From:	Clarke Miller
To:	José I. Farrán
Cc:	Wise, Viktoriya (CPC); Bollinger, Brett (CPC); Reilly, Catherine (CII); Kern, Chris (CPC); Van de Water, Adam (MYR); Kate Aufhauser; Mary Murphy; Luba C. Wyznyckyj; Paul Mitchell; Brian Boxer; Joyce
Subject:	Re: GSW at SF MB - Game Arrival Distribution
Date:	Sunday, January 18, 2015 6:18:18 PM

And thank you again to the City and consultant team for absorbing the additional time to perform this revised analysis. It's much appreciated.
Clarke

Clarke Miller
Strada Investment Group

On Jan 18, 2015, at 6:00 PM, José I. Farrán <jifarran@AdavantConsulting.com> wrote:

Thanks Clarke.

José I. Farrán, P.E.
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From: Clarke Miller [mailto:CMiller@stradasf.com]
Sent: Sunday, January 18, 2015 3:58 PM
To: José I. Farrán
Cc: Viktoriya Wise; Bollinger, Brett (CPC); Reilly, Catherine (OCII); Chris Kern; Van de Water, Adam; Kate Aufhauser; Mary Murphy; Luba C. Wyznyckyj; Paul Mitchell; Brian Boxer; Joyce
Subject: Re: GSW at SF MB - Game Arrival Distribution

Jose,
Thanks for the quick analysis and careful explanation. The GSW team is in agreement with your recommendations of Option 2 for arrivals and using the Oracle departure distribution.
Thanks,
Clarke

Clarke Miller
Strada Investment Group

On Jan 16, 2015, at 4:57 PM, José I. Farrán <jifarran@AdavantConsulting.com> wrote:

All,

Following our teleconference yesterday I have prepared the attached table that summarizes on one page the basketball venues for which Kate Aufhauser had provided us very detailed arrival distribution data. As discussed during the call, a key point is to establish the number of game attendees that could arrive during the peak hour of the typical commute period (4-6 PM). I have prepared and explanation below about how that could be accomplished for the transportation analysis of the proposed GSW project in Mission Bay.

The current arrival between 5 and 6 PM according to Oracle Arena data is 1 percent, which is in line with most the other venues shown in the table. Only Brooklyn (Barclays Arena) shows a higher percentage between 5 and 6 PM, about 2% in 2014-15 and 4% in 2014-15, most likely due to the retail and restaurant activities near the Barclays Arena.

The GSW Mission Bay project will provide a substantial amount of retail and entertainment uses next to the proposed arena. It can be therefore expected that there would be more earlier arrivals at the new site than are currently occurring at the Oracle Arena, where there are no other adjacent commercial/entertainment uses. The exact number of earlier arrivals is unknown, but based on the Brooklyn data, a total 4% to 5% arrival ratio between 5 and 6 PM seems reasonable. Similar to the Oracle Arena distribution, I am assuming that 1% of the attendees would arrive during the very first ½ hour during which any arrivals would occur (in this case 5:00 to 5:30 PM), increasing to 4% during the next period (5:30 to 6:00 PM), similar to Brooklyn. These assumptions are shown in the last two columns labeled Option 1 and Option 2.

The difference between Options 1 and 2 is about how to temporally distribute the remaining 95% of the arrivals. Under Option 1 all of the additional early arrivals (4%) are subtracted from those shown for the last time period (7:30 to 8:00 PM) at the Oracle Arena, with all the other periods remaining unchanged. Option 2 on the other hand, assumes that the 95% arrivals after 6 PM would be distributed in a similar way as those at the Oracle Arena, that is, the 4% of additional early arrivals has been subtracted proportionally from all the time periods between 6 and 8 PM.

Under either option the percentages for each time period are very similar, although my preference would be to select Option 2. I believe Option 2 to be somewhat stronger methodologically speaking, and it also provides a higher percentage of arrivals during the next peak hour (65% in Option 2 vs 64% under Option 1). The resulting transportation analysis would therefore be more conservative if we used Option 2.

I have also included in the table a calculation of the average arrival times at each venue before the start of the game in minutes; this represents the weighted average of the arrival function for all periods considered together. One can see that Option 2 has the earliest average arrival time (22 min) of all venues except Sacramento, and which is also close to the average shown for Brooklyn in 2014-15 (21 min).

By the way, the earlier average arrival (24.6 min) shown for Sacramento's Sleep Train Arena (known before as the Arco Arena) can probably be explained by the way that the arrival data was collected at that site. The arrivals were measured at the parking lot entrances as opposed to the arena turnstiles, which would add 5 to 10 minutes for patrons to arrive at

the arena itself. Thus, it is likely that the actual average arrival time at the Sacramento arena would be between 14.6 and 19.6 minutes.

For your information, based on surveys collected by the SF Giants in 2007, the average arrival time before the start of a baseball game at AT&T Park is 35 minutes for a weekday evening game and 37 minutes for weekend evening game.

In summary, if we were to choose Option 2 as a reasonable arrival distribution at the MB arena, we would be assuming that five times more event attendees (5% vs 1%) would arrive at the site during the peak commute period compared to the Oracle Arena, resulting in all attendees arriving 21% minutes earlier on average (22.2 vs 18.3 minutes) at the proposed arena compared to the existing venue.

Let me know if you all agree with this approach (Option 2) or if you believe that a different method should be used instead. We would need to have this item resolved by Monday at noon in order to maintain the schedule we discussed yesterday.

On a related matter, we have not discussed if there would be any changes to the departure time distribution assumptions between the Oracle Arena and the MB site. I believe that the departure times would be less likely to be affected by the surrounding uses, but if they were, it would mean that fewer attendees than currently assumed would be using the transportation infrastructure during the hour following the end of the game (the peak hour for project departures). Thus, the current assumptions would represent a more conservative approach to the transportation analysis.

Any comments on this topic are welcomed as well.

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<GSW at SF MB Temporal Arrival Distribution 2015 01 16.pdf>