OHIO DEPARTMENT OF TRANSPORTATION
CENTRAL OFFICE, P.O. BOX 899, COLUMBUS, OHIO 43216-0899

October 1, 2001

Mr. David W. Becker, P.E.
TranSystems Corporation
6161 Riverside Drive Suite C
Dublin, OH 43017

RE: SCI-823-0.00 Certified Traffic

Dear Mr. Becker:

In reply to your letter dated August 16, 2001, Technical Services certifies the sheet labeled "2025 Design Year A.D.T. Volumes" for use in the subject project.

If you have any questions, please contact me at (614) 644-8195.

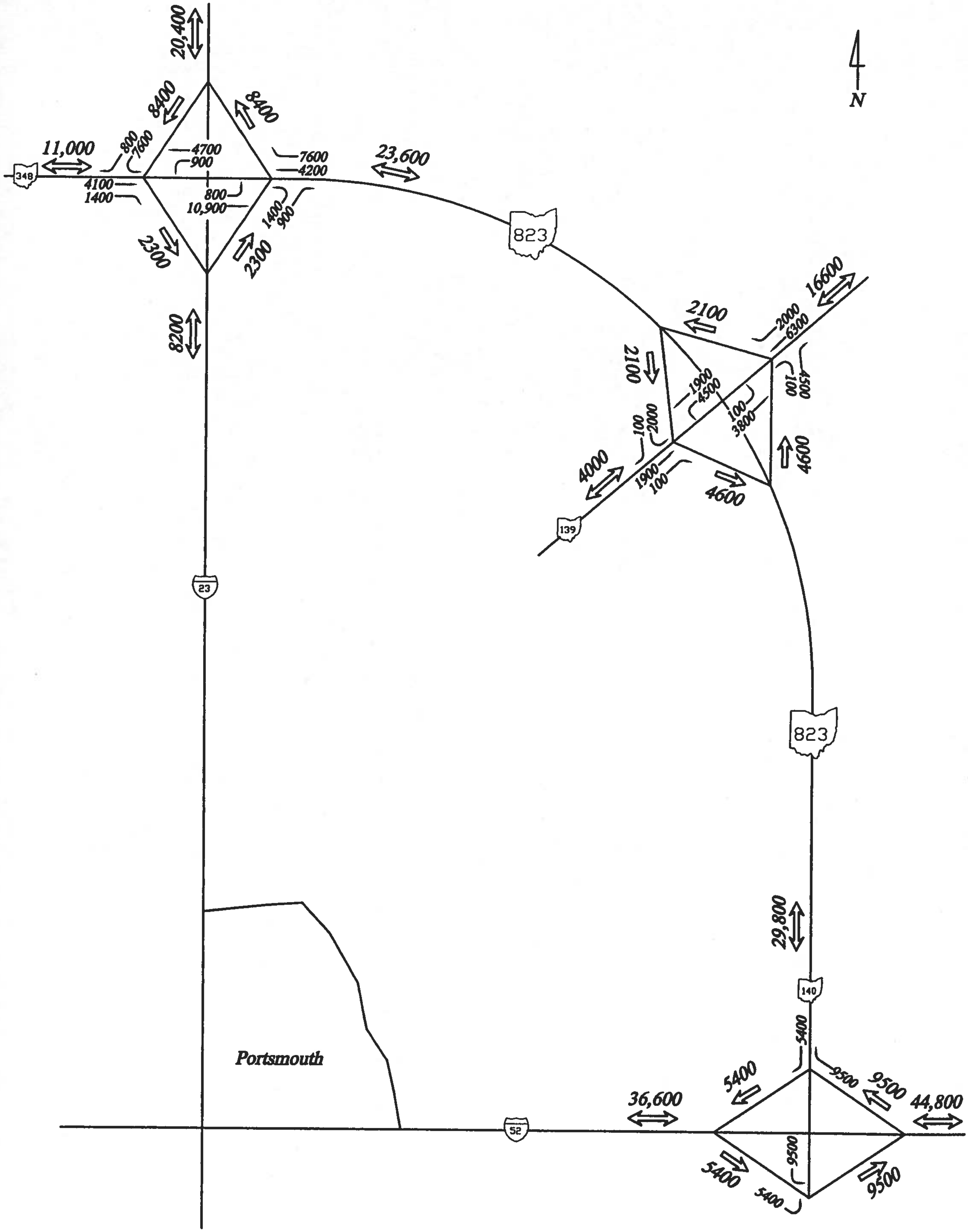
Respectfully,

Robert A. Burgett
Project Analyses Administrator
Office of Technical Services

RAB:rb

c: J. McQuirt, OTS–File

## *2025 Design Year A.D.T. Volumes*



## Scioto County

Traffic Survey Reports are available for years: 1994 1999 2002

| | | | | | | |
|---|---|---|---|---|---|---|
| | 10.89 | C-18 (WHITE GRAVEL RD.) | 4.60 | 1330 | 80 | 141[illegible] |
| | 15.49 | SR 776 | .60 | 1390 | 80 | 147[illegible] |
| | 16.09 | EQUALS STA. 0.00 IN PIKE CO. | .00 | | | |
| | | SR-348 | | | | |
| | 00.00 | ADAMS CO. LINE | 5.11 | 340 | 50 | 39[illegible] |
| | 05.11 | CO. RD. 40 (ROCKY FORK RD.) | .90 | 1140 | 50 | 119[illegible] |
| U | 06.01 | S.W. CORP. OTWAY | .22 | 1140 | 50 | 119[illegible] |
| | 06.23 | SR 73 ENTER MAIN ST. | .15 | SEE PREFERRED ROUTE | | |
| U | 06.38 | SR 73 ENTER WALNUT ST. | .32 | 1180 | 110 | 129[illegible] |
| | 06.70 | N.E. CORP. OTWAY | 5.44 | 1180 | 110 | 129[illegible] |
| | 12.14 | C-34 (SEDAN CRABTREE RD.) | 5.28 | 4510 | 130 | 464[illegible] |
| | 17.42 | SR 104 | 1.27 | 8960 | 520 | 948[illegible] |
| | 18.69 | ROUTE ENDS AT US 23 | .00 | | | |

TRANSYSTEMS CORPORATION

August 16, 2001

Mr. Bob Burgett, P.E.
Ohio Department of Transportation
Office of Technical Services
1980 West Broad Street
Columbus, Ohio 43223

RECEIVED 2001 AUG 20 AM 11:10

Ref: SCI-823-0.00 Request for Certified Traffic

Dear Bob:

TranSystems Corporation is requesting O.D.O.T. certified traffic for the above referenced project. We have enclosed a figure summarizing our assimilation of 2025 traffic volumes for the proposed route and interchanges. Our computations are base on the results of the Feasibility Study Report for the Portsmouth Transportation Study prepared by Gannett Flemming. We have included several figures and excerpts from this study that detail the traffic model and its results that was developed for the area. As per our meeting on Tuesday, August 14, we have included an additional 12,200 trips per day to account for the nearly 6,000 new jobs that are expected as a result of the bypass. Twenty percent of these trips were assumed to be local in nature and use existing local routes. The remaining eighty percent were distributed accordingly based on a review of population and employment data included in the study by Gannett Fleming.

Please let us know if you have any questions or need any further assistance.

Very truly yours,

TranSystems Corporation

David W. Becker, P.E.
Traffic Manager

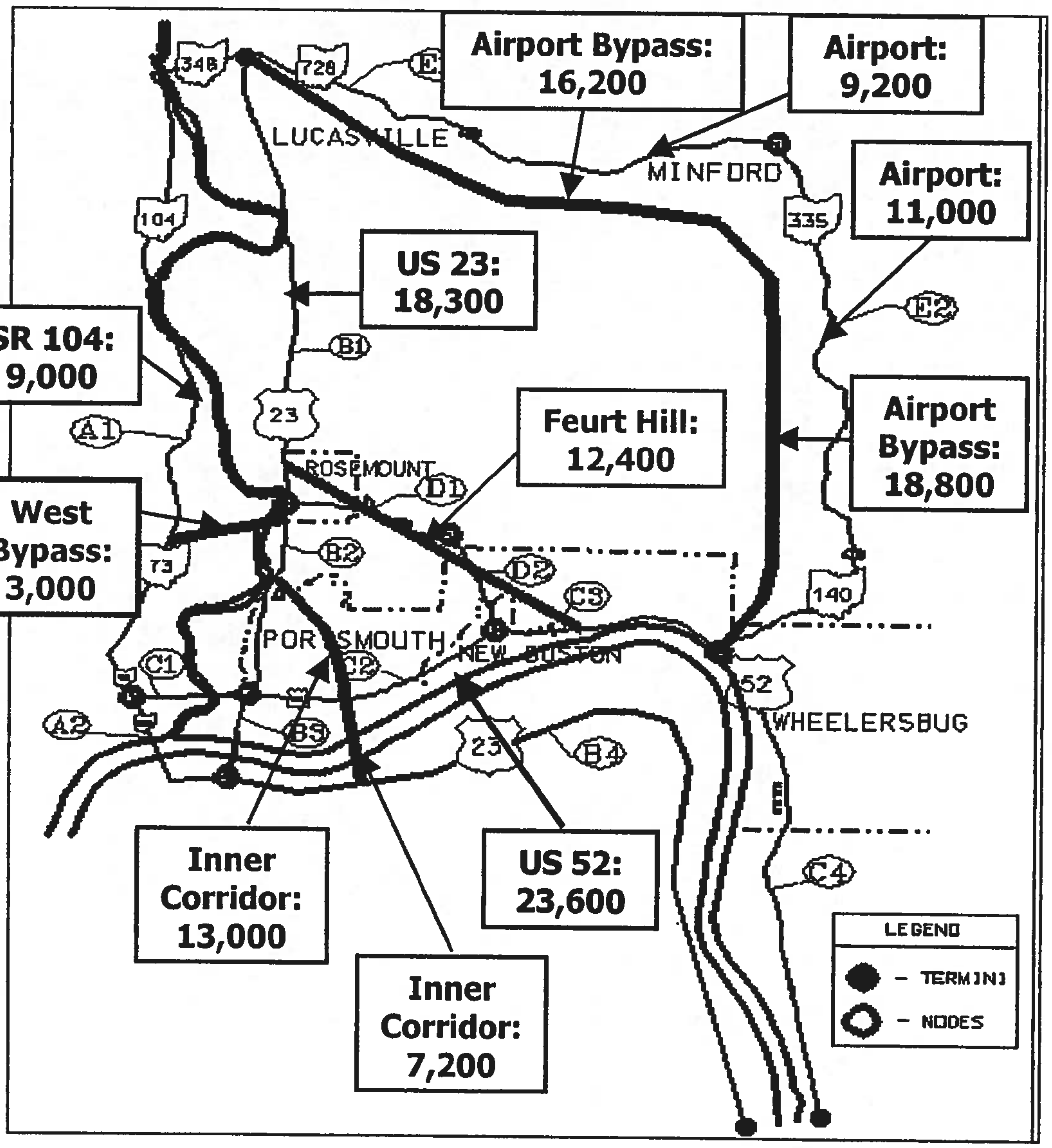
6161 Riverside Drive, Suite C • Dublin, OH 43017 • Tel: (614) 336-8480 • Fax: (614) 336-8540

# PART III:
# TRAFFIC & MOBILITY ANALYSIS

### *TRAFFIC USAGE OF PROPOSED ALTERNATIVES*

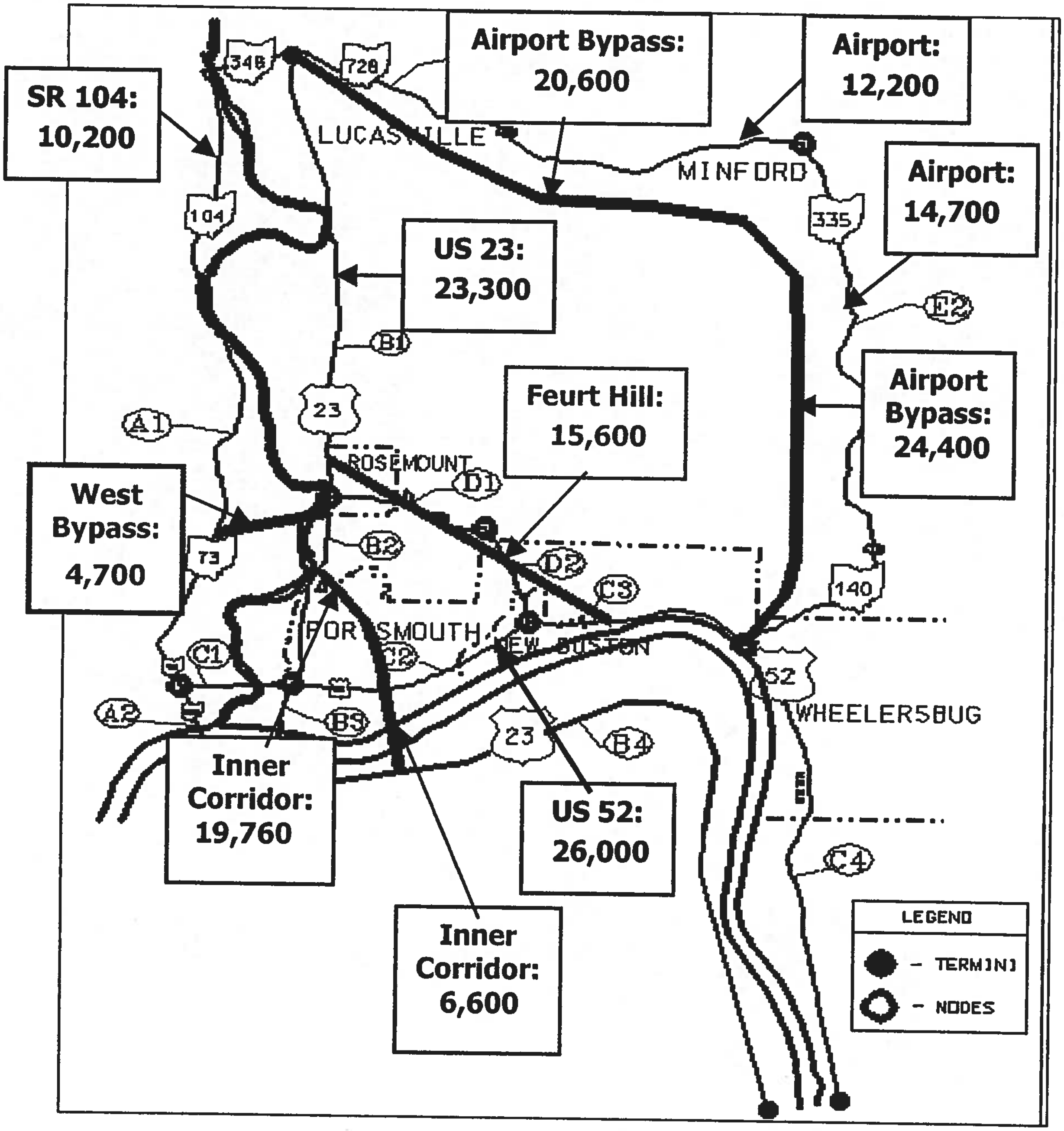
A detailed traffic model was used to predict the traffic volumes on each of the proposed alternatives. The methodology and outputs are included in the Appendix B. The results for 2000 and 2025 are shown in Figures III-1 and III-2.

**Figure III-1: Traffic Assignments for Year 2000**




Source: Gannett Fleming, Traffic Model Results, 2000

**Figure III-2: Traffic Assignments for Year 2025**




Source: Gannett Fleming, Traffic Model Results, 2000

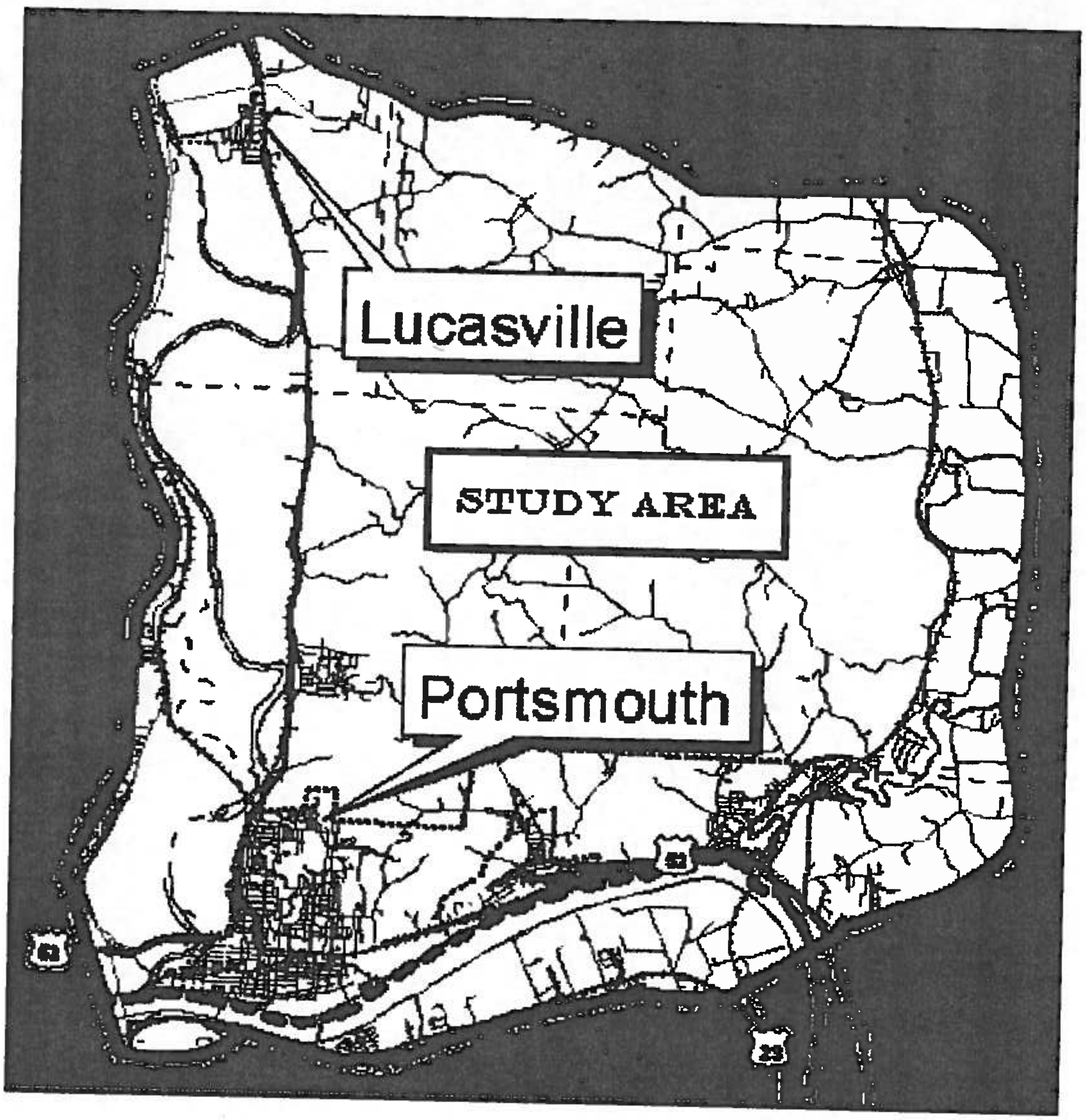
These results indicate that the Airport Bypass would carry a larger volume of traffic in 2025 than other alternatives under consideration, with the exception of the US 23/US 52 Upgrade. The West Bypass would draw very little traffic.

## Traffic Modeling and Analysis

***The Study Area Perimeter***

The study area boundary was set to allow a wide-range of alternatives. The study area boundary is shown in Figure 1. The cordon line for the traffic study normally would be the same line. In this study the small portion of the study boundary that traveled through Kentucky was not used. This is because the state of Kentucky would not allow the origin-destination survey. The Ohio River was instead used as the south cordon line. Methods used for traffic inside Kentucky are discussed elsewhere in this report.

**Figure 1**



### *Obtaining Data About Existing Traffic*

To support the purpose and need determination and the calculations of the feasibility study, an accurate determination of the volumes and patterns of existing traffic was needed. Several methods were employed. The first was the implementation of an origin-destination traffic survey around the perimeter of the study area. The second was a program of 24-hour mechanized tube counts both around the perimeter of the study area and at key points on major routes within the study area. The third entailed peak hour turning movement counts at the major intersections within the study area. This document will refer to both current year and design year traffic. The design year is 2025. ODOT staff specified a 1.00% growth factor for external-external trips and 0.50% for all other trips.

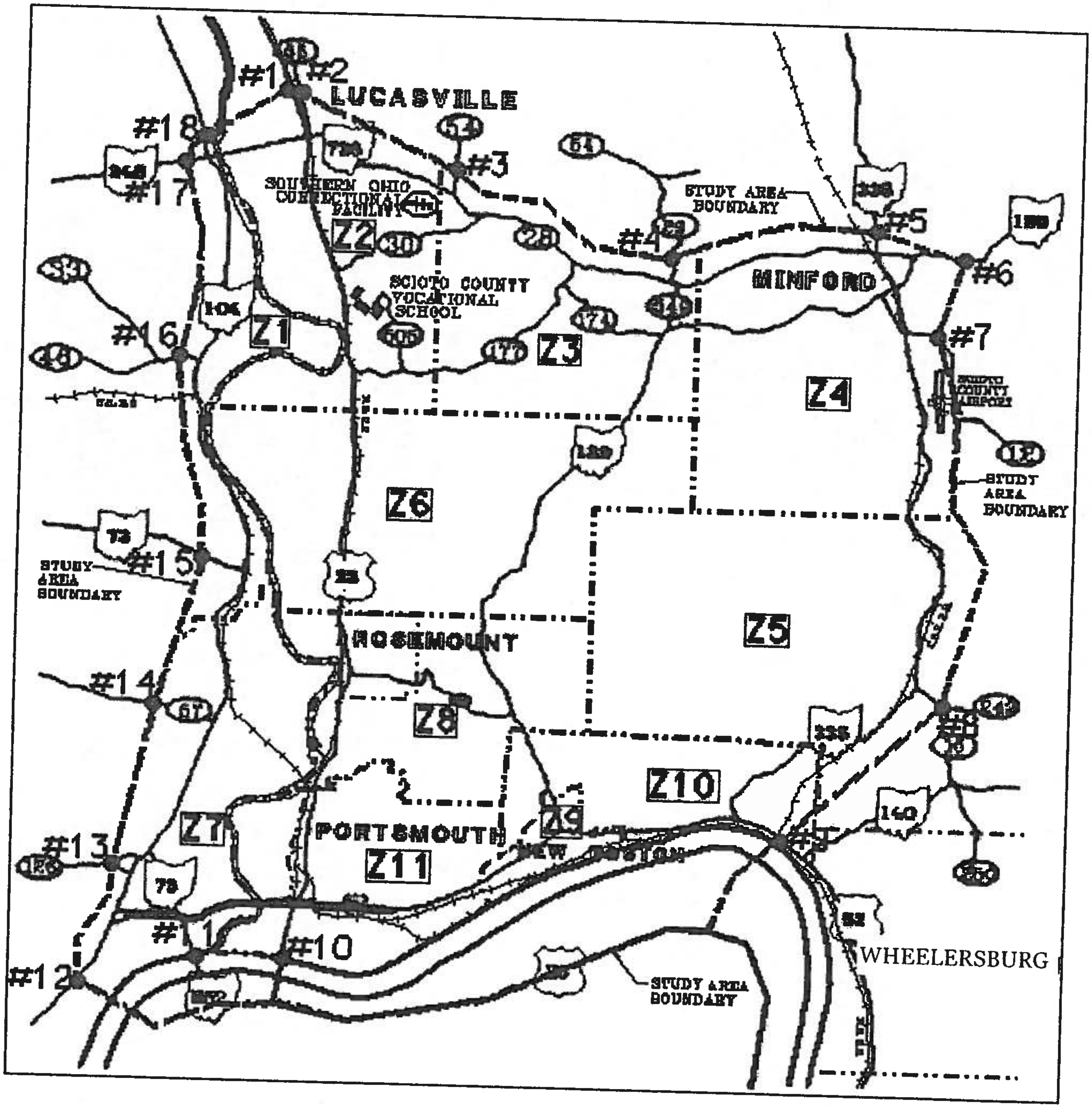
### *The Origin-Destination Survey*

The purpose of the origin-destination survey was to determined traffic patterns into and across the study area. To accomplish this task a list of sites to be surveyed was developed. The first draft of this list included all State, County and US numbered roads that crossed the cordon line. They are numbered from 1 through 18. Site 19 is the Greenup Dam crossing of the Ohio River. Even though it is outside the study area, it was thought to be an important element to Portsmouth travel patterns. Site 20 is on Rosemont Road and is not a boundary site. However, it is a key component of existing Portsmouth area traffic patterns. Figure 2 shows the locations of sites 1 through 20.

After the 20 sites were determined, low volume sites (those with less than 1,000 ADT) were eliminated from the study. Sites 3, 4 and 13 were eliminated using this criterion.

The inside of the study area was divided into 12 origination zones. Political boundaries and geographical features such as major rivers were favored as boundaries in the formation of these zones. The perimeter survey sites and the internal zones were reviewed and approved by ODOT's Office of Technical Services.

**Figure 2**


LUCASVILLE
#1
#2
#3
#4
#5
#6
#7
#10
#11
#12
#13
#14
#15
#16
#17
#18
SOUTHERN OHIO CORRECTIONAL FACILITY
SCIOTO COUNTY VOCATIONAL SCHOOL
STUDY AREA BOUNDARY
MINFORD
Z1
Z2
Z3
Z4
Z5
Z6
Z7
Z8
Z9
Z10
Z11
ROSEMOUNT
PORTSMOUTH
NEW BOSTON
WHEELERSBURG
STUDY AREA BOUNDARY
STUDY AREA BOUNDARY
STUDY AREA BOUNDARY

The origin-destination surveys took place over a 4-week period in July 1999. A crew comprised of three people and a professional engineer crew leader conducted the survey program. Site setup and safety measures were the same as those used by ODOT in their 1997 statewide origin-destination survey. The crew attempted 100% intercept of motorists on low volume roads. On the highest volume roads, the motorist interception rate was approximately 15%. Surveys were conducted from 6:00 am to 7:00 pm to include both the morning and afternoon peak hours. Forty-eight (48) hour mechanical tube counts were also scheduled so that the 48-hour period included the 13-hour traffic survey.

The traveling motorists were asked a series of questions that were customized for this particular study. These questions are:

1. Where did the trip originate?

All trips originated in one of the 12 zones or one of the other 17 external sites. If a low volume cordon line crossing was indicated, the motorist was assigned to the nearest of the survey points. To facilitate coding of the origination, the motorists were asked to identify on a map attached to a clipboard which of the 12 zones they originated in. If they were passing through the Portsmouth area (an external-to-external trip), they were shown the cordon line on a map and the one or more choices of route they may have had to determine the entry station. The actual external origination was also recorded for checking and other possible planning purposes.

For purposes of coding, the mid-point destination of a round trip was considered the origination of the trip if the survey occurred on the return leg. If the trip had one or more stops in line, the origination is considered the first point of the itinerary. Because these particular rules are somewhat confusing to the motorists in a highway roadside environment the actual origin and destination names were asked and office adjustments were made when necessary.

2. Where does the trip end?

All trips officially end at the survey site. This question was asked for other transportation planning purposes and the data editing mentioned above.

3. Was this a truck or car?

This information was used for transportation planning purposes.

4. For external-to-external trips only: What route was taken through the study area?

Before the survey started, the earliest activities of the overall study identified that through traffic information was to be identified for the U.S. 23 corridor. The purpose and need statement contains a discussion of this issue. For traffic survey purposes, this required a survey question about the route chosen between survey sites 1, 2 and 18 on the north cordon line and survey sites 8, 9, 10 and 11 on the south cordon line. Prior to the survey, area reconnaissance and interviews with the County Engineer showed six (6) likely routings between those external sites. These routes were labeled: US 23, US 23/52, US 23/Perkins Bridge, Rosemount Road, Airport and SR 104. These paths were highlighted on the clipboard map to assist the motorists. Opportunity was also given to identify other routings. The six routings are shown in Figure 3.

5. For external-external trips only: Was a stop made at a local business?

This information was collected for a later economic analysis.

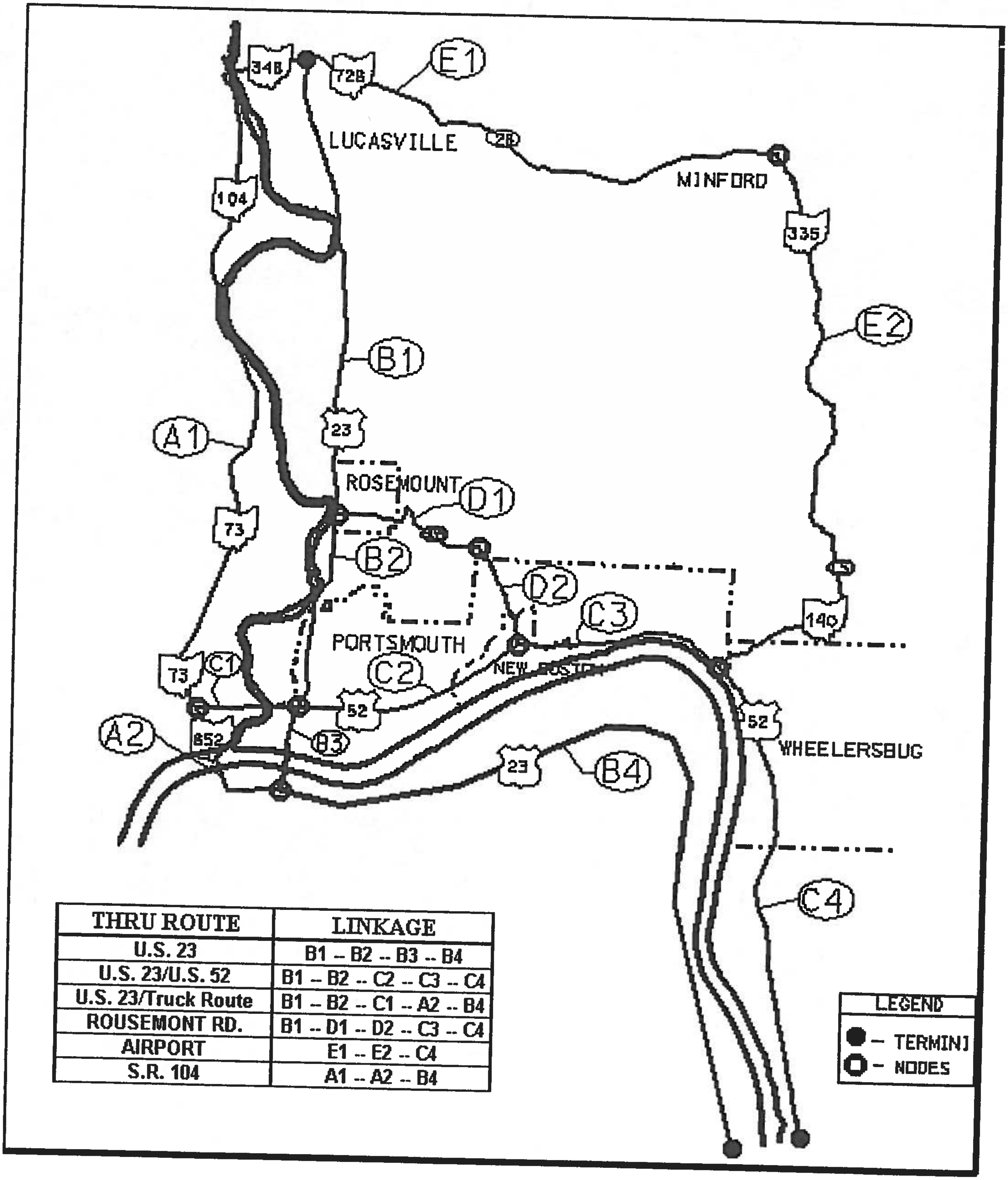
***Mechanical Traffic Counts***

While the traffic surveys were being conducted, 48-hour traffic counts were being taken at the same sites. The intent of a 48-hour duration was to even out single day aberrations and obtain a 24-hour average. Under this study, counts were taken at Sites 1 through 20 with the exceptions of Sites 3, 4, 13, and 19. The other mechanical tube counts were performed by ODOT's crews under a routine program, which happened to be underway in Scioto County at the same time.

***Peak Hour Turning Movement Counts***

ODOT maintains turning movement counts of all major and many of the minor intersections within the study area. Current counts were needed in order to identify capacity problems both in the current year and in to 2025 design year. Turning movement counts are also used for a number of activities that will be discussed in the traffic analysis section of this report.

**Figure 3**




| THRU ROUTE | LINKAGE |
|---|---|
| U.S. 23 | B1 -- B2 -- B3 -- B4 |
| U.S. 23/U.S. 52 | B1 -- B2 -- C2 -- C3 -- C4 |
| U.S. 23/Truck Route | B1 -- B2 -- C1 -- A2 -- B4 |
| ROUSEMONT RD. | B1 -- D1 -- D2 -- C3 -- C4 |
| AIRPORT | E1 -- E2 -- C4 |
| S.R. 104 | A1 -- A2 -- B4 |

***Analysis of Origin-Destination Data***

The field data from the survey crews were recorded on paper forms. These forms were returned to this office where the data were keyed into a database. The organization of the database is based on the 16 sites at which surveys were taken. After data entry and correcting, the data were sorted into site pairs. For example, the data pairs at Site 1 would be Site 2 to Site 1 through Site 18 to Site 1. The internal trips to external trips are sorted in a similar manner: Zone 1 to Site 1, through Zone 12 to Site 1. The results of this sorting are reported in a matrix (See Table 4). The results in Figure 4 needed to be edited in several ways. The first editing procedure involved the expansion of the 13 hours of survey data to 24 hours. If hours were missing in the day due to rain, fog, accidents, or other issues, the data were also expanded to these times. Even after these standard editing procedures were applied, further editing was required to take into account motorists' bias towards reporting information in certain ways that can yield incorrect data.

One benefit of conducting a survey in the manner outlined previously is that every external-to-external trip is surveyed twice. For example, at Site 18 trips from Site 11 are recorded; at Site 11 trips from Site 18 were recorded. (On the other hand, internal to external trips are only reported once.) Theoretically, the pairs in the Figure 4 matrix should agree. However, the pairs can often times disagree substantially. These disagreements result from the inherent difficulties present in a roadside interview environment. This includes known bias by motorists to report their trips in the simplest manner possible. A few examples are offered: At Site 2, a low volume site, a 100% sample is obtained and fairly accurate results are expected. On the other side of the survey at Site 10, the same motorist may not attempt to convey or identify a Site 2 origin and instead, give a more generic answer such as "US 23", which would be coded as Site 1. Other difficulties found specific to Portsmouth were in the reporting of the two bridges over the Ohio River. Some motorists reported a trip entering at the Carl Perkins Bridge as US 23. This may have occurred because of the lack of route labeling over the bridge (It is Ohio SR 852) and because over 99 percent of the trip actually was on US 23. Similar problems also occurred at Site 8, CR 15, which was difficult for the motorists to distinguish from a routing through Site 9, US 52.

To edit those pairs of data, each pair was individually considered by a senior engineer with substantial project experience and a thorough understanding of the Portsmouth area traffic patterns. For any given pair, the reviewer decided if the data for one direction was more reliable than the data for the opposite direction. Based on his findings, the reviewer could either declare one direction data as most reliable or select a number between the two sets of data. If no reason for a preference was identified, an average of the two pairs was used. The results of this edit are reported in Table 5.

## Table 4: O/D Results Prior to Corrections

| Origin Zone | Destination Zone 1 | 2 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 15 | 16 | 17 | 18 | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 6 | | 55 | 15 | | 4 | | 9 | 5 | 14 | | 7 | 2 | | 5 | 122 |
| 1 | | 36 | 72 | 156 | 76 | 185 | 3,238 | 1,135 | 866 | 378 | 63 | 75 | 45 | 602 | 115 | 7,043 |
| 2 | | | | 3 | 25 | 21 | | 17 | 4 | 5 | 17 | 4 | | 80 | 49 | 225 |
| 5 | 14 | 7 | | 143 | 78 | 738 | 63 | 3 | 14 | 19 | | 6 | 5 | 3 | 26 | 1,120 |
| 6 | 76 | 23 | 157 | | 22 | 37 | 62 | 6 | | 19 | 4 | 18 | | 16 | 12 | 452 |
| 7 | | 13 | 115 | 11 | | 8 | 13 | | | | | | | | 2 | 163 |
| 8 | 100 | 52 | 694 | 102 | 49 | | | | | 33 | 2 | 15 | | 32 | 61 | 1,141 |
| 9 | 2,572 | 94 | 338 | 141 | 62 | 7 | | 349 | 224 | 755 | 76 | 264 | 21 | 262 | 165 | 5,330 |
| 10 | 1,776 | 75 | 48 | 34 | 7 | | 319 | | | 113 | 38 | 289 | 36 | 5 | 142 | 2,881 |
| 11 | 303 | 10 | 14 | 3 | | | 53 | | | 565 | 93 | 316 | 17 | 40 | 616 | 2,029 |
| 12 | 106 | 23 | 14 | 3 | 10 | | 600 | 64 | 395 | | 56 | 73 | 55 | 15 | 65 | 1,478 |
| 13 | | | | | | | | | | | 11 | | | | | 11 |
| 14 | | 3 | | | 3 | | | | 14 | 33 | | 20 | 12 | | 5 | 90 |
| 15 | 220 | 10 | | | | 5 | 255 | 34 | 700 | 138 | 66 | | 7 | 8 | 83 | 1,526 |
| 16 | 6 | 23 | | | | 3 | 36 | 3 | 53 | 29 | 2 | 6 | | 8 | 16 | 185 |
| 17 | 235 | 165 | 26 | 51 | 12 | 30 | 93 | 7 | 74 | 9 | 6 | 6 | | | 439 | 1,154 |
| 18 | 14 | 45 | 3 | 8 | 14 | 15 | 56 | 28 | 612 | 133 | 56 | 47 | 81 | 403 | | 1,518 |
| 19 | 16 | 3 | 6 | | | | | | | 15 | | 23 | | | 5 | 68 |
| ***Subtotal*** | ***5,446*** | ***583*** | ***1,542*** | ***670*** | ***358*** | ***1,055*** | ***4,787*** | ***1,656*** | ***2,961*** | ***2,257*** | ***491*** | ***1,170*** | ***281*** | ***1,474*** | ***1,806*** | ***26,536*** |
| Z1 | 135 | 52 | 20 | 3 | 5 | 29 | 53 | 17 | 175 | 96 | 94 | 153 | 271 | 392 | 739 | 2,233 |
| Z2 | 1,933 | 1,000 | 260 | 372 | 210 | 360 | 1,032 | 272 | 304 | 282 | 92 | 112 | 260 | 1,141 | 669 | 8,297 |
| Z3 | 48 | 55 | 151 | 68 | | 71 | 172 | 3 | 12 | 14 | 6 | 8 | 11 | 29 | 28 | 676 |
| Z4 | 542 | 156 | 2,044 | 1,080 | 452 | 1,269 | 277 | 153 | 52 | 100 | 32 | 56 | 53 | 195 | 124 | 6,586 |
| Z5 | 13 | 3 | 96 | 74 | 5 | 650 | 31 | 43 | 52 | 13 | 16 | 35 | 5 | 40 | 9 | 1,084 |
| Z6 | 87 | 19 | 54 | 45 | 7 | 32 | 25 | 55 | 3 | 27 | | 4 | 11 | 34 | 9 | 412 |
| Z7 | 541 | 125 | 35 | 29 | 5 | 15 | 824 | 148 | 1,126 | 1,394 | 573 | 466 | 186 | 36 | 354 | 5,855 |
| Z8 | 162 | 49 | 57 | 27 | 10 | 4 | 578 | 114 | 42 | 116 | 10 | 6 | 12 | 161 | 56 | 1,405 |
| Z9 | 210 | 46 | 197 | 123 | 10 | 33 | 3,582 | 343 | 252 | 280 | 59 | 112 | 22 | 74 | 63 | 5,406 |
| Z10 | 142 | 59 | 150 | 46 | 15 | 28 | 197 | 106 | 8 | 163 | 7 | 30 | 11 | 5 | 14 | 982 |
| Z11 | 4,965 | 556 | 1,080 | 501 | 230 | 81 | 11,722 | 7,687 | 1,352 | 5,017 | 973 | 1,845 | 671 | 1,027 | 1,289 | 38,995 |
| ***Subtotal*** | ***8,778*** | ***2,120*** | ***4,145*** | ***2,367*** | ***947*** | ***2,571*** | ***18,493*** | ***8,942*** | ***3,378*** | ***7,501*** | ***1,863*** | ***2,827*** | ***1,512*** | ***3,133*** | ***3,354*** | ***71,932*** |
| **Grand Total** | **14,224** | **2,703** | **5,687** | **3,037** | **1,306** | **3,626** | **23,280** | **10,598** | **6,339** | **9,758** | **2,354** | **3,997** | **1,792** | **4,607** | **5,160** | **98,468** |

## Table 5: Edited O/D Results – Weighted and Expanded

| Origin Zone As Reported by Motorists | Destination Zone: These are the external sites where motorists were interviewed | | | | | | | | | | | | | | | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 15 | 16 | 17 | 18 | |
| 0 | | | | | | | | | | | | | | | | |
| 1 | | 36 | 72 | 156 | 76 | 185 | 2,899 | 1,136 | 943 | 106 | 63 | 75 | 45 | 235 | 14 | **6,043** |
| 2 | 36 | | 7 | 23 | 19 | 52 | 94 | 64 | 20 | 23 | 17 | 49 | 11 | 80 | 45 | **540** |
| 5 | 72 | 7 | | 157 | 97 | 814 | 218 | 48 | 14 | 14 | | 6 | 5 | 26 | 3 | **1,481** |
| 6 | 156 | 23 | 157 | | 22 | 102 | 141 | 24 | 13 | 19 | 2 | 9 | | 51 | 8 | **727** |
| 7 | 76 | 19 | 97 | 22 | | 49 | 62 | 5 | 2 | 10 | | | | 2 | 14 | **358** |
| 8 | 185 | 52 | 814 | 102 | 49 | | 7 | | | 12 | 1 | 5 | | 30 | 15 | **1,272** |
| 9 | 2,899 | 94 | 218 | 141 | 62 | 7 | | 349 | 223 | 755 | 0 | 255 | 16 | 252 | 152 | **5,423** |
| 10 | 1,136 | 64 | 48 | 24 | 5 | 0 | 349 | | | 133 | 0 | 34 | 3 | 7 | 28 | **1,831** |
| 11 | 943 | 20 | 14 | 13 | 2 | 0 | 223 | | | 480 | 93 | 700 | 19 | 40 | 612 | **3,158** |
| | 106 | 23 | 14 | 19 | 10 | 12 | 755 | 133 | 480 | | 44 | 73 | 29 | 9 | 133 | **1,840** |
| 13 | | | | | | | | | | | | | | | | |
| 14 | 63 | 17 | | 2 | 0 | 1 | | | 93 | 44 | | 66 | 2 | 6 | 56 | **350** |
| 15 | 75 | 49 | 6 | 9 | | 5 | 255 | 34 | 700 | 73 | 66 | | 6 | 6 | 64 | **1,348** |
| 16 | 45 | 11 | 5 | 0 | | 0 | 16 | 3 | 19 | 29 | 2 | 6 | | 4 | 81 | **222** |
| 17 | 235 | 80 | 26 | 51 | 2 | 30 | 252 | 7 | 40 | 9 | 6 | 6 | 4 | | 419 | **1,167** |
| 18 | 14 | 45 | 3 | 8 | 14 | 15 | 152 | 28 | 612 | 133 | 56 | 64 | 81 | 419 | | **1,647** |
| 19 | | | | | | | | | | | | | | | | |
| ***Subtotal*** | **6,042** | **540** | **1,482** | **728** | **358** | **1,273** | **5,423** | **1,832** | **3,158** | **1,840** | **351** | **1,348** | **221** | **1,167** | **1,644** | **27,407** |
| Z1 | 135 | 52 | 20 | 3 | 5 | 29 | 53 | 17 | 175 | 96 | 94 | 153 | 271 | 392 | 739 | **2,233** |
| Z2 | 1,933 | 1,000 | 260 | 372 | 210 | 360 | 1,032 | 272 | 304 | 282 | 92 | 112 | 260 | 1,141 | 669 | **8,297** |
| Z3 | 48 | 55 | 151 | 68 | | 71 | 172 | 3 | 12 | 14 | 6 | 8 | 11 | 29 | 28 | **676** |
| Z4 | 542 | 156 | 2,044 | 1,080 | 452 | 1,269 | 277 | 153 | 52 | 100 | 32 | 56 | 53 | 195 | 124 | **6,586** |
| Z5 | 13 | 3 | 96 | 74 | 5 | 650 | 31 | 43 | 52 | 13 | 16 | 35 | 5 | 40 | 9 | **1,084** |
| Z6 | 87 | 19 | 54 | 45 | 7 | 32 | 25 | 55 | 3 | 27 | | 4 | 11 | 34 | 9 | **412** |
| Z7 | 541 | 125 | 35 | 29 | 5 | 15 | 824 | 148 | 1,126 | 1,394 | 573 | 466 | 186 | 36 | 354 | **5,855** |
| Z8 | 162 | 49 | 57 | 27 | 10 | 4 | 578 | 114 | 42 | 116 | 10 | 6 | 12 | 161 | 56 | **1,405** |
| Z9 | 210 | 46 | 197 | 123 | 10 | 33 | 3,582 | 343 | 252 | 280 | 59 | 112 | 22 | 74 | 63 | **5,406** |
| Z10 | 142 | 59 | 150 | 46 | 15 | 28 | 197 | 106 | 8 | 163 | 7 | 30 | 11 | 5 | 14 | **982** |
| Z11 | 4,965 | 556 | 1,080 | 501 | 230 | 81 | 11,722 | 7,687 | 1,352 | 5,017 | 973 | 1,845 | 671 | 1,027 | 1,289 | **38,995** |
| ***Subtotal*** | **8,778** | **2,120** | **4,145** | **2,367** | **947** | **2,571** | **18,493** | **8,942** | **3,378** | **7,501** | **1,863** | **2,827** | **1,512** | **3,133** | **3,354** | **71,932** |
| **Grand Total** | **14,820** | **2,660** | **5,626** | **3,095** | **1,306** | **3,844** | **23,916** | **10,774** | **6,536** | **9,341** | **2,214** | **4,175** | **1,733** | **4,300** | **4,998** | **99,339** |

*Analysis of Distribution of "Through US 23 Traffic" over Six Existing Routes*

Upon completion of the data tables in Figure 5, it became desirable to identify how the "US 23 trips" were distributed over the six available routes. This question was directly asked of the motorists and their answers were tallied in the traffic database. These results were used as reported. The resolution of confusion between the two bridge sites and Zones 8 and 9 also helped to produce better results in the distribution exercise. One survey at Site 20 on Rosemont Road was taken to confirm route distribution assignments. The Site 20 results showed a traffic diversion of up to 20 percent between the day of the survey and the previous day. The survey accomplished the primary objective of confirming substantial through traffic movements over Rosemount Hill. The results indicate that there are 10 to 20 percent more trips of this nature compared to those reported by the motorists. These results are in acceptable range of accuracy. Therefore, the motorists' reported routings were used unchanged.

For the purpose and need analysis, it was decided to include Zone 2 (The Lucasville area) as an external destination. This was because any external or internal trip to Zone 2 would use almost any conceivable alternative in the same manner as an external-external or internal-external trip. Approximately 1/3 of the trips from Zones 8, 9, 10 and 11 to sites were also identified for this document as "US 23 Trips".

Tables 6, 7, 8 and 9 illustrate the results of the O/D survey regarding through trips and alternative routings. These figures were prepared in such a manner that the development of the data can be followed in a sequence.

**Table 6: Through Traffic on US 23 through Portsmouth, Ohio, by O/D Pair**

| O-D Pair | One way 24 hour Total | Two way 24 hour Total | Adjustment Factor | 1999 Traffic Total | US 23 Near Lucasville | |
|---|---|---|---|---|---|---|
| | | | | | to US 52, Wheelersburg and Beyond | to US 23, South Shore and Beyond |
| 1-8 | 185 | 370 | 1 | 370 | 370 | |
| 1-9 | 2899 | 5798 | 1 | 5798 | 5798 | |
| 1-10 | 1136 | 2272 | 1 | 2272 | | 2272 |
| 1-11 | 943 | 1886 | 1 | 1886 | | 1886 |
| Subtotal | | | | 10326 | | |
| | | | | | | |
| 18-8 | 15 | 30 | 1 | 30 | 30 | |
| 18-9 | 152 | 304 | 1 | 304 | 304 | |
| 18-10 | 28 | 56 | 1 | 56 | | 56 |
| 18-11 | 612 | 1224 | 1 | 1224 | | 1224 |
| Subtotal | | | | 1614 | | |
| | | | | | | |
| 2-8 | 52 | 104 | 1 | 104 | 104 | |
| 2-9 | 94 | 188 | 1 | 188 | 188 | |
| 2-10 | 64 | 128 | 1 | 128 | | 128 |
| 2-11 | 20 | 40 | 1 | 40 | | 40 |
| Subtotal | | | | 460 | | |
| | | | | | | |
| 5-8 | 814 | 1628 | 0.33 | 537 | 537 | |
| 5-9 | 218 | 436 | 0.33 | 144 | 144 | |
| 5-10 | 48 | 96 | 0.33 | 32 | | 32 |
| 5-11 | 14 | 28 | 0.33 | 9 | | 9 |
| Subtotal | | | | 722 | | |
| | | | | | | |
| Z2-8 | 360 | 720 | 1 | 720 | 720 | |
| Z2-9 | 1032 | 2064 | 1 | 2064 | 2064 | |
| Z2-10 | 272 | 544 | 1 | 544 | | 544 |
| Z2-11 | 304 | 608 | 1 | 608 | | 608 |
| Subtotal | | | | 3936 | | |
| | | | | | | |
| **Grand Total** | | | | **17058** | **10259** | **6799** |

Source: 1999 Traffic Surveys

Note: Through traffic includes as a minimum a Lucasville/Wheelersburg trip or a Lucasville/South Shore trip.

SR 104 trips are also included.

Zone 2 is considered external to the Study Area.

## Table 7: Through Traffic Distribution over Six Routes

| O-D Pair | One way 24 hour Total | Two way 24 hour Total | Adjustment Factor | 1999 Traffic Total | U.S. 23 | US 23/ US 52 | U.S. 23/ Perkins Bridge | Rosemont Road | Airport | SR 104 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1-8 | 185 | 370 | 1 | 370 | | | | | 370 | |
| 1-9 | 2899 | 5798 | 1 | 5798 | | 4349 | | 1450 | | |
| 1-10 | 1136 | 2272 | 1 | 2272 | 2272 | | | | | |
| 1-11 | 943 | 1886 | 1 | 1886 | | | 954 | | | 931 |
| Subtotal | | | | 10326 | | | | | | |
| | | | | | | | | | | |
| 18-8 | 15 | 30 | 1 | 30 | | | | | 30 | |
| 18-9 | 152 | 304 | 1 | 304 | | 225 | | 79 | | |
| 18-10 | 28 | 56 | 1 | 56 | 56 | | | | | |
| 18-11 | 612 | 1224 | 1 | 1224 | | | | | | 1224 |
| Subtotal | | | | 1614 | | | | | | |
| | | | | | | | | | | |
| 2-8 | 52 | 104 | 1 | 104 | | | | | | 104 |
| 2-9 | 94 | 188 | 1 | 188 | | 68 | | 120 | | |
| 2-10 | 64 | 128 | 1 | 128 | 128 | | | | | |
| 2-11 | 20 | 40 | 1 | 40 | | | 15 | | | 25 |
| Subtotal | | | | 460 | | | | | | |
| | | | | | | | | | | |
| 5-8 | 814 | 1628 | 0.33 | 537 | | | | | | 537 |
| 5-9 | 218 | 436 | 0.33 | 144 | | | | | | 144 |
| 5-10 | 48 | 96 | 0.33 | 32 | | | | | | 32 |
| 5-11 | 14 | 28 | 0.33 | 9 | | | | | | 9 |
| Subtotal | | | | 722 | | | | | | |
| | | | | | | | | | | |
| Z2-8 | 360 | 720 | 1 | 720 | | | | | 720 | |
| Z2-9 | 1032 | 2064 | 1 | 2064 | | 704 | | 1360 | | |
| Z2-10 | 272 | 544 | 1 | 544 | 544 | | | | | |
| Z2-11 | 304 | 608 | 1 | 608 | | | 300 | | | 308 |
| Subtotal | | | | 3936 | | | | | | |
| | | | | | | | | | | |
| Grand Total | | | | 17058 | 3000 | 5346 | 1269 | 3009 | 1120 | 3314 |

Note: Zone 2 is considered external to study area.

**Table 8: Through Traffic on US 23 by Through Route**

| Link | U.S. 23 | US 23/ US 52 | U.S. 23/ Perkins Bridge | Rosemount Road | Airport | S.R. 104 | Total US 23 Traffic By Link |
|---|---|---|---|---|---|---|---|
| A-1 | | | | | | 3314 | 3314 |
| A-2 | | | 1269 | | | 3314 | 4583 |
| B-1 | 3000 | 5346 | 1269 | 3009 | | | 12624 |
| B-2 | 3000 | 5346 | 1269 | | | | 9615 |
| B-3 | 3000 | | | | | | 3000 |
| B-4 | 3000 | | 1269 | | | 3314 | 7583 |
| C-1 | | | 1269 | | | | 1269 |
| C-2 | | 5346 | | | | | 5346 |
| C-3 | | 5346 | | 3009 | | | 8355 |
| C-4 | | 5346 | | 3009 | 1120 | | 9475 |
| D-1 | | | | 3009 | | | 3009 |
| D-2 | | | | 3009 | | | 3009 |
| E-1 | | | | | 1120 | | 1120 |
| E-2 | | | | | 1120 | | 1120 |

**Table 9: Through Trips on Alternative Routes**

| Study Name of Route | Type of Facility | Link | Route | Through Trips Current ADT | Through Trips Design Year ADT |
|---|---|---|---|---|---|
| Airport | County Road | E1 | CR 28 | 1120 | 1450 |
| Rosemount | County Road | D1 | CR 337 | 3009 | 3900 |
| SR 104 | Secondary State Highway | A1 | SR 104 | 3314 | 4290 |
| SR 335 | Secondary State Highway | E2 | SR | 1120 | 1450 |
| Airport | County Road | E2 | CR 15 | 1120 | 1450 |

***Non-peak Travel Time Measurement***

The feasibility study required a timing study of major routes of interest in the study area. For the purpose and need study, a special speed/delay study was made on the six through route paths during non-peak hours to determine network mobility problems. The results of this study are presented in Table 10. This study was important in that it explained why there are substantial diversions of through traffic from the officially signed state highways to substandard local roads.

The Scioto County Engineer's office performed this study using equipment developed for the 911 emergency telephone number implementation. The drivers were instructed to drive with traffic up to the posted speed limits.

**Table 10: Non-Peak Travel Times for Passenger Cars through Portsmouth**

| Routing | Mileage (Greenup Dam to Lucasville) | Travel Time (Minutes:Seconds) |
|---|---|---|
| US 23 | 23.60 | 33:20 |
| SR 104 | 26.27 | 32:55 |
| US 23/US 52 | 24.62 | 34:37 |
| Rosemount | 22.17 | 28:14 |
| Airport | 25.78 | 33:13 |

Note: US 23/Perkins Bridge Route was not measured.

***Developing the Traffic Model***

The traffic data generated for the purpose and need document emphasized the through "US 23" traffic movement. External-to-external and external-to-internal trips were identified. To accomplish assignments of new alternatives, the remaining internal-to-internal trips also needed to be identified

Travel demand forecasts for the Portsmouth area were developed using the origin-destination survey data, a general roadway inventory, and speed studies. The trip table constructed from the survey data (Table 5) was used to identify trips that currently pass through or are destined for the study area. These data were then put into the TRANPLAN travel demand forecasting software package using the Florida Standard Urban Transportation Model Structure (FSUTMS) interface in order to develop baseline estimates of traffic at the entry and exit points to the study area.

Based on local maps of the study area and the origin-destination survey zone structure, the project team digitized a TRANPLAN network that described the current roadway system in the area. Roadway facility types, signal spacing and number of lanes were all put in to the network using the FSUTMS Facility Type, Area Type, and Number of Lanes. Travel times through the network were compared with field observations to insure that the model was using reasonable input speeds.

After performing a preliminary assignment of through/to trips from the external cordon line survey points, estimates of local background traffic were calculated by comparing expected trips on each roadway with observed traffic counts. To account for the impact of local traffic in the network, estimates of residential and commercial land uses were put in to the FSUTMS trip generation model to generate and distribute local trips. Through an iterative process of adjusting land use and comparing resulting volumes with observed traffic, these trips were calibrated to match observed traffic counts for the base year. Finally, total traffic was assigned to the network to provide a system-wide estimate of delay and route choice.

For future year alternative testing, background and through/to trips were factored for the study area based on predetermined growth rates. The model was then used to assign traffic to the network based on separate local and external trip tables that could be combined to yield a single estimate of VMT and delay. Because the TRANPLAN model is sensitive to the impacts of congestion and alternate paths, it then could forecast the impact of new or widened facilities on the rest of the roadway system in the Portsmouth study area.

The first product of the model is a scale line diagram with the known traffic volume printed side by side with the model-generated numbers. The model is adjusted to closely match the existing known traffic volumes. In addition to the total volumes, this same drawing is prepared for the subcategories of external-external, external-internal, internal-internal, and totals. Both current year and 2025 design year runs are made. The total run of 8 drawings is attached. The "8" refers to Alternative Concept No. 8, which is the "no build" alternative. All subsequent model runs are compared to these "no build" alternatives.

***Traffic Modeling of Alternatives***

There are 7 build alternatives that were compared to the current and design year "no build" traffic. The 7 build alternatives considered are as follows:

1. Feurt Hill (Freeway)
2. Inner Corridor (Freeway)
3. Airport (Freeway)
4. West Bypass (Freeway)
5. Airport Arterial
6. SR 104 Arterial
7. US 23/52 (Traffic and Safety Improvements)

Descriptions and mapping of the 7 build alternatives are included in the feasibility report.

The traffic model was run for each of the 7 build alternatives. Each alternative was run for both the current year traffic and design year traffic. Individual runs were made for the external-external, external-internal, internal-internal and total movements. This results in 8 runs for each alternative. All 64 runs are attached where "1" through "8" refer to the alternatives.

Each of the 64 model runs has a report associated with it. The cost/benefit analysis in the Feasibility Report uses two key data items generated in those reports. The first item is the 24-hour vehicle hours driven. This number is the summation of all of the vehicle hours driven within the study area. The same information is generated for vehicle miles traveled. This number represents the total vehicle miles traveled by all vehicles within the study area in a 24-hour period.

The difference in vehicle hours or miles traveled between any alternative and the no build alternative is the time-saved or mileage-saved benefit for that alternative in a 24-hour period. The results of these calculations are presented in Table 11.

**Table 11: VHT and VMT 24-Hour Totals for Entire Network**

| Alternative | Name | VHT with Alternative | Change from No Build | VMT with Alternative | Change from No Build |
|---|---|---|---|---|---|
| **Model Results for 2000** | | | | | |
| Alt 1 | Feurt Hill | 28032 | -1192 | 1099436 | -29033 |
| Alt 2 | Inner Corridor | 29259 | 35 | 1147449 | 18980 |
| Alt 3 | Airport | 28214 | -1010 | 1117918 | -10551 |
| Alt 4 | West Bypass | 28975 | -249 | 1131924 | 3455 |
| Alt 5 | Airport Arterial | 28703 | -521 | 1134190 | 5721 |
| Alt 6 | SR 104 Arterial | 28775 | -449 | 1135047 | 6578 |
| Alt 7 | Traffic and Safety | 28938 | -286 | 1128638 | 169 |
| Alt 8 | No Build | 29224 | 0 | 1128469 | 0 |
| | | | | | |
| **Model Results for 2025** | | | | | |
| Alt 1 | Feurt Hill | 34491 | -3223 | 1378578 | -35699 |
| Alt 2 | Inner Corridor | 36211 | -1503 | 1438536 | 24259 |
| Alt 3 | Airport | 35378 | -2336 | 1416542 | 2265 |
| Alt 4 | West Bypass | 37628 | -86 | 1422671 | 8394 |
| Alt 5 | Airport Arterial | 37042 | -672 | 1426807 | 12530 |
| Alt 6 | SR 104 Arterial | 35378 | -2336 | 1416542 | 2265 |
| Alt 7 | Traffic and Safety | 37319 | -395 | 1416693 | 2416 |
| Alt 8 | No Build | 37714 | 0 | 1414277 | 0 |

Another product of the model is a table of the time required to travel through the study area via each of the alternatives.

| Alternative | Through Travel Time |
|---|---|
| Feurt Hill Bypass | 26:30 |
| Inner Bypass | 28:00 |
| Airport Bypass | 23:00 |
| West Bypass | 31:30 |
| Airport Arterial | 32:30 |
| SR 104 Arterial | 32:00 |
| US 23/US 52 Upgrade | 37:36 |

***Critique of Model***

The model was able to duplicate existing traffic data as measured by 24-hour mechanical counts within acceptable tolerances. Unusual results were sometimes noticed in the design year due to the two growth factors producing non-linear growth results on many links. This produces unexpected, (but not incorrect) diversions and assignments in some alternatives. The traffic diversion to each alternative for the most part seemed reasonable and logical. One exception was the West Bypass where the model had a difficult time recognizing that the alternative had any benefit at all over the existing routing. This resulted because of the difficultly in programming the typical motorist's aversion to traveling a narrow, congested sub-link such as US 23 on the north side of Portsmouth when travel times are nearly equal.

## ADT by Alternative

### Existing Year

| | | Feurt Hill | Inner Corridor | Airport | West Bypass | | | |
|---|---|---|---|---|---|---|---|---|
| Sections | No Build | Alt 1 | Alt 2 | Alt 3 | Alt 4 | Alt 5 | Alt 6 | Alt 7 |
| A1 | 9,398 | 7,838 | 9,117 | 7,802 | 9,230 | 9,044 | 10,780 | 9,144 |
| A2 | 7,200 | 5,400 | 7,200 | 5,400 | 8,200 | 7,000 | 8,200 | 7,200 |
| B1 | 15,621 | 16,299 | 18,208 | 9,561 | 17,080 | 13,761 | 15,717 | 16,796 |
| B2 | 16,614 | 15,713 | 16,880 | 15,087 | 15,003 | 15,713 | 15,407 | 17,482 |
| B3 | 7,379 | 8,800 | 3,689 | 7,800 | 9,100 | 9,100 | 9,100 | 6,200 |
| B4 | 15,800 | 14,200 | 26,557 | 13,400 | 17,300 | 16,100 | 17,300 | 13,500 |
| C1 | 15,500 | 15,500 | 14,600 | 15,600 | 14,600 | 15,300 | 14,600 | 15,700 |
| C2 | 21,400 | 21,000 | 20,124 | 22,400 | 20,400 | 21,100 | 20,700 | 23,600 |
| C3 | 23,951 | 20,764 | 13,258 | 16,538 | 22,256 | 20,622 | 22,304 | 26,269 |
| C4 | 27,600 | 29,200 | 16,600 | 30,200 | 26,100 | 27,300 | 26,100 | 30,000 |
| D1 | 9,413 | 2,400 | 2,400 | 2,600 | 8,813 | 6,264 | 7,664 | 8,664 |
| D2 | 14,600 | 8,600 | 8,400 | 8,200 | 14,100 | 11,400 | 14,200 | 14,600 |
| E1 | 5,634 | 3,774 | 3,080 | 1,235 | 5,589 | 7,980 | 5,359 | 5,740 |
| E2 | 4,961 | 4,506 | 4,547 | 899 | 5,536 | 9,827 | 4,961 | 4,865 |
| Alt 1 | --- | 10,281 | --- | --- | --- | --- | --- | --- |
| Alt 2 | --- | --- | 10,164 | --- | --- | --- | --- | --- |
| Alt 3 | --- | --- | --- | 15,905 | --- | --- | --- | --- |
| Alt 4 | --- | --- | --- | --- | 3,000 | --- | --- | --- |

### Design Year: 2025

| | | Feurt Hill | Inner Corridor | Airport | West Bypass | | | |
|---|---|---|---|---|---|---|---|---|
| Sections | No Build | Alt 1 | Alt 2 | Alt 3 | Alt 4 | Alt 5 | Alt 6 | Alt 7 |
| A1 | 10,359 | 9,820 | 10,490 | 9,799 | 11,573 | 10,739 | 12,570 | 10,896 |
| A2 | 8,597 | 6,975 | 8,427 | 7,000 | 11,200 | 8,600 | 9,309 | 9,300 |
| B1 | 21,657 | 22,903 | 25,002 | 12,009 | 20,851 | 17,013 | 19,665 | 21,532 |
| B2 | 16,914 | 17,852 | 21,035 | 20,082 | 19,082 | 20,282 | 18,470 | 19,277 |
| B3 | 9,445 | 9,077 | 13,238 | 11,600 | 8,445 | 8,945 | 8,345 | 11,200 |
| B4 | 18,042 | 16,052 | 27,939 | 18,400 | 22,900 | 20,700 | 17,654 | 20,600 |
| C1 | 18,683 | 19,250 | 18,791 | 19,400 | 17,700 | 18,700 | 18,914 | 18,900 |
| C2 | 27,438 | 27,715 | 30,461 | 24,800 | 24,500 | 24,700 | 28,557 | 26,000 |
| C3 | 32,133 | 28,977 | 24,401 | 20,884 | 27,782 | 24,053 | 32,556 | 30,791 |
| C4 | 37,661 | 39,651 | 27,436 | 37,200 | 32,800 | 34,900 | 38,049 | 35,200 |
| D1 | 12,520 | 2,145 | 2,067 | 3,700 | 10,407 | 6,721 | 10,937 | 10,421 |
| D2 | 20,029 | 9,901 | 9,657 | 8,700 | 15,700 | 13,000 | 19,287 | 15,718 |
| E1 | 6,992 | 4,696 | 4,962 | 1,717 | 6,930 | 11,828 | 7,091 | 7,289 |
| E2 | 6,756 | 4,994 | 5,187 | 1,025 | 6,856 | 14,117 | 6,512 | 6,681 |
| Alt 1 | --- | 14,707 | --- | --- | --- | --- | --- | --- |
| Alt 2 | --- | --- | 13,325 | --- | --- | --- | --- | --- |
| Alt 3 | --- | --- | --- | 19,528 | --- | --- | --- | --- |
| Alt 4 | --- | --- | --- | --- | 4,700 | --- | --- | --- |

(The ADTs were calculated from the Traffic Model data)

Table I-3 shows the current level of service for each of the fourteen links. It also shows the US 23 through traffic and total through traffic on each link. Table I-3 shows the same data expanded for the 2025 design year. The design year projections use a 0.50% growth factor for internal-internal and external-internal trips. A 1.0% growth factor is used for external-external trips. The results from Table I-3 are also mapped on Figure I-4. The mainline capacity analysis shows that traffic is distributed over the six through routes, resulting in no substantial congestion on any one of the links. For design year 2025, only two links experience worse than LOS C. Links A-1 and D-2 operate at LOS D, with no links operating at LOS E or F. It should be noted that this mainline analysis does not consider the influence of intersections.

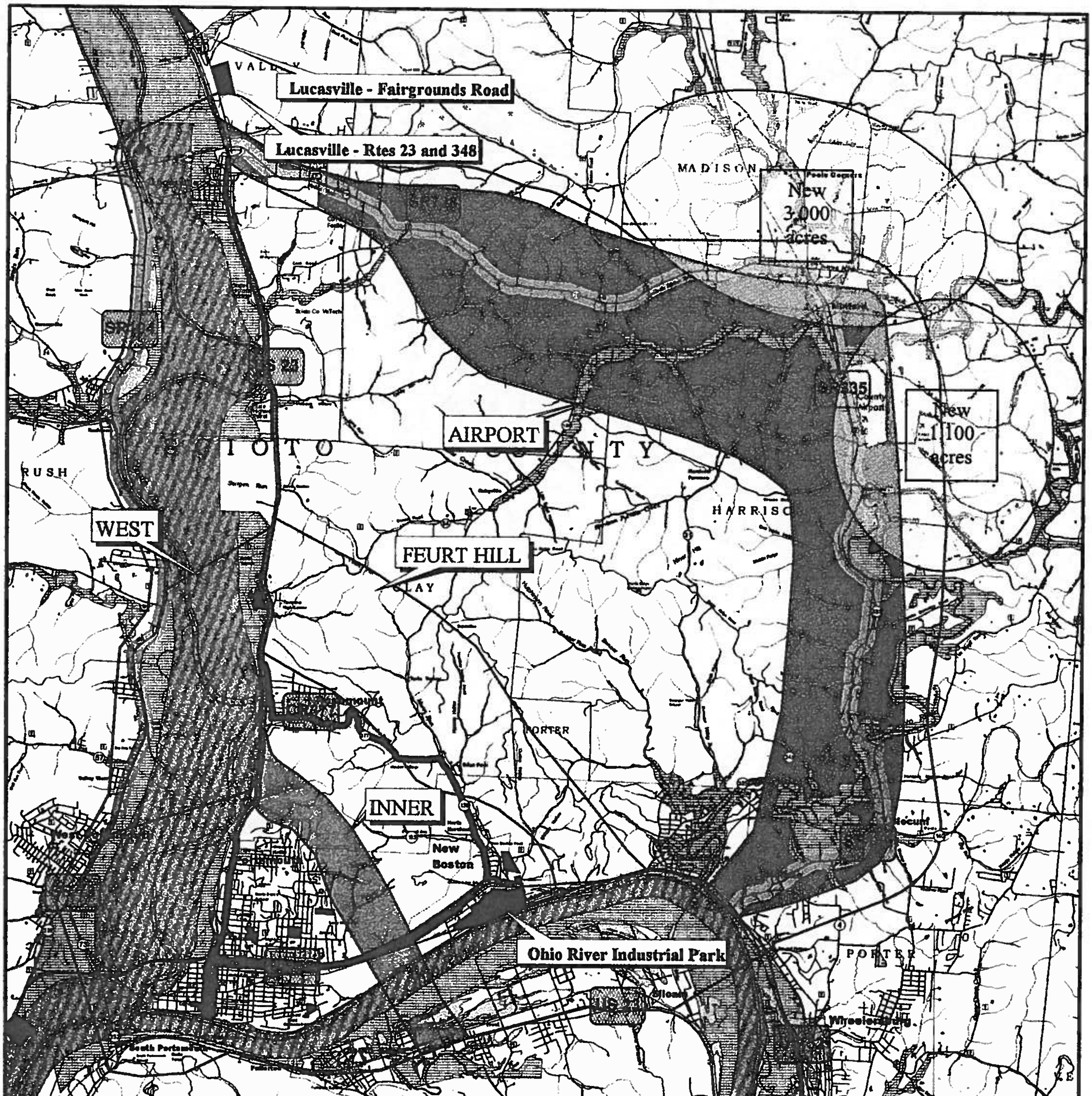
When the intersections are examined, it yields a different result. The signalized intersections are listed in Table I-4. The levels of service for both the current year and the 2025 design year are indicated for each intersection. The intersection capacity analysis shows that one intersection, SR 104 at SR 73, is at Level of Service F with existing traffic volumes. This intersection is not signalized and has poor geometrics. An additional nine intersections, all signalized, will be at Level of Service D, E or F by 2025. The locations of these 10 intersections are shown on Figure I-4. These results show that the maximum efficiency of the six route network will be exceeded.

**Table I-3: Traffic Volume and Mainline Level of Service**

| Link | 1999 Link ADT | Total US 23 E-E Traffic Volumes | All Other E-E Traffic Volumes | Total E-E Traffic Volumes | 2025 Link ADT | 2025 Total US 23 E-E Traffic | 1999 Link LOS | 2025 Link LOS |
|---|---|---|---|---|---|---|---|---|
| A-1 | 10,200 | 3,314 | 2,011 | 5,325 | 12,500 | 4,290 | C | D |
| A-2 | 6,600 | 4,583 | 2,780 | 7,363 | 8,500 | 5,940 | A | B |
| B-1 | 14,100 | 12,624 | 0 | 12,624 | 18,100 | 16,350 | A | A |
| B-2 | 27,300 | 9,615 | 5,833 | 15,448 | 33,500 | 12,450 | B | C |
| B-3 | 11,400 | 3,000 | 1,820 | 4,820 | 13,800 | 3,890 | C | C |
| B-4 | 13,500 | 7,583 | 4,601 | 12,184 | 17,300 | 9,820 | A | A |
| C-1 | 16,900 | 1,269 | 770 | 2,039 | 19,600 | 1,640 | B | B |
| C-2 | 32,000 | 5,346 | 3,243 | 8,589 | 37,800 | 6,920 | B | C |
| C-3 | 24,700 | 8,355 | 5,069 | 13,424 | 30,200 | 10,820 | B | B |
| C-4 | 14,300 | 9,475 | 5,748 | 15,223 | 18,500 | 12,270 | A | A |
| D-1 | 8,000 | 3,009 | 1,826 | 4,835 | 9,900 | 3,900 | B | C |
| D-2 | 15,000 | 3,009 | 1,826 | 4,835 | 17,900 | 3,900 | C | D |
| E-1 | 5,600 | 1,120 | 679 | 1,799 | 6,700 | 1,450 | B | B |
| E-2 | 4,000 | 1,120 | 679 | 1,799 | 4,900 | 1,450 | B | B |

Source: Gannett Fleming, 1999

**Figure X-8: Northern Map of Economic Development Areas, Existing and New**




Source: Scioto County Economic Development Office, 2000

*Recommendations*

The Portsmouth Transportation Study examined the needs of the Portsmouth area without any bias as to what specific need or needs must be addressed by any proposed solution. This approach allowed the local community and ODOT to examine the data and determine what needs should be addressed by a transportation investment within the area.

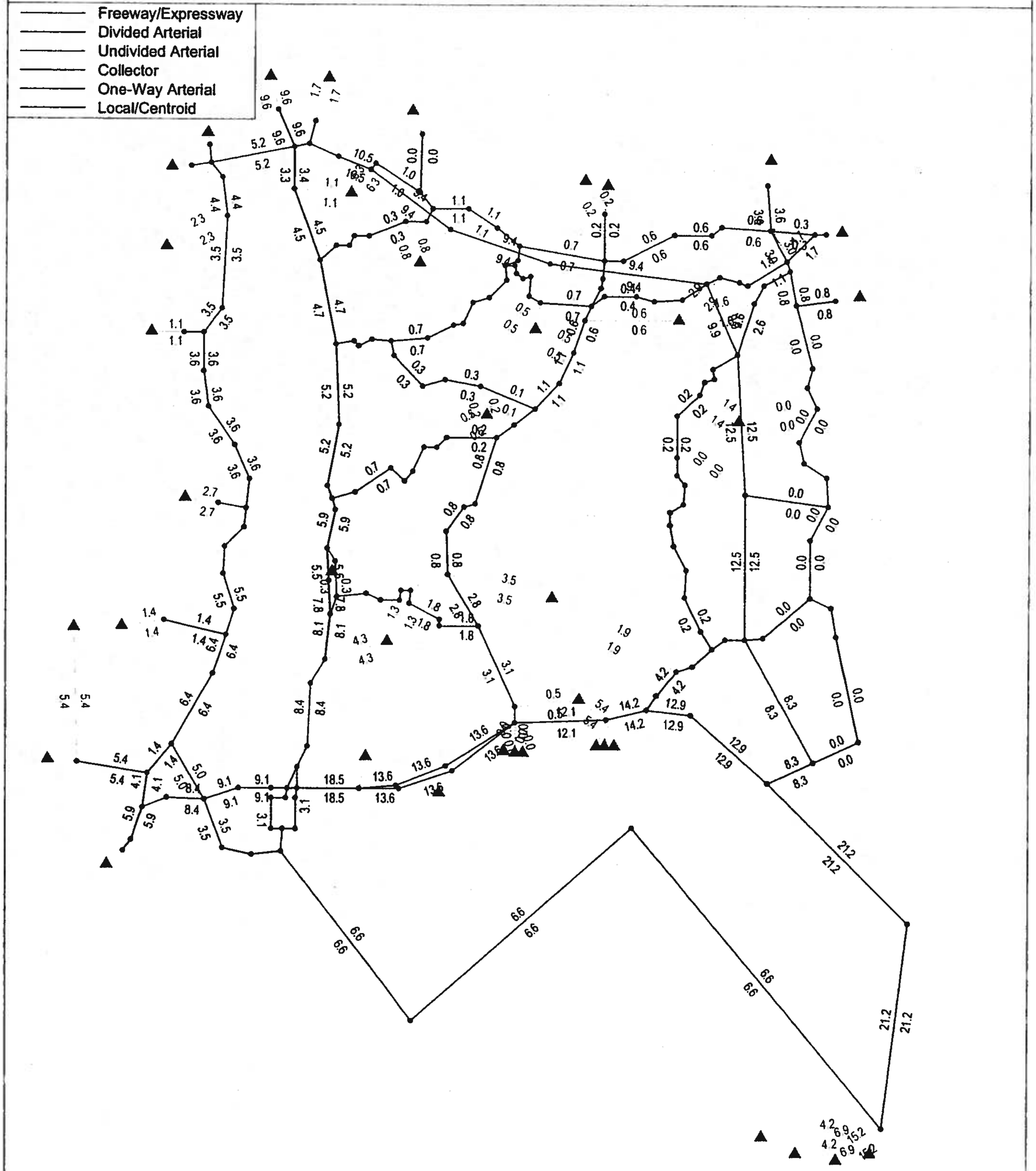
Based upon the initial results during the comparison of all eight alternatives, the Airport Bypass substantially outperformed the Feurt Hill Bypass in meeting each identified need. The Feurt Hill Bypass was found to perform better than the Airport Bypass only on measures unrelated to the project need – the total project cost and those measures that are influenced by the total project cost, benefit/cost ratio and net benefit. Based upon refined calculations that better examine their differences, the Airport Bypass performs better in these areas as well. Table X-4 shows the updates of the previous findings. The revised numbers are italicized in blue. The better alternative in each category is shaded.

**Table X-4: Alternative Comparisons—Revised Findings**

| | | Feurt Hill Bypass | Airport Bypass |
|---|---|---|---|
| **Project Cost (2005 dollars)** | | ***$217,000,000*** | ***$157,000,000*** |
| **Travel Time Savings (minutes)** | | 12.22 | 15.72 |
| **Traffic on Bypass (2025)** | | 16,700 | 25,000 |
| **Accident Savings (millions)** | | ***$23.6*** | ***$36.6*** |
| **Financial** | Benefit/Cost | *1.1* | *1.9* |
| | 25-year Total Benefits (millions) | ***$161*** | ***$189*** |
| | Net Benefits (millions) | ***$20*** | ***$92*** |
| **Development Potential** | Acreage | 916 | 2,016 |
| | Jobs | 1,948 | 5,798 |
| | Payroll (millions) | $60 | $156 |

Gannett Fleming, 2001

# Alt 3- Total Traffic Volume (1000s)
## s:\PROJECTS\ww\ohio\network\ALT3rev\HRLDXY.A25 , Tue 09 May 2000
## REVISED




Portsmouth, Ohio PD&E Study
GF Job # 36612.221
Viper Software by The Urban Analysis Group

PER 10/16/02 conversation
w/ Aaron Gilliott of Tangstens

Use US23 value N of SR 348
for [illegible] 13.46 → 14.30
~~[illegible]~~ X .6 = .08

default .10/.55

[signature]