Dee Dykes

From: Claudia Vecchio
Sent: Friday, March 13, 2015 5:14 PM
To: Claudia Vecchio
Subject: Symphony Park TID - Meeting Documents
Attachments: City Las Vegas Symphony Park TID - March 16 Presentation.pdf; Symphony Park TID Preponderance Study Staff Assessment.doc

Dear Lt. Governor and Commissioners:

Good afternoon. Attached please find materials in preparation for Monday's Symphony Park TID meeting. I hope, given all factors, we have provided you with the information needed to fulfill the Commission's responsibilities according to NRS 271A and NRS 360.855. Attached are:

- Preponderance study staff assessment
- City of Las Vegas presentation

Please let me know if you have any questions or concerns.

Thank you for your careful consideration of this matter.

Claudia

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Memorandum

To: Lt. Governor Mark Hutchison
NCOT Commissioners

From: Claudia Vecchio

Date: March 12, 2015

Re: Las Vegas Symphony Park Tourism Improvement District – Civitas/Oxford Economics Preponderance Study Assessment

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The City of Las Vegas, through its Symphony Park Project proposed Tourism Improvement District, has requested that the Nevada Commission on Tourism meet as a public body to determine whether, based on the stipulations outlined in NRS 271A.080(6), a preponderance of the increase in the proceeds from sales and use taxes in the proposed District will be attributable to transactions with tourists who are not residents of Nevada.

The staff of the Division of Tourism has provided the Commission with documents from the City of Las Vegas, the Clark County Board of Supervisors and various ancillary materials to help the Commission make this determination.

As a staff, we have reviewed the preponderance study provided by Civitas and Oxford Economics, and have consulted with a third-party economist to determine the validity of this study. Based on the current information, we believe the preponderance study is reasonable and is founded on solid research and economic principles. That conclusion was reached through the following exchange...

Upon review of the Civitas/Oxford Economics preponderance study, staff asked the following questions regarding the methodology and sources of the various data used to determine the preponderance finding:

1) How is the inverse relationship calculated on page 15? What is the source of the numbers that drive the shape of the demand density curve? How did they choose the exponent? Is the value of n = 2 based on a national calculation or was this specific the uniqueness of the Las Vegas Valley and/or more specifically, Downtown Las Vegas? Is there is a reference that shows how retail sales work as a function of distance from the mall?

2) On page 16, table 3 and page 17, table 4, there doesn't appear to be any description of the data sources and calculations that show how the local and non-local resident capture shares are derived. What data goes into determining these coefficients? Why are two different sets of Share Capture coefficients used in the two tables?

3) On page 22, where does the 10% calculation come from to determine the potential new students from the residential units? This seems to be quite low on the surface. Also, how about the students from the families of new employees, which also need to be considered.

4) On page 23, table 10, was there any consideration given with respect to the density associated with the high-rise apartments being considered in the TID with respect to the two different types of calculations presented? City average density is a lot lower than the proposed development.

The City of Las Vegas responded, on the date requested in the timeline, with the following answers:

1) *How is the inverse relationship calculated on page 15? What is the source of the numbers that drive the shape of the demand density curve? How did they choose the exponent? Is the value of n = 2 based on a national calculation or was this specific the uniqueness of the Las Vegas Valley and/or more specifically, Downtown Las Vegas? Is there is a reference that shows how retail sales work as a function of distance from the mall?*

   The demand density concept relates consumer choices to location and is based on retail gravity theory. As consumers we all have choices when we look for a retail location. So each of us has a relationship with all of our choices out there and we take into account various factors when deciding where to shop, such as price, quality, variety of options, and costs of travel to get to all those choices.

   Our relationship with all of our choices can be modeled and captured mathematically. Therefore, in the reverse direction, each store or retail location also has a relationship with all consumers in the surrounding region. Demand density, as an extension of the gravity theory of retail, captures a location's pull or draw of demand. The draw falls off the greater the distance and the degree of other choices in the region. In general, modeling patronage at a location as a function of distance is a common approach: "Virtually all models of retail competition and shopping behavior specify store patronage as a function of the distance from the store to the shopper's home" (Fox, Montgomery, and Lodish, 2004).

The approach we have taken is a simplified version of capturing this relationship. It is assumed that all other factors are held constant, using only distance from Symphony Park. The approach is intended to provide reasonable order of magnitude estimates in the absence of actual data, using the logic of retail gravity theory. With respect to the resulting estimates of local share of total sales, the intention is not to claim a high degree of precision and of course the actual number, which we will never know, could be higher or lower.

The choice of 2 as an exponent in the calculation is based on prior experience with actual data. The data used was provided by a national retailer covering approximately 20 locations and thousands of credit card transactions that indicated the zip code of the card holder and the amount of the transaction. The locations captured in this dataset were generally in the northeast region of the U.S, including New York, Pennsylvania, and several New England states. With this data we were able to gauge how reasonable demand density theory works, modeling the spatial dimension of demand with respect to a specific retail location – how much demand comes from each of the surrounding zip codes?

In exploring different specifications, the exponent in this functional form ranged between roughly 1.5 and 2.5, and other factors were controlled for, such as income and population density. The census definitions of urban and rural were used. For store locations in rural areas, specification with an exponent less than 2 tended to fit better. This indicated a greater reach as demand falls off less quickly and would be expected in rural areas where the retail location could be the only one in the area for many miles. For stores in urban areas, the exponent of 2 or more tended to fit the data better. This would reflect the likely competitive dynamics in an urban setting with many more choices for the consumer. The draw of any one store would drop off quickly with distance. A consumer 3 miles away would have little reason to come to the location when there is another similar choice a mile away in another direction, all else being equal.

The choice of 2 is as an exponent determines the shape of the curve and the speed with which local demand drops off. It is possible that the actual number could be less than or greater than 2. This specification is an assumption that we feel is reasonable given the lack of actual data in this case. An exponent less than 2 would be appropriate for a rural area. In an urban setting such as Las Vegas with many retail options, an exponent of at least 2 appears to be a reasonable starting point.

Articles and texts we came across that cover gravity theory, trade area, retail location theory, demand density, and model patronage at stores as a function distance include:

Anderson, Volker, and Phillips. Working Paper for the Journal of Management and Marketing Research. Covers gravity theory, trade area, and the "breaking point."
http://www.aabri.com/manuscripts/09219.pdf

Arentz, Borgers, and Timmermans (1993). A model of multi-Purpose shopping trip behavior. Papers in Regional Science.

Barnard and Hensher (1992). The Spatial Distribution of Retail Expenditures. Journal of Transport Economics and Policy.

Bell, Ho and Tang (1998). Determining where to shop: fixed and variable costs of shopping. Journal of Marketing Research.

Brown (1989). Retail Location Theory: The Legacy of Harold Hotelling. Journal of Retailing.

Dellaert et al, (1998). Investigating consumers' tendency to combine multiple shopping purposes and destinations. Journal of Marketing Research.

Dunne, Lusch, and Carver (2014). Retailing. Textbook, chapter 3 on market selection and location analysis. This text discusses demand density and site location analysis.

Fox, Postrel, and McLaughlin, (2007). The Impact of Retail Location on Retailer Revenues: An Empirical Investigation. Working paper submitted to the Journal of Marketing.

Fox, Montgomery, and Lodish (2004). Consumer Shopping and Spending Across Retail Formats. Journal of Business.

Hotelling (1929). Stability in Competition. Economic Journal.

Hubbard (1978). A review of selected factors conditioning consumer travel behavior. Journal of Consumer Research.

Huff (1964). Redefining and estimating a trade area. Journal of Marketing.

Reilly (1931). The law of retail gravitation. Knickerbocker.

2) *On page 16, table 3 and page 17, table 4, there doesn't appear to be any description of the data sources and calculations that show how the local and non-local resident capture shares are derived. What data goes into determining these coefficients? Why are two different sets of*

Share Capture coefficients used in the two tables?

The share captured in the first approach, intended to estimate the local share, is calculated as 1/(*Distance*^2)**MallAdj***IncAdj*. The mall adjustment captures the fact that about half of retail spending is done at malls and the income adjustment assumes that higher income households are more likely to shop at premium outlet malls. We estimated that about 40% of households in the region have annual incomes of at least $60,000. Without these adjustments the share of local residents' retail spending at the mall would be overestimated. The shares of sales captured in the second approach, for visitors based on the distribution of hotel rooms around Symphony Park, is calculated in the same manner without an income adjustment since visitors to Las Vegas are increasingly coming to the destination with shopping as one of the key motivations in addition to gaming and other recreational activities.

3) *On page 22, where does the 10% calculation come from to determine the potential new students from the residential units? This seems to be quite low on the surface. Also, how about the students from the families of new employees, which also need to be considered.*

We reviewed a series of studies on the population in high-density downtown-type areas similar to the Symphony Park proposal. Those studies indicated that the vast majority of the population in those types of areas do not have children, and moreover, that those who do have children tend to move to the suburbs once those children reach school age. Those studies indicated that between 4 and 7 percent of the population was families with children, which is 50 – 75% lower than the City's cumulative students per capita which is 15.5%.

We then considered the unemployment rate in Las Vegas, which at 7.7% is relatively high, and the jobs that will be created by the new development in the district. Because a portion of the jobs created will be filled by the existing unemployed (whose children, if any, are already enrolled in Las Vegas schools), and because a good portion of the jobs will be part-time or entry level positions likely filled by students and others who do not have children, an additional 15% reduction was applied to the 75%, to get to a 90% reduction.

4) *On page 23, table 10, was there any consideration given with respect to the density associated with the high-rise apartments being considered in the TID with respect to the two different types of calculations presented? City average density is a lot lower than the proposed development.*

> This was considered, and is part of the reason why there is a per-person and per-acre cost that provide a wide range for the actual potential cost. We looked at several studies on the cost of providing services to urban versus suburban areas and did find that urban tends to cost less, because it requires less infrastructure (for instance, actual police and fire stations, for which there is more need when the population is spread out) than a suburban environment.
>
> After reviewing the answers, our third-party economist stated that he believes the answers are reasonable. "They explain the information sources and the calibration of the model, which might have been included in the report itself but seem reasonable. They don't have anything much to say it seems about the wide range of the public cost estimates, but the analysis does not seem to turn on those."

Given the response by Civitas and Oxford Economics and the insights from our economist, the staff would submit that the preponderance study provided for the Symphony Park Project is a sound study from a research and economics standpoint.

While we have come to that conclusion, we have a lingering concern regarding the calibration of distance function and share captures associated with Table 3 and Table 4 and how these numbers were derived.

Any further validation from a third party economist would need to be completed through the State's RFP process and would take months to complete – outside the timeframe requested by the City of Las Vegas. Should the Commission determine additional validation is needed, this may be requested at the March 16 meeting. Please note, we did inquire of the economists housed within the State; however, this is seen as a conflict of interest so insight could not be given.

The Commission also is requested, pursuant to NRS 360.855(3)(b), to approve or not the use of proceeds of certain sales and use taxes generated in the proposed District for the purpose of prepaying, defeasing or otherwise retiring all or a portion of any bonds or notes issued for the District and to prepay certain other obligations with respect to the District.

This is a challenging issue for the Commission as it is asked to make a determination about the pre-payment of the bonds without any knowledge of the type, amount, or duration of the bonds. In the three step process: approval of the Tourism Improvement District, issuance of the bond(s) and the payment of the bond(s), the responsibilities of the Commission do not include any part of step two, yet it is asked to make a determination about step three.

Yes, prepaying bonds will result in a financial impact to the State and the County, but it is impossible to determine how much at this point.

Please let me know if you have any questions.

Thank you for your careful consideration of this matter.