

**CORRIDOR REVIEW**

**WV 25 and WV 62**

**(Poca to North Charleston)**

**Regional Intergovernmental Council**

**January, 2003**

## **INTRODUCTION**

RIC's Metropolitan Transportation Plan calls for selection and review of a corridor in the Charleston Metropolitan area each year and to come up with a low cost improvement plan for the corridor. This time RIC selected a corridor from Poca to North Charleston which traverse about 15 miles along WV62 and WV25. The corridor starts at Poca River at Milepost 3.06 traversing south on WV62 and then east on WV25 through Nitro, Institute and Dunbar before terminating at the intersection of WV25 and WV62 in North Charleston. The three-year accident record, 1998 through 2000, was utilized to select the corridor for review based on reasons including the following:

1. The accident rate for the corridor is high - 382 accidents per hundred million vehicle miles (hmvm) of travel. This compares with the WV average of 203/hmvm for rural 2-lane roads and 337/hmvm for urban 2-lane highways.
2. More than Seven miles of this corridor (48%) are included in the Critical Rate Reports for Kanawha and Putnam Counties. A highway segment, to be included in the critical rate report, must meet the minimum high hazard accident criteria.
3. This corridor has not been reviewed by RIC in the recent past.

A travel time analysis was performed in the daytime (Appendices I and II) and no major operational inadequacies were found. A distance of 15 miles with as many traffic lights was covered in 25 to 26 minutes resulting in an average speed close to 35 mph. Several spot checks to observe traffic movement at peak traffic time did not indicate any extra ordinary problems either. Thus this analysis is basically intended to find the causes of the high number of accidents and to identify low cost solutions to reduce them.

### **Procedure**

Available accident record was collected from WVDOH for the last three years. By utilizing the info available from the 1998 Inventory Log and Cultural Diagrams for WV25 and WV62, a tabulation was prepared for the entire corridor showing accident rate per 100 million vehicle miles traveled for the period 1998-00. This was accomplished by dividing the corridor into segments with respect to average daily traffic (ADT) and pavement width. As shown in Attachment I, the average accident rate for the corridor is found to be 382 accidents/hmvm, which is above the statewide average as stated earlier.

### **Segmentation:**

In order to pinpoint accident locations and to identify the worst locations on the corridor with respect to accidents, the corridor was divided into 1/10<sup>th</sup> of a mile segments. All accidents that occurred during the three-year period were assigned to each segment with the accident type identified (Attachment II). As shown on Attachments I and II there were a total of 930 accidents and the number of accidents increased each year from 283 in 1998 to 344 in the year 2000.

### **Location Selection:**

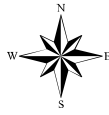
All adjacent segments with multiple accidents in Attachment II were aggregated to select and identify as high accident locations. As shown on Attachment III, there are 17 such

locations on the corridor varying in length from 0.1mi, which can be classified just an intersection, to three locations that are 0.5mi long. These locations are numbered from 1 through 17 and are identified on the attached map with a numbered cross-reference. Attachment III also depicts calculated accident rates for the selected locations in terms of 100 million vehicle miles for a segment and per million vehicles in case of an intersection. The tabulation also compares the accident data with the Critical Rate as shown in the Critical Rate Report. For some locations the Critical Rate is missing even though the accident rate is high. The reason is that Critical Rate is calculated only when the stretch is at least 0.5mi long. Those portions of the corridor that are included in the Critical Rate Report for the Kanawha and Putnam Counties, are shown, in Appendix III.

It is noted that the length of selected locations add up to only 5.0mi of the 14.77mi long corridor; however, 710 of the 930 total accidents on the corridor occurred on the selected locations. Therefore, selected locations represent the highest accident-prone areas. They will be analyzed in detail to determine why the accidents are concentrated on these locations and whether there is a low cost solution available to alleviate or reduce the number of these accidents.

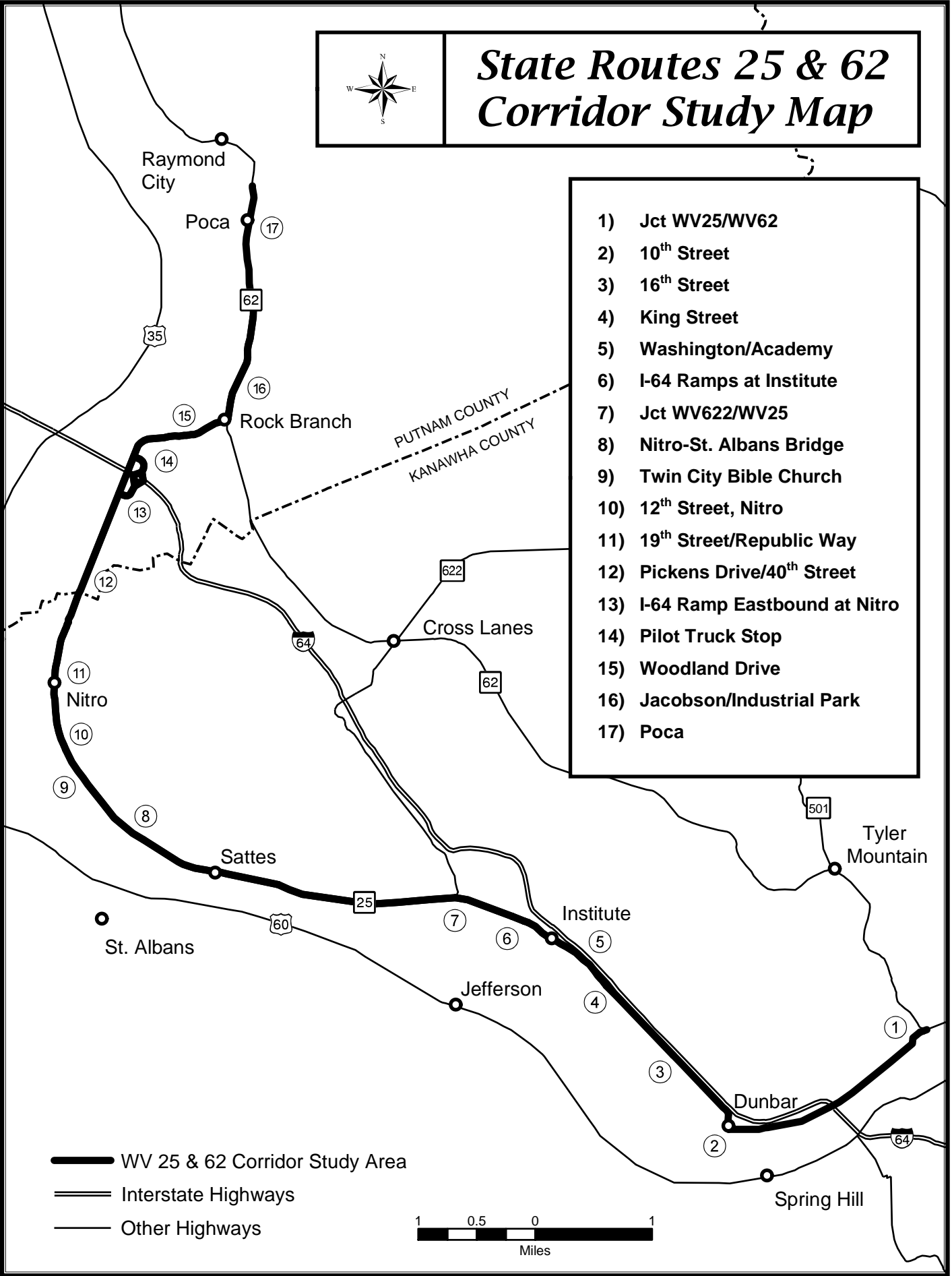
A 7-page sketch showing the pertinent data for the entire corridor is included in Appendix IV. The data is arranged by milepost and includes business locations, average daily traffic, location of traffic lights, number of lanes, width of pavement and right of way. All accident-prone locations are exhibited with a rectangle along with the number of accidents at each segment circled within the rectangle.

Following are the analyses and recommendations for all 17 selected sections.



# State Routes 25 & 62 Corridor Study Map

- 1) Jct WV25/WV62
- 2) 10<sup>th</sup> Street
- 3) 16<sup>th</sup> Street
- 4) King Street
- 5) Washington/Academy
- 6) I-64 Ramps at Institute
- 7) Jct WV622/WV25
- 8) Nitro-St. Albans Bridge
- 9) Twin City Bible Church
- 10) 12<sup>th</sup> Street, Nitro
- 11) 19<sup>th</sup> Street/Republic Way
- 12) Pickens Drive/40<sup>th</sup> Street
- 13) I-64 Ramp Eastbound at Nitro
- 14) Pilot Truck Stop
- 15) Woodland Drive
- 16) Jacobson/Industrial Park
- 17) Poca



# Accident Analysis and Recommendations

## (Corridor WV25 and WV62)

### 1. MP10.4-10.5 Intersection of WV25 and WV62 N. Charleston (19 Accidents)

#### Rear End – 10

No set pattern was found as accidents occurred in all 6 different lanes at this intersection.

#### Accident Conflict 12 – 4

All occurred in the year 2000 at the same spot. Vehicles turning left on WV25 from WV62 probably did not stay in the left lane.

#### Accident Conflict 8 – 2

In both cases vehicles from WV62 ran the signal while making a left turn on to WV25.

#### Sideswipe (S) - 2

In one case the accident occurred when a vehicle turning left from WV62 did not maintain control and probably ended up in the outer lane of WV25.

#### ***Observations:***

In at least five cases, 4 AC12 and one Sideswipe, accidents occurred due to vehicles ending up in the outside lane of WV25 while turning left from WV62. In two additional cases, AC8 type accidents occurred as the vehicles tried to make a left turn from WV62. Therefore, the intersection needs to be improved for traffic turning left from WV62 so that these vehicles do not end in the outer lane of WV25 east which is a continuous moving lane with green arrow.

#### ***Existing Conditions:***

This is a T intersection with the 4-lane WV25 traffic moving in east-west direction and the 2-lane N-S WV62 terminating at WV25. The morning peak occurs between 7-8am when 1895 vehicles enter the intersection and the afternoon peak hour is between 5-6pm with 2414 vehicles entering the intersection. The two eastbound lanes of WV25 are separated by tubular rods as the through traffic moves continuously with a green arrow in the right lane. The left lane is shared by left turning and through traffic. A number of separating tubular rods were missing and some were bent indicating that vehicles do slide into the outer lane of WV25 as they turn left from WV62 .

One way to solve this problem would be to eliminate the continuous green arrow for the outside lane of WV25 eastbound. But, this would restrict the capacity of this intersection to some extent as the delay for through traffic would increase from 5.9 seconds to 6.5 seconds during the peak hour (Exhibit # 1 and 2). Additionally, vehicles stuck in the inner eastbound lane behind left turning vehicles may try to change lanes and cause accidents. Moreover, the problem may be an isolated one as most of the accidents

occurred in the year 2000. There were no AC12 type accidents in 1998-99 and only one accident of this type in 2001.

***Recommendation:***

It is recommended at this time to replace the missing and bent tubular separators.

**2. MP8.5-8.6 Dunbar Shopping Plaza Entrance (16 Accidents)**

Access Conflict 10 - 4

These accidents involve motorists turning left from businesses and hitting vehicles traveling in the eastbound lane.

Rear End – 4

Three of these accidents occurred in the westbound lane as vehicles were waiting to turn left into businesses.

Sideswipe (S) – 5

This segment has 2 lanes for traffic moving west and a very wide lane for traffic moving east. Three sideswipes were caused by vehicles changing lanes in the westbound direction and one was caused by a vehicle in the eastbound lane trying to pass a vehicle in the extra wide lane. Another of this type accident is a bad report.

Other – 3

These included one AC8, one AC12 and one unknown.

***Existing Conditions:***

This stretch has several driveways for the Dunbar Shopping Plaza and many other businesses located there. There are two westbound lanes and an extraordinarily wide 21-ft eastbound lane. The terminus of this stretch at the 10<sup>th</sup> Street traffic signal changes to 3-westbound lanes and one eastbound lane configuration. No serious traffic problem was observed during the peak traffic hour.

***Discussion:***

One way to reduce the accidents may be to change the configuration of the two westbound lanes by designating the left lane as a turning lane. This change will reduce the capacity of westbound traffic. The inner westbound lane can and is currently used only for left turns during rush hours. Designating it a turning lane may create a bottleneck at times other than the peak hour because just a short distance downstream there is a three lane configuration at the 10<sup>th</sup> Street traffic signal. The traffic configuration at 10<sup>th</sup> street is expected to change when I-64 expansion in the area is completed and it is likely to affect traffic on this stretch.

***Recommendation:***

It is recommended that the situation be revisited after the current expansion of I-64 is completed.

### **MP8.2-8.5 10<sup>th</sup> Street Dunbar (144 Accidents)**

This 0.3 mile segment has numerous intersections in addition to three signals and a RR X-ing. All three signals were recently upgraded and synchronized which may have helped to reduce the accident rate to some extent. As mentioned above, the configuration of this section will be drastically changed as the additional four bridge lanes for I-64 are added. Therefore, no change is recommended for this section at this time.

### **3. MP7.6-8.1 22<sup>nd</sup> Street to Virginia Avenue (60 Accidents)**

#### Rear End – 33

Twenty-one of these accidents were related to traffic moving in the westbound lane. Nine accidents were in the eastbound lane of WV25 and the remaining 3 occurred on side streets. Intersections with the most accidents included 22<sup>nd</sup> Street (8), 18<sup>th</sup> Street (6), 17<sup>th</sup> Street (4) and 16<sup>th</sup> Street (8).

#### Access Conflict – 13

Five accidents were AC8, three were AC10 and the remaining were other Access Conflict types 11, 14 and 16. Most access conflict type accidents occurred near intersections with 22<sup>nd</sup> Street (6) and 16<sup>th</sup> Street (4).

#### Other Accidents - 14

There were four sideswipe (O) accidents, including 3 in 1998 and at different locations. Another 10 accidents included unknown (3), loss of control (3) and ran off road (2) classifications.

#### ***Existing Conditions:***

This is a narrow stretch of roadway that runs parallel to I-64. There are 10 side streets off this road stretch and all but one, Valley Drive, are on the south side of WV25. This is why most of the rear end accidents occurred in the westbound lane when vehicles were waiting to make a left turn on to the side streets. Sideswipe accidents were probably due to narrow road pavement that is only about 18 feet wide. The 16<sup>th</sup> Street intersection could use a traffic signal as it has more traffic than others, being one of the few through streets in Dunbar. Additionally the sight distance is limited due to vertical alignment of the eastbound approach of WV25.

#### ***Previous Studies:***

A WVDOH study of June 2000 recommended the installation of a right turn lane on the 16<sup>th</sup> Street approach of WV25. The study also recommended, as a long-term solution, a left turn lane on the westbound approach of WV25 to 16<sup>th</sup> Street.

According to WVDOH TIP report dated December 10, 2002, a traffic signal is to be installed at the intersection of WV25 and 16<sup>th</sup> Street during the winter 2003-04.

With the installation of a traffic signal, according to the above DOH study, the intersection would operate at a level of service B with an intersection delay of 16

seconds per vehicle. The traffic light should help eliminate access conflict type accidents and reduce rear-end accidents to some extent in the vicinity of 16<sup>th</sup> Street. As a long-term solution, a turning lane at least on WV25 westbound approach at 16th street will be needed.

***Recommendations:***

A traffic signal should be installed at the intersection of WV25 and 16<sup>th</sup> Street according to DOH plans.

**4. MP6.7-6.9 Shawnee Park to Finney Hollow Road (22 Accidents)**

Rear End – 16

Nine of these accidents occurred at the King Street intersection in the westbound lane when the vehicles were waiting to make a left turn on to King Street. Five accidents occurred at the junction of Finney Hollow, in the eastbound lane when the vehicles were waiting to make a left turn. Of the remaining two, one occurred across from the Rich service station and the other at a construction site while backing with excessive speed.

Other Accidents – 6

Other accidents included 3 various access conflict types, two unknown and one loss of control type.

***Discussion:***

The future traffic signal planned for King Street may help reduce rear end type accidents to some extent. DOH plans to install the signal in July 2003. However, turning lanes both at King Street and westbound WV25 are needed to ease the traffic flow and other accident problems at this intersection. The signal may also help reduce accidents near Finney Hollow because the eastbound vehicles that have to stop at the signal would still be traveling at low speed when they reach Finney Hollow which is only about 500 feet away. DOH also plans to construct turning lanes both at King Street as well as WV25 but they are not scheduled yet.

***Recommendations:***

A traffic signal should be installed at the intersection of WV25 and 16<sup>th</sup> Street according to DOH plans.

**5. MP6.3-6.4 Washington Ave./Academy Dr. (15 Accidents)**

Rear End – 6

Five of these accidents occurred in 1998 and the last one in January 1999 when there was no turning lane.

Access Conflict – 7

Includes 2 each of AC8 and AC14 and one each of AC15, 16-and17 type. All except one occurred in 1999 and 2000 after the center lane was installed.



Other – 2

These included one head-on when the pavement was wet and a sideswipe with a motorcycle.

***Discussion:***

A turning lane was installed in the last two years. Since then, it appears that rear end accidents have been replaced by access conflict accidents. It is hoped that when motorists get used to the new turning lane, access type accidents will be reduced. Citizens have requested a traffic light at this intersection. However, it may be hard to justify as there is an existing traffic light only 0.2 mile west and another future traffic light at King Street would be only 0.4 mile to the east. (From the 2001 accident record it is noted that during that year no access conflict accidents occurred. There were three accidents including 2 rear-end type and one ran off road type.)

***Recommendations:***

No recommendation is offered as the situation seems to have improved as indicated from the year 2001 accident record.

**6. MP5.6-5.9 Bayer Plant Entrance TL to I-64 Ramp Underpass (26 Accidents)**

Rear End – 8

There were 8 rear end accidents including one in 1998, four in 1999 and 3 in 2000. All were evenly distributed over the length of the section.

Access Conflict – 14

These included 4 AC8, 5 AC10, 3 AC14 and one each AC11 and AC16. They were all evenly distributed except that all three AC14 accidents occurred in 2000 but at different locations.

Other – 4

The reason was unknown in the case of three accidents and one was classified as a Sideswipe (S).

***Discussion:***

There are 7 intersections within a ¼ mile from MP5.60 to MP5.85 including a signalized intersection and the average daily traffic on this section is 16,500. It is not unusual to have 8 rear end accidents over a period of 3 years. Similarly, 14 access conflict type accidents at 5 intersections in 3 years is less than one accident per year at each intersection. No peculiarity of accidents was noted except that during the year 2000 there were 5 accidents at MP5.85. However, all 5 accidents were of different types. This is the point where the traffic exiting from both east and westbound lanes of I-64 make a left turn on to WV25.

***Recommendations:***

No low cost recommendation is provided for this section.

## **7. MP5.2-5.3 Intersection of WV25 and WV622 (54 Accidents)**

### ***Discussion:***

This intersection had the most accidents anywhere on the Corridor under study. The major types of accidents were rear-end (15), access conflict 8 (13), unknown (9) and access conflict 11 (7). Major problems may have been solved when a traffic signal was installed at this intersection in the fall of 2001. The traffic at this intersection will be further improved when the proposed right turn lane coming out of WV622 is constructed as planned before the year end 2002. DOH and Bayer plant owners have had several discussions to route the entire plant traffic through a single outlet located at this traffic signal. Currently the plant traffic uses several outlets. DOH is still waiting to hear from plant owners when they are ready to route all plant traffic through this traffic signal. Whenever they are ready the intersection would be operated as a four-way Plus intersection.

The configuration of westbound lanes may be contributing to some confusion at this intersection. Before reaching the intersection, according to signage, the inner westbound lane is indicated to merge into the right lane. However, the inner lane does not merge but ends abruptly at the intersection. Just before the intersection, vehicles heading west intending to go straight logically should stay in the inner lane to avoid conflict with traffic intending to turn right. But, as westbound motorists in the inner lane reach the intersection they find themselves in conflict with the vehicles heading straight in the right lane as there is only one westbound lane beyond the intersection.

### **Recommendations:**

It is recommended that at this intersection the right westbound lane should be an exclusive right turn lane and the traffic intending to go straight should be directed to the inner lane. After the right turning lane on WV622 is completed and the signal is operated as a 4-way intersection, two westbound lanes will continue past the intersection. At that time the right westbound lane before the intersection should be designated as a through as well as right turn lane.

## **8. MP2.4-2.6 Nitro-St. Albans Bridge Area (40 Accidents)**

### Rear End – 13

All 13 of the rear end accidents were scattered at different locations. Eleven of these accidents were close to the intersection with Center Street (St. Albans - Nitro Bridge), one at Blackwood Street and another at the bridge ramp merging with the eastbound lane of WV25. Altogether 6 of these accidents involved westbound vehicles.

### Access Conflict – 23

These consisted of 19 AC10 type and 4 AC8. Motorists not obeying the traffic signal generally caused the AC8 accidents. A majority (15 of 19) of AC10 type accidents occurred at the signalized intersection of Center Street and WV25, while four occurred at the intersection with Blackwood Road. All but one were caused by driver judgmental error regarding an oncoming vehicle. The other one was caused by running the traffic signal.

#### Other – 4

These included one Sideswipe(O), one Head-on and two of unknown reason.

#### ***Discussion:***

A significant number of rear-end accidents may be reduced if the westbound traffic through the traffic light does not have to stop. This can be accomplished by separating the two westbound lanes and permitting the right lane to move continuously. This may create a problem for the existing businesses on the north side of the road, as it will be difficult to enter and leave the driveways with traffic moving west on WV25. However, if the existing businesses concur, the outside westbound lane could be made continuous and the posted speed reduced at the same time. Continuous moving westbound traffic will have to merge with the traffic coming from the St. Albans Bridge and will create a conflict situation, which will be addressed later in this section. This change would not alter the intersection performance level that would remain at Level of Service (LOS) B. (Exhibit # 3 and #4)

In order to accommodate the above changes, the two westbound lanes should be extended from the existing 4-lane segment from MP2.33 to Kapok Street (MP1.74) a distance of 0.6 mi. The inner lane should be used as a turning lane from Norandex to Kapok Street as suggested for the next segment below.

Most of the AC10 accidents were caused by judgmental error when the westbound drivers tried to beat the oncoming eastbound traffic in an attempt to make a left turn at the traffic light from WV25 to the bridge. Allowing left turns on to the bridge from WV25 from a protected left turn arrow **only** can solve this problem. This restriction will degrade the intersection level of performance from LOS B to LOS C (Exhibit # 3 and #5).

The above two changes in traffic configuration will improve the flow for westbound traffic slightly (reducing delay from 12.3 to 11.6 seconds) but decrease the flow considerably (from LOS C to LOS E) for the vehicles turning left on to bridge, though it would be safer. (Exhibit 3, 4 and 5)

#### **Recommendations:**

A consideration should be given to adding a westbound lane from MP2.33 to MP1.74.

#### **9. MP1.7–2.1 Twin City Bible Church to T-n-C Bowling Alley (61 Accidents)**

There are 61 accidents listed in the record in this segment. However, only 38 accidents could be identified with correct location references. Those accidents are as follows:

#### Rear End – 29

Thirteen of these accidents occurred at Kapok Street (MP1.74) and mostly in the westbound lane when vehicles were waiting on WV25 to make a left turn on to Kapok Street. Seven accidents occurred at Walker Street in the westbound lane and seven at Crown Car Sales in both directions. The remaining two were at Master's Tuxedo in the westbound lane.

#### Other Accidents - 9

These included 3 access conflict of different types, 2 run off road at different locations and 4 other of various types.

#### ***Discussion:***

Twenty-two of 29 rear-end accidents occurred between Kapok Street (MP1.74) and Walker Street (MP1.94) including 13 at Kapok and 7 at Walker. All of these accidents occurred in the westbound lane and involved motorists attempting left turns. A turning lane of about ¼ mile between Kapok Street (MP1.74) and Walker Street (MP1.94) should reduce the number of rear-end accidents.

According to the WVDOH TIP report, dated December 10,2002, a 0.63-mi. center turn lane is scheduled to be constructed during 2003 from Kapok Street to existing 4-Lane segment near Nitro-St. Albans Bridge. This additional lane could be striped such that it can be used as a second westbound lane from existing 4-lane segment (MP 2.33) to Norandex (MP 2.11) and as a center turning lane from Norandex westward.

#### **Recommendations:**

A turning lane should be constructed between Walker and Kapok Streets, if the additional lane as planned above by WVDOH from Nitro-St. Albans Bridge area is not constructed for some reason.

### **10. MP0.6-1.0      12<sup>th</sup> Street to Moose Lodge (29 Accidents)**

#### Rear End – 16

These accidents were evenly spread over the entire stretch. However most (10) of them occurred in the eastbound direction. The other 6 accidents were 2 each in north, south and westbound directions. The north south accidents occurred on side streets.

#### Access Conflict – 5

These included 3 AC8, one AC10 and one AC19.

#### Other Accidents – 8

These included 3 hit fixed object, 2 run off road, 2 head-on and one sideswipe (o).

#### ***Discussion:***

There are 10 intersections over a distance of less than 0.4 mi. averaging one intersection every 200 ft. Almost all side streets are on the side of the westbound lane. That is why most of the rear-end accidents occur in the eastbound lane where traffic is waiting to turn left on to side streets. The pavement is 32 feet wide from 12<sup>th</sup> Street to Lock Street where the traffic signal is located. The road narrows to 24 feet from Lock Street to the Moose lodge. The rear-end accident problem may be eased considerably if the pavement is restriped to provide a 1/3<sup>rd</sup> mile extra lane, or a turning lane, for the eastbound traffic, from 12<sup>th</sup> Street to the traffic signal on Lock Street.

Five access conflict accidents over a period of three years at 10 intersections and several businesses on this stretch are not excessive.

Eight other accidents for this congested area with 16800 ADT are also not unusual. No pattern was discovered as the accidents were evenly distributed.

***Recommendations:***

It is recommended that a third lane be created for eastbound traffic from MP 0.6 (12<sup>th</sup> Street) to MP 0.89 (Lock Street).

**11. MP0.3 – 0.4 Republic Way (19<sup>th</sup> Street) to 20<sup>th</sup> Street (16 Accidents)**

Rear-End - 6

These included three accidents each in the east and west direction.

Access Conflict - 3

These included two AC8 types, one due to running a red light when moving east and the other due to improper backing in the south direction. The third accident was an AC11 type involving a Semi making a left turn out of Plant Road.

Other – 7

These included 3 accidents of unknown cause, 2-sideswipe (s) both in the east lane. One occurred near 20<sup>th</sup> St. in which a motorist was changing lanes and the other was near 19<sup>th</sup> St. and involved an intoxicated driver. One sideswipe (O) between two semis where description makes no sense and the last one was due to loss of control when moving west.

***Discussion:***

As can be seen, historic accidents suggested no particular trend, except for the 6 rear end accidents; even those were split 3 in each direction. The traffic signal on 19<sup>th</sup> Street was upgraded to an actuated one in the summer of 2001. Future accident records would reveal if it made any difference. Currently, DOH is considering increasing the turning radius between Republic Way (Plant Road) and WV25. That should help the truck traffic to move more easily. The existing traffic signal will also be upgraded. As shown in exhibit # 6, the intersection will operate at LOS C with the upgraded traffic signal.

***Recommendations:***

No recommendation is offered.

**12. MP1.4-1.9 BP Service Station to 35<sup>th</sup> Street (54 Accidents)**

Rear End - 37

Of the 37 accidents 25 occurred in 2000 and 6 each in 1998 and 1999. They were evenly split between east (19) and west (18) directions. There were 7 accidents at MP 1.45 where the roadway ceases to be divided and becomes a five-lane road. Five

accidents were at the signalized intersection with Pickens Road where road geometry changes from 5 to 3 lanes. Eight occurred at the signalized intersection at 40<sup>th</sup> Street.

#### Sideswipe - 7

Two sideswipes in opposite direction occurred while trying to make left turns on to Pickens Road and 41<sup>st</sup> street with the vehicles going straight on WV25. Five sideswipe (S) included one on Pickens Road, two in front of McDonald's in east and west directions and two while making right turn on 40<sup>th</sup> Street and Left turn on 41<sup>st</sup> Street. Most of these accidents occurred on the road where it gets narrow at Pickens Road.

#### Other - 10

These include 7 access conflict type, including 3 AC8, at different locations. The remaining 3 were head-on, hit fixed object and unknown reason. From the description head-on accident looks like access conflict-8 type accident at Pickens Rd. intersection.

#### ***Discussion:***

As noted above, there is a high number of rear-end accidents in the year 2000 and a single year record does not constitute a trend. There is another factor noted here. There are relatively more rear-end accidents wherever the road geometry changes. Such are the locations at MP 1.45, 1.65 and 1.76 where 7, 5 and 8 rear-end type accidents occurred. At MP 1.45 the roadway changes from divided 4-lane to 5-lane going east and commercial businesses start from this location. At MP 1.65, Pickens Road traffic signal, the roadway changes from five to three lanes. The other contributing factor is the heavy commercialization of this segment as there are more than a dozen businesses at this segment and all of them are on the north side of WV25.

The traffic signals at 40<sup>th</sup> Street and Pickens Road were upgraded to Coordinated and to Activated types in the summer of 2001. The future accident records will have to be analyzed to find out if these improvements will help reduce rear-end type accidents.

The reason for sideswipe accidents on this segment is the congestion and sudden change in the geometry of this segment eastbound starting at Pickens Road. The right eastbound lane before Pickens Road is poorly marked as a right turn only lane and the warning does not appear until the driver is very close to Pickens Road.

#### **Recommendations:**

A warning sign pavement marking for must turn lane should be placed ahead of the intersection with Pickens Road on WV25 E. Also, a consideration should be given to widening the road to 5-lanes from Pickens Road to at least 40<sup>th</sup> Street and preferably to 32<sup>nd</sup> Street (0.37 mi.) just beyond Go Mart.

### **13. MP1.2-1.3 I-64 Eastbound Ramp at Nitro City Limit (19 Accidents)**

#### Rear-End – 7

All accidents occurred at the intersection controlled by a traffic signal. Three accidents occurred in the westbound lane, one in the eastbound lane and three on the road coming out of McJunkin.

#### Access Conflict – 5

There was one AC14 accident. The accident reports for the other four accidents in this category were unclear.

#### Sideswipe – 4

These included one in the opposite direction in dark conditions and 3 in the same direction when the pavement was wet either due to snow or rain.

#### Unknown – 3

Three accidents are listed as unknown reason, including one while backing.

#### ***Discussion:***

There is no set pattern of accidents revealed from the reported accidents. The number of accidents is high because it is a busy intersection with lots of traffic, about 19000 ADT. This intersection was upgraded two years ago by providing a protected left turn signal phase for the eastbound lane.

#### ***Recommendations:***

No recommendation is offered.

### **14. MP0.6-1.1 Union Boiler Road to I-64 (59 Accidents)**

#### Rear End – 23

Altogether there were 23 rear-end type accidents on this ½ mi. segment. Ten accidents were in the west direction, 5 towards north, 4 when moving south and 2 in an easterly direction. Two accidents had no stated direction. Most of the accidents were concentrated at two locations. One was at the entrance and exit of the Pilot Travel Center at the point where the roadway becomes 4 lanes and the second was at the intersection of the I-64 westbound ramp traffic signal. A total of eleven accidents were close to the Pilot Travel Center and six were at the traffic signal.

#### Access Conflict - 17

These included 6 AC8, 5 AC10, 3 AC12 and the remaining 3 were various other access conflict types. The AC8 accidents were well distributed. All AC10 accidents were at the intersection of I-64 westbound ramp. The 3 AC12 accidents were close to the I-64 ramps as were the remaining 3 various access conflict types.

#### Sideswipe (S) – 5

Three of these type accidents were at the start of the 4-lane segment, which has been restriped.

#### Other – 14

These included 8 unknown, 3 loss of control, 2 run off road and one animal hit type.

#### ***Discussion:***

The main establishment on this stretch is the Pilot Travel Center next to the I-64 westbound ramps. This is a rather large and busy facility that caters to truck traffic.

There are three entrances to the Pilot Travel Center for westbound traffic. Entrance and exit for eastbound traffic is only from the middle entrance.

As noted from the accident records there are two problematic locations on this stretch of WV25. One is the middle entrance/exit to the Pilot Travel Center and the other is at the signalized intersection of the I-64 westbound ramp and WV25.

There may be some confusion in reporting the accidents on this stretch because WV25 is an east-west road but at this location it runs north-south. We have assumed that the accidents are reported with respect to east-west orientation of the road.

There were 16 accidents at the Pilot station and 21 at the traffic light out of a total of 59 accidents. Of the 23 rear-end accidents, 11 were at the middle exit/entrance of Pilot station and 6 were at the intersection of the I-64 ramp. The rear-end accidents at the Pilot were 4 north, 3 west, 2 south, one east and one unknown direction. The rear-end accidents at the traffic signal were 4 west, one east and one in unknown direction. The Pilot entrance/exit is located very close to where the road changes to 4-lane. This location was restriped in the summer of 2000 and we have to wait for future records to find out if it decreased the number of accidents. The rear-end accidents at the traffic light are probably caused by drivers who are hesitant to make a left turn onto WV25 from the ramp at yellow and get hit by the car behind them.

Other accidents of concern are access conflict type that numbered 17. Except for the 6 AC8 type, almost all accidents are at or very close to the traffic signal. A left turn lane along with a protected left turn signal is provided for the eastbound traffic and should help prevent AC10 type accidents. The timing for the left turn signal was observed to be short, though it is an actuated signal with a 10-45 seconds range. If the left turn signal timing is increased, it may reduce the access type accidents at the traffic signal.

Restriping at the beginning of the 4-lane section at the entrance/exit of the Pilot Travel Center may have reduced the sideswipe (S) type accidents. Of course future records will have to be evaluated to determine if the problem is solved.

### ***Recommendations:***

No recommendation is offered at this time since we have no confidence in the orientation of accident reports. An examination of future accident records is necessary to find out if restriping in front of the Pilot Center has helped to reduce the number of accidents in this area.

## **15. MP0.0-0.4            WV62 to Old Pike Road (37 accidents)**

### **Rear-End – 21**

A total of 21 accidents occurred on this segment. However a majority of these accidents occurred at the intersection of WV25 and Woodland Drive. The thirteen accidents at this intersection included 7 in the east direction, 2 west, 3 south and one north.

### **Access Conflict – 6**

Four of these accidents occurred at MP 0.01 with 3 AC10 and one AC14 type. At fault were drivers in the westbound lane trying to turn left into Rock Branch School.



#### Other – 10

These included 5 unknown and 5 others of varying type at different locations.

#### ***Discussion:***

It is apparent that the main problems on this section are rear-end accidents at the intersection of Woodland Drive and AC10 access conflict type at the entrance to Rock Branch School from the westbound lane.

Coming out of Woodland Drive there is a sight distance problem, particularly towards the left. Vehicles turning left on the Woodland Drive from WV25 also have a short sight distance for the oncoming traffic and must slow down or stop completely before turning and could get hit from behind. There are warning signs on WV25 on both sides of Woodland Drive but additional caution signs are needed. Additional signs warning of the dangerous intersection may reduce the number of rear-end accidents at his location.

The number of access conflict accidents across from Rock Branch school is not high enough to warrant a speed reduction. However, if the speed is reduced on this section it should help the rear-end type accidents at Woodland Drive. The posted speed at this section of the road is 35 mph. If nothing else is done, the speed needs to be strictly enforced.

#### ***Recommendations:***

Provide additional signs emphasizing the dangerous intersection at Woodland Drive and enforce the existing 35 mph speed limit.

### **16. WV62 MP0.9-1.3 WV25 to Trailer Park (41 Accidents)**

#### Rear End – 20

In the accident record, the exact locations of 12 out of 20 accidents are not certain. The accident records normally list location accuracy within 0.02 mi. For majority of accidents, in this case, the location accuracy varies from 0.05 to 1.25 mile. According to records there are two locations where many accidents were concentrated. One is near Capital Nursing and H&S Heating where 6 accidents occurred, including 3 on the side street or driveways, two in the southbound lane and one in the northbound lane. The other location is near the Exxon station where 6 accidents occurred all in the southbound lane. Four accidents were close to the intersection of WV25 and WV62, all in different directions. The remaining 4 accidents were scattered.

#### Access Conflict – 9

Out of 9 access conflict type accidents 5 were at or close to Jacobson Drive including 2 AC10, 2 AC11 and one AC8. Jacobson Drive is the approach to Rock Branch Industrial Park. They were all due to vehicles either coming out or going on to Jacobson Drive. The other 3 accidents were close to Pine Drive and were all different types. One AC16 type was close to Capital Nursing.

#### Other – 12

The remaining accidents included 6 unknown at various locations, 2 Sideswipe (S) and 4 of varying types all at different locations.

***Discussion:***

This is a very narrow segment with only 18-foot wide pavement and grade width of less than 30 ft. Several rear-end accidents are noted near Capital Nursing. As previously noted, there is no certainty that these accidents occurred at this segment. Even if they did they were scattered, some on WV62 and others on driveways. A contributing factor to high accidents is congestion as there are a number of houses on this road which has inadequate shoulders. Any solution, if warranted, will be expensive.

The other location with a number of rear-ended accidents is where the Exxon station is located near Pine Drive. Again the exact location is uncertain for several accidents, but we can reasonably assume that they occurred in this general area because few driveways or intersections are found away from this area on this side of the road for rear-ended accidents to occur in south direction.

A majority of access conflict accidents occurred at the intersection of Jacobson Drive (Rock Branch Industrial Park Road). They were AC8, AC10 and AC11 type and involved vehicles either coming out or going on to Jacobson. At the request of the Putnam County Commission, WVDOH conducted a "Need Study for WV62" in June, 1999. In that study, installation of left turn lanes at the intersection of Industrial Park Road at a cost of \$120,000 were recommended.

According to WVDOH TIP report dated December 10, 2002, a contract was awarded to West Virginia Paving Company for installation of a traffic signal as well as turning lanes at the intersection of Jacobson Drive and WV62. The estimated cost of this project is \$316,000 and it is scheduled to be completed by Fall 2004.

Until the above project is completed, providing warning signs and reducing the speed at this intersection on WV62 should help reduce the number of accidents at this intersection. The posted speed on this segment is 35mph from WV25 to just south of Jacobson Drive and 45 on the remaining segment north of Jacobson. Moving the speed reduction warning sign from south to north of this intersection may help reduce the number of accidents. The long-term solution lies in widening the entire section from WV25 to Poca to 4 lanes but that project is several years in future under the long-range plan.

***Recommendations:***

It is recommended that the speed should be reduced to 35 mph at the intersection of Jacobson Drive.

**17. WV62 MP2.6-2.9 Poca Shopping Center – Morris Street (21 Accidents)**

Rear End – 8

According to records one accident occurred near Oklahoma St. during construction, two near Family Practice and 5 near Foodfair grocery store. A close observation revealed that one of the accidents near Family Practice is really at Dairy Road and another 2 accidents reported near the Foodfair were away from this segment.

Other – 13

These included 3 AC8, one AC11, 4 Unknown, 2 Loss of Control and one each Sideswipe (S), Animal hit and Parked Vehicle Hit.

***Discussion:***

There are many accidents on this small stretch, but there is no unique pattern of these accidents. The pavement is 36 feet wide but the parking is allowed on both sides of this road leaving the driving lanes narrow. Accidents are caused because it is a busy downtown area with narrow driving lanes and many side streets and businesses. Until recently, angle parking was allowed on both sides of this road. That may have been responsible for the high number of accidents. Now that only parallel parking is permitted, the situation may already have been improved. In 2001 only four accidents were reported on this segment. One AC14 and one rear-end were at the intersection of Silver Street (CR31). The location of the other two rear-end accidents is uncertain and may be away from this segment.

***Recommendations:***

No recommendation is offered at this time pending analysis of future accident records.

1/16/03