

CHAPTER IV

LONG RANGE TRANSPORTATION PLANNING & THE CONGESTION MANAGEMENT PROCESS

A. OVERVIEW

MVRPC has assimilated many of the state and federal goals, strategies, and programs to manage congestion through its Long Range Transportation Plan (LRTP), Transportation Improvement Program (TIP), and various regional projects, strategies, and initiatives. This chapter focuses on the evaluation of the existing regional multi-modal transportation network and the overall impact of the approved 2030 LRTP Congestion Management (CM) project list on managing regional congestion. In addition, the chapter documents how congestion evaluation and management serves as input to a number of MVRPC planning processes and programs. Other relevant congestion management efforts undertaken as part of the on-going transportation planning processes at MVRPC are also addressed, including public transportation and pedestrian improvements, the Sustainable Growth Initiative, and deployment of the Dayton/Springfield Freeway Management System, a main focus of the Region's Intelligent Transportation Systems (ITS).

B. SUMMARY OF CONGESTION MANAGEMENT

1. *Introduction to Congestion*

“Congestion” is generally defined from the perspective of the roadway user. The public’s perception of congestion relies primarily on their own experiences when traveling on the nation’s roadways. However, an engineer would describe congestion as the condition where traffic demand approaches and/or exceeds the roadway’s ability to facilitate travel at normal speeds. Typically, roadway congestion manifests itself as “stop-and-go” traffic conditions.

According to the Federal Highway Administration (FHWA), roadway congestion is comprised of three key elements: severity, extent, and duration. The blending of these elements determines the overall effect of congestion on roadway users. Roadway congestion occurs due to a number of planned and unplanned events either in isolation or in tandem. In some cases, the clockwork nature of recurring congestion can be the sole event. For example, up to 40 percent of roadway congestion can be attributed to physical bottlenecks (i.e. sections of the roadway system that have reached their operational capacity). However, presented below, research by FHWA has identified several additional root causes for roadway congestion along with their percent contribution as a cause of national roadway congestion. Collectively, these events can cause what is known as ‘non-recurring congestion’:

- Traffic Incidents (25%) — Random events occurring in the travel lanes that disrupt otherwise “normal” traffic flow, such as crashes, disabled vehicles, or roadway debris;
- Weather (15%) — Environmental conditions can affect driver behavior, causing motorists to drive more slowly and/or allow for larger gaps between cars;
- Work Zones (10%) — Construction activities that alter traffic flow due to lane or shoulder restrictions, lane shifts, or temporary closures;
- Traffic Control Devices (5%) — Poorly timed or spaced signals and railroad crossings can cause intermittent disruptions in traffic flow;
- Special Events (5%) — Sudden increases in traffic demand due to planned or unplanned events, particularly in rural areas, can temporarily overburden the roadway system;

- Fluctuations in Normal Traffic Flow (Unknown) — Day-to-day changes in the traffic demand placed on the system due to random unknown causes.

Other than bottlenecks resulting from maximized roadway capacity, the above listed events take place with irregularity throughout the day. Therefore, accurately predicting travel times between two points becomes increasingly difficult as irregular congestion disrupts the transportation network over longer periods of time and larger sections of roadway, leading to frustration for commuters, commercial operators, and public officials.

2. Federal and State Congestion Management Efforts

At the federal level, Congestion Management (CM) typically takes the form of programs and legislation meant to provide guidance and funding to state and local governments. The Federal Highway Administration (FHWA), US Department of Transportation (US DOT), and Federal Transit Administration (FTA) are the primary distributors and administrators of national CM guidance and funding. A collection of federal programs designed to alleviate roadway congestion was authorized by the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)* of 2005. These programs are intended to promote the safe and efficient management and operation of integrated, intermodal surface transportation systems to mitigate the impacts of roadway congestion and improve system reliability.

At the state level, strategies to manage roadway congestion are spearheaded primarily by the Ohio Department of Transportation (ODOT). ODOT partners with local governments on many transportation projects and programs designed to manage congestion and promote efficiency on the state network of interstates, US highways, and state routes. In addition to providing funds for major new projects or framing Ohio's future transportation needs, ODOT continuously evaluates the state-maintained roadway network to identify sections of roadway where travel demand is approaching or exceeding roadway capacity. This proactive approach provides a readily available list of the Top 200 most congested stretches of Ohio interstates, freeways, and surface roadways. Policy makers can use this list to identify and evaluate future transportation needs.

Federal transportation legislation requires the development of a Congestion Management System or Process, designated by ODOT as a Traffic Congestion Management System (TCMS). Development of the statewide TCMS began in late 1993, with ODOT issuing the Traffic Congestion Management System Work Plan in October 1994. The work plan indicated that the primary goal of TCMS is "to provide a management tool for use in the identification and ultimate remediation of congestion by implementation strategies that provide for the most efficient use of the existing and future transportation system." As such, objectives of TCMS include:

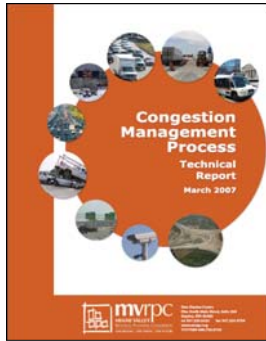
- Identifying locations of existing and future congestion;
- Specifying strategies to minimize or eliminate congestion;
- Evaluating effectiveness of implemented strategies; and
- Providing input to the MPO's Long Range Transportation Plan.

Based upon the 2030 LRTP, the following sections summarize major findings of the regional congestion analysis. The statistics reflect the LRTP horizon year of 2030, the most current land use and socioeconomic data assumptions, and the updated CM project list.

3. MVRPC's Congestion Management Process

The SAFETEA-LU legislation continued the emphasis on developing a Congestion Management Process (CMP) as part of the regional transportation planning efforts in all urbanized areas. In preparation for the

2030 LRTP update, MVRPC published the 2007 *Congestion Management Process Technical Report*. The objectives of the Report match those of the ODOT TCMS.



The report documents the status of regional roadway congestion based on the most recent transportation data available. Incorporated within the report are current and future regional recurring and non-recurring congestion trends along with various regional CM strategies, including public transportation, alternative transportation, traffic incident management, and intelligent transportation systems. The Technical Report is intended to provide information and guidance to local, state, and federal officials on where CM strategies should be implemented to provide maximum congestion relief along the regional roadway network. The report can also be used by local project sponsors as evidence for capacity needs on the Region's surface arterial and collector roadways.

The MVRPC 2007 *Congestion Management Process Technical Report* can be downloaded in its entirety, or in separate chapters, by navigating to www.mvrpc.org/tr/trCMP.php.

4. Links to MVRPC Planning Efforts

The Congestion Management Process (CMP) continues to serve as an integral link in the planning efforts of MVRPC. Most notably, the importance of the regional CMP is evident in the evaluation process for two vital MVRPC planning functions:

- Selecting projects for inclusion in the Long Range Transportation Plan; and
- Selecting projects for funding through the federal Congestion Mitigation/Air Quality (CMAQ) program and Surface Transportation Program (STP).

These two processes are driven by the MVRPC Project Evaluation System (PES). This instrument uses a number of criteria – including congestion, safety, and project-specific transportation demand strategies – to measure a project's merit for inclusion in the LRTP or funding through the CMAQ and STP programs. MVRPC relies on analyses performed throughout the CMP to accurately select, and subsequently fund, projects in a manner consistent with the goals and objectives of the LRTP. It is therefore important to collect data and monitor the transportation system for the evaluation process to continue.

Highway (e.g. interstate, expressway, and surface streets) and transit CM strategies and projects are discussed in Chapters V and VI of the LRTP, respectively. These chapters outline the CM strategies for both modes of travel and introduce the list of approved capital projects as adopted by the MVRPC Board of Directors. Chapter VII discusses the various CM strategies under MVRPC's Sustainable Growth Initiative, including RIDESHARE, air quality management, bike and pedestrian pathways, and regional land use.

C. ROADWAY CONGESTION IN THE MIAMI VALLEY REGION

MVRPC used its regional Travel Demand Forecasting Model (TDFM) to develop scenarios consistent with the CM project list in Chapter V. Three scenarios were developed: 2005 Base conditions, 2030 Existing plus Committed (2030 E+C), and 2030 Long Range Transportation Plan (2030 Plan). The 2030 Plan scenario includes all projects in the CM list, while the 2030 E+C scenario includes only projects that are currently funded in the SFY 2008-2011 Transportation Improvement Program (TIP). Year 2005 socioeconomic data were used for the 2005 Base scenario, while year 2030 forecasted socioeconomic data were used on the 2030 E+C and 2030 Plan scenarios. Detailed information on socioeconomic data assumptions is available in Chapter III.

Performance measure statistics for the base and future year scenarios were generated for each roadway segment by using CMAQT software developed by the ODOT. Congestion was identified by location and quantified by severity using multiple performance measures, including the Roadway Congestion Index (RCI), levels of service, vehicle delay, person delay, and cost of delay.

1. Roadway Congestion Index

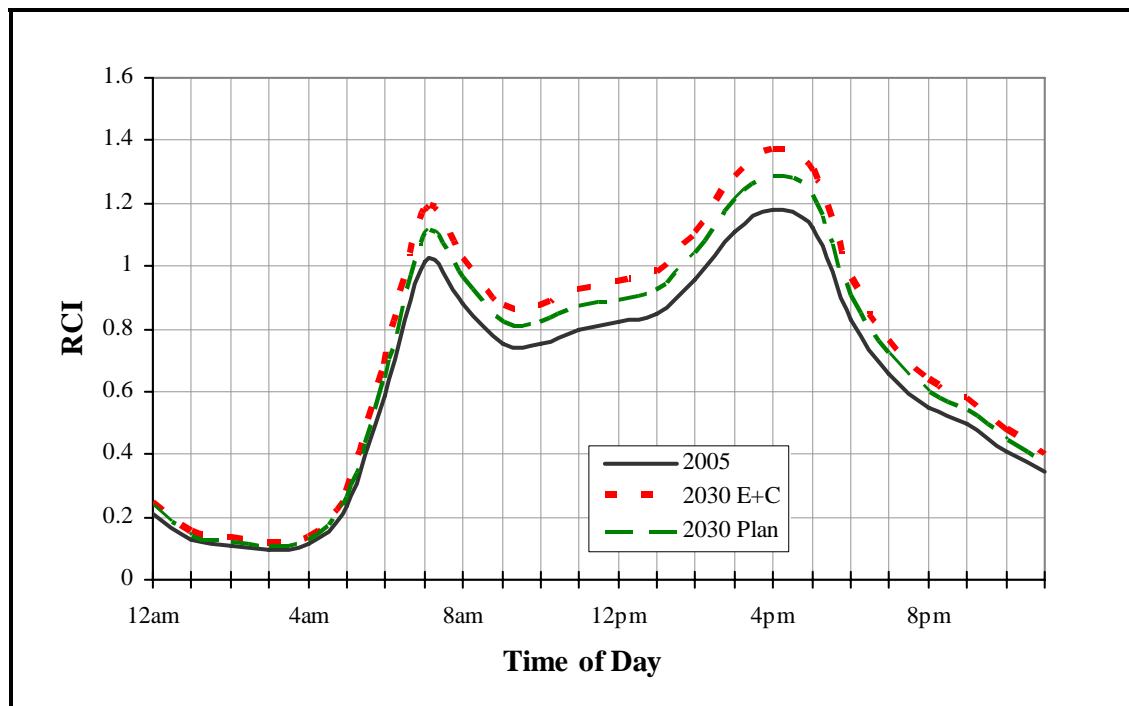
The Roadway Congestion Index (RCI) identifies total recurring delay on both freeways and arterials. This value does not include delay that results from accidents or disabled vehicles, nor does it account for traffic bottlenecks such as river crossings. Calculation of the index is based on the Texas Transportation Institute (TTI) 2004 Urban Mobility Report.

RCI is defined as follows:

$$RCI = \frac{\frac{\text{freeway vehicle-miles-traveled}}{\text{freeway lane-miles}} + \frac{\text{arterial vehicle-miles-traveled}}{\text{arterial lane-miles}}}{(14,000 * \text{freeway vehicle-miles-traveled}) + (5,500 * \text{arterial vehicle-miles-traveled})}$$

An RCI equal to or greater than 1.0 indicates that congested conditions exist region-wide, with moderate congestion for not more than 1½ to 2 hours during each peak-period. Urban areas with an RCI less than 1.0 may have sections of roads that experience periods of heavy congestion, but the average mobility level of roads in the Region could be defined as un-congested. The index evaluates the entire Region, not specific roadway segments. Figure 4.1 shows the roadway congestion index by time of day for each of the analyzed scenarios.

Figure 4.1 — Roadway Congestion Index by Time of Day



Source: MVRPC

In 2005, congestion on regional freeways and arterials peaked during two 1-hour intervals, 7am-8am and 4pm-5pm. However, the Region’s freeways and arterials were congested for up to 3 hours (3pm-6pm) during the evening peak period in 2005. If no other roadway operation or capacity improvements were implemented beyond the current TIP (2030 E+C), roadway congestion during the am and pm peak periods would increase in both severity and duration by 2030, with two additional hours of region-wide congestion being added to the evening peak period (1pm-3pm). With the implementation of all CM projects (2030 Plan), regional roadway congestion would continue to occur for two hours during the am peak period and four hours during the pm peak period, as under the 2030 E+C scenario. However, its severity would be considerably less. In summary, while the Region experiences significant roadway congestion during two distinct periods, the cumulative roadway conditions over a 24-hour period could be defined as ‘un-congested’ under all three scenarios.

It is anticipated that recurring congestion will grow between 2005 and 2030 — regardless of any current or planned operational or capacity improvements — due to future changes in regional socioeconomic characteristics and associated travel patterns. However, the RCI data in Table 4.1 illustrates that implementation of all CM projects by 2030 results in considerably less congestion on regional freeways and arterials, when compared to the 2030 E+C scenario, during the am and pm peak periods.

Table 4.1 — Roadway Congestion Index by Peak Period, Dayton Region

Peak Period	Time Period	2005 Base	2030 E+C	2030 Plan
AM	7:00 am – 8:00 am (am peak)	1.01	1.18	1.10
	8:00 am – 9:00 am	0.88	1.02	0.96
PM	2:00 pm – 3:00 pm	0.95	1.10	1.04
	3:00 pm – 4:00 pm	1.10	1.28	1.21
	4:00 pm – 5:00 pm (pm peak)	1.17	1.36	1.28
	5:00 pm – 6:00 pm	1.12	1.30	1.22

Source: MVRPC

2. Regional Travel Delay

Selected network characteristics of the base and future year networks are presented in Table 4.2. Delays in vehicle and person hours are calculated for the base and future year networks and are used to identify the severity of congestion.

In 2005, approximately 606,000 vehicle hours of travel (VHT) were spent on the Region’s roadways every day, resulting in 5,049 hours of daily vehicle delay, or 0.8 percent of the total daily VHT. By 2030, if only the projects funded in the TIP are built (2030 E+C), total daily vehicle delay increases 76 percent to almost 9,000 hours. The implementation of all LRTP projects (2030 Plan), however, reduces the daily vehicle hours of delay from nearly 9,000 per day to approximately 5,700, or 0.8 percent of the total daily VHT.

Though daily vehicle miles and vehicle hours of travel are expected to increase under each scenario, the growth in daily vehicle and total person delay may be significantly slowed by the implementation of all 2030 LRTP projects. In fact, though daily VHT is expected to increase by 105,000 hours (17%) under the 2030 LRTP scenario, daily vehicle and total person delay on the regional freeway network will increase only 12 and 13 percent over their 2005 totals, respectively. With less roadway congestion, the MVRPC Region will be better positioned to capitalize on the benefits of efficient personal and commercial travel.

Table 4.2 — Daily Cost of Roadway Congestion, Dayton Region

		Lane-Miles (Two-Way)	Daily VMT (1,000)	Daily VHT	Daily Vehicle Delay (Hours)	Total Person Delay (Hours)	Weekday Costs of Delay (2006 dollars)
2005 Base	Freeway	688 (13%)	8,612 (40%)	300,479 (50%)	3,880 (77%)	5,349 (76%)	\$80,556
	Arterial	4,675 (87%)	12,679 (60%)	305,016 (50%)	1,166 (23%)	1,671 (24%)	\$25,165
	Total	5363	21,291	605,495	5,049	7,020	\$105,721
2030 E+C	Freeway	733 (13%)	10,671 (43%)	372,305 (53%)	6,810 (76%)	9,448 (76%)	\$142,287
	Arterial	4,719 (87%)	14,040 (57%)	336,527 (47%)	2,069 (24%)	2,967 (24%)	\$44,683
	Total	5,452	24,711	708,832	8,879	12,415	\$186,970
2030 Plan	Freeway	815 (15%)	10,886 (44%)	379,249 (53%)	3,898 (68%)	5,374 (67%)	\$80,932
	Arterial	4,755 (85%)	13,889 (56%)	331,940 (47%)	1,784 (32%)	2,560 (33%)	\$38,554
	Total	5,570	24,775	711,189	5,682	7,934	\$119,486

Source: MVRPC

Table 4.2 displays estimated cost of delay as a function of total person delay based on the value that motorists place on their time and the actions that they are willing to take to save time, based on findings by the Texas Transportation Institute’s 2004 Urban Mobility Study. Time-saving actions include the use of a toll facility, frequent lane changing maneuvers, close headway driving, or using alternative routes to bypass congested facilities. The study considered most urban areas in the nation and used an average cost of time of \$13.45 (2002 dollars) per person per hour. Consumer Price Indices by the US Department of Labor were used to convert the 2002 dollars to 2006 dollars, resulting in an average of \$15.06 per person per hour. Implementation of LRTP projects results in approximately \$67,500 per weekday in savings, or nearly \$17.5 million per year, over the 2030 E+C scenario.

3. Level of Service

Level of service (LOS) is a qualitative measure describing operational conditions within a traffic stream and their perception by motorists. The LOS definition generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience. LOS is determined by a roadway’s volume-to-capacity (V/C) ratio. The V/C ratio is a measure of the traffic volume on a road compared to the capacity of the road. The capacity of a road depends on its physical and operational characteristics and varies by functional class. A higher V/C ratio indicates that the traffic volume of the road is nearing its capacity and is becoming congested.

The analyses presented in this section are based on calculations by CMAQT software and its definition of LOS and V/C ratio. LOS is broken down into six levels (A through F), with significant traveler delay and recurring congestion occurring at LOS D, E, and F. The corresponding volume-to-capacity ratios for each LOS level are defined as:

- **LOS A** represents *free flow*. Individual users are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to maneuver within the traffic stream is extremely high. The level of comfort and convenience provided to the motorists is excellent. LOS A represents volume-to-capacity ratios less than **0.350**.
- **LOS B** is in the range of *stable flow*, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver within the traffic stream from LOS A. LOS B represents volume-to-capacity ratios ranging from **0.351 to 0.500**.
- **LOS C** is in the range of stable flow, but marks the beginning of the range of flow in which the operation of *individual users becomes significantly affected by interactions with others in the traffic stream*. The selection of speed is now affected by the presence of others. The level of comfort and convenience declines noticeably at this level. LOS C represents volume-to-capacity ratios ranging from **0.501 to 0.750**.
- **LOS D** represents *high-density, but stable, flow*. Speed and freedom to maneuver are severely restricted, and the driver experiences a generally poor level of comfort and convenience. LOS D represents volume-to-capacity ratios ranging from **0.751 to 0.900**.
- **LOS E** represents *operating conditions at or near the capacity level*. All speeds are reduced to a low, but relatively uniform, value. Freedom to maneuver within the traffic stream is extremely difficult. Comfort and convenience levels are extremely poor, and driver frustration is generally high. LOS E represents volume-to-capacity ratios ranging from **0.901 to 1.000**.
- **LOS F** is used to define *forced or breakdown flow*. Queues are formed very often. Operations within the queue are characterized by stop-and-go waves, and they are extremely unstable. LOS F represents volume-to-capacity ratios greater than **1.001**.

The TDFM, used to forecast average annual daily traffic (AADT) and LOS, provides useful overall system information, although it should be noted that it deals only with roadways on the model network (eg. interstates, expressways, arterials, and collectors) and omits other roadways (eg. local roads) and trips internal to traffic analysis zones (TAZ). Based on the forecasting model’s AADT and LOS projections, Table 4.3 shows the impacts of the proposed roadway projects over the 23-year planning period.

Table 4.3 — Vehicle Miles Traveled by Level of Service

LOS	Percentage of vehicle miles traveled per weekday		
	2005 Base	2030 E+C	2030 Plan
A	52.18%	45.75%	47.86%
B	23.65%	22.16%	25.73%
C	18.75%	24.10%	21.14%
D	3.34%	4.53%	3.50%
E	1.13%	1.97%	1.29%
F	0.96%	1.48%	0.47%
Total Miles	21.29 Million	24.71 Million	24.77 Million

Source: MVRPC

Comparing the 2005 Base network with the 2030 E+C shows decreasing regional trends for the overall quality of travel. VMT would increase 16% (from 21.3 million to 24.8 million), due to changes in land use patterns, demographics, employment levels and patterns, and travel between the Region and areas outside, similarly the percentage of VMT under congested conditions (LOS D-F) increases from approximately 5.4% in 2005 to 8.0% in the 2030 E+C scenario.

Implementation of LRTP projects shows a significant increase in the relative percentage of roadways with good levels of service (LOS A-C) between the 2030 E+C and 2030 Plan scenarios, increasing from 92.0% to 94.7%. In addition, the percentage of VMT traveled on roadways with poor-to-bad levels of service (LOS D-F) is predicted to decrease between the two scenarios, falling from 8.0% to 5.3%. Furthermore, the model predicts the 2030 Plan scenario would lead to a three-fold decrease in the percentage of VMT traveled under LOS F conditions, relative to the 2030 E+C scenario. This same pattern also holds when comparing the 2005 Base and 2030 Plan scenarios. Clearly, roadway improvements are needed to help mitigate the trends evident in the 2030 E+C scenario.

LOS was also used to identify specific locations of congestion in the Base (2005), Existing plus Committed (2030 E+C) and the Long Range Transportation Plan (2030 Plan) networks. Figures 4.2, 4.3, and 4.4 identify roads having LOS D ($V/C > 0.751$) or worse.

2005 Base

Under current conditions, as represented by the 2005 Base scenario, congestion on the regional roadway network is confined to the interstates, expressways, and arterial roadways near the urban core. I-70, I-75, and US 35 are particularly prone to daily recurring congestion. Roadway congestion is also present on surface roadways near high-density commercial areas (e.g. Dayton Mall and Fairfield Commons Mall) and multiple local-access interchanges. Little to no roadway congestion is present outside the urbanized core.

2030 E+C

Roadway congestion is increasingly present in the 2030 E+C scenario. The majority of interstate and expressway sections within Montgomery County will operate at LOS D or worse. Significant roadway congestion begins to spread to previously uncongested sections of roadway, most notably I-70 in western Montgomery County and I-75 in Miami County. Roadway congestion is also more prevalent on I-75 near the Montgomery County and Warren County border. In addition, roadway congestion begins to appear on surface roadways in rural sections of Greene County, particularly US 42 and US 68.

2030 Plan

Under the 2030 Plan scenario, roadway congestion is either maintained at current levels or significantly improved as a result of implementing all 2030 LRTP projects, representing a sizeable improvement compared to the 2030 E+C scenario. Furthermore, no significant portion of the interstate network registered an LOS F under the 2030 Plan scenario. Congestion is also far less prevalent near the Region's local-access interchanges. Though congestion is forecasted to spread on I-75 into Miami County, it will be less severe than under the 2030 E+C scenario. Overall, it is forecasted that implementation of all 2030 LRTP projects will lead to significantly less congestion on the regional roadway network.

Figure 4.2 — Level of Service: Existing (2005) (11x17)

Figure 4.3 — Level of Service: Existing + Committed (2030) (11x17)

Figure 4.4 — Level of Service: Long Range Plan (2030) (11x17)

4. Summary of Non-Recurring Congestion

Non-recurring congestion is the result of random occurrences or planned special events that temporarily reduce roadway capacity and reliability to the point that motorists experience sudden significant and unexpected delay. Though non-recurring congestion can occur at any time, it is most noticeable during the off-peak travel periods. Off-peak predominantly refers to the daytime hours outside the peak morning and evening travel periods.

The sources of non-recurring congestion include a wide range of possibilities:

- Roadway debris,
- Disabled vehicles,
- Roadway construction,
- Law enforcement activities,
- Inclement weather,
- Heavy merging traffic,
- Sudden unexpected increases in traffic volume,
- Planned special events, and
- Traffic crashes.

These and other unforeseen events which cause normal, free-flowing traffic to suddenly slow — or cease all together — are collectively known as “traffic incidents.” The impact of traffic incidents on the normal flow of travel can be measured by at least three factors: (1) the number of affected travel lanes, (2) the severity of the incident, and/or (3) the degree to which the incident captures the interest of passing motorists.

Non-recurring congestion was a focal point of the MVRPC 2007 *Congestion Management Process Technical Report*. Analyses were conducted on the regional freeway network using crash data, construction records, traffic volume measurements, and Airwatch traffic reports to determine where non-recurring congestion may have occurred in the past and where it might occur in the future. The results indicated that many of the Region’s freeways may be experiencing significant travel delay as a result of non-recurring congestion caused by natural and man-made incidents, construction, and high traffic volumes.

For example, a comparison of mid-day and peak period crashes indicated that significant non-recurring congestion may have occurred on the regional freeway network between 2002 and 2004 due to traffic crashes. The likelihood of past non-recurring roadway congestion was considered above average for freeway segments that recorded 33 percent more mid-day than peak period crashes. Based on the above criteria, 30 percent of the regional freeway network may have been plagued by past incidents of frequent non-recurring roadway congestion. For these sections, mid-day crashes accounted for 41.4 percent of all crashes, compared to 23.2 percent during the peak period. Together, the data indicates that sizeable portions of the regional freeway network may have experienced significant travel delay due to non-recurring congestion resulting from mid-day traffic crashes between 2002 and 2004. Figure 4.5 illustrates sites where frequent mid-day crashes may have caused significant non-recurring congestion. Chapter VIII summarizes the Dayton Area Safety Initiative, MVRPC’s first attempt at a systematic analysis of traffic crashes and roadway safety at the regional level.

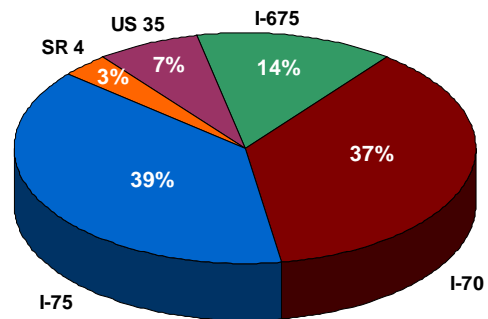
Figure 4.5 — Freeway Sections with Frequent Mid-day Crashes, 2002-2004



5. Roadway Congestion and Freight Movement

Roadway congestion can easily disrupt the delicate balance between productivity and transportation by increasing transport times, reducing delivery reliability, and raising transportation costs. These costs are inevitably passed along to shippers and consumers. Estimates produced by the Federal Highway Administration (FHWA) indicate that increases in travel times costs shippers and carriers an additional \$25 to \$200 per hour depending on the commodity.

Though truck volume patterns are heavily influenced by local economic activity, the presence of large through-freight movements has a considerable affect on local recurring congestion. In the MVRPC Region, I-70 and I-75 serve as the main transportation routes for interstate commerce. As illustrated by the pie chart at right, from 2002-2004, I-70 and I-75 carried 76% of the total truck volume on the Region’s interstates and freeways, with the remaining 24% carried by SR 4, US 35, and I-675 combined.¹ Furthermore, for inbound and outbound trips, trucks carried 95% of freight tonnage and 84% of freight value, with the majority traveling on I-70 and I-75. On average, trucks accounted for 22% of all



¹ Regional freeway network includes I-75, I-70, I-675, US 35, and SR 4.

traffic on I-75 and 33% of all traffic on I-70, considerably higher than the state average of 17% for truck volumes on interstates.

In conjunction with the Miami Valley Freight Movement Study, MVRPC conducted a freight movement workshop for representatives of regional public and private stakeholders in the freight movement industry. As identified by the participants, several roadway segments in need of capacity improvements were noted as significant obstacles to the efficient movement of goods within the Region, including I-75 through downtown Dayton and US 35 in western Greene County. More information on the Miami Valley Freight Movement Study is provided in Chapter VIII.

D. PUBLIC TRANSPORTATION DEMAND IN THE MIAMI VALLEY REGION

An important tool for managing recurring and non-recurring congestion is the regional public transportation system. Everyday, thousands of citizens in the Dayton Region use public transportation to access employment centers, commercial areas, recreation facilities, entertainments venues, and public institutions. By doing so, transit riders reduce the travel demand on the Region's roadways while moderating congestion and pollution, particularly during the peak travel periods.

Since 1998, MVRPC has coordinated with the Greater Dayton Regional Transit Authority (GDRTA) to collect ridership data on GDRTA's fixed routes. Currently, Montgomery County is the only county in the MVRPC Region that is served by regularly scheduled fixed transit routes, with the exception of a limited portion of Greene County (Wright State University and Wright Patterson AFB). Therefore, the following subsections focus solely on transit in Montgomery County. Miami, Greene, and Warren counties have demand-responsive transit services that are open to the general public and provide inter-county connections with GDRTA at various locations.

The analysis presented below is based upon the 2003 GDRTA routes, schedules, and ridership statistics. However, effective January 2007, GDRTA implemented a complete re-design of the fixed route system within Montgomery County, which included significantly altering nearly every existing route and schedule, adding service to new areas, and eliminating under-utilized routes. Future analyses will reflect the new route and schedule structure as data becomes available. For additional information on transit load factors, consult the MVRPC 2007 *Congestion Management Process Technical Report*.

1. Load Factor Analysis

Ridership data, obtained from GDRTA for 1999 and 2003, was categorized by type of route and time period as follows:

- Morning Peak (4:30 am to 9:30 am);
- Afternoon Peak (2:30 pm to 6:30 pm); and
- Off Peak (9:30 am to 2:30 pm and 6:30 pm to 1:00 am).

Headway and route characteristics, such as run times, were also collected along with operating characteristics used on a particular route including the seating and standing capacity of each vehicle.

Based on the above data, MVRPC and GDRTA calculated the average load factor for each route by time period. Average load factors were not calculated for routes that were not available in a particular period or did not run more than three times a day. Load factor is a measure of ridership compared to the seating capacity of a route for a given time period. Similar to level of service on roadways, the relative comfort that a passenger may experience while seated on a transit vehicle (load factor) is given a level of service label of A through F (See Table 4.4).

Table 4.4 — Transit Vehicle LOS and Load Factor

LOS	Load Factor (people/seat)	Passenger Conditions
A	0.00-0.50	No passenger needs to sit next to another
B	0.51-0.75	Some passengers may need to sit together, but not all
C	0.76-1.00	All passengers may sit together, limited seat choice
D	1.01-1.25	Some passengers will need to stand
E	1.26-1.50	Full transit vehicle, spacing between passengers at maximum level of tolerability
F	>1.50	Crush load, extremely intolerable

Source: *Transit Capacity and Quality of Service Manual*, 2nd ed., Transit Cooperative Research Program Report #100, Transportation Research Board, Washington DC, 2003, pp. 3-45

The results indicate that, based on the average daily load factor, routes offered a very good level of service with few routes operating near or beyond the seating capacity in 2003. However, some routes did experience passenger congestion (load factor ≥ 0.9) during at least one inbound or outbound trip in the morning, evening, or off peak period.

For the morning peak period, the routes with a load factor of 0.9 or greater were:

- Watervliet (7S) — 1.23 people/seat;
- Five Oaks (12N) — 1.21;
- Miami Chapel (9S) — 1.10;
- Salem Ave./NW Hub (8N) — 0.98; and
- Greenwich Village (9N) — 0.92.

For the evening peak period, the routes with a load factor of 0.9 or greater were:

- Watervliet (7S) — 1.20 people/seat;
- W. Third/Drexel (1W) — 1.10;
- Miami Chapel (9S) — 1.08;
- N. Main St. (7N) — 1.07;
- Forrer Blvd. (12S) — 1.03;
- Salem Ave./NW Hub (8N) — 1.02;
- Keowee/Northridge/Poe Ave. (22N) — 1.00;
- Five Oaks (12N) — 0.91; and
- Linden Ave./Eastown Hub (2E) — 0.90.

Due to longer headways between vehicles, some of the highest load factors were found in the off-peak periods of midday and late evening because fewer buses were in operation.

Based on 2003 ridership levels and load factor measurements, the regional public transportation system in Montgomery County was underutilized by the Region's population. Those with personal forms of transportation were much more likely to take a private vehicle to work than a transit vehicle, as illustrated by the latest census journey-to-work statistics reported in Chapter III. In 2000, over 83% of workers in Montgomery County drove alone to work; while a mere 2.7% used the public transportation system. However, those that use public transportation will, in general, rarely experience delay or discomfort due to over-filled transit vehicles.

2. Role of Public Transportation in Roadway Congestion Management

Public transportation has the potential to significantly reduce congestion on the regional roadway network, particularly in Montgomery County. According to the American Public Transportation Association, only 49% of Americans live within ¼ mile of a transit stop. In contrast, MVRPC analyses have shown that up to 63.7% of Montgomery County residents live within ¼ mile of a transit stop. Though regular fixed route service is currently unavailable in Miami and Greene Counties, GDRTA has agreed to extend service to just over the border into Greene County, most notably to ‘The Greene’, a high-end shopping district in Beavercreek, in addition to its service to Wright State University and Wright-Patterson AFB.

GDRTA also operates three express routes that provide direct service from Downtown Dayton to Wright-Patterson Air Force Base (X1A and X1B) and the South Hub near the Dayton Mall (X5). These routes have the greatest potential to remove vehicles from the regional roadway system because they provide a level of service equivalent to commuting by automobile. In addition, GDRTA’s Westown, Eastown, and South Hubs offer ample parking and frequent local service to many regional destination points, including the central business district. This provides suburban commuters with the opportunity to park-and-ride to their destination. Though currently underutilized by the Region’s commuters, express routes and park-and-ride facilities may see ridership increase as the personal costs of regional roadway congestion continue to climb.

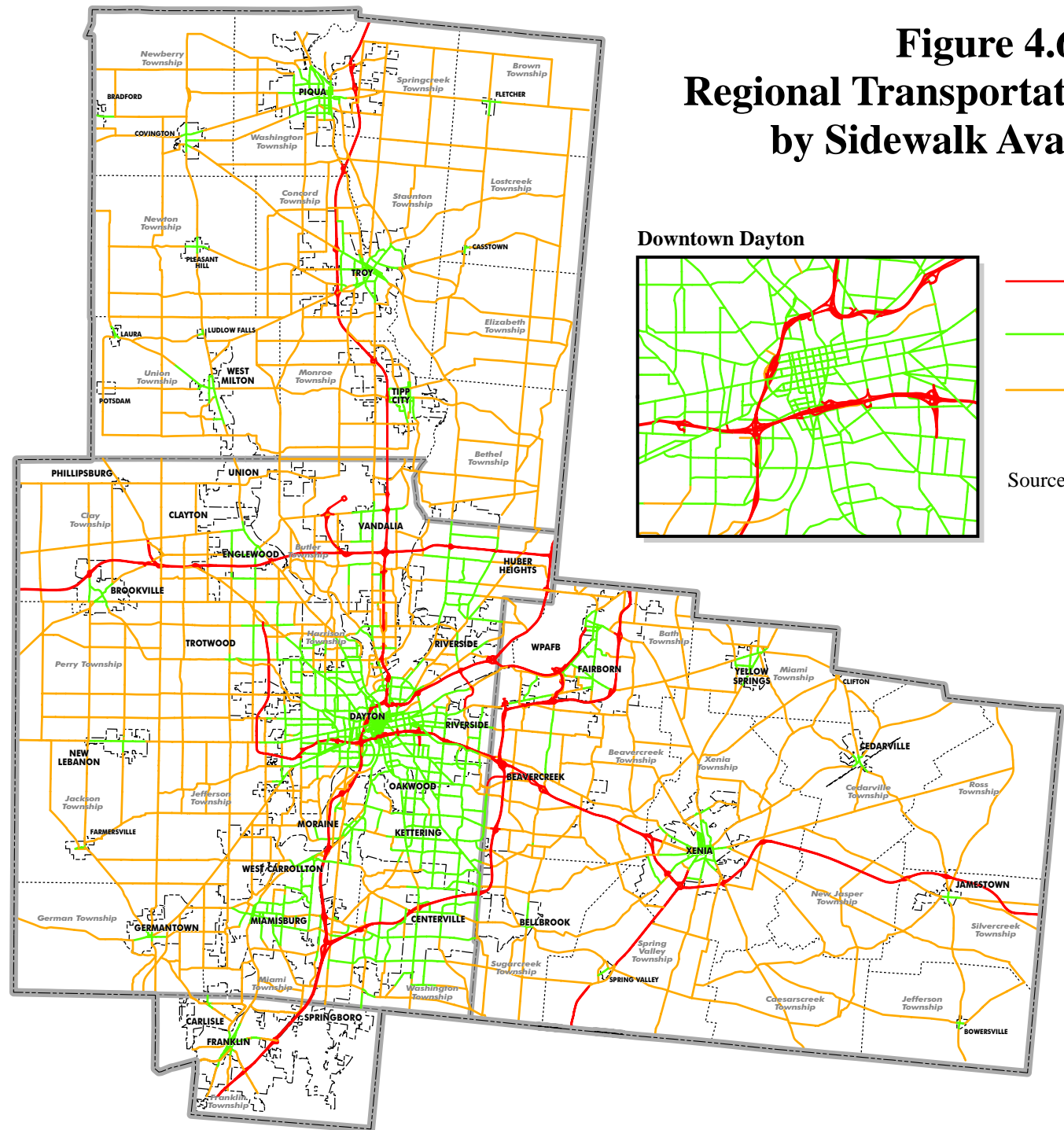
The role of public transportation in roadway congestion management is to give commuters and shoppers an alternative to the automobile for local trips. After conducting a comprehensive analysis of their service, GDRTA recognized that transit riders wanted direct access to the major employment, commercial, and entertainment centers. To accommodate their needs, GDRTA has increased the quality and frequency of service to several high demand locations, while reducing or cutting service on seldom used routes. The goal of transportation officials looking to reduce roadway congestion is to attract residents that own automobiles (i.e. choice travelers) to public transit as a means to access these centers. Though convincing choice travelers to use public transportation in place of their automobiles is a challenge, doing so may help to better manage congestion on the regional roadway network.

E. PEDESTRIAN FACILITIES IN THE MIAMI VALLEY REGION

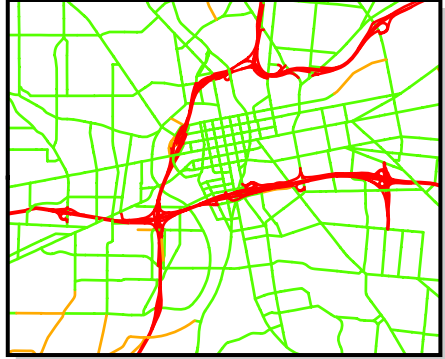
Pedestrian facilities are an important component in congestion management. Sidewalks and pathways provide easy access for pedestrians visiting commercial developments, entertainment districts, recreational areas, and public facilities without the need to drive for short distance trips, limiting roadway congestion and air pollution. Pedestrian facilities also improve access to transit routes. In support of regional pedestrian planning efforts, MVRPC continues to maintain an up-to-date GIS database of existing and proposed pedestrian facilities in the Region. This effort is supported by a regular update process referencing aerial photography, MVRPC’s Local Project Survey, local and regional planning documents, and the TIP as sources for recent and planned pedestrian facility improvements. Chapter VII documents local and regional pedestrian and bikeway planning efforts.

As part of the 2030 LRTP, MVRPC focused on the regional roadway network for its sidewalk availability assessment (see Figure 4.6). For analysis purposes, sidewalk availability was coded if a road had sidewalks on either side of the road. Limited access highways such as the Interstate were excluded from the sidewalk availability analysis, since pedestrian use on these types of facilities is usually discouraged or prohibited. It can be seen in Figure 4.6 that sidewalks are prevalent in the CBD/commercial areas of most communities in the Region, as well as the older pre-1970 residential areas.

Figure 4.6 Regional Transportation Network by Sidewalk Availability



Downtown Dayton



- Limited access roadways
- Non-limited access roadways with sidewalks
- Non-limited access roadways without sidewalks

Source: MVRPC

Greene County: 1998
Miami County: 2002
Montgomery County: 2000
Warren County: 2000

May 2008

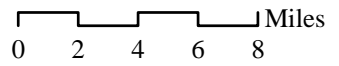


Table 4.5 summarizes the roadway sidewalk availability by county. Collectively, 27% of non-limited access roads in the regional roadway network have sidewalks. By county, Montgomery County has the highest percentage of network roads with sidewalks (41%), while Greene County has the lowest (13%).

Table 4.5 — Evaluation of Regional Transportation Network by Sidewalk Availability (in miles)

County	Limited Access Roadways*	Non-Limited Access Roadways	
		With Sidewalk	Without Sidewalk
Greene County	164.7	58.6 (13.1%)	389.7 (86.9%)
Miami County	50.4	70.8 (13.8%)	442.4 (86.2%)
Montgomery County	247.2	377.1 (40.7%)	549.1 (59.3%)
Warren County**	15.4	7.0 (26.5%)	19.5 (73.5%)
Region	477.7	513.5 (26.8%)	1400.7 (73.2%)

Note: * Limited Access Roadways mile statistics are bi-directional for divided highways.

** Warren County Roadways include only regional network roads in the Cities of Franklin and Carlisle.

Source: MVRPC

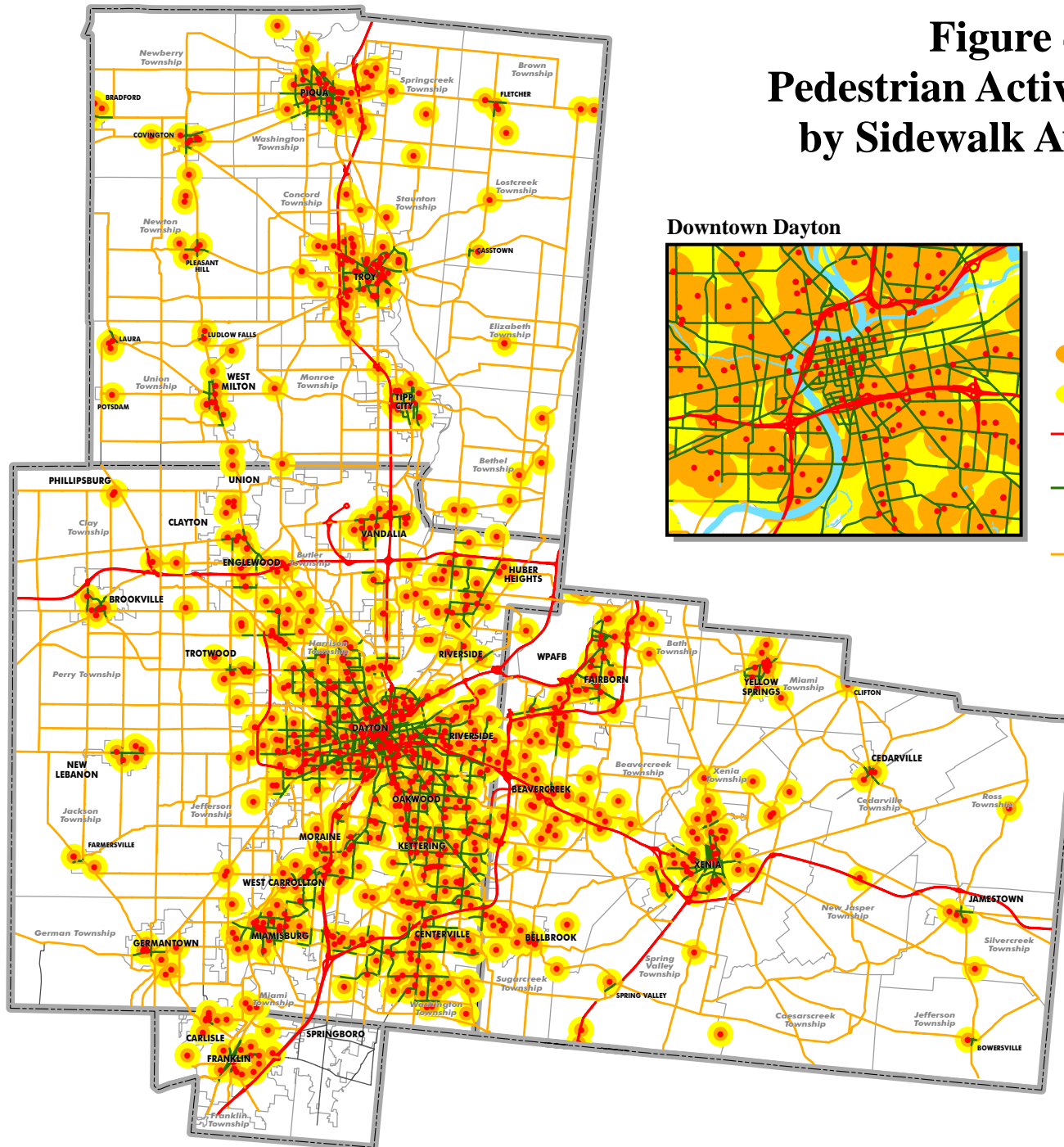
Figure 4.7 illustrates areas of the Region located within ¼-mile and ½-mile of land uses most often associated with pedestrian and bicycle traffic. These land uses include sports facilities, schools, hospitals, retail centers, and parks. Most pedestrian or bicycle trips are generated by these types of land uses, and the provision of mobility options to residents depends upon providing safe and inviting pedestrian and bicycling infrastructure. In order to assess sidewalk availability near pedestrian activity centers, MVRPC created a ½ mile buffer around pedestrian activity centers and compared it with the regional sidewalk network to identify the extent to which pedestrian activity centers are supported by roadways with sidewalks (see Figure 4.7). The results indicate that approximately 58% of non-limited access roads within ½ mile of the regional pedestrian activity centers have sidewalks. By county these percentages are 39%, 49%, 67%, and 45% for Greene, Miami, Montgomery, and the cities of Carlisle and Franklin in Warren County, respectively.²

As a result of a regional multi-jurisdictional effort, significant progress has been made toward the completion of major components of the regional pedestrian network. However, almost all pedestrian-related improvements are accomplished at the local level. When making improvements, local communities should consider the regional perspective of increasing mobility options between pedestrian activity areas, as well as providing connections to the regional bikeway system. MVRPC supports regional cooperation when planning new inter-jurisdictional pedestrian connections. For example, MVRPC recently published *The Book on Walkability and Walkable Communities* as a resource for local governments incorporating pedestrian and bike-friendly design into their neighborhoods and cities. Other local pedestrian facility planning initiatives emphasize:

- Continuous, well-connected pedestrian facilities;
- Safe street crossings with pedestrian signs, signals, and markings;
- Sidewalk set-backs along heavily-traveled thoroughfares;
- Maintenance programs to repair uneven, narrow, or missing sections of sidewalks;
- Promoting compact land use around retail centers and safe pedestrian access to businesses;
- Providing amenities such as benches, landscaping, and lighting along pedestrian routes; and
- Modifying standards for new construction to emphasize pedestrian friendly design.

² Pedestrian data for the City of Springboro was not available.

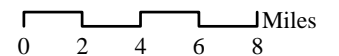
Figure 4.7 Pedestrian Activity Centers by Sidewalk Availability



- Pedestrian Activity Centers: Sports Facilities, Schools, Hospitals, Libraries, Retail Centers, and Open Spaces
- 1/4 Mile Buffer
- 1/2 Mile Buffer
- Limited access roadways
- Roadways with sidewalk to pedestrian activity center
- Roadways without sidewalk to pedestrian activity center

Source: MVRPC

May 2008



F. MVRPC SUSTAINABLE GROWTH INITIATIVE

The 2030 LRTP addresses future needs for alternative transportation by including programs and projects that provide alternatives to traditional forms of transportation. In addition to spurring economic development in existing communities, creating a sense of community, and helping to preserve open space, sustainable growth strategies also curtail the demand for single occupancy vehicle travel, thereby reducing congestion and harmful emissions. As previous analyses have shown, regional roadway congestion will continue to grow regardless of any existing or planned capital improvements to the roadway network. However, in conjunction with infrastructure improvements, sustainable growth strategies may help to slow the future growth of roadway congestion. Presented below is a list of MVRPC Sustainable Growth Initiative programs and action items to reduce congestion on the regional roadway network:

- **RIDESHARE** — A free computer-matching service available to anyone who lives or works in Montgomery, Greene, Miami, and Clinton Counties that helps link people together who are interested in carpooling/vanpooling to work or college. Currently, there are over 2,000 people enrolled in the RIDESHARE program.
- **Miami Valley Air Quality Program** — In coordination with the Regional Air Pollution Control Agency (RAPCA), MVRPC monitors local air pollution and issues notices when high levels of ozone and/or particulate pollution are forecasted. The program emphasizes public action on “Air Pollution Advisory” days to improve air quality by driving less, refueling after 6:00 pm, limiting the use of gasoline powered equipment, and eliminating outdoor burning.
- **Going Places** — MVRPC’s regional land-use planning initiative to develop a shared land-use vision to guide the Region’s growth patterns and achieve consistency between future transportation investment, infrastructure, and development, while protecting the Region’s environmental resources. Reliance on single-occupant vehicles (SOV) could be reduced through a comprehensive regional land use strategy, thus slowing the growth of congestion on the regional roadway network.
- **Bikeway and Pedestrian Programs and Projects** — MVRPC conducts extensive outreach and planning efforts to encourage walking and cycling as viable mobility options through a variety of media and print outlets, including the Miami Valley Recreational Trails Map, *Walkable Communities Handbook*, and the ‘Drive Less, Live More’ campaign. In addition, the soon to be completed, *Miami Valley Comprehensive Local – Regional Bikeways Plan* will provide the blueprint for a complete regional system of shared-use paths and on-street bikeways, including a list of short- and long-term projects for future bikeway and pedestrian connections.

Consult Chapter VII for more information on MVRPC’s Sustainable Growth Initiative.

G. REGIONAL OPERATIONS AND MANAGEMENT STRATEGIES

Operations and management strategies have proven to be vital components in regional roadway congestion management. Rather than adding more lane miles or new roadways, these strategies help engineers and planners to maximize the existing roadway capacity through efficient movement of automobiles, trucks, bicyclists, and pedestrians. Below is a brief overview of regional operations and management strategies sponsored by MVRPC, ODOT, and their regional partners.

1. Overview of Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) improve the efficiency and safety of the transportation network by combining electronic, communication, and information technologies to provide timely and accurate information and enhance the reliability of the transportation network for all roadway users. The

combined benefits of an ITS system typically result in an overall reduction in roadway congestion, and may include:

- More accurate travel information;
- Improved traffic management;
- Efficient commercial and transit operations;
- Lower travel demand;
- Enhanced emergency management;
- Less pollution; and
- Improved inter-governmental communication.

Currently, there are two operational ITS systems in Ohio: The Advanced Regional Traffic Interactive Management and Information System (ARTIMIS) in Cincinnati and the Columbus Metropolitan Freeway Management System (CMFMS). The Dayton/Springfield Freeway Management System (D/SFMS) – planned for construction in 2011 – will be the primary ITS system for the MVRPC Region. Intelligent transportation systems are also planned for Cleveland, Akron/Canton, and Toledo. Ultimately, each regional ITS system will be fully integrated with neighboring systems to provide a seamless network of ‘smart highways’ throughout the state.

2. MVRPC Traffic Monitoring Program

MVRPC, in conjunction with the Ohio Department of Transportation (ODOT) and local jurisdictions in the Dayton Region, administers a three-year-cycle traffic monitoring program. Currently, the program covers major roads in Greene, Miami, Montgomery, and northern Warren counties. MVRPC gathers, compiles, and archives traffic count information taken by participating local jurisdictions on their major roads and by ODOT on the Interstates, US Routes, and State highways. Traffic count information is input to various MVRPC transportation planning initiatives.

Collecting traffic count data is essential to preparing for and mitigating roadway congestion before it occurs. Using a three-year-cycle, engineers and planners can gauge where congestion is on the rise. Furthermore, traffic counts are the primary tool to guide the validation of the current regional travel demand model. The model is used to predict future traffic patterns using a number of land use and transportation variables. Once they are identified, locations of current or future congestion can then be considered for capacity and/or operational improvements in future updates to the LRTP or TIP.

3. Incident Management

In cooperation with the Montgomery County Office of Emergency Management (MCOEM), MVRPC has engaged our regional partners in a discussion regarding traffic incident management on Dayton area freeways and expressways (www.mvrpc.org/its/tim.php). Traffic incident management (TIM) is a multi-jurisdictional operational strategy that promotes a coordinated and planned approach to improve safety and minimize traffic delay due to an incident on the regional freeway network. This regional effort has been organized as the Traffic Incident Management Subcommittee of the MCOEM Technical Advisory Committee.

Many local emergency response agencies stated that responding to highway incidents posed the greatest danger to responders, victims, and motorists. A coordinated TIM program among local emergency response agencies can significantly reduce these dangers by facilitating the quick and coordinated clearance of traffic incidents. By promoting quick clearance principles, a TIM program can also be an effective strategy to manage non-recurring congestion.

To facilitate its incident management goals and objectives, ODOT implemented the Freeway Incident Response Service Teams (FIRST) to assist first responders (e.g. police, fire, EMS) in facilitating traffic control around incidents and clearing freeway travel lanes of vehicles and debris. The team operates a specially designed vehicle equipped to detect, respond to, and manage congestion causing incidents on the freeway network. The team is also trained in work zone traffic control and basic automobile repair.

H. REGIONAL INTELLIGENT TRANSPORTATION SYSTEMS

MVRPC has been involved in providing a more reliable transportation system using an integrated set of technologies known as an Intelligent Transportation System (ITS) since the 1991 ISTEA transportation authorization bill. Planning for this system began with the development of the *Miami Valley Regional ITS Early Deployment Plan (EDP)* in 1997. The EDP represented the Region's first major effort towards developing a regional ITS system and built awareness of the benefits that ITS projects could bring to the Region. Most importantly, the plan gave the Region a vision for ITS deployment:

The vision for the Miami Valley is one of enhanced transportation productivity, mobility, efficiency and safety within the Region with a reduction in energy use and improvement in the environment through the use of cost effective ITS technologies and systems.

Two subsequent documents, the *Dayton/Springfield Freeway Management System: ITS Architecture, Strategic Plan, and Integration Strategy* (2003) and the *Miami Valley Regional ITS Architecture* (2005), defined the manner in which the Region's ITS vision and goals would be achieved and provided a program for integration and implementation of a regional ITS system. To date, ODOT has committed \$7.3 million for the design and construction of the Region's priority ITS project, the Dayton/Springfield Freeway Management System (D/SFMS), scheduled for implementation in 2011. In the interim, ODOT will be installing a limited number of permanent and semi-permanent components of the D/SFMS as part of the I-75 reconstruction in downtown Dayton. The Dayton Early Deployment Project will provide construction-related information to roadway users and ease congestion through the work zone.

In addition to large-scale, regional ITS systems, many jurisdictions are implementing local ITS systems to improve travel conditions within their borders. In the MVRPC Region, local governments are investing in traffic signal systems by upgrading to fiber-optic cable and interconnecting signals to locally-operated traffic signal management centers. Transit-based ITS systems are also operating in the Region. GPS-based automatic vehicle location (AVL) systems are currently installed on all GDRTA vehicles, allowing GDRTA to monitor the location of their vehicles and provide up-to-the-minute arrival and departure times using message boards mounted at various GDRTA transit hubs and bus stops. Greene County Transit Board — known as Greene CATS — is also implementing this technology on its vehicles to improve service quality and reduce costs. Eventually, these systems may be integrated into the regional ITS network to facilitate the intra-regional movement of people and goods.

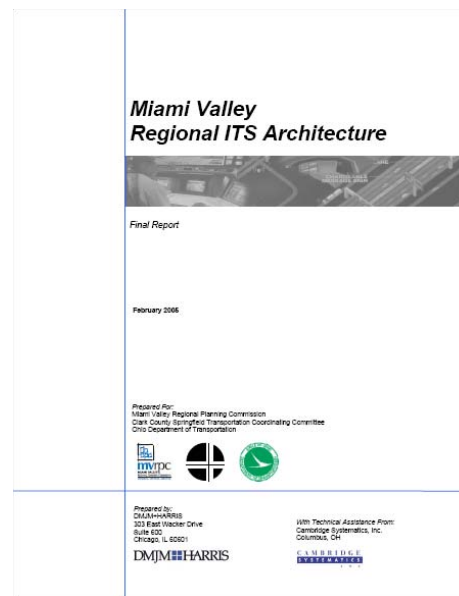
1. Miami Valley Regional ITS Architecture

In order to properly integrate these systems to provide useful information, the physical components of an ITS system must be coordinated according to a document known as the Regional ITS Architecture. This document identifies the critical operational and functional needs of the system and describes how ITS operations in the Region will perform with respect to data collection, processing, and dissemination. It also guides stakeholders in integrating various ITS project systems and components.

An ITS architecture functions much the same as a building blueprint. A blueprint illustrates where key structural components of a building must be placed. These structural components give the building stability and provide a framework for the installation of the building's individual subsystems, such as

plumbing, communications, and elevators. Similarly, an ITS architecture is the platform around which the various ITS subsystems are integrated, such as traveler information systems, vehicle information systems, and incident response systems. As implementation progresses, the ITS architecture defines the subsystems and information exchanges needed to execute the objectives and satisfy the goals of the ITS system. Because the ITS architecture is not technology specific, it does not provide a definitive description of the hardware and software necessary to operate the ITS system. This allows the architecture to remain relevant even as technology evolves, though it must be updated as regional needs change. An ITS architecture defines “what” must be done, not “how” it will be done.

MVRPC completed the *Miami Valley Regional ITS Architecture* document in February 2005, satisfying the requirements set forth in the Federal-Aid Policy document 23 CFR 940 (January 31, 2002). The Regional ITS Architecture provides a common framework for the Dayton Region’s ITS development and ensures interoperability among the various regional transportation management subsystems. The Architecture addresses ITS deployment on the Region’s interstates, controlled-access freeways, and surface arterial roadways. As required for ITS projects funded through the highway trust fund, the regional ITS architecture was developed in accordance with the National ITS Architecture to ensure interoperability among ITS systems in neighboring regions. An update of the Regional ITS Architecture will be completed in 2008.



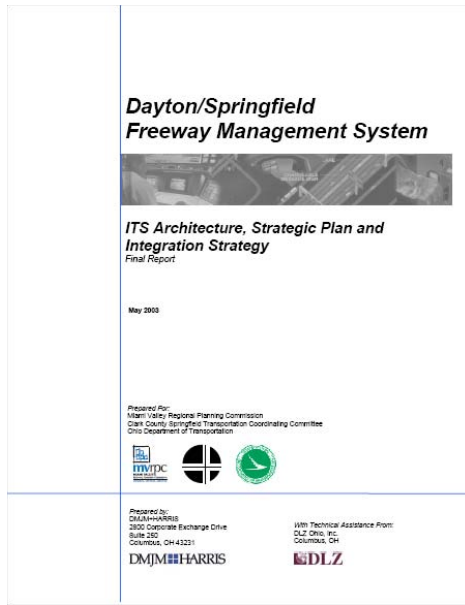
Effective January 18, 2008, all MPO’s in Ohio were required by ODOT to “identify potential transit and highway ITS projects to the ODOT District when reviewing local programs for inclusion in the TIP.”³ In response to this directive, MVRPC staff notified ODOT District Office 7 and 8 of the relevant SFY2008-2011 TIP projects that contained ITS components as defined by the ODOT Traffic Engineering Manual. In the future, MVRPC staff will review all projects to be considered for the TIP and notify the relevant ODOT District Office of any containing ITS components on an as needed basis.

2. Dayton/Springfield Freeway Management System

MVRPC completed the *Dayton/Springfield Freeway Management System (D/SFMS)* study in May 2003. The goal of the study was “to develop a plan for implementing a freeway management system in the Miami Valley area that would appropriately meet the needs of the Region while in harmony with ODOT’s ITS vision throughout the state.” Based upon the vision outlined in the *Miami Valley ITS Early Deployment Plan*, the D/SFMS provides a framework for planning the regional freeway management system (FMS) and describes how technological and operational solutions will be combined to provide congestion relief on the Region’s interstates and controlled-access freeways.

The D/SFMS will eventually combine technological and operational solutions, collectively known as Intelligent Transportation Systems (ITS), to manage the growth of regional roadway congestion. It will also enhance existing incident and traffic management activities by collecting and distributing traffic information to various regional transportation and emergency management agencies that operate on the regional freeway network. Timely and accurate traveler information will also be provided to motorists through roadway signage, radio broadcasts, and alerts to personal communication devices. As planned,

³ ODOT Traffic Engineering Manual, Part 1301-2.1.



the D/SFMS will continuously monitor traffic conditions during the peak travel periods on the regional freeway network. The D/SFMS will be owned, operated, and maintained by ODOT in coordination with key regional stakeholders, such as the cities of Dayton and Springfield, and the GDRTA. These stakeholders, among others, will be required to share transportation information with the D/SFMS and, in turn, the D/SFMS will provide the following user services or functional capabilities:

- Traffic Management,
- Maintenance of Traffic,
- Incident Management,
- Traveler Information, and
- Multimodal Integration.

The interaction and data flow between these services is described in the Draft Project ITS Architecture included in the study, together with a concept of operations describing the manner in which user services will be provided. The full-build scenario would include six highway advisory radio stations, eight dynamic message signs, 33 closed circuit television cameras, 10 linear miles of fiber optic cable, and other associated hardware and software components (See Figure 4.8). The D/SFMS is programmed for construction in 2011.

Dayton Region ITS Early Deployment Project

In addition to the maintenance-of-traffic operations for the I-75 reconstruction in downtown Dayton, ODOT will deploy a portion of the D/SFMS to aid motorists in navigating through the MVRPC Region during construction. The Dayton Early Deployment Project (Dayton EDP) will incorporate numerous permanent ITS systems, while others will be temporary to enable relocation at various stages of construction. The EDP consists of five dynamic message signs, four highway advisory radio stations, 13 closed-circuit television cameras, cellular telephone-based traffic flow detection, connections for a traffic management center, and communications through broadband wireless and telephone communications. The EDP will operate 24/7 via the Advanced Regional Traffic Interactive Management & Information System (ARTIMIS) in Cincinnati. Motorists traveling through the Region will be provided with updated traffic, incident, and construction information to promote alternative routes and reduce roadway congestion through the construction area. The EDP is set for completion in late 2008. For more information on the Dayton EDP, contact the ODOT Office of ITS Program Management.

