APPENDIX A

Glossary of Traffic Engineering Terms

APPENDIX A: GLOSSARY OF TRAFFIC ENGINEERING TERMS

Term	Definition
Link	A network link represents a specific, one-directional section of roadway. A link has both physical (length, number of lanes, topology, etc.) and operational (turn movement percentages, service rate, free-flow speed) characteristics.
Measures of Effectiveness	Statistics describing traffic operations on a roadway network
Node	A network node generally represents an intersection of network links. A node has control characteristics, i.e., the allocation of service time to each approach link.
Origin	A location attached to a network link, within the EPZ or shadow area, where trips are generated at a specified rate in vehicles per hour (vph). These trips enter the roadway system to travel to their respective destinations.
Network	A graphical representation of the geometric topology of a physical roadway system, which is comprised of directional links and nodes.
Prevailing roadway and traffic conditions	Relates to the physical features of the roadway, the nature (e.g., composition) of traffic on the roadway and the ambient conditions (weather, visibility, pavement conditions, etc.)
Service Rate	Maximum rate at which vehicles, executing a specific turn maneuver, can be discharged from a section of roadway at the prevailing conditions, expressed in vehicles per second (vps) or vehicles per hour (vph).
Service Volume	Maximum number of vehicles which can pass over a section of roadway in one direction during a specified time period with operating conditions at a specified Level of Service. (The Service Volume at the upper bound of Level of Service, E, equals Capacity.) Service Volume is usually expressed as vehicles per hour (vph).
Signal Cycle Length	The total elapsed time to display all signal indications, in sequence. The cycle length is expressed in seconds.
Signal Interval	A single combination of signal indications. The interval duration is expressed in seconds. A signal phase is comprised of a sequence of signal intervals.
Signal Phase	A set of signal indications (and intervals) which services a particular combination of traffic movements on selected approaches to the intersection. The phase duration is expressed in seconds.

Term	Definition
Traffic (Trip) Assignment	A process of assigning traffic to paths of travel in such a way as to satisfy all trip objectives (i.e., the desire of each vehicle to travel from a specified origin in the network to a specified destination) and to optimize some stated objective or combination of objectives. In general, the objective is stated in terms of minimizing a generalized "cost". For example, "cost" may be expressed in terms of travel time.
Traffic Density	The number of vehicles that occupy one lane of a roadway section of specified length at a point of time, expressed as vehicles per mile (vpm).
Traffic (Trip) Distribution	A process for determining the destinations of all traffic generated at the origins. The result often takes the form of a Trip Table, which is a matrix of origin-destination traffic volumes.
Traffic Simulation	A computer model designed to replicate the real-world operation of vehicles on a roadway network, so as to provide statistics describing traffic performance. These statistics are called Measures of Effectiveness.
Traffic Volume	The number of vehicles that pass over a section of roadway in one direction, expressed in vehicles per hour (vph). Where applicable, traffic volume may be stratified by turn movement.
Travel Mode	Distinguishes between private auto, bus, rail, pedestrian and air travel modes.
Trip Table or Origin-Destination Matrix	A rectangular matrix or table, whose entries contain the number of trips generated at each specified origin, during a specified time period, that are attracted to (and travel toward) each of its specified destinations. These values are expressed in vehicles per hour (vph) or in vehicles.
Turning Capacity	The capacity associated with that component of the traffic stream which executes a specified turn maneuver from an approach at an intersection.

APPENDIX B

Traffic Assignment Model

APPENDIX B: TRAFFIC ASSIGNMENT MODEL

This section describes the integrated trip assignment and distribution model named TRAD that is expressly designed for use in analyzing evacuation scenarios. This model employs equilibrium traffic assignment principles and is one of the models of the IDYNEV System.

To apply TRAD, the analyst must specify the highway network, link capacity information, the volume of traffic generated at all origin centroids, a set of accessible candidate destination nodes on the periphery of the EPZ for each origin, and the capacity (i.e., "attraction") of each destination node. TRAD calculates the optimal trip distribution and the optimal trip assignment (i.e., routing) of the traffic generated at each origin node, traveling to the associated set of candidate destination nodes, so as to minimize evacuee travel times.

Overview of Integrated Distribution and Assignment Model

The underlying premise is that the selection of destinations and routes is intrinsically coupled in an evacuation scenario. That is, people in vehicles seek to travel out of an area of potential risk as rapidly as possible by selecting the "best" route. The model is designed to identify these "best" routes in a manner that distributes vehicles from origins to destinations and routes them over the highway network, in a consistent and optimal manner.

The approach we adopt is to extend the basic equilibrium assignment methodology to embrace the distribution process, as well. That is, the selection of destination nodes by travelers from each origin node, and the selection of the connecting paths of travel, are both determined by the integrated model. This determination is subject to specified capacity constraints, so as to satisfy the stated objective function. This objective function is the statement of the User Optimization Principle by Wardrop[1].

To accomplish this integration, we leave the equilibrium assignment model intact, changing only the form of the objective function. It will also be necessary to create a "fictional" augmentation of the highway network. This augmentation will consist of Pseudo-Links and Pseudo-Nodes, so configured as to embed an equilibrium Distribution Model within the fabric of the Assignment Model.

[1] Wardrop, J.G., 1952. Some Theoretical Aspects of Road Traffic Research, *Proceedings, Institute of Civil Engineers*, Part II, Vol. 1, pp. 325-378.

Specification of TRAD Model Inputs

The user must specify, for each origin node, the average hourly traffic volume generated, as well as a set of candidate accessible destinations. A destination is "accessible" to traffic originating at an origin node if there is at least one path connecting the origin to the destination node. There must be at least one destination node specified for each origin centroid. The number of trips generated at the origin node, which are distributed to each specified, accessible destination node within this set, is determined by the model in a way as to satisfy the network-wide objective function (Wardrop's Principle).

The user must also specify the total number of trips which can be accommodated by each destination node. This value reflects the capacities of the road(s) immediately servicing the destination node. We call this number of trips, the "attraction" of the destination node, consistent with conventional practice. Clearly, we require that the total number of trips traveling to a destination, j, from all origin nodes, i, cannot exceed the attraction of destination node, j. By summing over all destination nodes, this constraint also states that the total trips generated at all origin nodes must not exceed the total capacity to accommodate these trips at all of the specified destinations.

In summary, the user must specify the total trips generated at each of the origin nodes, the maximum number of trips that can be accommodated by each of the specified destination nodes and the highway network attributes which include the traffic control tactics. The TRAD model includes a function which expresses travel time on each network link in terms of traffic volume and link capacity. This function drives the underlying trip distribution and trip assignment decision-making process. Thus, the TRAD model satisfies the objectives of evacuees to select destination nodes and travel paths to minimize evacuation travel time. As such, this integrated model is classified as a behavioral model.

At the outset, it may appear that we have an intractable problem:

- If TRAD retains the basic assignment algorithm, it must be provided a Trip Table as input.
- On the other hand, if the distribution model is embedded within the assignment model, rather than preceding it, a Trip Table is not available as input.

The resolution of this problem is as follows:

1. We construct an "augmentation" network that allows the user to specify only the volume for each origin node. The allocation of trips from the origin node to each candidate destination node, is not specified and will be determined internally by the model.
2. We construct pseudo-links which enforce the specified values of attraction, A_j, for all destination nodes, j, by suitably calibrating the relationship of the travel time vs. volume and capacity.

This augmented network is comprised of three subnetworks:

1. The highway subnetwork, which consists of "Class I" Links and Nodes.
2. A subnetwork of "Class II" Pseudo-Links which acts as an interface between the highway subnetwork and the network augmentation.
3. The subnetwork of "Class III" Pseudo-Links and Nodes which comprises the network augmentation described above.

The need for these Class II links will become clear later. The classifications are described below:

Class I Links and Nodes

These links and nodes represent the physical highway network: sections of highway and intersections. Trips generated at each Origin [Centroid] Node are assigned to a specified Class I link via a "connector" link. These connector links are transparent to the user and offer no impedance to the traveler; they represent the aggregation of local streets which service the centroidal generated trips and feed them onto the highway network. The real-world destination nodes are part of this network. The immediate approaches to these destination nodes are Class I links.

Class II Links

These pseudo-links are constructed so as to connect each specified destination node with its Class III Pseudo-Node (P-N) counterpart on a one-to-one basis. The capacities of these Class II links are set equal to the capacities at their respective destination nodes.

Class III Links and Nodes

Class III links and nodes form the augmentation to the basic network. These Pseudo-Links provide paths from the Class II links servicing traffic traveling from the specified [real] destination nodes, to the Super-Nodes which represent the user-specified set of destination nodes associated with each origin node.
Each Class of links provides a different function:

- Class I links represent the physical highway network. As such, each link has a finite capacity, a finite length and an estimated travel time for free-flowing vehicles. The nodes generally represent intersections, interchanges and, possibly, changes in link geometry. The topology of the Class I network represents that of the physical highway system.
- The Class II links represent the interface between the real highway subnetwork and the augmentation subnetwork. These pseudo-links are needed to represent the specified "attractions" of each destination node, i.e.,

the maximum number of vehicles that can be accommodated by each destination node. Instead of explicitly assigning a capacity limitation to the destination nodes, we assign this capacity limitation of the Class II Pseudo-Links. This approach is much more suitable, computationally.

- The topology of the network augmentation (i.e., Class III Links and Nodes) is designed so that all traffic from an origin node can only travel to the single "Super-Node" by flowing through its set of real destination nodes, thence along the links of the augmented network.

The Class II Pseudo-Links and the network augmentation of Class III Pseudo-Nodes and Links represent logical constructs of fictitious links created internally by the model, that allows the user to specify the identity of all destination nodes in each origin-based set, without specifying the distribution of traffic volumes from the origin to each destination node in that set.

Calculation of Capacities and Impedances

Each class of links exhibits different properties. Specifically, the relationship between travel impedance (which is expressed in terms of travel time) and both volume and capacity will differ:

- For Class I links, the capacity represents the physical limitation of the highway sections. Travel impedance is functionally expressed by relating travel time with respect to the traffic volume-link capacity relationship.
- For Class II links, link capacity represents the maximum number of vehicles that can be accommodated at the [real] destination nodes that form the upstream nodes of each Class II link. Since Class II links are Pseudo-Links, there should be virtually no difference in impedance to traffic along Class II links when the assigned traffic volume on these links is below their respective capacities. That is, the assignment of traffic should not be influenced by differences in travel impedance on those Class II links where the assigned volumes do not exceed their respective capacities.
- For Class III links, both capacity and impedance have no meaning. Since the Class II links limit the number of vehicles entering the Class III subnetwork at all entry points (i.e., at the Class II Pseudo-Nodes) and since all these links are Pseudo-Links, it follows that the Class III network is, by definition, an uncapacitated network.

Specification of the Objective Function

It is computationally convenient to be able to specify a single impedance (or "cost") function relating the travel time on a link, to its capacity and assigned traffic volume, for all classes of links. To achieve this, we will adopt the following form based on the original "BPR Formula[2]":

$$T = T_o\{\alpha[1 + a_1(\frac{v}{c})^{b_1}] + \beta[1 + a_2(\frac{v}{c})^{b_2}]\} + I$$

Where, as for the present traffic assignment model in TRAD,

T	=	Link travel time, sec.
T_o	=	Unimpeded link travel time, sec.
V	=	Traffic volume on the link, veh/hr
C	=	Link capacity, veh/hr
a_i, b_i	=	Calibration parameters
α, ß	=	Coefficients defined below
I	=	Impedance term, expressed in seconds, which could represent turning penalties or any other factor which is justified in the user's opinion

The assignment of coefficients varies according to the Class in which a link belongs:

Class	α	ß	T_o
I	1	0	L/U_f
II	0	1	W
III	0	0	1

Here, L is a highway link length and U_f is the free-flow speed of traffic on a highway link. The values of a_1 and b_1, which are applicable only for Class I links, are based on experimental data:

$a_1 = 0.8$ $b_1 = 5.0$

The values of a_2 and b_2, which are applicable for each Class II link, are based upon the absolute requirement that the upstream destination node can service no more traffic than the user-specified value of the maximum "attraction". In addition, these parameters must be chosen so that these Pseudo-Links all offer the same impedance to traffic when their assigned volumes are less than their respective specified maximum attractions.

The weighting factor, W, is computed internally by the software.

[2] Bureau of Public Roads (1964). Traffic Assignment Manual. U.S. Dept. of Commerce, Urban Planning Division, Washington D.C.

Of course, it is still possible for the assignment algorithm within TRAD to distribute more traffic to a destination node than that node can accommodate. For emergency planning purposes, this is a desirable model feature. Such a result will be flagged by the model to alert the user to the fact that some factor is strongly motivating travelers to move to that destination node, despite its capacity limitations. This factor can take many forms: inadequate highway capacity to other destinations, improper specification of candidate destinations for some of the origins, or some other design inadequacy. The planner can respond by modifying the control tactics, changing the origin-destination distribution pattern, providing more capacity at the overloaded destinations, etc.

APPENDIX C

Traffic Simulation Model: PC-DYNEV

APPENDIX C: TRAFFIC SIMULATION MODEL: PC-DYNEV

A model, named PC-DYNEV, is an adaptation of the TRAFLO Level II simulation model, developed by KLD for the Federal Highway Administration (FHWA). Extensions in scope were introduced to expand the model's domain of application to include all types of highway facilities, to represent the evacuation traffic environment and to increase its computational efficiency. This model produces the extensive set of output Measures of Effectiveness (MOE) shown in Table C-1.

The traffic stream is described internally in the form of statistical flow profiles. These profiles, expressed internally as statistical histograms, describe the platoon structure of the traffic stream on each network link. The simulation logic identifies five types of histograms:

- The ENTRY histogram which describes the platoon flow at the upstream end of the subject link. This histogram is simply an aggregation of the appropriate OUTPUT turn-movement-specific histograms of all feeder links.
- The INPUT histograms which describe the platoon flow pattern arriving at the stop line. These are obtained by first disaggregating the ENTRY histogram into turn-movement-specific component ENTRY histograms. Each such component is modified to account for the platoon dispersion which results as traffic traverses the link. The resulting INPUT histograms reflect the specified turn percentages for the subject link.
- The SERVICE histogram which describes the service rates for each turn movement. These service rates reflect the type of control device servicing traffic on this approach; if it is a signal, then this histogram reflects the specified movement-specific signal phasing. A separate model estimates service rates for each turn movement, given that the control is GO.

These data are provided for each network link and are also aggregated over the entire network.

- The QUEUE histograms that describe the time-varying ebb and growth of the queue formation at the stop line. These histograms are derived from the interaction of the respective IN histograms with the SERVICE histograms.
- The OUT histograms that describe the pattern of traffic discharging from the subject link. Each of the IN histograms is transformed into an OUT histogram by the control applied to the subject link. Each of these OUT histograms is added into the (aggregate) ENTRY histogram of its receiving link. This approach provides the model with the ability to identify the characteristics of each turn-movement-specific component of the traffic stream. Each component is serviced at a different saturation flow rate as is the case in the real world. The logic recognizes when one component of the traffic flow encounters saturation conditions even if the others do not.

Algorithms provide estimates of delay and stops reflecting the interaction of the IN histograms with the SERVICE histograms. The logic also provides for properly treating spillback conditions reflecting queues extending from its host link, into its upstream feeder links.

A valuable feature is the ability to internally generate functions that relate mean speed to density on each link, given user-specified estimates of free-flow speed and saturation service rates for each link. Such relationships are essential in order to simulate traffic operations on freeways and rural roads, where signal control does not exist or where its effect is not the dominant factor in impeding traffic flow.

All traffic simulation models are data-intensive. Table C-2 outlines the input data elements. This input describes:

- Topology of the roadway system
- Geometrics of each roadway component
- Channelization of traffic on each roadway component
- Motorist behavior that, in aggregate, determines the operational performance of vehicles in the system
- Specification of the traffic control devices and their operational characteristics
- Traffic volumes entering and leaving the roadway system
- Traffic composition.

To provide an efficient framework for defining these specifications, the physical environment is represented as a network. The unidirectional links of the network generally represent roadway components: either urban streets or freeway segments. The nodes of the network generally represent urban intersections or points along the freeway where a geometric property changes (e.g. a lane drop, change in grade or ramp).

Figure C-1 is an example of a small network representation. The freeway is defined by the sequence of links, (20,21), (21,22), and (22,23). Links (8001, 19) and (3, 8011) are Entry and Exit links, respectively. An arterial extends from node 3 to node 19 and is partially subsumed within a grid network. Note that links (21,22) and (17,19) are grade-separated.

Table C-1. Measures of Effectiveness Output by PC-DYNEV	
Measure	**Units**
Travel	Vehicle-Miles and Vehicle-Trips
Moving Time	Vehicle-Minutes
Delay Time	Vehicle-Minutes
Total Travel Time	Vehicle-Minutes
Efficiency: Moving Time/Total Travel Time	Percent
Mean Travel Time per Vehicle	Seconds
Mean Delay per Vehicle	Seconds
Mean Delay per Vehicle-Mile	Seconds/Mile
Mean Speed	Miles/Hour
Mean Occupancy	Vehicles
Mean Saturation	Percent
Vehicle Stops	Percent

Table C-2. Input Requirements for the PC-DYNEV Model

GEOMETRICS

- Links defined by upstream downstream node numbers
- Links lengths
- Number of lanes (up to 6)
- Turn pockets
- Grade
- Network topology defined in terms of target nodes for each receiving link

TRAFFIC VOLUMES

- On all entry links and sink/source nodes stratified by vehicle type: auto, car pool, bus, truck
- Link-specific turn movements

TRAFFIC CONTROL SPECIFICATIONS

- Traffic signals: link-specific, turn movement specific
- Signal control treated as fixed time
- Stop and Yield signs
- Right-turn-on-red (RTOR)
- Route diversion specifications
- Turn restrictions
- Lane control (e.g. lane closure, movement-specific)

DRIVER'S AND OPERATIONAL CHARACTERISTICS

- Drivers (vehicle-specific) response mechanisms: free-flow speed, aggressiveness, discharge headway
- Link-specific mean speed for free-flowing (unimpeded) traffic
- Vehicle-type operational characteristics: acceleration, deceleration
- Such factors as bus route designation, bus station location, dwell time, headway, etc.

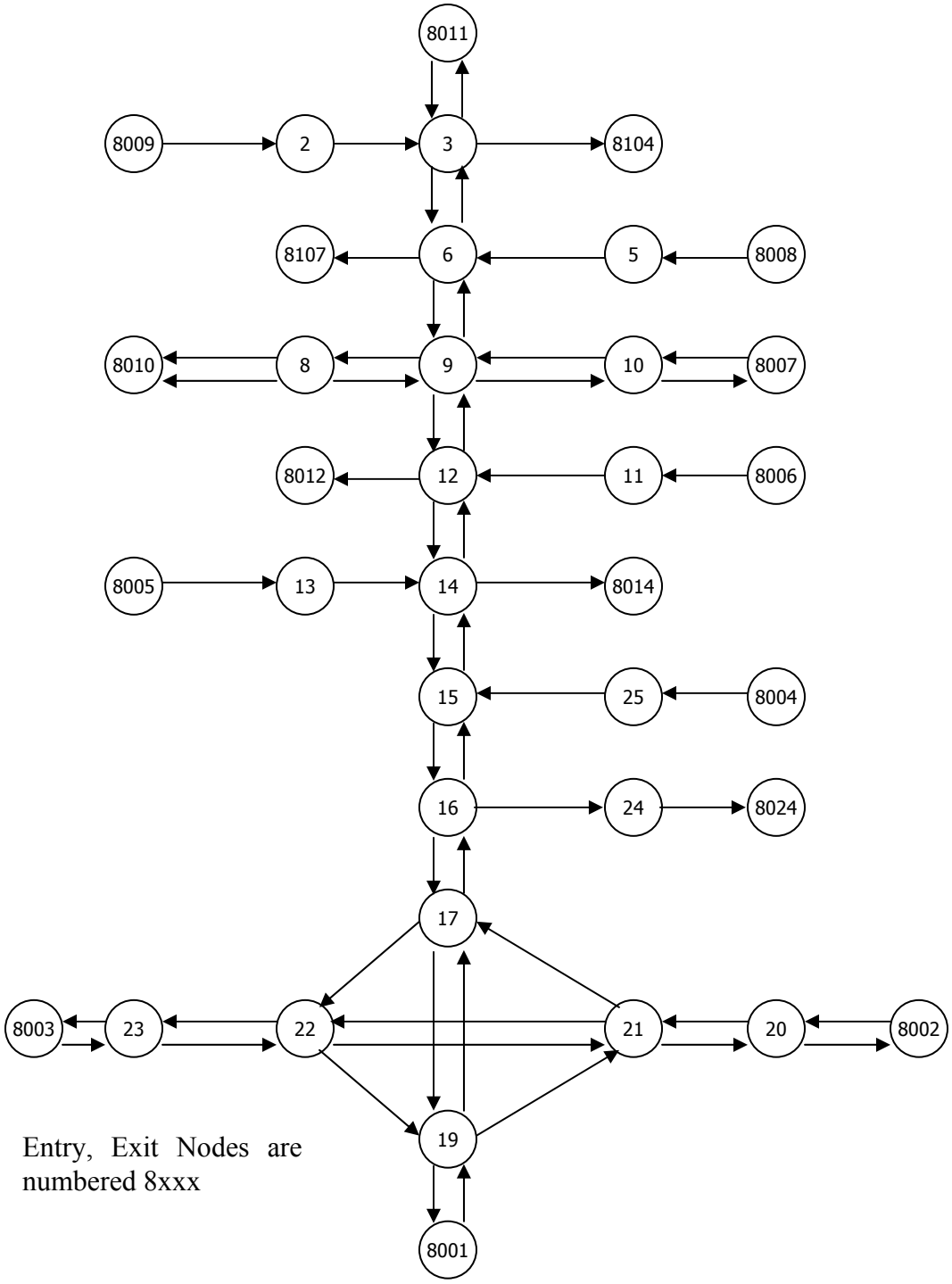


Figure C-1: Representative Analysis Network

APPENDIX D

Detailed Description of Study Procedure

APPENDIX D: DETAILED DESCRIPTION OF STUDY PROCEDURE

This appendix describes the activities that were performed to compute accurate Evacuation Time Estimates (ETE). The individual steps of this effort are represented as a flow diagram in Figure D-1. Each numbered step in the description that follows corresponds to the numbered element in this flow diagram.

Step 1.

The first activity is to obtain data defining the spatial distribution and demographic characteristics of the population within the Emergency Planning Zone (EPZ). These data were obtained from Enercon Services personnel and from the results of a telephone survey conducted within the EPZ. Employee and transient population data were obtained from local sources of information and County Emergency Management Offices.

Step 2.

The next activity is to examine large-scale maps of the EPZ in both hard-copy form and using Geographical Information System (GIS) software. These maps were used to identify the analysis highway network and the access roads from each residential and employment development to the adjoining elements of this network. This information is used to plan a field survey of the highway system and later, to assign generated evacuation trips to the correct destinations at the periphery of the EPZ.

Step 3.

The next step is to conduct a physical survey of the roadway system. The purpose of this survey is to determine the geometric properties of the highway elements, the channelization of lanes on each section of roadway, whether there are any turn restrictions or special treatment of traffic at intersections, the type and functioning of traffic control devices and to make the necessary observations needed to estimate realistic values of roadway capacity.

Step 4.

With this information, develop the evacuation network representation of the physical roadway system.

Step 5.

With the network drawn, proceed to estimate the capacities of each link and to locate the origin centroids where trips would be generated during the evacuation process.

Step 6.

With this information at hand, the data were entered into the computer to create the input stream for the TRaffic Assignment and Distribution (TRAD) model. This model was designed to be compatible with the PC-DYNEV traffic simulation model used later in the project; the input stream required for one model is entirely compatible with the input stream required by the other. Using a software system developed by KLD named UNITES, the data entry activity is performed interactively directly on the computer.

Step 7.

The TRAD model contains software that performs diagnostic testing of the input stream. These assist the user in identifying and correcting errors in the input stream.

Step 8.

After creating the input stream, execute the TRAD model to compute evacuating traffic routing patterns consistent with the guidelines of NUREG 0654, Appendix 4. The TRAD model also provides estimates of traffic loading on each highway link as well as rough estimates of operational performance.

Step 9.

Critically examine the statistics produced by the TRAD model. This is a labor-intensive activity, requiring the direct participation of skilled analysts who possess the necessary practical experience to interpret the results and to determine the causes of any problems reflected in the results.

Essentially, the approach is to identify those "hot spots" in the network that represent locations where congested conditions are pronounced and to identify the cause of this congestion. This cause can take many forms, either as excess demand due to improper routing, as a shortfall of capacity, or as a quantitative error in the way the physical system was represented in the input stream. This examination leads to one of two conclusions:

- The results are as satisfactory as could be expected at this stage of the analysis process; or
- The input stream must be modified accordingly.

This decision requires, of course, the application of the user's judgment based upon the results obtained in previous applications of the TRAD model and a comparison of the results of this last case with the previous ones. If the results are satisfactory in the opinion of the user, then the process continues with Step 12. Otherwise, proceed to Step 10.

Step 10.

There are many "treatments" available to the user in resolving such problems. These treatments range from decisions to reroute the traffic by imposing turn restrictions where they can produce significant improvements in capacity, changing the control treatment at critical intersections so as to provide improved service for one or more movements, or in prescribing specific treatments for channelizing the flow so as to expedite the movement of traffic along major roadway systems or changing the trip table. Such "treatments" take the form of modifications to the original input stream.

Step 11.

As noted above, the changes to the input stream must be implemented to reflect the modifications undertaken in Step 10. At the completion of this activity, the process returns to Step 8 where the TRAD model is again executed.

Step 12.

The output of the TRAD model includes the computed turn movements for each link. These data are required – and – accessed by the PC-DYNEV simulation model. This step completes the specification of the PC-DYNEV input stream.

Step 13.

After the PC-DYNEV input stream has been debugged, the simulation model is executed to provide detailed estimates, expressed as statistical Measures of Effectiveness (MOE), which describe the detailed performance of traffic operations on each link of the network.

Step 14.

In this step, the detailed output of the simulation model is examined to identify whether problems exist on the network. The results of the simulation model are extremely detailed and far more accurately describe traffic operations than those provided by the TRAD model. Thus, it is possible to identify the cause of any problems by carefully studying the output.

Again, one can implement corrective treatments designed to expedite the flow of traffic on the network in the event that the results are considered to be less efficient than is possible to achieve. If input changes are needed, the analysis process proceeds to Step 15. On the other hand, if the results are satisfactory, then one can decide whether to return to Step 8 to again execute the TRAD model and repeat the whole process, or to accept the simulation results. If there were no changes indicated by the activities of Step 14, because the results were satisfactory, we can then proceed to document them in Step 17. Otherwise, return to Step 8 to determine the effects of the changes implemented in Step 14

on the optimal routing patterns over the network. This determination can be ascertained by executing the TRAD model.

Step 15.

This activity implements the changes in control treatments or in the assignment of destinations associated with one or more origins in order to improve the representation of traffic flow over the network. These treatments can also include the consideration of adding roadway segments to the existing analysis network to improve the representation of the physical system.

Step 16.

Once the treatments have been identified, it is necessary to modify the simulation model input stream accordingly. At the completion of this effort, the procedure returns to Step 13 to execute the simulation model again.

Step 17.

The simulation results are analyzed, tabulated and graphed. The results are then documented, as required.

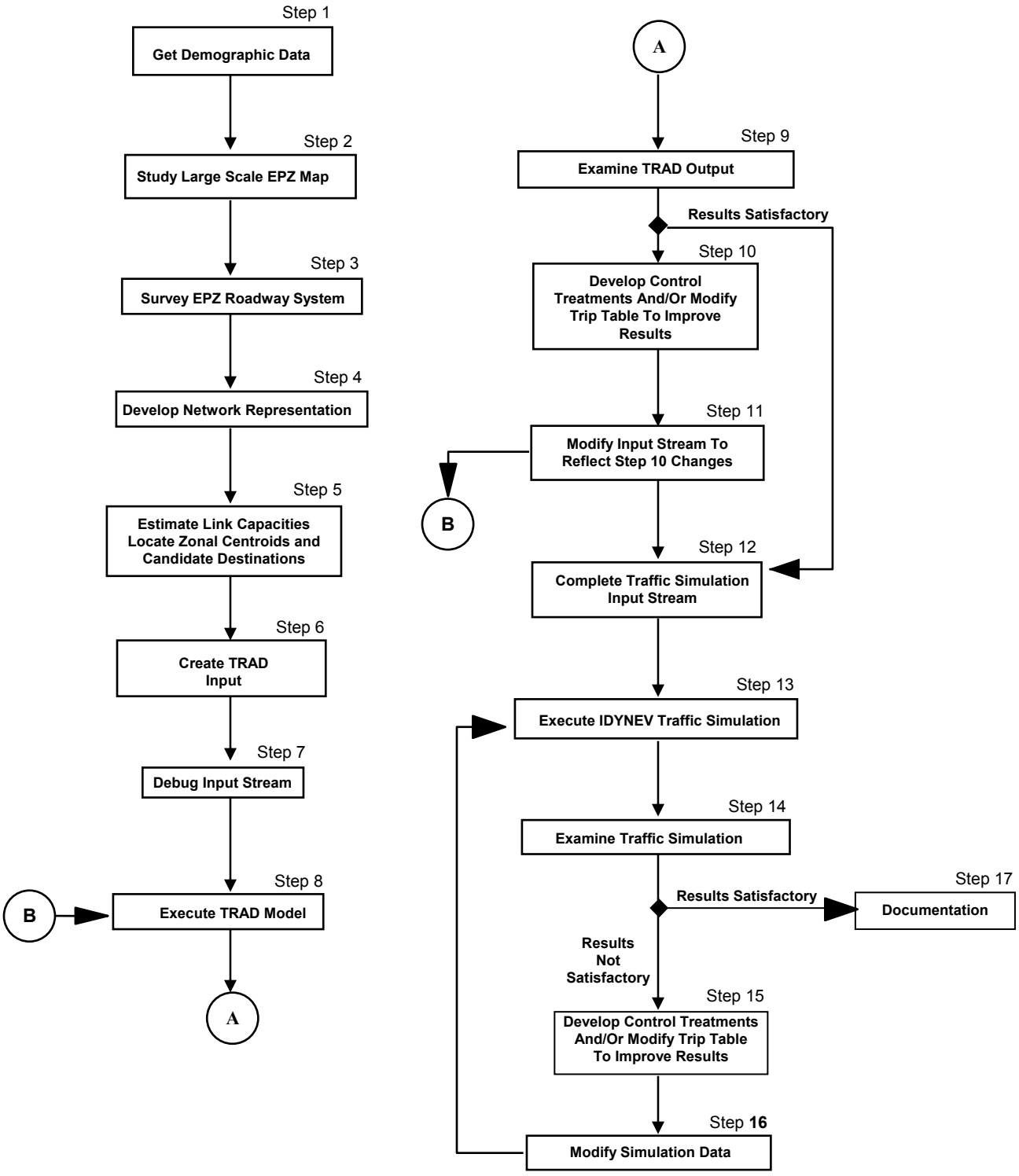


Figure D-1. Flow Diagram of Activities

APPENDIX E

Special Facility Data

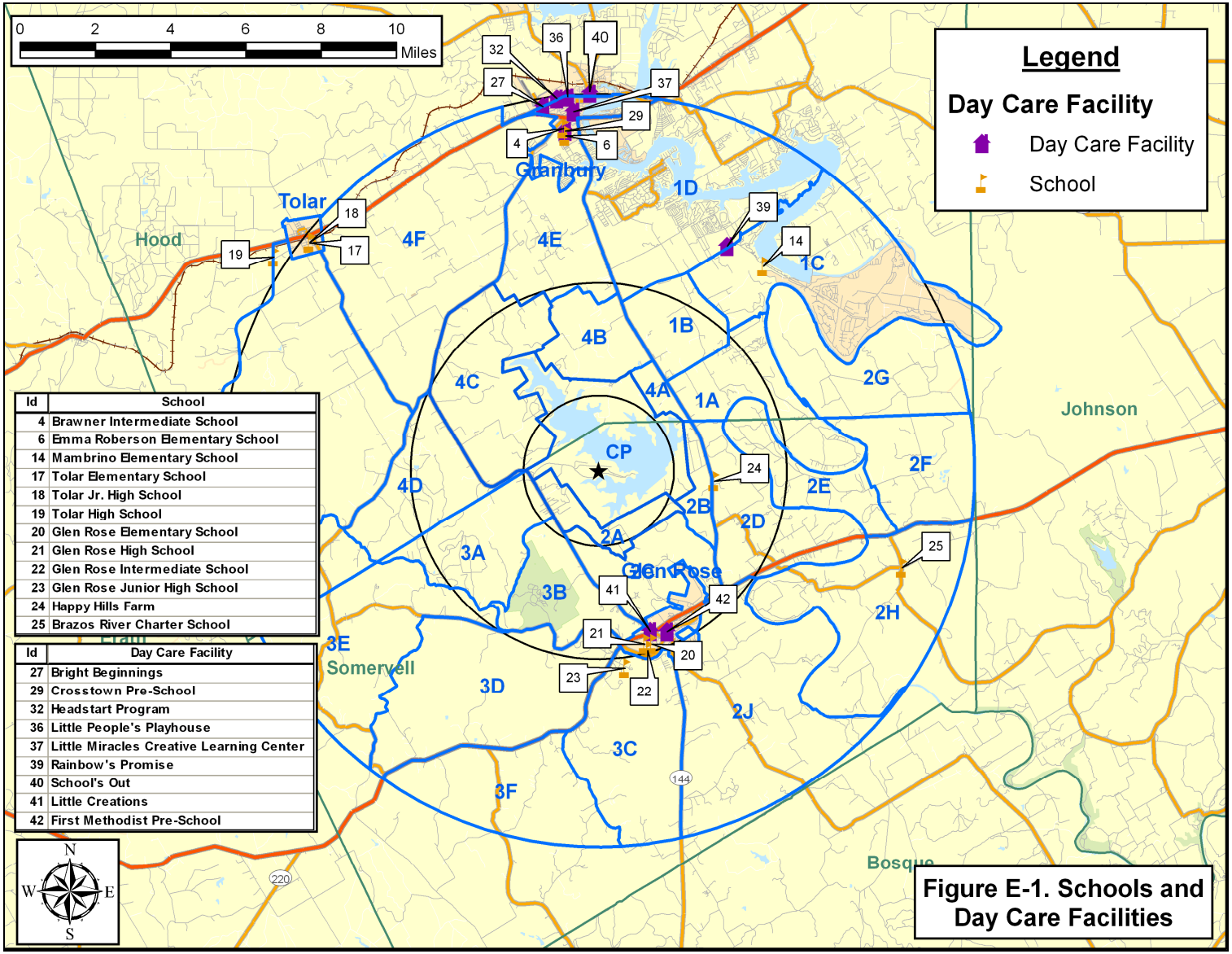
APPENDIX E: SPECIAL FACILITY DATA

The following tables list population information, as of August 2007, for special facilities that are located within the Comanche Peak Nuclear Power Plant (CPNPP) EPZ. Special facilities are defined as schools, day care centers, hospitals and other medical care facilities, correctional institutions, and major employers. Transient population data is included in the tables for state parks, county parks, lodging facilities, and other recreational areas. Each table is grouped by county. The location of the facility is defined by its straight-line distance (miles) and direction (magnetic bearing) from the CPNPP.

Comanche Peak EPZ: Schools								
Zone	**Distance (miles)**	**Direction**	**School Name**	**Street Address**	**Municipality**	**Phone**	**Enroll-ment**	**Staff**
HOOD COUNTY								
1C	6.9	NE	Mambrino Elementary School	3835 Mambrino Hwy	Granbury	(817) 408-0475	630	77
4G	10.3	WNW	Tolar High School	301 Rock Church Rd	Tolar	(254) 835-4316	620	75
Granbury	9	N	Brawner Intermediate School	1520 S. Meadows Dr	Granbury	(817) 408-4950	412	51
Granbury	8.9	N	Emma Roberson Elementary School	1500 Misty Meadow Dr	Granbury	(817) 408-4500	642	59
Tolar	9.8	NW	Tolar Elementary School	401 E. 7th St	Tolar	(254) 835-4028	260	30
Tolar	9.8	NW	Tolar Jr. High School	401 E. 7th St	Tolar	(254) 835-5207	150	15
SOMERVELL COUNTY								
2D	3.1	E	Happy Hills Farm	3846 N. Hwy 144	Granbury	(254) 897-4822	120	100
2H	8.5	ESE	Brazos River Charter School	1964 S FM 199	Nemo	(254) 898-9226	160	15
3C	5.3	S	Glen Rose Junior High School	Moody Ln	Glen Rose	(254) 898-3703	389	55
Glen Rose	4.8	SSE	Glen Rose Elementary School	601 Stadium Dr	Glen Rose	(254) 898-3503	413	66
Glen Rose	4.7	SSE	Glen Rose High School	900 Stadium Dr	Glen Rose	(254) 898-3803	500	90
Glen Rose	4.9	SSE	Glen Rose Intermediate School	201 Allen Dr	Glen Rose	(254) 898-3603	385	55
						Total	**4,681**	**688**

Comanche Peak EPZ: Day Care Facilities								
Zone	**Distance (miles)**	**Direction**	**Name**	**Street Address**	**Municipality**	**Phone**	**Enroll-ment**	**Empl-oyees**
HOOD COUNTY								
1D	6.9	NNE	Rainbow's Promise	2727 Mambrino Hwy	Granbury	(817) 279-6794	100	13
Granbury	9.8	N	Bright Beginnings	2001 W. Pearl St	Granbury	(817) 579-9796	N/A	N/A
Granbury	9.1	N	Crosstown Pre-School	1400 N. Meadows Dr	Granbury	(817) 776-2074	72	12
Granbury	9.9	N	Headstart Program	1509 W. Pearl St	Granbury	(817) 579-1303	75	11
Granbury	9.6	N	Little Miracles Creative Learning Center	807 Paluxy Hwy	Granbury	(817) 573-4242	101	10
Granbury	9.9	N	Little People's Playhouse	1107 W. Pearl St	Granbury	(817) 573-3188	80	17
Granbury	10.0	N	School's Out	206 West Bridge	Granbury	(817) 573-1237	70	11
SOMERVELL COUNTY								
Glen Rose	4.5	SSE	Little Creations	805 Hereford St	Glen Rose	(254) 897-3502	81	8
Glen Rose	4.6	SSE	First United Methodist Pre-School	Bernard St	Glen Rose	(254) 897-2572	20	2
						Total	**599**	**84**

N/A= Data not available



Id	School
4	Brawner Intermediate School
6	Emma Roberson Elementary School
14	Mambrino Elementary School
17	Tolar Elementary School
18	Tolar Jr. High School
19	Tolar High School
20	Glen Rose Elementary School
21	Glen Rose High School
22	Glen Rose Intermediate School
23	Glen Rose Junior High School
24	Happy Hills Farm
25	Brazos River Charter School

Id	Day Care Facility
27	Bright Beginnings
29	Crosstown Pre-School
32	Headstart Program
36	Little People's Playhouse
37	Little Miracles Creative Learning Center
39	Rainbow's Promise
40	School's Out
41	Little Creations
42	First Methodist Pre-School

Figure E-1. Schools and Day Care Facilities

Comanche Peak EPZ: Medical Facilities and Assisted Living Facilties									
Zone	Distance (miles)	Dir-ection	Name	Street Address	Municipality	Phone	Capacity	Census	Employees Max Shift
HOOD COUNTY									
1D	8.8	NNE	Acorn Run Manor	3705 Acorn Run	Granbury	(817) 326-5050	2	2	2
1D	9.6	N	Courtyards at Lake Granbury	801 Calinco Dr	Granbury	(817) 736-4300	112	112	10
1D	10.1	N	Southern Concepts	1400 Fifth St	Granbury	(817) 579-9678	6	6	1
4F	8.8	N	Granbury Villa Nursing Center	2124 Paluxy Hwy	Granbury	(817) 573-9131	93	81	26
4F	8.5	NNW	Victoria's Place	2310 Paluxy Hwy	Granbury	(817) 279-9607	19	18	2
Granbury	8.7	NNE	Gables	2300 Paluxy Hwy	Granbury	(817) 279-9259	77	77	8
Granbury	9.8	N	Granbury Care Center	301 South Park St	Granbury	(817) 573-3726	178	170	30
Granbury	9.3	N	Lake Granbury Medical Center	1310 Paluxy Hwy	Granbury	(817) 573-2273	59	25	80
Granbury	9.8	N	Southern Concepts	Torrey St	Granbury	(817) 579-9678	6	6	1
Granbury	9.9	N	Southern Concepts	210 Travis St	Granbury	(817) 579-9678	3	2	1
Granbury	9.9	N	Southern Concepts Day Activity Center	109 W. Pearl St	Granbury	(817) 579-9678	20	20	4
Tolar	9.9	SSE	Southern Concepts	6th & Mesquite	Tolar	(817) 579-9678	6	6	1
SOMERVELL COUNTY									
Glen Rose	4.4	SSE	Cherokee Rose Manor	203 Bo Gibbs Blvd	Glen Rose	(254) 897-7361	102	70	15
Glen Rose	4.5	SSE	Glen Rose Medical Center Hospital	1021 Holden St	Glen Rose	(254) 897-2215	N/A	16	13
Glen Rose	4.5	SSE	Glen Rose Medical Center Nursing Home	1021 Holden St	Glen Rose	(254) 897-1429	N/A	118	25
						Total		**729**	**219**

N/A= Data not available

Comanche Peak EPZ: Correctional Facilities								
Zone	**Distance (miles)**	**Direction**	**Name**	**Street Address**	**Municipality**	**Phone**	**Capacity**	**Current Census**
SOMERVELL COUNTY								
Glen Rose	4	SSE	Somervell County Jail	750 Gibbs Blvd	Glen Rose	(254) 897-4286	57	32
						Total	**57**	**32**

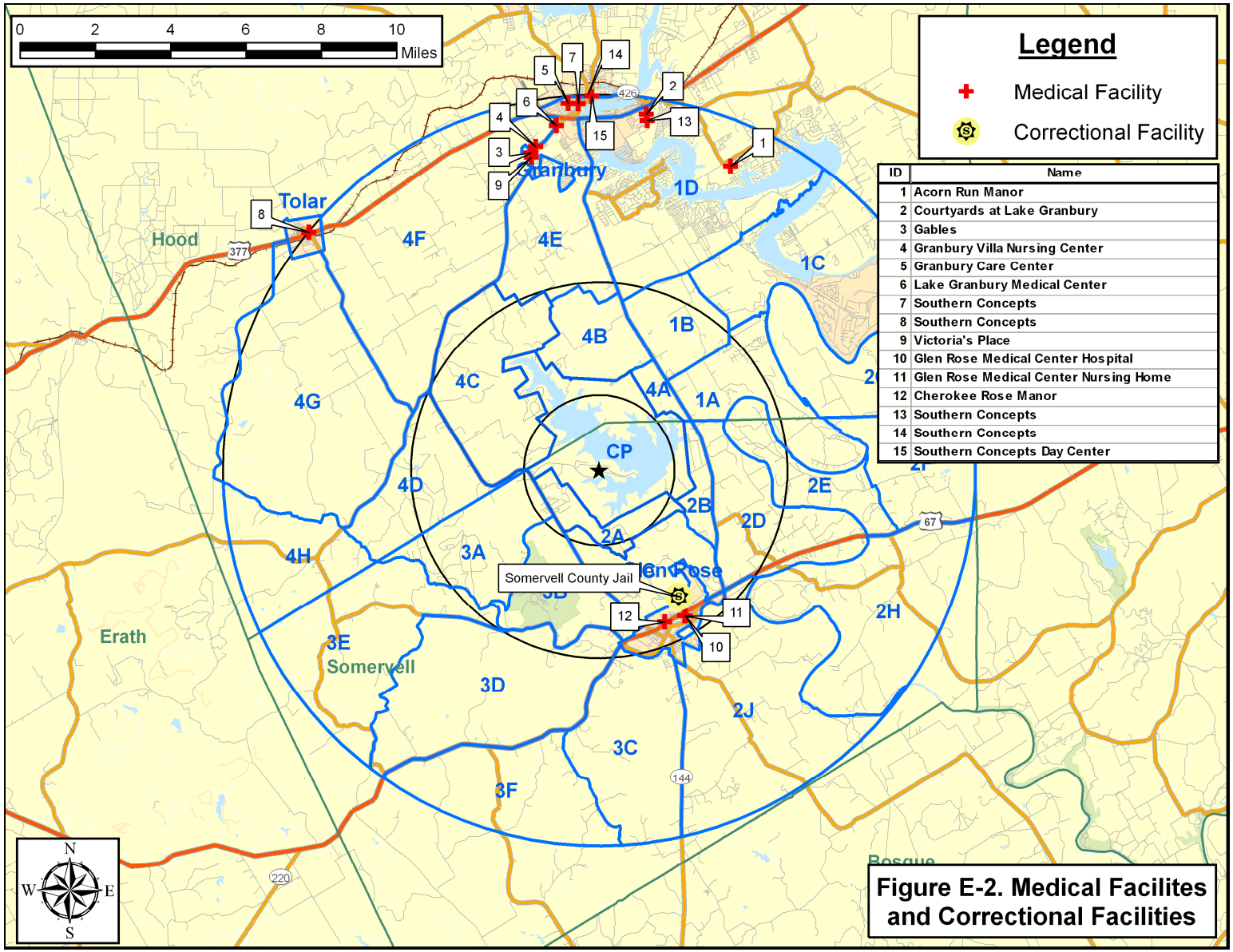

0 2 4 6 8 10
Miles
Legend
Medical Facility
Correctional Facility
ID | Name
1 Acorn Run Manor
2 Courtyards at Lake Granbury
3 Gables
4 Granbury Villa Nursing Center
5 Granbury Care Center
6 Lake Granbury Medical Center
7 Southern Concepts
8 Southern Concepts
9 Victoria's Place
10 Glen Rose Medical Center Hospital
11 Glen Rose Medical Center Nursing Home
12 Cherokee Rose Manor
13 Southern Concepts
14 Southern Concepts
15 Southern Concepts Day Center
Granbury
Tolar
Hood
Somervell
Erath
Glen Rose
Somervell County Jail
CP
1A
1B
1C
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Figure E-2. Medical Facilites and Correctional Facilities

Comanche Peak EPZ: Major Employers										
Zone	Distance (miles)	Dir-ection	Facility Name	Street Address	Municipality	Phone	Total Employees	Max Shift	% Non-EPZ	Non-EPZ Employees
HOOD COUNTY										
1C	7.3	NE	Pecan Plantation Country Club	8650 Westover Ct	Granbury	(817) 573-2641	110	110	43	47
1D	10	N	Big Lots	1820 Acton Hwy	Granbury	(817) 573-6619	23	20	43	9
1D	9.4	N	Home Depot	415 E. Hwy 377	Granbury	(817) 579-0050	120	70	43	30
1D	9.3	N	Hood County News	1501 S. Morgan St	Granbury	(817) 573-7066	65	50	2.5	1
1D	9.7	N	Kroger Grocery	1420 E. Hwy 377	Granbury	(817) 573-8887	100	70	30	21
1D	9.7	N	Lake Country Glass & Mirror Co.	1422 N. Plaza Dr	Granbury	(817) 573-5660	N/A	81	43	35
1D	9.8	N	Montana Restaurant	1454 E. Hwy 377	Granbury	(817) 573-2500	80	20	50	10
1D	9.4	N	Staples	301 E. Hwy 377	Granbury	(817) 573-4695	30	20	1	0
1D	9.4	N	Wal-Mart	735 E. Hwy 377	Granbury	(817) 573-3791	500	350	43	150
Granbury	9	N	Chili's Grill & Bar	1000 E. Hwy 377	Granbury	(817) 579-9402	80	20	30	6
Granbury	9.7	N	Granbury Fire Dept	1701 W. Pearl St	Granbury	(817) 579-1111	N/A	60	43	26
Granbury	9.9	N	J & L Motor Sports	110 S Baker St	Granbury	(817) 579-9042	N/A	61	43	26
Granbury	8.2	N	Lakeside Baptist Church	3410 Glen Rose Hwy	Granbury	(817) 279-8094	60	60	1.2	1
Granbury	9.5	N	Lowe's	1021 E. Hwy 377	Granbury	(817) 736-7000	126	75	95	71
SOMERVELL COUNTY										
2C	3	SE	Ingram Enterprises	1845 Hwy 56 N	Glen Rose	(254) 897-4016	30	20	90	18
2D	5	SE	Squaw Valley Golf Course	2439 E. Hwy 67	Glen Rose	(254) 897-7956	40	30	43	13
2F	9.3	E	Unimin Corporation	1788 County Rd 308	Glen Rose	(254) 897-3272	N/A	50	43	21
3F	8	SE	Fossil Rim Wildlife Center	2155 CR 2008	Glen Rose	(254) 897-2960	69	50	15	8
CP	1	N	CPNPP	FM 56	Glen Rose	(254) 897-5554	N/A	1,001	90	901
Glen Rose	4.1	SE	Somervell County Expo Center	202 Bo Gibbs Blvd	Glen Rose	(254) 897-4509	12	30	43	13
Glen Rose	4	SSE	The Transit System, Inc.	401 Commerce St	Glen Rose	(254) 897-2964	29	22	10	2
						Total		**2,270**		**1,409**

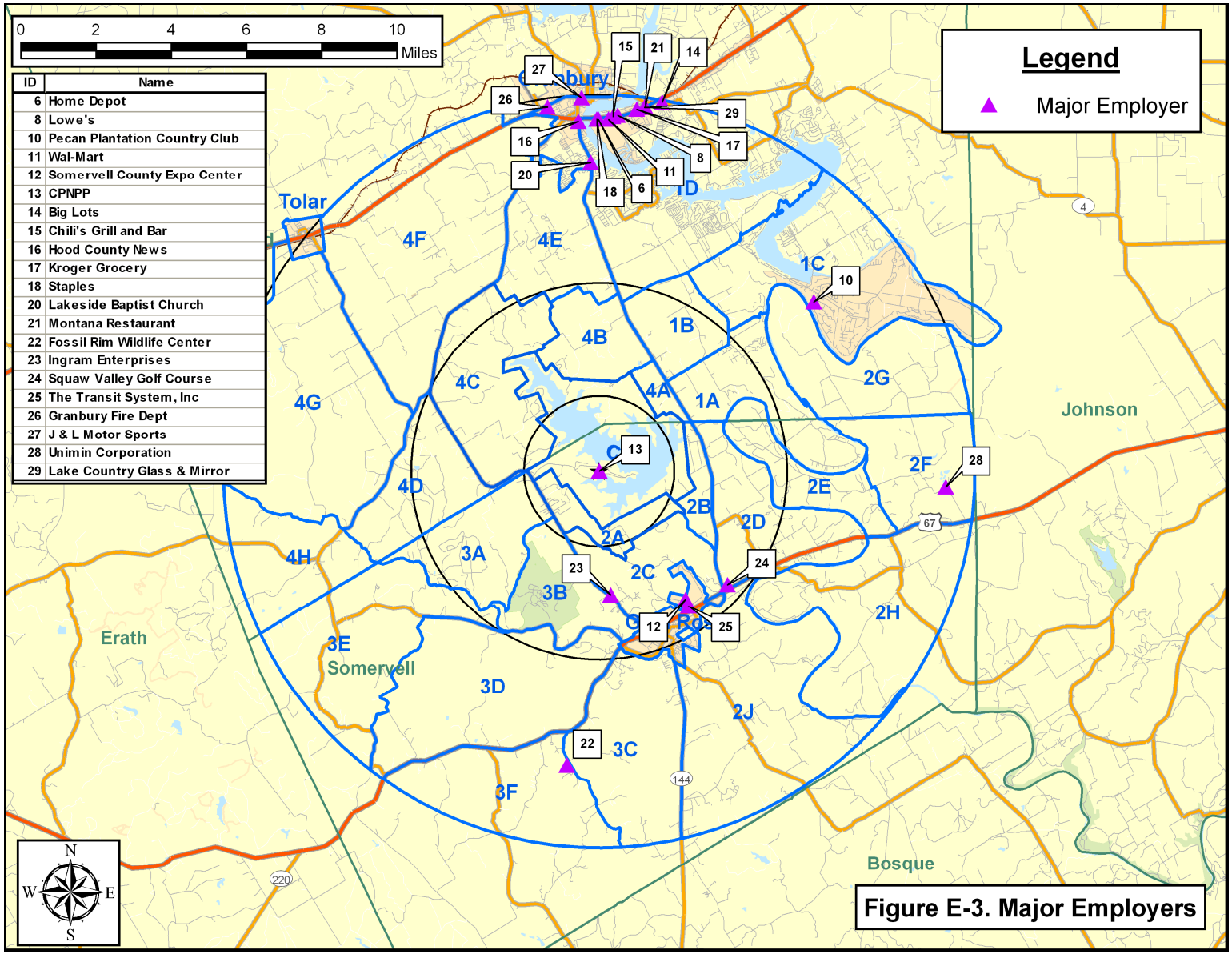


Figure E-3. Major Employers

Comanche Peak EPZ: Recreational Areas								
Zone	Distance (miles)	Dir-ection	Facility Name	Street Address	Municipality	Phone	Persons	Total Vehicles
HOOD COUNTY								
1D	9.4	N	Bridge Harbor Marina	1003 White Cliff	Granbury	(817) 279-6969	N/A	N/A
1D	8.9	N	Pier 144 Marina & RV Park	2323 S. Morgan St	Granbury	(817) 573-3698	120	60
4A	2.8	NE	Midway Pines & RV Park & Storage	9322 Glen Rose Hwy	Granbury	(817) 279-7925	92	46
4A	2.9	NE	Nibbin Ridge	8905 Glen Rose Hwy	Granbury	(817) 573-5331	14	7
4F	9.7	NNW	Countryside RV Park	2600 Hwy 377 W	Granbury	(817) 573-7539	N/A	N/A
4F	9.7	NNW	Lake Trails RV Park	3636 S. Hwy 377	Granbury	(817) 573-4433	60	27
SOMERVELL COUNTY								
2E	4.6	E	Camp Arrowhead	5236 FM 199	Cleburne	(254) 897-2323	56	25
2H	8.4	ESE	Steven's Ranch	Rt 199	Nemo	(254) 8972515	Camp	
2J	4.9	SE	Camp Tres Rios	2322 CR 312	Glen Rose	(254) 897-4253	650	294
2J	8.4	SE	River Bend Retreat Center	1232 CR 411B	Glen Rose	(254) 897-4011	700	360
3B	3.7	SSW	Dinosaur Valley State Park	Park Rd 59	Glen Rose	(254) 897-4588	791	358
3B	4.2	SSW	Dinosaur World	1058 Park Rd 59	Glen Rose	(254) 898-1526	400	181
3D	7.0	S	Cedar Ridge Cabins & RV Park	4475 W. Hwy 67	Glen Rose	(254) 897-3410	105	40
3F	8.2	S	Fossil Rim - Safari Camp Cabins	2155 CR 2008	Glen Rose	(254) 897-2960	14	7
3F	8.2	S	Fossil Rim - The Lodge	2155 CR 2008	Glen Rose	(254) 897-2960	10	5
3F	8.2	S	Fossil Rim - Wolf Ridge Bunkhouses	2155 CR 2008	Glen Rose	(254) 897-2960	70	7
3F	7.9	S	Fossil Rim Wildlife Center	2155 CR 2008	Glen Rose	(254) 897-2960	900	407
Glen Rose	4.7	S	B Street RV Park	1900 S.W. Barnard St	Glen Rose	(254) 898-1163	23	10
Glen Rose	4.7	SSE	Glen Lake Methodist Camp	1102 N.E. Barnard St	Glen Rose	(254) 897-2247	250	40
Glen Rose	4.6	SSE	Oakdale Camp 'n' Fish	1019 N.E. Barnard St	Glen Rose	(254) 897-2478	400	181
Glen Rose	4.1	SE	Somervell County Expo Center	202 Bo Gibbs Blvd	Glen Rose	(254) 897-4509	6,710	2,314
Glen Rose	4.1	SE	Somervell County Texas Amphitheatre	202 Bo Gibbs Blvd	Glen Rose	(254) 897-4509	Special Event	
						TOTAL	**11,365**	**4,369**

Highlighted facilities include camps with a large number of people; ETEs calculated separately for camps (transit dependents) in Section 8. Camp children and the buses/vans which drop them off are not included here.

Visitors to the Somervell County Texas Amphitheatre are counted in the special events Scenario 11 (1,563 vehicles).

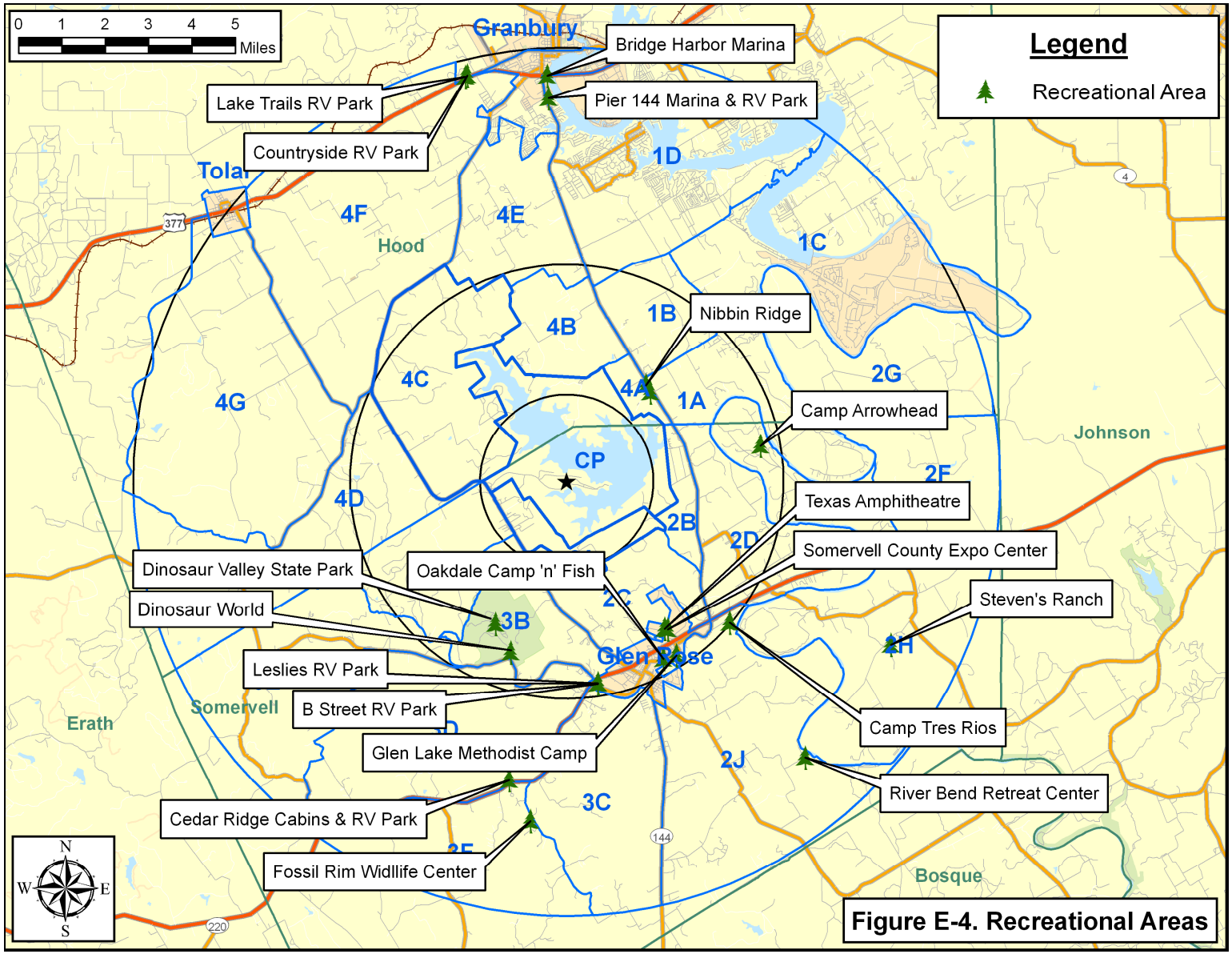


Figure E-4. Recreational Areas

Comanche Peak EPZ: Lodging - HOOD COUNTY								
Zone	**Distance (miles)**	**Direction**	**Facility Name**	**Street Address**	**Municipality**	**Phone**	**Persons**	**Vehicles**
1C	7.1	NE	The Ridge on Lake Granbury	6450 Kelly Dr	Granbury	(817) 279-7148	98	44
1D	9.8	N	Best Western Inn & Suites	1517 Plaza Dr	Granbury	(817) 573-4239	91	46
1D	9.6	N	Classic Inn	1209 N. Plaza Dr	Granbury	(817) 573-8874	150	75
1D	9.5	N	Comfort Inn Granbury	1201 N. Plaza Dr	Granbury	(817) 573-2611	176	44
1D	7.7	N	Dinosaur Trail Cabins & Cottages	2800 TX-144	Granbury	(817) 573-3023	8	3
1D	9.7	N	Granbury Inn and Suites	1339 N. Plaza Dr	Granbury	(817) 573-2691	134	67
1D	9.4	N	Holiday Inn Express Hotel	800 Harbor Lakes Dr	Granbury	(817) 573-4411	135	45
1D	9.5	N	La Quinta Inn and Suites	880 Harbor Lakes Dr	Granbury	(817) 573-2007	114	57
4C	4.9	NNW	The Neri Place	3014 Neri Rd	Granbury	(817) 219-1879	10	5
Granbury	9.3	N	Comfort Suites	903 Harbor Lakes Dr	Granbury	(817) 579-5559	154	55
Granbury	9.8	N	Granbury Guest House	204 South Travis	Granbury	(817) 573-1335	4	2
Granbury	9.8	N	Lambert Street Guest House	215 S. Lambert St	Granbury	(817) 573-0535	5	2
Granbury	9.8	N	Manor of Time B&B	121 W. Bluff St	Granbury	(817) 279-9110	8	4
Granbury	9.9	N	Alfonso's Loft B&B	137 E. Pearl St	Granbury	(817) 573-3308	2	1
Granbury	9.6	N	Baker St. Harbour B&B	511 S. Baker St	Granbury	(817) 578-3684	8	4
Granbury	9.8	N	Captain's House on the Lake B & B	123 W. Doyle	Granbury	(817) 579-6664	8	6
Granbury	9.8	N	Inn on Lake Granbury	205 W. Doyle	Granbury	(817) 573-0046	56	55
Granbury	9.9	N	Plantation Inn on Lake Granbury	1451 E. Pearl St	Granbury	(817) 573-8846	106	53
Granbury	9.9	N	The Lodge of Granbury	401 E. Pearl St	Granbury	(817) 573-2606	134	86
						Total	**1,401**	**654**

Comanche Peak EPZ: Lodging - SOMERVELL COUNTY								
Zone	Distance (miles)	Dir-ection	Facility Name	Street Address	Municipality	Phone	Per-sons	Veh-icles
2C	2.9	SSE	Popejoy Haus B & B	1943 CR 321	Glen Rose	(254) 897-3521	10	5
2D	5.2	ESE	Glen Rose Cottage	3279 E Hwy 67	Glen Rose	(254) 897-7198	6	6
2D	7.2	ESE	Riverside Cottages on the Brazos	1140 CR 315	Glen Rose	(254) 898-0909	24	12
2J	6.0	SE	Cedars on the Brazos	2920 CR 413	Glen Rose	(254) 898-1000	12	4
2J	7.8	SSE	CJ's Country Cabins	3454 FM 56 South	Glen Rose	(254) 898-9533	26	13
3D	4.8	S	Paluxy River Bed Cabins	1319 FM 205	Glen Rose	(800) 235 2004	8	4
3D	4.9	S	Shady Oak Cottages	1443 Hwy 67	Glen Rose	(254) 898-2332	4	4
3E	6.2	SW	Possum Trot Cabin	7582 FM 205	Glen Rose	(254) 396-2159	2	1
3F	9.3	S	Hayloft Bed & Bath	CR 2009	Glen Rose	(254) 897-3094	4	2
Glen Rose	4.7	SSE	Amazing Grace Cottage	306 Grace St	Glen Rose	(254) 396-2592	6	3
Glen Rose	4.5	SE	America's Best Value Inn & Suites	1614 N. Big Bend Tr	Glen Rose	(254) 897-2111	92	46
Glen Rose	4.6	SSE	Barnard Street Cottages	307 Northeast Barnard St	Glen Rose	(254) 897-4630	4	4
Glen Rose	4.6	SSE	Barnard Street River House	800 Barnard St	Glen Rose	(800) 476-0175	6	3
Glen Rose	4.5	SE	Best Western Dinosaur Valley Inn & Suites	1311 NE Big Bend Tr	Glen Rose	(254) 897-4818	162	54
Glen Rose	4.7	SSE	Bussey's Something Special B&B	202 Hereford St	Glen Rose	(254) 897-4843	8	4
Glen Rose	4.7	SSE	Country Woods Inn	420 Grand Ave	Glen Rose	(254) 897-4933	52	13
Glen Rose	4.8	SSE	Glen Hotel	201 SW Barnard St.	Glen Rose	(254) 898-2068	78	37
Glen Rose	5.1	SSE	Glen Rose House	704 Paluxy Hwy	Glen Rose	(972) 317-7641	4	2
Glen Rose	4.5	SSE	Glen Rose Inn & Suites	300 SW Big Bend Tr	Glen Rose	(254) 897-2940	192	87
Glen Rose	4.7	SSE	Grace St Cottage	300 Grace St	Glen Rose	(254) 396-2592	4	2
Glen Rose	4.7	SSE	Inn on the River	205 SW Barnard St	Glen Rose	(254) 897-2929	45	20
Glen Rose	4.7	SSE	Little Cottage on the Square	104 S.W. Vernon St	Glen Rose	(254) 396-2592	2	1
Glen Rose	4.6	SSE	White Gables Inn	101 Vine St	Glen Rose	(254) 897-2149	10	5
Glen Rose	4.7	SSE	Wild Rose Inn	401 Grace St	Glen Rose	(254) 897-4112	14	7
						Total	**775**	**339**

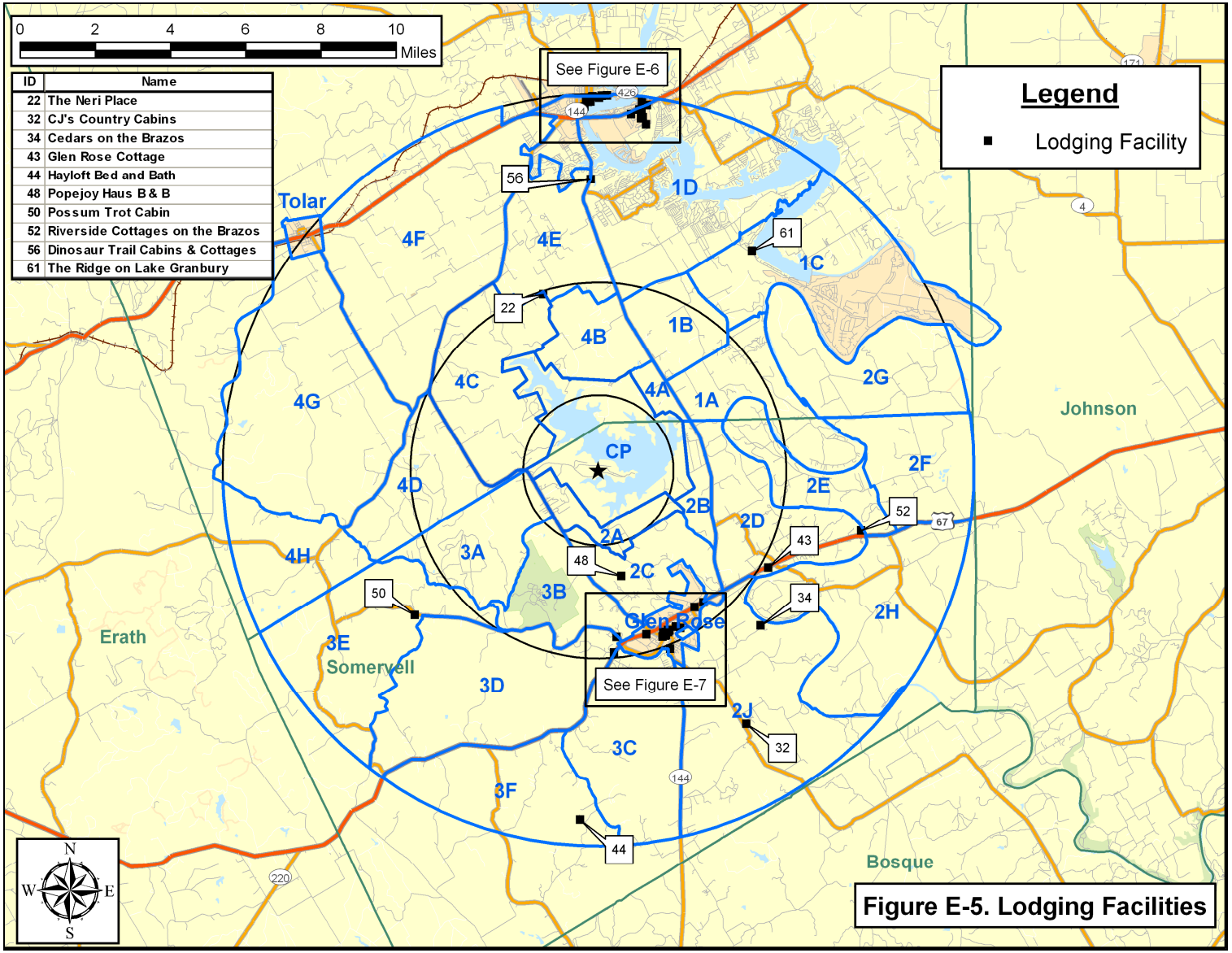


Figure E-5. Lodging Facilities

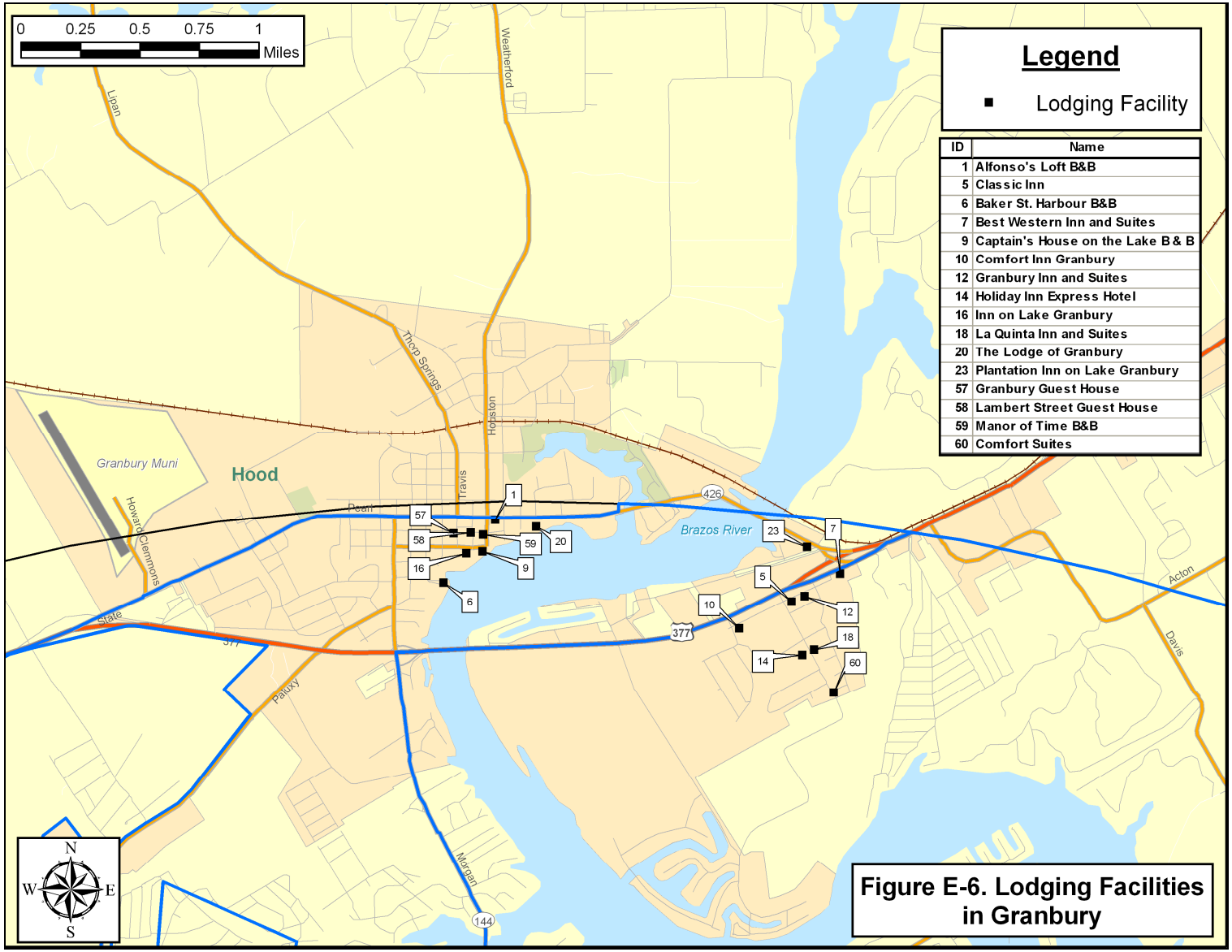
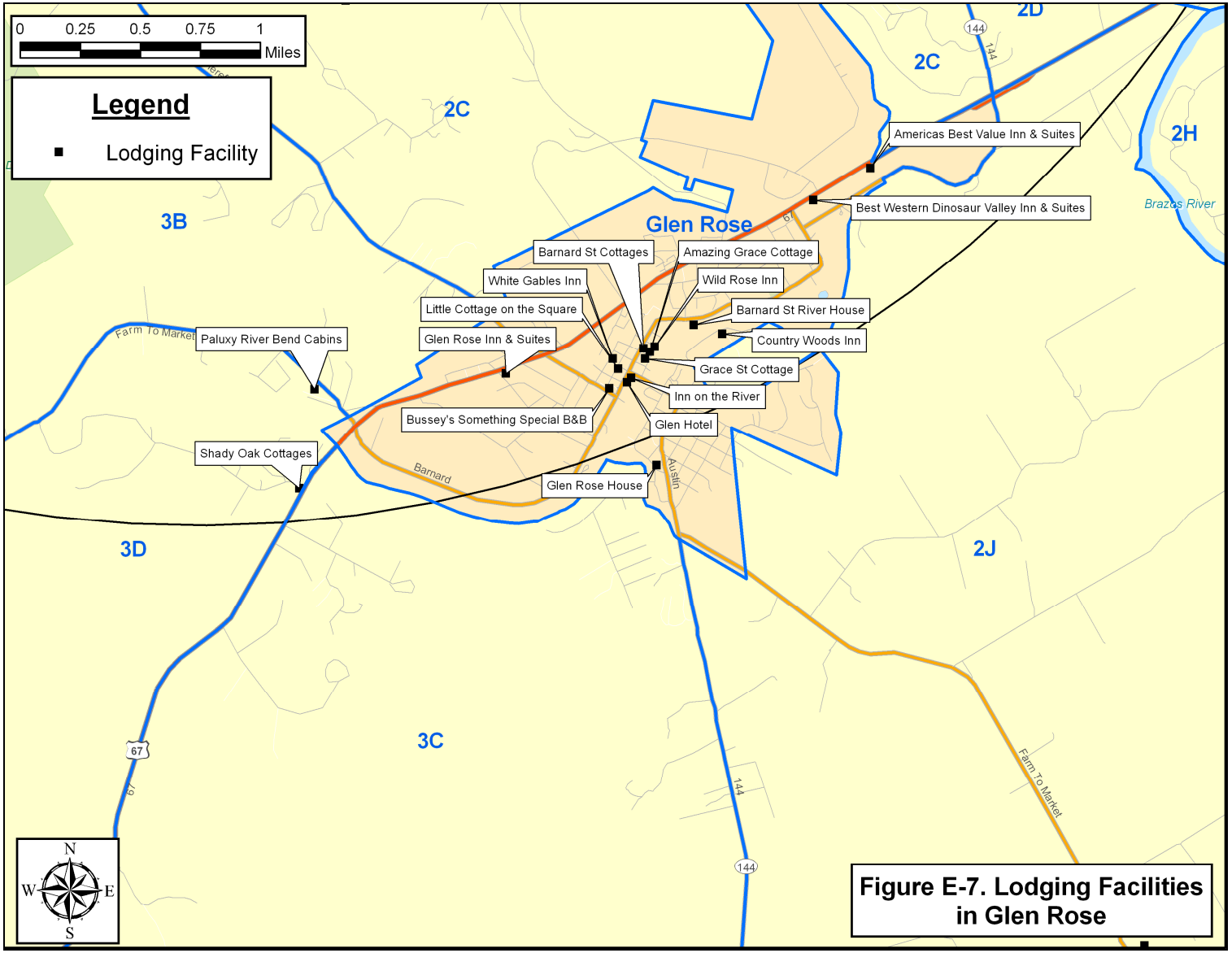


Figure E-6. Lodging Facilities in Granbury


0 0.25 0.5 0.75 1
Miles
Legend
Lodging Facility
2D
2C
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3B
Glen Rose
Brazos River
Americas Best Value Inn & Suites
Best Western Dinosaur Valley Inn & Suites
Barnard St Cottages
Amazing Grace Cottage
White Gables Inn
Wild Rose Inn
Little Cottage on the Square
Barnard St River House
Glen Rose Inn & Suites
Country Woods Inn
Paluxy River Bend Cabins
Grace St Cottage
Inn on the River
Bussey's Something Special B&B
Glen Hotel
Shady Oak Cottages
Glen Rose House
Farm To Market
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Figure E-7. Lodging Facilities in Glen Rose

APPENDIX F

Telephone Survey

APPENDIX F: TELEPHONE SURVEY

1. INTRODUCTION

The development of evacuation time estimates for the Emergency Planning Zone (EPZ) of the Comanche Peak Nuclear Power Plant requires the identification of travel patterns, car ownership and the average household size of the population within the EPZ. Demographic information is obtained from Census data. The use of this data has several limitations when applied to emergency planning. First, the Census data do not encompass the range of information needed to identify the time required for preliminary activities that must be undertaken prior to evacuating the area. Secondly, the Census data do not contain attitudinal responses needed from the population of the EPZ and consequently may not accurately represent the anticipated behavioral characteristics of the evacuating populace.

These concerns are addressed by a telephone survey. The survey is designed to elicit information from the public concerning family demographics and estimates of response times to well-defined events. The design of the survey includes a limited number of questions of the form “What would you do if …?” and other questions regarding activities with which the respondent is familiar (“How long does it take you to …?”)

2. SURVEY INSTRUMENT AND SAMPLING PLAN

Attachment A presents the final survey instrument. A draft of the instrument was submitted for comment. Comments were received and the survey instrument was modified.

Following the completion of the instrument, a sampling plan was developed. A sample size of approximately 550 completed survey forms yields results with an acceptable sampling error. The sample must be drawn from the EPZ population. Consequently, a list of EPZ zip codes was developed. This list is shown in Table F-1. Along with each zip code, an estimate of the population in each area was determined. The proportional number of the desired completed survey interviews for each area was identified, as shown in Table F-1. The completed survey adhered to the sampling plan.

Table F-1. CPNPP Telephone Survey Sampling Plan

Zip Code	Population (2000)	Households in EPZ (2000)	Required Sample
76033	276	114	5
76043	5,107	1,811	86
76048	13,668	5,378	255
76049	8,011	3,243	154
76070	405	141	7
76077	643	243	12
76433	87	35	2
76476	1,706	638	30
Total:	29,903	11,602	550
Average Household Size		**2.58**	
Total Sample Required		**550**	

3. SURVEY RESULTS

The results of the survey fall into two categories. First, the household demographics of the area can be identified. Demographic information includes such factors as household size, automobile ownership, and automobile availability. The distributions of the time to perform certain pre-evacuation activities are the second category of survey results. These data are processed to develop the trip generation distributions used in the evacuation modeling effort.

Household Demographic Results

Household Size

Figure F-1 presents the distribution of household size within the EPZ. The average household contains 2.21 people.The estimated household size (2.58 persons) used to determine the survey sample (Table F-1) was drawn from Census data. The difference in the factors can be described by a likely shift in demographics within the EPZ since the 2000 Census.

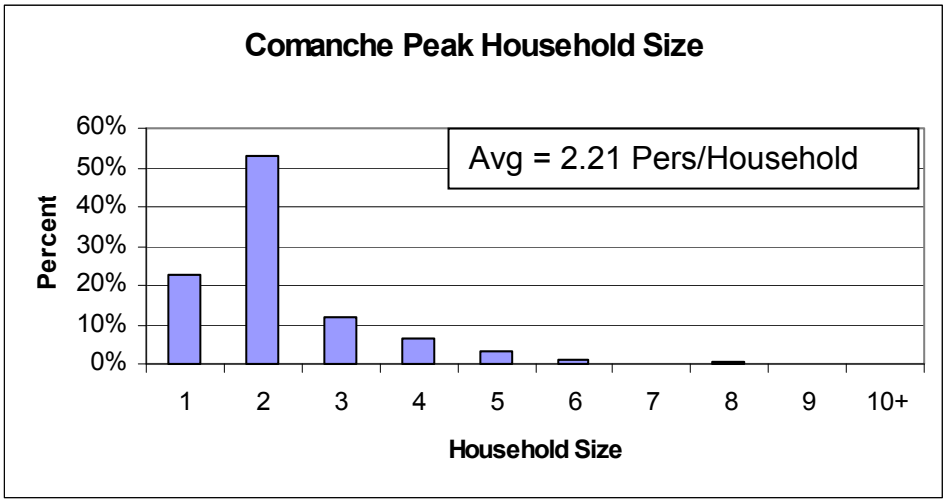

Figure F-1. Household Size in the EPZ

Automobile Ownership

The average number of automobiles per household in the EPZ is 1.95. It should be noted that approximately 3 percent of households do not have access to an automobile. The distribution of automobile ownership is presented in Figure F-2. Figures F-3 and F-4 present the automobile availability by household size. Note that the majority of households without access to a car are single person households. As expected, nearly all households of 2 or more people have access to at least one vehicle.

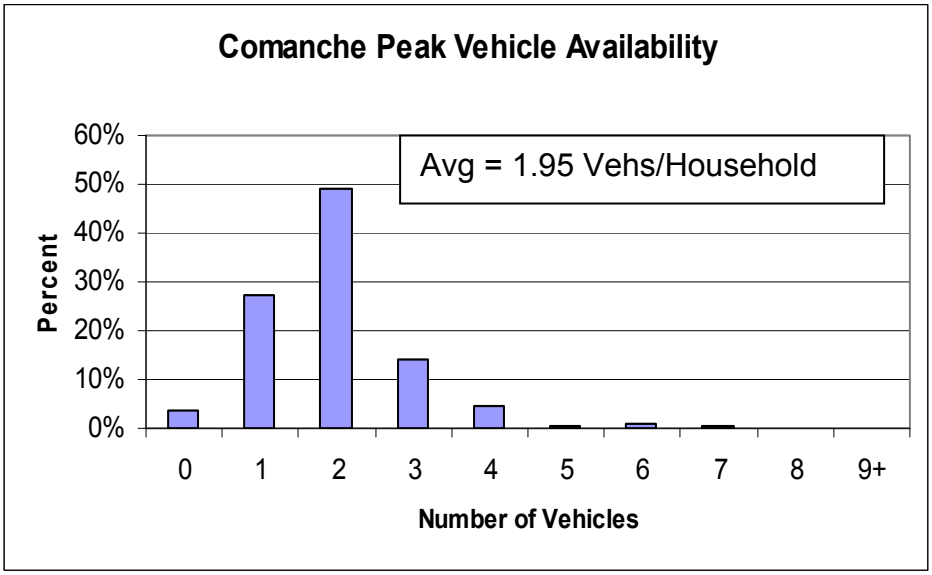

Figure F-2. Household Vehicle Availability

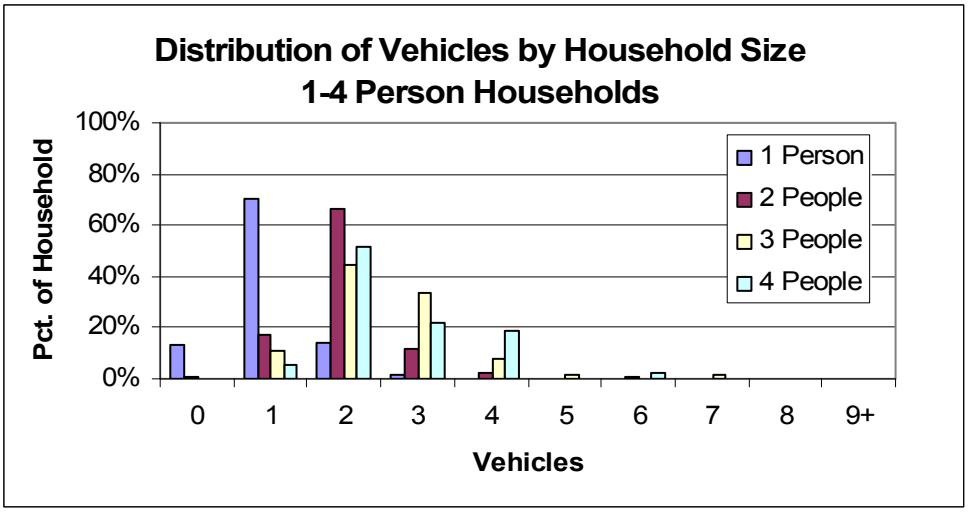

Figure F-3. Vehicle Availability – 1 to 4 Person Households

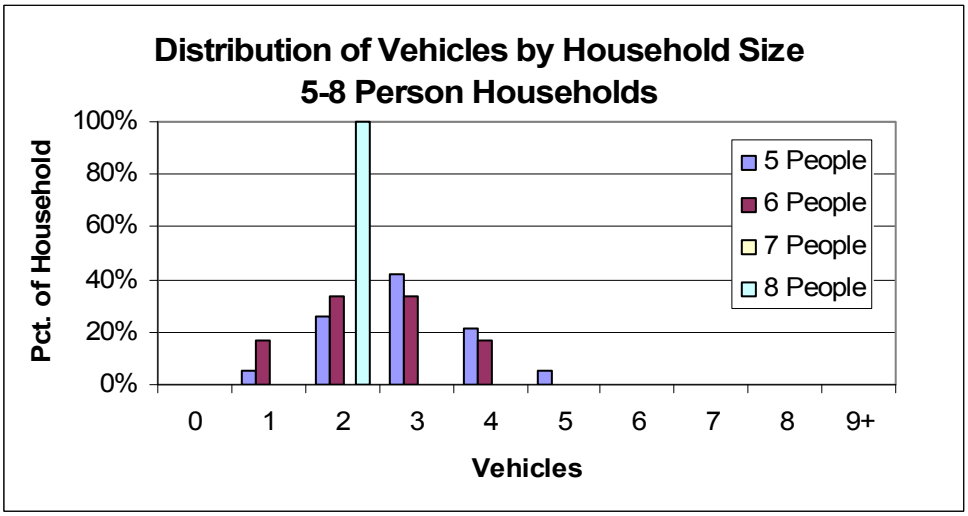

Figure F-4. Vehicle Availability – 5 to 8 Person Households

School Children

The average number of school children per household identified by the survey is 0.39. Figure F-5 presents the distribution of school children.

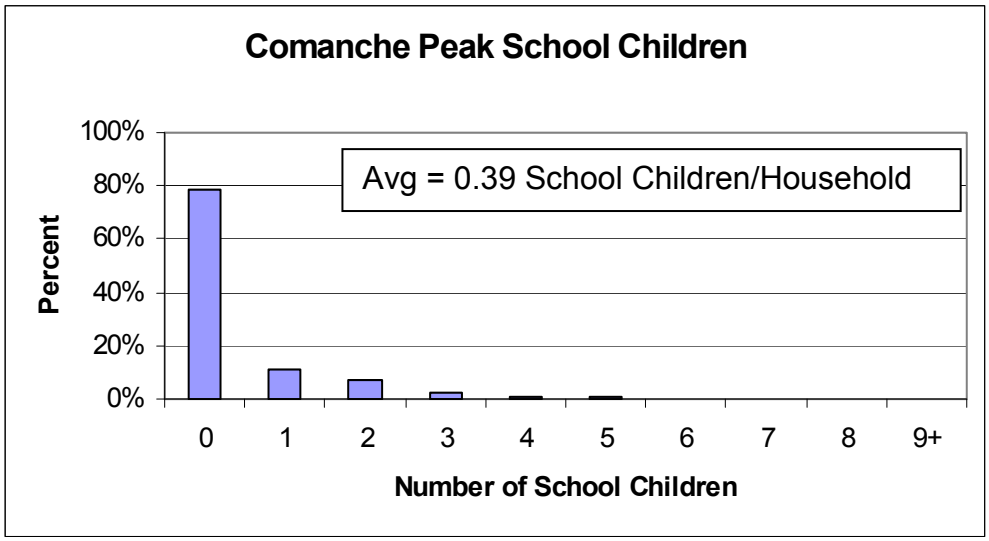

Figure F-5. School Children in Households

Commuters

Figure F-6 presents the distribution of the number of commuters in each household. The data shows an average of 0.66 commuters in each household in the EPZ.

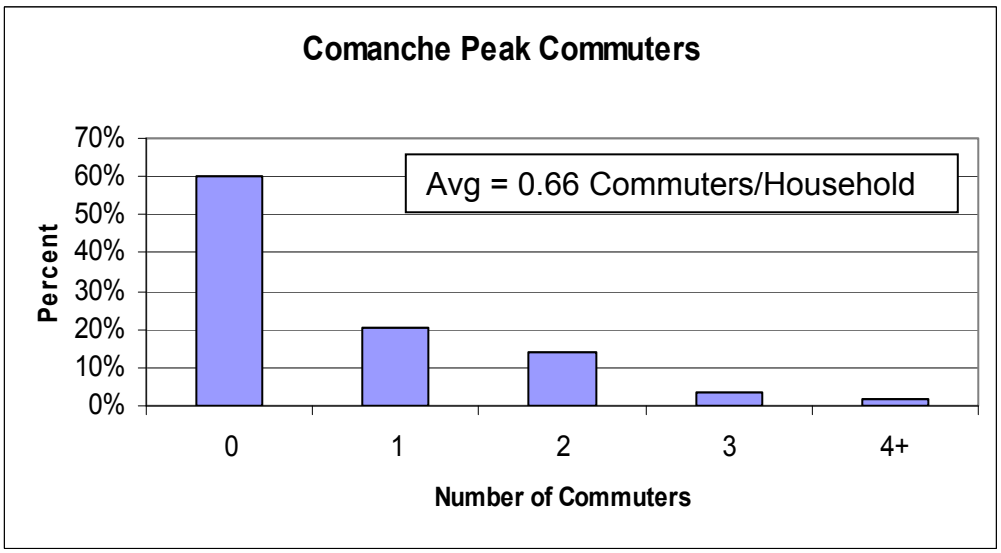

Figure F-6. Commuters in Households in the EPZ

Commuter Travel Modes

Figure F-7 presents the mode of travel that commuters use on a daily basis. The vast majority of commuters use their private automobiles to travel to work or school.

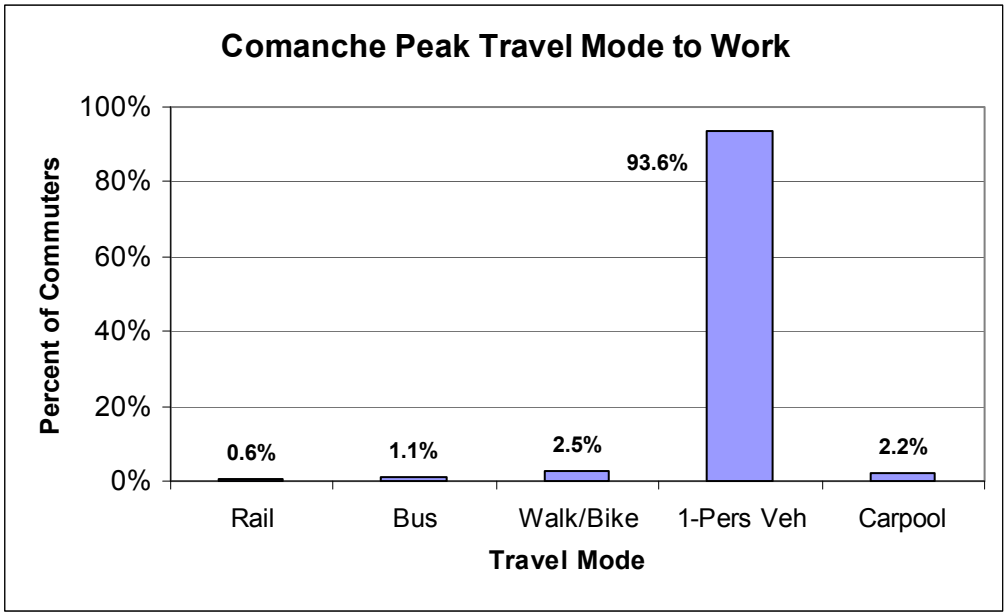

Figure F-7. Modes of Travel in the EPZ

Evacuation Response

Several questions were asked which are used to gauge the population's response to an emergency. The first of these asked "How many of the vehicles that are usually available to the household would your family use during an evacuation?" The response is shown in Figure F-8. On average, 1.29 vehicles per household would be used for evacuation purposes.

The second evacuation response question asked was "When the commuters are away from home, is there a vehicle at home that is available for evacuation during an emergency?" Of the survey participants who responded, 71 percent said that there was another vehicle available to evacuate, while 29 percent answered that there would be no vehicle available for evacuation.

The third evacuation response question was "Would your family await the return of other family members prior to evacuating the area?" Of the survey participants who responded, 45 percent said they would await the return of other family members before evacuating and 55 percent indicated that they would not await the return of other family members.

The fourth evacuation response question was “Would you take household pets with you if you were asked to evacuate the area?” As shown in Figure F-9, 52 percent of respondents said they would take their pets; 23 percent would not. The remaining 25 percent either did not have a pet, or did not give a definitive answer.

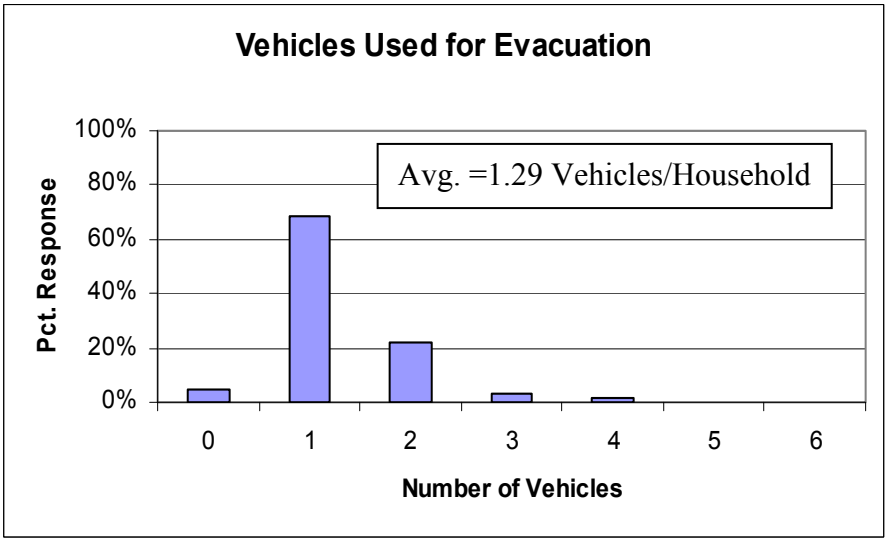

Figure F-8. Number of Vehicles Used for Evacuation

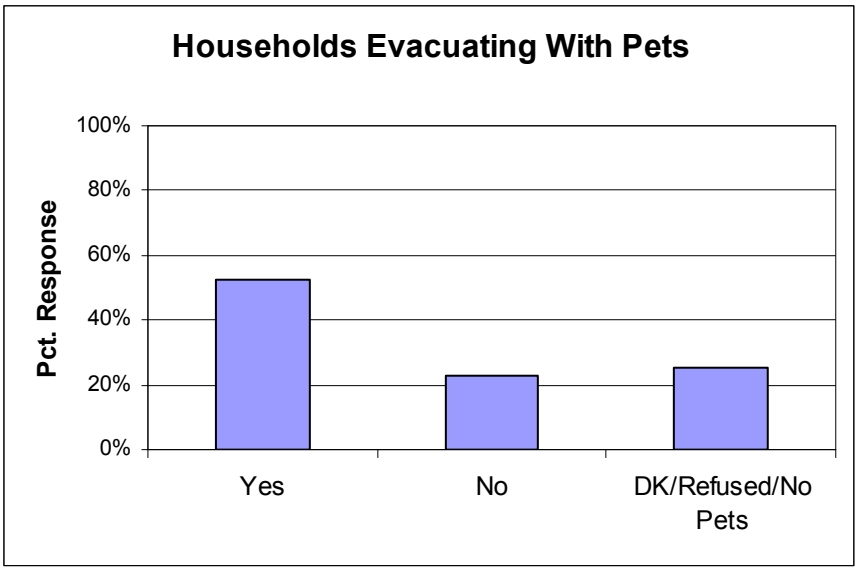

Figure F-9. Households Evacuating With Pets

Time Distribution Results

The survey asked several questions about the amount of time it takes to perform certain pre-evacuation activities. These activities involve actions taken by residents during the course of their day-to-day lives. Thus, the answers fall within the realm of the responder's experience.

How long does it take the commuter to complete preparation for leaving work? Figure F-10 presents the cumulative distributions for the EPZ. In all cases, the activity is completed by about 90 minutes. Seventy percent can leave within 15 minutes.

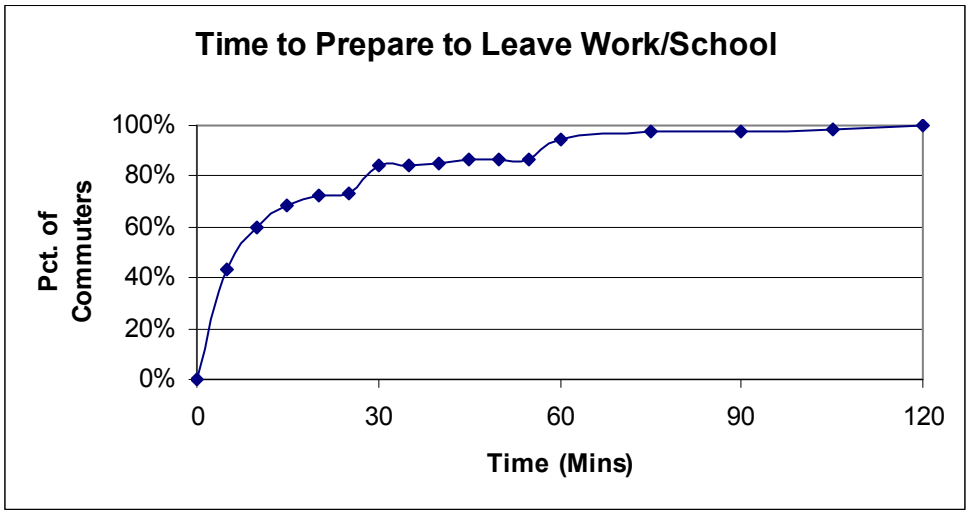

Figure F-10. Time Required to Prepare to Leave Work/School

How long would it take the commuter to travel home?

Figure F-11 presents the work to home travel time for the EPZ. In all cases, over 80 percent of commuters can arrive home within about 35 minutes of leaving work; nearly all within 90 minutes.

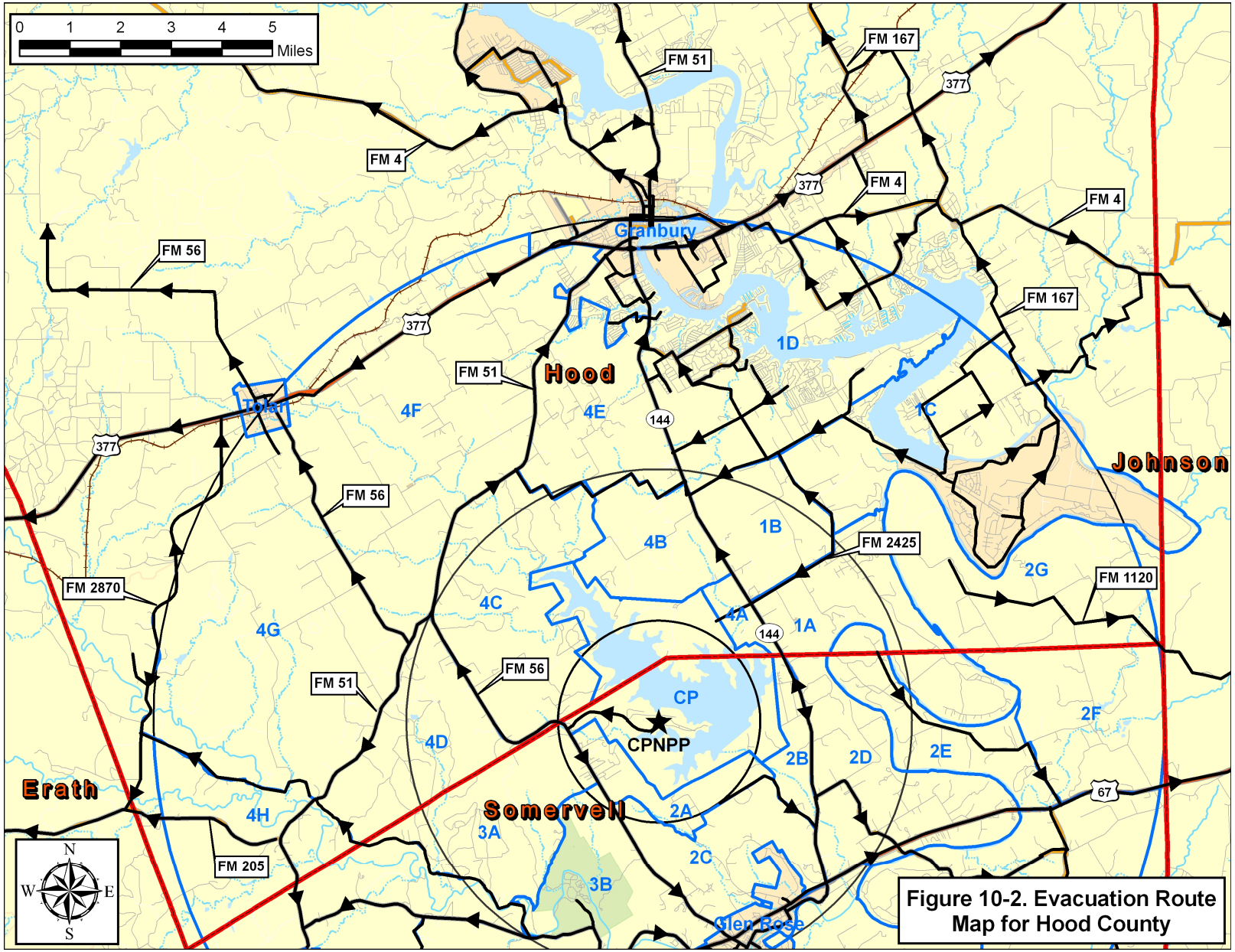

Figure 10-2. Evacuation Route Map for Hood County

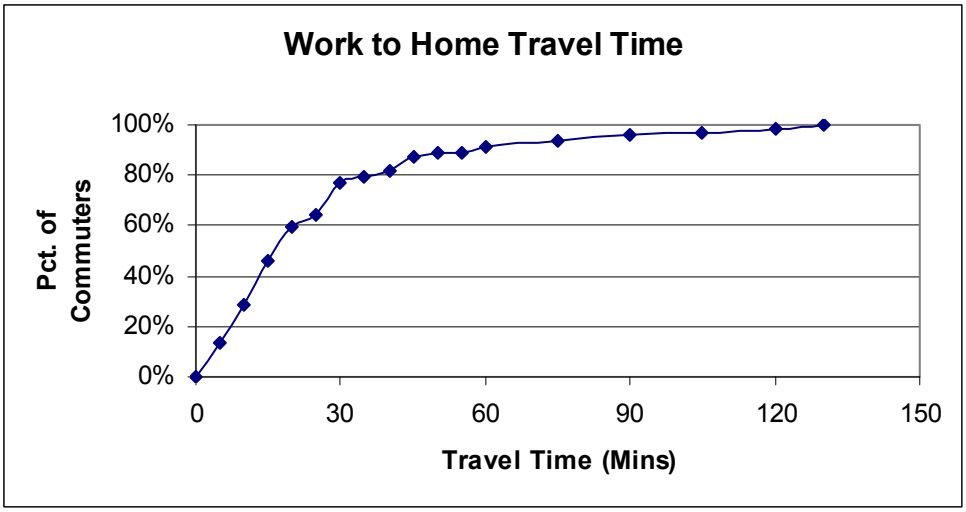

Figure F-11. Work to Home Travel Time

How long would it take the family to pack clothing, secure the house, and load the car?

Figure F-12 presents the time required to prepare for leaving on an evacuation trip. In many ways this activity mimics a family's preparation for a short holiday or weekend away from home. Hence, the responses represent the experience of the responder in performing similar activities.

The distribution shown in Figure F-12 has a long "tail". 85 percent of households can be ready to leave home within an hour; 95 percent of households can be ready to leave within 2 hours.

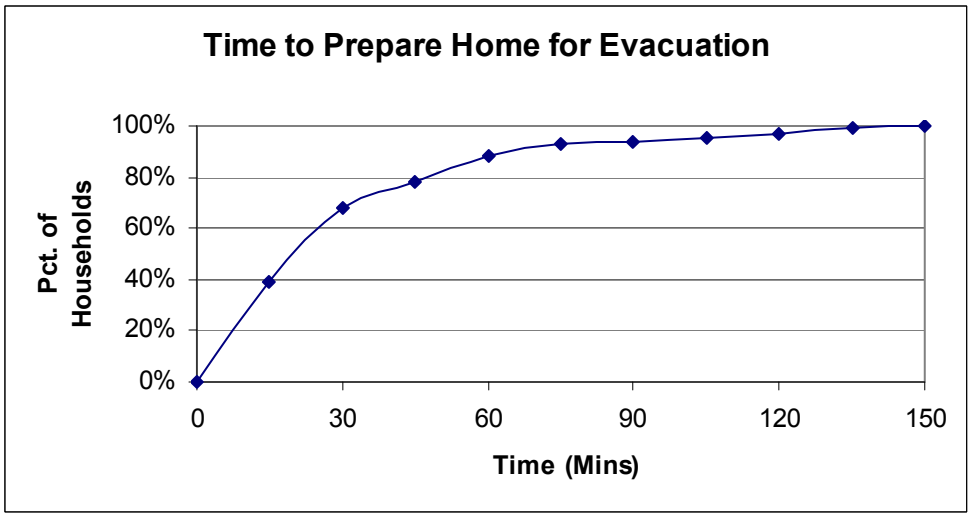

Figure F-12. Time to Prepare Home for Evacuation

4. CONCLUSIONS

The telephone survey provides valuable, relevant data that have been used to quantify "mobilization time" which can influence evacuation time estimates.

ATTACHMENT A

Telephone Survey Instrument

Survey Instrument

Hello, my name is _____ and I'm working **COL.1** Unused
on a survey being made for [insert marketing firm **COL.2** Unused
name] designed to identify local travel patterns **COL.3** Unused
in your area. The information obtained will be **COL.4** Unused
used in a traffic engineering study and in **COL.5** Unused
connection with an update of the county's
emergency response plans. Your participation in this
survey will greatly enhance the county's emergency
preparedness program.

Sex **COL. 8**

1 Male
2 Female

INTERVIEWER:ASK TO SPEAK TO THE HEAD OF HOUSEHOLD OR THE SPOUSE OF THE HEAD OF HOUSEHOLD.
(Terminate call if not a residence)

DO NOT ASK:

1A.Record area code. To Be Determined

COL. 9-11

1B.Record exchange number. To Be Determined

COL. 12-14

2.What is your home Zip Code **Col. 15-19**

3.In total, how many cars, or other vehicles **COL.20**
are usually available to the household?
(DO NOT READ ANSWERS.)

1 ONE
2 TWO
3 THREE
4 FOUR
5 FIVE
6 SIX
7 SEVEN
8 EIGHT
9 NINE OR MORE
0 ZERO (NONE)
X REFUSED

4.How many people usually live in this **COL.21** **COL.22**
household? (DO NOT READ ANSWERS.)

1 ONE
2 TWO
3 THREE
4 FOUR
5 FIVE
6 SIX
7 SEVEN
8 EIGHT
9 NINE
0 TEN
1 ELEVEN
2 TWELVE
3 THIRTEEN
4 FOURTEEN
5 FIFTEEN
6 SIXTEEN
7 SEVENTEEN
8 EIGHTEEN
9 NINETEEN OR MORE
X REFUSED

5.How many children living in this household go to local public, private, or parochial schools? (DO NOT READ ANSWERS.) **COL.23**

0 ZERO
1 ONE
2 TWO
3 THREE
4 FOUR
5 FIVE
6 SIX
7 SEVEN
8 EIGHT
9 NINE OR MORE
X REFUSED

6.How many people in the household commute to a job, or to college, at least 4 times a week? **COL.24** SKIP TO

0 ZEROQ. 12
1 ONEQ. 7
2 TWOQ. 7
3 THREEQ. 7
4 FOUR OR MOREQ. 7
5 DON'T KNOW/REFUSEDQ. 12

INTERVIEWER: For each person identified in Question 6, ask Questions 7, 8, 9, and 10.

7. Thinking about commuter #1, how does that person usually travel to work or college? (REPEAT QUESTION FOR EACH COMMUTER.)

	Commuter #1 **COL.25**	Commuter #2 **COL.26**	Commuter #3 **COL.27**	Commuter #4 **COL.28**
Rail	1	1	1	1
Bus	2	2	2	2
Walk/Bicycle	3	3	3	3
Driver Car/Van	4	4	4	4
Park & Ride (Car/Rail, Xpress_bus)	5	5	5	5
Driver Carpool-2 or more people	6	6	6	6
Passenger Carpool-2 or more people	7	7	7	7
Taxi	8	8	8	8
Refused	9	9	9	9

---

8. What is the name of the city, town or community in which Commuter #1 works or attends school? (REPEAT QUESTION FOR EACH COMMUTER.) (FILL IN ANSWER.)

COMMUTER #1			COMMUTER #2			COMMUTER #3			COMMUTER #4		
City/Town		State	City/Town		State	City/Town		State	City/Town		State
COL.29	**COL.30**	**COL.31**	**COL.32**	**COL.33**	**COL.34**	**COL.35**	**COL.36**	**COL.37**	**COL.38**	**COL.39**	**COL.40**
0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9	9	9

9.How long would it take Commuter #1 to travel home from work or college?
(REPEAT QUESTION FOR EACH COMMUTER.) (DO NOT READ ANSWERS.)

COMMUTER #1

COL.41		COL.42	
1	5 MINUTES OR LESS	1	46-50 MINUTES
2	6-10 MINUTES	2	51-55 MINUTES
3	11-15 MINUTES	3	56 - 1 HOUR
4	16-20 MINUTES	4	OVER 1 HOUR, BUT LESS THAN 1 HOUR 15 MINUTES
5	21-25 MINUTES	5	BETWEEN 1 HOUR 16 MINUTES AND 1 HOUR 30 MINUTES
6	26-30 MINUTES	6	BETWEEN 1 HOUR 31 MINUTES AND 1 HOUR 45 MINUTES
7	31-35 MINUTES	7	BETWEEN 1 HOUR 46 MINUTES AND 2 HOURS
8	36-40 MINUTES	8	OVER 2 HOURS (SPECIFY _____)
9	41-45 MINUTES	9	
		0	
		X	DON'T KNOW/REFUSED

COMMUTER #2

COL.43		COL.44	
1	5 MINUTES OR LESS	1	46-50 MINUTES
2	6-10 MINUTES	2	51-55 MINUTES
3	11-15 MINUTES	3	56 - 1 HOUR
4	16-20 MINUTES	4	OVER 1 HOUR, BUT LESS THAN 1 HOUR 15 MINUTES
5	21-25 MINUTES	5	BETWEEN 1 HOUR 16 MINUTES AND 1 HOUR 30 MINUTES
6	26-30 MINUTES	6	BETWEEN 1 HOUR 31 MINUTES AND 1 HOUR 45 MINUTES
7	31-35 MINUTES	7	BETWEEN 1 HOUR 46 MINUTES AND 2 HOURS
8	36-40 MINUTES	8	OVER 2 HOURS (SPECIFY _____)
9	41-45 MINUTES	9	
		0	
		X	DON'T KNOW/REFUSED

COMMUTER #3

COL.45		COL.46	
1	5 MINUTES OR LESS	1	46-50 MINUTES
2	6-10 MINUTES	2	51-55 MINUTES
3	11-15 MINUTES	3	56 - 1 HOUR
4	16-20 MINUTES	4	OVER 1 HOUR, BUT LESS THAN 1 HOUR 15 MINUTES
5	21-25 MINUTES	5	BETWEEN 1 HOUR 16 MINUTES AND 1 HOUR 30 MINUTES
6	26-30 MINUTES	6	BETWEEN 1 HOUR 31 MINUTES AND 1 HOUR 45 MINUTES
7	31-35 MINUTES	7	BETWEEN 1 HOUR 46 MINUTES AND 2 HOURS
8	36-40 MINUTES	8	OVER 2 HOURS (SPECIFY _____)
9	41-45 MINUTES	9	
		0	
		X	DON'T KNOW/REFUSED

COMMUTER #4

COL.47		COL.48	
1	5 MINUTES OR LESS	1	46-50 MINUTES
2	6-10 MINUTES	2	51-55 MINUTES
3	11-15 MINUTES	3	56 - 1 HOUR
4	16-20 MINUTES	4	OVER 1 HOUR, BUT LESS THAN 1 HOUR 15 MINUTES
5	21-25 MINUTES	5	BETWEEN 1 HOUR 16 MINUTES AND 1 HOUR 30 MINUTES
6	26-30 MINUTES	6	BETWEEN 1 HOUR 31 MINUTES AND 1 HOUR 45 MINUTES
7	31-35 MINUTES	7	BETWEEN 1 HOUR 46 MINUTES AND 2 HOURS
8	36-40 MINUTES	8	OVER 2 HOURS (SPECIFY _____)
9	41-45 MINUTES	9	
		0	
		X	DON'T KNOW/REFUSED

10. Approximately how long does it take Commuter #1 to complete preparation for leaving work or college prior to starting the trip home? (REPEAT QUESTION FOR EACH COMMUTER.)
(DO NOT READ ANSWERS.)

COMMUTER #1

COL. 49

1 5 MINUTES OR LESS
2 6-10 MINUTES
3 11-15 MINUTES
4 16-20 MINUTES
5 21-25 MINUTES
6 26-30 MINUTES
7 31-35 MINUTES
8 36-40 MINUTES
9 41-45 MINUTES

COL.50

1 46-50 MINUTES
2 51-55 MINUTES
3 56 - 1 HOUR
4 OVER 1 HOUR, BUT LESS THAN 1 HOUR 15 MINUTES
5 BETWEEN 1 HOUR 16 MINUTES AND 1 HOUR 30 MINUTES
6 BETWEEN 1 HOUR 31 MINUTES AND 1 HOUR 45 MINUTES
7 BETWEEN 1 HOUR 46 MINUTES AND 2 HOURS
8 OVER 2 HOURS (SPECIFY _____)
9
0
X DON'T KNOW/REFUSED

COMMUTER #2

COL.51

1 5 MINUTES OR LESS
2 6-10 MINUTES
3 11-15 MINUTES
4 16-20 MINUTES
5 21-25 MINUTES
6 26-30 MINUTES
7 31-35 MINUTES
8 36-40 MINUTES
9 41-45 MINUTES

COL. 52

1 46-50 MINUTES
2 51-55 MINUTES
3 56 - 1 HOUR
4 OVER 1 HOUR, BUT LESS THAN 1 HOUR 15 MINUTES
5 BETWEEN 1 HOUR 16 MINUTES AND 1 HOUR 30 MINUTES
6 BETWEEN 1 HOUR 31 MINUTES AND 1 HOUR 45 MINUTES
7 BETWEEN 1 HOUR 46 MINUTES AND 2 HOURS
8 OVER 2 HOURS (SPECIFY _____)
9
0
X DON'T KNOW/REFUSED

COMMUTER #3

COL. 53

1 5 MINUTES OR LESS
2 6-10 MINUTES
3 11-15 MINUTES
4 16-20 MINUTES
5 21-25 MINUTES
6 26-30 MINUTES
7 31-35 MINUTES
8 36-40 MINUTES
9 41-45 MINUTES

COMMUTER #4

COL. 54

1 46-50 MINUTES
2 51-55 MINUTES
3 56 - 1 HOUR
4 OVER 1 HOUR, BUT LESS THAN 1 HOUR 15 MINUTES
5 BETWEEN 1 HOUR 16 MINUTES AND 1 HOUR 30 MINUTES
6 BETWEEN 1 HOUR 31 MINUTES AND 1 HOUR 45 MINUTES
7 BETWEEN 1 HOUR 46 MINUTES AND 2 HOURS
8 OVER 2 HOURS (SPECIFY _____)
9
0
X DON'T KNOW/REFUSED

COL. 55

1 5 MINUTES OR LESS
2 6-10 MINUTES
3 11-15 MINUTES
4 16-20 MINUTES
5 21-25 MINUTES
6 26-30 MINUTES
7 31-35 MINUTES
8 36-40 MINUTES
9 41-45 MINUTES

COL. 56

1 46-50 MINUTES
2 51-55 MINUTES
3 56 - 1 HOUR
4 OVER 1 HOUR, BUT LESS THAN 1 HOUR 15 MINUTES
5 BETWEEN 1 HOUR 16 MINUTES AND 1 HOUR 30 MINUTES
6 BETWEEN 1 HOUR 31 MINUTES AND 1 HOUR 45 MINUTES
7 BETWEEN 1 HOUR 46 MINUTES AND 2 HOURS
8 OVER 2 HOURS (SPECIFY _____)
9
0
X DON'T KNOW/REFUSED

---

11. When the commuters are away from home, is there a vehicle at home that is available for evacuation during any emergency?

Col. 57

1 Yes
2 No
3 Don't Know/Refused

12. Would you await the return of family members prior to evacuating the area?

Col. 58	
1	Yes
2	No
3	Don't Know/Refused

---

13. How many of the vehicles that are usually available to the household would your family use during an evacuation? (DO NOT READ ANSWERS.)

COL.59	
1	ONE
2	TWO
3	THREE
4	FOUR
5	FIVE
6	SIX
7	SEVEN
8	EIGHT
9	NINE OR MORE
0	ZERO (NONE)
X	REFUSED

---

14. How long would it take the family to pack clothing, secure the house, load the car, and complete preparations prior to evacuating the area? (DO NOT READ ANSWERS.)

COL.60	
1	LESS THAN 15 MINUTES
2	15-30 MINUTES
3	31-45 MINUTES
4	46 MINUTES - 1 HOUR
5	1 HOUR TO 1 HOUR 15 MINUTES
6	1 HOUR 16 MINUTES TO 1 HOUR 30 MINUTES
7	1 HOUR 31 MINUTES TO 1 HOUR 45 MINUTES
8	1 HOUR 46 MINUTES TO 2 HOURS
9	2 HOURS TO 2 HOURS 15 MINUTES
0	2 HOURS 16 MINUTES TO 2 HOURS 30 MINUTES
X	2 HOURS 31 MINUTES TO 2 HOURS 45 MINUTES
Y	2 HOURS 46 MINUTES TO 3 HOURS

COL.61	
1	3 HOURS TO 3 HOURS 15 MINUTES
2	3 HOURS 16 MINUTES TO 3 HOURS 30 MINUTES
3	3 HOURS 31 MINUTES TO 3 HOURS 45 MINUTES
4	3 HOURS 46 MINUTES TO 4 HOURS
5	4 HOURS TO 4 HOURS 15 MINUTES
6	4 HOURS 16 MINUTES TO 4 HOURS 30 MINUTES
7	4 HOURS 31 MINUTES TO 4 HOURS 45 MINUTES
8	4 HOURS 46 MINUTES TO 5 HOURS
9	5 HOURS TO 5 HOURS 15 MINUTES
0	5 HOURS 16 MINUTES TO 5 HOURS 30 MINUTES
X	5 HOURS 31 MINUTES TO 5 HOURS 45 MINUTES
Y	5 HOURS 46 MINUTES TO 6 HOURS

COL.62	
1	DON'T KNOW

---

15. Would you take household pets with you if you were asked to evacuate the area?

Col. 58	
1	Yes
2	No
3	Don't Know/Refused

Thank you very much._____
(TELEPHONE NUMBER CALLED)

If requested:
For Additional information
Contact your County Emergency Management Office

ANNEX B
Code of Data Collection Standards With Notes Section
Market Research Association

P.O. Box 230 • Rocky Hill, CT 06067-0230 • 860-257-4008 • Fax: 860-257-3990

Code Approved May 1997
Notes Added September 1999

RESPONSIBILITIES TO RESPONDENTS

Data Collection Companies ...

1. will make factually correct statements to secure cooperation and will honor promises to respondents, whether verbal or written;
2. will not use information to identify respondents without the permission of the respondent, except to those who check the data or are involved in processing the data. If such permission is given, it must be recorded by the interviewer at the time the permission is secured;
3. will respect the respondent's right to withdraw or to refuse to cooperate at any stage of the study and not use any procedure or technique to coerce or imply that cooperation is obligatory;
4. will obtain and document respondent consent when it is known that the name and address or identity of the respondent may be passed to a third party for legal or other purposes, such as audio or video recordings;
5. will obtain permission and document consent of a parent, legal guardian or responsible guardian before interviewing children 12 years old or younger;
6. will give respondents the opportunity to refuse to participate in the research when there is a possibility they may be identifiable even without the use of their name or address (e.g., because of the size of the population being sampled).

Interviewers ...

1. will treat the respondent with respect and not influence him or her through direct or indirect attempts, including the framing of questions and/or a respondent's opinion or attitudes on any issue;
2. will obtain and document permission from a parent, legal guardian or responsible guardian before interviewing children 12 years old or younger. Prior to obtaining permission, the interviewer should divulge the subject matter, length of the interview and other special tasks that will be required.

RESPONSIBILITIES TO CLIENTS

Data Collection Companies ...

1. will ensure that each study is conducted according to the client's exact specifications;
2. will observe confidentiality with all research techniques or methodologies and with information considered confidential or proprietary. Information will not be revealed that could be used to identify clients or respondents without proper authorization;
3. will ensure that companies, their employees and subcontractors involved in data collection take all reasonable precautions so that more than one survey is not conducted in one interview without explicit permission from the Client
4. will report research results accurately and honestly;
5. will not misrepresent themselves as having qualifications, experience, skills or facilities that they do not possess;
6. will refrain from referring to membership in the Marketing Research Association as proof of competence, since the Association does not certify any person's or organization's competency or skill level.

RESPONSIBILITIES TO DATA COLLECTORS

Clients ...

1. will be responsible for providing products and services that are safe and fit or their intended use and disclose/label all product contents;
2. will provide verbal or written instructions;
3. will not ask our members who subcontract research to engage in any activity that is not acceptable as defined in this Code or that is prohibited under any applicable federal, state, local laws, regulations and/or ordinances.

RESPONSIBILITIES TO THE GENERAL PUBLIC AND BUSINESS

COMMUNITY

Data Collection Companies ...

1. will not intentionally abuse public confidence in marketing and opinion research;
2. will not represent a non-research activity to be marketing and opinion research, such as:
    - questions whose sole objective is to obtain personal information about respondents, whether for legal, political, private or other purposes,
    - the compilation of lists, registers or data banks of names and addresses for any non-research purposes (e.g., canvassing or fundraising),
    - industrial, commercial or any other form of espionage,
    - the acquisition of information for use by credit rating services or similar organizations,
    - sales or promotional approaches to the respondent,
    - the collection of debts;
3. will make interviewers aware of any special conditions that may be applicable to any minor (18 years old or younger).

These notes are intended to help users of the Code to interpret and apply it in practice. Any questions about how to apply the Code in a specific situation should be addressed to MRA Headquarters.

RESPONSIBILITIES TO RESPONDENTS

Data Collection Companies ...

1. will make factually correct statements to secure cooperation and honor promises to respondents, whether oral or written; *Interviewers will not knowingly provide respondents with information that misrepresents any portion of the interviewing process, such as; length of the interview, scope of task involved, compensation, or intended use of the information collected.*
2. will not use information to identify respondents without the permission of the respondent, except to those who check the data or are involved in processing the data. If such permission is given, it must be recorded by the interviewer at the time the permission is secured; *Respondent information will be linked to data collected only for research purposes such as validation, evaluating data in aggregate based on demographic information, modeling. Providing respondent information is not permissible for any purpose other than legitimate research purposes as mentioned above. If anyone requests respondent identifiable information it will only be provided upon receipt of written declaration of and agreement of some intended use. Such use shall be determined by the provider to qualify as legitimate research use. (i.e. validation, planned recalls, modeling, demographic analysis.) No other use of this information falls within the boundaries of the Code. This applies to all types of respondent sample sources including client supplied lists.*
3. will respect the respondent's right to withdraw or to refuse to cooperate at any stage of the study and not use any procedure or technique to coerce or imply that cooperation is obligatory. *Respondent cooperation is strictly on a voluntary basis. Respondents are entitled to withdraw from an interview at any stage or to refuse to cooperate in a research project. Interviewers should never lead respondents to believe they have no choice in their participation.*
4. will obtain and record respondent consent when it is known that the name and addresses or identity of the respondent may be passed to a third party for legal or other purposes, such as audio or video recordings; *By documenting the respondent's consent for a defined specific use of his/ her name and address we are confirming the respondent realizes we are asking something new of them, i.e., possible participation in another research project.*
5. will obtain permission and document consent of a parent, legal guardian or responsible guardian before interviewing children 12 years old or younger; *Interviewers must take special care when interviewing children or young people. The informed consent of the parent or responsible adult must first be obtained for interviews with children.*
6. will give respondents the opportunity to refuse to participate in the research when there is a possibility they may be identifiable even without the use of their name or address (e.g., because of the size of the population being sampled.) *Respondent cooperation is strictly on a voluntary basis. Respondents are entitled to withdraw from a research project. Company policies and/or interviewer instructions should state the interviewer must give respondents the opportunity to not participate for any reason.*

Interviewers ...

1. will treat the respondent with respect and not influence him or her through direct or indirect attempts,

including the framing of questions, a respondent's opinion or attitudes on any issue. *Interviewers cannot ask questions in a way that leads or influences respondents' answers, nor can they provide their own opinions, thoughts or feelings that might bias a respondent and therefore impact the answers they give.*

2. will obtain and document permission of a parent, legal guardian or responsible guardian before interviewing children 12 years old or younger. Prior to obtaining permission, the interviewer should divulge the subject matter, length of interview and other special tasks that will be required. *Interviewers must take special care when interviewing children and young people. The informed consent of the parent or responsible adult must first be obtained for interviews with children. Parents or responsible adults must be told some specifics about the interview process and special tasks, such as audio or video recording, taste testing, respondent fees and special tasks, before permission is obtained.*

RESPONSIBILITIES TO CLIENTS

Data Collection Companies ...

1. will ensure that each study is conducted according to the client's specifications; *Procedures are implemented to conform or verify that client specifications are being followed.*
2. will observe confidentiality with all research techniques or methodologies and with information considered confidential or proprietary. Information will not be revealed that could be used to identify clients or respondents without proper authorization; *Respondent information will be linked to data collected only for research purposes and will not be used for any purpose other than legitimate research. Protect the confidentiality of anything learned about the respondent and/or his or her business.*
3. will ensure that companies, their employees and subcontractors involved in data collection take all reasonable precautions so that no more than one survey is conducted in one interview without explicit permission from the sponsorship company or companies; *Company policies or procedures indicate the practice of conducting more than one survey within an interview is not done without specific permission from the relevant clients.*
4. will report research results accurately and honestly; *Describe how the research was done in enough detail that a skilled researcher could repeat the study; provide data representative of a defined population or activity and enough data to yield projectable results; present the results understandably and fairly, including any results that may seem contradictory or unfavorable.*
5. will not misrepresent themselves as having qualifications, experience, skills or facilities that they do no possess; *If regularly subcontracting data collection, should not infer to clients and prospective clients that they possess this capability "in house"; claim only legitimate academic degrees, clients and other qualifications.*
6. will refrain from referring to membership in the Marketing Research Association as proof of competence, since the Association does not certify any person's or organization's competency or skill level. *MRA does not currently have a certification program for marketing research competency, therefore while members can state their membership in the Association, they cannot claim that this automatically conveys a message of their competency to carry out the marketing research process.*

RESPONSIBILITIES TO DATA COLLECTORS

Clients ...

1. will be responsible for providing products and services that are safe and fit for their intended use and disclose/label all product contents; *It is the client's responsibility to ensure that all test products are in compliance with all safety standards and that all product contents information is provided to the data collectors. Data Collectors should request in writing all pertinent information as well as emergency numbers for respondents and themselves.*
2. will provide oral or written instructions; *To ensure the success of the research, detailed instructions are to be provided prior to the start of any project. These instructions must be written and then confirmed orally for: understanding, ability of the agency to implement and agreement to comply.*
3. will not ask our members who subcontract research to engage in any activity that is not acceptable as defined in this Code or that is prohibited under any applicable federal, state and local laws, regulations and ordinances. *All MRA Members have agreed to comply with the Code as written and thus will not agree to, or ask anyone else to, knowingly violate any of the points of the Code.*

RESPONSIBILITIES TO THE GENERAL PUBLIC AND BUSINESS COMMUNITY

Data Collection Companies ...

1. will not intentionally abuse public confidence in marketing and opinion research; *Marketing research shall*

be conducted and reported for the sole purpose of providing factual information upon which decisions will be made. At no time is marketing research information to be used to intentionally mislead public opinion. Instances of abuse of public confidence undermine the credibility of our Industry.

2. will not represent a non-research activity to be marketing and opinion research, such as:
    - questions whose sole objective is to obtain personal information about respondents, whether for legal, political, private or other purposes,
    - the compilation of lists, registers or data banks of names and addresses for any non-research purposes (e.g., canvassing or fundraising),
    - industrial, commercial or any other form of espionage,
    - the acquisition of information for use by credit rating services or similar organizations,
    - sales or promotional approaches to the respondent,