

# Baltimore Entertainment Center

## Field Observations September 13, 2009

### Kerry

#### 10:00 AM – 10:15 AM – Warner Street at Ostend Street

- Light traffic travelling freely on Ostend Street, Warner Street roughly 10 cars or less queued (usually less than 5)
- Group of pedestrians, approximately 25 with police; light pedestrian traffic on Ostend Street
- 10:01: No cars or pedestrians
- 10:00 – 10:05: No more than 5 cars at the stop sign
- 10:05: Train crosses, providing a queue on Warner Street that extends out to Ostend Street; 20 cars in queue, no effect on Ostend Street traffic towards Light Street
- 10:10: Police escort 3 large buses, causing small queue on Ostend Street (10 cars deep on bridge)
- 10:10 – 10:15: Queue on Warner Street back to railroad tracks; approximately 10 cars (consistent); occasional light queue on Ostend Street towards bridge (several cars)

#### 10:20 AM – 10:35 AM – Sharp Street at Ostend Street

- 12 car queue towards bridge; 5 away; group of 10 pedestrians crossing; more traffic on Ostend Street; crossing guard (not police)
- 10:20 – 10:25: light traffic, no problems, small pedestrian groups
- Cars turning in to tailgate back up Sharp Street to intersection at 10:29 and pedestrians cause small delays
- 10:35: queue to crest of bridge and 10 cars the other way; still no major delays; crossing guard not doing much

#### 10:40 AM – 10:55 – Leadenhall Street at Hamburg Street

- 10:40 AM: Intersection is dead; several cars drive on Hamburg Street, some turning onto Leadenhall Street; police sitting in lot next to me; light pedestrian traffic
- 10:45 – 10:50:

Cars Headed Toward M&T		Cars Headed Away from M&T		Cars on Sharp Street
Turning on Sharp	Not Turning on Sharp	Turning on Sharp	Not Turning on Sharp	
2	22	8	6	12

- 10:46: Tumbleweed rolls by, coyote howls in background
- 10:50 – 10:55: light pedestrian traffic in small groups; light traffic maintained

#### 11:00 AM – 11:15 AM – Warner Street at Ostend Street

- Significantly more pedestrians; 3 police controlling traffic; allowing queue a little past railroad, queue on bridge past crest, releases them once Warner Street clears; pedestrians not really delaying traffic; traffic consistent in all directions; handful of cars turning onto Warner Street – 10% or so
- 11:08: Warner backed 2 cars past tracks, police let them out, then pedestrians
- 2 police on bikes escort an SUV through intersection
- Ostend Street backed to before crest of bridge and in other direction to under overpass
- 11:10: train crosses; police let Ostend Street traffic free; stops traffic to let pedestrians cross briefly; occasional pedestrians delay turn onto Warner Street for a few seconds
- Warner Street traffic backed up to just before intersection before train delay ends
- 11:15: Ostend Street traffic lightened significantly

#### 11:20 AM – 11:35 AM – Sharp Street at Ostend Street

- 11:20: Traffic delayed by pedestrians crossing and guy turning in to tailgate lot under bridge away from stadium; intersection cluttered
- 11:22: 22 cars queued facing bridge, only 8 the other direction
- Little or no traffic on Sharp Street driving away from stadium
- Virtually all Sharp Street traffic facing stadium
- 11:27: Police control traffic and cone off bridge for Ostend Street traveling towards Warner Street
- Ostend Street drivers forced to turn left or right, some look distressed at this
- Sharp Street longest backup is 12 or so cars
- 11:33: 10 car queue on bridge; approximately 5 or 6 in the other direction
- Turning towards M&T Bank Stadium on Sharp Street backed up to intersection
- 11:34: Bridge is clear, 5 car queue on Sharp Street; 8 cars facing bridge but builds up to 15; traffic slow but everyone is getting to where they are going

#### 11:40 AM – 11:55 AM – Leadenhall Street at Ostend Street

- Now has 2 traffic controllers but very little traffic; 1 has Hamburg Street towards bridge coned off, lets people with parking passes through
- All quiet at 11:45; 0 queues; cars approach approximately every 20-30 seconds
- Police still on site
- 11:48: 6 car queue on Leadenhall Street, builds to 10 as pedestrians cross and car asks guard for directions
- 11:50: 5 car queue on Hamburg Street, queues cause by guard checking people's parking status
- 11:52: All quiet on the Hamburg Street front
- 11:55: 2 cars, several pedestrians

#### 12:00 PM – 12:15 PM – Warner Street at Ostend Street

- Police still controlling; bridge is half blocked for pedestrians
- Flocks of pedestrians going to game

- Train passing blocks traffic facing station (cars and fans); only 4 cars queue from intersection to tracks
- 12:07: Swarming pedestrians cause queues of more than 15, extending beyond tracks
- Ostend Street traffic = 0
- Pedestrians cause Ostend queue of approximately 8 or 9 cars
- 12:09: Warner Street still queued 15 deep
- 12:12: Ostend Street traffic queue backed up to overpass (maybe beyond) until police let them by
- 12:19: Pedestrians crossing causes queues because bridge is inaccessible; Warner Street is backed up to tracks; Ostend Street only 6

#### 12:20 PM – 12:35 PM – Sharp Street at Ostend Street

- 12:20: 7 car queue onto bridge; police still controlling traffic; hordes of pedestrians
- Scarce traffic on Ostend Street towards bridge
- 12:22: Police leave, but flag person remains
- 12:24: Ambulance tries to cross bridge; too many pedestrians
- 12:25: Several cars weave through pedestrians but get through
- 5 car queue on Sharp Street freed by flagman
- 12:28: 4 cars queue on Ostend Street; all make it through but with difficulty because of pedestrians
- Traffic light control now as pedestrians thin out (still many though)
- 12:35: thing calming down, Ostend Street traffic is smoother
- Still not much traffic on Sharp Street

#### 12:40 PM – 12:55 PM – Leadenhall Street at Hamburg Street

- Traffic guard still has lane blocked, checking cars; not much going on
- Several cars approach every now and then; small groups of pedestrians

#### Non-Passenger Cars in Lots C, F, G, H

##### Lot H:

Minibus: 10

RVs: 13

Bus: 4

Wagon (SWAT van): 4

##### Lot G:

RV - 1

##### Lot F:

Nothing

##### Lot C:

U-Haul: 1

Minibus: 1

Big trucks (beer trucks): 2

### Warner Street at Bayard Street

5:30 PM: Backed up to Worcester Street, cleared quickly; Bayard Street full to Warner Street (approximately 15 cars and 2 buses); crossing guard --- then around corner backed to Worcester Street; 3 security guards at Bayard Street and Russell Street, let Bayard Street traffic through red light; 30 car queue at 5:39 PM; majority let travel by guards

### Evan

#### 10:00 AM – 10:10 AM – Ridgely Street at Worcester Street

- Light, unimpeded traffic
- Side-street parking spaces all occupied
- West side of intersection (EB Worcester Street) serves as \$20/space parking lot
- At 10:00AM, 2 vehicles along SB Ridgely Street queued trying to turn right into parking lot (queue caused by first vehicle paying attendant)
- 10:07: CSX train crossed Ridgely Street just north of intersection; caused queue of 6 NB vehicles, 6 SB vehicles, several pedestrians; train cleared at 10:10 AM

#### 10:14 AM – 10:24 AM – Ridgely Street at Ostend Street

- Queue of 8 WB vehicles caused by left-turning vehicle (10:14 AM)
- Heavy pedestrian traffic
- NB queue of 4 vehicles at 10:16 AM
- Most traffic clears relatively quickly
- 10:19 AM: CSX train crosses south of intersection; SB queue extends to intersection, blocking traffic in all directions at 10:22 AM; queues of 4 – 6 in each direction
- Busy tailgate area
- 10:20 AM: Queue of 7 WB
- 10:21 AM: Queue of 3 SB
- 10:24 AM: Queue of 16 WB due to CSX train
- 10:24 AM: Train cleared
- WB queue dissipated at 10:25 AM

#### 10:48 AM – 10:58 AM – Russell Street at Lee Street

- A TRAFFIC OFFICER is controlling intersection operations.
- There is some, but not much, pedestrian traffic at this time.
- There is little to no queuing along either direction of Russell Street. The only cycle with significant queuing occurred at 10:57 AM, with 11 NB and 8 SB vehicles in queue. All of these vehicles cleared the intersection during the green phase.
- There is no significant delay for any vehicles.
- Almost all vehicles traveling through this intersection are passenger vehicles, with the exception of a Hunt Valley Motor Coach tour bus.
- All vehicles clear the intersection during their green phase, as well as additional vehicles that arrive after the start of the green phase.

#### 11:21 AM – 11:31 AM – Ridgely Street at Worcester Street

- Some cars still entering lot
- Light traffic

#### 11:33 AM – 11:43 AM – Ridgely Street at Ostend Street

- Traffic guided by Baltimore Police officer
- 11:34 AM: 9 WB in queue
- Little SB traffic
- Typically no more than 2 vehicles in queue in any direction (unless otherwise noted in these observations)
- Heavy pedestrian traffic, especially along south leg heading from west to east
- 11:39 AM: 6 WB in queue
- 11:41 AM: 5 WB in queue
- 11:41 AM: NB Huber's bus (tour bus)

#### 12:24 PM – 12:34 PM – Russell Street at Hamburg Street

- There is extremely heavy pedestrian traffic traveling eastbound along the north side of Hamburg Street heading toward the stadium.
- Seven TRAFFIC CONTROL officers are on duty stopping vehicular traffic to allow pedestrians to cross the intersection. Although the signal is in operation, vehicles and pedestrians follow the officers and not the signal.
- All queues along southbound Russell Street extend either to the ramp from southbound Martin Luther King Boulevard or to the intersection with Lee Street, where westbound Lee Street vehicles attempt to turn left onto Russell Street. These queues are too long to be seen from the intersection.
- All queues along northbound Russell Street extend past the bridge over Lot Q and Ostend Street. These queues are too long to be seen from the intersection.
- Hamburg Street is blocked off to vehicular traffic on both sides of the intersection.
- Only a fraction of the total vehicles in queue clear the intersection during each green phase, typically 20 – 25 vehicles per lane during each cycle.

#### 12:37 PM – 12:47 PM – Russell Street at Lee Street

- A TRAFFIC OFFICER is controlling intersection operations.
- There is some, but not much, pedestrian traffic at this time. Most pedestrians travel southbound along the east side of Russell Street.
- There is very little traffic along Lee Street.
- During the first two cycles of this observation period, there was significant queuing along northbound Russell Street, including a queue that extended to Hamburg Street, with 6 vehicles queuing beyond Hamburg Street. All of these vehicles cleared the Lee Street intersection during the green phase.
- During the third through fifth cycles of this observation period, almost all northbound vehicles arrive either just prior to the start of the green phase or during the green phase due to coordination with the upstream signal at the intersection of Russell Street at Hamburg Street. Between zero and seven vehicles are in queue prior to receiving each green signal at Lee Street. These vehicles arrived a few seconds before the start of the green phase.
- Southbound queues consist of three to six vehicles in the lane with the longest queue.

#### 12:51 PM – 1:01 PM – Russell Street at Hamburg Street

- Traffic is much lighter than it was during the 12:24 – 12:34 PM observations.
- Westbound Hamburg Street is now open.
- The intersection is controlled by the traffic signal and not by TRAFFIC OFFICERS. The officers are there to occasionally assist in traffic operations. At 12:55 PM, an officer guided a few vehicles that were making the westbound Hamburg Street to southbound Russell Street movement.

#### Lot A

- All regular cars

#### East Warehouse Lot

- 1 tow truck (side of roadway)

#### North Warehouse Lot

- All regular cars

#### NB Russell Street

- Marching Ravens trailer (along west side of Camden Yards)
- Marching Ravens small truck (along west side of Camden Yards)
- 5 Marching Ravens buses (along west side of Camden Yards)
- 11 buses along NB Russell Street service drive along M&T Bank Stadium – this is most likely what we were asked to count

#### 3:34 PM – 3:49 PM – Ridgely Street at Worchester Street

- Light vehicular and pedestrian traffic (queues of 1-2 vehicles)
- Slow trickle of pedestrians leaving game early

#### 3:56 PM – 4:11 PM – Russell Street at Hamburg Street

- Vehicular traffic along Hamburg Street is blocked west of the intersection, and under one-way westbound operation east of the intersection for vehicles exiting the parking lots.
- At the start of observations, there was light pedestrian traffic, mostly traveling westbound along the north side of Hamburg Street. Pedestrian activity increased after 4:00 PM, and increased steadily throughout the study period.
- The intersection is primarily controlled by the signal, with TRAFFIC OFFICERS guiding pedestrians across the Russell Street lanes that lead to the ramps to I-395 and Martin Luther King Boulevard and directing traffic traveling northbound along Russell Street to the ramps to I-395 and Martin Luther King Boulevard. Other than these movements, the signal controls operations.
- There were queues of 9 to 12 vehicles traveling northbound along Russell Street in the lanes that lead to the ramps to I-395 and Martin Luther King Boulevard. These queues did not clear entirely when TRAFFIC OFFICERS allowed them to travel.

#### 4:13 PM – 4:23 PM – Russell Street at Lee Street

- There are several pedestrians traveling northbound along Russell Street, mostly along the east side of the roadway.
- Two TRAFFIC OFFICERS are controlling intersection operations.

- At 4:15, a southbound Russell Street queue from the intersection at Hamburg Street extended to Lee Street.
- All queues clear during their respective green phase.

#### 4:33 PM – 4:38 PM – Leadenhall Street at Hamburg Street

- Pedestrians pretty much have taken over the street
- Some EB vehicles, moving approximately 5 MPH
- Leadenhall Street close to vehicles south of intersection
- Hamburg one-way EB
- Baltimore Police officer directing traffic
- No SB traffic
- 4:37 PM: EB upstream queue extends to this intersection

#### 4:45 PM – 4:53 PM – Sharp Street at Ostend Street

- Only possible movement is NB Sharp Street to EB Ostend Street; all other movements blocked
- Patrolled by 2 police officers
- Moderate EB pedestrian traffic along both sides of Ostend Street
- Adjacent lots mostly full with tailgaters
- Bumper-to-bumper traffic due to downstream signal
- 4:48 PM: 1 WB to SB vehicle and 1 EB through vehicle
- Traffic extremely slow – inching along
- Best estimate: would take 45 minutes to 1 hour for a vehicle to leave lot

#### 5:00 PM – 5:07 PM – Ridgely Street at Worchester Street

- Complete gridlock, inbound and outbound
- Patrolled by 2 police officers
- Cars get through extremely slowly

#### 5:12 PM – 5:22 PM – Russell Street at Hamburg Street

- The intersection is controlled by the signal at this point, and operates with split phasing along Hamburg Street, with WB Hamburg Street traffic preceding EB Hamburg Street traffic.
- Vehicles along the ramp to I-395 were backed up to the intersection, causing queuing in the northbound Russell Street lanes that lead to I-395 and Martin Luther King Boulevard. These queues do not clear during the green phase.
- Southbound queues from the downstream Russell Street at Bayard Street intersection extend to just south of this intersection.
- Northbound, southbound, and westbound queues clear the intersection during the green phase; however, eastbound queues do not.
- At the start most green phases, queues along southbound Russell Street extend to the ramp from southbound Martin Luther King Boulevard and to the intersection with Lee Street, where westbound Lee Street vehicles attempt to turn left onto Russell Street. These queues are too long to be seen from the intersection. These queues clear the intersection on green.

- Eastbound Hamburg Street queues extend well past the intersection, blocking vehicles from parking lots and minor streets from entering Hamburg Street. A fraction of the vehicles in queue clear the intersection on green.
- The northbound Russell Street queues to I-395 and Martin Luther King Boulevard do not clear the intersection during the green phase.

#### 5:23 PM – 5:31 PM – Russell Street at Lee Street

- Traffic is very light at this point.
- Most westbound Lee Street right-turning vehicles turn on red.

### **Bob**

#### Camera 10 – 295 Off-Ramp from I-95 – Exit 52

#### Camera 4

- Ostend at Ridgely and West Street
- Lot J
- Exiting after game go down Worchester and turn on Bayard
- Everything on east side of stadium gets directed to Hanover Street

#### NB Russell at Exit 52

- 10:15 AM: Heavy queue on ramp from I-95; stop at signal at Bush Street; 2 NB Russell Street lanes and one lane from I-95
- Cones extend from end of concrete bridge parapet to Bush Street
- NB vehicles from Russell Street weave into right-most lane to turn right onto Haines Street and Bayard Street
- Queues from I-95 extend longer than 25 vehicles in length
- 2 STIO (Special Traffic Enforcement Officers) at Bush, Haines, and Bayard along Russell Street
- 10:30 AM until a little after 1:00 PM
- End of 3<sup>rd</sup> quarter until ...
- Placed cones from Bush Street to BP Gas Station at 11:00 AM between right-most lane and middle lane
- Enables ramp traffic to keep moving NB while Bush Street has green phase
- At 11:13 AM, City of Baltimore Police decided that the movement from middle lane to turn right onto Haines is unsafe and to extend cones beyond Haines and force right-turning traffic onto Bayard
- At 11:24 AM, queues on NB Russell Street extend to overpass
- Fans allowed in the stadium at 11:30 AM for 1:00 PM game
- 11:30 AM: Lot J is approximately 75% full; 19 buses/RVs, the rest passenger cars
- Lot O: 100% full at 11:30 AM
- I-395 at Lee Street: Minimal queues on I-395 at 11:41 AM; police officer stated that queues are typically small
- MLK EB to SB Russell: minimal queues on MLK EB typically according to Baltimore City Police; minimal queues at 11:45 AM
- Lot H: 95% full at 11:45 AM



## MD 295 NB at Exit 52

- NB queues extend to overpass at 11:49 AM
- MD 295: Majority of traffic in right-most lane on MD 295 to turn right north of Bush Street
- Queues on ramp from I-95 extend over 25 vehicles at 11:50 AM
- Queues on I-95 ramp started dissipating at approximately 11:53 AM; approximately 15 in queue at 11:53 AM
- According to Baltimore City Police, approximately:  
11:55 AM:  
H: full  
J: 80% full  
D: 90% full  
N: 60% full  
O: 100% full  
NN: full  
  
12:30 PM:  
J: 80% full (19 buses/RVs)

- 12:04 PM: Minimal queues on I-95 ramp, approximately 5 vehicles; minimal queues on MD 295 approaching Bush, approximately 10 vehicles in right-most lane
- 12:15 PM: Minimal queues remaining on I-95 and 295; Baltimore City Police stated that closing off right-most lane from Bush to past Haines and forcing traffic from MD 295 to make first possible right onto Bayard has helped traffic operations and queues are shortest they have ever been
- 12:15 PM: D ramp from I-395 to Lee Street is wide open, no queues
- 12:17 PM: Ramp from MLK EB to SB Russell experiences heavy queues, approximately 20 in length; periodically extend to MLK Boulevard when there is a red phase at Hamburg Street; there is no blocking of through traffic
- 12:35 PM: I-95 and MD 295 are clear
- 12:37: Decreased queues on ramp from MLK EB to SB Russell, maximum of 15, all clear in one cycle
- Starting at approximately 12:30 PM, pedestrian movements are extremely heavy adjacent to Lot D and at Gate A; Gate B is very backed up
- 12:50 PM: Most pedestrians and roads are clear

## Lot L

- All passenger vehicles; 100% full

## Lot K

- All passenger vehicles; 100% full

## Lot M

- All passenger vehicles; 100% full

## Lot N

- 100%, minus 8 spots; all passenger vehicles

#### Lot NN

- 100% full, minus 4 spaces; all passenger vehicles

#### Lot O

- RV: 2
- Short bus: 3
- Police: 1
- Charter bus: 4
- Ice truck: 1

#### Police parking at Oler and Eutaw:

- All private vehicles for police officers
- Officer stationed in front of lot prior to game and coned off

#### Lot J

- RVs: 3
- School buses: 3
- Charter buses: 10
  
- Game finished at 4:19 PM
- 4:25 PM: light rail platform completely crowded in both directions
- Hamburg Street stays closed to vehicular traffic until the band crosses the bridge, approximately an hour after the game finishes
- EB West Street is queued extensively; major backups at West Street and Hanover Street causing EB West Street traffic to queue from Hanover to Sharp Street
- 4:42: SB Warner Street: extensive queuing from Stockholm down to Bayard Street
- Ostend Street bridge is closed, so all this traffic is being sent on Stockholm and Warner along Warner Street to Bayard Street to Russell Street
- 2 TCO's at Russell and Bust, Bayard, and Haines
- SB Warner Street: 2 SB lanes from Worchester to Bayard; TCO stationed at Warner at Bayard intersection; all SB Warner Street traffic forced to turn right onto Bayard Street; 2 SB lanes merge into 1 lane at Bayard Street
- 4:59 PM: SB Russell Street experiences queues from Ramp to SB I-95 back to approximately Lee Street; the same at 5:09 PM
- Ostend Street opened at 4:57 PM
- SB Russell Street: queuing back from SB I-95 back to at least Lee Street; longer queues than shown at 5:09 PM
- Slusser: Worchester should be 3 lanes: 1 EB, 1 WB, and 1 reversible between Warner and Russell Street
- 5:20 PM: SB Warner still queued from Bayard to beyond Stockholm; Stockholm queued from Warner to rail tracks
- 5:25 PM: SB Russell Street free-flowing; no queues
- 5:35 PM: queues on SB Warner and Stockholm cleared
- 5:37 PM: minimal queues on SB Warner extending from Bayard to Worchester

- 5:40 PM: Free flowing on SB Russell; minimal queue on SB Warner (8 in queue); no queuing on Stockholm
- TCO's still directing traffic at Warner at Bayard at 5:45 PM

## Larry

### 10:00 AM – 10:15 AM – Russell Street @ Worchester Street

- Traffic is flowing smoothly through the intersection.
- There appears to be heavy queuing at the Russell Street intersections with Bayard Street and Haines Street.
- 5 tour buses escorted by a motorcycle turned right onto Haines Street at about 10:10 AM.

### 10:34 AM – 11:06 AM – Russell Street @ Bush Street

- Cars queue through the intersection from Bayard Street.
- There are many right turns onto Haines Street.
- 10:55 AM: Two officers directing vehicles onto Haines Street aid pedestrians crossing Haines Street.
- 10:55 AM: A cone truck pulled up at Haines Street to extend cones. The officers went out to put the cones out themselves, to get the only truck out of blocking Russell Street.
- 11:00 AM: Cones extend to the BP station.
- 11:06 AM: Cones extend to Haines Street.
- It seems that when cones extended to Haines Street, the lefts at Haines become more difficult. Drivers still made left turns, but they were just more dangerous.

### 11:29 AM – 11:40 AM – Russell Street @ Worchester Street

- Lots of pedestrians walking along Russell Street and turning right from Worchester Street:
  - 12-13 at 11:35 AM
  - 5 coming out of Worchester Street at 11:40 AM
  - 18 NB on west side of Russell Street and 16 NB on east side of Russell Street at 11:40 AM
- 11:58 AM: Police stop traffic to allow pedestrians to cross Russell Street at Bush Street. Police assisting pedestrians and cars to move wherever they need to go.
- 12:20 PM: There are still pedestrians on Russell Street near Bayard Street.
- 12:30 PM: Traffic along Russell Street (at Worchester Street) has died down. There is still pedestrian traffic.
- 12:35 PM: Traffic has gotten back to a normal moderate level.
- During game: 149 vehicles parked along Oler Street and Eutaw Street.

## Record

### Baltimore City Contract 1059 Task 9 (Baltimore Casino Traffic Impact Study)

Site #	Location	Fri	Sat	Sun
1	Russell Street @ Bush Street	S	S	S
2	Russell Street @ Bayard Street	S	S	S
3	Russell Street @ Worchester Street	S	S	S
4	<del>Ridgely Street @ Worchester Street</del>	N/A	N/A	N/A
5	Ridgely Street @ Ostend Street	S	S	
6	Warner Street @ Ostend Street	S	S	
7	Russell Street @ Hamburg Street	S	S	S
8	Russell Street @ Lee Street	S	S	S
9	Washington Boulevard @ Martin Luther King Boulevard	S	S	S
10	Greene Street @ Pratt Street	S	S	S
11	Greene Street @ Lombard Street	S	S	
12	Sharp Street @ Ostend Street	S	S	S
13	Hanover Street @ Ostend Street	S	S	S
14	Leadenhall Street @ Hamburg Street	S	S	S
15	<del>Hanover Street @ Hamburg Street</del>	N/A	N/A	N/A
16	<del>Light Street @ Pratt Street</del>	N/A	N/A	N/A
17	<del>Light Street @ Lombard Street</del>	N/A	N/A	N/A
18	Washington Boulevard @ Monroe Street	N/A	N/A	S
19	Washington Boulevard @ Scott Street	N/A	N/A	S

C: counting finished  
 R: report prepared  
 S: report submitted



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**MEMORANDUM**

**Date:** September 2, 2009

**To:** Jessica Keller-Watson

**From:** Robert Klasen

**Project:** Baltimore Casino TIS  
WR&A W.O.: 31623-009

**Subject:** Summary of impacts of Baltimore Casino during weekday PM peak period

The following is a summary of the impact of casino-generated traffic during the weekday PM peak period on the local roadway network. This memo summarizes both the trip distribution process and the results of Synchro analysis.

**Trip Distribution from Market Segments**

Table 1 summarizes the expected route choices for traffic to/from each of the market segments. As shown, trips will be split among multiple routes, including I-95 (both north and south of Russell Street), I-83, and MD 295. Traffic from the Baltimore network will arrive and depart via several routes, including local roadways. Table 2 summarizes the routes that traffic will follow along the roadway network that surrounds the proposed casino, and the distribution of traffic along these routes.

**Table 1. Route Choice from Market Segments**

Market Segment	To/From
<b>Baltimore</b>	45% Local Roadways
	15% I-95 North
	15% I-95 South
	10% MD 295
	15% I-83
<b>I-81 South Morgantown Altoona Cumberland</b>	100% I-95 South
<b>Secondary Northwest</b>	50% I-95 South
	50% I-83
<b>Washington DC Southern Maryland I-95 South Delmarva</b>	50% I-95 South
	50 % MD 295
<b>I-95 North</b>	60% I-95 North
	40% I-83

**Table 2. Distribution of Traffic along Local Roadways**

<i>To/From</i>	<i>Local Streets</i>
<b><i>Baltimore Traffic via Local Roadways</i></b>	
2% Wilkens Ave	Monroe St to Washington Blvd to Bush St/Bayard St
2% Frederick Ave	Monroe St to Washington Blvd to Bush St/Bayard St
5% US 40 West	Greene St
2% Liberty Heights Ave	MLK Blvd to Greene St
2% Reisterstown Rd/Park Heights Ave	MLK Blvd to Greene St
5% Charles St/St. Paul St	Greene St
5% York Rd	Greene St
3% Loch Raven Blvd	Greene St
5% Harford Rd	Greene St
2% Belair Rd	Greene St
5% US 40 East	Greene St
2% Eastern Ave	Greene St
3% Boston St	Greene St
2% Hanover St	Ostend St
<b><i>All Traffic via Freeways</i></b>	
I-95 South	90% Russell St
	10% Washington Blvd to Monroe St
MD 295	100% Russell St
I-95 North	10% Annapolis Rd
	20% Greene St
	70% Lee St
I-83	10% Ostend St
	90% Greene St

Trip distribution percentages along local roadways in the vicinity of the casino, as shown in Table 2, were applied to each market segment. The percentage of traffic to/from each market was based on market populations. Table 3 provides a summary of these calculations.

**Table 3. Distribution of Traffic to/from Market Segments**

Market Segment	2012 Adult (21+) Population	Via Russell St	Via Annapolis Rd	Via Greene St	Via Lee St	Via Monroe St	Via Light St/Ostend St	Via Bush St/Bayard St
Baltimore	1,126,380	2.9%	0.2%	6.7%	1.3%	0.2%	0.4%	0.5%
Washington DC	2,129,509	21.8%	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%
Southern Maryland	539,701	5.5%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%
I-95 North	1,045,439	0.0%	0.7%	5.4%	4.7%	0.0%	0.5%	0.0%
Secondary Northwest	2,137,905	10.4%	0.0%	10.4%	0.0%	1.2%	1.2%	0.0%
Delmarva	612,747	6.3%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%
I-95 South	591,904	6.1%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%
Cumberland	151,028	1.5%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
Morgantown	317,564	3.1%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%
Altoona	321,225	3.1%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%
I-81 South	302,937	2.9%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%
<b>Total</b>	<b>9,276,339</b>	<b>63.5%</b>	<b>0.9%</b>	<b>22.5%</b>	<b>6.0%</b>	<b>4.6%</b>	<b>2.0%</b>	<b>0.5%</b>

Using the SHA-approved trip generation rate of 0.246 per video lottery terminal (60% entering/40% exiting) during the PM peak hour of adjacent street traffic, the total trips to/from the casino along each roadway were determined. Table 4 provides a summary of the results.

**Table 4. Total PM Peak Hour Trips along Local Roadways**

Route	Percentage	PM Entering Traffic	PM Exiting Traffic
<b>Total</b>	<b>100.0%</b>	<b>554</b>	<b>369</b>
Russell Street	63.5%	351	234
Annapolis Road	0.9%	5	3
Greene Street	22.5%	125	83
Lee Street	6.0%	33	22
Monroe Street	4.6%	25	17
Ostend Street	2.0%	11	7
Bush Street/Bayard Street	0.5%	3	2

### Synchro Analysis

Synchro analyses along the local roadway network were performed under three scenarios: Existing (2007) Conditions, Future (2011) No-Build Conditions, and Future (2011) Build Conditions. Existing and Future No-Build Conditions were analyzed under the existing geometry. Future Build Conditions include the closure of Warner Street between Worchester Street and Bayard Street, at the location of the proposed garage. Future Build Conditions also include the installation of a traffic signal at the Russell Street at Worchester Street intersection, with a left-turn lane and a shared thru/right-turn lane along WB Worchester Street. Without the installation of a left-turn lane and a shared thru/right-turn lane along WB Worchester Street, the Russell Street at Worchester Street intersection would operate at LOS "E" under 2011 Build Conditions. Existing Conditions uses 2007 data, the most recent year that traffic count data was available. Future No-Build Conditions include traffic growth along the local roadways as well as trips generated by background developments, per the Gateway South Traffic Impact Study. Future Build Conditions include traffic shown in Table 4. Table 5 provides a summary of Synchro analysis under all three conditions.

**Table 5. Summary of Synchro Analysis (PM Peak Hour of Adjacent Street Traffic)**

Intersection	Existing		2011 No-Build		2011 Build	
	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
Sharp Street @ Ostend Street	16.3	B	16.3	B	16.4	B
Warner Street @ Ostend Street	1.9	A	1.9	A	2.2	A
Warner Street @ Worchester Street	2.0	A	2.0	A	11.3	B
Warner Street @ Bayard Street	8.2	A	8.2	A	10.3	B
Russell Street @ Lee Street	5.8	A	6.6	A	8.0	A
Russell Street @ Hamburg Street	45.5	D	77.9	E	90.2	F
Russell Street @ Worchester Street	0.4	A	0.4	A	48.3	D
Russell Street @ Bayard Street	11.8	B	52.9	D	79.9	E
Russell Street @ Haines Street	0.1	A	0.0	A	0.0	A
Russell Street @ Bush Street	26.1	C	50.3	D	58.5	E
Russell Street @ Annapolis Road	4.7	A	3.9	A	4.6	A
Annapolis Road @ Monroe Street	7.2	A	9.1	A	10.2	B
Washington Boulevard @ Bayard Street	10.0	B	10.1	B	10.2	B
Washington Boulevard @ Bush Street	9.0	A	9.4	A	9.4	A



As shown, all intersections currently operate at acceptable levels of service “D” or better. Under 2011 No-Build Conditions, the Russell Street at Hamburg Street intersection will operate at a less-than acceptable LOS “E.” Under 2011 Build Conditions, the Russell Street at Hamburg Street intersection will operate at a less-than acceptable LOS “F,” and the Russell Street at Bayard Street and Russell Street at Bush Street intersections will both operate at a less-than-acceptable LOS “E.”

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Robert Klasen

Enclosures

cc: Tom Hannan  
Evan Hershman

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