CHAPTER 3 • EXISTING CONDITIONS

3-0 Existing Conditions

This project involves a comprehensive study of the US 35 corridor in Montgomery County. This section of US 35 is a limited access, divided roadway that includes several full and partial interchanges between I-675 and I-75.

The corridor is important to the region as indicated by its identification as a “Macro-Corridor” in the Access Ohio transportation plan. It provides east-west connectivity between two vitally important interstate systems I-75 and I-675. While this macro corridor serves as the primary east/west connector through the Greater Dayton region, it is also a vitally important link between the cities of Moraine, Oakwood, Kettering, and Beavercreek.

The US 35 corridor serves as both a local and national travel connection. Local traffic utilizes US 35 to reach surrounding neighborhoods and other local amenities while the direct connections to both I-75 and I-675 support more regional and national travel patterns. Although local travel patterns are observed on US 35, recurring peak hour congestion has led many citizens to avoid the facility completely. The resulting travel patterns have increased congestion and pavement wear on the adjacent neighborhood streets that are not designed to accommodate the traffic load. Due to their neighborhood configurations, these alternative routes also do not serve as effective east-west connectors for traffic from out lying communities. A cost-effective modernization of US 35 requires a comprehensive look at these localized east-west connections such as Patterson Road, Stewart Street, and Linden Avenue.

Modernization of US 35 and the overall corridor between I-75 and I-675 will provide opportunities for improved connectivity and efficiency but must meet the economic and environmental constraints of the implementing agencies and neighborhoods. Balancing these opportunities and constraints, while building consensus for the improvements, is one of the most critical steps within the MOT/GRE Corridor Study. Strong local and political consensus is also particularly key to the funding and implementation of proposed projects in our current economic setting. ODOT’s current plans for the upgrade of portions of US 35 require validation and possible modification through this study.

Issues initially identified by the study team and supported by public involvement activities include safety, lane continuity, peak-hour congestion, signal timing at key local feeders and effective pedestrian access to both sides of the US 35 corridor.

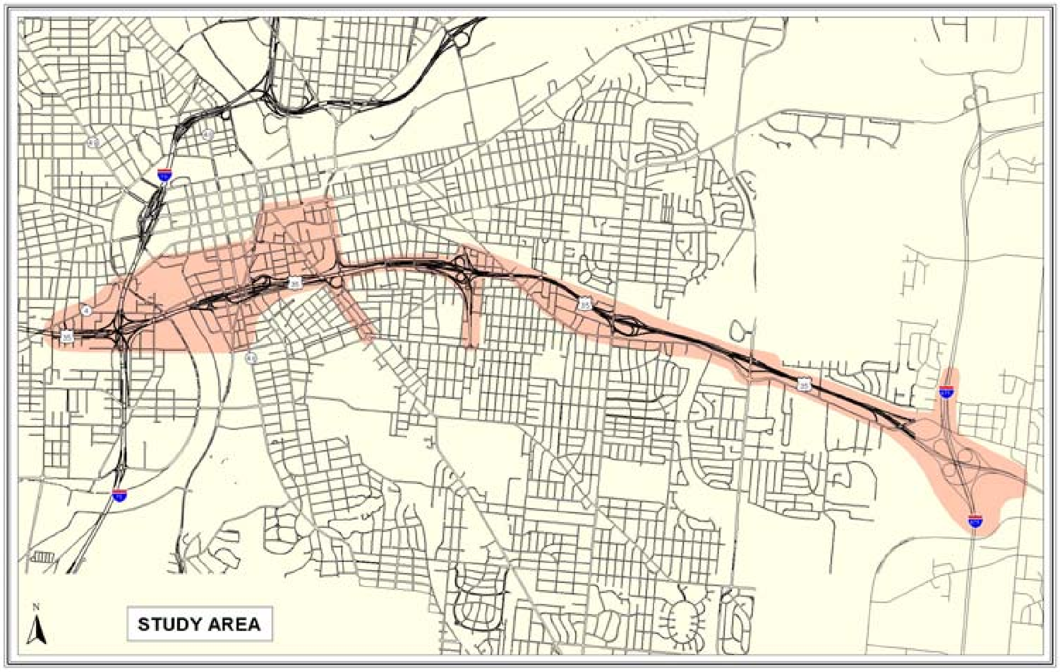
Left hand entrance and exit ramps as well as a partial eastbound truck lane contribute to lane continuity and safety issues within the corridor. In addition, signal timing issues on Smithville Road, Woodman Drive and at the Main Street/Patterson Boulevard intersection also contribute to main-line congestion.

The study area, shown in Figure 3-1, is bounded by I-75 to the west and I-675 to the east. It includes the US 35 corridor as well as adjacent roadways and other transportation facilities. Specific roadways within the study area include Patterson Boulevard Road, Main Street, Fifth Street, Wayne Avenue, Keowee Street, Linden Avenue, Wyoming Street, Xenia Avenue, Steve Whalen Boulevard, Smithville Road, Woodman Drive and others.

The study area includes the cities of Dayton, Riverside and Beavercreek as well as the counties of Montgomery and Greene. Other neighborhoods within the city of Dayton include the Oregon District, South Park, Newcom Plain, St. Anne’s Hill, Twin Towers, Belmont, Eastmont and Hearthstone.

This study area is mostly urban in nature closer to the west and gradually turning into more of a suburban nature in the eastern part of the corridor.

Figure 3-1 Study Area



3-1 Socio-economic Profile

The project area is located in southwestern Ohio in Montgomery and Greene counties. Specifically, the project area covers portions of the City of Dayton and the City of Riverside in Montgomery County and the City of Beavercreek in Greene County.

The full study area extends west, beyond the I-75 interchange, roughly to the area of Germantown Road. The northern boundary of the study through the Central Business District is Fifth Street, extending north to Third Street at Patterson Avenue and continuing along Third Street, including Keowee Street. West of Keowee, the northern study area boundary closely follows the right-of-way line to Steve Whalen Boulevard, including the intersection with Hamilton Avenue and including the Creekside Bicycle/Pedestrian Trail eastward to and including the full. I-675 interchange. The southern boundary of the study includes the Patterson Avenue/Main Street; Keowee Street/Wyoming Avenue and Steve Whalen Boulevard/Wyoming Avenue intersections. West of the Steve Whalen Boulevard interchange the southern boundary of the study area follows Linden Avenue through the I-675 interchange. The eastern boundary of the study in roughly at Grange Hall Road.

This secondary source literature review considered the following data for the study area:

- Population comparisons and characteristics
- Land uses and community and social resources
- Predominant industries and employment statistics

3-1a Population Comparisons and Characteristics

Montgomery County increased in population from approximately 130,000 to 600,000 from 1900 to 1970 at which point, the population dropped and has remained steady at around 560,000 in 2000. Greene County, on the other hand, is much smaller in population, remaining at around 30,000 from 1900 to 1940. From 1940 to 2000, Greene County showed a population growth increase up to approximately 148,000. The State of Ohio experienced a similar growth curve to that of Montgomery County. However, after 1970 the State did not decrease in size but remained steady into 2000 at around 11 million. At the City and Township level, the City of Dayton is by far the largest in population at approximately 165,000 in 2000. Figures 3-2 and 3-3 show both local and state population trends.

Figure 3-2 Population Growth from 1900 to 2000 for Montgomery and Greene Counties

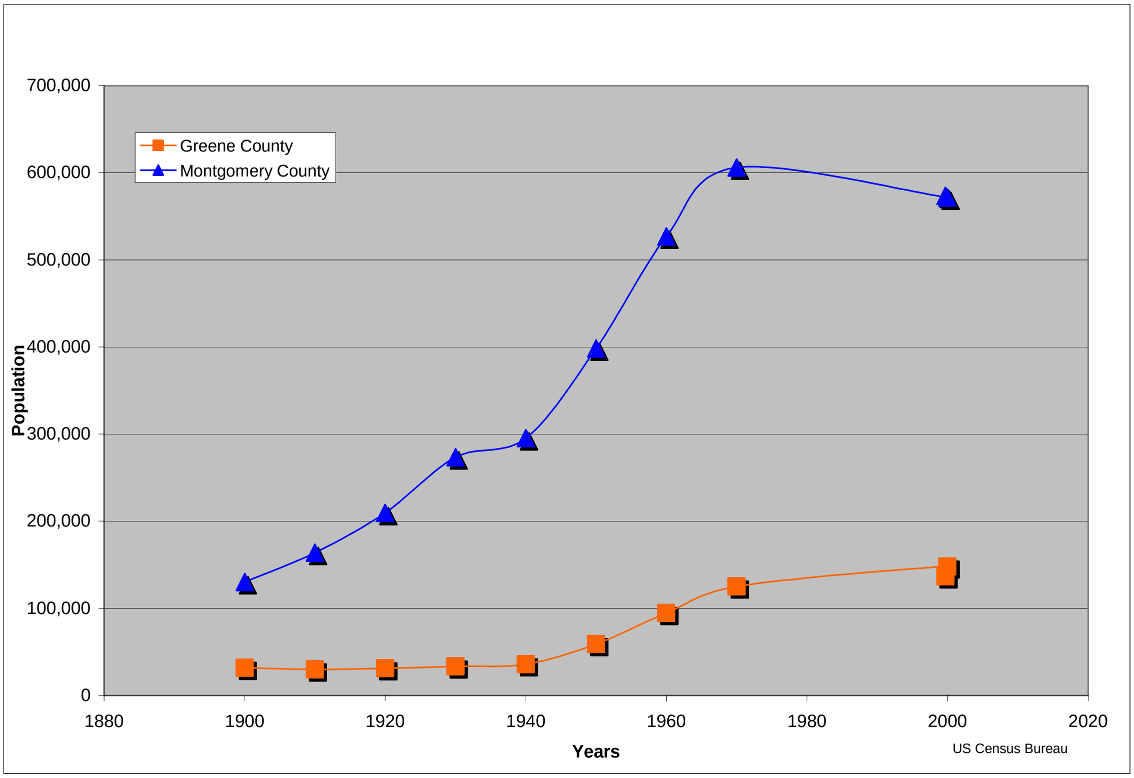
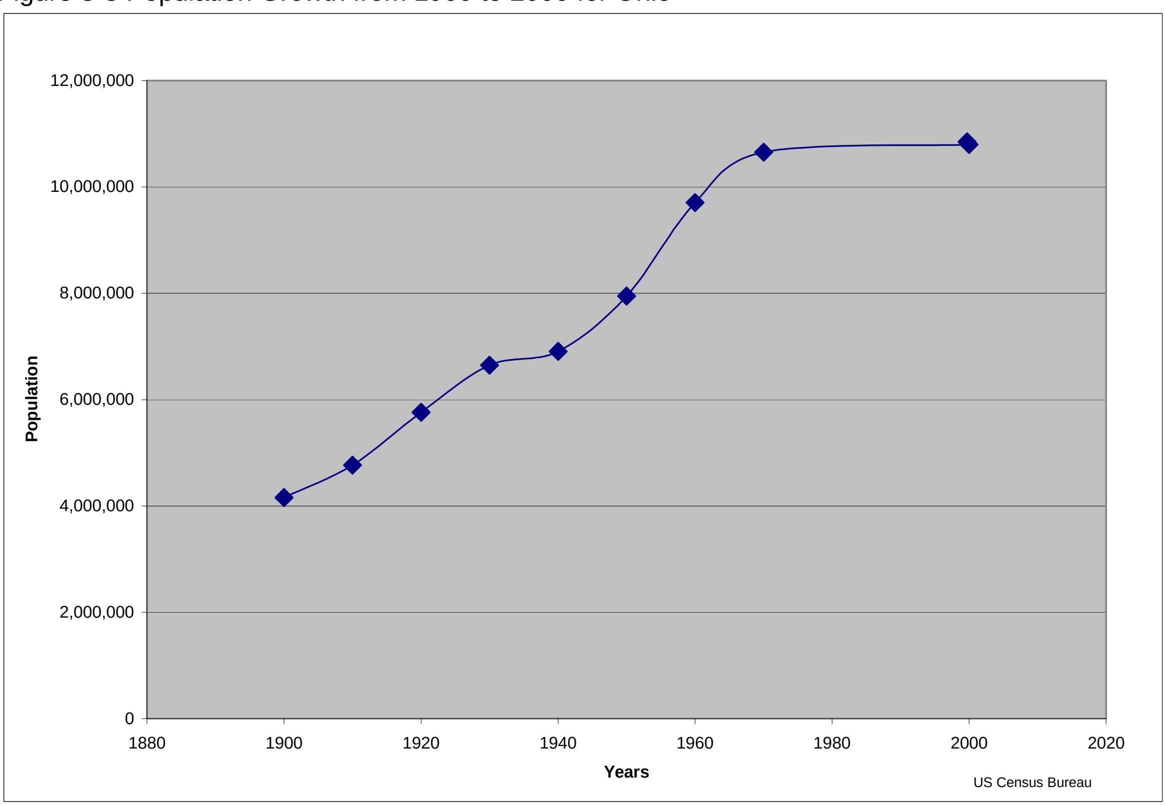


Figure 3-3 Population Growth from 1900 to 2000 for Ohio



Other population characteristics were compared between the State, County, and City levels. As can be seen in Figure 3-4, the State of Ohio, along with the two counties and three cities in the study area were predominately white in 2000. Montgomery County and the City of Dayton both have substantial Black/African American populations of 20% and 43%, respectively; the City of Beavercreek has a substantial Asian population (3.5%); and the City of Riverside has a substantial population of two or more races (1.7%). The 1999 percentage of the population below the poverty level in Ohio was 10%. In comparison, Montgomery and Greene counties were somewhat comparable at 11.3% and 8.5%, respectively. The City of Dayton had the only substantial percentage in the study area at 23%. The remaining areas were at or below the State percentage. The 2000 percentage of people with a disability in Ohio was 17%. Montgomery and Greene counties were at or below this percentage at 18% and 14%, respectively. The cities of Dayton and Riverside both had substantial percentages of people with disabilities at 22% and 21%, respectively. The City of Beavercreek was below the State percentage (10%).

Figure 3-5 shows the percentage grouping of the population in the study area by age as compared to the State and counties. The age group from 25-39 contains the highest percentage of population in the State with the age groups from 40 years and older having high percentages also. Montgomery and Greene counties, along with the City of Dayton, mirror the State's percentages for the most part, though Greene County and the City of Dayton do have some higher percentages in the younger age groups than the State. The City of Riverside has a similar age percentage breakdown to the State but also has a high percentage of the population in the 50-64 age group. The City of Beavercreek diverges from the State in that the higher age group percentages are in the older age groups. The 25-39 age group does have a high percentage of the population, but the age groups from 40 years and older contain most of the population. In looking at the elderly population in particular, the 2000 State of Ohio percentage of the population over 65 years of age was 13% (Figure 3-5). Montgomery and Greene counties were both similar to the State at 14% and 12%, respectively. The cities were also similar to the State.

3-1b Land Uses and Community and Social Resources

The study area is composed mainly of commercial, industrial, and residential land uses. A database search of the social services; justice, order, and public safety; churches and schools; sports and recreation; and medical facilities was conducted to locate community resources in the study area.

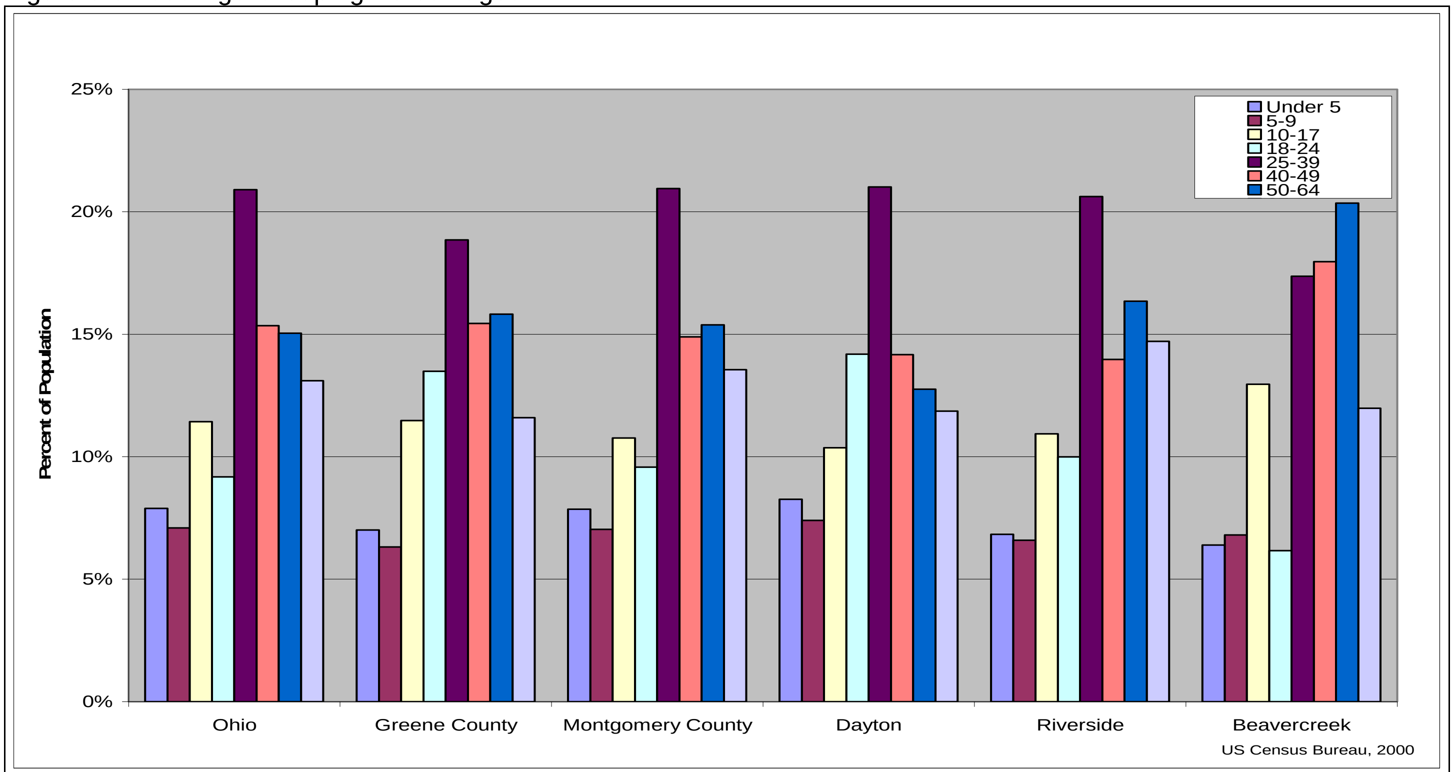
Many different social services were identified, including four individual and family social services, five daycares, and one vocational agency. The following justice, public order, and safety services were identified: one fire department. The following churches and schools were identified: two public schools, ten churches and religious groups, and four cemeteries. The following sports and recreational services were identified: one park. No medical services were identified in the study area.

Within the study area, the Montgomery County Sheriff's Department, Greene County Sheriff's Department, Dayton Police Department, Riverside Police Department, and Beavercreek Police Department provide law enforcement services. The Montgomery County Office of Emergency Management Services, Greene County Emergency Management Agency, Beavercreek Township Fire Department, City of Dayton Fire Department and Riverside Fire Department provide fire and emergency medical services in the study area. The Cancer Treatment Center, Good Samaritan Hospital, Miami Valley Hospital, Kettering Memorial Hospital, Greene Memorial Hospital, and VCR Hospital are nearby hospitals that service the study area.

Figure 3-4 State and Local Population Characteristics

County	Location	Total Persons	Race/National Origin								Age		Disability			Poverty		
			Non-Hispanic							Hispanic								
			White	Black/ African American	American Indian/ Alaskan Native	Asian	Native Hawaiian/ Pacific Islander	Other	Two Or More Races	Total	0-64	65+	With Disability	Without Disability	Unknown	Above Poverty	Below Poverty	Unknown
Montgomery County	Dayton city	166,193	53%	43%	0.3%	0.6%	0.02%	0.3%	1.5%	1.3%	88%	12%	22%	68%	9%	72%	22%	6%
	Riverside city	23,645	89%	5%	0.1%	1.9%	0.00%	0.1%	1.7%	1.7%	85%	15%	21%	71%	8%	89%	10%	1%
	County Total	**559,062**	**76%**	**20%**	**0.2%**	**1.3%**	**0.05%**	**0.1%**	**1.5%**	**1.1%**	**86%**	**14%**	**18%**	**74%**	**8%**	**86%**	**11%**	**3%**
Greene	Beavercreek city	38,183	93%	1%	0.2%	3.5%	0.01%	0.2%	1.2%	1.0%	88%	12%	10%	82%	8%	96%	2%	1%
	County Total	**147,886**	**89%**	**6%**	**0.2%**	**1.9%**	**0.03%**	**0.2%**	**1.8%**	**1.3%**	**88%**	**12%**	**14%**	**78%**	**8%**	**87%**	**8%**	**5%**
State of Ohio	**Totals**	**11,353,140**	**84%**	**11%**	**0.2%**	**1.2%**	**0.02%**	**0.1%**	**1.3%**	**1.9%**	**87%**	**13%**	**17%**	**75%**	**8%**	**87%**	**10%**	**3%**
	Plus 25 Percent	---	---	**14%**	**0%**	**1.4%**	**0.03%**	**0.1%**	**1.7%**	**2.4%**	---	**17%**	**21%**	---	---	---	**13%**	---

Figure 3-5 2000 Age Grouping Percentages



3-1c Predominant Industries and Employment Statistics

The highest percentage of the State's population in 2000 worked in the manufacturing industry (20%). The next largest industries were retail trade (11.9%) and Educational Services (11.7%). The industry employing the largest percentage of the population in Montgomery County was Manufacturing (18.1%). followed by Health Care (12.5%) and Retail Trade (12.1%). In Greene County, Manufacturing employs 13.8% of the County's population, followed by Educational Services (12.6%) and Retail Trade (12.3%). Figures 3-6, 3-7 and 3-8 show this information graphically and in more detail.

Figure 3-6 2000 Employment Industries in the State of Ohio

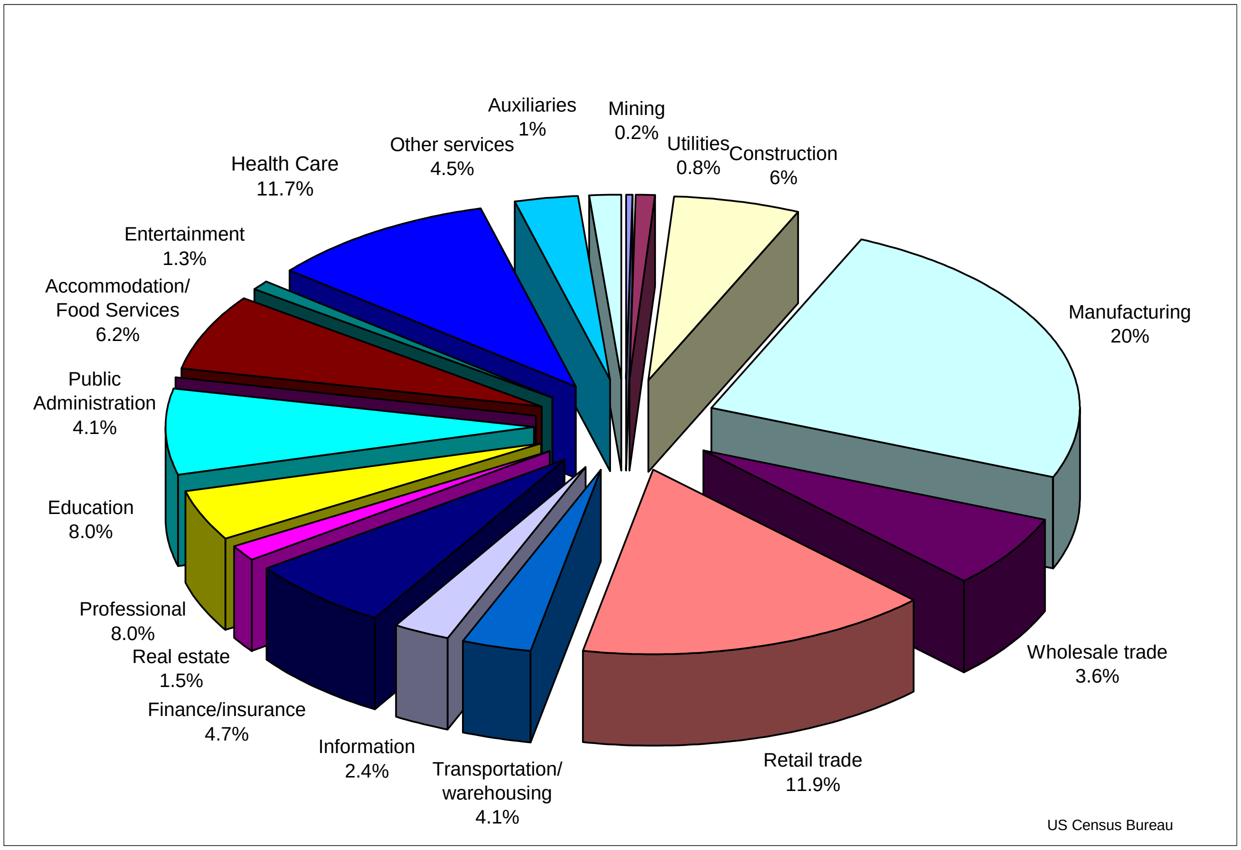


Figure 3-7 2000 Employment Industries for Greene County

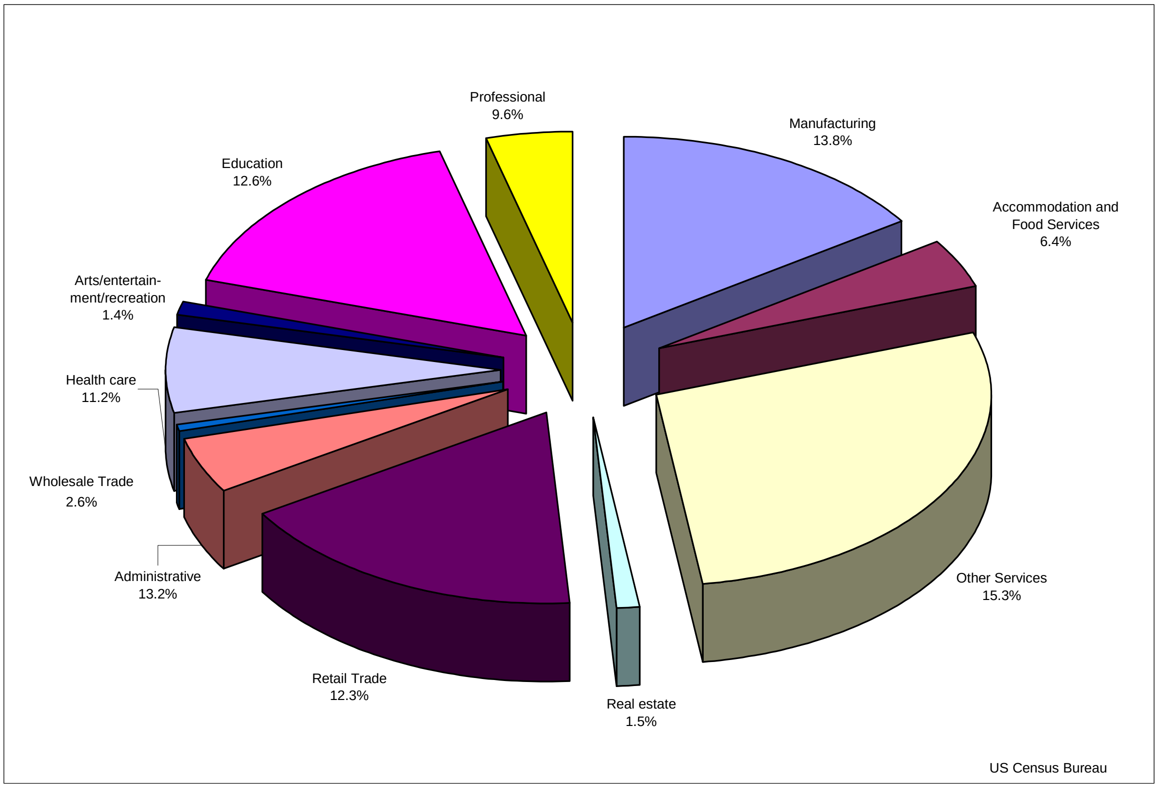
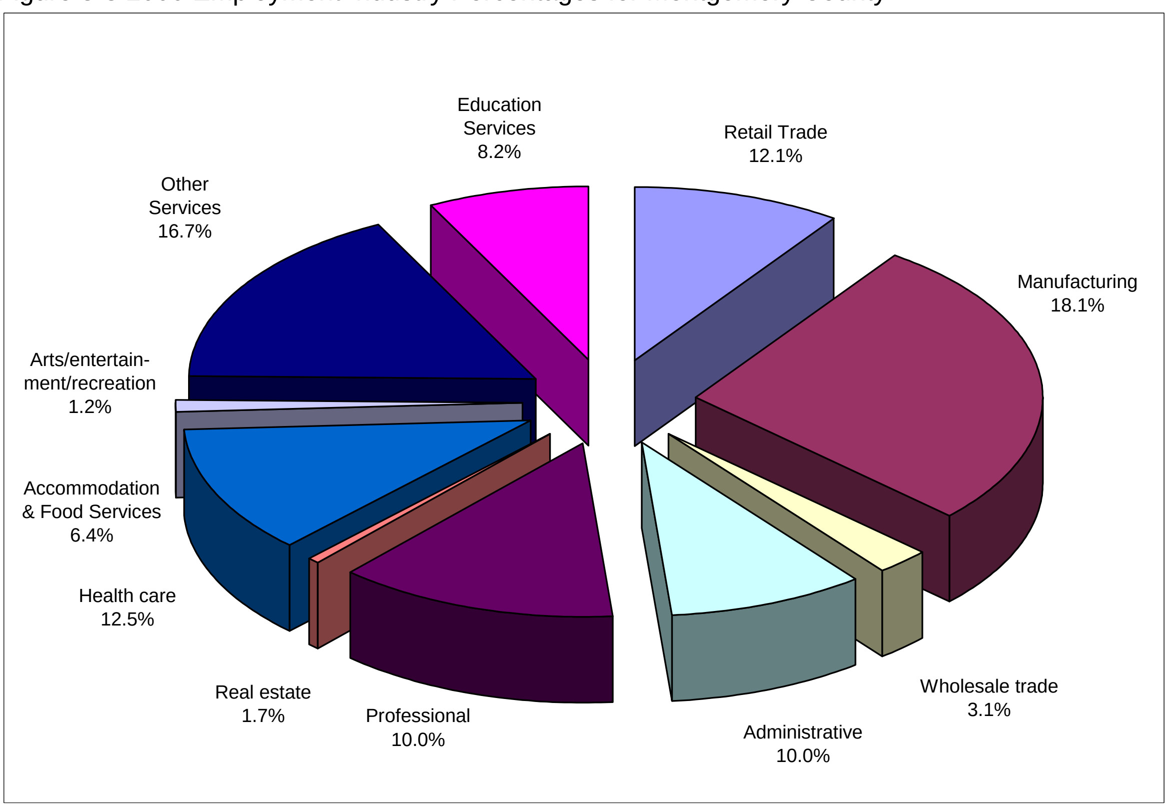


Figure 3-8 2000 Employment Industry Percentages for Montgomery County

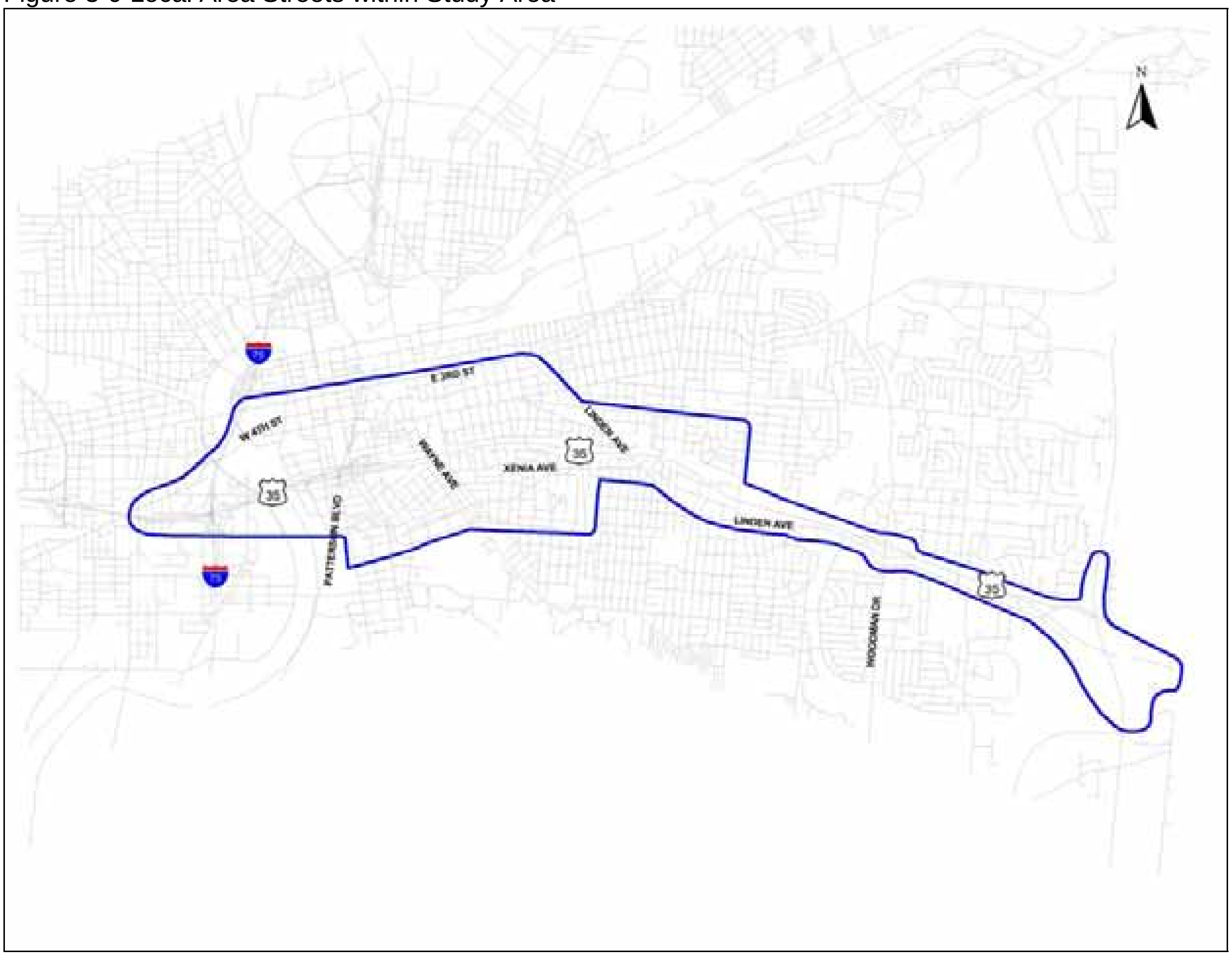


3-2 Transportation Network

The network of transportation options in the corridor includes highway and local road options as well as transit and inter-modal freight options. The importance of US 35 as a regional corridor will continue to grow as sections on either side of the study area continue to be improved. US 35 is a four lane, divided highway with controlled access from I-75 all the way east to the Ohio River, at Gallipolis, except for a short section east of I-675 in Greene County. A separate corridor study on that portion of the US 35 corridor is currently underway.

Locally, US 35 serves as an important east-west connection for work-related trips, particularly during peak hours. Transit routes that provide service to this area are also among the most heavily used, providing connections to employment and business centers such as downtown Dayton, Wright State University and Wright-Patterson Air Force Base. Figure 3-9 is a local street map of the general study area that details some of the listed connections within the study area.

Figure 3-9 Local Area Streets within Study Area



3-2a Study Area Roadways

The study area is bounded by I-75 to the west and I-675 to the east. It includes the US 35 corridor as well as adjacent roadways and other transportation facilities. Specific roadways within the study area include Patterson Boulevard Road, Main Street, Fifth Street, Wayne Avenue, Keowee Street, Linden Avenue, Wyoming Street, Xenia Avenue, Steve Whalen Boulevard, Smithville Road, Woodman Drive, State Route 835 and others.

3-2b Existing Pavement Conditions

Figure 3-10 summaries the most recent ODOT Pavement Condition Ratings (PCR)s. These ratings are based on detailed visual inspection of the conditions of the pavement. The pavement is evaluated in terms of severity and extent of distress. A deduction factor is assigned for each item of distress and subtracted from a base score of 100 points. For example, pavement considered in perfect condition would receive a PCR of 100. Pavement standards, as defined by ODOT, indicate that pavements with a PCR of 65 or lower are considered deficient. This data indicates that the pavement in this study area ranges from a PCR of 70 to a PCR of 93. Therefore, no section in this study area is considered deficient.

Figure 3-10 Pavement Condition Ratings

District	County Code	Route	Direction	Log Begin	Log End	PCR	Date
7	MOT	35	East	15.07	18.23	86	8/1/02
7	MOT	35	West	15.07	18.23	90	8/1/02
7	MOT	35	East	18.23	19.62	88	8/1/02
7	MOT	35	West	18.23	19.62	85	8/1/02
7	MOT	35	East	19.62	20.90	89	8/1/02
7	MOT	35	West	19.62	20.90	89	8/1/02
7	MOT	35	East	20.90	21.20	88	8/1/02
7	MOT	35	West	20.90	21.20	93	8/1/02
8	GRE	35	East	0.00	1.11	75	4/23/03
8	GRE	35	West	0.00	1.11	70	4/23/03

3-3 Maintenance records and maintenance quality survey information

The most recent Traffic Maintenance System (TMS) data has been reformatted from raw data provided by the Ohio Department of Transportation, Office of Maintenance Administration. This information is shown in Figure 3-11, which appears at the end of Chapter 3.

The data provided is limited to oversight and management information because the length of the route included in this study is located in incorporated areas, which are maintained by their respective municipalities. The MOT-35 section from milepost 15.66 to 21.20 is part of the City of Dayton and the GRE-35 section from milepost from 0.00 to 1.07 is part of the City of Beavercreek. The roadway maintenance activities on MOT -35 and GRE- 35 include sign and pavement maintenance and inspection, pothole patching, under-drain maintenance, roadway patrol, traffic control, engineering and inspection.

Bridge maintenance activities on GRE-35 at mileposts 0.08, 0.55, 0.74 and 1.07 include bridge inspection and cleaning and bridge deck repair. This information is summarized in Figure 3-12. The most recent pavement repairs include 2001 MOT-35-15.07-18.27- 13/4 inch asphalt overlay and 1992 GRE-35-0.00-1.07 asphalt overlay depth unknown. Figure 3-13 lists those projects included in ODOT's District Multi-year Work Plan- 2002 Submittal.

Figure 3-12 Bridge Maintenance and Inspection Logs

Bridge Maintenance				
Various Milepost Locations				
02/08/02	Gre 35	0.08	0.55	BRIDGE INSPECTION
02/22/02	Gre 35	0.74	4.55	BRIDGE INSPECTION
05/31/02	Gre 35	0.08	24.5	BRIDGE INSPECTION
09/27/02	Gre 35	0	8	BRIDGE INSPECTION
02/06/03	Gre 35	0.08	1.75	BRIDGE INSPECTION
04/01/03	Gre 35	0	22.11	BRIDGE INSPECTION
Milepost 0.08				
01/28/02	Gre 35	0.08	0.08	BRIDGE INSPECTION
05/30/02	Gre 35	0.08	0.08	BRIDGE CLEANING
08/07/02	Gre 35	0.08	0.08	BRIDGE DECK REPAIR
08/09/02	Gre 35	0.08	0.08	BRIDGE DECK REPAIR
08/10/02	Gre 35	0.08	0.08	BRIDGE DECK REPAIR
08/19/02	Gre 35	0.08	0.08	BRIDGE INSPECTION
02/05/03	Gre 35	0.08	0.08	BRIDGE INSPECTION
Milepost 0.55				
01/28/02	Gre 35	0.55	0.55	BRIDGE INSPECTION
01/29/02	Gre 35	0.55	0.55	BRIDGE INSPECTION
02/07/02	Gre 35	0.54	0.54	BRIDGE INSPECTION
05/17/02	Gre 35	0.54	0.54	BRIDGE CLEANING
01/31/03	Gre 35	0.55	0.55	BRIDGE INSPECTION
03/24/03	Gre 35	0.54	0.54	BRIDGE INSPECTION
Milepost 0.74				
01/29/02	Gre 35	0.74	0.74	BRIDGE INSPECTION
02/05/03	Gre 35	0.74	0.74	BRIDGE INSPECTION
Milepost 1.07				
01/29/02	Gre 35	1.07	1.07	BRIDGE INSPECTION
02/06/02	Gre 35	1.07	1.07	BRIDGE INSPECTION
05/10/02	Gre 35	1.07	1.07	BRIDGE CLEANING
02/05/03	Gre 35	1.07	1.07	BRIDGE INSPECTION
03/18/03	Gre 35	1.07	1.07	BRIDGE INSPECTION

Figure 3-13 Bridge Maintenance Activities

Project	PID	Length	Category	Treatment
MOT-US35-15.07	17067	3.5	Major Rehab	Pavement Overlay
GRE-US35-0.00	24945	1.11	Miscellaneous	Signing
GRE-US35-0.00	24957	1.09	Major Rehab	TBD
GRE-US35-0.08	24957	L and R	Bridge SF# 2902974 and 2902966	Deck overlay/painting
GRE-US35-0.55	24957	L, N, R	Bridge SF# 2903008, 2902990 and 2903016	Deck overlay/painting
GRE-US35-0.74	24957		SF#2903032	Deck overlay/painting

3-4 Existing Bridge Conditions

Figure 3-14 shows a summary of information collected from ODOT Bridge Inventory and Bridge Inspection reports:

Figure 3-14 ODOT Bridge Inventory and Bridge Inspection Reports

Station	Structure Type	Length in Feet/ Number of Spans	Feature Intersected	Sufficiency Rating*	General Appraisal & Operational Status**	Last Inspection Date
MOT 35-15.66	Steel Beam Continuous	139/3	Over: Cincinnati Street	68.2 FO	6 A	08/04/02
15.76 S	Steel Beam Continuous	1430/14	Over: Moses Blvd	74.9 FO	5 A	08/13/02
16.07 N	Steel Beam Continuous	131/3	Over: Perry Street	83	6 A	08/04/02
16.07 L	Steel Beam Continuous	157/3	Over: Perry Street	85.6	5 A	08/04/02
16.07 R	Steel Beam Continuous	305/4	Over: Perry Street	96	6 A	08/04/02
16.19 L	Steel Beam Other	197/3	Over: Ludlow Street	82	5 A	08/04/02
16.19 R	Steel Beam Continuous	248/4	Over: Ludlow Street	96	6 A	08/04/02
16.29 L	Steel Beam Other	722/8	Over: Main Street/ Jefferson Street	84	5 A	08/04/02
16.19 R	Steel Beam Other	264/4	Over: Main Street/ SR48	95	6 A	08/04/02
16.39 C	Steel Beam Other	159/3	Over: Jefferson Street	98	6 A	08/04/02
16.39 R	Steel Beam Continuous	174/3	Over: Jefferson Street	94	6 A	08/04/02
16.39 S	Steel Beam Other	167/3	Over: Jefferson Street	77.7	5 A	08/04/02
16.54 L	Steel Beam Continuous	214/3	Under: RMP=US35*E-(Jeff&Was STS)	94 FO	6 A	09/17/02
16.69	Steel Beam Continuous	453/6	Under: Ped Walkway	n/a	6 A	09/17/02
16.72 N	Steel Beam Continuous	219/3	Over: RMP=Wayne Ave-US35*W	98	6 A	09/17/02
16.9	Steel Beam Continuous	207/3	Over: Wayne Ave	82.5	6 A	09/17/02
16.9 S	Steel Beam Continuous	259/3	Over: Wayne Ave	81	5 A	09/17/02
16.98 S	Concrete Culvert Filled	21/1	Ped XWalk UND RMP	97	7 A	09/17/02
17.04	Steel Beam Continuous	173/4	Over: Keowee Street	49 SD	4 A	09/18/02
17.38	Steel Beam Continuous	305/5	Under: McClure Street	82 FO	6 A	09/18/02
17.58	Steel Beam Continuous	317/4	Under: Boltin Street	98	6 A	09/18/02
17.83 N	Steel Beam Continuous	140/3	Over: RAMP= (SE Expwy*S)-US35*W	98	6 A	09/19/02
17.92	Steel Beam Continuous	1605/19	Over: RMP=Expwy*N-(USR*W K ST)	49 SD	3 A	08/15/02
17.93 S	Steel Beam Continuous	158/3	Over: Xenia Ave UND (US35*E) RMP	55 SD	4 A	09/19/02
17.94 N	Steel Beam Continuous	348/5	Over: SE Expwy (US35*E) RAMP	70.9	6 A	09/19/02
17.94	Steel Beam Continuous	344/6	Over: SE Expwy (US35*E) RAMP	84	5 A	09/19/02
17.97 S	Steel Beam Simple	63/1	Under: Southeast Expwy	59.3 SD	4 A	09/19/02
18.00 S	Concrete Slab Continuous	131/3	Over: Xenia Ave UND Expwy& RMP	90.9	6 A	09/19/02
18. 27	Steel Beam Continuous	225/3	Over: Linden Ave	94 FO	6 A	09/17/02
18.48	Steel Beam Continuous	165/3	Over: Livingston Ave	89 FO	6 A	09/17/02
19.1	Steel Beam Continuous	235/4	Under: Smithville Rd	94 FO	6 A	09/16/02
19.29	Steel Beam Continuous	234/4	Over: RAMP = (Smithvl RD)-US35 *W	94 FO	6 A	09/16/02
19.64 L	Steel Beam Continuous	309/4	Over: AC DR CRR CSRR TRB Mad R	84	5 A	09/16/02
19.64 R	Steel Beam Continuous	309/4	Over: AC DR CRR CSRR TRB Mad R	82 SD	5 A	09/16/02
20.66 L	Concrete Slab Continuous	121/3	Over: C115 (Spinning Rd)	94 FO	6 A	09/16/02

Station	Structure Type	Length in Feet/ Number of Spans	Feature Intersected	Sufficiency Rating*	General Appraisal & Operational Status**	Last Inspection Date
20.66 R	Concrete Slab Continuous	121/3	Over: C115 (Spinning Rd)	82 FO	5 A	09/16/02
GRE 35 - 2.07	Steel Beam Simple	77/1	Over: RAMP= S835*E-US35*W	84	7 A	02/06/02
0.08 L	Steel Beam Continuous	186/4	Over: Day-Xen Rd	94 FO	7 A	01/28/02
0.08 R	Steel Beam Continuous	186/4	Over: Day-Xen Rd	94 FO	7 A	01/28/02
00.55 N	Steel Beam Continuous	433/5	Over: I-675*S RAMP; I-675	98	7 A	01/29/02
00.55 L	Steel Beam Continuous	425/5	Over: I-675*S RAMP; I-675	96.5	7 A	01/28/02
00.55 R	Steel Beam Continuous	414/5	Over: I-675*S RAMP; I-675	96.5	7 A	01/28/02
0.74	Steel Beam Continuous	242/5	Under: RAMP=US35*E- I-675*N	94 FO	7 A	01/29/02

* As of 6-10-03 SD= Structurally Deficient FO= Functionally Obsolete

**Sufficiency Rating:* Sufficiency rating is a measure of a bridge's overall condition, based on regular required inspections. The rating is used to determine when a bridge is eligible for rehabilitation or replacement. A brand new bridge, for instance, would have a sufficiency rating of 100. A sufficiency rating of less than 50 qualifies a bridge replacement using federal funds.

Bridges are structurally deficient if they have been restricted to light vehicles, require immediate rehabilitation to remain open, or are closed. Bridges are functionally obsolete if they have deck geometry, load carrying capacity, clearance or approach roadway alignment that no longer meet the criteria for the system of which the bridge is a part (as listed in the U.S. Department of Transportation web page *Conditions and Performance Report. Chapter 3.* 1999. United States Department of Transportation Federal Highway Administration. 25 Jun. 2003. <http://www.fhwa.dot.gov/policy/1999cpr/ch_03/cpm03_10.htm>

Of the 43 bridges listed above, 42% (18 of 43) are listed as deficient. In this inventory 30% (13 of 43) are listed as Functionally Obsolete, and 12% (5 of 43) are listed as Structurally Deficient. This compares to the state average of 17% deficient (13% Functionally Obsolete and 4% Structurally Deficient, as listed in the U.S. Department of Transportation web page *Deficient Bridges by State and Highway System.* 21 Feb. 2003. United States Department of Transportation. 25 Jun. 2003 <http://www.fhwa.dot.gov/bridge/defbr02.htm>.

*** General Appraisal and Operational Status:* General Appraisal and Operational status is a two part item describing the general, overall condition of the bridge and the operational status of the bridge. The general appraisal is based on the existing condition of the bridge compared to its as-built condition. Load carrying capacity is not used in evaluating general condition. The fact that a bridge was designed for less than current legal loads may be posted, but will it will have no influence upon the condition ratings.

The composition of the 43 bridges listed is as follows: 19% (8 of 43) received a general appraisal rating of 7; 49% (21 of 43) received a general appraisal rating of 6; 23% (10 of 43) received a general appraisal rating of 5; 9% (4 of 43) received a general appraisal rating of 4; and 2% (1 of 43) received a general appraisal rating of 3. All bridges listed as Structurally Deficient received appraisal ratings of 3 or 4. Functionally obsolete structures received ratings varying from 5 to 7. (Percentages were rounded to the nearest whole number.)

Figure 3-15 describes Operational Status codes used (as listed in the “Bridge Inspection Manual”, 2001, Ohio Department of Transportation.

Figure 3-15 Bridge Operational Status Codes

Operational Status Codes	
Code	*Description*
“A”	Open, no restriction
“B”	Open, posting recommended but not legally implemented (all signs not in place)
“D”	Open, would be posted or closed except for temporary shoring, etc. to allow for unrestricted traffic
“E”	Open, temporary structure in place to carry legal loads while original structure is closed and awaiting replacement or rehabilitation
“G”	New structure not yet open to traffic
“K”	Bridge closed to all traffic
“P”	Posted for load-carrying capacity restriction (may include other restrictions)
“R”	Posted for other than load-carrying capacity restriction (speed, number of vehicles on bridge, etc.)
“X”	Bridge closed for reasons other than condition or load-carrying capacity

3-5 Traffic and Accident Data

TRACTAPE Vehicle Crash Data for US 35 through Montgomery and Greene Counties were requested from the Ohio Department of Public Safety (ODPS) in database format. This format provided the appropriate structure, organization and data quality to enable a comprehensive and thorough evaluation of accidents on US 35. The requested data covered five years (i.e., 1998 through 2002) of vehicle crashes on US 35 through Montgomery and Greene Counties. Vehicle crash statistics outside the study area were not considered in the analyses.

The length of the study corridor, and the substantial volume of vehicle crash data available for the corridor, necessitated the division of the corridor into seven roadway segments. The segments were defined by the location of the interchanges since each segment contained one or more interchanges. The segment start and end points were chosen at points between interchanges. Such segment definition allowed all interchanges to be contained within one segment. As a result, their ramp weaving, merging, and diverging sections would be contained – and accounted for – within each roadway segment. The seven segments are defined as follows:

Cincinnati-Perry: (Length=0.51 mi, Start Point=MP 15.53, End Point=MP 16.04);
Perry-Ped Overpass: (Length=0.44 mi, Start Point=MP 16.05, End Point=MP 16.49);
Ped Overpass-McClure: (Length=0.54 mi, Start Point=MP 16.50, End Point=MP 17.04);
McClure-Linden: (Length=1.14 mi, Start Point=MP 17.05, End Point=MP 18.19);
Linden-RR Underpass: (Length=1.22 mi, Start Point=MP 18.20, End Point=MP 19.42);
RR Underpass-GRE Line: (Length=1.79 mi, Start Point=MP 19.43, End Point=MP 21.22)
GRE Line-Grange Hall Rd: (Length=1.07 mi, Start Point= MP 0.00, End Point=MP 1.07)

Six of the segments are located in Montgomery County while GRE Line-Grange Hall Rd is located in Greene County. All milepost numbers reflect Montgomery and Greene County locations respectively.

The ODPS provided the five-year TRACTAPE Data, which are one level higher in terms of data quality and quantity, than typically requested for this type of study. The TRACTAPE Data is in database format, which is more conducive to processing and tabulating than the CQ003 data format, which is the customary format of vehicle crash data requested for accident analyses by the ODPS.

The five-year TRACTAPE Data requested (i.e., 1998-2002) was received in two batches: Batch 1 contained vehicle crash data for years 1998 and 1999, and Batch 2 contained vehicle crash data for years 2000-2002. The two-batch format was necessary because in 2000 the ODPS changed the format that it records and stores vehicle crash data. Therefore, one-on-one data comparisons before and after 2000 were impossible. Furthermore, before-2000 data could not be merged with after-2000 data without making several subjective assumptions. Such subjective assumptions were avoided as much as possible by keeping the data separate. All analyses and data tabulations reflect the above two-batch format.

Vehicle crash data reported in the TRACTAPE Databases are subject to inaccuracies and reflect the level of commitment to detail, completeness, and reporting accuracy of each safety officer called to the scene of a freeway accident. As a result, vehicle crash data records are not always accurate, complete or consistent. Incomplete information – such as the location of the accident, the direction of the first moving vehicle, the first harmful event etc. – is critical in determining if a particular vehicle crash record belongs to the project study area. Lack of such vital information results in the elimination of several – otherwise valid -- data records from the analyses.

A substantial number of vehicle crash data records that did not contain valid location information were eliminated from the analyses, since it was not possible to determine their relevance to the project study area. Therefore, the net number of vehicle crash data records usable and relevant to this project was substantially lower than the number of records received from the ODPS. Furthermore, certain vehicle crash records did not identify the exact location of an incident, especially if the location was a US 35 ramp. Instead the closest milepost reference point, a local landmark, or a crossroad was used as a location reference. Therefore, the TRACTAPE data presented in the following sections should not be considered as a scientifically accurate record of accident locations on US 35, especially when the US 35 ramps are examined. Instead, the accident statistics presented below should be viewed as general indicators of accident patterns along the US 35 corridor rather than scientific field observations.

Vehicle crashes along US 35 in the last five years are graphically illustrated in Figures 3-16 and 3-17. These figures are an appropriate application of the TRACTAPE data since it clearly illustrates general accident patterns along the corridor over the last five years without pinpointing the exact location of each accident, a data attribute that may be somewhat weak. The general trend appears to be that accidents have been either constant or declining despite natural traffic volume increases over time. The only notable exception is GRE Line-Grange Hall Rd:, where vehicle crashes have been increasing during the last five years. During the most recent year that data was available, 2002, vehicle crashes at GRE Line-Grange Hall Rd: have increased substantially.

Since the seven highway segments under consideration are not equal in length and because there are more interchanges at the west end of the study area. Vehicle crashes shown in Figure 3-17 tend to yield higher accident numbers at segments that are longer than others. For example, some eastern segments are twice as long as other on the west, thus the likelihood that accidents would take place there is twice as high.

For a presentation of this information formatted in terms of Accidents per Million Vehicle Miles Traveled (VMT) over the five year data collection period, please see Figure 3-33 and Figure 3-34 at the end of this chapter.

Figure 3-16 Accidents per Highway Segment per Mile

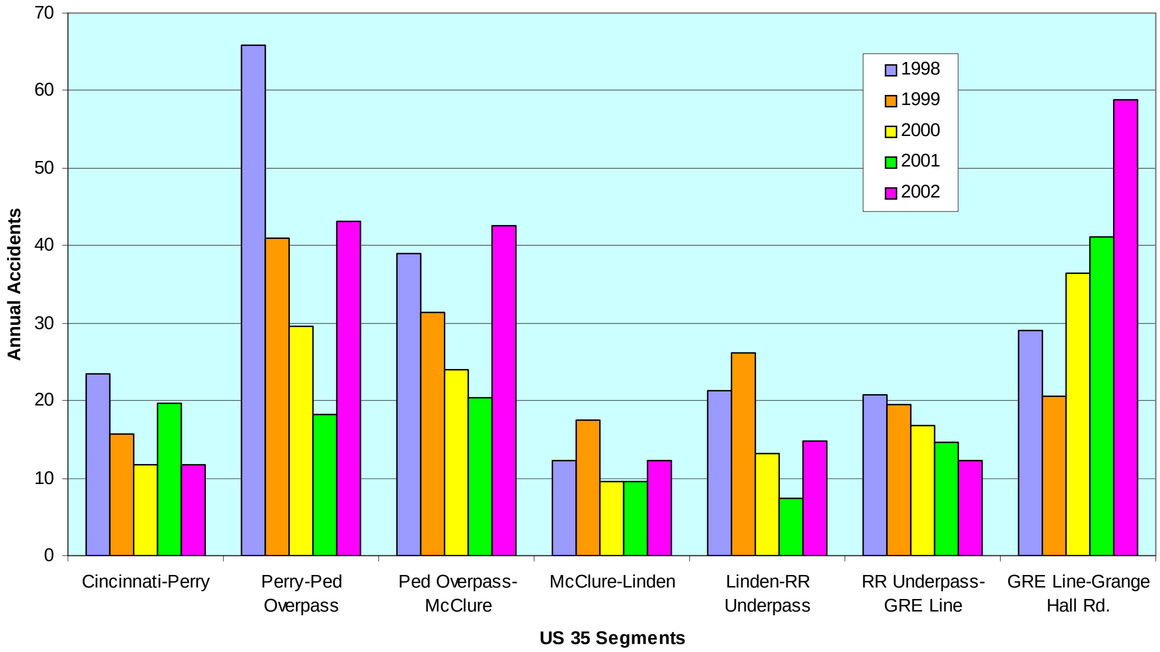
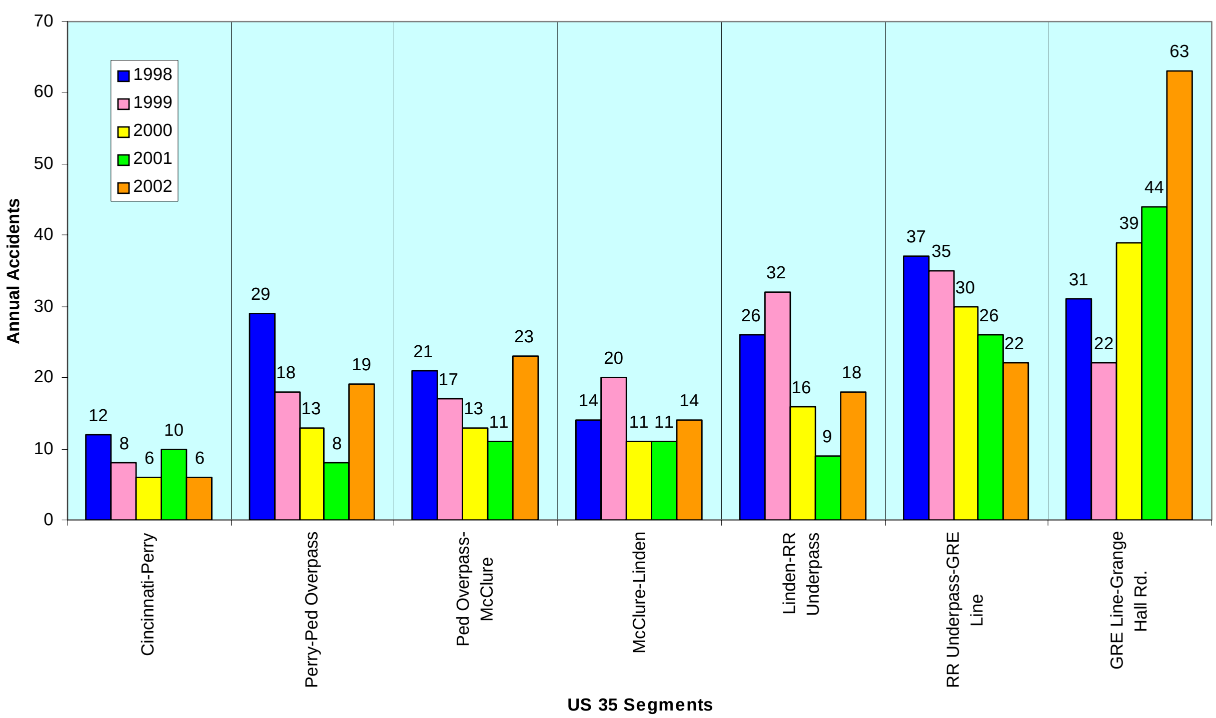


Figure 3-17 Total Accidents per Segment



After the data was normalized and the length of each segment was no longer an issue, it became evident that the complex interchange areas of Perry/Jefferson/Wayne/SR48 and US 35/I-675 yielded the highest number of accidents on a per-mile basis during the last five years. Year 1998, in particular, must have been an extraordinary year in terms of accidents at the Perry/Jefferson/Wayne/SR 48 interchange. Similarly, the US 35/I-675 interchange and its immediate vicinity has been experiencing an increased number of accidents in recent years. The positive observation is that accidents – in general – are either constant or declining over time at the remaining segments of US 35.

The five-year accident statistics for US 35 in the study area, revealed that Rear-End vehicle crashes were the most common type of accident throughout the corridor. Figure 3-18 shows the types of accidents reported on US 35 by segment during the first two years of the five-year period under investigation.

During the 1998-1999, the majority of accidents recorded on US 35 in the study area were Rear End Collisions (i.e., an estimated 38 percent of all accidents). Collisions with fixed objects (e.g., guardrails, sign posts, bridge abatements, trees etc.) were the second most common type of accident on US 35 during the same period, representing an estimated 22 percent of the total number of accidents. Other types of accidents represented smaller percentages of the total, as shown in Figure 3-18.

Figure 3-18 1998-99 Accidents by Type

	Total	**Sideswipe Passing**	**Rear End**	**Collision w/fixed object**	**Angle**	**Sideswipe Meeting**	**Head On**	**Other**
Cincinnati-Perry	20	2	11	6	1			
Perry-Ped Overpass	47	3	10	10	18	1		5
Ped Overpass-McClure	38	2	15	7	9	1	1	3
McClure-Linden	34	1	16	6	2	3		6
Linden-RR Underpass	58	3	28	10	10	1		6
RR Underpass-GRE Line	72	5	38	8	12	3		6
GRE Line-Grange Hall	53	5	4	23	2		3	16
All Segments	322	21	122	70	54	9	4	42

Figure 3-19 2000-02 Accidents by Type

	Total	**Sideswipe**	**Rear End**	**Non-Collision w/ vehicle**	**Angle**	**Head On**	**Collision w/fixed object**
Cincinnati-Perry	22	2	12	6	2		
Perry-Ped Overpass	40	8	11	12	7	2	
Ped Overpass-McClure	47	9	15	16	6	1	
McClure-Linden	36	3	18	11	4		
Linden-RR Underpass	43	3	29	8	3		
RR Underpass-GRE Line	78	5	42	20	9	1	1
GRE Line-Grange Hall	146	10	21	98	14	3	
All Segments	412	40	158	161	45	7	1

Rear-End collisions caused by following too close when traffic is irregular, is a very common reason for accidents on US 35. In an effort to identify potential relationships between Rear-End collisions and traffic congestion on US 35, this type of accidents was examined in terms of what time-of-day they occurred and in what direction of travel on US 35. In addition, Non-Collision with vehicle accidents were also examined to determine potential roadway and highway lighting deficiencies on US 35. The results are summarized in Figures 3-20 through 3-23.

Based on the data of Table 3-20, two time periods of the day – AM and PM Peak – consisting of 7.5 hours account for an estimated 43% of the daily accidents on US 35. When the Lunch/Mid-Day PM period is added, then an estimated 63% of the total accident totals are accounted for. Table 3-20 supports the argument that accidents tend to occur in higher numbers when US 35 is at its busiest time periods of usage. Therefore, the above findings support the conclusion that accidents on US 35 are mostly caused by traffic congestion during the peak commuter time periods rather than specific locations/sections where the highway is deficient.

Figure 3-20 All Accident Types

Time Period	**Description**	**Frequency**	**Percentage**
	Unknown	3	0.00
0:00-5:00	Nighttime	31	0.08
5:01-9:30 (4.5 Hours)	**AM Peak**	**95**	**0.23**
9:31-11:30	Mid-Day AM	36	0.09
11:31-15:30	**Lunch/Mid-Day PM**	**84**	**0.20**
15:31-18:30 (3 Hours)	**PM Peak**	**85**	**0.20**
18:31-21:00	Evening	39	0.095
21:01-23:59	Late Evening	39	0.095
	Total	412	1.00

Note: *Based on Years 2000-2002 data*

Figure 3-21 indicates that Rear-End accidents occur in greater numbers when US 35 is at its busiest hours, and when there is high traffic density on the highway. During such time periods, due to congestion, traffic flows often become irregular, vehicles merge from ramps and diverge onto ramps in greater numbers, all of which are conditions conducive to rear-end accidents. Rear-End accidents occur in greater numbers during the peak periods of the day than all accident types combined. Therefore, Rear-End Collisions are closely related to highway congestion and irregular traffic flows.

Figure 3-21 Rear-End Accidents

Time Period	**Description**	**Frequency**	**Percentage**
	Unknown	3	0.02
0:00-5:00	Nighttime	5	0.03
5:01-9:30	**AM Peak**	41	**0.26**
9:31-11:30	Mid-Day AM	8	0.05
11:31-15:30	**Lunch/Mid-Day PM**	25	**0.16**
15:31-18:30	**PM Peak**	53	**0.34**
18:31-21:00	Evening	13	0.08
21:01-23:59	Late Evening	10	0.06
	Total	158	1.00

Note: *Based on Years 2000-2002 data*

In order to further substantiate the correlation between traffic congestion on US 35 and Rear-End accidents, the data was analyzed separately for the Eastbound and Westbound directions of travel. The orientation of US 35 in the east-west direction and its direct connectivity with the downtown Dayton and various bedroom communities to the east, make US 35 an ideal commuter corridor for downtown workers. The results of the analyses by time-of-day and direction of travel are summarized in Figure 3-22.

Figure 3-22 Rear-End Accidents by Direction of Travel

		Westbound US 35		**Eastbound US 35**	
Time Period	**Description**	**Frequency**	**Percentage**	**Frequency**	**Percentage**
	Unknown	1	0.02	0	0.00
0:00-5:00	Nighttime	3	0.06	1	0.02
5:01-9:30	**AM Peak**	**23**	**0.43**	9	0.15
9:31-11:30	Mid-Day AM	2	0.04	2	0.03
11:31-15:30	**Lunch/Mid-Day PM**	11	0.21	9	0.15
15:31-18:30	**PM Peak**	6	0.11	**33**	**0.56**
18:31-21:00	Evening	4	0.08	2	0.03
21:01-23:59	Late Evening	3	0.06	3	0.05
	Total	53	1.00	59	1.00

Note: *Based on Years 2000-2002 data*

Figure 3-22 supports the conclusion that US 35 in the study area serves as a commuter route of downtown workers. The corridor reaches its highest usage levels during the AM Commuter Peak Period in the westbound direction (i.e., toward downtown Dayton), and during the PM Commuter Peak Period in the eastbound direction (i.e., away from downtown Dayton). As expected, the PM Peak Period is higher than the AM Peak Period. Therefore, US 35 the study area exhibits typical commuter route accident patterns, including a higher concentration of Rear-End accidents during the busiest time periods of a typical weekday.

Non-collisions with vehicle usually consist of collisions with fixed objects located in the general vicinity of the highway and as such they tend to occur during night time hours, dusk, or dawn when light is limited, when driver vision is obscured by vehicles in front, and possibly when drivers are tired or sleepy (i.e., mostly night time hours). Non-collisions with vehicle were analyzed separately from other types of accidents on US 35 in order to substantiate whether there are any correlations between the accident data and the time of day when the vehicle crash occurred. This data is summarized in Figure 3-23.

Figure 3-23 Non-Collision with Vehicle Accidents

Time Period	**Description**	**Frequency**	**Percentage**
	Unknown	2	0.01
0:00-5:00	**Nighttime**	**27**	**0.17**
5:01-9:30	**AM Peak**	**36**	**0.22**
9:31-11:30	Mid-Day AM	17	0.11
11:31-15:30	**Lunch/Mid-Day PM**	**32**	**0.20**
15:31-18:30	PM Peak	14	0.09
18:31-21:00	Evening	17	0.11
21:01-23:59	Late Evening	16	0.10
	Total	161	1.00

Note: *Based on Years 2000-2002 data*

Figure 3-23 indicates that an estimated 17% of total accidents and almost 60% of Non-Collision with Vehicle Accidents occurred during the night time hours, when traffic flows on US 35 are at their lowest. When AM Peak, Evening and Late Evening hours are added – and when darkness prevails during the late fall and winter months – almost 60% of the daily total of Non-Collision with Vehicle Accidents can be accounted.

Each direction of travel of US 35 was analyzed separately by segment in an effort to identify, define, and substantiate whether there are roadway deficiencies that would cause accidents to occur with greater frequency at select locations. The analyses concentrated on the eastbound/westbound directions of travel on US 35 and also considered other secondary movements, which take place at the ramps and secondary crossroads intercepting US 35 at grade-separated interchanges. The data is summarized in Figure 3-24 (Years 1998-1999) and Figure 3-25 (Years 2000-2002).

Figure 3-24 Direction of Travel (of first vehicle involved in the crash) Years 1998-1999

Segment	WB	EB	S-W	W-S	N-E	E-N	WN	N-W	E-S	S-E	NB	SB	Unknown	All Directions
1	7	8												15
2	15	13	1		1	1	2				6	9	5	53
3	12	13	1	3					1		1		5	36
4	15	14											4	33
5	22	16		1	1	1			1	3	6	2	8	61
6	21	25	1	1			1	2	2		7	9	5	74
7	6	19	1	11		1	2		3	1		3	3	50
Total	98	110	4	16	2	3	5	2	7	4	20	23	30	322

Figure 3-25 Direction of Travel (of first vehicle involved in the crash) Years 2000-2002

Segment	WB	EB	S-W	W-S	N-E	E-N	W-N	N-W	E-S	S-E	NB	SB	Unknown	All Directions
1	8	11			1							1	1	22
2	18	16				2			2			2		40
3	15	30							1				1	47
4	14	18				1	1						2	36
5	17	18		1	1	1				2	1	1	1	43
6	30	44		1		1					1	1		78
7	41	40	3	15		14	8	3	20		1	1		146
Total	143	177	3	17	2	19	9	3	23	2	3	6	5	412

Key:
Cincinnati-Perry: (Segment 1)
Perry-Ped Overpass: (Segment 2)
Ped Overpass-McClure: (Segment 3)
McClure-Linden: (Segment 4)
Linden-RR Underpass: (Segment 5)
RR Underpass-GRE Line: (Segment 6)
GRE Line-Grange Hall Rd: (Segment 7)

Figures 3-24 and 3-25 indicate that the eastbound direction of travel on US 35 shows a slightly higher concentration of accidents (i.e., an estimated 12 percent more during years 1998-1999 and 17 percent during years 2000-2002). Most segments of US 35 under study are balanced in terms of accidents. The notable exceptions are Segments 3 and 7 which exhibited a slightly higher concentration of accidents in the eastbound direction of travel.

Therefore, the US 35 ramps and other cross roads do not appear to be the sources of substantial accidents. When this conclusion is combined with findings from Rear-End accident analysis (discussed previously), one may conclude that US 35 lacks mainline capacity during the peak hours to accommodate traffic demands. There is no evidence from an accident standpoint that the existing ramps and cross roads are locations of high accident concentrations.

The above conclusion is also consistent with the analyses summarized in Figure 3-26, which identifies what types of accidents occurred at select locations on US 35. Locations were identified for Years 1998-1999 as bridge overpasses and underpasses (for potentially defective and or slippery pavement conditions), intersections (for potentially ineffective traffic signal operations), non-intersection (for potentially inefficient geometric design), and driveway (for access management).
Data for Years 2000-2002 was collected, reported and tabulated in a slightly different way than in previous years. Therefore, they could not be summed up and tabulated in the same format as data from previous years and as such they are displayed separately in Figure 3-27.

Non-intersection locations were the primary sites of vehicle crashes through out the last five years (Figures 3-26 and 3-27). This is consistent with previous analysis results indicating that Rear-End Collisions are the primary crash type within US 35 in the study area. It is worth noticing in Figure 3-27 that on-ramp locations were more frequent sites of collisions than off-ramps. Driving speeds and possibly inadequate merging sections where large numbers of vehicles change lanes, might be among the underlying causes of these accidents.

Figure 3-26 Type of Accident by Location for 1998-99

	Bridge Overpass	**Bridge Underpass**	**Intersection**	**Non-Intersection**	**Driveway**	**Total**
Sideswipe Passing	1		2	18		21
Sideswipe Meeting	1		1	7		9
Rear End	6		32	83	1	122
Overturning				9		9
Other Non-Collision				7		7
Head On			2	2		4
Fall from Vehicle		1	1	8		10
Collision w/ pedestrian			2	1		3
Collision w/ parked vehicle				1		1
Collision w/ other object		1		4		5
Collision w/ fixed object	6	3	10	51		70
Collision w/ animal			2	4		6
Improper Backing			1			1
Angle Collision	3	1	33	17		54
Total	17	6	86	212	1	322

Figure 3-27 Type of Accident by Location for 2000-02

	Intersection	Non-Intersection	Crossover	Off-Ramp	On-Ramp	Unknown	Total
Sideswipe Same Direction		34	1	1	2	1	39
Sideswipe Opposite Direction	2	5					7
Rear to Rear	1	1		1	1		4
Rear End	12	101		11	7	1	132
Non-Collision w/Vehicle	5	107	2	16	29	2	161
Head On		6		1			7
Improper Backing				1			1
Angle Collision	9	25		7	4		45
Unknown		4				1	5
Collision w/fixed object	1	10					11
Total	30	293	3	38	43	5	412

Regardless of its severity and consequences, each accident was accounted for and reported as one collision incident. In order to fully comprehend the impacts, these crashes were studied from another standpoint: their relative severity and their impacts on human lives, as measured in injuries and fatalities. Because it was collected and reported in a different manner before and after 2000, crash data is summarized in Figure 3-28 (Years 1998-1999), and Figure 3-29 (Years 2000-2002), respectfully.

Figures 3-28 and 3-29 indicate that a very small number of fatal accidents occurred on US 35 and that the majority of persons involved in accidents were uninjured. In order to better understand where injuries and fatalities occurred along US 35 in the study area, some basic information on injuries by segment are provided in Figure 3-28 and 3-29. This information is especially germane to identifying and understanding the conditions under which fatal accidents took place on US 35 during the last five years.

Figure 3-28 Crash Impacts for 1998-99

	Fatalities	Uninjured	Claimed	Visible	Incapacitated	Non-Stated	# of Pedestrians	Ped Injuries	Ped Fatalities	Total Injuries
Sideswipe Passing	0	47	8	2	0	4	0	0	0	14
Sideswipe Meeting	0	18	10	5	1	1	0	0	0	17
Rear End	0	239	77	19	0	19	0	0	0	115
Overturning	0	3	1	6	1	0	0	0	0	8
Other Non-Collision	0	13	0	2	0	0	0	0	0	2
Head On	0	10	1	0	0	0	0	0	0	1
Fall from Vehicle	0	18	0	2	0	0	0	0	0	2
Collision w/pedestrian	1	3	2	1	0	1	3	1	1	4
Collision w/Parked Vehicle	0	1	0	0	0	1	0	0	0	1
Collision w/ other object	0	12	0	0	0	0	0	0	0	0
Collision w/ fixed object	0	64	20	20	3	1	0	0	0	44
Collision w/ animal	0	9	0	0	0	0	0	0	0	0
Improper Backing	0	2	0	0	0	1	0	0	0	1
Angle	0	88	31	15	6	3	0	0	0	55
Total	1	527	150	72	11	31	3	1	1	264

Note: *Total Injuries = Claimed + Visible + Incapacitated + non-stated injuries*

Figure 3-29 Crash Impacts for 2000-02

	Fatalities	**Uninjured**	**Possible**	**Non Incapa-citated**	**Incapacitated**	**Non Stated**	**# of Pedestrians**	**Ped Injuries**	**Ped Fatalities**	**Total Injuries**
Sideswipe same direction	0	41	3	4	1	5	0	0	0	9
Sideswipe opposite direction	0	15	2	2	0	0	0	0	0	2
Rear to Rear	0	7	2	0	0	2	0	0	0	4
Rear End	1	98	45	21	4	21	0	0	0	70
Non-Collision w/ vehicle	2	83	32	26	3	8	1	0	1	43
Collision w/fixed object	1	14	1			6				7
Head On	0	2	5	0	1	2	0	0	0	8
Angle	0	30	4	10	1	0	0	0	0	5
Unknown	0	5	4	0	0	0	0	0	0	4
Total	4	295	98	63	10	44	1	0	1	152

Note: *Total Injuries = Possible + Incapacitated + non-stated*

Figure 3-30 Overall Accident/Injury Statistics for years 1998-99

	# of Accidents	**# of Vehicles**	**# of Peds**	**Non-Stated Injuries**	**Fatal Injuries**	**Incapacitating Injuries**	**Visible Injuries**	**Claimed Injuries**	**Uninjured**	**Total People Involved**
Cincinnati-Perry	20	25	0	0	0	0	7	12	15	34
Perry-Ped Overpass	47	99	1	5	0	0	11	36	80	132
Ped Overpass-McClure	38	72	0	5	0	5	11	13	57	91
McClure-Linden	34	69	1	4	1	0	8	17	60	90
Linden-RR Underpass	58	114	1	10	0	1	15	16	89	131
RR Underpass-GRE Line	72	165	0	5	0	3	13	47	141	206
GRE Line-Grange Hall	53	118	0	2	0	2	7	10	85	146
All Segments	322	662	3	31	1	11	72	151	527	830

Figure 3-31 Overall Accident/Injury Statistics for years 2000-02

	# of Accidents	**# of Vehicles**	**# of Peds**	**Possible Injuries**	**Fatal Injuries**	**Incapacitating Injuries**	**Visible Injuries**	**Claimed Injuries**	**Uninjured**	**Totals People Involved**
Cincinnati-Perry	22	24	0	8	1	0	7	13	16	32
Perry-Ped Overpass	40	78	0	8	0	2	16	20	70	96
Ped Overpass-McClure	47	89	0	7	1	1	12	14	82	103
McClure-Linden	36	55	1	10	1	0	14	22	46	71
Linden-RR Underpass	43	104	0	15	0	1	17	25	104	137
RR Underpass-GRE Line	78	175	0	31	0	4	19	42	175	237
GRE Line-Grange Hall	143	210	0	14	2	16	2		165	305
All Segments	412	735	1	93	5	24	87	136	658	981

3-6 Transportation Options

Vehicular options remain the major choice of transportation in this corridor. Greater Dayton Regional Transit Authority (GDRTA) is the primary provider of public transportation services. Figure 3-32 is a GDRTA system map that shows available service within the study area. The Greene County Area Transit System also offers service in the eastern part of the corridor study area.

Figure 3-32 Greater Dayton RTA System Map

3-7 Review of Related Studies

A number of other recently completed study efforts were undertaken on a timeframe similar to the US 35 Corridor Study in Montgomery County

North South Transportation Initiative

The recently completed North South Transportation Initiative evaluated the transportation system along a 125-mile stretch of Interstate 75 and the surrounding area spanning from Northern Kentucky, through Cincinnati and Dayton to Piqua, Ohio.

Through extensive public input and engineering evaluation, a preliminary series of potential transportation solutions was developed. These projects are currently being refined through a detailed evaluation process. The criteria for this evaluation include Community Impacts, Environmental Impacts, Economic Development, Cost and Environmental Justice.

The result of this process is a preferred program of transportation projects to be considered for inclusion in the long-range planning efforts of the Ohio Department of Transportation (ODOT), Kentucky Transportation Cabinet (KYTC), Miami Valley Regional Planning Commission (MVRPC) and the Ohio-Kentucky-Indiana Regional Council of Governments (OKI).

Some of the preferred projects from this study have already been included in regional Long Range Plans including the modernization of I-75 in Downtown Dayton, which will ultimately provide a re-designed interchange with US 35.

Dayton Aviation Corridor Transit Study

The Dayton Aviation Corridor Transit Study evaluated and recommended transit options for reaching points of interest within the Dayton Aviation Heritage National Park corridor. This corridor extends from the Wright Brother's Cycle Shop at Third and Williams streets, east to the Wright State University area.

Specific sites considered for service connection include those within Dayton's Aviation Heritage National Historical Park system. Because the historical sites in the Park are spread over a fairly large geographical area, this increase in activity may strain the regions' transportation systems and infrastructure, increasing traffic congestion and outpacing parking capacity at many of the sites. Results of the Dayton Aviation Corridor Transit Study will play a major role in recommending efficient ways to deal with these issues.

The Recommended Alternative for the Dayton Aviation Corridor Transit Study is defined as a uniquely designed clean diesel bus operation between the Conover Street Park and Ride Lot and Wright-Patterson Air Force Base. A heritage rail line connecting the Conover Street Park and Ride Lot and the Oregon District with the Central Business District complements the bus operation. Stops along the entire service route include Wright State University, Huffman Prairie, Wright Brothers Memorial, the United States Air Force Museum, the Paul H. Dunbar House and the Wright Brothers Cycle Shop. Others would provide a seasonal shuttle bus service connection carrying passengers from the intersection of Third and Williams streets to Carillon Park.

The general route for this new service would use Third Street from the Wright Dunbar area though downtown to Smithville Road, continuing eastward on Airway Road to Harshman Road and connecting with Springfield Avenue near the United States Air Force Museum. Harshman Road would provide connections to Wright State University and Wright-Patterson Air Force Base.

Downtown Dayton Street Grid Conversion Study
The Miami Valley Regional Planning Commission (MVRPC) is currently in the process of conducting a transportation study to assess the traffic-related effects of converting the existing one-way street grid system in downtown Dayton to a two-way street grid system.

The traffic planning implications of the proposed conversion to a two-way street grid system are focused on the following issues:

- The ability of the proposed two-way street grid system to operate at acceptable Levels of Service during the daily AM and PM peak hours.
- The effects of converting to a two-way street grid system on the on-street parking supply.
- The effects of converting to a two-way street grid system on pedestrians in downtown Dayton.

Four separate configurations of two-way service were developed, and each was analyzed for operations under future-year traffic demand. A one-way (no-build) scenario was also modeled for current and future years.

Initial studies conclude that the conversion of the existing one-way street grid system to the proposed two-way street grid system would operate at acceptable Levels of Service. There would be increases in congestion under each of the two-way systems, as well as varying degrees of loss of parking spaces, but the level of delay was found to be acceptable. Two-way operation could also enhance traffic flow between I-75 and downtown Dayton, and between US-35 and downtown Dayton. Further study is ongoing in terms of how this street conversion would be implemented.

US 35 Corridor Study – Greene County
The Miami Valley Regional Planning Commission (MVRPC) is undertaking a transportation study to determine the best ways to upgrade US 35 in Greene County, between I-675 and the city of Xenia.

At the current time, a series of preliminary alternatives have been developed and are now being studied to determine their effectiveness. Each alternative will be reviewed based on criteria such as environmental and social impacts, public input, cost and transportation effectiveness. The most viable options will be forwarded for detailed analysis to determine a preferred alternative.

Each existing at-grade intersection will receive some kind of upgrade, including an Interchange, cul-de-sac, an overpass or connection by local service road. Existing intersections include Shakertown Road, Factory Road, Orchard Lane, Alpha Road and Valley Road/Trebein Road.

3-8 Future Projects
MVRPC Transportation Improvement Program and Ohio Department of Transportation Existing and Committed Projects.

GRE 035 - 0.00 - Pavement Rehabilitation from Montgomery/Greene County Line to 0.54 miles east of I-675. Project is scheduled for construction in FY 2007.

<u>US 35 Upgrade Montgomery County (Project listed in 3 components):</u>
MOT 035 15.07 – Re-construction and widening of existing pavement and reconfiguration of Steve Whalen Boulevard interchange. Project limits are I-75 on the west to 2.63 miles west of Greene County line on the east. This project is scheduled for construction in FY 2006.

MOT 035 – 18.57 – Re-construction and widening of existing pavement from .05 mile east of Livingston Avenue to I-675 interchange. Project is scheduled for construction in FY 2009.

MOT – Linden Avenue – Widening of Linden Avenue from Smithville Road to Railroad. Project will be constructed in 2004.

MOT - Woodman Drive – Replacement and inter-connecting of existing traffic signals at various intersection within the study are, including Woodman Drive and Linden Avenue. This project is scheduled for construction in FY 2006.

MOT – Patterson Boulevard – Reconstruction and rehabilitation of existing Patterson Boulevard from Stewart Street to Sixth Street. Project is scheduled for construction in FY 2005/

Other Local Projects:

City of Dayton – Steve Whalen Boulevard – Complete resurfacing completed in FY2002.

Figure 3-11 Maintenance Records and Quality Survey Information

Date	Roadway	From Milepost	To Milepost	Maintenance Description
01/18/02	Gre 35	1	15	SIGN-FLAT SHEET MAINTENANCE
02/01/02	Gre 35	0.3	0.3	POTHOLE PATCHING
02/01/02	Gre 35	0	0.3	POTHOLE PATCHING
02/04/02	Gre 35	1	1	POTHOLE PATCHING
02/05/02	Gre 35	1	1	POTHOLE PATCHING
02/06/02	Gre 35	1	1	FILLING AND SEALING CRACKS
02/06/02	Gre 35	0.5	1	TRAFFIC CONTROL
02/19/02	Gre 35	0	25	SIGN-FLAT SHEET MAINTENANCE
02/20/02	Mot 35	17.97	21.03	DAYTIME INSPECTION OF SIGNS, ETC.
02/20/02	Gre 35	0	25	DAYTIME INSPECTION OF SIGNS, ETC.
02/21/02	Mot 35	16.42	18.07	DAYTIME INSPECTION OF SIGNS, ETC.
02/25/02	Mot 35	19.7	21.03	DAYTIME INSPECTION OF SIGNS, ETC.
03/12/02	Gre 35	0	25	DAYTIME INSPECTION OF SIGNS, ETC.
03/22/02	Gre 35	0.3	0.3	POTHOLE PATCHING
03/25/02	Gre 35	0.3	0.4	POTHOLE PATCHING
03/27/02	Gre 35	0	25	DAYTIME INSPECTION OF SIGNS, ETC.
04/03/02	Gre 35	0	25.5	SIGN-FLAT SHEET MAINTENANCE
04/04/02	Gre 35	0.2	0.2	POTHOLE PATCHING
04/19/02	Gre 35	1	5	UNDERDRAIN MAINTENANCE
05/08/02	Gre 35	0.3	0.3	POTHOLE PATCHING
05/09/02	Gre 35	0.3	0.3	POTHOLE PATCHING
05/09/02	Gre 35	1	25	SIGN-FLAT SHEET MAINTENANCE
05/10/02	Gre 35	0.08	0.08	FIELD WORK
05/15/02	Gre 35	0.3	0.3	POTHOLE PATCHING
06/19/02	Gre 35	0	25.5	SIGN-FLAT SHEET MAINTENANCE
06/19/02	Gre 35	1	1	DAYTIME INSPECTION OF SIGNS, ETC.
06/21/02	Gre 35	0	0	SIGN-FLAT SHEET MAINTENANCE
06/24/02	Gre 35	0	25	ROADWAY PATROL

Date	Roadway	From Milepost	To Milepost	Maintenance Description
06/25/02	Gre 35	0.8	0.5	CLEANING PAVEMENT
07/30/02	Gre 35	0.5	0.5	SIGN-FLAT SHEET MAINTENANCE
07/31/02	Gre 35	0	25	SIGN-FLAT SHEET MAINTENANCE
08/07/02	Gre 35	0	0.5	TRAFFIC CONTROL
08/11/02	Gre 35	0.03	0.03	TRAFFIC CONTROL
08/12/02	Gre 35	0	0.5	TRAFFIC CONTROL
09/17/02	Mot 35	16.89	17	SIDE MOUNTED SIGN MAINTENANCE
10/07/02	Gre 35	0	25	DAYTIME INSPECTION OF SIGNS, ETC.
10/23/02	Gre 35	0	25	CLEANING AND RESHAPING DITCHES
11/22/02	Gre 35	0	25	TRAFFIC CONTROL
12/12/02	Gre 35	0	25	INSPECTION OF SIGNS, MARKINGS, ETC.
01/09/03	Gre 35	0	25	GROUND-MOUNTED FLATSHEET SIGN MAINT
01/28/03	Gre 35	0	25	ROADWAY PATROL
01/30/03	Gre 35	0	14.48	INSPECTION OF SIGNS, MARKINGS, ETC.
02/04/03	Gre 35	0	22	INSPECTION OF SIGNS, MARKINGS, ETC.
02/13/03	Gre 35	0	15	INSPECTION OF SIGNS, MARKINGS, ETC.
02/17/03	Mot 35	19.29	19.29	ENGINEERING SERVICE
02/18/03	Mot 35	19.29	19.29	ENGINEERING SERVICE
02/19/03	Mot 35	19.29	19.29	ENGINEERING SERVICE
02/19/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE
02/20/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE
02/20/03	Mot 35	19.29	19.29	ENGINEERING SERVICE
02/20/03	Gre 35	0	8.26	INSPECTION OF SIGNS, MARKINGS, ETC.
02/23/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE
02/24/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE

Date	Roadway	From Milepost	To Milepost	Maintenance Description
02/25/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE
02/25/03	Gre 35	0	25	INSPECTION OF SIGNS, MARKINGS, ETC.
02/26/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE
02/27/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE
02/27/03	Gre 35	0	25	INSPECTION OF SIGNS, MARKINGS, ETC.
02/28/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE
03/02/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE
03/03/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE
03/04/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE
03/04/03	Gre 35	1	1	GROUND-MOUNTED FLATSHEET SIGN MAINT
03/05/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE
03/06/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE
03/07/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE
03/10/03	Mot 35	19.29	19.29	ENGINEERING SERVICE
03/10/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE
03/10/03	Gre 35	0	15	INSPECTION OF SIGNS, MARKINGS, ETC.
03/11/03	Mot 35	19.29	19.29	ENGINEERING SERVICE
03/12/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE
03/12/03	Mot 35	19.29	19.29	ENGINEERING SERVICE
03/12/03	Gre 35	0	25	INSPECTION OF SIGNS, MARKINGS, ETC.
03/13/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE
03/13/03	Mot 35	19.29	19.29	ENGINEERING SERVICE

Date	Roadway	From Milepost	To Milepost	Maintenance Description
03/14/03	Mot 35	19.29	19.29	CONSTRUCTION INSPECTION SERVICE
03/14/03	Mot 35	19.29	19.29	ENGINEERING SERVICE
03/17/03	Mot 35	19.29	19.29	ENGINEERING SERVICE
03/17/03	Gre 35	0	25	GROUND-MOUNTED FLATSHEET SIGN MAINT
03/19/03	Gre 35	0	25	INSPECTION OF SIGNS, MARKINGS, ETC.
03/26/03	Gre 35	0	25	GROUND-MOUNTED FLATSHEET SIGN MAINT
04/05/03	Gre 35	0	0	CONSTRUCTION ACTIVITIES
04/07/03	Gre 35	0	25	INSPECTION OF SIGNS, MARKINGS, ETC.
04/11/03	Gre 35	0	23	INSPECTION OF SIGNS, MARKINGS, ETC.
04/19/03	Gre 35	0	0	CONSTRUCTION ACTIVITIES
05/02/03	Gre 35	0	25	INSPECTION OF SIGNS, MARKINGS, ETC.
05/03/03	Gre 35	0	0	CONSTRUCTION ACTIVITIES
05/09/03	Gre 35	0	25	INSPECTION OF SIGNS, MARKINGS, ETC.
05/20/03	Mot 35	17.5	17.5	TRAFFIC CONTROL
05/20/03	Mot 35	17	18	TRAFFIC CONTROL
05/21/03	Gre 35	0	0	INSPECTION OF SIGNS, MARKINGS, ETC.
05/27/03	Gre 35	0	25	INSPECTION OF SIGNS, MARKINGS, ETC.
06/02/03	Mot 35	19	20	TRAFFIC CONTROL

Figure 3-33 Accidents per Million VMT (Table Format)

US 35 Segment	Accidents	ADT	Section Length	Accident Rate
Cincinnati-Perry	42	69,200	0.51	0.65
Perry-Ped Bridge	87	73,000	0.44	1.48
Ped Bridge-McClure	85	77,939	0.54	1.11
McClure-Linden	70	77,500	1.14	0.43
Linden-RR Bridge	101	66,300	1.22	0.68
RR Bridge-County Line	150	64,300	1.79	0.71
County Line-Grange Hall	199	69,900	1.07	1.46

Figure 3-34 Accidents per Million VMT (Graph Format)