



*Mitchell Avenue Interchange.* The existing interchange is a standard spread diamond under I-75 with two lanes in each direction and short single lane left turn lanes. The interchange services large truck volumes destined for industrial facilities within the surrounding area. The southbound exit from I-75 is a 30 mph low-speed ramp resulting from poor sight distance. There is inadequate storage for left-turning vehicles on Mitchell Avenue at the I-75 entrance ramps. Mitchell Avenue has an advisory speed limit of 35mph.

*Norwood Lateral Interchange.* The Norwood Lateral interchange is an urban interchange that provides full movements to and from I-75. The configuration of the ramps is adequate, but there are insufficient acceleration and deceleration lengths, which is further complicated by the Norwood Lateral's close proximity to the Towne Street interchange. In addition, the super-elevation needs to be improved.

*Towne Street Interchange.* The Towne Street interchange is a partial interchange, with entrance and exit ramps in the northbound direction only. The proximity of the Towne Street ramps to adjacent interchanges at Paddock Road and the Norwood Lateral presents safety and congestion concerns. The northbound exit ramp is 35 mph from I-75. There is also restricted sight distance to the east on Towne Street due to grade. Towne Street is an east-west collector that terminates at Paddock Road to the east. West of the interchange Towne Street becomes Township Avenue in the Village of Elmwood Place. The advisory speed limit on both sections is 35mph.

*Paddock Road Interchange.* The Paddock Road interchange is approximately one mile north of the Towne Street interchange and about one mile south of the Ronald Reagan Highway (SR 126) interchange. The full diamond interchange allows all movements on and off I-75. The interchange was recently reconstructed and incorporates Summit Road at the I-75 NB exit ramp. The NB entrance ramp experiences merge issues at peak and non-peak travel times due to proximity of the Ronald Reagan Highway (SR 126).

Paddock Road is a north-south arterial linking older industrial and residential areas northwest and southeast of I-75. Paddock Road has two lanes in either direction and has a posted speed limit of 40mph.

## **PAVEMENT CONDITIONS**

The following data is a summary of ODOT's Pavement Condition Ratings (PCRs). The ratings are based on a detailed visual inspection of the conditions of the pavement and range from 0 to 100. A PCR of 100 represents pavement considered in perfect conditions, while a PCR of 0 represents a pavement with all distress present at their high levels of severity and extensive levels of extent.



**Table H: Study Area Pavement Condition Ratings**

District	County Code	Route	Direction	Begin Mile	End Mile	PCR	Date
8	HAM	75	North	4.1400	6.5700	92	12/21/04
8	HAM	75	South	4.1400	6.5700	93	12/21/04
8	HAM	75	North	6.5700	8.5500	92	12/21/04
8	HAM	75	South	6.5700	8.5500	92	12/21/04
8	HAM	75	North	8.5500	9.7400	91	12/21/04
8	HAM	75	South	8.5500	9.7400	93	12/21/04
8	HAM	74	West	17.4100	19.4700	94	12/27/04
8	HAM	74	East	17.4100	19.4700	93	1/4/05

According to pavement standards, a rating below 65 is deficient, a rating between 65 and 75 is fair, a rating between 75 and 90 is good and a rating over 90 is very good. All mainline pavement in the study area rates as very good. Therefore, none of the sections in the study area are considered deficient and in need of pavement upgrades.

**BRIDGE CONDITIONS**

The following data is a listing of bridges within the study area collected from the ODOT Bridge Inventory and Bridge Inspection Reports:

**Table I: Study Area Bridge Condition Ratings**

County	Route-SLM	SFN	Deck Area (SF)	O/A Length (FT)	GA	Floor Rating	WS Rating	PCS Rating	Percent of Legal Load	Last Inspection Date
HAM	00004-0266	3100464	17588	145	8	1	1	9	150	1/10/2005
HAM	00074-1908 L	3115720	35026	562	6	2	1	3	150	5/8/2004
HAM	00074-1908 R	3115739	73120	946	6	2	1	3	150	5/9/2004
HAM	00074-1908 S	3109798	25414	838	7	2	1	4	150	5/8/2004
HAM	00074-1931 L	3115763	1195	75	5	2		2	0	11/30/2004
HAM	00074-1932 L	3115755	2217	114	7	1		8	0	11/30/2004
HAM	00075-0240 L	3109399	13713	160	7	1	1	6	150	11/8/2004
HAM	00075-0240 R	3109429	17567	160	8	1	1	6	150	11/8/2004
HAM	00075-0249 W	3109453	6760	221	7	2	1	5	150	11/8/2004
HAM	00075-0252	3105458	22540	370	7	2	3	8	150	11/15/2004
HAM	00075-0253 W	3109488	6211	203	7	2	1	5	150	11/8/2004
HAM	00075-0261 R	3109518	6243	204	7	2	1	8	150	11/15/2004
HAM	00075-0306	3109550	21722	148	6	2	1	6	150	11/15/2004



County	Route-SLM	SFN	Deck Area (SF)	O/A Length (FT)	GA	Floor Rating	WS Rating	PCS Rating	Percent of Legal Load	Last Inspection Date
HAM	00075-0346	3109577	11528	376	7	2	1	8	150	11/17/2004
HAM	00075-0356 L	3109631	5447	178	7	2	1	8	140	11/17/2004
HAM	00075-0368	3109666	13735	356	7	2	1	8	150	11/17/2004
HAM	00075-0385	3109690	9623	290	6	3	2	8	140	11/17/2004
HAM	00075-0415	3109720	1496	187	5	2		4	0	12/6/2004
HAM	00075-0440	3109755	19311	199	7	2	2	7	150	12/15/2004
HAM	00075-0605	3109879	17459	180	7	2	2	8	150	12/15/2004
HAM	00075-0646	3109909	1658	19	7				150	2/7/2005
HAM	00075-0647	3109933	16490	170	7	2	2	8	150	1/10/2005
HAM	00075-0739	3109968	15134	156	7	2	2	6	150	1/10/2005
HAM	00075-0772	3109992	3132	196	7	1		4	0	1/10/2005
HAM	00075-0788	3110028	1830	22	6				150	9/7/2000
HAM	00075-0791	3110036	12809	132	7	2	2	8	150	1/10/2005
HAM	00075-0823	3110087	14381	147	7	2	1	8	150	1/10/2005
HAM	00075-0828	3110117	1367	15	6				150	9/7/2000
HAM	00075-0834	3110141	1873	117	6	2		4	0	1/10/2005
HAM	00075-0857	3110176	16103	166	7	2	2	6	150	1/18/2005
HAM	00075-0992	3110133	2174	211	8	2		9	0	1/18/2005
HAM	00561-0701	3113728	15694	259	6	3	2	9	150	2/2/2005
HAM	00562-0004 L	3113779	6275	234	7	2	2	8	150	1/20/2005

Source: ODOT Bridge Inventory and Bridge Inspection Reports

A bridge's overall condition is measured by a sufficiency rating. This rating is based on regular required inspections and the rating is used to distinguish when a bridge is eligible for rehabilitation or replacement. A new bridge has a sufficiency rating of 100 and a bridge with a sufficiency rating of less than 50 qualifies for replacement using federal bridge funds. If a bridge requires immediate rehabilitation to remain open, has been restricted to light vehicles, or is closed then it is considered structurally deficient. If a bridge has 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 then it becomes functionally obsolete.

General appraisal and operational status explains 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 condition immediately after being built.

The following tables describe General Appraisal and Operational Status codes used (*Bridge Inspection Manual*, 2001, Ohio Department of Transportation).



**Table J: General Bridge Appraisal Codes and Operational Status**

Code	Description
9	As built condition
8	Very Good Condition - no problems noted
7	Good condition - some minor problems
6	Satisfactory condition - structural elements show some minor deterioration.
5	Fair condition - all primary structural elements are sound, but may have minor section loss, cracking, or spalling. Secondary elements may have significant deterioration.
4	Poor condition - advanced section loss, deterioration, or spalling.
3	Serious condition - loss of section, deterioration, or spalling have seriously affected primary structural components. Local failures or cracks in concrete or both may be present.
2	Critical condition - advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present. Bridge should be closed or closely monitored, until corrective action is taken.
1	"Imminent" failure condition - major deterioration or section loss present structural components. Bridge is closed to traffic but corrective action may put back in light service.
0	Failed condition - out of service - beyond corrective action.

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.).

## 7.0 Traffic Volumes and Levels of Service (2004 and 2030)

*Data Collection.* Traffic counts were collected within the I-75 Mill Creek Expressway study area on Tuesdays, Wednesdays and Thursdays during October and November 2004 to get an accurate representation of normal weekday traffic. Traffic for the at-grade intersections was collected using turning movement counts; while ramp traffic was collected using portable machine counters. Mainline volumes were determined from the HAM-75-10.10 (PID 76256) study and carried through the I-75 Mill Creek Expressway study area.

*Capacity Analysis.* Level of Service (LOS) is a tool that measures the quality of operations for different roadway types, features, and controls. The Highway Capacity Manual (HCM), published by the Transportation Research Board, is the standard of care for roadway operations analysis and level of service determination. The Level of Service is computed as the result of a multivariable logic and numeric equation in the form of a worksheet. The variables account for the factors found in the field that dictate capacity and represent the traffic flows that exist and/or are anticipated in the future. These variables often include speed, geometry and traffic volume.