



ENGINEERS  
ARCHITECTS  
PLANNERS  
CONSTRUCTORS

3600 Horizon Boulevard  
Suite 250  
Trevose, Pennsylvania 19053-4900  
Voice 215.355.3577  
Fax 215.355.3147  
www.ekcorp.com

November 1, 2006

Mr. Glenn Rowe, P.E.  
Pennsylvania Department of Transportation  
Bureau of Highway Safety and Traffic Engineering  
Commonwealth Keystone Building  
400 North Street, 6<sup>th</sup> Floor  
Harrisburg, PA 17064

RE: Pennsylvania Gaming Control Board  
Riverwalk Casino TIS Review  
PennDOT Agreement E00229, Work Order 14  
EK Project No. 040015.038

Dear Mr. Rowe:

In accordance with Agreement E00229, Work Order 14, Edwards and Kelcey has completed its detailed review of the Riverwalk Casino Traffic Impact Study (TIS), dated December 2005, Supplemental TIS Letter dated September 25, 2006, and Response Letter to EK's preliminary review comments dated October 12, 2006, provided by Pennoni Associates Inc. Our review considered the applicant's completeness in meeting the standards set forth by PennDOT and the Institute of Transportation Engineers (ITE), as well as the completeness and reasonableness of their assumptions, calculations, findings, and conclusions.

Following are our comments and findings from the site visit and the review of the above-referenced documents:

Review of Submitted TIS for Conformance with Applicable Standards

1. Responses 2 and 8 in Pennoni's October 12, 2006 correspondence refer to the study's compliance with City of Philadelphia requirements. Edwards and Kelcey's scope for review included consideration of PennDOT, City, and ITE guidelines. Where they differ, the more stringent requirements were used. Professional judgment was used to evaluate the applicability of study requirements to the subject development. The casino development is anticipated to generate a significant volume of traffic, most of which is expected to use interstate access. Therefore, it is important to evaluate the traffic impacts on signalized and/or already congested intersections between the casino site and the interstate access points for both opening year, and 10-year horizon analysis periods.

2. Similar to item 1, PennDOT's requirements differ from the City's requirements for study horizon. While the City requires analysis of only the build year, PennDOT also requires analysis of ten years beyond the full build-out year.

#### Trip Generation

3. In response to preliminary review comment 7c, the report states that the nearest bus stop is at Spring Garden and Front Streets, two blocks west of the casino. This stop is served by Route 43, which then turns north on Delaware Avenue. An additional bus stop was observed on northbound Columbus Blvd. at Callowhill Street, served by Route 25 which travels along Columbus Blvd./Delaware Avenue and would pass directly in front of the site.
4. In response to preliminary review comment 7g, the report states that the casino developer intends to provide bus shelters along the frontage of the property. This improvement must be coordinated with SEPTA to ensure that the stop placement is compatible with the bus routes. A stop north of Spring Garden Street could potentially serve both SEPTA routes 25 and 43.
5. The Waterfront Square condominium development opened in September 2006 with approximately 300 units. The five-building development, when complete, will have between 780-966 units. The Riverwalk study included only 170 units, therefore the future traffic projections for Delaware Avenue do not include the full effect of the condo development. Further discussion and analysis should be completed to fully assess the casino's traffic impacts with the additional anticipated development traffic.

#### Analytical Approach/Tools Used

6. The Synchro analysis for the intersection of Delaware Avenue/Columbus Boulevard and Spring Garden Street shows a Right-Turn-on-Red (RTOR) reduction taken. RTOR are not permitted on the Delaware/Columbus approaches of that intersection. The analysis should be revised to reflect this condition, or show justification for lifting the restriction. Figure 1 and Figure 2 show the signs restricting turns.





Figure 1. No Turn On Red, Southbound Delaware Avenue



Figure 2. No Turn On Red, Northbound Columbus Boulevard

### Mitigation Measures

7. The existing raised median/striped median between Spring Garden Street and Noble Street is planned for a second northbound left-turn lane at Spring Garden Street and a southbound left-turn lane at Noble Street. Further discussion should evaluate the existing length and width of the median area; the required lengths of left-turn storage to accommodate the anticipated queues; and evaluation of the existing median/pavement width to accommodate the left-turn additions, including required tapers. A concept plan with dimensions would be helpful in verifying the feasibility of this improvement.
8. Figure 3 shows the Noble Street median break in the foreground, the striped median in the middle, and the curbed median near the turning bus.
9. The planned northbound right-turn lane at the Noble Street entrance will require removal of on-street parking and utility relocation (fire hydrant, light poles, and underground utilities). Figure 4 shows the approximate location of the site drive.
10. The second left turn lane on the southbound approach of Delaware Avenue at the Noble Street intersection might conflict with improvements outlined at Spring Garden Street due to back-to-back left turn lanes. A concept plan would be helpful to determine if the constructability of either side-by-side or back-to-back left turn lanes is feasible.
11. The bicycle facilities and pedestrian access should be maintained along Delaware Avenue near the Noble Street and Spring Garden Street intersections.





**Figure 3. Columbus Blvd. at Noble Street, Facing North**



**Figure 4. Proposed Site Entrance at Noble Street**

#### Other Comments

12. A conceptual site plan, not to scale, was provided. One consideration in review of the traffic study is whether internal site circulation is sufficient to accommodate arriving/departing traffic without negatively impacting the public roadways. It is not clear, with the information provided, whether traffic entering the site is free-flowing or whether the internal roadways have sufficient queue capacity to avoid traffic backing up onto Delaware Avenue. This should be discussed in further detail.
13. Adequate sight distance at the site driveways was noted. However, there was no analysis of crash data or discussion of existing safety deficiencies at the study intersections.

#### CONCLUSIONS

A detailed review of the Traffic Impact Study for the Riverwalk Casino site at Delaware Avenue and Spring Garden Street – Noble Street was conducted. The initial study was supplemented by comments dated October 12, 2006, which included itemized responses to the preliminary review comments.

The primary concerns remaining after the initial comments and response include the following:

- The scope of intersections included in the analysis was not sufficient. All signalized intersections between the casino site and interstate access should be included in the study.

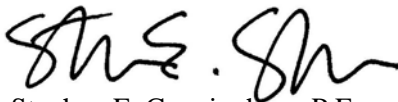
- An analysis for the build plus 10 years scenario, as required by PennDOT, was not included.
- Future traffic conditions on Delaware Avenue did not include the full impact of the Waterfront Square development, which will include condominiums with access to Delaware Avenue just north of the proposed casino site.
- The feasibility of constructing the recommended left-turn lanes is unknown at this time. A concept plan will assist in determining the feasibility of this improvement.

Additionally, as the plans are further refined and developed, the designers should:

- Review recent traffic accident statistics to determine the need for any safety measures.
- Be prepared to making operational adjustments to adapt to changing conditions.
- Resolve geometric design details.
- Initiate early coordination with utility agencies and companies regarding relocation needs associated with street and intersection improvements.
- Integrate public bus operations and stops with the roadway and site design.
- Ensure that vehicles entering the parking garage will not backup into public streets due to internal congestion.
- Develop a comprehensive signage system in coordination with other nearby destinations.
- Ensure compliance with all ADA requirements throughout the improvement areas.

This summarizes our comments related to the Traffic Impact Study for the Riverwalk Casino. We will be happy to further discuss any of these issues with you or you staff, or meet to clarify or elaborate on any of our findings. Please let me know if we can be of further assistance.

Very truly yours,



Stephen E. Cunningham, P.E.  
Project Manager

SEC/jp

cc: Paul Resch, Acting Secretary, Pennsylvania Gaming Control Board  
Devang Patel, P.E., Pennsylvania Department of Transportation  
Richard Sesny, Pennsylvania Department of Transportation  
EK Project Team

