HOTEL\&CASINO
N E W Y O R K

# Live! Hotel \& Casino, New York 

## NYS Route 208 <br> South Blooming Grove, NY

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## 1

## Introduction

VHB has been tasked with undertaking an independent study to identify the traffic and parking infrastructure improvements needed to accommodate a new hotel and casino development proposed in the Village of South Blooming Grove, NY.

## Background, Qualifications \& Experience

The VHB has prepared a preliminary traffic assessment of the proposed action which was completed by John Canning, a professional engineer with over 25 years of traffic engineering experience who is licensed to practice in the State of New York. In addition to serving as a traffic engineering consultant for the nearby Towns of Goshen and Woodbury in Orange County, Mr. Canning also previously prepared the traffic study for the Concord Resort Community Development, which included a casino and hotel and which was approved by the Town of Thompson on or about 2008.

VHB is a multi-disciplinary firm employing more than 900 planners, designers, engineers, environmental scientists and support personnel in 22 offices along the East Coast. Among the firm's casino and gaming project experience is the Caesars at Suffolk Downs resort and casino in East Boston and plans for an Ameristar resort and casino in Springfield, Massachusetts. The firm recently completed transportation and site assessments on behalf of a casino operator in the New York Metropolitan area, coordinated environmental analyses and documentation for redevelopment of the Concord Resort in Sullivan County to include casino and convention space and conducted planning and environmental studies related to development of the Foxwoods Resort Casino and the Mohegan Sun Resort. Other related experience of VHB staff includes work relative to the Narragansett Casino in West Warwick, Rhode Island, the SugarHouse Casino in Philadelphia, Empire City Casino in Yonkers and several casinos in Atlantic City.

In New York State, VHB and its staff have prepared hundreds of traffic studies as part of the State Environmental Quality Review Act (SEQRA). Typically, this includes documenting existing conditions, projecting future traffic volumes without the project, determining how much traffic subject projects will generate, which routes
these trips will use to get to and from the projects, evaluating existing and future traffic operating conditions (with and without the project), what mitigation measures will be needed and how effective these measures will be. -Projects include residential, commercial, industrial, entertainment, gaming, recreational, institutional or some combination of one or more of these uses. By its nature, the proposed hotel and casino will have specific transportation characteristics that will affect the surrounding roadway system and which have been taken into account in this study.

## Project Description

OCCR Enterprises LLC proposes to construct Live! New York Hotel \& Casino on the west side on NYS Route 208 in the Village of South Blooming Grove, NY. The location of the site is shown to the right and as Exhibit 1 in the attached figures and tables below. The casino will include 5,236 gaming positions along with the typical eating, drinking and entertainment components usually associated with such facilities. The hotel will include 321 rooms. Access will be provided via two driveways on NY Route 208.


Exhibit 1 - Regional Location

## $\square$

## Existing Conditions

Evaluation of the transportation impacts associated with the proposed residential condominium development requires a thorough understanding of the current transportation system in the project study area. Existing transportation conditions include roadway geometry, traffic control devices, peak-hour traffic volumes, and roadway operating characteristics. An inventory of available information on local roadways and traffic control in the vicinity of the project site was compiled. The following sections present a summary of this information.

## Site Access

The site is afforded excellent regional access to its primary (NYC Metro) and secondary (New York's Hudson Valley) market areas. Located on the west side on NYS Route 208, a two-lane, State roadway classified as an urban minor arterial which carries almost 20,000 vehicles per day, it is just over a half a mile from NYS Route 17 (future I-86), a four-lane, controlled access State highway classified as an urban principal arterial expressway. Route 208 is connected to NYS Route 17 by a full movement interchange, consisting of two signalized intersections. NYS Route 17, which carries approximately 60,000 vehicles per day in the vicinity of the site, in turn connects to I-87, just 4 miles to the east, and to I-84, just 12 miles to the west. I-87 connects Route 17 with New York City, Newburg, Kingston and Albany. I-84 connects Route 17 with Waterbury, Danbury, Beacon, Newburg, Port Jervis and Scranton. NYS Route 17 connects the Site with Middletown and the Catskills to the west of the Site.

## Existing Traffic Volume Data

Existing traffic volumes were determined based on a review of traffic counts conducted by the NYSDOT continuously for one week on NYS Route 208 in June

2010 and June 2011 (see below and Appendix Exhibits 1 through 4), as well as intersection manual turning movement counts on NYS Route 208 contained in the 2004 Southeast Orange County Traffic and Land Use Report (see Appendix Exhibit 5 and Appendix Exhibit 6).


Appendix Exhibits 1 \& 2 - Route 208 Traffic Volumes South of Route 17

## Existing Roadway Inventory

A desktop inventory was conducted of the area roadways serving the site including NYS Route 208, NYS Route 17, Mountain Road, Museum Village Road and Orange \& Rockland Road. Based on this inventory a Synchro 8 traffic model was developed to evaluate operating conditions along the NYS Route 208 corridor from the site to NYS Route 17.

# Future No-Build and Build Conditions 

An analysis of future conditions, both with and without the proposed development ("Build" and "No Build" conditions, respectively), was performed to evaluate the effect of the proposed development on future traffic conditions in the area. The No Build condition represents the future traffic conditions that can be expected to occur, whether the proposed development is constructed or not. The No Build condition serves as a comparison to the Build condition, which represents expected future traffic conditions resulting from both project and non-project-generated traffic.

Design Year - The existing traffic volumes in the study area were increased to account for ambient traffic growth to 2016 (pending SEQR and Gaming Commission Approvals), the year when the project is expected to be completed and operational.

## Development Traffic

Development Traffic - Traffic anticipated to be developed by the proposed hotel and casino program was generated based on trip generation data for comparable casino and hotel facilities (see Appendix Exhibits 7 through 10.6). Based on these data, it is anticipated that the proposed development will add up to 2,240 trips to the surrounding roadways during the busiest hour (between 7:00 and 8:00 p.m. on a Saturday evening). Daily and hourly traffic data from other similar facilities (See appendix Exhibits 11 through 13) enabled VHB to project how much traffic the development will add to the surrounding roadways during each hour from Thursday through Sunday, inclusive. The facility will add less traffic to the surrounding roadways during the remaining three days of the week.

## Trip Origins \& Destinations

Since the vast majority of these trips will be made by casino and hotel patrons, VHB referred to US Population Census data presented in the Market/Revenue Study, dated June 19, 2014, prepared for the proposed development in by Meczka Marketing Research/Consulting, Inc. (See Appendix Exhibits 16 through 23). The number of facility patrons was determined by multiplying population data by gaming propensity, with specific gaming propensities for areas within a 30, 60, 90 and 120-minute drive of the site. A natural market area was also identified for the subject development (defined as those areas less than half the distance from the site to the surrounding competitive facilities, regardless of the actual drive time).

Using these data, VHB determined what percentage of the proposed development's patrons would reside at locations within 30, 60, 90 and 120 minutes' drive of the facility (see below and Exhibit 2 at the end of this report). In preparing these percentages, it was assumed that $95 \%$ of patrons with the facility's natural market area would chose to visit Live! while only $33 \%$ of those outside the natural market area would visit the facility.


Exhibit 2 - Trip Origins and Destinations within 120-minutes Drive

## Arrival \& Departure Patterns

Based on desktop travel time surveys, the shortest route (by time) from each location to the casino and hotel was determined by and the percentage of gamers from each locations were cumulatively added to these routes as the distance from the casino and hotel decreased. In this manner, and accounting for trips made more locally by facility employees, arrival and departure patterns were developed for the additional trips generated by the propped hotel and casino (See Exhibit 3). This analysis indicated that almost 95\% of traffic generated by the proposed development would approach or depart the facility from or to the south on Route 208, with $88 \%$ of casino and hotel traffic using NYS Route 17 to get to and from NYS Route 17. Thus, it is clear that the proposed facility's success will be supported by and the potential traffic impacts of the facility surrounding communities will be limited by its excellent access to the adjacent regional highway system.


Exhibit 3 - Trip Origins and Destinations

VHB added the hourly traffic volumes projected to be added by the Live! Hotel \& Casino development to the surrounding roadways, Thursday through Sunday (as detailed above) to the 2016 Design Year hourly traffic volumes on NY Route 208 immediately south of the Site for the month of June (typically one of, if not the, busiest months of the year). These traffic volumes, which are presented graphically below and as Exhibit 4 at the end of this report, were reviewed and it was determined that, although the peak hours of traffic activity at the hotel and casino will occur later in the evening, the cumulative sum of the Rt 208 traffic volumes and the hotel \& casino volumes on a weekday would peak from 6:00 to 7:00 p.m. on a Friday and on a weekend would peak from 7:00 to 8:00 p.m. on a Saturday. It was, therefore, concluded that, if the traffic mitigation measures proposed would accommodate the projected traffic volumes during these peak hours, they would accommodate the projected traffic volumes during all other hours.


Exhibit 4 - Daily Temporal Route 208 and Casino Traffic Volumes

## Mitigation

Measuring existing traffic volumes and projecting future traffic volumes quantifies traffic flow within the study area. To assess the quality of traffic flow and to determine what mitigation would be required to accommodate project traffic, the casino and hotel traffic in the cumulative peak Friday and Saturday hours (6:00 to 7:00 p.m. and 7:00 to 8:00 pm, respectively) was assigned to the surrounding roadways in accordance with the arrival/departure pattern described above and added to the 2016 intersection traffic volumes, also previously described. Intersection capacity analyses were then conducted with respect to the future No Build conditions and the future Build conditions. These capacity analyses provided an indication of the adequacy of the roadway facilities to serve the anticipated traffic demands.

## Level of Service and Delay Criteria

The evaluation criteria used to analyze area intersections in this traffic study are based on the 2010 Highway Capacity Manual ("HCM"). The term "level of service" ("LOS") is used to denote the different operating conditions that occur at an intersection under various traffic volume loads. It is a qualitative measure that considers a number of factors including roadway geometry, speed, travel delay, and freedom to maneuver. LOS provides an index to the operational qualities of a roadway segment or an intersection. LOS designations range from A to F , with LOS A representing the best operating conditions and LOS F representing the worst operating conditions.

The LOS designations, which are based on delay, are reported differently for signalized and unsignalized intersections. For signalized intersections, the analysis considers the operation of all traffic entering the intersection as well as traffic on the individual lane groups and the LOS designation is for both overall conditions at the intersection and on the lane groups. For unsignalized intersections, however, the analysis assumes that traffic on the mainline is not affected by traffic on the side streets. Thus the LOS designation is for the critical movement exiting the side street, which is generally the left turn out of the side street or side driveway. The respective
ranges in delay associated with each LOS for signalized and unsignalized intersections are listed below.

| LOS A | $0.00-10.00$ | $0.00-10.00$ |
| :--- | :---: | :---: |
| LOS B | $10.01-20.00$ | $10.01-15.00$ |
| LOS C | $20.01-35.00$ | $15.01-25.00$ |
| LOS D | $35.01-55.00$ | $25.01-35.00$ |
| LOS E | $55.01-80.00$ | $35.01-50.00$ |

## Software

The capacity analyses were conducted using the traffic analysis and simulation software Synchro, version 8, a computer program developed by Trafficware Ltd. Synchro is a complete software package for modeling and optimizing traffic signal timing. Synchro adheres to and implements the guidelines and methods set forth in the 2010 Highway Capacity Manual. This analysis methodology was used to evaluate the ability of an intersection or roadway to efficiently handle the number of vehicles using the facility. Synchro was used to model and analyze the Existing, No Build and Build conditions at the key intersections.

## Level of Service Analysis

LOS analyses were conducted for the 2016 intersection traffic volumes, with and without project traffic (Build and No-Build) for key locations. The Synchro 8 traffic model was used to evaluate location performance.

## Analysis results

This analysis, not surprisingly, indicated that the addition of project traffic would have a significant adverse impact on traffic operating conditions, if mitigation measures did not accompany the project. Various measures to improve operating conditions were identified and evaluated to determine if they would mitigate these impacts.

## Mitigation Measures

Based on the detailed Synchro analysis it was determined that, with the implementation of the mitigation measures listed below, adequate capacity will be provided on the roadways serving the site to efficiently accommodate both project and non- project traffic:

- At the Site's north driveway - Widen NYS Route 208 to provide a left-turn lane, construct the driveway to provide a left-turn lane and a right-turn lane, and install a traffic signal.
- At the Site's south driveway - Widen NYS Route 208 to provide a left-turn lane, construct the driveway to provide a left-turn lane and a right-turn lane, and install a traffic signal.
- At the intersection of Museum Village Road with NYS Route 208 - Widen NYS Route 208 to provide a second through lane in both directions and install a traffic signal.
- At the intersection of with NYS Route 208 with the Route 17 westbound ramps Widen NYS Route 208 to provide opposing northbound and southbound left-turn lanes and modify the existing traffic signal.
- At the intersection of with NYS Route 208 with the Route 17 eastbound ramps Widen NYS Route 208 as well as the Route 17 eastbound ramp receiving lane to accommodate two southbound left-turn lanes, and modify the existing traffic signal.

The project team has investigated the available right-of-way and determined that it will be possible to construct these mitigation measures, which are shown on Exhibits 5 and 6 at the end of this report. With these measures, the average delay per vehicle passing through the intersections on Route 208 between the Site and Route 17, as indicated on Table 1 below, will be 34 seconds or less, even during the busiest hour, and all intersections will operate at Level-of Service D or better. Further, to reduce the addition of traffic to the local and regional roadway system, the hotel and casino will implement shuttle services (as well as other traffic demand management strategies) to the Harriman Railroad station (located less than 7 miles from the site) or other nearby locations should a sufficient demand exist. This would result in an overall reduction in area traffic volumes with a commensurate improvement in traffic operating conditions, although the benefits would be modest.

Table 1
Peak-hour Intersection Delays and Level of Service

| Time | Location | No-Build |  | Build |  | Mitigated |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | LOS | Delay | LOS | Delay | LOS | Delay |
| Friday$6-7 \text { pm }$ | North Site Driveway | A | 0 | B | 19 | B | 17 |
|  | South Site Driveway | A | 0 | D | 51 | D | 37 |
|  | Museum Village Road | F | 171 | F | >300 | D | 43 |
|  | Rt 17 Westbound Ramps | B | 19 | F | >300 | D | 41 |
|  | Rt 17 Eastbound Ramps | B | 10 | F | >300 | C | 31 |
|  | All Intersections | A | 8 | F | 240 | C | 34 |
| Saturday$7-8 \mathrm{pm}$ | North Site Driveway | A | 0 | B | 18 | B | 17 |
|  | South Site Driveway | A | 0 | C | 31 | C | 30 |
|  | Museum Village Road | C | 24 | F | >300 | B | 17 |
|  | Rt 17 Westbound Ramps | B | 12 | F | 106 | C | 22 |
|  | Rt 17 Eastbound Ramps | A | 8 | F | 256 | C | 21 |
|  | All Intersections | A | 4 | F | 168 | C | 22 |

Based on Synchro 8 analysis

## Parking \& Access

All of the parking for the Live! New York Hotel \& Casino is provided on Site, specifically: in a surface lot east of the casino and hotel (between the structures and NYS Route 208), a parking structure to the rear (west) of the casino and hotel, a parking lot directly north of the casino and adjacent to the hotel entrance and an employee parking lot in the southern portion of the site. The parking for patrons is readily accessible to the casino and hotel. The surface parking is directly adjacent to the hotel and casino entrance and provides easy walking. The parking structure is directly connected to the casino building and provides direct access via elevators and stairs to the casino floor. Employee parking will also be provided in the garage in designated areas and in the outer areas of the surface lot.

Valet parking is provided in parking located under the casino level of the building. The valet drop-off and pick-up is at the entrance of the hotel. Valet parked vehicles will have ramps from the drop off area directly to the underground valet parking. This will eliminate the need for valet parked vehicles to traverse the project roads. Patrons will then have direct access the hotel lobby and casino floor from the dropoff area.

Bus drop-off, pick-up and parking are provided at the northern side of the ground level of the parking garage. The bus area will be protected from weather and will include a waiting area for patrons. The bus area will have direct access to the casino via elevators and stairs to the casino floor. Additional parking for buses is provided along the western portion of the site loop circulation road, to the rear of the garage.

All of the parking, valet and bus areas will have direct access to the site circulation road. A loop road will be provided that will connect to the 2 proposed access points on NYS Route 208. The loop road will traverse from the northern entrance along the northern property line to the rear of the parking garage. Along this portion of the loop road connections will be provided to the casino/hotel valet drop off, the main surface parking lot, and the bus parking area. The loop road will continue around the parking garage on the west and south and provide connection to the garage entry/exit. The southern portion of the loop road will continue along the casino and
connect to the southern entrance at NYS Route 208. Entrance to the casino loading dock, main surface parking and employee parking is provided along this portion of the road. The loop road will have three lanes where located along the building and garage to provide a left turn and thru lane to facilitate entrance to the facilities and enhance circulation. The portions of the loop road from the NYS Route 208 entrance to the building will have four lanes, two lanes each direction.

Based on industry standards and the experience of many casino and entertainment facilities in operation (effectively 1 parking spaces per position with additional parking for ancillary uses prorated against what proportion of ancillary uses are primary-purpose visits), it is anticipated that the 5236 -position gaming facility will generate a maximum parking demand of 6,050 parked vehicles, while the industry-based-average (of 1.2 spaces per gaming position) would provide 6,300 parking spaces to accommodate a facility of this size (See Exhibit 7). The project is proposed to provide approximately 7,702 parking spaces. A summary of the spaces provided is shown in Table 2.

Table 2
Summary of Parking Provided

| Location | Number <br> of <br> Spaces |
| :---: | :---: |
| Parking <br> Garage <br> Structure | 5,348 |
| Valet | 415 |
| Surface <br> Parking <br> Lots |  |
| North | 1,205 |
| South | 734 |
| Total | $\mathbf{7 , 7 0 2}$ |
| \# of ADA | 154 |
| Accessible |  |
| Spaces (2\%) |  |

The parking facilities will include provisions for electric charging stations and accessible parking spaces in accordance with the ADA Accessibility Guidelines (ADAAG) parking design requirements and the NYS Building.

## 6

# Ownership, Jurisdiction, Cost \& Responsibility 

All of the mitigation improvements are located on NYS Route 208 a State highway whose ownership, jurisdiction and responsibility fall to the state of New York under the auspices of the New York State Department of Transportation.

The Applicant proposes to implement the mitigation improvements identified above at its sole expense. The estimated cost of the improvements is $\$ 7.0$ million. To implement the improvements, the Applicant will have to obtain approval from the New York State Department of Transportation and, to do so, will need to prepare detailed construction design plans which will be required to comply with the Department's standards and specifications.

Presuming an expedited but reasonable review and approval process, it is anticipated that the improvements could be designed by the beginning of the construction season in 2015 and could be completed by the end of the construction season in 2016.

Once the improvements are completed, those which lie within the public right of way will fall to the ownership of the state and will be maintained by the state, except for the two new traffic signals at the site driveways, which will be owned and maintained by the hotel and casino owner. The driveway improvements which will be located on the Applicant's property will be owned and maintained by the owner of the hotel and casino.

Tables, figures, graphs and analysis results which summarize the findings of this report are provided below with detailed supporting data included in the study appendix.

## SUPPORTING FIGURES MAPS AND TABLES



Source: GIS Orange County New York




## Proposed Traffic Mitigation (Infrastructure Improvements)

## Route 208 and North Site Driveway

Construct the northern site driveway to provide two entering lanes and two exiting lanes.

Widen Route 208 to provide an exclusive left-turn lane in the northbound direction.

Install a multi-phase, coordinated, traffic signal.

## Route 208 and South Site Driveway

Construct the northern site driveway to provide two entering lanes and two exiting lanes.

Widen Route 208 to provide an exclusive left-turn lane in the northbound direction.

Install a multi-phase, coordinated, traffic signal.

Route 208 and Museum Village Road
Widen Route 208 to provide two lanes northbound and southbound.

Install a multi-phase, coordinated traffic
 signal.

## Route 208 and Route 17 Westbound Ramps

Widen Route 208 to provide northbound and southbound exclusive left-turn lanes.

Modify the traffic signal to accommodate added lanes and coordinate with adjoining signals.

Route 208 and Route 17 Eastbound Ramps
Widen Route 208 and the Rt 17 On-ramp to provide double southbound left-turn lanes.

Modify the traffic signal to accommodate added lanes and coordinate with adjoining signals.


## Parking Analysis



| OTHER CASINOS |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
| $\begin{array}{\|c\|c\|c\|c\|c\|c\|}\hline \text { PhiladeIphia } & & & & & \\ \hline \text { 4 spaces for 5 gaming positoins } & \text { Positions } & 4 \text { per 5 positions } & 5,786 & 4,629 & 6,668 \\ \hline \begin{array}{c}\text { Las Vegas SUMMERLIN } \\ \text { DEVELOPMENT STANDARDS }\end{array} & & & & & \\ \hline \begin{array}{c}\text { Casinos and Support Uses 1 } \\ \text { space for each 90 s.f. of gross } \\ \text { floor area }\end{array} & \text { S.F. } & 1 \text { per 90 S.F. } & 399,195 & 4,436 & 6,475 \\ \hline \text { AJESTIC STAR CASINO, PITTSBURGH } & & & & \\ \hline \begin{array}{c\|c\|cc\|}\text { Based on information measured } \\ \text { at existing casino sites and } \\ \text { published in TE sources, the } \\ \text { parking provision rates are in the } \\ \text { range of 1.0 to 1.5 parking } \\ \text { spaces per slot machine or per } \\ \text { gaming position. }\end{array} & \text { Positions } & 1.5 \text { per Position } & 5786 & 8,679 & 10,718 \\$ |  |  Positions  | 1.0  per Position  | 5786 | 5,236\end{array}$] 7,275$ |


| Leominster, MA |  | 0.728 | per position |  |  |
| :---: | :--- | :--- | :--- | :--- | ---: |
| Mashpee Taunton, MA |  | 1.448 | per position |  |  |
| Horsehoe, Baltimore |  | 1.067 | per position |  |  |
| ckbridge Munsee Thompsonville | 1.782 | per position |  |  |  |
|  |  |  |  |  |  |
| Average |  | 1.189 | per position | 5,236 | 6226 |
| 85th percentile |  | 1.448 | per position | 5,236 | 7580 |
| 1.2/gaming position |  |  |  |  | $\mathbf{6 2 8 3}$ |

## APPENDIX - SOURCES

## Appendix Exhibit 1

## Route 208 Northbound Traffic Volumes, South of Route 17




## Appendix Exhibit 2

Route 208 Southbound Traffic Volumes, South of Route 17



## Appendix Exhibit 3

Route 208 Northbound Traffic Volumes, North of Duelk Avenue
STATION: 830031





Appendix Exhibit 5


Figure 2-23

Appendix Exhibit 6


Figure 2-24

## Appendix Exhibit 7 - Peak Highway Hour Casino Trip Generation Rates

## Determination Of Trip Generation Rates for Mohegan Sun-like and Fowxwoods-like Casino



Appendix Exhibit 8

## Live Hotel \& Casino Highway Peak-hour Project Trips

| Development Components | Thurs 4-5 | Fri 4-5 | SAT 3-4 | SUN 3-4 |
| :--- | :---: | :---: | :---: | :---: |
| Gaming $^{1}$ - 5236 Positions | $\mathbf{1 5 7 3}$ | $\mathbf{1 7 2 6}$ | $\mathbf{1 7 8 0}$ | $\mathbf{1 7 8 0}$ |
| Already on Rt 208 (2\%) | -32 | -34 | -35 | -35 |
| Already on Rt 17 (6\%) | -94 | -104 | -107 | -107 |
| New Casino/Gaming Trips during Highway Peak Hour | $\mathbf{1 4 4 7}$ | $\mathbf{1 5 8 8}$ | $\mathbf{1 6 3 8}$ | $\mathbf{1 6 3 8}$ |
| Hotel $^{2}$ - 321 Keys | 135 | 135 | 149 | 116 |
| Assume 90 \% of guests will be visiting the Casino | -122 | -122 | -134 | -104 |
| Already on Rt 208 (2\%) | 0 | 0 | 0 | 0 |
| Already on Rt 17 (6\%) | -1 | -1 | $\mathbf{- 1}$ | $\mathbf{- 1}$ |
| Additional Hotel Trips during Highway Peak Hour | $\mathbf{1 2}$ | $\mathbf{1 2}$ | $\mathbf{1 4}$ | $\mathbf{1 1}$ |
| Total Gaming Application Traffic during Highway Peak Hour | $\mathbf{1 4 5 9}$ | $\mathbf{1 6 0 0}$ | $\mathbf{1 6 5 2}$ | $\mathbf{1 6 4 9}$ |
|  |  |  |  |  |

1. Based on 1998 detailed study of Mohegan Sun and Foxwoods Casinos which, respectively, had 5,700 and 11,230 gaming positions but no hotel.
2. From ITE Trip Generation, 9th Edition

## Appendix Exhibit 9

Mohegan Sun and Foxwoods Daily Trip Generation Rates

| Table 1. Daily Traffic (Patrons and Employees) at Foxwoods and Mohegan Sun |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Foxwoods* Daily <br> Traffic, Vehicle <br> Trips/Day Total <br>  <br> Employees | Foxwoods <br> Vehicle Trips <br> per Gaming <br> Position per <br> Day (11,230 <br> Seats) | Mohegan Sun** Daily <br> Traffic, Vehicle <br> Trips/Day Total <br> Patrons \& Employees | Mohegan Sun <br> Vehicle Trips per <br> Gaming Position <br> per Day (5,700 <br> Seats) | Average <br> Vehicle <br> Trip |  |
| Generation <br> Rate |  |  |  |  |  |  |
| Friday (5/16/97) | 48,000 | 4.3 | 25,000 | 4.4 | $\mathbf{4 . 3}$ |  |
| Saturday (5/10/97) | 58,000 | 5.2 | 32,000 | 5.6 | $\mathbf{5 . 4}$ |  |
| Sunday (5/18/97) | 54,000 | 4.8 | 30,800 | 5.4 | $\mathbf{5 . 1}$ |  |
| Holiday (Sunday <br> Memorial Day <br> Weekend 5/25/97) | 71,000 | 6.3 | 36,000 | 6.3 | $\mathbf{6 . 3}$ |  |

*Counts taken by F. A. Hesketh at Foxwoods Drives plus estimates of employee traffic based on previously established rates.
**Field counts taken by Close, Jensen and Miller, P.C.

In order to test various modal split assumptions for this study, it was desirable to determine an estimate of the rate of person trips per gaming position in addition to the number of vehicle trips per gaming position. Since the 1997 data on Foxwoods and Mohegan Sun provided only a vehicle trip generation rate, we used vehicle occupancy data from the 1995 surveys at Foxwoods to develop a person trip generation rate. The resulting rate is 10.3 person trips per gaming position as shown in the calculation in Table 2. This is the rate we used in all subsequent calculations for the Bridgeport Casino.

| Table 2. Increase in Trip Generation Rate 1995-1997 |  |  |  |
| :---: | :---: | :---: | :---: |
|  | Vehicle Trips <br> per Gaming <br> Position | Person Trips <br> per Gaming <br> Position |  |
| Foxwoods 1995 | 3.8 | 9.2 |  |
| Foxwoods 1997 | 4.3 | $\mathbf{1 0 . 3}$ |  |
| \% Increase | $12.5 \%$ |  |  |
| $\quad{ }^{*}=9.2$ increased by 12.5\% |  |  |  |

### 3.0 LIKELY CHARACTERISTICS OF THE BRIDGEPORT CASINO

At this time, limited information is available on the size of the potential casino that would be built by the Golden Hill Paugussetts. The description of the casino complex posted on the tribe's website is extremely ambitious. Parking alone would include 35,000 to 37,000 spaces for the casino, Bingo Hall, Convention Center and Sports Complex, nearly twice the amount of parking available at Foxwoods in 1997. For comparison, all of Downtown Stamford has a total of approximately 38,000 spaces According to the website information, the Casino complex would include the following uses:

# Mohegan Sun and Foxwoods Trip Generation Data 

## Division Street Improvements

The RIDOT currently has under design improvements which include widening Division Street from Route 2 to the Route 4 South Ramps. The proposed widening will consist of extending the existing eastbound right-turn lane at the East Greenwich Square Plaza to the Route 2 intersection and constructing a new eastbound lane between the Plaza and the Route 4 South Ramps. The existing eastbound right-turn lane at the Plaza would be changed from a right-turn only lane to a shared through/right-turn lane. These proposed improvements also include the installation of new traffic signal equipment and the interconnection and coordination of three traffic signals along Division Street with the creation of a Division Street closed loop system. The proposed widening would result in three eastbound travel lanes between Route 2 and the Route 4 South Ramps. These improvements are expected to be in place for the 2011 design year, therefore, they are included in the 2011 No-Build and 2011 Build capacity analyses.

## Site-Generated Traffic Volumes

Design year 2011 Build traffic volumes for study area roadways were determined by estimating site-generated traffic volumes for the proposed Harrah's Narragansett Casino and distributing these volumes over the study area roadways. These sitegenerated volumes were added to the 2011 No-Build traffic volumes to create the year 2011 Build traffic volume networks. The following sections describe the procedures used to develop the Build condition traffic volume networks.

## Trip Generation

To estimate the traffic impacts of the proposed Harrah's Narragansett Casino, it is necessary to determine the traffic volumes expected to be generated by the development. The following section discusses the procedures used to determine the expected trip generation for the proposed casino, which were calculated based on a review of trip generation rates experienced by the Foxwoods and Mohegan Sun Resorts. The type and mix of uses at the proposed Harrah's Narragansett resort casino are similar to the existing Foxwoods and Mohegan Sun Casinos in Connecticut, and similar trip generation rates are expected.

In January 1999 Close, Jensen and Miller, P.C. prepared a Traffic Impact Report for the Mohegan Sun Expansion Phase II. ${ }^{2}$ This study contains traffic counts performed at the Foxwoods and Mohegan Sun Resorts. Traffic counts performed at both resorts were compared and analyzed. The report indicates that a reliable method of estimating new traffic at a casino resort can be directly tied to the number of "gambling seats", i.e. slots, table games, etc.. The number of gambling seats appears to be the controlling factor in determining the traffic generated by this type of facility despite the fact that these types of facilities include multiple uses in addition to the gambling casino such as hotels, retail stores, restaurants, entertainment and other ancillary uses. The rates documented in this report are summarized in Table 3-1.

VHB reviewed 1997 traffic counts from the ConnDOT that confirmed the trip generation rates for Foxwoods listed in Table 3-1. The traffic report for the Mohegan Sun Expansion Phase II did not include traffic counts that could confirm the Mohegan Sun rates. The traffic report did, however, include 1998 daily traffic counts over a six week period at Mohegan Sun that resulted in slightly higher trip generation rates than documented in the report. These calculated rates are also summarized in Table 3-1.

Table 3-1
Foxwoods and Mohegan Sun Trip Generation Rates from Previous Study

|  | Foxwoods <br> Trips per Seat per Day <br> Documented in Report ${ }^{1}$ | Mohegan Sun <br> Trips per Seat per Day <br> Documented in Report ${ }^{2}$ | Mohegan Sun <br> Trips per Seat per Day <br> Calculated ${ }^{3}$ |
| :--- | :---: | :---: | :---: |
| Thursday | - | - | 4.5 |
| Friday | 4.3 | 4.4 | 5.0 |
| Saturday | 4.8 | 5.6 | 6.1 |

Source: Traffic Impact Report Mohegan Sun Expansion Phase II Uncasville, Connecticut; Close, Jensen and Miller, P.C., January 1999 (Table 3). Rates shown are number of trips per gambling seat per day (total patrons and employees) Values included in previous study based on total of 11,230 gambling seats at Foxwoods at time of study Values included in previous study based on total of 5,700 gambling seats at Mohegan Sun at time of study
3 Rates calculated by VHB based on 1998 traffic counts performed at Mohegan Sun. Traffic counts obtained from Traffic Impact Report Mohegan Sun Expansion Phase II Uncasville, Connecticut; Close, Jensen and Miller, P.C.

As summarized in Table 3-1, the rates calculated by VHB using 1998 traffic volumes collected at Mohegan Sun are slightly higher than the rates calculated for Foxwoods and Mohegan Sun documented in the Traffic Impact Report for the Mohegan Sun Expansion Phase II. In order to be conservative in projecting future traffic volumes at the proposed Harrah's Narragansett Casino, the calculated rates listed in Table 3-1 were used to base projected traffic volumes on the highest traffic volumes observed during typical Thursday, Friday and Saturday conditions.

[^0]
## Appendix Exhibit 10.3 <br> Mohegan Sun and Foxwoods Trip Generation Data

The trip generation rates included in Table 3-1 include both patrons and employees. According to the Traffic Impact Report for the Mohegan Sun Expansion Phase II, patron trips account for approximately $78 \%$ of the total trips and employees account for the remaining $22 \%$ of the trips. ${ }^{3}$

The proposed Harrah's Narragansett Casino will be designed to accommodate 3,500 slot machines and 150 table games, for a total of 4,500 gambling seats. The projected total daily traffic for the Harrah's Narragansett Casino is summarized in Table 3-2.

The Thursday peak hour period was used because it represents average weekday traffic conditions for the adjacent roadway and the casino. The daily traffic on a Friday represents the highest day of the week for the adjacent roadway network and higher than average traffic conditions for the casino. The daily traffic on a Saturday represents lower than average daily traffic for the adjacent roadway network and the highest day of the week conditions for the casino.

Table 3-2
Harrah's Narragansett Casino Projected Daily Traffic

|  | Trips per Seat per Day | Harrah's Narragansett Casino <br> Projected Daily Traffic (vpd) ${ }^{1}$ |
| :--- | :---: | :---: |
| Thursday | 4.5 | 20,250 |
| Friday | 5.0 | 22,500 |
| Saturday | 6.1 | 27,450 |

Source: Calculated by VHB based on 1998 traffic counts included in Traffic Impact Report Mohegan Sun Expansion Phase II Uncasville, Connecticut; Close, Jensen and Miller, P.C., January 1999
1 Projected vehicles per day (vpd) based on total of 4,500 gambling seats (total patrons and employees)
The hourly distribution of daily traffic was then analyzed for the Foxwoods and Mohegan Sun Resorts to determine the percent of the daily traffic that occurs during the peak hours on Thursday, Friday, and Saturday. The Mohegan Sun Expansion Phase II Traffic Impact Report included hourly traffic counts for the Mohegan Sun Resort; however, it did not include hourly traffic volume data for the Foxwoods Resort. VHB, therefore, obtained 1999 hourly traffic counts from ConnDOT for the Foxwoods Resort. The 1999 data obtained from ConnDOT were used to calculate the percentage of daily traffic that occurred each hour and was compared with the percentages calculated for the Mohegan Sun Resort. The 1999 data were not used to determine the daily trip generation rates because the 1999 daily traffic was less than the 1997 daily traffic according to the data that VHB obtained. Figures that graphically show the hourly distribution of traffic at Foxwoods and Mohegan Sun on Thursday, Friday and Saturday are included in the Appendix. The percentage of daily traffic that occurs during the peak hours is summarized in Table 3-3.

[^1]Appendix Exhibit 10.4
Mohegan Sun and Foxwoods Trip Generation Data
Table 3-3
Foxwoods and Mohegan Sun Peak Hour Trip Generation Percentages

|  | Foxwoods ${ }^{1}$ |  | Mohegan Sun ${ }^{2}$ |  |
| :---: | :---: | :---: | :---: | :---: |
|  | \% of Daily Casino Traffic during the Peak Generation Hour of Casino ${ }^{3}$ | \% of Daily Casino Traffic during the Peak Highway Hour of l-954 | \% of Daily Casino Traffic during the Peak Generation Hour of Casino ${ }^{3}$ | \% of Daily Casino Traffic during the Peak Highway Hour of I-954 |
| Thursday |  |  |  |  |
| Morning | 4.3 \% | 2.7 \% | 3.8 \% | 2.7 \% |
| Evening | 7.0 \% | 6.8 \% | 7.6 \% | 6.9 \% |
| Friday |  |  |  |  |
| Morning | 3.7 \% | 2.4 \% | 3.3 \% | 2.6 \% |
| Evening | 6.4 \% | 6.4 \% | 6.8 \% | 6.8 \% |
| Saturday |  |  |  |  |
| Afternoon | 6.3 \% | 5.6 \% | 6.3 \% | 5.8 \% |

Source: Calculated by VHB based on traffic counts included in Traffic Impact Report Mohegan Sun Expansion Phase II Uncasville, Connecticut; Close, Jensen and Miller, P.C., January 1999
1 Rates calculated by VHB based on 1999 traffic counts at Foxwoods obtained from ConnDOT.
2 Rates calculated by VHB based on 1998 traffic counts at Mohegan Sun obtained from Traffic Impact Report for the Mohegan Sun Expansion Phase II Uncasville, Connecticut; Close, Jensen and Miller, P.C.
3 Peak hour of Casino generated traffic during morning period from 6:00AM-10:00AM and evening period from 3:00PM-9:00PM.
4 Peak hour of I-95 traffic in West Warwick based on 2003 and 2004 traffic counts obtained from the RIDOT

The data listed in Table 3-3 indicate that both casinos follow the same general trend regarding hourly distribution of traffic.

The percentages of daily traffic that occur during the peak hours calculated by VHB using 1998 traffic volumes collected at Mohegan Sun were slightly higher than the percentages calculated using 1999 traffic volumes at Foxwoods. In order to be conservative in projecting future traffic volumes at the proposed Harrah's Narragansett Casino, the calculated peak hour percentages for the Mohegan Sun Resort (as shown in Table 3-3) were used to base projected traffic volumes on the highest traffic volumes observed during typical Thursday, Friday and Saturday peak hour conditions. The projected hourly distribution of traffic at the Harrah's Narragansett Casino based on the hourly distribution rates calculated at the Mohegan Sun Resort for a typical Thursday, Friday, and Saturday is shown graphically in Figure 3-9. As shown in Figure 3-9, the peak hours of the casino generated traffic are expected to occur between 4:00 to 5:00 PM on a typical Thursday and Friday, and between 8:00 and 9:00 PM on a typical Saturday.

Based on the traffic data collected along I-95 and the hourly distribution of traffic at both Foxwoods and Mohegan Sun Resorts, the combination of adjacent roadway and casino generated traffic is greatest during the peak hours of I-95 (Thursday and Friday morning from 7:00 AM to 8:00 AM, Thursday evening from 5:00 PM to 6:00

Appendix Exhibit 10.5 - Mohegan Sun and Foxwoods Trip Generation Data


Source: The trip rates and hourly distribution based on average traffic counts between October 15 and November 21, 1998 from the Traffic Impact Report Mohegan Sun Expansion Phase II , by Close, Jensen and Miller, P.C. (January 1999)

Note: Trips indicated are total vehicle trips (entering and exiting)

Hourly Trip Generation
Proposed Harrah's Narragansett Casino
West Warwick, Rhode Island

Figure 3-9

## Appendix Exhibit 10.6 - Mohegan Sun and Foxwoods Trip Generation Data

PM, Friday evening from 4:00 PM to 5:00 PM and Saturday afternoon from 3:00 PM to 4:00 PM). Based on these data, the projected total peak hour traffic volumes for a Thursday, Friday and Saturday are shown in Table 3-4.

Table 3-4
Harrah's Narragansett Casino Projected Trip Generation

|  | Daily Traffic ${ }^{1}$ (vpd) | \% of Daily Traffic during the Peak Hour of I-95² | Total Peak Hour Volume ${ }^{3}$ (vph) | Peak Hour Distribution (\%Enter/\%Exit) 4 | Projected Peak Hour Volume Entering (vph) | Projected Peak Hour Volume Exiting (vph) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Thursday |  |  |  |  |  |  |
| Morning | 20,250 | 2.7 \% | 545 | 65/35 | 355 | 190 |
| Evening | 20,250 | 6.9 \% | 1,395 | 56/44 | 780 | 615 |
| Friday |  |  |  |  |  |  |
| Morning | 22,500 | 2.6 \% | 585 | 69/31 | 405 | 180 |
| Evening | 22,500 | 6.8 \% | 1,530 | 50/50 | 765 | 765 |
| Saturday |  |  |  |  |  |  |
| Afternoon | 27,450 | 5.8 \% | 1,590 | 58/42 | 920 | 670 |
| Source: Calculated by VHB based on traffic counts included in Traffic Impact Report Mohegan Sun Expansion Phase II Uncasville, Connecticut; Close, Jensen and Miller, P.C., January 1999 |  |  |  |  |  |  |
| 1 Based on total of 4,500 gambling seats. |  |  |  |  |  |  |
| Peak hour of I-95 traffic in West Warwick based on 2003 and 2004 traffic counts obtained from the RIDOT |  |  |  |  |  |  |
| Based on projected daily traffic calculated by VHB and peak hour rates based on 1998 traffic counts at Mohegan Sun. |  |  |  |  |  |  |
| Peak hour distribution based on 1998 traffic counts at Mohegan Sun. vpd $=$ Vehicles per day; vph = Vehicles per hour |  |  |  |  |  |  |

## Diverted-link/Pass-by Trips

Not all of the traffic generated by the proposed casino will be new traffic on the study area roadways. The Harrah's Narragansett Casino is expected to "capture" a significant portion of the site generated traffic from the existing traffic stream on I-95 destined to either Foxwoods or Mohegan Sun. These captured trips are defined as "diverted-link" trips that would already be on the adjacent roadway system traveling to and from locations other than the proposed Harrah's Narragansett Casino (i.e. Foxwoods and Mohegan Sun).

According to the market study entitled An Assessment of the Potential Demand and Impacts Upon Existing Rhode Island Gaming Venues of the Proposed West Warwick Casino dated Wednesday May 5, 2004 prepared for the Town of West Warwick by Christiansen Capital Advisors, LLC (CCA), it is projected that " $70 \%$ of those that are closer to the West Warwick Casino will opt to spend their money in Rhode Island rather than at the Connecticut facilities." This level of diverted trips results in as much as $50 \%$ of the total projected site generated trips during the weekday evening and Saturday afternoon peak hour periods.
(1) Used For Analysis





# Appendix Exhibit 13 - Taunton Hourly Casino Traffic Volumes - Weekday 

### 8.1 Environmental Consequences, Taunton: Transportation

afternoon southbound peak between 4:00 and 5:00 PM, MassDOT requested that Saturday analyses related to Route 24 be conducted for the afternoon highway peak period rather than the midday peak. Direct trip rates based on gaming positions were not available for a weekday AM peak hour, a Saturday midday peak hour, or a Saturday afternoon highway peak hour. For this reason, the team applied to the weekday and Saturday daily rates based on gaming positions the hourly distribution described in a 1998 ITE Journal article. ${ }^{3}$

From the weekday and Saturday daily trips based on gaming positions from the ConnDOT study, as described above, the team applied the hourly trip factors from the ITE study to yield the results highlighted in Table 8.1-3 for the weekday AM peak hour, and in Table 8.1-4 for the Saturday midday and afternoon highway peak hours. These rates were used for casino/hotel trips in Alternatives A and C.

TABLE 8.1-3
HOURLY CASINO/HOTEL VOLUMES BASED ON GAMING POSITIONS: WEEKDAY

|  |  |  |  |  |  | Total |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Time Period |  | In \% | Volume | Out \% | Volume | Volume | \% Total |
| Hour Beginning: | $\mathbf{0}$ | $2.50 \%$ | 258 | $4.30 \%$ | 443 | 701 | $3.40 \%$ |
|  | $\mathbf{1}$ | $1.80 \%$ | 185 | $3.90 \%$ | 402 | 587 | $2.85 \%$ |
|  | $\mathbf{2}$ | $1.20 \%$ | 124 | $3.30 \%$ | 340 | 464 | $2.25 \%$ |
|  | $\mathbf{3}$ | $0.70 \%$ | 72 | $3.20 \%$ | 330 | 402 | $1.95 \%$ |
|  | $\mathbf{4}$ | $1.00 \%$ | 103 | $3.30 \%$ | 340 | 443 | $2.15 \%$ |
|  | $\mathbf{5}$ | $0.70 \%$ | 72 | $1.60 \%$ | 165 | 237 | $1.15 \%$ |
|  | $\mathbf{6}$ | $1.00 \%$ | 103 | $0.60 \%$ | 62 | 165 | $0.80 \%$ |
|  | AM Peak | $\mathbf{7}$ | $1.60 \%$ | 165 | $0.60 \%$ | 62 | 227 |
|  | $\mathbf{8}$ | $3.90 \%$ | 402 | $1.20 \%$ | 124 | 526 | $2.55 \%$ |
|  | $\mathbf{9}$ | $5.60 \%$ | 577 | $1.30 \%$ | 134 | 711 | $3.45 \%$ |
|  | $\mathbf{1 0}$ | $5.20 \%$ | 536 | $2.10 \%$ | 216 | 752 | $3.65 \%$ |
|  | $\mathbf{1 1}$ | $5.50 \%$ | 567 | $3.00 \%$ | 309 | 876 | $4.25 \%$ |
|  | $\mathbf{1 2}$ | $5.80 \%$ | 598 | $4.10 \%$ | 423 | 1,020 | $4.95 \%$ |
|  | $\mathbf{1 3}$ | $6.00 \%$ | 618 | $5.20 \%$ | 536 | 1,154 | $5.60 \%$ |
|  | $\mathbf{1 4}$ | $5.40 \%$ | 556 | $6.10 \%$ | 629 | 1,185 | $5.75 \%$ |
|  | $\mathbf{1 5}$ | $5.20 \%$ | 536 | $6.40 \%$ | 660 | 1,195 | $5.80 \%$ |
|  | $\mathbf{1 6}$ | $5.30 \%$ | 546 | $7.10 \%$ | 732 | 1,278 | $6.20 \%$ |
| PM Peak | $\mathbf{1 7}$ | $5.90 \%$ | 608 | $6.60 \%$ | 680 | 1,288 | $6.25 \%$ |
|  | $\mathbf{1 8}$ | $7.80 \%$ | 804 | $7.00 \%$ | 72 | 1,525 | $7.40 \%$ |
|  | $\mathbf{1 9}$ | $7.40 \%$ | 763 | $5.70 \%$ | 587 | 1,350 | $6.55 \%$ |
|  | $\mathbf{2 0}$ | $6.30 \%$ | 649 | $5.30 \%$ | 546 | 1,195 | $5.80 \%$ |
|  | $\mathbf{2 1}$ | $5.30 \%$ | 546 | $5.70 \%$ | 587 | 1,134 | $5.50 \%$ |
|  | $\mathbf{2 2}$ | $4.80 \%$ | 495 | $6.30 \%$ | 649 | 1,144 | $5.55 \%$ |
|  | $\mathbf{2 3}$ | $4.10 \%$ | $\mathbf{4 2 3}$ | $6.10 \%$ | 629 | 1,051 | $5.10 \%$ |
| TOTAL | $\mathbf{1 0 0 . 0 0 \%}$ | $\mathbf{1 0 , 3 0 5}$ | $\mathbf{1 0 0 . 0 0 \%}$ | $\mathbf{1 0 3 0 5}$ | $\mathbf{2 0 , 6 1 0}$ | $\mathbf{1 0 0 . 0 0 \%}$ |  |

[^2]
### 8.1 Environmental Consequences, Taunton: Transportation

TABLE 8.1-4
HOURLY CASINO/HOTEL VOLUMES BASED ON GAMING POSITIONS: SATURDAY

| Time Period |  | In \% | Volume | Out \% | Volume | Total Volume | \% Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Hour Beginning: | 0 | 3.00\% | 351 | 5.90\% | 690 | 1,041 | 4.45\% |
|  | 1 | 2.70\% | 316 | 4.40\% | 515 | 831 | 3.55\% |
|  | 2 | 1.30\% | 152 | 4.20\% | 491 | 644 | 2.75\% |
|  | 3 | 0.80\% | 94 | 4.70\% | 550 | 644 | 2.75\% |
|  | 4 | 0.60\% | 70 | 3.70\% | 433 | 503 | 2.15\% |
|  | 5 | 0.60\% | 70 | 2.00\% | 234 | 304 | 1.30\% |
|  | 6 | 0.70\% | 82 | 0.70\% | 82 | 164 | 0.70\% |
|  | 7 | 1.10\% | 129 | 0.50\% | 59 | 187 | 0.80\% |
|  | 8 | 3.30\% | 386 | 0.90\% | 105 | 491 | 2.10\% |
|  | 9 | 4.70\% | 550 | 0.90\% | 105 | 655 | 2.80\% |
|  | 10 | 4.30\% | 503 | 1.70\% | 199 | 702 | 3.00\% |
|  | 11 | 4.90\% | 573 | 2.60\% | 304 | 878 | 3.75\% |
| Midday Peak** | 12 | 4.80\% | 562 | 2.80\% | 328 | 889 | 3.80\% |
|  | 13 | 5.20\% | 608 | 3.50\% | 410 | 1,018 | 4.35\% |
|  | 14 | 5.60\% | 655 | 4.10\% | 480 | 1,135 | 4.85\% |
|  | 15 | 5.60\% | 655 | 5.80\% | 679 | 1,334 | 5.70\% |
| Route 24 PM Peak++ | 16 | 5.70\% | 667 | 6.30\% | 737 | 1,404 | 6.00\% |
|  | 17 | 6.70\% | 784 | 6.80\% | 796 | 1,580 | 6.75\% |
|  | 18 | 7.80\% | 913 | 6.90\% | 807 | 1,720 | 7.35\% |
|  | 19 | 7.70\% | 901 | 6.40\% | 749 | 1,650 | 7.05\% |
|  | 20 | 6.50\% | 761 | 6.70\% | 784 | 1,544 | 6.60\% |
|  | 21 | 6.10\% | 714 | 6.10\% | 714 | 1,427 | 6.10\% |
|  | 22 | 5.70\% | 667 | 6.00\% | 702 | 1,369 | 5.85\% |
|  | 23 | 4.60\% | 538 | 6.40\% | 749 | 1,287 | 5.50\% |
| TOTAL |  | 100.00\% | 11,700 | 100.00\% | 11700 | 23,400 | 100.00\% |

The hourly rates shown above were then prorated into patron and employee trips using the same proportions reflected in the 1999 ConnDOT study supplied by MassDOT.

MassDOT questioned the distribution of inbound and outbound trips shown in Tables 8.1-3 and 8.1-4 for the Saturday 4-5 PM highway peak period ( $47.5 \%$ in and $52.5 \%$ out); stating that for a Class III casino there would be more inbound than outbound trips in this peak hour. For this reason, the team changed the distribution of inbound and outbound trips for the Saturday 4-5 PM peak hour to reflect an overall distribution of $55 \%$ in and $45 \%$ out, based on generator peak hour rates. For patrons, the split was $60 \%$ in and $40 \%$ out at the Saturday 4-5 PM peak.

Appendix Exhibit 15
Maryland State Highway Administration Casino Peak Hour Trip Generation

## Horseshoe Casino

## Background Traffic Analysis

Similar to the methodology in the Existing Conditions traffic analysis, the weekday nobuild future traffic conditions were analyzed at the six intersections using the Highway Capacity Manual (HCM) methodology in Synchro. All study intersections operate at a Level of Service D or better. Performance measures, including level of service, delay, and volume to capacity ratios, are presented in Table 5.

Table 5: Level of Service Analysis of Background Weekday Traffic

| Intersection | Delay (sec) |  | Volume to Capacity ${ }^{5}$.ı |  | Level of Service |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | AM | PM | AM | 'M | AM | PM |
| Russell Street at Bush Street | 9.5 | 10.7 | 0.82 | 0. | A | B |
| Russell Street at Haines Street | 0.0 | 0.1 | 0. | 0.66 | A | A |
| Russell Street at Bayard Street | 14.4 | 16.1 | 0.8 | 84 | B | B |
| Russell Street at Worcester Street | 0.2 | 0.4 | 0.82 | . 0 | A | A |
| Russell Street at W. Hamburg Street | 25.7 | 40.1 | 0.80 | 0.90 | C | D |
| Warner Street at Stockholm Street/CSX | 2.6 | 2.8 | 0.14 | 0.21 | A | A |

## Future Conditions

Future conditions with development traffic represent forecasted background traffic and the forecasted new trips from the proposed development. Trips generated from the development were distributed along the adjacent roadway network and then added to existing plus background 2015 traffic.

## Proposed Site Plan and Trip Generation

The proposed site consists of 3,750 gaming positions in a 315,710 square feet facility. The facility includes a $140,000 \mathrm{sq} \mathrm{ft}$ casino floor, 41,000 , square feet of restaurant space, 15,000 of bar/tavern space, and 73,000 square feet of administrative (office space).

ITE's Trip Generation Manual does not have sufficient data for the land use of a casino. A combination of Maryland State Highway Administration-approved trip generation rates for similar casino studies in Maryland were used to determine the trip generation rates.

- 0.062 trips per gaming position during the AM peak hour of generator,
- 0.246 trips per position during the PM peak hour of generator, and
- 0.305 trips per position on Sundays during its peak hour of generator were assumed.

ITE's Trip Generation Manual was used to determine trip generation for the restaurant, bar/tavern, and administrative (office) land uses. It was assumed that AM peak hour traffic to/from the bar/tavern land use would be negligible, and that Sunday total trip generation would be similar to that of the PM peak hour in Table 6.

## Appendix Exhibit 16

## 0-30 Minute Drive Time from Proposed Site



## Projected Gaming Demand Analysis <br> Local Market 0-30 Minute Drive-Time

2012 Adult Population - 420,189
Gaming Propensity - $30.0 \%$
Gaming Population - 126,057

|  | \% of <br> Total | Gamers | Gaming <br> Days/Yr | Gaming <br> Visits | Win Per <br> Visit | MMRC Projected <br> Gaming Demand | \% of <br> Rev |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Avid Enthusiasts | $1.0 \%$ | 1,261 | 150 | 189,085 | $\$ 150$ | $\$$ | $28,362,758$ | $20.5 \%$ |
| Highly Frequent | $1.0 \%$ | 1,261 | 90 | 113,451 | $\$ 150$ | $\$$ | $17,017,655$ | $12.3 \%$ |
| Very Frequent | $2.0 \%$ | 2,521 | 65 | 163,874 | $\$ 135$ | $\$$ | $22,122,951$ | $16.0 \%$ |
| Frequent | $6.0 \%$ | 7,563 | 40 | 302,536 | $\$ 125$ | $\$$ | $37,817,010$ | $27.3 \%$ |
| Somewhat Frequent | $7.0 \%$ | 8,824 | 18 | 158,831 | $\$ 115$ | $\$$ | $18,265,616$ | $13.2 \%$ |
| Occasional | $20.0 \%$ | 25,211 | 3.5 | 88,240 | $\$ 100$ | $\$$ | $8,823,969$ | $6.4 \%$ |
| Intermittent | $16.0 \%$ | 20,169 | 2 | 40,338 | $\$ 75$ | $\$$ | $3,025,361$ | $2.2 \%$ |
| Observational | $47.0 \%$ | 59,247 | 1 | 59,247 | $\$ 50$ | $\$$ | $2,962,332$ | $2.1 \%$ |
| Total | $100.0 \%$ | 126,057 |  | $1,115,602$ |  | $\$$ | $138,397,651$ | $100.0 \%$ |

## Appendix Exhibit 17

## 31-60 Minute Drive Time from Proposed Site



| Projected Gaming Demand Analysis Local Market 31-60 Minute Drive-Time |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2012 Adult Population <br> Gaming Frequency | 5,186,385 | Gaming Propensity - $20.0 \%$ |  |  | Win Per Visit | Gaming Population - 1,037,277 |  |  |
|  | \% of Total | Gamers | Gaming | Gaming Visits |  |  | C Projected ing Demand | $\begin{aligned} & \% \text { of } \\ & \text { Rev } \end{aligned}$ |
| Avid Enthusiasts | 1.0\% | 10,373 | 150 | 1,555,916 | \$150 | \$ | 233,387,325 | 20.5\% |
| Highly Frequent | 1.0\% | 10,373 | 90 | 933,549 | \$150 | \$ | 140,032,395 | 12.3\% |
| Very Frequent | 2.0\% | 20,746 | 65 | 1,348,460 | \$135 | \$ | 182,042,114 | 16.0\% |
| Frequent | 6.0\% | 62,237 | 40 | 2,489,465 | \$125 | \$ | 311,183,100 | 27.3\% |
| Somewhat Frequent | 7.0\% | 72,609 | 18 | 1,306,969 | \$115 | \$ | 150,301,437 | 13.2\% |
| Occasional | 20.0\% | 207,455 | 3.5 | 726,094 | \$100 | \$ | 72,609,390 | 6.4\% |
| Intermittent | 16.0\% | 165,964 | 2 | 331,929 | \$75 | \$ | 24,894,648 | 2.2\% |
| Observational | 47.0\% | 487,520 | 1 | 487,520 | \$50 | S | 24,376,010 | 2.1\% |
| Total | 100.0\% | 1,037,277 |  | 9,179,901 |  | \$ | 1,138,826,418 | 100.0\% |

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Prepared by MMRC, Inc. June 19, 2014

## Appendix Exhibit 18

## 61-90 Minute Drive Time from Proposed Site



| Projected Gaming Demand Analysis Local Market 61-90 Minute Drive-Time |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2012 Adult Population | 7,392,919 | Gaming Propensity - 15.0\% |  |  | Gaming Population-1,108,938 |  |  |  |
| Gaming Frequency | $\begin{aligned} & \% \text { of } \\ & \text { Total } \\ & \hline \end{aligned}$ | Gamers | Gaming Days/Yr | Gaming Visits | Win Per Visit |  | RC Projected ing Demand | $\begin{gathered} \% \text { of } \\ \text { Rev } \\ \hline \end{gathered}$ |
| Avid Enthusiasts | 1.0\% | 11,089 | 150 | 1,663,407 | \$150 | \$ | 249,511,016 | 20.5\% |
| Highly Frequent | 1.0\% | 11,089 | 90 | 998,044 | \$150 | \$ | 149,706,610 | 12.3\% |
| Very Frequent | 2.0\% | 22,179 | 65 | 1,441,619 | \$135 | \$ | 194,618,593 | 16.0\% |
| Frequent | 6.0\% | 66,536 | 40 | 2,661,451 | \$125 | \$ | 332,681,355 | 27.3\% |
| Somewhat Frequent | 7.0\% | 77,626 | 18 | 1,397,262 | \$115 | \$ | 160,685,094 | 13.2\% |
| Occasional | 20.0\% | 221,788 | 3.5 | 776,256 | \$100 | \$ | 77,625,650 | 6.4\% |
| Intermittent | 16.0\% | 177,430 | 2 | 354,860 | \$75 | \$ | 26,614,508 | 2.2\% |
| Observational | 47.0\% | 521,201 | 1 | 521,201 | \$50 | \$ | 26,060,039 | 2.1\% |
| Total | 100.0\% | 1,108,938 |  | 9,814,100 |  | S | 1,217,502,866 | 100.0\% |

## Appendix Exhibit 19

## 91-120 Minute Drive Time from Proposed Site



| Projected Gaming Demand Analysis Local Market 91-120 Minute Drive-Time |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2012 Adult Population | 4,821,245 | Gaming Propensity - 10.0\% |  |  | Gaming Population-482,125 |  |  |  |
| Gaming Frequency | $\%$ of Total | Gamers | Gaming Days/Yr | Gaming <br> Visits | Win Per Visit |  | C Projected ng Demand | \% of Rev |
| Avid Enthusiasts | 1.0\% | 4,821 | 150 | 723,187 | \$150 | \$ | 108,478,013 | 20.5\% |
| Highly Frequent | 1.0\% | 4,821 | 90 | 433,912 | \$150 | \$ | 65,086,808 | 12.3\% |
| Very Frequent | 2.0\% | 9,642 | 65 | 626,762 | \$135 | \$ | 84,612,850 | 16.0\% |
| Frequent | 6.0\% | 28,927 | 40 | 1,157,099 | \$125 | \$ | 144,637,350 | 27.3\% |
| Somewhat Frequent | 7.0\% | 33,749 | 18 | 607,477 | \$115 | \$ | 69,859,840 | 13.2\% |
| Occasional | 20.0\% | 96,425 | 3.5 | 337,487 | \$100 | \$ | 33,748,715 | 6.4\% |
| Intermittent | 16.0\% | 77,140 | 2 | 154,280 | \$75 | \$ | 11,570,988 | 2.2\% |
| Observational | 47.0\% | 226,599 | 1 | 226,599 | \$50 | \$ | 11,329,926 | 2.1\% |
| Total | 100.0\% | 482,125 |  | 4,266,802 |  | \$ | 529,324,489 | 100.0\% |

## Appendix Exhibit 20

## 0-120 Minute Drive Time from Proposed Site



## Projected Gaming Demand Analysis <br> Local Market 0-120 Minute Drive-Time

| 2012 Adult Population | 17,820,738 | Gaming Propensity - 18.0\% |  |  | Gaming Population - 3,207,733 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Gaming Frequency | \% of <br> Total | Gamers | Gaming <br> Days/Yr | Gaming Visits | Win Per <br> Visit |  | RC Projected ming Demand | \% of Rev |
| Avid Enthusiasts | 1.0\% | 32,077 | 150 | 4,811,599 | \$150 | \$ | 721,739,889 | 20.5\% |
| Highly Frequent | 1.0\% | 32,077 | 90 | 2,886,960 | \$150 | \$ | 433,043,933 | 12.3\% |
| Very Frequent | 2.0\% | 64,155 | 65 | 4,170,053 | \$135 | \$ | 562,957,113 | 16.0\% |
| Frequent | 6.0\% | 192,464 | 40 | 7,698,559 | \$125 | \$ | 962,319,852 | 27.3\% |
| Somewhat Frequent | 7.0\% | 224,541 | 18 | 4,041,743 | \$115 | \$ | 464,800,489 | 13.2\% |
| Occasional | 20.0\% | 641,547 | 3.5 | 2,245,413 | \$100 | \$ | 224,541,299 | 6.4\% |
| Intermittent | 16.0\% | 513,237 | 2 | 1,026,475 | \$75 | \$ | 76,985,588 | 2.2\% |
| Observational | 47.0\% | 1,507,634 | 1 | 1,507,634 | \$50 | \$ | 75,381,722 | 2.1\% |
| Total | 100.0\% | 3,207,733 |  | 28,388,436 |  | \$ | 3,521,769,885 | 100.0\% |

Prepared by MMRC, Inc. June 19, 2014

## Appendix Exhibit 21

## Live! Natural Market Area Description

One thing to consider is that competitive facilities are available within this 120minute drive time Market Area. A new set of criteria was utilized to factor the impact of these facilities on the Proposed site. The boundaries used to establish this revised Market Area are based on the mid-point between each of the competitive facilities and the Proposed site, regardless of the actual drive time.

As previously mentioned, this revised Market Area is based strictly on distance with no consideration given to gaming options, hotel rooms and destination resort amenities. Within the 120-mile drive time Market Area there are only three properties that offer full service casino hotel features. All are over a 60-minute drive time from the Proposed site. In addition, the two closest competitive properties, Empire City and Resorts World, do not offer a full casino experience with "live" gaming tables. This feature has proved to be instrumental in attracting a more diverse and affluent customer base in other jurisdictions.

An example of how these boundaries were established is a data point was established 60-minutes from the proposed site towards the Foxwoods Resort, which represents the mid-point between the two sites, (2-hour drive time). In the case of the Empire City Casino, Yonkers, New York a data point was established 25-minutes from the proposed site, (50-minute drive time).

Exhibit \#8 depicts the Natural or Exclusive Slot Machine Player Market Area for each of the seven competing casinos within a 120-minute drive time of the Proposed Site.

Exhibit \#9 depicts this Natural or Exclusive Slot Machine Player Market Area for the Proposed Site.
\#8 - Slot Machine Players Natural Market Area for 7 Casinos within 2 Hour Drive Time Zone


## Appendix Exhibit 23

\#9 - Proposed Site Natural Market Area for Slot Machine Players


## Projected Gaming Demand Analysis - Slot Players Natural Market Area - Proposed Site

Est. 2012 Adult Population 1,015,766

$\left.$| Gaming Frequency | \% of <br> Total | Gamers |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | | Gaming |
| :---: |
| Days/Yr |$\quad$| Gaming |
| :---: |
| Visits |$\quad$| Win Per |
| :---: |
| Visit | | MMRC Projected |
| :---: |
| Gaming Demand | | \% of |
| :---: |
| Rev | \right\rvert\,


[^0]:    $\tau$
    2 Traffic Impact Report Mo................................................................................................ In Uncasville, Connecticut prepared for the Mohegan Tribe of Indians of Connecticut prepared by Close, Jensen, and Miller, P.C., January 1999.

[^1]:    $\tau$
    3 Traffic Impact Report Mohegan Sun Expansion Phase II Uncasville, Connecticut prepared for the Mohegan Tribe of Indians of Connecticut prepared by Close, Jensen, and Miller, P.C., January 1999. Table 4.

[^2]:    ${ }^{3}$ Box, Paul C. and Bunte, William. Gaming Casino Traffic. ITE Journal, March 1998, pp. 42-45.

