

Bushkill Group, Inc. d/b/a Fernwood Hotel & Resort
Pennsylvania Gaming Control Board
Category 3 - Application and Disclosure Information Form
July 14, 2008

Appendix 41
Updated Traffic Study

See updated Traffic Impact Study dated July 2008 which updates the size of the facility to what is currently proposed and discusses PennDot's announcement concerning Marshall's Creek Bypass.



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JULY 2008

**FINAL
TRAFFIC IMPACT STUDY
FOR
FERNWOOD HOTEL AND CASINO**

**MIDDLE SMITHFIELD TOWNSHIP
MONROE COUNTY, PENNSYLVANIA**

HRG Project No. 2773.065

**TRAFFIC IMPACT STUDY
FOR
FERNWOOD HOTEL AND CASINO**

**MIDDLE SMITHFIELD TOWNSHIP
MONROE COUNTY, PENNSYLVANIA**

**PREPARED FOR:
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JULY 2008

HRG PROJECT NO. 2773.065

**TRAFFIC IMPACT STUDY
FOR
FERNWOOD HOTEL AND CASINO**

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**TRAFFIC IMPACT STUDY
FOR
FERNWOOD HOTEL AND CASINO**

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**TRAFFIC IMPACT STUDY
FOR
FERNWOOD HOTEL AND CASINO**

EXECUTIVE SUMMARY

Overview of the Development

- ▶ Development located on the northwest quadrant of the intersection of SR 0209 and Winona Falls Road (SR 1016) / River Road (T-515) in Middle Smithfield Township, Monroe County, Pennsylvania.
- ▶ Proposed development to consist of 16,300 square foot casino with 500 slot machines and a 50 seat bistro.
- ▶ Access to development via two existing driveways.
- ▶ Development anticipated to generate 54 AM peak hour trips and 87 PM peak hour trips.

Study Intersections

- ▶ SR 0209 and Winona Falls Road (SR 1016) / River Road (T-515)
- ▶ SR 0209 and Fernwood Service Driveway
- ▶ SR 0209 and Fernwood Main Driveway
- ▶ SR 0209 and Fernwood East Driveway

Potential Traffic Impacts Without Development

2008 Without Development

This scenario does not experience any unacceptable levels of service.

2018 Without Development

This scenario does not experience any unacceptable levels of service.

Potential Traffic Impacts with Development

2008 With Development

This scenario does not experience any unacceptable levels of service.

2018 With Development

SR 0209 / Fernwood East Driveway

- Northbound Fernwood East Driveway approach experiences a LOS E in the PM peak hour.

Study Findings

- ▶ The proposed development will not have any detrimental effects to the surrounding roadway network.
- ▶ Based on trip distribution, 70% of the traffic will head south on TR 209. Assuming all traffic continues south to Marshall's Creek, which is extremely conservative, it would only amount to a 1.3% increase in the average daily traffic through that area.

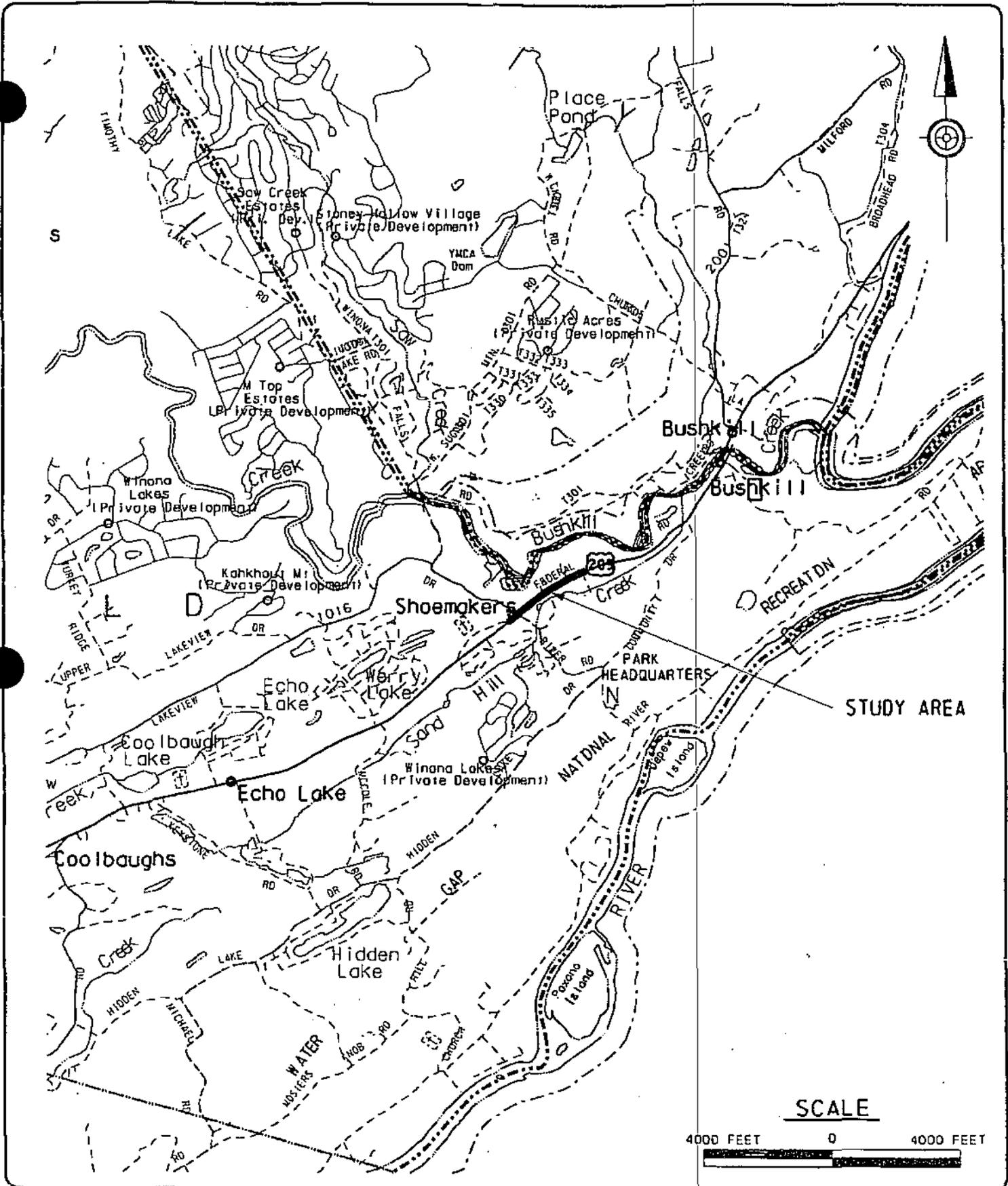
**TRAFFIC IMPACT STUDY
FOR
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INTRODUCTION

Bushkill Group, Inc. is planning a commercial resort expansion project on land located northeast of the intersection of Winona Falls Road and SR 0209 in Middle Smithfield Township, Monroe County, Pennsylvania. The proposed Development will consist of the renovation of the existing Event Center to include 16,300 square foot gaming floor area which is proposed to include 500 new slot machines and a 50-seat high turnover sit-down bistro. The project site is currently owned by Bushkill Group, Inc. Access to the proposed gaming facility will be primarily through the two existing private driveways on SR 0209, one being the main hotel entrance and the other being the entrance to the parking areas located to the east of the main entrance. Since the proposed gaming facility is planned to be occupied in approximately one year, this report evaluates existing (2007 – based on 2005 counts) conditions at the time of the traffic counts, time of occupancy (2008) and the future (2018) conditions, both with and without development.

The objectives of this study were to analyze existing traffic conditions in the study area, traffic conditions in the study area for opening day and at the 10-year horizon year, identify any traffic impact that operation of the proposed site will have on the study area, and recommend improvements to mitigate any adverse effects caused by the proposed development. This study was reevaluated in response to PENNDOT's announcement of the Marshall's Creek Bypass. The Marshall's Creek Bypass project does not affect the proposed casino development, but it was found that the traffic volumes for this area were overstated in the original study. The revised figures contained in this report are representative of what is currently proposed in the Gaming Application.

- This traffic study was conducted in accordance with guidelines established by the Middle Smithfield Township Ordinance No. 117 ⁽¹⁾, by the Institute of Transportation Engineers and by the criteria outlined in PENNDOT Publication 282 ⁽²⁾. The site location map is shown in Figure 1.



**FIGURE 1
LOCATION MAP
FERNWOOD HOTEL AND CASINO**

PROJ. MGR. - JF
DESIGN - EJD
CADD - EJD
CHECKED - JDA
SCALE - 1" = 4000'
DATE - MAY 2007

PAGE NO. 2
GRABING NO. 1 OF 8
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MIDDLE SMITHFIELD TWP. MONROE COUNTY PENNSYLVANIA

EXISTING TRANSPORTATION SYSTEM

Study Area

The study area was selected based on the intersections and roadways that potentially could be affected by the proposed development. In addition to the driveways, the following signalized and unsignalized intersections were selected for further study:

INTERSECTION NUMBER	NORTH/SOUTH STREET(S)	EAST/WEST STREET(S)	SIGNALIZED/ UNSIGNALIZED
1	Winona Falls Road (SR 1016) / River Road (T-515)	SR 0209	Signalized
2	Fernwood Service Driveway	SR 0209	Unsignalized
3	Fernwood Main Driveway	SR 0209	Unsignalized
4	Fernwood East Driveway	SR 0209	Unsignalized

Roadway Network Description

State Route 209 (SR 0209) is a 3-lane state roadway classified as a North Rural Minor Arterial with an average daily traffic volume of approximately 19,000 vehicles per day west of the site and 13,500 vehicles per day east of the site. SR 0209 is designated as a north-south route, but through Middle Smithfield Township, it runs east-west, with the "north" direction towards the east. SR 0209 is rural in setting but is lined by many commercial properties, including the Bushkill Group property, and is used as an access to local roads that feed many residential developments. Throughout the study area, SR 0209 is comprised of 12-foot travel lanes and 12 foot turn lanes with shoulder widths of 8 to 9 feet. The posted speed limit along is 35 miles per hour within the study area.

Winona Falls Road (SR 1016) is a 2-lane state roadway classified as a North Rural Collector with an average daily traffic volume of approximately 1,300 vehicles per day. SR 1016 is a north-south route and is rural in setting. SR 1016 leads to several residential developments located to the north. Throughout the study area, SR 1016 is comprised of 10-foot travel lanes with shoulder widths of 2 feet. The posted speed limit along is 30 miles per hour within the study area.

River Road (T-515) is a township local collector road. At the intersection with SR 0209, River Road has 2-13 foot lanes with an approximate 3-foot stabilized shoulder on the northeast side and no shoulder on the southwest side. The posted speed limit on this road is 30 miles per hour.

Fernwood Service Driveway is a two lane driveway used by employees of the Fernwood Resort. The lanes are 12 feet wide with a center median. There is no posted speed limit. This driveway provides access to the rear of the existing Event Center.

Fernwood Main Driveway is currently permitted as an in-only driveway and serves as the main entrance for the hotel complex. It consists of two 12 foot lanes with curbing. There is no posted speed limit. This driveway provides access to the Event Center, Main Building and parking lots.

Fernwood East Driveway is located east of the main driveway and leads to the parking areas associated with the hotel complex. The southern leg of the driveway provides access to a separate parking area owned by the Fernwood Resort. The northern and southern legs both consist of two 12 foot travel lanes. There is no posted speed limit.

Average daily traffic volumes provided in the above discussion were obtained from PENNDOT traffic volume maps and the roadway classifications were similarly found using PENNDOT functional classification maps. Figure 2 shows the existing intersection geometry and traffic control for the roadway network within the study area.

Existing Traffic Volumes

Turning movement counts at each of the study intersections were conducted for the AM and PM time periods on weekdays during the week of August 29, 2005 from 7:00AM to 9:00AM and from 4:00PM to 6:00PM. The data collected in 2005 was grown, using the 1.2% growth factor from PENNDOT's 2006 Traffic Data Report ⁽⁶⁾ to obtain the existing traffic volumes. The traffic count data can be found in Appendix A. Figure 3 displays the existing AM and PM peak hour traffic volumes in the study area. The 2005 count volumes and existing traffic volumes can be found in Appendix B.

Capacity Analyses

Capacity analysis, as defined by the Highway Capacity Manual ⁽³⁾, is a set of procedures used to estimate the traffic-carrying ability of a facility over a range of defined operational conditions. The capacity analysis uses *Levels of Service* (LOS) to describe the operational conditions. Levels of Service are assigned letter designations "A" through "F," with "A" being the most desirable operating conditions. A Level of Service "E" is considered to be at or near capacity, while a Level of Service "D" is considered acceptable according to the Highway Capacity Manual ⁽³⁾. The LOS criteria for unsignalized intersections and signalized intersections are given in Table 2 and Table 3, respectively.

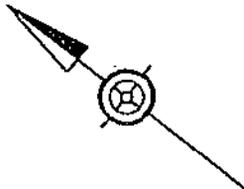
At unsignalized intersections, the level of service measures the ability of turning traffic to find gaps in the major street traffic flow that permit successful completion of the desired turning movement. The critical movements at unsignalized intersections are the left turns from the major street and both egress movements from the minor street.

TABLE 2: UNSIGNALIZED INTERSECTIONS – LOS CRITERIA	
AVERAGE CONTROL DELAY (SEC/VEH)	LEVEL OF SERVICE
< 10	A
> 10 and < 15	B
> 15 and < 25	C
> 25 and < 35	D
> 35 and < 50	E
> 50	F

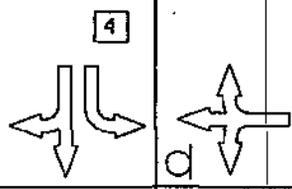
For signalized intersections, the level of service measures the average control delay time per vehicle. Also, the volume to capacity ratio, which is a ratio of the peak hour traffic volumes for a facility to the theoretical maximum traffic volume the facility can handle, relates to the level of service of a facility.

TABLE 3: SIGNALIZED INTERSECTIONS – LOS CRITERIA	
AVERAGE CONTROL DELAY (SEC/VEH)	LEVEL OF SERVICE
< 10	A
> 10 and < 20	B
> 20 and < 35	C
> 35 and < 55	D
> 55 and < 80	E
> 80	F

Capacity analyses at each of the study intersections were performed using HCS Plus™ ⁽⁴⁾ software. The analyses were conducted based on the existing traffic volumes, intersection controls, and geometrics for the AM and PM peak hours. Table 4 provides a summary of the AM and PM peak hour existing levels of service at the study intersections.

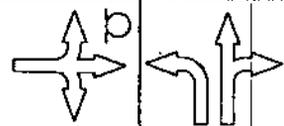


FERNWOOD EAST DRIVEWAY



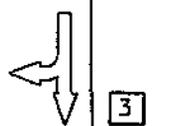
SR 0209

FERNWOOD MAIN DRIVEWAY



[SITE]

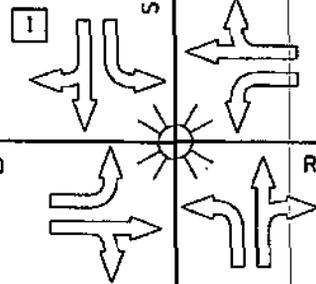
FERNWOOD SERVICE DRIVEWAY



SR 0209

WINONA FALLS ROAD
(SR 1016)

RIVER ROAD
(T-515)



LEGEND

- EXISTING ROAD
- EXISTING LANE CONFIGURATION
- EXISTING TRAFFIC SIGNAL
- EXISTING STOP SIGN
- INTERSECTION STUDY NUMBER

NOT TO SCALE



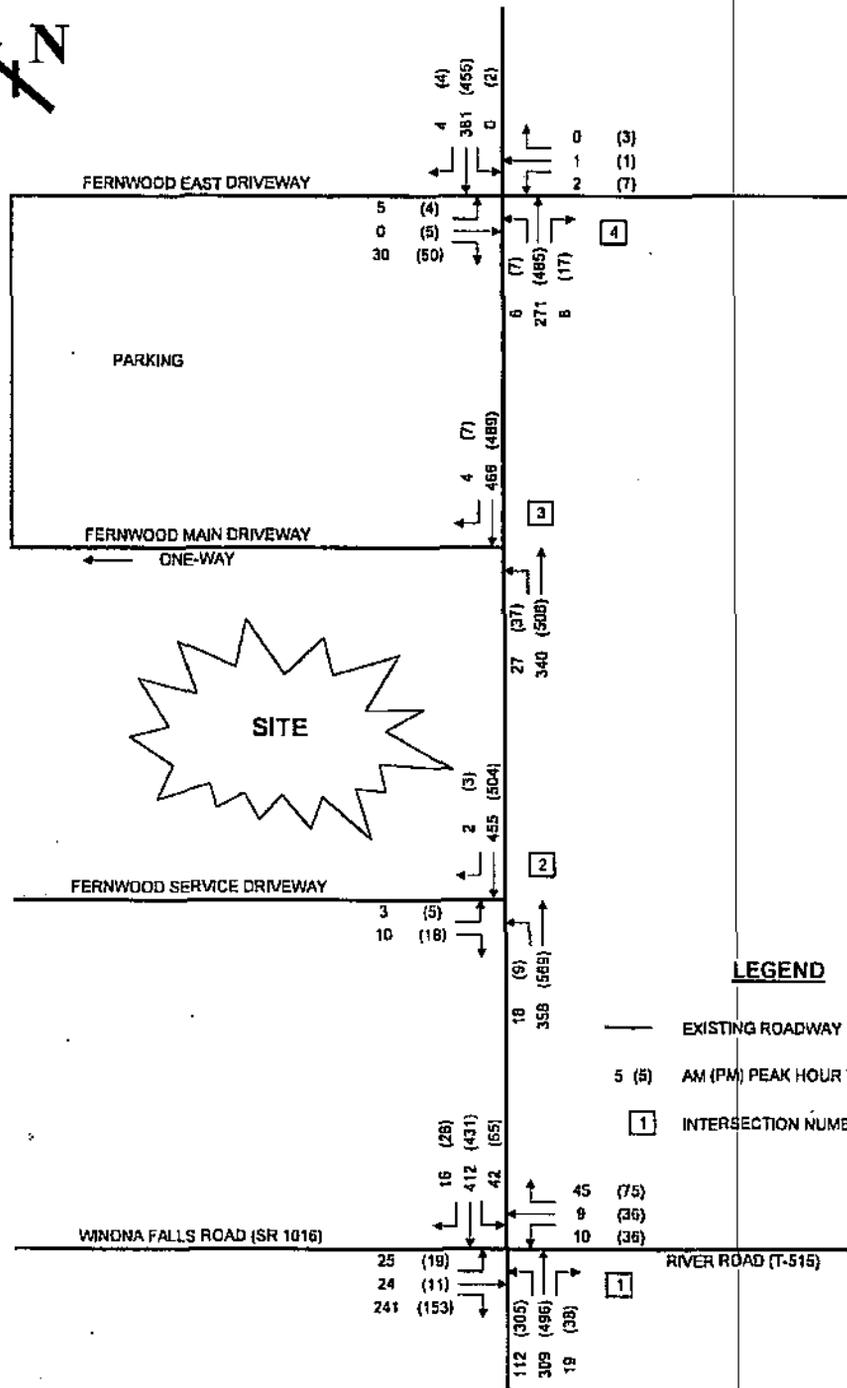
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**FIGURE 2
EXISTING
INTERSECTION GEOMETRY
AND TRAFFIC CONTROL**

MIDDLE SMITHFIELD TWP. MONROE COUNTY PENNSYLVANIA

PROJ. MGR. - JK
DESIGN- EJD
CADD- EJD
CHECKED- TOA
SCALE- NTS
DATE- MAY 2001

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LEGEND

- EXISTING ROADWAY
- 5 (5) AM (PM) PEAK HOUR TRAFFIC VOLUMES
- 1 INTERSECTION NUMBER



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FIGURE 3
EXISTING TRAFFIC VOLUMES

PROJ. MGR. - JBK
 DESIGN - EJD
 DRAWING - KRS
 CHECKED - EJD
 SCALE - N.T.S.
 DATE - JUNE 2008

SHEET NO.
7
 DRAWING NO.
3 OF 8
 PROJECT 2773.055

TABLE 4: EXISTING CONDITIONS LEVEL OF SERVICE SUMMARY			
<i>INTERSECTION</i>	<i>MOVEMENT</i>	<i>EXISTING CONDITIONS</i>	
		<i>AM</i>	<i>PM</i>
SR 0209 / WINONA FALLS ROAD (SR 1016) / RIVER ROAD (T-515)			
SR 0209	EB L	A	B
	EB TR	B	C
	EB APPROACH	B	C
	WB L	A	B
	WB TR	C	C
	WB APPROACH	B	C
RIVER ROAD	NB L	C	C
	NB TR	C	C
	NB APPROACH	C	C
WINONA FALLS ROAD	SB L	C	C
	SB TR	C	C
	SB APPROACH	C	C
OVERALL		C	C
SR 0209 / FERNWOOD SERVICE DRIVEWAY			
SR 0209	EB	A	A
	WB	--	--
SERVICE DRIVEWAY	SB	B	C
SR 0209 / FERNWOOD MAIN DRIVEWAY / FERNWOOD PARKING LOT			
SR 0209	EB L	A	A
	EB TR	--	--
	WB	--	--
SR 0209 / FERNWOOD EAST DRIVEWAY / FERNWOOD PARKING LOT			
SR 0209	EB L	A	A
	EB TR	--	--
	WB L	A	A
	WB TR	--	--
PARKING LOT	NB	C	C
EAST DRIVEWAY	SB	B	B
F (99.9) = Level of Service (Delay in seconds / vehicle)			

The 2007 existing conditions do not experience any deficient levels of service. Worksheets for the level of service/capacity analyses for existing conditions are included in Appendix C.

Worksheets for the level

SITE ANALYSIS

Trip Generation

The estimation of vehicle trip generation rates for this facility is complicated by the variances in the data available for casino facilities and large variances in the location and characteristics of both casinos as land uses and the market in which they operate.

The vehicle trip rates and equations published by the Institute of Transportation Engineers (ITE) in the informational report, Trip Generation⁽⁵⁾, are widely accepted for most land use categories. However the information regarding casinos in this report is limited and does not apply to most facilities.

The information provided in ITE Trip Generation⁽⁵⁾ is based on six studies in South Dakota during the 1990's. Due to the difference in gaming laws and type of facilities studied versus the type of facility in this report, a different method of trip generation was utilized. The method utilized was provided by Denis J. Finnegan of Urban Systems, Inc. The revised report can be found in Appendix D.

Since the site is multi-use, ITE guidelines for applying an internal capture rate was utilized. Internal capture describes the vehicles which are expected to use the proposed development and then use the other facilities on site without accessing the external roadway network. Since it is expected that many of the hotel guests will also frequent the casino, an internal capture rate of 33% was used to account for these trips. Since the bistro will primarily serve the hotel and casino patrons, a 75% internal capture rate was utilized. Table 5 shows the number of vehicles expected to be generated and the number of vehicles which will use the external roadway network after the application of the internal capture rate.

TABLE 5: TRIPS GENERATED AND CAPTURED					
SOURCE	TRIPS GENERATED				
	AM		PM		
	IN	OUT	IN		OUT
CASINO	21	9	30		30
BISTRO	12	12	12		8
EMPLOYEES	18	10	23		19
TOTAL	51	31	65		57
SOURCE	TRIPS AFTER INTERNAL CAPTURE				
	AM		PM		
	IN	OUT	IN		OUT
CASINO	14	6	20		20
BISTRO	3	3	3		2
EMPLOYEES	18	10	23		19
TOTAL	35	19	46		41

Trip Distribution and Assignment

The distribution of trips generated by the proposed casino was based on existing traffic patterns in the study area. It is expected that 70% of the generated traffic will be from the west via SR 0209, 8% from the south via River Road, 2% from the north via Winona Falls Road and 20% from the east via SR 0209. Figure 4 shows the new trip volumes generated by the casino.

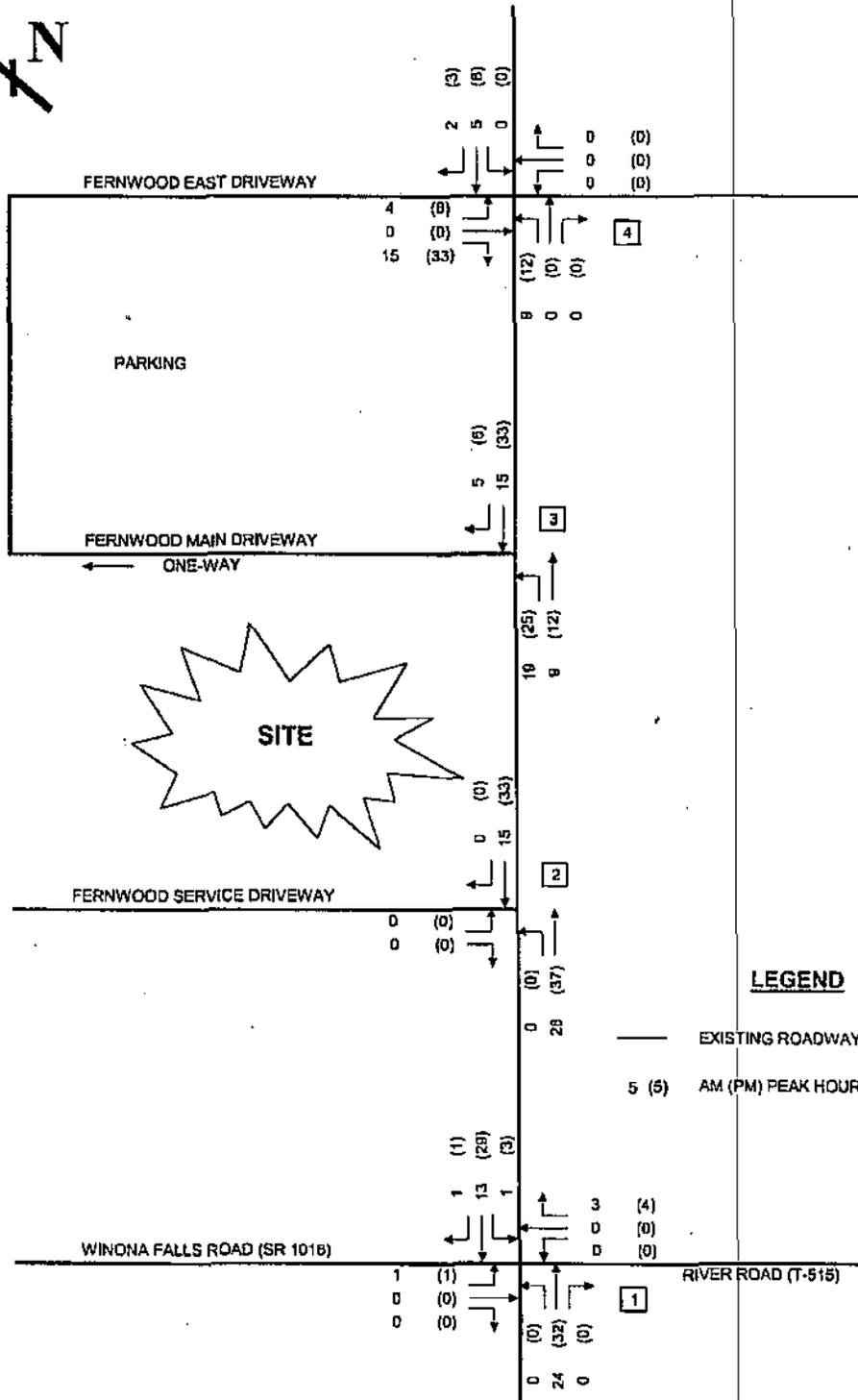


FIGURE 4
NEW TRIP DISTRIBUTION

FUTURE TRANSPORTATION SYSTEM

Roadway Network Description

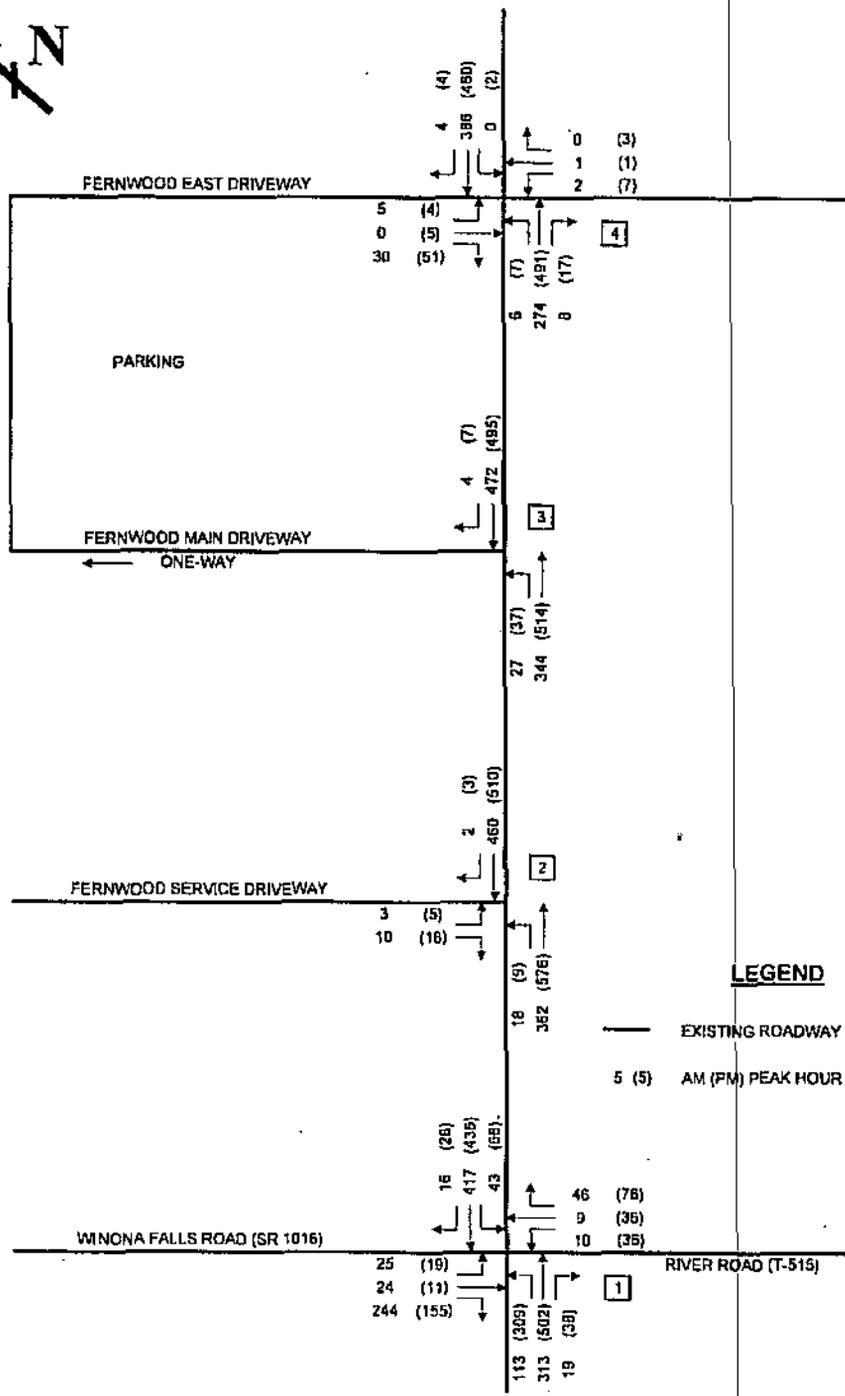
No major changes to the local roadway network are anticipated. Therefore, the future roadway network was assumed to be identical to that described under existing conditions.

Future Traffic Volumes

In order to establish future traffic volumes before considering the increased traffic volumes from the proposed development, the existing traffic volumes were factored to project the volumes for the opening day year of 2008 and the 10-year horizon year in 2018. To obtain these future volumes, an annual growth factor of 1.2% was used. This growth factor is based on PENNDOT's 2006 Traffic Data Report ⁽⁶⁾. The 1.2% growth factor accounts for potential traffic from the background growth of the area. Figures 5 and 6 show the future traffic volumes in 2008 and 2018, respectively for the without development conditions. The future traffic volumes without the proposed development were then combined with the anticipated trip generation volumes from the proposed development to provide the total future traffic volumes with the proposed site in place. The 2008 and 2018 traffic volumes with the proposed site are displayed in Figures 7 and 8, respectively. The future traffic volumes can be found in Appendix B.

Capacity Analyses

The future conditions capacity analyses were performed for the 2008 and 2018 AM and PM peak hours with and without the proposed development. Table 6 displays the a summary of the levels of service found at the 2008 and 2018 volumes in addition to displaying the existing condition levels of service previously discussed. The 2008 capacity analyses for the without and with development future conditions can be found in Appendices E and F, respectively. The 2018 capacity analyses for the without and with development future conditions can be found in Appendices G and H, respectively.



LEGEND

- EXISTING ROADWAY
- 5 (5) AM (PM) PEAK HOUR NEW TRIPS

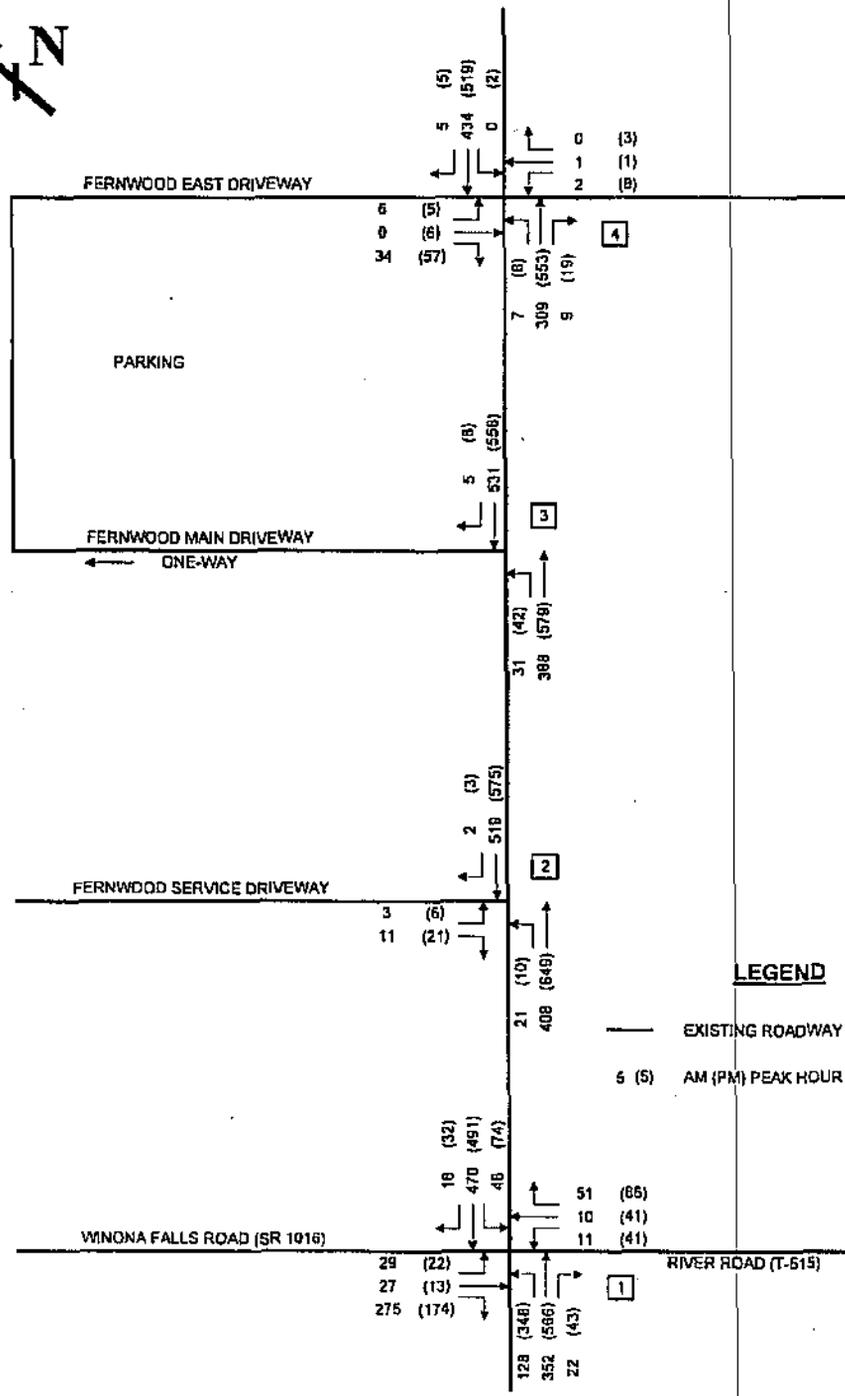


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FIGURE 5
2008 WITHOUT DEVELOPMENT
TRAFFIC VOLUMES

PROJ. MGR. - JBK
 DESIGN - EJD
 DRAWING - KRS
 CHECKED - EJD
 SCALE - N.T.S.
 DATE - JUNE 2008

SHEET NO.
13
 DRAWING NO.
5 OF 8
 PROJECT 2773.065



LEGEND

- EXISTING ROADWAY
- 6 (5) AM (PM) PEAK HOUR NEW TRIPS

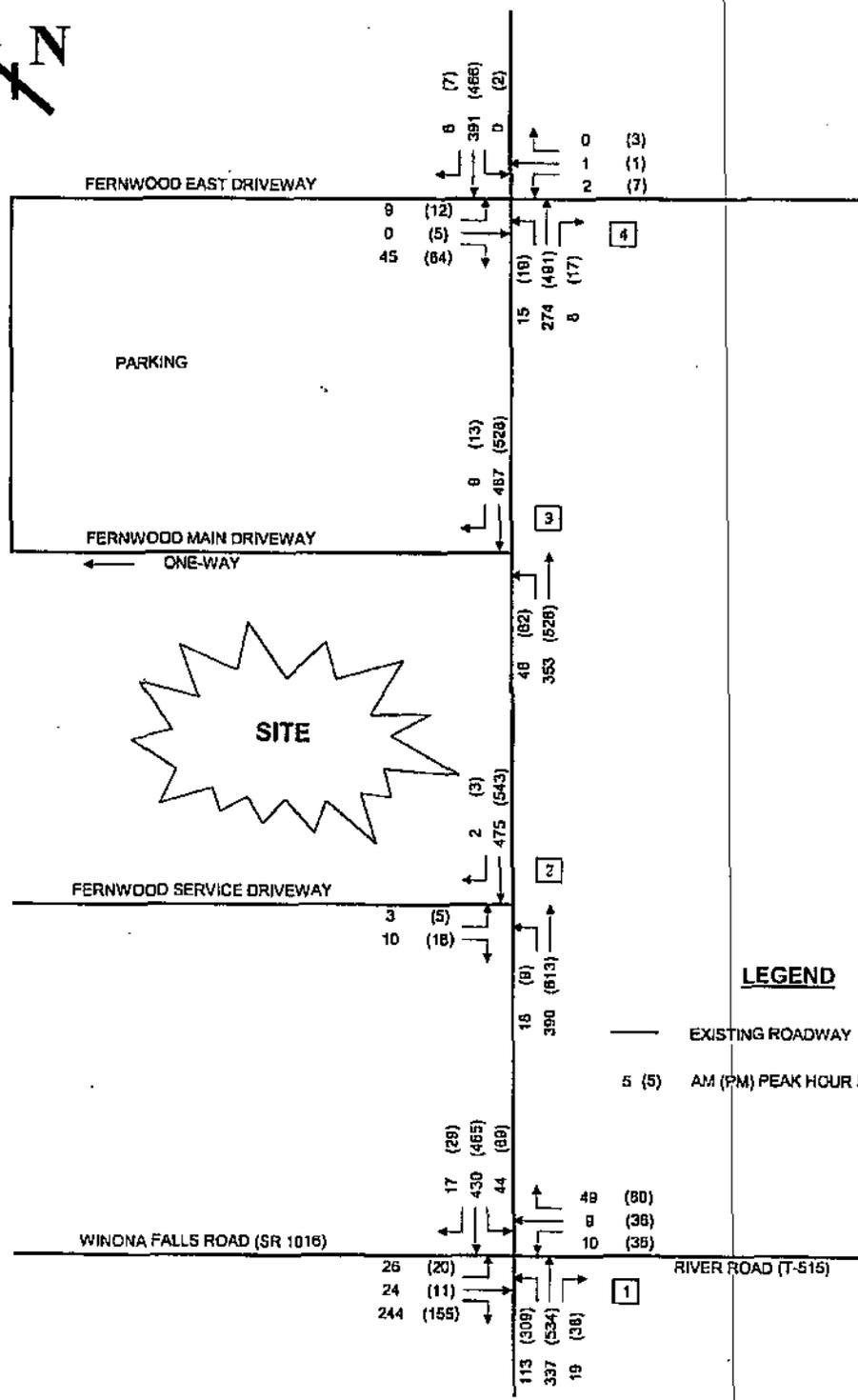
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FIGURE 6
2018 WITHOUT DEVELOPMENT
TRAFFIC VOLUMES

PROJ. MGR. - JBK
 DESIGN - EJD
 DRAWING - KRS
 CHECKED - EJD
 SCALE - N.T.S.
 DATE - JUNE 2008

SHEET NO.
14
 DRAWING NO.
6 OF 8
 PROJECT 2773.085



LEGEND

- EXISTING ROADWAY
- 5 (5) AM (PM) PEAK HOUR NEW TRIPS

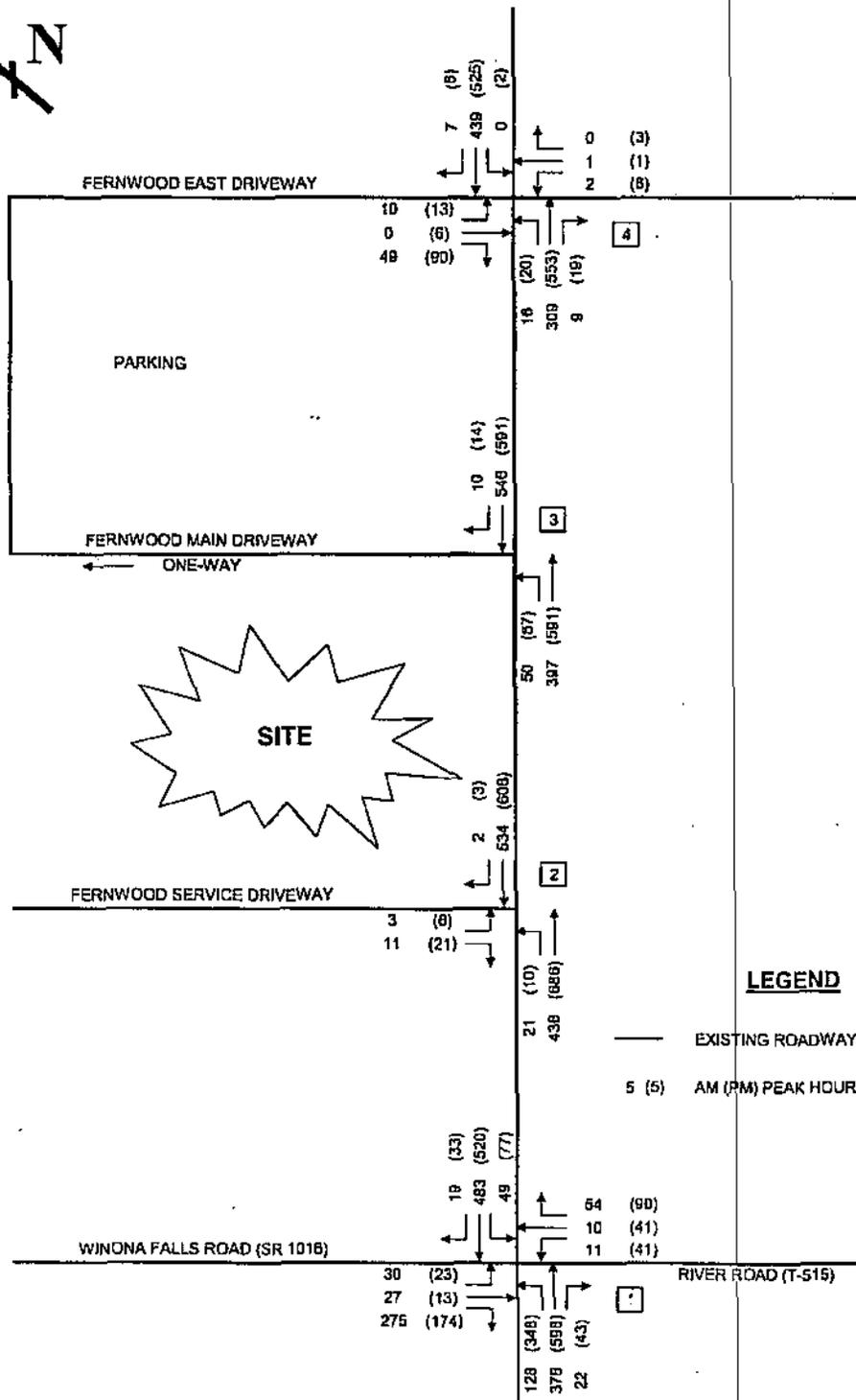


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FIGURE 7
2008 WITH DEVELOPMENT
TRAFFIC VOLUMES

PROJ. MGR. - JBK
 DESIGN - EJD
 DRAWING - KRS
 CHECKED - EJD
 SCALE - N.T.S.
 DATE - JUNE 2008

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 DRAWING NO.
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 PROJECT 2773.065



LEGEND

- EXISTING ROADWAY
- 5 (5) AM (PM) PEAK HOUR NEW TRIPS



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FIGURE 8
2018 WITH DEVELOPMENT
TRAFFIC VOLUMES

PROJ. MGR. - JBK
 DESIGN - EJD
 DRAWING - KRS
 CHECKED - EJD
 SCALE - N.T.S.
 DATE - JUNE 2008

SHEET NO.
16
 DRAWING NO.
8 OF 8
 PROJECT 2773.065

TABLE 6: EXISTING AND FUTURE CONDITIONS LEVEL OF SERVICE SUMMARY

INTERSECTION	MOVEMENT	EXISTING CONDITIONS		2008 WITHOUT DEVELOPMENT		2008 WITH DEVELOPMENT		2018 WITHOUT DEVELOPMENT		2018 WITH DEVELOPMENT	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
SR 0209 / WINONA FALLS ROAD (SR 1016) / RIVER ROAD (T-515)											
SR 0209	EB L	A	B	A	B	A	A	A	B	A	B
	EB TR	B	C	B	B	B	B	B	B	B	B
	EB APP.	B	C	B	B	B	B	B	B	B	B
	WB L	A	B	A	A	A	A	A	A	A	A
	WB TR	C	C	B	B	B	B	B	B	B	B
	WB APP.	B	C	B	B	B	B	B	B	B	B
RIVER ROAD (T-515)	NB L	C	C	B	C	B	C	C	D	C	D
	NB TR	C	C	C	C	C	C	C	D	C	D
	NB APP.	C	C	C	C	C	C	C	D	C	D
WINONA FALLS ROAD (SR 1016)	SB L	C	C	B	C	B	C	C	D	C	D
	SB TR	C	C	C	C	C	C	C	D	C	D
	SB APP.	C	C	C	C	C	C	C	D	C	D
OVERALL		C	C	B	B	B	B	B	B	B	B
SR 0209 / FERNWOOD SERVICE DRIVEWAY											
SR 0209	EB LT	A	A	A	A	A	A	A	A	A	A
	WB TR	--	--	--	--	--	--	--	--	--	--
SERVICE DW	SB LR	B	C	B	C	B	C	B	C	B	C
SR 0209 / FERNWOOD MAIN DRIVEWAY											
SR 0209	EB L	A	A	A	A	A	A	A	A	A	A
	EB T	--	--	--	--	--	--	--	--	--	--
	WB TR	--	--	--	--	--	--	--	--	--	--
SR 0209 / FERNWOOD EAST DRIVEWAY											
SR 0209	EB L	A	A	A	A	A	A	A	A	A	A
	EB TR	--	--	--	--	--	--	--	--	--	--
	WB L	A	A	A	A	A	A	A	A	A	A
	WB TR	--	--	--	--	--	--	--	--	--	--
EAST DRIVEWAY	NB LTR	C	C	C	C	C	D	C	D	C	E
	SB LTR	B	B	B	B	B	C	B	C	C	C

F (99.9) = Level of Service (Delay in seconds / vehicle)

2008 Without Development

This scenario is not anticipated to experience any unacceptable levels of service.

2008 With Development

This scenario is not anticipated to experience any unacceptable levels of service.

2018 Without Development

This scenario is not anticipated to experience any unacceptable levels of service.

2018 With Development

SR 0209 / Fernwood East Driveway

Northbound Fernwood East Driveway approach is anticipated to experience a LOS E in the PM peak hour.

IMPROVEMENT ANALYSIS

Peak Hour Volume Warrant Evaluation

In accordance with PENNDOT Publication 201, Engineering and Traffic Studies⁽⁷⁾, an evaluation of peak hour traffic signal warrants was conducted for the unsignalized intersections that were determined to have unacceptable levels of service or levels of service that dropped more than two levels due to the additional traffic generated by the development.

Due to PENNDOT's concern regarding Tort Liability, PENNDOT will not install a signal at an intersection that does not meet warrants.

The intersection of SR 0209 and Fernwood East Driveway does not meet warrants in 2008 or 2018. The warrant analysis can be found in Appendix I.

Capacity Analyses

Since the existing roadway network has available capacity to serve the development, there are no necessary improvements required.

The Fernwood East Driveway, which is a private road, is expected to experience a level of service E in the year 2018. This condition only occurs during the PM peak hour and there are no reasonable alternatives to mitigate the situation. It is logical to expect this issue will be self-regulating, in that people will see that it is congested and use alternative routes to exit the development. A level of service of E indicates that the approach is operating at capacity; it is not a safety issue. The Bushkill Group is, however, aware of the situation. To this end, no improvements are proposed to mitigate the levels of service at the intersection of SR 0209 and Fernwood East Driveway.

CONCLUSIONS

Study Findings

Based on the data collected and the analyses performed under various conditions, the following are the results found:

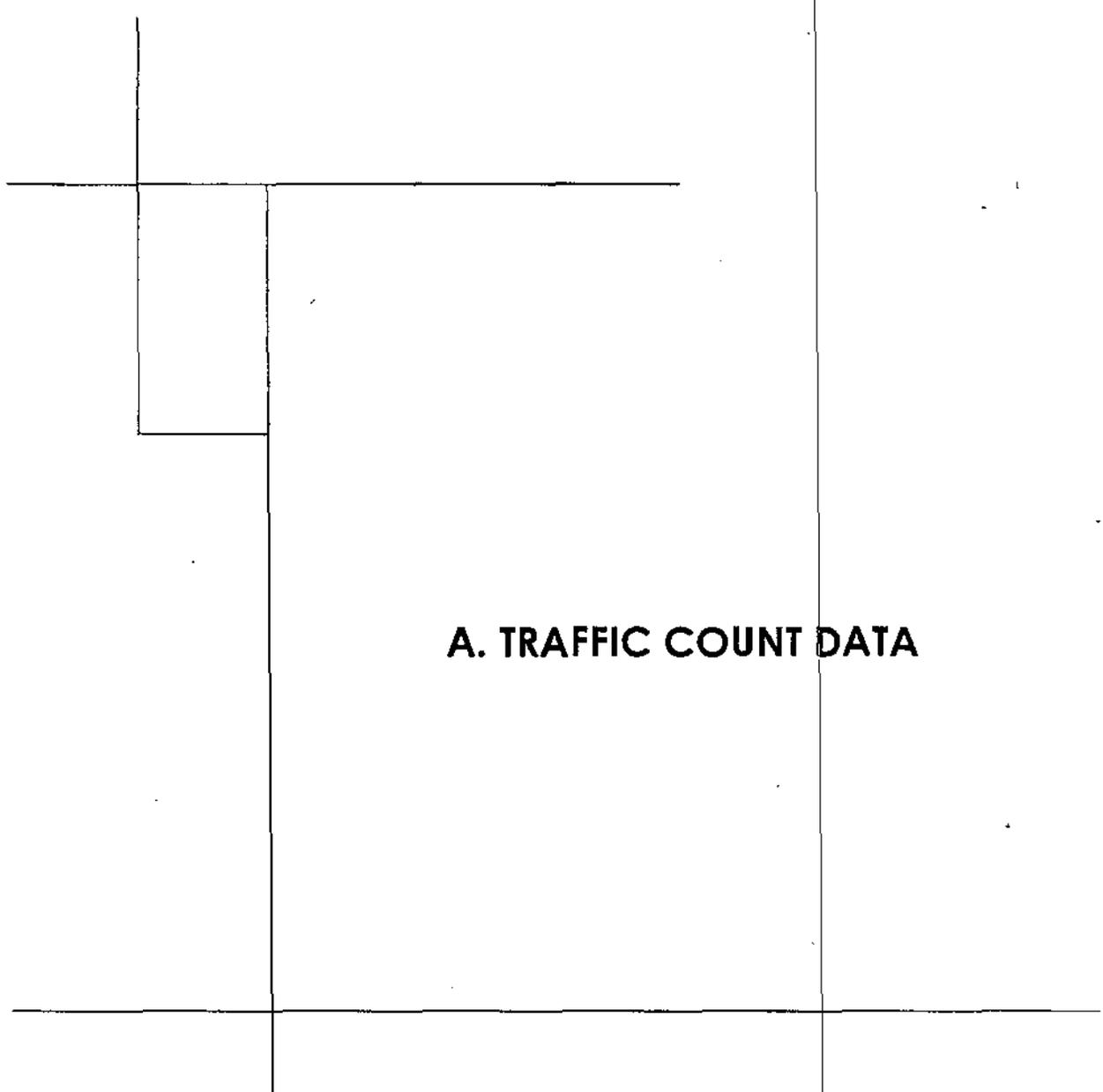
- ▶ The proposed casino, when completed, will generate an estimated 20 external trips during the AM peak hour and 40 external trips during the PM peak hour.
- ▶ The proposed Bistro, when completed, will generate an estimated 6 external trips during the AM peak hour and 5 external trips during the PM peak hour.
- ▶ In total, the proposed site will generate an estimated 54 AM peak hour external trips and 87 PM peak hour external trips.
- ▶ Access to the development will be via the two existing driveways located along SR 0209.
- ▶ Capacity analyses indicate that under existing conditions there are no deficiencies present.
- ▶ By factoring the existing volumes to 2008, there are no anticipated deficiencies.
- ▶ By factoring the existing volumes to 2018, there are no anticipated deficiencies.
- ▶ Capacity analyses show that operation of the proposed site will have some impact on the traffic operations in the study area. The following is a summary of the additional deficiencies that will occur at the various study intersections upon addition of the proposed site's traffic:
 - Northbound Fernwood East Driveway is anticipated to experience a LOS E in the 2018 PM peak hour.
 - This intersection does not meet traffic signal warrants in 2008 or 2018.
- ▶ The proposed development will not have any detrimental effects to the surrounding roadway network.
- ▶ Based on trip distribution, 70% of the traffic attributed to the proposed Casino and Bistro exit the facility and head south on TR 209. Assuming all traffic continues south to Marshall's Creek, which is extremely conservative, it would amount to only a 1.3% increase in the average daily traffic through that area.

LIST OF REFERENCES

1. Traffic Impact Study: Chapter 170-73A of the Code of the Township of Middle Smithfield, Ordinance No. 117. Middle Smithfield Township, PA.
2. Highway Occupancy Permit Handbook, Publication 282, Pennsylvania Department of Transportation, April 2004
3. 2000 Highway Capacity Manual, Transportation Research Board, Washington D.C., 2000.
4. Highway Capacity Software Plus, Version 5.21, University of Florida, Gainesville, FL, 2005.
5. Trip Generation, Seventh Edition, Institute of Transportation Engineers, Washington D.C., 2003.
6. 2006 Pennsylvania Data Report, Publication 601, Pennsylvania Department of Transportation, September 2007.
7. Engineering and Traffic Studies, Publication 201, Pennsylvania Department of Transportation, September 1993.
8. Traffic Signal Design Handbook, Publication 149, Pennsylvania Department of Transportation, September 1988.

APPENDICES

- A. TRAFFIC COUNT DATA**
- B. TRAFFIC VOLUMES**
- C. EXISTING CAPACITY ANALYSIS**
- D. TRIP GENERATION**
- E. 2008 WITHOUT DEVELOPMENT CAPACITY ANALYSIS**
- F. 2008 WITH DEVELOPMENT CAPACITY ANALYSIS**
- G. 2018 WITHOUT DEVELOPMENT CAPACITY ANALYSIS**
- H. 2018 WITH DEVELOPMENT CAPACITY ANALYSIS**
- I. TRAFFIC SIGNAL WARRANT ANALYSIS**



A. TRAFFIC COUNT DATA

Herbert, Rowland and Grubic
414 East Drinker Street, Suite 203

Dunmore, PA 18512 Name : Intersection 1 - 209 and 1016 and T515 AM-PM

Site Code : 27735013

Start Date : 08/30/2005

Page No : 1

Groups Printed- Cars - Trucks

Start Time	SR 209 (NB) Eastbound				SR 209 (SB) Westbound				River Road Northbound				SR 1016 - Winona Falls Rd Southbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
07:00 AM	22	48	4	74	7	103	3	113	3	0	5	8	17	6	68	91	286
07:15 AM	22	57	3	82	13	99	4	116	4	2	1	7	4	7	44	55	280
07:30 AM	24	58	3	85	8	96	5	109	4	4	6	14	4	7	62	73	281
07:45 AM	34	100	5	139	6	70	2	78	1	2	11	14	2	4	38	44	275
Total	102	263	15	380	34	368	14	416	12	8	23	43	27	24	212	263	1102
08:00 AM	27	89	7	123	11	82	6	99	5	2	17	24	7	4	63	74	320
08:15 AM	29	71	5	105	10	107	7	124	0	3	13	16	5	4	68	77	322
08:30 AM	21	56	3	80	11	101	1	113	2	1	11	14	5	7	62	74	281
08:45 AM	32	86	4	122	9	112	2	123	3	3	3	9	7	8	42	57	311
Total	109	302	19	430	41	402	16	459	10	9	44	63	24	23	235	282	1234
03:30 PM	64	103	6	173	11	108	8	127	8	9	16	33	7	4	41	52	385
03:45 PM	47	110	14	171	18	113	9	140	6	9	15	30	12	2	47	61	402
Total	111	213	20	344	29	221	17	267	14	18	31	63	19	6	68	113	787
04:00 PM	51	97	14	172	18	100	8	126	5	8	27	38	9	4	54	67	403
04:15 PM	66	91	7	164	17	119	7	143	13	7	23	43	6	3	45	54	404
04:30 PM	58	104	17	179	15	116	6	137	11	11	25	47	2	4	38	44	407
04:45 PM	56	119	9	184	14	100	6	120	9	4	14	27	5	9	35	49	380
Total	241	411	47	699	64	435	27	526	38	28	89	155	22	20	172	214	1594
05:00 PM	88	119	12	199	17	90	8	115	12	8	24	44	3	4	40	47	405
05:15 PM	78	139	8	225	15	110	5	130	13	8	15	36	5	1	38	44	435
05:30 PM	76	120	10	206	13	107	7	127	6	11	22	39	5	1	35	41	413
05:45 PM	76	106	7	189	18	114	7	139	4	8	12	24	6	5	36	47	399
Total	298	484	37	819	63	421	27	511	35	35	73	143	19	11	149	179	1652
Grand Total	861	1673	138	2672	231	1847	101	2179	109	98	260	467	111	84	856	1051	6369
Apprch %	32.2	62.6	5.2		10.6	84.8	4.6		23.3	21.0	55.7		10.6	8.0	81.4		
Total %	13.5	26.3	2.2	42.0	3.6	29.0	1.6	34.2	1.7	1.5	4.1	7.3	1.7	1.3	13.4	16.5	

Herbert, Rowland and Grubic
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Dunmore, PA 18512 Name : Intersection 1 - 209 and 1016 and T515 AM-PM

Site Code : 27735013

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Start Time	SR 209 (NB) Eastbound				SR 209 (SB) Westbound				River Road Northbound				SR 1016 - Winona Falls Rd Southbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Intersection	08:00 AM																
Volume	109	302	19	430	41	402	16	459	10	9	44	63	24	23	235	282	1234
Percent	25.3	70.2	4.4		8.9	87.6	3.5		15.9	14.3	69.8		8.5	8.2	83.3		
08:15 Volume	29	71	5	105	10	107	7	124	0	3	13	16	5	4	68	77	322
Peak Factor																	0.958
High Int.	08:00 AM				08:15 AM				08:00 AM				08:15 AM				
Volume	27	89	7	123	10	107	7	124	5	2	17	24	5	4	68	77	
Peak Factor	0.874				0.925				0.656				0.916				
HV%	16	11	9		8	4	27		9	24	12		24	19	5		
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																	
By Approach	07:30 AM				08:00 AM				07:30 AM				08:00 AM				
Volume	114	318	20	452	41	402	16	459	10	11	47	68	24	23	235	282	
Percent	25.2	70.4	4.4		8.9	87.6	3.5		14.7	16.2	69.1		8.5	8.2	83.3		
High Int.	07:45 AM				08:15 AM				08:00 AM				08:15 AM				
Volume	34	100	5	139	10	107	7	124	5	2	17	24	5	4	68	77	
Peak Factor	0.813				0.925				0.708				0.916				
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	298	484	37	819	63	421	27	511	35	35	73	143	19	11	149	179	1652
Percent	36.4	59.1	4.5		12.3	82.4	5.3		24.5	24.5	51.0		10.6	6.1	83.2		
05:15 Volume	78	139	8	225	15	110	5	130	13	8	15	36	5	1	38	44	435
Peak Factor																	0.949
High Int.	05:15 PM				05:45 PM				05:00 PM				05:00 PM				
Volume	78	139	8	225	18	114	7	139	12	8	24	44	3	4	40	47	
Peak Factor	0.910				0.919				0.813				0.952				
HV%	2	2	3		8	6	7		0	5	5		22	5	6		
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																	
By Approach	05:00 PM				03:45 PM				04:15 PM				03:30 PM				
Volume	298	484	37	819	68	448	30	546	45	30	86	161	34	13	187	234	
Percent	36.4	59.1	4.5		12.5	82.1	5.5		28.0	18.6	53.4		14.5	5.6	79.9		
High Int.	05:15 PM				04:15 PM				04:30 PM				04:00 PM				
Volume	78	139	8	225	17	119	7	143	11	11	25	47	9	4	54	67	
Peak Factor	0.910				0.955				0.856				0.873				

Herbert, Rowland and Grubic
 414 East Drinker Street, Suite 203

Dunmore, PA 18512 Name : Intersection 1 - 209 and 1016 and T515 AM-PM

Site Code : 27735013

Start Date : 08/30/2005

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Groups Printed- Trucks

Start Time	SR 209 (NB) Eastbound				SR 209 (SB) Westbound				River Road Northbound				SR 1016 - Winona Falls Rd Southbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
07:00 AM	1	7	1	9	0	3	0	3	0	0	1	1	5	1	2	8	21
07:15 AM	2	4	0	6	1	4	0	5	1	0	0	1	1	2	3	6	18
07:30 AM	2	6	1	9	0	7	0	7	0	2	0	2	0	2	3	5	23
07:45 AM	6	9	0	15	0	2	0	2	0	1	4	5	0	1	2	3	25
Total	11	26	2	39	1	16	0	17	1	3	5	9	6	6	10	22	87
08:00 AM	5	11	0	16	1	5	2	8	1	0	2	3	1	0	3	4	31
08:15 AM	3	11	0	14	2	4	6	12	0	0	0	0	1	0	1	2	28
08:30 AM	4	3	1	8	1	3	0	4	0	0	1	1	2	1	6	9	22
08:45 AM	10	13	0	23	1	4	0	5	0	1	0	1	2	2	4	8	37
Total	22	38	1	61	5	16	8	29	1	1	3	5	6	3	14	23	118
03:30 PM	10	4	1	15	1	10	0	11	0	0	1	1	0	1	6	7	34
03:45 PM	0	4	0	4	2	8	1	11	0	2	1	3	7	0	5	12	30
Total	10	8	1	19	3	18	1	22	0	2	2	4	7	1	11	19	64
04:00 PM	3	6	0	9	1	4	0	5	0	0	4	4	2	1	0	3	21
04:15 PM	0	2	1	3	3	9	0	12	0	0	0	0	1	0	1	2	17
04:30 PM	0	1	0	1	1	6	1	8	0	1	1	2	0	0	1	1	12
04:45 PM	0	0	1	1	0	3	0	3	0	0	1	1	1	0	1	2	7
Total	3	9	2	14	5	22	1	28	0	1	6	7	4	1	3	8	57
05:00 PM	0	2	0	2	2	4	1	7	0	1	0	1	0	0	0	0	10
05:15 PM	0	4	0	4	0	3	1	4	0	0	1	1	2	0	5	7	16
05:30 PM	1	2	0	3	2	7	1	10	0	0	0	0	0	0	4	4	17
05:45 PM	2	1	0	3	0	6	0	6	0	0	1	1	0	0	2	2	12
Total	3	9	0	12	4	20	3	27	0	1	2	3	2	0	11	13	55
Grand Total	49	90	8	145	18	92	13	123	2	8	18	28	25	11	49	85	381
Apprch %	33.8	62.1	4.1		14.6	74.6	10.6		7.1	28.6	64.3		29.4	12.9	57.6		
Total %	12.9	23.6	1.6	38.1	4.7	24.1	3.4	32.3	0.5	2.1	4.7	7.3	6.6	2.9	12.9	22.3	

Herbert, Rowland and Grubic
414 East Drinker Street, Suite 203

Dunmore, PA 18512 File Name : Intersection 1 - 209 and 1016 and T515 AM-PM

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Start Date : 08/30/2005

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Start Time	SR 209 (NB) Eastbound				SR 209 (SB) Westbound				River Road Northbound				SR 1016 - Winona Falls Rd Southbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Intersection	08:00 AM																
Volume	22	38	1	61	5	18	8	29	1	1	3	5	6	3	14	23	118
Percent	36.1	62.3	1.6		17.2	55.2	27.6		20.0	20.0	60.0		26.1	13.0	60.9		
08:45 Volume	10	13	0	23	1	4	0	5	0	1	0	1	2	2	4	8	37
Peak Factor																	0.797
High Int.	08:45 AM				08:15 AM				08:00 AM				08:30 AM				
Volume	10	13	0	23	2	4	6	12	1	0	2	3	2	1	6	9	
Peak Factor	0.663				0.604				0.417				0.639				
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																	
By Approach	08:00 AM				07:30 AM				07:15 AM				08:00 AM				
Volume	22	38	1	61	3	18	8	29	2	3	6	11	6	3	14	23	
Percent	36.1	62.3	1.6		10.3	62.1	27.6		18.2	27.3	54.5		26.1	13.0	60.9		
High Int.	08:45 AM				08:15 AM				07:45 AM				08:30 AM				
Volume	10	13	0	23	2	4	6	12	0	1	4	5	2	1	6	9	
Peak Factor	0.663				0.604				0.550				0.639				
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	03:30 PM																
Volume	13	16	2	31	7	31	1	39	0	2	6	8	10	2	12	24	102
Percent	41.9	51.6	6.5		17.9	79.5	2.6		0.0	25.0	75.0		41.7	8.3	50.0		
03:30 Volume	10	4	1	15	1	10	0	11	0	0	1	1	0	1	6	7	34
Peak Factor																	0.750
High Int.	03:30 PM				04:15 PM				04:00 PM				03:45 PM				
Volume	10	4	1	15	3	9	0	12	0	0	4	4	7	0	5	12	
Peak Factor	0.517				0.813				0.500				0.500				
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																	
By Approach	03:30 PM				03:30 PM				03:45 PM				03:30 PM				
Volume	13	16	2	31	7	31	1	39	0	3	6	9	10	2	12	24	
Percent	41.9	51.6	6.5		17.9	79.5	2.6		0.0	33.3	66.7		41.7	8.3	50.0		
High Int.	03:30 PM				04:15 PM				04:00 PM				03:45 PM				
Volume	10	4	1	15	3	9	0	12	0	0	4	4	7	0	5	12	
Peak Factor	0.517				0.813				0.563				0.500				

Herbert, Rowland and Grubic
 414 East Drinker Street, Suite 203

Dunmore, PA 18512 File Name : Intersection 2 - 209 and Service DW AM-PM

Site Code : 27735023

Start Date : 08/30/2005

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Groups Printed- Cars - Trucks

Start Time	SR 209 (NB) Eastbound				SR 209 (SB) Westbound				Femwood Service Driveway Southbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
07:00 AM	1	71	0	72	0	115	0	115	0	0	0	0	187
07:15 AM	1	62	0	63	0	114	0	114	1	0	0	1	178
07:30 AM	0	66	0	66	0	106	0	106	1	0	1	2	174
07:45 AM	6	106	0	112	0	78	1	79	0	0	1	1	192
Total	8	305	0	313	0	413	1	414	2	0	2	4	731
08:00 AM	8	104	0	112	0	94	1	95	0	0	2	2	209
08:15 AM	6	82	0	88	0	122	0	122	1	0	1	2	212
08:30 AM	1	71	0	72	0	108	1	109	1	0	3	4	185
08:45 AM	3	93	0	96	0	120	0	120	1	0	4	5	221
Total	18	350	0	368	0	444	2	446	3	0	10	13	827
03:30 PM	8	118	0	126	0	122	0	122	0	0	6	6	254
03:45 PM	6	132	0	138	0	131	2	133	1	0	8	9	280
Total	14	250	0	264	0	253	2	255	1	0	14	15	534
04:00 PM	5	125	0	130	0	119	3	122	0	0	7	7	259
04:15 PM	5	116	0	121	0	128	1	129	1	0	9	10	260
04:30 PM	3	124	0	127	0	134	2	136	0	0	4	4	267
04:45 PM	2	138	0	140	0	116	1	117	0	0	3	3	260
Total	15	503	0	518	0	497	7	504	1	0	23	24	1046
05:00 PM	0	143	0	143	0	104	2	106	2	0	10	12	261
05:15 PM	3	155	0	158	0	125	0	125	0	0	2	2	285
05:30 PM	3	141	0	144	0	128	0	128	2	0	2	4	276
05:45 PM	3	117	0	120	0	135	1	136	1	0	4	5	261
Total	9	556	0	565	0	492	3	495	5	0	18	23	1083
Grand Total	64	1964	0	2028	0	2099	15	2114	12	0	67	79	4221
Apprch %	3.2	96.8	0.0		0.0	99.3	0.7		15.2	0.0	84.8		
Total %	1.5	48.5	0.0	48.0	0.0	49.7	0.4	50.1	0.3	0.0	1.6	1.9	

Herbert, Rowland and Grubic
 414 East Drinker Street, Suite 203

Dunmore, PA 18512 File Name : Intersection 2 - 209 and Service DW AM-PM

Site Code : 27735023

Start Date : 08/30/2005

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Start Time	SR 209 (NB) Eastbound				SR 209 (SB) Westbound				Fernwood Service Driveway Southbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1													
Intersection	08:00 AM												
Volume	18	350	0	368	0	444	2	446	3	0	10	13	827
Percent	4.9	95.1	0.0		0.0	99.6	0.4		23.1	0.0	76.9		
08:45 Volume	3	93	0	96	0	120	0	120	1	0	4	5	221
Peak Factor													0.936
High Int.	08:00 AM				08:15 AM				08:45 AM				
Volume	8	104	0	112	0	122	0	122	1	0	4	5	
Peak Factor	0.821				0.914				0.650				
HV%	8	11	0		0	5	0		20	0	0		
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1													
By Approach	07:45 AM				08:00 AM				08:00 AM				
Volume	21	363	0	384	0	444	2	446	3	0	10	13	
Percent	5.5	94.5	0.0		0.0	99.6	0.4		23.1	0.0	76.9		
High Int.	07:45 AM				08:15 AM				08:45 AM				
Volume	6	106	0	112	0	122	0	122	1	0	4	5	
Peak Factor	0.857				0.914				0.650				
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1													
Intersection	05:00 PM												
Volume	9	556	0	565	0	492	3	495	5	0	16	23	1083
Percent	1.6	98.4	0.0		0.0	99.4	0.6		21.7	0.0	78.3		
05:15 Volume	3	155	0	158	0	125	0	125	0	0	2	2	285
Peak Factor													0.950
High Int.	05:15 PM				05:45 PM				05:00 PM				
Volume	3	155	0	158	0	135	1	136	2	0	10	12	
Peak Factor	0.894				0.910				0.479				
HV%	5	3	0		0	5	0		14	0	7		
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1													
By Approach	04:45 PM				03:45 PM				03:30 PM				
Volume	8	577	0	585	0	512	8	520	2	0	30	32	
Percent	1.4	98.6	0.0		0.0	98.5	1.5		6.3	0.0	93.8		
High Int.	05:15 PM				04:30 PM				04:15 PM				
Volume	3	155	0	158	0	134	2	136	1	0	9	10	
Peak Factor	0.926				0.956				0.800				

Herbert, Rowland and Grubic
 414 East Drinker Street, Suite 203

Dunmore, PA 18512 File Name : Intersection 2 - 209 and Service DW AM-PM

Site Code : 27735023

Start Date : 08/30/2005

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Groups Printed- Trucks

Start Time	SR 209 (NB) Eastbound				SR 209 (SB) Westbound				Fernwood Service Driveway Southbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
07:00 AM	0	10	0	10	0	4	0	4	0	0	0	0	14
07:15 AM	1	4	0	5	0	5	0	5	0	0	0	0	10
07:30 AM	0	4	0	4	0	4	0	4	0	0	0	0	8
07:45 AM	0	10	0	10	0	2	0	2	0	0	0	0	12
Total	1	28	0	29	0	15	0	15	0	0	0	0	44
08:00 AM	1	12	0	13	0	8	0	8	0	0	0	0	21
08:15 AM	0	11	0	11	0	12	0	12	0	0	0	0	23
08:30 AM	0	5	0	5	0	3	0	3	0	0	0	0	8
08:45 AM	0	14	0	14	0	4	0	4	1	0	0	1	19
Total	1	42	0	43	0	27	0	27	1	0	0	1	71
03:30 PM	0	4	0	4	0	8	0	8	0	0	0	0	12
03:45 PM	0	12	0	12	0	9	0	9	0	0	0	0	21
Total	0	16	0	16	0	17	0	17	0	0	0	0	33
04:00 PM	0	6	0	6	0	3	0	3	0	0	1	1	10
04:15 PM	0	4	0	4	0	9	0	9	0	0	1	1	14
04:30 PM	1	1	0	2	0	3	0	3	0	0	1	1	6
04:45 PM	0	2	0	2	0	2	0	2	0	0	0	0	4
Total	1	13	0	14	0	17	0	17	0	0	3	3	34
05:00 PM	0	2	0	2	0	5	0	5	0	0	1	1	8
05:15 PM	1	5	0	6	0	4	0	4	0	0	0	0	10
05:30 PM	0	2	0	2	0	10	0	10	1	0	0	1	13
05:45 PM	0	2	0	2	0	6	0	6	0	0	0	0	8
Total	1	11	0	12	0	25	0	25	1	0	1	2	39
Grand Total	4	110	0	114	0	101	0	101	2	0	4	6	221
Approch %	3.5	96.5	0.0		0.0	100.0	0.0		33.3	0.0	66.7		
Total %	1.8	49.8	0.0	51.6	0.0	45.7	0.0	45.7	0.9	0.0	1.6	2.7	

Herbert, Rowland and Grubic
 414 East Drinker Street, Suite 203

Dunmore, PA 18512 File Name : Intersection 2 - 209 and Service DW AM-PM

Site Code : 27735023

Start Date : 08/30/2005

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Start Time	SR 209 (NB) Eastbound				SR 209 (SB) Westbound				Fernwood Service Driveway Southbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1													
Intersection	08:00 AM												
Volume	1	42	0	43	0	27	0	27	1	0	0	1	71
Percent	2.3	97.7	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
08:15 Volume	0	11	0	11	0	12	0	12	0	0	0	0	23
Peak Factor													0.772
High Int.	08:45 AM				08:15 AM				08:45 AM				
Volume	0	14	0	14	0	12	0	12	1	0	0	1	
Peak Factor	0.768								0.563				0.250
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1													
By Approach	08:00 AM				08:00 AM				08:00 AM				
Volume	1	42	0	43	0	27	0	27	1	0	0	1	
Percent	2.3	97.7	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
High Int.	08:45 AM				08:15 AM				08:45 AM				
Volume	0	14	0	14	0	12	0	12	1	0	0	1	
Peak Factor	0.768								0.563				0.250
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1													
Intersection	03:30 PM												
Volume	0	26	0	26	0	29	0	29	0	0	2	2	57
Percent	0.0	100.0	0.0		0.0	100.0	0.0		0.0	0.0	100.0		
03:45 Volume	0	12	0	12	0	9	0	9	0	0	0	0	21
Peak Factor													0.679
High Int.	03:45 PM				03:45 PM				04:00 PM				
Volume	0	12	0	12	0	9	0	9	0	0	1	1	
Peak Factor	0.542								0.806				0.500
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1													
By Approach	03:30 PM				03:30 PM				03:45 PM				
Volume	0	26	0	26	0	29	0	29	0	0	3	3	
Percent	0.0	100.0	0.0		0.0	100.0	0.0		0.0	0.0	100.0		
High Int.	03:45 PM				03:45 PM				04:00 PM				
Volume	0	12	0	12	0	9	0	9	0	0	1	1	
Peak Factor	0.542								0.806				0.750

Herbert, Rowland and Grubic
414 East Drinker Street, Suite 203

Dunmore, PA 18512 File Name : Intersection 3 - 209 and Main DW AM-PM

Site Code : 27735033

Start Date : 08/31/2005

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Groups Printed- Cars - Trucks

Start Time	SR 209 (NB) Eastbound					SR 209 (SB) Westbound					Fernwood Parking Lot Entrance Northbound					Fernwood Main Drive (One Way In) Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	6	71	0	0	77	0	119	0	0	119	0	0	0	0	0	0	0	0	0	0	196
07:15 AM	3	46	0	0	49	0	106	0	0	106	0	0	0	0	0	0	0	0	0	0	155
07:30 AM	3	79	0	0	82	0	103	0	0	103	0	0	0	0	0	0	0	0	0	0	185
07:45 AM	5	72	0	3	80	0	89	0	0	89	0	0	0	0	0	0	0	0	0	0	169
Total	17	268	0	3	288	0	417	0	0	417	0	0	0	0	0	0	0	0	0	0	705
08:00 AM	8	83	1	8	100	0	114	1	0	115	0	1	0	2	3	0	0	0	1	1	219
08:15 AM	8	86	2	1	97	0	131	0	0	131	0	0	0	0	0	0	0	0	0	0	228
08:30 AM	4	78	2	0	84	0	105	0	0	105	0	0	0	0	0	0	0	0	0	0	189
08:45 AM	6	80	0	2	88	0	105	3	0	108	0	0	0	0	0	0	0	0	1	1	197
Total	26	327	5	11	369	0	455	4	0	459	0	1	0	2	3	0	0	0	2	2	833
04:00 PM	8	115	1	6	130	0	131	5	0	136	0	0	0	0	0	0	0	0	3	3	269
04:15 PM	6	126	3	3	138	0	110	0	1	111	0	0	0	0	0	0	0	0	3	3	252
04:30 PM	13	129	2	6	150	0	122	1	0	123	0	0	0	0	0	0	0	0	0	0	273
04:45 PM	9	119	1	3	132	0	114	1	0	115	0	0	0	0	0	0	0	0	6	6	253
Total	36	489	7	18	550	0	477	7	1	485	0	0	0	0	0	0	0	0	12	12	1047
05:00 PM	6	102	3	2	113	0	127	1	0	128	0	0	0	0	0	0	0	0	3	3	244
05:15 PM	4	132	4	3	143	0	110	1	0	111	0	0	0	0	0	0	0	0	0	0	254
05:30 PM	5	104	2	1	112	0	114	6	0	120	0	0	0	0	0	0	0	0	1	1	233
05:45 PM	10	104	0	1	115	1	106	0	0	107	0	0	0	0	0	0	0	0	0	0	222
Total	25	442	9	7	483	1	457	8	0	466	0	0	0	0	0	0	0	0	4	4	953
Grand-Total	104	1526	21	39	1690	1	1806	19	1	1827	0	1	0	2	3	0	0	0	18	18	3538
Apprch %	6.2	90.3	1.2	2.3		0.1	98.8	1.0	0.1		0.0	33.3	0.0	66.7		0.0	0.0	0.0	100.0		
Total %	2.9	43.1	0.6	1.1	47.8	0.0	51.0	0.5	0.0	51.6	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.5	0.5	

Herbert, Rowland and Grubic
414 East Drinker Street, Suite 203

Dunmore, PA 18512 File Name : Intersection 3 - 209 and Main DW AM-PM

Site Code : 27735033

Start Date : 08/31/2005

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Start Time	SR 209 (NB) Eastbound				SR 209 (SB) Westbound				Fernwood Parking Lot Entrance Northbound				Fernwood Main Drive (One Way In) Southbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Intersection	08:00 AM																
Volume	26	327	5	358	0	455	4	459	0	1	0	1	0	0	0	0	818
Percent	7.3	91.3	1.4		0.0	99.1	0.9		0.0	100.0	0.0		0.0	0.0	0.0		
08:15 Volume	8	86	2	96	0	131	0	131	0	0	0	0	0	0	0	0	227
Peak Factor																	0.901
High Int.	08:15 AM				08:15 AM				08:00 AM				6:45:00 AM				
Volume	8	86	2	96	0	131	0	131	0	1	0	1	0	0	0	0	
Peak Factor	0.932				0.876				0.250								
HV ₂₅	0	13	0		0	4	0		0	0	0		0	0	0		
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																	
By Approach	08:00 AM				08:00 AM				07:15 AM				07:00 AM				
Volume	26	327	5	358	0	455	4	459	0	1	0	1	0	0	0	0	
Percent	7.3	91.3	1.4		0.0	99.1	0.9		0.0	100.0	0.0		-	-	-		
High Int.	08:15 AM				08:15 AM				08:00 AM								
Volume	8	86	2	96	0	131	0	131	0	1	0	1	-	-	-	-	
Peak Factor	0.932				0.876				0.250								
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:00 PM																
Volume	36	489	7	532	0	477	7	484	0	0	0	0	0	0	0	0	1016
Percent	6.8	91.9	1.3		0.0	98.6	1.4		0.0	0.0	0.0		0.0	0.0	0.0		
04:30 Volume	13	129	2	144	0	122	1	123	0	0	0	0	0	0	0	0	267
Peak Factor																	0.951
High Int.	04:30 PM				04:00 PM												
Volume	13	129	2	144	0	131	5	136	0	0	0	0	0	0	0	0	
Peak Factor	0.924				0.890												
HV ₂₅	2	2	0		0	3	7		0	0	0		0	0	0		
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																	
By Approach	04:00 PM				04:00 PM				12:00 PM				12:00 PM				
Volume	36	489	7	532	0	477	7	484	0	0	0	0	0	0	0	0	
Percent	6.8	91.9	1.3		0.0	98.6	1.4		-	-	-	-	-	-	-	-	
High Int.	04:30 PM				04:00 PM												
Volume	13	129	2	144	0	131	5	136	-	-	-	-	-	-	-	-	
Peak Factor	0.924				0.890												

Herbert, Rowland and Grubic
414 East Drinker Street, Suite 203

Dunmore, PA 18512 File Name : Intersection 3 - 209 and Main DW AM-PM
Site Code : 27735033
Start Date : 08/31/2005
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Start Time	SR 209 (NB) Eastbound				SR 209 (SB) Westbound				Femwood Parking Lot Entrance Northbound				Femwood Main Drive (One Way In) Southbound				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																		
Intersection	08:00 AM																	
Volume	0	57	0	57	0	22	0	22	0	0	0	0	0	0	0	0	0	79
Percent	0.0	100.0	0.0		0.0	100.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0			
08:00 Volume	0	13	0	13	0	13	0	13	0	0	0	0	0	0	0	0	0	26
Peak Factor																	0.760	
High Int.	08:45 AM				08:00 AM				6:45:00 AM				6:45:00 AM					
Volume	0	20	0	20	0	13	0	13										
Peak Factor	0.713				0.423													
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																		
By Approach	08:00 AM				07:15 AM				07:00 AM				07:00 AM					
Volume	0	57	0	57	0	22	0	22	0	0	0	0	0	0	0	0	0	
Percent	0.0	100.0	0.0		0.0	100.0	0.0		-	-	-		-	-	-			
High Int.	08:45 AM				08:00 AM													
Volume	0	20	0	20	0	13	0	13	-	-	-	-	-	-	-	-	-	
Peak Factor	0.713				0.423													
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																		
Intersection	04:00 PM																	
Volume	0	10	0	10	0	15	1	16	0	0	0	0	0	0	0	0	0	26
Percent	0.0	100.0	0.0		0.0	93.8	6.3		0.0	0.0	0.0		0.0	0.0	0.0			
04:00 Volume	0	5	0	5	0	5	1	6	0	0	0	0	0	0	0	0	0	11
Peak Factor																	0.591	
High Int.	04:00 PM				04:00 PM													
Volume	0	5	0	5	0	5	1	6										
Peak Factor	0.500				0.667													
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																		
By Approach	04:00 PM				04:00 PM				12:00 PM				12:00 PM					
Volume	0	10	0	10	0	15	1	16	0	0	0	0	0	0	0	0	0	
Percent	0.0	100.0	0.0		0.0	93.8	6.3		-	-	-		-	-	-			
High Int.	04:00 PM				04:00 PM													
Volume	0	5	0	5	0	5	1	6	-	-	-	-	-	-	-	-	-	
Peak Factor	0.500				0.667													

Herbert, Rowland and Grubic
414 East Drinker Street, Suite 203

Dunmore, PA 18512 File Name : Intersection 4 - 209 and East DW AM-PM

Site Code : 27735043

Start Date : 08/31/2005

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Groups Printed- Cars - Trucks

Start Time	SR 209 (NB) Eastbound				SR 209 (SB) Westbound				Fernwood East Driveway Northbound				Fernwood East Driveway Southbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
07:00 AM	1	63	0	64	0	110	0	110	0	0	0	0	0	0	1	1	175
07:15 AM	1	49	0	50	0	99	0	99	0	0	0	0	2	1	1	4	153
07:30 AM	0	66	0	66	0	91	0	91	0	1	0	1	0	0	2	2	160
07:45 AM	0	72	0	72	0	90	1	91	0	1	0	1	0	0	3	3	167
Total	2	250	0	252	0	390	1	391	0	2	0	2	2	1	7	10	655
08:00 AM	1	53	1	55	0	99	0	99	2	0	0	2	0	0	3	3	159
08:15 AM	2	65	1	68	0	100	0	100	0	0	0	0	2	0	5	7	175
08:30 AM	0	63	0	63	0	91	2	93	0	0	0	0	2	0	5	7	163
08:45 AM	3	84	1	88	0	82	2	84	0	0	0	0	1	0	16	17	189
Total	6	265	3	274	0	372	4	376	2	0	0	2	5	0	29	34	686
04:00 PM	0	113	3	116	1	116	2	119	5	0	1	6	1	1	12	14	255
04:15 PM	1	123	2	126	1	109	1	111	1	1	0	2	1	0	9	10	249
04:30 PM	4	124	1	129	0	115	0	115	0	0	1	1	2	1	18	21	266
04:45 PM	2	114	4	120	0	104	1	105	1	0	1	2	0	3	10	13	240
Total	7	474	10	491	2	444	4	450	7	1	3	11	4	5	49	58	1010
05:00 PM	2	99	4	105	0	109	1	110	4	1	0	5	3	1	12	16	236
05:15 PM	0	135	2	137	2	107	1	110	2	0	0	2	0	0	5	5	254
05:30 PM	0	111	1	112	0	109	0	109	7	0	1	8	0	1	9	10	239
05:45 PM	2	107	0	109	0	95	1	96	1	1	0	2	2	0	7	9	216
Total	4	452	7	463	2	420	3	425	14	2	1	17	5	2	33	40	945
Grand-Total	19	1441	20	1480	4	1626	12	1642	23	5	4	32	16	8	118	142	3296
Apprch %	1.3	97.4	1.4		0.2	99.0	0.7		71.9	15.6	12.5		11.3	5.6	83.1		
Total %	0.6	43.7	0.6	44.9	0.1	49.3	0.4	49.8	0.7	0.2	0.1	1.0	0.5	0.2	3.6	4.3	

Herbert, Rowland and Grubic
414 East Drinker Street, Suite 203

Dunmore, PA 18512 File Name : Intersection 4 - 209 and East DW AM-PM
Site Code : 27735043
Start Date : 08/31/2005
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Start Time	SR 209 (NB) Eastbound				SR 209 (SB) Westbound				Fernwood East Driveway Northbound				Fernwood East Driveway Southbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Intersection	08:00 AM																
Volume	6	265	3	274	0	372	4	376	2	0	0	2	5	0	29	34	686
Percent	2.2	96.7	1.1		0.0	98.9	1.1		100.0	0.0	0.0		14.7	0.0	85.3		
08:45 Volume	3	84	1	88	0	82	2	84	0	0	0	0	1	0	16	17	189
Peak Factor																	0.907
High Int.	08:45 AM				08:15 AM				08:00 AM				08:45 AM				
Volume	3	84	1	88	0	100	0	100	2	0	0	2	1	0	16	17	17
Peak Factor	25	11	0	0.778	0	4	0	0.940	50	0	0	0.250	29	100	17	0.500	
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																	
By Approach	08:00 AM				07:00 AM				07:15 AM				08:00 AM				
Volume	6	265	3	274	0	390	1	391	2	2	0	4	5	0	29	34	
Percent	2.2	96.7	1.1		0.0	99.7	0.3		50.0	50.0	0.0		14.7	0.0	85.3		
High Int.	08:45 AM				07:00 AM				08:00 AM				08:45 AM				
Volume	3	84	1	88	0	110	0	110	2	0	0	2	1	0	16	17	17
Peak Factor				0.778				0.889				0.500				0.500	
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:00 PM																
Volume	7	474	10	491	2	444	4	450	7	1	3	11	4	5	49	58	1010
Percent	1.4	96.5	2.0		0.4	98.7	0.9		63.6	9.1	27.3		6.9	8.6	84.5		
04:30 Volume	4	124	1	129	0	115	0	115	0	0	1	1	2	1	18	21	266
Peak Factor																	0.949
High Int.	04:30 PM				04:00 PM				04:00 PM				04:30 PM				
Volume	4	124	1	129	1	116	2	119	5	0	1	6	2	1	18	21	21
Peak Factor	18	2	0	0.952	0	3	0	0.945	0	0	0	0.458	0	0	10	0.690	
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																	
By Approach	04:00 PM				04:00 PM				04:45 PM				04:15 PM				
Volume	7	474	10	491	2	444	4	450	14	1	2	17	6	5	49	60	
Percent	1.4	96.5	2.0		0.4	98.7	0.9		82.4	5.9	11.8		10.0	8.3	81.7		
High Int.	04:30 PM				04:00 PM				05:30 PM				04:30 PM				
Volume	4	124	1	129	1	116	2	119	7	0	1	8	2	1	18	21	21
Peak Factor				0.952				0.945				0.531				0.714	

Herbert, Rowland and Grubic
 414 East Drinker Street, Suite 203
 Dunmore, PA 18512

File Name : Intersection 4 - 209 and East DW AM-PM
 Site Code : 27735043
 Start Date : 08/31/2005
 Page No : 1

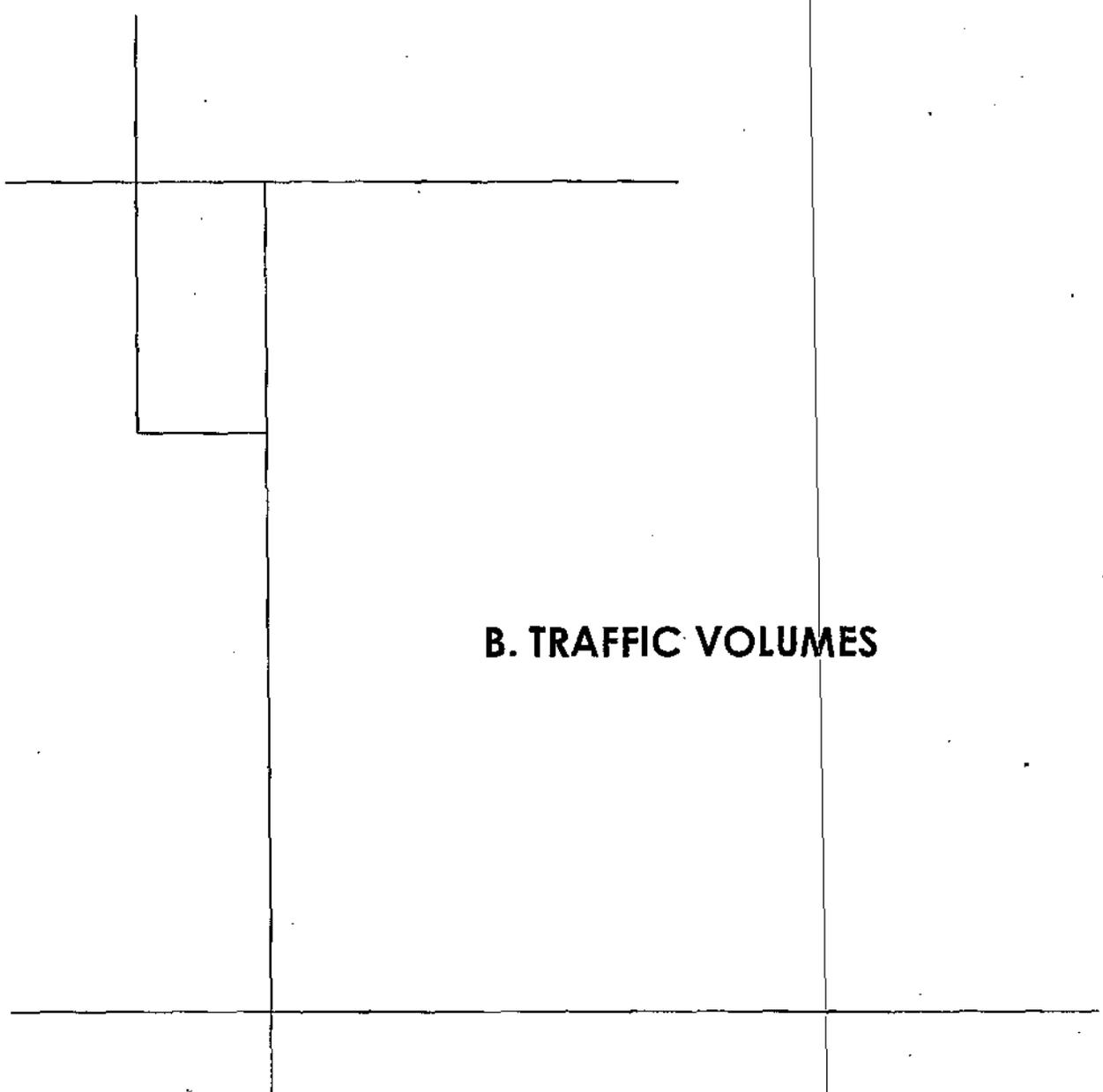
Groups Printed- Trucks

Start Time	SR 209 (NB) Eastbound				SR 209 (SB) Westbound				Fernwood East Driveway Northbound				Fernwood East Driveway Southbound				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0			
07:00 AM	0	11	0	11	0	1	0	1	0	0	0	0	0	0	0	0	0	12
07:15 AM	0	3	0	3	0	2	0	2	0	0	0	0	0	1	0	0	1	6
07:30 AM	0	9	0	9	0	3	0	3	0	0	0	0	0	0	0	0	0	12
07:45 AM	0	1	0	1	0	3	0	3	0	0	0	0	0	0	0	0	0	4
Total	0	24	0	24	0	9	0	9	0	0	0	0	0	1	0	0	1	34
08:00 AM	0	10	0	10	0	10	0	10	1	0	0	1	0	0	0	0	0	21
08:15 AM	1	6	0	7	0	3	0	3	0	0	0	0	0	0	2	0	2	12
08:30 AM	0	5	0	5	0	1	0	1	0	0	0	0	2	0	2	0	4	10
08:45 AM	1	14	0	15	0	9	0	9	0	0	0	0	0	0	2	0	2	26
Total	2	35	0	37	0	23	0	23	1	0	0	1	2	0	6	0	8	69
04:00 PM	0	6	0	6	0	7	0	7	0	0	0	0	0	0	0	0	0	13
04:15 PM	0	1	0	1	0	5	0	5	0	0	0	0	0	0	4	0	4	10
04:30 PM	1	0	0	1	0	4	0	4	0	0	0	0	0	0	1	0	1	6
04:45 PM	0	3	0	3	0	6	0	6	0	0	0	0	0	0	0	0	0	9
Total	1	10	0	11	0	22	0	22	0	0	0	0	0	0	5	0	5	38
05:00 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	1	0	1	3
05:15 PM	0	2	0	2	0	3	0	3	0	0	0	0	0	0	1	0	1	6
05:30 PM	0	1	0	1	0	3	0	3	0	0	0	0	0	0	0	0	0	4
05:45 PM	1	1	0	2	0	1	0	1	0	0	0	0	0	0	1	0	1	4
Total	1	5	0	6	0	8	0	8	0	0	0	0	0	0	3	0	3	17
Grand Total	4	74	0	78	0	62	0	62	1	0	0	1	2	1	14	0	17	158
Apprch %	5.1	94.9	0.0		0.0	100.0	0.0		100.0	0.0	0.0		11.8	5.9	82.4			
Total %	2.5	46.8	0.0	49.4	0.0	39.2	0.0	39.2	0.6	0.0	0.0	0.6	1.3	0.6	8.9	0.0	10.8	

Herbert, Rowland and Grubic
 414 East Drinker Street, Suite 203
 Dunmore, PA 18512

File Name : Intersection 4 - 209 and East DW AM-PM
 Site Code : 27735043
 Start Date : 08/31/2005
 Page No : 2

Start Time	SR 209 (NB) Eastbound				SR 209 (SB) Westbound				Femwood East Driveway Northbound				Femwood East Driveway Southbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Intersection	08:00 AM																
Volume	2	35	0	37	0	23	0	23	1	0	0	1	2	0	6	8	69
Percent	5.4	94.6	0.0		0.0	100.0	0.0		100.0	0.0	0.0		25.0	0.0	75.0		
08:45 Volume	1	14	0	15	0	9	0	9	0	0	0	0	0	0	2	2	26
Peak Factor																	0.663
High Int.	08:45 AM				08:00 AM				08:00 AM				08:30 AM				
Volume	1	14	0	15	0	10	0	10	1	0	0	1	2	0	2	4	
Peak Factor	0.617				0.575				0.250				0.500				
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																	
By Approach	08:00 AM				08:00 AM				07:15 AM				08:00 AM				
Volume	2	35	0	37	0	23	0	23	1	0	0	1	2	0	6	8	
Percent	5.4	94.6	0.0		0.0	100.0	0.0		100.0	0.0	0.0		25.0	0.0	75.0		
High Int.	08:45 AM				08:00 AM				08:00 AM				08:30 AM				
Volume	1	14	0	15	0	10	0	10	1	0	0	1	2	0	2	4	
Peak Factor	0.617				0.575				0.250				0.500				
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:00 PM																
Volume	1	10	0	11	0	22	0	22	0	0	0	0	0	0	5	5	38
Percent	9.1	90.9	0.0		0.0	100.0	0.0		0.0	0.0	0.0		0.0	0.0	100.0		
04:00 Volume	0	6	0	6	0	7	0	7	0	0	0	0	0	0	0	0	13
Peak Factor																	0.731
High Int.	04:00 PM				04:00 PM								04:15 PM				
Volume	0	6	0	6	0	7	0	7	0	0	0	0	0	0	4	4	
Peak Factor	0.458				0.786								0.313				
Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1																	
By Approach	04:00 PM				04:00 PM				12:00 PM				04:15 PM				
Volume	1	10	0	11	0	22	0	22	0	0	0	0	0	0	6	6	
Percent	9.1	90.9	0.0		0.0	100.0	0.0		-	-	-	-	0.0	0.0	100.0		
High Int.	04:00 PM				04:00 PM								04:15 PM				
Volume	0	6	0	6	0	7	0	7	-	-	-	-	0	0	4	4	
Peak Factor	0.458				0.786								0.375				



B. TRAFFIC VOLUMES

Project # 2773.065
Fernwood Hotel and Casino

AM PEAK HOUR

Background Growth = 1.20%

Count/Year =	2005
Existing Volumes =	2007
Year of Occupancy =	2008
Horizon Year =	2018

Approach	Movement	2005	2007	New Trips	2008		2018	
		Counts	Existing		No Develop	With Develop	No Develop	With Develop
1 - SR 0209 / SR 1018 / T-515								
		Entered	Calculated	Entered	Calculated	Calculated	Calculated	Calculated
EB	L	109	112	0	113	113	128	128
	T	302	309	24	313	337	352	375
	R	19	19	0	19	19	22	22
WB	L	41	42	1	43	44	48	49
	T	402	412	13	417	430	470	483
	R	16	16	1	16	17	18	19
NB	L	10	10	0	10	10	11	11
	T	9	9	0	9	9	10	10
	R	44	45	3	48	49	51	54
SB	L	24	25	1	25	26	29	30
	T	23	24	0	24	24	27	27
	R	235	241	0	244	244	275	275
2 - SR 0209 / Service Driveway								
EB	L	18	18	0	18	18	21	21
	T	350	358	28	362	390	408	438
	R	0	0	0	0	0	0	0
WB	L	0	0	0	0	0	0	0
	T	444	455	15	460	475	519	534
	R	2	2	0	2	2	2	2
NB	L	0	0	0	0	0	0	0
	T	0	0	0	0	0	0	0
	R	0	0	0	0	0	0	0
SB	L	3	3	0	3	3	3	3
	T	0	0	0	0	0	0	0
	R	10	10	0	10	10	11	11
3 - SR 0209 / Main Driveway								
EB	L	26	27	19	27	46	31	50
	T	327	340	9	344	353	388	397
	R	5	0	0	0	0	0	0
WB	L	0	0	0	0	0	0	0
	T	455	466	15	472	487	531	546
	R	4	4	5	4	9	5	10
NB	L	0	0	0	0	0	0	0
	T	1	0	0	0	0	0	0
	R	0	0	0	0	0	0	0
SB	L	0	0	0	0	0	0	0
	T	0	0	0	0	0	0	0
	R	0	0	0	0	0	0	0
4 - SR 0209 / East Driveway								
EB	L	6	6	9	6	15	7	18
	T	285	271	0	274	274	308	309
	R	3	8	0	8	6	9	8
WB	L	0	0	0	0	0	0	0
	T	372	381	5	366	391	434	439
	R	4	4	2	4	8	5	7
NB	L	2	2	0	2	2	2	2
	T	0	1	0	1	1	1	1
	R	0	0	0	0	0	0	0
SB	L	5	5	4	5	9	8	10
	T	0	0	0	0	0	0	0
	R	29	30	15	30	45	34	49

* NB approach at Main Driveway from Parking Lot was closed in 2008. Movements In / Out of this approach have been relocated to East Driveway

DO. BY KRS DATE 6/26/08
 CHECKED BY EJD DATE 6/26/08

Project # 2773.065
Fernwood Hotel and Casino

PM PEAK HOUR

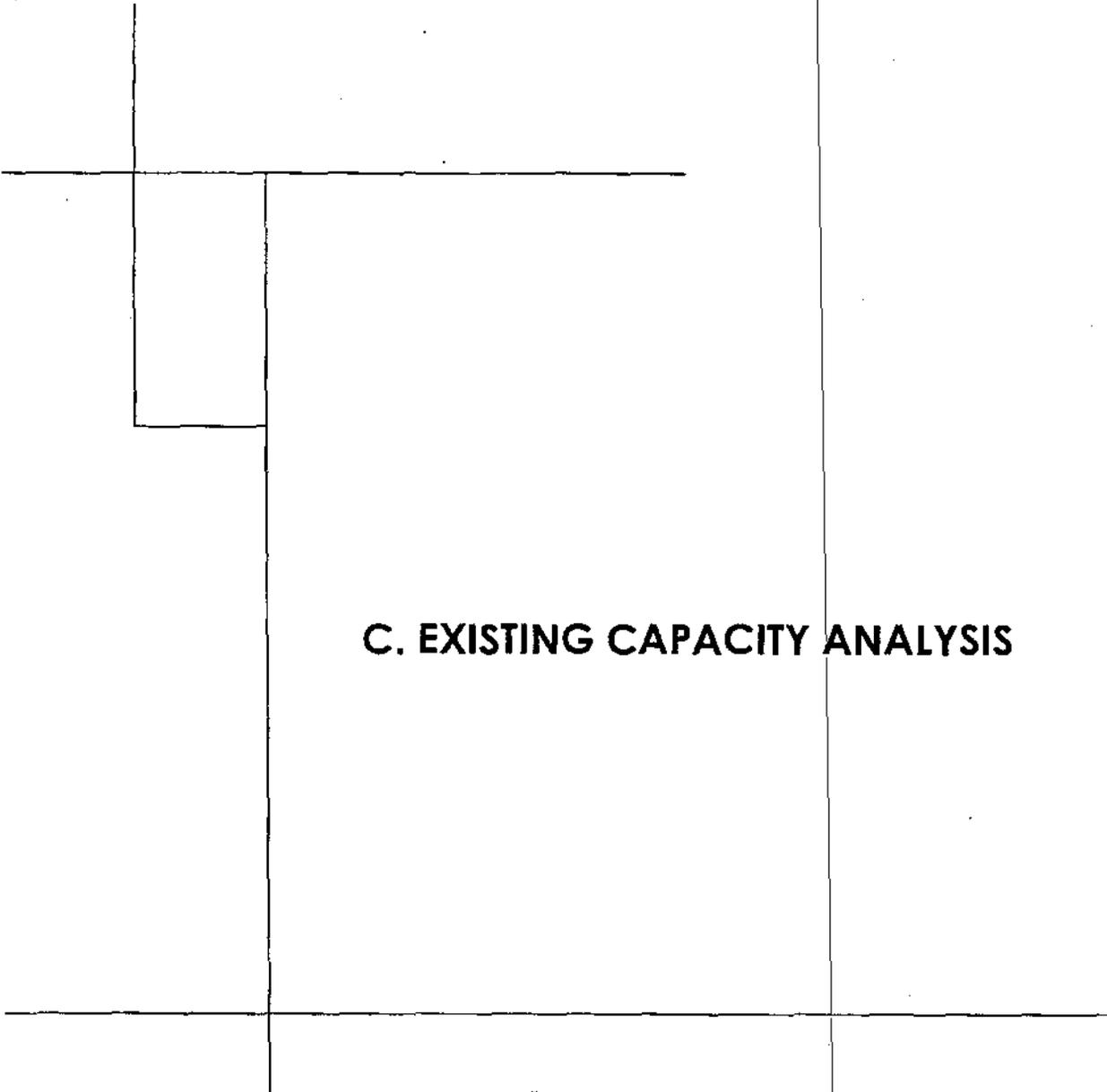
Background Growth = 1.20%
0.00%

Count Year =	2005
Existing Volumes =	2007
Year of Occupancy =	2008
Horizon Year =	2018

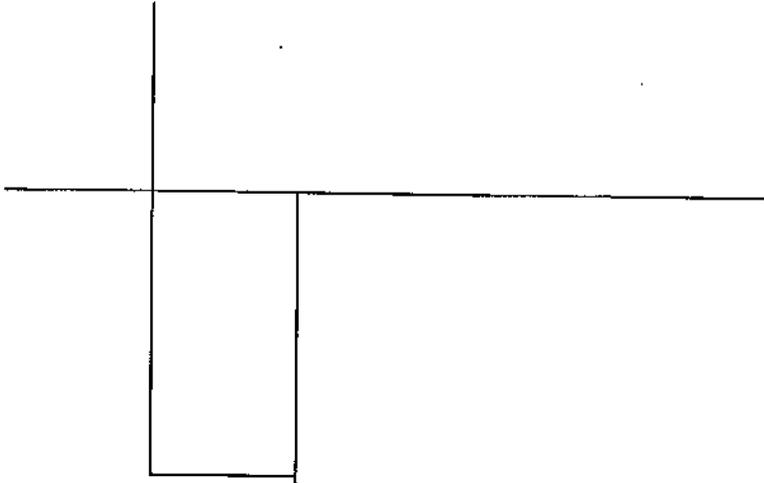
Approach	Movement	2005	2007	New Trips	2008		2018	
		Counts	Existing		No Develop	With Develop	No Develop	With Develop
1 - SR 0209 / SR 1018 / T-515								
		Entered	Calculated	Entered	Calculated	Calculated	Calculated	Calculated
EB	L	288	305	0	308	308	348	348
	T	484	486	32	502	534	566	588
	R	37	38	0	38	38	43	43
WB	L	63	65	3	68	68	74	77
	T	421	431	29	436	465	491	520
	R	27	28	1	28	29	32	33
NB	L	35	36	0	36	36	41	41
	T	35	36	0	36	36	41	41
	R	73	75	4	76	80	88	90
SB	L	19	19	1	19	20	22	23
	T	11	11	0	11	11	13	13
	R	149	153	0	155	155	174	174
2 - SR 0209 / Service Driveway								
EB	L	0	0	0	0	0	10	10
	T	556	589	37	576	613	649	688
	R	0	0	0	0	0	0	0
WB	L	0	0	0	0	0	0	0
	T	492	504	33	510	543	575	608
	R	3	3	0	3	3	3	3
NB	L	0	0	0	0	0	0	0
	T	0	0	0	0	0	0	0
	R	0	0	0	0	0	0	0
SB	L	6	5	0	5	6	6	6
	T	0	0	0	0	0	0	0
	R	18	18	0	18	18	21	21
3 - SR 0209 / Main Driveway								
EB	L	36	37	25	37	82	42	67
	T	489	509	12	514	526	579	591
	R	7	0	0	0	0	0	0
WB	L	0	0	0	0	0	0	0
	T	477	489	33	495	528	558	591
	R	7	7	8	7	13	8	14
NB	L	0	0	0	0	0	0	0
	T	0	0	0	0	0	0	0
	R	0	0	0	0	0	0	0
SB	L	0	0	0	0	0	0	0
	T	0	0	0	0	0	0	0
	R	0	0	0	0	0	0	0
4 - SR 0209 / East Driveway								
EB	L	7	7	12	7	19	8	20
	T	474	485	0	491	491	553	553
	R	10	17	0	17	17	19	19
WB	L	2	2	0	2	2	2	2
	T	444	455	6	460	468	518	525
	R	4	4	3	4	7	5	8
NB	L	7	7	0	7	7	8	8
	T	1	1	0	1	1	1	1
	R	3	3	0	3	3	3	3
SB	L	4	4	8	4	12	5	13
	T	5	5	0	5	5	6	6
	R	49	50	33	51	84	57	90

* NB approach at Main Driveway from Parking Lot was closed in 2008. Movements In / Out of this approach have been relocated to East Driveway

DONE BY KRS DATE 12/6/08
CHECKED BY EJD DATE 1/16/08



C. EXISTING CAPACITY ANALYSIS



AM

SHORT REPORT

General Information				Site Information			
Analyst	KRS	✓ EJD 6/20/08		Intersection	1-SR 0209 / River Rd / SR 1016		
Agency or Co.	HRG, Inc.			Area Type	All other areas		
Date Performed	6/16/08			Jurisdiction	Middle Smithfield Twp		
Time Period	AM Peak Hour			Analysis Year	2007 Existing		

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT									
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Lane Group	L	TR										
Volume (vph)	112	309	19	42	412	16	10	9	45	25	24	241
% Heavy Vehicles	16	11	9	8	4	27	9	24	12	24	19	5
PHF	0.87	0.87	0.87	0.93	0.93	0.93	0.66	0.66	0.66	0.92	0.92	0.92
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Extension of Effective Green	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival Type	3	3		3	3		3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	5	0	0	4	0	0	15	0	0	100
Lane Width	12.0	12.0		12.0	12.0		12.0	14.0		12.0	12.0	
Parking/Grade/Parking	N	-5	N	N	0	N	N	-5	N	N	5	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0		0	0		0	0	
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	EW Perm	03	04	NS Perm	06	07	08
Timing	G = 14.0 Y = 6	G = 39.0 Y = 6	G = Y =	G = Y =	G = 19.0 Y = 6	G = Y =	G = Y =	G = Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	Adjusted Flow Rate	129	371		45	456		15	59		27	179
Lane Group Capacity	507	756		596	783		220	338		227	319	

v/c Ratio	0.25	0.49		0.08	0.58		0.07	0.17		0.12	0.56	
Green Ratio	0.66	0.43		0.66	0.43		0.21	0.21		0.21	0.21	
Uniform Delay d ₁	7.8	18.4		6.5	19.3		28.4	29.1		28.7	31.8	
Delay Factor k	0.11	0.11		0.11	0.17		0.11	0.11		0.11	0.16	
Incremental Delay d ₂	0.3	0.5		0.1	1.1		0.1	0.2		0.2	2.2	
PF Factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control Delay	8.0	18.9		6.6	20.4		28.5	29.3		29.0	34.0	
Lane Group LOS	A	B		A	C		C	C		C	C	
Approach Delay	16.1			19.2			29.2			33.4		
Approach LOS	B			B			C			C		
Intersection Delay	20.8			Intersection LOS						C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	KRS		VETD		Intersection	2-SR 0209 / Service Driveway		
Agency/Co.	HRG, Inc.				Jurisdiction	Middle Smithfield Township		
Date Performed	6/16/2008		6/20/08		Analysis Year	2007 Existing		
Analysis Time Period	AM Peak Hour							
Project Description 2773.065 - Fernwood Hotel and Casino								
East/West Street: SR 0209				North/South Street: Fernwood Service Driveway				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	18	358			455	2		
Peak-Hour Factor, PHF	0.82	0.82	0.82	0.91	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	21	436	0	0	499	2		
Percent Heavy Vehicles	8	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT			TR				
Upstream Signal		1			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				3		10		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.65	0.65	0.65		
Hourly Flow Rate, HFR (veh/h)	0	0	0	4	0	15		
Percent Heavy Vehicles	0	0	0	20	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration				LR				
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT					LR		
v (veh/h)	21					19		
C (m) (veh/h)	1033					453		
v/c	0.02					0.04		
95% queue length	0.06					0.13		
Control Delay (s/veh)	8.6					13.3		
LOS	A					B		

Approach Delay (s/veh)	-	-		13.3
Approach LOS	-	-		B

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TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	KRS / EJD			Intersection	3-SR 0209 / Main Driveway			
Agency/Co.	HRG, Inc.			Jurisdiction	Middle Smithfield Township			
Date Performed	6/16/2008 6/20/08			Analysis Year	2007 Existing			
Analysis Time Period	AM Peak Hour							
Project Description 2773.065 - Fernwood Hotel and Casino								
East/West Street: SR 0209				North/South Street: Fernwood Main Driveway				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound				Westbound			
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	27	340			466	4		
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.88	0.88	0.88		
Hourly Flow Rate, HFR (veh/h)	29	365	0	0	529	4		
Percent Heavy Vehicles	0	-	-	0	-	-		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	1	1	0	0	1	0		
Configuration	L	T				TR		
Upstream Signal		1			0			
Minor Street	Northbound				Southbound			
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)								
Peak-Hour Factor, PHF	0.25	0.25	0.25	0.25	0.25	0.25		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	0		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration								
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L							
v (veh/h)	29							
C (m) (veh/h)	1045							
v/c	0.03							
95% queue length	0.09							
Control Delay (s/veh)	8.5							
LOS	A							

Approach Delay (s/veh)	-	-		
Approach LOS	-	-		

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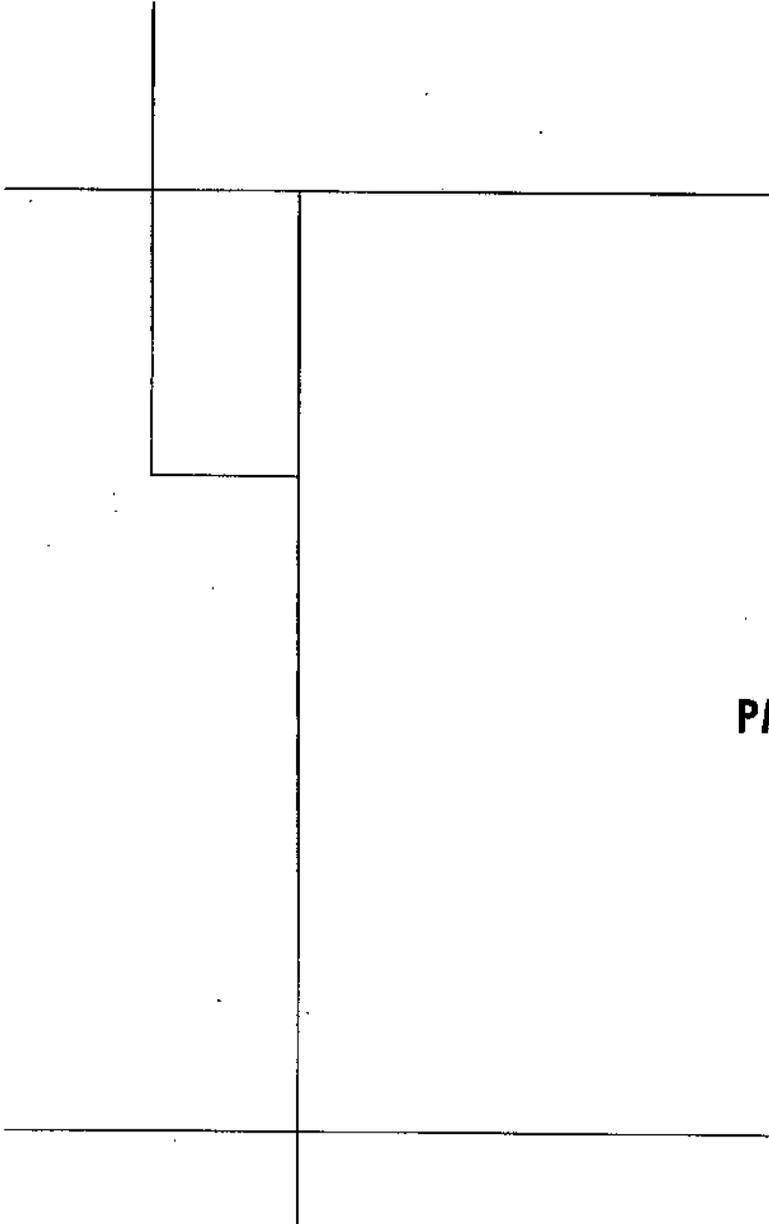
TWO-WAY STOP CONTROL SUMMARY								
General Information			Site Information					
Analyst	KRS ✓ EJD		Intersection	4-SR 0209 / East Driveway				
Agency/Co.	HRG, Inc.		Jurisdiction	Middle Smithfield Township				
Date Performed	6/16/2008 6/20/08		Analysis Year	2007 Existing				
Analysis Time Period	AM Peak Hour							
Project Description 2773.065 - Fernwood Hotel and Casino								
East/West Street: SR 0209			North/South Street: Fernwood East Driveway					
Intersection Orientation: East-West			Study Period (hrs): 0.25					
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	6	271	8	1	381	4		
Peak-Hour Factor, PHF	0.78	0.78	0.78	0.94	0.94	0.94		
Hourly Flow Rate, HFR (veh/h)	7	347	10	1	405	4		
Percent Heavy Vehicles	25	--	-	0	-	-		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	1	1	0	1	1	0		
Configuration	L		TR	L		TR		
Upstream Signal		1			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	2	1	1	5	1	30		
Peak-Hour Factor, PHF	0.25	0.25	0.25	0.50	0.50	0.50		
Hourly Flow Rate, HFR (veh/h)	8	4	4	10	2	60		
Percent Heavy Vehicles	50	0	0	29	100	17		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (veh/h)	7	1		16			72	
C (m) (veh/h)	1036	1213		297			505	
v/c	0.01	0.00		0.05			0.14	
95% queue length	0.02	0.00		0.17			0.49	
Control Delay (s/veh)	8.5	8.0		17.8			13.3	
LOS	A	A		C			B	

Approach Delay (s/veh)	-	-	17.8	13.3
Approach LOS	-	-	C	B

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SHORT REPORT

General Information				Site Information			
Analyst	KRS	VEJD 6/20/08		Intersection	1-SR 0209 / River Rd/ SR 1016		
Agency or Co.	HRG, Inc.			Area Type	All other areas		
Date Performed	6/16/2008			Jurisdiction	Middle Smithfield Twp		
Time Period	PM Peak Hour			Analysis Year	2007 Existing		

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT									
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Lane Group	L	TR										
Volume (vph)	305	496	38	65	431	28	36	36	75	19	11	153
% Heavy Vehicles	2	2	3	8	6	7	0	5	5	22	5	6
PHF	0.91	0.91	0.91	0.92	0.92	0.92	0.81	0.81	0.81	0.95	0.95	0.95
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Extension of Effective Green	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival Type	3	3		3	3		3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	10	0	0	8	0	0	25	0	0	58
Lane Width	12.0	12.0		12.0	12.0		12.0	14.0		12.0	12.0	
Parking/Grade/Parking	N	-5	N	N	0	N	N	-5	N	N	5	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0		0	0		0	0	
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	EW Perm	03	04	NS Perm	06	07	08
Timing	G = 16.0	G = 36.0	G =	G =	G = 20.0	G =	G =	G =
	Y = 6	Y = 6	Y =	Y =	Y = 6	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	Adjusted Flow Rate	335	576		71	490		44	106		20	112
Lane Group Capacity	548	757		442	712		296	401		232	337	

v/c Ratio	0.61	0.76		0.16	0.69		0.15	0.26		0.09	0.33	
Green Ratio	0.64	0.40		0.64	0.40		0.22	0.22		0.22	0.22	
Uniform Delay d_1	10.5	23.3		9.9	22.4		28.2	28.9		27.8	29.4	
Delay Factor k	0.20	0.31		0.11	0.26		0.11	0.11		0.11	0.11	
Incremental Delay d_2	2.1	4.6		0.2	2.8		0.2	0.4		0.2	0.6	
PF Factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control Delay	12.6	27.8		10.1	25.2		28.4	29.3		27.9	30.0	
Lane Group LOS	B	C		B	C		C	C		C	C	
Approach Delay	22.2			23.3			29.0			29.7		
Approach LOS	C			C			C			C		
Intersection Delay	23.7			Intersection LOS						C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	KRS	JED		Intersection	2-SR 0209 / Service Driveway			
Agency/Co.	HRG, Inc.			Jurisdiction	Middle Smithfield Township			
Date Performed	6/16/2008	6/20/08		Analysis Year	2007 Existing			
Analysis Time Period	PM Peak Hour							
Project Description 2773.065 - Fernwood Hotel and Casino								
East/West Street: SR 0209				North/South Street: Fernwood Service Driveway				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound				Westbound			
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	9	569			504	3		
Peak-Hour Factor, PHF	0.89	0.89	0.89	0.91	0.91	0.91		
Hourly Flow Rate, HFR (veh/h)	10	639	0	0	553	3		
Percent Heavy Vehicles	5	-	-	0	-	-		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT				TR			
Upstream Signal		1			0			
Minor Street	Northbound				Southbound			
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				5		18		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.48	0.48	0.48		
Hourly Flow Rate, HFR (veh/h)	0	0	0	10	0	37		
Percent Heavy Vehicles	0	0	0	14	0	7		
Percent Grade (%)	0				0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	10						47	
C (m) (veh/h)	1000						379	
v/c	0.01						0.12	
95% queue length	0.03						0.42	
Control Delay (s/veh)	8.6						15.8	
LOS	A						C	

Approach Delay (s/veh)	--	-		15.8
Approach LOS	-	-		C

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TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	KRS	✓	EJD	Intersection	3-SR 0209 / Main Driveway			
Agency/Co.	HRG, Inc.			Jurisdiction	Middle Smithfield Township			
Date Performed	6/16/2008 6/20/08			Analysis Year	2007 Existing			
Analysis Time Period	PM Peak Hour							
Project Description 2773.065 - Fernwood Hotel and Casino								
East/West Street: SR 0209				North/South Street: Fernwood Main Driveway				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound				Westbound			
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	37	508			489	7		
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.89	0.89	0.89		
Hourly Flow Rate, HFR (veh/h)	40	552	0	0	549	7		
Percent Heavy Vehicles	2	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	1	1	0	0	1	0		
Configuration	L	T				TR		
Upstream Signal		1			0			
Minor Street	Northbound				Southbound			
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)								
Peak-Hour Factor, PHF	0.25	0.25	0.25	0.25	0.25	0.25		
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	0		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration								
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L							
v (veh/h)	40							
C (m) (veh/h)	1015							
v/c	0.04							
95% queue length	0.12							
Control Delay (s/veh)	8.7							
LOS	A							

Approach Delay (s/veh)	--	--		
Approach LOS	--	--		

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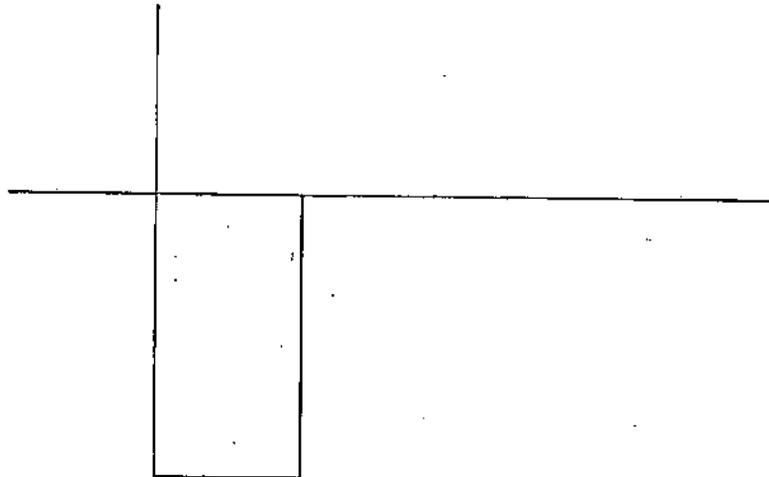
TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	KRS <i>VED</i>			Intersection	4-SR 0209 / East Driveway			
Agency/Co.	HRG, Inc.			Jurisdiction	Middle Smithfield Township			
Date Performed	6/16/2008 <i>6/20/08</i>			Analysis Year	2007 Existing			
Analysis Time Period	PM Peak Hour							
Project Description 2773.065 - Fernwood Hotel and Casino								
East/West Street: SR 0209				North/South Street: Fernwood East Driveway				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	7	485	17	2	455	4		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR (veh/h)	7	510	17	2	478	4		
Percent Heavy Vehicles	18	-	-	0	-	-		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	1	1	0	1	1	0		
Configuration	L		TR	L		TR		
Upstream Signal		1			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	7	1	3	4	5	50		
Peak-Hour Factor, PHF	0.46	0.46	0.46	0.69	0.69	0.69		
Hourly Flow Rate, HFR (veh/h)	15	2	6	5	7	72		
Percent Heavy Vehicles	0	0	0	0	0	10		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LTR			LTR		
v (veh/h)	7	2	23			84		
C (m) (veh/h)	1002	1050	218			467		
v/c	0.01	0.00	0.11			0.18		
95% queue length	0.02	0.01	0.35			0.65		
Control Delay (s/veh)	8.6	8.4	23.5			14.4		
LOS	A	A	C			B		

Approach Delay (s/veh)	--	--	23.5	14.4
Approach LOS	--	--	C	B

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D. TRIP GENERATION



MEMORANDUM

TO: FILE

FROM: Kelley Sartori, P.E.
Hebert, Rowland & Grubic, Inc.

DATE: July 7, 2008

RE: Revisions made to November 6, 2005 Trip Generation Memorandum from Urban Systems, Inc.

This document has been prepared to revise the trip generation numbers reflected in the attached November 6, 2005 Trip Generation Memorandum created by Urban Systems, Inc. These numbers are being revised based on the Final Innovations Report, dated June 2007, which showed a different projected gaming demand than first anticipated. The original 9000 square foot high turnover sit-down restaurant was also replaced with a 50 seat bistro.

The total gaming visits was reduced from 437,100 to 401,000 based on the gaming market assessment found in the Final Innovations Report, dated June 2007. The tables in the November 6, 2005 Trip Generation Memorandum have been revised based on this decrease in gaming visits. The revised tables contained in this document are representative of what is currently proposed in the Gaming Application. A summary of these changes are reflected in the following tables:

Table 1: Person Trip Demand

	TIS Dated June, 2007		Revised Numbers	
	Average Month	Peak Month	Average Month	Peak Month
Weekday	570	680	454	542
Saturday	1420	1700	1130	1354

Table 2: Daily Auto Trips to Site

	TIS Dated June, 2007		Revised Numbers	
	Average Month	Peak Month	Average Month	Peak Month
Weekday	320	380	252	301
Saturday	710	850	565	677

Table 3: Design Hour Vehicle Trip Estimates

	TIS Dated June, 2007			Revised Numbers		
	AM Peak	PM Peak	Saturday Mid-day	AM Peak	PM Peak	Saturday Mid-day
Average Month	20	40	110	16	32	88
Peak Month	25	50	104	20	40	104

Table 4: Vehicle-Trip Estimates: 9000 s.f. Café (Revised to 50 seat bistro)

	TIS Dated June, 2007			Revised Numbers		
	Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak
Café	770	70	65			
Bistro				242	24	20

Table 5: AM and PM Peak Hour Demand Estimates

Trips Generated								
	TIS Dated June, 2007				Revised Numbers			
	AM		PM		AM		PM	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT
Casino	26	12	38	38	21	9	30	30
Bistro					12	12	12	8
Café	56	50	59	38				
Employees	31	17	36	31	18	10	23	19
Total	113	79	133	107	51	31	65	57
Trips After Internal Capture								
	TIS Dated June, 2007				Revised Numbers			
	AM		PM		AM		PM	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT
Casino	17	8	25	25	14	6	20	20
Bistro*					3	3	3	2
Café	37	33	40	25				
Employees	31	17	36	31	18	10	23	19
Total	85	58	101	81	35	19	46	41

* Bistro Trip Generation assumes 25% External Trips

Note: The estimated number of full time employees was also reduced from 140 to 100 based on the Final Innovations Report, dated June 2007.

KRS/krs
 2773.065
 X:\272773\2773065UTraffic Study\Revised Volumes and Report 07-2008\Memo for revised trip gen.doc

Enclosure

Draft for Review and Comment

Memorandum

Date: November 6, 2005

To: Paul Menichello
Christopher McDermott, P.E.
Herbert, Rowland & Grubic, Inc.

From: Denis J. Finigan
Urban Systems, Inc

Subject: Fernwood Gaming Trip Generation Estimates

Introduction

This document has been prepared to develop vehicle trip generation estimates for a 500 slot machine gaming facility to be developed at the existing Fernwood Resort in Bushkill, Pennsylvania. In addition to the gaming facility, roughly 23,500 s.f. of gaming floor area, a 9000 s.f. Hard Rock Café restaurant will be developed.

Trip Generation Estimates

The estimation of vehicle trip generation rates for this facility is complicated by the variances in the data available for casino facilities and large variances in the location and characteristics of both casinos as land uses and the market in which they operate.

The vehicle trip rates and equations published by the Institute of Transportation Engineers, ITE, in the informational report *Trip Generation* are widely accepted for most land use categories. However the information regarding casinos in this report is limited and does not apply to most facilities.

Much of the published research to date has been conducted in Las Vegas, an environment that is unlike any other area of the country. The estimation of traffic impacts for casinos is still in the developmental stage and the data available varies widely due to the numerous variations in casino facilities. A standard single independent variable has not been established.

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For purposes of this analysis, pro forma data regarding gaming visits will be used to estimate customer vehicle trip demand. Urban Systems has developed a model that converts annual gaming visits to monthly, daily and hourly person trip demand using data collected at casino land uses in a number of markets. Inputs used to develop the model include proprietary data regarding customer entry /exit patterns, time of day and day of week slot occupancy data and parking facility occupancy and turn-over data.

Trip generation estimates for the Café will be made using ITE data reported for Land Use Number 920, High Turnover (Sit Down) Restaurant.

Employee trips will be estimated based upon the number of employees, 140, and typical casino staffing and shift characteristics.

Gaming Customer Demand

The Innovation Group completed a gaming market assessment for a 500 device slot facility at the Fernwood Resort. A total of 437,100 gaming visits are projected. Of that total, roughly 145,000 or one third, are expected to be internal trips and the remainder, approximately 292,100 visits, are external trips and that are assumed to generate a vehicular trip.

Annual gaming visits, or person trips to the site, will be converted to daily and hourly person trip demand and used to estimate vehicle trip demand.

Based upon an annual demand of 292,100 visits, external person trip demand on a weekday during an average month would be estimated at 570 person trips per day. On a Saturday during an average month, 1420 visits would be expected. During a peak month, 680 and 1700 visits, respectively, would be expected. Table 1 summarizes estimated customer trip demand under each scenario.

Table 1
Person Trip Demand

	Average Month	Peak Month
Weekday	570	680
Saturday	1420	1700

Person trip demand is converted to vehicle trip estimates using mode of access and vehicle loading assumptions.

For purposes of this analysis it will be assumed that 100% of the external trips to the site will be made by automobile. An auto load factor of 1.8 persons per vehicle will be

Draft for Review and Comment

assumed for weekdays and 2.0 persons per vehicle for weekends. Table 2 summarizes auto trip demand using these assumptions.

Table 2
Daily Auto Trips to Site

	Average Month	Peak Month
Weekday	320	380
Saturday	710	850

Each auto trip to the site involves an entry and an exit trip end. On weekdays, during an average month, 640 vehicle trip ends are projected and during a peak month, 760 vehicle trip ends are projected. On Saturdays, typically the highest demand day for casino uses, 1420 and 1700 vehicle trip ends, respectively, are estimated.

Table 3 was prepared by applying casino entry and exit activity characteristics to daily vehicle trip estimates.

Table 3
Design Hour Vehicle Trip Estimates

	AM Peak	PM Peak	Saturday Mid-day
Average Month	20	40	110
Peak Month	25	50	130

A review of Table 3 indicates relatively low incremental demand resulting from the development of 500 slots at the site. As would be expected, highest demand is anticipated on a Saturday during a peak activity month.

Café Demand

Estimation of vehicle trip demand for the Hard Rock Café was made using ITE trip generation rates and adjusting for internal trips and shared café / gaming trips. For purposes of this analysis it is assumed that two thirds of the restaurant trips are external and one third are internal.

Table 4
Vehicle Trip Estimates: 9000 s.f. Café

Daily	AM Peak Hour	PM Peak Hour
770	70	65

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A review and analysis of Table 4 indicates relatively high demand during the AM peak hour. Given the operating characteristics of a typical Hard Rock Café actual demand might be expected to be higher during the PM peak hour.

Employee Trips

It is estimated that 140 full time employment positions will result from the proposed project. On an average day, it can be estimated that 100 employees would be on site. This results in an estimated 40 vehicle trips to the site during the AM peak period and 60 vehicle trips to the site during the PM peak hour. This estimate assumes that all employees will park on-site.

Summary

Each vehicle trip demand component was summed to estimate weekday AM and PM peak hour vehicle trip demand. Table 5 presents a summary of vehicle trip demand. Estimates presented for casino demand reflect activity during a peak month.

Table 5
AM and PM Peak Hour Demand Estimates

Demand	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
Casino	17	8	25	25
Café	37	33	40	25
Employee	<u>31</u>	<u>17</u>	<u>36</u>	<u>31</u>
	85	58	101	81