

# TRANSPORTATION ISSUES (PRELIMINARY)

## **Overview**

Transportation issues within and impacting Harrison County were developed through the following efforts:

- Technical assessment of current traffic and crash data.
- Discussion with DOT staff from both the local district office and the central office in Charleston.
- Discussion with the Harrison County Transportation Study Advisory Committee.
- Discussion with the public during two public meetings held in November 2000.
- Discussion with city/town and county staff.
- Field review of the county by the consulting staff.

From the various discussions and technical reviews, a broad range of current and emerging issues were identified. As a means to organize the information obtained, a the following categories were developed:

- Traffic operations deficiency: Created when current traffic volumes were observed to approach or exceed the *acceptable* capacity of a corridor. Based on the relative population density of the county, it was concluded that a capacity representative of level of service C<sup>1</sup> would be representative of the acceptable capacity.
- Traffic safety issues: These locations were derived through information gathered from the various constituent groups and through review of accident data in the arterial corridors for the most recent three-year period. A deficiency was identified at locations where the observed accident rate exceeded the statewide average for a similar facility. A potential safety issue was also noted based on information obtained from the constituent group discussions.
- System Deficiencies: For the purposes of the transportation plan a system deficiency has been defined as locations in the roadway network where one or a combination of the following exist:
  - A lack of access along a corridor serving development areas.  
Inconsistency between the street/roadway functional classification and the actual function the corridor serves in the system. Documented in Table 1 is a preliminary set of guidelines for a functional classification hierarchy in the urban roadway network. The guidelines reflect definitions provided by the Federal Highway Administration. A deficiency would be identified in locations where the *intent* of the guidelines is not met. Documented in Table 2 are more qualitative descriptors for use in defining the rural area functional hierarchy.
  - Limited access along a corridor serving development areas.

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<sup>1</sup> Operation reflects stable flow, and intersection delay is generally acceptable by travelers. Major approach phases may periodically be fully utilized. Most drivers feel somewhat restricted.

**TABLE 1  
URBAN AREA FUNCTIONAL CLASSIFICATION GUIDELINES**

Functional Classification	Trip-Making Service Performed	Location	Mobility/ Access	Approximate Daily Traffic (VPD)	Approximate Spacing (miles)	Typical Operating Speed (MPH)
<b>Principal Arterials</b>	Connects major activity center and connects the urban areas of Harrison County.	Along natural community separations.	Highest traffic mobility; No direct land access.	10-35,000+	--	55
Interstate/ Expressway						
Other Principal Arterial	Provides mobility within and between adjacent subareas.	On edges of neighborhoods.	Moderate to high traffic mobility, limited land access.	5 - 25,000 +	1/2 to 1-1/2	35-45
<b>Minor Arterial</b>	Connects activity centers in the developed area.	Neighborhood edges; Not in neighborhoods	Moderate traffic mobility; Moderate land access.	5 - 15,000	1/2 to 1	30-45
<b>Collector</b>	Connects neighborhoods and other land uses.	On edges or within neighborhoods.	Limited traffic mobility; high land access.	1 - 7,000	1/2 or less	30
<b>Local</b>	Provides mobility within neighborhoods and developments.	Within neighborhoods or other homogeneous development areas.	Most limited traffic mobility; highest land access	<1,000	As needed	25

Functional Classification	Linkage To Regional Roadways	Parking	Traffic Management Tools	Level of Continuity Within County	Typical Signal Spacing (miles)
<b>Principal Arterials</b>					
Interstate/ Expressway	--	Prohibited	Interchange spacing; no direct land access.	Continuous	--
Other Principal Arterial	Yes	Generally Prohibited	Signal timing, controlled land access spacing	Semi-continuous	1/2 to 1
<b>Minor Arterial</b>	Yes	Limited	Signal timing, controlled land access spacing	Semi-continuous	1/4 to 1/2
<b>Collector</b>	Rarely	Permitted	Geometry, number of lanes, access spacing	Usually not continuous	Arterial crossing where warrant is met.
<b>Local</b>	No	Permitted	Discontinuity, stop signs, etc.	Discontinuous	None

Source: Federal Highway Administration  
BRW, Inc

- A breakdown in the functional classification system. Documented in Table 1 is a preliminary set of guidelines for a functional classification hierarchy in the roadway network. A deficiency would be identified at locations where the *intent* of the guidelines has not been met.

Discontinuity in arterial corridors. The general purpose of an arterial corridor is to move people and goods through an area; land access is a secondary/minor role for the corridor. In order for a corridor to serve the person/goods movement function, it must provide continuity between major generators. A lack of continuity in arterial corridors results in circuitous travel and use of collector, and even local streets, as through routes.

- Corridor/bridge where a functional inconsistency exists. A functionally inconsistency is defined as the condition where the design of a facility (bridge/roadway) is not consistent with the purpose that the facility serves in the system hierarchy. Examples include:
  - Roadway corridors that are significantly substandard in width. These include corridors that serve as collectors (principally in the rural areas) that are narrow enough that a center line is not provided.
  - Bridges that do not meet current design standards for width, but are reasonably consistent with the roadway width of the corridor in which they are located.

- Bridge Deficiency: Bridges through the state are periodically evaluated as to their condition. Through the evaluation the following are reviewed;
  - Average daily traffic.
  - Condition of the superstructure.
  - Condition of the substructure.
  - Condition of the deck.
  - Condition of the culvert (if applicable).
  - Deck geometry.
  - Underclearance.
  - Approach road alignment.
  - Waterway adequacy.

Bridges not meeting minimum thresholds for these categories of evaluation are reported as either functionally obsolete or structurally deficient. Those bridges categorized as structurally deficient are excluded from the category of functionally obsolete. Evaluation criteria used in the functional assessment include:

- Deck geometry.
- Underclearances.

**TABLE 2**  
**RURAL FUNCTIONAL CLASSIFICATION GUIDELINES**

<b>Functional Classification</b>	<b>Description</b>
<b>Principal Arterial</b>	<p>Corridors that serve trip lengths that reflect substantial statewide or interstate travel.</p> <p>Corridors that contain travel density that is reflective of statewide or interstate travel.</p> <p>Serve all, or virtually all, urban areas of a population over 50,000 persons and a majority of those over 25,000 persons.</p> <p>Few, if any stub connections. Stub connections would be accepted only in conditions where unusual geographic or traffic flow conditions exist (international boundaries, etc.).</p>
<b>Minor Arterial</b>	<p>Links cities and larger towns (and other traffic generators, such as major resort areas, that are capable of attracting travel over similarly long distances) for an integrated travel network providing interstate and intercounty service.</p> <p>Spaced at intervals consistent with the population density. All developed areas should be within reasonable distance of an arterial highway.</p> <p>Provide for relatively high overall speed, with minimal interference to through movement.</p>
<b>Collector</b>	<p>Serve intracounty travel.</p> <p>Provide for moderate speeds.</p>
Major	<p>Provide service to any county seat not on an arterial route, to larger towns not directly served by the higher systems, and to other generators of intracounty importance.</p> <p>Link with larger towns/cities and to routes of higher classification.</p>
Minor	<p>Spaced at intervals consistent with the population density to collect traffic from locals and bring developed areas within reasonable distance of a collector road.</p> <p>Link locally important traffic generators with their rural hinterland.</p>
<b>Local</b>	<p>Provide access to adjacent land.</p> <p>Serve travel over relatively short distances as compared to collectors and higher systems.</p>

- Approach roadway alignment.
- A structural evaluation.
- Waterway adequacy.

Evaluation criteria for the structural assessment include:

- Condition of the superstructure, substructures, deck and, when applicable, the culvert.
- A structural evaluation.
- Waterway adequacy.

Within Harrison County, there are currently 61 functionally obsolete and 42 structurally deficient structures in the county. These reflect approximately 27 percent and 18 percent, respectively of the 229 WVDOT reviewed structures.

### ***Summary of Current Issues***

Issues throughout the study area have been organized based on the categories documented in the previous section. The issues/deficiencies were derived through discussions with staff, local constituent groups and through technical analysis.

### **Traffic Operations Deficiencies Identified Based on Review of 1999 Average Daily Traffic (ADT) Volumes**

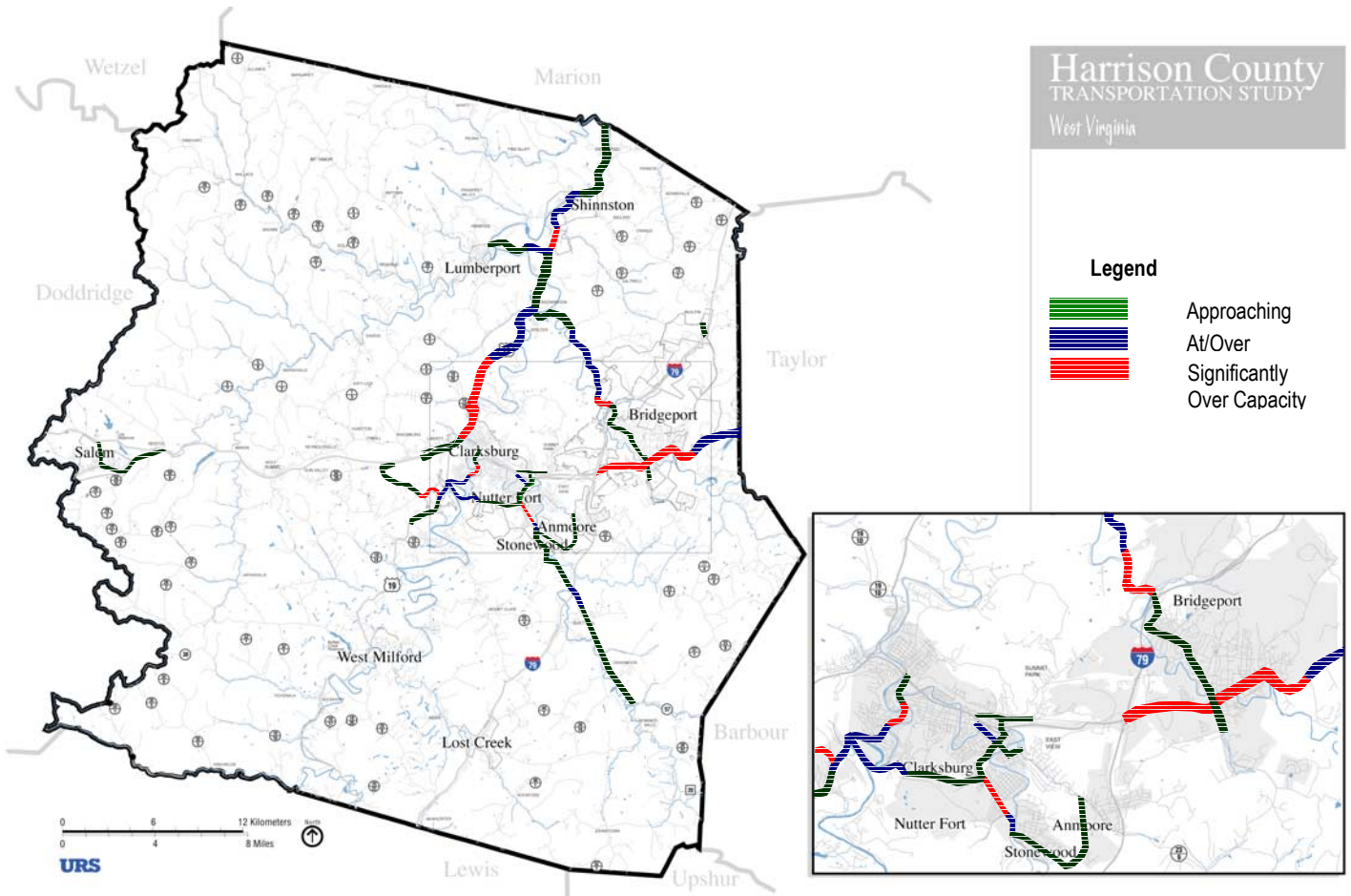
Displayed in Figure 1 are current conditions capacity deficiencies that have been identified within Harrison County. Deficiencies were identified through completing an evaluation of 1999 ADT data, obtained from the WVDOT, against daily capacity estimated for the range of typical cross sections observed in the county. For the operations analysis, the following thresholds of deficiency were applied:

- Volume-to-capacity ratio of less than 0.85: Acceptable flow, reasonable levels of excess capacity for future growth.
- Volume-to-capacity ration of 0.85 to 1.00: Volume is approaching the acceptable capacity of a corridor. The corridor likely provides for acceptable flow in the current conditions, however, there is limited additional capacity to accommodate future growth.
- Volume-to-capacity ratio of 1.00 to 1.20: Volume is equal to or slightly in excess of the acceptable corridor capacity.
- Volume-to-capacity ratio of greater than 1.20: Volume significantly exceeds the acceptable capacity of the corridor.

The more qualitative description of operations in the various corridors in the county is used throughout the narrative description in the following section.

Estimated daily capacities were derived through application of generalized assumptions on peak hour percentages, peak hour directional volume splits, parking restrictions and signalized intersection approach green time allocation by functional class.

**Figure 1**  
**Capacity Deficiencies**



For the analysis of capacity deficiencies, a minimum acceptable quality of traffic flow reflective of level of service C was established in the county. Use of level of service C is a function of:

- Development density of a region: In general, travelers accept a greater level of congestion in a more dense urban area than in a more rural area. The development density within most of the Harrison County urban area is relatively moderate (approximately 170 person per square mile).
- Overall urban area population: Typically, travelers in larger urban areas expect, and are tolerant, of a greater level of congestion.
- Area type: Generally, as travelers move through an urban area a greater level of congestion is tolerated than is in a more rural area. Thus, within the county study area separate thresholds of acceptable capacity were estimated for urban and rural portions of the county.

Capacities derived for use in the Harrison County Transportation Study are documented in Table 3.

For the current conditions, capacity deficiencies have been identified in the following corridors:

- US 50 Corridor: Current traffic volumes in the corridor exceed the acceptable capacity from the Taylor County line through the interchange influence area at I-79.

In addition, interchange capacity issues along US 50 through Clarksburg are becoming more acute as volumes approach the capacity of many of the compressed interchange configurations.

Volumes along the segment from west of the US 19 interchange to West Virginia Route 9 at Wilsonburg have increased to a level that begins to approach the acceptable capacity of the corridor.

- US 19 North Corridor: Average daily traffic volumes throughout the corridor from US 50 through the Marion County either significantly exceed, are approximately equal to or are approaching the acceptable capacity of the corridor. Areas of the most significant concern are the segments from US 50 through West Virginia Route 18 at Dawmont and through the southern portions of Shinnston, where current average daily traffic volumes significantly exceed the acceptable capacity of the corridor.
- US 19 South Corridor. Current daily traffic along the common section of US 19 and West Virginia Highway 20 are approaching the capacity of the corridor. South of the Pike Street intersection, volumes increase to a level that significantly exceeds the acceptable capacity.
- Harrison CR 24 Corridor. From the I-79 interchange area through the Meadowbrook Mall intersection, current average daily traffic volumes exceed the acceptable capacity of the corridor. From the mall area through CR 13/1, current volumes are approximately equal to the acceptable capacity of the two-lane corridor. West of the CR 13/1 intersection to the intersection with US 19, current daily traffic volumes are reaching levels that approach the acceptable capacity of the corridor.

Table 3

**PRELIMINARY ESTIMATED DAILY CAPACITY**

Functional Classification/Lanes	Daily Capacity LOS "C" (Vehicles Per Day)		Threshold ADT for Deficiencies (Vehicles Per Day)	
	CBD	Non- CBD	CBD	Non- CBD
- Freeway				
4-lane	65,200	65,200	52,200	52,200
6-Lane	97,800	97,800	78,200	78,200
- Arterial (Urban)				
2-lane	9,400	10,400	7,500	8,300
2-Lane/Left or Right <sup>1</sup>	12,800	14,000	10,200	11,200
2-Lane/Left/Right <sup>2</sup>	14,500	15,700	11,600	12,600
4-lane	21,000	23,300	16,800	18,600
4-Lane Left or Right <sup>1</sup>	23,800	26,500	19,000	21,200
4-Lane/Left/Right <sup>2</sup>	25,600	28,400	20,500	22,700
- Collector (Urban)				
2-Lane	5,200	5,800	4,200	4,600
2-Lane/Left or Right <sup>1</sup>	7,000	7,700	5,600	6,200
2-Lane/Left/Right <sup>2</sup>	8,000	8,600	6,400	6,900
4-lane	11,600	12,900	9,300	10,300
4-Lane Left or Right <sup>1</sup>	13,100	14,600	10,500	11,700
4-Lane/Left/Right <sup>2</sup>	14,100	15,600	11,300	12,500
- Arterial/Collector (Rural)				
2-Lane	NA	6,000	NA	4,800
2-Lane/Left or Right <sup>1</sup>	NA	6,600	NA	5,300
4-lane	NA	16,000	NA	12,800
4-Lane Left or Right <sup>1</sup>	NA	17,600	NA	14,100

Note: 1 - Left and right turn lanes are assigned similar capacity for this macro-scale analysis. Right turns on red are underestimated.

2 - Divided and undivided segments are not separated.

Center left turn lanes and left turn lanes impact capacity to similar levels.

Free rights and right turn lanes impact capacity to similar levels.

- WV 20 Corridor. Traffic volumes in the segment of the WV 20 corridor west of US 19 to Lumberport are reaching levels that approach the capacity of the corridor. In the area directly west of US 19, volumes exceed the acceptable capacity of the corridor.
- WV 20 Corridor. From East Main Street through the intersection of WV 98, current traffic volumes begin to approach the acceptable capacity of the corridor. Through the commercial area of Nutter Fort, current traffic volumes significantly exceed the capacity of the corridor. Capacity through this segment of the corridor is impacted by the level of direct land access to/from the arterial corridor. From Nutter Run Road through the intersection with WV 58, current traffic volumes are at the acceptable limits for the corridor. East of the WV 58 intersection traffic volumes decrease, however, traffic levels continue to approach the acceptable capacity of the rural two-lane corridor through WV 57.
- WV 98 Corridor. From US 50 through the intersection of CR 19/11, current ADT in the corridor are approaching the acceptable capacity. East of the CR 19/11 intersection through US 19, traffic added from the CR 19/11 corridor results in volumes that significantly exceed the acceptable capacity of a two-lane corridor. East of US 19, current traffic volumes are at the capacity of the two-lane corridor through approximately Harding Road.
- WV 58. Through Stonewood and Anmoore, current traffic along the WV 58 corridor approaches the capacity of the two lanes.
- Joyce/Marshall Street. From the interchange at US 50 through East Main Street, volumes along the Joyce Street/Marshall Street corridor reflect levels that are approaching the acceptable capacity of the corridor.
- East Main Street. East of the one-way pair section through downtown Clarksburg, current volumes in the East Main corridor exceed the capacity of the corridor through the Marshall Street intersection. East of Marshall Street, the corridor serves as a connector to North Pike Street, via Broadway Street. In this area, volumes drop to levels that are approaching the acceptable roadway capacity threshold.
- George Washington Highway. As a feeder into downtown Clarksburg from the Bridgeport Hill area, volumes on George Washington Highway have increased as development in the area has expanded. Currently, traffic volumes in the corridor from west of Pike Street to the beginning of the one-way pair approach the capacity of the corridor.
- Johnson Avenue, West Philadelphia and Virginia Avenue. As the principal connector between US 50 and the Meadowbrook Mall area, volume carried in this corridor continues to increase. Current traffic volumes in the corridor approach the acceptable capacity of the corridor. Operations in the corridor are also impacted by capacity restrictions along the US 50 corridor through Bridgeport.
- WV 131 at I-79. Traffic volumes along the segment just north of the interchange approach the acceptable capacity of the corridor.

### **Transportation Issues Identified Through Windshield Field Review**

Field reviews were completed along the collector and arterial corridors throughout the county. The purpose of the survey was to document the locations of capacity deficiencies, safety issues and system deficiencies. The field reviews were completed at various times of the day in order to observe peak traffic operations at many of the more heavily traveled corridors in the county.

The issues identified through the windshield review of the county (the name is associated with driving through the county making observations and recording data) are displayed in Figure 2. In general, issues identified included:

- Congestion along the principal travel corridors in the county. Observations recorded during the field review corresponded to those derived through review of the count data and from information provided during staff meetings and workshops with the public.
- Safety issues: Observed during the field investigation and locations identified through on-going analysis of WVDOT crash data were safety issues that were organized in the following categories:
  - Limited sight distance: Throughout the county numerous intersections were observed where one of the approaches arrives on a skew; which can severely reduce the sight distance for certain movements. In addition, there were a number of locations where the skew conditions were further complicated by a significant grade along at least one approach to the intersection. Examples of this skew compounded by grade along an approach is the intersection of US 19 at WV 270 in West Milford and the intersection of WV 20 at CR 20/14.
  - Narrow bridges: Throughout the county there numerous bridges were signed as narrow or one lane. The bridges do not meet current design guidelines and should be addressed as part of the long range planning process.
  - Reduced speed curves: Due to the mountainous terrain throughout the county, it has not been feasible to design/build all curves to 45 or 55 MPH design speeds. The most significant deficiency locations along primary routes have been identified and documented.
  - Limited intersection or interchange acceleration and deceleration areas. Higher volume intersection and interchange areas that lack acceptable acceleration and/or deceleration lanes have been identified.
- Signal equipment: Locations where older/non-standard signal equipment is located have been identified.



- Limited intersection or roadway corridor design: Locations where existing intersection or corridor design do not meet the current needs were identified and mapped. During the field review, corridors that were not wide enough to allow a painted center line, but were designated as a county route or state route were placed in a category of "functionally inconsistent". For these corridors, alternatives which allow for at least enough widening to allow a painted center line will be investigated.

**Transportation System Issues Identified Through Public Meetings, Advisory Group Meetings and Staff Discussions**

Initial public and staff meetings in the planning process were focused on gathering data on current and emerging transportation system issues throughout the county. Through discussions held during the following meetings the public, representatives from the community, city/county staff and DOT staff provided input on which transportation system issues were of greatest concern:

- November 2, 2000 – Harrison County Transportation Study Advisory committee.
- November 28, 2000 – Public open house in Clarksburg.
- November 29, 2000 – Public open house in Salem.

Location/corridor specific issues identified during the discussions are displayed in Figure 2. As a summary of the information provided at the various meetings, the following were identified as the core issues that should be addressed through the transportation planning process:

- Congestion along US 50 and alternates to the corridor in both Bridgeport and Clarksburg. Alternatives for bypass routes to the south of Bridgeport and Clarksburg will be reviewed, as well as the potential relief provided by completion of CR 279.
- Traffic volume and operational impacts associated with external improvement projects in the region. In particular, there is the potential for additional regional through traffic in Harrison County as Corridor D and Corridor H are completed. This plan must acknowledge the increment of traffic and identify methods of accommodating the increased volume.
- Connectivity of high activity areas and growth areas to regional facilities of US 50, I-79, CR 279, etc.
- Safety along the US 50 corridor between Clarksburg and Salem. The corridor has been the location of numerous accidents over the years. Of primary concern in the corridor is the bridge north of Salem. Citizens reported concerns relative to the bridge design and concerns about the location following a chemical spill and fire.
- Congestion within the I-79 corridor and the potential for the on-going expansion project to remedy current concerns/deficiencies, or development/improvement of alternate corridors. Included in the alternate corridor listing:
  - Despard Road (CR 24/3).
  - CR 279.
  - A new corridor between Clarksburg and the Route 24/I-79 interchange area.
- Congestion in the expanding retail areas adjacent to I-79 along US 50 and CR 24.
- There is a great beginning of a trail system in the county. Lacking, however, is connectivity of the various trail corridors. A trail coordination plan is required.

- Congestion along Johnson Street in Bridgeport. The corridor is an alternate to the US 50 and I-79 corridors for those traveling across the community. The predominantly two-lane corridor is reaching the point of unacceptable congestion.
- Incorporation of alternate modes (bicycles, pedestrians and transit) into the current/future transportation systems. Areas where transit was identified as deficient were:
  - Back and forth between Salem and Clarksburg/Bridgeport.
  - FBI Fingerprint Center.
- Development of alternate corridors that would provide increased accessibility of current and future activity centers in the county.
- Access to the FBI Fingerprint Center. The primary access to the site was intended to be from CR 707. The level of employee traffic using the access point along CR 24/27 continues to increase and results in congestion along the corridor.
- Location of United Hospital Center. A key discussion topic in the county has been the potential re-location of the United Hospital Center from the current location along Davisson Run Road (WV 98). The future location of the hospital has the potential to impact travel and the transportation network in the county. Issues being addressed relative to the hospital include:
  - Analysis of an alternate access to US 50, northeast of the hospital site.
  - Traffic impacts associated with a possible relocation of the hospital to the I-79 or CR 279 corridors.
  - Travel time impacts from western portions of the county associated with moving the hospital to the east. Residents in the Salem area would be required to travel through Clarksburg should the hospital be moved to the I-79 or CR 279 corridors.

### ***On-going Identification of Issues***

With the development of a county travel demand model, a primary tool for providing a means of peering into the future travel conditions in the county would be provided. Changes in travel resulting from a proposed county growth/development concept will be estimated using the travel model. In addition, through analysis of the model output, foresight as to potential locations of congestion and the need for increased corridor accessibility can be provided.

An initial forecast for the 2025 period will reflect an existing plus committed roadway network. Regional transportation system improvements likely to be included:

- CR 279 from US 50 through I-79.
- Corridor H improvement impacts on traffic in the US 50 corridor.
- Corridor D improvement impacts on traffic in the I-79 and US 50 corridors.