=   1500  RADIS=  7  NOMVEL= 40  NLANES=  1  NRSEC=   4
ZNRD:   4  LINK=   7  LEN=   1500  RADIS=  7  NOMVEL= 40  NLANES=  1  NRSEC=   3
ZNRD:   5  LINK=   9  LEN=   3500  RADIS=  9  NOMVEL= 40  NLANES=  1  NRSEC=   6
ZNRD:   6  LINK=   9  LEN=   2000  RADIS=  9  NOMVEL= 30  NLANES=  1  NRSEC=   5
ZNRD:   7  LINK=  14  LEN=   2000  RADIS=  7  NOMVEL= 40  NLANES=  1  NRSEC=  10
ZNRD:   8  LINK=  12  LEN=   2500  RADIS=  8  NOMVEL= 30  NLANES=  1  NRSEC=  11
ZNRD:   9  LINK=  13  LEN=   2500  RADIS=  9  NOMVEL= 30  NLANES=  1  NRSEC=  12
ZNRD:  10  LINK=  14  LEN=   1000  RADIS=  7  NOMVEL= 30  NLANES=  1  NRSEC=   7
ZNRD:  11  LINK=  12  LEN=   1500  RADIS=  8  NOMVEL= 40  NLANES=  1  NRSEC=   8
ZNRD:  12  LINK=  13  LEN=   2500  RADIS=  9  NOMVEL= 40  NLANES=  1  NRSEC=   9
ZNRD:  13  LINK=  40  LEN=   2000  RADIS= 10  NOMVEL= 40  NLANES=  1  NRSEC=   0
ZNRD:  14  LINK=  23  LEN=   1500  RADIS=  8  NOMVEL= 40  NLANES=  1  NRSEC=  16
ZNRD:  15  LINK=  18  LEN=   1500  RADIS=  9  NOMVEL= 30  NLANES=  1  NRSEC=  17
ZNRD:  16  LINK=  23  LEN=   2500  RADIS=  7  NOMVEL= 40  NLANES=  1  NRSEC=  14
ZNRD:  17  LINK=  18  LEN=   1000  RADIS=  9  NOMVEL= 30  NLANES=  1  NRSEC=  15
ZNRD:  18  LINK=  40  LEN=   3000  RADIS= 10  NOMVEL= 30  NLANES=  1  NRSEC=   0
ZNRD:  19  LINK=  29  LEN=   3500  RADIS= 10  NOMVEL= 30  NLANES=  1  NRSEC=  28
***ZONE:  3  POPZN=   190.  NRDS= 15 LENRDS=  35000.
ZNRD:  20  LINK=  27  LEN=   6000  RADIS=  7  NOMVEL= 40  NLANES=  1  NRSEC=  22
ZNRD:  21  LINK=  24  LEN=   2000  RADIS=  8  NOMVEL= 30  NLANES=  1  NRSEC=  23
ZNRD:  22  LINK=  27  LEN=   2000  RADIS=  8  NOMVEL= 30  NLANES=  1  NRSEC=  20
ZNRD:  23  LINK=  24  LEN=   1500  RADIS=  8  NOMVEL= 40  NLANES=  1  NRSEC=  21
ZNRD:  24  LINK=  25  LEN=   1000  RADIS=  8  NOMVEL= 40  NLANES=  1  NRSEC=  26
ZNRD:  25  LINK=  30  LEN=   1000  RADIS=  9  NOMVEL= 40  NLANES=  1  NRSEC=  27
ZNRD:  26  LINK=  25  LEN=   3500  RADIS=  8  NOMVEL= 30  NLANES=  1  NRSEC=  24
ZNRD:  27  LINK=  30  LEN=   3000  RADIS=  9  NOMVEL= 40  NLANES=  1  NRSEC=  25
ZNRD:  28  LINK=  29  LEN=   3500  RADIS= 10  NOMVEL= 30  NLANES=  1  NRSEC=  19
ZNRD:  29  LINK=  40  LEN=    500  RADIS= 10  NOMVEL= 30  NLANES=  1  NRSEC=  19
ZNRD:  30  LINK=  33  LEN=   2000  RADIS=  9  NOMVEL= 40  NLANES=  1  NRSEC=  31
ZNRD:  31  LINK=  33  LEN=   3500  RADIS=  9  NOMVEL= 30  NLANES=  1  NRSEC=  30
ZNRD:  32  LINK=  34  LEN=   3000  RADIS= 10  NOMVEL= 30  NLANES=  1  NRSEC=  33
ZNRD:  33  LINK=  34  LEN=   2000  RADIS= 10  NOMVEL= 40  NLANES=  1  NRSEC=  32
ZNRD:  34  LINK=  40  LEN=    500  RADIS= 10  NOMVEL= 40  NLANES=  1  NRSEC=   0
***ZONE:  4  POPZN=    45.  NRDS=  5 LENRDS=  15500.
ZNRD:  35  LINK=  37  LEN=   3500  RADIS=  8  NOMVEL= 40  NLANES=  1  NRSEC=  36
ZNRD:  36  LINK=  37  LEN=   5500  RADIS=  8  NOMVEL= 30  NLANES=  1  NRSEC=  35
ZNRD:  37  LINK=  39  LEN=   2500  RADIS= 10  NOMVEL= 40  NLANES=  1  NRSEC=  38
ZNRD:  38  LINK=  39  LEN=   3500  RADIS= 10  NOMVEL= 30  NLANES=  1  NRSEC=  37
ZNRD:  39  LINK=  40  LEN=    500  RADIS= 10  NOMVEL= 40  NLANES=  1  NRSEC=   0
***ZONE:  5  POPZN=     0.  NRDS=  1 LENRDS=   9999.
ZNRD:  40  LINK=  40  LEN=   9999  RADIS= 11  NOMVEL= 40  NLANES=  9  NRSEC=   0
**ISTG: ROAD=  14  LENSTG=  1500  POPSTG=    250 PVSTG=  35.00
```

```
THE INITIAL VEHICLE POPULATION WAS =      0
TOTAL TIME ELAPSED=      0 SECONDS OR  0 HOURS,  0 MINUTES, AND  0 SECONDS.
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS        0
VEHICLE POPULATION OF ZONE= 1  ROAD=  1 IS EQUAL TO      5   QUEUES: NRAN=     5  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 1  ROAD=  2 IS EQUAL TO      5   QUEUES: NRAN=     5  NLOD=  0  NDAC=  0  VMOTO=  0
              THE VEHICLE POPULATION IN ZONE= 1 IS       10
   THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS       10
VEHICLE POPULATION OF ZONE= 2  ROAD=  3 IS EQUAL TO      3   QUEUES: NRAN=     3  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD=  4 IS EQUAL TO      3   QUEUES: NRAN=     3  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD=  5 IS EQUAL TO      6   QUEUES: NRAN=     6  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD=  6 IS EQUAL TO      3   QUEUES: NRAN=     3  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD=  7 IS EQUAL TO      3   QUEUES: NRAN=     3  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD=  8 IS EQUAL TO      4   QUEUES: NRAN=     4  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD=  9 IS EQUAL TO      4   QUEUES: NRAN=     4  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 10 IS EQUAL TO      2   QUEUES: NRAN=     2  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 11 IS EQUAL TO      3   QUEUES: NRAN=     3  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 12 IS EQUAL TO      4   QUEUES: NRAN=     4  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 13 IS EQUAL TO      3   QUEUES: NRAN=     3  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 14 IS EQUAL TO     11   QUEUES: NRAN=    11  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 15 IS EQUAL TO      3   QUEUES: NRAN=     3  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 16 IS EQUAL TO      4   QUEUES: NRAN=     4  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 17 IS EQUAL TO      2   QUEUES: NRAN=     2  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 18 IS EQUAL TO      5   QUEUES: NRAN=     5  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 19 IS EQUAL TO      6   QUEUES: NRAN=     6  NLOD=  0  NDAC=  0  VMOTO=  0
              THE VEHICLE POPULATION IN ZONE= 2 IS       69
VEHICLE POPULATION OF ZONE= 3  ROAD= 20 IS EQUAL TO     11   QUEUES: NRAN=    11  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 21 IS EQUAL TO      4   QUEUES: NRAN=     4  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 22 IS EQUAL TO      4   QUEUES: NRAN=     4  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 23 IS EQUAL TO      3   QUEUES: NRAN=     3  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 24 IS EQUAL TO      2   QUEUES: NRAN=     2  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 25 IS EQUAL TO      2   QUEUES: NRAN=     2  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 26 IS EQUAL TO      6   QUEUES: NRAN=     6  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 27 IS EQUAL TO      6   QUEUES: NRAN=     6  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 28 IS EQUAL TO      6   QUEUES: NRAN=     6  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 29 IS EQUAL TO      1   QUEUES: NRAN=     1  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 30 IS EQUAL TO      4   QUEUES: NRAN=     4  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 31 IS EQUAL TO      6   QUEUES: NRAN=     6  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 32 IS EQUAL TO      6   QUEUES: NRAN=     6  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 33 IS EQUAL TO      4   QUEUES: NRAN=     4  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 34 IS EQUAL TO      1   QUEUES: NRAN=     1  NLOD=  0  NDAC=  0  VMOTO=  0
              THE VEHICLE POPULATION IN ZONE= 3 IS       66
VEHICLE POPULATION OF ZONE= 4  ROAD= 35 IS EQUAL TO      4   QUEUES: NRAN=     4  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 4  ROAD= 36 IS EQUAL TO      5   QUEUES: NRAN=     5  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 4  ROAD= 37 IS EQUAL TO      3   QUEUES: NRAN=     3  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 4  ROAD= 38 IS EQUAL TO      4   QUEUES: NRAN=     4  NLOD=  0  NDAC=  0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 4  ROAD= 39 IS EQUAL TO      1   QUEUES: NRAN=     1  NLOD=  0  NDAC=  0  VMOTO=  0
              THE VEHICLE POPULATION IN ZONE= 4 IS       17
      THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =   162
      THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=    162

     THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED =   0.00%
-------------------------------------------------------------------------------------------------------------------  1

VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME:  0 HOURS,  0 MINUTES, AND  0 SECONDS.
RADIUS---  0-TO- 1---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS---  1-TO- 2---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS---  2-TO- 3---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS---  3-TO- 4---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS---  4-TO- 5---POPULATION=     10  *  THE % OF REMAINING VEHICLES=  6.17 %   *  THE % OF INITIAL VEHICLES=   6.17 %
RADIUS---  5-TO- 6---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS---  6-TO- 7---POPULATION=     26  *  THE % OF REMAINING VEHICLES= 16.05 %   *  THE % OF INITIAL VEHICLES=  16.05 %
RADIUS---  7-TO- 8---POPULATION=     46  *  THE % OF REMAINING VEHICLES= 28.40 %   *  THE % OF INITIAL VEHICLES=  28.40 %
RADIUS---  8-TO- 9---POPULATION=     40  *  THE % OF REMAINING VEHICLES= 24.69 %   *  THE % OF INITIAL VEHICLES=  24.69 %
RADIUS---  9-TO-10---POPULATION=     40  *  THE % OF REMAINING VEHICLES= 24.69 %   *  THE % OF INITIAL VEHICLES=  24.69 %
RADIUS--10-TO-11---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
--------TOTAL VEHICLE POPULATION WITHIN TEN MILES=   162 ---VEHICLE POPULATION OUTSIDE TEN MILES=      0 ----------------------
----------TOTAL VEHICLE POPULATION WITHIN EPZ=   162 ---VEHICLE POPULATION OUTSIDE EPZ=      0 ------------------------------
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TOTAL TIME ELAPSED=    600 SECONDS OR  0 HOURS, 10 MINUTES, AND  0 SECONDS
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS          0
VEHICLE POPULATION OF ZONE= 1  ROAD=  1 IS EQUAL TO      5   QUEUES: NRAN=    5  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 1  ROAD=  2 IS EQUAL TO      5   QUEUES: NRAN=    5  NLOD=   0  NBAC=    0  VMOTO=   0
              THE VEHICLE POPULATION IN ZONE= 1 IS        10
   THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS          10
VEHICLE POPULATION OF ZONE= 2  ROAD=  3 IS EQUAL TO      3   QUEUES: NRAN=    3  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD=  4 IS EQUAL TO      3   QUEUES: NRAN=    3  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD=  5 IS EQUAL TO      6   QUEUES: NRAN=    6  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD=  6 IS EQUAL TO      3   QUEUES: NRAN=    3  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD=  7 IS EQUAL TO      3   QUEUES: NRAN=    3  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD=  8 IS EQUAL TO      4   QUEUES: NRAN=    4  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD=  9 IS EQUAL TO      4   QUEUES: NRAN=    4  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 10 IS EQUAL TO      2   QUEUES: NRAN=    2  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 11 IS EQUAL TO      3   QUEUES: NRAN=    3  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 12 IS EQUAL TO      4   QUEUES: NRAN=    4  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 13 IS EQUAL TO      3   QUEUES: NRAN=    3  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 14 IS EQUAL TO     11   QUEUES: NRAN=   11  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 15 IS EQUAL TO      3   QUEUES: NRAN=    3  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 16 IS EQUAL TO      4   QUEUES: NRAN=    4  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 17 IS EQUAL TO      2   QUEUES: NRAN=    2  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 18 IS EQUAL TO      5   QUEUES: NRAN=    5  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 19 IS EQUAL TO      6   QUEUES: NRAN=    6  NLOD=   0  NBAC=    0  VMOTO=   0
              THE VEHICLE POPULATION IN ZONE= 2 IS        69
VEHICLE POPULATION OF ZONE= 3  ROAD= 20 IS EQUAL TO     11   QUEUES: NRAN=   11  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 21 IS EQUAL TO      4   QUEUES: NRAN=    4  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 22 IS EQUAL TO      4   QUEUES: NRAN=    4  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 23 IS EQUAL TO      3   QUEUES: NRAN=    3  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 24 IS EQUAL TO      2   QUEUES: NRAN=    2  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 25 IS EQUAL TO      2   QUEUES: NRAN=    2  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 26 IS EQUAL TO      6   QUEUES: NRAN=    6  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 27 IS EQUAL TO      6   QUEUES: NRAN=    6  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 28 IS EQUAL TO      6   QUEUES: NRAN=    6  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 30 IS EQUAL TO      4   QUEUES: NRAN=    4  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 31 IS EQUAL TO      6   QUEUES: NRAN=    6  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 32 IS EQUAL TO      6   QUEUES: NRAN=    6  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 33 IS EQUAL TO      4   QUEUES: NRAN=    4  NLOD=   0  NBAC=    0  VMOTO=   0
              THE VEHICLE POPULATION IN ZONE= 3 IS        64
VEHICLE POPULATION OF ZONE= 4  ROAD= 35 IS EQUAL TO      4   QUEUES: NRAN=    4  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 4  ROAD= 36 IS EQUAL TO      5   QUEUES: NRAN=    5  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 4  ROAD= 37 IS EQUAL TO      3   QUEUES: NRAN=    3  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 4  ROAD= 38 IS EQUAL TO      4   QUEUES: NRAN=    4  NLOD=   0  NBAC=    0  VMOTO=   0
              THE VEHICLE POPULATION IN ZONE= 4 IS        16
      THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =   159
      THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=    159

     THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED =   1.85%
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VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME:  0 HOURS, 10 MINUTES, AND  0 SECONDS.
RADIUS--- 0-TO- 1---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 1-TO- 2---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 2-TO- 3---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 3-TO- 4---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 4-TO- 5---POPULATION=     10  *  THE % OF REMAINING VEHICLES=  6.29 %   *  THE % OF INITIAL VEHICLES=   6.17 %
RADIUS--- 5-TO- 6---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 6-TO- 7---POPULATION=     26  *  THE % OF REMAINING VEHICLES= 16.35 %   *  THE % OF INITIAL VEHICLES=  16.05 %
RADIUS--- 7-TO- 8---POPULATION=     46  *  THE % OF REMAINING VEHICLES= 28.93 %   *  THE % OF INITIAL VEHICLES=  28.40 %
RADIUS--- 8-TO- 9---POPULATION=     40  *  THE % OF REMAINING VEHICLES= 25.16 %   *  THE % OF INITIAL VEHICLES=  24.69 %
RADIUS--- 9-TO-10---POPULATION=     37  *  THE % OF REMAINING VEHICLES= 23.27 %   *  THE % OF INITIAL VEHICLES=  22.84 %
RADIUS---10-TO-11---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
--------TOTAL VEHICLE POPULATION WITHIN TEN-MILES=   159 ---VEHICLE POPULATION OUTSIDE TEN MILES=       3 ----------------------
----------TOTAL VEHICLE POPULATION WITHIN EPZ=   159 ---VEHICLE POPULATION OUTSIDE EPZ=       3 ------------------------------
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THE INITIAL VEHICLE POPULATION WAS =       162
TOTAL TIME ELAPSED=   1200 SECONDS OR  0 HOURS, 20 MINUTES, AND  0 SECONDS.
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS          0
VEHICLE POPULATION OF ZONE= 1  ROAD=  1 IS EQUAL TO      5   QUEUES: NRAN=    5 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 1  ROAD=  2 IS EQUAL TO      5   QUEUES: NRAN=    5 NLOD=   0 NBAC=   0 VMOTO=   0
              THE VEHICLE POPULATION IN ZONE= 1 IS         10
   THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS         10
VEHICLE POPULATION OF ZONE= 2  ROAD=  3 IS EQUAL TO      3   QUEUES: NRAN=    3 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD=  4 IS EQUAL TO      3   QUEUES: NRAN=    3 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD=  5 IS EQUAL TO      5   QUEUES: NRAN=    5 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD=  6 IS EQUAL TO      3   QUEUES: NRAN=    3 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD=  7 IS EQUAL TO      3   QUEUES: NRAN=    3 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD=  8 IS EQUAL TO      4   QUEUES: NRAN=    4 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD=  9 IS EQUAL TO      5   QUEUES: NRAN=    4 NLOD=   0 NBAC=   0 VMOTO=   1
VEHICLE POPULATION OF ZONE= 2  ROAD= 10 IS EQUAL TO      2   QUEUES: NRAN=    2 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 11 IS EQUAL TO      3   QUEUES: NRAN=    3 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 12 IS EQUAL TO      4   QUEUES: NRAN=    4 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 13 IS EQUAL TO      3   QUEUES: NRAN=    3 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 14 IS EQUAL TO     10   QUEUES: NRAN=   10 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 15 IS EQUAL TO      3   QUEUES: NRAN=    3 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 16 IS EQUAL TO      4   QUEUES: NRAN=    4 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 17 IS EQUAL TO      2   QUEUES: NRAN=    2 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 18 IS EQUAL TO      5   QUEUES: NRAN=    5 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 19 IS EQUAL TO      5   QUEUES: NRAN=    5 NLOD=   0 NBAC=   0 VMOTO=   0
              THE VEHICLE POPULATION IN ZONE= 2 IS         67
VEHICLE POPULATION OF ZONE= 3  ROAD= 20 IS EQUAL TO     10   QUEUES: NRAN=   10 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 21 IS EQUAL TO      4   QUEUES: NRAN=    4 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 22 IS EQUAL TO      4   QUEUES: NRAN=    4 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 23 IS EQUAL TO      3   QUEUES: NRAN=    3 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 24 IS EQUAL TO      2   QUEUES: NRAN=    2 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 25 IS EQUAL TO      3   QUEUES: NRAN=    2 NLOD=   0 NBAC=   0 VMOTO=   1
VEHICLE POPULATION OF ZONE= 3  ROAD= 26 IS EQUAL TO      5   QUEUES: NRAN=    5 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 27 IS EQUAL TO      5   QUEUES: NRAN=    5 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 28 IS EQUAL TO      5   QUEUES: NRAN=    5 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 30 IS EQUAL TO      5   QUEUES: NRAN=    4 NLOD=   0 NBAC=   0 VMOTO=   1
VEHICLE POPULATION OF ZONE= 3  ROAD= 31 IS EQUAL TO      5   QUEUES: NRAN=    5 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 32 IS EQUAL TO      5   QUEUES: NRAN=    5 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 33 IS EQUAL TO      7   QUEUES: NRAN=    4 NLOD=   0 NBAC=   0 VMOTO=   3
              THE VEHICLE POPULATION IN ZONE= 3 IS         63
VEHICLE POPULATION OF ZONE= 4  ROAD= 35 IS EQUAL TO      4   QUEUES: NRAN=    4 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 4  ROAD= 36 IS EQUAL TO      5   QUEUES: NRAN=    5 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 4  ROAD= 37 IS EQUAL TO      3   QUEUES: NRAN=    3 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 4  ROAD= 38 IS EQUAL TO      4   QUEUES: NRAN=    4 NLOD=   0 NBAC=   0 VMOTO=   0
              THE VEHICLE POPULATION IN ZONE= 4 IS         16
      THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =    156
      THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=     156

     THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED =   3.70%
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VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME:  0 HOURS, 20 MINUTES, AND  0 SECONDS.
RADIUS--- 0-TO- 1---POPULATION=      0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 1-TO- 2---POPULATION=      0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 2-TO- 3---POPULATION=      0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 3-TO- 4---POPULATION=      0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 4-TO- 5---POPULATION=     10  *  THE % OF REMAINING VEHICLES=   6.41 %   *  THE % OF INITIAL VEHICLES=   6.17 %
RADIUS--- 5-TO- 6---POPULATION=      0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 6-TO- 7---POPULATION=     25  *  THE % OF REMAINING VEHICLES=  16.03 %   *  THE % OF INITIAL VEHICLES=  15.43 %
RADIUS--- 7-TO- 8---POPULATION=     44  *  THE % OF REMAINING VEHICLES=  28.21 %   *  THE % OF INITIAL VEHICLES=  27.16 %
RADIUS--- 8-TO- 9---POPULATION=     40  *  THE % OF REMAINING VEHICLES=  25.64 %   *  THE % OF INITIAL VEHICLES=  24.69 %
RADIUS--- 9-TO-10---POPULATION=     37  *  THE % OF REMAINING VEHICLES=  23.72 %   *  THE % OF INITIAL VEHICLES=  22.84 %
RADIUS---10-TO-11---POPULATION=      0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
--------TOTAL VEHICLE POPULATION WITHIN TEN MILES=    156 ---VEHICLE POPULATION OUTSIDE TEN MILES=      6 ----------
----------TOTAL VEHICLE POPULATION WITHIN EPZ=    156 ---VEHICLE POPULATION OUTSIDE EPZ=      6 ------------------------------
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TOTAL TIME ELAPSED=   1800 SECONDS OR  0 HOURS, 30 MINUTES, AND  0 SECONDS
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS          0
VEHICLE POPULATION OF ZONE= 1  ROAD=  1 IS EQUAL TO     4   QUEUES: NRAN=     4  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 1  ROAD=  2 IS EQUAL TO     4   QUEUES: NRAN=     4  NLOD=  0  NDAC=     0  VMOTO=  0
                THE VEHICLE POPULATION IN ZONE= 1 IS          8
   THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS          8
VEHICLE POPULATION OF ZONE= 2  ROAD=  3 IS EQUAL TO     3   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD=  4 IS EQUAL TO     3   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD=  5 IS EQUAL TO     5   QUEUES: NRAN=     5  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD=  6 IS EQUAL TO     3   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD=  7 IS EQUAL TO     3   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD=  8 IS EQUAL TO     3   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD=  9 IS EQUAL TO     3   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 10 IS EQUAL TO     2   QUEUES: NRAN=     2  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 11 IS EQUAL TO     3   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 12 IS EQUAL TO     3   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 13 IS EQUAL TO     4   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  1
VEHICLE POPULATION OF ZONE= 2  ROAD= 14 IS EQUAL TO     8   QUEUES: NRAN=     8  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 15 IS EQUAL TO     3   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 16 IS EQUAL TO     3   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 17 IS EQUAL TO     2   QUEUES: NRAN=     2  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 18 IS EQUAL TO     4   QUEUES: NRAN=     4  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 2  ROAD= 19 IS EQUAL TO     5   QUEUES: NRAN=     5  NLOD=  0  NDAC=     0  VMOTO=  0
                THE VEHICLE POPULATION IN ZONE= 2 IS         60
VEHICLE POPULATION OF ZONE= 3  ROAD= 20 IS EQUAL TO     8   QUEUES: NRAN=     8  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 21 IS EQUAL TO     3   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 22 IS EQUAL TO     3   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 23 IS EQUAL TO     3   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 24 IS EQUAL TO     2   QUEUES: NRAN=     2  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 25 IS EQUAL TO     5   QUEUES: NRAN=     2  NLOD=  0  NDAC=     0  VMOTO=  3
VEHICLE POPULATION OF ZONE= 3  ROAD= 26 IS EQUAL TO     5   QUEUES: NRAN=     5  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 27 IS EQUAL TO     5   QUEUES: NRAN=     5  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 28 IS EQUAL TO     5   QUEUES: NRAN=     5  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 30 IS EQUAL TO     5   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  2
VEHICLE POPULATION OF ZONE= 3  ROAD= 31 IS EQUAL TO     5   QUEUES: NRAN=     5  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 32 IS EQUAL TO     5   QUEUES: NRAN=     5  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 3  ROAD= 33 IS EQUAL TO     5   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  2
                THE VEHICLE POPULATION IN ZONE= 3 IS         59
VEHICLE POPULATION OF ZONE= 4  ROAD= 35 IS EQUAL TO     3   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 4  ROAD= 36 IS EQUAL TO     4   QUEUES: NRAN=     4  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 4  ROAD= 37 IS EQUAL TO     3   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  0
VEHICLE POPULATION OF ZONE= 4  ROAD= 38 IS EQUAL TO     3   QUEUES: NRAN=     3  NLOD=  0  NDAC=     0  VMOTO=  0
                THE VEHICLE POPULATION IN ZONE= 4 IS         13
      THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =   140
      THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=    140

     THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED =  13.58%
-------------------------------------------------------------------------------------------------------------------  73

VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME:  0 HOURS, 30 MINUTES, AND  0 SECONDS.
RADIUS--- 0-TO- 1---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 1-TO- 2---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 2-TO- 3---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 3-TO- 4---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 4-TO- 5---POPULATION=     8  *  THE % OF REMAINING VEHICLES=  5.71 %   *  THE % OF INITIAL VEHICLES=   4.94 %
RADIUS--- 5-TO- 6---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 6-TO- 7---POPULATION=    22  *  THE % OF REMAINING VEHICLES= 15.71 %   *  THE % OF INITIAL VEHICLES=  13.58 %
RADIUS--- 7-TO- 8---POPULATION=    37  *  THE % OF REMAINING VEHICLES= 26.43 %   *  THE % OF INITIAL VEHICLES=  22.84 %
RADIUS--- 8-TO- 9---POPULATION=    39  *  THE % OF REMAINING VEHICLES= 27.86 %   *  THE % OF INITIAL VEHICLES=  24.07 %
RADIUS--- 9-TO-10---POPULATION=    34  *  THE % OF REMAINING VEHICLES= 24.29 %   *  THE % OF INITIAL VEHICLES=  20.99 %
RADIUS---10-TO-11---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
-------TOTAL VEHICLE POPULATION WITHIN TEN MILES=   140 ---VEHICLE POPULATION OUTSIDE TEN MILES=    22 ----------------------
----------TOTAL VEHICLE POPULATION WITHIN EPZ=   140 ---VEHICLE POPULATION OUTSIDE EPZ=    22 ----------------------------
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THE INITIAL VEHICLE POPULATION HAS =      162
TOTAL TIME ELAPSED=   2400 SECONDS OR  0 HOURS, 40 MINUTES, AND  0 SECONDS.
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS          0
VEHICLE POPULATION OF ZONE= 1  ROAD=  1 IS EQUAL TO      3   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   1
VEHICLE POPULATION OF ZONE= 1  ROAD=  2 IS EQUAL TO      2   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   0
                THE VEHICLE POPULATION IN ZONE= 1 IS          5
   THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS          5
VEHICLE POPULATION OF ZONE= 2  ROAD=  3 IS EQUAL TO      3   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   1
VEHICLE POPULATION OF ZONE= 2  ROAD=  4 IS EQUAL TO      2   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD=  5 IS EQUAL TO      3   QUEUES: NRAN=   3 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD=  6 IS EQUAL TO      2   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD=  7 IS EQUAL TO      2   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD=  8 IS EQUAL TO      2   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD=  9 IS EQUAL TO      2   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 10 IS EQUAL TO      1   QUEUES: NRAN=   0 NLOD=   0 NBAC=   0 VMOTO=   1
VEHICLE POPULATION OF ZONE= 2  ROAD= 11 IS EQUAL TO      2   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 12 IS EQUAL TO      3   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   1
VEHICLE POPULATION OF ZONE= 2  ROAD= 13 IS EQUAL TO      3   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   1
VEHICLE POPULATION OF ZONE= 2  ROAD= 14 IS EQUAL TO      5   QUEUES: NRAN=   5 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 15 IS EQUAL TO      2   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 16 IS EQUAL TO      2   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 2  ROAD= 18 IS EQUAL TO      5   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   3
VEHICLE POPULATION OF ZONE= 2  ROAD= 19 IS EQUAL TO      3   QUEUES: NRAN=   3 NLOD=   0 NBAC=   0 VMOTO=   0
                THE VEHICLE POPULATION IN ZONE= 2 IS         42
VEHICLE POPULATION OF ZONE= 3  ROAD= 20 IS EQUAL TO      5   QUEUES: NRAN=   5 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 21 IS EQUAL TO      2   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 22 IS EQUAL TO      2   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 23 IS EQUAL TO      4   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   2
VEHICLE POPULATION OF ZONE= 3  ROAD= 25 IS EQUAL TO      2   QUEUES: NRAN=   0 NLOD=   0 NBAC=   0 VMOTO=   2
VEHICLE POPULATION OF ZONE= 3  ROAD= 26 IS EQUAL TO      3   QUEUES: NRAN=   3 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 27 IS EQUAL TO      4   QUEUES: NRAN=   3 NLOD=   0 NBAC=   0 VMOTO=   1
VEHICLE POPULATION OF ZONE= 3  ROAD= 28 IS EQUAL TO      3   QUEUES: NRAN=   3 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 30 IS EQUAL TO      4   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   2
VEHICLE POPULATION OF ZONE= 3  ROAD= 31 IS EQUAL TO      3   QUEUES: NRAN=   3 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 32 IS EQUAL TO      3   QUEUES: NRAN=   3 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 33 IS EQUAL TO     13   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=  11
                THE VEHICLE POPULATION IN ZONE= 3 IS         48
VEHICLE POPULATION OF ZONE= 4  ROAD= 35 IS EQUAL TO      2   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 4  ROAD= 36 IS EQUAL TO      2   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   0
VEHICLE POPULATION OF ZONE= 4  ROAD= 37 IS EQUAL TO      3   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   1
VEHICLE POPULATION OF ZONE= 4  ROAD= 38 IS EQUAL TO      2   QUEUES: NRAN=   2 NLOD=   0 NBAC=   0 VMOTO=   0
                THE VEHICLE POPULATION IN ZONE= 4 IS          9
      THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =   104
      THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=     104

     THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED =  35.80%
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VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME:  0 HOURS, 40 MINUTES, AND  0 SECONDS.
RADIUS=== 0-TO- 1===POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %  *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS=== 1-TO- 2===POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %  *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS=== 2-TO- 3===POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %  *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS=== 3-TO- 4===POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %  *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS=== 4-TO- 5===POPULATION=      5  *  THE % OF REMAINING VEHICLES=  4.81 %  *  THE % OF INITIAL VEHICLES=   3.09 %
RADIUS=== 5-TO- 6===POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %  *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS=== 6-TO- 7===POPULATION=     15  *  THE % OF REMAINING VEHICLES= 14.42 %  *  THE % OF INITIAL VEHICLES=   9.26 %
RADIUS=== 7-TO- 8===POPULATION=     24  *  THE % OF REMAINING VEHICLES= 23.08 %  *  THE % OF INITIAL VEHICLES=  14.81 %
RADIUS=== 8-TO- 9===POPULATION=     25  *  THE % OF REMAINING VEHICLES= 24.04 %  *  THE % OF INITIAL VEHICLES=  15.43 %
RADIUS=== 9-TO-10===POPULATION=     35  *  THE % OF REMAINING VEHICLES= 33.65 %  *  THE % OF INITIAL VEHICLES=  21.60 %
RADIUS===10-TO-11===POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %  *  THE % OF INITIAL VEHICLES=   0.00 %
-------TOTAL VEHICLE POPULATION WITHIN TEN MILES=   104 ---VEHICLE POPULATION OUTSIDE TEN MILES=     58 ----------
----------TOTAL VEHICLE POPULATION WITHIN EPZ=   104 ---VEHICLE POPULATION OUTSIDE EPZ=     58 ----------
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THE INITIAL VEHICLE POPULATION WAS =       162
TOTAL TIME ELAPSED=   3000 SECONDS OR  0 HOURS, 50 MINUTES, AND  0 SECONDS.
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS          0
               THE VEHICLE POPULATION IN ZONE= 1 IS          0
   THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS          0
VEHICLE POPULATION OF ZONE= 2  ROAD=  3 IS EQUAL TO      2   QUEUES: NRAN=    0  NLOD=   0  NBAC=    0  VMOTO=   2
VEHICLE POPULATION OF ZONE= 2  ROAD=  7 IS EQUAL TO      2   QUEUES: NRAN=    0  NLOD=   0  NBAC=    0  VMOTO=   2
VEHICLE POPULATION OF ZONE= 2  ROAD=  9 IS EQUAL TO      2   QUEUES: NRAN=    0  NLOD=   0  NBAC=    0  VMOTO=   2
VEHICLE POPULATION OF ZONE= 2  ROAD= 12 IS EQUAL TO      1   QUEUES: NRAN=    0  NLOD=   0  NBAC=    0  VMOTO=   1
VEHICLE POPULATION OF ZONE= 2  ROAD= 14 IS EQUAL TO      2   QUEUES: NRAN=    2  NLOD=   0  NBAC=    0  VMOTO=   0
               THE VEHICLE POPULATION IN ZONE= 2 IS          9
VEHICLE POPULATION OF ZONE= 3  ROAD= 20 IS EQUAL TO      2   QUEUES: NRAN=    2  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 23 IS EQUAL TO      1   QUEUES: NRAN=    0  NLOD=   0  NBAC=    0  VMOTO=   1
VEHICLE POPULATION OF ZONE= 3  ROAD= 24 IS EQUAL TO      1   QUEUES: NRAN=    0  NLOD=   0  NBAC=    0  VMOTO=   1
VEHICLE POPULATION OF ZONE= 3  ROAD= 27 IS EQUAL TO      3   QUEUES: NRAN=    0  NLOD=   0  NBAC=    0  VMOTO=   3
VEHICLE POPULATION OF ZONE= 3  ROAD= 30 IS EQUAL TO      7   QUEUES: NRAN=    0  NLOD=   0  NBAC=    0  VMOTO=   7
VEHICLE POPULATION OF ZONE= 3  ROAD= 31 IS EQUAL TO      1   QUEUES: NRAN=    0  NLOD=   0  NBAC=    0  VMOTO=   1
VEHICLE POPULATION OF ZONE= 3  ROAD= 33 IS EQUAL TO     12   QUEUES: NRAN=    0  NLOD=   0  NBAC=    0  VMOTO=  12
               THE VEHICLE POPULATION IN ZONE= 3 IS         27
VEHICLE POPULATION OF ZONE= 4  ROAD= 37 IS EQUAL TO      1   QUEUES: NRAN=    0  NLOD=   0  NBAC=    0  VMOTO=   1
VEHICLE POPULATION OF ZONE= 4  ROAD= 39 IS EQUAL TO      1   QUEUES: NRAN=    0  NLOD=   0  NBAC=    0  VMOTO=   1
               THE VEHICLE POPULATION IN ZONE= 4 IS          2
      THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =     38
      THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=      38

     THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED =  76.54%
------------------------------------------------------------------------------------------------------------------------ 121

VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME:  0 HOURS, 50 MINUTES, AND  0 SECONDS.
RADIUS--- 0-TO- 1---POPULATION=      0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 1-TO- 2---POPULATION=      0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 2-TO- 3---POPULATION=      0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 3-TO- 4---POPULATION=      0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 4-TO- 5---POPULATION=      0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 5-TO- 6---POPULATION=      0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 6-TO- 7---POPULATION=      6  *  THE % OF REMAINING VEHICLES=  15.79 %   *  THE % OF INITIAL VEHICLES=    3.70 %
RADIUS--- 7-TO- 8---POPULATION=      4  *  THE % OF REMAINING VEHICLES=  10.53 %   *  THE % OF INITIAL VEHICLES=    2.47 %
RADIUS--- 8-TO- 9---POPULATION=     14  *  THE % OF REMAINING VEHICLES=  36.84 %   *  THE % OF INITIAL VEHICLES=    8.64 %
RADIUS--- 9-TO-10---POPULATION=     14  *  THE % OF REMAINING VEHICLES=  36.84 %   *  THE % OF INITIAL VEHICLES=    8.64 %
RADIUS---10-TO-11---POPULATION=      0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
--------TOTAL VEHICLE POPULATION WITHIN TEN MILES=     38 ---VEHICLE POPULATION OUTSIDE TEN MILES=    124 ----------
----------TOTAL VEHICLE POPULATION WITHIN EPZ=     38 ---VEHICLE POPULATION OUTSIDE EPZ=    124 ----------
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THE INITIAL VEHICLE POPULATION WAS =       162
TOTAL TIME ELAPSED=   3600 SECONDS OR  1 HOURS,  0 MINUTES, AND  0 SECONDS.
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS          0
                THE VEHICLE POPULATION IN ZONE= 1 IS          0
   THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS          0
                THE VEHICLE POPULATION IN ZONE= 2 IS          0
VEHICLE POPULATION OF ZONE= 3  ROAD= 33 IS EQUAL TO      6   QUEUES: NRAN=    0  NLOD=   0  NBAC=    0  VMOTO=   6
                THE VEHICLE POPULATION IN ZONE= 3 IS          6
                THE VEHICLE POPULATION IN ZONE= 4 IS          0
      THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =      6
      THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=       6

     THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED =  96.30%
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VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME:  1 HOURS,  0 MINUTES, AND  0 SECONDS.
RADIUS--- 0-TO- 1---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 1-TO- 2---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 2-TO- 3---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 3-TO- 4---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 4-TO- 5---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 5-TO- 6---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 6-TO- 7---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 7-TO- 8---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 8-TO- 9---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 9-TO-10---POPULATION=     6  *  THE % OF REMAINING VEHICLES=100.00 %   *  THE % OF INITIAL VEHICLES=   3.70 %
RADIUS---10-TO-11---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
--------TOTAL VEHICLE POPULATION WITHIN TEN MILES=      6 ---VEHICLE POPULATION OUTSIDE TEN MILES=    156 ----------------------
-----------TOTAL VEHICLE POPULATION WITHIN EPZ=      6 ---VEHICLE POPULATION OUTSIDE EPZ=    156 ------------------------------
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THE INITIAL VEHICLE POPULATION WAS =       162
TOTAL TIME ELAPSED=   4200 SECONDS OR  1 HOURS, 10 MINUTES, AND  0 SECONDS.
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS          0
                THE VEHICLE POPULATION IN ZONE= 1 IS          0
   THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS          0
                THE VEHICLE POPULATION IN ZONE= 2 IS          0
                THE VEHICLE POPULATION IN ZONE= 3 IS          0
                THE VEHICLE POPULATION IN ZONE= 4 IS          0
      THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =     0
      THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=      0

     THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED = 100.00%
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VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME: 1 HOURS, 10 MINUTES, AND 0 SECONDS.

USER: MLEE

CLEAR.OUT

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N    M M      MMMMM MMMMM
NM  MM N      M     M
N N M N      M     M
N N M N      MMMM  MMMM
N    M N      M     M
N    M M      M     M
N    M MMMMM MMMMM MMMMM


 MMM  M      MMMMM  MMM  MMMM          MMM  M   M MMMMM
N   M N      N     M   M N   M        M   M M   M   M
N     M      M     M   N N   M        M   M M   M   M
N     M      MMMM  MMMMM MMMM         M   M M   M   M
N     M      M     M   N M M          M   M M   M   M
N   M M      M     M   M M  M   MM    M   M M   M   M
 MMM  MMMMM MMMMM M   M M   M  MM     MMM   MMM    M
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LABEL: PRT002 -FORM PRC -COPIES 1

SPOOLED: 09/22/81 08:49
STARTED: 09/22/81 08:53, ON: MLC BY: PRC

PRINTED ON COMPANION PRINTER PRC

THIS IS A RUN MADE ON THE DENTREE1 COUNTY FILE ON DATE= 09/21/81 **********

DATE: 09/21/81

TIME (MIN,SEC,TICKS):915: 6:317
CPU TIME (SEC,TICKS): 22:295
DISK I/O (SEC,TICKS): 7:197

(330 TICKS/SECOND)

```
I.U= 6 DELT=   25 TYP=  24 FRACT= 0.10 MAXDEP=   600 POPVEH=  3 LGCODE=  1 FLORAT=  1700 EVL=  14.20  V=  30.00
ZTWO=  1 ZFIV=   2 ZTEN=   3 ZEPZ=   3 ISTG=  7 EX=  14 EPZ=  11
***ZONE:  1  POPZN=     0.   NRDS=  7 LENRDS=  13500.
ZNRD:    1  LINK=   5  LEN=    500  RADIS=  1  NOMVEL= 40  NLANES=  2  NRSEC=   4
ZNRD:    2  LINK=   3  LEN=   1000  RADIS=  1  NOMVEL= 40  NLANES=  2  NRSEC=   0
ZNRD:    3  LINK=   6  LEN=   1500  RADIS=  2  NOMVEL= 40  NLANES=  2  NRSEC=   7
ZNRD:    4  LINK=   5  LEN=   1500  RADIS=  1  NOMVEL= 40  NLANES=  2  NRSEC=   1
ZNRD:    5  LINK=  10  LEN=   3000  RADIS=  2  NOMVEL= 40  NLANES=  2  NRSEC=   9
ZNRD:    6  LINK=   9  LEN=   2000  RADIS=  2  NOMVEL= 40  NLANES=  2  NRSEC=   8
ZNRD:    7  LINK=   6  LEN=   4000  RADIS=  2  NOMVEL= 40  NLANES=  2  NRSEC=   3
***ZONE:  2  POPZN=     0.   NRDS=  3 LENRDS=   8000.
ZNRD:    8  LINK=   9  LEN=   2000  RADIS=  3  NOMVEL= 40  NLANES=  1  NRSEC=   6
ZNRD:    9  LINK=  10  LEN=    500  RADIS=  3  NOMVEL= 40  NLANES=  2  NRSEC=   5
ZNRD:   10  LINK=  11  LEN=   5500  RADIS=  5  NOMVEL= 40  NLANES=  2  NRSEC=   0
***ZONE:  3  POPZN=     0.   NRDS=  3 LENRDS=  16500.
ZNRD:   11  LINK=  13  LEN=   6000  RADIS=  8  NOMVEL= 40  NLANES=  2  NRSEC=  12
ZNRD:   12  LINK=  13  LEN=   8000  RADIS=  9  NOMVEL= 40  NLANES=  1  NRSEC=  11
ZNRD:   13  LINK=  14  LEN=   2500  RADIS= 10  NOMVEL= 40  NLANES=  2  NRSEC=   0
***ZONE:  4  POPZN=     0.   NRDS=  1 LENRDS=   9999.
ZNRD:   14  LINK=  14  LEN=   9999  RADIS= 11  NOMVEL= 40  NLANES=  9  NRSEC=   0
**ISTG: ROAD=   1  LENSTG=   500  POPSTG=   3500 PVSTG=   1.50
**ISTG: ROAD=   2  LENSTG=   500  POPSTG=   3000 PVSTG=   1.50
**ISTG: ROAD=   4  LENSTG=  1000  POPSTG=   3500 PVSTG=   1.50
**ISTG: ROAD=   8  LENSTG=  1500  POPSTG=   1187 PVSTG=   1.50
**ISTG: ROAD=  11  LENSTG=  2000  POPSTG=   2918 PVSTG=   1.50
**ISTG: ROAD=  12  LENSTG=  1500  POPSTG=    750 PVSTG=   1.50
**ISTG: ROAD=  13  LENSTG=   500  POPSTG=   1040 PVSTG=   1.50
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THE INITIAL VEHICLE POPULATION WAS =          0
TOTAL TIME ELAPSED=       0 SECONDS OR  0 HOURS,  0 MINUTES, AND  0 SECONDS.
VEHICLE POPULATION OF ZONE= 1  ROAD=  1 IS EQUAL TO  2333   QUEUES: NRAN= 2333  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 1  ROAD=  2 IS EQUAL TO  2000   QUEUES: NRAN= 2000  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 1  ROAD=  4 IS EQUAL TO  2333   QUEUES: NRAN= 2333  NLOD=   0  NBAC=    0  VMOTO=   0
              THE VEHICLE POPULATION IN ZONE= 1 IS       6666
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS      6666
VEHICLE POPULATION OF ZONE= 2  ROAD=  8 IS EQUAL TO   791   QUEUES: NRAN=  791  NLOD=   0  NBAC=    0  VMOTO=   0
              THE VEHICLE POPULATION IN ZONE= 2 IS        791
   THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS      7457
VEHICLE POPULATION OF ZONE= 3  ROAD= 11 IS EQUAL TO  1945   QUEUES: NRAN= 1945  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 12 IS EQUAL TO   500   QUEUES: NRAN=  500  NLOD=   0  NBAC=    0  VMOTO=   0
VEHICLE POPULATION OF ZONE= 3  ROAD= 13 IS EQUAL TO   693   QUEUES: NRAN=  693  NLOD=   0  NBAC=    0  VMOTO=   0
              THE VEHICLE POPULATION IN ZONE= 3 IS       3138
      THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS = 10595
      THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=  10595

     THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN EVACUATED =    0.00%
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VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME:  0 HOURS,  0 MINUTES, AND  0 SECONDS.
RADIUS---  0-TO- 1---POPULATION=  6666  *  THE % OF REMAINING VEHICLES= 62.92 %   *  THE % OF INITIAL VEHICLES=  62.92 %
RADIUS---  1-TO- 2---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS---  2-TO- 3---POPULATION=   791  *  THE % OF REMAINING VEHICLES=  7.47 %   *  THE % OF INITIAL VEHICLES=   7.47 %
RADIUS---  3-TO- 4---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS---  4-TO- 5---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS---  5-TO- 6---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS---  6-TO- 7---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS---  7-TO- 8---POPULATION=  1945  *  THE % OF REMAINING VEHICLES= 18.36 %   *  THE % OF INITIAL VEHICLES=  18.36 %
RADIUS---  8-TO- 9---POPULATION=   500  *  THE % OF REMAINING VEHICLES=  4.72 %   *  THE % OF INITIAL VEHICLES=   4.72 %
RADIUS---  9-TO-10---POPULATION=   693  *  THE % OF REMAINING VEHICLES=  6.54 %   *  THE % OF INITIAL VEHICLES=   6.54 %
RADIUS--- 10-TO-11---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
--------TOTAL VEHICLE POPULATION WITHIN TEN MILES= 10595 ---VEHICLE POPULATION OUTSIDE TEN MILES=     0 ----------------------
----------TOTAL VEHICLE POPULATION WITHIN EPZ= 10595 ---VEHICLE POPULATION OUTSIDE EPZ=     0 ------------------------------
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THE INITIAL VEHICLE POPULATION WAS =          0
TOTAL TIME ELAPSED=       0 SECONDS OR   0 HOURS,   0 MINUTES, AND   0 SECONDS.
VEHICLE POPULATION OF ZONE= 1  ROAD=  1 IS EQUAL TO  2333   QUEUES: NRAN= 2333  NLOD=    0  NBAC=     0  VMOTO=    0
VEHICLE POPULATION OF ZONE= 1  ROAD=  2 IS EQUAL TO  2000   QUEUES: NRAN= 2000  NLOD=    0  NBAC=     0  VMOTO=    0
VEHICLE POPULATION OF ZONE= 1  ROAD=  4 IS EQUAL TO  2333   QUEUES: NRAN= 2333  NLOD=    0  NBAC=     0  VMOTO=    0
              THE VEHICLE POPULATION IN ZONE= 1 IS       6666
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS      6666

THE INITIAL VEHICLE POPULATION WAS =      10595
TOTAL TIME ELAPSED=     600 SECONDS OR   0 HOURS,  10 MINUTES, AND   0 SECONDS.
VEHICLE POPULATION OF ZONE= 1  ROAD=  1 IS EQUAL TO   840   QUEUES: NRAN=    0  NLOD=  840  NBAC=     0  VMOTO=    0
VEHICLE POPULATION OF ZONE= 1  ROAD=  3 IS EQUAL TO  1268   QUEUES: NRAN=    0  NLOD=    0  NBAC=  1093  VMOTO=  175
VEHICLE POPULATION OF ZONE= 1  ROAD=  5 IS EQUAL TO  3094   QUEUES: NRAN=    0  NLOD=    0  NBAC=  2750  VMOTO=  344
VEHICLE POPULATION OF ZONE= 1  ROAD=  6 IS EQUAL TO   216   QUEUES: NRAN=    0  NLOD=    0  NBAC=     0  VMOTO=  216
              THE VEHICLE POPULATION IN ZONE= 1 IS       5418
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS      5418
VEHICLE POPULATION OF ZONE= 2  ROAD=  9 IS EQUAL TO   819   QUEUES: NRAN=    0  NLOD=    0  NBAC=   771  VMOTO=   48
VEHICLE POPULATION OF ZONE= 2  ROAD= 10 IS EQUAL TO  1112   QUEUES: NRAN=    0  NLOD=    0  NBAC=   367  VMOTO=  745
              THE VEHICLE POPULATION IN ZONE= 2 IS       1931
  THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS       7349
VEHICLE POPULATION OF ZONE= 3  ROAD= 11 IS EQUAL TO   838   QUEUES: NRAN=    0  NLOD=    0  NBAC=     0  VMOTO=  838
VEHICLE POPULATION OF ZONE= 3  ROAD= 13 IS EQUAL TO  1139   QUEUES: NRAN=    0  NLOD=    0  NBAC=   787  VMOTO=  352
              THE VEHICLE POPULATION IN ZONE= 3 IS       1977
      THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =  9326
      THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=   9326

    THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED =  11.98%
-------------------------------------------------------------------------------------------------------------------  25

VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME:   0 HOURS,  10 MINUTES,  AND   0 SECONDS.
RADIUS--- 0-TO- 1---POPULATION=   840  *  THE % OF REMAINING VEHICLES=   9.01 %   *  THE % OF INITIAL VEHICLES=   7.93 %
RADIUS--- 1-TO- 2---POPULATION=  4578  *  THE % OF REMAINING VEHICLES=  49.09 %   *  THE % OF INITIAL VEHICLES=  43.21 %
RADIUS--- 2-TO- 3---POPULATION=   819  *  THE % OF REMAINING VEHICLES=   8.78 %   *  THE % OF INITIAL VEHICLES=   7.73 %
RADIUS--- 3-TO- 4---POPULATION=     0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 4-TO- 5---POPULATION=  1112  *  THE % OF REMAINING VEHICLES=  11.92 %   *  THE % OF INITIAL VEHICLES=  10.50 %
RADIUS--- 5-TO- 6---POPULATION=     0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 6-TO- 7---POPULATION=     0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 7-TO- 8---POPULATION=   838  *  THE % OF REMAINING VEHICLES=   8.99 %   *  THE % OF INITIAL VEHICLES=   7.91 %
RADIUS--- 8-TO- 9---POPULATION=     0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 9-TO-10---POPULATION=  1139  *  THE % OF REMAINING VEHICLES=  12.21 %   *  THE % OF INITIAL VEHICLES=  10.75 %
RADIUS---10-TO-11---POPULATION=     0  *  THE % OF REMAINING VEHICLES=   0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
--------TOTAL VEHICLE POPULATION WITHIN TEN MILES=  9326 ---VEHICLE POPULATION OUTSIDE TEN MILES=  1269 ----------
----------TOTAL VEHICLE POPULATION WITHIN EPZ=  9326 ---VEHICLE POPULATION OUTSIDE EPZ=  1269 ----------
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THE INITIAL VEHICLE POPULATION WAS =      10595
TOTAL TIME ELAPSED=    1200 SECONDS OR  0 HOURS, 20 MINUTES, AND  0 SECONDS.
VEHICLE POPULATION OF ZONE= 1  ROAD=  3 IS EQUAL TO   424   QUEUES: NRAN=    0  NLOD=   0  NBAC=  249  VMOTO= 175
VEHICLE POPULATION OF ZONE= 1  ROAD=  5 IS EQUAL TO  2978   QUEUES: NRAN=    0  NLOD=   0  NBAC= 2590  VMOTO= 388
VEHICLE POPULATION OF ZONE= 1  ROAD=  6 IS EQUAL TO   252   QUEUES: NRAN=    0  NLOD=   0  NBAC=    0  VMOTO= 252
              THE VEHICLE POPULATION IN ZONE= 1 IS      3654
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS      3654
VEHICLE POPULATION OF ZONE= 2  ROAD=  9 IS EQUAL TO  1067   QUEUES: NRAN=    0  NLOD=   0  NBAC= 1019  VMOTO=  48
VEHICLE POPULATION OF ZONE= 2  ROAD= 10 IS EQUAL TO  1522   QUEUES: NRAN=    0  NLOD=   0  NBAC=  827  VMOTO= 695
              THE VEHICLE POPULATION IN ZONE= 2 IS      2589
   THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS      6243
VEHICLE POPULATION OF ZONE= 3  ROAD= 11 IS EQUAL TO  1099   QUEUES: NRAN=    0  NLOD=   0  NBAC=  254  VMOTO= 845
VEHICLE POPULATION OF ZONE= 3  ROAD= 13 IS EQUAL TO   207   QUEUES: NRAN=    0  NLOD=   0  NBAC=    0  VMOTO= 207
              THE VEHICLE POPULATION IN ZONE= 3 IS      1306
      THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =  7549
      THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=   7549

    THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED =  28.75%
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VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME:  0 HOURS, 20 MINUTES, AND  0 SECONDS.
RADIUS--- 0-TO- 1---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 1-TO- 2---POPULATION=  3654  *  THE % OF REMAINING VEHICLES= 48.40 %   *  THE % OF INITIAL VEHICLES=  34.49 %
RADIUS--- 2-TO- 3---POPULATION=  1067  *  THE % OF REMAINING VEHICLES= 14.13 %   *  THE % OF INITIAL VEHICLES=  10.07 %
RADIUS--- 3-TO- 4---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 4-TO- 5---POPULATION=  1522  *  THE % OF REMAINING VEHICLES= 20.16 %   *  THE % OF INITIAL VEHICLES=  14.37 %
RADIUS--- 5-TO- 6---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 6-TO- 7---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 7-TO- 8---POPULATION=  1099  *  THE % OF REMAINING VEHICLES= 14.56 %   *  THE % OF INITIAL VEHICLES=  10.37 %
RADIUS--- 8-TO- 9---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 9-TO-10---POPULATION=   207  *  THE % OF REMAINING VEHICLES=  2.74 %   *  THE % OF INITIAL VEHICLES=   1.95 %
RADIUS---10-TO-11---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
--------TOTAL VEHICLE POPULATION WITHIN TEN MILES=  7549 ---VEHICLE POPULATION OUTSIDE TEN MILES=  3046 ----------
----------TOTAL VEHICLE POPULATION WITHIN EPZ=  7549 ---VEHICLE POPULATION OUTSIDE EPZ=  3046 ----------
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THE INITIAL VEHICLE POPULATION WAS =     10595
TOTAL TIME ELAPSED=   1800 SECONDS OR  0 HOURS, 30 MINUTES, AND  0 SECONDS.
VEHICLE POPULATION OF ZONE= 1  ROAD=  5 IS EQUAL TO  2134   QUEUES: NRAN=    0  NLOD=   0  NBAC= 1712  VMOTO= 422
          THE VEHICLE POPULATION IN ZONE= 1 IS      2134
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS      2134
VEHICLE POPULATION OF ZONE= 2  ROAD=  9 IS EQUAL TO  1183   QUEUES: NRAN=    0  NLOD=   0  NBAC= 1135  VMOTO=  48
VEHICLE POPULATION OF ZONE= 2  ROAD= 10 IS EQUAL TO  1816   QUEUES: NRAN=    0  NLOD=   0  NBAC= 1048  VMOTO= 768
          THE VEHICLE POPULATION IN ZONE= 2 IS      2999
   THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS      5133
VEHICLE POPULATION OF ZONE= 3  ROAD= 11 IS EQUAL TO  1364   QUEUES: NRAN=    0  NLOD=   0  NBAC=  519  VMOTO= 845
          THE VEHICLE POPULATION IN ZONE= 3 IS      1364
      THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =  6497
      THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=   6497

     THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED =  38.68%
-------------------------------------------------------------------------------------------------------------- 73

VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME:  0 HOURS, 30 MINUTES, AND  0 SECONDS.
RADIUS---- 0-TO- 1---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS---- 1-TO- 2---POPULATION=  2134  *  THE % OF REMAINING VEHICLES= 32.85 %   *  THE % OF INITIAL VEHICLES=  20.14 %
RADIUS---- 2-TO- 3---POPULATION=  1183  *  THE % OF REMAINING VEHICLES= 18.21 %   *  THE % OF INITIAL VEHICLES=  11.17 %
RADIUS---- 3-TO- 4---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS---- 4-TO- 5---POPULATION=  1816  *  THE % OF REMAINING VEHICLES= 27.95 %   *  THE % OF INITIAL VEHICLES=  17.14 %
RADIUS---- 5-TO- 6---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS---- 6-TO- 7---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS---- 7-TO- 8---POPULATION=  1364  *  THE % OF REMAINING VEHICLES= 20.99 %   *  THE % OF INITIAL VEHICLES=  12.87 %
RADIUS---- 8-TO- 9---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS---- 9-TO-10---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS----10-TO-11---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
--------TOTAL VEHICLE POPULATION WITHIN TEN MILES=  6497 ---VEHICLE POPULATION OUTSIDE TEN MILES=  4098 ----------
-----------TOTAL VEHICLE POPULATION WITHIN EPZ=  6497 ---VEHICLE POPULATION OUTSIDE EPZ=  4098 ----------
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THE INITIAL VEHICLE POPULATION WAS =      10595
TOTAL TIME ELAPSED=    2400 SECONDS OR   0 HOURS, 40 MINUTES, AND   0 SECONDS.
VEHICLE POPULATION OF ZONE= 1  ROAD=  5 IS EQUAL TO  1290   QUEUES: NRAN=     0  NLOD=    0  NBAC=  868  VMOTO= 422
             THE VEHICLE POPULATION IN ZONE= 1 IS       1290
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS       1290
VEHICLE POPULATION OF ZONE= 2  ROAD=  9 IS EQUAL TO   623   QUEUES: NRAN=     0  NLOD=    0  NBAC=  575  VMOTO=  48
VEHICLE POPULATION OF ZONE= 2  ROAD= 10 IS EQUAL TO  2340   QUEUES: NRAN=     0  NLOD=    0  NBAC= 1595  VMOTO= 745
          . . . THE VEHICLE POPULATION IN ZONE= 2 IS       2963   . . .
   THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS       4253
VEHICLE POPULATION OF ZONE= 3  ROAD= 11 IS EQUAL TO   803   QUEUES: NRAN=     0  NLOD=    0  NBAC=    0  VMOTO= 803
VEHICLE POPULATION OF ZONE= 3  ROAD= 13 IS EQUAL TO   596   QUEUES: NRAN=     0  NLOD=    0  NBAC=   14  VMOTO= 582
             THE VEHICLE POPULATION IN ZONE= 3 IS       1399
      THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =  5652
      THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=   5652

     THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED =  46.65%
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VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME:   0 HOURS, 40 MINUTES, AND   0 SECONDS.
RADIUS--- 0-TO- 1---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 1-TO- 2---POPULATION=  1290  *  THE % OF REMAINING VEHICLES= 22.82 %   *  THE % OF INITIAL VEHICLES=  12.18 %
RADIUS--- 2-TO- 3---POPULATION=   623  *  THE % OF REMAINING VEHICLES= 11.02 %   *  THE % OF INITIAL VEHICLES=   5.88 %
RADIUS--- 3-TO- 4---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 4-TO- 5---POPULATION=  2340  *  THE % OF REMAINING VEHICLES= 41.40 %   *  THE % OF INITIAL VEHICLES=  22.09 %
RADIUS--- 5-TO- 6---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 6-TO- 7---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 7-TO- 8---POPULATION=   803  *  THE % OF REMAINING VEHICLES= 14.21 %   *  THE % OF INITIAL VEHICLES=   7.58 %
RADIUS--- 8-TO- 9---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 9-TO-10---POPULATION=   596  *  THE % OF REMAINING VEHICLES= 10.54 %   *  THE % OF INITIAL VEHICLES=   5.63 %
RADIUS---10-TO-11---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
--------TOTAL VEHICLE POPULATION WITHIN TEN MILES=  5652 ---VEHICLE POPULATION OUTSIDE TEN MILES=  4943 ----------
----------TOTAL VEHICLE POPULATION WITHIN EPZ=  5652 ---VEHICLE POPULATION OUTSIDE EPZ=  4943 ----------
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THE INITIAL VEHICLE POPULATION WAS =      10595
TOTAL TIME ELAPSED=    3000 SECONDS OR  0 HOURS, 50 MINUTES, AND  0 SECONDS.
VEHICLE POPULATION OF ZONE= 1  ROAD=  5 IS EQUAL TO    292   QUEUES: NRAN=     0  NLOD=    0  NBAC=     0  VMOTO= 292
              THE VEHICLE POPULATION IN ZONE= 1 IS       292
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS     292
VEHICLE POPULATION OF ZONE= 2  ROAD=  9 IS EQUAL TO     63   QUEUES: NRAN=     0  NLOD=    0  NBAC=    15  VMOTO=  48
VEHICLE POPULATION OF ZONE= 2  ROAD= 10 IS EQUAL TO   2792   QUEUES: NRAN=     0  NLOD=    0  NBAC=  2097  VMOTO= 695
              THE VEHICLE POPULATION IN ZONE= 2 IS      2855
  THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS     3147
VEHICLE POPULATION OF ZONE= 3  ROAD= 11 IS EQUAL TO    922   QUEUES: NRAN=     0  NLOD=    0  NBAC=   119  VMOTO= 803
VEHICLE POPULATION OF ZONE= 3  ROAD= 13 IS EQUAL TO    738   QUEUES: NRAN=     0  NLOD=    0  NBAC=    42  VMOTO= 696
              THE VEHICLE POPULATION IN ZONE= 3 IS      1660
      THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =  4807
      THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=   4807

     THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED =  54.63%
-------------------------------------------------------------------------------------------------------------- 121

VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME:  0 HOURS, 50 MINUTES, AND  0 SECONDS.
RADIUS--- 0-TO- 1---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 1-TO- 2---POPULATION=   292  *  THE % OF REMAINING VEHICLES=  6.07 %   *  THE % OF INITIAL VEHICLES=   2.76 %
RADIUS--- 2-TO- 3---POPULATION=    63  *  THE % OF REMAINING VEHICLES=  1.31 %   *  THE % OF INITIAL VEHICLES=   0.59 %
RADIUS--- 3-TO- 4---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 4-TO- 5---POPULATION=  2792  *  THE % OF REMAINING VEHICLES= 58.08 %   *  THE % OF INITIAL VEHICLES=  26.35 %
RADIUS--- 5-TO- 6---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 6-TO- 7---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 7-TO- 8---POPULATION=   922  *  THE % OF REMAINING VEHICLES= 19.18 %   *  THE % OF INITIAL VEHICLES=   8.70 %
RADIUS--- 8-TO- 9---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 9-TO-10---POPULATION=   738  *  THE % OF REMAINING VEHICLES= 15.35 %   *  THE % OF INITIAL VEHICLES=   6.97 %
RADIUS---10-TO-11---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
-------TOTAL VEHICLE POPULATION WITHIN TEN MILES=  4807 ---VEHICLE POPULATION OUTSIDE TEN MILES=  5788 ----------
----------TOTAL VEHICLE POPULATION WITHIN EPZ=  4807 ---VEHICLE POPULATION OUTSIDE EPZ=  5788 ----------
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THE INITIAL VEHICLE POPULATION WAS =     10595
TOTAL TIME ELAPSED=   3600 SECONDS OR  1 HOURS,  0 MINUTES, AND  0. SECONDS.
              THE VEHICLE POPULATION IN ZONE= 1 IS          0
   THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS          0
VEHICLE POPULATION OF ZONE= 2  ROAD= 10 IS EQUAL TO  2037   QUEUES: NRAN=    0  NLOD=    0  NDAC= 1269  VMOTO= 768
              THE VEHICLE POPULATION IN ZONE= 2 IS       2037
  THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS       2037
VEHICLE POPULATION OF ZONE= 3  ROAD= 11 IS EQUAL TO  1080   QUEUES: NRAN=    0  NLOD=    0  NDAC=  242  VMOTO= 838
VEHICLE POPULATION OF ZONE= 3  ROAD= 13 IS EQUAL TO   291   QUEUES: NRAN=    0  NLOD=    0  NDAC=    0  VMOTO= 291
              THE VEHICLE POPULATION IN ZONE= 3 IS       1371
     THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =  3408
     THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=   3408

    THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED =  67.83%
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VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME:  1 HOURS,  0 MINUTES, AND  0 SECONDS.
RADIUS--- 0-TO- 1---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 1-TO- 2---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 2-TO- 3---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 3-TO- 4---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 4-TO- 5---POPULATION=  2037  *  THE % OF REMAINING VEHICLES= 59.77 %   *  THE % OF INITIAL VEHICLES=  19.23 %
RADIUS--- 5-TO- 6---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 6-TO- 7---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 7-TO- 8---POPULATION=  1080  *  THE % OF REMAINING VEHICLES= 31.69 %   *  THE % OF INITIAL VEHICLES=  10.19 %
RADIUS--- 8-TO- 9---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 9-TO-10---POPULATION=   291  *  THE % OF REMAINING VEHICLES=  8.54 %   *  THE % OF INITIAL VEHICLES=   2.75 %
RADIUS---10-TO-11---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
-------TOTAL VEHICLE POPULATION WITHIN TEN MILES=  3408 ---VEHICLE POPULATION OUTSIDE TEN MILES=  7187 ----------
----------TOTAL VEHICLE POPULATION WITHIN EPZ=  3408 ---VEHICLE POPULATION OUTSIDE EPZ=  7187 ----------
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THE INITIAL VEHICLE POPULATION WAS =     10595
TOTAL TIME ELAPSED=   4200 SECONDS OR  1 HOURS, 10 MINUTES, AND  0 SECONDS.
              THE VEHICLE POPULATION IN ZONE= 1 IS          0
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS        0
VEHICLE POPULATION OF ZONE= 2  ROAD= 10 IS EQUAL TO  1157   QUEUES: NRAN=    0  NLOD=   0  NBAC=  412  VMOTO= 745
              THE VEHICLE POPULATION IN ZONE= 2 IS       1157
   THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS      1157
VEHICLE POPULATION OF ZONE= 3  ROAD= 11 IS EQUAL TO  1115   QUEUES: NRAN=    0  NLOD=   0  NBAC=  270  VMOTO= 845
VEHICLE POPULATION OF ZONE= 3  ROAD= 13 IS EQUAL TO   149   QUEUES: NRAN=    0  NLOD=   0  NBAC=    0  VMOTO= 149
              THE VEHICLE POPULATION IN ZONE= 3 IS       1264
      THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =  2421
      THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=   2421

     THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED =  77.15%
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VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME:  1 HOURS, 10 MINUTES, AND  0 SECONDS.
RADIUS--- 0-TO- 1---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 1-TO- 2---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 2-TO- 3---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 3-TO- 4---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 4-TO- 5---POPULATION=  1157  *  THE % OF REMAINING VEHICLES= 47.79 %   *  THE % OF INITIAL VEHICLES=  10.92 %
RADIUS--- 5-TO- 6---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 6-TO- 7---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 7-TO- 8---POPULATION=  1115  *  THE % OF REMAINING VEHICLES= 46.06 %   *  THE % OF INITIAL VEHICLES=  10.52 %
RADIUS--- 8-TO- 9---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
RADIUS--- 9-TO-10---POPULATION=   149  *  THE % OF REMAINING VEHICLES=  6.15 %   *  THE % OF INITIAL VEHICLES=   1.41 %
RADIUS---10-TO-11---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=   0.00 %
--------TOTAL VEHICLE POPULATION WITHIN TEN MILES=  2421 ---VEHICLE POPULATION OUTSIDE TEN MILES=  8174 ----------------------
----------TOTAL VEHICLE POPULATION WITHIN EPZ=  2421 ---VEHICLE POPULATION OUTSIDE EPZ=  8174 ------------------------------
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THE INITIAL VEHICLE POPULATION WAS =      10595
TOTAL TIME ELAPSED=    4800 SECONDS OR  1 HOURS, 20 MINUTES, AND  0 SECONDS.
               THE VEHICLE POPULATION IN ZONE= 1 IS          0
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS         0
               THE VEHICLE POPULATION IN ZONE= 2 IS          0
   THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS         0
VEHICLE POPULATION OF ZONE= 3  ROAD= 11 IS EQUAL TO  1427   QUEUES: NRAN=     0  NLOD=    0  NDAC=  582  VMOTO= 845
               THE VEHICLE POPULATION IN ZONE= 3 IS       1427
      THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =  1427
      THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=   1427

     THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED =  86.53%
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VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME:  1 HOURS, 20 MINUTES, AND  0 SECONDS.
RADIUS--- 0-TO- 1---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 1-TO- 2---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 2-TO- 3---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 3-TO- 4---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 4-TO- 5---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 5-TO- 6---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 6-TO- 7---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 7-TO- 8---POPULATION=  1427  *  THE % OF REMAINING VEHICLES=100.00 %   *  THE % OF INITIAL VEHICLES=   13.47 %
RADIUS--- 8-TO- 9---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 9-TO-10---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS---10-TO-11---POPULATION=     0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
-------TOTAL VEHICLE POPULATION WITHIN TEN MILES=  1427 ---VEHICLE POPULATION OUTSIDE TEN MILES=  9168 ----------
----------TOTAL VEHICLE POPULATION WITHIN EPZ=  1427 ---VEHICLE POPULATION OUTSIDE EPZ=  9168 ----------
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THE INITIAL VEHICLE POPULATION WAS =      10595
TOTAL TIME ELAPSED=   5400 SECONDS OR  1 HOURS, 30 MINUTES, AND  0 SECONDS.
               THE VEHICLE POPULATION IN ZONE= 1 IS          0
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS         0
               THE VEHICLE POPULATION IN ZONE= 2 IS          0
   THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS         0
VEHICLE POPULATION OF ZONE= 3  ROAD= 13 IS EQUAL TO    582   QUEUES: NRAN=    0  NLOD=    0  NBAC=   28  VMOTO= 554
               THE VEHICLE POPULATION IN ZONE= 3 IS        582
     THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =    582
     THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=     582

     THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED =  94.51%
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VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME:  1 HOURS, 30 MINUTES, AND  0 SECONDS.
RADIUS--- 0-TO- 1---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 1-TO- 2---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 2-TO- 3---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 3-TO- 4---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 4-TO- 5---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 5-TO- 6---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 6-TO- 7---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 7-TO- 8---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 8-TO- 9---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
RADIUS--- 9-TO-10---POPULATION=    582  *  THE % OF REMAINING VEHICLES=100.00 %   *  THE % OF INITIAL VEHICLES=    5.49 %
RADIUS---10-TO-11---POPULATION=      0  *  THE % OF REMAINING VEHICLES=  0.00 %   *  THE % OF INITIAL VEHICLES=    0.00 %
---------TOTAL VEHICLE POPULATION WITHIN TEN MILES=    582 ---VEHICLE POPULATION OUTSIDE TEN MILES= 10013 ----------
----------TOTAL VEHICLE POPULATION WITHIN EPZ=    582 ---VEHICLE POPULATION OUTSIDE EPZ= 10013 -----------------------
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THE INITIAL VEHICLE POPULATION WAS =      10595
TOTAL TIME ELAPSED=   6000 SECONDS OR  1 HOURS, 40 MINUTES, AND  0 SECONDS.
              THE VEHICLE POPULATION IN ZONE= 1 IS          0
    THE VEHICLE POPULATION IN THE TWO MILE RADIUS IS        0
              THE VEHICLE POPULATION IN ZONE= 2 IS          0
  THE VEHICLE POPULATION IN THE FIVE MILE RADIUS IS         0
              THE VEHICLE POPULATION IN ZONE= 3 IS          0
     THE TOTAL VEHICLE POPULATION IN THE TEN MILE RADIUS =      0
     THE TOTAL VEHICLE POPULATION IN THE ENTIRE EPZ=      0

    THE PERCENT OF THE INITIAL POPULATION THAT HAS BEEN  EVACUATED = 100.00%
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VEHICLE POPULATION AS A FUNCTION OF RADIAL DISTANCE AT TIME: 1 HOURS, 40 MINUTES, AND 0 SECONDS.