



September 6, 2013

PNGI1301

Nikhil Kharva, Project Engineer
Orth-Rodgers & Associates, Inc.
301 Lindenwood Drive, Suite 130 Malvern, PA 19355

RE: HOLLYWOOD CASINO TRAFFIC IMPACT STUDY REVIEW

Dear Mr. Kharva::

On behalf of Penn National Gaming, Inc., we are writing to summarize how the comments of your May 23, 1013 review letter concerning the above referenced study have been addressed. The revised Transportation Impact Study (TIS) is included with this submission for your review.

Listed below in italicized text are the original review comments with our responses to the comments indicated in bold text.

GENERAL COMMENTS

1. Transportation Impact Study Guidelines

A Transportation Impact Study (TIS), prepared in accordance with Strike-Off 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.

- a. *A transportation impact study must be signed and sealed by a professional engineer registered in Pennsylvania.*

The revised TIS is signed and sealed by a professional engineer on the cover page.

- b. *Include an Executive Summary.*

The TIS includes an Executive Summary on pages i-ix of the report.

- c. *All proposed driveways should be evaluated for capacity, sight distance, and queuing.*

An evaluation of the capacity, sight distance and queuing at the proposed driveway locations is included in the Site Access/Parking and Future Traffic Conditions sections of the TIS.

- d. *Include detailed traffic circulation within the proposed site.*

The TIS includes a description of the site traffic circulation in the Site Access/Parking Section of the report.

- e. *Provide a traffic signal warrant analysis for any proposed traffic signal location.*

Not applicable.

- f. *Provide crash data/history for critical intersections/roadway network. A summary of the crash analysis can be included in the report; however, actual crash records should be included within the appendix with a confidentiality statement on the cover. It is recommended to separate the crash record appendix from the main TIS report.*

A summary of the crash data analysis is provided in the report in Appendix E.

- g. *Traffic Signal and System Permit plans must be included in the traffic impact study.*

All traffic signal plans and timing directives provided by the City of Philadelphia are included in the TIS in Appendix C. It should be noted that a signal permit plan was not provided by the City for the S. Broad Street and Pollock Street intersection. Additionally, traffic signal timings were obtained from field measurements at intersections where the field conditions do not match the permit plans.

- h. *Street view photographs and/or aerial photos of the study intersections are preferred.*

Aerial photographs of all study intersections are included in the TIS throughout the report.

- i. *The trips generated from other proposed developments that may impact the project site study area also must be included in the projected trip analysis.*

Not applicable. There are no programmed developments on record in the study area.

- j. Include pedestrian distribution to/from venues and provide an access evaluation.*

Pedestrian volumes oriented to/from venues are included in Appendix A of the revised TIS. A pedestrian rate of 2% was assumed to account for pedestrians whose primary mode of transit is walking and also those utilizing public transportation that complete their trip on foot. The additional pedestrian volumes were distributed to the study area roadways and added to the existing pedestrian volumes for the Build conditions. A summary of the pedestrian distribution is included in the Trip Generation section of the report.

- k. Include an analysis of pedestrian activity at the intersections within the project limits, including the Applicant's proposed accesses, to determine if pedestrians are present. The determination if pedestrians are present must be based on pedestrian counts, a visual inspection of the site to determine if clearly defined walking paths are provided. The results of this analysis must be utilized to determine if and where pedestrian facilities must be provided.*

The traffic volumes collected at the study area intersections include pedestrian counts. The level of service/capacity analysis includes the volume of pedestrians counted at each intersection. A summary of the existing pedestrian accommodations at each study intersection is included in the Existing Conditions Assessment section of the TIS. The site will generate pedestrian activity at the signalized intersections along Packer Avenue from Broad Street to 7th Street and on Darien Street from Packer Avenue to the Sports Complex Venues. Pedestrian upgrades are proposed at the signalized intersections on Packer Avenue shown on page vi of the Executive Summary.

- l. Provide pedestrian capacity analysis following the 2010 HCM guidelines for intersections that are found to be impacted by the increase of pedestrian traffic generated by the casino. Include mitigation improvements for those areas with high pedestrian traffic.*

As discussed at the April 26, 2013 meeting for the Philadelphia Sport Complex Casinos Traffic Studies, an assessment of pedestrian facilities should be provided in lieu of the capacity analysis. Although we anticipate moderate to low increases in pedestrian traffic, we are proposing pedestrian improvements as noted above. A summary of the existing and proposed pedestrian accommodations is included in the TIS.

- m. Opening year analysis must be performed for the development. Future analyses must be performed for the horizon year, i.e. 5 years beyond opening year of the development when the first structure is in use and access is constructed to the State roadway. The report must be modified to reflect the opening year and Horizon year analysis for the development.*

The previous TIS included an analysis of the opening year (2016) and horizon year (2021) as required by PennDOT. The TIS has been revised to include an analysis of the Phase 2 development plan. The revised TIS includes an analysis of the opening year (2016), Phase 2 (2021) and horizon year (2026) conditions. The Existing Conditions, No Build and Build capacity analysis worksheets are included in Appendices D, F, J and K.

- n. Queue analyses for all signalized intersections and for unsignalized left turning lanes must be completed and stated in the report.*

A queue analysis of all study intersections is included in the TIS. The queue capacity analysis worksheets are included in Appendix D, F, J and K.

- o. Auxiliary lane warrant analysis, in accordance with Strike-Off Letter 470-08-07, must be included for the proposed conditions.*

An auxiliary turn lane warrant analysis has been conducted for all proposed site access locations. A summary of the results of the warrant analysis is included in the Site Access/Parkings section of the TIS and the worksheets are included in Appendix I.

- p. Include gravity model (a graphic is preferred).*

A gravity model with graphic is included in Appendix H of the revised TIS.

- q. Do not use default values on the traffic analysis inputs (saturation flow rates, utilization rates, etc.). Where existing traffic and pedestrian data is collected, actual values should be used.*

The capacity analysis has been modified utilizing the Pennsylvania Default Values as recommended in PennDOT Publication 46.

- r. A Level-of-Service Matrix per lane group must be provided. Including numerical delay value.*

A level of service matrix is provided in Appendix M of the TIS.

- s. The site accesses must function at a minimum level-of-service D for urban areas. Mitigation measures or restricted movements from deficient operation locations may be required to meet guidelines.*

All site access intersections will operate at an overall level of service D or better for all design scenarios.

- t. *All HCS and/or Synchro analysis worksheets and electronic files must be included for review.*

All Synchro analysis worksheets are included in Appendices D, F, J and K. The electronic files will be included with this submission.

- u. *All calculations and methodology must also be included in the report to justify the analysis and results.*

Calculations and methodology for all analysis are included in the appendices of the TIS.

- v. *The report should include conclusions and recommendations. Please note that the Developer/Applicant is responsible for mitigating all impacts resulting from the proposed development, unless there is another project under construction that will provide mitigation.*

An Executive Summary including conclusions and recommendations is included in the TIS on pages i-ix of the report. All improvements required to mitigate the impacts of the proposed development are detailed in the Recommendations Section starting on page 44.

- w. *If the recommendations include the elimination of on-street metered parking spaces, a revenue loss evaluation should also be provided.*

Not applicable.

- x. *Include taxi and bus operation/circulation to/from the site.*

Figures 3 and 4 of the report show the taxi/bus circulation respectively.

2. Trip Generation/Distribution & Mode of Arrival Methodology

- *Trip Rate (trip per gaming position) should be based on the average of no less than three existing casinos of comparable design. The three casinos listed are valid examples of existing casinos located in metropolitan areas. If trip rates are based on a different methodology please provide justification.*

A) *SugarHouse Casino (Philadelphia, PA)*

B) *Casino St. Charles (St. Louis, MO)*

C) *Hollywood Casino (Columbus, OH)*

The trip generation rate has been revised to be an average of three existing casinos as requested. The revised rate is based on traffic volumes obtained at the SugarHouse Casino (Philadelphia, PA), Rivers Casino (Pittsburgh, PA) and

Casino St. Charles (St. Louis, MO). The traffic volumes collected at each casino site are included in Appendix H of the revised TIS along with a summary of the trip generation rate calculations. The analysis has been revised with the updated trip generation rate.

3. Trip Generation/Distribution & Mode of Arrival Methodology

- *The “Executive Summary of the Interim Report of Findings” by the Philadelphia Gaming Advisory Task Force document should be utilized as a guide to develop trip methodologies. Data is provided for casino visitation patterns by time of day (Page 15, Table 3) and mode of arrival splits (Page 16, Graph 2). All analysis, calculations and back up data must be included in the report.*

Data contained in the *Interim Report of Findings* by the Philadelphia Gaming Advisory Task Force was utilized as noted on page 33 of the TIS. However, since the new trip generation rate calculated for this analysis was assumed to exclude multimodal trips, no multimodal trip reduction was taken.

4. Time of Day Requirement

- *The Philadelphia Gaming Advisory Task Force document states that a casino’s Friday visitation peak time is different from the Friday evening rush hour time (commuter peak). The TIS report should analyze both critical weekday and weekend peak time periods. Therefore, the following should be analyzed:*
 - A) Friday evening commuter peak hour (between 4-6 PM, all non-event intersections)*
 - B) Friday evening with pre-Phillies event peak hour (all intersections)*
 - C) Friday casino peak hour (between 7-10 PM, only for intersections on Packer Avenue from S. Broad St. to Front. St. and intersections on S. Front St. at the I-95 ramps)*
 - D) Saturday casino peak hour (Only for intersections on Packer Avenue from S. Broad St. to Front. St. and intersections on S. Front St. at the I-95 ramps).*

The TIS has been revised to include an analysis of the requested peak hours. The level of service matrix included in Appendix M of the TIS has been revised to include the additional peak hours.

TRAFFIC IMPACT STUDY COMMENTS

1. *The following are a list of intersections that the applicant should include in the study area. These locations are based on the Langan study area from the “Philadelphia Sports Complex Parking and Traffic Management Plan” report, September 21, 2010. The applicant is responsible to use this study as the basis for their evaluation. Please note that in addition to the Langan report’s study area intersections we have included intersections along W. Oregon Avenue due to the proximity to the area.*

1. *Penrose Avenue and Pattison Avenue*
2. *Pattison Avenue and S. Broad Street (Southbound)*
3. *Pattison Avenue and S. Broad Street (Northbound)*
4. *Pattison Avenue and S. 11th Street (Friday scenario with event only)*
5. *Pattison Avenue and S. Darien Street*
6. *Pattison Avenue and S. 7th Street*
7. *S. Broad Street (NB & SB) and Packer Avenue*
8. *S. Broad Street (NB & SB) and Pollock Street*
9. *Packer Avenue and S. 10th Street*
10. *Packer Avenue and S. Darien Street/I-76 Eastbound Off/On Ramps*
11. *Packer Avenue and S. 7th Street*
12. *Packer Avenue and S. Front Street*
13. *S. Front Street and I-76 Eastbound On Ramp (Unsignalized Intersection)*
14. *S. Front Street and I-76 Westbound Off Ramp/I-95 Southbound On Ramp*
15. *S. Front Street and I-95 (SB Off/NB On Ramps)/Dunkin Dounts Driveway*
16. *S. Broad Street (NB) and S. 11th Street (Friday scenario with event only)*
17. *S. Broad Street (SB) and I-95 SB Off Ramp*
18. *S. Broad Street (NB) and I-95 SB On Ramp*
19. *W. Oregon Avenue and S. Broad Street*
20. *I-95 SB and Exit 17 Off Ramp (Broad Street/Pattison Avenue) – Unsignalized Intersection*
21. *I-95 SB Off Ramp (Exit 19) and WB Packer Avenue – Unsignalized Merge Condition*

The study area has been expanded to include the requested intersections. The TIS has been revised to incorporate the expanded study area.

2. *Applicant will need to coordinate their traffic management plan with the existing operation plan for the sports complex facilities. For the analysis of all event periods, the TIS shall include details of the current operation plan. If any proposed changes to the plan are recommended, it shall be clearly noted in the TIS. All information related to the existing operation plan for the sports complex facilities can be obtained from the Philadelphia Street Department by contacting the Chief Traffic and Street Lighting Engineer.*

The TIS does not propose any changes to the traffic management plan. Traffic signal timings modifications and equipment upgrades are recommended to mitigate the impact of the proposed development as described in the Recommendations Section.

3. *Provide detailed pedestrian access information to/from each of the existing Sports Complex venues to the applicant's site.*

Pedestrian access information is provided in the TIS.

4. *The traffic study shall use the Sports Complex boundaries as indicated in the Langan Report (plus the four intersections on W. Oregon Avenue) for the study area. This previous report should also be sure to integrate the site's trip generation/distribution into the existing traffic management strategy plan (Langan Report dated September 21, 2010).*

The study area has been expanded to include the requested intersections. The generation/trip distribution was prepared based on an evaluation of the existing traffic patterns/traffic management operations, a gravity model, the anticipated characteristics of the development generated site traffic and the propose site accesses. A discussion of the site trip distribution is included in the Trip Generation section of the TIS.

5. *The TIS report was only completed for Phase 1 of the master plan. Please include all phases of the project to review the ultimate (full build out) condition of the project site, plus the 5 year horizon condition.*

As previously stated, the TIS has been revised to include an Opening Year 2016 (Phase 1) and Phase 2 2021 and Horizon Year 2026 analysis as requested.

6. *Only some of the existing signal permits were provided for review. Please include all existing signal permits in the study area for review.*

As previously stated, all existing signal permit plans provided by the City of Philadelphia are included in the TIS in Appendix C. It should be noted that a signal permit plan was not provided by the City for the S. Broad Street and Pollock Street intersection. Additionally, traffic signal timings were obtained from field measurements at intersections where the field conditions do not match the permit plans.

7. *The LOS value for the unsignalized intersection of S. Front Street and I-76 EB On-Ramp was provided; however, the capacity analysis output was not shown. Please provide the capacity analysis output worksheet for this and all study intersections for review.*

The capacity/LOS analysis worksheets for all study intersections are included in Appendices D, F, J and K the revised TIS.

I trust this letter adequately addresses PennDOT's comments relative to the TIS for this project. If you have any questions or need any additional information, please feel free to contact us at 215-222-3000 or via email at dferraro@pennoni.com and hlaspee@pennoni.com

Sincerely,

PENNONI ASSOCIATES INC.



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Enclosure

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