



Stantec

Stantec Consulting Services Inc.
1500 Spring Garden Suite 1100
Philadelphia PA 19130
Tel: (215) 665-7000
Fax: (215) 665-7001

November 22, 2013
File: 174811017

Attention: Nik Kharva
Orth Rodgers and Associates, Inc
301 Lindenwood Drive, Suite 130
Malvern, PA 19355

Dear Mr. Kharva,

**Reference: Live! Casino and Hotel by Stadium Casino, LLC
Response to Second Review**

Stantec has reviewed the comments regarding the Live! Casino and Hotel traffic impact study (TIS) contained in the review letter dated October 21, 2013. Stantec has addressed all of the comments and has incorporated them in this resubmission. The attached document details our responses to the comments. It should be noted that we have removed comments that were previously marked as "Resolved" from the attached comment sheet. Please don't hesitate to contact us if you have any additional questions or comments regarding our resubmission.

Regards,

STANTEC CONSULTING SERVICES INC.

George Cressman
Principal
Tel: (215) 665-7146
Fax: (215) 665-7001
George.Cressman@stantec.com

Adam Catherine, PE
Associate
Tel: (856) 234-0800
Fax: (856) 234-5928
Adam.Catherine@stantec.com



Pennsylvania Department of Transportation
 Engineering District 6-0
 7000 Geerdes Boulevard
 King of Prussia, PA 19406-1525
 Phone: 610-205-6661

Name of Project: Live! Casino
 Submission: Traffic Impact Study

Designer: Stantec
 Submission Date: November 22, 2013

REVIEWER INFORMATION	COMMENTS	DESIGNER RESPONSE	RESOLUTION
Orth-Rodgers & Assoc. for Engineering District 6-0 DATE: September 11, 2013 Is a resubmission required?: YES			
1. General	<p>A transportation Impact Study (TIS), prepared in accordance with Strike-of-letter 470-09-04 (Policies and Procedures for Transportation Impact Studies) must be submitted by the Applicant. The information submitted by the Applicant does not fully comply with PennDOT's TIS guidelines. A compliant TIS report will require vehicular/pedestrian counts at potentially impacted locations, additional trip generation/distribution methodology, existing/future capacity analysis and recommendations and conclusions. Below are components related to a TIS report (not limited to) that should be included when applicable</p>	<p>We have addressed the comments provided and have met the guidelines contained in Policies and Procedures for Transportation Impact Studies.</p>	
	<p>The crash data should be contained in a separate appendix from the main report. This appendix should also contain a confidentiality statement.</p>	<p>Exhibit 7 has been moved to Appendix D, and a confidentiality statement has been provided at the front of Appendix D. Appendix D will also be provided under separate cover.</p>	
	<p>Many of the existing signal plans in the appendix are unreadable. Can you please provide more readable copies (11"x17") in the next submission?</p>	<p>We improved the quality of the signal plans to the extent possible by not compressing the PDF.</p>	
	<p>Storage lengths should be calculated in accordance with Pub 46. Calculate storage using the method in Chapter 11.16 and also using the 95th percentile queue from an accepted traffic engineering software package. Available storage lengths should also be provided in the report.</p>	<p>Exhibit 11 has been added to the document to compare available storage lengths with anticipated average and 95th percentile queues. A discussion of the queue analysis has been added in the capacity analysis results sections of the report. Storage lengths for new storage bays are calculated in accordance with Pub 46. Calculations are shown in APPENDIX G.</p>	
	<p>However, the printouts included in the Appendix should provide input data such as Sat. Flow, Lane Width, Grade, PHF, T%, turn lane lengths, etc.</p>	<p>Synchro outputs have been updated to reflect this information.</p>	
	<p>The printouts included in the Appendix should provide input data such as Sat. Flow, Lane Width, Grade, PHF, T%, turn lane lengths, etc.</p>	<p>Synchro outputs have been updated to reflect this information.</p>	

2. Trip Gen/Dist.	Trip generation rates for the Casino seem in line with other available data. Also, since the existing hotel will be upgraded to fewer rooms, it appears that no additional trips should be added due to this land use. However, the addition of a 10,000 sf entertainment venue and 6,500 sf private event space should provide additional trips. Chances are that these facilities were not in use when the counts were done for the existing casinos.	The 10,000 SF entertainment venue has been eliminated from the site plan. Trips for the 6,500 SF private event space were generated utilizing LUC 931 (Quality Restaurant) because the ITE Trip Generation Manual does not contain a specific LUC for event space. Given that the event space will be part of one of the restaurant venues, and that the intended uses will likely result in patrons staying within the space for longer than one hour, "Quality Restaurant" provides the best approximation of activity within this space.	
Additional TIS Comments			
5	On page 35 of the study, the title for the last paragraph has information missing.	Fixed.	
6	On page 36 of the study, it states that Packer Avenue could be restriped to provide an additional WB left turn lane. Have the existing shoulders been constructed to accommodate vehicular traffic?	Although we do not have the information to confirm the pavement depth on the shoulder, a field assessment indicates that the shoulders have been constructed to handle vehicular traffic. A full assessment of pavement depth would be conducted during the design phase of the intersection improvements to confirm. A note reflecting this will be added to this section of the study.	
7	The count data in the Appendix should provide peak hour volumes, peak hour factors, truck percentages, etc. for each of the peak hours studied in the report.	Excel versions of the TMC data sheets have been provided and reflect the PHV, PHF, and % HV used in the analysis.	
8	In the Synchro model, it does not appear that the intersections of South Broad Street and Pattison Avenue are clustered together to operate as one signal.	Rather than using the cluster editor in Synchro, this intersection has been modeled using concurrent offsets referenced to the same phasing pattern. This provides the same effect as clustering. We found that this method also better accommodated the SB leading left-turn movement at this intersection.	
9	In the Synchro model, it does not appear that the intersections of South Broad Street and Packer Avenue are clustered together to operate as one signal.	Rather than using the cluster editor in Synchro, this intersection has been modeled using concurrent offsets referenced to the same phasing pattern. This provides the same effect as clustering. We found that this method also better accommodated the NB/SB left-turn movement at this intersection.	
10	The signal plan for Pattison Avenue and South 7th Street does not appear to be correct.	It should be noted that some of signal timing plans provided by the City were outdated. This was an issue at the Pattison Ave intersections with S 7th, S Darien, and S 11th. The signal plans provided for these intersections did not reflect the protected-permissive left-turn movements that were recently added. Therefore, we used the provided plans as a base and adjusted based on field measurements.	
11	In the Synchro model, at the intersection of Pattison Avenue and Penrose Avenue, the WB approach should be two left turn lanes, a left turn/through lane, and a right turn lane.	The geometry is correct in the model; however, since we provided Synchro outputs showing lane groups, lane groups with 0 volume did not show up. We have corrected this issue by providing the Synchro outputs showing the individual lane inputs.	
12	In the Synchro model, at the intersection of Pattison Avenue and South 7th Street, the WB approach should have a left turn lane.	The geometry is correct in the model; however, since we provided Synchro outputs showing lane groups, lane groups with 0 volume did not show up. We have corrected this issue by providing the Synchro outputs showing the individual lane inputs.	
13	In the Synchro model, at the intersection of Pattison Avenue and South 7th Street, the SB approach should be a left turn lane, a through lane, and a right turn lane.	The geometry is correct in the model; however, since we provided Synchro outputs showing lane groups, lane groups with 0 volume did not show up. We have corrected this issue by providing the Synchro outputs showing the individual lane inputs.	

14	In the Synchro model, at the intersection of Packer Avenue and South Darian Street, the WB approach should be a left turn lane, two through lanes, and a right turn lane.	Corrected in the model.	
15	In the Synchro model, at the intersection of Packer Avenue and South 10th Street, the EB approach is striped as a left turn lane, a through lane, and a through/right turn lane.	Corrected in the model.	
16	Level of Service requirements need to meet Step 10 of PennDOT's Policies and Procedures for Transportation Impact Studies. It states...the applicant will be required to mitigate the LOS if the increase in overall intersection delay is greater than 10 seconds. It also states...if the intersection LOS meets the level of service requirements, applicants may still be required to provide mitigation to address critical lanes or approaches. There are a few locations where the overall LOS degrades by more than 10 seconds or where critical lanes degrade significantly (to E, F, or worse F).	We have adjusted the report text to identify those intersections where overall LOS degrades more than 10 seconds, or where individual movements fail. The recommended improvements have also been adjusted to address these locations.	
	a) In the 2021 Build condition, the intersection of South Darian Street/I-76 EB Ramps and Packer Avenue degrades from LOS B (16.3) to LOS C (31.5) during the Friday Commuter Peak Hour.	See above.	
	b) In the 2021 Build condition, the northbound right turn at the intersection of S. Broad Street NB and Pattison Avenue degrades from LOS F (129.8) to LOS F (152.1) during the Friday Pre-event Peak Hour.	See above.	
	c) In the 2021 Build condition, the eastbound left turn at the intersection of S. Darien Street and the Garage Driveway is anticipated to operate at LOS F (64.8) during the Friday Pre-event Peak Hour.	See above.	
	d) In the 2021 Build condition, the intersection of South Darian Street/I-76 EB Ramps and Packer Avenue degrades from LOS B (16.1) to LOS C (27.3) during the Friday Casino Peak Hour.	See above.	
	e) In the 2021 Build condition, the intersection of South Darian Street/I-76 EB Ramps and Packer Avenue degrades from LOS B (14.6) to LOS C (30.6) during the Saturday Casino Peak Hour.	See above.	
17	The results of the 2016 Build with Improvements are not presented in Exhibits 8-11.	Added to Exhibits.	
18	Is queue pre-emption provided on the I-76 EB off ramp?	The provided signal plans do not indicate pre-emption.	
19	Provide pedestrian improvements in Tables E-1 and 4.	Added	